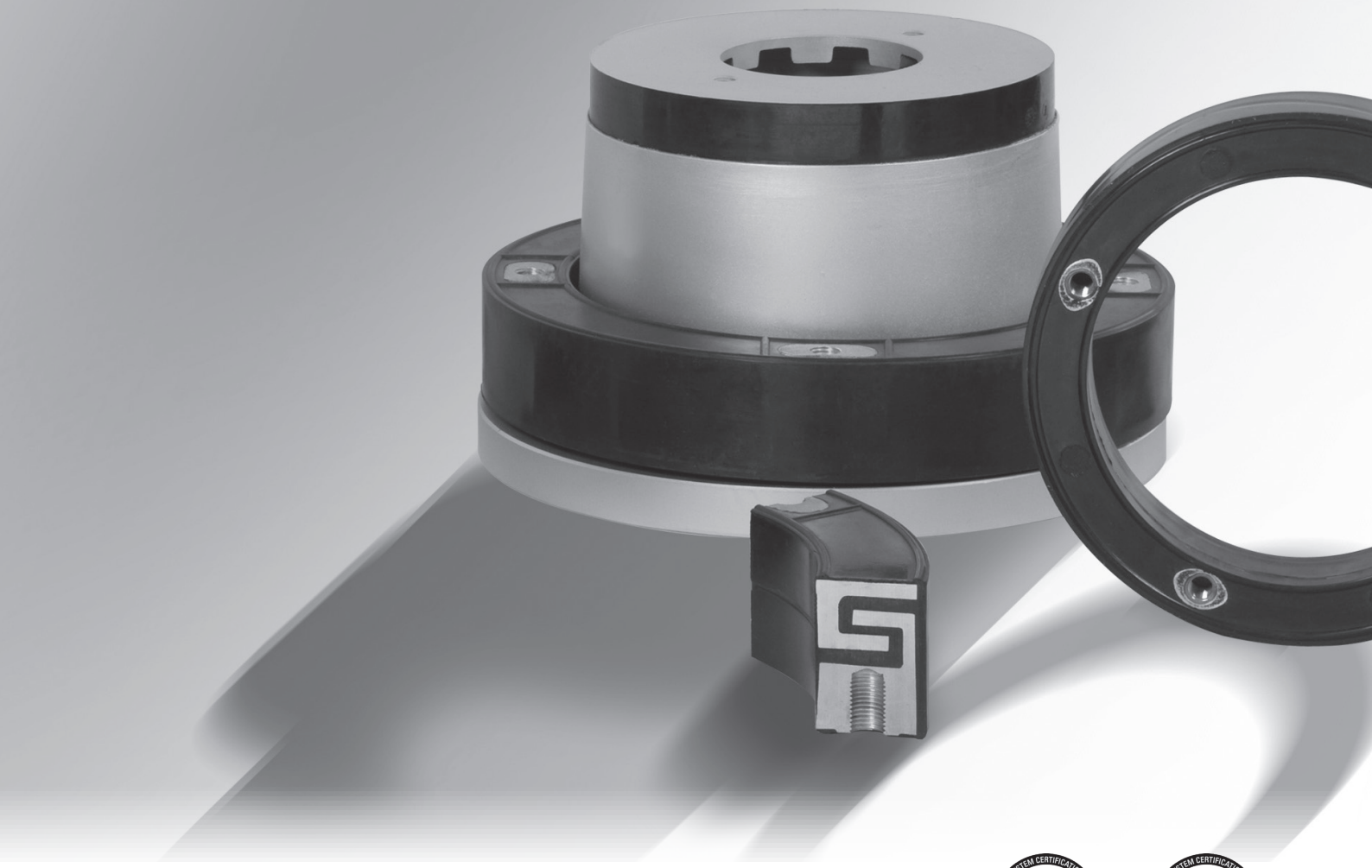
Lovejoy®

R+L HYDRAULICS
HYDRAULIC COMPONENTS BY TIMKEN



EPTDA Member

SYSTEM CERTIFICATION ISO 14001 SGS

SYSTEM CERTIFICATION ISO 9001 SGS

BMA 0001

Instruction and Installation Manual
DAMPING RINGS

- Vertical and horizontal mounting
- Low cost noise level reducing as a result of rubber flexible separation
- Resistance against mineral-oil due to NBR-rubber
- Moulded ring-sealing, no additional sealing required

Table of contents:

R+L HYDRAULICS
HYDRAULIC COMPONENTS BY TIMKEN

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.
The copyright for this installation manual shall remain with **R+L Hydraulics** GmbH.

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.

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 because 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

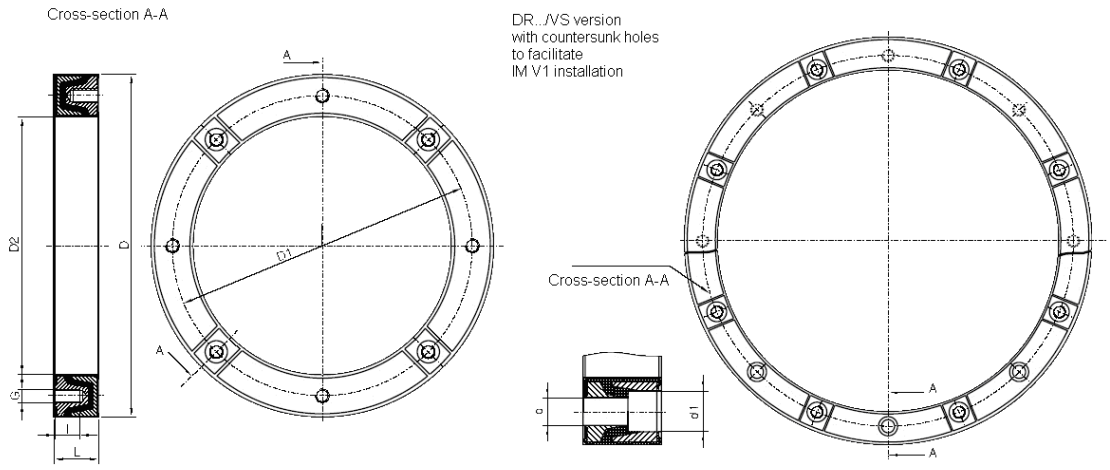


Table 1: Damping ring dimensions

Type of damping ring	IEC-Motor frame size	Dimensions [mm]							
		D	D1	D2	G	l	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/B5-350/VS	160M /160L/180M /180L	350	300	261	4 x M16	22	60	4 x 18	4 x 26
DR- V1/B5-400/VS	200L	400	350	301	4 x M16	29	50	4 x 18	4 x 26
DR- V1/B5-450/VS	225S / 225M	450	400	352	8 x M16	32	60	8 x 18	8 x 26
DR-V1/B5-550/VS	250M / 280S / 280M	550	500	452	8 x M16	32	60	8 x 18	8 x 26
DR-V1/B5-660/VS	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/B5-300/VS	DR-V1/B5-350 DR-V1/B5-350/VS	DR-V1/B5-400 DR-V1/B5-400/VS	DR-V1/B5-450 DR-V1/B5-450/VS	DR-V1/B5-550 DR-V1/B5-550/VS	DR-V1/B5-660 DR-V1/B5-660/VS
Thread	M10	M12	M12	M16	M16	M16	M16	M20
Ta [Nm]	23	40	40	100	100	100	100	190

4.0 Assembly

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

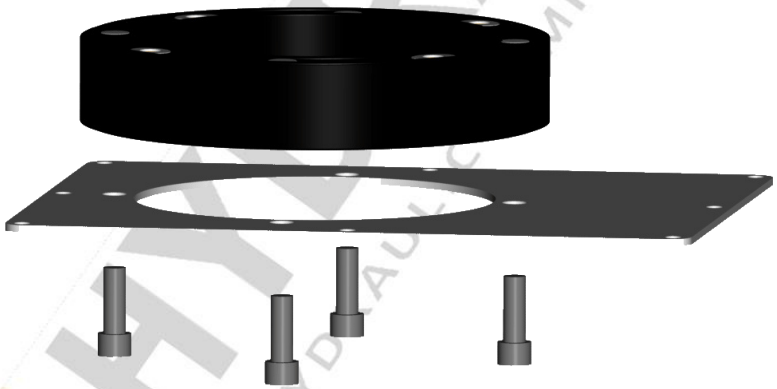
4.1 Fitting the damping ring, type DR to the tank lid:

• 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



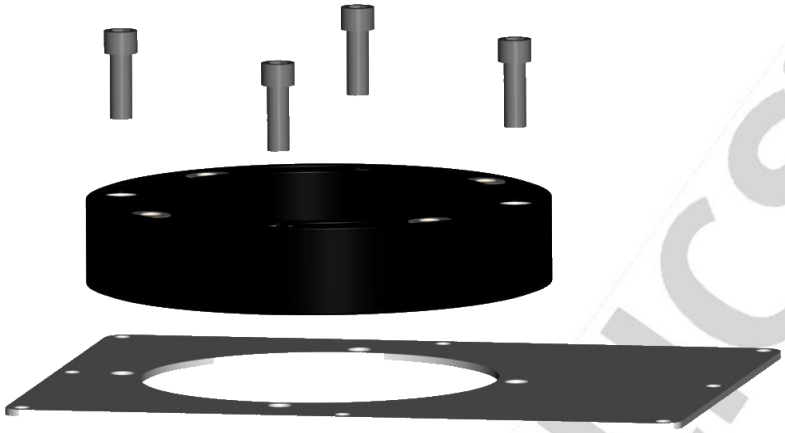
4.2 Fitting the damping ring, type DR../VS to the tank lid:

• 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



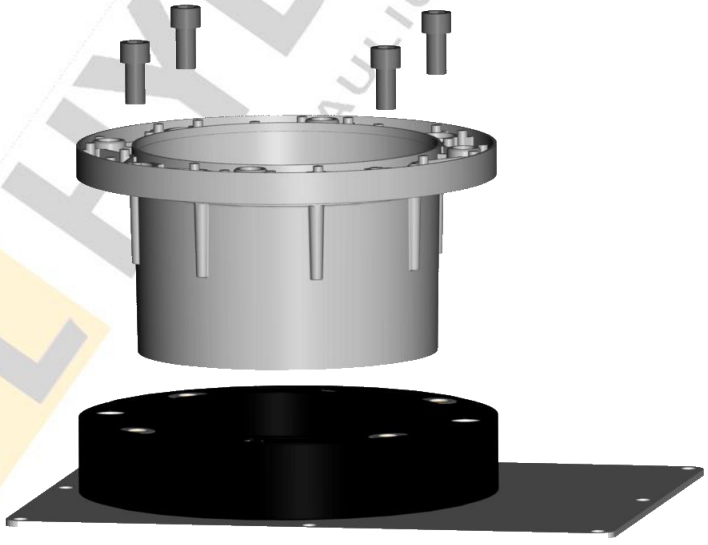
4.3 Fitting the damping ring to the bell housing:

- 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.

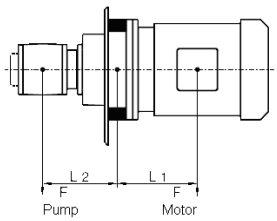
Figure 4: Fitting the damping ring to the bell housing



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



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

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

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.

R+L HYDRAULICS HYDRAULIC COMPONENTS