

THE CATALOGUE





THE PDF CATALOGUE

Easy to use

THE PDF CATALOGUE GIVES YOU A FAST ROUTE...



... to the table of contents

Just one click to the table of contents: The doorway to our range of products – your one-stop shop for modular pipe systems. Try it out!

... to our products

Quickly find your product of choice: To save you the page-turning, we have made the table of contents “clickable”.

This way, you can quickly find what you are looking for.

1	GENERAL INFORMATION	5	
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... backwards and forwards

Navigating the chapters is easy and intuitive.

The chapter icons on every left-hand side lead you back to the table of contents.

The chapter section symbols to the right can be clicked on, allowing easy navigation within a chapter.



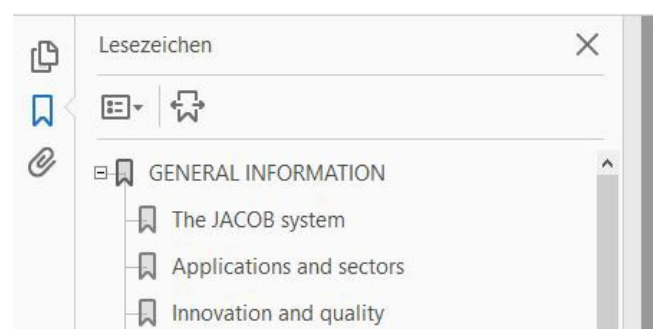
GENERAL INFORMATION

The JACOB system



... using bookmarks

You can move directly to any chapter or page using the structure tree.







CONTACT US
+49 571 9558-201



EFFICIENT SALES

A warehouse with over 1 million articles ensures that our standard parts are available at any time. Within a very short time if sent by express. Thanks to our ultra-modern production processes, we also manufacture individual parts to your specification. This guarantees great planning and project reliability for your pipework system.



CUSTOMER SERVICE

Do you have any questions about planning your pipework system? Or about the right material to use? Or about the performance of particular components? No matter what you need before, during and after the purchase of a JACOB pipework system – our customer service is always on hand to help you!



A DIRECT PERSONAL LINK

Our team is available to give you their personal attention. Please don't hesitate to call us if you have any questions, criticisms or suggestions which you would like to share with us, or if you need support or would like to place an order – we will be pleased to assist you in person.



SOCIAL MEDIA

Be up to date at any time: our Facebook page will keep you informed each day about innovations, trade fair presence and much more besides. It's also easy to start up a conversation with us there. We look forward to your posts!



YOUTUBE CHANNEL

On JACOB's YouTube channel you will find numerous videos about our products and innovations from our company. Our explanatory videos inform you quickly and easily about how our modular pipework system works and what advantages our products have.



THE INFORMATIVE WEBSITE

It's worth a visit: Have a look at our website. No matter whether you want to find out what's new or are looking for technical background knowledge on JACOB products: you will find what you're looking for on our website.



THE NEW WEBSHOP

The JACOB online shop has it all: our new online shop has all the features you are used to from large e-commerce providers. Whether you want to check availability, use the project management tool, see your ordering history or track delivery with the track & trace feature – we've never had such a user-friendly online shop before.



THE WHOLE WORLD

JACOB is proud to have such a big global team behind it. With our subsidiaries and reps, we are on the ground worldwide and so are just as globally present as you are.



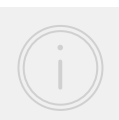
NO.1 IN PIPEWORK SYSTEMS













Order number key



Worldwide presence



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THERE ARE THREE FACTORS WHICH ARE
DECISIVE FOR JACOB'S SUCCESS:
INNOVATION – QUALITY – SERVICE

DEAR CUSTOMERS AND PARTNERS,

Since Friedrich Jacob founded our factory over 90 years ago, the company has stood for great products and a dedicated workforce. We are rightly proud of this. Today, there are three factors which are still decisive for JACOB's success: Innovation – Quality – Service.

It was on the basis of an **innovation** that JACOB was founded in the first place. The idea was to no longer manufacture pipework on an individual basis, but to mass-produce components to form a modular system. Even today, the company is shaped by innovations: These range from fast and reliable connections with QUICK CONNECT, hygienic transport with FOOD GRADE and reliable protection from contamination through DETECTABLE DESIGN – the advances we make are for the benefit of our customers. And we have plenty of other ideas as well!


For us, **quality** means first and foremost the quality of our products. Using the most modern production methods and perfectly coordinated materials, we ensure that our pipework systems do exactly what the name JACOB suggests. But quality for us also means the pragmatism and dependability that comes with a family run enterprise.

Our service means that we are always there for our customers. We want to make our products as accessible and easy to handle as possible – from placing an order to servicing them. One example of this is our new online shop. This not only offers all the features of a modern e-commerce shop but also has numerous convenience features that are tailored to your needs and simplify and speed up your order. Another example is our logistics centre which makes us even faster and more reliable than ever. Service for us also means being there on the ground wherever our customers need us. We are therefore have 40 agencies and five subsidiaries all over the world.

JACOB would be pleased to support you with your projects. No matter whether you order from this catalogue or from our online shop (www.jacob-shop.com): JACOB is and remains your dependable partner.

Patrick Jacob

Dr. Uwe Braun









JACOB IS WHEN INNOVATION,
QUALITY AND SERVICE RESULT
IN A PERFECT WHOLE



GENERAL INFORMATION

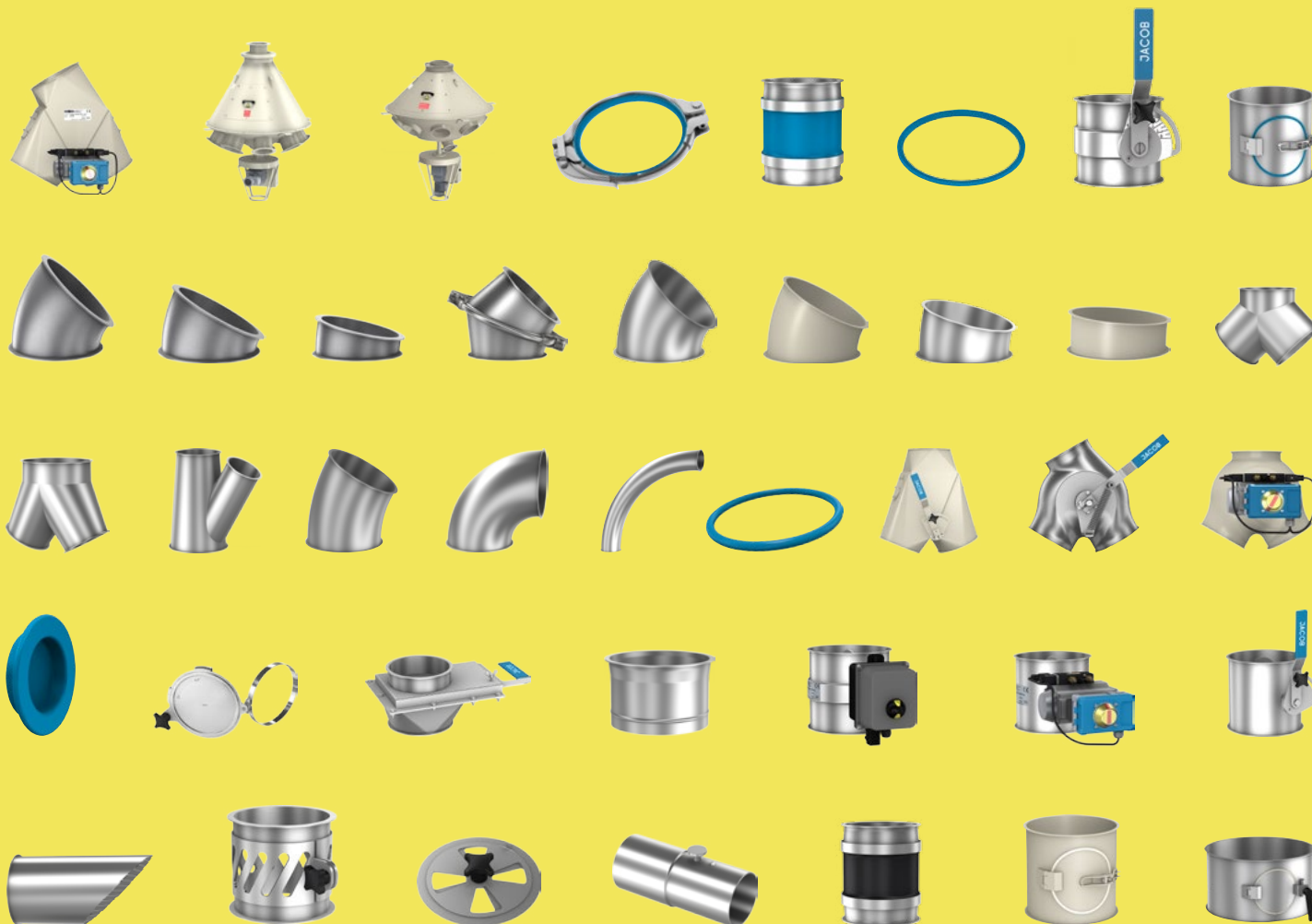
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GENERAL INFORMATION

The JACOB system



JACOB DIVERSITY

- Over 8,000 standard parts
- Diameter 60 – 1600 mm
- Wall thicknesses from 1 to 3 mm
- Stainless steel
- Mild steel: powder-coated or hot-dip galvanised







GENERAL INFORMATION

The JACOB system



Explanatory video
modular
pipework system

THE JACOB SYSTEM

There's a system behind what JACOB does: top quality standards, an outstanding innovative spirit and an uncompromising choice of materials. Profound knowledge of the industry, customer orientation and expertise based on more than 90 years' experience. International customer support, excellent service and round-the-clock availability. The result is perfect modular pipe systems and satisfied customers throughout the world.

THE DIFFERENCE

Other pipe systems are specially produced for a project and welded together on site. JACOB has come up with a far more efficient way: Standard modular parts with lipped ends are fitted with a U-shaped seal and joined together with a pull-ring. This system is fast, tight and flexible.

THE PRINCIPLE

The pipe components have a machine-lipped end turned out at right angles. The U-shaped seal is fitted over one of these lipped ends. A pull-ring is used to join the two pipe components together. This is either attached with two bolts or – if a QUICK CONNECT pull-ring is used – in one easy movement. For special applications, JACOB also supplies its pipes with a welded flange or a loose flange connection.

RELIABILITY

Anyone who thinks that this easy connection principle is second-rate compared to welded pipe systems is mistaken. These connections can be used at differential pressures of up to 0.5 bar and form a condensation leak-proof seal, making them ideally suited for extracting oil mist. There are even special versions of JACOB pipework systems that are up to 10 bar shock explosion proof.



THE DIVERSITY

JACOB components can be used to configure even the most complex pipe systems. Our range of products comprises of 8,000 standardised parts. And if that's not enough, we are pleased to manufacture customised parts for you, which will allow you, for example, to connect our pipe system to your existing systems and machines.

FLEXIBILITY AND INSTALLATION-FRIENDLY

Our pipe system guarantees the utmost flexibility due to its modular design. Existing systems can be freely expanded and modified.

Our pull-ring system can be assembled and dismantled in a matter of seconds. This reduces downtime, saves assembly costs and enables your installations to be cleaned efficiently.

DELIVERY CAPABILITY

We currently store over 1,000,000 parts in our logistics centre. We have additional warehouses at our subsidiary companies and agencies and so offer you fast availability of €15,000,000 worth of parts throughout the world. Pipe diameters of up to DN 400 mm can normally be dispatched straight from our logistics centre in Porta Westfalica.

QUALITY

We offer you a pipe system of the very highest quality. We develop and build key elements of our machinery, such as flanging machines, ourselves in order to guarantee the outstanding leaktightness and longevity of our products. We invest continually in new production technologies, machinery and processes to expand our quality leadership on an ongoing basis.



BULK GOODS HANDLING

Gravity chute systems



DUST EXT- RACTION AND EXHAUST AIR

Environmental technology



LOW PRESSURE CONVEYING

Product and air conveying





APPLICATIONS AND SECTORS

JACOB pipework systems are condensation leak-proof and the materials and workmanship are of outstanding quality. These properties make them the perfect choice for numerous applications and sectors.

The JACOB pipework system offers flexibility in use in virtually every sector, from conveying sensitive foodstuffs or pharmaceutical products, or conveying granulates in the chemical or plastics industry, right up to extracting dust or oil mist in the automotive or metal-working industry.

All sectors which involve conveying raw materials and products or extracting contaminated air will benefit from installation-friendly JACOB pipework systems. They are particularly appreciated in the following sectors due to their high quality, tightness and their flexibility:

CONVEYING BULK GOODS

Grains in any form	Food, beverage and tobacco	Chemicals, pharmaceuticals, plastics
Cereals	Spices	Polyamides
Concentrated feed	Coffee	Intermediate products
Seeds	Tobacco	Pharmaceuticals
	Sugar	Granulate
	Rice	
	Animal feed and pet food	
	Confectionery	

DUST EXTRACTION AND EXHAUST AIR

Metal-working	Food, beverage and tobacco	Chemicals, pharmaceuticals, plastics
Degreasing systems	Dusts	Dusts
Oil mist	Fumes	Lacquers
Welding fumes		Fumes
Grind dusts		

LOW PRESSURE CONVEYING

Recycling	Wood and paper	Chemicals	Air conditioning
Electronics	Paper	Polystyrene	Printing companies
Plastic	Wood	PU foam	Cleanrooms
Glass	Wood shavings		Cereal cooling
	Pellets		



GENERAL INFORMATION

Innovation and quality





INNOVATIONS AND QUALITY

Innovations are our way of helping our customers to move forward – quality is a matter of course.



FOOD GRADE LINE

JACOB sets standards in food safety. Our new FOOD GRADE line of products complies with both the European EC 1935/2004 regulations and the American FDA guidelines. All components that come into contact with food are made exclusively of high grade stainless steels. In addition, we use adhesive-free vulcanised U-shaped seals and ring seals: They are more resistant to chemicals, temperature and tearing than glued rings.



THE DETECTABLE DESIGN RANGE

Foreign particles in a product are not acceptable in many sectors. Up to now, it was practically impossible to trace gaskets and seals, or even just parts of them, in the product flow. JACOB has succeeded in incorporating miniscule particles in the compound that the gaskets or seals are made of. If gaskets or seals get into the product flow, such as during maintenance work, these can now be reliably detected by metal detectors and then removed. This makes the DETECTABLE DESIGN range an indispensable safety factor.



THE QUICK CONNECT PRINCIPLE

JACOB pipework systems take less time to install than conventional systems. Using the QUICK CONNECT pull-ring makes it even quicker, however. It only takes a few quick turns of the hand to join two sections of pipe together or to separate them again. This is a great advantage! This is particularly the case with pipe systems that require to be dismantled regularly for cleaning and maintenance.

EXPLOSION SAFETY AND ELECTROSTATIC CONTINUITY

JACOB pipework systems, if configured accordingly, are shock explosion proof to 43.51 or 145.03 psi overpressure. Particularly when conveying solids and gases that have a tendency to explode, this is an important safety factor. To ensure that this does not happen, JACOB pipework systems can be installed in such a way that they are completely electrostatically conductive.



GENERAL INFORMATION

Online shop for convenient ordering





JACOB online shop

ONLINE SHOP FOR CONVENIENT ORDERING

Unique in the sector: The new JACOB online shop (www.jacob-shop.com). You have been able to shop with us for a long time – but now you enjoy the convenience that up to now only big internet traders have been able to offer.

AVAILABILITY

Our online shop is open all hours. Whenever you are working on planning an installation, whenever you are looking for a spare part and wish to order it: the entire JACOB online shop is at your disposal right round the clock.

TRANSPARENCY

Availability is shown in real time. So you can be sure that the item you have ordered really is in stock. And if the delivery is on its way, you can use the “track & trace” function any time to find out where it is and how long it will take. If you need something in a hurry, our next-day service will get it to you the following working day.

CONVENIENCE

The JACOB online shop is easy to use. Enter your contact details, manage your projects, enter your own customer item number when ordering or view your order history any time. You can also order special components by uploading your data and place express orders.

www.jacob-shop.com





MATERIALS

High-grade materials, perfect workmanship: This is the basis for the particular quality of our products.

Pipework and press-formed components in mild steel

Mainly the following materials:

- DD11 (1.0332) to DIN EN 10111
- DD11 (1.0335) to DIN EN 10111
- DD11 (1.0330) to DIN EN 10130
- DC04 (1.0338) to DIN EN 10130

Corrosion protection through powder coating, priming (spray painted) or hot-dip galvanising

Flanges and mounting brackets in structural grade carbon steel

S235JR (1.0038) to DIN EN 10025-2

Corrosion protection through powder coating, priming (spray painted) or hot-dip galvanising

Pipework and press-formed components in stainless steel

Suitable for moderate to medium corrosive environmental conditions (CRC 2 to DIN EN 1993-1-4).

Primarily for use in the food industry. Mainly the following materials:

- 1.4301 (X5CrNi18-10), AISI 304, ASTM A240, A480, A 666
- 1.4307 (X2CrNi18-9), AISI 304L, ASTM A240, A480, A 666

To restore the corrosion resistance and to create a uniform surface finish, these materials are stainless steel shotblasted as standard.

Available on request

Stainless steels for higher corrosive environmental conditions (CRC 3 to DIN EN 1993-1-4).

Primarily for use in the chemical and pharmaceutical industry.

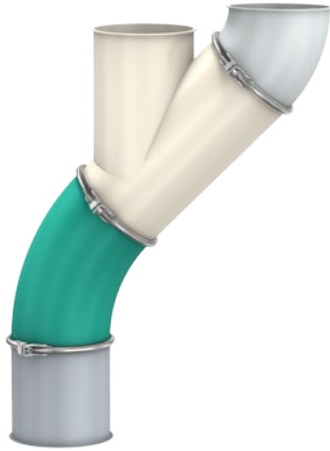
- 1.4404 (X2CrNiMo17-12-2) AISI 316L, ASTM A 240
- 1.4571 (X6CrNiMoTi17-12-2), AISI 316Ti, ASTM A 240

As standard, components are pickled in a bath and passivated by storing in the open air to restore their corrosion resistance. Prices and delivery time on request. Other materials that are not explicitly mentioned can also be offered after examining their processability.



GENERAL INFORMATION

Materials and special finishes



FINISHING

To prevent damage due to corrosion in mild steels, our components are protected to enable them to withstand the general ambient conditions. JACOB has different product groups to offer for this purpose for the stainless steel modular pipework system: powder-coated, spray primed or galvanised components.

Corrosion protection through powder coating or spray priming

Powder coating:

- Pretreatment: Thin film iron phosphate coating
- Powder coating primer from DN 60 to 630 mm
- Silk gloss, smooth polyester resin binder-based powder coating
- Its constituents comply with the Food and Drug Administration (FDA) requirements of regulation 21 CFR 175.300 for direct contact with food
- Temperature resistance: from -60°C to +120°C
- Electrostatically conductive
- Colour similar to RAL 7032 (pebble grey)
- Coating thickness on the outside: average layer thickness 55 µm
- Coating thickness on the inside: optically covered as temporary corrosion protection

Priming (spray painted):

- Generally used with pipework > DN 630 mm
- Inner and outer priming
- Coating thickness: average layer thickness 45 µm
- Colour similar to RAL 7032 (pebble grey)

More colours:

- Choose from more than 3,000 colour and effect variations
- Final outside painting of pipe components and pressed components in a coating thickness of approx. 80 µm

Options:

- Structured coatings and high-gloss effects
- UV protection
- Inner coating free from spray mist possible at additional cost with spray priming



Costs:

Extra costs for special colour or quality outside paint topcoat (DN 60–DN 630 mm):

1 and 1.5 mm pipework: 16%

2 mm pipework: 12%

3 mm pipework: 10%

Extra costs for special colour or quality outside paint topcoat > DN 630 mm on request.

Minimum price for final paint topcoat € 60 (fixed price), extra cost for shut-off valves, distributors and two-way valves:

DN	Shut-off valves, two-way distributors / two-way valves, non-return valves	Pipe regulators, Outlet gates
	€	€
60 to 175	22.00	38.00
200 to 300	28.50	43.50
350 to 400	34.50	50.00
from 450 upwards	43.50	59.50

Corrosion protection through hot-dip galvanisation

- Pipe components described as "galvanised" are all hot-dip galvanised
- Hot-dip galvanising to DIN EN ISO 1461
- Average layer thickness (minimum values) depends on the thickness of the steel:
 - <1.5 mm: 45 µm
 - ≥1.5 mm to ≤3 mm: 55 µm
 - ≥3 mm to ≤6 mm: 70 µm
- Temperature-resistant to 200°C
- During hot-dip galvanisation, irregularities may occur in the colour and structure of the surface

Corrosion protection through galvanisation

- E.g. for pull-rings, air regulators, ball joints and other accessories
- Galvanisation according to DIN 50979 Fe//Zn8//An//T0 colourless to iridescent colour
- Layer thickness approx. 10 µm
- Temperature-resistant to 120°C



GENERAL INFORMATION

Types of connection and dimensions

OUR CONNECTIONS AND DIMENSIONS


Our modular pipework system is distinguished by its diversity and its top quality. We have the right type of connection in our range for virtually all applications involving bulk goods conveying, air and dust exhaust extraction, and low-pressure conveying: from the JACOB pull-ring system and loose flange system to welded-on flanged pipework.

Nominal diameters and dimensions are given in millimetres.

Inside diameter

The JACOB pull-ring system



DN (mm)	ND (inch)	Ø d with a wall thickness of				Lip width 6 mm	QUICK CONNECT pull-ring		Pull-ring without sealant	Pull-ring with sealant	Pull ring one-part with sealant
		1 mm	1.5 mm	2 mm	3 mm						
60	2¼	57				■			■		
80	3	78	77	76		■		■	■		■
100	4	100	100	99		■		■	■		■
120	5	120	120	119	118	■		■	■		■
140	5½	136	136	135		■		■	■		
150	6	150	150	149	148	■		■	■		■
175	7	175	175	174	173	■		■	■		■
200	8	200	200	199	198	■		■	■		■
224	9	220	220	219		■		■	■		
250	10	250	250	249	248	■		■	■		
280	11	278	277	276		■		■	■		
300	12	300	300	299	298	■		■	■		
315	12½	313	312	311		■		■	■		
350	14	350	350	349	348	■		■	■		
400	16	400	399	398	396	■		■	■		
450	18	450	449	448	446	■		□	□	■	
500	20	500	499	498	496	■			□	■	
560	22		559	558	556	■			□	■	
630	25		629	628	626	■			□	■	
710	28			707	705						
800	31½			797	795						
900	35½			897	895						
1000	39			997	995						
1120	44			1117	1115						
1250	49			1247	1245						
1400	55				1398						
1600	63				1598						

DN = Nominal diameter

■ Standard

□ Optional, use depends on application



Tolerances:

- Pipe diameter and roundness – DIN EN 10296-1
- Lengths and angles – DIN ISO 2768-1 – tolerance class V
- Excluded: Segments and transition pieces with a gradient, angle tolerance $\pm 1^\circ$
- The wall thickness of drawn or ground partial areas may differ
- JACOB flanges similar to DIN 24154, P2

The JACOB flange system

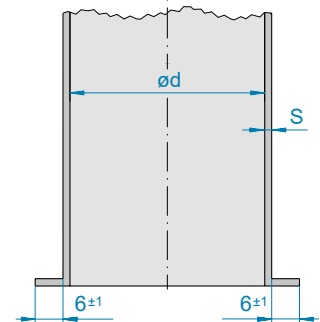
DN (mm)	ND (inch)	Lip width		Loose flange	Welded flange	10 bar shock explosion proof
		6 mm	10 mm			
60	2¼	■		<input type="checkbox"/>	<input type="checkbox"/>	
80	3	■		<input type="checkbox"/>	<input type="checkbox"/>	■
100	4	■		<input type="checkbox"/>	<input type="checkbox"/>	■
120	5	■		<input type="checkbox"/>	<input type="checkbox"/>	■
140	5½	■		<input type="checkbox"/>	<input type="checkbox"/>	
150	6	■		<input type="checkbox"/>	<input type="checkbox"/>	■
175	7	■		<input type="checkbox"/>	<input type="checkbox"/>	■
200	8	■		<input type="checkbox"/>	<input type="checkbox"/>	■
224	9	■		<input type="checkbox"/>	<input type="checkbox"/>	
250	10	■		<input type="checkbox"/>	<input type="checkbox"/>	■
280	11	■		<input type="checkbox"/>	<input type="checkbox"/>	
300	12	■		<input type="checkbox"/>	<input type="checkbox"/>	■
315	12½	■		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
350	14		■	■	<input type="checkbox"/>	<input type="checkbox"/>
400	16		■	■	<input type="checkbox"/>	<input type="checkbox"/>
450	18		■	■	<input type="checkbox"/>	<input type="checkbox"/>
500	20		■	■	<input type="checkbox"/>	<input type="checkbox"/>
560	22		■	■	<input type="checkbox"/>	<input type="checkbox"/>
630	25		■	■	<input type="checkbox"/>	<input type="checkbox"/>
710	28		■	■	<input type="checkbox"/>	
800	31½		■	■	<input type="checkbox"/>	
900	35½		■	■	<input type="checkbox"/>	
1000	39		■	■	<input type="checkbox"/>	
1120	44		■	■	<input type="checkbox"/>	
1250	49		■	■	<input type="checkbox"/>	
1400	55				■	
1600	63				■	

DN = Nominal diameter

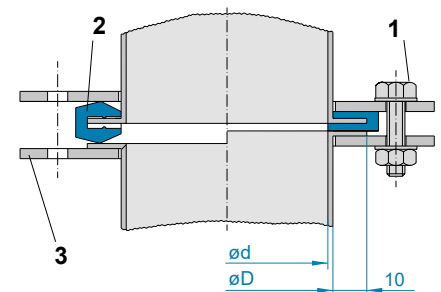
■ Standard

☐ Optional, use depends on application

■ Price on request



JACOB pipework system with a lip for pull-ring connection



JACOB loose flange system

1 Mounting bolts

2 U-shaped seal for 10 mm lip

3 Loose flange to DIN 24154, P2



GENERAL INFORMATION
History and international





OUR FAMILY-OWNED ENTERPRISE

Our business has been in the family since it was founded in 1924. This makes JACOB particularly flexible and so is able to work in partnership and react fast to customers' needs and the demands of the market. Our company stands out with its clear values and sense of responsibility. We are conscious of the fact that JACOB owes its existence and success to its workforce. This is why we are committed to all the people who work at JACOB, in the same way that they are dedicated to the company.

OUR HISTORY

Even in the nineteen-fifties, JACOB turned its focus to the manufacture of pipework systems and developed a modular system which is distinguished by its connections using flanged lips, U-shaped seals and pull-rings. We have continued to perfect this principle right up to today and have become market leaders in our industry.

OUR EXPERTISE

The secret of JACOB's exceptional quality lies in our expertise, which we have built up over more than 60 years' experience with modular pipework systems. JACOB has a large number of in-house developed and self-built tools for accurately producing pressed components, such as drawn bends, valves and pull-rings. Added to this, we have designed and built our own machines for the lip flanging process and high-performance automated manufacturing. In tandem with our innovative development department, we are therefore able to guarantee flawless engineering and a consistently high standard of quality.



THE WHOLE WORLD

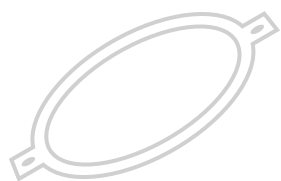
JACOB is a globally active company which supports its customers all over the world with its five subsidiaries in Germany, France, Italy, the UK and the USA, and a presence in some 40 countries. We are able to count reputable customers from all sectors of industry both in Germany and abroad among our long-standing and satisfied customers. Expanding this leading position and building on the confidence that our customers place in us is our goal.

- **JACOB**
locations
- **JACOB**
subsidiaries
- **JACOB**
headquarters











JACOB PULL-RING SYSTEM:
EASY TO INSTALL,
MAXIMUM TIGHTNESS



THE PULL-RING SYSTEM

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THE PULL-RING SYSTEM

Technical information



Explanatory video

PULL-RINGS



DN	QUICK CONNECT pull-ring ¹⁾	Pull-ring without sealant ¹⁾	Pull-ring with sealant	One-part pull-ring with sealant
60		■		
80	■	■	■	■
100	■	■	■	■
120	■	■	■	■
140	■	■	■	
150	■	■	■	■
175	■	■	■	■
200	■	■	■	■
224	■	■	■	
250	■	■	■	
280	■	■	■	
300	■	■	■	
315	■	■	■	
350	■	■	■	
400	■	■	■	
450	□	□	■	
500		□	■	
560		□	■	
630		□	■	

1) Use in conjunction with U-shaped gasket

■ Standard

□ Optional, use depends on application

Pull-rings made of mild steel are electro-galvanised in the standard quality. Stainless steel pull-rings are stainless steel shotblasted. Electrolytic polishing or ball-polishing is also available on request.



Details of leakage values for the pull-ring system

QUICK CONNECT PULL-RINGS AND PULL-RINGS WITHOUT SEALANT

Highlights: The JACOB pull-ring system is very easy to assemble and gives the pipework system its high stability and leak-tightness due to its high-quality construction. Both pull-rings have been tested in conjunction with JACOB U-shaped seals. The air leakage per connection, measured at a differential pressure of 0.5 bar – e.g. with a diameter of 300 mm – is far below the admissible values of DIN EN 12237, class D.

Application: Up to a diameter of DN 300 mm, our pull-ring system with a U-shaped seal, if configured accordingly, is condensation leak-proof and so is ideal for applications such as extracting oil mist. As a rule, our pull-ring connections with a U-shaped seal can be used for conveying bulk goods and for ventilation systems at over-pressures of up to 50,000 Pa (500 mbar, 5,000 mm WG). Vacuum applications are possible on request, depending on the product selected.

PULL-RINGS WITH FACTORY-FITTED MASTIC SEALANT

Application: The elastic sealant in the pull-ring is EC 1935/2004 compliant and can be used in contact with food product in the temperature range between -40°C and +100°C.

This pull-ring is used for bulk goods conveyed by gravity and ventilation systems with low differential pressures and without condensates. For higher demands concerning sealing properties and the resistance of the connection, pull-rings with U-shaped seals should be preferred.





U-SHAPED SEALS

Our U-shaped seals combine an ideal profile with the perfect choice of materials.

The benefits:

- Tear-resistant, compliant with food regulations (FOOD GRADE) and resistant to many aggressive chemicals thanks to vulcanisation
- Maximum tightness through an ideal profile
- Resistant to a broad range of substances due to large selection of materials available
- Metal-detectable and FOOD GRADE thanks to special materials (DETECTABLE DESIGN line)



NBR	Silicone		Silicone		EPDM	 ¹⁾	Viton (FKM)	
grey white	beige		blue		black		reddish brown	
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA		FOOD GRADE: EC 1935/2004 plus FDA		FOOD GRADE: EC 1935/2004 plus FDA ¹⁾		FOOD GRADE: EC 1935/2004 plus FDA	
-20°C to +100°C	-60°C to +250°C		-60°C to +250°C		-30°C to +120°C		-18°C to +230°C	
glued	vulcanised		vulcanised		vulcanised		vulcanised	
			metal-detectable		electrostatically conductive			

1) We would like to point out that only certain diameters are FDA compliant, other diameters are currently under review. See page 33 for details

Refer to the technical information at the beginning of this chapter and in the installation instructions (see next page) for more details. The temperatures given indicate the permanent temperature resistance. U-shaped seals must be tested by the user to ensure they are sufficiently resistant to the working conditions. Our team would be pleased to assist you with selecting the right U-shaped seal. We can send you samples on request.



Without contact caps



With contact caps


EARTHING BRIDGES

The innovative solution from JACOB for electrostatic continuity.

Suitable for retrofitting to our pull-ring system without welding and drilling. The stainless steel earthing bridge can be used as an alternative to the earthing wire or the conductive EPDM U-shaped seal.

Both versions of earthing bridge have been tested by DEKRA EXAM GmbH, a specialist unit for explosion protection.

 FOOD GRADE
EC 1935/2004 plus FDA compliant

 DETECTABLE DESIGN
Metal-detectable



THE PULL-RING SYSTEM

Installation instructions






Installation instructions
for the pull-ring system

INSTALLATION OF PULL-RING CONNECTIONS WITH A U-SHAPED SEAL

Pull-rings are used in conjunction with U-shaped seals to connect pipe components and pressed components with a 6 mm lip. The use of different U-shaped seal profiles enables the same pull-ring to be used with 1 to 2 mm thick pipe components and pressed components.


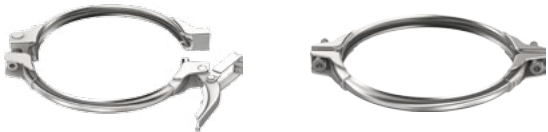
To meet the different requirements of every system, JACOB offers a comprehensive and wide-ranging standard range which covers most requirements.

U-shaped seals

Profile for 1 mm wall thickness				Profile for 2 and 3 mm wall thickness				
NBR, silicone, Viton		EPDM conductive		NBR, silicone, Viton, EPDM conductive For 3 mm wall thickness, the use of U-shaped seals made of NBR or silicone is recommended. Only in conjunction with the pull-ring for 3 mm pipework.				
								
Pipe component B	Wall thickness pipe component A			Wall thickness pipe component A			Wall thickness pipe component A	
	1 mm	1.5 mm	2 mm	1 mm	1.5 mm	2 mm	2 mm	3 mm
1 mm	■	■	■					
1.5 mm	■	■				■		
2 mm	■				■	■		■
3 mm							■	■

Refer to page 29 for more technical information on pull-rings.

Pull-rings

QUICK CONNECT pull-ring		Pull-ring (without sealant)
		

Refer to page 28 for more technical information on pull-rings.

GENERAL INSTALLATION INFORMATION ON CREATING LEAK-PROOF CONNECTIONS

- Repair damaged lipped ends (align)
- Eliminate any unevenness from the lipped end
- Assemble the pipework tension-free
- Ensure when fitting the pull-ring that the U-shaped seal does not form any loops
- Support horizontal pipework roughly every 4 metres. If there are several short pipe components in the pipeline, the interval between supports should be reduced
- Attach branch pipes so that they do not generate any tension in the main pipeline
- Tighten the bolts of two-part pull-rings evenly on both sides
- Re-tighten the pull-rings after 24 hours to ensure they are as leak-proof as possible

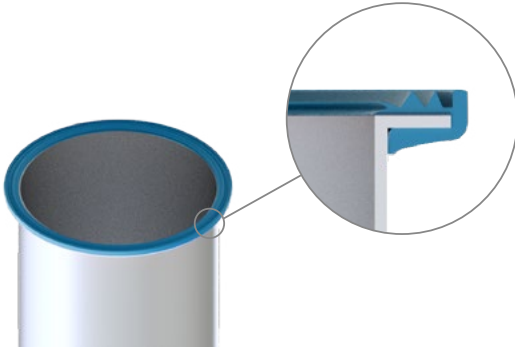
INSTALLATION OF PULL-RING CONNECTIONS WITH A U-SHAPED SEAL

Note: To connect JACOB pipe components with a 6 mm lip. A U-shaped seal and a pull-ring are needed for each connection. You need a 6 mm hexagon cap screwdriver to mount the pull-rings.

Step 1

Attach a U-shaped seal over one of the lipped pipe ends.

- The U-shaped seal must be slightly stretched to enable it to be attached
- The profiled side must face the pipe component that is being connected



Step 2

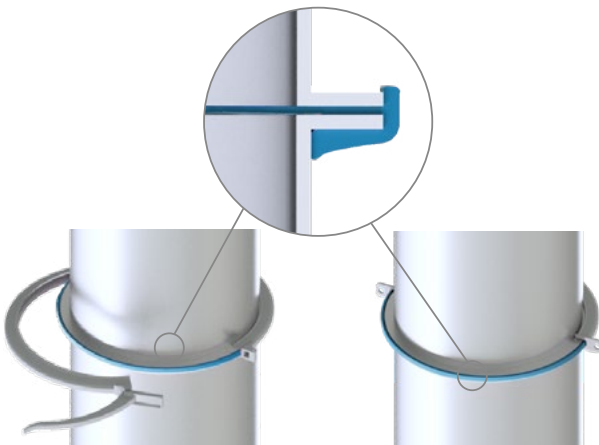
Position the connecting pipe and slide one pull-ring half over the lipped pipe end.

QUICK CONNECT pull-ring

First, attach the pull-ring half without the toggle clip

Two-part pull-ring

We recommend separating the two halves of the pull-ring beforehand



Ensure that the pipe components are properly aligned and the U-shaped seal is in the right position.

Note: We recommend that when fitting horizontal pipelines where condensate occurs, any points at which the U-shaped seal is glued should be positioned on top, and the connecting points of the pull-ring halves are horizontal. This ensures the maximum possible tightness at the lowest point of the connection.

Step 3

Press the second pull-ring half onto the lipped pipe ends.

N.B.:

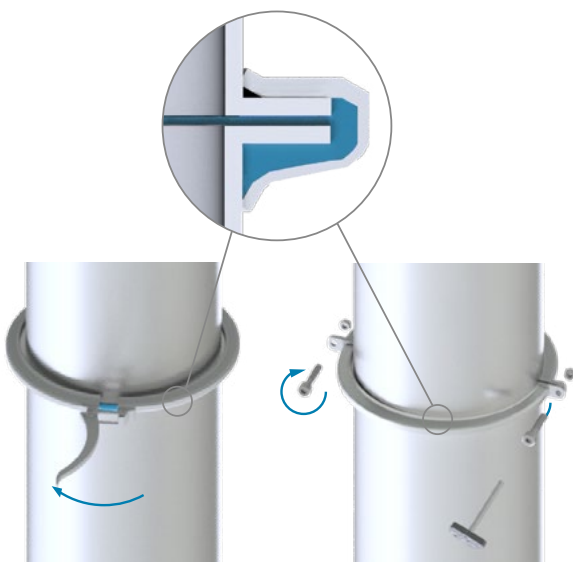
When closing the pull-ring, the U-shaped seal must not form any loops.

QUICK CONNECT pull-ring

- Place the clasp over the closing hook and close the clip
- To prevent the connection from loosening accidentally (such as due to vibration) tighten the bolt with a 10 Nm torque on the mounting face

Two-part pull-ring

- Tighten the bolts evenly with a torque of 10 Nm

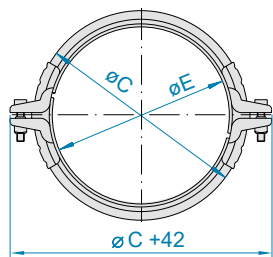
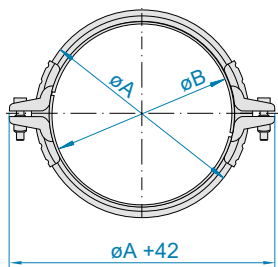
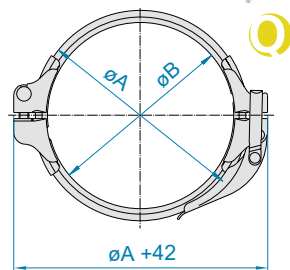


N.B.: A bolt tightening torque of 10 Nm is necessary for the QUICK CONNECT pull-ring, or 25 Nm for the two-part pull-ring, for shock explosion proof connection of up to 3 bar over-pressure.



THE PULL-RING SYSTEM

Pull-rings



QUICK CONNECT

Pull-rings with a U-shaped seal, in conjunction with the pipe components indicated in the catalogue, shock explosion proof tested up to 3 bar.

QUICK CONNECT PULL-RINGS

3085

- Pull-rings for use in conjunction with U-shaped seal for 1 and 2 mm pipework system
- Up to DN 300 mm, shock explosion proof to 3 bar
- Please also read and take into account the technical information given at the beginning of this chapter

Pull-rings for 1 and 2 mm wall thickness

DN	A	B	kg	Electro-galvanised		Stainless steel	
				Item no.	€	Item no.	€
80	100	80	0.35	12082903	8.10	12083903	17.90
100	123	103	0.37	12102903	8.10	12103903	17.90
120	143	123	0.40	12122903	8.30	12123903	18.50
140	159	139	0.45	12142903	8.50	12143903	19.10
150	173	153	0.47	12152903	8.50	12153903	19.10
175	198	178	0.49	12172903	9.00	12173903	19.70
200	223	203	0.51	12202903	9.60	12203903	20.40
224	243	223	0.55	12222903	12.00	12223903	23.10
250	273	253	0.58	12252903	12.00	12253903	23.10
280	301	281	0.61	12282903	13.00	12283903	24.10
300	323	303	0.62	12302903	13.00	12303903	24.10
315	336	316	0.63	12312903	16.30	12313903	29.40
350	373	353	0.68	12352903	19.30	12353903	33.80
400	423	403	0.74	12402903	24.20	12403903	42.80
450	472	450	0.79	12452903	30.10	12453903	50.80

PULL-RING WITHOUT SEALANT

3060

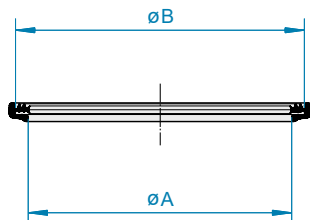
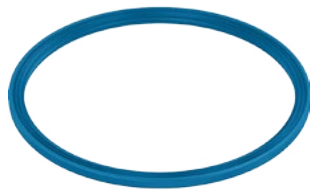
- Pull-rings for use in conjunction with U-shaped seal for 1 and 2 mm pipework system
- From DN 80 to 300 mm, shock explosion proof to 3 bar
- Pull-ring for 3 mm wall thickness, in conjunction with U-shaped seal made of NBR or silicone for 2 mm pipe-work system
- Please also read and take into account the technical information given at the beginning of this chapter

Pull-rings for 1 and 2 mm wall thickness

Pull-rings for 3 mm wall thickness

DN	A	B	kg	Electro-galvanised	Stainless steel	C	E	Electro-galvanised	Stainless steel
				Item no.	€			Item no.	€
60	81	60	0.30	12062383	6.10	12063383	17.30		
80	101	80	0.31	12082383	6.10	12083383	17.30		
100	125	104	0.33	12102383	6.10	12103383	17.30		
120	145	124	0.36	12122383	6.30	12123383	17.80	151	126
140	161	140	0.37	12142383	7.00	12143383	18.90		
150	175	154	0.39	12152383	7.00	12153383	18.90	181	156
175	200	179	0.42	12172383	8.50	12173383	20.50	206	181
200	225	204	0.45	12202383	9.10	12203383	21.30	231	206
224	245	224	0.47	12222383	9.60	12223383	23.70		
250	275	254	0.51	12252383	9.60	12253383	23.70	281	256
280	302	281	0.55	12282383	12.10	12283383	27.40		
300	325	304	0.57	12302383	12.10	12303383	27.40	331	306
315	337	316	0.58	12312383	13.30	12313383	27.90		
350	375	354	0.63	12352383	14.10	12353383	28.50	381	356
400	425	404	0.68	12402383	16.20	12403383	29.50	431	406
450	478	450	0.73	12452383	19.70	12453383	32.10		
500	524	500	0.78	12502383	23.20	12503383	33.40		
560	586	560	0.83	12562383	27.30	12563383	35.30		
630	656	632	0.90	12632383	31.00	12633383	37.30		

U-shaped seals








U-SHAPED SEALS






3070

- For use in conjunction with JACOB pull-rings and pipe-work system with a 6 mm lip
- U-shaped seals for 1 mm pipework system**, also for connecting 1 mm to 1.5 mm, 1 mm to 2 mm and 1.5 mm to 1.5 mm thick pipe components
- U-shaped seals for 2 mm pipework system**, also for connecting 2 mm to 1.5 mm thick pipe components
- For 3 mm thick pipe components, the use of U-shaped seals made of NBR or silicone is recommended for a 2 mm pipework system
- Please also read and take into account the technical information given at the beginning of this chapter

U-shaped seals for 1 mm pipework system

DN	A	B	NBR grey		Silicone beige 		Silicone blue  		EPDM black  ¹⁾		FKM red 	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	69	100669517	1.20	1006795109	2.00	10067951091	3.70	1006895159	2.00	10069951	7.60
80	81	93	100869517	1.30	1008795109	2.20	10087951091	4.00	1008895159	2.20	10089951	8.20
100	103	115	101069517	1.60	1010795109	2.30	10107951091	4.40	1010895159	2.30	10109951	9.30
120	123	135	101269517	1.70	1012795109	2.40	10127951091	4.80	1012895159	2.40	10129951	10.30
140	139	151	101469517	1.80	1014795109	2.60	10147951091	5.10	1014895159	2.60	10149951	11.50
150	153	165	101569517	1.80	1015795109	2.60	10157951091	5.40	1015895159	2.60	10159951	12.00
175	178	190	101769517	1.90	1017795109	2.80	10177951091	5.90	1017895159	2.80	10179951	12.40
200	203	215	102069517	2.20	1020795109	2.90	10207951091	6.30	1020895159	2.90	10209951	13.40
224	223	235	102269517	2.40	1022795109	3.30	10227951091	6.70	1022895159	3.30	10229951	16.20
250	253	265	102569517	2.40	1025795109	3.30	10257951091	7.10	1025895159	3.30	10259951	17.70
280	280	292	102869517	2.50	1028795109	3.60	10287951091	7.70	1028895159	3.60	10289951	19.40
300	303	315	103069517	2.60	1030795109	3.60	10307951091	8.20	1030895159	3.60	10309951	20.60
315	315	327	103169517	2.70	1031795109	4.00	10317951091	8.30	1031895159	4.00	10319951	21.50
350	353	365	103569517	2.90	1035795109	4.00	10357951091	9.00	1035895159	4.00	10359951	23.60
400	403	415	104069517	3.30	1040795109	4.60	10407951091	9.90	1040895159	4.60	10409951	26.20
450	450	470	104569517	3.80	1045795109	5.40	10457951091	10.80	1045895159	5.40	10459951	29.10
500	500	516	105069517	4.60	1050795109	5.70	10507951091	11.90	1050895159	5.70	10509951	32.00
560	560	578	105669517	5.50	1056795109	6.30	10567951091	13.10	1056895159	6.30	10569951	35.30
630	632	648	106369517	5.80	1063795109	7.20	10637951091	13.60	1063895159	7.20	10639951	39.60

U-shaped seals for 2 mm pipe system, NBR and silicone also suitable for 3 mm pipe system

DN	A	B	NBR grey		Silicone beige 		Silicone blue  		EPDM black  ²⁾		FKM red 	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	81	93	100869527	1.30	1008795209	2.20	10087952091	4.00	1008895259	2.20	10089386	8.20
100	103	115	101069527	1.60	1010795209	2.30	10107952091	4.40	1010895259	2.30	10109386	9.30
120	123	135	101269527	1.70	1012795209	2.40	10127952091	4.80	1012895259	2.40	10129386	10.30
140	139	151	101469527	1.80	1014795209	2.60	10147952091	5.10	1014895259	2.60	10149386	11.50
150	153	165	101569527	1.80	1015795209	2.60	10157952091	5.40	1015895259	2.60	10159386	12.00
175	178	190	101769527	1.90	1017795209	2.80	10177952091	5.90	1017895259	2.80	10179386	12.40
200	203	215	102069527	2.20	1020795209	2.90	10207952091	6.30	1020895259	2.90	10209386	13.40
224	223	235	102269527	2.40	1022795209	3.30	10227952091	6.70	1022895259	3.30	10229386	16.20
250	253	265	102569527	2.40	1025795209	3.30	10257952091	7.10	1025895259	3.30	10259386	17.70
280	280	292	102869527	2.50	1028795209	3.60	10287952091	7.70	1028895259	3.60	10289386	19.40
300	303	315	103069527	2.60	1030795209	3.60	10307952091	8.20	1030895259	3.60	10309386	20.60
315	315	327	103169527	2.70	1031795209	4.00	10317952091	8.30	1031895259	4.00	10319386	21.50
350	353	365	103569527	2.90	1035795209	4.00	10357952091	9.00	1035895259	4.00	10359386	23.60
400	403	415	104069527	3.30	1040795209	4.60	10407952091	9.90	1040895259	4.60	10409386	26.20
450	450	470	104569527	3.80	1045795209	5.40	10457952091	10.80	1045895259	5.40	10459386	29.10
500	500	516	105069527	4.60	1050795209	5.70	10507952091	11.90	1050895259	5.70	10509386	32.00
560	560	578	105669527	5.50	1056795209	6.30	10567952091	13.10	1056895259	6.30	10569386	35.30
630	632	648	106369527	5.80	1063795209	7.20	10637952091	13.60	1063895259	7.20	10639386	39.60

**VULCANISED
AND MORE TEAR-
RESISTANT QUALITY.**

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

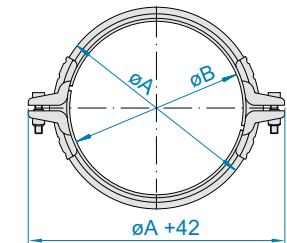
1) DN 60, 80, 100, 120 and 150 mm are FDA compliant. Other diameters are currently under review.

2) DN 80, 100, 120 and 150 mm are FDA compliant. Other diameters are currently under review.

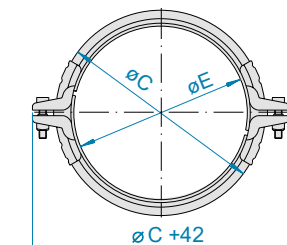


THE PULL-RING SYSTEM

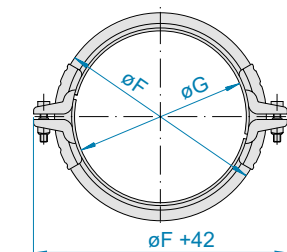
Pull-rings with mastic sealant



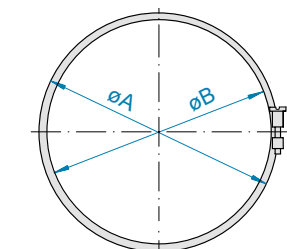
for 1 mm



for 2 mm



for 3 mm



Product similar to picture

PULL-RING WITH SEALANT

3050

- All versions electro-galvanised
- Pull-rings for 1 mm also suitable for connecting 1 mm to 1.5 mm or 2 mm thick pipe components
- Pull-rings for 2 mm also suitable for connecting 2 mm to 1.5 mm thick pipe components
- In larger diameters, pull-rings for 3 mm are used for all wall thicknesses

Pull-rings for 1, 2 and 3 mm wall thickness

DN	A	B	kg	For 1 mm pipework system		C	E	For 2 mm pipework system		F	G	For 3 mm pipework system	
				Item no.	€			Item no.	€			Item no.	€
80	99	80	0.23	11082381	5.10	100	80	11082382	5.20				
100	121	102	0.26	11102381	5.10	123	103	11102382	5.20				
120	141	122	0.28	11122381	5.70	143	123	11122382	6.10	145	124	11122383	6.70
140	157	138	0.30	11142381	6.10	159	139	11142382	6.70				
150	171	152	0.33	11152381	6.10	173	153	11152382	6.70	175	154	11152383	7.50
175			0.34	11172382	7.10	198	178	11172382	7.10	200	179	11172383	9.00
200			0.38	11202382	7.50	223	203	11202382	7.50	225	204	11202383	9.70
224			0.40	11222382	7.80	243	223	11222382	7.80	244	223	11222383	10.20
250			0.42	11252382	8.30	275	254	11252382	8.30	275	254	11252383	10.20
280			0.47	11282382	9.80	302	281	11282382	9.80				
300			0.50	11302382	9.80	325	304	11302382	9.80	325	304	11302383	13.40
315			0.53	11312383	13.70	337	316	11312383	13.70				
350			0.68	11352383	14.70			11352383	14.70	375	354	11352383	14.70
400			0.75	11402383	17.00			11402383	17.00	423	402	11402383	17.00
450			0.81	11452383	20.00			11452383	20.00	473	452	11452383	20.00
500			0.88	11502383	23.00			11502383	23.00	523	502	11502383	23.00
560			0.95					11562383	27.30	583	562	11562383	27.30
630			1.05					11632383	31.10	653	632	11632383	31.10

ONE-PART PULL-RINGS WITH SEALANT

3055

- All versions galvanised
- Pull-rings for 1 mm also suitable for connecting 1 mm to 1.5 mm thick pipe components

Pull-rings for 1 mm wall thickness

DN	A	B	kg	1 mm	
				Item no.	€
80	97	80	0.04	11082372	4.70
100	119	102	0.05	11102372	4.70
120	139	122	0.06	11122372	5.00
150	169	152	0.07	11152372	5.40
175	194	177	0.08	11172372	5.70
200	219	202	0.09	11202372	6.60



EARTHING BRIDGES WITHOUT CONTACT CAPS

1400

- Engineered by JACOB for electrostatic continuity
- Patented and tested
- Recommended in conjunction with the two-part pull-ring with or without sealant (pages 32 and 34)
- Independent of the temperature and resistance
- Recommended for use in conjunction with galvanised pipe components or stainless steel surfaces
- Please also read and take into account the technical information given at the beginning of this chapter

Item no.	€/pack of ten
11003792	29.00



EARTHING BRIDGES WITH CONTACT CAPS

- Engineered by JACOB for electrostatic continuity
- Patented and tested
- Recommended in conjunction with the two-part pull-ring with or without sealant (pages 32 and 34)
- Contact caps made of electrostatically conductive EPDM
- Recommended for use in conjunction with powder-coated pipe components in JACOB standard RAL 7032 (pebble grey), electrostatically conductive
- Please also read and take into account the technical information given at the beginning of this chapter

Item no.	€/pack of ten
11003793	34.00



ALLEN KEYS

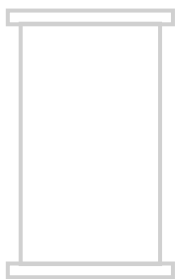
4030

- Size 5 Allen key for assembling one-part pull-ring
- Size 6 Allen key for assembling QUICK CONNECT pull-ring, pull-ring without sealant and pull-ring with sealant







	Item no.	€
Size 5 for one-part pull-rings	10002361	3.00
Size 6 for two-part pull-rings	10002362	3.30

A black and white photograph of industrial piping. The image shows several large, cylindrical pipes with flanges and bolts, connected in a complex system. The background features a metal grid structure, possibly a safety cage or part of a factory floor. A yellow rectangular box is overlaid on the bottom left of the image, containing text.

JACOB PIPES – THE SOUND BASIS
FOR YOUR PIPEWORK SYSTEM



PIPES

Technical information	38	
Pipes	40	
Welding ends	45	
Push-in pipes	46	
Ring seals	49	
Pipes with spigots	49	



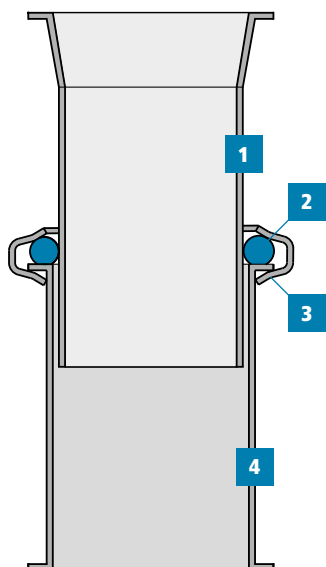
PIPES

Technical information



WELDED PIPES

The cornerstone of the modular pipework system – our certification according to the DIN EN ISO 3834-3 welding quality management system and automated welding processes guarantee top serial production quality. Straight pipes are available in diameters ranging from 60 to 630 mm with a 6 mm lip in various materials with a wall thickness of 1 to 3 mm. Please refer to chapter 1, on page 20 for information on inside diameters. At your request we manufacture customised special lengths, supply pipes with flanges or produce finishes to your specification as far as technically possible – from special colours to pickled stainless steel.



PUSH-IN PIPES

The easy solution for creating special lengths on site within a modular system. Push-in pipes are available in different lengths and are fitted with a ring seal. They are inserted into a welded pipe as far as required and then fixed in place with a pull-ring. The push-in pipe should be inserted at least 50 mm into the straight pipe, and the minimum length that is bridged is 45 mm. The easiest way of creating a special length – without sawing, welding or lip flanging!

This connection is **not** shock explosion proof. Admissible over-pressure 100 mbar (1000 mm WG, 10,000 Pa).

Push-in pipes are not telescopic pipes that can be adjusted during operation. When push-in pipes are installed horizontally, support must be provided directly on the pipe before or the pipe after the push-in pipe. In vertical pipework, the pipe under the push-in pipe must be supported. Use in pipework conveying foodstuffs is not recommended. Please also read and take into account our push-in pipe installation instructions.

- 1 Push-in pipe
- 2 Ring seal
- 3 Standard pull-ring
(cf. chapter 2)
- 4 Straight pipe



Push-in pipe installation instructions









RING SEALS FOR PUSH-IN PIPES

- Tear-resistant, FOOD GRADE and resistant to many aggressive chemicals thanks to vulcanisation
- Resistance to a broad range of substances due to large selection of materials available
- Metal-detectable and FOOD GRADE thanks to special materials (DETECTABLE DESIGN line)



NBR	Silicone		Silicone		EPDM		Viton (FKM)	
grey white	beige		blue		black		red	
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA		FOOD GRADE: EC 1935/2004 plus FDA		FOOD GRADE: EC 1935/2004 plus FDA ¹⁾		FOOD GRADE: EC 1935/2004 plus FDA	
-20°C to +100°C	-60°C to +250°C		-60°C to +250°C		-30°C to +120°C		-18°C to +200°C	
glued	vulcanised		vulcanised		vulcanised		vulcanised	
			metal-detectable		electrostatically conductive			

1) We would like to point out that only certain diameters are FDA compliant, other diameters are currently under review. See page 49 for details




PIPES WITH SPIGOTS

The ideal solution for incorporating sensors in the modular pipework system.

JACOB offers 200 mm long pipe components as standard with a 6 mm lip, made of various materials, with different spigots. Special lengths and other spigots are available on request.

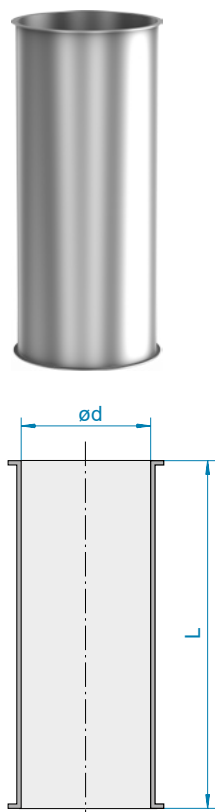
 FOOD GRADE
EC 1935/2004 plus FDA compliant

 DETECTABLE DESIGN
Metal-detectable



WELDED PIPES

- L = actual length
- Ø d = internal diameter of 2 mm parts
- All pipes with a 6 mm lip
- Special lengths and colours available on request
- Lengths of 2 m up to 12 m available on request



PIPES 2000 MM

1010

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	1984	4.30	11061010*	19.30				
80	76	1984	7.80	11081010	19.60	12081010	33.90		
100	99	1984	10.15	11101010	20.10	12101010	34.70		
120	119	1984	11.85	11121010	22.60	12121010	37.00	13121010	51.00
140	135	1984	13.15	11141010	27.10	12141010	42.60		
150	149	1984	15.05	11151010	26.70	12151010	42.00	13151010	60.60
175	174	1984	17.25	11171010	30.80	12171010	47.90	13171010	69.80
200	199	1984	19.25	11201010	34.30	12201010	53.30	13201010	78.30
224	219	1984	21.65	11221010	40.40	12221010	57.30		
250	249	1984	24.45	11251010	40.40	12251010	57.30	13251010	91.90
280	278	1984	27.40	11281010	46.20				
300	299	1984	29.05	11301010	46.20	12301010	68.40	13301010	108.00
315	313	1984	31.00	11311010	53.10				
350	349	1984	34.50	11351010	57.60	12351010	88.00	13351010	123.50
400	398	1984	39.40	11401010	83.10	12401010	123.50	13401010	162.00
450	448	1984	44.30	11451010	98.20	12451010	162.50	13451010	201.50
500	498	1984	49.30	11501010	104.50	12501010	177.00	13501010	227.50
560	558	1984	56.20			12561010	197.00	13561010	260.50
630	628	1984	64.00			12631010	223.00	13631010	293.50


*1.5 mm

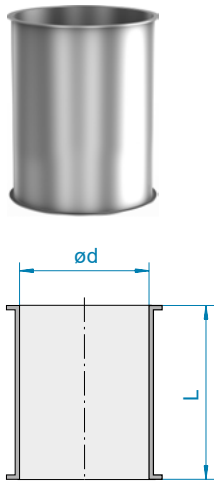
Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	1984	4.30	11062010*	27.80			11063010*	63.00		
80	76	1984	7.80	11082010	28.30	12082010	48.30	11083010	75.50		
100	99	1984	10.15	11102010	28.70	12102010	48.90	11103010	76.10	12103010	125.50
120	119	1984	11.85	11122010	31.90	12122010	54.50	11123010	86.40	12123010	145.00
140	135	1984	13.15	11142010	38.10	12142010	65.70	11143010	100.00		
150	149	1984	15.05	11152010	37.80	12152010	64.60	11153010	100.00	12153010	171.00
175	174	1984	17.25	11172010	44.20	12172010	76.20	11173010	110.00	12173010	190.50
200	199	1984	19.25	11202010	50.80	12202010	86.70	11203010	122.00	12203010	227.50
224	219	1984	21.65	11222010	56.00	12222010	95.40	11223010	135.50		
250	249	1984	24.45	11252010	56.00	12252010	95.40	11253010	135.50	12253010	260.00
280	278	1984	27.40	11282010	66.70			11283010	165.00		
300	299	1984	29.05	11302010	66.70	12302010	114.00	11303010	165.00	12303010	305.00
315	313	1984	31.00	11312010	76.60			11313010	175.50		
350	349	1984	34.50	11352010	82.10			11353010	180.00	12353010	323.00
400	398	1984	39.40	11402010	108.00			11403010	228.00	12403010	374.00
450	448	1984	44.30	11452010	126.50			11453010	267.00	12453010	417.00
500	498	1984	49.30	11502010	140.00			11503010	312.00	12503010	494.00
560	558	1984	56.20			12562010	308.50			12563010	529.00
630	628	1984	64.00			12632010	346.50			12633010	578.00

*1.5 mm

 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar



PIPES 1000 MM



1010

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	984	2.10	11061020*	12.20				
80	76	984	3.80	11081020	12.40	12081020	17.30		
100	99	984	4.95	11101020	12.60	12101020	17.60		
120	119	984	5.85	11121020	14.30	12121020	19.40	13121020	28.70
140	135	984	6.55	11141020	17.40	12141020	25.00		
150	149	984	7.25	11151020	17.20	12151020	24.60	13151020	35.30
175	174	984	8.55	11171020	18.60	12171020	25.90	13171020	38.60
200	199	984	9.45	11201020	20.90	12201020	28.40	13201020	43.30
224	219	984	10.75	11221020	23.20	12221020	31.50		
250	249	984	12.05	11251020	23.20	12251020	31.50	13251020	52.30
280	278	984	13.70	11281020	25.10				
300	299	984	14.25	11301020	25.10	12301020	35.50	13301020	57.10
315	313	984	14.40	11311020	30.10				
350	349	984	16.55	11351020	34.20	12351020	45.40	13351020	63.70
400	398	984	18.95	11401020	41.00	12401020	63.50	13401020	83.10
450	448	984	21.65	11451020	49.00	12451020	83.10	13451020	104.50
500	498	984	24.60	11501020	52.70	12501020	94.90	13501020	118.50
560	558	984	28.10			12561020	101.50	13561020	135.50
630	628	984	29.85			12631020	115.50	13631020	153.00


*1.5 mm

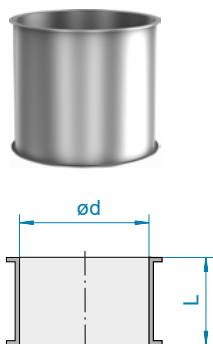
Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	984	2.10	11062020*	16.60			11063020*	35.80		
80	76	984	3.80	11082020	17.00	12082020	26.10	11083020	40.30		
100	99	984	4.95	11102020	17.10	12102020	26.30	11103020	40.60	12103020	65.20
120	119	984	5.85	11122020	17.60	12122020	27.20	11123020	45.70	12123020	77.10
140	135	984	6.55	11142020	20.70	12142020	31.80	11143020	52.80		
150	149	984	7.25	11152020	20.50	12152020	31.40	11153020	52.80	12153020	89.80
175	174	984	8.55	11172020	27.10	12172020	41.70	11173020	58.90	12173020	104.50
200	199	984	9.45	11202020	29.80	12202020	45.80	11203020	64.60	12203020	118.50
224	219	984	10.75	11222020	30.80	12222020	47.50	11223020	74.70		
250	249	984	12.05	11252020	30.80	12252020	47.50	11253020	74.70	12253020	135.00
280	278	984	13.70	11282020	36.00			11283020	88.90		
300	299	984	14.25	11302020	36.00	12302020	55.50	11303020	88.90	12303020	158.00
315	313	984	14.40	11312020	43.10			11313020	97.80		
350	349	984	16.55	11352020	47.40			11353020	104.50	12353020	172.50
400	398	984	18.95	11402020	55.40			11403020	135.00	12403020	208.00
450	448	984	21.65	11452020	65.70			11453020	147.50	12453020	223.00
500	498	984	24.60	11502020	73.10			11503020	165.50	12503020	258.00
560	558	984	28.10			12562020	165.50			12563020	293.50
630	628	984	29.85			12632020	178.00			12633020	325.50

*1.5 mm

 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar



PIPES 500 MM

1010

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	486	1.03	11061030*	8.30				
80	76	486	1.90	11081030	8.40	12081030	9.70		
100	99	486	2.55	11101030	8.60	12101030	9.90		
120	119	486	2.90	11121030	9.10	12121030	11.60	13121030	17.00
140	135	486	3.25	11141030	11.20	12141030	13.60		
150	149	486	3.65	11151030	11.20	12151030	13.60	13151030	20.80
175	174	486	4.35	11171030	11.90	12171030	15.70	13171030	22.50
200	199	486	4.85	11201030	12.50	12201030	17.40	13201030	25.10
224	219	486	5.30	11221030	12.70	12221030	18.90		
250	249	486	5.95	11251030	12.70	12251030	18.90	13251030	29.20
280	278	486	6.80	11281030	14.30				
300	299	486	7.25	11301030	14.30	12301030	21.40	13301030	31.80
315	313	486	7.70	11311030	17.20				
350	349	486	8.45	11351030	20.00	12351030	25.50	13351030	35.70
400	398	486	9.55	11401030	23.40	12401030	34.20	13401030	45.80
450	448	486	10.75	11451030	27.90	12451030	43.00	13451030	54.10
500	498	486	12.05	11501030	29.40	12501030	49.50	13501030	64.10
560	558	486	14.10			12561030	54.40	13561030	72.30
630	628	486	15.80			12631030	61.30	13631030	82.10


*1.5 mm

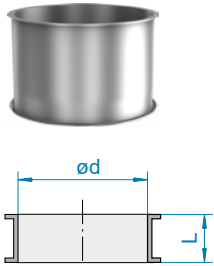
Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	486	1.03	11062030*	10.20			11063030*	20.50		
80	76	486	1.90	11082030	10.30	12082030	14.20	11083030	21.60		
100	99	486	2.55	11102030	10.60	12102030	14.60	11103030	21.80	12103030	34.20
120	119	486	2.90	11122030	10.90	12122030	15.00	11123030	25.30	12123030	39.10
140	135	486	3.25	11142030	14.60	12142030	20.00	11143030	28.70		
150	149	486	3.65	11152030	14.60	12152030	20.10	11153030	28.70	12153030	46.50
175	174	486	4.35	11172030	16.20	12172030	22.20	11173030	32.60	12173030	53.40
200	199	486	4.85	11202030	16.60	12202030	26.40	11203030	35.40	12203030	59.70
224	219	486	5.30	11222030	17.10	12222030	27.30	11223030	40.30		
250	249	486	5.95	11252030	17.10	12252030	27.30	11253030	40.30	12253030	71.80
280	278	486	6.80	11282030	20.60			11283030	47.30		
300	299	486	7.25	11302030	20.60	12302030	32.80	11303030	47.30	12303030	81.70
315	313	486	7.70	11312030	24.70			11313030	54.60		
350	349	486	8.45	11352030	26.30			11353030	57.70	12353030	91.30
400	398	486	9.55	11402030	29.90			11403030	79.50	12403030	117.00
450	448	486	10.75	11452030	36.20			11453030	84.20	12453030	135.00
500	498	486	12.05	11502030	38.20			11503030	88.30	12503030	154.00
560	558	486	14.10			12562030	94.00			12563030	179.00
630	628	486	15.80			12632030	103.00			12633030	191.50

*1.5 mm

 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar



PIPES 200 MM

1010

Powder-coated (dimensions for 2 mm pipework)


DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	200	0.45	11061040*	5.70				
80	76	200	0.70	11081040	5.80	12081040	6.10		
100	99	200	1.00	11101040	5.90	12101040	6.30		
120	119	200	1.20	11121040	6.30	12121040	6.90	13121040	11.40
140	135	200	1.40	11141040	7.30	12141040	8.80		
150	149	200	1.50	11151040	7.30	12151040	8.80	13151040	13.70
175	174	200	1.80	11171040	8.20	12171040	9.80	13171040	15.00
200	199	200	2.05	11201040	8.70	12201040	10.40	13201040	17.50
224	219	200	2.20	11221040	9.00	12221040	11.30		
250	249	200	2.55	11251040	9.00	12251040	11.30	13251040	19.60
280	278	200	2.90	11281040	9.10				
300	299	200	2.95	11301040	9.10	12301040	13.10	13301040	20.80
315	313	200	3.30	11311040	11.00				
350	349	200	3.70	11351040	12.00	12351040	17.10	13351040	24.70
400	398	200	4.10	11401040	13.90	12401040	19.90	13401040	27.10


*1.5 mm

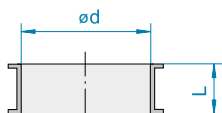
Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	200	0.45	11062040*	7.00			11063040*	11.30		
80	76	200	0.70	11082040	7.10	12082040	8.60	11083040	12.30		
100	99	200	1.00	11102040	7.20	12102040	8.70	11103040	12.40	12103040	17.20
120	119	200	1.20	11122040	7.70	12122040	9.20	11123040	14.00	12123040	21.30
140	135	200	1.40	11142040	9.80	12142040	12.90	11143040	16.70		
150	149	200	1.50	11152040	9.80	12152040	13.00	11153040	16.70	12153040	25.70
175	174	200	1.80	11172040	10.70	12172040	14.10	11173040	18.50	12173040	27.20
200	199	200	2.05	11202040	11.40	12202040	14.90	11203040	20.00	12203040	30.20
224	219	200	2.20	11222040	11.80	12222040	15.50	11223040	22.00		
250	249	200	2.55	11252040	11.80	12252040	15.50	11253040	22.00	12253040	35.60
280	278	200	2.90	11282040	13.10			11283040	25.70		
300	299	200	2.95	11302040	13.10	12302040	21.00	11303040	25.70	12303040	40.80
315	313	200	3.30	11312040	15.70			11313040	27.10		
350	349	200	3.70	11352040	17.60			11353040	27.90	12353040	46.80
400	398	200	4.10	11402040	19.10			11403040	44.90	12403040	64.10

*1.5 mm

 FOOD GRADE
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar




PIPES 50 MM

1010

Powder-coated (dimensions for 2 mm pipework)

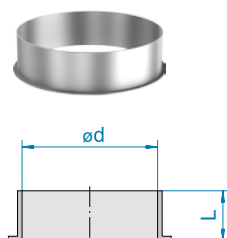
DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	76	50	0.15	11081050	4.10	12081050	4.20		
100	99	50	0.30	11101050	4.20	12101050	4.30		
120	119	50	0.40	11121050	4.50	12121050	4.70	13121050	7.70
140	135	50	0.45	11141050	5.00	12141050	5.40		
150	149	50	0.50	11151050	5.00	12151050	5.40	13151050	9.30
175	174	50	0.55	11171050	5.40	12171050	5.60	13171050	9.90
200	199	50	0.60	11201050	5.80	12201050	6.00	13201050	10.70
224	219	50	0.65	11221050	6.00	12221050	6.30		
250	249	50	0.75	11251050	6.00	12251050	6.30	13251050	12.00
280	278	50	0.90	11281050	6.80				
300	299	50	0.90	11301050	6.80	12301050	7.50	13301050	13.10
315	313	50	1.00	11311050	8.20				

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	76	50	0.15	11082050	5.10	12082050	5.90	11083050	7.20		
100	99	50	0.30	11102050	5.30	12102050	6.10	11103050	7.30	12103050	8.60
120	119	50	0.40	11122050	5.50	12122050	6.40	11123050	7.50	12123050	9.20
140	135	50	0.45	11142050	6.30	12142050	7.20	11143050	8.20	12143050	10.20
150	149	50	0.50	11152050	6.30	12152050	7.20	11153050	8.20	12153050	10.20
175	174	50	0.55	11172050	6.80	12172050	7.90	11173050	9.20	12173050	11.50
200	199	50	0.60	11202050	7.30	12202050	8.50	11203050	10.10	12203050	12.70
224	219	50	0.65	11222050	7.70	12222050	8.80	11223050	12.00	12223050	14.80
250	249	50	0.75	11252050	7.70	12252050	8.80	11253050	12.00	12253050	14.80
280	278	50	0.90	11282050	8.60			11283050	15.30		
300	299	50	0.90	11302050	8.60	12302050	10.50	11303050	15.30	12303050	15.80
315	313	50	1.00	11312050	10.30			11313050	16.10		

 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar



WELDING ENDS 55 MM, FLANGED ON ONE SIDE

1020

- Flanged on one side with a 6 mm lip
- For connection to existing pipe systems or machinery on site

Steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	2 mm steel uncoated		3 mm steel uncoated	
				Item no.	€	Item no.	€
60	57	55	0.14	11060060*	3.70		
80	76	55	0.15	12080060	4.00		
100	99	55	0.35	12100060	4.10		
120	119	55	0.40	12120060	4.50	13120060	6.50
140	135	55	0.45	12140060	5.10		
150	149	55	0.45	12150060	5.10	13150060	6.70
175	174	55	0.55	12170060	5.40	13170060	7.60
200	199	55	0.60	12200060	5.70	13200060	7.90
224	219	55	0.70	12220060	5.90		
250	249	55	0.75	12250060	5.90	13250060	8.30
280	276	55	0.80	12280060	7.10		
300	299	55	0.85	12300060	7.10	13300060	9.30
315	311	55	0.90	12310060	7.30		
350	349	55	1.05	12350060	7.50	13350060	10.10
400	398	55	1.15	12400060	8.30	13400060	11.10
450	448	55	1.40	12450060	9.40	13450060	12.70
500	498	55	1.55	12500060	10.70	13500060	14.20
560	558	55	1.70	12560060	12.00	13560060	15.90
630	628	55	1.90	12630060	13.50	13630060	18.50

*1.5 mm

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	55	0.14	11061060	4.00					11063060*	5.60
80	76	55	0.15	11081060	4.10	12081060	4.20			12083060	8.00
100	99	55	0.35			12101060	4.30			12103060	8.40
120	119	55	0.40			12121060	4.70	13121060	6.70	12123060	9.00
140	135	55	0.45			12141060	5.40			12143060	9.70
150	149	55	0.45			12151060	5.40	13151060	6.90	12153060	9.70
175	174	55	0.55			12171060	5.70	13171060	7.80	12173060	11.40
200	199	55	0.60			12201060	6.00	13201060	8.10	12203060	12.90
224	219	55	0.70			12221060	6.20			12223060	14.60
250	249	55	0.75			12251060	6.20	13251060	8.50	12253060	14.60
280	276	55	0.80							12283060	15.80
300	299	55	0.85			12301060	7.60	13301060	9.70	12303060	15.80
315	311	55	0.90							12313060	16.60
350	349	55	1.05			12351060	7.90	13351060	10.40	12353060	17.30
400	398	55	1.15			12401060	8.70	13401060	11.40	12403060	19.10
450	448	55	1.40			12451060	10.00	13451060	13.10	12453060	23.60
500	498	55	1.55			12501060	11.30	13501060	14.60	12503060	27.10
560	558	55	1.70			12561060	12.60	13561060	16.50	12563060	30.80
630	628	55	1.90			12631060	14.40	13631060	19.00	12633060	34.10

*1.5 mm



PIPES

Push-in pipes

PUSH-IN PIPES

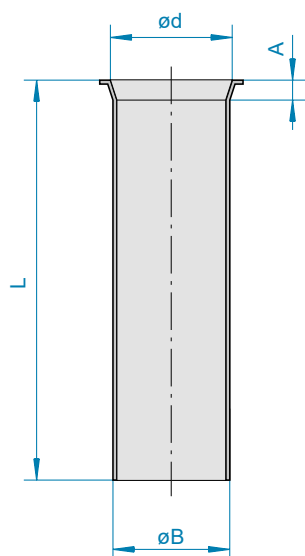
Push-in pipes in 1 to 3 mm wall thickness

For combining with:

- QUICK CONNECT pull-ring or pull-ring without sealant for 1 and 2 mm pipework (page 32)
- Ring seal (page 49)

PUSH-IN PIPES 1000 MM

1030



Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1 mm powder-coated		1.5 mm powder-coated	
						Item no.	€	Item no.	€
60	57	34	54	990	2.20			11061110	20.30
80	77	34	74	990	2.70	11081110	21.00		
100	100	34	96	990	3.50			11101110	21.20
120	120	34	116	990	4.30			11121110	24.10
140	136	34	132	990	4.60			11141110	30.00
150	150	34	146	990	5.40			11151110	30.00
175	175	34	171	990	6.20			11171110	33.60
200	200	34	196	990	7.00			11201110	36.50
224	220	34	216	990	7.60			11221110	45.20
250	250	34	246	990	8.80			11251110	45.20
280	277	34	272	990	10.00			11281110	49.50
300	300	34	296	990	10.70			11301110	49.50
315	312	34	307	990	11.30			11311110	57.00
350	350	50	346	990	12.40			11351110	61.20
400	399	50	396	990	14.20			11401110	77.00


Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm galvanised		1 mm stainless steel 	1.5 mm stainless steel 		2 mm stainless steel 
						Item no.	€	Item no.	€	Item no.	€
60	57	34	54	990	2.20	11062110	25.90			11063110	53.30
80	77	34	74	990	2.70	11082110*	27.20	11083110	62.60		
100	100	34	96	990	3.50	11102110	27.40	11103110	63.00		12103110 91.40
120	120	34	116	990	4.30	11122110	30.00	11123110	66.10		12123110 104.50
140	136	34	132	990	4.60	11142110	34.70	11143110	76.70		
150	150	34	146	990	5.40	11152110	34.70	11153110	76.70		12153110 120.50
175	175	34	171	990	6.20	11172110	42.50	11173110	85.00		12173110 140.50
200	200	34	196	990	7.00	11202110	46.00	11203110	97.70		12203110 157.00
224	220	34	216	990	7.60	11222110	55.40	11223110	112.00		
250	250	34	246	990	8.80	11252110	55.40	11253110	112.00		12253110 179.50
280	277	34	272	990	10.00	11282110	64.90			11283110	130.50
300	300	34	296	990	10.70	11302110	64.90	11303110	130.50		12303110 207.00
315	312	34	307	990	11.30	11312110	74.70			11313110	143.50
350	350	50	346	990	12.40	11352110	83.30	11353110	158.50		12353110 213.50
400	399	50	396	990	14.20	11402110	102.00	11403110	170.00		12403110 258.00

*1 mm



Push-in pipe installation instructions

 FOOD GRADE
EC 1935/2004 plus FDA compliant






PUSH-IN PIPES 500 MM

1030

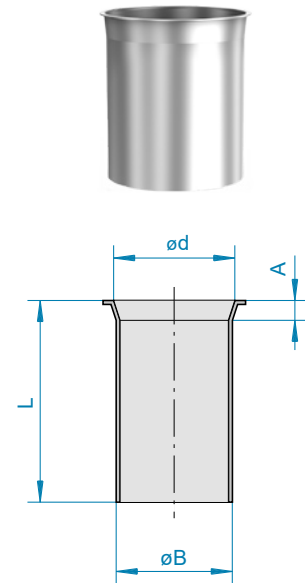
Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1 mm powder-coated		1.5 mm powder-coated		3 mm powder-coated	
						Item no.	€	Item no.	€	Item no.	€
60	57	34	54	492	1.10			11061120	14.30		
80	77	34	74	492	1.40	11081120	14.90				
100	100	34	96	492	1.80			11101120	15.10		
120	120	34	116	492	2.10			11121120	16.10		
140	136	34	132	492	2.45			11141120	18.60		
150	150	34	146	492	2.65			11151120	18.60	13151120	31.90
175	175	34	171	492	3.10			11171120	22.90	13171120	36.00
200	200	34	196	492	3.50			11201120	23.50	13201120	41.70
224	220	34	216	492	3.90			11221120	28.40		
250	250	34	246	492	4.50			11251120	28.40	13251120	46.50
280	277	34	272	492	5.00			11281120	31.50		
300	300	34	296	492	5.40			11301120	31.50	13301120	51.90
315	312	34	307	492	5.70			11311120	36.20		
350	350	50	346	492	6.20			11351120	36.80		
400	399	50	396	492	7.20			11401120	45.70		

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm galvanised		1 mm stainless steel 		1.5 mm stainless steel 		2 mm stainless steel 	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	34	54	492	1.10	11062120	17.20			11063120	29.30		
80	77	34	74	492	1.40	11082120*	17.80	11083120	34.10				
100	100	34	96	492	1.80	11102120	18.00	11103120	34.30			12103120	48.50
120	120	34	116	492	2.10	11122120	19.30	11123120	38.20			12123120	56.00
140	136	34	132	492	2.45	11142120	21.30	11143120	42.30				
150	150	34	146	492	2.65	11152120	21.30	11153120	42.30			12153120	65.10
175	175	34	171	492	3.10	11172120	25.80	11173120	46.80			12173120	73.90
200	200	34	196	492	3.50	11202120	27.40	11203120	54.50			12203120	82.40
224	220	34	216	492	3.90	11222120	34.10	11223120	61.50				
250	250	34	246	492	4.50	11252120	34.10	11253120	61.50			12253120	97.70
280	277	34	272	492	5.00	11282120	38.20			11283120	69.80		
300	300	34	296	492	5.40	11302120	38.20	11303120	69.80			12303120	112.00
315	312	34	307	492	5.70	11312120	44.00			11313120	76.80		
350	350	50	346	492	6.20	11352120	47.80	11353120	80.10			12353120	140.50
400	399	50	396	492	7.20	11402120	58.70	11403120	83.30			12403120	160.50

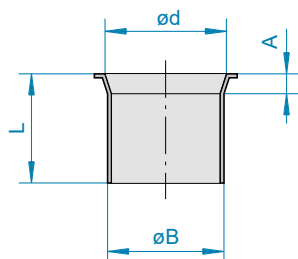
*1 mm





PIPES

Push-in pipes






PUSH-IN PIPES 200 MM

1030


Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1 mm powder-coated		1.5 mm powder-coated	
						Item no.	€	Item no.	€
60	57	34	54	200	0.41			11061130	13.00
80	77	34	74	200	0.60	11081130	13.30		
100	100	34	96	200	0.75			11101130	13.60
120	120	34	116	200	0.85			11121130	14.20
140	136	34	132	200	0.95			11141130	16.60
150	150	34	146	200	1.10			11151130	16.60
175	175	34	171	200	1.30			11171130	20.30
200	200	34	196	200	1.50			11201130	23.00
224	220	34	216	200	1.55			11221130	25.90
250	250	34	246	200	1.90			11251130	25.90
280	277	34	272	200	2.10			11281130	28.90
300	300	34	296	200	2.45			11301130	28.90
315	312	34	307	200	2.50			11311130	33.20

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm galvanised		1 mm stainless steel 		1.5 mm stainless steel 		2 mm stainless steel 	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	34	54	200	0.41	11062130	15.70			11063130	17.20		
80	77	34	74	200	0.60	11082130*	16.40	11083130	20.10				
100	100	34	96	200	0.75	11102130	16.60	11103130	20.10			12103130	29.00
120	120	34	116	200	0.85	11122130	17.30	11123130	21.90			12123130	31.00
140	136	34	132	200	0.95	11142130	20.50	11143130	24.00				
150	150	34	146	200	1.10	11152130	20.50	11153130	24.00			12153130	37.10
175	175	34	171	200	1.30	11172130	23.90	11173130	26.50			12173130	38.60
200	200	34	196	200	1.50	11202130	26.20	11203130	30.50			12203130	42.60
224	220	34	216	200	1.55	11222130	30.60	11223130	33.90				
250	250	34	246	200	1.90	11252130	30.60	11253130	33.90			12253130	50.10
280	277	34	272	200	2.10	11282130	35.00			11283130	38.30		
300	300	34	296	200	2.45	11302130	35.00	11303130	38.30			12303130	57.00
315	312	34	307	200	2.50	11312130	40.40			11313130	42.20		

*1 mm

 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

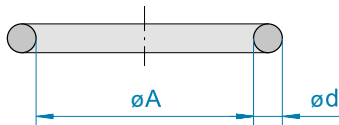
Ring seals / pipes with spigots



RING SEALS FOR PUSH-IN PIPES

3020

- Use in conjunction with push-in pipes and QUICK CONNECT pull-ring or pull-ring without sealant
- The use of silicone ring seals is recommended with a 3 mm wall thickness



FOR USE IN CONJUNCTION WITH PUSH-IN PIPE AND PULL-RING.

Ring seals to seal push-in pipes from 1 to 3 mm wall thickness

DN	Ø d	A	NBR grey		Silicone beige		Silicone blue		EPDM black		FKM red	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	7	53	100661557	1.10	1006715509	3.40	10067155091	3.90	1006815559	3.40	10069155	21.70
80	9	68	100861557	1.20	1008715509	3.40	10087155091	4.50	1008815559	3.40	10089155	24.10
100	9	87	101061557	1.50	1010715509	3.70	10107155091	5.10	1010815559	3.70	10109155	24.10
120	9	106	101261557	1.70	1012715509	3.90	10127155091	5.80	1012815559	3.90	10129155	25.30
140	9	121	101461557	1.80	1014715509	4.10	10147155091	6.20	1014815559	4.10	10149155	26.30
150	9	138	101561557	1.80	1015715509	4.30	10157155091	6.70	1015815559	4.30	10159155	26.30
175	9	162	101761557	2.00	1017715509	4.70	10177155091	7.50	1017815559	4.70	10179155	27.20
200	9	186	102061557	2.30	1020715509	5.00	10207155091	8.10	1020815559	5.00	10209155	27.70
224	9	205	102261557	2.50	1022715509	5.10	10227155091	8.70	1022815559	5.10	10229155	28.30
250	9	233	102561557	2.60	1025715509	5.60	10257155091	9.60	1025815559	5.60	10259155	29.50
280	9	258	102861557	2.80	1028715509	6.00	10287155091	10.40	1028815559	6.00	10289155	31.30
300	9	281	103061557	3.00	1030715509	6.00	10307155091	11.00	1030815559	6.00	10309155	33.20
315	9	293	103161557	3.20	1031715509	6.40	10317155091	11.30	1031815559	6.40	10319155	34.70
350	9	328	103561557	3.30	1035715509	6.40	10357155091	12.50	1035815559	6.40	10359155	38.00
400	9	376	104061557	3.60	1040715509	6.90	10407155091	14.00	1040815559	6.90	10409155	43.20

PIPES WITH SPIGOTS

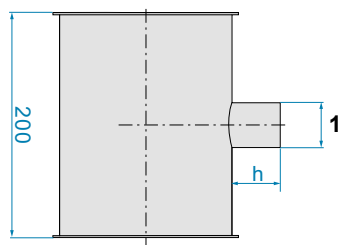
1035

- For installation of sensors on site
- Spigot length
 - ½ inch: h = 34 mm
 - 1 inch: h = 43 mm
 - 1½ inch: h = 48 mm
- Special lengths and other spigots available on request

2 mm powder-coated, length 200 mm

DN	Ø d	Spigot ½ inch		Spigot 1 inch		Spigot 1½ inch	
		Item no.	€	Item no.	€	Item no.	€
60	57	110610400901*	27.20	110610400902*	30.70		
80	76	120810400901	27.60	120810400902	31.10	120810400903	39.10
100	99	121010400901	27.80	121010400902	31.30	121010400903	39.30
120	119	121210400901	28.40	121210400902	31.90	121210400903	39.90
140	136	121410400901	30.30	121410400902	33.80	121410400903	41.80
150	149	121510400901	30.30	121510400902	33.80	121510400903	41.80
175	174	121710400901	31.30	121710400902	34.80	121710400903	42.80
200	199	122010400901	31.90	122010400902	35.40	122010400903	43.40
224	220	122210400901	32.80	122210400902	36.30	122210400903	44.30
250	249	122510400901	32.80	122510400902	36.30	122510400903	44.30
280	276	122810400901	34.60	122810400902	38.10	122810400903	46.10
300	299	123010400901	34.60	123010400902	38.10	123010400903	46.10

*1.5 mm



1 Spigot with inner thread

F FOOD GRADE
EC 1935/2004 plus FDA compliant

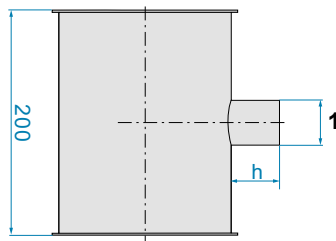
D DETECTABLE DESIGN
Metal-detectable

1) DN 60, 80, 100 and 120 mm are FDA compliant. Other diameters are currently under review.



PIPES

Pipes with spigots




1 Spigot with inner thread

2 mm galvanised, length 200 mm

DN	Ø d	Spigot ½ inch		Spigot 1 inch		Spigot 1½ inch	
		Item no.	€	Item no.	€	Item no.	€
60	57	110620400901*	34.00	110620400902*	40.50		
80	76	120820400901	35.60	120820400902	42.10	120820400903	53.60
100	99	121020400901	35.70	121020400902	42.20	121020400903	53.70
120	119	121220400901	36.20	121220400902	42.70	121220400903	54.20
140	136	121420400901	39.90	121420400902	46.40	121420400903	57.90
150	149	121520400901	40.00	121520400902	46.50	121520400903	58.00
175	174	121720400901	41.10	121720400902	47.60	121720400903	59.10
200	199	122020400901	41.90	122020400902	48.40	122020400903	59.90
224	220	122220400901	42.50	122220400902	49.00	122220400903	60.50
250	249	122520400901	42.50	122520400902	49.00	122520400903	60.50
280	276	122820400901	48.00	122820400902	54.50	122820400903	66.00
300	299	123020400901	48.00	123020400902	54.50	123020400903	66.00

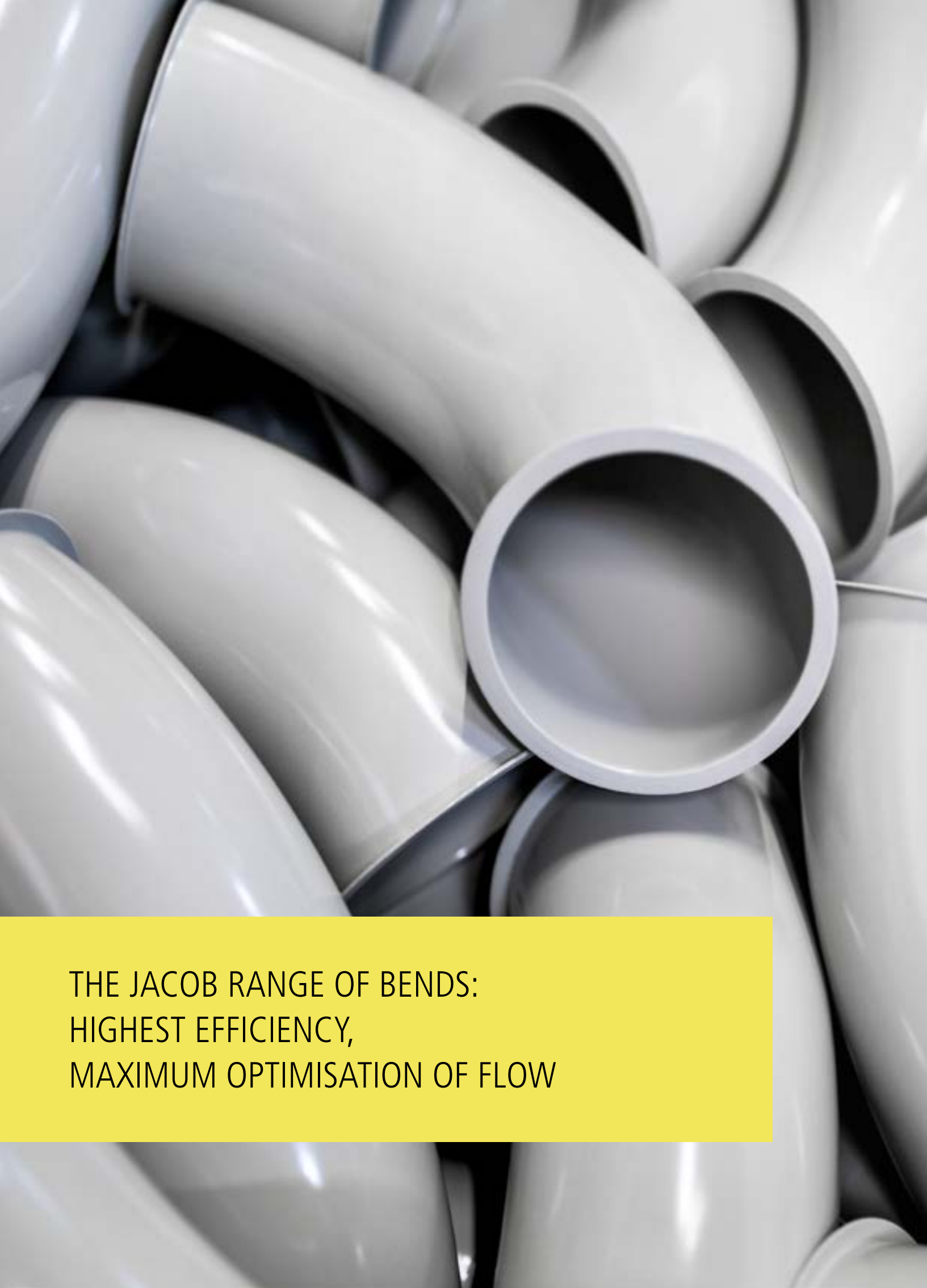
*1.5 mm

2 mm stainless steel, length 200 mm

DN	Ø d	Spigot ½ inch 		Spigot 1 inch 		Spigot 1½ inch 	
		Item no.	€	Item no.	€	Item no.	€
60	57	110630400901*	38.30	110630400902*	44.80		
80	76	120830400901	44.20	120830400902	50.70	120830400903	62.20
100	99	121030400901	44.20	121030400902	50.70	121030400903	62.20
120	119	121230400901	48.30	121230400902	54.80	121230400903	66.30
140	136	121430400901	52.70	121430400902	59.20	121430400903	70.70
150	149	121530400901	52.70	121530400902	59.20	121530400903	70.70
175	174	121730400901	54.20	121730400902	60.70	121730400903	72.20
200	199	122030400901	57.20	122030400902	63.70	122030400903	75.20
224	220	122230400901	62.60	122230400902	69.10	122230400903	80.60
250	249	122530400901	62.60	122530400902	69.10	122530400903	80.60
280	276	122830400901	67.80	122830400902	74.30	122830400903	85.80
300	299	123030400901	67.80	123030400902	74.30	123030400903	85.80

*1.5 mm










THE JACOB RANGE OF BENDS:
HIGHEST EFFICIENCY,
MAXIMUM OPTIMISATION OF FLOW



THE RANGE OF PIPE BENDS

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THE RANGE OF PIPE BENDS

Technical information

SEGMENTS AND BENDS

Perfect flow properties pay off! If the product flow is ideally guided through direction-changing elements, the flow resistance, and so also the wear, are significantly reduced. This results in: energy savings, longer maintenance intervals, shorter downtimes and so lower costs. We achieve this with our innovative manufacturing technology. We produce bends from pressed half shells or pressed segments. Automated production stages, particularly during welding, ensure a uniformly high level of quality.

Maximum flexibility for planning and implementation: from bends for restricted spaces with a radius of $R = 1 D$ up to drawn bends with a large radius. All parts have a 6 mm lip and can be combined with all JACOB pipework using our pull-ring system.

Are you looking for the right angle or radius for your application? No problem with the JACOB pipework system! Whether by using our flexible adjustable elbows and pipe ball joints or by counter-rotating two segments: a wide range of different angles can easily be achieved with parts from our standard range. We can produce special radius segment-bends on demand.

The unique JACOB flexibility makes it possible to implement numerous special requirements that our customers request: from bends with welded-on flanges to a wide range of special colours – this is no problem at all with our unique in-depth production range.

Overview of segment and bend versions

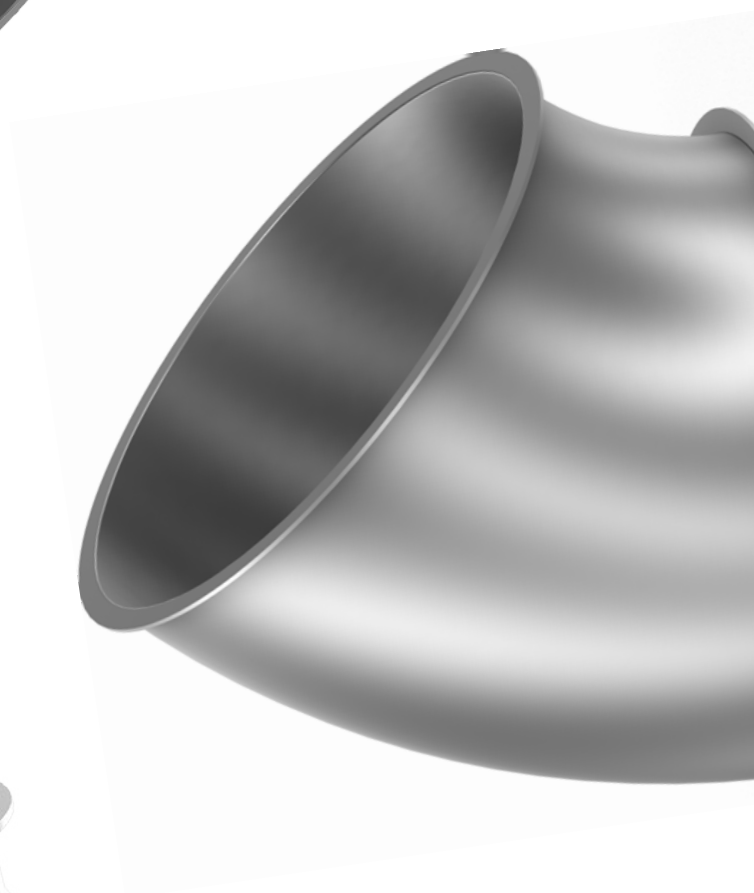
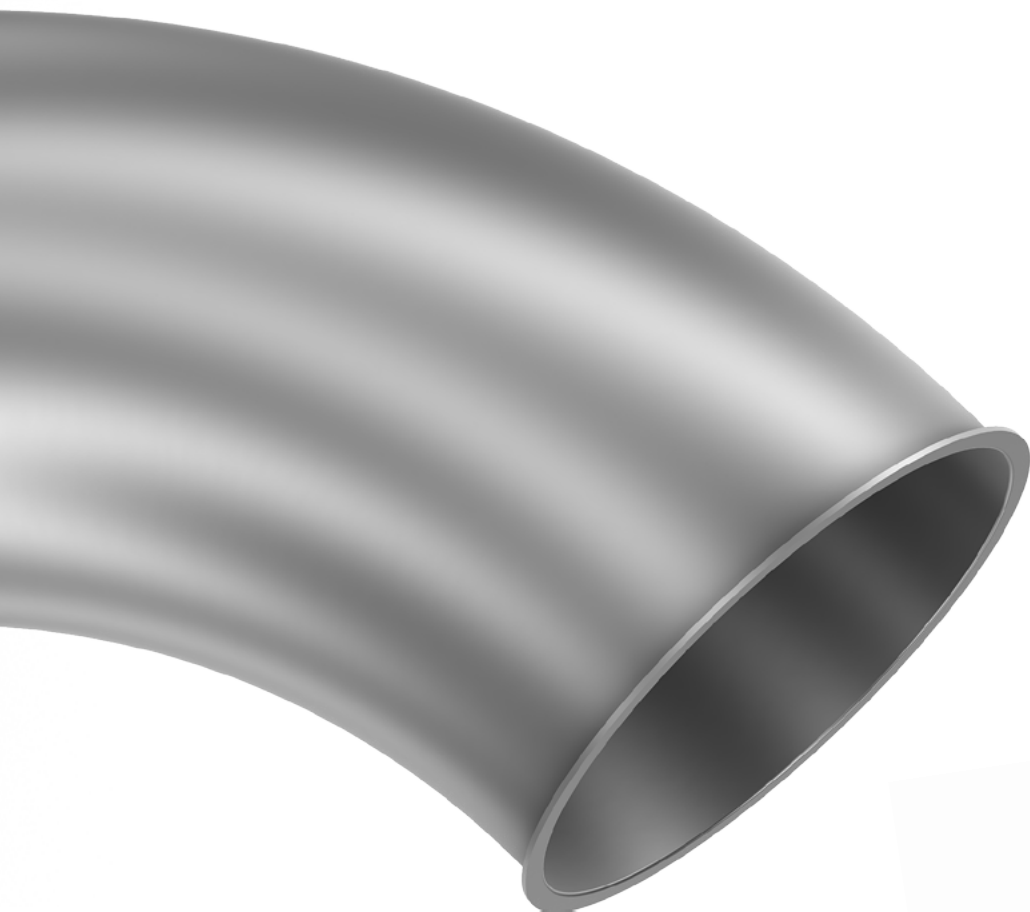
DN	Segments		Bends			
	5°	15°, 30°, 45°	R = 1 D 90°	R = 2 D 30°	R = 2 D 90°, 60°, 45°	Long radius 15°, 30°, 45°, 60°, 90°
60	■	■	■	■	■	
80–120	■	■	■	■	■	■
140	■	■	■	■	■	
150–200	■	■	■	■	■	■
224	■	■	■	■	■	
250	■	■	■	■	■	■
280	■	■	■	■	■	
300	■	■	■	■	■	■
315	■	■	■	■	■	
350–400	■	■	■	■	■	
450–630	■	■	■	■	■	

■ Lobster back version, segments/bends made up of one or more lobster back segments with a straight back

■ Pressed segment version, pressed segments and bends

■ Pressed segments and bends, bends made up of several pressed segments

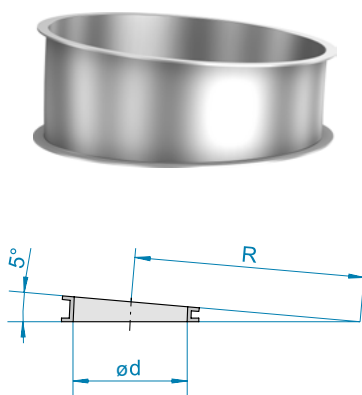
■ Bends with long radius, drawn from pipes with longitudinally welded pipes





THE RANGE OF PIPE BENDS

Segments



SEGMENTS 5°



1110

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	76	310	0.10	11081300	5.10				
100	99	320	0.20	11101300	5.10	12101300	6.10		
120	119	360	0.25	11121300	5.30	12121300	6.60	13121300	14.00
140	135	460	0.35	11141300*	5.60				
150	149	500	0.45	11151300	5.60	12151300	7.80	13151300	15.50
175	174	560	0.55	11171300	8.00	12171300	9.80	13171300	19.10
200	199	690	0.65	11201300	8.70	12201300	10.20	13201300	20.50
224	219	560	0.70	11221300*	11.00				
250	249	635	0.75	11251300	11.00	12251300	13.40	13251300	23.70
280	276	560	0.90	11281300*	19.50				
300	299	625	0.95	11301300	17.70	12301300	19.60	13301300	27.60
315	311	600	0.95	11311300*	21.40				
350	349	350	0.80	11351300*	23.40	12351300	27.90	13351300	33.20
400	398	400	0.95	11401300*	25.40	12401300	35.10	13401300	38.40
450	448	450	1.40	11451300*	31.80	12451300	36.60	13451300	46.80
500	498	500	1.45	11501300*	36.90	12501300	41.70	13501300	49.70
560	558	560	1.60			12561300	47.40	13561300	60.40
630	628	630	2.15			12631300	56.90	13631300	70.20


*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	76	310	0.10	11082300	5.70			11083300	14.40		
100	99	320	0.20	11102300	5.70	12102300	7.40	11103300	14.40	12103300	16.10
120	119	360	0.25	11122300	6.30	12122300	8.40	11123300	16.30	12123300	18.30
140	135	460	0.35	11142300	6.60	12142300	9.10	11143300*	17.00		
150	149	500	0.45	11152300	6.60	12152300	9.10	11153300	17.00	12153300	25.00
175	174	560	0.55	11172300	9.60	12172300	13.10	11173300	22.10	12173300	31.50
200	199	690	0.65	11202300	10.00	12202300	13.70	11203300	24.70	12203300	35.00
224	219	560	0.70	11222300	13.70	12222300	18.80	11223300*	31.90		
250	249	635	0.75	11252300	13.70	12252300	18.80	11253300	32.10	12253300	44.30
280	276	560	0.90	11282300*	25.90			11283300*	56.40		
300	299	625	0.95	11302300	19.20	12302300	26.40	11303300	37.90	12303300	56.70
315	311	600	0.95	11312300*	27.90			11313300*	57.90		
350	349	350	0.80	11352300*	28.70			11353300	62.80	12353300	66.50
400	398	400	0.95	11402300*	32.70			11403300	70.10	12403300	84.00
450	448	450	1.40	11452300*	39.00			11453300	79.40	12453300	89.20
500	498	500	1.45	11502300*	43.10			11503300	88.70	12503300	98.70
560	558	560	1.60			12562300	57.10			12563300	116.00
630	628	630	2.15			12632300	68.30			12633300	138.00

*1.5 mm

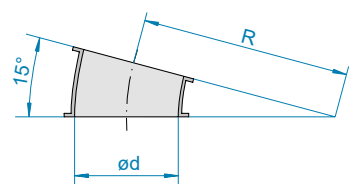
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar

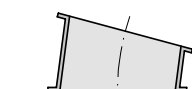


SEGMENTS 15°

1120



1 pressed segment 15°



1 lobster back segment 15°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.10	11061310*	14.60				
80	76	130	0.10	11081310	5.20				
100	99	130	0.20	11101310	5.20	12101310	6.10		
120	119	155	0.30	11121310	5.50	12121310	6.60	13121310	14.40
140	135	185	0.30	11141310*	5.80				
150	149	250	0.55	11151310	5.80	12151310	8.00	13151310	15.90
175	174	280	0.75	11171310	8.20	12171310	9.80	13171310	19.50
200	199	270	0.80	11201310	8.70	12201310	10.20	13201310	21.10
224	219	220	0.55	11221310*	11.10				
250	249	310	1.05	11251310	11.10	12251310	13.40	13251310	24.70
280	276	280	1.25	11281310*	19.60				
300	299	310	1.30	11301310	18.30	12301310	19.60	13301310	28.40
315	311	315	1.60	11311310*	21.60				
350	349	350	1.75	11351310*	24.20	12351310	27.90	13351310	36.50
400	398	400	2.35	11401310*	26.20	12401310	35.10	13401310	40.90
450	448	450	2.95	11451310*	32.80	12451310	36.60	13451310	49.50
500	498	500	3.50	11501310*	38.00	12501310	41.70	13501310	52.90
560	558	560	4.40			12561310	47.40	13561310	64.20
630	628	630	5.60			12631310	56.90	13631310	74.30


*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.10	11062310*	16.00			11063310*	31.50		
80	76	130	0.10	11082310	5.80			11083310	14.40		
100	99	130	0.20	11102310	5.80	12102310	8.00	11103310	14.40	12103310	16.10
120	119	155	0.30	11122310	6.30	12122310	8.80	11123310	16.30	12123310	18.30
140	135	185	0.30	11142310*	6.60	12142310	9.10	11143310*	17.00		
150	149	250	0.55	11152310	6.60	12152310	9.10	11153310	17.00	12153310	25.20
175	174	280	0.75	11172310	9.60	12172310	13.10	11173310	22.10	12173310	31.90
200	199	270	0.80	11202310	10.00	12202310	13.70	11203310	24.70	12203310	35.70
224	219	220	0.55	11222310*	13.70	12222310	18.80	11223310	35.70		
250	249	310	1.05	11252310	13.70	12252310	18.80	11253310	35.70	12253310	45.40
280	276	280	1.25	11282310*	26.00			11283310*	57.10		
300	299	310	1.30	11302310	19.20	12302310	26.40	11303310	38.80	12303310	57.90
315	311	315	1.60	11312310*	28.10			11313310*	59.10		
350	349	350	1.75	11352310*	28.70			11353310	63.40	12353310	68.00
400	398	400	2.35	11402310*	33.70			11403310	70.80	12403310	85.70
450	448	450	2.95	11452310*	40.30			11453310	80.20	12453310	91.20
500	498	500	3.50	11502310*	44.30			11503310	89.40	12503310	101.00
560	558	560	4.40			12562310	57.10			12563310	118.50
630	628	630	5.60			12632310	68.30			12633310	141.00

*1.5 mm

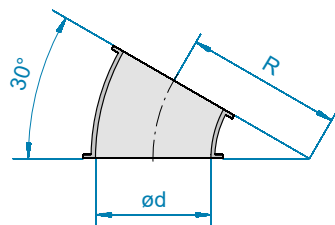
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar

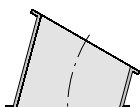


THE RANGE OF PIPE BENDS

Segments



1 pressed segment 30°



1 lobster back segment 30°

SEGMENTS 30°



1130

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	76	100	0.10	11081320	5.60				
100	99	95	0.30	11101320	5.60	12101320	6.70		
120	119	110	0.40	11121320	5.90	12121320	7.00	13121320	15.30
140	135	140	0.45	11141320*	6.90				
150	149	175	0.70	11151320	6.90	12151320	9.10	13151320	16.30
175	174	208	1.05	11171320	9.30	12171320	13.00	13171320	20.20
200	199	180	1.05	11201320	9.50	12201320	13.00	13201320	21.70
224	219	195	0.95	11221320*	12.30				
250	249	230	1.55	11251320	12.30	12251320	16.00	13251320	27.00
280	276	283	2.30	11281320*	20.80				
300	299	230	1.90	11301320	19.20	12301320	20.90	13301320	31.90
315	311	315	2.95	11311320*	25.00				
350	349	350	3.30	11351320*	29.00	12351320	32.50	13351320	40.10
400	398	400	4.10	11401320*	31.50	12401320	41.20	13401320	51.90
450	448	450	5.60	11451320*	37.20	12451320	43.30	13451320	53.90
500	498	500	6.60	11501320*	42.00	12501320	46.90	13501320	61.00
560	558	560	8.50			12561320	55.90	13561320	71.90
630	628	630	10.50			12631320	64.30	13631320	83.30


*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	76	100	0.10	11082320	6.10			11083320	15.50		
100	99	95	0.30	11102320	6.10	12102320	8.50	11103320	15.50	12103320	18.70
120	119	110	0.40	11122320	6.50	12122320	8.90	11123320	16.80	12123320	22.00
140	135	140	0.45	11142320*	7.70	12142320	10.60	11143320*	19.10		
150	149	175	0.70	11152320	7.70	12152320	10.60	11153320	19.10	12153320	28.60
175	174	208	1.05	11172320	12.20	12172320	16.70	11173320	26.30	12173320	40.90
200	199	180	1.05	11202320	12.40	12202320	17.10	11203320	27.50	12203320	43.20
224	219	195	0.95	11222320*	16.40	12222320	22.60	11223320	36.20		
250	249	230	1.55	11252320	16.40	12252320	22.60	11253320	36.20	12253320	54.10
280	276	283	2.30	11282320*	29.40			11283320*	63.00		
300	299	230	1.90	11302320	21.60	12302320	29.90	11303320	41.40	12303320	64.80
315	311	315	2.95	11312320*	31.80			11313320*	65.10		
350	349	350	3.30	11352320*	33.50			11353320	69.60	12353320	79.00
400	398	400	4.10	11402320*	39.00			11403320	81.00	12403320	100.50
450	448	450	5.60	11452320*	44.60			11453320	92.60	12453320	106.50
500	498	500	6.60	11502320*	50.30			11503320	100.50	12503320	115.50
560	558	560	8.50			12562320	67.00			12563320	136.50
630	628	630	10.50			12632320	77.10			12633320	158.00

*1.5 mm

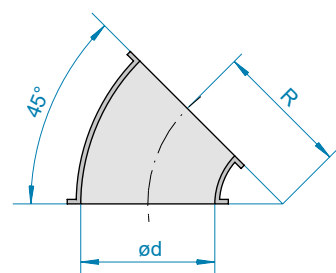
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar

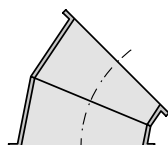


SEGMENTS 45°

1140



1 pressed segment 45°





2 lobster back segments:
2 x 22.5°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	76	80	0.15	11081330	6.10				
100	99	83	0.35	11101330	6.10	12101330	7.00		
120	119	88	0.50	11121330	6.70	12121330	8.10	13121330	16.30
140	135	112	0.50	11141330*	7.60				
150	149	150	0.90	11151330	7.60	12151330	9.90	13151330	18.50
175	174	160	1.20	11171330*	10.50	12171330	13.90	13171330	21.30
200	199	195	1.55	11201330*	11.80	12201330	16.20	13201330	24.60
224	219	155	1.10	11221330*	14.90				
250	249	195	1.95	11251330*	14.90	12251330	18.80	13251330	31.70
280	276	280	3.55	11281330*	52.80				
300	299	205	2.50	11301330*	22.20	12301330	25.70	13301330	37.80
315	311	315	4.30	11311330*	53.80				
350	349	350	4.90	11351330*	58.70	12351330	71.90	13351330	80.30
400	398	400	6.50	11401330*	67.40	12401330	80.50	13401330	98.70
450	448	450	8.15	11451330*	74.90	12451330	92.70	13451330	114.50
500	498	500	10.00	11501330*	87.90	12501330	102.50	13501330	126.00
560	558	560	12.40			12561330	124.50	13561330	152.50
630	628	630	16.10			12631330	151.00	13631330	182.50


*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	76	80	0.15	11082330	6.60			11083330	16.50		
100	99	83	0.35	11102330	6.60	12102330	9.10	11103330	16.50	12103330	21.00
120	119	88	0.50	11122330	7.20	12122330	10.00	11123330	19.20	12123330	25.70
140	135	112	0.50	11142330*	7.80	12142330	10.80	11143330*	23.60		
150	149	150	0.90	11152330	7.80	12152330	10.80	11153330	23.60	12153330	34.90
175	174	160	1.20	11172330*	12.30	12172330	17.00	11173330*	30.70	12173330	49.40
200	199	195	1.55	11202330*	17.10	12202330	23.40	11203330*	38.50	12203330	54.70
224	219	155	1.10	11222330*	19.50	12222330	26.70	11223330*	44.60		
250	249	195	1.95	11252330*	19.50	12252330	26.70	11253330*	44.60	12253330	68.70
280	276	280	3.55	11282330*	63.70			11283330*	108.50		
300	299	205	2.50	11302330*	28.60	12302330	35.90	11303330*	57.60	12303330	94.70
315	311	315	4.30	11312330*	64.70			11313330*	111.00		
350	349	350	4.90	11352330*	70.20			11353330*	126.00	12353330	153.50
400	398	400	6.50	11402330*	78.60			11403330*	161.00	12403330	180.00
450	448	450	8.15	11452330*	87.20			11453330*	181.00	12453330	210.50
500	498	500	10.00	11502330*	102.50			11503330*	205.50	12503330	231.00
560	558	560	12.40			12562330	145.00			12563330	275.00
630	628	630	16.10			12632330	175.50			12633330	328.50

*1.5 mm

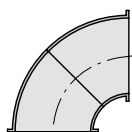
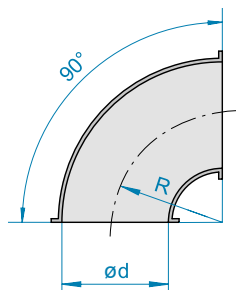
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar

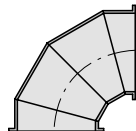


THE RANGE OF PIPE BENDS

Bends



2 pressed segments 45°



4 lobster back segments:
2 x 30° / 2 x 15°

BENDS R = 1 D, 90°



1220

- DN 140, 224 and 300 mm R ≠ 1 D

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	77	80	0.40	11081339	26.60				
100	100	100	0.43	11101339	26.60				
120	120	120	1.00	11121339	33.40				
140	136	125	1.20			11141339	39.40		
150	150	150	0.92	11151339	39.40				
175	174	175	2.00			11171339	46.40		
200	200	200	2.42			11201339	47.20		
224	220	165	2.60			11221339	71.60		
250	250	250	4.00			11251339	71.60		
280	277	280	5.00			11281339	125.50		
300	300	210	5.00			11301339	87.80		
315	312	315	6.20			11311339	128.50		
350	350	350	8.00			11351339	138.50		
400	399	400	10.00			11401339	167.00		
450	449	450	13.00			11451339	179.00		
500	499	500	16.00			11501339	209.50		
560	558	560	26.00					12561339	231.50
630	628	630	23.00					12631339	271.50

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		1.5 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	77	80	0.40	11082339	30.30			11083339	57.80		
100	100	100	0.43	11102339	30.30			11103339	59.50		
120	120	120	1.00	11122339	36.60			11123339	68.00		
140	136	125	1.20			11142339	43.90	11143339*	104.00		
150	150	150	0.92	11152339	43.90			11153339	104.00		
175	174	175	2.00			11172339	54.60	11173339*	108.00		
200	200	200	2.42			11202339	57.30	11203339*	127.00		
224	220	165	2.60			11222339	84.80	11223339*	143.50		
250	250	250	4.00			11252339	84.80	11253339*	143.50		
280	277	280	5.00			11282339	140.00	11283339*	237.50		
300	300	210	5.00			11302339	106.00	11303339*	167.00		
315	312	315	6.20			11312339	143.50	11313339*	246.00		
350	350	350	8.00			11352339	155.00	11353339*	271.00		
400	399	400	10.00			11402339	189.00	11403339*	314.50		
450	449	450	13.00			11452339	197.50	11453339*	368.50		
500	499	500	16.00			11502339	232.00	11503339*	420.00		
560	558	560	26.00			12562339*	287.50			12563339	491.00
630	628	630	23.00			12632339*	331.50			12633339	543.00

*2 mm

*1.5 mm

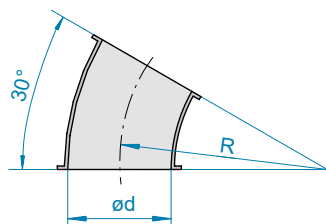
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar

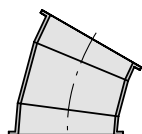


BENDS $R = 2 D, 30^\circ$

1230



1 pressed segment 30°




3 lobster back segments:
1 x 15° / 2 x 7.5°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.25	11061343	15.70				
80	76	160	0.35	11081343*	15.30	12081343	16.30		
100	99	200	0.60	11101343*	16.30	12101343	16.50		
120	119	240	0.80	11121343	19.20	12121343	23.50	13121343	35.00
140	135	280	1.00	11141343	24.60	12141343	29.40		
150	149	300	1.25	11151343	24.60	12151343	29.40	13151343	41.00
175	174	350	1.65	11171343	29.00	12171343	31.80	13171343	45.10
200	199	400	2.10	11201343	32.30	12201343	38.60	13201343	50.50
224	219	448	2.65	11221343	40.70	12221343	46.40		
250	249	500	3.50	11251343	40.70	12251343	46.40	13251343	65.40
280	277	560	4.40	11281343	70.60				
300	299	600	4.60	11301343	56.80	12301343	64.10	13301343	73.70
315	312	630	5.50	11311343	78.80				
350	349	700	6.35			12351343	68.80	13351343	80.00
400	398	800	8.50			12401343	81.40	13401343	89.80
450	448	900	10.70			12451343	102.50	13451343	116.50
500	498	1000	13.20			12501343	117.50	13501343	135.50
560	558	1120	15.90			12561343	140.00	13561343	164.50
630	628	1260	19.00			12631343	181.00	13631343	195.00

*1 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel 	2 mm stainless steel 
				Item no.	€	Item no.	€	Item no.	Item no.
60	57	120		11062343	17.00			11063343*	33.20
80	76	160	0.35	11082343*	16.40	12082343	19.00	11083343	34.50
100	99	200	0.60	11102343*	17.10	12102343	19.80	11103343	34.70
120	119	240	0.80	11122343	19.40	12122343	25.60	11123343	52.00
140	135	280	1.00	11142343	25.50	12142343	33.70	11143343	64.30
150	149	300	1.25	11152343	25.50	12152343	33.70	11153343	64.30
175	174	350	1.65	11172343	30.00	12172343	36.10	11173343*	69.60
200	199	400	2.10	11202343	36.70	12202343	44.10	11203343*	82.00
224	219	448	2.65	11222343	46.00	12222343	55.40	11223343*	104.50
250	249	500	3.50	11252343	46.00	12252343	55.40	11253343*	104.50
280	277	560	4.40	11282343	77.50			11283343*	123.50
300	299	600	4.60	11302343	64.10	12302343	76.90	11303343*	122.50
315	312	630	5.50	11312343	86.20			11313343*	137.50
350	349	700	6.35			12352343	82.50		12353343
400	398	800	8.50			12402343	97.80		12403343
450	448	900	10.70	11452343	108.00				12453343
500	498	1000	13.20	11502343	129.50				12503343
560	558	1120	15.90	11562343	148.00				12563343
630	628	1260	19.00	11632343	183.50				12633343

*1 mm

*1.5 mm

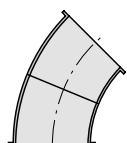
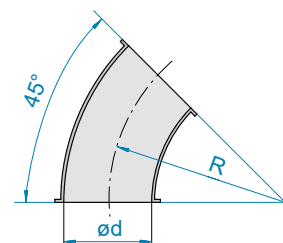
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar

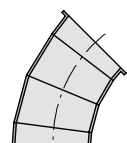


THE RANGE OF PIPE BENDS

Bends



2 pressed segments 22.5°



4 lobster back segments:
2 x 15° / 2 x 7.5°

BENDS $R = 2 D$, 45°



1240

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.40	11061344	16.80				
80	76	160	0.50	11081344*	17.60	12081344	22.00		
100	99	200	0.85	11101344*	19.40	12101344	22.20		
120	119	240	1.15	11121344	22.30	12121344	26.10	13121344	44.10
140	135	280	1.45	11141344	28.90	12141344	34.40		
150	149	300	1.80	11151344	28.90	12151344	34.40	13151344	50.50
175	174	350	2.25	11171344	33.30	12171344	38.80	13171344	56.00
200	199	400	3.00	11201344	36.30	12201344	41.70	13201344	61.30
224	219	448	3.90	11221344	48.50	12221344	58.90		
250	249	500	4.80	11251344	48.50	12251344	58.90	13251344	88.20
280	277	560	6.55	11281344	97.80				
300	299	600	7.20	11301344	83.80	12301344	92.70	13301344	113.50
315	312	630	8.15	11311344	110.00				
350	349	700	9.80			12351344	97.00	13351344	120.00
400	398	800	12.70			12401344	123.50	13401344	146.50
450	448	900	16.00			12451344	147.50	13451344	167.00
500	498	1000	19.80			12501344	166.50	13501344	196.50
560	558	1120	23.90			12561344	196.00	13561344	235.50
630	628	1260	29.60			12631344	221.50	13631344	286.50

*1 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.40	11062344	19.70			11063344*	33.50		
80	76	160	0.50	11082344*	21.40	12082344	25.00	11083344	45.60		
100	99	200	0.85	11102344*	22.70	12102344	25.30	11103344	46.30	12103344	68.10
120	119	240	1.15	11122344	24.80	12122344	29.60	11123344	54.60	12123344	78.50
140	135	280	1.45	11142344	31.80	12142344	38.90	11143344	74.20	12143344	108.00
150	149	300	1.80	11152344	31.80	12152344	38.90	11153344*	74.20	12153344	108.00
175	174	350	2.25	11172344	36.80	12172344	44.00	11173344	85.70	12173344	127.50
200	199	400	3.00	11202344	40.90	12202344	47.10	11203344*	93.50	12203344	138.00
224	219	448	3.90	11222344	55.60	12222344	67.70	11223344*	134.00		
250	249	500	4.80	11252344	55.60	12252344	67.70	11253344*	134.00	12253344	195.50
280	277	560	6.55	11282344	108.00			11283344*	168.50		
300	299	600	7.20	11302344	92.00	12302344	111.00	11303344*	171.00	12303344	218.50
315	312	630	8.15	11312344	120.50			11313344*	187.50		
350	349	700	9.80			12352344	116.50			12353344	224.50
400	398	800	12.70			12402344	148.50			12403344	252.50
450	448	900	16.00	11452344	154.00					12453344	304.50
500	498	1000	19.80	11502344	172.00					12503344	367.50
560	558	1120	23.90	11562344	192.50					12563344	451.50
630	628	1260	29.60	11632344	237.50					12633344	537.00

*1 mm

*1.5 mm

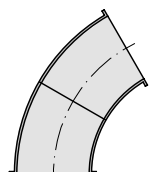
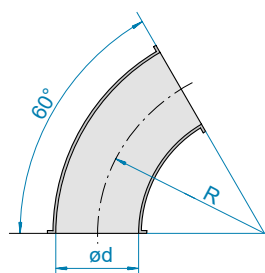
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar

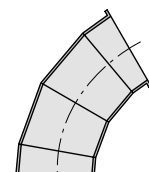


BENDS $R = 2 D$, 60°

1250



2 pressed segments 30°





4 lobster back segments:
 $2 \times 20^\circ / 2 \times 10^\circ$

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.50	11061346	18.40				
80	76	160	0.65	11081346*	25.90	12081346	26.10		
100	99	200	1.10	11101346*	26.20	12101346	26.40		
120	119	240	1.50	11121346	29.30	12121346	37.90	13121346	51.90
140	135	280	2.05	11141346	36.30	12141346	42.40		
150	149	300	2.40	11151346	36.30	12151346	42.40	13151346	57.50
175	174	350	3.15	11171346	40.20	12171346	46.80	13171346	62.80
200	199	400	4.10	11201346	45.70	12201346	60.20	13201346	75.40
224	219	448	5.20	11221346	85.30	12221346	95.50		
250	249	500	6.90	11251346	85.30	12251346	95.50	13251346	135.00
280	277	560	8.80	11281346	126.50				
300	299	600	9.30	11301346	111.50	12301346	129.50	13301346	155.00
315	312	630	10.80	11311346	141.50				
350	349	700	13.00	11351346	132.50	12351346	134.50	13351346	161.50
400	398	800	16.90			12401346	155.50	13401346	199.00
450	448	900	21.30			12451346	185.00	13451346	225.50
500	498	1000	26.40			12501346	213.00	13501346	254.50
560	558	1120	31.90			12561346	274.50	13561346	323.50
630	628	1260	37.90			12631346	327.00	13631346	369.00

*1 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.50	11062346	20.60			11063346*	37.10		
80	76	160	0.65	11082346*	26.50	12082346	29.80	11083346	58.30		
100	99	200	1.10	11102346*	28.00	12102346	30.30	11103346	58.80	12103346	80.00
120	119	240	1.50	11122346	29.90	12122346	42.80	11123346	83.20	12123346	119.50
140	135	280	2.05	11142346	37.10	12142346	48.00	11143346	95.00	12143346	128.50
150	149	300	2.40	11152346	37.10	12152346	48.00	11153346	95.00	12153346	128.50
175	174	350	3.15	11172346	48.50	12172346	53.00	11173346*	103.00	12173346	143.50
200	199	400	4.10	11202346	54.20	12202346	68.00	11203346*	126.50	12203346	177.00
224	219	448	5.20	11222346	92.30	12222346	110.50	11223346*	183.00		
250	249	500	6.90	11252346	92.30	12252346	110.50	11253346*	183.00	12253346	286.00
280	277	560	8.80	11282346	138.50			11283346*	235.00		
300	299	600	9.30	11302346	131.00	12302346	154.00	11303346*	239.00	12303346	290.00
315	312	630	10.80	11312346	155.00			11313346*	262.00		
350	349	700	13.00			12352346	161.50			12353346	297.00
400	398	800	16.90			12402346	186.50			12403346	346.50
450	448	900	21.30	11452346	211.00					12453346	456.50
500	498	1000	26.40	11502346	237.50					12503346	492.00
560	558	1120	31.90	11562346	273.00					12563346	585.00
630	628	1260	37.90	11632346	298.50					12633346	686.50

*1 mm

*1.5 mm

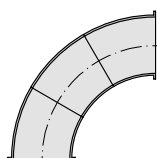
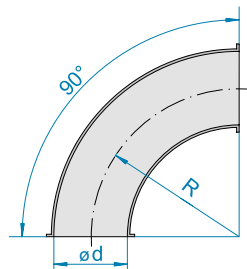
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar

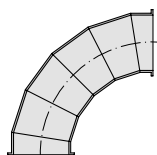


THE RANGE OF PIPE BENDS

Bends



3 pressed segments 30°



6 lobster back segments:
4 x 18° / 2 x 9°

BENDS R = 2 D, 90°

1260

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.75	11061349	18.70				
80	76	160	0.95	11081349*	27.60	12081349	30.80		
100	99	200	1.55	11101349*	28.10	12101349	31.40		
120	119	240	2.20	11121349	34.50	12121349	39.10	13121349	68.80
140	135	280	3.05	11141349	43.50	12141349	52.20		
150	149	300	3.50	11151349	43.50	12151349	52.20	13151349	80.90
175	174	350	4.60	11171349	46.60	12171349	58.80	13171349	85.00
200	199	400	6.10	11201349	52.80	12201349	71.10	13201349	117.50
224	219	448	7.80	11221349	106.50	12221349	125.50		
250	249	500	9.70	11251349	106.50	12251349	125.50	13251349	205.50
280	277	560	12.70	11281349	181.50				
300	299	600	13.50	11301349	154.00	12301349	172.50	13301349	241.00
315	312	630	16.30	11311349	203.50				
350	349	700	19.60			12351349	187.00	13351349	249.50
400	398	800	25.00			12401349	218.50	13401349	278.50
450	448	900	32.00			12451349	295.00	13451349	342.50
500	498	1000	39.30			12501349	333.00	13501349	400.50
560	558	1120	47.90			12561349	383.00	13561349	421.00
630	628	1260	56.90			12631349	439.00	13631349	533.00

*1 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

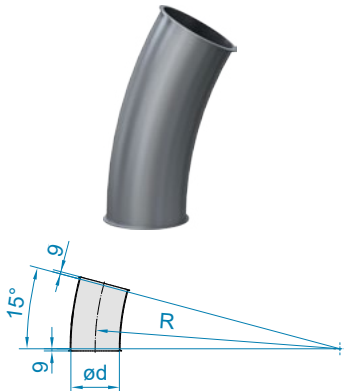
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel 	2 mm stainless steel 
				Item no.	€	Item no.	€	Item no.	Item no.
60	57	120	0.75	11062349	21.40			11063349*	38.80
80	76	160	0.95	11082349*	31.30	12082349	34.80	11083349	68.60
100	99	200	1.55	11102349*	31.90	12102349	35.70	11103349	68.60
120	119	240	2.20	11122349	38.40	12122349	44.70	11123349	87.20
140	135	280	3.05	11142349	46.40	12142349	59.10	11143349	120.50
150	149	300	3.50	11152349	46.40	12152349	59.10	11153349	120.50
175	174	350	4.60	11172349	54.90	12172349	66.50	11173349*	135.50
200	199	400	6.10	11202349	66.60	12202349	80.30	11203349*	149.00
224	219	448	7.80	11222349	123.50	12222349	144.00	11223349*	283.50
250	249	500	9.70	11252349	123.50	12252349	144.00	11253349*	283.50
280	277	560	12.70	11282349	199.50			11283349*	361.50
300	299	600	13.50	11302349	192.50	12302349	205.00	11303349*	377.00
315	312	630	16.30	11312349	223.00			11313349*	403.50
350	349	700	19.60			12352349	224.00		12353349
400	398	800	25.00			12402349	262.50		12403349
450	448	900	32.00	11452349	322.00				12453349
500	498	1000	39.30	11502349	363.50				12503349
560	558	1120	47.90	11562349	418.00				12563349
630	628	1260	56.90	11632349	469.50				12633349

*1 mm

*1.5 mm

 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar



BENDS $R = 5 D$, 15°

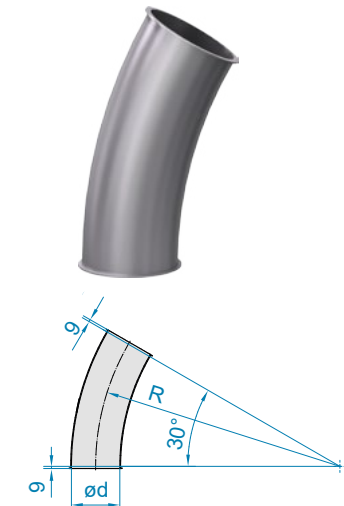
1262

- DN 80, 250 and 300 mm $R \neq 5 D$

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	3.40	120813511	104.00	120833511	117.50	
100	99	500	4.10	121013511	132.50	121033511	176.00	
120	119	600	5.70	121213511	141.50	121233511	181.50	
150	149	750	13.50	131513511*	172.00	121533511	212.50	
175	175	875	12.40	131713511*	266.50	121733511	347.50	
200	199	1000	26.20	132013511*	279.00	132033511*	420.50	
250	249	1000	32.80	132513511*	332.00	132533511*	631.00	
300	299	1200	46.40	133013511*	505.50	133033511*	875.50	

*3 mm



BENDS $R = 5 D$, 30°

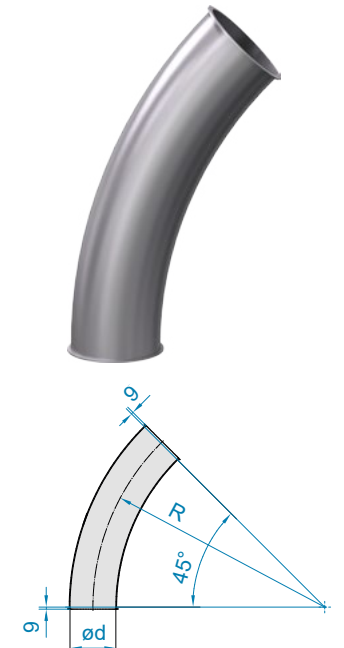
1264

- DN 80, 250 and 300 mm $R \neq 5 D$

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	3.40	120813531	115.00	120833531	139.00	
100	99	500	4.10	121013531	148.50	121033531	201.50	
120	119	600	5.70	121213531	161.50	121233531	220.00	
150	149	750	13.50	131513531*	206.50	121533531	256.50	
175	175	875	12.40	131713531*	318.00	121733531	425.00	
200	199	1000	26.20	132013531*	331.00	132033531*	520.00	
250	249	1000	32.80	132513531*	383.00	132533531*	775.50	
300	299	1200	46.40	133013531*	582.50	133033531*	1076.00	

*3 mm



BENDS $R = 5 D$, 45°

1266

- DN 80, 250 and 300 mm $R \neq 5 D$

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	3.40	120813541	146.00	120833541	172.00	
100	99	500	4.10	121013541	170.50	121033541	238.50	
120	119	600	5.70	121213541	190.00	121233541	283.00	
150	149	750	13.50	131513541*	262.50	121533541	328.00	
175	175	875	12.40	131713541*	399.50	121733541	553.50	
200	199	1000	26.20	132013541*	412.00	132033541*	691.00	
250	249	1000	32.80	132513541*	457.50	132533541*	1019.00	
300	299	1200	46.40	133013541*	695.00	133033541*	1412.00	

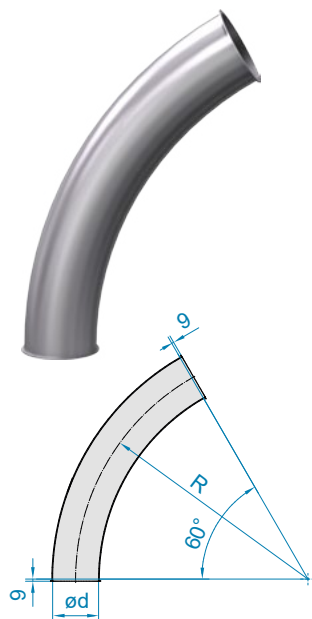
*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THE RANGE OF PIPE BENDS

Bends



BENDS R = 5 D, 60°

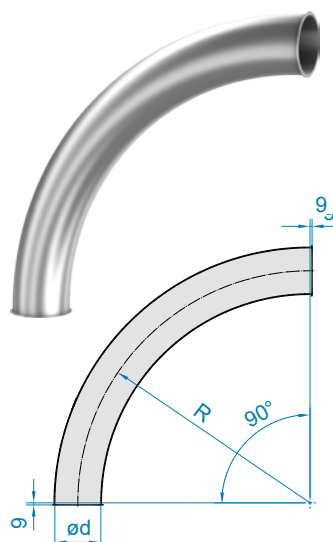
1268

- DN 80, 250 and 300 mm R ≠ 5 D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	3.40	120813561	166.00	120833561	182.00	
100	99	500	4.10	121013561	201.50	121033561	275.50	
120	119	600	5.70	121213561	210.00	121233561	310.00	
150	149	750	13.50	131513561*	303.50	121533561	375.00	
175	175	875	12.40	131713561*	447.50	121733561	597.50	
200	199	1000	26.20	132013561*	470.00	132033561*	861.00	
250	249	1000	32.80	132513561*	487.50	132533561*	1260.00	
300	299	1200	46.40	133013561*	884.50	133033561*	1771.00	

*3 mm



BENDS R = 5 D, 90°

1270

- DN 80, 250 and 300 mm R ≠ 5 D

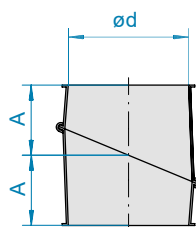
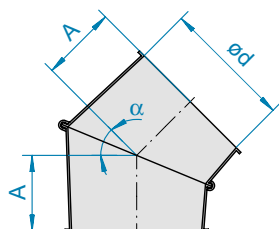
Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	3.40	12081359	199.00	12083359	240.00	
100	99	500	4.10	12101359	273.00	12103359	368.50	
120	119	600	5.70	12121359	295.50	12123359	402.00	
150	149	750	13.50	13151359*	363.00	12153359	448.00	
175	175	875	12.40	13171359*	535.00	12173359	714.50	
200	199	1000	26.20	13201359*	535.00	12203359*	900.00	
250	249	1000	32.80	13251359*	721.50	12253359*	1316.00	
300	299	1200	46.40	13301359*	1064.00	12303359*	1814.00	

*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Adjustable elbows / pipe ball joints



ADJUSTABLE ELBOWS

1145

- Version with galvanised pull-ring and U-shaped seal
- Pre-assembled in the factory
- 2 segments can also be adjusted by counter-rotating

Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

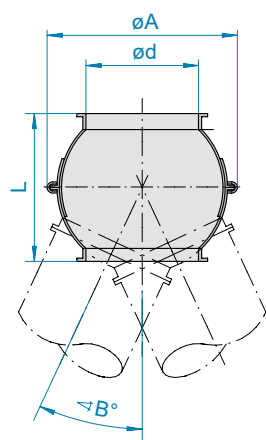
DN	Ø d	A	α	kg	1.5 mm powder-coated with NBR		1.5 mm powder-coated with EPDM		1.5 mm stainless steel with silicone, blue		F D
					Item no.	€	Item no.	€	Item no.	€	
100	100	70	55°	1.5	1110133503	35.50	1110133502	36.30	1110333501	52.20	
120	120	60	45°	1.6	1112133503	36.70	1112133502	37.50	1112333501	54.10	
150	150	80	45°	2.4	1115133503	39.50	1115133502	40.40	1115333501	63.50	
175	175	100	45°	3.0	1117133503	46.10	1117133502	46.80	1117333501	75.10	
200	200	120	45°	3.5	1120133503	49.00	1120133502	49.90	1120333501	83.20	
250	250	140	45°	4.6	1125133503	57.30	1125133502	58.30	1125333501	105.50	

PIPE BALL JOINTS

2125

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	2 mm galvanised		2 mm stainless steel		F
						Item no.	€	Item no.	€	
100	99	150	25°	130	1.50	12102730	62.50	12103730	127.00	
120	119	150	15°	115	1.60	12122730	65.50	12123730	165.00	
150	149	200	18°	160	2.35	12152730	88.00	12153730	183.50	
175	174	250	25°	200	3.70	12172730	123.50	12173730	259.50	
200	199	250	15°	170	3.50	12202730	130.50	12203730	270.00	
250	249	300	16°	190	4.60	12252730	137.50	12253730	313.50	

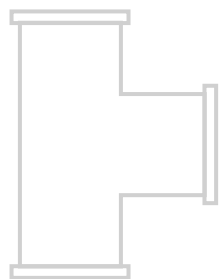


F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



JACOB BRANCH PIECES: ALMOST EVERYTHING
AVAILABLE IN STANDARD QUALITY, EVERYTHING
ELSE AT THE CUSTOMER'S REQUEST



BRANCH PIECES

Technical information	70	
T-pieces	72	
Forks	73	
Symmetrical forks	78	



BRANCH PIECES

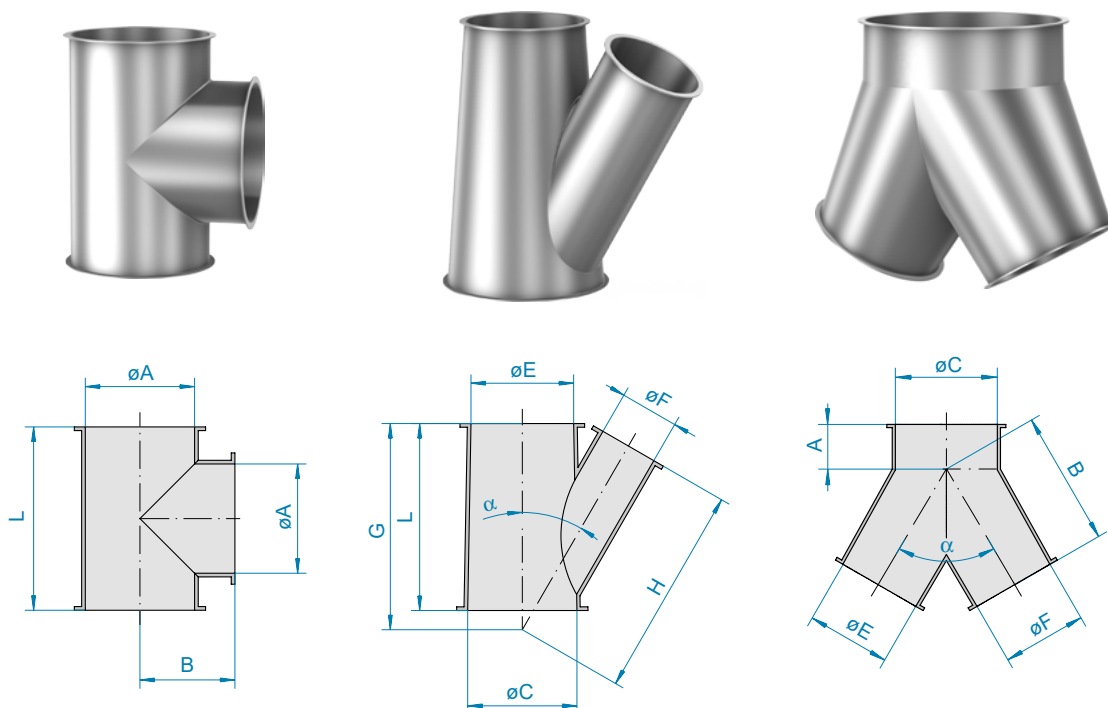
Branch pieces turn a straightforward pipe into a complex pipework system. They are therefore key elements during planning and implementation.

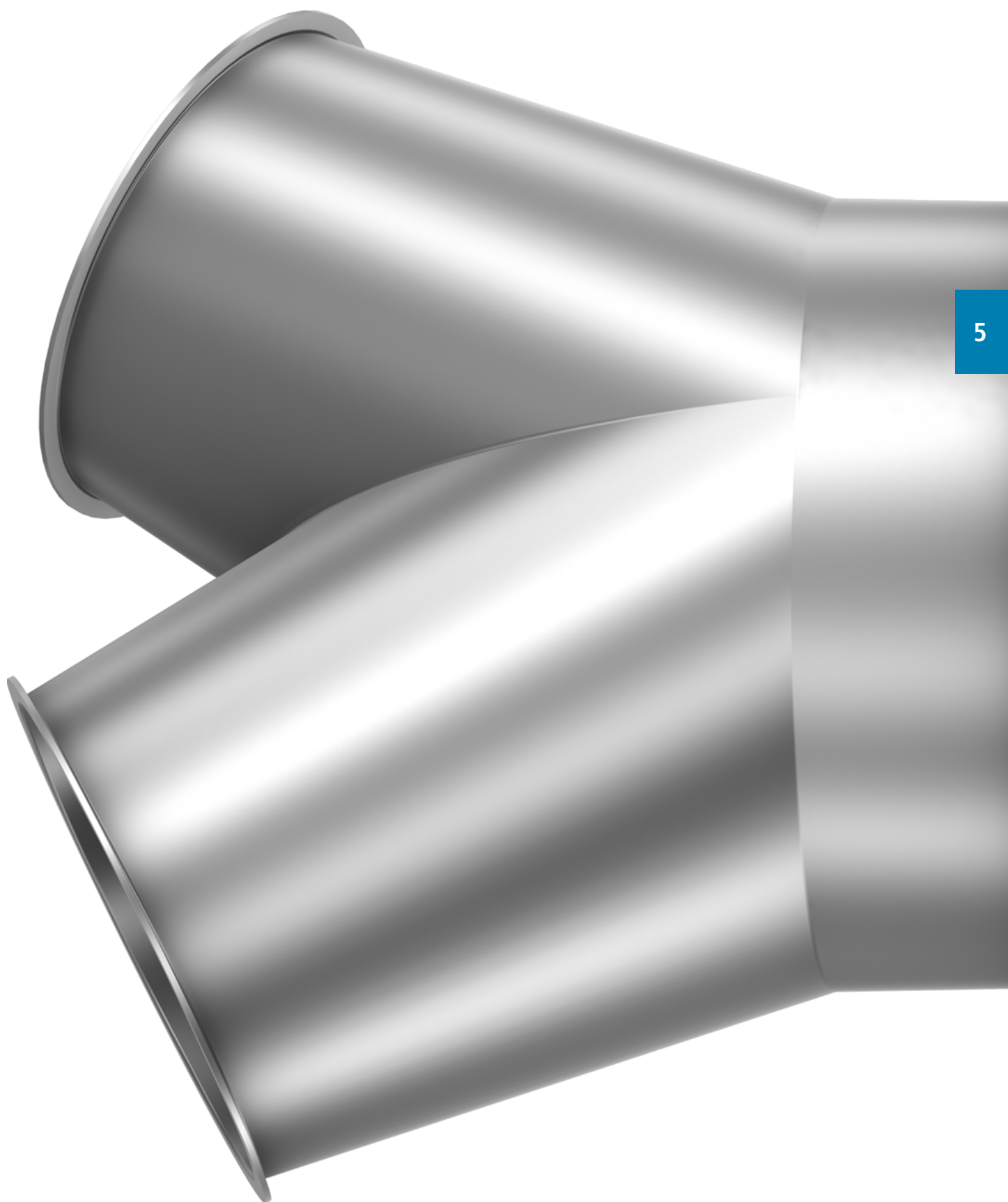
To meet the particular requirements of each system, JACOB offers a comprehensive and wide-ranging standard range which covers most requirements. If this does not meet your particular needs, we also manufacture individual parts to customers' specification. This is possible due to up-to-the-minute technologies, such as fully-automated laser welding equipment, which can carry out precise customised and small-scale production as well as on an industrial scale.

We can therefore manufacture your own individual branch piece – from a wide range of special colours as well as with different flanges, special lengths and individual angles.

T-PIECES, FORKS AND SYMMETRICAL FORKS ACCORDING TO YOUR INDIVIDUAL DIMENSIONS

We manufacture forks, T-pieces and symmetrical forks to your specifications if you inform us of the dimensions of the material and the wall thickness you require. Prices and delivery time on request.

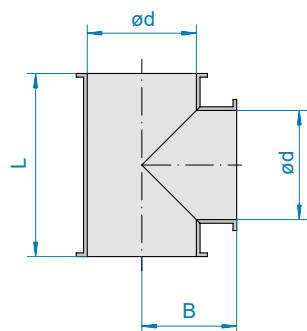
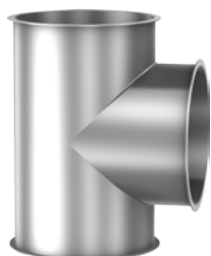






BRANCH PIECES

T-pieces



T-PIECES 90°

1070

- Other combinations of diameter and wall thickness available on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	B	L	kg	1.5 mm powder-coated		2 mm powder-coated		1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	60	130	0.55	11061240	31.40			11062240	35.50		
80	77	70	150	0.60	11081240	31.70			11082240	35.50		
100	100	100	200	1.00	11101240	31.90			11102240	35.70		
120	120	110	220	1.20	11121240	33.20			11122240	37.70		
140	136	120	240	1.40	11141240	41.40			11142240	48.50		
150	150	125	250	1.65	11151240	41.40			11152240	48.50		
175	175	137.5	275	2.05	11171240	46.80			11172240	50.90		
200	200	150	300	2.55	11201240	49.70			11202240	62.00		
224	220	162.5	325	2.90	11221240	65.10			11222240	81.00		
250	250	175	350	3.50	11251240	65.10			11252240	81.00		
280	277	190	380	4.30	11281240	79.10			11282240	95.40		
300	300	200	400	4.70	11301240	79.10			11302240	95.40		
315	312	210	420	5.30	11311240	94.90			11312240	115.00		
350	350	275	550	8.10	11351240	109.00			11352240	123.00		
400	399	300	600	9.90	11401240	128.50			11402240	146.00		
450	449	325	650	12.75	11451240	143.00			11452240	162.50		
500	499	350	700	14.10	11501240	171.00			11502240	194.50		
560	558	380	760	22.15			12561240	189.00			12562240	214.00
630	628	415	830	26.80			12631240	214.00			12632240	238.50

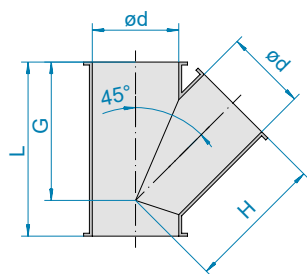
Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	B	L	kg	1.5 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€
60	57	60	130	0.55	11063240	77.50		
80	77	70	150	0.60	11083240	77.70		
100	100	100	200	1.00	11103240	78.00	12103240	95.40
120	120	110	220	1.20	11123240	81.70	12123240	102.00
140	136	120	240	1.40	11143240	95.10		
150	150	125	250	1.65	11153240	95.10	12153240	135.50
175	175	137.5	275	2.05	11173240	133.50	12173240	177.00
200	200	150	300	2.55	11203240	142.00	12203240	189.50
224	220	162.5	325	2.90	11223240	154.00		
250	250	175	350	3.50	11253240	154.00	12253240	199.00
280	277	190	380	4.30	11283240	165.50		
300	300	200	400	4.70	11303240	165.50	12303240	243.00
315	312	210	420	5.30	11313240	182.00		
350	350	275	550	8.10	11353240	196.00	12353240	290.00
400	399	300	600	9.90	11403240	215.00	12403240	328.50
450	449	325	650	12.75	11453240	234.50	12453240	368.50
500	499	350	700	14.10	11503240	253.50	12503240	418.50
560	558	380	760	22.15			12563240	445.50
630	628	415	830	26.80			12633240	484.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar

Forks



FORKS 45°

1050

- Other combinations of diameters available on request
- Conical forks available on request
- From DN 350 mm, dimensions for 2 mm pipework


Powder-coated (dimensions for 1.5 mm pipework)


DN	Ø d	G	H	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
						Item no.	€	Item no.	€	Item no.	€
60	57	115	115	145	0.50	11061220	28.20				
80	77	123	137	160	0.75	11081220	28.40				
100	100	177	176	215	1.15	11101220	28.60				
120	120	187	185	240	1.20	11121220	30.50	12121220	34.80	13121220	51.00
140	136	216	219	280	1.60	11141220	37.00	12141220	40.90	13141220	58.40
150	150	234	231	300	2.10	11151220	37.00	12151220	40.90	13151220	58.40
175	175	269	266	340	2.20	11171220	43.70	12171220	54.10	13171220	64.80
200	200	309	306	390	4.10	11201220	54.40	12201220	62.40	13201220	68.90
224	220	334	336	420	5.70	11221220	63.80	12221220	83.10	13221220	98.00
250	250	358	352	450	5.40	11251220	63.80	12251220	83.10	13251220	98.00
280	277	400	400	500	6.90	11281220	79.20				
300	300	418	412	520	7.80	11301220	79.20	12301220	104.00	13301220	130.00
315	312	450	450	560	8.70	11311220	96.40				
350	349	498	472	615	15.00	11351220	111.50	12351220	123.50	13351220	175.50
400	398	557	533	685	17.75	11401220	141.00	12401220	169.00	13401220	245.50
450	448	662	623	800	22.80	11451220	174.00	12451220	198.50	13451220	288.00
500	498	701	674	850	27.20	11501220	204.50	12501220	218.00	13501220	318.50
560	558	789	786	950	38.00			12561220	252.00	13561220	368.50
630	628	885	890	1060	48.00			12631220	298.00	13631220	435.00

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	G	H	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	115	115	145	0.50	11062220	30.40			11063220*	52.70		
80	77	123	137	160	0.75	11082220	30.40			11083220	52.70		
100	100	177	176	215	1.15	11102220	30.60	12102220	36.80	11103220	52.90	12103220	83.10
120	120	187	185	240	1.20	11122220	33.70	12122220	40.30	11123220	68.50	12123220	99.20
140	136	216	219	280	1.60	11142220	41.80	12142220	48.50	11143220	95.00	12143220	143.00
150	150	234	231	300	2.10	11152220	41.80	12152220	48.50	11153220	95.00	12153220	143.00
175	175	269	266	340	2.20	11172220	52.50	12172220	68.20	11173220	118.00	12173220	166.00
200	200	309	306	390	4.10	11202220	61.50	12202220	74.10	11203220	127.50	12203220	211.50
224	220	334	336	420	5.70	11222220	73.00	12222220	99.90	11223220	169.00	12223220	245.00
250	250	358	352	450	5.40	11252220	73.00	12252220	99.90	11253220	169.00	12253220	245.00
280	277	400	400	500	6.90	11282220	92.10			11283220*	194.00		
300	300	418	412	520	7.80	11302220	92.10	12302220	127.50	11303220	194.00	12303220	335.50
315	312	450	450	560	8.70	11312220	112.50			11313220*	205.00		
350	349	498	472	615	15.00	11352220	134.00			11353220*	216.50	12353220	402.00
400	398	557	533	685	17.75	11402220	167.00			11403220*	303.00	12403220	444.00
450	448	662	623	800	22.80	11452220	203.00			11453220*	360.00	12453220	514.50
500	498	701	674	850	27.20	11502220	238.00			11503220*	394.50	12503220	579.50
560	558	789	786	950	38.00	11562220	276.50					12563220	645.50
630	628	885	890	1060	48.00	11632220	332.50					12633220	713.00

*1.5 mm

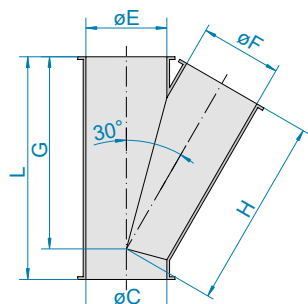
 FOOD GRADE
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar

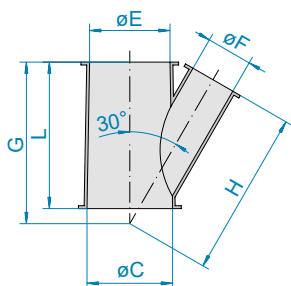


BRANCH PIECES

Forks



Fork 30°



Conical fork 30°

FORKS 30°

1060/1080

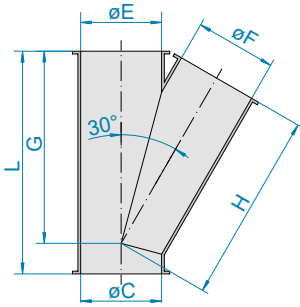
- Diameters C, E, F = nominal diameters, for inside diameters see chapter 1, Connecting systems and dimensions

- Other combinations of diameter, angles and wall thickness available on request

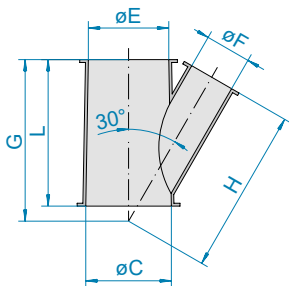
Powder-coated (dimensions for 1.5 mm pipework)

DN C - E - F	G	H	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€	Item no.	€
60- 60- 60	170	170	200	0.80	11061230	30.40				
80- 60- 60	170	170	200	0.95	11081255	30.50				
80- 80- 80	209	216	240	1.32	11081230	30.60				
100- 80- 80	237	236	250	1.25	11101255	49.70				
100-100- 80	239	248	250	1.35	11101258	55.80				
100-100-100	262	248	300	1.70	11101230	30.80	12101230	34.10		
120- 80- 80	258	259	255	1.35	11121286	55.80				
120-100- 80	260	261	255	1.45	11121257	53.80				
120-100-100	267	267	290	1.75	11121255	60.00				
120-120- 80	256	258	250	1.50	11121258	57.70				
120-120-120	299	296	340	2.20	11121230	33.80	12121230	37.00	13121230	60.70
140-100-100	290	292	300	1.95	11141255	65.50				
140-120- 80	274	278	255	1.65	11141257	60.70				
140-120-100	291	293	300	2.00	11141256	61.90				
140-140- 80	275	284	255	1.70	11141258	61.20				
140-140-140	336	334	390	2.80	11141230	40.10				
150-100-100	291	294	290	2.10	11151254	58.30				
150-120-100	293	296	290	2.05	11151256	65.90				
150-120-120	323	324	340	2.45	11151255	71.10				
150-140- 80	286	292	255	1.75	11151287	64.00				
150-150- 80	282	288	250	1.85	11151258	63.70				
150-150-150	355	350	410	3.05	11151230	40.10	12151230	48.90	13151230	71.90
175-120-120	343	347	340	2.70	11171285	74.90				
175-140-120	344	348	340	2.70	11171286	80.50				
175-150- 80	302	311	250	1.90	11171258	65.00				
175-150-100	315	321	290	2.40	11171257	70.10				
175-150-120	345	349	340	2.80	11171256	78.00				
175-150-150	375	373	410	3.80	11171255	85.90				
175-175-175	392	383	450	4.00	11171230	52.60	12171230	63.30	13171230	79.50
200-140-140	387	401	390	3.60	11201285	87.10				
200-150-120	365	373	340	2.70	11201286	82.80				
200-150-150	395	396	410	5.00	11201255	88.10				
200-175-100	336	346	290	2.70	11201258	76.30				
200-175-120	366	374	340	3.10	11201257	81.00				
200-175-150	396	398	410	4.10	11201256	92.40				
200-200- 80	330	348	255	2.50	11201253	69.20				
200-200-100	348	358	300	3.00	11201254	77.60				
200-200-200	463	457	530	5.60	11201230	66.00	12201230	78.90	13201230	89.40
224-150-150	410	424	410	4.00	11221255	95.60				
224-175-140	406	423	390	4.00	11221256	94.00				
224-200-100	364	377	300	3.00	11221258	85.80				
224-200-120	384	395	340	3.30	11221257	90.40				
224-224-224	510	510	580	6.90	11221230	73.40				

Shock explosion proof tested
up to 3 bar



■ Fork 30°



Conical fork 30°

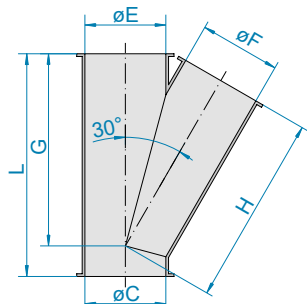
■ Shock explosion proof tested up to 3 bar

DN C - E - F	G	H	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€	Item no.	€
250-200-150	438	446	410	4.60	11251286	104.00				
250-200-175	453	455	450	5.80	11251256	107.50				
250-200-200	503	513	530	6.10	11251255	115.00				
250-224-120	409	424	340	4.20	11251288	97.40				
250-224-140	433	455	390	4.40	11251287	103.00				
250-250-80	374	398	255	2.90	11251253	82.20				
250-250-100	392	409	300	3.50	11251254	84.00				
250-250-250	547	544	620	8.00	11251230	73.40	12251230	89.40	13251230	128.00
280-280-280	610	610	690	10.00	11281230	91.00				
300-224-224	575	584	580	7.70	11301285	136.00				
300-250-140	475	493	390	4.90	11301288	114.00				
300-250-150	476	495	410	5.30	11301258	111.50				
300-250-175	496	505	450	5.90	11301257	115.00				
300-250-200	546	563	530	7.10	11301256	127.00				
300-250-250	587	580	620	8.70	11301255	138.50				
300-300-80	417	448	255	3.30	11301253	88.60				
300-300-100	435	459	300	4.10	11301254	93.40				
300-300-300	640	640	720	11.25	11301230	91.00	12301230	111.50	13301230	162.00
315-315-315	690	690	780	12.70	11311230	111.50				
350-250-250	627	627	620	9.60	11351255	172.00				
350-300-150	524	546	410	6.10	11351288	161.50				
350-300-200	590	613	530	7.90	11351257	161.50				
350-300-224	619	636	580	8.90	11351286	180.50				
350-300-250	630	630	620	9.90	11351256	181.50				
350-350-350	728	717	820	14.40	11351230	133.50	12351230	162.00	13351230	236.50
400-300-250	670	677	620	10.40	11401256	188.00				
400-300-300	721	724	720	12.40	11401255	202.00				
400-350-175	583	609	450	7.40	11401288	184.50				
400-350-224	663	686	580	10.20	11401287	204.00				
400-400-400	826	825	925	18.65	11401230	173.50	12401230	201.50	13401230	294.00
450-350-300	764	774	720	14.80	11451256	217.50				
450-350-350	809	811	820	17.50	11451255	230.00				
450-400-200	676	713	530	10.70	11451258	226.50				
450-400-250	716	730	620	12.80	11451257	241.00				
450-450-450	945	930	1050	23.60	11451230	216.50	12451230	245.00	13451230	358.50
500-400-350	853	861	820	18.20	11501256	297.00				
500-400-400	909	914	925	22.70	11501255	312.00				
500-450-224	749	786	580	13.00	11501288	279.50				
500-450-300	810	827	720	17.00	11501257	276.50				
500-500-500	1038	1027	1150	28.80	11501230	259.00	12501230	271.00	13501230	394.50
560-560-560	1180	1175	1300	54.00			12561230	310.00	13561230	454.00
630-630-630	1301	1304	1430	64.00			12631230	330.50	13631230	485.50

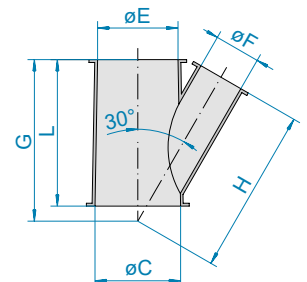


BRANCH PIECES

Forks



Fork 30°



Conical fork 30°

FORKS 30°

1060/1080

- Other combinations of diameter, angles and wall thickness available on request

- Diameters C, E, F: Nominal diameters, for inside diameters see chapter 1, Connecting systems and dimensions

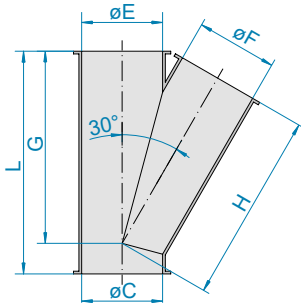
Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN C - E - F	G	H	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
60- 60- 60	170	170	200	0.80	11062230	34.30			11063230*	65.40		
80- 60- 60	170	170	200	0.95	11082255	35.60			11083255*	65.10		
80- 80- 80	209	216	240	1.32	11082230	35.80			11083230	65.40		
100- 80- 80	237	236	250	1.25	11102255	56.10			11103255	107.50	12103255	137.50
100-100- 80	239	248	250	1.35	11102258	62.40			11103258	111.50	12103258	140.00
100-100-100	262	248	300	1.70	11102230	36.00	12102230	41.70	11103230	65.50	12103230	106.50
120- 80- 80	258	259	255	1.35	11122286	62.40			11123286	111.50	12123286	139.00
120-100- 80	260	261	255	1.45	11122257	61.00			11123257	112.50	12123257	140.50
120-100-100	267	267	290	1.75	11122255	67.20			11123255	129.00	12123255	164.00
120-120- 80	256	258	250	1.50	11122258	64.20			11123258	117.50	12123258	148.50
120-120-120	299	296	340	2.20	11122230	39.40	12122230	45.30	11123230	82.30	12123230	122.50
140-100-100	290	292	h300	1.95	11142255	74.30			11143255	140.00	12143255	190.00
140-120- 80	274	278	255	1.65	11142257	67.90			11143257	127.00	12143257	159.50
140-120-100	291	293	300	2.00	11142256	69.90			11143256	124.50	12143256	155.00
140-140- 80	275	284	255	1.70	11142258	68.70			11143258	123.50	12143258	154.00
140-140-140	336	334	390	2.80	11142230	46.80	12142230	60.20	11143230	112.50		
150-100-100	291	294	290	2.10	11152254	71.50			11153254	131.00		
150-120-100	293	296	290	2.05	11152256	74.00			11153256	135.00	12153256	172.50
150-120-120	323	324	340	2.45	11152255	80.00			11153255	153.00	12153255	195.00
150-140- 80	286	292	255	1.75	11152287	71.40			11153287	134.00	12153287	166.50
150-150- 80	282	288	250	1.85	11152258	71.30			11153258	127.00	12153258	159.50
150-150-150	355	350	410	3.05	11152230	46.80	12152230	60.20	11153230	112.50	12153230	174.50
175-120-120	343	347	340	2.70	11172285	85.20			11173285	159.50	12173285	200.00
175-140-120	344	348	340	2.70	11172286	90.80			11173286	166.00	12173286	208.00
175-150- 80	302	311	250	1.90	11172258	73.20			11173258	134.00	12173258	169.50
175-150-100	315	321	290	2.40	11172257	78.60			11173257	146.00	12173257	185.00
175-150-120	345	349	340	2.80	11172256	87.80			11173256	159.50	12173256	203.00
175-150-150	375	373	410	3.80	11172255	96.80			11173255	184.50	12173255	235.50
175-175-175	392	383	450	4.00	11172230	58.50	12172230	73.80	11173230	134.00	12173230	216.50
200-140-140	387	401	390	3.60	11202285	99.40			11203285	190.00	12203285	236.50
200-150-120	365	373	340	2.70	11202286	94.30			11203286	173.00	12203286	216.00
200-150-150	395	396	410	5.00	11202255	99.40			11203255	190.00	12203255	242.00
200-175-100	336	346	290	2.70	11202258	85.60			11203258	156.00	12203258	198.50
200-175-120	366	374	340	3.10	11202257	91.00			11203257	169.00	12203257	216.00
200-175-150	396	398	410	4.10	11202256	104.50			11203256	190.00	12203256	241.50
200-200- 80	330	348	255	2.50	11202253	73.60			11203253	186.50	12203253	221.50
200-200-100	348	358	300	3.00	11202254	83.40			11203254	196.00	12203254	243.50
200-200-200	463	457	530	5.60	11202230	82.80	12202230	104.00	11203230	179.00	12203230	252.00
224-150-150	410	424	410	4.00	11222255	109.50			11223255	208.50	12223255	261.00
224-175-140	406	423	390	4.00	11222256	108.00			11223256	196.00	12223256	244.50
224-200-100	364	377	300	3.00	11222258	96.90			11223258	173.00	12223258	215.50
224-200-120	384	395	340	3.30	11222257	103.00			11223257	192.50	12223257	239.50
224-224-224	510	510	580	6.90	11222230	96.70	12222230	123.00	11223230	210.00		

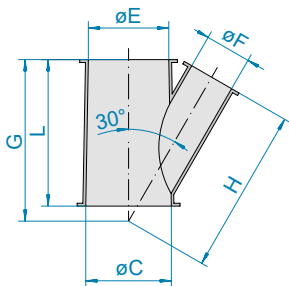
*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

S Shock explosion proof tested
up to 3 bar



■ Fork 30°



Conical fork 30°

DN C - E - F	G	H	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel	F	2 mm stainless steel	F
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
250-200-150	438	446	410	4.60	11252286	120.00			11253286	217.00	12253286	270.50
250-200-175	453	455	450	5.80	11252256	121.50			11253256	217.00	12253256	277.00
250-200-200	503	513	530	6.10	11252255	130.00			11253255	245.50	12253255	313.50
250-224-120	409	424	340	4.20	11252288	111.00			11253288	195.50	12253288	244.50
250-224-140	433	455	390	4.40	11252287	121.50			11253287	223.00	12253287	278.00
250-250- 80	374	398	255	2.90	11252253	87.70			11253253	190.50		
250-250-100	392	409	300	3.50	11252254	91.00			11253254	200.00	12253254	273.50
250-250-250	547	544	620	8.00	11252230	96.70	12252230	123.00	11253230	210.00	12253230	298.50
280-280-280	610	610	690	10.00	11282230	123.50			11283230	250.50		
300-224-224	575	584	580	7.70	11302285	159.50			11303285	305.00	12303285	380.50
300-250-140	475	493	390	4.90	11302288	129.50			11303288	228.00	12303288	284.50
300-250-150	476	495	410	5.30	11302258	125.50			11303258	231.00	12303258	286.50
300-250-175	496	505	450	5.90	11302257	130.00			11303257	238.00	12303257	303.50
300-250-200	546	563	530	7.10	11302256	144.50			11303256	258.50	12303256	331.00
300-250-250	587	580	620	8.70	11302255	157.00			11303255	295.50	12303255	377.50
300-300- 80	417	448	255	3.30	11302253	92.40			11303253	193.50		
300-300-100	435	459	300	4.10	11302254	99.70			11303254	203.50	12303254	279.50
300-300-300	640	640	720	11.25	11302230	123.50	12302230	154.00	11303230	250.50	12303230	379.00
315-315-315	690	690	780	12.70	11312230	151.00			11313230	276.50		
350-250-250	627	627	620	9.60	11352255	194.50			11353255*	367.00	12353255	468.50
350-300-150	524	546	410	6.10	11352288	190.00			11353288	343.50	12353288	429.00
350-300-200	590	613	530	7.90	11352257	182.00			11353257*	335.00	12353257	428.00
350-300-224	619	636	580	8.90	11352286	205.50			11353286*	367.50	12353286	459.00
350-300-250	630	630	620	9.90	11352256	205.00			11353256*	369.00	12353256	471.50
350-350-350	728	717	820	14.40	11352230	159.00			11353230*	294.00	12353230	495.50
400-300-250	670	677	620	10.40	11402256	211.50			11403256*	380.50	12403256	485.50
400-300-300	721	724	720	12.40	11402255	227.50			11403255*	429.50	12403255	549.50
400-350-175	583	609	450	7.40	11402288	216.00			11403288	390.50	12403288	487.50
400-350-224	663	686	580	10.20	11402287	238.50			11403287*	443.00	12403287	552.00
400-400-400	826	825	925	18.65	11402230	202.50			11403230*	328.50	12403230	528.00
450-350-300	764	774	720	14.80	11452256	245.00			11453256*	440.50	12453256	563.00
450-350-350	809	811	820	17.50	11452255	259.50			11453255*	487.00	12453255	628.50
450-400-200	676	713	530	10.70	11452258	254.50			11453258*	459.50	12453258	587.50
450-400-250	716	730	620	12.80	11452257	272.50			11453257*	500.50	12453257	640.00
450-450-450	945	930	1050	23.60	11452230	249.50			11453230*	445.50	12453230	562.00
500-400-350	853	861	820	18.20	11502256	334.50			11503256*	603.00	12503256	770.50
500-400-400	909	914	925	22.70	11502255	351.50			11503255*	666.00	12503255	852.50
500-450-224	749	786	580	13.00	11502288	328.50			11503288*	598.00	12503288	747.00
500-450-300	810	827	720	17.00	11502257	311.50			11503257*	573.50	12503257	731.00
500-500-500	1038	1027	1150	28.80	11502230	292.00			11503230*	491.00	12503230	648.00
560-560-560	1180	1175	1300	54.00	11562230	342.00					12563230	744.50
630-630-630	1301	1304	1430	64.00	11632230	374.50					12633230	792.00

*1.5 mm

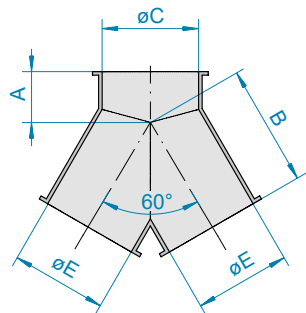
F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof tested
up to 3 bar

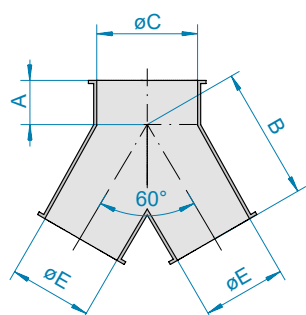


BRANCH PIECES

Symmetrical forks



■ Symmetrical fork 60°



■ Conical symmetrical fork 60°

F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof tested
up to 3 bar

SYMMETRICAL FORKS 60°

1090/1095

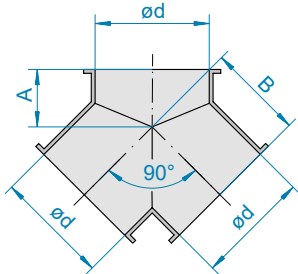
- Other combinations of diameter, angles and wall thickness available on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN C - E - E	A	B	C	E	kg	1.5 mm powder-coated		1.5 mm galvanised	
						Item no.	€	Item no.	€
80-80-80	40	120	77	77	0.80	11081270	61.60	11082270	74.10
100-80-80	40	130	100	77	0.85	11101275	52.20	11102275	57.60
100-100-100	50	120	100	100	1.00	11101270	64.90	11102270	77.90
120-100-100	50	150	120	100	1.25	11121275	53.80	11122275	59.50
120-120-120	50	150	120	120	1.50	11121270	68.30	11122270	82.60
140-100-100	50	150	136	100	1.25	11141275	55.30	11142275	61.00
140-140-140	70	165	136	136	2.00	11141270	71.40	11142270	88.80
150-100-100	50	170	150	100	1.40	11151276	55.30	11152276	61.00
150-120-120	50	170	150	120	1.65	11151275	57.00	11152275	62.90
150-150-150	75	175	150	150	2.20	11151270	71.40	11152270	88.80
175-120-120	50	200	175	120	2.00	11171276	61.30	11172276	71.30
175-175-175	80	210	175	175	3.10	11171270	81.10	11172270	94.60
200-140-140	60	200	200	136	2.35	11201276	76.80	11202276	79.90
200-150-150	60	200	200	150	2.50	11201275	76.80	11202275	79.90
200-200-200	90	240	200	200	4.00	11201270	90.40	11202270	101.50
224-150-150	60	220	220	150	2.65	11221275	109.50	11222275	113.50
224-224-224	90	275	220	220	5.00	11221270	103.50	11222270	111.00
250-200-200	60	250	250	200	3.50	11251275	135.50	11252275	146.50
250-250-250	100	300	250	250	6.20	11251270	111.50	11252270	122.50
300-224-224	70	300	300	220	4.80	11301276	146.00	11302276	159.50
300-300-300	120	360	300	300	8.90	11301270	121.50	11302270	140.00
350-250-250	70	300	350	250	5.30	11351275	159.00	11352275	165.00
400-300-300	70	350	399	300	6.20	11401275	173.50	11402275	179.50
450-350-350	80	400	449	350	9.20	11451275	187.50	11452275	200.50
500-400-400	80	450	499	399	11.40	11501275	201.50	11502275	216.00

Stainless steel (dimensions for 1.5 mm pipework)

DN C - E - E	A	B	C	E	kg	1 mm stainless steel	F	2 mm stainless steel	F
						Item no.	€	Item no.	€
80-80-80	40	120	77	77	0.80	11083270	100.50		
100-80-80	40	130	100	77	0.85	11103275	99.10	12103275	125.50
100-100-100	50	120	100	100	1.00	11103270	105.00	12103270	141.00
120-100-100	50	150	120	100	1.25	11123275	105.50	12123275	132.50
120-120-120	50	150	120	120	1.50	11123270	131.00	12123270	150.50
140-100-100	50	150	136	100	1.25	11143275	118.50	12143275	147.50
140-140-140	70	165	136	136	2.00	11143270	144.00	12143270	168.50
150-100-100	50	170	150	100	1.40	11153276	118.50	12153276	147.50
150-120-120	50	170	150	120	1.65	11153275	122.00	12153275	152.50
150-150-150	75	175	150	150	2.20	11153270	144.00	12153270	168.50
175-120-120	50	200	175	120	2.00	11173276	131.00	12173276	163.50
175-175-175	80	210	175	175	3.10	11173270	155.50	12173270	183.00
200-140-140	60	200	200	136	2.35	11203276	169.00	12203276	219.50
200-150-150	60	200	200	150	2.50	11203275	169.00	12203275	219.50
200-200-200	90	240	200	200	4.00	11203270	169.00	12203270	198.50
224-150-150	60	220	220	150	2.65	11223275	212.00	12223275	273.00
224-224-224	90	275	220	220	5.00	11223270	180.50	12223270	214.00
250-200-200	60	250	250	200	3.50	11253275	255.50	12253275	333.50
250-250-250	100	300	250	250	6.20	11253270	192.00	12253270	233.00
300-224-224	70	300	300	220	4.80	11303276	290.00	12303276	363.00
300-300-300	120	360	300	300	8.90	11303270	212.50	12303270	266.50
350-250-250	70	300	350	250	5.30	11353275	323.50	12353275	418.50
400-300-300	70	350	399	300	6.20	11403275	349.00	12403275	469.00
450-350-350	80	400	449	350	9.20	11453275	377.00	12453275	483.50
500-400-400	80	450	499	399	11.40	11503275	402.50	12503275	510.50



SYMMETRICAL FORKS 90°

1100

- Other combinations of diameter, angles and wall thickness available on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)


DN	Ø d	A	B	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
					Item no.	€	Item no.	€	Item no.	€
80	77	40	80	0.55	11081260	49.20			11082260	51.10
100	100	60	100	0.85	11101260	49.20			11102260	51.10
120	120	75	110	1.10	11121260	51.20	13121260	61.40	11122260	54.30
140	136	75	120	1.30	11141260	53.10			11142260	56.20
150	150	75	125	1.45	11151260	53.10	13151260	70.10	11152260	56.20
175	175	75	140	1.75	11171260	62.30	13171260	81.60	11172260	66.60
200	200	90	170	2.50	11201260	75.90	13201260	101.00	11202260	81.00
224	220	100	190	3.00	11221260	98.80			11222260	107.00
250	250	100	200	3.50	11251260	98.80	13251260	131.00	11252260	107.00
280	277	100	220	4.10						
300	300	120	220	4.40	11301260	138.00	13301260	172.50	11302260	146.00
315	312	150	230	5.20						
350	350	120	250	5.65	11351260	151.00			11352260	169.00
400	399	150	270	7.00	11401260	162.50			11402260	184.50
450	449	150	300	8.45	11451260	176.50			11452260	198.00
500	499	175	325	10.20	11501260	190.50			11502260	213.00

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	kg	1 mm stainless steel	F	1.5 mm stainless steel	F	2 mm stainless steel	F
					Item no.	€	Item no.	€	Item no.	€
80	77	40	80	0.55	11083260	93.00				
100	100	60	100	0.85	11103260	93.00			12103260	122.00
120	120	75	110	1.10	11123260	97.70			12123260	128.00
140	136	75	120	1.30	11143260	102.50			12143260	132.50
150	150	75	125	1.45	11153260	102.50			12153260	132.50
175	175	75	140	1.75	11173260	121.50			12173260	156.50
200	200	90	170	2.50	11203260	149.50			12203260	189.50
224	220	100	190	3.00	11223260	192.00			12223260	248.00
250	250	100	200	3.50	11253260	192.00			12253260	312.50
280	277	100	220	4.10						
300	300	120	220	4.40	11303260	276.00			12303260	359.00
315	312	150	230	5.20						
350	350	120	250	5.65			11353260	308.00	12353260	399.50
400	399	150	270	7.00			11403260	333.00	12403260	429.00
450	449	150	300	8.45			11453260	367.00	12453260	462.00
500	499	175	325	10.20			11503260	401.50	12503260	495.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

S Shock explosion proof tested
up to 3 bar

A close-up photograph of a Jacob transition piece and adapter. The adapter is a cylindrical metal component with a flange on one end and a threaded section on the other. It is being used to connect two different types of metal pipes. The background is blurred, showing other industrial components.

JACOB TRANSITION PIECES AND ADAPTERS:
CONNECTING YOUR MACHINES
WITH OUR PIPEWORK SYSTEM



TRANSITION PIECES AND ADAPTERS

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TRANSITION PIECES AND ADAPTERS

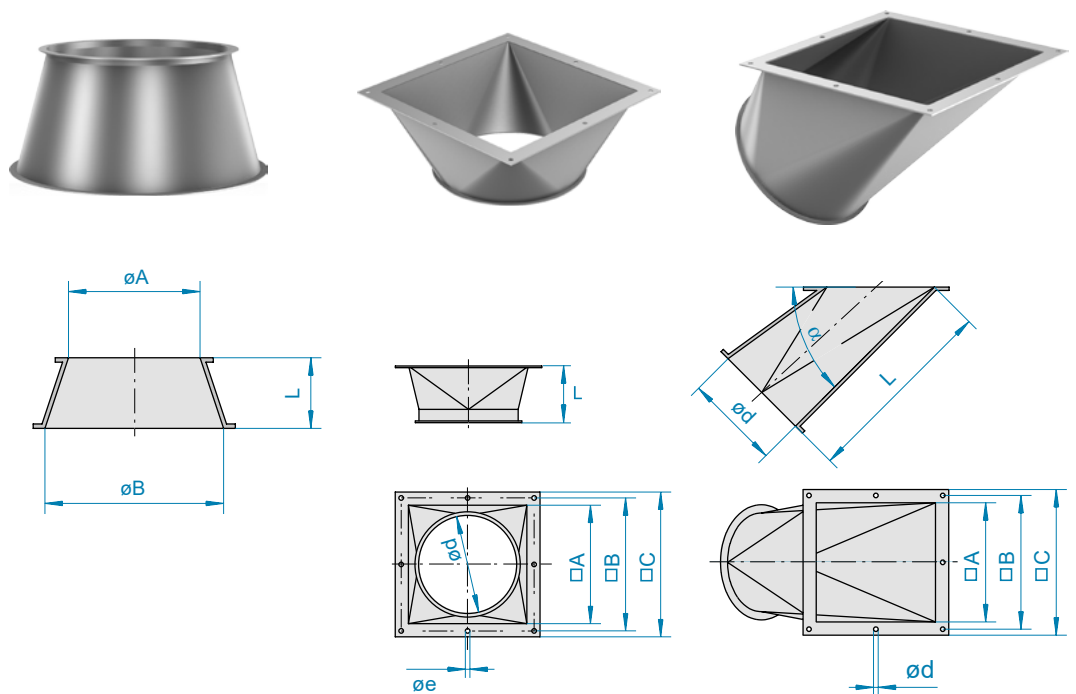
Technical information

JACOB TRANSITION PIECES AND ADAPTERS

How to be well-connected: With our comprehensive range of cone pieces, transition pieces and adapters, we create the connection between your JACOB pipework system and your machinery. And since nothing is as individual as these transition pieces, we can manufacture them to your specification right from batch sizes of 1. These special components have one thing in common with all lines from this large-scale production: the same consistently high quality.

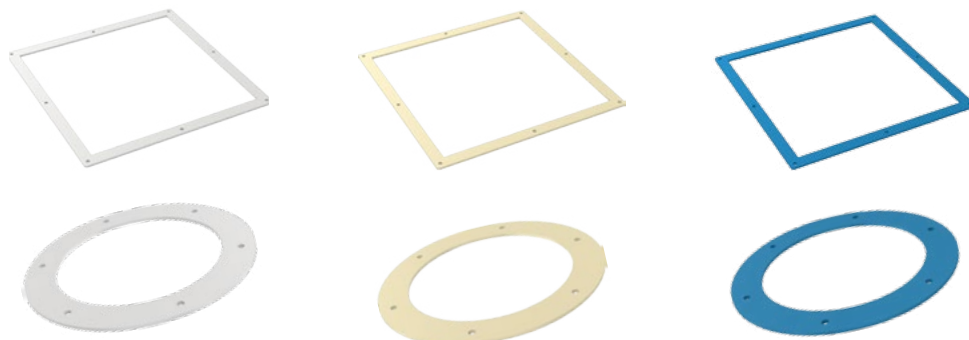
CONE PIECES AND TRANSITION PIECES TO YOUR INDIVIDUAL MEASUREMENTS

We manufacture forks, cone pieces and transition pieces to your specification if you inform us of the dimensions, of the material and the wall thickness you require. Prices and delivery time on request





FLAT GASKETS



NBR	Silicone	F	Silicone	F D
grey white	beige		blue	
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant		FOOD GRADE: EC 1935/2004 plus FDA compliant	
-30°C to +80°C	-30°C to +230°C		-30°C to +200°C	
			metal-detectable	

Our flat gaskets for connecting pipe components with welded-on flanges or transition pieces:

- More tear-proof and FOOD GRADE
- Metal-detectable (DETECTABLE DESIGN)
- Other materials available on request

COMPENSATORS



Material: Conductive EPDM, black

- Temperature resistance: -30°C to +100°C
- Admissible operating pressure at 20°C: ± 0.2 bar
- Not suitable for contact with food

Compensator connections made of VA, material 1.4301, with press-formed connection to extruded polyurethane sleeve, opaque, 1 mm thick.

- FOOD GRADE: EC 1935/2004 plus FDA compliant
- Temperature resistance: -20°C to +90°C

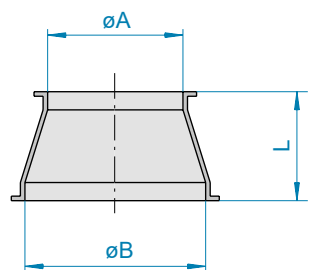
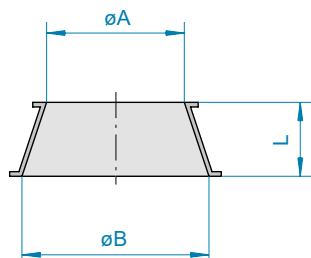
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TRANSITION PIECES AND ADAPTERS

Cone pieces



■ Cone end partly cylindrical

CONE PIECES

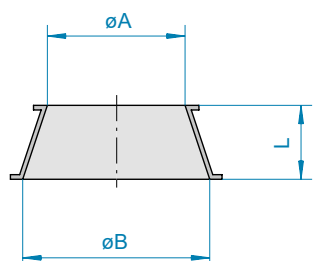
1330

- Diameter A + B = internal diameter with wall thickness of 1.5 mm
- Cone end partly cylindrical
- From DN 450 to 560 mm, dimensions for 2 mm pipework

Powder-coated (dimensions for 1.5 mm pipework)

DN	A	B	L	kg	1.5 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€
60-80	57	77	60	0.17	11001488	10.50		
60-100	57	100	100	0.25	11001492	10.60		
80-100	77	100	100	0.35	11001450	10.70		
80-120	77	120	80	0.35	11001478	12.10		
80-140	77	136	120	0.55	11001479	12.30		
80-150	77	150	140	0.65	11001489	13.00		
100-120	100	120	60	0.30	11001451	11.80		
100-140	100	136	100	0.50	11001459	13.40		
100-150	100	150	95	0.50	11001452	12.10		
100-175	100	175	120	0.70	11001464	13.60		
100-200	100	200	120	0.75	11001453	16.80		
100-250	100	250	200	1.45	11001454	19.90		
120-140	120	136	100	0.55	11001466	15.20		
120-150	120	150	150	0.85	11001455	12.50	13001455	35.80
120-175	120	175	100	0.65	11001456	13.90	13001456	37.30
120-200	120	200	120	0.80	11001457	17.20	13001457	40.10
120-250	120	250	150	1.20	11001458	17.80	13001458	41.60
140-150	136	150	100	0.60	11001467	15.60		
140-175	136	175	100	0.65	11001468	17.60		
140-200	136	200	150	1.05	11001469	19.20		
150-175	150	175	100	0.60	11001460	14.10	13001460	32.50
150-200	150	200	100	0.75	11001461	13.70	13001461	38.80
150-224	150	220	150	1.15	11001472	20.90		
150-250	150	250	150	1.10	11001462	17.80	13001462	41.60
150-300	150	300	200	1.85	11001463	23.30	13001463	47.30
175-200	175	200	100	0.80	11001465	14.90	13001465	43.10
175-224	175	220	100	0.85	11001473	20.20		
200-224	200	220	100	0.85	11001474	20.90		
200-250	200	250	120	1.10	11001470	17.20	13001470	45.00
200-300	200	300	150	1.55	11001471	22.40	13001471	48.00
224-250	220	250	100	1.00	11001476	23.00		
224-300	220	300	150	1.60	11001477	26.90		
250-280	250	277	120	1.30	11001960	25.20		
250-300	250	300	150	1.65	11001475	22.40	13001475	51.50
250-350	250	350	200	2.20	11001484	34.00	13001484	61.20
280-300	277	300	100	1.22	11001961	26.40		
300-315	300	312	100	1.30	11001962	33.50		
300-350	300	350	200	2.55	11001480	37.60	13001480	65.00
300-400	300	399	200	2.75	11001481	42.30	13001481	70.40
315-350	312	350	120	1.65	11001963	36.50		
350-400	350	399	200	2.95	11001482	47.80	13001482	76.30

■ Shock explosion proof tested up to 3 bar



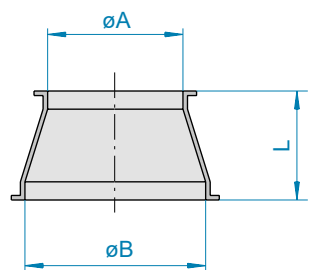
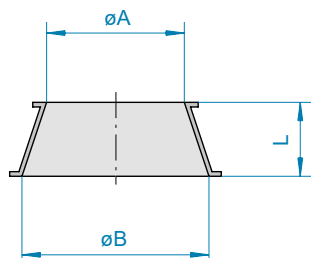
DN	A	B	L	kg	1.5 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€
350-450	350	449	200	3.15	11001483	49.00	13001483	82.80
400-450	399	449	200	3.40	11001485	52.30	13001485	90.40
400-500	399	499	250	4.40	11001486	55.30	13001486	96.10
450-500	449	499	200	3.70	11001487	63.40	13001487	107.50
450-560	448	558	250	6.70	12001495*	65.30	13001495	118.50
500-560	498	558	250	7.00	12001496*	69.00	13001496	131.50
500-630	498	628	300	8.90	12001497*	76.30	13001497	150.00
560-630	558	628	300	9.50	12001498*	88.70	13001498	169.00

*2 mm



TRANSITION PIECES AND ADAPTERS

Cone pieces



■ End of cone in cylindrical shape

CONE PIECES

1330

- Diameter A + B = internal diameter with wall thickness of 1.5 mm
- Cone end partly cylindrical
- From DN 450 to 560 mm, dimensions for 2 mm pipework

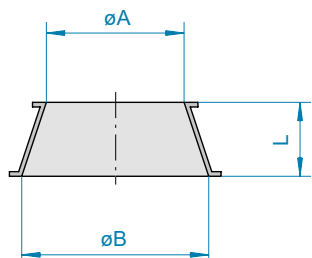
Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	A	B	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel		F	2 mm stainless steel		F
					Item no.	€	Item no.	€	Item no.	€		Item no.	€	
60- 80	57	77	60	0.17					11003488*	16.00				
60-100	57	100	100	0.25	11002492	12.40			11003492	16.50				
80-100	77	100	100	0.35	11002450	12.50			11003450	16.70				
80-120	77	120	80	0.35	11002478	13.30			11003478	17.80				
80-140	77	136	120	0.55	11002479	13.30			11003479	17.80				
80-150	77	150	140	0.65	11002489	15.10			11003489	18.70				
100-120	100	120	60	0.30	11002451	13.00			11003451	16.70		12003451	20.40	
100-140	100	136	100	0.50	11002459	15.80			11003459	18.90				
100-150	100	150	95	0.50	11002452	13.80			11003452	19.50		12003452	27.80	
100-175	100	175	120	0.70	11002464	15.30			11003464	20.20		12003464	31.30	
100-200	100	200	120	0.75	11002453	19.00			11003453	22.90		12003453	33.10	
100-250	100	250	200	1.45	11002454	20.30			11003454	23.50		12003454	34.30	
120-140	120	136	100	0.55	11002466	17.60			11003466	20.50				
120-150	120	150	150	0.85	11002455	14.00			11003455	20.70		12003455	28.10	
120-175	120	175	100	0.65	11002456	15.60			11003456	23.10		12003456	34.00	
120-200	120	200	120	0.80	11002457	19.20			11003457	28.50		12003457	40.70	
120-250	120	250	150	1.20	11002458	19.80			11003458	32.80		12003458	50.30	
140-150	136	150	100	0.60	11002467	18.10			11003467	21.20				
140-175	136	175	100	0.65	11002468	20.50			11003468	23.90				
140-200	136	200	150	1.05	11002469	22.50			11003469	26.20				
150-175	150	175	100	0.60	11002460	16.30			11003460	21.20		12003460	29.60	
150-200	150	200	100	0.75	11002461	16.70			11003461	24.10		12003461	35.10	
150-224	150	220	150	1.15	11002472	26.30			11003472	30.70				
150-250	150	250	150	1.10	11002462	20.80			11003462	32.80		12003462	42.60	
150-300	150	300	200	1.85	11002463	26.90			11003463	35.30		12003463	49.40	
175-200	175	200	100	0.80	11002465	17.60			11003465	25.10		12003465	34.60	
175-224	175	220	100	0.85	11002473	24.50			11003473	37.30				
200-224	200	220	100	0.85	11002474	25.10			11003474	30.70		12003474	41.80	
200-250	200	250	120	1.10	11002470	20.70			11003470	32.80		12003470	47.20	
200-300	200	300	150	1.55	11002471	26.90			11003471	41.00		12003471	63.70	
224-250	220	250	100	1.00	11002476	27.60			11003476	33.70				
224-300	220	300	150	1.60	11002477	32.50			11003477	40.20		12003477	70.10	
250-280	250	277	120	1.30	11002960	29.40			11003960*	44.50				
250-300	250	300	150	1.65	11002475	25.60			11003475	41.30		12003475	64.40	
250-350	250	350	200	2.20	11002484	40.80			11003484	51.90		12003484	74.80	
280-300	277	300	100	1.22	11002961	30.80			11003961*	46.30				
300-315	300	312	100	1.30	11002962	39.10			11003962*	54.40				
300-350	300	350	200	2.55	11002480	48.00			11003480	55.50		12003480	79.90	
300-400	300	399	200	2.75	11002481	51.50			11003481	58.80		12003481	87.60	

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof tested
up to 3 bar



DN	A	B	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel	F	2 mm stainless steel	F
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
315-350	312	350	120	1.65	11002963	42.50			11003963*	56.10		
350-400	350	399	200	2.95	11002482	55.00			11003482	61.00	12003482	84.40
350-450	350	449	200	3.15	11002483	58.30			11003483	66.40	12003483	99.20
400-450	399	449	200	3.40	11002485	59.80			11003485	72.60	12003485	96.80
400-500	399	499	250	4.40	11002486	65.10			11003486	81.30	12003486	120.50
450-500	449	499	200	3.70	11002487	66.30			11003487	90.50	12003487	125.50
450-560	448	558	250	6.70			12002495	71.40			12003495	148.50
500-560	498	558	250	7.00			12002496	75.10			12003496	160.00
500-630	498	628	300	8.90			12002497	82.80			12003497	174.00
560-630	558	628	300	9.50			12002498	96.30			12003498	187.50

*1.5 mm



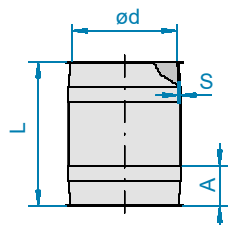
TRANSITION PIECES AND ADAPTERS

Compensators/connecting flanges



Conductive
EPDM, black

AU, transparent



COMPENSATORS

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- Please also read and take into account the technical information given at the beginning of this chapter

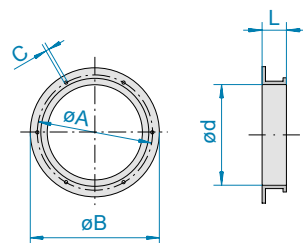
Powder-coated, galvanised and stainless steel

DN	Ø d	A	S	L	kg	2 mm powder-coated (EPDM, black)		2 mm galvanised (EPDM, black)		2 mm stainless steel (EPDM, black)		2 mm stainless steel (AU, transparent)		F
						Item no.	€	Item no.	€	Item no.	€	Item no.	€	
80	78	55	1	200	0.52	11081707*	42.70	11082707*	44.30	11083707*	50.30	11083171*	106.00	
100	99	55	2	200	1.00	12101707	43.80	12102707	45.50	12103707	51.50	12103171	128.50	
120	119	55	2	200	1.16	12121707	46.50	12122707	48.20	12123707	56.40	12123171	141.00	
140	135	55	2	200	1.30	12141707	49.70	12142707	51.50	12143707	59.10	12143171	149.00	
150	149	55	2	200	1.42	12151707	50.80	12152707	52.50	12153707	60.70	12153171	157.50	
175	174	55	2	200	1.65	12171707	53.70	12172707	55.80	12173707	64.90	12173171	160.50	
200	199	55	2	200	1.88	12201707	55.80	12202707	57.90	12203707	69.30	12203171	188.50	
224	219	55	2	200	2.06	12221707	60.70	12222707	62.80	12223707	74.80	12223171	195.00	
250	249	55	2	200	2.34	12251707	63.40	12252707	66.10	12253707	78.00	12253171	216.50	
300	299	55	2	200	2.80	12301707	68.30	12302707	70.90	12303707	83.30	12303171	250.00	

*1 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.



E = No. of holes

CONNECTING FLANGES

1310

- For combining with a counter flange for connecting flanges and a flat gasket for counter flanges (see page 89)

Powder-coated (dimensions for 1.5 mm pipework)

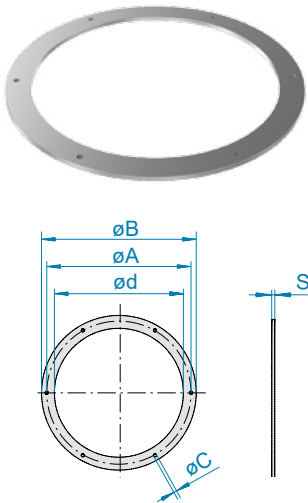
DN	Ø d	A	B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated	
								Item no.	€	Item no.	€
80	77	108	123	6	6	35	0.27	11081431	6.80		
100	100	130	150	6	6	28	0.23	11101431	6.80		
120	120	150	170	6	6	28	0.28	11121431	7.00	13121431	25.80
150	150	180	202	6	6	36	0.40	11151431	10.40	13151431	28.10
175	175	205	228	6	6	40	0.49	11171431	14.60	13171431	29.80
200	200	230	250	6	6	37	0.52	11201431	15.40	13201431	31.00
250	250	280	300	6	6	48	0.75	11251431	17.20	13251431	37.80

Galvanised and stainless steel

DN	Ø d	A	B	C	E	L	kg	1.5 mm galvanised		1.5 mm stainless steel		F
								Item no.	€	Item no.	€	
80	77	108	123	6	6	35	0.27	11082431	6.90	11083431	22.10	
100	100	130	150	6	6	28	0.23	11102431	6.90	11103431	22.10	
120	120	150	170	6	6	28	0.28	11122431	7.30	11123431	25.20	
150	150	180	202	6	6	36	0.40	11152431	10.50	11153431	30.70	
175	175	205	228	6	6	40	0.49	11172431	15.20	11173431	37.80	
200	200	230	250	6	6	37	0.52	11202431	16.60	11203431	45.10	
250	250	280	300	6	6	48	0.75	11252431	19.10	11253431	54.80	

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable




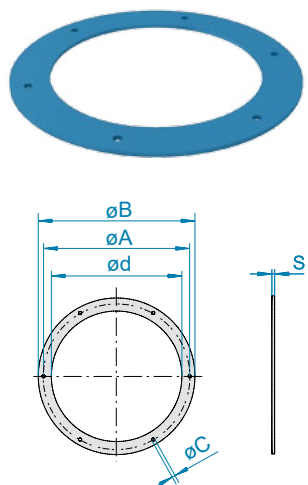
E = No. of holes

COUNTER FLANGES FOR ROUND CONNECTING FLANGES

1311

- Counter flange to match connecting flange (see page 88)
- For use in conjunction with a square flat gasket (see below)

DN	$\varnothing d$	A	B	C	E	S	kg	Steel S235 JR (ST 37-2)		Stainless steel 1.4301 	
								Item no.	€	Item no.	€
80	82	108	122	6	6	5	0.25	10080710	5.00	10083710	18.30
100	105	130	155	6	6	5	0.40	10100710	5.40	10103710	20.50
120	125	150	175	6	6	5	0.46	10120710	6.10	10123710	21.30
150	155	180	205	6	6	5	0.55	10150710	6.60	10153710	25.60
175	180	205	230	6	6	5	0.63	10170710	7.20	10173710	27.00
200	205	230	255	6	6	5	0.71	10200710	8.00	10203710	30.20
250	255	280	305	6	6	5	0.86	10250710	10.30	10253710	34.90






E = No. of holes


FLAT GASKETS FOR COUNTER FLANGES (ROUND) FOR CONNECTING FLANGES

1312

- Flat gasket to match connecting flange (page 88) and counter flange (see above)
- Please also read and take into account the technical information given at the beginning of this chapter
- Not suitable for use in combination with flanges according to DIN 24154, P2

DN	$\varnothing d$	A	B	C	E	S	NBR grey white		Silicone, beige 		Silicone, blue  	
							Item no.	€	Item no.	€	Item no.	€
80	78	108	122	6	6	3	10086731	8.80	10087731	9.40	1008773101	11.20
100	99	130	155	6	6	3	10106731	9.20	10107731	10.00	1010773101	13.20
120	119	150	175	6	6	3	10126731	9.80	10127731	10.40	1012773101	12.50
150	149	180	205	6	6	3	10156731	10.00	10157731	10.60	1015773101	15.60
175	174	205	230	6	6	3	10176731	11.00	10177731	11.80	1017773101	18.90
200	199	230	255	6	6	3	10206731	11.60	10207731	12.50	1020773101	22.20
250	249	280	305	6	6	3	10256731	12.60	10257731	13.50	1025773101	29.90

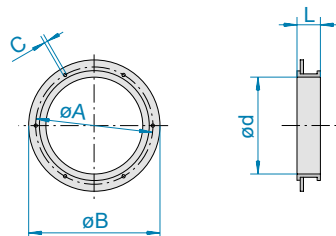
 FOOD GRADE
EC 1935/2004 plus FDA compliant

 DETECTABLE DESIGN
Metal-detectable



TRANSITION PIECES AND ADAPTERS

Connecting flanges



E = No. of holes

CONNECTING FLANGE WITH LOOSE FLANGE

1315

- Loose flange drilled acc. to DIN 24154, P2
- From DN 450 mm, dimensions for 2 mm pipework
- Lipped ends in combination with JACOB flange according to DIN 24154, P2 and U-shaped gasket (see chapter 11, from page 227)


Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
								Item no.	€	Item no.	€	Item no.	€
60	57	102	128	9.5	4	50	0.51	11061432	6.80				
80	77	118	142	9.5	4	50	0.62	11081432	11.50				
100	100	139	165	9.5	4	50	0.70	11101432	12.00				
120	120	165	185	9.5	4	50	0.84	11121432	13.00				
140	136	182	212	11.5	8	50	1.06	11141432	13.40				
150	150	200	225	11.5	8	50	1.18	11151432	14.60				
175	175	219	250	11.5	8	50	1.34	11171432	15.50				
200	200	241	275	11.5	8	50	1.48	11201432	16.20				
224	220	265	295	11.5	8	50	1.65	11221432	18.60				
250	250	292	325	11.5	8	50	1.82	11251432	18.60				
280	277	332	363	11.5	8	50	2.07	11281432	21.30				
300	300	366	395	11.5	8	50	2.31	11301432	21.30			13301432	25.00
315	312	366	398	11.5	8	50	2.48	11311432	24.50				
350	350	405	436	11.5	8	50	2.93	11351432	25.80			13351432	28.60
400	399	448	485	11.5	12	50	3.57	11401432	30.80			13401432	34.30
450	448	497	535	11.5	12	50	5.52			12451432	35.30	13451432	39.50
500	498	551	585	11.5	12	50	5.98			12501432	42.20	13501432	47.00
560	558	629	665	14.0	16	50	6.73			12561432	62.80	13561432	90.50
630	628	698	735	14.0	16	50	7.86			12631432	68.00	13631432	103.00

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm galvanised		2 mm galvanised		1.5 mm stainless steel 		2 mm stainless steel 	
								Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	102	128	9.5	4	50	0.51	11062432	6.90			11063432	22.10		
80	77	118	142	9.5	4	50	0.62	11082432	12.20			11083432	28.80		
100	100	139	165	9.5	4	50	0.70	11102432	12.80			11103432	31.40		
120	120	165	185	9.5	4	50	0.84	11122432	13.40			11123432	33.80		
140	136	182	212	11.5	8	50	1.06	11142432	13.60			11143432	36.90		
150	150	200	225	11.5	8	50	1.18	11152432	15.50			11153432	39.80		
175	175	219	250	11.5	8	50	1.34	11172432	16.80			11173432	43.00		
200	200	241	275	11.5	8	50	1.48	11202432	17.40			11203432	47.60		
224	220	265	295	11.5	8	50	1.65	11222432	20.00			11223432	57.80		
250	250	292	325	11.5	8	50	1.82	11252432	20.00			11253432	57.80		
280	277	332	363	11.5	8	50	2.07	11282432	22.80			11283432	86.60		
300	300	366	395	11.5	8	50	2.31	11302432	22.80			11303432	86.60		
315	312	366	398	11.5	8	50	2.48	11312432	26.30			11313432	90.00		
350	350	405	436	11.5	8	50	2.93	11352432	27.60			11353432	91.80		
400	399	448	485	11.5	12	50	3.57	11402432	32.80			11403432	102.00		
450	448	497	535	11.5	12	50	5.52			12452432	38.50			12453432	123.00
500	498	551	585	11.5	12	50	5.98			12502432	44.80			12503432	137.50
560	558	629	665	14.0	16	50	6.73			12562432	67.10			12563432	179.50
630	628	698	735	14.0	16	50	7.86			12632432	72.80			12633432	197.00

 FOOD GRADE
EC 1935/2004 plus FDA compliant

 DN 350 to 630 mm with 10 mm lip.
Combination with U-shaped seal for
10 mm lip (refer to page 230)

Connecting flanges/transition pieces

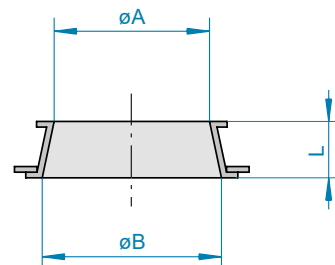


ADAPTERS WITH LOOSE FLANGE

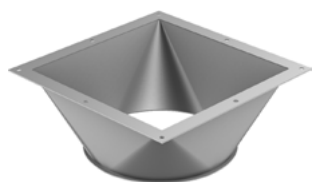
1320

- Loose flange to DIN 24154, P2
- Lipped ends to suit JACOB pull-ring and U-shaped seal

Powder-coated, galvanised and stainless steel (dimensions for 1.5 mm pipework)



DN	A	B	L	kg	1.5 mm powder-coated		1.5 mm galvanised		1 mm stainless steel	F
					Item no.	€	Item no.	€	Item no.	
120-125	120	120	50	0.85	11001441	19.60	11002441	25.00	11003441	34.00
150-160	150	160	50	1.30	11001443	32.10	11002443	37.80	11003443	63.40
175-180	175	175	50	1.45	11001445	22.10	11002445	28.50	11003445	38.80
250-280	250	280	50	3.05	11001446	50.50	11002446	60.80	11003446	87.30
280-300	300	280	50	3.10	11001447	55.10	11002447	66.40	11003447	98.10
300-315	300	315	50	3.50	11001448	73.00	11002448	90.20	11003448	140.50

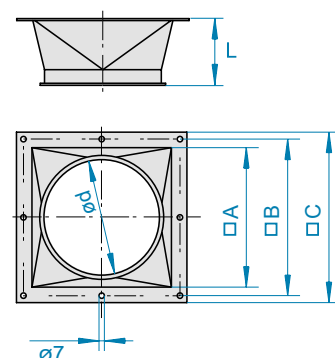


SPOUTS FROM SQUARE TO ROUND

1280

- Special models and individual flange dimensions on request
- For use in conjunction with a square flat gasket
- Lipped on one side for use with JACOB pull-ring system

Powder-coated and galvanised (dimensions for 1.5 mm pipework)



DN	ø d	A	B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated	1.5 mm galvanised	
								Item no.	€	Item no.	Item no.	€
80	77	100	120	140	8	50	0.36	11081400	14.60		11082400	15.40
100	100	120	140	160	8	60	0.45	11101400	14.60		11102400	15.40
120	120	140	164	180	8	70	0.63	11121400	15.70	13121400	11122400	16.60
150	150	180	202	220	8	85	0.90	11151400	16.50	13151400	11152400	19.50
175	175	200	225	245	8	145	1.50	11171400	33.20	13171400	11172400	34.80
200	200	250	270	290	8	115	1.80	11201400	33.30	13201400	11202400	34.80
250	250	300	325	345	8	150	2.70	11251400	64.60	13251400	11252400	68.80
300	300	350	375	395	8	210	3.90	11301400	72.40	13301400	11302400	78.60

E = No. of holes

Stainless steel (dimensions for 1.5 mm pipework)

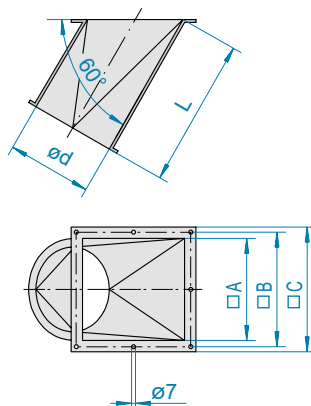
DN	ø d	A	B	C	E	L	kg	1.5 mm stainless steel		2 mm stainless steel	F
								Item no.	€	Item no.	
80	77	100	120	140	8	50	0.36	11083400	38.30		
100	100	120	140	160	8	60	0.45	11103400	38.30	12103400	46.90
120	120	140	164	180	8	70	0.63	11123400	40.70	12123400	63.40
150	150	180	202	220	8	85	0.90	11153400	49.60	12153400	69.90
175	175	200	225	245	8	145	1.50			12173400	86.80
200	200	250	270	290	8	115	1.80			12203400	102.00
250	250	300	325	345	8	150	2.70			12253400	145.50
300	300	350	375	395	8	210	3.90			12303400	157.50

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TRANSITION PIECES AND ADAPTERS

Transition pieces / counter flanges



E = No. of holes

SPOUTS FROM SQUARE TO ROUND / 60°

1290

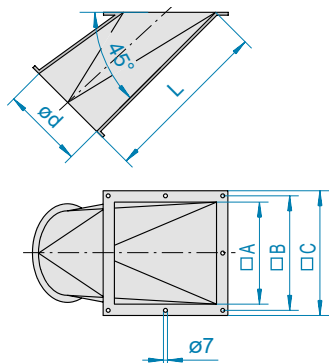
- Other gradients and individual flange dimensions on request
- For use in conjunction with a square flat gasket
- Lipped on one side for use with JACOB pull-ring system

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
								Item no.	€	Item no.	€	Item no.	€
80	77	100	120	140	7	190	0.75	11081410	34.10			11082410	36.90
100	100	120	140	160	7	190	0.90	11101410	34.10			11102410	36.90
120	120	140	164	180	7	215	1.20	11121410	35.80	13121410	53.80	11122410	37.20
150	150	180	202	220	7	260	1.80	11151410	41.80	13151410	63.20	11152410	44.30
175	175	200	225	245	7	275	2.25	11171410	54.50	13171410	81.60	11172410	55.40
200	200	250	270	290	7	265	2.40	11201410	57.40	13201410	86.10	11202410	68.70
250	250	300	325	345	7	345	4.05	11251410	73.10	13251410	110.50	11252410	78.00
300	300	350	375	395	7	475	6.60	11301410	82.20	13301410	124.00	11302410	86.70

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm stainless steel		2 mm stainless steel	
								Item no.	€	Item no.	€
80	77	100	120	140	7	190	0.75	11083410	60.60		
100	100	120	140	160	7	190	0.90	11103410	60.60	12103410	79.40
120	120	140	164	180	7	215	1.20	11123410	65.50	12123410	87.00
150	150	180	202	220	7	260	1.80	11153410	74.90	12153410	100.50
175	175	200	225	245	7	275	2.25			12173410	117.50
200	200	250	270	290	7	265	2.40			12203410	145.00
250	250	300	325	345	7	345	4.05			12253410	209.00
300	300	350	375	395	7	475	6.60			12303410	227.50



E = No. of holes

SPOUTS FROM SQUARE TO ROUND/45 °

1300

- Other gradients and individual flange dimensions on request
- For use in conjunction with a square flat gasket
- Lipped on one side for use with JACOB pull-ring system

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
								Item no.	€	Item no.	€	Item no.	€
80	77	100	120	140	7	160	0.60	11081420	26.30			11082420	27.70
100	100	120	140	160	7	180	0.75	11101420	26.30			11102420	27.70
120	120	140	164	180	7	190	0.90	11121420	30.60	13121420	49.00	11122420	32.50
150	150	180	202	220	7	295	1.95	11151420	43.90	13151420	61.10	11152420	47.90
175	175	200	225	245	7	300	2.40	11171420	53.60	13171420	77.10	11172420	58.50
200	200	250	270	290	7	325	2.75	11201420	55.30	13201420	82.30	11202420	64.90
250	250	300	325	345	7	395	4.65	11251420	69.00	13251420	102.00	11252420	74.20
300	300	350	375	395	7	450	5.55	11301420	77.40	13301420	118.00	11302420	81.60

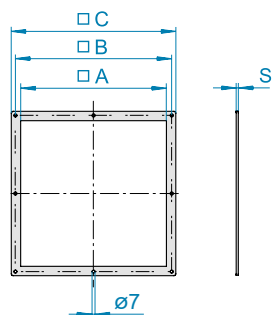
Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm stainless steel		2 mm stainless steel	
								Item no.	€	Item no.	€
80	77	100	120	140	7	160	0.60	11083420	56.30		
100	100	120	140	160	7	180	0.75	11103420	56.30	12103420	69.10
120	120	140	164	180	7	190	0.90	11123420	59.80	12123420	77.40
150	150	180	202	220	7	295	1.95	11153420	68.30	12153420	89.10
175	175	200	225	245	7	300	2.40			12173420	103.00
200	200	250	270	290	7	325	2.75			12203420	129.50
250	250	300	325	345	7	395	4.65			12253420	189.00
300	300	350	375	395	7	450	5.55			12303420	196.00



TRANSITION PIECES AND ADAPTERS

Transition pieces/counter flanges



E = No. of holes

COUNTER FLANGES FOR SPOUTS FROM SQUARE TO ROUND

1301

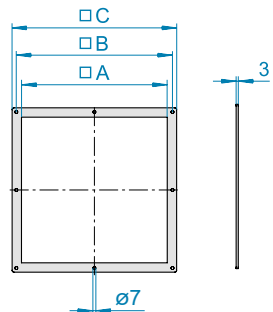
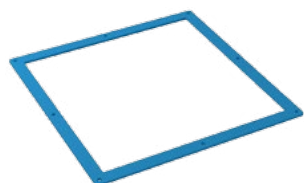
- Counter flange to match spouts from square to round
- For use in conjunction with a square flat gasket

DN	A	B	C	E	S	kg	Steel S235 JR (ST 37-2)		Stainless steel 1.4301	
							Item no.	€	Item no.	€
80	100	120	140	8	5	0.38	10080714	6.00	10083714	21.90
100	120	140	160	8	5	0.44	10100714	6.50	10103714	24.50
120	140	164	180	8	5	0.50	10120714	7.40	10123714	25.60
150	180	202	220	8	5	0.63	10150714	7.90	10153714	30.70
175	200	225	245	8	5	0.79	10170714	8.60	10173714	32.50
200	250	270	290	8	5	0.85	10200714	10.40	10203714	36.20
250	300	325	345	8	5	1.14	10250714	13.40	10253714	41.90
300	350	375	395	8	5	1.30	10300714	16.60	10303714	52.10

FLAT GASKETS FOR SPOUTS FROM SQUARE TO ROUND

1302

- Flat gasket to match square to round spout and counter flange for spout
- Please also read and take into account the technical information given at the beginning of this chapter

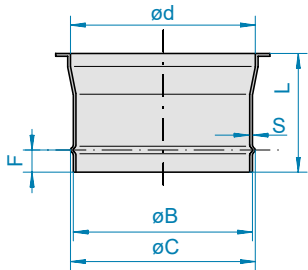


E = No. of holes

DN	A	B	C	E	NBR grey white		Silicone, beige		Silicone, blue	
					Item no.	€	Item no.	€	Item no.	€
80	100	120	140	8	10086732	9.30	10087732	10.00	1008773201	13.20
100	120	140	160	8	10106732	9.80	10107732	10.40	1010773201	14.30
120	140	164	180	8	10126732	10.20	10127732	10.80	1012773201	15.50
150	180	202	220	8	10156732	10.60	10157732	11.30	1015773201	20.50
175	200	225	245	8	10176732	12.00	10177732	12.70	1017773201	22.10
200	250	270	290	8	10206732	15.50	10207732	16.50	1020773201	27.60
250	300	325	345	8	10256732	19.30	10257732	20.60	1025773201	36.50
300	350	375	395	8	10306732	22.60	10307732	24.00	1030773201	41.70

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



HOSE CONNECTIONS

1340

- For use in conjunction with PU hose and special hose clamp

Powder-coated, galvanised and stainless steel (dimensions for 1 mm pipework)

DN	$\varnothing d$	B	C	F	S	L	kg	1 mm powder-coated		1 mm galvanised		1 mm stainless steel		
								Item no.	€	Item no.	€	Item no.	€	
60-50	57	50	51		1	80	0.20	110614990 *	9.00	110624990 *	11.10	110634990 *	16.60	
60	57	60	61		1	80	0.20	11061499 *	8.60	11062499 *	10.50	11063499 *	15.90	
80	78	78	80	15	1	88	0.20	11081499	10.00	11082499	12.30	11083499	18.50	
100	100	95	100	15	1	100	0.25	11101499 *	10.00	11102499 *	12.30	11103499	18.50	
120	120	122	125	15	1	100	0.30	11121499	10.80	11122499	12.90	11123499	19.90	
140	136	138	140	15	1	100	0.35	11141499	11.80	11142499	13.80	11143499	21.40	
150	150	145	150	20	1	100	0.40	11151499 *	11.80	11152499 *	13.80	11153499	21.40	
175	175	177	180	20	1	100	0.45	11171499	12.90	11172499	15.10	11173499	23.60	
200	200	198	200	20	1	100	0.50	11201499	13.40	11202499	15.60	11203499	24.70	
224	220	222	225	20	1	100	0.57	11221499	14.10	11222499	16.60	11223499	26.00	
250	250	248	250	20	1	100	0.65	11251499	14.10	11252499	16.60	11253499	26.00	
280	278	276	278	20	1	100	0.76	11281499	20.60	11282499	22.60	11283499	32.50	
300	300	298	300	20	1	100	0.84	11301499	16.60	11302499	18.00	11303499	30.40	
315	313	315	317	20	1	100	0.86	11311499	23.10	11312499	25.30	11313499	36.90	

*1.5 mm



SPECIAL HOSE CLAMPS

3170

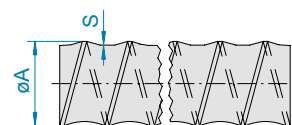
- For use in conjunction with hose connections and JACOB PU hose

DN	Galvanised		Stainless steel	
	Item no.	€	Item no.	€
50	10052162	5.10	10053162	7.70
60	10062162	5.10	10063162	7.90
80	10082162	5.30	10083162	8.10
100	10102162	6.10	10103162	9.20
120	10122162	6.50	10123162	9.60
140	10142162	7.50	10143162	11.20
150	10152162	8.10	10153162	12.20
175	10172162	9.60	10173162	14.20
200	10202162	10.90	10203162	16.10
224	10222162	20.30	10223162	26.20
250	10252162	21.10	10253162	27.70
280	10282162	22.00	10283162	28.60
300	10302162	22.50	10303162	29.20
315	10312162	23.60	10313162	30.70



TRANSITION PIECES AND ADAPTERS

Flexible hoses and accessories



PU HOSES

3160

- Material: Polyether polyurethane with spring steel wire
- Properties: highly abrasion resistant, oil and fuel resistant, inside largely smooth, transparent
- Temperature range: -40°C to +100°C
- Not suitable for conveying water vapour
- Suitable for short-term contact with foodstuffs without fatty substances (max. 4 hours, max. +40°C)
- FOOD GRADE: EC 1935/2004 plus FDA compliant
- Pressure resistance on request
- Bending radius: Minimum R = 1 D or larger

Lengths 1, 2, 3 and 5 m (sold by whole metres only)

DN	A	S	kg/m	Length 1 m		Length 2 m		Length 3 m		Length 5 m	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
50	58	0.7	0.41	10050165910	16.00	10050165920	32.00	10050165930	48.00	10050165950	80.00
60	68	0.7	0.49	10060165910	16.40	10060165920	32.80	10060165930	49.20	10060165950	82.00
80	88	0.7	0.76	10080165910	22.40	10080165920	44.80	10080165930	67.20	10080165950	112.00
100	110	0.7	0.95	10100165910	29.10	10100165920	58.20	10100165930	87.30	10100165950	145.50
120	129	0.7	1.12	10120165910	35.80	10120165920	71.60	10120165930	107.50	10120165950	179.00
140	149	0.7	1.38	10140165910	37.80	10140165920	75.60	10140165930	113.50	10140165950	189.00
150	161	0.7	1.48	10150165910	41.60	10150165920	83.20	10150165930	125.00	10150165950	208.00
175	185	0.7	1.85	10170165910	45.40	10170165920	90.80	10170165930	136.50	10170165950	227.00
200	214	0.7	2.30	10200165910	50.20	10200165920	100.50	10200165930	151.00	10200165950	251.00
224	235	0.7	2.55	10220165911	57.40	10220165921	115.00	10220165930	172.50	10220165950	287.00
250	260	0.7	3.02	10250165911	70.80	10250165920	142.00	10250165930	212.50	10250165950	354.00
280	290	0.7	3.16	10280165910	74.00	10280165920	148.00	10280165930	222.00	10280165950	370.00
300	310	0.7	3.20	10300165910	78.50	10300165920	157.00	10300165930	235.50	10300165950	392.50
315	325	0.7	3.40	10310165911	82.60	10310165920	165.50	10310165930	248.00	10310165950	413.00

Lengths 7, 9, 10 and 15 m (sold by whole metres only)

DN	A	S	kg/m	Length 7 m		Length 9 m		Length 10 m		Length 15 m	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
50	58	0.7	0.41	10050165970	112.00	10050165990	144.00	100501659110	160.00	100501659115	240.00
60	68	0.7	0.49	10060165970	115.00	10060165990	148.00	100601659110	164.00	100601659115	246.00
80	88	0.7	0.76	10080165970	157.00	10080165990	202.00	100801659110	224.00	100801659115	336.00
100	110	0.7	0.95	10100165970	204.00	10100165990	262.00	101001659110	291.00	101001659115	436.50
120	129	0.7	1.12	10120165970	251.00	10120165990	322.50	101201659110	358.00	101201659115	537.00
140	149	0.7	1.38	10140165970	265.00	10140165990	340.50	101401659110	378.00	101401659115	567.00
150	161	0.7	1.48	10150165970	291.50	10150165990	374.50	101501659110	416.00	101501659115	624.00
175	185	0.7	1.85	10170165970	318.00	10170165990	409.00	101701659110	454.00	101701659115	681.00
200	214	0.7	2.30	10200165970	351.50	10200165990	452.00	102001659110	502.00	102001659115	753.00
224	235	0.7	2.55	10220165970	402.00	10220165990	517.00	102201659110	574.00	102201659115	861.00
250	260	0.7	3.02	10250165970	496.00	10250165990	637.50	102501659110	708.00	102501659115	1062.00
280	290	0.7	3.16	10280165970	518.00	10280165990	666.00	102801659110	740.00	102801659115	1110.00
300	310	0.7	3.20	10300165970	549.50	10300165990	706.50	103001659110	785.00	103001659115	1178.00
315	325	0.7	3.40	10310165970	578.50	10310165990	743.50	103101659110	826.00	103101659115	1239.00

 FOOD GRADE
EC 1935/2004 plus FDA compliant

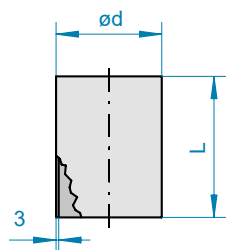


HOSE CLAMPS

3165

- For fixing flexible sleeves

DN	Stainless steel	
	Item no.	€
60	10063163	7.10
80	10083163	8.70
100	10103163	9.80
120	10123163	10.00
140	10143163	10.50
150	10153163	10.50
175	10173163	11.20
200	10203163	11.40
224	10223163	12.20
250	10253163	12.20
300	10303163	13.10



FLEXIBLE SLEEVES FOR HOSE CONNECTIONS

1345

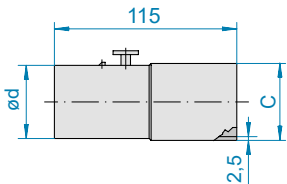
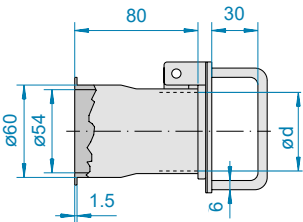
- Material: Conductive EPDM, black
- Electrostatically conductive
- Temperature resistance: -30°C to +120°C
- Pressure resistance on request

DN	ø d	L	kg	Conductive EPDM black	
				Item no.	€
60	60	200	0.19	100681705	42.20
80	80	200	0.21	100881705	43.00
100	100	200	0.26	101081705	44.00
120	125	200	0.32	101281705	46.80
140	140	200	0.37	101481705	49.70
150	150	200	0.40	101581705	51.80
175	175	200	0.46	101781705	56.20
200	200	200	0.53	102081705	60.30
224	225	200	0.59	102281705	64.70
250	250	200	0.66	102581705	69.70
300	300	200	0.79	103081705	78.00



TRANSITION PIECES AND ADAPTERS

Flexible hoses and accessories



HOSE SOCKETS

3175

- With cover for hose plug
- The version with 80 mm diameter differs from the illustration

DN	Electro-galvanised		Stainless steel	
	Item no.	€	Item no.	€
60	10062860	49.00	10063860	148.50
80	10082860	112.50		

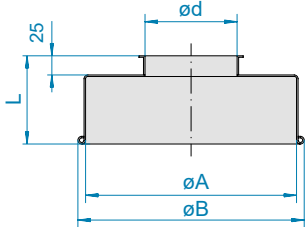
HOSE PLUGS

3180

- 45 mm and 50 mm diameters are suitable for 60 mm hose socket

DN	C	Electro-galvanised		Stainless steel	
		Item no.	€	Item no.	€
45	45	100628651	29.50	100638651	96.80
50	50	100628650	29.50	100638650	96.80
80	80	100828650	40.50		

Bagging spouts and accessories



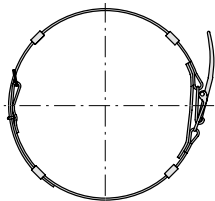
BAGGING SPOUTS

1350

- For use in conjunction with a bag clamp

Powder-coated, galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	1.5 mm powder-coated		1.5 mm galvanised		1.5 mm stainless steel		F
					Item no.	€	Item no.	€	Item no.	€	
80	77	275	295	115	11081585	42.20	11082585	52.50	11083585	113.50	
100	100	275	295	115	11101585	42.20	11102585	52.50	11103585	113.50	
120	120	275	295	115	11121585	43.90	11122585	54.50	11123585	115.50	
150	150	275	295	115	11151585	48.80	11152585	60.80	11153585	120.50	
175	175	275	295	115	11171585	58.70	11172585	72.60	11173585	126.50	
200	200	275	295	115	11201585	66.40	11202585	86.60	11203585	137.50	
250	250	275	295	115	11251585	84.40	11252585	110.00	11253585	158.00	
300	300	300	311	115	11301585	139.50	11302585	181.50	11303585	216.00	

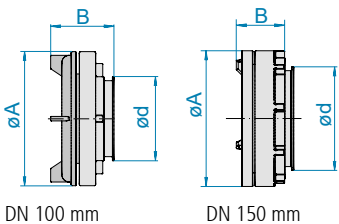


BAG CLAMPS

4010

- Made from leather for bagging spout
- Bag clamp no. 10080581 can be used for bagging spout with 80-300 mm diameter
- For attachment on site

DN min / max	Item no.	€
250-320	10080581	34.40
420-500	10080582	48.00



PNEUMATIC FILL AND VACUUM COUPLINGS

1460

- Pressure coupling aluminium
- Sealing cap plastic
- Chain galvanised steel
- With 6 mm lip for connecting to JACOB pull-ring system

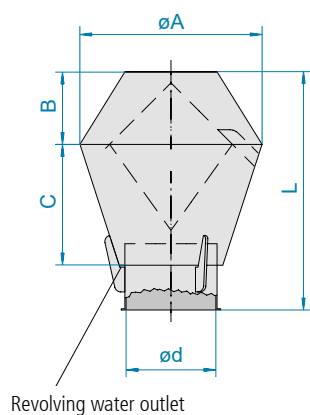
DN	Ø d	A	B	kg	Aluminium	
					Item no.	€
100	113	182	85	1.26	10100870	37.80
150	164	215	91	3.02	10150870	173.50

FOOD GRADE
EC 1935/2004 plus FDA compliant



TRANSITION PIECES AND ADAPTERS

Jet caps and rain caps



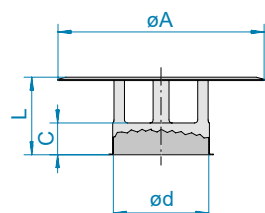
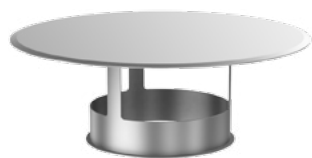
JET CAPS

1430

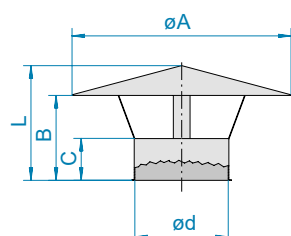
- Diameters from 350 mm with welded-on flange acc. to DIN 24154, P2, but without counter-flange (see chapter 11 for matching flanges)

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	L	kg	2 mm galvanised		2 mm stainless steel	
							Item no.	€	Item no.	€
80	76	230	110	188	360	3.20	12082805	178.50	12083805	309.50
100	99	230	110	152	325	3.40	12102805	178.50	12103805	317.50
120	119	260	125	169	355	5.20	12122805	218.50	12123805	349.50
140	135	310	130	222	415	6.60	12142805	222.00	12143805	388.50
150	149	310	130	200	390	7.40	12152805	222.00	12153805	388.50
175	174	360	160	237	460	9.50	12172805	281.00	12173805	491.00
200	199	460	200	322	620	12.50	12202805	335.00	12203805	585.00
224	219	515	235	368	695	14.50	12222805	387.50	12223805	684.50
250	249	515	235	322	650	18.80	12252805	387.50	12253805	684.50
280	276	570	245	305	566	18.00	12282805	449.50	12283805	783.00
300	299	575	255	335	680	18.50	12302805	449.50	12303805	783.00
315	311	590	255	327	680	20.00	12312805	472.50	12313805	822.00
350	349	645	275	448	848	25.50	12352805	488.50	12353805	851.00
400	398	715	295	480	915	29.50	12402805	566.00	12403805	984.50
450	448	820	320	588	1040	49.50	12452805	643.00	12453805	1154.00
500	498	870	320	588	1040	53.50	12502805	726.00	12503805	1338.00
560	558	990	372	703	1208	71.00	12562805	806.00	12563805	1530.00
630	628	1140	442	776	1434	95.00	12632805	918.00	12633805	1741.00
710	707	1290	502	901	1627	118.00	12712805	1389.00	12713805	2347.00
800	797	1440	520	1020	1790	142.00	12802805	1597.00	12803805	2815.00



Version DN 80 to 200 mm



Version from DN 224 mm

RAIN CAPS

1440

- Take local building regulations into account, alternatively use a jet cap

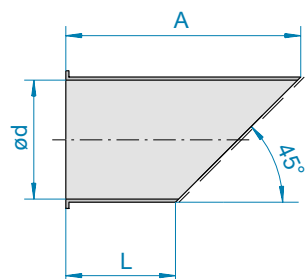
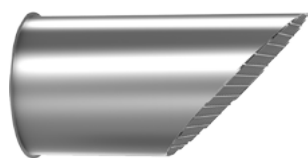
Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	$\varnothing d$	A	B	C	L	kg	1.5 mm galvanised		2 mm galvanised		1.5 mm stainless steel		2 mm stainless steel	
							Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	77	180		50	92	0.60	11082850	63.00			11083850	86.00		
100	100	225		50	102	0.90	11102850	65.60			11103850	104.00		
120	120	270		50	112	1.30	11122850	68.30			11123850	122.50		
140	136	325		50	122	1.70	11142850	75.00			11143850	140.50		
150	150	325		50	127	1.80	11152850	75.00			11153850	140.50		
175	175	375		50	140	2.30	11172850	79.20			11173850	158.00		
200	200	425		50	152	2.90	11202850	85.20			11203850	177.00		
224	220	525	205	106	275	6.10	11222850	103.50			11223850	212.50		
250	250	525	205	106	275	6.40	11252850	103.50			11253850	212.50		
280	277	596	220	106	300	6.60	11282850	121.00			11283850	250.00		
300	300	625	230	156	315	6.20	11302850	121.00			11303850	250.00		
315	312	655	230	106	320	10.54	11312850	163.50			11313850	337.50		
350	350	750	300	156	395	14.70	11352850	194.50			11353850	386.50		
400	399	850	320	156	435	15.20	11402850	220.00			11403850	483.00		
450	448	950	340	150	470	22.00			12452850	240.50			12453850	614.50
500	498	1050	410	200	550	27.70			12502850	261.00			12503850	689.50
560	558	1150	435	200	590	27.00			12562850	282.50			12563850	736.00
630	628	1300	470	200	645	32.00			12632850	307.50			12633850	774.50



TRANSITION PIECES AND ADAPTERS

Air outlet pipes and perforated sheet metal



AIR OUTLET PIPES 45°

1450

- With bird-guard, mesh size 20 x 20 x 2 mm

Galvanised (dimensions for 1.5 mm)

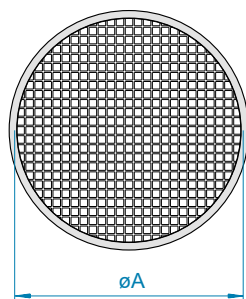
DN	Ø d	A	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
80	77	280	200	0.90	11082880*	61.50		
100	100	300	200	1.20	11102880	61.50		
120	120	320	200	1.50	11122880	72.70		
140	136	340	200	1.90	11142880	85.20		
150	150	350	200	2.20	11152880	85.20		
175	175	375	200	2.60	11172880	93.70		
200	200	400	200	3.20	11202880	101.00		
224	220	424	200	3.70	11222880	112.50		
250	250	450	200	4.40	11252880	112.50		
280	277	480	200	5.40	11282880	133.50		
300	300	500	200	6.00	11302880	133.50		
315	312	515	200	7.20	11312880	155.00		
350	350	550	200	8.20	11352880	191.00		
400	399	600	200	10.20	11402880	229.50		
450	449	650	200	12.40	11452880	277.50		
500	499	700	200	14.90	11502880	317.50		
560	558	760	200	23.70			11562880	372.50
630	628	830	200	29.20			11632880	416.00

*1 mm

Stainless steel (dimensions for 1.5 mm)

DN	Ø d	A	L	kg	1.5 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€
80	77	280	200	0.90	11083880	85.70		
100	100	300	200	1.20	11103880	85.70		
120	120	320	200	1.50	11123880	105.50		
140	136	340	200	1.90	11143880	122.00		
150	150	350	200	2.20	11153880	122.00		
175	175	375	200	2.60	11173880	133.50		
200	200	400	200	3.20	11203880	147.00		
224	220	424	200	3.70	11223880	161.50		
250	250	450	200	4.40	11253880	161.50		
280	277	480	200	5.40	11283880*	196.50		
300	300	500	200	6.00	11303880	196.50		
315	312	515	200	7.20	11313880*	222.00		
350	350	550	200	8.20	11353880	266.50		
400	399	600	200	10.20	11403880	331.00		
450	449	650	200	12.40	11453880	379.00		
500	499	700	200	14.90	11503880	438.50		
560	558	760	200	23.70			12563880	523.00
630	628	830	200	29.20			12633880	626.50

*1 mm



PERFORATED SHEET METAL

1380

- With NBR U-shaped seal for 2 mm
- 69% free space, hole size 10 x 10 mm
- NBR: Temperature resistance: -20°C to +100°C, food grade standard, in accordance with EC 1935/2004
- On request: Silicone seal, temperature resistance -60°C to +250°C
- FOOD GRADE: EC 1935/2004 plus FDA compliant

DN	A	kg	1 mm stainless steel	
			Item no.	€
80	92	0.01	11083716	13.60
100	114	0.05	11103716	13.60
120	134	0.05	11123716	16.00
140	150	0.05	11143716	16.60
150	164	0.10	11153716	16.60
175	189	0.10	11173716	17.50
200	214	0.11	11203716	19.10
224	238	0.11	11223716	22.20
250	264	0.11	11253716	22.20
280	294	0.13	11283716	23.80
300	314	0.14	11303716	27.00
315	326	0.15	11313716	29.60
350	364	0.15	11353716	32.80
400	414	0.15	11403716	40.10

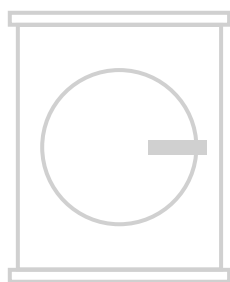


DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.



JACOB INSPECTION PIPE COMPONENTS:
CLEANING AND MAINTENANCE
IN NEXT TO NO TIME



INSPECTION PIPE COMPONENTS

Technical information	106	
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INSPECTION PIPE COMPONENTS

Control is better: Inspection pipe components allow you to keep an eye on the inside of your JACOB pipework system too. Special pipe components provide unhindered access and let you carry out inspections, maintenance and cleaning without having to dismantle the complete surrounding area. Like all other pipework elements, the inspection pipe components are manufactured to the same high JACOB standard of quality.

SEALS FOR INSPECTION PIPES AND RUBBER COVERS



Seals for inspection pipes



NBR	Silicone 	Silicone  
grey white	beige	blue
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C
glued	vulcanised	vulcanised
		metal-detectable





Seals for cleaning pipes




EPDM (sponge rubber)	Foam silicone 	Foam silicone 
light grey	white	blue
	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-35°C to +110°C	-60°C to +180°C	-60°C to +180°C
glued	vulcanised	vulcanised
		metal-detectable

Rubber covers for inspection T-pieces



NBR	TPE 	Silicone 	Silicone  
dark grey	white	beige	blue
	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-30°C to +90°C	-30°C to +100°C	-60°C to +200°C	-60°C to +200°C
			metal-detectable

 FOOD GRADE
EC 1935/2004 plus FDA compliant

 DETECTABLE DESIGN
Metal-detectable



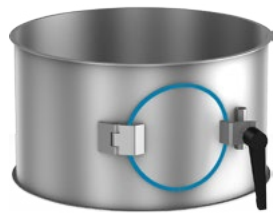


INSPECTION PIPE COMPONENTS

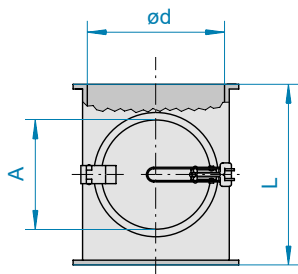
Inspection pipes



DN 80 to 315 mm



DN 350 to 400 mm



INSPECTION PIPES

2010

- Galvanised and powder-coated in standard range with NBR seal
- Stainless steel in standard range with silicone seal
- Other materials available on request
- Reinforced shock explosion proof version up to 3 bar on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
					Item no.	€	Item no.	€	Item no.	€
80	77	80	200	1.05	11081190	37.90			11082190	44.90
100	100	115	200	1.25	11101190	37.90			11102190	44.90
120	120	115	200	1.45	11121190	39.40	13121190	60.10	11122190	47.00
140	136	115	200	1.55	11141190	41.60			11142190	50.50
150	150	115	200	1.65	11151190	41.60	13151190	63.50	11152190	50.50
175	175	115	200	1.85	11171190	43.50	13171190	64.20	11172190	52.60
200	200	115	200	2.00	11201190	44.80	13201190	67.10	11202190	53.80
224	220	115	200	2.25	11221190	47.10			11222190	58.40
250	250	115	200	2.40	11251190	47.10	13251190	70.00	11252190	58.40
280	277	115	200	2.60	11281190	49.30			11282190	60.70
300	300	115	200	2.65	11301190	49.30	13301190	71.80	11302190	60.70
315	312	115	200	2.85	11311190	56.80			11312190	69.90
350	350	115	200	3.20	11351190	63.40	13351190	84.20	11352190	77.50
400	399	115	200	3.55	11401190	67.30	13401190	91.50	11402190	83.90

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	L	kg	1 mm stainless steel	F	1.5 mm stainless steel	F	2 mm stainless steel	F
					Item no.	€	Item no.	€	Item no.	€
80	77	80	200	1.05	11083190	82.10				
100	100	115	200	1.25	11103190	82.10			12103190	99.50
120	120	115	200	1.45	11123190	84.10			12123190	101.50
140	136	115	200	1.55	11143190	86.90				
150	150	115	200	1.65	11153190	86.90			12153190	106.50
175	175	115	200	1.85	11173190	90.00			12173190	110.00
200	200	115	200	2.00	11203190	94.40			12203190	117.00
224	220	115	200	2.25	11223190	100.50				
250	250	115	200	2.40	11253190	100.50			12253190	127.00
280	277	115	200	2.60			11283190	109.50		
300	300	115	200	2.65	11303190	109.50			12303190	142.00
315	312	115	200	2.85			11313190	120.50		
350	350	115	200	3.20	11353190	127.00			12353190	161.50
400	399	115	200	3.55	11403190	141.00			12403190	185.00

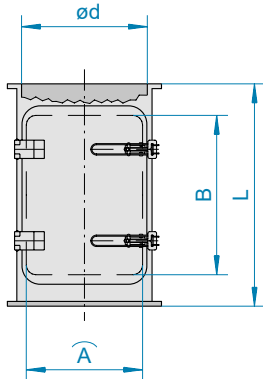


DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



CLEANING PIPES

2020

- Galvanised and powder-coated in standard range with EPDM (sponge rubber) seal
- Stainless steel with foam silicone seal
- Other materials available on request
- Not recommended for extracting exhaust air containing condensates

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm powder-coated		2 mm powder-coated		1.5 mm galvanised	
						Item no.	€	Item no.	€	Item no.	€
200	200	224	350	486	4.70	11201195	118.50			11202195	144.00
224	220	224	350	486	5.20	11221195	127.00			11222195	155.50
250	250	224	350	486	5.85	11251195	127.00			11252195	155.50
280	277	224	350	486	6.60	11281195	135.00			11282195	163.50
300	300	350	350	486	7.00	11301195	135.00			11302195	163.50
315	312	350	350	486	7.35	11311195	141.50			11312195	172.50
350	350	350	350	486	8.40	11351195	142.50			11352195	175.50
400	399	350	350	486	9.10	11401195	151.50			11402195	186.50
450	448	500	350	486	11.60			12451195	162.00	12452195*	207.50
500	498	500	350	486	12.80			12501195	174.50	12502195*	223.00
560	558	500	350	486	14.30			12561195	187.00	12562195*	247.00
630	628	500	350	486	16.00			12631195	202.50	12632195*	263.00

*2 mm

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€
200	200	224	350	486	4.70	11203195	226.00		
224	220	224	350	486	5.20	11223195	242.50		
250	250	224	350	486	5.85	11253195	242.50		
280	277	224	350	486	6.60	11283195	257.50		
300	300	350	350	486	7.00	11303195	257.50		
315	312	350	350	486	7.35	11313195	266.00		
350	350	350	350	486	8.40	11353195	273.50		
400	399	350	350	486	9.10	11403195	287.50		
450	448	500	350	486	11.60			12453195	307.50
500	498	500	350	486	12.80			12503195	329.50
560	558	500	350	486	14.30			12563195	353.00
630	628	500	350	486	16.00			12633195	382.50



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

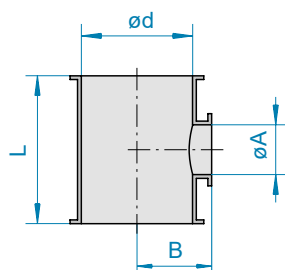
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



INSPECTION PIPE COMPONENTS

Inspection T-pieces



INSPECTION T-PIECES

1040

- For use in conjunction with a rubber cover
- Alternatively: Combined with a blank off cover and JACOB pull-ring
- Refer to dimension A to select the right rubber cover or blank off cover

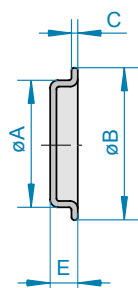
Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
						Item no.	€	Item no.	€	Item no.	€
100	100	100	79	165	0.75	11101200	17.80				
120	120	100	89	165	0.80	11121200	18.80			13121200	31.90
150	150	120	100	198	1.20	11151200	22.40			13151200	36.50
175	175	150	114	225	1.55	11171200	26.30	12171200	31.90	13171200	39.20
200	200	150	125	225	1.80	11201200	28.10	12201200	35.80	13201200	49.90
250	250	150	150	225	2.20	11251200	36.80	12251200	47.10	13251200	61.30
300	300	150	177	225	2.55	11301200	44.00	12301200	49.60	13301200	69.00

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm galvanised		1 mm stainless steel	F	2 mm stainless steel	F
						Item no.	€	Item no.		Item no.	€
100	100	100	79	165	0.75	11102200	20.10	11103200	44.40	12103200	51.90
120	120	100	89	165	0.80	11122200	21.50	11123200	46.40	12123200	55.60
150	150	120	100	198	1.20	11152200	27.00	11153200	54.50	12153200	71.40
175	175	150	114	225	1.55	11172200	29.10	11173200	72.20	12173200	92.90
200	200	150	125	225	1.80	11202200	35.10	11203200	74.70	12203200	99.60
250	250	150	150	225	2.20	11252200	45.30	11253200	83.10	12253200	105.50
300	300	150	177	225	2.55	11302200	53.10	11303200	87.70	12303200	128.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



RUBBER COVERS

3030

- For use in conjunction with inspection T-pieces or JACOB pipework in the appropriate diameter
- To select the right rubber cover, please refer to dimension A of the inspection T-piece
- Refer to the beginning of the chapter for more information on materials

NBR and TPE

DN	A	B	C	E	kg	NBR (-30°C to +90°C)		TPE (-30°C to +100°C)	
						Item no.	€	Item no.	€
80	79	99	5	20	0.10			1008520109	4.60
100	101	121	5	21	0.15	10106201	6.00	1010520109	4.80
120	121	141	5	22	0.20	10126201	6.80	1012520109	5.90
150	151	171	6	24	0.35	10156201	9.20	1015520109	6.10
175	176	196	6	29	0.45	10176201	13.70	1017520109	9.20
200	201	221	6	26	0.60	10206201	18.70	1020520109	12.10
250	251	271	7	30	0.90	10256201	26.00	1025520109	16.10
300	301	321	7	32	1.35	10306201	33.70	1030520109	22.30

Silicone

DN	A	B	C	E	kg	Silicone (-60°C to +200°C)		Silicone (blue) (-60°C to +200°C)	
						Item no.	€	Item no.	€
80	79	99	5	20	0.10	10087201	20.30	1008720101	29.40
100	101	121	5	21	0.15	10107201	21.10	1010720101	30.50
120	121	141	5	22	0.20	10127201	23.40	1012720101	32.70
150	151	171	6	24	0.35	10157201	30.60	1015720101	40.70
175	176	196	6	25	0.45	10177201	39.30	1017720101	51.20
200	201	221	6	26	0.60	10207201	50.60	1020720101	64.20
250	251	271	7	30	0.90	10257201	78.00	1025720101	101.50
300	301	321	7	32	1.35	10307201	81.80	1030720101	106.50

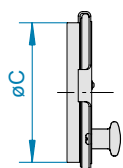
ADDITIONAL RUBBER COVER LOCKS

3040

- For use in conjunction with inspection T-pieces and rubber covers

Electro-galvanised (dimensions for 2 mm pipework)

DN	C	kg	2 mm electro-galvanised	Item no.	€
100	100	0.30	for inspection T-pieces DN 100 and 120 mm	11102210	20.10
120	120	0.35	for inspection T-pieces DN 150 mm	11122210	20.60
150	150	0.55	for inspection T-pieces DN 175 to 300 mm	11152210	25.60



F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



INSPECTION PIPE COMPONENTS

Plexiglass pipes




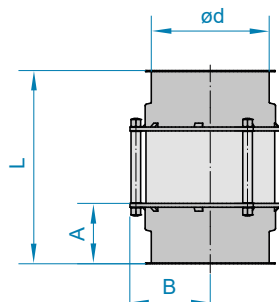
PLEXIGLASS PIPES WITH SOCKETS AND ROD SPACERS

1390

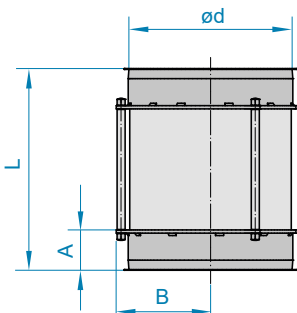
- Including sockets with a lip
- NEW: with rod spacers for a stronger construction
- Temperature-resistant to 70°C
- Plexiglass pipes must not be installed in load bearing situations
- DN 60 to 150 mm and DN 200 mm made of seamless plexiglass
- FOOD GRADE: EC 1935/2004 plus FDA compliant
- DN 175 and 250 mm with glued plexiglass, foodstuff compliant in accordance with FDA

Powder-coated, galvanised and stainless steel (dimensions for 1 mm pipework)


DN	Ø d	A	B	L	kg	1 mm powder-coated		1 mm galvanised		1 mm stainless steel		
						Item no.	€	Item no.	€	Item no.	€	
80	78	75	62	200	0.80	11081725	52.50	11082725	60.90	11083725	71.00	
100	100	75	72	200	0.90	11101725	52.50	11102725	60.90	11103725	71.00	
120	120	75	83	200	1.10	11121725	56.60	11122725	64.20	11123725	76.50	
150	150	75	97	200	1.30	11151725	58.40	11152725	66.80	11153725	80.10	
175	175	100	104	200	1.50	11171725	82.30	11172725	91.10	11173725	101.50	
200	200	150	117	250	1.90	11201725	84.30	11202725	92.70	11203725	108.00	
250	250	150	142	250	2.30	11251725	116.00	11252725	124.00	11253725	144.00	

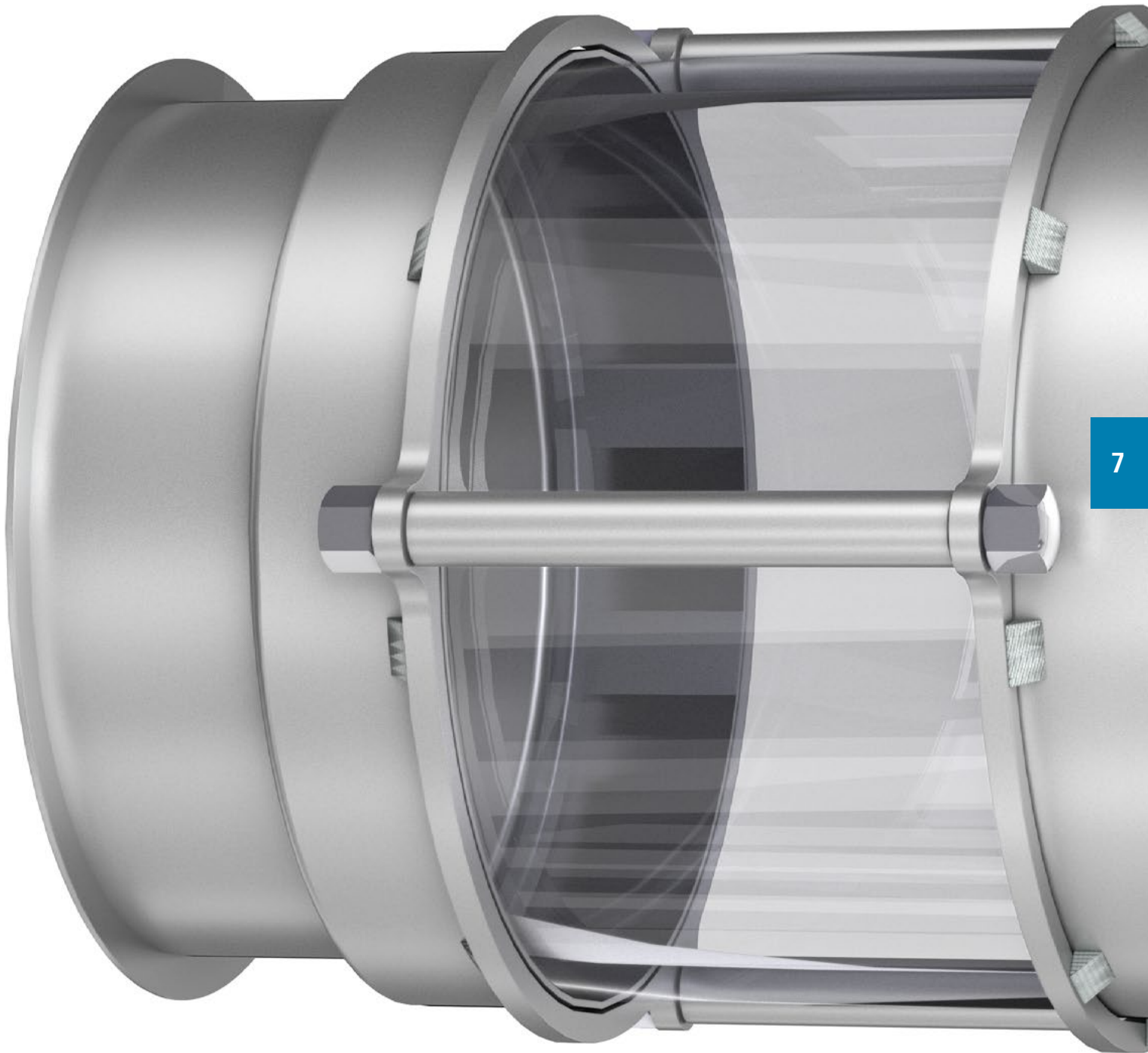


DN 80 to 150 mm



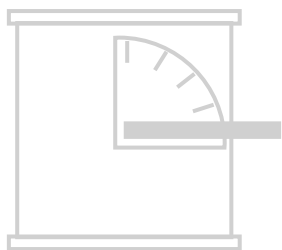
DN 175 to 250 mm

 **FOOD GRADE**
EC 1935/2004 plus FDA compliant





AIR FLOW AND PRODUCT TRANSPORT
TO SUIT YOUR SYSTEM: PERFECTLY
REGULATED AT ALL TIMES



CONTROL VALVES

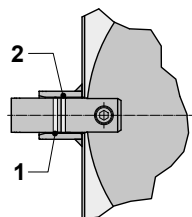
Technical information	116	
Throttle valves	118	
Throttle valves with seal	123	
Adjustable blank-off covers and air bleeds	128	
Air and pipe slide gates	129	
Non-return valves	129	
Silo / Redler outlet slide gates	133	



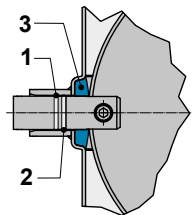
THROTTLE VALVES

JACOB throttle valves and regulators precisely control the air flow and product transport and can be flexibly incorporated in our pull-ring system thanks to their lipped ends.

We have a wide portfolio of standard products – from manually adjustable throttle valves and pneumatic rotary actuators to electrically operated adjustable drives. Other drives and larger diameters are available on request. We reserve the right to alter design specifications.



Cross-section of throttle valve without seal, valve open
1 EPDM
2 Viton



Cross-section of throttle valve with seal, valve open
1 EPDM
2 Viton
3 Silicone rubber

THROTTLE VALVES WITHOUT SEAL WHEN CLOSED

- Diameters of 60 – 400 mm
- Hand-operated, made of powder-coated, galvanised and stainless steel
- Pneumatically operated with a rotary actuator, and electrically operated with an electric motor, in powder-coated and stainless steel
- Both shafts are sealed with an O-ring made of Viton and a conductive EPDM seal to discharge charges on the inner flap to the housing
- Neither of the O-ring seals are in contact with the product
- FOOD GRADE stainless steel version dually compliant for contact with food in accordance with EC 1935/2004 plus FDA
- Versions with a diameter over 350 mm are alternatively available with loose flanges. Refer to chapter 11 for details

THROTTLE VALVES WITH SEAL WHEN CLOSED

- Diameters of 80 – 400 mm
- Hand-operated, pneumatically operated with a rotary actuator, and electrically operated with an electric motor, powder-coated and stainless steel
- Up to a diameter of 200 mm, the valve is tested as shock explosion proof externally up to 3 bar over-pressure
- Electric shock explosion proof in a closed condition in conjunction with a pneumatic rotary actuator. Compressed air connection with 5 bar minimum operating pressure
- The standard quality with an inner valve seal is made of silicone rubber
- Both shafts are sealed with an O-ring made of Viton and a conductive EPDM seal to discharge charges on the inner flap to the housing
- Neither of the O-ring seals are in contact with the product
- FOOD GRADE stainless steel version dually compliant with EC 1935/2004 plus FDA for contact with food, including all parts in contact with foodstuffs and any sealing materials and glues
- Please refer to chapter 11 for information on special throttle valve versions with a seal in diameters of over 400 mm

Throttle valves with and without a seal: Shafts are sealed with O-ring seals
Throttle valves with a seal: Inner valve seal made of silicone rubber

O-ring EPDM	O-ring Viton	Valve seal made of silicone rubber	
black	green	opaque	
not in contact with the product	not in contact with the product	FOOD GRADE: EC 1935/2004 plus FDA compliant	
-40°C to +150°C	-20°C to +200°C	-60°C to +180°C	
conductive		vulcanised	



Special versions available – prices on request

- Housing available in various types of stainless steel, such as 1.4571
- Versions for higher temperatures on request
- Actuation possible 100 mm away from the housing for higher temperature protection
- Actuators, solenoid valves and limit switches according to customers' specifications
- Larger diameters available on request
- Versions with loose flanges or welded flanges, e.g. in accordance with DIN 24154, P2
- Special colours
- Other actuators on request

ACTUATORS FOR THROTTLE VALVES



Pneumatic AIR TORQUE rotary actuators (IP 65)

Required air pressure 5 bar. Switch-over time for 90° < 3 seconds. On the rotary actuator a 5/2-way spring-return valve (1 coil) with manual air switch, with an angle push-in fitting for an 8 x 1 PU hose. Standard version closed when there is no power supply.

2 potential-free micro switches 4 to 250 V with spring-free gold contacts for SPS controls and suitable for amperages up to 5 A, solenoid and limit switches wired into limit switch. Solenoid valve and limit switch wired on terminals in a limit switch box.



Electrically operated BELIMO valve actuators (IP 42)

Overload proof, in standard version without limit switches. The valve remains under tension in the respective end position. Consumption approx. 4 watt. Switch-over time for 90° approx. 150 seconds. Valves larger than DN 300 mm without a seal and larger than DN 200 mm with a seal are not fitted with a BELIMO actuator in standard quality. Larger diameters available on request. Flexibly adjustable limit switches for switching off and remote controlling, or as a continuously adjustable actuator, are available at additional cost.



Electrically operated AIR TORQUE adjustable drives (IP 65)

1-phase, with emergency hand operation. Switch-over time for 90° for throttle valves without a seal approx. 11-12 seconds, throttle valves with a seal approx. 12-23 seconds, 2 limit switches integrated in the actuator. Prices for additional limit switch, potentiometer or position controller on request.



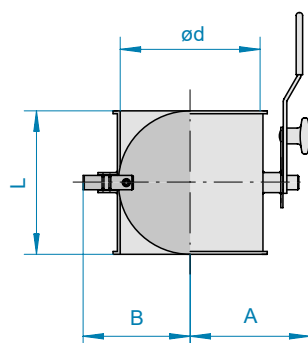
ATEX

Depending on the actuator, ATEX versions in category 2/3 G/D for the surroundings of the valves are available at additional cost. Inside the valve housing, Zone 0 or 20 is admitted for versions without an inner valve seal. For versions with a seal, ATEX versions up to and including DN 300 mm are also admitted inside Zone 0 or 20, but from DN 300 mm, only Zone 20 is admitted. If Zone 0 is required, conductive EPDM seal without food quality are necessary. Dusts and gases with a minimum ignition energy < 3 mJ are not admissible. All throttle valves in ATEX version are supplied with earthing lugs as standard.



CONTROL VALVES

Throttle valves



THROTTLE VALVES, HAND-OPERATED

2070

- Larger diameters available on request
- Refer to chapter 11 for version with loose flange
- For manual continuous flow regulation

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

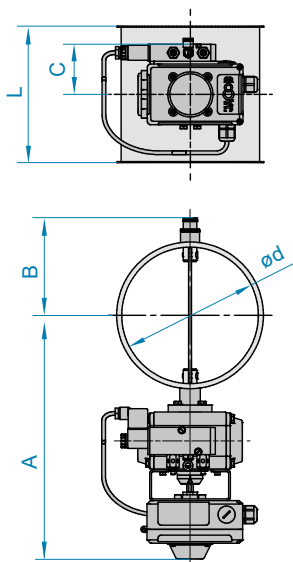
DN	Ø d	A	B	L	kg	1.5 mm powder-coated		1.5 mm galvanised	
						Item no.	€	Item no.	€
60	57	79	63	60	0.70	11061566	44.20		
80	77	90	74	100	0.90	11081566	46.00	11082566	61.30
100	100	101	85	100	1.10	11101566	48.60	11102566	63.00
120	120	124	103	120	1.90	11121560	58.30	11122560	73.10
140	136	132	111	140	2.20	11141560	64.50	11142560	78.50
150	150	139	118	150	2.40	11151560	64.50	11152560	78.50
175	175	152	130	175	3.00	11171560	78.80	11172560	86.90
200	200	164	143	200	3.50	11201560	85.50	11202560	94.50
224	220	174	153	200	3.90	11221560	110.50	11222560	123.50
250	250	189	168	200	4.50	11251560	110.50	11252560	123.50
280	277	203	181	200	5.00	11281560	119.00	11282560	135.50
300	300	214	193	200	5.50	11301560	121.00	11302560	138.00
315	312	220	199	200	6.50	11311560*	132.50	11312560*	152.00
350	350	239	218	200	7.50	11351560*	138.00	11352560*	157.00
400	399	264	242	200	9.00	11401560*	152.50	11402560*	174.50

*2 mm

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm stainless steel	F	2 mm stainless steel	F
						Item no.	€	Item no.	€
60	57	79	63	60	0.70	11063566	90.60		
80	77	90	74	100	0.90	11083566	114.00		
100	100	101	85	100	1.10	11103566	114.00	12103566	121.50
120	120	124	103	120	1.90	11123560	123.50	12123560	132.00
140	136	132	111	140	2.20	11143560	142.50		
150	150	139	118	150	2.40	11153560	142.50	12153560	150.50
175	175	152	130	175	3.00	11173560	161.50	12173560	175.50
200	200	164	143	200	3.50	11203560	196.50	12203560	205.50
224	220	174	153	200	3.90	11223560	237.50		
250	250	189	168	200	4.50	11253560	237.50	12253560	251.50
280	277	203	181	200	5.00			12283560	284.50
300	300	214	193	200	5.50	11303560	269.00	12303560	284.50
315	312	220	199	200	6.50			12313560	289.00
350	350	239	218	200	7.50			11353560	289.00
400	399	264	242	200	9.00			11403560	337.50

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR

2095

- 5/2-way solenoid valve (1-coil)
- 2 mechanical limit switches and solenoid valve wired in a limit switch box
- Switch-over time for 90°: < 3 seconds
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	L	kg	1.5 mm powder-coated		1.5 mm stainless steel		F
							Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

60	57	280	63	79	60	3.30	5662060344	510.00	6662060344	603.50
80	77	303	87	79	100	3.60	5662080344	519.50	6662080344	629.00
100	100	315	99	79	100	3.90	5662100344	519.50	6662100344	629.50
120	120	325	109	79	120	4.30	5852120344	523.00	6852120344	636.50
140	136	333	117	79	140	4.70	5852140344	529.50	6852140344	644.50
150	150	340	124	79	150	5.00	5852150344	529.50	6852150344	644.50
175	175	352	136	84	175	6.60	5852170344	548.00	6852170344	683.50
200	200	364	149	84	200	7.40	5852200344	560.00	6852200344	704.00
224	220	374	159	84	200	7.90	5852220344	587.00	6852220344	763.00
250	250	388	174	84	200	8.60	5852250344	587.00	6852250344	763.00
280	277	403	188	84	200	9.10	5852280344	599.50	6852280344	791.50
300	300	414	199	84	200	9.80	5852300344	602.00	6852300344	791.50
315	312	422	205	84	200	10.20	5852310344*	613.50	6852310344*	796.00
350	350	460	224	84	200	10.90	5852350344*	629.50	6852350344*	834.50
400	399	485	248	84	200	12.30	5852400344*	660.00	6852400344*	879.50

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

60	57	280	63	79	60	3.30	5662060345	510.00	6662060345	603.50
80	77	303	87	79	100	3.60	5662080345	519.50	6662080345	629.00
100	100	315	99	79	100	3.90	5662100345	519.50	6662100345	629.50
120	120	325	109	79	120	4.30	5852120345	523.00	6852120345	636.50
140	136	333	117	79	140	4.70	5852140345	529.50	6852140345	644.50
150	150	340	124	79	150	5.00	5852150345	529.50	6852150345	644.50
175	175	352	136	84	175	6.60	5852170345	548.00	6852170345	683.50
200	200	364	149	84	200	7.40	5852200345	560.00	6852200345	704.00
224	220	374	159	84	200	7.90	5852220345	587.00	6852220345	763.00
250	250	388	174	84	200	8.60	5852250345	587.00	6852250345	763.00
280	277	403	188	84	200	9.10	5852280345	599.50	6852280345	791.50
300	300	414	199	84	200	9.80	5852300345	602.00	6852300345	791.50
315	312	422	205	84	200	10.20	5852310345*	613.50	6852310345*	796.00
350	350	460	224	84	200	10.90	5852350345*	629.50	6852350345*	834.50
400	399	485	248	84	200	12.30	5852400345*	660.00	6852400345*	879.50

*2 mm



CONTROL VALVES

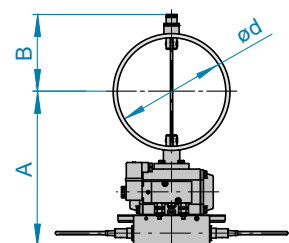
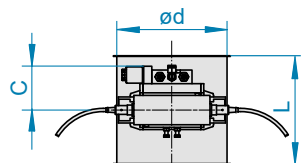
Throttle valves



THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2095

- Switch-over time for 90°: <3 seconds
- Designed inside with equipment category 1 G/D, outside with equipment category 3 D
- Control with 5/2-way solenoid valve and 2 inductive limit switches 24 V DC
- Without terminal box
- Terminal box and limit switch box on request
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request



Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	L	kg	1.5 mm powder-coated		1.5 mm stainless steel	
							Item no.	€	Item no.	€



Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

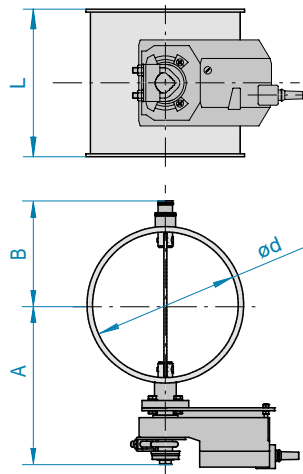
60	57	280	63	79	60	3.30	56620603455	635.00	66620603455	728.50
80	77	303	87	79	100	3.60	56620803455	644.50	66620803455	754.00
100	100	315	99	79	100	3.90	56621003455	644.50	66621003455	754.50
120	120	325	109	79	120	4.30	58521203455	648.00	68521203455	761.50
140	136	333	117	79	140	4.70	58521403455	654.50	68521403455	769.50
150	150	340	124	79	150	5.00	58521503455	654.50	68521503455	769.50
175	175	352	136	84	175	6.60	58521703455	673.00	68521703455	808.50
200	200	364	149	84	200	7.40	58522003455	685.00	68522003455	829.00
224	220	374	159	84	200	7.90	58522203455	712.00	68522203455	888.00
250	250	388	174	84	200	8.60	58522503455	712.00	68522503455	888.00
280	277	403	188	84	200	9.10	58522803455	724.50	68522803455	916.50
300	300	414	199	84	200	9.80	58523003455	727.00	68523003455	916.50
315	312	422	205	84	200	10.20	58523103455*	738.50	68523103455*	921.00
350	350	460	224	84	200	10.90	58523503455*	754.50	68523503455*	959.50
400	399	485	248	84	200	12.30	58524003455*	785.00	68524003455*	1005.00

*2 mm



FOOD GRADE
EC 1935/2004 plus FDA compliant





THROTTLE VALVES WITH ELECTRICALLY-OPERATED VALVE ACTUATOR

2105

- Switch-over time for 90°: approx. 150 seconds
- Limit switch indication at additional cost
- With external control voltage 0 to 10 V DC on request

Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm powder-coated		1.5 mm stainless steel	
						Item no.	€	Item no.	€



Valve actuator, make BELIMO, voltage 230 V AC

60	57	145	63	60	3.60	5662060551	379.00	6662060551	490.50
80	77	166	87	100	3.90	5662080551	383.00	6662080551	513.50
100	100	179	99	100	4.20	5662100551	383.00	6662100551	514.50
120	120	189	109	120	4.60	5852120551	387.00	6852120551	520.50
140	136	197	117	140	5.00	5852140551	395.50	6852140551	533.00
150	150	204	124	150	5.20	5852150551	395.50	6852150551	533.00
175	175	216	136	175	5.60	5852170551	436.50	6852170551	601.50
200	200	229	149	200	6.40	5852200551	449.00	6852200551	622.50
224	220	239	159	200	6.80	5852220551	496.50	6852220551	672.00
250	250	254	174	200	7.40	5852250551	496.50	6852250551	672.00
280	277	403	188	200	8.10	5852280551	514.50	6852280551	718.00
300	300	277	199	200	8.70	5852300551	516.50	6852300551	718.00

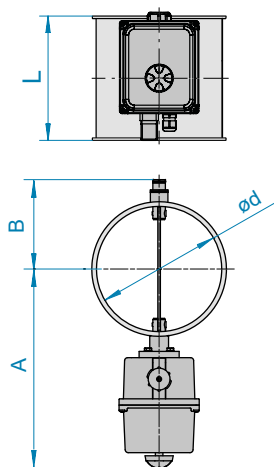
Valve actuator, make BELIMO, voltage 24 V DC/AC

60	57	145	63	60	3.60	5662060552	379.00	6662060552	490.50
80	77	166	87	100	3.90	5662080552	383.00	6662080552	513.50
100	100	179	99	100	4.20	5662100552	383.00	6662100552	514.50
120	120	189	109	120	4.60	5852120552	387.00	6852120552	520.50
140	136	197	117	140	5.00	5852140552	395.50	6852140552	533.00
150	150	204	124	150	5.20	5852150552	395.50	6852150552	533.00
175	175	216	136	175	5.60	5852170552	436.50	6852170552	601.50
200	200	229	149	200	6.40	5852200552	449.00	6852200552	622.50
224	220	239	159	200	6.80	5852220552	496.50	6852220552	672.00
250	250	254	174	200	7.40	5852250552	496.50	6852250552	672.00
280	277	403	188	200	8.10	5852280552	514.50	6852280552	718.00
300	300	277	199	200	8.70	5852300552	516.50	6852300552	718.00



CONTROL VALVES

Throttle valves



THROTTLE VALVES WITH ELECTRICALLY-OPERATED ADJUSTABLE DRIVE

2107

- Adjustable drive, make AIR TORQUE
- Including 2 limit switches
- Switch-over time for 90°: approx. 11-12 seconds
- ATEX version on request
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm powder-coated		1.5 mm stainless steel		
						Item no.	€	Item no.	€	

Adjustable drive, make AIR TORQUE, voltage 230 V AC

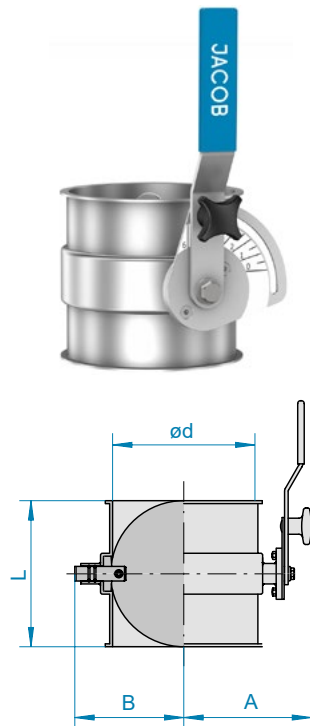
60	57	240	63	60	2.80	5662060773	548.00	6662060773	642.00	
80	77	250	75	100	3.00	5662080773	549.50	6662080773	665.50	
100	99	262	85	200	3.20	5662100773	549.50	6662100773	665.50	
120	119	277	103	200	3.70	5852120773	553.00	6852120773	673.50	
140	135	285	111	200	4.00	5852140773	561.00	6852140773	681.00	
150	149	293	118	200	4.20	5852150773	561.00	6852150773	681.00	
175	174	305	131	200	4.70	5852170773	580.50	6852170773	722.50	
200	199	317	143	200	5.30	5852200773	593.00	6852200773	744.50	
224	219	327	153	200	5.70	5852220773	622.50	6852220773	806.50	
250	249	342	168	200	6.30	5852250773	622.50	6852250773	806.50	
280	276	357	182	200	6.80	5852280773	635.00	6852280773	837.50	
300	299	368	193	200	7.30	5852300773	637.00	6852300773	837.50	
315	311	374	199	200	8.40	5852310773*	648.50	6852310773*	841.50	
350	349	393	218	200	9.40	5852350773*	654.50	6852350773*	858.00	
400	398	418	242	200	10.80	5852400773*	668.50	6852400773*	906.00	

Adjustable actuator, make AIR TORQUE, voltage 24 V DC/AC

60	57	240	63	60	2.80	5662060774	548.00	6662060774	642.00	
80	77	250	75	100	3.00	5662080774	549.50	6662080774	665.50	
100	99	262	85	200	3.20	5662100774	549.50	6662100774	665.50	
120	119	277	103	200	3.70	5852120774	553.00	6852120774	673.50	
140	135	285	111	200	4.00	5852140774	561.00	6852140774	681.00	
150	149	293	118	200	4.20	5852150774	561.00	6852150774	681.00	
175	174	305	131	200	4.70	5852170774	580.50	6852170774	722.50	
200	199	317	143	200	5.30	5852200774	593.00	6852200774	744.50	
224	219	327	153	200	5.70	5852220774	622.50	6852220774	806.50	
250	249	342	168	200	6.30	5852250774	622.50	6852250774	806.50	
280	276	357	182	200	6.80	5852280774	635.00	6852280774	837.50	
300	299	368	193	200	7.30	5852300774	637.00	6852300774	837.50	
315	311	374	199	200	8.40	5852310774*	648.50	6852310774*	841.50	
350	349	393	218	200	9.40	5852350774*	654.50	6852350774*	858.00	
400	398	418	242	200	10.80	5852400774*	668.50	6852400774*	906.00	

*2 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES, HAND-OPERATED

2080

- Silicone rubber seal
- Temperature resistance: -60°C to +180°C
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm stainless steel	
						Item no.	€	Item no.	€
80	77	121	83	100	1.80	12081577*	102.50	12083577	188.00
100	99	133	93	100	2.20	12101577	102.50	12103577	188.00
120	119	143	103	120	2.60	12121577	106.00	12123577	200.00
140	135	151	111	140	2.90	12141577	115.50	12143577	218.50
150	149	158	116	150	3.20	12151577	115.50	12153577	218.50
175	174	170	131	175	3.90	12171577	134.50	12173577	252.50
200	199	183	143	200	4.60	12201577	149.00	12203577	275.50
224	219	193	153	200	5.10	12221577	186.00	12223577	345.50
250	249	208	168	200	5.80	12251577	186.00	12253577	345.50
280	276	222	182	200	6.40	12281577	199.00	12283577	370.00
300	299	233	193	200	7.22	12301577	204.00	12303577	378.50
315	311	272	220	200	10.50	12311577	265.00	12313577	416.50
350	349	291	239	200	12.00	12351577	303.00	12353577	449.50
400	398	316	264	200	14.20	12401577	339.50	12403577	538.00

*1.5 mm



DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

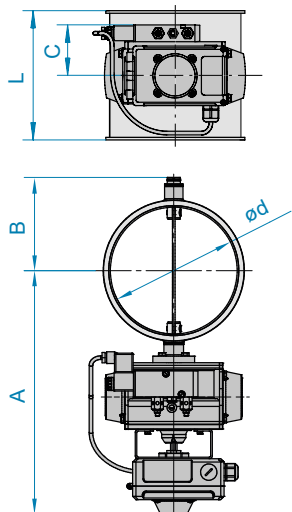
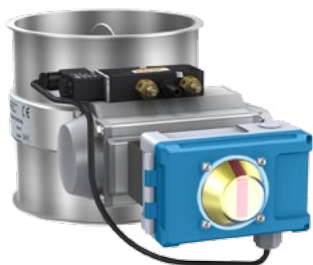
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



CONTROL VALVES

Throttle valves with seal



THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR

2090

- 5/2-way solenoid valve (1 coil)
- 2 mechanical limit switches and solenoid valve wired in a limit switch box
- Switch-over time for 90°: < 3 seconds
- Silicone rubber seal
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	L	kg	2 mm powder-coated		2 mm stainless steel		F
							Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

80	76	303	87	79	100	3.60	5772080344	565.00	6772080344	682.50
100	99	315	99	79	100	3.90	5772100344	565.00	6772100344	682.50
120	119	325	109	79	120	4.30	5772120344	569.00	6772120344	688.00
140	135	333	117	79	140	4.70	5772140344	576.50	6772140344	699.50
150	149	340	124	79	150	5.00	5772150344	576.50	6772150344	699.50
175	174	352	136	84	175	6.60	5772170344	595.50	6772170344	742.00
200	199	385	149	84	200	7.40	5772200344	608.50	6772200344	763.00
224	219	395	159	84	200	7.90	5772220344	638.00	6772220344	825.00
250	249	410	174	84	200	8.60	5772250344	638.00	6772250344	825.00
280	276	413	188	84	200	9.60	5772280344	649.50	6772280344	844.50
300	299	439	199	84	200	9.80	5772300344	654.50	6772300344	853.00
315	311	455	220	84	200	14.10	5772310344	715.50	6772310344	891.50
350	349	474	239	84	200	18.20	5772350344	753.50	6772350344	924.50
400	399	499	264	84	200	20.70	5772400344	790.00	6772400344	1013.00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

80	76	303	87	79	100	3.60	5772080345	565.00	6772080345	682.50
100	99	315	99	79	100	3.90	5772100345	565.00	6772100345	682.50
120	119	325	109	79	120	4.30	5772120345	569.00	6772120345	688.00
140	135	333	117	79	140	4.70	5772140345	576.50	6772140345	699.50
150	149	340	124	79	150	5.00	5772150345	576.50	6772150345	699.50
175	174	352	136	84	175	6.60	5772170345	595.50	6772170345	742.00
200	199	385	149	84	200	7.40	5772200345	608.50	6772200345	763.00
224	219	395	159	84	200	7.90	5772220345	638.00	6772220345	825.00
250	249	410	174	84	200	8.60	5772250345	638.00	6772250345	825.00
280	276	413	188	84	200	9.60	5772280345	649.50	6772280345	844.50
300	299	439	199	84	200	9.80	5772300345	654.50	6772300345	853.00
315	311	455	220	84	200	14.10	5772310345	715.50	6772310345	891.50
350	349	474	239	84	200	18.20	5772350345	753.50	6772350345	924.50
400	399	499	264	84	200	20.70	5772400345	790.00	6772400345	1013.00



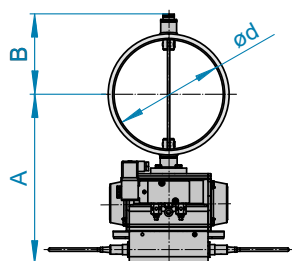
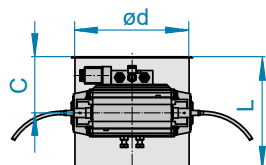
DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

■ DN 80 to 200 mm shock explosion proof externally up to 3 bar, and electric shock explosion proof in a closed condition. Compressed air connection with 5 bar minimum operating pressure



THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2090

- Switch-over time for 90°: < 3 seconds
- Silicone rubber seal
- Designed inside with equipment category 1 G/D, and outside with equipment category 3 D
- Control with 5/2-way solenoid valve and 2 inductive limit switches 24 V DC
- Without terminal box
- Terminal box and limit switch box on request
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	L	kg	2 mm powder-coated		2 mm stainless steel		F
							Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

80	76	303	87	79	100	3.60	57720803455	690.00	67720803455	807.50
100	99	315	99	79	100	3.90	57721003455	690.00	67721003455	807.50
120	119	325	109	79	120	4.30	57721203455	694.00	67721203455	813.00
140	135	333	117	79	140	4.70	57721403455	701.50	67721403455	824.50
150	149	340	124	79	150	5.00	57721503455	701.50	67721503455	824.50
175	174	352	136	84	175	6.60	57721703455	720.50	67721703455	867.00
200	199	385	149	84	200	7.40	57722003455	733.50	67722003455	888.00
224	219	395	159	84	200	7.90	57722203455	763.00	67722203455	950.00
250	249	410	174	84	200	8.60	57722503455	763.00	67722503455	950.00
280	276	413	188	84	200	9.60	57722803455	774.50	67722803455	969.50
300	299	439	199	84	200	9.80	57723003455	779.50	67723003455	978.00
315	311	455	220	84	200	14.10	57723103455	840.50	67723103455	1017.00
350	349	474	239	84	200	18.20	57723503455	878.50	67723503455	1050.00
400	399	499	264	84	200	20.70	57724003455	915.00	67724003455	1138.00



**DETECTABLE
DESIGN**

AVAILABLE IN THE DETECTABLE DESIGN LINE.

8

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

■ DN 80 to 200 mm shock explosion proof externally up to 3 bar, and electric shock explosion proof in a closed condition. Compressed air connection with 5 bar minimum operating pressure



CONTROL VALVES

Throttle valves with seal




THROTTLE VALVES WITH ELECTRICALLY-OPERATED VALVE ACTUATOR

2100

- Switch-over time for 90°: approx. 150 seconds
- Limit switch indication at additional cost
- With external control voltage 0 to 10 V DC on request
- Silicone rubber seal

Powder-coated and stainless steel (dimensions for 2 mm pipework)

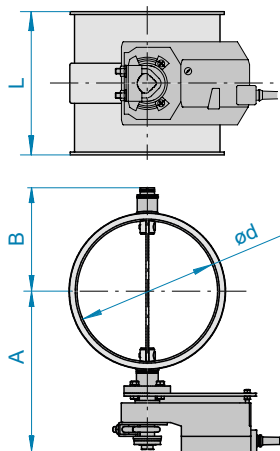
DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm stainless steel		
						Item no.	€	Item no.	€	

Valve actuator, make BELIMO, voltage 230 V AC

80	76	166	86	100	3.90	5772080551	426.00	6772080551	534.50	
100	99	179	98	100	4.20	5772100551	426.00	6772100551	562.00	
120	119	189	108	120	4.60	5772120551	430.50	6772120551	567.00	
140	135	197	116	140	5.00	5772140551	438.50	6772140551	579.50	
150	149	204	123	150	5.20	5772150551	438.50	6772150551	579.50	
175	174	216	135	175	5.80	5772170551	457.50	6772170551	613.00	
200	199	229	148	200	6.60	5772200551	472.00	6772200551	636.00	

Valve actuator, make BELIMO, voltage 24 V DC/AC


80	76	166	86	100	3.90	5772080552	426.00	6772080552	562.00	
100	99	179	98	100	4.20	5772100552	426.00	6772100552	562.00	
120	119	189	108	120	4.60	5772120552	430.50	6772120552	567.00	
140	135	197	116	140	5.00	5772140552	438.50	6772140552	579.50	
150	149	204	123	150	5.20	5772150552	438.50	6772150552	579.50	
175	174	216	135	175	5.80	5772170552	457.50	6772170552	613.00	
200	199	229	148	200	6.60	5772200552	472.00	6772200552	636.00	



DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 **DETECTABLE DESIGN**
Metal-detectable



THROTTLE VALVES WITH ELECTRICALLY-OPERATED ADJUSTABLE ACTUATOR

2102

- Including 2 limit switches
- Switch-over time for 90°: approx. 12-22 seconds
- ATEX version on request
- Silicone rubber seal
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm stainless steel	
						Item no.	€	Item no.	€



Adjustable drive, make AIR TORQUE, voltage 230 V AC

80	77	256	82	100	3.40	5772080773	597.50	6772080773	722.00
100	99	267	93	100	3.70	5772100773	597.50	6772100773	722.00
120	119	277	103	120	4.10	5772120773	602.50	6772120773	728.50
140	135	285	111	140	4.50	5772140773	610.00	6772140773	739.50
150	149	293	118	150	4.80	5772150773	610.00	6772150773	739.50
175	174	305	131	175	5.40	5772170773	630.00	6772170773	785.00
200	199	317	143	200	6.20	5772200773	644.50	6772200773	806.50
224	219	327	153	200	6.60	5772220773	729.50	6772220773	926.50
250	249	342	168	200	7.30	5772250773	729.50	6772250773	926.50
280	276	356	182	200	8.00	5772280773	742.00	6772280773	958.50
300	299	368	193	200	8.60	5772300773	746.50	6772300773	967.00
315	311	386	220	200	11.60	5772310773	808.00	6772310773	1005.00
350	349	405	239	200	13.00	5772350773	845.50	6772350773	1038.00
400	398	430	264	200	15.00	5772400773	882.50	6772400773	1127.00

Adjustable actuator, make AIR TORQUE, voltage 24 V DC/AC

80	77	256	82	100	3.40	5772080774	597.50	6772080774	722.00
100	99	267	93	100	3.70	5772100774	597.50	6772100774	722.00
120	119	277	103	120	4.10	5772120774	602.50	6772120774	728.50
140	135	285	111	140	4.50	5772140774	610.00	6772140774	739.50
150	149	293	118	150	4.80	5772150774	610.00	6772150774	739.50
175	174	305	131	175	5.40	5772170774	630.00	6772170774	785.00
200	199	317	143	200	6.20	5772200774	644.50	6772200774	806.50
224	219	327	153	200	6.60	5772220774	729.50	6772220774	926.50
250	249	342	168	200	7.30	5772250774	729.50	6772250774	926.50
280	276	356	182	200	8.00	5772280774	742.00	6772280774	958.50
300	299	368	193	200	8.60	5772300774	746.50	6772300774	967.00
315	311	386	220	200	11.60	5772310774	808.00	6772310774	1005.00
350	349	405	239	200	13.00	5772350774	845.50	6772350774	1038.00
400	398	430	264	200	15.00	5772400774	882.50	6772400774	1127.00



**DETECTABLE
DESIGN**

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

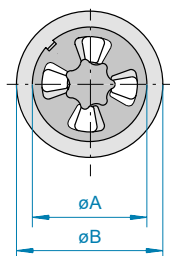
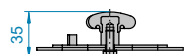


For more technical information go to www.jacob-pipesystems.com

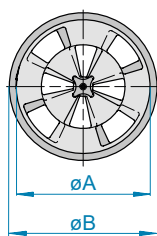


CONTROL VALVES

Adjustable blank-off covers and air bleeds



DN 80 to 200 mm



DN 224 to 300 mm

ADJUSTABLE BLANK-OFF COVERS

2030

Powder-coated and stainless steel

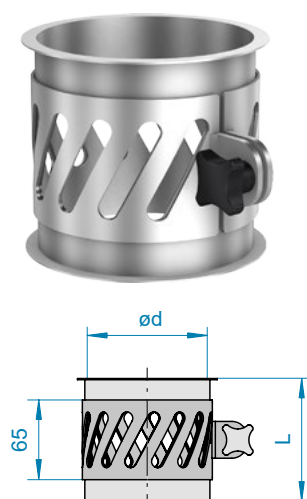
DN	A	B	kg	Opening surfaces %	1.5 mm powder-coated		1.5 mm stainless steel		
					Item no.	€	Item no.	€	
80	70	92	0.14	12	11081522	32.20	11083522	44.70	
100	90	115	0.19	17	11101522	32.20	11103522	44.70	
120	110	135	0.25	21	11121522	34.40	11123522	49.40	
140	126	151	0.30	25	11141522	35.90	11143522	51.80	
150	140	165	0.34	26	11151522	35.90	11153522	51.80	
175	165	190	0.44	29	11171522	39.50	11173522	67.50	
200	190	215	0.56	31	11201522	45.20	11203522	73.10	
224	210	235	0.65	31	11221522	50.70	11223522	80.60	
250	240	265	0.81	33	11251522	50.70	11253522	80.60	
280	270	292	0.97	34	11281522	59.90	11283522	84.30	
300	290	315	1.12	35	11301522	63.90	11303522	86.90	


AIR BLEEDS

2040

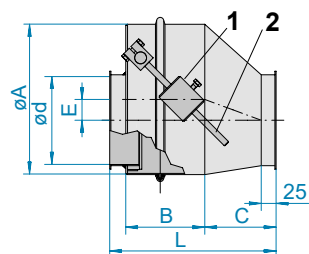
Powder-coated and stainless steel

DN	Ø d	L	kg	1 mm powder-coated		1 mm stainless steel		
				Item no.	€	Item no.	€	
80	78	100	0.39	11081523	58.50	11083523	68.80	
100	100	100	0.47	11101523	62.60	11103523	73.60	
120	120	100	0.55	11121523	66.70	11123523	78.40	
140	136	100	0.61	11141523	74.20	11143523	87.20	
150	150	100	0.67	11151523	74.20	11153523	87.20	
175	175	100	0.76	11171523	85.90	11173523	101.00	
200	200	100	0.88	11201523	94.00	11203523	110.50	



 FOOD GRADE
EC 1935/2004 plus FDA compliant

Adjustable blank-off covers and air bleeds/ Air and pipe slide gates



- 1 Lever arm adjustable 360°
2 Adjustable weight on lever arm

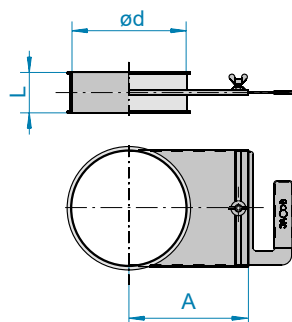
NON-RETURN VALVES

2060

- Lever arm and weights adjustable
- Inner seal NR-SBR from -40°C to +70°C
- U-shaped seal NBR from -20°C to +100°C
- FOOD GRADE version and other seals on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	$\varnothing d$	A	B	C	E	L	kg	2 mm powder-coated		2 mm stainless steel		F
								Item no.	€	Item no.	€	
80	76	150	95	90	20	210	4.30	12081575	416.00	12083575	709.00	
100	99	175	115	90	22.5	230	4.90	12101575	429.00	12103575	730.50	
120	119	200	130	100	25	255	6.25	12121575	443.50	12123575	738.50	
150	149	250	135	120	35	280	8.30	12151575	470.50	12153575	799.50	
175	174	300	150	140	47.5	315	10.50	12171575	494.00	12173575	840.00	
200	199	300	185	140	35	350	11.60	12201575	523.50	12203575	889.50	
250	249	350	225	165	35	415	15.10	12251575	566.50	12253575	971.50	
300	299	450	260	195	55	480	22.70	12301575	622.00	12303575	1044.00	



PIPE REGULATOR GATES

2110

- Only for granular products
- Only for installation in inclined pipelines with the operating mechanism facing upwards

Powder-coated and stainless steel (dimensions for 2 mm pipework)

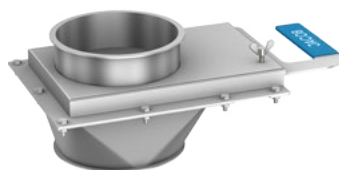
DN	$\varnothing d$	A	L	kg	2 mm powder-coated		2 mm stainless steel		F
					Item no.	€	Item no.	€	
100	99	100	70	1.10	12101610	46.60	12103610	122.50	
120	119	120	70	1.40	12121610	48.50	12123610	131.00	
150	149	150	70	2.00	12151610	59.10	12153610	171.00	
175	174	180	70	2.75	12171610	71.90	12173610	195.00	
200	199	200	70	3.10	12201610	83.20	12203610	210.00	
250	249	250	70	4.60	12251610	121.00	12253610	324.00	
300	299	300	70	7.10	12301610	126.00	12303610	337.00	

F FOOD GRADE
EC 1935/2004 plus FDA compliant



CONTROL VALVES

Air and pipe slide gates

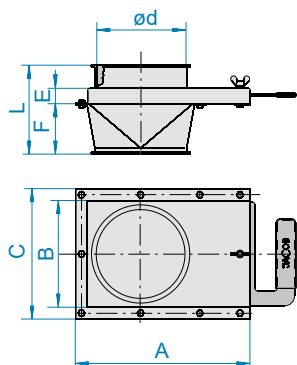


PIPE SLIDE GATES, HAND-OPERATED

2120

- Stainless steel: Silicone slide plate seal
- Powder-coated and galvanised version: Felt seal

- Stainless steel version: temperature resistant from -60°C to +250°C and FOOD GRADE: compliant with EC 1935/2004 plus FDA





Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	E	F	L	kg	1 mm powder-coated		2 mm powder-coated	
									Item no.	€	Item no.	€
80	78	225	120	160	28	103	153	1.85	11081620	128.00		
100	99	225	120	160	28	60	108	2.05			12101620	133.00
120	119	251	140	180	28	70	138	3.00			12121620	134.50
150	149	295	180	220	25	85	152	4.20			12151620	141.00
175	174	320	200	245	28	145	212	5.80			12171620	175.50
200	199	410	250	290	26	115	182	7.60			12201620	192.00
250	249	432	300	345	30	150	217	9.50			12251620	232.00
300	299	512	350	395	30	210	277	13.50			12301620	264.00

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	E	F	L	kg	1 mm galvanised		2 mm galvanised	
									Item no.	€	Item no.	€
80	78	225	120	160	28	103	153	1.85	11082620	141.00		
100	99	225	120	160	28	60	108	2.05			12102620	149.50
120	119	251	140	180	27	70	138	3.00			12122620	159.00
150	149	295	180	220	25	85	152	4.20			12152620	179.50
175	174	320	200	245	28	145	212	5.80			12172620	213.50
200	199	410	250	290	26	115	182	7.60			12202620	239.00
250	249	432	300	345	30	150	217	9.50			12252620	272.50
300	299	512	350	395	30	210	277	13.50			12302620	316.00

Stainless steel (dimensions for 2 mm pipework)


DN	Ø d	A	B	C	E	F	L	kg	1 mm stainless steel 		2 mm stainless steel 	
									Item no.	€	Item no.	€
80	78	225	120	160	28	103	153	1.85	11083620	300.00		
100	99	225	120	160	28	60	108	2.05			12103620	320.00
120	119	251	140	180	27	70	138	3.00			12123620	324.50
150	149	295	180	220	25	85	152	4.20			12153620	360.00
175	174	320	200	245	28	145	212	5.80			12173620	424.00
200	199	410	250	290	26	115	182	7.60			12203620	469.00
250	249	432	300	345	30	150	217	9.50			12253620	518.50
300	299	512	350	395	30	210	277	13.50			12303620	579.50



DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

 FOOD GRADE
EC 1935/2004 plus FDA compliant

 DETECTABLE DESIGN
Metal-detectable

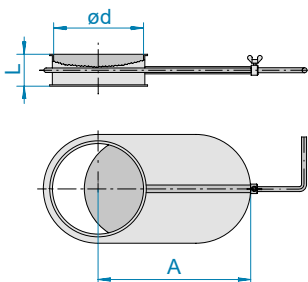


AIR FLOW CONTROL GATES

2050



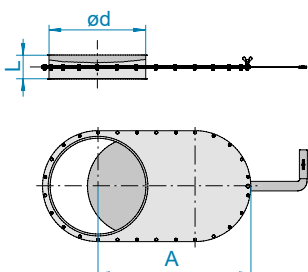
- Only for air pipelines



DN 80 to 300 mm

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	L	kg	1.5 mm powder-coated		2 mm powder-coated	
					Item no.	€	Item no.	€
80	78	148	50	0.75	11081525	32.60		
100	100	175	58	1.10	11101525	32.60		
120	120	205	58	1.30	11121525	34.70		
140	136	242	70	1.70	11141525	47.00		
150	150	250	70	1.80	11151525	47.00		
175	175	290	70	2.55	11171525	83.30		
200	200	335	70	3.40	11201525	86.60		
224	220	392	70	3.90	11221525	101.00		
250	250	410	100	4.60	11251525	101.00		
300	299	485	100	7.90			12301525	112.50



DN 350 to 500 mm

Electro-galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	L	kg	1.5 mm electro-galvanised		2 mm electro-galvanised		1.5 mm stainless steel		F
					Item no.	€	Item no.	€	Item no.	€	
80	78	148	50	0.75	11082525	41.30			11083525	92.50	
100	100	175	58	1.10	11102525	41.30			11103525	92.50	
120	120	205	58	1.30	11122525	45.30			11123525	97.20	
140	136	242	70	1.70	11142525	58.70			11143525	135.50	
150	150	250	70	1.80	11152525	58.70			11153525	135.50	
175	175	290	70	2.55	11172525	91.70			11173525	172.00	
200	200	335	70	3.40	11202525	94.80			11203525	189.50	
224	220	392	70	3.90	11222525	110.00			11223525	235.50	
250	250	410	100	4.60	11252525	110.00			11253525	235.50	
300	299	485	100	7.90			12302525	141.50	12303525*	269.00	
350	349	560	100	15.50			12352525	239.50			
400	398	636	100	18.80			12402525	287.00			
450	448	710	100	22.50			12452525	345.00			
500	498	795	100	28.80			12502525	387.00			

* 2 mm

F FOOD GRADE
EC 1935/2004 plus FDA
compliant



CONTROL VALVES

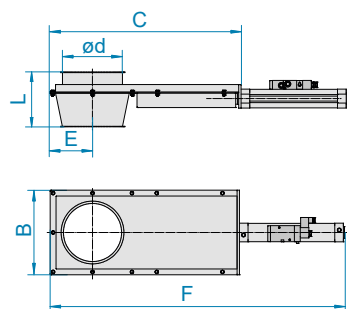
Air and pipe slide gates



PIPE SLIDE GATES, PNEUMATICALLY OPERATED

2290

- Including cylinder, make FESTO
- 5/2-way solenoid valve (1-coil) with auxiliary hand operation and 2 limit switches, potential-free
- ATEX version on request
- For shutting off granular bulk goods without over-pressure in the pipework system
- Slide gate closes when the electricity supply is cut
- Stainless steel: Silicone slide plate seal: -60°C to +250°C
- Powder-coated version: Felt seal
- Other cylinders available on request
- Other diameters available on request



Pipe slide gates, including cylinder, powder-coated and stainless steel

DN	Ø d	B	C	E	F	L	kg	2 mm powder-coated	2 mm stainless steel	F
								Item no. €	Item no. €	

Control voltage 230 V AC

100	99	165	372	80	650	104	5.90	5602100221 723.50	6602100221 1010.00	
120	119	185	415	90	692	138	6.90	5602120221 750.50	6602120221 1066.00	
150	149	225	505	110	782	152	9.20	5602150221 794.00	6602150221 1131.00	
175	174	250	555	123	882	212	11.00	5602170221 827.00	6602170221 1191.00	
200	199	295	645	148	1055	182	19.90	5602200221 892.50	6602200221 1287.00	
250	249	350	780	173	1210	217	22.20	5602250221 960.50	6602250221 1400.00	
300	299	400	880	198	1360	277	28.40	5602300221 1048.00	6602300221 1477.00	

Control voltage 24 V DC

100	99	165	372	80	650	104	5.90	5602100223 723.50	6602100223 1010.00	
120	119	185	415	90	692	138	6.90	5602120223 750.50	6602120223 1066.00	
150	149	225	505	110	782	152	9.20	5602150223 794.00	6602150223 1131.00	
175	174	250	555	123	882	212	11.00	5602170223 827.00	6602170223 1191.00	
200	199	295	645	148	1055	182	19.90	5602200223 892.50	6602200223 1287.00	
250	249	350	780	173	1210	217	22.20	5602250223 960.50	6602250223 1400.00	
300	299	400	880	198	1360	277	28.40	5602300223 1048.00	6602300223 1477.00	

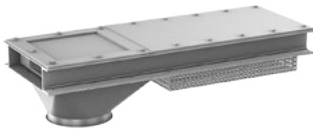


DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

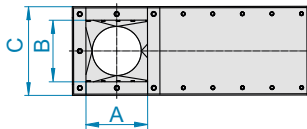
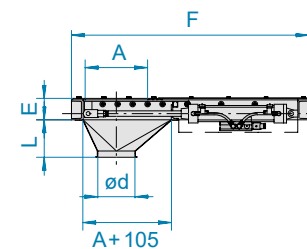
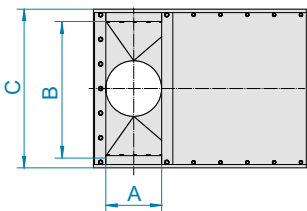
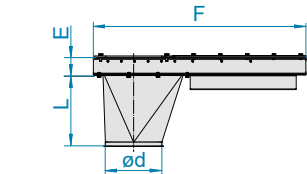
D DETECTABLE DESIGN
Metal-detectable



SILO (REDLER) OUTLET SLIDE GATES, PNEUMATICALLY OPERATED

2300/2305

- Including cylinder, make FESTO
- 5/2-way solenoid valve (1-coil) with auxiliary hand operation and 2 limit switches, potential-free
- Slide plate runs on ball bearings in a U-frame
- Steel, primed, powder coating on request
- For shutting off granular bulk goods without over-pressure in the pipework system
- Slide gate closes when the electricity supply is cut
- FOOD GRADE version, powder coating, ATEX version or other cylinders on request
- Other dimensions available on request



Redler outlet slide gates (cross-slide), primed steel, colour RAL 7032 (dimensions including spout)

DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€

Control voltage 230 V AC

200	199	200	600	710	86	852	360	65	5710200121	1233.00	5712200121	1424.00
250	249	250	600	710	86	952	320	73	5710250121	1268.00	5712250121	1465.00
300	299	300	600	710	86	1052	270	78	5710300121	1315.00	5712300121	1523.00

Control voltage 24 V DC

200	199	200	600	710	86	852	360	65	5710200123	1233.00	5712200123	1424.00
250	249	250	600	710	86	952	320	73	5710250123	1268.00	5712250123	1465.00
300	299	300	600	710	86	1052	270	78	5710300123	1315.00	5712300123	1523.00

Redler outlet slide gates (cross-slide), primed steel, colour RAL 7032 (dimensions including spout)

DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€

Control voltage 230 V AC

150	149	200	200	310	86	852	150	40	5760150121	1159.00	5762150121	1290.00
200	199	250	250	360	86	952	150	46	5760200121	1183.00	5762200121	1337.00
250	249	300	300	410	86	1052	150	52	5760250121	1245.00	5762250121	1396.00

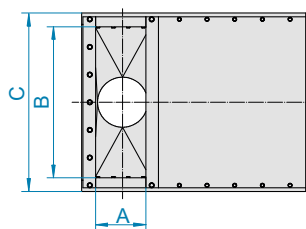
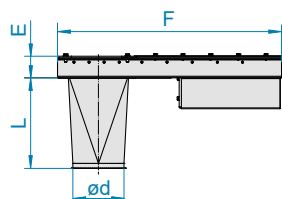
Control voltage 24 V DC

150	149	200	200	310	86	852	150	40	5760150123	1159.00	5762150123	1290.00
200	199	250	250	360	86	952	150	46	5760200123	1183.00	5762200123	1337.00
250	249	300	300	410	86	1052	150	52	5760250123	1245.00	5762250123	1396.00



CONTROL VALVES

Silo / Redler outlet slide gates



SILO / REDLER OUTLET SLIDE GATES, ELECTRICALLY-OPERATED

2310/2315

- Including worm-gear motor 380/400 V, 50 Hz and 2 mechanical limit switches
- Slide plate runs on ball bearings in a U-frame
- Steel, primed, powder coating on request
- For shutting off granular bulk goods without over-pressure in the pipework system
- FOOD GRADE version, powder coating or ATEX version available on request
- Other dimensions available on request

Redler outlet slide gates (cross-slide), primed steel, colour RAL 7032 (dimensions including spout)

DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€
200	199	200	600	710	86	845	360	88	57102005	1625.00	57122005	1797.00
250	249	250	600	710	86	995	320	91	57102505	1638.00	57122505	1818.00
300	299	300	600	710	86	1145	270	103	57103005	1651.00	57123005	1857.00

Silo outlet slide gates, primed steel, colour RAL 7032 (dimensions including spout)

DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€
150	149	200	200	304	71	932	150	54	57601505	1511.00	57621505	1641.00
200	199	250	250	354	71	1082	150	64	57602005	1541.00	57622005	1682.00
250	249	300	300	404	71	1232	150	54	57602505	1587.00	57622505	1737.00



JACOB



THE RIGHT WAY FOR YOUR PRODUCT:
JACOB TWO-WAY DIVERTERS
FOR EVERY APPLICATION



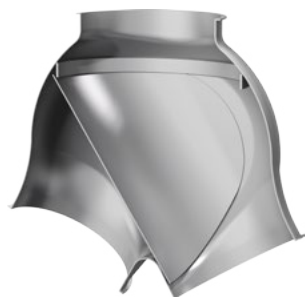
TWO-WAY DIVERTERS

Technical information	138	
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Two-way valves with seal	150	
Two-way distributors	156	



TWO-WAY DIVERTERS

Technical information



Cross-section: Two-way valves with inlet collar 60°, symmetrical



Example: Two-way valves with inlet collar 60°, symmetrical, hand-operated



Example: Two-way valves with inlet collar 50°, symmetrical, construction DN > 300 mm with welded flanges, pneumatically operated with a rotary actuator

JACOB TWO-WAY DIVERTERS

JACOB has various types of two-way diverters available to meet your requirements: From bulk goods conveying by gravity to pneumatic low pressure conveying, JACOB has just the right solution in its portfolio for distributing your product.

JACOB two-way diverters

	Two-way valves with inlet collar	Two-way valves with seal	Two-way distributors
Application	Gravity conveying bulk goods	Gravity conveying bulk goods Ventilation systems up to 0.1 bar	Gravity conveying bulk goods Ventilation systems up to 0.3 bar (version with more powerful actuator necessary from 0.1 bar upwards)
Seal	No inner flap seal	Standard range inner flap seal NBR or silicone No seal below shaft	Standard inner flap seal in NBR or silicone Standard shaft seal in silicone
Diameters and angles	DN 100 to 300 mm pressed component with lip, angle: 60° DN 350 and 400 mm from flanged pipework, angle: 50°	DN 100 to 300 mm pressed component with lip, angle: 60°	DN 100 to 300 mm with lip, angle: 60° or 45° DN 350 to 630 mm with welded flanges: Angle: 60° or 45°

TWO-WAY VALVES WITH INLET COLLAR

Construction: symmetrical and asymmetrical

Diameters and versions: DN 100 to 400 mm

DN 100 to 300 mm:

- Component pressed in tool (consisting of 2 half shells)
- Angle between outlets 60°
- With 6 mm lip for pull-ring connection
- Shaft seal with NBR double V-ring seal

DN > 300 mm:

- Angle between outlets 50°
- Inlet and outlets with welded flanges according to DIN 24154, P2, but without counter-flange
- Shafts with ball bearings with Viton O-ring seal

Explosion protection: Version pneumatically operated with a rotary actuator: designed for ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22), control with 5/2-way solenoid valve and 2 inductive limit switches 24 V DC. Terminal box or limit switch box on request. All two-way valves in ATEX version are supplied with earthing lugs as standard.

Materials: 2 and 3 mm powder-coated, 2 mm stainless steel

Actuation:

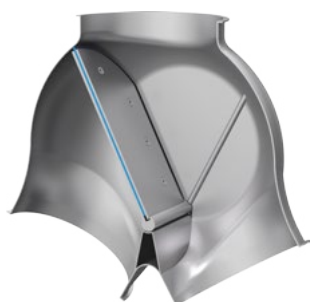
- Hand-operated, DN > 200 mm with additional lever lock, DN 350 and 400 mm without tension spring
- Fitted with pneumatic rotary actuator, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic cylinder, make FESTO (refer also to actuators)

Modularity: With 6 mm lip for pull-ring connection up to DN 300 mm. Installation dimensions are identical to two-way valves with a seal.



Applications: For gravity conveying of free-flowing – without backlog – non-glutinous, granular bulk goods. With powdery products, especially with over-pressure or under-pressure in the closed outlet, there could be leakages in the closed outlet. Only limited use in ventilation plants is recommended due to the absence of an inner flap seal. The product flow is by the inlet collar directing the product towards the centre of the flap, and in the outlet by covering the U-shaped inner flap towards the next pipe that follows.

FOOD GRADE: All metal components and sealing materials in stainless steel that are in contact with products are compliant with EC 1935/2004 plus FDA.



Cross-section: Two-way valves with inlet collar 60°, symmetrical



Example: Two-way valves with seal 60°, symmetrical, pneumatically operated with a rotary actuator

TWO-WAY VALVES WITH SEAL

Construction: symmetrical and asymmetrical

Diameters and versions: DN 100 to 300 mm

- Component pressed in tool (consisting of 2 half shells)
- Angle between outlets 60°
- On the side with formed beads to increase tightness, (except DN 175 mm)
- For hand-operated two-way valves, shaft sealing with NBR double V-ring seal
- For two-way valves with rotary actuator or cylinder: Shafts with ball bearings with Viton O-ring seal
- Two-way distributors should be used for diameters > DN 300 mm

Explosion protection: Version pneumatically operated with a rotary actuator: designed for ATEX category 1 D internally (dust zone 20), and category 3 D externally (dust zone 22), control with 5/2-way solenoid valve and 2 inductive limit switches 24 V DC. Further limit switches available on request. Without terminal box. Terminal box or limit switch box on request. All two-way valves in ATEX version are supplied with earthing lugs as standard.

Materials: 2 and 3 mm powder-coated, 2 mm stainless steel



Actuation:

- Hand-operated, with lever lock, can also be locked in intermediate position (increased seal wear is likely)
- Fitted with pneumatic rotary actuator, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic cylinder, make FESTO (refer also to actuators)

Modularity: With 6 mm lip for pull-ring connection. Installation dimensions are identical to two-way valves with an inlet collar.

Inner flap seal:

- Powder-coated two-way valves, standard version with intermediate NBR seal on 3-part inner flap
- Stainless steel two-way valves, standard version with intermediate silicone seal on 3-part inner flap

Silicone 	NBR 
opaque	grey white
-60°C to +180°C	-30°C to +80°C
FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
Thickness: 3 or 4 mm	Thickness: 3 or 4 mm




DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

Applications: For gravity conveying of free-flowing bulk goods and in ventilation plants up to 0.1 bar. There is no seal underneath the shaft, so that in the case of higher tightness requirements towards the closed outlet the two-way distributor should be used.

FOOD GRADE: All metal components and sealing materials in stainless steel that are in contact with products are compliant with EC 1935/2004 plus FDA.

 FOOD GRADE
EC 1935/2004 plus FDA compliant

 DETECTABLE DESIGN
Metal-detectable

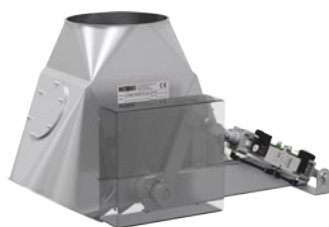


TWO-WAY DIVERTERS

Technical information



Cross-section: Two-way distributor 60° up to DN 300 mm, symmetrical



Example: Two-way distributor 60°, DN > 300 mm, symmetrical, pneumatically operated with cylinder



Example: Two-way distributor 60°, DN > 300 mm, symmetrical, pneumatically operated with cylinder and welded flanges

TWO-WAY DISTRIBUTORS

Construction: symmetrical and asymmetrical

Diameters and versions:

- DN 100 to 630 mm
- DN > 300 mm: Inlet and outlets with welded flanges according to DIN 24154, P2
- Angle between outlets 45° or 60°
- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Below the shaft there is a silicone seal that can be re-adjusted from outside
- Shafts with ball bearings and a silicone flat ring-seal
- From DN 250-630 mm with inspection openings on both outlets for inspection purposes

Explosion protection: Version pneumatically operated with a rotary actuator: designed for ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22), control with 5/2-way solenoid valve and 2 inductive limit switches 24 V DC. Further limit switches available on request. Without terminal box. Terminal box or limit switch box on request. All two-way distributors in ATEX version are supplied with earthing lugs as standard.

Materials: up to DN 400 mm: 2 mm powder-coated and stainless steel, from DN 450 mm: 3 mm powder-coated and stainless steel

Actuation:

- Hand-operated, DN 100-300 mm with lever lock, can also be locked in intermediate positions (increased seal wear)
- Fitted with pneumatic rotary actuator, DN 100-630 mm, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic cylinder, DN 100-630 mm, make FESTO (refer also to actuators)

Modularity: With 6 mm lip for pull-ring connection up to DN 300 mm.

Inner flap seal: 3-part straight inner flap with intermediate silicone seal.
Other seal qualities on request (e.g.: NBR or EPDM)

Silicone	F	NBR	F
opaque		grey white	
-60°C to +180°C		-30°C to +80°C	
FOOD GRADE: EC 1935/2004 plus FDA compliant		FOOD GRADE: EC 1935/2004 plus FDA compliant	
Thickness: 3 or 4 mm		Thickness: 3 or 4 mm	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

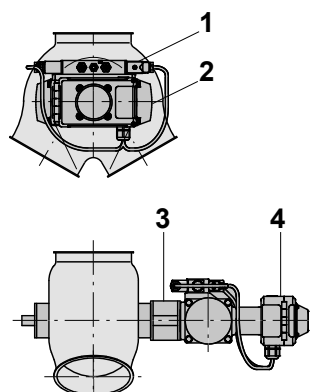
Applications: For gravity conveying of free-flowing bulk goods and ventilation plants up to 0.3 bar (if more powerful actuators are fitted). The 45° version is recommended for sensitive bulk goods or for products with bad flow properties.

FOOD GRADE: All metal components and sealing materials in stainless steel that are in contact with products are compliant with EC 1935/2004 plus FDA.

Special feature: All two-way distributors have an internal valve which can be dismantled without removing the distributor from the pipeline (for cleaning or replacing the seals)

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



- 1 Solenoid valve
- 2 Rotary actuator
- 3 Panel
- 4 Limit switch box

ACTUATORS FOR TWO-WAY DIVERTERS

Version fitted with pneumatic rotary actuator

- Rotary actuator, make AIR TORQUE, other makes are available on request
- With 5/2-way solenoid valve (2-coil) with auxiliary hand operation, in 24 V DC or in 230 V AC
- The solenoid valve is bolted directly to the actuator in accordance with Namur specification
- Complete with 2 exhaust throttles for speed adjustment and compressed air connection (angle push-in fitting) for an 8 x 1 PVC hose
- Required air pressure: min. 5 bar to max. 7 bar
- In case of power failure, the selected valve position remains unchanged
- Information on positions via 2 potential-free micro switches with spring-free gold contacts, suitable for PLC. Switching range 4-250 V AC/DC at 0.1 A
- Solenoid valve and limit switch are wired into terminals in the limit switch box that is positioned on the actuator. Protection category IP 65
- ATEX version:
 - Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
 - Designed to comply with ATEX category 3 D externally (dust zone 22)
 - Without terminal box
 - Terminal box or limit switch box on request
 - ATEX version supplied with earthing lugs as standard

Version fitted with pneumatic cylinder

- Cylinder, make FESTO, other makes are available on request
- With 5/2-way solenoid valve (2-coil) with auxiliary hand operation; fitted to the cylinder with a hose connection and available in 24 V DC or in 230 V AC with connection sockets, IP 65
- Complete with 2 exhaust throttles for speed adjustment and a hose connection for compressed air (angle push-in fitting) for an 8 x 1 PVC hose
- Required air pressure: 5 bar to max. 7 bar
- In case of power failure, the selected valve position remains unchanged
- Information on position via 2 potential-free limit switches with LEDs, which are positioned on the cylinder. With 2 m free cable end. 24 V version: Switching range 12-30 V DC at 500 mA, 230 V version: Switching range 4-230 V AC/DC at 120 mA. Protection category IP 67
- Standard version without terminal box, without wiring, with protective device made of polycarbonate



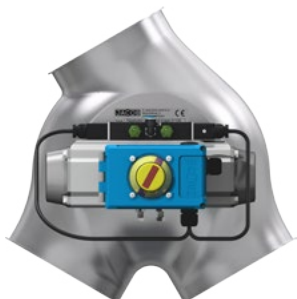


TWO-WAY DIVERTERS

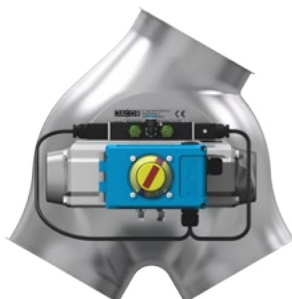
Technical information

Installation of the actuator in asymmetrical components

With asymmetric components, the actuation is positioned on the right-hand side as standard according to the illustration. Installation on the left-hand side is possible at no extra charge at the customer's request.



Standard: Actuator unit right-side



Special: Actuator unit left-side

ACCESSORIES AND SPECIAL VERSIONS

Inspection openings

Installation of an inspection opening with a diameter of 115 mm possible for inspection purposes on all two-way valves from 150 mm upwards. Upwards of DN 250 mm, two-way distributors are fitted with two inspection openings as standard.

- Extra charge for powder-coating: € 110.50
- Extra charge for stainless steel: € 141.00



Manual cord device

For two-way valves with inlet collar, hand-operated up to DN 200 mm. The lever is available with an additionally screwed-on switch device for cord or chain operation.

- Extra charge for powder-coating: € 38.00
- Extra charge for stainless steel: € 45.00





Limit switches

Two limit switches positioned on a base plate opposite to the actuator side, with protective cover, without terminal box

Extra charge for version	Powder-coated	Stainless steel
	€	€
Siemens 3SE 5232-OHD03	129.00	150.00
Pepperl & Fuchs type NBB 5-18GM50-E2	157.00	177.00
Pepperl & Fuchs type NCB 5-18GM40-N0, ATEX Zone 21	175.00	196.00
ATEX limit switch IFM IG 513A, ATEX category 3D	228.00	249.00



Gear-motor

Prices for electrically-operated two-way diverters with gear-motor or cylinder and pneumatic actuators and limit switches in ex-proof version on request.

YOUR INDIVIDUAL TWO-WAY DIVERTERS

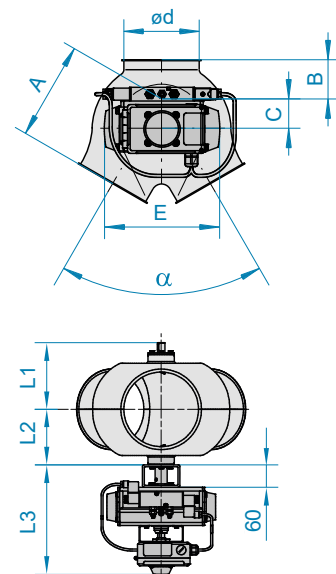
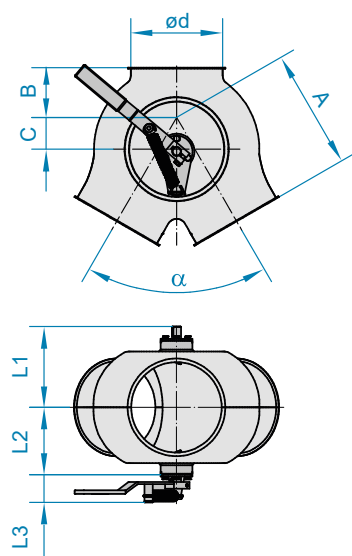
JACOB two-way diverters are available not only in a comprehensive standard range but also in a wide range of special versions:

- Electrical actuation
- Other materials
- Rotary actuators or cylinders at the customer's request
- Lining with a wide range of different wear protection materials (refer to chapter 14 for information on lined two-way valves with an inlet collar)
- Welded flanges: in JACOB standard (refer to chapter 11 for dimensions) or with customers' own dimensions. In this case, outlets and, if necessary, inlets are supplied in a longer version. Inlet and outlets can also be produced specially to match the diameter of connecting pipes
- Stainless steel in a pickled and passivated version
- Over 3,000 special colours (refer to chapter 1, Materials)
- ATEX-version: with terminal box or limit switch box, other inductive limit switches
- Viton shaft seal
- Fitting of inspection opening in small diameters on request (refer also to Technical information and accessories)
- Other inner flap seals for two-way valves with seal or two-way distributors
- More powerful actuators for use with differential pressures of up to 0.3 bar for two-way valves with seal or two-way distributors



TWO-WAY DIVERTERS

Two-way valves with inlet collar



TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, HAND-OPERATED

2130


- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		
								Item no.	€	Item no.	€	Item no.	€	
100	60°	135	50	41	118	88	60	12101502	125.50			12103502	305.00	
120	60°	160	50	54	129	99	60	12121502	133.00			12123502	327.50	
150	60°	200	80	60	146	116	60	12151502	146.00	13151502	204.50	12153502	428.00	
175	60°	218	63	75	159	129	60	12171505	181.50	13171505	253.00	12173505	527.50	
200	60°	265	110	70	178	148	60	12201505	227.00	13201505	295.00	12203505	599.00	
250	60°	305	115	82	199	169	60	12251505	301.50	13251505	394.00	12253505	828.00	
300	60°	385	145	110	225	195	60	12301502	416.50	13301502	488.50	12303502	983.50	
350	50°	520	95	185	345	300	90	12351505	811.50	13351505	1053.00	12353505	1898.00	
400	50°	580	105	195	378	333	90	12401505	938.00	13401505	1206.00	12403505	2183.00	

TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2150

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		
									Item no.	€	Item no.	€	Item no.	€	
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC															
100	60°	135	50	41	215	129	88	297	5582100244	626.50			6582100244	793.00	
120	60°	160	50	54	215	129	99	297	5582120244	632.50			6582120244	813.50	
150	60°	200	80	60	215	146	116	297	5582150244	633.50	5583150244	688.50	6582150244	922.50	
175	60°	218	63	75	215	159	129	297	5582170144	695.00	5583170144	769.00	6582170144	1033.00	
200	60°	265	110	70	290	178	148	302	5582200144	739.50	5583200144	818.00	6582200144	1101.00	
250	60°	305	115	82	290	199	169	302	5582250144	818.50	5583250144	949.50	6582250144	1314.00	
300	60°	385	145	110	290	225	195	302	5582300244	920.00	5583300244	1016.00	6582300244	1454.00	
350	50°	520	95	185	310	345	300	312	5582350144	1439.00	5583350144	1657.00	6582350144	2307.00	
400	50°	580	105	195	310	378	333	312	5582400144	1557.00	5583400144	1804.00	6582400144	2552.00	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	135	50	41	215	129	88	297	5582100245	626.50			6582100245	793.00	
120	60°	160	50	54	215	129	99	297	5582120245	632.50			6582120245	813.50	
150	60°	200	80	60	215	146	116	297	5582150245	633.50	5583150245	688.50	6582150245	922.50	
175	60°	218	63	75	215	159	129	297	5582170145	695.00	5583170145	769.00	6582170145	1033.00	
200	60°	265	110	70	290	178	148	302	5582200145	739.50	5583200145	818.00	6582200145	1101.00	
250	60°	305	115	82	290	199	169	302	5582250145	818.50	5583250145	949.50	6582250145	1314.00	
300	60°	385	145	110	290	225	195	302	5582300245	920.00	5583300245	1016.00	6582300245	1454.00	
350	50°	520	95	185	310	345	300	312	5582350145	1439.00	5583350145	1657.00	6582350145	2307.00	
400	50°	580	105	195	310	378	333	312	5582400145	1557.00	5583400145	1804.00	6582400145	2552.00	

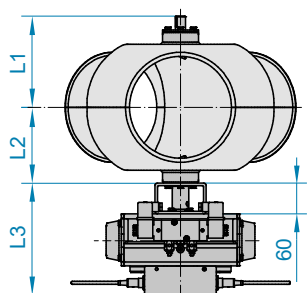
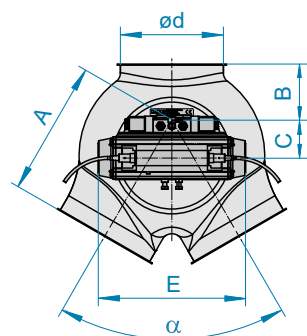
FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2150

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Designed to comply with ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22)
- Without terminal box. Available on request
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated	3 mm powder-coated	2 mm stainless steel	F
									Item no. €	Item no. €	Item no. €	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

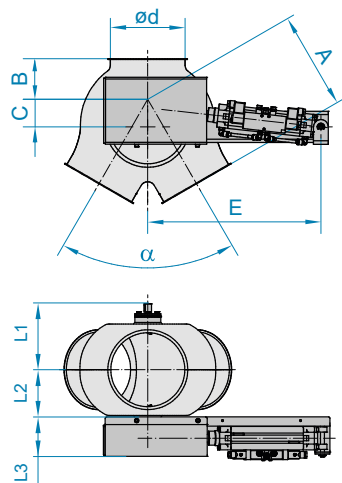
100	60°	135	50	41	216	118	88	203	55821002455	782.50		65821002455	949.00	
120	60°	160	50	54	216	129	99	203	55821202455	788.50		65821202455	969.50	
150	60°	200	80	60	216	146	116	203	55821502455	789.50	55831502455	844.50	65821502455	1079.00
175	60°	218	63	75	216	159	129	203	55821701455	851.00	55831701455	925.00	65821701455	1189.00
200	60°	265	110	70	290	178	148	220	55822001455	895.50	55832001455	974.00	65822001455	1257.00
250	60°	305	115	82	290	199	169	220	55822501455	974.50	55832501455	1106.00	65822501455	1470.00
300	60°	385	145	110	290	225	195	220	55823002455	1076.00	55833002455	1172.00	65823002455	1610.00
350	50°	520	95	185	310	345	300	230	55823501455	1595.00	55833501455	1813.00	65823501455	2463.00
400	50°	580	105	195	310	378	333	230	55824001455	1713.00	55834001455	1960.00	65824001455	2708.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY DIVERTERS

Two-way valves with inlet collar



TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, FITTED WITH CYLINDER

2155

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

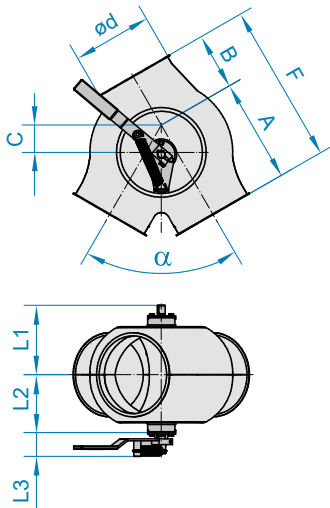
DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		
									Item no.	€	Item no.	€	Item no.	€	

Cylinder, make FESTO, control voltage 230 V AC

100	60°	135	56	41	440	129	88	88	5582100221	626.50			6582100221	793.00	
120	60°	160	50	54	440	129	99	88	5582120221	632.50			6582120221	813.50	
150	60°	200	80	60	440	146	116	88	5582150221	633.50	5583150221	688.50	6582150221	922.50	
175	60°	218	63	75	440	159	129	88	5582170121	695.00	5583170121	769.00	6582170121	1033.00	
200	60°	265	110	70	470	178	148	88	5582200121	739.50	5583200121	818.00	6582200121	1101.00	
250	60°	305	115	82	470	199	169	88	5582250121	818.50	5583250121	949.50	6582250121	1314.00	
300	60°	385	145	110	470	225	195	88	5582300221	920.00	5583300221	1016.00	6582300221	1454.00	
350	50°	520	95	185	470	345	300	90	5582350121	1439.00	5583350121	1657.00	6582350121	2307.00	
400	50°	580	105	195	470	378	333	90	5582400121	1557.00	5583400121	1804.00	6582400121	2552.00	

Cylinder, make FESTO, control voltage 24 V DC

100	60°	135	56	41	440	129	88	88	5582100223	626.50			6582100223	793.00	
120	60°	160	50	54	440	129	99	88	5582120223	632.50			6582120223	813.50	
150	60°	200	80	60	440	146	116	88	5582150223	633.50	5583150223	688.50	6582150223	922.50	
175	60°	218	63	75	440	159	129	88	5582170123	695.00	5583170123	769.00	6582170123	1033.00	
200	60°	265	110	70	470	178	148	88	5582200123	739.50	5583200123	818.00	6582200123	1101.00	
250	60°	305	115	82	470	199	169	88	5582250123	818.50	5583250123	949.50	6582250123	1314.00	
300	60°	385	145	110	470	225	195	88	5582300223	920.00	5583300223	1016.00	6582300223	1454.00	
350	50°	520	95	185	470	345	300	90	5582350123	1439.00	5583350123	1657.00	6582350123	2307.00	
400	50°	580	105	195	470	378	333	90	5582400123	1557.00	5583400123	1804.00	6582400123	2552.00	



TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, HAND-OPERATED

2140

- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	
100	60°	135	65	41	200	118	88	60	12101512	125.50			12103512	305.00	
120	60°	160	70	54	230	129	99	60	12121512	133.00			12123512	327.50	
150	60°	200	100	60	300	146	116	60	12151512	146.00	13151512	204.50	12153512	428.00	
175	60°	218	90	75	308	159	129	60	12171517	181.50	13171517	253.00	12173517	527.50	
200	60°	265	145	70	410	178	148	60	12201517	227.00	13201517	295.00	12203517	599.00	
250	60°	305	155	82	460	199	169	60	12251517	301.50	13251517	394.00	12253517	828.00	
300	60°	385	190	110	575	225	195	60	12301512	416.50	13301512	488.50	12303512	983.50	
350	50°	520	150	185	670	345	300	90	12351515	811.50	13351515	1053.00	12353515	1898.00	
400	50°	580	170	195	750	378	333	90	12401515	938.00	13401515	1206.00	12403515	2183.00	



TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2160

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Standard version: Right-side mounting
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

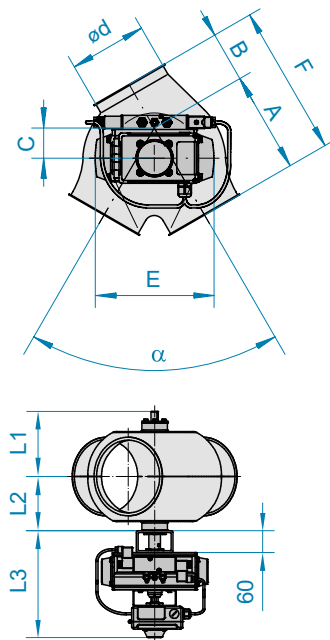
DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	60°	135	65	41	252	200	82	88	282	5592100244	626.50			6592100244	793.00	
120	60°	160	70	54	252	230	90	99	282	5592120244	632.50			6592120244	813.50	
150	60°	200	100	60	252	300	146	116	282	5592150244	633.50	5593150244	688.50	6592150244	922.50	
175	60°	218	90	75	252	308	159	129	282	5592170144	695.00	5593170144	769.00	6592170144	1033.00	
200	60°	265	145	70	308	410	178	148	302	5592200144	739.50	5593200144	818.00	6592200144	1101.00	
250	60°	305	156	82	308	460	199	169	302	5592250144	818.50	5593250144	949.50	6592250144	1314.00	
300	60°	385	190	110	308	575	225	195	302	5592300244	920.00	5593300244	1016.00	6592300244	1454.00	
350	50°	520	150	185	342	670	325	300	334	5592350144	1439.00	5593350144	1657.00	6592350144	2307.00	
400	50°	580	170	195	342	750	350	333	334	5592400144	1557.00	5593400144	1804.00	6592400144	2552.00	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

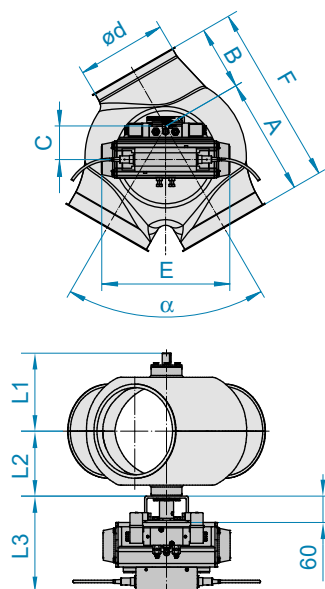
100	60°	135	65	41	252	200	82	88	282	5592100245	626.50			6592100245	793.00	
120	60°	160	70	54	252	230	90	99	282	5592120245	632.50			6592120245	813.50	
150	60°	200	100	60	252	300	146	116	282	5592150245	633.50	5593150245	688.50	6592150245	922.50	
175	60°	218	90	75	252	308	159	129	282	5592170145	695.00	5593170145	769.00	6592170145	1033.00	
200	60°	265	145	70	308	410	178	148	302	5592200145	739.50	5593200145	818.00	6592200145	1101.00	
250	60°	305	156	82	308	460	199	169	302	5592250145	818.50	5593250145	949.50	6592250145	1314.00	
300	60°	385	190	110	308	575	225	195	302	5592300245	920.00	5593300245	1016.00	6592300245	1454.00	
350	50°	520	150	185	342	670	325	300	334	5592350145	1439.00	5593350145	1657.00	6592350145	2307.00	
400	50°	580	170	195	342	750	350	333	334	5592400145	1557.00	5593400145	1804.00	6592400145	2552.00	





TWO-WAY DIVERTERS


Two-way valves with inlet collar



TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX


2160

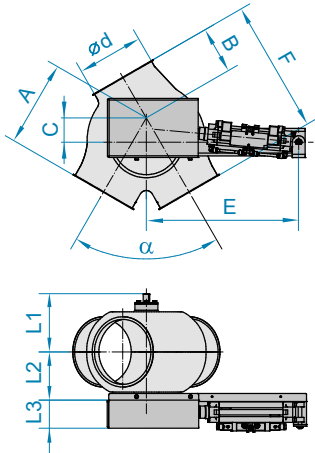
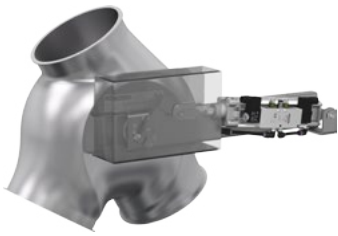
- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Designed to comply with ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22)
- Without terminal box. Available on request
- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated	3 mm powder-coated	2 mm stainless steel	
										Item no.	€	Item no.	€

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	60°	135	65	41	216	200	118	88	203	55921002455	782.50		65921002455	949.00	
120	60°	160	70	54	216	230	129	99	203	55921202455	788.50		65921202455	969.50	
150	60°	200	100	60	216	300	146	116	203	55921502455	789.50	55931502455	844.50	65921502455	1079.00
175	60°	218	90	75	216	308	159	129	203	55921701455	851.00	55931701455	925.00	65921701455	1189.00
200	60°	265	145	70	290	410	178	148	220	55922001455	895.50	55932001455	974.00	65922001455	1257.00
250	60°	305	155	82	290	460	199	169	220	55922501455	974.50	55932501455	1106.00	65922501455	1470.00
300	60°	385	190	110	290	575	225	195	220	55923002455	1076.00	55933002455	1172.00	65923002455	1610.00
350	50°	520	150	185	310	670	345	300	230	55923501455	1595.00	55933501455	1813.00	65923501455	2463.00
400	50°	580	170	195	310	750	378	333	230	55924001455	1713.00	55934001455	1960.00	65924001455	2708.00

 FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, FITTED WITH CYLINDER

2165

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Standard version: Right-side mounting
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	Item no.	€	

Cylinder, make FESTO, control voltage 230 V AC

100	60°	135	65	41	440	200	82	88	88	5592100221	626.50			6592100221	793.00	
120	60°	160	70	54	440	230	90	99	88	5592120221	632.50			6592120221	813.50	
150	60°	200	100	60	440	300	146	116	88	5592150221	633.50	5593150221	688.50	6592150221	922.50	
175	60°	218	90	75	440	308	159	129	88	5592170121	695.00	5593170121	769.00	6592170121	1033.00	
200	60°	265	145	70	470	410	178	148	88	5592200121	739.50	5593200121	818.00	6592200121	1101.00	
250	60°	305	156	82	470	460	199	169	88	5592250121	818.50	5593250121	949.50	6592250121	1314.00	
300	60°	385	190	110	470	575	225	195	88	5592300221	920.00	5593300221	1016.00	6592300221	1454.00	
350	50°	520	150	185	470	670	325	300	90	5592350121	1439.00	5593350121	1657.00	6592350121	2307.00	
400	50°	580	170	195	470	750	350	333	90	5592400121	1557.00	5593400121	1804.00	6592400121	2552.00	

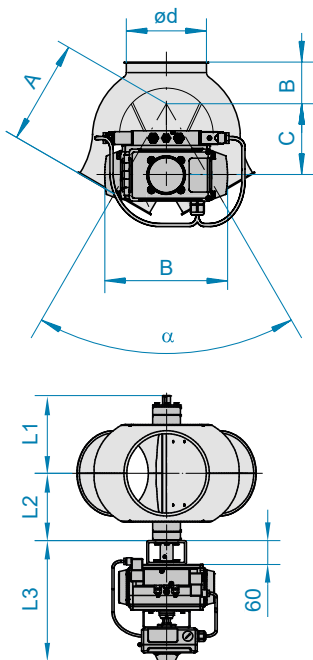
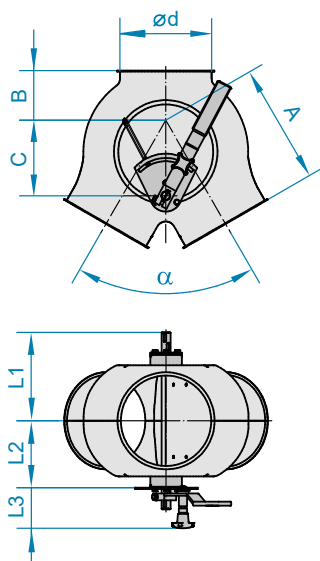
Cylinder, make FESTO, control voltage 24 V DC

100	60°	135	65	41	440	200	82	88	88	5592100223	626.50			6592100223	793.00	
120	60°	160	70	54	440	230	90	99	88	5592120223	632.50			6592120223	813.50	
150	60°	200	100	60	440	300	146	116	88	5592150223	633.50	5593150223	688.50	6592150223	922.50	
175	60°	218	90	75	440	308	159	129	88	5592170123	695.00	5593170123	769.00	6592170123	1033.00	
200	60°	265	145	70	470	410	178	148	88	5592200123	739.50	5593200123	818.00	6592200123	1101.00	
250	60°	305	156	82	470	460	199	169	88	5592250123	818.50	5593250123	949.50	6592250123	1314.00	
300	60°	385	190	110	470	575	225	195	88	5592300223	920.00	5593300223	1016.00	6592300223	1454.00	
350	50°	520	150	185	470	670	325	300	90	5592350123	1439.00	5593350123	1657.00	6592350123	2307.00	
400	50°	580	170	195	470	750	350	333	90	5592400123	1557.00	5593400123	1804.00	6592400123	2552.00	



TWO-WAY DIVERTERS

Two-way valves with seal



F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

TWO-WAY VALVES WITH SEAL, SYMMETRICAL, HAND-OPERATED

2170

- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
								Item no.	€	Item no.	€	Item no.	€	
100	60°	135	50	87	140	88	88	12101503	284.00			121035037	437.00	
120	60°	160	50	112	148	96	88	12121503	284.00			121235037	437.00	
150	60°	200	80	136	168	119	88	12151503	301.00	13151503	348.00	121535037	533.00	
175	60°	218	63	170	198	147	88	12171506	350.50	13171506	381.50	121735067	720.50	
200	60°	265	110	167	199	150	88	12201506	350.50	13201506	381.50	122035067	720.50	
250	60°	305	115	215	220	171	88	12251506	357.00	13251506	437.00	122535067	887.00	
300	60°	385	145	260	264	213	88	12301503	437.50	13301503	532.00	123035037	1034.00	



DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

TWO-WAY VALVES WITH SEAL, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2190

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	60°	135	50	87	193	140	110	265	5542100244	716.00			65421002744	921.50	
120	60°	160	50	112	193	148	118	265	5542120244	716.00			65421202744	921.50	
150	60°	200	80	136	193	168	138	265	5542150244	732.50	5543150244	780.00	65421502744	1016.00	
175	60°	218	63	170	193	198	168	265	5542170144	801.50	5543170144	840.00	65421701744	1228.00	
200	60°	265	110	167	225	199	169	275	5542200144	801.50	5543200144	840.00	65422001744	1228.00	
250	60°	305	115	215	225	220	190	275	5542250144	809.00	5543250144	902.50	65422501744	1390.00	
300	60°	385	145	260	225	264	234	275	5542300244	886.50	5543300244	987.50	65423002744	1535.00	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	135	50	87	193	140	110	265	5542100245	716.00			65421002745	921.50	
120	60°	160	50	112	193	148	118	265	5542120245	716.00			65421202745	921.50	
150	60°	200	80	136	193	168	138	265	5542150245	732.50	5543150245	780.00	65421502745	1016.00	
175	60°	218	63	170	193	198	168	265	5542170145	801.50	5543170145	840.00	65421701745	1228.00	
200	60°	265	110	167	225	199	169	275	5542200145	801.50	5543200145	840.00	65422001745	1228.00	
250	60°	305	115	215	225	220	190	275	5542250145	809.00	5543250145	902.50	65422501745	1390.00	
300	60°	385	145	260	225	264	234	275	5542300245	886.50	5543300245	987.50	65423002745	1535.00	



DETECTABLE
DESIGN

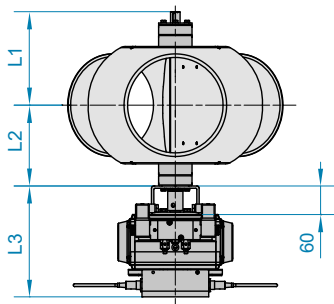
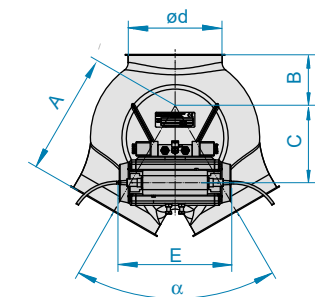
AVAILABLE IN THE DETECTABLE DESIGN LINE.




TWO-WAY VALVES WITH SEAL, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2190

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Designed to comply with ATEX category 1 D internally (dust zone 20), and category 3 D externally (dust zone 22)
- Two-way valves available on request
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		
									Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	60°	135	50	87	210	140	110	220	55421002455	872.00			654210027455	1077.00
120	60°	160	50	112	210	148	118	220	55421202455	872.00			654212027455	1077.00
150	60°	200	80	136	210	168	138	220	55421502455	888.50	55431502455	936.00	654215027455	1172.00
175	60°	218	63	170	210	198	168	220	55421701455	957.50	55431701455	996.00	654217017455	1384.00
200	60°	265	110	167	241	199	169	233	55422001455	957.50	55432001455	996.00	654220017455	1384.00
250	60°	305	115	215	241	220	190	233	55422501455	965.00	55432501455	1059.00	654225017455	1546.00
300	60°	385	145	260	241	245	215	233	55423002455	1043.00	55433002455	1144.00	654230027455	1691.00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

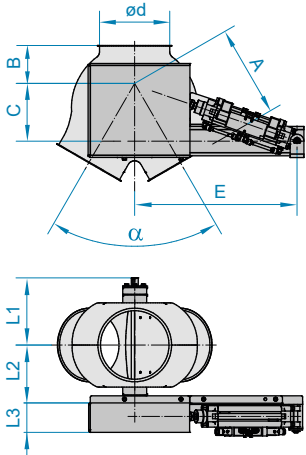
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS


Two-way valves with seal



TWO-WAY VALVES WITH SEAL, SYMMETRICAL, FITTED WITH CYLINDER

2195

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		
									Item no.	€	Item no.	€	Item no.	€	

Cylinder, make FESTO, control voltage 230 V AC



100	60°	135	50	87	440	140	110	88	5542100221	748.00			65421002721	953.50	
120	60°	160	50	112	440	148	118	88	5542120221	748.00			65421202721	953.50	
150	60°	200	80	136	440	168	138	88	5542150221	764.50	5543150221	812.00	65421502721	1048.00	
175	60°	218	63	170	440	198	168	88	5542170121	834.00	5543170121	872.00	65421701721	1260.00	
200	60°	265	110	167	470	199	169	88	5542200121	834.00	5543200121	872.00	65422001721	1260.00	
250	60°	305	115	215	470	220	190	88	5542250121	841.00	5543250121	934.50	65422501721	1423.00	
300	60°	385	145	260	470	264	234	88	5542300221	918.50	5543300221	1020.00	65423002721	1568.00	

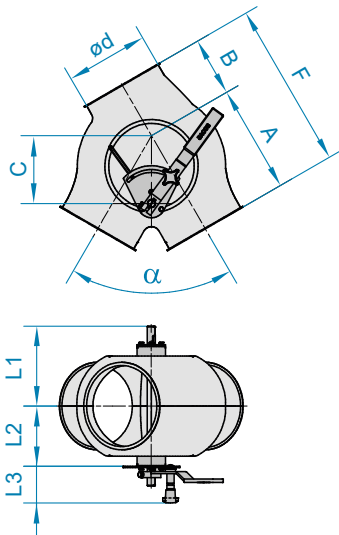
Cylinder, make FESTO, control voltage 24 V DC

100	60°	135	50	87	440	140	110	88	5542100223	748.00			65421002723	953.50	
120	60°	160	50	112	440	148	118	88	5542120223	748.00			65421202723	953.50	
150	60°	200	80	136	440	168	138	88	5542150223	764.50	5543150223	812.00	65421502723	1048.00	
175	60°	218	63	170	440	198	168	88	5542170123	834.00	5543170123	872.00	65421701723	1260.00	
200	60°	265	110	167	470	199	169	88	5542200123	834.00	5543200123	872.00	65422001723	1260.00	
250	60°	305	115	215	470	220	190	88	5542250123	841.00	5543250123	934.50	65422501723	1423.00	
300	60°	385	145	260	470	264	234	88	5542300223	918.50	5543300223	1020.00	65423002723	1568.00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

-  FOOD GRADE
EC 1935/2004 plus FDA compliant
-  DETECTABLE DESIGN
Metal-detectable



TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, HAND-OPERATED

2180

- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	
100	60°	135	65	87	200	140	88	88	12101513	284.00			121035137	437.00	
120	60°	160	70	112	230	148	96	88	12121513	284.00			121235137	437.00	
150	60°	200	100	136	300	168	119	88	12151513	301.00	13151513	348.00	121535137	533.00	
175	60°	218	90	170	308	198	149	88	12171516	350.50	13171516	381.50	121735167	720.50	
200	60°	265	145	167	410	199	150	88	12201516	350.50	13201516	381.50	122035167	720.50	
250	60°	305	155	215	460	220	171	88	12251516	357.00	13251516	437.00	122535167	887.00	
300	60°	385	190	260	575	264	197	88	12301513	437.50	13301513	532.00	123035137	1034.00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.



TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2200

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

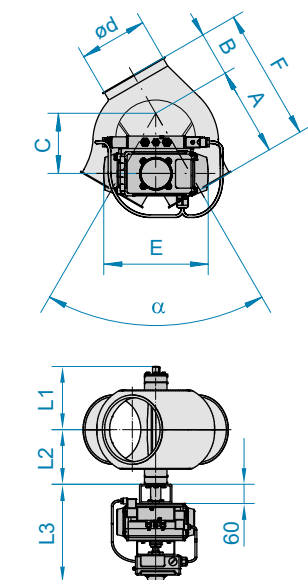
100	60°	135	65	87	193	200	140	110	265	5552100244	716.00			65521002744	921.50	
120	60°	160	70	112	193	230	148	118	265	5552120244	716.00			65521202744	921.50	
150	60°	200	100	136	193	300	168	138	265	5552150244	732.50	5553150244	780.00	65521502744	1016.00	
175	60°	218	90	170	193	308	198	168	275	5552170144	801.50	5553170144	840.00	65521701744	1228.00	
200	60°	265	145	167	225	410	199	169	275	5552200144	801.50	5553200144	840.00	65522001744	1228.00	
250	60°	305	155	215	225	460	220	190	275	5552250144	809.00	5553250144	902.50	65522501744	1390.00	
300	60°	385	190	260	225	575	264	234	275	5552300244	886.50	5553300244	987.50	65523002744	1535.00	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	135	65	87	193	200	140	110	265	5552100245	716.00			65521002745	921.50	
120	60°	160	70	112	193	230	148	118	265	5552120245	716.00			65521202745	921.50	
150	60°	200	100	136	193	300	168	138	265	5552150245	732.50	5553150245	780.00	65521502745	1016.00	
175	60°	218	90	170	193	308	198	168	275	5552170145	801.50	5553170145	840.00	65521701745	1228.00	
200	60°	265	145	167	225	410	199	169	275	5552200145	801.50	5553200145	840.00	65522001745	1228.00	
250	60°	305	155	215	225	460	220	190	275	5552250145	809.00	5553250145	902.50	65522501745	1390.00	
300	60°	385	190	260	225	575	264	234	275	5552300245	886.50	5553300245	987.50	65523002745	1535.00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.



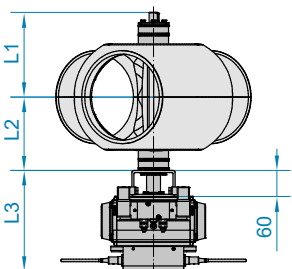
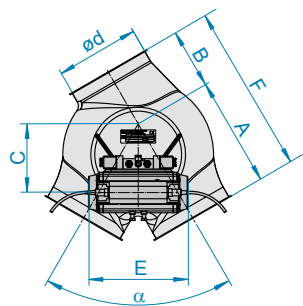
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS


Two-way valves with seal



TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2200

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Designed to comply with ATEX category 1 D internally (dust zone 20), and category 3 D externally (dust zone 22)
- Two-way valves available on request
- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated	3 mm powder-coated	2 mm stainless steel	
										Item no.	€	Item no.	

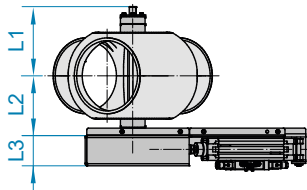
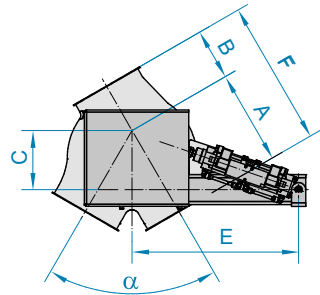
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	60°	135	65	87	210	200	140	110	220	55521002455	872.00		655210027455	1077.00	
120	60°	160	70	112	210	230	148	118	220	55521202455	872.00		655212027455	1077.00	
150	60°	200	100	136	210	300	168	138	220	55521502455	888.50	55531502455	936.00	655215027455	1172.00
175	60°	218	90	170	210	308	198	168	220	55521701455	957.50	55531701455	996.00	655217017455	1384.00
200	60°	265	145	167	241	410	199	169	233	55522001455	957.50	55532001455	996.00	655220017455	1384.00
250	60°	305	155	215	241	460	220	190	233	55522501455	965.00	55532501455	1059.00	655225017455	1546.00
300	60°	385	190	260	241	575	245	215	233	55523002455	1043.00	55533002455	1144.00	655230027455	1691.00



AVAILABLE IN THE DETECTABLE DESIGN LINE.


-  FOOD GRADE
EC 1935/2004 plus FDA compliant
-  DETECTABLE DESIGN
Metal-detectable



TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, FITTED WITH CYLINDER

2205

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Standard version: Right-side mounting
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated	3 mm powder-coated	2 mm stainless steel	
										Item no.	€	Item no.	

Cylinder, make FESTO, control voltage 230 V AC

100	60°	135	65	87	440	200	140	110	88	5552100221	748.00		65521002721	953.50	
120	60°	160	70	112	440	230	148	118	88	5552120221	748.00		65521202721	953.50	
150	60°	200	100	136	440	300	168	138	88	5552150221	764.50	5553150221	812.00	65521502721	1048.00
175	60°	218	90	170	440	308	198	168	88	5552170121	834.00	5553170121	872.00	65521701721	1260.00
200	60°	265	145	167	470	410	199	169	88	5552200121	834.00	5553200121	872.00	65522001721	1260.00
250	60°	305	155	215	470	460	220	190	88	5552250121	841.00	5553250121	934.50	65522501721	1423.00
300	60°	385	190	260	470	575	264	234	88	5552300221	918.50	5553300221	1020.00	65523002721	1568.00


Cylinder, make FESTO, control voltage 24 V DC

100	60°	135	65	87	440	200	140	110	88	5552100223	748.00		65521002723	953.50	
120	60°	160	70	112	440	230	148	118	88	5552120223	748.00		65521202723	953.50	
150	60°	200	100	136	440	300	168	138	88	5552150223	764.50	5553150223	812.00	65521502723	1048.00
175	60°	218	90	170	440	308	198	168	88	5552170123	834.00	5553170123	872.00	65521701723	1260.00
200	60°	265	145	167	470	410	199	169	88	5552200123	834.00	5553200123	872.00	65522001723	1260.00
250	60°	305	155	215	470	460	220	190	88	5552250123	841.00	5553250123	934.50	65522501723	1423.00
300	60°	385	190	260	470	575	264	234	88	5552300223	918.50	5553300223	1020.00	65523002723	1568.00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

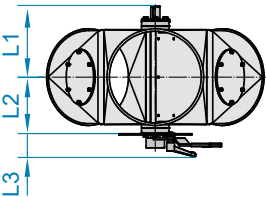
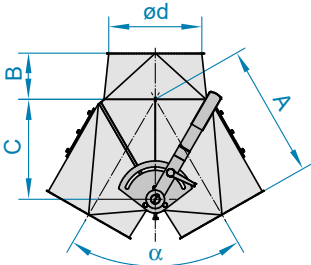
 FOOD GRADE
EC 1935/2004 plus FDA compliant

 DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

Two-way distributors



TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, HAND-OPERATED

2250

- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
								Item no.	€	Item no.	€	
100	60°	220	65	128	117	82	75	12101508	951.00	12103508	1601.00	
120	60°	240	70	145	127	92	75	12121508	951.00	12123508	1601.00	
150	60°	250	75	168	142	107	75	12151508	981.50	12153508	1641.00	
200	60°	300	105	218	164	132	75	12201508	1023.00	12203508	1690.00	
250	60°	370	130	277	205	160	75	12251508	1055.00	12253508	1725.00	
300	60°	435	150	326	230	185	75	12301508	1151.00	12303508	1807.00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

- F FOOD GRADE
EC 1935/2004 plus FDA compliant
- D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2270

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	60°	220	65	128	193	117	82	265	5982100144	1343.00	6982100144	1960.00	
120	60°	240	70	145	193	127	92	265	5982120144	1343.00	6982120144	1960.00	
150	60°	250	75	168	193	142	107	302	5982150144	1372.00	6982150144	1996.00	
200	60°	300	105	218	225	164	132	311	5982200144	1484.00	6982200144	2107.00	
250	60°	370	130	277	271	205	160	334	5982250144	1583.00	6982250144	2209.00	
300	60°	435	150	326	271	230	185	334	5982300144	1612.00	6982300144	2365.00	
350	60°	500	185	377	402	255	210	354	5982350144	1851.00	6982350144	2626.00	
400	60°	600	205	427	402	280	235	354	5982400144	2196.00	6982400144	3045.00	
450	60°	650	225	474	486	301	261	392	5983450144*	2503.00	6983450144*	3581.00	
500	60°	700	250	574	486	326	286	392	5983500144*	2731.00	6983500144*	4003.00	
560	60°	800	300	592	486	437	357	392	5983560144*	3596.00	6983560144*	4630.00	
630	60°	900	350	662	486	472	392	392	5983630144*	4251.00	6983630144*	5390.00	

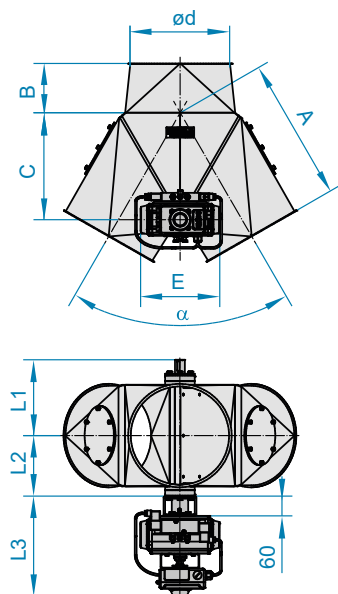
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	220	65	128	193	117	82	265	5982100145	1343.00	6982100145	1960.00	
120	60°	240	70	145	193	127	92	265	5982120145	1343.00	6982120145	1960.00	
150	60°	250	75	168	193	142	107	302	5982150145	1372.00	6982150145	1996.00	
200	60°	300	105	218	225	164	132	311	5982200145	1484.00	6982200145	2107.00	
250	60°	370	130	277	271	205	160	334	5982250145	1583.00	6982250145	2209.00	
300	60°	435	150	326	271	230	185	334	5982300145	1612.00	6982300145	2365.00	
350	60°	500	185	377	402	255	210	354	5982350145	1851.00	6982350145	2626.00	
400	60°	600	205	427	402	280	235	354	5982400145	2196.00	6982400145	3045.00	
450	60°	650	225	474	486	301	261	392	5983450145*	2503.00	6983450145*	3581.00	
500	60°	700	250	574	486	326	286	392	5983500145*	2731.00	6983500145*	4003.00	
560	60°	800	300	592	486	437	357	392	5983560145*	3596.00	6983560145*	4630.00	
630	60°	900	350	662	486	472	392	392	5983630145*	4251.00	6983630145*	5390.00	

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.



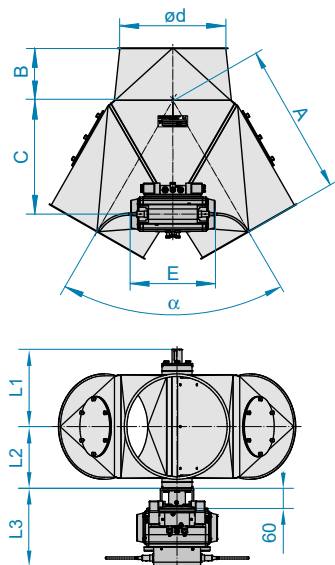
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

Two-way distributors



TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2270

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Designed to comply with ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22)
- Without terminal box. Available on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		
									Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version


100	60°	220	65	128	210	117	82	220	59821001455	1499.00	69821001455	2116.00	
120	60°	240	70	145	210	127	92	220	59821201455	1499.00	69821201455	2116.00	
150	60°	250	75	168	245	142	107	233	59821501455	1528.00	69821501455	2152.00	
200	60°	300	105	218	245	164	132	233	59822001455	1640.00	69822001455	2263.00	
250	60°	370	130	277	260	205	160	245	59822501455	1739.00	69822501455	2365.00	
300	60°	435	150	326	260	230	185	245	59823001455	1768.00	69823001455	2521.00	
350	60°	500	185	377	345	255	210	272	59823501455	2007.00	69823501455	2782.00	
400	60°	600	205	427	345	280	235	272	59824001455	2352.00	69824001455	3201.00	
450	60°	650	225	474	260	450	302	302	59834501455*	2659.00	69834501455*	3737.00	
500	60°	700	250	524	260	475	327	302	59835001455*	2887.00	69835001455*	4159.00	
560	60°	800	300	592	260	505	357	302	59835601455*	3752.00	69835601455*	4786.00	
630	60°	900	350	662	260	540	392	302	59836301455*	4407.00	69836301455*	5546.00	

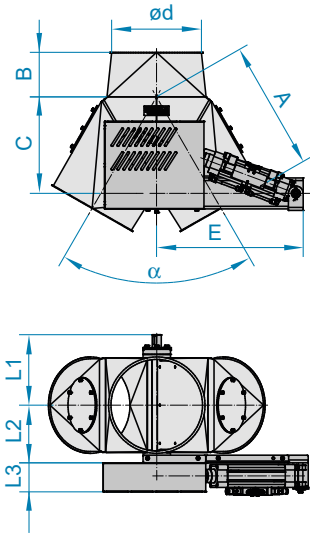
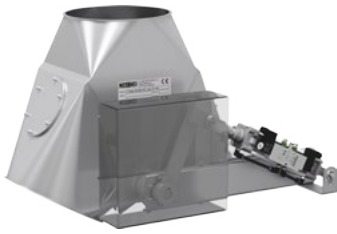
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

 FOOD GRADE
EC 1935/2004 plus FDA compliant

 DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, FITTED WITH CYLINDER

2275

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Other cylinders are available. Prices on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	

Cylinder, make FESTO, control voltage 230 V AC

100	60°	220	65	128	440	117	82	88	5982100121	1397.00	6982100121	2012.00	
120	60°	240	70	145	440	127	92	88	5982120121	1397.00	6982120121	2012.00	
150	60°	250	75	168	470	142	107	88	5982150121	1425.00	6982150121	2048.00	
200	60°	300	105	218	470	164	132	88	5982200121	1537.00	6982200121	2160.00	
250	60°	370	130	277	470	205	160	90	5982250121	1637.00	6982250121	2261.00	
300	60°	435	150	326	470	230	185	90	5982300121	1665.00	6982300121	2417.00	
350	60°	500	185	377	490	255	210	110	5982350121	1911.00	6982350121	2685.00	
400	60°	600	205	427	490	280	235	110	5982400121	2266.00	6982400121	3112.00	
450	60°	650	225	474	540	301	261	110	5983450121*	2584.00	6983450121*	3660.00	
500	60°	700	250	574	540	326	286	110	5983500121*	2818.00	6983500121*	4094.00	
560	60°	800	300	592	540	437	357	110	5983560121*	3711.00	6983560121*	4734.00	
630	60°	900	350	662	540	472	392	110	5983630121*	4386.00	6983630121*	5511.00	

Cylinder, make FESTO, control voltage 24 V DC

100	60°	220	65	128	440	117	82	88	5982100123	1397.00	6982100123	2012.00	
120	60°	240	70	145	440	127	92	88	5982120123	1397.00	6982120123	2012.00	
150	60°	250	75	168	470	142	107	88	5982150123	1425.00	6982150123	2048.00	
200	60°	300	105	218	470	164	132	88	5982200123	1537.00	6982200123	2160.00	
250	60°	370	130	277	470	205	160	90	5982250123	1637.00	6982250123	2261.00	
300	60°	435	150	326	470	230	185	90	5982300123	1665.00	6982300123	2417.00	
350	60°	500	185	377	490	255	210	110	5982350123	1911.00	6982350123	2685.00	
400	60°	600	205	427	490	280	235	110	5982400123	2266.00	6982400123	3112.00	
450	60°	650	225	474	540	301	261	110	5983450123*	2584.00	6983450123*	3660.00	
500	60°	700	250	574	540	326	286	110	5983500123*	2818.00	6983500123*	4094.00	
560	60°	800	300	592	540	437	357	110	5983560123*	3711.00	6983560123*	4734.00	
630	60°	900	350	662	540	472	392	110	5983630123*	4386.00	6983630123*	5511.00	

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

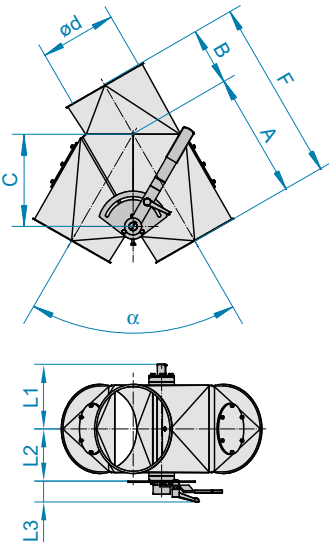
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

Two-way distributors



TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, HAND-OPERATED

2260

- Standard version: Right-side mounting
- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	
100	60°	220	100	128	320	117	82	75	12101509	951.00	12103509	1601.00	
120	60°	240	110	145	350	127	92	75	12121509	951.00	12123509	1601.00	
150	60°	250	115	168	365	142	107	75	12151509	981.50	12153509	1641.00	
200	60°	300	140	218	440	164	132	75	12201509	1023.00	12203509	1690.00	
250	60°	370	170	277	540	205	160	75	12251509	1055.00	12253509	1725.00	
300	60°	435	200	326	635	230	185	75	12301509	1151.00	12303509	1807.00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

- F FOOD GRADE
EC 1935/2004 plus FDA compliant
- D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2280

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Standard version: Right-side mounting
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated	2 mm stainless steel	
										Item no.	€	Item no.

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	60°	220	100	128	193	320	117	82	265	5992100144	1343.00	6992100144	1960.00
120	60°	240	110	145	193	350	127	92	265	5992120144	1343.00	6992120144	1960.00
150	60°	250	115	168	193	365	142	107	302	5992150144	1372.00	6992150144	1996.00
200	60°	300	140	218	225	440	164	132	311	5992200144	1484.00	6992200144	2107.00
250	60°	370	170	277	271	540	205	160	334	5992250144	1583.00	6992250144	2209.00
300	60°	435	200	326	271	635	230	185	334	5992300144	1612.00	6992300144	2365.00
350	60°	500	230	377	402	730	255	210	354	5992350144	1851.00	6992350144	2626.00
400	60°	600	250	427	402	850	280	235	354	5992400144	2196.00	6992400144	3045.00
450	60°	650	270	474	486	920	301	256	392	5993450144*	2503.00	6993450144*	3581.00
500	60°	700	300	542	486	1000	326	288	392	5993500144*	2731.00	6993500144*	4003.00
560	60°	800	350	592	486	1150	437	357	392	5993560144*	3596.00	6993560144*	4630.00
630	60°	900	400	662	486	1300	472	392	392	5993630144*	4251.00	6993630144*	5390.00

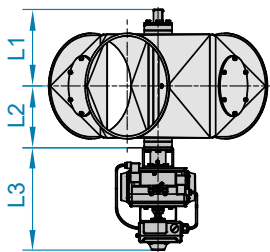
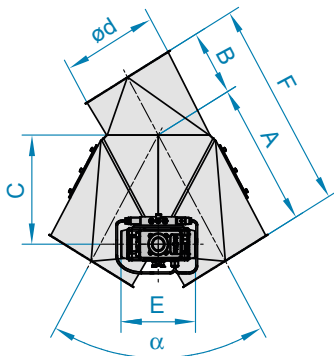
Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	220	100	128	193	320	117	82	265	5992100145	1343.00	6992100145	1960.00
120	60°	240	110	145	193	350	127	92	265	5992120145	1343.00	6992120145	1960.00
150	60°	250	115	168	193	365	142	107	302	5992150145	1372.00	6992150145	1996.00
200	60°	300	140	218	225	440	164	132	311	5992200145	1484.00	6992200145	2107.00
250	60°	370	170	277	271	540	205	160	334	5992250145	1583.00	6992250145	2209.00
300	60°	435	200	326	271	635	230	185	334	5992300145	1612.00	6992300145	2365.00
350	60°	500	230	377	402	730	255	210	354	5992350145	1851.00	6992350145	2626.00
400	60°	600	250	427	402	850	280	235	354	5992400145	2196.00	6992400145	3045.00
450	60°	650	270	474	486	920	301	256	392	5993450145*	2503.00	6993450145*	3581.00
500	60°	700	300	542	486	1000	326	288	392	5993500145*	2731.00	6993500145*	4003.00
560	60°	800	350	592	486	1150	437	357	392	5993560145*	3596.00	6993560145*	4630.00
630	60°	900	400	662	486	1300	472	392	392	5993630145*	4251.00	6993630145*	5390.00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.



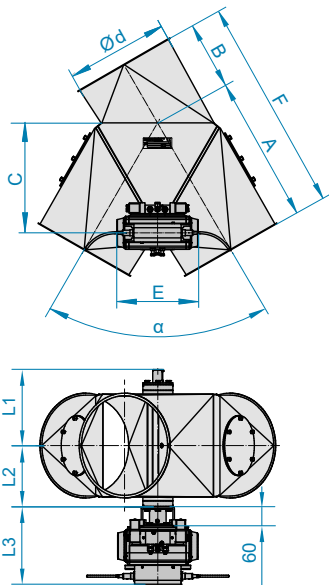
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

Two-way distributors



TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2280

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Designed to comply with ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22)
- Without terminal box. Available on request
- Shaft and inner flap with seal
- Standard version: Right-side mounting
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated	2 mm stainless steel	
										Item no.	€	Item no.

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

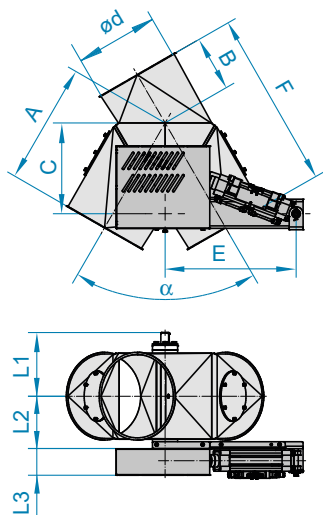
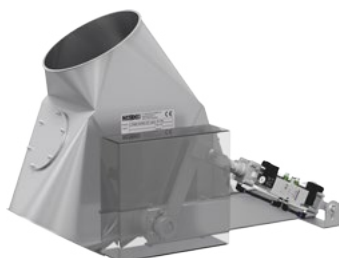
100	60°	220	100	128	210	320	117	82	220	59921001455	1499.00	69921001455	2116.00
120	60°	240	110	145	210	350	127	92	220	59921201455	1499.00	69921201455	2116.00
150	60°	250	115	168	245	365	142	107	233	59921501455	1528.00	69921501455	2152.00
200	60°	300	140	218	245	440	164	132	233	59922001455	1640.00	69922001455	2263.00
250	60°	370	170	277	260	540	205	160	245	59922501455	1739.00	69922501455	2365.00
300	60°	435	200	326	260	635	230	185	245	59923001455	1768.00	69923001455	2521.00
350	60°	500	230	377	345	730	255	210	272	59923501455	2007.00	69923501455	2782.00
400	60°	600	250	427	345	850	280	235	272	59924001455	2352.00	69924001455	3201.00
450	60°	650	270	474	260	920	450	302	302	59934501455*	2659.00	69934501455*	3737.00
500	60°	700	300	524	260	1000	475	327	302	59935001455*	2887.00	69935001455*	4159.00
560	60°	800	350	592	260	1150	505	357	302	59935601455*	3752.00	69935601455*	4786.00
630	60°	900	400	662	260	1300	540	392	302	59936301455*	4407.00	69936301455*	5546.00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

- F FOOD GRADE
EC 1935/2004 plus FDA compliant
- D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, FITTED WITH CYLINDER

2285

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Standard version: Right-side mounting
- Other cylinders are available. Prices on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated	2 mm stainless steel	
										Item no.	€	Item no.

Cylinder, make FESTO, control voltage 230 V AC

100	60°	220	100	128	440	320	117	82	88	5992100121	1397.00	6992100121	2012.00
120	60°	240	110	145	440	350	127	92	88	5992120121	1397.00	6992120121	2012.00
150	60°	250	115	168	470	365	142	107	88	5992150121	1425.00	6992150121	2048.00
200	60°	300	140	218	470	440	164	132	88	5992200121	1537.00	6992200121	2160.00
250	60°	370	170	277	470	540	205	160	90	5992250121	1637.00	6992250121	2261.00
300	60°	435	200	326	470	635	230	185	90	5992300121	1665.00	6992300121	2417.00
350	60°	500	230	377	490	730	255	210	110	5992350121	1911.00	6992350121	2685.00
400	60°	600	250	427	490	850	280	235	110	5992400121	2266.00	6992400121	3112.00
450	60°	650	270	474	540	920	301	256	110	5993450121*	2584.00	6993450121*	3660.00
500	60°	700	300	542	540	1000	326	288	110	5993500121*	2818.00	6993500121*	4094.00
560	60°	800	350	592	540	1150	437	357	110	5993560121*	3711.00	6993560121*	4734.00
630	60°	900	400	662	540	1300	472	392	110	5993630121*	4386.00	6993630121*	5511.00

Cylinder, make FESTO, control voltage 24V DC

100	60°	220	100	128	440	320	117	82	88	5992100123	1397.00	6992100123	2012.00
120	60°	240	110	145	440	350	127	92	88	5992120123	1397.00	6992120123	2012.00
150	60°	250	115	168	470	365	142	107	88	5992150123	1425.00	6992150123	2048.00
200	60°	300	140	218	470	440	164	132	88	5992200123	1537.00	6992200123	2160.00
250	60°	370	170	277	470	540	205	160	90	5992250123	1637.00	6992250123	2261.00
300	60°	435	200	326	470	635	230	185	90	5992300123	1665.00	6992300123	2417.00
350	60°	500	230	377	490	730	255	210	110	5992350123	1911.00	6992350123	2685.00
400	60°	600	250	427	490	850	280	235	110	5992400123	2266.00	6992400123	3112.00
450	60°	650	270	474	540	920	301	256	110	5993450123*	2584.00	6993450123*	3660.00
500	60°	700	300	542	540	1000	326	288	110	5993500123*	2818.00	6993500123*	4094.00
560	60°	800	350	592	540	1150	437	357	110	5993560123*	3711.00	6993560123*	4734.00
630	60°	900	400	662	540	1300	472	392	110	5993630123*	4386.00	6993630123*	5511.00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

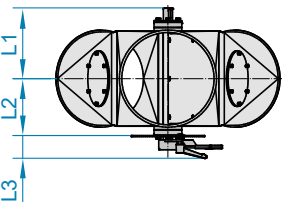
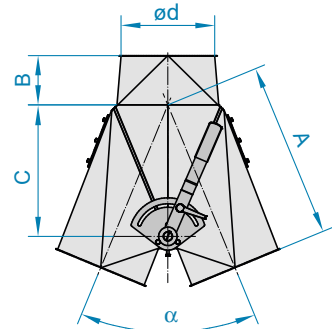
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS


Two-way distributors



TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, HAND-OPERATED



2210

- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		
								Item no.	€	Item no.	€	
100	45°	260	65	165	117	82	75	12101518	1041.00	12103518	1750.00	
120	45°	280	70	185	127	92	75	12121518	1041.00	12123518	1750.00	
150	45°	315	75	225	142	107	75	12151518	1070.00	12153518	1788.00	
175	45°	350	90	255	151	119	75	12171518	1115.00	12173518	1841.00	
200	45°	400	105	289	164	132	75	12201518	1115.00	12203518	1841.00	
250	45°	480	130	356	205	160	75	12251518	1150.00	12253518	1878.00	
300	45°	570	160	426	230	185	75	12301518	1255.00	12303518	1967.00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

-  FOOD GRADE
EC 1935/2004 plus FDA compliant
-  DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2230

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Shaft and inner flap with seal
- Other rotary actuators are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	45°	260	65	165	193	117	82	265	5922100144	1502.00	6922100144	2173.00	
120	45°	280	70	185	193	127	107	265	5922120144	1502.00	6922120144	2173.00	
150	45°	315	75	225	193	142	107	265	5922150144	1527.00	6922150144	2204.00	
175	45°	350	90	255	225	150	119	275	5922170144	1653.00	6922170144	2329.00	
200	45°	400	105	289	225	164	132	311	5922200144	1653.00	6922200144	2329.00	
250	45°	480	130	356	342	205	160	334	5922250144	1765.00	6922250144	2444.00	
300	45°	570	160	426	342	230	185	334	5922300144	1789.00	6922300144	2618.00	
350	45°	618	185	495	402	238	208	354	5922350144	2069.00	6922350144	2922.00	
400	45°	698	205	558	402	263	233	354	5922400144	2455.00	6922400144	3386.00	
450	45°	800	225	624	486	450	302	392	5923450144*	2798.00	6923450144*	3981.00	
500	45°	880	250	686	486	475	327	392	5923500144*	3053.00	6923500144*	4452.00	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

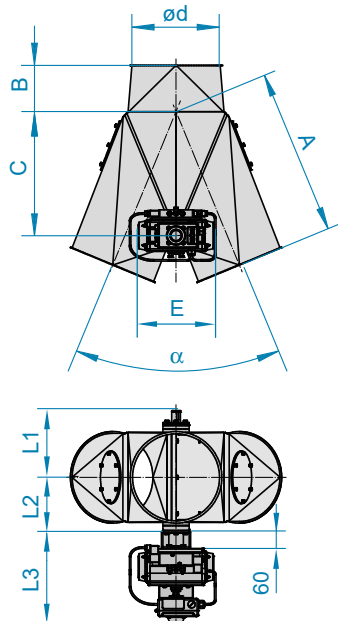
100	45°	260	65	165	193	117	82	265	5922100145	1502.00	6922100145	2173.00	
120	45°	280	70	185	193	127	107	265	5922120145	1502.00	6922120145	2173.00	
150	45°	315	75	225	193	142	107	265	5922150145	1527.00	6922150145	2204.00	
175	45°	350	90	255	225	150	119	275	5922170145	1653.00	6922170145	2329.00	
200	45°	400	105	289	225	164	132	311	5922200145	1653.00	6922200145	2329.00	
250	45°	480	130	356	342	205	160	334	5922250145	1765.00	6922250145	2444.00	
300	45°	570	160	426	342	230	185	334	5922300145	1789.00	6922300145	2618.00	
350	45°	618	185	495	402	238	208	354	5922350145	2069.00	6922350145	2922.00	
400	45°	698	205	558	402	263	233	354	5922400145	2455.00	6922400145	3386.00	
450	45°	800	225	624	486	450	302	392	5923450145*	2798.00	6923450145*	3981.00	
500	45°	880	250	686	486	475	327	392	5923500145*	3053.00	6923500145*	4452.00	

*3 mm



DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.



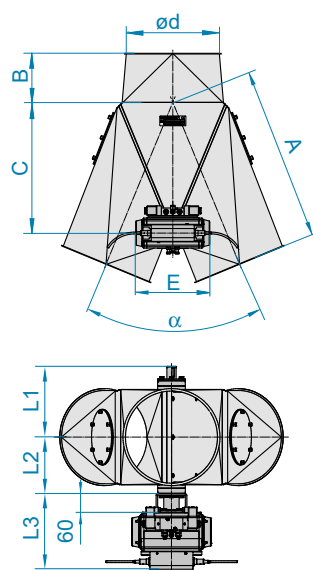
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

Two-way distributors



TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2230

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Designed to comply with ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22)
- Without terminal box. Available on request
- DN > 300 mm with welded flanges
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		
									Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	45°	260	65	165	210	117	82	220	59221001455	1658.00	69221001455	2329.00	
120	45°	280	70	185	210	127	92	220	59221201455	1658.00	69221201455	2329.00	
150	45°	315	75	225	245	142	107	233	59221501455	1683.00	69221501455	2360.00	
175	45°	350	90	255	245	151	119	233	59221701455	1809.00	69221701455	2485.00	
200	45°	400	105	289	245	164	132	233	59222001455	1809.00	69222001455	2485.00	
250	45°	480	130	356	260	205	160	245	59222501455	1921.00	69222501455	2600.00	
300	45°	570	160	426	260	230	185	245	59223001455	1945.00	69223001455	2774.00	
350	45°	618	185	495	345	238	210	272	59223501455	2225.00	69223501455	3078.00	
400	45°	698	205	558	345	263	235	272	59224001455	2611.00	69224001455	3542.00	
450	45°	800	225	624	260	450	302	302	59234501455*	2954.00	69234501455*	4137.00	
500	45°	880	250	700	260	475	327	302	59235001455*	3209.00	69235001455*	4608.00	


*3 mm

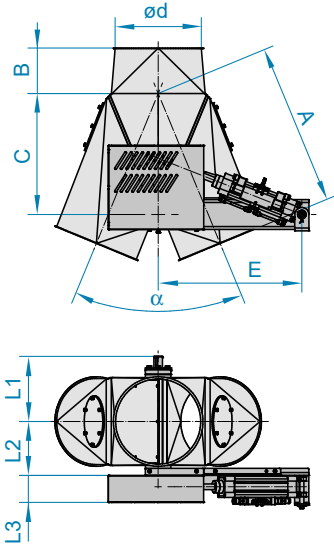
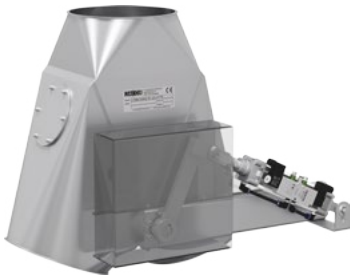


DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

 FOOD GRADE
EC 1935/2004 plus FDA compliant


 DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, FITTED WITH CYLINDER

2235

- Standard version: Right-side mounting
- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Shaft and inner flap with seal
- Other cylinders are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated	2 mm stainless steel	
									Item no.	€	Item no.

Cylinder, make FESTO, control voltage 230 V AC

100	45°	260	65	165	440	117	82	88	5922100121	1554.00	6922100121	2225.00
120	45°	280	70	185	440	127	92	88	5922120121	1554.00	6922120121	2225.00
150	45°	315	75	225	470	142	107	88	5922150121	1579.00	6922150121	2257.00
175	45°	350	90	255	470	150	119	88	5922170121	1706.00	6922170121	2382.00
200	45°	400	105	289	470	164	132	88	5922200121	1706.00	6922200121	2382.00
250	45°	480	130	356	470	205	160	90	5922250121	1818.00	6922250121	2496.00
300	45°	570	160	426	470	230	185	90	5922300121	1843.00	6922300121	2670.00
350	45°	618	185	495	490	238	208	110	5922350121	2137.00	6922350121	3018.00
400	45°	698	205	558	490	263	233	110	5922400121	2536.00	6922400121	3497.00
450	45°	800	205	624	540	450	302	110	5923450121*	2889.00	6923450121*	4114.00
500	45°	880	250	686	540	475	327	110	5923500121*	3153.00	6923500121*	4598.00

Cylinder, make FESTO, control voltage 24 V DC

100	45°	260	65	165	440	117	82	88	5922100123	1554.00	6922100123	2225.00
120	45°	280	70	185	440	127	92	88	5922120123	1554.00	6922120123	2225.00
150	45°	315	75	225	470	142	107	88	5922150123	1579.00	6922150123	2257.00
175	45°	350	90	255	470	150	119	88	5922170123	1706.00	6922170123	2382.00
200	45°	400	105	289	470	164	132	88	5922200123	1706.00	6922200123	2382.00
250	45°	480	130	356	470	205	160	90	5922250123	1818.00	6922250123	2496.00
300	45°	570	160	426	470	230	185	90	5922300123	1843.00	6922300123	2670.00
350	45°	618	185	495	490	238	208	110	5922350123	2137.00	6922350123	3018.00
400	45°	698	205	558	490	263	233	110	5922400123	2536.00	6922400123	3497.00
450	45°	800	205	624	540	450	302	110	5923450123*	2889.00	6923450123*	4114.00
500	45°	880	250	686	540	475	327	110	5923500123*	3153.00	6923500123*	4598.00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

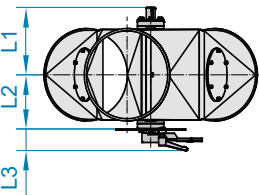
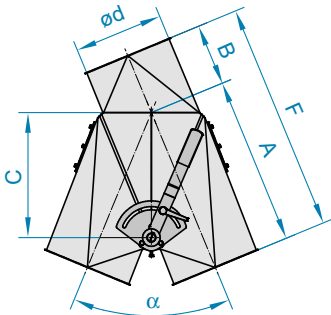
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

Two-way distributors



TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, HAND-OPERATED

2220

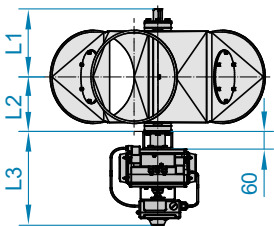
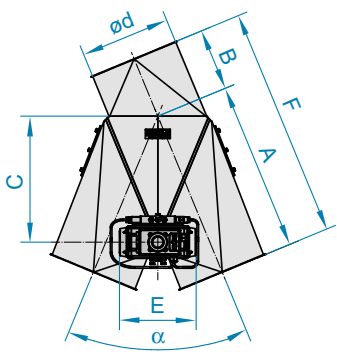
- Standard version: Right-side mounting
- Shaft and inner flap with seal
- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	
100	45°	260	100	165	360	117	82	75	12101519	1041.00	12103519	1750.00	
120	45°	280	110	185	390	127	92	75	12121519	1041.00	12123519	1750.00	
150	45°	315	115	225	430	142	107	75	12151519	1070.00	12153519	1788.00	
175	45°	350	125	255	475	151	119	75	12171519	1115.00	12173519	1841.00	
200	45°	400	140	289	540	164	132	75	12201519	1115.00	12203519	1841.00	
250	45°	480	170	356	650	205	160	75	12251519	1150.00	12253519	1878.00	
300	45°	570	210	426	780	230	185	75	12301519	1255.00	12303519	1967.00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

- F FOOD GRADE
EC 1935/2004 plus FDA compliant
- D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2240

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Standard version: Right-side mounting
- Shaft and inner flap with seal
- Other rotary actuators are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated	2 mm stainless steel	
										Item no.	€	Item no.

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	45°	260	100	165	193	360	117	82	265	5912100144	1502.00	6912100144	2173.00
120	45°	280	110	185	193	390	127	92	265	5912120144	1502.00	6912120144	2173.00
150	45°	315	115	225	193	430	142	107	265	5912150144	1527.00	6912150144	2204.00
175	45°	350	125	255	225	475	151	119	275	5912170144	1653.00	6912170144	2329.00
200	45°	400	140	289	225	540	164	132	311	5912200144	1653.00	6912200144	2329.00
250	45°	480	170	356	342	650	205	160	334	5912250144	1765.00	6912250144	2444.00
300	45°	570	210	426	342	780	230	185	334	5912300144	1789.00	6912300144	2618.00
350	45°	618	230	495	402	848	238	208	354	5912350144	2069.00	6912350144	2922.00
400	45°	698	250	558	402	948	263	233	354	5912400144	2455.00	6912400144	3386.00
450	45°	800	270	624	486	1070	450	302	392	5913450144*	2798.00	6913450144*	3981.00
500	45°	880	300	686	486	1180	475	327	392	5913500144*	3053.00	6913500144*	4452.00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	45°	260	100	165	193	360	117	82	265	5912100145	1502.00	6912100145	2173.00
120	45°	280	110	185	193	390	127	92	265	5912120145	1502.00	6912120145	2173.00
150	45°	315	115	225	193	430	142	107	265	5912150145	1527.00	6912150145	2204.00
175	45°	350	125	255	225	475	150	119	275	5912170145	1653.00	6912170145	2329.00
200	45°	400	140	289	225	540	164	132	311	5912200145	1653.00	6912200145	2329.00
250	45°	480	170	356	342	650	205	160	334	5912250145	1765.00	6912250145	2444.00
300	45°	570	210	426	342	780	230	185	334	5912300145	1789.00	6912300145	2618.00
350	45°	618	230	495	402	848	238	208	354	5912350145	2069.00	6912350145	2922.00
400	45°	698	250	558	402	948	263	233	354	5912400145	2455.00	6912400145	3386.00
450	45°	800	270	624	486	1070	450	302	392	5913450145*	2798.00	6913450145*	3981.00
500	45°	880	300	686	486	1180	475	327	392	5913500145*	3053.00	6913500145*	4452.00

*3 mm



DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

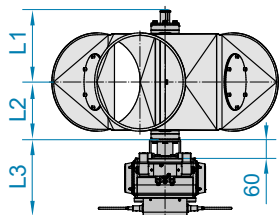
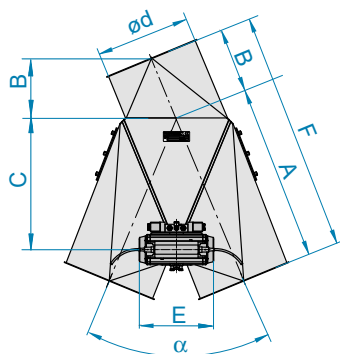
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

Two-way distributors



TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2240

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Standard version: Right-side mounting
- Designed to comply with ATEX category 1 G/D internally (gas zone 0 or dust zone 20), and category 3 D externally (dust zone 22)
- Without terminal box. Available on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated	2 mm stainless steel	
										Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version


100	45°	260	100	165	210	360	117	82	220	59121001455	1658.00	69121001455	2329.00
120	45°	280	110	185	210	390	127	92	220	59121201455	1658.00	69121201455	2329.00
150	45°	315	115	225	245	430	142	107	233	59121501455	1683.00	69121501455	2360.00
175	45°	350	125	255	245	475	151	119	233	59121701455	1809.00	69121701455	2485.00
200	45°	400	140	289	245	540	164	132	233	59122001455	1809.00	69122001455	2485.00
250	45°	480	170	356	260	650	205	160	245	59122501455	1921.00	69122501455	2600.00
300	45°	570	210	426	260	780	230	185	245	59123001455	1945.00	69123001455	2774.00
350	45°	618	230	495	345	848	238	210	272	59123501455	2225.00	69123501455	3078.00
400	45°	698	250	558	345	948	263	235	272	59124001455	2611.00	69124001455	3542.00
450	45°	800	270	624	260	1070	450	302	302	59134501455*	2954.00	69134501455*	4137.00
500	45°	880	300	700	260	1180	475	327	302	59135001455*	3209.00	69135001455*	4608.00

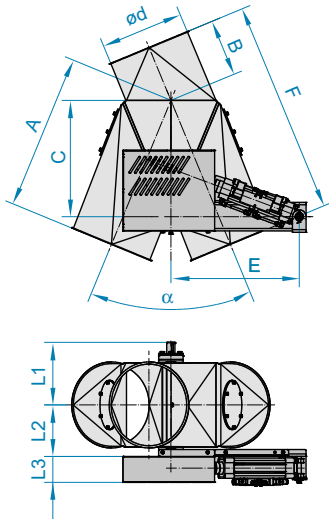
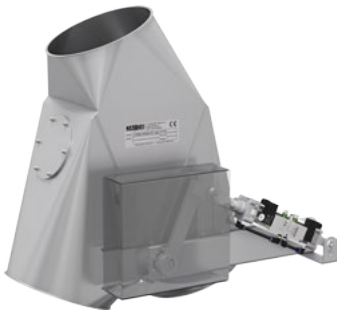
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

 FOOD GRADE
EC 1935/2004 plus FDA compliant


 DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, FITTED WITH CYLINDER

2245

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches on the cylinder
- Standard version: Right-side mounting
- Shaft and inner flap with seal
- Other cylinders are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated	2 mm stainless steel	
										Item no.	€	Item no.

Cylinder, make FESTO, control voltage 230 V AC

100	45°	260	100	165	440	360	117	82	88	5912100121	1554.00	6912100121	2225.00
120	45°	280	110	185	440	390	127	92	88	5912120121	1554.00	6912120121	2225.00
150	45°	315	115	225	470	430	142	107	88	5912150121	1579.00	6912150121	2257.00
175	45°	350	125	255	470	475	150	119	88	5912170121	1706.00	6912170121	2382.00
200	45°	400	140	289	470	540	164	132	88	5912200121	1706.00	6912200121	2382.00
250	45°	480	170	356	470	650	205	160	90	5912250121	1818.00	6912250121	2496.00
300	45°	570	210	426	470	780	230	185	90	5912300121	1843.00	6912300121	2670.00
350	45°	618	230	495	490	848	238	208	110	5912350121	2137.00	6912350121	3018.00
400	45°	698	250	558	490	948	263	233	110	5912400121	2536.00	6912400121	3497.00
450	45°	800	270	624	540	1070	450	302	110	5913450121*	2889.00	6913450121*	4114.00
500	45°	880	300	686	540	1180	475	327	110	5913500121*	3153.00	6913500121*	4598.00


Cylinder, make FESTO, control voltage 24 V DC


100	45°	260	100	165	440	360	117	82	88	5912100123	1554.00	6912100123	2225.00
120	45°	280	110	185	440	390	127	92	88	5912120123	1554.00	6912120123	2225.00
150	45°	315	115	225	470	430	142	107	88	5912150123	1579.00	6912150123	2257.00
175	45°	350	125	255	470	475	150	119	88	5912170123	1706.00	6912170123	2382.00
200	45°	400	140	289	470	540	164	132	88	5912200123	1706.00	6912200123	2382.00
250	45°	480	170	356	470	650	205	160	90	5912250123	1818.00	6912250123	2496.00
300	45°	570	210	426	470	780	230	185	90	5912300123	1843.00	6912300123	2670.00
350	45°	618	230	495	490	848	238	208	110	5912350123	2137.00	6912350123	3018.00
400	45°	698	250	558	490	948	263	233	110	5912400123	2536.00	6912400123	3497.00
450	45°	800	270	624	540	1070	450	302	110	5913450123*	2889.00	6913450123*	4114.00
500	45°	880	300	686	540	1180	475	327	110	5913500123*	3153.00	6913500123*	4598.00


*3 mm



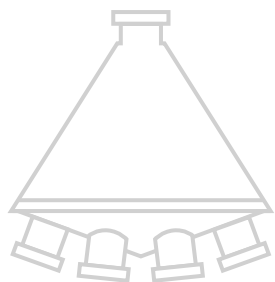
AVAILABLE IN THE DETECTABLE DESIGN LINE.

 FOOD GRADE
EC 1935/2004 plus FDA compliant






 DETECTABLE DESIGN
Metal-detectable

A close-up photograph of a Jacob multi-way distributor, a vertical cylindrical metal component with a serrated band. It is surrounded by clear plastic tubing and other industrial machinery. The background is dark and out of focus.

JACOB MULTI-WAY DISTRIBUTORS –
FOR FLEXIBLE DISTRIBUTION
OF YOUR BULK GOODS



MULTI-WAY DISTRIBUTORS

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MULTI-WAY DISTRIBUTORS

Technical information

MULTI-WAY DISTRIBUTORS

JACOB multi-way distributors are the compact solution for conveying bulk goods to many different machines or silos in the course of the production process. JACOB has a range of multi-way distributors with up to 2 x 20 outlets available in its standard portfolio in order to meet a variety of requirements.



TURN-HEAD DISTRIBUTORS 45° AND 60°

Versions and applications

Primed steel version. For distributing granular bulk goods, such as grain, by gravity without over-pressure inside the pipework system and with no demand for dust-tightness internally.

Feeding from the top through the turn-pipe towards the required outlet inside a closed casing.

Rotary pipe seal pressed on with two pressure springs. Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear motor, motor current 380-400 volt, 3-phase, 50 Hz.

2.3 rpm	1.2 rpm
DN 100 mm, 4-18 outlets	DN 100 mm, 20 outlets
DN 120 mm, 4-14 outlets	DN 120 mm, 16-20 outlets
DN 150 mm, 4-12 outlets	DN 150 mm, 14-20 outlets
DN 175 mm, 4-10 outlets	DN 175 mm, 12-20 outlets
DN 200 mm, 4-10 outlets	DN 200 mm, 12-20 outlets
	DN 250 mm, 4-16 outlets
	DN 300 mm, 4-14 outlets

Positioning with mechanical limit switches, wired on terminals in a connection box. Turn-head distributor must not be operated when transporting material.

Your individual turn-head distributor

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- JACOB FOOD GRADE: Product-contacting parts made of stainless steel available at additional cost
- Second inspection door available on demand
- Deliverable in blue silicone, metal-detectable
- ATEX versions on request
- Wear protection lining
- Other drives



DOUBLE TURN-HEAD DISTRIBUTORS 45° AND 60°

Versions and applications

Primed steel version. For distributing granular bulk goods, such as grain, by gravity without over-pressure inside the pipework system and with no demand for dust-tightness internally.

Feeding from the top through two counter-rotating turn-pipes towards the required outlet inside a closed casing.

Rotary pipe seal pressed on with two pressure springs. Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear-motor, 1.2 rpm, motor current 380-400 volt, 3-phase, 50 Hz. Positioning with mechanical limit switches, wired on terminals in a connection box. Turn-head distributor must not be operated when transporting material.

Your individual turn-head distributor

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- JACOB FOOD GRADE: Product-contacting parts made of stainless steel available at additional cost
- Second inspection door available on demand
- ATEX versions on request
- Wear protection lining
- Other drives

TURN-HEAD DISTRIBUTORS 45° AND 60°, DUST-TIGHT VERSION

Versions and applications

For distributing bulk goods by gravity up to a maximum of 1 bar over-pressure inside the pipework system.

Feeding from the top through the turn-pipe towards the required outlet inside a closed casing.

Sealing of the turn-pipe outlet by means of pneumatic pressing onto outlet sleeve. Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear-motor, 1.2 rpm, motor current 380-400 volt, 3-phase, 50 Hz. Positioning with mechanical limit switches, solenoid valve and pressure controller wired on terminals in a connecting box.

Necessary operating pressure min. 6 bar. Turn-head distributor must not be operated when transporting material.

Please indicate control voltage when ordering.



Your individual turn-head distributor

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Other mounting positions
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- JACOB FOOD GRADE: Product-contacting parts made of stainless steel available at additional cost
- Second inspection door available on demand
- Seals in DETECTABLE DESIGN line: Blue silicone, metal-detectable
- ATEX versions on request
- Wear protection lining
- Other drives
- Cover to blank off outlets that are not in use

SWIVEL PIPE SWITCHES

Versions and applications

For pneumatic conveying of bulk goods. Over-pressure inside the pipework system up to diameter 150 mm max. 3 bar, diameter 200 and 250 mm max. 2 bar. Necessary operating pressure min. 6 bar. Swivel pipe switch must not be operated when transporting material.

Feeding from the top through the swivel pipe towards the required outlet inside a closed casing. Sealing of swivel pipe outlet by means of pneumatic pressing-on of the telescopic pipe onto the outlet sleeve, outlets not in use pneumatically blanked off. Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear motor, 1.2 rpm, motor current 380-400 volt, 3-phase, 50 Hz. Positioning with mechanical limit switches, solenoid valve and pressure controller wired on terminals in a connecting box.

Please indicate control voltage when ordering.

Your individual swivel pipe switch

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Other mounting positions
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- FOOD GRADE: Product-contacting parts made of stainless steel available at additional cost
- Second inspection door available on demand
- ATEX versions on request
- Wear protection lining
- Other drives

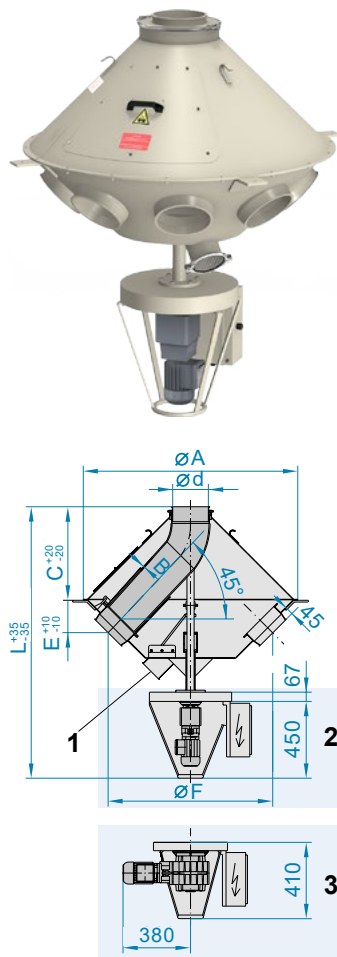


10



MULTI-WAY DISTRIBUTORS

Turn-head distributors



- 1 Spillage outlet
- 2 Gear-motor 2.3 rpm
- 3 Gear-motor 1.2 rpm

TURN-HEAD DISTRIBUTORS 45°

2320

- All dimensions are approximate
- Standard values for flow rates for granular products with a bulk density of 750 kg/m³, with a moisture content of max. 15 %
- A = 800 mm: Spillage outlet = DN 100 mm
- A > 800 mm: Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	A	B	C	E	F	L	kg	t/h	4 outlets		6 outlets	
										Item no.	€	Item no.	€
100	98	800	3.6	365	138	626	1358	77	8	5104104501	4225.00	5106104501	4397.00
120	118	800	4.0	355	155	590	1348	79	12	5104124501	4242.00	5106124501	4472.00
150	148	800	4.5	340	155	590	1333	80	25	5104154501	4308.00	5106154501	4547.00
175	173	1200	5.4	520	173	940	1576	134	45	5104174501	4785.00	5106174501	4975.00
200	198	1200	6.3	510	183	920	1568	141	65	5104204501	4863.00	5106204501	5106.00
250	248	1200	6.3	485	219	850	1540	155	100	5104254501	5437.00	5106254501	5650.00
300	298	1200	7.1	480	212	860	1538	165	150	5104304501	5923.00	5106304501	6500.00

8 outlets

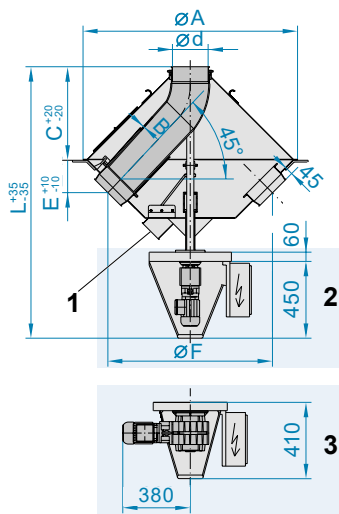
DN	Ø d	A	B	C	E	F	L	kg	t/h	Item no.	€
100	98	800	3.6	365	138	626	1358	77	8	5108104501	4605.00
120	118	800	4.0	355	155	590	1348	79	12	5108124501	4636.00
150	148	1200	4.5	535	155	974	1593	129	25	5108154501	5056.00
175	173	1200	5.4	520	173	940	1576	134	45	5108174501	5220.00
200	198	1200	6.3	510	183	920	1568	141	65	5108204501	5369.00
250	248	1600	6.3	685	219	1250	1945	248	100	5108254501	6983.00
300	298	1600	7.1	680	212	1260	1940	260	150	5108304501	8276.00

10 outlets

DN	Ø d	A	B	C	E	F	L	kg	t/h	Item no.	€
100	98	800	3.6	365	138	626	1358	77	8	5110104501	4830.00
120	118	1200	4.0	550	155	974	1608	120	12	5110124501	5280.00
150	148	1200	4.5	535	155	974	1593	129	25	5110154501	5411.00
175	173	1200	5.4	520	173	940	1576	134	45	5110174501	5466.00
200	198	1200	6.3	510	183	920	1568	141	65	5110204501	5626.00
250	248	1600	6.3	685	219	1250	1945	248	100	5110254501	7246.00
300	298	1600	7.1	680	212	1260	1940	260	150	5110304501	8541.00

12 outlets

DN	Ø d	A	B	C	E	F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5112104501	5357.00
120	118	1200	4.0	550	155	974	1608	120	12	5112124501	5517.00
150	148	1200	4.5	535	155	974	1593	129	25	5112154501	5655.00
175	173	1600	5.4	720	173	1340	1980	240	45	5112174501	7307.00
200	198	1600	6.3	710	183	1320	1970	250	65	5112204501	7444.00
250	248	2280	6.3	1035	219	1930	2230	410	100	5112254501	10440.00
300	298	2280	7.1	1010	212	1945	2205	430	150	5112304501	12041.00



- 1 Spillage outlet
- 2 Gear-motor 2.3 rpm
- 3 Gear-motor 1.2 rpm

14 outlets

DN	Ø d	A	B	C	E	F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5114104501	5859.00
120	118	1200	4.0	550	155	974	1608	120	12	5114124501	5881.00
150	148	1600	4.5	735	155	1373	1957	230	25	5114154501	7444.00
175	173	1600	5.4	720	173	1340	1980	240	45	5114174501	7560.00
200	198	1600	6.3	710	183	1320	1970	250	65	5114204501	7713.00
250	248	2280	6.3	1035	219	1930	2230	410	100	5114254501	10694.00
300	298	2280	7.1	1010	212	1945	2205	430	150	5114304501	12541.00

16 outlets

DN	Ø d	A	B	C	E	F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5116104501	5989.00
120	118	1600	4.0	750	155	1374	1972	225	12	5116124501	7403.00
150	148	1600	4.5	735	155	1373	1957	230	25	5116154501	7632.00
175	173	1600	5.4	720	173	1340	1980	240	45	5116174501	7823.00
200	198	2280	6.3	1060	183	2000	2255	400	65	5116204501	10579.00
250	248	2280	6.3	1035	219	1930	2230	410	100	5116254501	10972.00

18 outlets

DN	Ø d	A	B	C	E	F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5118104501	6241.00
120	118	1600	4.0	750	155	1374	1972	225	12	5118124501	7790.00
150	148	1600	4.5	735	155	1373	1957	230	25	5118154501	7883.00
175	173	2280	5.4	1070	173	2022	2255	382	45	5118174501	10766.00
200	198	2280	6.3	1060	183	2000	2255	400	65	5118204501	10813.00

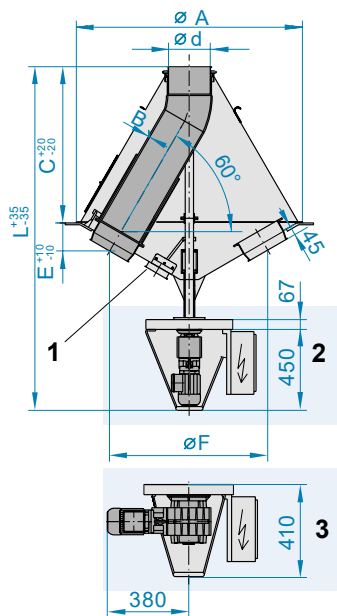
20 outlets

DN	Ø d	A	B	C	E	F	L	kg	t/h	Item no.	€
100	98	1600	3.6	760	138	1408	1983	220	8	5120104501	8003.00
120	118	1600	4.0	750	155	1374	1972	225	12	5120124501	8074.00
150	148	2280	4.5	1085	155	2057	2240	362	25	5120154501	10605.00
175	173	2280	5.4	1070	173	2022	2255	382	45	5120174501	11035.00
200	198	2280	6.3	1060	183	2000	2255	400	65	5120204501	11078.00



MULTI-WAY DISTRIBUTORS

Turn-head distributors



- 1 Spillage outlet
2 Gear-motor 2.3 rpm
3 Gear-motor 1.2 rpm

TURN-HEAD DISTRIBUTORS 60°

2330

- All dimensions are approximate
- Standard values for flow rates for granular products with a bulk density of 500 kg/m³, with a moisture content of max. 15 %
- A = 800 mm: Spillage outlet = DN 100 mm
- A > 800 mm: Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	A	B	C	E	F	L	kg	t/h	4 outlets		6 outlets	
										Item no.	€	Item no.	€
100	98	800	3.6	590	112	560	1518	82	4	5104106001	4605.00	5106106001	4633.00
120	118	800	4.0	570	120	540	1498	84	6	5104126001	4660.00	5106126001	4742.00
150	148	800	4.5	545	125	520	1473	85	12	5104156001	4672.00	5106156001	4772.00
175	173	1200	5.4	860	130	875	1898	153	22	5104176001	4851.00	5106176001	5039.00
200	198	1200	6.3	835	135	855	1873	153	32	5104206001	4962.00	5106206001	5127.00
250	248	1200	6.3	790	150	805	1688	167	50	5104256001	5608.00	5106256001	6429.00
300	298	1200	7.1	745	160	770	1643	182	75	5104306001	6634.00	5106306001	7171.00

8 outlets

DN	Ø d	A	B	C	E	F	L	kg	t/h	Item no.	€
100	98	800	3.6	590	112	560	1518	82	4	5108106001	4896.00
120	118	800	4.0	570	120	540	1498	84	6	5108126001	4918.00
150	148	1200	4.5	880	125	910	1918	140	12	5108156001	5176.00
175	173	1200	5.4	860	130	875	1898	153	22	5108176001	5280.00
200	198	1200	6.3	835	135	855	1873	153	32	5108206001	5399.00
250	248	1600	6.3	1140	150	1205	2158	267	50	5108256001	7125.00
300	298	1600	7.1	1095	160	1170	2113	287	75	5108306001	8383.00

10 outlets

DN	Ø d	A	B	C	E	F	L	kg	t/h	Item no.	€
100	98	800	3.6	590	112	560	1518	82	4	5110106001	5170.00
120	118	1200	4.0	905	120	930	1943	134	6	5110126001	5447.00
150	148	1200	4.5	880	125	910	1918	140	12	5110156001	5457.00
175	173	1200	5.4	860	130	875	1898	153	22	5110176001	5592.00
200	198	1600	6.3	1185	135	1255	2303	265	32	5110206001	7144.00
250	248	1600	6.3	1140	150	1205	2158	267	50	5110256001	7289.00
300	298	2280	7.1	1700	160	1850	2918	460	75	5110306001	10226.00

12 outlets

DN	Ø d	A	B	C	E	F	L	kg	t/h	Item no.	€
100	98	1200	3.6	925	112	950	1963	127	4	5112106001	5696.00
120	118	1200	4.0	905	120	930	1943	134	6	5112126001	5852.00
150	148	1200	4.5	880	125	910	1918	140	12	5112156001	6007.00
175	173	1600	5.4	1210	130	1275	2328	250	22	5112176001	7341.00
200	198	1600	6.3	1185	135	1255	2303	265	32	5112206001	7519.00
250	248	2280	6.3	1745	150	1885	2963	435	50	5112256001	10479.00
300	298	2280	7.1	1700	160	1850	2918	460	75	5112306001	12081.00



14 outlets

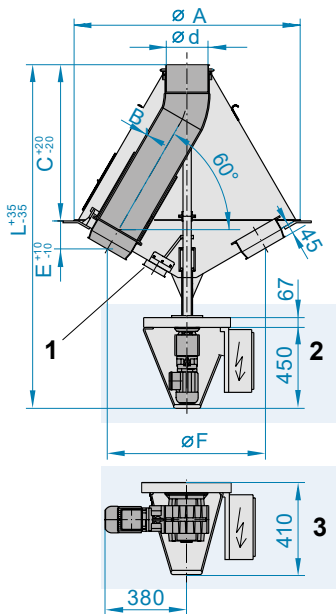
DN	Ø d	A	B	C	E	F	L	kg	t/h	Item no.	€
100	98	1200	3.6	925	112	950	1963	127	4	5114106001	5989.00
120	118	1200	4.0	905	120	930	1943	134	6	5114126001	6175.00
150	148	1600	4.5	1230	125	1310	2348	240	12	5114156001	7450.00
175	173	1600	5.4	1210	130	1275	2328	250	22	5114176001	7584.00
200	198	1600	6.3	1185	135	1255	2303	265	32	5114206001	7760.00
250	248	2280	6.3	1745	150	1885	2963	435	50	5114256001	10733.00
300	298	2280	7.1	1700	160	1850	2918	460	75	5114306001	12592.00

16 and 18 outlets

DN	Ø d	A	B	C	E	F	L	kg	t/h	16 outlets		18 outlets	
										Item no.	€	Item no.	€
100	98	1200	3.6	925	112	950	1963	127	4	5116106001	6207.00	5118106001	6481.00
120	118	1600	4.0	1255	120	1330	2373	235	6	5116126001	7626.00	5118126001	7823.00
150	148	1600	4.5	1230	125	1310	2348	240	12	5116156001	7698.00	5118156001	7942.00
175	173	2280	5.4	1815	130	1954	3133	405	22	5116176001	10249.00	5118176001	10813.00
200	198	2280	6.3	1790	135	1937	3108	430	32	5116206001	10625.00	5118206001	10895.00
250	248	2280	6.3	1745	150	1885	2963	435	50	5116256001	11000.00		

20 outlets

DN	Ø d	A	B	C	E	F	L	kg	t/h	Item no.	€
100	98	1600	3.6	1275	112	1350	2393	227	4	5120106001	8156.00
120	118	1600	4.0	1255	120	1330	2373	235	6	5120126001	8198.00
150	148	2280	4.5	1835	125	2019	3153	380	12	5120156001	10740.00
175	173	2280	5.4	1815	130	1954	3133	405	22	5120176001	11080.00
200	198	2280	6.3	1790	135	1937	3108	430	32	5120206001	11160.00

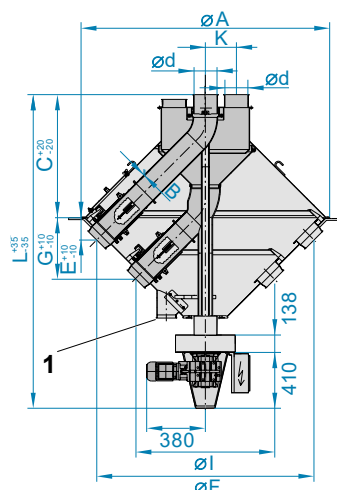


- 1 Spillage outlet
- 2 Gear-motor 2.3 rpm
- 3 Gear-motor 1.2 rpm



MULTI-WAY DISTRIBUTORS

Double turn-head distributors



1 Spillage outlet

DOUBLE TURN-HEAD DISTRIBUTORS 45°

2340

- All dimensions are approximate
- Standard values for flow rates for granular products with a bulk density of 750 kg/m³, with a moisture content of max. 15 %
- Lower funnel circumference according to data sheet
- Spillage outlet DN 120 mm
- Please also read and take into account the technical information given at the beginning of this chapter

2 x 8 and 2 x 10 outlets

DN	Ø d	A	B	C	E	F	G	I	K	L	kg	t/h	2 x 8 outlets		2 x 10 outlets	
													Item no.	€	Item no.	€
120	118	1600	4.0	820	150	1375	345	990	160	2220	345	12	52081245	18207.00	52101245	18681.00
150	148	1600	4.5	810	160	1370	395	895	190	2210	350	25	52081545	18448.00	52101545	18901.00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52081745	20324.00	52101745	20688.00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52082045	20972.00	52102045	21304.00
250	248	2280	6.3	1110	210	1960	530	1325	290	2900	577	100	52082545	21800.00	52102545	22131.00

2 x 12 outlets

DN	Ø d	A	B	C	E	F	G	I	K	L	kg	t/h	Item no.	€
120	118	1600	4.0	820	150	1375	345	990	160	2220	345	12	52121245	19152.00
150	148	1600	4.5	810	160	1370	395	895	190	2210	350	25	52121545	19173.00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52121745	21003.00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52122045	21639.00

2 x 14 and 2 x 16 outlets

DN	Ø d	A	B	C	E	F	G	I	K	L	kg	t/h	2 x 14 outlets		2 x 16 outlets	
													Item no.	€	Item no.	€
120	118	1600	4.0	820	150	1375	345	990	160	2220	345	12	52141245	19626.00	52161245	20143.00
150	148	2280	4.5	1160	160	2075	395	1595	190	2400	540	25	52141545	20872.00	52161545	21403.00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52141745	21319.00	52161745	21735.00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52142045	21968.00	52162045	22321.00

2 x 18 and 2 x 20 outlets

DN	Ø d	A	B	C	E	F	G	I	K	L	kg	t/h	2 x 18 outlets		2 x 20 outlets	
													Item no.	€	Item no.	€
120	118	2280	4.0	1170	150	2075	345	1690	160	2410	532	12	52181245	21614.00	52201245	21843.00
150	148	2280	4.5	1160	160	2075	395	1595	190	2400	540	25	52181545	21873.00	52201545	22340.00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52181745	22154.00		



DOUBLE TURN-HEAD DISTRIBUTORS 60°

2350

- All dimensions are approximate
- Standard values for flow rates for granular products with a bulk density of 500 kg/m³, with a moisture content of max. 15 %
- Lower funnel circumference according to data sheet
- Spillage outlet DN 120 mm
- Please also read and take into account the technical information given at the beginning of this chapter

2 x 8 outlets

DN	Ø d	A	B	C	E	F	G	I	K	L	kg	t/h	Item no.	€
120	118	1600	4.0	1285	115	1325	265	805	160	2420	350	6	52081260	18375.00
150	148	1600	4.5	1255	120	1310	305	680	190	2390	355	12	52081560	18616.00
175	173	2280	5.4	1835	130	1975	335	1285	215	3170	566	22	52081760	20829.00
200	198	2280	6.3	1825	135	1960	365	1170	240	3160	580	32	52082060	21432.00
250	248	2280	6.3	1765	155	1890	425	1000	290	3100	597	50	52082560	22305.00

2 x 10 and 2 x 12 outlets

DN	Ø d	A	B	C	E	F	G	I	K	L	kg	t/h	2 x 10 outlets		2 x 12 outlets	
													Item no.	€	Item no.	€
120	118	1600	4.0	1285	115	1325	265	805	160	2420	350	6	52101260	18940.00	52121260	19409.00
150	148	2280	4.5	1860	120	2010	305	1380	190	3195	555	12	52101560	20504.00	52121560	20777.00
175	173	2280	5.4	1835	130	1975	335	1285	215	3170	566	22	52101760	21200.00	52121760	21502.00
200	198	2280	6.3	1825	135	1960	365	1170	240	3160	580	32	52102060	21671.00	52122060	22080.00

2 x 14 and 2 x 16 outlets

DN	Ø d	A	B	C	E	F	G	I	K	L	kg	t/h	2 x 14 outlets		2 x 16 outlets	
													Item no.	€	Item no.	€
120	118	2280	4.0	1890	115	2025	265	1505	160	3225	545	6	52141260	20988.00	52161260	21492.00
150	148	2280	4.5	1860	120	2010	305	1380	190	3195	555	12	52141560	21058.00	52161560	21717.00
175	173	2280	5.4	1835	130	1975	335	1285	215	3170	566	22	52141760	21899.00	52161760	22218.00

2 x 18 and 2 x 20 outlets

DN	Ø d	A	B	C	E	F	G	I	K	L	kg	t/h	2 x 18 outlets		2 x 20 outlets	
													Item no.	€	Item no.	€
120	118	2280	4.0	1890	115	2025	265	1505	160	3225	545	6	52181260	21968.00	52201260	22424.00
150	148	2280	4.5	1860	120	2010	305	1380	190	3195	555	12	52181560	22224.00	52201560	22624.00



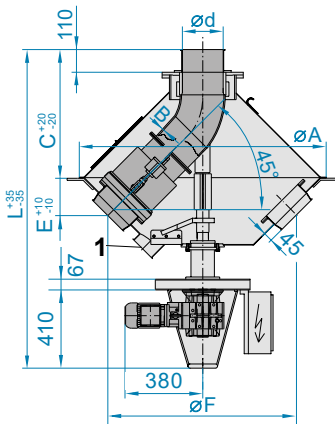
2360

- All dimensions are approximate
- Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

DN	Ø d	A	B	C	E	F	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54041045	10043.00	54061045	10370.00
120	118	1200	5.0	621	155	980	1595	54041245	10177.00	54061245	10412.00
150	148	1200	5.6	640	155	980	1614	54041545	10252.00	54061545	10486.00
175	173	1200	5.4	622	173	944	1596	54041745	10412.00	54061745	10585.00
200	198	1200	6.3	626	183	924	1600	54042045	10585.00	54062045	10693.00
250	248	1600	6.3	784	219	1252	1960	54042545	11325.00	54062545	11757.00
300	298	1600	7.1	817	219	1252	1993	54043045	12391.00	54063045	13473.00

DN	Ø d	A	B	C	E	F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54081045	10496.00
120	118	1200	5.0	621	155	980	1595	54081245	10615.00
150	148	1200	5.6	640	155	980	1614	54081545	10757.00
175	173	1200	5.4	622	173	944	1596	54081745	10817.00
200	198	1200	6.3	626	183	924	1600	54082045	10867.00
250	248	1600	6.3	784	219	1252	1960	54082545	13361.00
300	298	1600	7.1	817	219	1252	1993	54083045	14071.00

DN	Ø d	A	B	C	E	F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54101045	10659.00
120	118	1200	5.0	621	155	980	1595	54101245	10861.00
150	148	1200	5.6	640	155	980	1614	54101545	10967.00
175	173	1200	5.4	622	173	944	1596	54101745	11032.00
200	198	1600	6.3	826	183	1324	2002	54102045	13228.00
250	248	1600	6.3	784	219	1252	1960	54102545	13649.00



1 Spillage outlet

12 outlets

DN	Ø d	A	B	C	E	F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54121045	10932.00
120	118	1200	5.0	621	155	980	1595	54121245	11076.00
150	148	1200	5.6	640	155	980	1614	54121545	11222.00
175	173	1600	5.4	822	173	1344	1998	54121745	13520.00
200	198	1600	6.3	826	183	1324	2002	54122045	13699.00

14 outlets

DN	Ø d	A	B	C	E	F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54141045	11178.00
120	118	1200	5.0	621	155	980	1595	54141245	11298.00
150	148	1600	5.6	840	155	1380	2016	54141545	13550.00
175	173	1600	5.4	822	173	1344	1998	54141745	13783.00

16 outlets

DN	Ø d	A	B	C	E	F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54161045	11422.00
120	118	1600	5.0	821	155	1380	1997	54161245	13704.00
150	148	1600	5.6	840	155	1380	2016	54161545	13841.00
175	173	1600	5.4	822	173	1344	1998	54161745	14115.00

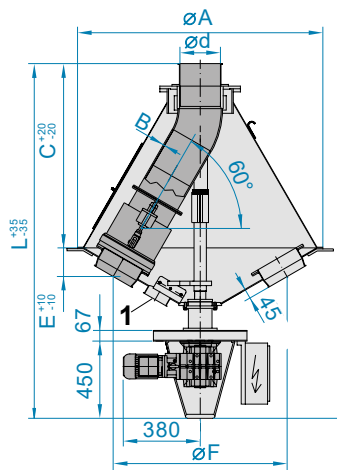
18 and 20 outlets

DN	Ø d	A	B	C	E	F	L	18 outlets		20 outlets	
								Item no.	€	Item no.	€
100	98	1600	5.0	843	138	1414	2019	54181045	13042.00	54201045	13251.00
120	118	1600	5.0	821	155	1380	1997	54181245	14004.00	54201245	14234.00



MULTI-WAY DISTRIBUTORS

Turn-head distributors, dust-tight version



1 Spillage outlet

TURN-HEAD DISTRIBUTORS, DUST-TIGHT 60°

2370

- All dimensions are approximate
- Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	A	B	C	E	F	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
100	98	1200	5.0	970	112	958	1889	54041060	10356.00	54061060	10545.00
120	118	1200	5.0	946	120	932	1865	54041260	10615.00	54061260	10776.00
150	148	1200	5.6	939	125	914	1858	54041560	10642.00	54061560	10786.00
175	173	1200	5.4	910	135	880	1829	54041760	11032.00	54061760	11314.00
200	198	1200	6.3	910	140	862	1829	54042060	11169.00	54062060	11447.00
250	248	1600	6.3	1215	155	1210	2250	54042560	11606.00	54062560	11876.00
300	298	1600	7.1	1196	165	1176	2231	54043060	13624.00	54063060	14500.00

8 outlets

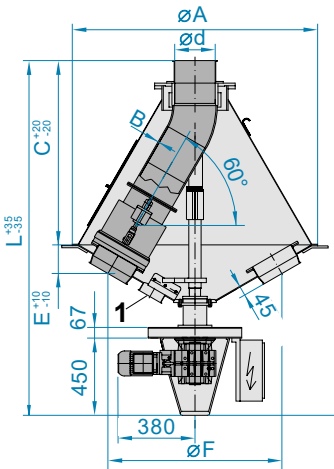
DN	Ø d	A	B	C	E	F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54081060	10801.00
120	118	1200	5.0	946	120	932	1865	54081260	11217.00
150	148	1200	5.6	939	125	914	1858	54081560	11335.00
175	173	1200	5.4	910	135	880	1829	54081760	11626.00
200	198	1200	6.3	910	140	862	1829	54082060	11923.00
250	248	1600	6.3	1215	155	1210	2250	54082560	13715.00
300	298	1600	7.1	1196	165	1176	2231	54083060	15043.00

10 outlets

DN	Ø d	A	B	C	E	F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54101060	11248.00
120	118	1200	5.0	946	120	932	1865	54101260	11571.00
150	148	1200	5.6	939	125	914	1858	54101560	11660.00
175	173	1200	5.4	910	135	880	1829	54101760	12105.00
200	198	1600	6.3	1256	140	1262	2291	54102060	13869.00
250	248	1600	6.3	1215	155	1210	2250	54102560	14214.00
300	298	2280	7.1	1785	165	1856	3016	54103060	16980.00

12 outlets

DN	Ø d	A	B	C	E	F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54121060	11652.00
120	118	1200	5.0	946	120	932	1865	54121260	11916.00
150	148	1600	5.6	1285	125	1314	2320	54121560	13457.00
175	173	1600	5.4	1257	135	1280	2292	54121760	14133.00
200	198	1600	6.3	1256	140	1262	2291	54122060	14263.00
250	248	2280	6.3	1804	155	1890	3035	54122560	17055.00
300	298	2280	7.1	1785	165	1856	3016	54123060	18264.00



1 Spillage outlet

14 outlets

DN	Ø d	A	B	C	E	F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54141060	12071.00
120	118	1200	5.0	946	120	932	1865	54141260	12245.00
150	148	1600	5.6	1285	125	1314	2320	54141560	13837.00
175	173	1600	5.4	1257	135	1280	2292	54141760	14389.00
200	198	2280	6.3	1845	140	1942	3076	54142060	17202.00
250	248	2280	6.3	1804	155	1890	3035	54142560	17456.00
300	298	2280	7.1	1785	165	1856	3016	54143060	19344.00

16 outlets

DN	Ø d	A	B	C	E	F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54161060	12325.00
120	118	1600	5.0	1293	120	1332	2328	54161260	13844.00
150	148	1600	5.6	1285	125	1314	2320	54161560	14142.00
175	173	2280	5.4	1845	135	1960	3076	54161760	17386.00
200	198	2280	6.3	1845	140	1942	3076	54162060	17531.00
250	248	2280	6.3	1804	155	1890	3035	54162560	17954.00

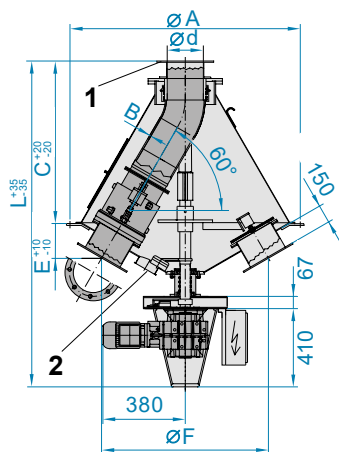
18 and 20 outlets

DN	Ø d	A	B	C	E	F	L	18 outlets		20 outlets	
								Item no.	€	Item no.	€
100	98	1600	5.0	1316	112	1358	2351	54181060	13858.00	54201060	14085.00
120	118	1600	5.0	1293	120	1332	2328	54181260	14125.00	54201260	14349.00
150	148	2280	5.6	1874	125	1994	3105	54181560	17464.00	54201560	17673.00
175	173	2280	5.4	1845	135	1960	3076	54181760	17523.00	54201760	17858.00
200	198	2280	6.3	1845	140	1942	3076	54182060	17625.00	54202060	17998.00



MULTI-WAY DISTRIBUTORS

Swivel pipe switches



- 1 Inlet and outlets with welded-on flanges according to DIN 1092-1, PN 10
- 2 Spillage outlet

SWIVEL PIPE SWITCHES 60°

2340

- All dimensions are approximate
- Inlet and outlets with welded-on flanges according to DIN EN 1092-1, PN 10, 10 mm thick
- Hole pattern axial-free to inspection flap (without counter flange)
- Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	A	B	C	E	F	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
80	80	1200	5.0	998	193	1096	1917	53040860	12445.00	53060860	13123.00
100	99	1200	8.0	970	203	1064	1889	53041060	12469.00	53061060	13155.00
120	118	1200	8.0	946	211	1038	1865	53041260	12869.00	53061260	13597.00
150	148	1200	10.0	939	216	1020	1858	53041560	13570.00	53061560	14309.00
200	197	1200	11.0	910	231	968	1829	53042060	16815.00	53062060	17718.00

8 outlets

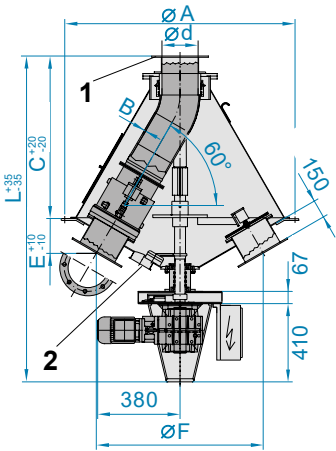
DN	Ø d	A	B	C	E	F	L	8 outlets	
								Item no.	€
80	80	1200	5.0	998	193	1096	1917	53080860	13833.00
100	99	1200	8.0	970	203	1064	1889	53081060	13863.00
120	118	1200	8.0	946	211	1038	1865	53081260	14370.00
150	148	1200	10.0	939	216	1020	1858	53081560	15119.00
200	197	1200	11.0	910	231	968	1829	53082060	18607.00

10 and 12 outlets

DN	Ø d	A	B	C	E	F	L	10 outlets		12 outlets	
								Item no.	€	Item no.	€
80	80	1200	5.0	998	193	1096	1917	53100860	14533.00	53120860	15231.00
100	99	1200	8.0	970	203	1064	1889	53101060	14705.00	53121060	15293.00
120	118	1200	8.0	946	211	1038	1865	53101260	15102.00	53121260	15855.00
150	148	1200	10.0	939	216	1020	1858	53101560	15889.00		
200	197	1600	11.0	1256	231	1368	2291	53102060	19508.00	53122060	20437.00

14 outlets

DN	Ø d	A	B	C	E	F	L	14 outlets	
								Item no.	€
80	80	1200	5.0	998	193	1096	1917	53140860	15934.00
100	99	1200	8.0	970	203	1064	1889	53141060	16008.00



- 1 Inlet and outlets with welded-on flanges according to DIN 1092-1, PN 10
- 2 Spillage outlet

4 and 6 outlets, product-contacting parts made of stainless steel

DN	Ø d	A	B	C	E	F	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
80	80	1200	4.5	998	193	1096	1917	63040860	14838.00	63060860	15617.00
100	99	1200	7.1	970	203	1064	1889	63041060	14890.00	63061060	15644.00
120	118	1200	9.5	946	211	1038	1865	63041260	15376.00	63061260	16205.00
150	148	1200	8.5	939	216	1020	1858	63041560	16309.00	63061560	17086.00
200	197	1200	11.0	910	231	968	1829	63042060	20101.00	63062060	21084.00

8 outlets, product-contacting parts made of stainless steel

DN	Ø d	A	B	C	E	F	L	8 outlets	
								Item no.	€
80	80	1200	4.5	998	193	1096	1917	63080860	16396.00
100	99	1200	7.1	970	203	1064	1889	63081060	16432.00
120	118	1200	9.5	946	211	1038	1865	63081260	17015.00
150	148	1200	8.5	939	216	1020	1858	63081560	17944.00
200	197	1200	11.0	910	231	968	1829	63082060	22053.00

10 and 12 outlets, product-contacting parts made of stainless steel

DN	Ø d	A	B	C	E	F	L	10 outlets		12 outlets	
								Item no.	€	Item no.	€
80	80	1200	4.5	998	193	1096	1917	63100860	17171.00	63120860	17954.00
100	99	1200	7.1	970	203	1064	1889	63101060	17218.00	63121060	18014.00
120	118	1200	9.5	946	211	1038	1865	63101260	17843.00	63121260	18670.00
150	148	1200	8.5	939	216	1020	1858	63101560	18790.00		
200	197	1600	11.0	1256	231	1368	2291	63102060	23047.00	63122060	24160.00

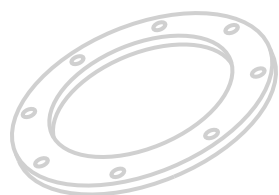
14 outlets, product-contacting parts made of stainless steel

DN	Ø d	A	B	C	E	F	L	14 outlets	
								Item no.	€
80	80	1200	4.5	998	193	1096	1917	63140860	18722.00
100	99	1200	7.1	970	203	1064	1889	63141060	18796.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THE WHOLE JACOB DIVERSITY –
WITH LOOSE AND WELDED FLANGES



THE FLANGE RANGE

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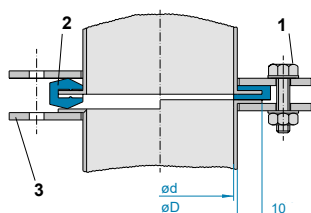


FOR LARGE DIAMETERS: FLANGES

The whole world of JACOBS diversity is also available with a flange connection. Larger diameters with a high level of tightness are available in particular for large ventilation systems extracting dust, oil mist or other condensates. JACOBS's range of flanges provides the ideal solution for this purpose.

IMPLEMENTATION

JACOBS flanged pipework is available in wall thicknesses from 1 to 3 mm. Pipe components and pressed components for loose flange connections from DN 350 to 1250 mm are provided with a 10 mm lip. The flanges are pre-fitted and are connected with a U-shaped seal and nuts and bolts. The U-shaped seal for loose flanges is fitted over one of the lipped ends. The flanges are then bolted to each other. Diameters 1400 and 1600 mm are provided with welded-on flanges in the standard version.



JACOBS loose flange system

1 Mounting bolts

2 U-shaped seal for 10 mm lip

3 Loose flange to DIN 24154, P2

Mild steel:

DN 350 to 630 mm:

- Surface powder-coated, conductive, RAL 7032 (pebble grey) or galvanised
- Electrostatic continuity can be achieved through the use of the EPDM U-shaped seal or the earthing lug with earthing wire

DN 710 to 1600 mm:

- Corrosion protection: Surface spray-primed in colour RAL 7032 (pebble grey) or galvanised
- Priming coat is not conductive
- Electrostatic continuity can be achieved through the use of earthing lugs in conjunction with earthing wire

DN 1400 to 1600 mm:

- Standard version with 3 mm wall thickness
- With welded-on flanges
- Surface spray-primed in colour RAL 7032 (pebble grey) or galvanised

All mass-produced parts made of mild steel are delivered with earthing lugs to safeguard the loose flanges.

Stainless steel:

- DN 350 to 1250 mm:
 - Version with galvanised loose flanges
 - Alternatively: Loose flange in shotblasted stainless steel
 - Surface shotblasted
- DN 1400 to 1600 mm
 - Standard version with 3 mm wall thickness
 - With welded-on stainless steel flanges
 - All stainless steel parts >DN 1250 mm are pickled and passivated

Refer to chapter 1, Materials and processing, for more information on materials and tolerances.

See chapter 1, Connecting systems and dimensions, for an overview of internal diameters.

SEALS




JACOBS has U-shaped seals and ring seals in a variety of materials to obtain the best possible seal even with the loose flange system.

- Tear-resistant, FOOD GRADE and resistant to many aggressive chemicals thanks to vulcanisation
- Maximum tightness through an ideal profile
- Resistance to a broad range of substances due to large selection of materials available
- Metal-detectable and FOOD GRADE thanks to special materials (DETECTABLE DESIGN line)

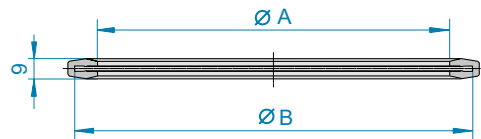


U-shaped seals for loose flange system with 10 mm lip



NBR	Silicone 	Silicone 	EPDM	Viton (FKM) 
grey white	beige	blue	black	red
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant	EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C	-30°C to +120°C	-18°C to +230°C
glued	vulcanised	vulcanised	vulcanised	vulcanised
		metal-detectable	electrostatically conductive	

Profile for loose flange pipework with a 10 mm lip



Use for 1-3 mm pipework system




For connecting:

- 2 pipe components with loose flange from > DN 350 mm with 10 mm lip
- Pipe component with a welded flange in conjunction with a pipe component with a loose flange

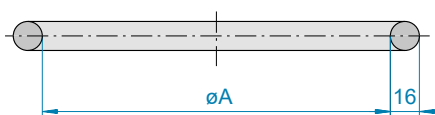
A U-shaped seal (chapter 2) must be used for pipe components with a loose flange diameter of up to 350 mm and a 6 mm lip

Ring seals for push-in pipes with a flange connection




NBR	Silicone 	Silicone 	EPDM	Viton (FKM) 
grey white	beige	blue	black	red
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant	EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C	-30°C to +120°C	-18°C to +200°C
glued	vulcanised	vulcanised	vulcanised	vulcanised
		metal-detectable	electrostatically conductive	

Profile diameter: 16 mm



Use for 1-3 mm pipework system

 FOOD GRADE
EC 1935/2004 plus FDA compliant

 DETECTABLE DESIGN
Metal-detectable



Flat seals for loose flanges and welded flanges



NBR	Silicone F	Silicone F D	EPDM
grey white	opaque	blue	black
EC 1935/2004 up to DN 1000 mm	FOOD GRADE: EC 1935/2004 and FDA up to DN 1000 mm	FOOD GRADE: EC 1935/2004 and FDA up to DN 1000 mm	
-30°C to +80°C	-60°C to +230°C	-60°C to +230°C	-40°C to +100°C
Adhesive-free up to DN 1000 mm	Adhesive-free up to DN 1000 mm	Adhesive-free up to DN 1000 mm	Adhesive-free up to DN 1000 mm
from DN 1120 mm glued from segments	from DN 1120 mm glued from segments	from DN 1120 mm glued from segments	from DN 1120 mm glued from segments
		metal-detectable	electrostatically conductive

- Thickness: DN 350 to 800 mm: 3 mm, DN 900 to 1600 mm: 4 mm
- Temperatures apply for adhesive-free silicone seals up to DN 1000 mm

Seals for cleaning pipes

- In stainless steel version, door sealed with silicone seal (beige)
- Alternatively, also available in DETECTABLE DESIGN line with blue silicone seal
- In version with powder-coated or galvanised surfaces, door sealed with NBR seal



NBR	Silicone F	Silicone F D
grey white	beige	blue
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C
glued	vulcanised	vulcanised
		metal-detectable

APPLICATIONS

Use in the area of bulk goods conveying and ventilation systems at over-pressures of 50,000 Pa (500 mbar, 5000 mm WG). DN 900 to 1250 mm with loose flanges are only recommended for use in air. In the case of higher tightness requirements, we recommend welded-on flanges from diameters of 900 mm.

Pipes in 1 mm wall thickness and cleaning pipes for ventilation systems up to 100 mbar over-pressure can be used.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



EXPLOSION PROTECTION

Flanged pipework was tested in the following configuration up to 3 bar over-pressure:

Pipes	2 mm thick up to DN 800 mm
Segments 5° to 45°	2 mm thick up to DN 800 mm
Bends 30° to 90°	2 mm thick up to DN 800 mm
T-pieces	2 mm thick up to DN 500 mm, 3 mm thick up to DN 800 mm
Forks 30° and 45°	2 mm thick up to DN 500 mm, 3 mm thick up to DN 630 mm
Cone pieces	2 mm thick up to DN 630 mm, 3 mm thick up to DN 800 mm
Symmetrical forks 60°	2 mm thick up to DN 500 mm, 3 mm thick up to DN 800 mm
Symmetrical forks 90°	3 mm thick up to DN 630 mm

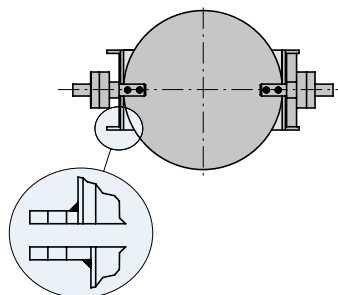
- For shock explosion proof pipe connections, bolt quality 8.8 is required
- Bolt torque: M 10 = 40 Nm, M 12 = 60 Nm

Cleaning pipes are not available in a shock explosion proof version. Alternatively, inspection pipes (diameter of opening 115 mm) up to DN 630 mm pipe diameter can be delivered in a special version.

YOUR INDIVIDUAL PIPEWORK SYSTEM

We can supply your individual pipework system on request. Prices on request.

- JACOB pipework system with welded-on flanges
- Over 3,000 special colours
- Earthing lugs on request
- Additional diameters and wall thicknesses
- Stainless steel with pickled and passivated surface, including up to a diameter of 1250 mm
- Stainless steel in other steel qualities, e.g. 1.4571, AISI 316Ti with flanges in pickled and passivated stainless steel
- 3 mm pipes and pressed components on request, stainless steel only available with welded-on flanges



Special version: Throttle valve from DN 400 mm with glued silicone seal
– Without cross-section constriction
– Shaft with ball bearings and sealed with a Viton O-ring

THROTTLE VALVES

- Diameters: DN 350 to 1250 mm
- DN 350 to 800 mm available with loose flange according to DIN 24154, P2
- From DN 900 mm, 3 mm wall thickness with welded-on flanges according to DIN 24154, P2
- Shafts with ball bearings and sealed with Viton O-rings
- DN 350 and 400 mm also available with 6 mm lip, see chapter 8

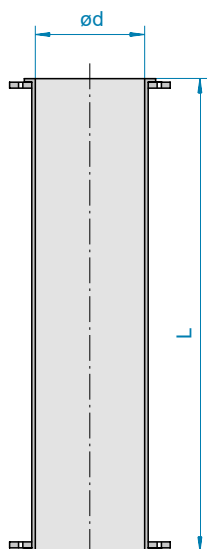
Special versions available – prices on request

- From DN 400 mm with glued silicone inner flap seal and welded-on flanges according to DIN 24154, P2, but without counter-flange (see drawing)
- Version with pneumatic or electric actuator



THE FLANGE RANGE

Welded pipes



The pipe length and diameter DN are nominal dimensions, the actual length is indicated in L

PIPES 2000 MM

6010



- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated and galvanised (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		1 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	1980	40.60	21351010	82.40	22351010	113.00	21352010	117.00	22352010	175.50
400	398	1980	46.20	21401010	111.50	22401010	152.00	21402010	148.00	22402010	223.50
450	448	1980	52.10	21451010	129.00	22451010	193.50	21452010	170.00	22452010	277.50
500	498	1980	57.90	21501010	137.50	22501010	210.00	21502010	186.50	22502010	305.50
560	558	1980	64.70			22561010	237.00			22562010	367.00
630	628	1980	75.00			22631010	265.00			22632010	417.50
710	707	1980	84.00			22711010	365.50			22712010	485.00
800	797	1980	100.00			22801010	423.00			22802010	560.50
900	897	1980	108.92			229910104090	476.50			229920104090	703.00
1000	998	1980	121.14			229910104100	535.00			229920104100	833.50
1120	1118	1980	146.60			229910104112	644.00			229920104112	983.00
1250	1248	1980	163.46			229910104125	732.00			229920104125	1107.00
1400	1398	2000	253.10			239910105140*	1300.00			239920105140*	1887.00
1600	1598	2000	288.86			239910105160*	1603.00			239920105160*	2274.00


*3 mm

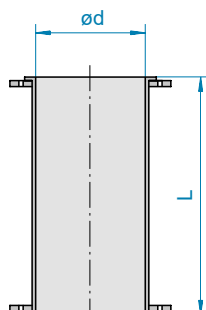
Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	Stainless steel with galvanised loose flanges 				Stainless steel with stainless steel loose flange, shotblasted 			
				1 mm		2 mm		1 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	1980	40.60	21353010	215.00	22353010	358.00	213530103	291.00	223530103	434.00
400	398	1980	46.20	21403010	268.00	22403010	414.00	214030103	355.50	224030103	501.50
450	448	1980	52.10	21453010	310.50	22453010	460.50	214530103	400.50	224530103	550.50
500	498	1980	57.90	21503010	358.50	22503010	540.50	215030103	448.50	225030103	630.50
560	558	1980	64.70			22563010	587.50			225630103	761.00
630	628	1980	75.00			22633010	649.00			226330103	814.00
710	707	1980	84.00			22713010	680.00			227130103	850.50
800	797	1980	100.00			22803010	806.00				
900	897	1980	108.92			229930104090	944.00				
1000	998	1980	121.14			229930104100	1087.00				
1120	1118	1980	146.60			229930104112	1260.00				
1250	1248	1980	163.46			229930104125	1445.00				
1400	1398	2000	253.10							239930105140*	2722.00
1600	1598	2000	288.86							239930105160*	3293.00

*3 mm

 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar



The pipe length and diameter DN are nominal dimensions, the actual length is indicated in L

PIPES 1000 MM



6010

Powder-coated and galvanised (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		1 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	980	22.70	21351020	59.00	22351020	70.20	21352020	82.20	22352020	116.50
400	398	980	25.30	21401020	69.40	22401020	91.90	21402020	95.20	22402020	135.00
450	448	980	29.40	21451020	79.80	22451020	114.00	21452020	109.50	22452020	165.50
500	498	980	33.20	21501020	85.50	22501020	128.00	21502020	119.50	22502020	183.00
560	558	980	36.60			22561020	141.50			22562020	224.00
630	628	980	45.00			22631020	157.50			22632020	249.00
710	707	980	48.00			22711020	191.50			22712020	277.00
800	797	980	56.00			22801020	221.00			22802020	325.50
900	897	980	63.63			229910204090	273.00			229920204090	405.00
1000	998	980	70.77			229910204100	354.00			229920204100	536.50
1120	1118	980	90.20			229910204112	452.50			229920204112	660.00
1250	1248	980	100.53			229910204125	494.50			229920204125	723.00
1400	1398	1000	147.55			239910205140*	876.00			239920205140*	1218.00
1600	1598	1000	168.23			239910205160*	1062.00			239920205160*	1452.00


*3 mm

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	Stainless steel with galvanised loose flanges 				Stainless steel with stainless steel loose flange, shotblasted 			
				1 mm		2 mm		1 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	980	22.70	21353020	139.50	22353020	207.50	213530203	215.50	223530203	283.50
400	398	980	25.30	21403020	175.00	22403020	248.00	214030203	262.50	224030203	335.50
450	448	980	29.40	21453020	191.00	22453020	266.50	214530203	281.00	224530203	356.50
500	498	980	33.20	21503020	212.00	22503020	304.50	215030203	302.00	225030203	394.50
560	558	980	36.60			22563020	352.00			225630203	525.50
630	628	980	45.00			22633020	396.50			226330203	561.50
710	707	980	48.00			22713020	432.00			227130203	602.50
800	797	980	56.00			22803020	521.00				
900	897	980	63.63			229930204090	607.50				
1000	998	980	70.77			229930204100	711.50				
1120	1118	980	90.20			229930204112	832.50				
1250	1248	980	100.53			229930204125	933.50				
1400	1398	1000	147.55							239930205140*	1875.00
1600	1598	1000	168.23							239930205160*	2211.00

*3 mm

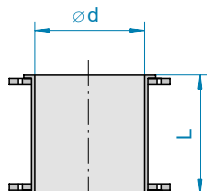
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar



THE FLANGE RANGE

Welded pipes



The pipe length and diameter DN are nominal dimensions, the actual length is indicated in L

PIPES 500 MM



6010

Powder-coated and galvanised (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		1 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	480	14.60	21351030	44.80	22351030	50.30	21352030	61.10	22352030	80.10
400	398	480	16.30	21401030	51.80	22401030	62.60	21402030	69.70	22402030	91.30
450	448	480	18.50	21451030	58.70	22451030	73.80	21452030	79.60	22452030	111.50
500	498	480	20.60	21501030	62.20	22501030	82.30	21502030	84.60	22502030	118.50
560	558	480	22.60			22561030	94.20			22562030	152.50
630	628	480	25.40			22631030	103.50			22632030	174.00
710	707	480	32.00			22711030	135.50			22712030	217.00
800	797	480	36.00			22801030	163.50			22802030	256.00
900	897	480	40.98			229910304090	200.50			229920304090	296.00
1000	998	480	45.60			229910304100	259.50			229920304100	383.00
1120	1118	480	62.00			229910304112	331.50			229920304112	474.50
1250	1248	480	69.07			229910304125	370.00			229920304125	526.00
1400	1398	500	94.78			239910305140*	654.00			239920305140*	873.00
1600	1598	500	107.92			239910305160*	777.00			239920305160*	1027.00


*3 mm

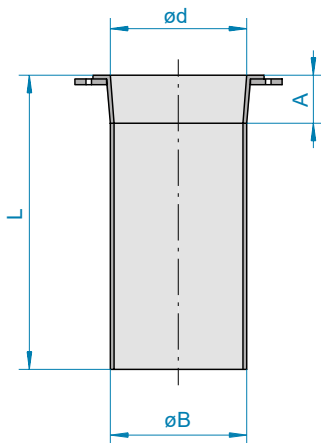
Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm stainless steel with galvanised loose flanges 				2 mm stainless steel with stainless steel shotblasted loose flange 			
				1 mm		2 mm		1 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	480	14.60	21353030	92.50	22353030	126.50	213530303	168.50	223530303	202.50
400	398	480	16.30	21403030	119.50	22403030	157.00	214030303	207.00	224030303	244.50
450	448	480	18.50	21453030	128.00	22453030	178.50	214530303	218.00	224530303	268.50
500	498	480	20.60	21503030	135.00	22503030	200.50	215030303	225.00	225030303	290.50
560	558	480	22.60			22563030	237.50			225630303	411.00
630	628	480	25.40			22633030	262.50			226330303	427.50
710	707	480	32.00			22713030	299.50			227130303	470.00
800	797	480	36.00			22803030	364.50				
900	897	480	40.98			229930304090	432.50				
1000	998	480	45.60			229930304100	521.00				
1120	1118	480	62.00			229930304112	641.50				
1250	1248	480	69.07			229930304125	710.50				
1400	1398	500	94.78							239930305140*	1429.00
1600	1598	500	107.92							239930305160*	1641.00

*3 mm

 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar



PUSH-IN PIPES 1000 MM

6020

- For information on push-in pipe applications, see chapter 3
- One side with loose flange
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Use in conjunction with ring seal and flange for push-in pipe

Powder-coated and galvanised (dimensions for 2 mm pipework)

DN	$\varnothing d$	A	B	L	kg	1.5 mm powder-coated		2 mm powder-coated		1.5 mm galvanised		2 mm galvanised	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	350	50	345	986	18.00	21351110	73.60	22351110	86.00	21352110	101.00	22352110	126.50
400	399	50	394	986	22.00	21401110	91.20	22401110	107.00	21402110	122.00	22402110	153.00
450	448	50	444	986	29.45	21451110	109.50	22451110	122.50	21452110	136.50	22452110	194.50
500	498	50	494	986	29.40	21501110	123.00	22501110	142.00	21502110	145.00	22502110	212.00
560	558	50	554	986	32.00			22561110	165.50			22562110	232.50
630	628	50	624	986	36.00			22631110	178.50			22632110	243.50
710	707	50	703	986	42.00			22711110	198.00			22712110	284.00
800	797	100	792	986	40.00			22801110	251.50			22802110	325.50

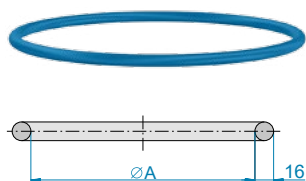
Stainless steel (dimensions for 1 mm pipework)

DN	$\varnothing d$	A	B	L	kg	1 mm stainless steel with galvanised loose flanges		2 mm stainless steel with galvanised loose flange	
						Item no.	€	Item no.	€
350	350	50	345	986	18.00	21353110	176.00	22353110	231.00
400	399	50	394	986	22.00	21403110	190.00	22403110	278.00
450	448	50	444	986	29.45	21453110	198.00	22453110	291.50
500	498	50	494	986	29.40	21503110	221.00	22503110	328.00
560	558	50	554	986	32.00			22563110	362.50
630	628	50	624	986	36.00			22633110	411.00
710	707	50	703	986	42.00			22713110	480.00
800	797	100	792	986	40.00			22803110	552.00



THE FLANGE RANGE

Push-in pipes and accessories



RING SEALS FOR PUSH-IN PIPES WITH A FLANGE CONNECTION

6030

- Usable for 1-3 mm pipework system
- Use in conjunction with push-in pipe and flange for push-in pipe
- Protect pipework against axial displacement
- Admissible differential pressure: approx. 50 mbar
- Please also read and take into account the technical information given at the beginning of this chapter

Use for 1-3 mm pipework system

DN	A	kg	NBR grey	Silicone beige	FOOD	Silicone blue	FOOD	EPDM black	FKM red	FOOD
			Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	327	0.34	203561177	18.90	2035711709	32.80	20357117091	41.80	2035811759	20.50
400	373	0.38	204061177	18.90	2040711709	34.20	20407117091	44.10	2040811759	21.00
450	421	0.42	204561177	21.10	2045711709	37.20	20457117091	47.40	2045811759	22.70
500	468	0.48	205061177	22.50	2050711709	40.60	20507117091	52.70	2050811759	24.00
560	524	0.54	205661177	24.40	2056711709	44.60	20567117091	57.80	2056811759	25.90
630	591	0.60	206361177	27.10	2063711709	49.20	20637117091	64.10	2063811759	28.40
710	666	0.69	207161177	29.20	2071711709	54.10	20717117091	70.50	2071811759	30.50
800	761	0.78	208061177	35.90	2080711709	64.70	20807117091	82.30	2080811759	33.30
									20809117	155.50



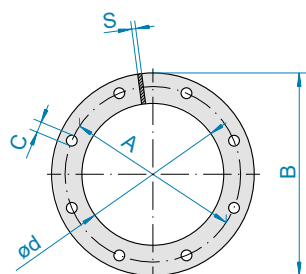
FLANGES FOR PUSH-IN PIPES

6040

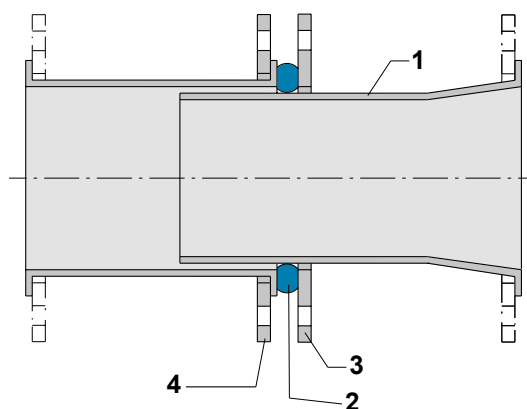
- Use in conjunction with ring seal for push-in pipe and standard pipe with loose flange
- Use 50 mm long mounting bolts

Powder-coated, galvanised and stainless steel

DN	Ø d	A	B	C	E	S	kg	Powder-coated		Galvanised		Stainless steel	
								Item no.	€	Item no.	€	Item no.	€
350	348	405	438	11.5	8	8	3.46	20351715	25.70	20352715	32.10	20353715	50.40
400	398	448	488	11.5	12	8	3.88	20401715	29.10	20402715	36.30	20403715	56.10
450	448	497	538	11.5	12	8	4.33	20451715	32.10	20452715	40.40	20453715	63.60
500	498	551	588	11.5	12	8	4.77	20501715	38.90	20502715	48.90	20503715	69.90
560	556	629	656	14	16	8	5.86	20561715	65.20	20562715	78.20	20563715	130.00
630	626	698	726	14	16	8	6.56	20631715	72.70	20632715	86.80	20633715	144.50
710	705	775	805	14	16	8	7.34	20711715	97.00	20712715	127.00	20713715	171.00
800	795	861	895	14	24	8	8.16	20801715	117.50	20802715	158.00	20803715	200.00



E = No. of holes

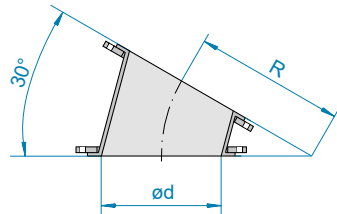


- 1 Push-in pipe
- 2 Ring seal for push-in pipe
- 3 Flange for push-in pipe
- 4 Straight pipe with loose flange

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

Segments and bends



SEGMENTS 30°

6100

- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel

- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	438	9.40	21351320	53.80	22351320	57.30
400	398	500	11.20	21401320	59.90	22401320	69.60
450	448	563	14.40	21451320	68.00	22451320	74.10
500	498	625	17.10	21501320	74.80	22501320	79.70
560	558	700	17.00			22561320	95.70
630	628	788	26.00			22631320	106.50
710	707	888	30.00			22711320	138.00
800	797	1000	38.00			22801320	211.50
900	897	1126	43.88			229913204090	277.00
1000	998	1250	51.89			229913204100	345.00
1120	1118	1400	73.28			229913204112	447.50
1250	1248	1563	86.79			229913204125	534.50
1400	1398	1751	134.58			239913205140*	992.50
1600	1598	2000	168.41			239913205160*	1225.00

*3 mm

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	438	9.40	21352320	68.30	22352320	76.50
400	398	500	11.20	21402320	78.80	22402320	93.50
450	448	563	14.40	21452320	88.00	22452320	105.50
500	498	625	17.10	21502320	96.70	22502320	117.00
560	558	700	17.00			22562320	125.50
630	628	788	26.00			22632320	148.00
710	707	888	30.00			22712320	171.50
800	797	1000	38.00			22802320	272.00
900	897	1126	43.88			229923204090	380.50
1000	998	1250	51.89			229923204100	486.50
1120	1118	1400	73.28			229923204112	619.00
1250	1248	1563	86.79			229923204125	735.50
1400	1398	1751	134.58			239923205140*	1315.00
1600	1598	2000	168.41			239923205160*	1630.00

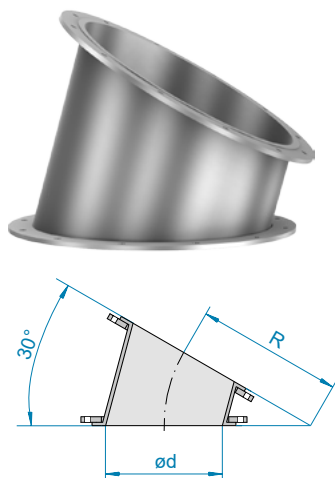
*3 mm

Shock explosion proof tested up to 3 bar



THE FLANGE RANGE

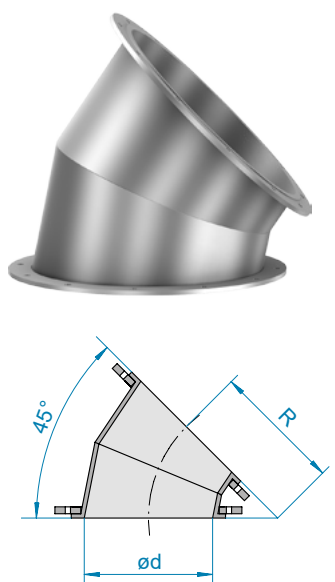
Segments and bends



Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges				F	Stainless steel with stainless steel loose flange, shotblasted				F
				1.5 mm		2 mm			2 mm				
				Item no.	€	Item no.	€		Item no.	€			
350	349	438	9.40	21353320	104.50	22353320	114.00		223533203		190.00		
400	398	500	11.20	21403320	121.00	22403320	140.50		224033203		228.00		
450	448	563	14.40	21453320	136.00	22453320	150.00		224533203		240.00		
500	498	625	17.10	21503320	147.00	22503320	162.00		225033203		252.00		
560	558	700	17.00			22563320	195.00		225633203		368.50		
630	628	788	26.00			22633320	229.00		226333203		394.00		
710	707	888	30.00			22713320	263.50		227133203		434.00		
800	797	1000	38.00			22803320	326.00						
900	897	1126	43.88			229933204090	447.00						
1000	998	1250	51.89			229933204100	587.00						
1120	1118	1400	73.28			229933204112	734.00						
1250	1248	1563	86.79			229933204125	892.00						
1400	1398	1751	134.58						239933205140*		1978.00		
1600	1598	2000	168.41						239933205160*		2370.00		

*3 mm



SEGMENTS 45°

6110

- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

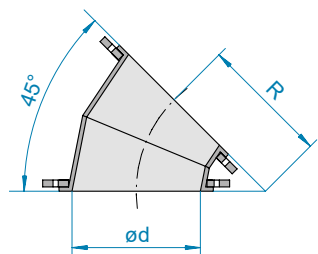
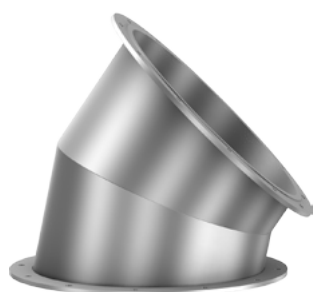
DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	350	11.40	21351330	83.50	22351330	96.70
400	398	400	13.30	21401330	95.80	22401330	109.00
450	448	450	16.40	21451330	106.00	22451330	123.50
500	498	500	19.00	21501330	121.00	22501330	135.50
560	558	560	21.00			22561330	164.50
630	628	630	27.00			22631330	193.00
710	707	710	34.00			22711330	220.50
800	797	800	42.00			22801330	247.00
900	897	900	51.53			229913304090	323.50
1000	998	1000	61.30			229913304100	414.50
1120	1118	1120	85.15			229913304112	535.00
1250	1248	1250	101.59			229913304125	655.50
1400	1398	1400	162.30			239913305140*	1202.00
1600	1598	1600	204.68			239913305160*	1499.00

*3 mm

2 lobster back segments 22.5°

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar





2 lobster back segments 22.5°

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	350	11.40	21352330	105.00	22352330	119.50
400	398	400	13.30	21402330	118.50	22402330	135.00
450	448	450	16.40	21452330	131.00	22452330	148.50
500	498	500	19.00	21502330	149.00	22502330	170.00
560	558	560	21.00			22562330	203.50
630	628	630	27.00			22632330	246.50
710	707	710	34.00			22712330	270.50
800	797	800	42.00			22802330	304.50
900	897	900	51.53			229923304090	426.50
1000	998	1000	61.30			229923304100	559.00
1120	1118	1120	85.15			229923304112	724.00
1250	1248	1250	101.59			229923304125	882.50
1400	1398	1400	162.30			239923305140*	1567.00
1600	1598	1600	204.68			239923305160*	1959.00


*3 mm

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges 				Stainless steel with stainless steel loose flange, shotblasted 			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	350	11.40	21353330	161.00	22353330	188.50	213533303	237.00	223533303	264.50
400	398	400	13.30	21403330	201.00	22403330	220.00	214033303	288.50	224033303	307.50
450	448	450	16.40	21453330	224.50	22453330	254.00	214533303	314.50	224533303	344.00
500	498	500	19.00	21503330	252.00	22503330	277.50	215033303	342.00	225033303	367.50
560	558	560	21.00			22563330	333.50			225633303	507.00
630	628	630	27.00			22633330	399.50			226333303	564.50
710	707	710	34.00			22713330	424.00			227133303	594.50
800	797	800	42.00			22803330	458.00				
900	897	900	51.53			229933304090	591.50				
1000	998	1000	61.30			229933304100	770.50				
1120	1118	1120	85.15			229933304112	976.00				
1250	1248	1250	101.59			229933304125	1204.00				
1400	1398	1400	162.30							239933305140*	2524.00
1600	1598	1600	204.68							239933305160*	3083.00

*3 mm

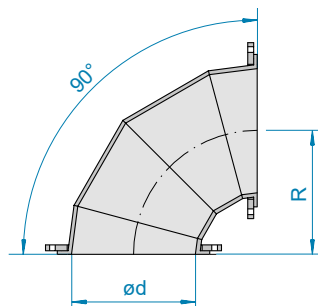
 FOOD GRADE
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar



THE FLANGE RANGE

Segments and bends



4 lobster back segments:
2x30°/2x15°

BENDS $R = 1 D$, 90°

6120

- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	350	16.00	21351339	163.50	22351339	171.00
400	398	400	20.40	21401339	195.50	22401339	204.00
450	448	450	24.40	21451339	210.00	22451339	228.00
500	498	500	24.60	21501339	242.50	22501339	253.00
560	558	560	36.00			22561339	271.50
630	628	630	46.00			22631339	313.50
710	707	710	56.00			22711339	363.00
800	797	800	66.00			22801339	437.50
900	897	900	82.77			229913394090	535.00
1000	998	1000	99.85			229913394100	686.50
1120	1118	1120	133.45			229913394112	876.50
1250	1248	1250	161.74			229913394125	1106.00
1400	1398	1400	275.38			239913395140*	2003.00
1600	1598	1600	352.37			239913395160*	2565.00

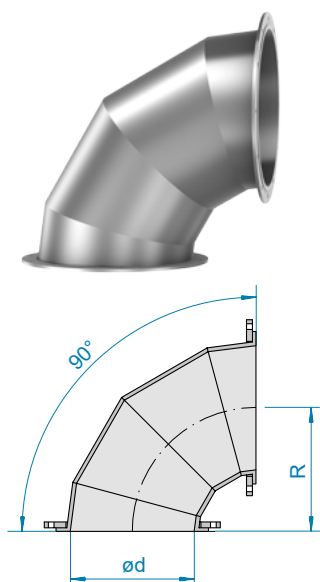
*3 mm

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	350	16.00	21352339	190.00	22352339	198.00
400	398	400	20.40	21402339	229.00	22402339	239.00
450	448	450	24.40	21452339	241.00	22452339	267.50
500	498	500	24.60	21502339	278.50	22502339	302.50
560	558	560	36.00			22562339	346.00
630	628	630	46.00			22632339	402.50
710	707	710	56.00			22712339	468.00
800	797	800	66.00			22802339	572.00
900	897	900	82.77			229923394090	712.50
1000	998	1000	99.85			229923394100	906.00
1120	1118	1120	133.45			229923394112	1163.00
1250	1248	1250	161.74			229923394125	1458.00
1400	1398	1400	275.38			239923395140*	2679.00
1600	1598	1600	352.37			239923395160*	3438.00

*3 mm

Shock explosion proof tested
up to 3 bar



4 lobster back segments:
2x30°/2x15°

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges				F	Stainless steel with stainless steel loose flange, shotblasted				F
				1.5 mm		2 mm			1.5 mm		2 mm		
				Item no.	€	Item no.	€		Item no.	€	Item no.	€	
350	349	350	16.00	21353339	306.00	22353339		213533393	382.00	223533393	395.50		
400	398	400	20.40	21403339	354.50	22403339	370.00	214033393	442.00	224033393	457.50		
450	448	450	24.40	21453339	412.00	22453339	431.00	214533393	502.00	224533393	521.00		
500	498	500	24.60	21503339	466.50	22503339	488.00	215033393	556.50	225033393	578.00		
560	558	560	36.00			22563339	549.50			225633393	723.00		
630	628	630	46.00			22633339	614.00			226333393	779.00		
710	707	710	56.00			22713339	713.50			227133393	884.00		
800	797	800	66.00			22803339	842.00			228033393	1085.00		
900	897	900	82.77			229933394090	1011.00						
1000	998	1000	99.85			229933394100	1279.00						
1120	1118	1120	133.45			229933394112	1643.00						
1250	1248	1250	161.74			229933394125	2024.00						
1400	1398	1400	275.38							239933395140*	4127.00		
1600	1598	1600	352.37							239933395160*	5216.00		

*3 mm

BENDS R = 2 D, 30°

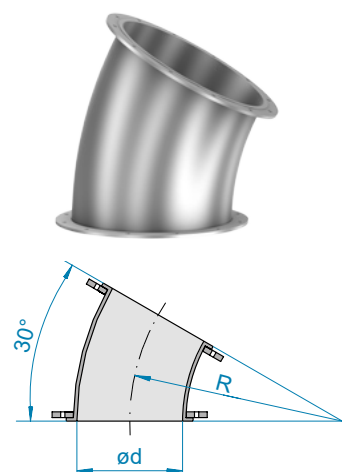
6130

- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

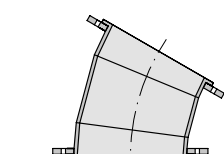
Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	13.20			22351343	93.60
400	398	800	15.20			22401343	110.00
450	448	900	19.00	21451343	127.00	22451343	133.50
500	498	1000	28.00	21501343	143.00	22501343	150.50
560	558	1120	28.00			22561343	180.00
630	628	1260	34.00			22631343	223.00
710	707	1420	42.00			22711343	262.50
800	797	1600	50.50			22801343	334.50
900	897	1800	60.57			229913434090	420.00
1000	998	2000	72.45			229913434100	532.50
1120	1118	2240	99.08			229913434112	683.00
1250	1248	2500	118.94			229913434125	828.00
1400	1398	2800	194.92			239913435140*	1526.00
1600	1598	3200	247.28			239913435160*	1938.00

*3 mm



1 pressed segment 30°



3 lobster back segments:
1x15°/2x7.5°

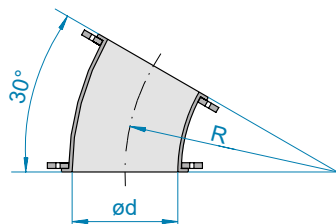
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar

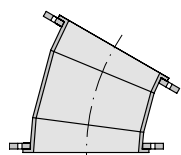


THE FLANGE RANGE

Segments and bends



1 pressed segment 30°





3 lobster back segments:
1 x 15° / 2 x 7.5°

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	13.20			22352343	117.50
400	398	800	15.20			22402343	138.00
450	448	900	19.00	21452343	151.50	22452343	186.00
500	498	1000	23.00	21502343	176.00	22502343	206.00
560	558	1120	28.00			22562343	241.00
630	628	1260	34.00			22632343	299.50
710	707	1420	42.00			22712343	344.50
800	797	1600	50.50			22802343	435.50
900	897	1800	60.57			229923434090	552.00
1000	998	2000	72.45			229923434100	719.00
1120	1118	2240	99.08			229923434112	920.00
1250	1248	2500	118.94			229923434125	1131.00
1400	1398	2800	194.92			239923435140*	2035.00
1600	1598	3200	247.28			239923435160*	2592.00


*3 mm

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges 				Stainless steel with stainless steel loose flange, shotblasted 			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	700	13.20			22353343	182.50	213533433	251.50	223533433	258.50
400	398	800	15.20			22403343	195.50	214033433	278.50	224033433	283.00
450	448	900	19.00	21453343	237.00	22453343	260.00	214533433	327.00	224533433	350.00
500	498	1000	23.00	21503343	263.00	22503343	291.50	215033433	353.00	225033433	381.50
560	558	1120	28.00			22563343	374.00			225633433	547.50
630	628	1260	34.00			22633343	443.00			226333433	608.00
710	707	1420	42.00			22713343	522.50			227133433	693.00
800	797	1600	50.50			22803343	606.50				
900	897	1800	60.57			229933434090	722.00				
1000	998	2000	72.45			229933434100	902.50				
1120	1118	2240	99.08			229933434112	1142.00				
1250	1248	2500	118.94			229933434125	1415.00				
1400	1398	2800	194.92							239933435140*	2937.00
1600	1598	3200	247.28							239933435160*	3652.00

*3 mm

 FOOD GRADE
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar



BENDS $R = 2 D$, 45°

6140

- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

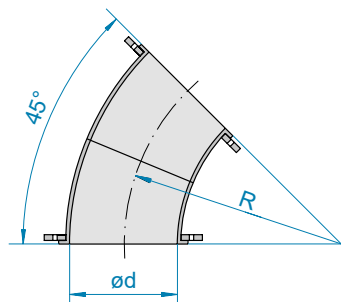
DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	17.12			22351344	122.00
400	398	800	20.00			22401344	152.00
450	448	900	24.20	21451344	166.50	22451344	178.50
500	498	1000	29.50	21501344	184.00	22501344	199.50
560	558	1120	37.00			22561344	236.00
630	628	1260	39.20			22631344	263.50
710	707	1420	54.00			22711344	297.00
800	797	1600	72.76			22801344	371.50
900	897	1800	81.66			229913444090	494.50
1000	998	2000	98.48			229913444100	650.50
1120	1118	2240	131.72			229913444112	822.50
1250	1248	2500	159.59			229913444125	1002.00
1400	1398	2800	271.33			239913445140 *	1882.00
1600	1598	3200	347.09			239913445160 *	2427.00

*3 mm

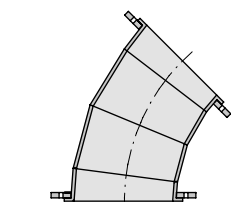
Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	17.12			22352344	151.50
400	398	800	20.00			22402344	188.50
450	448	900	24.20	21452344	197.50	22452344	238.00
500	498	1000	29.50	21502344	218.50	22502344	265.50
560	558	1120	37.00			22562344	307.50
630	628	1260	39.20			22632344	345.50
710	707	1420	54.00			22712344	397.50
800	797	1600	72.76			22802344	483.00
900	897	1800	81.66			229923444090	627.50
1000	998	2000	98.48			229923444100	860.50
1120	1118	2240	131.72			229923444112	1126.00
1250	1248	2500	159.59			229923444125	1366.00
1400	1398	2800	271.33			239923445140 *	2515.00
1600	1598	3200	347.09			239923445160 *	3251.00

*3 mm



2 pressed segments 22.5°



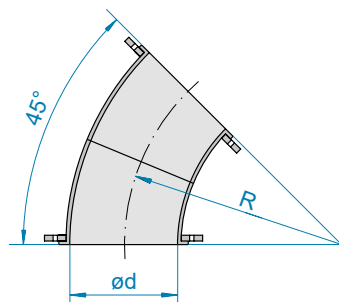
4 lobster back segments:
 $2 \times 15^\circ / 2 \times 7.5^\circ$

Shock explosion proof tested
up to 3 bar

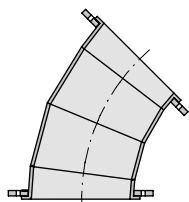


THE FLANGE RANGE

Segments and bends



■ 2 pressed segments 22.5°



■ 4 lobster back segments:
2x 15° / 2x 7.5°

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges		Stainless steel with stainless steel loose flange, shotblasted	
				1.5 mm		2 mm	
				Item no.	€	Item no.	€
350	349	700	17.12			22353344	259.50
400	398	800	20.00			22403344	292.50
450	448	900	24.20	21453344	315.50	22453344	348.00
500	498	1000	29.50	21503344	372.50	22503344	414.00
560	558	1120	37.00			22563344	510.00
630	628	1260	39.20			22633344	608.00
710	707	1420	54.00			22713344	716.50
800	797	1600	72.76			22803344	832.00
900	897	1800	81.66			229933444090	990.50
1000	998	2000	98.48			229933444100	1238.00
1120	1118	2240	131.72			229933444112	1546.00
1250	1248	2500	159.59			229933444125	1890.00
1400	1398	2800	271.33				
1600	1598	3200	347.09				

*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof tested
up to 3 bar



BENDS $R = 2 D, 60^\circ$

6150

- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

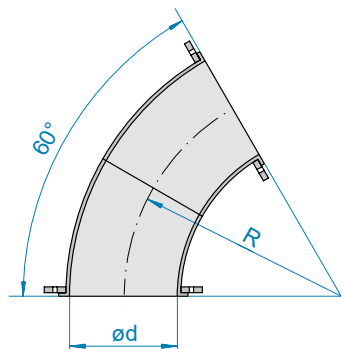
DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	19.40			22351346	159.50
400	398	800	23.80			22401346	184.00
450	448	900	29.40	21451346	203.50	22451346	216.00
500	498	1000	36.00	21501346	236.00	22501346	246.00
560	558	1120	45.00			22561346	314.50
630	628	1260	56.00			22631346	369.00
710	707	1420	69.00			22711346	412.00
800	797	1600	84.00			22801346	494.50
900	897	1800	103.12			229913464090	639.00
1000	998	2000	124.97			229913464100	821.00
1120	1118	2240	164.95			229913464112	1047.00
1250	1248	2500	200.97			229913464125	1281.00
1400	1398	2800	349.13			239913465140 *	2409.00
1600	1598	3200	448.69			239913465160 *	3069.00

*3 mm

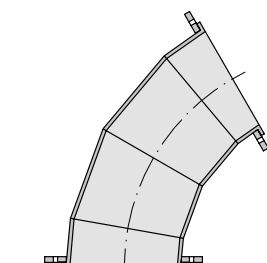
Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	19.40			22352346	196.50
400	398	800	23.80			22402346	226.50
450	448	900	29.40	21452346	254.50	22452346	295.00
500	498	1000	36.00	21502346	284.00	22502346	351.50
560	558	1120	45.00			22562346	414.50
630	628	1260	56.00			22632346	481.00
710	707	1420	69.00			22712346	556.00
800	797	1600	84.00			22802346	695.50
900	897	1800	103.12			229923464090	870.00
1000	998	2000	124.97			229923464100	1131.00
1120	1118	2240	164.95			229923464112	1428.00
1250	1248	2500	200.97			229923464125	1744.00
1400	1398	2800	349.13			239923465140 *	3227.00
1600	1598	3200	448.69			239923465160 *	4118.00

*3 mm



2 pressed segments 30°



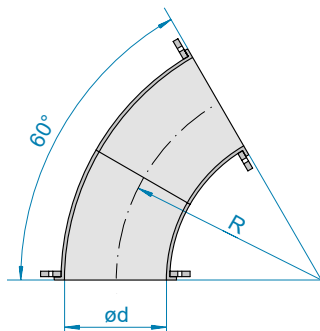
4 lobster back segments:
2 x 20° / 2 x 10°

Shock explosion proof tested
up to 3 bar

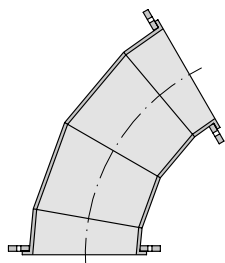


THE FLANGE RANGE

Segments and bends



■ 2 pressed segments 30°



■ 4 lobster back segments:
2 x 20° / 2 x 10°

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges		Stainless steel with stainless steel loose flange, shotblasted	
				1.5 mm		2 mm	
				Item no.	€	Item no.	€
350	349	700	19.40			22353346	332.00
400	398	800	23.80			22403346	386.50
450	448	900	29.40	21453346	455.00	22453346	500.00
500	498	1000	36.00	21503346	492.50	22503346	538.50
560	558	1120	45.00			22563346	643.50
630	628	1260	56.00			22633346	757.50
710	707	1420	69.00			22713346	894.00
800	797	1600	84.00			22803346	1118.00
900	897	1800	103.12			229933464090	1332.00
1000	998	2000	124.97			229933464100	1582.00
1120	1118	2240	164.95			229933464112	1995.00
1250	1248	2500	200.97			229933464125	2448.00
1400	1398	2800	349.13				
1600	1598	3200	448.69				

*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof tested
up to 3 bar



BENDS $R = 2 D$, 90°

6160

- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel

- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

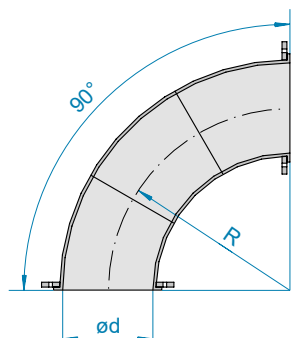
DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	25.20			22351349	212.00
400	398	800	31.80			22401349	247.00
450	448	900	41.50	21451349	310.50	22451349	326.00
500	498	1000	48.60	21501349	349.00	22501349	366.00
560	558	1120	62.00			22561349	423.00
630	628	1260	68.80			22631349	481.00
710	707	1420	94.00			22711349	568.50
800	797	1600	120.00			22801349	711.00
900	897	1800	145.24			229913494090	901.00
1000	998	2000	176.95			229913494100	1160.00
1120	1118	2240	230.14			229913494112	1472.00
1250	1248	2500	282.16			229913494125	1810.00
1400	1398	2800	501.75			239913495140 *	3427.00
1600	1598	3200	648.02			239913495160 *	4393.00

*3 mm

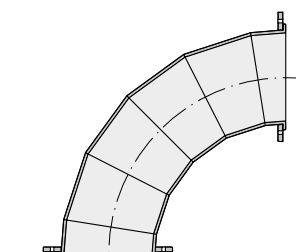
Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	25.20			22352349	259.00
400	398	800	31.80			22402349	302.50
450	448	900	41.50	21452349	365.50	22452349	394.00
500	498	1000	48.60	21502349	410.00	22502349	487.50
560	558	1120	62.00			22562349	594.50
630	628	1260	68.80			22632349	663.00
710	707	1420	94.00			22712349	763.00
800	797	1600	120.00			22802349	939.50
900	897	1800	145.24			229923494090	1192.00
1000	998	2000	176.95			229923494100	1547.00
1120	1118	2240	230.14			229923494112	2002.00
1250	1248	2500	282.16			229923494125	2457.00
1400	1398	2800	501.75			239923495140 *	4602.00
1600	1598	3200	648.02			239923495160 *	5906.00

*3 mm



3 pressed segments 30°



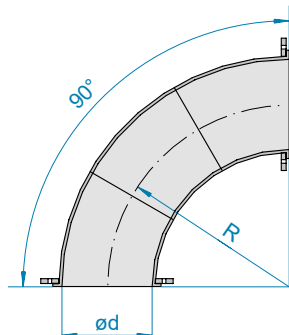
6 lobster back segments:
 $4 \times 18^\circ / 2 \times 9^\circ$

Shock explosion proof tested
up to 3 bar

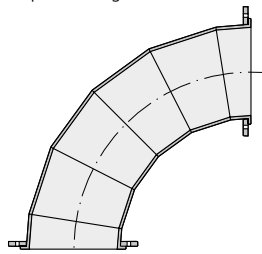


THE FLANGE RANGE

Segments and bends




3 pressed segments 30°




6 lobster back segments:
4 x 18° / 2 x 9°

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges				
				1.5 mm			2 mm	
				Item no.	€		Item no.	€
350	349	700	25.20		22353349	447.00		
400	398	800	31.80		22403349	529.50		
450	448	900	41.50	21453349	623.00	22453349	667.00	
500	498	1000	48.60	21503349	740.00	22503349	792.50	
560	558	1120	62.00			22563349	953.00	
630	628	1260	68.80			22633349	1097.00	
710	707	1420	94.00			22713349	1262.00	
800	797	1600	120.00			22803349	1506.00	
900	897	1800	145.24			229933494090	1852.00	
1000	998	2000	176.95			229933494100	2327.00	
1120	1118	2240	230.14			229933494112	2855.00	
1250	1248	2500	282.16			229933494125	3520.00	
1400	1398	2800	501.75					
1600	1598	3200	648.02					

*3 mm

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

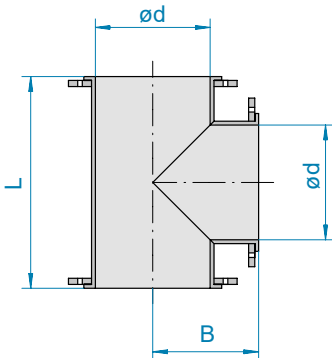
DN	Ø d	R	kg	Stainless steel with stainless steel loose flange, shotblasted				
				1.5 mm		2 mm		
				Item no.	€	Item no.	€	
350	349	700	26.00	213533493	511.00	223533493	523.00	
400	398	800	32.00	214033493	602.50	224033493	617.00	
450	448	900	41.00	214533493	713.00	224533493	757.00	
500	498	1000	50.00	215033493	830.00	225033493	882.50	
560	558	1120	62.00			225633493	1127.00	
630	628	1260	76.00			226333493	1262.00	
710	707	1420	94.00			227133493	1433.00	
800	797	1600	120.00			228033493	1749.00	
900	897	1800	145.24					
1000	998	2000	176.95					
1120	1118	2240	230.14					
1250	1248	2500	282.16					
1400	1398	2800	501.75			239933495140 *	7002.00	
1600	1598	3200	648.02			239933495160 *	8907.00	

*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar

Branch pieces



T-PIECES

6060

- With loose flange on all sides
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- DN 560 and 800 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request

Powder-coated (dimensions for 2 mm pipework)

DN	$\varnothing d$	B	L	kg	1.5 mm powder-coated		2 mm powder-coated	
					Item no.	€	Item no.	€
350	349	275	550	19.80	21351240	146.50	22351240	157.00
400	398	300	600	24.00	21401240	171.50	22401240	184.50
450	448	325	650	27.20	21451240	189.50	22451240	204.50
500	498	350	700	32.20	21501240	220.50	22501240	238.50
560	558	380	760	40.00			22561240	249.00
630	628	415	830	46.40			22631240	277.00
710	707	460	910	58.00			22711240	333.00
800	797	500	1000	64.00			22801240	415.50
900	897	550	1100	77.87			229912404090	504.00
1000	998	600	1200	90.84			229912404100	604.50
1120	1118	660	1320	124.06			229912404112	753.50
1250	1248	725	1450	145.46			229912404125	907.50
1400	1398	800	1600	225.33			239912405140 *	1667.00
1600	1598	900	1800	277.95			239912405160 *	2033.00

*3 mm

Galvanised (dimensions for 2 mm pipework)

DN	$\varnothing d$	B	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
350	349	275	550	19.80	21352240	175.50	22352240	187.50
400	398	300	600	24.00	21402240	206.00	22402240	215.00
450	448	325	650	27.20	21452240	228.00	22452240	236.50
500	498	350	700	32.20	21502240	264.50	22502240	273.50
560	558	380	760	40.00			22562240	302.00
630	628	415	830	46.40			22632240	345.00
710	707	460	910	58.00			22712240	413.50
800	797	500	1000	64.00			22802240	487.00
900	897	550	1100	77.87			229922404090	652.50
1000	998	600	1200	90.84			229922404100	817.00
1120	1118	660	1320	124.06			229922404112	1021.00
1250	1248	725	1450	145.46			229922404125	1201.00
1400	1398	800	1600	225.33			239922405140 *	1993.00
1600	1598	900	1800	277.95			239922405160 *	2428.00

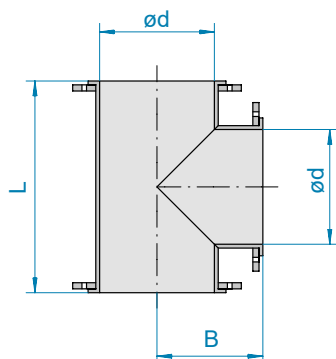
*3 mm

Shock explosion proof tested up to 3 bar



THE FLANGE RANGE

Branch pieces



Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	B	L	kg	Stainless steel with galvanised loose flanges				Stainless steel with stainless steel loose flange, shotblasted			
					1.5 mm		2 mm		1.5 mm		2 mm	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	275	550	19.80	21353240	248.50	22353240	342.50	213532403	362.00	223532403	456.00
400	398	300	600	24.00	21403240	275.00	22403240	388.50	214032403	406.50	224032403	520.00
450	448	325	650	27.20	21453240	300.00	22453240	434.00	214532403	434.50	224532403	568.50
500	498	350	700	32.20	21503240	323.50	22503240	488.50	215032403	458.00	225032403	623.00
560	558	380	760	40.00			22563240	533.50			225632403	793.50
630	628	415	830	46.40			22633240	590.50			226332403	838.00
710	707	460	910	58.00			22713240	661.00			227132403	917.00
800	797	500	1000	64.00			22803240	741.00				
900	897	550	1100	77.87			229932404090	785.00				
1000	998	600	1200	90.84			229932404100	934.50				
1120	1118	660	1320	124.06			229932404112	1154.00				
1250	1248	725	1450	145.46			229932404125	1396.00				
1400	1398	800	1600	225.33							239932405140*	3286.00
1600	1598	900	1800	277.95							239932405160*	3906.00

*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar



FORKS AND CONICAL FORKS 30°

6080



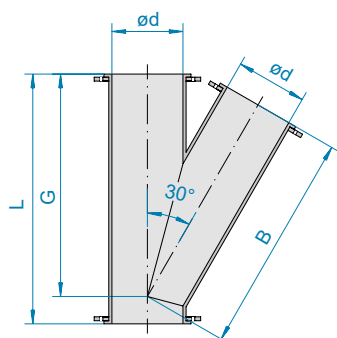
- DN < 350 mm with 6 mm lip for pull-ring connection (without flange)
- DN 560 and 630 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request
- With loose flange on all sides

- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Other combinations of diameters available on request

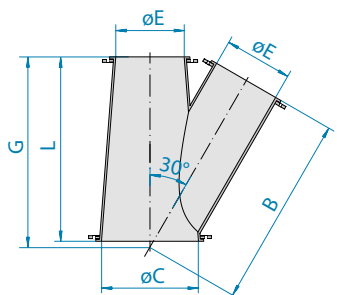
Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	B	C	E	G	L	kg	1.5 mm powder-coated		2 mm powder-coated	
								Item no.	€	Item no.	€
350- 250- 250		727	350	250	727	620	15.60	21351255	201.50	22351255	212.00
350- 350- 350	349	817			828	920	27.75	21351230	179.00	22351230	207.50
400- 300- 300		824	399	300	821	720	20.40	21401255	236.00	22401255	241.50
400- 400- 400	398	925			926	1025	38.80	21401230	225.00	22401230	253.00
450- 350- 350		911	449	350	909	920	36.40	21451255	281.00	22451255	328.50
450- 450- 450	448	1030			1045	1150	48.00	21451230	273.00	22451230	301.50
500- 400- 400		1014	499	399	1009	1025	44.00	21501255	369.00	22501255	426.50
500- 500- 500	498	1127			1138	1250	56.00	21501230	319.50	22501230	331.50
560- 400- 400		1071	558	399	1059	1025	47.60			22561255	446.00
560- 560- 560	558	1275			1280	1400	72.00			22561230	382.50
630- 450- 450		1213	628	448	1195	1150	58.80			22631255	524.00
630- 630- 630	628	1404			1401	1530	84.60			22631230	408.00
710- 500- 500		1327	707	498	1311	1250	72.00			22711255	586.00
710- 710- 710	707	1665			1660	1800	116.00			22711230	545.50
800- 560- 560		1507	797	558	1481	1400	87.00			22801255	750.00
800- 800- 800	797	1823			1818	1970	140.00			22801230	693.00
900- 900- 900	897	2030			2020	2200	165.60			229912304090	855.00
1000-1000-1000	998	2190			2205	2400	194.60			229912304100	1060.00
1120-1120-1120	1118	2480			2490	2700	258.70			229912304112	1287.00
1250-1250-1250	1248	2710			2715	2950	308.46			229912304125	1534.00
1400-1400-1400	1398	2950			2955	3200	516.12			239912305140*	2617.00
1600-1600-1600	1598	3320			3335	3600	650.52			239912305160*	3149.00

*3 mm



Fork 30°



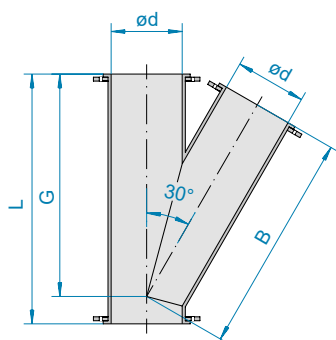
Conical fork 30°

Shock explosion proof tested up to 3 bar

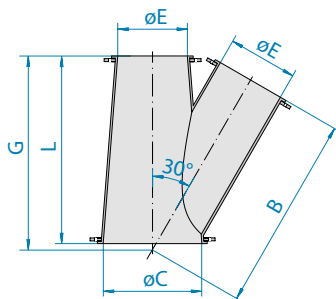


THE FLANGE RANGE

Branch pieces



Fork 30°



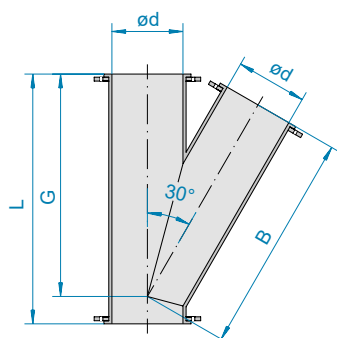
Conical fork 30°

Galvanised (dimensions for 2 mm pipework)

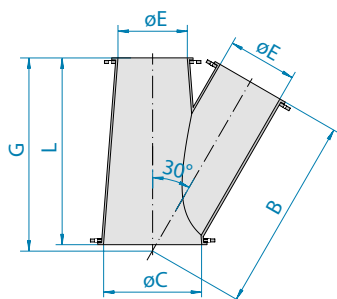
DN	Ø d	B	C	E	G	L	kg	1.5 mm galvanised		2 mm galvanised	
								Item no.	€	Item no.	€
350- 250- 250		727	350	250	727	620	15.60	21352255	238.00	22352255	249.50
350- 350- 350	349	817			828	920	27.75	21352230	219.50	22352230	251.00
400- 300- 300		824	399	300	821	720	20.40	21402255	277.50	22402255	284.50
400- 400- 400	398	925			926	1025	38.80	21402230	271.00	22402230	307.00
450- 350- 350		911	449	350	909	920	36.40	21452255	330.50	22452255	405.50
450- 450- 450	448	1030			1045	1150	48.00	21452230	325.00	22452230	367.50
500- 400- 400		1014	499	399	1009	1025	44.00	21502255	431.00	22502255	527.50
500- 500- 500	498	1127			1138	1250	56.00	21502230	373.00	22502230	398.00
560- 400- 400		1071	558	399	1059	1025	47.60			22562255	553.00
560- 560- 560	558	1275			1280	1400	72.00			22562230	468.50
630- 450- 450		1213	628	448	1195	1150	58.80			22632255	652.50
630- 630- 630	628	1404			1401	1530	84.60			22632230	498.00
710- 500- 500		1327	707	498	1311	1250	72.00			22712255	723.50
710- 710- 710	707	1665			1660	1800	116.00			22712230	663.00
800- 560- 560		1507	797	558	1481	1400	87.00			22802255	979.00
800- 800- 800	797	1823			1818	1970	140.00			22802230	877.50
900- 900- 900	897	2030			2020	2200	165.60			229922304090	1219.00
1000-1000-1000	998	2190			2205	2400	194.60			229922304100	1546.00
1120-1120-1120	1118	2480			2490	2700	258.70			229922304112	1932.00
1250-1250-1250	1248	2710			2715	2950	308.46			229922304125	2302.00
1400-1400-1400	1398	2950			2955	3200	516.12			239922305140 *	3531.00
1600-1600-1600	1598	3320			3335	3600	650.52			239922305160 *	4298.00

*3 mm

Shock explosion proof tested up to 3 bar



Fork 30°



Conical fork 30°

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	$\varnothing d$	B	C	E	G	L	kg	Stainless steel with galvanised loose flanges			
								1.5 mm		2 mm	
								Item no.	€	Item no.	€
350- 250- 250		727	350	250	727	620	15.60	21353255	412.50	22353255	514.50
350- 350- 350	349	817			828	920	27.75	21353230	363.50	22353230	565.00
400- 300- 300		824	399	300	821	720	20.40	21403255	483.00	22403255	602.00
400- 400- 400	398	925			926	1025	38.80	21403230	407.50	22403230	607.00
450- 350- 350		911	449	350	909	920	36.40	21453255	567.50	22453255	714.00
450- 450- 450	448	1030			1045	1150	48.00	21453230	534.50	22453230	651.00
500- 400- 400		1014	499	399	1009	1025	44.00	21503255	758.00	22503255	946.00
500- 500- 500	498	1127			1138	1250	56.00	21503230	588.00	22503230	745.00
560- 400- 400		1071	558	399	1059	1025	47.60			22563255	965.00
560- 560- 560	558	1275			1280	1400	72.00			22563230	863.00
630- 450- 450		1213	628	448	1195	1150	58.80			22633255	1095.00
630- 630- 630	628	1404			1401	1530	84.60			22633230	932.50
710- 500- 500		1327	707	498	1311	1250	72.00			22713255	1218.00
710- 710- 710	707	1665			1660	1800	116.00			22713230	1075.00
800- 560- 560		1507	797	558	1481	1400	87.00			22803255	1368.00
800- 800- 800	797	1823			1818	1970	140.00			22803230	1364.00
900- 900- 900	897	2030			2020	2200	165.60			229932304090	1676.00
1000-1000-1000	998	2190			2205	2400	194.60			229932304100	1964.00
1120-1120-1120	1118	2480			2490	2700	258.70			229932304112	2423.00
1250-1250-1250	1248	2710			2715	2950	308.46			229932304125	2897.00
1400-1400-1400	1398	2950			2955	3200	516.12			239932305140 *	5415.00
1600-1600-1600	1598	3320			3335	3600	650.52			239932305160 *	6429.00

* 3 mm with welded-on stainless steel flange, shotblasted

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	$\varnothing d$	B	C	E	G	L	kg	Stainless steel with stainless steel loose flange, shotblasted			
								1.5 mm		2 mm	
								Item no.	€	Item no.	€
350-250-250		727	350	250	727	620	15.60	213532553	450.50	223532553	552.50
350-350-350	349	817			828	920	28.00	213532303	477.00	223532303	678.50
400-300-300		824	399	300	821	720	20.00	214032553	527.00	224032553	646.00
400-400-400	398	925			926	1025	39.40	214032303	539.00	224032303	738.50
450-350-350		911	449	350	909	920	38.20	214532553	688.00	224532553	834.50
450-450-450	448	1030			1045	1150	48.00	214532303	669.00	224532303	785.50
500-400-400		1014	499	399	1009	1025	44.00	215032553	890.50	225032553	1079.00
500-500-500	498	1127			1138	1250	61.00	215032303	722.50	225032303	879.50
560-400-400		1071	558	399	1059	1025	47.60			225632553	1139.00
560-560-560	558	1275			1280	1400	75.00			225632303	1123.00
630-450-450		1213	628	448	1195	1150	57.00			226332553	1267.00
630-630-630	628	1404			1401	1530	84.50	226332303*	1180.00	236332303*	1537.00
710-500-500		1327	707	498	1311	1250	72.00			227132553	1393.00
710-710-710	707	1665			1660	1800	113.00	227132303*	1331.00	237132303*	1812.00

* 2 mm

* 3 mm

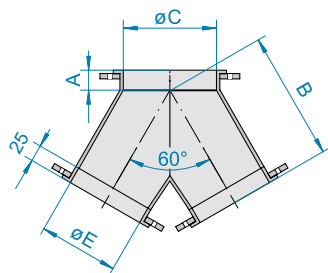
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar



THE FLANGE RANGE

Branch pieces



CONICAL FORKS 60°

6090

- DN < 350 mm with 6 mm lip for pull-ring connection (without flange)
- DN 560 to 800 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request
- With loose flange on all sides
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Other combinations of diameters available on request

Powder-coated (dimensions for 2 mm pipework)

DN	A	B	C	E	kg	1.5 mm powder-coated		2 mm powder-coated	
						Item no.	€	Item no.	€
350- 250- 250	70	300	350	250	11.35	21351275	181.00	22351275	194.00
400- 300- 300	70	350	399	300	12.00	21401275	197.50	22401275	213.50
450- 350- 350	80	425	449	350	23.00	21451275	247.50	22451275	284.50
500- 400- 400	80	475	499	399	33.50	21501275	266.50	22501275	318.50
560- 400- 400	80	550	558	399	37.00			22561275	388.50
630- 450- 450	150	600	628	448	40.40			22631275	478.00
710- 500- 500	200	650	707	498	47.60			22711275	592.50
800- 560- 560	200	700	797	558	59.00			22801275	741.00
900- 630- 630	210	850	897	628	74.40			229912754090	933.00
1000- 710- 710	220	930	998	707	87.96			229912754100	1126.00
1120- 800- 800	220	1040	1118	797	110.30			229912754112	1353.00
1250- 900- 900	220	1130	1248	897	128.22			229912754125	1593.00
1400-1000-1000	245	1230	1398	998	206.80			239912755140 *	2598.00
1600-1120-1120	245	1320	1598	1118	251.64			239912755160 *	3063.00

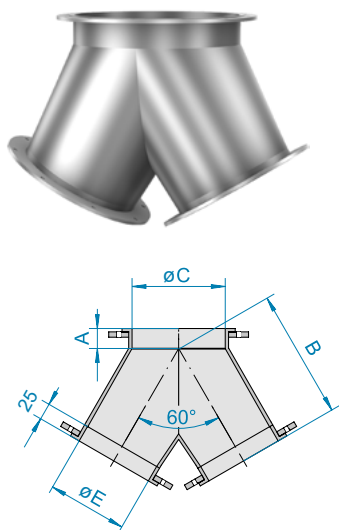
*3 mm

Galvanised (dimensions for 2 mm pipework)

DN	A	B	C	E	kg	1.5 mm galvanised		2 mm galvanised	
						Item no.	€	Item no.	€
350- 250- 250	70	300	350	250	11.35	21352275	201.50	22352275	208.50
400- 300- 300	70	350	399	300	12.00	21402275	220.00	22402275	226.50
450- 350- 350	80	425	449	350	23.00	21452275	265.00	22452275	307.50
500- 400- 400	80	475	499	399	33.50	21502275	294.50	22502275	350.00
560- 400- 400	80	550	558	399	37.00			22562275	433.00
630- 450- 450	150	600	628	448	40.40			22632275	540.00
710- 500- 500	200	650	707	498	47.60			22712275	678.50
800- 560- 560	200	700	797	558	59.00			22802275	860.50
900- 630- 630	210	850	897	628	74.40			229922754090	1097.00
1000- 710- 710	220	930	998	707	87.96			229922754100	1341.00
1120- 800- 800	220	1040	1118	797	110.30			229922754112	1617.00
1250- 900- 900	220	1130	1248	897	128.22			229922754125	1909.00
1400-1000-1000	245	1230	1398	998	206.80			239922755140 *	2992.00
1600-1120-1120	245	1320	1598	1118	251.64			239922755160 *	3524.00

*3 mm

Shock explosion proof tested up to 3 bar



Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	A	B	C	E	kg	Stainless steel with galvanised loose flanges			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350- 250- 250	70	300	350	250	11.35	21353275	376.50	22353275	472.00
400- 300- 300	70	350	399	300	12.00	21403275	409.50	22403275	500.00
450- 350- 350	80	425	449	350	23.00	21453275	474.50	22453275	578.00
500- 400- 400	80	475	499	399	33.50	21503275	522.00	22503275	647.00
560- 400- 400	80	550	558	399	37.00			22563275	744.00
630- 450- 450	150	600	628	448	40.40			22633275	863.00
710- 500- 500	200	650	707	498	47.60			22713275	1010.00
800- 560- 560	200	700	797	558	59.00			22803275	1192.00
900- 630- 630	210	850	897	628	74.40			229932754090	1491.00
1000- 710- 710	220	930	998	707	87.96			229932754100	1787.00
1120- 800- 800	220	1040	1118	797	110.30			229932754112	2131.00
1250- 900- 900	220	1130	1248	897	128.22			229932754125	2513.00
1400-1000-1000	245	1230	1398	998	206.80			239932755140 *	4045.00
1600-1120-1120	245	1320	1598	1118	251.64			239932755160 *	4721.00

*3 mm with welded-on stainless steel flange, shotblasted

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	A	B	C	E	kg	Stainless steel with stainless steel loose flange, shotblasted			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350-250-250	70	300	350	250	14.37	213532753	414.50	223532753	510.00
400-300-300	70	350	399	300	11.76	214032753	453.50	224032753	544.00
450-350-350	80	425	449	350	32.90	214532753	595.00	224532753	698.50
500-400-400	80	475	499	399	27.40	215032753	654.50	225032753	779.50
560-400-400	80	550	558	399	37.00			225632753	918.00
630-450-450	150	600	628	448	41.00			226332753	1035.00
710-500-500	200	650	707	498	47.60			227132753	1185.00

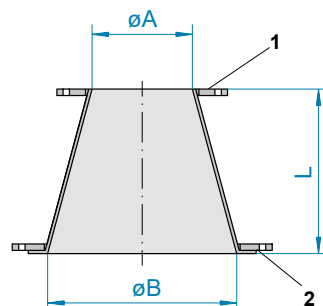
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar



THE FLANGE RANGE

Transition pieces and adapters



1 With welded-on flange to DIN 24154, P2

2 With loose flange to DIN 24154, P2

CONE PIECES

6170

- DN < 350 mm with 6 mm lip for pull-ring connection (without flange)
- DN 630 to 710 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request

- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges on both sides, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Other combinations of diameters available on request

Powder-coated (dimensions for 2 mm pipework)

DN	A	B	L	kg	1.5 mm powder-coated		2 mm powder-coated	
					Item no.	€	Item no.	€
300- 350	299	349	200	6.80	21001480	49.70	22001480	57.40
300- 400	299	398	200	7.40	21001481	54.90	22001481	63.40
350- 400	349	398	200	10.00	21001482	91.30	22001482	106.00
350- 450	349	448	200	11.20	21001483	93.50	22001483	108.00
400- 450	398	448	200	11.80	21001485	102.00	22001485	118.50
400- 500	398	498	250	13.40	21001486	111.50	22001486	129.00
450- 500	448	498	200	14.20	21001487	116.00	22001487	133.50
450- 560	448	558	250	16.60			22001495	136.50
500- 560	498	558	250	17.40			22001496	161.00
500- 630	498	628	300	19.60			22001497	178.00
560- 630	558	628	300	21.80			22001498	185.00
630- 710	628	707	300	24.40			22001499	216.00
710- 800	707	797	300	28.00			22001500	248.00
900- 800	897	799	300	31.21			229918104090	295.00
1000- 900	998	899	300	34.83			229918114100	344.00
1120-1000	1118	1000	300	44.21			229918124112	410.00
1250-1120	1248	1120	300	55.14			229918134125	474.50
1400-1250	1398	1250	400	82.34			239918145140 *	858.00
1600-1400	1598	1398	400	93.58			239918155160 *	969.00

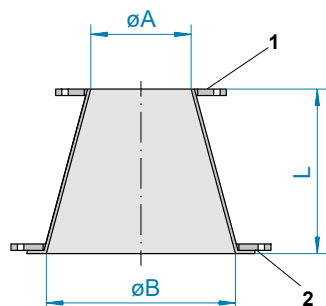
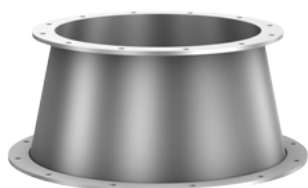
*3 mm

Galvanised (dimensions for 2 mm pipework)

DN	A	B	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
300- 350	299	349	200	6.80	21002480	61.50	22002480	70.80
300- 400	299	398	200	7.40	21002481	67.90	22002481	78.10
350- 400	349	398	200	10.00	21002482	113.50	22002482	131.50
350- 450	349	448	200	11.20	21002483	117.00	22002483	134.00
400- 450	398	448	200	11.80	21002485	127.00	22002485	146.00
400- 500	398	498	250	13.40	21002486	138.00	22002486	158.00
450- 500	448	498	200	14.20	21002487	143.00	22002487	164.50
450- 560	448	558	250	16.60			22002495	179.00
500- 560	498	558	250	17.40			22002496	212.00
500- 630	498	628	300	19.60			22002497	233.50
560- 630	558	628	300	21.80			22002498	244.50
630- 710	628	707	300	24.40			22002499	284.00
710- 800	707	797	300	28.00			22002500	323.00
900- 800	897	799	300	31.21			229928104090	372.50
1000- 900	998	899	300	34.83			229928114100	434.00
1120-1000	1118	1000	300	44.21			229928124112	521.50
1250-1120	1248	1120	300	55.14			229928134125	600.00
1400-1250	1398	1250	400	82.34			239928145140 *	1018.00
1600-1400	1598	1398	400	93.58			239928155160 *	1153.00

*3 mm

Shock explosion proof tested up to 3 bar



1 With welded-on stainless steel flange to DIN 24154, P2

2 With loose flange to DIN 24154, P2

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	A	B	L	kg	Stainless steel with galvanised loose flanges			
					1.5 mm		2 mm	
					Item no.	€	Item no.	€
300- 350	299	349	200	6.80	21003480	69.10	22003480	83.30
300- 400	299	398	200	7.40	21003481	75.00	22003481	89.80
350- 400	349	398	200	10.00	21003482	156.50	22003482	188.00
350- 450	349	448	200	11.20	21003483	164.00	22003483	196.00
400- 450	398	448	200	11.80	21003485	181.50	22003485	217.00
400- 500	398	498	250	13.40	21003486	191.50	22003486	229.50
450- 500	448	498	200	14.20	21003487	206.00	22003487	247.50
450- 560	448	558	250	16.60			22003495	266.50
500- 560	498	558	250	17.40			22003496	297.00
500- 630	498	628	300	19.60			22003497	306.00
560- 630	558	628	300	21.80			22003498	350.50
630- 710	628	707	300	24.40			22003499	410.50
710- 800	707	797	300	28.00			22003500	468.00
900- 800	897	799	300	31.21			229938104090	550.00
1000- 900	998	899	300	34.83			229938114100	642.00
1120-1000	1118	1000	300	44.21			229938124112	737.00
1250-1120	1248	1120	300	55.14			229938134125	840.50
1400-1250	1398	1250	400	82.34			239938145140 *	1623.00
1600-1400	1598	1398	400	93.58			239938155160 *	1801.00

*3 mm with welded-on stainless steel flange, shotblasted

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	A	B	L	kg	Stainless steel with stainless steel loose flange, shotblasted			
					1.5 mm		2 mm	
					Item no.	€	Item no.	€
300-350	299	349	200	6.80	210034803	107.00	220034803	121.50
300-400	299	398	200	7.40	210034813	119.00	220034813	133.50
350-400	349	398	200	10.00	210034823	200.50	220034823	232.00
350-450	349	448	200	11.00	210034833	209.00	220034833	241.00
400-450	398	448	200	11.80	210034853	226.50	220034853	262.00
400-500	398	498	250	13.40	210034863	236.50	220034863	274.50
450-500	448	498	200	14.20	210034873	251.00	220034873	292.50
450-560	448	558	250	16.60			220034953	353.50
500-560	498	558	250	17.40			220034963	384.00
500-630	498	628	300	19.60			220034973	388.50
560-630	558	628	300	21.80			220034983	433.00
630-710	628	707	300	24.40			220034993	496.00

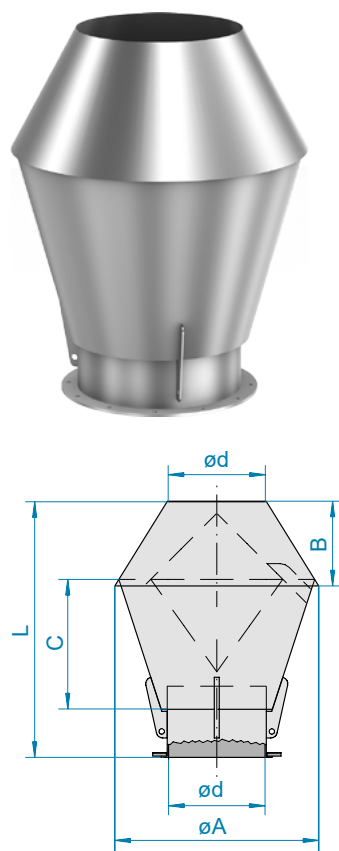
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar



THE FLANGE RANGE

Transition pieces and adapters



JET CAPS

1430

- With welded-on flange to DIN 24154, P2

Galvanised and stainless steel (dimensions for 2 mm pipework)

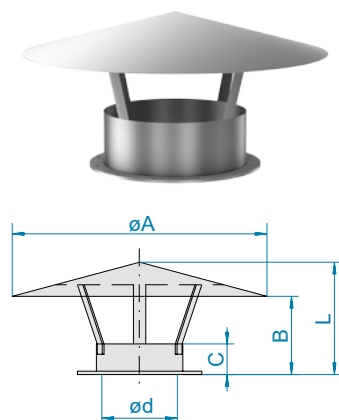
DN	Ø d	A	B	C	L	kg	2 mm galvanised		2 mm stainless steel	
							Item no.	€	Item no.	€
350	349	645	275	448	865	33.00	12352805	488.50	12353805	851.00
400	398	715	295	480	915	42.00	12402805	566.00	12403805	984.50
450	448	820	320	588	1040	51.00	12452805	643.00	12453805	1154.00
500	498	870	320	588	1040	61.50	12502805	726.00	12503805	1338.00
560	558	990	372	703	1208	81.50	12562805	806.00	12563805	1530.00
630	628	1140	442	776	1434	112.00	12632805	918.00	12633805	1741.00
710	707	1290	502	901	1627	138.00	12712805	1389.00	12713805	2347.00
800	797	1440	520	1020	1790	164.00	12802805	1597.00	12803805	2815.00
900	897	1550	600	1150	2150	260.00	239928055090 *	2247.00	239938055090 *	3259.00
1000	998	1800	700	1330	2400	328.00	239928055100 *	2606.00	239938055100 *	3779.00
1120	1118	1825	1120	1100	2370	421.00	239928055112 *	2908.00	239938055112 *	4217.00
1250	1248	1955	1190	1150	2470	452.00	239928055125 *	3210.00	239938055125 *	4655.00
1400	1398	2210	1250	1220	2600	500.00	239928055140 *	4180.00	239938055140 *	6060.00
1600	1598	2610	1470	1470	3140	589.00	239928055160 *	4627.00	239938055160 *	6709.00

*3 mm

RAIN CAPS

6190

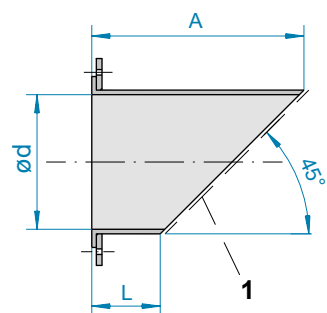
- With loose flange up to DN 1000 mm
- DN 1120 mm: 3 mm wall thickness, with welded-on flange to DIN 24154, P2
- From DN 1250 mm, we recommend the use of jet caps
- Take local building regulations into account, alternatively use a jet cap



Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	L	kg	2 mm galvanised		2 mm stainless steel with loose flange, shotblasted	
							Item no.	€	Item no.	€
350	349	750	300	150	395	23.70	22352850	212.00	223538503	442.00
400	398	850	320	150	435	16.80	22402850	240.50	224038503	547.50
450	448	950	340	150	470	25.90	22452850	262.50	224538503	681.50
500	498	1050	410	200	550	31.50	22502850	284.50	225038503	758.00
560	558	1150	435	200	590	34.00	22562850	312.00	225638503	852.50
630	628	1300	470	200	645	42.00	22632850	343.00	226338503	892.50
710	707	1400	500	250	700	52.00	22712850	385.00	227138503	1018.00
800	797	1500	530	250	760	59.92	22802850	472.50	228038503	1242.00
900	897	1800	550	250	793	87.20	229928504090	593.00		
1000	998	2000	600	250	870	103.20	229928504100	831.00		
1120	1118	2240	650	300	950	186.90	239928505112 *	1069.00		

*3 mm



1 Bird-guard

AIR OUTLET PIPES 45°

6200

- Bird-guard: Material thickness 2 mm, mesh size 20 x 20
- One side with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
350	350	550	200	9.20	21352880	208.50		
400	399	600	200	10.80	21402880	249.50		
450	449	650	200	12.30	21452880	299.50		
500	499	700	200	10.60	21502880	341.00		
560	558	760	200	22.00			22562880	399.50
630	628	830	200	26.00			22632880	448.50
710	707	910	200	30.00			22712880	530.00
800	797	1000	200	36.00			22802880	625.50
900	897	1100	200	58.80			239928804090 *	761.00
1000	998	1200	200	69.12			239928804100 *	908.50
1120	1118	1320	200	90.75			239928804112 *	1072.00
1250	1248	1450	200	107.40			239928804125 *	1254.00
1400	1398	1600	200	117.29			239928805140 *	1477.00
1600	1598	1800	200	146.03			239928805160 *	1728.00

*3 mm

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	Ø d	A	L	kg	Stainless steel with galvanised loose flanges			
					1 mm		2 mm	
					Item no.	€	Item no.	€
350	350	550	200	9.20	21353880	284.00		
400	399	600	200	10.80	21403880	351.00		
450	449	650	200	12.30	21453880	401.00		
500	499	700	200	10.60	21503880	462.00		
560	558	760	200	22.00			22563880	552.50
630	628	830	200	26.00			22633880	662.00
710	707	910	200	30.00			22713880	797.50
800	797	1000	200	36.00			22803880	957.00
900	897	1100	200	58.80			239938804090 *	1175.00
1000	998	1200	200	69.12			239938804100 *	1396.00
1120	1118	1320	200	90.75			239938804112 *	1638.00
1250	1248	1450	200	107.40			239938804125 *	1923.00
1400	1398	1600	200	117.29			239938805140 *	2417.00
1600	1598	1800	200	146.03			239938805160 *	2797.00

*3 mm



THE FLANGE RANGE

Transition pieces and adapters / Cleaning pipes

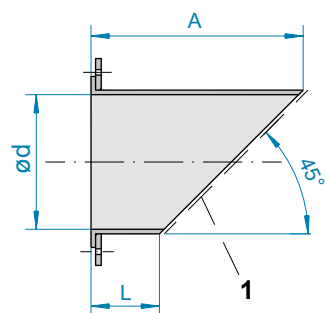


AIR OUTLET PIPES 45°

6200

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	Ø d	A	L	kg	Stainless steel with stainless steel loose flange, shotblasted			
					1 mm		2 mm	
					Item no.	€	Item no.	€
350	350	550	200	9.20	213538803	322.00		
400	399	600	200	10.80	214038803	395.00		
450	449	650	200	12.30	214538803	446.00		
500	499	700	200	10.60	215038803	507.00		
560	558	760	200	22.00				
630	628	830	200	26.00			226338803	744.50
710	707	910	200	30.00			227138803	883.00
800	797	1000	200	36.00			228038803	1079.00



1 Bird-guard
mesh size: 20 x 20 x 2 mm



CLEANING PIPES

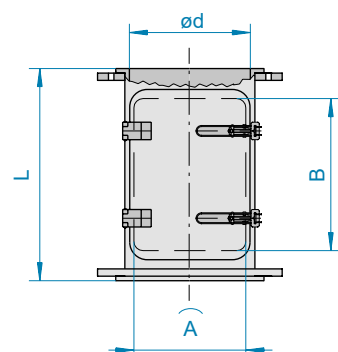
6050

- For seals, please also read and take into account the technical information given at the beginning of this chapter
- Both sides with loose flange
- DN 1400 and 1600 mm: 3 mm wall thickness, with welded-on flanges, in pickled and passivated stainless steel
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Not recommended for extracting exhaust air containing condensates

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm powder-coated		2 mm powder-coated	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	21351195	167.50		
400	399	350	350	478	15.90	21401195	180.00		
450	448	500	350	478	20.00			22451195	193.00
500	498	500	350	478	21.60			22501195	207.50
560	558	500	350	478	25.00			22561195	227.00
630	628	500	350	478	30.00			22631195	244.50
710	707	500	350	478	34.00			22711195	289.50
800	797	500	350	478	38.00			22801195	352.00
900	897	500	350	478	41.48			229911954090	426.50
1000	998	500	350	478	46.10			229911954100	519.00
1120	1118	500	350	478	62.50			229911954112	609.50
1250	1248	500	350	478	69.57			229911954125	685.00
1400	1398	500	350	500	95.28			239911955140 *	966.50
1600	1598	500	350	500	108.42			239911955160 *	1108.00

*3 mm



Cleaning pipes




Galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm galvanised		2 mm galvanised	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	21352195	210.50		
400	399	350	350	478	15.90	21402195	226.50		
450	448	500	350	478	20.00			22452195	251.00
500	498	500	350	478	21.60			22502195	269.50
560	558	500	350	478	25.00			22562195	305.50
630	628	500	350	478	30.00			22632195	334.00
710	707	500	350	478	34.00			22712195	399.50
800	797	500	350	478	38.00			22802195	487.50
900	897	500	350	478	41.48			229921954090	582.00
1000	998	500	350	478	46.10			229921954100	688.50
1120	1118	500	350	478	62.50			229921954112	788.50
1250	1248	500	350	478	69.57			229921954125	895.50
1400	1398	500	350	500	95.28			239921955140 *	1221.00
1600	1598	500	350	500	108.42			239921955160 *	1393.00


*3 mm

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)


DN	Ø d	A	B	L	kg	Stainless steel with galvanised loose flanges 			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	21353195	308.50		
400	399	350	350	478	15.90	21403195	327.50		
450	448	500	350	478	20.00			22453195	351.00
500	498	500	350	478	21.60			22503195	376.00
560	558	500	350	478	25.00			22563195	411.50
630	628	500	350	478	30.00			22633195	453.50
710	707	500	350	478	34.00			22713195	541.00
800	797	500	350	478	38.00			22803195	643.00
900	897	500	350	478	41.48			229931954090	768.50
1000	998	500	350	478	46.10			229931954100	895.50
1120	1118	500	350	478	62.50			229931954112	1034.00
1250	1248	500	350	478	69.57			229931954125	1123.00
1400	1398	500	350	500	95.28			239931955140 *	1856.00
1600	1598	500	350	500	108.42			239931955160 *	2086.00

*3 mm with welded-on stainless steel flange, shotblasted

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	Stainless steel with stainless steel loose flange, shotblasted 			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	213531953	384.50		
400	399	350	350	478	15.60	214031953	415.00		
450	448	500	350	478	16.00			224531953	441.00
500	498	500	350	478	23.00			225031953	466.00
560	558	500	350	478	29.50			225631953	585.00
630	628	500	350	478	34.80			226331953	618.50
710	707	500	350	478	38.50			227131953	711.50

 FOOD GRADE
EC 1935/2004 plus FDA compliant

 DETECTABLE DESIGN
Metal-detectable

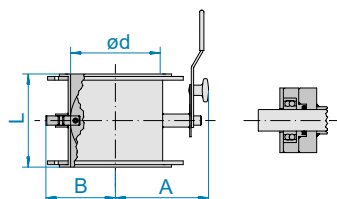
 DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.



THE FLANGE RANGE

Throttle valves and installation kit



■ Additionally with ball bearings and Viton O-ring seal

THROTTLE VALVES

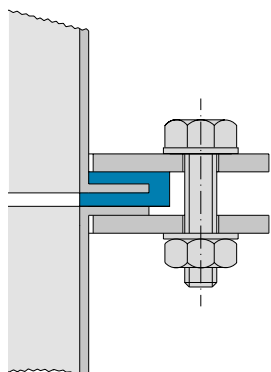
6180

- Special version available with glued silicone inner seal, no cross-section constriction, prices on request
- Version with pneumatic or electric actuator
- Both sides with loose flange
- From DN 900 mm: 3 mm wall thickness, with welded-on flange to DIN 24154, P2
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated, galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm galvanised		2 mm stainless steel with stainless steel loose flange, shotblasted	
						Item no.	€	Item no.	€	Item no.	€
350	349	240	233	200	14.00	22351560	166.00			223535603	406.00
400	398	265	258	200	16.20	22401560	186.00			224035603	470.00
450	458	396	365	200	26.50	22451560	386.00			224535603	627.00
500	498	421	391	200	29.60	22501560	428.00			225035603	705.00
560	558	451	421	200	36.00	22561560	457.00			225635603	891.00
630	628	486	456	200	41.00	22631560	495.00			226335603	988.00
710	707	525	495	200	46.00	22711560	584.50			227135603	1113.00
800	797	570	540	200	52.00	22801560	707.00				
900	897	620	590	200	65.00	239915605090 *	1141.00	239925605090 *	1347.00		
1000	998	670	640	200	83.00	239915605100 *	1365.00	239925605100 *	1731.00		
1120	1118	810	675	200	104.00	239915605112 *	1841.00	239925605112 *	2178.00		
1250	1248	875	740	200	123.00	239915605125 *	2166.00	239925605125 *	2558.00		

*3 mm



INSTALLATION KIT FOR JACOB FLANGES

1510

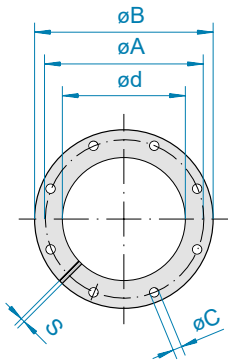
- Installation kit consisting of bolts, nuts and two washers per bolt
- Quantity to match the number of holes and flange thicknesses
- Bolts in compliance with DIN EN ISO 4017 (formerly DIN 933)
- Washers in compliance with DIN EN ISO 7090 (formerly DIN 125), 2 each per bolt
- Nuts in compliance with DIN EN ISO 4032 (formerly DIN 934)

Galvanised bolts, nuts and washers

DN	Bolts	Number	Item no.	€
60- 120	M 8x30	4	10062788	1.30
140- 250	M 10x35	8	10142788	3.60
280- 350	M 10x40	8	10282788	4.00
400- 500	M 10x40	12	10402788	5.20
560- 710	M 12x45	16	10562788	6.90
800-1000	M 12x45	24	10802788	10.10
1120-1400	M 16x50	32	109927880112	18.50
1600	M 16x50	40	109927880160	26.10

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Flanges



E = No. of holes

FLANGES

1360

- Similar to DIN 24154, P2
- DN 350 mm according to DIN 24154, P2, diameter 355 mm

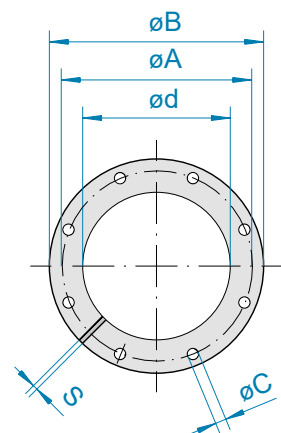
Powder-coated and galvanised

DN	ϕd	A	B	C	E	S	kg	Powder-coated		Galvanised	
								Item no.	€	Item no.	€
60	62	102	128	9.5	4	5	0.40	10061711	5.00		
80	82	118	142	9.5	4	5	0.40	10081711	5.10	10082711	5.90
100	105	139	165	9.5	4	5	0.46	10101711	5.50	10102711	6.50
120	125	165	185	9.5	4	5	0.57	10121711	6.20	10122711	7.10
140	142	182	212	11.5	8	5	0.73	10141711	6.20	10142711	7.90
150	155	200	225	11.5	8	5	0.78	10151711	6.30	10152711	8.00
160	162	200	232	11.5	8	5	0.82	10161711	10.90	10162711	12.50
175	180	219	250	11.5	8	5	0.93	10171711	6.80	10172711	8.80
200	205	241	275	11.5	8	5	0.99	10201711	6.90	10202711	9.10
224	225	265	295	11.5	8	5	1.10	10221711	11.00	10222711	13.60
250	255	292	325	11.5	8	5	1.21	10251711	7.90	10252711	10.70
280	283	332	363	11.5	8	8	2.51	10281711	15.30	10282711	19.50
300	305	366	395	11.5	8	8	3.00	10301711	10.20	10302711	14.90
315	318	366	398	11.5	8	8	2.98	10311711	16.70	10312711	21.60
350	355	405	435	11.5	8	8	3.10	10351711	10.50	10352711	15.50
400	404	448	484	11.5	12	8	3.44	10401711	12.30	10402711	18.00
450	454	497	534	11.5	12	8	3.90	10451711	13.30	10452711	19.60
500	504	551	584	11.5	12	8	4.13	10501711	14.30	10502711	21.10
560	564	629	664	14	16	8	5.90	10561711	17.60	10562711	26.90
630	634	698	734	14	16	8	6.60	10631711	18.60	10632711	33.10
710	714	775	814	14	16	8	7.40	10711711	25.30	10712711	35.80
800	804	861	904	14	24	8	7.95	10801711	39.10	10802711	53.10
900	904	958	1004	14	24	8	9.17	109917110090	50.10	109927110090	71.00
1000	1005	1067	1105	14	24	8	10.20	109917110100	63.70	109927110100	96.20
1120	1125	1200	1245	18	32	10	16.90	109917110112	87.50	109927110112	126.00
1250	1255	1337	1375	18	32	10	18.80	109917110125	97.90	109927110125	139.50
1400	1405	1475	1525	18	32	10	21.00	109917110140	106.00	109927110140	154.00
1600	1605	1675	1725	18	40	10	23.80	109917110160	115.50	109927110160	170.00



THE FLANGE RANGE

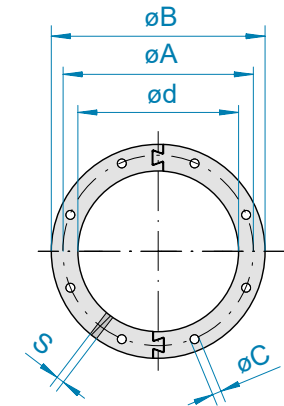
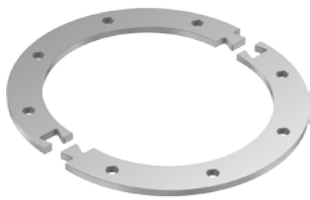
Flanges



E = No. of holes

Stainless steel

DN	$\varnothing d$	A	B	C	E	S	kg	Stainless steel	
								Item no.	€
60	62	102	128	9.5	4	5	0.40	10063711	17.10
80	82	118	142	9.5	4	5	0.40	10083711	19.00
100	105	139	165	9.5	4	5	0.46	10103711	21.20
120	125	165	185	9.5	4	5	0.57	10123711	22.10
140	142	182	212	11.5	8	5	0.73	10143711	24.80
150	155	200	225	11.5	8	5	0.78	10153711	26.50
160	162	200	232	11.5	8	5	0.82	10163711	28.10
175	180	219	250	11.5	8	5	0.93	10173711	28.00
200	205	241	275	11.5	8	5	0.99	10203711	31.30
224	225	265	295	11.5	8	5	1.10	10223711	45.30
250	255	292	325	11.5	8	5	1.21	10253711	36.20
280	283	332	363	11.5	8	8	2.51	10283711	43.70
300	305	366	395	11.5	8	8	3.00	10303711	52.40
315	318	366	398	11.5	8	8	2.98	10313711	54.60
350	355	405	435	11.5	8	8	3.10	10353711	53.30
400	404	448	484	11.5	12	8	3.44	10403711	61.70
450	454	497	534	11.5	12	8	3.90	10453711	64.40
500	504	551	584	11.5	12	8	4.13	10503711	65.90
560	564	629	664	14	16	8	5.90	10563711	113.50
630	634	698	734	14	16	8	6.60	10633711	115.50
710	714	775	814	14	16	8	7.40	10713711	121.00
800	804	861	904	14	24	8	7.95	10803711	174.50
900	904	958	1004	14	24	8	9.17	109937110090	194.00
1000	1005	1067	1105	14	24	8	10.20	109937110100	215.50
1120	1125	1200	1245	18	32	10	16.90	109937110112	258.50
1250	1255	1337	1375	18	32	10	18.80	109937110125	301.00
1400	1405	1475	1525	18	32	10	21.00	109937110140	325.00
1600	1605	1675	1725	18	40	10	23.80	109937110160	334.00



E = No. of holes

FLANGES 2-PART

1362

- Similar to DIN 24154, P2

Powder-coated and galvanised

DN	$\varnothing d$	A	B	C	E	S	kg	Powder-coated		Galvanised	
								Item no.	€	Item no.	€
80	82	118	142	9.5	4	8	0.40	10081713	7.90	10082713	8.60
100	105	139	165	9.5	4	8	0.46	10101713	9.60	10102713	10.40
120	125	165	185	9.5	4	8	0.57	10121713	10.50	10122713	11.50
140	142	182	212	11.5	8	8	0.73	10141713	13.30	10142713	14.60
150	155	200	225	11.5	8	8	1.25	10151713	18.30	10152713	18.70
175	180	219	250	11.5	8	8	1.50	10171713	20.30	10172713	20.70
200	205	241	275	11.5	8	8	1.60	10201713	21.00	10202713	22.50
224	225	265	295	11.5	8	8	1.76	10221713	24.00	10222713	24.90
250	255	292	325	11.5	8	8	1.94	10251713	26.20	10252713	27.00
280	283	332	363	11.5	8	8	2.51	10281713	36.10	10282713	38.80
300	305	366	395	11.5	8	8	3.00	10301713	36.10	10302713	38.80
315	318	366	398	11.5	8	8	3.10	10311713	36.70	10312713	40.00
350	355	405	435	11.5	8	8	3.20	10351713	36.90	10352713	40.30
400	404	448	484	11.5	12	8	3.44	10401713	40.00	10402713	45.80

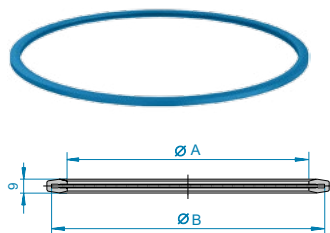
stainless steel

DN	$\varnothing d$	A	B	C	E	S	kg	Stainless steel	
								Item no.	€
80	82	118	142	9.5	4	8	0.40	10083713	19.70
100	105	139	165	9.5	4	8	0.46	10103713	23.80
120	125	165	185	9.5	4	8	0.57	10123713	26.50
140	142	182	212	11.5	8	8	0.73	10143713	33.30
150	155	200	225	11.5	8	8	1.25	10153713	46.00
175	180	219	250	11.5	8	8	1.50	10173713	51.40
200	205	241	275	11.5	8	8	1.60	10203713	56.70
224	225	265	295	11.5	8	8	1.76	10223713	60.80
250	255	292	325	11.5	8	8	1.94	10253713	67.50
280	283	332	363	11.5	8	8	2.51	10283713	98.40
300	305	366	395	11.5	8	8	3.00	10303713	98.40
315	318	366	398	11.5	8	8	3.10	10313713	99.40
350	355	405	435	11.5	8	8	3.20	10353713	100.00
400	404	448	484	11.5	12	8	3.44	10403713	115.00



THE FLANGE RANGE

Flanges





U-SHAPED SEALS FOR 10 MM LIP FLANGE


6210

- Please also read and take into account the technical information given at the beginning of this chapter
- Profile for loose flange pipework with a 10 mm lip
- Use for 1-3 mm pipework system
- A U-shaped seal (chapter 2) must be used for pipe components with a loose flange diameter of up to 350 mm and a 6 mm lip
- For connecting:
 - 2 pipe components with loose flange from DN 350 mm with 10 mm lip
 - A pipe component with a welded flange in conjunction with a pipe component with a loose flange


NBR and silicone

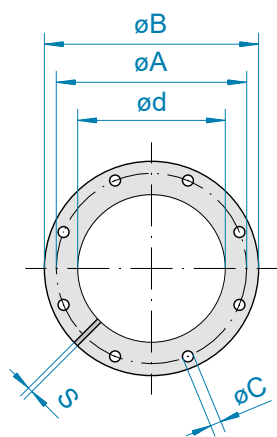
DN	A	B	kg	NBR grey white		Silicone beige 		Silicone blue 	
				Item no.	€	Item no.	€	Item no.	€
350	353	373	0.11	103567177	5.50	1035771709	7.30	10357717091	10.30
400	403	423	0.13	104067177	6.10	1040771709	8.40	10407717091	11.50
450	453	473	0.15	104567177	6.80	1045771709	9.10	10457717091	12.60
500	503	523	0.17	105067177	7.70	1050771709	9.90	10507717091	13.90
560	561	581	0.18	105667177	8.40	1056771709	11.10	10567717091	15.50
630	631	651	0.21	106367177	9.30	1063771709	12.30	10637717091	17.20
710	711	731	0.24	107167177	10.70	1071771709	13.60	10717717091	19.10
800	801	821	0.26	108067177	16.80	1080771709	21.70	10807717091	30.40

EPDM and Viton

DN	A	B	kg	EPDM black		Viton red 	
				Item no.	€	Item no.	€
350	353	373	0.11	1035871759	7.30	10359717	41.80
400	403	423	0.13	1040871759	8.40	10409717	47.20
450	453	473	0.15	1045871759	9.10	10459717	52.80
500	503	523	0.17	1050871759	9.90	10509717	58.00
560	561	581	0.18	1056871759	11.10	10569717	64.50
630	631	651	0.21	1063871759	12.30	10639717	72.60
710	711	731	0.24	1071871759	13.60	10719717	80.80
800	801	821	0.26	1080871759	21.70	10809717	89.70

 FOOD GRADE
EC 1935/2004 plus FDA compliant

 DETECTABLE DESIGN
Metal-detectable



E = No. of holes

FLAT SEALS FOR LOOSE FLANGES AND WELDED FLANGES

6220

- For use in conjunction with pipe components with welded-on flanges and connecting pieces with welded-on flanges
- Similar to DIN 24154, P2
- Please also read and take into account the technical information given at the beginning of this chapter

NBR and silicone

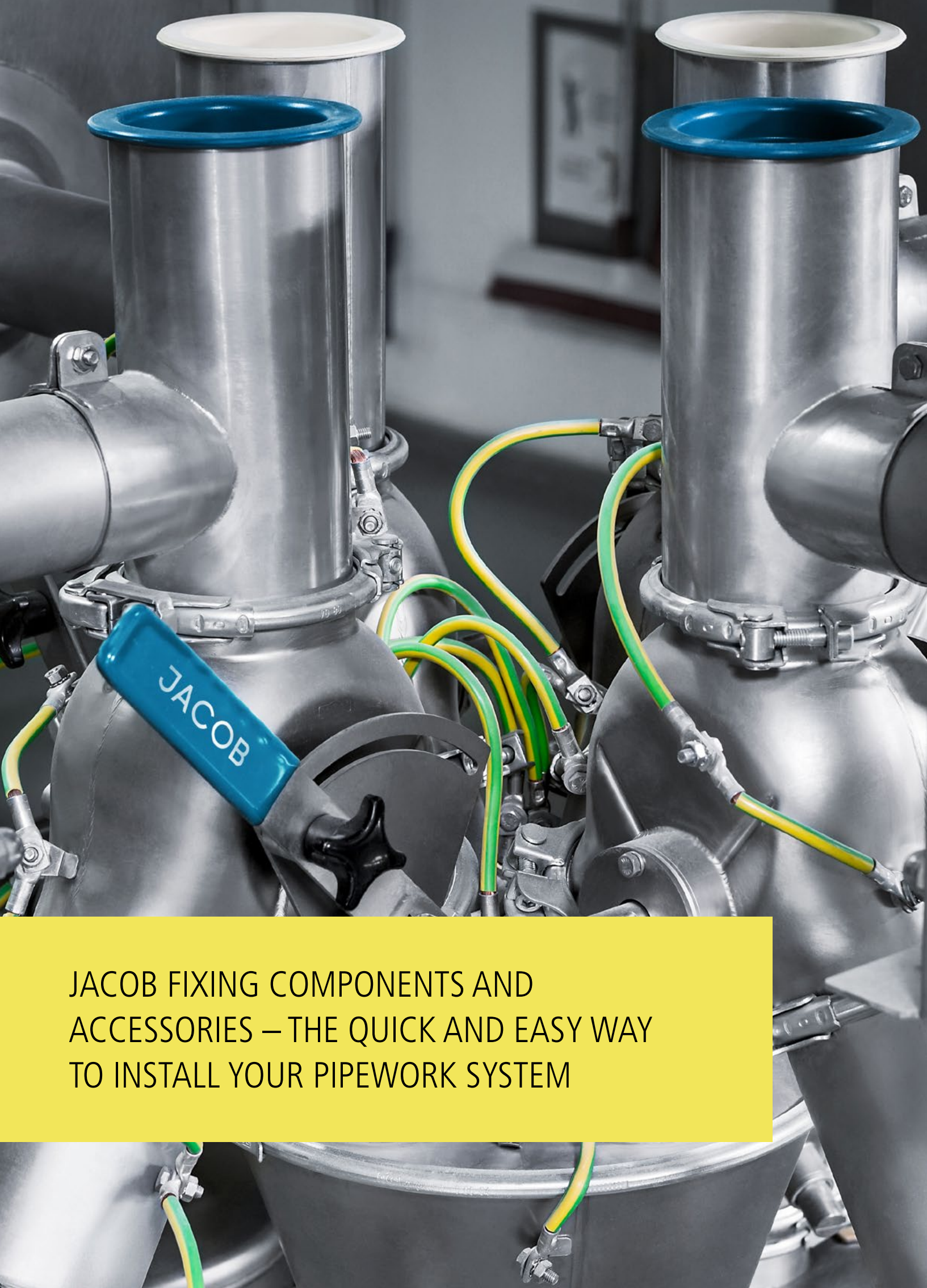
DN	$\varnothing d$	A	B	C	E	S	kg	NBR grey white		Silicone beige		Silicone blue	
								Item no.	€	Item no.	€	Item no.	€
350	355	405	435	11.5	8	3	0.20	10356718	22.50	10357718	28.10	1035771801	46.80
400	400	448	484	11.5	12	3	0.24	10406718	24.60	10407718	32.30	1040771801	64.90
450	450	497	534	11.5	12	3	0.26	10456718	27.10	10457718	34.60	1045771801	70.40
500	500	551	584	11.5	12	3	0.28	10506718	31.00	10507718	40.40	1050771801	85.40
560	560	629	664	14	16	3	0.38	10566718	34.30	10567718	50.80	1056771801	109.00
630	630	698	734	14	16	3	0.42	10636718	41.50	10637718	55.40	1063771801	123.00
710	710	775	814	14	16	3	0.52	10716718	47.50	10717718	72.70	1071771801	164.00
800	800	861	904	14	24	3	0.56	10806718	59.10	10807718	103.50	1080771801	200.00
900	897	958	1004	14	24	4	1.51	109967180090	135.00	109977180090	159.50	10997718009001	389.50
1000	998	1067	1105	14	24	4	1.68	109967180100	161.00	109977180100	169.00	10997718010001	393.50
1120	1118	1200	1245	18	32	4	2.79	109967180112	183.00	109977180112	212.50	10997718011201	398.00
1250	1248	1337	1375	18	32	4	3.10	109967180125	221.00	109977180125	222.00	10997718012501	402.00
1400	1398	1475	1525	18	32	4	3.47	109967180140	226.50	109977180140	233.50	10997718014001	406.00
1600	1598	1675	1725	18	40	4	3.93	109967180160	232.50	109977180160	247.50	10997718016001	410.50

EPDM

DN	$\varnothing d$	A	B	C	E	S	kg	EPDM black	
								Item no.	€
350	355	405	435	11.5	8	3	0.20	10358718	9.00
400	400	448	484	11.5	12	3	0.24	10408718	10.60
450	450	497	534	11.5	12	3	0.26	10458718	11.80
500	500	551	584	11.5	12	3	0.28	10508718	13.40
560	560	629	664	14	16	3	0.38	10568718	16.90
630	630	698	734	14	16	3	0.42	10638718	20.50
710	710	775	814	14	16	3	0.52	10718718	25.50
800	800	861	904	14	24	3	0.56	10808718	32.60
900	897	958	1004	14	24	4	1.51	109987180090	70.40
1000	998	1067	1105	14	24	4	1.68	109987180100	83.10
1120	1118	1200	1245	18	32	4	2.79	109987180112	102.50
1250	1248	1337	1375	18	32	4	3.10	109987180125	111.50
1400	1398	1475	1525	18	32	4	3.47	109987180140	116.50
1600	1598	1675	1725	18	40	4	3.93	109987180160	121.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



JACOB FIXING COMPONENTS AND
ACCESSORIES – THE QUICK AND EASY WAY
TO INSTALL YOUR PIPEWORK SYSTEM



FIXING COMPONENTS AND ACCESSORIES

Technical information	234	
Flanging tools	236	
Spray paint and paint tin	236	
Earthing wires and earthing lugs	237	
Pipe clamps	238	
Assembly accessories	240	
Blank-off cover	241	



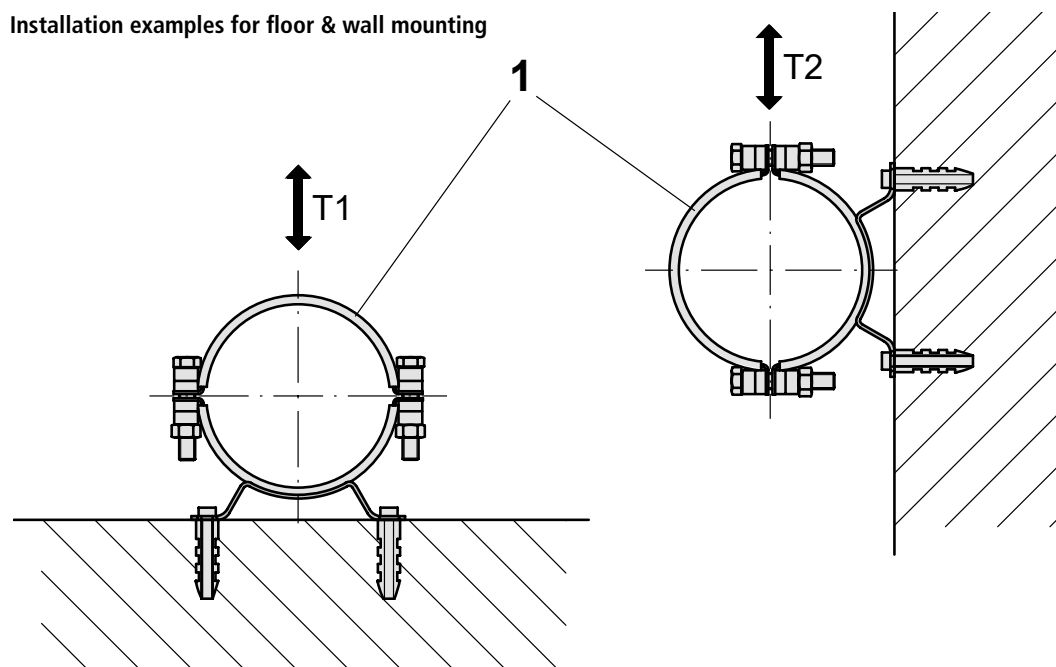
JACOB ACCESSORIES

Your pipework system entirely from one source and easily installed with our accessories, from the flanging tools for cutting exact lengths on site right up to pipe clamps.

INSTALLATION EXAMPLES OF PIPE CLAMPS FOR FLOOR AND WALL MOUNTING

Whether for floor or wall mounting – JACOB has the right pipe clamps in its range.

Installation examples for floor & wall mounting

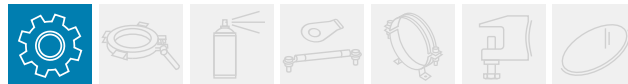


1 Pipe clamps for wall mounting with rubber insert

T1 Load with a deformation of 5 mm

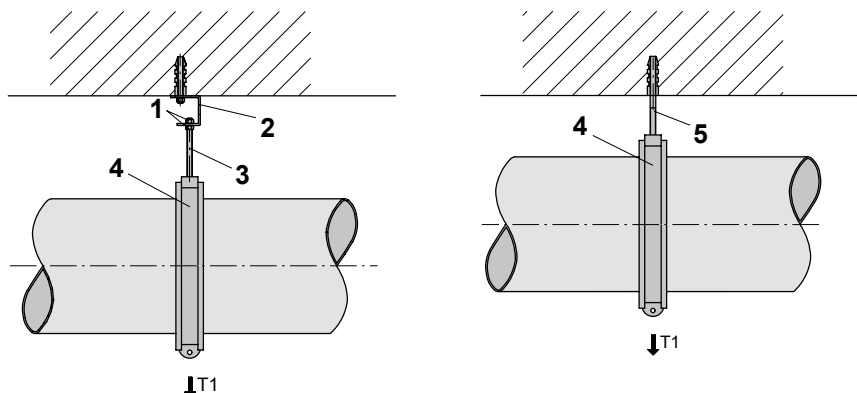
T2 Load with a deformation of 10 mm

For details of loads, refer to the tables on pages 238 and 239



Installation examples for ceiling mounting

- 1 Hexagon nuts metric
- 2 Fixing clips
- 3 Threaded bolt metric
- 4 Pipe clamps for wall mounting with rubber insert
- 5 Hanger bolt metric
- T1 Load with a deformation of 5 mm



For details of loads, refer to the tables on pages 238 and 239



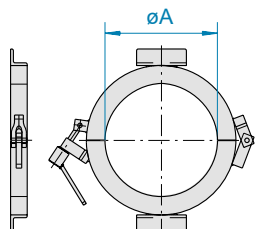
EARTHING WIRE

Creates electrostatic continuity through connecting two pipe components with an earthing lug using a JACOB earthing wire. Alternatively, the earthing bridge (see chapter 2) can be used to create electrostatic continuity.



FIXING COMPONENTS AND ACCESSORIES

Flanging tools / spray paint and paint tin



Operating instructions
for flanging tools

FLANGING TOOLS

4020

- To create exact lengths on site
- Please also read and take into account our operating instructions
- From DN 80 to 175 mm only 1 angle piece welded
- From DN 200 to 400 mm 2 angle pieces welded

DN	A	kg	Powder-coated	
			Item no.	€
60	58	3.10	10061740	138.50
80	80	3.30	10081740	138.50
100	103	3.60	10101740	156.00
120	123	4.70	10121740	185.50
140	139	5.20	10141740	211.00
150	153	5.60	10151740	211.00
175	178	6.40	10171740	224.50
200	203	6.80	10201740	251.50
224	223	7.30	10221740	295.00
250	253	8.75	10251740	295.00
280	283	9.10	10281740	325.50
300	303	9.35	10301740	325.50
315	318	9.80	10311740	341.50
350	353	10.30	10351740	409.00
400	403	12.00	10401740	452.50
450	453	14.50	10451740	790.50
500	503	17.00	10501740	866.50



SPRAY PAINT AND PAINT TIN

4040/4050

- Spray paint for re-touching powder-coated or galvanized pipework (RAL 7032)
- 1 kg paint and paintbrush for powder-coated pipework (RAL 7032)
- N.B.: Paint is a hazardous substance – separate packaging provided!
- Non-conductive

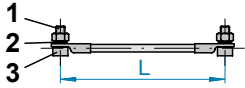
Paint and zinc spray

RAL 7032		Galvanised	
Item no.	€	Item no.	€
100019900	12.30	10002990	12.30

1 kg paint and paintbrush

RAL 7032	
Item no.	€
100019910	14.60





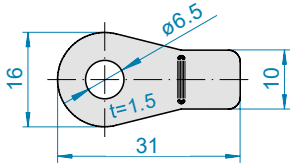
- 1 Hexagon nut metric M 6, A2
- 2 Toothed lock washer M 6.4, A2
- 3 Hexagon bolt metric M 6 x 16, A2

EARTHING WIRE 16 MM²

1420

- To create electrostatic continuity
- For use in conjunction with pipework with earthing lugs
- Including hexagon nut M6, A2, toothed lock washer 6.4, A2 and hexagon bolt M6 x 16, A2

L = 120 mm		L = 230 mm		L = 330 mm		L = 430 mm	
Item no.	€/pack of ten	Item no.	€/pack of ten	Item no.	€/pack of five	Item no.	€/pack of five
1000079510	15.00	1000079610	19.00	1000079705	18.50	1000079805	20.00



EARTHING LUGS

1415/1410

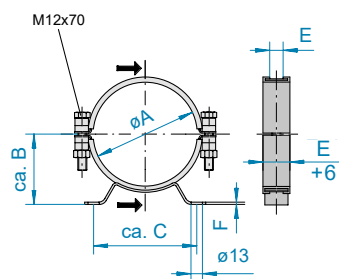
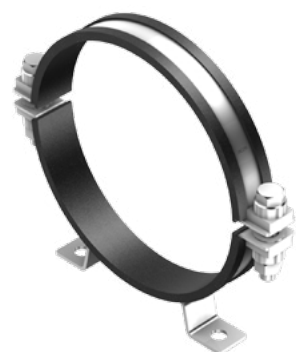
- To create electrostatic continuity in conjunction with the earthing wire
- Material 1.4301, material thickness 1.5 mm
- Available as a loose earthing lug for installation on site
- Including application through spot welding to pipework

Earthing lug, loose		Earthing lug, spot-welded	
Item no.	€/pack of ten	Item no.	€
1100379020	7.00	11003791	2.60



FIXING COMPONENTS AND ACCESSORIES

Pipe clamps

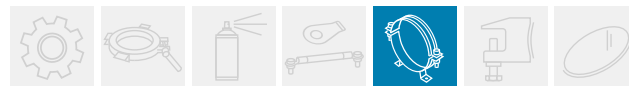


PIPE CLAMPS FOR WALL MOUNTING

3100

- With EPDM insert, -40°C to +120°C
- Silicone insert, -60°C to +170°C, on request
- Refer to the beginning of the chapter for installation examples of ceiling mounting

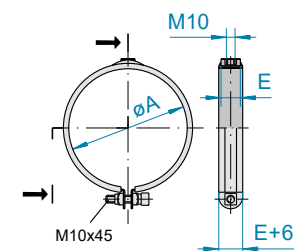
DN	A	B	C	E	F	Load (kN)		kg	Electro-galvanised		Stainless steel	
						T1	T2		Item no.	€	Item no.	€
60	60	50	100	20x1	2			0.20	10062780	17.30	10063780	40.00
80	80	64	138	30x2.5	3	2.0	1.0	0.70	10082780	18.40	10083780	42.10
100	102	75	138	30x2.5	3	2.5	1.0	0.80	10102780	19.10	10103780	43.20
120	123	86	138	30x2.5	3	2.5	1.0	0.85	10122780	20.40	10123780	46.90
140	139	94	138	30x2.5	3	2.5	1.0	0.85	10142780	20.60	10143780	53.50
150	153	101	148	30x2.5	3	3.0	1.2	0.95	10152780	21.10	10153780	53.50
175	178	113	148	30x2.5	3	3.0	1.2	1.00	10172780	22.80	10173780	59.20
200	203	126	148	30x2.5	3	3.0	1.2	1.05	10202780	23.30	10203780	62.70
224	223	136	148	30x2.5	3	3.0	1.2	1.10	10222780	25.00	10223780	68.40
250	253	151	230	30x2.5	3	3.0	1.2	1.25	10252780	26.80	10253780	68.40
280	280	166	230	30x2.5	3	3.0	1.2	1.40	10282780	27.40	10283780	70.90
300	303	176	230	30x2.5	3	3.0	1.2	1.40	10302780	29.10	10303780	75.30
315	315	182	230	30x2.5	3	3.0	1.2	1.40	10312780	30.40	10313780	79.00
350	353	204	260	30x3	4	3.5	1.2	1.55	10352780	44.20	10353780	92.90
400	402	228	260	30x3	4	3.5	1.2	2.10	10402780	50.10	10403780	97.90
450	452	254	300	30x3	4	4.5	1.5	2.95	10452780	56.80	10453780	121.00
500	502	279	300	30x3	4	4.5	1.5	3.05	10502780	65.80	10503780	136.00
560	562	309	350	30x3	4	5.0	1.7	4.00	10562780	73.40	10563780	153.00
630	632	344	350	30x3	4	5.0	1.7	5.00	10632780	91.50	10633780	191.00
710	712	385	350	40x4	5			5.50	10712780	106.00	10713780	311.50
800	800	450	350	40x4	5			6.50	10802780	114.50	10803780	365.50



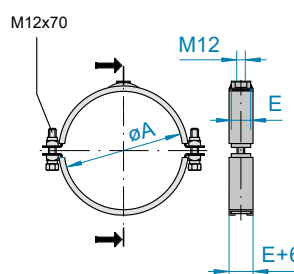
PIPE CLAMPS FOR CEILING MOUNTING

3090

- With EPDM insert, -40°C to +120°C
- Silicone insert, -60°C to +120°C, on request
- Refer to the beginning of the chapter for installation examples of ceiling mounting



DN 60 to 300 mm



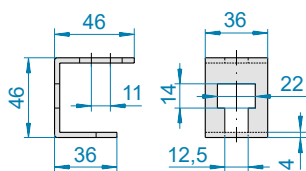
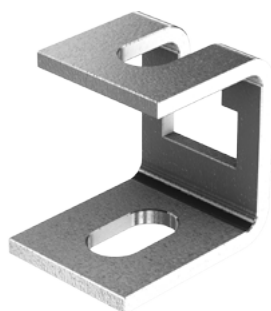
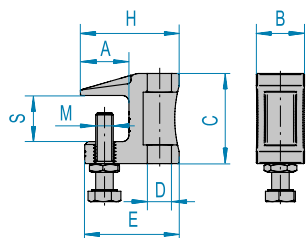
DN 315 to 800 mm

DN	A	E	Load (kN)	kg	Electro-galvanised		Stainless steel	
					Item no.	€	Item no.	€
60	60	20x1.0		0.11	10062770	6.50	10063770	18.20
80	80	25x1.5	2.0	0.20	10082770	6.80	10083770	19.20
100	102	25x1.5	2.0	0.24	10102770	7.80	10103770	19.90
120	123	25x1.5	2.0	0.27	10122770	8.80	10123770	20.60
140	139	25x1.5	2.0	0.29	10142770	9.40	10143770	20.90
150	153	25x1.5	2.0	0.31	10152770	9.40	10153770	21.30
175	178	25x1.5	2.0	0.34	10172770	10.80	10173770	21.60
200	203	25x1.5	2.0	0.37	10202770	11.20	10203770	23.00
224	223	25x1.5	2.0	0.41	10222770	11.80	10223770	24.40
250	253	25x1.5	2.0	0.44	10252770	11.80	10253770	25.00
280	280	25x1.5	2.0	0.51	10282770	12.30	10283770	26.10
300	303	25x1.5	2.0	0.60	10302770	13.00	10303770	27.80
315	315	30x2.5	2.0	1.25	10312770	13.60	10313770	29.20
350	353	30x2.5	3.0	1.31	10352770	38.00	10353770	92.60
400	402	30x2.5	3.0	1.42	10402770	39.20	10403770	97.50
450	452	30x2.5	3.0	1.60	10452770	40.20	10453770	99.40
500	502	30x2.5	3.0	1.66	10502770	42.40	10503770	103.00
560	562	30x2.5	3.0	1.79	10562770	44.30	10563770	113.00
630	632	30x2.5	3.0	1.80	10632770	46.10	10633770	127.00
710	712	30x2.5		2.50	10712770	51.10	10713770	130.00
800	802	30x2.5		3.50	10802770	64.00	10803770	166.50



FIXING COMPONENTS AND ACCESSORIES

Assembly accessories



Hanger bolt metric

BEARING CLAMPS

3190

- For fixing pipes to steel girders (no welding or drilling required)
- Galvanised cast-iron bearing clamps (clamping width 0-20 mm)
- Bearing clamps, V2A (clamping width 0-16 mm)
- Fully equipped for the suspension of DN 60 to DN 300 pipes, size of through hole M10

S	A	B	C	D	E	H	M	Cast iron, galvanised		V2A	
								Item no.	€/pack of ten	Item no.	€
0-20	23	21	42	11	41	44	10	1008277610	23.00		
0-16	21.5	21	38	11	34	41.5	10			10083776	20.40

FIXING CLIPS

3110

- Electro galvanised
- Load 3.0 kN with a deformation of 5 mm

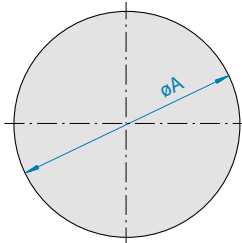
Item no.	€/pack of ten
1008277110	22.00

HANGER BOLTS METRIC

3120/3140/3150/3130

Article		Electro-galvanised		Stainless steel	
		Item no.	€	Item no.	€
Threaded bolts metric 1000 mm long	M 10	10082772	2.40	10083772	5.80
	M 12	10102772	2.50	10103772	7.30
Hexagon nuts metric DIN EN ISO 4032	M 10	10082774	0.10	10083774	0.20
	M 12	10102774	0.10	10103774	0.20
Twin nuts 30 mm long	M 10	10082775	1.30	10083775	2.90
	M 12	10102775	1.50	10103775	3.00
Hanger bolts metric M 10 x 100 mm	M 10	10082773	0.70	10083773	1.90
	M 12	10102773	0.90	10103773	2.70

Blank-off cover



BLANK-OFF COVER

1370

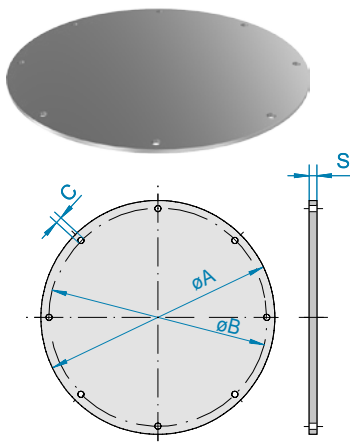
- For permanently closing off a pipe system
- For use in conjunction with U-shaped seal and pull-ring
- From DN 350 mm, also available for flange connections
- Pressure range restricted, particularly in the case of large diameters

Blank-off cover for pull-ring connections

DN	A	kg	1.5 mm stainless steel	F	2 mm stainless steel	F
			Item no.	€	Item no.	€
60	70	0.04	110637151	4.30		
80	92	0.05	110837151	5.50		
100	114	0.10	111037151	5.60		
120	134	0.10	111237151	6.10		
140	150	0.15	111437151	7.30		
150	164	0.15	111537151	7.30		
175	189	0.20	111737151	8.30		
200	214	0.30	112037151	9.40		
224	234	0.30	112237151	10.80		
250	264	0.45	112537151	10.80		
280	292	0.83	112837151	12.00		
300	314	0.55	113037151	12.00		
315	327	1.10	113137151	13.10		
350	364	1.60			123537151	29.80
400	414	1.50			124037151	39.90
450	464	1.50			124537151	48.30
500	514	3.25			125037151	59.00
560	574	4.05			125637151	73.80
630	644	5.15			126337151	93.30

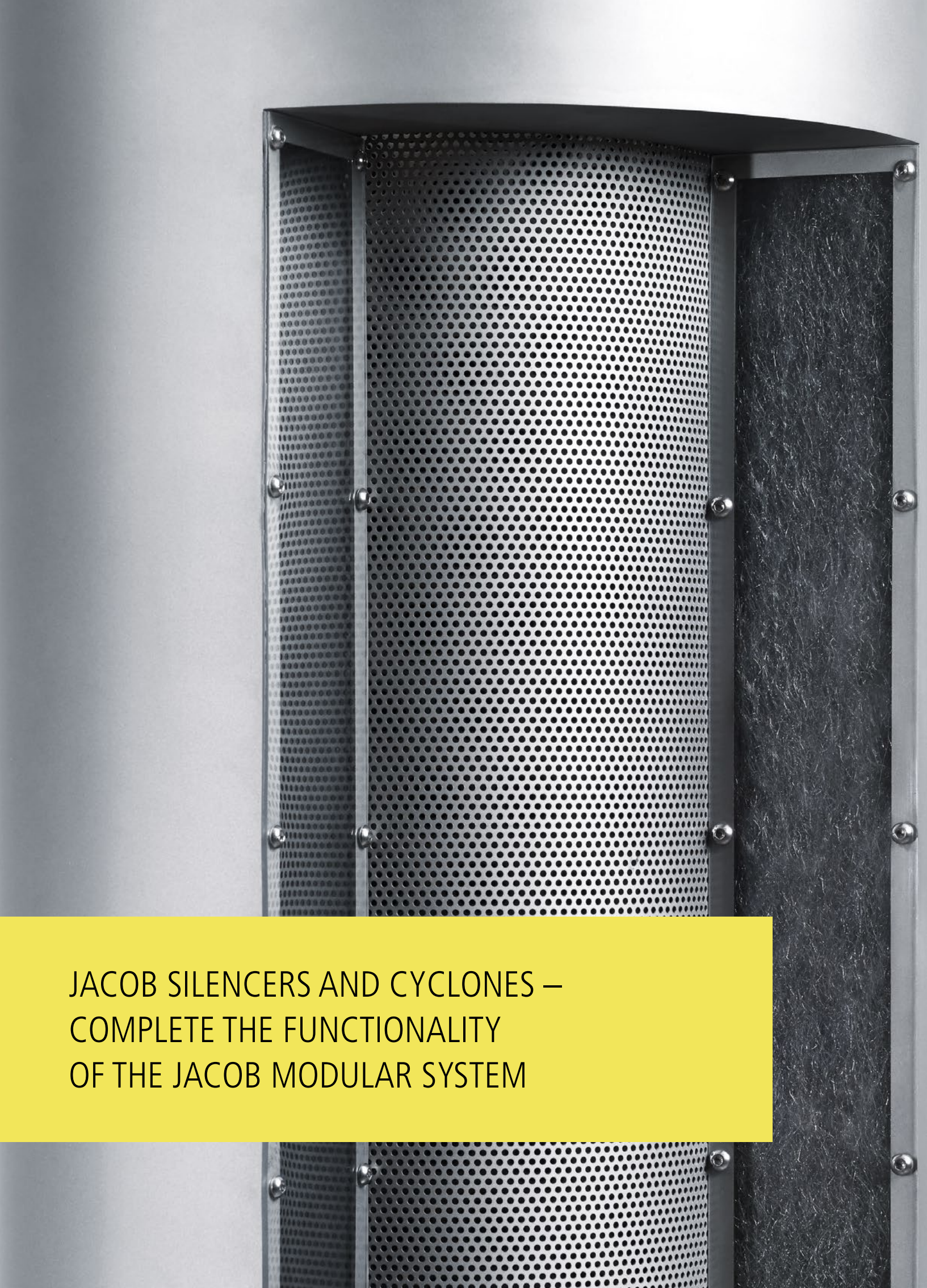
Blank-off cover for flange connections

DN	A	B	C	E	S	kg	Stainless steel	F
							Item no.	€
350	435	405	11.5	8	6	7.00	20353723	104.50
400	484	448	11.5	12	6	8.70	20403723	128.00
450	534	497	11.5	12	6	10.60	20453723	154.00
500	584	551	11.5	12	6	12.70	20503723	181.00
560	664	629	14.0	16	6	16.30	20563723	232.00
630	734	698	14.0	16	6	20.00	20633723	280.50
710	814	775	14.0	16	6	24.50	20713723	340.50
800	904	861	14.0	24	6	30.30	20803723	417.50
900	1004	958	14.0	24	6	37.30	209937230090	510.50
1000	1105	1067	14.0	24	6	45.20	209937230100	613.50
1120	1245	1200	18.0	32	6	57.30	209937230112	775.00
1250	1375	1337	18.0	32	6	69.90	209937230125	1049.00
1400	1525	1475	18.0	32	6	86.00	209937230140	1147.00
1600	1725	1675	18.0	32	6	110.10	209937230160	1461.00



E = No. of holes




F FOOD GRADE
EC 1935/2004 plus FDA compliant



JACOB SILENCERS AND CYCLONES –
COMPLETE THE FUNCTIONALITY
OF THE JACOB MODULAR SYSTEM



SILENCERS AND CYCLONES

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Silencers	246	
Cyclones	249	



SILENCERS AND CYCLONES

Technical information



SILENCERS

In pipework systems, noticeable noise cannot be avoided. To get your production systems to whisper, we offer silencers with JACOB-compatible elements in our standard range. Silencers are available in lengths of 500, 1000 and 1500 mm and in diameters of 80 to 630 mm. They are made in a variety of materials with a wall thickness of 2 mm. The ends are lipped and are alternately available with a loose flange connection from a diameter of 350 mm. The sound-absorbing material applied on the inside consists of non-inflammable mineral wool with a non-woven glass covering. As a component of the JACOB modular pipework system, the silencers are easy to disassemble and assemble for cleaning or to replace the mineral wool.

We are pleased to accommodate special customer requirements. If desired, we can also assist you in selecting the right design variant and the correct dimensions for your acoustic insulation.

The advantages for you:

- Easy to incorporate in the JACOB modular system
- Broad range of standard products with a variety of different diameters, materials and damping lengths
- Replaceable insulation through the use of our pull-ring system
- Accommodation of special customer requirements, such as special lengths
- Special colours



CYCLONES

Utilising centrifugal force, cyclones within a pipework system ensure that solid particles are separated out. Cyclones are often used in industry to recover raw materials from the production process or generally to remove solid particles before recirculating the air. The range of applications is therefore accordingly wide. Our cyclones are used in the timber, plastics and tobacco industries, for example. Our standard cyclones are available in diameters ranging from 250 to 1000 mm with lipped connections, and with diameters from 1120 to 2300 mm with welded-on flanges. For diameters up to 1250 mm, the material thickness can be 2 or 3 mm, and larger diameters are manufactured with a material thickness of 3 mm. Cyclones are available in powder-coated, galvanised or stainless steel versions. Please note that cyclones are passive components. The way they work depends on the volumetric flow, the pressure loss and the material load and particle size.

The nominal diameters refer to the diameter of the cyclone body. The size of the cyclone inlet can be dimensioned with a diameter of between 80 and 900 mm.

The volumetric flow indicated applies for a flow velocity of approx. 20-24 m/sec in the pipe system at the cyclone connection.

The separation rate and pressure loss were determined based on a material load of 1 kg/m³.

We custom-build cyclones according to your individual requirements and we also help you to select the right cyclone for the job. Further models and diameters are available on request. Please call us for further information.

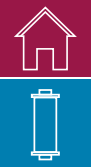
The advantages for you:

- Easy to incorporate in the JACOB modular system
- Easy maintenance through modular design
- Also available in stainless steel for contact with food
- Accommodation of special customer requirements
- Special colours
- Leg supports on request



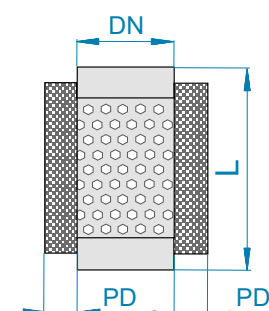
Explanatory video
about cyclones





SILENCERS AND CYCLONES

Silencers



PD = insulation thickness

SILENCERS, DAMPING LENGTH 400 MM

1470/6470

Technical data

DN	L	PD	Volumetric flow (m³/h)	Air speed (m/s)	Damping at 250 Hz (dB)	Acoustic power (A)	Pressure loss (Pa)
80	486	100	250	15	18	32	17
100	486	100	400	15	15	34	14
120	486	100	600	15	13	35	11
140	486	100	800	15	12	36	10
150	486	100	900	15	11	37	9
175	486	100	1200	15	10	38	8
200	486	100	1600	15	9	40	7
224	486	100	2100	15	9	41	6
250	486	100	2600	15	7	42	5
300	486	100	3800	15	6	43	5
350	486	100	5100	15	5	44	4
400	486	100	6700	15	5	46	3

DN	2 mm, primed, with lipped end		2 mm, primed, with welded-on flange		2 mm, hot-dip galvanised, with lipped end		2 mm, hot-dip galvanised, with welded-on flange	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	4200805012500	293.00			4200805022500	319.00		
100	4201005012500	299.50			4201005022500	332.50		
120	4201205012500	310.50			4201205022500	347.00		
140	4201405012500	334.50			4201405022500	375.00		
150	4201505012500	352.00			4201505022500	395.50		
175	4201705012500	394.00			4201705022500	443.00		
200	4202005012500	429.00			4202005022500	483.00		
224	4202205012500	467.50			4202205022500	528.50		
250	4202505012500	502.50			4202505022500	572.50		
300	4203005012500	553.00			4203005022500	637.50		
350	4203505012500	600.00	4203505012503	658.00	4203505022500	700.00	4203505022503	770.00
400	4204005012500	656.50	4204005012503	725.00	4204005022500	770.00	4204005022503	836.50

DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
80	4200805032500	426.00		
100	4201005032500	447.00		
120	4201205032500	466.00		
140	4201405032500	496.50		
150	4201505032500	525.00		
175	4201705032500	571.00		
200	4202005032500	620.50		
224	4202205032500	672.50		
250	4202505032500	721.50		
300	4203005032500	794.00		
350	4203505032500	863.00	4203505032503	937.50
400	4204005032500	941.00	4204005032503	1026.00



SILENCERS, DAMPING LENGTH 900 MM

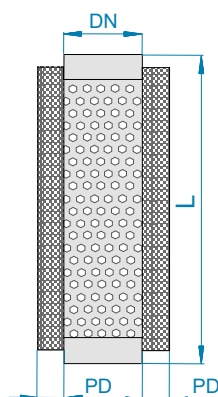
1470

Technical data

DN	L	PD	Volumetric flow (m³/h)	Air speed (m/s)	Damping at 250 Hz (dB)	Acoustic power (A)	Pressure loss (Pa)
80	984	100	270	15	37	32	38
100	984	100	400	15	30	34	31
120	984	100	600	15	25	35	26
140	984	100	800	15	24	36	22
150	984	100	900	15	22	37	20
175	984	100	1200	15	21	38	18
200	984	100	1700	15	18	40	15
224	984	100	2100	15	17	41	14
250	984	100	2600	15	15	42	12
300	984	100	3800	15	13	43	10
350	984	100	5100	15	12	44	9
400	984	100	6700	15	11	46	8
450	984	100	8500	15	8	47	7

DN	2 mm, primed, with lipped end		2 mm, primed, with welded-on flange		2 mm, hot-dip galvanised, with lipped end		2 mm, hot-dip galvanised, with welded-on flange	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	4200810012500	328.00			4200810022500	385.00		
100	4201010012500	338.00			4201010022500	404.50		
120	4201210012500	352.00			4201210022500	425.50		
140	4201410012500	383.50			4201410022500	464.00		
150	4201510012500	401.00			4201510022500	485.00		
175	4201710012500	452.00			4201710022500	542.50		
200	4202010012500	485.00			4202010022500	588.00		
224	4202210012500	527.00			4202210022500	635.00		
250	4202510012500	565.00			4202510022500	686.00		
300	4203010012500	623.00			4203010022500	761.50		
350	4203510012500	679.00	4203510012503	737.00	4203510022500	838.00	4203510022503	906.50
400	4204010012500	747.50	4204010012503	814.00	4204010022500	924.00	4204010022503	1006.00
450	4204510012500	796.50	4204510012503	873.00	4204510022500	994.00	4204510022503	1089.00

DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
80	4200810032500	515.50		
100	4201010032500	540.50		
120	4201210032500	569.00		
140	4201410032500	609.00		
150	4201510032500	641.50		
175	4201710032500	708.50		
200	4202010032500	763.50		
224	4202210032500	819.00		
250	4202510032500	882.00		
300	4203010032500	971.50		
350	4203510032500	1064.00	4203510032503	1138.00
400	4204010032500	1173.00	4204010032503	1257.00
450	4204510032500	1264.00	4204510032503	1362.00

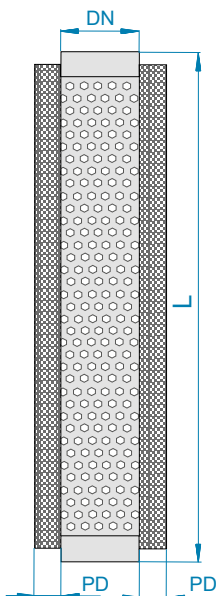
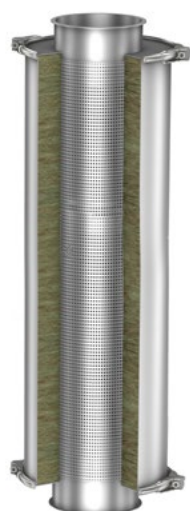


PD = insulation thickness



SILENCERS AND CYCLONES

Silencers



PD = insulation thickness

SILENCERS, DAMPING LENGTH 1400 MM

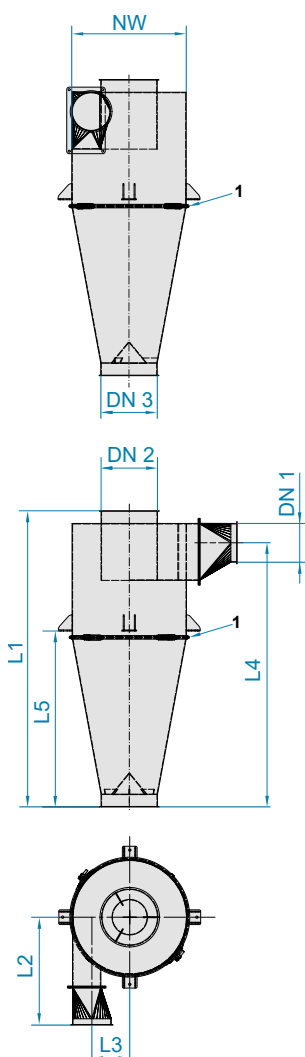
1470

Technical data

DN	L	PD	Volumetric flow (m³/h)	Air speed (m/s)	Damping at 250 Hz (dB)	Acoustic power (A)	Pressure loss (Pa)
150	1484	100	900	15	34	37	32
175	1484	100	1200	15	32	38	27
200	1484	100	1700	15	27	40	24
224	1484	100	2100	15	26	41	21
250	1484	100	2600	15	23	42	19
300	1484	100	3800	15	30	43	16
350	1484	100	5100	15	18	44	14
400	1484	100	6700	15	16	46	12
450	1484	100	8500	15	13	47	11
500	1484	100	10600	15	12	48	10
560	1484	100	13300	15	12	49	9
630	1484	100	15800	15	11	50	8

DN	2 mm, primed, with lipped end		2 mm, primed, with welded-on flange		2 mm, hot-dip galvanised, with lipped end		2 mm, hot-dip galvanised, with welded-on flange	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	4201515012500	453.50			4201515022500	572.50		
175	4201715012500	507.50			4201715022500	639.00		
200	4202015012500	544.50			4202015022500	686.00		
224	4202215012500	590.00			4202215022500	745.50		
250	4202515012500	630.00			4202515022500	796.50		
300	4203015012500	698.50			4203015022500	890.50		
350	4203515012500	761.50	4203515012503	819.00	4203515022500	978.00	4203515022503	1048.00
400	4204015012500	831.50	4204015012503	899.50	4204015022500	1073.00	4204015022503	1155.00
450	4204515012500	887.50	4204515012503	966.00	4204515022500	1159.00	4204515022503	1253.00
500	4205015012500	1119.00	4205015012503	1210.00	4205015022500	1577.00	4205015022503	1685.00
560	4205615012500	1159.00	4205615012503	1257.00	4205615022500	1619.00	4205615022503	1736.00
630	4206315012500	1257.00	4206315012503	1367.00	4206315022500	1780.00	4206315022503	1918.00

DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
150	4201515032500	763.50		
175	4201715032500	842.00		
200	4202015032500	905.00		
224	4202215032500	977.50		
250	4202515032500	1045.00		
300	4203015032500	1161.00		
350	4203515032500	1269.00	4203515032503	1381.00
400	4204015032500	1390.00	4204015032503	1474.00
450	4204515032500	1505.00	4204515032503	1603.00
500	4205015032500	1720.00	4205015032503	1898.00
560	4205615032500	1860.00	4205615032503	2016.00
630	4206315032500	2051.00	4206315032503	2208.00



- 1 Connection between top and bottom section of cyclone:
- Pull-ring connection
NW 250-630 mm
 - Welded flanges
NW 710-2300 mm
 - From DN 710 mm
with a domed cover

CYCLONES

1480

- Please also read and take into account the technical information given at the beginning of this chapter
- Up to NW 1800 mm powder-coated
- NW 2000 and 2300 mm spray-primed

Technical data

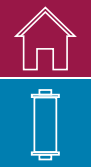
NW	DN 1	DN 2	DN 3	L1	L2	L3	L4	L5	Volumetric flow (m³/h)	Pressure loss (Pa)	Separation rate 95% with particle size (µm):
250	80	120	120	650	262	87	560	375	407	1020	>10
300	100	150	150	800	302	102	699	475	636	1012	>10
350	120	175	175	925	347	117	814	550	865	924	>12
400	140	200	200	1050	386	131	931	625	1130	980	>12
450	150	224	224	1170	426	151	1044	695	1418	984	>13
500	175	250	250	1300	471	164	1161	775	1766	980	>13
560	200	280	280	1450	516	181	1299	865	2216	980	>14
630	224	300	300	1550	576	204	1389	895	2543	975	>15
710	250	350	350	1800	647	232	1474	1040	3462	978	>16
800	280	400	400	2050	717	262	1710	1200	4522	980	>18
900	300	450	450	2300	802	302	1949	1350	5723	980	>18
1000	350	500	500	2550	887	327	2174	1500	7065	980	>19

Inlets and outlets with 6 mm lip, powder-coated in RAL 7032 and galvanised

NW	2 mm powder-coated		3 mm powder-coated		2 mm galvanised		3 mm galvanised	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
250	4202002512255	647.50	4203002512255	809.50	4202002522255	796.00	4203002522255	971.50
300	4202003012255	727.00	4203003012255	908.50	4202003022255	894.00	4203003022255	1091.00
350	4202003512255	798.50	4203003512255	998.00	4202003522255	982.00	4203003522255	1198.00
400	4202004012255	821.00	4203004012255	1027.00	4202004022255	1010.00	4203004022255	1233.00
450	4202004512255	889.00	4203004512255	1111.00	4202004522255	1094.00	4203004522255	1333.00
500	4202005012255	954.00	4203005012255	1192.00	4202005022255	1174.00	4203005022255	1430.00
560	4202005612255	1021.00	4203005612255	1277.00	4202005622255	1256.00	4203005622255	1533.00
630	4202006312255	1101.00	4203006312255	1376.00	4202006322255	1355.00	4203006322255	1652.00
710	4202007112255	1185.00	4203007112255	1482.00	4202007122255	1458.00	4203007122255	1778.00
800	4202008012255	1599.00	4203008012255	1998.00	4202008022255	1966.00	4203008022255	2398.00
900	4202009012255	1710.00	4203009012255	2136.00	4202009022255	2101.00	4203009022255	2562.00
1000	4202010012255	2131.00	4203010012255	2663.00	4202010022255	2620.00	4203010022255	3196.00

Inlets and outlets with 6 mm lip, stainless steel, shotblasted or pickled and passivated

NW	2 mm 1.4301 (304) shotblasted		2 mm 1.4571 (316Ti) pickled and passivated	
	Item no.	€	Item no.	€
250	4202002532255	1305.00	4202002542255	1631.00
300	4202003032255	1545.00	4202003042255	1936.00
350	4202003532255	1785.00	4202003542255	2233.00
400	4202004032255	1946.00	4202004042255	2433.00
450	4202004532255	2107.00	4202004542255	2634.00
500	4202005032255	2262.00	4202005042255	2826.00
560	4202005632255	2414.00	4202005642255	3018.00
630	4202006332255	2569.00	4202006342255	3211.00
710	4202007132255	2730.00	4202007142255	3411.00
800	4202008032255	3313.00	4202008042255	4142.00
900	4202009032255	4166.00	4202009042255	5207.00
1000	4202010032255	5019.00	4202010042255	6273.00

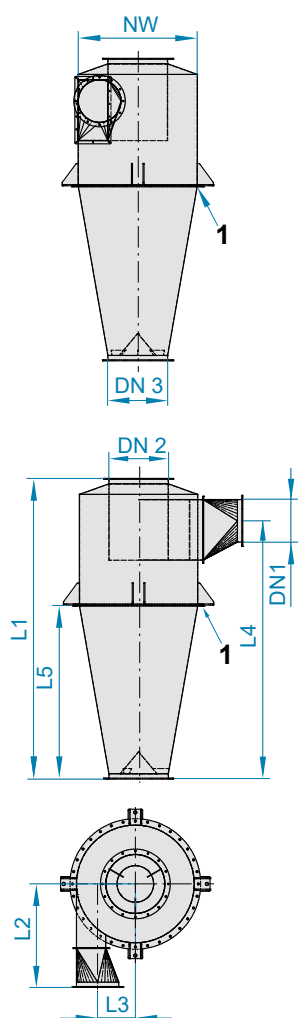


SILENCERS AND CYCLONES

Cyclones



Product similar to picture



- 1 Connection between top and bottom section with JACOB flanges
- DN 1, 2 and 3 with welded flanges; flanges welded off-radius
 - Dimensions of JACOB flanges see chapter 12
 - From a nominal diameter of 2000 mm: three-part cyclone

Technical data

NW	DN 1	DN 2	DN 3	L1	L2	L3	L4	L5	Volumetric flow (m³/h)	Pressure loss (Pa)	Separation rate 95% with particle size (µm):
1120	400	560	560	2900	987	362	2449	1650	8862	1003	>19
1250	450	630	630	3250	1097	402	2774	1900	11216	998	>21
1400	500	710	710	3650	1217	452	3149	2130	14246	980	>22
1600	560	800	800	4100	1387	522	3569	2400	18086	980	>24
1800	630	900	900	4600	1552	587	4034	2700	22891	980	>25
2000	710	1000	1000	5100	1717	647	4493	3000	28260	980	>28
2300	800	1120	1120	5850	1967	752	5198	3450	37374	980	>29

Inlets and outlets with welded-on flanges, powder-coated in RAL 7032 and galvanised

NW	2 mm powder-coated		3 mm powder-coated		2 mm galvanised		3 mm galvanised	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
1120	4202011212255	2383.00	4203011212255	2978.00	4202011222255	2931.00	4203011222255	3574.00
1250	4202012512255	2799.00	4203012512255	3499.00	4202012522255	3443.00	4203012522255	4198.00
1400			4203014012255	4835.00			4203014022255	5802.00
1600			4203016012255	5658.00			4203016022255	6790.00
1800			4203018012255	6289.00			4203018022255	7546.00
2000			4203020012255	7358.00			4203020022255	8830.00
2300			4203023012255	8018.00			4203023022255	9621.00

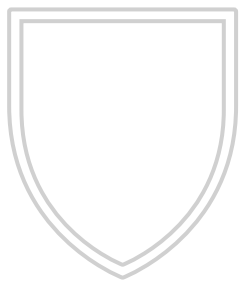
Inlets and outlets with welded-on flanges, stainless steel, shotblasted or pickled and passivated

NW	2 mm 1.4301 (304) pickled and passivated		3 mm 1.4301 (304) pickled and passivated		2 mm 1.4571 (316Ti) pickled and passivated		3 mm 1.4571 (316Ti) pickled and passivated	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
1120	4202011232255	5811.00	4203011232255	7263.00	4202011242255	7263.00	4203011242255	9077.00
1250	4202012532255	6824.00	4203012532255	8532.00	4202012542255	8530.00	4203012542255	10664.00
1400			4203014032255	10965.00			4203014042255	13705.00
1600			4203016032255	11730.00			4203016042255	14660.00
1800			4203018032255	13721.00			4203018042255	17151.00
2000			4203020032255	16056.00			4203020042255	20069.00
2300			4203023032255	18466.00			4203023042255	23080.00





GREATER EFFICIENCY WITH THE
JACOB WEAR PROTECTION RANGE



WEAR PROTECTION LINING

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WEAR PROTECTION LINING

Technical information



JACOB WEAR PROTECTION RANGE

Industrial systems that work more and more efficiently lead to an increase in the weight conveyed by the JACOB pipework system. In view of this, we have developed the new wear protection range.

You have the choice between several branded products. These consist basically of polyurethane, but vary due to their different material properties. The products are combined with our modular pipework system. We offer you diameters 150 to 350 mm as standard. The advantage of polyurethane is its elastic yet wear-resistant structure. As a result, the impact energy due to deflections is absorbed in particular and thereby extends the lifetime.

Thanks to the modular JACOB system, you can simply replace worn pipe components with lined pipes. You can still use pull-rings and seals from the standard range. To prevent the wear protection lining from being undermined, we have a transition component in our range with a chamfered lining which is fixed particularly securely in place. It is recommended that this piece is fitted at every place where lined pipework begins.

We also continue to supply ceramic linings, a non-stick coating such as PTFE or a lining of your choice, such as PU in glued form, upon request.

As an alternative to lined pipework, JACOB offers cast iron pipe components (see page 262) or hot-dip galvanised pipe components with 3 mm wall thickness (see page 264).

Our team would be pleased to assist you with selecting the right wear protection.

The advantages for you

- Wear protection in a modular system
- Perfect for combining with JACOB pull-ring system
- Flexibly replaceable
- Easy to assemble
- Longer lasting when conveying abrasive materials
- Choice between several materials in the standard range
- Other linings available on request



JACOB WEAR PROTECTION RANGE

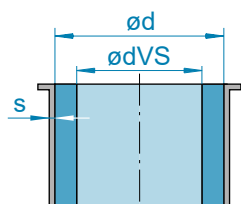
For the wear protection range, JACOB uses pipe components from the modular system which are lined with different materials:

- 2 mm wall thickness
- Galvanised or powder-coated
- DN 150 to 350 mm
- Straight pipes: 200, 500 and 1000 mm long
- Inlet piece: 50 mm long, with bevelled lining
- Segments: 5°, 15°, 30°, 45°
- Forks
- Cone pieces (partly 1.5 mm wall thickness)
- Two-way valves with inlet collar (powder-coated only)

See chapter 1 for dimensions and materials of JACOB pipework.

JACOB pipework galvanised or powder-coated

Lined with Blue Ox	Lined with Kryptane green	Lined with Rhino Hyde orange	Lined with Rhino Hyde blue
Polyurethane with expanded metal	Polyurethane with expanded metal	Polyurethane with expanded metal	Polyurethane with expanded metal
Material thickness approx. 6.5 mm	Material thickness approx. 6 mm	Material thickness approx. 8 mm	Material thickness approx. 8 mm
	FDA and EC 1935/2004 for handling bulk dry feed	FDA	FDA
		conductive	conductive
up to 80°C	up to 80°C	up to 60°C	up to 80°C
blue	green	orange	blue
Shore hardness A 85°	Shore hardness A 83°	Shore hardness A 85°	Shore hardness A 85°
bolted	bolted	bolted	bolted
Lining recommended solely for the grain and concentrated feed industry, for light to medium wear	Recommended use for linings for conveying non-sharp-edged bulk materials up to a conveying speed of 20 m/sec – Agricultural industry, e.g. to convey grains, soya, maize, etc. – Industry: e.g. to convey cement, lime, sand, gravel, concrete		



Internal diameter 1.5 mm pipework with wear protection lining

DN	Ø d	Ø dVS		
		Kryptane Material thickness approx. 6 mm	Blue Ox Material thickness approx. 6.5 mm	Rhino Hyde orange and blue Material thickness approx. 8 mm
150	150	138	137	134
200	200	188	187	184
250	250	238	237	234
300	300	288	287	284
350	350	338	337	334

Internal diameter 2 mm pipework with wear protection lining

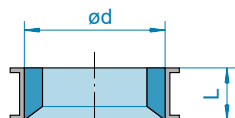
DN	Ø d	Ø dVS		
		Kryptane Material thickness approx. 6 mm	Blue Ox Material thickness approx. 6.5 mm	Rhino Hyde orange and blue Material thickness approx. 8 mm
150	149	137	136	133
200	199	187	186	183
250	249	237	236	233
300	299	287	286	283
350	349	337	336	333

All internal diameters (dVS) are approximate dimensions



WEAR PROTECTION LINING

Inlet pieces / Pipes



L = 50 mm

INLET PIECE WEAR PROTECTION LINING

1490

50 mm long, 2 mm powder-coated

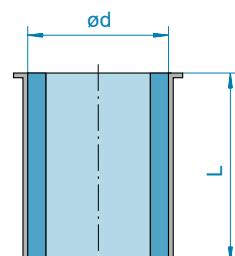
DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	121514000952	44.20	121514000951	47.00	121514000953	47.50	121514000950	53.10
200	122014000952	46.30	122014000951	50.20	122014000953	50.80	122014000950	58.30
250	122514000952	48.10	122514000951	52.90	122514000953	53.70	122514000950	63.10
300	123014000952	51.10	123014000951	56.80	123014000953	57.80	123014000950	69.00
350	123514000952	57.20	123514000951	63.90	123514000953	65.00	123514000950	78.10

50 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	121524000952	46.60	121524000951	49.40	121524000953	49.90	121524000950	55.60
200	122024000952	49.70	122024000951	53.50	122024000953	54.20	122024000950	61.70
250	122524000952	51.50	122524000951	56.30	122524000953	57.10	122524000950	66.40
300	123024000952	55.20	123024000951	60.90	123024000953	61.80	123024000950	73.10
350	123524000952	60.60	123524000951	67.30	123524000953	68.40	123524000950	81.50

PIPES – WEAR PROTECTION

1492



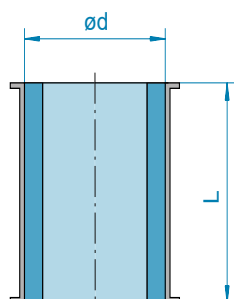
200 mm long: L = 200 mm
500 mm long: L = 486 mm
1000 mm long: L = 984 mm

200 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	121510400952	65.10	121510400951	76.50	121510400953	78.40	121510400950	101.00
200	122010400952	72.70	122010400951	87.90	122010400953	90.50	122010400950	120.50
250	122510400952	79.40	122510400951	98.40	122510400953	102.00	122510400950	139.50
300	123010400952	87.30	123010400951	110.50	123010400953	114.00	123010400950	159.00
350	123510400952	98.10	123510400951	125.00	123510400953	129.50	123510400950	182.00

200 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	121520400952	70.80	121520400951	82.20	121520400953	84.10	121520400950	107.00
200	122020400952	78.80	122020400951	94.00	122020400953	96.60	122020400950	127.00
250	122520400952	85.10	122520400951	104.50	122520400953	107.50	122520400950	145.00
300	123020400952	98.00	123020400951	121.00	123020400953	125.00	123020400950	170.00
350	123520400952	114.50	123520400951	141.50	123520400953	145.50	123520400950	198.00



200 mm long; L = 200 mm
500 mm long; L = 486 mm
1000 mm long; L = 984 mm

500 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	121510300952	108.50	121510300951	137.00	121510300953	142.00	121510300950	198.00
200	122010300952	127.50	122010300951	165.50	122010300953	171.50	122010300950	246.50
250	122510300952	143.00	122510300951	190.50	122510300953	198.50	122510300950	292.00
300	123010300952	160.00	123010300951	217.00	123010300953	226.50	123010300950	339.00
350	123510300952	179.00	123510300951	245.50	123510300953	256.50	123510300950	388.00

500 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	121520300952	92.70	121520300951	104.50	121520300953	106.00	121520300950	128.50
200	122020300952	139.50	122020300951	177.50	122020300953	184.00	122020300950	259.00
250	122520300952	154.50	122520300951	202.00	122520300953	210.00	122520300950	303.50
300	123020300952	175.50	123020300951	232.50	123020300953	242.00	123020300950	354.50
350	123520300952	210.50	123520300951	277.00	123520300953	288.00	123520300950	419.50

1000 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	121510200952	189.00	121510200951	246.00	121510200953	255.50	121510200950	368.00
200	122010200952	221.00	122010200951	297.00	122010200953	310.00	122010200950	460.00
250	122510200952	252.50	122510200951	347.50	122510200953	363.50	122510200950	551.00
300	123010200952	285.50	123010200951	399.50	123010200953	418.00	123010200950	643.50
350	123510200952	326.00	123510200951	459.00	123510200953	481.00	123510200950	743.50

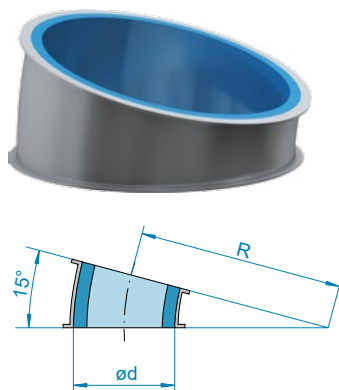
1000 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	121520200952	157.50	121520200951	186.00	121520200953	190.50	121520200950	247.00
200	122020200952	245.00	122020200951	321.00	122020200953	333.50	122020200950	483.50
250	122520200952	274.50	122520200951	369.50	122520200953	385.00	122520200950	572.50
300	123020200952	312.50	123020200951	426.50	123020200953	445.50	123020200950	670.50
350	123520200952	379.50	123520200951	512.50	123520200953	534.00	123520200950	797.50



WEAR PROTECTION LINING

Segments



SEGMENTS – WEAR PROTECTION

1494/1496/1498/1500

5°, 2 mm powder-coated

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	500	121513000952	52.50	121513000951	56.10	121513000953	56.70	121513000950	63.90
200	690	122013000952	59.10	122013000951	65.00	122013000953	66.00	122013000950	77.70
250	635	122513000952	64.90	122513000951	72.00	122513000953	73.10	122513000950	87.00
300	625	123013000952	75.80	123013000951	84.60	123013000953	86.10	123013000950	103.50
350	350	123513000952	85.30	123513000951	93.10	123513000953	94.40	123513000950	110.00

5°, 2 mm galvanised

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	500	121523000952	54.30	121523000951	57.90	121523000953	58.50	121523000950	65.70
200	690	122023000952	63.80	122023000951	69.70	122023000953	70.70	122023000950	82.40
250	635	122523000952	72.10	122523000951	79.10	122523000953	80.30	122523000950	94.20
300	625	123023000952	85.00	123023000951	93.80	123023000953	95.30	123023000950	113.00
350	350	123523000952	86.40	123523000951	94.20	123523000953	95.50	123523000950	111.00

15°, 2 mm powder-coated

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	250	121513100952	67.70	121513100951	73.10	121513100953	74.00	121513100950	84.80
200	270	122013100952	74.50	122013100951	82.60	122013100953	83.90	122013100950	99.90
250	310	122513100952	83.60	122513100951	95.10	122513100953	97.00	122513100950	120.00
300	310	123013100952	96.70	123013100951	112.00	123013100953	114.50	123013100950	143.50
350	350	123513100952	115.00	123513100951	135.00	123513100953	138.50	123513100950	177.50

15°, 2 mm galvanised

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	250	121523100952	69.20	121523100951	74.60	121523100953	75.50	121523100950	86.30
200	270	122023100952	79.20	122023100951	87.30	122023100953	88.60	122023100950	105.00
250	310	122523100952	90.80	122523100951	102.50	122523100953	104.50	122523100950	127.00
300	310	123023100952	106.00	123023100951	121.00	123023100953	123.50	123023100950	153.00
350	350	123523100952	116.00	123523100951	136.00	123523100953	139.50	123523100950	178.50



30°, 2 mm powder-coated

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	175	121513200952	97.20	121513200951	105.50	121513200953	106.50	121513200950	122.00
200	180	122013200952	108.00	122013200951	120.00	122013200953	122.00	122013200950	145.00
250	230	122513200952	121.50	122513200951	140.00	122513200953	143.00	122513200950	179.00
300	230	123013200952	136.50	123013200951	161.00	123013200953	165.00	123013200950	212.50
350	350	123513200952	171.00	123513200951	208.50	123513200953	214.50	123513200950	288.50

30°, 2 mm galvanised

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	175	121523200952	99.20	121523200951	107.50	121523200953	108.50	121523200950	124.00
200	180	122023200952	113.50	122023200951	125.50	122023200953	127.50	122023200950	150.50
250	230	122523200952	130.50	122523200951	148.50	122523200953	151.50	122523200950	188.00
300	230	123023200952	148.50	123023200951	173.00	123023200953	177.00	123023200950	224.50
350	350	123523200952	172.50	123523200951	210.00	123523200953	216.00	123523200950	290.00

45°, 2 mm powder-coated

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	150	121513300952	123.50	121513300951	132.00	121513300953	133.50	121513300950	150.00
200	195	122013300952	141.00	122013300951	155.50	122013300953	157.50	122013300950	186.00
250	195	122513300952	149.50	122513300951	167.50	122513300953	170.50	122513300950	206.50
300	205	123013300952	166.00	123013300951	189.50	123013300953	193.00	123013300950	239.00
350	350	123513300952	260.00	123513300951	305.50	123513300953	313.00	123513300950	402.50

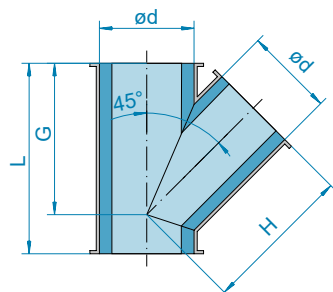
45°, 2 mm galvanised

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	150	121523300952	125.00	121523300951	133.50	121523300953	134.50	121523300950	151.00
200	195	122023300952	150.50	122023300951	165.00	122023300953	167.50	122023300950	195.50
250	195	122523300952	160.50	122523300951	178.50	122523300953	181.50	122523300950	217.00
300	205	123023300952	180.00	123023300951	203.00	123023300953	207.00	123023300950	252.50
350	350	123523300952	258.00	123523300951	303.50	123523300953	311.00	123523300950	400.50



WEAR PROTECTION LINING

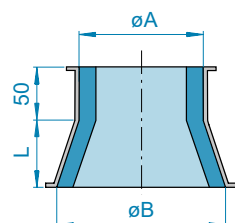
Forks/Cone pieces



See chapter 5 for fork dimensions



Product similar to picture



FORKS – WEAR PROTECTION

1502

45°, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	121512200952	252.50	121512200951	287.50	121512200953	293.00	121512200950	362.00
200	122012200952	320.00	122012200951	381.50	122012200953	392.00	122012200950	513.00
250	122512200952	377.50	122512200951	459.50	122512200953	473.00	122512200950	635.00
300	123012200952	456.50	123012200951	573.50	123012200953	593.00	123012200950	824.50
350	123512200952	559.50	123512200951	730.00	123512200953	758.50	123512200950	1096.00

45°, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	121522200952	262.50	121522200951	297.50	121522200953	303.00	121522200950	372.00
200	122022200952	335.50	122022200951	397.00	122022200953	407.50	122022200950	528.50
250	122522200952	399.50	122522200951	481.50	122522200953	495.50	122522200950	657.00
300	123022200952	487.50	123022200951	604.50	123022200953	624.00	123022200950	855.50
350	123522200952	573.00	123522200951	743.50	123522200953	772.00	123522200950	1109.00

CONE PIECES – WEAR PROTECTION

1504

2 mm powder-coated

DN	L	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€	Item no.	€
150-200	100	110014610952*	169.50	110014610951*	183.50	110014610953*	185.50	110014610950*	212.50
150-250	150	110014620952*	184.00	110014620951*	204.50	110014620953*	207.50	110014620950*	247.50
150-300	200	110014630952*	211.50	110014630951*	245.00	110014630953*	251.00	110014630950*	318.00
200-250	120	120014700952	183.50	120014700951	203.50	120014700953	207.00	120014700950	247.00
200-300	150	120014710952	202.00	120014710951	230.50	120014710953	235.50	120014710950	291.50
250-300	150	120014750952	205.00	120014750951	235.00	120014750953	240.00	120014750950	300.00
250-350	200	120014840952	224.00	120014840951	256.50	120014840953	262.00	120014840950	326.50
300-350	200	120014800952	250.50	120014800951	298.00	120014800953	306.00	120014800950	400.00

*1.5 mm

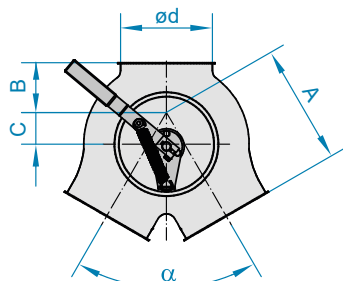
2 mm galvanised

DN	L	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€	Item no.	€
150-200	100	110024610952*	173.50	110024610951*	187.50	110024610953*	189.50	110024610950*	217.00
150-250	150	110024620952*	188.00	110024620951*	208.50	110024620953*	211.50	110024620950*	251.50
150-300	200	110024630952*	203.50	110024630951*	237.50	110024630953*	243.00	110024630950*	310.00
200-250	120	120024700952	188.00	120024700951	208.00	120024700953	211.50	120024700950	251.50
200-300	150	120024710952	208.50	120024710951	236.50	120024710953	241.50	120024710950	297.50
250-300	150	120024750952	209.00	120024750951	239.50	120024750953	244.50	120024750950	304.00
250-350	200	120024840952	232.00	120024840951	264.50	120024840953	269.50	120024840950	333.00
300-350	200	120024800952	264.50	120024800951	312.00	120024800953	320.00	120024800950	414.00

*1.5 mm



Two-way valves with inlet collar



Inlet and inner flap lined

Refer to chapter 9 for dimensions of two-way valve with inlet collar

TWO-WAY VALVES WITH INLET COLLAR WEAR PROTECTION LINING

1506

- For gravity-flow pipe systems for coarse bulk goods

Asymmetrical 60°, hand-operated, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	121515120952	372.50	121515120951	392.00	121515120953	395.00	121515120950	433.00
200	122015170952	505.00	122015170951	539.50	122015170953	545.50	122015170950	614.50
250	122515170952	631.50	122515170951	684.00	122515170953	693.00	122515170950	797.00
300	123015120952	821.00	123015120951	898.00	123015120953	910.50	123015120950	1062.00
350	123515150952	1363.00	123515150951	1444.00	123515150953	1458.00	123515150950	1618.00

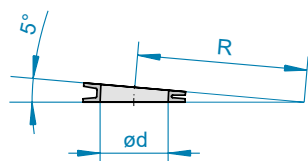
Symmetrical 60°, hand-operated, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde orange		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	121515020952	331.50	121515020951	345.00	121515020953	347.00	121515020950	373.50
200	122015050952	451.50	122015050951	472.00	122015050953	475.50	122015050950	516.00
250	122515050952	595.00	122515050951	645.50	122515050953	654.00	122515050950	753.50
300	123015020952	772.00	123015020951	837.50	123015020953	848.50	123015020950	977.50
350	123515050952	1332.00	123515050951	1414.00	123515050953	1428.00	123515050950	1591.00

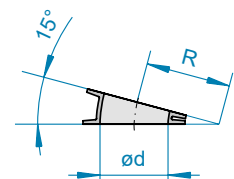


WEAR PROTECTION LINING

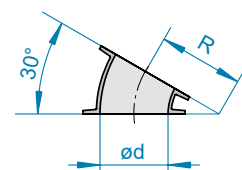
Cast-iron pipework



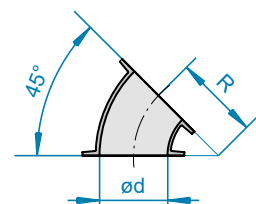
Cast-iron segment 5°



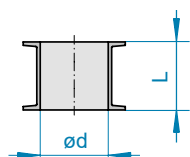
Cast-iron segment 15°



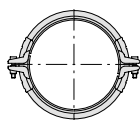
Cast-iron segment 30°



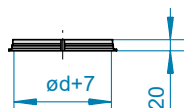
Cast-iron segment 45°



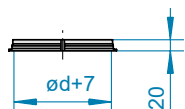
Cast-iron pipes



Pull-rings for cast-iron pipework



Angle flanges



Angle flanges, 1 cut

CAST-IRON PIPEWORK

1160/1170/1180/1190/1150/1200/7000/1210

- Cast-iron pipework made from modular spheroidal graphite cast iron
- 7.5 mm wall thickness
- Powder-coated (RAL 7032)

- Internal diameters correspond to 3 mm thick pipework
- Connection using pull-rings for cast-iron pipes
- Combination with JACOB pipework with lip using angle flanges

Cast-iron segments 5° and 15°

DN	Ø d	R	Cast-iron segments 5°		R	Cast-iron segments 15°	
			Item no.	€		Item no.	€
120	118				155	17121310	38.80
150	148	600	17151300	38.80	250	17151310	44.10
200	198	690	17201300	54.60	270	17201310	59.70
250	248	635	17251300	64.80	310	17251310	70.10
300	298	625	17301300	67.40	310	17301310	80.40

Cast-iron segments 30° and 45°

DN	Ø d	R	Cast-iron segments 30°		R	Cast-iron segments 45°	
			Item no.	€		Item no.	€
120	118	110	17121320	49.20			
150	148	175	17151320	49.20	150	17151330	54.60
200	198	180	17201320	64.80	195	17201330	80.40
250	248	230	17251320	112.00	195	17251330	125.50
300	298	230	17301320	125.50	205	17301330	133.00

Cast-iron pipes and pull-rings

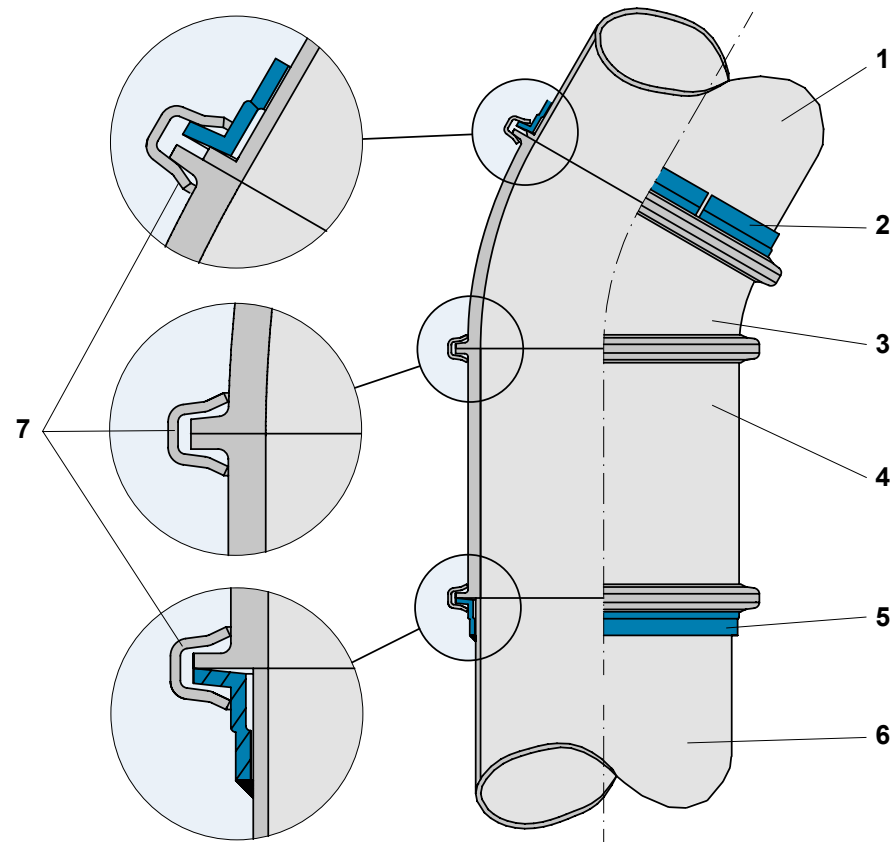
DN	Ø d	L	Cast-iron pipes		Pull-rings for cast-iron pipework, galvanised, with mastic sealant	
			Item no.	€	Item no.	€
120	118	150	17121040	64.60	17122382	9.60
150	148	150	17151040	69.70	17152382	11.00
200	198	200	17201040	125.00	17202382	11.90
250	248	250	17251040	132.50	17252382	13.70
300	298	300	17301040	174.00	17302382	15.30

Angle flanges

DN	Ø d	Angle flanges for welding-on on site		Angle flanges, 1 cut	
		Item no.	€	Item no.	€
120	118	33121705	5.00	17121705	6.30
150	148	33151705	5.40	17151705	6.30
200	198	33201705	7.00	17201705	7.10
250	248	33251705	9.00	17251705	7.50
300	298	33301705	10.10	17301705	8.30



INCORPORATING CAST-IRON PIPE COMPONENTS INTO THE MODULAR PIPEWORK SYSTEM



- 1 Steel pipe with lip
- 2 Angle flange (1 cut)
- 3 Cast-iron segment
- 4 Cast-iron pipe
- 5 Angle flange welded-on
- 6 Steel pipe
- 7 Pull-rings for cast-iron pipework

- Angle flange, 1 cut, is rotated on behind the lipped end of the existing JACOB pipe component and connected to the cast-iron pipe with the pull-ring for cast-iron pipes.
- Alternatively: Use of an angle flange for welding-on on site. One pipe end without a lip is necessary to enable the angle flange to be fitted. This can be created when connecting pipes are shortened, for example.



WEAR PROTECTION LINING

Special range hot-dip galvanised 3 mm



PIPEWORK SYSTEM HOT-DIP GALVANISED 3 MM

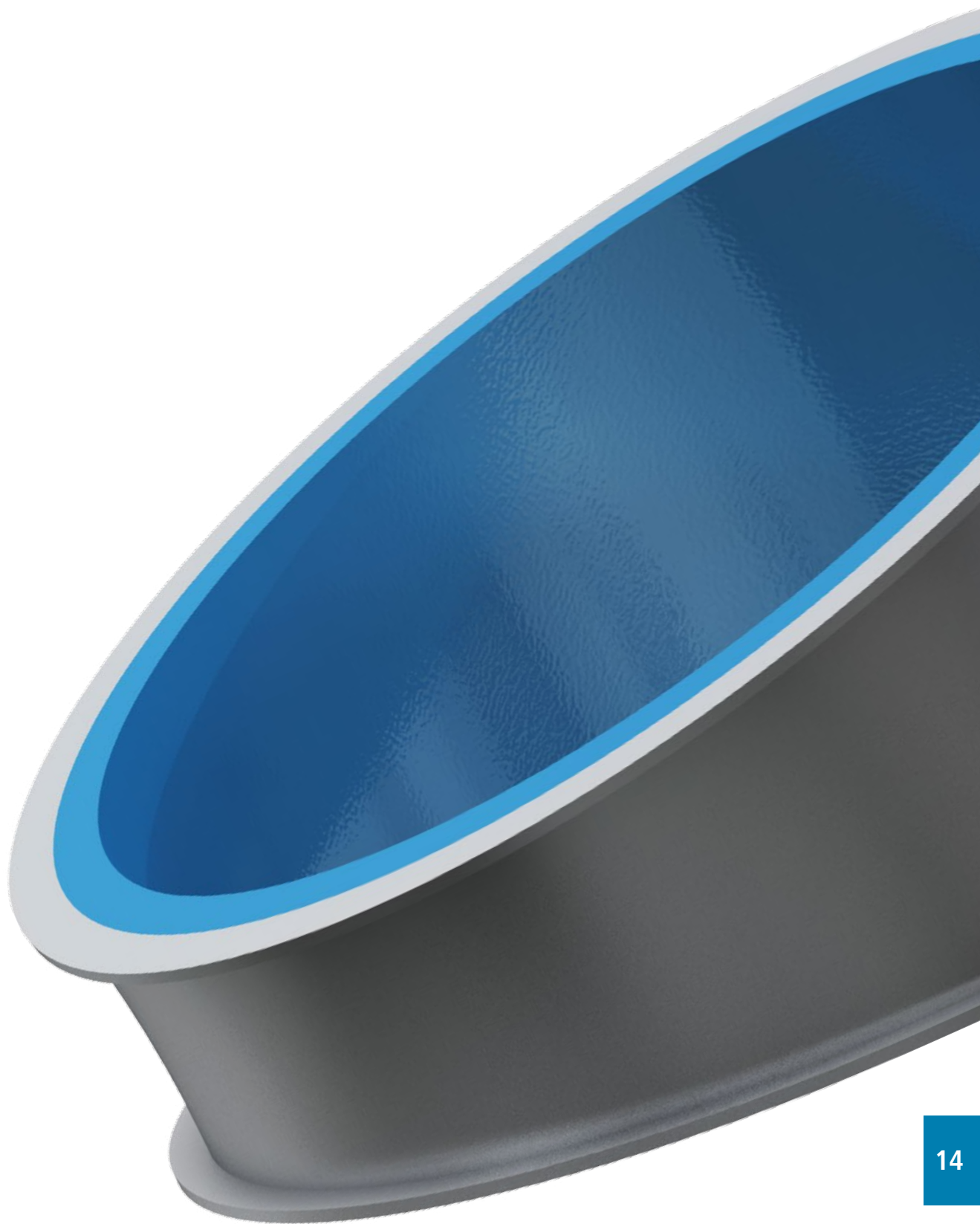
7200/7210/7220/7230/7240/7250/7260/7270/7280/7290/7300/7310/7320

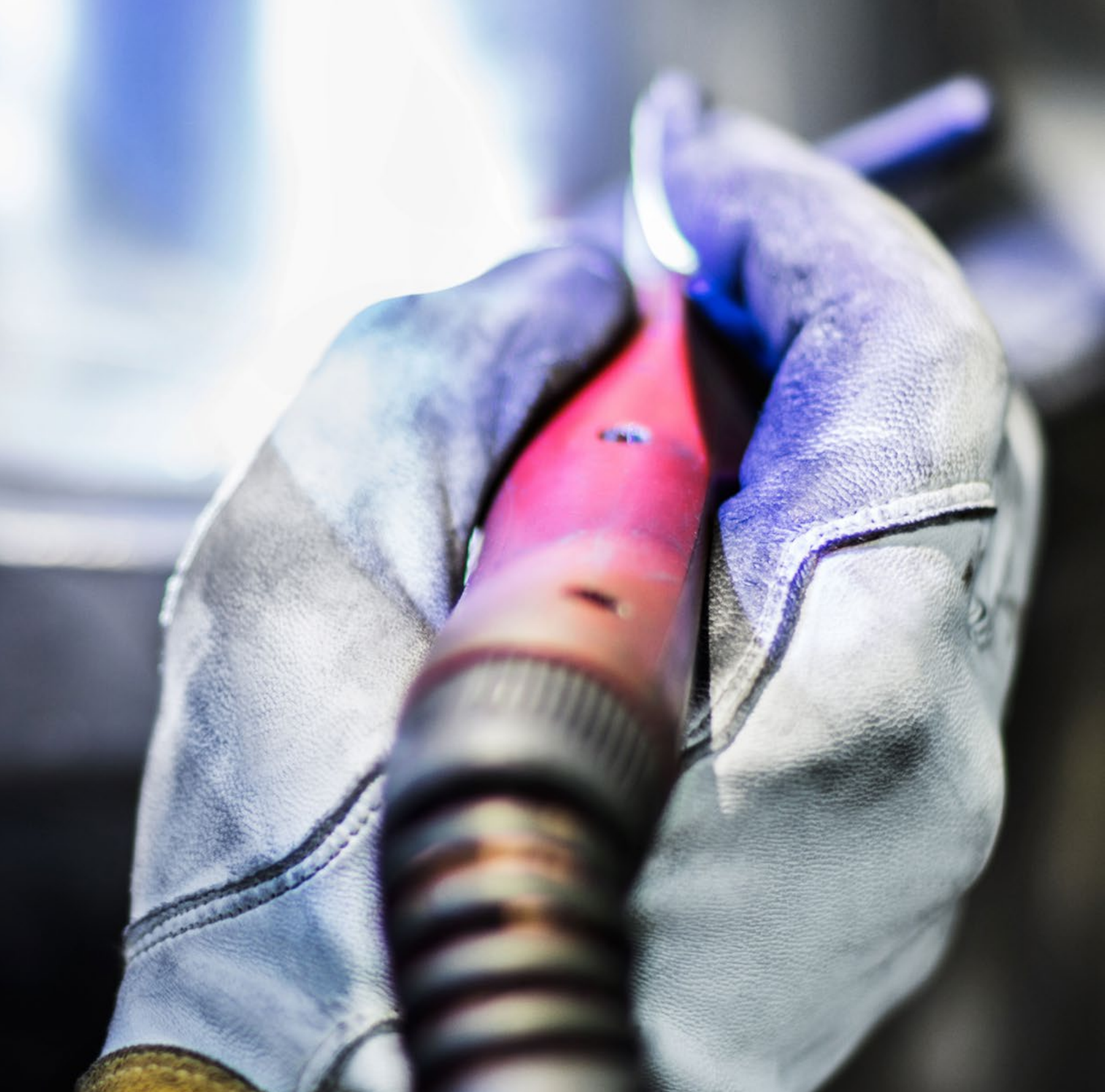
The hot-dip galvanised pipework system that JACOB delivers from stock is specially designed for conveying bulk goods in outdoor areas. It is particularly suitable for conveying goods with abrasive characteristics.

The components can be mounted fast and provide a tight seal due to the use of our proven pull-ring system. The hot-dip galvanised pipe components and pressed components are available in the popular diameters DN 200, 250 and 300 mm. With a wall thickness of 3 mm, the system remains installation-friendly yet is still suitable for abrasive bulk goods, such as coarse-grained products like grains or pellets.

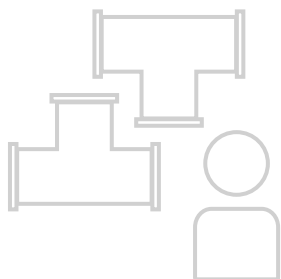
Please refer to chapter 2 for technical information and instructions for assembling the JACOB pull-ring system.

Hot-dip galvanised range All pipework with 6 mm lip for pull-ring system	DN 200 mm		DN 250 mm		DN 300 mm	
	Item no.	€	Item no.	€	Item no.	€
Welded pipes 2000 mm long	13202010	113.50	13252010	131.00	13302010	152.50
Welded pipes 1000 mm long	13202020	60.60	13252020	68.90	13302020	80.30
Welded pipes 500 mm long	13202030	34.20	13252030	39.90	13302030	44.40
Segments 5°	13202300	24.10	13252300	29.70	13302300	32.50
Segments 15°	13202310	24.10	13252310	29.70	13302310	32.50
Segments 30°	13202320	28.30	13252320	35.20	13302320	37.50
Segments 45°	13202330	31.30	13252330	40.70	13302330	48.20
Cone pieces 200-250	13002470	54.60				
Cone pieces 200-300	13002471	58.00				
Cone pieces 250-300			13002475	59.00		
Forks 45°	13202220	80.40	13252220	114.50	13302220	150.50
Connecting flanges with loose flange drilled according to DIN 24154, P2	13202432	22.00	13252432	25.90	13302432	29.80
Spouts without a gradient from square to round	13202400	58.50	13252400	106.00	13302400	118.50
Spouts with a 45° gradient from square to round	13202420	92.90	13252420	112.50	13302420	129.50
Inspection T-pieces without a rubber cover	13202200	63.20	13252200	77.40	13302200	87.20
Two-way valves with inlet collar, symmetrical, hand-operated	13202505	397.00	13252505	498.00	13302502	599.50
Two-way valves with inlet collar, asymmetrical, hand-operated	13202517	397.00	13252517	498.00	13302512	599.50








JACOB MANUFACTURING TECHNOLOGY:
TOP QUALITY CUSTOMISED PRODUCT SOLUTIONS



SPECIAL MANUFACTURE

Technical information	268	
Special parts	270	
Special range shock explosion proof to 10 bar	274	



SPECIAL PART MANUFACTURE

JACOB manufacturing technology stands not only for top quality mass-produced standard parts but also for top quality special part manufacture. From manufacturing product variants and small-lot production right up to made-to-order production to customers' drawings: You can depend on the comprehensive expertise and many years of experience of our technicians, design engineers and production staff. We also invest in production equipment on an ongoing basis to guarantee the highest possible quality using modern technology.

Take advantage of our professional expertise, providing you with advice and solutions that are tailored to your specific product requirements. We guarantee integration and compatibility with our modular system. For you, this means: mass-produced standard products and special manufacture from a single source, which is the No. 1 for modular pipework systems.

This chapter merely shows a small selection of our manufacturing capabilities for special parts and customised solutions.

We would be pleased to fulfil your specific requests on an individual basis.

Individual product solutions: Variant manufacture, small-lot manufacture, made-to-order manufacture to customers' drawings

DISTRIBUTORS/THROTTLE VALVES

Dust-tight slide gate

Louvre valve

Square two-way valve

MEASUREMENT TECHNOLOGY AND ACTUATORS

Preparation and integration for measurement technology

Actuators and limit switches

Venturi tube

WEAR PROTECTION AND NON-STICK PROTECTION

Wear protection linings

Baffle boxes/pipes

Non-stick protection

ADAPTERS / SYSTEMS

Adapters for connection to the JACOB system

Connector system with guide rings

EXHAUST AIR

Air outlets for roofs

Air inlet / outlet hoods

Air quality / air conditioning and ventilation

MATERIALS AND SPECIAL FINISHES

Innovative powder coating

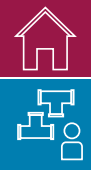
Special colours

Grinding or electrolytic polishing

PIPE LENGTHS OF UP TO 12 M

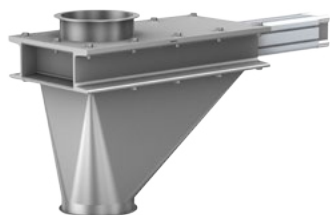






SPECIAL MANUFACTURE

Special parts



DISTRIBUTORS / THROTTLE VALVES

Dust-tight slide gate

The range of products in the valve and gate catalogue (see chapter 8) has been extended with the addition of the sealed slide gate. This slide valve is sealed to prevent dust from leaking out. It is used for floury or granular goods in gravity-flow pipe systems.



Louvre valve

The louvre valve is mostly used in pipes that carry hot air. The valve is available with either one or several louvre flaps. Louvre flaps with larger dimensions of 1000 mm or more are used in industrial halls, for example. The size of the valve required depends on the hot air flow capacity. The valve can withstand temperatures of up to 320°C.



Square two-way valves

The square two-way valve is an extension of the design-optimised two-way distributor unit (see chapter 9). It is used in many industries, including for processing granular materials and distributing bulk goods.



MEASUREMENT TECHNOLOGY AND ACTUATORS

Preparation and integration of measurement technology

Our modular pipework system makes it possible to integrate various types of measurement technology. At the customer's request, we can prepare our modular pipework system for the integration of measurement systems, to measure pressure, temperature or flow rate, for example. We install adapters, transition pieces or other special connection systems in order to facilitate the installation of measurement devices on site. To enable our customers to integrate measurement technology in a modular system as standard, in chapter 3 we offer pipes in 200 mm lengths in a variety of materials and with various spigots.



Actuators and limit switches

With regard to automatic control technology, we offer a wide selection of tried-and-tested drives for two-way distributors and valves (see chapter 9) and for throttle valves (see chapter 8). Whether electrically or pneumatically driven: Our pipework system components can be fitted with many different brands of drive thanks to the DIN EN ISO attachment system. The same applies to a wide range of different mechanical or inductive limit switches.



Venturi tube

Pressure changes through alteration of the speed in a constricted section allow the volumetric flow to be determined. One example of use is in waste management, where other measurement methods are unsuitable due to the presence of aggressive gases.



WEAR PROTECTION AND NON-STICK PROTECTION

Wear protection linings

Besides the JACOB wear protection range (chapter 14), we have numerous materials available in a range of thicknesses for lining our products (from DN 100 mm). Examples of these materials are PUR, Linatex, ceramic, Correx and Philan. With many materials, you have the choice between layer thicknesses of 2, 4, 6 and 8 mm. Thicker layers are possible on request. We are also happy to fulfil special requirements, such as for food grade quality, electrostatic conductivity or higher temperature resistance.



Baffle boxes/pipes

Baffle boxes can be installed to reduce the speed of abrasive or sensitive bulk goods as they fall, and so lessen their abrasive effect. This increases the lifetime of the pipework and reduces wear on the product. Typically, baffle boxes are installed just upstream of direction changes in gravity-flow downpipes.



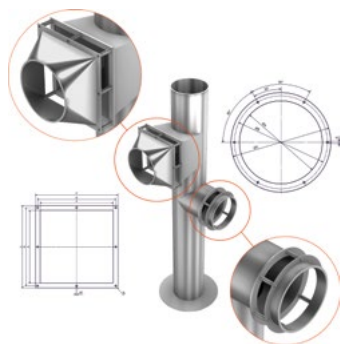
Non-stick protection coating

The addition of a non-stick coating improves the flow properties of dry products that do not tend to flow freely. Examples of these are coffee powder varieties with a high oil content, or products used in the manufacture and recycling of car tyres. This type of coating is typically used in the food industry, mechanical engineering applications, polymer processing and the printing and paper industry. Other lining materials are available on request.



SPECIAL MANUFACTURE

Special parts



ADAPTERS / SYSTEMS

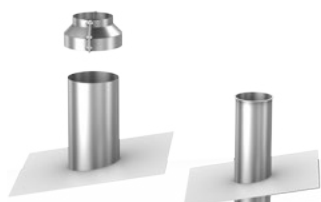
Adapters for connection to the JACOB system

Do you require special transitions or adapter connections for the JACOB pipework system? We have a wide range of adapters and transitions available as standard components. Special customer-specific solutions can also be produced if required. Please refer to chapter 6 of this catalogue for details of standardised adapters and transitions. These include connecting flanges, together with loose flanges, used as spouts for connecting square sections to round pipes, or used as single round or square flanges for connecting to machine inlets or outlets.



Connector system with internal guide rings

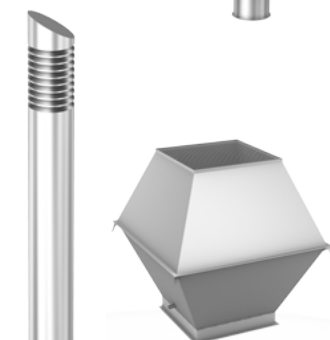
Our connector system with internal guide rings allows you to make virtually step-free transitions to the various pipe components. This is a big advantage if your product is susceptible to problematic turbulent flow at pipe transitions. It is suitable as a rule for ensuring that the product is conveyed particularly carefully and gently. The system is used in applications such as extraction pipelines in the tobacco industry or pulp industry. We would be pleased to advise you as to whether this system would be suitable as a specific solution for your particular application.



EXHAUST AIR

Air outlets for roofs

The roof air outlet is used as a connection element for on-roof exhaust components. It consists of a pipe with a circular roof sealing plate. The roof outlets are available in stainless steel and can also be surface-coated if required.



Air inlet/outlet hoods

Deflector hoods and rain hoods for industrial applications can be found in chapter 6 of this catalogue. In addition to these, however, we offer a wide spectrum of stylish and attractive design variants for heat exchange and air exchange applications. Whether you would like a striking tower and hood construction or a discreet weather protection grille for wall or on-roof installation, a square or round form, or perhaps a design-optimised outlet head – there is a wide range of options to choose from. The air inlet towers can be installed on roofs as well as at ground level.



Air quality/air conditioning and ventilation

Our source air outlets are design-oriented customised solutions for use in air-conditioning systems. In areas where the system is visible, the source air is introduced through a system of pipes. The picture shows our customised solution created for the entrance area of a hospital.



MATERIALS AND SPECIAL FINISHES

Innovative powder coating

JACOB uses an ultra-modern, automated powder-coating system in order to ensure superior and uniform product quality. The advantages of our standard powder coating (similar to RAL 7032) are:

- Electrostatically conductive
- Its constituents comply with the requirements of the Food and Drug Administration (FDA)
- Coating thickness on the outside: average layer thickness 55 µm
- Coating thickness on the inside: optically covered as temporary corrosion protection
- Optimum surface quality and long service life due to three-stage pretreatment
- Temperature resistance: from -60°C to +120°C

3,000 special colours

JACOB can provide powder coatings on request in any colour from the wide RAL spectrum. In this case, the products are first coated with our standard RAL 7032 powder coating and then powder coated again in the colour of your choice. This creates a layer thickness of at least 80 µm. We also offer further special features on request. These include high-gloss effects. Also, liquid paint coatings can be provided as an alternative to powder coating, if required.

Grinding or electrolytic polishing

At our customers' request, we also offer electrolytic polishing or grinding of our stainless steel pipework. Surface roughness of 0.8 µm or less is possible.

PIPE LENGTHS

Pipe lengths of up to 12 m

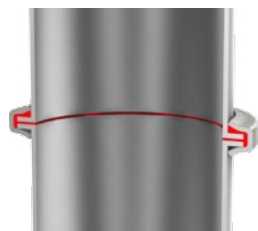
We produce special pipes up to 12 m in length in diameters of DN 60-300 mm and in different materials with a wall thickness of 1-3 mm. We normally supply pipes in lengths of 6-12 m with untreated and unlipped ends. Pipes of up to 6 m in length can optionally be supplied with lipped ends for quick assembly with JACOB pull-rings. For pipes of up to 12 m in length, we also offer special connections on request.





SPECIAL MANUFACTURE

Special range shock explosion proof to 10 bar



SHOCK EXPLOSION PROOF PIPEWORK SYSTEM 10 BAR

Particularly exacting demands for up to 10 bar shock explosion resistance are met by the special range certified by DEKRA EXAM GmbH and/or the Forschungsgesellschaft für angewandte Systemsicherheit und Arbeitsmedizin (FSA) (Research Society for Applied System Security and Occupational Medicine).

We have dimension sheets available to aid your planning and design work. Test reports are available on request.

DN 100 to 200 mm

Pipework with lip, shock explosion proof to 10 bar:

- Pipes, bends and forks tested by DEKRA EXAM in conjunction with a reinforced two-part pull-ring and a U-shaped seal
- DN 100, 120, 150, 175 and 200 mm
- Refer to chapters 3 and 4 for pipes, bends with 2 mm wall thickness, DN 100 and 120 mm with a lip (except: forks and inspection T-pieces with 2 mm wall thickness; these are tested with angle flange only)
- Refer to chapters 3 and 4 for pipes, bends with 3 mm wall thickness with a lip, DN 150, 175 and 200 mm, forks available on request
- Connection with two-part pull-ring (reinforced version) and U-shaped seals for 2 mm pipework
- The pull-ring bolts must be tightened to a torque of 25 Nm to meet 10 bar certified shock explosion resistance

Pull-rings, reinforced version

DN	Two-part pull-ring (reinforced version)			
	2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€
80				
100	32102383	9.50		
120	32122383	10.20		
150			32152926	10.90
175			32172926	11.30
200			32202926	11.70



DN 80 to 300 mm

Pipework with angle flange, shock explosion proof to 10 bar:

- Pipe components DN 80, 100, 120, 150, 175, 200, 250 and 300 mm with angle flange
- Depending on the diameter, available with 2 and/or 3 mm wall thickness
- Straight pipes up to 2000 mm in length, inspection T-pieces with end cover in reinforced version, forks 30° and 45° and bends $R = 2 D$, 30° to 90°
- Pipe components connected with special pull-ring for angle flange
- The seal is incorporated in the pipework
- Mastic sealant approved for food use in accordance with NSF, commodities directive 2002/72/EC, temperature resistance -40°C to +90°C
- The pull-ring bolts must be tightened to a torque of 25 Nm to meet 10 bar certified shock explosion resistance
- Earthing lugs are spot-welded to all angle flange pipework

DN 350 to 630 mm:

- DN 350 to 630 mm with welded-on special flanges for 10 bar shock explosion resistance available on request



PULL-RINGS FOR ANGLE FLANGE PIPEWORK

7010

- 10 bar shock explosion proof
- Electro galvanised
- The pull-ring bolts must be tightened to a torque of 25 Nm to meet 10 bar certified shock explosion resistance

Pull-rings for angle flange

DN	Pull-ring for angle flange			
	2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€
80	32082382	10.80		
100	32102382	11.00		
120	32122382	11.80		
150			32152382	12.40
175			32172382	13.00
200			32202382	13.40
250			32252382	17.10
300			32302382	19.10



WELDED PIPES

7020

- With angle flange
- Powder-coated

DN	1984 mm long				984 mm long			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081010	67.00			32081020	43.20		
100	32101010	70.20			32101020	45.80		
120	32121010	77.60			32121020	52.40		
150	32151010	86.60	33151010	117.50	32151020	60.50	33151020	79.30
175	32171010	97.10	33171010	132.50	32171020	66.40	33171020	86.80
200	32201010	105.50	33201010	143.50	32201020	81.30	33201020	107.00
250	32251010	127.00	33251010	170.50	32251020	82.20	33251020	112.00
300	32301010	147.00	33301010	197.50	32301020	92.10	33301020	124.50

DN	486 mm long				200 mm long			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081030	32.60			32081040	27.60		
100	32101030	34.50			32101040	29.10		
120	32121030	40.40			32121040	33.90		
150	32151030	44.70	33151030	56.50	32151040	39.40	33151040	47.30
175	32171030	50.30	33171030	63.10	32171040	41.60	33171040	50.10
200	32201030	52.90	33201030	66.80	32201040	43.00	33201040	52.00
250	32251030	61.80	33251030	77.20	32251040	49.80	33251040	60.10
300	32301030	67.80	33301030	84.60	32301040	55.20	33301040	66.30



SPECIAL MANUFACTURE

Special range shock explosion proof to 10 bar



WELDING ENDS

7030

- With angle flange
- Powder-coated

DN	60 mm long			
	2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€
80	32081060	16.40		
100	32101060	17.30		
120	32121060	19.50		
150	32151060	21.30	33151060	25.60
175	32171060	22.40	33171060	26.90
200	32201060	23.30	33201060	28.10
250	32251060	26.40	33251060	31.70
300	32301060	29.30	33301060	35.30



INSPECTION T-PIECES

7040

- With angle flange pull-ring and end cover
- Powder-coated

DN	2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€
80	32081200	107.00		
100	32101200	120.50		
120	32121200	134.00		
150	32151200	147.50	33151200	161.00
175	32171200	156.50	33171200	172.00
200	32201200	172.50	33201200	189.50
250	32251200	198.00	33251200	218.00
300	32301200	214.00	33301200	235.00





FORKS

7050/7052

- With angle flange
- Powder-coated

DN	30° powder-coated				45° powder-coated			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081230	83.60			32081220	82.00		
100	321012306	66.00			321012206	62.20		
120	321212306	73.90			321212206	71.90		
150	32151230	123.50	331512306	112.00	32151220	114.00	331512206	101.00
175	32171230	149.00	331712306	132.00	32171220	137.50	331712206	120.00
200	32201230	174.50	332012306	157.50	32201220	158.00	332012206	139.50
250	32251230	224.00	33251230	267.00	32251220	202.50	33251220	232.50
300	32301230	289.50	33301230	317.50	32301220	239.00	33301220	280.50



BENDS R = 2 D

7060/7062/7064/7066/7068

- With angle flange
- Powder-coated

DN	30° powder-coated				45° powder-coated			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081343	36.60			32081344	44.60		
100	32101343	39.50			32101344	47.50		
120	32121343	49.80			32121344	52.70		
150	32151343	59.40	33151343	74.30	32151344	66.80	33151344	83.60
175	32171343	65.10	33171343	82.00	32171344	73.70	33171344	92.10
200	32201343	74.60	33201343	93.50	32201344	79.50	33201344	99.40
250	32251343	86.10	33251343	108.00	32251344	104.00	33251344	131.00
300	32301343	119.00	33301343	149.00	32301344	151.50	33301344	189.50

DN	60° powder-coated				90° powder-coated			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081346	48.00			32081349	55.90		
100	32101346	50.60			32101349	59.00		
120	32121346	65.10			32121349	70.50		
150	32151346	74.30	33151346	93.20	32151349	89.90	33151349	112.50
175	32171346	82.70	33171346	103.50	32171349	99.40	33171349	124.50
200	32201346	97.60	33201346	122.50	32201349	116.00	33201349	144.50
250	32251346	155.00	33251346	194.00	32251349	193.00	33251349	241.00
300	32301346	196.50	33301346	244.50	32301349	289.00	33301349	360.50



General Terms and Conditions of Delivery and Payment

Last updated: April 2017

1. General Information

- (1) Our deliveries, services and offers are made exclusively on the basis of these General Terms and Conditions of Delivery and Payment (in the following "T&C"); we do not recognise any terms and conditions of the Purchaser which contradict or deviate from our T&C unless we have expressly agreed to their validity in writing. Our T&C also apply if we deliver to the Purchaser without any reservations although we are aware of Purchaser's terms and conditions which contradict or deviate from our T&C.
- (2) Our T&C apply to entrepreneurs (§ 14 German Civil Code – BGB), legal entities under public law and special funds under public law ("öffentlich-rechtliches Sondervermögen") only.

2. Conclusion of the Contract; Contract Documents

- (1) Our offers are subject to confirmation and non-binding unless they are explicitly specified as binding. The Purchaser's order of goods is viewed as a binding offer to contract. Unless otherwise stated in the order, we are entitled to accept this offer to contract within one week of receipt. During this period the Purchaser is bound to his order. The contract is deemed to be concluded upon our confirmation (order confirmation). In case of immediate delivery, our delivery replaces the order confirmation.
- (2) The Purchaser must check our order confirmation without undue delay to ensure that it is correct and complete and must inform us of any discrepancies between the order and the order confirmation without undue delay. In the event of discrepancies from his order, the discrepancies are deemed to be approved by the Purchaser if the Purchaser accepts our delivery without reservation.
- (3) Performance characteristics specified in catalogues and orders such as figures, drawings etc. are to be considered an approximation only. In particular, such information represents no guarantees or assurances („Zusicherungen") and do not relieve the Purchaser from its duty to execute own tests or examinations.
- (4) Our salespersons are not authorised to make further agreements or give assurances which exceed the content of the written contract or these T&C.
- (5) The Purchaser is liable for the correctness, accuracy and completeness of his order data and all of his order documents, especially those relating to drawings as well as for technical data and samples. Verbal specifications, including those relating to amendments and modifications of the documentation and data provided, require written confirmation.

3. Prices; Terms of Payment

- (1) Our prices are EURO prices. Unless stated otherwise in the order confirmation, our prices are FCA (pursuant to Incoterms 2010 or in their respective version valid in time) ex our works in Porta Westfalica plus packaging costs and the then applicable value-added tax.
- (2) Our prices do not include installation, commissioning and assembly costs nor packaging, freight, postage and insurance costs.
- (3) We reserve the right to adjust our prices adequately in case cost increases or decreases occur which are not attributable to us, especially due to materials costs, the increase in raw or auxiliary materials prices, wages and salaries, freight or public charges, if there is an interval of more than three months between the date of conclusion of the contract and delivery or the last partial delivery. In this case, costs decreases and increases will be netted. We will produce evidence of these cost changes upon the Purchaser's request.
- (4) Deliveries and services in excess of the order will be – after consultation with the Purchaser – invoiced separately.
- (5) Payments are to be conducted cashless and free of charge without any deductions. Unless indicated otherwise in the order confirmation, our invoices are due and payable within 14 days after the invoice date and receipt of the invoice. In case prepayment has been agreed upon, the deadline for delivery begins to start only after receipt of the full invoice amount.
- (6) Despite dissenting provisions by the Purchaser, we are entitled to offset the Purchaser's payments first with older claims due against the Purchaser; we will inform the Purchaser of any type of offsetting. In case any costs and interests have already occurred, we are entitled to offset the payment first with the costs, then the interests and the main service at last.
- (7) Payments are only considered settled if we can dispose of the amount.

- (8) In case of the Purchaser's default in payment, the statutory provisions are fully applicable.
- (9) The Purchaser is not entitled to retain payments based on counter-claims arising out of other contractual relationships or to offset any such counter-claims unless these counter-claims have been recognised by us, are undisputed or have been determined as final by a court.

4. Serial Deliveries, Long-term and Call-off Contracts

- (1) Unlimited contracts are subject to ordinary termination giving three months' notice prior to the end of a calendar month, unless provided otherwise.
- (2) In case of call-off contracts, unless provided otherwise, binding quantities are to be notified at least 3 months prior to the delivery date by call-offs. Additional costs arising as a result of delayed call-offs or subsequent amendments to a call-off regarding time or quantity by the Purchaser will be borne by the latter.

5. Time of Delivery

- (1) Unless explicitly provided otherwise, any indicated delivery times are approximate only. Any delivery deadline only starts to run if all details of execution have been clarified and both parties have mutually agreed on the conditions of the order. Any agreed delivery date will be postponed accordingly. Any change made to the scope of services will result in a corresponding extension of the delivery period once the order has been accepted.
- (2) Fulfilment of our delivery obligations further requires timely and proper fulfilment of the Purchaser's obligations. The defence of non-performance remains reserved. In addition, we are entitled to postpone delivery as long as the Purchaser has failed to fulfil due payment obligations arising out of previous deliveries without justification.
- (3) In case we are prevented from adhering to agreed delivery dates as a result of force majeure, labour disputes, governmental action, energy or raw material shortages, transport bottlenecks or hindrances, operational hindrances, for example due to fire, water and/or machine defects, for which we are not responsible, or other disruptions in the flow of operations either at our premises or those of suppliers or subcontractors for which we are not responsible and which can be proven to have a significant impact, we are obliged to inform the other party without undue delay ("unverzüglich"). In such cases we are entitled to extend the delivery period by the period of the event of force majeure or the disruption if we have informed the Purchaser pursuant to the above information obligation. If delivery becomes impossible as a result thereof, our obligation to supply will become null and void and claims for damages be excluded. If the Purchaser proves that subsequent performance of the contract is of no interest to him as a result of the delay, he may withdraw from the contract, any further claims being excluded. If the event of force majeure or the disruption lasts longer than three month, we may withdraw from the contract in view of any part of the contract which has not yet been performed, provided that we have informed the Purchaser pursuant to the above information obligation and have not assumed the risk of procurement ("Beschaffungsrisiko") or a delivery guarantee.
- (4) Article 5 (3) applies mutatis mutandis if and to the extent that we have, prior to conclusion of the contract with the Purchaser, entered into a covering transaction which – if properly executed – would have enabled us to fulfil our contractual obligations in our relationship with the Purchaser and have not been supplied by our suppliers in conformity with the contract and/or due time with no fault on our part.
- (5) In case we are in default, the Purchaser may specify an additional period for performance in writing and, if said period elapsed to no avail, withdraw from the contract. An additional period for performance is not required if we seriously and finally refuse to perform the contract or if the underlying contract is a fixed-date transaction ("Fixgeschäft") according to Section 323 para. 2 No. 2 of the German Civil Code (BGB) or Section 376 of the German Commercial Code (HGB) or if special circumstances exist which, taking into account the interests of both parties, justify immediate withdrawal from the contract.
- (6) We are liable for damages in accordance with Article 10 of these T&C only. The Purchaser's right to withdraw from the contract is governed by statutory provisions.
- (7) If an acceptance inspection of the delivered goods has been agreed, the acceptance inspection has to be performed at our factory immediately after we

have informed the Purchaser that the goods are ready for acceptance, unless otherwise agreed. The Purchaser will bear the costs of the acceptance inspection.

- (8) If the Purchaser is in default of acceptance or if the delivery is delayed for reasons which are attributable to the Purchaser, we will be entitled to claim compensation of any damage incurred as a result thereof, including additional expenses, if any. In these cases, we will store the goods at the Purchaser's risk and invoice the Purchaser for such storage. We are entitled to charge for the storage a flat fee of 0.1 % of the net price agreed in the contract for each completed working day ("Werktag") but not more than 5 % in total of the net price agreed in the contract. We reserve the right to assert further claims. The Purchaser reserves the right to prove that we incurred no damage or a substantially smaller damage than the foregoing flat fee.
- (9) We reserve the right to make partial deliveries if and to the extent that they are reasonably acceptable for the Purchaser, also considering the Purchaser's interests.

6. Delivery and transfer of risk

- (1) Unless stated otherwise in the order confirmation, deliveries are made FCA (pursuant to Incoterms 2010 or in their respective version valid in time) ex our works in Porta Westfalica. This also applies if we have exceptionally assumed the transport costs or paid them in advance on behalf of the Purchaser.
- (2) In case shipment has been agreed, the risk of incidental loss or incidental deterioration of the goods passes to the Purchaser at the time the goods have been handed over to the carrier, freight forwarder or any other third party entrusted with the execution of shipment. This also applies if shipment is performed by our own vehicles, if we have assumed the transport costs or if we have advanced the costs on behalf of the Purchaser. If delivery is delayed for reasons attributable to the Purchaser, the risk will pass to the Purchaser at the time the goods are ready for dispatch and we have notified the Purchaser thereof.
- (3) Unless provided otherwise, the type of packaging will be left to our reasonable discretion. Packaging costs shall be borne by the Purchaser. The transport boxes we use as standard packaging are not designed to be stacked. Special packaging (for instance with strengthened supports to allow the transport boxes to be stacked, but no more than two high) is subject to special agreement and/or the Purchaser's request (with the submission of the order, at the latest).
- (4) Provided that the Purchaser does not announce in due time how the goods shall be delivered, we will conclude a transport contract with a carrier at the Purchaser's expense. In this case the choice of the transportation route and the shipping method is at our discretion, unless provided otherwise. The Purchaser shall point out to us if transport insurance is desired; if so, transport insurance will be concluded at our reasonable discretion in favour of the Purchaser. Any costs incurred in this respect shall be borne by the Purchaser, even if we have exceptionally assumed the remaining transport costs.
- (5) Transport packaging is taken back at our place of business during regular business hours.

7. Retention of Title

- (1) We reserve title to the goods delivered until receipt of all payments deriving from the business relation with the Purchaser.
- (2) Prior to complete payment of the secured claims, goods subject to reservation of title must neither be pledged to third parties nor assigned by way of security by the Purchaser without our explicit written consent. In the case of pledges or other third party intervention, the Purchaser must notify us immediately in writing. If we bring an action against the third party and to the extent that the action was successful and the third party is unable to reimburse us for the judicial and extra-judicial costs incurred by us, the Purchaser will be liable for such costs.
- (3) If the Purchaser acts contrary to the contract – in particular delayed payment – we are entitled to rescind the contract in accordance with the statutory regulation and to reclaim the reserved goods.
- (4) The Purchaser is obliged to notify us at all times of the location of the goods subject to retention of title until the reserved goods have been paid for in full.
- (5) The Purchaser is entitled to resell the goods delivered within the ordinary course of business. He herewith assigns to us, however, all claims amounting to the final invoice amount (including value-added tax) of our claims which accrue from the resale vis-à-vis its customers or third parties, irrespective of whether the goods purchased have been sold again with or without further processing. After such

assignment the Purchaser also remains entitled to collect this claim. Our right to collect this claim ourselves remains unaffected thereby. However, we undertake not to collect the claim provided that no bill or cheque protests are raised, the Purchaser fulfils his payment obligations out of the proceeds received, the Purchaser is not in default of payment and, in particular, no application to initiate insolvency proceedings with regard to the Purchaser's assets has been filed. If this is the case, however, we may demand that the Purchaser notifies us of the claims assigned and their debtors, provides all details necessary for their collection, delivers the relevant documents and informs the debtors (third parties) of said assignment.

- (6) The processing or conversion by the Purchaser of the goods supplied subject to reservation of title is always deemed to be performed for us and on our behalf. If the goods supplied subject to reservation of title are processed with other items/materials not belonging to us, we acquire co-ownership of the new article in a ratio of the value of the goods subject to reservation of title to the other processed items/materials at the time of processing. In all other respects, the provisions applicable to the goods supplied subject to reservation of title also apply mutatis mutandis to the articles resulting from such processing.
- (7) If the goods supplied subject to reservation of title are mixed or joined inseparably with other items/materials not belonging to us in such a way that they become major components of a uniform article, we acquire co-ownership of the new article in a ratio of the value of the goods subject to reservation of title to the other mixed or joined items/materials at the time of the joining or mixing. If the goods and other items/materials are joined or mixed in such a way that the Purchaser's article is to be regarded as the main item, it is already agreed here and now that the Purchaser transfers pro-rata co-ownership to us. The Purchaser will keep the jointly held property thus produced in safe custody for us. Furthermore, the same will apply to the article resulting from such joining or mixing as to the goods supplied subject to reservation of title.
- (8) The Purchaser is obliged to treat the goods subject to reservation of title carefully. He is obliged to adequately insure such at his own expense, in particular against fire, water damage and theft at replacement value. The Purchaser is obliged to perform any necessary service and inspection work in good time and at its own expense.
- (9) In the event of loss or damage to the goods subject to reservation of title, the Purchaser hereby assigns to us any claims to insurance payments existing in this connection in the amount of the final invoice (including value-added tax) of our claims with respect to the object of delivery by way of additional security in advance.
- (10) In case of deliveries abroad, if certain measures and/or declarations by either party are necessary to ensure the effectiveness of the above mentioned reservation of title and/or certain other rights referred to in the paragraphs above, the Purchaser is obliged to inform us accordingly in writing or in text form and to take all necessary measures and/or make all necessary declarations without undue delay at its own expense. If the law of the country of import does not permit to retain the reservation of title to the delivered goods, the Purchaser is obliged to provide another appropriate security to the goods delivered or provide any other equivalent collateral based on equitable discretion (Section 315 German Civil Code (BGB) at its own expense).
- (11) We undertake to release, at Purchaser's request, the securities due to us if the realizable value of our securities exceeds the claims to be secured by more than 10%; we reserve the right to select of the securities to be released.

8. Acquisition of Ownership Through Machining, Processing or Repair of Items Provided to us

- (1) If the Purchaser delivers to us an item for machining or processing or repair and if the Purchaser remains sole owner of the machined, processed or repaired item also after machining, processing or repair, it is already agreed here and now that the Purchaser assigns to us pro-rata co-ownership in a ratio of the value of our machining, processing or repair work (final invoice amount including value-added tax) to the value of the item made available at the time of processing.
- (2) If the item is mixed or joined during machining, processing or repair with items/materials belonging to us in such a way that they become essential components of a uniform article, we will acquire co-ownership of the new article in a ratio of the value of our items/materials to the value of the Purchaser's item made available at the time of joining or mixing.



- (3) If joining or mixing takes place in such a way that the Purchaser's article is to be regarded as the main item, it is already agreed here and now that the Purchaser transfers pro-rata co-ownership to us in a ratio of the value of our machining, processing or repair work (final invoice amount including value-added tax) to the value of the item made available at the time of joining or mixing.
- (4) The provisions of Article 7 of these T&C apply mutatis mutandis to items of the Purchaser in which we have acquired co-ownership in accordance with the above provisions. For clarification: we will transfer the co-ownership we have acquired pursuant to the above terms and conditions to the Purchaser on delivery of the item in accordance with the provisions set forth in Article 7 of these T&C.

9. Warranty – Liability for Infringement of Obligations

- (1) The statutory provisions apply to the rights of the Purchaser with respect to material or legal defects (including incorrect delivery and short delivery) unless nothing to the contrary is determined in the following. In any case, the special statutory provisions on final delivery of the goods to a consumer (Sections 478, 479 of the German Civil Code (BGB)) remain unaffected.
- (2) In case we have to perform a contract in accordance with drawings, specifications, specimens, figures and/or other documents supplied by the Purchaser, the latter has to bear the risk of the suitability for the intended use.
- (3) If parts of the Purchaser are processed on behalf of the Purchaser, the Purchaser is obliged to examine whether the parts are suitable for the requested processing. If processing of parts sent by the Purchaser is not successful due to reasons beyond our control and responsibility, we will accept no responsibility for any damages caused. The Purchaser will still be required to pay for the costs already incurred for the processing. We will invoice the Purchaser for any necessary reworking costs.
- (4) The Purchaser's right to warranty claims under this contract requires the Purchaser to duly discharge his obligations of inspection and notification of defects in accordance with Section 377 of the German Commercial Code (HGB). If the contractual relationship between us and the Purchaser constitutes a contract for work and services ("Werkvertrag"), Section 377 of the German Commercial Code (HGB) shall apply mutatis mutandis. Notices of defects have to be addressed to our Customer Service Department in writing.
- (5) If an acceptance inspection or an initial specimen inspection has been agreed with the Purchaser, a complaint about defects which the Purchaser could have detected during a careful acceptance or initial specimen inspection is excluded.
- (6) We must be given the opportunity to examine on site any defect complained about.
- (7) If our operating and maintenance instructions are not followed, unauthorised modifications are carried out in the products and/or parts are exchanged, warranty claims for the consequences so caused are excluded. The foregoing applies also to incorrect installation or removal, poor maintenance, incorrect handling or storage, improper repairs not carried out by us, alterations as well as chemical, electrochemical or electrical influences for which we are not responsible as well as weather-induced or other natural causes.
- (8) If the delivered goods or the work created is defective, the Purchaser is entitled to the statutory rights as follows:
 - a) We are first entitled to either remedy the defect or to supply the Purchaser with goods free of defect as we so choose or, in case a contract for work and services has been agreed upon, to produce a new work (subsequent performance ("Nacherfüllung")). The Purchaser must allow the time necessary for and give the opportunity to subsequent performance. We are obliged to bear all expenses necessary for subsequent performance, in particular transport, labour and material costs. If the Purchaser's request for defect remedy proves to be unjustified, we are entitled to claim from the Purchaser compensation of the costs incurred by us as a result of the request. Where we were under no obligation to install/assemble the product originally, subsequent performance does not comprise the de-installation/disassembly of the defective product nor its reinstallation/reassembly. In the event of replacement delivery or, in case a contract for works and services has been agreed upon, new production, the Purchaser must return the defective goods to us on request. We are entitled to make the subsequent performance contingent on the Purchaser paying the price agreed for the goods delivered. The Purchaser is entitled, however, to retain an appropriate part of the price.
 - b) If the subsequent performance fails, the Purchaser is entitled to withdraw from

the contract or to request a reduction in the agreed purchase price as he so chooses. However, there is no right of withdrawal in case of minor defects.

- c) Claims of the Purchaser for compensation of damages or replacement of expenses only apply in accordance with the provisions of Article 10 of these T&C.

- (9) The limitation periods are governed by Article 11 of these T&C.

10. Exclusions and Limitations of Liability

- (1) Subject to the provisions of Article 10 (2), we are only liable for damages – in the case of contractual, non-contractual or other claims for damages, irrespective of the legal reason, in particular due to defects, default and impossibility, culpa in contrahendo and tort – in case of wilful intent and/or gross negligence, including wilful intent and/or gross negligence on the part of our representatives or vicarious agents. In addition, we are also liable in case of mild negligence, including mild negligence of our representatives and vicarious agents, for damages arising from the infringement of an essential contractual duty, i.e. a duty, the satisfaction of which makes the due implementation of the contract possible in the first place and which the Purchaser can therefore usually expect to be satisfied by us (cardinal duty). If and to the extent that we are not liable for wilfully infringing a duty, the liability for damages will, however, be restricted to the foreseeable, typical damage.
- (2) Claims for damages arising from injury of life, limb and health as well as claims of the Purchaser pursuant to the German Product Liability Act and the special statutory provisions on final delivery of the goods to a consumer (Section 478, 479 of the German Civil Code (BGB)) as well as other mandatory statutory liability regulations remain unaffected by the exclusions and limitations of liability set out in Article 10 (1). The above exclusions and limitations do neither apply insofar as we have fraudulently concealed a defect or insofar as we are liable because of the assumption of a guarantee or of the risk of procurement ("Beschaffungsrisiko").
- (3) Articles 10 (1) and 10 (2) also apply if the Purchaser demands replacement of useless applications instead of a claim to compensation of damages.
- (4) Insofar as our liability of damages is excluded or limited, this also applies with regard to personal liability for damages of our employees, representatives and vicarious agents which is based on the same legal reason.

11. Statute of Limitations

- (1) Claims of the Purchaser arising from material and legal defects become statute-barred within 12 months.
- (2) Mandatory provisions on the statute of limitations remain unaffected. Therefore, Article 11 (1) shall not apply to claims for injury of life, limb or health, to claims based on wilful intent and gross negligence and to claims based on the assumption of a warranty or the risk of procurement ("Beschaffungsrisiko"). The longer limitation periods pursuant to Section 438 (1) No. 1 of the German Civil Code (BGB) – third party rights in rem; Sections 438 (1) Nr. 2, 634a (1) No. 2 of the German Civil Code (BGB) – constructions (Bauwerke), construction materials and construction components as well as planning services for a construction, Sections 438 (3), 634a (3) of the German Civil Code (BGB) – fraudulent concealment and Section 479 of the German Civil Code (BGB) – supplier regress, remain unaffected.
- (3) The limitation periods resulting from Articles 11 (1) and 11 (2) for claims due to material and legal defects apply mutatis mutandis to competing contractual or non-contractual claims for damages of the Purchaser which are based on a defect to the contractual goods. If, however, in an individual case the application of the statutory limitation rules lead to an earlier statutory limitation of the competing claims, the statutory period of limitation applies to the competing claims. In any case, the statutory periods of limitation pursuant to the German Product Liability Act remain unaffected.
- (4) Insofar as the limitation period for claims against us is shortened pursuant to Articles 11 (1) to 11 (3), this applies mutatis mutandis to any claims of the Purchaser against our statutory representatives, employees, authorised representatives and vicarious agents which are based on the same legal reason.

12. Right of Withdrawal – Right of Termination

- (1) The Purchaser is only entitled to withdraw from the contract for a breach of duty on our part other than a defect if we can be made responsible for such breach of duty.

- (2) In case a contract for works and services under which we are obliged to bring about a particular result ("Werkvertrag") or a contract for work and services under which we are obliged to supply the Purchaser with movable things to be produced or manufactured ("Werklieferungsvertrag") has been agreed upon, the Purchaser's right to freely terminate the contract according to Sections 651, 649 of the German Civil Code (BGB) is excluded.

13. Industrial property rights and Copyrights

- (1) Unless provided otherwise, we are required to perform delivery free of third party industrial property rights and/or copyrights (hereinafter referred to as industrial property rights) only in the country in which the place of original delivery is located.
- (2) If a third party raises legitimate claims against the Purchaser for breach of industrial property rights by goods delivered by us and used in accordance with the contract, we are liable vis-à-vis the Purchaser as follows:
We will, at our option and cost, either secure a right of use of the deliveries concerned, or modify them so as to ensure that they will not infringe upon such property rights or exchange such deliveries. In case neither option can be reasonably demanded from us, the Purchaser may cancel the contract or reduce the remuneration pursuant to the statutory provisions and Article 8 of these T&C. Our obligation to pay damages is determined by Article 10 of these T&C, the statute of limitations by Article 11 of these T&C. The above obligations apply to us only provided that the Purchaser has notified us of the claims asserted by third parties immediately in writing.
- (3) Claims by the Purchaser are excluded to the extent he himself is responsible for the infringement of the industrial property right. Claims by the Purchaser are excluded in particular if the infringement of the industrial property right is caused by the Purchaser's special requirements or is caused by a use which we could not foresee or because the delivery is changed by the Purchaser or is used together with products that we did not deliver and if we are not responsible for the infringement.

14. Non-Disclosure

We reserve property rights and copyrights in figures, drawings, calculations and other documents. This also applies to written documents which are marked as "confidential". The Purchaser requires our explicit written consent before passing on such to third parties. Upon request, the Purchaser has to return these documents to us completely, including any copies which may have been made, if they are no longer needed during the ordinary course of business or if negotiations do not lead to the conclusion of a contract.

15. Communication with the Purchaser

- (1) Any data transmitted to us within the course of an order will be used in accordance with the applicable provision of data protection law only. We will use personal data only with the Purchaser's consent or if use is allowed by statutory provisions. Personal data may be used for goods and services comparable to those ordered and for non-periodic information about our product ordering system or comparable information (e.g. changes to our shop system), which we may also send by e-mail, but only for our own promotional purposes.
- (2) Any person concerned may object to this use for promotional purposes and may revoke any consent they have given at any time without incurring any costs other than transmission costs according to the basic rates.
- (3) The purchaser may register separately for our newsletter and receive periodical information about our goods. Our newsletter is subject to separate provisions which will be announced before registration.
- (4) Any data transmitted will not be passed on to third parties. For the purpose of sending out information, we cooperate with external service providers who operate on our behalf as contract data processors who are bound by data protection law and who particularly must not divulge data to third parties.

16. Final Provisions

- (1) A transfer of the contractual rights and obligations to third parties by the Purchaser is only admissible with our written approval. This does not apply if the contractual rights and obligations are transferred to an affiliated company within the meaning of Section 15 German Stock Corporation Act (AktG).
- (2) Unless otherwise stated in the order confirmation, place of performance for

payments and delivery is Porta Westfalica.

- (3) The law of the Federal Republic of Germany shall apply to the contractual relationship. The application of the UN sales law (CISG – United Nations Convention on Contracts for the International Sale of Goods) is excluded.
- (4) If the Purchaser is a merchant, legal entity under public law or a special fund under public law ("öffentlich-rechtliches Sondervermögen") as defined by German law, the place of jurisdiction for all disputes arising out of the contractual relationship including legal proceedings relating to cheques, bills of exchange and deeds shall be the venue competent at our registered office, Porta Westfalica. We are, however, also entitled to bring legal action against the Purchaser before the court having jurisdiction at its place of residence.
- (5) In case of discrepancies between the German and a translated version of these T&C, the German version always prevails.
- (6) Should any individual provision of these T&C or any individual provision of any other agreement be or become void or illegal, the validity of the remaining provisions or agreements is in no way affected.

We deliver in accordance with our 'General Terms and Conditions of Delivery and Payment'.

(Please visit also www.jacob-pipesystems.com or also request a copy from us.)



1. Allgemeines – Geltungsbereich

- (1) Unsere Lieferungen, Leistungen und Angebote erfolgen ausschließlich aufgrund dieser Allgemeinen Lieferungs- und Zahlungsbedingungen (nachfolgend „AGB“); entgegenstehende oder von unseren Lieferungs- und Zahlungsbedingungen abweichende Bedingungen des Bestellers erkennen wir nicht an, es sei denn, wir hätten ausdrücklich schriftlich ihrer Geltung zugestimmt. Unsere AGB gelten auch dann, wenn wir in Kenntnis entgegenstehender oder von unseren AGB abweichender Bedingungen des Bestellers die Lieferung an den Besteller vorbehaltlos ausführen.
- (2) Unsere AGB gelten nur gegenüber Unternehmern (§ 14 BGB), juristischen Personen des öffentlichen Rechts und öffentlich-rechtlichen Sondervermögen.

2. Vertragsabschluss; Vertragsunterlagen

- (1) Unsere Angebote sind freibleibend und unverbindlich, sofern sie nicht ausdrücklich als verbindlich gekennzeichnet sind. Die Bestellung der Ware durch den Besteller gilt als verbindliches Vertragsangebot. Sofern sich aus der Bestellung nichts anderes ergibt, sind wir berechtigt, dieses Vertragsangebot innerhalb einer Woche nach seinem Zugang bei uns anzunehmen. Während dieser Frist ist der Besteller an seine Bestellung gebunden. Der Vertrag gilt als geschlossen, wenn wir diesen bestätigt haben (Auftragsbestätigung). Sofortige Lieferung ersetzt die Auftragsbestätigung.
- (2) Der Besteller hat die Richtigkeit und Vollständigkeit unserer Auftragsbestätigung unverzüglich zu überprüfen und uns Abweichungen von seiner Bestellung unverzüglich mitzuteilen. Nimmt der Besteller unsere Lieferung bei Abweichungen gegenüber seiner Bestellung vorbehaltlos an, gelten die Abweichungen als durch den Besteller genehmigt.
- (3) Die in unseren Katalogen und Angeboten angegebenen Leistungsmerkmale, wie Abbildungen, Zeichnungen etc. sind nur als annähernd zu betrachten. Diese Informationen stellen insbesondere keine Garantien oder Zusicherungen dar und befreien den Besteller nicht von eigenen Prüfungen und Versuchen. Es gelten die in unseren Katalogen und Angeboten angegebenen Toleranzen.
- (4) Auch bei nach Zeichnungen, Spezifikationen, Mustern, Vorgaben und/oder sonstigen Unterlagen des Bestellers gefertigten Bauteilen, gelten die in unseren Katalogen und Angeboten zu diesen Bauteilen angegebenen Toleranzen.
- (5) **Unsere Verkaufsangestellten sind nicht befugt, Nebenabreden zu treffen oder Zusicherungen zu geben, die über den Inhalt des schriftlichen Vertrags oder dieser AGB hinausgehen.**
- (6) Der Besteller haftet für die Richtigkeit, Genauigkeit und Vollständigkeit der von ihm gelieferten Bestellungsunterlagen und Bestellangaben, insbesondere in Zeichnungen sowie für technische Daten und Muster. Mündliche Angaben, auch über Änderungen sowie Ergänzungen der zur Verfügung gestellten Unterlagen und Daten bedürfen der schriftlichen Bestätigung.

3. Preise; Zahlungsbedingungen

- (1) Unsere Preise sind EURO-Preise. Sofern sich aus der Auftragsbestätigung nichts anderes ergibt, gelten unsere Preise FCA ab unserem Werk in Porta Westfalica (gemäß Incoterms 2010 bzw. der aktuellen Fassung) zuzüglich der Verpackungskosten und der jeweils geltenden Mehrwertsteuer.
- (2) Unsere Preise schließen Aufstellungs-, Inbetriebnahme- und Montagekosten sowie Verpackung, Fracht, Porto und Versicherungskosten nicht ein.
- (3) Wir behalten uns das Recht vor, unsere Preise angemessen zu ändern, wenn bei Verträgen, bei denen zwischen Abschluss des Vertrages und Lieferung oder der letzten Teillieferung mehr als drei Monate liegen, von uns nicht zu vertretende Kosten erhöhungen oder Kostensenkungen, insbesondere aufgrund von Materialkosten, der Erhöhung von Rohstoffpreisen, Hilfsstoffpreisen, Löhnen und Gehältern, Fracht oder öffentlichen Abgaben, eintreten. Dabei werden wir Kostensenkungen und Kosten erhöhungen gegeneinander saldieren. Die Änderung dieser Kosten werden wir dem Besteller auf Verlangen nachweisen.
- (4) Über die Bestellung hinausgehende Lieferungen und Leistungen werden, nach Abstimmung mit dem Besteller, gesondert berechnet.
- (5) Zahlungen sind unbar und ohne jeden Abzug spesenfrei zu leisten. Sofern sich aus der Auftragsbestätigung nichts anderes ergibt, sind unsere Rechnungen innerhalb von 30 Tagen ab Rechnungsdatum und Zugang der Rechnung zur Zahlung fällig. Soweit Vorkasse vereinbart ist, beginnt die Lieferfrist erst nach Eingang des vollständigen Rechnungsbetrages zu laufen.

- (6) Wir sind berechtigt, trotz anders lautender Bestimmungen des Bestellers, Zahlungen zunächst auf dessen ältere Schulden anzurechnen, und werden den Besteller über die Art der erfolgten Verrechnung informieren. Sind bereits Kosten und Zinsen entstanden, so sind wir berechtigt, die Zahlung zunächst auf die Kosten, dann auf die Zinsen und zuletzt auf die Hauptleistung anzurechnen.
- (7) Eine Zahlung gilt erst dann als erfolgt, wenn wir über den Betrag verfügen können.
- (8) Bei Zahlungsverzug des Bestellers gelten die gesetzlichen Regelungen in vollem Umfang.
- (9) Der Besteller ist nicht berechtigt, Zahlungen wegen Gegenansprüchen aus anderen Vertragsverhältnissen zurückzuhalten oder mit solchen Gegenansprüchen aufzurechnen, es sei denn, dass diese von uns anerkannt, unbestritten oder rechtskräftig festgestellt sind.

4. Serienlieferungen, Langfrist- und Abrufverträge

- (1) Unbefristete Verträge sind mit einer Frist von 3 Monaten zum Monatsende ordentlich kündbar, wenn nicht etwas anderes vereinbart ist.
- (2) Bei Lieferverträgen auf Abruf sind uns, wenn nichts anderes vereinbart ist, verbindliche Mengen mindestens 3 Monate vor dem Liefertermin durch Abruf mitzuteilen. Mehrkosten, die durch einen verspäteten Abruf oder nachträgliche Änderungen des Abrufs hinsichtlich der Zeit oder Menge durch den Besteller verursacht sind, gehen zu seinen Lasten.

5. Lieferfristen

- (1) Soweit nicht ausdrücklich etwas anderes vereinbart wird, sind Angaben zu Lieferzeiten nur annähernd. Eine Lieferfrist beginnt erst, wenn sämtliche Einzelheiten der Ausführung klargestellt und beide Teile über die Bedingungen des Auftrages einig sind. Vereinbarte Liefertermine werden entsprechend herausgeschoben. Jede Änderung der Leistung nach Bestellsannahme verlängert die Lieferfrist angemessen.
- (2) Die Einhaltung unserer Lieferverpflichtung setzt weiter die rechtzeitige und ordnungsgemäße Erfüllung der Verpflichtungen des Bestellers voraus. Die Einrede des nicht erfüllten Vertrages bleibt vorbehalten. Des Weiteren sind wir berechtigt, die Lieferung aufzuschieben, solange der Besteller fällige Zahlungsverpflichtungen aus vorangegangenen Lieferungen unberechtigtweise nicht erfüllt hat.
- (3) Werden wir an der rechtzeitigen Lieferung durch höhere Gewalt, von uns nicht zu vertretende Arbeitskämpfe, behördliche Maßnahmen, Energie- oder Rohstoffknappheit, Transportengpässe oder -hindernisse, Betriebsbehinderungen z. B. durch Feuer, Wasser und/oder Maschinenschaden oder andere von uns nicht zu vertretende Störungen im Betriebsablauf bei uns oder unseren Vorlieferanten/Subunternehmern, die nachweislich von erheblichem Einfluss sind, gehindert, sind wir verpflichtet, den Besteller unverzüglich zu informieren. In diesen Fällen sind wir berechtigt, die Lieferzeit um die Dauer des Ereignisses der höheren Gewalt oder der Störung hinauszuschieben, soweit wir unserer obenstehenden Informationsverpflichtung nachgekommen sind. Wird die Lieferung dadurch unmöglich, so entfällt unter Ausschluss von Schadenersatz unsere Lieferverpflichtung. Weist der Besteller nach, dass die nachträgliche Erfüllung infolge der Verzögerung für ihn ohne Interesse ist, kann er unter Ausschluss weitergehender Ansprüche vom Vertrag zurücktreten. Dauert das Ereignis höherer Gewalt oder der Störung länger als drei Monate an, so können wir hinsichtlich des noch nicht erfüllten Teils vom Vertrag zurücktreten, wenn wir unserer vorstehenden Informationsverpflichtung nachgekommen sind und soweit wir nicht das Beschaffungsrisiko oder eine Liefergarantie übernommen haben.
- (4) Ziffer 5(3) gilt entsprechend, soweit wir vor Abschluss des Vertrages mit dem Besteller ein kongruentes Deckungsgeschäft abgeschlossen haben, das uns bei ordnungsgemäßer Durchführung die Erfüllung unserer vertraglichen Lieferverpflichten gegenüber dem Besteller ermöglicht hätte, und wir von unserem Lieferanten nicht, nicht richtig und/oder nicht rechtzeitig beliefert werden und wir dies nicht zu vertreten haben.
- (5) Geraten wir in Verzug, so ist der Besteller berechtigt, schriftlich eine angemessene Nachfrist zu setzen, und nach deren ergebnislosen Ablauf vom Vertrag zurückzutreten. Der Nachfristsetzung bedarf es nicht, wenn wir die Leistung ernsthaft und endgültig verweigern oder es sich bei dem zugrunde liegenden Vertrag um ein Fixgeschäft im Sinne von § 323 Abs. 2 Nr. 2 BGB oder § 376 HGB handelt oder besondere Umstände vorliegen, die unter Abwägung der beiderseitigen Interessen den sofortigen Rücktritt rechtfertigen.

- (6) Auf Schadensersatz haften wir nur nach Maßgabe der Ziffer 10 dieser AGB. Für den Rücktritt gelten die gesetzlichen Bestimmungen.
- (7) Ist eine Abnahme vereinbart, hat die Abnahme bei uns unverzüglich nach gemeldeter Abnahmebereitschaft zu erfolgen, wenn nicht etwas anderes vereinbart ist. Die Kosten der Abnahme gehen zu Lasten des Bestellers.
- (8) Kommt der Besteller in Annahmeverzug oder wird die Lieferung aus Gründen, die der Besteller zu vertreten hat, verzögert, sind wir berechtigt, Ersatz des daraus entstehenden Schadens einschließlich Mehraufwendungen ersetzt zu verlangen. In diesen Fällen werden wir die Produkte auf Risiko des Bestellers lagern und dem Besteller die Lagerung in Rechnung stellen. Wir sind berechtigt, für die durch die Lagerung entstehenden Kosten pauschal 0,1 % des Nettovertragspreises pro beendetem Werktag, insgesamt aber nicht mehr als 5 % des Nettovertragspreises, zu berechnen. Weitergehende Ansprüche behalten wir uns vor. Dem Besteller bleibt das Recht vorbehalten, nachzuweisen, dass uns gar kein oder ein wesentlich geringerer Schaden entstanden ist.
- (9) Teillieferungen bleiben vorbehalten, soweit diese dem Besteller unter Berücksichtigung seiner Interessen zumutbar sind.

6. Lieferung und Gefahrübergang

- (1) Sofern sich aus der Auftragsbestätigung nichts anderes ergibt, erfolgt die Lieferung FCA ab unserem Werk in Porta Westfalica (gemäß Incoterms® 2010 oder der jeweils geltenden Fassung). Dies gilt auch dann, wenn wir ausnahmsweise die Transportkosten übernommen oder für den Besteller vorauslagt haben.
- (2) Sofern Versendung vereinbart wurde, geht die Gefahr des zufälligen Untergangs und der zufälligen Verschlechterung der Sache auf den Besteller über, wenn wir die Sache an den Spediteur, Frachtführer oder sonst zur Ausführung der Versendung bestimmten Dritten übergeben haben. Dies gilt auch dann, wenn die Lieferung durch unsere eigenen Fahrzeuge erfolgt oder wir die Transportkosten übernommen oder für den Besteller vorauslagt haben. Verzögert sich Lieferung aus Gründen, dessen Ursache beim Besteller liegt, geht die Gefahr von dem Tag an auf den Besteller über, an dem die Ware versandbereit ist und wir dies dem Besteller angezeigt haben.
- (3) Soweit nichts anderes vereinbart ist, steht die Verpackung in unserem pflichtgemäßen Ermessen. Die Kosten der Verpackung trägt der Besteller. Die Transportkisten unserer Standardverpackung sind nicht für eine Stapelverstaueung ausgelegt. Eine besondere Verpackung (etwa eine zusätzliche Transportverstärkung, welche ein max. doppelstöckiges Stapeln der Transportkisten erlaubt) erfolgt nur nach besonderer Vereinbarung und/oder auf Wunsch des Bestellers (den dieser spätestens in seiner Bestellung anzugeben hat).
- (4) Soweit der Besteller nicht rechtzeitig erklärt, wie die Versendung der Ware erfolgen soll, werden wir einen Beförderungsvertrag mit einem Spediteur auf Kosten des Bestellers schließen. In diesem Fall steht die Wahl des Transportwegs und der Versandart in unserem Ermessen, es sei denn, es wurde etwas anderes vereinbart. Soweit der Besteller eine Transportversicherung wünscht, hat er uns darauf hinzuweisen; diese wird dann durch uns nach pflichtgemäßem Ermessen zu Gunsten des Bestellers abgeschlossen. Die insoweit anfallenden Kosten trägt der Besteller, auch wenn wir ansonsten ausnahmsweise die Transportkosten übernommen haben.
- (5) Transportverpackungen nehmen wir an unserem Geschäftssitz innerhalb der üblichen Geschäftszeiten zurück.

7. Eigentumsvorbehalt

- (1) Wir behalten uns das Eigentum an den gelieferten Waren bis zum Eingang aller Zahlungen aus der Geschäftsverbindung mit dem Besteller vor.
- (2) Die Vorbehaltsware darf vom Besteller ohne unsere ausdrückliche schriftliche Zustimmung vor vollständiger Bezahlung der gesicherten Forderungen weder an Dritte verpfändet noch zur Sicherheit übereignet werden. Bei Pfändungen oder sonstigen Eingriffen Dritter hat uns der Besteller unverzüglich schriftlich zu benachrichtigen. Soweit wir gegen den Dritten klagen, die Klage erfolgreich war und der Dritte nicht in der Lage ist, uns die gerichtlichen oder außergerichtlichen Kosten einer Klage zu erstatten, haftet der Besteller für die uns entstandenen Kosten.
- (3) Bei vertragswidrigem Verhalten des Bestellers – insbesondere Zahlungsverzug – sind wir berechtigt, nach den gesetzlichen Vorschriften vom Vertrag zurückzutreten und die Vorbehaltsware heraus zu verlangen.
- (4) Der Besteller ist bis zur vollständigen Bezahlung der Vorbehaltsware verpflichtet,

uns jederzeit über den Standort der Vorbehaltsware informiert zu halten.

- (5) Der Besteller ist berechtigt, die gelieferten Waren im ordentlichen Geschäftsgang weiter zu verkaufen; er tritt uns jedoch bereits jetzt alle Forderungen in Höhe des Faktura-Endbetrages (einschließlich MwSt.) unserer Forderungen ab, die ihm aus der Weiterveräußerung gegen seine Abnehmer oder Dritte erwachsen, und zwar unabhängig davon, ob die Kaufsache ohne oder nach Verarbeitung weiter verkauft worden ist. Zur Einziehung dieser Forderung bleibt der Besteller auch nach der Abtretung ermächtigt. Unsere Befugnis, die Forderung selbst einzuziehen, bleibt hiervon unberührt. Wir verpflichten uns jedoch, die Forderung nicht einzuziehen, solange keine Wechsel- und Scheckproteste vorkommen, der Besteller seinen Zahlungsverpflichtungen aus den vereinnahmten Erlösen nachkommt, nicht in Zahlungsverzug ist und kein Antrag auf Eröffnung des Insolvenzverfahrens über sein Vermögen gestellt ist. Ist dies aber der Fall, können wir verlangen, dass der Besteller uns die abgetretenen Forderungen und deren Schuldner bekannt gibt, alle zum Einzug erforderlichen Angaben macht, die dazugehörigen Unterlagen aushändigt und den Schuldner (Dritten) die Abtretung mitteilt.
- (6) Die Verarbeitung oder Umbildung der von uns gelieferten Vorbehaltsware durch den Besteller wird stets für uns vorgenommen. Wird die von uns gelieferte Vorbehaltsware mit anderen, uns nicht gehörenden Gegenständen/Stoffen verarbeitet, so erwerben wir das Miteigentum an der neuen Sache im Verhältnis des Wertes der Vorbehaltsware zu den anderen verarbeiteten Gegenständen/Stoffen zur Zeit der Verarbeitung. Für die durch Verarbeitung entstehende Sache gilt im Übrigen das gleiche wie für die unter Vorbehalt gelieferte Ware.
- (7) Wird die von uns gelieferte Vorbehaltsware mit anderen, uns nicht gehörenden Gegenständen/Stoffen untrennbar vermischt oder dergestalt verbunden, dass sie wesentliche Bestandteile einer einheitlichen Sache werden, so erwerben wir das Miteigentum an der neuen Sache im Verhältnis des Wertes der Vorbehaltsware zu den anderen vermischten oder verbundenen Gegenständen/Stoffen zum Zeitpunkt der Verbindung oder Vermischung. Erfolgt die Verbindung oder Vermischung in der Weise, dass die Sache des Bestellers als Hauptsache anzusehen ist, so gilt bereits jetzt als vereinbart, dass der Besteller uns anteilmäßig Miteigentum überträgt. Der Besteller verwahrt das so entstandene Miteigentum für uns. Für die durch Verbindung oder Vermischung entstandene Sache gilt im Übrigen das Gleiche wie für die unter Vorbehalt gelieferte Ware.
- (8) Der Besteller ist verpflichtet, die Vorbehaltsware pfleglich zu behandeln. Er ist verpflichtet, diese auf eigene Kosten ausreichend zum Neuwert zu versichern, insbesondere gegen Feuer, Wasserschäden und Diebstahl. Sofern Wartungs- und Inspektionsarbeiten erforderlich sind, muss der Besteller diese auf eigene Kosten rechtzeitig durchführen.
- (9) Für den Fall des Untergangs oder der Beschädigung der Vorbehaltsware tritt der Besteller in diesem Zusammenhang bestehende etwaige Ansprüche auf Versicherungsleistungen in Höhe des Faktura-Endbetrages (einschließlich Mehrwertsteuer) unserer Forderungen in Ansehung des Liefergegenstandes als zusätzliche Sicherheit im Voraus an uns ab.
- (10) Sind bei Lieferungen in das Ausland im Einfuhrstaat zur Wirksamkeit des vorstehend geregelten Eigentumsvorbehalts oder der in den vorangegangenen Absätzen bezeichneten sonstigen Rechte unsererseits bestimmte Maßnahmen und/oder Erklärungen durch den Besteller erforderlich, so hat der Besteller uns hierauf schriftlich oder in Textform unverzüglich hinzuweisen und diese Maßnahmen und/oder Erklärungen auf seine eigenen Kosten unverzüglich durchzuführen bzw. abzugeben. Lässt das Recht des Einfuhrstaates einen Eigentumsvorbehalt nicht zu, ist der Besteller verpflichtet, uns auf seine Kosten unverzüglich andere geeignete Sicherheiten an der gelieferten Ware oder sonstige Sicherheiten nach billigem Ermessen (§ 315 BGB) zu verschaffen.
- (11) Wir verpflichten uns, die uns zustehenden Sicherheiten auf Verlangen des Bestellers insoweit freizugeben, als der realisierbare Wert unserer Sicherheiten die zu sichernden Forderungen um mehr als 10 % übersteigt; die Auswahl der freizugebenden Sicherheiten obliegt uns.

8. Eigentumserwerb durch Be- oder Verarbeitung uns zur Verfügung gestellter Gegenstände

- (1) Übergibt uns der Besteller einen Gegenstand zur Be- oder Verarbeitung oder zur Reparatur und bleibt der Besteller auch nach der Be- oder Verarbeitung oder Reparatur Alleineigentümer des be- oder verarbeiteten bzw. reparierten Gegenstands, so gilt bereits jetzt als vereinbart, dass der Besteller uns anteilmäßig Miteigentum im Verhältnis des Wertes unserer Be- oder Verarbeitung oder Reparatur (Faktura-



Endbetrag, einschließlich MwSt.) zum Wert des zur Verfügung gestellten Gegenstandes überträgt.

- (2) Wird der Gegenstand bei der Be- oder Verarbeitung oder Reparatur mit uns gehörenden Gegenständen/Stoffen vermischt oder dergestalt verbunden, dass sie wesentliche Bestandteile einer einheitlichen Sache werden, so erwerben wir das Miteigentum an der neuen Sache im Verhältnis des Wertes unserer Gegenstände/Stoffe zu dem Wert des zur Verfügung gestellten Gegenstandes des Bestellers zum Zeitpunkt der Verbindung oder Vermischung.
- (3) Erfolgt die Verbindung oder Vermischung in der Weise, dass die Sache des Bestellers als Hauptsache anzusehen ist, so gilt bereits jetzt als vereinbart, dass der Besteller uns anteilmäßig Miteigentum im Verhältnis des Wertes unserer Be- oder Verarbeitung bzw. unserer Reparatur (Faktura-Endbetrag, einschließlich MwSt.) zum Wert des zur Verfügung gestellten Gegenstandes zum Zeitpunkt der Verbindung oder Vermischung überträgt.
- (4) Für Sachen des Bestellers, an denen wir nach den vorstehenden Bedingungen Miteigentum erworben haben, gelten insoweit die Bestimmungen der Ziffer 7 dieser AGB entsprechend. Zur Klarstellung: Wir übertragen das nach den vorstehenden Bedingungen erworbene Miteigentum an den Besteller mit Lieferung der Sache gemäß den Regelungen in Ziffer 7 dieser AGB.

9. Gewährleistung – Haftung für Pflichtverletzungen

- (1) Für die Rechte des Bestellers bei Sach- und Rechtsmängeln (einschließlich Falsch- und Minderlieferung) gelten die gesetzlichen Bestimmungen, wenn nachfolgend nichts anderes bestimmt ist. In allen Fällen unberührt bleiben die gesetzlichen Sondervorschriften bei Endlieferung der Ware an einen Verbraucher (§§ 478, 479 BGB).
- (2) Sofern wir nach Zeichnungen, Spezifikationen, Mustern, Vorgaben und/oder sonstigen Unterlagen des Bestellers leisten, trägt dieser das Risiko der Eignung für den vorgesehenen Verwendungszweck.
- (3) Bearbeiten wir Teile des Bestellers in dessen Auftrag, ist der Besteller verpflichtet, zu prüfen, ob sich die Teile für die gewünschte Bearbeitung eignen. Führt eine Bearbeitung von Teilen, die der Besteller an uns sendet, aus Gründen, die wir nicht zu vertreten haben, nicht zum Erfolg, übernehmen wir für etwaige Schäden des Bestellers keine Haftung. Darüber hinaus sind uns die für die Bearbeitung bereits angefallenen Kosten zu ersetzen. Gegebenenfalls erforderliche Nacharbeiten werden wir dem Besteller in Rechnung stellen.
- (4) Die Gewährleistungsrechte des Bestellers setzen voraus, dass dieser seinen nach § 377 HGB geschuldeten Untersuchungs- und Rügeobliegenheiten ordnungsgemäß nachgekommen ist. Handelt es sich bei dem Vertragsverhältnis zwischen uns und dem Besteller um einen Werkvertrag, findet § 377 HGB entsprechende Anwendung. Mängelrügen sind schriftlich an unsere Kundendienstleitung zu richten.
- (5) Wurde mit dem Besteller eine Abnahme oder eine Erstmusterprüfung vereinbart, ist die Rüge von Mängeln ausgeschlossen, die der Besteller bei sorgfältiger Abnahme oder Erstmusterprüfung hätte feststellen können.
- (6) Uns ist Gelegenheit zu geben, einen gerügten Mangel an Ort und Stelle zu überprüfen.
- (7) Werden unsere Betriebs- oder Wartungsanweisungen nicht befolgt, eigenmächtige Änderungen an den Produkten vorgenommen und/oder Teile ausgetauscht, so bestehen für die daraus entstehenden Folgen keine Gewährleistungsansprüche. Dies gilt auch bei fehlerhaftem Einbau oder Aufbau, schlechter Instandhaltung, fehlerhafter Behandlung oder Lagerung, für von uns nicht ausgeführte unsachgemäße Reparaturen, Änderungen sowie von uns nicht zu vertretende chemische, elektrochemische oder elektrische Einflüsse sowie Witterungs- oder anderen Naturereignisse.
- (8) Ist die gelieferte Ware oder das hergestellte Werk mangelhaft, so stehen dem Besteller die gesetzlichen Rechte nach folgender Maßgabe zu:
 - a) Wir sind zunächst berechtigt, nach unserer Wahl entweder den Mangel zu beseitigen oder dem Besteller mangelfreie Ware zu liefern bzw. im Falle eines Werkvertrages ein neues Werk herzustellen (Nacherfüllung). Der Besteller hat uns hierfür die zur Nacherfüllung erforderliche Zeit und Gelegenheit zu geben. Wir sind verpflichtet, alle zum Zweck der Nacherfüllung erforderlichen Aufwendungen, insbesondere Transport-, Wege-, Arbeits- und Materialkosten zu tragen. Stellt sich das Mängelbeseitigungsverlangen des Bestellers als unberechtigt heraus, können wir die hieraus entstandenen Kosten vom Besteller ersetzt verlangen. Die Nacherfüllung beinhaltet weder den Ausbau der mangel-

haften Sache noch den erneuten Einbau, wenn wir ursprünglich nicht zum Einbau der Sache verpflichtet waren. Im Falle der Ersatzlieferung bzw. Neuherstellung bei Werkverträgen hat uns der Besteller die mangelhafte Ware auf unser Verlangen zurückzugeben. Wir sind berechtigt, die Nacherfüllung davon abhängig zu machen, dass der Besteller den für die gelieferte Ware vereinbarten Preis bezahlt. Der Besteller ist jedoch berechtigt, einen angemessenen Teil des Preises zurückzuhalten.

- b) Schlägt die Nacherfüllung fehl, so ist der Besteller nach seiner Wahl berechtigt, vom Vertrag zurückzutreten oder eine Minderung des vereinbarten Preises zu verlangen. Bei einem unerheblichen Mangel besteht jedoch kein Rücktrittsrecht.
 - c) Ansprüche des Bestellers auf Schadensersatz bzw. Ersatz vergeblicher Aufwendungen bestehen nur nach Maßgabe von Ziffer 10 dieser AGB.
- (9) Für die Verjährungsfristen gilt Ziffer 11 dieser AGB.

10. Haftungsausschlüsse und -begrenzungen

- (1) Vorbehaltlich der Regelung der Ziffer 10 (2) haften wir auf Schadensersatz – bei vertraglichen, außervertraglichen oder sonstigen Schadensersatzansprüchen, gleich aus welchem Rechtsgrund, insbesondere wegen Mängeln, Verzug und Unmöglichkeit, Verschulden bei Vertragsverhandlungen und Delikt – nur bei Vorsatz und/oder grober Fahrlässigkeit, einschließlich Vorsatz und/oder grober Fahrlässigkeit unserer Vertreter oder Erfüllungsgehilfen.

Darüber hinaus haften wir auch bei einfacher Fahrlässigkeit, einschließlich einfacher Fahrlässigkeit unserer Vertreter und Erfüllungsgehilfen, für Schäden aus der Verletzung einer wesentlichen Vertragspflicht, d.h. einer Pflicht, deren Erfüllung die ordnungsgemäße Durchführung des Vertrages erst ermöglicht und auf deren Erfüllung der Besteller daher regelmäßig vertrauen darf (Kardinalpflicht). Soweit uns keine vorsätzliche Pflichtverletzung angelastet wird, ist die Schadensersatzhaftung jedoch auf den vorhersehbaren, typischerweise eintretenden Schaden begrenzt.
- (2) Von den in Ziffer 10 (1) geregelten Haftungsausschlüssen und -beschränkungen unberührt bleiben Ansprüche für Schäden aus der Verletzung des Lebens, des Körpers und der Gesundheit sowie Ansprüche des Bestellers nach dem Produkthaftungsgesetz, den gesetzlichen Sondervorschriften bei Endlieferung der Ware an einen Verbraucher (§ 478, 479 BGB) und anderen zwingenden gesetzlichen Haftungsregelungen. Die vorstehenden Haftungsausschlüsse bzw. -beschränkungen gelten außerdem nicht, soweit wir einen Mangel arglistig verschwiegen haben oder soweit wir aus der Übernahme einer Garantie oder wegen der Übernahme des Beschaffungsrisikos haften.
- (3) Die Ziffern 10 (1) bis 10 (2) gelten auch, wenn der Besteller anstelle eines Anspruchs auf Ersatz des Schadens statt der Leistung Ersatz nutzloser Aufwendungen verlangt.
- (4) Soweit die Schadensersatzhaftung uns gegenüber ausgeschlossen oder eingeschränkt ist, gilt dies auch im Hinblick auf die persönliche Schadensersatzhaftung unserer Angestellten, Arbeitnehmer, Mitarbeiter, Vertreter und Erfüllungsgehilfen, die auf demselben Rechtsgrund beruhen.

11. Verjährung

- (1) Ansprüche des Bestellers aus Sach- und Rechtsmängeln verjähren innerhalb von 12 Monaten.
- (2) Zwingende Verjährungsvorschriften bleiben unberührt. Die in Ziffer 11 (1) genannte Verjährungserleichterung gilt nicht für Ansprüche wegen der Verletzung von Leben, Körper oder Gesundheit, für Ansprüche aufgrund von Vorsatz und/oder grober Fahrlässigkeit und für Ansprüche aufgrund der Übernahme einer Garantie oder der Übernahme des Beschaffungsrisikos. Unberührt bleiben auch die längeren Verjährungsfristen nach § 438 Abs. 1 Nr. 1 BGB (dingliche Rechte eines Dritten), §§ 438 Abs. 1 Nr. 2, 634a Abs. 1 Nr. 2 BGB (Bauwerke, Baustoffe und Bauteile sowie Planungsleistungen für ein Bauwerk), §§ 438 Abs. 3, 634a Abs. 3 BGB (Arglist) und § 479 BGB (Lieferantenregress).
- (3) Die sich nach den Ziffern 11 (1) und 11 (2) für Ansprüche wegen Sach- und Rechtsmängeln ergebenden Verjährungsfristen gelten entsprechend für konkurrierende vertragliche und außervertragliche Schadensersatzansprüche des Bestellers, die auf einem Mangel der Vertragsware beruhen. Wenn jedoch im Einzelfall die Anwendung der gesetzlichen Verjährungsregeln zu einer früheren Verjährung der konkurrierenden Ansprüche führen sollte, gilt für die konkurrierenden Ansprüche die gesetzliche Verjährungsfrist. Die gesetzlichen Verjährungsfristen nach dem Produkthaftungsgesetz bleiben in jedem Fall unberührt.

- (4) Soweit gemäß Ziffer 11 (1) bis 11 (3) die Verjährung von Ansprüchen uns gegenüber verkürzt wird, gilt diese Verkürzung entsprechend für etwaige Ansprüche des Bestellers gegen unsere gesetzlichen Vertreter, Angestellten, Mitarbeiter, Beauftragten sowie Verrichtungs- und Erfüllungsgehilfen, die auf demselben Rechtsgrund beruhen.

12. Rücktritts- /Kündigungsrechte

- (1) Wegen einer Pflichtverletzung unsererseits, die nicht in einem Mangel besteht, ist der Besteller nur dann berechtigt, vom Vertrag zurückzutreten, wenn wir die Pflichtverletzung zu vertreten haben.
- (2) Handelt es sich bei dem Vertrag um einen Werkvertrag oder einen Werklieferungsvertrag über bewegliche, nicht vertretbare Sachen, ist das freie Kündigungsrecht des Bestellers (§§ 651, 649 BGB) ausgeschlossen.

13. Schutz- und Urheberrechte

- (1) Sofern nichts anderes vereinbart ist, sind wir verpflichtet, die Lieferung lediglich im Land des Lieferortes frei von gewerblichen Schutzrechten und Urheberrechten Dritter – nachfolgend Schutzrechte genannt – zu erbringen.
- (2) Sofern ein Dritter wegen der Verletzung von Schutzrechten durch von uns erbrachte, vertragsgemäß genutzte Lieferungen gegen den Besteller berechnete Ansprüche erhebt, haften wir gegenüber dem Besteller wie folgt: Wir werden nach unserer Wahl und auf unsere Kosten für die betreffenden Lieferungen entweder ein Nutzungsrecht erwirken, sie so ändern, dass das Schutzrecht nicht verletzt wird oder austauschen. Ist uns dies nicht zu angemessenen Bedingungen möglich, stehen dem Besteller die gesetzlichen Rücktritts- oder Minderungsrechte nach Maßgabe von Ziffer 8 dieser AGB zu. Unsere Schadensersatzpflicht richtet sich nach Ziffer 10 dieser AGB, die Verjährung nach Ziffer 11 dieser AGB. Die vorstehend genannten Verpflichtungen bestehen für uns nur, soweit der Besteller uns über die vom Dritten geltend gemachten Ansprüche unverzüglich schriftlich verständigt.
- (3) Ansprüche des Bestellers bestehen nicht, soweit er selbst die Schutzrechtsverletzung zu vertreten hat. Ansprüche des Bestellers sind insbesondere ausgeschlossen, soweit die Schutzrechtsverletzung auf speziellen Vorgaben des Bestellers beruht, durch eine von uns nicht voraussehbare Anwendung oder dadurch verursacht wird, dass die Lieferung vom Besteller verändert oder zusammen mit nicht von uns gelieferten Produkten eingesetzt wird und wir die Schutzrechtsverletzung nicht zu vertreten haben.

14. Geheimhaltung

An unseren Abbildungen, Zeichnungen, Kalkulationen und sonstigen Unterlagen behalten wir uns Eigentums- und Urheberrechte vor. Dies gilt auch für solche schriftlichen Unterlagen, die als „vertraulich“ bezeichnet sind. Vor ihrer Weitergabe an Dritte bedarf der Besteller unserer ausdrücklichen schriftlichen Zustimmung. Er hat auf unser Verlangen diese Unterlagen vollständig an uns, einschließlich etwaiger Kopien, zurückzugeben, wenn sie von ihm im ordnungsgemäßen Geschäftsgang nicht mehr benötigt werden oder wenn Verhandlungen nicht zum Abschluss eines Vertrages führen.

15. Kommunikation mit dem Besteller

- (1) Die Verwendung der im Rahmen einer Bestellung an uns übermittelten Daten erfolgt ausschließlich in datenschutzrechtlich zulässiger Weise. Wir verwenden personenbezogene Daten nur, soweit der Besteller eingewilligt hat oder ein gesetzlicher Erlaubnistatbestand greift. Die Verwendung erfolgt für mit der Bestellung vergleichbare Waren und Dienstleistungen und für nicht periodische Informationen zu unserem Warenbestellsystem oder vergleichbare Informationen (z. B. Änderungen im Shopsystem), die wir auch per E-Mail versenden, jeweils aber nur für eigene werbliche Zwecke.
- (2) Die betroffenen Personen können dieser Verwendung ihrer Daten für die werbliche Ansprache jederzeit widersprechen und eine gegebene Einwilligung jederzeit widerrufen, ohne dass dafür andere als Übermittlungskosten nach den Basistarifen entstehen.
- (3) Der Besteller kann sich gesondert für den periodischen Bezug von Wareninformationen im Rahmen unseres Newsletters anmelden. Dafür gelten besondere Bestimmungen, die vor der Anmeldung bekannt gegeben werden.
- (4) Die übermittelten Daten werden nicht an Dritte weitergegeben. Wir arbeiten zum Versand von Informationen mit externen Dienstleistern zusammen, die als Auf-

tragsdatenverarbeiter für uns tätig werden und dem Datenschutz verpflichtet sind und insbesondere die Daten nicht an Dritte weitergeben dürfen.

16. Schlussbestimmungen

- (1) Eine Übertragung der Vertragsrechte und -pflichten auf Dritte durch den Besteller ist nur mit unserem schriftlichem Einverständnis zulässig. Dies gilt nicht, soweit die Übertragung auf ein verbundenes Unternehmen im Sinne des § 15 Aktiengesetz erfolgt.
- (2) Sofern sich aus der Auftragsbestätigung nichts anderes ergibt, ist Erfüllungsort für Lieferungen und Zahlungen unser Geschäftssitz in Porta Westfalica.
- (3) Für das Vertragsverhältnis gilt das Recht der Bundesrepublik Deutschland. Die Anwendung des UN-Kaufrechts (CISG – Convention on Contracts for the International Sale of Goods) ist ausgeschlossen.
- (4) Sofern der Besteller Kaufmann, juristische Person des öffentlichen Rechts oder öffentlich-rechtliches Sondervermögen ist, ist der Gerichtsstand für alle sich aus dem Vertragsverhältnis ergebenden Streitigkeiten einschließlich Scheck-, Wechsel- und Urkundenprozessen der für unseren Firmensitz, Porta Westfalica, zuständige Gerichtsort. Wir sind jedoch berechtigt, den Käufer auch an seinem Wohnsitzgericht zu verklagen.
- (5) Bei Abweichungen zwischen der deutschen und einer übersetzten Fassung dieser AGB, hat stets die deutsche Fassung Vorrang.
- (6) Sollte eine Bestimmung in diesen AGB oder eine Bestimmung im Rahmen sonstiger Vereinbarungen unwirksam sein oder werden, so wird hiervon die Wirksamkeit aller sonstigen Bestimmungen oder Vereinbarungen nicht berührt.

Wir liefern unter Geltung unserer „Allgemeinen Lieferungs- und Zahlungsbedingungen“.
(Siehe auch unter www.jacob-rohre.de oder auch auf Anforderung.)

Alle Marken, Produktbezeichnungen und Logos gehören ausschließlich den jeweiligen Inhabern. Die Verwendung von Unternehmens- und Produktbezeichnungen sowie Marken in diesem Katalog erfolgt ausschließlich zur Identifizierung der jeweiligen Produkte bzw. Unternehmen.

– RHINO HYDE ist zugunsten der Tandem Products Inc. in den USA und/oder anderen Ländern als Marke eingetragen.

– KRYPTANE und BLUE OX sind zugunsten der Argonic Inc. in den USA und/oder anderen Ländern als Marke eingetragen.

– FESTO ist zugunsten der Festo AG & Co. KG in den USA und/oder anderen Ländern als Marke eingetragen.

– AIR TORQUE ist zugunsten der Air Torque S.P.A. in verschiedenen Ländern als Marke eingetragen.

Die oben genannten Marken können auch als nicht registrierte Zeichen in den USA und/oder anderen Ländern geschützt sein. Alle anderen in diesem Katalog genannten Marken sind zugunsten der jeweiligen Inhaber geschützt.



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