HAWLE-**SPECIFICATION WATER**

HAWLE. **MADE FOR GENERATIONS.**

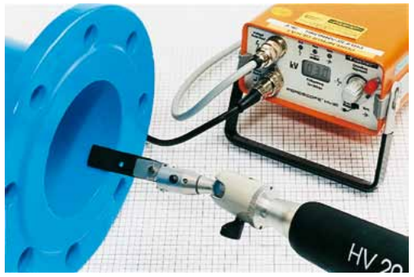
HAWLE - *Epoxy Powder-Coating*

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

The environmentally friendly solvent- and pollution free powder coating technology!

RAL QUALITY MARK

HIGH QUALITY CORROSION PROTECTION FOR VALVES AND FITTINGS



EWS coating according to GSK:

- Fulfils 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 30 677 T2 - coating thickness, adhesion, spark-testing, impact resistance
- Independant auditing of quality control systems by MPA Hannover in accordance with the test methods of **GSK** (**G**ütegemeinschaft **S**chwerer **K**orrosionsschutz - the association for high quality corrosion protection)
- HAWLE standard colour RAL 5012

HAWLE-*SPECIFICATION*

Q 10 YEARS Quality warranty

10 years quality warranty

(water for human consumption and for natural gas)

HAWLE guarantees perfect functionality for a period of 10 (ten) years of delivery from the works for all original HAWLE valves marked with the “HAWLE” label. This guarantee applies for all valves used for their specified purpose in water for human consumption projects in compliance with the Directive 98/83/EC, or for natural gas in compliance with ÖVGW G 31.

Should a fitting lose its functionality during the guarantee period, HAWLE shall at its own choice either repair the valve or supply a replacement of an equal value.

Exceptions to this guarantee are expendable parts and any damage caused by incorrect storage, transport, assembly, failure to follow instructions for use, failure to carry out pressure testing, inadequate service and maintenance, subsequent product manipulation or the use of unsuitable fluids or gases. This guarantee does not apply in the case of unusual environmental conditions, vibrations or where there are remnant quantities of a medium left or similar external effects, nor in the case of actions carried out by third parties, accidents or other events over which HAWLE has no influence.

Please observe the exceptions and special rules applicable for specific products as given in the catalogue on our homepage www.hawle.at.

Any warranty claims derived from the sales contract will not be restricted through this guarantee certificate.

Austrian law applies to this guarantee.

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1. Resilient Seated Gate Valves

1.1 Valves Flanged Ends

1.1.1 „E2“ Valve Flanged Ends, short

1.1.1.1 „E2“ Valve Flanged Ends, short, PN 16
DN 50 – DN 600

- acc. to EN 1074-1 and -2, EN 1171
- face-to-face dimension acc. to EN 558-1 GR14-short
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- wedge of ductile iron EN-GJS-400 acc. to EN 1563 inside and outside fully rubberized, with vulcanized elastomer rubber (EN 681-1), wedge nut (of non-ferrous metal) completely borne in the rubberized wedge, with drain hole, wedge guide of wear-resistant plastic,
- non-rising stainless steel spindle DN 50-600 - 1.4162, rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore in conformity with nominal width
- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct, replaceable O-rings (up to DN 200 under pressure /for DN 250 and higher in pressureless condition)
- frictionless bearing of the spindle on friction washers of POM, for DN 250 mm and higher additional spindle bearing in 2 maintenance-free axial grooved ball bearings
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE „E2“ Valve Flanged Ends No. 4000*E2* or equivalent

1.1.1.2 „E2“ Valve Flanged Ends, short, PN 16, with position indicator
DN 50 – DN 400
as described under item 1.1.1.1.
however:
- with position indicator

e.g. HAWLE Valve Flanged Ends with position indicator
No. 4000STE2
or equivalent

1.1.1.3 „E2“ Valve Flanged Ends, short, PN 16, for electric actuator
DN 50 – DN 600
as described under item 1.1.1.1.
however:
- with adaptor for actuator

e.g. HAWLE „E2“ Valve Flanged Ends No. 4000EL*E2*
or equivalent


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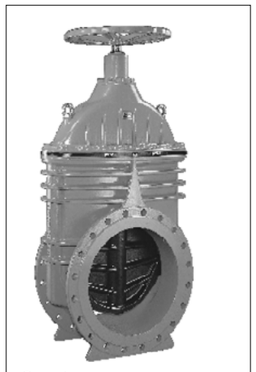
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1.1.2 „E2“ Valve Flanged Ends, long

1.1.2.1 „E2“ Valve Flanged Ends, long
PN 16, DN 50 – DN 600

- acc. to EN 1074-1 and -2, EN 1171
- face-to-face dimension acc. to EN 558-1 GR15-long
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- wedge of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside fully rubberized with vulcanized elastomer rubber (EN 681-1), wedge nut (of non-ferrous metal) completely borne in rubberized wedge, with drain hole, wedge guide of wear-resistant plastic
- non-rising stainless steel spindle DN 50-600 - 1.4162, rolled thread, spindle polished in the area of the O-ring
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore
- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct, replaceable O-rings (up to DN 200 under pressure /for DN 250 and higher in pressureless condition)
- frictionless bearing of the spindle on friction washers of POM, for DN 250 mm and higher additional spindle bearing in 2 maintenance-free axial grooved ball bearings
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE „E2“ Elypso Valve Flanged Ends No. 4700*E2*
or equivalent

1.1.2.2 „E2“ Valve Flanged Ends, long, PN 16, with position indicator
DN 50 – DN 400

as described under item 1.1.3.1.
however:
- with position indicator

e.g. HAWLE „E2“ Elypso Valve Flanged Ends with position indicator No.4700ST*E*
or equivalent

1.1.2.3 „E2“ Valve Flanged Ends, long, PN 16, for electric actuator
DN 50 – DN 600

as described under item 1.1.3.1.
however:
- with adaptor for actuator

e.g. HAWLE „E2“ Elypso Valve Flanged Ends No. 4700EL*E2*
or equivalent

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1.1.3 „E2“ Reducing Valve PN 10/16
DN 65/100 - 250/300

- acc. to EN 1074-1 and -2, EN 1171
- with unequal flange sizes
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- wedge of ductile iron EN-GJS-400 acc. to EN 1563 inside and outside fully rubberized with vulcanized elastomer rubber (EN 681-1), wedge nut (of non-ferrous metal) completely borne in rubberized wedge, with drain hole, wedge guide of wear-resistant plastic
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore
- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct, replaceable O-rings (up to DN 200 under pressure /for DN 250 and higher in pressureless condition)
- frictionless bearing of the spindle on friction washers of POM, for DN 250 mm and higher additional spindle bearing in 2 maintenance-free axial grooved ball bearings
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE „E2“ Reducing Valve No. 4150E2 or equivalent

1.1.4 „A“ Valve Flanged Ends short, PN16
PN 16, DN 50 – DN 300

- acc. EN 1074-1 & -2, EN 1171
- Face to face dimension compliant with EN558-1 GR14-short
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- Monoblock body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- Wedge - sandwich construction with a wedge-core of ductile iron EN-GJS-400 compliant with EN1563 - stainless steel plates St 1.4301, elastomer rubber gasket plates suitable for drinking water compliant with KTW and DVGW-W270 specifications. With wedge drainage and wedge guides of wear-resistant plastic
- Non-rising internal stainless steel spindle (minimum quality grade1.4162, rolled thread, rolled mirror surface on spindle areas around O-ring gasket.
- Full bore opening conforming to nominal pipe dimension when valve fully opened
- Twin O-rings for maintenance-free spindle sealing. Dust cap for spindle bearing protection against ingress of dirt & water. O-ring housing corrosion-free. Replaceable O-rings in pressureless condition
- POM washers as low friction spindle thrust bearing
- Certified to ÖVGW, DVGW, KIWA, WRAS, ACS
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. Hawle A-Valve No. 4000A or equivalent

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1.1.5.1 „Hawle-A“ Gate Valve Flanged Ends, long, PN 16
DN 50 – DN 300

- acc. EN 1074-1 & -2, EN 1171
- Face to face dimension compliant with EN558-1 GR14-short
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- Monoblock body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (*for more details please see page 2)*
- Wedge - sandwich construction with a wedge-core of ductile iron EN-GJS-400 compliant with EN1563 - stainless steel plates St 1.4301, elastomer rubber gas ket plates suitable for drinking water compliant with KTW and DVGW-W270 specifications. With wedge drainage and wedge guides of wear-resistant plastic
- Non-rising internal stainless steel spindle (minimum quality grade 1.4162, rolled thread, rolled mirror surface on spindle areas around O-ring gasket.
- Full bore opening conforming to nominal pipe dimension when valve fully opened
- Twin O-rings for maintenance-free spindle sealing. Dust cap for spindle bearing protection against ingress of dirt & water. O-ring housing corrosion-free. Replaceable O-rings in pressureless condition
- POM washers as low friction spindle thrust bearing
- Certified to ÖVGW, DVGW, KIWA, WRAS, ACS
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. Hawle A-Valve No. 4000A or equivalent

1.2 „E2“ Valves Spigot Ends

1.2.1 „E2“ Valve Spigot Ends, PN 16
DN 50 - 300

- acc. to EN 1074-1 and -2, EN 1171
- spigot end outer diameter suitable for DCI pipes acc. to EN 545
- with rectangular ends
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm

  (*for more details please see page 2)*
- wedge of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside fully rubberized with vulcanized elastomer rubber (EN 681-1), wedge nut (of non-ferrous metal) completely borne in rubberized wedge, with drain hole, wedge guide of wear-resistant plastic,
- non-rising stainless steel spindle (1.4162) , rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore
- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct, replaceable O-rings (up to DN 200 under pressure / for DN 250 and higher in pressureless condition)

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- frictionless bearing of the spindle on friction washers of POM, for DN 250 mm and higher additional spindle bearing in 2 maintenance-free axial grooved ball bearings
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE „E2“ Valve Spigot Ends No. 4100*E2* or equivalen

1.2.2 „E2“ Valve Spigot Ends, PN 16
DN 50 - 300

as described under item 1.2.1
however:
- face-to-face dimension 600 mm

e.g. HAWLE „E2“ Elypso Valve Spigot Ends No. 4140*E2* or equivalent

Accessories:
- Flange Adaptors suitable for „E2“ Valve Spigot Ends

e.g. HAWLE Flange Adaptor No. 7102 or equivalen

1.3 „E2“ Valve Socket Ends for DCI pipes, PN 16
DN 80 - 300

- acc. to EN 1074-1 and -2, EN 1171
- with sockets for DCI pipes acc. to EN 545
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- wedge of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside fully rubberized with vulcanized elastomer rubber (EN 681-1), wedge nut (of non-ferrous metal) completely borne in rubberized wedge, with drain hole, wedge guide of wear-resistant plastic,
- non-rising stainless steel spindle (minimum quality grade 1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore in conformity with nominal width
- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct, replaceable O-rings (up to DN 200 under pressure /for DN 250 and higher in pressureless condition)
- frictionless bearing of the spindle on friction washers of POM, for DN 250 mm and higher additional spindle bearing in 2 maintenance-free axial grooved ball bearings
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE „E2“ Elypso Valve Socket Ends for DCI pipes No. 4500*E2* or equivalent

Accessories:
- restraint joints for sockets for DCI pipes

e.g. HAWLE Hawle Stop No. NL80 or equivalent
- BAIO Lip seal BLD order No. NL85

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1.4 „E2“ VRS Socket-Spigot Valve for VRS DCI pipes, PN 16
DN 80 -300

- acc. to EN 1074-1 and -2, EN 1171
- with VRS socket and spigot end for VRS DCI pipes
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- wedge of ductile iron EN-GJS-400 acc. to EN 1563 , inside corrosion-protected, outside rubberized with vulcanized elastomer rubber (EN 681-1), with drain hole
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore in conformity with nominal width
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- for DN 250 mm and higher additional spindle guiding in 2 maintenance-free axial grooved ball bearings
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE „E2“ VRS Socket Valve No. 4027*E2* or equivalent

1.5 „E2“ Valves with Fusion Tail for PE pipes

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1.5.1 „E2“ Valve for PE Fusion, PN 10
DN 50/63 - 200/225

- acc. to EN 1074-1 and -2, EN 1171
- with PE fusion tails for use with PE piping acc. to DIN 8075
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- wedge DN 20 - DN 40 of non-ferrous metal, larger dimensions of ductile iron EN-GJS-400 acc. to EN 1563 corrosion protected inside, encapsulated with vulcanized elastomer rubber (EN 681-1), with drain hole
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore in conformity with nominal width
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- acc. to the test requirements "Water PW 501" of the ÖVGW (Austrian Association for Gas and Water)
- double sealing of PE fusion tail by means of O-ring and lip seal
- PE tails reinforced by a support liner of stainless steel in the sealing area
- PE tails injection moulded of PE 100/SDR 11 restraint acc. to DVGW VP600
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE „E2“ Valve for PE Fusion No. 4050*E2* or equivalent

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1.5.2 „E2“ Valve for PE Fusion, PN 6
DN 50/63 - 200/225
as described under item 1.5.1
however:
- working pressure PN 10
- PE tails injection moulded of PE 100/SDR 11 restraint acc. to DVGW VP600

e.g. HAWLE „E2“ Valve for PE Fusion No. 4051*E2* or equivalent

1.5.3 „E2“ Valve Flange/PE tail, PN 16
DN 50/63 - 200/225
as described under item 1.5.1
however:
- with flange and PE fusion tail for use with PE pipes acc. to DIN 8075
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)

e.g. HAWLE „E2“ Elypso Valve Flange/PE tail No. 4090*E2* or equivalent

1.5.4 „E2“ Valve Flange/PE tail, PN 6
DN 50/63 - 200/225
as described under item 1.5.3
however:
- working pressure PN 10

e.g. HAWLE „E2“ Valve Flange/PE tail No. 4091E2 or equivalent

1.6 „E2“ Socket Valves „System 2000“ for PE and PVC pipes PN 16, restraint

1.6.1 „E2“ Socket Valve „System 2000“ for PE and PVC pipes PN 16, restraint
DN 50/63 - 350/400

- acc. to EN 1074-1 and -2, EN 1171
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- wedge of ductile iron EN-GJS-400 acc. to EN 1563 inside and outside fully rubberized with vulcanized elastomer rubber (EN 681-1), wedge nut (of non-ferrous metal) completely borne in rubberized wedge, with drain hole, wedge guide of wear-resistant plastic,
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore in conformity with nominal width
- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct, replaceable O-rings (up to DN 200 under pressure / for DN 250 and higher in pressureless condition)
- frictionless bearing of the spindle on friction washers of POM, for DN 250 mm and higher additional spindle bearing in 2 maintenance-free axial grooved ball bearings
- sockets at both ends for PE and PVC pipes (DIN 8074/8075, EN 1452-2)
- grip ring for restraint joint of non ferrous metal with special interlocking teeth
- lip seal of elastomer rubber
- all exposed bolts and washers of stainless steel (minimum quality grade A4), screw thread sealed
- restraint acc. to DIN 8076 T1/T3
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE „E2“ Valve „System 2000“ No. 4040E2 or equivalent

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1.6.2 „E2“ Valve Flange/Socket End „System 2000“ for PE and PVC pipes PN 16, restraint, DN 50/63 - 300/315

as described under item 1.6.1
however:
- with flange and socket end „System 2000“
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)

e.g. HAWLE „E2“ Valve with Flange/Socket End „System 2000“ No. 4041E2 or equivalent

1.7 „E2“ Valves System „BAIO“ (socket alternatively for DCI or plastic pipes)

1.7.1 „E2“ Spigot/Socket End Valve System „BAIO“ PN 16 DN 80 - 300

- acc. to EN 1074-1 and -2, EN 1171
- with spigot end and double function socket System „BAIO“
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm (*for more details please see page 2)*
- wedge of ductile iron EN-GJS-400 acc. to EN 1563 inside and outside fully rubberized with vulcanized elastomer rubber (EN 681-1), wedge nut (of non-ferrous metal) completely borne in rubberized wedge, with drain hole, wedge guide of wear-resistant plastic,
- non-rising stainless steel spindle (minimum quality grade 1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore
- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct, replaceable O-rings (up to DN 200 under pressure / for DN 250 and higher in pressureless condition)
- frictionless bearing of the spindle on friction washers of POM, for DN 250 mm and higher additional spindle bearing in 2 maintenance-free axial grooved ball bearings
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE „E2“ Elypso Valve Socket Ends System „BAIO“ No. NL00E2 or equivalent

1.7.2 „E2“ Valve Socket Ends System „BAIO“ PN 16 DN 80 - 300

as described under item 1.3

however:
- both ends with double function socket System „BAIO“

e.g. HAWLE „E2“ Elypso Valve Socket Ends System „BAIO“ No. 4500E2 or equivalent

1.7.3 Accessories: Restraint Joint for System „BAIO“

alternatively:
- with clamp for DCI, PE or PVC pipes

e.g. HAWLE Restraint Joint „Hawle-Stop“ or equivalent

1.8 Knife Gate Valves

1.8.1 Knife Gate Valve, non-rising spindle DN 50 - 200/PN 10 / DN 250 - 400/PN 6

- face-to-face dimension acc. to EN 558-1 GR20
- thrust block and body of grey iron EN-GJL-250 acc. to EN 1561 inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²
  (*for more details please see page 2)*
- tie bars of stainless steel (minimum quality grade 4.301)
- knife of stainless steel (minimum quality grade 1.4301)
- non-rising spindle of stainless steel (minimum quality grade 1.4301), rolled thread, finish-rolled sliding surfaces
- bolts of stainless steel (minimum quality grade A2)
- adjustable sealing system
- flange drilling to EN 1092-2 PN 10

e.g. HAWLE Knife Gate Valve No. 3600 or equivalent

1.8.2 Knife Gate Valve, non-rising spindle, for electric actuator DN 80 - 200/PN 10 / DN 250 - 400/PN 6

as described under item 1.9.1

however:
- with adaptor for actuator

e.g. HAWLE Knife Gate Valve No. 3600EL or equivalent

2. Resilient Seated Combi Valves

2.1 „E2“ Combi-T

2.1.1 „E2“ Combi-T, PN 16, with flange connection DN 65 - 200

- acc. to EN 1074-1 and -2
- flanged T-piece with integral Elypso Valve
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 0677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm (*for more details please see page 2)*
- wedge of ductile iron EN-GJS-400 acc. to EN 1563 inside and outside fully rubberized with vulcanized elastomer rubber (EN 681-1), wedge nut (of non-ferrous metal) completely borne in rubberized wedge, with drain hole, wedge guide of wear-resistant plastic,
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore
- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct, replaceable O-rings under pressure
- frictionless bearing of the spindle on friction washers of POM

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- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE „E2“ Combi-T No. 4340E2 or equivalent

2.1.2 „E2“ Combi T „System 2000“ for PE and PVC pipes PN 16, restraint DN 50/63 - 200/225

- acc. to EN 1074-1 and -2
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- wedge of ductile iron EN-GJS-400 acc. to EN 1563 inside and outside fully rubberized with vulcanized elastomer rubber (EN 681-1), wedge nut (of non-ferrous metal) completely borne in rubberized wedge, with drain hole, wedge guide of wear-resistant plastic
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore
- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct, replaceable O-rings under pressure
- frictionless bearing of the spindle on friction washers of POM
- all ends sockets for PE and PVC pipes (DIN 8074/8075, EN 1452-2)
- grip ring for restraint joint of non ferrous metalv with special interlocking teeth
- lip seal of elastomer
- all exposed bolts and washers of stainless steel (minimum quality grade A4), screw thread sealed
- restraint acc. to DIN 8076 T1/T3
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE „E2“ Combi-T „System 2000“ No. 4343E2
or equivalent

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2.1.3 „E2“ Combi-T, with socket connection System „BAIO“ PN 16, DN 80 - 200

- acc. EN 1074-1 and -2
- T-piece with double function socket System „BAIO“ and integralshut-off valve
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- wedge of ductile iron EN-GJS-400 acc. to EN 1563 inside and outside fully rubberized with vulcanized elastomer rubber (EN 681-1), wedge nut (of non- ferrous metal) completely borne in rubberized wedge, with drain hole, wedge guide of wear-resistant plastic,
- non-rising stainless steel spindle (minimum quality grade 1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket

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HAWLE-*SPECIFICATION*

- smooth straight-through bore
- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct, replaceable O-rings under pressure
- frictionless bearing of the spindle on friction washers of POM
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE „E2“ Socket Combi Tee System „BAIO“ No. NL10E2 or equivalent

Accessories:
- restraint joint for System „BAIO“
  alternatively: with clamp for DCI, PE or PVC pipes

e.g. HAWLE Restraint Joint „Hawle-Stop“
or equivalent

2.2 „E2“ Combi-III

2.2.1 „E2“ Combi-III, PN 16
DN 80 - 200
• acc. to EN 1074-1 and -2

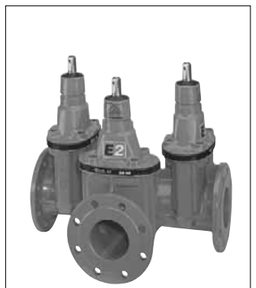
- flanged T-piece *alternatively* with 2 or 3 Elypso Valves
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- wedge of ductile iron EN-GJS-400 acc. to EN 1563 inside and outside fully rubberized with vulcanized elastomer rubber (EN 681-1), wedge nut (of non-ferrous metal) completely borne in rubberized wedge, with drain hole, wedge guide of wear-resistant plastic,
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore in conformity with nominal width
- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct, replaceable O-rings under pressure
- frictionless bearing of the spindle on friction washers of POM
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE „E2“ Combi-III No. 4450*E2*
or equivalent

2.2.2 „E2“ Combi-III, PN 10/16, with vertical centre outlet DN 100, 150 and 200

as described under item 2.2.1
however:
- with vertical centre outlet DN 100

e.g. HAWLE „E2“ Combi-III with vertical centre outlet No. 4460*E2*
or equivalent



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2.2.3 „E2“ Combi III, with socket connection System „BAIO“,PN 16 DN 100, 150, 200

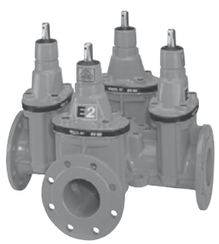
- acc. to EN 1074-1 and -2
- T-piece with double function socket System „BAIO“ *alternatively* with 2 or 3 integral shut-off valves
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- wedge of ductile iron EN-GJS-400 acc. to EN 1563 inside and outside fully rubberized with vulcanized elastomer rubber (EN 681-1), wedge nut (of non-ferrous metal) completely borne in rubberized wedge, with drain hole, wedge guide of wear-resistant plastic
- non-rising stainless steel spindle (minimum quality grade 1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore in conformity with nominal width
- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct, replaceable O-rings under pressure
- frictionless bearing of the spindle on friction washers of POM
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE „E2“ Combi III System „BAIO“ No. NL15*E2*
or equivalent

Accessories:
- restraint joint for System „BAIO“
  alternatively: with clamp for DCI, PE or PVC pipes

e.g. HAWLE Restraint Joint „Hawle-Stop“ or
equivalent

2.3 „E2“ Combi-IV



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2.3.1 „E2“ Combi-IV, PN 16 DN 80 - 200

- acc. to EN 1074-1 and -2
- flanged cross connection fitting with 2, 3 or 4 Elypso Valves
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2*
- wedge of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside fully rubberized with vulcanized elastomer rubber (EN 681-1), wedge nut (of non-ferrous metal) completely borne in rubberized wedge, with drain hole, wedge guide of wear-resistant plastic
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore in conformity with nominal width

HAWLE-*SPECIFICATION*

- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct, replaceable O-rings under pressure
- frictionless bearing of the spindle on friction washers of POM
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE „E2“ Combi-IV No. 4400E2 or equivalent

2.3.2 „E2“ Combi-IV, PN 10/16, with vertical centre outlet DN 100,150 and 200

as described under item 2.3.1
however:
- with vertical centre outlet DN 100

e.g. HAWLE „E2“ Combi-IV No. 4410*E2* or equivalent

2.4 HAWLE-COMBIFLEX modular Combi-Valve System DN 250, DN 300 or DN 400, PN 10 or PN 16

- Flanged combi either with 2, 3 or 4 valves
- Flanges according to EN 1092-2 PN 10 or PN 16
- Assembly unit, central part, vertical reduction, Clamp ring connections, end caps and combi body of ductile iron EN-GJS-400 acc. to EN 1563 inside and outside epoxy-powder coated in accordance with DIN 30677-T2 and all quality and test requirements of RAL-GZ 662:
  - Uniform coating thickness of minimum 250 µm
  - No conductivity at 3000 Volts using spark-test for coating integrity
  - Minimum force of 12 N/mm² required to break adhesion of Epoxy to metal
- Valve with integrated bayonet connection 46mm
- End cap with integrated bayonet connection 69mm
- Wedge of ductile iron EN-GJS-400 acc. to EN 1563 inside and outside fully coated with vulcanized elastomer (EN 1074-1), wedge nut (non-ferrous heavy metal) positioned into in the fully vulcanized wedge, wedge drainage, wedge guides of wear resistant plastic
- System sealing of EPDM
- Non-rising stainless steel spindle (min. quality St 1.4162), with rolled thread and polished O ring slide faces
- Screws corrosion protected by embedding into the body and sealed using bonnet gasket and wax on top
- Smooth straight-through bore of the central part
- maintenance free spindle sealing via multiple O rings and an additional lip seal. Wiper ring to protect the spindle connection against dirt. O rings embedded in non-corrosive material, replaceable under pressure up to DN 200
- Friction washers made of POM assure smooth spindle guidance. Valves DN 250 and large contain maintenance free ball bearings
- Tested in accordance with the water test norm PW 501 of ÖVGW-the

  Austrian Association for gas and water
- Tested and certified acc. to PW501/1 in accordance with EN 1074-1 and EN 1074-2

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3. Resilient-Seated Service Valves

3.1 Service Valve, with internal threads at both ends

3.1.1 Service Valve, with internal threads at both ends, PN 16, made of ductile iron DN ½ - 2"

- both ends corrosion protecting ring of Elastomer
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563 , inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- wedge of non ferrous metal, rubberized outside with vulcanized elastomer rubber (EN 681-1), with drain hole
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE Service Valve No. 2500 or equivalent

3.1.2 Service Valve, with internal threads at both ends, PN 16, made of brass DN 1" - 2"

as described under item 3.1.1
however:
- body and bonnet of stamped brass

e.g. HAWLE Service Valve No. 2510 or equivalent

3.2 Service Valve with one internal and one external thread, PN 16 DN 1" - 2"

- with one internal and one external thread
- internal thread with corrosion protection ring of Elastomer
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563
- inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- wedge of non ferrous metal, rubberized outside with vulcanized elastomer rubber (EN 681-1), with drain hole
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE Service Valve No. 2520 or equivalent

3.3 Service Valve with ISO Fitting for PE pipes and bayonet connection, restraint, PN 16, of ductile iron, DN ¾" – 1½" with connection 34

- one end with ISO push-fit socket for PE pipes acc. to DIN 8074/8075, other end with bayonet lugs and 2 O-ring sealings for perfect corrosion protection, restraint bayonet connection with suitable pipe drilling saddles
- body and bonnet of ductile iron EN GJS-400 acc. to EN 1563
- inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662 (for more details please see page 2)
- wedge of non ferrous metal, rubberized outside with vulcanized elastomer rubber (EN 681-1), with drain hole
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion-protected
- smooth straight-through bore
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- restraint acc. to DIN 8076 T1/T3
- clamp with special interlocking teeth
- ISO push-fit socket protected by dirt cap against water and dirt from outside
- with locking piston for bayonet connection
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE ZAK Service Valve No. 2810 or equivalent

alternatively:
- for PVC pipes acc. to EN 1452-2 (with special clamp)

3.4 Service Valves, external thread and ISO fitting for PE pipe, restraint

3.4.1 Service Valve, external thread and ISO fitting for PE pipe, restraint PN 16, of ductile iron, DN 1" - 2"

- 1 external thread, 1 ISO pipe fitting PE pipe connection (DIN 8074/8075) and 1 internal thread (for drilling machine or steel pipe connection)
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563
- inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- wedge of non ferrous metal, rubberized outside with vulcanized elastomer rubber (EN 681-1), with drain hole
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- restraint acc. to DIN 8076 T1/T3
- clamp for restraint joint with special interlocking teeth
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE Service Valve No. 2800 or equivalent

alternatively:

- for PVC pipes acc. to EN 1452-2 (with special clamp)

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3.4.2 Service Valve, external thread and ISO fitting for PE pipe, restraint PN 16, of POM, DN 1" / d 25, 32, 40, 50 and 63 mm

- with external thread connection 2" for mounting onto saddle, 1½" connecting thread and ISO push-fit fitting for PE pipes acc. to DIN 8074/8075
- of plastic - POM (polyoxymethylene)
- wedge of non ferrous metal, rubberized outside with vulcanized elastomer rubber (EN 681-1), with drain hole
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- smooth straight-through bore
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring
- restraint acc. to DIN 8076 T1/T3
- clamp with special interlocking teeth
- ISO push-fit socket protected by dirt cap against water and dirt from outside
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE ISO Combination Tapping Valve No. 2680 or equivalent

alternatively:
- without ISO push-fit fitting

e.g. HAWLE ISO Combination Tapping Valve No. 2681 or equivalent

- for PVC pipes acc. to EN 1452-2 (with special clamp)

Accessories:
- ISO push-fit fitting for PE pipes

e.g. HAWLE ISO push-fit fitting No. 6221F or equivalent

3.5 Service Valves with ISO fitting for PE pipe both ends, restraint

3.5.1 Service Valve with ISO fitting for PE pipe both ends, restraint PN 16, of ductile iron, DN ¾" - 2"

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- both ends with ISO push-fit sockets for PE pipes acc. to DIN 8074/8075
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563
- inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- wedge of non ferrous metal, rubberized outside with vulcanized elastomer rubber (EN 681-1), with drain hole
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- restraint acc. to DIN 8076 T1/T3
- clamp with special interlocking teeth
- ISO push-fit sockets protected by dirt cap against water and dirt from outside
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE Service Valve No. 2600 or equivalent
alternatively:

- for PVC pipes acc. to EN 1452-2 (with special clamp)

HAWLE-*SPECIFICATION*

3.5.2 Service Valve with ISO fitting for PE pipe both ends, restraint PN 16, of POM, DN ½" - 2"

as described under item 3.5.1
however:
- body and bonnet of plastic - POM (polyoxymethylene)

e.g. HAWLE Service Valve No. 2630 or equivalent

alternatively:
- for PVC pipes acc. to EN 1452-2 (with special clamp)

3.6 Service Valves for PE fusion

3.6.1 Service Valve for PE fusion PN 10, of ductile iron, DN 1" - 2"

- 2 PE fusion tails for use with PE piping acc. to DIN 8074/8075
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- wedge of non ferrous metal, rubberized outside with vulcanized elastomer rubber (EN 681-1), with drain hole
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- smooth straight-through bore
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- double sealing of PE tails by two O-rings
- PE tails reinforced by a support liner of plastic steel in the sealing area
- PE tails injection moulded of HDPE PE 100
- restraint acc. to DVGW VP 600
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE Service Valve for PE fusion No. 4050 or equivalent

3.6.2 Service Valve for PE fusion, PN 10, of POM DN 1" - 2"

as described under item 3.6.1
however:
- body and bonnet of plastic - POM (polyoxymethylene)

e.g. HAWLE Service Valve for PE Fusion No. 2670 or equivalent

3.7 Service Valve, angle type, with internal thread outlet

3.7.1 Service Valve, angle type, with internal thread outlet PN 16, DN 1" - 2"

- with internal thread outlet and external thread connection for installation on pipe saddles
- internal thread with corrosion protection ring of Elastomer
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563
- inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*

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- shut-off plug of non ferrous metal, rubberized outside with vulcanized elastomer rubber (EN 681-1)
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE Service Valve, angle-type No. 3120 or equivalent

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3.7.2 Service Valve, angle type, with internal thread outlet both ends, self-draining PN 16, DN ¾" - 2"

as described under item 3.7.1
however:
- self-draining and with pressure control

e.g. HAWLE Service Valve, angle-type No. 2491 or equivalent

3.8 Service Valves, angle type, with ISO fitting for PE pipes, restraint

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3.8.1 Service Valve, angle type, with ISO fitting for PE pipes, restraint of ductil iron, PN 16, DN 1" - 2"

- with ISO push-fit socket for PE piping acc. to DIN 8074/8075 and external thread connection for installation on pipe saddles
- body and bonnet of ductile iron EN-GJS-400 acc. to EN 1563
- inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- shut-off plug ofnon ferrous metal, rubberized outside with vulcanized elastomer rubber (EN 681-1)
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion protected by being countersunk and sealed with sealing compound, and by bonnet gasket
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- restraint acc. to DIN 8076 T1/T3
- clamp with special interlocking teeth
- ISO push-fit socket protected by dirt cap against water and dirt from outside
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE Service Valve, angle-type No. 3130 or equivalent

alternatively:

-for PVC pipes acc. to EN 1452-2 (with special clamp)

3.8.2 Service Valve, angle type, with ISO fitting for PE pipes and bayonet connection, restraint
PN 16, of ductile iron, DN ¾" and 1" with connection 34, DN 1¼" and 1½" with connection 46

- with ISO push-fit socket for PE piping acc. to DIN 8074/EN 12201 and with bayonet lugs and O-ring sealing with two O-rings for a perfectly corrosion protected restraint and lockable bayonet connection with suitable drilling saddle
- body and bonnet of ductile iron acc. to EN 1563

- inside and outside epoxy powder coated DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² (for more details please see page 2)
- shut-off plug of non ferrous metal, rubberized outside with vulcanized elastomer rubber (EN 681-1)
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion-protected
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- restraint acc. to DIN 8076 T1/T3
- clamp with special interlocking teeth
- ISO push-fit socket protected by dirt cap against water and dirt from outside
- with locking piston for bayonet connection
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE ZAK Service Valve, angle-type No. 3160 or equivalent

alternatively:

-for PVC pipes acc. to EN 1452-2 (with special clamp)

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3.8.3 Service Valve, angle type, with ISO fitting for PE pipes and bayonet connection, 360° swivel type, restraint
PN 16, of ductile iron, DN 1½" with connection 46

- with ISO push-fit socket for PE piping D 50 acc. to EN 12201 and with bayonet lugs and O-ring sealing with two O-rings for a perfectly corrosion protected restraint and lockable bayonet connection with suitable drilling saddle 360° swivel type
- body and bonnet of ductile iron acc. to EN 1563
- inside and outside epoxy powder coated DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² (for more details please see page 2)
- shut-off plug of non ferrous metal, rubberized outside with vulcanized elastomer rubber (EN 681-1)
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion-protected
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- restraint acc. to DIN 8076 T1/T3
- clamp with special interlocking teeth
- ISO push-fit socket protected by dirt cap against water and dirt from outside
- with locking piston for bayonet connection
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE ZAK Service Valve, angle-type No. 3162 or equivalent

alternatively:

-for PVC pipes acc. to EN 1452-2 (with special clamp)

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3.8.4 Service Valve, angle type, with bayonet connection, restraint PN 16, of ductile iron, DN 1½" with connection fitting and connection spigot 46

- with bayonet lugs and O-ring-sealing with two O-rings for perfect corrosion protection, restraint bayonet connection with suitable drilling saddle and bayonet socket 46
- body and bonnet of ductile iron acc. to EN 1563

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- inside and outside epoxy powder coated DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² (for more details please see page 2)
- shut-off plug of non ferrous metal, rubberized outside with vulcanized elastomer rubber (EN 681-1)
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion-protected
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- with locking piston for bayonet connection
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE ZAK Service Valve, angle-type No. 3161 or equivalent

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3.8.5 Service Valve, angle type, with bayonet connection, 360° swivel type, restraint PN 16, of ductile iron, DN 1½" with connection fitting and connection spigot 46

- with bayonet lugs and O-ring-sealing with two O-rings for perfect corrosion protection, restraint bayonet connection 360° rotatable with suitable drilling saddle and bayonet socket 46
- body and bonnet of ductile iron acc. to EN 1563
- inside and outside epoxy powder coated DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² (for more details please see page 2)
- shut-off plug of non ferrous metal, rubberized outside with vulcanized elastomer rubber (EN 681-1)
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- bolts corrosion-protected
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- with locking piston for bayonet connection
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE ZAK Service Valve, angle-type No. 3163 or equivalent

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3.8.6 Service Valve, angle type, with external thread and socket for PE pipe, restraint, PN 16, of POM, DN 1" / d 25, 32, 40, 50 and 63 mm

- with external thread connection 2" for mounting onto saddle, 1½" connecting thread and ISO push-fit fitting for PE pipes acc. to DIN 8074/8075
- of plastic - POM (polyoxymethylene)
- shut-off plug of non ferrous metal, rubberized outside with vulcanized elastomer rubber (EN 681-1)
- non-rising stainless steel spindle (1.4162), rolled thread, spindle polished in the area of the O-ring sealing
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring
- restraint acc. to DIN 8076 T1/T3
- clamp with special interlocking teeth
- ISO push-fit socket protected by dirt cap against water and dirt from outside
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE ISO Combination Service Valve No. 3150 or equivalen

alternatively:
- without ISO push-fit fitting

e.g. HAWLE ISO Combination Service Valve No. 3151 or equivalent

- for PVC pipes acc. to DIN 8061/8062 (with special clamp)

Accessories:
- ISO push-fit fittings for PE pipes

e.g. HAWLE ISO Connecting Fitting No. 6221F or equivalent

3.9 Pipe Drilling Saddles

3.9.1 Pipe Drilling Saddle for DCI pipes, steel pipes and AC pipes with internal thread, PN 16, DN 80 - 400 / 1" - 1½"

- for DCI pipes, steel pipes and AC pipes
- for vertical drilling
- body of ductile iron EN-GJS-400 acc. to EN 1563
- inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- eccentric disc and shut-off plate of stainless steel (minimum quality grade 1.4021/1.4310)
- saddle sealing of elastomer rubber
- strap of stainless steel (minimum quality grade 1.4571) with continuous rubber lining
- bolts of stainless steel (minimum quality grade 1.4308)
- nuts of rust-proof and acid-proof steel (minimum quality grade 1.4401), with friction lining
- smooth straight-through bore

e.g. HAWLE Universal Hawlinger No. 2402 or equivalent

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3.9.2 Pipe Drilling Saddle with bayonet connection PN 16 DN 65 - 500 / with connection 34 or 46

- for DCI pipes, steel pipes and AC pipes
- with vertical outlet
- outlet with inside bayonet locking for completely corrosion-protected, restraint and lockable connection with suitable fitting
- bayonet connection 34 for max. drilling of Ø 25 mm, bayonet connection 46 for max. drilling of Ø 35 mm
- body of ductile iron EN-GJS-400 acc. to EN 1563, epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with quality and test requirements RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² (for more details please see page 2)
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- eccentric disc and shut-off plate of stainless steel (minimum quality grade 1.4021/1.4310), completely straight-through bore, shut-off plate, when open, completely outside of flow medium
- saddle sealing of elastomer rubber
- strap of stainless steel (minimum quality grade 1.4571) with continuous rubber lining
- bolts of stainless steel (minimum quality grade 1.4308)
- nuts of rust-proof and acid-proof steel (minimum quality grade 1.4401), with friction lining

e.g. HAWLE ZAK Universal Hawlinger No. 2405 or equivalent

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3.9.3 Pipe Drilling Saddle with bayonet connection PN 16
DN 65 - 500 / with connection 34 or 46

- for DCI pipes, steel pipes and AC pipes
- with one vertical and one horizontal outlet in pipe direction (the vertical outlet is closed by means of a sealing plug)
- outlet with inside bayonet locking for completely corrosion-protected, restraint and lockable connection with suitable fitting
- bayonet connection 34 for max. drilling of Ø 25 mm, bayonet connection 46 for max. drilling of Ø 35 mm
- body of ductile iron EN-GJS-400 acc. to EN 1563, epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle beraing protected against from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- eccentric disc and shut-off plate of stainless steel (minimum quality grade 1.4021/1.4310), completely straight-through bore, shut-off plate, when open, completely outside of flow medium
- saddle sealing of elastomer rubber
- strap of stainless steel (minimum quality grade 1.4571) with continuous rubber lining
- bolts of stainless steel (minimum quality grade 1.4308)
- nuts of rust-proof and acid-proof steel (minimum quality grade 1.4401), with friction lining

e.g. HAWLE ZAK Universal Hawlinger No. 2410 or equivalent

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3.9.4 Pipe Drilling Saddle for PE and PVC pipes with internal thread PN 16
d 90 - 225 / 1" - 1½"

- for PE and PVC pipes acc. to DIN 8074/8075 and/or EN 1452-2
- for vertical drilling
- body and strap of ductile iron EN-GJS-400 acc. to EN 1563
- inside and outside epoxy powder coated acc. to DIN 30677-T2 in accor dance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- eccentric disc and shut-off plate of stainless steel (minimum quality grade 1.4021/1.4310)
- bolts of stainless steel (minimum quality grade A2)
- seal is in full contact with the entire diameter of the pipe, drilling hole is sealed by at least 2 O-ring profiles, metal stop, width acc. to DIN 3543-T3
- smooth straight-through bore

e.g. HAWLE HAKU Hawlinger No. 2300 or equivalent

3.9.5 Pipe Drilling Saddle with bayonet connection PN 16
d 63 - 225 / with connection 34, d 90 – 225 / with connection 46

- for PE and PVC pipes acc. to DIN 8074/8075 and/or EN 1452-2
- outlet with inside bayonet locking for completely corrosion-protected, restraint and lockable connection with suitable fitting
- bayonet connection 34 for max. drilling of Ø 25 mm, bayonet connection 46 for max. drilling of Ø 35 mm
- body and strap of ductile iron EN-GJS-400 acc. to EN 1563, epoxy powder

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coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
- coating thickness: min. 250 µm
- zero porosity: min. 3000 V spark test
- adhesion: min. 12 N/mm²

(for more details please see page 2)

- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct (acc. to DIN 3547-T1)
- eccentric disc and shut-off plate of stainless steel (minimum quality grade 1.4021/1.4310), completely straight-through bore, shut-off plate, when open, completely outside of flow medium
- bolts of stainless steel (minimum quality grade A2)
- seal is in full contact with the entire diameter of the pipe, drilling hole is sealed by at least 2 O-ring profiles, metal stop, width acc. to DIN 3543-T3

e.g. HAWLE ZAK HAKU Hawlinger No. 2305
or equivalent

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3.9.6 Pipe Drilling Saddle with bayonet connection PN 16
d 63 - 225 / with connection 34, d 90 – 225 / with connection 46

- for PE and PVC pipes acc. to DIN 8074/8075 and/or EN 1452-2
- with one vertical and one horizontal outlet in pipe direction (the vertical outlet is closed by means of a sealing plug)
- outlets with inside bayonet locking for completely corrosion-protected, restraint and lockable connection with suitable fitting
- bayonet connection 34 for max. drilling of Ø 25 mm, bayonet connection 46 for max. drilling of Ø 35 mm
- body and strap of ductile iron EN-GJS-400 acc. to EN 1563, epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- maintenance-free spindle sealing by multiple O-ring system and additional back seal; spindle bearing protected against dirt from outside by a wiper ring; O-rings embedded in non-corrosive material in the area of the spindle duct
- eccentric disc and shut-off plate of stainless steel (minimum quality grade 1.4021/1.4310), completely straight-through bore, shut-off plate, when open, completely outside of flow medium
- bolts of stainless steel (minimum quality grade A2)
- seal is in full contact with the entire diameter of the pipe, drilling hole is sealed by at least 2 O-ring profiles, metal stop, width acc. to DIN 3543-T3

e.g. HAWLE ZAK HAKU Hawlinger No. 2310
or equivalent

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3.10 Adaptor Valve PN 16
DN 1" - 1½"

- with external thread for use with pipe saddle
- for vertical drilling
- body of ductile iron EN-GJS-400 acc. to EN 1563
- inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (*for more details please see page 2)*
- maintenance-free spindle sealing by multiple O-ring system as well as additional back seal, spindle bearing protected against dirt from outside by a wiper ring, O-rings embedded in non-corrosive material in the area of the spindle duct
- eccentric disc and shut-off plate of stainless steel (minimum quality grade 1.4021/1.4310)

e.g. HAWLE Hawlinger Adaptor Valve No. 2200
or equivalent

3.11 Water Meter Consoles

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3.11.1 Water Meter Consoles for 3 - 7 m³/h, threaded connection PN 16
DN 1" and 1¼"

- with integrated back flow preventer
- with retractable swivel nut - optional drainage plug
- 2 shut-off valves of stamped brass
- wall plate of aluminium powder-coated
- with smooth and straight-through bore
- with axially adjustable water meter connections
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Water Meter Console No. 2963
or equivalent

3.11.2 Water Meter Consoles for 20 m³/h, threaded connection PN 16
DN 1½"

- with integrated back flow preventer
- 2 shut-off valves of hot-stamped brass
- wall plate of aluminium
- with smooth and straight-through bore
- with axially adjustable water meter connections
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Water Meter Console No. 2960
or equivalent

3.11.3 Water Meter Consoles for 20 (30) m³/h, flanged connection PN 16
DN 2"

- with integrated back flow preventer
- 2 shut-off valves of stamped brass
- wall plate of aluminium
- with smooth and straight-through bore
- with 2 loose flanges
- with 2 retractable swivel nuts
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Water Meter Console No. 2960
or equivalent

4. Accessories for Elypso, Combi- and Service Valves

4.1 Handwheels, DN ½"
DN 600 mm

- of ductile iron EN-GJS-400 acc. to EN 1563
- epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*

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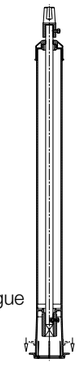
4.2.1. Extension Spindles for "E2" Elypso and "E2" Combi Valves, rigid
DN 50 – DN 600

- one extension spindle usable for different dimensions of valves
- spindle shaft of steel, galvanized
- spindle coupling and spindle head of ductile iron EN-GJS-400 acc. to EN 1563 galvanized
- protecting tube of PE, up to DN 200 incl. protecting cover with integrated fixing mechanism
- sealed against dirt and water from above
- pipe cover depth 1.5 m

e.g. HAWLE Extension Spindle No. 9000*E2* or equivalent

alternatively:
- other pipe cover depths up to DN 600



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4.2.2 Extension Spindles for Elypso and Hawle-A, rigid,
DN 50 - 300

- spindle shaft of steel, galvanized
- spindle coupling and spindle head of ductile iron EN-GJS-400 acc. to EN 1563 galvanized
- protecting tube of PE
- sealed against dirt and water from above
- pipe cover depth 1.5 m

e.g. HAWLE Extension Spindle No. 9000A or equivalent

alternatively:
- other pipe cover depths

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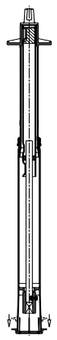
4.2.3. Extension Spindles for "E2" Elypso and "E2" Combi Valves, telescopic
DN 50 – DN 600

- one extension spindle usable for different dimensions of valves
- spindle shaft of steel, galvanized
- spindle coupling and spindle head of ductile iron EN-GJS-400 acc. to EN 1563 galvanized
- outer and inner protecting tube of PE, up to DN 200 incl. protecting cover with integrated fixing mechanism
- sealed against dirt and water from above
- pull out stop
- pipe cover depth 1.3 - 1.8 m

e.g. HAWLE Extension Spindle No. 9500*E2* or equivalent

alternatively:
- other pipe cover depths up to DN 600



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4.2.4 Extension Spindles for Elypso and Hawle-A, telescopic, DN 50 - 300

- spindle shaft and hollow top spindle of steel, galvanized
- spindle coupling and spindle head of ductile iron EN-GJS-400 acc. to EN 1563 galvanized
- inner and outer protecting tube of PE
- sealed against dirt and water from above
- pull out stop
- pipe cover depth 1.3 - 1.8 m

e.g. HAWLE Extension Spindle No. 9500A or equivalent

alternatively:
- other pipe cover depths

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4.2.5 Extension Spindles for Service Valves, rigid, DN ¾" - 2"

as described under item 4.2.2
however:
- for Service Valves (with threaded connection)

e.g. HAWLE Extension Spindle No. 9101
or equivalent

alternatively:
- other pipe cover depths

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4.2.6 Extension Spindles for Service Valves, telescopic DN ¾" - 2"

as described under item 4.2.4
however:
- for Service Valves (with threaded connection)

e.g. HAWLE Extension Spindle No. 9601
or equivalent

alternatively:
- other pipe cover depths

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4.3 Operating Cap, DN 40 - 600

of ductile iron EN-GJS-400 acc. to EN 1563
- galvanized
- with pin

e.g. HAWLE Operating Cap No. 2156
or equivalent

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4.3.1 Operating Cap, DN 20 - 350

of aluminium

e.g. HAWLE Operating Cap No. 2157, 2158
or equivalent

4.4 Surface Boxes

4.4.1 Surface Boxes for Elypso Valves and Combi-T, rigid

- of grey iron EN-GJL-200 acc. to EN 1561, bitumen coated
- minimum test load for lid: 200 kN - for body: 400 kN

e.g. HAWLE Surface Box No. 1750 or equivalent

4.4.2 Surface Boxes for Elypso Valves and Combi-T, telescopic

- of grey iron EN-GJL-200 acc. to EN 1561, bitumen coated
- minimum test load for lid: 200 kN - for body: 400 kN
- height-adjustable via extension rings
- lid with cylindrical guide combined with machined conical seating

e.g. HAWLE Surface Box No. 2050 or equivalent

Accessories:
- extension rings 15 - 50 mm

e.g. HAWLE Extension Rings No. 2040 or equivalent

4.4.3 Surface Boxes for Elypso Valves and Combi-T, telescopic, acc. to DIN

- design acc. to DIN 4056
- of grey iron EN-GJL-200 acc. to EN 1561
- epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662 *(for more details please see page 2)*
- minimum test load for lid: 200 kN - for body: 400 kN
- with removable mounting ring for road surfaces which have to be milled down
- cover secured by stainless steel retaining rod
- turned angle seat
- cover with stainless steel neck
- height-adjustable via extension rings

e.g. HAWLE Height Adjustable DIN-Surface Box No. 2051 or equivalent

4.4.4 Surface Boxes for Combi-III and Combi-IV, rigid

- of ductile iron EN-GJS-400 acc. to EN 1563, bitumen coated
- minimum test load for lid: 200 kN - for body: 400 kN

e.g. HAWLE Surface Box No. 4550 or equivalent

4.4.5 Surface Box for Service Valves, rigid, light version

- of grey iron EN-GJL-200 acc. to EN 1561, bitumen coated

e.g. HAWLE Surface Box No. 1550 or equivalent

4.4.6 Surface Box for Service Valves, rigid, heavy version

- of grey iron EN-GJL-200 acc. to EN 1561, bitumen coated
- minimum test load for lid: 200 kN - for body: 400 kN

e.g. HAWLE Surface Box No. 1650 or equivalent

4.4.7 Surface Box for Service Valves, telescopic

- of grey iron EN-GJL-200 acc. to EN 1561, bitumen coated
- minimum test load for lid: 200 kN - for body: 400 kN
- height-adjustable via extension rings
- lid with cylindrical guide combined with machined conical seating

e.g. HAWLE Surface Box No. 1850 or equivalent
Accessories:
- extension rings 12 - 50 mm

e.g. HAWLE Extension Rings No. 2030 or equivalent

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4.4.8 Surface Boxes for Service Valves, telescopic, acc. to DIN

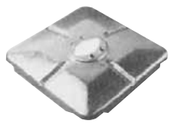
- design acc. to DIN 4057
- of grey iron EN-GJL-200 acc. to EN 1561
- epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662 (for more details please see page 2)
- minimum test load for lid: 200 kN - for body: 400 kN
- with removable mounting ring for road surfaces which have to be milled down
- cover secured by stainless steel retaining pin
- turned angle seat
- cover with stainless steel neck
- height-adjustable via extension rings

e.g. HAWLE Height Adjustable DIN-Surface Box No. 1851 or equivalent

Accessories:
- extension rings 10 - 50 mm

e.g. HAWLE Extension Rings No. 2035 or equivalent

4.5 Base Plates



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4.5.1 Base Plates for Surface Boxes (E2 Valves and Combi-T)

- stamped sheet steel, galvanized
- for E2 Valves and Combi-T

e.g. HAWLE Base Plate No. 3490
or equivalent

4.5.2 Base Plates for Surface Boxes (Service Valve)

- stamped sheet steel, galvanized
- for Service Valves

e.g. HAWLE Base Plate No. 3480
or equivalent

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4.5.3 Universal Base Plates

- for Surface Boxes acc. to DIN 4056 and DIN 4057
- of recycled plastic
- unbreakable and unrottable

e.g. HAWLE Universal Base Plate No. 3481
or equivalent

5. Air Valves

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5.1.1 Air Valve
DN 1"

- entirely of corrosion-free materials
- automatic operation
- body and float of POM (PE shield for UV protection)
- seal of elastomer rubber
- max. air release capacity not less than 0,13 m^3/min.
- test pressure 24 bar
- working pressure: 0,1 - 6 bar or 0,8 - 16 bar
- internal thread inlet reinforced with a stainless steel ring

e.g. HAWLE Air Valve No. 9876, DN 1"
or equivalent

HAWLE-*SPECIFICATION*

5.1.2 Air Valve
DN 2"

- for small and large air discharge
- entirely of corrosion-free materials
- automatic operation
- body and float of POM (PE shield for UV protection)
- seal of elastomer rubber
- max. air release capacity not less than 3,2 m^3/min.
- test pressure 24 bar
- working pressure: 0,1 - 6 bar or 1 - 16 bar
- internal thread inlet reinforced with a stainless steel ring

e.g. HAWLE Air Valve No. 9876, DN 2" or equivalent

alternatively:
- with flange connection DN 50 or DN 80 mm

e.g. HAWLE Air Valve No. 9874 or equivalent

5.1.3 Combined Air Release Valve
DN 50 - 80

- suitable for installation without construction of a shaft
- stand pipe of stainless steel (minimum quality grade 1.4571)
- with integral automatic shut-off valve
- air valve can be removed under pressure
- air valve as described under item 5.1.2
- all non-corrosion-free materials epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662 (for more details please see page 2)
- with automatic drainage
- suitable for use with a flushing stand pipe (see item 5.3.2)
- with flange
- various installation depths on request
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Combined Air Release Valve No. 9822 or equivalent

5.1.4. Air Valve, PN 16
DN 80, 100, 150, 200

- for small and large air discharge
- automatic operation
- body and cover of grey iron EN-GJL-250 acc. to EN1561 inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm^2

  (for more details please see page 2)
- basic valve: float of polycarbonate (DN 80, DN 100)
  float of A2, passivated (DN 150, DN 200)
  seat of Ms58/elastomer rubber
- travelling valve: body and float of POM (acetal)
  PE shield for UV protection
  seat of elastomer rubber
- max. air release capacity not less than:
  DN 80 - 22 m^3/min
  DN 100 - 41 m^3/min
  DN 150 - 125 m^3/min
  DN 200 - 125 m^3/min

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- bolts, nuts, washers of stainless steel (min. grade A2)
- test pressure: 24 bar (equivalent to 1,5 times the max. working pressure)
- working pressure: 0,2 – 6 bar or 0,8 – 16 bar
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Automatic Air Valve No. 9835
or equivalent

alternatively:
- Double Orifice Air Valve, with insect grid and PE pipe, DN 80, DN 100 Hawle No. 9836
- Single Orifice Valve (without travelling valve:), Hawle No. 9837
- Single Orifice Valve (without travelling valve:), outlet with PE pipe and insect grid for DN 80, DN 100 Hawle No. 9838

5.2 Air Valves for waste water

5.2.1 Air Valve for waste water, with internal thread connection PN 16 DN 2"

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- continuous air discharge
- automatic operation
- body of stainless steel A4
- travelling valve: with rolling seal mechanism, entirely of corrosion-free material
- float and rod of stainless steel, all welding seams passivated
- test pressure 24 bar
- working pressure: 0 - 16 bar
- air gap cushion inhibits water hammer
- max. air release capacity not less than 3,8 m3/min.
- with flushing outlet and shut-off valve
- internal thread connection
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Air Valve No. 9864
or equivalent

5.2.2 Air Valve for waste water, with flanged connection PN 10/16 DN 50 - 200

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as described under item 5.2.1
however:
- with flanged connection

e.g. HAWLE Air Valve No. 9864
or equivalent

5.2.3 Air Valve for waste water, with internal thread connection PN 16 DN 2"

as described under item 5.2.1
however:
- body of steel

inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
- coating thickness: min. 250 µm
- zero porosity: min. 3000 V spark test
- adhesion: min. 12 N/mm²

(*for more details please see page 2)*

e.g. HAWLE Air Valve No. 9863 or equivalent

5.2.4 Air Valve for waste water, with flanged connection PN 10/16 DN 50 - 200

as described under item 5.2.1
however:
- body of steel
- with flanged connection
  inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

(*for more details please see page 2)*

e.g. HAWLE Air Valve No. 9863
or equivalent

5.2.5 Air Release Valve with internal thread PN 25, DN 2"

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- with small and large size of the opening
- entirely made of corrosion-resistant materials
- automatic operation
- body of stainless steel 1.4404
- float made of foamed PP
- seal of elastomer rubber
- outlet elbow: PE 100
- strainer: stainless steel
- test pressure 35 bar
- working pressure: 0,2 - 25 bar
- max. air release capacity not less than 14 m3/min.
- internal thread-connection 2"
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Air Valve No. 9859 or equivalent

alternatively:
- with flange connection DN 50 or DN 80 mm

5.2.6. Dynamic Air Release Valve, (ÖZKAN) DN 50 – DN 250; PN 10 (or PN 16; PN 25 ; PN 40)

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- Automatic 3-way air release valve
- Efficient vacuum protection
- Continuously reliable ventilation of air inlets under normal operating conditions
- Protection against pressure shocks by 2-level ventilation system
- Flanges acc. to EN 1092-2, PN 10, (or PN 16 or PN 25 or PN 40)
- Body made of ductile iron GJS 400-15 EN acc. EN 1563 epoxy-powder coated acc. DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min 12 N/mm²
- Insect and internal parts of stainless steel AISI 304
- Sealing rings of EPDM rubber, suitable for potable water
- Float of HDPE (High Density Poly Ethylen)
- All materials acc. KTW and DVGW W270-Richtlinien

e.g. Dynamic Air Release Valve No. 9842
Özkan or equivalent

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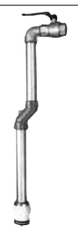

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5.3 Accessories

5.3.1 Surface Box for Combined Air Release Valve

- of grey iron EN-GJL-200 acc. to EN 1561, bitumen coated
- minimum test load for lid: 200 kN - for body: 400 kN

e.g. HAWLE Surface Box for Combined Air Release Valve No. 1790 or equivalent

5.3.2 Flushing Stand Pipe for Combined Air Release Valve

- for flushing, temporary water discharge and for manual air release
- wih integral shut-off valve

e.g. HAWLE Flushing Stand Pipe No. 9824 or equivalent

6. Pipe Saddles

6.1 Pipe Saddles for DCI pipes, steel pipes and AC pipes

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6.1.1 Pipe Saddle for drilling without pressure, with internal thread outlet PN 16, DN 50 - 600 / 1" - 3"

- for DCI, steel and AC pipes up to PN 16
- with internal thread outlet and corrosion protection ring of elastomer
- saddle body of ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- saddle sealing of elastomer rubber
- strap of stainless steel (minimum quality grade 1.4571) with continuous rubber lining
- bolts of stainless steel (minimum quality grade 1.4308)
- nuts of rust-proof and acid-proof steel (minimum quality grade 1.4401), with friction lining
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Universal Pipe Saddle No. 3500 or equivalent

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6.1.2 Pipe Saddle for drilling without pressure, with flanged outlet PN 16 DN 80 - 600

as described under item 6.1.1
however:
- with flanged outlet DN 40, 50, 80, 100 or 150
- flange EN 1092-2

e.g. HAWLE Universal Pipe Saddle No. 3510 or equivalent

6.1.3 Undrilled Saddle

as described under item 6.1.1
however:
- undrilled

e.g. HAWLE Undrilled Saddle No. 3530 or equivalent

6.1.4 Pipe Saddle for drilling without pressure, with bayonet connectionPN 16 DN 65 - 500 / with connection 34 or 46

- for DCI, steel and AC pipes up to PN 16
- outlet with inside bayonet locking for completely corrosion-protected, restraint and lockable connection with suitable fitting
- bayonet connection 34 for max. drilling of Ø 25 mm, bayonet connection 46 for max. drilling of Ø 35 mm
- saddle body of ductile iron EN-GJS-400 acc. to EN 1563, epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² (for more details please see page 2)
- saddle sealing of elastomer rubber
- strap of stainless steel (minimum quality grade 1.4571) with continuous rubber lining
- strap bolts of stainless steel (minimum quality grade 1.4308)
- nuts of rust-proof and acid-proof steel (minimum quality grade 1.4401), with friction lining
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE ZAK Universal Shut-off Saddle No. 3540 or equivalent

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6.1.5 Pipe Saddle for drilling under pressure, with internal thread outlet PN 16 DN 50 - 300 / 1" - 2"

- for DCI, steel and AC pipes up to PN 16
- with internal thread outlet and corrosion protection ring of elastomer
- saddle body and sealing cover of ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² (for more details please see page 2)
- with integrated shut-off device, pressure-tight from both directions up to 16 bar, shut-off chamber with additional sealing cover
- saddle sealing of elastomer rubber
- strap of stainless steel (minimum quality grade 1.4301) with continuous rubber lining
- bolts of stainless steel (minimum quality grade 1.4308)
- nuts of rust-proof and acid-proof steel (minimum quality grade 1.4401), with friction lining
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Universal Shut-off Saddle No. 3800 or equivalent

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6.1.6 Pipe Saddle for drilling under pressure, with bayonet connection PN 16 DN 65 - 500 / with connection 34 or 46

- for DCI, steel and AC pipes up to PN 16
- outlet with inside bayonet locking for completely corrosion-protected, restraint and lockable connection with suitable fitting
- bayonet connection 34 for max. drilling of Ø 25 mm, bayonet connection 46 for max. drilling of Ø 35 mm
- saddle body and sealing cover of ductile iron EN-GJS-400 acc. to EN 1563, epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² (for more details please see page 2)
- with integrated shut-off device, pressure-tight from both directions up to 16 bar, shut-off chamber with additional sealing cover
- saddle sealing of elastomer rubber
- strap of stainless steel (minimum quality grade 1.4571) with continuous rubber lining
- strap bolts of stainless steel (minimum quality grade 1.4308)
- nuts of rust-proof and acid-proof steel (minimum quality grade 1.4401), with friction lining
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE ZAK Universal Shut-off Saddle No. 3810 or equivalent

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6.2 Pipe Saddles for PE and PVC pipes

6.2.1 Pipe Saddle for drilling without pressure, PN 16 d 40 - 315 / 1" - 2"

- for PEand PVC pipes DIN 8074/8075 and/or EN 1452-2 up to PN 16
- with internal thread outlet and corrosion protection ring of elastomer
- saddle body of ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² (for more details please see page 2)
- completely pipe covering saddle with seal (elastomer rubber) which is in full contact with the entire diameter of the pipe; drilling hole is sealed by at least 2 O-ring profiles; metal stop up to DN 200; width acc. to DIN 3543-T3
- bolts and washers of stainless steel (minimum quality grade A2)
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE HAKU Pipe Saddle No. 5250 or equivalent

alternatively
- from DN 280 to DN 500 with strap

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6.2.2 Pipe Saddle for drilling without pressure, with flanged outlet PN 16 d 110 - 630 / DN 80, DN 100, DN 150

- for PE pipes (d110-630) and PVC pipes (d110-315) DIN 8074/8075 and/or EN 1452-2 up to PN 16
- flanged outlet DN 80, DN 100, DN 150
- completely pipe covering saddle with seal (elastomer rubber) which is in full contact with the entire diameter of the pipe (d110-315); drilling hole is sealed by at least 2 O-ring profiles (d355-630)
- saddle body and strap of ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² (for more details please see page 2)
- metal stop
- bolts and washers of stainless steel (minimum quality grade A2)
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE HAKU Pipe Saddle No. 5230 or equivalent

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6.2.3 Pipe Saddle for drilling under pressure, PN 16 d 63 - 225 / ¾" - 2"

- for PE and PVC pipes DIN 8074/8075 and/or EN 1452-2 up to PN 16
- with internal thread outlet and corrosion protection ring of elastomer
- saddle body and strap of ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²
  (for more details please see page 2)
- completely pipe covering saddle with seal (elastomer rubber) which is in full contact with the entire diameter of the pipe; drilling hole is sealed by at least 2 O-ring profiles, metal stop, width acc. to DIN 3543-T3
- with integrated shut-off device, pressure-tight from both directions up to 16 bar, shut-off chamber with additional sealing cover
- bolts and washers of stainless steel (minimum quality grade A2)
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE HAKU Shut-off Saddle No. 5310 or equivalent

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HAWLE-*SPECIFICATION*

6.2.4 Pipe Saddle for drilling under pressure, with bayonet connection PN 16 d 90 - 225 / with connection 34 or 46

- for PE and PVC pipes DIN 8074/8075 and/or EN 1452-2 up to PN 16
- outlet with inside bayonet locking for completely corrosion-protected, restraint and lockable connection with suitable fitting
- bayonet connection 34 for max. drilling of Ø 25 mm, bayonet connection 46 for max. drilling of Ø 35 mm
- saddle body and strap of ductile iron EN-GJS-400 acc. to EN 1563, epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL -GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²
  (for more details please see page 2)
- completely pipe covering saddle with seal (elastomer rubber) which is in full contact with the entire diameter of the pipe; drilling hole is sealed by at least 2 O-ring profiles, metal stop, width acc. to DIN 3543-T3
- with integrated shut-off device, pressure-tight from both directions up to 16 bar, shut-off chamber with additional sealing cover
- bolts and washers of stainless steel (minimum quality grade A2)
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE ZAK HAKU Shut-off Saddle No. 5320 or equivalent

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6.3 Shut-off Adaptor for drilling under pressure, PN 16 DN 1" - 2"

- for drilling under pressure
- input side external thread, output side internal thread outlet with corrosion protection
- of ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL -GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- pressure-tight from both directions up to 16 bar, shut-off chamber with additional sealing cover
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Shut-off Adaptor No. 3720 or equivalent

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7. Pipe Repair Clamps

7.1 Pipe Repair Clamp for DCI, steel, AC and PVC pipes d 54 - 430

- single lug
- of stainless steel (minimum quality grade 1.4571), welding seams passivated
- fully encircling (wafer tread) elastomer rubber gasket with vulcanized reinforcement sheet metal of stainless steel
- 1 bolt longer for easy mounting
- nuts of stainless steel with antifriction coating in nut dispenser
- with handle
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Pipe Repair Clamp No. 0750 or equivalent

7.2 Pipe Repair Clamp for DCI, steel, AC and PVC pipes d 87 - 471

as described under item 7.1
however:
- double lug

e.g. HAWLE Pipe Repair and Coupling Clamp No. 0751 or equivalent

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8. Flanged Connections

8.1 Flanged Connections for PE pipes

8.1.1 Flange Adaptor „System 2000“ for PE pipes, PN 16, restraint DN 50/63 - 600/630

- for PE pipes acc. to DIN 8074/8075 and PVC pipes acc. to EN 1452-2
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- flange and locking ring of ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL- GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- pipe sealing by lip seal (elastomer rubber)
- with integral flat gasket of elastomer rubber
- grip ring of non ferrous metal with special interlocking teeth
- bolts and washers of stainless steel (minimum quality grade A4), screw thread sealed
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Flange Adaptor „System 2000“ No. 0400 or equivalent

alternatively
- reduced version

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8.1.2 Flange Adaptor for PE pipes, PN 16, restraint, DN 40/40 - 100/110

- for PE pipes acc. to EN 12201, DIN 8074/8075
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- of ductile iron EN-GJS-400 acc. to EN 1563, all-round epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²
  (*for more details please see page 2)*
- pipe sealing by means of O-ring of elastomer rubber
- grip ring of POM with special interlocking teeth
- restraint acc. to DIN 8076 T1/T3
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE ISO Pipe Flange, equal No. 5500 or equivalent

alternatively:
- reduced version

e.g. HAWLE ISO Pipe Flange, reduced, No. 5530 or equivalent

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8.1.3 Flange Adaptors with PE fusion tail

8.1.3.1 Flange Adaptor with PE fusion tail, PN 16, restraint DN 50/63 - 200/225

- with PE fusion tail for use with PE piping acc. to DIN 8074/8075
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated DIN 30677-T2 in accordance with quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- double sealing of PE tail by O-ring and lip seal
- PE tails reinforced by a support liner of stainless steel in the sealing area
- restraint acc. to DIN 8076 T1/T3
- PE tails injection moulded of PE 100/SDR 11
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Flange Adaptor with PE fusion tail No. 0310 or equivalent

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HAWLE-*SPECIFICATION*

8.1.3.2 Flange Adaptor with PE fusion tail, PN 10, restraint DN 50/63 - 200/225

as described under item 8.1.3.1
however:
- for working pressure PN 10
- PE tails injection moulded of PE 100/SDR 17

e.g. HAWLE Flange Adaptor with PE fusion tail No. 0311 or equivalent

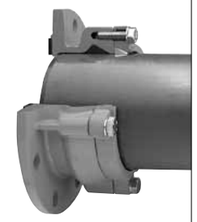
8.2 Flanged Connections for PVC pipes

8.2.1 Flange Adaptor "System 2000" for PVC pipes, PN 16, restraint DN 50/63 - 600/630

- for PVC pipes acc. to DIN 8061/8062 and PE pipes acc. to EN 1452-2
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- flange and locking ring of ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- pipe sealing by lip seal of elastomer rubber
- with integral flat gasket of elastomer rubber
- grip ring of non ferrous metal with special interlocking teeth
- bolts and washers of stainless steel (minimum quality grade A4), screw thread sealed
- restraint
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Flange Adaptor „System 2000“ No. 0400 or equivalent

alternatively
- reduced version



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8.2.2 Flange Adaptor for PVC pipes, PN 16 DN 50/63 - 400/400

- for PVC pipes EN 1452-2
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- of grey iron EN-GJL-250 acc. to EN 1561 and/or ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- pipe sealing by means of sleeve gasket with integral flat gasket of elastomer rubber
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Double Chamber Flange Adaptor, equal, No. 5600 or equivalent

alternatively:
- reduced version

e.g. HAWLE Double Chamber Flange Adaptor, reduced, No. 5630 or equivalent

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8.3 Flanged Connections for DCI pipes

8.3.1 Flange Adaptor for DCI pipes, PN 16, restraint
DN 50/66 - 300/326

- for DCI pipes EN 545
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- of ductile iron EN-GJS-400 acc. to EN 1563 pressure ring of grey iron EN-GJL-250 acc. to EN 1561, epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- pipe sealing by means of sleeve gasket of elastomer rubber
- flat gasket of elastomer rubber integrated in the pressure ring
- grip ring with special interlocking teeth of steel, hardened
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Flange Adaptor No. 7602 or equivalent

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8.3.2 Flange Adaptor for DCI pipes, PN 16,
DN 50/56 - 400/429

- for DCI pipes EN 545
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- of ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- pipe sealing by means of sleeve gasket with integral flat gasket of elastomer rubber
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Double Chamber Flange Adaptor, equal, No. 7102 or equivalent

alternatively:
- reduced version

e.g. HAWLE Double Chamber Flange Adaptor, reduced, No. 7402 or equivalen

8.4 Flanged Connections for steel pipes

8.4.1 Flange Adaptor for steel pipes, PN 16, restraint,
DN 50/59 - 250/273

- for steel pipes
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- of ductile iron EN-GJS-400 acc. to EN 1563 pressure ring of grey iron EN-GJL-250 acc. to EN 1561, epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- pipe sealing by means of sleeve gasket of elastomer rubber
- flat gasket of elastomer rubber integrated in the pressure ring
- grip ring of steel, hardened
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Flange Adaptor No. 7601 or equivalent

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8.4.2 Flange Adaptor for steel pipes, PN 16,
DN 50/56 - 300/316

- for steel pipes
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- of grey iron EN-GJL-250 acc. to EN 1561 or ductile iron EN-GJS-400 acc. to EN 1563 all-round epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- pipe sealing by means of sleeve gasket with integral flat gasket of elastomer rubber
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Double Chamber Flange Adaptor No. 7101 or equivalent

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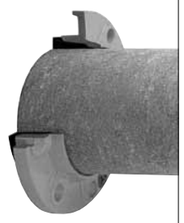
8.5 Flange Adaptor for AC pipes, PN 16
DN 80/98 - 150/178

- for AC pipes (EN 512- PN 10)
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- of grey iron EN-GJL-250 acc. to EN 1561 or ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- pipe sealing by means of sleeve gasket with integral flat gasket of elastomer rubber
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Double Chamber Flange Adaptor No. 7103 or equivalent



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9. Other Restraint Systems

9.1 Restraint System for PVC pipes , PN 10/16, for socket to spigot

- of ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- grip ring of non ferrous metal with special interlocking teeth
- for bolt-less assembly

e.g. HAWLE PVC Restraint Clamp No. 1254/1255 or equivalent

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10. ISO Pipe Fittings for Plastic Pipes

10.1 General Description

10.1.1 ISO Pipe Fittings for plastic pipes, of POM

- for PE pipes EN 12201, DIN 8074/8075
- working pressure: PN 16
- with ISO push-fit socket (restraint without screwing)
- body of plastic - POM (polyoxymethylene)
- sealing by O-ring
- grip ring of plastic - POM (polyoxymethylene) with special interlocking teeth
- ISO push-fit socket protected by dirt cap against water and dirt from outside
- restraint acc. to DIN 8076 T1/T3
- all internal threads with stainless steel support ring

alternatively:
- with special clamp for PVC pipes acc. to EN 1452-2

HAWLE-*SPECIFICATION*

10.1.2 ISO Pipe Fittings for plastic pipes, of ductile iron

- for PE pipes EN 12201, DIN 8074/8075
- working pressure: PN 16
- with ISO push-fit socket (restraint without screwing)
- body of ductile iron EN-GJS-400 acc. to EN 1563, epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- sealing by O-ring
- grip ring of plastic - POM (polyoxymethylene) with special interlocking teeth
- ISO push-fit socket protected by dirt cap against water and dirt from outside
- restraint acc. to DIN 8076 T1/T3
- all internal threads with stainless steel support ring
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

alternatively:
- with special clamp for PVC pipes acc. to EN 1452-2

10.2 Versions

10.2.1 ISO Pipe Fitting - External Adaptor

- of ductile iron
  DN ½" (d20) - 2" (d 63)

  e.g. HAWLE ISO Pipe Fitting - External Adaptor No. 6100 or equivalent

  alternatively:
  - special dimensions (reduced versions)

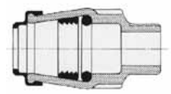
  e.g. HAWLE ISO Pipe Fitting - External Adaptor No. 6110 or equivalent

- of plastic - POM (polyoxymethylene)
  DN ½" (d20) - 2" (d 63)

  e.g. HAWLE ISO Pipe Fitting - External Adaptor No. 6120 or equivalent

  alternatively:
  - special dimensions (reduced versions)

  e.g. HAWLE ISO Pipe Fitting - External Adaptor No. 6150 or equivalent



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10.2.2 ISO Pipe Fitting - Internal Adaptor

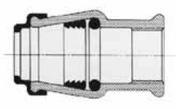
- of ductile iron
  DN ½" (d20) - 3" (d 90)

  e.g. HAWLE ISO Pipe Fitting - Internal Adapor No. 6200 or equivalent

  alternatively:
  - special dimensions (reduced versions)
  e.g. HAWLE ISO Pipe Fitting - Internal Adapor No. 6210 or equivalent

- of plastic - POM (polyoxymethylene)
  DN ½" (d20) - 2" (d 63)

  e.g. HAWLE ISO Pipe Fitting - Internal Adapor No. 6220 or equivalent



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10.2.3 ISO Pipe Fitting - Connector

- of ductile iron
  DN ½" (d20) - 3" (d 90)

  e.g. HAWLE ISO Pipe Fitting - Connector No. 6300 or equivalent

  alternatively:
  - special dimensions (reduced versions)

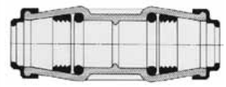
  e.g. HAWLE ISO Pipe Fitting - Connector No. 6310 or equivalent

- of plastic - POM (polyoxymethylene)
  DN ½" (d20) - 2" (d 63)

  e.g. HAWLE ISO Pipe Fitting - Connector No. 6320 or equivalent

  alternatively:
  - special dimensions (reduced versions)

  e.g. HAWLE ISO Pipe Fitting - Connector No. 6330 or equivalent



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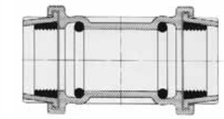
10.2.4 ISO Pipe Fitting - Connector with detachable taper

- of ductile iron
  DN 1" (d 32) - 2" (d 63)

  e.g. HAWLE ISO Pipe Fitting - Connector No. 6301 or equivalent



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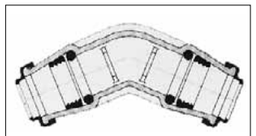
10.2.5 ISO Pipe Fitting - Elbow 45°

- of ductile iron
  DN 1 ¼" (d 40) - 2" (d 63)

  e.g. HAWLE ISO Pipe Fitting - Elbow 45° No. 6440 or equivalent



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10.2.6 ISO Pipe Fitting - Elbow 90°

- of ductile iron
  DN ½" (d20) - 2" (d 63)

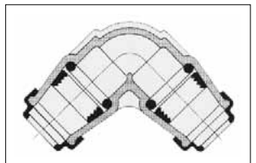
  e.g. HAWLE ISO Pipe Fitting - Elbow 90° No. 6400 or equivalent

- of plastic - POM (polyoxymethylene)
  DN ½" (d20) - 2" (d 63)

  e.g. HAWLE ISO Pipe Fitting - Elbow 90° No. 6420 or equivalent

  alternatively:
  - special dimensions (reduced versions)

  e.g. HAWLE ISO Pipe Fitting - Elbow 90° No. 6490 or equivalent



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10.2.7 ISO Pipe Fitting - Elbow 90° with external thread

- of ductile iron
  DN ¾" (d25) - 2" (d 63)

  e.g. HAWLE ISO Pipe Fitting - Elbow 90° with external thread No. 6460 or equivalent

  alternatively:
  - special dimensions (reduced versions)

  e.g. HAWLE ISO Pipe Fitting - Elbow 90° with external thread No. 6470 or equivalent

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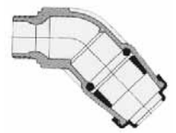

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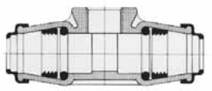

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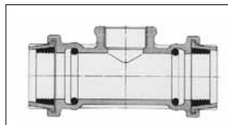

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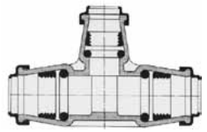

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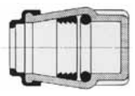

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10.2.8 ISO Pipe Fitting - Elbow 45° with external thread
- of ductile iron
  DN 1" (d32) - 2" (d 63)

  e.g. HAWLE ISO Pipe Fitting - Elbow 45° with external thread No. 6411
  or equivalent

10.2.9 ISO Pipe Fitting - Elbow 90° with external thread, swivelling
- of ductile iron
  DN 1" (d32) - 2" (d 63)

  e.g. HAWLE ISO Pipe Fitting - Elbow 90° with external thread, swivelling
  No. 6462
  or equivalent

10.2.10 ISO Pipe Fitting - Tee with internal thread outlet
- of ductile iron
  DN ½" (d20) - 2" (d 63)

  e.g. HAWLE ISO Pipe Fitting - Tee with internal thread outlet No. 6500
  or equivalent

  alternatively:
  - special dimensions (reduced versions)

  e.g. HAWLE ISO Pipe Fitting - Tee with internal thread outlet No. 6510
  or equivalent

- of plastic - POM (polyoxymethylene)
  DN ½" (d20) - 2" (d 63)

  e.g. HAWLE ISO Pipe Fitting - Tee with internal thread outlet No. 6520
  or equivalent

10.2.11 ISO Pipe Fitting - Tee with internal thread outlet, with detachable taper
- of ductile iron
  DN 1" (d32) - 2" (d 63)

  e.g. HAWLE ISO Pipe Fitting - Tee with internal thread outlet No. 6501
  or equivalent

10.2.12 ISO Pipe Fitting - Tee with 3 sockets
- of ductile iron
  DN ½" (d20) and 1 ½" (d 50)

  e.g. HAWLE ISO Pipe Fitting - Tee with 3 sockets No. 6530 or equivalent

  alternatively:
  - special dimensions (reduced versions)

  e.g. HAWLE ISO Pipe Fitting - Tee with 3 sockets No. 6531or equivalent

10.2.13 ISO Pipe Fitting - End Stop
- of plastic - POM (polyoxymethylene)
  DN ½" (d20) - 2" (d 63)

  e.g. HAWLE ISO Pipe Fitting - End Stop No. 6223 or equivalent

HAWLE-*SPECIFICATION*

10.3 HAWLE-FIT Fitting for PE-Pipes
General Description

10.3.1 HAWLE-FIT Fitting for PE-Pipes DIN 8074/EN 12201
- Pressure Rate: PN 16
- Body of PP
- Grippring of POM (Polyoxymethylen)
- Clamping nut of POM (Polyoxymethylen)
- Lipseal of elastomer
- Ready for assembling out of the packing
- No special tools required
- Clamping nut demountable
- restraint acc. to ISO 14236
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

10.4 Versions

10.4.1 HAWLE-FIT PE Adapter with external thread No. 6120HF
DN ¾" (d25) - 2" (d 63)

10.4.2 HAWLE-FIT PE Adapter with internal thread No. 6220HF
With reinforcing ring of stainless steel on internal thread
DN ¾" (d25) - 2" (d 63)

10.4.3 HAWLE-FIT PE Connector No. 6320HF
DN ¾" (d25) - 2" (d 63)

10.4.4 HAWLE-FIT PE Elbow 90° with internal thread No. 6430HF
With reinforcing ring of stainless steel on internal thread
DN ¾" (d25) - 2" (d 63)

10.4.5 HAWLE-FIT PE Elbow 90° No. 6420HF
DN ¾" (d25) - 2" (d 63)

10.4.4 HAWLE-FIT PE T-Piece with internal threaded outlet No. 6520HF
With reinforcing ring of stainless steel on internal thread
DN ¾" (d25) - 2" (d 63)

10.5 ISO Pipe Fittings for plastic pipes, of ductile iron
- for PE pipes EN 12201, DIN 8074/8075
- working pressure: PN 16
- with ISO push-fit socket (restraint without screwing) and with bayonet lugs and O-ring sealing with two O-rings for a perfectly corrosion protected restraint and lockable bayonet connection with suitable drilling saddle (ZAK)
- body of ductile iron EN-GJS-400 acc. to EN 1563, epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements RAL-GZ 662
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² (for more details please see page 2)
- sealing by O-rings of elastomer rubber
- grip ring of plastic - POM (polyoxymethylene) with special interlocking teeth
- ISO push-fit socket protected by dirt cap against water and dirt from outside
- restraint acc. to DIN 8076 T1/T3
- with locking piston for bayonet connection
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

alternatively:
- with special clamp for PVC pipes acc. to DIN 8061/8062

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Versions:
- **straight version** e.g. HAWLE ZAK Fitting No. 6160,
  Ø 25,32 and 40 with connection 34
  Ø 32,40,50 and 63 with connection 46
  or equivalent

- **elbow version 90°** e.g. HAWLE ZAK Elbow No. 6480,
  Ø 25,32 and 40 with connection 34
  Ø 32,40,50 and 63 with connection 46
  or equivalent

- **elbow version 90°** e.g. HAWLE ZAK Elbow 90° swivel type No. 6465,
  with rotary joint for alignment of fitting,
  Ø 32 and 40 with connection 34
  Ø 32,40,50 and 63 with connection 46
  or equivalent

10.6 ISO Pipe Fittings for plastic pipes, of ductile iron

- for PE pipes EN 12201, DIN 8074/8075
- working pressure: PN 16
- with PE fusion tail (leak-proof connection between PE fusion tail and cast part assembled non-detachable at the factory) and with bayonet lugs and O-ring sealing with two O-rings for a perfectly corrosion protected restraint and lockable bayonet connection with suitable drilling saddle
- body of ductile iron EN-GJS-400 acc. to EN 1563 (DIN 1693), epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements RAL-GZ 662
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (for more details please see page 2)
- sealing by O-rings of elastomer rubber
- restraint acc. to DIN 8076 T1/T3
- with locking piston for bayonet connection
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805


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Versions:
- **straight version** e.g. HAWLE ZAK PE tail No. 6180,
  Ø 32 and 40 with connection 34
  Ø 32,40,50 and 63 with connection 46 or equivalent

- **elbow version 90°** e.g. HAWLE ZAK Elbow 90° PE tail No. 6479,
  Ø 32 and 40 with connection 34
  Ø 32,40,50 and 63 with connection 46 or equivalent

HAWLE-*SPECIFICATION*

11. Hydrants

11.1 Above Ground Hydrants

11.1.1 Above Ground Hydrant of stainless steel, rigid type PN 16 DN 80 and DN 100

- acc. to EN 14384 / EN 1074-6 / ÖNORM F 2010
- outlets: DN 80 1 x B and 2 x C
  DN 100 1 x A and 2 x B
- entirely of corrosion free material
- hydrant head of sea water proof tempered aluminium alloy, UV resistant coating, swivelling from 0° to 360°
- stand pipe of stainless steel (minimum quality grade 1.4571)
- operating controls of stainless steel (minimum quality grade 1.4301)
- spindle of stainless steel (minimum quality grade 1.4162)
- spindle sealing (O-rings) embedded in non-corrosive material
- base of cast stainless steel
- all welding seams passivated
- stand pipe polished
- pressure-relieving drain off system
- base flange acc. to EN 1092-1
- remaining water content acc. to EN 14384
- spindle and valve plug replaceable from top of hydrant
- pipe cover depth 1,5 m
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE Corrosion Free Hydrant rigid ype No. 5151H4 or equivalent

alternatively:
- outlets: DN 80 2 x B
  DN 100 2 x B

e.g. HAWLE Corrosion Free Hydrant rigid type No. 5140H4 or equivalent

11.1.2 Above Ground Hydrant of stainless steel, break away PN 16 DN 80 and DN 100

as described under item 11.1.1
however:
- with break away line
- spare bolts under the cap

e.g. HAWLE Corrosion Free Hydrant - break away No. 5195H4 or equivalent

alternatively:
- outlets: DN 80 2 x B
  DN 100 2 x B

e.g. HAWLE Corrosion Free Hydrant - break away No. 5196H4 or equivalent


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11.1.3 Above Ground Hydrant of cast iron, rigid type PN 16
DN 80 and DN 100

- acc. to EN 14384 / EN 1074-6 / ÖNORM F 2010
- outlets: DN 80 1 x B and 2 x C
  DN 100 1 x A and 2 x B
- hydrant head of ductile iron EN-GJS-400 acc. to EN 1563, epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662 (for more details please see page 2), additionally with UV resistant coating, swivelling from 0° to 360°
- hydrant base of ductile iron EN- GJS-400, epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662 (for more details please see page 2)
- stand pipe of steel, galvanized and with UV resistant coating
- spindle of stainless steel (minimum quality grade 1.4162)
- spindle sealing (O-rings) embedded in non-corrosive material
- all inner parts entirely of corrosion free materials
- pressure relieving drain off system
- spindle and valve plug replaceable from top of hydrant
- base flange drilled acc. to EN 1092-2
- pipe cover depth 1,5 m
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE Above Ground Hydrant rigid type No. 5051H4 or equivalent

alternatively:
- outlets: DN 80 2 x B
  DN 100 2 x B

e.g. HAWLE Above Ground Hydrant rigid type No. 5053H4 or equivalent

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11.1.4 Above Ground Hydrant of cast iron, break away type PN 16
DN 80, DN 100 and DN 150

as described under item 11.1.3
however:
- with break away line
- with spare bolts under the cap

e.g. HAWLE Above Ground Hydrant - break away type No. 5095H4 or equivalent

alternatively:
- outlets: DN 80 2 x B
  DN 100 2 x B

e.g. HAWLE Above Ground Hydrant - break away type No. 5096H4 or equivalent

11.2 Below Ground Hydrants

11.2.1 Below Ground Hydrant, 1,5 m pipe cover depth, PN 16
DN 80

- acc. to EN 14339
- 1,5 m pipe cover depth
- bayonet coupling outlet
- hydrant base and bayonet coupling of ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² (for more details please see page 2)
- spindle of stainless steel (minimum quality grade 1.4162)
- stand pipe of stainless steel (minimum quality grade 1.4571)
- pressure relieving drain off system
- eccentric disc and shut-off plate of stainless steel (minimum quality grade 1.4162/1.4310), completely straight-through bore, shut-off plate, when open, completely outside of flow medium
- base flange drilled to EN 1092-2
- pipe cover depth 1,5 m
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805
- approved by ÖVGW (Austrian Association for Gas and Water)

e.g. HAWLE Freeflow Below Ground Hydrant No. 5060 or equivalent

alternatively:
- with spigot end DN 80

e.g. HAWLE Freeflow Below Ground Hydrant No. 5061 or equivalent

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11.2.2 Below Ground Hydrant, 1,25 m pipe cover depth PN 16
DN 80

as described under item 11.2.1
however
- 1,25 m pipe cover depth

e.g. HAWLE Freeflow Below Ground Hydrant No. 5060 or equivalent

alternatively:
- with spigot end DN 80

e.g. HAWLE Freeflow Below Ground Hydrant No. 5061 or equivalent

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11.3 Accessories for Below Ground Hydrants

11.3.1 Surface Box for Below Ground Hydrant

- of grey iron EN-GJL-200 acc. to EN 1561, bitumen coated
- minimum test load for lid: 200 kN - for body: 400 kN

e.g. HAWLE Surface Box for Below Ground Hydrant No. 1950 or equivalent

11.3.2 Base Plate for Surface Box (Below Ground Hydrant)

- for Surface Boxes acc. to DIN 4055
- of recycled plastic
- unbreakable and unrottable

e.g. HAWLE Base Plate No. 3482 or equivalent

12. Pipe Fittings

12.1 Pipe Fittings „System 2000“ with socket connection for PE and PVC pipes, restraint, PN 10/16

12.1.1 General Description

- for PVC pipes acc. to EN 1452-2 and PE pipes acc. to EN 12201, DIN 8074/8075
- working pressure: PN 16
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- of ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm²

  (*for more details please see page 2)*
- grip ring of non ferrous metal with special interlocking teeth
- lip seal of elastomer rubber
- bolts and washers of stainless steel (minimum quality grade A4), screw thread sealed
- restraint acc. to DIN 8076 T1/T3
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

12.1.2 Versions

12.1.2.1 Connector „System 2000“ / PN 16
d 63 - 355
as described under item 12.1.1
- 2 x socket

e.g. HAWLE Connector „System 2000“ No. 0430 or equivalent


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12.1.2.2 Double Socket Tee „System 2000“ / PN 16
d 63/DN 50 - d 225/DN 200
as described under item 12.1.1
- Tee, 2 x socket, flanged outlet

e.g. HAWLE Double Socket Tee „System 2000“ No. 8525 or equivalent


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12.1.2.3 All socket Tee „System 2000“ / PN 16
d 63 - 225
as described under item 12.1.1
- Tee, 3 x socket

e.g. HAWLE All Socket Tee „System 2000“ No. 8515 or equivalent


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12.1.2.4 Bend 90° „System 2000“ / PN 16
d 63 - 315
as described under item 12.1.1
- 2 x socket

e.g. HAWLE Bend 90° „System 2000“ No. 8535 or equivalent


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12.1.2.5 Bend 45° „System 2000“ / PN 16
d 63 - 315
as described under item 12.1.1
- 2 x socket

e.g. HAWLE Bend 45° „System 2000“ No. 8545 or equivalent

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12.1.2.6 Bend 30° „System 2000“ / PN 16
d 90 / 110 / 160
as described under item 12.1.1
- 2 x socket

e.g. HAWLE Bend 30° „System 2000“ No. 8555 or equivalent

12.1.2.7 End Cap „System 2000“ / PN 16
d 63 - 315
as described under item 12.1.1

alternatively:
with 1", 1¼", 1½" or 2" threaded connection

e.g. HAWLE End Cap „System 2000“ No. 8075 or equivalent


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12.1.2.8 Duck Foot Bend 90° „System 2000“ / PN 16
DN 80 / 100
as described under item 12.1.1
- with socket connection

e.g. HAWLE Duck Foot Bend 90° „System 2000“ No. 5045 or equivalent


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12.2. Fittings „Synoflex“ with Socket Connection for all kinds of pipes, restraint, PN 16

12.2.1 General Description

- DN 50 - DN 400
- suitable for restraint multi-range connection for all kins of pipes in water supply (DCI, steel, PE, PVC and AC), EN 14525
- Body and lock ring of ductile iron EN-GJS acc. to EN 14525 (min. 420 N/mm²). Epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² (for more details please see page 2)
- Flexible gasket of elastomer acc. to EN 681-1 (suitable for potable water)
- Flexible Synoflex ring of POM
- Tension locks corrosion resistant
- Each support element holds a tension lock element
- Bolts and nuts of stainless steel, coated against seizing
- Bolt head locking devices of stainless steel, with protective cap of elastomer
- Bolts reversible 180°
- Spacer bushes of PE
- Angle compensation max. 8° (+/- 4° each socket)
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

12.2.2 Versions

12.2.3 Restraint Multi-Range Flange Adapter, PN16

as described under item 12.2
- DN 50 - DN 400
- flange dimensions and drilling acc. to EN1092-2 PN10 (alternatively PN16)
- approved by ÖVGW (Austrian Association for Gas and Water) DN 50 - DN 300

e.g. Hawle-SYNOFLEX Flange No. 7994 or equivalent


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12.2.4 Restraint Multi-Range Connector, PN16, acc. EN 14525
as described under item 12.2
- DN 40 - DN 400
- 2 x socket
- approved by ÖVGW (Austrian Association for Gas and Water) DN 50 - DN 300

e.g. Hawle-SYNOFLEX Connector No. 7974 or equivalent

12.2.5 Syno2000 Connector / PN 16
as described under item 12.2
- DN 80 - DN 200
- 1 x socket Synoflex 1 x socket System 2000 (as described under item 12.1

e.g. HAWLE SYNOFLEX End cap No. 7975 or equivalent

12.2.6 End cap "Synoflex" / PN 16
as described under item 12.2
- DN 80 - DN 200
- 1 x socket

alternatively:
- with threaded outlet 1" to 2"

e.g. HAWLE Synoflex End cap No. 7980 or equivalent

12.2.7 Duckfoot bend "Synoflex" / PN 16
as described under item 12.2
- DN 80 - DN 100

e.g. HAWLE SYNOFLEX Duckfoot bend No. 7981 or equivalent

12.3 Pipe Fittings System „BAIO“ with socket connection alternatively for DCI or plastic pipes

12.3.1 General Description
- DN 80 - DN 200
- with double function socket System „BAIO“ for DCI or plastic pipes
- working pressure: PN 16
- of ductile iron EN-GJS-400 acc. to EN 1563 epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- without gaskets (see 12.3.3)
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

12.3.2 Versions


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12.3.2.1 Socket Tee System „BAIO“ / PN 16
as described under item 12.3.1
Tee, 3 x socket

e.g. HAWLE Socket Tee System „BAIO“ No. NL20 or equivalent


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12.3.2.2 Collar (connector) System „BAIO“ / PN 16
as described under item 12.3.1
- 2 x socket, equal dimensions

e.g. HAWLE Collar System „BAIO“ No. NL50 or equivalent

alternatively:
- with threaded outlet

e.g. HAWLE Collar System „BAIO“ No. NL51 or equivalent

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12.3.2.3 Concentric Taper System „BAIO“ / PN 16
as described under item 12.3.1
- 2 x socket, reduced dimensions

e.g. HAWLE Concentric Taper „BAIO“ No. NL40 or equivalent

12.3.2.4 Bend 90° System „BAIO“ / PN 16
as described under item 12.3.1
- 2 x socket

e.g. HAWLE Bend 90° System „BAIO“ No. NL30 or equivalent

12.3.2.5 Bend 45° System „BAIO“ / PN 16
as described under item 12.3.1
- 2 x socket

e.g. HAWLE Bend 45° System „BAIO“ No. NL32 or equivalent

12.3.2.6 Bend 30° System „BAIO“ / PN 16
as described under item 12.3.1
- 2 x socket

e.g. HAWLE Bend 30° System „BAIO“ No. NL33 or equivalent

12.3.2.7 Bend 22° System „BAIO“ / PN 16
as described under item 12.3.1
- 2 x socket

e.g. HAWLE Bend 22° System „BAIO“ No. NL34 or equivalent

12.3.2.8 Flanged Spigot System „BAIO“ / PN 16
as described under item 12.3.1
- flange-spigot piece
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)

e.g. HAWLE Flanged Spigot System „BAIO“ No. NL41 or equivalent

12.3.2.9 Flanged Socket System „BAIO“ / PN 16
as described under item 12.3.1
- flange-socket piece
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)

e.g. HAWLE Flanged Socket System „BAIO“ No. NL42 or equivalent

12.3.2.10 End Cap System „BAIO“ / PN 16
as described under item 12.3.1

e.g. HAWLE End Cap System „BAIO“ No. NL47 or equivalent

12.3.2.11 Duck Foot Bend System „BAIO“ / PN 16
as described under item 12.3.1
- 2 x socket

e.g. HAWLE Duck Foot Bend System „BAIO“ No. NL60 or equivalent

12.3.3 Accessories: Restraint Joint for System „BAIO“

alternatively:
- with clamp for DCI, PE or PVC pipes

e.g. HAWLE Restraint Joint „Hawle-Stop“ or equivalent

Gaskets for System BAIO alternativetly for DCI or PE/PVC pipes


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12.4 Flanged Fittings

12.4.1 General Description

- DN 50 - DN 500
- of ductile iron EN-GJS-400 acc. to EN 1563
- working pressure: PN 16
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with quality and test requirements of RAL -GZ 662
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm² *(for more details please see page 2)*
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

12.4.2 Versions

12.4.2.1 Double Flanged Pipe (FF)
as described under item 12.4.1

e.g. HAWLE Double Flanged Pipe No. 8500 or equivalent


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12.4.2.2 Double Flanged Taper (FFR)
as described under item 12.4.1

e.g. HAWLE Double Flanged Taper No. 8550 or equivalent


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12.4.2.3 Double Flanged Bend 45° (FFK 45°)
as described under item 12.4.1
e.g. HAWLE Double Flanged Bend 45° No. 8540 or equivalent


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12.4.2.4 Double Flanged Bend 90° (Q)
as described under item 12.4.1

e.g. HAWLE Double Flanged Bend 90° No. 8530 or equivalent


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12.4.2.5 All Flanged Tee (T)
as described under item 12.4.1

e.g. HAWLE All Flanged Tee No. 8510 or equivalent


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12.4.2.6 All Flanged Short Tee (Short-T)
as described under item 12.4.1
- short face-to-face dimension

e.g. HAWLE All Flanged Short Tee No. 8740 or equivalent

alternatively:
- with vertical centre outlet DN 100
- with thread 1"

12.4.2.7 All Flanged Crosses (TT)
as described under item 12.4.1

e.g. HAWLE All Flanged Crosses No. 8520 or equivalent


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12.4.2.8 All Flanged Short Crosses (Short -TT)
as described under item 12.4.1
- short face-to-face dimension

e.g. HAWLE All Flanged Cross No. 8750 or equivalent

alternatively:
- with vertical centre outlet DN 100
- with thread 1"


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12.4.2.9 Double Flanged Duck Foot Bend 90° (N)
as described under item 12.4.1

e.g. HAWLE Double Flanged Duck Foot Bend No. 5049 or equivalent


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12.5 Other Pipe Fittings

12.5.1 General Description

- DN 50 - DN 300
- of ductile iron EN-GJS-400 acc. to EN 1563
- working pressure: PN 16
- epoxy powder coated inside and outside acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662 *(for more details please see page 2)*

12.5.2 Versions

12.5.2.1 Cut-in Socket Fittings (EMS) / PN 16
as described under item 12.5.1.
- DN 80 - 200
- for later installation of valves and fittings in grey iron and ductile iron pipelines

e.g. HAWLE Cut-in Socket Fitting No. NL44
or equivalent


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12.6 HAWLE VARIO, flexible fitting with angle and length adjustment

12.6.1 General Description

- DN 50 - DN 200
- of ductile iron EN-GJS-400/500 acc. to EN 1563 (GGG 400-DIN1693)
- Operating pressure: PN 16
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- Versions in short or long
- Angle adjustment 10°
- inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm

  (for more details please see page 2)
- O-rings of elastomer (suitable for potable water)
- Length fixing by tension locks of stainless steel
- locking ring and washens of stainless steel

e.g. HAWLE-Vario Nr. 8010S or 8011S
or equivalent


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13. Butterfly Valves

13.1 Double eccentric soft-sealing butterfly valve according to EN 593, Face to Face dimension according to EN 558 Series 14 (Option: Series 13) PN 10 (or 16); clockwise (Option: anticlockwise) closing, for water up to 40°C, DN 150 – DN 1400

- Body and valve disc made of ductile iron EN GJS 400, every part epoxy coated, thickness min. 250 microns
- Valve disc with double-eccentric, medium free bearing design, closed disc hubs, maintenance-free bronze bushings, with multi O-ring sealings and keyed connections
- Integrated body seat wear-, corrosion- and undermining resistant, made of stainless steel weld filled and micro finished
- Profiled easy changeable sealing ring made of EPDM, retaining ring made of 1.4301
- With worm gearbox, protection class IP 68-6, including mechanical position indicator and handwheel, without backfitting useable as buried version or for actuator
- Gearbox directly connected to butterfly valve without adapter
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g Hawle-butterfly valve Nr. 9881K or equivalent

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13.1.1 Double eccentric soft-sealing butterfly valve according to EN 593, Face to Face dimension according to EN 558 Series 14 (Option: Series 13) PN 10 (or 16 or 25 or 40); clockwise (Option: anticlockwise) closing, for water up to 40°C, DN 150 – DN 2500

- Body and valve disc made of ductile iron EN GJS 400, every part epoxy coated, thickness min. 250 microns
- Valve disc with double-eccentric, medium free bearing design, closed disc hubs, maintenance-free bronze bushings, with multi O-ring sealings and keyed connections
- Integrated body seat wear-, corrosion- and undermining resistant, made of stainless steel weld filled and micro finished
- Profiled easy changeable sealing ring made of EPDM
- With worm gearbox, protection class IP 67, including mechanical position indicator and handwheel
- Gearbox directly connected to butterfly valve without adapter
- packed to prevent ingress of dirt and dust during storage acc. to EN 12351 and EN 805

e.g. butterfly valve No. 9881 Öz-Kan or equivalent

14. Sundries Valves

14.1 Non Return Valve, PN 16
DN 40 – DN 300

- face-to-face dimension acc. to EN 558-1 GR48
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- body and disc of grey iron EN-GJL-250, disc lever-arm of ductile iron EN-GJS-400, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm

  (*for more details please see page 2)*
- shaft and pin of stainless steel
- disc gasket of elastomer rubber
- bolts, nuts and washers of stainless steel
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Non Return Valve No. 9830 or equivalent

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14.2 Non Return Valve, PN 16
DN 50, 80, 100, 150, 200

- face-to-face dimension acc. to EN 558-1 GR48
- flange dimensions and drilling to EN 1092-2 PN 10 (alternatively PN 16)
- body and disc of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm (*for more details please see page 2)*
- Disk with metal core fully covered with vulcanized elastomer
- Disk lever made of PA
- bolts, nuts and washers of stainless steel
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Non Return Valve No. 9831
or equivalent

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14.3 Strainer, PN 16
DN 40 – DN 300

- face-to-face dimension acc. to EN 558-1 GR48
- flange dimensions and drilling to EN 1092-2 PN 10 *(alternatively PN 16)*
- body and cover of grey iron EN-GJL-250, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm

  (for more details please see page 2)
- double screen of stainless steel, fine-meshed, mesh-size max. 0,6 mm
- gasket of Klingerit
- bolts, nuts and washers of stainless steel
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Non Return Valve No. 9910
or equivalent

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14.4 Strainer, PN 16
DN 50, 80, 100, 150, 200

- face-to-face dimension acc. to EN 558-1 GR48
- flange dimensions and drilling to EN 1092-2 PN 10 *(alternatively PN 16)*
- body and cover of ductile iron EN-GJS-400 acc. to EN 1563, inside and outside epoxy powder coated acc. to DIN 30677-T2 in accordance with the quality and test requirements of RAL-GZ 662:
  - coating thickness: min. 250 µm
  - zero porosity: min. 3000 V spark test
  - adhesion: min. 12 N/mm

  (for more details please see page 2)
- double screen of stainless steel, fine-meshed, mesh-size max. 0,6 mm
- gasket of EPDM
- bolts, nuts and washers of stainless steel
- with protecting caps to prevent ingress of dirt & dust during storage acc. to EN 12351 and EN 805

e.g. HAWLE Non Return Valve No. 9911
or equivalent

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