

medias®

SCHAEFFLER

Rating life calculation according to catalog 404

Calculation / Installation proposal

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1 General notes

The following estimate of rating life was made without taking account of lubrication and operating conditions. In practice, results may vary considerably due to inclusion of the adjacent construction and the lubrication and environmental conditions.

For lubrication and maintenance, please refer to the medias CD. Every slewing bearing is supplied with an installation and maintenance manual.

To simplify the calculation, the radial load is applied so that the worst load condition will occur on the slewing bearing.

The frictional resistance of the slewing bearing is dependent on a number of factors, including lubrication, bearing clearance, seal friction, installation, distortion of the supporting structure, etc. This means that the calculated value cannot be regarded as a preferred value.

The dimensioning of the rotary drive mechanism should be based on the computed value for frictional resistance multiplied by a factor of 2.

If significantly lower values for frictional resistance are required, please consult the INA Engineering Service.

2 Input

Bearing

Designation	XU120222	
Reference diameter	dM	224.000 mm
Basic static load rating, radial	C0_r	131000 N
Basic static load rating, axial	C0_a	275000 N
Basic dynamic load rating, radial	C_r	85000 N
Basic dynamic load rating, axial	C_a	133000 N
Application factor	fa	1.00

Loadcase 1

Time portion	q	40.000 %
Type of movement	rotating	
Speed	n	15.0 1/min
Force in x direction	Fx	6500.00 N
Force in y direction	Fy	2500.00 N
Moment about y axis	My	1500.000 N m

Loadcase 2

Time portion	q	35.000 %
Type of movement	rotating	
Speed	n	15.0 1/min
Force in x direction	Fx	5250.00 N
Force in y direction	Fy	1250.00 N
Moment about y axis	My	750.000 N m

Loadcase 3

Time portion	q	15.000 %
Type of movement	rotating	
Speed	n	15.0 1/min
Force in x direction	Fx	4500.00 N
Force in y direction	Fy	500.00 N
Moment about y axis	My	300.000 N m

Loadcase 4

Time portion	q	10.000 %
Type of movement	rotating	
Speed	n	15.0 1/min
Force in x direction	Fx	4000.00 N
Force in y direction	Fy	500.00 N
Moment about y axis	My	200.000 N m

3 Results

Loadcase 1

Rating life for the load case in hours (nominal)	Lh10_i	42017 h
Static safety factor, raceway	S0	7.2
Frictional moment	Mr	39 N m

Loadcase 2

Rating life for the load case in hours (nominal)	Lh10_i	282343 h
Static safety factor, raceway	S0	13.3
Frictional moment	Mr	31 N m

Loadcase 3

Rating life for the load case in hours (nominal)	Lh10_i	> 1000000 h
Static safety factor, raceway	S0	26.9
Frictional moment	Mr	26 N m

Loadcase 4

Rating life for the load case in hours (nominal)	Lh10_i	> 1000000 h
Static safety factor, raceway	S0	34.3
Frictional moment	Mr	25 N m

Bearing

Total rating life in hours (nominal)	Lh10	92081 h
Minimal static load safety factor, raceway	S0_min	7.2
Maximum frictional torque	Mr_max	39 N m

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