



Float valve with progressive control valve®

HAWIDO - REGULATING VALVES

Instruction for

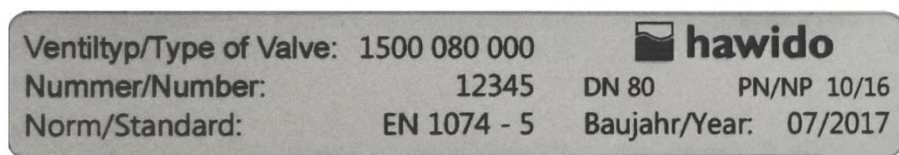
**Float valve with progressive control valve NKV
Type 1601**

ND40 - ND200



Keep this instruction manual at the location of the valve!

Example of rating plate



After the commissioning, enter the following data and make use of this additional information regarding the valve type, pressure and flow ratios when consulting the manufacturer or the supplier or asking them questions:

Serial number: DN PN:

Year of manufacture:.....

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A. Description

1. Function

The valve mechanically/hydraulically regulates the water level in a container by means of a progressive float control valve (5). The water level sinks as the amount of water drawn increases. The valve regulates the inflow into the basin and correspondingly progressively opens the water withdrawal. The water level in the container can be varied by up to 900 mm with the float limits. The closing speed can be set using a flow control valve (4).

Technical features:

Medium:	Drinking water
Pressure stages:	PN 10 (from DN 200 Standard) PN16 (up to DN150 Standard) PN25
Flanges:	Connection dimensions according to DIN EN 1092 - -2
Pressure gauge:	EN 837-1; Accuracy class 1.0
Main valve material:	EN-GJS-400-15
Temperature range:	2 – 40 °C

2. General safety instructions

These instructions must be read through carefully and understood before starting the commissioning. Damage to property and injuries to persons could occur as a result of improper installation, commissioning, operation and maintenance.

The Hawle regulating valve (HAWIDO) has been designed for use in drinking and process water supplies. Other application media only after consultation with the manufacturer.

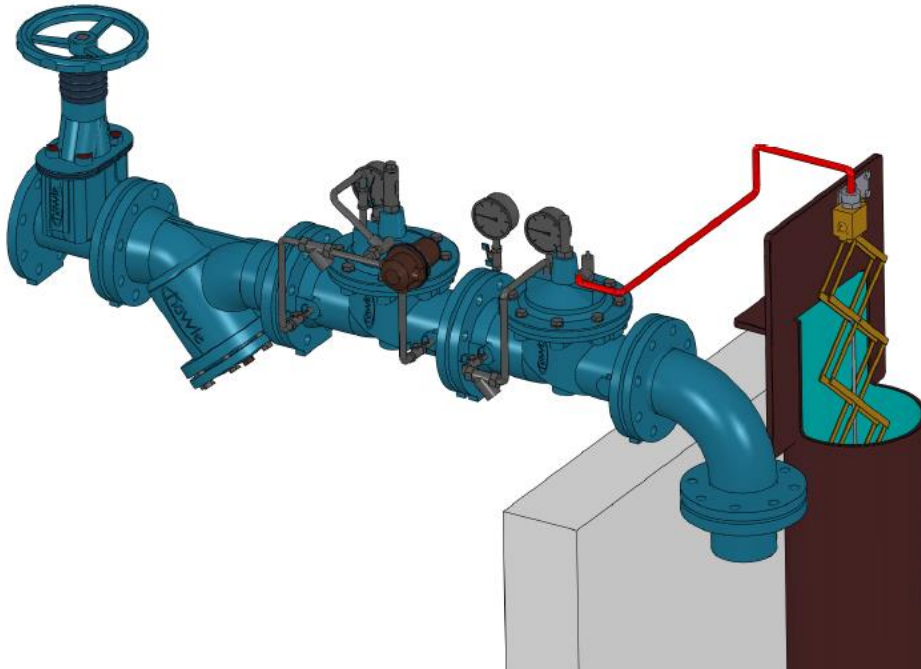
The technical regulations (e.g. SVGW, ÖVGW, DVGW...) and codes of practice (e.g. VDE, VDI ...), laws and standards are taken as a minimum standard, and must be adhered to and applied.

Work on electrical installations (e.g. installation of magnetic position switches, solenoid valves, etc.) may only be carried out by personnel authorised for this work.

In principle, the responsibility for the layout, the installation position, the installation and the commissioning of the fittings in the pipe work lies with the designer, the installation company and/or the operator. Design or installation errors can adversely affect the safe operation of the regulating valve, and can represent a significant risk. Please consult us in case of doubt.

3. Recommended installation

Before the installation of the fitting, the pipe lines must be carefully blown or flushed through to prevent any foreign material, such as pieces of wood, stones etc., from entering the regulating valve.



The HAWIDO must be installed horizontally (other installation models on request) with the valve cover upwards. We recommend that a shut-off valve and a dirt trap be fitted in front of the valve. Depending on the pipework construction (e.g. the piping runs upwards) a shut-off valve after the valve should also be planned. Before the installation, check that no coarse foreign objects can penetrate into the HAWIDO.

If the **inlet pressure is over 4 bar** we recommend a combined control system with pressure reduction, in order to avoid cavitation damage and hammering. For inlet pressures under 1.5 bar, please contact us.

For trouble-free operation, we recommend a protection pipe for the float.

For assembly, you will require a control line from the base valve to the float control valve. The control line is fixed with the fitting on the base valve and should have an outer diameter of 12 mm. For this, use stainless steel pipes or a pressure-resistant PA tube. If plastic piping is used, a support sleeve must be provided. The control line must be supplied and assembled by the **customer**.

The control line should continuously rise in the direction of the float control valve and not be longer than 20m. The height difference between the float control valve and the base valve should not exceed 2m.

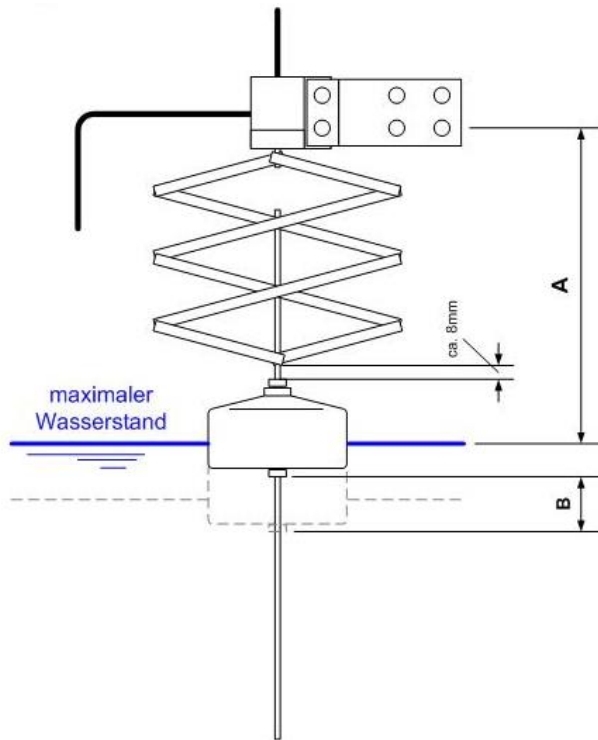
4. Installation instructions

Float:

The float valve should be assembled so that the maximum and minimum water levels lie in the region of the supplied float rods.

The maximum water level and closed HAWIDO valve lie when the scissor system is completely closed (float on top).

Installation note:



A = 400mm

These dimensions must be adhered to when installing the control valve with the float in the float protection pipe:

B = 135mm

Caution:

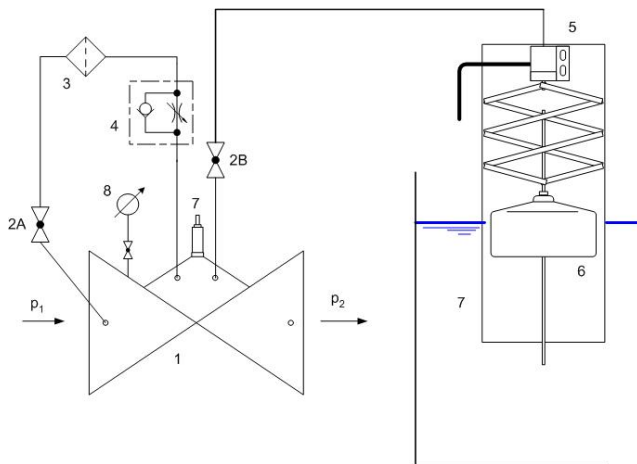
In order to avoid malfunctions through waves in the reservoir, the float rod should be aligned exactly along the axis (float protection pipe Art. no.: 1699 or control valve guide Art. no.: 1943 700 000, 1943 700 010, 1943 700 020).

Control line:

In order to avoid air collecting in the line, the control line should be installed so that it continuously rises to the valve. The control line must be supplied and constructed by the customer.

B. Commissioning

1. Functional diagram (1601)



Components

- | | |
|---|---|
| 1 | Main valve 1200 |
| 2 | Ball valve (A, B, C) |
| 3 | Filter |
| 4 | One-way flow restrictor |
| 5 | Progressive control valve |
| 6 | Float |
| 7 | Float protection pipe (optional) |
| 8 | Optical position indicator (optional) Electrical position indicator (optional) Valve opening limiter (optional) |

2. Preparatory work

Before commissioning the valve, ensure that the gate valve on the inlet side is **closed** and that the flange connections have been correctly tightened and sealed.

Drain the basin to a minimum water level (HAWIDO valve open). Set the float to the desired maximum level with the set screw.

Procedure:

- Loosen the lock nut on the adjusting screw on the one-way flow restrictor (4) and turn the adjusting screw by approximately 10 turns (the line to the control chamber is open).
- Close ball valve (2B)
- Slowly open ball valve (2A)
- **Slowly** open the shutoff gate valve slightly on the inlet side.
- Vent the valve cover (slightly loosen the threaded screw in the plug on the valve cover), and possibly slightly loosen the screw connection in the control line at the **highest** point in order to completely vent this part of the control line up to the ball valve (2B).
- Valve is closed.

Further procedure:

- Hold the float right at the top, possibly by binding.
- Slowly open the ball valve (2B)
- Vent the line to the control valve, possibly by slowly actuating the float, and then bring the float back into the uppermost position (HAWIDO valve is closed).

3. Venting

Prepare the valve according to the Preparation chapter. Water now flows into the valve chamber and via the control line to the progressive control valve. Once the valve venting procedure has caused all the air to be expelled from the control line, retighten the plug screw and the loosened union. Check that all the fittings are properly sealed, and re-tighten if necessary. The valve must remain closed.

Slowly open the shutoff gate valve on the inlet side.

4. Setting-up

The venting procedure is now completed and the valve and piping system are filled with water.

- Completely screw in the adjusting screw on the one-way flow restrictor (4) and then unscrew 5 turns (basic setting).
- Allow the float to sink slowly to the surface of the water. The HAWIDO valve opens and allows water to flow into the reservoir.

The optimum valve setting on the installation must be made **on location**. The pre-set position of the one-way flow restrictor must be adjusted individually. **Caution:** After the adjustment, sufficient time must be allowed for the hydraulic system to stabilise.

4.1 Settings on the one-way flow restrictor

If the one-way flow restrictor is closed too much:

- The valve closes slowly and the container overflows

If the one-way flow restrictor is open too much:

- The valve closes too early and the maximum water level is not reached for a long time and the valve always lets a small quantity of water through.

The whole regulation requires time and the system has to normalise itself repeatedly.

Caution: The adjusting screw must always be open by approximately 2 - 3 turns.

4.2 Functional check

These functional checks must be carried out very slowly!

-

- Pull down the float rod a little ⇒ **valve must open more**
- Pull up the float rod a little ⇒ **valve must close more, or has already closed.**

Depending on the water consumption and the size of the basin, the water level is maintained to within approximately 1 – 8 cm.

5. Checking for leakage

The HAWIDO's are tested at the factory for both leakage and function before delivery. When checking for leakage under operational conditions, particular attention must therefore be given to sealing the flange connections and the control line. Where necessary, ensure the seal by retightening the connections.

Notes and settings:

C. Fault finding

Symptoms	Possible cause	Action
Valve does not open	Control valve blocked, encrusted	Dismantle and clean control valve
	Float incorrectly set	Set height of float correctly
Valve does not close	One-way flow restrictor blocked	Replace, or screw the set screw fully in and out several times and then re-set
	Filter in the control line blocked	Clean the filter
	Air in the control line / upper valve chamber	Vent
	Foreign matter in the main valve	Carry out service and remove any foreign matter
	Diaphragm defective	Carry out a service. Replace the diaphragm
	Valve spindle jammed by encrustation	Carry out service and remove any encrustation
	Float incorrectly set	Set height of float correctly
Loud noise	Unfavourable operating conditions	Slightly open or close the one-way flow restrictor; Inform Field Service
Erratic operation	One-way flow restrictor incorrectly set	Set according to chapter <i>Settings on the one-way flow restrictor</i>
EWS coating damaged	Transportation damage, installation damage	Repair with Hawle two-component repair set for coatings

D. Putting out of service and maintenance

1. Putting out of service

The operating valve must first be shut off hydraulically by proceeding as follows:

- **Slowly** close the gate valve in front of the valve

The valve has now been taken out of operation, and a service can be carried out.

2. Maintenance and service

2.1 General information

Through our many years of experience with diaphragm valves that are controlled by the flow medium, we know that our HAWIDO's normally function trouble-free for many years. Regular maintenance is a precondition for this, however.

Under normal operating conditions, the following should be carried out:

- The valve should be checked for correct operation once a year (functional check)
- The dirt trap upstream of the valve and the filter in the control line should be cleaned once a year
- The inner working components should be checked and worn parts be replaced every four to five years (maintenance).

Under unusual operating conditions (e.g. with water that contains quantities of suspended matter, very high pressure reduction, small flow rates etc.), the functional checks and the service work should be carried out more frequently.

Maintenance sign:

Funktionskontrolle: jährlich	Wartung:	20xx
Contrôle fonctionnel: annuel	Maintenance:	
Prova di funzionamento: ogni anno	Mantenzione:	
Function check: annually	Maintenance:	

xx stands for the respective year.

2.2 Annual functional checks

Cleaning the dirt trap in the main line

- Unscrew the lid
- Clean the filter with a brush or cloth, or replace it
- Install the filter and screw the lid back on

Cleaning the filter in the control line

- Unscrew the lid of the filter
- Clean the filter with a brush or cloth etc., or replace it

- Re-install the filter and screw the filter lid back on

Putting back into service

- as described in the *Commissioning* paragraph

Functional check of the valve

Attention: In order to avoid pressure surges in the functional check described below, large flow rates must be throttled by **slowly** closing the gate valve in front of the valve.

- Slowly close the ball valve (2B), valve closes
- Slowly open the ball valve (2B), valve opens

2.3 4 to 5-year maintenance

Dirt trap (main line)

- Unscrew the lid
- Clean or replace the filter
- Install the filter and screw the lid back on

Filter (control line)

- Unscrew the lid of the filter
- Clean or replace the filter mesh
- Re-install the filter and screw the filter lid back on

Base valve (see chapter: *Repair kits and spare parts*)

- Loosen the screw connections and remove the complete control line.
- Dismantle the optical position indicator or assembled accessories and replace the gaskets.
- Undo the screws of the valve cover and remove the cover.
- Visually inspect all inner components for wear, dirt and scaling
- Clean the inner components, the seat and the inner surfaces, including the cover
- Dismantle the spindle guide in the body, flush the body interior.
For valves DN 40 to DN 100 (from 2012 on) and DN 125 to DN 200 (from 2014 on) the spindle guide is dismantled from the inside. Here the thread of the spindle guide and the base valve must be **extremely clean**. Grease the thread thoroughly (e.g. Foodgrease Aqua, Art. no. 5292, see chapter "Control line individual parts and accessories").
- Replace the diaphragm, the O-ring and the seat seal.
- Grease the spindle guide area with a grease suitable for contact with food (e.g. Foodgrease Aqua). Check the easy movement of the spindle by lifting and lowering with the spindle lifting tool (article number 1199, see chapter "Control line individual parts and accessories").
- Reassemble the base valve (see table in the annex for torques). During the assembly, the easy movement of the spindle must be checked with the spindle lifting tool by lifting and lowering **several times**.

Functional check of the one-way flow restrictor

- Undo the locknut
- Screw in the throttle screw, and then unscrew it as far as it goes
- Screw in again a few turns. This process must be easy and meet little resistance

Putting back into operation and functional check

- In accordance with Commissioning chapter and Functional Check of the previous chapters.

3. Repair kits and spare parts

Several replacement parts are required for the 4 or 5 - year service. These can be obtained as a repair kit for:

- the main valve
- the control valve
- the control line
- the optical position indicator

The article numbers can be found in the part lists and the lists of spare parts.

Attention:

When ordering replacement parts, always specify the valve type, serial number and year of construction!

Important:

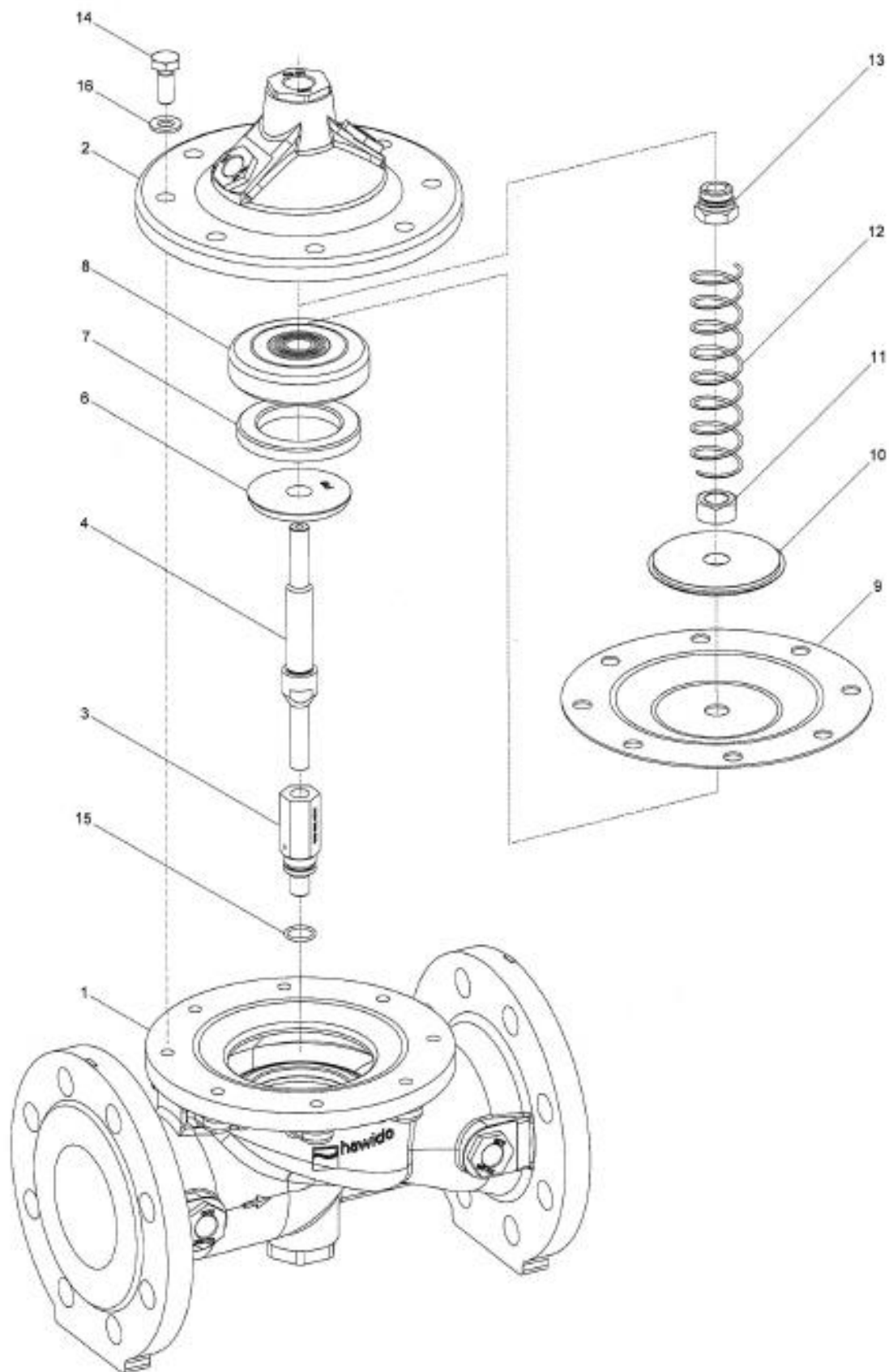
Replacement parts made of EPDM (diaphragms, seals) and NBR (O-rings) must be stored in a dark place, protected from UV radiation!

Shelf-life when stored in the dark:

EPDM 8 years from date of manufacture

NBR 5 years from date of manufacture

3.1 Base valve DN 40 to DN 200 (drawing)



08.12.2011/plü

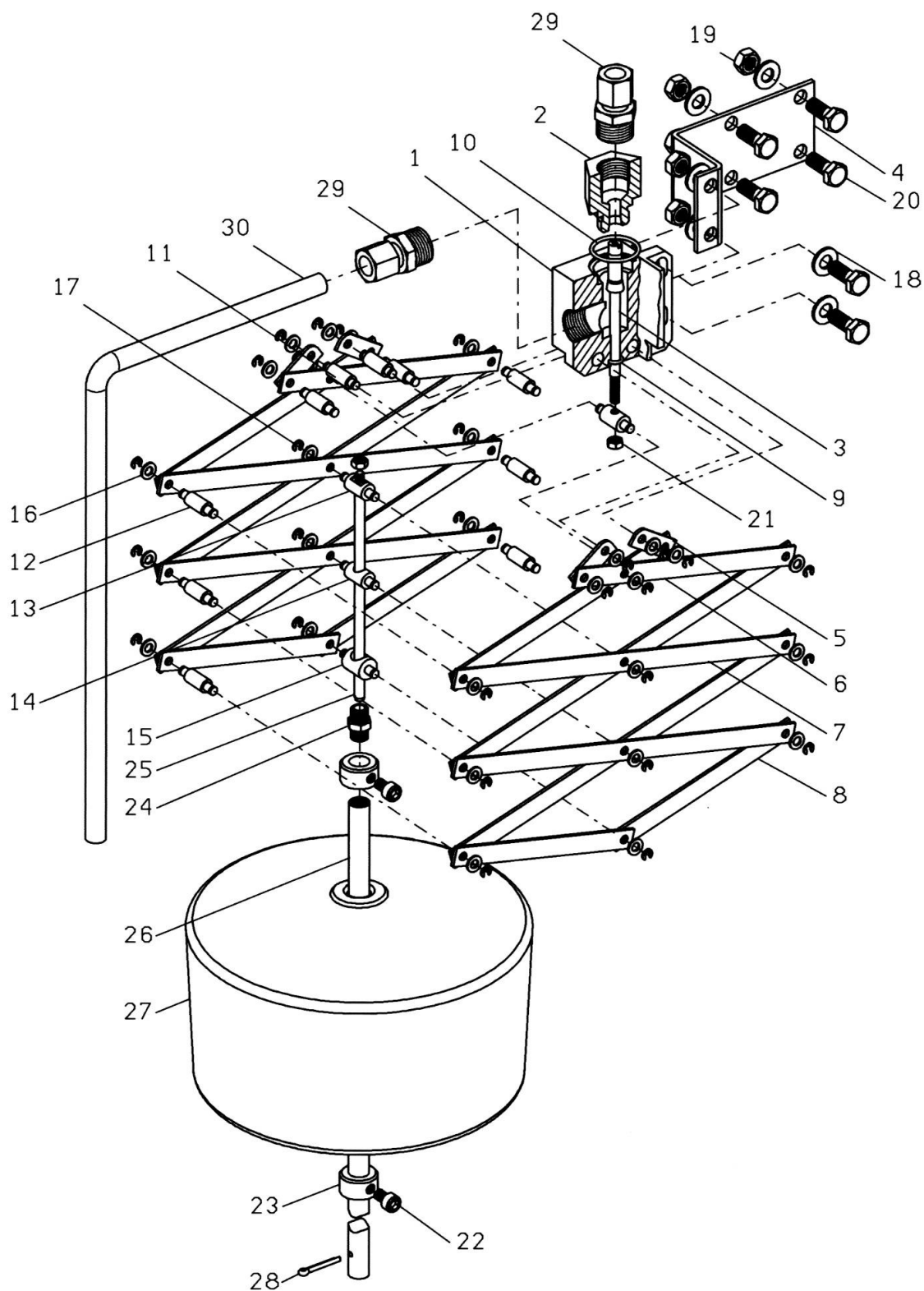
3.2 Main valve (Parts list)

Item.	Description	Material	Article number				
			DN 40	DN 50	DN 65	DN 80	DN 100
1	Body	GGG 40	1004 040 000	1004 050 000	1004 065 000	1004 080 000	1004 100 000
2	Valve cover	GGG 40	1014 050 000	1014 050 000	1014 065 000	1014 080 000	1014 100 000
3	Spindle guide cover	INOX	1024 900 000	1024 900 001	1024 900 002	1024 900 003	1024 900 004
4	Spindle	INOX	1026 050 000	1026 050 000	1026 065 000	1026 080 000	1026 100 000
5	Seat	INOX	*	*	*	*	*
6	Counter seat	INOX	1044 040 001	1044 050 001	1044 065 001	1044 080 001	1044 100 001
7	Seal	EPDM	1022 040 000	1022 050 000	1022 065 000	1022 080 000	1022 100 000
8	Seal carrier	INOX	1027 040 200	1027 050 200	1027 065 200	1027 080 200	1027 100 200
9	Diaphragm PN10/16	EPDM	1020 050 000	1020 050 000	1020 065 000	1020 080 000	1020 100 000
	Diaphragm PN25	EPDM	1020 050 000	1020 050 000	1021 065 000	1021 080 000	1021 100 000
10	Pressure disc	INOX	1047 050 000	1047 050 000	1047 065 000	1047 080 000	1047 100 000
11	Nut	INOX	0007 710 080	0007 710 080	0007 712 080	0007 716 080	0007 716 080
12	Spring	INOX	1049 050 000	1049 050 000	1049 065 000	1049 080 000	1049 100 000
	Spring for valves installed upright position	INOX	1050 050 000	1050 050 000	1050 065 000	1050 080 000	1050 100 000
13	Spindle guide cover	INOX	1042 900 000	1042 900 000	1042 900 001	1042 900 002	1042 900 002
14	Hexagonal screw	INOX	0006 608 020	0006 608 020	0006 610 025	0006 610 025	0006 612 025
15	O-ring	NBR	0180 012 020	0180 012 020	0180 012 020	0180 016 020	0180 016 020
16	Washer	INOX	0008 208 000	0008 208 000	0008 210 000	0008 210 000	0008 212 000
17	GSK-sticker		1099 900 000	1099 900 000	1099 900 000	1099 900 000	1099 900 000
18	Maintenance sticker		9691 0xx 000	9691 0xx 000	9691 0xx 000	9691 0xx 000	9691 0xx 000
	Main valve complete	PN10/16	1201 040 000	1201 050 000	1201 065 000	1201 080 000	1201 100 000
	Main valve complete	PN25	--	--	1201 065 025	1201 080 025	1201 100 025
	Repair kit for main valve with stainless steel connection, comprising item 7, 9, 15, 18	PN10/16	1080 040 000	1080 050 000	1080 065 000	1080 080 000	1080 100 000
		PN25	1080 040 000	1080 050 000	1081 065 000	1081 080 000	1081 100 000

Item	Description	Material	Article number			
			DN 125	DN 150	DN 200°	DN 200^
1	Body	GGG 40	1004 125 000	1004 151 000	1004 200 000	1004 200 016
2	Valve cover	GGG 40	1014 125 000	1014 151 000	1014 200 000	1014 200 000
3	Spindle guide cover	INOX	1024 900 005	1024 900 005	1024 900 006	1024 900 006
4	Spindle	INOX	1026 125 000	1026 151 000	1026 200 000	1026 200 000
5	Seat	INOX	*	*	*	*
6	Counter seat	INOX	1044 125 001	1044 150 001	1044 200 001	1044 200 001
7	Seal	EPDM	1022 125 150	1022 151 000	1022 200 000	1022 200 000
8	Seal carrier	INOX	1027 125 200	1027 151 200	1027 200 200	1027 200 200
9	Diaphragm PN10/16	EPDM	1020 125 150	1020 151 000	1020 200 000	1020 200 000
	Diaphragm PN25	CR	1051 125 150	1051 151 000	--	1034 200 000
10	Pressure disc	INOX	1047 125 150	1047 151 000	1047 200 000	1047 200 000
11	Nut	INOX	0007 720 080	0007 720 080	0007 724 080	0007 724 080
12	Spring	INOX	1049 125 150	1049 151 150	1049 200 000	1049 200 000
	Spring for valves installed upright position	INOX	1050 125 150	1050 151 000	1050 200 000	1050 200 000
13	Spindle guide cover	INOX	1042 900 003	1042 900 003	1042 900 004	1042 900 004
14	Hexagonal screw	INOX	0006 616 035	0006 616 035	0006 620 045	0006 620 045
15	O-ring	NBR	0180 018 020	0180 018 020	0180 021 020	0180 021 020
16	Washer	INOX	0008 216 000	0008 216 000	0008 220 000	0008 220 000
17	GSK-sticker		1099 900 000	1099 900 000	1099 900 000	1099 900 000
18	Maintenance sticker		9691 0xx 000	9691 0xx 000	9691 0xx 000	9691 0xx 000
21	Retaining bracket	INOX	--	--	1200 900 020	1200 900 020
	Main valve complete	PN10/16	1201 125 000	1201 151 000	1201 200 000	1201 200 016
	Main valve complete	PN25	1201 125 025	1201 151 025		1201 200 025
	Repair kit for main valve with stainless steel connection, comprising item 7, 9, 15, 18	PN10/16	1080 125 150	1080 151 000	1080 200 000	1080 200 000
		PN25	1081 125 150	1081 151 000		1081 200 000

° PN10
^ PN16
* not interchangeable
16.03.2018/plü

3.3 Control valve progressive level control NKV (drawing)



As at: 3.2.2003/TBO

3.4 Control valve progressive level control NKV (parts list)

Item	Description	Material	Article number
1	Housing for control valve	LB50	1943 900 030
2	Seat	Stainless steel	1943 900 000
3	Spindle cone	Stainless steel	1943 900 020
4	Housing bracket	Stainless steel	1943 900 160
5	L32 Connection bridge	MS	1943 900 060
6	L162 Connection bridge	MS	1943 900 070
7	L252 Connection bridge	MS	1943 900 090
8	L132 Connection bridge	MS	1943 900 120
9	O-ring	NBR	0180 006 017
10	O-ring	NBR	0180 025 020
11	Housing shaft	Stainless steel	1943 900 050
12	Joint shaft	Stainless steel	1943 900 080
13	Spindle shaft	Stainless steel	1943 900 100
14	Guide shaft	Stainless steel	1943 900 110
15	Float rod shaft	Stainless steel	1943 900 140
16	Washer without chamfer	Stainless steel	0008 205 000
17	Safety washer	Stainless steel	0160 000 032
18	Washer without chamfer	Stainless steel	0008 208 000
19	M8 Nut	Stainless steel	0007 208 080
20	Hex M8 bolt	Stainless steel	0006 408 020
21	M5 Nut	Stainless steel	0007 205 080
22	Cylinder Allen bolt	Stainless steel	0004 506 010
23	Retaining collar d13x22	Stainless steel	0010 713 022
24	Hex double nipple	Stainless steel	1943 900 170
25	Connection shaft	Stainless steel	1943 900 130
26	Float rod	Stainless steel	1943 900 150
27	Float	PP	1940 900 150
28	Splint	Stainless steel	0010 203 020
29	Screw fitting with screw-in nipple	Stainless steel	0311 012 016
30	Seamless tube d12	Stainless steel	0730 012 015
	Complete NKV control valve standard		1943 000 000
	Repair kit for NKV control valve consisting of Items 9 and 10		1186 000 000

As at: 23.11.2011/plü


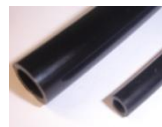
3.5 Control line individual parts and accessories





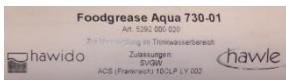
Master number Designation	Picture	Size further sizes possibly available	Art. number
0130 Compound seal		Stainless steel/NBR 3/8" Stainless steel/NBR 1/2" Stainless steel/NBR 3/4" Steel/NBR 1"	0130 012 000 0130 016 000 0130 025 000 0130 032 000
0273 Individual parts		Fitting connection (consisting of: connector nut and clamping ring) DN 12 stainless steel connector nut only	0273 012 000 0274 xxx xxx
0275 Support sleeve		Stainless steel d4 – 6 Stainless steel d12 – 9 Stainless steel d12 – 10	0275 006 004 0275 012 009 0275 012 010
0283 Clamping ring		d6 Stainless steel d12 Stainless steel d18 Stainless steel d8 - 6 Stainless steel	0283 006 000 0283 012 000 0283 018 000 0283 008 006
0284 Orifice plate (Old orifice plate number 0281.		d12 Stainless steel Ø 0.6 mm d12 Stainless steel Ø 0.9 mm d12 Stainless steel Ø 1.2 mm d12 Stainless steel Ø 1.5 mm d12 Stainless steel Ø 1.9 mm d12 Stainless steel Ø 2.4 mm d12 Stainless steel Ø 3.1 mm d18 Stainless steel Ø 3.5 mm d18 Stainless steel Ø 4.0 mm	0284 006 000 0284 009 000 0284 012 000 0284 015 000 0284 019 000 0284 024 000 0284 031 000 0284 035 010 0284 040 010
0311 fitting with screw-in nipple		d 12 - 3/8" Stainless steel d 12 - 1/2" Stainless steel d 6 - 1/8" Stainless steel d 6 - 1/4" Stainless steel d 6 - 3/8" Stainless steel d18 – 1/2" Stainless steel	0311 012 012 0311 012 016 0311 006 004 0311 006 008 0311 006 012 0311 018 016
0323 Straight fitting		d 6 Stainless steel d 12 Stainless steel	0323 006 000 0323 012 000
0324 Straight socket end fitting		d12 - 3/8"	0324 012 012
0351 Reduction fitting		d6 – d12 stainless steel	0351 012 006
0361 Transition sleeve		d 10 - 3/8" Stainless steel d 12 - 3/8" Stainless steel d 12 - 1/2" Stainless steel d 18 – 1/2" Stainless steel	0361 010 012 0361 012 012 0361 012 016 0361 018 016
0371 Reduction nipple		IG d 12 – AG 3/8" Stainless steel	0371 012 012

0401 Sleeve		3/8" Stainless steel 1/2" Stainless steel 3/4" Stainless steel 1" Stainless steel	0401 012 000 0401 016 000 0401 025 000 0401 032 000
0411 Adjuster nipple		DN 6 - 1/8" Stainless steel DN12 - 3/8" Stainless steel	0411 006 004 0411 012 012
0431 Screw-in elbow		DN 6 - 1/8" Stainless steel DN6 - 1/4" Stainless steel DN12 - 3/8" Stainless steel DN18 - 1/2" Stainless steel	0431 006 004 0431 006 008 0431 012 012 0431 018 016
0431 Screw-in elbow with vent		DN 12/3/8" Stainless steel	0431 012 013
0451 Angled fitting		DN6 Stainless steel DN12 Stainless steel DN18 Stainless steel	0451 006 000 0451 012 000 0451 018 000
0452 90° Adjuster elbow		DN12	0452 012 000
0455 Connector elbow		IG 3/8" Stainless steel IG 1/2" Stainless steel IG 3/4" Stainless steel IG 1" Stainless steel	0455 012 000 0455 016 000 0455 025 000 0455 032 000
0456 Connector elbow		IG 3/8" - AG 3/8" Stainless steel IG 1/2" - AG 1/2" Stainless steel IG 3/4" - AG 3/4" Stainless steel IG 1" - AG 1" Stainless steel	0456 012 000 0456 016 000 0456 025 000 0456 032 000
0461 T-piece		d6 Stainless steel d12 Stainless steel d12 - 6 - 12 Stainless steel d18 stainless steel	0461 006 000 0461 012 000 0461 012 006 0461 018 000
0510 Plug		AG 3/8" conical stainless steel AG 1/2" conical stainless steel	0510 012 000 0510 016 000
0511 Vent plug, lock screw		AG 1/2" Stainless steel AG 3/4" Stainless steel AG 1" stainless steel with hexagon socket	0511 016 000 0511 025 000 0511 032 001
0520 hexagon double nipple		d 1/8" Stainless steel d 1/4" Stainless steel d 3/8" Stainless steel d 1/2" Stainless steel d 3/4" Stainless steel	0520 004 000 0520 008 000 0520 012 000 0520 016 000 0520 025 000
0541 Ball valve		DN 3/8" stainless steel DN 1/2" stainless steel DN 3/4" stainless steel	0541 012 001 0541 016 000 0541 016 010

0545 Stainless steel dirt filter		Stainless steel Y-filter IG 3/8" Individual parts: Stainless steel dirt filter Plug, complete for Y-filter, stainless steel Large seal for Y-filter, POM Small O-ring for plug Stainless steel Y-filter IG 1/2"	0545 112 002 0545 900 051 0545 112 010 0545 112 011 0545 112 012 0545 116 000
0549 Flow control valve & check valve		DN 3/8" Check valve brass nickel-plated Stainless steel IG 3/8" type B d 12 with long spindle	0549 000 002 0549 000 005
0570 non-return valve		3/8" brass (max. 40 bar) 1/2" brass (max. 40 bar)	0570 012 045 0570 016 045
0600 Pressure gauge		AG 3/8" 0 - 6 bar AG 3/8" 0 - 10 bar AG 3/8" 0 - 16 bar AG 3/8" 0 - 25 bar AG 3/8" 0 - 40 bar AG 3/8" 0 - 60 bar	0600 012 006 0600 012 010 0600 012 016 0600 012 025 0600 012 040 0600 012 060
0610 Solenoid valves		Solenoid valve, normally open 2/2-way valve (for 1795/96) 122K84 Solenoid valve, normally closed 2/2 way valve (for 1795/96) E121K04 Solenoid valve, normally open 3/2 way valve (for 1703 to DN 100, 1603, 1706 PN 16 all nominal sizes) 132K04 Solenoid valve normally closed 3/2 way valve (for 1704 to DN 100, 1604) E131K04 Solenoid valve normally open 2/2 way valve (for 1704 from DN 125, 1304, 1404, 1504) (old: E322 H73 06) Solenoid valve normally closed 2/2 way valve, with manual override (For 1703 from DN 125, 1303, 1403, 1503, 1706 PN 25 from DN 125) (old: E321 (H13) Solenoid valve universal 3/2 way valve (for 1706 PN 25 to DN 100) ***** Replacement part. Diaphragm, for MV type 0610 510 001 and 0610 510 002 Replacement part set for MV type 0610 510 001 Consisting of: Diaphragm: Armature guide tube, armature and seals	0610 122 084 0610 121 004 0610 132 004 0610 131 004 0610 510 002 0610 510 001 0610 133 005 ***** 0610 590 001 0610 590 002

0620, 0621 Coils		AC coils with voltage indication DC coils with voltage indication	0620 xxx xxx 0621 xxx xxx
0630 Appliance socket		Appliance socket for electromagnet	0630 000 000
0653 Connector modules		Connector modules for solenoid valves Type LBV 24 DC 8S, incl. 2m cable Connector modules for solenoid valves Type LBV IN: 48-230VAC/DC OUT: 48VDC incl. 2m cable 3-wire (Only to be used for 48VDC coils)	0653 024 008 0653 230 000
0670 Overcut		AG 3/8" IG 1/8" Stainless steel AG 3/8" IG 1/4" Stainless steel AG 1/2" IG 3/8" Stainless steel AG 3/4" IG 3/8" Stainless steel AG 1" IG 1/8" Stainless steel AG 1" IG 1/2" Stainless steel	0670 012 004 0670 012 008 0670 016 012 0670 025 012 0670 032 012 0670 032 016
0671 Sleeve nipple reduced		IG 1/2" AG 3/8" IG 1" AG 3/8" IG 1" AG 1/2" IG 1" AG 3/4"	0671 016 012 0671 032 012 0671 032 016 0671 032 025
0680 Barrel nipple		AG 3/8" L = 30 mm Stainless steel AG 3/8" L = 40 mm Stainless steel AG 3/8" L = 50 mm Stainless steel AG 3/8" L = 60 mm Stainless steel AG 3/8" L = 70 mm Stainless steel AG 3/8" L = 80 mm Stainless steel AG 3/8" L = 110 mm Stainless steel AG 1/2" L = xxx mm Stainless steel	0680 012 030 0680 012 040 0680 012 050 0680 012 060 0680 012 070 0680 012 080 0680 012 110 0680 016 xxx
0690 Adapting nipple		AG 3/8" - 1/8" AG 3/8" - 1/4" AG 1/2" - 3/8" AG 3/4" - 3/8" AG 1" - 3/8" AG 1" - 1/2"	0690 012 004 0690 012 008 0690 016 012 0690 025 012 0690 032 012 0690 032 016
0711 T-fitting		IG 3/8" level Stainless steel IG 1/2" level Stainless steel IG 3/4" level Stainless steel IG 1" level Stainless steel	0711 012 000 0711 016 000 0711 025 000 0711 032 000
0730 Seamless tube		d6 x 1mm Stainless steel d12 x 1.5 mm Stainless steel d15 x 1.5 mm Stainless steel d18 x 1.5 mm Stainless steel	0730 006 010 0730 012 015 0730 015 015 0730 018 015

1188 Rep. Set Control line		<p>From serial number 14252 (January 2003) DN40 to 100 DN125 to 300</p> <p>From approx. serial number 25915 (June 2014, Filter type B (0545 112 002) DN40 to 100 DN125 to 200</p>	<p>1188 065 100 1188 125 300</p> <p>1188 000 000 1188 000 001</p>
SA.0 PA-tube		<p>Polyamide tube OD 12 mm, ID 4 mm Polyamide tube OD 12 mm, ID 9 mm</p>	<p>SA.0 000 060 SA.0 000 290</p>

Tools and accessories			
1199 Spindle lifting tool		<p>M5 M6</p>	<p>1199 000 000 1199 000 010</p>
1199 Spanner for sealing plate		<p>Spanner for assembling and dismantling the sealing plate from the DRV pilot valve</p>	<p>1199 000 020</p>
1199 Socket spanner attachment		<p>Socket spanner attachment for flow control valve</p>	<p>1199 000 030</p>
1199 Socket spanner		<p>Socket spanner for flow control valve</p>	<p>1199 000 040</p>
5292 Grease		<p>Foodgrease Aqua Tube with 175g</p>	<p>5292 000 020</p>

02.02.2018/plü

E. Annex

1. Torques

When assembling the base valve and the control valves all **bolts** are checked with a torque spanner according to the following list. Lightly grease the bolts before assembling!

Base valves	Nominal size DN	Hex bolt M	Strength class ¹⁾	Tightening torque	
				Target	Max. ²⁾
	40 - 50	M 8	A4/80	22 Nm	25 Nm
	65 - 80	M 10		47 Nm	50 Nm
	100	M 12		84 Nm	87 Nm
	125 - 150	M 16		172 Nm	216 Nm
	200	M 20		285 Nm	423 Nm
	250	M 20		285 Nm	423 Nm
	300	M 20		380 Nm	423 Nm

Control valves	Type	Socket M	Strength class ¹⁾	Tightening torque	
				Target	Max.
	DRV / DAV	M 6	A2 / A4 / 70	8 Nm	8.5 Nm
	MBV / RBS				
	Control valve	Hex bolt M	Strength class	Target	Max.
	NAZ	M 6	A2 / A4 / 70	8 Nm	8.5 Nm

(Not for new applications)

Base valves	Nominal size DN	Hex bolt M	Strength class ¹⁾	Tightening torque	
				Target	Max.
	40 - 50	M 8	A2/70	17 Nm	19 Nm
	65	M 10		33 Nm	36 Nm
	80	M 10		40 Nm	40 Nm
	100	M 12		70 Nm	72 Nm
	125 - 150	M 16		172 Nm	172 Nm
	200	M 20		280 Nm	285 Nm
	250	M 20		280 Nm	285 Nm
	300	M 20		235 Nm	240 Nm

Attention: ¹⁾ = Note designation on screw head A2 – 70 or A4 – 80!

²⁾ = Maximum permitted torque according to strength analysis

Bolts according to SN EN ISO 4014 and SN EN ISO 4017

As at: FO 0065, Rev. 12 / 19.12.2017

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