

Bearings for Demanding Applications

(Material Codes S, N, X, Y, Q, M, P)

The Reali-Slim thin section bearing product line has been expanded to include several additional bearing series specifically engineered to bring the advantages of Reali-Slim bearings to designs intended for service in the most severe or extreme environments. We offer Reali-Slim bearings with a variety of packaged features to meet specific operation requirements.

Harsh Environments (S,N)

Kaydon stainless steel bearings are used where high precision and corrosion resistance are required.

Reali-Slim thin section bearings are available in AISI 440C stainless steel races (S) or with Kaydon's exclusive Endurakote plating (N). They are offered in either radial contact "C," angular contact "A," or four-point contact "X" configurations. These bearings are available in popular sizes and minimize the surface degradation and particulate formation so common in harsh environment applications. (See [pages 59-71](#).)

Low Particle Generation/Marginal Lubrication (X,Y)

Hybrid bearings are very well suited for applications where lubrication is marginal.

Applications requiring low particle generation, high accuracy, high speeds, and/or which must operate in adverse or no-lube conditions, can benefit from hybrid bearings. Tests have shown that significant reductions in particle generation can be obtained with hybrid designs which incorporate the use of ceramic rolling elements on hardened steel races. In addition, the physical properties of the ceramic rolling elements (precision, hardness, light weight) provide additional benefits such as improved repeatability, low torque, high stiffness, and resistance to wear under marginal or no-lube conditions.

High Performance, Low Torque (Q)

Series Q high-performance bearings are used where low friction torque, smooth operation, and high positional accuracy are required. Series Q high-performance bearings are generally limited to angular contact bearings supplied in either a back-to-back (DB) or face-to-face (DF) configuration. These bearings are made from Precision Class 6 Reali-Slim components with the following special modifications:

- Low-torque toroid ball spacers
- Special cleanroom cleaning
- Special lubrication
- Grade 10 balls or better
- Special ball path finishing
- Special preload assembly

High Temperature (M)

Standard bearings are processed for operating temperatures up to 250°F. At temperatures beyond this limit, reductions in material hardness can affect bearing capacity, which will reduce the bearing's theoretical fatigue life. When full capacity is required at higher temperatures, the use of series "M" bearings may be required. Manufactured from M50 tool steel for balls and races and assembled with stainless steel cages, these bearings can provide full bearing capacity at temperatures greater than 250°F. However, careful consideration to the bearing lubricant must also be exercised.

Bearings for Demanding Environments (continued)

Chemical Resistant (P)

In applications where both corrosion resistance and chemical resistance are required, series P bearings may be required. These bearings feature AISI 17-4PH steel races and ceramic balls. They are manufactured to provide a greater level of corrosion and chemical resistance than either Kaydon Series N or Series S bearings. Due to the hardening limitations of AISI 17-4PH steel, an adjustment factor of .17 must be applied to the standard dynamic capacity ratings. Thus, the use of P Series bearings should be carefully reviewed prior to selection to determine if the life and capacity are adequate.

Tremendous benefits in performance can be obtained by matching not just size but also material to the application. These

alternative race and ball materials interact differently than traditional chrome steel bearings. Capacities, life calculations and stiffness will differ from other products in this catalog. Contact Kaydon for technical characteristics of hybrid Real-Slim bearings.

Materials

Races	AISI 17-4PH steel
Balls	Borosilicate, glass, or ceramic
Cage	Type A; PTFE or Vespel® toroid ball spacers or 300 series steel ring
	Types C & X; Stainless steel or non-metallic composite ring

Specifications for Hybrid Real-Slim Bearings

ITEM	DESCRIPTION	REFERENCE SPECIFICATION
RACES	AISI 440C Stainless steel	AMS 5630
BALLS	Ceramic: Silicon Nitride	
SEPARATORS C, X BEARINGS A BEARINGS	P Type—Brass or non-metallic composite L Type—Nylon, fiberglass reinforced R Type—Brass or non-metallic composite G Type—Nylon, fiberglass reinforced	other options, see p. 100 ASTM B-36 or B-134 ASTM B-36 or B-134
PRECISION		
RACE DIMENSIONS	Kaydon Precision Class 1, Higher classes available	ABMA ABEC-1F or better
RACE RUNOUTS	Kaydon Precision Class 1, Higher classes available	ABMA ABEC-1F or better
BALLS	ABMA Grade 10 Stainless steel or Grade 5 ceramic	ANSI/ABMA/ISO 3290