FRB Bearings

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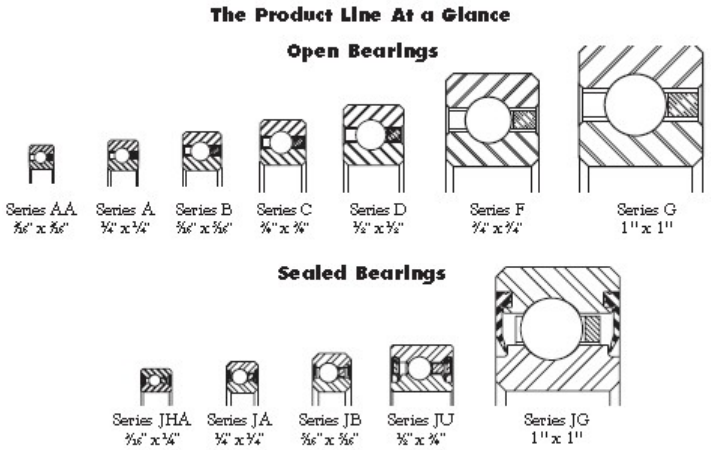
An Introduction to Thin-Section Bearings

We supplied many replacement of brand Kaydon, THK and TIMKEN thin section type, we also can give our offer according to their standard number.The major characterization of the FRB thin-section ball bearings are that, light weight, sufficient rigidity, small section, and the excellent load bearing performance. They also have many kinds of sections and dimensions. As usual we called it as thin-section ball bearings when the hole diameter was more than 4times larger than the radial sections. It can solve many design problems which the common bearings cannot complete in application. The thin-section ball bearings produced by our FRB company totally have three kind of structural, are divided into five series. Among them, the section which change with hole diameter are two times of the steel ball diameter. The diameter unit usually is metric.

The thin-section ball bearings series FRB are always used in the circumstances, such as requiring small space, heavy load, light weight or limiting some special forms. At the same time, we also provide some special service, for example, we produce bearings according to the customers blueprint. At present, each series of them are widely applied in aircraft, fixing and work holding equipment, food processing equipment, glass working equipment, index and rotary tables, packing equipment, machine tools, medical devices, optical scanning equipment, radar, satellite and communications equipment, robotics, textile machinery, tube and pipe cutting machines, semiconductor manufacturing equipment, sorting equipment and so on in all the various trades and occupations.

Product Line overview

The Thin-section bearing product line consists of a family of seven open and five sealed series of thin section bearings ranging in bore diameters from 25.4mm to 1016mm. Series range from 4.750x4.750 inch to 25.4 x 25.4 mm in cross section. Open bearings are available from stock in three configurations (Type A, C & X). Stock sealed bearings are available in Types C & X only.



When required, we can provide internal fit up, lubricants, separators and other features to meet the most demanding application requirements. To obtain corrosion resistance consider using FRB's stainless steel Thin-section bearings.

To support various load scenarios, Thin-section bearings are available in three basic types: radial contact (Type C), angular 8 and 9 for explanations on each type—and in a variety of sizes, or series (e.g., KA, KB, KC, etc.).

Specification Control

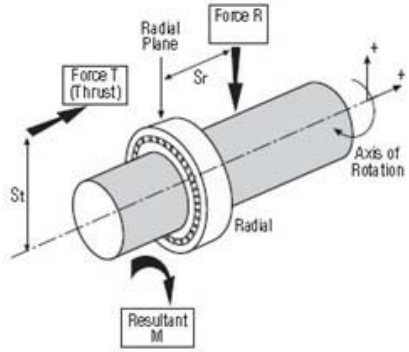
In today's world, product traceability and change control are extremely important. To satisfy these requirements, requesting a "specification control drawing" for a Thin-section bearing is a valuable option to consider.

A specification control drawing provides the user a concise and complete accounting of the important bearing features and parameters for a specific application. A specification control drawing request will generate a unique part number for the standard Thin-section bearing and commercially available options required. This provides the customer quick and easy identification of product in the field as well as a concise receiving and inspection document for the factory. A specification control drawing assigned to a thin-section bearing becomes proprietary to the user for his particular application

Thin-section Bearing Types Support All Load Scenarios

A Word About Radial and Axial (Thrust) Loads

Bearings support a shaft or housing to permit their free motion about an axis of rotation. Load can be applied to bearings in either of two basic directions (Figure 1). Radial loads act at right angles to the shaft (bearing's axis of rotation). Axial (thrust) acts parallel to the axis of rotation. When these loads are offset from either the bearing axis (distance St) or radial plane, a resulting moment load (M) will be created. FRB Thin-section bearings are available in a variety of types to handle radial loads, axial loads and moment loads.



The resultant moment load (M) equation:
$M = (\pm T)(S_t) + (\pm R)(S_r)$

Fig 1

Types of Thin-section Bearings

Thin-section bearings are available in three basic configurations: radial (Type C), angular contact (Type A), and four-point contact (Type X).

Thin-section Bearing Types

A = angular
C = radial
X = four-point

By using these three types, the designer has a wider choice of mounting arrangements to meet load, stiffness and accuracy requirements in the most efficient manner.

Radial Contact Bearing (Type C)

The Type C Radial Contact Bearing (Figure 2) is a single row radial ball bearing of conventional design. It is a Conrad-type assembly, which means that it is assembled by eccentric displacement of the inner race within the outer race which permits insertion of about half of a full complement of balls.

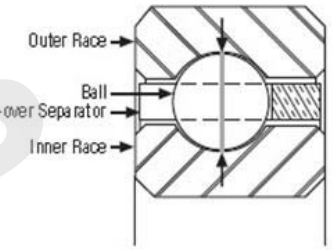


Fig 2

Although the Type C bearing is designed primarily for radial load application, it can be configured to accept some axial (thrust) load in either direction. But, if thrust is a concern, a set of angular contact bearings should be considered for the specific application.

Angular Contact Bearing (Type A)

The Type A Bearing is also a conventional design. It features a circular pocket separator and a thirty degree contact angle (see Figure 3) along with approximately 67% of a full complement of balls.

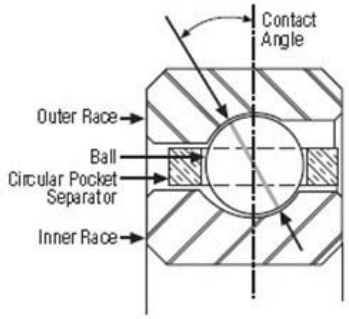


Fig 3

The chief benefit of the Type A bearing is that it provides greater thrust capacity than a Type C or Type X bearing. Because of its counterbored outer race, Type A bearings have unidirectional thrust capacity. Thus, this bearing should be mounted opposed to another bearing to establish and maintain the contact angle, and to support reversing thrust loads.

Four-Point Contact Bearing (Type X)

Standard bearing lines are most often designed to handle either radial or axial load conditions. The unique feature about the FRB Thin-section Type X four-point contact bearing(See Figure 4) line is that the gothic arch geometry of the inner and outer races enables a single bearing to carry three types of loading (radial, axial and moment) simultaneously. This makes it the bearing of choice for many applications since a single four-point contact bearing can often replace two bearings, providing a simplified design.

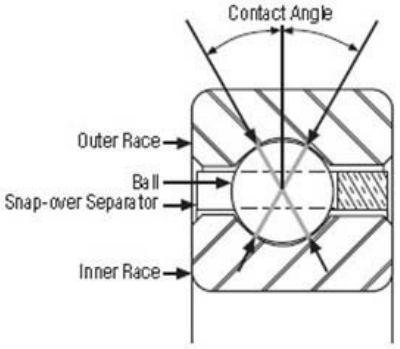


Fig 4

Type X bearings may also be furnished with an internal diametral preload for those applications requiring greater stiffness or zerofree play. This is accomplished by using balls that are larger than the space provided in the raceways. The balls and raceways, therefore, have some elastic deformation in the absence of an external load.