

Zero-pressure gas regulator RMG 324



OPERATING AND MAINTENANCE INSTRUCTIONS/
SPARE PARTS

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1. General information

All persons involved with the assembly, operation and/or maintenance of gas pressure regulators must read and understand all of the following documents:

- **Technical product information (brochure RMG 324.00)** – this ITT document contains the technical data and dimensions of the equipment and a description of its design and mode of operation.
- **General operating manual for gas pressure regulators and safety devices** – this ITT document contains information on assembly and operation as well as general information on troubleshooting.
- **Operating and maintenance instructions/spare parts (brochure RMG 324.20)** – this ITT document contains more detailed information on assembly and operation of the gas pressure regulator.

There are national laws and regulations for all sorts of jobs on gas equipment, from planning to maintenance. Be sure to comply. (In Germany, for instance, DVGW work sheets G 600, G 459/II, G 491 and G 495.)

Inspection and maintenance intervals depend mostly on operating conditions and the nature and properties of the gas. There are no general rules or recommendations for intervals. For Germany, we recommend to consider maintenance intervals as stated in DVGW work sheet G 495 in a first instance. However, in the mid-term, intervals must be adapted to the requirements of each specific equipment.

During maintenance, components must be cleaned and then checked thoroughly. This is necessary even if there have not been any unusual observations during operation and/or functional testing. Checks must focus, in particular, on diaphragms and seals and all movable parts and their respective bearings. Any and all defective parts must be replaced with new ones. The same applies to O rings removed during disassembly.

Do not use any spare/wear parts and/or oils & lubricants not specifically recommended in the ITT operating and maintenance instructions for spare parts. In the event spare/wear parts and/or lubricants & oils other than those specifically recommended are used, ITT shall not be held liable for any defects and/or consecutive damages attributable to such use of illegal parts, lubricants, oils etc.




Item numbers mentioned in the specific operating and maintenance instructions correspond with the numbers in the spare parts lists and drawings.

Some parts in the lists and drawings are marked with a letter "W". We recommend to always have a reserve of those parts in stock for maintenance purposes.

Those spare parts are put together in another separate list at the end of the spare parts list.

1.1 Safety information

In this manual, safety information is highlighted by means of the following signal words and eye catchers:

Eye catcher	used for:
 Danger!	Danger to life and limb
 Caution!	Danger of damage to property and /or the environment
 Note	Important additional information

2. Specific maintenance instructions



Do not carry out maintenance unless the system is safely depressurised.

2.1 Valve stem (78/178)

In order to secure the diaphragm (as applicable: 58 or 58* / 158 or 158*) against unintentional movements when loosening and / or tightening the nuts (54, 65 / 154, 165 resp.), be sure to secure the valve stem accordingly. The valve stem (78/178) can be gripped with a wrench for that purpose.

2.2 Valve discs (as applicable: 66, 77/166, 177)

With valve disc (77/177) closed, adjust valve disc (66/166) by turning hex collar nut (65/165) and hex nut (79) or special nut (179) in such a way that both valve discs (66, 77/66, 177) sit equally well in their respective valve seats.

2.3 Diaphragm (as applicable: 58 or 58*, 158 or 158*)

Set the valve stem (78/178) with the valve discs (66, 77/166, 177) to a 100 % aperture. Then tighten the hex collar nuts (65/165) so that the diaphragm (as applicable: 58 or 58*/158 or 158*) will not move unintentionally.

Should it be necessary to replace diaphragm (58/158) and/or sealing ring (59/159), be sure to replace BOTH by installing a new diaphragm (58*/158*) with integrated sealing ring. Pay good attention to correct fitting position of diaphragm (58*/158*) inside diaphragm housing UT (74/174). With valve discs closed (66, 77/166, 177), be sure to install diaphragm (58*/158*) in such a way that its bulge protrudes from diaphragm housing UT (74/174) and above the contact line with diaphragm housing OT (53/153). See the sectional drawing – items 4.3.1 and 4.4.1.

2.4 Tightening torques M_A

Screws & bolts – item no.	10	110	60/160	72/172
Tightening torques in Nm	20	15	20	8

2.5 Lubricants

Components	Lubricants	RMG part no.
All O rings and locking rings (51/151)	Silicone grease	27081
All fastening screws and screwed pipe connections	Assembly paste	27091

3. Specific operating instructions

3.1 Fitting position

Note

RMG 324 is a zero-pressure gas regulator. Be sure to fit this equipment in a horizontal position with the spring dome **DOWN**. See sectional drawings 4.1.1 and 4.2.1.

3.2 Vent line connection



Never plug up the vent line connection.



Be sure to connect a vent line here (thread G 3/8), whenever there is a danger that failure of the regulator (e.g. measuring diaphragm is damaged) releases gas to the environment.

3.3 Dirt traps (gas filters)

The user must equip the system with devices that protect the gas pressure regulator against contamination.

3.4 Setting the setpoint

To adjust the reference: turn the setpoint adjuster (67/167) clockwise (SW 13) to increase the setpoint. Turn it ccw to decrease the setpoint.

3.5 Switching from internal to external measuring impulse connection (retrofit)

The **RMG 324** comes with a standard internal measuring impulse connection. It is possible, of course, to retrofit for an external connection if necessary for technical reasons. You will need the following ITT retrofit kit:

<i>RMG retrofit kit</i>	12133693
Denomination	Part no.
Threaded pin (setscrew)	101195
Screwed connection	31950
Union nut	30804
Cutting ring	30904

How to retrofit – proceed as follows:

- Unscrew the plug (12/112).
- Visually check the stepped bore: Any dirt? Obstructions? Remove and clean as required.
- Screw down the threaded pin (13/113) – all the way to the stop.
- Install the screwed connection (14, 15, 16/114, 115, 116). Make sure the elastomer seals are not damaged.
- Installation of the pipes of the measuring line ($\varnothing = 12$ mm). Install the measuring line as described in Honeywell's general operating manual for gas pressure regulators and safety devices.

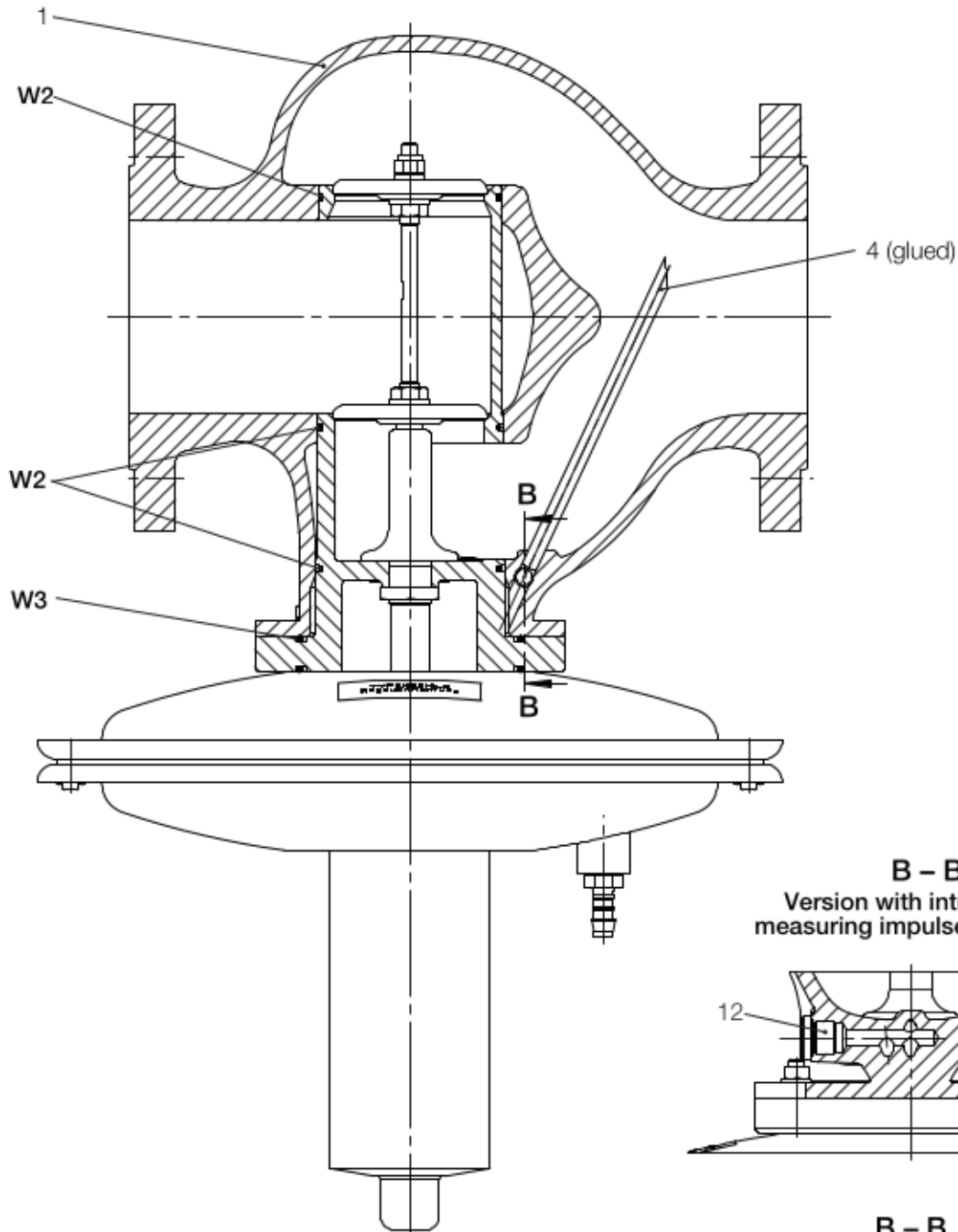
3.6 Switching from external to internal measuring impulse connection (retrofit)

Proceed as described for internal -> external retrofit but in reverse order (see 3.5). Make sure all retrofit parts are in good condition. Replace with better ones, if and where necessary.

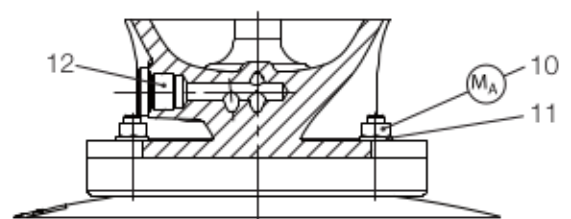
If your **RMG 324** gas pressure regulator came with an external measuring impulse connection, you will need a plug (12/112) for retrofit (**RMG** part no. 100851).

4.1.1 Spare parts drawing for main valve RMG 324 – DN 65, DN 80, DN 100

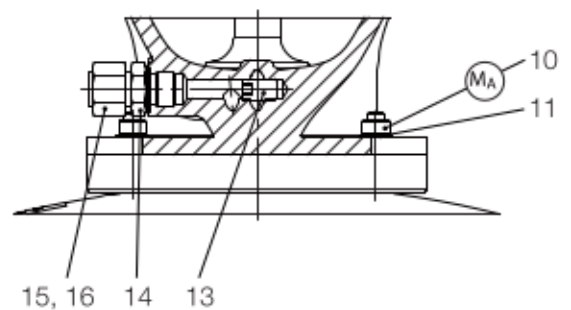
(Drawing shows required fitting position – spring dome DOWN)



B – B
 Version with internal p_d –
 measuring impulse connection



B – B
 Version with external p_d –
 measuring impulse connection



M_A Be sure to comply with tightening torques in table on page 4.

W Parts should be held in stock for maintenance purposes.



4.1.2 Spare parts list for main valve RMG 324 – DN 65, DN 80, DN 100

Item no.	Denomination	Number	W	Materials	Part no.		
					DN 65	DN 80	DN 100
1	Main valve body	1		GLM	10031282	10030741	10031223
2	O ring	3	W	KG	20461	20246	20518
3	O ring	1	W	KG	21177	21177	21177
4	Measuring tube	1		NSt	10031286	10030788	10031227
10	Hex nut	4		St	5559	5559	5559
11	Washer	4		St	14153	14153	14153
12	Sealing cap	1		St	100851	100851	100851
	Items 13 to 16 of RMG retrofit kit	1		St/NSt	12133693	12133693	12133693
13	Threaded pin (setscrew)	1		NSt	101195	101195	101195
14	Screwed connection	1		St	31950	31950	31950
15	Union nut	1		St	30804	30804	30804
16	Cutting ring	1		St	30904	30904	30904

W Parts should be held in stock for maintenance purposes.

German abbreviations stand for the following materials:

St ... steel
NSt ... stainless steel
FSt ... spring steel
NFSt ... stainless spring steel
Bz ... bronze
Cu ... copper

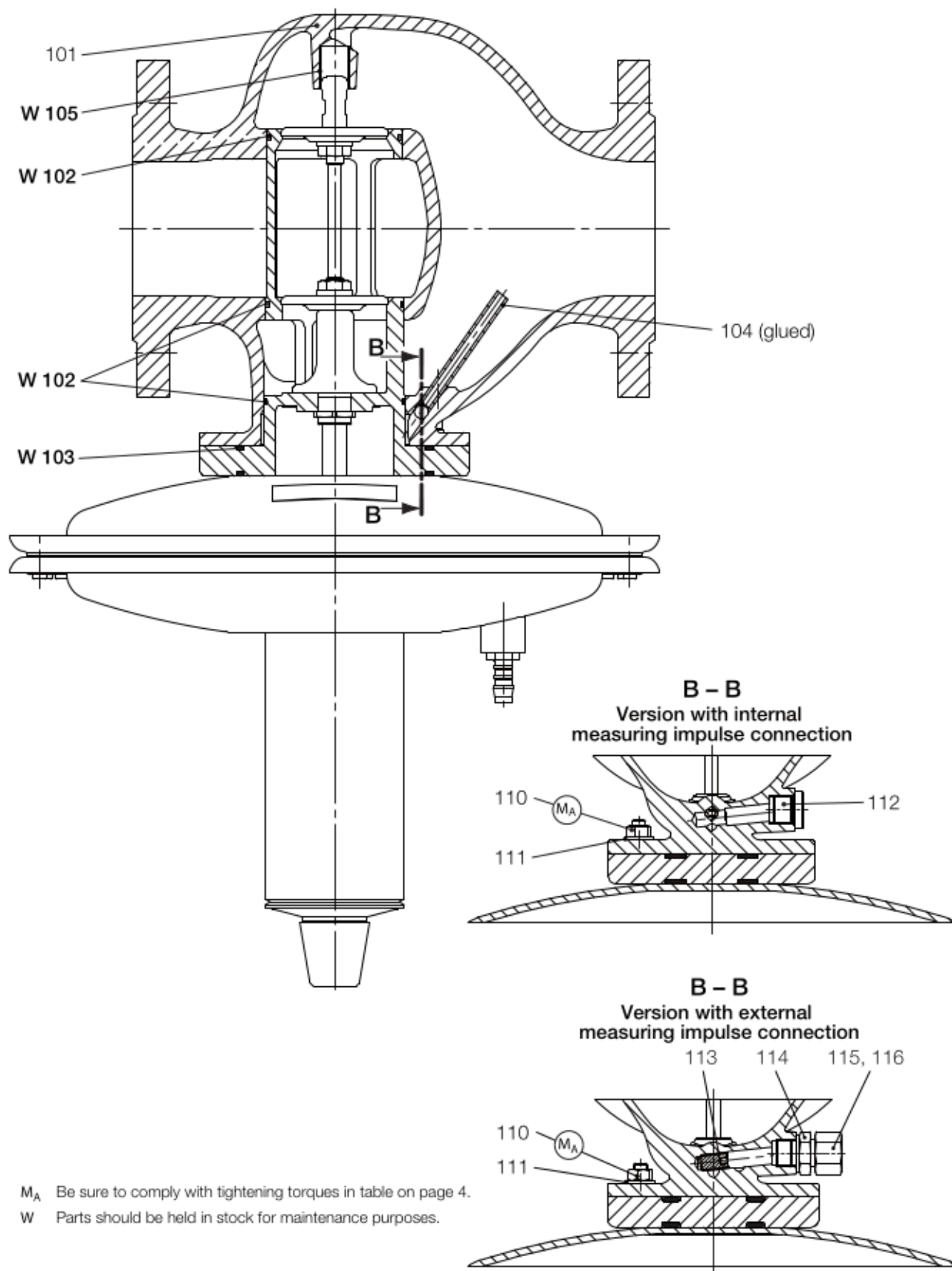
LM ... light metal/alloy
Ms ... brass
GS ... cast steel
GGG ... spheroidal graphite cast iron
GBz ... cast bronze
GLM ... cast light metal

GMS ... cast brass
GZn ... cast zinc
AlBz ... aluminium bronze
K ... synthetic materials
KG ... gummous synthetic materials
SSt ... foamed materials

4.2.1 Spare parts drawing for main valve RMG 324 – DN 80 – type: part no. 10031423

(Find number on type plate attached to main valve body)

(Drawing shows required fitting position – spring dome DOWN)



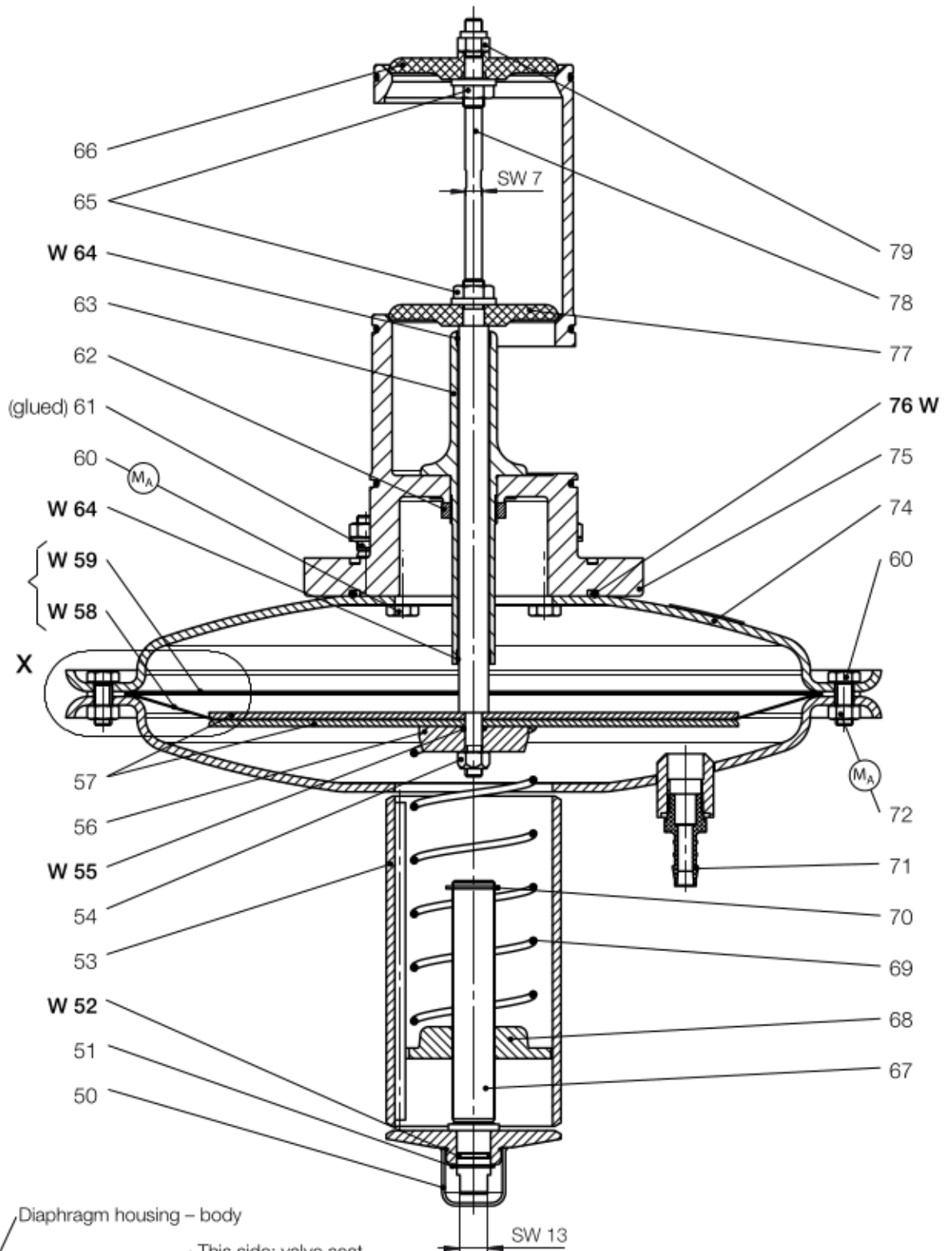
M_A Be sure to comply with tightening torques in table on page 4.

W Parts should be held in stock for maintenance purposes.

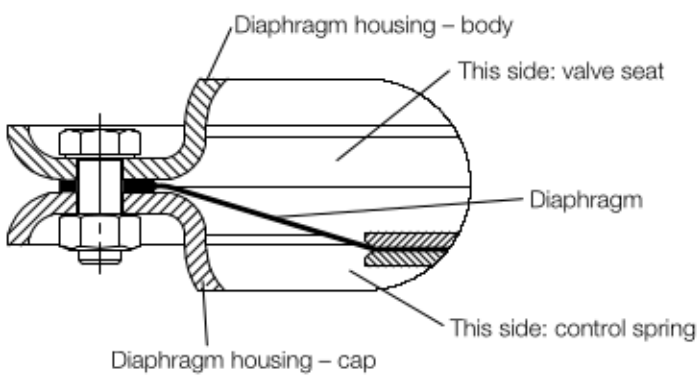
4.2.2 Spare parts list for main valve RMG 324-DN 80 – type: part no. 10031423

Item no.	Denomination	Number	W	Materials	Part no. DN 80
101	Main valve body	1		GLM	10030741
102	O ring	3	W	KG	20246
103	O ring	1	W	KG	21177
104	Measuring tube	1		NSt	10031516
105	Sliding contact bearing	1	W	K	101059
110	Hex nut	4		St	5559
111	Washer	4		St	14153
112	Sealing cap	1		St	100851
	Items 113 to 116 of <i>RMG</i> retrofit kit	1		St/NSt	12133693
113	Threaded pin (setscrew)	1		NSt	101195
114	Screwed connection	1		St	31950
115	Union nut	1		St	30804
116	Cutting ring	1		St	30904

4.3.1 Regulating assembly RE 2 for DN 65, DN 80, DN 100



View "X"

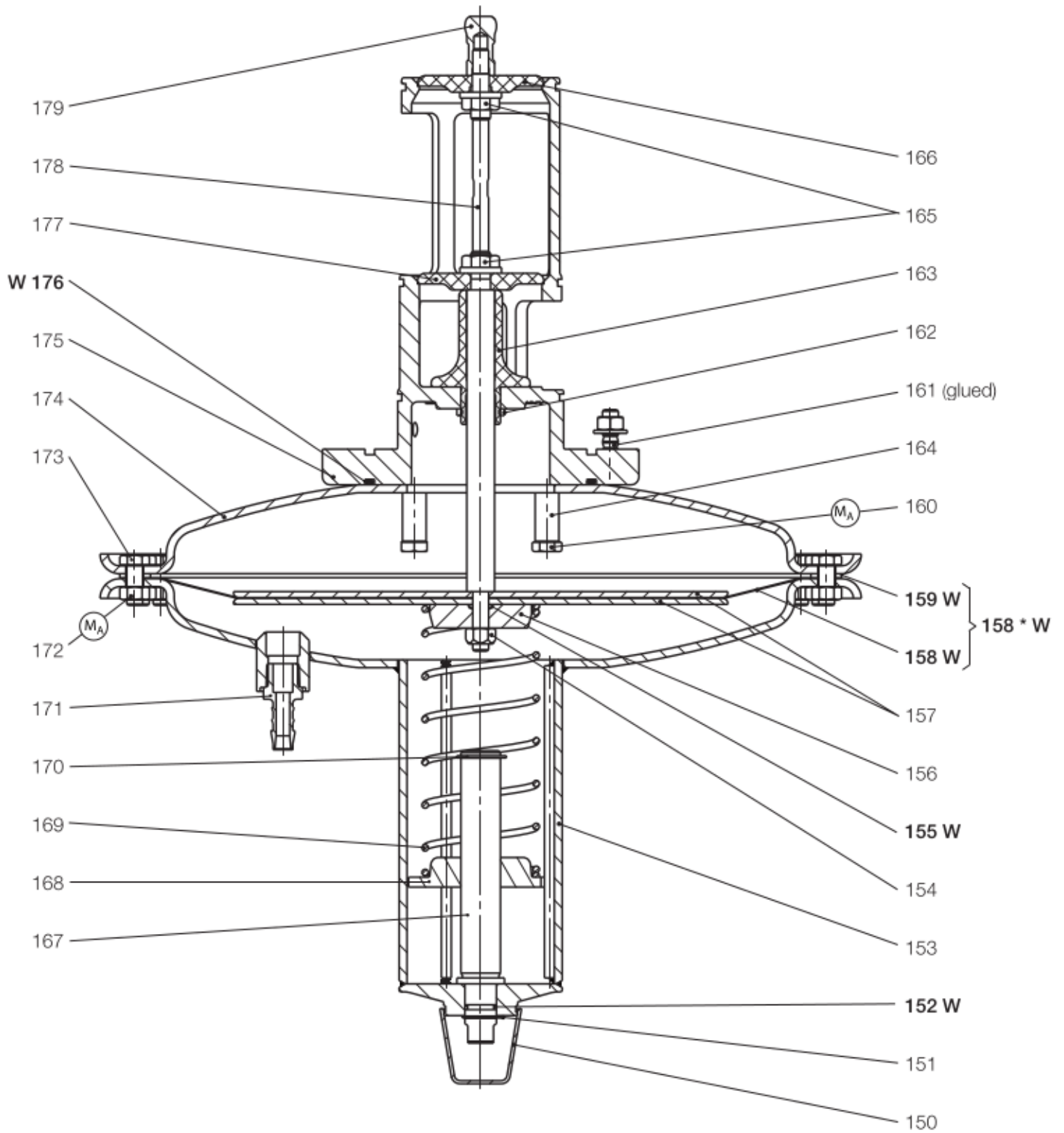


M_A Be sure to comply with tightening torques in table on page 4.
 W Parts should be held in stock for maintenance purposes.

4.3.2 Spare parts list of regulating assembly RE 2 for DN 65, DN 80, DN 100

Item no.	Denomination	Number	W	Materials	Part no.		
					DN 65	DN 80	DN 100
50	Cap	1		K	26402	26402	26402
51	Sealing ring	1		FSt	19116	19116	19116
52	O ring	1	W	KG	20588	20588	20588
53	Diaphragm cap	1		St	10031375	10031375	10031375
54	Hex nut	1		St	13199	13199	13199
55	O ring	1	W	KG	18417	18417	18417
56	Spring plate	1		LM	10030750	10030750	10030750
57	Diaphragm disc	2		St	10030749	10030749	10030749
58	Diaphragm	1	W	KG	10007115	10007115	10007115
59	Sealing ring	1	W	KG	10031387	10031387	10031387
58 *	Diaphragm	1	W	KG	10031414	10031414	10031414
60	Hex screw	36		St	10065	10065	10065
61	Locking screw	4		St	101409	101409	101409
62	Locknut	1		Ms	101333	101333	101333
63	Valve rod guide	1		K	10031476	10031508	10031493
64	Sliding contact bearing	2	W	K	101332	101349	101349
65	Hex collar nut	2		St	13184	13184	13184
66	Valve disc	1		K	10031474	10031512	10031494
67	Setpoint adjuster	1		Ms	10031234	10031234	10031234
	from Serial No. 1101xxxxx: Index B						
68	Spring plate	1		LM	10031513	10031513	10031513
69	Pressure spring	1		FSt	10031422	10031422	10031422
70	Sealing ring	1		St	19195	19195	19195
	from Serial No. 1101xxxxx						
71	Threaded adapter	1		K	101201	101201	101201
72	Hex nut	32		St	5559	5559	5559
74	Diaphragm housing	1		St	10030742	10030742	10030742
75	Valve seat	1		LM	10031379	10031373	10031381
76	O ring	1	W	KG	21177	21177	21177
77	Valve disc	1		K	10031279	10031275	10031284
78	Valve rod	1		NSt	10031239	10031510	10031229
79	Hex nut	1		NSt	100852	100852	100852

4.4.1 Regulating assembly for DN 80 – type: part no. 10031423



M_A Be sure to comply with tightening torques in table on page 4.

W Parts should be held in stock for maintenance purposes.

5. Parts for maintenance purposes

Item no.	Denomination	Number	W	Materials	Part no.		
					DN 65	DN 80	DN 100
2	O ring	1	W	KG	20461	20246	20518
3	O ring	3	W	KG	21177	21177	21177
52	O ring	1	W	KG	20588	20588	20588
55	O ring	1	W	KG	18417	18417	18417
58	Diaphragm	1	W	KG	10007115	10007115	10007115
59	Sealing ring	1	W	KG	10031387	10031387	10031387
58 *	Diaphragm	1	W	KG	10031414	10031414	10031414
64	Sliding contact bearing	2	W	K	101332	101349	101349
76	O ring	1	W	KG	21177	21177	21177
Type: part no. 10031423							
102	O ring	1	W	KG		20246	
103	O ring	3	W	KG		21177	
105	Sliding contact bearing	1	W	K		101059	
152	O ring	1	W	KG		20588	
155	O ring	1	W	KG		18417	
158	Diaphragm	1	W	KG		10007115	
159	Sealing ring	1	W	KG		10031387	
158 *	Diaphragm	1	W	KG		10031414	
176	O ring	1	W	KG		21177	