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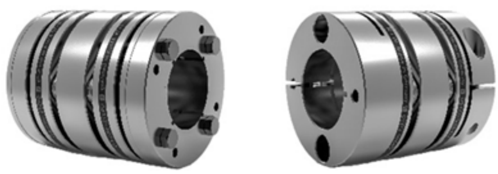
INSTALLATION AND OPERATING INSTRUCTIONS FOR R+W **SERVO DISC COUPLINGS MODEL SCL**



GENERAL INFORMATION

Please carefully and completely read the following installation, operation and handling procedures for R+W servo disc couplings. Failure to comply with these procedures may result in failure of the coupling.

Installation of the couplings should be performed by a qualified technician.

FUNCTION

R+W servo disc couplings are used for zero backlash, torsionally stiff transmission. At the same time they compensate for angular and axial misalignment in the single flex version. In the double flex version they also compensate for parallel misalignment.

SAFETY INSTRUCTIONS

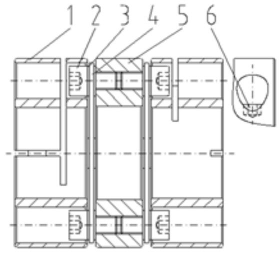
Rotating couplings can be very dangerous. The user / operator is responsible for taking necessary protective measures. Do not approach or touch a coupling while it is rotating. Make sure that the machine is locked out and cannot be accidentally started during installation or maintenance of the coupling.

MANUFACTURER'S DECLARATION

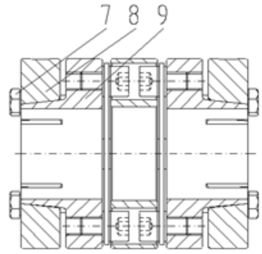
According to EG guidelines for machinery 2006/42/ EG Appendix II B, in the context of machine guidelines (MR) shaft couplings are not machines, but components for installation into machines. Their implementation is subject to the fulfillment of all requirements of machine guidelines upon integration into the final product.

TECHNICAL INFORMATION

The disc packs (4) and bushings (3) are made from stainless steel. The hubs (1,8 and 9) and the intermediate plate (5) are made from aluminum. Surface treatments such as anodizing can be specified at the time of ordering. Standard bore diameter tolerance is H7. Please contact R+W for details if more precise fits are required.



SCL2



SCL3

TEMPERATURE RANGE

R+W servo disc couplings can be used within a temperature range of -30 to +120° C.

MOUNTING

1. There is no keyway on the shaft allowed.
2. A coating of light machine oil on the shaft eases the mounting process without affecting the clamping force of the coupling.
3. The clamping hubs should be in a relaxed condition. It could be necessary to back the clamping screws (6 or 7) a few turns out of their respective holes.
4. Ensure that the shafts are aligned within the allowable range for full functionality (see sections "Coupling Alignment" and "Permitted Shaft Misalignment"). In case it is not possible to measure the misalignment, it is possible to align the coupling manually. With the clamping hubs loose and the coupling in position, make sure the coupling is easily rotated and axially movable on its respective shafts by hand

(Figure 1). If it is not easily turned, the shaft alignment should be improved.

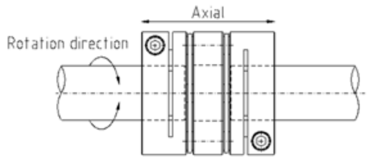


Figure 1

5. Carefully slide the clamping hub (1 or 9) onto the shaft. Heavy force should not be required, and would risk damage to the disc pack itself. Ensure that the complete fit length is used.
6. The correct tightening torques for the mounting screws (6 and 7) are listed in Table 1 and Table 2 below. In the case of the SCL3 the screws (7) should be tightened with a torque wrench in 3 cycles. In a circular pattern (not crosswise) apply 30%, 60% and 100% of the tightening torque in each subsequent cycle. Finally, continue tightening until all screws measure at the correct torque.

Size SCL2	25	40	60	100
Screw	2xM5	2xM6	2xM6	2xM8
Tightening torque [Nm]	8	15	15	30

Table 1

Size SCL3	25	40	60	100
Screw	8xM5	8xM5	8xM5	16xM5
Tightening torque [Nm]	5,5	6	6	6

Table 2

Oils and greases containing molybdenum disulfide or other high-pressure additives should not be used.

DISMOUNTING

For the SCL3 series the clamping rings (8) are equipped with jacking threads to assist in separating the hub assembly. After the clamping screws have been loosened, one or more of them, or additional set screws (not included) can be threaded into the jacking holes until the clamping ring is freely movable. The hub can now be removed from the shaft.

After dismounting, ensure that the screws are removed from the threaded jacking holes.

COUPLING ALIGNMENT

Accurate alignment reduces the coupling restoring loads placed onto the adjacent shafts, extending the life of the coupling and shaft bearings. In most applications it is sufficient to use a straight edge in two perpendicular locations to verify alignment. In high speed applications it is recommended to use dial indicators or laser alignment tools. To avoid axial compression of the disc packs during operation, dimension “S” (Figure 2) should also be checked all around. This will also assist in verifying angular and parallel alignment.

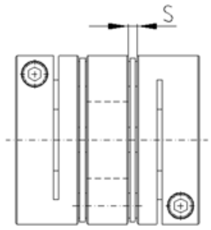


Figure 2

Size	25	40	60	100
S [mm]	2,6	2,9	3,5	8,7

PERMITTED SHAFT MISALIGNMENT

R+W single disc servo couplings compensate for angular and axial misalignment. The double disc version will compensate for angular, axial, and lateral offset without backlash. The maximum misalignment values seen in Table 3 and Table 4 must not be present simultaneously. All forms of shaft offset effect one another, which means the permissible values of displacement (as listed in Figure 3) are dependent on one another. The sum of misalignment values must not exceed its maximum value of 100% (see example).

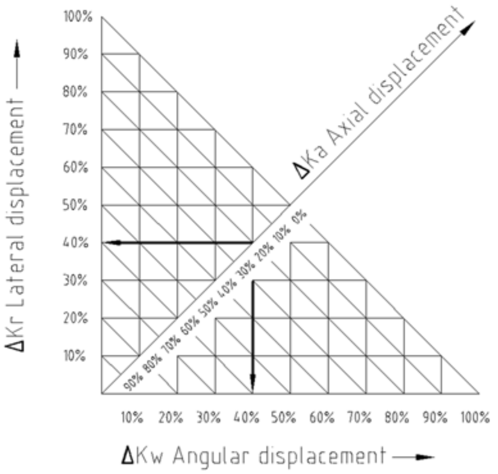


Figure 3

Example: The SCL2 series 60 (Figure 4) is compensation for ΔK_a = 0.2mm of axial misalignment. This corresponds to 20% of the maximum permissible offset of 1mm. Angular misalignment is measure at ΔK_w = 0.4 degrees, which is 40% of the permissible maximum value of 1 degree. Lateral offset will be limited to 40% of the maximum value of 0.345mm which is ΔK_r = 0.14mm. $\Delta K_{total} = \Delta K_r + \Delta K_w + \Delta K_a \leq 100\%$

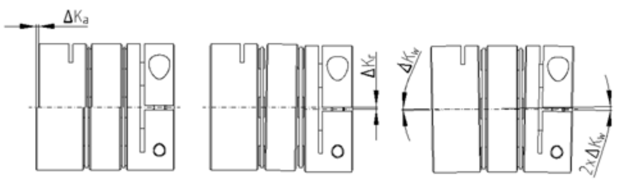


Figure 4

MAINTANENCE

R+W Servo disc couplings are maintenance free. The following maintenance and control intervals are to be followed:

1. Visual inspection, check of the assembly parameters (shaft misalignment and tightening torques) and behavior of coupling operation during initial startup of machine.
2. Visual inspection, check of shaft misalignment and tightening torques, behavior of coupling after 1,000 hours of operation, after 3 months at the latest.
3. If there are no irregularities or excessive wear discovered after the second inspection, the inspection intervals can be increased to 4,000 hours and 12 months at the latest, if operational parameters remain unchanged.

With extreme environmental conditions and demanding operational requirements, the coupling's offset compensation values and inspection intervals must be reduced.

TECHNICAL DATA

SCL2

Size			25	40	60	100
Rated torque	(Nm)	T_{KN}	25	40	60	100
Moment of inertia	(10^{-3} kgm^2)	J_{ges}	0,138	0,256	0,373	1,036
Weight	(kg)		0,284	0,428	0,531	1,022
Torsional stiffness	(Nm/rad)	C_T	23000	29000	41000	78500
Axial displacement	± (mm)	max. values	0,81	0,85	1	1,15
Lateral displacement	± (mm)		0,29	0,32	0,35	0,53
Angular displacement	± (degree)		1	1	1	1
Max. speed	(1/min)		10000			

Table 3

SCL3

Size			25	40	60	100
Rated torque	(Nm)	T_{KN}	25	40	60	100
Moment of inertia	(10^{-3} kgm^2)	J_{ges}	0,187	0,304	0,422	1,170
Weight	(kg)		0,390	0,508	0,603	1,156
Torsional stiffness	(Nm/rad)	C_T	23000	29000	41000	78500
Axial displacement	± (mm)	max. values	0,81	0,85	1	1,15
Lateral displacement	± (mm)		0,29	0,32	0,35	0,53
Angular displacement	± (degree)		1	1	1	1
Max. speed	(1/min)		*10000*			

Table 4

The listed moments of inertia and weight values correspond to a coupling with maximum bore diameter.

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