

Damping ring

Operating / Installation manual

BMA0001

Table of contents:

| | |
|--|----------|
| 1.0 General information: | 2 |
| 1.1 Safety and information symbols: | 2 |
| 1.2 General hazard warnings:..... | 2 |
| 2.0 Intended use: | 3 |
| 3.0 Dimensions: | 3 |
| Figure 1: Damping rings | 3 |
| Table 1: Damping ring dimensions..... | 3 |
| Table 2: Tightening torques | 4 |
| 4.0 Assembly | 4 |
| 4.1 Fitting the damping ring, type DR to the tank lid: | 4 |
| Figure 2: Fitting the damping ring, type DR to the tank lid | 4 |
| 4.2 Fitting the damping ring, type DR../VS to the tank lid: | 4 |
| Figure 3: Fitting the damping ring, type DR../VS to the tank lid | 5 |
| 4.3 Fitting the damping ring to the bell housing: | 5 |
| Figure 4: Fitting the damping ring to the bell housing..... | 5 |
| 5.0 Permissible weight and bending loads: | 6 |
| Figure 5: Permissible weight and bending load | 6 |
| 6.0 Additional information: | 6 |

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| Raja-Lovejoy GmbH Friedrichstr. 6 D-58791 Werdohl | Damping rings DR & DR../VS operating / installation manual | Number: BMA0001 Page: 2 of 6 Version: 1ENG |
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The damping ring is used to cut off structure-borne sound between the drive units (motor/bell housing/pump) and the tank lid.

1.0 General information:

Carefully read through this installation manual before installing or starting to use the damping ring. Pay particular attention to the safety instructions!

The installation manual is part of your product. Store it carefully and in the vicinity of the damping ring.

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1.1 Safety and information symbols:



Danger Risk of injury to personnel



Caution Damage could occur to the machine



Note Note regarding important information

1.2 General hazard warnings:



During installation and maintenance of the damping ring, make sure that the entire drive train is secured to prevent accidental activation, and that the system is depressurised. Improper handling of the damping ring and of rotating parts can result in serious injury. For this reason, the following safety instructions should be read and followed without exception.

- All work on the damping ring should be performed from the perspective of

->“Safety First”

- Secure the drive unit to prevent unintentional activation, e.g. by attaching information signs to the switch-on points or removing the fuse at the power supply.
- Do not reach into the working area of the machine while it is still in operation.
- Protect the rotating parts to prevent accidental touching. Attach the relevant protective devices and covers.

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|--|---|----------------------------------|

2.0 Intended use:

You may only install and maintain the damping ring if you:

- have carefully read and understood the installation manual
- are authorised and trained to do so

The damping ring may only be used in accordance with the technical specifications. Unauthorised structural changes to the damping ring are prohibited. We will not accept any liability for damage occurring as a result of this. In the interest further development, we reserve the right to make technical changes.

The damping rings described here correspond with the latest technical standards at the time of publication of this installation manual.

3.0 Dimensions:

Figure 1: Damping rings

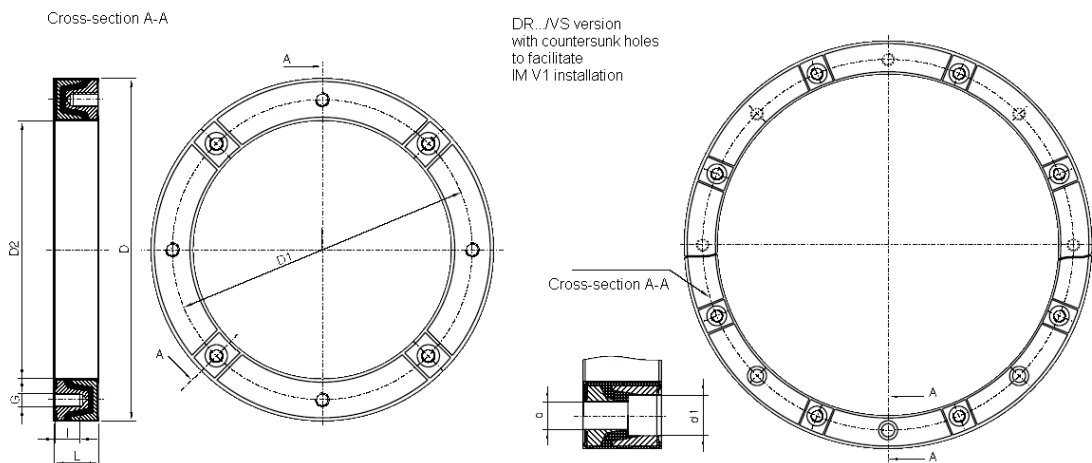


Table 1: Damping ring dimensions

| Type of damping ring | IEC-Motor frame size | Dimensions [mm] | | | | | | | |
|----------------------|---------------------------|-----------------|-----|-----|---------|----|----|--------|--------|
| | | D | D1 | D2 | G | I | L | d | d1 |
| DR-V1/B5-200 | 80, 90S / 90L | 200 | 165 | 146 | 4 x M10 | 18 | 40 | - | - |
| DR-V1/B5-250 | 100L / 112M | 250 | 215 | 191 | 4 x M12 | 22 | 45 | - | - |
| DR-V1/B5-300 | 132S / 132M | 300 | 265 | 235 | 4 x M12 | 22 | 50 | - | - |
| DR-V1/B5-350 | 160M / 160L / 180M / 180L | 350 | 300 | 261 | 4 x M16 | 22 | 60 | - | - |
| DR-V1/B5-400 | 200L | 400 | 350 | 301 | 4 x M16 | 29 | 50 | - | - |
| DR-V1/B5.450 | 225S / 225M | 450 | 400 | 352 | 8 x M16 | 32 | 60 | - | - |
| DR-V1/B5-550 | 250M / 280S / 280M | 550 | 500 | 452 | 8 x M16 | 32 | 60 | - | - |
| DR-V1/B5-660 | 315S / 315M | 660 | 600 | 552 | 8 x M20 | 33 | 65 | - | - |
| DR-V1/B5-300VS | 132S / 132M | 300 | 265 | 235 | 4 x M12 | 22 | 50 | 4 x 14 | 4 x 20 |
| DR-V1/B5-350VS | 160M / 160L / 180M / 180L | 350 | 300 | 261 | 4 x M16 | 22 | 60 | 4 x 18 | 4 x 26 |
| DR-V1/B5-400VS | 200L | 400 | 350 | 301 | 4 x M16 | 29 | 50 | 4 x 18 | 4 x 26 |
| DR-V1/B5-450VS | 225S / 225M | 450 | 400 | 352 | 8 x M16 | 32 | 60 | 8 x 18 | 8 x 26 |
| DR-V1/B5-550VS | 250M / 280S / 280M | 550 | 500 | 452 | 8 x M16 | 32 | 60 | 8 x 18 | 8 x 26 |
| DR-V1/B5-660VS | 315S / 315M | 660 | 600 | 552 | 8 x M20 | 32 | 65 | 8 x 22 | 8 x 26 |

Table 2: Tightening torques

| Damping ring size | DR-V1/B5-200 | DR-V1/B5-250 | DR-V1/B5-300 | DR-V1/B5-350 | DR-V1/B5-400 | DR-V1/B5.450 | DR-V1/B5-550 | DR-V1/B5-660 |
|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Ta [Nm] | 23 | 40 | 40 | 100 | 100 | 100 | 210 | 410 |

4.0 Assembly

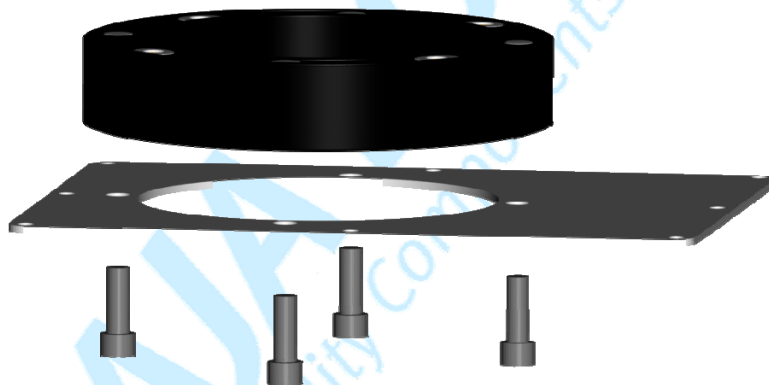


The screws should normally be secured with Loctite, Omnifit 230M or a comparable thread adhesive.

4.1 Fitting the damping ring, type DR to the tank lid:

- Position the damping ring on the opening in the tank lid.
- Insert the screws through the tank lid and screw them into the threads in the damping ring (see Figure 2).
- Preferably, a screw length should be selected which enables the entire thread to be used in the damping ring. For tightening torques T_A , see Table 2.

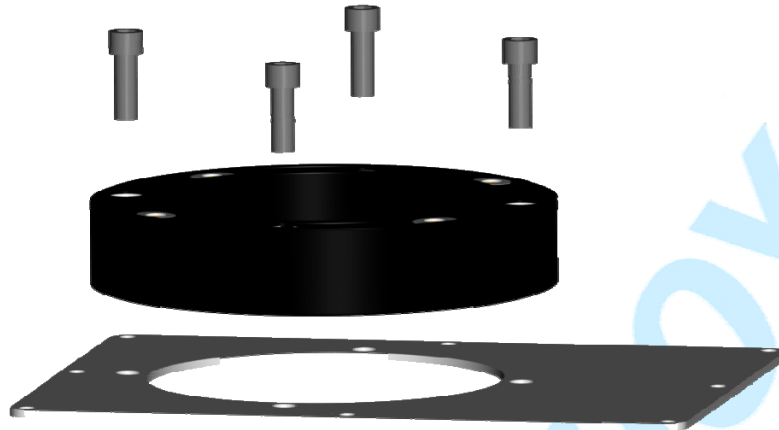
Figure 2: Fitting the damping ring, type DR to the tank lid



4.2 Fitting the damping ring, type DR../VS to the tank lid:

- Position the damping ring on the opening in the tank lid. The countersinks should be visible from above.
- Insert the screws through the countersunk holes into the damping ring and screw into the tank lid (see Figure 3).
- Preferably, screw lengths should be selected to enable the entire thread to be used in the tank lid. For tightening torques T_A , see Table 2.

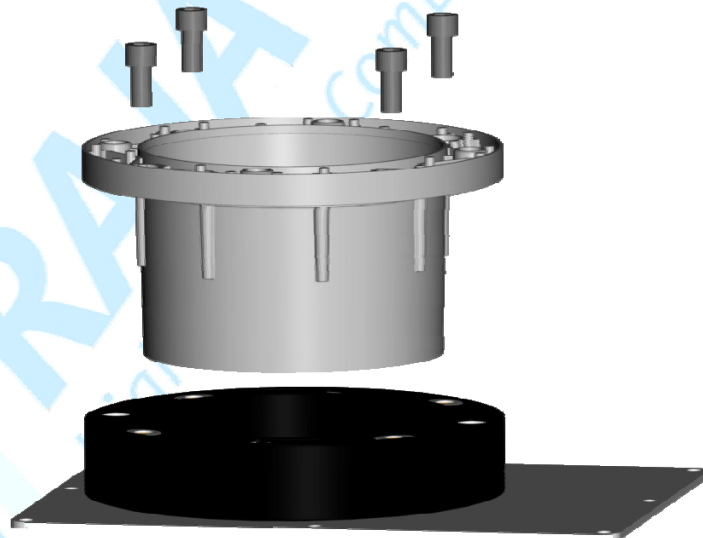
Figure 3: Fitting the damping ring, type DR../VS to the tank lid



4.3 Fitting the damping ring to the bell housing:

- Slide the bell housing through the damping ring up to the contact surface.
- Insert the screws through the holes of the bell housing motor flange, and screw the threads into the damping ring (see Figure 4).
- Preferably, screw lengths should be selected to enable the entire thread to be used in the damping ring. For tightening torques T_A , see Table 2.

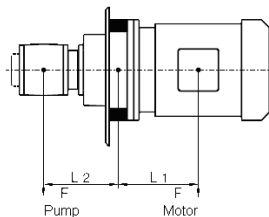
Figure 4: Fitting the damping ring to the bell housing



5.0 Permissible weight and bending loads:

For horizontal installation, note the permissible weight and bending load. The maximum permissible values related to an operating temperature of +60°C. This value can be calculated using the following formula.

Figure 5: Permissible weight and bending load



$$F_{perm.} \geq F_{Pump} + F_{Motor}$$

$$Mb_{perm.} \geq F_{Motor} \times L1 - F_{Pump} \times L2$$

| Dr-Type | 200 | 250 | 300 | 350 | 400 | 450 | 550 | 660 |
|-------------------|-----|-----|------|------|------|------|-------|-------|
| $F_{perm.}$ [N] | 385 | 755 | 1520 | 3780 | 5040 | 6800 | 13390 | 24720 |
| $Mb_{perm.}$ [Nm] | 30 | 65 | 175 | 740 | 1100 | 1600 | 4400 | 9000 |

6.0 Additional information:

- The damping ring can be used both horizontally and vertically.
- Damping ring DR../VS is **only** intended for vertical use.
- The damping ring has sealing lips vulcanised onto it, making additional seals between the bell housing and the tank lid unnecessary. The sealing lips must be inspected for damage before commencing assembly.