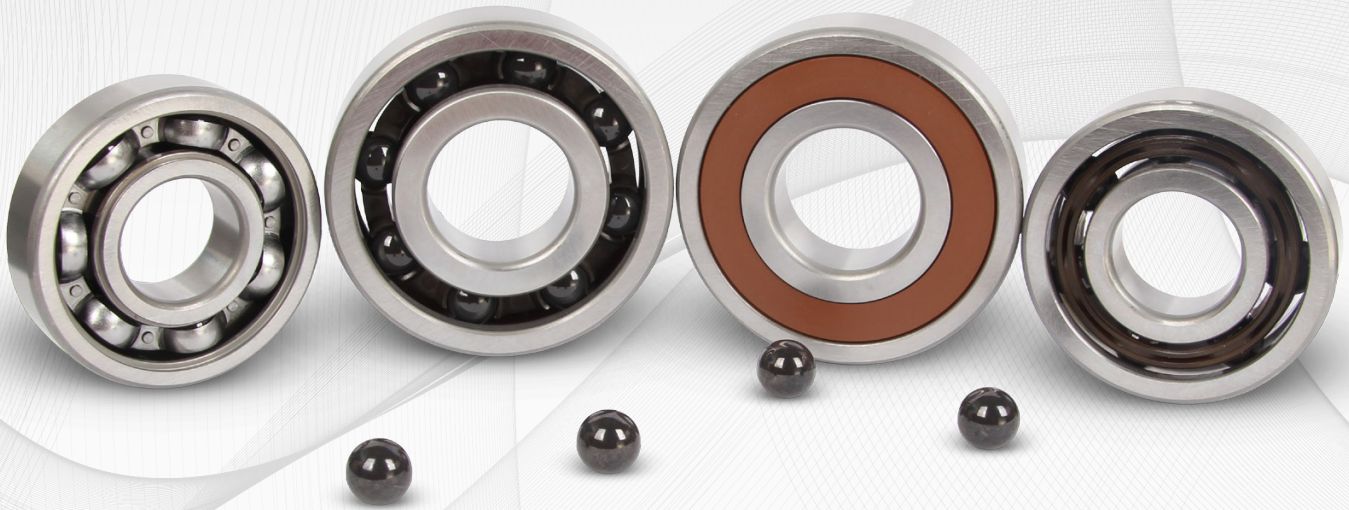


C&U Hybrid Ceramic Bearings

C&U hybrid ceramic ball bearings are engineered to **maximize the benefits of precision** steel ring construction and light weight silicon nitride balls. They have excellent **electric insulation properties, high-speed capability** and provide **longer service life** than all-steel bearings in most applications.



LONG LIFE

Hybrid ceramic bearings are constructed of steel rings and silicon nitride (Si_3N_4) balls. Because silicon nitride is approximately 40% of the density of steel, hybrid ceramic bearings are capable of operating at higher speeds than standard bearings. At high speed, the lower density balls generate less loading on the raceways due to their lower inertia. In addition, the lower inertia provides superior performance during rapid accelerations and decelerations. Silicon nitride balls also have a lower coefficient of friction so they generate less heat at high speed, greatly improving the life of the grease and the bearing.

Under high temperature operating conditions, the temperature gradient across standard bearings can result in excessive expansion of the bearing steel, which can negatively affect both running accuracy and internal clearance. Silicon nitride has a lower coefficient of thermal expansion than steel, so hybrid ceramic bearings are less sensitive to temperature changes. In addition, silicon nitride is much harder than steel, making hybrid ceramic bearings resistant to damage caused by contamination and improving overall bearing stiffness.

When a stationary bearing is subjected to an external vibration, metal to metal contact between the balls and raceways can result in abrasions known as false brinells. As wear particles form during false brinelling, they enter the lubricant and form a very

abrasive compound, which causes additional wear and accelerates lubricant breakdown. The presence of wear particles will also increase the amount of noise and vibration produced by the bearing. Hybrid ceramic bearings are less susceptible to false brinells.

INSULATE AGAINST STRAY ELECTRIC CURRENT

Hybrid ceramic bearings are ideal for use in electric motors and generators that are prone to stray electric currents. As these currents pass through standard bearings, arc-pits form on the surface of the balls and raceways as the steel is melted and re-solidifies. Over time, the arc-pits lead to secondary damage as the balls continually roll over them. The result is increased noise and vibration, heat generation, lubricant break-down and premature failure of the bearings. Hybrid ceramic bearings insulate the inner ring and the outer ring of the bearing, effectively preventing the flow of stray currents and therefore preventing bearing damage and failure.

INSTALLATION RECOMMENDATIONS

C&U hybrid ceramic bearings are direct replacements for existing hybrid ceramic bearings as well as conventional bearings in all applications. They are lubricated for life with Mobil Polyrex EM grease and sealed with low-torque, non-contact seals (-2RZ) to ensure optimum efficiency for

torque-sensitive applications and adequate protection from contamination. Handling and mounting are identical to steel bearings, so standard installation tools and methods can be used.

SAFETY

When bearings operate under extreme conditions, even for a limited time, they can quickly become damaged and fail. Hybrid ceramic bearings are more resistant to this damage than standard bearings because the silicon nitride balls resist smearing the raceways when lubrication is marginal or inadequate. This reduces the possibility of catastrophic failures and unscheduled equipment down-time.



C&U[®]
BEARINGS

www.cubearing.com

C&U Hybrid Ceramic Bearings for Industry



C&U stocks the range ⁽¹⁾ of hybrid ceramic bearings shown here for electrical machinery and general industry applications. For other bearing sizes and designs please contact the nearest C&U distributor.

⁽¹⁾ C&U makes continuous quality improvements to its hybrid ceramic bearings. This can involve changes to the product range, materials, designs and lubricant without prior notice. Such changes do not in any way detract from the bearing's performance and interchangeability is guaranteed.

⁽²⁾ Limiting speeds vary depending on loads, operating conditions and other factors. The values listed in the Limiting Speed column should be considered a general guide. For applications operating at or above the limiting speed, please consult with C&U Engineering.



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Boundary Dimensions				Part Number	Load Rating		Limiting Speed ⁽²⁾ (min)
Bore	Outer Diameter	Width	Chamfer (r - min)		Dynamic - C _r	Static - C _{0r}	
mm					kN	kN	RPM
17	40	12	0.6	HC6203-2RZC3	9.6	4.8	21,600
20	47	14	1.0	HC6204-2RZC3	12.8	6.6	19,200
25	52	15	1.0	HC6205-2RZC3	14.0	7.9	16,680
30	62	16	1.0	HC6206-2RZC3	19.5	11.3	13,200
35	72	17	1.1	HC6207-2RZC3	25.7	15.3	11,760
40	80	18	1.1	HC6208-2RZC3	32.6	19.9	10,440
45	85	19	1.1	HC6209-2RZC3	31.2	20.3	9,360
50	90	20	1.1	HC6210-2RZC3	35.1	23.2	8,520
55	100	21	1.5	HC6211-2RZC3	43.5	29.2	7,680
60	110	22	1.5	HC6212-2RZC3	52.5	36.0	7,200
65	120	23	1.5	HC6213-2RZC3	57.5	40.0	6,600
70	125	24	1.5	HC6214-2RZC3	62.2	44.0	6,120
75	130	25	1.5	HC6215-2RZC3	66.2	49.3	5,760
25	62	17	1.1	HC6305-2RZC3	22.4	11.5	14,400
30	72	19	1.1	HC6306-2RZC3	26.7	15.0	12,000
35	80	21	1.5	HC6307-2RZC3	33.5	19.2	10,560
40	90	23	1.5	HC6308-2RZC3	40.7	24.0	9,360
45	100	25	1.5	HC6309-2RZC3	53.0	32.0	8,400
50	110	27	2.0	HC6310-2RZC3	62.0	38.2	7,680
55	120	29	2.0	HC6311-2RZC3	71.5	45.0	6,960
60	130	31	2.1	HC6312-2RZC3	82.0	52.0	6,480
65	140	33	2.1	HC6313-2RZC3	92.5	60.0	5,880
70	150	35	2.1	HC6314-2RZC3	104.0	68.0	5,520
75	160	37	2.1	HC6315-2RZC3	113.0	77.0	5,160
80	170	39	2.1	HC6316-2RZC3	123.0	86.5	4,800
85	180	41	3.0	HC6317-2RZC3	133.0	96.6	4,560
90	190	43	3.0	HC6318-2RZC3	143.0	107.0	4,320

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