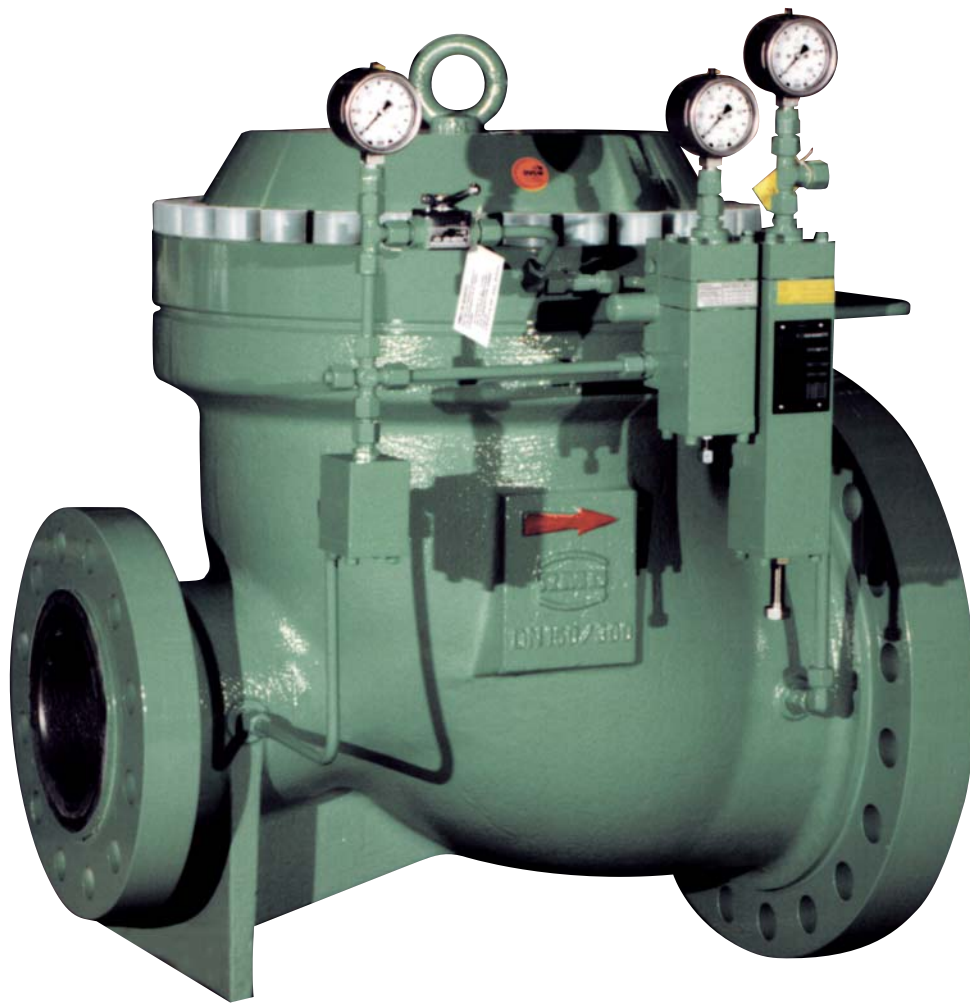


# Gas Pressure Regulator RMG 502a



**Operation and Maintenance,  
Spare Parts**

**502.20**

edition 06/2005

Serving the Gas Industry - WORLDWIDE



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## 1. General Remarks

Every person engaged with installation, supervision, or maintenance of the gas pressure regulator type RMG 502 is requested to read the following leaflets and brochures beforehand:

- **Technical Description 502.00** - contains technical data, measurements, and describes function and design.
- **General Operating Instructions for Gas Pressure Regulators and Safety Devices** - this RMG brochure describes installation and operation, and includes general hints on fault finding and repair.
- **Operation and Maintenance, Spare Parts 502.20** - contains further details on installation and operation of the gas pressure regulator RMG 502. Maintenance instructions and the spare part drawings and -lists of the main valve are also included.
- The integrated **functional elements** are described in the corresponding individual leaflets "Operation and Maintenance, Spare Parts"

|        |                         |        |
|--------|-------------------------|--------|
| pilot  | i.e. RMG 630 or RMG 640 | 630.20 |
| filter | RMG 905                 | 905.20 |

Additionally, the relevant national rules and laws have to be strictly 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 RMG 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 parts 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. These parts are listed separately on page 11.

### Safety symbols

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

| symbols   | explanation                               |
|---|---|
|  <b>Caution!</b> | risk of damaging equipment or environment |
|  <b>Note</b>     | additional information or requirements    |

## 2. Special Operating Instructions

### 2.1 Start-up:

**Note!**

**Caution!**

**Note!**

- Close the outlet gate valve. Pressure release in the outlet via the discharge line.
- When putting the regulator into operation the first time we recommend to turn completely the setpoint springs of both, the pilot RMG 630, 640 and the load limiting stage (only valid for the RMG pilot RMG 630) counter-clockwise.
- Open the start-up valve. The starting valve assures a pressure compensation at the throttling diaphragm.
- Pressurize **slowly**.
- It is important to close the start-up valve again.
- Adjust the setpoint of the load limiting unit of pilot RMG 630 to approximately 10 bar above the outlet pressure value ( $p_a$ ).
- Set the outlet pressure to the required value by turning the setpoint adjusting screw clockwise in small steps. The load limiting pressure of the RMG 630 increases automatically.
- Open the outlet gate valve slowly.

### 2.2 Shut-down:

- Turn the setpoint adjusting screw counter-clockwise in small steps until the gas pressure regulator closes.
- Close the outlet gate valve slowly.

## 3. Special Maintenance Instructions

### 3.1 Main Valve

Because of its easy maintenance construction, only the throttling diaphragm and the noise reducing elements (version with noise reduction) have to be controlled and necessarily replaced by new ones.

- Prior to dismantling all gas supplied chambers must be depressurised.

**Caution!**

- The released throttling diaphragm (6) has to be put into the corresponding seat of the main valve.
- It is necessary to replace the foam elements (19, from size DN 80/150) for each maintenance.

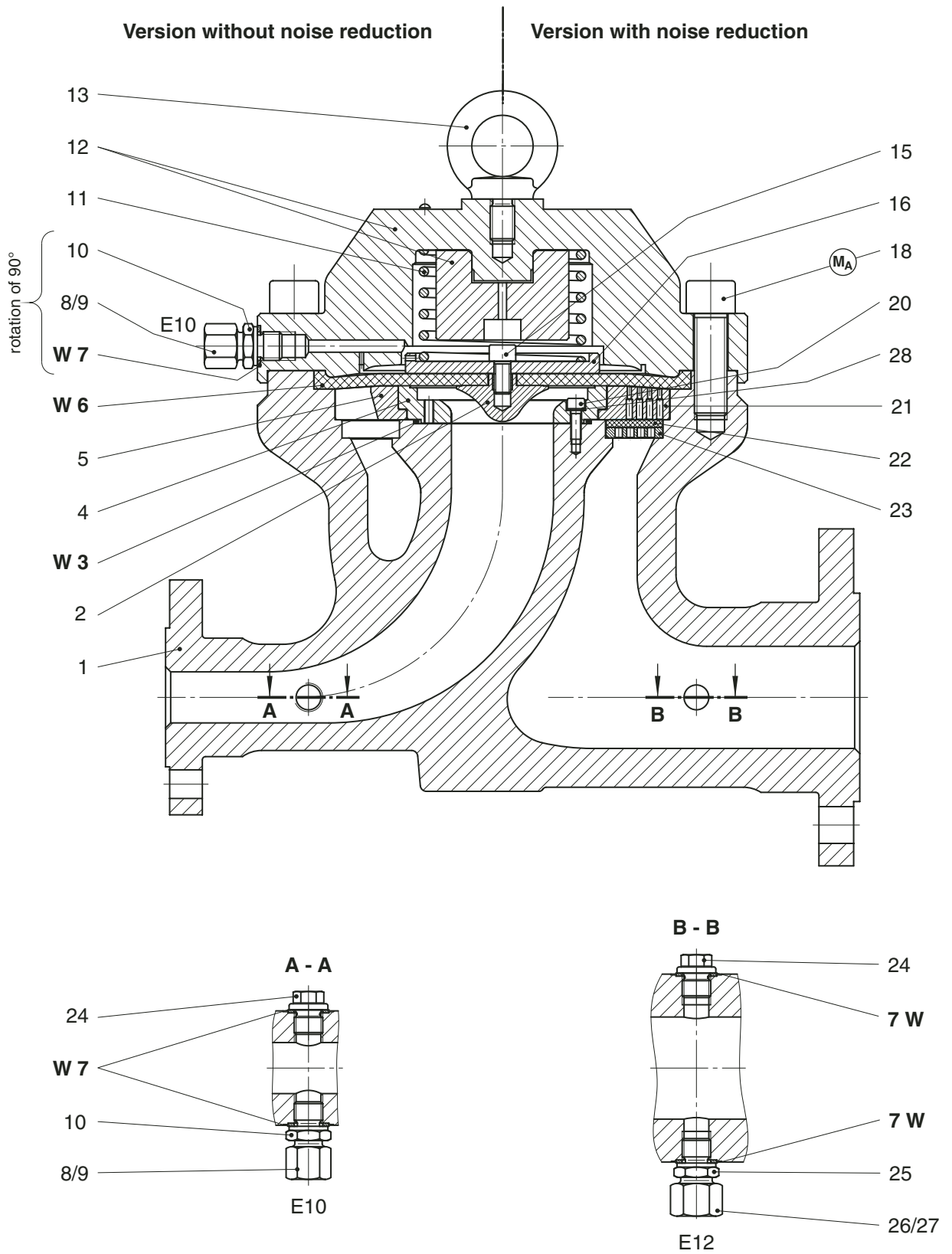
### 3.2 Screw Torque Figures $M_A$ in Nm

| screw<br>item no. | size DN |        |        |         |         |         |
|-------------------|---------|--------|--------|---------|---------|---------|
|                   | 25/50   | 50/100 | 80/150 | 100/200 | 150/300 | 200/300 |
| 18                | 160     | 160    | 240    | 240     | 560     | 560     |
| 20                |         |        |        |         | 24      |         |

### 3.3 Lubricants

| element (grease slightly)                                    | lubricant       | RMG-part-no.             |
|--|-----------------|--------------------------|
| all o-rings,<br>mounting swelling of throttling<br>diaphragm | silicone grease | 00 027 081 (Tube 0.1 kg) |
| all fixing screws and tube fitting                           | mounting grease | 00 028 267               |

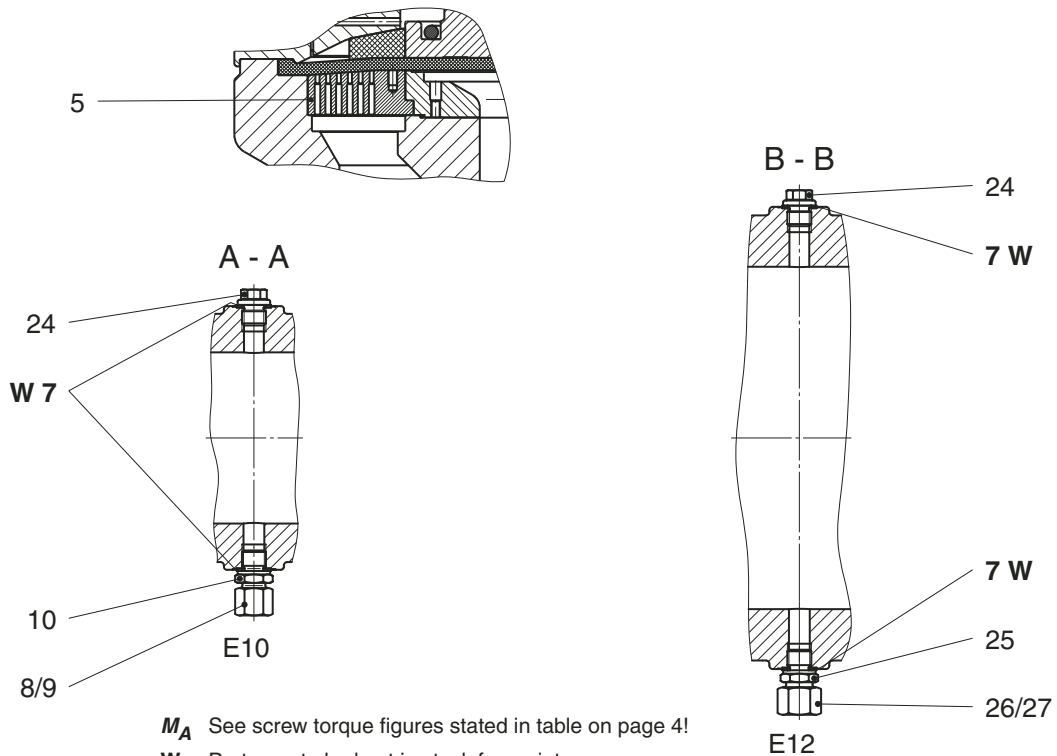
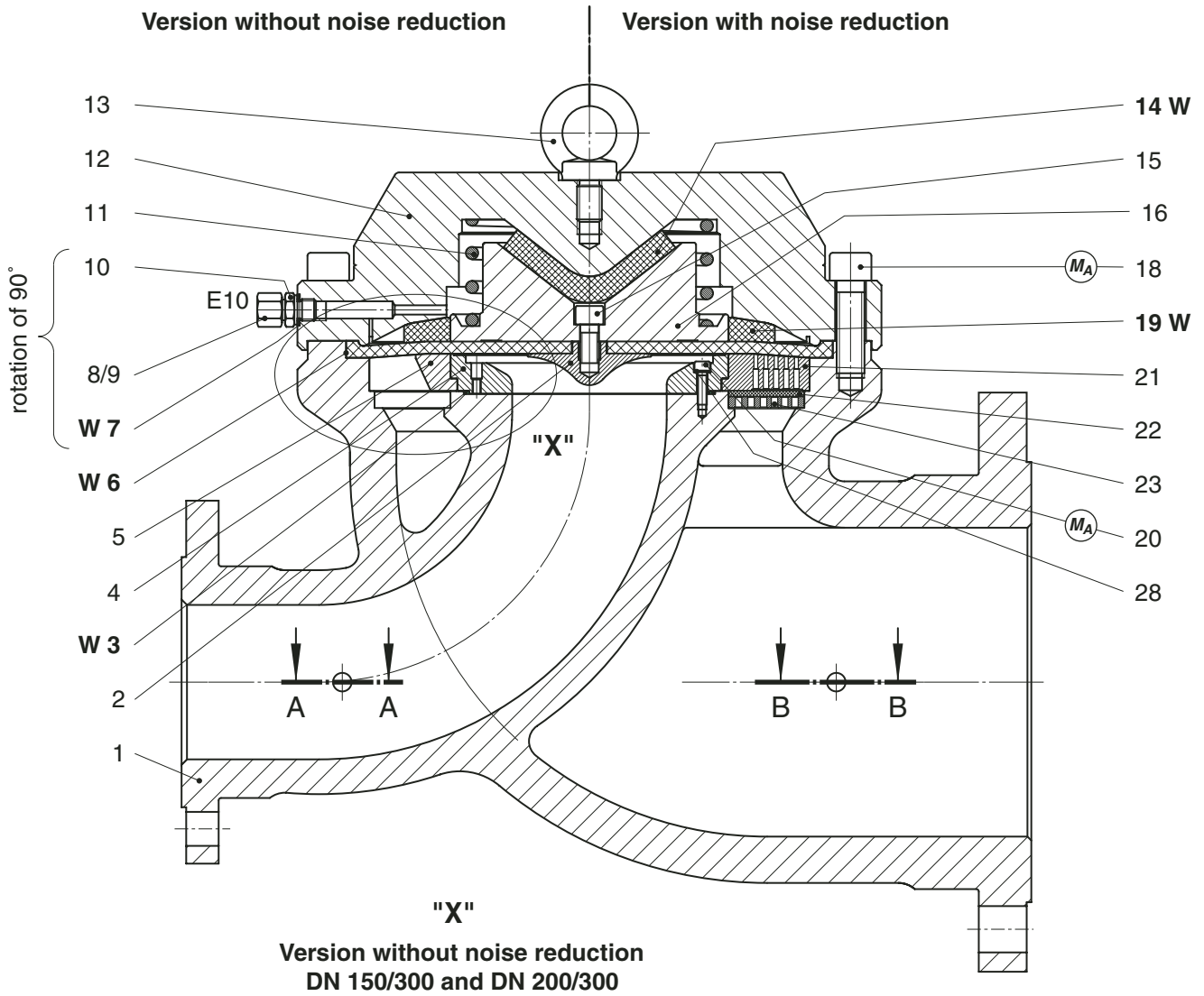
**4.1 Spare Parts Drawings**  
**4.1.1 DN 25/50 and DN 50/100**



**M<sub>A</sub>** See screw torque figures stated in table on page 4!

**W** Parts are to be kept in stock for maintenance

#### 4.1.2 DN 80/150, DN 100/200, DN 150/300 and DN 200/300



## 4.2 Spare Parts List

### 4.2.1 DN 25/50 and DN 50/100

| item no. | description               | quant.   | W        | material  | RMG part number   |                   |
|----------|---------------------------|----------|----------|-----------|-------------------|-------------------|
|          |                           |          |          |           | DN 25/50          | DN 50/100         |
| 1        | body:                     |          |          |           |                   |                   |
| 1        | PN 40                     | 1        |          | GS        | 10 023 500        | 10 023 540        |
| 1        | ANSI 300 RF               | 1        |          | GS        | 10 023 501        | 10 023 541        |
| 1        | ANSI 300 RJ               | 1        |          | GS        | 10 023 502        | 10 023 542        |
| 1        | ANSI 600 RF               | 1        |          | GS        | 10 023 503        | 10 023 543        |
| 1        | ANSI 600 RJ               | 1        |          | GS        | 10 023 504        | 10 023 544        |
| 1        | PN 40 / ANSI 600 RF       | 1        |          | GS        | 10 023 505        | 10 023 545        |
| 1        | ANSI 300 RF / ANSI 600 RF | 1        |          | GS        | 10 023 506        | 10 023 546        |
| 2        | lower diaphragm plate     | 1        |          | LM        | 10 011 137        | 10 011 137        |
| <b>3</b> | <b>O-ring</b>             | <b>1</b> | <b>W</b> | <b>KG</b> | <b>00 020 508</b> | <b>00 020 508</b> |
| 4        | insert                    | 1        |          | NSt       | 10 023 551        | 10 023 551        |
| 5        | drilled expansion piece   | 1        |          | LM        | 10 023 550        | 10 023 550        |
| <b>6</b> | <b>diaphragm</b>          | <b>1</b> | <b>W</b> | <b>KG</b> | <b>10 011 306</b> | <b>10 011 306</b> |
| <b>7</b> | <b>sealing ring</b>       | <b>1</b> | <b>W</b> | <b>LM</b> | <b>00 018 842</b> | <b>00 018 842</b> |
| 8        | cap nut                   | 1        |          | St        | 00 030 803        | 00 030 803        |
| 9        | compression joint         | 1        |          | St        | 00 030 903        | 00 030 903        |
| 10       | nozzle                    | 1        |          | St        | 00 030 111        | 00 030 111        |
| 11       | pressure spring           | 1        |          | NFSt      | 10 011 149        | 10 011 149        |
| 12       | diaphragm cover           | 1        |          | St/LM     | 10 021 590        | 10 021 620        |
| 13       | ring bolt                 | 1        |          | St        | 00 010 021        | 00 010 021        |
| 15       | cylinder screw            | 1        |          | St        | 00 008 176        | 00 008 176        |
| 16       | diaphragm plate           | 1        |          | LM        | 10 011 138        | 10 011 138        |
| 18       | cylinder screw            | 10       |          | St        | 00 010 555        | 00 010 555        |
| 20       | cylinder screw            | 4        |          | St        | 00 010 361        | 00 010 361        |
| 21       | drilled expansion piece   | 1        |          | LM        | 10 023 552        | 10 023 552        |
| 22       | metal foam ring           | 1        |          | St        | 10 023 556        | 10 023 556        |
| 23       | supporting ring           | 1        |          | LM        | 10 023 513        | 10 023 513        |
| 24       | closing screw             | 2        |          | St        | 00 026 175        | 00 026 175        |
| 25       | nozzle                    | 1        |          | St        | 00 030 074        | 00 030 074        |
| 26       | cap nut                   | 1        |          | St        | 00 030 804        | 00 030 804        |
| 27       | compression joint         | 1        |          | St        | 00 030 904        | 00 030 904        |
| 28       | safety washer             | 4        |          | St        | 00 014 118        | 00 014 118        |

**W** Parts are to be kept in stock for maintenance

#### material key

|                                   |                           |   |
|-----------------------------------|---------------------------|---|
| St ... steel                      | LM ... light metal        | SSt ... foam material                                     |
| 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 special coating |
| GS ... steel cast                 | GLM ... light metal cast  | FPM ... rubber like plastic material                      |
| GGG ... spher. graphite cast iron | GMs ... brass cast        | FP ... special plastic material                           |
| GZn ... zink cast                 | AlBz ... aluminium bronze | PGL ... plexiglass  |
| GBz ... brass cast                |                           |   |

4.2.2 DN 80/150 and DN 100/200

| item no.  | description               | quant.   | W        | material   | RMG part number   |                   |
|-----------|---------------------------|----------|----------|------------|-------------------|-------------------|
|           |                           |          |          |            | DN 80/150         | DN 100/200        |
| 1         | body:                     |          |          |            |                   |                   |
| 1         | PN 40                     | 1        |          | GS         | 10 023 580        | 10 023 620        |
| 1         | ANSI 300 RF               | 1        |          | GS         | 10 023 581        | 10 023 621        |
| 1         | ANSI 300 RJ               | 1        |          | GS         | 10 023 582        | 10 023 622        |
| 1         | ANSI 600 RF               | 1        |          | GS         | 10 023 583        | 10 023 623        |
| 1         | ANSI 600 RJ               | 1        |          | GS         | 10 023 584        | 10 023 624        |
| 1         | PN 40 / ANSI 600 RF       | 1        |          | GS         | 10 023 585        | 10 023 625        |
| 1         | ANSI 300 RF / ANSI 600 RF | 1        |          | GS         | 10 023 586        | 10 023 626        |
| 2         | lower diaphragm plate     | 1        |          | LM         | 10 011 237        | 10 011 237        |
| <b>3</b>  | <b>O-ring</b>             | <b>1</b> | <b>W</b> | <b>KG</b>  | <b>00 021 184</b> | <b>00 021 184</b> |
| 4         | insert                    | 1        |          | NSt        | 10 023 631        | 10 023 631        |
| 5         | drilled expansion piece   | 1        |          | LM         | 10 023 630        | 10 023 630        |
| <b>6</b>  | <b>diaphragm</b>          | <b>1</b> | <b>W</b> | <b>KG</b>  | <b>10 011 307</b> | <b>10 011 307</b> |
| <b>7</b>  | <b>sealing ring</b>       | <b>5</b> | <b>W</b> | <b>LM</b>  | <b>00 018 842</b> | <b>00 018 842</b> |
| 8         | cap nut                   | 1        |          | St         | 00 030 803        | 00 030 803        |
| 9         | compression joint         | 1        |          | St         | 00 030 903        | 00 030 903        |
| 10        | nozzle                    | 2        |          | St         | 00 030 111        | 00 030 111        |
| 11        | pressure spring           | 1        |          | NFSt       | 10 011 249        | 10 011 249        |
| 12        | diaphragm cover           | 1        |          | St/LM      | 10 021 653        | 10 021 685        |
| 13        | ring bolt                 | 1        |          | St         | 00 010 003        | 00 010 003        |
| <b>14</b> | <b>foam plate</b>         | <b>1</b> | <b>W</b> | <b>SSt</b> | <b>10 023 593</b> | <b>10 023 633</b> |
| 15        | cylinder screw            | 1        |          | St         | 00 010 393        | 00 010 393        |
| 16        | diaphragm plate           | 1        |          | LM         | 10 011 238        | 10 011 238        |
| 18        | cylinder screw            | 24       |          | St         | 00 010 601        | 00 010 601        |
| <b>19</b> | <b>foam ring</b>          | <b>1</b> | <b>W</b> | <b>SSt</b> | <b>10 023 592</b> | <b>10 023 632</b> |
| 20        | cylinder screw            | 4        |          | St         | 00 010 097        | 00 010 097        |
| 21        | drilled expansion piece   | 1        |          | LM         | 10 023 629        | 10 023 629        |
| 22        | metal foam ring           | 1        |          | St         | 10 023 635        | 10 023 635        |
| 23        | supporting ring           | 1        |          | LM         | 10 023 594        | 10 023 594        |
| 24        | closing ring              | 2        |          | St         | 00 026 175        | 00 026 175        |
| 25        | nozzle                    | 1        |          | St         | 00 030 074        | 00 030 074        |
| 26        | cap nut                   | 1        |          | St         | 00 030 804        | 00 030 804        |
| 27        | compression joint         | 1        |          | St         | 00 030 904        | 00 030 904        |
| 28        | safety washer             | 4        |          | St         | 00 014 123        | 00 014 123        |

#### 4.2.3 DN 150/300 and DN 200/300

| pos.-<br>no. | description               | quant.   | W        | material    | RMG part number   |                   |
|--------------|---------------------------|----------|----------|-------------|-------------------|-------------------|
|              |                           |          |          |             | DN 150/300        | DN 200/300        |
| 1            | body                      |          |          |             |                   |                   |
| 1            | PN 40                     | 1        |          | GS          | 10 027 952        | 10 023 672        |
| 1            | ANSI 300 RF               | 1        |          | GS          | 10 027 953        | 10 023 673        |
| 1            | ANSI 300 RJ               | 1        |          | GS          | 10 027 954        | 10 023 674        |
| 1            | ANSI 600 RF               | 1        |          | GS          | 10 027 955        | 10 023 675        |
| 1            | ANSI 600 RJ               | 1        |          | GS          | 10 027 956        | 10 023 676        |
| 1            | PN 40 / ANSI 600 RF       | 1        |          | GS          | 10 027 957        | 10 023 677        |
| 1            | ANSI 300 RF / ANSI 600 RF | 1        |          | GS          | 10 027 958        | 10 023 678        |
| 2            | lower diaphragm plate     | 1        |          | LM          | 10 023 696        | 10 023 696        |
| <b>3</b>     | <b>O-ring</b>             | <b>1</b> | <b>W</b> | <b>KG</b>   | <b>00 020 541</b> | <b>00 020 541</b> |
| 4            | insert                    | 1        |          | NSt         | 10 023 687        | 10 027 961        |
| 5            | drilled expansion piece   | 1        |          | St          | 10 023 683        | 10 027 963        |
| <b>6</b>     | <b>diaphragm</b>          | <b>1</b> | <b>W</b> | <b>KG</b>   | <b>10 023 697</b> | <b>10 023 697</b> |
| <b>7</b>     | <b>sealing ring</b>       | <b>5</b> | <b>W</b> | <b>LM</b>   | <b>00 018 842</b> | <b>00 018 842</b> |
| 8            | cap nut                   | 1        |          | St          | 00 030 803        | 00 030 803        |
| 9            | compression joint         | 1        |          | St          | 00 030 903        | 00 030 903        |
| 10           | nozzle                    | 2        |          | St          | 00 030 111        | 00 030 111        |
| 11           | pressure spring           | 1        |          | NFSt        | 10 023 692        | 10 023 692        |
| 12           | diaphragm cover           | 1        |          | St/LM       | 10 023 686        | 10 023 686        |
| 13           | ring bolt                 | 1        |          | St          | 00 010 047        | 00 010 047        |
| <b>14</b>    | <b>foam plate</b>         | <b>1</b> | <b>W</b> | <b>SSSt</b> | <b>10 023 689</b> | <b>10 027 963</b> |
| 15           | cylinder screw            | 1        |          | St          | 00 010 270        | 00 010 270        |
| 16           | diaphragm plate           | 1        |          | LM          | 10 023 695        | 10 023 695        |
| 18           | cylinder screw            | 30       |          | St          | 00 010 589        | 00 010 589        |
| <b>19</b>    | <b>foam ring</b>          | <b>1</b> | <b>W</b> | <b>SSSt</b> | <b>10 023 688</b> | <b>10 027 966</b> |
| 20           | cylinder screw            | 4        |          | St          | 00 010 098        | 00 010 067        |
| 21           | drilled expansion piece   | 1        |          | St          | 00 023 683        | 10 027 962        |
| 22           | metal foam ring           | 1        |          | St          | 10 023 691        | 10 027 964        |
| 23           | supporting ring           | 1        |          | LM          | 10 023 690        | 19 084 606        |
| 24           | closing screw             | 2        |          | St          | 00 026 175        | 00 026 175        |
| 25           | nozzle                    | 1        |          | St          | 00 030 074        | 00 030 074        |
| 26           | cap nut                   | 1        |          | St          | 00 030 804        | 00 030 804        |
| 27           | compression joint         | 1        |          | St          | 00 030 904        | 00 030 904        |
| 28           | safety washer             | 4        |          | St          | 00 014 122        | 00 014 122        |

### 4.3 Spare Parts for Maintenance

| item no. | description  | quant. | material | RMG part number |            |
|----------|--------------|--------|----------|-----------------|------------|
|          |              |        |          | DN 25/50        | DN 50/100  |
| 3        | O-ring       | 1      | KG       | 00 020 508      | 00 020 508 |
| 6        | diaphragm    | 1      | KG       | 10 011 140      | 10 011 140 |
| 7        | sealing ring | 5      | LM       | 00 018 842      | 00 018 842 |

| item no. | description  | quant. | material | DN 80/150  | DN 100/200 |
|----------|--------------|--------|----------|------------|------------|
|          |              |        |          |            |            |
| 3        | O-ring       | 1      | KG       | 00 021 184 | 00 021 184 |
| 6        | diaphragm    | 1      | KG       | 10 011 240 | 10 011 240 |
| 7        | sealing ring | 5      | LM       | 00 018 842 | 00 018 842 |
| 14       | foam plate   | 1      | SSt      | 10 023 593 | 10 023 633 |
| 19       | foam ring    | 1      | SSt      | 10 023 592 | 10 023 632 |

| item no. | description  | quant. | material | DN 150/300 | DN 200/300 |
|----------|--------------|--------|----------|------------|------------|
|          |              |        |          |            |            |
| 3        | O-Ring       | 1      | KG       | 00 020 541 | 00 020 541 |
| 6        | diaphragm    | 1      | KG       | 10 023 697 | 10 023 697 |
| 7        | sealing ring | 5      | LM       | 00 018 842 | 00 018 842 |
| 14       | foam plate   | 1      | SSt      | 10 023 689 | 10 027 965 |
| 19       | foam ring    | 1      | SSt      | 10 023 688 | 10 027 966 |

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