

WELCOME

... to the world of Hawle



A family company with a proud tradition and an eye on the future.

Hawle, a purely family-owned company founded in 1948 is the worldwide leader in the production of an extensive product range of valves and connecting pieces. Hawle is an innovation leader in the development of high-quality valve solutions. In compliance with European and additionally applicable standards, Hawle produces high-performance and durable quality fittings for the construction and the use of water pipelines, as well as the necessary accessories and the required equipment.

Our specialist area of water and wastewater systems also includes customised fittings for special applications and special conditions.

An excellent understanding of the manufacturing process and the production requirements, extensive knowledge in water supply, years of experience and a broad service program enables us to create the optimum product for pipeline connections in all areas of international water supply.

The unique **10 year quality guarantee** for Hawle products in the drinking water area confirms our leading position for innovation and quality.

The employees of our company, which has its registered office in Vöcklabruck (Austria), bring all their service and subject knowledge into the research, design, development as well as the production process.

HAWLE products are exclusively produced in Europe in the most up-to-date production facilities. More than 98% of the raw materials used in the products come from Europe. HAWLE products are manufactured by well-trained specialists, thus guaranteeing careful monitoring of the quality in each phase of the production process. The majority of the components are also produced by HAWLE. So the functionality and the quality is assured and guaranteed in each production step.

Hawle stands for high quality, efficiency and durability. Therefore international customers trust in our products and technologies - for generations.

For more details go to **www.hawle.com**



E. Hawle Armaturenwerke GmbH 4840 Vöcklabruck - Austria - Wagrainstraße 13
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1

100% Hawle, 100% proven quality

We are constantly striving for improvements together with our partner companies all over the world. In order to achieve this we focus on the requirements of our customers, invest in the most up-to-date technology and offer professional service and technical support.

HAWLE has an excellent network of partners, which ensures an efficient and competent distribution of all our products. Our central warehouse in Frankenmarkt, Austria, supplies this network with numerous finished products, which are stored in over 10,000 pallet spaces.

The pipe connections which our technicians develop today will be used tomorrow for your secured water supply.

Hawle offers a competent, round-the-clock service. As soon as we receive your call we immediately put all our efforts into finding a solution to your problem.

HAWLE. **MADE FOR GENERATIONS.**



Vöcklabruck plant
Austria



Frankenmarkt plant
Austria



10 year quality guarantee (water for human consumption)

For all original HAWLE valves and fittings with the "HAWLE" inscription, HAWLE guarantees the functionality for a duration of 10 (ten) years from the time of delivery ex-works. This guarantee applies for fittings that are used as intended for water for human consumption according to Guideline 98/83/EC.

If a valve or fitting loses its functionality during the warranty period, HAWLE will repair the valve or fitting at its own discretion or supply an equivalent replacement fitting.

An exception to the guarantee are parts subject to wear and tear as well as damage caused by incorrect storage, transport, assembly, descriptions for use not being observed, failure to pressure-test, insufficient maintenance, subsequent manipulation or usage for unsuitable media. The guarantee does not apply for extraordinary environmental conditions, shocks or influence from objects in the medium or similar external influences, also not for the actions of third parties, accidents or other events, over which HAWLE has no control.

Please also observe the exceptions and special regulations that apply for certain products in our catalogue and on our homepage at www.hawle.at, as well as the special regulations for products with a 5 (five)-year Quality Guarantee.

Claims from the sales contract warranty are not limited by the guarantee declaration. Austrian law applies for this guarantee.



5-year quality guarantee (water for human consumption)

For all original HAWLE valves and fittings with the "HAWLE" inscription, HAWLE guarantees the functionality for a duration of 5 (five) years from the time of delivery ex-works. This guarantee applies for the following products, which are used as intended for water for human consumption according to Guideline 98/83/EC:

- Hawle butterfly valves no. 9881K)
- Dynamic ventilation and extraction valve (no. 9842)

If a valve or fitting loses its functionality during the warranty period, HAWLE will repair the valve or fitting at its own discretion or supply an equivalent replacement fitting.

An exception to the guarantee are parts subject to wear and tear as well as damage caused by incorrect storage, transport, assembly, descriptions for use not being observed, failure to pressure-test, insufficient maintenance, subsequent manipulation or usage for unsuitable fluids or gases. The guarantee does not apply for extraordinary environmental conditions, shocks or influence from objects in the medium or similar external influences, also not for the actions of third parties, accidents or other events, over which HAWLE has no control.

Please also observe the exceptions and special regulations that apply for certain products in our catalogue and on our homepage at www.hawle.at.

Claims from the sales contract warranty are not limited by the guarantee declaration. Austrian law applies for this guarantee.



2-year warranty

In addition to our quality guarantees, Hawle warrants in accordance with Austrian law that our products correspond to the relevant contract at the time of delivery. In the event of incorrect storage, transport, assembly, descriptions for use not being observed, failure to pressure-test, insufficient maintenance, subsequent manipulation or usage for non-suitable fluids or gases there is not entitlement to warranty claims. The warranty period runs for a maximum of two years ex-works delivery. Please see the Hawle delivery conditions for further details of the warranty.



Printed on environmentally-friendly, chlorine-free bleached and aging-resistant paper.

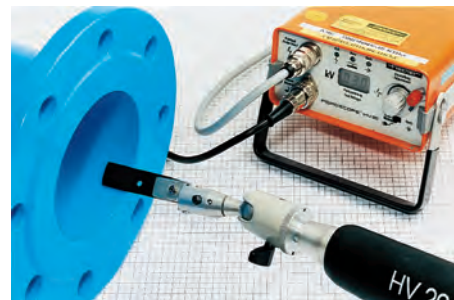
As of: November 2014



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High quality corrosion protection using the GSK fluidised bed Epoxy coating system.

The environmental friendly solvent and pollution free powder coating technology!



Epoxy Powder-Coated coating according to GSK:

-  Fulfills the requirements according to EN 14901 (pipes, fittings and accessories)
-  Minimum coated thickness 250 µm
-  Zero porosity
-  High adhesion to metal (min. 12 N/mm²)
-  High resilience (no cracking)
-  Smooth surface (makes incrustation more difficult)
-  Suitable for food use according to the guidelines for hygienic evaluation of organic coating in contact with drinking water (coating guideline) of the German Federal Health Office
-  High impact resistance
-  Bacteriological approval to DVGW recommendation W270
-  Regular quality tests according DIN 3476-1 - coating thickness, adhesion, spark-testing, impact resistance
-  Independent auditing of quality control systems by MPA Hannover in accordance with the test methods of **GSK** (Gütegemeinschaft Schwerer Korrosionsschutz - the association for high quality corrosion protection)
-  HAWLE standard colour RAL 5012

STANDARD APPLICATIONS:

Our products are intended for localised installation in drinking water pipelines made from PE, PVC, cast iron, steel or AC pipes.

STANDARD MEDIUM:

- **Water for human consumption**
according to EU Guideline 98/83/EC and its Appendix I, Parts A to C

GENERAL OPERATING PARAMETERS:

Water for human consumption:

Medium temperature: 0°C to max. 40°C
max. 250 mg/l chloride, max. 0.3 mg/l free chlorine
min. 8.0° dH total hardness
pH value of min. 5 to max. 9.5

For the specific operating parameters of our products, please refer to the respective product pages of our catalogue and our homepage **www.hawle.at**.

SPECIAL APPLICATIONS:

In case of deviating conditions of use or ambient conditions, please inform us right on your first inquiry about the specific operating conditions. If you have any questions regarding the suitability of products for certain operating conditions, please contact our Application Engineering department (phone: +43 (0) 7672 72576-0).

If our valves and fittings are used for other than the standard applications and without the approval granted by our Application Engineering department regarding the conditions of use, we cannot assume any liability.

APPLICATION INSTRUCTIONS:

Valves and fittings should be stored in a cool, dry and low-dust environment protected from weather. Avoid exposure to direct sunlight or UV light, unless the valves and fittings are designed for use above ground. For the correct installation and maintenance of our valves and fittings, please observe our instructions as well as the pertinent European standards (EN), as well as the directives of the ÖVGW (the Austrian Association for Gas and Water) and/or comparable national technical standards.

Pressure test

"buried valves"



Pressure testing of buried Hawle valves for water supply

Hawle valves are produced to the highest precision and accuracy and are subjected to routine quality control. Therefore, we can offer top-quality products and grant Hawle's 10 years quality guarantee unequalled in the market.

To ensure this quality for our customers it is necessary that installation be done professionally. Therefore, the Hawle valves as well as their connections to the pipeline system must be subjected to pressure testing after installation. In this test the tightness of pipes, pipe connections as well as components of the pipeline shall be demonstrated.



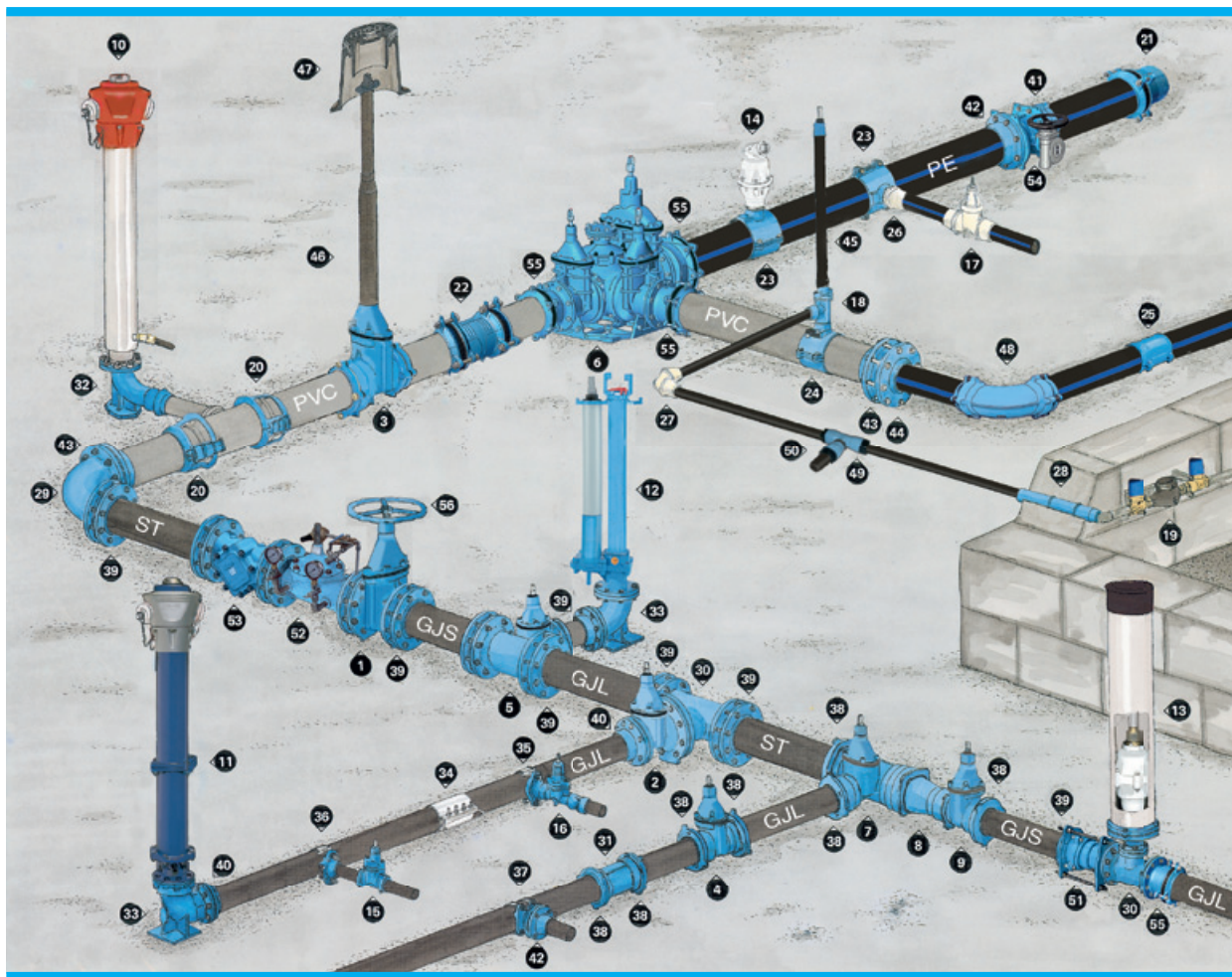
Application note:

The pressure test must be carried out according to EN 805. Prior to the pressure test, fill the trench covering only the pipes in order to prevent any expansion damage to the pipeline, but make sure to leave enough space completely open for inspection of each pipe connections site. Pipelines without restraint connections must be sufficiently secured by propping up and/or anchoring at each end, bend and branch.

We strongly recommend performing the pressure test **prior** to filling the space around the pipeline connections. **The Hawle warranty does not cover incurred excavation and filling or any other associated costs if the pressure test is done only after filling the entire trench. With regard to pressure testing, the Hawle warranty only encompasses replacement of defective products.**

The products listed in our catalogue are intended for potable, water in connection with PE, PVC, ductile iron, steel or asbestos pipe type installations in the ground.

Valve maintenance should be carried out every five years according to national standards (e.g.: ÖNORM B2539). Hawle recommends an annual actuation of the valve.



Order no.			Order no.	
1	E2 VALVE, flanged ends	4000E2	29	DOUBLE FLANGED BEND 90°
2	E2 REDUCING VALVE	4150E2	30	ALL FLANGED TEE
3	E2 VALVE „System 2000“	4040E2	31	CONNECTOR, restraint
4	E2 VALVE, SOCKET ENDS FOR CAST IRON	4500E2	32	FLANGE DUCK FOOT BEND with PVC socket 90°
5	E2 COMBI-T, SINGLE VALVE TEE	4340E2	33	FLANGE DUCK FOOT BEND 90° N-piece
6	E2 HAWLE-COMBIFLEX	4420E2	34	REPAIR CLAMPS, single lug
7	E2 MMB-VALVE (E2 COMBI-T SOCKET ENDS)	NL10E2	35	UNIVERSAL-PIPE SADDLE
8	CONCENTRIC TAPER	NL40	36	UNIVERSAL-SHUT-OFF SADDLE
9	E2 HSM-VALVE (SPIGOT SOCKET VALVE)	NL00E2	37	UNIVERSAL-PIPE SADDLE, flanged outlet
10	H4 CORROSION FREE HYDRANT - RIGID TYPE	5151H4	38	PIPE-LOCK-RING for restraint clamp
11	H4 ABOVE GROUND HYDRANT - BREAK AWAY	5096H4	39	RESTRAINT FLANGE ADAPTOR FOR CAST IRON
12	FREEFLOW BELOW GROUND HYDRANT	5060	40	DOUBLE CHAMBER FLANGE ADAPTOR FOR CAST IRON
13	COMBINED AIR RELEASE VALVE	9822	41	RESTRAINT FLANGE ADAPTOR FOR PE/PVC,
14	AUTOMATIC AIR VALVE	9876	42	ISO PIPE-FLANGE ADAPTOR FOR PE
15	SERVICE VALVE	2500	43	DOUBLE CHAMBER FLANGE ADAPTOR FOR PVC
16	SERVICE VALVE	2800	44	DOUBLE CHAMBER FLANGE ADAPTOR FOR PVC, reducing
17	SERVICE VALVE, POM	2630	45	EXTENSION SPINDLE, FOR SERVICE VALVES
18	SERVICE VALVE	3130	46	TELESCOPIC EXTENSION SPINDLE, FOR E2 VALVES
19	WATER METER CONSOLE	2963	47	SURFACE BOX ADJUSTABLE
20	RESTRAINT CLAMP, for PVC	1254	48	BEND 90° "System 2000"
21	ENDCAP „Synoflex“	7980	49	HAWLE-FIT FITTING, T-piece with threaded outlet, POM
22	CONNECTOR „Synoflex“	7974	50	HAWLE-FIT FITTING, external thread, POM
23	HAKU-SADDLE FOR PLASTIC PIPES	5250	51	HAWLE-VARIO
24	HAKU-SADDLE FOR PLASTIC PIPES	5310	52	PRESSURE REDUCING VALVE
25	SPLIT COLLAR (Pipe-Pipe)	9240	53	STRAINER
26	ISO-FITTING, external thread, POM	6120	54	HAWLE-BUTTERFLY VALVE
27	ISO-FITTING, elbow, POM	6420	55	FLANGE „Synoflex“
28	WALL INLET FITTING	6990	56	HANDWHEEL
				7800

1. General

All our legal transactions, deliveries, other services and offers are exclusively subject to the Conditions of Sale given below. Any terms and conditions of the buyer to the contrary of or in deviation from our Conditions will not be accepted, unless we have expressly consented to the applicability thereof.

2. Prices and terms of payment

The documents included in the our offers such as drawings, figures and weight specifications shall be taken for approximate values only, unless they are expressly defined as binding. This shall apply, in particular, to obvious errors, typing errors, misprints and calculation errors. We reserve ownership and copyright in drawings, cost estimates and other documents. No such documents may be disclosed to any third party.

Our offers and price lists are subject to confirmation - unless expressly agreed otherwise - and shall become binding only upon our written confirmation of the order or any act of implementation performed by us (such as delivery/dispatch of goods). Unless otherwise agreed, the prices are ex works, not including packaging. In national and international merchandise traffic the delivery clause pursuant to Incoterms 2000 EXW (ex works) shall apply, unless otherwise agreed upon in writing.

Any changes in the cost of labour as a consequence of collective bargaining, legal regulations or in-house arrangements, as well as changes in other costs relevant for calculation and for goods and services, such as costs for material, energy, transportation, outsourcing, financing, etc., shall entitle us to increase our prices accordingly. Any orders confirmed by us are excluded from a possible price change. On grounds of such price increase, the customer shall not be entitled to withdraw nor to assert frustration of the contract.

Unless otherwise agreed, payment shall be effected within 30 days net. Payments are always credited against the oldest debts. Any offsetting against claims raised on our part shall be excluded.

In the event that the customer is in arrears with his payments, we shall be discharged from any further contractual obligation and delivery commitment. Moreover, we shall be entitled to retain outstanding deliveries and services or to demand payment in advance and/or guarantees. If the customer's financial circumstances are substantially worsening after conclusion of the contract, or if we come to know of circumstances that are apt to reduce the customer's creditworthiness in our opinion, then we shall be entitled to change the maturity of unsettled claims, and to adjust the terms and conditions for future legal transactions with immediate effect.

3. Delivery

Orders confirmed by us will be fulfilled by us as quickly and as far as possible. The delivery dates specified by us are for information only and without responsibility.

4. Reservation of title

Until payment in full we retain title to all goods delivered by us.

5. Warranty

Standard EN 805 or an equivalent international standard is deemed to be agreed between us and the customer. In cases of warranty it is deemed to be agreed that the pressure test is performed before filling the pipe trench.

The customer shall inspect the quantity and quality of the goods received immediately after their arrival. Any notice of defect shall be asserted in writing by the customer immediately after receipt of the shipment, but not later than within 10 days after delivery and before machining or processing. Otherwise any warranty claims and/or claims for damages and/or avoidance on the ground of error shall be excluded. However, a notice of defect does not entitle the customer to retain amounts invoiced or parts thereof. In general, warranty obligations relate to the defective product and do not extend to expenditures otherwise related to the remedy of the defect, such as excavation costs, labour time and travel expenses. It is left to our discretion whether we prefer to fulfil our warranty obligations by way of replacement, improvement, price reduction or cancellation of the contract.

The onus of proof that the delivered goods were defective at the time of delivery lies with the customer.

6. Compensation and liability

Our advisory service, whether provided verbally or in writing, is for information only and without responsibility, and it does not release our customer from his own duty to check, if our products are suitable and qualified for the intended purpose. This particularly applies, without being restricted thereto, to the suitability of our products for the media intended to be conducted therein (gases and/or liquids).

For any damage incurred by our customer in the course of a business transaction we shall be liable up to a maximum amount not exceeding the value of goods ordered, and only in case of our own gross negligence or the gross negligence of any person acting on our behalf, excepting personal injuries, in case of which we shall be liable already in case of slight negligence. Any compensation for consequential damage, pure financial loss, loss of profit and damages resulting from third party claims shall be excluded. The onus of proof for gross negligence lies with the injured party. The time limit for asserting any compensation claims is one year from getting knowledge of the damage and of the injuring party.

In the event that our customer should be held liable on grounds of the Product Liability Act, he undertakes to inform us immediately by phone or in writing, and to tell us the address of the claimant, otherwise any right of recourse of the customer against us under product liability will expire. Negotiations regarding claims under product liability regarding any of our products shall be held exclusively by us.

7. Place of performance, place of venue, applicable law

The place of performance for delivery and payment shall be A-4840 Vöcklabruck. The exclusive place of venue for all disputes arising out of this contract shall be the court having jurisdiction as regards the subject matter for A-4840 Vöcklabruck. This agreement shall be exclusively subject to the substantive law of Austria, expressly excluding the conflict of law rules as well as the UN Sales Convention (CISG).

Page A 2	E2 Flange gate valve Standard Reductions <i>E-valve DN 20 - DN 40</i>	Page A 2/3 Page A 2/7 Page J 3/1	
Page A 3	E2 Valve spigot ends E2 Valve spigot ends With flange	Page A 3/1 Page A 3/3	
Page A 4	E2 Valve for PE and PVC pipes <i>Valve system 2000 socket-socket</i> <i>Valve system 2000 socket-flange</i> <i>Valve system BAIO socket-socket</i> <i>Valve for PE fusion PE-PE</i> <i>Valve for PE fusion PE-flange</i>	<i>Page F 2/3</i> <i>Page F 2/5</i> <i>Page G 3/1</i> <i>Page A 4/1</i> <i>Page A 4/3</i>	
Page A 5	E2 Valve for ductile iron pipes <i>Valve system BAIO socket-socket</i> <i>Valve system BAIO socket-spigot</i> <i>Valve system VRS socket-spigot</i>	<i>Page G 3/1</i> <i>Page G 4/1</i> <i>Page A 5/1</i>	
Page A 6	E2 Combi-T <i>Combi-T with flange</i> <i>Combi-T System 2000 socket</i> <i>Combi-T System BAIO socket</i>	<i>Page A 6/1</i> <i>Page F 3/1</i> <i>Page G 5/1</i>	
Page A 7	E2 Combi-III <i>Combi-III with flange</i> <i>Combi-III system BAIO</i>	<i>Page A 7/1</i> <i>Page G 5/2</i>	
Page A 8	E2 Combi-IV <i>Combi-IV with flange</i>	Page A 8/1	
Page A 9	E2 Hawle-Combiflex <i>With flange DN 250, DN 300</i>	Page A 9/1	
Page A 10	Hawle-A valve	Page A 10/1	
Page A 11	Hawle-E1+ valve	Page A 11/1	

Accessories

Handwheels	Page M 4/1
Extension spindles	Page M 2/1
Surface boxes	Page M 3/1
Base plate	Page M 3/7
Adapter and coupling socket	Page M 4/3
Operating cap	Page M 4/1
Spindle extension	Page M 4/1
Actuator	Page M 4/3
Position indicator	Page M 4/2
Bolts	Page M 4/4
HAWAK-pillar	Page M 5/1
Flat gaskets	Page M 7/1
Blanking cap	Page M 4/1
Flanges	Page C 4/1
Dismantling pieces	Page D 6/1

Spare parts

Valve bonnet	Page P 2/1
Valve wedge	Page P 2/1
Valve bonnet flat gasket	Page P 2/2

Tools

Operating key	Page Q 4/2
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Technical information

Tightening torques for flange assembly	Page R 3/1
Pressure loss diagram	Page R 4/1
Spindle rotations per stroke	Page R 1/2

Application example



E2 VALVE | COMBI VALVES

Overview



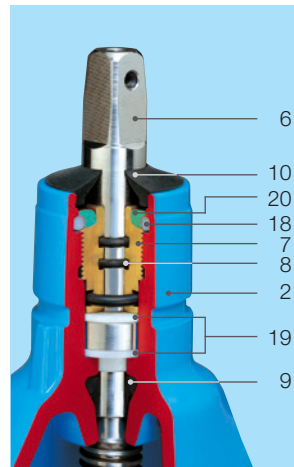
Design features

- **Resilient seated gate valve** according to EN 1171, EN 1074-1 and EN 1074-2 with smooth straight-through bore
- Flange valve
- Spigot valve
- Valve spigot ends
- Valve system 2000
- Valve system BAIO
- Valve for PE fusion
- VRS-socket valve
- Combi-T, Combi-III, Combi-IV, Hawle-Combiflex
- **Wedge guide** with high glide characteristics; load-optimised design guarantees lowest wear and minimum closing torques
- **Wedge nut** allows high torque load through large dimensioning of the required thread length
- **O-rings, lip seals** mounted in rust-proof material on all sides as well as up to DN 200 under pressure (according to ISO 7259), from DN 250 can be replaced in depressurised state
- **Edge protection** protects during transport and storage
- **Friction washers** (DN 50 to DN 200) and **roller bearings** (DN 250 to DN 600) guarantee low friction mounting of the spindle
- **100%** suitable for underground installation

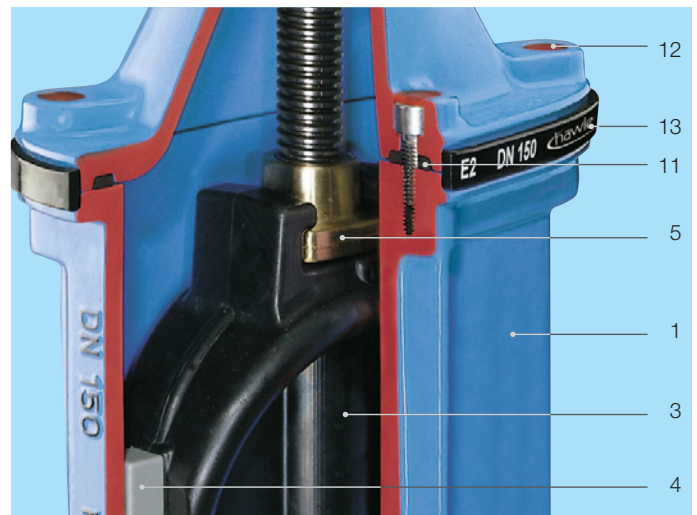
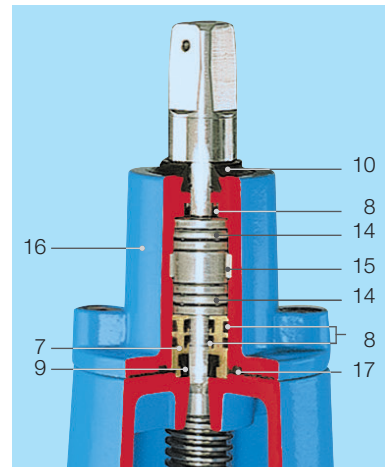
Material | technical features

- 1,2, **Body (1), bonnet (2), centering flange (16)**
16 made of ductile iron, epoxy powder coated inside and out (see page 4)
- 3 **Wedge** made of ductile iron, inside and out with vulcanized elastomer
- 4 **Wedge guide** made of wear-resistant plastic
- 5 **Wedge nut** made of dezincification-resistant brass
- 6 **Stainless steel spindle** with rolled thread and flat-rolled sealed sliding surface
- 7 **O-ring bush** made of brass
- 8 **O-rings, lip seals** (from DN 200) made of elastomer
- 9 **Back seal** made of elastomer
- 10 **Wiper ring** made of elastomer
- 11 **Bonnet gasket** made of elastomer
- 12 **Allen screws** encased into the body with an enclosing gasket and wax, ensuring full corrosion protection
- 13 **Edge protection** made of PE
- 14 **Ball bearing** made of DN 250, permanently lubricated
- 15 **Centering ring** made of POM
- 17 **Centering flange gasket** made of elastomer
- 18 **Retaining ring** made of POM
- 19 **Friction washers** made of POM
- 20 **Sealing compound**, corrosion protection of the thread

DN 50-200 Spindle bearing on friction washers

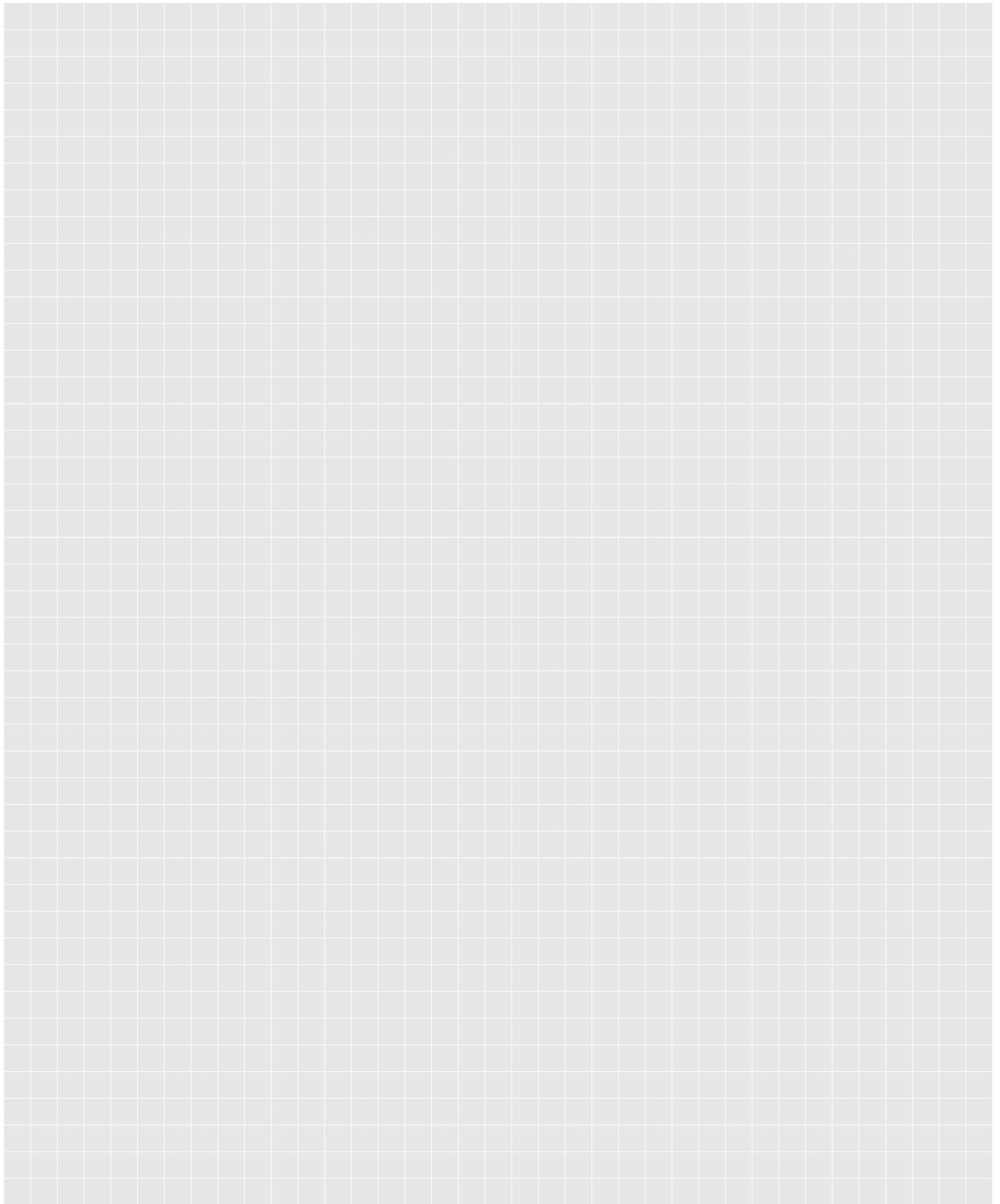


DN 250-600 Spindle bearing on ball bearing



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A 2/1

A large rectangular area filled with a light gray grid pattern, intended for taking notes.

E2 VALVE

With flange DN 50-200, PN 10 | PN 16 | PN 25



Design features

- Resilient seated gate valve with smooth straight-through bore
- Flanges sized in accordance with EN 1092-2, drilled according to
EN 1092-2 | PN 10 standard (4000E2, 4700E2);
EN 1092-2 | PN 25 (4010E2, 4710E2)
EN 1092-2 | PN 16 from DN 200 (4000E2, 4700E2)
Please specify on order - other standards on request
- Suitable for cleaning with a cleaning pig
- One extension spindle for several dimensions
- Suitable for operation by automatic actuators
- Easy refitting for position indicator and automatic actuators on the standard bonnet
- Duplex stainless steel spindle

Standard version: without handwheel and extension spindle

Design versions: for actuator: No. 4000ELE2
with position indicator: No. 4000STE2
for seawater: No. 4002E2, No. 4702E2

Special versions: on request

Suitable accessories

Suitable accessories: see page A 1/2

Handwheel: No. 7800
Extension spindles: rigid No. 9000E2
telescopic No. 9500E2
Surface boxes: rigid No. 1750
telescopic No. 2050
No. 2051K
No. 9920
Valve actuator: No. 8630E2
Adapter for actuator (E2 adapter): No. 3481, No. 3482
Base plate: No. 2156, No. 2157, No. 2158
Operating cap: No. 7820, No. 7825
Extension spindle: No. 2170E2
Position indicator: No. 8810, No. 8830, No. 8840
Bolts: No. 9894, No. 9895
HAWAK-pillar: No. 3390, No. 3470
Flat gasket:

No. 4000E2

No. 4700E2

No. 4010E2

No. 4710E2

No. 4060E2



Order no.	Version	MOP (PN)	Dimensions/DN						
			50	65	80	100	125	150	200
4000E2	short EN 558-1 GR 14	16							
4700E2	long EN 558-1 GR 15	16							
4010E2	short EN 558-1 GR 14	25							
4710E2	long EN 558-1 GR 15	25							
4060E2	to BS 5163	16							

Application example



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A 2/3

E2 VALVE

With flange DN 50-200, PN 10 | PN 16 | PN 25



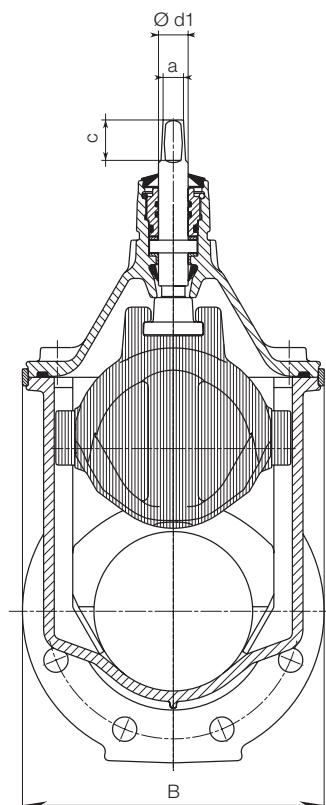
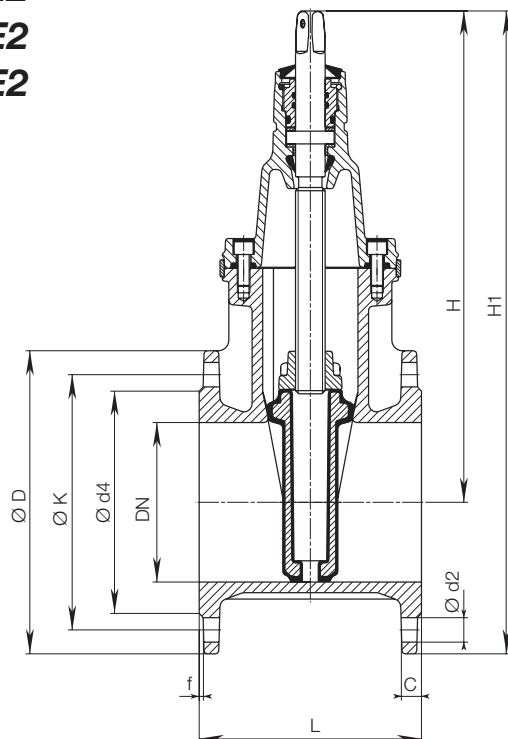
No. 4000E2

No. 4700E2

No. 4010E2

No. 4710E2

No. 4060E2



DN	MOP (PN)	Flange					Bolts			Spindle			Valve						Weight		
		Ø D	C	Ø K	Ø d4	f	Qty.	Thread	Ø d2	a	c	Ø d1	H	H1	L short	L long	BS 5163	B	short	long	BS 5163
50	10																				
	16	165	19	125	98	3	4	M 16	19	14,8	30	22	260	342	150	250		143	11,0	12,0	
	25																		11,0		
65	10						4														
	16	185	19	145	118	3	8	M 16	19	17,3	35	25	328	420	170	270		180	17,0	18,0	
	25																		17,0		
80	10																				
	16	200	19	160	133	3	8	M 16	19	17,3	35	25	336	436	180	280	203	180	18,5	20,5	19,0
	25																		18,5		
100	10																				
	16	220	19	180	153	3	8	M 16	19	19,3	38	25	373	483	190	300	229	213	24,5	27,5	26,0
	25	235		190				M 20	23					480					24,5		
125	10																				
	16	250	19	210	183	3	8	M 16	19	19,3	38	28	450	575	200	325		285	35,5	38,0	
	25	270		220				M 24	28										35,0		
150	10																				
	16	285	19	240	209	3	8	M 20	23	19,3	38	28	462	605	210	350	267	285	40,5	46,0	45,0
	25	300		250				M 24	28										40,5	49,0	
200	10						8														
	16	340	20	295	264	3	12	M 20	23	24,3	48	32	563	733	230	400	292	357	64,0	72,0	67,5
	25	360		310			12	M 24	28					743					64,0	81,0	

E2 VALVE

With flange DN 250-600, PN 10 | PN 16 | PN 25



Design features

- Resilient seated gate valve with smooth straight-through bore
- Flanges sized in accordance with EN 1092-2, drilled according to
EN 1092-2 | PN 10 standard (4000E2, 4700E2);
EN 1092-2 | PN 25 (4710E2)
EN 1092-2 | PN 16 from DN 200 (4000E2, 4700E2)
Please specify on order - other standards on request
- Suitable for cleaning with a cleaning pig
- Suitable for operation by automatic actuators
- O-rings replaceable without pressure
- Ball bearings in the spindle seating minimizes closing forces
- Easy to actuate without bypass and without power boost - even for 16 bar differential pressure
- For the assembling of a position indicator it is necessary to remove the centering flange and mount the adapter for position indicator
- For the assembling of an electric actuator it is necessary to remove the centering flange and mount the adapter for electric actuator and a coated spindle (DN 250 - DN 400)

Standard version: without handwheel and extension spindle

Design versions: for actuator: No. 4000ELE2
with position indicator: No. 4000STE2
for seawater: No. 4002E2,
No. 4702E2

Special versions: on request

- Bevel gearing
- for DN 500/DN 600 - version with bypass (DN 50) available
- Ventilation and exhausting;
small amounts of air in the bonnet

Suitable accessories

Suitable accessories: see page A 1/2

Handwheel: No. 7800
Extension spindles: rigid No. 9000E2
telescopic No. 9500E2
Surface boxes: rigid No. 1750
telescopic No. 2050
No. 2051K
Valve actuator: No. 9920
Adapter for actuator (E2 adapter): No. 8630E2
Base plate: No. 3481, No. 3482
Operating cap: No. 2156, No. 2157, No. 2158
Extension spindle: No. 7820, No. 7825
Bolts: No. 8810, No. 8830, No. 8840
HAWAK-pillar: No. 9894, No. 9895
Flat gasket: No. 3390, No. 3470

No. 4000E2

No. 4700E2

No. 4710E2

No. 4060E2



Order no.	Version	MOP (PN)	Dimensions/DN							
			250	300	350	400	450*	500*	500	600
4000E2	short EN 558-1 GR 14	16								
4700E2	long EN 558-1 GR 15	16								
4710E2	long EN 558-1 GR 15	25								
4060E2	to BS 5163	16								

* Body: DN 400 - flange connection: DN 450 or 500

Application example



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A 2/5

E2 VALVE

With flange DN 250-600, PN 10 | PN 16 | PN 25

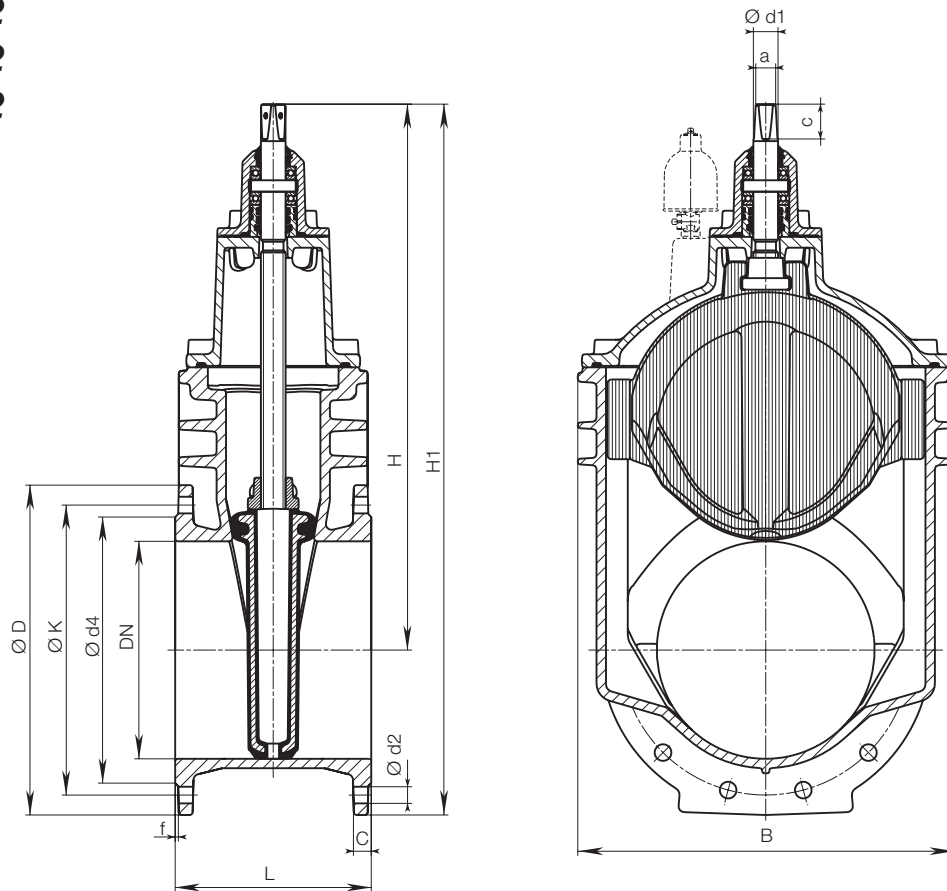


No. 4000E2

No. 4700E2

No. 4710E2

No. 4060E2



DN	MOP (PN)	Flange					Bolts			Spindle			Valve						Weight			
		Ø D	C	Ø K	Ø d4	f	Qty.	Thread	Ø d2	a	c	Ø d1	H	H1	L short	L long	BS 5163	B	short	long	BS 5163	
250	10	400	22	350	319	3	12	M 20	23	27,3	48	34	670	870	250	450	330	432	100,0	121,0	104,0	
	16	425	24,5	370				330	M 24					28			883					
	25								M 27					31								
300	10	455	24,5	400	367	4	12	M 20	23	27,3	48	34	753	981	270	500	356	518	147,0	170,0	153,5	
	16			410					M 24					28								
	25	485	27,5	430				389	5					16	M 27		31			996		
350	10	520	26,5	460	427	4	16	M 20	23	27,3	48	34	838	1098	290			604	205,0			
	16			470				M 24	28													
400	10	580	28	515	477	4	16	M 24	28	32,3	55	44	974	1264	310	600		687	261,0	300,0		
	16			525				M 27	31													
450*	10	640	30	565	530	4	20	M 24	28	32,3	55	44	974	1310		650		687		332,0		
	16			585				M 27	31													
500*	10	715	31,5	620	582	4	20	M 24	28	32,3	55	44	974	1345		700		687		371,0		
	16			650				M 30	34													
500	10	715	31,5	620	582	4	20	M 24	28	36,3	66	50	1220	1578	350	700		800	488,0	542,0		
	16			650				M 30	34													
600	10	840	36	725	720	5	20	M 27	31	36,3	66	50	1377	1797	390	800		944	720,0	789,0		
	16			770				M 33	37													

* Body: DN 400 - flange connection: DN 450 or 500

A 2/6



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E2 REDUCING VALVE

With flange DN 65-300, PN 10 | PN 16



Design features

- Resilient seated gate valve with unequal flange sizes
- Flanges sized in accordance with EN 1092-2, drilled according to EN 1092-2 | PN 10 standard; EN 1092-2 | PN 16 DN 200 - DN 300 please specify on order - other standards on request
- This **E2** reduction valve is a gate valve and a reducing connector in one piece; this feature provides for a multitude of application possibilities for the most efficient material and space requirements
- One extension spindle for several dimensions
- Suitable for operation by automatic actuators
- Easy refitting for position indicator and automatic actuators on the standard bonnet
- Duplex stainless steel spindle

Standard version: without handwheel and extension spindle

Design versions: for actuator: No. 4150ELE2
with position indicator: No. 4150STE2

Special versions: on request

Suitable accessories

Suitable accessories: see page A 1/2

Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000E2
	telescopic	No. 9500E2
Surface boxes:	rigid	No. 1750
	telescopic	No. 2050
		No. 2051K
Valve actuator:		No. 9920
Adapter for actuator (E2 adapter):		No. 8630E2
Base plate:	No. 3481, No. 3482	
Operating cap:	No. 2156, No. 2157, No. 2158	
Extension spindle:	No. 7820, No. 7825	
Position indicator:	No. 2170E2	
Bolts:	No. 8810, No. 8830, No. 8840	
HAWAK-pillar:	No. 9894, No. 9895	
Flat gasket:	No. 3390, No. 3470	

No. 4150E2



Order no.	MOP (PN)	Dimensions/DN*															
		100 65	100 80	125 80	125 100	150 80	150 100	150 125	200 100	200 150	250 150	250 200	300 150	300 200	300 250		
4150E2	16																

* The valve is sized in accordance with the smaller flange

Application example



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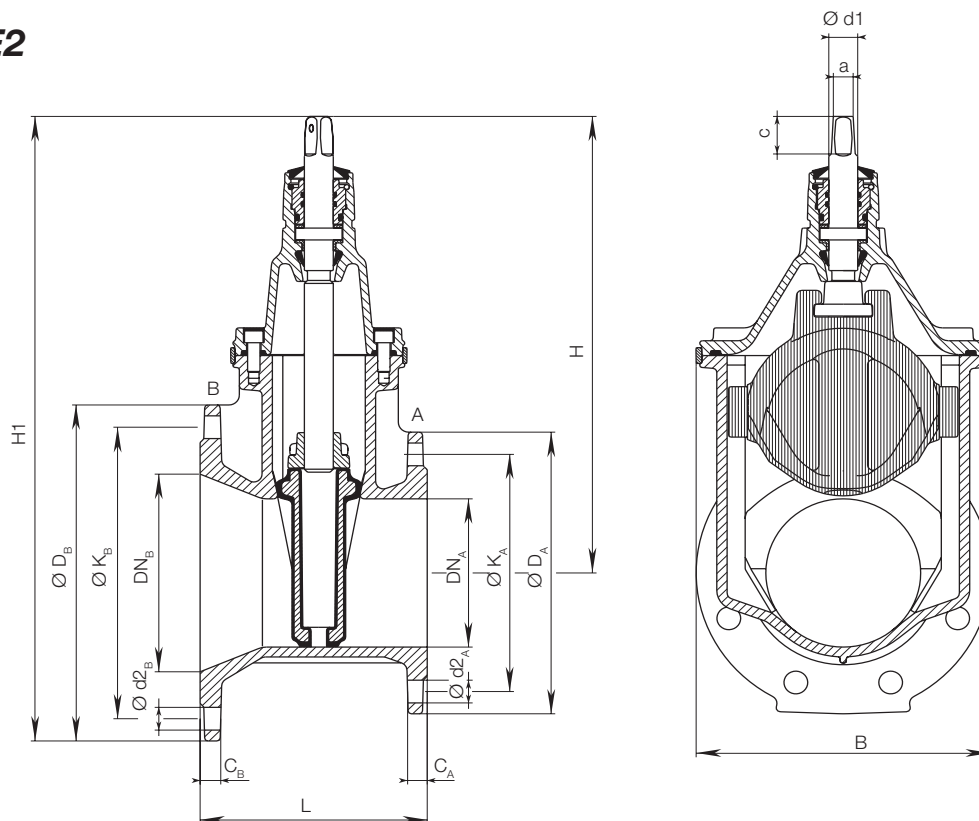
A 2/7

E2 REDUCING VALVE

With flange DN 65-300, PN 10 | PN 16



No. 4150E2



DN	MOP (PN)	Flange A					Flange B					Spindle			Valve				Weight
		Ø D _A	C _A	Ø K _A	Ø d _{2A}	n _A *	Ø D _B	C _B	Ø K _B	Ø d _{2B}	n _B *	a	c	Ø d1	H	H1	L	B	
100 - 65	10 16	185	19	145	19	4	220	19,0	180	19	8	17,3	35	25	328	438	180	180	19,0
100 - 80	10 16	200	19	160	19	8	220	19,0	180	19	8	17,3	35	25	336	446	190	180	20,0
125 - 80	10 16	200	19	160	19	8	250	19,0	210	19	8	17,3	35	25	336	461	200	180	21,5
125 - 100	10 16	220	19	180	19	8	250	19,0	210	19	8	19,3	38	25	373	498	200	213	25,0
150 - 80	10 16	200	19	160	19	8	285	19,0	240	23	8	17,3	35	25	336	479	200	180	24,0
150 - 100	10 16	220	19	180	19	8	285	19,0	240	23	8	19,3	38	25	373	516	210	213	28,0
150 - 125	10 16	250	19	210	19	8	285	19,0	240	23	8	19,3	38	28	449	591,5	210	285	36,0
200 - 100	10 16	220	19	180	19	8	340	20,0	295	23	8 12	19,3	38	25	373	543	210	213	31,0
200 - 150	10 16	285	19	240	23	8	340	20,0	295	23	8 12	19,3	38	28	462	632	220	285	46,5
250 - 150	10 16	285	19	240	23	8	400	22,0	350 355	23 28	12	19,3	38	28	462	662	230	285	49,0
300 - 150	10 16	285	19	240	23	8	455	24,5	400 410	23 28	12	19,3	38	28	462	690	240	285	68,0
250 - 200	10 16	340	20	295	23	8 12	400	22,0	350 355	23 28	12	24,3	48	32	563	763	240	357	70,5
300 - 200	10 16	340	20	295	23	8 12	455	24,5	400 410	23 28	12	24,3	48	32	563	791	250	357	74,5
300 - 250	10 16	400	22	350 355	23 28	12	455	24,5	400 410	23 28	12	27,3	48	34	670	898	260	432	105,0

The valve is sized in accordance with the smaller flange n_A*, n_B* = bolts per flange

A 2/8



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E2 VALVE SPIGOT ENDS

PN 16



Design features

- Resilient seated gate valve with smooth straight-through bore
 - The Hawle **E2** spigot valve with smooth spigot ends is a universal type, suitable for both flange as well as for socket connections
 - Easy replacement of old flange valve to insertion of HAWLE-flange, as insertion of flat gaskets is not required; special lengths can even be produced through shortening of the spigot ends
 - The outside diameters of the spigot ends correspond to that of the cast iron pipes (other size on request)
 - Suitable for cleaning with a cleaning pig
 - One extension spindle for several dimensions
 - Suitable for operation by automatic actuators
 - Easy refitting for position indicator and automatic actuators on the standard bonnet (DN 50 to DN 200)
- To set-up an actuator or a position indicator, remove the centering flange and insert position indicator or actuator with adapter (DN 250 bis DN 400)

Standard version: without handwheel and extension spindle

Suitable accessories

Suitable accessories: see page A 1/2

Flange:		No. 7102
		No. 0102
Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000 E2
	telescopic	No. 9500 E2
Surface boxes:	rigid	No. 1750
	telescopic	No. 2050
		No. 2051K
Valve actuator:		No. 9920
Adapter for actuator (E2 adapter):		No. 8630 E2
Base plate:		No. 3481, No. 3482
Operating cap:		No. 2156, No. 2157, No. 2158
Extension spindle:		No. 7820, No. 7825
Position indicator:		No. 2170 E2
Bolts:		No. 8810, No. 8830, No. 8840
HAWAK-pillar:		No. 9894, No. 9895

No. 4100E2



No. 4140E2



Order no.	Version Face-to-face length	MOP (PN)	Dimensions/DN									
			50	65	80	100	125	150	200	250	300	400
4100E2	Standard	16										
	600 mm											
4140E2	810 mm											
	860 mm											

Application example



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A 3/1

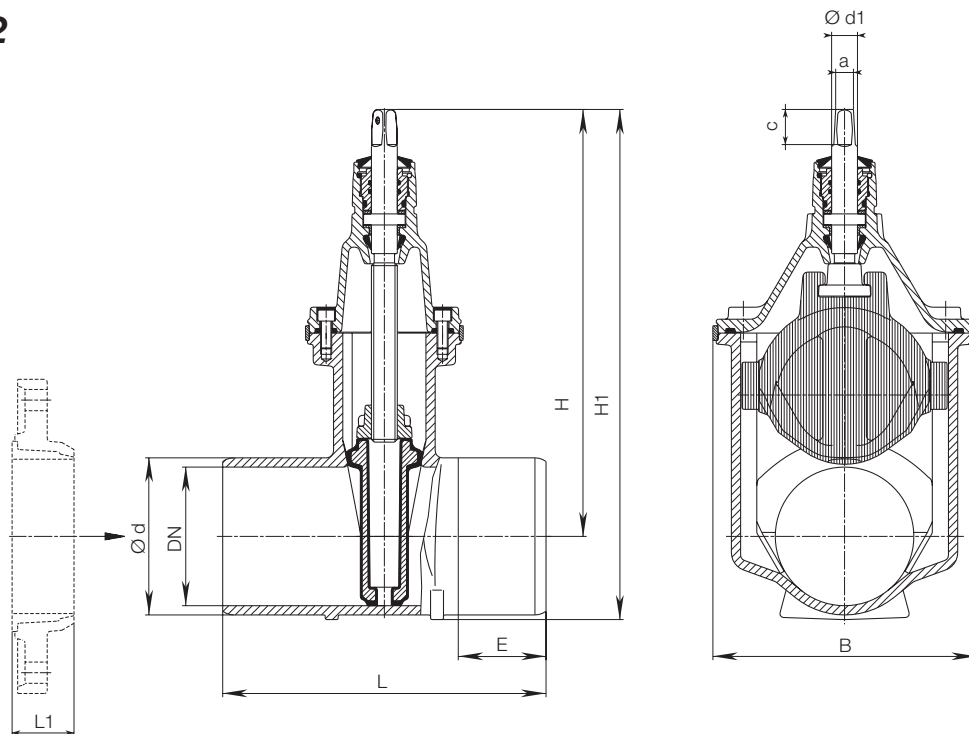
E2 VALVE SPIGOT ENDS

PN 16



No. 4100E2

No. 4140E2



For a shorter face-to-face dimension, shorten the spigot ends¹⁾ and assemble with HAWLE flanges No. 7102 / 0102
(see chapter „Flange connections”)

Caution: Compare flange length „L 1” with spigot length „E”

¹⁾ Protect cutting surfaces against corrosion with Hawle repair material No. 3442 (see page P 5/2)

DN	MOP (PN)	Valve						Spindle			Weight
		Ø d*	L	E	H	H1	B	a	c	Ø d1	
50	16	66	250	80	260	296	143	14,8	30	22	8,0
65		82	270	85	328	373	180	17,3	35	25	13,0
80		98	280	85	336	390	180	17,3	35	25	15,0
			600	245							19,5
100		118	300	90	373	438	213	19,3	38	25	20,0
			600	240							26,0
125		144	325	95	450	527	285	19,3	38	28	30,0
150		170	350	95	462	552	285	19,3	38	28	33,5
			600	220							41,5
200		222	400	115	563	679	357	24,3	48	32	55,0
			600	215							65,0
250		274	450	120	670	813	432	27,3	48	34	92,0
			810	300							113,5
300		326	500	120	753	919	518	27,3	48	34	137,0
			860	300							169,0
400		429	600	133	974	1198	687	32,3	55	44	245,0

* Other outside diameters on request

A 3/2



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E2 VALVE SPIGOT ENDS

With flange, PN 10 | PN 16



Design features

- Resilient seated gate valve with smooth straight-through bore
- Flanges sized in accordance with EN 1092-2, drilled according to EN 1092-2 | PN 10 standard; EN 1092-2 | PN 16 DN 200 please specify on order - other standards on request
- The Hawle **E2** spigot ends valve with the high-tensile loose flange system is especially suitable for use with new builds in addition to being a replacement for existing valves
- The flat gaskets are already contained in the conical seals
- Suitable for cleaning with a cleaning pig
- One extension spindle for several dimensions
- Suitable for operation by automatic actuators
- Easy refitting for position indicator and automatic actuators on the standard bonnet

Standard version: without handwheel and extension spindle

Suitable accessories

Suitable accessories: see page A 1/2

Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000 E2
	telescopic	No. 9500 E2
Surface boxes:	rigid	No. 1750
	telescopic	No. 2050
		No. 2051K
Valve actuator:		No. 9920
Adapter for actuator (E2 adapter):		No. 8630 E2
Base plate:	No. 3481, No. 3482	
Operating cap:	No. 2156, No. 2157, No. 2158	
Extension spindle:	No. 7820, No. 7825	
Position indicator:	No. 2170 E2	
Bolts:	No. 8810, No. 8830, No. 8840	
HAWAK-pillar:	No. 9894, No. 9895	

No. 4120E2



Order no.	Version	MOP (PN)	Dimensions/DN		
			100	150	200
4120E2	short EN 558-1 GR 14	16			

Face-to-face length EN 558-1 GR 15 on request



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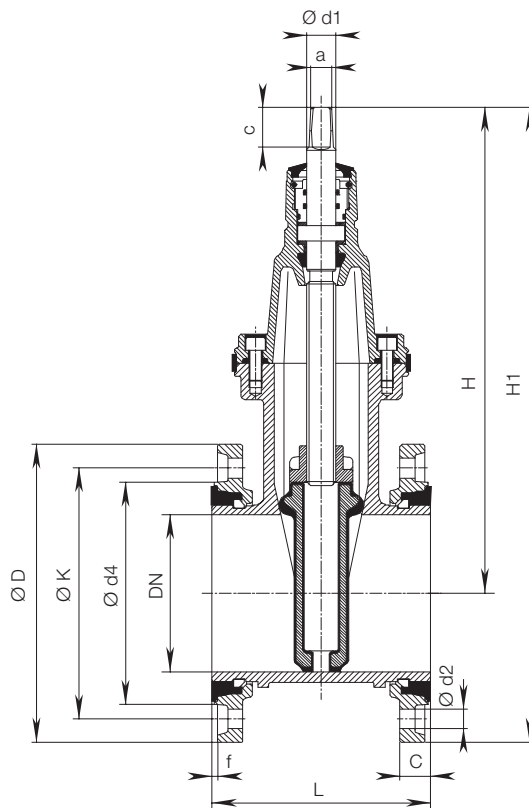
A 3/3

E2 VALVE SPIGOT ENDS

With flange, PN 10 | PN 16



No. 4120E2



DN	MOP (PN)	Flange					Bolts			Spindle			Valve				Weight
		Ø D	C	Ø K	Ø d4	f	Qty.	Thread	Ø d2	a	c	Ø d1	H	H1	L	B	
100	10	220	19	180	153	3	8	M 16	19	19,3	38	25	373	483	190	213	22,0
	16																
150	10	285	19	240	209	3	8	M 20	23	19,3	38	28	462	605	210	285	39,0
	16																
200	10	340	20	295	264	3	8	M 20	23	24,3	48	32	563	733	230	357	61,0
	16						12										60,5

A 3/4



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E2 VALVE FOR PE FUSION

DN 50-200, PN 10 | PN 16



Design features

- Resilient seated gate valve with PE fusion tails in combination with PE pipes according to EN 12201, DIN 8074
- This resilient seated valve has PE tails screwed and sealed into the sockets
- High performance sealing of the PE tails within the sockets is assured by two separate seals and a support liner
- The valve can be connected to the PE pipeline by either butt fusion or electrofusion
- One extension spindle for several dimensions
- Suitable for operation by automatic actuators
- Easy refitting for position indicator and automatic actuators on the standard bonnet
- Duplex stainless steel spindle

Standard version: without handwheel and extension spindle
Special versions: on request

Material | technical features

1 PE-fusion tail

Standard version PE 100 injection moulded
Support liner DN 50 made of POM,
 from DN 65 - DN 200 made of stainless steel
 for PE-fusion tail
 (see overleaf drawing)

2 Socket sealing made of elastomer

3 O-Ring made of elastomer

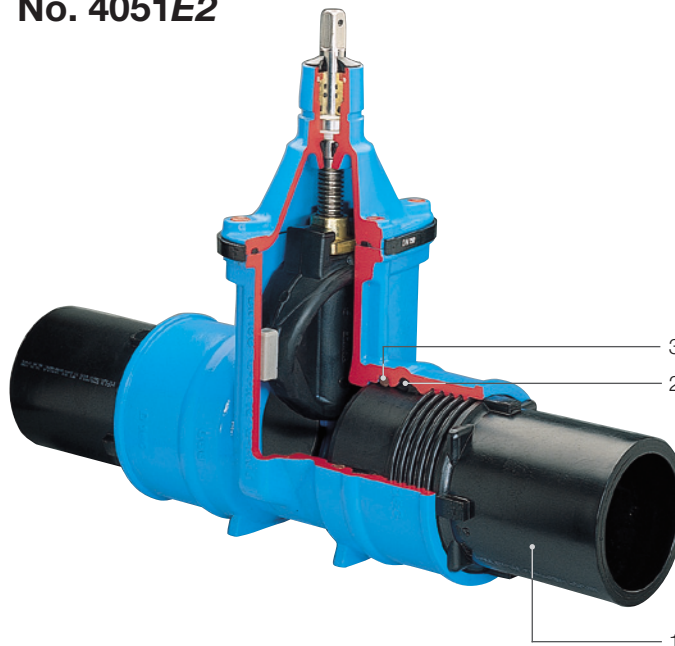
Suitable accessories

Suitable accessories: see page A 1/2

Handwheel: No. 7800
 Extension spindles: rigid No. 9000E2
 telescopic No. 9500E2
 Surface boxes: rigid No. 1750
 telescopic No. 2050, No. 2051K
 Valve actuator: No. 9920
 Adapter for actuator (E2 adapter): No. 8630E2
 Base plate: No. 3481, No. 3482
 Operating cap: No. 2156, No. 2157, No. 2158
 Extension spindle: No. 7820, No. 7825
 Position indicator: No. 2170E2
 HAWAK-pillar: No. 9894, No. 9895

No. 4050E2

No. 4051E2



Order no.	MOP (PN)	Dimensions/DN Pipe Ø									
		50	65	80	100	100	125	150	150	200	200
		63	75	90	110	125	140	160	180	200	225
4050E2	16										
4051E2	10										

PE-fusion tail: No. 4050E2 PN 16 / SDR 11
 No. 4051E2 PN 10 / SDR 17.6



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A 4/1

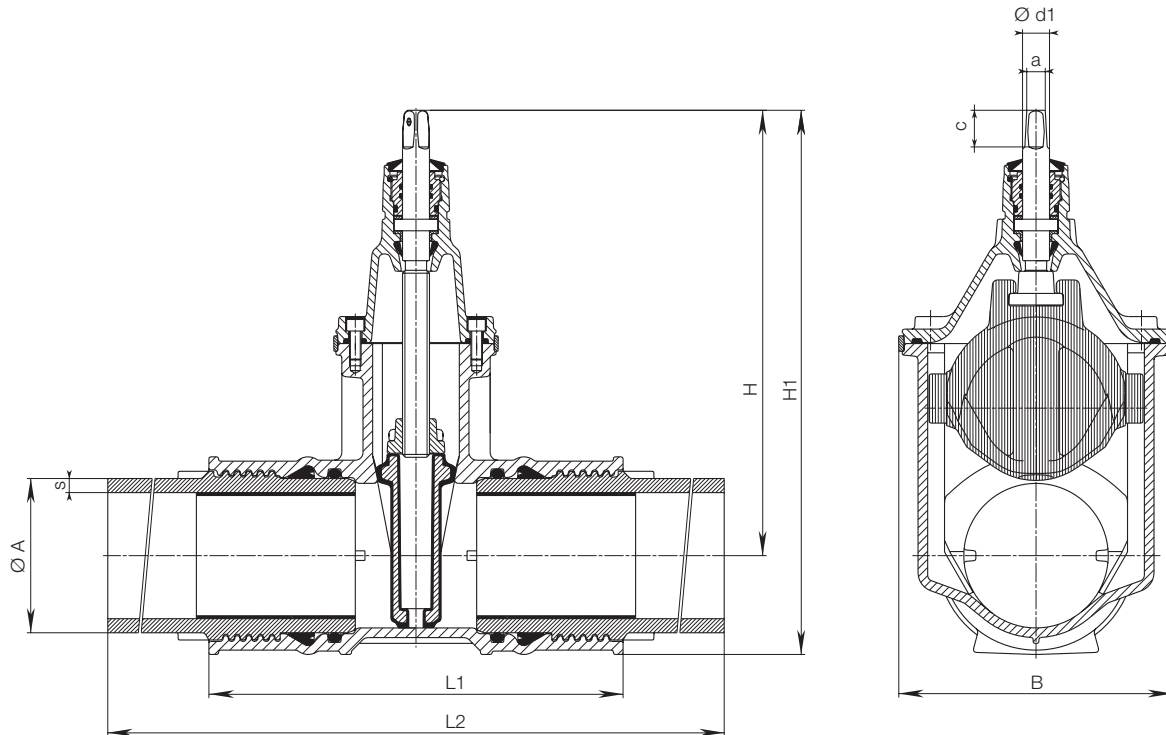
E2 VALVE FOR PE FUSION

DN 50-200, PN 10 | PN 16



No. 4050E2

No. 4051E2



PE-fusion tail: No. 4050E2 PN 16 / SDR 11
No. 4051E2 PN 10 / SDR 17.6

DN	Ø A	Valve with PE tails							Spindle			Weight
		s (SDR 17.6)	s (SDR 11)	H	H1	L1	L2	B	a	c	Ø d1	
50	63	3,6	5,8	260	309	280	648	143	14,8	30	22	10,5
65	75	4,3	6,9	328	384	295	657	180	17,3	35	25	17,0
80	90	5,1	8,2	336	400	310	668	180	17,3	35	25	20,0
100	110	6,3	10,0	373	449	340	710	213	19,3	38	25	28,0
100	125	7,1	11,4	373	458	395	761	213	19,3	38	25	30,0
125	140	8,0	12,8	450	542	390	756	285	19,3	38	28	32,5
150	160	9,1	14,6	462	565	430	796	285	19,3	38	28	50,5
150	180	10,4	16,4	462	577	458	814	285	19,3	38	28	57,5
200	200	11,4	18,2	563	701	514	900	357	24,3	48	32	76,0
200	225	12,8	20,5	563	701	514	900	357	24,3	48	32	81,0

A 4/2



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E2 VALVE FLANGE | PE TAIL

DN 50-200, PN 10 | PN 16



Design features

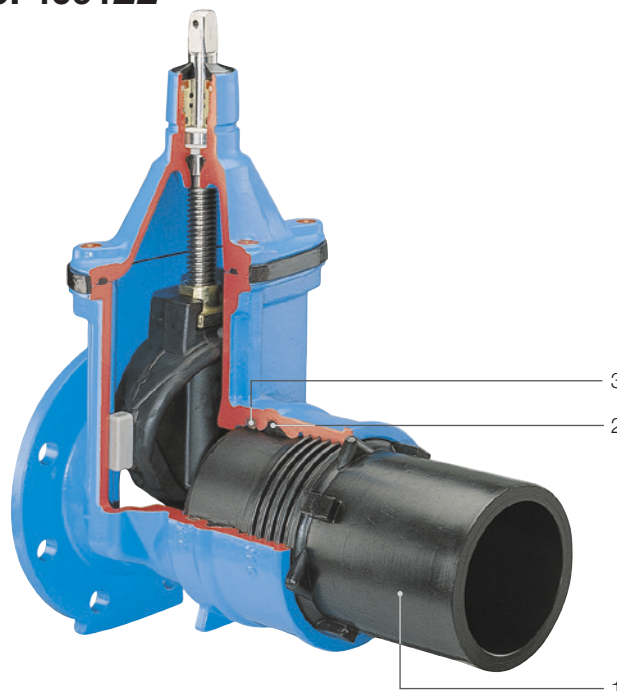
- Resilient seated gate valve with flange and PE fusion tail in combination with PE pipes according to EN 12201, DIN 8074
- This resilient seated valve has one flange and one PE tail screwed and sealed into the sockets
- High performance sealing of the PE tails within the sockets is assured by two separate seals and a support liner
- The valve can be connected to the PE pipeline by either butt fusion or electrofusion
- Flanges sized in accordance with EN 1092-2, drilled according to EN 1092-2 | PN 10 standard; EN 1092-2 | PN 16 DN 200 please specify on order - other standards on request
- One extension spindle for several dimensions
- Suitable for operation by automatic actuators
- Easy refitting for position indicator and automatic actuators on the standard bonnet
- Duplex stainless steel spindle

Standard version: without handwheel and extension spindle

Special versions: on request

No. 4090E2

No. 4091E2



Material | technical features

1 PE-fusion tail

Standard version PE 100 injection moulded

Support liner DN 50 made of POM,
from DN 65 - DN 200 made of stainless steel
for PE-fusion tail
(see overleaf drawing)

2 Socket sealing made of elastomer

3 O-Ring made of elastomer

Suitable accessories

Suitable accessories: see page A 1/2

Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000E2
	telescopic	No. 9500E2
Surface boxes:	rigid	No. 1750
	telescopic	No. 2050, No. 2051K
Valve actuator:		No. 9920
Adapter for actuator (E2 adapter):		No. 8630E2
Base plate:		No. 3481, No. 3482
Operating cap:		No. 2156, No. 2157, No. 2158
Extension spindle:		No. 7820, No. 7825
Position indicator:		No. 2170E2
Bolts:		No. 8810, No. 8830, No. 8840
HAWAK-pillar:		No. 9894, No. 9895
Flat gasket:		No. 3390, No. 3470

Order no.	MOP (PN)	Dimensions/DN Pipe Ø								
		50	65	80	100	100	125	150	150	200
		63	75	90	110	125	140	160	180	225
4090E2	16									
4091E2	10									

PE-fusion tail:

No. 4090E2 PN 16 / SDR 11

No. 4091E2 PN 10 / SDR 17.6



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A 4/3

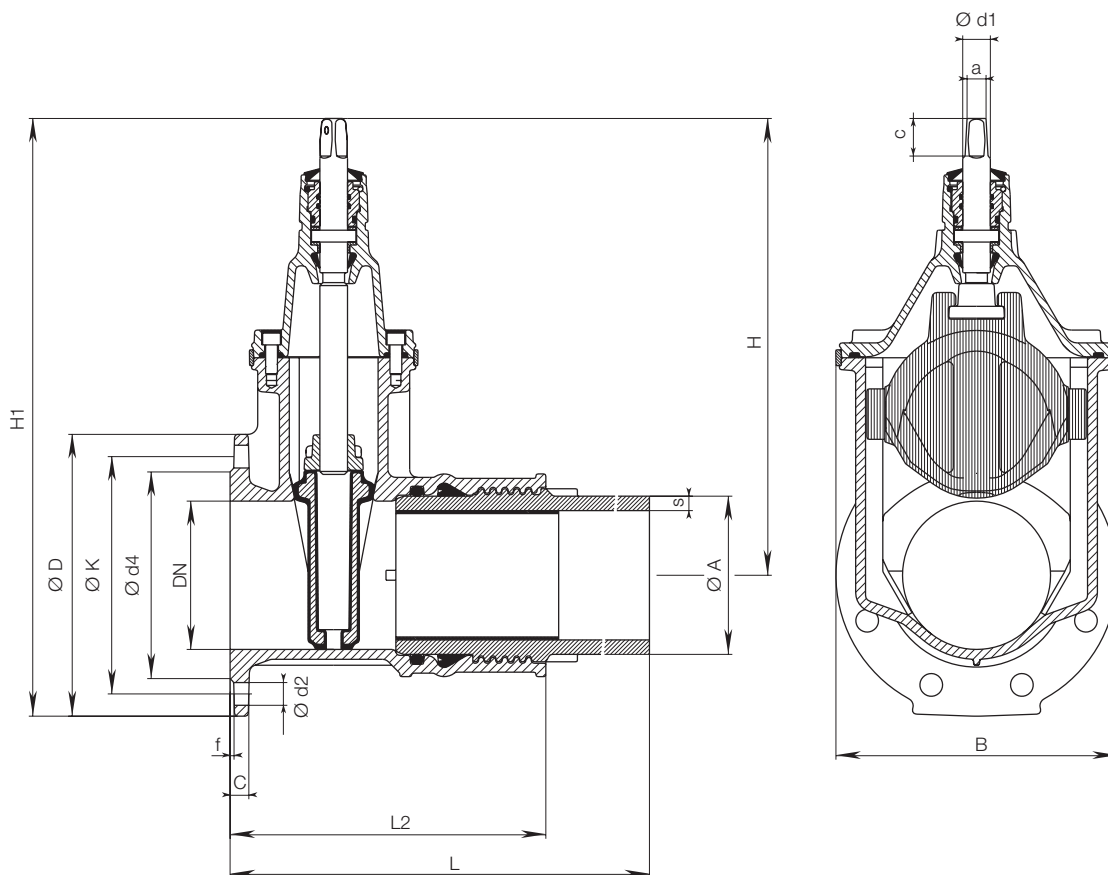
E2 VALVE FLANGE | PE TAIL

DN 50-200, PN 10 | PN 16



No. 4090E2

No. 4091E2



PE-fusion tail: No. 4090E2 PN 16 / SDR 11
No. 4091E2 PN 10 / SDR 17.6

DN	Ø Pipe	Flange					Bolts			Valve with PE tail							Spindle			Weight
		ØD	C	ØK	Ød4	f	Qty.	Thread	Ød2	s (SDR 17.6)	s (SDR 11)	H	H1	L	L2	B	a	c	Ød1	
50	63	165	19	125	98	3	4	M 16	19	3,6	5,8	260	342	399	215	143	14,8	30	22	11,5
65	75	185	19	145	118	3	4	M 16	19		6,9	328	420	416	235	180	17,3	35	25	17,0
80	90	200	19	160	133	3	8	M 16	19	5,1	8,2	336	436	425	245	180	17,3	35	25	19,5
100	110	220	19	180	153	3	8	M 16	19	6,3	10,0	373	483	450	265	213	19,3	38	25	25,5
100	125	220	19	180	153	3	8	M 16	19		11,4	373	483	476	293	213	19,3	38	25	28,0
125	140	250	19	210	183	3	8	M 16	19		12,8	450	575	485	310	285	19,3	38	28	30,0
150	160	285	19	240	209	3	8	M 20	23		14,6	462	605	503	320	285	19,3	38	28	45,5
150	180	285	19	240	209	3	8	M 20	23		16,4	462	605	512	334	285	19,3	38	28	49,5
200	225	340	20	295	264	3	8 12	M 20	23	12,8	20,5	563	733	565	372	357	24,3	48	32	78,0

A 4/4



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E2 VRS-SOCKET VALVE

For cast iron pipes and pipes with VRS-socket, PN 16

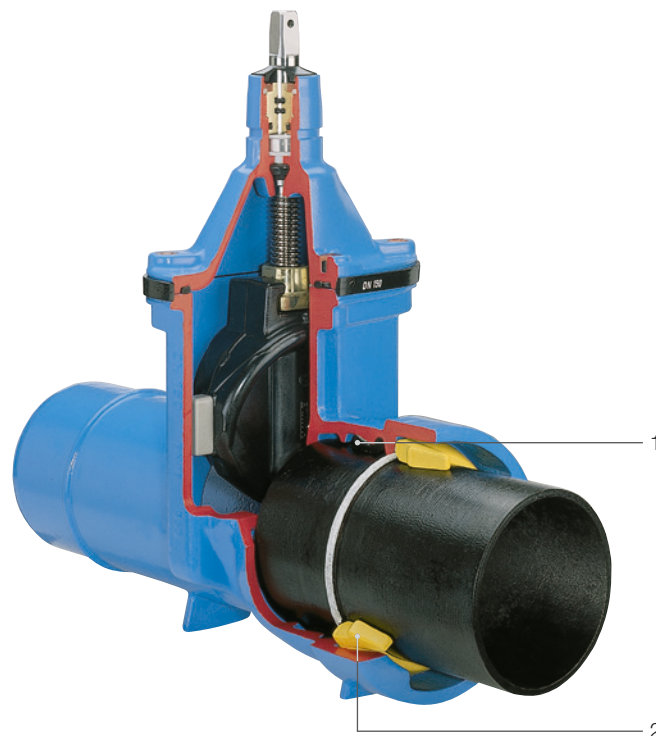


Design features

- Resilient seated gate valve with one-sided VRS-socket and one-sided VRS-spigot
 - With VRS grip ring and VRS pipe restraint clamp (not included), a pipe connection can be made restraint
 - Suitable for cleaning with a cleaning pig
 - One extension spindle for several dimensions
 - Suitable for operation by automatic actuators
 - Easy refitting for position indicator and automatic actuators on the standard bonnet (DN 50 to DN 200)
- To set-up an actuator or a position indicator, remove the centering flange and insert position indicator or actuator with adapter (DN 250 to DN 300)
- Duplex stainless steel spindle

Standard version: without handwheel and extension spindle

No. 4027E2



Material | technical features

- 1 **Socket sealing** made of elastomer
- 2 **Pipe restraint clamp** (not included)

Suitable accessories

Suitable accessories: see page A 1/2

Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000E2
	telescopic	No. 9500E2
Surface boxes:	rigid	No. 1750
	telescopic	No. 2050, No. 2051K
Valve actuator:		No. 9920
Adapter for actuator (E2 adapter):		No. 8630E2
Base plate:	No. 3481, No. 3482	
Operating cap:	No. 2156, No. 2157, No. 2158	
Extension spindle:	No. 7820, No. 7825	
Position indicator:	No. 2170E2	
HAWAK-pillar:	No. 9894, No. 9895	

Order no.	Version	MOP (PN)	Dimensions/DN						
			80	100	125	150	200	250	300
4027E2	Socket-Spigot	16							

Application example



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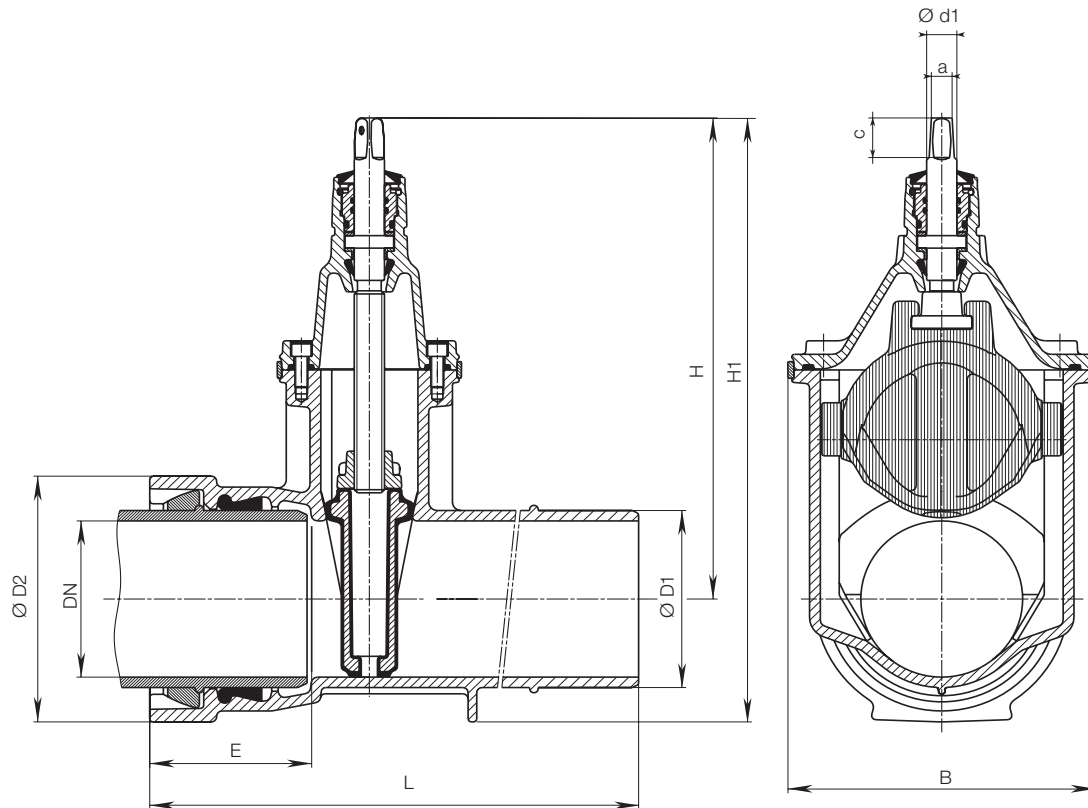
A 5/1

E2 VRS-SOCKET VALVE

For cast iron pipes and pipes with VRS-socket, PN 16



No. 4027E2



DN	$\varnothing$ Pipe	MOP (PN)	Valve							Spindle			Weight
			$\varnothing D1$	$\varnothing D2$	E	H	H1	L	B	a	c	$\varnothing d1$	
80	98	16	98	156	127	336	414	422	180	17,3	35	25	20,0
100	118		118	178	135	373	462	440	213	19,3	38	25	28,0
125	144		144	208	143	450	554	494	285	19,3	38	25	35,0
150	170		170	235	150	462	580	513	285	19,3	38	28	46,0
200	222		222	295	160	563	711	535	357	24,3	48	32	74,5
250	274		274	356	165	670	848	577	432	27,3	48	36	115,0
300	326		326	414	170	753	960	638	518	27,3	48	36	170,0

A 5/2



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E2 COMBI-T

Flange T-piece with integrated E2 valve, PN 10, PN 16



Design features

- Resilient seated gate valve combined with flange T-piece
- Short style, equal and reduced
- Space saving installation through short design as well as savings in material, work, transport and storage costs
- The compact design enables the valve chamber to be made from sectional concrete giving typical savings of 25 % in chamber construction costs
- A combination of **E2** Combi-T with **E2** reducing valve creates a multitude of application possibilities
- Flanges sized in accordance with EN 1092-2, drilled according to EN 1092-2 | PN 10 standard; EN 1092-2 | PN 16 DN 200 please specify on order - other standards on request
- Suitable for cleaning with a cleaning pig
- One extension spindle for several dimensions
- Suitable for operation by automatic actuators
- Easy refitting for position indicator and automatic actuators on the standard bonnet
- Duplex stainless steel spindle

Standard version: without handwheel and extension spindle

Special versions: on request

No. 4340E2



Suitable accessories

Suitable accessories: see page A 1/2

Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000E2
	telescopic	No. 9500E2
Surface boxes:	rigid	No. 1750
	telescopic	No. 2050, No. 2051K
Valve actuator:		No. 9920
Adapter for actuator (E2 adapter):		No. 8630E2
Base plate:		No. 3481, No. 3482
Operating cap:		No. 2156, No. 2157, No. 2158
Extension spindle:		No. 7820, No. 7825
Position indicator:		No. 2170E2
Bolts:		No. 8810, No. 8830, No. 8840
Flat gasket:		No. 3390, No. 3470
HAWAK-pillar:		No. 9894, No. 9895



Order no.	MOP (PN)	Dimensions	Valve DN1				
		DN	65	80	100	150	200
4340E2	16	80					
		100					
		125					
		150					
		200					

Application example



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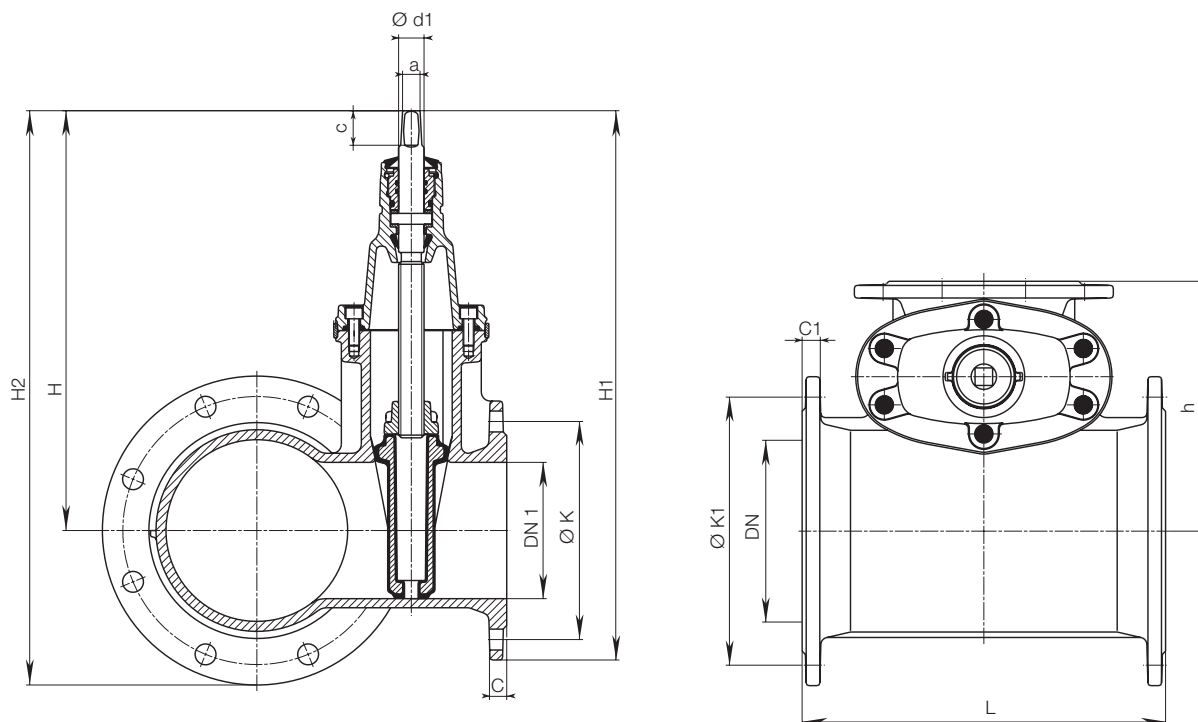
A 6/1

E2 COMBI-T

Flange T-piece with integrated E2 valve, PN 10, PN 16



No. 4340E2



DN	DN 1 Valve	E2 Combi-T					Flanges				Spindle			Weight
		L	H	H1	H2	h	Ø K	C	Ø K1	C1	a	c	Ø d1	
80	80	280	336	436	436	170	160	19	160	19	17,3	35	25	25,0
100	65	260	328	420	438	180	145	19	180	19	17,3	35	25	29,5
100	80	280	336	436	446	200	160	19	180	19	17,3	35	25	30,0
100	100	310	373	483	483	200	180	19	180	19	19,3	38	25	34,0
125	80	280	336	436	461	200	160	19	210	19	17,3	35	25	31,0
125	100	310	373	483	498	215	180	19	210	19	19,3	38	25	36,0
150	65	260	328	420	470	210	145	19	240	19	17,3	35	25	33,0
150	80	280	336	436	473	220	160	19	240	19	17,3	35	25	36,0
150	100	310	373	483	516	220	180	19	240	19	19,3	38	25	40,5
150	150	400	462	605	605	250	240	19	240	19	19,3	38	28	59,0
200	80	280	336	436	506	250	160	19	295	20	17,3	35	25	42,0
200	100	310	373	483	543	250	180	19	295	20	19,3	38	25	49,5
200	150	400	462	605	632	275	240	19	295	20	19,3	38	28	66,0
200	200	460	563	733	733	295	295	20	295	20	24,3	48	32	88,0

A 6/2



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E2 COMBI-III

Flanged T-piece with 3 flanged outlets and 2 or 3 integral E2 valves



Design features

- Resilient seated gate valve combined with flange-T-piece
- Space saving installation through short design as well as savings in material, work, transport and storage costs
- The compact design enables the valve chamber to be made from sectional concrete giving typical savings of 25 % in chamber construction costs
- Vertical connection DN 100 optional
- Internal thread connection 3/4" - optional for manometer, ball valve outlet etc.
- Flanges sized in accordance with EN 1092-2, drilled according EN 1092-2 | PN 10 standard; EN 1092-2 | PN 16 DN 200 please specify on order - other standards on request
- Suitable for cleaning with a cleaning pig
- Duplex stainless steel spindle

Suitable accessories

Suitable accessories: see page A 1/2

Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000E2
	telescopic	No. 9500E2
Surface box:		No. 4550
Operating cap:	No. 2156, No. 2157, No. 2158	
Extension spindle:	No. 7820, No. 7825	
Position indicator:	No. 2170E2	
Bolts:	No. 8810, No. 8830, No. 8840	
Flat gasket:	No. 3390, No. 3470	
Blanking cap:	No. 8570E2	

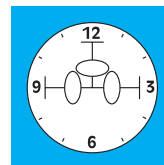
No. 4450E2

No. 4460E2



Instead of a bonnet, a cap
No. 8570E2 can be fitted onto
the body of any outlet not
requiring a valve

Please specify the arrangement of the valves
in a clockwise direction!



Order no.	Version	MOP (PN)	No. of valves	Dimensions/DN				
				80	100	125	150	200
4450E2	Without vertical centre outlet	16	2					
			3					
4460E2	With vertical outlet		2					
			3					



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A 7/1

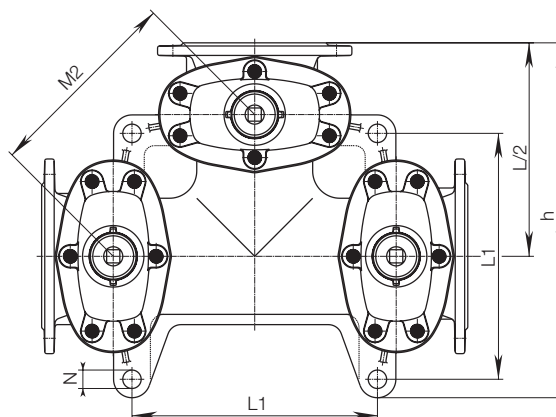
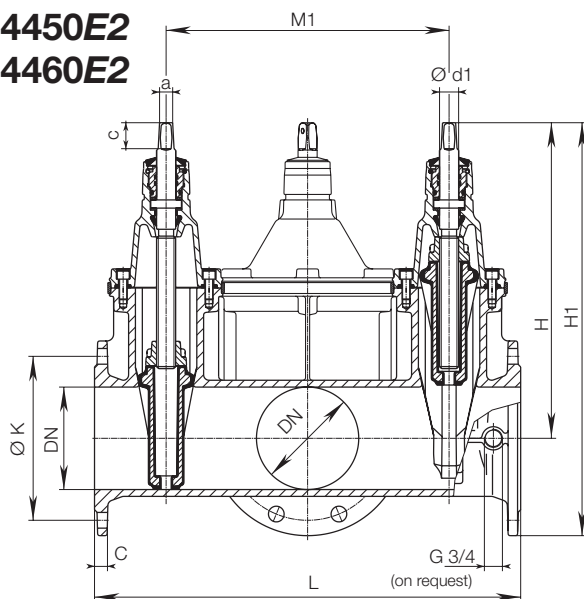
E2 COMBI-III

Flanged T-piece with 3 flanged outlets and 2 or 3 integral E2 valves

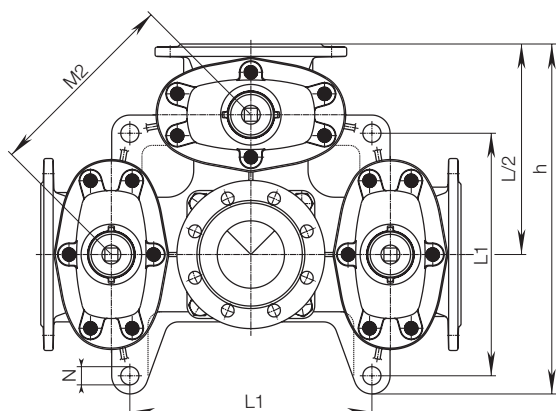
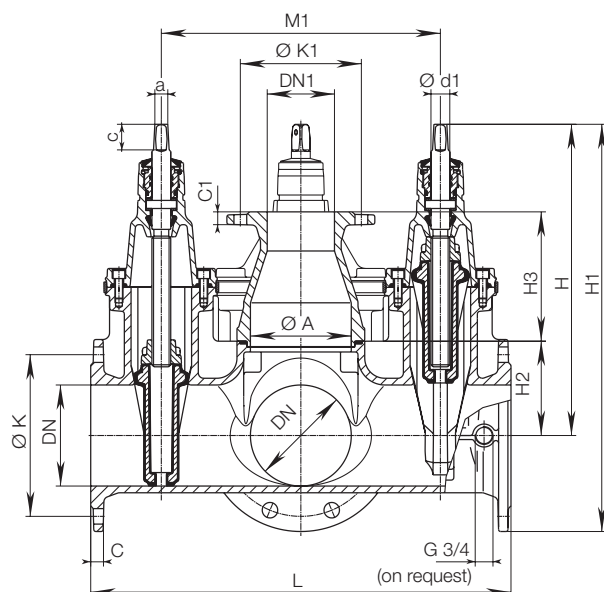


No. 4450E2

No. 4460E2



DN	E2 Combi III without vertical centre outlet										Spindle			Weight (no. of valves)	
	L	H	H1	Ø K	C	M1	M2	L1	h	N	a	c	Ø d1	2	3
80	435	336	436	160	19	255	180	-	318	-	17,3	35	25	45,0	50,0
100	555	373	483	180	19	365	258	212	411	27	19,3	38	25	68,0	74,0
125	615	475	600	210	19	415	293,5	360	515	27	19,3	38	28	101,0	111,0
150	625	462	605	240	19	415	293,5	360	520	27	19,3	38	28	105,0	115,0
200	695	563	733	295	20	465	329	445	602	32	24,3	48	32	167,0	183,0



DN	E2 Combi III with vertical centre outlet																Spindle			Weight (no. of valves)	
	ØA	DN 1	L	L1	H	H1	H2	H3	C	C1	ØK	ØK1	M1	M2	h	N	a	c	Ød1	2	3
100	100	100	555	212	373	483	90	+	19	+	180	+	365	258	411	27	19,3	38	25	71,0	76,0
150	150	100	625	360	462	605	140	192	19	19	240	180	415	293,5	520	27	19,3	38	28	120,0	130,0
200	200	100	695	445	563	733	180	192	20	19	295	180	465	329	602	32	24,3	48	32	198,0	205,0

+ flange connection directly on the body - stud

A 7/2



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E2 COMBI-IV

Flanged T-piece with 4 flanged outlets and 2, 3 or 4 integral E2 valves



Design features

- Resilient seated gate valve combined with flange cross piece
- Space saving installation through short design as well as savings in material, work, transport and storage costs
- The compact design enables the valve chamber to be made from sectional concrete giving typical savings of 25 % in chamber construction costs
- Vertical connection DN 100 optional
- Internal thread connection $\frac{3}{4}$ " - optional for manometer, ball valve outlet etc.
- Flanges sized in accordance with EN 1092-2, drilled according EN 1092-2 | PN 10 standard; EN 1092-2 | PN 16 DN 200 please specify on order - other standards on request
- Suitable for cleaning with a cleaning pig
- Duplex stainless steel spindle

Suitable accessories

Suitable accessories: see page A 1/2

Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000E2
	telescopic	No. 9500E2
Surface box:		No. 4550
Operating cap:	No. 2156, No. 2157, No. 2158	
Extension spindle:	No. 7820, No. 7825	
Position indicator:	No. 2170E2	
Bolts:	No. 8810, No. 8830, No. 8840	
Flat gasket:	No. 3390, No. 3470	
Blanking cap:	No. 8570E2	

No. 4400E2

No. 4410E2



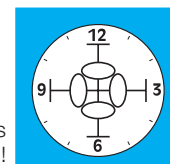
Instead of a bonnet, a cap No. 8570E2 can be fitted onto the body of any outlet not requiring a valve



No. 4410E2 cross connection with 3 valves and vertical centre outlet



With 3 valves and no vertical outlet



Please specify the arrangement of the valves in a clockwise direction!

Order no.	Version	MOP (PN)	No. of valves	Dimensions/DN				
				80	100	125	150	200
4400E2	Without vertical centre outlet	16	2					
			3					
			4					
4410E2	With vertical outlet		3					
			4					



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A 8/1

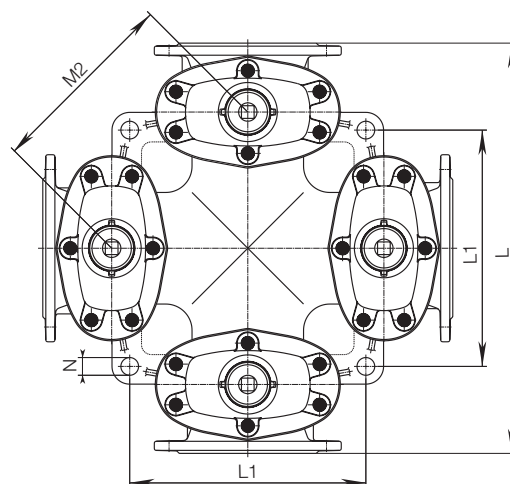
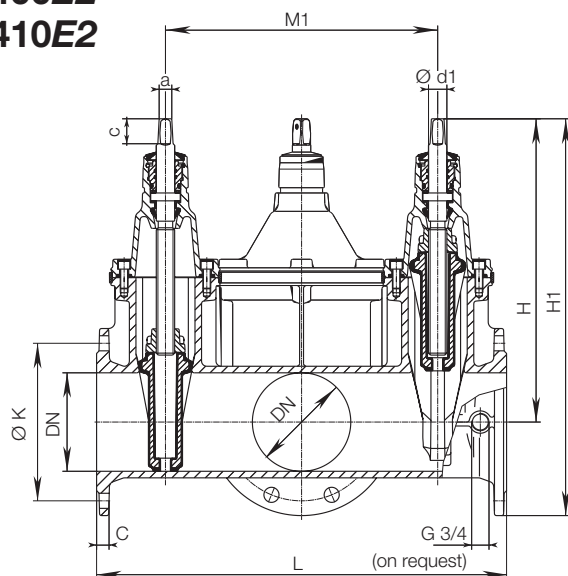
E2 COMBI-IV

Flanged T-piece with 4 flanged outlets and 2, 3 or 4 integral E2 valves

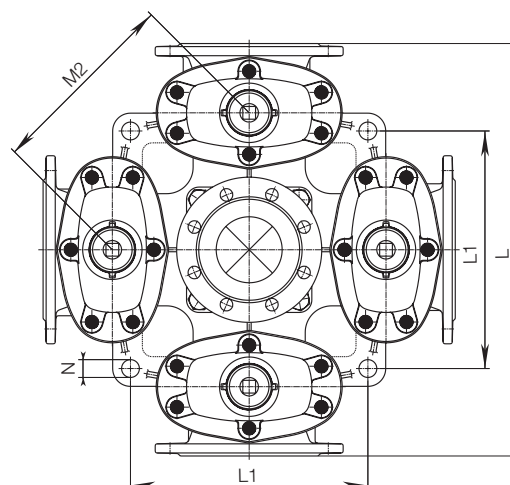
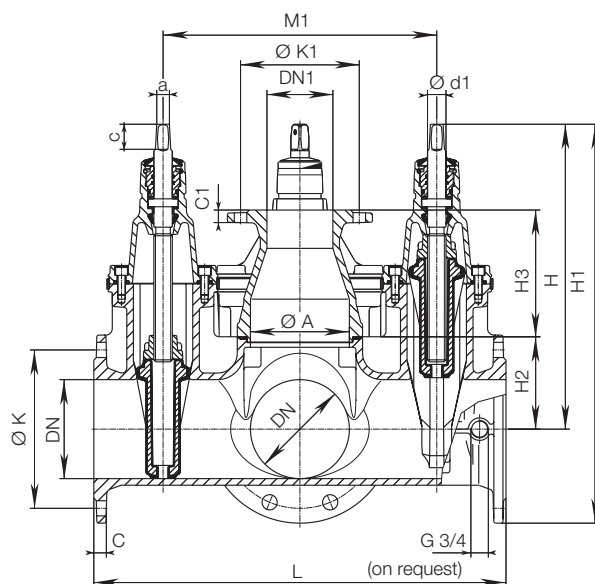


No. 4400E2

No. 4410E2



DN	E2 Combi IV without vertical centre outlet									Spindle			Weight (no. of valves)		
	L	H	H1	Ø K	C	M1	M2	L1	N	a	c	Ø d1	2	3	4
80	435	336	436	160	19	255	180			17,3	35	25	55,0	60,0	65,0
100	555	373	483	180	19	365	258	212	27	19,3	38	25	76,0	84,0	90,0
125	615	475	600	210	19	415	293,5	360	27	19,3	38	28	125,0	135,0	145,0
150	625	462	605	240	19	415	293,5	360	27	19,3	38	28	135,0	143,0	151,0
200	695	563	733	295	20	465	329	445	32	24,3	48	32	207,0	223,0	238,0



DN	E2 Combi IV with vertical centre outlet															Spindle			Weight (no. of valves)	
	ØA	DN1	L	L1	H	H1	H2	H3	C	C1	ØK	ØK1	M1	M2	N	a	c	Ød1	3	4
100	100	100	555	212	373	483	90	+	19	+	180	+	365	258	27	19,3	38	25	90,0	96,0
150	150	100	625	360	462	605	140	192	19	19	240	180	415	293,5	27	19,3	38	28	154,0	164,0
200	200	100	695	445	563	733	180	192	20	19	295	180	465	329	32	24,3	48	32		265,0

+ flange connection directly on the body - stud

A 8/2



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E2 HAWLE-COMBIFLEX

PN 10 | PN 16, DN 150



Design features

- Modular Combi-valve system enables flexible assembly arrangements
- Standardized compact construction regardless of valve configuration
- Suitable for cleaning with a cleaning pig
- Comprehensive range of interchangeable ZAK connections possible in every module
- Unique design facilitates easy, rapid exchange of any module
- Duplex stainless steel spindle

Material | technical features

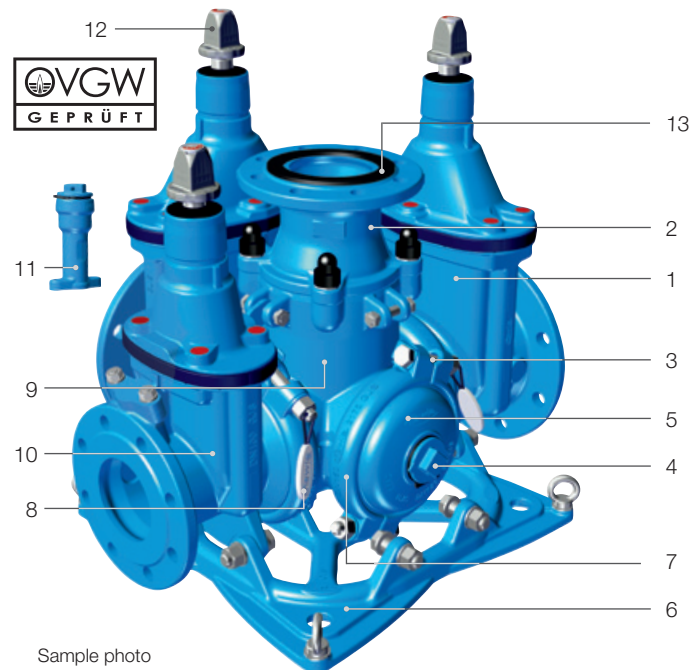
- 1 **Resilient seated E2 valve** in DN 150 to DN 400 according to EN 1074-1 and 2
- 3 Molybdenum coated, A4 type **clamping ring bolts**
- 4/11 **ZAK-69** (4) or **ZAK-46** (11) socket for corrosion-free connection of sensors or ZAK Service valve
- 2/5/7/ **Hawle Combiflex vertical outlet** (2) optionally
- 9/10 DN 100 or DN 150 **end cap** (5), **clamping ring** (7), 2 types of **middle section** DN 250 or DN 300 (9), **E2 body** (10) reduced in DN 150 and DN 200 or expanded to DN 400: ductile iron, epoxy powder coated
- 6 **HAWLE-COMBIFLEX mounting frame**: ductile iron, epoxy powder coated, with ring bolts for fastening hoists and integrated rings for floor connections
- 8 **Quality inspection seal**
- 12 **Operating cap** made of aluminum, including covering cap with direction indicator
- 13 Vertical outlet with affixed flat elastomer gasket

Suitable accessories

Suitable accessories: see page A 1/2

Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000E2
	telescopic	No. 9500E2
Surface boxes:	rigid	No. 1750
	telescopic	No. 2050, No. 2051K
Operating cap:		No. 2156, No. 2157, No. 2158
Extension spindle:		No. 7820, No. 7825
Bolts:		No. 8810, No. 8830, No. 8840
Ground-distance sets:		No. 8644
Flat gasket:		No. 3390, No. 3470
Operating cap		No. 2157, No. 2158
ZAK 34 outlet		No. 6979
ZAK 34 plug		No. 6980

No. 4420E2



Sample photo

Individual combination options



see A 9/3

Application example



Order no.	Version	MOP (PN)	Dimensions / DN	Possible reduction / DN	Possible vertical outlet / DN	Weight min. - max.
4420E2	Individually configurable	10/16	150	80	80/100	210
				100		
				125		
				150		
				200		

Flange sized and drilled in accordance with EN 1092-2 standard PN 10. Please specify PN 16 when ordering.
Standard version inclusive operating caps (remove in case of actuation by extension spindle or handwheel!)
Please use the HAWLE-COMBIFLEX order form. It can be found on our homepage.



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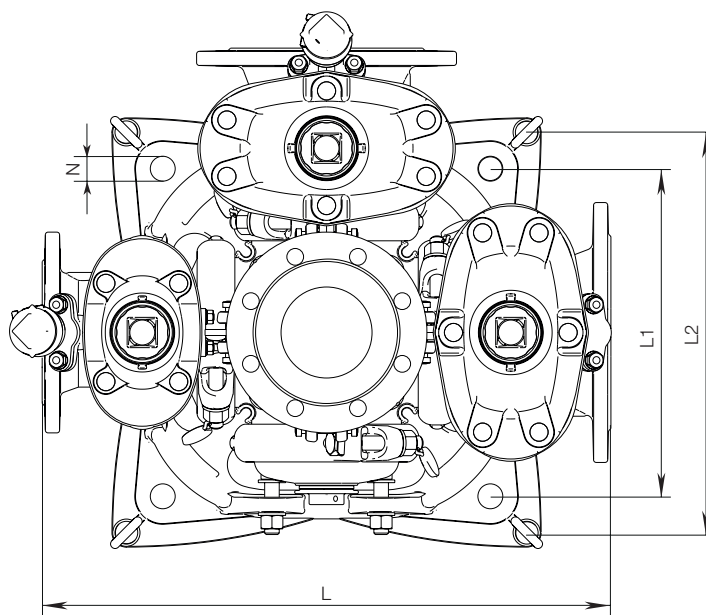
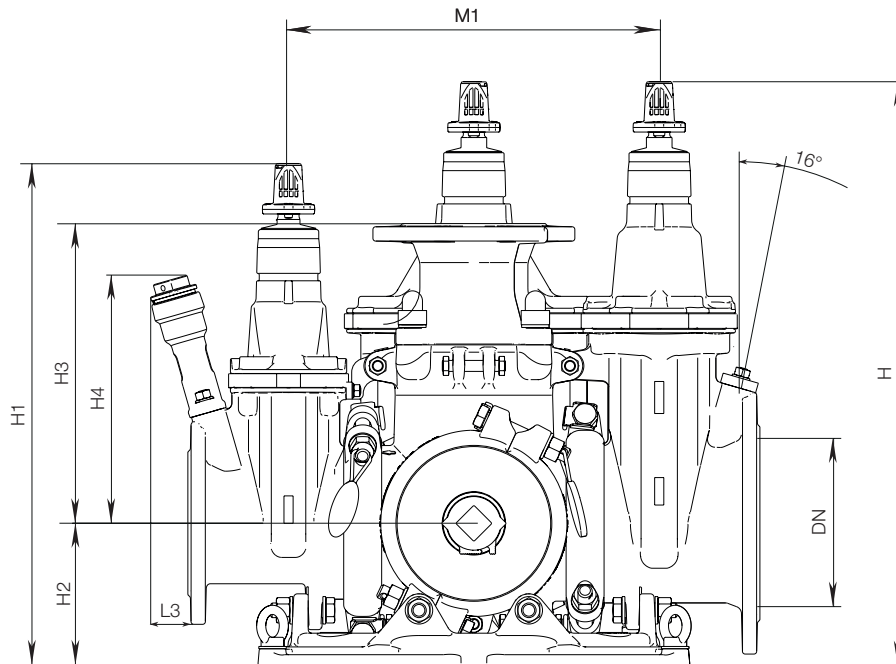
A 9/1

E2 HAWLE-COMBIFLEX

PN 10 | PN 16, DN 150



No. 4420E2



DN	HAWLE-COMBIFLEX												
	MOP (PN)	DN	L*	L1	L2	L3	H	H1	H2	H3	H4	M1*	Ø N
150	10/16	80	625	360	440	37	638	548	155	328	262	405	27,4
		100				40					271		
		125				38					284		
		150	660 (1xDN 200)			40					298		
		200*	695 (2xDN 200)			24					335		

*The external dimensions (L, M1) remain the same with reducing valves!

* height compensation due to flange necessary

#Transport dimensions = L

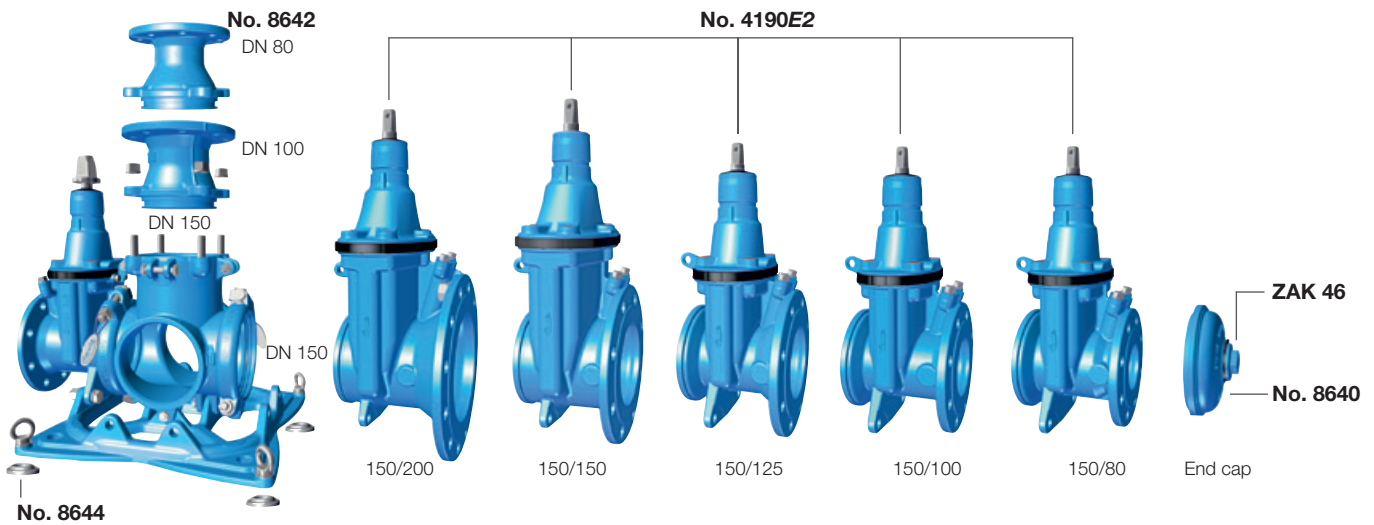
A 9/2



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E2 HAWLE-COMBIFLEX

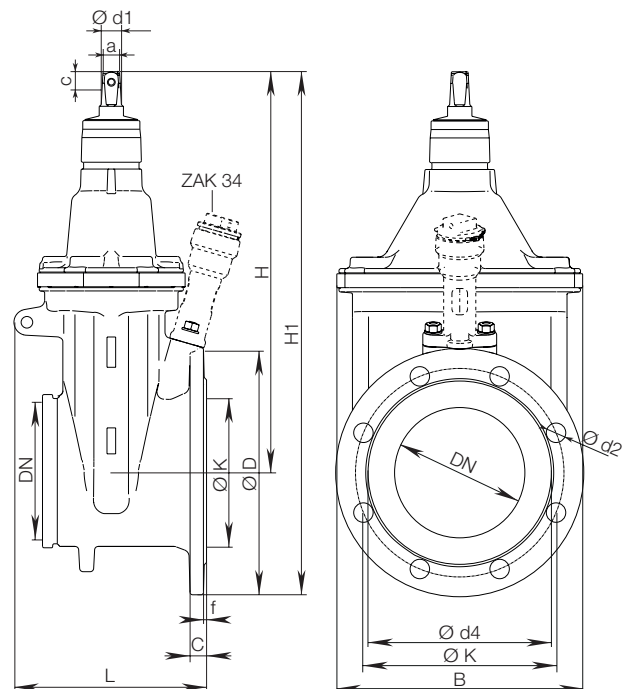
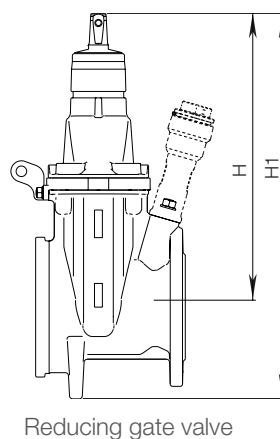
Individual parts, DN 150



HAWLE-COMBIFLEX E2 gate valve No. 4190E2



- Without operating cap
- Incl. bolt fastener for the middle section
- Fits through manhole openings



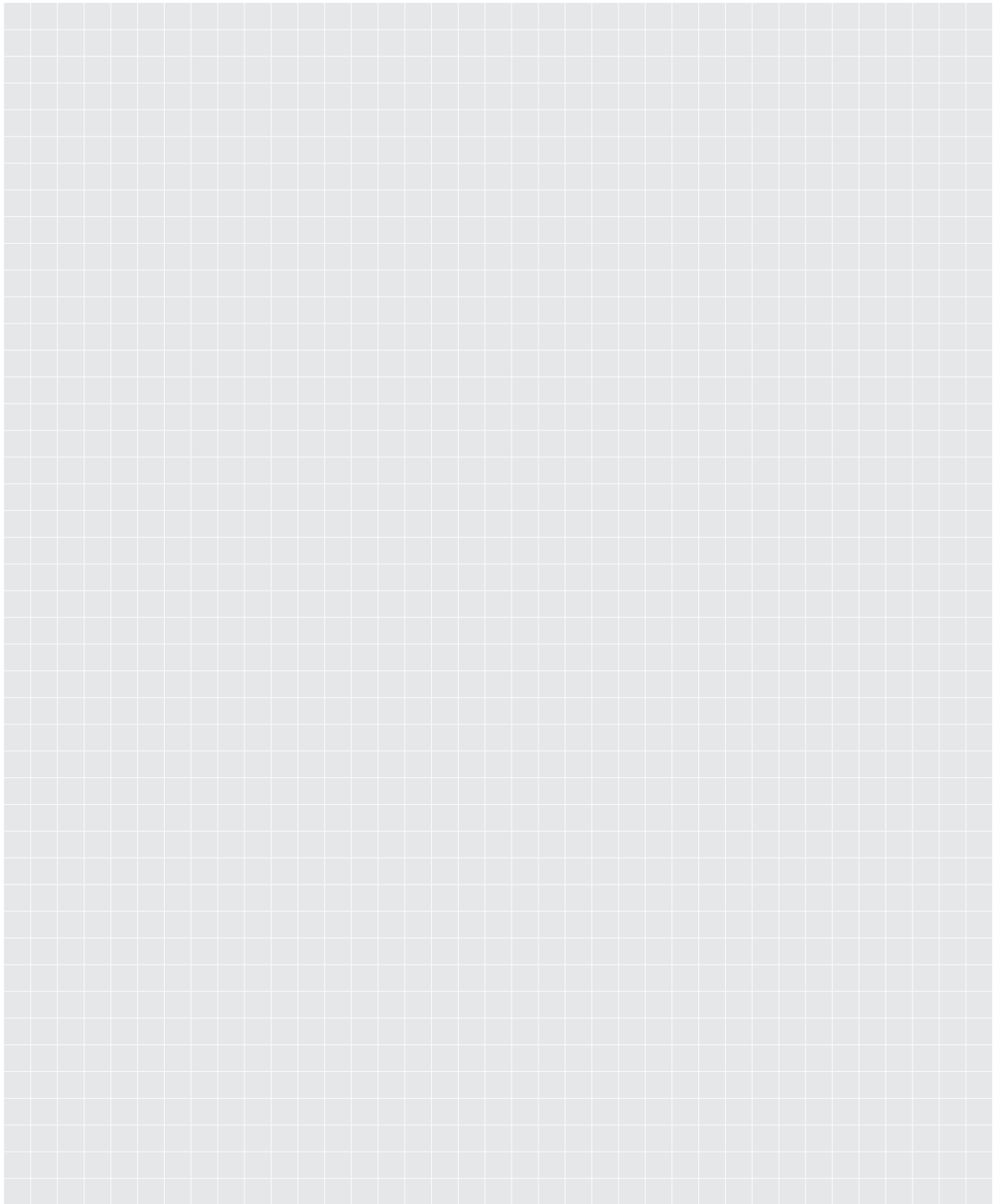
DN	HAWLE-COMBIFLEX E2 gate valve																			
	Flange							Bolts			Spindle			Valve						
	DN	MOP (PN)	Ø D*	C	Ø K	Ø d4	f	Qty.	Thread	Ø d2	a	c	Ø d1	Wedge DN	Service outlet	H	H1*	L*	B*	Weight
150	80	10 16	200	19	160	133		8	M16	19			25	100		372	488	258	213	21,8
	100	10 16	220	19	180	153		8	M16	19			25	100		372	488	261	213	22,5
	125	10 16	250	19	210	183	3	8	M16	19	19,3	38	25	100	ZAK 34	372	497	259	213	23,7
	150	10 16	285	19	240	209		8	M20	23			28	150		462	604	262	283	34,7
	200	10 16	340	20	295	264		8	M20	23			28	150		462	632	281	283	40,0
								12												

* Transport dimensions



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A 9/3



E2 HAWLE-COMBIFLEX

PN 10 | PN 16, DN 250 / DN 300



Design features

- Modular Combi-valve system enables flexible assembly arrangements
- Standardized compact construction regardless of valve configuration
- Suitable for cleaning with a cleaning pig
- Comprehensive range of interchangeable ZAK connections possible in every module
- Unique design facilitates easy, rapid exchange of any module
- Duplex stainless steel spindle

Material | technical features

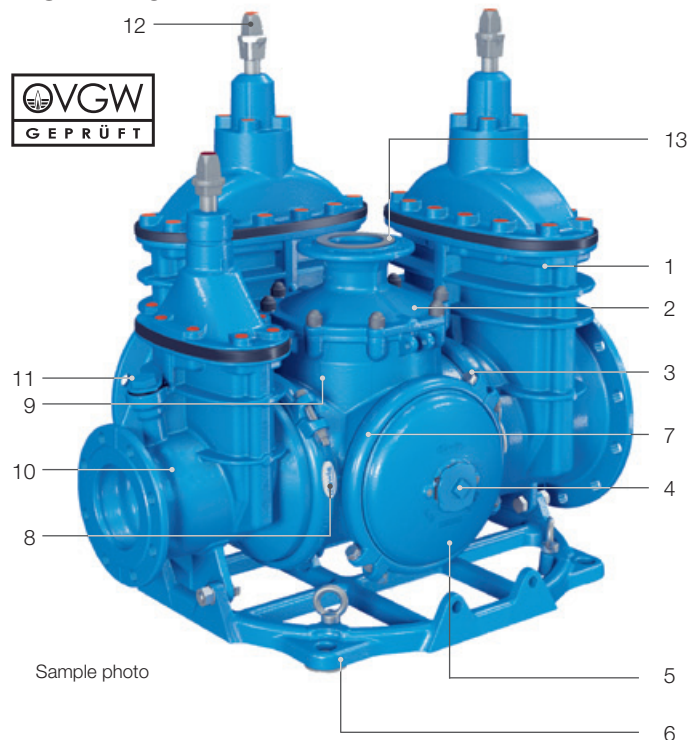
- 1 **Resilient seated E2 valve** in DN 150 to DN 400 according to EN 1074-1 and 2
- 3 Molybdenum coated, A4 type **clamping ring bolts**
- 4/11 **ZAK-69** (4) or **ZAK-46** (11) socket for corrosion-free connection of sensors or ZAK Service valve
- 2/5/7/ 9/10 Hawle Combiflex **vertical outlet** (2) optionally DN 100 or DN 150 **end cap** (5), **clamping ring** (7), 2 types of **middle section** DN 250 or DN 300 (9), **E2 body** (10) reduced in DN 150 and DN 200 or expanded to DN 400: ductile iron, epoxy powder coated
- 6 HAWLE-COMBIFLEX **mounting frame**: ductile iron, epoxy powder coated, with ring bolts for fastening hoists and integrated rings for floor connections
- 8 **Quality inspection seal**
- 12 **Operating cap** made of aluminum, including covering cap with direction indicator
- 13 Vertical outlet with affixed flat elastomer gasket

Suitable accessories

Suitable accessories: see page A 1/2

Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000E2
	telescopic	No. 9500E2
Surface boxes:	rigid	No. 1750
	telescopic	No. 2050, No. 2051K
Operating cap:		No. 2156, No. 2157, No. 2158
Extension spindle:		No. 7820, No. 7825
Bolts:		No. 8810, No. 8830, No. 8840
Ground-distance sets:		No. 8644
Flat gasket:		No. 3390, No. 3470

No. 4420E2



Individual combination options



Application example



Order no.	Version	MOP (PN)	Dimensions / DN	Possible reduction / DN	Possible vertical outlet / DN	Max. Weight
4420E2	Individually configurable	10	250	150	100	465
		16		200	150	
				250		
		10	300	150	100	706
				200		
		16		300	150	
				400		

Flange sized and drilled in accordance with EN 1092-2 standard PN 10. Please specify PN 16 when ordering.
Standard version inclusive operating caps (remove in case of actuation by extension spindle or handwheel)
Please use the HAWLE-COMBIFLEX order form. It can be found on our homepage.



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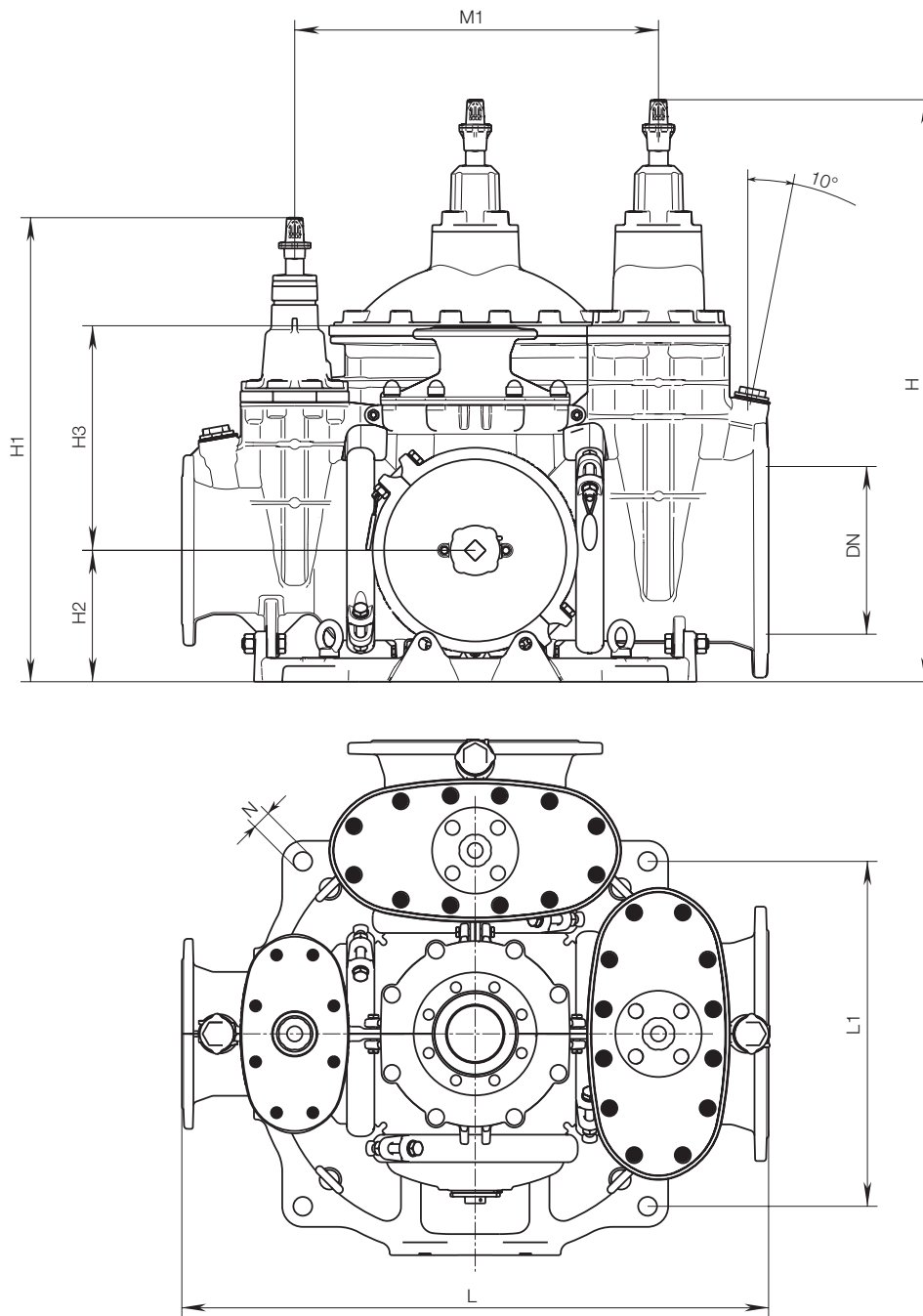
A 9/5

E2 HAWLE-COMBIFLEX

PN 10 | PN 16, DN 250 / DN 300



No. 4420E2



DN	HAWLE-COMBIFLEX										
	MOP (PN)	L*	L1	H	H1	H2	H3	DN	M1*	Ø N	max.
250	10	960	617	932	777	210	359	150	590	34	465
	16							200			
								250			
300	10	1050	617	1043	830	235	399	150	646	34	706
								200			
								300			
	16							400			

*The external dimensions (L, M1) remain the same with reducing valves!

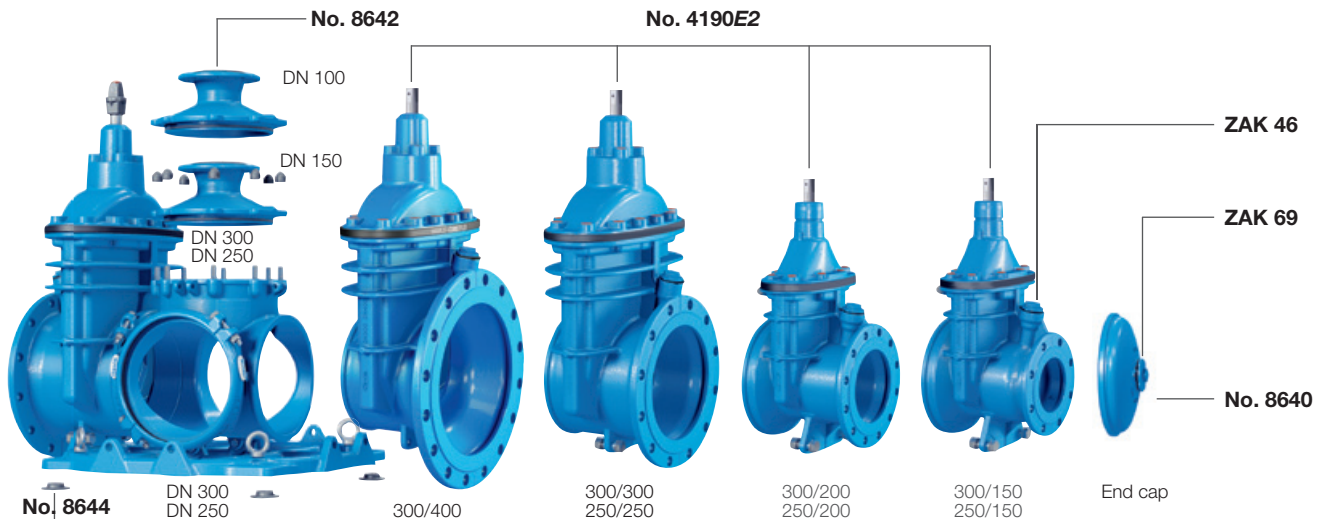
A 9/6



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E2 HAWLE-COMBIFLEX

Individual parts, DN 250 / DN 300

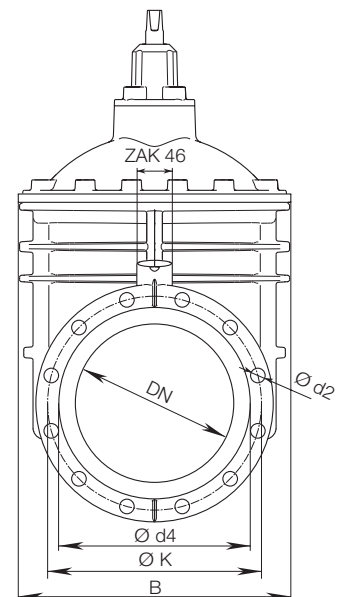
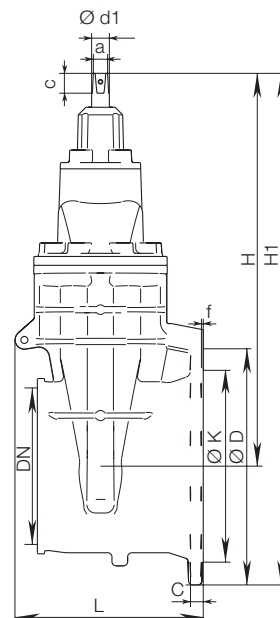
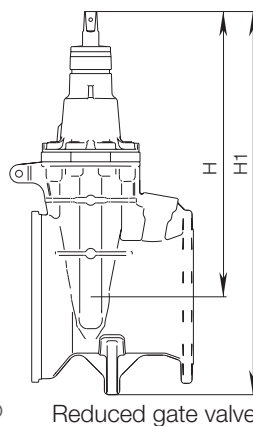


HAWLE-COMBIFLEX E2 gate valve No. 4190E2



Optional
Operating Cap
Order-No. 2157
Order-No. 2158

- ZAK 46 socket
- Incl. ZAK 46 plug
- Without operating cap
- Incl. bolt fastener for the middle section
- Fits through manhole openings



DN	HAWLE-COMBIFLEX E2 gate valve																			
	Flange						Bolts			Spindle			Valve							
	DN	MOP (PN)	Ø D	C	Ø K	Ø d4	f	Qty.	Thread	Ø d2	a	c	Ø d1	Wedge DN	Service outlet	H	H1*	L*	B*	Weight
250	150	10 16	285	19	240	209	3	8	M20	23	24,3	48	32	200	ZAK 46	561	727	337	356	61,0
	200	10 16	340	20	295	264	3	8 12	M20	23	24,3	48	32	200	ZAK 46	561	730	337	356	62,0
	250	10 16	400	22	350 355	319	3	12	M20 M24	23 28	27,3	48	34	250	ZAK 46	670	870	337	438	89,0
300	150	10 16	285	19	240	209	3	8	M20	23	24,3	48	32	200	ZAK 46	561	754	361	356	65,0
	200	10 16	340	20	295	264	3	8 12	M20	23	24,3	48	32	200	ZAK 46	561	754	361	356	66,0
	300	10 16	455	24,5	400 410	367	4	12	M20 M24	23 28	27,3	48	34	300	ZAK 46	753	981	361	523	132,0
	400+	10 16	580	28	515 525	477	4	16	M24 M27	28 31	27,3	48	34	300	ZAK 46	753	1050	361	523	146,0

* Transport dimensions

* height compensation due to flange necessary



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A 9/7

E2 HAWLE-COMBIFLEX

Individual parts, DN 150 / DN 250 / DN 300

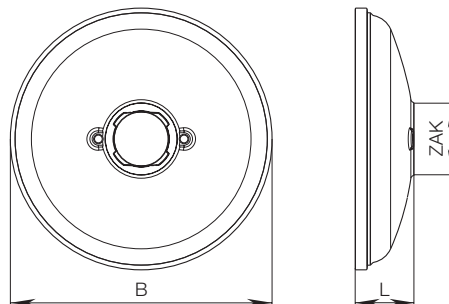


HAWLE-COMBIFLEX end cap

No. 8640



- ZAK 69 socket



HAWLE-COMBIFLEX end cap

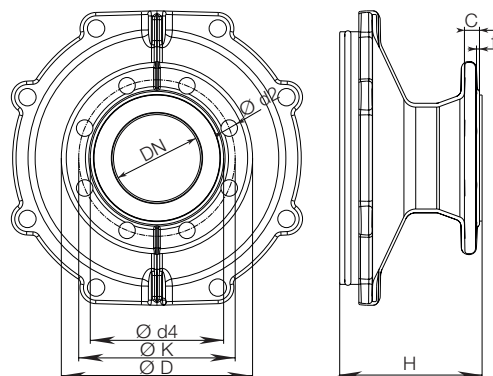
DN	HAWLE-COMBIFLEX end cap			
	B	ZAK-socket	L	Weight
150	177	ZAK 46	47	3,5
250	284	ZAK 69	67	5,5
300	335	ZAK 69	77	8,0

HAWLE-COMBIFLEX vertical outlet

No. 8642



- Incl. affixed elastomer flange gasket



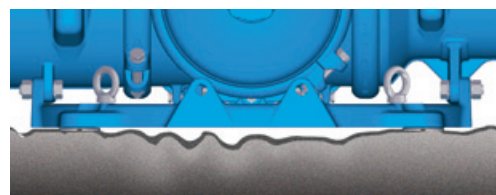
HAWLE-COMBIFLEX vertical outlet

DN	HAWLE-COMBIFLEX vertical outlet											
	Flange							Bolts			Vertical outlet	
	DN	MOP (PN)	Ø D	C	Ø K	Ø d4	f	Qty.	Thread	Ø d2	H	Weight
150	80	10	200	19	160	133	3	8	M16	19	155	6,9
		16										
	100	10	220	19	180	153	3	8	M16	19	155	7,7
		16										
250	100	10	220	19	180	153	3	8	M16	19	146	12,0
		16										
	150	10	285	19	240	209	3	8	M20	23	146	11,0
		16										
300	100	10	220	19	180	153	3	8	M16	19	160	13,0
		16										
	150	10	285	19	240	209	3	8	M20	23	160	13,0
		16										

HAWLE-COMBIFLEX ground-distance set

No. 8644 (order separately)

Stainless steel



A 9/8



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HAWLE-A VALVE

Overview



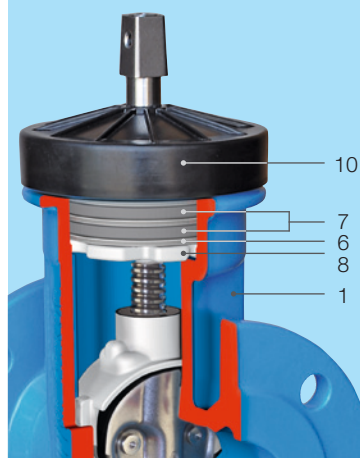
Design features

- **Resilient seated gate valve** according to EN 1171, EN 1074-1 and EN 1074-2 with smooth straight bore
- The HAWLE-A valve is the **first mono-design resilient-seated valve in the world**. Due to its unique mono design an unequalled strength of the valve is achieved
- No screw connection in bonnet. Spindle bearing fixed in the housing via bayonet lock. These unique design features permit all-over epoxy powder coating, thus providing a superior corrosion protection according to the regulations of GSK - The Quality Association for Heavy Duty Corrosion Protection of Powder Coated Valves and Fittings
- **Wedge** in sandwich design with two separate rubber gaskets. This new **wedge and sealing geometry** as well as the special wedge guide ensure low closing torques in every situation
- **Wedge guide** with high glide characteristics: Load-optimised design guarantees low wear and minimum closing torques
- The flexible **wedge nut** ensures a superb function of the valve even under high loads
- **O-ring bush** fixed in housing with bayonet lock, with locking piston, multiple O-ring sealing
- Spindle bearing on friction washers made of wear-resistant plastic
- Suitable for underground installations

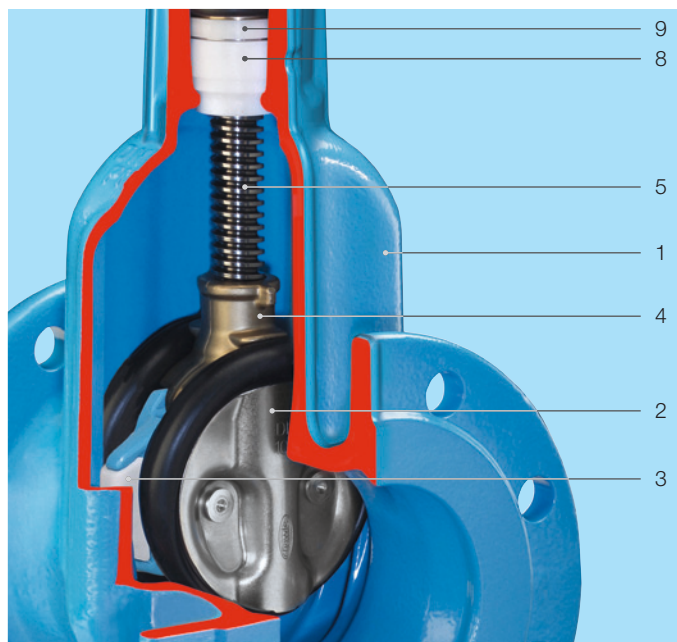
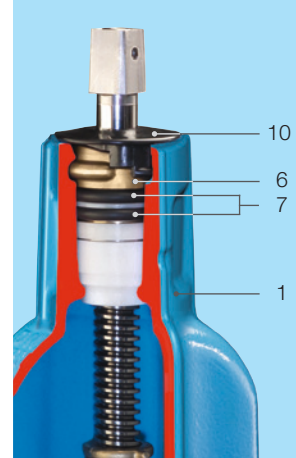
Material | technical features

- 1 **Body** made of ductile iron, epoxy powder coated (see page 4)
- 2 **Wedge** made of POM (DN 50 and DN 65), made of ductile iron, epoxy powder coated (DN 80 up to DN 300)
Stainless steel plates / elastomer sealing plates
- 3 **Wedge guide** made of wear-resistant low friction plastic
- 4 **Wedge nut** made of brass
- 5 **Stainless steel spindle** with rolled thread,
Ball bearing made of POM
- 6 **O-ring bush** made of
POM (DN 50 and DN 65),
brass (DN 80 up to DN 300)
- 7 **O-rings** made of elastomer
- 8 **Spindle bearing** made of POM
- 9 **Friction washers** made of POM
- 10 **Covering cap** made of PE

DN 50-65



DN 80-300



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A 10/1

HAWLE-A VALVE

With flange DN 50-300, PN 10 | PN 16



Design features

- Resilient seated gate valve with smooth straight bore
- Flanges sized in accordance with EN 1092-2, drilled according to EN 1092-2 | PN 10 standard; EN 1092-2 | PN 16 for DN 200 to DN 300. Please specify on order - other standards on request
- Suitable for cleaning with a cleaning pig
- One extension spindle for several dimensions

Standard version: without handwheel and extension spindle (Suitable only for manual actuation)

Design versions: short or long face-to-face length, closing clockwise or anti-clockwise

Suitable accessories

Suitable accessories: see page A 1/2

Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000A
	telescopic	No. 9500A
Surface boxes:	rigid	No. 1750
	telescopic	No. 2050
		No. 2051K
Base plate:		No. 3481, No. 3482
Operating cap:		No. 2156, No. 2157, No. 2158
Extension spindle:		No. 7820, No. 7825
Bolts:		No. 8810, No. 8830, No. 8840
HAWAK-pillar:		No. 9894, No. 9895
Flat gasket:		No. 3390, No. 3470

No. 4000A

No. 4700A

No. 4288A



Order no.	Version	MOP (PN)	Dimensions/DN									
			50	65	80	100	125	150	200	250	300	
4000A	short EN 558-1 GR 14	16										
4700A	long EN 558-1 GR 15											
4288A	CSN 133045											



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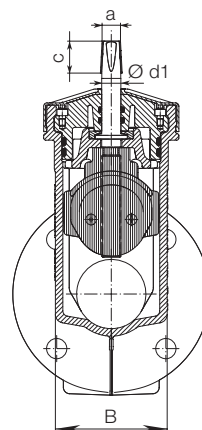
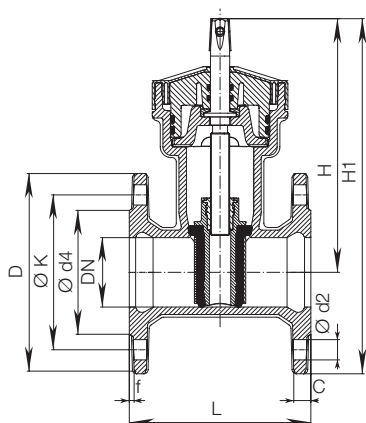
A 10/3

HAWLE-A VALVE

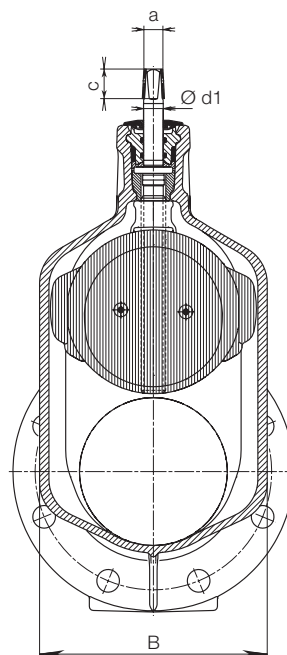
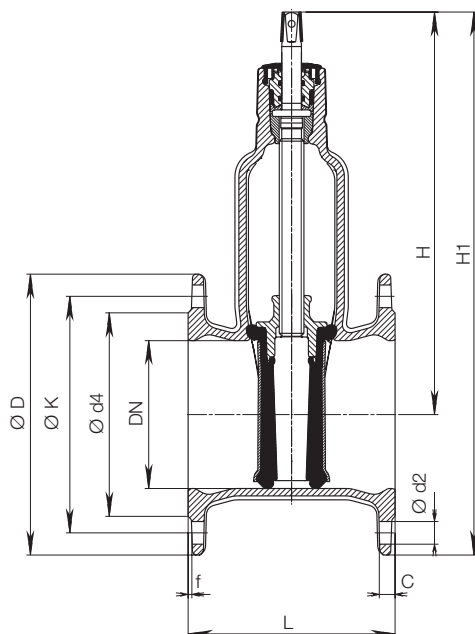
With flange DN 50-300, PN 10 | PN 16



DN 50 / DN 65



DN 80 – DN 300



DN	MOP (PN)	Flange					Bolts		Spindle			Valve							Weight		
		ØD	C	ØK	Ød4	f	Qty.	Thread	Ød2	a	c	Ød1	H	H1	L short	L long	L CSN	B	short	long	CSN
50	10	165	16	125	96	4,5	4	M 16	19	14,8	30	18	230	315	150	250	180	105	8,2	9,0	8,6
	16																				
65	10	185	16	145	116	4,5	4	M 16	19	17,3	30	18	238	333	170	270		105	9,4	10,5	
	16																				
80	10	200	16	160	133	4	4	M 16	19	17,3	30	20	286	386	180	280	210	136	10,5	12,8	11,9
	16																				
100	10	220	16	180	153	4	8	M 16	19	19,3	30	20	317	427	190	300	230	158	15,0	16,3	15,5
	16																				
125	10	250	16	210	183	4,5	8	M 16	19	19,3	30	20	359	485	200	325		207	19,0	21,8	
	16																				
150	10	285	16	240	207	4	8	M 20	23	19,3	30	20	409	552	210	350	280	231	26,5	30,0	27,7
	16																				
200	10	340	17	295	264	4	8	M 20	23	24,3	38	25	509	679	230	400	330	282	41,2	46,5	44,2
	16																				
250	10	400	22	350	319	4	12	M 20	22,4	27,3	38	32	599	799	250			410	88,7		
	16																				
300	10	455	23,5	400	369	6	12	M 20	22,4	27,3	38	32	674	901	270			470	118,6		
	16																				

A 10/4



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HAWLE-E1+ VALVE

Overview

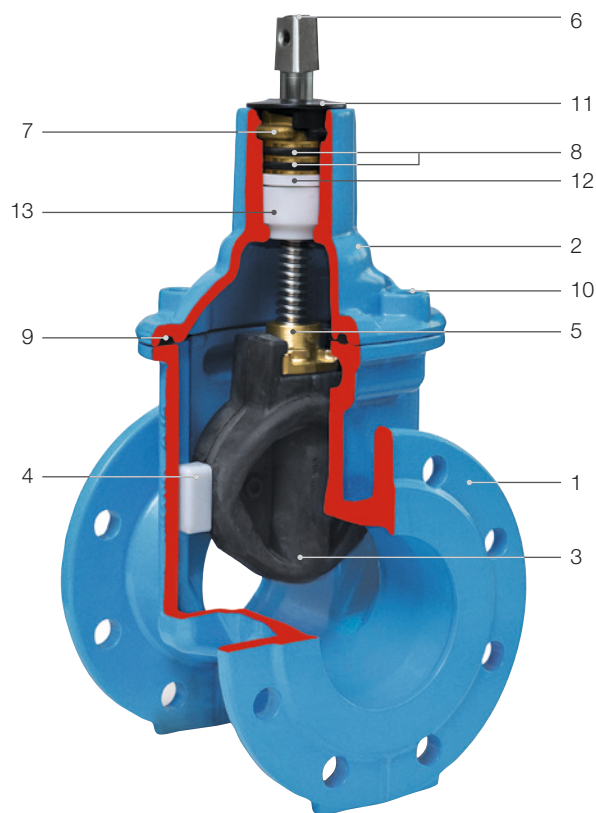


Design features

- **Resilient seated gate valve** according to EN 1074-1 and EN 1074-2 with smooth, straight bore
- Flanged valve, short face-to-face dimension
- **Wedge guide** with high glide characteristics; load-optimised design guarantees very low wear and closing torques
- **Wedge nut** resists high torque load due to its larger size with more than the required thread length
- **Spindle bearing** attached in bonnet by bayonet connection
- **O-rings** on all sides mounted in corrosion-proof material
- **Friction washers** guarantee smooth spindle guiding
- Suitable for underground installation
- **Duplex** stainless steel spindle

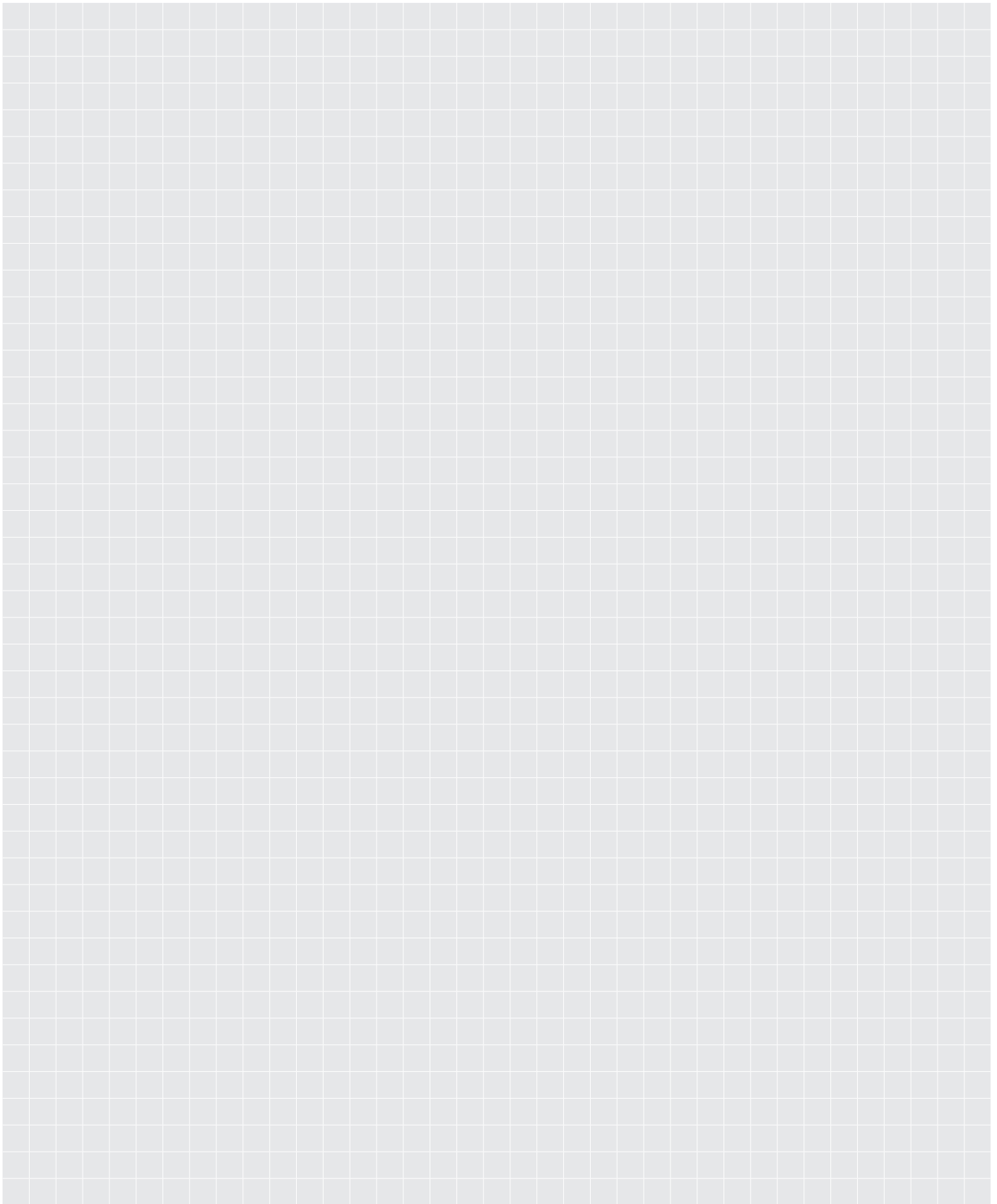
Material | technical features

- 1,2 **Body (1), bonnet (2)** made of ductile iron, epoxy powder coated inside and out (see page 4)
- 3 **Wedge** made of ductile iron, fully rubberized with vulcanized elastomer inside and out
- 4 **Wedge guide** made of wear-resistant POM
- 5 **Wedge nut** made of brass
- 6 **Duplex stainless steel spindle** with rolled thread and polished O-ring slide faces, bearing made of POM
- 7 **O-ring bush** made of brass, attached in bonnet by bayonet connection, anti-rotation, multiple O-ring sealing
- 8 **O-rings** made of elastomer
- 9 **Bonnet gasket** made of elastomer
- 10 **Allen screws** corrosion protected by being encased into the body with an enclosing gasket and wax
- 11 **Covering cap** as dirt protection of the spindle bearing made of PE
- 12 **Friction washer** made of POM
- 13 **Spindle bearing** made of POM



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A 11/1

A large rectangular area filled with a light gray grid pattern, intended for technical notes or drawings.

HAWLE-E1+ VALVE

With flange DN 50-300, PN 10 | PN 16



Design features

- Resilient seated gate valve with smooth, straight bore
- Flanges sized in accordance with EN 1092-2, drilled according to EN 1092-2 | PN 10 standard; EN 1092-2 | PN 16 for DN 200
Please specify on order - other standards on request
- Suitable for cleaning with a cleaning pig
- Short face-to-face length (EN 558 GR 14)

Standard version: without handwheel and extension spindle
(only suitable for manual actuation)

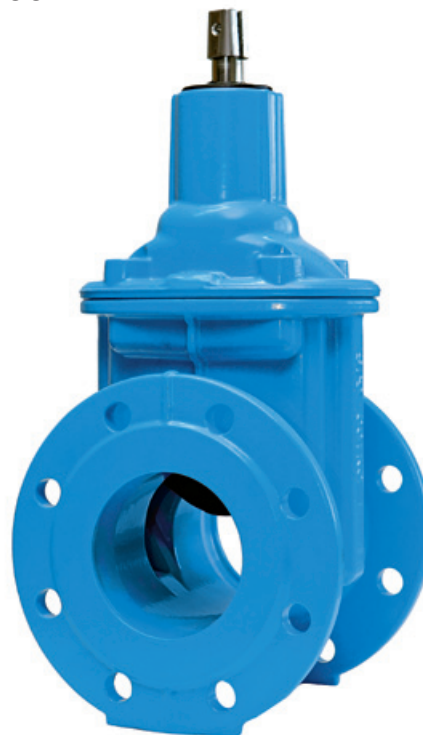
Special versions: on request

Suitable accessories

Suitable accessories: see page A 1/2

Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000
	from DN 65	No. 9000A
	telescopic	No. 9500
	from DN 65	No. 9500A
Surface boxes:		No. 9500
	rigid	No. 1750
	telescopic	No. 2050
		No. 2051K
Base plate:	No. 3480, No. 3481	
Operating cap:	No. 2156, No. 2157, No. 2158	
Spindle extension:	No. 7820, No. 7825	
Bolts:	No. 8810, No. 8830, No. 8840	
HAWAK-pillar:	No. 9894	
Flat gasket:	No. 3390, No. 3470	

No. 4000E1+



Order no.	Version	MOP (PN)	Dimensions/DN									
			50	65	80	100	125	150	200	250	300	
4000E1+	short EN 558-1 GR 14	10										
		16										

Application example



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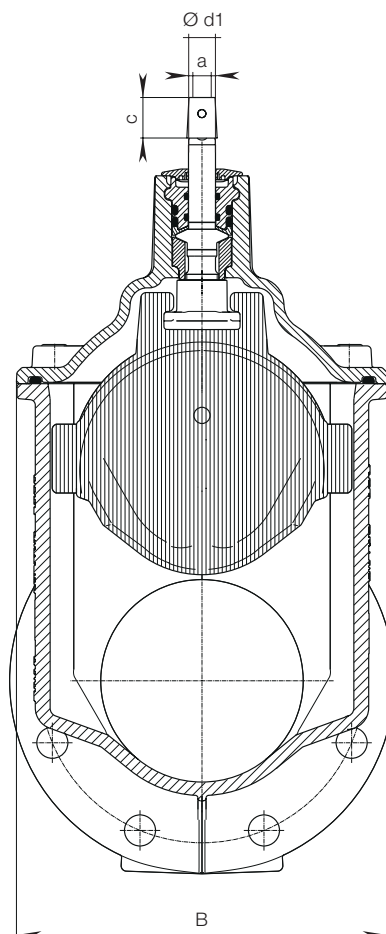
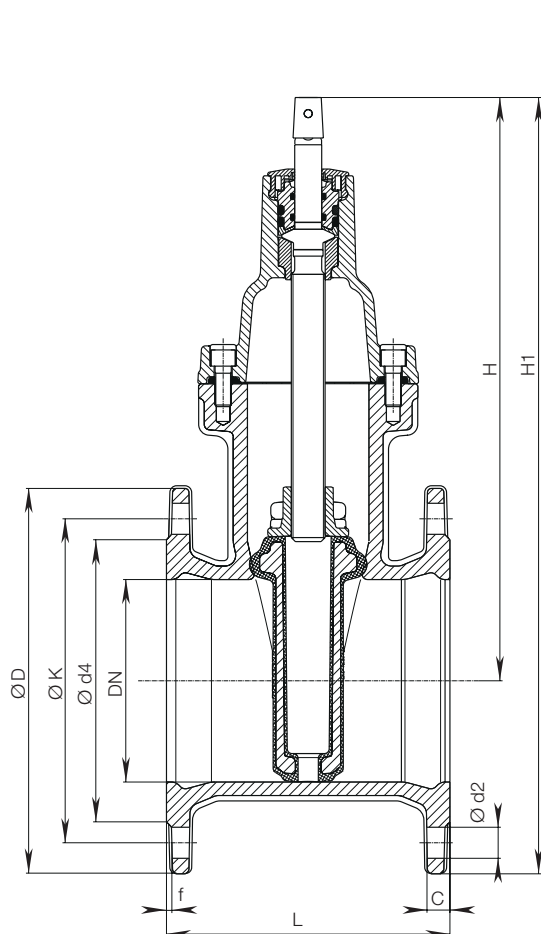
A 11/3

HAWLE-E1+ VALVE

With flange DN 50-300, PN 10 | PN 16



No. 4000E1+



DN	MOP (PN)	Flange					Bolts			Spindle			Valve				Weight
		ØD	C	ØK	Ød4	f	Qty	Thread	Ød2	a	c	Ød1	H	H1	L	B	
50	10 16	165	18	125	98	5	4	M 16	19	14,8	30	18	230	313	150	135	8,8
65	10 16	185	18	145	118	5	4	M 16	19	17,3	30	20	298	390	170	172	13,5
80	10 16	200	18	160	133	5	8	M 16	19	17,3	30	20	305	405	180	172	14,5
100	10 16	220	18	180	153	5	8	M 16	19	19,3	30	20	339	449	190	203	18,5
125	10 16	250	17	210	183	4	8	M 16	19	19,3	30	20	420	545	200	275	30,5
150	10 16	285	17	240	209	4	8	M 20	23	19,3	30	20	432	575	210	275	34,0
200	10 16	340	19,5	295	264	4,5	8	M 20	23	24,3	38	25	534	704	230	345	54,6
							12										53,0
250	10 16	400	21,5	350	318	4,5	12	M 20	23	27,3	38	32	626	826	250	422	80,5
								M 24	28								82,0
300	10 16	455	24	400	371	5,5	12	M 20	23	27,3	38	32	709	937	270	506	125,0
								M 24	28								142,4

A 11/4



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**Page
B 2**

Double eccentric butterfly valve

Hawle butterfly valve

Page B 2/3



**Page
B 3**

Non return valves

Without lever and counterweight

Page B 3/1



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B 1/1

Accessories

Actuator		Page M 4/3
Bolts		Page M 4/4
Flat gaskets		Page M 7/1
Dismantling Joints		Page D 6/1

Adapter extension spindle E2	No. 9211	Page B 2/3
Adapter square cap	No. 2161	Page B 2/3

Technical information

Tightening torques for flange assembly	Page R 3/1
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Application example



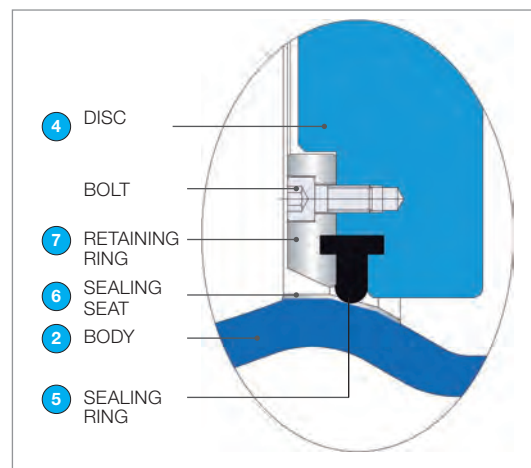
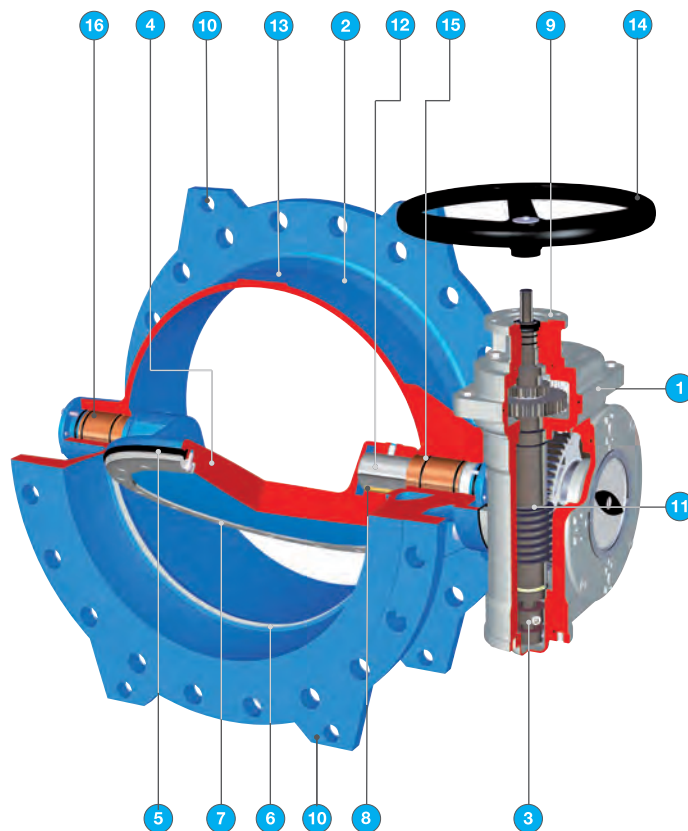
BUTTERFLY VALVES

Double eccentric DN 150-1400



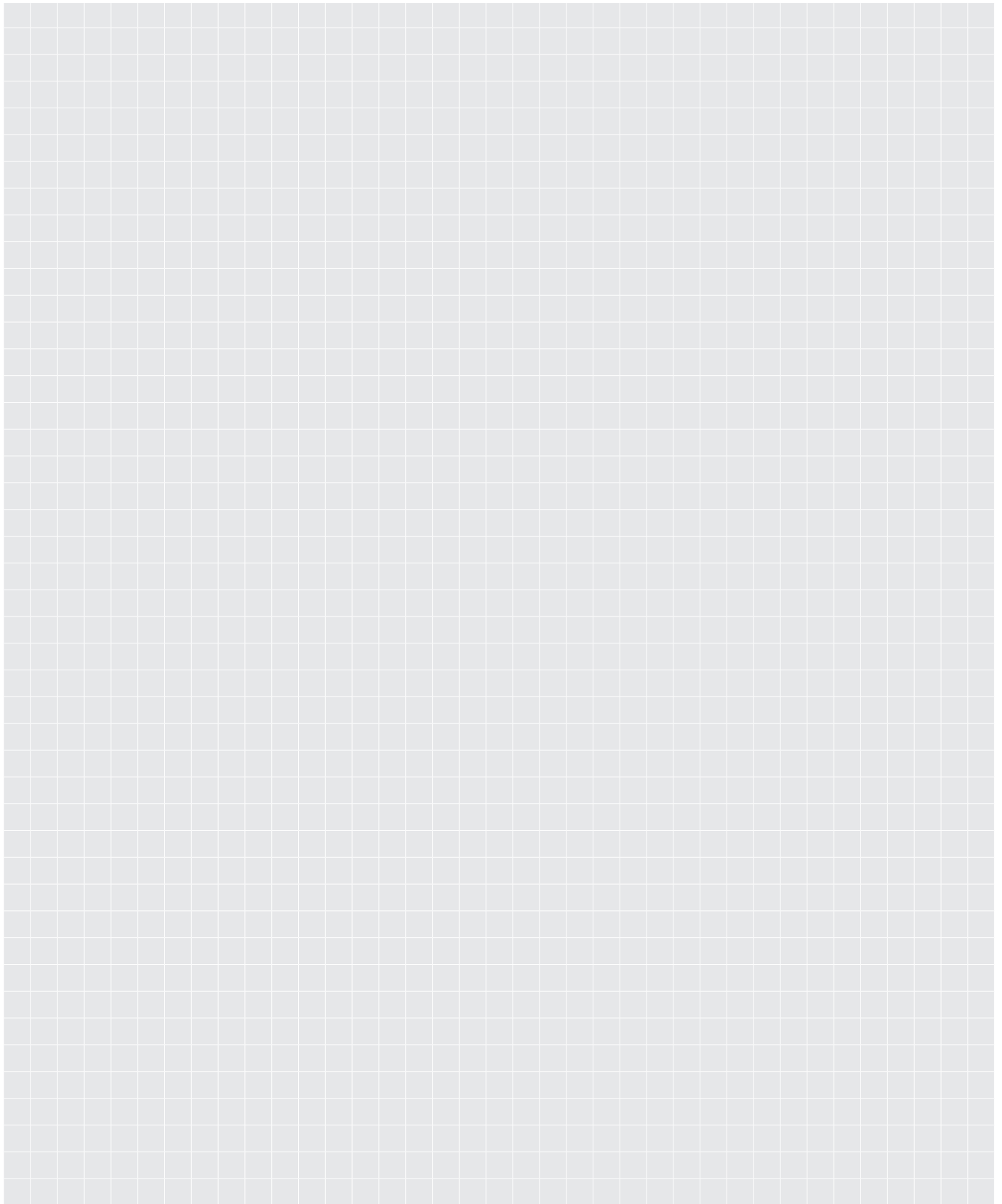
Design features

- 1 **Butterfly valve and gearbox**
Standard butterfly valve is suitable for either buried installations or chamber installations
- 2 **Body**
Streamlined design and smooth finish of the body provides minimum resistance to flow
- 3 **Travelling nut**
Bottom end of the worm shaft is threaded and a travelling nut moves up and down on this threaded spindle. When operating the gear (valve) in "open" or "close" direction, the travelling nut also moves towards the corresponding end stop and safe guards the correct travel of the valve disc to fully closed position
- 4 **Disc lenght**
Streamlined and low profiled disc including closed hubs ensures higher Kv values. Double offset disc design reduces seal wear and torque
- 5 **Sealing system**
Sealing on seat face is ensured by an endless T-profile resilient sealing ring which is held on the periphery of the disc by a retaining ring. In closed position the sealing ring is pressed against the conically shaped seat face of the body and **provides safe sealing in either direction of flow**. In opened position the sealing ring is completely unstressed due to the double eccentric disc design
- 6 **Body seat**
Stainless steel weld filled and finished integral body seat enables a corrosion and erosion resistant seat face. With this special type of seating it is possible to manufacture the valve drop tight
- 7 **Retaining ring**
The one piece retaining ring prevents sealing ring from rolling out. Sealing ring can be replaced easily at site without dismantling the valve disc and without requirement of any special tool
- 8 **Shaft connection**
Positive disc to shaft connection by use of key
- 9 **Connection flange for actuator**
All butterfly valves are provided with standard flanges according to EN ISO 5210 for installation of actuators
- 10 **Lifting holes and feet**
Integral lifting holes provide easy installation and the feet provides strong ground support
- 11 **Worm gear operators**
The drive is designed so that the disc can be actuated by just one operator with little force
- 12 **Shafts**
Split shaft guarantees maximum restriction to flow
- 13 **Unique tracking number**
Every valve is equipped with a cast tracking number for easy traceability and identification
- 14 **Handwheel**
Every valve is equipped with a handwheel (standard version)
- 15 **Shaft sealing**
Multiple O-ring shaft sealing system guarantees maintenance free sealing
- 16 **Bearing system**
Self lubricating plain bearings reduce shaft friction and operating torque. These bearings keep the shaft centralised and prevent axial movement



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B 2/1

A large rectangular area filled with a light gray grid pattern, intended for handwritten notes.

DOUBLE ECCENTRIC

Hawle butterfly valve, DN 150-1400, PN 10 | PN 16



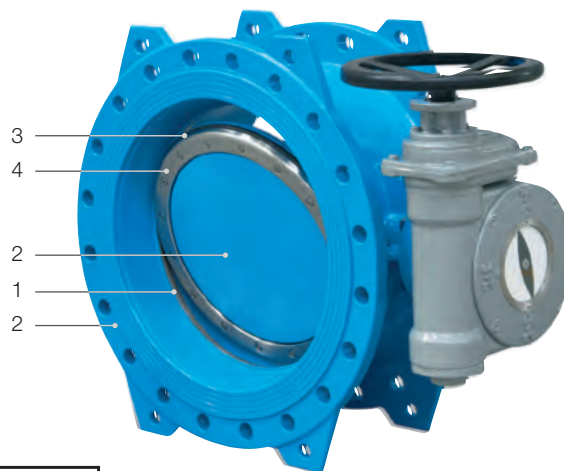
Design features

- Standard version including actuation device: Wormgearbox and handwheel
- Protection class IP 68
- Applicable for below ground installation, simple assembly of the extension spindle
- Applicable for actuator
- Face-to-face dimension according EN 558 – 1 SERIES 14
- Flange connection dimensions according to EN 1092-2
- Pressure rating PN 10 | PN 16

Material | Technical features

- 1 **Sealing seat** made of stainless steel welded and microfinished
 - 2 **Body and disk** made of ductile iron, epoxy powder coated inside and out
 - 3 **Sealing rings** made of elastomer
 - 4 **Retaining ring** made of stainless steel
- **Shafts** made of stainless steel
 - **All connections** made of stainless steel
 - **Bearings** made of bronze
 - **Handwheel** made of cast iron, epoxy powder coated

No. 9881K



Order No.	MOP (PN)	Dimension/DN													
		150	200	250	300	350	400	450	500	600	700	800	900	1000	1100
9881K	10														
	16														

* Without ÖVGW (Austrian Association for Gas and Water) certificate.

Suitable accessories

Suitable accessories:

Adapter extension spindle E2 , DN 200:	No. 9211
Adapter square cap:	No. 2161
Actuator:	No. 9920
Flat gasket:	No. 3390
Fitting and extension piece:	No. 9810



Adapter for extension spindle **E2**
(underground installation), DN 200

No. 9211



Square cap

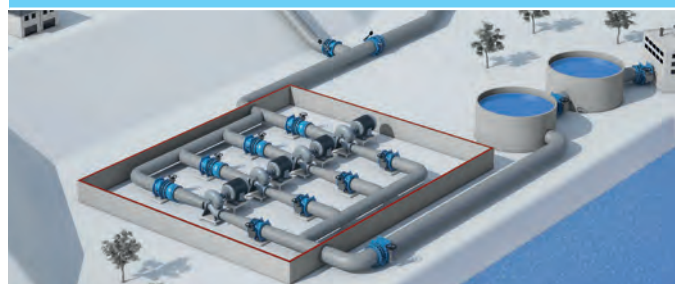
No. 2161



Actuator

No. 9920

Application example

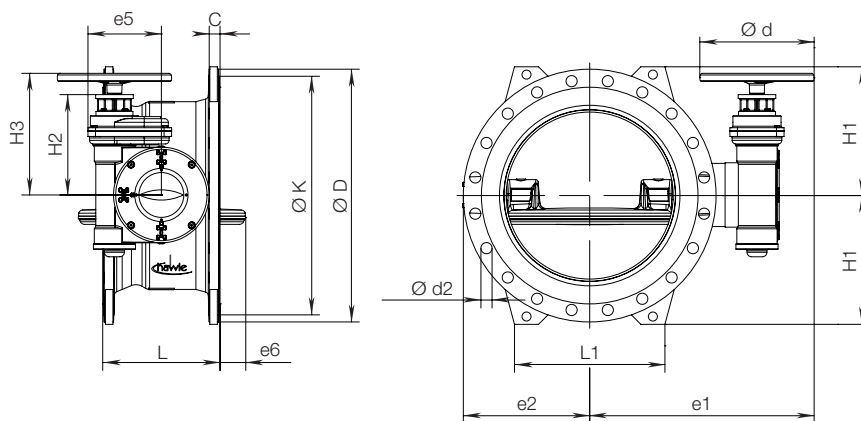


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B 2/3

DOUBLE ECCENTRIC

Hawle butterfly valve, DN 150-1400, PN 10 | PN 16



No. 9881K

Pressure rating PN 10

DN	MOP (PN)	L Serie 14	L1	e1	e2	e5	e6	Ø d	Ø D	Ø K	C	Bolts Qty.	Ø d2	H1	H2	H3	Turns to open/close	Weight
150	10	210	-	378	151	134	0	245	285	240	19,0	8	23	143	145	212	11,25	45
200		230	180	405	177	134	0	245	340	295	20,0	8	23	180	145	212	11,25	60
250		250	220	481	214	158	5	245	405	350	22,0	12	23	213	165	239	10	95
300		270	280	503	237	158	11	245	460	400	24,5	12	23	242	165	239	10	115
350		290	320	595	283	175	28	370	505	460	24,5	16	23	264	186	271	12,5	155
400		310	335	626	297	175	43	370	565	515	24,5	16	28	293	186	271	12,5	165
450		330	380	670	333	198	57	370	615	565	25,5	20	28	320	287	372	36,25	220
500		350	400	701	344	244	67	370	670	620	26,5	20	28	345	336	420	43,5	285
600		390	440	749	414	244	98	370	780	725	30,0	20	31	400	336	420	43,5	350
700		430	540	838	511	313	126	370	895	840	32,5	24	31	460	399	484	104	575
800		470	610	855	530	313	153	370	1015	950	35,0	24	34	520	399	484	104	680
900		510	670	965	618	365	181	370	1115	1050	37,5	28	34	568	435	519	192,5	980
1000		550	740	1039	650	365	206	370	1230	1160	40,0	28	37	625	435	519	192,5	1155
1100		590	750	1022	720	365	237	370	1355	1270	53,5	32	37	695	435	519	192,5	1558
1200		630	900	1251	782	515	264	485	1455	1380	45,0	32	41	738	576	625	362,5	1965
1400		710	1160	1349	917	515	323	485	1675	1500	46,0	36	44	848	538	625	362,5	2690

No. 9881K

Pressure rating PN 16

DN	MOP (PN)	L Serie 14	L1	e1	e2	e5	e6	Ø d	Ø D	Ø K	C	Bolts Qty.	Ø d2	H1	H2	H3	Turns to open/close	Weight
150	16	210	-	378	151	134	0	245	285	240	19,0	8	23	143	145	212	11,25	45
200		230	180	405	177	134	0	245	340	295	20,0	12	23	180	145	212	11,25	60
250		250	220	481	214	158	6	245	405	355	22,0	12	28	213	165	239	10	95
300		270	280	503	237	158	11	245	460	410	24,5	12	28	242	165	239	10	115
350		290	320	595	283	175	28	370	520	470	26,5	16	28	272	186	271	12,5	162
400		310	335	626	297	198	43	370	580	525	28,0	16	31	300	287	372	36,25	204
450		330	380	670	333	198	57	370	640	585	30,0	20	31	330	287	372	36,25	240
500		350	400	721	344	244	67	370	715	650	31,5	20	34	370	336	420	43,5	325
600		390	500	779	414	244	98	370	840	770	36,0	20	37	432	336	420	43,5	435
700		430	540	838	511	313	126	370	910	840	39,5	24	37	467	399	484	104	610
800		470	615	928	530	313	153	370	1025	950	43,0	24	41	525	399	484	104	780
900		510	675	1007	618	365	181	370	1125	1050	46,5	28	41	573	435	519	192,5	1065
1000		550	740	1039	650	365	206	370	1255	1170	50,0	28	44	638	435	519	192,5	1320
1100		590	750	1091	720	365	237	370	1355	1270	53,5	32	44	696	435	519	192,5	1558
1200		630	900	1251	782	515	264	485	1485	1390	57,0	32	50	753	576	625	362,5	2375
1400		710	1160	1349	917	515	323	485	1685	1590	60,0	36	50	848	538	625	362,5	2870

B 2/4



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CHECK VALVES

Without/with lever and counterweight, PN 10 | PN 16



Design features

- Reliable prevention of medium back flow by automatic mechanical closing of the non-return valve.
- The disc opens automatically, if the medium flows in the direction indicated by the arrow on the valve body.
- Face-to-face dimensions according to EN 558-1 GR 48
- Flanges sized in accordance with EN 1092-2, drilled according to EN 1092-2 | PN 10 standard; EN 1092-2 | PN 16 from DN 200 Please specify on order; other standards on request
- **No. 9831:**
 - Reduced weight, simple cleaning, fully corrosion free, optimised velocity, simple maintenance
 - Min. opening pressure 0,03 bar
 - Min. closing pressure 0,5 bar (tight)
- **No. 9830:**
 - Min. opening pressure 0,03 bar
 - Min. closing pressure 0,1 bar (tight)
- **No. 9820:**
 - With lever and counterweight
 - Min. opening pressure 0,03 bar
 - Min. closing pressure 0,1 bar (tight)

Material | Technical features

- **Body**
No. 9831: ductile iron, epoxy powder coated
No. 9830/9820: grey iron, epoxy powder coated
- **Disc/disc lever**
No. 9831: elastomer/polyamide
No. 9830/9820: grey iron, epoxy powder coated
- **Bolts/nuts**
No. 9831: stainless steel
No. 9830/9820: stainless steel
- **Disc gasket**
No. 9831: elastomer
No. 9830/9820: Klingerit
- **Shaft**
No. 9831: polyamide
No. 9830/9820: stainless steel
- **Bolts**
No. 9830/9820: stainless steel
- **Gasket**
No. 9830/9820: elastomer
- **Lever and counterweight**
9820: grey iron, epoxy powder coated

Installation advice

- In general non-return valves are designed to be installed in horizontal pipe lines. An installation in sloping and vertical pipe lines is possible if the flow of the medium is upwards.
- Direction of flow has to be according to the arrow indicated on the body. Axle of the disc shaft has to be fully horizontal.

Check valves

Without lever and counterweight

No. 9831



No. 9830



No. 9820

With lever and counterweight (without illustration)

Order No.	Version	MOP (PN)	Dimension/DN									
			40	50	65	80	100	125	150	200	250	300
9831	Without lever and counterweight	16										
9830												
9820	With lever and counterweight											



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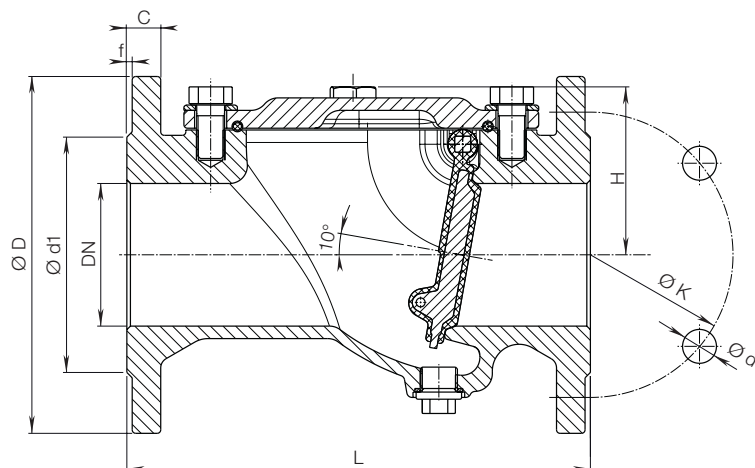
B 3/1

CHECK VALVES

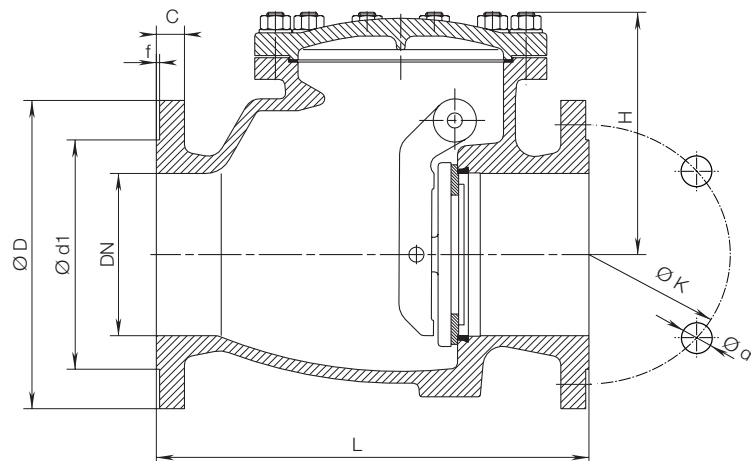
Without/with lever and counterweight, PN 10 | PN 16



No. 9831



No. 9830



No. 9820 with lever and counterweight (without illustration)

DN	MOP (PN)	L	H	ØD	Ød1	ØK	Ød	f	C	Bolts		Kv m³/h	Weight 9831/9830
										Qty.	Ød2		
40	16	180	119	150	88	110	19	3	18	4	16	60	9,0
50		200	77	165	102	125	19	3	19	4	16	170	9,5
65		240	141	185	122	145	19	3	20	4	16	163	15,0
80		260	95	200	138	160	19	3	19	8	16	366	14,5
100		300	113	220	158	180	19	3	19	8	16	698	22,0
125		350	199	250	188	210	19	3	26	8	16	588	46,0
150	10 16	400	155	285	212	240	23	3	19	8	20	1489	45,0
200		500	187	340	268	295	23	3	20	8 12	20 20	1388	82,0
250	10	600	337	405	320	350	23	3	32	12	20		180,0
	16					355	27			12	24		
300	10	700	374	460	378	400	23	4	32	12	20		270,0
	16					410	27			12	24		

B 3/2



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Page C 2

Flange connections

For PE pipes, restraint
Synoflex flange
System 2000 flange

Page C 2/1
Page E 4/1
Page F 4/1



Page C 3

Flange connections

For PVC pipes
For AC pipes
Synoflex flange
System 2000 flange

Page C 3/1
Page C 3/2
Page E 4/1
Page F 4/1



Page C 4

Flange connections

For ductile iron pipes, standard, restraint
Synoflex flange

Page C 4/1
Page E 4/1

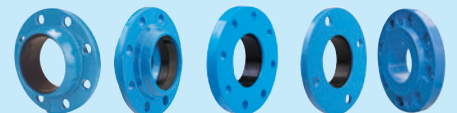


Page C 5

Flange connections

For steel pipes, standard, restraint
Transition flange
Synoflex flange

Page C 5/1
Page C 5/2
Page E 4/1



Page C 6

Threaded, blank flange XR reducing flange

Page C 6/1
Page C 6/2



Page C 7

Restraint systems

For PVC pipes

Split collar

For PE and PVC pipes

Page C 7/1
Page C 7/2



Accessories

Bolts	Page M 4/4
Washers	Page M 4/4
Screw insulation	Page M 4/4
Flat gasket	Page M 7/1

Spare parts

Gasket	Page P 3/2
	Page P 4/1
Grp ring	Page P 4/1
O-ring	Page P 4/2

Technical information

Tightening torques for flange assembly	Page R 3/1
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FLANGE CONNECTIONS

For PE pipes, restraint, PN 10 | PN 16



Design features

- For PE pipes according to EN 12201, DIN 8074
- Flange sized in accordance with EN 1092-2, drilled in accordance with EN 1092-2 | PN 10 standard; PN 16 for DN 200 please specify on order - other standards on request

No. 0310 / 0311:

- Flange adapter with PE fusion tail
- In a flange with a combined push-screw socket, a PE fusion socket is inserted from factory
- High performance sealing of the PE tail is assured by two separate seals and a stainless steel support liner within the tail
- The fusion of the valve in the PE line can take place through butt fusion or electrofusion socket; twisting is not permissible after fusion of the valve

No. 5500 / 5530:

- Flange with ISO pipe socket
- The sealing and hold function acts exclusively on the external diameter of the pipe
- Corresponding to the line pressure and/or mechanical tensile forces, the seal and grip ring are pressed into the conical chamber, which increases its effectiveness
- Assembly instructions see Page K 3/2

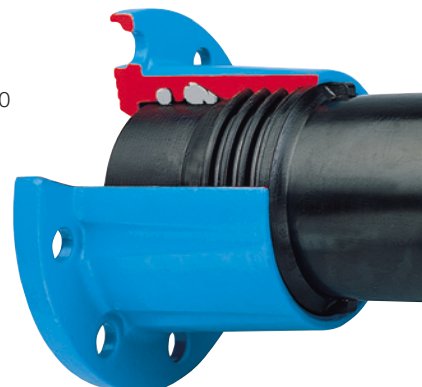
Flange adapter with PE fusion tail

No. 0310

PE 100 / SDR 11 - PN 16

No. 0311

PE 100 / SDR 17,6 - PN 10



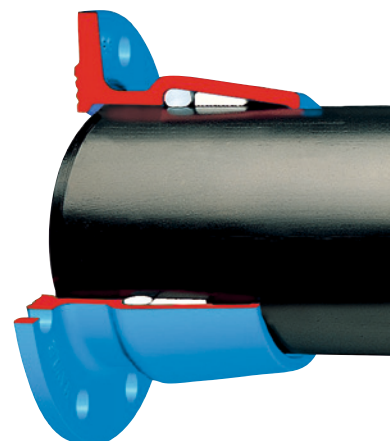
ISO pipe flange adapter

No. 5500

equal

No. 5530

reducing



Material | Technical features

- **Flange** made of ductile iron, epoxy powder coated
- **Fusion tail** made of PE 100
- **Support liners** made of stainless steel (No. 0310, No. 0311)
- **Seals** made of elastomer
- **Grip ring** made of POM

Order No.	Version	MOP (PN)	Flange DN / Ø pipe																	
			40 32	40 40	40 50	50 50	50 63	60 63	60 75	65 63	65 75	80 75	80 90	100 90	100 110	100 125	150 160	150 180	200 200	200 225
0310	Flange with PE fusion tail	16																		
0311		10																		
5500	ISO pipe flange, equal	16																		
5530	ISO pipe flange, reducing																			



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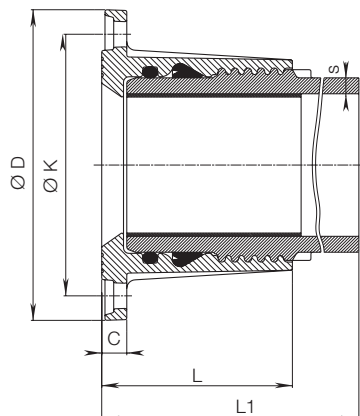
C 2/1

FLANGE CONNECTIONS

For PE pipes, restraint, PN 10 | PN 16

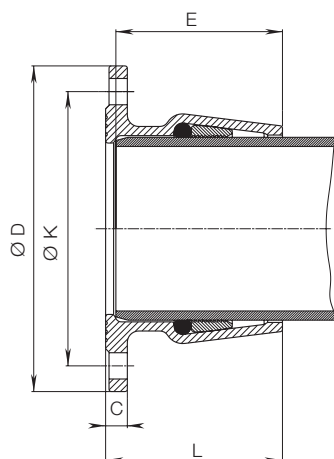


No. 0310 / 0311



Flange DN	Ø Pipe	Ø D	Ø K	C	L	L1	s		Bolts		Weight
							SDR 17,6	SDR 11	Quantity	Thread	
50	63	165	125	19	106	291		5,8	4	M 16	4,0
80	90	200	160	20	125	305	5,1	8,2	8	M 16	6,7
100	110	220	180	21	142	327	6,3	10,0	8	M 16	9,3
100	125	220	180	19	190	373		11,4	8	M 16	12,4
150	160	285	240	23	175	358	9,1	14,6	8	M 20	16,0
150	180	285	240	20	260	437	10,2	16,4	8	M 20	23,0
200	200	340	295	20	210	403		18,3	8	M 20	28,0
200	225	340	295	20	210	403	12,8	20,5	8	M 20	28,0

No. 5500



Flange DN	Ø Pipe	Ø D	Ø K	C	L	E	Bolts		Weight
							Quantity	Thread	
40	50	150	112	23	97	93	4	M 16	2,5
50	63	165	125	23	94	80	4	M 16	3,2
60	75	175	138	24	105	100	4	M 16	3,9
65	75	185	145	24	105	99	4	M 16	4,0
80	90	200	160	24	101	96	8	M 16	4,2
100	110	220	180	25	124	119	8	M 16	6,7

No. 5530

Flange DN	Ø Pipe	Ø D	Ø K	C	L	E	Bolts		Weight
							Quantity	Thread	
40	32	150	110	19	66	62	4	M 16	1,7
40	40	150	110	21	85	80	4	M 16	2,4
50	50	165	125	23	97	93	4	M 16	3,0
60	63	175	135	24	94	90	4	M 16	3,6
65	63	185	145	24	94	90	4	M 16	4,2
80	75	200	160	24	105	100	8	M 16	5,0
100	90	220	180	25	101	96	8	M 16	5,9

C 2/2



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FLANGE CONNECTIONS

For PVC pipes, PN 16



Design features

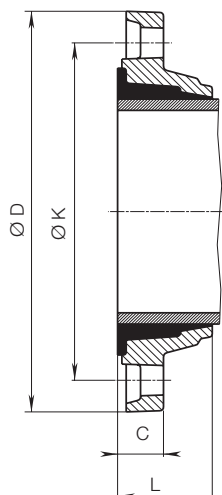
- For PVC pipes according to EN ISO 1452-2
- Flange sized according to EN 1092-2 and drilled in accordance with EN 1092-2 PN 10 standard; PN 16 for DN 200 to DN 400 please specify on order - other standards on request
- The resilience of the connection prevents tension in the pipe and minimises the danger of breakage

Assembly instructions

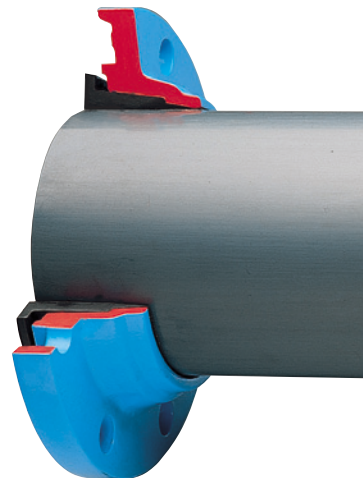
- Cut the pipe end straight, do not chamfer or moisten - push the flange onto the pipe and then push the gasket on

Material | Technical features

- **Flange** made of ductile iron, epoxy powder coated
- **Sleeve gasket** made of elastomer



Double chamber flange adapter No. 5600



Order No.	MOP (PN)	Flange DN / Ø Pipe										
		50 63	60 63	65 75	80 90	100 110	125 125	125 140	150 160	200 200	300 315	400 400
5600	16									*1	*	*

Explanation:

* also available in PN 16

* Flange with an extended hole circle are not suitable for use with fixed studs!

Flange DN	Ø Pipe	Ø D	Ø K	C	L	Bolts		Weight
						Qty.	Thread	
50	63	165	125	24	54	4	M 16	2,0
60	63	175	135	24	54	4	M 16	2,6
65	75	185	145	24	54	4	M 16	2,7
80	90	200	160	25	60	8	M 16	3,2
100	110	220	180	26	62	8	M 16	4,1
125	125	250	210	28	66	8	M 16	5,8
125	140	250	210	28	66	8	M 16	5,0
150	160	285	240	29	66	8	M 20	5,6
200	200	340	295	31	93	8	M 20	9,4
300	315	445	400	33	117	12	M 20	15,8
400	400	565	515	33	134	16	M 24	27,0



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C 3/1

FLANGE CONNECTIONS

For AC pipes, PN 16



Design features

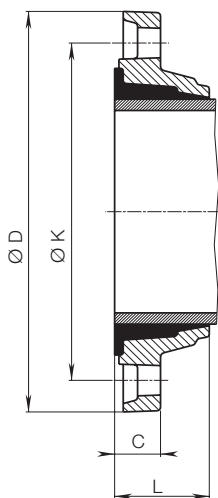
- For asbestos cement pipes
- Flange sized and drilled according to EN 1092-2 | PN16
- The long draw of the fitting and the double chambered gasket result in the pressure being spread well back from the pipe end
- The resilience of the connection prevents tension in the pipe and minimises the danger of breakage

Assembly instructions

- Cut the pipe end straight, do not chamfer or moisten - push the flange onto the pipe and then push the gasket on

Material | Technical features

- **Flange** made of ductile iron, epoxy powder coated
- **Sleeve gasket** made of elastomer



Double chamber flange adapter No. 7103



Order No.	MOP (PN)	Flange DN / Ø Pipe			
		80 98	100 120	150 174	150 178
7103	16	x	+		+

Explanation: + also available DIN 1882, x see page C 4/1

Flange DN	Ø Pipe	Ø D	Ø K	C	L	Bolts		Weight
						Quantity	Thread	
100	120	220	180	23	62	8	M 16	2,8
150	174	285	240	46	66	8	M 20	5,8
150	178	290	244	48	66	8	M 20	5,8

C 3/2



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FLANGE CONNECTIONS

For ductile iron pipes, PN 10 | PN 16



Design features No. 7102

- For ductile iron pipes according to EN 545
- Flange sized and drilled in accordance with EN 1092-2, PN 10 standard; EN 1092-2, PN 16 for DN 200 to DN 400 please specify on order - other standards on request
- The long draw of the fitting and the double chambered gasket result in the pressure being spread well back from the pipe end
- The resilience of the connection prevents tension in the pipe and minimises the danger of breakage

Assembly instructions

- Cut the pipe end straight, do not chamfer or moisten - push the flange onto the pipe and then push the gasket on

Design features No. 7602

- For ductile iron pipes according to EN 545
- Flanges sized and drilled in accordance with EN 1092-2, PN 10 standard; EN 1092-2, PN 16 for DN 200 to DN 300 please specify on order - other standards on request
- Simultaneous pipe restraint and sealing
- This avoids the need for pipe support and additional bolts to counter the effect of axial load and pressure. This connection can be easily dismantled at any time

Assembly instructions

- Assemble the flange with the sleeve gasket and pressure ring, and push onto the piece. Offer up the complete flange to the opposing flange, ensuring that the pressure ring projects approx. 10 mm over the end of the pipe. Cross tighten the nuts and bolts to make the connection. This fitting has the advantage that it can cope with a gap or an uneven cut that extends up to 15 mm from the opposing flange

Material | Technical features

- 1 **Flange** made of ductile iron, epoxy powder coated
- 2 **Grip ring** hardened steel
- 3 **Sleeve gasket** made of elastomer
- 4 **Pressure ring** made of ductile iron, epoxy powder coated
- 5 **Seal** made of elastomer

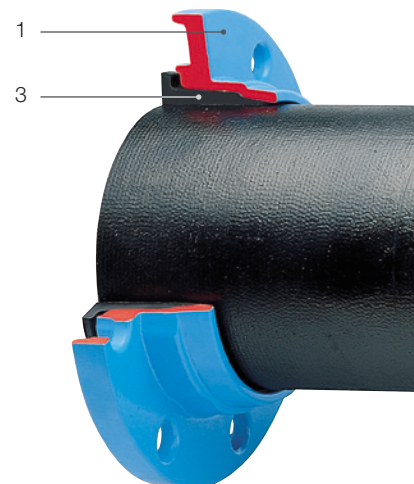
Order No.	Version	MOP (PN)	Flange DN / Ø Pipe													
			40 56	50 66	60 77	60 82	65 82	80 98	80 101	100 118	125 144	150 170	200 222	250 274	300 326	400 429
7102	Double chamber flange adapter, standard	16											*	*	*	*
7602	Flange adapter, restraint											1	*1	*1	*1	
0102	Flange adapter, standard															

Explanation: * also available in PN 16, ¹ Flange with larger an extended hole circle are not suitable for use with fixed studs!

Double chamber flange adapter

No. 7102

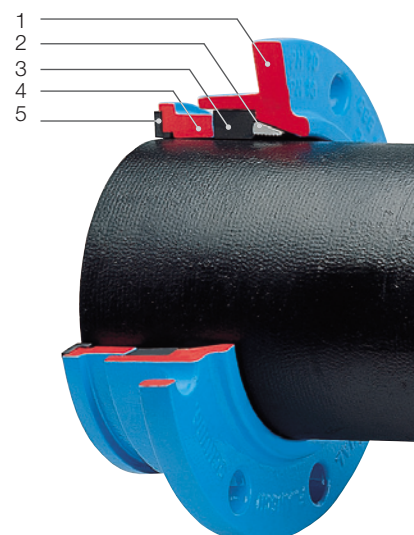
Standard



Flange adapter

No. 7602

Restraint



Tip: When shortening ductile iron pipes, observe the Ø;
Heed pipe manufacturer's advice



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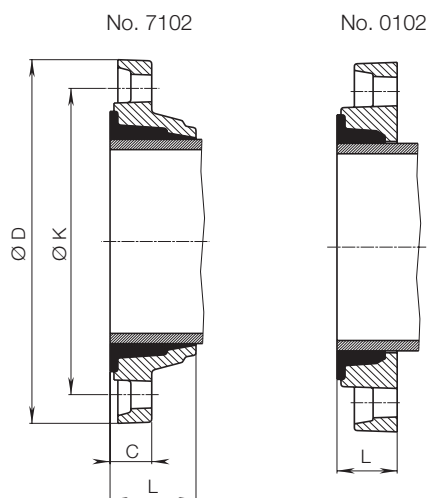
C 4/1

FLANGE CONNECTIONS

For ductile iron pipes, PN 10 | PN 16

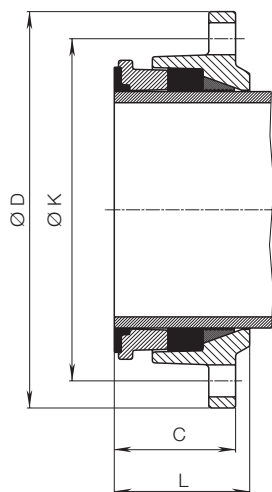


No. 7102 / 0102



Flange DN	Ø Pipe	Ø D		Ø K	C		L		Bolts		Weight	
		7102	0102		7102	7102	0102	0102	Quantity	Thread	7102	0102
50	66	165		125	22	56			4	M 16	1,8	
60	77	175	175	135	28	56	35		4	M 16	3,1	2,4
60	82		175	135			35		4	M 16		2,4
65	82	185		145	29	58			4	M 16	3,4	
80	98	200	200	160	22	64	38		8	M 16	2,6	3,1
80	101	200		160	22	64			8	M 16	2,4	
100	118	220	220	180	23	62	38		8	M 16	2,8	3,8
125	144	250	250	210	24	66	42		8	M 16	4,2	5,3
150	170	285	285	240	25	66	45		8	M 20	4,7	7,0
200	222	340	340	295	30	71	45		8	M 20	7,6	10,5
250	274	400		350	32	78			12	M 20	10,9	
300	326	455		400	33	82			12	M 20	13,8	
400	429	570	580	515	37	103	61		16	M 24	22,0	22,5

No. 7602



Flange DN	Ø Pipe	Ø D	Ø K	C	L	Bolts		Weight
						Quantity	Thread	
40*	56	150	110	26	58	4	M 16	1,6
50	66	165	125	60	71	4	M 16	2,9
60	77	175	135	60	73	4	M 16	3,2
65	82	185	145	63	79	4	M 16	3,7
80	98	200	160	59	76	8	M 16	3,9
80	101	200	160	59	76	8	M 16	3,5
100	118	220	180	60	78	8	M 16	4,6
125	144	250	210	62	85	8	M 16	6,0
150	170	285	240	87	98	8	M 20	9,3
200	222	340	295	90	105	8	M 20	14,0
250	274	400	355	90	105	12	M 20	17,5
300	326	455	405	90	105	12	M 20	21,7

* DC flange with thread pin

C 4/2



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FLANGE CONNECTIONS

For steel pipes, PN 16



Design features No. 7101

- For steel pipes according to EN 10220
- Flanges sized and drilled in accordance with EN 1092-2, PN 10 standard; EN 1092-2, PN 16 for DN 200 to DN 300 please specify on order - other standards on request
- The long draw of the fitting and the double chambered gasket result in the pressure being spread well back from the pipe end
- The resilience of the connection prevents tension in the pipe and minimises the danger of breakage

Assembly instructions

- Cut the pipe end straight, do not chamfer or moisten - push the flange onto the pipe and then push the gasket on

Design features No. 7601

- For steel pipes according to EN 10220
Flange sized and drilled in accordance with EN 1092-2, PN 10 standard; EN 1092-2, PN 16 for DN 200 to DN 250 please specify on order - other standards on request
- Simultaneous pipe restraint and sealing
- This avoids the need for pipe support and additional bolts to counter the effect of axial load and pressure. This connection can be easily dismantled at any time

Assembly instructions

- Assemble the flange with the sleeve gasket and pressure ring, and push onto the piece. Offer up the complete flange to the opposing flange, ensuring that the pressure ring projects approx. 10 mm over the end of the pipe. Cross tighten the nuts and bolts to make the connection. This fitting has the advantage that it can cope with a gap or an uneven cut that extends up to 15 mm from the opposing flange

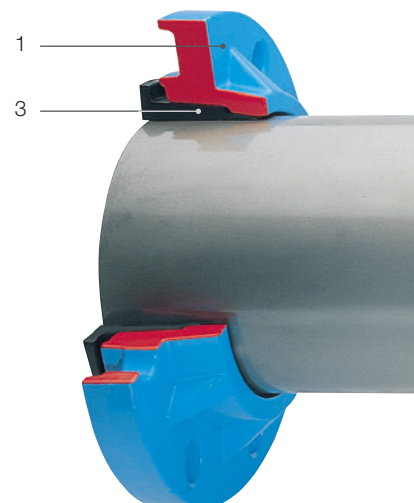
Material | Technical features

- 1 **Flange** made of ductile iron, epoxy powder coated
- 2 **Grip ring** hardened steel
- 3 **Sleeve gasket** made of elastomer
- 4 **Pressure ring** made of ductile iron, epoxy powder coated
- 5 **Seal** made of elastomer

Double chamber flange adapter

No. 7101

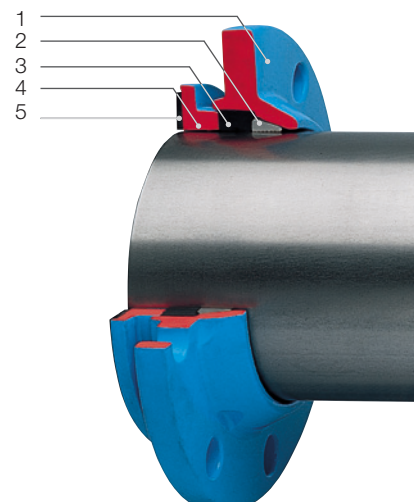
Standard



Flange adapter

No. 7601

Restraint



Order No.	Version	MOP (PN)	Flange DN / Ø Pipe																	
			40	50	50	60	65	80	80	100	100	100	125	150	150	200	250	250	400	500
			48	56-57	59-61	67	76	84	89	104-106	108	114	133	159	168	219	267	273	419	508
7101	Double chamber flange adapter, standard	16														*		*x		
7601	Flange adapter, restrained											1				1		*x		
0101	Spar flange, standard																			

Explanation: * also available in PN 16, *see page C 4/1

¹ Flange with larger an extended hole circle are not suitable for use with fixed studs!



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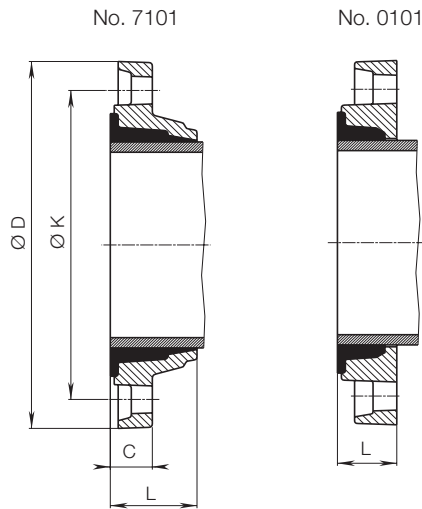
C 5/1

FLANGE CONNECTIONS

For steel pipes, PN 16

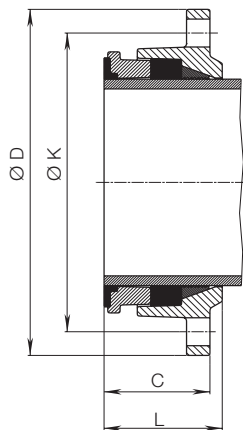


No. 7101 / 0101



Flange DN	Ø Pipe	Ø D		Ø K	C		L		Bolts		Weight	
		7101	0101		7101	7101	0101	0101	Quantity	Thread	7101	0101
40	48		150	110			30		4	M 16		0,9
50	56-57	165		125	26	54			4	M 16	2,6	
50	59-61	165		125	26	54			4	M 16	2,6	
60	67		175	135			37		4	M 16		2,5
65	76	185		145	28	56			8	M 16	3,5	
80	84		200	160			37		8	M 16		3,48
80	89	200	200	160	26	65	37		8	M 16	4,2	3,2
100	104-106		220	180			38		8	M 16		4,39
100	108	220	220	180	25	63	38		8	M 16	3,6	4,4
100	114	220		180	23	63			8	M 16	4,4	
125	133	250		210	33	64			8	M 16	6,8	
150	159		285	240			45		8	M 20		7,50
200	219	340		295	30	71			8	M 20	8,6	
250	267		400	350			48		12	M 20		14,5
400	419		565	515			60		16	M 24		20,0
500	508		690	620			76		20	M 24		50,9

No. 7601



Flange DN	Pipe Ø	Ø D	Ø K	C	L	Bolts		Weight
						Quantity	Thread	
50	60	165	125	39	61	4	M 16	2,7
65	76	185	145	38	61	4	M 16	3,5
80	89	200	160	39	67	8	M 16	3,9
100	108	220	180	39	69	8	M 16	4,7
100	114	220	180	44	69	8	M 16	4,4
125	133	250	210	39	69	8	M 16	5,7
150	159	285	240	49	73	8	M 20	7,8
150	168	285	240	49	73	8	M 20	7,5
200	219	340	295	52	81	8	M 20	10,5

Design features

- From 4 hole to 8 hole
- Made of ductile iron, epoxy powder coated
- PN 16

DN	MOP (PN)	Length	Weight
80	16	42	5,0

Transition flange

No. 0800

DN 80



C 5/2



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THREADED, BLANK FLANGE



Design features

- Made of ductile iron, epoxy powder coated
- Flange sized according to EN 1092-2 and drilled in accordance with EN 1092-2 | PN 10 standard; PN 16 for DN 200 to DN 300 please specify on order - other standards on request

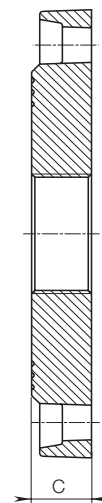
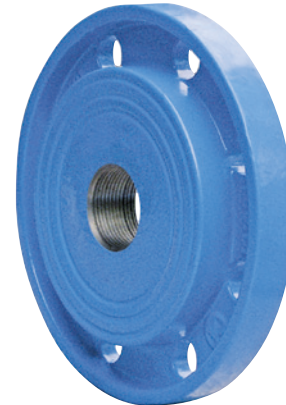
DN	MOP (PN)	Thread No. 8100							Thread No. 8100L						
		1"	1¼"	1½"	2"	2½"	3"	4"	1"	1¼"	1½"	2"	2½"	3"	4"
40	10														
50															
60															
65															
80															
100															
125															
150															
200															
250															
300															

Threaded flange

No. 8100

No. 8100L

with internal thread ISO 228



DN	MOP (PN)	C	Weight No. 8100						
			1"	1¼"	1½"	2"	2½"	3"	4"
40	10	19			1,80	1,70			
50			2,30	2,20	2,20	2,10			
60						3,00			
65			3,20	3,10	3,00	3,00	2,70		
80			3,60	3,50	3,40	3,40	3,40	2,90	
100			4,30	4,20	4,20	4,20	3,90	3,70	3,30
125			5,40	5,50	5,50	5,30	5,20	5,10	4,70
150			7,00	6,90	6,90	6,80	6,70	6,60	6,20
200		20	11,50	11,30	11,30	11,00	10,60	10,30	
250		22			16,20	16,00	15,00		
300		25				23,10			

DN	MOP (PN)	C	Weight No. 8100L						
			1"	1¼"	1½"	2"	2½"	3"	4"
50	10	32	2,70	2,60	2,60	2,50			
60			3,40	3,20	3,00	2,80	2,60		
65			3,40	3,20	3,00	2,80	2,60		
80			4,00	3,90	3,90	3,90	3,80	3,40	
100			5,90	5,70	5,70	5,50	5,20	4,80	4,50
125			8,20	8,10	8,10	7,90	7,50	7,00	6,60
150			9,50	9,30	9,20	9,10	8,70	8,50	8,10
200			15,50	15,40	15,30	15,10	14,80	14,50	14,20

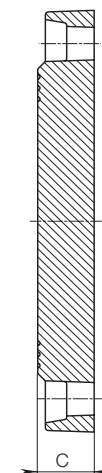
Design features

- Made of ductile iron, epoxy powder coated
- Flange sized according to EN 1092-2, and drilled in accordance with EN 1092-2, | PN 10 standard; PN 16 for DN 200 to DN 400 please specify on order - other standards on request
- Other nominal diameters on request

DN	MOP (PN)	C	Weight
40	10	19	2,00
50			2,90
60			2,80
65			3,80
80			4,00
100			4,60
125			5,70
150			7,60
200		20	11,40
250		22	17,20
300		25	25,50
400			38,00

Blank flange

No. 8000



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C 6/1

XR REDUCING FLANGE



Design features

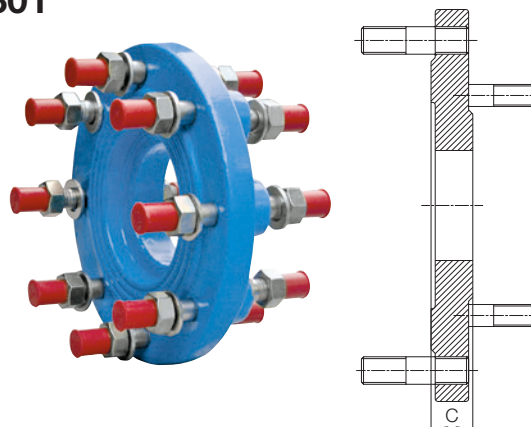
- Made of ductile iron, epoxy powder coated
- Flange sized and drilled according to EN 1092-2
- Threaded bolts made of stainless steel
- The low profile enables transitions to be made between dimensions in the shortest possible space

Standard version: flange hole PN 10 (PN 16 on request)

DN	MOP (PN)	Bolts DN 1		Bolts DN 2		C	Weight	
		Qty.	Thread	Qty.	Thread			
65-50	10	4	M 16 x 50	4	M 16 x 50	47	5,6	
80-40		8	M 16 x 50	4	M 16 x 50	30	5,1	
80-50		8	M 16 x 50	4	M 16 x 50	29	5,6	
80-65		8	M 16 x 50	4	M 16 x 50	25	5,4	
100-50		8	M 16 x 50	4	M 16 x 50	27	5,5	
100-65		8	M 16 x 50	4	M 16 x 50	30	6,5	
100-80		8	M 16 x 50	8	M 16 x 50	47	8,4	
125-65		8	M 16 x 50	4	M 16 x 50	30	8,2	
125-80		8	M 16 x 50	8	M 16 x 50	30	8,0	
125-100		8	M 16 x 50	8	M 16 x 50	30	7,6	
150-100		8	M 20 x 60	8	M 16 x 50	30	12,0	
150-125		8	M 20 x 60	8	M 16 x 50	30	11,2	
200-150		8	M 20 x 60	8	M 20 x 60	30	17,2	
200-150		12	M 20 x 60	8	M 20 x 60	30	18,7	
250-200		12	M 20 x 60	8	M 20 x 60	32	20,0	
250-200		12	M 24 x 70	12	M 20 x 60	32	22,0	
300-250		12	M 24 x 70	12	M 24 x 70	33	32,4	

Other diameters on request

XR reducing flange „Type A” No. 0801

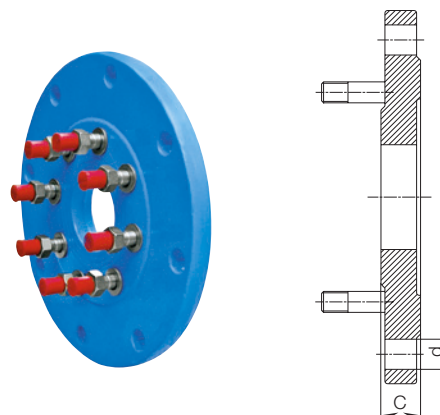


XR reducing flange „Type B” No. 0802

Standard version: flange hole PN 10 (PN 16 on request)

DN	MOP (PN)	Bolts DN 1		Bolts DN 2		C	Weight	
		Qty.	d	Qty.	Thread			
125-50	10	8	19	4	M 16 x 50	30	6,3	
150-50		8	23	4	M 16 x 50	30	11,0	
150-65		8	23	4	M 16 x 50	30	11,0	
150-80		8	23	8	M 16 x 50	30	10,7	
200-80		8	23	8	M 16 x 50	30	14,7	
200-80		12	23	8	M 16 x 50	30	14,5	
200-100		8	23	8	M 16 x 50	30	15,0	
250-125		12	23	8	M 16 x 50	31	13,7	
250-50		12	23	4	M 16 x 50	31	22,3	
250-50		12	28	4	M 16 x 50	31	22,3	
250-80		12	23	8	M 16 x 50	31	22,1	
250-80		12	28	8	M 16 x 50	31	22,1	
250-100		12	23	8	M 16 x 50	31	21,9	
250-150		12	23	8	M 20 x 60	40	18,6	
250-150		12	28	8	M 20 x 60	40	18,6	
300-100		12	23	8	M 16 x 50	31	27,1	
300-100		12	28	8	M 16 x 50	31	27,1	
300-200		12	23	8	M 20 x 60	32	24,8	
400-300		16	28	12	M 20 x 60	39	39,8	

Other diameters on request



C 6/2



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RESTRAINT SYSTEMS

For PVC pipes, PN 10 | PN 16



Design features

- 1254/1255 the restraint clamp for PVC-U pipe fittings and pipes according to EN ISO 1452-2
- 1256: the restraint clamp for a Molecor PVC-O Tom® pipe PN 25 according to ISO 16422
- This two-part body can be assembled onto an existing pipeline. If required it can be dismantled and reused
- The grip ring is self tightening within its tapered seating
- The design of the teeth avoids cutting into the pipe resulting in the highest gripping force without pipe damage
- Wedge fastening on both sides
- Hammer the wedges until the clamp is tightly closed

Material | Technical features

- **Body** made of ductile iron, epoxy powder coated
- **Grip ring** made of brass
- **Wedge fastener** made of ductile iron, galvanised

Restraint clamp

No. 1254 / 1255 / 1256

(Socket - Pipe)

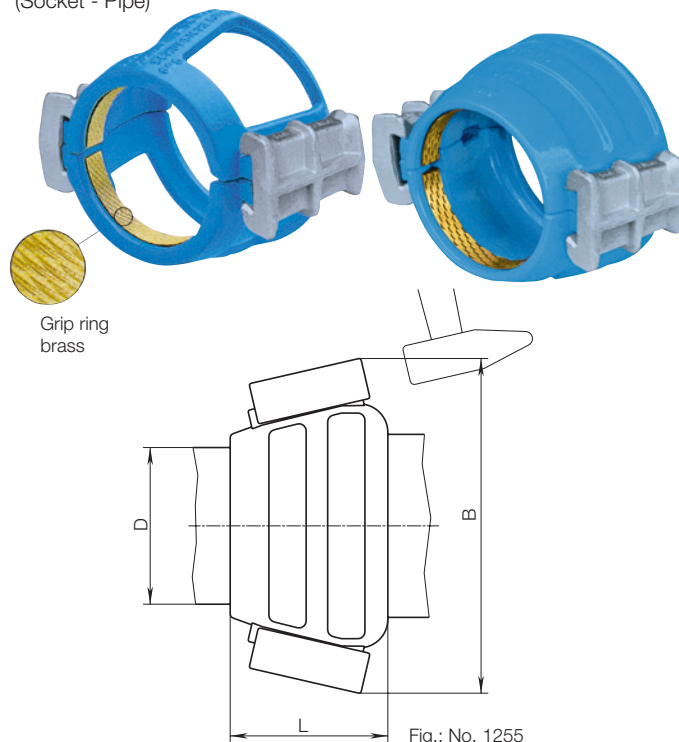


Fig.: No. 1255

Order No.	Version	MOP (PN)	Dimension/DN Ø PVC-Pipe											
			50 63	65 75	80 90	100 110	125 125	125 140	150 160	200 200	200 225	250 280	300 315	
1254	Restraint clamp	10	+	+	+									
1255		16												
1256 [#]		16			#	#			#					

* PN 10 and PN 16

PVC-O pipe PN 25

Application example



DN	Ø PVC pipe	B			L			Weight	
		1254	1255	1256 [#]	1254	1255	1256 [#]	1254/1255	1256 [#]
50	63	180			91			2,5	
65	75	200			96			2,8	
80	90	220			103		114	3,0	3,2
100	110	240			110		120	3,5	3,8
125	140	280			123		**	3,9	
150	160	300	320	287	140	152	144	6,0	6,8
200	200			**			**		
200	225	380	400	**	165	185	**	9,5	
250	280	455			195		**	13,5	
300	315	495			200		**	16,3	

** in preparation

PVC-O pipe PN 25



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C 7/1

SPLIT COLLAR

For PVC and PE pipes



Design features

- For PVC pipes according to EN ISO 1452-2
- For PE pipes according to EN 12201, DIN 8074 (thin wall PE pipes $\leq$ SDR 17 need support liners)
- Restraint connection for two spigot ends. It can also be used as a repair coupling
- The teeth of the grip ring do not abrade the pipe. It is not necessary to chamfer the pipe
- Also suitable as transition from PVC to PE pipes

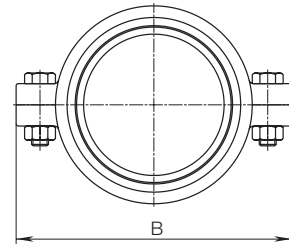
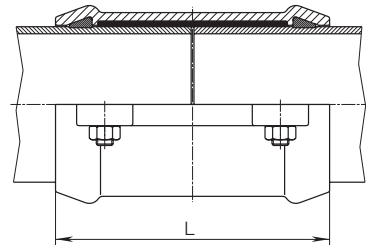
Material | Technical features

- **Body** made of ductile iron, epoxy powder coated
- **Grip ring** made of brass
- **Bolts** made of stainless steel
- **Seal** made of elastomer

Split collar

No. 9240

(pipe - pipe)



DN	Ø PVC-Pipe	B	L	Weight
50	63	144	164	3,4
65	75	156	170	3,5
80	90	174	174	4,5
100	110	196	195	5,3
125	125	214	195	7,0
125	140	228	220	7,3
150	160	254	245	10,5
200	200	308	316	19,5
200	225	332	350	21,0

Order No.	Version	MOP (PN)	Dimension/DN Ø PVC-Pipe									
			50 63	65 75	80 90	100 110	125 125	125 140	150 160	200 200	200 225	
9240	Split collar	10										

C 7/2



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Page D 2

Fittings

Double flanged piece
Double flanged taper, double flanged elbows 45°
Double flanged elbows 90°, all flanged short tee
All flanged tee

Page D 2/1
Page D 2/2
Page D 2/3
Page D 2/4



Page D 3

Fittings

All flanged crosses, all flanged short cross
Double flanged duck foot bends 90°
Fittings SYSTEM 2000
SYNOFLEX end cap, flanged duck foot bends

Page D 3/1
Page D 3/2
Page F 4/2
Page E 4/2

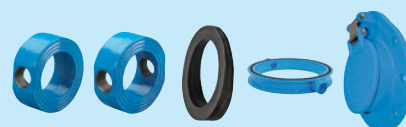


Page D 4

Fittings

Wafer tee piece, space ring, angle piece adjustable
Flap valve

Page D 4/1
Page D 4/2



Page D 5

HAWLE VARIO

Hawle-VARIO - the innovative flexible fitting

Page D 5/1



Page D 6

Dismantling piece

PN 10 | PN 16 | PN 25

Page D 6/1



Accessories

Bolts
Flat gaskets

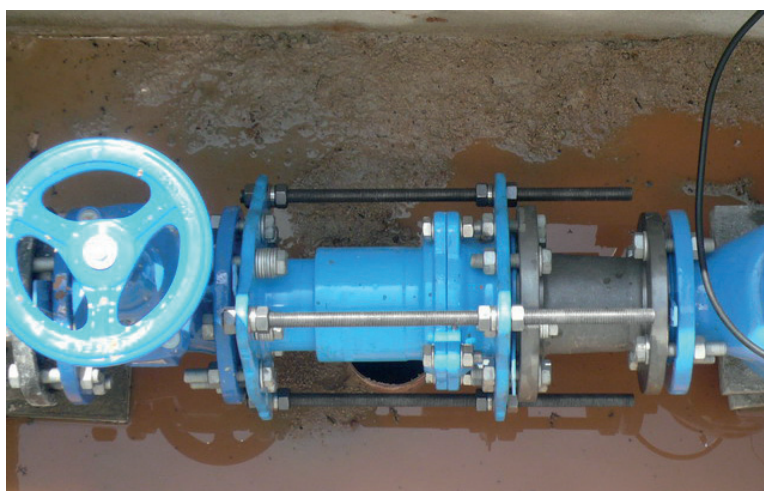
Page M 4/4
Page M 7/1

Technical information

Tightening torques for flange assembly

Page R 3/1

Application examples



D 1/2

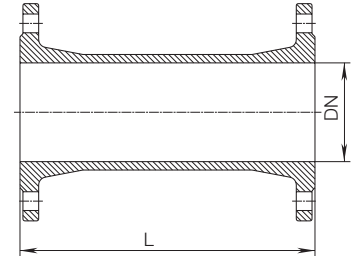


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Design features

- According to EN 545
- Working pressure MOP (PN) 16
- Made of ductile iron, epoxy powder coated
- Flange size according to EN 1092-2 | PN 16
- Standard drilling to EN 1092-2 | PN 10

Double flanged pipe FF-piece No. 8500



DN	L	Weight	
50	200	6,50	
	400	10,00	
65	200	8,00	
	400	13,00	
80	100	7,60	
	150	8,50	
	200	9,20	
	300	10,80	
	400	12,40	
	500	14,10	
	600	15,70	
	800	19,00	
100	1000	22,00	
	100	8,60	
	150	9,80	
	200	10,70	
	300	12,70	
	400	14,80	
	600	18,80	
	800	23,00	
125	1000	27,00	
	200	13,30	
	600	24,00	
	1000	34,50	
150	150	20,00	
	200	16,50	
	300	19,70	
	400	23,00	
	600	29,50	
	800	36,00	
	1000	42,50	
200*	200	23,00	
	600	41,50	
	800	50,50	
	1000	60,00	
250	200	22,10	
	300	38,00	
	400*	44,00	
	500*	50,50	
	600	56,30	
	800	68,50	
	1000	81,00	
300	300	49,50	
	400*	57,00	
	500	65,00	
	600	73,00	
	800	88,50	
	1000	104,00	

* Also available drilled to EN 1092-2 | PN 16
(Please specify on order)

Design features

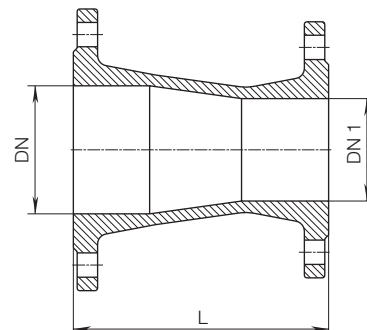
- According to EN 545
- Working pressure MOP (PN) 16
- Made of ductile iron, epoxy powder coated
- Flange size according to EN 1092-2 | PN 16
- Standard drilling to EN 1092-2 | PN 10

DN	DN 1	L	Weight
65	50	200	9,00
80	50	200	7,40
	65	200	8,20
100	50	200	8,10
	65	200	8,80
	80	200	9,50
125	65	200	19,00
	80	200	10,70
	100	200	11,40
150	80	200	12,20
	100	200	16,70
	125	200	14,10
200*	100	300	18,60
	125	300	20,00
	150	300	22,00
250	100	300	22,00
	150	300	27,00
	200*	300	30,50
250*	125	300	41,00
300	100	300	35,00
	150*	300	37,00
	200*	300	35,50
	250*	300	41,00
350	300	300	64,00
400	350*	300	81,00
500	300	600	110,00
500	400	600	129,00

Double flanged taper

FFR piece

No. 8550



* Also available drilled to EN 1092-2 | PN 16
(Please specify on order)

* Only PN 16 available

Design features

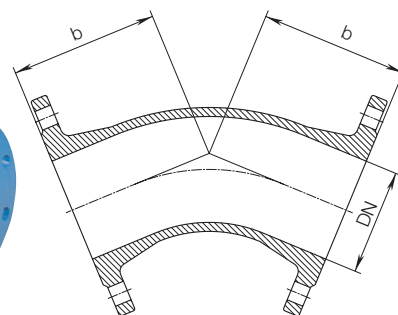
- According to EN 545
- Working pressure MOP (PN) 16
- Made of ductile iron, epoxy powder coated
- Flange size according to EN 1092-2 | PN 16
- Standard drilling to EN 1092-2 | PN 10

DN	b	Weight
50	150	9,00
65	165	12,00
80	130	9,50
100	140	11,50
125	150	14,60
150	160	18,70
200*	180	27,50
250	350	80,00
300	400	112,00

Double flanged elbows 45°

45° FFK piece

No. 8540



* Also available drilled to EN 1092-2 | PN 16
(Please specify on order)

Design features

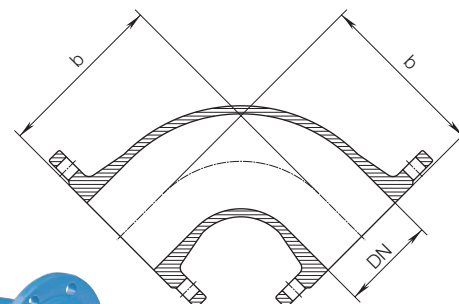
- According to EN 545
- Working pressure MOP (PN) 16
- Made of ductile iron, epoxy powder coated
- Flange size according to EN 1092-2 | PN 16
- Standard drilling to EN 1092-2 | PN 10

DN	b	Weight	
50	150	9,30	
65	165	9,70	
80	165	10,50	
100	180	12,90	
125	200	16,50	
150	220	20,50	
200*	260	31,00	
250*	350	50,00	
300	400	70,00	

Double flanged elbows 90°

90° Q piece

No. 8530



* Also available drilled to EN 1092-2 | PN 16
(Please specify on order)

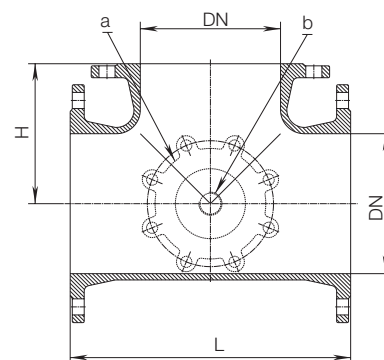
Design features

- Working pressure MOP (PN) 16
- Made of ductile iron, epoxy powder coated
- Flange size according to EN 1092-2 | PN 16
- Standard drilling to EN 1092-2 | PN 10
- On request: No. 8741 with vertical outlet DN 100 (surcharge)

DN	L	H	Weight	
200*	400	200	47,00	
250*	460	230	66,00	
300*	520	260	86,00	

All flanged short tee

No. 8740



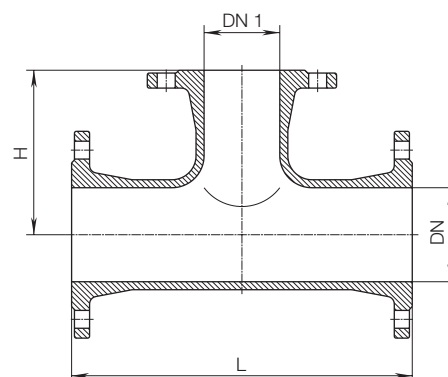
* Also available drilled to EN 1092-2 | PN 16
(Please specify on order)

Design features

- According to EN 545
- Working pressure MOP (PN) 16
- Made of ductile iron, epoxy powder coated
- Flange size according to EN 1092-2 | PN 16
- Standard drilling to EN 1092-2 | PN 10

DN	DN 1	L	H	Weight	
50	50	300	150	12,50	
65	50	330	157	15,50	
	65		165	16,50	
80	50	330	160	14,00	
	65		165	14,70	
	80		165	16,00	
100	50	360	170	17,60	
	65		170	17,40	
	80		175	18,60	
	100		180	19,40	
125	50	400	185	30,00	
	65		195	31,00	
	80		190	23,00	
	100		195	24,00	
	125		200	25,50	
150	50	440	200	39,00	
	65		207	39,00	
	80		205	29,00	
	100		210	30,00	
	125		215	31,00	
	150		220	33,80	
200*	80	520	235	42,50	
	100		240	43,00	
	125		245	44,00	
	150		250	46,50	
	200		260	50,00	
250	80*	700	270	71,00	
	100*		275	75,00	
	125		280	93,00	
	150*		300	81,00	
	200*		325	76,50	
	250*		350	83,00	
300	80*	800	290	92,00	
	100		300	94,00	
	150*		325	101,00	
	200		350	102,00	
	300*		400	114,00	
300*	250	800	400	120,00	
400	200	900	350	162,00	
	250		350	170,00	
500	150*	1000	400	245,00	
	500		500	278,00	

All flanged tee T-piece No. 8510



* Also available drilled to EN 1092-2 | PN 16
(Please specify on order)

* Only PN 16 available

Design features

- Working pressure MOP (PN) 16
- Made of ductile iron, epoxy powder coated
- Flange size according to EN 1092-2 | PN 16
- Standard drilling to EN 1092-2 | PN 10

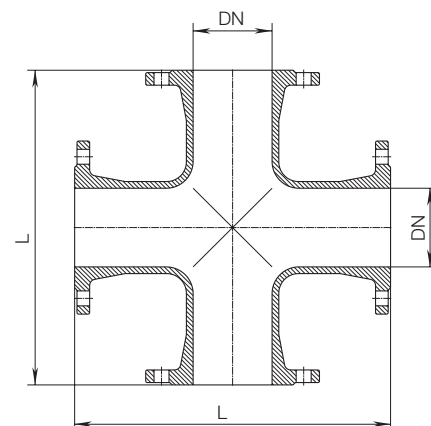
DN	L	Weight	
80	330	27,00	
100	360	34,00	
150	440	46,00	
200*	520	59,70	
250*	700	135,00	
300	800	186,00	

* Also available drilled to EN 1092-2 | PN 16
(Please specify on order)

All flanged crosses

TT-piece

No. 8520



Design features

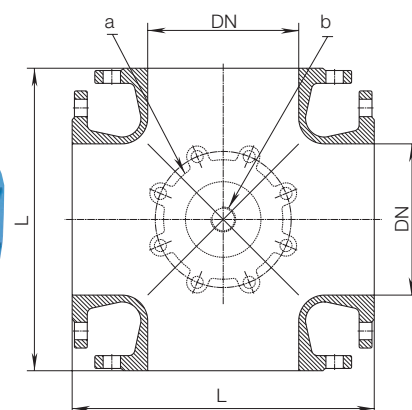
- Working pressure MOP (PN) 16
- Made of ductile iron, epoxy powder coated
- Flange size according to EN 1092-2 | PN 16
- On request: No. 8751 with vertical connection DN 100 (additional price)

DN	L	Weight	
200*	400	60,00	
250*	460	91,00	
300*	520	112,00	
400*	700	207,00	
500	830	333,00	

All flanged short cross

TT-piece

No. 8750



* Also available drilled to EN 1092-2 | PN 16
(Please specify on order)

Design features

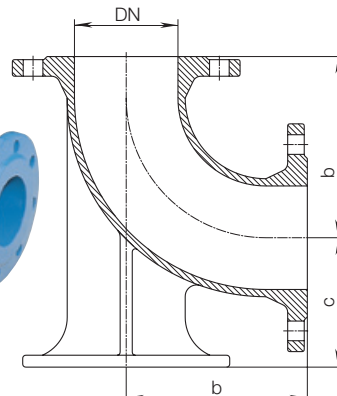
- According to EN 545
- Working pressure MOP (PN) 16
- Made of ductile iron, epoxy powder coated
- Flange size according to EN 1092-2 | PN 16
- Standard drilling to EN 1092-2 | PN 10

DN	b	c	Weight	
50	150	95	8,40	
80	165	110	13,40	
100	180	125	16,80	
150	220	160	29,50	
200	260	190	46,00	

Double flanged duck foot bend 90° N-pieces

No. 5049

No. 5044



DN 80 and DN 100 also available with loose flange No. 5044

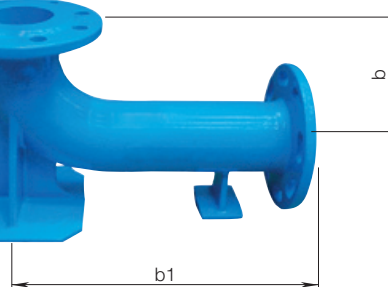
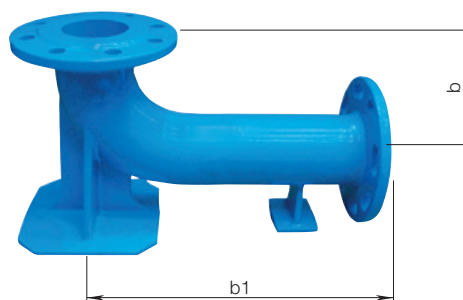
Design features

- Working pressure MOP (PN) 16
- Made of ductile iron, epoxy powder coated
- Flange size according to EN 1092-2 | PN 16
- Standard drilling to EN 1092-2 | PN 10

DN	b	Length (b1)	c	Weight	
80	165	365	110	17,80	

Double flanged duck foot bend long N-pieces

No. 5049L



Design features

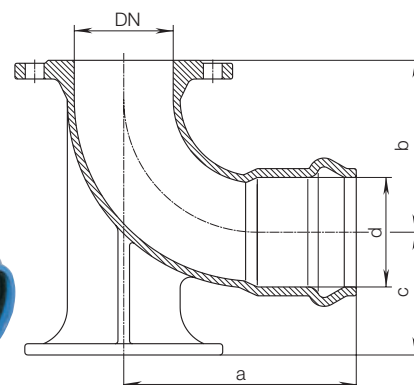
- Working pressure MOP (PN) 16
- Made of ductile iron, epoxy powder coated
- Flange size according to EN 1092-2 | PN 16
- Standard drilling to EN 1092-2 | PN 10

DN	a	b	c	d	Weight	
80	260	165	110	90	16,5	
100	280	180	125	110	19,5	

Flanged duck foot bend with PVC socket 90°

EN-KS-pieces

No. 5046



Order No.	DN	Thread	Length	Weight	
8580	80	1 1/4"	60	3,80	
	100		60	4,90	
	150		60	8,00	



Wafer tee piece No. 8580

- With one threaded outlet ISO 228
- MOP (PN) 16, made of grey ductile iron, epoxy powder coated

Order No.	DN	Thread	Length	Weight	
8590	100	1 1/4"	60	4,36	
	125		60	6,30	
	150		60	7,80	
	250		90	19,20	



Wafer tee piece No. 8590

- With two threaded outlets ISO 228
- MOP (PN) 16, made of grey ductile iron, epoxy powder coated

Order No.	DN	Thread	Length	Weight	
8591	100	ZAK 46	70	3,35	
	150		70	5,28	
	200		70	6,75	
	250		70	9,90	
	300		70	12,00	
	400		70	16,60	



Wafer tee piece ZAK No. 8591

- With two ZAK 46 outlets
- MOP (PN) 16, made of ductile iron, epoxy powder coated

Order No.	DN	
8615	50	
	65	
	80	
	100	
	125	
	150	
	200	



Spacer ring No. 8615

- For length equalisation between flanges
- Steel, epoxy powder coated
- Give face-to-face length "L" on order

Order No.	DN	Weight	
8730	50	1,50	
	65	1,70	
	80	0,35	
	100	2,00	
	125	0,50	
	150	0,60	
	200	0,90	
	250	1,26	
	300	1,80	



Angle piece adjustable 0°– 8° No. 8730

- Made of steel with vulcanised elastomer
- No flat gasket needed

DN	MOP (PN)	Width	
		Min.	Max.
50	10 - 40	11	22
65		11	25
80		11	30
100	10 - 16	11	32
125		11	35
150		11	39
200		12	46
250	10	12	52
300		14	55

FITTINGS

Flap valve, PN 10 | PN 16



Design features

- Flange connection according to EN 1092-2, drilled according to EN 1092-2 | PN 10 standard; EN 1092-2 | PN 16 DN 200 - DN 600 please specify on order
- Double hinged
- Gasket on the cover

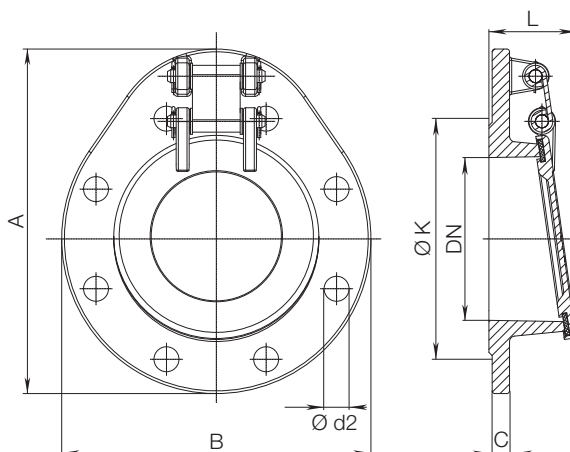
Material | Technical features

- **Body and cover** made of ductile iron, epoxy powder coated
- **All connections** made of stainless steel
- **Seal** made of elastomer

No. 9930

DN 50 - DN 150

DN 200 - DN 600



Ill.: symbol

DN	MOP (PN)	A	B	L	ØK	C	Bolts		Weight
							Qty	Ød2	
50	10/16	177,5	165	56	125	19	8	19	3,05
65		197,5	185	56	145	19	8	19	3,67
80		245,0	200	68	160	19	8	19	5,17
100		267,5	220	73	180	19	8	19	5,88
125		295,0	250	78	210	19	8	19	7,81
150		317,5	285	80	240	19,0	8	23	9,20
200	10	406	340	130	295	20,0	8	23	23,0
	16				295		12	23	
250	10	462	405	138	350	22,0	12	23	30,0
	16				355		12	28	
300	10	518	455	142	400	24,5	12	23	37,0
	16				410		12	28	
400	10	658	580	177	515	24,5	16	28	68,0
	16				525		16	31	
500	10	793	715	207	620	26,5	20	28	112,0
	16				650		20	34	
600	10	918	840	217	725	30,0	20	31	160,0
	16				770		20	37	

D 4/2



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HAWLE-VARIO

The innovative flexible fitting, PN 10 | PN 16



Design features

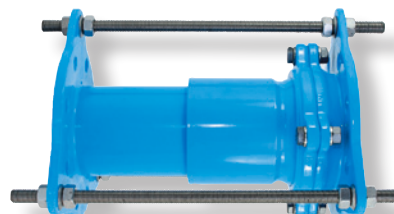
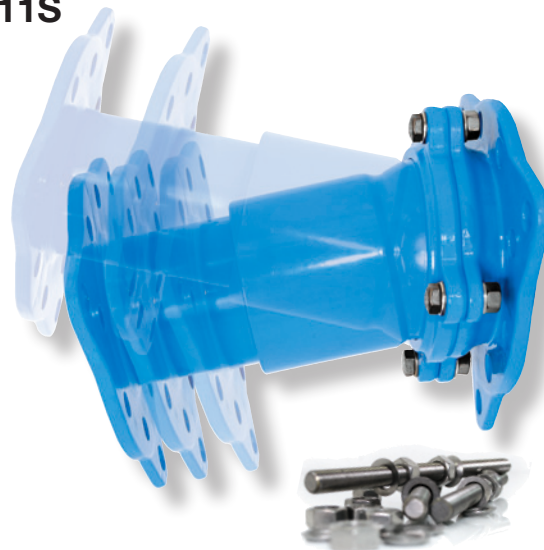
- HAWLE VARIO is a flanged, telescopic fitting with integrated ball-and socket joint, permitting bending to all sides up to an angular deflection of 10 degrees
- Flange size according to EN 1092-2 | PN 16, drilled according to EN 1092-2 | PN 10 standard; EN 1092-2 | PN 16 DN 200 please specify on order - other standards on request
- HAWLE-VARIO will be fixed in the installed position by means of a tension lock assembly
- Combines the function of an FF-piece, an adjustable elbow piece and a fitting and extension piece
- HAWLE-VARIO saves time and has numerous application possibilities

Material | Technical features

- **Body** made of ductile iron, epoxy powder coated
- **Locking ring, bolts, nuts** and **washers** made of stainless steel
- **Tension lock** made of stainless steel
- **O-rings** made of elastomer

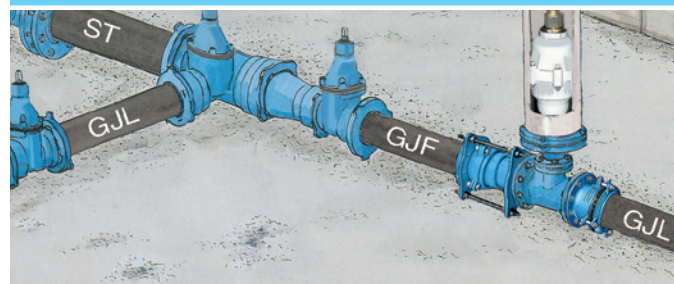
No. 8010S

No. 8011S



Order No.	Set-version	MOP (PN)	Dimensions/DN				
			50	80	100	150	200
8010S	short	16					
8011S	long						

Application example

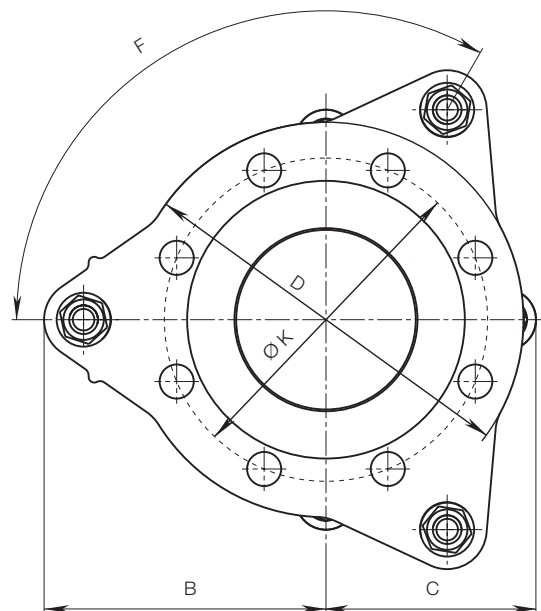
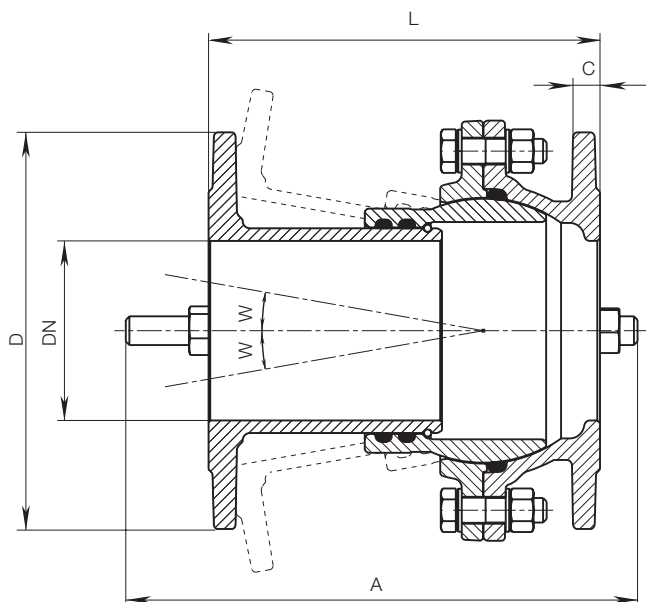


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D 5/1

No. 8010S Short version, with tension lock

No. 8011S Long version, with tension lock



DN	MOP (PN)	Version	Adjustment range L	A	B	C	D	F	C	Ø K	Angle W	Weight
50	16	short	150 - 207	285	130	87	165	3 x 120°	16	125	0 - 10°	8,90
		long	207 - 323	415								11,80
80		short	150 - 214	285	147	107	200	3 x 120°	16	160	0 - 10°	14,30
		long	214 - 344	415								16,85
100		short	150 - 216	285	157	117	220	3 x 120°	16	180	0 - 10°	16,20
		long	216 - 350	415								18,90
150		short	175 - 250	330	190	190	285	4 x 90°	18	240	0 - 10°	27,00
		long	250 - 408	480								29,30
200	10/16	short	195 - 292	360	229	229	340	4 x 90°	20	297	0 - 8°	44,80
		long	280 - 462	530								52,20

DISMANTLING PIECE

PN 10 | PN 16 | PN 25



Design features

- Double flanged fitting, which allows longitudinal adjustment in flanged pipe systems
- Easy assembly and disassembly of flanged connections
- Continuous threaded bars, therefore, no additional mounting screws necessary
- Length adjustment range: (see table) +/- 25 mm
- Flange in accordance with and drilled to EN 1092-2 | PN 10, PN 16, PN 25 (PN 40 on request)

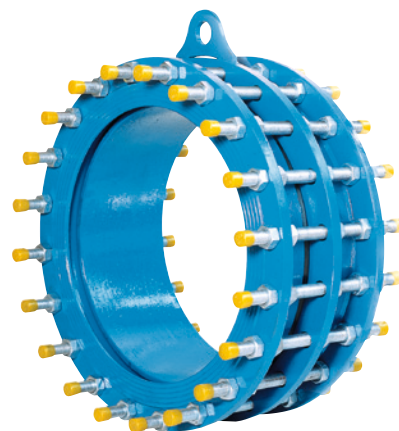
Material | Technical features

- 1,2 **Flanges** made of ductile iron, epoxy powder coated
+ made of steel, epoxy powder coated
- 3 **Retaining flange** made of steel, epoxy powder coated
- 4 **Sealing ring** made of elastomer
- 5 **Threaded bar** made of galvanized steel
- 6 **Bolts** made of galvanized steel

Pressure rating PN 10

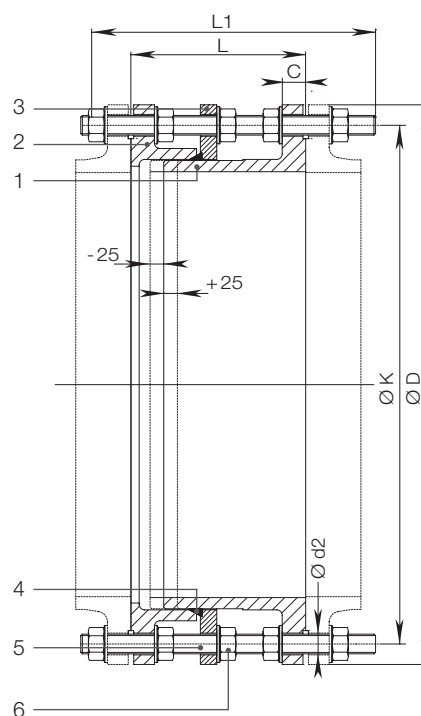
DN	MOP (PN)	L	L1	Ø D	Ø K	C	Bolts		Weight
							Qty.	Ø d2	
50*	10	180	280	165	125	19,0	4	19	11
65*		180	280	185	145	19,0	4	19	13
80		200	330	200	160	19,0	8	19	17
100		200	330	220	180	19,0	8	19	20
125		200	330	250	210	19,0	8	19	24
150		200	330	285	240	19,0	8	23	30
200		200	330	340	295	20,0	8	23	42
250		220	360	405	350	22,0	12	23	62
300		220	360	460	400	24,5	12	23	67
350		230	360	505	460	24,5	16	23	85
400		230	370	565	515	24,5	16	28	105
450		250	390	615	565	25,5	20	28	131
500		260	390	670	620	26,5	20	28	155
600		260	410	780	725	30,0	20	31	225
700		260	410	895	840	32,5	24	31	300
800		290	460	1015	950	35,0	24	34	361
900		290	460	1115	1050	37,5	28	34	400
1000		290	500	1230	1160	40,0	28	37	516
1100		300	480	1355	1270	53,5	32	37	830
1200		320	520	1455	1380	45,0	32	41	895
1300		370	630	1585	1490	59,0	32	42	1172
1400		360	560	1675	1590	46,0	36	44	1194
1500		380	590	1785	1700	47,0	36	44	1560
1600		390	600	1915	1820	49,0	40	50	1436

Dismantling piece No. 9810



Order No.	MOP (PN)	Dimensions/DN																							
		50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600*
9810	10																								
	16																								
	25																								

*Larger dimensions or pressure rating of PN 40 on request



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D 6/1

DISMANTLING PIECE

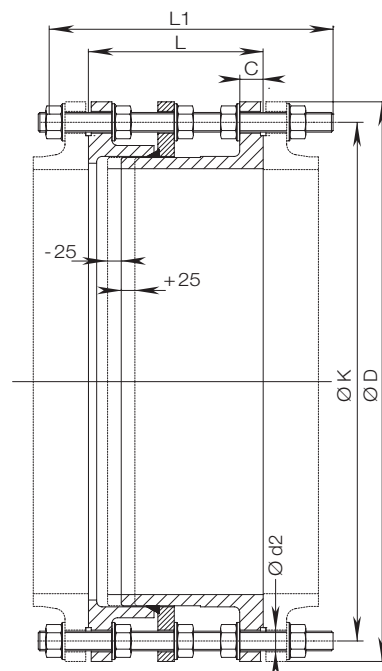
PN 10 | PN 16 | PN 25



No. 9810

Pressure rating PN 16

DN	MOP (PN)	L	L1	Ø D	Ø K	C	Bolts		Weight
							Qty.	Ø d2	
50	16	180	280	165	125	19,0	4	19	11
65		180	280	185	145	19,0	4	19	13
80		200	330	200	160	19,0	8	19	17
100		200	330	220	180	19,0	8	19	20
125		200	330	250	210	19,0	8	19	24
150		200	330	285	240	19,0	8	23	30
200		200	330	340	295	20,0	12	23	45
250		230	370	405	355	22,0	12	28	66
300		250	410	460	410	24,5	12	28	84
350		260	410	520	470	26,5	16	28	107
400		270	430	580	525	28,0	16	31	142
450		270	430	640	585	30,0	20	31	177
500		280	440	715	650	31,5	20	34	200
600		300	500	840	770	36,0	20	37	305
700		300	500	910	840	39,5	24	37	321
800		320	520	1025	950	43,0	24	41	469
900		320	520	1125	1050	46,5	28	41	535
1000		340	560	1255	1170	50,0	28	44	698
1100		340	560	1355	1270	53,5	32	44	830
1200		360	600	1485	1390	57,0	32	50	1070
1300		370	630	1585	1490	59,0	32	50	1172
1400		380	630	1685	1590	60,0	36	50	1270
1500		380	610	1820	1710	62,5	36	57	1560
1600		400	700	1930	1820	65,0	40	57	1705



No. 9810

Pressure rating PN 25

DN	MOP (PN)	L	L1	Ø D	Ø K	C	Bolts		Weight
							Qty.	Ø d2	
100	25	220	340	235	190	19,0	8	23	32
125		220	370	270	220	19,0	8	28	43
150		230	370	300	250	20,0	8	28	52
200		230	370	360	310	22,0	12	28	76
250		250	410	425	370	24,5	12	31	108
300		250	410	485	430	27,5	16	31	129
350		270	480	555	490	30,0	16	34	196
400		280	500	620	550	32,0	16	37	212
450		280	480	670	600	34,5	20	37	281
500		300	500	730	660	36,5	20	37	290
600		320	520	845	770	42,0	20	41	389
700		340	530	960	875	46,5	24	44	505
800		360	600	1085	990	51,0	24	50	690
900		380	600	1185	1090	55,5	28	50	920
1000		400	650	1320	1210	60,0	28	57	1257
1200		450	720	1530	1420	69,0	32	57	1870

D 6/2



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**Page
E 2**

HAWLE-SYNOFLEX

Restraint multi-range connection for all common types of pipes
Assembly instructions

Page E 2/1
Page E 2/2

**Page
E 3**

SYNOFLEX connector

SYNOFLEX connector
SYNO2000 connector
System 2000 connector

Page E 3/1
Page E 3/2
Page F 4/2



**Page
E 4**

SYNOFLEX

SYNOZAK connector
SYNOFLEX end cap
SYNOFLEX flange

Page E 4/1
Page E 4/1
Page E 4/2



HAWLE-SYNOFLEX

Restraint multi-range connection for all common types of pipes



Accessories

Bolts	Page M 4/4
Adjustable elbow piece "fully rubberised"	Page D 4/1
Washers	Page M 4/4
Flat gasket	Page M 7/1

Spare parts

Hawle-Synoflex grip ring complete, restraint	Page P 6/1
Hawle Synoflex grip ring complete	Page P 6/1

Technical information

Tightening torques for flange assembly	Page R 3/1
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Application examples



E 1/2



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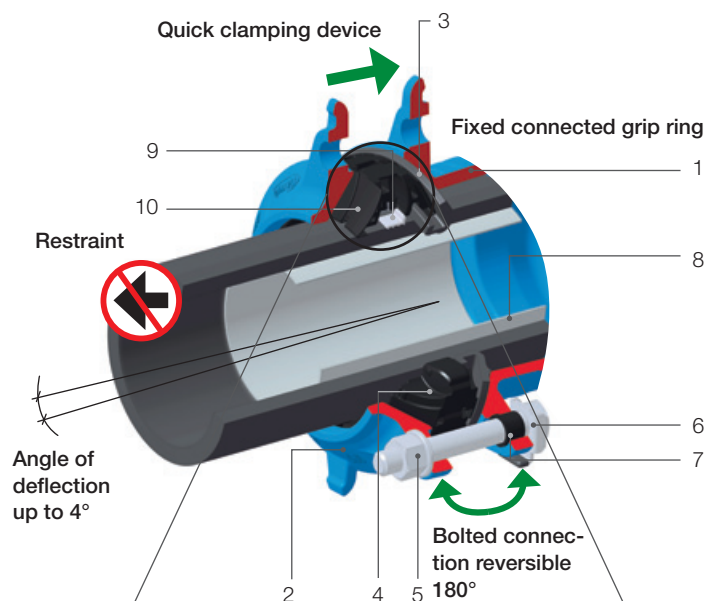
HAWLE-SYNOFLEX

Restraint multi-range connection for all common types of pipes

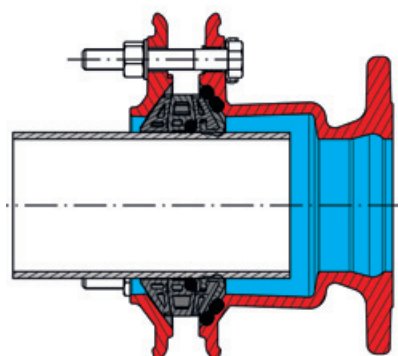
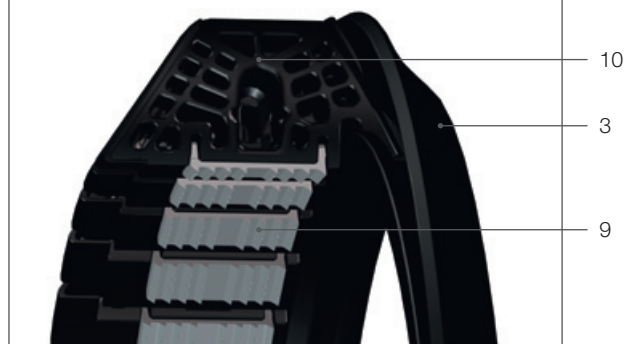


Design features

- **HAWLE-SYNOFLEX socket system** provides high quality restraint connections to all common water supply pipes. The patented HAWLE-SYNOFLEX secures steel, DCI, PE/PVC and AC* pipes with fully corrosion protected connections
- According to EN 14525
- Flexible gasket
- Flexible Synoflex grip ring
- Tension locks corrosion resistant. Each support element in the grip ring holds a tension lock element
- Bolts reversible 180°
- Angle compensation max. 8° (+/- 4° each socket)
- For restraint connections with PE pipes (PE ≥ SDR 17), a support liner No. 6035 is required
- Support element and grip element are pressed into one another. The grip elements does not fall off as a result of inserting of pulling the pipe out



Details with fixed connected grip ring



Steel | ductile iron | PE/PVC | AC*

Material | Technical features

- 1/2 **Body (1)** and **lock ring (2)** made of ductile iron, epoxy powder coated
- 3 **Gasket** made of elastomer
- 4 **Synoflex grip ring** made of POM support elements (9) and steel grip elements (10)
- 5 **Bolts and nuts** made of stainless steel, coated against rubbing
- 6 **Bolt head locking anchor** made of steel, with protective cap made of elastomer
- 7 **Spacer bush** made of plastic
- 8 **Support liner** made of stainless steel (No. 6035)
- 9 **Grip element** made of steel
- 10 **Support element** made of POM

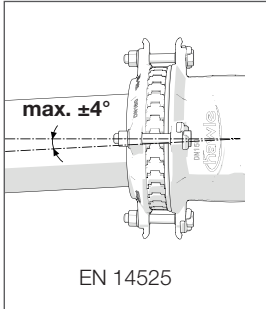
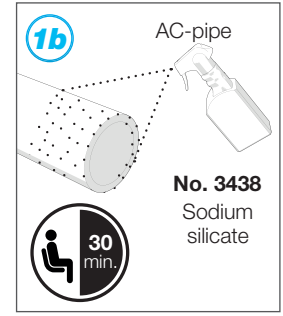
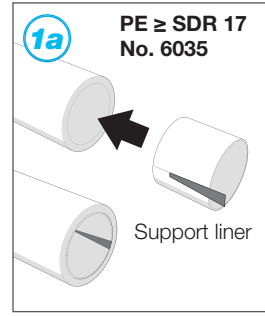
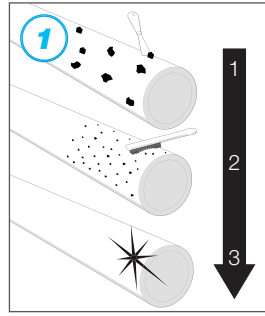
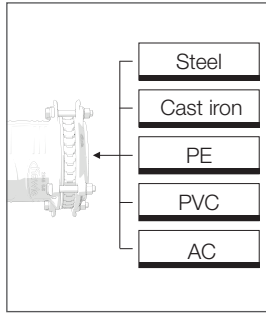
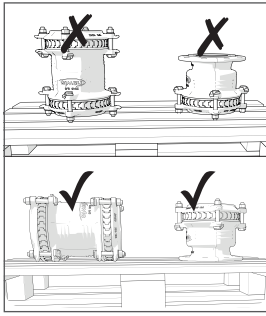
*Warning! A restraint connection between Synoflex and asbestos cement pipes can't be confirmed. Removal of the grip ring is not necessary.



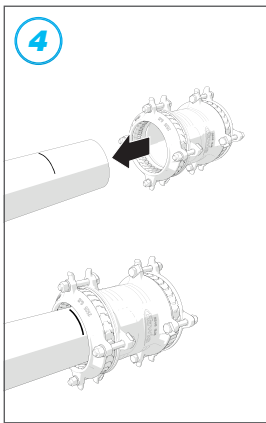
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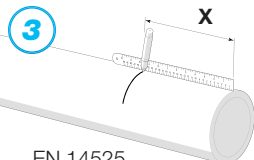
E 2/1

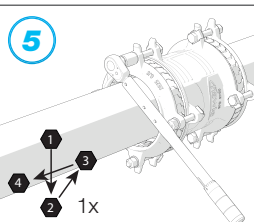
ASSEMBLY INSTRUCTIONS

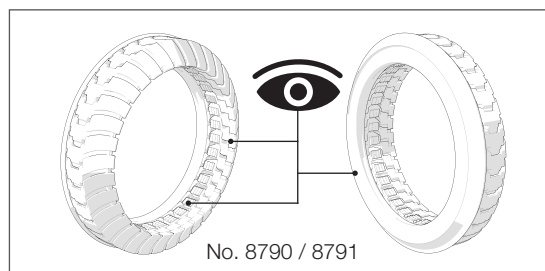
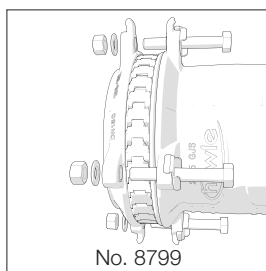
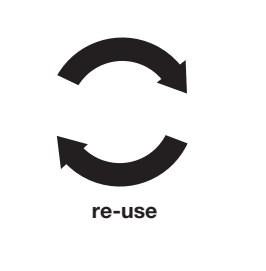
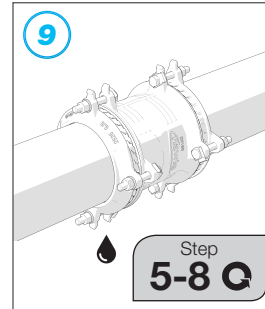
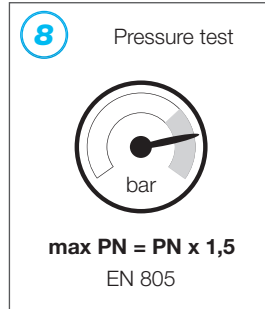
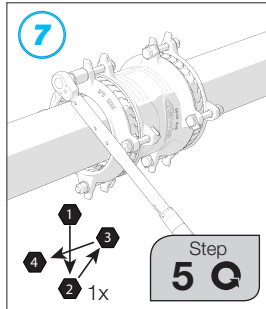
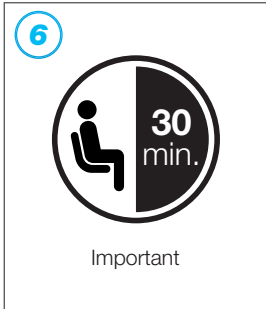


2		DN [mm]	40	50	65	80	100	125	150	200	225	250	300	350	400
		DN [inch]	1½"	2"	2½"	3"	4"	5"	6"	8"	9"	10"	12"	14"	16"
		Øexternal [mm]	46 - 58	56 - 71	71 - 88	85 - 105	104 - 132	131 - 160	155 - 192	198 - 230	230 - 260	265 - 310	313 - 356	352 - 396	398 - 442
		Temp. [°C]	0 - 40 °C												
		[bar]	16 bar												10 bar



3		X	MIN. [mm]	81	84	85	86	119	119	126	143	149	155	161	171	181
			MAX. [mm]	86	91	97	103	136	136	143	161	161	167	180	190	200
EN 14525																

5		Bolts	M12	M12	M12	M12	M16	M16	M16	M16	M20	M20	M20	M20	M20
		 [mm]	19	19	19	19	24	24	24	24	30	30	30	30	30
		GJS/steel [Nm]	50	70	70	70	90	90	110	110	130	130	130	140	140
		PE/PVC/AC [Nm]	40	60	60	60	70	70	80	80	110	110	110	120	120



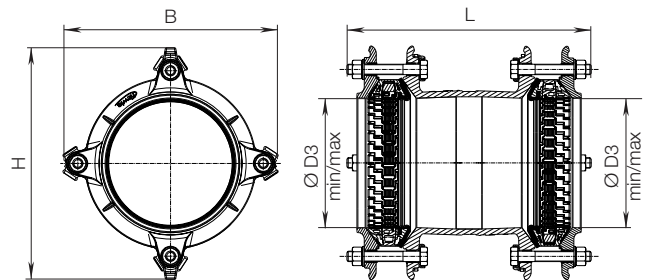
HAWLE-SYNOFLEX products may be reused. HAWLE suggests that you exchange the bolts and nuts. After dismantling, please check the SYNOFLEX grip ring for possible damage. If you detect any damage at the grip ring the SYNOFLEX ring must be replaced.

E 2/2



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Synoflex connector No. 7974



Application example



Socket 1 DN	Socket 2 DN	MOP (PN)	Socket 1				Socket 2				L	Weight
			B	H	Ø Pipe D3 min/max	Bolts	B	H	Ø Pipe D3 min/max	Bolts		
40	40	16	130	157	46 - 58	3 x M 12-80	130	157	46 - 58	3 x M 12-80	243	3,9
50	50		141	170	56 - 71	3 x M 12-80	141	170	56 - 71	3 x M 12-80	254	4,9
65	65		156	187	71 - 88	3 x M 12-80	156	187	71 - 88	3 x M 12-80	264	5,6
80	65		171	204	85 - 105	3 x M 12-80	156	187	71 - 88	3 x M 12-80	274	6,6
80	80		171	204	85 - 105	3 x M 12-80	171	204	85 - 105	3 x M 12-80	270	6,9
100	80		226	260	104 - 132	3 x M 16-100	171	204	85 - 105	3 x M 12-80	312	9,7
100	100		226	260	104 - 132	3 x M 16-100	226	260	104 - 132	3 x M 16-100	332	12,5
125	100		250	290	131 - 160	3 x M 16-110	226	260	104 - 132	3 x M 16-100	355	14,3
125	125		250	290	131 - 160	3 x M 16-110	250	290	131 - 160	3 x M 16-110	357	14,9
150	100		315	350	155 - 192	4 x M 16-110	226	260	104 - 132	3 x M 16-100	361	16,7
150	125		315	350	155 - 192	4 x M 16-110	250	290	131 - 160	3 x M 16-110	375	17,4
150	150		315	350	155 - 192	4 x M 16-110	315	350	155 - 192	4 x M 16-110	367	19,3
200	150		326	371	198 - 230	6 x M 16-120	315	350	155 - 192	4 x M 16-110	431	41,8
200	200		326	371	198 - 230	6 x M 16-120	326	371	198 - 230	6 x M 16-120	406	30,2
225	200		361	410	230 - 260	6 x M 20-130	326	371	198 - 230	6 x M 16-120	450	61,3
225	225		361	410	230 - 260	6 x M 20-130	361	410	230 - 260	6 x M 20-130	429	41,0
250	200		408	464	265 - 310	6 x M 20-130	326	371	198 - 230	6 x M 16-120	468	42,4
250	225		408	464	265 - 310	6 x M 20-130	361	410	230 - 260	6 x M 20-130	454	50,2
250	250		408	464	265 - 310	6 x M 20-130	408	464	265 - 310	6 x M 20-130	441	48,6
300	250	10	510	510	313 - 356	8 x M 20-130	408	464	265 - 310	6 x M 20-130	473	61,4
300	300		510	510	313 - 356	8 x M 20-130	510	510	313 - 356	8 x M 20-130	460	60,0
350	350		550	550	352 - 396	12 x M 20-130	550	550	352 - 396	12 x M 20-130	502	82,6
400	400		596	596	398 - 442	12 x M 20-130	596	596	398 - 442	12 x M 20-130	523	95,4

HAWLE-SYNO2000 connector

Ideal for repairs and network expansions with plastic pipes



Design features

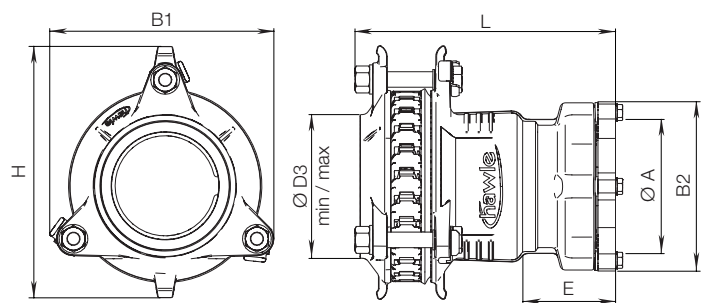
- Specially developed for repairs or expansion of existing networks using plastic pipes
- Easy assembly and disassembly (superior mechanical connection, no welding, minimal assembly and disassembly forces)
- The SYNO2000 can be used as a sliding connector upon removal of the pipe stop ring (Note: when used as a sliding connector chamfer the pipe firstly)

System 2000 socket

- Using a lip seal ring for sealing the pipe allows for easier insertion of the pipe into the System 2000 socket
- The pipe restraining system is required for pushing the pipe into the seal and chamfer with an appropriate tool
- For PE pipes with thin walls (up to 3 mm wall thickness) and low internal pressure we recommend using a support liner (see page M 6/2)
- Suitable for **PE pipes 80/100**, EN 12201, DIN 8074
- For **PVC pipes** according to EN ISO 1452-2

Synoflex socket (see Page E 2/1)

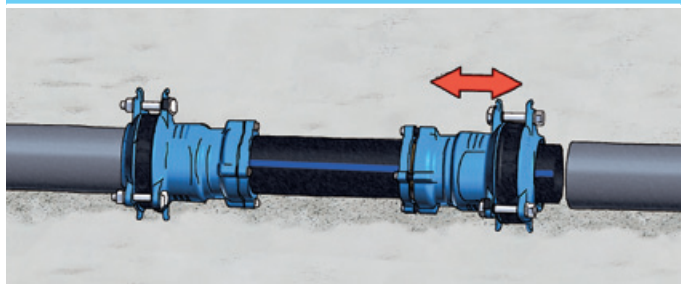
Syno2000 No. 7975



Material | Technical features

Body and lock rings	made of ductile iron, epoxy powder coated
Gasket	made of elastomer
System 2000 grip ring	made of brass

Application examples



Synoflex socket DN	System 2000 socket	MOP (PN)	Synoflex socket				System 2000 socket			L	Weight
			B1	H	Ø Pipe D3 min/max	Bolts	E	B2	Ø pipe A		
50	63	16	141	170	56 - 71	3 x M 12-80	80	124	63	238	4,0
80	90		171	204	85 - 105	3 x M 12-80	85	152	90	253	6,2
100	110		226	260	104 - 132	3 x M 16-100	85	172	110	285	10,2
	125		226	261	131 - 160	3 x M 16-110	91	195	125	289	10,8
150	160		315	350	155 - 192	4 x M 16-110	105	236	160	326	17,2
	180						119	258	180	336	19,6
200	200		326	371	198 - 230	6 x M 16-130	129	284	200	342	30,0
	225						127	314	225	354	30,5
250	250	10	408	464	265 - 310	6 x M 20-130	148	347	250	406	45,8
	280						151	376	280	407	46,8
300	315		510	510	313 - 356	8 x M 20-130	178	422	315	444	68,0
350	355		550	550	352 - 396	12 x M 20-130	238	472	355	541	87,0
400	400		596	596	398 - 442	12 x M 20-130	261	490	400	573	112,0

E 3/2



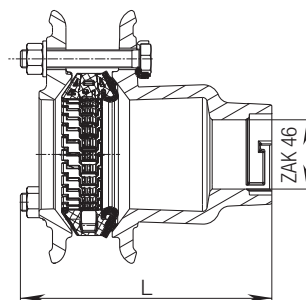
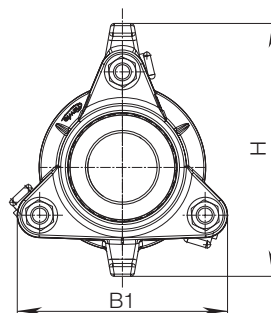
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Design features

- Combinable with all ZAK 46 and ZAK 69 products with ZAK spigots



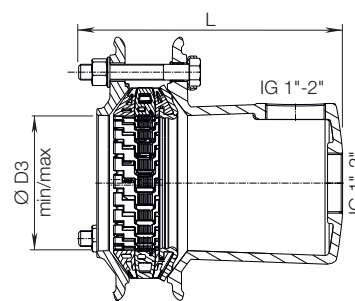
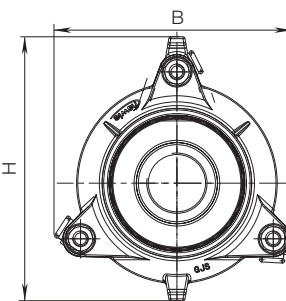
SynoZAK connector No. 7976



Synoflex socket DN	ZAK socket	MOP (PN)	Synoflex socket				L	Weight
			B1	H	Ø Pipe D3 min/max	Bolts		
40	46	16	130	157	46 - 58	3 x M12-80	162	2,4
50	46		141	170	56 - 71		168	2,7
50	69		141	170	56 - 71		176	3,3

Design features

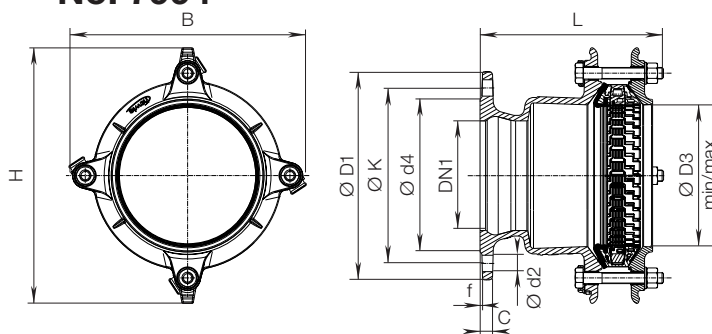
- Optional with or without internal thread 1" - 2" axial or radial



Synoflex end cap No. 7980

DN	MOP (PN)	Socket				L	Weight
		B	H	Ø Pipe D3 min/max	Bolts		
50	16	141	170	56 - 71	3 x M 12-80	207	3,9
65		156	186	71 - 88	3 x M 12-80	223	5,2
80		171	204	85 - 105	3 x M 12-80	227	5,7
100		226	260	104 - 132	3 x M 16-100	256	8,8
125		250	290	131 - 160	3 x M 16-110	274	12,7
150		315	350	155 - 192	4 x M 16-110	279	15,2
200		326	371	198 - 230	6 x M 16-120	304	22,0
225		360	410	230 - 260	6 x M 20-130	321	31,3
250		407	464	265 - 310	6 x M 20-130	329	39,0
300		510	510	313 - 356	8 x M 20-130	339	50,3
350	10	550	550	352 - 396	12 x M 20-130	367	61,0
400		596	596	398 - 442	12 x M 20-130	502	85,0

Synoflex flange No. 7994



Application examples



Flange DN1	Socket DN	MOP (PN)	Flange					Bolts (flange)			B	H	Ø Pipe D3 min/max	L	Bolts	Weight
			Ø D1	C	Ø K	Ø d4	f	Quantity	Thread	Ø d2						
50	50	10 16	165	18	125	98	4	4	M 16	19	141	170	56 - 71	204	3 x M 12-80	5,1
65	65	10 16	185	18	145	118	4	4	M 16	19	156	187	71 - 88	204	3 x M 12-80	6,1
80	65	10 16	198	18	160	133	4	8	M 16	19	156	187	71 - 88	205	3 x M 12-80	6,3
80	80	10 16	198	18	160	133	4	8	M 16	19	171	204	85 - 105	194	3 x M 12-80	7,1
80	100	10 16	198	18	160	133	4	8	M 16	19	226	260	104 - 132	263	3 x M 16-100	10,2
100	80	10 16	220	18	180	153	4	8	M 16	19	171	204	85 - 105	188	3 x M 12-80	7,4
100	100	10 16	220	18	180	153	4	8	M 16	19	226	260	104 - 132	225	3 x M 16-100	10,8
100	125	10 16	220	18	180	153	4	8	M 16	19	250	290	131 - 160	273	3 x M 16-110	13,2
125	100	10 16	250	14	210	183	4	8	M 16	19	226	260	104 - 132	235	3 x M 16-100	11,8
125	125	10 16	250	18	210	183	4	8	M 16	19	250	290	131 - 160	243	3 x M 16-110	13,2
125	150	10 16	250	14	210	183	4	8	M 16	19	315	350	155 - 192	271	4 x M 16-110	19,2
150	125	10 16	285	18	240	209	4	8	M 20	23	250	290	131 - 160	240	3 x M 16-110	14,0
150	150	10 16	285	18	240	209	4	8	M 20	23	315	350	155 - 192	251	4 x M 16-110	16,7
150	200	10 16	285	14	240	209	4	8	M 20	23	326	371	198 - 230	309	6 x M 16-120	25,9
200	150	10 16	340	15	295	264	4	8 12	M 20	23	315	350	155 - 192	261	4 x M 16-110	22,1
200	200	10 16	340	19	295	264	4	8 12	M 20	23	326	371	198 - 230	269	6 x M 16-120	24,8
200	225	10 16	340	19	295	264	4	8 12	M 20	23	361	410	230 - 260	310	6 x M 20-130	31,4
250	200	10 16	400	16	350 355	319	4	12	M 20 M 24	23 28	326	371	198 - 230	314	6 x M 16-120	30,8
250	250	10 16	400	20	350 355	319	4	12	M 20 M 24	23 28	408	464	265 - 310	325	6 x M 20-130	40,0
300	300	10 16	455	22	400 410	367	4	12	M 20 M 24	23 28	510	510	313 - 356	344	8 x M 20-130	53,0
350	350	10	520	24	460	427	4	16	M 20	23	550	550	352 - 396	351	12 x M 20-130	67,2
400	400	10	580	25	515	477	4	16	M 24	28	596	596	398 - 442	366	12 x M 20-130	77,8

SYSTEM 2000

For PE and PVC pipes

hawle

Page
F 2

System 2000 valves

Assembly instructions
E2 valve socket-socket for PE and PVC pipes
E2 valve flange-socket for PE and PVC pipes

Page F 2/2
Page F 2/3
Page F 2/5



Page
F 3

System 2000 Combi-T

All socket tee with one integral E2 valve for PE and PVC pipes Page F 3/1

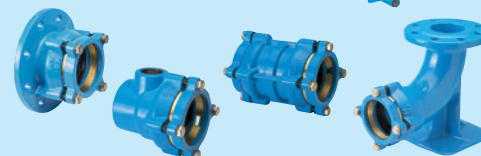


Page
F 4

System 2000 flange/fitting

Flange for PE and PVC pipes
Connector
Syno2000 connector
Duck foot bend
End cap

Page F 4/1
Page F 4/2
Page E 3/2
Page F 4/2
Page F 4/2

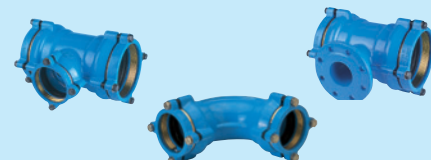


Page
F 5

System 2000 fittings

All socket tee
Double socket tee with flanged branch
Bend 90°, 45°, 30°, 11°

Page F 5/1
Page F 5/1
Page F 5/2



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F 1/1

SYSTEM 2000

For PE and PVC pipes



Accessories

Handwheels	Page M 4/1
Extension spindles	Page M 2/1
Surface boxes	Page M 3/1
Base plate	Page M 3/7
Adapter and coupling socket	Page M 4/3
Operating cap	Page M 4/1
Spindle extension	Page M 4/1
Actuator	Page M 4/3
Position indicator	Page M 4/2
Bolts	Page M 4/4
HAWAK headstock	Page M 5/1
Flat gasket	Page M 7/1
Direction indicator	Page M 4/1
Blanking cap	Page M 4/1
Mounting spray	Page M 7/2
Support liner	Page M 6/2

Spare parts

E2 valve bonnet	Page P 2/1
E2 valve wedge	Page P 2/1
E2 valve flat gasket	Page P 2/2

Technical information

Tightening torques for flange assembly	Page R 3/1
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Application examples



F 1/2



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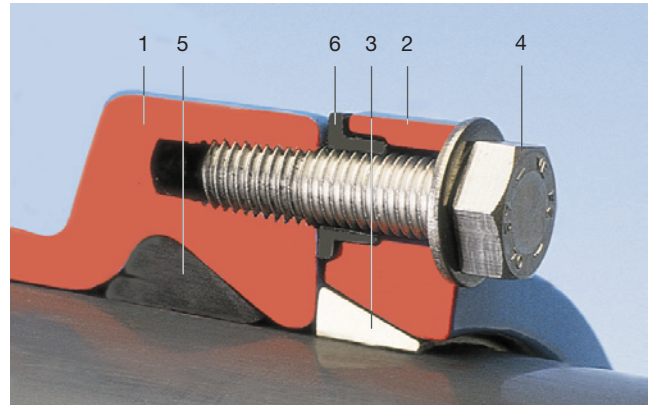
SYSTEM 2000

For PE and PVC pipes



Design features

- Using a lip seal ring for sealing the pipe allows for easier insertion of the pipe into the System 2000 socket
- The pipe restraining system is required for pushing the pipe into the seal and chamfer with an appropriate tool
- For PE pipes with thin walls ($\geq$ SDR 21) and low internal pressure we recommend using a support liner
- Suitable for **PE pipes 80/100**, EN 12201, DIN 8074
- For **PVC pipes** according to EN ISO 1452-2



Push socket for PE- (PE 80/100, EN 12201, DIN 8074)
and PVC pipe (EN ISO 1452-2) - absolutely restraint

Material | Technical features

- 1,2 **Body (1) and lock ring (2)**
made of ductile iron, epoxy powder coated
- 3 **Grip ring** made of brass (from DN 300 bronze)
- 4 **Hexagonal bolts** made of stainless steel
- 5 **Lip seal ring** made of elastomer
- 6 **Spacer bushes** made of PE

Additional information

- **Assembly instructions:** see page F 2/2
- **Tensile test:** see page F 2/2
- **Tightening torque System 2000 - lock ring** see page R 3/1



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F 2/1

SYSTEM 2000

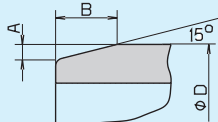
Assembly instructions



ASSEMBLY INSTRUCTIONS:

For flange adapters:
bolt the flange to the mating flange
first

Chamfer the pipe -
use lubricant no. 3443
(see M 7/2)
Do not use oil!

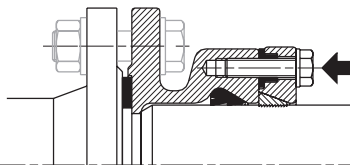
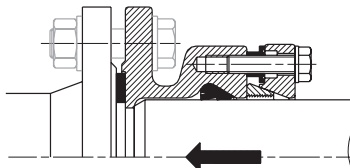
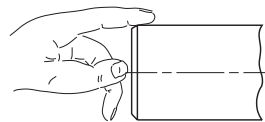
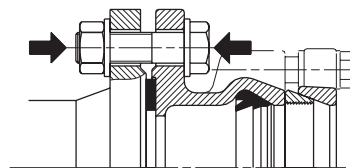


Ø D	A	B
63 - 140	2,5	10
160 - 180	4,0	16
200 - 225	5,0	20
250 - 315	7,0	25
355 - 450	9,0	35
500 - 630	10,0	40

Push the pipe to the end of the socket

For PE pipes with thin walls ($\geq$ SDR 21) and low internal pressure we recommend using a support liner

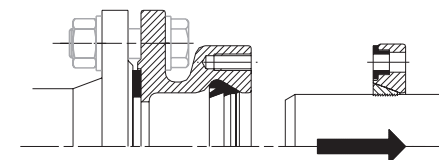
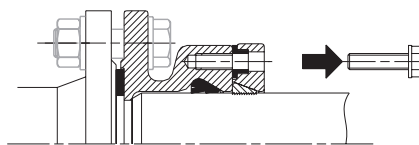
Tighten the lock ring bolts crosswise until lock ring is tight on bushes.
Max. tightening torque for lock ring see page R 3/1



DISMANTLING INSTRUCTIONS

Loosen and remove lock ring bolts

Twist and withdraw the pipe



TENSILE TEST:

The following maximum tensile loads have been established

Test data: HAWLE test laboratory tensile testing machine

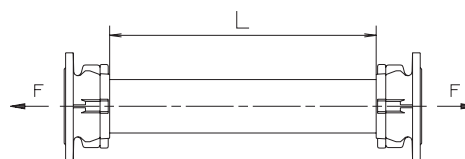
HDPE pipe (PE 80) DIN 8074 - EN 12201 | PN 10

Data established by use of a support liner and under 0 bar internal pressure
Room temperature: 23° C

Speed of tensile test (mm/min.): 0.1 x the free pipe length (L)

The table shows the maximum end load capacity of a System 2000 connection,
compared with the effective theoretical loads in a PE pipeline with 10 bar

A System 2000 connection provides a safety factor of **4 to 6 times!**



Ø pipe	Theoretical tensile load - (kN*) at 10 bar internal pressure	Max. tensile load (kN*) established in tests
63	3,15	20
75	4,42	28
90	6,37	38
110	9,50	56
125	12,27	63
140	15,40	66
160	20,10	98
180	25,45	130
200	31,40	145
225	39,80	153
250	49,10	233
280	61,60	215
315	77,80	270

*1 kN = 100 kp

F 2/2



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SYSTEM 2000

E2 valve socket-socket for PE and PVC pipes, PN 10 | PN 16



Design features

- Resilient seated gate valve with smooth straight-through bore
- With sockets for PE and PVC pipes
- One extension spindle for several dimensions
- Suitable for operation by automatic actuators
- Easy retrofitting for position indicator and automatic actuator on the standard bonnet (DN 50 to DN 200)

To set-up an actuator or a position indicator, remove the centering flange and insert position indicator or actuator with adapter (DN 250 to DN 350)

Standard version: without handwheel and extension spindle

Special versions: on request

Suitable accessories

Suitable accessories: see page F 1/2

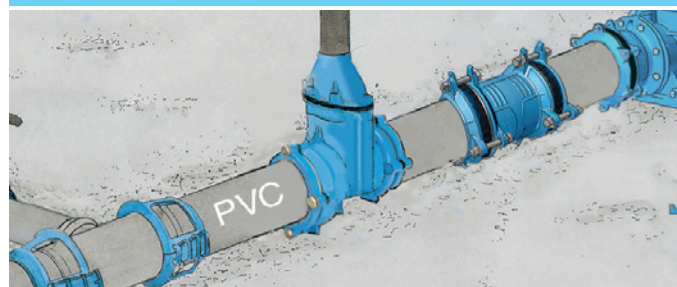
Handwheel:		No. 7800
Extension spindle:	rigid	No. 9000E2
	telescopic	No. 9500E2
Surfaces boxes:	rigid	No. 1750
	telescopic	No. 2050, No. 2051K No. 9920
Actuator:		No. 9920
Adapter for actuator (E2 adapter):		No. 8630E2
Base plate:	No. 3481, No. 3482	
Sealing cap:	No. 2156, No. 2157, No. 2158	
Spindle extension:	No. 7820, No. 7825	
Position indicator:	No. 2170E2	
HAWAK pillar:	No. 9894, No. 9895	

No. 4040E2



Order No.	MOP (PN)	Dimensions/DN Ø pipe A																	
		50	65	80	100	100	125	125	150	150	200	200	250	250	300	300	350	350	400
4040E2	16																		

Application example



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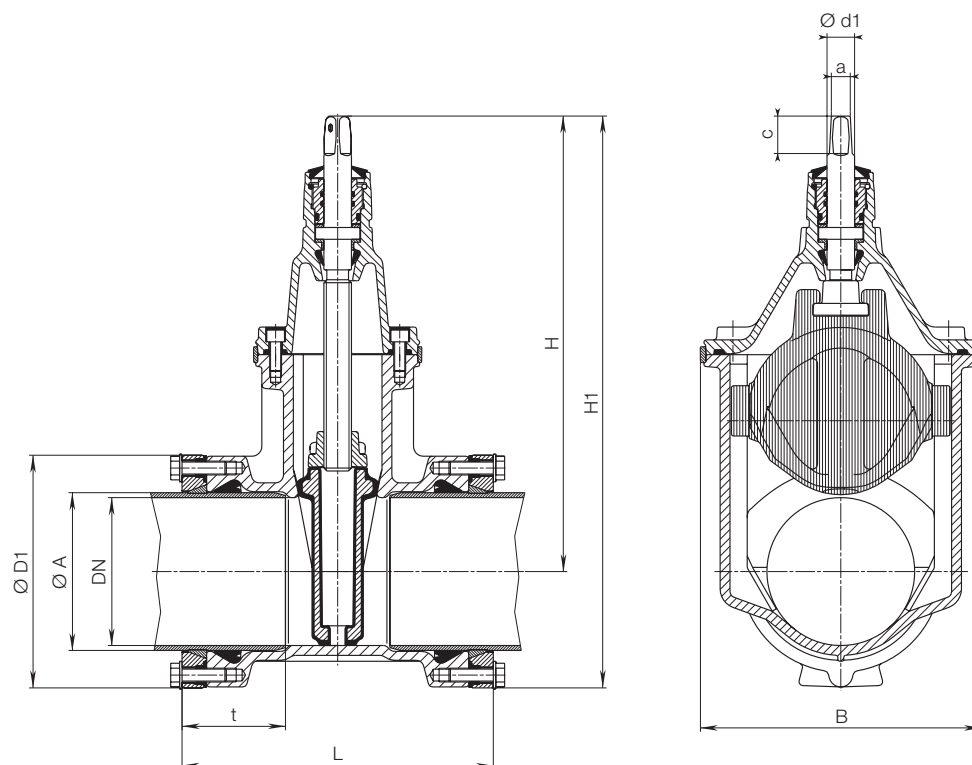
F 2/3

SYSTEM 2000

E2 valve socket-socket for PE and PVC pipes, PN 10 | PN 16



No. 4040E2



DN	$\varnothing$ pipe A	Valve						Spindle			Weight
		$\varnothing D1$	t	H	H1	L	B	a	c	$\varnothing d1$	
50	63	124	83	260	322	226	143	14,8	30	22	8,0
65	75	138	85	328	397	240	180	17,3	35	25	14,5
80	90	152	88	336	412	242	180	17,3	35	25	16,5
100	110	174	88	373	460	252	213	19,3	38	25	20,5
	125	195	88	373	470	260	213	19,3	38	25	19,0
125	125	195	90	450	547	280	285	19,3	38	28	32,0
	140	212	96	450	556	278	285	19,3	38	28	34,30
150	160	236	108	462	580	316	285	19,3	38	28	34,30
	180	258	118	462	591	342	285	19,3	38	28	43,5
200	200	284	128	563	705	366	357	24,3	48	32	65,0
	225	314	130	563	720	366	357	24,3	48	32	70,0
	250	347	147	563	738	469	357	24,3	48	32	81,5
250	250	347	147	670	844	400	432	27,3	48	34	104,0
	280	376	150	670	858	420	432	27,3	48	34	113,0
300	315	422	176	753	964	472	518	27,3	48	34	168,0
	355	470	237	753	988	687	518	27,3	48	34	218,6
350	400	516	253	838	1097	744	603	27,3	48	34	278,5

F 2/4



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SYSTEM 2000

E2 valve flange-socket for PE and PVC pipes, PN 10 | PN 16



Design features

- Resilient seated gate valve with smooth straight-through bore
- With socket for high-tensile connection with PE and PVC pipes
- Flange sized according to EN 1092-2, drilled according to EN 1092-2 | PN 10 standard; EN 1092-2 | PN 16 DN 200 - DN 250 please specify on order - other standards on request
- One extension spindle for several dimensions
- Suitable for operation by automatic actuators
- Easy retrofitting for position indicator and automatic actuator on the standard bonnet (DN 50 to DN 200)

To set-up an actuator or a position indicator, remove the centering flange and insert position indicator or actuator with adapter (DN 250 to DN 300)

Standard version: without handwheel and extension spindle

Special versions: on request

No. 4041E2



Suitable accessories

Suitable accessories: see page F 1/2

Handwheel:		No. 7800
Extension spindle:	rigid	No. 9000E2
	telescopic	No. 9500E2
Surfaces boxes:	rigid	No. 1750
	telescopic	No. 2050,
		No. 2051K
Actuator:		No. 9920
Adapter for actuator (E2 adapter):		No. 8630E2
Base plate:		No. 3481, No. 3482
Sealing cap:		No. 2156, No. 2157, No. 2158
Spindle extension:		No. 7820, No. 7825
Position indicator:		No. 2170E2
Bolts:		No. 8810, No. 8830 No. 8840
Flat gasket:		No. 3390, No. 3470
HAWAK pillar:		No. 9894, No. 9895

Order No.	MOP (PN)	Dimension/DN Ø pipe A													
		50 63	65 75	80 90	100 110	100 125	125 140	150 160	150 180	200 200	200 225	250 250	250 280	300 315	
4041E2	16														



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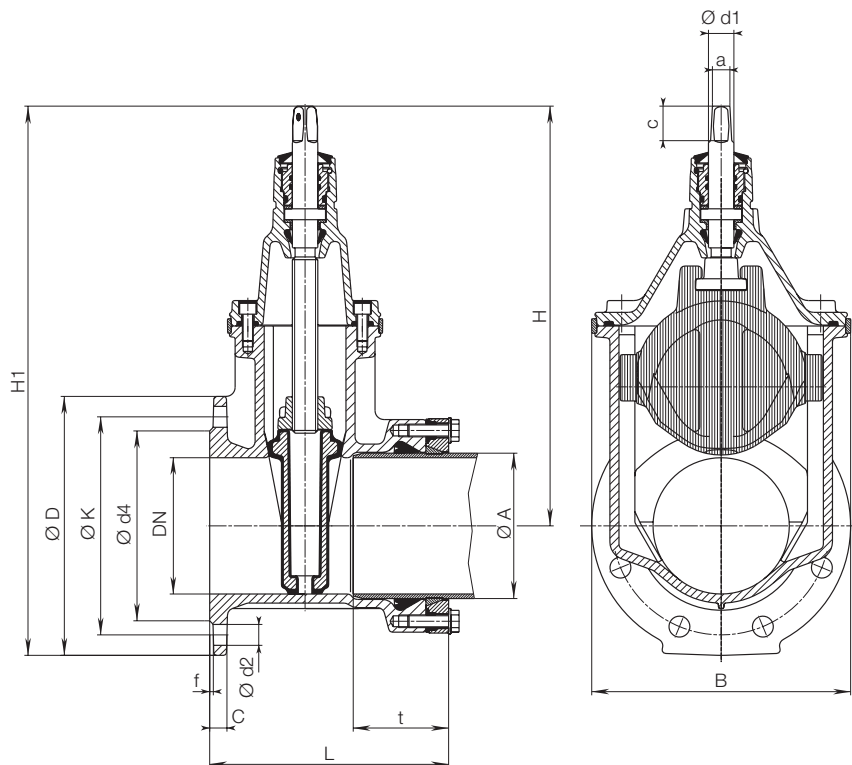
F 2/5

SYSTEM 2000

E2 valve flange-socket for PE and PVC pipes, PN 10 | PN 16



No. 4041E2



DN	MOP (PN)	Ø pipe A	Flange			Bolts		Valve					Spindle			Weight
			Ø D	C	Ø K	Qty.	Thread	t	H	H1	L	B	a	c	Ø d1	
50	10 16	63	165	19	125	4	M 16	83	260	342	188	143	14,8	30	22	11,0
65	10 16	75	185	19	145	4	M 16	85	328	420	205	180	17,3	35	25	15,0
80	10 16	90	200	19	160	8	M 16	88	336	436	211	180	17,3	35	25	18,5
100	10 16	110	220	19	180	8	M 16	88	373	483	221	213	19,3	38	25	22,0
	10 16	125	220	19	180	8	M 16	88	373	483	225	213	19,3	38	25	23,0
125	10 16	140	250	19	210	8	M 16	96	450	575	239	285	19,3	38	28	34,5
150	10 16	160	285	19	240	8	M 20	108	462	605	263	285	19,3	38	28	39,0
	10 16	180	285	19	240	8	M 20	118	462	605	276	285	19,3	38	28	41,5
200	10 16	200	340	20	295	8 12	M 20	128	563	733	298	357	24,3	48	32	66,0
	10 16	225	340	20	295	8 12	M 20	130	563	733	298	357	24,3	48	32	73,0
250	10 16	250	400	22	350 355	12	M 20 M 24	147	670	870	325	432	27,3	48	34	100,0
	10 16	280	400	22	350 355	12	M 20 M 24	150	670	870	335	432	27,3	48	34	107,0
300	10 16	315	455	24,5	400 410	12	M 20 M 24	176	753	981	371	518	27,3	48	34	150,0

F 2/6



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SYSTEM 2000

All socket tee with one integral **E2** valve for PE and PVC pipes



Design features

- Resilient seated gate valve combined with socket T-piece
- With push sockets for high-tensile connection with PE and PVC pipes
- One extension spindle for several dimensions
- Suitable for operation by automatic actuators
- Easy retrofitting for position indicator and automatic actuator on the standard bonnet

Standard version: without handwheel and extension spindle

Special versions: on request

No. 4343E2



Suitable accessories:

Suitable accessories: see page F 1/2

Handwheel:		No. 7800
Extension spindle:	rigid	No. 9000 E2
	telescopic	No. 9500 E2
Surfaces boxes:	rigid	No. 1750
	telescopic	No. 2050, No. 2051K
Actuator:		No. 9920
Adapter for actuator (E2 adapter):		No. 8630 E2
Base plate:		No. 3481, No. 3482
Sealing cap:		No. 2156, No. 2157, No. 2158
Spindle extension:		No. 7820, No. 7825
Position indicator:		No. 2170 E2
HAWAK pillar:		No. 9894, No. 9895

Order No.	MOP (PN)	Valve DN1 / Ø pipe					
		DN/ Ø pipe	50 63	80 90	100 110	100 125	150 160
4343E2	16	80/90					
		100/110					
		100/125					
		150/160					
		200/225					



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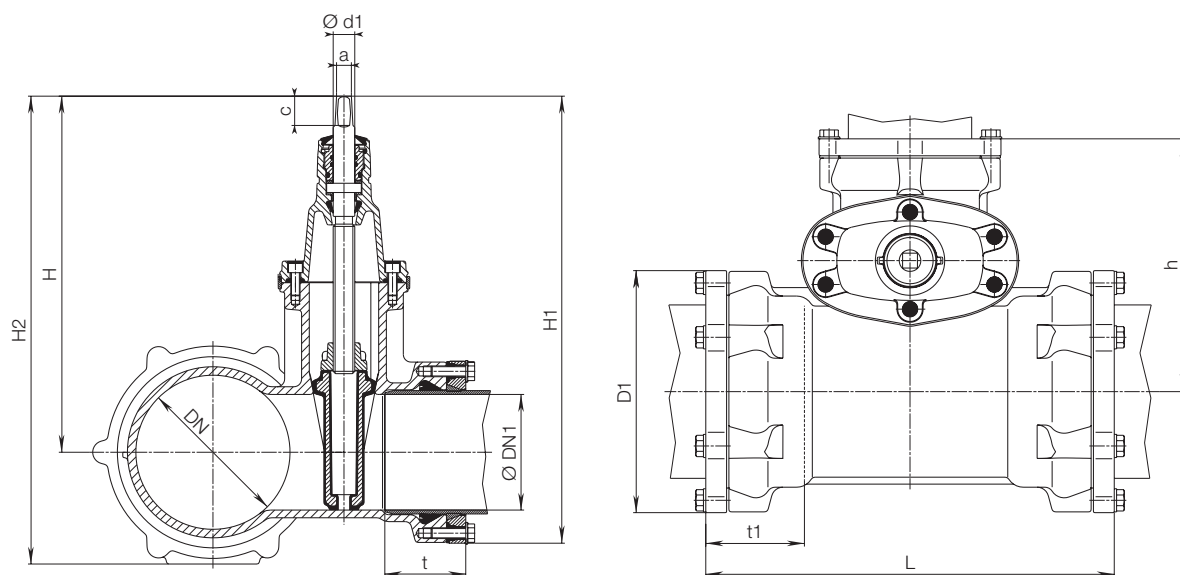
F 3/1

SYSTEM 2000

All socket tee with one integral *E2* valve for PE and PVC pipes



No. 4343E2



DN Ø pipe	DN 1 Ø pipe	E2 Combi-T					Socket			Spindle			Weight
		H	H1	H2	t	L	t1	D1	h	a	c	Ø d1	
80/90	80/90	336	412	412	88	310	88	150	201	17,3	35	25	21,0
100/110	50/63	260	322	346	83	290	88	172	218	14,8	30	22	17,0
100/110	80/90	336	412	422	88	320	88	172	231	17,3	35	25	23,5
100/110	100/110	373	460	460	88	340	88	172	231	19,3	38	25	25,0
100/125	100/125	373	470	470	88	345	88	193	235	19,3	38	25	31,0
150/160	80/90	336	412	453	88	350	108	234	251	17,3	35	25	27,0
150/160	100/110	373	460	490	88	370	108	234	251	19,3	38	25	36,0
150/160	150/160	462	580	580	108	420	108	234	303	19,3	38	28	51,0
200/225	80/90	336	412	481	88	410	130	312	281	17,3	35	25	48,0
200/225	100/110	373	460	518	88	430	130	312	291	19,3	38	25	53,0

F 3/2



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SYSTEM 2000

Flange for PE and PVC pipes



Design features

- With push socket for high-tensile restraint connection with PE and PVC pipes
- Flange sized according to EN 1092-2, drilled according to EN 1092-2 | PN 10 standard; EN 1092-2 | PN 16 DN 200 to DN 600 please specify on order - other standards on request
- With integrated flange seal made of elastomer

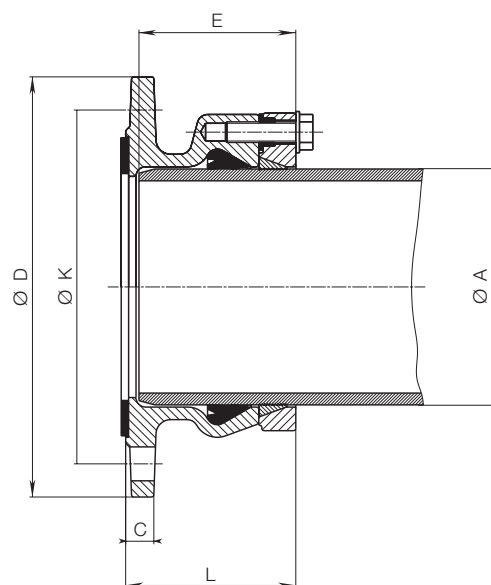
No. 0400



Order No.	MOP (PN)		Dimension/DN												
			50	60	65	80	100	125	150	200	250	300	400	500	600
0400	16 (DN 50 - DN 150) 10 (DN 200 - DN 600)	Ø pipe A	63	63	63	63	90	110	140	200	250	315	400	500	630
				75	75	75	110	125	160	225	280	355	450	560	
						90	125	140	180	250					
							160								

*DN 200-600, PN 16 on request

Flange DN	Ø pipe A	Ø D	Ø K	C	L	E	Bolts		Weight
							Qty	Thread	
50	63	165	125	19	90	80	4	M 16	3,7
60	63	175	135	19	90	80	4	M 16	3,8
60	75	175	135	19	92	82	4	M 16	4,0
65	63	185	145	19	90	80	4	M 16	4,3
65	75	185	145	19	92	82	4	M 16	4,6
80	63	200	160	19	90	80	8	M 16	4,7
80	75	200	160	19	92	82	8	M 16	4,8
80	90	200	160	19	95	85	8	M 16	5,5
100	90	220	180	19	95	85	8	M 16	6,8
100	110	220	180	19	95	85	8	M 16	6,3
100	125	220	180	19	97	87	8	M 16	6,6
125	110	250	210	19	95	85	8	M 16	7,7
125	125	250	210	19	97	87	8	M 16	7,8
125	140	250	210	19	103	93	8	M 16	10,3
125	160	250	210	19	145	110	8	M 16	11,5
150	140	285	240	19	103	93	8	M 20	11,3
150	160	285	240	19	115	105	8	M 20	10,5
150	180	285	240	19	125	115	8	M 20	12,5
200	200	340	295	20	135	125	8	M 20	16,8
200	225	340	295	20	138	128	8	M 20	18,0
200	250	340	295	20	225	145	8	M 20	27,0
250	250	400	350	22	155	145	12	M 20	28,4
250	280	400	350	22	158	148	12	M 20	29,0
300	315	455	400	25	184	174	12	M 20	43,0
300	355	455	400	25	277	237	12	M 20	63,0
400	400	565	515	25	242	230	16	M 24	76,5
400	450	565	515	25	302	260	16	M 24	84,0
500	500	715	620	32	365	346	20	M 27	144,0
500	560	715	620	32	450	372	20	M 27	167,0
600	630	840	725	36	459	399	20	M 27	256,0



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F 4/1

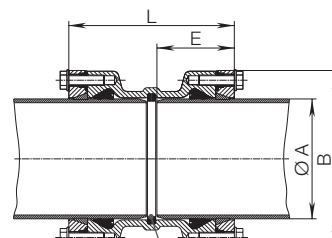
SYSTEM 2000

Fittings for PE and PVC pipes



Ø pipe A	L	E	B	Weight
63	171	80	124	3,6
75	175	82	138	4,3
90	181	85	152	5,8
110	181	85	172	6,5
125	185	87	193	8,2
140	197	93	210	9,0
160	221	105	236	12,0
180	241	113	258	19,0
200	261	125	284	24,0
225	265	128	314	28,0
250	300	145	347	34,0
280	306	148	376	40,5
315	358	174	422	62,5
355	464	237	472	98,0

Connector No. 0430

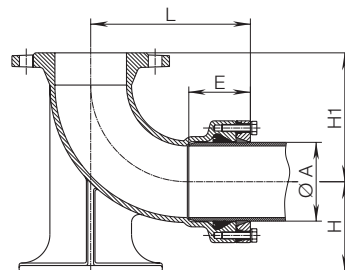


Caution! When using as coupling valve: **remove stop ring** and steeply chamfer pipe (see assembly instructions)

Order No.	MOP (PN)	Dimension Ø pipe A												
		63	75	90	110	125	140	160	180	200	225	250	280	315
0430	16													

DN	Ø pipe A	L	E	H	H1	Weight
80	90	210	85	110	165	12,7
80	110	223	85	110	165	14,2
100	110	223	85	125	180	16,0

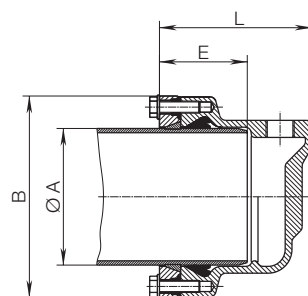
Duck foot bend No. 5045



Order No.	MOP (PN)	Dimension/DN Ø pipe A		
		80 90	80 110	100 110
5045	16			

Ø pipe A	L	E	B	Weight
63	106	80	124	2,7
75	138	82	138	3,2
90	141	85	152	4,6
110	159	85	172	6,4
125	162	87	193	6,1
140	169	93	210	7,7
160	180	105	236	8,6
180	192	113	258	11,7
200	203	125	284	14,5
225	207	128	314	16,5
250	225	145	347	20,5
280	228	148	376	25,0
315	254	174	422	33,5

End cap No. 8075



Optionally with or without axial or radial thread outlet 1" - 2"

Order No.	MOP (PN)	Dimension Ø pipe A												
		63	75	90	110	125	140	160	180	200	225	250	280	315
8075	16													

F 4/2



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SYSTEM 2000

Fittings for PE and PVC pipes

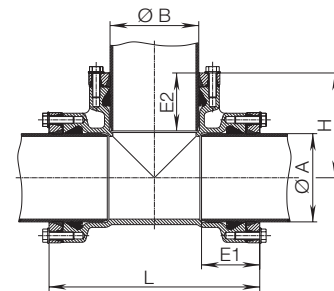


Ø pipe A	Ø B	L	E1	E2	H	Weight
63	63	236	83	83	118	6,0
75	75	250	85	85	125	7,7
90	90	268	85	85	134	9,0
110	63	240	85	80	140	7,7
	90	270	85	85	145	8,9
	110	290	85	85	145	9,2
125	90	274	87	85	150	10,4
	110	294	97	85	150	10,7
	125	306	90	90	153	15,0
140	90	288	93	85	157,5	12,2
	110	305	93	85	160	12,5
	140	344	96	96	167	19,0
160	90	310	105	85	170	14,0
	110	330	105	85	170	14,5
	125	380			170	19,8
	160	380	105	105	190	16,5
180	125	360	113	87	180	24,0
	180	415	113	113	207,5	29,0
200	200	460	128	128	230	35,0
225	90	356	128	85	200	29,5
	110	376	128	128	200	30,0
	225	488	130	130	244	55,0

All socket tee

No. 8515

equal and reduced side outlet



Order No.	MOP (PN)	Dimension Ø pipe										
		Ø pipe A	63	75	90	110	125	140	160	180	200	225
8515	16	Ø pipe B	63	75	90	63	90	90	90	125		90
						90	110	110	110		200	110
						110	125	140	160	180		225

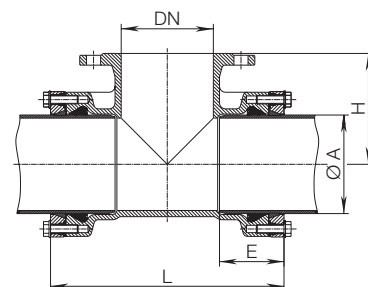
Ø pipe A	DN	L	E	H	Weight
63	50	236	83	100	8,0
75	65	250	85	110	9,0
90	80	268	85	140	11,0
110	50	240	85	150	10,0
	80	270	85	150	11,5
	100	290	85	150	12,0
125	80	274	87	160	14,0
	100	294	87	160	14,0
	80	288	93	170	15,0
140	100	308	93	170	15,5
	125	334	93	170	16,0
	80	300	105	180	16,5
160	100	320	105	180	17,0
	150	380	105	180	20,0
180	80	310	113	200	23,0
	150	415	113	200	31,0
200	200	480	130	220	47,0
225	80	356	130	220	33,5
	100	376	130	220	33,0
	200	488	130	230	55,0

Double socket tee

with flanged branch

No. 8525

equal and reduced side outlet



Order No.	MOP (PN)	DN	Ø pipe A									
			63	75	90	110	125	140	160	180	200	225
8525	16	DN	50	65	80	50	80	80	80	80	200	80
						80	100	100	100	150		100
						100		125	150	200		200



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F 5/1

SYSTEM 2000

Fittings for PE and PVC pipes



Ø pipe A	b				E	B	Weight			
	90°	45°	30°	11°			90°	45°	30°	11°
63	153	112			80	124	4,2	4,7		
75	170	120			82	138	5,5	5,0		
90	188	129	115	98	85	152	7,6	6,4	5,8	5,7
110	213	140	122	100	85	172	10,0	7,9	7,2	6,6
125	240	153			87	193	9,8	9,9		
140	246	159			93	210	15,0	13,1		
160	283	181	120	115	105	236	19,5	16,0	15,0	14,5
180	293	191			113	258	26,0	21,0		
200	353	221			125	284	37,5	30,0		
225	355	224	136		128	314	43,0	38,0	32	
250	427	263			145	347	57,0	47,0		
280	430	266			148	376	69,0	55,0		
315	506	313			174	422	100,0	80,0		

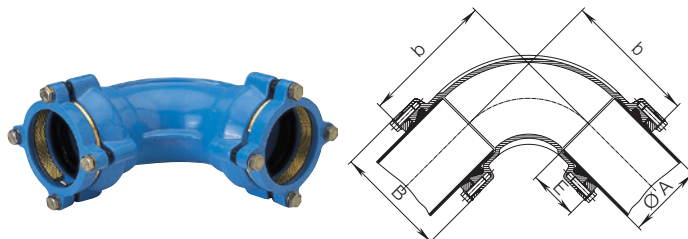
Bend

No. 8535 90°

No. 8545 45°

No. 8555 30°

No. 8557 11°



Order No.	MOP (PN)	Dimension Ø pipe A												
		63	75	90	110	125	140	160	180	200	225	250	280	315
8535 90°	16													
8545 45°														
8555 30°														
8557 11°														

F 5/2



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HAWLE - BAIO SYSTEM

The easy and time-saving solution



**Page
G 2**

HAWLE - BAIO SYSTEM

The fastest connection in the pipeline system
Accessories

Page G 2/1
Page G 2/2



**Page
G 3**

E2 valve - BAIO socket-socket

For ductile iron, steel, PE and PVC pipes, PN 16

Page G 3/1



**Page
G 4**

E2 valve - BAIO socket-spigot

For ductile iron, steel, PE and PVC pipes, PN 16

Page G 4/1



**Page
G 5**

E2 MMB valve - BAIO

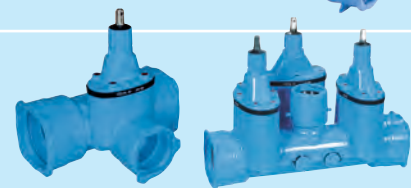
For ductile iron, steel, PE and PVC pipes, PN 16

Page G 5/1

E2 COMBI-III VALVE - BAIO

With vertical outlet for ductile iron, steel, PE and PVC pipes, PN 16

Page G 5/2



**Page
G 6**

BAIO - FITTINGS

Without gaskets

Page G 6/1



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G 1/1

HAWLE - BAIO SYSTEM

The easy and time saving solution



Accessories

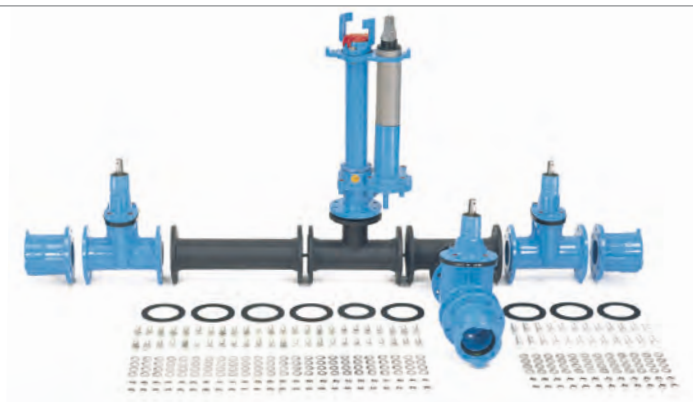
Handwheels	Page M 4/1
E2 extension spindle "rigid" or "telescopic"	Page M 2/1
Surface box "rigid"	Page M 3/3
Surface box "telescopic"	Page M 3/1
Base plate	Page M 3/7
Adapter and coupling socket	Page M 4/3
Sealing cap	Page M 4/1
Actuator	Page M 4/3
Position indicator	Page M 4/2
Bolts	Page M 4/4
HAWAK pillar	Page M 5/1
Flat gaskets	Page M 7/1
Mounting spray	Page M 7/2
Support liner	Page M 6/2
BAIO-STOP traction protection	Page G 2/2
BAIO lip seal BLD	Page G 2/2
BAIO lip seal GKS	Page G 2/2
BAIO anti twist device	Page G 2/2

Spare parts

E2 valve bonnet	Page P 2/1
E2 valve wedge	Page P 2/1
Bonnet flat gasket	Page P 2/2

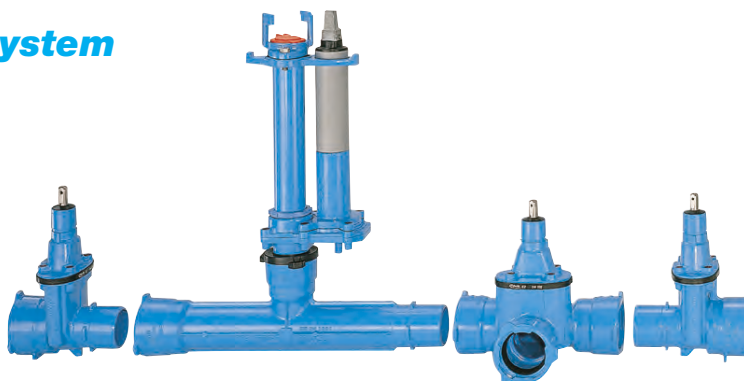
Application example

Flange system



307 parts

HAWLE - BAIO System



7 parts

G 1/2



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HAWLE - BAIO SYSTEM

The fastest connection in the pipeline system, DN 80-300



Design features

- Savings in material, joints and piping costs
- Most pipe network situations can be handled
- Joints without flanges or bolts, socket connections allow angular deflection (max. 3°)
- Spigot ends with bayonet lugs for positive connection with the double-function BAIO socket and BAIO spigot (seal + grip)
- Applicable for ductile iron, steel and PE-/ PVC pipes
- Minimizes stock holding costs
- Hawle-STOP restraint connection for ductile iron and PE/PVC pipes
- High quality corrosion protection due to epoxy coating
- **All socket fittings are supplied without gasket.** Please choose the suitable gasket for the pipe material used. The gaskets are provided with a lubricant
- Product range:
 - Gate valve
 - Combi valves
 - Fittings
 - Hawle below-ground hydrant



1 socket for 3 pipe types



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G 2/1

ACCESSORIES

Restraints, accessories, assembly instructions



**Order No. NL78
BAIO-SIT**

with special grip ring
for ductile iron pipes
DN 250 to 300



**Order No. NL79
BAIO-SIT**

with grip ring
for PE-pipes
DN 250 to 300
(Use support liner
order no. 6035/6036)



**Order No. NL80
Hawle-Stop**

with segmented grip ring
for ductile iron pipes
DN 80 to 200



**Order No. NL82
Hawle-Stop**

with grip ring
for PE-pipes
DN 80 to 200
(Use support liner
order no. 6035/6036)



**Order No. NL84
Hawle-Stop**

with carborundum
grip ring
for PVC-pipes
DN 80 to 200



**Order No. NL85
BAIO-Lip seal (BLD)**
PN 16, for easy
assembly onto ductile iron pipes
in BAIO sockets



Order No. 6035 Class SDR 17,6
Order No. 6036 Class SDR 11
support liner with wedge made of
stainless steel



**Order No. NL86
GKS-pipe-gasket**
PN 16, for use on PE/PVC pipes
in BAIO sockets



**Order No. NL8A
Anti twist device**
for BAIO spigot socket connection



**Order No. 8716
Tyton gasket**
for use on
ductile iron pipes
in BAIO sockets



**Order No. NL92
Dirt and anti-twist protection
DN 80**
for below-ground hydrants with BAIO
spigots

Assembly instructions

Assemble the Hawle Stop and grip ring over the chamfered end of the pipe. Insert the pipe end through the seal in the BAIO socket and slide the grip ring along the pipe to the face of the BAIO socket.

Ensure that the gripping location area is free from lubricant.

Locate the Hawle-STOP on the external lug of the socket and rotate clockwise to lock.



G 2/2



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E2 VALVE - BAIO SOCKET-SOCKET

For ductile iron, steel, PE and PVC pipes, PN 16



Design features

- Resilient seated gate valve with smooth straight-through bore
- With socket for ductile iron pipes
- One extension spindle for several dimensions
- Suitable for operation by automatic actuators
- Appropriate for cleaning with a badger
- Easy retrofitting for position indicator and automatic actuators on the standard bonnet (DN 50 to DN 200)

To set-up an actuator or a position indicator, remove the centering flange and insert position indicator or actuator with adapter (DN 250 to DN 300)

Standard version: without handwheel and extension spindle
without gaskets

Suitable accessories

Suitable accessories: see page G 1/2

Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000E2
	telescopic	No. 9500E2
Surface boxes:	rigid	No. 1750
	telescopic	No. 2050, No. 2051K
Restraint clamp:	Hawle stop	No. NL80, NL78 NL82, NL84
BAIO lip seal (BLD):	for DCI pipes	No. NL85
GKS pipe seal:	for PE/PVC pipes	No. NL86
Actuator:		No. 9920
Adapter for actuator (E2 adapter):		No. 8630E2
Base plate:		No. 3481, No. 3482
Sealing cap:		No. 2156, No. 2157, No. 2158
Spindle extension:		No. 7820, No. 7825
Position indicator:		No. 2170E2
HAWAK pillar:		No. 9894, No. 9895

No. 4500E2



Order No.	MOP (PN)	Dimension/DN						
		80	100	125	150	200	250	300
4500E2	16							



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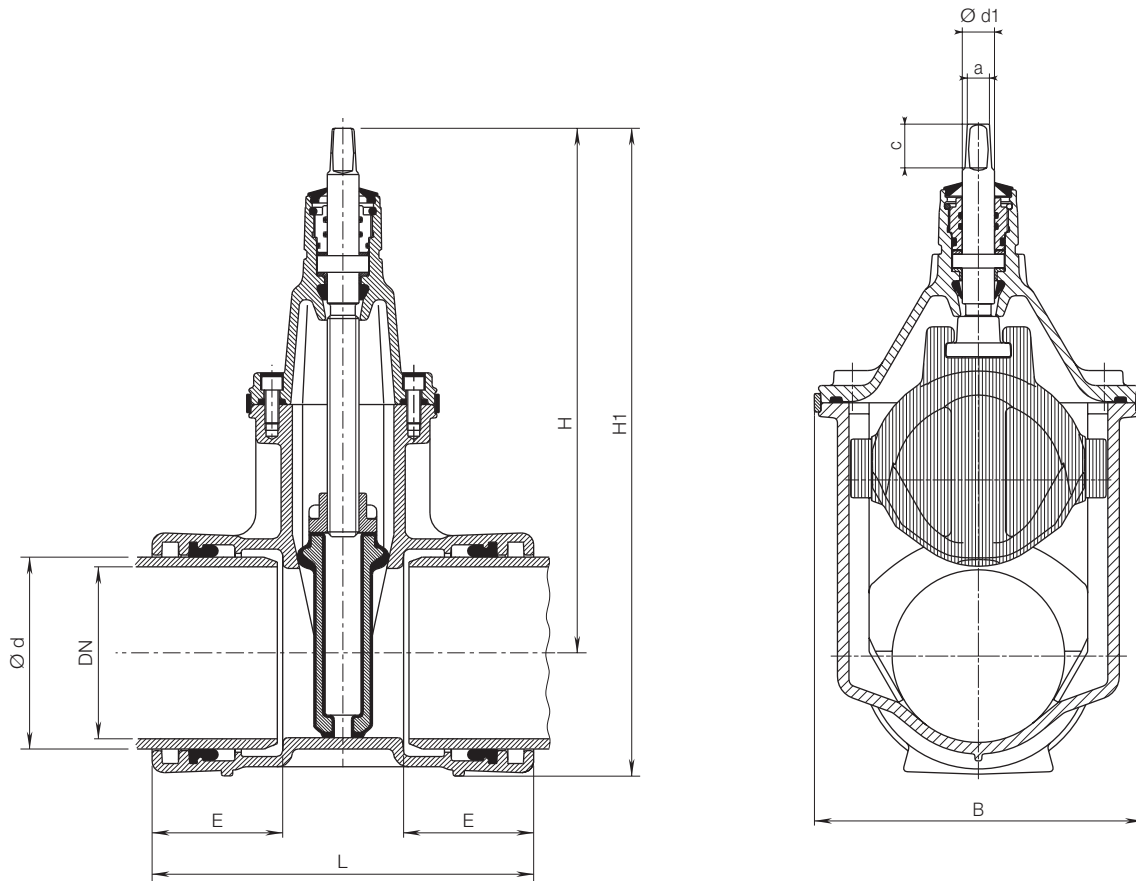
G 3/1

E2 VALVE - BAIO SOCKET-SOCKET

For ductile iron, steel, PE and PVC pipes, PN 16



No. 4500E2



DN	pipe Ø d	Valve						Spindle			Hawle-Stop
		E	H	H1	L	B	Weight	a	c	Ø d1	Weight
80	98	110	335	456	300	180	18,0	17,3	35	25	3,7
100	118	105	375	505	300	213	23,5	19,3	38	25	4,7
125	144	115	450	595	345	285	34,0	19,3	38	28	5,0
150	170	115	460	624	340	285	38,0	19,3	38	28	5,5
200	222	125	565	757	365	357	53,0	24,3	48	32	9,5
250	274	174	670	895	470	432	89,0	27,3	48	36	11,1
300	326	198	755	1008	537	518	162,0	27,3	48	36	14,9

G 3/2



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E2 VALVE - BAIO SOCKET-SPIGOT

For ductile iron, steel, PE and PVC pipes, PN 16



Design features

- Resilient seated gate valve with smooth straight-through bore
- One side with spigot and with one side socket for ductile iron pipes
- One extension spindle for several dimensions
- Suitable for operation by automatic actuators
- Appropriate for cleaning with a badger
- Easy retrofitting for position indicator and automatic actuators on the standard bonnet (DN 50 to DN 200)

To set-up an actuator or a position indicator, remove the centering flange and insert position indicator or actuator with adapter (DN 250 to DN 300)

Standard version: without handwheel and extension spindle
without gaskets

Suitable accessories

Suitable accessories: see page G 1/2

Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000E2
	telescopic	No. 9500E2
Surface boxes:	rigid	No. 1750
	telescopic	No. 2050, No. 2051K
Restraint clamp:	Hawle stop	No. NL80, NL78
		NL82, NL84
BAIO lip seal (BLD):	for DCI pipes	No. NL85
GKS pipe seal:	for PE/PVC pipes	No. NL86
Actuator:		No. 9920
Adapter for actuator (E2 adapter):		No. 8630E2
Base plate:		No. 3481, No. 3482
Sealing cap:		No. 2156, No. 2157, No. 2158
Spindle extension:		No. 7820, No. 7825
Position indicator:		No. 2170E2
HAWAK pillar:		No. 9894, No. 9895

No. NL00E2



Order No.	Version	MOP (PN)	Dimension/DN						
			80	100	125	150	200	250	300
NL00E2	Socket-spigot	16							



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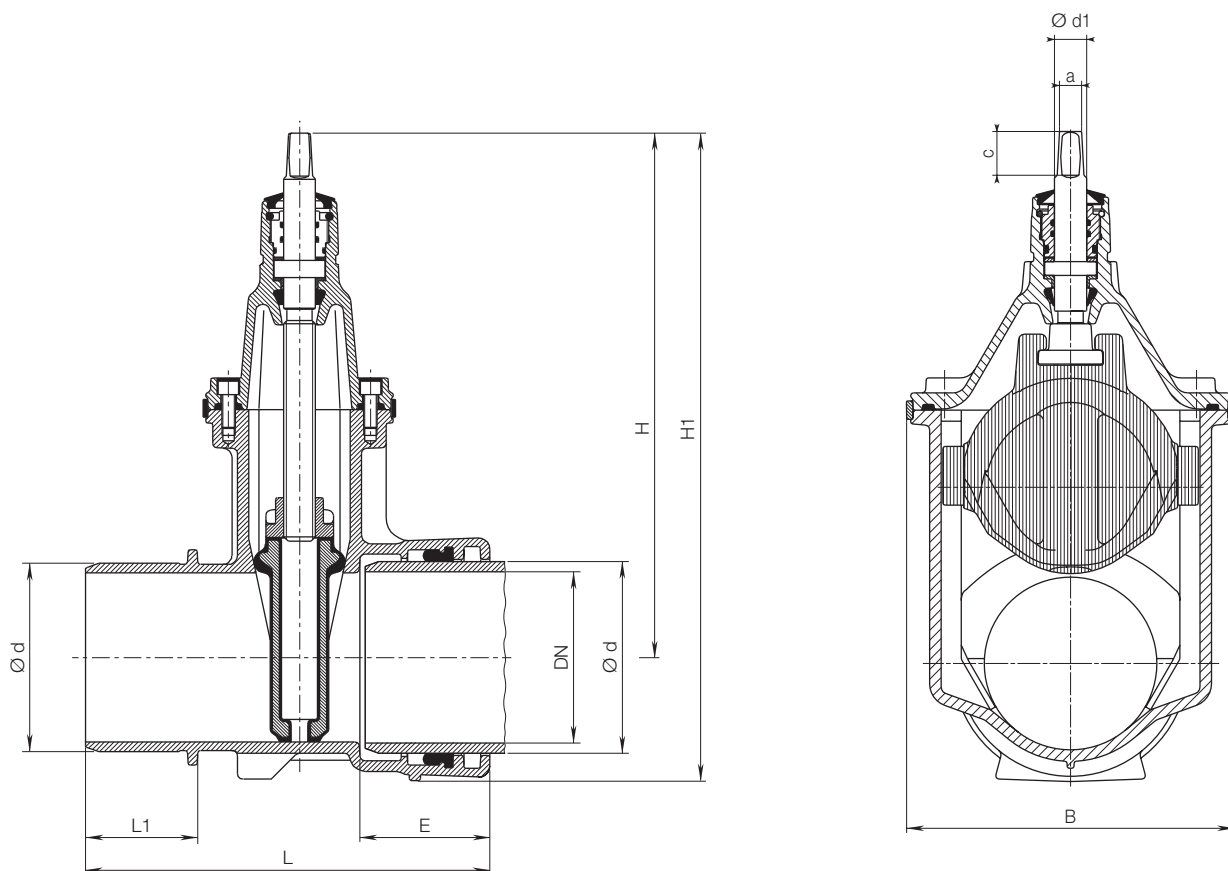
G 4/1

E2 VALVE - BAIO SOCKET-SPIGOT

For ductile iron, steel, PE and PVC pipes, PN 16



No. NL00E2



DN	Ød	Valve					Spindle			Weight
		L	L1	E	H	H1	a	c	Ød1	
80	98	295	82	110	335	456	17,3	35	25	16,00
100	118	320	102	105	375	505	19,3	38	25	21,30
125	144	350	109	115	450	595	19,3	38	28	34,50
150	170	360	109	115	460	624	19,3	38	28	37,50
200	222	390	115	125	565	757	24,3	48	32	59,50
250	274	536	164	174	670	895	27,3	48	36	105,00
300	326	599	177	198	755	1008	27,3	48	36	157,00

G 4/2



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E2 MMB-VALVE - BAIO

For ductile iron, steel, PE and PVC pipes, PN 16



Design features

- Resilient seated gate valve combined with socket T-piece
- With socket for ductile iron pipes
- One extension spindle for several dimensions
- Suitable for operation by automatic actuators
- Appropriate for cleaning with a badger
- Easy retrofitting for position indicator and automatic actuators on the standard bonnet (DN 50 to DN 200)

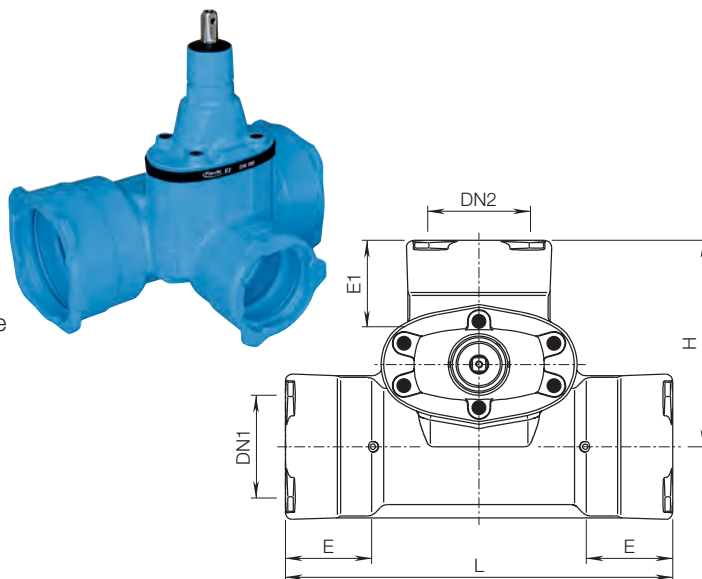
Standard version: without handwheel and extension spindle
without gaskets

Suitable accessories

Suitable accessories: see page G 1/2

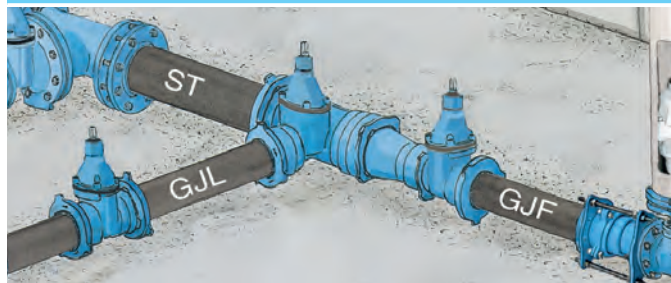
Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000E2
	telescopic	No. 9500E2
Surface boxes:	rigid	No. 1750
	telescopic	No. 2050, No. 2051K
Restraint clamp:	Hawle stop	No. NL80, NL78
		NL82, NL84
BAIO lip seal (BLD):	for DCI pipes	No. NL85
GKS pipe seal:	for PE/PVC pipes	No. NL86
Actuator:		No. 9920
Adapter for actuator (E2 adapter):		No. 8630E2
Base plate:		No. 3481, No. 3482
Sealing cap:		No. 2156, No. 2157, No. 2158
Spindle extension:		No. 7820, No. 7825
Position indicator:		No. 2170E2
HAWAK pillar:		No. 9894, No. 9895

No. NL10E2



Order No.	MOP (PN)	Dimension/ DN1					
		DN2	80	100	125	150	200
NL10E2	16	80					
		100					
		125					
		150					
		200					

Application example



DN 1	DN 2	Valve				Spindle			Weight
		L	E	E1	H	a	c	Ød1	
80	80	410	105	105	220	17,3	35	25	26,0
100	80	435	120	105	230	17,3	35	25	30,0
100	100	455	120	120	255	19,3	38	25	35,0
125	100	435	125	120	270	19,3	38	25	38,5
125	125	440	125	125	290	19,3	38	25	53,0
150	80	450	125	105	260	17,3	35	25	35,0
150	100	475	125	120	280	19,3	38	25	43,0
150	125	565	125	125	295	19,3	38	25	59,0
150	150	565	125	125	300	19,3	38	28	61,0
200	80	490	145	105	280	17,3	35	25	46,5
200	100	515	145	120	305	19,3	38	25	52,0
200	125	605	145	125	320	19,3	38	25	71,0
200	150	605	145	125	325	19,3	38	28	72,5
200	200	670	145	145	355	24,3	48	32	100,5



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G 5/1

E2 COMBI-III-VALVE - BAIO

With vertical outlet for ductile iron, steel, PE and PVC pipes, PN 16



Design features

- Resilient seated gate valve combined with socket T-piece
- With socket for ductile iron pipes
- With vertical outlet BAIO DN 80 and two ZAK-46 sockets
- Space-saving design through short construction
- Save material, labour, transport and storage costs
- One extension spindle for several dimensions
- Suitable for cleaning with a badger
- Easy retrofitting for position indicator and automatic actuators on the standard bonnet

Standard version: without handwheel and extension spindle without gaskets

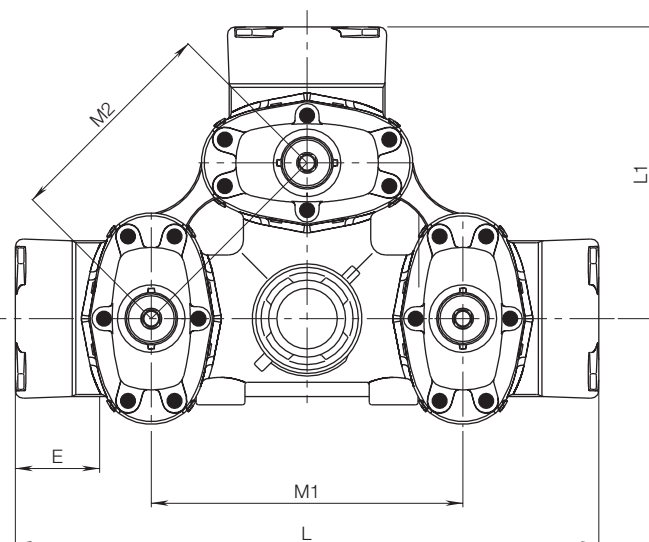
Suitable accessories

Suitable accessories: see page G 1/2

Handwheel:		No. 7800
Extension spindles:	rigid	No. 9000E2
	telescopic	No. 9500E2
Surface boxes:		No. 4550
Restraint clamp:	Hawle-Stop	No. NL80, NL78, NL82, NL84
BAIO lip seal (BLD):		
	for DCI pipes	No. NL85
GKS pipe seal:	for PE/PVC pipes	No. NL86
Sealing cap:	No. 2156, No. 2157, No. 2158	
Spindle extension:	No. 7820, No. 7825	
Position indicator:	No. 2170E2	
Below-ground hydrant:	No. 5059, No. 5061	

Order No.	Version	MOP (PN)	Valve quantity	Dimension/DN		
				100	150	200
NL15E2	with 2x ZAK 46-socket	16	3			

No. NL15E2



DN	E2 Combi-III with vertical outlet						Spindle			Weight for valve quantity
	Ø d	L	L1	E	M1	M2	a	c	Ød1	3
100	118	691	345,5	105	365	258	19,3	38	25	88,00
150	170	777	388,5	125	415	293	19,3	38	28	142,00
200	222	875	437,5	145	465	330	24,3	48	32	230,00

G 5/2



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BAIO - FITTINGS

Without gaskets

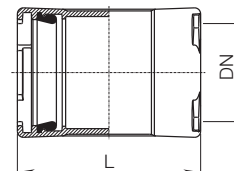


Design features

- BAIO-socket / BAIO-socket

DN	MOP (PN)	L	Weight
80	16	290	8,60
100		300	11,0
150		310	14,0
200		330	21,70

BAIO U-piece (socket piece) No. NL50

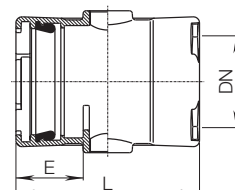


Design features

- BAIO socket / BAIO socket with two ZAK outlets

DN	Version	MOP (PN)	L	E	Weight
100	with ZAK-46 socket	16	300	115	11,10
150			310	115	15,15
200			330	125	22,40

BAIO U-piece (socket piece) with ZAK 46 outlets No. NL5A



Design features

- BAIO socket / BAIO socket with two side outlets IT 2"

DN	Thread	MOP (PN)	L	E	Weight
100	2"	16	300	115	12,00
150			310	115	15,35
200			330	125	21,20

BAIO U-piece (socket piece) with IT 2" outlets No. NL51

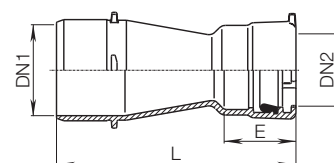


Design features

- BAIO socket / BAIO spigot, reduced

DN1	DN2	MOP (PN)	L	E	Weight
100	80	16	310	105	7,6
100	125		325	125	10,3
100	150		395	125	13,0
125	80		370	105	9,4
125	100		340	120	10,0
150	80		420	105	12,0
150	100		395	120	13,0
150	125		335	125	13,5
200	100		500	120	18,5
200	150		410	125	18,5
250	200		476	145	30,5
300	200		624	145	45,0

BAIO R-/RU-piece (reducer piece) No. NL40



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G 6/1

BAIO - FITTINGS

Without gaskets



Design features

- BAIO socket / BAIO socket
- Angles 11°, 22°, 30°, 45° on request

DN	MOP (PN)	L	E	Weight
80	16	220	105	9,30
100		255	120	12,30
125		275	125	17,00
150		315	125	21,90
200		390	145	35,00

Design features

- BAIO socket / BAIO spigot

DN	MOP (PN)	L	E	Weight
80	16	185	105	6,30
100		205	120	9,30
150		230	125	15,20
200		355	145	25,30

Design features

- BAIO socket / BAIO socket / BAIO socket

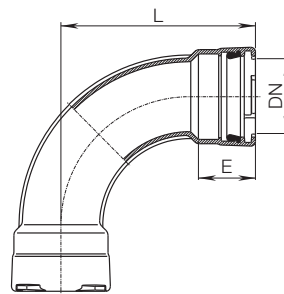
DN	DN1	MOP (PN)	L	E	H	E1	Weight
80	80	16	380	105	190	105	13,30
100	80		410	120	200	105	16,80
100	100		420	120	215	120	17,50
125	125		465	125	225	125	23,60
150	80		415	125	230	105	22,10
150	100		495	125	235	120	25,35
150	150		500	125	250	125	27,40
200	80		460	145	250	105	33,10
200	100		485	145	265	120	34,20
200	150		540	145	275	125	39,00
200	200		600	145	300	145	44,00
250	80		552	166	277	105	48,00
250	100		572	166	303	120	49,00
250	150		641	166	314	123	65,00
250	200		694	182	339	123	66,50
250	250		747	166	376	166	71,10
300	80		614	182	328	105	65,00
300	100		614	182	328	120	65,00
300	150		678	182	328	123	78,00

Design features

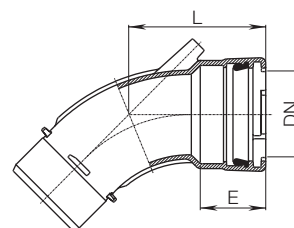
- DN 80-200, PN 16

DN	MOP (PN)	L	E	Weight
80	16	390	105	17,40
100		420	120	23,40
150		500	125	29,00
200		600	145	49,50

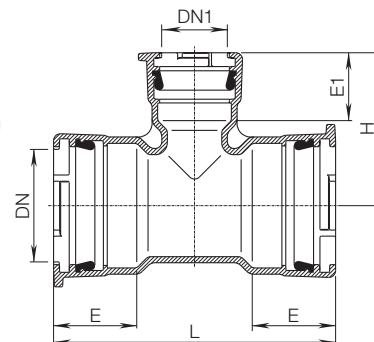
BAIO 90° MMQ bend No. NL30



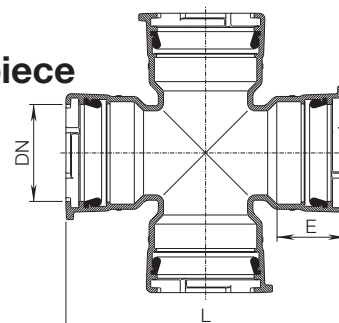
BAIO MSK 45° bend No. NL57



BAIO MMB-tee piece No. NL20



BAIO MTT-cross piece No. NL25



G 6/2



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BAIO - FITTINGS

Without gaskets



Design features

- BAIO socket / BAIO socket
- Available on request with two or three lateral threads IT 1½" - or ZAK 46 outlets

DN	DN1	MOP (PN)	L	H	E	E1	H1	Weight
80	80	16	215	330	105	105	115	15,70
100	80		260	330	120	105	115	16,20

Design features

- Flange / BAIO socket
- Flange size drilled according to EN 1092-2 | PN 10
- Available on request with two or three lateral threads IT 1½" - or ZAK 46 outlets

DN	DN1	MOP (PN)	L	H	H1	E	Weight
80	80	16	215	260	115	105	17,00
100	80		260	285	115	105	18,80
100	100		260	305	125	120	19,60

Design features

- BAIO socket / thread connector

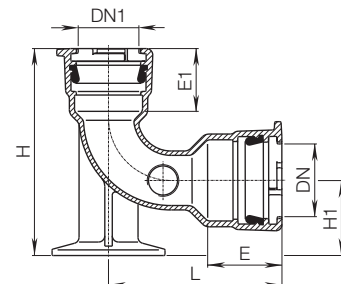
DN	Thread	MOP (PN)	L	E	Weight
80	1"	16	140	105	5,50
100	1"		145	120	6,20
	1½"				
125	1"		145	125	7,90
150	1"		150	125	9,40
200	1"		165	145	14,75

Design features

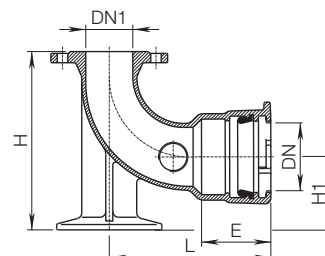
- BAIO spigot with 2 thread connectors 1"

DN	Thread	MOP (PN)	L	Weight
80	1"	16	185	4,70
100			205	5,60
125			195	6,80
150			195	8,60
200			205	13,00

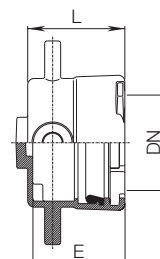
BAIO MMN-duck foot bend No. NL60



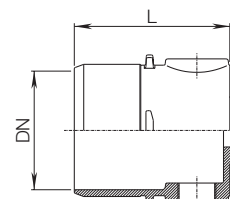
BAIO EN-duck foot bend No. NL65



BAIO socket end cap No. NL47



BAIO spigot end cap No. NL48



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G 6/3

BAIO - FITTINGS

Without gaskets



Design features

- BAIO spigot / BAIO spigot

DN	MOP (PN)	L	L1	Weight
80	16	215	45	3,70
80		500	330	8,00
100		255	45	5,00
100		500	290	11,00
150		270	50	8,60
200		280	50	14,10

BAIO S piece (spigot piece) No. NL46

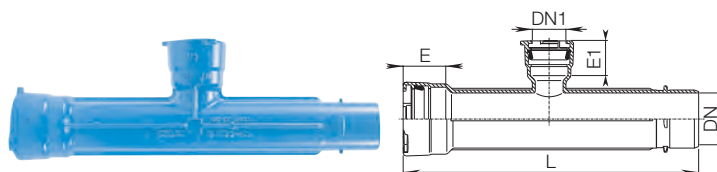


Design features

- BAIO socket / BAIO socket / BAIO spigot
- Assembly of below-ground hydrant in the pipe section

DN	DN1	MOP (PN)	L	E	E1	Weight
100	80	16	850	120	105	24,30
150	80			125	105	35,00
200	80			145	105	47,00

BAIO B-tee piece No. NL43

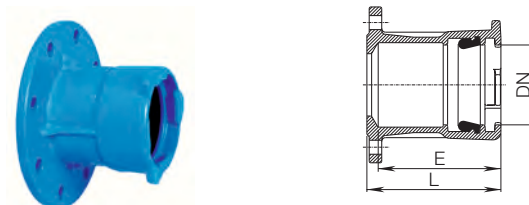


Design features

- Flange / BAIO socket
- Flange according to EN 1092-2, drilled according to EN 1092-2 | PN 10; EN 1092-2 | PN 16
DN 200 please specify on order - other standards on request

DN	Flange DN	MOP (PN)	L	E	Weight
80	80	16	170	155	7,70
100	100		175	160	9,10
100	150		175	160	12,00
125	125		180	165	11,60
150	150		180	165	13,20
200	200		185	170	19,10

BAIO EU piece (flange-socket piece) No. NL42

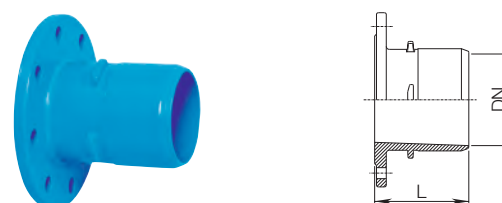


Design features

- Flange / BAIO spigot
- Flange according to EN 1092-2, drilled according to EN 1092-2 | PN 10; EN 1092-2 | PN 16
DN 200 please specify on order - other standards on request

DN	Flange DN	MOP (PN)	L	Weight
80	80	16	145	5,90
100	100		165	7,00
150	150		155	10,50
200	200		190	16,00

BAIO F piece (flange-spigot piece) No. NL41



G 6/4



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BAIO - FITTINGS

Without gaskets



Design features

- BAIO spigot / wide range socket
- For sanitation with wide range socket
- Long socket with slipover length

DN	Ød	MOP (PN)	L	E	Adjustment area S	Weight
80	84 - 105	16	740	117	414 - 426	16,80
100	104 - 132		725	110	374 - 395	19,00
150	154 - 192		774	120	361 - 390	28,00
200	192 - 232		778	140	355 - 382	43,50
200	232 - 257		764	145	364 - 389	49,00

Design features

- BAIO spigot / screw socket
- For sanitation with screw sockets
- Long socket with slipover length

DN	Ød	MOP (PN)	L	E	Adjustment area S	Weight
80	98	16	555	85	275	13,30
100	118		580	90	280	14,50
125	144		615	90	290	19,60
150	170		615	95	285	24,00
200	222		695	100	350	35,40
250	274		730	106	379	55,00
300	326		750	110	397	71,00

Design features

- ZAK socket / BAIO spigot

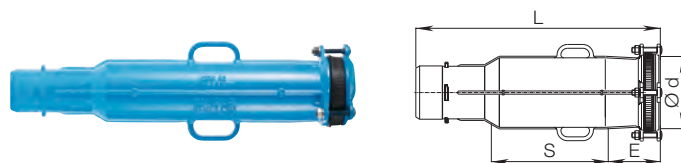
DN	Version	MOP (PN)	Ød	L	Weight
80	ZAK 46	16	98	176	2,30

Design features

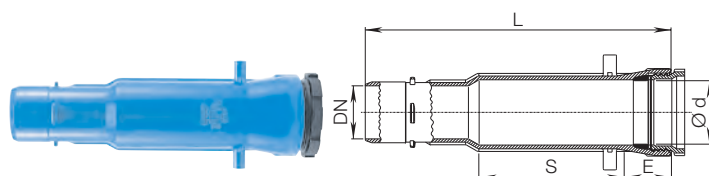
- BAIO spigot / BAIO socket
- Also available with ZAK 46 outlets

DN	MOP (PN)	L	L1	E	Weight
80	16	230	150	105	5,30
80		280	200	105	6,40
80		380	300	105	7,80
100		465	360	120	10,30
150		480	370	125	16,60
200		510	395	145	27,00

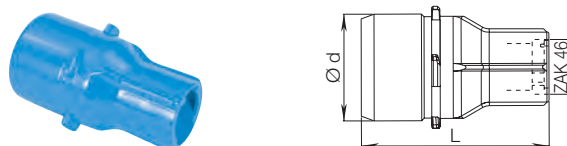
BAIO EMS piece "MULTI/JOINT" No. NL44MJ



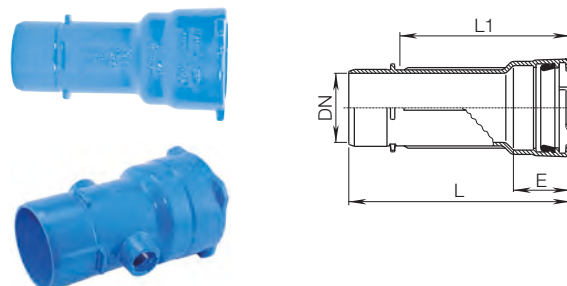
BAIO EMS piece (cut-in socket fitting) No. NL44



BAIO adapter piece Nr. NL4A

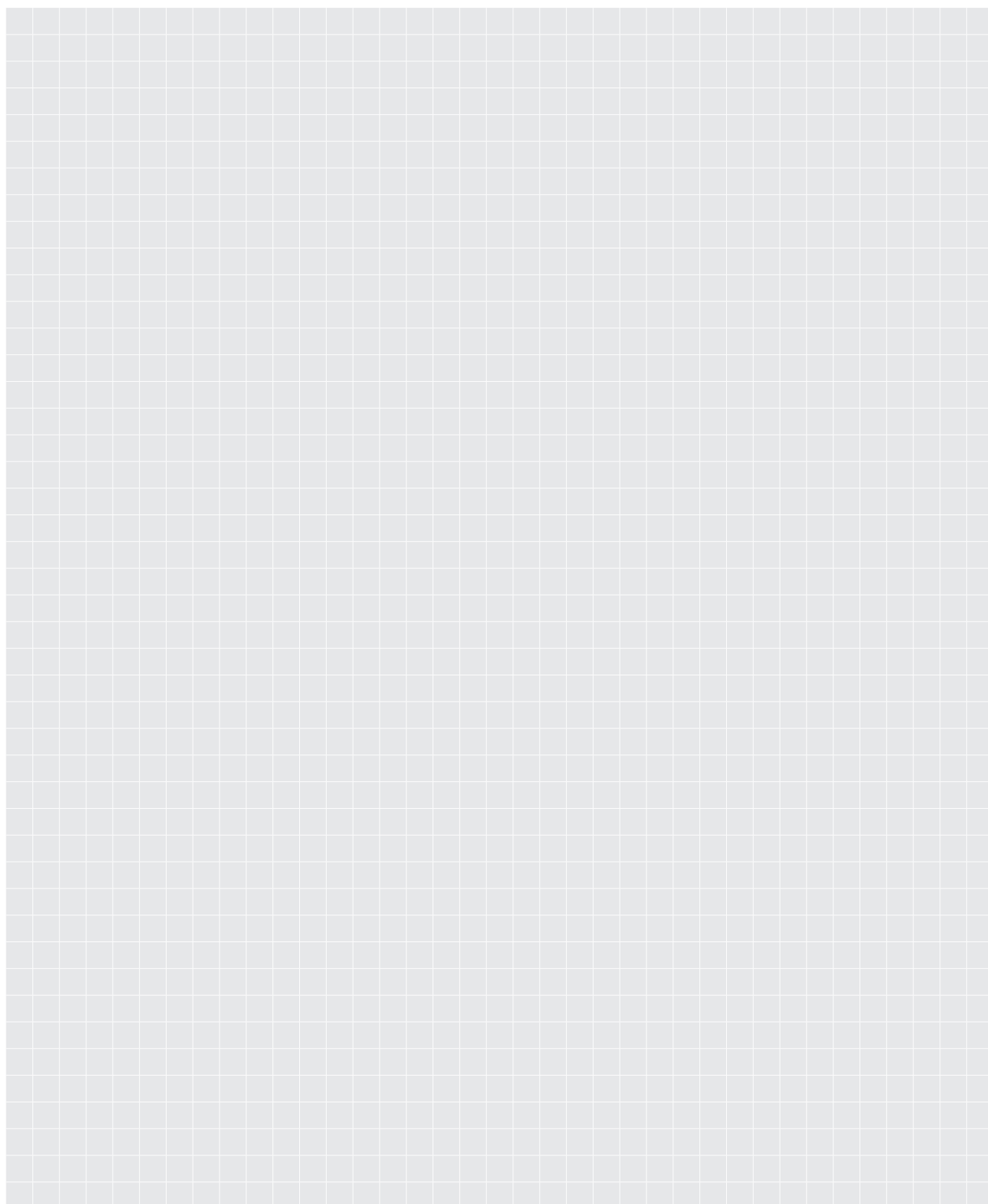


BAIO SM-adapter piece No. NL45



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G 6/5

A large rectangular area filled with a light gray grid pattern, intended for taking notes.

**Page
H 2**

H4 Hawle hydrant

Page H 2/1

**Page
H 3**

H4 Corrosion free hydrant

H4 Corrosion free hydrant - rigid type
H4 Corrosion free hydrant - break away
H4 Corrosion free hydrant with drop jacket

Page H 3/1
Page H 3/3
Page H 3/5



**Page
H 4**

H4 Above ground hydrant

H4 Above ground hydrant - rigid type
H4 Above ground hydrant - break away

Page H 4/1
Page H 4/3



**Page
H 5**

Below ground hydrant

Freeflow below ground hydrant
Freeflow below ground hydrant with BAIO spigot
Freeflow below ground hydrant tele
Freeflow below ground hydrant tele with BAIO spigot
Garden hydrant

Page H 5/1
Page H 5/1
Page H 5/3
Page H 5/3
Page H 5/4



**Page
H 6**

Operating instructions above ground hydrant Hawle drainage pipe

Page H 6/1
Page H 6/3



Accessories

Theft safety device	Page M 6/1
Hawle drainage pipe	Page H 6/3
Surface boxes	Page M 3/1
Flanged duck foot bend	Page D 3/2
Bolts	Page M 4/4
Flat gasket	Page M 7/1
Hawle-Vario	Page D 5/1

Extension for break-away area on request

Spare parts

Air valve	Page P 5/2
Cap	Page P 5/1
Valve plug	Page P 5/1
Bayonet coupling	Page P 5/2
Theft indicator cap	Page P 4/2
Set of replacement screws for Hawle-breakaway hydrants	Page P 5/2

Tools

Hydrant operating key	Page Q 4/2
HYDRANT-MASTER universal key	Page Q 4/2

Technical information

Tightening torques for flange assembly	Page R 3/1
Pressure-loss table Hawle hydrants	Page R 4/2

Annual inspection (in-house monitoring) with documentation acc. to. ÖNORM B 2539 prescribed.

Application examples



HYDRANTS

H4 Hawle-hydrant

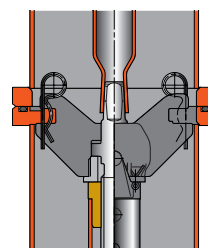
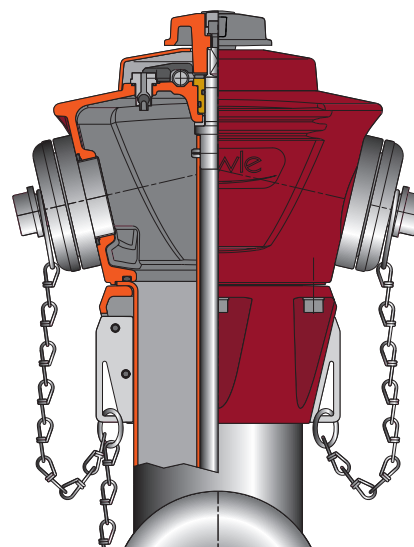


Design features

- Modern design
- Made entirely of corrosion free materials
- O-rings embedded in non-corrosive material
- Minimal torque for operation (MOT < 80 Nm, mST > 250 Nm)
- Noticeable stop at the limits when opening and closing
- Hydrant head can be turned completely 360°
- Easy exchange of all inner parts
- Remaining water content according to EN 1074-6
- Automatic drainage system with pressure control, drainage time less than 10 min.
- Opening direction left
- 15 turns to open position
- Connection option for drainage line PE pipe Ø32 or Hawle drainage pipe no. 5067
- **Outlets according to other international standards possible**
- Several outlets on the stand pipe possible, positions on request
- Resistant against disinfectants acc. to EN 1074-1

Above ground hydrant - break away

- Simple repair of the breakaway areas
- Spare bolts for quick repair of the break away line are contained in the hydrant head
- Safety bar for spindle housing in the area of the break away line
- Hydrant head can be delivered with individual colors



Material | Technical features

Both the stainless steel*- as well as the ductile iron version have completely identical internal parts made from corrosion-proof materials such as stainless steel, non-ferrous metal and plastic

* except "drop jacket" version

H4 above ground hydrants "stainless steel"

- According to EN 14384, EN 1074-6 and ÖNORM F 2010
- **Hydrant head** made of aluminium alloy, UV resistant coat
- **Stand pipe and break away line** made of stainless steel
- **Stand pipe with socket** made of stainless steel

H4-above ground hydrants "cast iron"

- According to EN 14384, EN 1074-6 and ÖNORM F 2010
- **Hydrant head** made of ductile iron, epoxy powder and UV resistant coat RAL 9006
- **Stand pipe and break away line** made of hot-galvanised steel and UV resistant coat RAL 5003
- **Base** made of ductile iron, epoxy powder coated RAL 5012

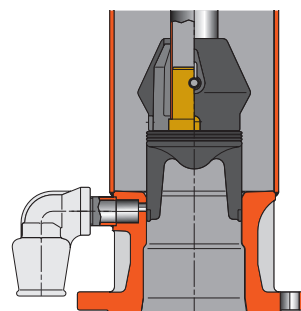
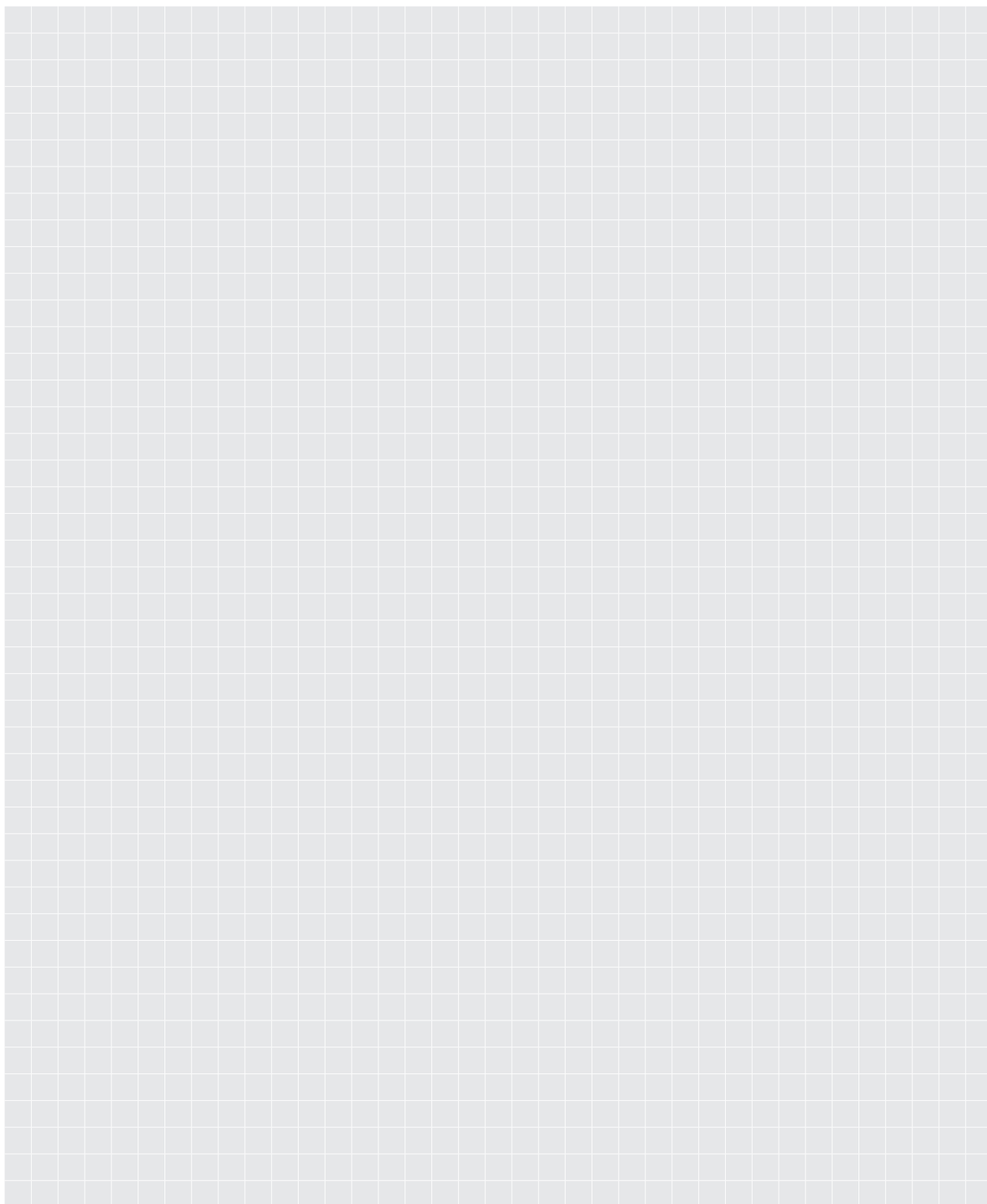


Fig.: break away version



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H 2/1



H4 CORROSION FREE hydrant

Rigid type, PN 16

hawle

Technical features

Standard: ÖNORM F 2010 - EN 14384, EN 1074-6

Max. working pressure: 16 bar

Standard pipe cover: 1,50 m
(on request 1,25 m and 1,00 m possible)

Rate of flow: Rate of flow Q (m³/h) at a differential pressure of 1 bar is for all HAWLE-H4 hydrants higher than requested by ÖNORM F 2010 and EN 14384

Remaining water content: < EN 1074-6

- Flange sized and drilled in accordance with EN 1092-1 | PN 16

Material

Hydrant head: aluminium alloy, UV resistant coated

Stand pipe: thick walled stainless steel pipe, polished

Operating controls: stainless steel

Base: cast stainless steel

Suitable accessories

Suitable accessories: see page H 1/2

Hawle drainage pipe No. 5067
Flanged duck foot bend No. 5045, No. 5046, No. 5049, No. 7981
Operating key No. 3460, No. 3461
Flat gasket No. 3390
Bolts No. 8810, No. 8830, No. 8840

No. 5151H4
No. 5151H4B

No. 5140H4
No. 5140H4B



Order No.	Colour / RAL	DN	Outlet			Weight	
			A	B	C		
5151H4	red / 3003	80		1	2	62,2	
5151H4B	blue / 5003						
5140H4	red / 3003	80		2		61,0	
5140H4B	blue / 5003						
5151H4	red / 3003	100	1	2		65,5	
5151H4B	blue / 5003						
5140H4*	red / 3003	100		2		63,6	
5140H4B*	blue / 5003						

* ÖVGW (Austrian Association for Gas and Water) tested Other colours on request

Application example

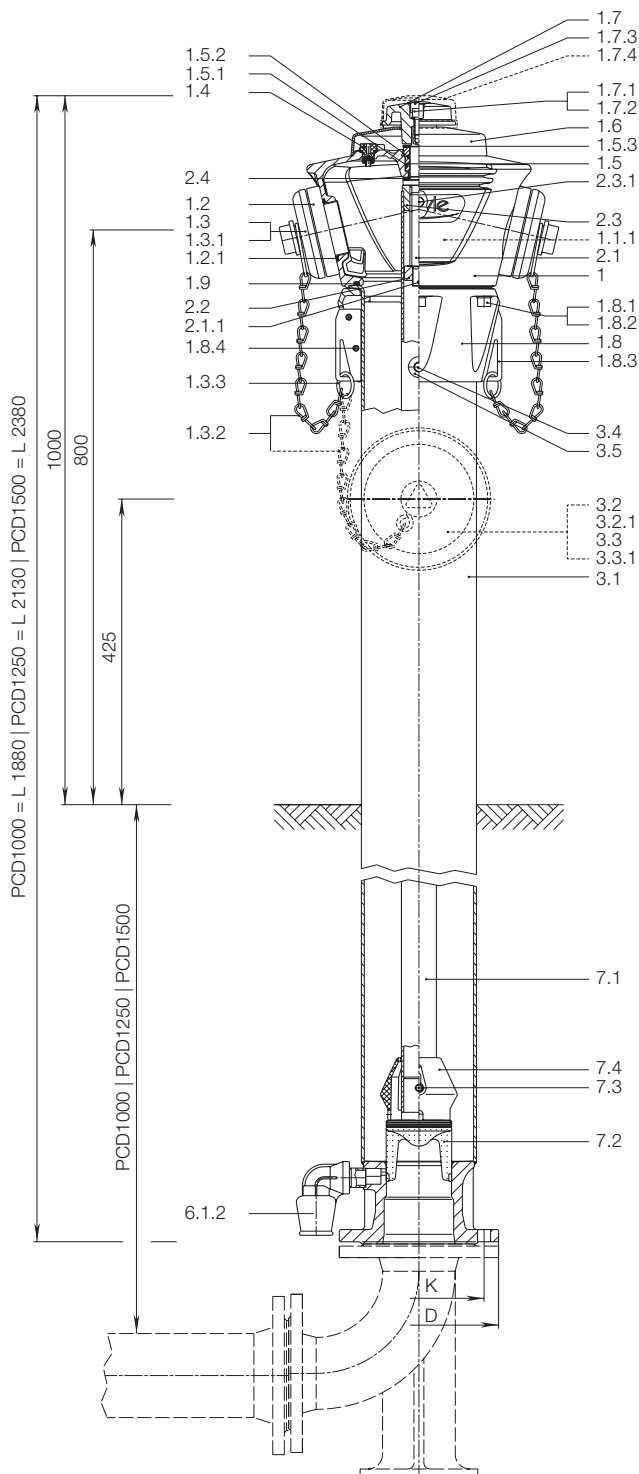


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H 3/1

H4 CORROSION FREE hydrant

Rigid type, PN 16



Required details for ordering spare parts:

order no. / DN / PCD / year of construction

	Parts	Material
1	Hydrant head	Al
1.1.1	Identification plate	metallic foil
1.2	DN 80 C coupling DIN 14317 - C1 52 mm DN 100 B coupling DIN 14318 - B1 75 mm	Al
1.2.1	DN 80 O-ring 64 x 4 DN 100 O-ring 79 x 4	elastomer
1.3	DN 80 C cap DIN 14317 - C 4 DN 100 B cap DIN 14318 - B 4	Al
1.3.1	DN 80 C flat seal ring DIN 14317 - C3 DN 100 B flat seal ring DIN 14318 - B3	elastomer
1.3.2	Chain with S-hooks	stainless steel
1.3.3	Ring for chain	stainless steel
1.4	Air valve	POM
1.5	O-ring bush	brass
1.5.1	O-ring 32 x 4	elastomer
1.5.2	O-ring 25 x 3.5	elastomer
1.5.3	Friction washer	POM
1.6	Cap	Al
1.7	Operating nut	Al
1.7.1	Washer A 13	stainless steel
1.7.2	Allen bolt M 12 x 30	stainless steel
1.7.3	Isolating cap	PE
1.7.4	Theft safety device	polystyrene
1.8	Head flange for hydrant head	Al
1.8.1	Washer A 13	stainless steel
1.8.2	Allen bolt M 12 x 40	stainless steel
1.8.3	Fixing strap	stainless steel
1.8.4	Brace 8 x 16	stainless steel
1.9	O-ring 170 x 6	elastomer
2.1	Spindle rigid	stainless steel
2.1.1	Pin 4 x 25	stainless steel
2.2	Stop nut	stainless steel
2.3	Stem nut	brass
2.3.1	Hexagonal bolt M 8 x 10	stainless steel
2.4	Friction washer	POM
3.1	Stand pipe	stainless steel
3.2	DN 80 B coupling DIN 14318 - B1 75 mm DN 100 A coupling DIN 14319 - A1 110 mm	Al
3.2.1	DN 80 O-ring 79 x 4 DN 100 O-ring 116 x 4	elastomer
3.3	DN 80 B cap DIN 14318 - B4 DN 100 A cap DIN 14319 - A4	Al
3.3.1	DN 80 B flat seal ring DIN 14318 - B3 DN 100 A flat seal ring DIN 14319 - A3	elastomer
3.4	Guide pin	stainless steel
3.5	Guide bush	POM
6.1.2	Fitting 1" / 90°	POM
7.1	Operating pipe	stainless steel
7.2	Valve plug	brass/elastomer
7.3	Securing pin for valve plug	stainless steel
7.4	Flow former	PE

Upper coupling connecting angle 77°

DN	Outlet			Pipe cover	Base flange sized and drilled according to EN 1092-1				
	A	B	C	PCD	DN	D	K	Bolts	Quantity
80		1	2	1,50 m	80	200	160	M 16	8
		2		1,25 m					
100	1	2		1,00 m	100	220	180		
		2							

H 3/2



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H4 CORROSION FREE hydrant

Break away, PN 16



Technical features

- Standard:** ÖNORM (Austrian standard)
F 2010 - EN 14384, EN 1074-6
with break away line
- Max. operating pressure:** 16 bar
- Standard pipe cover:** 1,50 m
(on request 1,25 m and 1,00 m possible)
- Rate of flow:** Rate of flow Q (m³/h) at a differential pressure of 1 bar is for all HAWLE-H4 hydrants higher than requested by ÖNORM F 2010 and EN 14384
- Remaining water content:** < EN 1074-6
- Flange sized and drilled in accordance with EN 1092-1 | PN 16

Material

- Hydrant head:** aluminium alloy, UV resistant coated
- Stand pipe:** thick-walled stainless steel pipe, polished
- Operating controls:** stainless steel
- Base:** cast stainless steel

Suitable accessories

- Suitable accessories:** see page H 1/2
- Hawle drainage pipe No. 5067
- Flanged duck foot bend No. 5045, No. 5046, No. 5049, No. 7981
- Operating key No. 3460, No. 3461
- Flat gasket No. 3390
- Bolts No. 8810, No. 8830, No. 8840

No. 5195H4
No. 5195H4B

No. 5196H4
No. 5196H4B



Order No.	Colour / RAL	DN	Outlet			Weight	
			A	B	C		
5195H4	red / 3003	80		1	2	69,5	
5195H4B	blue / 5003						
5196H4*	red / 3003	80		2		68,0	
5196H4B*	blue / 5003						
5195H4	red / 3003	100	1	2		74,0	
5195H4B	blue / 5003						
5196H4*	red / 3003	100		2		69,0	
5196H4B*	blue / 5003						

* ÖVGW (Austrian Association for Gas and Water) tested Other colours on request

Application example

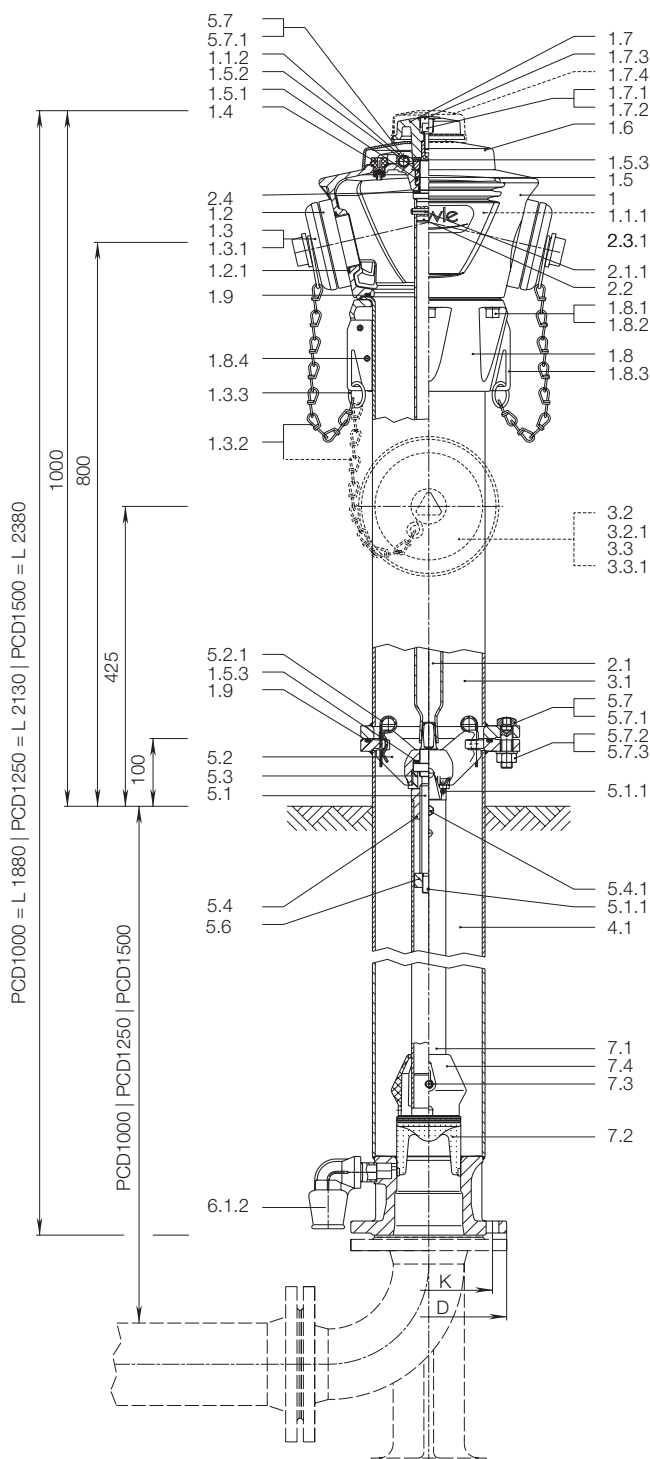


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H 3/3

H4 CORROSION FREE hydrant

Break away, PN 16



Upper coupling connecting angle 77°

DN	Outlet			Pipe cover	Base flange sized and drilled according to EN 1092-1			
	A	B	C		DN	D	K	Quantity
80		1	2	1,50 m 1,25 m 1,00 m	80	200	160	M 16 8
		2						
100	1	2			100	220	180	

	Parts	Material
1	Hydrant head	Al
1.1.1	Identification plate	metallic foil
1.1.2	Bolt fastener	elastomer
1.2	DN 80 C coupling DIN 14317 - C1 52 mm DN 100 B coupling DIN 14318 - B1 75 mm	Al
1.2.1	DN 80 O-ring 64 x 4 DN 100 O-ring 79 x 4	elastomer
1.3	DN 80 C cap DIN 14317 - C 4 DN 100 B cap DIN 14318 - B 4	Al
1.3.1	DN 80 C flat seal ring DIN 14317 - C3 DN 100 B flat seal ring DIN 14318 - B3	elastomer
1.3.2	Chain with S-hooks	stainless steel
1.3.3	Ring for chain	stainless steel
1.4	Air valve	POM
1.5	O-ring bush	brass
1.5.1	O-ring 32 x 4	elastomer
1.5.2	O-ring 25 x 3.5	elastomer
1.5.3	Friction washer	POM
1.6	Cap	Al
1.7	Operating nut	Al
1.7.1	Washer A 13	stainless steel
1.7.2	Allen bolt M 12 x 30	stainless steel
1.7.3	Isolating cap	PE
1.7.4	Theft safety device	polystyrene
1.8	Head flange for hydrant head	Al
1.8.1	Washer A 13	stainless steel
1.8.2	Allen bolt M 12 x 40	stainless steel
1.8.3	Fixing strap	stainless steel
1.8.4	Brace 8 x 16	stainless steel
1.9	O-ring 170 x 6	elastomer
2.1	Extension spindle	stainless steel
2.1.1	Brace 8 x 50	stainless steel
2.2	Pin	stainless steel
2.4	Friction washer	POM
3.1	Stand pipe - upper part	stainless steel
3.2	DN 80 B coupling DIN 14318 - B1 75 mm DN 100 A coupling DIN 14319 - A1 110 mm	Al
3.2.1	DN 80 O-ring 79 x 4 DN 100 O-ring 116 x 4	elastomer
3.3	DN 80 B cap DIN 14318 - B4 DN 100 A cap DIN 14319 - A4	Al
3.3.1	DN 80 B flat seal ring DIN 14318 - B3 DN 100 A flat seal ring DIN 14319 - A3	elastomer
4.1	Stand pipe - lower part	stainless steel
5.1	Spindle break away	stainless steel
5.1.1	Pin 4 x 25	stainless steel
5.2	Spindle housing	brass
5.2.1	Spring clip	stainless steel
5.3	Securing bush	POM
5.4	Stem nut	Brass
5.4.1	Hexagonal bolt M 8 x 10	stainless steel
5.6	Stop nut	stainless steel
5.7	Hexagonal bolt with break away line M 16 x 60	stainless steel
5.7.1	Plug for bolt	PE
5.7.2	Washer A 17	stainless steel
5.7.3	Hexagonal nut M 16	stainless steel
6.1.2	Fitting 1" / 90°	POM
7.1	Operating pipe	stainless steel
7.2	Valve plug	brass/elastomer
7.3	Securing pin for valve plug	stainless steel
7.4	Flow former	PE

H 3/4



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H4 CORROSION FREE hydrant

Break away, with drop jacket, PN 16



Design features

- This above ground hydrant is convincing both in terms of technology and its construction in non-corroding material. In terms of optical effect, it has a remarkable and clear design
- The "drop jacket technology" protects the upper outlets from unauthorized use and weather. Upon unlocking the plastic jacket and it drops downwards the two individually lockable B-outlets can be opened
- Pressure relieving shut-off valves on hydrant head
- Simple locking and loosening of the drop jacket by means of snap. "Shock absorbers" prevents the drop jacket from bumping hard
- Easy and quick repair of the break away line
- Spare bolts no. 8841 for quick repair of the break away line are stored in the head of the hydrant
- Safety bar for spindle housing in the area of the break away line
- Easy exchange of all inner parts without excavation

Material | Technical features

Hydrant head: aluminium alloy, UV resistant coated
Drop jacket: shock-proof UV-resistant plastic
Stand pipe: thick walled stainless steel pipe, polished
Operating controls: stainless steel
Base: stainless steel

Standard: **ÖNORM (Austrian standard)**
F 2010 - EN 14384, EN 1074-6

Max. operating pressure: 16 bar

Standard pipe cover: 1,50 m
(on request 1,25 m and 1,00 m possible)

Rate of flow: Rate of flow Q (m³/h) at a differential pressure of 1 bar is for all HAWLE-H4 hydrants higher than requested by ÖNORM F 2010 and EN 14384
 $K_v [m³/h]$

Remaining water content: < EN 1074-6

- Flange sized and drilled in accordance with EN 1092-1 | PN 16

Suitable accessories

Suitable accessories: see page H 1/2
Hawle drainage pipe No. 5067
Flanged duck foot bend No. 5045, No. 5046, No. 5049, No. 7981
Operating key No. 3460, No. 3461
Flat gasket No. 3390
Bolts No. 8810, No. 8830, No. 8840

No. 5186

No. 5185



Order No.	DN	Outlet		Weight	
		A	B		
5186	80		2	79,0	
	100		2	80,0	
5185	100	1	2	81,0	

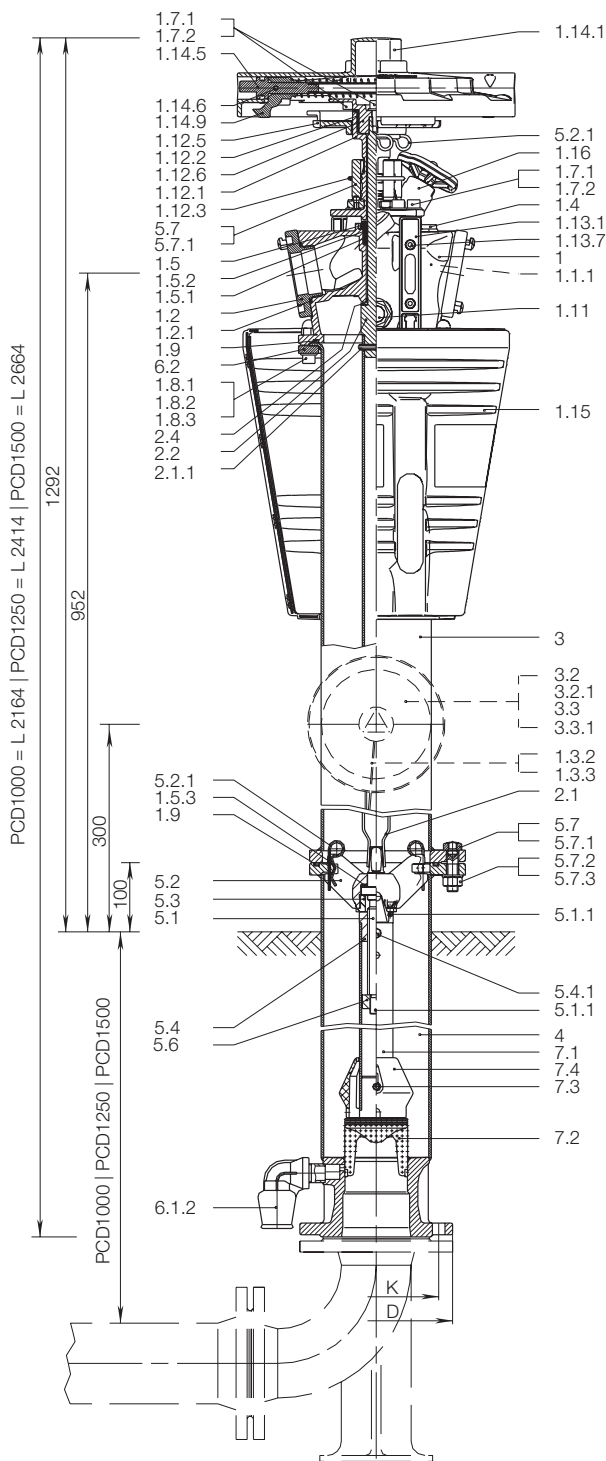


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H 3/5

H4 CORROSION FREE hydrant

Break away, with drop jacket, PN 16



Upper coupling connecting angle 80°

DN	Outlet		Pipe cover	Base flange sized and drilled according to EN 1092-1			
	A	B	PCD	DN	D	K	Quantity
80		2	1,50 m	80	200	160	M 16 8
		2	1,25 m				
100	1	2	1,00 m	100	220	180	

	Parts	Material
1	Hydrant head	Al
1.1.1	Identification plate	metallic foil
1.2	B coupling DIN 14318 - B1 75 mm	Al
1.2.1	O-ring	elastomer
1.3.2	Grip ring	various
1.3.3	Rope	stainless steel
1.4	Air valve	POM
1.5	O-ring bush	brass
1.5.1	O-ring 32 x 4	elastomer
1.5.2	O-ring 25 x 3.5	elastomer
1.5.3	Friction washer	POM
1.7.1	Washer A 13	stainless steel
1.7.2	Allen bolt M 12 x 25	stainless steel
1.8.1	Washer A 13	stainless steel
1.8.2	Allen bolt M 12 x 40	stainless steel
1.8.3	Cap nut M 12	stainless steel
1.9	O-ring 170 x 6	elastomer
1.11	Pressure indicator	brass
1.12.1	Covering column	Al
1.12.2	Bearing bush	POM
1.12.3	O-ring	elastomer
1.12.5	Hood lock	Al
1.12.6	Hood support	Al
1.13.1	Guide strip	POM
1.13.7	Allen bolt M 8 x 20	stainless steel
1.14.1	Hood cover	Al
1.14.5	Spindle	stainless steel
1.14.6	Straight pin	stainless steel
1.14.9	Locking bar	brass
1.15	Drop jacket	ABS
1.16	Valve bonnet, complete	Al
2.1	Extension spindle	stainless steel
2.1.1	Brace 8 x 50	stainless steel
2.2	Pin for extension spindle	stainless steel
2.4	Friction washer	POM
3	Stand pipe, complete	stainless steel
3.2	A coupling DIN 14319 - A1 110 mm	Al
3.2.1	O-ring 116 x 4	elastomer
3.3	A cap	Al
3.3.1	Flat gasket	elastomer
4	Stand pipe	stainless steel
5.1	Spindle	stainless steel
5.1.1	Pin 4 x 25	stainless steel
5.2	Spindle housing	brass
5.2.1	Spring clip	stainless steel
5.3	Securing bush	POM
5.4	Stem nut	brass
5.4.1	Hexagonal bolt M 8 x 10	stainless steel
5.6	Stop nut	stainless steel
5.7	Hexagonal bolt for breaking point M 16 x 60	stainless steel
5.7.1	Plug for bolt	PE
5.7.2	Washer A 17	stainless steel
5.7.3	Hexagonal nut M 16	stainless steel
6.1.2	Fitting 1" / 90°	POM
6.2	Lock ring	Al
7.1	Operating pipe	stainless steel
7.2	Valve plug	brass/elastomer
7.3	Securing pin for valve plug	stainless steel
7.4	Flow former	PE

H 3/6



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H4 ABOVE GROUND hydrant

Rigid type, PN 16

hawle

Technical features

Standard: ÖNORM (Austrian standard)
F 2010 - EN 14384, EN 1074-6

Max. operating pressure: 16 bar

Standard pipe cover: 1,50 m
(on request 1,25 m and 1,00 m possible)

Rate of flow: Rate of flow Q (m³/h) at a differential pressure of 1 bar is for all HAWLE-H4 hydrants higher than requested by ÖNORM F 2010 and EN 14384

Remaining water content: < EN 1074-6

- Flange sized and drilled according to EN 1092-2 | PN 16

Material

Hydrant head: made of ductile iron, epoxy powder- + UV resistant coated RAL 9006

Stand pipe: thick walled steel pipe, galvanised, UV resistant coated RAL 5003

Operating controls: stainless steel

Base: made of ductile iron, epoxy powder-coated RAL 5012

Suitable accessories

Suitable accessories: see page H 1/2

Hawle drainage pipe No. 5067
Flanged duck foot bend No. 5045, No. 5046, No. 5049, No. 7981
Operating key No. 3460, No. 3461
Flat gasket No. 3390
Bolts No. 8810, No. 8830, No. 8840

No. 5051H4

No. 5053H4



Order No.	DN	Outlet			Weight
		A	B	C	
5051H4*	80		1	2	71,0
5053H4*			2		70,5
5051H4	100	1	2		72,0
5053H4			2		71,0
5051H4	150	1	2		78,0

* ÖVGW (Austrian Association for Gas and Water) tested

Application example

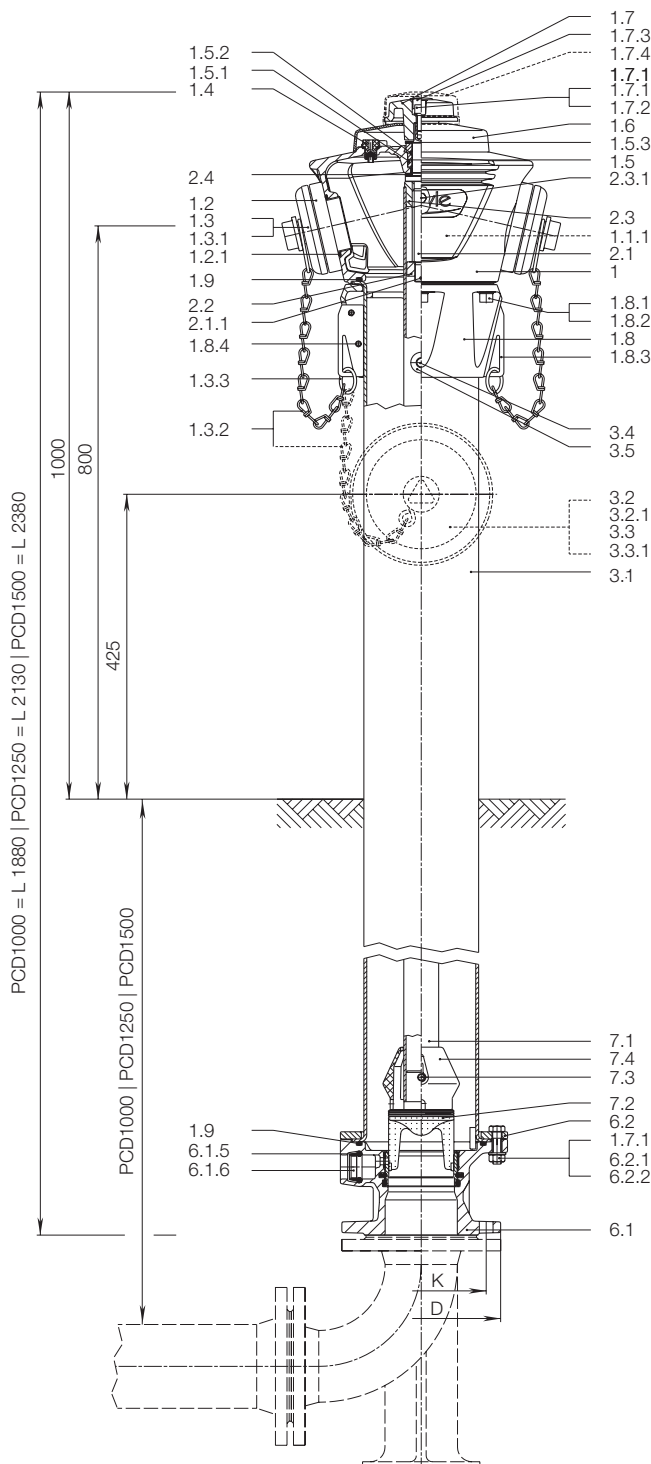


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H 4/1

H4 ABOVE GROUND hydrant

Rigid type, PN 16



Upper coupling connecting angle 77°

DN	Outlet			Pipe cover PCD	Base flange sized and drilled according to EN 1092-1				Qty.
	A	B	C		DN	D	K	Bolts	
80	1	2	2	1,50 m 1,25 m	80	200	160	M 16	8
		2	2						
100	1	2	2	1,00 m	100	220	180	M 16	8
		2	2						
150	1	2	2	1,50 m	150	285	240	M 20	8

	Parts	Material
1	Hydrant head	ductile iron
1.1.1	Identification plate	metallic foil
1.2	DN 80 C coupling DIN 14317 - C1 52 mm DN 100 B coupling DIN 14318 - B1 75 mm	Al
1.2.1	DN 80 O-ring 64 x 4 DN 100 O-ring 79 x 4	elastomer
1.3	DN 80 C cap DIN 14317 - C 4 DN 100 B cap DIN 14318 - B 4	Al
1.3.1	DN 80 C flat seal ring DIN 14317 - C3 DN 100 B flat seal ring DIN 14318 - B3	elastomer
1.3.2	Chain with S-hooks	stainless steel
1.3.3	Ring for chain	stainless steel
1.4	Air valve	POM
1.5	O-ring bush	brass
1.5.1	O-ring 32 x 4	elastomer
1.5.2	O-ring 25 x 3.5	elastomer
1.5.3	Friction washer	POM
1.6	Cap	Al
1.7	Operating nut	Al
1.7.1	Washer A 13	stainless steel
1.7.2	Allen bolt M 12 x 30	stainless steel
1.7.3	Isolating cap	PE
1.7.4	Theft safety device	Polystyrene
1.8	Head flange for hydrant head	Al
1.8.1	Washer A 13	stainless steel
1.8.2	Allen bolt M 12 x 40	stainless steel
1.8.3	Fixing strap	stainless steel
1.8.4	Brace 8 x 16	stainless steel
1.9	O-ring 170 x 6	elastomer
2.1	Spindle rigid	stainless steel
2.1.1	Pin 4 x 25	stainless steel
2.2	Stop nut	stainless steel
2.3	Stem nut	brass
2.3.1	Hexagonal bolt M 8 x 10	stainless steel
2.4	Friction washer	POM
3.1	Standpipe	steel
3.2	DN 80 B coupling DIN 14318 - B1 75 mm DN 100 A coupling DIN 14319 - A1 110 mm	Al
3.2.1	DN 80 O-ring 79 x 4 DN 100 O-ring 116 x 4	elastomer
3.3	DN 80 B cap DIN 14318 - B4 DN 100 A cap DIN 14319 - A4	Al
3.3.1	DN 80 B flat seal ring DIN 14318 - B3 DN 100 A flat seal ring DIN 14319 - A3	elastomer
3.4	Guide pin	stainless steel
3.5	Guide bush	POM
6.1	Base	ductile iron
6.1.5	O-ring 30.3 x 7.5	elastomer
6.1.6	Grip ring	POM
6.2	Head flange for base	steel
6.2.1	Hexagonal bolt M 12 x 45	stainless steel
6.2.2	Hexagonal nut M 12	stainless steel
7.1	Operating pipe	stainless steel
7.2	Valve plug	brass/elastomer
7.3	Securing pin for valve plug	stainless steel
7.4	Flow former	PE

H 4/2



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H4 ABOVE GROUND hydrant

Break away, PN 16

hawle

Technical features

Standard: ÖNORM F 2010 - EN 14384, EN 1074-6
with break-away line

Max. operating pressure: 16 bar

Standard pipe cover: 1,50 m
(on request 1,25 m and 1,00 m possible)

Rate of flow: Rate of flow Q (m³/h) at a differential pressure of 1 bar is for all HAWLE-H4 hydrants higher than requested by ÖNORM F 2010 and EN 14384

Remaining water content: < EN 1074-6

- Flange sized and drilled according to EN 1092-2 | PN 16

Material

Hydrant head: made of ductile iron, coated with epoxy powder and UV resistant RAL 9006

Stand pipe: galvanised thick walled steel pipe coated with UV resistant RAL 5003

Operating controls: stainless steel

Base: made of ductile iron, epoxy powder coated RAL 5012

Suitable accessories

Suitable accessories: see page H 1/2

Hawle drainage pipe No. 5067
Flanged duck foot bend No. 5045, No. 5046, No. 5049, No. 7981
Operating key No. 3460, No. 3461
Flat gasket No. 3390
Bolts No. 8810, No. 8830, No. 8840

No. 5095H4

No. 5096H4



Order No.	DN	Outlet			Weight	
		A	B	C		
5095H4*	80		1	2	82,0	
5096H4*			2		78,0	
5095H4	100	1	2		85,0	
5096H4			2		81,0	
5095H4	150	1	2		94,0	

* ÖVGW (Austrian Association for Gas and Water) tested

Application example

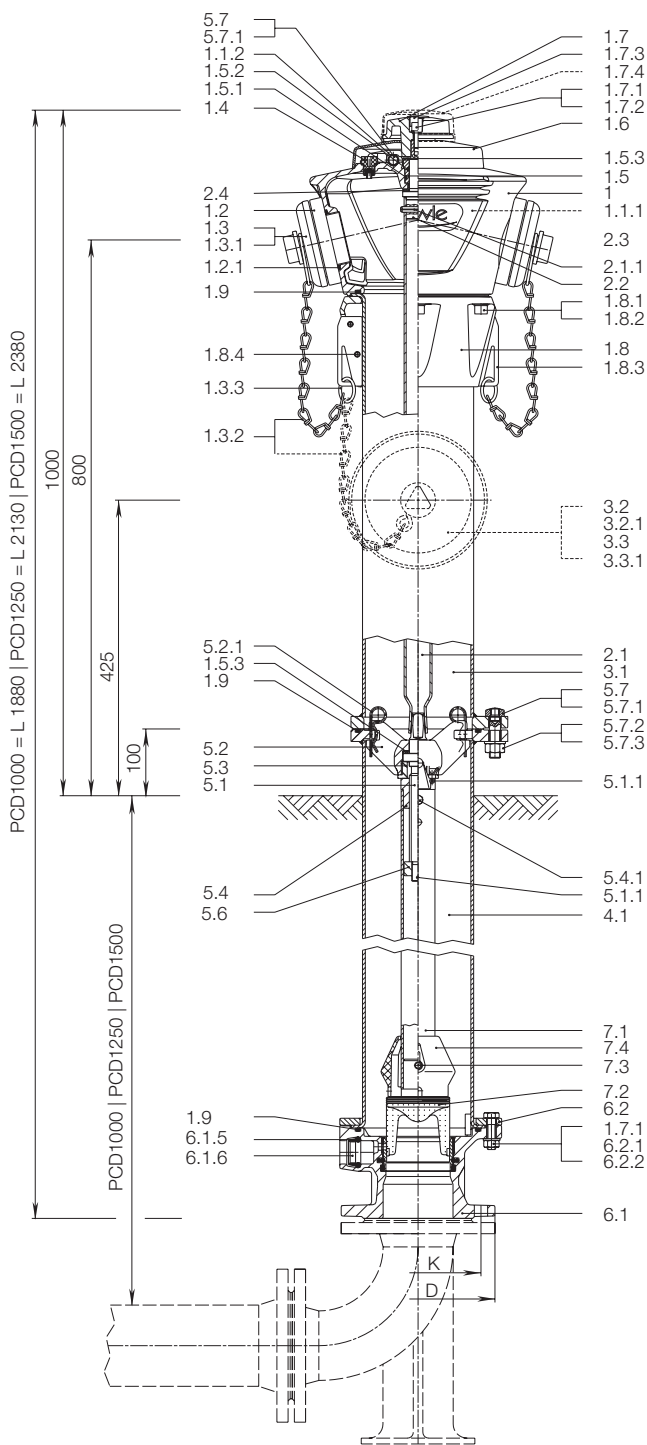


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H 4/3

H4 ABOVE GROUND hydrant

Break away, PN 16



	Parts	Material
1	Hydrant head	ductile iron
1.1.1	Identification plate	metallic foil
1.1.2	Bolt fastener	elastomer
1.2	DN 80 C coupling DIN 14317 - C1 52 mm DN 100 B coupling DIN 14318 - B1 75 mm	Al
1.2.1	DN 80 O-ring 64 x 4 DN 100 O-ring 79 x 4	elastomer
1.3	DN 80 C cap DIN 14317 - C 4 DN 100 B cap DIN 14318 - B 4	Al
1.3.1	DN 80 C flat seal ring DIN 14317 - C3 DN 100 B flat seal ring DIN 14318 - B3	elastomer
1.3.2	Chain with S-hooks	stainless steel
1.3.3	Ring for chain	stainless steel
1.4	Air valve	POM
1.5	O-ring bush	brass
1.5.1	O-ring 32 x 4	elastomer
1.5.2	O-ring 25 x 3,5	elastomer
1.5.3	Friction washer	POM
1.6	Cap	Al
1.7	Operating nut	Al
1.7.1	Washer A 13	stainless steel
1.7.2	Allen bolt M 12 x 30	stainless steel
1.7.3	Isolating cap	PE
1.7.4	Theft safety device	Polystyrene
1.8	Head flange for hydrant head	Al
1.8.1	Washer 13	stainless steel
1.8.2	Allen bolt M 12 x 40	stainless steel
1.8.3	Fixing strap	stainless steel
1.8.4	Brace 8 x 16	stainless steel
1.9	O-ring 170 x 6	elastomer
2.1	Extension spindle	stainless steel
2.1.1	Brace 8 x 50	stainless steel
2.2	Pin	stainless steel
2.4	Friction washer	POM
3.1	Stand pipe	steel
3.2	DN 80 B coupling DIN 14318 - B1 75 mm DN 100 A coupling DIN 14319 - A1 110 mm	Al
3.2.1	DN 80 O-ring 79 x 4 DN 100 O-ring 116 x 4	elastomer
3.3	DN 80 B cap DIN 14318 - B4 DN 100 A cap DIN 14319 - A4	Al
3.3.1	DN 80 B flat seal ring DIN 14318 - B3 DN 100 A flat seal ring DIN 14319 - A3	elastomer
4.1	Stand pipe	steel
5.1	Spindle break away	stainless steel
5.1.1	Pin 4 x 25	stainless steel
5.2	Spindle housing	brass
5.2.1	Spring clip	stainless steel
5.3	Securing bush	POM
5.4	Stem nut	brass
5.4.1	Hexagonal bolt M 8 x 10	stainless steel
5.6	Stop nut	stainless steel
5.7	Hexagonal bolt for breaking point M 16 x 60	stainless steel
5.7.1	Plug for bolt	PE
5.7.2	Washer A 17	stainless steel
5.7.3	Hexagonal nut M 16	stainless steel
6.1	Base	ductile iron
6.1.5	O-ring 30.3 x 7.5	elastomer
6.1.6	Grip ring	POM
6.2	Head flange for base	steel
6.2.1	Hexagonal bolt M 12 x 45	stainless steel
6.2.2	Hexagonal nut M 12	stainless steel
7.1	Operating pipe	stainless steel
7.2	Valve plug	brass/elastomer
7.3	Securing pin for valve plug	stainless steel
7.4	Flow former	PE

Upper coupling connecting angle 77°

DN	Outlet			Pipe cover	Base flange sized and drilled according to EN 1092-2				
	A	B	C		DN	D	K	Bolts	Quantity
80		1	2	1,50 m 1,25 m 1,00 m	80	200	160	M 16	8
		2							
100	1	2		1,50 m	100	220	180	M 20	8
		2							
150	1	2		1,50 m	150	285	240	M 20	8

H 4/4



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FREEFLOW below ground hydrant

PN 16



Design features

- Free passage
- Stainless steel plate mechanism with fixed opening and closing points, which will not be affected by encrustation or pollution.
- Good corrosion protection by epoxy coating and non-corroding materials
- Maintenance free
- Automatic drainage system with pressure control, drain time less than 10 min.
- Minimal torque for operation
- Suitable for installation by under pressure drilling (installation afterwards)
- Multiple functions possible
- Seals in shut-off element is protected against damage

Material | Technical features

Standard: EN 14339

Max. operating pressure: 16 bar

Standard pipe cover: 1,50 m

Rate of flow: Rate of flow Q (m³/h) at a differential pressure of 1 bar is higher than demanded by EN 14339

Remaining water content: < EN 1074-6

- Flange sized and drilled according to EN 1092-2 | PN 16

Connection possibilities:

- Flange connection: EN piece, F piece, drilling clamp flange sized and drilled according to EN 1092-2
- BAIO spigot connection: B piece, MMB piece, SM piece, MMN piece

On request:

- Below ground extensions 100 to 500 mm
- Protection against dirt and twisting no. NL92 of the BAIO spigot

No. 5060

No. 5061

Bayonet coupling
DN 80



Order No.	Version	MOP (PN)	Pipe cover*		
			1,00 m	1,25 m	1,50 m
5060	Flange connection DN 80	16			
5061	BAIO spigot connection DN 80				

*Optional intermediate lengths possible (smallest pipe cover 0,85 m)
Overlengths up to 3 m on request

Application example



Suitable accessories

Suitable accessories: see page H 1/2

Hawle drainage pipe	No. 5067
Flanged duck foot bend	No. 5045, No. 5046, No. 5049, No. 7981
Operating key	No. 3460, No. 3461
Flat gasket	No. 3390
Bolts	No. 8810, No. 8830, No. 8840
Surface boxes	No. 1950, No 1950K
Dirt and anti-twist protection	No. NL92

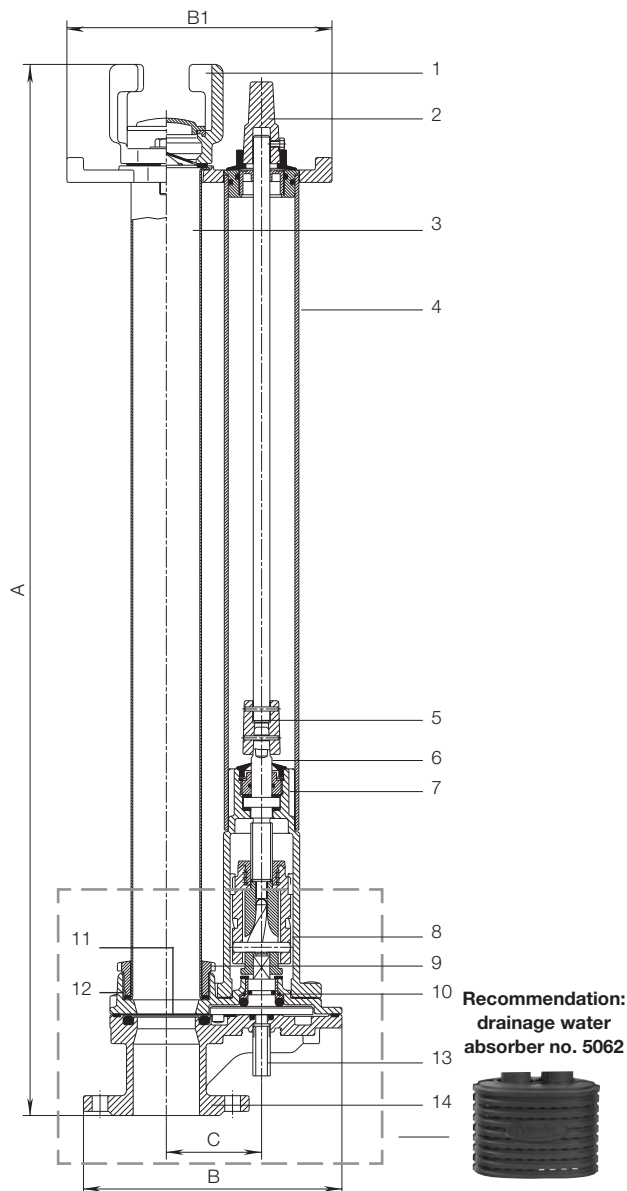


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H 5/1

FREEFLOW below ground hydrant

PN 16

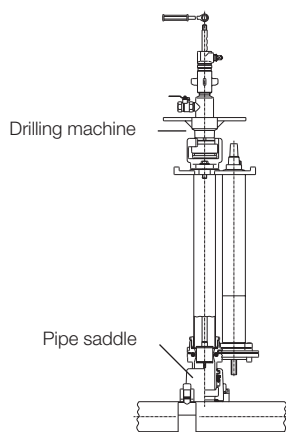


	Parts	Material
1	Bayonet coupling	ductile iron
2	Operating nut	ductile iron, galvanised
3	Pipe	stainless steel, epoxy powder-coated
4	Plastic protection pipe	PP
5	Spindle sleeve	ductile iron, galvanised
6	Spindle	stainless steel
7	Gear	ductile iron
8	Plate drive	stainless steel
9	Ring nut	PA
10	Diving worm	brass
11	Valve plate	stainless steel
12	Hydrant top	ductile iron
13	Drain connection	PE
14	Hydrant end with flange connector or BAIO spigot connector	ductile iron

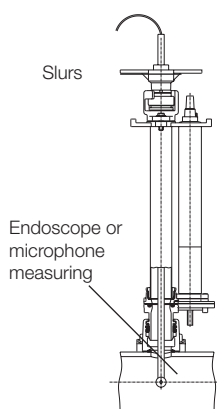
Order No.	Connection	Pipe cover	A	B	B1	C	Weight
5060	Flange DN 80	1,00 m	740	280	320	115	35,0
		1,25 m	990				37,5
		1,50 m	1240				39,5
5061	BAIO spigot DN 80	1,00 m	785	280	320	115	31,5
		1,25 m	1045				34,0
		1,50 m	1295				36,0

Other application opportunities

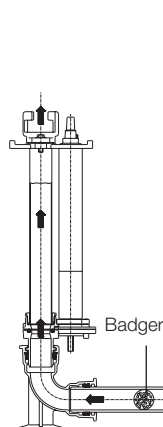
Under pressure drilling



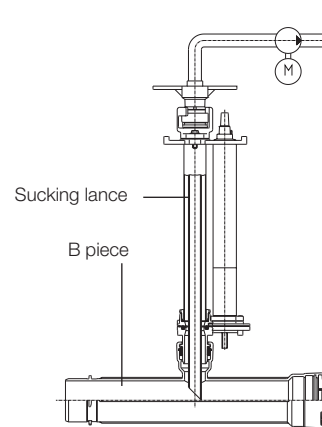
Pipe inspection



Pipe cleaning via badger



Pipe draining with sucking lance



H 5/2



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FREEFLOW below ground hydrant

Tele, PN 16



Design features

- With flange or BAIO spigot
- Integrated telescopic stand pipe
- Replacement of the jaw coupling by encapsulated hydrant head
- Minimal torque for operation
- Safe against dirt
- Good corrosion protection by epoxy coating and non-corroding materials
- Every pipe covering from 1 to 3 m possible
- Tried and tested, not sensitive to dirt
- Plug disk shut-off with fixed stops
- No risk of damage for seals on shut-off element
- Completely free passage
- Maintenance free
- Connecting coupling according to other standard possible
- Flange sized and drilled according to EN 1092-2 | PN 16

Suitable accessories

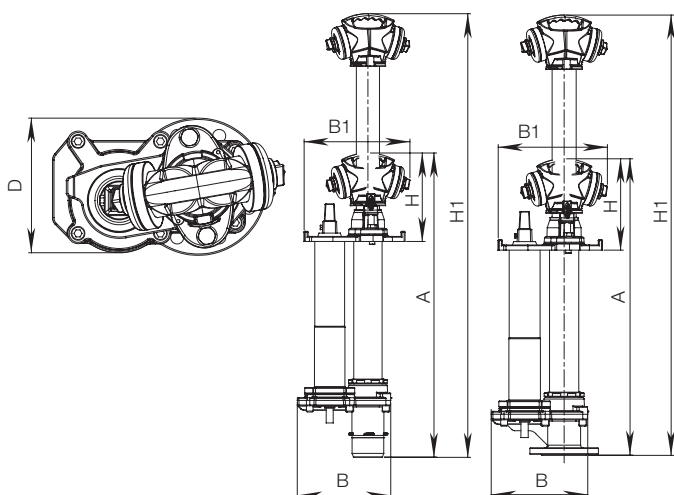
Suitable accessories: see page H 1/2

Drainage element	No. 5062
Surface box	No. 206TH
Flange duck-foot bend	No. 5045, No. 5046, No. 5049, No. 7981
Operating key	No. 3420
Flat gasket	No. 3390
Bolts	No. 8810, No. 8830, No. 8840

Freeflow below ground hydrant tele No. 5058



Order No.	Version	MOP (PN)	Pipe cover		
			1,00 m	1,25 m	1,50 m
5058	Flange connection DN 80	16			
5059	BAIO spigot connection DN 80				



Order No.	MOP (PN)	Pipe cover	C-outlet	Connection	A	B	B1	D	H	H1	Weight
5058	16	1,00 m	2	Flange connection DN 80*	810	280	320	200	260	1235	38,00
		1,25 m			1060					1735	46,00
		1,50 m			1310					1985	48,00
5059	16	1,00 m	2	BAIO spigot connection DN 80	835	280	320	200	260	1260	35,00
		1,25 m			1085					1760	39,00
		1,50 m			1335					2010	43,00

* Flange sized and drilled according to EN 1092-2 | PN 16



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H 5/3

GARDEN hydrant

PN 10



Design features

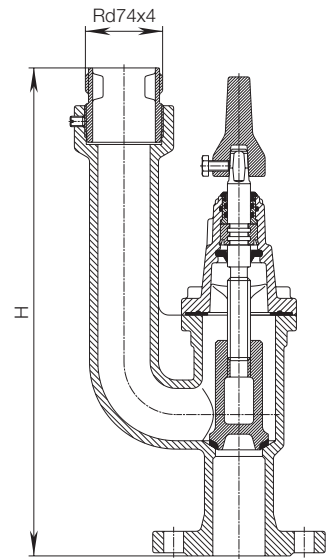
With standard thread connection

- Flange connection DN 50, EN 1092-2
- Made of grey iron, epoxy powder coated
- Without drainage outlet (not frost-proof)

Order no.	Version	MOP (PN)	DN	Total height H	Weight
5080	Round thread outlet	10	50	466	16,0

Flange sized and drilled according to EN 1092-2 | PN 16

No. 5080



Design features

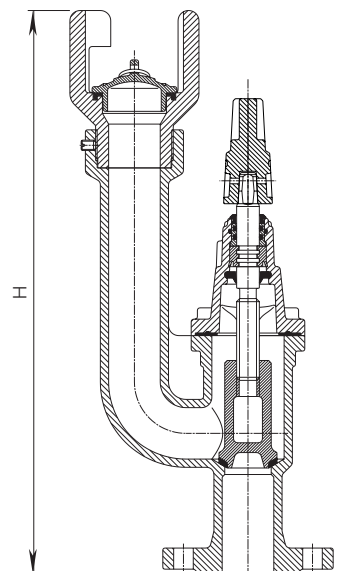
With bayonet grip DN 50

- Flange connection DN 50, EN 1092-2
- Made of grey iron, epoxy powder coated
- Without drainage outlet (not frost-proof)

Order no.	Version	MOP (PN)	DN	Total height H	Weight
5081	Bayonet coupling	10	50	555	18,5

Flange sized and drilled according to EN 1092-2 | PN 16

No. 5081



H 5/4



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OPERATING INSTRUCTIONS

Above ground hydrant



ASSEMBLY

Preperation work	Hydrant assembly	Rotation of the hydrant head
1 Advice: install a gate valve before the hydrant	1 bolt the flanges crosswise or connect the sockets	1 loosen the bolts at the tension ring
2 prepare a base. pay attention to the installation height (break-away hydrant: break-away line 12 ± 6 cm above of the ground level) possible distance to power cable at least 0.5 m	2 support the hydrant	2 rotate the hydrant head to the required position
3 prepare Hawle drainage pipe or drainage line 1" (1 - 3 m)	3 Mount Hawle drainage pipe / drainage line - insert drainage pack - pressure test - flush	3 tighten the bolts
4 prepare a flange connection or sockets for the hydrant assembly	4 backfill the excavation	Caution! It's not allowed to open the bolts of the base flange!

Damage of the break away line (break away hydrant)		
1 examination of the break-away line (damage, soiling, etc.)	4 remove the cap and the operating nut	7 torque for tightening bolts: 60 Nm
2 if necessary: clean the flange	5 remove spare bolts, re-order bolts, replace them in cap	8 assemble the cap and the operating nut
3 insert O-ring	6 connect stand pipe with the base	9 operation maintenance

OPERATION MAINTENANCE

Annual inspection
1 check, if the hydrant is closed
2 remove the cap
3 flush
4 close the hydrant
5 pay attention to the drainage noise (repair necessary?)
6 put the cap back on



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H 6/1

OPERATING INSTRUCTIONS

Above ground hydrant



DRAINAGE UNTIGHT or CHANGE OF THE VALVE PLUG

Above ground hydrant	
If the drainage is untight, skip step 5. If the valve plug has to be changed, skip step 4.	
1	close the supply and open the hydrant completely
2	remove the operating nut and the cap
3	loosen the bolts, remove the head
4	take out the operating controls, mark the position of the operating controls, rotate it by 180°. Put the hydrant head on, tighten the bolts.
or	
5	take out the operating controls, change the valve plug, insert the operating control, put head in place again, tighten the bolts
6	assemble the cap and the operating nut
7	close the hydrant; open the supply
8	operation maintenance

break-away	
If the drainage is untight, skip step 5. If the valve plug has to be changed, skip step 4.	
1	close the supply and open the hydrant completely
2	remove the bolts detach the stand pipe
3	remove the spring clip; turn the spindle housing out of the anchoring
4	rotate the operating controls by 180°
or	
5	take out the operating controls, change the valve plug, insert the operating control
6	lock the spindle housing connect the spring clip
7	connect the stand pipe with the base
8	60 Nm tighten the bolts
9	close the hydrant, open the supply
10	operation maintenance

H 6/2



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HAWLE drainage pipe

Drainage pipe for hydrants



Design features

- Intelligent solution for continuous functionality of your hydrants drainage
- Large surface area to output the drainage water to the gravel pack; the drainpipe (Hawle drainage pipe) evenly discharges the water over the whole surface, which is over 300 times larger than the opening of a conventional 1"-hose
- No displacement or extension of the small 1"-pipe opening
- No frost damage

Hawle drainage pipe No. 5067

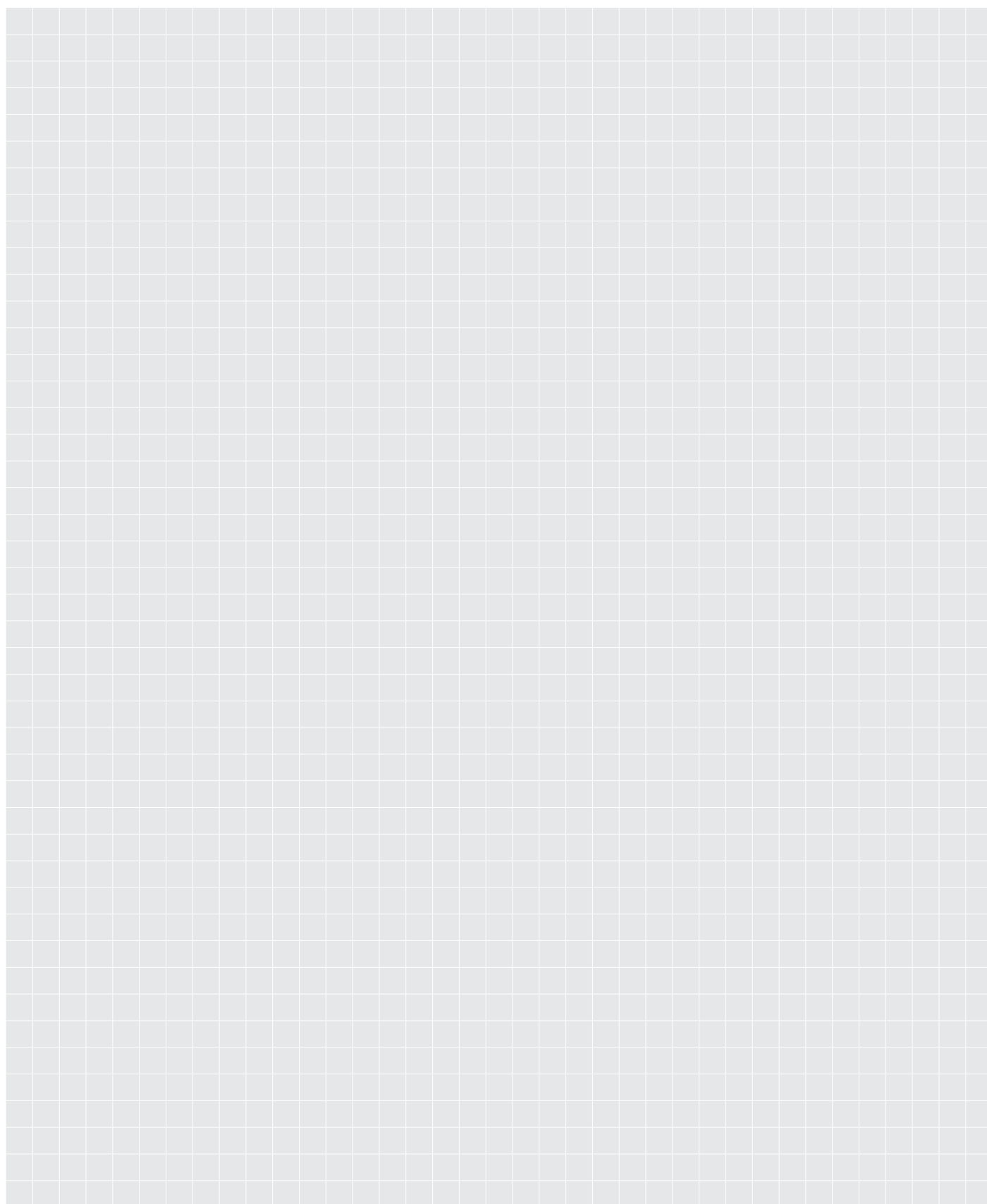


Application example



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H 6/3

A large rectangular area filled with a light gray grid pattern, intended for taking notes.

SADDLES

For steel, ductile iron, PE and PVC pipes



**Page
I 2**

Universal pipe saddle

Pipe saddle with internal thread
Pipe saddle with flange outlet
Universal saddle with ZAK sleeve
Universal-Hawlinger with ZAK sleeve
Saddles without drilled connection hole

Page I 2/1
Page I 2/1
Page L 4/1
Page L 4/1
Page I 2/1



**Page
I 3**

Universal shut-off saddle

Drilling instructions
Universal shut-off saddle with internal thread
Universal-Hawlinger with internal thread
Universal-H shut-off saddle with ZAK sleeve
Strap
Universal-H shut off saddle with internal thread
Strap for universal-H shut-off saddle

Page I 3/1
Page I 3/2
Page J 8/4
Page L 4/1
Page I 3/3
Page I 3/4
Page I 3/5



**Page
I 4**

HAKU saddle

HAKU saddle with internal thread
HAKU pipe saddle with flange outlet
HAKU saddle clamp with ZAK sleeve

Page I 4/1
Page I 4/3
Page L 4/2



**Page
I 5**

HAKU shut-off saddle

HAKU shut-off saddle with internal thread
HAKU-Hawlinger with internal thread, Hawlinger adapter
HAKU shut-off saddle with ZAK sleeve
Shut-off adapter

Page I 5/1
Page J 8/4
Page L 4/3
Page I 5/2



**Page
I 6**

Pipe repair clamp

Pipe repair clamp made of stainless steel
Pipe repair clamp made of cast iron

Page I 6/1
Page I 6/3



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I 1/1

SADDLES

For steel, ductile iron, PE and PVC pipes



Accessories

Bolts	Page M 4/4
Service valves	Chapter J
Fittings	Chapter K
Strap No. 3111	Page I 3/3
Strap No. 3110	Page I 3/5

Tools

Drilling machine	Page Q 2/1
	Page Q 2/2
Saddle blade	Page Q 4/1

Technical information

Tightening torques for flange assembly	Page R 3/1
Tightening torques shut-off saddle mounting HAKU	Page R 3/1
Tightening torques for strap attachment	Page I 3/2

Application examples



I 1/2



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UNIVERSAL PIPE SADDLE

For steel, ductile iron and asbestos cement pipes



Design features

- Compact saddle body
- Favorable angle of contact
- Flexible padded wrap around strap for easy installation
- Optimum force transfer of the strap screw connection through strap and cylinder disks as bolt contact area
- The saddle seal is moulded to fit the pipe diameter and is prefixed in the saddle body
- All internal threads are fitted with a corrosion protection ring to prevent corrosion and incrustations
- Version for potential equalization ("grounding") on request
- No. 3500 / 3510 for drilling without pressure

Material | Technical features

- 1 **Saddle body** made of ductile iron, epoxy powder-coated
- 2 **Saddle seal** made of elastomer
- 3 **Nuts** free lying, (Molybdenum-coated)
No. 3500 / 3530: made of stainless steel spherical bearings
No. 3510: on stainless steel cylinder disk
- 4 **Strap** made of passivated stainless steel, strength 1,5 with insulating elastomer **rubber padding**
- 5 **Corrosion protection ring** made of elastomer

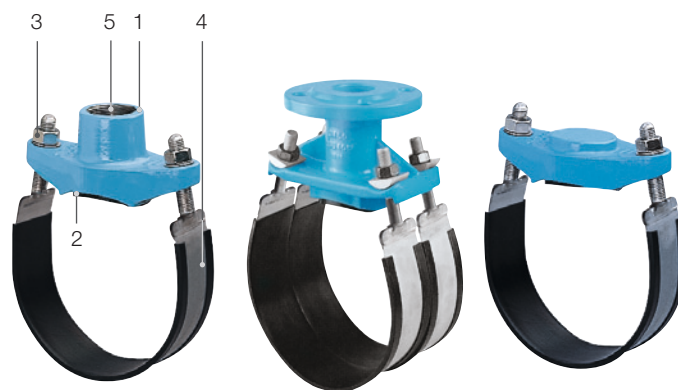
Suitable accessories

Drilling machine: No. 5800, No 5805, No 5807

No. 3500 Pipe saddle / internal thread

No. 3510 Pipe saddle / flange

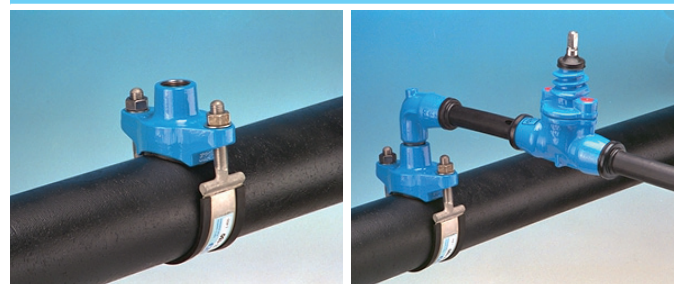
No. 3530 Saddle without drilled connection hole



Order no.	Internal thread DN	MOP (PN)	Dimensions/DN													
			50	65	80	100	125	150	200	250	300	350	400	450	500	600
3500	1"	16														
	1¼"															
	1½"															
	2"															
	2½"															
	3"															
3510	40															
	50															
	80															
	100															
3530	150															

Please specify pipe material on order

Application examples



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I 2/1

UNIVERSAL PIPE SADDLE

For steel, ductile iron and asbestos cement pipes

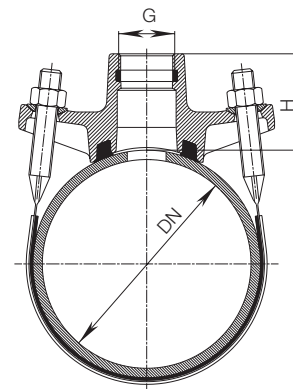


Thread outlet G		Dimension/DN													
		50	65	80	100	125	150	200	250	300	350	400	450	500	600
1"	Weight	2,30	2,20	2,40	2,50	3,30	3,40	3,90	4,60	4,70					
	H	64	64	61	61	78	78	86	89	89					
1¼"	Weight	2,30	2,20	2,40	2,50	3,40	3,50	4,10	4,60	4,70					
	H	64	64	61	61	78	78	86	89	89					
1½"	Weight			2,40	2,50	3,60	3,60	4,20	4,80	4,90					
	H			57	57	78	78	86	89	89					
2"	Weight			2,45	2,50	3,80	3,90	4,40	5,00	5,10	7,30	7,60	8,00	8,20	8,80
	H			57	57	78	78	86	89	89	74*	74*	74*	74*	74*
2½"	Weight							5,70							
	H							56*							
3"	Weight						5,40		5,90						
	H						54*		56*						

*Version with double strap

No. 3500 saddle clamp

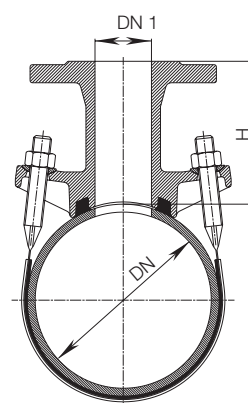
With internal threaded outlet ISO 228, in conjunction with shut-off adapter No. 3720 for under pressure drilling



Flange outlet DN 1		Dimension/DN											
		80	100	125	150	200	250	300	350	400	450	500	600
40	Weight		6,60	6,80	6,90	7,70							
	H		114	126	126	145							
50	Weight	6,60	6,60	6,80	6,90	7,70	7,90	8,00					
	H	114	114	126	126	145	153	153					
80	Weight				9,50	10,30	11,50	11,80	14,50	14,90	15,70	16,50	17,30
	H				135	150	147	147	146	146	146	146	146
100	Weight				11,10	11,80	12,50	12,70	15,80	16,00	16,90	17,60	18,30
	H				140	155	158	158	165	165	165	165	165
150	Weight									24,00	29,40	30,50	31,90
	H									186	186	186	186

No. 3510 saddle clamp

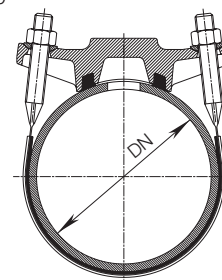
With flanged outlet - EN 1092-2; all models have a double strap, flange drilling to EN 1092-2 | PN 16, larger DN on request



Dimension/DN	65	80	100	125	150	200	250	300	350	600
Weight	2,60	2,70	2,90	3,50	3,60	4,30	4,80	4,90	6,50	10,00

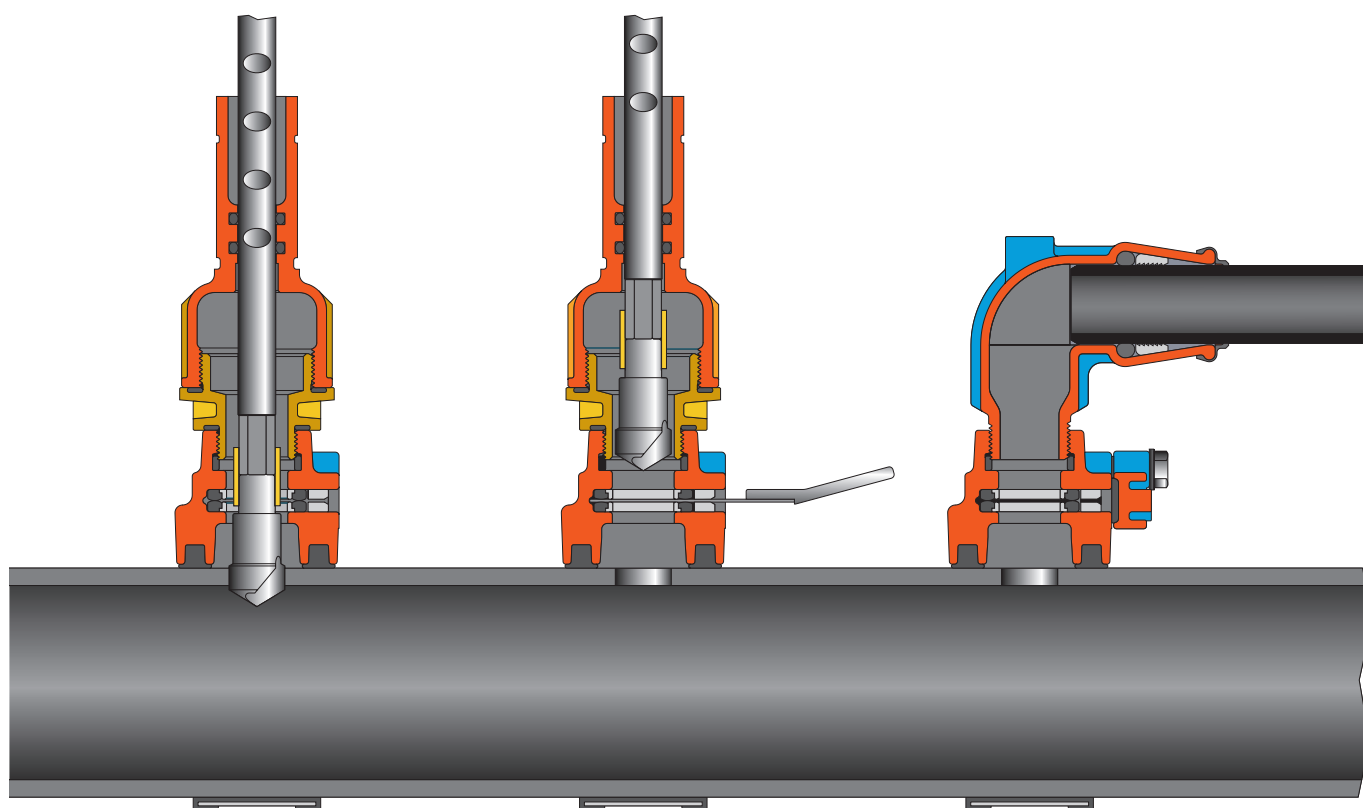
No. 3530 pipe saddle without drilled hole

Suitable for covering drill holes up to max. Ø40



SADDLES

Drilling instructions under pressure



1 Drilling:

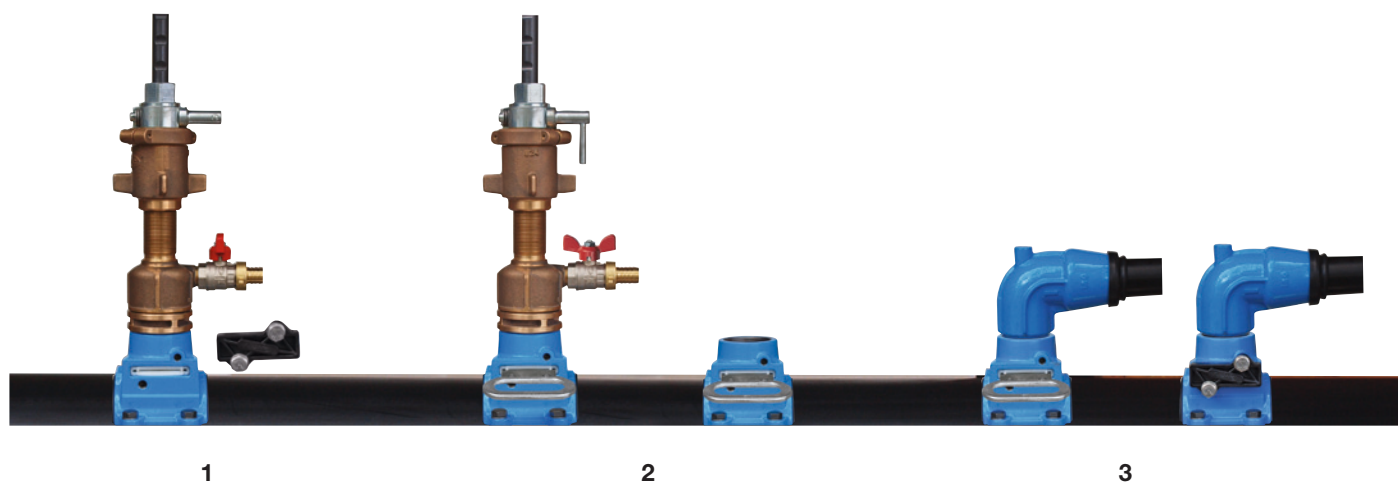
Drill the pipe with a drilling machine
No. 5800, No. 5805 (Hawle drilling
machine see "Tools") - retract the drill

2 Shut-off:

Lubricate No. 3443 the saddle
blade (No. 8401) - shut-off

3 Connection:

Connect the pipe - remove saddle
blade - cover must be replaced



1

2

3



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I 3/1

UNIVERSAL SHUT-OFF SADDLE

For steel, ductile iron and asbestos cement pipes



Design features

- For under pressure drilling
- Can be pressure tested from both directions
- Solid body
- Flexible padded wrap around strap for easy installation
- Favorable angle of contact
- Optimum force transfer of the strap screw connection through strap and cylinder disks as bolt contact area
- The saddle seal is moulded to fit the pipe diameter and is prefixed in the saddle body
- All internal threads are fitted with a corrosion protection ring to prevent corrosion and incrustations

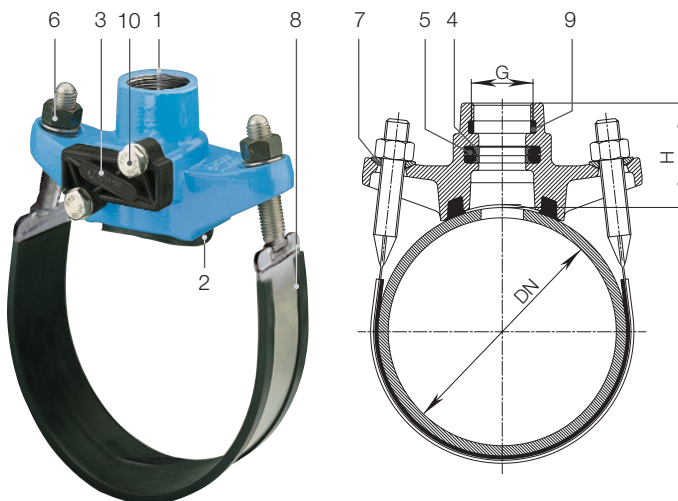
Material | Technical features

- Saddle body** made of ductile iron, epoxy powder-coated
 - Saddle seal** and **seal** for intermediate shut-off made of elastomer
 - Cover** made of POM, fiber glass reinforced (with rubber seal)
 - O-ring carrier** made of POM
 - Nuts** made of stainless steel (Molybdenum-coated)
 - Ball disc** made of stainless steel
 - Strap** of passivated stainless steel, strength 1,5 with insulating elastomer **rubber padding**
 - Corrosion protection ring** made of elastomer
 - Hexagonal screws** and **washers** made of stainless steel
- Drilling instructions (see page I 3/1)

Suitable accessories

Drilling machine: No. 5800, No. 5805
Saddle blade No. 8401

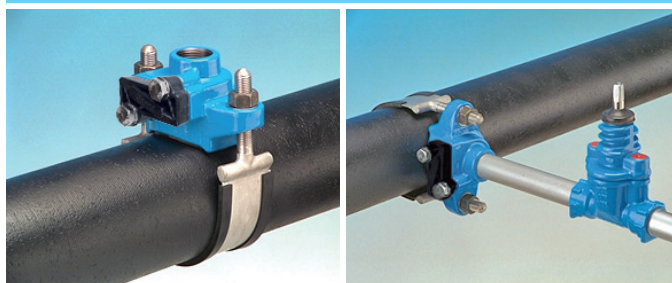
No. 3800



Order No.	Internal thread ISO 228	MOP (PN)	Dimension/DN													
			50	65	80	100	125	150	200	250	300	350	400	450	500	600
3800	1"	16														
	1 1/4"															
	1 1/2"															
	2"															

Please specify pipe material on order

Application examples



Order No.	Internal thread ISO 228 G		Dimension/DN													
			50	65	80	100	125	150	200	250	300	350	400	450	500	600
3800	1"	Weight	2,10	2,10	2,10	2,70	3,10	3,20	4,00	4,60	4,70	7,00			8,00	8,60
		H	67	68	69	69	70	70	80	82	82	78			78	78
	1 1/4"	Weight	2,10	2,10	2,70	2,70	2,75	3,30	4,10	4,70	4,70				8,00	
		H	70	71	72	72	73	73	80	82	82				78	
	1 1/2"	Weight			3,00	3,00	3,60	3,70	4,30	4,90	4,90	7,00	7,40		8,10	9,00
		H			73	73	74	74	80	82	82	78	78		78	78
	2"	Weight			3,10	3,10	3,00	3,80	4,60	5,30	5,40	7,70	8,00	8,30	8,60	9,00
		H			78	78	78	78	81	83	83	78	78	78	78	78

I 3/2

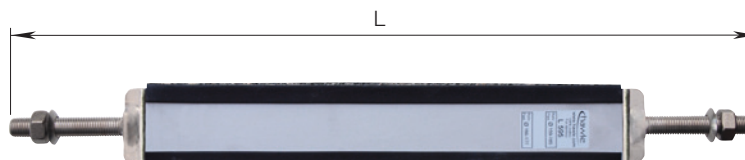


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Design features

- Including ball discs and nuts
- Max. tightening torque 100 Nm
- Made of stainless steel, passivated
- Rubber cover made of elastomer

No. 3111



Dimension DN	Suitable for pipe type			Markings					
	Steel	Cast iron	AZ	Ø-Diameter range of strap	Control dimension „L”	DN	Pipe type		
*50				60 - 70	344	50	ST	G	AZ
*65				70 - 82	374	65	ST	G	AZ
*80				89 - 108	410	80	ST	G	AZ
*100				102 - 130	455	100	ST	G	AZ
*125				132 - 158	520	125	ST	G	AZ
*150				159 - 185	595	150	ST	G	AZ
175				185 - 210	685	175	ST	G	
200				210 - 235	760	200	ST	G	
*200				219 - 244	785	200		G	AZ
*250				264 - 288	905	250	ST	G	
250				288 - 310	975	250			AZ
*300				316 - 340	1055	300	ST	G	
300				335 - 360	1130	300			AZ
*350				355 - 380	1155	350	ST	G	
350				390 - 410	1250	350			AZ
400				406 - 429	1300	400	ST		
*400				415 - 440	1325	400	ST	G	
400				450 - 475	1425	400			AZ
*450				467 - 485	1480	400	ST	G	
450				496 - 520	1570	450			AZ
*500				518 - 535	1630	450	ST	G	
500				578 - 600	1810	500			AZ
*600				620 - 640	1945	600	ST	G	
600				680 - 700	2120	600			AZ

* When ordering without reference to the pipe type or without information on the external Ø, the saddle clamps will be delivered with a strap for this labelled Ø range

UNIVERSAL-H SHUT-OFF SADDLE

For steel, ductile iron and asbestos cement pipes



Design features

- For under pressure drilling
- Can be pressure tested from both directions
- Solid body
- Flexible padded wrap around strap for easy installation
- Favorable angle of contact
- Optimal force transition via bolt nut and holding piece
- The saddle seal is moulded to fit the pipe diameter
- All internal threads are fitted with a corrosion protection ring to prevent corrosion and incrustations

Material | Technical features

- Saddle body** made of ductile iron, epoxy powder-coated
 - Saddle seal** and **seal** for intermediate shut-off made of elastomer
 - Cover** made of POM, fiber glass reinforced (with rubber seal)
 - O-ring carrier** made of POM
 - Nuts and washers** made of stainless steel (Molybdenum-coated)
 - Strap** of passivated stainless steel, strength 1,5 with insulating elastomer **rubber padding**
 - Holding piece** made of glasfibre-reinforced PA
 - Corrosion protection ring** made of elastomer
 - Hexagonal screws and washers** made of stainless steel
- Drilling instructions (see page I 3/1)

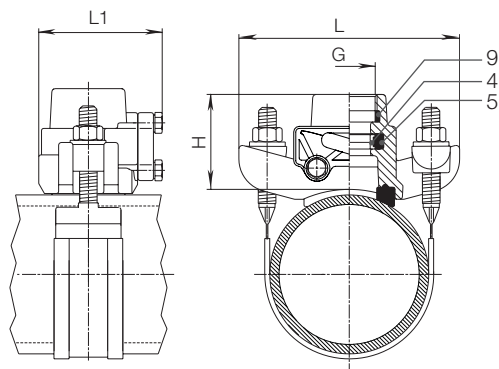
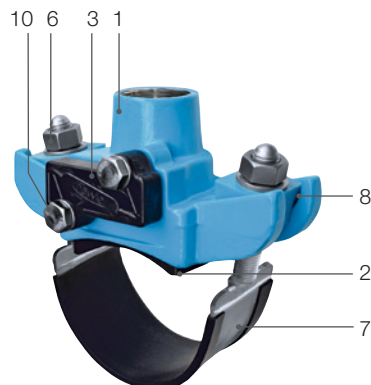
Suitable accessories

- Drilling machine:** No. 5800, No. 5805
Saddle blade No. 8401
Strap: No. 3110 (see page L 4/2)

Universal-H shut-off saddle

No. 3811 Complete

No. 3811G Without strap and saddle seal



Order-No.	MOP (PN)	Internal thread ISO 228 G	Dimension/DN									
			65	80	100	125	150	200	250	300	400	500
3811	16	1"										
		1½"										
3811G		1"										
		1½"										

DN 65 - DN 500

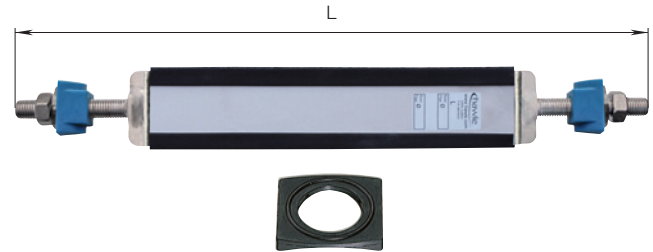
DN	ISO 228	H	L	L1	Weight
65-500	1"	84	200	112	2,60
	1½"				2,80

When ordering, please state DN, pipe Ø and pipe type;
weight without strap | strap see page I 3/5

Design features

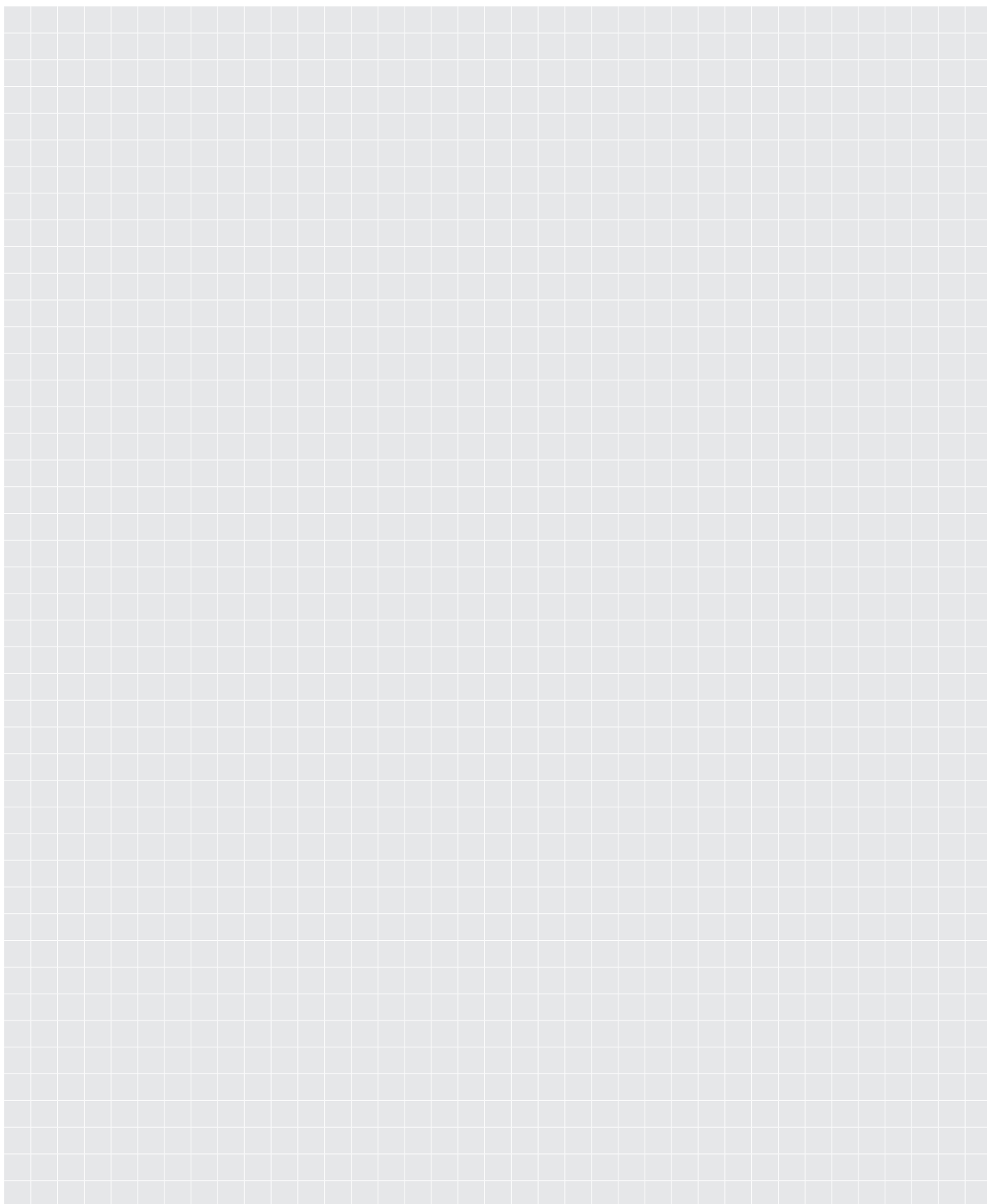
- Includes holding pieces, washers, nuts
- Max. tightening torque 100 Nm
- Made of passivated stainless steel
- DN 65 to 500
- For all ZAK saddles, ZAK-Hawlinger and universal-H shut-off saddles

Strap with saddle seal No. 3110



When ordering, please state DN, pipe Ø and pipe type

Pipe Ø	Control dimension „L”	e.g.: for main pipe - DN			Weight
		Steel	Cast iron	AC	
75 - 83	365	65	65		0,73
88 - 97	395	80			0,76
93 - 102	410		80	80	0,76
98 - 105	415			80	0,78
106 - 117	440	100		80	0,80
112 - 122	455	100	100		0,82
123 - 137	485			100	0,85
129 - 139	490	125			0,86
139 - 149	520	125	125		0,88
147 - 160	540	150		125	0,90
156 - 165	560	150		125	0,92
166 - 177	595	150	150		0,95
175 - 185	610			150	0,97
185 - 197	645			150	1,00
200 - 215	685	200			1,03
211 - 223	720	200	200		1,05
216 - 227	735	200	200		1,07
224 - 236	760			200	1,11
235 - 244	785			200	1,13
251 - 263	840			200	1,19
260 - 275	865	250	250		1,20
268 - 280	880	250	250		1,21
273 - 285	905			250	1,25
287 - 298	945			250	1,28
305 - 315	995			250	1,33
323 - 330	1055	300	300		1,39
331 - 343	1075			300	1,41
344 - 356	1110	350		300	1,44
365 - 376	1175	350			1,50
374 - 381	1205		350		1,53
405 - 415	1300			350	1,62
411 - 420	1320	400			1,64
420 - 432	1345		400		1,66
450 - 460	1445			400	1,68
461 - 466	1475			400	1,78
493 - 503	1570			400	1,87
501 - 510	1600	500		450	1,91
541 - 549	1705			450	2,00
556 - 564	1750			500	2,30



HAKU SADDLE

For PE and PVC pipes



Design features

- For **PE pipes** according to EN 12201 and DIN 8074 and **PVC pipes** according to EN ISO 1452-2
- The HAKU seal is in full contact with the entire diameter of the PE or PVC pipe and is glued onto the saddle for ease of assembly
- Several concentric seals with increasing diameter surround the outlet, relieving pressure exerted upon the drill hole and protects it from deformation
- The protective layer on PE pipes should be removed prior to mounting the saddle
- No. 5250 for drilling without pressure

Material | Technical features

- Saddle body** made of ductile iron, epoxy powder coated
- Seals** made of elastomer
- Bolts** (Molybdenum-coated) and **washers** made of stainless steel
- Corrosion protection ring** made of elastomer

Suitable accessories

Drilling machine: No. 5800, No. 5805

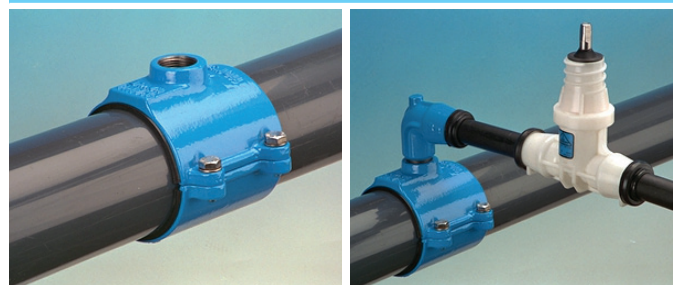
No. 5250



Order No.	Pipe Ø	MOP (PN)	Internal thread outlet ISO 228			
			1"	1¼"	1½"	2"
5250	40	16				
	50					
	63					
	75					
	90					
	110					
	125					
	140					
	160					
	180					
	200					
	225					
	250					
	280					
	280*					
	315					
	315*					
	355*					
	400*					
	450*					
	500*					
	630*					

* Supplied as saddle piece with strap

Application examples



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I 4/1

HAKU SADDLE

For PE and PVC pipes

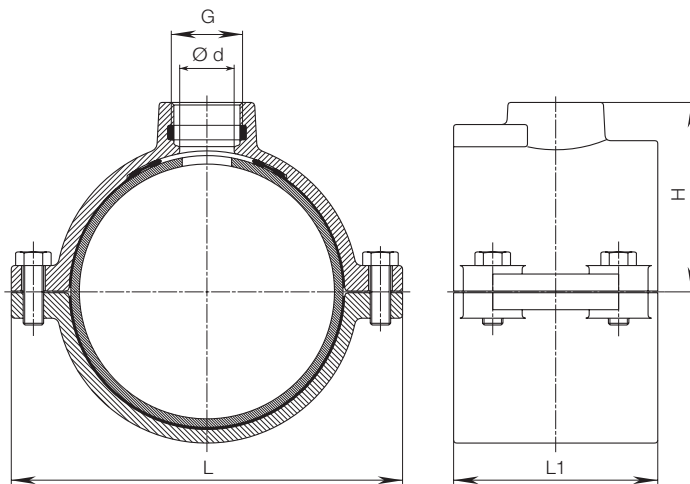


Ø Pipe	G ISO 228	Ø d	H	L	L 1	Weight
40	1"	27	42	98	70	0,95
50	1"	27	56	110	80	1,20
63	1"	27	57	124	100	1,80
	1¼"	33	62			2,00
	1½"	40+	62			1,90
	2"	40+	68			2,10
75	1"	27	63	135	110	2,15
	1¼"	33	68			2,25
	1½"	40	68			2,20
	2"	50	73			2,30
90	1"	27	71	150	110	2,60
	1¼"	33	75			2,70
	1½"	40	75			2,60
	2"	50	80			2,70
110	1"	27	81	170	120	3,60
	1¼"	33	85			3,60
	1½"	40	85			3,80
	2"	50	90			3,60
125	1"	27	87	192	120	3,70
	1¼"	33	93			3,70
	1½"	40	93			4,15
	2"	50	98			4,10
140	1"	27	96	208	120	4,40
	1¼"	33	100			4,30
	1½"	40	100			4,60
	2"	50	106			4,50
160	1"	27	106	230	120	5,90
	1¼"	33	111			6,10
	1½"	40	111			6,30
	2"	50	116			6,20
180	1"	27	125	262	120	8,00
	1¼"	33	125			8,00
	1½"	40	127			8,10
	2"	50	127			8,10
200	1"	27	132	282	120	8,10
	1¼"	33	132			7,80
	1½"	40	137			8,30
	2"	50	137			8,10
225	1"	27	143	310	120	9,10
	1¼"	33	145			9,40
	1½"	40	145			9,70
	2"	50	150			9,60
250	1"	27	156	347	180	11,00
	1¼"	33	156			11,30
	1½"	40	163			11,50
	2"	50	163			12,00
280	1"	27	176	204	120	3,80
	1¼"	33	176			3,60
	1½"	40	176			3,60
	2"	50	176			3,30
	2"	51	178			14,20
315	1"	27	194	200	120	3,58
	1¼"	33	194			3,80
	1½"	40	194			3,75
	2"	50	196			3,55
	2"	50	196			16,70
355	2"	50	220	270	120	3,50
400	1½"	40	243	270	120	4,90
	2"	50	243			4,90
450	1½"	40	268	235	120	4,60
	2"	50	268			4,60
500	1½"	40	292	255	120	4,90
	2"	50	292			4,90
630	2"	50	342	255	120	9,50

No. 5250

Pipe Ø 40-315

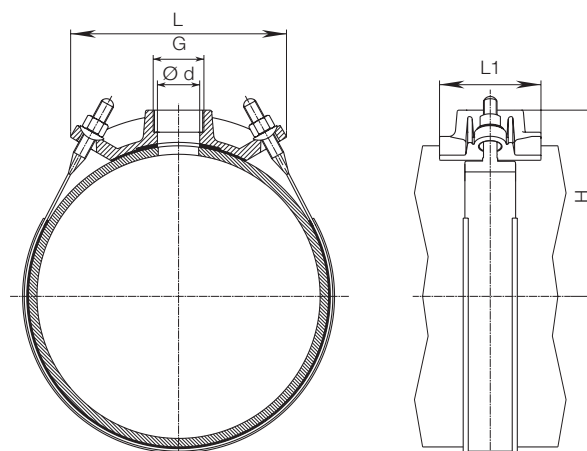
With internal threaded outlet ISO 228, in conjunction with shut-off adapter No. 3720 for under pressure drilling



+ Drilling max. 35

*Pipe Ø 280-630 (supplied as saddle piece with strap)
Suitable only for SDR 11 PE pipes or stronger SDR class

With internal threaded outlet ISO 228, in conjunction with shut-off adapter No. 3720 for under pressure drilling



I 4/2



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HAKU PIPE SADDLE

With flanged outlet for PE and PVC pipes



Design features

- For **PE pipes** according to EN 12201 and DIN 8074 (**SDR 7,4 and SDR 11**) for **PVC pipes** according to EN ISO 1452-2 (**SDR 13,5 and SDR 21**)
- Solid construction of ductile iron epoxy powder coated
- No deformation of the pipe
- The drilled hole is sealed by an O-ring inserted in the upper part of saddle
- The rubber linings are bonded to the lower part of saddle - this ensures positive positioning of saddle (only for d 110 to 315)
- For holes from d 355 to 630 pipes, special drilling machine is available from Hawle
- Flange sized and drilled according to EN 1092-2 | PN 16 other standards on request
- For PE pipes with protective layer, this must be removed prior to mounting the saddle

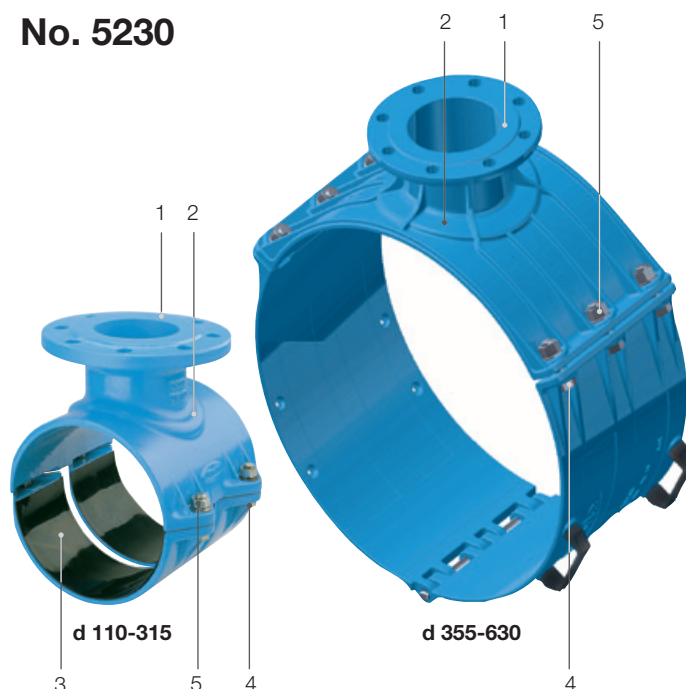
Material | Technical features

- 1 **Saddle body** and **segments** made of ductile iron, epoxy powder coated
- 2 **O-ring seal in the bonnet** made of elastomer
- 3 **Rubber in the lower part** of the saddle made of elastomer
- 4 **Bolts and washers** made of stainless steel
- 5 **Nuts** (Molybdenum-coated) made of stainless steel

Suitable accessories

Drilling machine for flange outlet DN 80-100: No. 5807

No. 5230



Order No.	Flange DN	MOP (PN)	Ø Pipe													
			110	125	140	160	180	200	225	250	280	315	355	450	500	630
5230	80	16														
	100															
	150															



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I 4/3

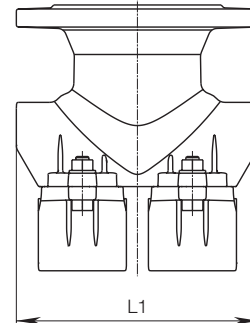
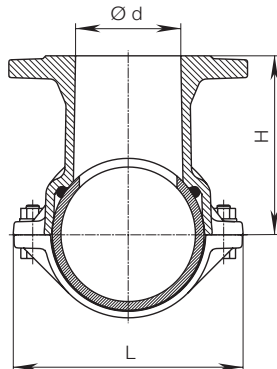
HAKU PIPE SADDLE

With flanged outlet for PE and PVC pipes

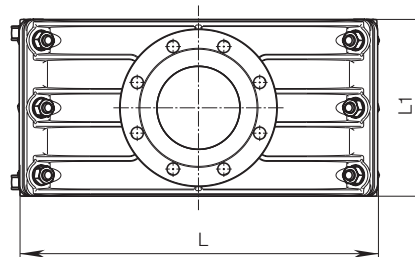
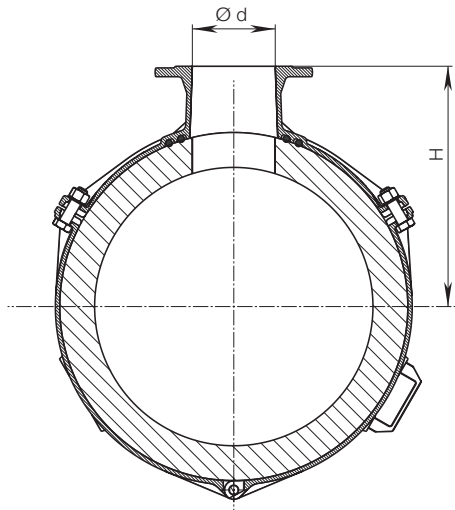


No. 5230 PE pipes EN 12201 DIN 8074 (SDR 7.4 and SDR 11) d 110-630
PVC pipes EN ISO 1452-2 (SDR 13.5 and SDR 21) d 110-315

d 110-315



d 355-630



Ø Pipe	Flange DN	Ø d	H	L	L1	Weight
110	80	80	150	182	180	8,3
125	80	80	159	197	220	8,4
	100	100	159	197	220	9,4
140	80	80	166	212	220	11,8
	100	100	166	212	220	13,3
160	80	80	176	234	220	10,1
	100	100	176	234	220	11,0
180	80	80	186	254	220	11,2
	100	100	186	254	220	12,2
200	80	80	191	270	220	11,8
	100	100	191	270	220	13,8
225	80	80	206	301	220	14,0
	100	100	206	301	220	16,0
250	80	80	221	347	220	15,3
	150	150	225	342	285	19,3
280	150	150	239	374	285	21,0
315	80	80	255	410	285	20,0
	150	150	257	409	285	24,5
355	150	150	298	460	320	36,2
450	150	150	345	475	320	42,0
500	150	150	370	520	320	45,2
630	150	150	435	649	320	50,2

HAKU SHUT-OFF SADDLE

For PE and PVC pipes

hawle

Design features

- For **PE pipes** according to EN 12201 and DIN 8074 and **PVC pipes** according to EN ISO 1452-2
- For under pressure drilling
- Can be pressure tested from both directions
- The HAKU seal is in full contact with the entire diameter of the PE or PVC pipe and is glued into the saddle for ease of assembly
- In addition several concentric seals with increasing diameter surround the outlet thus relieving the pressure upon the drill hole and protecting it from deformation
- For PE pipes with protective layer, this must be removed prior to mounting the saddle

Material | Technical features

- Saddle body** made of ductile iron, epoxy powder coated
 - Seal** made of elastomer
 - Bolts** (Molybdenum-coated) and **washers** made of stainless steel
 - Seal cover** made of POM, with rubber seal, glass fiber reinforced
 - Bolts** and **washers** made of stainless steel
 - Corrosion protection ring** made of elastomer
- Drilling instructions (see page I 3/1)

ØPipe	G ISO 228	Ød	H	L	L1	Weight
63	¾"	24	84	124	100	2,5
	1"	28	84			2,5
	1¼"	32	87			2,4
75	1"	28	91	135	110	2,8
	1¼"	32	94			2,6
	1½"	43	91			3,3
90	2"	43	95	150	110	3,0
	1"	28	100			3,0
	1¼"	32	103			2,5
110	1½"	43	101	170	120	3,6
	2"	43	105			3,4
	1"	28	110			3,6
160	1¼"	32	113	230	120	3,6
	1½"	43	113			4,3
	2"	43	117			4,0

125	1"	27	167	192	120	4,8
	1¼"	31	170			5,5
	1½"	37	180			5,8
140	2"	42	183	208	120	5,8
	1"	27	174			5,4
	1¼"	31	177			5,9
200	1½"	37	188	310	120	6,2
	2"	42	191			6,2
	1"	27	212			7,0
225	1"	27	219	347	180	10,5
	1¼"	31	222			11,0
	1½"	37	232			11,3
250	2"	42	235			12,0
	2"	50	248			14,2

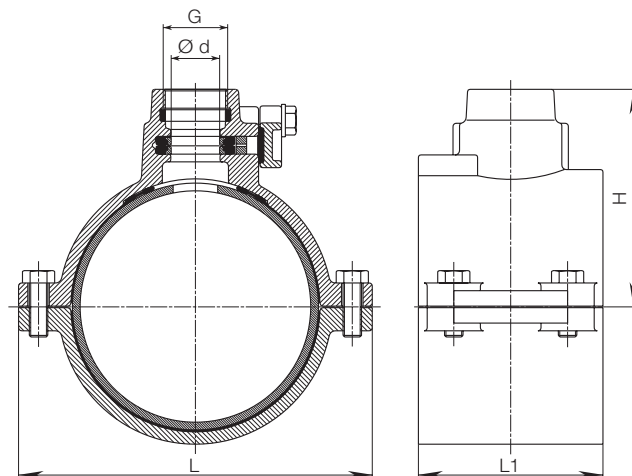
No. 5310



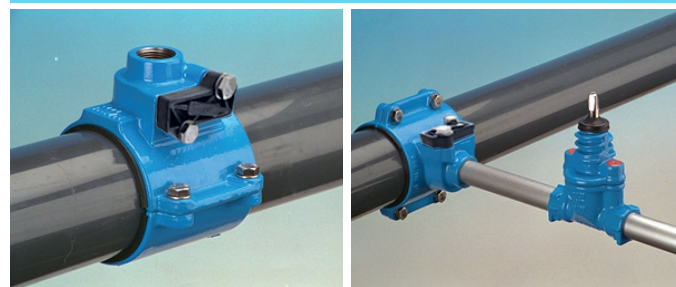
ØPipe	MOP (PN)	Internal thread outlet ISO 228				
		¾"	1"	1¼"	1½"	2"
63	16					
75						
90						
110						
160						

No. 5210 Combined assembly: HAKU saddle No. 5250 with shut-off adapter No. 3720

125	16					
140						
200						
225						
250						



Application examples



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I 5/1

SHUT-OFF ADAPTER

For saddle



Design features

- Drilling under pressure with the shut-off system that has been tried and tested for decades
- This shut-off adapter can be used for under pressure drilling with every type of standard saddle
- Note: The external thread is one size larger than the internal threaded outlet, except on the 2" size, this to provide greater strenght
- Cover shut-offs with internal thread are fitted with a corrosion protection ring to prevent corrosion and incrustation
- All external threads must be protected according to standard occupational procedure

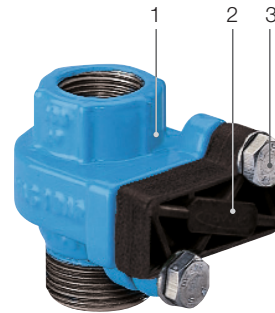
Material | Technical features

- 1 **Body** made of ductile iron, epoxy powder-coated
 - 2 **Seal cover** made of POM, with rubber seal, fibre glass reinforced
 - 3 **Bolts and washers** made of stainless steel
- **Seal** and **corrosion protection ring** made of elastomer
 - Drilling instructions (see page I 3/1)

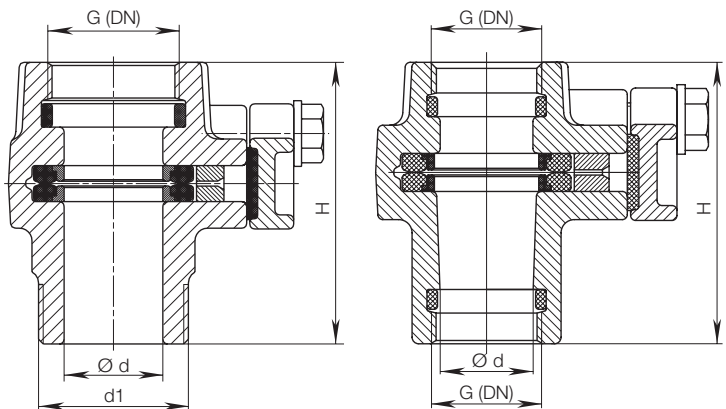
Suitable accessories

Drilling machine: No. 5800, No. 5805
Saddle blade No. 8401

No. 3720



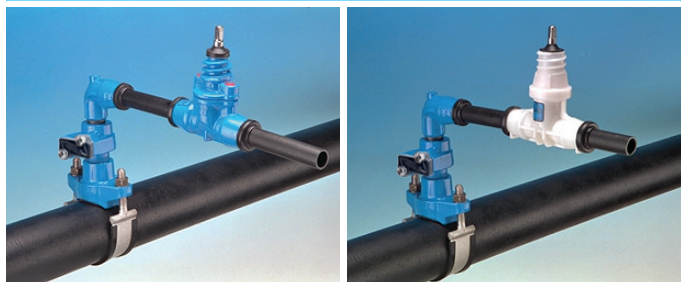
Order No.	MOP (PN)	Internal thread ISO 228	External thread EN 10221-1	Internal thread ISO 228
3720	16	1"	1 1/4"	
		1"		1"
		1 1/4"	1 1/4"	
		1 1/4"	1 1/2"	
		1 1/2"	2"	
		2"	2"	



* Both ends internal thread ISO 228

G (DN) ISO 228	d1 EN 10226-1	H	Ø d	Weight
1"	1 1/4"	85	27	1,1
1"*		85	27	1,1
1 1/4"	1 1/4"	90	27	1,4
1 1/4"	1 1/2"	90	31	1,3
1 1/2"	2"	95	37	1,7
2"	2"	100	42	1,8

Application examples



I 5/2



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PIPE REPAIR CLAMP

For steel, ductile iron, asbestos cement and PVC-pipes



Design features

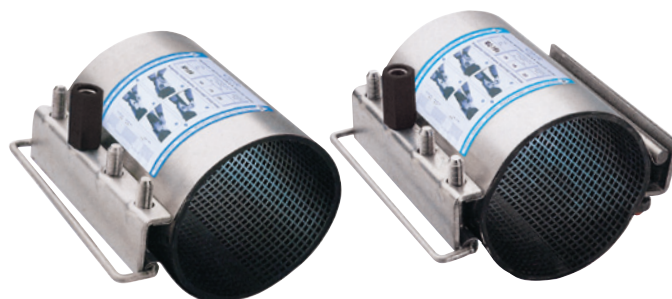
- The clamp with the self-centering lug system
- Fully encompassing gasket seals complete gaps and other pipe damage
- The bolts (3) are welded to the bolt bar (4). Squeezing the handle makes for easy assembly onto the pipe. The nuts are fed directly to the bolts from a special nut dispenser (8). This eases the positioning of the lugs and bolts and avoids handling of loose parts.
- Special version such as larger diameters and other lengths on request
- **No. 0750** tested with new pipes in delivery condition
 $\varnothing$ 54 - $\varnothing$ 190 PN 16
 $\varnothing$ 190 - $\varnothing$ 430 PN 10
- **No. 0751** tested with new pipes in delivery condition
 $\varnothing$ 87 - $\varnothing$ 186 PN 16
 $\varnothing$ 208 - $\varnothing$ 430 PN 10
 $\varnothing$ 425 - $\varnothing$ 471 PN 6

No. 0750 "single lug"

Pipe diameter 54-430, length 150-380

No. 0751 "double lug"

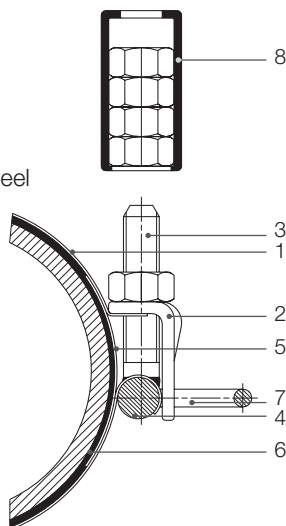
Pipe diameter 87-471, length 200-380



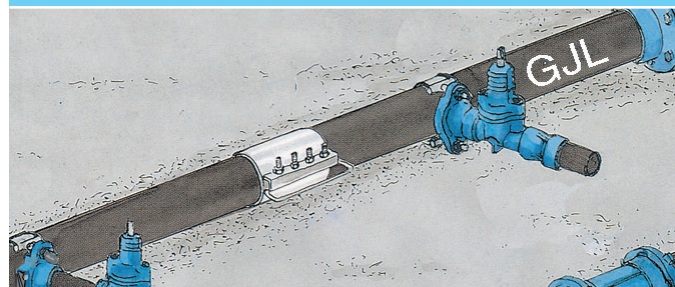
Quick assembly with H-Nut dispenser which prevents loss of nuts into the dirty trench.

Material | Technical features

- 1 **Band** made of stainless steel
- 2 **Lug** made of stainless steel
- 3 **Bolts** made of stainless steel
- 4 **Bolt-bar** made of stainless steel
- 5 **Bridging plate** made of stainless steel
- 6 **Gasket** made of elastomer
- 7 **Handle** made of stainless steel
- 8 **Nut dispenser** made of elastomer (from 3 bolts)



Application examples



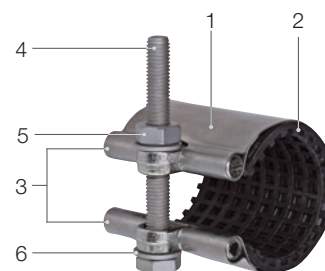
Design features

- For steel, ductile iron and AC pipes
- For pipe diameters from 21 - 64, length 76

Material | Technical features

- 1 **Band** made of stainless steel
- 2 **Gasket** made of elastomer
- 3 **Lug** bridge of galvanised iron
- 4 **Bolts** galvanised
- 5 **Nuts** galvanised
- 6 **Washers** made of stainless steel

No. 0501 "single lug"



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I 6/1

PIPE REPAIR CLAMP

For steel, cast iron, AC and PVC pipes



No. 0750 single lug

Type	ØPipe	Length	Suitable for pipe DN						Weight	
			Steel	Cast iron	AC-PN 10		AC-PN 16			PVC
					raw	turned	raw	turned		ext. Ø
K 54	54-58	150	50							1,1
M 54		200								1,5
K 58	58-64	150	50						63	1,1
M 58		200								1,5
K 63	63-68	150		50					63	1,2
M 63		200								1,6
K 68	68-76	150			50	50				1,2
M 68		200								1,7
K 75	75-83	150	65	60	60	60			75	1,3
M 75		200								1,7
K 82	82-91	150	80	65					90	1,3
M 82		200								1,8
K 95	95-104	150		80	80	80		80		1,4
M 95		200								1,9
K 104	104-112	150	100				80	80	110	1,5
M 104		200								2,0
K 112	112-121	150	100	100		100				1,5
M 112		200								2,1
K 115	115-125	150		100	100	100			125	1,5
M 115		200								2,1
K 120	120-130	150			100	100		100	125	1,7
M 120		200								2,2
K 131	131-141	200	125				100		140	3,2
M 131		250								4,0
K 140	140-150	200		125		125				3,2
M 140		250								4,0
L 140		315								5,2
K 151	151-161	200	150		125			125	160	3,4
M 151		250								4,3
L 151		315								5,4
K 166	166-178	200	150	150		150				3,5
M 166		250								4,4
L 166		315								5,5
K 178	178-190	200			150	150		150	180	3,6
M 178		250								4,5
L 178		315								5,7
K 190	190-202	200					150	150	200	3,9
M 190		250								4,7
L 190		315								5,8
K 200	200-212	250	200							5,0
M 200		315								6,2
L 200		380								7,5
K 215	215-227	250	200	200					225	5,0
M 215		315								6,3
L 215		380								7,6
K 233	233-246	250			200	200				5,2
M 233		315								6,3
L 233		380								7,8
M 250	250-262	315					200	200	250	6,8
L 250		380								8,1
K 269	269-281	250	250	250					280	5,6
M 269		315								7,1
L 269		380								8,5
M 285	285-297	315			250	250				7,5
L 285		380								9,0
K 306	306-318	250					250	250	315	6,0
M 306		315								7,8
L 306		380								9,2
K 315	315-327	250	300	300					315	6,2
M 315		315								7,8
L 315		380								9,5
K 345	345-357	250	350		300	300			355	6,7
M 345		315								8,3
L 345		380								10,0
M 366	366-379	315	350	350			300	300		8,7
L 366		380								10,5
K 400	400-412	250	400		350	350			400	7,4
M 400		315								9,2
L 400		380								10,9
K 418	418-430	250	400	400						7,6
M 418		315								9,7
L 418		380								11,8

No. 0751 double lug

Type	Ø Pipe	Length	Suitable for pipe DN						PVC	Weight
			Steel	Cast iron	AC-PN 10		AC-PN 16			
					raw	turned	raw	turned	ext. Ø	
M 87	87-102	200	80	80	80	80			90	2,7
M 106	106-124	200	100	100	100	100	80		110	2,8
M 114	114-132	200	125	100	100	100		100	125	2,9
K 132	132-152	200	125	125	125	125	100		140	4,9
M 132		250							6,2	
K 142	142-162	200	150	125	125	125	125	125	160	5,0
M 142		250							6,4	
K 160	160-180	200								5,3
M 160		250	150	150		150			160	6,5
L 160		315								8,1
K 166		200								5,3
M 166	166-186	250	150	150	150	150				6,7
L 166		315								8,3
K 208	208-230	250								7,2
M 208		315	200	200					225	8,8
L 208		380								10,7
K 220	220-242	250								7,3
M 220		315	200		200				225	9,0
L 220		380								11,1
K 236	236-258	250								7,5
M 236		315			200	200	200	200	250	9,4
L 236		380								11,1
K 271	271-293	250								7,8
M 271		315	250	250	250	250			280	9,9
L 271		380								11,8
M 306	306-328	315					250	250	315	10,0
L 306		380	300	300						12,0
K 330	330-352	250				300				8,9
L 330		380								13,1
M 346	346-368	380	350		300	300			355	13,3
L 346										
M 369	369-392	315		350			300	300		11,2
L 369		380								13,8
M 406	406-430	315								11,7
L 406		380	400	400	350					14,5
M 448	448-471	315			400	400			450	15,1

No. 0501 for steel, ductile iron and AC pipes

Type	ØPipe	Length	Weight
D 21	21-25	70	0,25
D 26	26-30	70	0,26
D 33	33-37	70	0,27
D 42	42-45	70	0,28
D 48	48-54	70	0,29
D 60	60-64	70	0,31

I 6/2



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PIPE REPAIR CLAMP

For ductile iron pipes



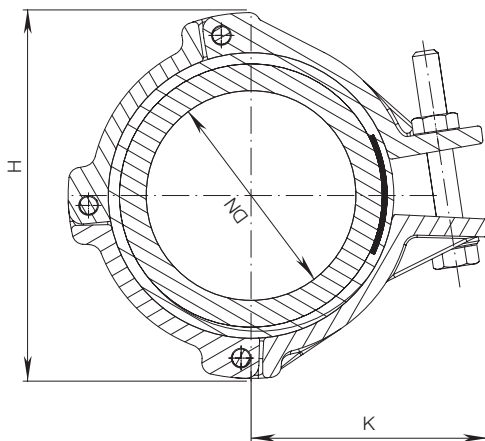
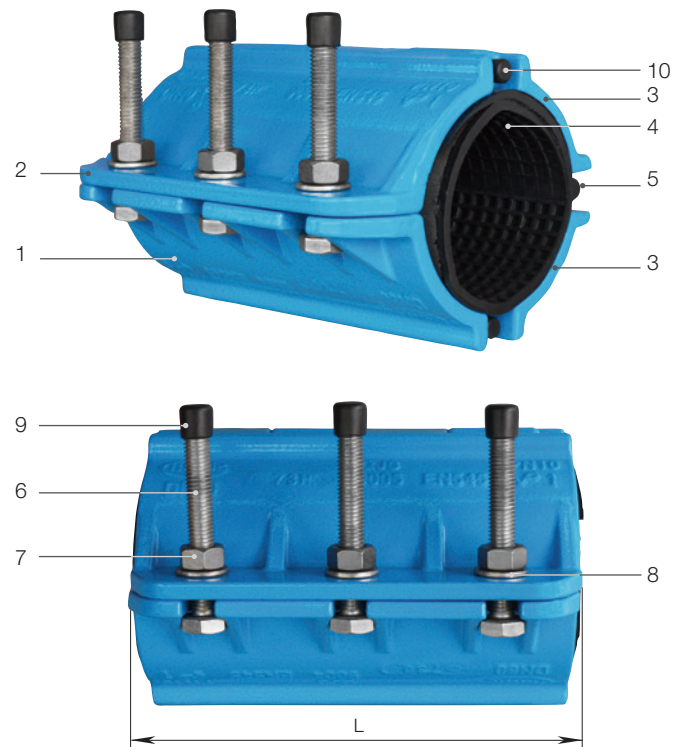
Design features

- For a permanent repair of a cast line, not thrust-proof
- Fully encompassing elastomer gasket seals transverse cracks and other damage to cast iron pipes
- Epoxy powder coated inside and outside

Material | Technical features

- 1-3 **Segments TOL** made of ductile iron, epoxy powder coated
- 4 **Sleeve gasket** made of elastomer
- 5 **Hinge rods** made of stainless steel
- 6 **Bolts** made of stainless steel with teflon coating
- 7 **Nuts** made of stainless steel
- 8 **Washers** made of stainless steel
- 9 **End cap** made of plastic - for thread M12
- 10 **End cap** made of plastic - for stud end Ø8

No. 0760 "TOL"



Order No.	MOP (PN)	Face to-face length L	Version	DN		
				80	100	150
0760	10	200	single lug			
0761			double lug			

DN	L	H	K	Tolerance range	Max. tightening torque / Nm	Max. tightening torque for transverse crack / Nm	Weight
80	200	144	97	95 - 102	40	70	6,2
100		164	107	115 - 122	40	70	6,7
150		242	145	167 - 175	60	95	14,1



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I 6/3

PIPE REPAIR CLAMP

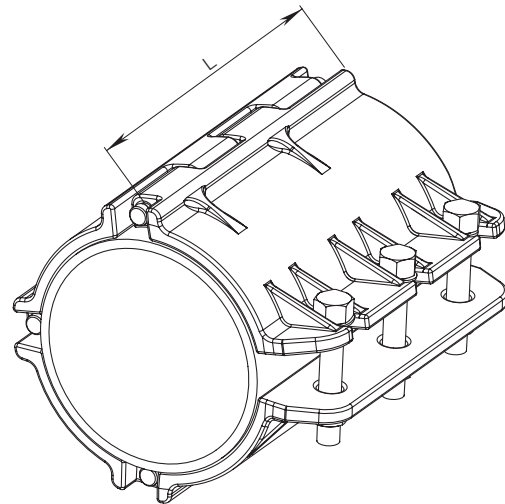
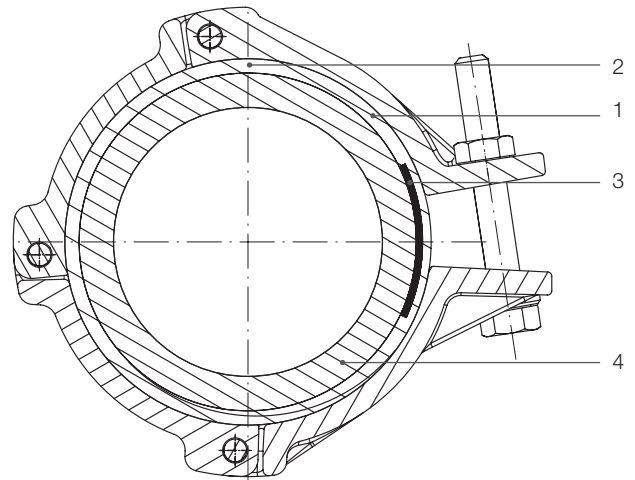
For ductile iron pipes



Assembly

- The segment design permits an easy and quick installation
- The pipe must be cleaned in advance and any insulating layers have to be removed
- Distance from the defective point to saddle edge min. 60 mm
gap width of the pipe to be joined - max. 5 mm
- In case of completely broken pipe ensure that the pipe is not subjected to tensile stress before connecting
- Before assembly, loosen the screws to the maximum, whereby the nut is not removed from the screw
- When installing the clamp, care shall be taken that the end of the gasket (1) that is closer to the pressure sheet (3) is located between the pipe (4) and the other end of the gasket (2). The rubber ends shall sufficiently overlap to ensure the sealing effect
- We recommend positioning the clamp in such a way that the bolt heads are well accessible so they can be tightened properly. The nuts are fixed in the locating slots of the opposite segment
- The bolts shall be tightened evenly (in alternating order)
- Max. tightening torque - see table page I 6/3
- The clamp can be used for one installation process. It's not intended for reuse
- After installation, please perform a leakage test while the trench is still open. The maximum operating pressure has to be complied with as a function of the medium and pipe outside diameter (see "Intended use")

No. 0760 "TOL"



**Page
J 2**

Service valve

Overview

Page J 2/1

**Page
J 3**

Service valve

E-valve with flange DN 20 - DN 40

Page J 3/1



**Page
J 4**

Service valve

With internal thread
With internal and external thread / ISO-fitting
Made of POM, with twin conical external threads
ZAK service valve

Page J 4/1
Page J 4/3
Page J 4/5
Page L 3/1



**Page
J 5**

Service valve

With ISO-fitting for PE pipes both ends
ISO-Combination tapping valve made of POM

Page J 5/1
Page J 5/3



**Page
J 6**

Service valve

Made of POM with Hawle-FIT sockets

Page J 6/1



**Page
J 7**

Service valve for PE fusion

Made of ductile iron
Made of POM

Page J 7/1
Page J 7/3



**Page
J 8**

Service valve

Made of ductile iron
ISO-Combination service valve made of POM
Hawlinger pipe drilling saddle
With automatic drainage, made of ductile iron
ZAK-service valves

Page J 8/1
Page J 8/3
Page J 8/4
Page J 8/5
Page L 3/2



**Page
J 9**

Water meter consoles

Page J 9/1



Accessories

Handwheels	Page M 4/1
Extension spindles	Page M 2/3
Surface boxes	Page M 3/1
Operating cap	Page M 4/1
Spindle extension	Page M 4/1
Bolts	Page M 4/4
Flat gaskets	Page M 7/1
Support liners	Page M 6/2
Mounting spray	Page M 7/2
Fittings	Page K 2/1

Spare parts

Valve bonnet	Page P 2/1
Valve wedge	Page P 2/1
Valve bonnet flat gasket	Page P 2/2

Tools

Operating key	Page Q 4/2
Drilling machine	Page Q 2/1
Pipe cutter	Page Q 4/1
Chamfering tool	Page Q 4/1
Saddle blade	Page Q 4/2

Technical information

Tightening torques for flange assembly	Page R 3/1
Spindle rotations per stroke	Page R 1/2

SERVICE VALVE

Overview



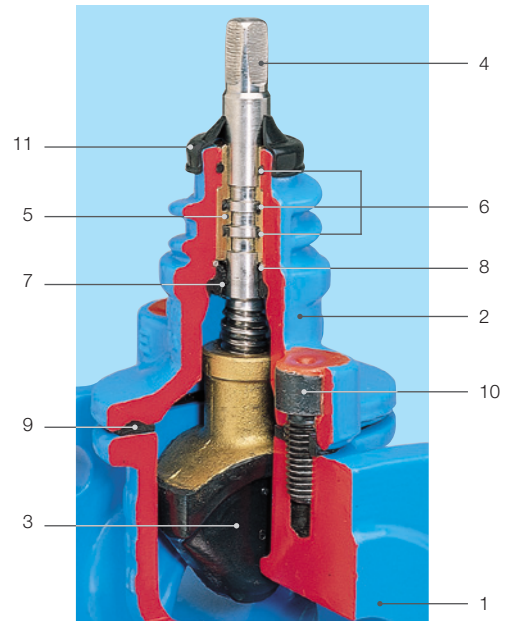
Design features

Ductile iron valve

- **Resilient seated gate valve** with smooth and straight-through bore
- Flange valve
- Valve with ISO-fitting
- Valve with thread
- Service valve for PE fusion
- Service valve
- Service valve with drainage
- 2 O-rings mounted on all sides in rust-proof material
- Spindle bearing made of brass
- Threaded connection for extension spindle
- Suitable for all underground installations
- For service connection fittings made of ductile iron with external thread, the free lying threads must be protected against corrosion according to trade regulations after assembly

Material | Technical features

- 12 **Body (1), bonnet (2)** made of ductile iron, epoxy powder coated inside and out (see page 4)
- 3 **Wedge** made of brass, with vulcanised elastomer
- 4 **Stainless steel spindle** with rolled thread and flat-rolled sealed sliding surface
- 5 **Spindle bearing** (O-ring carrier) made of brass
- 6 **O-rings** made of elastomer
- 7 **Back seat** made of elastomer
- 8 **Retaining ring** made of stainless steel
- 9 **Bonnet gasket** made of elastomer
- 10 **Internal hexagonal screws** recessed and absolutely corrosion protected through casting compound
- 11 **Wiper ring** made of elastomer



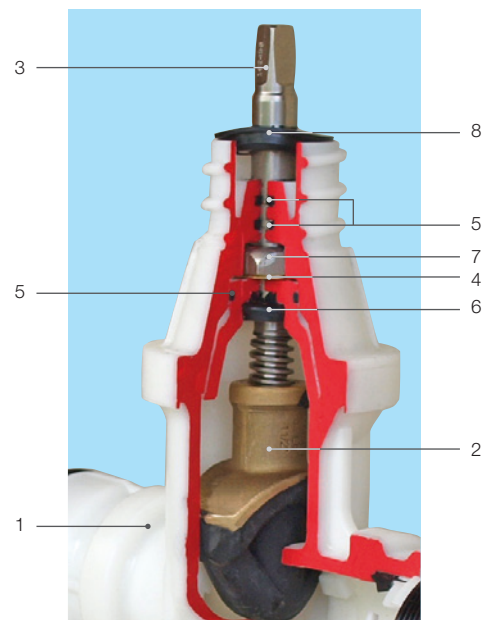
Design features

Valve made of POM

- **Resilient seated gate valve** with smooth and straight-through bore
- Valve with ISO-fitting
- Valve with Hawle-Fit socket
- Valve with thread
- Service valve for PE fusion
- Service valve
- Bonnet with body homogeneously connected through rotational welding
- 2 O-rings for spindle sealing
- Spindle bearing made of brass
- Overload protection
- Threaded connection for extension spindle
- Suitable for all underground installations

Material | Technical features

- 1 **Body** made of POM
- 2 **Wedge** made of brass, with vulcanised elastomer
- 3 **Stainless steel spindle** with rolled thread and flat-rolled sealed sliding surface
- 4 **Spindle bearing** made of brass
- 5 **O-rings** made of elastomer
- 6 **Back seat** made of elastomer
- 7 **Overload protection** made of stainless steel
- 8 **Wiper ring** made of elastomer



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J 2/1

SERVICE VALVE

E-valve with flange DN 20-40



Design features

- Resilient seated gate valve with smooth straight-through bore
- Flange sized and drilled according to EN 1092-2 | PN 16

Standard version: without handwheel and extension spindle
Special versions: on request

Suitable accessories

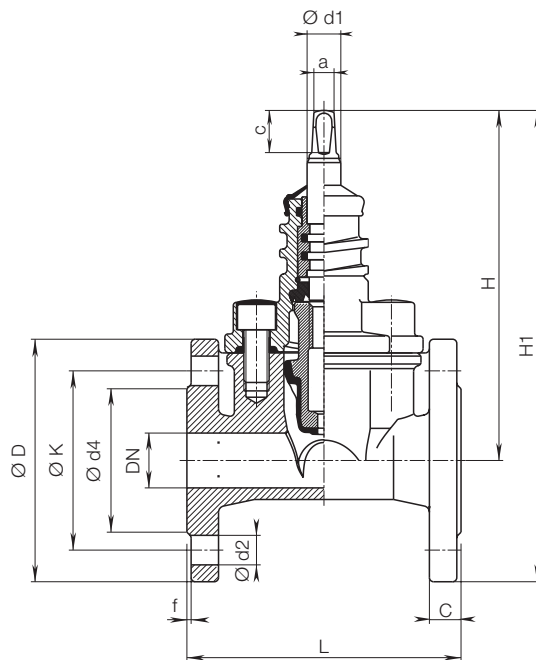
Suitable accessories: see page J 1/2

Handwheel: No. 7800
 Extension spindle: rigid No. 9101
 telescopic No. 9601
 Surface box: rigid No. 1550, No. 1650
 telescopic: No. 1850, No. 1851K
 Spindle extension: No. 7820
 Sealing cap: No. 2156, No. 2157, No. 2158
 Bolts: No. 8810, No. 8830, No. 8840
 Flat gasket: No. 3390, No. 3470

No. 4000
No. 4700



Order No.	Version	MOP (PN)	Dimensions/DN			
			20	25	32	40
4000	short	16				
4700	long EN 558-1GR 15					

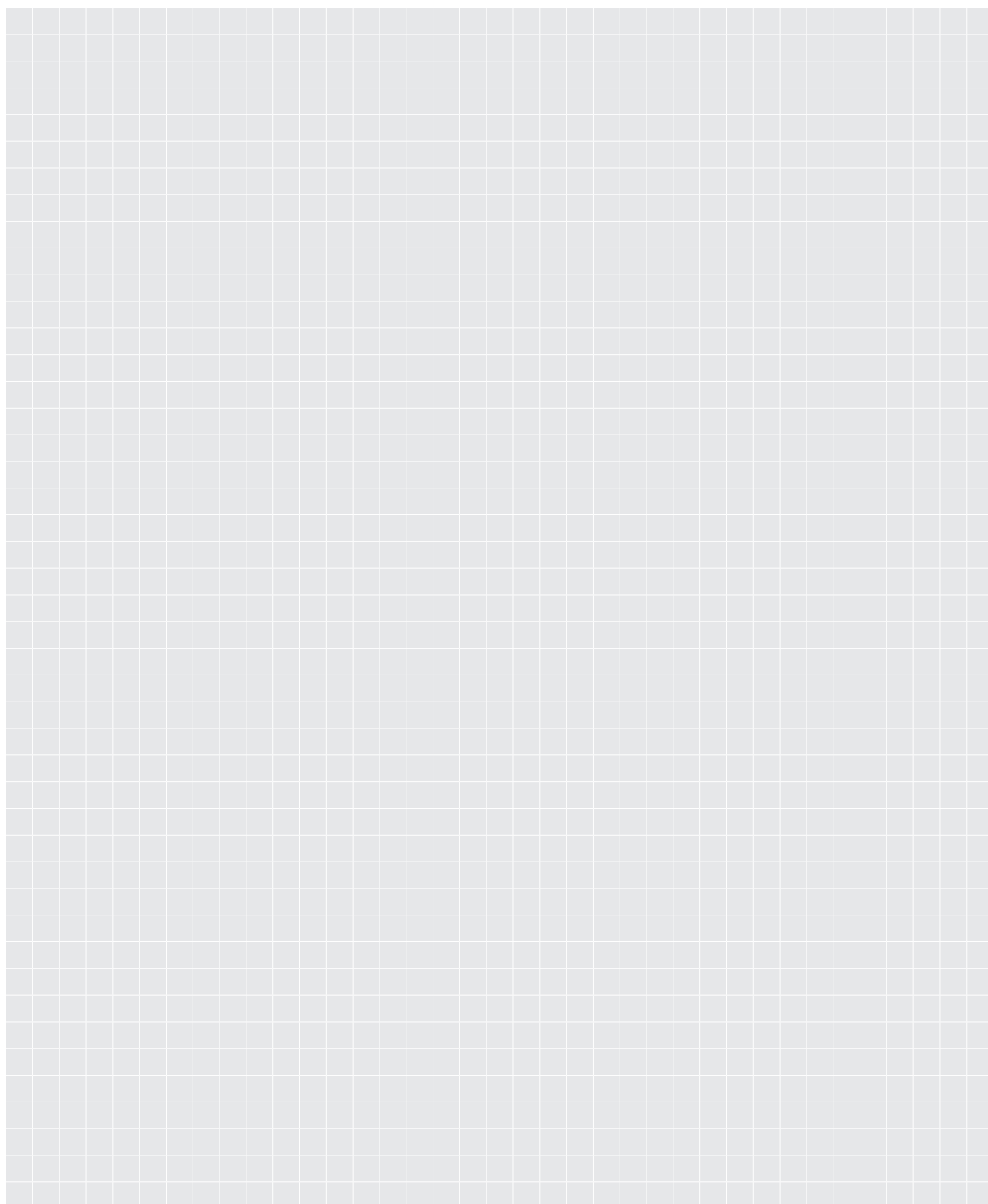


DN	MOP (PN)	Flange					Bolts			Spindle			Valve				Weight	
		Ø D	C	Ø K	Ø d4	f	Quantity	Thread	Ø d2	a	c	Ø d1	H	H1	L short	L long	short	long
20	10 16	115	16	75	58	2	4	M 12	14	10,3	20	16	164	223	130		4,2	
25	10 16	115	16	85	68	2	4	M 12	14				164	223	130		4,2	
32	10 16	150	18	100	78	2	4	M 16	19				200	275	140		6,6	
40	10 16	150	18	110	88	2	4	M 16	19				200	275	140	240	6,7	7,5



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J 3/1



SERVICE VALVE

With internal thread



Design features

- Resilient seated gate valve with smooth straight-through bore
- Internal thread ISO 228
- Service valve with internal thread are fitted with a corrosion protection ring to prevent corrosion
- **No. 2510:** Bonnet is screwed and glued to the body. To unscrew, the thread must be heated

Standard version: without handwheel and extension spindle
Special versions: on request

Material | Technical features

- **Body and bonnet:**
 No. 2500 made of ductile iron, epoxy powder coated
 No. 2510 made of brass

Suitable accessories

Suitable accessories: see page J 1/2

Handwheel:		No. 7800
Extension spindle:	rigid	No. 9101
	telescopic	No. 9601
Surface box:	rigid	No. 1550, No. 1650
	telescopic:	No. 1850, No. 1851K
Spindle extension:	No. 7820	
Sealing cap:	No. 2156, No. 2157, No. 2158	

No. 2500

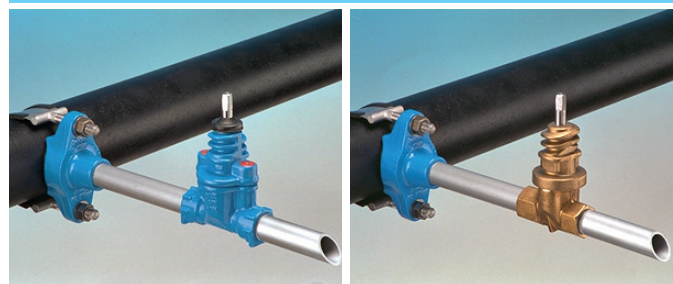


No. 2510



Order No.	Version	MOP (PN)	Dimensions/DN				
			3/4"	1"	1 1/4"	1 1/2"	2"
2500	Ductile iron, epoxy powder coated internal threads both ends ISO 228	16					
2510	Brass, internal thread both ends ISO 228						

Application examples

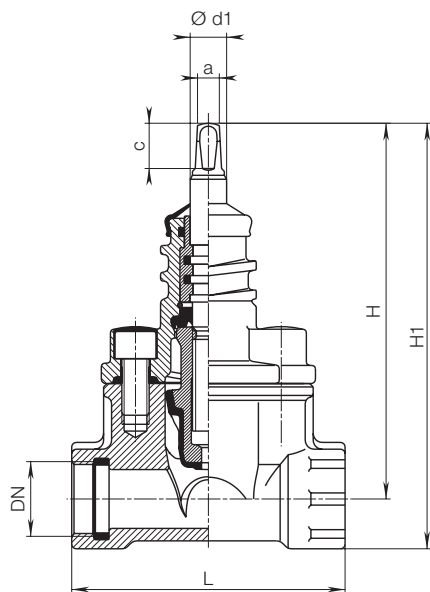


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J 4/1

SERVICE VALVE

With internal thread

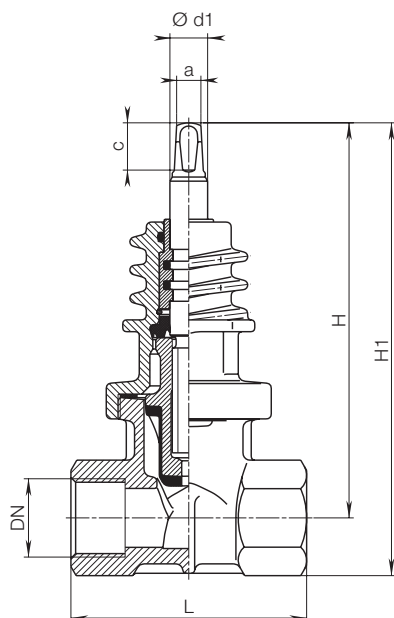


Service valves

Internal thread both ends ISO 228

No. 2500

DN	Valve			Spindle			Weight
	L	H	H1	a	c	Ø d1	
¾"	120	164	185	10,3	20	16	2,20
1"	120	164	188				2,28
1¼"	140	200	229				3,53
1½"	140	200	232				3,70
2"	150	219	258				4,40



Service valves, brass

Internal thread both ends ISO 228

No. 2510

DN	Valve			Spindle			Weight
	L	H	H1	a	c	Ø d1	
1"	100	161	182	10,3	20	16	1,90
1¼"	100	194	223				2,60
1½"	100	194	223				2,81
2"	100	219	256				4,00

J 4/2



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SERVICE VALVE

With internal and external threads / ISO-fitting



Design features

- Resilient seated gate valve with smooth straight-through bore
 - Internal thread ISO 228, external thread EN 10226-1
 - Service valve fitted with a corrosion protection ring to prevent corrosion
 - For service valves with external thread, the free lying threads must be protected against corrosion according to the trade regulations after assembly
 - **No. 2800:** Internal thread for assembly of a drilling machine for drilling under pressure
 - For PE-pipes according to EN 12201 and DIN 8074 | to PN 16; up to 30° C medium temperature
- Pipe guide nipple serves for precise guidance of the PE pipe and as corrosion protection of the internal thread

Standard version: without handwheel and extension spindle
Special versions: on request

Material | Technical features

- **Body and bonnet** made of ductile iron
- **Corrosion protection ring** made of elastomer
- **Pipe guide nipple** made of PE

Suitable accessories

Suitable accessories: see page J 1/2

Handwheel:		No. 7800
Extension spindle:	rigid	No. 9101
	telescopic	No. 9601
Surface box:	rigid	No. 1550, No. 1650
	telescopic:	No. 1850, No. 1851K
Spindle extension:	No. 7820	
Sealing cap:	No. 2156, No. 2157, No. 2158	
Chamfering tool:	No. 6000	
Saddle blades:	No. 6010	
Pipe cutter:	No. 6050	
Mounting spray:	No. 3443	
Drilling machine:	No. 5800, No. 5805	

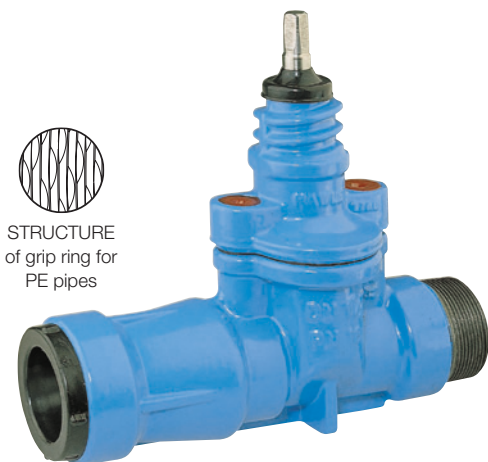
No. 2520



No. 2800



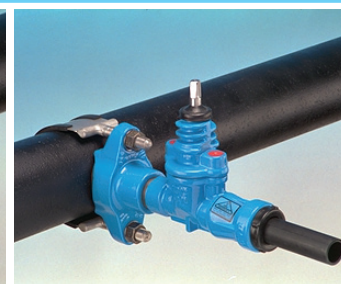
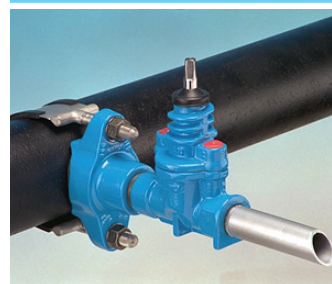
STRUCTURE
of grip ring for
PE pipes



Order No.	Version	MOP (PN)	Dimensions/DN			
			1"	1¼"	1½"	2"
2520	1 internal thread	16				
	1 external thread					
2800	1 external thread					
	1 ISO-fitting for PE pipe					
	1 internal thread					

No. 2800 can be adapted for PVC pipe with carborundum grip ring at extra cost

Application example



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J 4/3

SERVICE VALVE

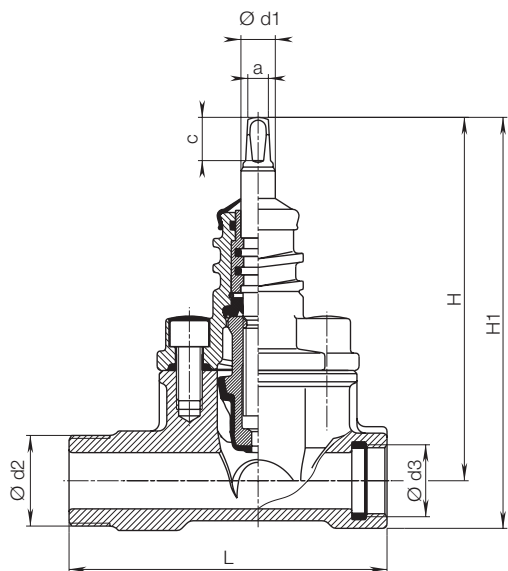
With internal and external threads / ISO-fitting



Service valve, ductile iron

With one internal thread ISO 228 and one external thread EN 10226-1

No. 2520

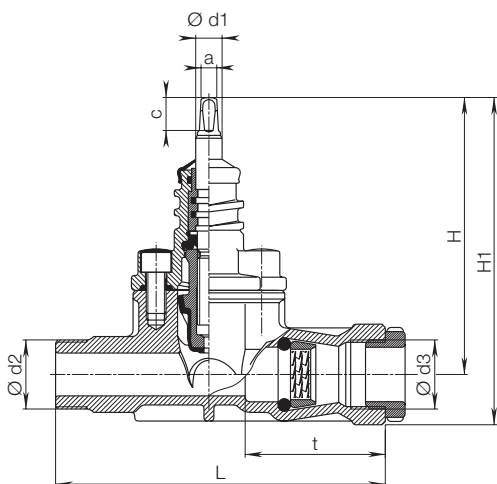


DN	Valve					Spindle			Weight
	Ø d2	Ø d3	L	H	H1	a	c	Ø d1	
1"	1 1/4"	1"	148	164	191	10,3	20	16	2,40
1 1/4"	2"	1 1/4"	167	200	234				3,80
1 1/2"	2"	1 1/2"	167	200	238				4,00
1 1/2"	1 1/2"	1 1/2"	167	200	238				4,00
2"	2"	2"	172	219	264				4,60

Service valve, ductile iron

1 external thread EN 10226-1, 1 ISO-fitting, 1 internal thread ISO 228

No. 2800



DN	Valve							Spindle			Weight
	Ø pipe ext.	Ø d2	Ø d3	t	L	H	H1	a	c	Ø d1	
1"	32	1 1/4"	1 1/4"	85	200	164	193	10,3	20	16	2,72
1 1/4"	40	2"	1 1/2"	101	245	200	234				4,46
1 1/2"	50	2"	2"	121	255	200	239				4,90
2"	63	2"	2 1/2"	137	264	219	267				6,81

J 4/4



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SERVICE VALVE

Made of POM, with twin conical external threads



Design features

- Resilient seated gate valve with smooth straight-through bore
- All parts made of corrosion free materials
- Maximum spindle torque: 80 Nm
- Sealing system: the contact between wedge and body is friction free. Therefore no scuffing or abrasion of the wedge

Standard version: without handwheel and extension spindle

Special versions: on request

Suitable accessories

Suitable accessories: see page J 1/2

Handwheel:		No. 7800
Extension spindle:	rigid	No. 9101
	telescopic	No. 9601
Surface box:	rigid	No. 1550, No. 1650
	telescopic	No. 1850, No. 1851K
Spindle extension:	No. 7820	
Sealing cap:	No. 2156, No. 2157, No. 2158	
Drilling machine:	No. 5800	
Fitting:	No. 6220	

No. 2650



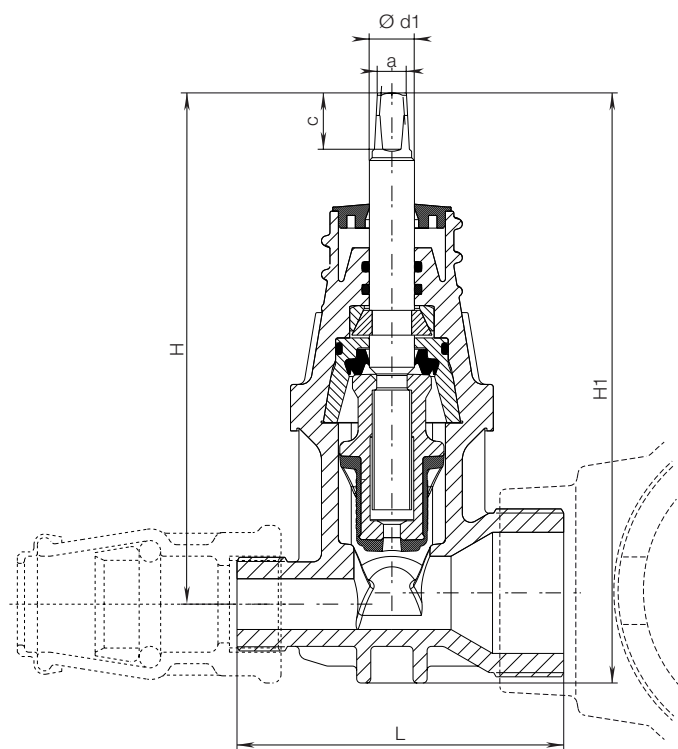
Order No.	Version	MOP (PN)	Dimensions/DN 1" - 1"
2650	With twin conical external thread according to EN 10226-1	16	

Max. torque for tightening the threads

(Observe pipe fitter rules acc. to national standards)

1"

40 Nm

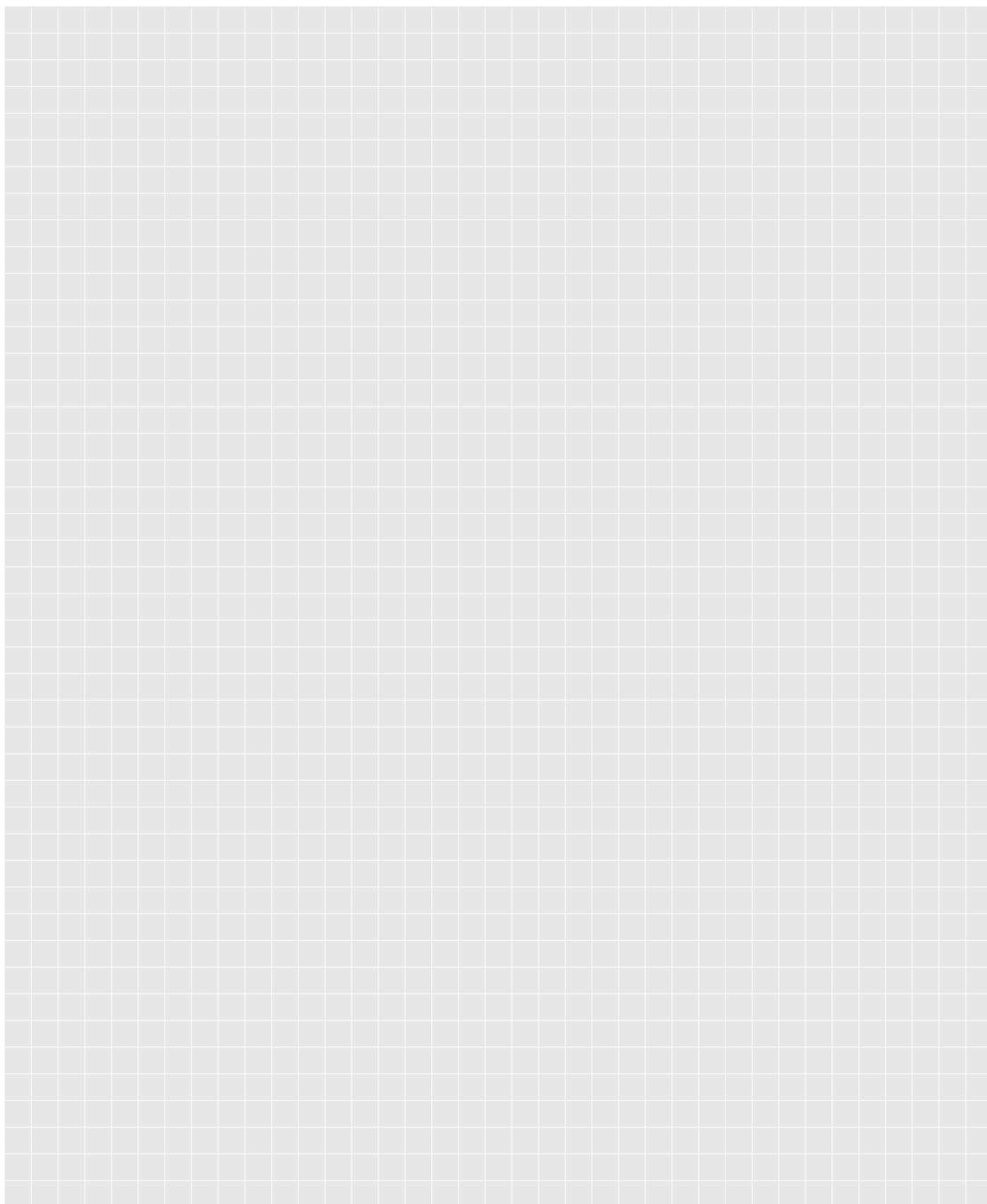


DN	Valve			Spindle			Weight
	L	H	H1	a	c	Ød1	
1" - 1"	110	182	201	10,3	27	16	0,80



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J 4/5

A large rectangular area filled with a light gray grid pattern, intended for handwritten notes.

SERVICE VALVE

With ISO-fitting for PE pipe both ends



Design features

- Resilient seated gate valve with smooth straight-through bore
- For PE pipes according to EN 12201 and DIN 8074 | up to PN16; up to 30° C medium temperature
- **No. 2630: Sealing system:** the contact between wedge and body is friction free. Therefore no scuffing or abrasion of the wedge
- All parts made of corrosion free materials
- Maximum spindle torque: 80 Nm
- Technical details ISO-fitting see page K 3/1

Standard version: without handwheel and extension spindle

Special versions: on request

Suitable accessories

Suitable accessories: see page J 1/2

Handwheel:		No. 7800
Extension spindle:	rigid	No. 9101
	telescopic	No. 9601
Surface box:	rigid	No. 1550, No. 1650
	telescopic:	No. 1850, No. 1851K
Spindle extension :	No. 7820	
Sealing cap:	No. 2156, No. 2157, No. 2158	
Chamfering tool:	No. 6000	
Saddle blade:	No. 6010	
Pipe cutter:	No. 6050	
Mounting spray:	No. 3443	

No. 2600



STRUCTURE
of grip ring for
PE pipes



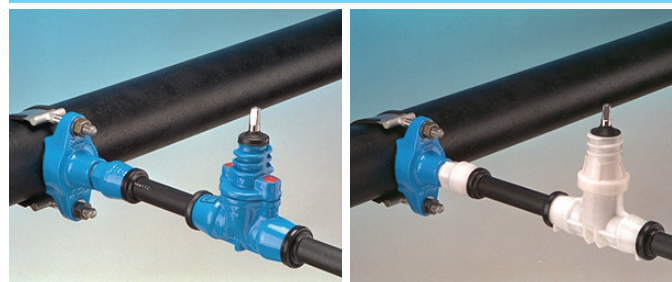
No. 2630



Order No.	Version	MOP (PN)	Dimensions/DN						
			1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	
2600	Made of ductile iron	16							
2630	Made of POM								

Both valves can be adapted for PVC pipe with carborundum grip ring at extra cost

Application example



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J 5/1

SERVICE VALVE

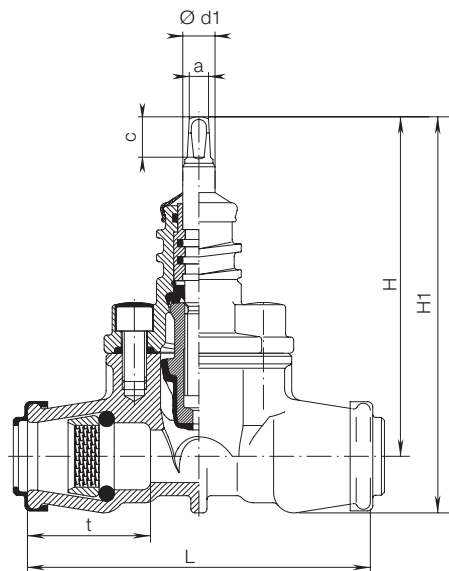
With ISO-fitting for PE pipe both ends



Service valve, ductile iron

ISO-fitting for PE pipe both ends

No. 2600

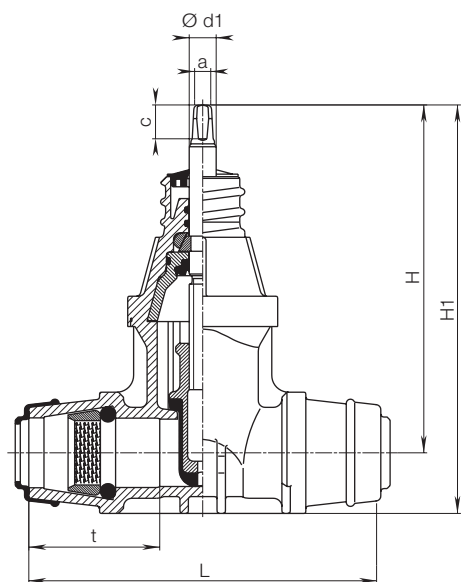


DN	Ø pipe ext.	Valves				Spindle			Weight
		t	L	H	H1	a	c	Ø d1	
3/4"	25	52	165	164	187	10,3	20	16	2,30
1"	32	61	170	164	192				2,33
1 1/4"	40	76	220	200	235				4,00
1 1/2"	50	91	232	200	240				4,10
2"	63	103	270	219	267				7,00

Service valve, POM

ISO-fitting for PE pipe both ends

No. 2630



DN	Ø pipe ext.	Valves				Spindle			Weight
		t	L	H	H1	a	c	Ø d1	
1/2"	20	43	125	178	200	10,3	20	16	0,85
3/4"	25	52	152	177	205				0,85
1"	32	63	174	177	205				0,95
1 1/4"	40	78	208	205	241				1,50
1 1/2"	50	92	246	205	247				1,65
2"	63	100	261	221	271				2,10

J 5/2



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ISO COMBINATION TAPPING VALVE

Made of POM



Design features

- Resilient seated gate valve with smooth straight-through bore
- With conical 2" external thread according to EN 10226 for the clamp attachment and with cylindrical connection thread 1½" according to ISO 228 for connection fitting No. 6221F
- For PE pipes according to EN 12201 and DIN 8074
- One valve with 5 ISO push-fit fittings for PE pipes (pipe Ø 25/32/40/50/63 mm) - reduces stockkeeping!
- A robust valve made of POM
- All parts made of corrosion free materials
- For the easiest under pressure tapping and the quickest installation of ISO push-fit fittings
- Sealing system: the contact between wedge and body is friction free. Therefore no scuffing or abrasion of the wedge

Standard version: without handwheel and extension spindle

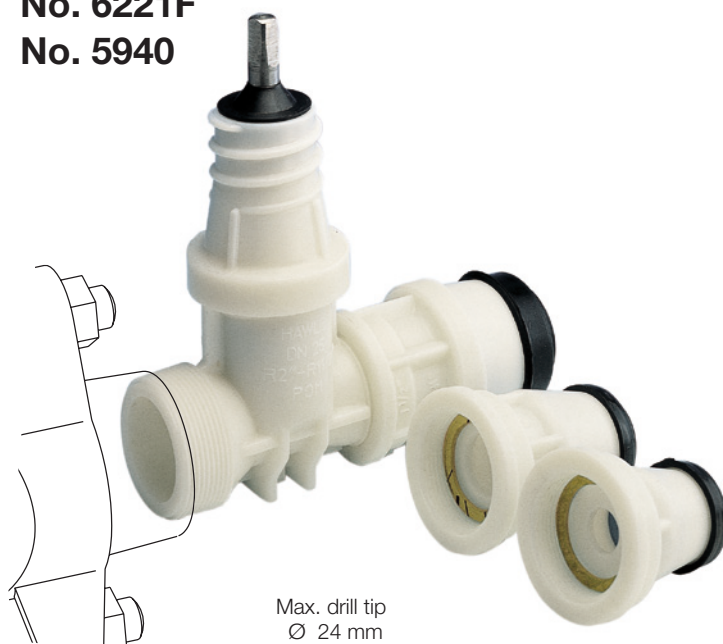
Special versions: on request

Suitable accessories

Suitable accessories: see page J 1/2

Handwheel:		No. 7800
Extension spindle:	rigid	No. 9101
	telescopic	No. 9601
Surface box:	rigid	No. 1550, No. 1650
	telescopic:	No. 1850, No. 1851K
Extension spindle:	No. 7820	
Sealing cap:	No. 2156, No. 2157, No. 2158	
Chamfering tool:	No. 6000	
Saddle blades:	No. 6010	
Pipe cutter:	No. 6050	
Mounting spray:	No. 3443	
Drilling machine:	No. 5800, No. 5805	

No. 2681
No. 2680
No. 6221F
No. 5940



Order No.	Version	MOP (PN)	DN	Thread	Ø PE-pipe	Weight		
2681	ISO Combination tapping valve without fitting	16	1"	2" - 1½"		0,81		
2680	ISO Combination tapping valve with choice of ISO push-fit fitting		1"	2" - 1½"		25	0,90	
						32	0,94	
						40	1,02	
						50	1,10	
6221F	ISO push-fit fitting with backing washer		1½"		63	1,23		
					25	0,10		
					32	0,13		
					40	0,22		
5940	Adapter for Hawle drilling machine 2"		1½" - 2"		50	0,29		
					63	0,41		
						1,30		



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J 5/3

ISO COMBINATION TAPPING VALVE

Made of POM

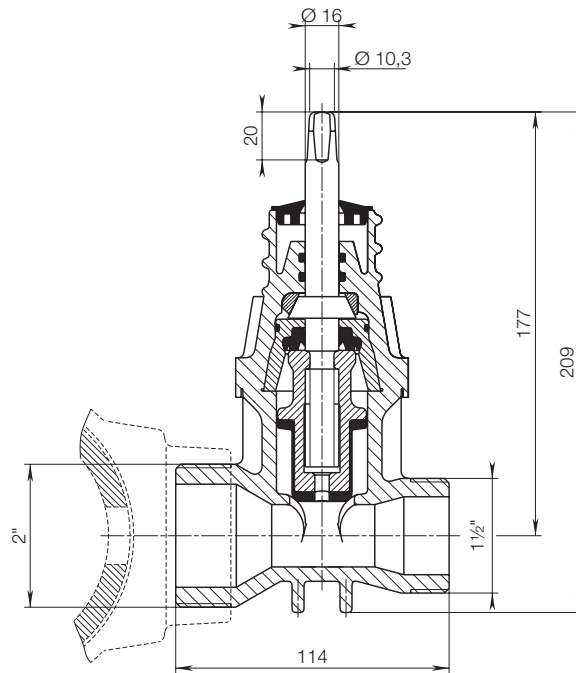


Tapping valve DN 1"

With 2" external thread EN 10226-1 for mounting onto saddle and

1½" external thread ISO 228 only for ISO push-fit fitting No. 6221F

No. 2681



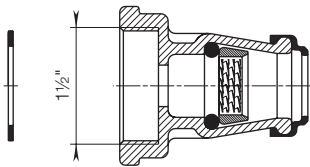
ISO push-fit fitting No. 6221F

Made of POM

Internal thread 1½" ISO 228

Push-fit socket for PE pipes up to PN 16, pipe Ø 25/32/40/50/63 mm

The flat gasket saves the need for seal



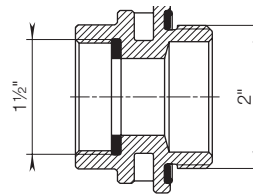
Adapter No. 5940

Made of bronze

Internal thread 1½" ISO 228

External thread 2" ISO 228

For Hawle drilling machine No. 5800 or No. 5805



Drilling and assembly instructions

1. Mounting onto the saddle:

Screws the 2" external thread into the internal thread of the saddle

2. Drilling:

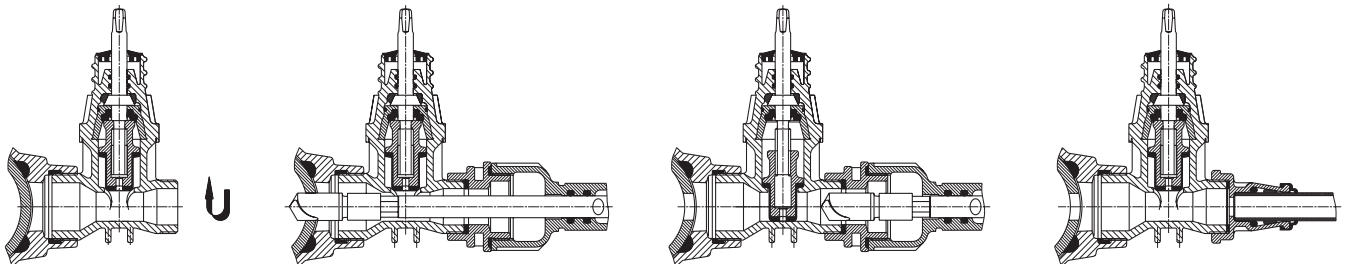
Open the valve completely; if necessary use adapter (see above)

3. Shut-off:

After drilling, retract the drill and close the valve

4. 4. Pipe assembly:

Screw on one of the five ISO push-fit fittings - push the pipe in - finished



J 5/4



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SERVICE VALVE

Made of POM with Hawle-FIT sockets



Design features

- Resilient seated gate valve with smooth straight-through bore
- For PE pipes according to EN 12201 and DIN 8074 | up to PN 16; up to 30° C medium temperature
- The high-tensile connection to the pipe is achieved via the two HAWLE-FIT sockets
- Assembly-ready supply: no screwing required before inserting the pipe
- All parts made of corrosion free materials
- Maximum spindle torque: 80 Nm.
- Easy disassembly without special tools
- Sealing system: the contact between wedge and body is friction free. Therefore no scuffing or abrasion of the wedge
- Hawle FIT socket details see page K 2/1

Standard version: without handwheel and extension spindle

Special versions: on request

Material | Technical features

- 1 **Clamping nut** made of POM
- 2 **Lip seal** made of elastomer
- 3 **Grip ring** made of POM

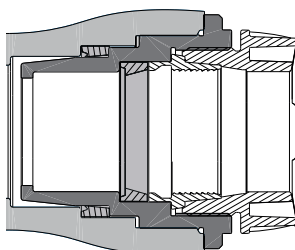
Suitable accessories

Suitable accessories: see page J 1/2

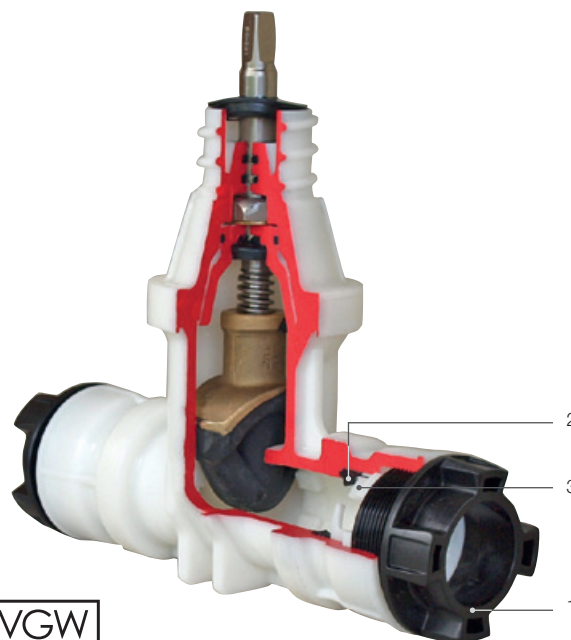
Handwheel: No. 7800
 Extension spindle: rigid No. 9101
 telescopic No. 9601
 Surface box: rigid No. 1550, No. 1650
 telescopic: No. 1850, No. 1851K
 Spindle extension: No. 7820
 Sealing cap: No. 2156, No. 2157, No. 2158
 Pipe cutter: No. 6050
 Mounting spray: No. 3443
 Support liners: No. 6021
 Hawle-FIT type for reducer: No. 6640HF

Design features

- For the reduction of Hawle-FIT socket



No. 2631



Order No.	Version	MOP (PN)	Dimensions/DN			
			1"	1¼"	1½"	2"
2631	With Hawle-FIT socket	16				

PE 80: SDR 7,4 - SDR 17,6

PE 100: SDR 11 - SDR 17

For PE 80 and PE 100: SDR 17,6 and 17 we recommend using a support liner

Hawle-FIT type for reducer No. 6640HF



Order No.	Version	MOP (PN)	Dimensions/DN				
			32 25	40 25	40 32	50 32	
6640HF	With Hawle-FIT socket	16					



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J 6/1

SERVICE VALVE

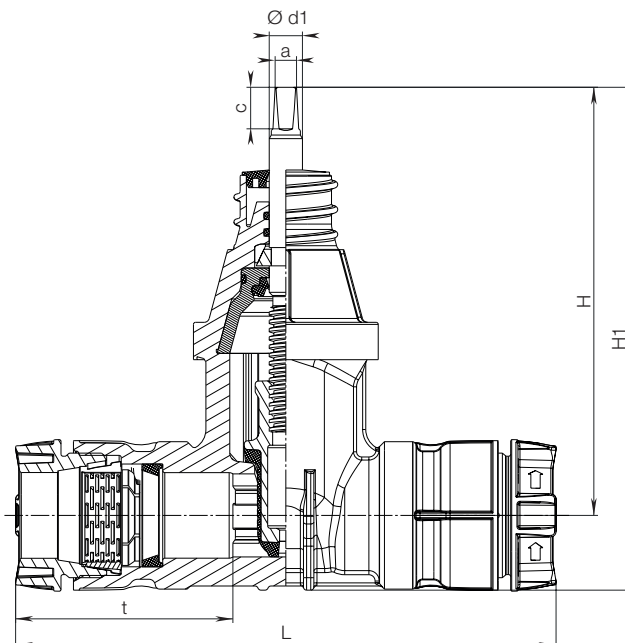
Made of POM with Hawle-FIT sockets



Service valve, POM

With dual Hawle-Fit connections sockets for PE-pipes

No. 2631

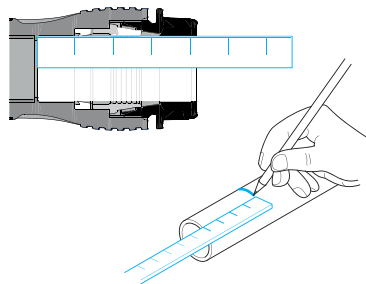


DN	Ø pipe ext.	Valve				Spindle			Weight
		t	L	H	H1	a	c	Ø d1	
1"	32	84	216	177	212	10,3	20	16	1,05
1¼"	40	105	260	205	241				1,56
1½"	50	116	294	205	247				1,83
2"	63	123	306	228	278				2,47

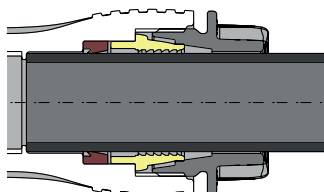
Benefits of the HAWLE-FIT sockets

- Ready to install from packaging
- Can be mounted without previous chamfering of the pipe ends
- Low insertion forces
- Defined stop of the clamping nut made of POM for a secure connection
- Easy assembly and disassembly without special tools
(Clamping nut can be fixed with a standard commercially available pipe cutter)

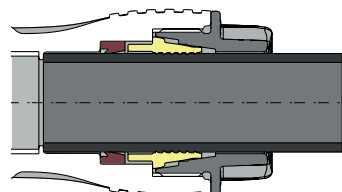
Assembly instructions



Measuring the insertion depth



POM clamping nut open



Pom clamping nut fully tightened

J 6/2



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SERVICE VALVE FOR PE FUSION

Made of ductile iron



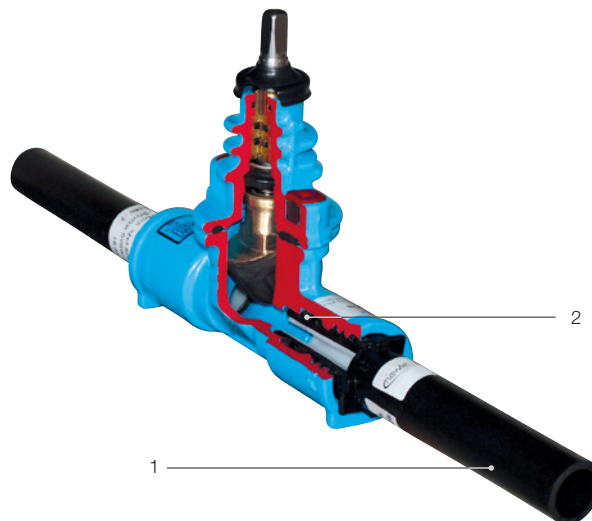
Design features

- Resilient seated gate valve with PE-fusion tails in combination with PE pipes according to EN 12201, DIN 8074
- This resilient seated valve has PE-fusion tails screwed into and sealed in the sockets
- The seal of the welding socket is guaranteed by two independent O-ring seals as well as a POM support liner in the welding socket
- The valve can be connected to the PE pipeline by either butt fusion or electrofusion

Standard version: without handwheel and extension spindle

Special versions: on request

No. 4050



Material | Technical features

- PE-fusion tails**
Standard version PE 100 injection moulded
Support liner made of POM for PE tails (see overleaf drawing))
- O-ring** made of elastomer

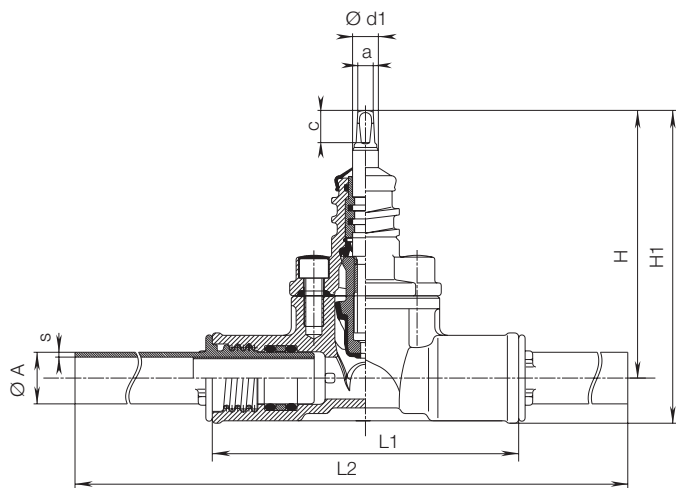


Suitable accessories

Suitable accessories: see page J 1/2

Handwheel: No. 7800
Extension spindle: rigid No. 9101
telescopic No. 9601
Surface box: rigid No. 1550, No. 1650
telescopic: No. 1850, No. 1851K
Spindle extension: No. 7820
Sealing cap: No. 2156, No. 2157, No. 2158

Order No.	PE-fusion tail	MOP (PN)	Dimensions/DN		
			1" / d 32	1¼" / d 40	1½" / d 50
4050	PE 100 / SDR 11	16			

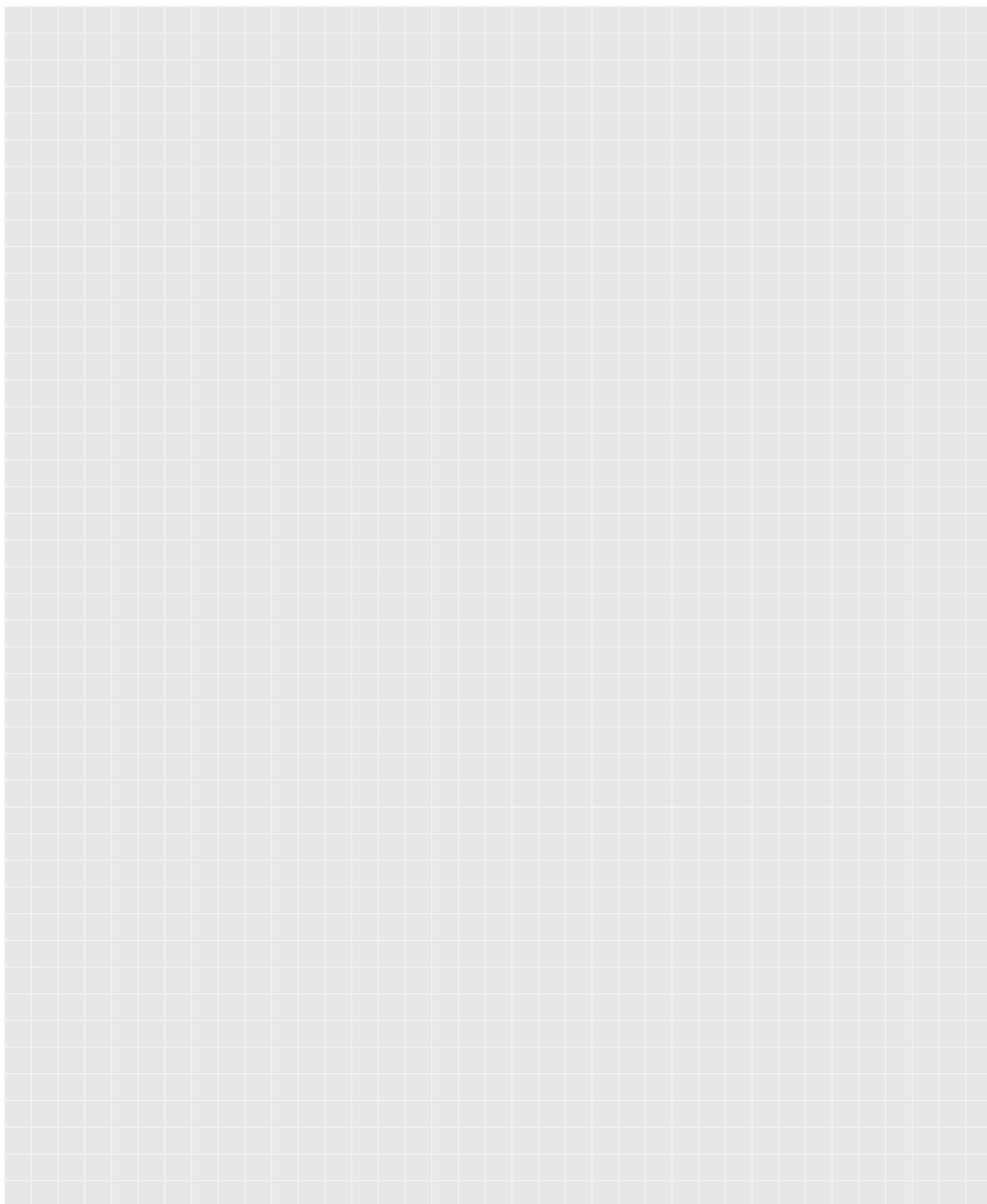


DN	ØA	Valve with PE-fusion tail					Spindle			Weight
		s	H	H1	L1	L2	a	c	Ød1	
1"	32	3,0	164	192	196	518	10,3	20	14	3,07
1¼"	40	3,7	199	234	230	556	10,3	20	16	4,54
1½"	50	4,6	199	242	240	576	10,3	20	16	5,52



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J 7/1

A large rectangular area filled with a light gray grid pattern, intended for technical notes or drawings.

SERVICE VALVE FOR PE FUSION

Made of POM



Design features

- Resilient seated gate valve with PE-fusion tails in combination with PE pipes according to EN 12201, DIN 8074
- Sealing system: the contact between wedge and body is friction free. Therefore no scuffing or abrasion of the wedge
- The valve can be connected to the PE pipeline by either butt fusion or electrofusion
- Maximum spindle torque: 80 Nm.

- **No. 2660:** Resilient seated valve with 2 permanently attached PE tails, factory welded

The valve design prevents sediment accumulating irrespective of water quality

An O-ring seal guarantees sealing to the valve body

- **No. 2670:** This resilient seated valve has PE tails screwed into and sealed in the sockets
- High performance sealing of the PE tails within the sockets is assured by two separate seals and a support liner within the tails

Standard version: without handwheel and extension spindle

Special versions: on request

Material | technical features

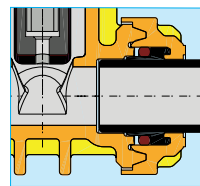
- 1 **PE-fusion tail** PE 100 / SDR 11, injection moulded
- **O-ring** made of elastomer

Suitable accessories

Suitable accessories: see page J 1/2

Handwheel:		No. 7800
Extension spindle:	rigid	No. 9101
	telescopic	No. 9601
Surface box:	rigid	No. 1550, No. 1650
	telescopic:	No. 1850, No. 1851K
Spindle extension:	No. 7820	
Sealing cap:	No. 2156, No. 2157, No. 2158	

No. 2660



No. 2670



Order No.	Version	MOP (PN)	Dimensions/DN				
			1" / d 32	1 1/4" / d 40	1 1/2" / d 50	1 3/4" / d 63	2" / d 63
2660	Made of POM welded-in with PE fusion tails	16					
2670	Made of POM screwed in with PE fusion tails						

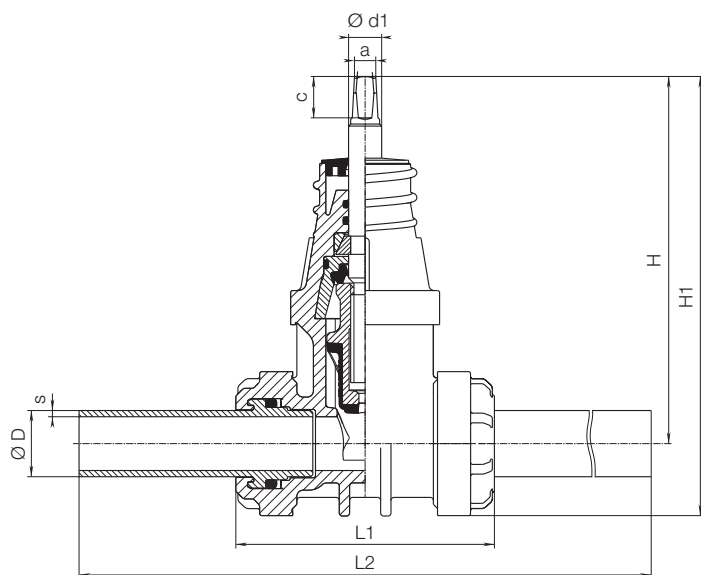


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J 7/3

SERVICE VALVE FOR PE FUSION

Made of POM

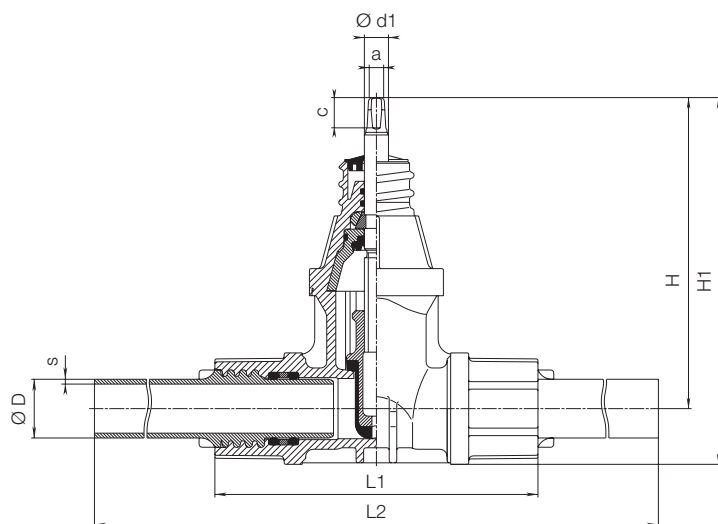


Valve for PE fusion, POM

With welded fusion tails

No. 2660

DN	Ø D	Valve with PE tails					Spindle			Weight
		s	H	H1	L1	L2	a	c	Ø d1	
1"	32	2,9	177	216	125	277	10,3	27	16	1,02
1½"	63	5,8	206	261	184	391	10,3	27	16	2,05



Valve for PE fusion, POM

With screwed PE-fusion tails

No. 2670

DN	Ø D	Valve with PE tails					Spindle			Weight
		s	H	H1	L1	L2	a	c	Ø d1	
1"	32	3,0	177	212	180	502	10,3	20	14	1,25
1¼"	40	3,7	205	241	218	544	10,3	20	16	1,85
1½"	50	4,6	205	247	251	587	10,3	20	16	2,30
2"	63	5,8	221	271	271	639	10,3	20	16	3,10

J 7/4



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SERVICE VALVES

Made of ductile iron



Design features

- Resilient seated gate valve with optimum flow passage
- For vertical installation on pipe saddles
- Sealing system: the contact between shut-off plug and body is friction free. Therefore no scuffing or abrasion of the seal
- Service connection service valves with internal thread are equipped with a corrosion protection ring to prevent corrosion
- For service connection angle valves with external thread, the free lying threads must be corrosion protected according to the trade regulations after assembly
- **No. 3128:** Protection against pressure water only when fully opened

Standard version: without handwheel and extension spindle

Special versions: on request

Material | Technical features

- **Body and bonnet:**
made of ductile iron, epoxy powder coated
- **Shut-off plug** made of brass, with vulcanized elastomer
- **Hose fitting** made of chrome-plated brass

Suitable accessories

Suitable accessories: see page J 1/2

Handwheel:		No. 7800
Extension spindle:	rigid	No. 9101
	telescopic	No. 9601
Surface box:	rigid	No. 1550, No. 1650
	telescopic:	No. 1850, No. 1851K
Spindle extension:	No. 7820	
Sealing cap:	No. 2156, No. 2157, No. 2158	
Chamfering tool:	No. 6000	
Saddle blade:	No. 6010	
Pipe cutter:	No. 6050	
Mounting spray:	No. 3443	

No. 3120

No. 3128

No. 3130



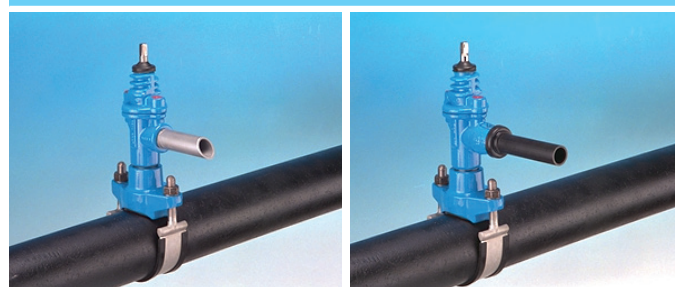
STRUCTURE
of grip ring for
PE pipes

Order No.	Version	MOP (PN)	Dimensions/DN			
			1"	1¼"	1½"	2"
3120*	with thread outlet	16				
3128	with thread outlet and automatic drainage device					
3130*	with ISO-fitting for PE pipes acc. to EN 12201, DIN 8074*					

No. 3130 can be adapted for PVC pipe with carborundum grip ring at extra cost

* Up to 30° C medium temperature

Application example

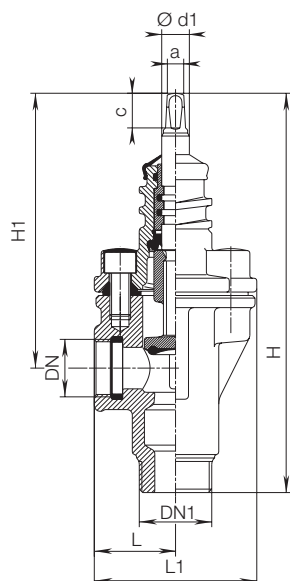


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J 8/1

SERVICE VALVES

Made of ductile iron



Service valve

with thread outlet

No. 3120

DN ISO 228	DN 1 EN 10226-1	Valve				Spindle			Weight
		L	L1	H	H1	a	c	Ø d1	
1"	1¼"	47	93	227	159	10,3	20	16	2,34
1¼"	2"	55	108	271	191				3,60
1½"	2"	56	109	280	193				3,90
2"	2"	60	113	289	196				4,40

Service valve

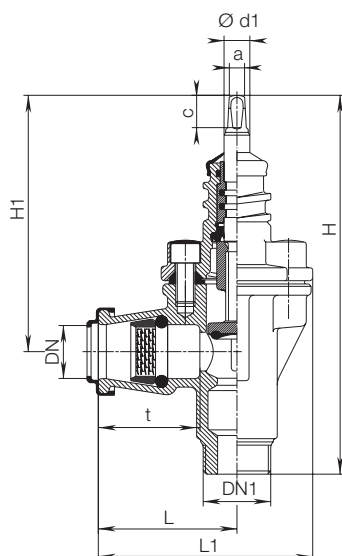
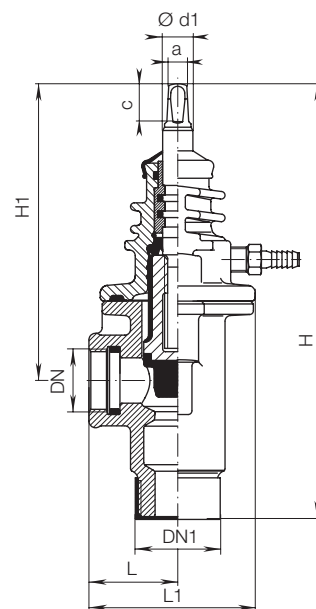
With internal thread outlet and automatic drainage device

NOT suitable for locations with a drainage hole under the water table; Please observe the flow directional arrow - protection against pressure water only when fully opened;

The automatic drainage of the service is only available when the valve is fully shut!

No. 3128

DN ISO 228	DN 1 EN 10226-1	Valve				Spindle			Weight
		L	L1	H	H1	a	c	Ø d1	
1"	1¼"	47	93	242	170	10,3	20	16	2,34
1½"	2"	56	109	292	205				3,90



Service valve

With ISO outlet for PE pipes

No. 3130

DN	Ø Pipe ext.	DN 1 EN 10226-1	Valve					Spindle			Weight
			t	L	L1	H	H1	a	c	Ød1	
1"	32	1¼"	63	86	132	231	159	10,3	20	16	2,50
1¼"	40	2"	77	106	159	273	191				3,90
1½"	50	2"	91	120	173	283	193				4,23
2"	63	2"	103	135	188	289	196				5,30

J 8/2



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ISO-COMBINATION SERVICE VALVE

Made of POM



Design features

- Resilient seated gate valve with smooth straight-through bore
- With conical 2" external thread according to EN 10226 for mounting onto saddle and ½" external thread according to ISO 228 only for ISO push-fit fitting No. 6221F
- One valve with 5 ISO push-fit fittings for PE pipes (pipe Ø 25/32/40/50/63 mm) reduces stockkeeping
- For PE pipes according to EN 12201 and DIN 8074 | up to PN 16; up to 30° C medium temperature
- A robust design made of POM
- All parts made from corrosion free materials
- Sealing system: The contact between plug and body is friction free. Therefore no scuffing or abrasion on the plug

Standard version: without handwheel and extension spindle

Special versions: on request

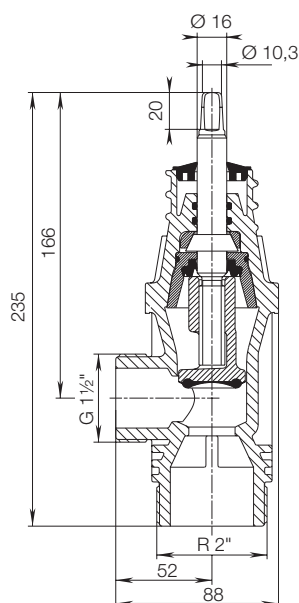
Material | Technical features

- **Shut-off plug** made of brass, with vulcanized elastomer

Suitable accessories

Suitable accessories: see page J 1/2

Handwheel:		No. 7800
Extension spindle:	rigid	No. 9101
	telescopic	No. 9601
Surface box:	rigid	No. 1550, No. 1650
	telescopic:	No. 1850, No. 1851K
Spindle extension:		No. 7820
Sealing cap:		No. 2156, No. 2157, No. 2158
Chamfering tool:		No. 6000
Saddle blade:		No. 6010
Pipe cutter:		No. 6050
Mounting spray:		No. 3443

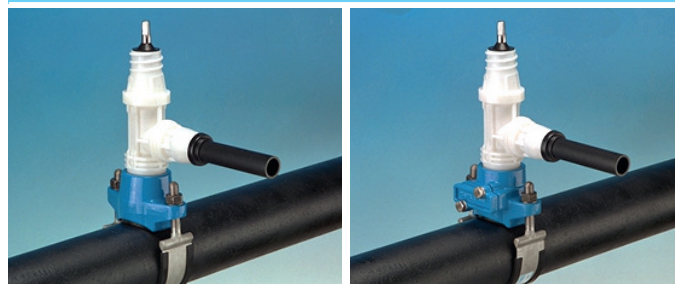


No. 3151
No. 3150
No. 6221F



Order No.	Article	MOP (PN)	DN	Thread	Ø PE-Pipe	Weight		
3151	ISO Combination service valve without fitting	16	1"	2" - 1½"		0,85		
3150	ISO Combination service valve with choice of ISO push-fit fitting		1"	2" - 1½"		25	0,96	
						32	0,99	
						40	1,07	
						50	1,14	
						63	1,28	
6221F	ISO push-fit fitting with backing washer		1½"			25	0,10	
						32	0,13	
						40	0,22	
						50	0,29	
						63	0,41	

Application example



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J 8/3

HAWLINGER PIPE DRILLING SADDLE

Made of ductile iron



Design features

- Robust and simple construction
- In open position: clear, unobstructed waterway
- Working parts not in contact with water
- Just half a turn to open or close
- Outlet is 1", 1¼" and 1½" internal thread on all models and sizes
- **No. 2402:** Supplied complete with plastic operating key
- **No. 2402 and No. 2300**
Internal thread 1" drilling-Ø max. 24
Internal thread 1¼" drilling-Ø max. 24
Internal thread 1½" drilling-Ø max. 35

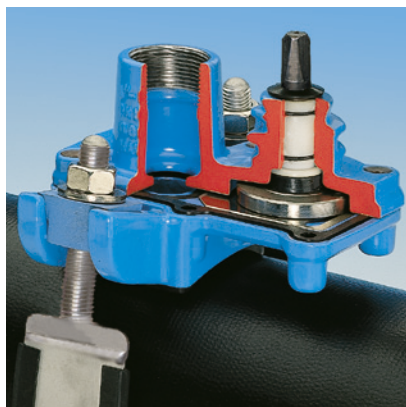
Material | Technical features

- **Body** of ductile iron, epoxy powder coated
- **Eccentric disc and shut-off plate** made of stainless steel
- **Strap (No. 3110)** made of stainless steel
- **Seals** made of elastomer

Suitable accessories

Suitable accessories:	see page J 1/2	
Extension spindle:	rigid	No. 9101
	telescopic	No. 9601
Surface box:	rigid	No. 1550, No. 1650
	telescopic:	No. 1850, No. 1851K
Spindle extension:		No. 7820
Drill:		No. 5800, No. 5805

No. 2402



No. 2300

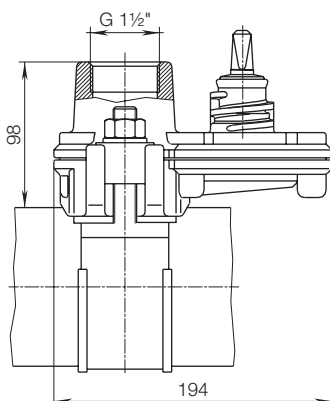


No. 2200



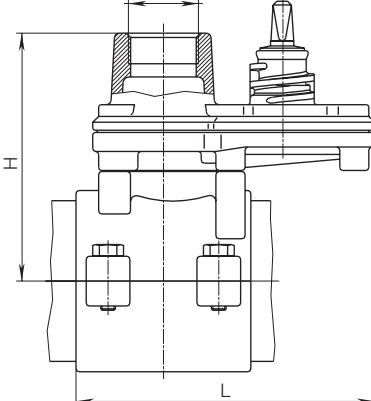
Order No.	Version	MOP (PN)	Internal thread ISO 228	Dimensions/DN						
				80	100	125	150	200	250	300
2402	Universal-Hawlinger ductile iron, steel and AC pipes	16	1"							
			1¼"							
			1½"							
Order No.	Version	MOP (PN)	Internal thread ISO 228	Ø pipe						
				90	110	160				
2300	HAKU-Hawlinger PE and PVC pipes	16	1"							
			1¼"							
			1½"							
Order No.	Version	MOP (PN)	Internal thread ISO 228	External thread EN 10226-1						
				1½"		2"				
2200	Hawlinger adapter for use with any pipe saddle	16	1½"							

No. 2402



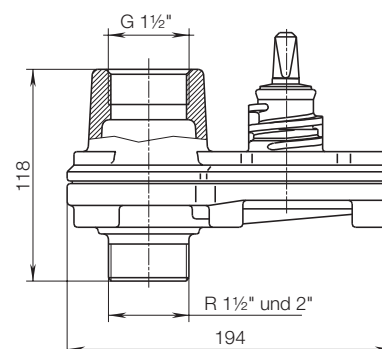
DN	Weight	DN	Weight
80	6,20	200	6,50
100	6,20	250	6,60
125	6,30	300	6,80
150	6,40		

No. 2300



DN	Ø pipe	L	H	Weight
80	90	194	146	7,00
100	110	194	160	7,40
150	160	194	188	9,00

No. 2200



Hawlinger adapter

G 1½" drilling-Ø max. 28
G 2" drilling-Ø max. 35
Weight: 4,70

J 8/4



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SERVICE VALVE

With automatic drainage, made of ductile iron



Design features

- Resilient seated gate valve with optimum flow passage
- Suitable for drainage of pipes which might freeze e.g. irrigation pipes etc. In below ground applications sufficient draining for the valve has to be considered (e.g. drainage pit)
- Sealing system: Automatic secured drainage when valve is completely closed. No clearing when the valve is partly or completely open
NOT suitable for sites with a drainage hole situated above the groundwater table
- Internal thread is equipped with a corrosion protection ring to prevent corrosion

Standard version: without handwheel and extension spindle

Special versions: on request

Material | Technical features

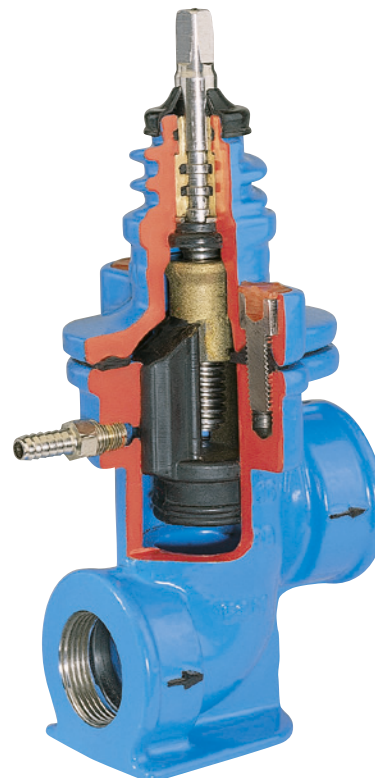
- **Shut-off plug** made of brass, with vulcanized elastomer
- **Hose fitting** made of chrome-plated brass

Suitable accessories

Suitable accessories: see page J 1/2

Handwheel:		No. 7800
Extension spindle:	rigid	No. 9101
	telescopic	No. 9601
Surface box:	rigid	No. 1550, No. 1650
	telescopic:	No. 1850, No. 1851K
Spindle extension:	No. 7820	
Sealing cap:	No. 2156, No. 2157, No. 2158	

No. 2491



Order No.	Version	MOP (PN)	Dimensions/DN				
			¾"	1"	1¼"	1½"	2"
2491	internal iron threads both ends, automatic drainage device	16					



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J 8/5

SERVICE VALVE

With automatic drainage, made of ductile iron

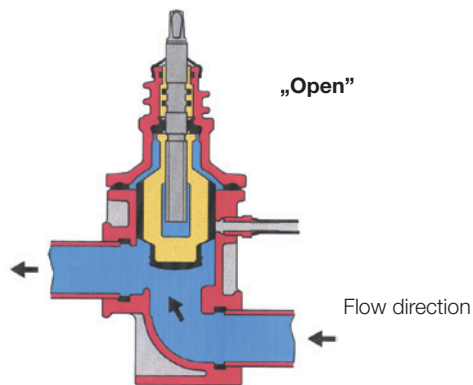
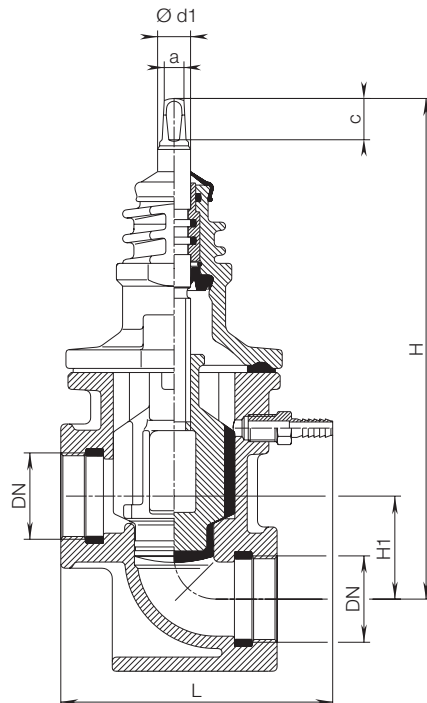


No. 2491

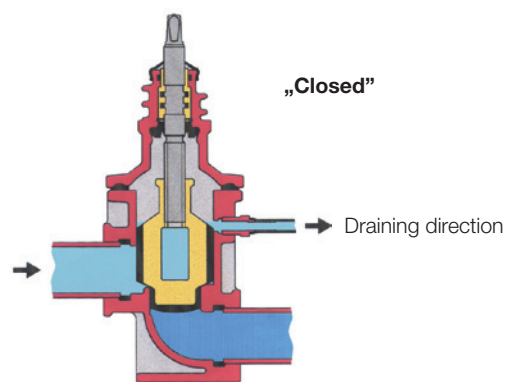
Thread drainhole and automatic draining

Note installation direction (arrow). Drainage only when the valve is completely closed:

Note that drainhole must be positioned above ground water level in case of below ground installation (no backflow preventer in the drainhole!)



Opening torque max. 40 Nm



Closing torque max. 40 Nm

DN Internal thread (ISO 228)	Valve			Spindle			Weight
	L	H	H1	a	c	Ø d1	
3/4"	115	207	41	10,3	20	16	2,40
1"	115	207	41				2,30
1 1/4"	130	243	50				3,90
1 1/2"	130	243	50				4,00
2"	140	243	50				4,50

J 8/6



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WATER METER CONSOLES



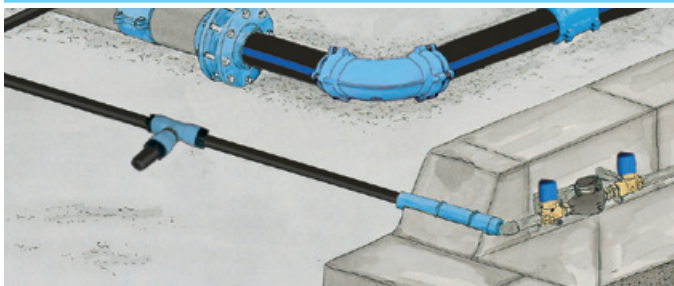
Design features

- Compact design - with integral backflow preventer
- Problem-free assembly and dismantling of the water meter by length adjustment (supplied without water meter)
- Potable water up to 30°C
- Electrical earthing link to base plate
- Order no. 2931 and 2932 with drainage plug

Material | Technical features

- **Valve body** made of brass
- **Wall plate** made of aluminum (including fastening set for water meter console)
No. 2931, 2932 made of ductile iron, epoxy powder coated
- **Handwheel:**
No. 2930, 2960 made of steel
No. 2931, 2932 made of POM
- **Meter substitution connector:**
No. 2933 1 1/4" made of POM with gasket (for No. 2931, 2932)
2" made of galvanized steel (for No. 2930)

Application example

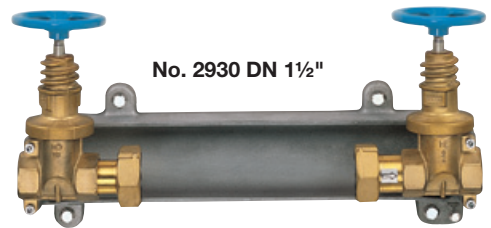


No. 2930

No. 2931

No. 2932

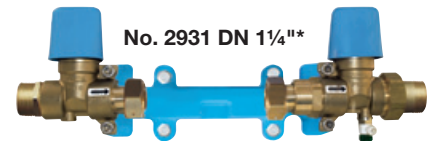
No. 2960



No. 2930 DN 1 1/2"



No. 2931 DN 1"



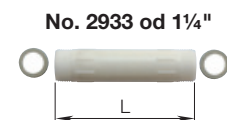
No. 2931 DN 1 1/4"



No. 2932 DN 1"



No. 2960 DN 2"



No. 2933 od 1 1/4"

Order No.	MOP (PN)	DN	Valve connection (meter substitution connector)	k _v -value m³/h at 1 bar Δ p	For water meter EN 15154-1	
2930	16	1½"	2 internal threads G 1½" ISO 228	32,1	20 m³/h	
2931		1"	2 internal threads G 1" ISO 228	11,4	3 (5) m³/h - 7 (10) m³/h	
		1¼"	2 external threads R 1¼" EN 10226	11,4	3 (5) m³/h - 7 (10) m³/h	
2932		1"	1 ZAK 34 socket connector, 1 internal thread G 1" ISO 228	11,4	3 (5) m³/h - 7 (10) m³/h	
2960		2"	2 internal threads G 2" ISO 228	47,2	20 m³/h	

Special versions: *DN 1 1/4" with 2 internal threads G 1 1/4 ISO 228



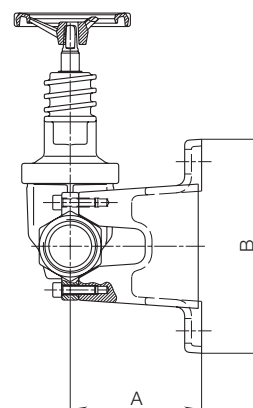
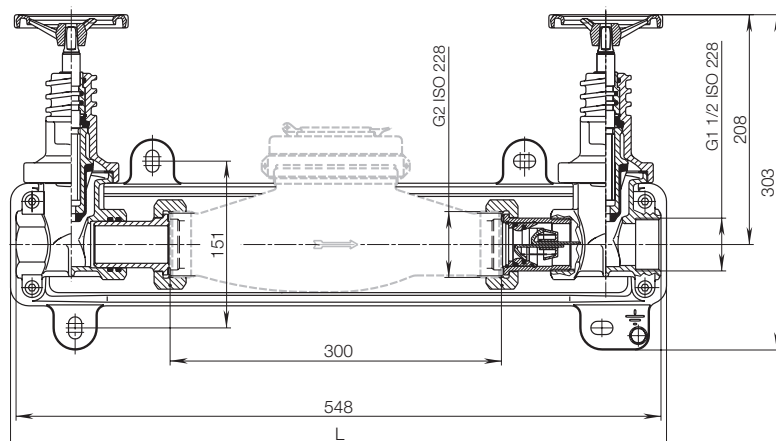
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J 9/1

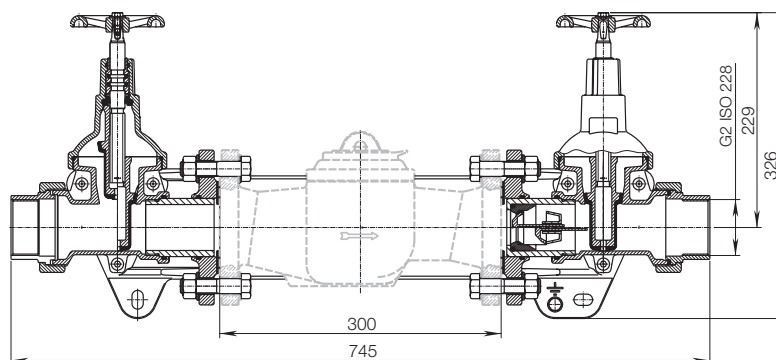
WATER METER CONSOLES



No. 2930 DN 1½"



No. 2960 DN 2"

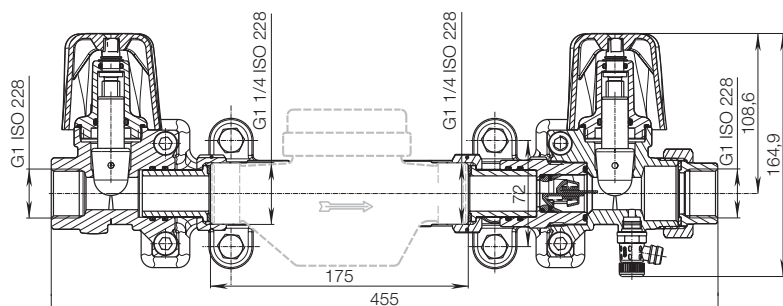


DN	Meter connection	A	Wall plate		Weight
			L	B	
1"	1¼"	90	300	100	7,00
1¼"	1¼"	90	300	100	7,10
1½"	2"	115	590	190	10,50
2"	Flange DN 50	125	590	190	20,00

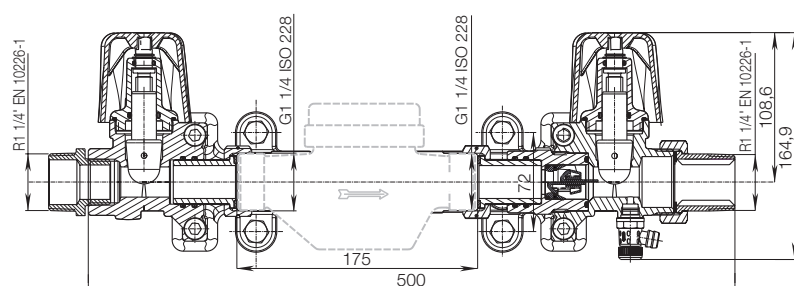
Meter substitution connector

DN	No. 2933 AG ISO 228	L	Weight
1"	1¼"	175	0,16
1¼"	1¼"	175	0,16
1½"	2"	300	1,67

No. 2931 DN 1"



No. 2931 DN 1¼"



J 9/2



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Page K 2

Hawle-FIT

Fittings for PE pipes
Assembly and dismantling instructions

Page K 2/1
Page K 2/2



Page K 3

ISO pipe fitting

Fittings for PE pipes
ISO pipe fitting assembly and dismantling instructions
ZAK plug-fit fitting

Page K 3/1
Page K 3/2
Page L 5/1

Page K 4

ISO pipe fitting

With external and internal thread

ISO pipe fitting connector

ISO pipe fitting connector "PE pipe - steel pipe"

Page K 4/1

Page K 4/2
Page K 5/1



Page K 5

ISO pipe fitting elbow

ZAK elbow 90°
ZAK elbow 90°

Page K 5/1
Page L 5/2
Page L 5/2



Page K 6

ISO pipe fitting T-piece

ISO pipe fitting

Fitting for wall inlet fitting, End stop, Push fit swivel converter

Page K 6/1

Page K 6/2



Page K 7

Hawle wall inlet fitting

ZAK wall inlet fitting

Page K 7/1
Page L 5/4

Page K 8

Fittings for cable conduits

Coupling for cable conduits
End fitting for cable conduits

Page K 8/1
Page K 8/2
Page K 8/2



Accessories

Support liner	Page M 6/2
Push fit swivel converter	Page M 7/4
Hawle-FIT type for reducer	Page J 6/1

Spare parts

ISO fitting O-ring	Page P 4/2
ISO fitting clamp	Page P 4/1
ISO fitting Carborundum clamp	Page P 4/2

TOOLS

Pipe cutter	Page Q 4/1
Chamfering tool	Page Q 4/1
Pincers	Page Q 4/1
Extractors	Seite Q 4/2

Application examples



HAWLE-FIT

Fittings for PE pipes



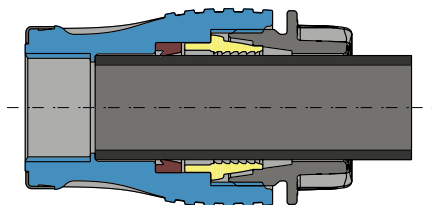
Design features

- For PE pipes according to EN 12201-2 and DIN 8074, up to PN16
- The new generation of fitting pipes HAWLE-FIT has been designed to connect PE pipes with an outside diameter of d 25 to 63 and a working pressure of up to 16 bar
- The HAWLE-FIT is designed for drinking water applications within a temperature range of up to 30 °C
- Installation and dismantling is simply performed with no special tools required
- The service life of the HAWLE-FIT is guaranteed by the use of high-quality polymer materials; the clamping nut as functional carrier is very stable through its unique construction
- The special clamp toothing (no continuous groove) reduces the impact force on the pipe. This significantly enhances the service life of the pipe
- The stainless steel reinforcing ring increases the strength of the fitting with internal thread outlets

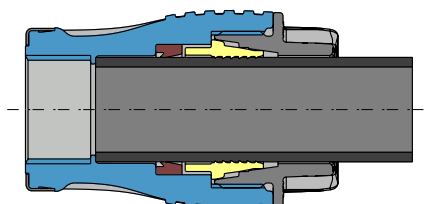


Material | Technical features

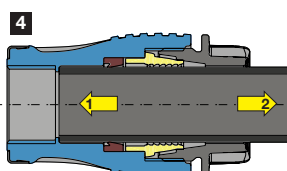
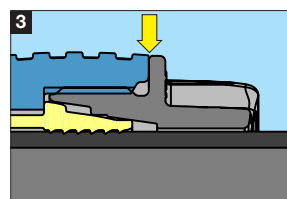
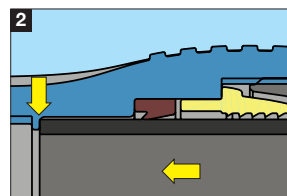
- **Body** made of high-quality polymer
- **Grip rings and clamping unit** made of POM
- **Seal** made of elastomer



Open clamping nut



Clamping nut fully tightened



- The HAWLE-FIT fitting is supplied ready for installation which means no turning of the screw is required before inserting the pipe! The fitting is unpacked and is then ready for use (ill. 1).
- The HAWLE-FIT fitting can be assembled without any pipe chamfering. Push until reaching built-in end stops. This saves time and money (ill. 2/3).
- Prior to fastening the screw, the grip ring does not reveal any initial tension or teeth. For this reason only very low insertion forces are required
- The construction of the HAWLE-FIT fitting amplifies the dismantling of the pipe since the fitting does not have to be completely dismantled. The clamping nut is loosened but not actually removed (ill. 4)

* PE 80: SDR 7,4 - SDR 17,6
 PE 100: SDR 11
 PE 100: SDR 17
 (support liner No. 6021 is required)



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K 2/1

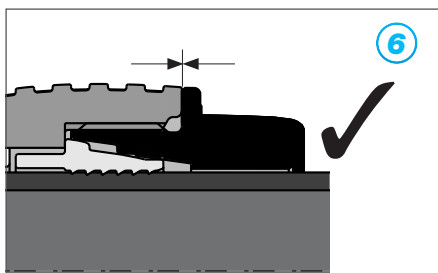
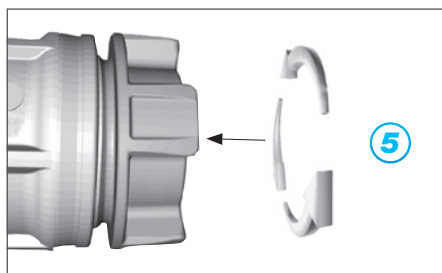
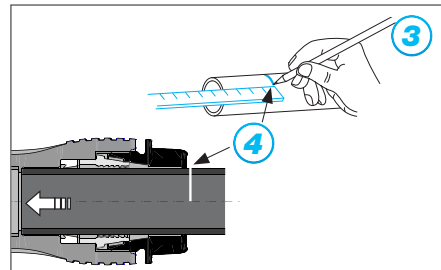
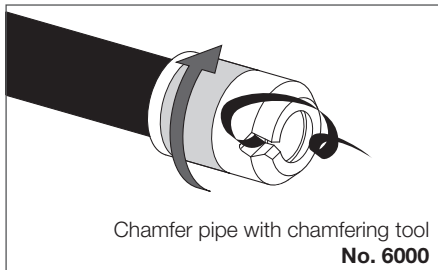
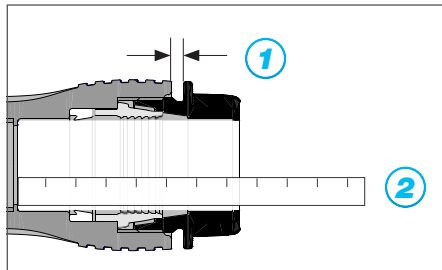
HAWLE-FIT

Assembly and dismantling



- Instruction - Fittings / Valves
- For PE pipes Ø d 25 - d 63 up to PN 16

HAWLE-FIT ASSEMBLY INSTRUCTIONS

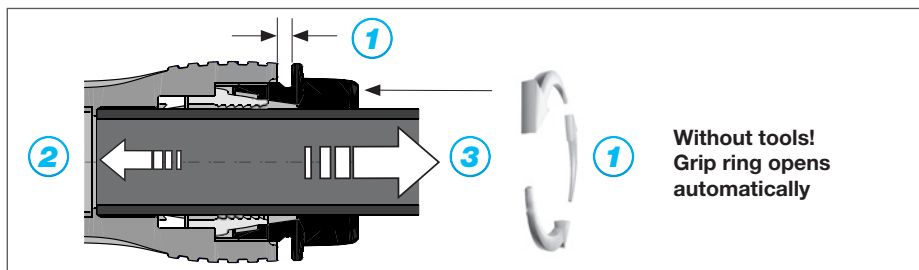


Low pressure conditions require a support liner No. 6021



For PE pipes SDR 17, is required a support liner No. 6021

HAWLE-FIT DISMANTLING



K 2/2



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HAWLE-FIT

Fittings for PE pipes

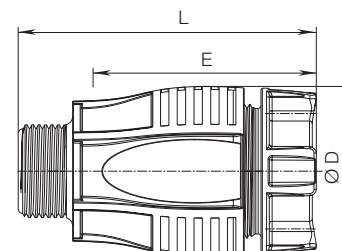


Design feature

- With external thread according to EN 10226-1

Order No.	Ø pipe	Thread	MOP (PN)	L	E	Ø D	Weight
6120HF	25	¾"	16	98	74	54	0,09
	32	1"		107	80	61	0,12
	40	1 ¼"		117	81	75	0,21
	50	1 ½"		133	103	90	0,31
	63	2"		149	115	105	0,45

With external thread No. 6120HF

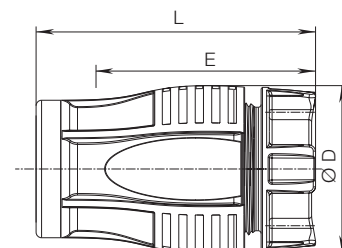


Design feature

- With internal thread according to ISO 228

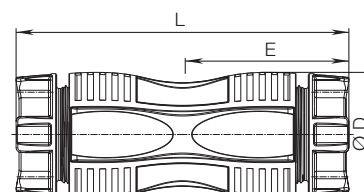
Order No.	Ø pipe	Thread	MOP (PN)	L	E	Ø D	Weight
6220HF	25	¾"	16	93	74	54	0,10
	32	1"		102	80	61	0,14
	40	1 ¼"		117	81	75	0,23
	50	1 ½"		131	103	90	0,34
	63	2"		149	115	105	0,48

With internal thread No. 6220HF



Order No.	Ø pipe	MOP (PN)	L	E	Ø D	Weight
6320HF	25	16	151	74	54	0,16
	32		163	80	61	0,22
	40		182	81	75	0,37
	50		208	103	90	0,54
	63		234	115	105	0,80

Connector No. 6320HF



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K 2/3

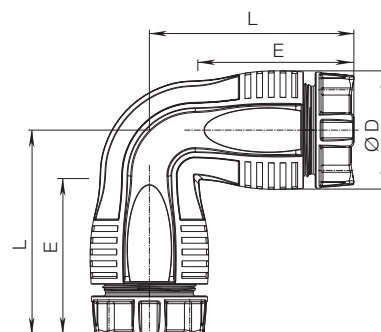
HAWLE-FIT

Fittings for PE pipes



Order No.	Ø Pipe	MOP (PN)	L	E	Ø D	Weight	
6420HF	25	16	94	74	54	0,18	
	32		105	80	61	0,26	
	40		121	81	75	0,43	
	50		136	103	90	0,63	
	63		159	115	105	0,91	

Elbow 90° No. 6420HF

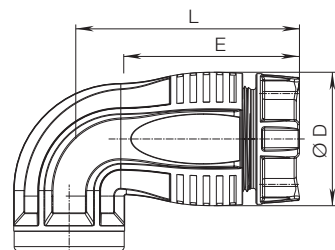


Design feature

- With internal thread according to ISO 228

Order No.	Ø Pipe	Thread	MOP (PN)	L	E	Ø D	Weight	
6430HF	25	¾"	16	94	74	54	0,12	
	32	1"		105	80	61	0,18	
	40	1 ¼"		121	81	75	0,28	
	50	1 ½"		137	103	90	0,44	
	63	2"		159	115	105	0,62	

Elbow 90° with internal thread No. 6430HF

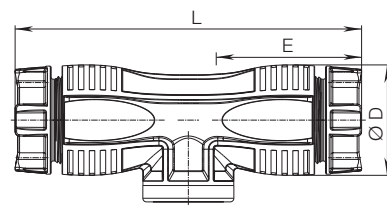


Design feature

- With internal thread according to ISO 228

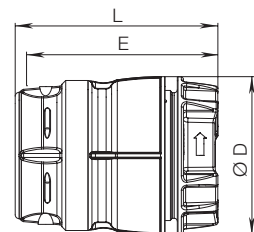
Order No.	Ø Pipe	Thread	MOP (PN)	L	E	Ø D	Weight	
6520HF	25	¾"	16	173	74	54	0,20	
	32	1"		191	80	61	0,27	
	40	1 ¼"		214	81	75	0,44	
	50	1 ½"		240	103	90	0,65	
	63	2"		291	115	105	0,99	

T-piece with threaded outlet No. 6520HF



Order No.	Ø pipe	MOP (PN)	L	E	Ø D	Weight	
6223HF	25	16	99	82	62,5	0,25	
	32		90	84	62,5	0,17	
	40		113	105	73	0,28	
	50		90	84	62,5	0,39	
	63		132	125	103	0,57	

End stop No. 6223HF



K 2/4



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ISO PIPE FITTING

Fittings for PE pipes



Design features

- For PE pipes according to EN 12201-2 and DIN 8074, up to PN 16
- The HAWLE ISO pipe fitting is the easiest way joining polyethylene pipes
- The ISO pipe fitting is suitable for use in drinking water area up to a temperature of 30 °C
- The gripping and sealing functions act only the o.d. of the pipe; therefore only one fitting is required for all pressure ratings up to PN 16
- The function of the ISO pipe fitting is clear and simple; the O-ring is made of elastomer and seals well even when the pressure is nil, because it is compressed onto the pipe
- As the water pressure and pipe tension increase, the sealing and grip rings are compressed further into the conical chamber, thus increasing the sealing and gripping effect
- The joint is flexible and the fitting can be turned on the pipe without affecting the grip or seal. Assembly the fitting is quick and simple and can be dismantled if required.
- This design has been well proven for many years in water distribution and is used in pipelines with pressures up to PN 16 (also in vacuum situations, with support liner)
- In POM fittings all internal threads are strengthened with a stainless steel ring
- All ductile iron fittings with internal threads are fitted with a corrosion protection ring to prevent corrosion
- For ductile iron fittings with external thread, after assembly the free lying threads must be protected against corrosion according to the trade regulations

Made of ductile iron

Epoxy powder-coated



Made of POM



Material | Technical features

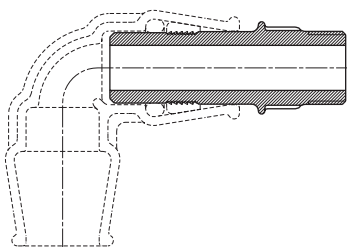
- **Body** made of POM or ductile iron, epoxy powder coated
- **Grip ring** made of POM
- **O-ring gasket** made of elastomer

All ISO pipe fittings can also be supplied for PVC pipes with a carborundum grip ring at extra cost.
(Carborundum grip ring see page P 4/2)

Suitable accessories

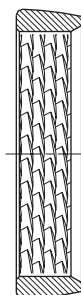
Suitable accessories:

Chamfering tool:	No. 6000
Extractors:	No. 6010
Support liner:	No. 6021



Push fit swivel converter

Made of POM
with external thread end, every fitting in the range can be converted to a swivel external thread outlet; (see page M 7/4)



Grip ring
"Standard"
Interlocking
teeth



Grip ring
"carborundum"



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K 3/1

INSTRUCTION

ISO pipe fitting instruction for assembly and dismantling



ASSEMBLY

1

2
Pipe cutter No. 6050

3
Chamfering tool No. 6000

4
Support liner No. 6021 for zero pressure and low pressure pipelines. Don't chamfer the pipe

5

6

7
Moisten with water or lubricants (see M 7/2)

8

9

10

11 **PRESSURE TEST** on installed line and exposed, unfilled connections

1

2

3

4

5

6

7

8

9

10

11

DISMANTLING

1

2

3

4

5

1

2

3

4

5

Max. torque for tightening the threads (observe pipe fitter rules acc. to national standards):

1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
20 Nm	25 Nm	40 Nm	42 Nm	42 Nm	45 Nm

K 3/2



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ISO PIPE FITTING

With external and internal thread



Design feature

- With external thread according to EN 10226-1

Order No.	Ø Pipe	Thread	MOP (PN)	L	E	Ø D	Weight
6100	20	1/2"	16	68	48	39	0,16
	25	3/4"		82	58	44	0,25
	32	1"		95	70	53	0,35
	40	1 1/4"		112	84	65	0,63
	50	1 1/2"		130	101	76	0,90
	63	2"		148	114	94	1,45
6120	20	1/2"	16	68	48	39	0,04
	25	3/4"		82	58	43	0,06
	32	1"		95	70	53	0,10
	40	1 1/4"		110	82	72	0,24
	50	1 1/2"		126	99	83	0,27
	63	2"		144	110	99	0,44
6110	25	1"	16	83,5	58,5	50	0,28
	32	1 1/4"		96	70	53	0,39
	32	1 1/2"		96	70	53	0,60
	32	2"		112	70	62	0,63
	40	1"		112	84	65	0,65
	40	1 1/2"		112	84	65	0,64
	40	2"		113	84	65	0,72
	50	1 1/4"		130	101	76	0,90
	50	2"		130	101	76	0,95
	63	1 1/4"		148	114	93	1,50
	63	1 1/2"		148	114	93	1,45
	75	2"		152	109	111	2,41
6130	20	3/4"	16	68	48	39	0,05
	25	1"		82	58	43	0,06
	32	2"		102	70	65	0,13
	40	2"		110	82	72	0,24

Design feature

- With internal thread according to ISO 228

Order No.	Ø Pipe	Thread	MOP (PN)	L	E	Ø D	Weight
6200	20	1/2"	16	65	48	45	0,16
	25	3/4"		76	58	50	0,24
	32	1"		91	70	55	0,42
	40	1 1/4"		108	84	65	0,70
	50	1 1/2"		125	99	76	1,00
	63	2"		144	110	94	1,70
	75	2 1/2"		144	110	110	3,20
	90	3"		144	110	126	3,60
6220	20	1/2"	16	66	47	39	0,06
	25	3/4"		76	58	44	0,08
	32	1"		91	70	53	0,12
	40	1 1/4"		109	82	72	0,23
	50	1 1/2"		127	99	83	0,34
	63	2"		135	108	103	0,47
6210	32	1 1/4"	16	96	70	65	0,57
	50	1 1/4"		125	99	76	1,10
	90	2"		144	110	126	4,00
6230	32	1/2"	16	89	70	53	0,12
	32	3/4"		91	70	53	0,11
	40	1"		108	82	55	0,25
	40	2"		108	82	80	0,31
	50	2"		125	99	80	0,36

External thread

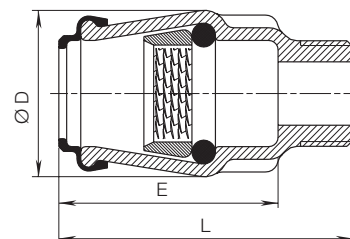
No. 6100 Made of ductile iron

No. 6120 Made of POM

External thread, reduced outlet

No. 6110 Made of ductile iron

No. 6130 Made of POM



Internal thread

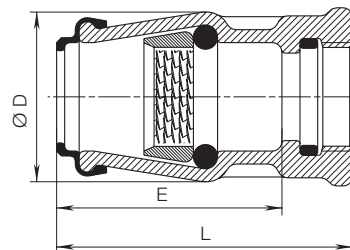
No. 6200 Made of ductile iron

No. 6220 Made of POM

Internal thread, reduced outlet

No. 6210 Made of ductile iron

No. 6230 Made of POM



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K 4/1

ISO PIPE FITTING

Connector



Order No.	ØPipe	MOP (PN)	L	E	ØD	Weight
6300	20	16	99	48	39	0,26
	25		120	58	44	0,35
	32		144	70	53	0,65
	40		172	84	65	0,97
	50		206	101	76	1,45
	63		232	114	94	2,70
	75		221	109	106	3,20
	90		195	109	126	4,70

Order No.	ØPipe	MOP (PN)	L	E	ØD	Weight
6320	20	16	99	48	39	0,07
	25		121	58	43	0,10
	32		145	70	53	0,15
	40		164	82	72	0,35
	50		200	99	83	0,57
	63		224	110	99	0,71

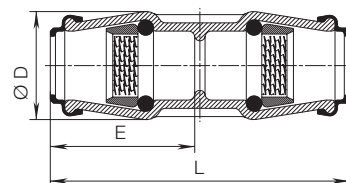
Order No.	ØPipe	MOP (PN)	L	E	ØD	Weight
6301	32	16	172	86	70	1,10
	40		207	103	79	1,90
	50		216	108	90	2,10
	63		238	119	103	3,20

If using as sleeve - Attention: no stop

Connector

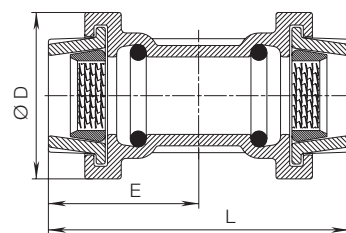
No. 6300 Made of ductile iron

No. 6320 Made of POM



Connector With detachable ends for subsequent assembly

No. 6301 Made of ductile iron



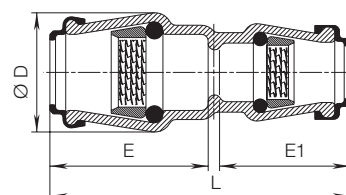
Order No.	ØPipe 1	ØPipe 2	MOP (PN)	L	E	E1	ØD	Weight
6310	25	20	16	110	58	48	43	0,33
	32	20		122	70	48	53	0,63
	32	25		135	70	58	53	0,51
	40	32		160	84	70	72	0,80
	50	32		189	100	70	76	1,70
	50	40		191	100	84	76	1,20
	63	50		224	114	101	94	1,70
	75	63		221	109	103	106	3,70
	90	75		210	100	100	126	3,30

Order No.	ØPipe 1	ØPipe 2	MOP (PN)	L	E	E1	ØD	Weight
6330	25	20	16	111	58	48	43	0,08
	32	25		134	70	58	53	0,13
	40	25		145	82	58	72	0,20
	40	32		156	82	70	72	0,25
	50	32		172	99	70	83	0,32
	50	40		182	99	84	83	0,42
	63	40		204	110	84	99	0,53
	63	50		213	110	99	99	0,60

Connector reduced

No. 6310 Made of ductile iron

No. 6330 Made of POM



K 4/2



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ISO PIPE FITTING

Connector | elbow



Order No.	Ø PE-pipe	Ø Steel pipe	MOP (PN)	L	E	E1	Ø D	Weight
6310ST	32	¾" (D 26,9)	16	132	70	55	53	0,66
6300ST	32	1" (D 33,7)		132	70	55	60	0,76

	Component	Material
1/8	Body (1) tension nut (8)	Ductile iron, epoxy powder coated
2	Grip ring PE	POM
3	Grip ring acier	Hardened acier
4	O-ring	Elastomer
5	Gasket	Elastomer
6	Thrust collar	POM
7	Protective cap	Elastomer

Tip: First strip PE-covered steel pipes to insertion length

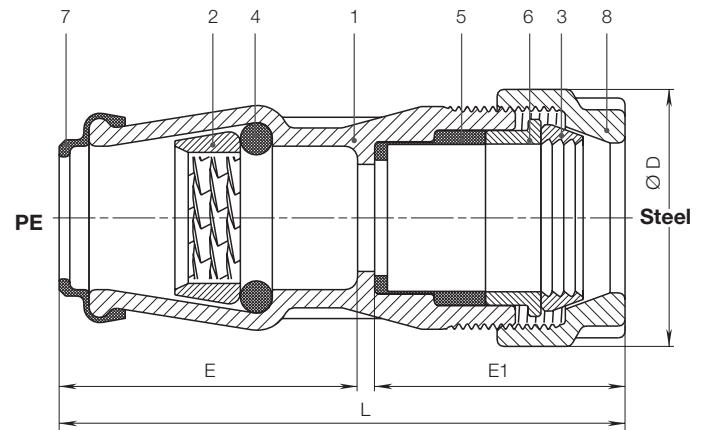
Connector "PE pipe - steel pipe" total restraint

No. 6310ST

Made of ductile iron

No. 6300ST

Made of ductile iron



Order No.	Ø Pipe	MOP (PN)	L	E	Ø D	Weight
6400	20	16	58	48	39	0,30
	25		72	58	44	0,45
	32		87	70	53	0,80
	40		104	84	65	1,20
	50		141	101	76	1,90
	63		163	114	94	3,15

Order No.	Ø Pipe	MOP (PN)	L	E	Ø D	Weight
6420	20	16	58	48	39	0,07
	25		73	58	43	0,10
	32		87	70	53	0,18
	40		104	82	72	0,37
	50		125	99	83	0,52
	63		144	110	99	0,80

Order No.	Ø Pipe 1	Ø Pipe 2	MOP (PN)	L	E	E1	Ø D	Weight
6490	32	25	16	87/71	70	58	53	0,16
	40	32		102/87	84	70	72	0,27

Order No.	Ø Pipe	MOP (PN)	L	E	Ø D	Weight
6440	40	16	95	84	65	1,20
	50		108	101	76	1,89
	63		119	114	94	2,60
	90		132	110	126	5,11

Elbow 90°

No. 6400

Made of ductile iron

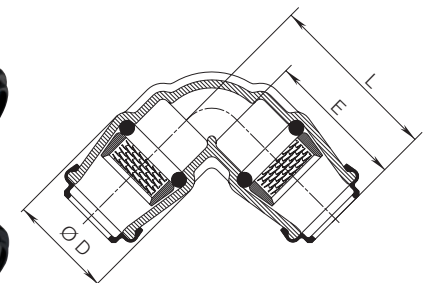
No. 6420

Made of POM

Elbow 90° reduced

No. 6490

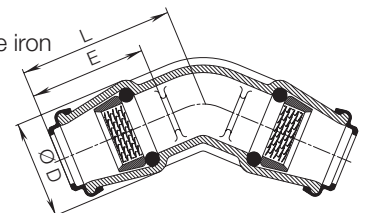
Made of POM



Elbow 45°

No. 6440

Made of ductile iron



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K 5/1

ISO PIPE FITTING

Elbow



Design feature

- With internal thread according to ISO 228

Order No.	Ø Pipe	Thread	MOP (PN)	L	E	ØD	Weight
6410	25	¾"	16	71	58	44	0,38
	32	1"		87	70	53	0,70
	40	1¼"		106	84	65	1,17
	50	1½"		141	101	76	1,50
	63	2"		163	114	94	2,75

Order No.	Ø Pipe	Thread	MOP (PN)	L	E	ØD	Weight
6430	20	½"	16	60	48	39	0,07
	25	¾"		71	58	43	0,10
	32	1"		87	70	53	0,14
	40	1¼"		103	82	72	0,28
	50	1½"		137	99	83	0,42
	63	2"		145	110	99	0,67

Design feature

- With external thread according to EN 10226-1

Order No.	Ø Pipe	Thread	MOP (PN)	L	E	ØD	Weight
6460	25	¾"	16	71	58	44	0,40
	32	1"		87	70	53	0,56
	40	1¼"		104	84	65	1,10
	50	1½"		141	101	76	1,70
	63	2"		163	114	94	2,52

Order No.	Ø Pipe	Thread	MOP (PN)	L	E	ØD	Weight
6470	25	1"	16	82	70	44	0,57
	32	1¼"		90	70	53	0,60
	32	1½"		90	70	53	0,90
	32	2"		87	70	53	0,69
	40	1½"		141	101	76	1,10

Design feature

- With external thread according to EN 10226-1

Order No.	Ø Pipe	Thread	MOP (PN)	L	E	ØD	Weight
6411	32	1"	16	77	70	53	0,55
	32	2"		78	70	53	0,59

Design feature

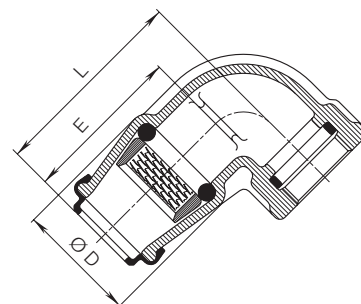
- With external thread according to EN 10226-1
- ISO socket 360° rotatable

Order No.	Ø Pipe	Thread	MOP (PN)	L	E	ØD	Weight
6462	63	1½"	16	148	105	93	2,65

Elbow 90° With internal thread

No. 6410 Made of ductile iron

No. 6430 Made of POM

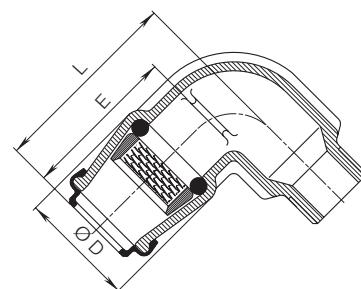


Elbow 90° With external thread

No. 6460 Made of ductile iron

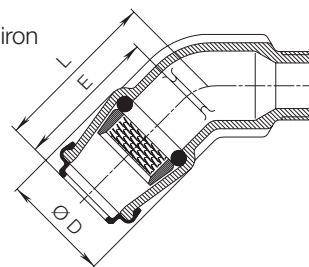
90° elbow with external thread reduced

No. 6470 Made of ductile iron



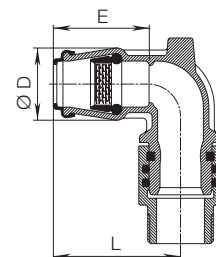
Elbow 45° With external thread

No. 6411 Made of ductile iron



Elbow 90° Swivelling fitting, with external thread

No. 6462 Made of ductile iron



K 5/2



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ISO PIPE FITTING

T-piece



Design feature

- With internal thread according to ISO 228

Order No.	Ø Pipe	Thread	MOP (PN)	L	E	Weight
6501	32	1"	16	195	80	1,50
	40	1¼"		228	93	2,40
	50	1½"		235	93	2,70
	63	2"		273	105	4,10

If using as sleeve - Attention: no stop

Design feature

- With internal thread according to ISO 228

Order No.	Ø Pipe	Thread	MOP (PN)	L	E	Weight
6500	20	½"	16	114	48	0,38
	25	¾"		134	58	0,56
	32	1"		162	70	0,83
	40	1¼"		199	84	1,45
	50	1½"		239	101	2,20
	63	2"		245	114	3,90

Order No.	Ø Pipe	Thread	MOP (PN)	L	E	Weight
6520	20	½"	16	110	48	0,10
	25	¾"		134	58	0,13
	32	1"		163	70	0,24
	40	1¼"		193	82	0,43
	50	1½"		235	99	0,60
	63	2"		267	110	0,90

Order No.	Ø Pipe	Thread	MOP (PN)	L	E	Weight
6510	50	2"	16	240	101	2,40
	75	1"		258	99	5,20
	75	2"		258	99	4,75

Order No.	Ø Pipe	MOP (PN)	L	E	Weight
6530	32	16	176	70	1,00
	40		214	84	2,20
	50		250	101	3,20
	63		300	114	4,80

Order No.	Ø Pipe	MOP (PN)	L	E	Weight
6550	25	16	144	58	0,16
	32		179	70	0,25
	40		216	82	0,57
	50		248	99	0,75
	63		297	110	1,20

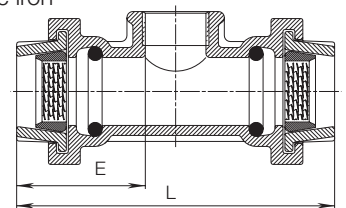
Order No.	Ø Pipe 1	Ø Pipe 2	MOP (PN)	L	E	E1	Weight
6531	32	25	16	157	70	58	0,90
	40	25		185	84	58	1,50
	50	25		218	101	58	2,00
	50	32		227	89	70	2,00
	50	40		240	89	84	2,60
	63	32		251	114	70	2,70
	63	40		262	114	84	3,20
	63	50		275	114	99	3,50

T-piece

With internal thread outlet, with detachable ends for subsequent assembly

No. 6501

Made of ductile iron



T-piece

With threaded outlet

No. 6500

Made of ductile iron

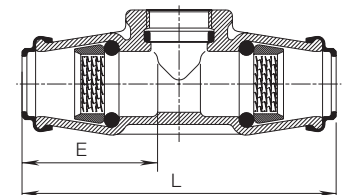
No. 6520

Made of POM

Internal thread reduced

No. 6510

Made of ductile iron



T-piece

With 3 sockets

No. 6530

Made of ductile iron

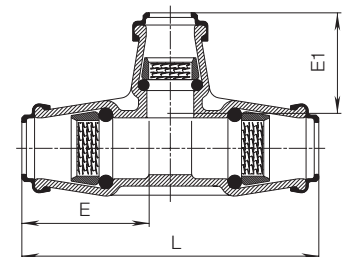
No. 6550

Made of POM

T-piece reduced

No. 6531

Made of ductile iron



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K 6/1

ISO PIPE FITTING

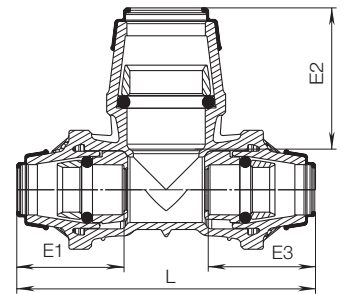
T-piece | Fitting | End stop



Order No.	Ø Pipe 1	Ø Pipe 2	Ø Pipe 3	MOP (PN)	L	E1	E2	E3	Weight	
6551	40	63	40	16	246	88	115	88	1,18	
	63	40	40		272	115	88	88	1,18	
	63	40	63		297	115	88	115	1,23	
	63	63	40		272	115	115	88	1,23	

T-piece reduced

With 3 sockets
No. 6551 Made of POM



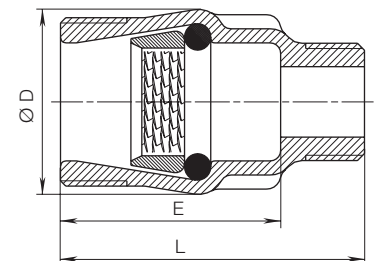
Design features

- With external thread according to EN 10226-1
- With external thread for protective sleeve according to EN 10226-1

Order No.	Ø Pipe	Thread 1	Thread 2	MOP (PN)	L	E	Ø D	Weight	
6901	32	1"	1½"	16	88	63	53	0,40	
	40	1¼"	2"		104	76	64,5	0,70	
	50	1½"	2½"		120	91	76	1,10	

Fitting

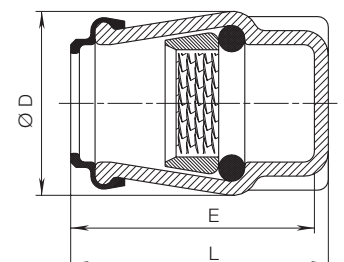
For wall inlet fitting No. 690 (old version)
No. 6901 Made of ductile iron



Order No.	Ø Pipe	MOP (PN)	L	E	Ø D	Weight	
6223	20	16	54,5	48,5	39	0,04	
	25		65,5	58,5	43	0,06	
	32		75,0	70,0	53	0,09	
	40		92,5	82,5	72	0,20	
	50		107	101	83	0,28	
	63		117	111	99	0,40	

End stop

No. 6223 Made of POM



Design features

- With one external thread outlet EN 10226-1
- Made of POM
- Every push-fit end can be modified to a external thread outlet

Order No.	DN	Thread	L	Weight	
6630	¾"	¾"	92	0,05	
	1"	1"	105	0,10	
	1¼"	1¼"	123	0,13	
	1½"	1½"	144	0,18	
	2"	2"	160	0,28	
6631	1"	1½"	117	0,07	
	1"	2"	126	0,12	

Push fit swivel converter

No. 6630 equal

No. 6631 special dimensions



K 6/2



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ISO PIPE FITTING

Hawle wall inlet fitting



Design features

- This wall inlet fitting enables the plastic pipe connection to end on the outside of the wall
- The outside central portion of the wall inlet body is ribbed and uncoated to ensure good adhesion to concrete
- The ISO socket on the outside of the wall is cylindrical to enable pushing on an additional PE protective sleeve
- There are two connection possibilities on the inside wall. The standard version with internal thread connection or an additional external thread to the internal thread for connection of a protective sleeve

Material | Technical features

- **Body** made of ductile iron, epoxy powder coated
- **Seals** made of elastomer

Ø Pipe	Ø d1*	R" ISO 228	Ø d2** ISO 228	t	L	Ø d3	Weight
32	56	1"	R 2"	75	440	80	4,65
40	66,5	1¼"	R 2½"	90	440	87	5,40
50	80	1½"	R 2½"	105	440	87	5,70
63	97	2"	R 3"	510	470	95	8,40

* A protective sleeve can be pushed on

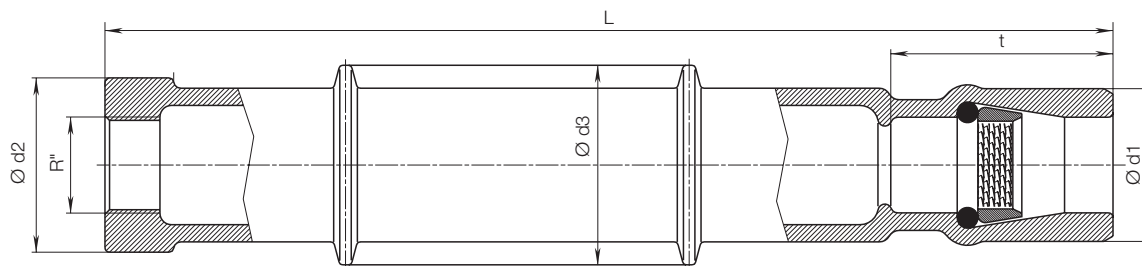
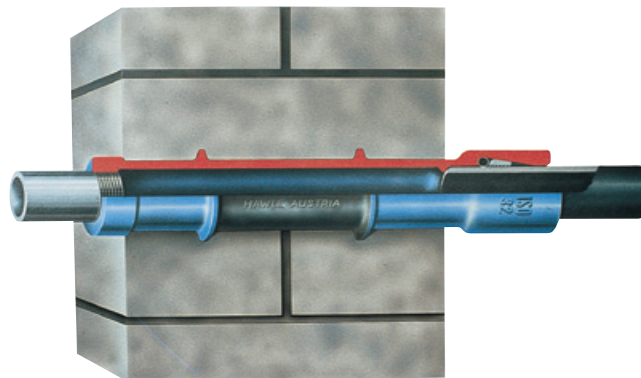
** Can be supplied with external thread (for tank room traverse etc.)

+ Maximum wall thickness

Assembly instructions:

see page K 3/2

Hawle wall inlet fitting No. 6990 Made of ductile iron

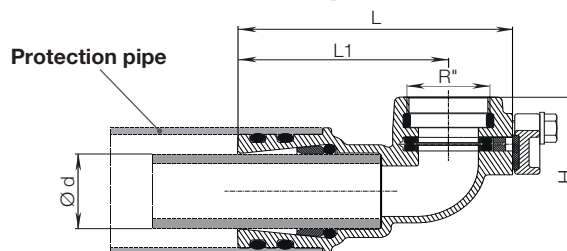


Design features

- with internal thread ISO 228
- with intermediate shut-off
- Suitable protection pipe PVC 110x5,3 (not included in scope of supply!)

Order No.	PE pipe Ø d	IT R" ISO 228	L	L1	H	H1	Weight
6909	32	1"	220	123	123	68,5	3,0
	50	1½"	223	177	124	70,0	3,7
	63	2"	223	134	134	80,0	3,5

Hawle wall inlet fitting Protection pipe Made of stainless steel No. 6909



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K 7/1

FITTINGS FOR CABLE CONDUITS

Simple - safe - no screwing required



Design features

- For PE cable conduits
- For pipes, connections and installation according to DIN 16874, DIN 8074, DIN 8075 and DIN 16876
- Easy to install - just push it on
- Easy to dismantle
- Tension lock according to DIN 16874
- Tension lock via proven interlocked grip ring
- Leak tightness according to EN 1610 0,5 bar
- For injection pressure up to 12 bar at max. 2 hours
- Suitable for cable installation techniques "shooting in" and "pulling in"
- Short, slim design
- High-grade materials

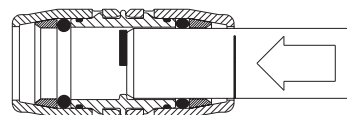
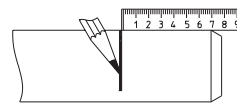
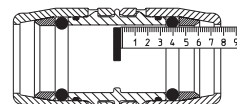
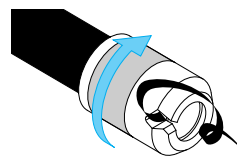
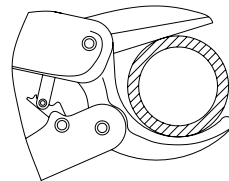


Material | technical features

- **Body and grip ring** made of POM
- **Seals** made of elastomer
- **End stop closure** made of POM

Suitable accessories

Chamfering tool:	No. 6000
Pipe cutter:	No. 6050
Extractor:	No. 6010



- **Cut pipe to length**
Make sure that the pipe is cut to length accurately and at right angles.
- **Please note! *)**
The sealing surface of the pipe must be smooth, clean and free from grooves! Observe mounting instructions!
- **Chamfer the pipe**
Push chamfering tool over pipe end. Turn clockwise while pressing lightly - ready!
- **Establish the push-in depth**
- **Check position of sealing rings and grip rings!**
- **Push on fitting**
Push the pipe completely into the push-fit fitting.
Check tensile strength by pulling at the pipe.

*) Condition of pipe:

The pipes shall have smooth outside surfaces, suitable free from scratches and cavities. Sharp-edged grooves, burs and shrunken spots at connection points of the pipes are not acceptable. The appropriate condition of the pipes shall be especially observed when introducing the cable conduits and when using impact moles.

The pipe ends shall be cut perpendicular to the pipe axis and they shall be free from burs. Clamping spots at the cable conduit produced by pulling in are not suitable for a clamped connection and have to be cut off.



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K 8/1

FITTINGS FOR CABLE CONDUITS

Simple - safe - no screwing required

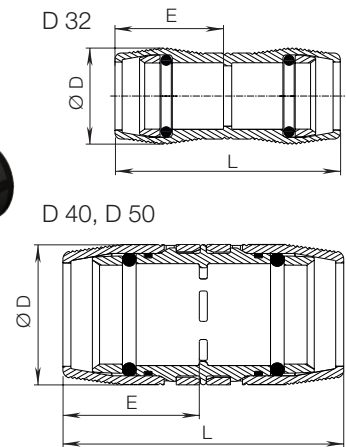


Order No.	Ø Pipe	L	E	Ø D	Weight	
6326	32	110	53	48	0,10	
	40	124	60	61	0,22	
	50	138	67	70	0,27	

Coupling for cable conduits

with push-fit socket at both ends

No. 6326



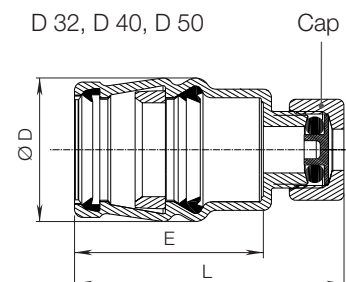
Design features

- Protection against dirt the sealed cable conduit pressure tight to 0,5 bar is provided for Ø 10 to Ø 20

Order No.	Ø Pipe	L	E	Ø D	Weight	
6224	32	109	69	48	0,11	
	40	119	81	58	0,15	
	50	133	93	98	0,20	

End fitting for cable conduits

No. 6224



K 8/2



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HAWLE - ZAK-SYSTEM

The threadless, restraint jointing system for service connections



Page
L 2

HAWLE - ZAK SYSTEM

Page L 2/1

Page
L 3

Service valve

ZAK service valve
ZAK service valve

Page L 3/1
Page L 3/2



Page
L 4

Saddles

ZAK-universal pipe saddle, ZAK-universal shut-off saddle,
ZAK-universal Hawlinger
Strap with saddle seal, ZAK-HAKU pipe saddle,
ZAK-HAKU shut-off saddle, ZAK-HAKU Hawlinger

Page L 4/1

Page L 4/2



Page
L 5

ZAK-System Range

ZAK-ISO-adapter, ZAK-ISO-fitting ZAK-PE-tail, ZAK-elbow 90°,
ZAK-ISO elbow 90° ZAK-thread adapter, ZAK-adapter fitting, ZAK-adapter,
ZAK-reduction, ZAK-Tee piece, ZAK-plug, ZAK-wall inlet fitting, ZAK-shut-off
adapter, ZAK-drilling adapter, ZAK-adapter with flange, ZAK-connector
SYNOZAK connector

Page L 5/1

Page E 3/3



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L 1/1

HAWLE - ZAK-SYSTEM

The threadless, restraint jointing system for service connections



Accessories

Mounting spray
Extension spindles
Strap No. 3110

Page M 7/2
Page M 2/3
Page I 3/5

Spare parts

Retaining ring for ZAK
O-ring for ZAK

Page P 5/2
Page P 5/2

Tools

Drilling machine
Saddle blade

Page Q 2/1
Page Q 4/1

Application examples



L 1/2



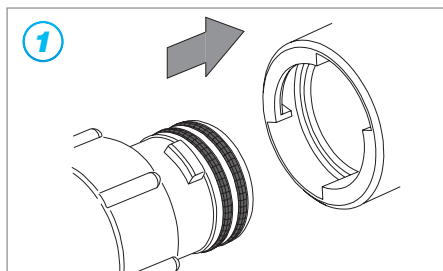
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Design features

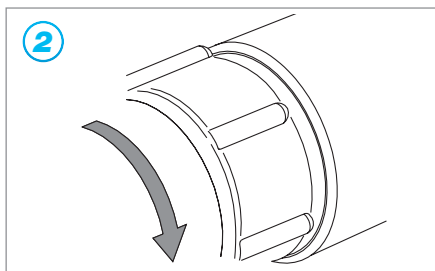
- The threadless, restraint jointing system for the service connections made of ductile iron, epoxy powder coated
- Integrated on pipe saddles, service valves and fittings
- Operating pressure PN 16
- Simple installation:
Push into socket - rotate for 90° - pull out - fit the snap ring
- **ZAK socket d 34** max. drilling Ø 25
ISO push-fit for PE pipes Ø 20 - Ø 50 according to EN 12201 and DIN 8074
l up to PN 16. Suitable up to 30° C medium temperature
- **ZAK socket d 46** max. drilling Ø 35
ISO push-fit for PE pipes Ø 32 - Ø 63 according to EN 12201 and DIN 8074
l up to PN 16. Suitable up to 30° C medium temperature
- **ZAK socket d 69** max. drilling Ø 40/50
ISO push-fit for PE pipes Ø 50 - Ø 63 according to EN 12201 and DIN 8074
l up to PN 16. Suitable up to 30° C medium temperature



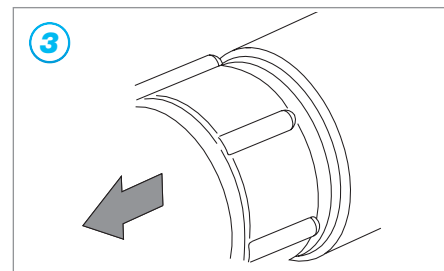
ZAK SYSTEM ASSEMBLY INSTRUCTIONS



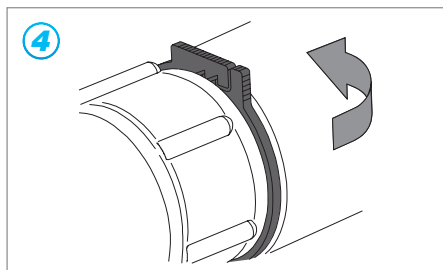
Grease the O-rings of the spigot end. Push the ZAK-spigot end into the ZAK-socket to the stop.



Rotate the ZAK-Fitting for 90° clockwise to the stop.

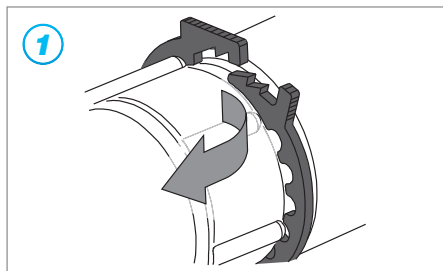


Pull out the ZAK-Fitting to the stop (app. 4 mm).

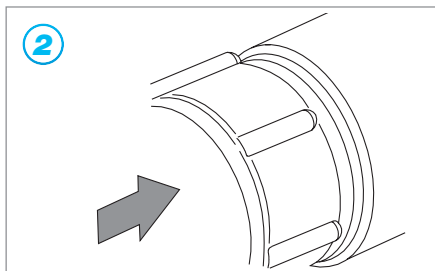


Fit the snap ring in the gap and push the locking ends together.

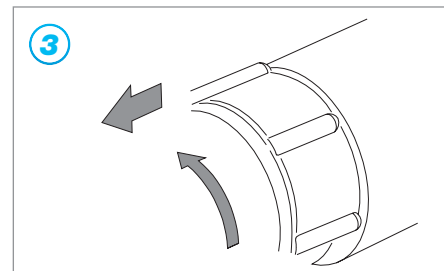
ZAK-SYSTEM DISMANTLING



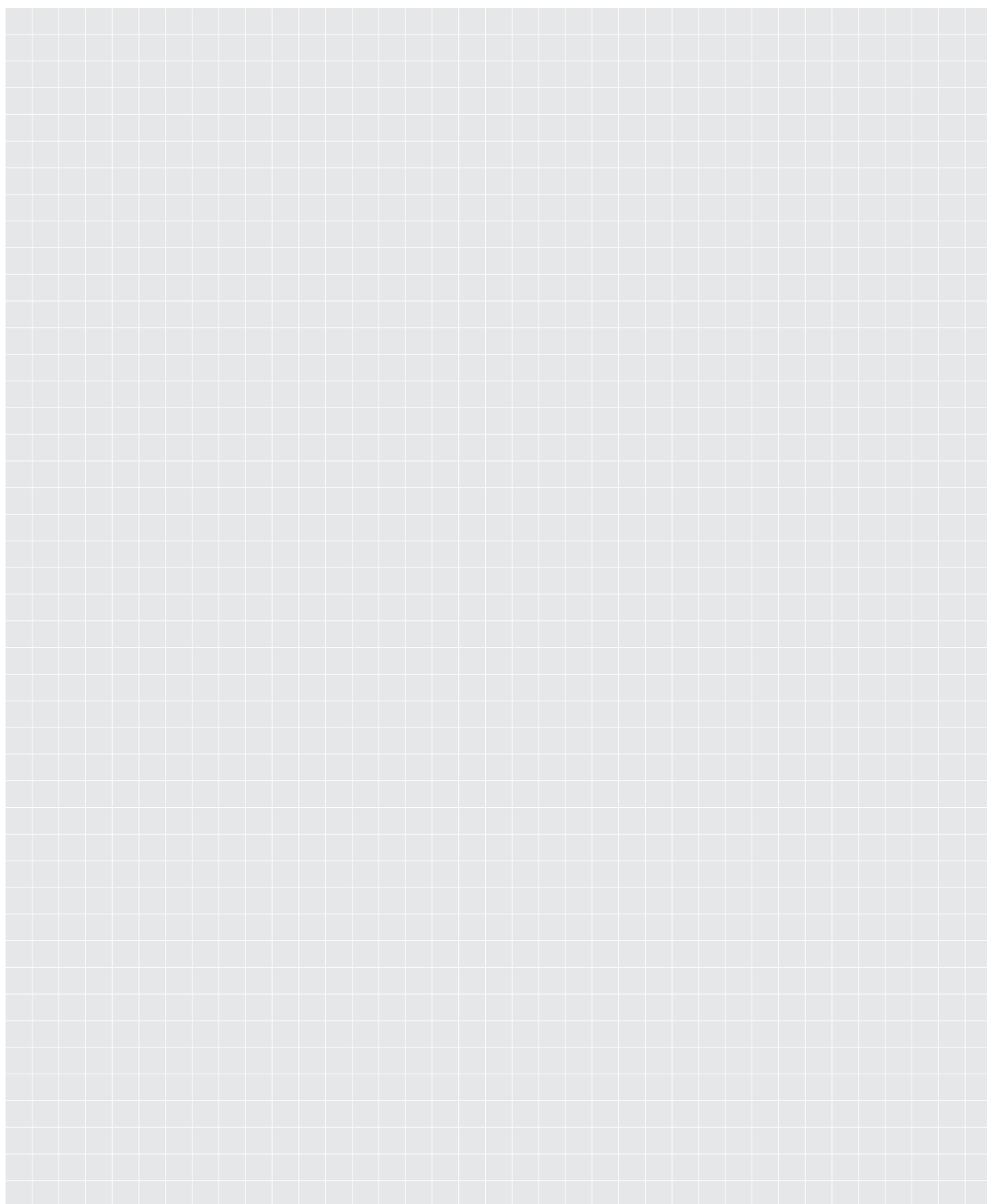
Open the snap ring, widen it and pull it back.



Push in the ZAK-Fitting to the stop (app. 4 mm).



Turn the ZAK-Fitting for 90° counterclockwise to the stop and pull it out of the ZAK-socket.

A large rectangular area filled with a light gray grid pattern, intended for handwritten notes.

HAWLE - ZAK-SYSTEM

Service valve



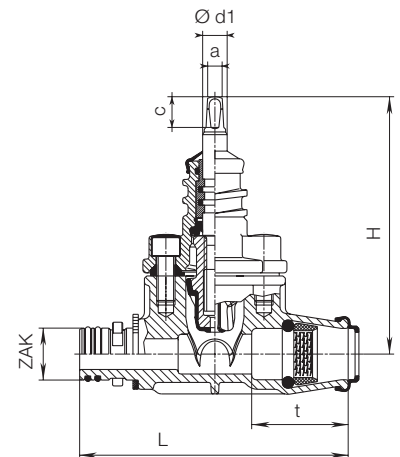
Design features

- Resilient seated gate valve
- With ZAK-spigot and ISO-socket
- For horizontal outlet

Order No.	MOP (PN)	Version		Dimension/DN				
				3/4"	1"	1 1/4"	1 1/2"	2"
2810	16	With ZAK spigot and ISO socket	ZAK 34	*	*	*	*	
			ZAK 46					

DN		Ø PE-pipe	H	L	t	a	c	Ø d1	Weight
3/4"	ZAK 34	25	168	173	52	10,3	20	16	2,35
1"		32	168	175	63				2,50
1 1/4"		40	200	205	76				2,90
1 1/2"		50	200	232	91				3,15
1 1/4"	ZAK 46	40	200	230	76	10,3	20	16	4,00
1 1/2"		50	200	236	91				4,30
2"		63	270	267	103				4,80

ZAK-service valve No. 2810



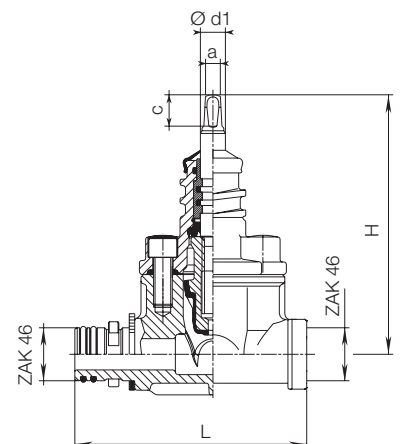
Design features

- Resilient seated gate valve
- With ZAK-spigot and ZAK-socket
- For horizontal outlet

Order No.	MOP (PN)	Version		Dimension/DN 1 1/2"
2811	16	With ZAK spigot and ZAK socket	ZAK 46	

DN		H	L	a	c	Ø d1	Weight
1 1/2"	ZAK 46	200	209	10,3	20	16	4,00

ZAK-service valve No. 2811



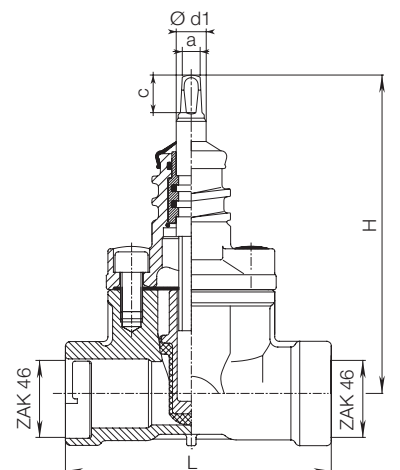
Design features

- Resilient seated gate valve
- With double ZAK-socket
- For horizontal outlet

Order No.	MOP (PN)	Version		Dimension/DN 1 1/2"
2812	16	With double ZAK-socket	ZAK 46	

DN		H	L	a	c	Ø d1	Weight
1 1/2"	ZAK 46	169	160	10,3	20	16	3,72

ZAK-service valve No. 2812



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L 3/1

HAWLE - ZAK-SYSTEM

Service valve

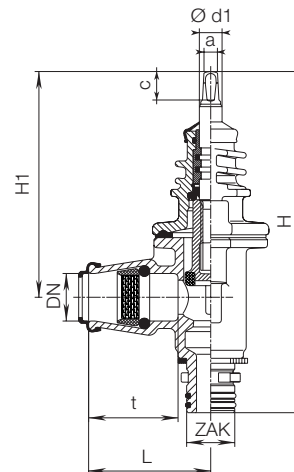


Design features

- Resilient seated gate valve
- With ZAK spigot and ISO socket
- For vertical outlet

Order No.	MOP (PN)	Version		Dimension/DN			
				¾"	1"	1¼"	1½"
3160	16	With ZAK spigot and ISO socket	ZAK 34				
			ZAK 46				

DN		Ø PE-pipe	H	H1	L	t	a	c	Ø d1	Weight
¾"	ZAK 34	25	240	159	80	52	10,3	20	16	2,30
1"		32	240	159	80	63	10,3	20	16	2,40
1¼"	ZAK 46	40	272	190	106	76	10,3	20	16	4,15
1½"		50	286	190	220	91	10,3	20	16	4,25

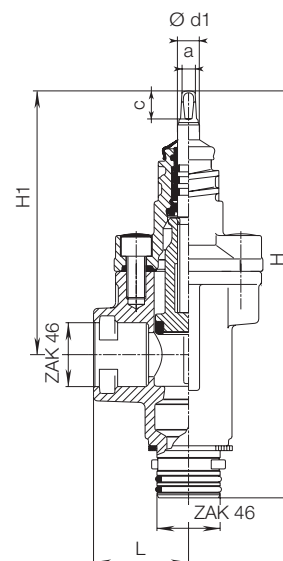


Design features

- Resilient seated gate valve
- With ZAK spigot and ZAK socket
- For vertical outlet

Order No.	MOP (PN)	Version		Dimension/DN 1½"
3161	16	With ZAK spigot and ZAK socket	ZAK 46	

DN		H	H1	L	a	c	Ø d1	Weight
1½"	ZAK 46	297	190	69	10,3	20	16	3,90



L 3/2



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HAWLE - ZAK-SYSTEM

Service valve



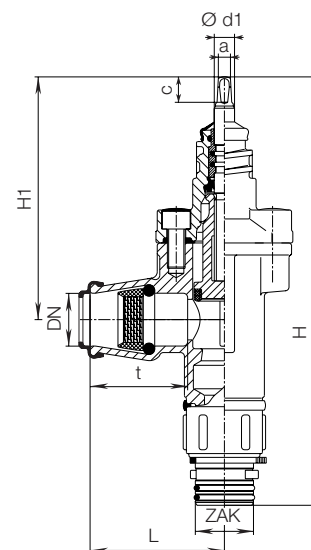
Design features

- Resilient seated gate valve
- 360° swivel type, with ZAK spigot and ISO socket
- For vertical outlet

Order No.	MOP (PN)	Version		Dimension/DN	
				1"	1¼"
3162	16	360° swivel type, with ZAK spigot and ISO socket	ZAK 34		
			ZAK 46		

DN		Ø PE-pipe	H	H1	L	t	a	c	Ø d1	Weight
1"	ZAK 34	32	285	159	80	63	10,3	20	16	2,92
1¼"	ZAK 46	40	355	190	106	76	10,3	20	16	4,85

ZAK-service valve No. 3162



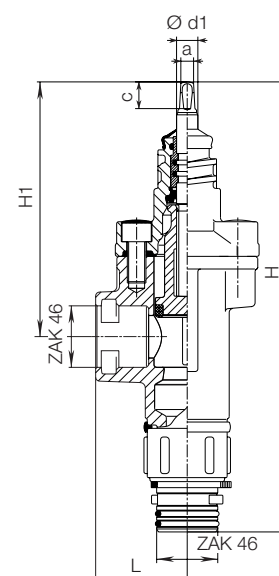
Design features

- Resilient seated gate valve
- 360° swivel type, with ZAK spigot and ZAK socket
- For vertical outlet

Order No.	MOP (PN)	Version		Dimension/DN	
				1½"	
3163	16	360° swivel type, with ZAK spigot and ZAK socket	ZAK 46		

DN		H	H1	L	a	c	Ø d1	Weight
1½"	ZAK 46	355	190	69	10,3	20	16	4,53

ZAK-service valve No. 3163



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L 3/3

HAWLE - ZAK-SYSTEM

Saddles



Design features

- For ductile iron, steel and AC pipes
- For drilling without pressure

Order No.	MOP (PN)	Version	Dimension/DN			
			80	100	150	200
3540	16	ZAK 46				
3540G			DN 65 - DN 500			

DN		H	L	L1	Weight
65-500	ZAK 46	65	200	90	1,70

When ordering, please state DN, pipe Ø and pipe type;
ZAK 46 max. drilling Ø 35 mm | weight without strap
strap see page I 3/5

Design features

- For ductile iron, steel and AC pipes
- For drilling under pressure

Order No.	MOP (PN)	Version	Dimension/DN										
			65	80	100	125	150	200	250	300	400	500	
3810	16	ZAK 34											
		ZAK 46											
3810G		ZAK 34	DN 65 - DN 500										
		ZAK 46											

DN		H	L	L1	Weight
65-500	ZAK 34	84	200	112	2,50
	ZAK 46				3,00

When ordering, please state DN, pipe Ø and pipe type;
ZAK 34, max. drilling Ø25 | ZAK 46, max. drilling Ø35
weight without strap | strap see page I 3/5

Design features

- For ductile iron, steel and AC pipes
- For vertical drilling under pressure
- Supplied complete with plastic operating key

Order No.	MOP (PN)	Version	Dimension/DN				
2410	16	ZAK 46	DN 100				
2410G		ZAK 34	DN 65 - DN 500				
		ZAK 46					

DN		H	L	L1	A	B	Weight
65-500	ZAK 34	110	200	170	68	60	4,70
	ZAK 46	120		225	82	65	6,10

When ordering, please state DN, pipe Ø and pipe type; ZAK 34, max. drilling Ø25 | ZAK 46, max. drilling Ø35 dimension no. 2410G | no. 2405 only vertical outlet (without illustration)
Strap see page I 3/5

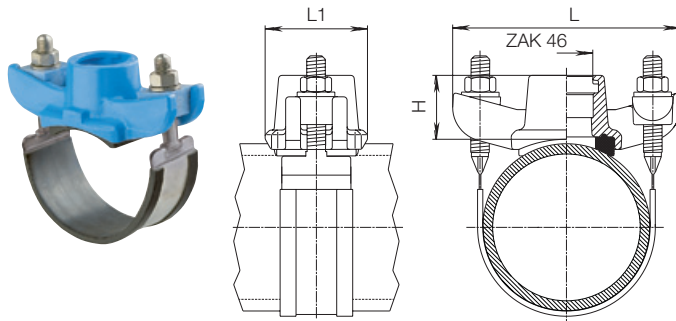
ZAK-universal-H pipe saddle

No. 3540

Complete

No. 3540G

Without strap and saddle seal



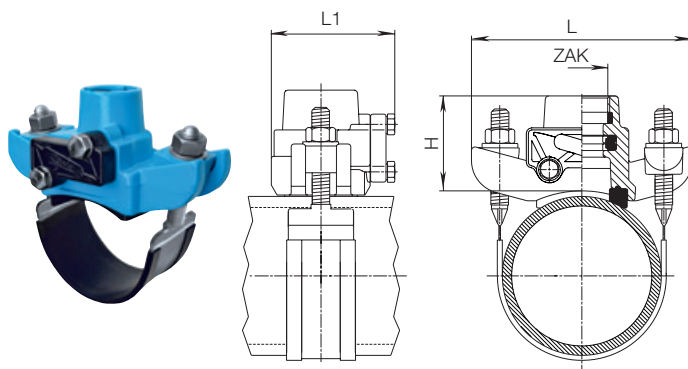
ZAK-universal-H shut-off saddle

No. 3810

Complete

No. 3810G

Without strap and saddle seal



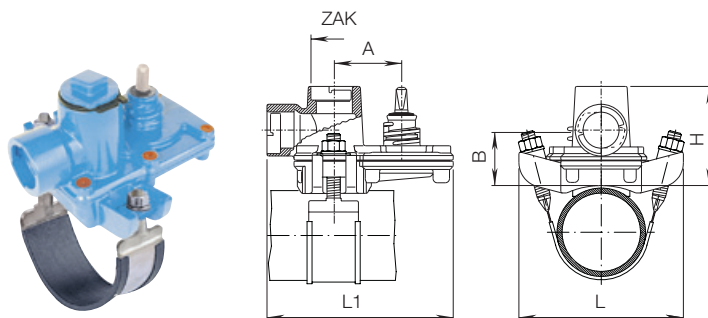
ZAK-universal-H Hawlinger

No. 2410

Complete

No. 2410G

Without strap and saddle seal



L 4/1



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HAWLE - ZAK-SYSTEM

Saddles



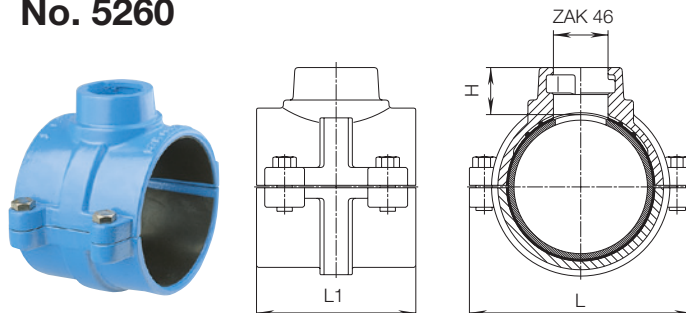
Design features

- For PE and PVC pipes
- For drilling without pressure

Order No.	MOP (PN)	Version	Pipe Ø						
			63	90	110	125	140	160	225
5260	16	ZAK 46							

Pipe Ø		H	L	L1	Weight
63	ZAK 46	46	135	100	1,90
90			150	110	3,00
110			170	120	3,10
125		39	190	120	3,80
140			205	120	4,80
160			230	120	5,00
225		39	310	180	9.70

ZAK-HAKU pipe saddle No. 5260



ZAK 46, max. drilling Ø35 mm

Design features

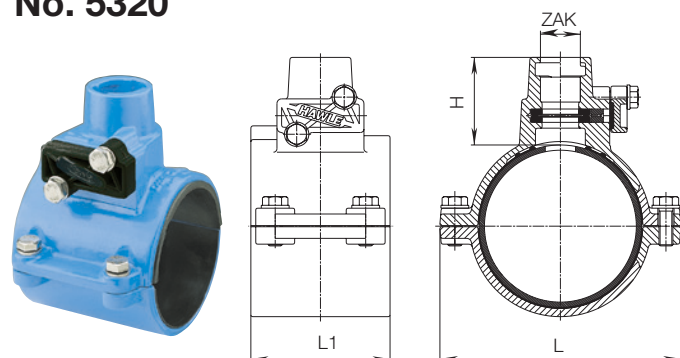
- For PE and PVC pipes
- For drilling under pressure

Order Nr.	MOP (PN)	Version	Pipe Ø											
			63	90	110	125	140	160	180	200	225	250	280	
5320	16	ZAK 34												
		ZAK 46												

Ø Pipe		H	L	L1	Weight
63	ZAK 34	107	135	100	2,90
90		73	150	110	3,35
110		73	170	120	3,75
140		76	208	120	5,00
160		80	230	120	5,85
225		83	310	120	7,65
90	ZAK 46	72	150	110	3,55
110		74	170	120	4,00
125		76,5	192	120	4,90
140		79	208	120	5,20
160		74	230	120	5,20
180		81	262	120	6,55
200		83	285	120	5,95
225		86	310	120	7,70
250		83	350	180	13,15
280		83	380	180	13,40

ZAK 34, max. drilling Ø25 mm | ZAK 46, max. drilling Ø35 mm

ZAK-HAKU shut-off saddle No. 5320



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L 4/2

HAWLE - ZAK-SYSTEM

Saddles



Design features

- For PE and PVC pipes
- For vertical drilling under pressure

Order Nr.	MOP (PN)	Version	Pipe Ø					
			90	110	125	140	160	225
2310	16	ZAK 34 ZAK 46						

Ø Pipe		H	L	L1	A	B	Weight
110	ZAK 34	125	170	175	68	75	7,30
160			230				9,00
90	ZAK 46	130	155	225	82	65	8,70
110			170				9,10
125			190				10,40
140			205				10,00
160			230				11,00
180			250				12,50
225			305				13,90

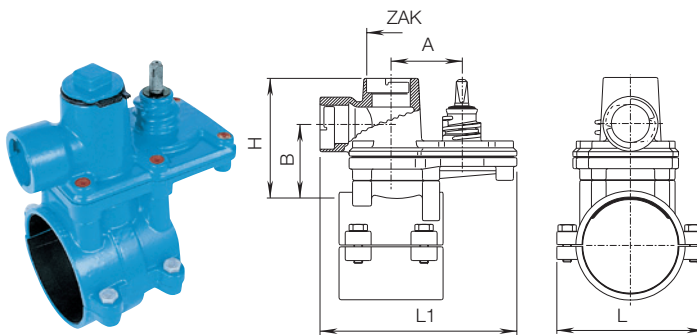
ZAK 34, max. drilling Ø25 mm | ZAK 46, max. drilling Ø35 mm

ZAK-HAKU Hawlinger

No. 2310

No. 2305

Only vertical outlet (without illustration)



L 4/3



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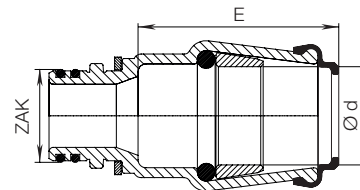
Range



Order Nr.	MOP (PN)	Version	Pipe Ø d					
			20	25	32	40	50	63
6160	16	ZAK 34						
		ZAK 46						
		ZAK 69						

Pipe Ø d		E	Weight
20	ZAK 34	48	0,30
25		58	0,40
32		70	0,50
40		84	0,70
25	ZAK 46	58	0,50
32		70	0,70
40		84	0,80
50		101	1,20
63	ZAK 69	114	1,60
50		101	1,44
63		114	1,82

ZAK-ISO-adapter No. 6160



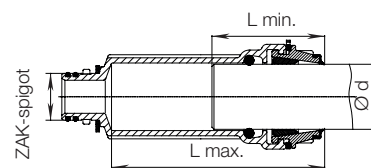
Design features

- Sanitation fitting with extended insertion
- Can be displaced, with cone part that can be dismantled

Order Nr.	MOP (PN)	Version	Pipe Ø d			
			32	40	50	63
6170	16	ZAK 34				
		ZAK 46				

Pipe Ø d		L max.	L min.	Weight
32	ZAK 34	127	71	1,05
50		149	82	1,85
32	ZAK 46	154	71	1,10
40		147	77	1,50
50		149	82	1,70
63		201	104	2,70

ZAK-ISO fitting No. 6170



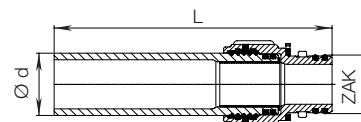
Design features

- For fusion in PE-service valves with E-socket technology

Order Nr.	MOP (PN)	Version	Pipe Ø d			
			32	40	50	63
6180	16	ZAK 34				
		ZAK 46				

Pipe Ø d		L	Weight
40	ZAK 34	210	0,95
32	ZAK 46	200	0,60
40		200	0,60
50		220	0,90
63		230	1,20

ZAK-PE-tail No. 6180



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L 5/1

HAWLE - ZAK-SYSTEM

Range



Design features

- 360° swivel type, ZAK-spigot and ISO-socket

Order Nr.	MOP (PN)	Version	Pipe Ø d			
			32	40	50	63
6465	16	ZAK 34				
		ZAK 46				

Pipe Ø d		L	E	Weight
32	ZAK 34	93	70	1,60
40		105	84	1,80
32	ZAK 46	93	70	1,70
40		105	84	1,90
50		130	101	2,30
63		147	114	2,80

Design features

- 360° swivel type, ZAK-spigot and ZAK-socket

Order Nr.	MOP (PN)	Version	Weight	
6469	16	ZAK 46	1,10	

Design features

- For fusion in PE-service valves with E-socket technology

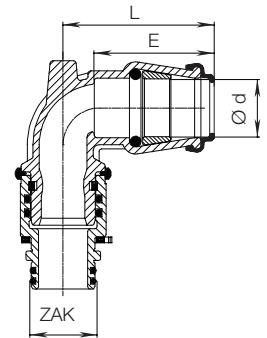
Order Nr.	MOP (PN)	Version	Pipe Ø d			
			32	40	50	63
6479	16	ZAK 34				
		ZAK 46				

Pipe Ø d		L	Weight
32	ZAK 34	69	0,80
40		78	0,90
32	ZAK 46	69	1,00
40		78	0,65
50		89	0,85
63		110	1,30

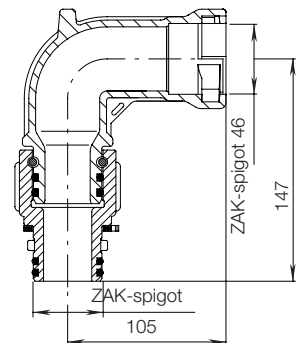
Order Nr.	MOP (PN)	Version	Pipe Ø d					
			20	25	32	40	50	63
6480	16	ZAK 34						
		ZAK 46						

Pipe Ø d		L	E	Weight
20	ZAK 34	60	48	0,40
25		71	58	0,55
32		87	70	0,80
40		104	84	1,10
20	ZAK 46	60	48	0,58
32		87	70	0,96
40		104	84	1,20
50		141	101	1,65
63		163	114	2,10

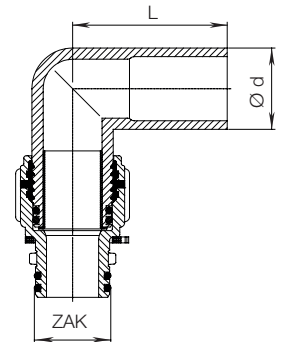
ZAK-ISO elbow 90° No. 6465



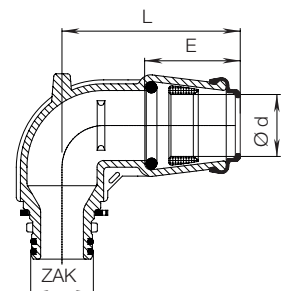
ZAK-elbow 90° No. 6469



ZAK-elbow PE 90° No. 6479



ZAK-ISO elbow 90° No. 6480



L 5/2



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HAWLE - ZAK-SYSTEM

Range



Design features

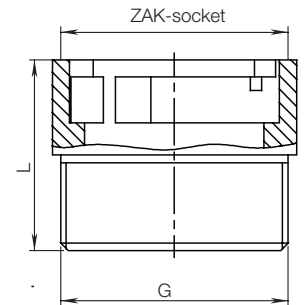
- ZAK-socket-external thread
- ZAK 34 with conical external thread
- ZAK 46 with cylindrical external thread
(cylindrical thread not suitable for usage with hemp or teflon)

Order Nr.	MOP (PN)	Version	External thread EN 10226-1		
			1 1/4"	1 1/2"	2"
6189	16	ZAK 34 ZAK 46			

External thread G		L	Weight
1 1/4"	ZAK 34	60	0,36
1 1/2"		55	0,35
1 1/4"	ZAK 46	67	0,50
1 1/2"		67	0,60
2"		50	0,50

ZAK 34, max. drilling Ø25 | ZAK 46, max. drilling Ø35

ZAK-thread adapter No. 6189



Design features

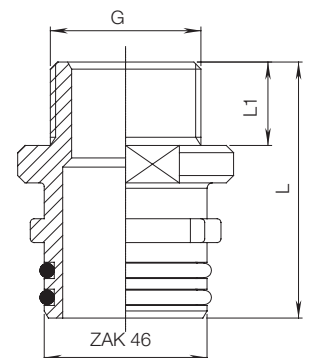
- With conical external thread and ZAK spigot

Order Nr.	MOP (PN)	Version	External thread EN 10226-1		
			1"	1 1/4"	1 1/2"
6189SP	16	ZAK 46			

External thread G		L	L1	Weight
1"	ZAK 46	70	20	0,40
1 1/4"		70	21,5	0,50
1 1/2"		70	21,5	0,60

ZAK-adapter fitting No. 6189SP

Made of brass

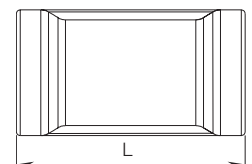


Design features

- With double ZAK-sockets

Order Nr.	MOP (PN)	Version	L	Weight
6340	16	ZAK 46	120	1,00

ZAK-adapter No. 6340

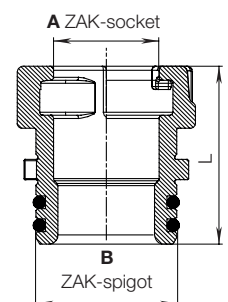


Design features

- Adapter ZAK spigot on ZAK socket

Order Nr.	MOP (PN)	Version		L	Weight
		A	B		
6350	16	ZAK 34	ZAK 46	58	0,40
		ZAK 46	ZAK 69	102	1,00

ZAK-reduction No. 6350



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L 5/3

HAWLE - ZAK-SYSTEM

Range

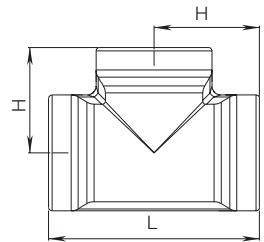


Design features

- With ZAK-sockets on all sides

Order Nr.	MOP (PN)	Version	L	H	Weight	
6540	16	ZAK 46	120	60	1,10	

ZAK-Tee piece No. 6540

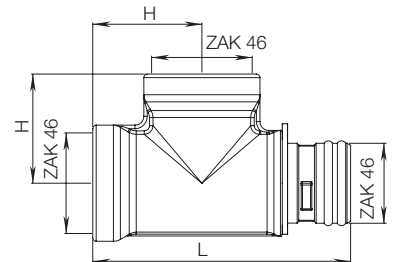


Design features

- With ZAK-sockets and ZAK-spigot

Order Nr.	MOP (PN)	Version	L	H	Weight	
6541	16	ZAK 46	146	62	1,20	

ZAK-Tee piece No. 6541

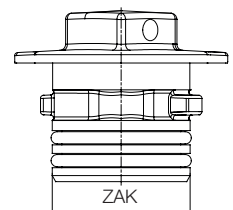


Design features

- For ZAK-adapter

Order Nr.	MOP (PN)	Version	Weight	
6980	16	ZAK 34	0,25	
		ZAK 46	0,45	
		ZAK 69	0,84	

ZAK-plug No. 6980



Design features

- For installation in masonry (No. 6992, No. 6993) or with ring seal in RDS* (No. 6994)

Order Nr.	MOP (PN)	Version	Outlet A	Outlet B	L	Weight	
6992	16	Casing ribbed	ZAK 46 Muffe	Internal thread 1 1/4"	500	5,30	
6993				ZAK 46 socket			
6994		Casing over-wound for RDS		Internal thread 1 1/4"			

* RDS = pipe ducting system

ZAK-wall inlet fitting No. 6992 No. 6993 No. 6994

No. 6992

IT 1 1/4"



ZAK

No. 6993

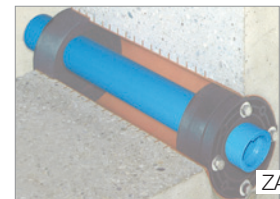
ZAK



ZAK

No. 6994

IT 1 1/4"



ZAK

L 5/4



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HAWLE - ZAK-SYSTEM

Range



Design features

- The shut-off adapter with ZAK outlets is to be used in combination with pipe saddle
- The lower ZAK spigot is to be used for assembly in the drill fittings with ZAK socket; the upper ZAK socket outlet serves for positive integration of fittings and fittings with ZAK spigot
- In combination with a drill, the adapter allows simple, problem-free drilling of main lines under pressure

Material | Technical features

- Body** made of ductile iron, epoxy powder coated
 - Sealing cover** made of ductile iron, epoxy powder coated with rubber seal
 - Screws and washers** made of stainless steel
- **Seals** made of Elastomer

Suitable accessories

Drilling machines: No. 5800, No. 5805
Saddle blade: No. 8401
ZAK adapter: No. 5895

Design features

- For Hawle drilling machines No. 5800, No. 5805

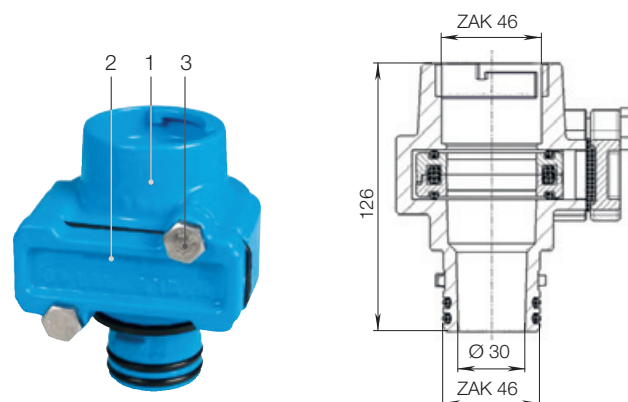
Order Nr.	MOP (PN)	Version	Weight	
5895	16	ZAK 34	0,75	
		ZAK 46	1,10	

Design features

- Adapter flange on ZAK socket

Order Nr.	MOP (PN)	DN	Version	L	Weight	
8190	16	40	ZAK 46	82	2,70	
		50				
		80		51	3,90	
		100		51	4,70	
		125		51	5,80	
		150		51	7,30	
		200		51	11,50	

ZAK shut-off adapter No. 3721



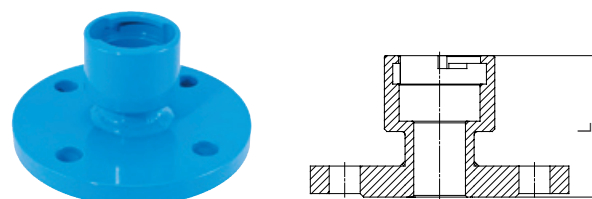
Order Nr.	MOP (PN)	Version		Dimension/DN 1 1/4"
3721	16	With ZAK spigot and ZAK socket	ZAK 46	

DN		Drill hole max.	Weight
1 1/4"	ZAK 46	29	2,20

ZAK-drilling adapter No. 5895



ZAK-adapter with flange No. 8190



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L 5/5

HAWLE - ZAK-SYSTEM

Range

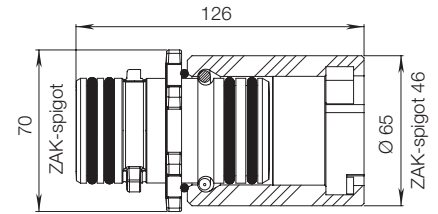


Design features

- With ZAK-spigot and ZAK socket
- 360° swivelling

Order Nr.	MOP (PN)	Version	Weight	
6468	16	ZAK 46	1,35	

ZAK-connector, swiveling No. 6468



L 5/6



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Page M 2

Extension spindles

Rigid or telescopic

Page M 2/1



Page M 3

Surface boxes & base plates

Telescopic made of plastic
Rigid made of ductile iron
Telescopic made of ductile iron
Height adjustable DIN rated Surface box
Base plates made of recycled plastic

Page M 3/1
Page M 3/3
Page M 3/4
Page M 3/5
Page M 3/7



Page M 4

Valve accessories

Page M 4/1



Page M 5

HAWAK-pillar

For above ground operation of valve

Page M 5/1



Page M 6

Hydrant accessories

Page M 6/1

Support liners

For PE pipes

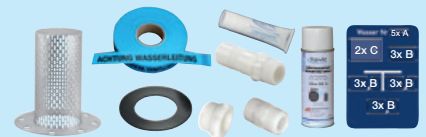
Page M 6/2



Page M 7

Accessories

Page M 7/1



EXTENSION SPINDLE

Rigid or telescopic



Design features

- One extension spindle for several dimensions
- Protective cover with integrated locking mechanism
- No additional fixing (bolt/pin) necessary
- DN 50 to 200

Order No.	Version	Pipe cover (RD)	Dimension/DN		
			50/65/80/100	125/150	200
9000E2	rigid	1,00 m			
		1,25 m			
		1,50 m			
		2,00 m			
		2,50 m			
9500E2	telescopic	1,30 - 1,80 m			
		1,35 - 1,80 m			
		1,80 - 2,50 m			
		2,50 - 3,50 m			

Suitable accessories

- **Extender for rigid spindle**
Order no. 7830 price for first meter
Order no. 7831 price for each additional half meter
- Please specify dimensions and length when ordering

Design features

- Attachment of the extension spindle to the valve spindle takes place with a stainless steel splint
- DN 250 to 600

Order No.	Version	Pipe cover (RD)	Dimension/DN						
			250	300	350	400	500	600	
9000E2	rigid	1,00 m							
		1,25 m							
		1,50 m							
		1,90 m							
		2,00 m							
		2,40 m							
		2,50 m							
9500E2	telescopic	1,40 - 1,80 m							
		1,50 - 1,80 m							
		1,90 - 2,20 m							
		2,00 - 2,30 m							
		2,00 - 2,50 m							
		2,50 - 3,50 m							
		2,60 - 3,50 m							

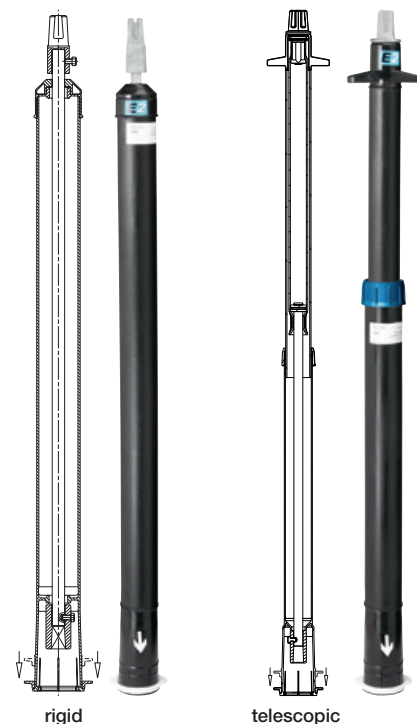
For E2 valves and E2 Combi valves DN 50-200

No. 9000E2

Rigid

No. 9500E2

Telescopic



For E2 valve DN 250-600

No. 9000E2

Rigid

No. 9500E2

Telescopic



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M 2/1

EXTENSION SPINDLES

Rigid or telescopic



No. 9000E2 / 9500E2

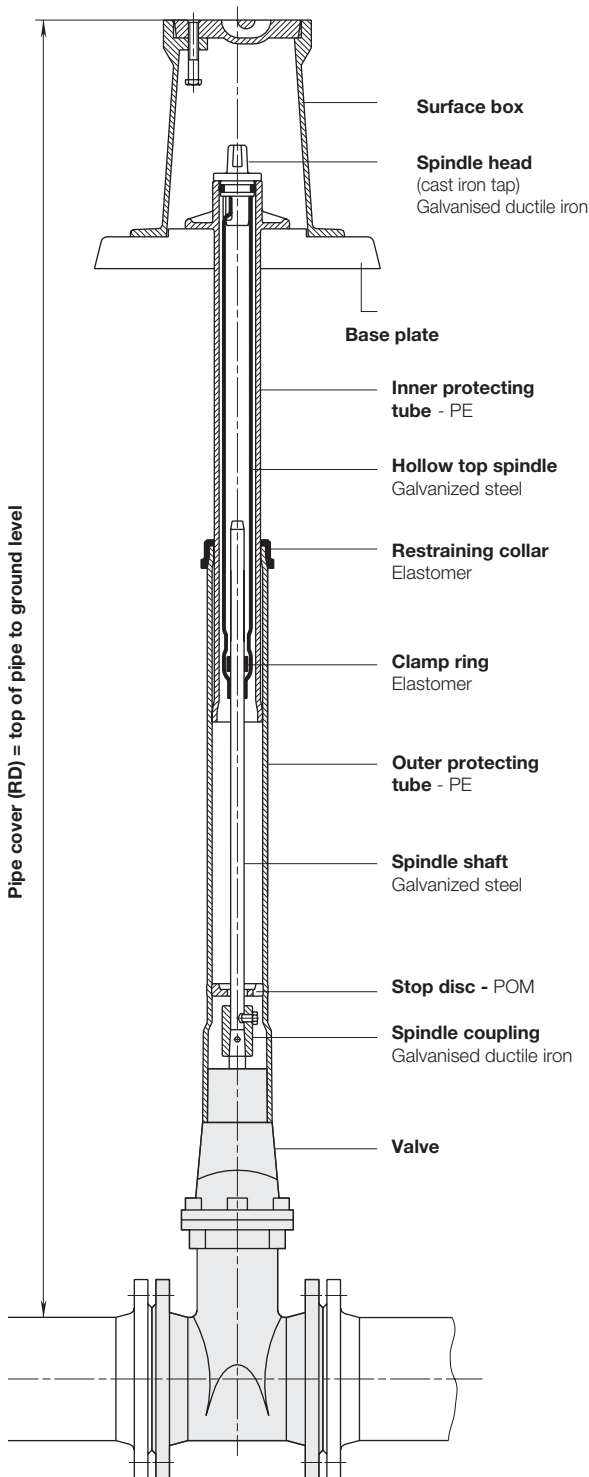


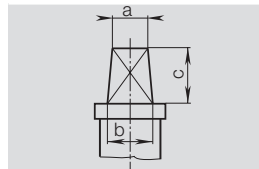
Illustration: 9500E2 DN 250-600

All extension spindles (rigid or telescopic) of all types and dimensions are protected against dirt and surface water.

The telescopic extension spindle can be progressively adjusted to ground level. This is done by pushing or pulling the tube and the spindle shaft.

The telescopic effect protects the pipe and fitting from surface impact.

Spindle head | square



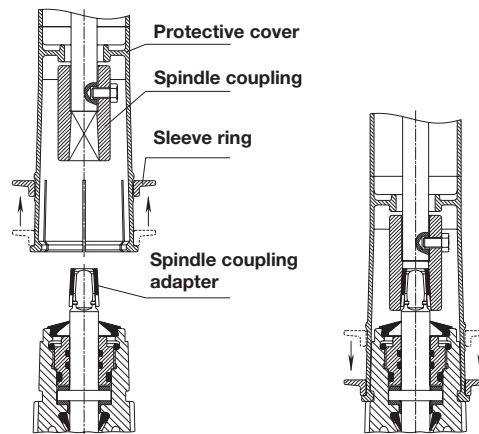
For service valves	a 27 mm
For valves and combi valves	b 32 mm
	c 48 mm

9000E2	Weights extension spindles, rigid – DN								
Pipe cover (RD)	50/65/80/100	125/150	200	250	300	350	400	500	600
1,00 m	3,50	2,80	2,70	3,10	3,00				
1,25 m	4,50	3,70	3,50	4,70	4,30	4,20	3,55		
1,50 m	5,50	4,80	4,50	6,00	5,80	5,40	5,00		
1,90 m								7,40	
2,00 m	7,45	6,60	6,50	9,00	8,70	8,45	7,80		7,40
2,40 m								7,40	
2,50 m	9,40	8,60	8,50	12,20	12,00		9,67		7,40

9500E2	Weights extension spindles, telescopic – DN								
Pipe cover (RD)	50/65/80/100	125/150	200	250	300	350	400	500	600
1,30 - 1,80 m	6,60	6,25							
1,35 - 1,80 m			6,10						
1,40 - 1,80 m				7,30					
1,50 - 1,80 m					6,90	6,70	6,30		
1,90 - 2,20 m								8,80	
2,00 - 2,30 m									8,80
1,80 - 2,50 m	9,50	8,90	8,60						
2,00 - 2,50 m				11,00	10,50	10,20	9,70		
2,50 - 3,50 m	12,80	12,00	11,90	15,30	14,90	14,50	14,20		
2,60 - 3,50 m								14,50	14,00

Assembly instructions

Fig.: Assembly E2 extension spindle DN 50-200



M 2/2



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EXTENSION SPINDLES

Rigid or telescopic



Design features

- One extension spindle for several dimensions
- Threaded connection for attachment to the service valve
- No additional fixing (bolt/pin) necessary

Order No.	Version	Pipe cover (RD)	¾" - 2"
9101	rigid	0,75 m	
		1,00 m	
		1,25 m	
		1,50 m	
		2,00 m	
		2,50 m	
9601	telescopic	0,60 - 0,80 m	
		0,80 - 1,20 m	
		1,00 - 1,60 m	
		1,30 - 1,80 m	
		1,80 - 2,50 m	
		2,50 - 3,50 m	

Suitable accessories

- **Extender for rigid spindle**
Order no. 7830 price for first meter
Order no. 7831 price for each additional half meter
- Please specify dimensions and length when ordering

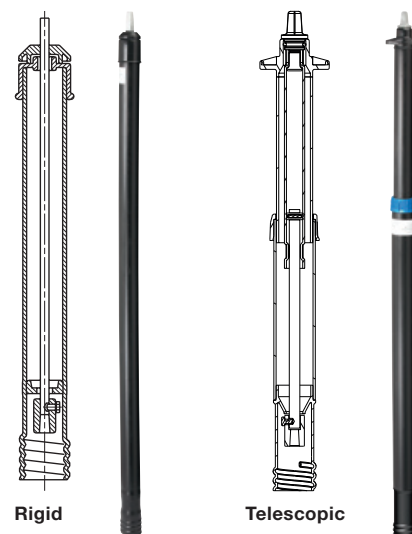
Extension spindle for service valves with threaded connection for spindle DN ¾" - 2"

No. 9101

Rigid

No. 9601

Telescopic



Design features

- One extension spindle for several dimensions

Order No.	Version	Pipe cover (RD)	Dimension/DN			
			Hawle-Elypso valve			
			50-80	100	125/150	200
9000A	rigid	1,00 m				
		1,25 m				
		1,50 m				
9500A	telescopic	1,30 - 1,80 m				
		1,35 - 1,80 m				
		1,40 - 1,80 m				
		1,80 - 2,50 m				
		2,00 - 2,50 m				
		2,50 - 3,50 m				

Extension spindle for Hawle-Elypso valves DN 50-200

No. 9000A

Rigid

No. 9500A

Telescopic



Rigid Telescopic
DN 50 - 200



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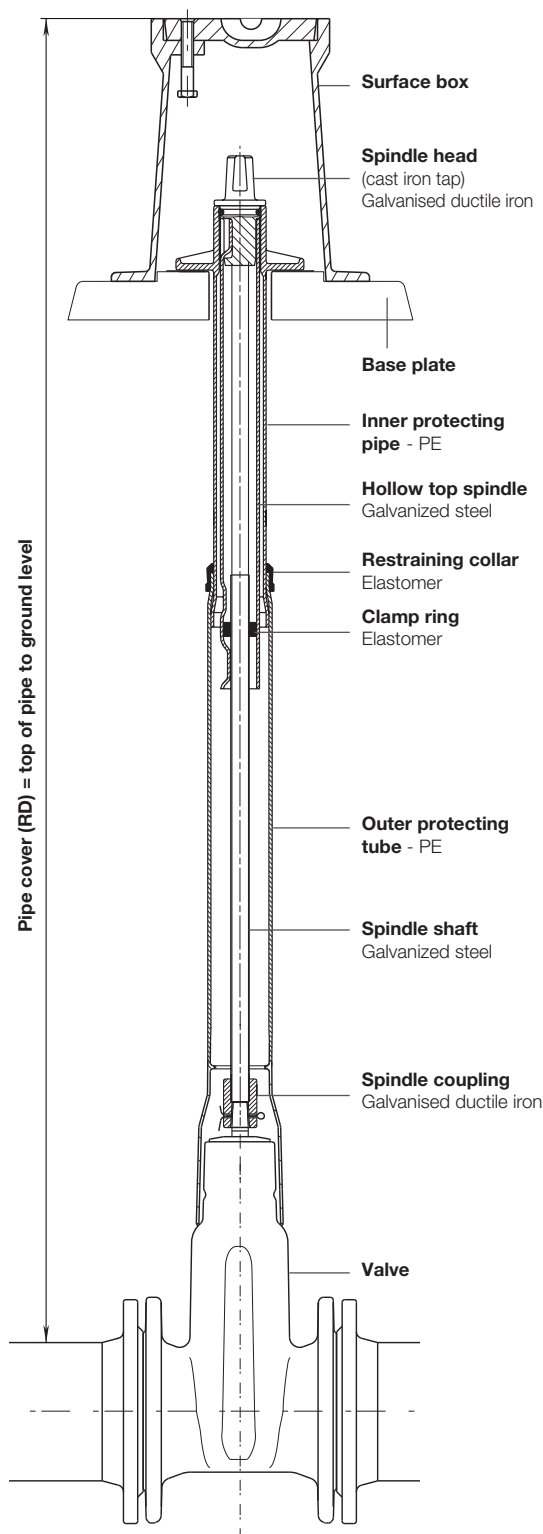
M 2/3

EXTENSION SPINDLES

Rigid or telescopic



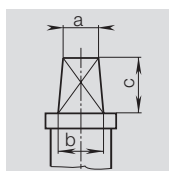
No. 9101 / 9601
No. 9000A / 9500A



All extension spindle dimensions and types (rigid or telescopic) are protected against dirt and surface water.

The telescopic extension spindle can be progressively adjusted to ground level. This is done by pushing or pulling the protecting tube and the spindle shaft. The telescopic effect protects the pipe and fitting from surface impact.

Spindle head | square



for service valves

a 13 mm
b 15 mm
c 24 mm

for gate valves

a 27 mm
b 32 mm
c 48 mm

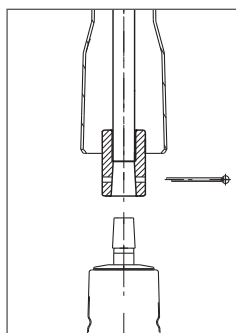
Weight of extension spindle for Elypso valves

Order No.	9101						9601					
Length m	0,75	1,00	1,25	1,50	2,00	2,50	0,6-0,8	0,8-1,2	1,0-1,6	1,3-1,8	1,8-2,5	2,5-3,5
Weight	1,10	1,60	2,10	2,60	3,70	4,60	1,60	2,40	3,20	3,50	4,80	6,90

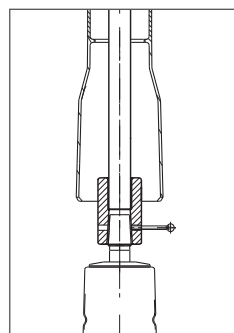
Weight of extension spindle for Hawle-A valves

Version	Order No.	Pipe cover (RD)	Dimension/DN			
			50-80	100	125/150	200
rigid	9000A	1,00 m	3,20	3,30	3,00	2,80
		1,25 m		4,20		
		1,50 m	5,30	5,30	5,00	4,80
telescopic	9500A	1,30 - 1,80 m	6,80	6,80	6,50	
		1,35 - 1,80 m				6,30
		1,40 - 1,80 m				
		1,80 - 2,50 m				
		2,00 - 2,50 m	9,40	9,50	9,20	9,00
		2,50 - 3,50 m	12,90	12,90	12,40	12,50

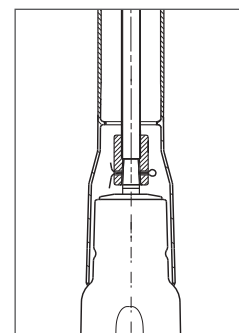
9000A / 9500A assembly instructions



Slide back outer protecting tube, remove split pin



Place extension spindle shaft over valve spindle



Slide outer protecting tube over gate valve housing

Illustration: Hawle-A extension spindle "telescopic", DN 80-200

M 2/4



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EXTENSION SPINDLES

Rigid or telescopic



Design features

- One extension spindle for several dimensions

Best.-Nr.	Ausführung	Rohrdeckung	Nennweite/DN					
			Hawle-E1+ Schieber					
			50	65/80	100	125/150	200	250-300
9000A	rigid	1,00 m						
		1,25 m						
		1,50 m						
9500A	telescopic	1,30 - 1,80 m						
		1,35 - 1,80 m						
		1,40 - 1,80 m						
		1,80 - 2,50 m						
		2,00 - 2,50 m						
		2,50 - 3,50 m						
9000	telescopic	1,00 m						
		1,25 m						
		1,50 m						
9500		1,30 - 1,80 m						

Suitable accessories

- **Extender for rigid spindle**
Order no. 7830 price for first meter
Order no. 7831 price for each additional half meter
- Please specify dimensions and length when ordering

Design features

- Can be located by metal detectors
- Attachment to the valve takes place with a pin through the spindle square

Hawle's Telescopic Extension Spindle is the best solution for efficient below ground installation.

Order No.	Version	Pipe cover (RD)	Dimension/DN					
			Hawle-A valve					
			50/65	80	100/125	150	200	250-300
9000A	rigid	1,00 m						
		1,25 m						
		1,50 m						
9500A	telescopic	0,90 - 1,15 m						
		1,30 - 1,80 m						
		1,35 - 1,80 m						
		1,40 - 1,80 m						
		1,80 - 2,50 m						
		2,00 - 2,50 m						
		2,50 - 3,50 m						

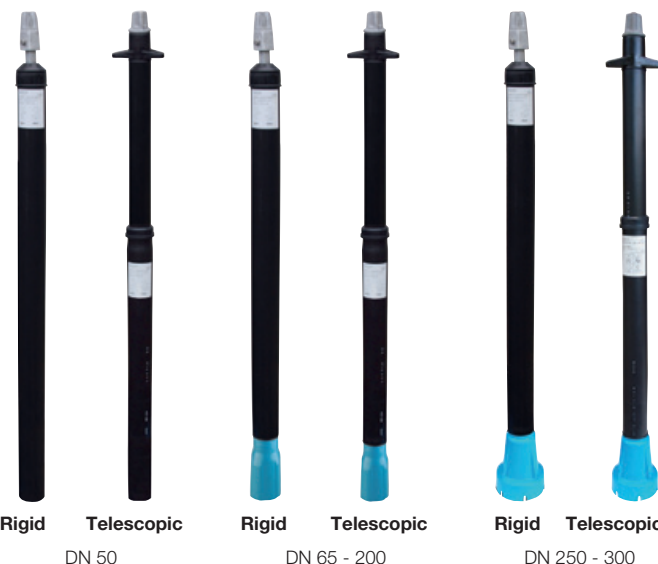
Extension spindle for Hawle-E1+ valves DN 50-300

Nr. 9000 / Nr. 9000A

Rigid

Nr. 9500 / Nr. 9500A

Telescopic



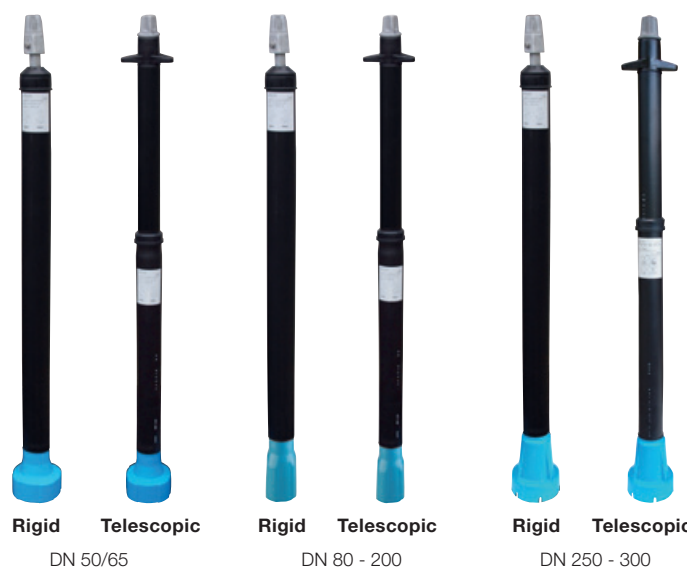
Extension spindle for Hawle-A valves DN 50-300

Nr. 9000A

Rigid

Nr. 9500A

Telescopic



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M 2/5

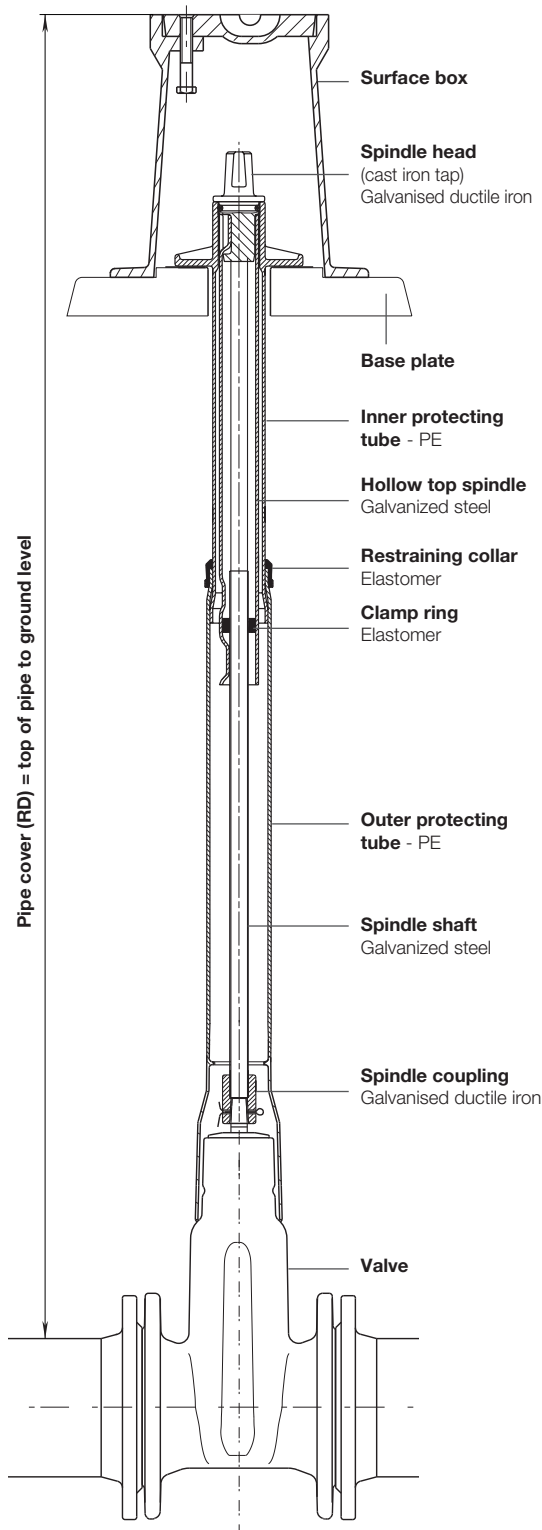
EXTENSION SPINDLES

Rigid or telescopic



No. 9000 / 9000A

No. 9500 / 9500A



All extension spindle dimensions and types (rigid or telescopic) are protected against dirt and surface water.

The telescopic extension spindle can be progressively adjusted to ground level. This is done by pushing or pulling the protecting tube and the spindle shaft. The telescopic effect protects the pipe and fitting from surface impact.

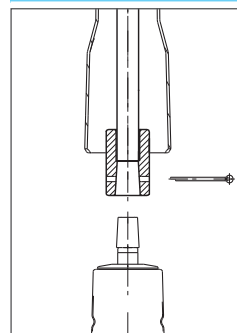
Spindle head | square

	for service valves	a 13 mm
		b 15 mm
		c 24 mm
	for gate valves	a 27 mm
		b 32 mm
		c 48 mm

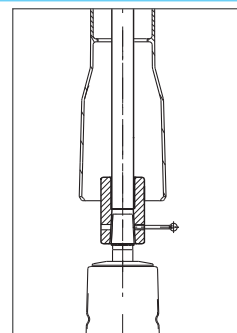
Weight extension spindle for Hawle-A and Hawle-E1+ valves

Type	Order No.	Pipe cover (RD)	Valve Dimension/DN							
			Hawle E1/E1+	50	65/80	100	125/150	200	250-300	
			Hawle-A	50/65	80	100/125	150			
rigid	9000A	1,00 m		3,30	3,20	3,30	3,00	2,80		
		1,25 m				4,20				
		1,50 m		5,30	5,30	5,30	5,00	4,80		
telescopic	9500A	0,90 - 1,15 m		4,30						
		1,30 - 1,80 m		6,80	6,80	6,80	6,50			
		1,35 - 1,80 m						6,30		
		1,40 - 1,80 m							7,00	
		1,80 - 2,50 m							10,10	
		2,00 - 2,50 m		9,40	9,40	9,50	9,20	9,00		
rigid	9000	1,00 m		3,40						
		1,25 m		4,30						
		1,50 m		5,50						
telescopic	9500	1,30 - 1,80 m		6,70						

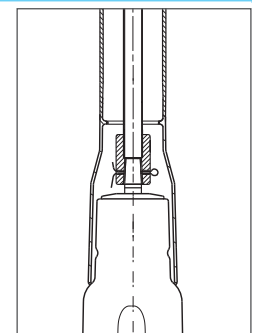
9000A / 9500A assembly instructions



Slide back outer protecting tube, remove split pin



Place extension spindle shaft over valve spindle



Slide outer protecting tube over gate valve housing

Illustration: Hawle-A extension spindle "telescopic", DN 80-200

M 2/6



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SURFACE BOX

"Telescopic" made of plastic



Design features

- Adjustable height enables fixation of street cover at the desired level
- Cap remains standing on the road surface during work
- 4° Angular offset possible, depending on level of extension
- Less hands on work during road construction
- Homogenous connection with the tarmac, minimizing frost damage
- Quiet, no rattling of street cover
- Low maintenance (no rust problems, application of grease not necessary)
- Low weight
- No loose parts
- High stability, pressure load according to DIN 3580
- Extremely durable glass fibre construction
- Temperature invariant between: -20°C up to 245°C
- DVGW certified

Accessories: see overleaf

Material | Technical features

- **Coverlid** made of grey cast iron, bituminised
- **Surface box body** made of polyamide 66 with 30% fibre glass
- **Safety pin** made of stainless steel

Order No.	Version	Weight	
1851K	For service valves DIN 4057	4,3	
2051K	For gate valves, DIN 4056	6,8	
1950K	For below ground hydrants DIN 4055	17,8	

Progressively height adjustable

No. 1851K



No. 2051K



No. 1950K



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M 3/1

SURFACE BOX

"Telescopic" made of plastic



Assembly instructions

New road construction

Warning:

To avoid damage, surface boxes must be installed only after laying the gravel

- Lay and compact the gravel
- Position and align the surface box
- Mark location of surface box at the roadside
- Spray the surface box with a releasing agent
- Lay the bitumen binder on the ground
- Pull the surface box top approximately 2 cm above the ground and fill the surrounding base space with tarmac.
- Clean and free the surface box cover from all foreign material

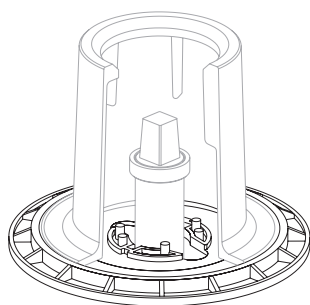
Replace wearing surface

- Mark position of the surface box body at the roadside, spray box with a releasing agent
- Apply the tarmac layer
- Pull the surface box approximately 2 cm above the final tarmac layer. Fill the space with tarmac
- Clean cover of surface box from all foreign material
- Roll the tarmac surrounding the surface box
- Immediately loosen and clean the surface box and cap

Suitable accessories

- **Base plate** made of recycled-plastic

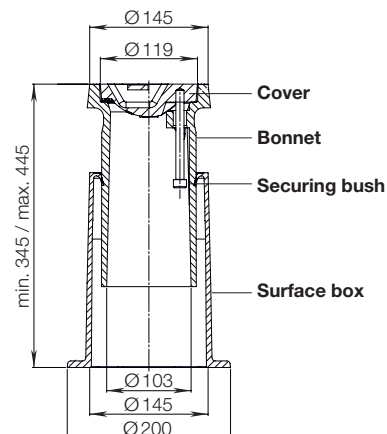
Robust and stable
Easy assembly
Low weight
Non-degradable



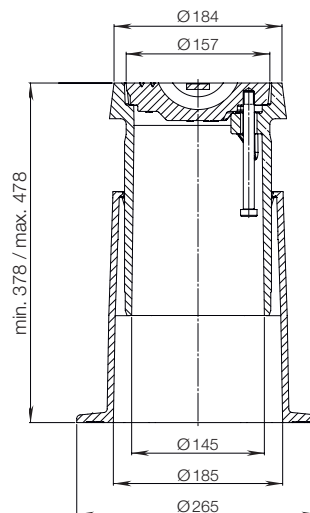
Order No.	Suitable for surface box acc. to	Weight
3481	Valve DIN 4056 and service valves DIN 4057	0,6
3482	DIN 4055 for below ground hydrants	2,0

see page M 3/7

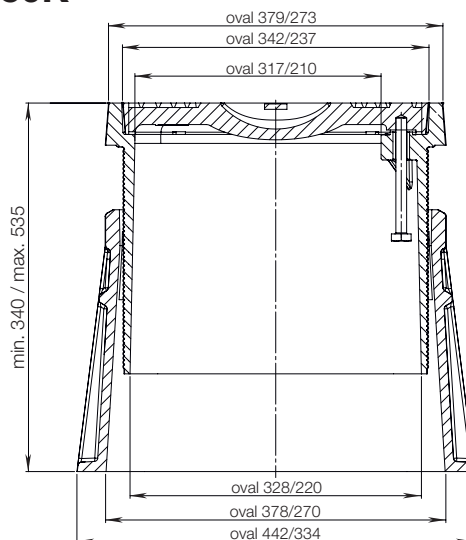
No. 1851K



No. 2051K



No. 1950K



M 3/2



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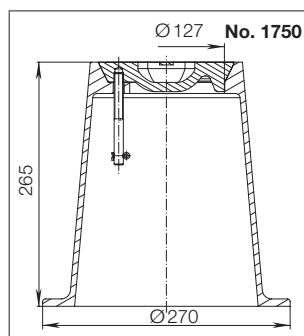
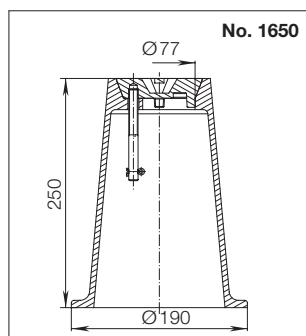
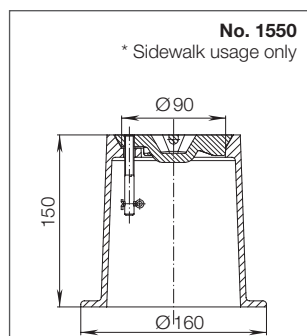
SURFACE BOX

"Rigid", of ductile iron

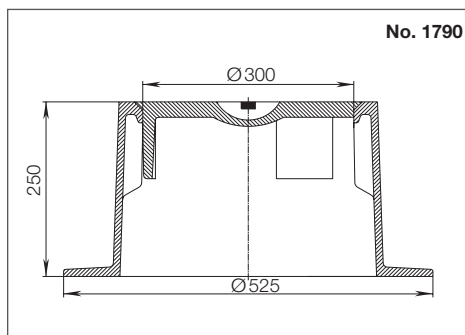
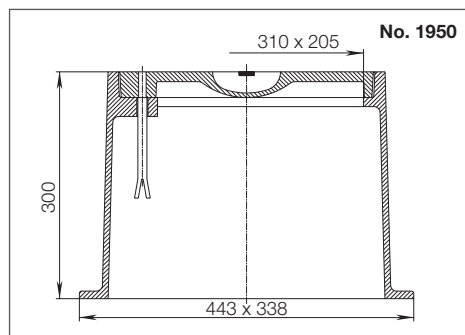


Order No.	Model for	Version	Material	Weight
1550	Service valves	light*	Bitumen coated cast grey iron	3,4
1650		heavy		6,5
1750	Valve and Combi-T			11,9
1950	Below ground hydrants			27,8
1790	Air-release hydrants			41,5
4550	Combi-III and Combi-IV	DN 80+	Bitumen coated ductile iron	34,0
		DN 100-200++		54,5

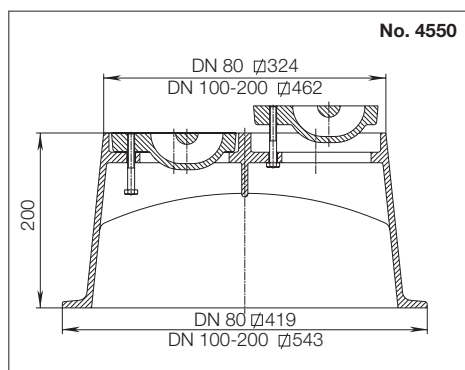
+ E-version DN 80-150, E2-version DN 80; ++ E-version DN 200, E2-version DN 100-200



No. 1750



No. 1950



Max. load 200 kN
(excluding No. 1550)

No. 4550

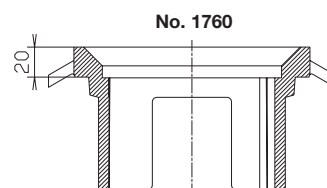
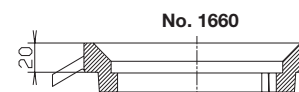
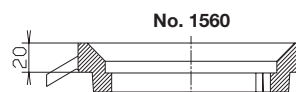


Suitable accessories

• Conversion rings

These rings are used to adapt non adjustable surface boxes already installed to HAWLE adjustable types.

Order No.	For surface box	Material	Weight
1560	No. 1550	Bitumen coated cast grey iron	0,90
1660	No. 1650		0,90
1760	No. 1750		2,45



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M 3/3

SURFACE BOX

"Telescopic", of ductile iron



Order No.	Model for:	Version	Material	Weight	
1850	Service valves	Complete box, without extension rings	Bitumen coated grey iron	7,0	
2050	Valves und Combi-T			12,2	

Height adjustable Surface Box to DIN see page M 3/5



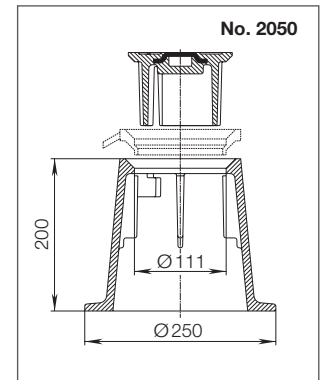
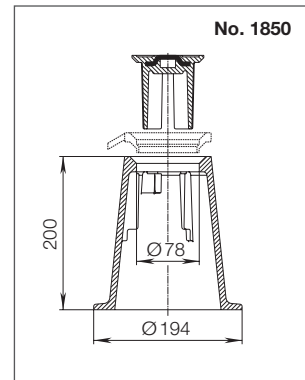
Max. load 200 kN

Surface box telescopic

with extension rings to adjust to ground level!

The cylindrical guide combined with machined conical seating results in tight and noiseless fitting of the lid.

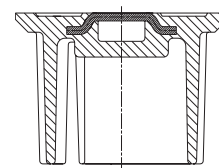
The design enables the lid to be easily removed.



Suitable accessories | Spare parts

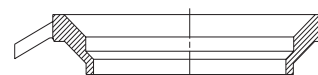
- Lid for adjustable surface boxes** of bitumen coated grey iron

Order No.	For surface box	Weight	
1860	No. 1850	1,30	
2060	No. 2050	2,65	



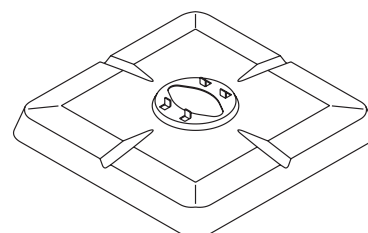
- Extension rings** of bitumen coated grey iron adjusting to ground level with extension ring

Order No.	For tele surface box	High Weight					
		12	15	20	30	40	50
2030	No. 1850	0,50	0,70	0,90	1,10	1,50	1,20
2040	No. 2050		1,00	1,40	2,00	2,70	3,50



- Base plate**
of stamped, galvanized sheet steel
Measurement: 360 mm x 360 mm

Order No.	For surface box	Weight	
3480	No. 1550, 1650, 1850	1,70	
3490	No. 1750, 2050	1,70	



M 3/4



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Height adjustable DIN rated SURFACE BOX

With separate removable mounting ring for road surfaces which have to be milled down



Design features

- Proven angle seat prevents the cover from rattling
- High quality corrosion protection using the GSK fluidised bed epoxy coating system
- The removable mounting ring enables a milling down of the road surface without removing the surface box.
- Height adjustable with extension rings
- Cover secured by stainless steel retaining rod
- Available on request: extension ring for sloping roads (see illustration 1)

Material | Technical features

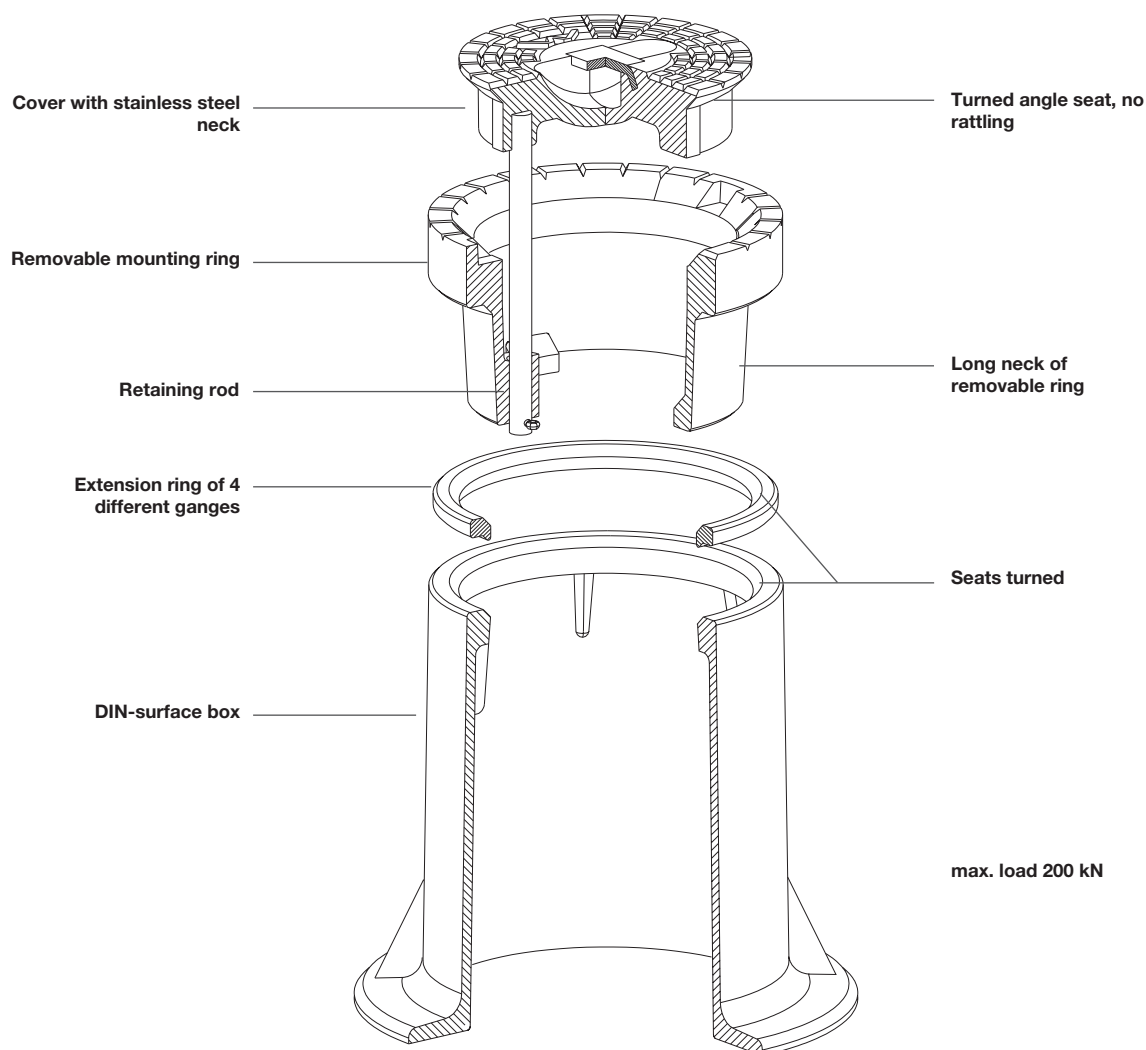
- **Cover** made of gray cast iron, epoxy powder coating
- **Retaining rod and cover neck** of stainless steel
- **Turned angle seats** are processed

Surface box

Order No.	Version	Weight	
2051	DIN 4056 (gate valves)	21,5	
1851	DIN 4057 (service valves)	11,0	

Extension rings

Order No.	For surface box	Height Weight			
		10	20	30	50
2045	No. 2051	0,9	1,2	1,6	2,7
2035	No. 1851	0,4	0,8	1,2	2,0



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M 3/5

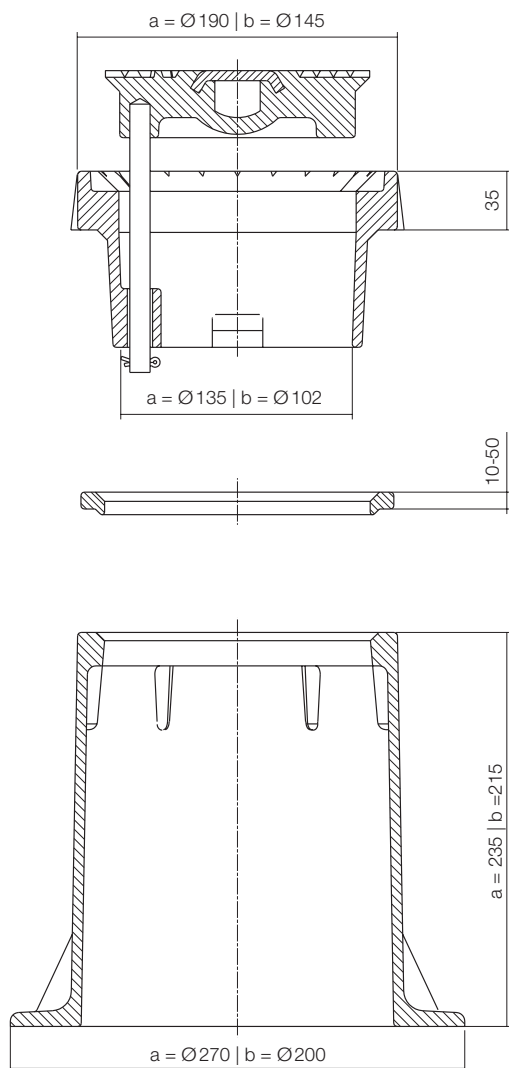
Height adjustable DIN rated SURFACE BOX

With separate removable mounting ring for road surfaces which have to be milled down



Dimensions for DIN surface boxes

a = DIN 4056 b = DIN 4057



Extension ring for sloping roads

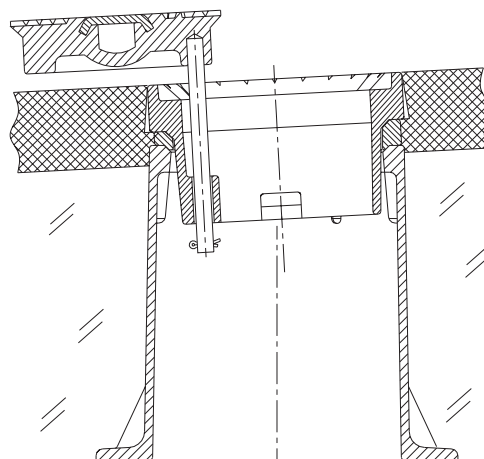


Illustration 1

M 3/6



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BASE PLATES FOR SURFACE BOXES

Made of recycled plastic

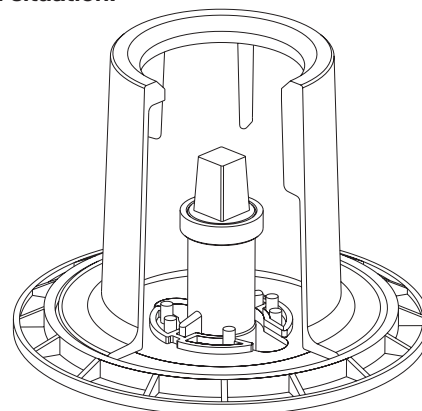


Design features

- Unbreakable and solid
- Easy assembly
- Low weight
- Durable, non-degradable

Order No.	Suitable for surface boxes acc. to	Weight	
3481	DIN 4056, DIN 4057	0,6	
3482	DIN 4055	2,0	

Installation situation:

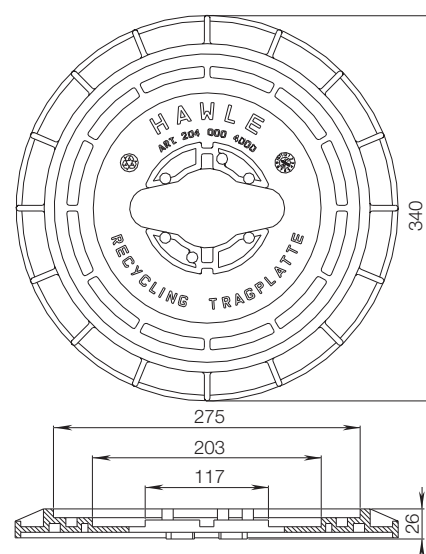


Universal base plate No. 3481

For surface boxes according to:

- DIN 4056 (gate valves)
- DIN 4057 (service valves)

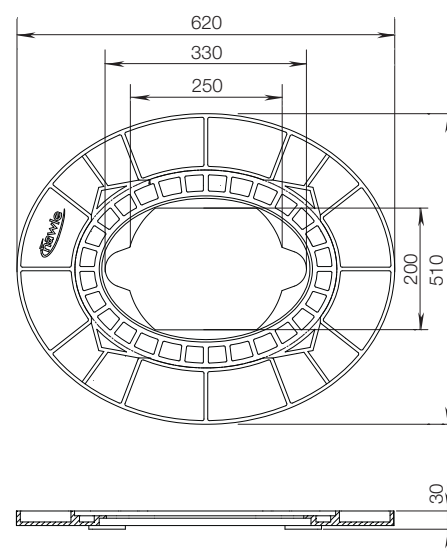
Safe fixture of HAWLE telescopic extension spindles for gate valves, Combi-T and service valves



Base plate No. 3482

For surface boxes according to:

- DIN 4055 (for below ground hydrants)



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M 3/7

Order No.	DN	D	VK slider spindle	Weight	
7800	¾" - 2"	140	10,3	0,60	
	50	160	14,8	0,69	
	65	190	16,3	0,90	
	65-80	190	17,3	0,95	
	100	240	19,3	1,50	
	125 - 150	320	19,3	2,30	
	200	360	24,3	2,80	
	250 - 350*	486	27,3	4,80	
	400**	600	32,3	21,00	
	500 - 600	800	36,3	20,00	

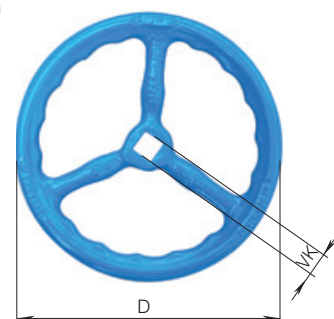
No. 7800 Handwheel

- For service valves, gate valves and combi valves

Made of ductile iron, epoxy powder coated

* DN 250 - 350 made of steel, epoxy powder coated
handwheel made of steel 2" up to DN 200 on request!

** DN 400 made of grey ductile iron



DN	No. 2157	No. 2158	No. 2156
20-40			
50			
65			
80			
100-150			
200			
250-350			
400			
500-600			

Operating cap

- Adapter for actuation by Operating key No. 3410 /3420
- Protection for valve spindle square
- Made of aluminum, with cap and direction indicator

No. 2157 "clockwise closing" - red

No. 2158 "anti-clockwise closing" - blue

No. 2156 made of galvanised ductile iron
(without illustration)



DN	No. 7820 No. 7821	No. 7825 No. 7826
¾" - 2"		
50		
65		
80		
100 - 150		
200		
250 - 350		
400		
500 - 600		

Additional extension spindle

- Material:** galvanised steel

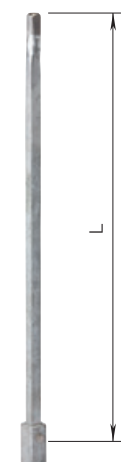
No. 7820 price for first meter

No. 7821 price for each additional half meter
please specify total length "L" on order

- Material:** stainless steel

No. 7825 price for first meter

No. 7826 price for each additional half meter
please specify total length "L" on order



Order No.	DN	Weight	
8570E2	65 - 80	1,50	
	100	1,90	
	125 - 150	3,20	
	200	5,00	
	250 - 350	5,00	

Blanking cap

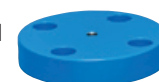
No. 8570E2

- For combi valves in place of valve bonnet
- Made of ductile iron, epoxy powder coated without screws and hood seal

No. 8570E2



DN 65-200



DN 250-350

DN	No. 2170E2	No. 4000STE2
50		
65		
80		
100		
125		
150		
200		
250		
300		
350		
400		



Position indicator

No. 2170E2

- For visual display of the wedge position in **E2** valve
- Limit switch (No. 2190) for electrical signal transmission set-up is possible
- Actuation by handwheel (No. 7800)
- DN 50 to 200 for retrofitting on standard **E2** upper section

Limit switch

No. 2190

- For set-up on the 2170**E2** position indicator
- Body made of metal
- Operating current 230 V / 3 A
- IP 66 / IP 67 protection type
- Switching principle: slow-action contact element
- Design of the switching function: positively driven contact
- Number of openers: 1
- Number of closers: 1

E2 valve "short"

No. 4000STE2

- **E2** valve with flange with installed position indicator

Order No.	DN	Weight	
7850	¾"-2"	0,08	
	50-200	0,30	



Anti-operation cap

No. 7850

- Only suitable for extension spindles for service valves and **E2** valve
- Use: protection against misuse (e.g.: mains disconnection valve)

Order No.	DN	Weight	
7851	¾"-2"	0,20	
	50-200	1,00	



T-key adapter

No. 7851

- Suitable for anti-operation cap No. 7850

Design features

- In standard version 400 V, 50 Hz, three phase motor, easily adjustable limit switch, dual torque switch, signal output to control flasher, thermoswitch for motor protection, handwheel for emergency use.
- Connection according: EN ISO 5210 F10 / F14
- Shaft coupling: EN ISO 5210 B3
- Enclosure of actuator: IP 68
- Enclosure of switches: IP 66

Variations from the standard version on request.

E2 valve		Actuator						
DN	MOP (PN)	Type	Max. torque	L	B	H	Weight	
50-100	16	SA 07.6	60	514	300	288	21,0	
125-200		SA 10.2	120	536	312	290	23,5	
250-400		SA 14.2	250	725	375	316	50,0	
500-600		SA 14.6	500	728	375	316	50,0	

DN	Actuator U/min	~ Closing time
50-80	16	1,0 min
100-125	16	1,5 min
150-200	16	2,0 min
250	16	2,5 min
300-400	22	2,5 min
500-600	16	4,5 min

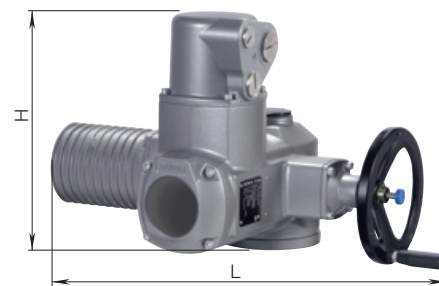
Other closing times and versions on request!

Design features

- E2 valve** including bolts (stud bolts and nuts)
Connector suitable for actuator No. 9920

DN	Bolt circle LK	Shaft Ø d	Weight		
			4000ELE2	4700ELE2	8630E2
50	102	20	15,0	36,0	3,7
65	102	20	21,0	42,5	4,0
80	102	20	22,5	44,5	4,0
100	102	20	28,5	51,5	4,0
125	102	20	39,0	62,0	4,0
150	102	20	44,5	70,0	5,5
200	102	20	71,0	101,0	8,5
250	140	30	109,0	176,0	9,5
300	140	30	156,0	225,0	20,0
350	140	30	214,0		
400	140	30	270,0		
500	140	30	499,0	543,0	
600	140	30	730,0	820,0	

Actuator No. 9920



Actuator control unit
AUMA MATIC and AUMATIC on request

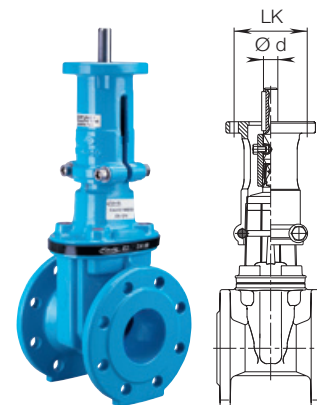
The actuator should not be used with **HAWLE-E2** Elypso Valve for partial flow control.

For using the actuator with **HAWLE-E2** Elypso Valves please specify the following details on order:

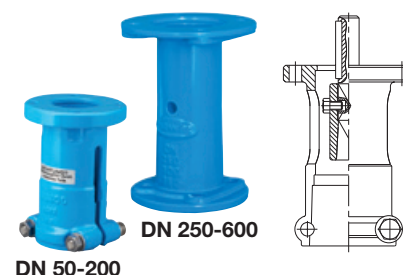
1. working pressure
2. alignment of the valve
3. how often the valve is to be opened and closed within 24 hours

E2 valve "short" with adapter for actuator No. 4000ELE2

E2 valve "long" with adapter for actuator No. 4700ELE2



E2 Adapter No. 8630E2



Bolts / L	No. 8810						No. 8830			No. 8840	
	M 16	M 20	M 24	M 27	M 30		M 16	M 20		M 16	M 20
60											
70											
80											
90											
100											
110											
120											
130											
140											



Nut and Bolt

No. 8810

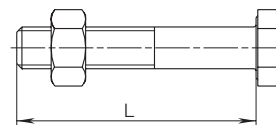
- Electro-galvanised

No. 8830

- Stainless steel, corrosion proofing

No. 8840

- Stainless steel, corrosion and acid proofing



No. 8873	for M 16	
	for M 20	
No. 8871 No. 8874	for M 16	
	for M 20	
	for M 24	



Washer

No. 8871

- Electro-galvanised

No. 8873

- Stainless steel, corrosion proofing

No. 8874

- Stainless steel, corrosion and acid proofing

	For thread	
No. 8877	M 16	
	M 20	
No. 8820	M 16	
	M 20	



Bolt insulation

- For electrical insulation of bolts to prevention of electrolytic corrosion

No. 8877 ISO washers

- Thickness 3 mm, made from epoxy glass

No. 8820 pipe

- Polyester, length 1 m

Required bolt lengths: flanged valves to flange

Flanged valve DN	MOP (PN)	Bolt Dimension	Bolt Quantity	Bolt length for flange no.								
				0101 0102	7101 7102 7103	0400 0800 0802 7994	5500 5530	5600	0310 0311	7602	7601	8000 8100
50	10/16	M 16	4	70	70	70	70	70	70	100	80	70
65		M 16	4	70	70	70	70	70	70	100	80	70
80		M 16	8	80	70	70	70	70	70	100	80	70
100		M 16	8	80	70	70	70	70	70	100	80	70
125		M 16	8	80	80	70	70	70	70	100	80	70
150		M 20	8	90	80	70	70	80	70	140	100	70
200	10	M 20	8	90	80	70		80	70	140	100	70
	16		12									80
250	10	M 20	12	100	90	80		90	80	140		80
	16	M 24								150		90
300	10	M 20	12	100	90	90		90	90	140		90
	16	M 24								150		
350	10	M 20	16	120		90						90
	16	M 24		130								
400	10	M 24	16	120	100	100						100
	16	M 27		130								
500	10	M 24	20	150		100						
	16	M 30				110						
600	10	M 27	20	150		120						
	16	M 33		160								

HAWAK-PILLAR

For above ground operation of valve



Design features

- For the ergonomic above-ground operation of shut-off valves buried in the ground or installed in manholes and valve chambers
- Standpipe and connecting flanges of stainless steel
- Connecting flange for fixing on support base DN 65 drilled to EN 1092

Version with handwheel (No. 9894)

- The extended inner pipe made from galvanised steel allows quick and easy connection of the HAWAK-Pillar with the square rod of the spindle extension or extension spindle. The telescopic connection in the HAWAK-Pillar allows a generous tolerance when cutting the square rod to length
- Spindle made of stainless steel
- Spindle bearing made of POM
- Wiper ring made of elastomer
- Position indicator for monitoring of valve position
- Maintenance-free

Version for electric actuator (No. 9895)

- Connecting flange for actuator according to EN ISO 5210 / DIN 3210

Pillar

No. 9894

No. 9895



No. 9894

No. 9895

Order No.	Version	For valves of nominal widths / DN													
		50	65	80	100	125	150	200	250	300	350	400	450	500	600
9894	Equipped with handwheel and position indicator														
9895	Model with connection for electric actuator														

When ordering please specify the valve type and the nominal width



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M 5/1

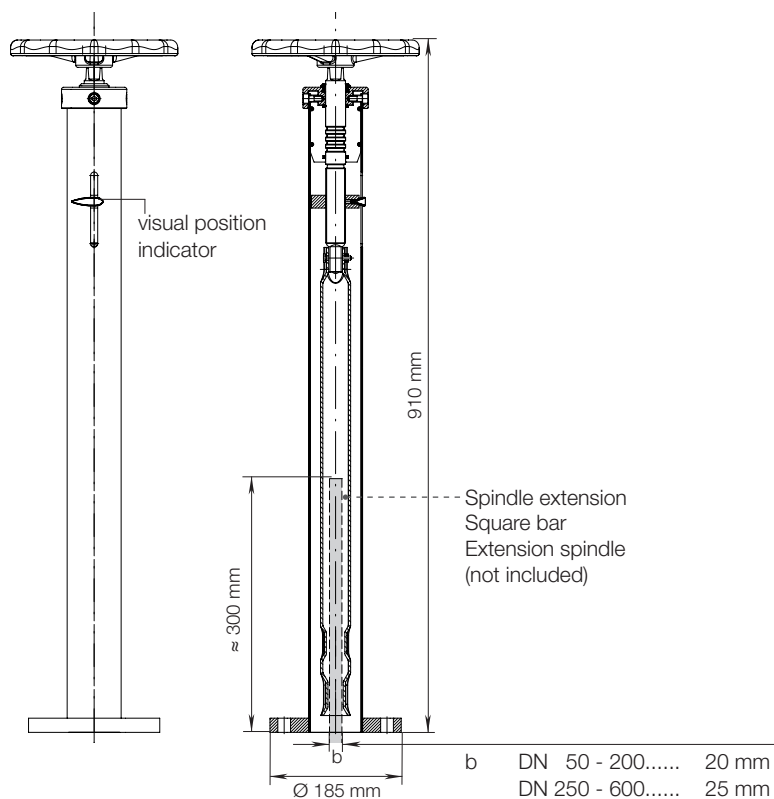
HAWAK-PILLAR

For above ground operation of valve

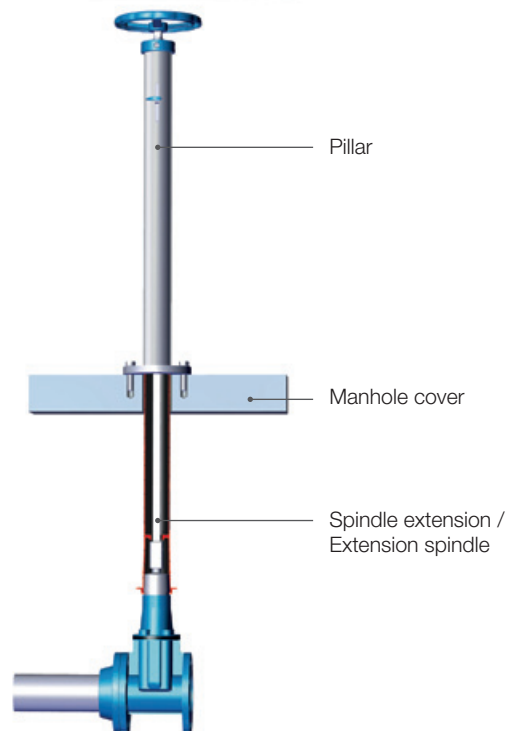


No. 9894

- Equipped with handwheel and position indicator

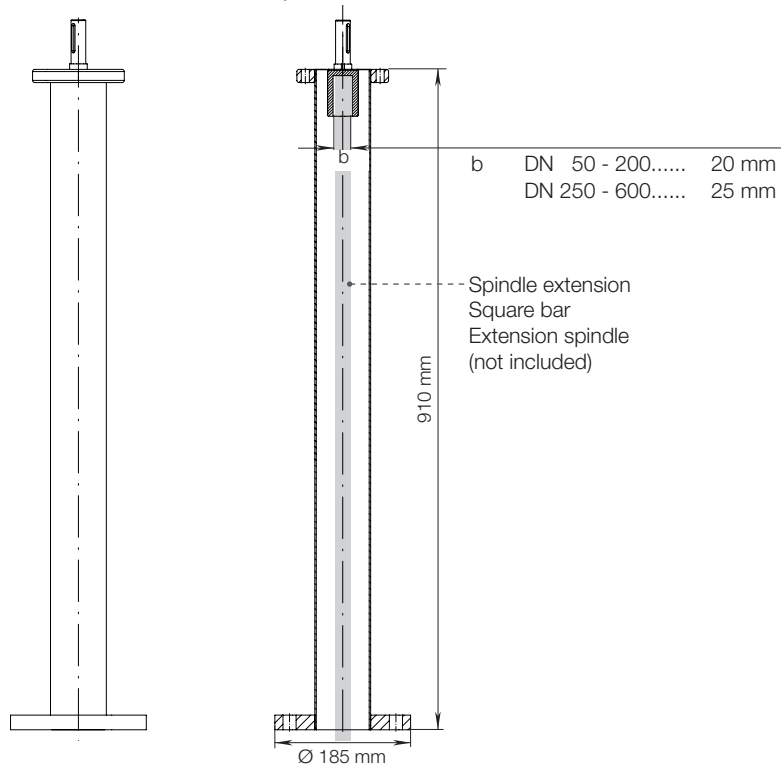


Application example:

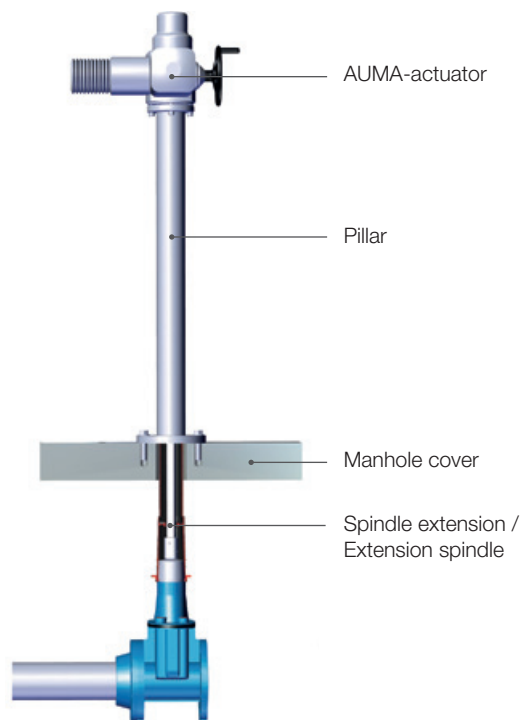


No. 9895

- Model with motor adapter



Application example:



M 5/2



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Order No.	Outlet	Weight	
5397	for A coupling	3,70	
5398	for B coupling	2,20	
5399	for C coupling	1,70	



Theft indicator

No. 5397

No. 5398

No. 5399

For HAWLE above ground hydrants

- Effective protection against unauthorised access
- For all Hawle above ground hydrants from 1998
- For Hawle above ground hydrants before 1998 on request

Order No.	For coupling	Weight	
3453	A + B + C	0,50	



Adapter

No. 3453

- Opening of hydrant solely with adapter and operating key no. 3460

No. 5417

For hydrants made before September 1998, a "conversion kit" is needed



Theft indicator cap

No. 5417

- For above ground hydrants
- Since September 1998, all HAWLE above ground hydrants have been supplied in a form that can accept theft indicator caps

SUPPORT LINERS

For PE pipes



Class SDR 11 (PE 100 | PN 16)

ØPipe ext.	ØD	ØC	ØA	F	E	B	
20	15,4	10,3	19,5	42	4	16,5	
25	19,8	14,3	24,5	52	5	20,9	
32	25,2	19,3	31,5	62	6	26,5	
40	31,6	25,3	39,5	72	7	33,2	
50	39,6	32,7	49,5	82	7	41,5	
63	50	42,1	62,5	91	8	52,2	

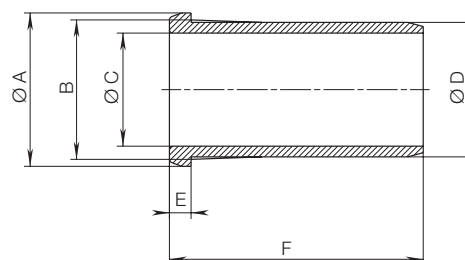
Support liners made of POM for PE pipes

No. 6021



Class SDR 17,6 (PE 100 | PN 10)

ØPipe ext.	ØD	ØC	ØA	F	E	B	
20	15,4	10,3	19,5	42	4	16,5	
25	20,4	15,2	24,5	52	5	21,5	
32	27,4	22,2	31,5	67	6	28,5	
40	34,8	28,5	39,5	84	7	36	
50	43,4	36,5	49,5	82	7	44,9	
63	54,8	46,9	62,5	92	8	56,6	



ØPipe ext.	L	Weight	
63	170	0,10	
75	170	0,25	
90	170	0,33	
110	170	0,39	
125	170	0,48	
140	170	0,55	
160	200	0,67	
180	220	0,86	
200	220	1,50	
225	220	1,62	
250	220	1,85	
280	220	2,15	
315	220	2,55	

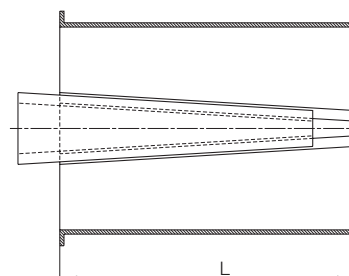
Support liner made of stainless steel for PE pipes

No. 6035

Class SDR 17,6 (PE 100 | PN 10)

No. 6036

Class SDR 11 (PE 100 | PN 16)



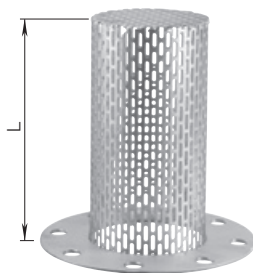
M 6/2



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Order No.	DN	Face-to-face length L	Weight	
8653	50	300	0,9	
	65		1,1	
	80		1,3	
	100		1,5	
	125		1,9	
	150		2,4	
	200		3,2	
	250		3,9	
	300		4,8	
	350		5,7	
	400		6,7	

other dimensions on request!



Suction strainer No. 8653

- Made of stainless steel
- Flange hole according to EN 1092-1 | PN 10

DN	b		Weight		
	3470	3390	3470	3390	
25		4		0,01	
32		4		0,02	
40		4		0,03	
50	3	4	0,02	0,04	
65	3	4	0,03	0,06	
80	3	4	0,04	0,07	
100	3	5	0,04	0,07	
125	3	5	0,05	0,12	
150	4	5	0,06	0,13	
200	4	6	0,10	0,18	
250	4	6	0,13	0,23	
300	4	6	0,17	0,60	
350		7		0,70	
400		7		0,77	
500		7		1,00	
600		7		1,11	



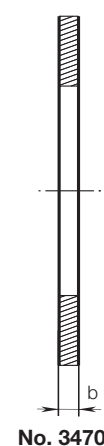
Flat gasket No. 3470

- With fabric liner, PN 10
- Made of elastomer



Flat gasket No. 3390

- Dimensionally stable reinforced steel, thus simpler to install
- Made of elastomer
- Standard version PN 10, PN 16 or PN 25 on request



No. 3470



No. 3390

DN	No. 7540	No. 7560
80		
100		
125		
300		



Enlarging sleeve

- For flange adaptors
- To increase pipe outside diameter to fit flange adapter

No. 7540 sleeve gauge 2 (60 wide)

No. 7560 sleeve gauge 3 (80 wide)

Please specify pipe material and diameter

Design features

- For an easy installation
- Made of pure silicon (with a special solvent)
- Suitable for potable water
- Content: 400 ml
- **Attention:** observe the safety-instruction label on the can

Mounting spray For PE and PVC pipes

No. 3443



Design features

- Suitable for valves, spindles and O-rings
- Content: 90 g

Fitting grease

For potable water valves

No. 3444



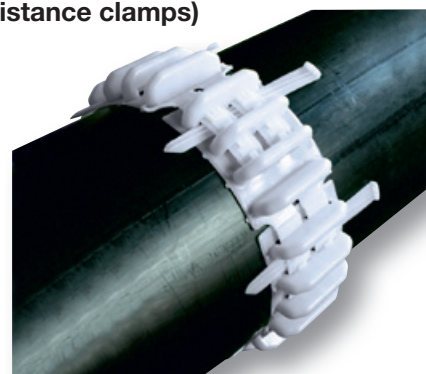
Design features

- The dimension and type of spacer is determined by the diameter of the medium carrier pipe
- The pipeline spacer height is dependent on the inside diameter of the protective tube
- Fits easy onto pipe
- Elements portioned per ring
- No additional tools necessary
- High tolerance, withstands 2000 kg/ring
- Suitable for water, gas, sewage

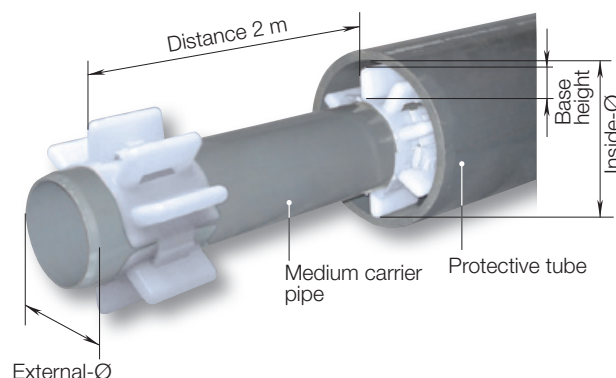
Pipeline spacer

(Anti-friction distance clamps)

No. 9941



DN	External Ø medium pipe	Base height		
		25	41	60
80	76-115			
100	103-131			
125	117-172			
150	155-195			
200	207-260			
250	258-326			
250	236-312			
300				
350	295-390			
400	353-468			
450	413-546			
500	472-624			
600	501-702			



Design features

- Made of plastic, impact-resistant, weather-proof, with interchangeable characters

Order No.	Dimensions	Version	
0850W	200 x 140	blank*	
0854	200 x 140		
0860W	100 x 140	blank*	
0864	100 x 140		
0870W	200 x 250	blank*	
0874	200 x 250		
0912	100 x 140		
	140 x 200		
0920	1500		

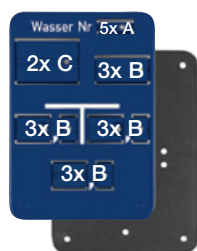
* Suitable numeric or character fields are to be ordered as needed!

A = 10 mm

B = 25 mm

C = 40 mm

No. 0850W



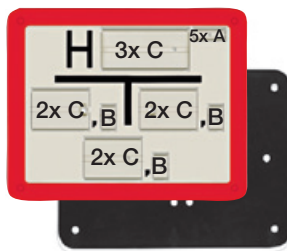
No. 0854

No. 0860W



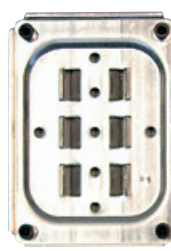
No. 0864

No. 0870W



No. 0874

No. 0912



No. 0914



No. 0920



Design features

- When ordering indicator plates, please specify respective numbers, letters and colour requested!

Lettering		Numbers and letters 1-space					Blank 1-space					Blank 5-space	
for indicator plates No.	Order No.	0880W	0881H	0881W	0882H	0882W	0890W	0891H	0891W	0892H	0892W	0900H	0900W
	Size	10	25	25	40	40	10	25	25	40	40	10	10
0850W													
0860W													
0870W													

Numbers and letters

Inserts for indicator plates

Design features

- For clearly displayed storage of numbers and letters for indicator plates
Please specify the colour requested!
„blue“- **W**ater
„white“- **H**ydrants

Alu box for inserts

No. 0910 empty

No. 0911 filled
(for app. 100 plates)



Design features

- Non-decaying locating and warning tape with the message „BEWARE WATER PIPE“
- **No. 0820:** without metal insert
- **No. 0830:** with metal insert - for laying on non-metallic lines

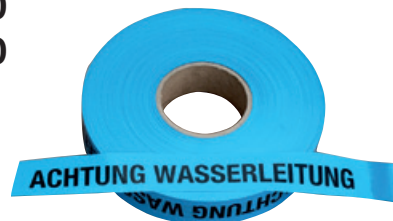
No. 0820

Roller to 250 meters

Warning tape

No. 0820

No. 0830



Design features

- With one external thread outlet EN 10226-1
- Made of POM
- Every push-fit end can be modified to a external thread outlet

Order No.	DN	Thread	L	Weight	
6630	¾"	¾"	92	0,05	
	1"	1"	105	0,10	
	1¼"	1¼"	123	0,13	
	1½"	1½"	144	0,18	
	2"	2"	160	0,28	
6631	1"	1½"	117	0,07	
	1"	2"	126	0,12	

Push fit swivel converter

No. 6630 equal

No. 6631 special dimensions



Design features

- With one internal and one external thread EN 10226-1
- Made of POM

OD EN10226-1	ID ISO 228	L	Weight	
1"	½"	31	0,03	
1"	¾"	31	0,02	
1¼"	¾"	33	0,05	
1¼"	1"	33	0,03	
1½"	½"	33	0,07	
1½"	¾"	33	0,06	
1½"	1"	33	0,04	
2"	¾"	38	0,10	
2"	1"	38	0,09	
2"	1¼"	38	0,07	
2"	1½"	38	0,05	

Reducing Adapter

No. 6710



Design features

- Both ends external threads EN 10226-1
- Made of POM

Order No.	Ø d	Thread	L	Weight	
6711	1"	1"	56	0,05	

Equal Adapter

No. 6711



AUTOMATIC AIR VALVES

For potable water



**Page
N 2**

Air release valve

DN 1" und DN 2", PN 6, PN 16

Page N 2/1



**Page
N 3**

Air release valve HaVent

PN 25

Page N 3/1



**Page
N 4**

Air release valve

DN 80 / DN 100, DN 150 / DN 200

Page N 4/1



**Page
N 5**

Combined air release valve

Page N 5/1



**Page
N 6**

Air release valve

Dynamic PN 10 | PN 16 | PN 25 | PN 40

Page N 6/1



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N 1/1

Accessories

Flushing stand pipe
Surface box

Page N 5/1
Page M 3/3

Spare parts

Valve 1"

Seite N 2/2

Tools

Valve key 1"

Page Q 4/2

Dimensioning (recommendation)

Pipe	Valve
DN ≤ 80	DN 1"
DN 100 - 250	DN 2" (DN 50)
DN 300 - 400	DN 80
DN 450 - 500	DN 100
DN 600 - 900	DN 150
DN ≥ 1000	DN 200

Technical information

Tightening torques for flange assembly

Page R 3/1

Application examples



AIR RELEASE VALVES

PN 6 | PN 16



Design features

- Automatic, dynamic air release valve
- PE shield for UV protection
- The internal thread inlet is reinforced with a stainless steel ring
- Connection variants: Internal thread or flange
- Insect protective grid (2" valve)
- Installation: upright, preferably at the highest point in the pipeline together with isolating valves
- Air valve for releasing air only: on request (minimum pressure of 0,3 bar needed)

Material | Technical features

DN 1"

Max. air release capacity: 7,8 m³/h
Test pressure: Body 24 bar
Working pressure: 0,1 - 6 bar
 0,8 - 16 bar

- **Body** made of POM
- **Orifice and valve plug** made of brass
- **Float** made of POM
- **Seal** made of Elastomer
- **UV-shield** made of PE

DN 2" - double acting

Max. air release capacity: 192 m³/h
Test pressure: Body 24 bar
Working pressure: 0,1 - 6 bar
 1 - 16 bar

- **Body and elbow** made of POM
- **Valve seat** made of brass
- **Float** made of POM
- **Seal** made of Elastomer
- **UV-shield** made of PE
- **Insect protective grid** made of stainless steel

No. 9876 DN 1"



No. 9876 DN 2"



No. 9874 DN 2"

Order No.	Version	DN	Working pressure bar	
9876	Standard	1"	PN 0,1 - PN 6	
			PN 0,8 - PN 16	
9876	Standard	2"	PN 0,1 - PN 6	
			PN 1 - PN 16	
9874	With flange connection DN 50 or DN 80 (ductile iron)	2"	PN 0,1 - PN 6	
			PN 1 - PN 16	

Automatic air valves are to be maintained according to the usage conditions



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N 2/1

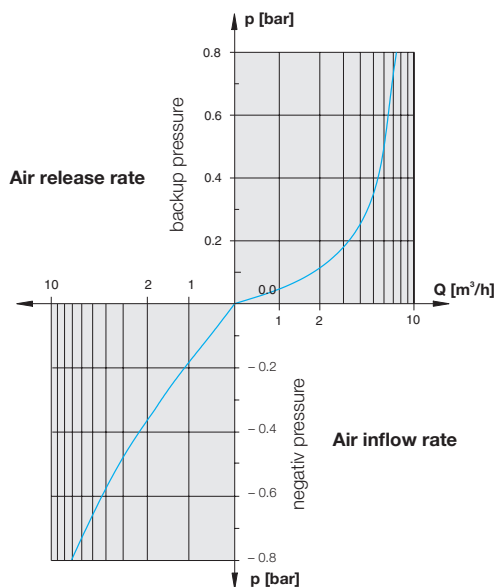
AIR RELEASE VALVES

PN 6 | PN 16



DN	MOP (PN)	Working pressure bar	Size of the opening	Ø D	Ø D1	H	Weight
1"	6	0,1 - 6	1,77 mm ²	109	122	172	0,90
	16	0,8 - 16					

Please specify working pressure when ordering



No. 9876 DN 1"

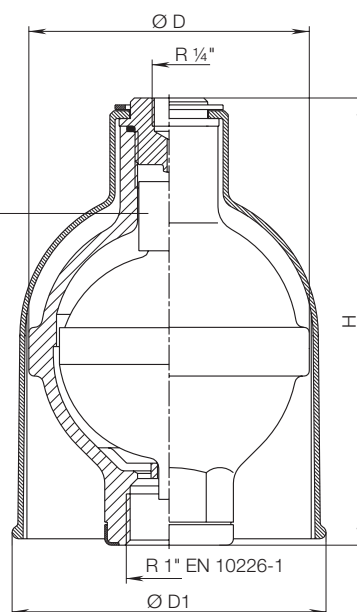
Valve (= wearing part)

No: QA00001600Q013 PN 16

No: QA20001600Q013 PN 6

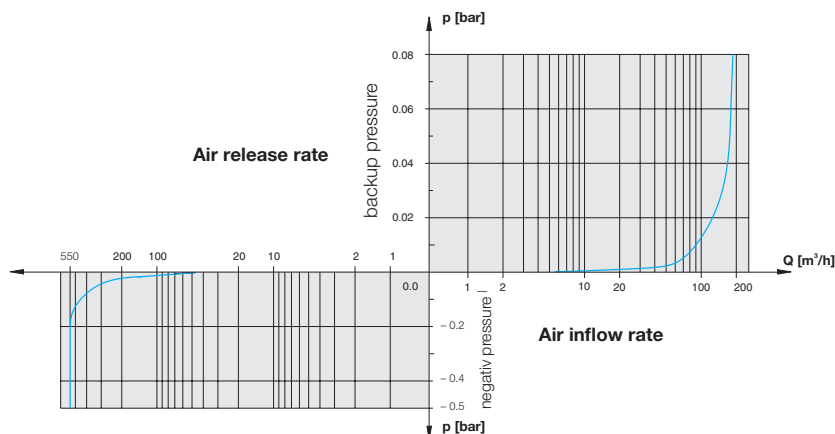
Replaceable on the spot in depressurised status

- Demount safeguard ring
- Remove cap
- Loosen locking screw
- Valve with valve key unscrew No. 3454

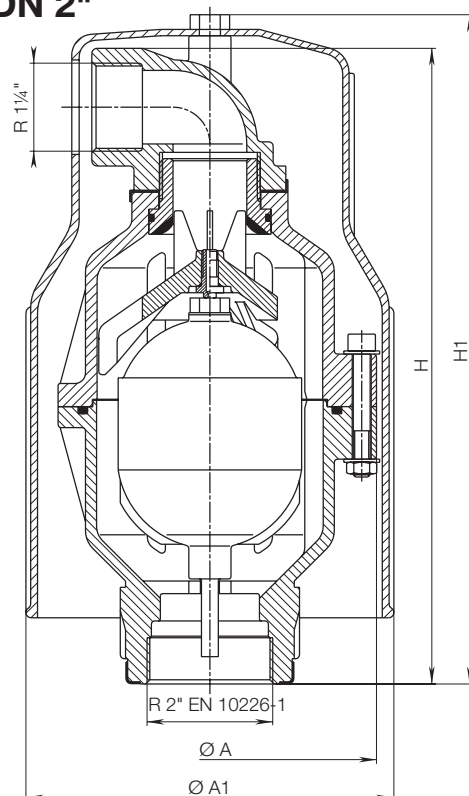


DN	MOP (PN)	Working pressure bar	Size of the opening	Ø A	Ø A1	H	H1	Weight
2"	6	0,1 - 6	900/2 mm ²	160	175	305	320	2,90
	16	1 - 16						3,40

Please specify working pressure when ordering



No. 9876 DN 2"



N 2/2



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AIR RELEASE VALVES HaVent

PN 25



Design features

- High performance air release valve with new nozzle mechanism for the optimal absorption of high pressures
- Low wear and tear due to optimum geometry
- Easy maintenance
- High-quality materials
- UV resistance
- Air release only on request
- Connecting variants: Flange DN 50, DN 80, internal thread 2"
- With insect protective grid

Material | Technical features

- **Size of the opening:** 1500 mm² / 3,15 mm²
- **Max. air release capacity:** 1150 m³/h
- **Working pressure:** 0,2 - 25 bar
- **Body** made of stainless steel
- **Float** made of foamed PP
- **Seal** made of Elastomer
- **Outlet elbow** made of PE
- **Flange** acc. EN 1092

No. 9859



Connection	H	Ø D	Weight	
IG 2"	420	160	10,00	
Flange DN 50*	455	160	12,50	
Flange DN 80*	455	160	14,50	

*on request



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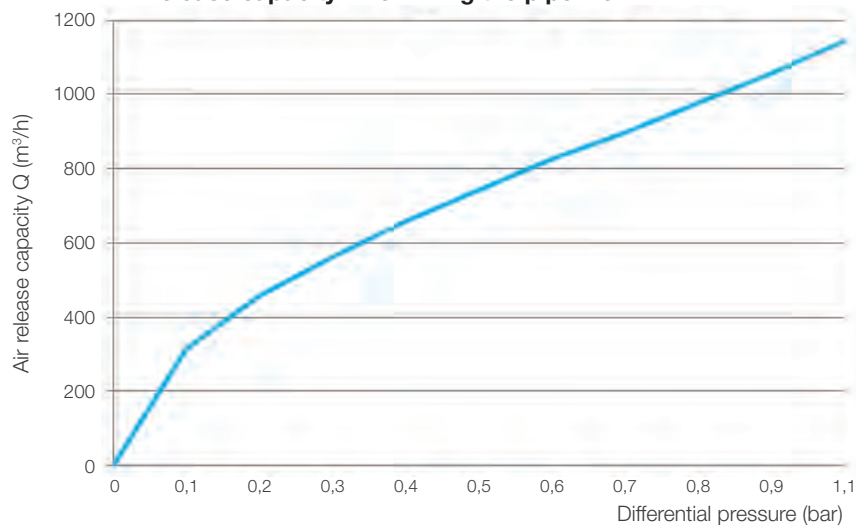
N 3/1

AIR RELEASE VALVES HaVent

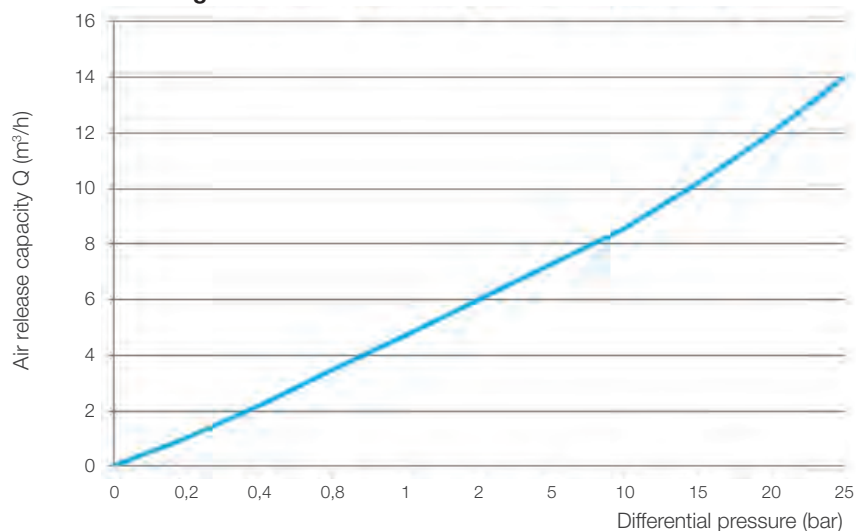
PN 25



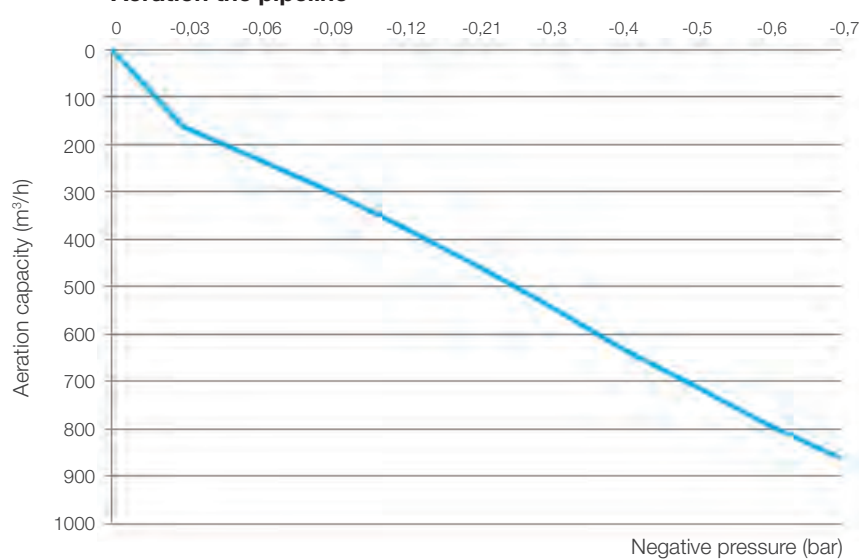
Air release capacity when filling the pipeline



Working air release



Aeration the pipeline



N 3/2



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AIR RELEASE VALVES

PN 6 | PN 16



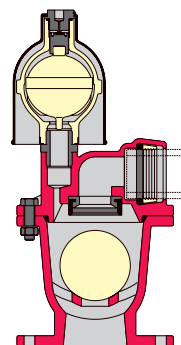
Design features

- Automatic air release valve
- All mechanical parts made of corrosion resistant materials

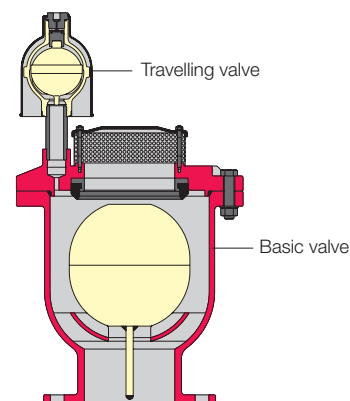
Material | technical features

- **Body and bonnet** made of ductile cast iron, epoxy powder coated
- **Seat** made of stainless steel / elastomer
- **Float:** DN 80-100 polycarbonate
DN 150-200 passivated stainless steel
- **Double nipple** made of POM / stainless steel
- **Bolts and nuts** made of stainless steel

No. 9835 DN 80 / DN 100



DN 150 / DN 200



Dimensions	DN 80	DN 100	DN 150	DN 200*
Test pressure (body)	24 bar			
Working pressure PN 16 (standard)	0,8 - 16 bar			
Working pressure PN 6	0,2 - 6 bar			
Max. air release capacity	1305 m³/h	2450 m³/h	7500 m³/h	
Size of the opening	1810/1,77 mm²	3320/1,77 mm²	17670/1,77 mm²	
PE pipe connection	d 63	d 75		
Flange drilled acc. EN 1092-2 PN 10; *DN 200 PN 16 EN 1092-2 please specify on order				

Order No.	Version	Working pressure bar	DN 80	DN 100	DN 150	DN 200
9835	Double orifice (with travelling valve)	PN 6 (0,2 - 6 bar)				
		PN 16 (0,8 - 16 bar)				
9836	Double orifice, (with travelling valve) with PE pipe & insect protective grid	PN 6 (0,2 - 6 bar)				
		PN 16 (0,8 - 16 bar)				
9837	Single orifice (without travelling valve)	PN 16 (0,2 - 16 bar)				
9838	Single orifice (without travelling valve) with PE pipe & insect protective grid	PN 16 (0,2 - 16 bar)				



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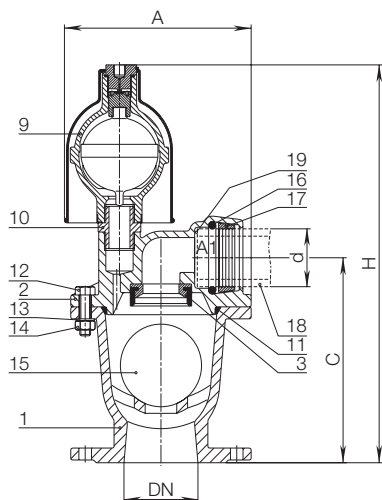
N 4/1

AIR RELEASE VALVES

PN 6 | PN 16

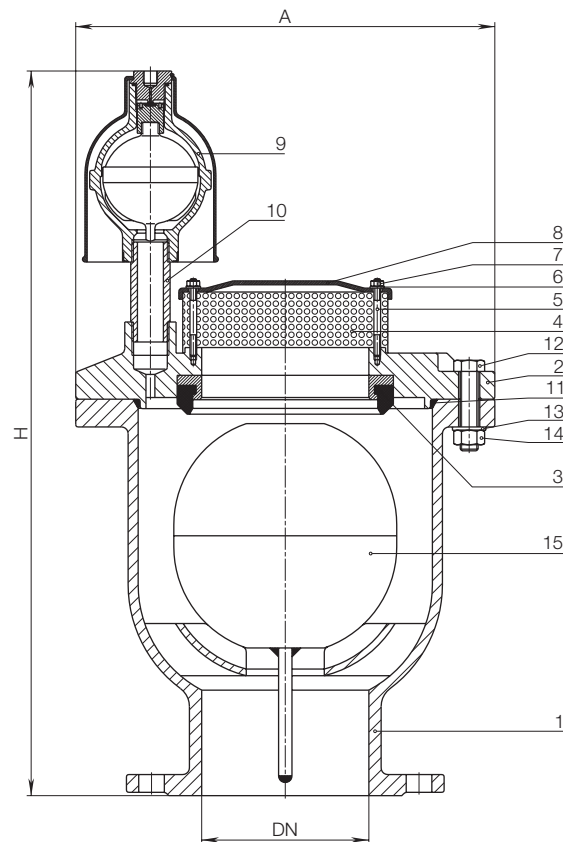


DN 80 / DN 100

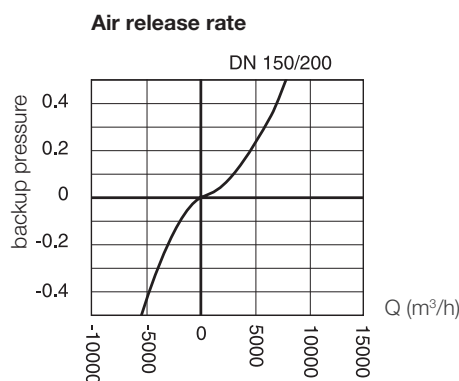
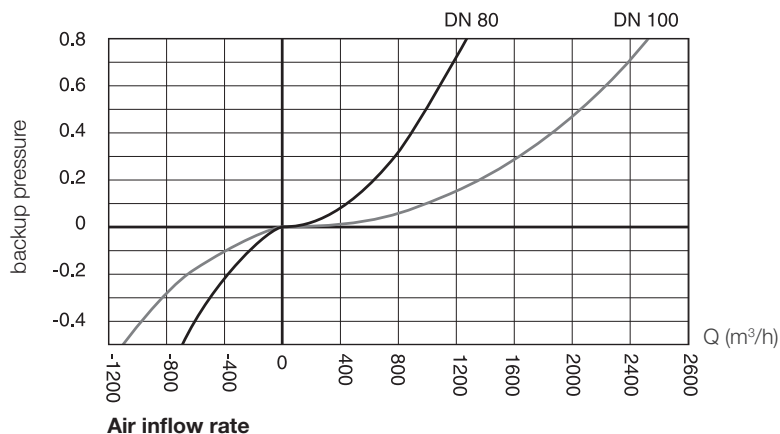


	Parts	Material
1,2	Body and bonnet	Ductile cast iron, epoxy powder coated
3	Seat	Stainless steel / Elastomer
4	Grid	Stainless steel
5	Bolt	Stainless steel
6	Washer	Stainless steel
7	Nut	Stainless steel
8	Cap	Steel, epoxy powder coated
9	Automatic air valve 1"	Divers (see page N 2/1)
10	Nipple	POM (DN 80-100) / NIRO (DN 150-200)
11	O-ring	Elastomer
12	Hexagonal bolt	Stainless steel
13	Washer	Stainless steel
14	Hexagonal nut	Stainless steel
15	Float	DN 80 - 100 Polycarbonat DN 150 - 200 Passivated stainless steel
16	O-ring	Elastomer
17	Clamp ring	POM
18	Pipe tail (on request)	PE
19	Insect protective grid (on request)	Stainless steel

DN 150 / DN 200



DN	A	H	C	d	Weight
80	212	455	230	63	17,0
100	250	505	260	75	25,0
150	387	686			75,0
200	387	686			81,0



N 4/2



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COMBINED AIR RELEASE VALVES



Design features

- This arrangement eliminates expensive valve chambers
- The stand pipe protects the automatic air valve
- An automatic shut-off valve enables the equipment to be easily removed for inspection and reinstalled under pressure
- The materials used for the air release valve guarantee absolute corrosion resistance
- Excess water is drained away through an DN 1/2" ISO-pipe-fitting
- For below-ground installation a surface box with minimum opening of 300 mm diameter is required. Gravel backfilling should be used to prevent rain water from accumulating in the surface box (see Illu. 2 page N 5/2)
- The air release valve can be shortened by 100 mm by cutting the standpipe 5 and extension pipe 3 at the red marks
- Valve only for air release: on request (minimum pressure of 0,3 bar needed)

No. 9822

No. 9823



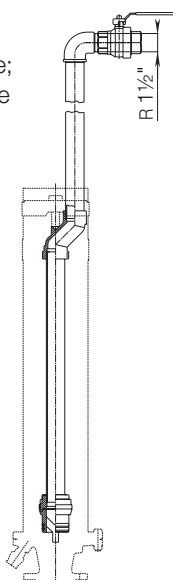
**Air valve for releasing air only:
(with air inflow stop) on
request**
(see over page illu. 3)

Material | Technical features

- **Standpipe** made of stainless steel
- **Air release valve** made of POM and brass
- **Max. air release capacity:** 3,2 m³/min
- **Inlet flange:** DN 50 or DN 80
sized and drilled according to
EN 1092-2 | PN 16

Suitable accessories

- Surface box No. 1790
- **Flushing stand pipe** including shut-off valve; Instead of the air valve assembly a stand pipe can be supplied for water main flushing and for general water discharge



Order No.	L	Weight	
9824	755	4,70	
	1055	5,80	
	1305	6,75	
	1555	9,50	

L = Total length of the combined air release valve

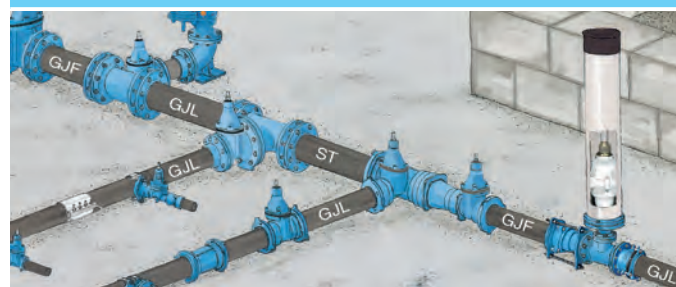
Order No.	Working pressure bar	DN	Installation depth		L*	Weight	
			Above ground (Illu.1)	Below-ground (Illu.2)			
9822	PN 1 - PN 16	50	0,75 m	1,00 m	755	22,0	
			1,00 m	1,25 m	1055	25,5	
			1,25 m	1,50 m	1305	29,0	
			1,50 m		1555	33,5	
		80	0,75 m	1,00 m	755	23,5	
			1,00 m	1,25 m	1055	27,0	
			1,25 m	1,50 m	1305	30,0	
			1,50 m		1555	31,0	
9823	PN 0,1 - PN 6	50	0,75 m	1,00 m	755	22,0	
			1,00 m	1,25 m	1055	25,5	
			1,25 m	1,50 m	1305	30,0	
			1,50 m		1555	33,0	
		80	0,75 m	1,00 m	755	24,0	
			1,00 m	1,25 m	1055	28,0	
			1,25 m	1,50 m	1305	30,0	
			1,50 m		1555	33,0	

*L = 100 reducible

Minimum length = 650
Maximum length = 2500

PN 25 on request

Application example



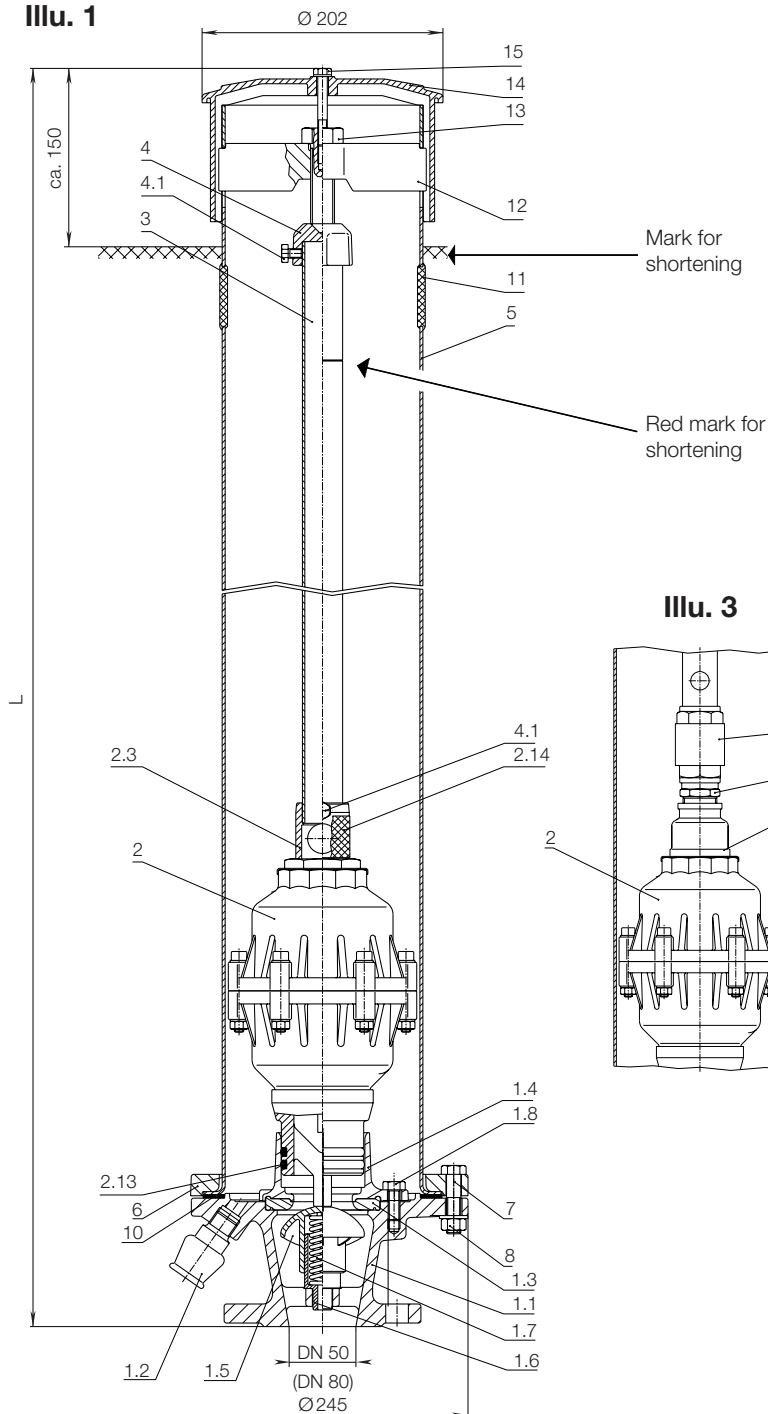
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N 5/1

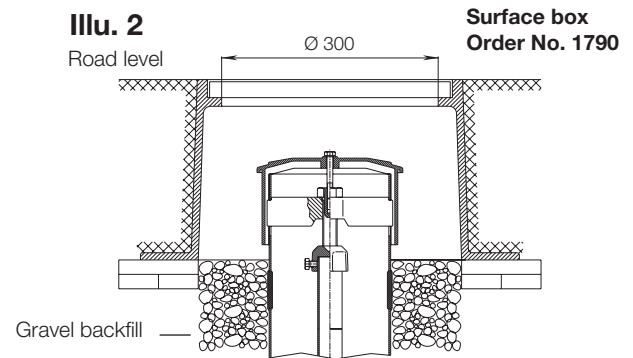
COMBINED AIR RELEASE VALVES



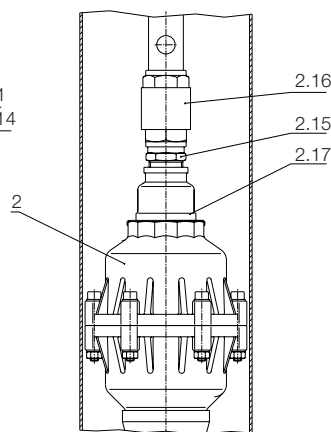
Illu. 1



Illu. 2



Illu. 3



	Parts	Material
1.1	Inlet flange	Ductile iron
1.2	Drain-off fitting	Ductile iron
1.3	Seal	Elastomer
1.4	Foot valve flange	Brass
1.5	Foot valve	POM
1.6	Spring case	POM
1.7	Spring	Stainless steel
1.8	Hexagon bolt M 10	Stainless steel
2	Air valve	see page N 2/1
2.3	Seat	Brass/Elastomer
2.13	O-ring	Elastomer
2.14	Insect protective grid	Stainless steel
2.15	Double nipple	Brass
2.16	Non return valve	Brass
2.17	Reducing socket	Brass
3	Pipe	Stainless steel
4	Coupling	Ductile iron
4.1	Hexagon bolt	Stainless steel
5	Stand pipe	Stainless steel
6	Lock ring	Ductile iron
7	Hexagon bolt M 12 x 55	Stainless steel
8	Hexagon nut	Stainless steel
10	Seal	Elastomer
11	Blind cover	Elastomer
12	Spindle support	
13	Operating bolt	Stainless steel
14	Hood	HDPE
15	Hexagon bolt	Stainless steel

N 5/2



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AIR RELEASE VALVES

Dynamic PN 10 | PN 16 | PN 25 | PN 40



Design features

- Automatic 3-way air release valve with cylindrical floats
- Ventilation outlet in nominal size (large opening cross-section according to the flange size)
- Flange pursuant to EN 1092-2 (DN 50 can also be shipped with threaded connection 2")
- Efficient, high performance ventilation protects pipeline from vacuum related damages
- High velocity air discharge prevents premature closure, thus safeguarding optimum ventilation during filling process of pipe lines or containers
- 2-level ventilation system provides effective protection against pressure shocks during high ventilation speeds through a small opening
- Continuously reliable ventilation of air inlets under normal operating conditions
- Compact construction, low volume and weight
- Robust and reliable technology

Material | Technical features

- **Body** made of ductile iron, epoxy powder coated inside and outside (see page 4)
- **Sealing rings** made of elastomer
- **All other metallic parts** made of stainless steel
- **Float material** made of PE
- **Medium:** water

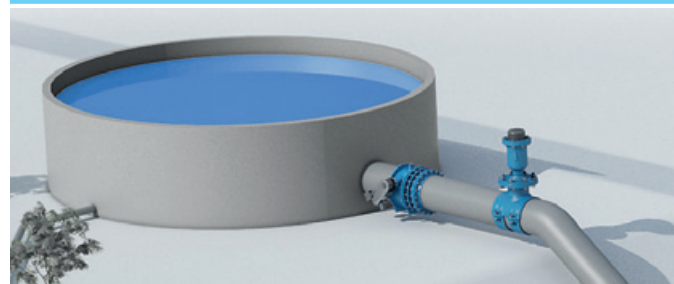
No. 9842K



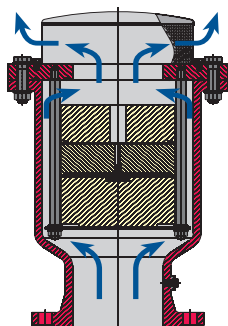
Order No.	MOP (PN)	Dimension/DN						
		50	80	100	150	200	250	300
9842K	10							
	16							
	25							
	40							

Other dimensions or pressure rating on request

Application example

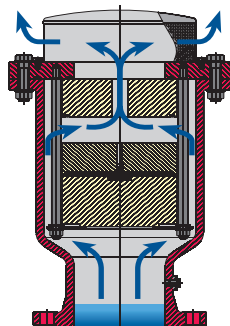


Functional principle



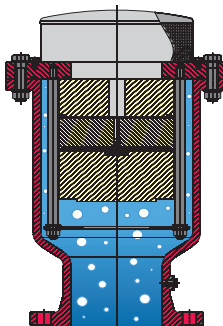
Ventilation of large quantities of air:

During filling, the line will be ventilated via the large cross-section



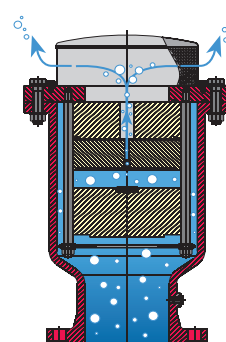
Ventilation at high air velocity through small opening:

Prevention of pressure shocks or premature closure



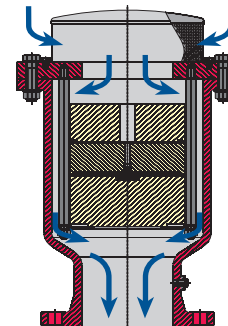
Closure:

After ventilation the valve closes automatically



Ventilation of small quantities of air:

During operation of a line, ventilation is carried out via the small cross-section



Ventilation:

During drainage of a line, ventilation is carried out via the large cross-section.



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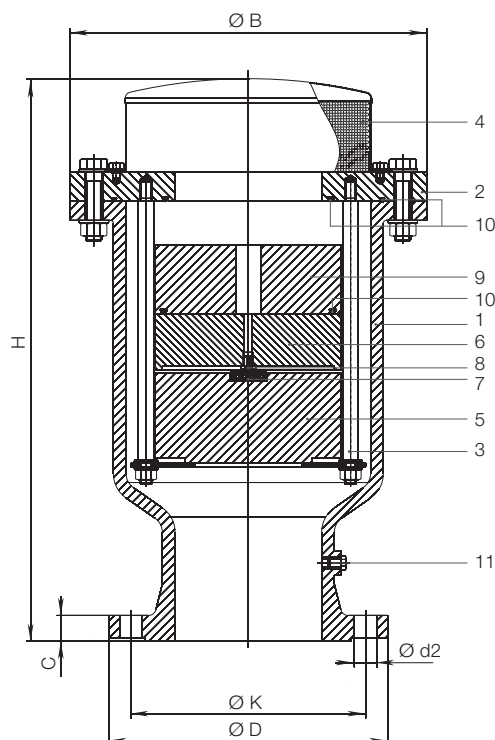
N 6/1

AIR RELEASE VALVES

Dynamic PN 10 | PN 16 | PN 25 | PN 40



No. 9842K



	Parts	Material
1	Body	Ductile iron
2	Bonnet	Steel (stainless steel optional)
3	Float guide	Stainless steel
4	Cover	Stainless steel
5	Float	PE
6	Float	PE
7	Seat seal	Elastomer
8	Seat	Stainless steel
9	Float	PE
10	O-ring	Elastomer
11	Plug	Steel

DN	MOP (PN)	Ø D	Ø K	C	Bolts		Ø B	H	Weight
					Quantity	Ø d2			
50	10/16	165	125	19	4	19	200	355	20
80		200	160	19	8	19	240	420	26
100		220	180	19	8	19	255	420	28
150		285	240	19	8	23	365	580	90
200	10	340	295	20	8	23	410	630	98
200	16	340	295	20	12	23	410	630	98
250	10	405	355	22	12	23	540	820	160
250	16	405	355	22	12	28	540	820	160
300	16	460	410	24,5	12	28	650	927	180

DN	MOP (PN)	Ø D	Ø K	C	Bolts		Ø B	H	Weight
					Quantity	Ø d2			
50	25	165	125	19	4	19	200	355	22
80		200	160	19	8	19	240	420	28
100		235	190	19	8	23	255	420	30
150		300	250	20	8	28	365	580	95

DN	MOP (PN)	Ø D	Ø K	C	Bolts		Ø B	H	Weight
					Quantity	Ø d2			
50	40	165	125	19	4	19	200	355	22
100		235	190	19	8	23	255	420	30

N 6/2



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**Page
02**

Strainer

With stainless steel double-screen

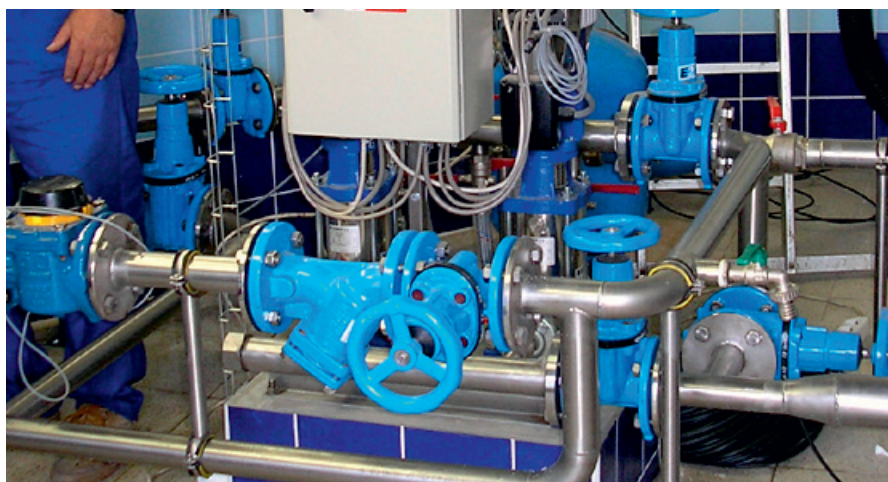
Page O 2/1



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O 1/1

Application examples



STRAINER

With stainless steel double-screen



Design features

- Strainer serves to protect the pipelines and its installations from dirt
- The fine-meshed double screen made of stainless steel reliably removes all parts bigger than 0,5 mm (DN 40 - DN 150 mm) or bigger than 0,6 mm Ø from continued flow
- Face-to-face dimension according to EN 558-1 GR 48
- Flanges acc. to EN 1092-2 PN16, drilled acc. to EN 1092-2 | PN 10 standard; | PN 16 from DN 200 to be mentioned on order. Other standards on request!
- **No. 9911:**
The new design enables a simpler and quicker maintenance of the filter screen and guarantees a considerably higher flow capacity

Material | Technical features

- **Body and cover**
No. 9911: ductile iron, epoxy powder coated
No. 9910: made of grey cast iron, epoxy powder coated
- **Bolts, nuts**
Made of stainless steel
- **Double screen**
Stainless steel,
Mesh-size DN 40 to 150: ca. 0,5 mm
DN 200 to 300: ca. 0,6 mm
- **Gasket**
No. 9911: made of elastomer
No. 9910: made of Klingerit

Installation advice

- Strainers are designed to be installed in a horizontal position in pipe lines. Installations in sloping or vertical pipe lines is possible if the flow of the medium is downwards
- Direction of flow has to be according to the arrow indicated on the body whereby the lid has to look to the bottom No. 9910
- Depending on the level of dirt to be removed, the double strainer is to be cleaned periodically

Strainer

With stainless steel double-screen

No. 9911



No. 9910



Order No.	Version	MOP (PN)	Dimension/DN									
			40	50	65	80	100	125	150	200	250	300
9911	With stainless steel double-screen	16										
9910												



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O 2/1

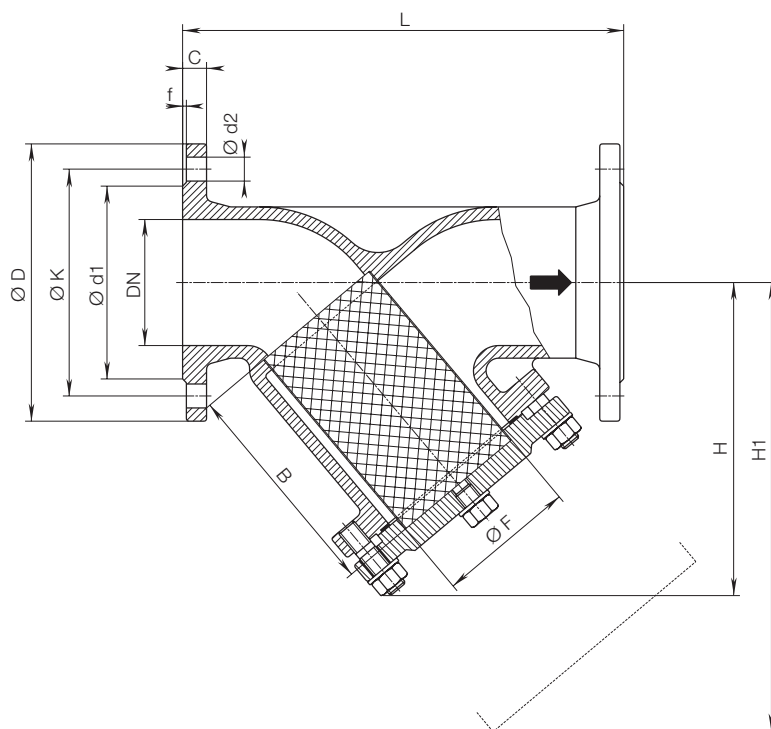
STRAINER

With stainless steel double-screen

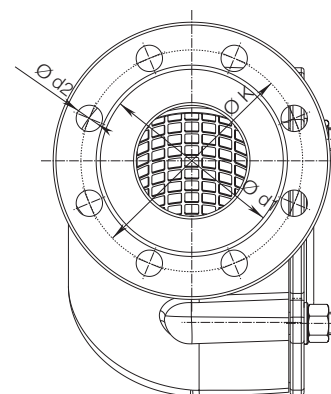
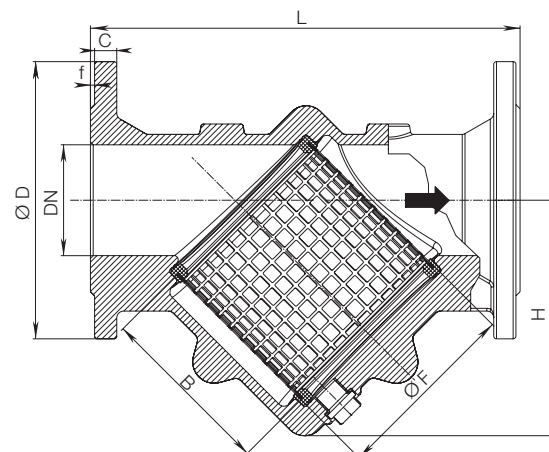


No. 9910 (9911)

With stainless steel double-screen



No. 9910



No. 9911

DN	MOP (PN)	L	H	H1	ØD	Ød1	B	ØF	ØK	Ød2	f	C	Bolts	Weight
40	16	200	150	240	150	88	114	50	110	18	3	18	4 x M 16	6,6
50	16	230	120		165	99	102	90	125	19	3	19	4 x M 16	11,0
65	16	290	170		185	122	127	136	145	18	3	20	4 x M 16	17,0
80	16	310	170		200	132	127	136	160	19	3	19	8 x M 16	19,5
100	16	350	205		220	156	174	170	180	19	3	19	8 x M 16	34,0
125	16	400	280	425	250	188	199	138	210	18	3	26	8 x M 16	42,5
150	16	480	298		285	211	250	248	240	23	3	19	8 x M 20	56,0
200	10	600	379		340	266	311	322	295	23	3	20	8 x M 20	110,0
	16												12 x M 20	
250	10	730	540	915	405	320	434	258	350	22	3	32	12 x M 20	165,0
	16								355	26			12 x M 24	
300	10	850	680	1110	460	370	555	308	400	22	4	32	12 x M 20	285,0
	16								410	26			12 x M 24	

Page P 2

Spare parts

E-valve bonnet and wedge, E2 valve bonnet and wedge
E-valve flat gasket, E2 valve flat gasket, spindle shaft,
outer and inner protecting pipe

Page P 2/1

Page P 2/2



Page P 3

Spare parts

Sealing cap, plastic cap, spindle head, spindle coupling
Sleeve gasket

Page P 3/1

Page P 3/2



Page P 4

Spare parts

Sleeve gasket, grip ring „Standard“
Grip ring „carborundum“, O-ring, theft indicator cap,
operating controls

Page P 4/1

Page P 4/2



Page P 5

Spare parts

Valve plug, coupling, O-ring, cap, flat gasket,
operating nut
Air valve, bayonet coupling, colour repairs,
repair cartridge, ZAK O-ring, ZAK retaining ring

Page P 5/1

Page P 5/2



Page P 6

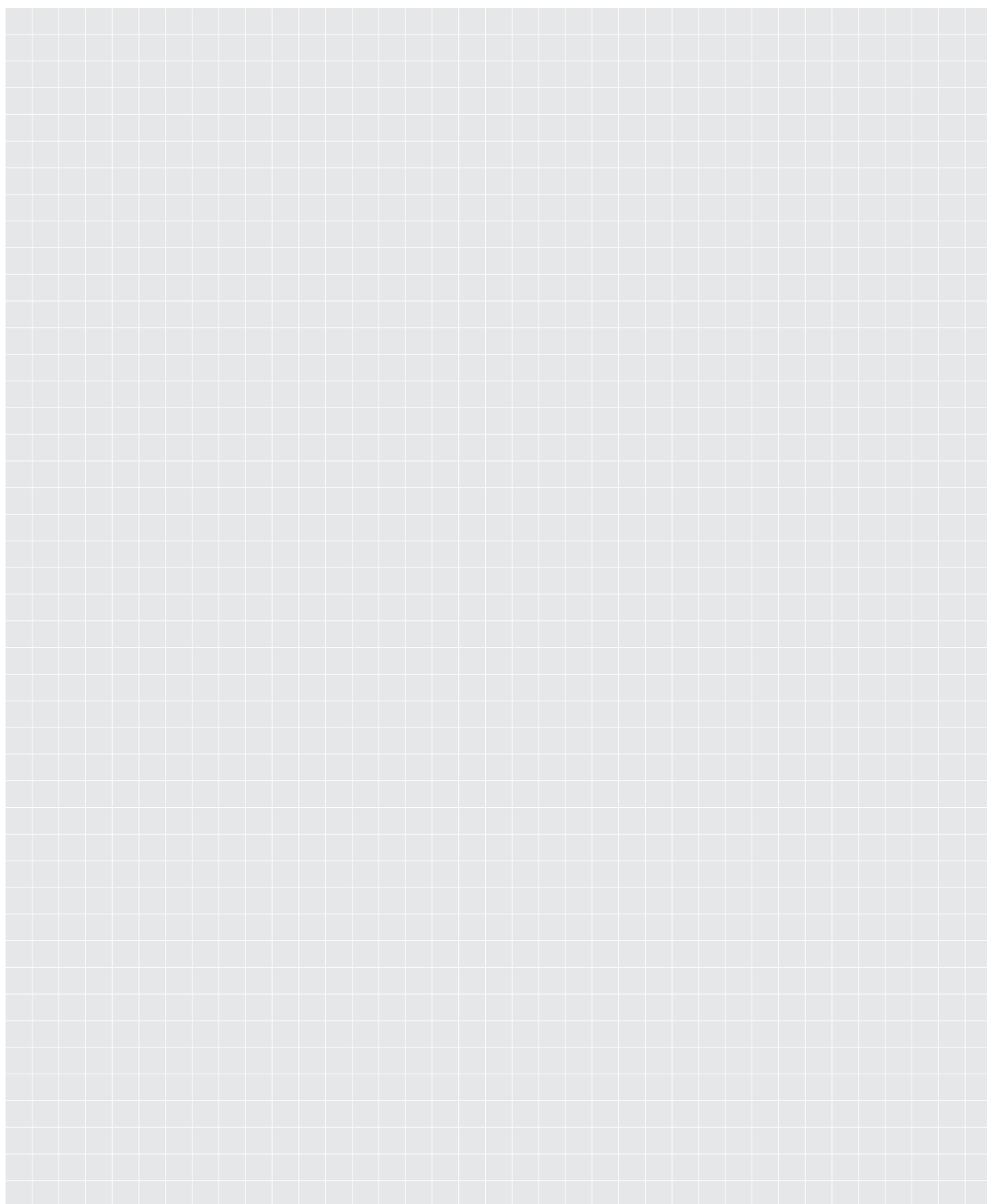
Spare parts

Hawle-Synoflex-ring complete, with grip elements (for restraint function),
Hawle-Synoflex-ring complete, without grip elements
Bonnet complete, cover seal, double screen

Page P 6/1

Page P 6/2



A large rectangular area filled with a light gray grid pattern, intended for technical notes or drawings.

Design features

- Made of ductile iron, epoxy powder coated with spindle, bonnet flat gasket and bolts
- Also available with anti clockwise closing

DN	No. 8690		No. 8690E2	
		Weight		Weight
¾" - 1"		0,90		
1¼" - 1½"		1,30		
2"		1,40		
50		3,20		3,10
65		2,60		4,70
80		3,20		4,70
100		4,40		5,70
125		5,80		7,80
150		6,80		7,80
200		10,80		12,40
250		23,00		21,50
300		29,50		27,50
350		36,00		34,00
400		48,00		43,00
500				95,50
600				134,00

E-valve bonnet

For service valves, valves and combi valves

No. 8690



E2 valve bonnet

For E2 valves and E2 Combi valves

No. 8690E2



Design features

- **No. 8700**
DN ¾" - 2" made of brass
DN 50 - 400 made of ductile iron
Coated outside with vulcanized elastomer, inside with bitumen
- **No. 8700E2**
DN 50 - 600 made of ductile iron
Inside and outside with vulcanized elastomer
- Also available with anti clockwise closing threads

DN	No. 8700		No. 8700E2	
		Weight		Weight
¾" - 1"		0,25		
1¼" - 1½"		0,40		
2"		0,50		
50		0,75		0,70
65		0,80		1,60
80		1,35		1,60
100		2,15		2,30
125		2,90		5,20
150		4,50		5,20
200		7,90		9,30
250		14,00		13,40
300		20,50		21,10
350		27,50		30,20
400		40,00		40,00
500				89,50
600				130,00

E-valve wedge

For service valves, valves and combi valves

No. 8700



E2 valve wedge

For E2 valves and E2 Combi valves

No. 8700E2



Design features

- **No. 8710**, made of elastomer
- **No. 8710E2**, made of elastomer

DN	No. 8710		No. 8710E2	
		Weight		Weight
¾" - 1"		0,01		
1¼" - 2"		0,02		
50		0,02		0,02
65		0,03		0,03
80		0,02		0,03
100		0,05		0,03
125		0,04		0,04
150		0,04		0,04
200		0,08		0,05
250		0,18		0,08
300		0,40		0,10
350		0,21		0,18
400		0,25		0,13
500		0,25		0,35
600				0,58

Design features

- Please specify pipe covering when ordering

DN	Spindle head	Weight (RD 1,5)	
¾" - 2"	14	2,05	
50	20	3,60	
65	20	3,60	
80	20	3,60	
100	20	3,60	
200	20	4,10	
250	25	3,75	
300	25	3,55	
350	25	3,45	
400 - 500	25	3,10	

Design features

- **No. 9631** for DN ¾" - 2", service valves (threaded connection)
- **No. 9630** for DN 50 - 300, valves and combi valves
- **No. 9630E2** for DN 50 - 200, **E2** valves and **E2** combi valves
- **No. 9691** for DN ¾" - 2", service valves (threaded connection)
- **No. 9591** for DN 50 - 300, valves and combi valves
- **No. 9591E2** for DN 50 - 200, **E2** valves and **E2** combi valves

DN	No. 9631	No. 9691
¾" - 2"		

DN	No. 9630	No. 9591
50 - 100		
125 - 150		
200		
250		
300		

DN	No. 9630E2	No. 9591E2
50 - 100		
125 - 150		
200		

E-valve flat gasket No. 8710



E2 valve flat gasket No. 8710E2



Other dimensions on request

Spindle shaft For all „rigid“ type extension spindles No. 9620



Outer protection pipe For all „rigid“ type extension spindles No. 9631, No. 9630, No. 9630E2

Outer and inner protection pipe For all „telescopic“ type extension spindles No. 9691, No. 9651, No. 9651E2



Illu. No. 9631
DN ¾" - 2"



Illu. No. 9630E2
DN 50 - 200

Please specify pipe covering when ordering

Design features

- Made of PE

DN	No. 9650	No. 9651
3/4" - 2"		
50 - 200		
250 - 500		

Plastic cap

For all „rigid“ type extension spindles

No. 9650



Sealing cap

For all „rigid“ type extension spindles

No. 9651



Design features

- Made of ductile iron, galvanised, with fixed bolts

DN	square bar	Weight	
50 - 200	20,5	0,65	
250 - 600	25,5	0,68	

Spindle head

For all „rigid“ type extension spindles

No. 8670



Design features

- Made of ductile iron, galvanised, with fixed bolts and splint

DN	Weight	
3/4" - 2"	0,15	
50	0,30	
65	0,30	
80	0,40	
100 - 150	0,40	
200	0,60	
250 - 350	0,80	
400 - 500	0,80	
500 - 600	1,44	

Spindle coupling

For all extension spindles

No. 8660



Design features

- Made of elastomer
- Please specify type of pipe and outside diameter

DN	Weight	
50	0,07	
60	0,07	
65	0,11	
80	0,15	
100	0,19	
125	0,23	
150	0,31	
200	0,48	
250	0,63	
300	0,81	
400	1,70	

Design features

- Made of elastomer
- Please specify type of pipe and outside diameter

DN	Weight	
40	0,065	
50	0,12	
65	0,13	
80	0,18	
100	0,21	
125	0,31	
150	0,37	
200	0,51	
250	0,85	
300	1,20	
400	2,25	

Design features

- Made of elastomer
- Please specify outside diameter

DN	Pipe Ø	Weight	
50	63	0,10	
65	75	0,13	
80	90	0,18	
100	110	0,20	
125	140	0,31	
150	160	0,40	
200	200	0,75	
200	225	0,80	
250	250	1,30	
250	280	1,35	
300	315	1,65	
400	400	2,80	

Sleeve gasket

For spar flange No. 0101, 0102, 1001

No. 7500



Sleeve gasket

For double chamber flange adapter

No. 7101, 7102, 7103

No. 7510



Sleeve gasket

For double chamber flange adapter

No. 5600

No. 7524



Design features

- Please specify outside diameter
- Gasket made of elastomer; the gasket has grip ring segments glued to it

DN	Pipe Ø	Weight	
50	60	0,14	
80	89	0,21	
100	108	0,26	
100	114	0,26	
125	133	0,35	
150	159	0,65	
150	168	0,52	
200	219	1,20	

Sleeve gasket

For spar flange, restraint No. 7601 (steel)

No. 7531



Design features

- Please specify outside diameter
- Gasket made of elastomer; the gasket has grip ring segments glued to it

DN	Pipe Ø	Weight	
50	66	0,14	
60	77	0,14	
65	82	0,16	
80	98	0,24	
100	118	0,28	
125	144	0,37	
150	170	0,69	
200	222	1,30	
250	274	1,67	
300	326	1,98	

Sleeve gasket

For spar flange, restraint No. 7602 (cast iron)

No. 7532



Design features

- Made of POM
- Interlocking teeth

DN	Pipe Ø	Weight	
20	1/2"	0,003	
25	3/4"	0,004	
32	1"	0,009	
40	1 1/4"	0,019	
50	1 1/2"	0,027	
63	2"	0,040	
75		0,042	
90		0,054	
110		0,102	
125		0,151	
140		0,155	
160		0,194	

Grip ring „Standard“

For PE pipes, for all Hawle products with ISO pipe push-fit fittings

No. 6932



DN	Ø Pipe	Weight	
20	½"	0,01	
25	¾"	0,01	
32	1"	0,01	
40	1¼"	0,02	
50	1½"	0,03	
63	2"	0,04	
75		0,05	
90		0,07	
110		0,13	
125		0,166	

Design features

- Made of elastomer

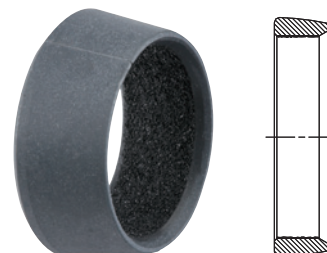
DN	Ø Pipe	Weight	
20	½"	0,01	
25	¾"	0,01	
32	1"	0,01	
40	1¼"	0,01	
50	1½"	0,01	
63	2"	0,02	
75		0,03	
90		0,03	
110		0,06	
125		0,09	
160		0,11	

Order No.	
5417	

Grip ring „carborundum“

For all Hawle products with ISO pipe push-fit fittings

No. 6931



O-ring

For all Hawle products with ISO pipe push-fit fittings

No. 6940



Theft indicator cap

For all above ground hydrants

No. 5417



Order No.	Operating set for	DN	Pipe cover	Weight	
5430	Above ground hydrant „rigid“	80	1,50	11,00	
		100	1,50	11,80	
		150	1,50	12,30	
5431	Above ground hydrant - break away	80	1,50	8,00	
		100	1,50	8,80	
		150	1,50	9,30	
5432	Above ground hydrant „telescopic“	80	1,30 - 1,80	9,00	
5433	Below ground hydrant	80	1,25	5,00	
		80	1,50	7,00	

Operating controls

For hydrants type H3



Design features

- Made of brass / elastomer

Order No.	DN	Weight	
5440	80 - 150	1,70	

Design features

- Made of aluminum

Order No.	DN	Weight	
5403	A coupling 4" DIN 14319	1,60	
5404	B coupling 2½" DIN 14318	0,40	
5405	C coupling 2" DIN 14317	0,22	

Design features

- Made of elastomer

Order No.	For	Weight	
5410	A coupling	0,01	
5411	B coupling	0,01	
5412	C coupling	0,06	

Design features

- Cap made of aluminum
- Chain made of aluminum
- Flat gasket made of elastomer

Order No.	For	Weight	
5400	A coupling	3,45	
5401	B coupling	1,45	
5402	C coupling	1,10	

Design features

- Made of elastomer

Order No.	For	Weight	
5406	A-cap	0,15	
5407	B-cap	0,09	
5408	C-cap	0,05	

Design features

- Made of aluminum

Order No.	Weight	
5415	1,80	

Valve plug

For H4 above ground hydrants

No. 5440



Coupling

For above ground hydrants

No. 5403

No. 5404

No. 5405



O-ring

For coupling

No. 5410

No. 5411

No. 5412



Cap

For above ground hydrants

No. 5400

No. 5401

No. 5402



Flat gasket

For cap

No. 5406

No. 5407

No. 5408



Operating nut

For above ground hydrants

No. 5415



Design features

- Made of POM / elastomer

Order No.	Thread	Weight	
5180	3/8"	0,02	

Air valve

For above ground hydrants

No. 5180



Design features

- Without cap

Order No.	For	Weight	
5170	Garden hydrant DN 50	2,70	
5171	Below ground hydrant DN 80	4,40	

Bayonet coupling

No. 5170

No. 5171



Design features

- Attention! Not suitable for potable water
- Colour repairs for potable water on request

Order No.	Contents of can	
3441	1	

Colour repairs

Blue synthetic resin coating,
UV-resistant

No. 3441



Design features

- Unit size. 4 pieces of each; damage control fracture screws, washers and nuts

Order No.	Dimension	for hydrant type / year	
8841	M 16x70	H3 ductile iron /1982-2000	
	M 16x60	H3 stainless steel, H4 /1985-2017	

Set of replacement screws for Hawle-breakaway hydrants

No. 8841



Design features

- For repair of minor mechanical damage caused by transport or installation.
- Cartridge with plunger**
Exact 1:1 proportional dosing of resin and hardener.
Good mixing is essential
- For repairing large areas we recommend No. 3441
- For potable water

Repair cartridge

For powder coated Hawle products

No. 3442



Order No.	Cartridge content	
3442	32 cm ³	

Version
ZAK 34
ZAK 46

O-ring
For ZAK spigot
No. 6945



Version
ZAK 34
ZAK 46
ZAK 69

Retaining ring
For ZAK system
No. 6970



Design features

- For all common types of pipes

Order No.	MOP (PN)	DN	Weight	
8790	16	40	0,12	
		50	0,15	
		65	0,18	
		80	0,22	
		100	0,68	
		125	0,81	
		150	0,95	
		200	2,10	
		225	2,39	
		250	2,76	
		300	3,18	
	10	350	3,66	
		400	3,84	

Hawle-Synoflex-grip ring
Complete, with grip elements (for restraint function)
No. 8790



Design features

- For all common types of pipes

Order No.	MOP (PN)	DN	Weight	
8791	16	40	0,11	
		50	0,13	
		65	0,16	
		80	0,18	
		100	0,59	
		125	0,73	
		150	0,87	
		200	1,72	
		225	2,07	
		250	2,39	
		300	3,00	
	10	350	3,10	
		400	3,24	

Hawle-Synoflex-grip ring
Complete, without grip elements
No. 8791



Design features

- Bonnet and wedge made of brass
- Wedge with vulcanised elastomer
- Spindle made of stainless steel
- Handwheel made of plastic

Order No.	Dimension/DN	
8695	1"	
8696		

Bonnet complete

For water meter console No. 2960

No. 8695



Bonnet complete

For water meter console No. 2961

No. 8696



Design features

- Made of elastomer

Order No.	Dimension/DN									
	40	50	65	80	100	125	150	200	250	300
9916										
9917										

Cover seal

For strainer No. 9910
and non return valve No. 9830

No. 9916



Fig.: No. 9916

Cover seal

For strainer No. 9911

No. 9917

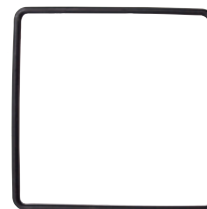


Fig.: No. 9917

Design features

- Made of stainless steel
- Mesh width: DN 40 to 150: ca. 0,5 mm
DN 200 to 300: ca. 0,6 mm

Order No.	Dimension/DN							
	40	50	65	80	100	125	150	200
9918								
9919								

Double screen for strainer No. 9910

No. 9918

Double screen for strainer No. 9911

No. 9919



Page Q 2

Drilling machine

Drilling machine for under pressure drilling
Motorised drilling machine

Page Q 2/1
Page Q 2/2



Page Q 3

Changeable carbide drill (WHM)

Drilling machine

Tonisco

Page Q 3/1

Page Q 3/2



Page Q 4

Tools

Pipe cutter, Chamfering tool, Saddle blade, Locking plier
Extractors, Hydrant-Master Universal Key, Operating key
Valve key 1", Assembly key

Page Q 4/1

Page Q 4/2

Page Q 4/3



Application examples



Q 1/2



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Drilling machine

For drilling under pressure



Design features

- Can be used for drilling pipes of **steel, ductile iron, AC, PE and PVC**
- When drilling under pressure, swarf is washed out via an outlet
- Rotated by ratchet handle and fed by feed wing nut
- The ratchet is connected to the drill shaft with a simple locking device
- Pipe saddle adapters and reducers are sealed with captivated rubber rings

Drilling machine

No. 5800



Content case		
Order No.	Description	Dimensions
5820	Drilling machine	
5810	Case	
5830	Ratchet	
5840	Shaft	
5850	Twist drill for steel, ductile iron and AC pipes	1" - Ø 24
		1¼" - Ø 29
		1½" - Ø 35
		2" - Ø 40
5860	Cup drill for PE and PVC-pipes	1" - Ø 24
		1¼" - Ø 29
		1½" - Ø 35
		2" - Ø 40
5890	Reducing adapter with rubber seals	2" - 1"
		2" - 1¼"
		2" - 1½"
5900	Equal adapter with rubber seals	2" - 2"
5910	1 pc. Allen key size 5	SW 5
5920	2 pc. C spanner for adapter	
8401	Saddle blade for shut-off	1" - 1¼"
		1½" - 2"
5800	Complete in case (weight 17,5)	

Suitable accessories

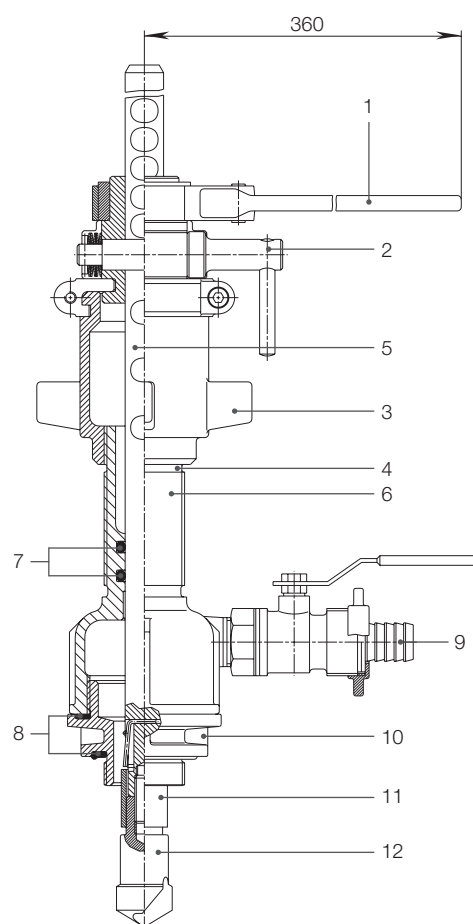
- Cup drill for steel and ductil iron pipes: No. 5870
- Reducing adapter with rubber seals (2" - 2½"): No. 5890
- Adapter for ISO-combination tapping valve (2" - 1½"): No. 5940
- Adapter for thread-cutting machine REMS AMIGO 2: No. IA030002000030



No. 5860
Cup drill
For PE- and PVC-pipes



No. 5850
Twist drill
For steel, ductile iron and AC-pipes



- | | |
|-----------------------------|--------------------------------------|
| 1 Ratchet | 7 O-ring |
| 2 Shaft locking bolt | 8 Rubber seal |
| 3 Feed wing nut | 9 Ball valve outlet (carrier) |
| 4 Red marking | 10 Adapter or reducer |
| 5 Drill shaft | 11 Hexagonal socket |
| 6 Body | 12 Twist drill |



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Q 2/1

Motorised Drilling machine



Design features

- **Powered drilling machine** with continuous feed
- **3 drive options**
Hand ratchet, petrol engine, pneumatic drive
- Also for under pressure drilling
- Massively increases the service life of the drilling tools
- For quick and simple drilling of
ductile iron-, steel-, AC-, PE and PVC-pipes
- Motorised power and continuous feed are necessary for driving the special carbide drills which are needed for cement lined cast iron pipes

Content case		
Order No.	Description	Dimension
5825	Drilling machine	
5815	Case	
5830	Ratchet	
5840	Shaft	
5845	Short shaft for motorised drive	
5850	Twist drill for steel, ductile iron and AC pipes	1" - Ø 24
		1¼" - Ø 29
		1½" - Ø 35
		2" - Ø 40
5860	Cup drill for PE and PVC-pipes	1" - Ø 24
		1¼" - Ø 29
		1½" - Ø 35
		2" - Ø 40
5890	Reducing adapter with rubber seals	2" - 1"
		2" - 1¼"
		2" - 1½"
5900	Equal adapter with rubber seals	2" - 2"
5920	2 pcs. C spanner for adapter	
8401	Saddle blade for shut-off	1" - 1¼"
		1½" - 2"
5805	Complete in case (weight 22,5)	

Suitable accessories

- Cup drill for steel and ductile iron pipes: No. 5870
- Reducing adapter with rubber seals (2" - 2½"): No. 5890
- Adapter for
ISO combination tapping valve (2" - 1½"): No. 5940
- Special version for cement lined
cast iron pipes and AC pipes: No. 5805W
- Carbide drill: No. 5855W
- Adapter for thread-cutting machine
REMS AMIGO 2: No. 5008555



No. 5860
Cup drilling
For PE- and PVC-pipes



No. 5850
Twist drill
For steel, ductile iron and AC-pipes

Drilling machine with hand ratchet Standard version (in metal case)

No. 5805

Petrol engine

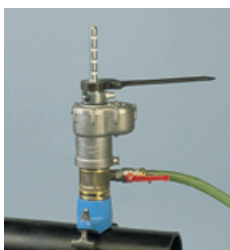
including adapter for drilling machine No. 5805

No. 5835

Pneumatic (air consumption: 540 l/min)

including adapter for drilling machine No. 5805

No. 5836



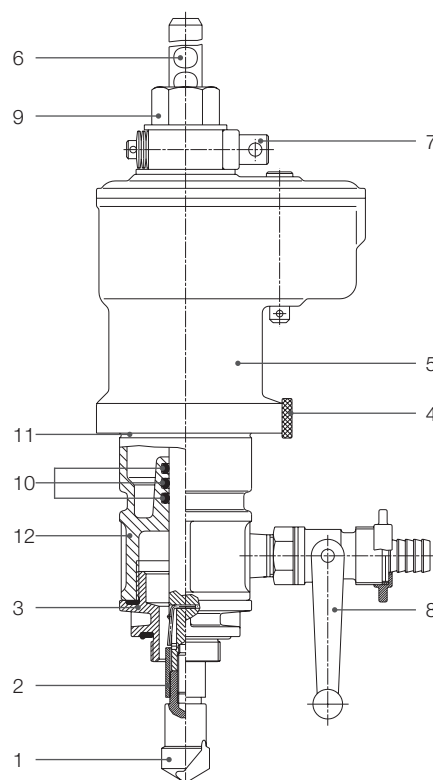
No. 5805



No. 5835



No. 5836



- 1 Cup drill or twist drill
- 2 Hexagonal socket
- 3 Adapter or reducer
- 4 Knurled nut
- 5 Gear transmission
- 6 Shaft

- 7 Shaft locking bolt
- 8 Ball valve (washout)
- 9 Carrier
- 10 O-ring
- 11 Red marking
- 12 Body

Q 2/2



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Drilling machine

Changeable carbide drill (WHM)



Design features

- Dimensiones:
1" - Ø 24
1¼" - Ø 29
1½" - Ø 35
2" - Ø 40

Design features

- Continuous feed and motorised power are necessary!
- Easy and cost saving replacement of worm cutting tips without any technical efforts
- **One** cutting tip holder for each **two** dimensions of cutting tips
- Available as set for one dimension each and in single components for an individual demand

Order No.	Description	Dimensions
5855W	WHM-drill complete	1" - Ø 24
		1¼" - Ø 29
		1½" - Ø 35
		2" - Ø 40
5856	WHM-cutting tip holder including set bolt	1" - 1¼"
		1½" - 2"
5857	WHM-cutting tip	1" - Ø 24
		1¼" - Ø 29
		1½" - Ø 35
		2" - Ø 40
NN52	Torx-set bolt for WHM-cutting tip holder	GWS 25 for 1" - 1¼" GWS 32 for 1½" - 2"
5911	TORX-pin key	

Cup drill for steel and ductile iron pipes No. 5870



WHM-drill for cast iron, cement lined cast iron and AC pipes

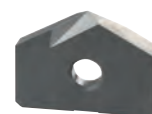
No. 5855W



WHM-cutting tip holder No. 5856



WHM-cutting tip No. 5857



Set bolt No. NN52



TORX-pin key No. 5911



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Q 3/1

Drilling machine

Tonisco



Design features

- The Tonisco drilling machine is suitable for drilling up to Ø89 pipelines made of **steel, ductile iron, AC, PE and PVC**
- Manual feed by means of a feed nut with a handwheel

Content case		
Order No.	Description	Dimensions
5807	Drilling machine	
	Case	
	Electrical drive*	220 V 50 Hz 1000 Watt
	Ratchet	
	Shaft + extensions	
	Adapter for hole sawing	
	Hole saw	1" - Ø 24
		1¼" - Ø 30
		1½" - Ø 38
		2" - Ø 44
		DN 80 - Ø 70
		DN 100 - Ø 89
	Centre drill	Ø 7
	Drill adapter with external thread	1"
		1¼"
		1½"
	Drill adapter with flange	2"
		DN 80
		DN 100

* Attention: 230 V - please observe safety regulations.

TONISCO-drilling machine No. 5807



TONISCO-drilling machine No. 5807 can also be leased.

Thread adapter



Flange adapter



Hole saw



Centre drill



Q 3/2



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Design features

- Cut pipes square and straight
- The lever design minimises the force required

Order No.		For Ø Pipe	Weight	
6050	Model I:	up to 1¼" or Ø 40	0,30	
	Model II:	up to 2" or Ø 63	1,10	

Design features

- For easy assembly of ISO push-fit fittings the pipe should be beveled.
We recommend our precision-made steel chamfering tool. This provides the correct chamfer when turned clockwise a few times on the pipe end

Order No.	Ø Pipe	DN	Weight	
6000	20	½"	0,07	
	25	¾"	0,07	
	32	1"	0,10	
	40	1¼"	0,17	
	50	1½"	0,22	
	63	2"	0,62	

Design features

- For shut-off saddles and shut-off adapters
- For under pressure drilling

Order No.		Size	Weight	
8401	Model I:	For saddle 1" - 1¼"	0,20	
	Model II:	For saddle 1½" - 2"	0,25	

Design features

- To hold and push the open POM clamp for the assembly of fittings with cone that can be dismantled (No. 6301)
- Made of stainless steel

Pipe cutter

Cuts PE- and PVC pipes

No. 6050



Symbol photo

Chamfering tool

For beveling PE pipes

No. 6000



Saddle blade

No. 8401



Locking plier

No. 6011



Design features

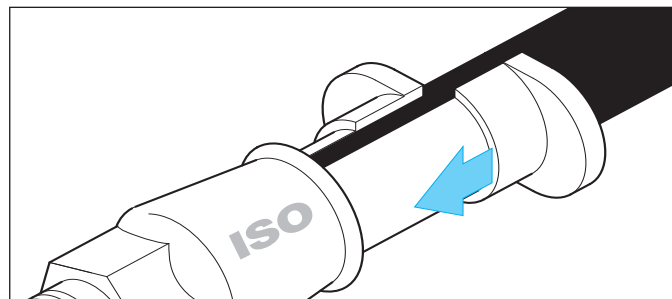
- First ensure that the grip ring is not under tension. When pushed in, the extractors separate the grip ring from the pipe, which can then be pulled out
- **Application:** for all Hawle products with ISO push-fit fittings

Order No.	Ø Pipe	DN	Qty. Extractors	Weight	
6010	20	1/2"	2	0,04	
	25	3/4"	2	0,07	
	32	1"	2	0,09	
	40	1 1/4"	2	0,14	
	50	1 1/2"	2	0,19	
	63	2"	2	0,36	
	75		3	0,18	
	90		3	0,31	
	110		3	0,41	

Extractors

For dismantling ISO push-fit fittings

No. 6010



Design features

- Made of aluminium and ductile iron with reversible ratchet
- For opening and closing
- For operating coupling caps A + B + C
- For operating hose couplings B + C
- For breaking theft indicator caps

Order No.	Weight	
3461	2,50	

Hydrant-Master Universal Key

Lightweight - robust - practical

No. 3461



Order No.	Operating key for	Length	Weight	
3410	Service valves	850	1,90	
3420	Valves, extension spindles and below ground hydrants	1130	4,10	
3460	Above ground hydrants	420	1,25	

Operating key

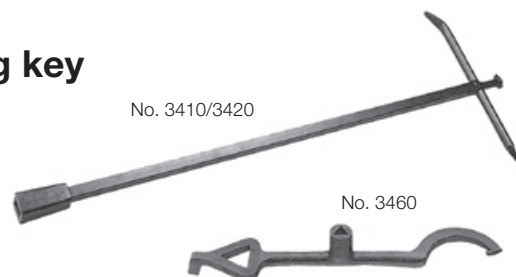
No. 3410

No. 3420

No. 3460

No. 3410/3420

No. 3460



Design features

- Installation tool to change air valve 1" No. 9876

Valve key For air valve 1" No. 3454



Design features

- For assembling service valves
No. 2491, No. 2500, No. 2520, No. 2800
- Of stainless steel
- No damage to epoxy powder coating
- No stress on the bonnet
- Operated via size 36 hexagonal nut with regular spanner
or using the ratchet of the HAWLE drilling machine

Assembly key for service valves with internal thread No. 3456



Order No.	For internal thread	Weight	
3456	1¼" / 2"	0,50	
	1" / 1½"	0,65	

Page R 1	Spindle turns For HAWLE valves Max. drill diameter For drilling through the E2 valve	Page R 1/2 Page R 1/2
Page R 2	Flange table Pipe size table Required bolts length	Page R 2/1 Page R 2/2 Page R 2/2
Page R 3	Tightening torques For flange assembly System 2000 lock ring HAKU drill clamp assembly	Page R 3/1 Page R 3/1 Page R 3/1
Page R 4	Flow capacity HAWLE-valve Pressure loss diagramm Pressure loss table HAWLE-hydrants	Page R 4/1 Page R 4/2
Page R 5	Definition of abbreviations	Page R 5/1

General information

- Spindle turns and guideline values for closing torques in delivered state of **HAWLE valves**
- Upper stop – lower stop

Spindle turns for Hawle valves

	Service valve				E2 valve		E1 valve		E2 valve E1 valve											
DN	20	25	32	40	50	65	50	65	80	100	125	150	200	250	300	350	400	450	500	600
Stroke	20	25	40	40	50	65	50	65	80	100	125	150	200	250	300	350	400	400	500	600
Turns/stroke	7,5	7,5	11	11	10	13	13	16	16	20	25	30	34	42	50	59	58	58	63	76
Closing torque [Nm] at 16 bar (water)	25	25	30	30	40	40	40	40	40	50	50	60	60	80	100	130	150	180	220	250
Spindle square	10,3	10,3	10,3	10,3	14,8	17,3	14,8	17,3	17,3	19,3	19,3	19,3	24,3	27,3	27,3	27,3	32,3	32,3	36,3	36,3
Thread in spindle square for handwheel attachment					M6	M8	M6	M8	M8	M10	M10	M10	M12	M16	M16	M16	M16	M16	M16	M20

Max. drill Ø d

For drilling through the **E2 valve**

DN	25	32	40	50	65	80	100	125	150	200	250	300
Ø d	24	36	36	46	60	75	95	120	145	195	240	290

R 1/2

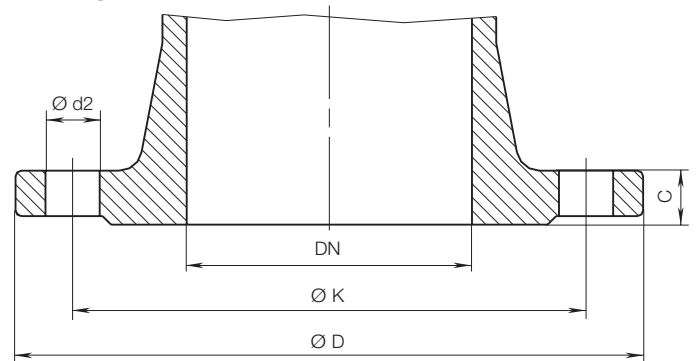


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General information

- Flange according to EN 1092-2
- n = number of holes

Flange table



MOP (PN)	DN	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450
6	Ø D	90	110	120	130	140	160	190	210	240	265	320	375	440	490	540	595
	Ø K	65	75	90	100	110	130	150	170	200	225	280	335	395	445	495	550
	n	4	4	4	4	4	4	4	4	8	8	8	12	12	12	16	16
	Ø d2	11	11	14	14	14	14	19	19	19	19	19	19	23	23	23	23
	C	-	-	16	16	16	16	18	18	20	20	22	24	24	26	28	28
10	Ø D	105	115	140	150	165	185	200	220	250	285	340	400	455	505	565	615
	Ø K	75	85	100	110	125	145	160	180	210	240	295	350	400	460	515	565
	n	4	4	4	4	4	4	8	8	8	8	8	12	12	16	16	20
	Ø d2	14	14	19	19	19	19	19	19	19	23	23	23	23	23	28	28
	C	16	16	18	19	19	19	19	19	19	19	20	22	24,5	24,5	24,5	25,5
16	Ø D	105	115	140	150	165	185	200	220	250	285	340	400	455	520	580	640
	Ø K	75	85	100	110	125	145	160	180	210	240	295	355	410	470	525	585
	n	4	4	4	4	4	4	8	8	8	8	12	12	12	16	16	20
	Ø d2	14	14	19	19	19	19	19	19	19	23	23	28	28	28	31	31
	C	16	16	18	19	19	19	19	19	19	19	20	22	24,5	26,5	28	30
25	Ø D	105	115	150	150	165	185	200	235	270	300	360	425	485	555	620	670
	Ø K	75	85	100	110	125	145	160	190	220	250	310	370	430	490	550	600
	n	4	4	4	4	4	8	8	8	8	8	12	12	16	16	16	20
	Ø d2	14	14	19	19	19	19	19	23	28	28	28	31	31	34	37	37
	C	16	16	18	19	19	19	19	19	19	20	22	24,5	27,5	30	32	34,5
40	Ø D	105	115	150	150	165	185	200	235	270	300	375	450	515	580	660	685
	Ø K	75	85	100	110	125	145	160	190	220	250	320	385	450	510	585	610
	n	4	4	4	4	4	8	8	8	8	8	12	12	16	16	16	20
	Ø d2	14	14	19	19	19	19	19	23	28	28	31	34	34	37	41	41
	C	16	16	18	19	19	19	19	19	23,5	26	30	34,5	39,5	44	48	49

MOP (PN)	DN	500	600	700	800	900	1000	1200	1400	1500	1600	1800	2000
10	Ø D	670	780	895	1015	1115	1230	1455	1675	11785	1915	2115	2325
	Ø K	620	725	840	950	1050	1160	1380	1590	1700	1820	2020	2230
	n	20	20	24	24	28	28	32	36	36	40	44	48
	Ø d2	28	31	31	34	34	37	41	44	44	50	50	50
	C	26,5	30	32,5	35	37,5	40	45	46	47,5	49	52	55
16	Ø D	715	840	910	1025	1125	1255	1485	1685	1820	1930	2130	2345
	Ø K	650	770	840	950	1050	1170	1390	1590	1710	1820	2020	2230
	n	20	20	24	24	28	28	32	36	36	40	44	48
	Ø d2	34	37	37	41	41	44	50	54	57	57	57	62
	C	31,5	36	39,5	43	46,5	50	57	60	62,5	65	70	75
25	Ø D	730	845	960	1085	1185	1320	1530	1755	1865	1975	2195	2425
	Ø K	660	770	875	990	1090	1210	1420	1640	1750	1860	2070	2300
	n	20	20	24	24	28	28	32	36	36	40	44	48
	Ø d2	37	41	44	50	50	57	57	62	62	62	70	70
	C	36,5	42	46,5	51	55,5	60	69	74	77,5	81	88	95
40	Ø D	755	890	995	1140	1250	1360	1575	1795		2025	2240	
	Ø K	670	795	900	1030	1140	1250	1460	1680		1900	2110	
	n	20	20	24	24	28	28	32	36		40	48	
	Ø d2	44	50	50	57	57	57	62	62		70	70	
	C	52	58	64	72	80	95	95	105		120	165	

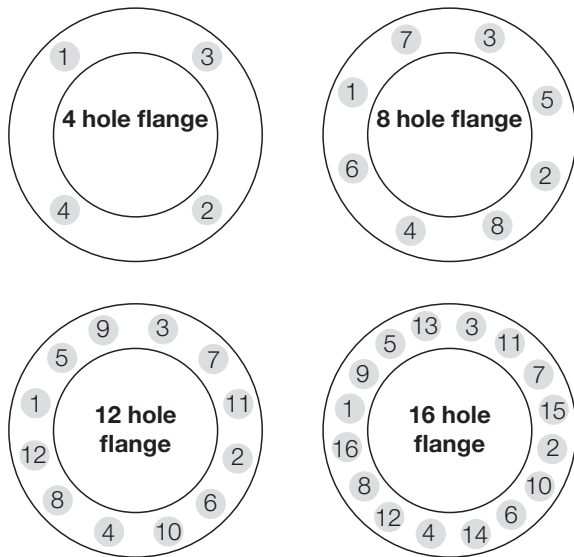
Pipe sizing table

Dimension		Ductile iron pipe EN 545	Steel pipe EN 10217	PE-pressure pipe EN 12201	PVC-pressure pipe EN ISO 1452-2	Asbestos cement pipe PN 10
DN	Zoll	Ø external diameter				
20	¾"		26,9 ±0,5	25 +0,3		
25	1"		33,7 ±0,5	32 +0,3		
32	1¼"		42,4 ±0,5	40 +0,4		
40	1½"	56 +1/-1,2	48,3 ±0,5	50 +0,5		
50	2"	66 +1/-1,2	60,3 ±0,6	63 +0,4	63 +0,3	
60		77 +1/-1,2				
65	2½"	82 +1/-1,2	76,1 ±0,8	75 +0,5	75 +0,3	
80	3"	98 +1/-2,7	88,9 ±0,9	90 +0,6	90 +0,3	~ 102
100	4"	118 +1/-2,8	108,0 ±1,1 114,3 ±1,1	110 +0,7 125 +0,9	110 +0,4	~ 125
125	5"	144 +1/-2,8	133,0 ±1,3 139,7 ±1,4	140 +0,9	140 +0,5	~ 154
150	6"	170 +1/-2,9	159,0 ±1,6 168,3 ±1,7	160 +1,0 180 +1,0	160 +0,5	~ 183
200	8"	222 +1/-3,0	219,1 ±2,2	200 +1,4 225 +1,4	225 +0,7	~ 241
250	10"	274 +1/-3,1	273,0 ±2,0	250 +1,7 280 +1,7	250 +0,8 280 +0,9	~ 293
300	12"	326 +1/-3,3	323,9 ±2,4	315 +1,9	315 +1,0	~ 351
350	14"	378 +1/-3,4	355,6 ±2,7 368,0 ±2,7	355 +2,2	355 +1,1	~ 410
400	16"	429 +1/-3,5	406,4 ±3,0 419,0 ±3,1	400 +2,7 450 +2,7	400 +1,2	~ 468
450	18"	480 +1/-3,5				
500	20"	532 +1/-3,8	508,0 ±3,8	500 +3,0 560 +3,0	500 +1,5	
600	24"	635 +1/-4,0	610,0 ±4,6	630 +3,8	630 +1,9	

Required bolt lengths: Valve-flange to flange

Flanged valve DN	MOP (PN)	Bolt Dimension	Bolt Quantity	Bolt length for flange no.								
				0101 0102	7101 7102 7103	0400 0800 0802 7994	5500 5530	5600	0310 0311	7602	7601	8000 8100
50	10/16	M 16	4	70	70	70	70	70	70	100	80	70
65		M 16	4	70	70	70	70	70	70	100	80	70
80		M 16	8	80	70	70	70	70	70	100	80	70
100		M 16	8	80	70	70	70	70	70	100	80	70
125		M 16	8	80	80	70	70	70	70	100	80	70
150		M 20	8	90	80	70	70	80	70	140	100	70
200	10 16	M 20	8 12	90	80	70		80	70	140	100	70 80
250	10 16	M 20 M 24	12	100	90	80		90	80	140 150		80 90
300	10 16	M 20 M 24	12	100	90	90		90	90	140 150		90
350	10 16	M 20 M 24	16	120 130		90						90
400	10 16	M 24 M 27	16	120 130	100	90 100						100
500	10 16	M 24 M 30	20	150		100 110						
600	10 16	M 27 M 33	20	150 160		120						

Sequence Of bolt assembly



Tightening torques For flange assembly

Flange - flange PN 10

DN	Bolt dimensions	Tightening torque Nm max.
50 - 125	M 16	100
150 - 350	M 20	120
400 - 500	M 24	160
600	M 27	220

Flange - flange PN 16

DN	Bolt dimensions	Tightening torque Nm max.
50 - 125	M 16	100
150 - 200	M 20	120
300 - 350	M 24	160
400 - 450	M 27	220
500	M 30	280
600	M 33	350

Tightening torques SYSTEM 2000 - lock ring

Ø Pipe	Bolt dimensions	Tightening torque Nm max.
63 - 110	M 10	60
125 - 140	M 12	70
160 - 200	M 14	80
225 - 280	M 16	100
315 - 450	M 20	120
500 - 630	M 24	200

Tightening torques HAKU shut-off saddle assembly

Ø Pipe	Bolt dimensions	Tightening torque Nm max.
50 - 110	M 10	60
125 - 160	M 12	70
180 - 225	M 14	80
250 - 315	M 16	90
355 - 630	M 20	120

Tightening torques

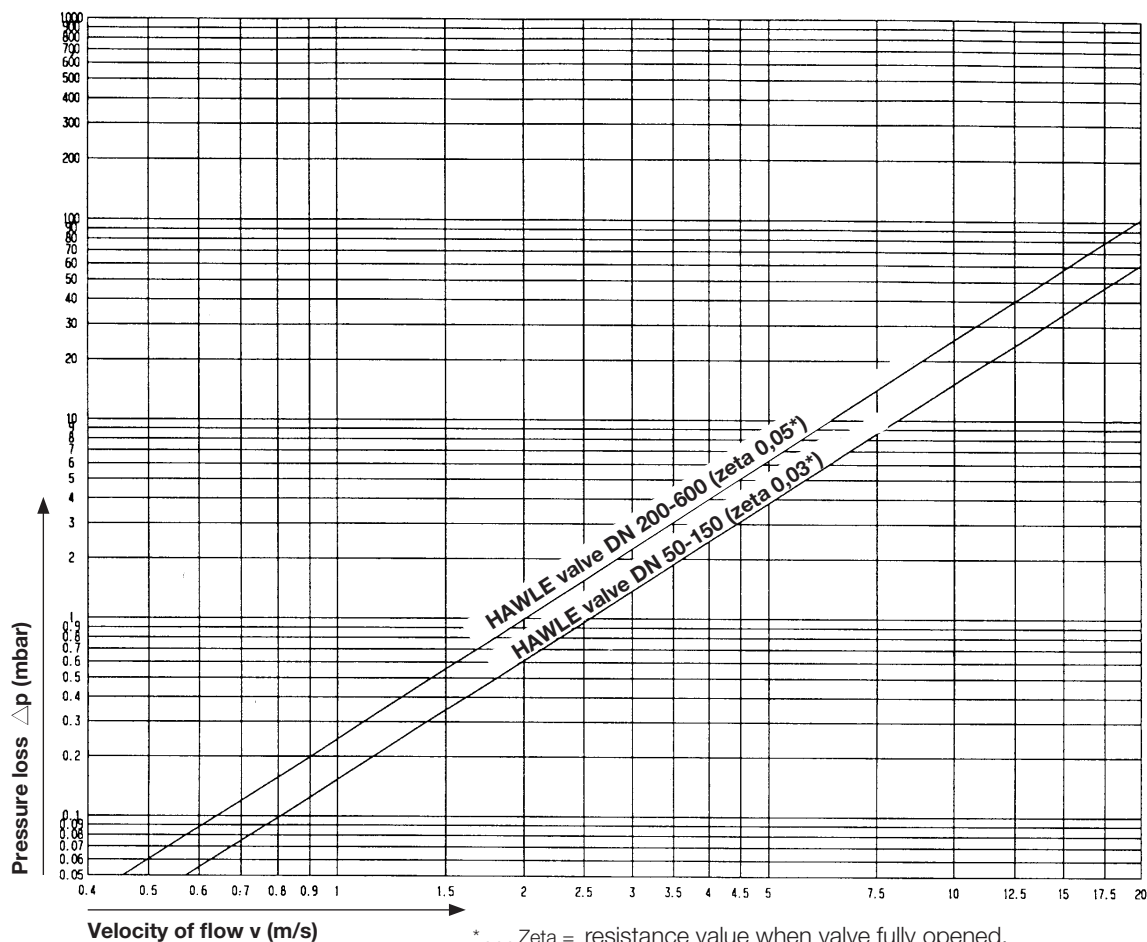
Set of replacement screws for Hawle-breakaway hydrants No. 8841

Hydrant type	Bolt dimensions	Tightening torque Nm max.
H3 ductile iron /1982-2000	M 16x70	60
H3 stainless steel, H4 /1985-2017	M 16x60	

Flow capacity HAWLE valve (m³/h)

DN	Velocity of flow v (m/s)								
	1	1,5	2	2,5	3	3,5	4	4,5	5
50	7,069	10,603	14,137	17,671	21,206	24,740	28,274	31,809	35,343
65	11,946	17,919	23,892	29,865	35,838	41,811	47,784	53,757	59,730
80	18,096	27,143	36,191	45,239	54,287	63,335	72,382	81,430	90,478
100	28,274	42,412	56,549	70,686	84,823	98,960	113,097	127,235	141,372
125	44,179	66,268	88,357	110,447	132,536	154,625	176,715	198,804	220,893
150	63,617	95,426	127,235	159,043	190,852	222,660	254,469	286,278	318,086
200	113,097	169,646	226,195	282,743	339,292	395,841	452,389	508,938	565,487
250	176,715	265,072	353,429	441,786	530,144	618,501	706,858	795,216	883,573
300	254,469	381,704	508,938	636,173	763,407	890,642	1017,876	1145,111	1272,345
350	346,361	519,541	692,721	865,901	1039,082	1212,262	1385,442	1558,623	1731,803
400	452,389	678,584	904,779	1130,973	1357,168	1583,363	1809,557	2035,752	2261,947
500	706,858	1060,288	1413,717	1767,146	2120,575	2474,004	2827,433	3180,863	3534,292
600	1017,876	1526,814	2035,752	2544,690	3053,628	3562,566	4071,504	4580,442	5089,380

Pressure loss diagram



* ... Zeta = resistance value when valve fully opened.

Established during test, and rounded. ($zeta = 2 \cdot \Delta p / \rho \cdot v^2$)

Δp ... Pressure loss v ... Velocity of flow ρ ... Density of water

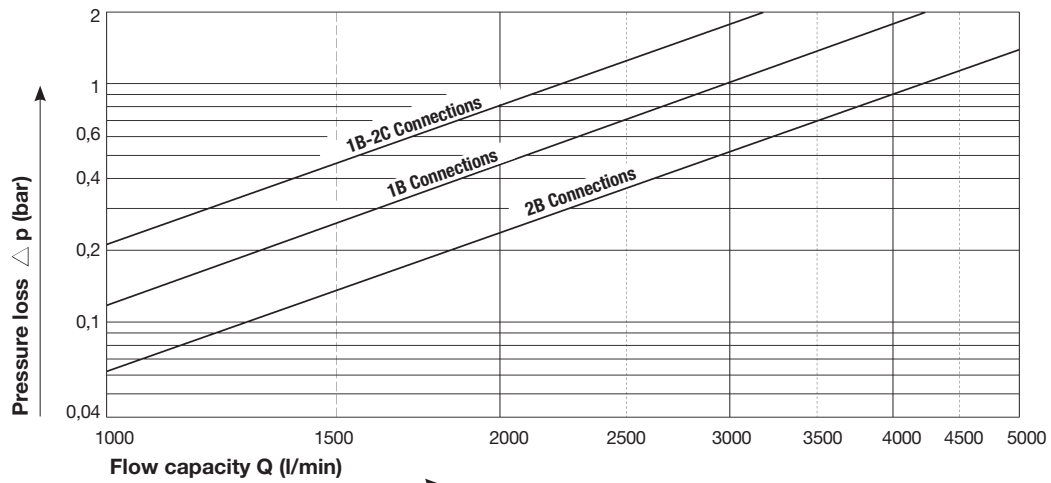


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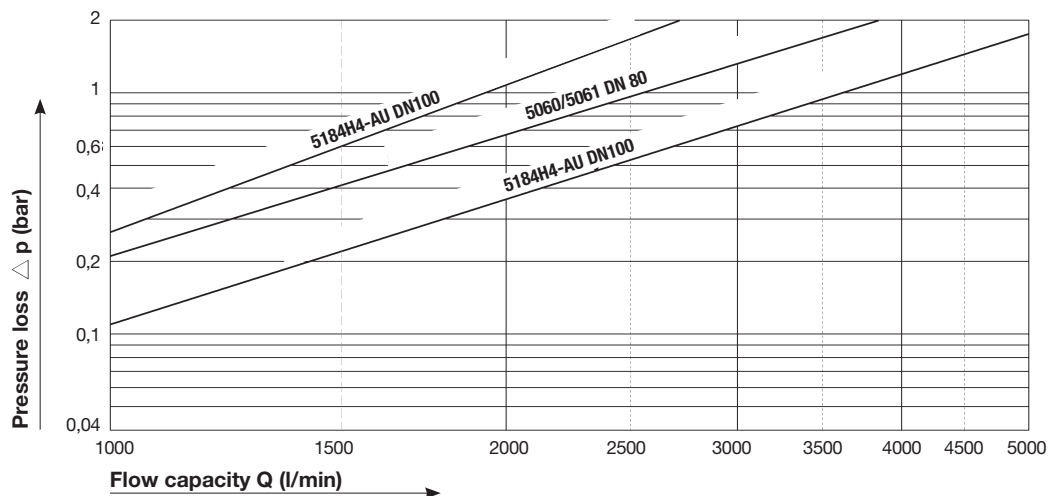
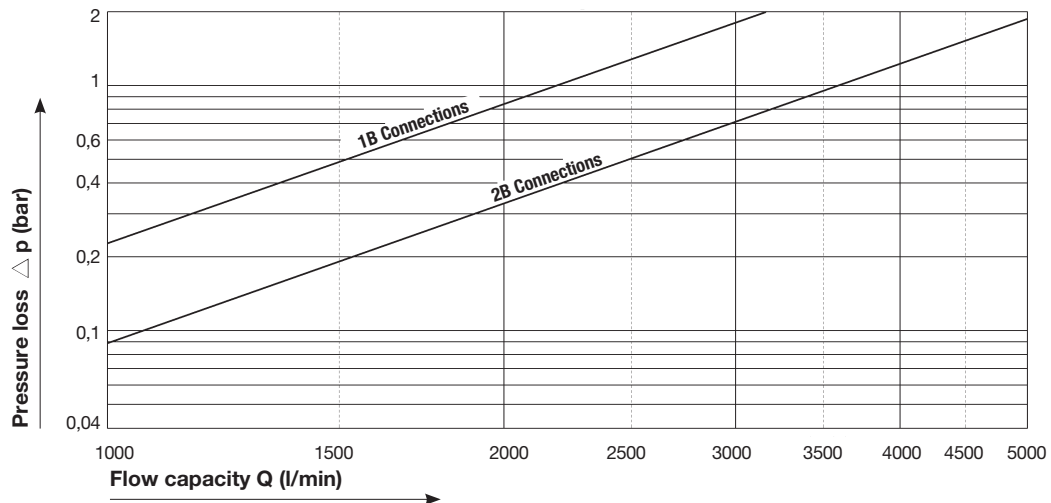
R 4/1

Pressure loss table HAWLE hydrants

H4 Hydrants DN 80



H4 Hydrants DN 100



Source: TÜV Verkehr und Fahrzeug GmbH Regensburg Testing and Inspection Center TGM Research Institute Vienna

TECHNICAL INFORMATION

Definition of abbreviations



Abbreviation	Definition
ABS	Acrylonitrile-butadiene-styrene
AG	External thread
Al	Aluminum
AC	Asbestos cement (fibre cement)
Order No.	Order number
BG	Operating set
DIN	German industry standard
DN	Diameter Nominal
DVGW	German Association for Gas and Water
EN	European standard
EXW	Ex-Works, from plant (... named delivery location)
GKS	Cast-plastic
HDPE	High density polyethylene
IF (Award)	Industrie forum design
IG	Internal thread
ISO	International Organization for Standardization
kN	Kilo newton
MFR	Melt flow rate
MOP	Maximum operating pressure
MOT	Maximum operating torque
MPA Hannover	Materials Testing Institute for Materials and Production Technology Hanover
Ms	Brass
mST	Minimum strength torque
NIRO	stainless steel
Nm	Newton meter
No.	Number
NW	Nominal Ø
Ö-Norm	Austrian standard
ÖVGW	Austrian Association for Gas and Water
P	Pressure
PE	Polyethylene
PN	Pressure nominal (operating pressure)
POM	Polyoxymethylene
PVC	Polyvinylchloride
RAL (color)	German Governmental Committee for Delivery Conditions
RD	Pipe cover depth
SDR	Standard Dimension Ratio (Ø wall thickness relationship)
6KT-Schraube	Hexagonal bolt
UV	Ultraviolet
VRS	Von Roll System



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R 5/1