



TORBINGTON

Part of worldwide Ingersoll Rand

SPHERICAL ROLLER BEARINGS 800 Series

for vibrating applications



SNR TORRINGTON FAFNIR **MADELLA**
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into the future ...

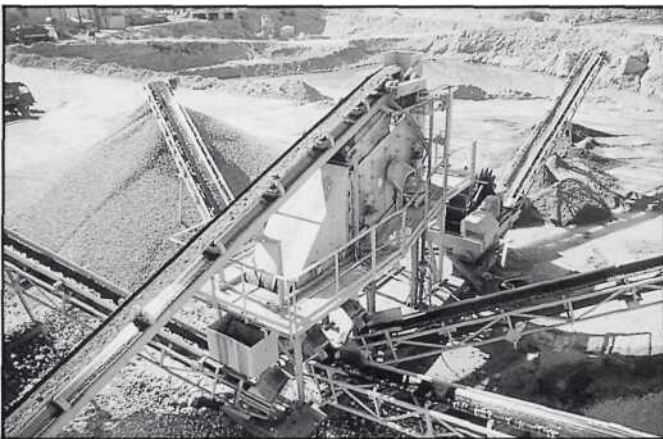
Effortless Performer

INTRODUCTION

SNR and Torrington are leading bearing manufacturers with a reputation for design innovation allied to creative research and development programmes.

In terms of product; SNR are specialists in the manufacture of ball, roller and thrust bearings, automotive bearings, machine tool and aerospace bearings; Torrington are specialists in the manufacture of needle bearings, spherical and roll neck bearings, steering columns and associated components, machine tool and aerospace bearings. Within the UK the interests of both SNR and Torrington are represented by Nadella UK-who provide sales, marketing and engineering facilities.

Specifically, the 800 self-aligning Spherical Roller Bearings are designed for use within vibrating equipment - often destined for arduous conditions where exceptional radial and impact loads prevail and where high rotational speeds might well combine with misalignment to create severe operational conditions.

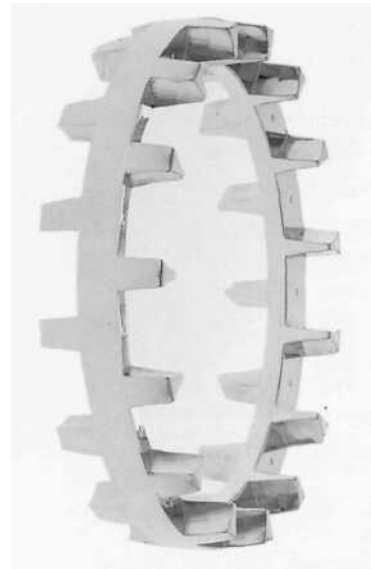


APPLICATION

Designated F800 by SNR and W800 by Torrington, these Spherical Roller Bearings have evolved from proven bearing design - for situations where heavy radial loads and higher than normal operational temperatures are likely - typically such applications include construction industry machinery and equipment, finishing mills, etc.

PRINCIPLE

At the heart of the 800 Series is an improved roller cage. Of one-piece design, this ensures minimal operational resonance and being machined bronze this also offers an inherent resistance to vibration, thereby helping to provide correct guidance to the contained rollers. Further the cage is centred on the rollers and this arrangement helps to reduce the detrimental effect of thermal expansion to an absolute minimum.



The inner ring is also provided with two solid shoulders, to supplement roller guidance and ultimately ensure maximum bearing/shaft abutment.

Finally, the bore and outside diameter tolerance has been so designed to withstand conditions of incessant and extreme circumstances of vibration whilst allowing total interchangeability.

NOTE: The 800 Series is normally manufactured to provide a greater internal radial clearance - tighter versions are also available upon request.

LUBRICATION

The 800 Series are normally supplied dry, ie with a compatible preservative oil but without lubricant, to more easily allow adoption of the preferred lubrication method:

- Oil Bath - this lubrication method allows for higher rotational speeds with the facility to monitor and regulate operational bearing temperature.
- Grease - this lubrication method, which allows for moderate rotational speeds, simplifies bearing installation and maintenance procedures.

It is important to note that if grease lubrication is to be used then, upon installation of the 800 Series bearings, the cavities between the rollers should be packed with grease prior to operation - thereafter the bearings should be regularly maintained.

NOTE: Either of the above methods may be satisfactorily adopted by use of the SNR High Performance Automatic Lubrication Unit - details of which are available upon request.

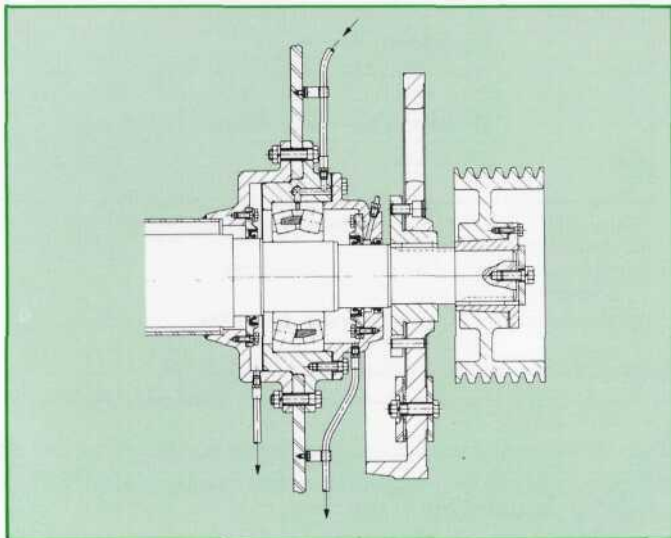
OPERATION

The following configurations are examples of vibrating applications likely to be encountered in utilising the 800 Series Spherical Roller Bearings:

• Single Shaft/Two Bearings/Circulating Oil Lubrication

Single shaft units are designed with an eccentric portion to provide out of balance movement, with one bearing at each end of the shaft. The bearing at the drive end is allowed to float whilst the other bearing is fixed.

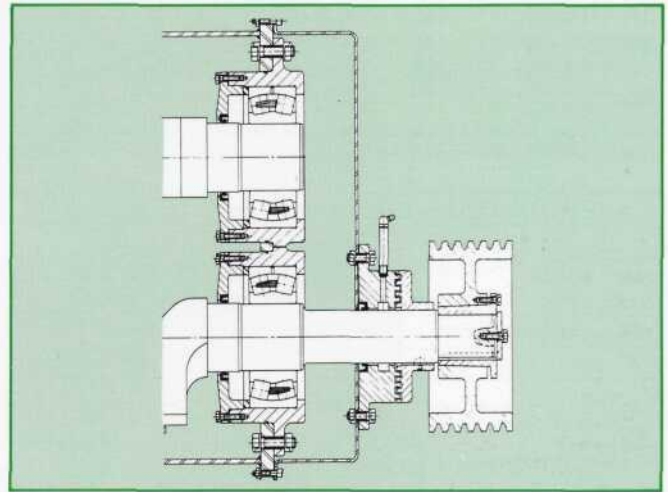
This unit is shown with a circulating oil system. It is used where rotational speeds are excessive, the oil not only provides lubrication for the bearings but also acts as a coolant.



• Double Shaft/Four Bearings/Splash Oil Lubrication

This design features two contra-rotating eccentric shafts geared synchronously. Bearings at the geared end of the shafts (not shown) are fixed to provide location. Those at the drive end are allowed to float to compensate for shaft expansion and contraction.

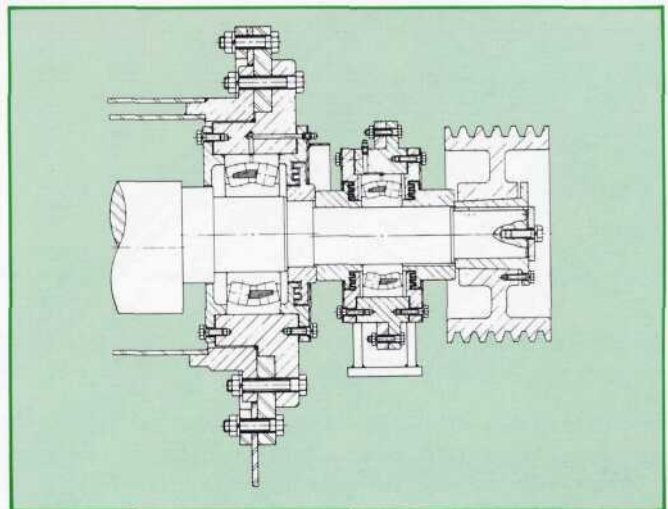
The vibrating movement agitates the oil to supply the bearings. The oil level can be easily checked with a sight gauge.

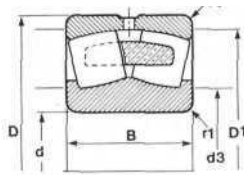


• Single Shaft/Four Bearings/Grease Lubrication

This design uses four bearings on a single shaft. The two inner bearings being eccentric to the outer bearings. The outer bearings are mounted to the frame and the centre bearings are mounted to the screen bed, providing eccentric movement to the screen. Counterweights are normally used to counteract the forces of the screen bed, thereby reducing the load on the outer bearings.

Grease is normally acceptable when the speeds are moderate.





SELECTION GUIDE

References	Dimensions mm			Basic load ratings (lbs)		Abutment and fillet dimensions mm			
	SNR (F)/TOR(W)	d	D	B	C	C ₀	*d3 MAXI	*D1 MINI	D1 MAXI
22308F/W800	40	90	33	29900	33 100	54	80	83	1.5
22309F/W800	45	100	36	36500	40900	61	90	93	1.5
22310F/W800	50	110	40	44 100	50800	67	98	101	2.0
22311F/W800	55	120	43	52400	59600	73	107	111	2.0
22312F/W800	60	130	46	60700	69700	79	116	120	2.1
22313F/W800	65	140	48	65200	74200	87	126	130	2.1
22314F/W800	70	150	51	74200	86600	93	135	140	2.1
22315F/W800	75	160	55	86600	102400	100	144	150	2.1
22316F/W800	80	170	58	95600	114 700	105	153	160	2.1
22317F/W800	85	180	60	104600	126000	113	162	168	3.0
22318F/W800	90	190	64	119 200	144000	118	171	178	3.0
22319F/W800	95	200	67	130500	157500	125	180	188	3.0
22320F/W800	100	215	73	146200	184500	132	193	203	3.0
22322F/W800	110	240	80	1 73 200	213700	149	216	228	3.0
22324F/W800	120	260	86	209 200	283 500	158	233	248	3.0
22326 F/W800	130	280	93	236 200	308 200	173	251	265	4.0
22328F/W800	140	300	102	274 500	378 000	185	269	285	4.0
22330F/W800	150	320	108	310500	416200	195	288	305	4.0
22332F/W800	160	340	114	346 500	448 200	207	306	325	4.0
22334F/W800	170	360	120	398 200	555 700	218	324	345	4.0

Recommended shoulder dimensions for easy removal. Some references may not be available yet. Please consult Nadella UK.

Clearance Reduced tolerance of radial internal clearance														
Dimensions n mm														
Nom bore	Above up to	30	40	50	65	80	100	120	140	160	180	200	225	250
with cylindrical bore														
Clearance in microns														
Category	min	65	85	100	120	150	180	205	240	260	285	320	355	385
F/W800 (J40/C4)	max	80	100	120	145	180	210	240	280	310	340	380	420	460
Category	min	50	60	75	90	110	135	160	190	200	220	245	265	290
F/W801 (J30/C3)	max	60	75	90	110	135	160	190	220	240	260	290	320	350
Category	min	35	40	50	60	75	90	110	130	140	155	165	180	200
F/W802 (JO/CO)	max	45	55	65	80	100	120	145	170	180	200	220	240	260
with tapered bore (taper 1/12)														
Clearance in microns														
Category	min	70	85	105	130	155	185	220	255	285	315	350	385	425
KF/W800 (J40/C4)	max	85	100	120	150	180	220	260	300	340	370	410	450	490
Category	min	55	65	80	100	120	145	175	195	220	245	275	295	330
KF/W801 (J30/C3)	max	65	80	95	120	140	170	200	230	260	290	320	350	390
Category	min	40	50	60	80	90	110	135	145	160	180	205	225	245
KF/W802 (JO/CO)	max	50	60	75	95	110	135	160	180	200	220	250	270	300

Tolerances nner ring - Reduced bore tolerances							
Dimensions in mm							
Nom bore	Above up to	30	50	80	120	180	250
		50	80	120	180	250	315
Difference from nom. diameter (microns)							
Cylindrical bore	dm.d	-7	-9	-12	-15	-18	-21
		0	0	0	0	0	0
Tapered	d	0	0	0	0	0	0
		+39	+46	+54	+63	+72	+81
Width	B	0	0	0	0	0	0
		-120	-150	-200	-250	-300	-350

Tolerances Outer ring - Reduced OD tolerances									
Dimensions in mm									
Nom OD	Above up to	80	120	150	180	250	315	400	500
		120	150	180	250	315	400	500	630
Difference from nom. diameter (microns)									
OD		-5	-5	-5	-10	-10	-13	-13	-15
	Dm.D	-13	-13	-18	-23	-23	-28	-30	-35

The outer ring width tolerances are the same as the inner ring
 To convert mm into inches
 multiply the values in the table above by 0.03937
 To convert microns into 0.0001 inch.
 multiply the values in the table above by 0.3937

For more information about the SNR and Torrington 800 Series self-aligning Spherical Roller Bearings please contact Nadella UK

Whichever product attracts your interest, Whatever your specific needs may be, Whenever you need guaranteed quality, supply and service contact:



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