

OPERATING AND MAINTENANCE INSTRUCTIONS/
SPARE PARTS

EDITION 01/2017

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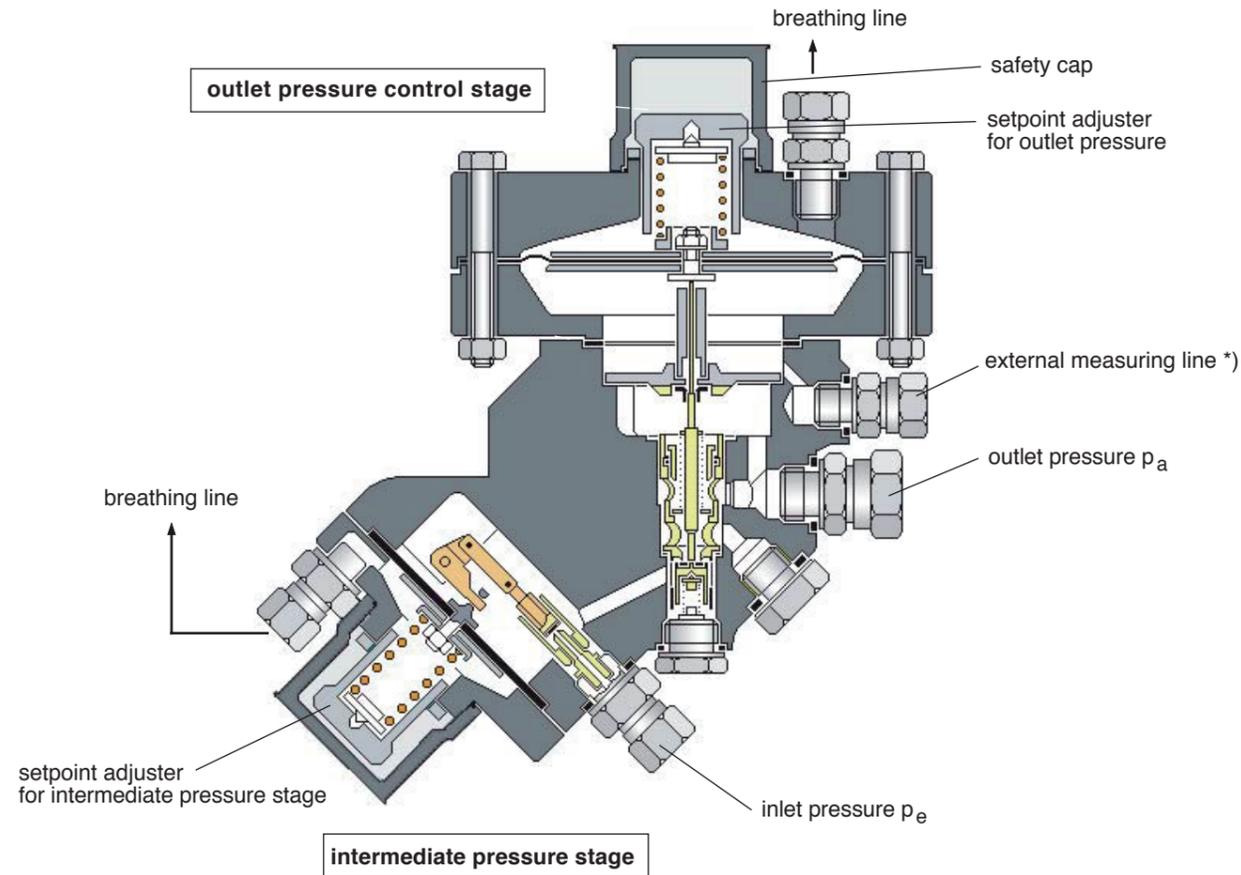
Contents		page
1.	General	3
1.1	Safety notes	3
2.	Special operating instructions	4
2.1	Adjustment of the intermediate pressure	4
3.	Special maintenance instructions	5
3.1	intermediate pressure stage	5
3.2	outlet pressure regulating stage	5, 6
3.3	Screw tightening torques	6
3.4	Lubricants	6
4.	Spare parts	
4.1	Spare part drawings	
4.1.1	Centre piece with outlet pressure regulating stage type N	7, 8
4.1.2	outlet pressure regulating stage type N, intermediate pressure stage type M	9
4.1.3	outlet pressure regulating stage type M	9
4.1.4	cut-away views	10
4.2	Spare parts lists	11, 12, 13
4.3	Spare parts drawings for gauge connections	
4.3.1	gauge for outlet pressure	14
4.3.2	gauge for intermediate pressure	15
4.4	Spare parts lists	16
4.5	Parts to be held in stock for maintenance work	17

2. Special operating instructions

2.1 Adjustment of the intermediate pressure

The height of the intermediate pressure influences the regulating characteristics of the device significantly. To achieve a great regulating accuracy the intermediate pressure should be set as high as possible, but without making the regulating line unstable. Lowering the intermediate pressure can dampen regulating over-reactions, but also reduces the max. possible flow.

The height of the intermediate pressure should be approx. 1 - 2 bar above outlet pressure.



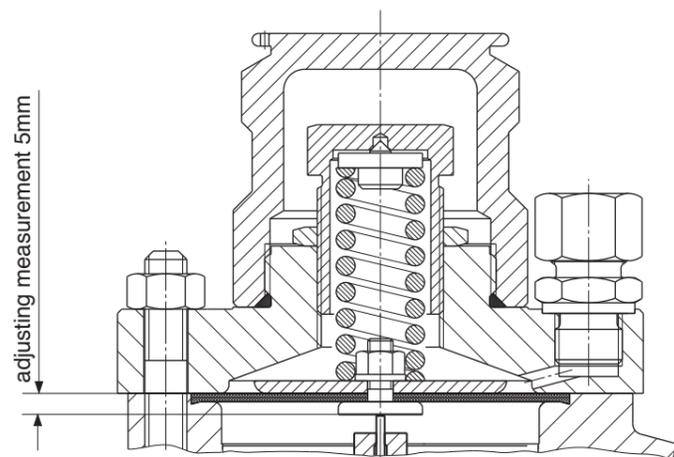
General design of the gas pressure regulator HON 210 (R 10d)

*) Should the nominal flow be below $q_n < 9 \times p_{a, abs}$, then an external measuring line is not necessary. The connection for the external measuring line can then be blocked using the supplied plug. The outlet pressure measurement is then automatically effected via an internal bore hole.

4.5 Parts to be held in stock for maintenance

item no.	description	amt.	material	HON stock no.
2	o-ring	1	KG	20 307
8	o-ring	1	KG	20 324
13	washer	1	KG	8 032
16	pin (40,5 mm long)	1	NSt	10 017 926
23	piston, complete	1	LM/KG	10 017 616
44	diaphragm	1	KG	10 017 918
45	washer	1	KG	8 068
49	washer	1	KG	10 017 612
60	USIT ring	6	St/KG	27 858
68	diaphragm	1	KG	10 014 989
76	control pin (17 mm long)	1	NSt	10 017 691
81	sealing insert	1	KG	10 014 474
85	washer (1,0 mm thick)	1	LM	18 814
85	washer (2,0 mm thick)	1	LM	18 849
89	washer	1	LM	18 689

Adjusting measurement for outlet pressure control stage M



Note

To check the correct height, press the control pin (16, 76) lightly downward to the first stop. In this position, the control rod (20) rests on the piston (23), and the nozzle is still closed. Upon delivery, the control pin has extra length and should be shortened to the correct length before mounting (and sandpaper down any sharp edges!).

- **Piston (23)**

The piston should move freely in the guiding bush.

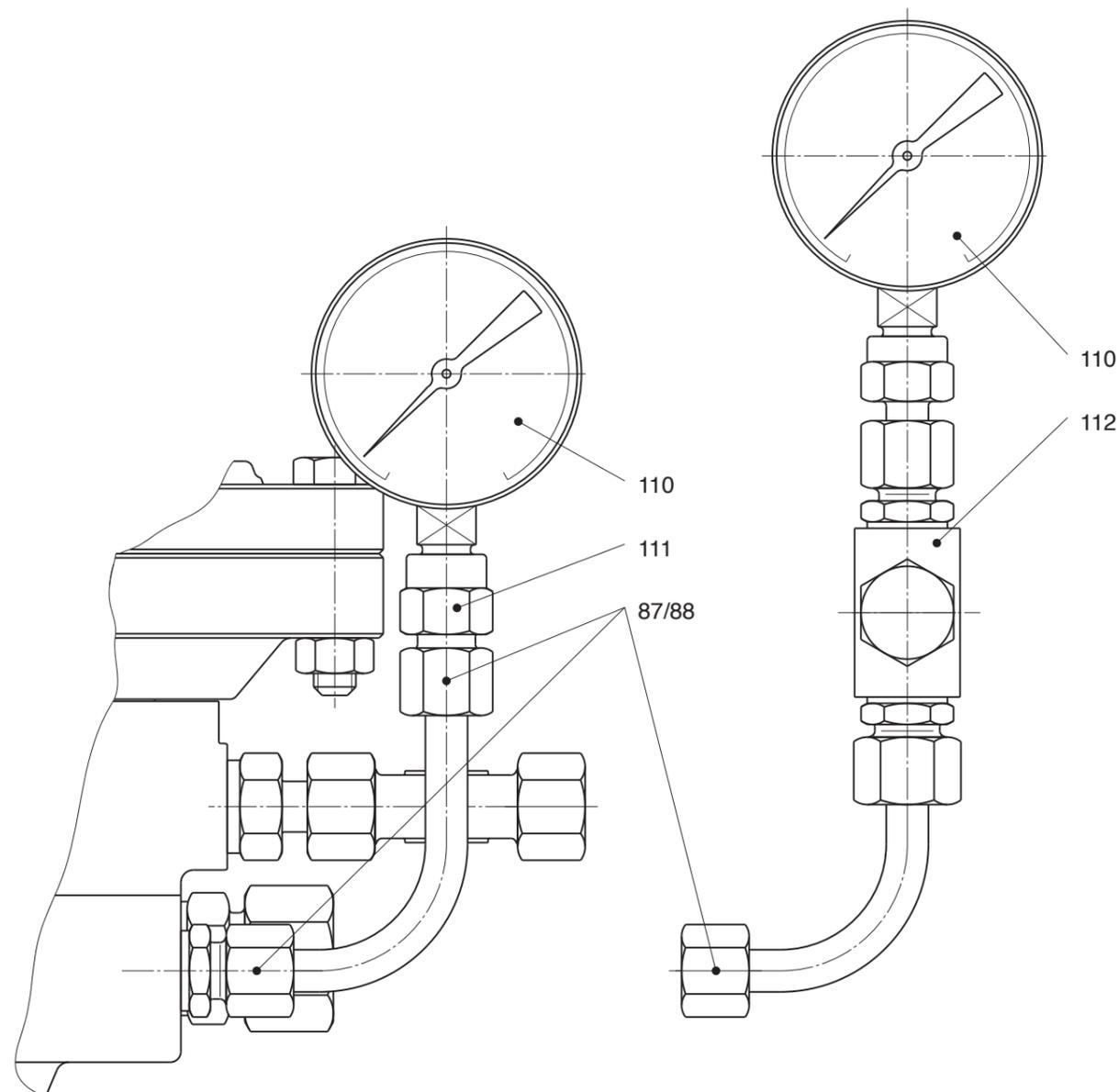
3.3 Screw tightening torques

item no.	tightening torque M_A in Nm
9, 61	30
4	2,5

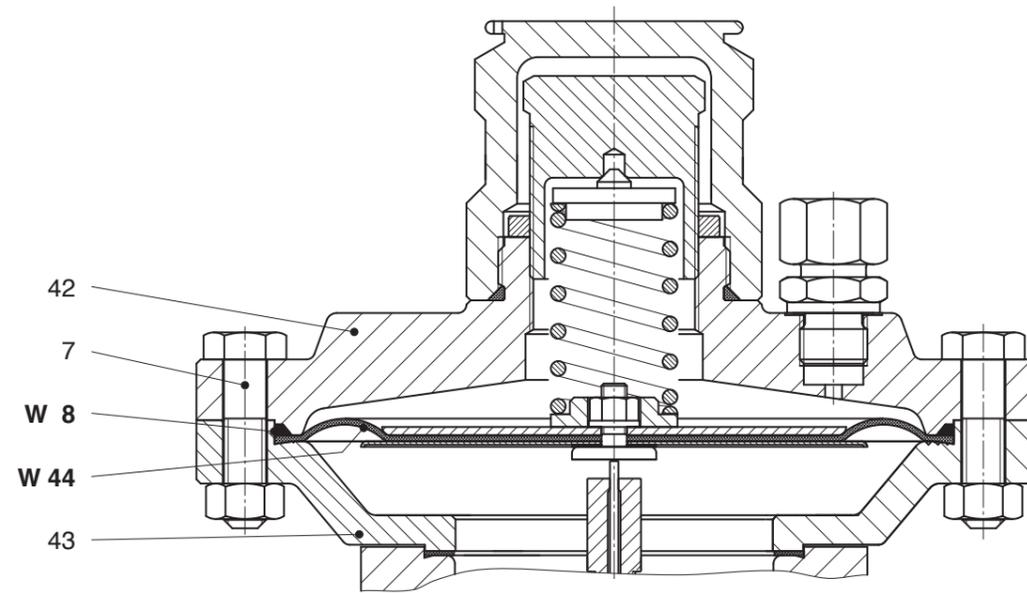
3.4 Lubricants

part (to be greased slightly)	lubricant	HON stock no.
all o-rings, all gliding surfaces, all moving parts	silicone grease	00 027 081 (tube 0,1 kg)
regulating screw (33, 73), threads and indentation for spring plate	mounting paste	00 027 091
all fastening screws and all screwed pipe connections	mounting grease	00 028 267

4.3.2 Gauge for intermediate pressure



outlet pressure stage type N - lid construction up to 7/97



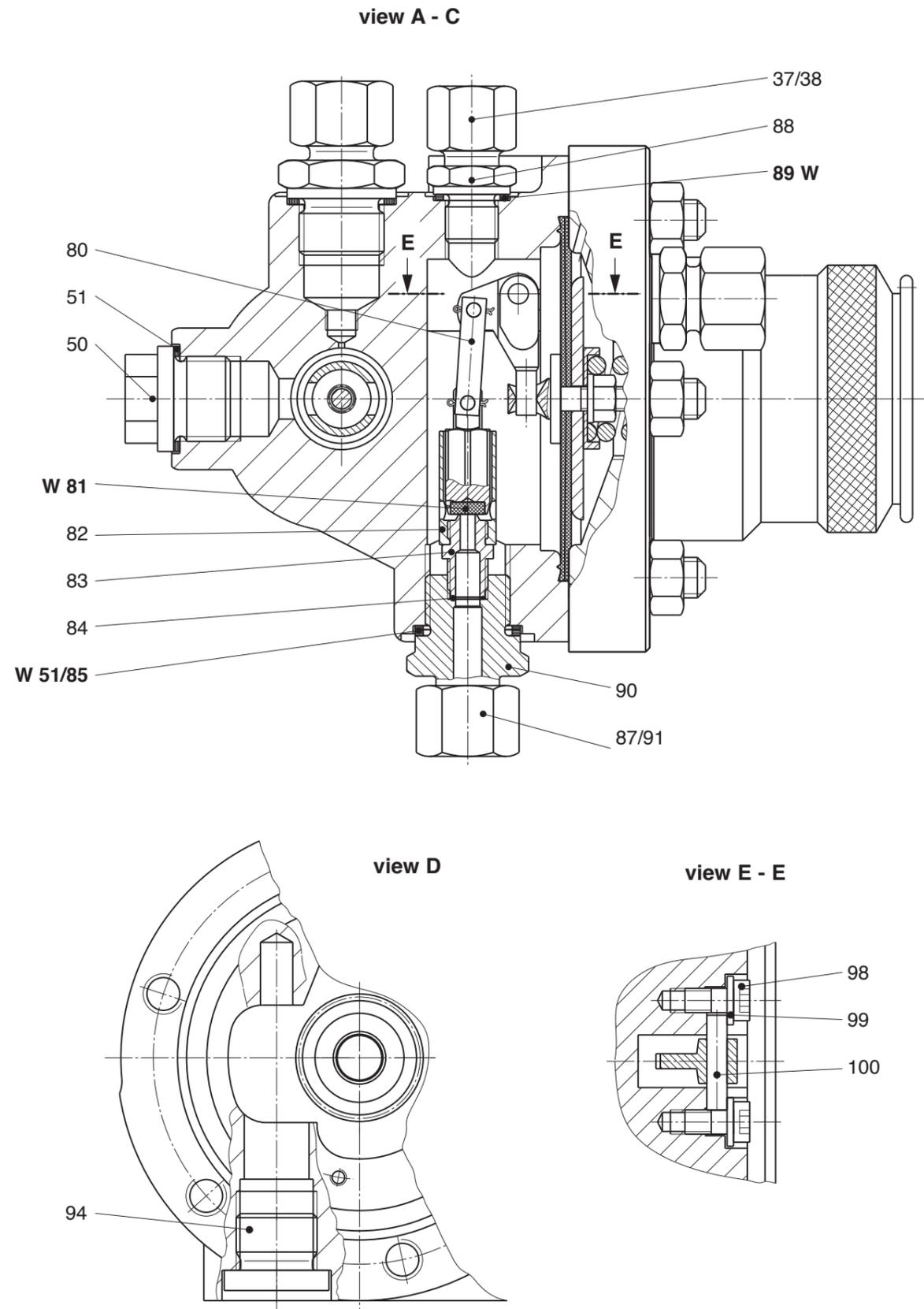
W Parts to be held in stock for maintenance work.

Spare parts list

item no.	description	amt.	W	material	HON stock no.
7	hexagonal screw			St	00 010 054
8	o-ring	1	W	KG	00 020 353
42	lid size N	1		LM	10 012 137
43	intermediate ring	1		LM	10 017 916
44	diaphragm	1	W	KG	10 017 918

item no.	description	amount	W	material	HON stock no.
71	spring	1		FSt	10 015 005
72	spring compensating piece	1		St	10 016 656
73	regulating screw	1		Ms	10 014 999
74	spring, at option:				
74	W _a 0,3 bar to 1,5 bar	1		FSt	10 016 654
74	W _a 1,0 bar to 2,5 bar	1		FSt	10016 655
74	W _a 2,0 bar to 3,5 bar	1		FSt	10 015 005
75	sealing screw	1		Ms	10 017 688
76	control pin (17 mm long)	1	W	NSt	10 017 691
80	lever system, pre-assembled	1		Ms/NSt	10 014 452
81	sealing insert	1	W	KG	10 014 474
82	piston guide	1		Ms	10 014 471
83	nozzle	1	W	Ms	10 014 466
84	washer	1	W	LM	18 811
85	washer (1,0 mm dick)	1	W	LM	18 814
85	washer (2,0 mm dick)	1	W	LM	18 849
86	cap nut	1		St	30 803
87	compression joint	1		St	30 903
88	connecting piece	1		St	30 110
89	washer	1	W	LM	18 689
90	adapter	1		LM	10 018 459
91	cap nut	1		St	30 804
94	sealing screw	1		St	32 017
98	cylindrical screw	2		St	10 596
99	washer	2		St	8 279
100	bolt	1		St	10 020 042

4.1.4 Cut-away views



W parts to be held in stock for maintenance.

4.2 Spare part lists

item no.	description	amount	W	material	HON stock no.
1	cap	1		LM	10 012 139
2	o-ring	1	W	KG	20 307
3	screw	1		St	10 017 650
4	hexagonal nut	1		St	13 138
5	spring plate, at option:				
5	W _a 10 mbar to 40 mbar	1		LM	10 016 679
5	W _a 20 mbar to 60 mbar	1		LM	10 017 661
5	W _a 40 mbar to 120 mbar	1		LM	10 017 661
5	W _a 80 mbar to 200 mbar	1		LM	10 017 661
5	W _a 100 mbar to 500 mbar	1		LM	10 016 681
6	diaphragm plate	1		St	10 016 672
7	hexagonal screw	10		St	10 455
8	o-ring	1	W	KG	20 324
9	hexagonal nut for outlet pressure stage size N	10		St	5 692
9	hexagonal nut for pressure stage size M	6		St	5 692
10	diaphragm plate	1		LM	10 017 654
13	washer	1	W	KG	8 032
14	cylindrical screw	3		St	6 543
15	intermediate plate			LM	10 017 588
16	control pin (40,5 mm long)	1	W	NSt	10 017 926
20	control rod	1		Ms	10 017 603
21	guiding washer	1		Ms	10 017 610
22	washer	3	W	LM	18 688
23	piston, complete	1	W	LM/KG	10 017 616
24	spring compensating piece	1		LM	10 017 614
25	spring	1		FSt	10 017 639
26	screw plug	1		Ms	10 017 606
27	body	1		LM	10 024 341
28	control nozzle	1	W	LM	10 017 596
29	spring	1		NFSt	10 014 020
31	intermediate piece	1		LM	10 017 600
32	sealing screw	1		Ms	10 017 923
33	adjusting screw	1		Ms	10 012 140

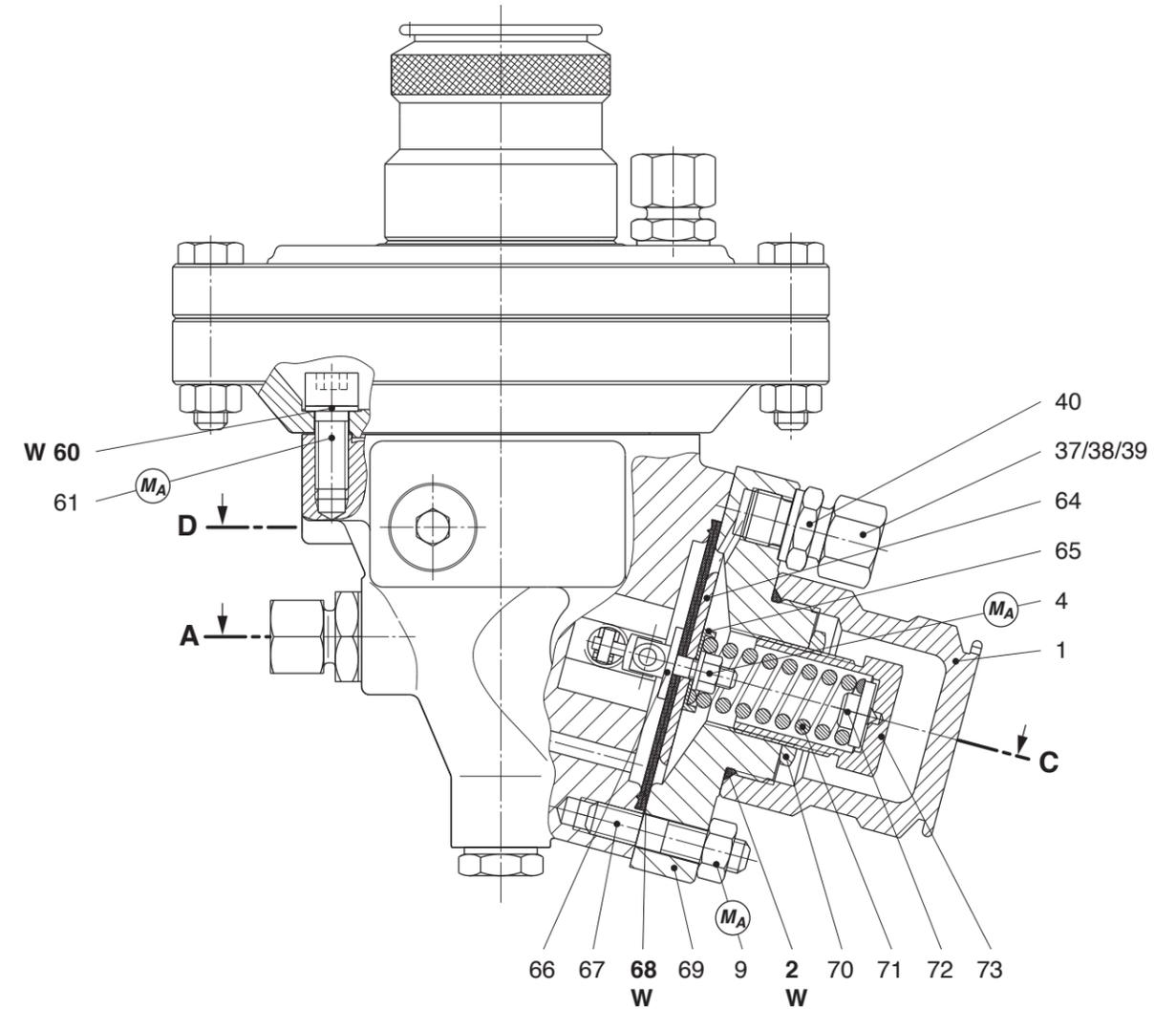
W parts to be held in stock for maintenance

material key

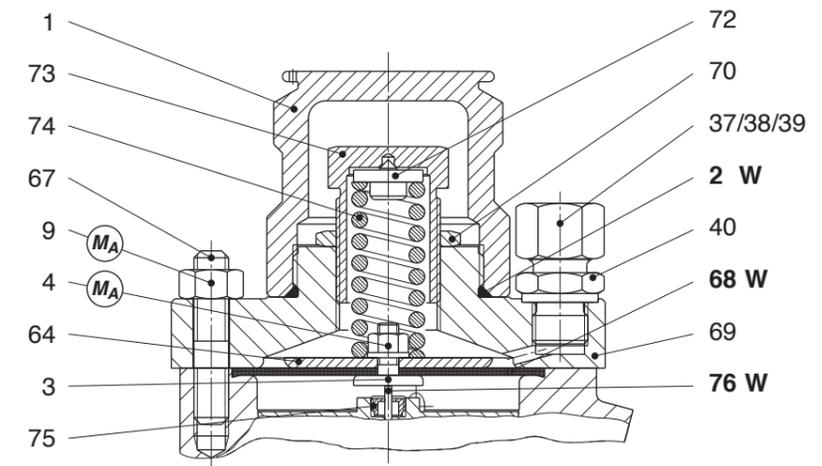
St ... steel	LM ... light metal	SSt ... plastic foam
NSt ... stainless steel	Ms ... brass	K ... plastic material
FSt ... spring steel	Cu ... copper	KG ... rubber-like plastic material
NFSt ... stainless spring steel	Bz ... bronze	KGFP...rubber-like plastic material with coating
GS ... cast steel	GLM ... cast light metal	FPM ... special rubber-like plastic material
GGG ... cast iron with globular graphite	GMs ... cast brass	FP ... special plastic material
GZn ... cast zinc	AlBz ... aluminium bronze	PGL ... plexiglass
GBz ... cast bronze		

4.1.2 outlet pressure control stage N, intermediate pressure stage M

item no.	description	Anz.	W	Werkst.	Teile - Nummer
34	spring compensating piece, at option:				
34	W _a 10 mbar to 40 mbar	1		St	10 014 931
34	W _a 20 mbar to 60 mbar	1		St	10 014 931
34	W _a 40 mbar to 120 mbar	1		St	10 014 931
34	W _a 80 mbar to 200 mbar	1		St	10 014 933
34	W _a 100 mbar to 500 mbar	1		St	10 014 933
35	spring, at option:				
35	W _a 10 mbar to 40 mbar	1		FSt	10 014 926
35	W _a 20 mbar to 60 mbar	1		FSt	10 015 469
35	W _a 40 mbar to 120 mbar	1		FSt	10 016 660
35	W _a 80 mbar to 200 mbar	1		FSt	10 014 516
35	W _a 100 mbar to 500 mbar	1		FSt	10 015 161
36	threaded ring	1		LM	10 014 900
37	cap nut	4		St	30 804
38	compression joint	5		St	30 904
39	dosing screw	1		Ms	10 005 096
40	threaded adapter	1		St/KG	10 024 347
42	lid N (starting from 8/97)	1		LM	10 012 141
43	intermediate ring (starting from 8/97)	1		LM	10 012 142
44	diaphragm	1	W	KG	10 017 918
45	washer	1	W	KG	8 068
48	connecting piece	1		St	32 633
49	washer	1	W	KG	10 017 612
50	screw plug	1		St	30 106
51	washer (1,5 mm thick)	1	W	LM	18 815
52	cap nut	1		St	30 807
53	compression joint	1		St	30 906
54	cap (only for internal measuring)	2			32 005
60	USIT ing	6	W	St/KG	27 858
61	cylindrical screw	6		St	10 207
64	diaphragm plate	1		St	10 014 983
65	spring guiding plate	1		LM	10 017 697
66	ring screw	1		NSt	10 014 993
67	threaded dowel	6		St	12 203
68	diaphragm	1	W	KG	10 014 989
69	lid M	1		LM	10 012 138
70	nut	1		St	10 014 996

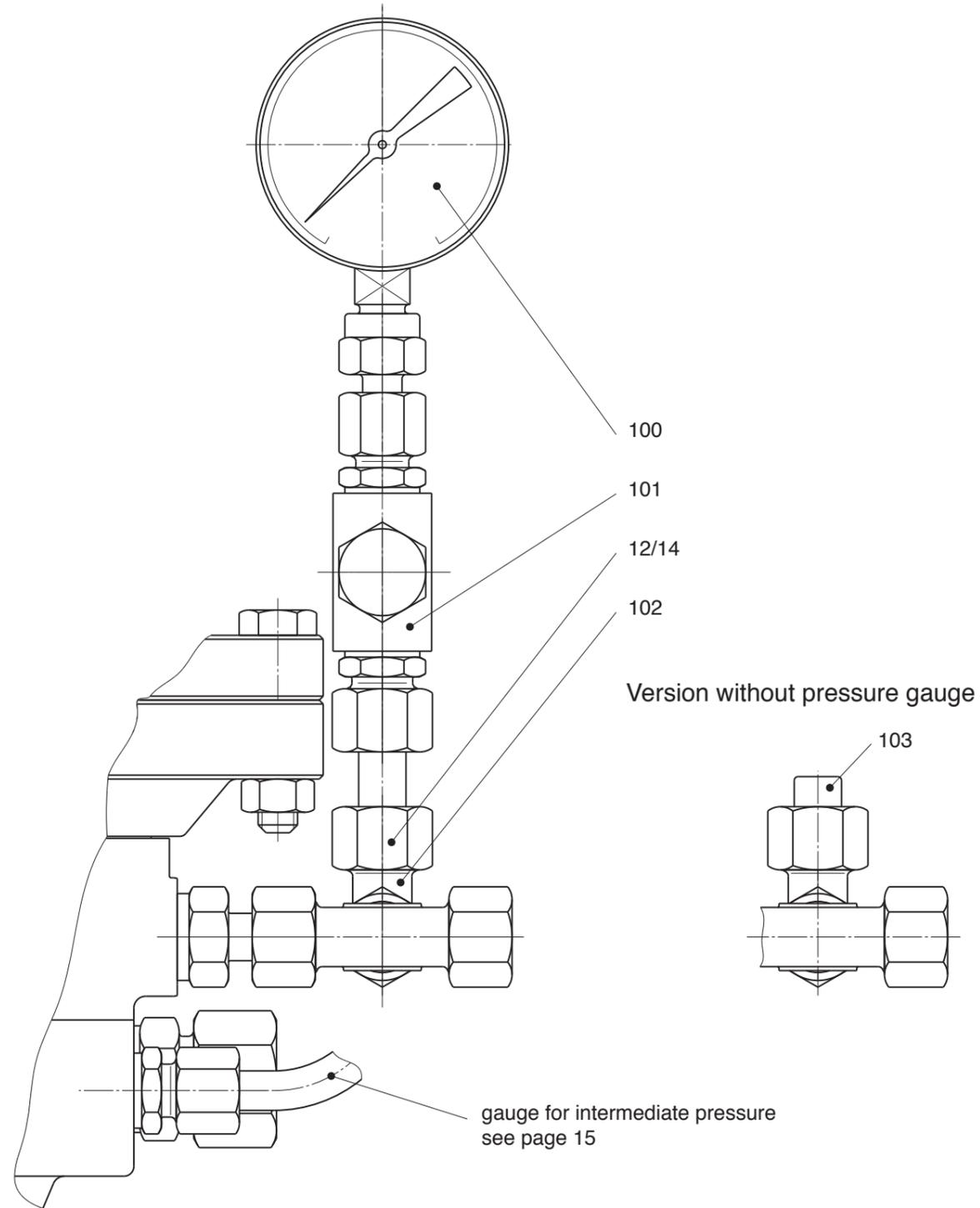


4.1.3 outlet pressure control stage M



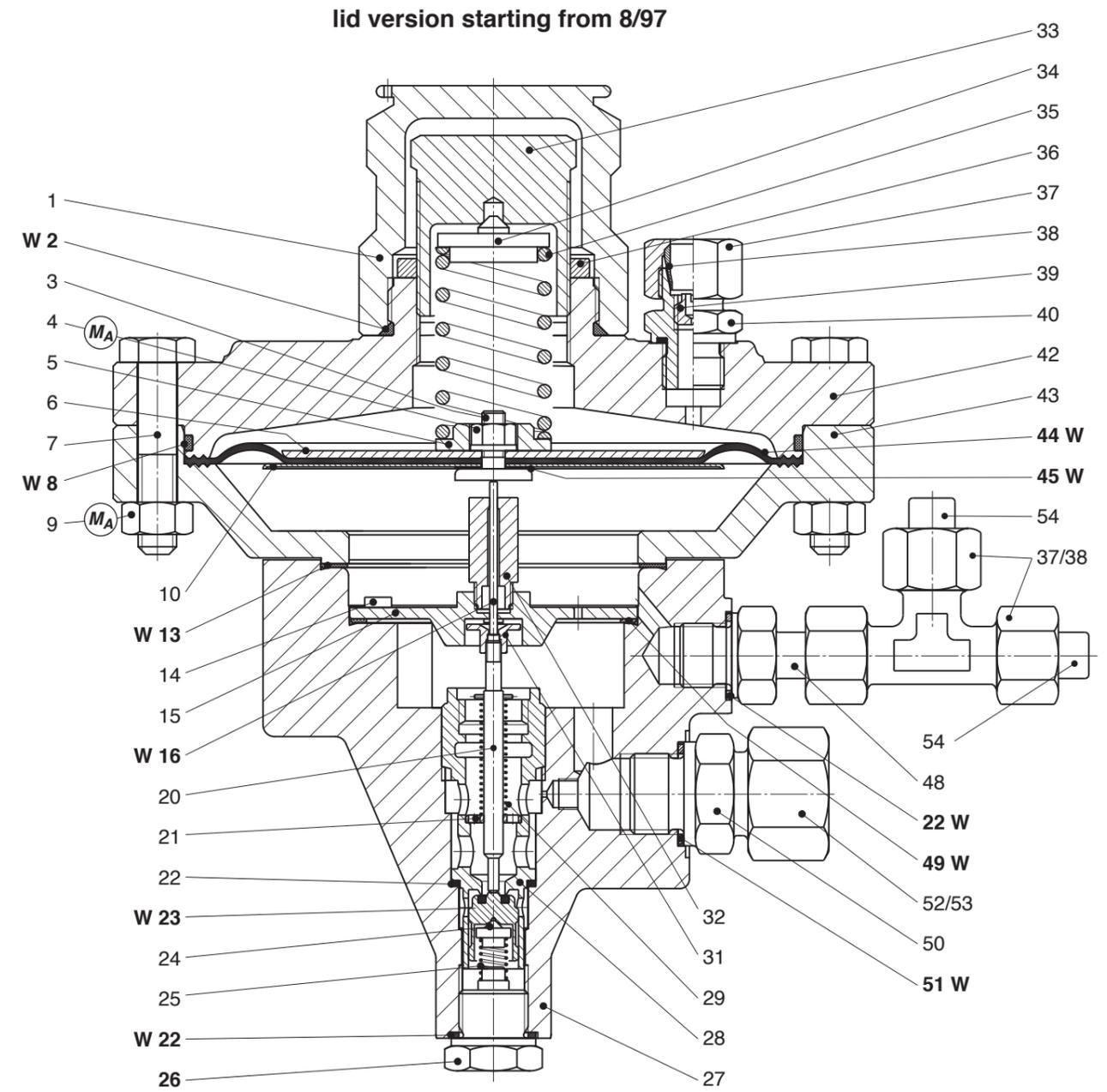
MA please refer to torque table on page 4!
W parts to be kept in stock for maintenance.

4.3.1 Gauge for outlet pressure



4.1 Spare part drawings

4.1.1 Centre piece with outlet pressure stage type N



M_A Please note the screw tightening torques on page 6!

W Parts are to be held in stock for maintenance.

4.4 Spare parts list

item no.	desxription	amount	W	material	HON stock no.
gauge for outlet pressure					
100	pressure gauge, at option:				
100	Wa 0,3 bar to 1,5 bar	1		St/Ms	27 191
100	Wa 1,0 bar to 3,5 bar	1		St/Ms	26 891
101	overpressure safety valve, at option:				
101	HON 925 for 2,5 bar	1			89 252 404
101	HON 925 for 6,0 bar	1			89 252 406
102	adapter	1		St	31 213
102	plug (for version without outlet pressure gauge)	1		St	32 005
gauge for intermediate pressure					
110	pressure gauge	1		St/Ms	26 281
111	adapter	1		St	31 865
112	overpressure safety valve	1			89 251 407

3. Special maintenance instructions

3.1 Intermediate pressure stage (see page 9)

- **Diaphragm (68)**

For dismantling remove lid (69), then push diaphragm (68) towards the inlet pressure connection (to the left), and bend up this edge of the diaphragm, so that the ring underneath slides off the lever (80).

- **Sealing insert (81)**

For exchange the screws (98) should be loosened and the complete lever system (80) taken out of the body. An indentation on the sealing insert (81) caused by the nozzle (83) is normal. The sealing insert can be removed by levering it out with the help of a needle.

Note

After renewing the sealing insert the position of the assembled lever system has to be checked: Pull the lever outward to push the piston onto the nozzle. The lever should then be parallel to the diaphragm base. If not, then vary the washers (51, 85) under the inlet pressure connection (90), until the correct position is achieved.

- **Nozzle (83)** (see page 10)

Remove the piston guide (82) and check the nozzle tip visually. When using filtered, non-aggressive gases the nozzle tip should be free of pollution or wear. In this case do not dismantle any further.

- **Screw plug (50)** (see page 10)

The screw plug (50) remains screwed tight during maintenance work..

3.2 Outlet pressure stages M and N (see pages 7 and 9)

- **Control pin (16, 76)**

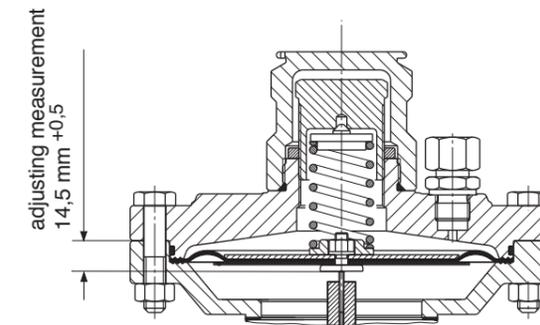
The control pin should glide easily in the bearing.

Note

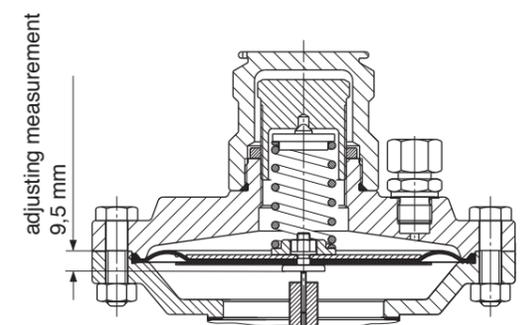
When adding new parts to the outlet pressure control stage check the adjusting measurement and adjust if necessary (A new control pin might be needed!)

For the correct adjusting measurement please refer to the drawing below:

lid version starting from 8/97



lid version up to 7/97



- **control nozzle (28)** (see page 7)

When using filtered, non-aggressive gases the nozzle tip should be free of pollution or wear. No further dismantling is necessary in this case.

1. General

Every person engaged with installation, supervision, or maintenance of the gas pressure regulator type HON 210 is requested to read the following leaflets and brochures beforehand:

- **Technical Description 210.00** - contains technical data, measurements, and describes function and design.
- **General Operating Instructions for Gas Pressure Regulators and Safety Devices** - this Honeywell brochure describes installation and operation, and includes general hints on fault finding and repair.
- **Operation and Maintenance, Spare Parts 210.20** - contains further details on installation and operation of the gas pressure regulator HON 210. Maintenance instructions and the spare part drawings and -lists of the main valve are also included.
- The related **functional elements** are described in separate "Operation and Maintenance, Spare Parts"-leaflets:

filter	HON 905	905.20
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Additionally, the relevant national rules and laws have to be observed (In Germany please refer to the DVGW worksheets G 600, G 459/II, G 491 und G 495).

The frequency of periodical maintenance of the gas pressure regulator HON 512 should be determined according to the prevailing conditions and the type and composition of the gaseous medium. Therefore, no fixed maintenance intervals can be prescribed. For Germany: At the beginning we recommend to use the maintenance intervals stated in the DVGW worksheet G 495. Then individual maintenance intervals should be determined for every station.

For maintenance all parts are to be cleaned and subjected to a thorough visual inspection. A visual inspection should also occur when the course of operation or functional tests have shown lack of regulating accuracy.

Particular care should be given to the checking of sealings and diaphragms, as well as carrying and moving parts. Damaged parts should be replaced by new ones. The item numbers referred to in the maintenance instructions are identical with those of spare part drawings and spare parts lists.

We recommend to keep all parts that are specially marked "**W**" in the spare parts lists in stock for prompt maintenance availability.

1.1 Safety symbols

Safety symbols include the following **key words** in these operating instructions

symbols	explanation
	risk of human injury
	risk of damaging equipment or environment
	additional information or requirements

For More Information

To learn more about Honeywell's
Advanced Gas Solutions, visit
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