

Installation and Maintenance Instructions Freewheel Type AL..KMSD2

To avoid premature failure of the freewheel or possible machine malfunction, installation of the freewheel should be carried out by suitably qualified personnel and according to the following instructions.

STIEBER will not accept liability in cases of non-compliance with these instructions!



Туре	Size			Overrunn	ing speeds								Weight
ALKMSU2	d#7	KMS	T _{kn}	n _{imax} 1)	n _{amax} 2)	d _{K1} ^{H7}	D	ц	D,	L,	Ц,	b,	
	[mm]		[Nm]	[min-1]	[min-1]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
	12	4	50	2500	6000	7 35	62	42	78	40	100	18	2,10
	15	6.3	79	1900	6000	12 40	68	52	90	45	116	20	2,70
	20	10	125	1600	5600	10 45	75	57	107	48	123.5	17	3,80
	25	10	125	1400	4500	10 45	90	60	107	48	126,5	17	4.4
	30	16	200	1300	4100	10 50	100	68	120	52	140	19	5,9
	35	25	313	1100	3800	15 55	110	74	134	57	155	22	8,1
	40	40	500	950	3400	20 60	125	86	155	61	173	26	11,4
	45	63	788	900	3200	2070	130	86	174	67	186	30	13,3
	50	100	1250	850	2800	2575	150	92	195	75	208,5	35	19.1
	55	100	1250	720	2650	2575	160	104	195	75	216.5	35	20,4
	60	160	2000	680	2450	30 80	170	114	221	82	243	41	27.1
	70	250	3125	580	2150	35 90	190	134	250	89	277.5	47	40.4
	80	400	5000	480	1900	45 100	210	144	282	97	305	56	57
	90	630	7875	380	1700	60 120	230	158	332	116	346,5	64	87
	100	1000	12500	350	1450	75 140	270	182	382	140	386	75	131
	120	1600	20000	250	1250	90 160	310	202	432	160	430	85	196
	150												
	200	On Request											
	250												
	25	16	200	1100	2800	12 50	90	60	120	52	132,5	19	4.4
ALM KMSD2	30	25	313	1000	2500	15 55	100	68	134	57	150	22	5,9
	35	40	500	900	2400	18 60	110	74	155	61	163	26	8,1

Description:

Freewheels of type AL / ALM are designed primarily for oil lubrication, and may be used as either overrunning clutches or backstops.

The main components are: Outer race, inner race, ball bearings, drive rollers, spring elements and V-seal rings.



The basic units (AL or ALM) may be fitted with flanges F2, F4, F5, cover plates D2, D3 or flexible couplings of type KEE or KMS.

The units may be installed so that either the inner or outer race overruns. The maximum permissible overrunning speeds quoted in table 2 must not be exceeded.

Prior to Installation:

The freewheels should be unpacked and installed in a clean working environment.

- For units despatched "dry" the corrosion inhibitor should be removed using flushing oil.
- Care must be taken that the ball bearings are not loaded radially or axially during installation.
- The inner race should be fitted to a shaft of h6 or j6 tolerance. The mounting register for the outer race should be of H7 tolerance.
- When using the freewheel as a backstop, using cover plate F5, the torque reaction pin must be centralised in the oblong slot of the cover. The pin should protrude through the slot to make the keyface accessible.
- The freewheeling direction should be checked prior to installation.
- To reverse the freewheeling direction of a unit fitted with covers, simply remove the cover plates and re-install at opposite ends of the freewheel. Tighten the bolts to the torque specified in table 1. (The bolts are of 10.9 quality.) Secure them with Loctite 243 or equivalent.
- The outer race must not be moved axially if covers are not installed.

CAUTION: RISK OF INJURY

When cover plates are removed, the freewheel should always be held so that the bore is horizontal, otherwise the inner race and bearings may slip from the outer race.

Installation:

The unit should be installed as an assembly.

- Install the inner race onto the shaft, ensuring alignment of the keyways.
- Apply any axial load exclusively to the inner race. The inner race must be retained axially on the shaft circlips or a retainer plate are suitable.
- The screws used for flange plates F2, F4 and F5 should be of 8.8 quality. Tighten to the torque specified in table 1.
- Secure the screws with Loctite 243 or equivalent.



Table 1:

Size	Bolt	Tightenir [Nm]	ng Torque ± 7%	Oil Plugs		
UILO	Bon	8.8	10.9	Size	Tightening Torque [Nm]	
12-25	M5	5,9	8,3	M5	4,5	
30-35	M6	9,9	14	M6	7	
40-50	M8	24	34	M8	18	
55-80	M10	47	66	M10	33	
90	M12	82	115	M12	63	
100-120	M16	200	280	M16	150	
150	M20	390	550	M20	300	
200	M24	670	950			
250	M30	1350	1900			

After Installation:

After Installation ensure the unit freewheels in the required direction.

Prior to use, check that the unit contains oil to the correct level.

The drag torque produced when freewheeling is about 1/1000 of the nominal torque.

Table 2: (Based on oil lubrication)

_		max. Torque	Overrunning Speed			
Туре	Size	[Nm]	Inner Race	Outer Race		
			[rpm]	[rpm]		
	12	110	4000	7200		
	15	250	3600	6500		
	20	362	2700	5600		
	25	576	2100	4500		
	28	1000	1700	4100		
	30	1000	1700	4100		
	35	1450	1550	3800		
	40	2050	1150	3400		
	45	2250	1000	3200		
A1	50	4250	800	2800		
AL	55	5250	750	2650		
	60	7000	650	2450		
	70	11500	550	2150		
	80	17000	500	1900		
	90	29000	450	1700		
	100	40000	350	1450		
	120	62500	250	1250		
	150	140000	200	980		
	200	350000	150	750		
	250	575000	120	620		
	25	776	2100	2800		
ALM	30	1176	1700	2500		
	35	1676	1550	2400		



Dismantling:

To remove the unit, please follow the installation section in reverse sequence.

Lubrication and Maintenance:

Freewheels supplied with covers fitted (except cover D3) may be factory filled with oil. The oil used has a viscosity of ISO-VG 32. An oil change may be necessary according to the application details.

Recommended lubricants are specified in the table below.

To check oil level

The cover plates D2 and D3 have 2 oil bores at the circumference positioned at 12 and 4 o'clock.

To check oil level, (or top up) the oil bores should be at 12 and 8 (or 4) o'clock.

- Remove top and lateral oil plug. Top up until oil seeps from the lateral hole.
- Re-fit and tighten all plugs to the torque specified in the table 1 above.
- For oil change remove all oil plugs and position holes at 6 and 10 (or 2) o'clock.
- Refill as described above.
- The lubricating oil should be changed after approximately 10 hours operation. Further oil changes should be made after every 2000 hours.
 In arduous applications change oil every 1000 operating hours.
- With ambient temperatures above 80°C, check lubrication regularly.
- For operating temperatures below -20°C and above 100°C contact the technical department of your lubricant suppliers.
- For indexing applications, oil types with a kinematic viscosity of about 10mm2/s at the normal operating temperature are recommended.

Lubricants with slip additives such as graphite, Molykote or similar agents should be avoided!

If grease lubrication is to be used please consult your STIEBER stockist. Excessive grease may lead to malfunction of the freewheel.

If grease lubrication is required drain existing oil first. Only 30 to 40% of the free space between the races should be grease filled.

The overrunning speed must not exceed 50% of the speeds specified in table 2.



Recommended Lubricants

	-40°C to- 15°C	-15°C to +15°C	+15°C to +30°C	+30°C to +50°C				
	-20°C to +20°C	+10°C to +50°C	+40°C to +70°C	+50°C to +85°C				
		Grease						
ISO - VG DIN 51519	10	22	46	100				
ARAL	SUMOROL CM10	SUMOROL CM22	MOTANOL HK46	DEGOL CL100T	ARALUB HL2			
BP	ENERGOL CS10	ENERGOL CS22	ENERGOL CS46	ENERGOL RC100	ENERGREASE LS2			
DEA	ASTRON HL10	ASTRON HL22	ASTRON HL46	ASTRON HL100	GLISSANDO 20			
ESSO	NUTO H10 SPINESSO 10	NUTO H22 SPINESSO 22	NUTO H46 TERESSO 46	NUTO H100	BEACON 2			
FUCHS	RENOLIN MR3	RENOLIN DTA22	RENOLIN DTA46	RENOLIN MR30	RENOLIT LZR2			
KLÜBER	CRUCOLAN 10	CRUCOLAN 22	CRUCOLAN 46	CRUCOLAN 100	POLYLUB WH2			
MOBIL	VELOCITE No6	VELOCITE No10	VACTRA MEDIUM VG46	VACTRA HEAVY VG100	MOBILUX 2			
SHELL	MORLINA 10	MORLINA 22	MORLINA 46	MORLINA 100	ALVANIA G2			
TOTAL	AZZOLA ZS10	AZZOLA ZS22	AZZOLA ZS46	AZZOLA ZS100	MULTIS 2			
Alternativ	Alternatively we strongly recommend the use of multigrade oils SAE 10W-40 at working temperature between 0° and +80 ° C							

The ambient temperature is to be taken as a guide line. The operating temperature is determinant for the choice of the viscosity.

Corrosion inhibitor: Rivolta KSP

Time of protection: 6 to 12 months

Recommendation: Prior to use, remove corrosion inhibitor using flushing oil

The maximum overrunning speeds given in our literature apply to oil lubricated units. For grease lubrication the quoted speeds must be halved. Please refer to the 'Lubrication & Maintenance' section in our main catalogue.