

ROLLWAY®



Vibration Screen Bearings Suffix F80

On applications like vibration screens usually there are shaft misalignments and misalignments of the bearing positions and shaft reflections have to be expected. Therefore self-aligning bearings are required. Because of the high loads in these applications often bearings of series 223... are used.

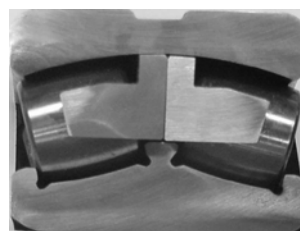
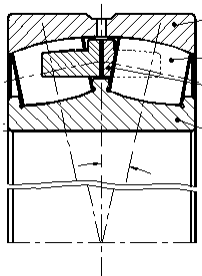
Bearings in vibration screen applications get high shock loads. Further the bearing assembly makes a circle movement of the screen box, while turning around the own center. Therefore radial accelerations occur which give high loads to the bearing and especially to the cage.

The speed of the application is often around the maximum speed of the bearing. Therefore high bearing temperatures and excessive loads apply. Further the often existing harsh ambient conditions have to be considered. Vibration screen applications therefore belong to the heavily loaded applications in machine building.

For these kind of applications it is required to adjust the bearing design to these harsh conditions. Therefore special spherical roller bearings version F80 are used in vibration screen applications. The design of these bearings is adjusted to the application in vibration screens. These bearings have an increased clearance and a machined brass cage which is guided on the outer-ring race way .

Because of the high loads and the very often high speeds special consideration on the lubrication is required. If the speed limit for grease lubrication is not exceeded, the bearings can be lubricated with grease. It is recommended to re-grease the bearings in short intervals with relatively small grease amounts. (in normal cases appr. after 50 hours). As with most of the vibration screen applications harsh ambient conditions with lots of dust occur. The bearings have to be sealed well. Well proven are re-lubricateable shaft seal arrangements.

Vibration Screen Bearings F80-Version





ROLLWAY SPHERICAL ROLLER BEARINGS FOR VIBRATION SCREEN APPLICATIONS

MA C4 F80 bearings have a machined brass cage guided on the outer ring race way. the limited radial clearances between C3 and C4 and the bore and outer dia: tolerances are shown on the table below:

BEARING TYPE	Cr KN	Co KN	BEARING BORE TOL. (µm)	O.D. TOL. (µm)	CLEARANCE MIN.(µm)	GROUP C4 F80 MAX.. (µm)
22310MAC4F80W33	195	220	0 -0,007	-0,005 -0,013	0,085	0,100
22311MAC4F80W33	220	255	0 -0,009	-0,005 -0,013	0,100	0,120
22312MAC4F80W33	260	310	0 -0,009	-0,005 -0,013	0,100	0,120
22313MAC4F80W33	280	330	0 -0,009	-0,005 -0,013	0,100	0,120
22314MAC4F80W33	375	455	0 -0,009	-0,005 -0,013	0,120	0,145
22315MAC4F80W33	380	475	0 -0,009	-0,005 -0,018	0,120	0,145
22316MAC4F80W33	410	500	0 -0,009	-0,005 -0,018	0,120	0,145
22317MAC4F80W33	460	570	0 -0,012	-0,005 -0,018	0,150	0,180
22318MAC4F80W33	570	730	0 -0,012	-0,010 -0,023	0,150	0,180
22319MAC4F80W33	570	740	0 -0,012	-0,010 -0,023	0,150	0,180
22320MAC4F80W33	670	880	0 -0,012	-0,010 -0,023	0,150	0,180
22322MAC4F80W33	815	1080	0 -0,012	-0,010 -0,023	0,180	0,210
22324MAC4F80W33	930	1230	0 -0,012	-0,010 -0,023	0,180	0,210
22326MAC4F80W33	1080	1450	0 -0,015	-0,010 -0,023	0,205	0,240
22328MAC4F80W33	1240	1720	0 -0,015	-0,010 -0,023	0,205	0,240
22330MAC4F80W33	1400	1940	0 -0,015	-0,013 -0,028	0,240	0,280
22332MAC4F80W33	1520	2160	0 -0,015	-0,013 -0,028	0,240	0,280
22334MAC4F80W33	1690	2380	0 -0,015	-0,013 -0,028	0,260	0,310
22336MAC4F80W33	1900	2700	0 -0,015	-0,013 -0,028	0,260	0,310

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ENGINEERING

For the bearing calculation the additional factor f_z has to be considered as follows:

Factor f_z

Crushers, mills, Screens		
Jaw crusher	Drive , exenter radius, nominal speed	
Circular crusher and Roll crusher	Braking power, nominal speed	$f_z=2.. 2,5$
Rigid hammer crusher	Rotor weight , f_z , nominal speed	$f_z=2,5..3$
Hammer crusher	Rotor weight , f_z , nominal speed	$f_z=3$
Impact crusher	Rotor weight , f_z , nominal speed	$f_z=1,5..2,5$
Tube mills	Total weight , f_z , nominal speed	$f_z=1,2..1,3$
Vibration grinding mills	Centrifugal force, f_z , nominal speed	$f_z=1,5..3$
Vibration screens	Centrifugal force, f_z , nominal speed	
Soft coal presses	Pressure force, nominal speed	
Kiln rollers	Roller loads, f_z ; nominal speed	$f_z=1,2..1,3$
	On higher loads please check static capacity	

For wire screen application areas the following guiding data for the factor f_L is desirable.

Application	Desired f_L -data
Crushers, Mills, Screens etc.	
Jaw crusher	3.....3,5
Circular crusher and Roll crusher	3.....3,5
Rigid hammer crusher Impact crusher	3,5...4,5
Tube mills	4.....5
Vibration grinding mills	2.....3
Vibration screens	2,5...3
Soft coal presses	3,5...4
Kiln rollers	3,5...5