



OPERATING AND MAINTENANCE INSTRUCTIONS/  
SPARE PARTS

EDITION 01/2017

**Serving the Gas Industry  
Worldwide**



## 1. General

For the regulator HON 640 the detailed information publication 640.00 containing technical data, designs and dimensions applies.

The RMG publication "General operating instructions for gas pressure regulators and safety devices" contains information on installation, commissioning, operation as well as notices on fault finding.

When constructing and setting up as well as monitoring and maintaining gas pressure systems the relevant regulations, especially the DVGW work sheets G 490, G 491, and G 495 should be observed.

The time intervals for maintenance on the regulator HON 640 depend largely on the operating conditions and the composition of the gas media. Therefore, no fixed intervals will be given.

It is recommended to keep to the maintenance intervals stated in DVGW work sheet G 495.

During maintenance all components must be cleaned and subjected to a thorough visual inspection. A visual inspection will still be required where irregularities were found during operation or functional checks.

The inspection must in particular extend to seals and diaphragms and all moving components. Damaged components must be renewed.

The item numbers referred to in the maintenance notices correspond to those in the spare part drawing and spare part list.

It is recommended to keep a stock of specially marked items in the spare part list for maintenance purposes.

## 2. Special operating notices

### 2.1 Startup valve

Depending on pipe size the gas pressure regulators HON 402/502/503 will be fitted with a startup valve. The startup valve is designed to achieve a faster pressure equalisation at the throttle diaphragm after applying the inlet pressure.

- Prior to applying pressure, the startup valve must be opened.
- After applying pressure the startup valve must be closed again.

### 2.2 Throttling valve

The normal settings made at factory do not require adjustment for the vast majority of regulating tasks. The amplification can be reduced by turning the spindle anti-clockwise.

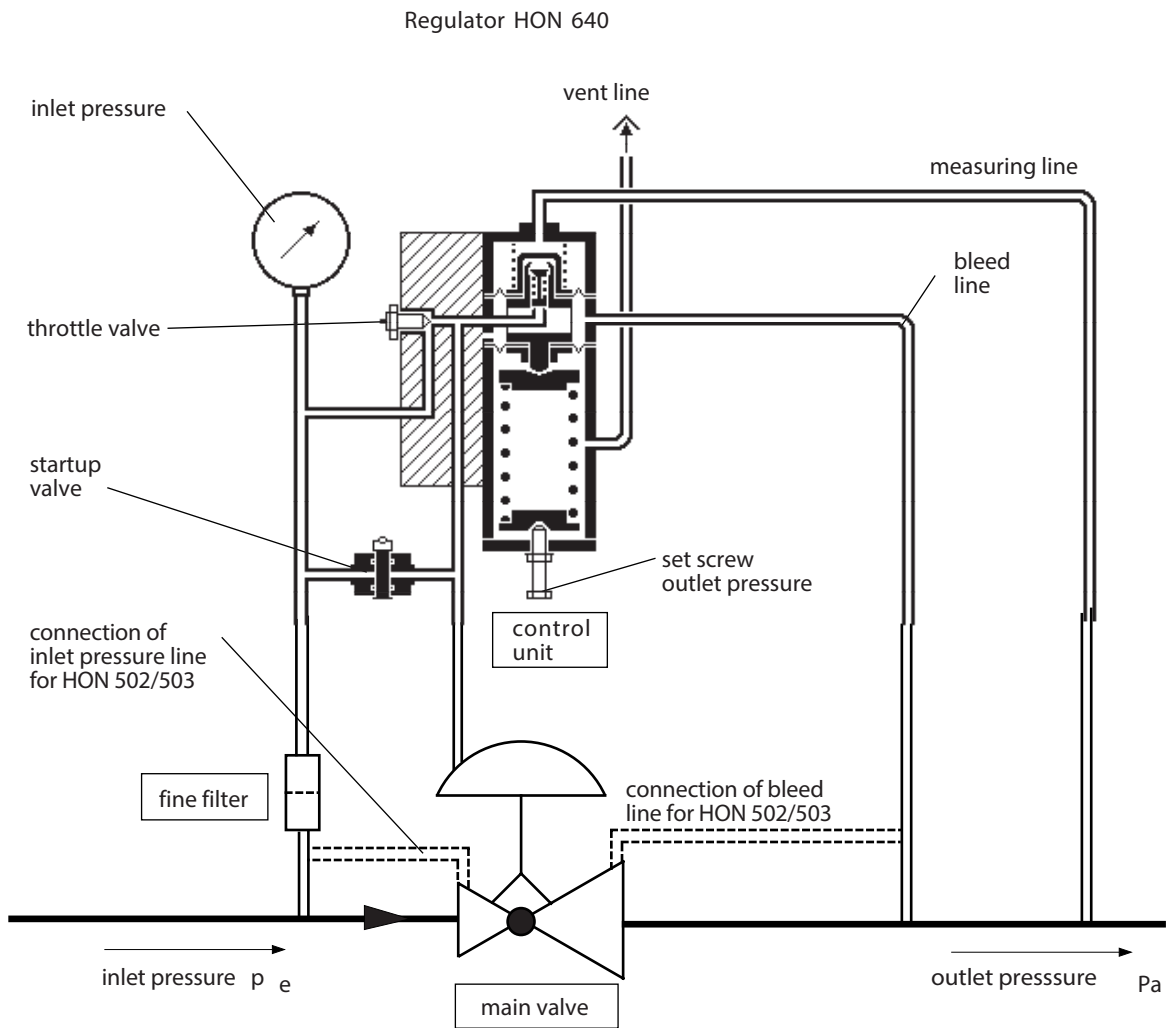


Figure 1: Basic layout of regulator HON 640 with main valve

### 3. Special maintenance notices

#### flange shaped diaphragm (119, 169)

During assembly the correct installation position of the loop must be observed (see spare part drawings for each stage p.10, p.12)

#### diaphragm plate (107, 154)

When tightening the cosing cap (103, 167) and the hexagonal nut (123) the diaphragm plate must be stopped from turning using a spanner size 24.

Alignment of the diaphragm system (119)

During assembly the diaphragm system must be secured :  
 The centre position, where the cross holes of the connecting piece (122) and the valve body (121) line up, is found by turning clockwise or anti-clockwise up to the stop.

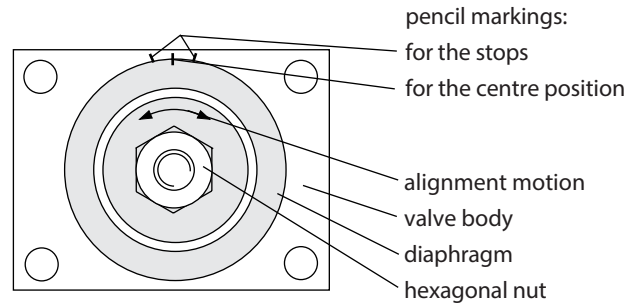


figure 2: diaphragm system

Connecting piece (158)

Brush the threaded stem of the completely assembled connection piece with LOCTITE and turn fully into the connecting piston of the metal harmonica (173) until the cross hole of the connecting piece lies 0.5 mm to 1 mm lower than the cross hole in the valve body (171).

Note: Both cross holes must line up

Valve core (105, 156)

The diaphragm system must be adjusted using the adjustment screw (124, 185) until the valve core can be fitted.

Base plate (1)

At the control unit the surfaces touching the base plate must be aligned flush.

Spindle (25) of the amplifier valve

For the initial adjustment of the amplifier valve the spindle (25) is moved until the spindle nut marked in black is aligned with the front edge of the sleeve (27) stuck in the guide screw (26).

Tightening torques

| item no.               | tightening torque<br>M in Nm <sub>A</sub> |
|------------------------|---|
| 176                    | 6   |
| 11, 114, 115, 165, 183 | 12  |
| 103, 123, 167          | 20  |



Lubricants

| component (brush thinly)   | lubricant           | part no.   |
|--|---------------------|------------|
| all O rings,<br>all sliding faces  | tube silicon grease | 00 027 081 |
| hollow of spring plates (13, 108, 161)<br>thread of cover (112)<br>thread of plate (181) | assembly paste      | 00 027 091 |

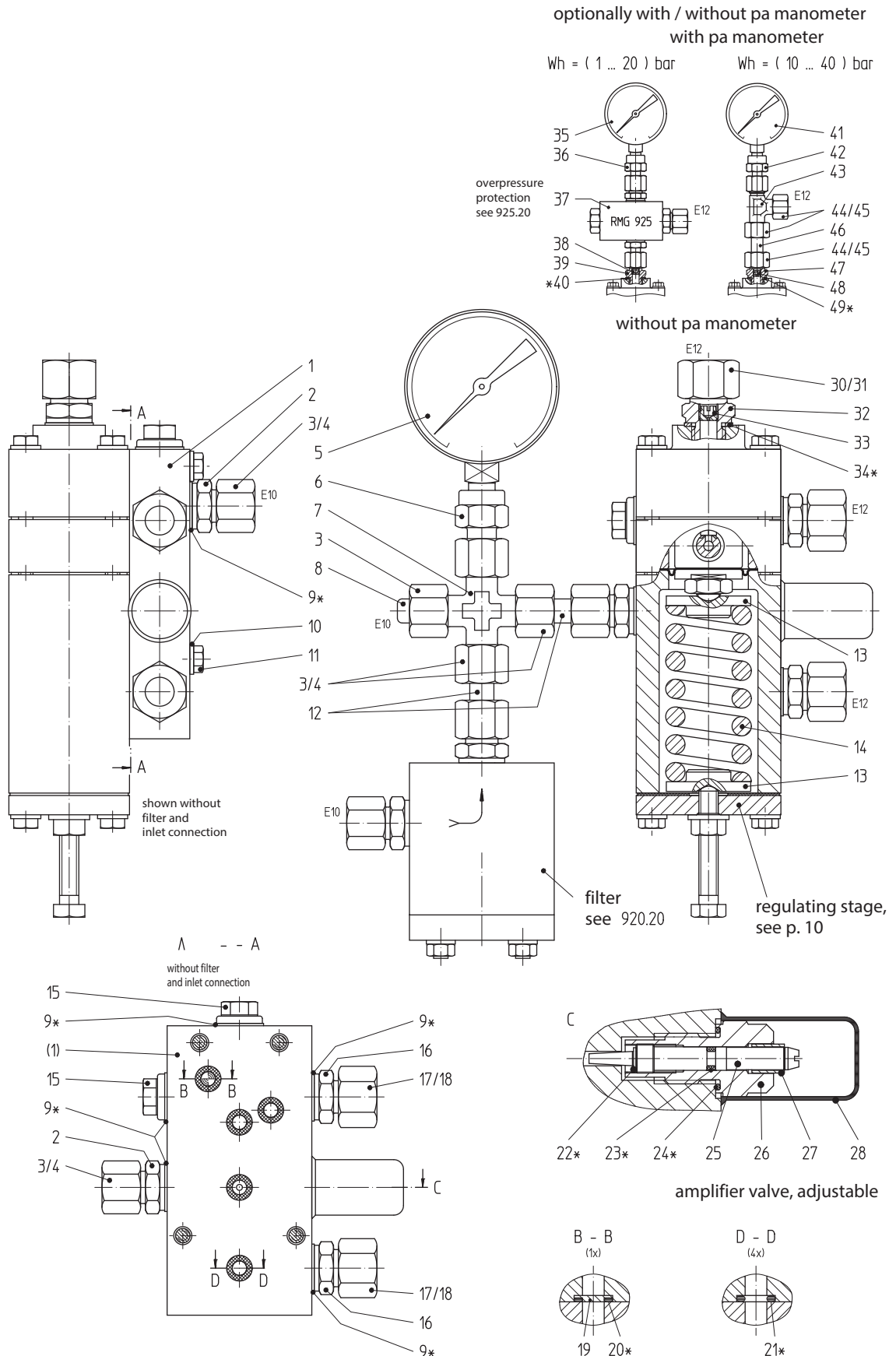
locking agent

| component (brush components thinly)   | locking agent | part no.   |
|---|---------------|------------|
| thread of closing cap (103, 167)<br>thread of hexagonal nut (123)<br>thread of connecting piece (122,158) | LOCTITE       | 00 026 688 |

4. Spare parts

4.1 Spare part drawing HON 640

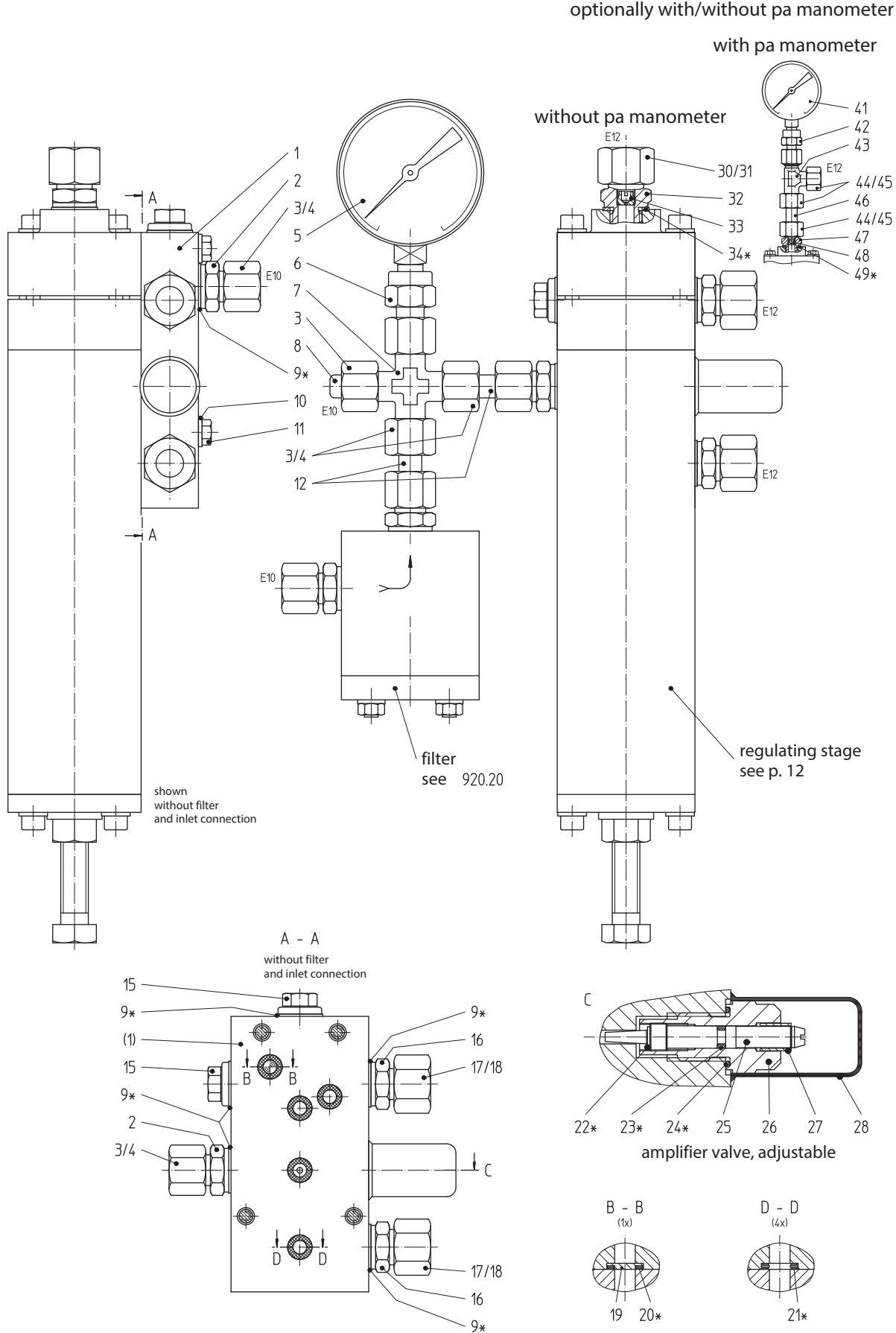
Setting range  $W_H$  1 bar to 40 bar with diaphragm measuring unit



\* Keep parts in stock for maintenance purposes

4.2 Spare part drawing HON 640

Setting range  $W_h$  20 bar to 90 bar with metal harmonica measuring unit



\* keep parts in stock for maintenance purposes



### 4.3 Spare part list HON 640

Wh 1 Bar to 40 Bar with diaphragm measuring unit,  
Wh 20 Bar to 90 Bar with metal harmonica measuring unit

| item no. | designation                            | material | part no.        |                   |
|----------|--|----------|-----------------|-------------------|
|          |  |          | 1 Bar ...40 Bar | 20 Bar ... 90 Bar |
| 1        | base plate                             | LM       | 10 011 749      | 10 011 749        |
| 2        | adapter                                | St       | 00 030 111      | 00 030 111        |
| 3        | union nut                              | St       | 00 030 803      | 00 030 803        |
| 4        | cutting ring                           | St       | 00 030 903      | 00 030 903        |
| 5        | pressure gauge, optionally:            |          |                 |                   |
| -        | for device control unit PN16           | NSt/Ms   | 00 026 314      | -                 |
| -        | for device control unit PN 25/ANSI 150 | NSt/Ms   | 00 026 284      | -                 |
| -        | for device control unit PN 40          | NSt/Ms   | 00 026 282      | -                 |
| -        | for device control unit ANSI 300       | NSt/Ms   | 00 026 283      | 00 026 285        |
| -        | for device control unit ANSI 600       | NSt/Ms   | 00 026 285      | 00 026 285        |
| 6        | adapter                                | St       | 00 031 810      | 00 031 810        |
| 7        | adapter                                | St       | 00 031 609      | 00 031 609        |
| 8        | closing cone                           | St       | 00 032 004      | 00 032 004        |
| 9*       | sealing ring                           | LM       | 00 018 842      | 00 018 842        |
| 10       | disk                                   | St       | 00 008 279      | 00 008 279        |
| 11       | hexagonal screw                        | St       | 00 010 024      | 00 010 024        |
| 12       | straight pipe piece                    | St       | 00 032 101      | 00 032 101        |
| 13       | spring plate, optionally:              |          |                 |                   |
| -        | Wh 1 Bar to 10 Bar                     | LM       | 10 000 114      | -                 |
| -        | Wh 5 Bar to 40 Bar                     | LM       | 10 000 148      | -                 |
| 14       | pressure spring, optionally:           |          |                 |                   |
| -        | Wh 1 Bar to 5 Bar (yellow)             | FSt      | 10 000 063      | -                 |
| -        | Wh 2 Bar to 10 Bar (brown)             | FSt      | 10 000 115      | -                 |
| -        | Wh 5 Bar to 20 Bar (red)               | FSt      | 10 000 064      | -                 |
| -        | Wh 10 Bar to 40 Bar (green)            | FSt      | 10 000 149      | -                 |
| 15       | closing cap                            | St       | 00 026 175      | 00 026 175        |
| 16       | adapter                                | St       | 00 030 074      | 00 030 074        |
| 17       | union nut                              | St       | 00 030 804      | 00 030 804        |
| 18       | cutting ring                           | St       | 00 030 904      | 00 030 904        |
| 19       | disk                                   | LM       | 10 010 479      | 10 010 479        |
| 20*      | O ring (1 off)                         | KG       | 00 020 231      | 00 020 231        |
| 21*      | O ring (4 off)                         | KG       | 00 020 225      | 00 020 225        |
| 22*      | locking washer                         | FSt      | 00 019 065      | 00 019 065        |
| 23*      | O ring (1 off)                         | KG       | 00 020 283      | 00 020 283        |
| 24*      | O ring (1 off)                         | KG       | 00 020 332      | 00 020 332        |
| 25       | spindle                                | NSt      | 10 000 145      | 10 000 145        |
| 26       | guide screw                            | Ms       | 10 000 144      | 10 000 144        |
| 27       | sleeve                                 | PGI      | 10 000 171      | 10 000 171        |
| 28       | closing cap                            | K        | 00 026 343      | 00 026 343        |

Parts marked with \* should be kept in stock for maintenance purposes

Material key:

|     |                     |     |                |    |                     |
|-----|---------------------|-----|----------------|----|---------------------|
| St  | ... steel           | LM  | ...light alloy | K  | ... plastic         |
| NSt | ... stainless steel | Ms  | ... brass      | KG | ... rubbery plastic |
| FSt | ... spring steel    | PGI | ... plexiglass |    |                     |

## Spare part list HON 640

 Wh 1 Bar to 40 Bar with diaphragm measuring unit,  
 Wh 20 Bar to 90 Bar with metal harmonica measuring unit

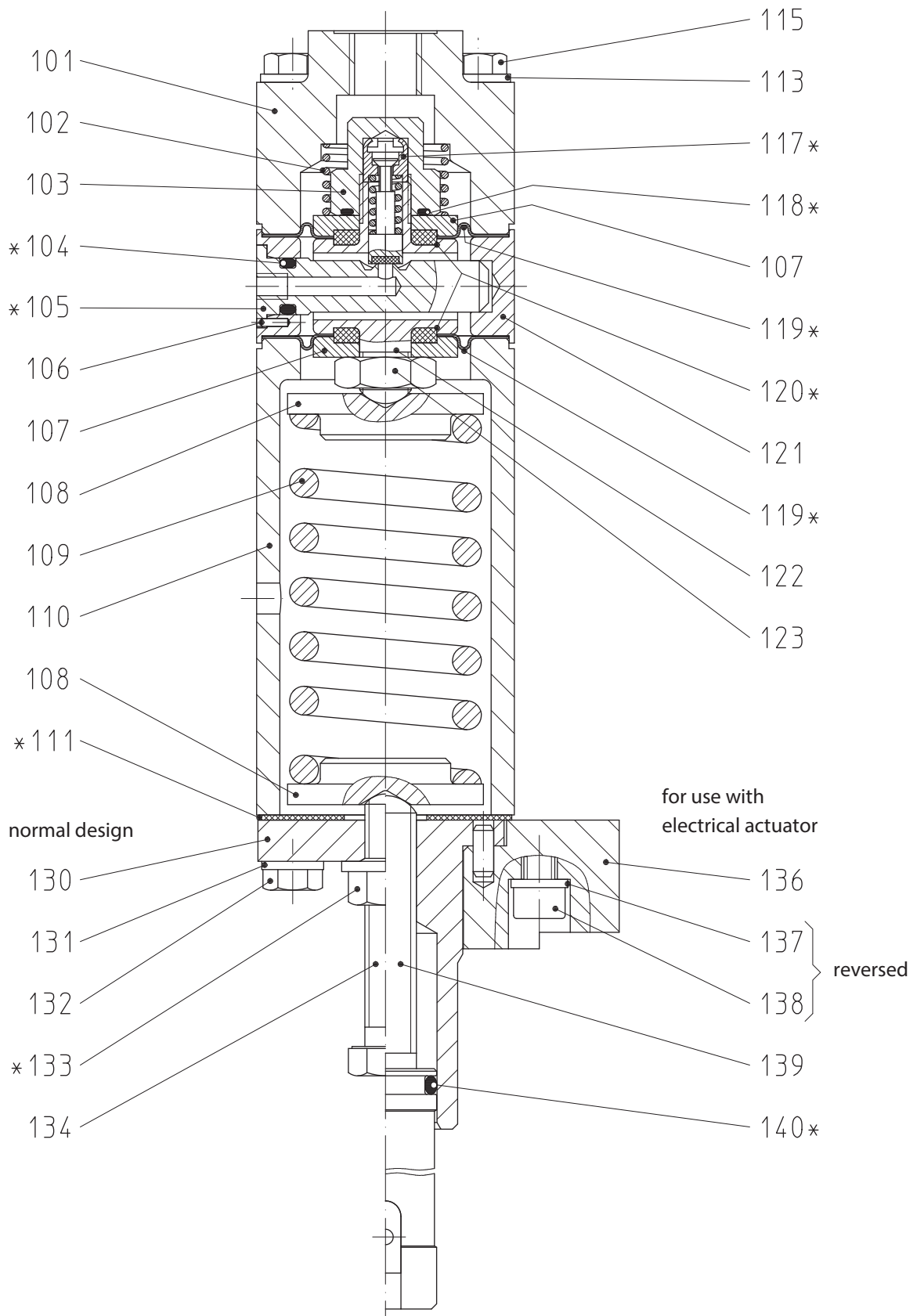
| item no.   | designation  | material | part no.        |                   |
|------------|--|----------|-----------------|-------------------|
|            |  |          | 1 Bar ...40 Bar | 20 Bar ... 90 Bar |
|            | <b>optionally without/with p<sub>a</sub> manometer</b>                 |          |                 |                   |
|            | <i>without p<sub>a</sub> manometer</i>                                 |          |                 |                   |
| 30         | union nut  | St       | 00 030 804      | 00 030 804        |
| 31         | cutting ring   | St       | 00 030 904      | 00 030 904        |
| 32         | adapter  | St       | 10 009 683      | 10 009 683        |
| 33         | dosing screw dia. 0.5 mm   | Ms       | 10 014 015      | 10 014 015        |
| <b>34*</b> | sealing ring   | LM       | 00 018 842      | 00 018 842        |
|            | <i>with p<sub>a</sub> manometer for W<sub>h</sub> 1 Bar to 20 Bar</i>  |          |                 |                   |
| 35         | pressure gauge, optionally:  |          |                 |                   |
| -          | for Wh 1 Bar to 5 Bar  | NSt/Ms   | 00 026 281      | -                 |
| -          | for Wh 2 Bar to 10 Bar   | NSt/Ms   | 00 026 314      | -                 |
| -          | for Wh 5 Bar to 20 Bar   | NSt/Ms   | 00 026 284      | -                 |
| 36         | adapter  | St       | 00 031 810      | -                 |
| 37         | overpressure protection, optionally:                                   |          |                 |                   |
| -          | for Wh 1 Bar to 5 Bar  |          | 10 023 336      | -                 |
| -          | or Wh 2 Bar to 10 Bar  |          | 10 023 337      | -                 |
| -          | or Wh 5 Bar to 20 Bar  |          | 10 023 338      | -                 |
| 38         | dosing screw dia. 0.5 mm   | Ms       | 10 014 015      | -                 |
| 39         | adapter  | St       | 10 000 714      | -                 |
| <b>40*</b> | sealing ring   | LM       | 00 018 842      | -                 |
|            | <i>with p<sub>a</sub> manometer for W<sub>h</sub> 10 Bar to 90 Bar</i> |          |                 |                   |
| 41         | pressure gauge   | NSt/Ms   | 00 026 282      | 00 026 285        |
| 42         | adapter  | St       | 00 031 810      | 00 031 810        |
| 43         | adapter  | St       | 00 030 455      | 00 030 455        |
| 44         | union nut  | St       | 00 030 804      | 00 030 804        |
| 45         | cutting ring   | St       | 00 030 904      | 00 030 904        |
| 46         | straight pipe piece  | St       | 00 032 141      | 00 032 141        |
| 47         | dosing screw dia. 0.5 mm   | Ms       | 10 014 015      | 10 014 015        |
| 48         | adapter  | St       | 10 009 683      | 10 009 683        |
| <b>49*</b> | sealing ring   | LM       | 00 018 842      | 00 018 842        |

Parts marked with \* should be kept in stock for maintenance purposes

**Material key:**

|     |                     |    |                |
|-----|---------------------|----|----------------|
| St  | ... steel           | LM | ...light alloy |
| NSt | ... stainless steel | Ms | ... brass      |

**4.4 Spare part drawing HON 640**  
 control element with diaphragm measuring unit



\* parts to be kept in stock for maintenance purposes



4.5 Spare part list HON 640  
control element with diaphragm measuring unit

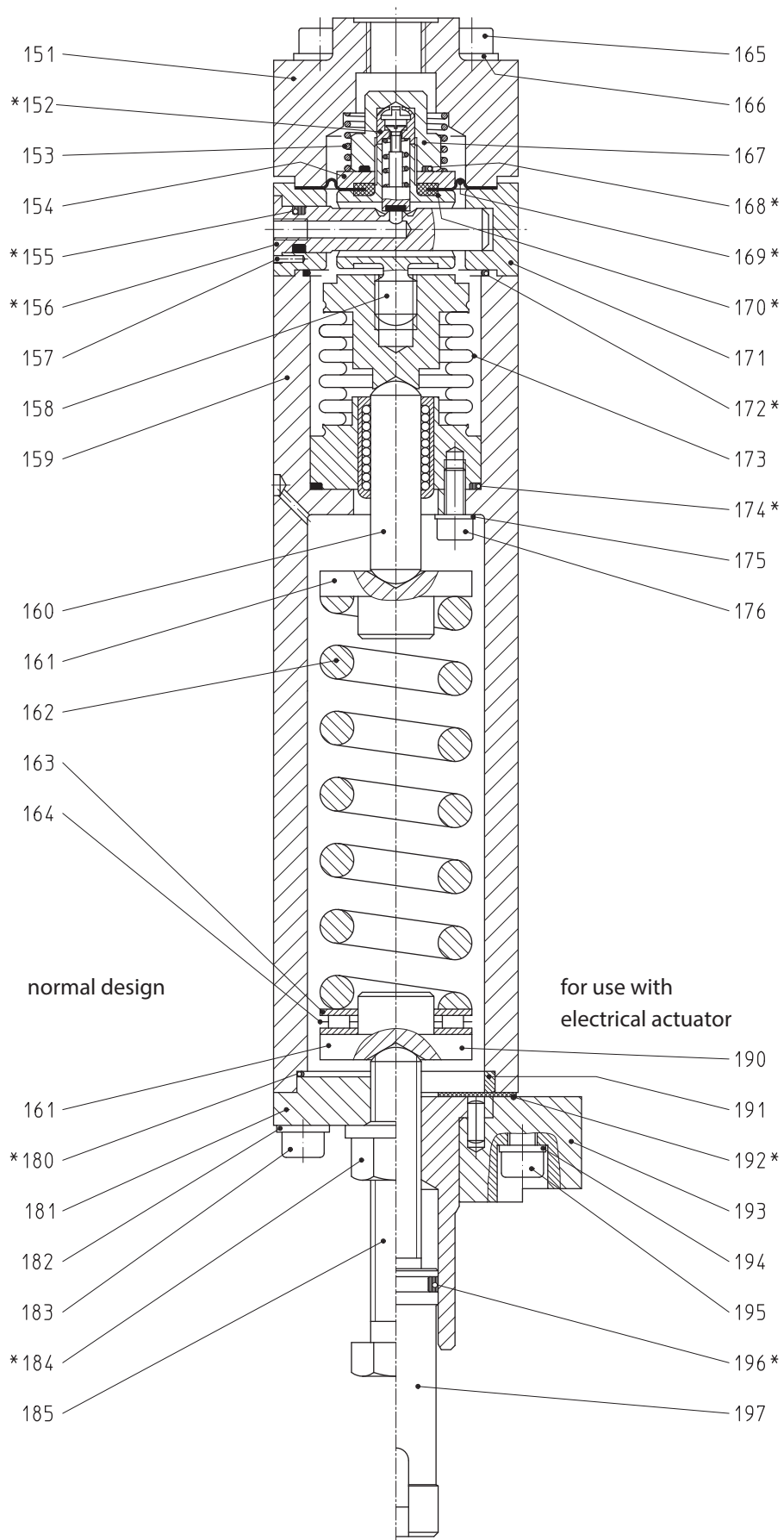
| item no. | designation   | material    | part no.                 |
|----------|---|-------------|--------------------------|
|          |   |             | valve seat dia. 3        |
| 101      | cover   | LM          | 10 000 190               |
| 102      | pressure spring                                     | NFSt        | 10 010 463               |
| 103      | closing cap   | NSt         | 10 000 188               |
| 104*     | O ring  | KG          | 00 020 225               |
| 105*     | valve core  | LM          | 10 000 061               |
| 106      | grooved dowel pin                                   | St          | 00 017 197               |
| 107      | diaphragm plate                                     | LM          | 10 000 110               |
| 108      | spring plate  | LM          | see p. 6 item no. 13, 14 |
| 109      | pressure spring                                     | FSt         |                          |
| 110      | spring housing                                      | LM          | 10 000 062               |
| 111*     | seal  | K           | 10 000 100               |
| 113      | disk  | St          | 00 008 279               |
| 115      | hexagonal screw                                     | St          | 00 010 377               |
| 117*     | piston, fully assembled                             | NFSt/NSt/KV | 10 000 186               |
| 118*     | O ring  | KG          | 00 020 332               |
| 119*     | flange-shaped diaphragm                             | KG          | 10 000 191               |
| 120*     | stem seal   | KG          | 10 000 066               |
| 121      | valve body  | LM          | 10 000 137               |
| 122      | connecting piece                                    | NSt         | 10 000 108               |
| 123      | hexagonal nut                                       | St          | 00 013 114               |
| 130      | cover   | St          | 10 000 116               |
| 131      | disk  | St          | 00 008 279               |
| 132      | hexagonal screw                                     | St          | 00 006 493               |
| 133*     | hexagonal collar nut                                | St/K        | 00 013 136               |
| 134      | adjusting screw                                     | NSt         | 10 002 795               |
| 136      | for use with electrical actuator<br>plate, complete | St/AlBz     | 10 000 079               |
| 137      | disk  | St          | 00 014 146               |
| 138      | cylinder bolt                                       | St          | 00 010 150               |
| 139      | coupling half, pre-assembled                        | St/NSt      | 10 010 538               |
| 140*     | O ring  | KG          | 00 020 326               |

Parts marked with \* should be kept in stock for maintenance purposes

Material key:

|      |                            |      |                      |    |                     |
|------|----------------------------|------|----------------------|----|---------------------|
| St   | ... steel                  | FSt  | ... spring steel     | K  | ... plastic         |
| NSt  | ... stainless steel        | LM   | ... light alloy      | KG | ... rubbery plastic |
| NFSt | ... stainless spring steel | AlBz | ... aluminium bronze | KV | ... Viton           |

**4.6 Spare part drawing HON 640**  
**control element with metal harmonica measuring unit**



\* Parts to be kept in stock for maintenance purposes



4.7 Spare part list HON 640  
control element with metal harmonica measuring unit

| item no. | designation                      | material    | part no.         |
|----------|----------------------------------|-------------|------------------|
|          |                                  |             | valve seat dia.3 |
| 151      | cover                            | LM          | 10 011 768       |
| 152*     | piston, pre-assembled            | NFSt/NSt/KV | 10 000 186       |
| 153      | pressure spring                  | NSF         | 10 010 463       |
| 154      | diaphragm plate                  | LM          | 10 000 110       |
| 155*     | O ring                           | KG          | 00 020 225       |
| 156*     | valve core                       | LM          | 10 011 775       |
| 157      | grooved dowel pin                | St          | 00 017 197       |
| 158      | connecting piece                 | NSt         | 10 011 773       |
| 159      | spring housing                   | LM          | 10 011 767       |
| 160      | guiding bolt                     | St          | 10 011 772       |
| 161      | spring plate                     | NSt         | 10 011 774       |
| 162      | pressure spring                  | FSt         | 10 010 444       |
| 163      | axial disk (2 off)               | St          | 00 026 385       |
| 164      | axial needle bearing             | St          | 00 026 384       |
| 165      | cylinder bolt                    | St          | 00 010 548       |
| 166      | disk                             | St          | 00 008 279       |
| 167      | closing cap                      | NSt         | 10 000 188       |
| 168*     | O ring                           | KG          | 00 020 332       |
| 169*     | flange-shaped diaphragm          | KG          | 10 000 191       |
| 170*     | stem seal                        | KG          | 10 000 066       |
| 171      | valve body                       | LM          | 10 011 769       |
| 172*     | O ring                           | KG          | 00 020 416       |
| 173      | metal harmonica, complete        | NSt/St      | 10 011 764       |
| 174*     | O ring                           | KG          | 00 020 317       |
| 175      | disk                             | St          | 00 006 157       |
| 176      | cylinder bolt                    | St          | 00 010 318       |
| 180*     | O ring                           | KG          | 00 020 293       |
| 181      | plate                            | St          | 10 011 770       |
| 182      | disk                             | St          | 00 008 279       |
| 183      | cylinder bolt                    | St          | 00 010 097       |
| 184*     | hexagonal collar nut             | St/K        | 00 013 145       |
| 185      | hexagonal screw                  | NSt         | 10 010 447       |
|          | for use with electrical actuator |             |                  |
| 190      | spring plate                     | LM          | 10 011 795       |
| 191      | ring                             | LM          | 10 021 766       |
| 192*     | seal                             | K           | 10 021 765       |
| 193      | plate, complete                  | St/AIBz     | 10 000 079       |
| 194      | disk                             | St          | 00 014 156       |
| 195      | cylinder bolt                    | St          | 00 010 150       |
| 196*     | O ring                           | KG          | 00 020 326       |
| 197      | coupling half, pre-assembled     | St/NSt      | 10 010 538       |

Parts marked with \* should be kept in stock for maintenance purposes

Material key:

|      |                            |      |                      |    |                     |
|------|----------------------------|------|----------------------|----|---------------------|
| St   | ... steel                  | FSt  | ... spring steel     | K  | ... plastic         |
| NSt  | ... stainless steel        | LM   | ... light alloy      | KG | ... rubbery plastic |
| NFSt | ... stainless spring steel | AIBz | ... aluminium bronze | KV | ... Viton           |

