

OPERATING AND MAINTENANCE INSTRUCTIONS/
SPARE PARTS

EDITION 01/2017

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Honeywell

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1. General information

All persons involved with the assembly, operation and/or maintenance of gas mixer HON 985 must read and understand all of the following documents:

- Technical product information 985.00 — this Honeywell document contains the technical data and dimensions of the equipment as well as instructions concerning construction and mode of operation.
- Operating and maintenance instructions, spare parts 985.20 — this Honeywell document contains more detailed information on assembly and operation of the gas mixer HON 985.

Inspection and maintenance intervals depend mostly on the operating conditions at the respective system. Amongst other factors, the device used and the corresponding gas composition, and the existing gas contamination must be taken into account. There are no general rules or recommendations for intervals. It is advisable to include the devices in the gas engine maintenance intervals.

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. The check must include in particular seals, all moving parts such as angular gear and the transmission thread on the venturi insert. Any and all defective parts must be replaced with new ones. The same applies to O rings removed during disassembly.

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.

2. Specific operating instructions

2.1 High frequency radiation exposure (comment on application at gas engine)

Possible high frequency radiation exposure (e.g. from the ignition coil and its cable) must be observed with regard to the proper response from the proximity switch and the stepper motor. Cables must be laid separately.

2.2 Stepper motor and proximity switch technical data

A stepper motor controller card is not included in the scope of delivery. When choosing a stepper motor control card, the following data on the stepper motors and the proximity switches should be taken into account.

Table 1: Stepper motors technical data

| | HON 985-140/65-WG-N-2NÄ | HON 985-140/65-WG-P-2NÄ | HON 985-200/100-WG-N-2NÄ | HON 985-200/100-WG-P-2NÄ | HON 985-300/150-WG-P-2NÄ | HON 985-400/200-WG-P-2NÄ |
|-----------------------------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Number of steps per revolution | 200 | 200 | 200 | 200 | 200 | 200 |
| Current per phase [A] | 1,4 | 1,2 | 1,4 | 1,2 | 1,2 | 1,2 |
| Resistance per phase [Ω] | 4,4 | 5,8 | 4,4 | 5,8 | 10,5 | 10,5 |

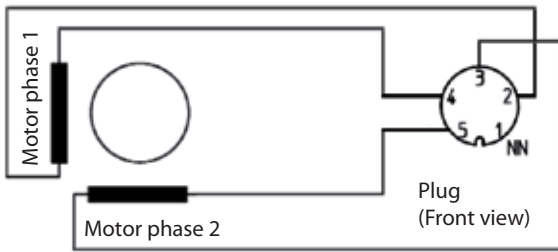


Figure 1: Stepper motor connection diagram

The electrical connector is a 5-pole series 723 plug made by the company Binder.

Note A socket compatible with the stepper motor is included in the delivery.

Table 2: Proximity switch technical data:

| | |
|--|--|
| connection | V1 device connector |
| operating voltage | 10 – 60 VDC |
| ripple quality | ≤ 10 % |
| switching frequency | 500 Hz |
| operating current | 100 mA |
| idling power consumption | 15 mA |
| output marking | ppn opener (positive switching) |
| active surface free | operating voltage – (max. 3 V at 100 mA) |
| active surface covered | ≤ 0,3 V |
| interference voltage (permissible voltage peaks) | max. 1000 V / 10 ms |
| internal resistance | 10 kOhm |
| LED switch status display | yellow light when active surface is free |

Note A socket compatible with the proximity switch is included in the delivery.

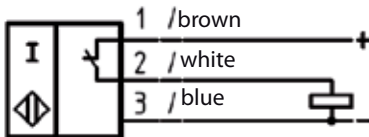


Figure 2: Proximity switch connection diagram

3. Specific maintenance instructions

Caution Maintenance may only be carried out when the power is off.

3.1 Screw tightening torques M_A

The parts marked with $M_A = \dots$ Nm must be tightened to the prescribed value with a torque wrench. Screw tightening torques are given in the spare parts drawings.

3.2 Lubricants

Grease all O-rings with silicon grease (part number 27081).

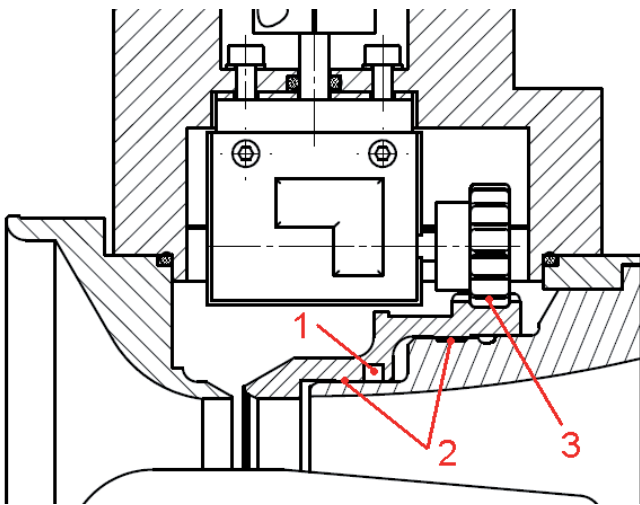


Figure 3: Gas mixer lubrication

Groove (parts number 27052) must be filled with grease flush to the guide diameter (note 1, fig. 3). Grease sliding surfaces, transmission thread (note 2, fig. 3), Venturi tooting and pinion (note 3, fig. 3) with a small amount of grease (part number 27052).

3.3 Adhesives

The parts do be glued must be completely clean, dry and free of grease. Information on gluing connections is in the spare parts drawings.

3.4 Transmission and coupling

To check the drive gear wheel of the angular gear and the venturi toothing insert, remove gearbox lid (see fig. 4).

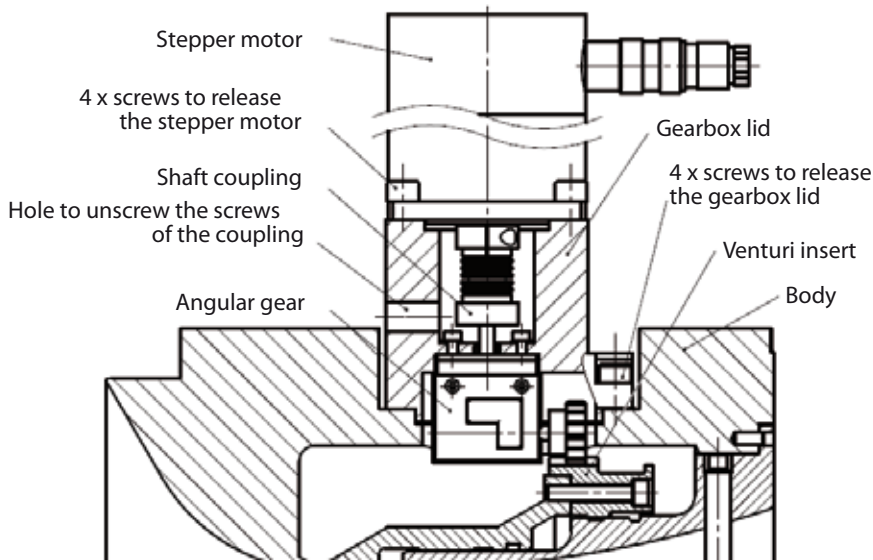


Figure 4: Dismantling gearbox lid and shaft coupling

Remove Venturi insert and Venturi carrier for inspection as regards the following points (also see corresponding spare part drawing):

- Remove the proximity sensors locking nuts. Screw out the proximity sensors from the housing.
- Screw the safety threaded pin out from the zeppelin.
- Screw out centring bar from the zeppelin and the body.
- Pull out from the housing the Venturi insert using the squeeze threading in the venturi carrier.

Check Venturi insert for damages and lightness of movement of the transmission thread.

To check the shaft coupling, release the locking screw of the shaft coupling (hexagon spanner, clamping capacity 2.5) through the hole in the direction of flow. Then detach the stepper motor.

Caution The shaft coupling must rotate freely. Observe dimensions (Fig. 5) for assembly.

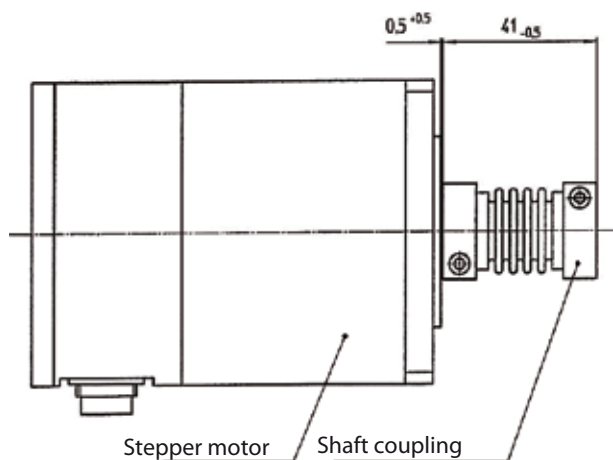


Figure 5: Distance of the coupling from the stepper motor

Caution After assembly, the proximity switches have to be reset in accordance with the setting instructions in section 3.7.

3.5 Adaptor plate

If drive components (e.g. Venturi insert, angular gear, pinion) are replaced, the axle distance must be set using an adaptor plate as follows. The adaptor plate is a laminated shim material.

The size of the adaptor plate must be adjusted so that when mounting the gearbox lid with the gas mixer, the rotary drive is not under tension (see Fig. 6).

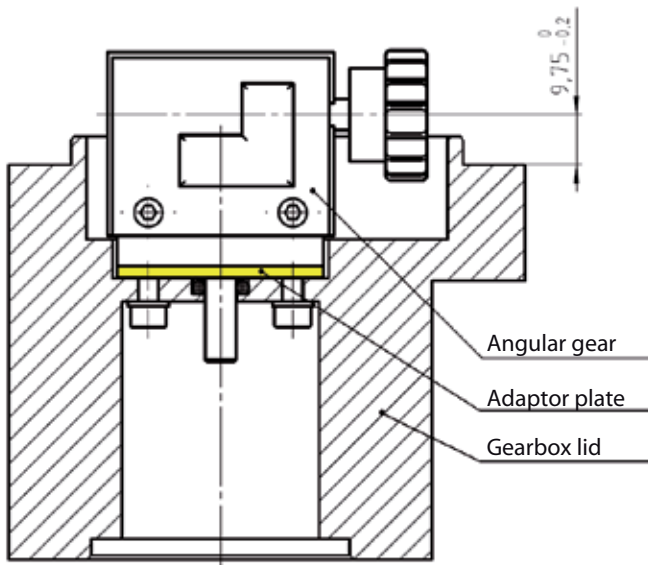


Figure 6: Setting using the adaptor plate

The measurement 9.75-0.2 mm (Fig. 6) is theoretical. It is adjusted during installation of the gearbox lid at the gas mixer by taking off layer of the laminated shim.

Note One layer of the adaptor plate is 0.05 mm thick.

A new adaptor plate is 3 mm thick. To ensure it runs smoothly, make the adaptor plate 1.7 mm thick. If the tooth gap is too small (heavy operation), the thickness of the adaptor plate can be reduced by up to another 0.2 mm.

The cylinder screw must be secured with Loctite glue (part number 26688).

3.6 Centring bar

Tenons of the centring bars must finish flush to the grooves at the body or Venturi carrier (see Fig. 7).

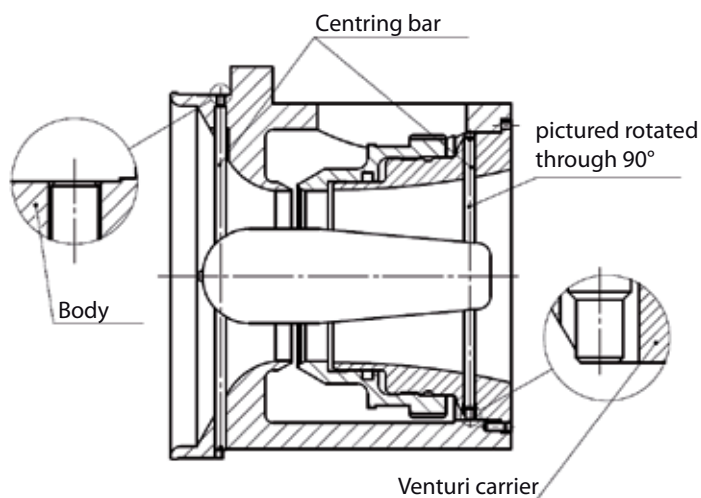


Figure 7: Mounting centring bars

3.7 Proximity switch setting instructions

So that the proximity switches will be triggered safely and precisely, they should be replaced according to the following setting instructions.

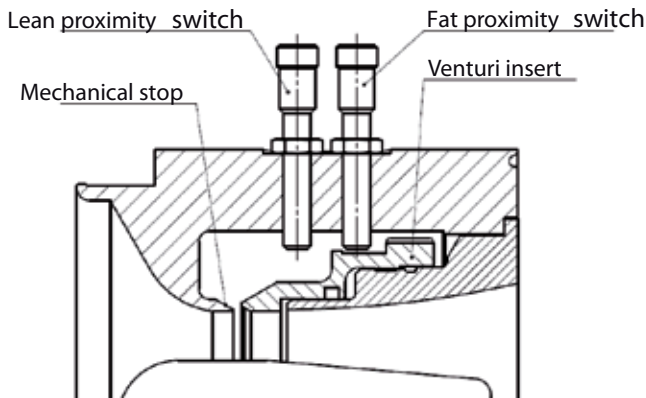


Figure 8: Placement of proximity switch

Lean proximity switch setting:

- Screw the Venturi insert against the mechanical lean stop (mixing gap closed) of the body (see Fig. 8).
- Via the tothing at the Venturi insert, re-open the Venturi insert in accordance with the information in table 3.
- Turn proximity switch into the receptacle until the signal. In the process the LED on the proximity switch goes out.
- Tighten the locking nut of the proximity sensor (M_A max. 10 Nm).
- To check the lean switch setting, turn Venturi insert from the switching point in the fat direction (mixing gap open) and check its turning again into the switching point.
- The triggering must occur at the tooth numbers given in table 3 plus a tolerance of 8 teeth.

Table 3: Lean switching point

| Gas mixer | Lean switching point |
|-----------------|---|
| HON 985-140/65 | 21 teeth -> corresponds to a 1/3 rotation |
| HON 985-200/100 | 30 teeth -> corresponds to a 1/3 rotation |
| HON 985-300/150 | 29 teeth -> corresponds to a 1/5 rotation |
| HON 985-400/200 | 48 teeth -> corresponds to a 1/4 rotation |

Fat proximity switch setting:

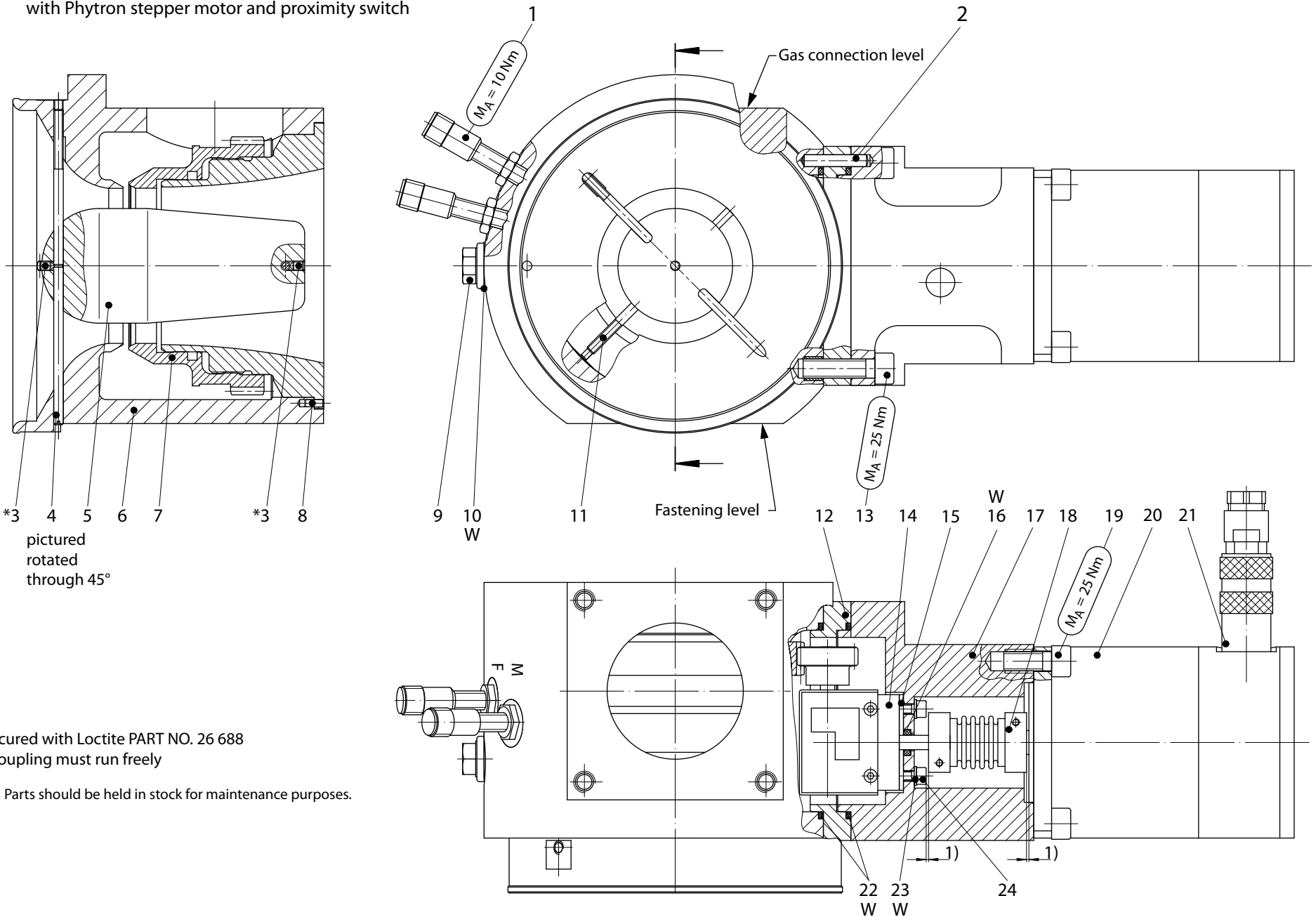
- Screw the Venturi insert from the lean switching point in the fat direction in accordance with the information in table 4.
- Turn proximity switch into the receptacle until the signal. In the process the LED on the proximity switch goes out.
- Tighten the locking nut of the proximity sensor (M_A max. 10 Nm).
- Check the function of the proximity switch. The exact switching point is irrelevant.

Table 4: Fat switching point

| Gas mixer | Fat switching point |
|-----------------|---------------------|
| HON 985-140/65 | 4 rotation |
| HON 985-200/100 | 6 rotation |
| HON 985-300/150 | 6.5 rotation |
| HON 985-400/200 | 6 rotation |

Carry out function check of the mixing gap adjustment with mounted stepping motor. To do so, approach fat and lean position three times.

4. Spare part drawings and spare part lists
 4.1.1 SPARE PART DRAWING HON 985-140/65
 with Phytron stepper motor and proximity switch



* Secured with Loctite PART NO. 26 688

1) Coupling must run freely

W Parts should be held in stock for maintenance purposes.

4.1.2 Spare part list HON 985-140/65

with Phytron stepper motor and proximity switch

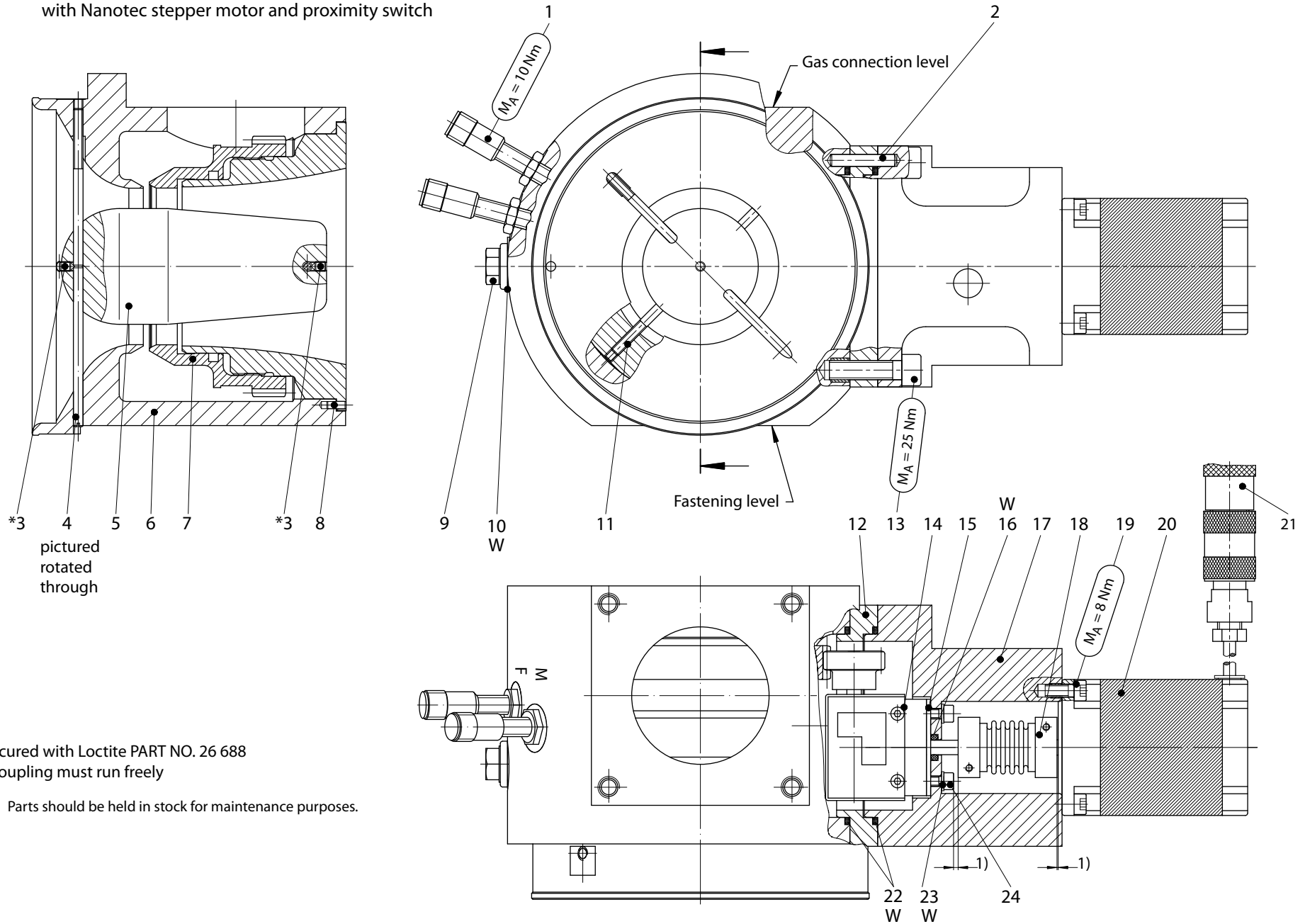
| Item no. | Denomination | Num. | W | Material | Part no. |
|----------|-------------------------------|------|---|----------|----------|
| 1 | Proximity switch | 2 | | NSt | 24122 |
| 2 | Straight pin | 1 | | St | 17277 |
| 3 | Setscrew | 2 | | St | 12438 |
| 4 | Centring bar | 1 | | St | 19082206 |
| 5 | Zeppelin, optional: | | | | |
| 5 | Zeppelin, Ø 11 | 1 | | LM | 19084888 |
| 5 | Zeppelin, Ø 22 | 1 | | LM | 19082297 |
| 5 | Zeppelin, Ø 27 | 1 | | LM | 19082298 |
| 5 | Zeppelin, Ø 30 | 1 | | LM | 19082296 |
| 5 | Zeppelin, Ø 31 | 1 | | LM | 19082379 |
| 5 | Zeppelin, Ø 32 | 1 | | LM | 19082378 |
| 5 | Zeppelin, Ø 34 | 1 | | LM | 10030435 |
| 5 | Zeppelin, Ø 36 | 1 | | LM | 19082291 |
| 5 | Zeppelin, Ø 38 | 1 | | LM | 19082376 |
| 5 | Zeppelin, Ø 41 | 1 | | LM | 19082292 |
| 5 | Zeppelin, Ø 42 | 1 | | LM | 19082373 |
| 5 | Zeppelin, Ø 44 | 1 | | LM | 19082295 |
| 5 | Zeppelin, Ø 47 | 1 | | LM | 19082299 |
| 5 | Zeppelin, Ø 48 | 1 | | LM | 19082374 |
| 5 | Zeppelin, Ø 52 | 1 | | LM | 19082377 |
| 5 | Zeppelin, Ø 54 | 1 | | LM | 19082375 |
| 5 | Zeppelin, Ø 61 | 1 | | K | 19082426 |
| 6 | Body | 1 | | LM | 10022955 |
| 7 | Venturi insert, pre-assembled | 1 | | AlBz/St | 10022951 |
| 8 | Straight pin | 1 | | St | 17086 |
| 9 | Locking screw | 1 | | St | 26175 |
| 10 | Sealing ring | 1 | W | LM | 18842 |
| 11 | Centring bar | 1 | | St | 19082207 |
| 12 | Spacer plate | 1 | | LM | 10022959 |
| 13 | Cylinder head screw | 4 | | St | 10098 |
| 14 | Angular gear, complete | 1 | | NSt/LM/K | 100383 |
| 15 | Adaptor plate | 1 | | LM | 10022070 |
| 16 | O-ring | 1 | W | K | 21117 |
| 17 | Gearbox lid | 1 | | NSt/LM | 19083034 |
| 18 | Metal bellow coupling | 1 | | LM/NSt | 27422 |
| 19 | Cylinder head screw | 4 | | St | 10067 |
| 20 | Phytron stepping motor | 1 | | | 24339 |
| 21 | Socket | 1 | | LM | 24107 |
| 22 | O-ring | 2 | W | K | 20246 |
| 23 | Sealing ring | 2 | W | LM | 18701 |
| 24 | Cylinder head screw | 2 | | St | 10382 |

W Parts should be held in stock for maintenance purposes.

German abbreviations stand for the following materials:

| | | |
|---------------------------------|---------------------------------------|----------------------------------|
| St ... steel | LM ... light metal / alloy | GMs ... cast brass |
| NSt ... stainless steel | Ms ... brass | GZn ... cast zinc |
| FSt ... spring steel | GS ... cast steel | AlBz ... aluminium bronze |
| NFSt ... stainless spring steel | GGG ... spheroidal graphite cast iron | K ... synthetic materials |
| Bz ... bronze | GBz ... cast bronze | KG ... gummy synthetic materials |
| Cu ... copper | GLM ... cast light metal | SSt ... foamed materials |

4.2.1 SPARE PART DRAWING HON 985-140/65
with Nanotec stepper motor and proximity switch



* Secured with Loctite PART NO. 26 688

1) Coupling must run freely

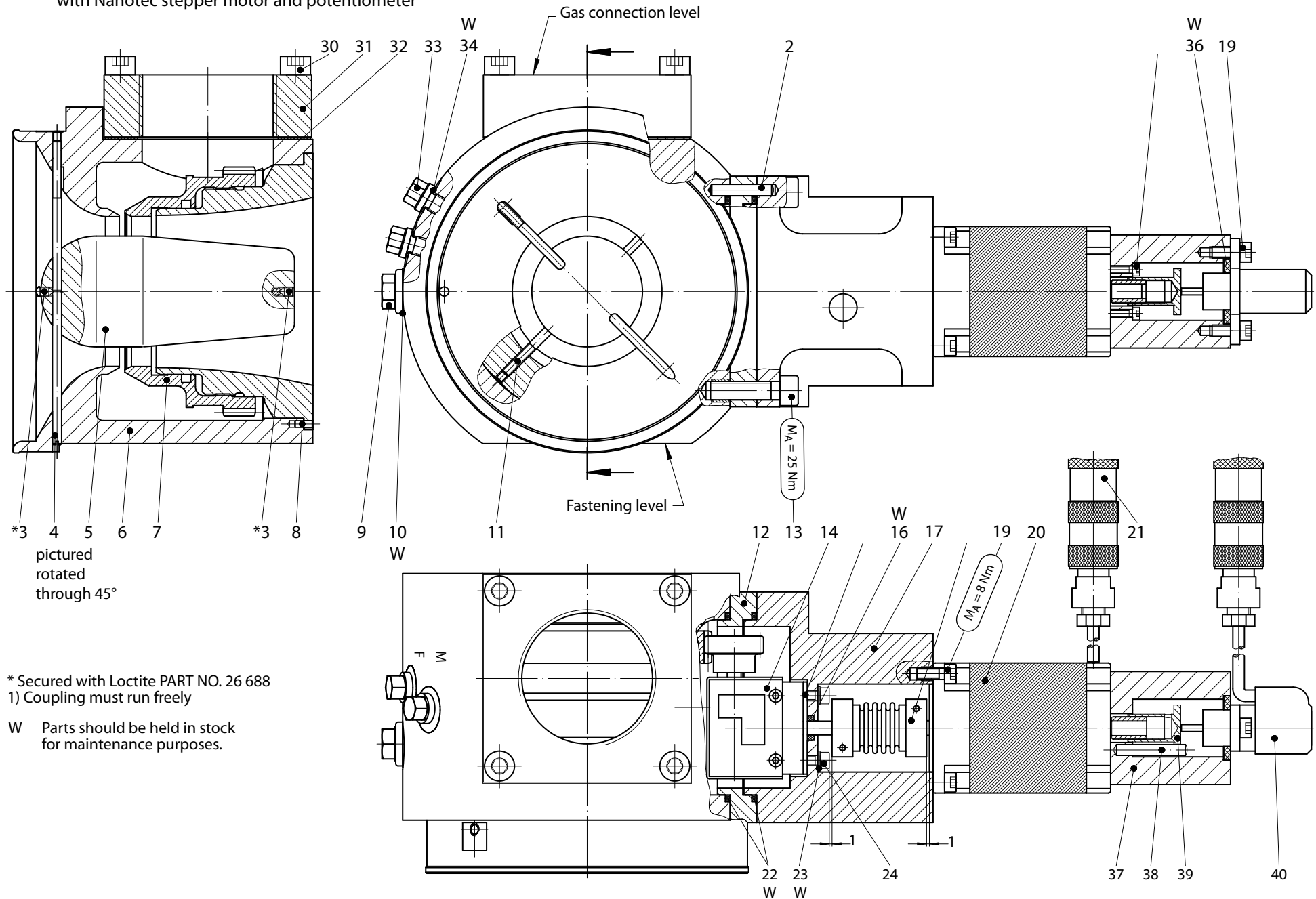
W Parts should be held in stock for maintenance purposes.

4.2.2 Spare part list HON 985-140/65

with Nanotec stepper motor and proximity switch

| Item no. | Denomination | Num. | W | Material | Part no. |
|----------|-------------------------------|------|---|----------|----------|
| 1 | Proximity switch | 2 | | NSt | 24122 |
| 2 | Straight pin | 1 | | St | 17277 |
| 3 | setscrew | 2 | | St | 12438 |
| 4 | Centring bar | 1 | | St | 19082206 |
| 5 | Zeppelin, optional: | | | | |
| 5 | Zeppelin, Ø 11 | 1 | | LM | 19084888 |
| 5 | Zeppelin, Ø 22 | 1 | | LM | 19082297 |
| 5 | Zeppelin, Ø 27 | 1 | | LM | 19082298 |
| 5 | Zeppelin, Ø 30 | 1 | | LM | 19082296 |
| 5 | Zeppelin, Ø 31 | 1 | | LM | 19082379 |
| 5 | Zeppelin, Ø 32 | 1 | | LM | 19082378 |
| 5 | Zeppelin, Ø 34 | 1 | | LM | 10030435 |
| 5 | Zeppelin, Ø 36 | 1 | | LM | 19082291 |
| 5 | Zeppelin, Ø 38 | 1 | | LM | 19082376 |
| 5 | Zeppelin, Ø 41 | 1 | | LM | 19082292 |
| 5 | Zeppelin, Ø 42 | 1 | | LM | 19082373 |
| 5 | Zeppelin, Ø 44 | 1 | | LM | 19082295 |
| 5 | Zeppelin, Ø 47 | 1 | | LM | 19082299 |
| 5 | Zeppelin, Ø 48 | 1 | | LM | 19082374 |
| 5 | Zeppelin, Ø 52 | 1 | | LM | 19082377 |
| 5 | Zeppelin, Ø 54 | 1 | | LM | 19082375 |
| 5 | Zeppelin, Ø 61 | 1 | | K | 19082426 |
| 6 | Body | 1 | | LM | 10022955 |
| 7 | Venturi insert, pre-assembled | 1 | | AlBz/St | 10022951 |
| 8 | Straight pin | 1 | | St | 17086 |
| 9 | Locking screw | 1 | | St | 26175 |
| 10 | Sealing ring | 1 | W | LM | 18842 |
| 11 | Centring bar | 1 | | St | 19082207 |
| 12 | Spacer plate | 1 | | LM | 10022959 |
| 13 | Cylinder head screw | 4 | | St | 10098 |
| 14 | Angular gear, complete | 1 | | NSt/LM/K | 100383 |
| 15 | Adaptor plate | 1 | | LM | 10022070 |
| 16 | O-ring | 1 | W | K | 21117 |
| 17 | Gearbox lid | 1 | | NSt/LM | 10022069 |
| 18 | Metal bellow coupling | 1 | | LM/NSt | 28348 |
| 19 | Cylinder head screw | 4 | | St | 10318 |
| 20 | Nanotec-stepping motor | 1 | | | 24601 |
| 21 | Socket | 1 | | LM | 24107 |
| 22 | O-ring | 2 | W | K | 20246 |
| 23 | Sealing ring | 2 | W | LM | 18701 |
| 24 | Cylinder head screw | 2 | | St | 10382 |

4.3.1 SPARE PART DRAWING HON 985-140/65
with Nanotec stepper motor and potentiometer



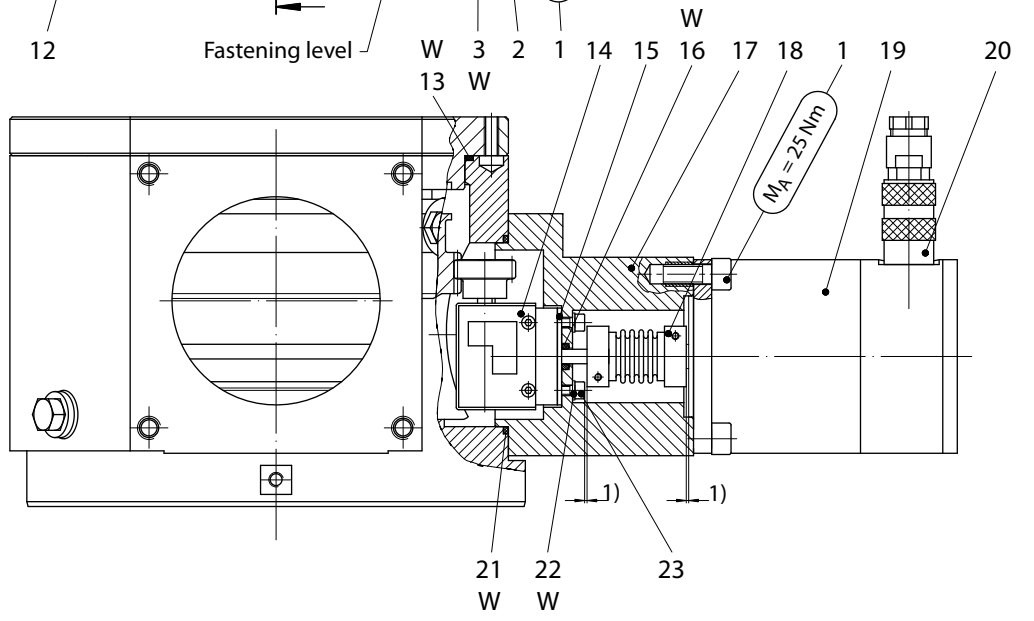
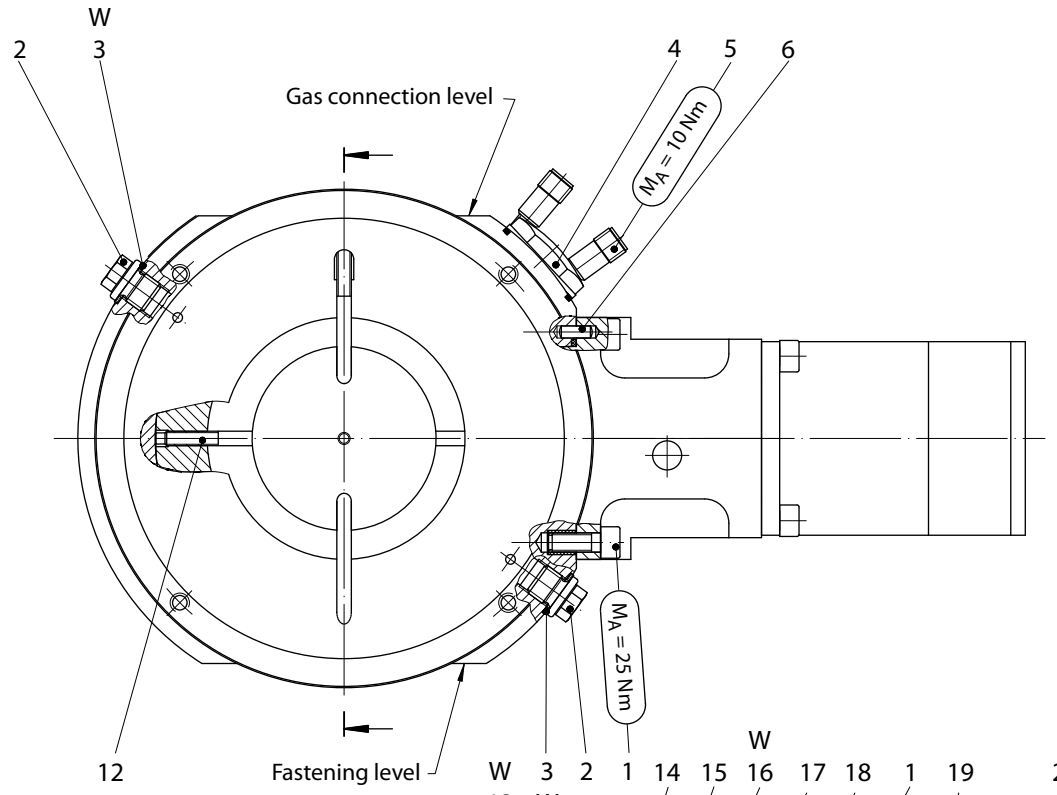
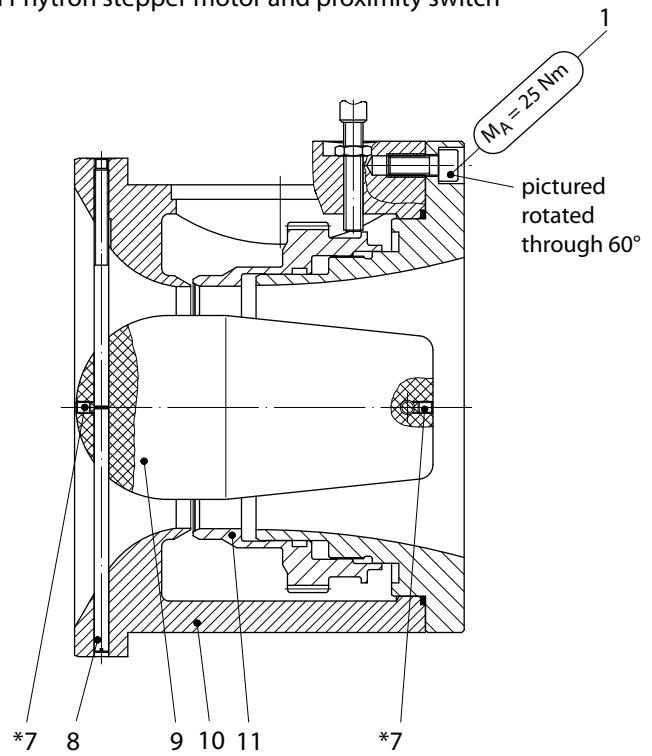
* Secured with Loctite PART NO. 26 688
1) Coupling must run freely

W Parts should be held in stock for maintenance purposes.

4.3.2 Spare part list HON 985-140/65
with Nanotec stepper motor and potentiometer

| Item no. | Denomination | Num. | W | Material | Part no. |
|----------|-------------------------------|------|---|----------|----------|
| 2 | Straight pin | 1 | | St | 17277 |
| 3 | Setscrew | 2 | | St | 12438 |
| 4 | Centring bar | 1 | | St | 19082206 |
| 5 | Zeppelin, optional: | | | | |
| 5 | Zeppelin, Ø 11 | 1 | | LM | 19084888 |
| 5 | Zeppelin, Ø 22 | 1 | | LM | 19082297 |
| 5 | Zeppelin, Ø 27 | 1 | | LM | 19082298 |
| 5 | Zeppelin, Ø 30 | 1 | | LM | 19082296 |
| 5 | Zeppelin, Ø 31 | 1 | | LM | 19082379 |
| 5 | Zeppelin, Ø 32 | 1 | | LM | 19082378 |
| 5 | Zeppelin, Ø 34 | 1 | | LM | 10030435 |
| 5 | Zeppelin, Ø 36 | 1 | | LM | 19082291 |
| 5 | Zeppelin, Ø 38 | 1 | | LM | 19082376 |
| 5 | Zeppelin, Ø 41 | 1 | | LM | 19082292 |
| 5 | Zeppelin, Ø 42 | 1 | | LM | 19082373 |
| 5 | Zeppelin, Ø 44 | 1 | | LM | 19082295 |
| 5 | Zeppelin, Ø 47 | 1 | | LM | 19082299 |
| 5 | Zeppelin, Ø 48 | 1 | | LM | 19082374 |
| 5 | Zeppelin, Ø 52 | 1 | | LM | 19082377 |
| 5 | Zeppelin, Ø 54 | 1 | | LM | 19082375 |
| 5 | Zeppelin, Ø 61 | 1 | | K | 19082426 |
| 6 | Body | 1 | | LM | 10022955 |
| 7 | Venturi insert, pre-assembled | 1 | | AlBz/St | 10022951 |
| 8 | Straight pin | 1 | | St | 17086 |
| 9 | Locking screw | 1 | | St | 26175 |
| 10 | Sealing ring | 1 | W | LM | 18842 |
| 11 | Centring bar | 1 | | St | 19082207 |
| 12 | Spacer plate | 1 | | LM | 10022959 |
| 13 | Cylinder head screw | 4 | | St | 10098 |
| 14 | Angular gear, complete | 1 | | NSt/LM/K | 100383 |
| 15 | Adaptor plate | 1 | | LM | 10022070 |
| 16 | O-ring | 1 | W | K | 21117 |
| 17 | Gearbox lid | 1 | | NSt/LM | 10022069 |
| 18 | Metal bellow coupling | 1 | | LM/NSt | 28348 |
| 19 | Cylinder head screw | 6 | | St | 10318 |
| 20 | Nanotec stepping motor | 1 | | | 24627 |
| 21 | Socket | 1 | | LM | 24107 |
| 22 | O-ring | 2 | W | K | 20246 |
| 23 | Sealing ring | 2 | W | LM | 18701 |
| 24 | Cylinder head screw | 2 | | St | 10382 |
| 30 | Cylinder head screw | 4 | | St | 10425 |
| 31 | Plate, adaptor | 1 | | LM | 19082880 |
| 32 | Gasket | 1 | | K | 19082262 |
| 33 | Locking screw | 2 | | St | 27922 |
| 34 | Sealing ring | 2 | W | LM | 18710 |
| 35 | Cylinder head screw | 2 | | St | 10658 |
| 36 | Sealing ring | 1 | W | K | 18209 |
| 37 | Adaptor, fastening | 1 | | LM | 10027626 |
| 38 | Straight pin | 1 | | St | 17132 |
| 39 | Threaded sleeve, | 1 | | St | 10027625 |
| 40 | Potentiometer, pre-assembled | 1 | | | 10026269 |

4.4.1 SPARE PART DRAWING HON 985-200/100
with Phytron stepper motor and proximity switch

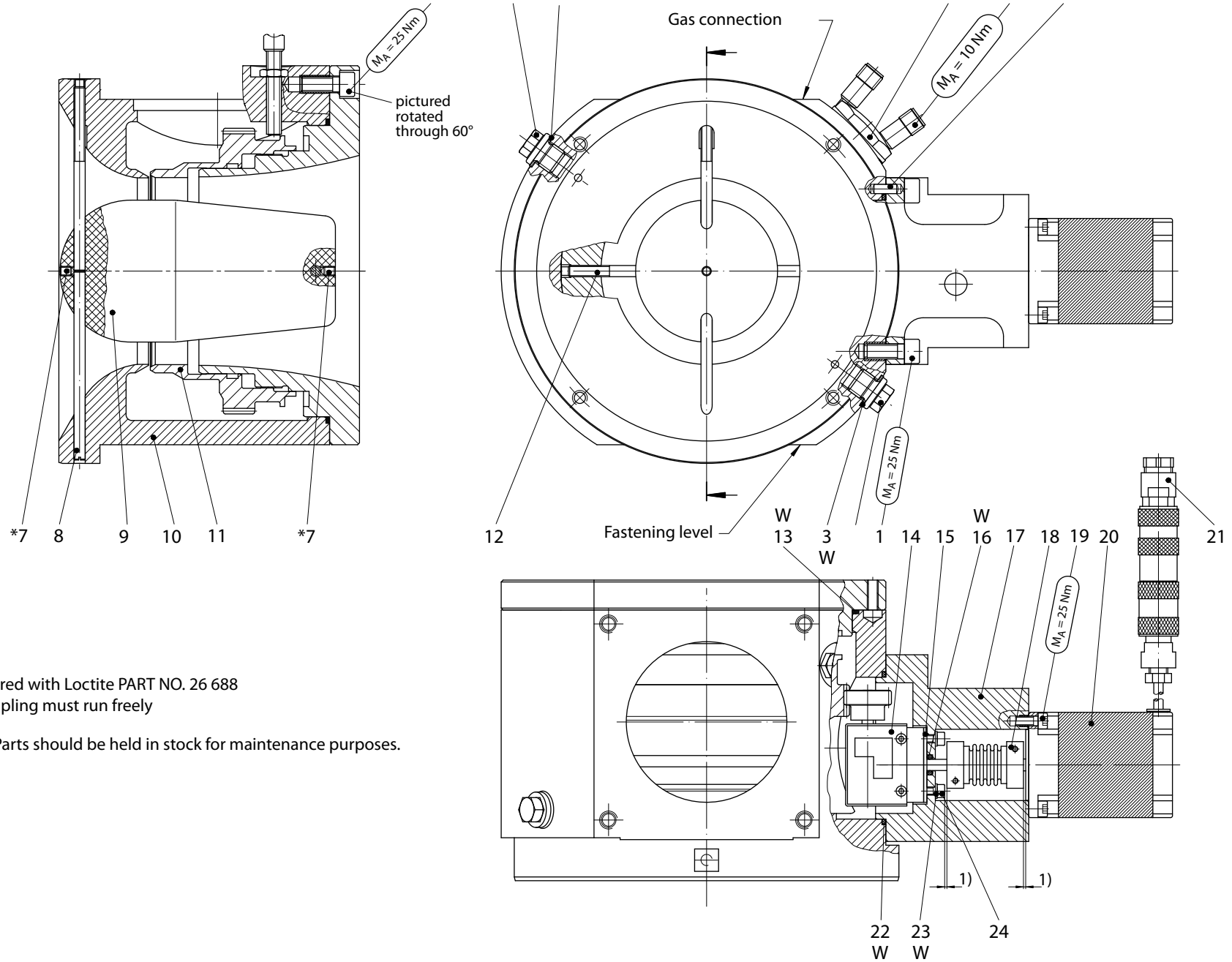


* Secured with Loctite PART NO. 26 688
1) Coupling must run freely
W Parts should be held in stock for maintenance purposes.

4.4.2 Spare part list HON 985-200/100
with Phytron stepper motor and proximity switch

| Item no. | Denomination | Num. | W | Material | Part no. |
|----------|-------------------------------|------|---|----------|----------|
| 1 | Cylinder head screw | 12 | | St | 10067 |
| 2 | Locking screw | 2 | | St | 26175 |
| 3 | Sealing ring | 2 | W | LM | 18842 |
| 4 | Inspection glass | 1 | | K | 27280 |
| 5 | Proximity switch | 2 | | NSt | 24122 |
| 6 | Straight pin | 1 | | St | 17007 |
| 7 | Setscrew | 2 | | St | 12441 |
| 8 | Centring bar | 1 | | St | 10022002 |
| 9 | Zeppelin, optional: | | | | |
| 9 | Zeppelin, Ø 30 | 1 | | LM | 10020982 |
| 9 | Zeppelin, Ø 41 | 1 | | LM | 10030478 |
| 9 | Zeppelin, Ø 45 | 1 | | LM | 10020845 |
| 9 | Zeppelin, Ø 48 | 1 | | LM | 10020981 |
| 9 | Zeppelin, Ø 52 | 1 | | LM | 10020983 |
| 9 | Zeppelin, Ø 53 | 1 | | LM | 10020846 |
| 9 | Zeppelin, Ø 61 | 1 | | K | 10020847 |
| 9 | Zeppelin, Ø 66 | 1 | | K | 10020874 |
| 9 | Zeppelin, Ø 69 | 1 | | K | 10020848 |
| 9 | Zeppelin, Ø 73 | 1 | | K | 10020849 |
| 9 | Zeppelin, Ø 76 | 1 | | K | 10020980 |
| 9 | Zeppelin, Ø 78 | 1 | | K | 10020979 |
| 9 | Zeppelin, Ø 81 | 1 | | K | 10020978 |
| 9 | Zeppelin, Ø 85 | 1 | | K | 10030200 |
| 10 | Body | 1 | | LM | 10022065 |
| 11 | Venturi insert, pre-assembled | 1 | | AlBz/St | 10022064 |
| 12 | Centring bar | 1 | | St | 10020833 |
| 13 | O-ring | 1 | W | K | 20324 |
| 14 | Angular gear, complete | 1 | | NSt/LM/K | 100383 |
| 15 | Adaptor plate | 1 | | LM | 10022070 |
| 16 | O-ring | 1 | W | K | 21117 |
| 17 | Gearbox lid | 1 | | NSt/LM | 19083034 |
| 18 | Metal bellow coupling | 1 | | LM/NSt | 27422 |
| 19 | Phytron stepping motor | 1 | | | 24339 |
| 20 | Socket | 1 | | LM | 24107 |
| 21 | O-ring | 1 | W | K | 20246 |
| 22 | Sealing ring | 2 | W | LM | 18701 |
| 23 | Cylinder head screw | 2 | | St | 10382 |

4.5.1 SPARE PART DRAWING HON 985-200/100
with Nanotec stepper motor and proximity switch



* Secured with Loctite PART NO. 26 688

1) Coupling must run freely

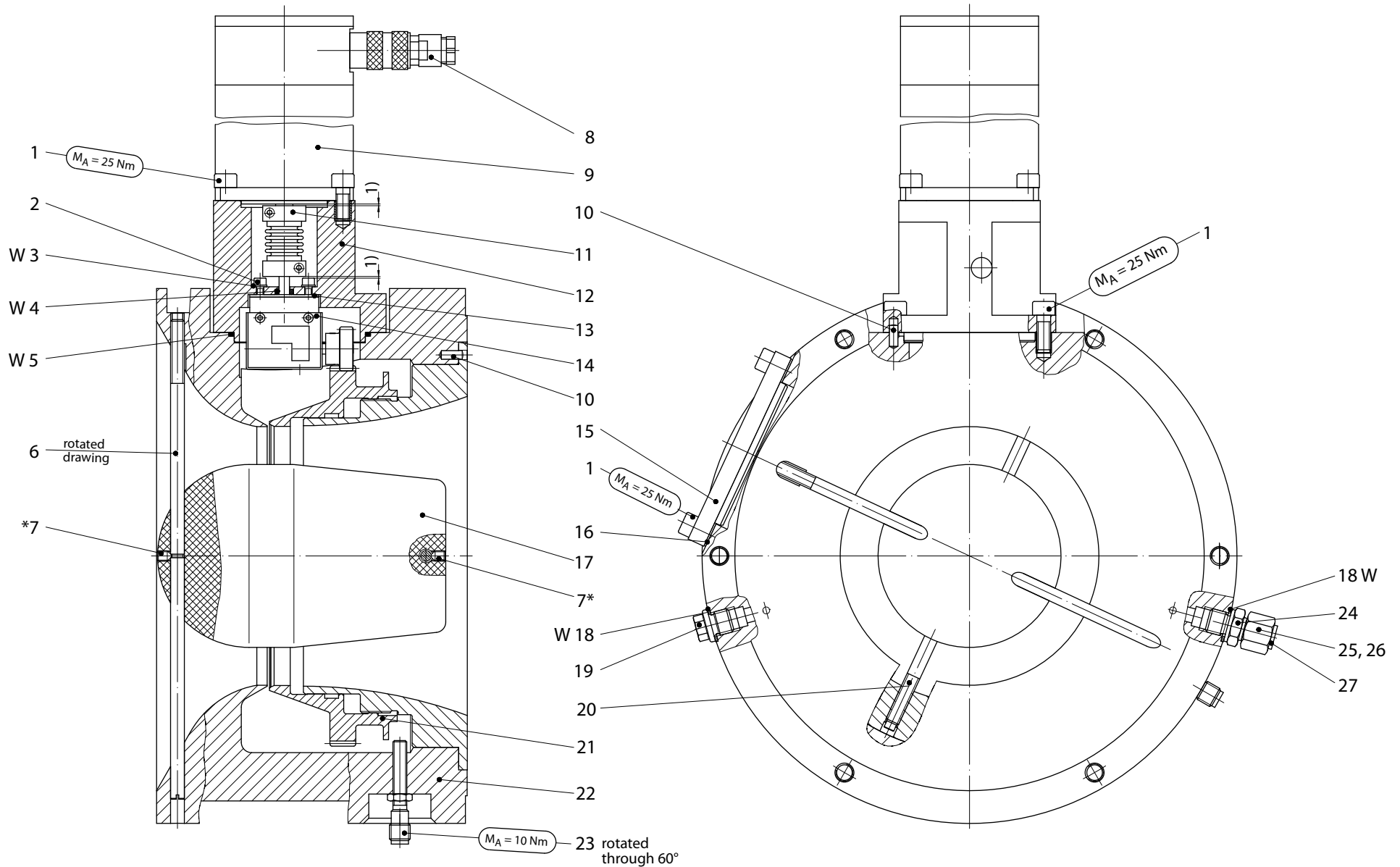
W Parts should be held in stock for maintenance purposes.

4.5.2 Spare part list HON 985-200/100

with Nanotec stepper motor and proximity switch

| Item no. | Denomination | Num. | W | Material | Part no. |
|----------|-------------------------------|------|---|----------|----------|
| 1 | Cylinder head screw | 8 | | St | 10067 |
| 2 | Locking screw | 2 | | St | 26175 |
| 3 | Sealing ring | 2 | W | LM | 18842 |
| 4 | Inspection glass | 1 | | K | 27280 |
| 5 | Proximity switch | 2 | | NSt | 24122 |
| 6 | Straight pin | 1 | | St | 17007 |
| 7 | Setscrew | 2 | | St | 12441 |
| 8 | Centring bar | 1 | | St | 10022002 |
| 9 | Zeppelin, optional: | | | | |
| 9 | Zeppelin, Ø 30 | 1 | | LM | 10020982 |
| 9 | Zeppelin, Ø 41 | 1 | | LM | 10030478 |
| 9 | Zeppelin, Ø 45 | 1 | | LM | 10020845 |
| 9 | Zeppelin, Ø 48 | 1 | | LM | 10020981 |
| 9 | Zeppelin, Ø 52 | 1 | | LM | 10020983 |
| 9 | Zeppelin, Ø 53 | 1 | | LM | 10020846 |
| 9 | Zeppelin, Ø 61 | 1 | | K | 10020847 |
| 9 | Zeppelin, Ø 66 | 1 | | K | 10020874 |
| 9 | Zeppelin, Ø 69 | 1 | | K | 10020848 |
| 9 | Zeppelin, Ø 73 | 1 | | K | 10020849 |
| 9 | Zeppelin, Ø 76 | 1 | | K | 10020980 |
| 9 | Zeppelin, Ø 78 | 1 | | K | 10020979 |
| 9 | Zeppelin, Ø 81 | 1 | | K | 10020978 |
| 9 | Zeppelin, Ø 85 | 1 | | K | 10030200 |
| 10 | Body | 1 | | LM | 10022065 |
| 11 | Venturi insert, pre-assembled | 1 | | AlBz/St | 10022064 |
| 12 | Centring bar | 1 | | St | 10020833 |
| 13 | O-ring | 1 | W | K | 20324 |
| 14 | Angular gear, complete | 1 | | NSt/LM/K | 100383 |
| 15 | Adaptor plate | 1 | | LM | 10022070 |
| 16 | O-ring | 1 | W | K | 21117 |
| 17 | Gearbox lid | 1 | | NSt/LM | 10022069 |
| 18 | Metal bellow coupling | 1 | | LM/NSt | 28348 |
| 19 | Cheese head screw | 4 | | St | 10318 |
| 20 | Nanotec-stepping motor | 1 | | | 24601 |
| 21 | Socket | 1 | | LM | 24107 |
| 22 | O-ring | 1 | W | K | 20246 |
| 23 | Sealing ring | 2 | W | LM | 18701 |
| 24 | Cylinder head screw | 2 | | St | 10 382 |

4.6.1 SPARE PART DRAWING HON 985-300/150
with Phytron stepper motor and proximity switch



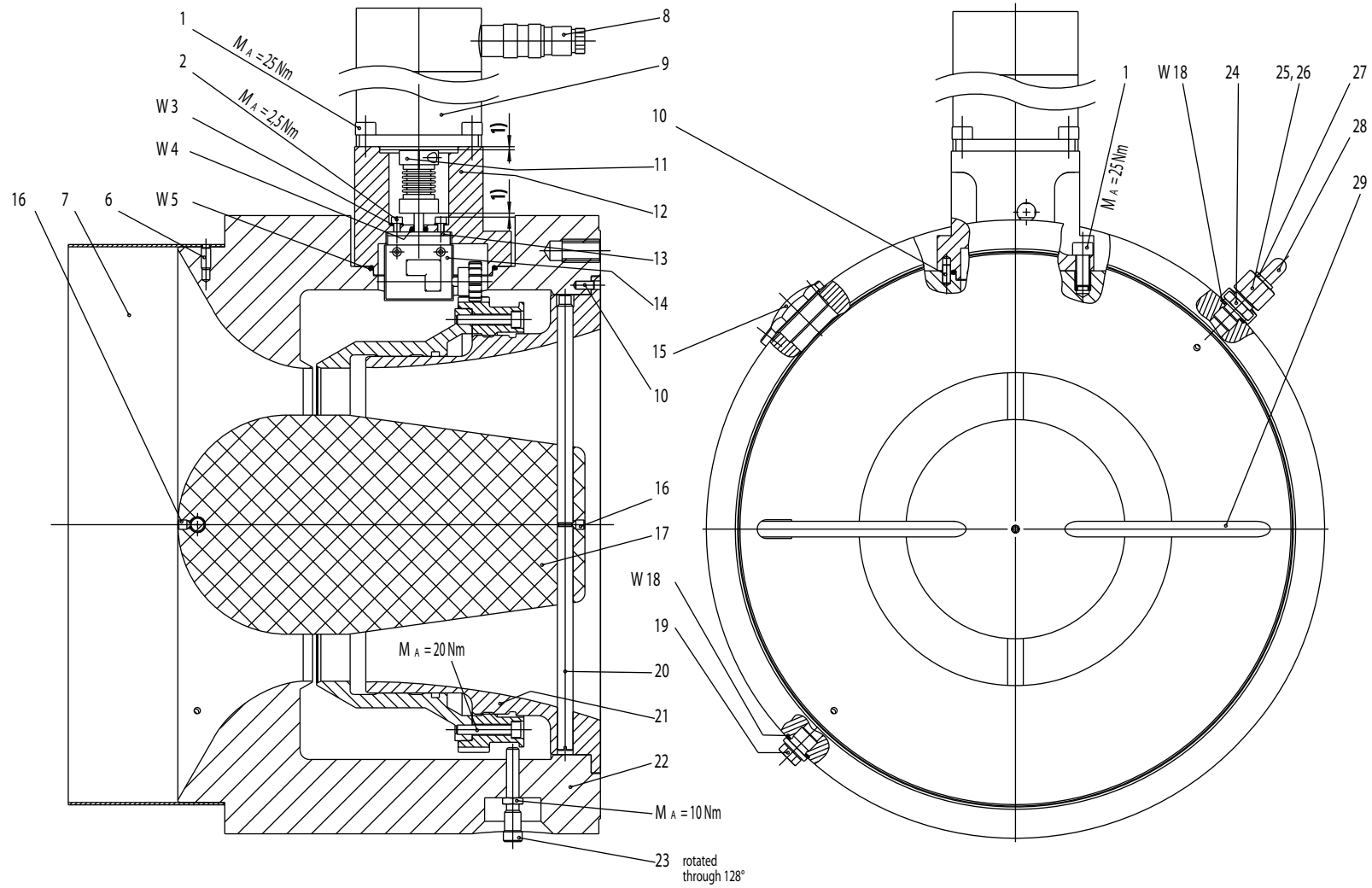
* Secured with Loctite PART NO. 26 688
1) Coupling must run freely

W Parts should be held in stock for maintenance purposes.

4.6.2 Spare part list HON 985-300/150
with Phytron stepper motor and proximity switch

| Item no. | Denomination | Num. | W | Material | Part no. |
|----------|-------------------------------|------|---|----------|----------|
| 1 | Cylinder head screw | 12 | | St | 10067 |
| 2 | Cylinder head screw | 2 | | St | 10382 |
| 3 | Sealing ring | 2 | W | LM | 18701 |
| 4 | O-ring | 1 | W | K | 21117 |
| 5 | O-ring | 1 | W | K | 20246 |
| 6 | Centring bar | 1 | | St | 10022004 |
| 7 | Setscrew | 2 | | St | 12442 |
| 8 | Socket | 1 | | LM | 24107 |
| 9 | Phytron stepping motor | 1 | | | 100206 |
| 10 | Straight pin | 2 | | St | 17007 |
| 11 | Metal bellow coupling | 1 | | LM/NSt | 27422 |
| 12 | Gearbox lid | 1 | | NSt/LM | 19083034 |
| 13 | Adaptor plate | 1 | | LM | 10022070 |
| 14 | Angular gear, complete | 1 | | NSt/LM/K | 100383 |
| 15 | Blind cover | 1 | | LM | 10022083 |
| 16 | Gasket | 1 | | K | 10020792 |
| 17 | Zeppelin, optional: | | | | |
| 17 | Zeppelin, Ø 72 | 1 | | K | 10021705 |
| 17 | Zeppelin, Ø 85 | 1 | | K | 10021708 |
| 17 | Zeppelin, Ø 95 | 1 | | K | 10021709 |
| 17 | Zeppelin, Ø 98 | 1 | | K | 10021706 |
| 17 | Zeppelin, Ø 106 | 1 | | K | 10021707 |
| 18 | Sealing ring | 2 | W | LM | 18842 |
| 19 | Locking screw | 1 | | St | 26175 |
| 20 | Centring bar | 1 | | St | 10021693 |
| 21 | Venturi insert, pre-assembled | 1 | | AlBz/St | 10022077 |
| 22 | Body | 1 | | LM | 10022080 |
| 23 | Proximity switch | 2 | | NSt | 24122 |
| 24 | Tube fitting | 1 | | St | 30111 |
| 25 | Nut | 1 | | St | 30803 |
| 26 | Cutting ring | 1 | | St | 30903 |
| 27 | Plug | 1 | | K | 26162 |

4.7.1 SPARE PART DRAWING HON 985-400/200
with Phytron stepper motor and proximity switch



* Secured with Loctite PART NO. 26 688
1) Coupling must run freely

W Parts should be held in stock for maintenance purposes.

4.7.2 Spare part list HON 985-400/200
with Phytron stepper motor and proximity switch

| Item no. | Denomination | Num. | W | Material | Part no. |
|----------|-------------------------------|------|---|------------|----------|
| 1 | Cylinder head screw | 8 | | St | 10067 |
| 2 | Cylinder head screw | 2 | | St | 10382 |
| 3 | Sealing ring | 2 | W | LM | 18701 |
| 4 | O-ring | 1 | W | K | 21117 |
| 5 | O-ring | 1 | W | K | 20246 |
| 6 | Safety setscrew | 1 | | St | 10022072 |
| 7 | Connection ring | 1 | | LM | 10022073 |
| 8 | Socket | 1 | | LM | 24107 |
| 9 | Phytron stepping motor | 1 | | LM/St | 100206 |
| 10 | Straight pin | 2 | | St | 17007 |
| 11 | Metal bellow coupling | 1 | | LM/NSt | 27422 |
| 12 | Gearbox lid | 1 | | NSt/LM | 19083034 |
| 13 | Adaptor plate | 1 | | LM | 10022070 |
| 14 | Angular gear, complete | 1 | | LSt/LM/K | 100383 |
| 15 | Inspection glass | 1 | | K | 27280 |
| 16 | Setscrew | 2 | | St | 12442 |
| 17 | Zeppelin, optional: | | | | |
| 17 | Zeppelin 128 | 1 | | K | 10022096 |
| 17 | Zeppelin 140 | 1 | | K | 10022097 |
| 17 | Zeppelin 117 | 1 | | K | 10022099 |
| 17 | Zeppelin 137 | 1 | | K | 10030981 |
| 17 | Zeppelin 86 | 1 | | K | 10031433 |
| 17 | Zeppelin 98 | 1 | | K | 10031480 |
| 18 | Sealing ring | 2 | W | LM | 18842 |
| 19 | Locking screw | 1 | | St | 26175 |
| 20 | Centring bar | 1 | | St | 10022095 |
| 21 | Venturi insert, pre-assembled | 1 | | LM/AIBz/St | 10022089 |
| 22 | Body | 1 | | LM | 10022090 |
| 23 | Proximity switch | 2 | | NSt | 24122 |
| 24 | Tube fitting | 1 | | St | 30111 |
| 25 | Nut | 1 | | St | 30803 |
| 26 | Cutting ring | 1 | | St | 30903 |
| 27 | Plug | 1 | | K | 26162 |
| 28 | Eye bolt | 1 | | St | 10487 |
| 29 | Centring bar | 1 | | St | 10022094 |

For More Information

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