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Operating, Mounting and Maintenance Instructions for GOS, GOF and GUF Housings

For pillow blocks with self-aligning bearings, requiring oil lubrication due to high RPM and high ambient temperatures HFB offers GOS and GOF with lubricating oil rings and GUF with circulating oil features. These pillow blocks are excellent for mine fans, blowers, generators, belt drive shafts, and mills.

Normally for the support of a shaft it is necessary as a rule to use a fixed and a floating bearing. The floating bearing permits expansion of the shaft due to thermal growth. The pillow blocks are designed and fabricated as either expansion or non-expansion bearings. It is not necessary to insert spacer rings for either the expansion or the non-expansion bearings.

Assembly

Inspect the shaft. Make sure it is smooth, straight, clean and conforming to the correct dimensional tolerances of the drawing. Inspect all the parts prior to assembly.

1) Install the non-expansion bearing unit first. Apply a coating of light oil to the area where the adapter will sit on the shaft.
2) Measure and adjust the internal clearance of the bearing according to the specifications of the producer.
3) After the assembly of the fixed and floating bearing check the properly alignment of both units. Now tighten the foot bolts with the right torque.
4) With a feeler gage you should now control the alignment from the shaft to the housing. For this take the feeler gage and measure the distance between the outer diameter of the labyrinthring and the bore in the housing in three positions. The difference between two opposite points should not higher as 0,2 mm. If not you have to adjust the units onesmore.

Seals

Due to possible problems with positive contact seals due to friction and wear GOS, GOF and GUF incorporate non-contacting labyrinth seals. For harsher conditions, for example in ambients particularly affected by dust and dampness, in the presence of large quantities of dirt etc., the effectiveness of the sealing system can be improved by injecting thru the grease fitting in the pillow block cover heavy grease of NLGI 3 or 4 consistency.
To carryout this operation, for the GOF housings just pump in NLGI 3 or 4 consistency grease. The grease has to tolerate with the used oil. For the choice of the grease please contact a lubrication specialist. GOS housings normally come equipped with a plastic plug inserted in the drain hole of the annular ring groove of the cover. This plug is removed under normal conditions. When this additional grease dam protection is desired then the plastic plug must be left in the annular groove return drain hole. The plug prevents grease to be pumped into the oil sump. The GOF type by design do not have an oil drain hole.

Lubrication

The lubrication of the spherical roller bearings is done with oil via an oil ring. The oil ring rests on a sleeve with the lower part submerged in the oil found in the sump of the pillow block. When the shaft turns it drags the oil ring with it at a lower rpm. The oil ring drags with it oil to the top dumping it on the bearing. The oil drains back into the sump via an opening in the cover.

Maintenance

The lubricating oil can be filled through the bleed air vent located in the upper part of the housing. The used oil can be drained off through a relief valve opened by removing the plugs on the front of the housing cover. The oil level can be controlled by means of an oil level gauge incorporated in the cover. The required quantity of oil is listed at the following pages.

Please watch the indicated oil level when filling oil into the housing. The stated quantity of oil is to be understood as standard value.

During mounting attention must be paid to the mating surfaces between cap and base. To these surfaces a bead of silicon sealer or equivalent should be applied.

The oil ring is made out of steel. If you use an electromagnetic coupling we replace the steel ring to an oil ring made of brass.

Before start-up the pillow block must be filled with the proper volume of oil. Minimum and maximum oil levels are shown on the next page.

Even after having carefully cleaned the pillow block prior to mounting it is possible that some dirt will remain in the pillow block cavity, therefore it is recommended that after two or three hours of initial running a full oil change be carried out. Oil change frequency should be based on the oil type used and on the running conditions especially running temperature. Oil change should be done at least once a year. Oil change must take place when the system is shutdown.

GOS housings have on top of the cap one bore (M24) for connecting a thermo couple if necessary.

Choice of oil

We recommend mineral oil or one of the synthetic oils. They should contain additives in order to avoid ageing, corrosion and frothing. The most important oil characteristic is its viscosity which mainly depends on temperature.

Temperature	**Required viscosity at 50°C**
Normal working conditions at an ambient from 0 to 25℃	40 bis 70 cSt
Higher temperature from 30 to 50℃	70 bis 100 c St

A higher oil viscosity is needed for unfavourable working conditions or a load characteristic Fa/Fr>e.
At high speed (>70% of maximum speed indicated in catalogue) a lower oil viscosity has to be chosen in order to avoid a generation of heat caused by tumbling.

Quantity and Level of oil of housing type GOS, series 200 and 500:

Type	Quantity ca. ltr	Oil level at indicator min. mm	max. mm
GOS 217/517	0,7	42	63
GOS 218/518	0,8	45	68
GOS 219/519	0,9	50	70
GOS 220/520	1,0	50	70
GOS 222/522	1,3	50	77
GOS 224/524	1,7	60	80
GOS 226/526	2,3	60	85
GOS 228/528	2,4	60	85
GOS 230/530	2,8	60	90
GOS 232/532	3,3	65	95
GOS 234/534	5,0	75	105
GOS 236/536	5,2	80	115
GOS 238/538	5,8	85	120
GOS 240/540	7,0	85	125
GOS 244/544	8,5	95	140
GOS 248/548	9,5	110	155

Quantity and Level of oil of housing type GOS, serie 300 and 600:

Type	Quantity approx. ltr	Oil level at indicator min. mm	max. mm
GOS 310/610	0,3	33	53
GOS 311/611	0,4	37	53
GOS 312/612	0,5	40	60
GOS 314/614	0,6	45	65
GOS 316/616	1,0	45	73
GOS 318/618	1,4	55	80
GOS 320/620	1,8	57	85
GOS 322/622	2,0	67	95
GOS 324/624	2,8	65	100
GOS 326/626	3,4	70	105
GOS 328/628	4,2	70	115
GOS 330/630	6,0	75	120
GOS 332/632	6,5	80	125
GOS 334/634	7,5	85	130
GOS 336/636	10,5	90	155

Quantity and Level of oil of housing type GOF, serie 200 and 500:

Type	Quantity approx. ltr	Oil level at indicator min. mm	max. mm
GOF 217/517	1,2	50	65
GOF 218/518	1,3	45	60
GOF 219/519	1,4	55	70
GOF 220/520	1,5	50	65
GOF 222/522	1,9	50	70
GOF 224/524	2,1	50	70
GOF 226/526	2,1	55	70
GOF 228/528	3,5	55	75
GOF 230/530	4,0	65	90
GOF 232/532	4,0	60	80
GOF 234/534	5,7	90	105
GOF 236/536	5,7	75	110
GOF 238/538	7,0	70	100
GOF 240/540	8,0	75	100
GOF 244/544	10,0	80	110
GOF 248/548	14,0	100	125

Recommended starting torque (Nm)

Bolt-size	Side-covers Property class 8.8	Cap + Base part Property class 8.8	Foot-bolts Property class 8.8 **
M 8	23		
M10	45	50	
M12	77	80	
M14	125		
M16	190	150	
M18	275		
M20	300	200	410
M22	400		
M24	500	350	710
M30	900	400	1450
M36			2600
M42			3900

** The starting torques are maximum values at 90% utilization of apparent yielding point of the screw-material and a coefficient of friction by 0.14.
We recommend to tighten the screws at 70% of these values.

GUF – Circulating oil lubrication	Oil level at indicator(mm)	
GUF 220/520	75	+/- 2 mm
GUF 222/522	81	+/- 2 mm
GUF 224/524	84	+/- 2 mm
GUF 226/526	94	+/- 2 mm
GUF 228/528	86	+/- 2 mm
GUF 230/530	107	+/- 2 mm
GUF 234/534	130	+/- 3 mm
GUF 238/538	127	+/- 3 mm
GUF 244/544	141	+/- 3 mm