

# REGLER + ARMATUREN

Terschüren GmbH

**R  
+  
A**



**Safety Shut Off Valve  
Type 53N/H**

# Safety Shut Off Valve Type 53N/H

## Scope of Application

Scope of type 53N/H safety shut off valve is to prevent impermissibly high pressure and/or low pressure from the system at the outlet side, e.g. a gas pressure regulation system. It can be used for all gases according to DVGW worksheet G260 and all non-aggressive gases.  
(Special versions are available for other gases).

## Characteristics

- Connections according to customer requirements (including ANSI and special flanges)
- Overall length adaptable to local situation at customer request
- High actuation accuracy, short actuating time
- Integrated diaphragm rupture safety device
- Integrated pressure compensation valve with positive return
- On-site-maintenance possible without removing unit
- Position of safety shut-off valve can be checked visually (position of hand lever)
- Single ply design => few parts subject to wear
- Pressure compensated valve combination
- All units with high/low pressure actuation
- Also as combination with gas pressure regulator type 132
- Position indicator and electrical remote control possible with simple modification
- Manual actuation can be retrofitted (EMERGENCY-OFF)

## DIN-DVGW Registration Numbers

Nominal width	Pressure stage	Registration No.
DN 80	PN 25	96.01 c 713
DN 100	PN 16	96.02 c 713
DN 150	PN 16	96.03 c 713
DN 200	PN 16	96.04 c 713
DN 250	PN 10	96.05 c 713
DN 300	PN 10	96.06 c 713
DN 350	PN 10	96.07 c 713
DN 400	PN 10	96.08 c 713
DN 500	PN 10	96.09 c 713

Approved according to DIN 3381 "Safety devices for gas supply systems without operating pressures up to 100 Bar".

## Technical Data

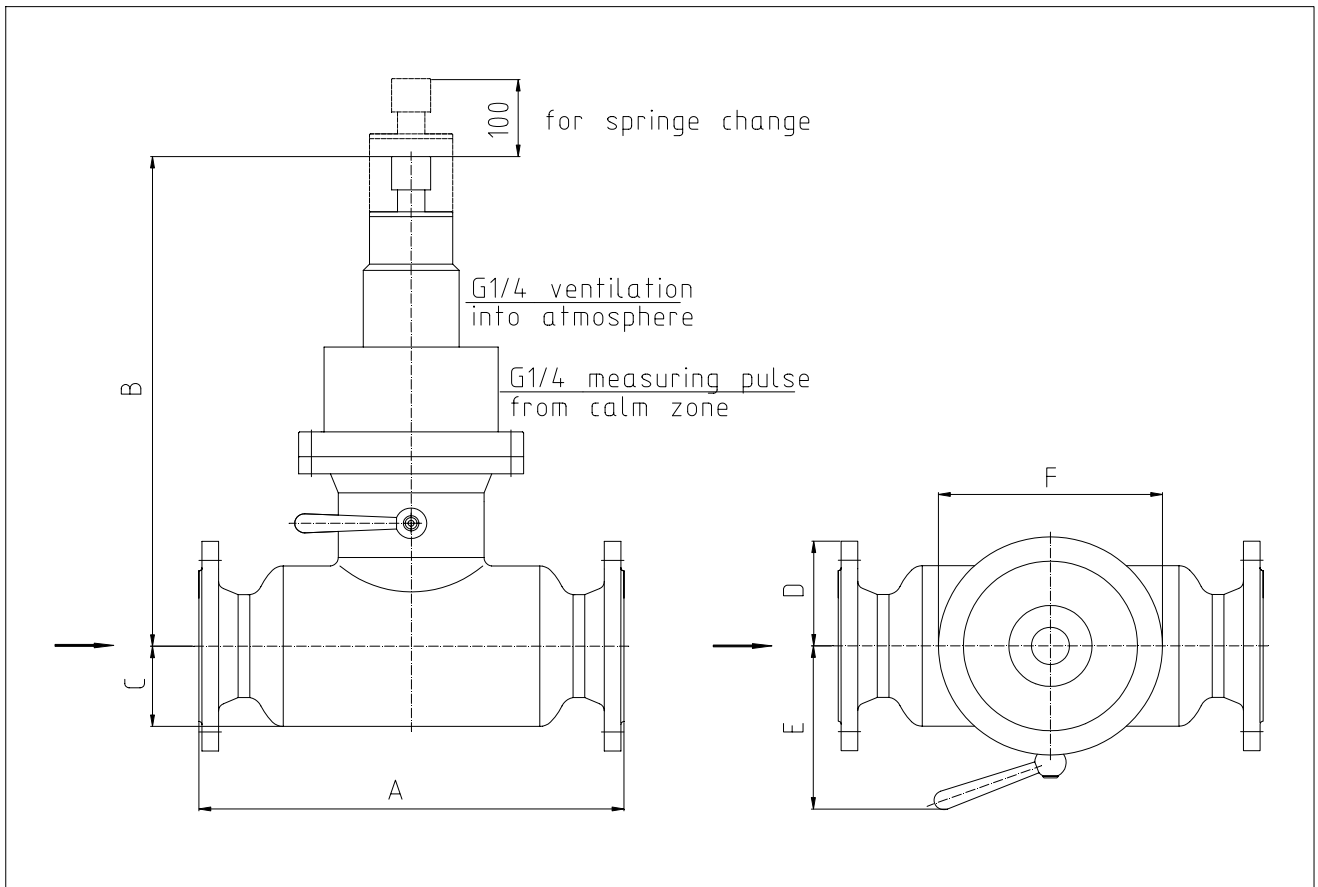
<b>Permissible pressure</b>	$p_{\max}$ up to 25 bar
<b>Nominal widths</b>	DN 80; DN100; DN150; DN200; DN250; DN300; DN350; DN400; DN500
<b>Type of connection</b>	DIN flanges PN10 to PN40; ANSI flanges; special flanges
<b>Valve diameter</b>	80mm to 500mm
<b>Operating temperature</b>	-15°C to +60°C
<b>Medium</b>	suitable for all gases according to DVGW worksheet G260 and all non-aggressive gases
<b>Materials</b>	
Driving mechanism	Steel
Measuring element	Al
Inner parts	Al, VA, Ms, steel
Diaphragm, O-rings	Perbunan
Valve coating	Perbunan
<b>Actuation time</b>	0.2 - 0.5 s (dep. on PB, DN and measuring el.)

## Adjustment Ranges

Guide range [bar]	Drawing number	Wire- $\emptyset$ [mm]	AG
<b>Movement N (pressure to high)</b>			
0,030 - 0,150	4-53-16/4x100	4,0	10/5
0,150 - 0,250	4-53-16/5x100	5,0	5
0,250 - 0,500	4-53-16/6x100	6,0	2,5
<b>Movement N (pressure to low)</b>			
0,007 - 0,025	4-53-15/2,0x58	2,0	30
0,025 - 0,070	4-53-15/2,5x49	2,5	20
<b>Movement H (pressure to high)</b>			
0,100 - 0,350	4-53-16/4x100	4,0	10/5
0,350 - 0,850	4-53-16/5x100	5,0	2,5
0,850 - 1,600	4-53-16/6x100	6,0	2,5
1,600 - 2,700	4-53-16/7x100	7,0	1
2,700 - 4,200	4-53-16/8x100	8,0	1
4,200 - 7,000	4-53-16/9x100	9,0	1
<b>Movement H (pressure to low)</b>			
0,040 - 0,120	4-53-15/2,0x58	2,0	15
0,120 - 0,280	4-53-15/2,5x49	2,5	10
0,280 - 0,650	4-53-15/3,0x55.1	3,0	5
0,650 - 1,050	4-53-15/3,6x48.2	3,6	2,5
1,050 - 1,500	4-53-15/4,0x49	4,0	1

Other adjustment pressures available on request!

## Installation Dimensions



DN	Valve Ø*3	A*1	B	C	D*2						E	F	kg
					PN10	PN16	PN25	PN40	ANSI 150	ANSI 300			
80	80	450	530	85	-	100,0	-	100,0	95,3	104,8	180	230	39
100	100	600	560	110	-	110,0	-	117,5	114,3	127,0	185	230	52
150	150	600	590	140	-	142,5	-	150,0	139,7	158,8	210	268	68
200	200	700	620	165	170,0	170,0	180,0	187,5	171,5	190,5	240	320	95
250	250	900	650	180	197,5	202,5	212,5	225,0	203,2	222,3	265	370	128
300	300	1000	675	205	222,5	230,0	242,5	257,5	241,3	260,4	280	430	186
350	350	1900	780	260	252,5	260,0	277,5	290,0	266,7	292,1	305	482	280
400	400	1900	800	260	282,5	290,0	310,0	330,0	298,5	323,4	355	585	504
500	500	2000	850	310	335,0	357,5	365,0	377,5	349,3	387,4	405	685	708

\*1 : Units available with other overall length

\*2 : Units available with all flanges according to customer requirements

\*3 : Also available with smaller valve diameter (minimum valve dia.: 80 mm!)

## Line Connections

Ventilation	G1/4	} for unsoldered, threaded pipe fitting with cutting ring accord. to DIN 2353 for pipe-ø 12x1.5
Measuring pulse	G1/4	

Flow direction	left-right
Ventilation	in flow direction right
Measuring pulse	in flow direction right
Hand lever	in flow direction front

Flow direction and/or line connections can be changed on customer request.

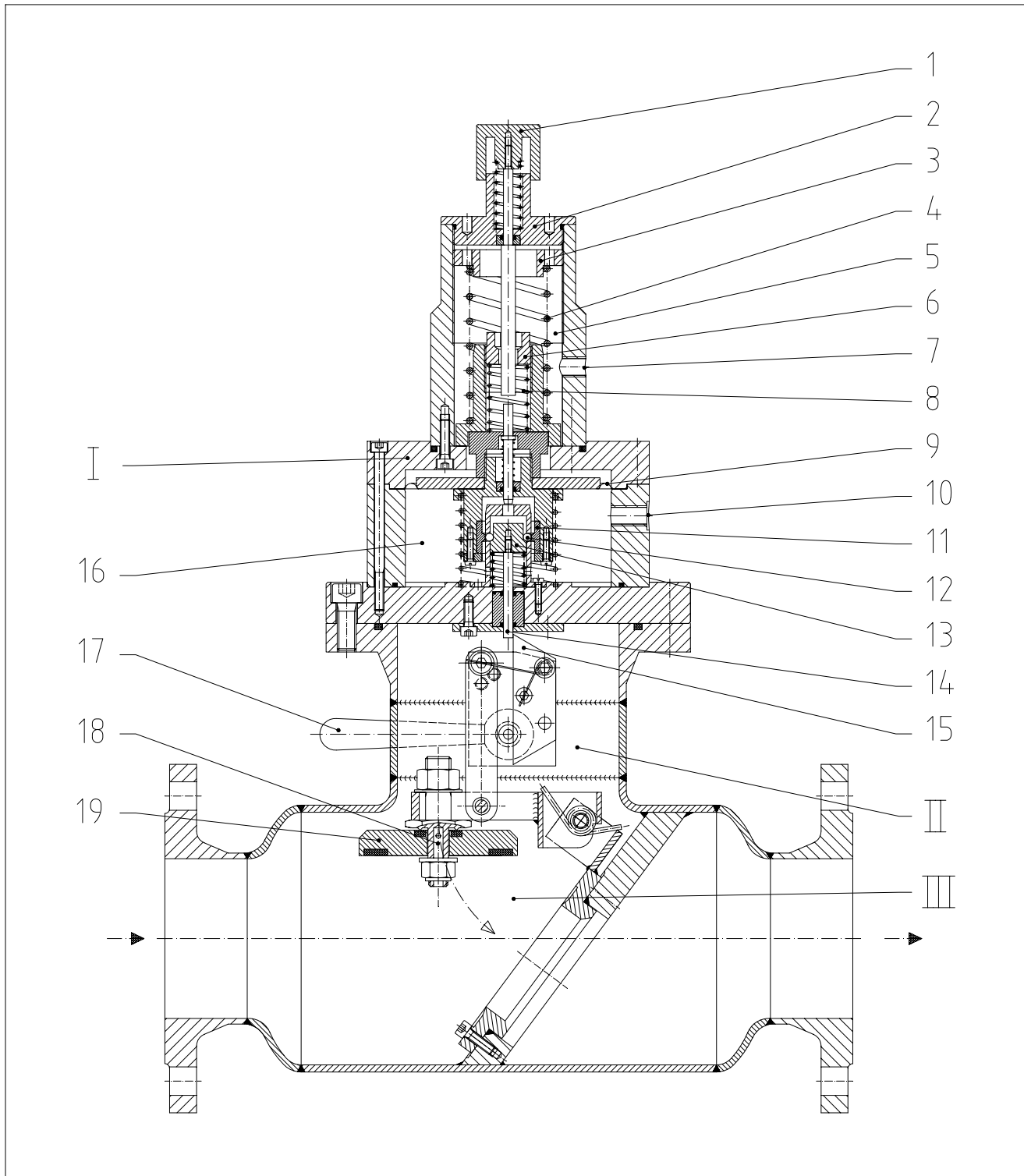
## Standard Version

## Installation

The safety shut-off valve type 53N/H can be installed horizontally with the measuring element (I) upright or vertically with the measuring element pointing to the side.

When installed vertically the flow direction on units with valve diameter up to 150 mm can be from top to bottom or vice versa; on units with valve diameter greater than 150 mm the flow direction for units installed vertically must be from top to bottom.

## Design and Function of Safety Shutoff Valve Type 53N/H



## Design

Type 53N/H safety shut off valve is composed of three assemblies: measuring element (I), driving mechanism (II) and regulating unit (III).

Measuring element is available in versions **53N** and **53H**; **53N** is used on a standard basis for operating pressures up to 50 mbar, **DH** for operating pressures above 50 mbar.

## Function

### **Upper threshold pressure**

The pressure to be monitored reaches through the measuring pulse line **10** into diaphragm chamber **16**. If the pressure increases to an impermissibly high value and exceeds the setting of the pressure spring **4**, diaphragm **9** lifts together with release bushing **11**. This releases the balls **12** so that release piston **13** together with the lower rod **14** snap up releasing pawl **15**. Valve **19** closes.

### **Lower threshold pressure**

The pressure to be monitored reaches through the measuring pulse line **10** into diaphragm chamber **16**. If the pressure decreases to an impermissibly low value and overcomes the setting of the low pressure spring **8**, diaphragm **9** moves down together with release socket **11**. The remaining operation corresponds to that described previously for the upper threshold pressure.

### **Diaphragm rupture safety device**

In the event of a diaphragm rupture the gas flows into spring chamber **5** and reaches through the ventilation line **7** into the atmosphere. The pressure in diaphragm chamber **16** thereby decreases. The remaining procedure corresponds to the sequence above for lower threshold pressure.

## Starting Apparatus

Before initial operation (opening) ensure that valves in back are closed. The integrated pressure compensation valve **18** can be opened by slowly lifting the hand lever **17** until resistance is felt. When the pressure in front and in back of the valve plate **19** has equalized slowly lift hand lever **17** further to the stop. The pressure to be monitored reaches through measuring pulse line **10** into diaphragm chamber **16** where it applies pressure to diaphragm **9**. Press release piston **13** down with pushbutton **1** only after the operating pressure has been reached so that the balls **12** can catch. The release bushing **11** together with diaphragm **9** snap into the zero position. Pushbutton **1** can be released. Hand lever **17** can then be released slowly until the pawl **15** makes contact with the bottom rod **14**. The safety shut-off valve is now ready for operation.

## Adjustments

To adjust the threshold pressures loosen and remove crown cover **2** with the special safety shut-off valve wrench.

### **Upper threshold pressure**

The upper threshold pressure can be adjusted with the aid of the special safety shut-off valve wrench on spring plate **3**. Turning to right increases the value.

**If the upper threshold pressure is set to above 3 bar adjust only in non-pressurized state after low pressure actuation, otherwise the diaphragm can be damaged.**

### **Lower threshold pressure**

Adjust lower threshold pressure with the special safety shut-off valve wrench (17 mm) on the dome spring plate **6**. Turning to right increases the value.

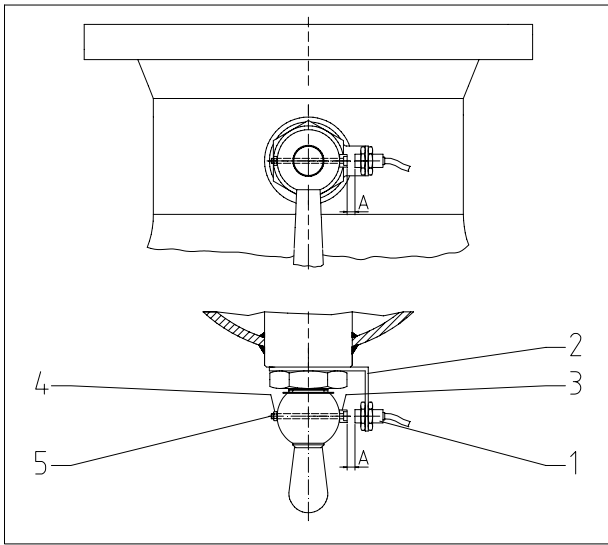
**If the lower threshold pressure is set to above 150 mbar adjust only in non-pressurized state after low pressure actuation, otherwise the diaphragm can be damaged.**

The setting for the lower threshold pressure has a slight effect on the upper threshold pressure. For this reason check and - if necessary - correct the setting for the upper threshold pressure each time the lower threshold pressure is adjusted.

**Minimum pressure difference between operating pressure  $p_b$  and special pressure  $p_s$ :**

Guide range [bar]	Drawing number	$\Delta p_{\min}$ $p_s - p_b$ [bar]
<b>Measuring Element N (pressure too high)</b>		
0,030 - 0,150	4-53-16/4x100	0,020
0,150 - 0,250	4-53-16/5x100	0,020
0,250 - 0,500	4-53-16/6x100	0,030
<b>Measuring Element N (pressure too low)</b>		
0,007 - 0,025	4-53-15/2,0x58	0,020
0,025 - 0,070	4-53-15/2,5x49	0,030
<b>Measuring Element H (pressure too high)</b>		
0,100 - 0,350	4-53-16/4x100	0,040
0,350 - 0,850	4-53-16/5x100	0,040
0,850 - 1,600	4-53-16/6x100	0,080
1,600 - 2,700	4-53-16/7x100	0,150
2,700 - 4,200	4-53-16/8x100	0,200
4,200 - 7,000	4-53-16/9x100	0,300
<b>Measuring Element H (pressure too low)</b>		
0,040 - 0,120	4-53-15/2,0x58	0,030
0,120 - 0,280	4-53-15/2,5x49	0,030
0,280 - 0,650	4-53-15/3,0x55.1	0,030
0,657 - 1,050	4-53-15/3,6x48.2	0,050
1,050 - 1,500	4-53-15/4,0x49	0,100

### Safety Shut off Valve Position Indicator



An inductive acting sensor can be installed on the servo-drive housing for electronic remote indication of the safety shut off position.

Screw sensor **1** onto retaining plate **2**. Clamp contact head **3** with the aid of screw **5** and nut **4**. (Insert screw **5** through clamping pin on hand lever). Interval **A** between the contact head **3** and sensor **1** should be 3-4 mm.

Version: - Protective system (DIN 40050): IP 67  
 - Type of connection: DIN 19234; NAMUR

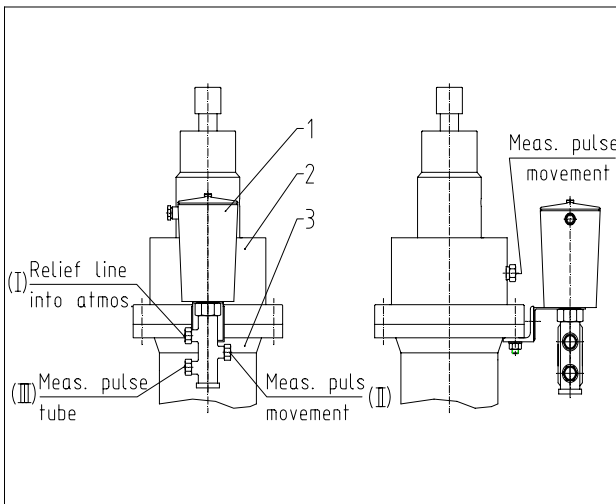
**OPTION:**

There are two versions of the isolating amplifier required for control of the sensor:

- 230 VAC, 50 - 60 Hz
- 24 VDC

Each: (Ex ia) II C and with PTB certificate.

### Electronic Remote Control



A 3/2-way solenoid valve **1** can be installed on the servo-drive housing **3** for electronic remote control.

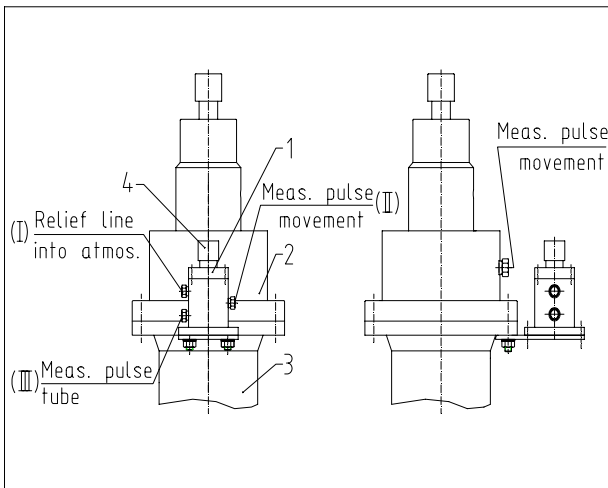
Actuation during power failure:

At normal state (solenoid with current) path **II-III** is open and the safety shut off valve measuring element ready for operation. If the voltage drops, solenoid **1** closes path **II-III** and simultaneously opens path **I-II**. Pressure of measuring element **2** is released into the atmosphere and the safety shutoff valve closes because of low pressure.

**OPTIONS:**

- with DVGW approval
- explosion-proof version
- for aggressive mediums
- for 24 VDC or 230 VAC, 50 - 60 Hz

### Manual Actuation (Emergency-off)



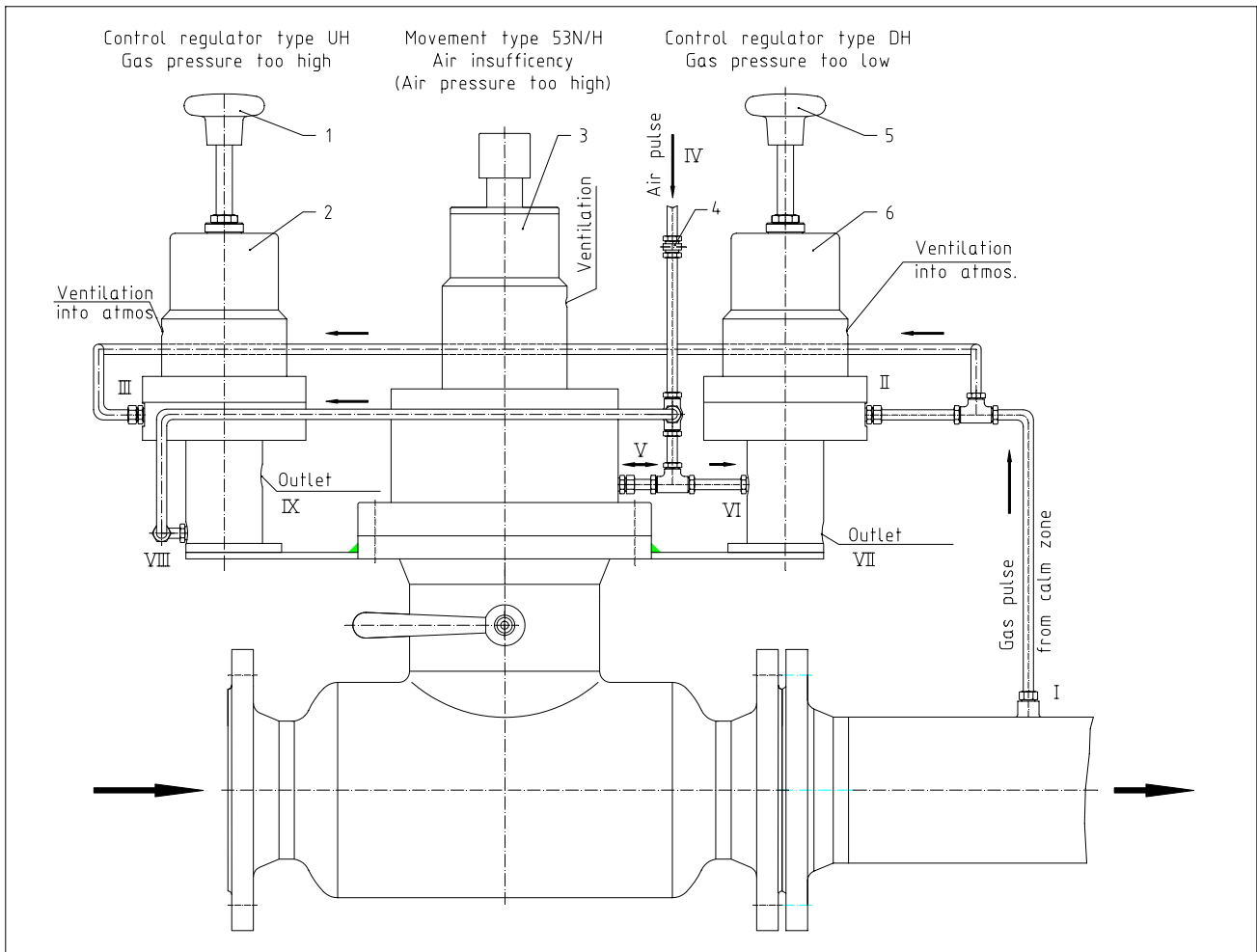
A 3/2-way pushbutton valve **1** can be installed on the servo-drive housing **3** for manual actuation (manual emergency-off).

At normal state path **II-III** is open (automatic position) and the safety shut-off valve driving mechanism **2** is ready for operation. When actuated manually by pressing down button **4** on 3/2-way pushbutton valve **1**, path **III** is closed and simultaneously path **I-II** is opened.

The pressure of driving mechanism **2** is released into the atmosphere and safety shut-off valve closes because of low pressure.

The 3/2-way pushbutton valve (manual emergency off) can be combined with the 3/2-way solenoid valve (electronic remote control). In this case it can be installed in series with the 3/2-way solenoid.

## Type 53N/H Safety Shut off Valve with air pressure low, gas pressure low and high shut off



For industrial burner systems frequently a purely mechanical safety device is required in addition to (or instead of) an electronic monitoring device for the gas **and** air pressure.

Safety shutoff valve type 53N/H with two additional control regulators fulfills this requirement in all three cases: protection against gas pressure being too high or too low and against too low air pressure (the measuring element automatically also provides a safety shutoff for air pressure too high).

### **Air pressure to low**

Air pressure **IV** to be monitored reaches nozzle **4** and air pulse line **V** into measuring element **3**. Further operation and adjustment for low (and high) air pressure corresponds to the sequence described on page 5 for function and adjustments.

### **Gas pressure to low**

Gas pressure **I** to be monitored reaches by gas pulse line **II** to control regulator **6**, type **DH**. When gas pressure decreases to an impermissibly low value and overcomes the setting of the spring in control regulator **6**, the valve in control regulator **6**

opens and the air from measuring element **3** decreases through line **VI-VII**. Movement **3** actuates due to insufficient air, because the medium cannot flow through nozzle **4** quickly enough. Turning hand wheel **5** to the right increases the value.

### **Gas pressure to high**

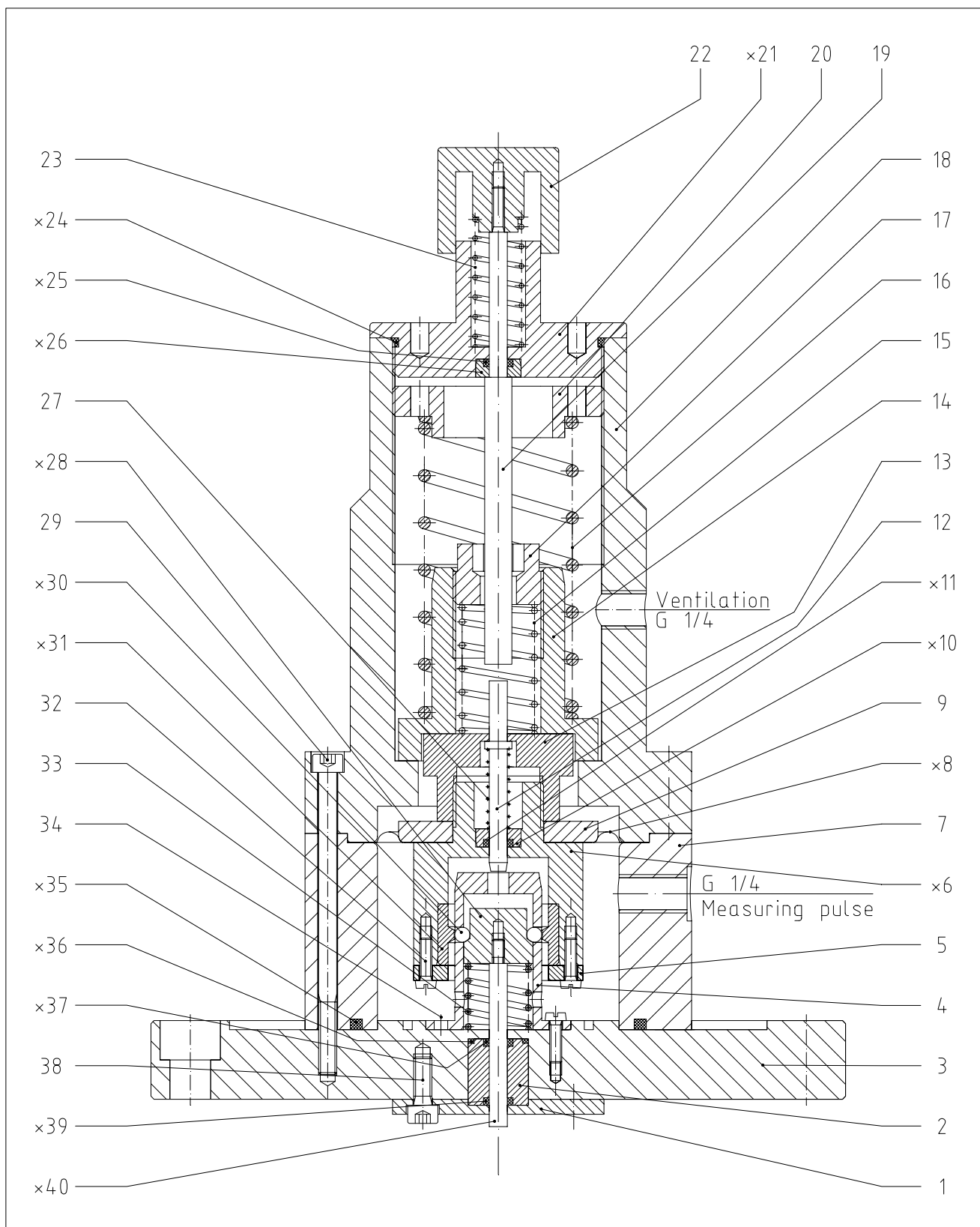
Gas pressure **I** to be monitored reaches by gas pulse line **III** to control regulator **2**, type **UH**. When gas pressure increases to an impermissibly high value and overcomes the setting of the spring in control regulator **2**, the valve in control regulator **2** opens and the air from measuring element **3** decreases through line **VIII-IX**. Measuring element **3** actuates due to low air pressure, because the medium cannot flow through nozzle **4** quickly enough. Turning hand wheel **1** to the right increases the value.

### **Maintenance**

We recommend checking this combination of safety shut-off valve measuring element and additional

control regulators for proper function quarter-  
annually and servicing semi-annually.

**Design measuring element type 53H**



x: Parts subject to wear; keep on hand for maintenance

Item (21; 25; 26) only available complete

Item (6; 10; 11) only available complete

Item (28; 40) only available complete

## Parts for type 53H measuring element

Item	Quantity	Unit	Designation	Standard / drawing number	Material/remarks
1	1	Piece	Aluminum flange	4-53-1	Al
2	1	Piece	Guide	4-53-2	Ms
3	1	Piece	Blind flange, H	4-53-3/H/...	St, chromatic
4	1	Piece	Perforated element	4-53-4	Ms
5	1	Piece	Plate for socket element	4-53-5	Al
x6	1	Piece	Socket element	4-53-6	Al
7	1	Piece	Diaphr. housing, H, bottom	4-53-7/H	Al
x8	1	Piece	Diaphragm, H	4-53-8/H	Perbunan
9	1	Piece	Diaphragm plate, H	4-53-9/H	Al
x10	1	Piece	O-ring socket	4-53-10	Ms
x11	1	Piece	O-ring	6 x 2	Perbunan
12	1	Piece	Middle rod	4-53-12	VA
13	1	Piece	Rod guide	4-53-13	Al
14	1	Piece	Spring dome	4-53-14	Al
15	1	Piece	Spring, pressure too low	4-53-15	Spring steel C, chrom.
16	1	Piece	Spring, pressure too high	4-53-16	Spring steel C, chrom.
17	1	Piece	Spring plate, dome	4-53-17	St, chromatic
18	1	Piece	Spring crown, H	4-53-18/H	Al
19	1	Piece	Upper rod	4-53-19	VA
20	1	Piece	Spring plate	4-53-20	St, chromatic
x21	1	Piece	Crown cover	4-53-21	Al
22	1	Piece	Pushbutton	4-53-22	Al
23	1	Piece	Upper spring	4-53-23	VA spring steel
x24	1	Piece	O-ring	60 x 3	Perbunan
x25	1	Piece	O-ring	6 x 2	Perbunan
x26	1	Piece	O-ring socket	4-53-10	Ms
27	1	Piece	Middle spring	4-53-27	VA spring steel
x28	1	Piece	Release piston	4-53-35	V-St, chromatic
29	8	Piece	Allen screw	DIN 912 - M6 x 100	8.8, galvanized
x30	6	Piece	Ball	SKF - RB5 / G20	St
x31	1	Piece	Release socket	4-53-33	V-St, chromatic
32	4	Piece	Machine screw	DIN 84 - M4 x 10	8.8, galvanized
33	1	Piece	Bottom spring	4-53-38	VA spring steel
34	4	Piece	Machine screw	DIN 84 - M4 x 10	8.8, galvanized
x35	1	Piece	O-ring	90 x 4	Perbunan
x36	1	Piece	O-ring	16 x 2	Perbunan
x37	1	Piece	O-ring	6 x 2	Perbunan
38	4	Piece	Allen screw	DIN 912 - M6 x 16	8.8, galvanized
x39	1	Piece	O-ring	6 x 2	Perbunan
x40	1	Piece	Bottom rod	4-53-45	VA

## Special Maintenance Instructions

### Measuring element N/H

The measuring element can be removed for maintenance. For this loosen the screws on blind flange **3** and remove the complete element. Function also can be checked in the deinstalled state. Before disassembling the element always release the pressure of high and low pressure springs. Observe the instructions in the section *Adjustments* (page 5).

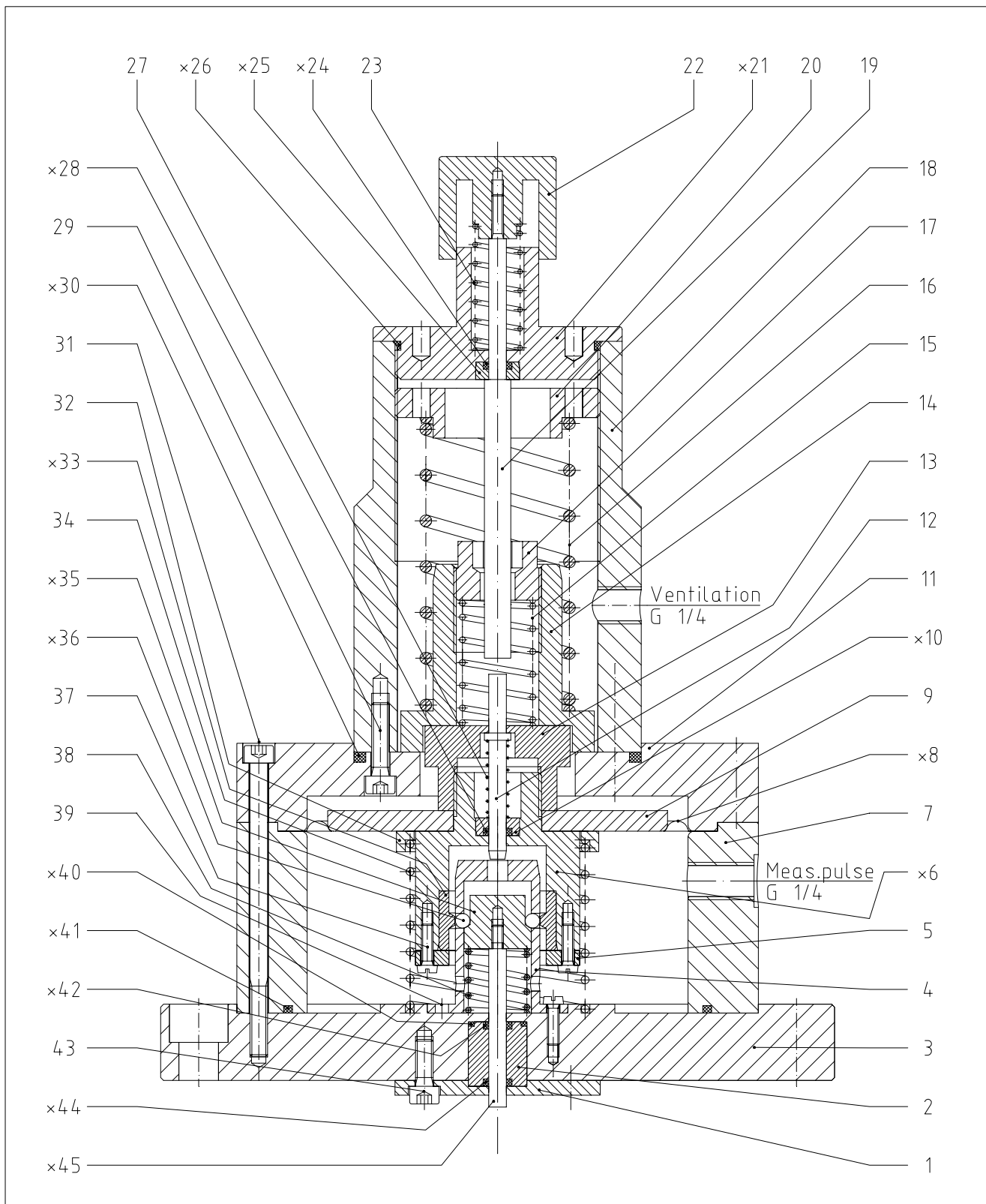
During maintenance check especially the diaphragm as well as the release socket and piston

for any damage. The entire upper section can be removed by loosening the allen screws on the spring crown, H **18** (or on upper diaphragm housing, N **11**).

Then press the middle rod **12** and simultaneously pull the entire unit up together with diaphragm **8** and socket element **6**. Now it is possible to check and, if necessary, replace the parts mentioned previously.

All moving parts should be oiled lightly with a suitable agent before reassembling. ⇒

**Design measuring element type 53N**



x: Parts subject to wear; keep on hand for maintenance

Item (21; 25; 26) only available complete

Item (6; 10; 28) only available complete

Item (35; 45) only available complete

**Parts for type 53N movement**

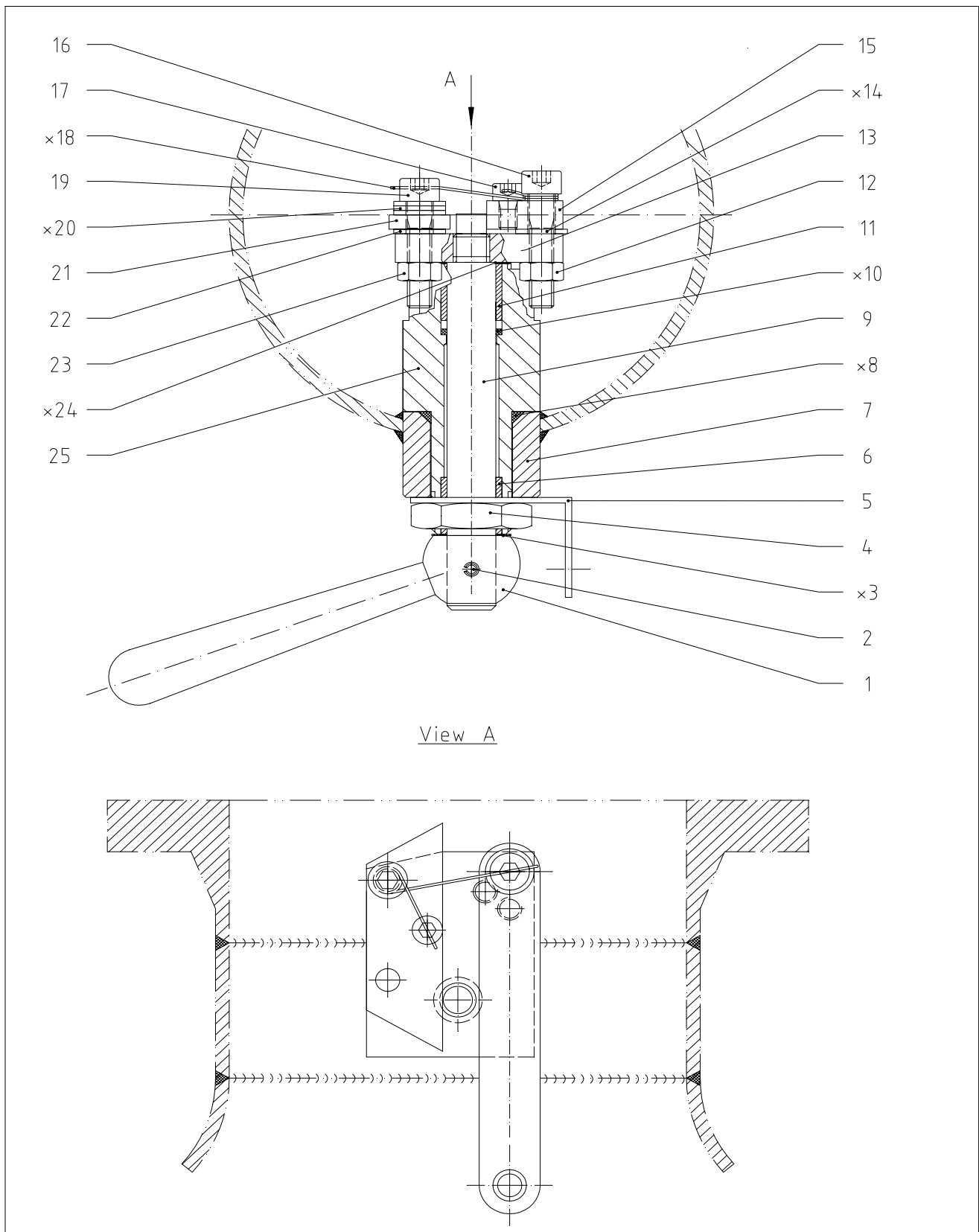
Item	Quantity	Units	Designation	Standard / drawing number	Material / remarks
1	1	Piece	Aluminum flange	4-53-1	Al
2	1	Piece	Guide	4-53-2	Ms
3	1	Piece	Blind flange, N	4-53-3/N/...	St, chromatic
4	1	Piece	Perforated element	4-53-4	Ms
5	1	Piece	Plate for socket element	4-53-5	Al
x6	1	Piece	Socket element	4-53-6	Al
7	1	Piece	Diaphr. housing, N, bottom	4-53-7/N	Al
x8	1	Piece	Diaphragm, N	4-53-8/N	Perbunan
9	1	Piece	Diaphragm plate, N	4-53-9/N	Al
x10	1	Piece	O-ring socket	4-53-10	Ms
11	1	Piece	Diaphr. housing N, upper	4-53-11	Al
12	1	Piece	Middle rod	4-53-12	VA
13	1	Piece	Rod guide	4-53-13	Al
14	1	Piece	Spring dome	4-53-14	Al
15	1	Piece	Spring, pressure too low	4-53-15	Spring steel C, chrom.
16	1	Piece	Spring, pressure too high	4-53-16	Spring steel C, chrom.
17	1	Piece	Spring plate, dome	4-53-17	St, chromated
18	1	Piece	Spring crown, N	4-53-18/N	Al
19	1	Piece	Upper rod	4-53-19	VA
20	1	Piece	Spring plate	4-53-20	St, chromatic
x21	1	Piece	Crown cover	4-53-21	Al
22	1	Piece	Pushbutton	4-53-22	Al
23	1	Piece	Upper spring	4-53-23	VA spring steel
x24	1	Piece	O-ring	6 x 2	Perbunan
x25	1	Piece	O-ring socket	4-53-10	Ms
x26	1	Piece	O-ring	60 x 3	Perbunan
27	1	Piece	Middle spring	4-53-27	VA spring steel
x28	1	Piece	O-ring	6 x 2	Perbunan
29	4	Piece	Allen screw	DIN 912 - M6 x 20	8.8, galvanized
x30	1	Piece	O-ring	90 x 4	Perbunan
31	8	Piece	Allen screw	DIN 912 - M6 x 100	8.8, galvanized
32	1	Piece	Spring plate, comp. springs	4-53-32	Al
x33	1	Piece	Release socket	4-53-33	V-St, chromated
34	1	Piece	Compensation spring	4-53-34	Spring steel C, chrom.
x35	1	Piece	Release piston	4-53-35	V-St, chromatic
x36	6	Piece	Ball	SKF / RB-5 / G20	St
37	4	Piece	Machine screw	DIN 84 - M4 x 10	8.8, galvanized
38	1	Piece	Bottom spring	4-53-38	VA spring steel
39	4	Piece	Machine screw	DIN 84 - M4 x 10	8.8, galvanized
x40	1	Piece	O-ring	16 x 2	Perbunan
x41	1	Piece	O-ring	140 x 3	Perbunan
x42	1	Piece	O-ring	6 x 2	Perbunan
43	4	Piece	Allen screw	DIN 912 - M6 x 16	8.8, galvanized
x44	1	Piece	O-ring	6 x 2	Perbunan
x45	1	Piece	Bottom rod	4-53-45	VA

⇒ Continuation of page 9

Check O-ring **28** by applying pressure (operating pressure) below diaphragm **18**. Any leakage at the bore can be found with a suitable leakage indicator. O-rings **42** and **44** (movement H: **37** and **39**) can only be checked in the assembled state.

For this place servo-element body under operating pressure; then use a suitable leakage indicator to inspect the bore for the measuring pulse.

**Design driving mechanism**



x: Parts subject to wear; keep on hand for maintenance

Items (9; 13) only available complete

Items (6; 11; 25) only available complete

## Parts for driving mechanism

Item	Quantity	Units	Designation	Standard / drawing number	Material/remarks
1	1	Piece	Hand lever	4-53-110	St, chromated
2	1	Piece	Clamping pin	DIN 1481, 5 x 30	VA
x3	1	Piece	Washer	17x26x0.4	PTFE
4	1	Piece	Hex. nut	DIN 431, G3/4	8, galvanized
5	1	Piece	Retaining plate	4-53-105	St, chromated
6	1	Piece	Brass bushing	4-53-117	MS
7	1	Piece	Welding bushing	4-53-108	St
x8	1	Piece	O-ring	26 x 3	Perbunan
9	1	Piece	Shaft	4-53-116/...	VA
x10	1	Piece	O-ring	16 x 2.5	Perbunan
11	1	Piece	Brass bushing	4-53-117	Ms
12	1	Piece	Hex. nut	DIN 934, M8	8, galvanized
13	1	Piece	Cam	4-53-119	VA
x14	1	Piece	Washer	DIN 125, 8.4	Ms
15	1	Piece	Pawl	4-53-112	VA
16	1	Piece	Allen screw	DIN 912, M8x40	8.8, galvanized
17	1	Piece	Allen screw	DIN 912, M6x10	8.8, galvanized
x18	1	Piece	Torsion spring	4-53-102	VA spring steel
19	1	Piece	Allen screw	DIN 912, M8x40	8.8, galvanized
x20	2	Piece	Washer	DIN 125, 8.4	Ms
21	1	Piece	Driver	4-53-111	VA
22	1	Piece	Washer	DIN 125, 8.4	Ms
23	1	Piece	Hex. nut	DIN 934, M8	8, galvanized
x24	1	Piece	Washer	17x26x0.4	PTFE
25	1	Piece	Neck mount	4-53-115/...	St, chromated

## Special Maintenance Instructions

### **Driving mechanism**

During maintenance check driving mechanism for easy operation and leakage to the outside.

If the spring force of torsion spring **18** has decreased, replace torsion spring. For this purpose loosen screw **16** so that torsion spring **18** can be pulled out of the holes in screws **17** and **18**.

When assembling ensure that the correct number of screws **14** is used. Tighten screw **16** only to the point that pawl **15** is still easy to move. Then counter with nut **12**.

In the rare case of external leakage, replace O-rings **8** and **10**.

For this purpose first remove driver **21** from cam **13**. Pay attention to number of screws **20** and **22** here as well!

Carefully drive out clamping pin **2** to remove hand lever **1**.

Then loosen hex. nut **4** (36 mm) while holding neck mount **25** with an open end wrench (41 mm) on the machined surface for this purpose.

The entire neck mount **25** can then be removed **together with shaft 9** and cam **13**.

Then first pull shaft **9** slowly out of neck mount **25**.

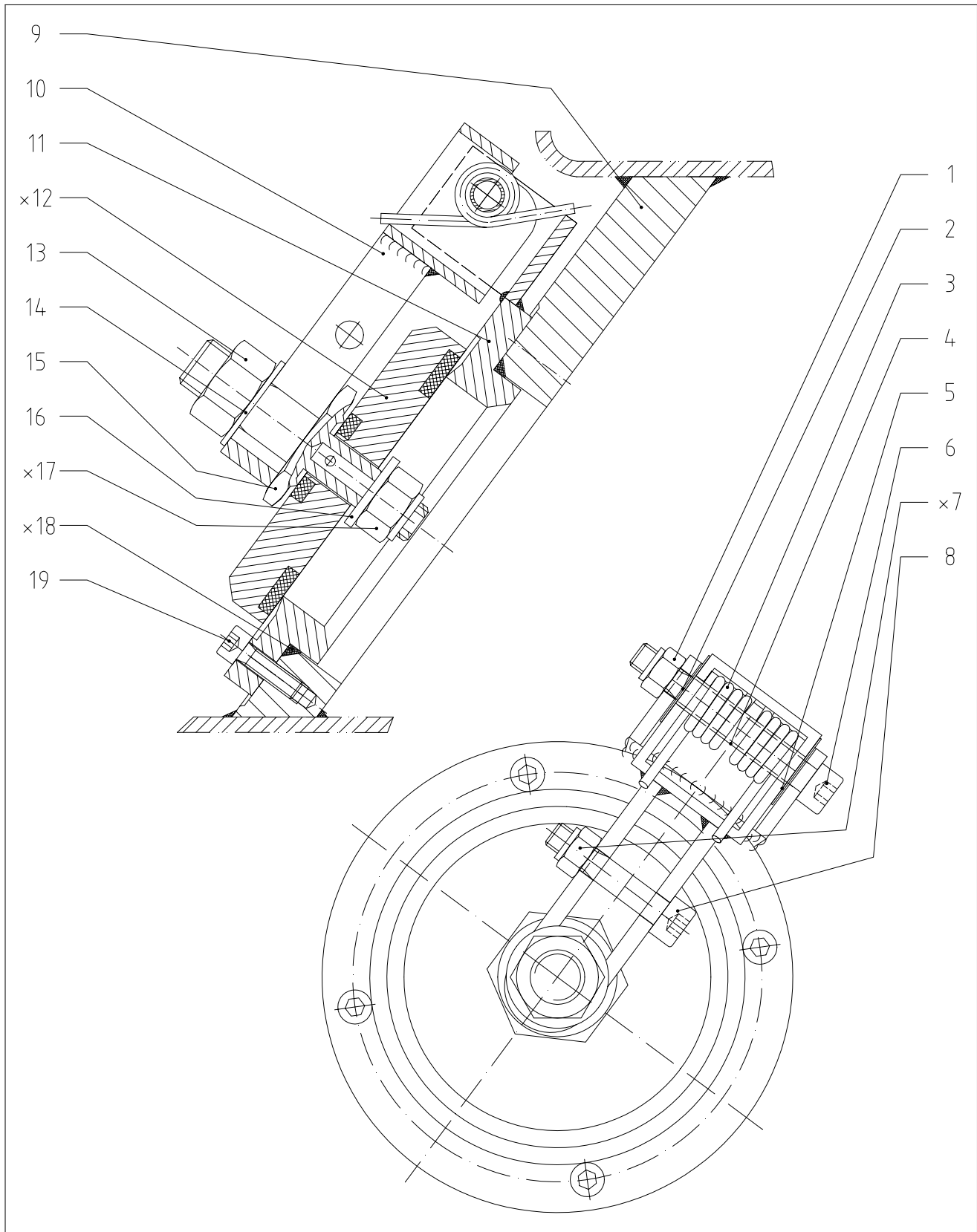
The internal O-ring **10** can then be removed carefully with the aid of a bent marking needle. When installing the new O-ring ensure that a suitable tool is used to prevent damage.

Pull off and replace outer O-ring **8**.

Reassemble in opposite order. Before reassembly oil the inner chamber of neck mount **25** with a suitable lubricant.

The O-ring positioned in the groove of the body flange or the round cord seal should be replaced each time the driving mechanism is opened (by lifting the movement)

## Layout Regulating Unit



x: Parts subject to wear; keep on hand for maintenance

Items (1; 2; 3; 4; 5; 6; 10; 11) only available complete

## Parts for Regulating Unit

Item	Quantity	Units	Designation	Standard / drawing number	Material/remarks
1	1	Piece	Hex. nut	DIN 985/8, M8	8, galvanized
2	1	Piece	Washer	8x24x0.4	PTFE
3	1	Pair	Torsion spring, li, re	4-53-213	Spring steel C, chrom.
4	1	Piece	Sleeve	10x1x40	Precis. pipe DIN 2391
5	1	Piece	Washer	8x24x0.4	PTFE
6	1	Piece	Allen screw	DIN 912, M8x60	8.8, galvanized
x7	1	Piece	Hex. nut	DIN 985/8, M8	8, galvanized
8	1	Piece	Allen screw	DIN 912, M8x55	8.8, galv., 40 mm long
9	1	Piece	Divider wall (ellipse)	4-53-217/...	St
10	1	Piece	Rocker	4-53-212/...	St, chromatic
11	1	Piece	Valve insert	4-53-203/...	St, chromatic
x12	1	Piece	Valve plate	4-53-208/...	St, chromatic
13	1	Piece	Hex. nut	DIN 934, M16	8, galvanized
14	1	Piece	Lock washer	DIN 137, 17x30x1.6, Form B	St, galvanized
15	1	Piece	Middle screw	4-53-209	St, chromatic
16	1	Piece	Washer	DIN 125, 13x24x2.5	St, galvanized
x17	1	Piece	Hex. nut	DIN 985/8, M12	8, galvanized
x18	1	Piece	O-ring	4Ø	Perbunan
19	4 - 8	Piece	Allen screw	DIN 912, M6x20 / M8x20	8.8, galvanized

## Special Maintenance Instructions

### Regulating unit

When checking the function and servicing check the safety shut-off valve for leakage.

In the event of leakage replace valve plate **12**. The neck mount for the regulating unit should be removed first for better accessibility (see page **13**). The entire valve insert (**1-6, 10, 11**) can be removed together with valve plate **12** after loosening screws **19**. Then remove nut **13** and remove valve plate **12** together with middle screw **15** by lifting rocker **10**.

Loosen self-locking nut **17** and check valve seat on middle screw **15** for any damage. If damage is present also replace middle screw.

When reassembling ensure that nut **17** is tightened only to the point that approx. 2 mm of clearance remains between valve **12** and the valve seat in middle screw **15**. Moreover, observe concentricity to valve seat **11** when installing valve plate **12**.

If the spring force of the torsion springs **3** has decreased or if the valve seat on valve insert **11** is damaged, replace the entire unit (**1-6, 10, 11**).

**Do not** disassemble unit (**1-6, 10, 11**) because the torsion springs **4** are under high tension and can cause injury.

For installation and equipment as well as monitoring and maintenance of safety shut-off fittings observe the corresponding regulations, particularly DVGW worksheet G490, G491 and G495.

For monitoring and function controls we refer the reader to the accident prevention regulations for gas (VGB 61):

"The contractor must ensure that system parts required for technical safety are checked for good condition and proper function at justifiable time intervals to be defined by the former, however, at least once annually".

Regarding the intervals for maintenance work we refer the reader to the guidelines specified in DVGW worksheet G495. These intervals should not be exceeded under normal conditions. Under extreme conditions, e.g. frequent actuation, aggressive or hot gases, the intervals should be shortened as required after consultation with the manufacturer.

Always perform maintenance work only on units when **not under pressure** and have maintenance performed only by **trained** personnel.

**Please indicate unit serial number on every inquiry or parts order!**

## General Maintenance Instructions