MRC

MRC hybrid ceramic ball bearings

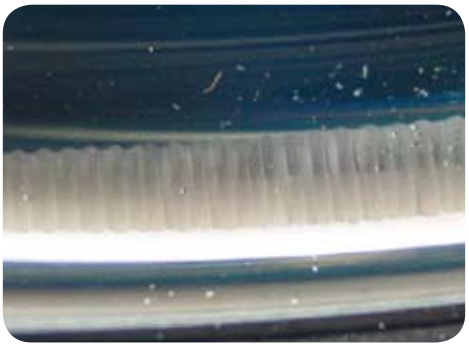
SKF

Hybrid ceramic ball bearings . . .

a combination of traditional 52100 steel rings precision matched with silicon

Prevents electrical arcing

When electrical current passes across bearings, a washboard or fluting pattern appears on the raceways, in addition to a darkened grey appearance. This damage usually results in excessive noise which requires that the bearing be removed. Besides the surface damage, premature aging of the lubricant also occurs. The natural insulating properties of ceramic material eliminates this type of damage.



Fluting created by electrical arcing

Lower maintenance costs

Maintenance costs can quickly add up if a bearing must be changed frequently. Extending the service life of a bearing without increasing maintenance costs reduces the operating cost of the equipment. The initial cost of a hybrid bearing may be higher than a standard steel bearing, but the difference is quickly recovered in maintenance savings. Less friction also results in lower energy costs.

Extended service life

Most bearings are designed into applications based on loading conditions without taking into account factors such as lubrication, contamination and maintenance. Without proper attention to these factors, a steel bearing rarely reaches its design life. Because of the properties of ceramics, a hybrid bearing's service life can be up to 10 times that of a standard steel bearing, reducing the need for maintenance on your machine as well as the costly interruptions in production.

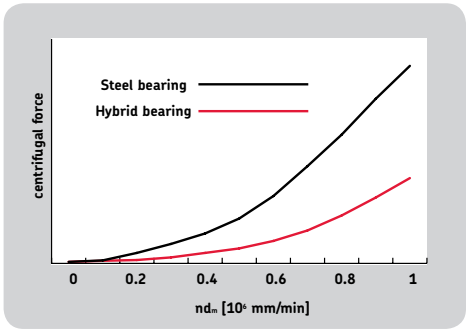
Extended grease life

In environments that place high demands on the bearing lubricant, standard bearings experience surface wear because of insufficient lubricant film. Bearings can fail if the initial grease charge is not replenished within an acceptable period of time. Hybrid bearings run cooler and can operate with thinner lubricant films, so there is less aging of the grease and the required relubrication interval will be longer. The result is increased service life compared to standard bearings in the same operating costs.

Wear caused by static vibration

Reduced wear from vibration

Equipment exposed to static vibration risks false brinelling, (erosion of the surfaces within the ball and raceway contacts) which can lead to spalling and premature failure. Because of the lighter weight ceramic balls and dissimilar materials, the risk of false brinelling damage is much less.



Operating temperature

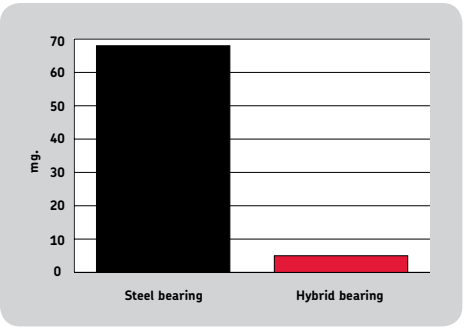
Lower operating temperatures

The heat generated in bearings is caused by viscous friction from lubrication as well as internal and external load dependent friction between the balls and raceways. Little can be done to reduce the external loads. However, ceramic balls are only 40% as dense as steel balls, so the centrifugal load generated by the balls is less and the internal friction is lower. This enables cooler running under the same operating conditions or even a higher rotational speed.

n nitride (ceramic) balls

Reduced wear from contamination

In contaminated environments, solid particles create dents in the rolling surfaces and raised edges around those dents. This condition causes noise and premature wear as the steel balls roll over those surfaces. The harder ceramic ball material smooths the surface roughness with no material removal. Also, there is little evidence of adhesive wear as seen in steel bearings. The result is reduced noise and wear, and extended bearing service life.



Wear reduction

Now offered in extra-large bore sizes especially suited for wind power generation applications

Electric current passage is the major cause of bearing damage in wind power generator applications, often resulting in premature bearing failure, generator breakdown and unplanned turbine down time. Now, all the benefits of MRC's hybrid ceramic ball bearings are available in sizes specifically designed to fit these turbines.

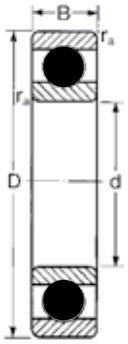
These high-performance bearings provide reliable solutions to both new and installed generators, while reducing your operating costs, the risk of costly repairs and lost production.

Now available in the following sizes (dimensions and mass information on back cover):

320S555-HYB#1
322S555-HYB#1
324S555-HYB#1
326S555-HYB#1
328S555-HYB#1
330S555-HYB#1
332S555-HYB#1

Part numbering system

Basic Conrad series
100KS
200S
300S



Suffixes
555- Optimized design
HYB- Ceramic balls
#1- ABEC 1

Sealing options
FF- Two shields
ZZ- Two contact seals
FFP- Two low friction seals

MRC hybrid ball bearings are stocked in an open version in the sizes listed.

In most cases, 207S–214S and 306S –314S hybrid bearings are also stocked with seals or shields. Larger sizes listed can also be supplied with shields, seals, or low friction seals through the MRC Made-to-Order (MTO) program.

In addition to those listed, other sizes of the 200S and 300S series as well as the 100KS series can be supplied through the MTO program. Most series of angular contact ball bearings can also be supplied through MTO. Contact MRC at 1-888-753-3477 for price, lead time and other information for non-stocked variants.

SKF USA Inc
Kulpsville, PA 19443, USA

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(215) 513-4400
Toll Free Fax: 1-888-322-4672
www.skfusa.com/mrc

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Designation	Principal Dimensions				Mass	
	d	D	B	r_a max*		
	mm	mm	mm	mm	kg	lbs
306S-HYB#1	30	72	19	1.00	0.328	0.72
207S-HYB#1	35	72	17	1.10	0.265	0.58
307S-HYB#1	35	80	21	1.50	0.422	0.93
208S-HYB#1	40	80	18	1.10	0.334	0.74
308S-HYB#1	40	90	23	1.50	0.580	1.28
209S-HYB#1	45	85	19	1.10	0.384	0.85
309S-HYB#1	45	100	25	1.50	0.769	1.70
210S-HYB#1	50	90	20	1.10	0.427	0.94
310S-HYB#1	50	110	27	2.00	0.997	2.20
211S-HYB#1	55	100	21	1.50	0.564	1.24
311S-HYB#1	55	120	29	2.00	1.282	2.83
212S-HYB#1	60	110	22	1.50	0.737	1.62
312S-HYB#1	60	130	31	2.00	1.606	3.54
213S-HYB#1	65	120	23	1.50	0.946	2.09
313S-HYB#1	65	140	33	2.00	1.957	4.31
214S-HYB#1	70	125	24	1.50	1.017	2.24
314S-HYB#1	70	150	35	2.00	2.181	4.81
215S-HYB#1	75	130	25	1.50	1.106	2.44
315S-HYB#1	75	160	37	2.00	2.884	6.36
216S-HYB#1	80	140	26	2.00	1.358	2.99
316S-HYB#1	80	170	39	2.10	3.415	7.53
217S-HYB#1	85	150	28	2.00	1.712	3.77
317S-HYB#1	85	180	41	2.50	4.012	8.85
218S-HYB#1	90	160	30	2.00	2.082	4.59
318S-HYB#1	90	190	43	2.50	4.657	10.27
220S-HYB#1	100	180	34	2.00	3.006	6.63
320S555-HYB #1	100	215	47	2.50	7.711	17.00
222S-HYB#1	110	200	38	2.00	4.169	9.19
322S555-HYB#1	110	240	50	2.50	10.886	24.00
224S-HYB#1	120	215	40	2.00	4.935	10.88
324S555-HYB#1	120	260	55	2.50	14.061	31.00
226S-HYB#1	130	230	40	3.00	5.471	12.06
326S555-HYB#1	130	280	58	3.00	16.783	37.00
228S-HYB#1	140	250	42	3.00	7.260	16.01
328S555-HYB#1	140	300	62	3.00	21.772	48.00
230S-HYB#1	150	270	45	3.00	10.855	23.94
330S555-HYB#1	150	320	65	3.00	24.948	55.00
232S-HYB#1	160	290	48	3.00	13.583	29.95
332S555-HYB#1	160	340	68	3.00	27.669	61.00
236S-HYB#1	180	320	52	4.00	17.319	38.19

** Radius r_a indicates maximum fillet radius on shaft or in housing which bearing corner will clear.*