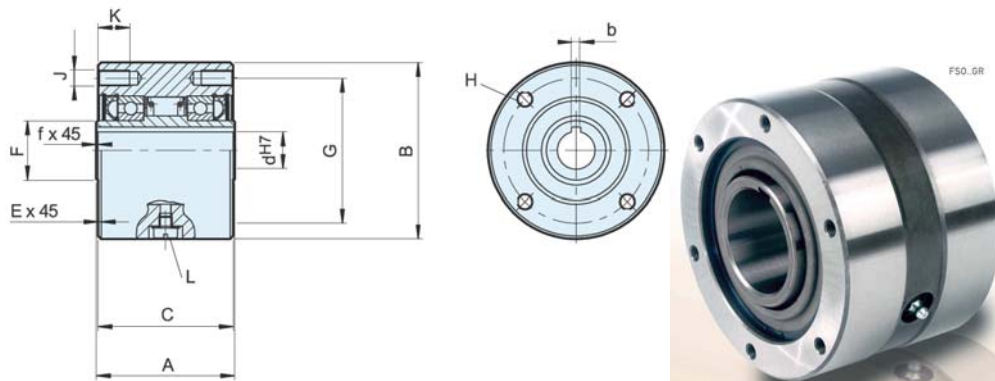


## Installation and Maintenance Instructions Freewheel Type FSO-GR

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!**



Type	Size	Overrunning speeds													Lubricant			Weight	Drag torque				
		FSO	FSO-GR	d <sup>H7</sup> -bxh	d <sup>H7</sup>	A	B	C	E	F	G	H	J	K	L	f	FSO			FSO-GR	HPI	T <sub>r</sub>	
		T <sub>RM</sub> <sup>1)</sup> [Nm]	n <sub>max</sub> <sup>2)</sup> [min <sup>-1</sup> ]	n <sub>max</sub> <sup>3)</sup> [min <sup>-1</sup> ]	min-max [mm]	min-max [mm]	-0,05 [mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[ml]	[ml]	[ml]	[kg]	[Ncm]		
FSO FSO-GR HPI	300	379	3000/900	3600/900	15-5x5	12... 19	63,50	76,20	60,45	1,6	28,50	66,67	4	M8	13	M6	0,8	7	10	14	1,6	18	
	400	407	2800/850	3600/850	18-6x6	12... 22	69,85	88,90	68,07	1,6	30	73	4	M8	13	M6	0,8	10	20	20	2,7	27	
	500	1621	2500/800	3000/800	30-8x7	19... 33	88,90	107,95	85,73	1,6	45	92	4	M8	16	M6	1,5	22	35	35	4,8	31	
	600	3105	2200/750	2400/750	40-12x8	24... 57	95,25	136,525	92,2	1,6	63,5	120,6	6	M8	16	M6	1,6	52	84	84	8,6	62	
					50-14x6																		
					50-14x9																		
	700	6900	1600/450	2000/450	60-18x11	48... 82	127,00	180,975	123,85	1,6	90	158,75	8*	M10*	20	M6	1,6	168	280	280	19	156	
				65-18x11																			
				70-20x12							101,6 <sup>9)</sup>												

### Description:

The main components of FSO-GR freewheel units are: Outer race, inner race, a cage assembly with a number of individually spring energised sprags, two roller bearings and two shaft seals.

FSO-GR units are based on imperial dimensions, but with metric mounting threads as standard.

FSO-GR units may be installed with either the inner race or the outer race overrunning, subject to the limits specified in the table below.

**Prior to Installation:**

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

For units despatched 'dry', corrosion inhibitor should be removed using flushing oil prior to installation.

The inner race should be fitted to a shaft of h6 tolerance if the unit is supplied with a metric bore.

We recommend the following shaft tolerances when using imperial bores and shafts:

Bore Ø H7	Shaft fit
up to 2"	Clearance fit up to 0.05 mm clearance
greater than 2" to 4"	Clearance fit up to 0.06 mm clearance

The mounting register for the outer race should be to H7 or G7 tolerance. The freewheeling direction should be checked prior to installation.

If reversal of the freewheeling direction is required, turn the freewheel through 180°.

We recommend the following tightening torque for the mounting bolts, based on bolts to grade 10.9.

Size	Bolts	Tightening Torque [Nm]
300	M8	34
400	M8	34
500	M8	34
600	M8	34
700	M10	66

**Installation:**

The clutch should be installed as an assembly.

The inner race should be pulled on to the shaft. The key should be the full length of the hub.

**Apply axial load to the inner race only.**

Use a circlip or retainer plate for axial location of the freewheel.

**After installation:**

After installation, ensure smooth rotation of the unit in the freewheeling direction.

Ensure the unit contains the correct volume of lubricant prior to use.

The expected drag torque when overrunning is about 1/1000 of the freewheel nominal driving torque.

**Dismantling:**

To remove the unit follow the installation instructions in reverse order.

Apart from the replacement of seals we do not recommend the unit be dismantled.

**Technical data FSO-GR freewheels:**

Size	Max. Torque [Nm]	Overrunning Speed [rpm]	
		Inner Race	Outer Race
300	760	3600	900
400	810	3600	850
500	3250	3000	800
600	3100	2400	750
700	13800	2000	450

**Lubrication:**

FSO-GR freewheels are usually grease filled prior to despatch and are ready for installation. There are 3 (or 4) grease nipples on the circumference of the outer race.

**Lubricant volume for FSO-GR units:**

Size	Lubrication	Volume [ml]
300	grease	7
400	grease	10
500	grease	22
600	grease	50
700	grease	170

**Maintenance:**

FSO-GR units should be re-lubricated every 3 months. (In dusty or high temperature applications every month).

Grease should be pumped into the unit until there is grease seepage from the seals.

**Recommended Lubricants:**

Grease manufacturer	Grease designation
ARAL	ARALUB HL2
BP	ENERGREASE LS2
DEA	GLISSANDO 20
ESSO	BEACON 2
FUCHS	RENOLIT LZR2
KLÜBER	POLYLUB WH2
MOBIL	MOBILUX2
SHELL	ALVANIA G2
TOTAL	MULTIS 2

**Note:**

**Lubricants containing slip additives such as Molykote and Graphite may inhibit operation of the unit and should not be used.**