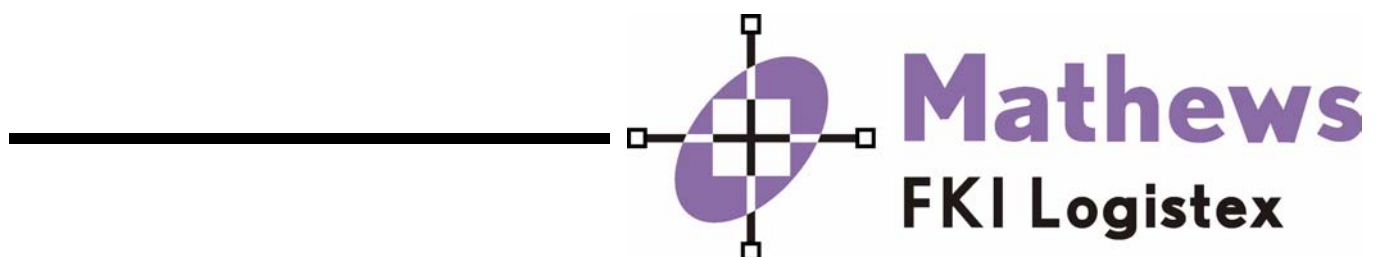


# Industrial Rollers



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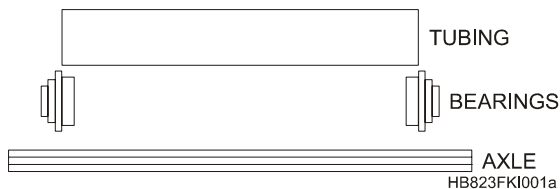
# Selection Guidelines

## Introduction

What is an industrial Roller? Webster's dictionary defines a roller as: "a revolving cylinder over or on which something is moved." Webster's goes on to define industrial as: "of or relating to industry." Therefore, a combination of both produces an Industrial Roller.

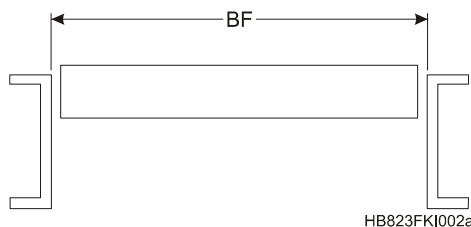
The following pages are designed to guide you through the proper application and selection of Mathews Conveyor Industrial Rollers. Roller capacity charts containing important information for bearing ratings, axle deflection, tube strength, and uniform loads are included for your guidance. For specifications falling outside the above parameters or for special applications not listed, please contact your local Mathews' representative.

## Roller Elements



Mathews Conveyor rollers are actually assemblies comprised of three components: tube, bearings, axle.

## W or Between Frame Dimension



The length of industrial rollers is described in terms of W, the dimension between the frames.

Any unsupported span between the frame rail and the bearing is to be avoided to minimize axle deflection, which affects bearing capacities. For this reason, we manufacture our rollers based on the W, the dimension between the frames.

Each manufacturer's bearings have their own unique design and bearing cone projection. For this reason, when you wish to replace another manufacturer's industrial roller with a Mathews, the roller tube length is not required. We ask again, for the W dimension, or the overall cone dimension (OAC) if the W cannot be determined. This insures that the overall length of the replacement roller will not be too long or too short when assembled into the existing frames.

## Diameter and Gauge

Diameter refers to the outside diameter of the tubing used to manufacture the rollers (i.e. 1.90" diameters, 2-1/2" diameter).

Gauge is the thickness of the tubing wall. Gauge is also expressed in its decimal equivalent.

- i.e. 9 ga. = .148" wall thickness
- 11 ga. = .120" wall thickness
- 12 ga. = .109" wall thickness
- 14 ga. = .083" wall thickness
- 16 ga. = .065" wall thickness.

## Bearings

Mathews roller conveyor bearings are manufactured by Mathews Conveyor. We assure the reliable performance of our bearings through close attention to tolerance standard, uniformity of inner and outer race hardening and the use of high grade steel balls. Most standard bearings are available from stock. They can be provided with seals for dusty conditions. Grease packed or regreasable bearings can be provided for use in powered equipment. Housings and shot guards are also available.

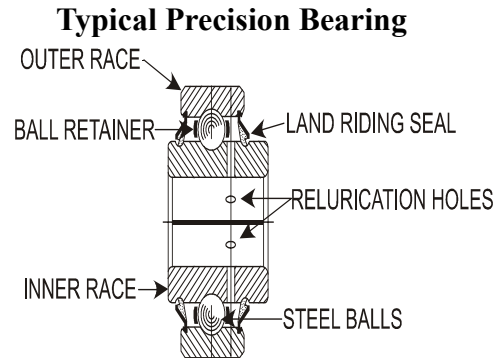
Mathews bearings may be ordered from Authorized Distributors or Bearing Distributors.

The bearings listed in the chart on page 8, from part #B1000-1 to B1120-2, are Mathews bearings manufactured in our Danville, Kentucky, facility. Generically these are known as unground, commercial grade, or “non-precision” bearings. Non-precision ball bearings are normally specified for most gravity conveyor applications and for powered conveyor applications with low to medium speed and load requirements. Those bearings shown in the chart on page 8, from #B1130-2 through B1221-2 are known as “precision” bearings. Precision ball bearings are normally specified for powered conveyor applications with high speed and load requirements. The difference between non-precision and precision bearings is explained in the following paragraphs, along with some application guidelines.

### Types of Bearings

#### A. PRECISION BEARINGS

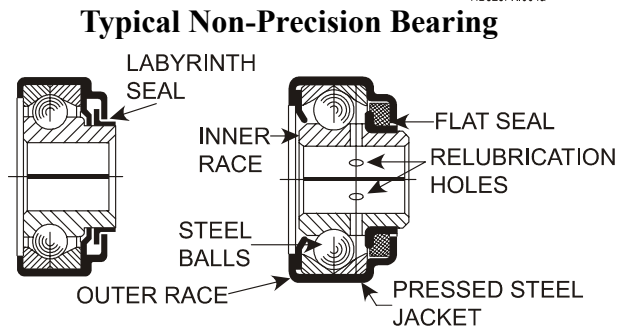
These bearings have hardened and ground ball races, ball retainers or cages and composite Buna-N plus steel seals. They are usually made to our specifications by an outside supplier.



HB823FKI004a

#### B. NON-PRECISION BEARINGS

These bearings are made in our own plant and have stamped and coined outer races, with machined cone ball races. Inner and outer races are hardened after machining. Non-Precision Bearings are called “full complement” which means no ball cages or retainers are used. Most seals are steel labyrinth or standard felt.



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#### C. JOURNAL BEARINGS

These are all-plastic bearings made from nylon or a nylon-delrin combination. No balls or seals are used in these bearings.

## Bearing Identification

All bearings offered by Mathews Conveyor are identified by the following code system:

B   XXX   X   -    X

(A)   (B)   (C)   -    (D)

(A) = Every bearing model starts with the “B” prefix which helps to easily identify it as a bearing component.

(B) = The first three digits of the bearing model identify the many different basic bearing design series. These three digits range from 100 to 199.

*Example:* B100, B101, B102, etc.

(C) = The fourth digit ranges from 0 to 9. Zero represents the basic configuration of a given bearing series and numbers 1-9 represent bearings with minor physical variations of the basic design.

*Example:* B1060, B1061, B1062

(D) = The fifth digit represents lubrication option.

-0 Dry (light rust preventative oil)

-1 Oiled

-2 Greased

*Example:* B1060-1, B1060-2

## Bearing Terminology

### A. Races

Races are the inner and outer surfaces that the balls ride on. Non-precision ball bearings are made with hardened steel ball races that provide an economical and smooth finish. Precision ball bearings are made with vacuum degassed, bearing-quality steel which is heat treated to a uniform hardness level and then ground to a fine micro-finish.

### B. Balls

Balls in non-precision bearings are hardened steel. In precision bearings they are hardened chrome alloy steel balls. Non-precision ball bearings are fabricated with a full complement of “loose” balls while in precision ball bearings the balls are accurately guided through the load zones by a ball retainer or “cage” which provides separation of the ball complement. This retainer minimizes noise and contact friction between adjacent balls, thereby permitting higher operating speeds.

### C. Seals and Shields

In discussions regarding bearings, you will hear the word “labyrinth” type seal. Labyrinth is not a material that a seal is made of, but rather is defined as a maze or series of intricate passageways and blind alleys. This type of construction is used to keep foreign material or contaminants out and grease in the bearings.

A shield is simply what the word implies. In non-precision bearings, the shield is normally made of steel and can be used by itself or in conjunction with a seal usually made of a felt material to protect or “shield” the seal. Normally a “shield-only” construction is used in applications where frictional drag of the seal cannot be tolerated or ambient temperatures over 225° F (107° C) are anticipated. This felt material used in the seal construction is subject to degradation above 225° F (107° C).

Mathews’ precision bearings feature a land riding seal consisting of an elastomeric compound molded directly to a steel trash guard shield. The shields are chemically treated to resist pitting and corrosion. The seals effectively retain grease within the bearing and seal out the contaminants when operating in extremely dirty environments.

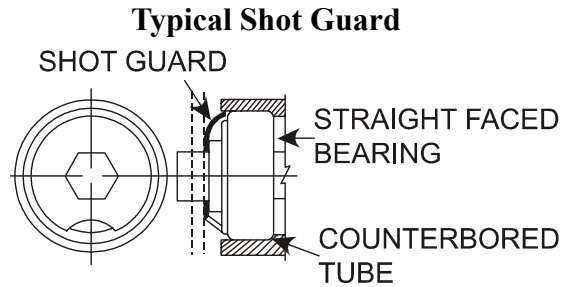
### D. Lubrication

Non-precision bearings are offered with three lubrication options:

- 0 Dry - Used in dusty environments, such as foundries, asbestos plants, etc. Performance is usually best when the bearings are operated dry that a minimum of dust will adhere to balls and ball races. Dry bearings can also be used in freezer applications where oiled or greased bearings would tend to be harder to turn due to the lubricating medium becoming hard.
- 1 Oiled - Oiled bearings can be used in gravity applications where a low coefficient of friction is required. The temperature range of standard oil is 0° F to +200° F.
- 2 Standard Greased - Standard grease in our non-precision bearings is used for powered equipment applications in temperature ranges of -10° F to +225° F. It is also suitable for mildly wet conditions, such as high humidity. Most of our bearings can be greased for life or regreaseable with appropriate grease fittings.

E. Shot Guards

For applications where dirt and grit are present, such as in foundries, rollers with shot guards are recommended. Shot guards are steel “cups” that slide over the shaft and up against the bearings to help keep out contaminants. These are used with bearings that do not have flanges and the roller tubes are counterbored to recess the bearing.



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*Bearing Load Rating and Service Life*

Bearing “capacity” and “service life” are criteria used by the designer to compare and select bearings for specific applications. Load ratings for Mathews bearings are shown on page B-5 and represent the basic dynamic load capabilities.

Many factors affect the service life of bearings including: material of races and rolling elements, heat treatment, surface finish, application speed, type and duration of load, lubrication and temperature. These factors affect precision bearings differently than non-precision bearings. Thus, each of these types must be evaluated separately.

Mathews non-precision ball bearings have endured years of successful conveyor field experience and laboratory testing. However, the nature of their design, construction and application make it difficult to accurately predict life expectancy. This is not to infer that this type of bearing is of low quality, for it is not. All aspects of manufacturing are controlled and a high degree of product consistency is maintained. These bearings provide an economical alternative for conveyor applications where speeds and loads are moderate, and the requirements for running accuracy are not as demanding as precision bearings. The load ratings shown on page 8 are used as guidelines for direct comparison with other non-precision bearings. Many hours of service life can be achieved at these load levels.

Precision bearings, because of their bearing quality steel, their close tolerance control and ground races, provide bearing designs that have a high degree of life predictability. The ratings shown for Mathews Conveyor's precision bearings represent the load capacity that will provide an  $L_{10}$  life of 1 million revolutions. The relationship between load and life for precision bearings has been established and verified through careful investigation and fatigue testing. To calculate life at loads other than rated load, the following formula can be used:

$$L_{10} = \left( \frac{\text{rated capacity}}{\text{applied load}} \right)^3 \times 1 \text{ million revolutions}$$

In application, precision conveyor bearings may be subjected to a change in operating speed or load during their life expectancy. If it is anticipated that bearings will be used under several conditions of operation during their life, the effect of each operating condition should be considered to determine the anticipated life. To do this, all "applied loads" are transposed to a common Equivalent Load ( $P_e$ ) by calculating the average as follows:

$$P_e = \left( \frac{P_1^2 N_1 + P_2^2 N_2 \dots P_n^2 N_n}{N_1 + N_2 \dots N_n} \right)^{1/2}$$

Where:

$P_e$  = Equivalent Radial Load in Pounds

$P_1$  = Radial Load at Condition 1 for  $N_1$  Revolution

$P_2$  = Radial Load at Condition 2 for  $N_2$  Revolution

$P_n$  = Radial Load at Condition n for  $N_n$  Revolution

## Selection Criteria

- A. PRECISION BEARINGS are used when:
- Loads exceed the capacity of the equivalent non-precision bearing.
  - Longer life than that obtainable with the non-precision bearings is required.
  - A low noise level is required.
  - Speeds exceed 400 R.P.M.
  - The environment requires rugged seals.
- B. NON-PRECISION BEARINGS are used when:
- Requirements for precision bearings do not exist.
  - A low coefficient of rolling friction is required, such as in gravity conveyor.
- C. JOURNAL BEARINGS are used when:
- Requirements for precision bearings do not exist, except for a low noise level.
  - A higher coefficient of friction is not objectionable.
  - Wash-down or similar conditions make the use of non-precision bearings impractical.
- D. TEMPERATURE LIMITATIONS include:
- Standard seals are suitable for temperatures up to 225° F (107° C).
  - Maximum temperature for standard bearings without seals is 350° F (177° C).
  - Bearings in gravity or minimum pressure conveyor tread rollers used below 10° F (-12° C) must be either dry or contain low temperature grease. Dry bearings are generally used for gravity or push lines. Low temperature grease is used for powered conveyors.
  - Actual temperature conditions must not be above or below those listed for the grease, even for short periods of time. This can result in run-out of lubricant or excessive drag during start-up.
- E. ENVIRONMENTAL CONDITIONS should always be carefully considered. Some considerations are:
- Non-precision bearings used in dusty environments such as foundries, asbestos plants, etc., usually perform best when supplied completely dry so that a minimum of dust will adhere to balls and ball races. Dry bearings are acceptable in low R.P.M. powered applications (50 R.P.M. or less) but life expectancy will be reduced.
  - Journal bearings should not be used in dusty conditions where dust contains abrasive grit. The oil/graphite solution the journal bearing is dipped in acts to bleed off static charge. *However, this is not sufficient to use in explosive environment.*
  - The standard grease in non-precision bearings is suitable for mildly wet conditions such as high humidity or conveying of wet articles. For wash-down conditions, journal bearings or a special water resistant grease must be specified.
  - When bearings are subjected to impact loading, the nominal load rating must be reduced by 50%. When the load rating has already been reduced due to axle deflection then the lower of the two figures (impact loading vs. deflection) must be used.
- F. GREASE PACKED VERSUS REGREASABLE
- Grease packed bearings should be specified wherever possible. Initial equipment cost and subsequent maintenance cost are considerably lower than with regreasable construction.
  - Regreasable bearings are only to be used when operating conditions would cause grease to dry out or become deficient before the average bearing life has been reached.

### *Misalignment Capability*

Mathews Conveyor non-precision and precision bearings are designed to provide a high degree of misalignment capabilities to compensate for initial mounting inaccuracies and axle deflection typical in long roller and heavy load applications. To assure proper operation of bearings and not induce severe edge loading of the ball races, it is necessary to derate the capacity of the rollers so as not to exceed maximum allowable misalignment in the bearings. Axle deflection is directly proportional to roller length for a given load and, therefore, roller capacity decreases as the roller length increases.

The tolerances purposely built into the non-precision bearings allow approximately 1 degree of axle deflection through the cone before the load rating is affected. Precision bearings are less forgiving, allowing only about  $\frac{1}{4}$  of 1 degree of axle deflection. Rollers using non-precision bearings will maintain their initial capacity through substantial widths and then decline gradually. In comparison, rollers using precision bearings may start out at the same capacity, but generally lose capacity more rapidly, even at narrow widths.

In order to minimize axle deflection, it is necessary that the supporting frame be as close as possible to the ball bearings, without actually touching. This is one reason the W (between frames) dimension is important. It allows us to compensate in roller length for normal tolerances of frame rail straightness, roller tube length, cross brace length, etc. The bearing capacities in this catalog are based on the supporting frame being as close to the bearing as normal manufacturing tolerances allow. Any unsupported span between the supporting frame and bearings is to be avoided.

The information provided in this section is taken from Mathews Handbook HB-822 - Bearings, Wheels and Ball Transfers.

Bearings		Load Rating (Pounds)	Bore Size*	Grade			Face		Seals & Shields			Lubrication		Finish			Stock	Made To order
Part Number	Former Part Number			Non-Precision	Precision	Journal	Straight	Flanged	Front	Back	Retaining Ring	Grease Packed	Regreaseable	Stainless Steel	Nylon	Zinc Plated		
B1000-1	11	40	5/16H	●			●									●		
B1000-2	11G	40	5/16H	●			●				●					●		
B1001-1	11Z	40	5/16H	●			●								●	●		
B1011-6	11N	30	5/16H			●	●							●		●		
B1020-1	29000	155	7/16H	●			●	●	●							●		
B1020-2	29010	155	7/16H	●			●	●	●		●					●		
B1022-1	29013	155	1/2R	●			●	●	●							●		
B1030-2	294	155	7/16H	●			●	●		●	●	●				●		
B1031-2	296	155	7/16H	●			●	●		●	●					●		
B1041-6	290N	50	7/16H			●	●							●		●		
B1050-1	332	155	7/16H	●			●	●								●		
B1051-2	334, 336	155	7/16H	●			●	●		●	●	●				●		
B1052-2	330SS, 33SBGSS	30	7/16H	●			●	●		●	●		●			●		
B1060-1	481	305	11/16H	●			●	●								●		
B1060-2	481G	305	11/16H	●			●	●			●					●		
B1061-2	483	305	11/16H	●			●	●	●	●	●	●					●	
B1062-2	484	305	11/16H	●			●	●	●	●	●	●				●		
B1063-2	484R	305	3/4R-S	●			●	●	●		●	●				●		
B1064-2	486	305	11/16H	●			●	●	●	●	●					●		
B1065-1	482	305	11/16H	●			●	●								●		
B1070-1	531	305	11/16H	●			●	●								●		
B1071-1	534	305	11/16H	●			●	●	●	●	●	●				●		
B1072-2	533	305	11/16H	●			●	●	●	●	●	●					●	
B1073-1	532	305	11/16H	●			●	●								●		
B1073-2	532G	305	11/16H	●			●	●			●					●		
B1080-1	581, 58S	1250	1-1/16H	●			●	●								●		
B1081-2	584, 58AB	1250	1-1/16H	●			●	●	●	●	●	●				●		
B1082-2	583, 58SB	1250	1-1/16H	●			●	●	●	●	●	●					●	
B1083-2	585, 58SBG	1250	1-1/16H	●			●	●	●	●	●					●		
B1084-2	586, 58ABG	1250	1-1/16H	●			●	●	●	●	●					●		
B1085-2	58RSBG	1250	1-3/16R-S	●			●	●	●		●	●				●		
B1086-1	582, 58-A	1250	1-1/16H	●			●	●								●		
B1100-1	632, 63-A	2250	1-1/4H	●			●	●								●		
B1101-2	634, 63-AB	2250	1-1/4H	●			●	●	●	●	●	●				●		
B1102-2	63RSBG	2250	1-7/16R	●			●	●	●	●	●	●				●		

Bearings		Load Rating (Pounds)	Bore Size*	Grade			Face		Seals & Shields			Lubrication		Finish			Stock	Made To order
Part Number	Former Part Number			Non-Precision	Precision	Journal	Straight	Flanged	Front	Back	Retaining Ring	Grease Packed	Regreaseable	Stainless Steel	Nylon	Zinc Plated		
B1120-2	1103, 110-SB	3750	1-1/2H	●			●		●	●	●	●				●		
B1130-2	30900	5700	1-11/16R		●		●		●			●				●		
B1131-2	30900	5700	1-11/16R		●		●		●	●		●	●			●		
B1140-2	210	6500	2-7/16R		●		●		●	●		●	●			●		
B1150-2	20508, 53-205	2380	11/16H		●		●		●	●		●	●			●		
B1151-2	20506	2380	11/16H		●		●		●	●		●				●		
B1160-2	20706	4260	1-1/16H		●		●		●	●		●				●		
B1161-2	20708, 58-207	4260	1-1/16H		●		●		●	●		●	●			●		
B1210-2	206J	2100	1-3/16R		●		●		●			●				●		
B1211-2	206J w/Grease Seal	2100	1-3/16R		●		●		●	●		●	●			●		
B1220-2	60A	3770	1-3/8R		●		●		●			●				●		
B1221-2	60A w/Grease Seal	3770	1-3/8R		●		●		●	●		●	●			●		
B1271	B1270	126	7/16H		●			●	●	●		●				●		
B2001	B2001	50	7/16H		●			●	●	●		●				●		

\*Bore Size:

“H” = Hexagon

“R” = Round

“R-S” = Round-Serrated which required Knurled Axle

## Axle Size and Construction

Most conveyor rollers utilize hexagon axles to prevent the axles from rotating in the frame rails and to prevent the inner race of the bearing from rotating on the axle. For those bearings that utilize a round axle with 1-3/16" diameter bore or larger, the general practice is to pin the inner race of the bearing to the shaft by drilling a hole through the axle and then inserting a cotter pin through both the bearing and the axle. This keeps the inner race from rotating on the axle.

Mathews Conveyor offers hexagon axles 5/16" through 1-1/2" and round axles 1/2" through 2-7/16" diameter.

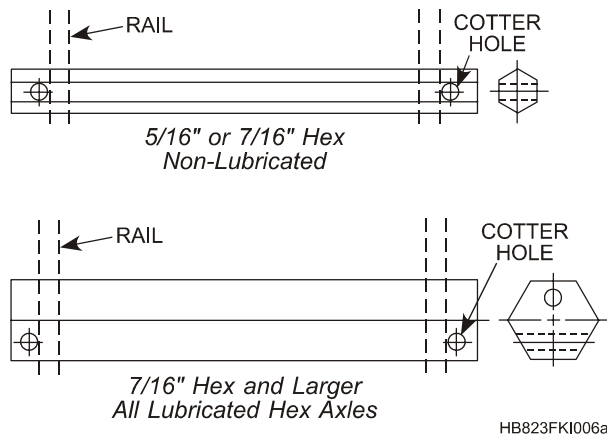
When replacing a hexagon axle or identifying a bearing, the hexagon size should be measured across the flats of the hexagon.

Likewise, when replacing a round axle or identifying a bearing with a round bore the diameter should be measured and type of bore (smooth or serrated) should be specified.

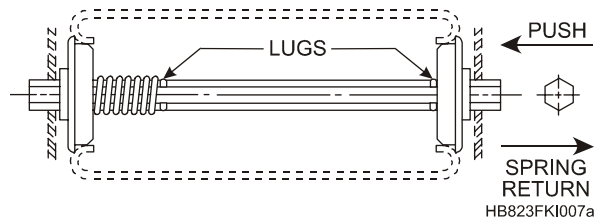
Mathews provides axles in a variety of configurations including the following:

### Cotter/Cotter

In this construction, a cotter pin is placed in both ends. This construction facilitates removal much like a spring loaded construction.



### Spring Loaded Axle



With the spring loaded design, the axle and spring are retained by lugs inside the roller and cannot be removed. The spring loaded roller is assembled into the frame by cocking the roller between the side frames and letting the axle pop into the hex holes.

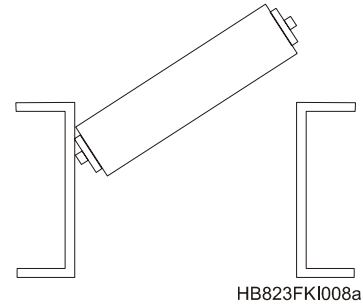
Removal is equally as simple by depressing the axle and pulling the roller assembly up from between the frames.

A simplified example of the spring loaded design is the spring tension bar that holds bathroom tissue.

Mathews offers spring loaded assembly as standard construction for 5/16", 7/16", and 11/16" hex with some limits due to shot guards and between frame dimensions. Our standard spring loaded axle length is always W plus 1-1/8" (Example: 15" W will have an overall axle length of 16-1/8".)

Spring loaded rollers offer an inexpensive way for easy assembly into frames, but are not suitable for all types of frames and/or roller combinations.

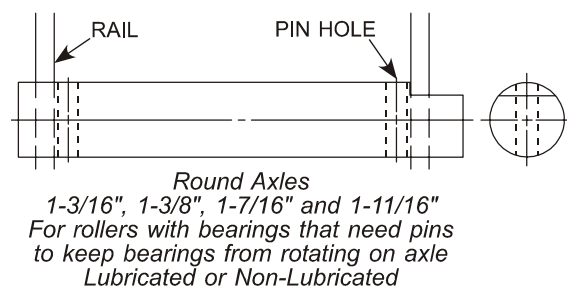
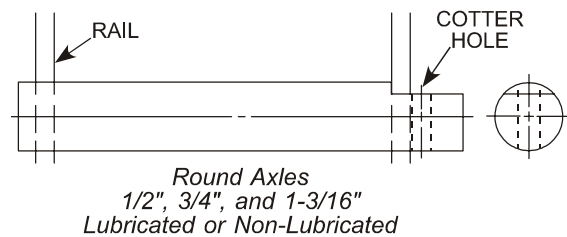
Examples where spring loaded construction cannot be used are a narrow W, rollers placed low in the frames, and with shot guards. The angle of assembly is too severe. Cotter/cotter construction would better suit this application.



### “D” End

In this construction, one end of a round axle is machined flat to form a “D” shape and a corresponding “D” shape is punched in the frame rail.

Another method to keep the axle from rotating is to drill or punch a round hole in the frame rail, and bolt or weld a piece of flat stock to the frame across the flat spot on the axle.



HB823FKI009a

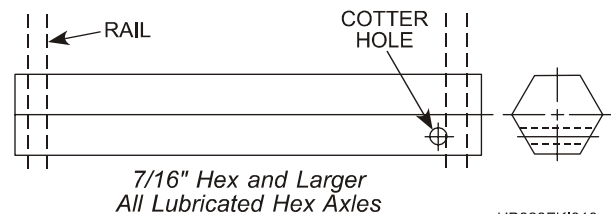
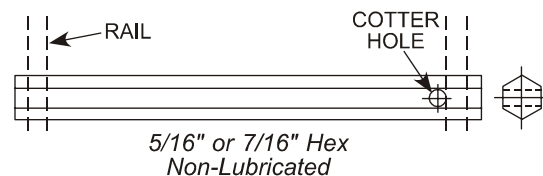
### Cotter Between (Or Flush Axles)

In this construction, there is clearance between the bearing and the frame rail. The clearance is just enough to allow placement of a cotter pin between the frame and the roller.

This construction is used when there is little or no access to the cotter on the outside of the frame or when there cannot be any axle protrusion beyond the outside of the frame (Flush Axle Construction).

Cotter between construction may be used when you have two lanes of conveyor close together, or a multi-lane conveyor where roll centers are close and rolls are staggered in the frame.

This construction can also be used when you are concerned about articles or personnel coming in contact with an extended axle.

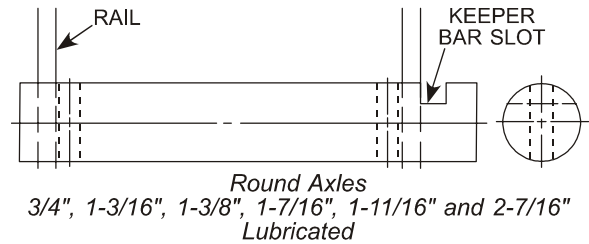
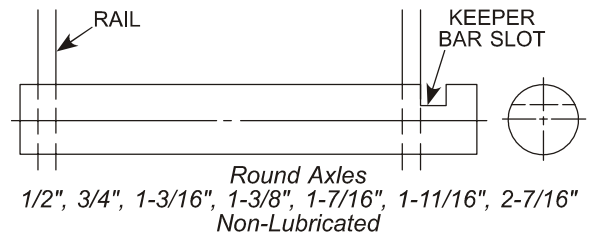


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### Keeper Bar Construction (KB)

In keeper bar construction, a slot is milled at the end of the axle and a “keeper bar” is placed in the slot. The bar is then bolted to the frame. The keeper bar retains the axle in the frame and prevents it from rotating or shifting.

Keeper bar construction is commonly used with our heavy duty line of rollers and large diameter axles.

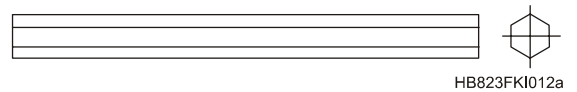


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### Plain End

Plain End (PE) construction is just what it implies. The axle is cut to the length you specify and nothing is done to the ends.

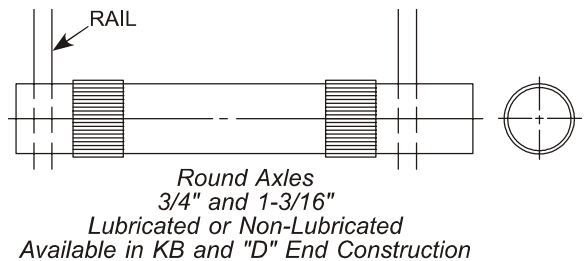
Plain end construction is available for all sizes of axles, If you require plain end axles you must specify the axle length required to meet your application.



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### Knurled

Knurled axles are used with round serrated bore bearings to prevent the inner cone of the bearing from turning on the round axle. Keeper bars or “D” end construction may also be required to retain the axle in the frame.



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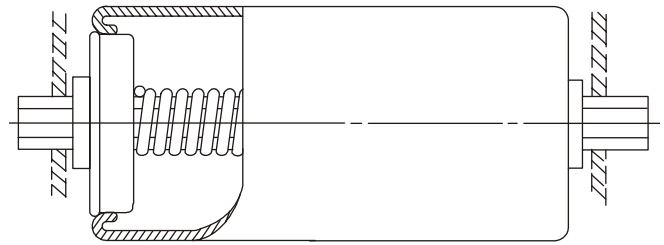
## Roller Construction

Mathews Conveyor rollers are available in a variety of sizes ranging from 1" to 6-1/2" diameter. Some of these rollers with the same diameter and bearing will have a heavier wall thickness. This is to handle abuse to the tube but does not increase the load rating. Rollers with a higher load rating require higher capacity bearings.

There are a number of ways to assemble bearings in rollers (roller construction) and the following are Mathews Conveyor standards.

### *Curled End*

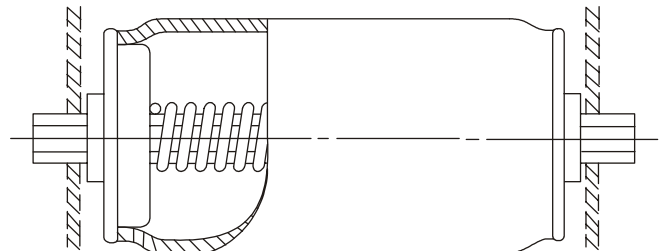
In this construction, the tube material is actually curled back inside the tube and the bearing is then pressed in.



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### *Swaged*

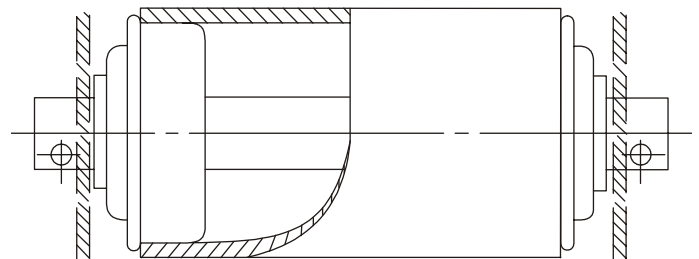
In this construction, the tube material is squeezed down to the proper size and the bearing is then pressed in.



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### *Straight Press Fit*

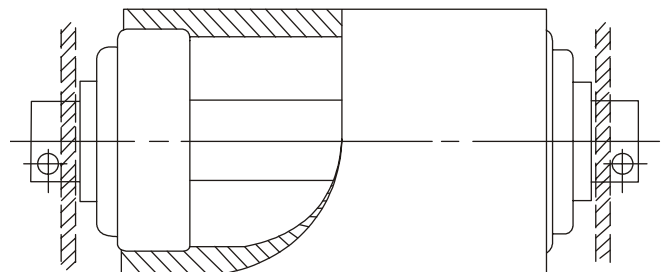
In this construction, the tube material is "sized" to compensate for tolerances in wall thickness and the bearing is then pressed in.



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### *Counterbored*

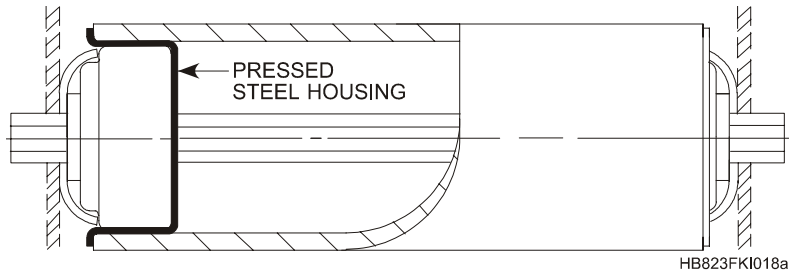
In this construction, the tube is machined or counterbored to the proper inside diameter and the bearing is then pressed in.



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### Housings

In this construction, the bearings are pressed into housings or “adaptor cups”, which are also of a varying material thickness to compensate for the various inside diameters of the tubing, and the bearing and housing assembly together are then pressed in the tube.



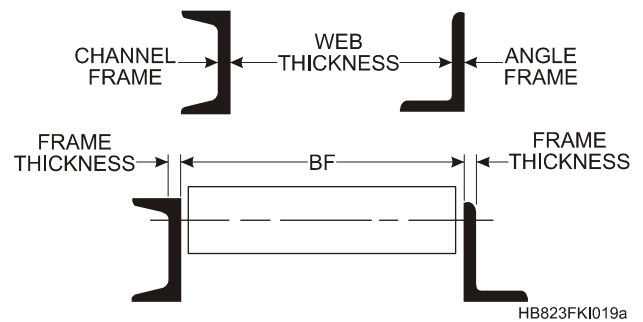
HB823FKI018a

HOUSING SELECTION CHART		
Bearing Series	Housing	Roller
B1000	B5232	1.62" Tapered
	B5234	1.38" dia. x .049"
B1020	B5235	1.90" dia. x .148"
	B5239	1.90" dia. x .065"
	B5241	1.90" dia. x .109"
	B5251	2.50" Tapered
	B5323	1.90" dia. x .148" Stainless Steel
B1030	B5235	1.90" dia. x .148"
	B5239	1.90" dia. x .065"
	B5241	1.90" dia. x .109"
B1050	B5235	1.90" dia. x .148"
	B5239	1.90" dia. x .065"
	B5241	1.90" dia. x .109"
	B5323	1.90" dia. x .148" Stainless Steel
B1060	5248	3.50" dia. x .148"
B1070	B5248	3.50" dia. x .148"
B1080	B5245	4.00" dia. x .134" Two Piece
B1160	B5245	4.00" dia. x .134" Two Piece
	B5252	4:00" dia. x .134" One Piece
B1211	B5240	4.25" dia. x .250"
	B5242	4.00" dia. x .134" Two Piece

## Frame Thickness

Frame thickness refers to the thickness of the web of the frame rail used to support the roller and axle.

The frame thickness and the between frame dimensions are both critical and should always be stated when ordering replacement rollers and axles.



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## Special Construction

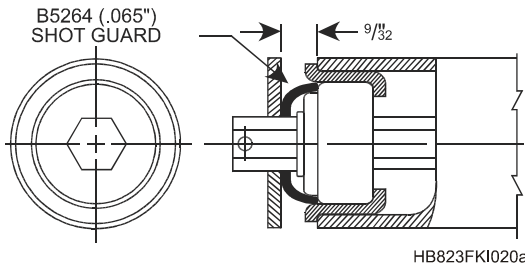
The preceding discussion covered standard design and roller options available to you. We also want to make you aware of additional “accessories” you may require that are available. In order to respond to your request for quotation on these items it is necessary to provide us with additional information. The following are some examples of the variations available and the information required.

These include but are not limited to:

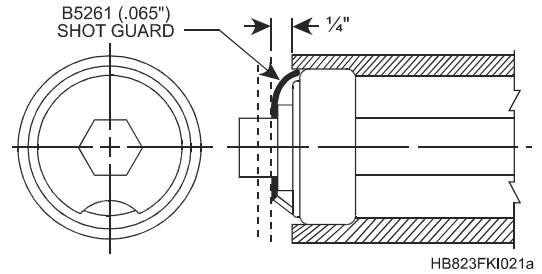
1. Rollers With Shot Guards - Use the “How To Order” information given in this manual for the roller specified. Under options add “with shot guards”. It is important to note that only rollers shown on Page 16 are suitable for use with shot guards. Shot guards should be ordered by “B” Number.
2. Rollers With Flanges - What type of flange, how many flanges per roller, location of the roller, etc. Page 17 provides the illustrations of flanges available.
3. Rollers With Sprockets - Standard Type “A” plate sprockets are used in pairs with roll to roll chain driven conveyor or rack tooth sprockets are used for single or continuous strand chain driven conveyor. The chain size, type of sprocket and number of teeth must be specified (i.e. 60A18) along with number of sprockets per roller and exact location. Hardened tooth sprockets are also available.
4. Rollers With Special Coverings - What type of coverings, how thick, durometer of hardness, finish, etc.
5. Rollers That Require Special Construction or Machining - What is the configuration of the machining, finish, final outside diameter, etc.
6. Rollers With Special Diameter and Wall Thickness - What is the construction, tube material, i.e. stainless steel, aluminum, etc.
7. Rollers That Are Hardened - What is the case hardened depth, Rockwell hardness, etc. Certain heavy wall rollers may be hardened to 45-50 Rockwell “C” by .030” deep.

**Note:** Whenever possible a detailed drawing or sketch should be submitted to allow us to quote accurately on your requirements.

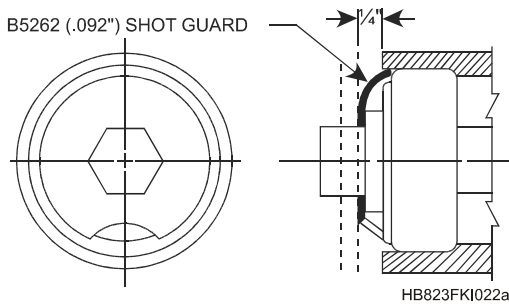
## Rollers With Shot Guards



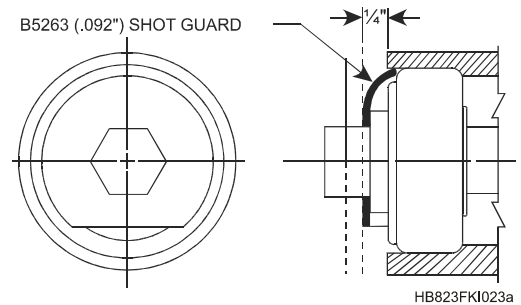
**1.90" Dia. X .148" Roller Series B1050 Bearings**



**2.56" Dia. Roller Series B1070 Bearings**

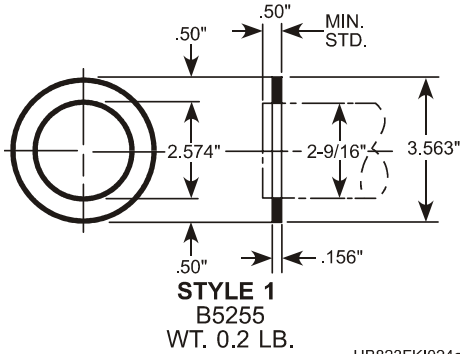


**3.50" Dia. Roller Series B1080 Bearings**

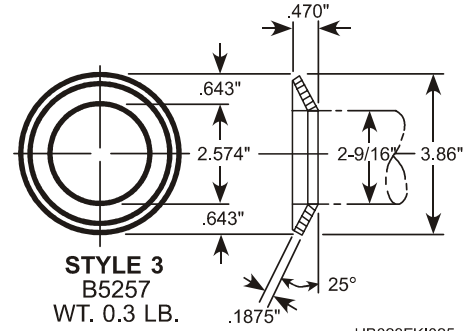


**4.25" Dia. Roller Series B1100 Bearings**

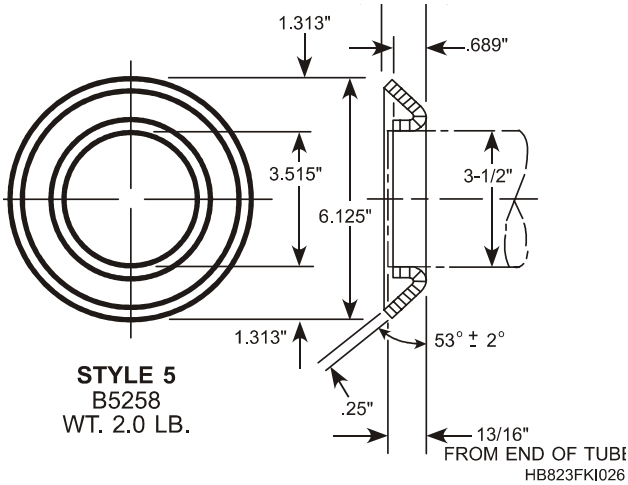
**Flanges For 2.56" and 3.50" Rollers**



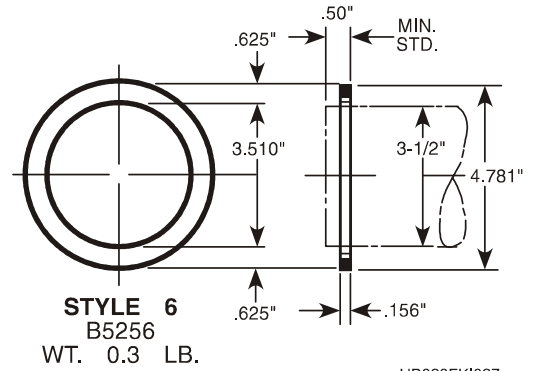
**STYLE 1 - B5255 - WT. 0.2 LB.**



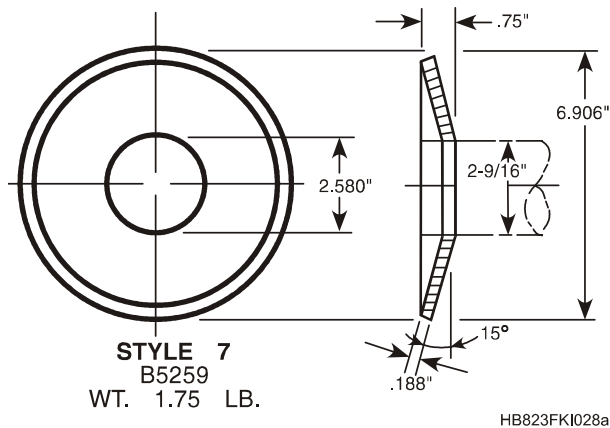
**STYLE 3 - B5257 - WT. 0.3 LB.**



**STYLE 5 - B5258 - WT. 2.0 LB.**



**STYLE 6 - B5256 - WT. 0.3 LB.**



**STYLE 7 - B5259 - WT. 1.75 LB.**

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## Rollers Load Rating

Roller load rating is the maximum weight which can be supported by an individual roller. There are a number of factors which must be considered when determining load rating.

- Bearing Capacity/Life
- Roller Length (W)
- Condition of Product Being Conveyed
- Impact Loading
- Frame and Support Capacity
- Environmental Conditions

## Bearing Capacity/Life

The tolerances purposely built into non-precision bearings allow approximately one degree of axle deflection through the cone before the load rating is affected. Precision bearings are less forgiving. You will find rollers using non-precision bearings will maintain their initial capacity through substantial widths and decline gradually. In comparison, rollers using precision bearings may start out at higher capacity, but generally lose capacity more rapidly.

## Roller Length (W)

Roller length, or the between frame dimension (W), has an inverse relationship to roller capacity. The capacity rating declines as the length of the roller increases. The maximum roller length is determined by the allowable deflection of the axle, strengths and deflection of the tube and load capacity of the bearings. This manual contains charts which show load ratings for each of Mathews' standard rollers.

## Condition of Product Being Conveyed

Most packages have surfaces with varying degrees of irregularity. Depending upon the degree of these irregularities, different load conditions will be imposed on the rollers. Some examples of non-uniform products include:

1. Cartons that are not fully packed.
2. Containers which have the load concentrated on only a part of the bottom.
3. Products with recessed bottoms such as drums, pails and tote boxes.
4. Reused and reconditioned drums with bent or dented chimes.
5. Cartons with rounded corners.

To account for all these circumstances, roller capacity requirements are determined by dividing product weight by two-thirds of the rollers supporting the product. It is also important to remember that good engineering practice suggests a minimum of three rollers be in contact with the package being conveyed at all times.

## Impact Loading

If the conveyor is loaded in such a manner that the rollers will be subject to a shock load or as to impose excessive loads on a concentrated area of the conveyor, a roller with a higher capacity should be selected.

Examples might include:

1. Where cases are thrown onto the conveyor.
2. Where the conveyor is loaded by a fork truck and the load is not deposited onto the conveyor with the carton making full contact.
3. Where the conveyor is loaded from a crane and the package does not make full contact with the conveyor at one time.

Load characteristics such as metal containers vs. cardboard cartons, speed and many other factors will determine the amount of impact. A general rule is to double the required capacity of the rollers in impact loading situations.

For severe applications, spring mounted rollers should be used to absorb the impact and to distribute the load over all the rollers. In cases where loading conditions elongate the axle holes in the frame rail, the resistance to such loading can be increased by using a wear bar under the axles.

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## Frame and Support Capacity

A complete discussion of frame and support capacity is provided in Mathews Conveyor Handbook HB-825 "Non-Powered Roller Conveyor". For purpose of this Handbook concerning rollers, a reminder is necessary. The frame and supports must be capable of supporting the same load the rollers are supporting. When you are selecting rollers, be sure to check frame capacity, support capacity and support spacing as well.

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## Environmental Conditions

Environments that are dusty, wet or are subject to temperature extremes require special bearings and/or roller material. Some examples of these conditions and the recommended Mathews' product includes:

1. High Humidity - sealed grease packed or greasable bearings.
2. Dusty - sealed bearings.
3. Excessive Heat - dry or high temperature greased bearings.

The most important point to remember is that when special conditions exist, particularly temperature extremes, roller life and capacity will be less than under a normal environment.

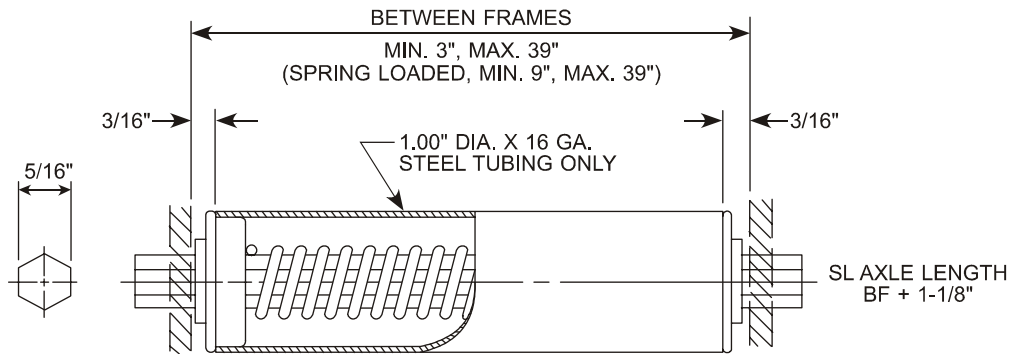


# Rollers - Straight

## 1.00 Dia. x .065" (16 ga.) Roller - Series B1000 (11) Bearing (5/16" Hex Axle)

### HOW TO ORDER

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	15"	1.00" x .065"	B1000-1	1/8"	SL



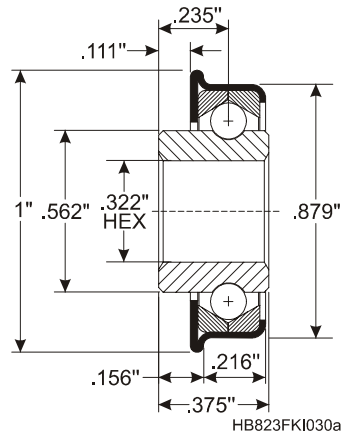
Rollers with cotted (CC) axles available 3" to 39" W.

Spring loaded (SL) axles available 9" to 39" W only.

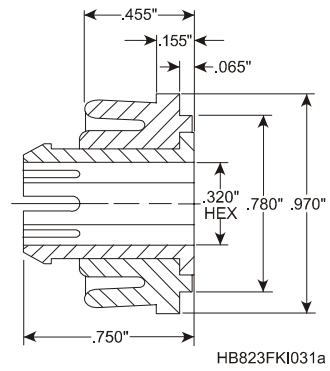
\*Rollers with B1011-6 (nylon) bearings are limited to 27" W, 60 lb. capacity and are not available with spring loaded axles.

Between Frames (W)	Roller Weight w/Axle	Roller Weight w/o Axle	Roller* Capacity
3"	.3#	.2#	80#
6"	.5#	.4#	80#
9"	.8#	.5#	80#
12"	1.0#	.7#	80#
15"	1.2#	.9#	80#
18"	1.5#	1.0#	80#
21"	1.7#	1.2#	80#
24"	1.9#	1.3#	80#
27"	2.2#	1.5#	80#
30"	2.4#	1.7#	80#
33"	2.6#	1.8#	80#
36"	2.9#	2.0#	80#
39"	3.1#	2.2#	80#

Interpolate for intermediate W's.



**B1000-1 (11), B1000-2 (11G)  
B1001-1 (11Z)**

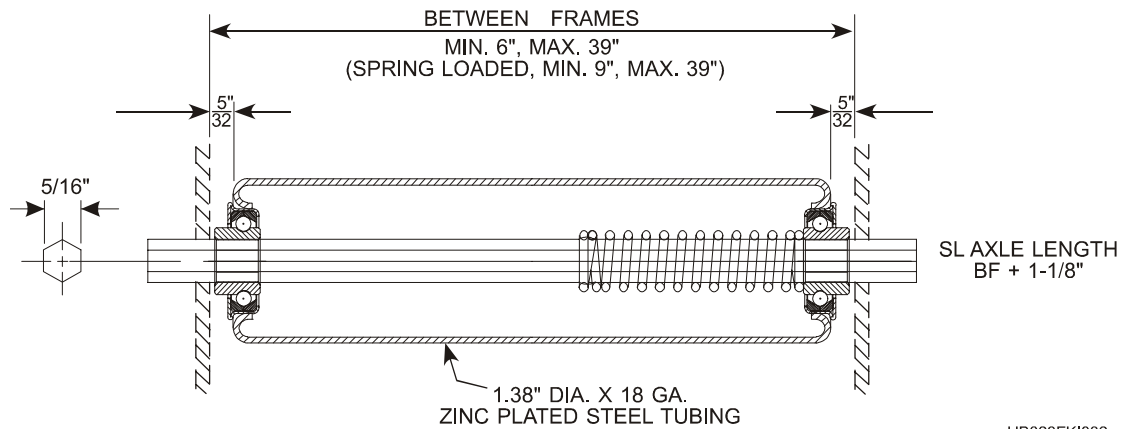


**B1011-6 (Nylon)**

**1.38" Dia. x .049" (18 ga.) Roller - Series B1000-1 Bearing (5/16" Hex Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	15"	1.38" x .049"	B1000-1	1/8"	SL



Rollers with cotted (CC) axles available 6" to 39" W.

Spring loaded (SL) axles available 9" to 39" W only.

\*Rollers with B1011-6 (nylon) bearings are limited to 30" W, 60 lb. capacity and are not available with spring loaded axles.

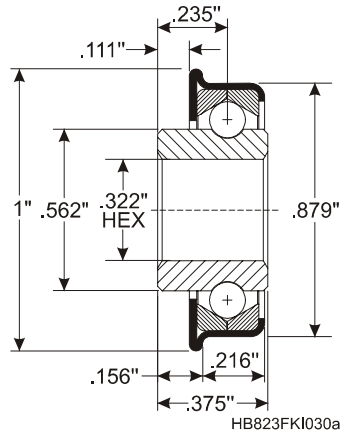
Aluminum rollers (with steel axles) are standard.

Aluminum axles are available, but not spring loaded.

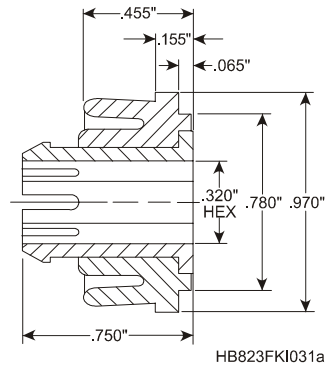
Aluminum rollers (with steel axles) have the same capacity as steel rollers.

STEEL ROLLERS AND AXLES				ALUMINUM ROLLERS AND AXLES			
W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller* Capacity	W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller* Capacity
6"	.6#	.4#	80#	6"	.3#	.2#	80#
9"	.8#	.6#	80#	9"	.4#	.3#	80#
12"	1.1#	.8#	80#	12"	.4#	.3#	80#
15"	1.3#	1.0#	80#	15"	.5#	.4#	80#
18"	1.6#	1.1#	80#	18"	.6#	.4#	79#
21"	1.8#	1.3#	80#	21"	.7#	.5#	73#
24"	2.0#	1.5#	80#	24"	.8#	.6#	63#
27"	2.3#	1.6#	80#	27"	.9#	.6#	56#
30"	2.5#	1.8#	80#	30"	1.0#	.7#	50#
33"	2.8#	2.0#	80#	33"	1.0#	.7#	45#
36"	3.0#	2.2#	80#	36"	1.1#	.8#	41#
39"	3.3#	2.3#	80#	39'	1.2#	.9#	38#

Interpolate for intermediate W's.



**B1000-1 (11), B1000-2 (11G)  
B1001-1 (11Z)**

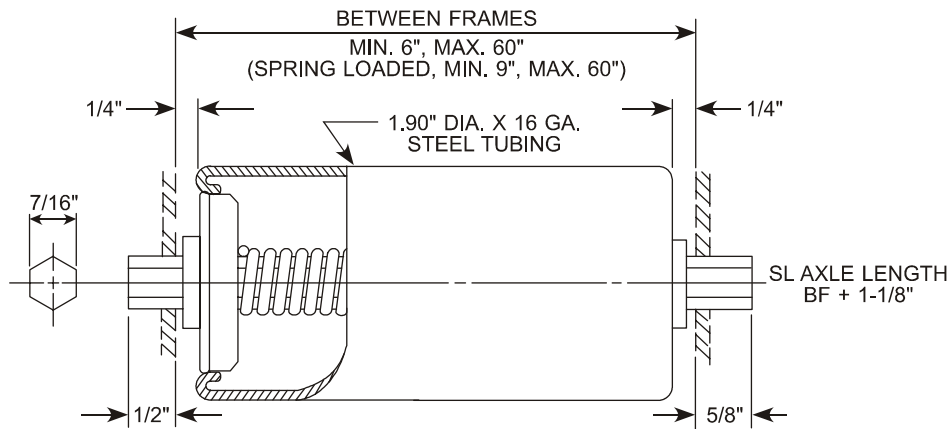


**B1011-6 (Nylon)  
Used with B5234 Housing**

**1.90" Dia. x .065" (16 ga.) Roller - Series B1020 Bearing (7/16" Hex Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	39"	1.90" x .065	B1020-1	1/8"	SL



Rollers with curled ends available 6" to 60" W.

Cottered (CC) axles available 6" to 60" W.

Spring loaded (SL) axles available 9" to 60" W only.

Rollers with B1041-6 (Nylon), B1022-1 (1/2" round) or B1030-2 (Regreasable) bearings are not available with spring loaded axles.

\*Rollers with B1041-6 (Nylon) bearings are limited to 39" W and 100 lb. capacity.

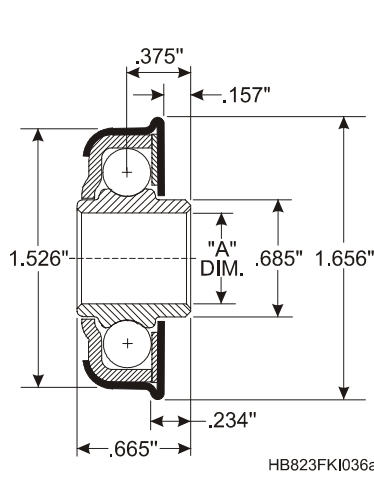
Aluminum rollers (with steel axles) are standard.

Aluminum axles are available, but not spring loaded.

Aluminum rollers (with steel axles) have the same capacity as steel rollers (39" maximum W).

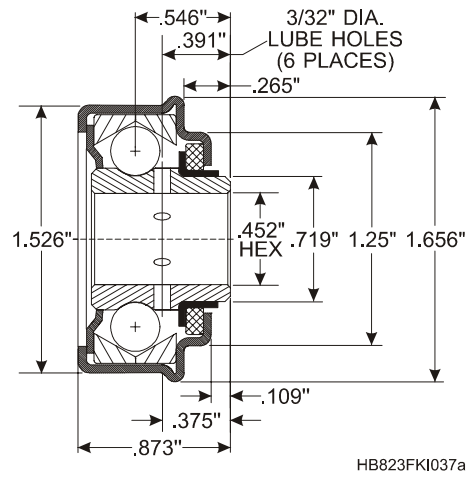
STEEL ROLLERS AND AXLES						ALUMINUM ROLLERS AND AXLES					
W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller* Capacity w/B1020	Roller Capacity w/B1030	Roller Capacity w/B1271	W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller* Capacity w/B1020	Roller Capacity w/B1030	Roller Capacity w/B1271
6"	1.4#	1.0#	310#	310#	252#	6"	.7#	.5#	310#	310#	200#
9"	1.8#	1.3#	310#	310#	252#	9"	.8#	.6#	310#	310#	128#
15"	2.7#	2.0#	310#	310#	214#	15"	1.2#	.9#	248#	182#	73#
21"	3.6#	2.6#	310#	310#	145#	21"	1.5#	1.1#	173#	126#	50#
27"	4.6#	3.3#	310#	290#	103#	27"	1.8#	1.3#	133#	96#	35#
33"	5.5#	3.9#	306#	234#	74#	33"	2.1#	1.5#	108#	78#	25#
39"	6.4#	4.5#	272#	196#	50#	39"	2.4#	1.7#	90#	65#	17#
45"	7.4#	5.2#	233#	168#	28#						
51"	8.3#	5.8#	204#	146#	8#						
57"	9.3#	6.4#	181#	129#	---						
60"	9.8#	6.8#	171#	122#	---						

Interpolate for intermediate W's.



HB823FKI036a

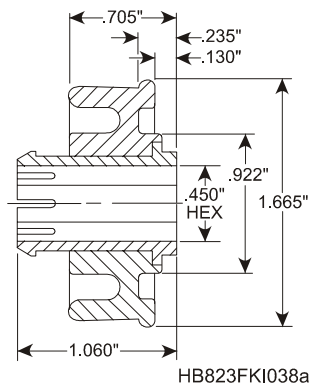
- B1020-1 (29000)**
- B1020-2 (29010)**
- B1022-1 (29013)**



HB823FKI037a

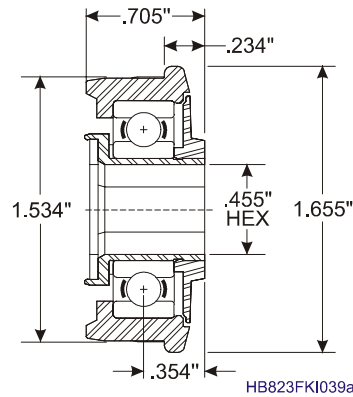
- B1030-2 (294)**
- B1031-2 (296) w/o Grease Holes**

Part No.	"A" Dim.
B1020-1	.452" Hex.
B1020-2	.452" Hex.
B1022-1	.507 Dia.



HB823FKI038a

- B1041-6 (Nylon)**



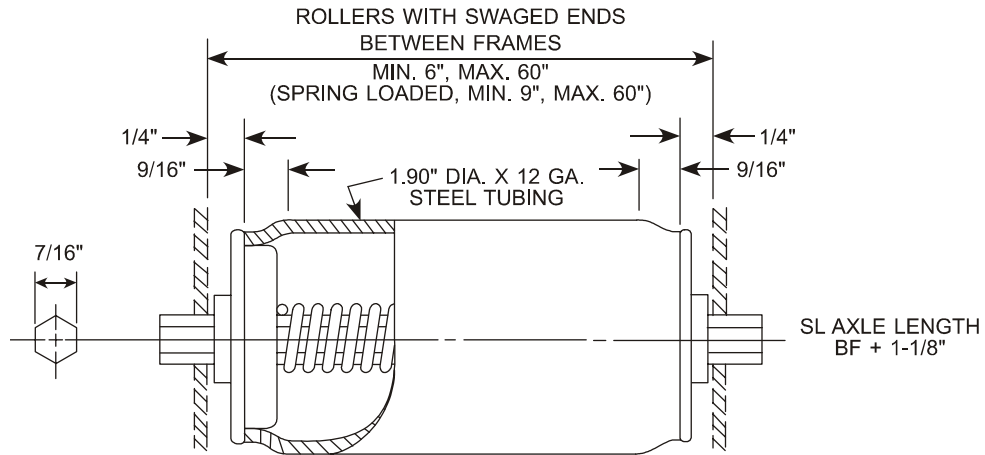
HB823FKI039a

- B1271 (Grease Packed)**

**1.90" Dia. x .109" (12 ga.) Roller - Series B1020 Bearing (7/16" Hex Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	27"	1.90" x .109"	B1020-2	1/8"	SL



HB823FKI040a

Rollers with cotteded (CC) axles available 6" to 60" W.

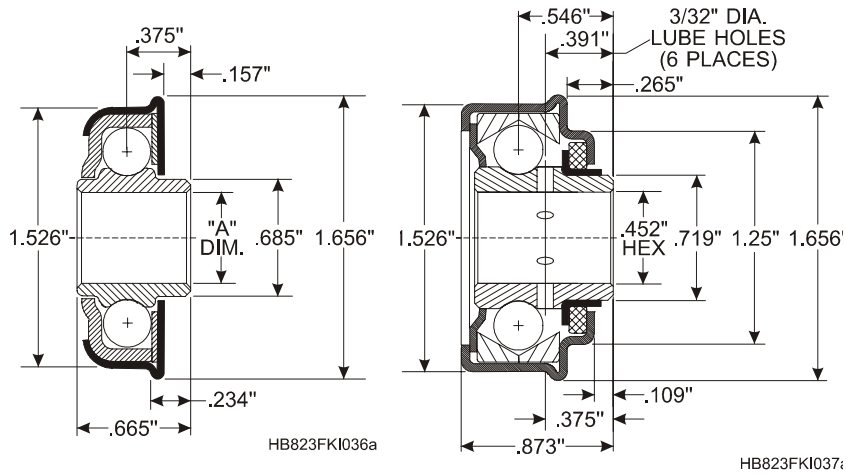
Spring loaded (SL) axles available 9" to 60" W only.

Rollers with B1041-6 (Nylon), B1022-1 (1/2" round) or B1030-2 (Regreasable) bearings are not available with spring loaded axles.

\*Rollers with B1041-6 (Nylon) bearings are limited to 39" W and 100 lb. capacity.

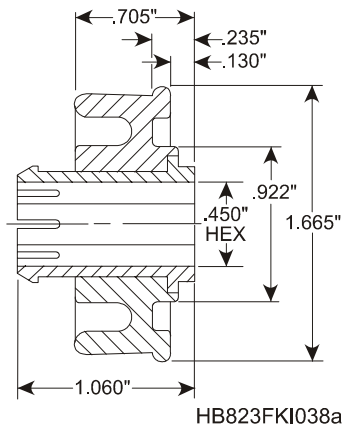
W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller* Capacity w/B1020	Roller* Capacity w/B1030
6"	1.6#	1.3#	310#	310#
9"	2.3#	1.8#	310#	310#
15"	3.6#	2.9#	310#	310#
21"	4.9#	3.9#	310#	310#
27"	6.3#	5.0#	310#	289#
33"	7.6#	6.0#	304#	232#
39"	8.9#	7.1#	269#	193#
45"	10.3#	8.1#	230#	165#
51"	11.6#	9.2#	201#	143#
57"	13.0#	10.2#	177#	125#
60"	13.7#	10.7#	158#	111#

Interpolate for intermediate W's.



**B1020-1 (29000)**  
**B1020-2 (29010)**  
**B1022-1 (29013)**

**B1030-2 (294)**  
**B1031-2 (296) w/o Grease Holes**



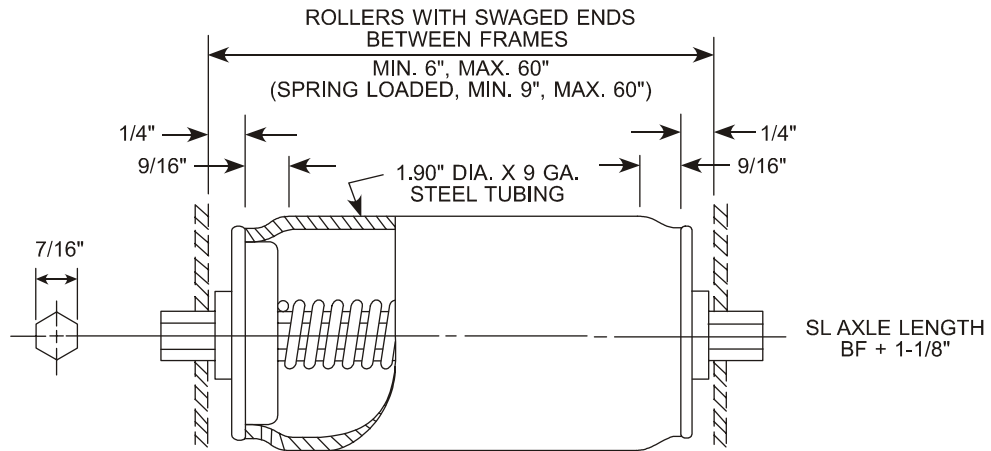
**B1041-6 (Nylon)**

Part No.	"A" Dim.
B1020-1	.452" Hex.
B1020-2	.452" Hex.
B1022-1	.507 Dia.

**1.90" Dia. x .148" (9 ga.) Roller - Series B1020 Bearing (7/16" Hex Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	27"	1.90" x .148"	B1020-2	1/8"	SL



HB823FKI044a

Rollers with cotteded (CC) axles available 6" to 60" W.

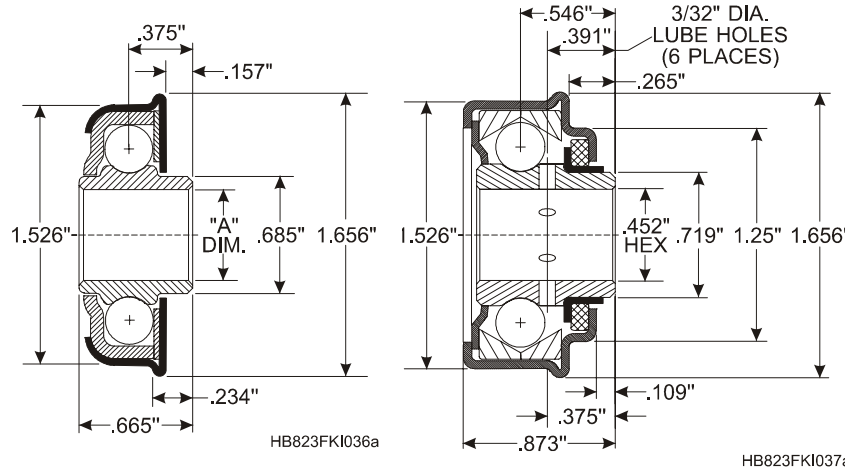
Spring loaded (SL) axles available 9" to 60" W only.

Rollers with B1041-6 (Nylon), B1022-1 (1/2" round) or B1030-2 (Regreasable) bearings are not available with spring loaded axles.

\*Rollers with B1041-6 (Nylon) bearings are limited to 39" W and 100 lb. capacity.

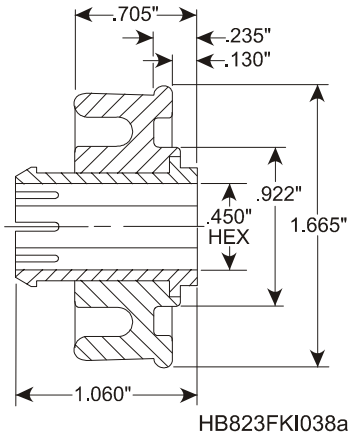
W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller* Capacity w/B1020	Roller* Capacity w/B1030
6"	1.9#	1.7#	310#	310#
9"	2.8#	2.4#	310#	310#
15"	4.5#	3.7#	310#	310#
21"	6.1#	5.1#	310#	310#
27"	7.8#	6.4#	310#	287#
33"	9.4#	7.8#	302#	230#
39"	11.0#	9.2#	267#	191#
45"	12.7#	10.5#	228#	162#
51"	14.2#	11.8#	198#	140#
57"	15.6#	13.2#	174#	122#
60"	16.3#	13.9#	155#	108#

Interpolate for intermediate W's.



**B1020-1 (29000)**  
**B1020-2 (29010)**  
**B1022-1 (29013)**

**B1030-2 (294)**  
**B1031-2 (296) w/o Grease Holes**



Part No.	"A" Dim.
B1020-1	.452" Hex.
B1020-2	.452" Hex.
B1022-1	.507" Dia.

**B1041-6 (Nylon)**

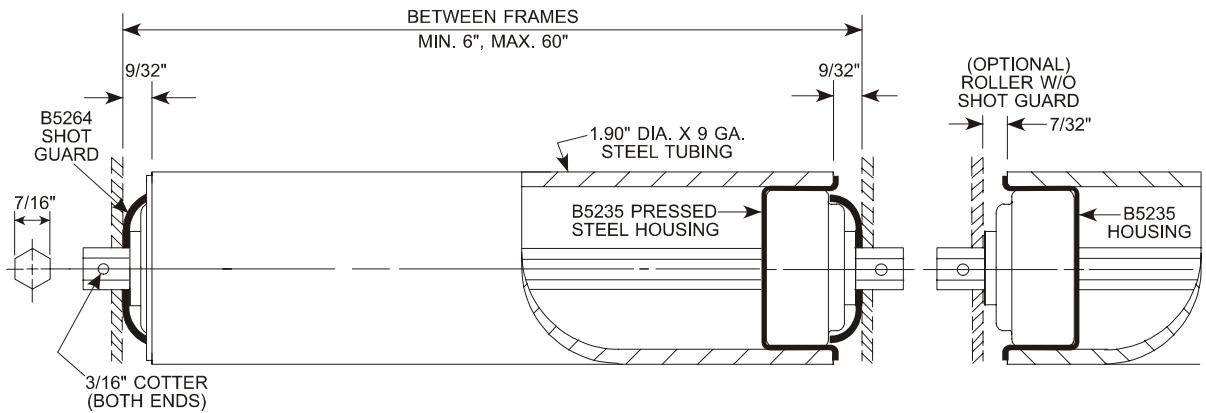
**1.90" Dia. x .148" (9 ga.) Roller - Series B1050 (330) Bearing (7/16" Hex Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction	Options
Typical Example:	39"	1.90" x .148"	B1050-1	1/4"	CC	Less Shot Guards

Note: Shot guards will be supplied unless otherwise specified.

**With Shot Guards**



Rollers are available 6" to 60" W.

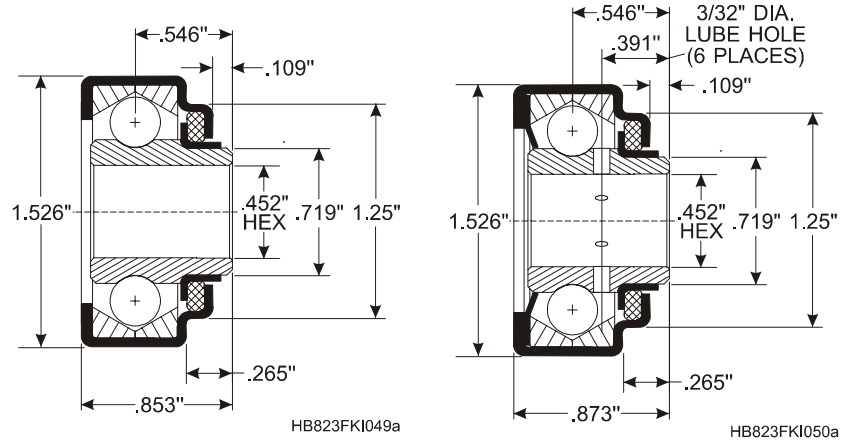
Rollers with housings and cotted (CC) axles are standard.

Spring loaded axles are not available.

\*Rollers with B1052-2 (Stainless Steel) bearings are limited to 60# capacity.

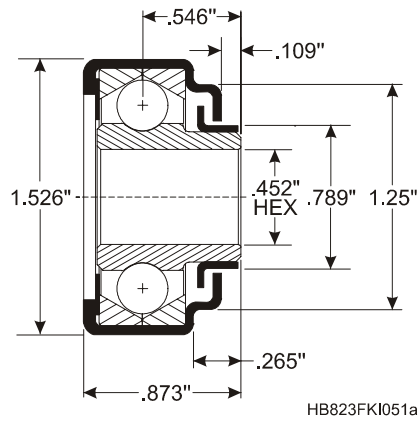
W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller* Capacity w/S.G.	Roller* Capacity w/S.G.
6"	1.9#	1.7#	310#	310#
9"	2.8#	2.4#	310#	310#
15"	4.5#	3.7#	310#	310#
21"	6.1#	5.1#	305#	305#
27"	7.8#	6.4#	260#	287#
33"	9.4#	7.8#	208#	230#
39"	11.0#	9.2#	172#	191#
45"	12.7#	10.5#	146#	162#
51"	14.3#	11.9#	126#	140#
57"	15.7#	13.3#	109#	122#
60"	16.4#	14.0#	96#	108#

Interpolate for intermediate W's.



**B1050-1 (332)**

**B1051-2 (334)  
(334GP) Grease Packed  
(Axle Not Grease Fitted)**



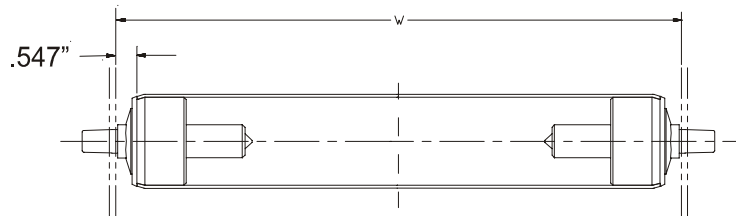
**B1052-2 (330SS)  
Stainless Steel  
(30# Capacity)**

**1.90" Dia. x .065" (16 ga.) Roller - Series B2001 - Bearing (7/16" Hex Axle)**

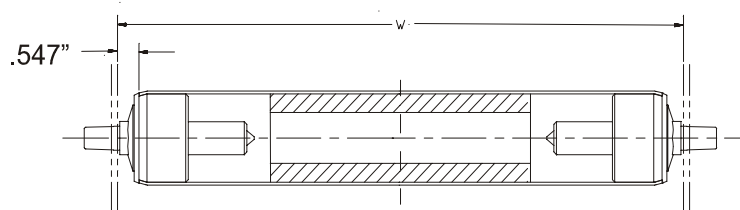
**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Options
Typical Example:	28"	1.90" x .065	B2001	FoaAlkm Grooved Aluminum

Cartridge bearing, crimped ends



Cartridge bearing, crimped ends, sound deadening foam



HB823FKI120a

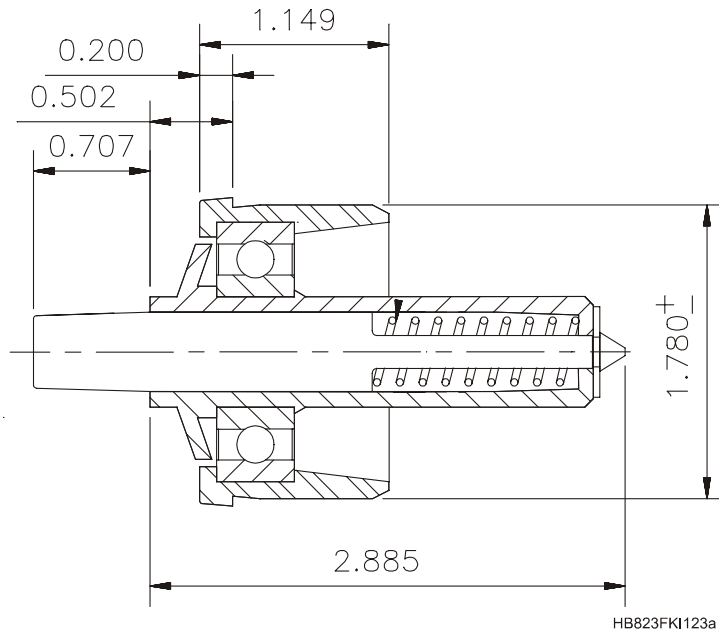
Rollers with crimped ends available 15-40" W.

Cartridge bearings have spring loaded tapered hex, hardened, zinc plated axles.

Grooved rollers available

Standard roller materials galvanized steel. Plain steel and aluminum is available.

W	Steel			Aluminum		
	Roller Wt.	Roller Wt. w/Foam	Capacity Lbs.	Roller Wt.	Roller Wt. w/Foam	Capacity Lbs.
15	2.10	2.15	100#	1.14	1.18	100#
16	2.21	2.26	100#	1.18	1.22	100#
18	2.42	2.48	100#	1.25	1.31	100#
21	2.74	2.81	100#	1.36	1.43	100#
22	2.85	2.92	100#	1.40	1.47	100#
24	3.06	3.15	100#	1.47	1.56	100#
27	3.38	3.48	100#	1.58	1.68	100#
28	3.49	3.59	100#	1.62	1.73	100#
30	3.70	3.82	100#	1.69	1.81	100#
33	4.02	4.15	100#	1.80	1.94	100#
34	4.12	4.26	100#	1.84	1.98	100#
36	4.34	4.48	100#	1.91	2.06	100#
39	4.65	4.82	100#	2.03	2.19	100#
40	4.76	4.93	100#	2.06	2.23	100#



**B2001**

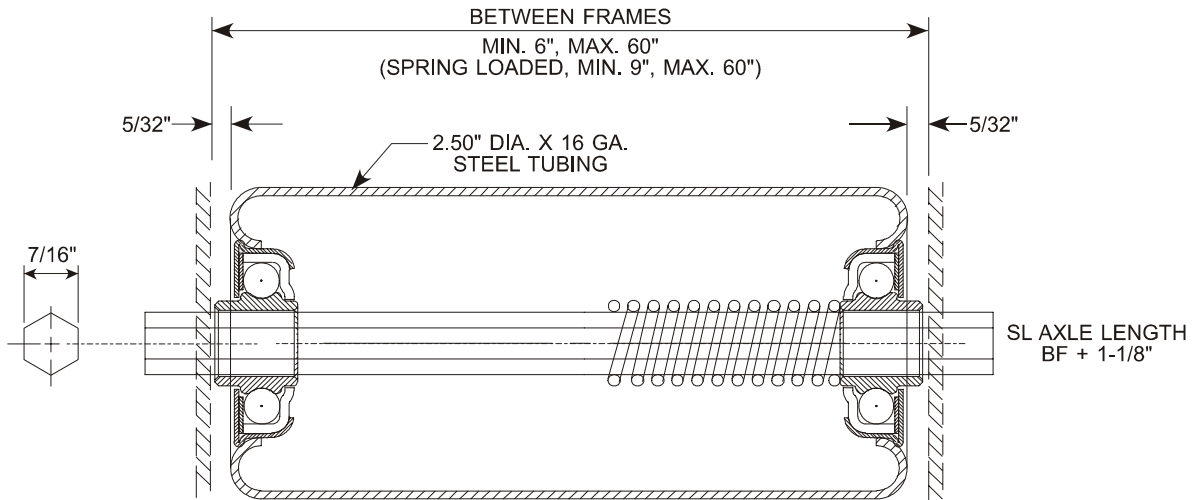
HB823FK123a



**2.50" Dia. x .065" (16 ga.) Roller - Series B1020 Bearing (7/16" Hex Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	15"	2.50" x .065"	B1020-2	1/8"	SL



HB823FKI052a

Rollers with cotted (CC) axles available 6" to 60" W.

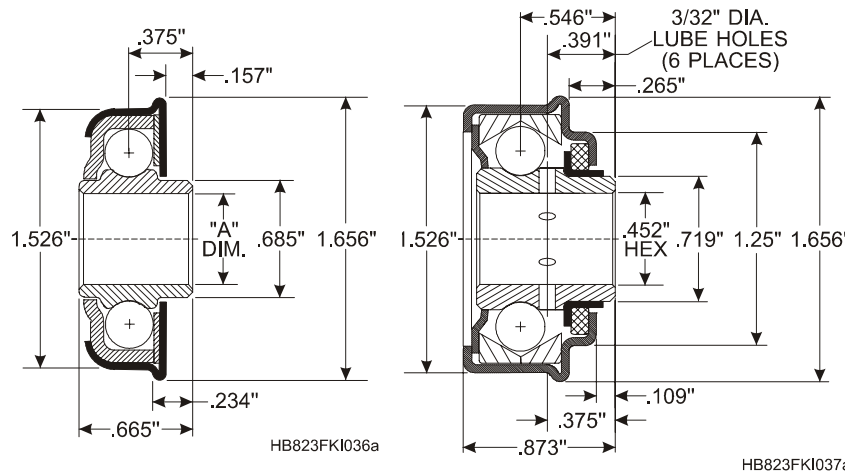
Rollers with spring loaded (SL) axles available 9" to 60" W.

Rollers with B1041-6 (Nylon), B1022-1 (1/2" round) or B1030-2 (Regreasable) bearings are not available with spring loaded axles.

\*Rollers with B1041-6 (Nylon) bearings are limited to 39" W and 100 lb. capacity.

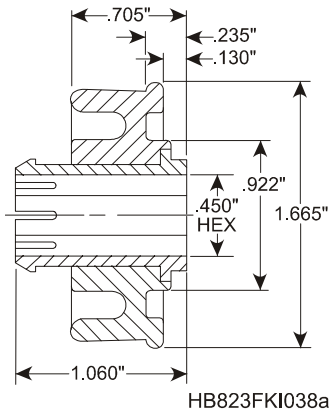
W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller* Capacity w/B1020	Roller* Capacity w/B1030
6"	1.6#	1.2#	310#	310#
9"	2.3#	1.8#	310#	310#
15"	3.7#	2.9#	310#	310#
21"	5.0#	4.0#	310#	310#
27"	6.4#	5.0#	305#	262#
33"	7.7#	6.1#	282#	211#
39"	9.1#	7.2#	235#	175#
45"	10.4#	8.2#	201#	149#
51"	11.8#	9.3#	175#	129#
57"	13.2#	10.3#	154#	113#
60"	13.9#	10.8#	145#	106#

Interpolate for intermediate W's.



**B1020-1 (29000)**  
**B1020-2 (29010)**  
**B1022-1 (29013)**

**B1030-2 (294)**  
**B1031-2 (296) w/o Grease Holes**



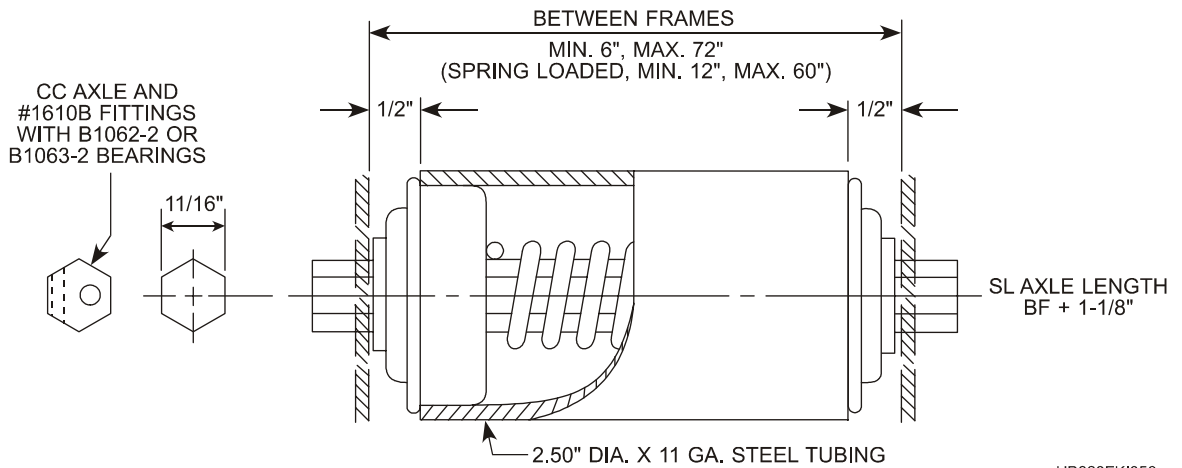
Part No.	"A" Dim.
B1020-1	.452" Hex.
B1020-2	.452" Hex.
B1022-1	.507" Dia.

**B1041-6 (Nylon)**

**2.50" Dia. x .120" (11 ga.) Roller - Series B1060 (480) Bearing (11/16" Hex Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	15"	2.50" x .120"	B1060-1	3/8"	SL



HB823FKI056a

Rollers with cotted (CC) axles available 6" to 72" W.

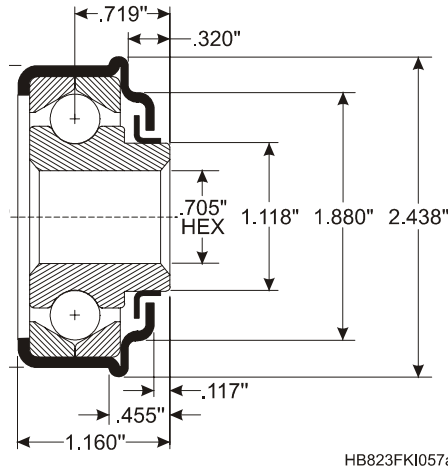
Spring loaded (SL) axles available 12" to 60" W only.

Rollers with B1062-2 (Regreasable) bearings are not available with spring loaded axles.

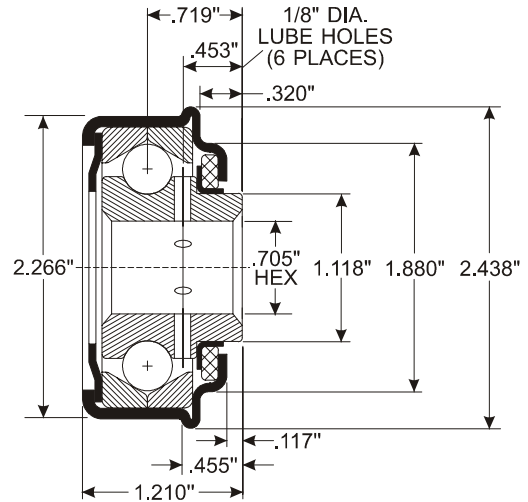
Rollers with B1063-2 (Round Bore) bearings are supplied with "D" end (DE) axles. Not available spring loaded.

W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller Capacity
6"	3.6#	2.7#	610#
9"	4.7#	3.5#	610#
15"	6.9#	5.0#	610#
21"	9.2#	6.6#	610#
27"	11.4#	8.1#	610#
33"	13.6#	9.6#	610#
39"	15.8#	11.1#	610#
45"	18.0#	12.6#	597#
51"	20.3#	14.2#	596#
57"	22.5#	15.8#	586#
63"	24.7#	17.4#	526#
69"	26.9#	19.0#	476#
72"	28.0#	19.8#	455#

Interpolate for intermediate W's.



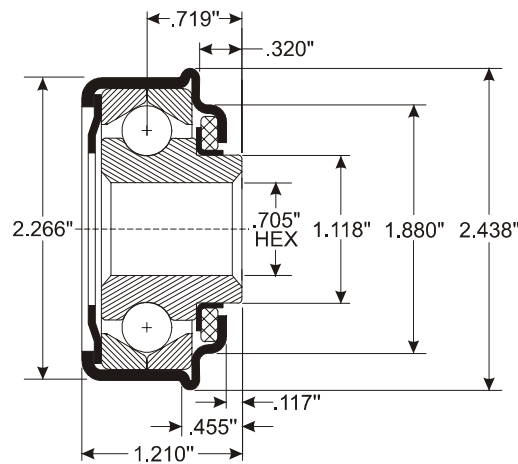
HB823FKI057a



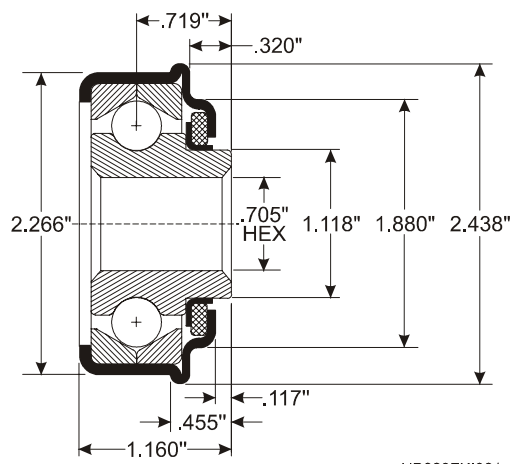
HB823FKI058a

**B1060-1 (481)  
B1060-2 (481G)**

**B1062-2 (484)  
(Not available with SL Axle)**



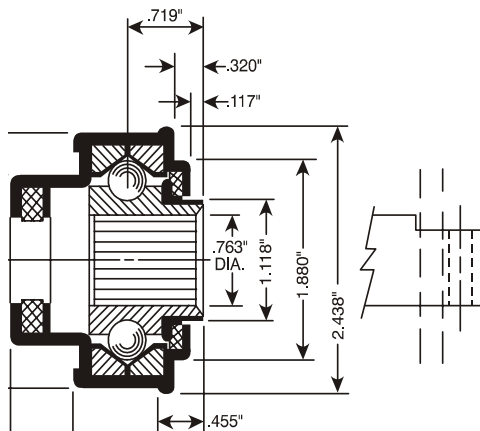
HB823FKI060a



HB823FKI061a

**B1064-2 (486)**

**B1065-1 (482)**

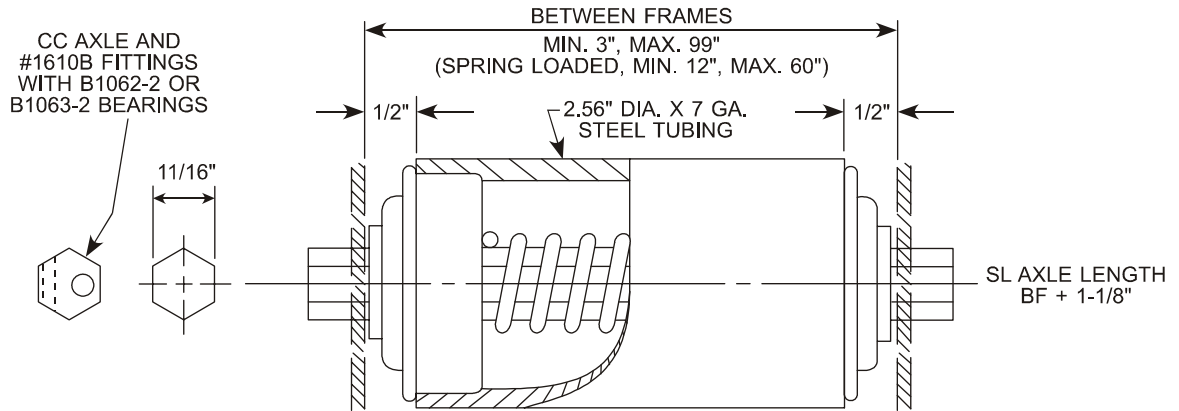


**B1063-2 (484R) (3/4" Round Bore)  
(Not available with Spring Loaded Axle)**

**2.50" Dia. x .180" (7 ga.) Roller - Series B1060 (480) Bearing (11/16" Hex Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	21"	2.56" x .180"	B1064-2	3/8"	SL



HB823FKI062a

Rollers with cotteded (CC) axles available 3" to 99" W.

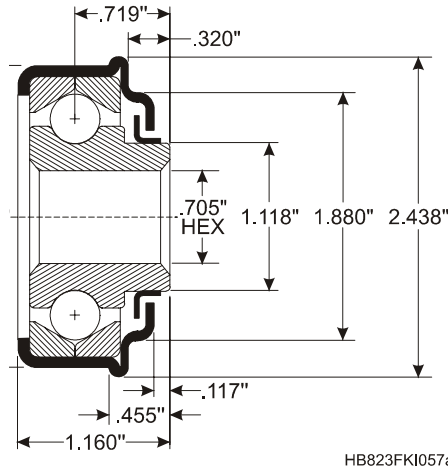
Spring loaded (SL) axles available 12" to 60" W only.

Rollers with B1062-2 (Regreasable) bearings are not available with spring loaded axles.

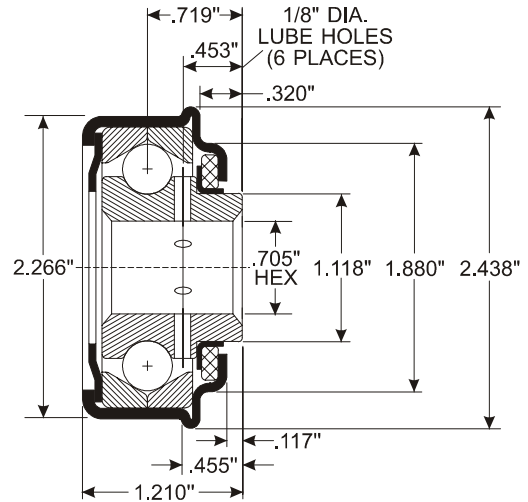
Rollers with B1063-2 (Round Bore) bearings are supplied with "D" end (DE) axles. Not available spring loaded. (Minimum W = 4").

W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller Capacity
3"	2.8#	2.2#	610#
9"	5.7#	4.5#	610#
15"	8.7#	6.8#	610#
21"	11.7#	9.1#	610#
27"	14.7#	11.4#	610#
33"	17.7#	13.7#	610#
39"	20.7#	16.0#	610#
45"	23.7#	18.3#	592#
51"	26.7#	20.6#	590#
57"	29.7#	23.0#	579#
63"	32.7#	25.4#	518#
69"	35.7#	27.8#	468#
75"	38.7#	30.2#	425#
81"	41.7#	32.6#	389#
87"	44.7#	35.0#	321#
93"	47.7#	37.4#	209#
99"	50.7#	39.8#	115#

Interpolate for intermediate W's.



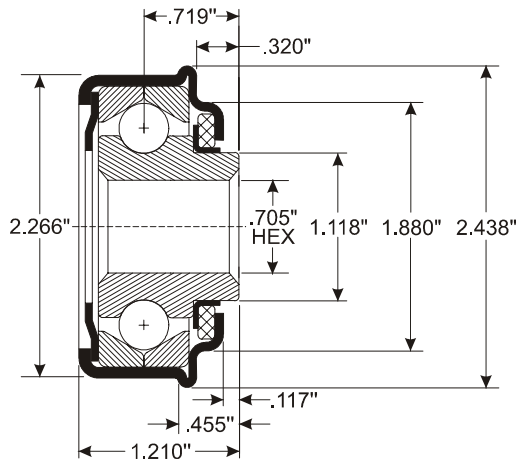
HB823FKI057a



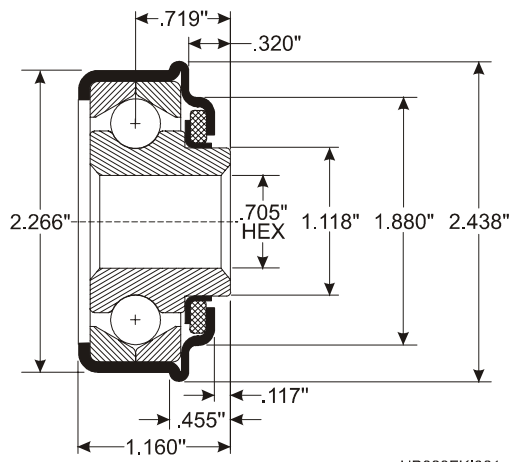
HB823FKI058a

**B1060-1 (481)  
B1060-2 (481G)**

**B1062-2 (484)  
(Not available with SL Axle)**



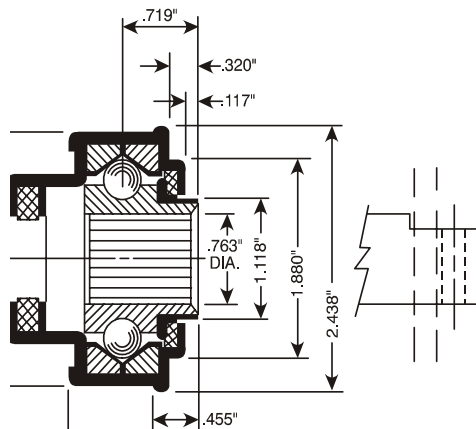
HB823FKI060a



HB823FKI061a

**B1064-2 (486)**

**B1065-1 (482)**



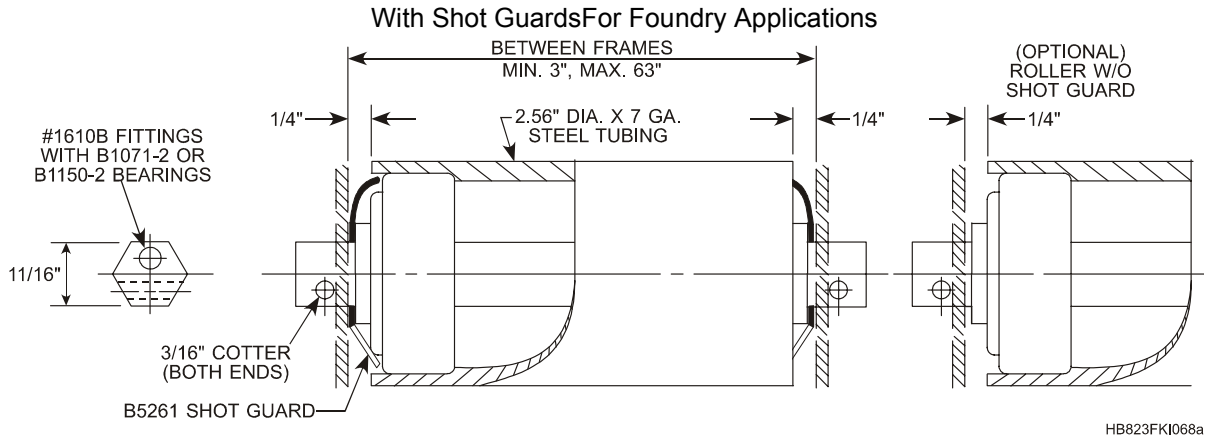
**B1063-2 (484R) (3/4" Round Bore)  
(Not available with SL Axle) (Min. W = 4")**

**2.50" Dia. x .180" (7 ga.) Roller - Series B1070 (530) Bearing (11/16" Hex Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction	Options
Typical Example:	27"	2.56" x .810"	B1073-1	1/4"	CC	Less Shot Guards

Noe: Shot guards will be supplied unless otherwise specified.



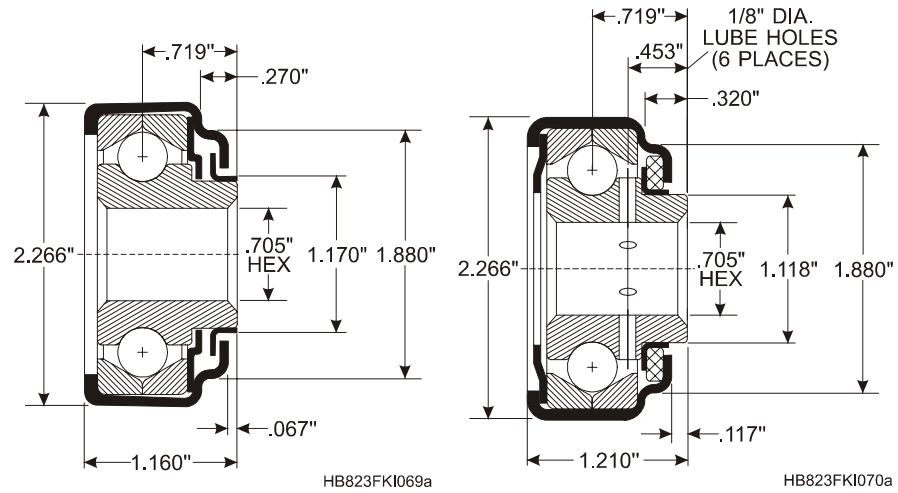
Rollers with cotteded (CC) axles available 3" to 63" W.

Spring loaded axles not available.

Note: Minimum W for rollers with B1150 series bearings is 3-1/2". Shot guards not available.

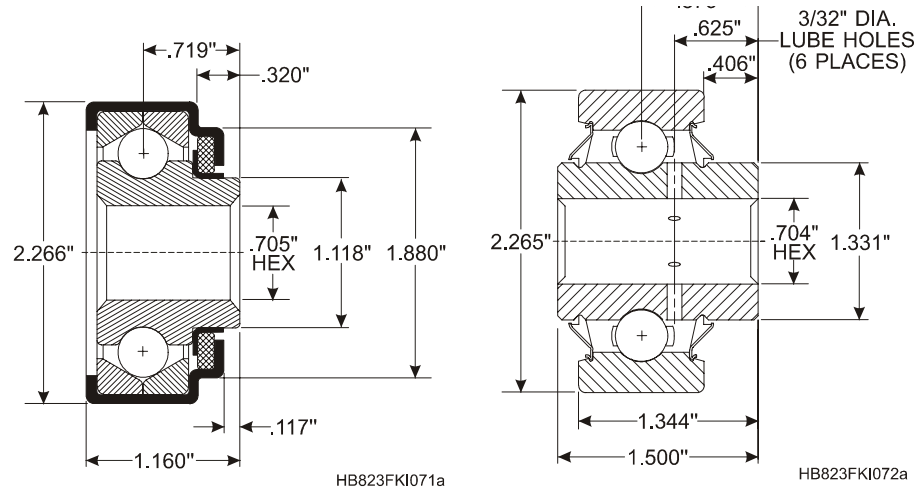
W	Roller Weight w/Axle	Roller Weight w/o Axle	B1070 Roller Capacity w/S.G.	B1070 Roller Capacity w/o S.G.	B1150 Roller Capacity w/o S.G.
3"	3.0#	2.4#	610#	610#	4256#
9"	5.9#	4.7#	610#	610#	3203#
15"	8.9#	7.0#	610#	610#	1721#
21"	11.9#	9.3#	610#	610#	1173#
27"	14.9#	11.6#	610#	610#	887#
33"	17.9"	13.9#	610#	610#	711#
39"	20.9#	16.2#	610#	610#	591#
45"	23.9#	18.5#	591#	591#	505#
51"	26.9#	20.8#	589#	589#	438#
57"	29.9#	23.2#	537#	579#	386#
63"	32.9#	25.6#	480#	518#	344#

Interpolate for intermediate W's.



**B1070-1 (531)**

**B1071-2 (534)  
(534GP) Grease Packed  
(Axle Not Grease Fitted)**



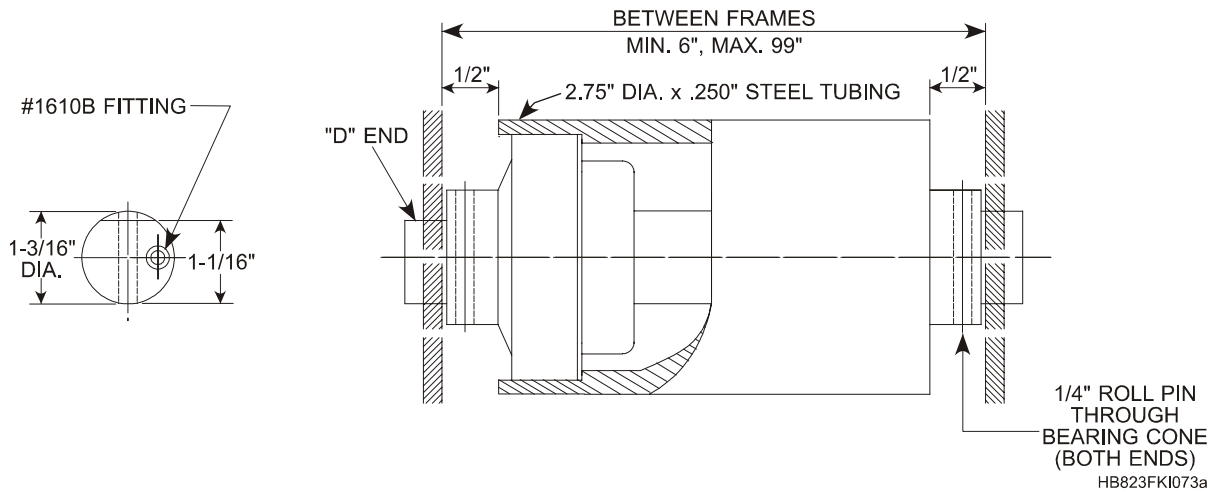
**B1073-1 (532)  
B1073-2 (532G)**

**B1150-2 (20508) Regreasable  
B1151-2 (20506) Grease Packed  
(Minimum W = 3-1/2")  
(Not Available with Shot Guards)**

**2.75" Dia. x .250" Roller - Series B1211 (206J) Bearing (1-3/16" Dia. Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	45"	2.75" x .250"	B1211-2	1/4"	DE

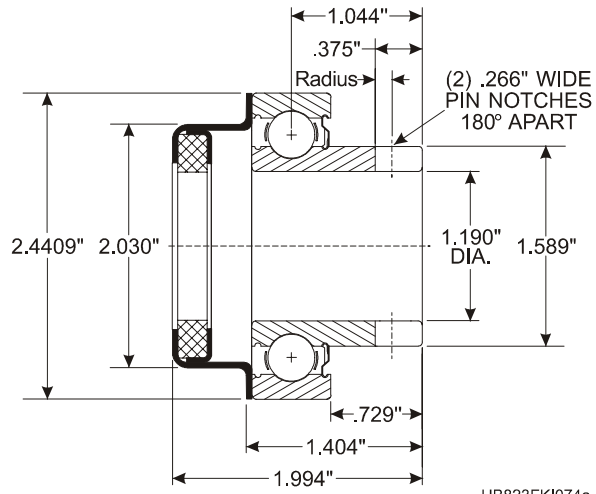


Rollers with "D" end (DE) axles are available 6" to 99" W.

Grease fitted axles will be supplied as standard unless otherwise specified.

W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller Capacity
6"	6.4#	4.2#	3340#
9"	9.0#	5.9#	3340#
15"	14.2#	9.2#	3340#
21"	19.5#	12.5#	3340#
27"	24.7#	15.9#	3340#
33"	29.9#	19.2#	2731#
39"	35.1#	22.5#	2311#
45"	40.3#	25.9#	2003#
51"	45.6#	29.2#	1770#
57"	50.8#	32.5#	1581#
63"	56.2#	35.9#	1431#
69"	61.6#	39.3#	1307#
75"	67.0#	42.7#	1201#
81"	72.4#	46.1#	1113#
87"	77.8#	49.5#	1036#
93"	83.2#	52.9#	970#
99"	88.6#	56.3#	910#

Interpolate for intermediate W's.

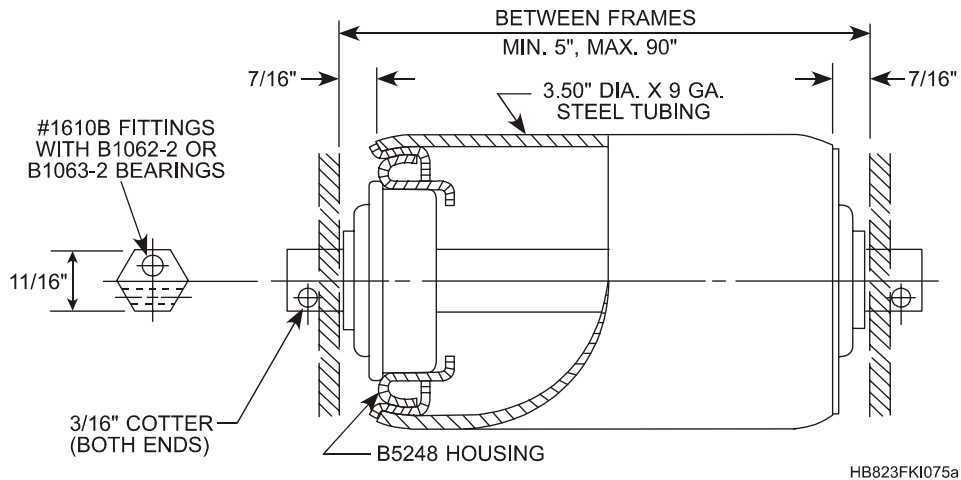


**B1211-2 (206J)**

**3.50" Dia. x .148" (9 ga.) Roller - Series B1060 (480) Bearing (11/16" Hex Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	57"	3.50" x .148"	B1060-1	1/4"	CC



HB823FKI075a

Rollers with cotted (CC) axles available 5" to 90" W.

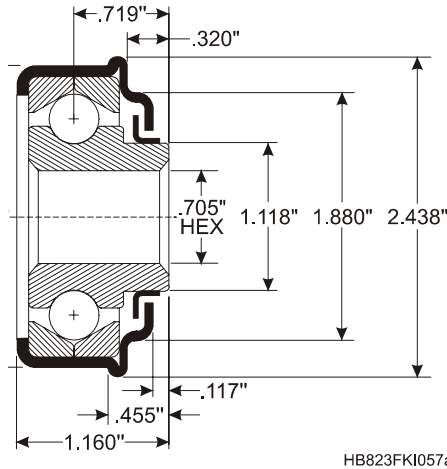
Spring loaded axles not available.

Rollers with B1063-2 (3/4" round bore) bearings will be supplied with "D" end (DE) axles, unless otherwise specified (refer to Selection Guide section, page 11).

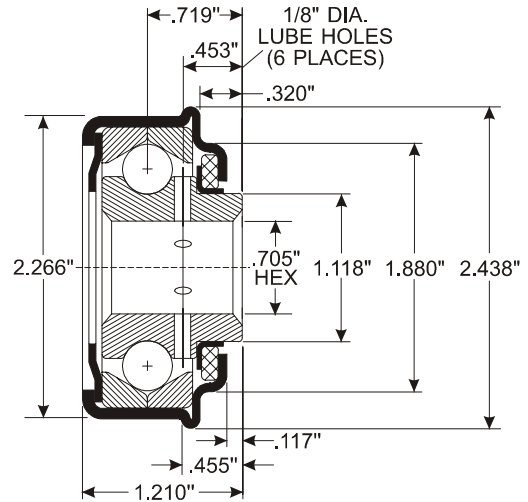
Bearings and housings are not replaceable.

W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller Capacity
5"	4.2#	3.4#	610#
9"	6.5#	5.3#	610#
15"	10.0#	8.0#	610#
21"	13.4#	10.8#	610#
27"	16.9#	13.6#	610#
33"	20.4#	16.4#	610#
39"	23.9#	19.2#	610#
45"	27.4#	22.0#	589#
51"	30.8#	24.8#	585#
57"	34.4#	26.6#	576#
63"	38.0#	30.4#	514#
69"	41.6#	33.2#	463#
75"	45.2#	36.0#	420#
81"	48.8#	38.8#	383#
87"	52.4#	41.6#	351#
90"	54.2#	43.0#	337#

Interpolate for intermediate W's.



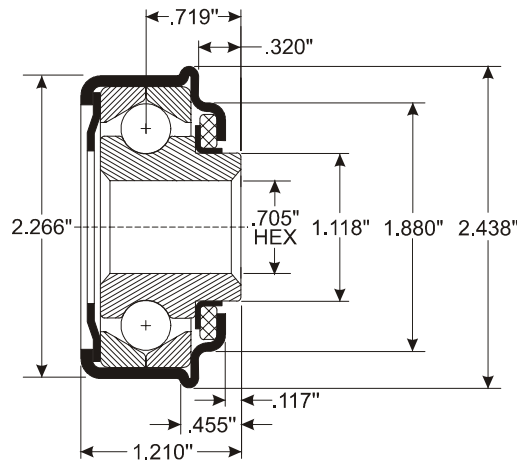
HB823FKI057a



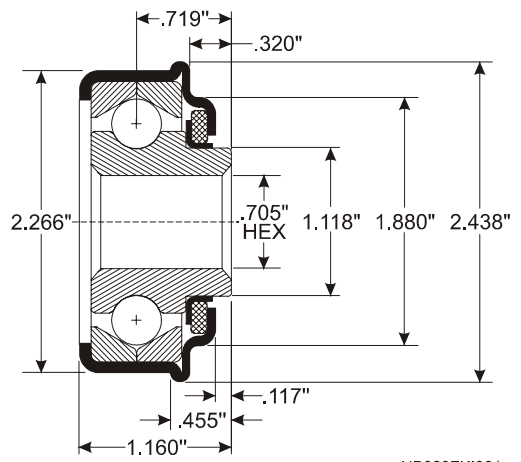
HB823FKI058a

**B1060-1 (481)**  
**B1060-2 (481G)**

**B1062-2 (484)**  
**(Not available with SL Axle)**



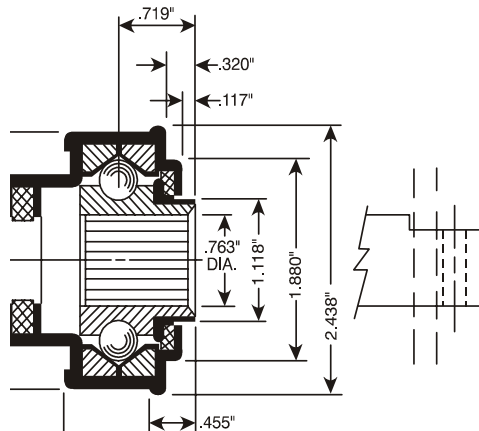
HB823FKI060a



HB823FKI061a

**B1064-2 (486)**

**B1065-1 (482)**



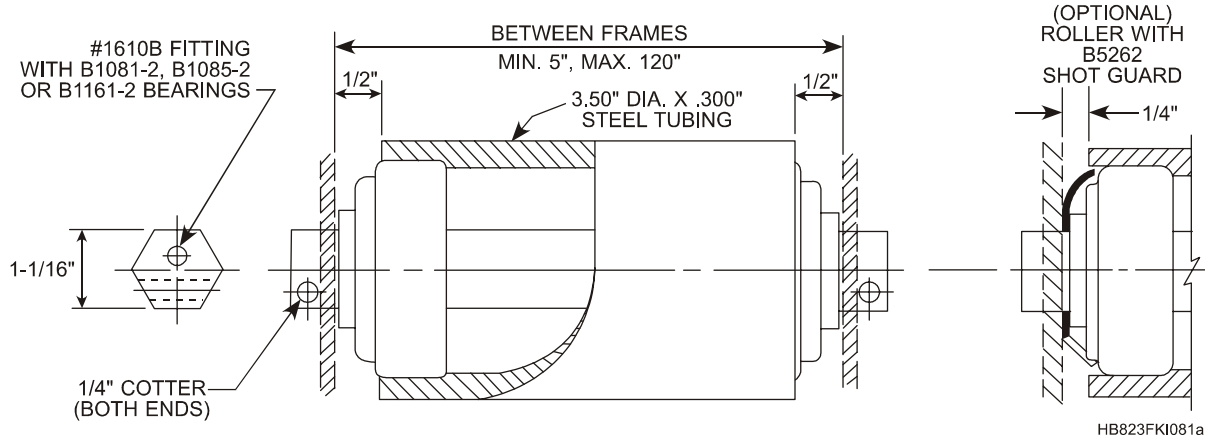
**B1063-2 (484R) (3/4" Round Bore)**

### 3.50" Dia. x .300" Roller - Series B1080 (580) Bearing (1-1/16" Hex Axle)

#### HOW TO ORDER

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction	Options
Typical Example:	39"	3.50" x .300"	B1084-2	3/8"	CC	Shot Guards

NOTE: Shot guards optional. Supplied only when specified.



Rollers with cotted (CC) axles available 5" to 120" W.

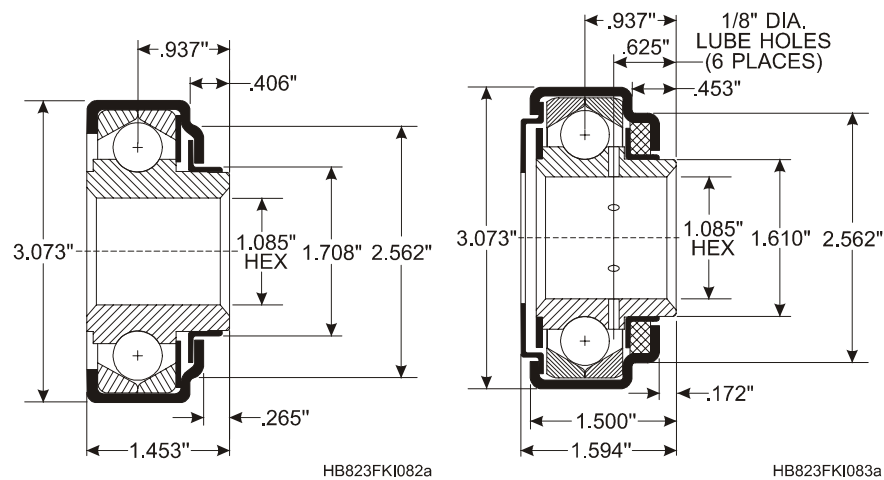
Spring loaded axles not available.

Rollers with B1085-2 (1-3/16" round bore) bearings will be supplied with "D" end (DE) axles unless otherwise specified (refer to Selection Guide section, page 17).

W	Roller Weight w/Axle	Roller Weight w/o Axle	B1080 Roller Capacity w/S.G.	B1080 Roller Capacity w/o S.G.	B1160 Roller Capacity w/o S.G.
5"	8.5#	6.6#	2500#	2500#	7000#
9"	13.1#	10.2#	2500#	2500#	7000#
15"	20.1#	15.5#	2500#	2500#	7000#
21"	27.1#	20.8#	2500#	2500#	6373#
27"	34.1#	26.2#	2500#	2500#	4826#
33"	41.1#	31.5#	2500#	2500#	3879#
39"	48.1#	36.8#	2500#	2500#	3238#
45"	55.1#	42.2#	2500#	2500#	2775#
51"	62.5#	47.5#	2446#	2446#	2424#
57"	69.1#	52.9#	2441#	2441#	2149#
63"	76.1#	58.3#	2233#	2423#	1928#
69"	83.1#	63.7#	2022#	2196#	1745#
75"	90.1#	69.1#	1845#	2005#	1591#
81"	97.1#	74.5#	1694#	1843#	1460#
87"	104.1#	79.9#	1564#	1702#	1347#

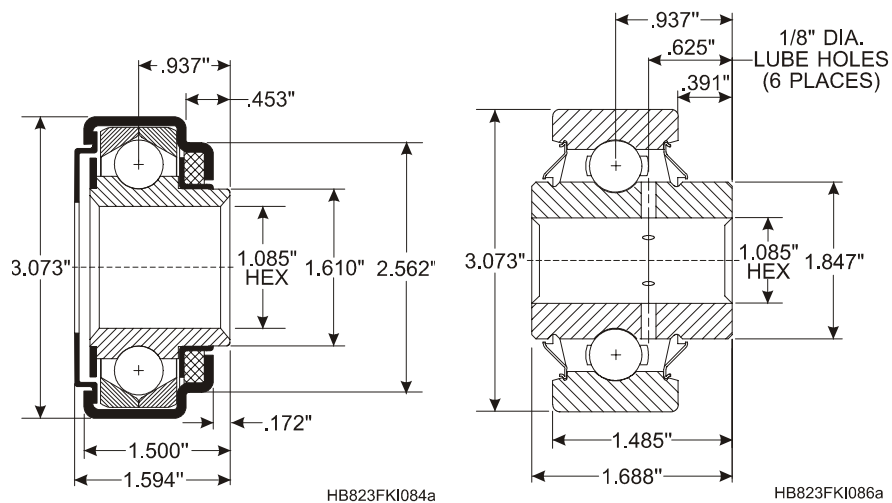
W	Roller Weight w/Axle	Roller Weight w/o Axle	B1080 Roller Capacity w/S.G.	B1080 Roller Capacity w/o S.G.	B1160 Roller Capacity w/o S.G.
93"	111.1#	85.3#	1451#	1580#	1248#
99"	118.1#	90.7#	1351#	1472#	1161#
105"	125.1#	96.1#	1262#	1376#	1083#
111"	132.1#	101.5#	1030#	1130#	1013#
117"	139.1#	106.9#	775#	850#	810#
120"	142.6#	109.6#	648#	723#	738#

Interpolate for intermediate W's.



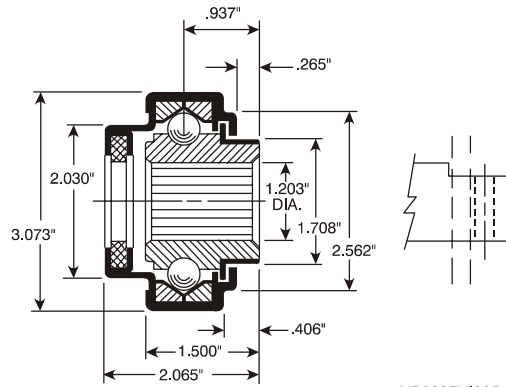
**B1080-1 (581)**

**B1081-2 (584)**



**B1084-2 (586)**

**B1160-2 (20706) Grease Packed  
B1161-2 (20708) Regreasable**



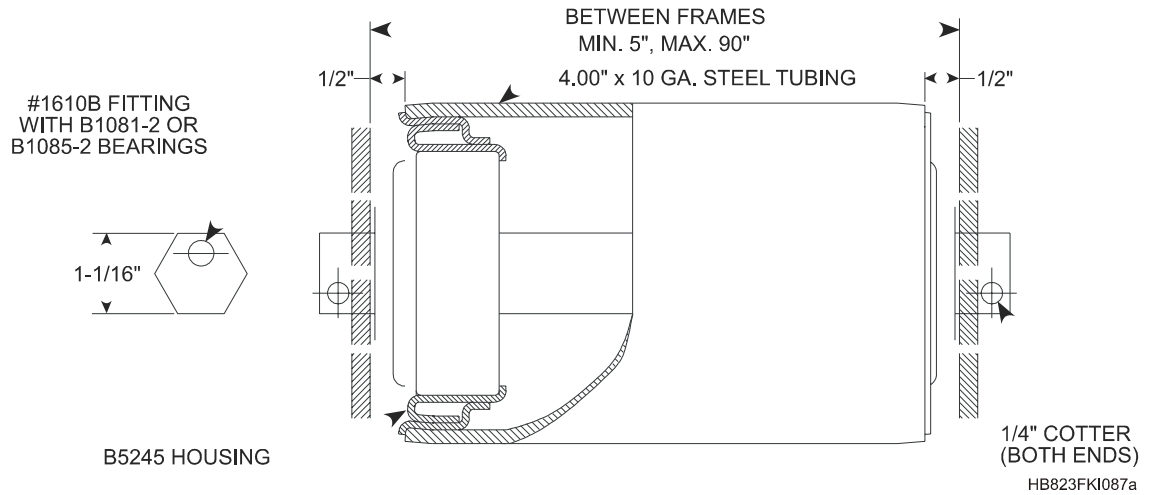
HB823FKI085a

**B1085-2 (58RSBG) (1-3/16" Round Bore)  
(shot guard Not Available with this Bearing)**

**4.00" Dia. x .134" (10 ga.) Roller - Series B1080 (580) Bearing (1-1/16" Hex Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	39"	4.00" x .134"	B1080-1	3/8"	CC



Rollers with cotted (CC) axles available 5" to 90" W.

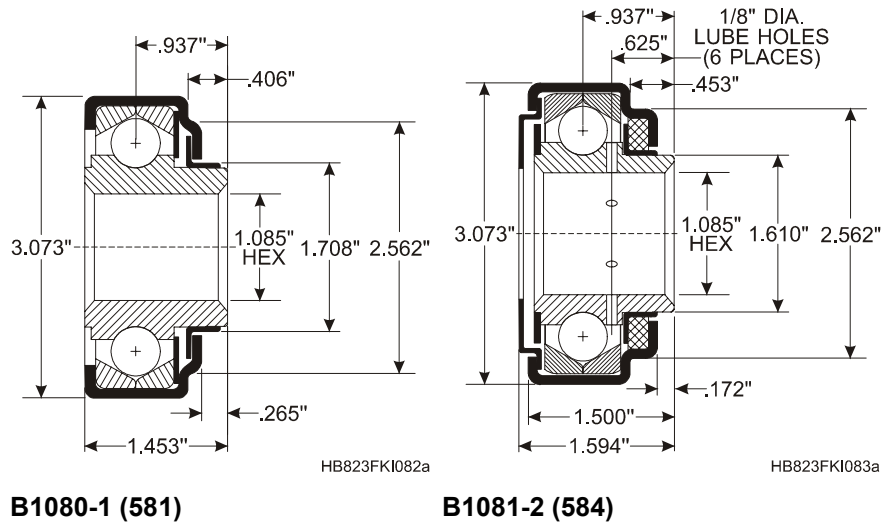
Spring loaded axles not available.

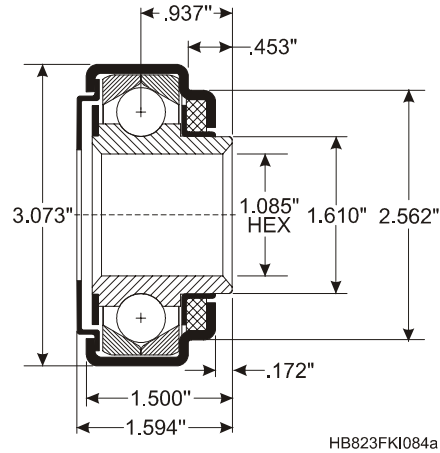
Rollers with B1085-2 (1-3/16" round bore) bearings will be supplied with "D" end (DE) axles unless otherwise specified (refer to Selection Guide section).

Bearings and housings are not replaceable.

W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller Capacity
5"	7.0#	5.0#	1200#
9"	10.3#	7.7#	1200#
15"	14.7#	10.5#	1200#
21"	19.2#	13.2#	1200#
27"	23.6#	16.0#	1200#
33"	28.0#	18.7#	1200#
39"	32.5#	21.5#	1200#
45"	36.9#	24.3#	1200#
51"	41.3#	27.0#	1200#
57"	45.7#	29.8#	1200#
63"	50.2#	32.6#	1200#
69"	54.6#	35.4#	1200#
75"	59.0#	38.2#	1200#
81"	63.4#	41.0#	1200#
87"	67.8#	43.8#	1200#
90"	70.0#	45.2#	1200#

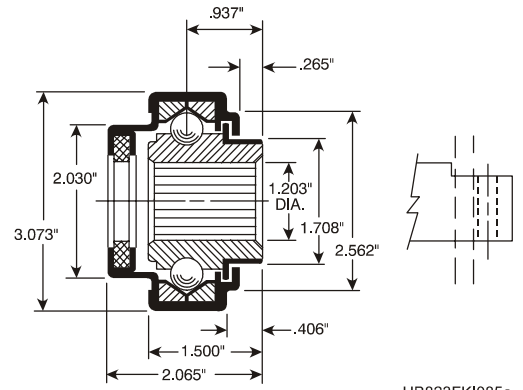
Interplate for Intermediate Widths.





HB823FKI084a

**B1084-2 (586)**



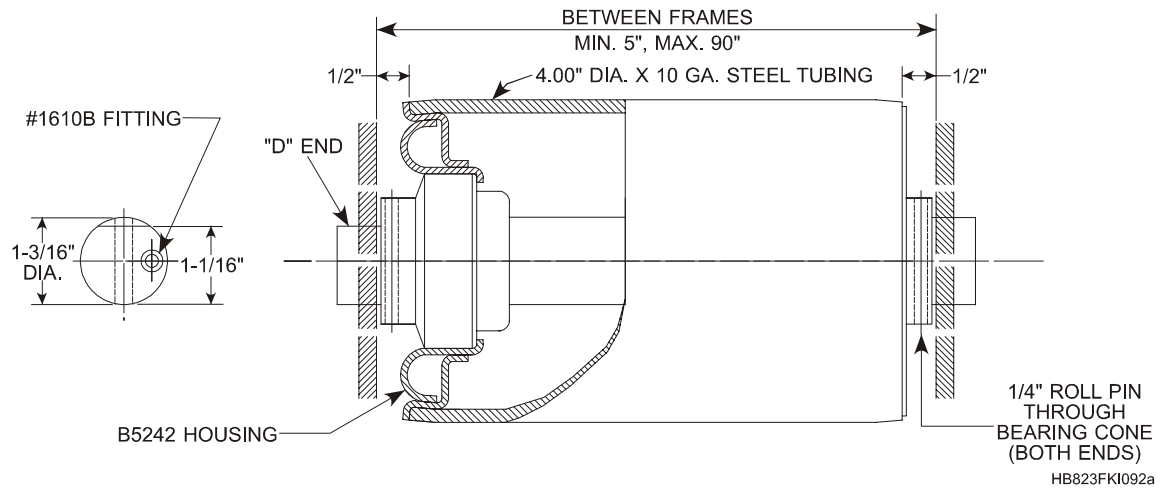
HB823FKI085a

**B1085-2 (58RSBG) (1-3/16" Round Bore)**

**4.00" Dia. x .134" (10 ga.) Roller - Series B1211 (206J) Bearing (1-3/16" Dia. Axle)**

**HOW TO ORDER**

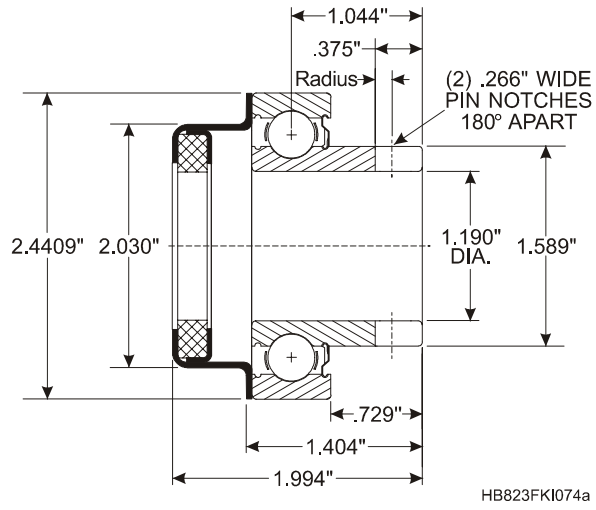
Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	33"	4.00" x .134"	B1211-2	3/8"	DE



Rollers with "D" end (DE) axles available 5" to 90" W.  
 Axles will be grease fitted unless otherwise specified.  
 Bearings and housings are not replaceable.

W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller Capacity
5"	5.0#	3.0#	1200#
9"	8.0#	5.0#	1200#
15"	12.0#	7.0#	1200#
21"	17.0#	10.0#	1200#
27"	21.0#	12.0#	1200#
33"	25.0#	15.0#	1200#
39"	30.0#	17.0#	1200#
45"	34.0#	20.0#	1200#
51"	38.0#	22.0#	1200#
57"	43.0#	25.0#	1200#
63"	49.0#	28.0#	1200#
69"	55.0#	31.0#	1200#
75"	61.0#	34.0#	1200#
81"	67.0#	37.0#	1200#
87"	73.0#	40.0#	1200#
90"	76.0#	41.5#	1200#

Interpolate for intermediate W's.

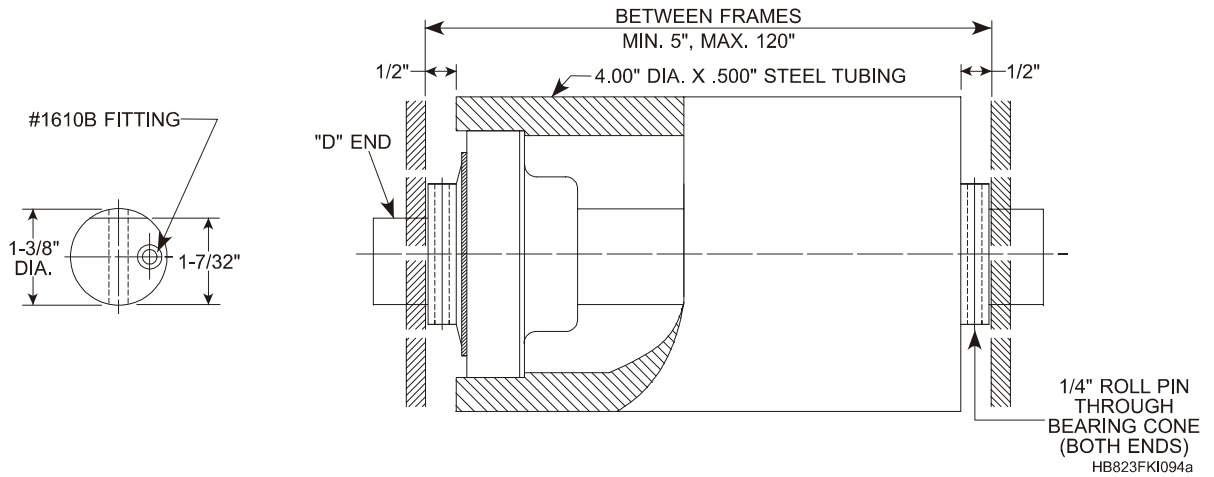


**B1211-2 (206J)**

**4.00" Dia. x .500" Roller - Series B1221 (60A) Bearing (1-3/8" Dia. Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	45"	4.00" x .500"	B1221-2	1/2"	DE

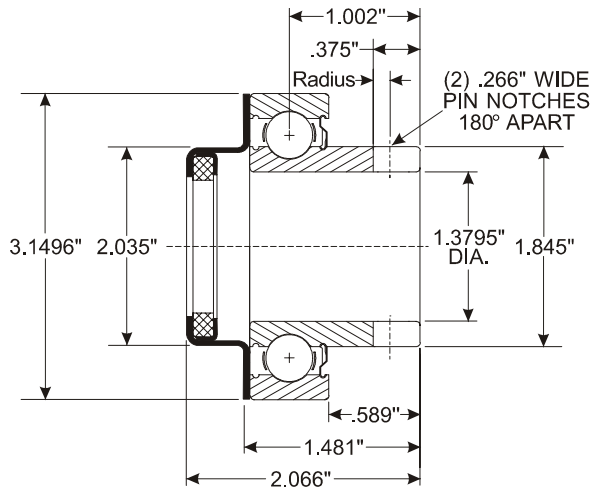


Rollers with "D" end (DE) axles available 5" to 120" W.  
 Axles will be grease fitted unless otherwise specified.

W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller Capacity
5"	11#	9#	5840#
9"	19#	15#	5840#
15"	31#	24#	5840#
21"	43#	34#	5840#
27"	55#	43#	5840#
33"	67#	52#	5840#
39"	79#	62#	5778#
45"	90#	71#	5769#
51"	102#	80#	5134#
57"	114#	90#	4552#
63"	126#	100#	4084#
69"	138#	110#	3699#
75"	150#	120#	3375#
81"	162#	130#	3100#
87"	174#	140#	2862#
93"	186#	150#	2654#

W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller Capacity
99"	198#	160#	2471#
105"	210#	170#	2309#
111"	222#	180#	2163#
117"	234#	190#	2031#
120"	240#	195#	1970#

Interpolate for intermediate W's.



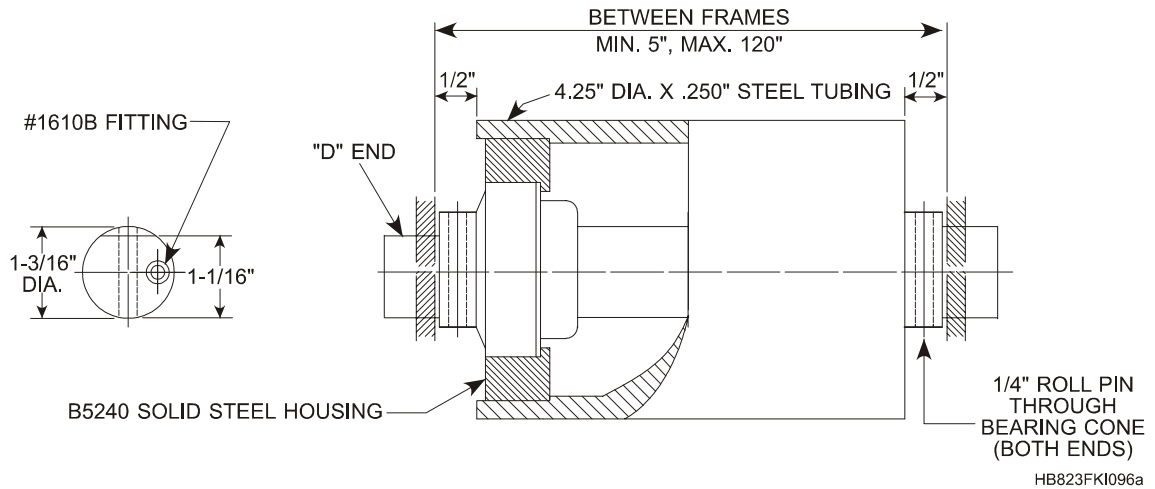
HB823FKI095a

**B1221-2 (60A) (60B)**

**4.00" Dia. x .250" Roller - Series B1211 (206J) Bearing (1-3/16" Dia. Axle)**

**HOW TO ORDER**

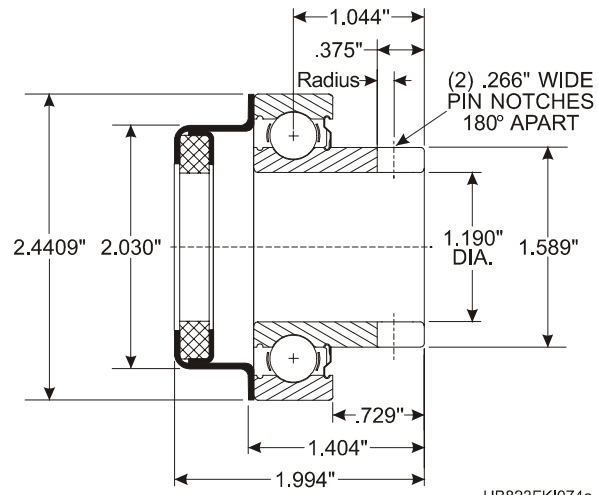
Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	39"	4.25" x .250"	B1211-2	1/4"	DE



Rollers with "D" end (DE) axles available 5" to 120" W.  
 Axles will be grease fitted unless otherwise specified.

W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller Capacity
5"	11.5#	8.0#	3340#
9"	14.0#	12.0#	3340#
15"	20.0#	19.0#	3340#
21"	26.0#	25.0#	3340#
27"	33.0#	30.0#	3340#
33"	41.0#	36.0#	3340#
39"	48.0#	41.0#	3302#
45"	55.0#	46.0#	3128#
51"	62.0#	52.0#	2732#
57"	70.0#	57.0#	2421#
63"	78.0#	62.0#	2171#
75"	94.0#	72.0#	1793#
87"	110.0#	82.0#	1518#
99"	126.0#	92.0#	1309#
111"	142.0#	102.0#	1144#
120"	154.0#	110.0#	1041#

Interpolate for intermediate W's.



HB823FKI074a

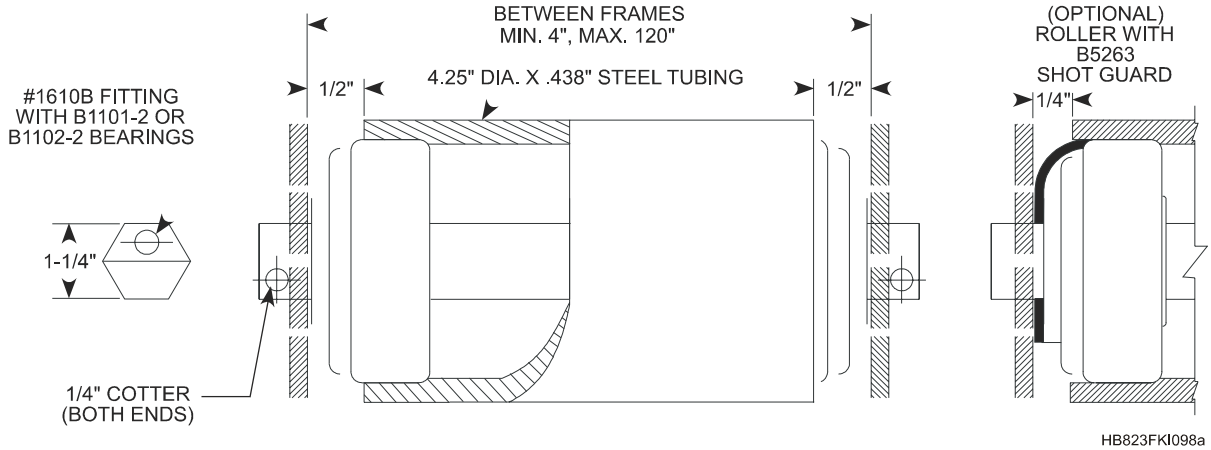
**B1211-2 (206J)**

**4.25" Dia. x .438" Roller - Series B1100 (630) Bearing (1-1/4" Hex Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction	Options
Typical Example:	39"	4.25" x .438"	B1100-1	3/8"	CC	Shot Guards

NOTE: Shot guards optional. Supplied only when specified.

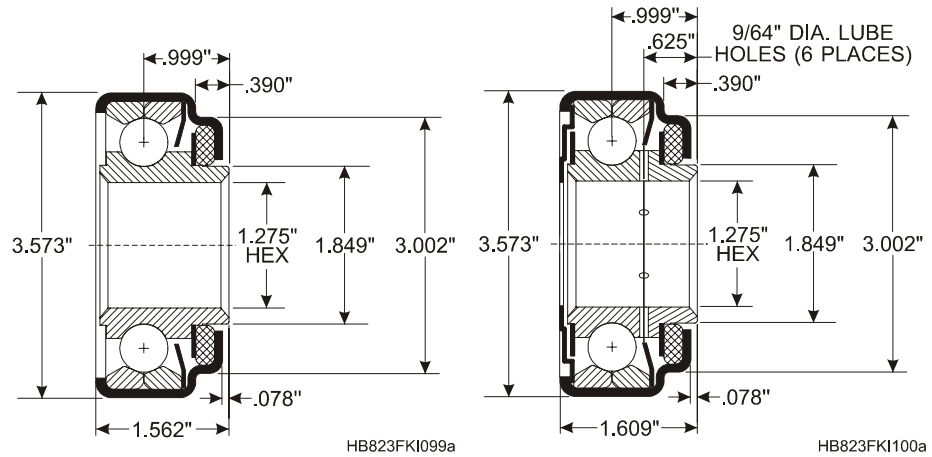


Rollers with cotted (CC) axles available 4" to 120" W.

Rollers with B1102-2 (1-7/16" round bore) bearings will be supplied with "D" end (DE) axles unless otherwise specified (refer to Selection Guide section).

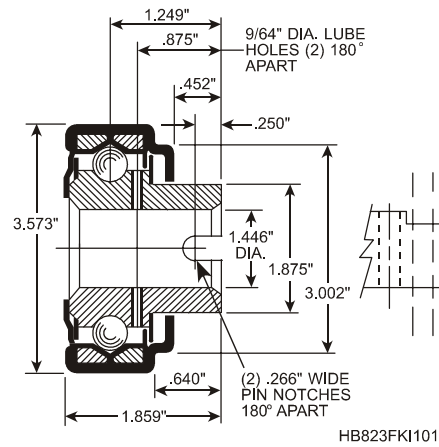
W	Roller Weight w/Axle	Roller Weight w/o Axle	B1080 Roller Capacity w/S.G.	Roller Capacity w/o S.G.
4"	11#	9#	4500#	4500#
9"	20#	16#	4500#	4500#
15"	32#	25#	4500#	4500#
21"	43#	34#	4500#	4500#
27"	54#	43#	4500#	4500#
33"	65#	52#	4500#	4500#
39"	76#	61#	4500#	4500#
45"	88#	70#	4500#	4500#
51"	99#	79#	4500#	4500#
57"	110#	88#	4416#	4416#
63"	121#	97#	3971#	4282#
75"	144#	115#	3281#	3542#
87"	166#	133#	2781#	3006#
99"	188#	151#	2402#	2600#
111"	211#	169#	2102#	2279#
120"	228#	182#	1915#	2078#

Interpolate for intermediate W's.



**B1100-1 (632)**

**B1101-2 (634)**

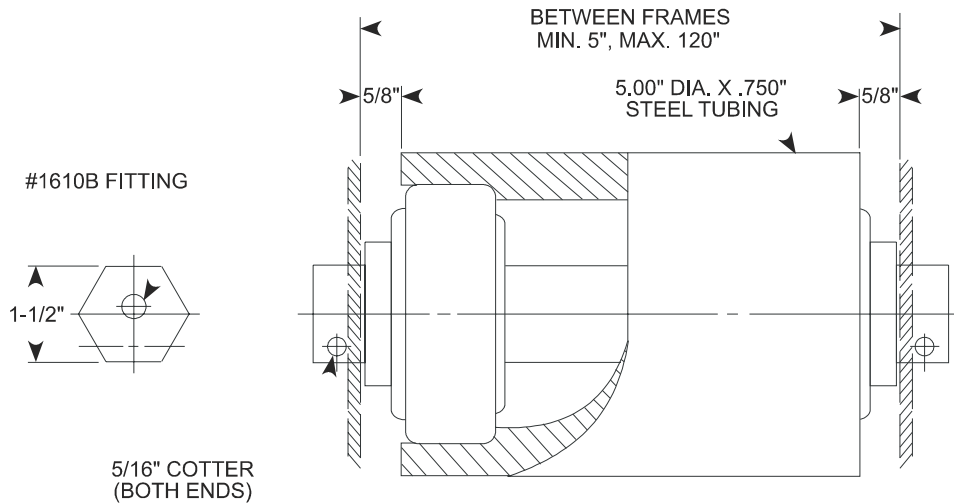


**B1102-2 (63RSBG) 62-SB (1-7/16" Round Bore)**

**5.00" Dia. x .750" Roller - Series B1120 (1103) Bearing (1-1/2" Hex Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	87"	5.00" x .750"	B1120-2	1/2"	CC

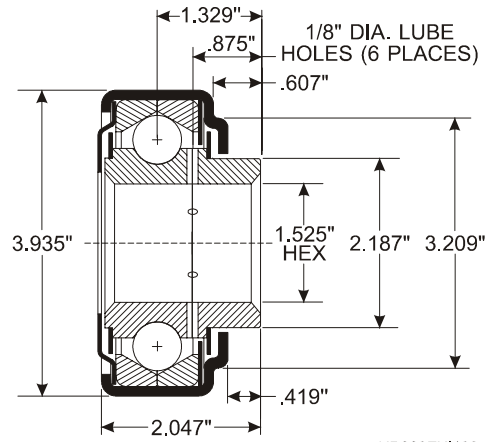


HB823FK1102a

Rollers with cotted (CC) axles available 5" to 120" W.  
 Axles will be grease fitted unless otherwise specified.

W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller Capacity
5"	22#	18#	7500#
9"	35#	29#	7500#
15"	55#	46#	7500#
21"	75#	62#	7500#
27"	95#	79#	7500#
33"	115#	96#	7500#
39"	135#	112#	7500#
45"	155#	129#	7500#
51"	175#	146#	7500#
57"	195#	163#	7338#
63"	215#	180#	6964#
75"	255#	214#	5743#
87"	295#	248#	4862#
99"	335#	291#	4193#
111"	375#	325#	3665#
120"	405#	350#	3336#

Interpolate for intermediate W's.



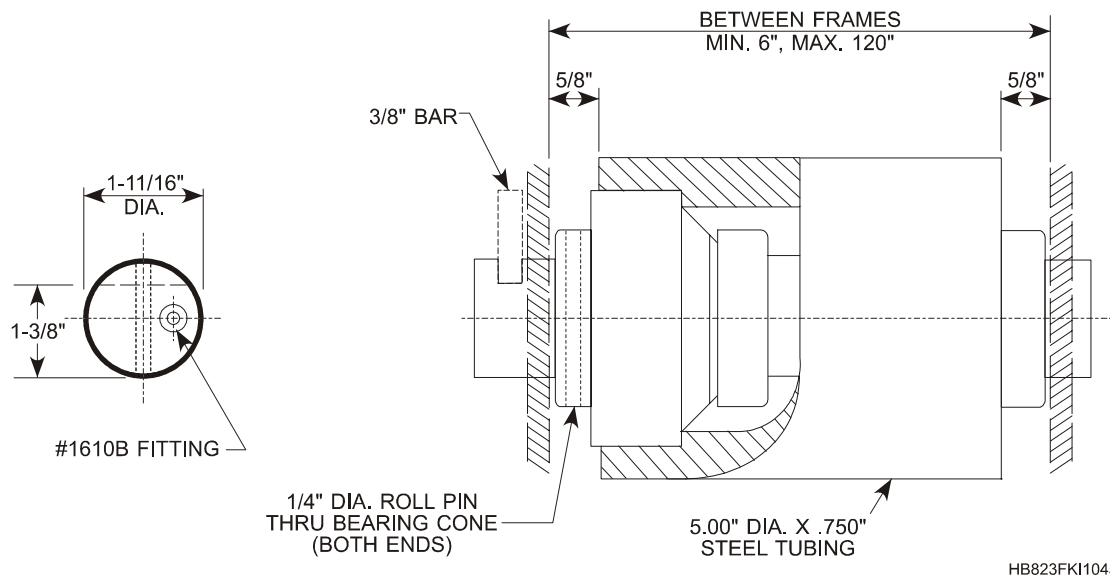
HB823FKI103a

**B1120-2 (1103) (105-SB)**

**5.00" Dia. x .750" Roller - Series B1130 (30900) Bearing (1-11/16" Dia. Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	57"	5.00" x .750"	B1131-2	1/2"	KB

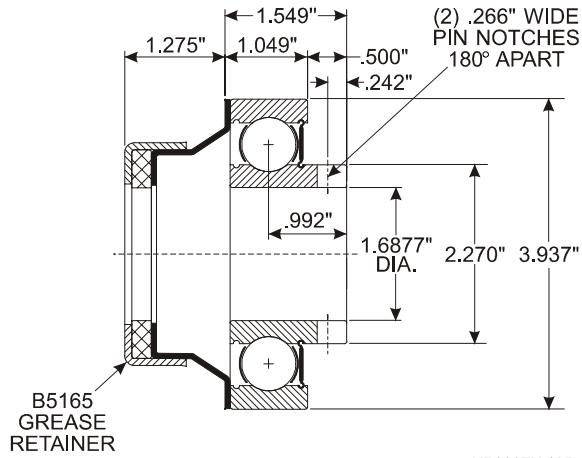


HB823FK1104a

Rollers with keeper bar (KB) type axles available 6" to 120" W.  
 Axles will be grease fitted unless otherwise specified.  
 Refer to Selection Guide section, page 12 for KB construction.

W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller Capacity
6"	22#	17#	10,330#
9"	33#	26#	10,330#
15"	53#	43#	10,330#
21"	74#	59#	10,330#
27"	94#	76#	10,330#
33"	115#	93#	10,330#
39"	136#	109#	10,330#
45"	156#	126#	10,330#
51"	176#	143#	10,330#
57"	197#	159#	10,171#
63"	217#	176#	9,397#
75"	257#	210#	7,786#
87"	297#	244#	6,662#
99"	337#	278#	5,738#
111"	377#	312#	5,043#
120"	407#	338#	4,610#

Interpolate for intermediate W's.

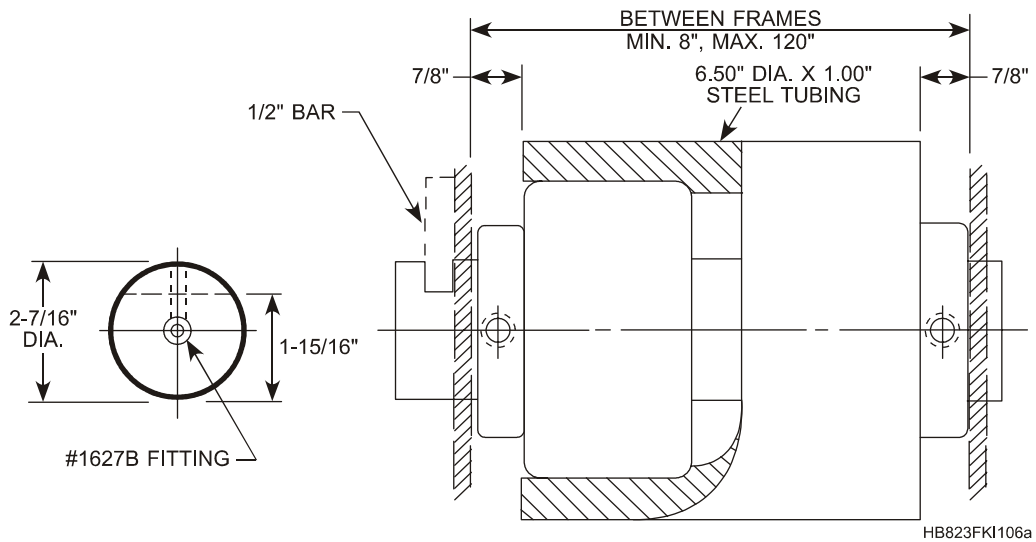


**B1131-2 (30900)**  
**B1130-2 (Bearing only)**

**6.50" Dia. x 1.00" Roller - Series B1140 (210) Bearing (2-7/16" Dia. Axle)**

**HOW TO ORDER**

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	51"	6.50" x 1.00"	B1140-2	1/2"	KB



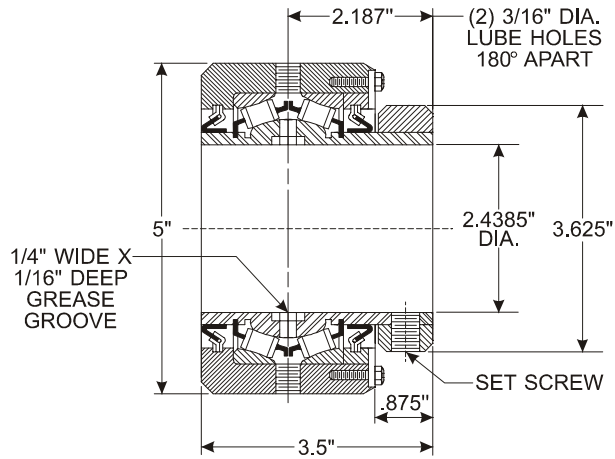
Rollers with keeper bar (KB) type axles available 8" to 120" W.

Axles will be grease fitted unless otherwise specified.

Refer to Selection Guide section, page 12 for KB construction.

W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller Capacity
8"	58#	44#	13,000#
9"	64#	48#	13,000#
15"	96#	73#	13,000#
21"	129#	98#	13,000#
27"	162#	123#	13,000#
33"	195#	148#	13,000#
39"	228#	173#	13,000#
45"	261#	198#	13,000#
51"	294#	223#	13,000#
57"	327#	248#	13,000#
63"	361#	273#	13,000#
75"	429#	323#	13,000#
87"	497#	373#	12,860#
99"	565#	423#	11,302#
111"	633#	473#	10,080#
120"	684#	511#	9,324#

Interpolate for intermediate W's.



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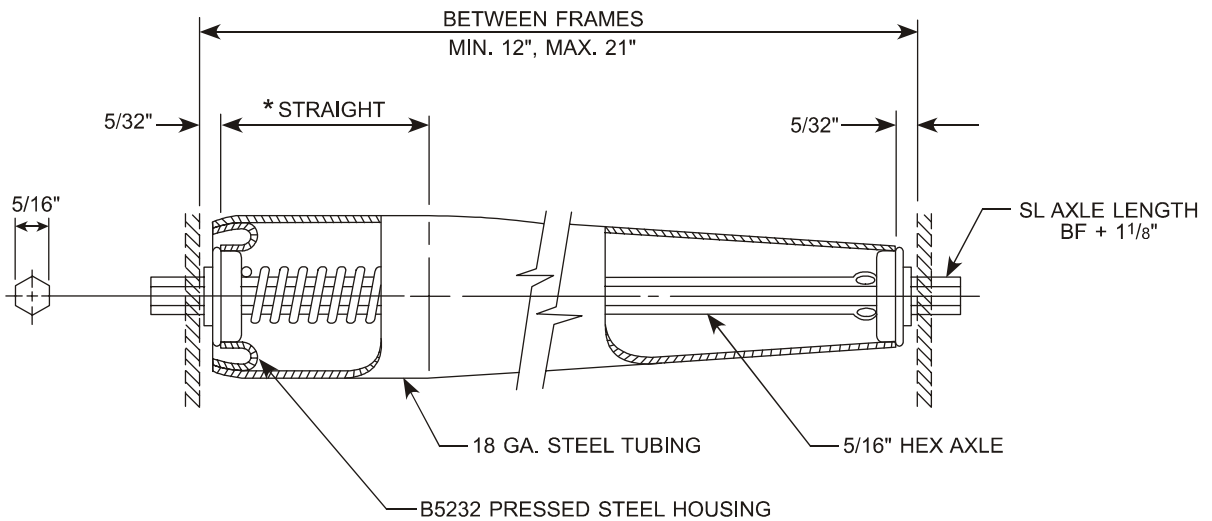
**B1140-2 (210)**

# Rollers - Tapered

## 1.62" to 1.00" Dia. Tapered Roller - Series B1000 (11) Bearing (5/16" Hex Axle)

### HOW TO ORDER

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	15"	1.62" to 1.00"	B1000-1	1/8"	SL



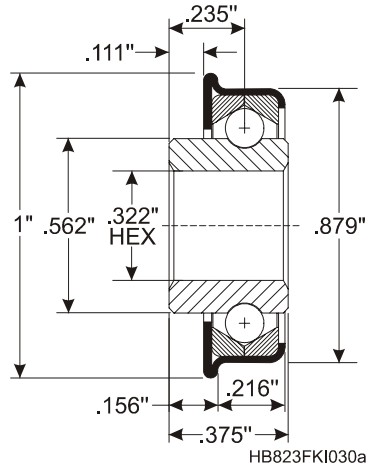
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Rollers with cotted (CC) or spring loaded (SL) axles available 12" to 21" W

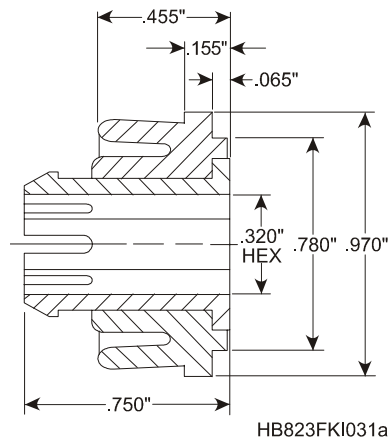
\*\*Rollers with B1011-6 (Nylon) bearings are limited to 60 lb. capacity and are not available with spring loaded axles.

Between Frames (W)	Roller Weight w/Axle	Roller Weight w/o Axle	Roller* Capacity	*Straight On End of Roller
12"	1.6#	1.3#	80#	2-1/2"
15"	2.0#	1.7#	80#	1-1/2"
18"	2.4#	2.0#	80#	2-1/2"
21"	2.8#	2.3#	80#	3-1/2"

Interpolate for intermediate W's.



**B1000-1 (11), B1000-2 (11G)  
B1001-1 (11Z)**

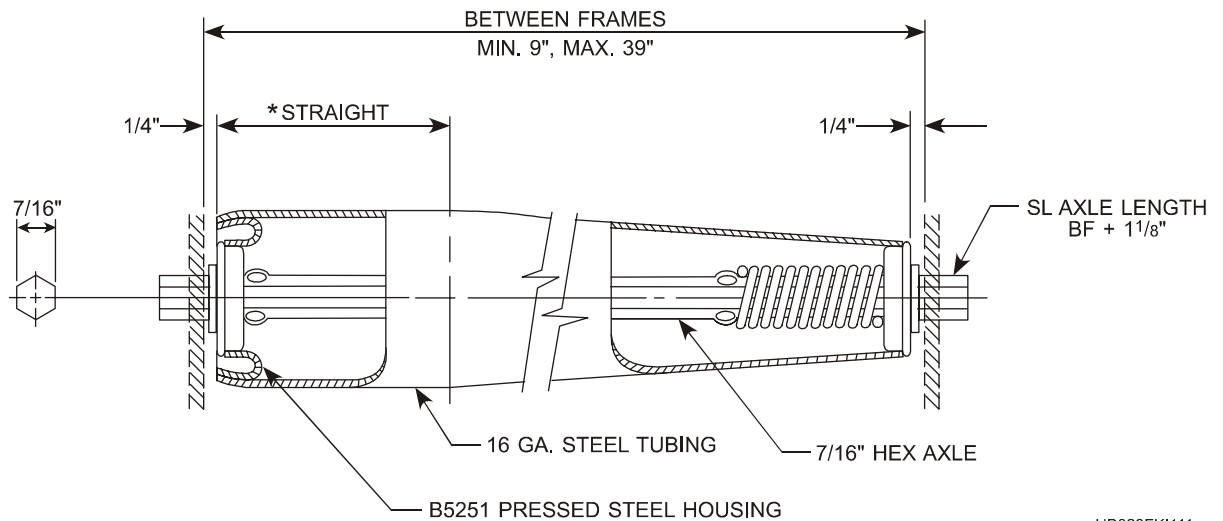


**B1011-6 (Nylon)**

2.50" to 1.69" Dia. Tapered Roller - Series B1020 Bearing (7/16" Hex Axle)

HOW TO ORDER

Typical Specifications	W	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	33"	2.50" to 1.69"	B1020-1	1/8"	SL



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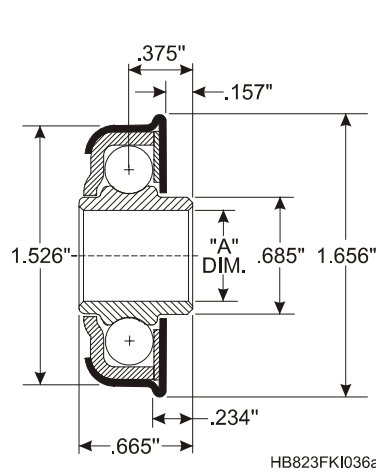
Rollers with cotteded (CC) or spring loaded (SL) axles available 9" to 39" W.

Rollers with B1041-6 (Nylon), B1022-1 (1/2" Round) or B1030-2 (Regreasable) bearings are not available with spring loaded axles.

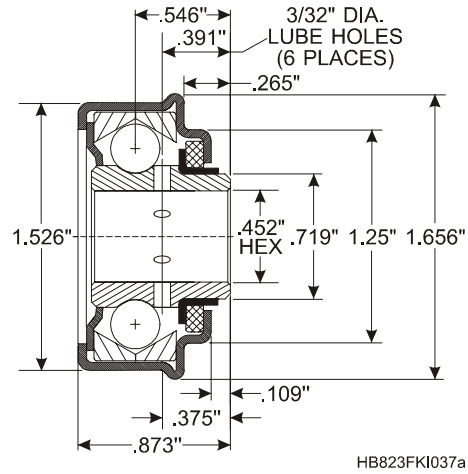
\*\*Rollers with nylon bearings are limited to 100 lb. capacity.

W	Roller Weight w/Axle	Roller Weight w/o Axle	Roller** Capacity w/B1020	Roller Capacity w/ B1030	Roller Capacity w/B1271	*Straight On End of Roller
9"	2.2#	2.0#	310#	310#	252#	1"
12"	2.8#	2.2#	310#	310#	252#	2"
15"	3.3#	2.5#	310#	310#	214#	1"
18"	3.9#	3.0#	310#	310#	174#	4"
21"	4.5#	3.5#	310#	310#	145#	1"
24"	5.0#	3.8#	310#	300#	122#	2"
27"	5.5#	4.2#	310#	263#	103#	1
30"	6.0#	4.5#	305#	235#	88#	4"
33"	6.6#	5.0#	283#	212#	74#	1"
36"	7.2#	5.4#	258#	193#	61#	4"
39"	7.8#	5.9#	237#	176#	50#	1"

Interpolate for intermediate W's.

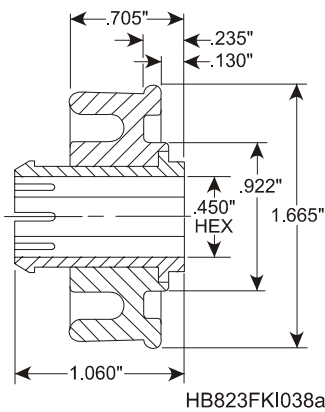


**B1020-1 (29000)**  
**B1020-2 (29010)**  
**B1022-1 (29013)**

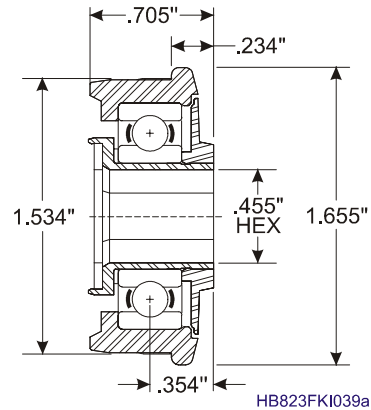


**B1030-2 (294)**  
**B1031-2 (296) w/o Grease Holes**

Part No.	"A" Dim.
B1020-1	.452" Hex.
B1020-2	.452" Hex.
B1022-1	.507 Dia.



**B1041-6 (Nylon)**



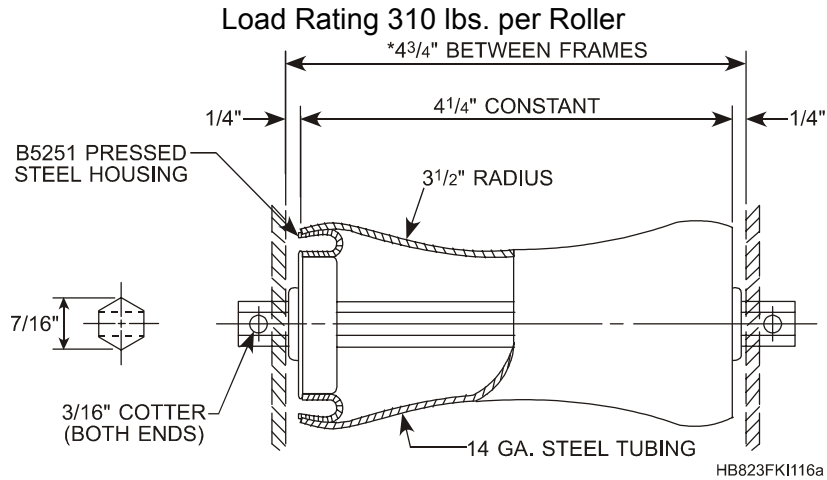
**B1271 (Grease Packed)**

# Rollers - Concave

2.50" to 1.75" Dia. x .083" (14 ga.) Concave Roller - Series B1020 Bearing (7/16" Hex Axle)

### HOW TO ORDER

Typical Specification	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	2.50" to 1.75" Concave	B1020-1	1/8"	CC



Rollers with cotted (CC) axles available for 4-3/4" W.

\*Rollers with B1030 series bearings are 5" W.

Spring loaded axles not available.

Cast iron rollers available on special order.

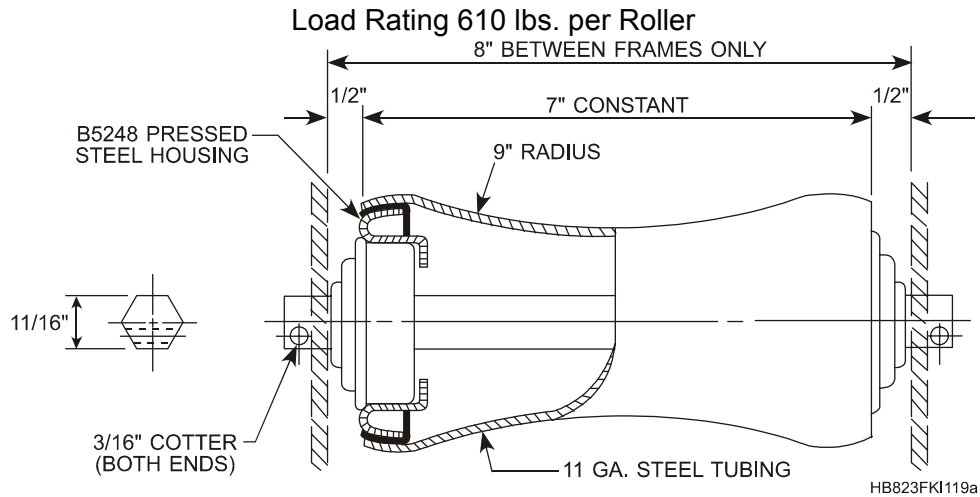
Steel rollers with neoprene covers available on special order.



**3.50" to 2.50" Dia. x .120" (11 ga.) Concave Roller - Series B1060 (480) Bearing (11/16" Hex Axle)**

**HOW TO ORDER**

Typical Specification	Roller	Bearing	Frame Thickness	Axle Construction
Typical Example:	3.50" to 2.50" Concave	B1060-1	1/4"	CC



Rollers with cotted (CC) axles available for 8" W only.

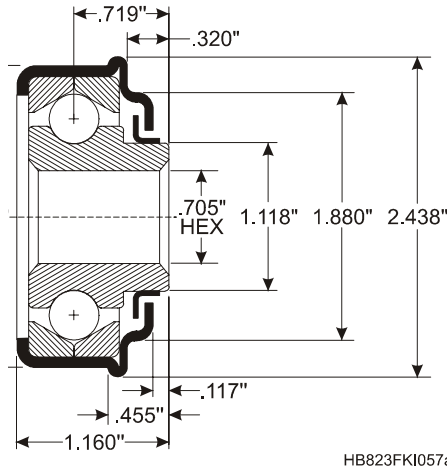
Spring loaded axles not available.

Rollers with B1063-2 (3/4" round bore) bearings will be supplied with "D" end (DE) axles unless otherwise specified (refer to Selection Guide section, page 11).

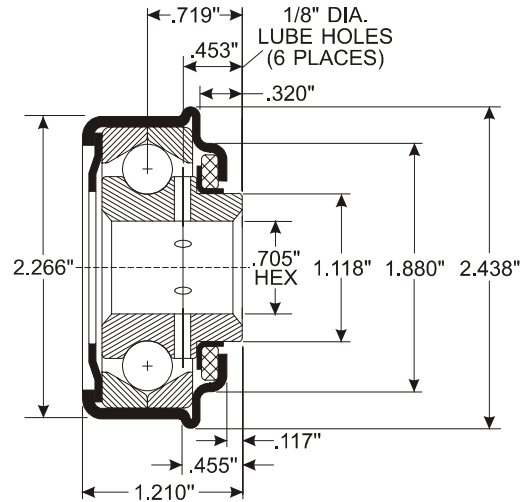
Bearings and housings are not replaceable.

Cast iron rollers available on special order.

Steel rollers with neoprene covers available on special order.



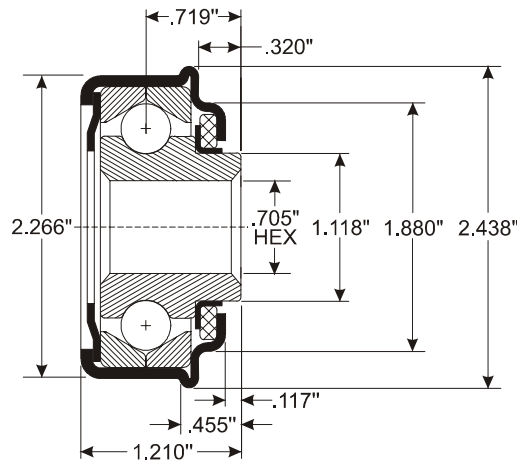
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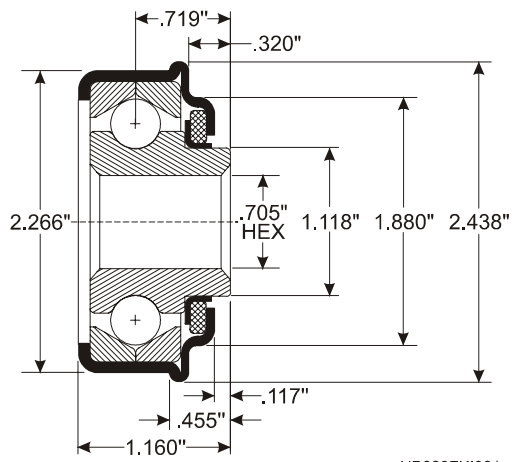
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**B1060-1 (481)  
B1060-2 (481G)**

**B1062-2 (484)**



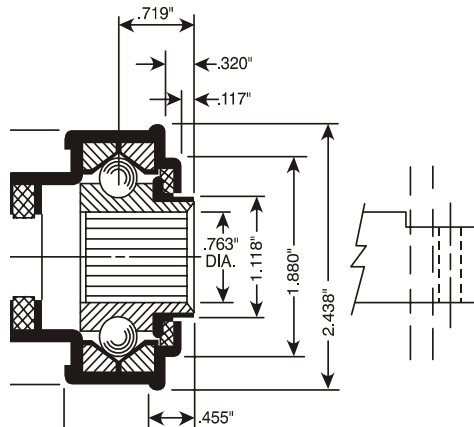
HB823FKI060a



HB823FKI061a

**B1064-2 (486)**

**B1065-1 (482)**



**B1063-2 (484R) (3/4" Round Bore)**