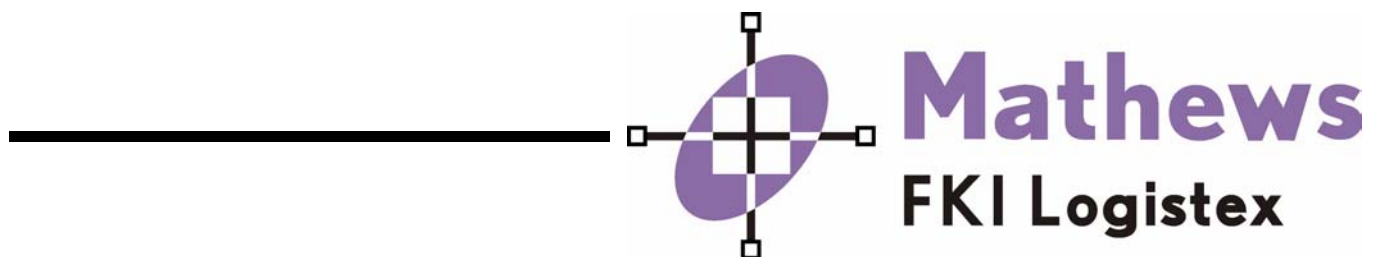


Bearings, Wheels, Ball Transfers



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General Information

Introduction

Mathews' roller conveyor bearings are manufactured by Mathews Conveyor. We assure the reliable performance of our bearings through close attention to tolerance standards, 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 re-greasable bearings can be provided for use in powered equipment. Housings and shot guards are also available.

Mathews' bearings may be ordered from full-line Authorized Distributors or Bearing Distributors.

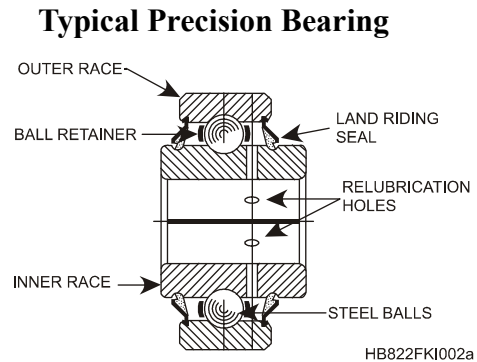
The bearings listed in the chart, (shown in the Bearings section, page 1), B1120-2, from part #B1000-1 to B1120-2, are all Mathews bearings manufactured in our Danville, Kentucky facility. Generically these are known as unground, commercial grade, or "non-precision" bearings. Non-precision ball bearings are normally specified for most gravity conveyor applications and for powered conveyor applications with low to medium speed and load requirements. Those bearings shown on the chart from part #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 are explained in the following paragraphs, along with some application guidelines.

Type of Bearings

Bearings come in three main groupings:

A. Precision Bearings

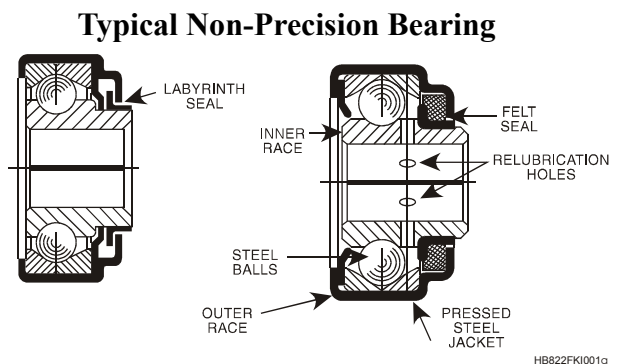
These bearings have hardened and ground ball races, ball retainers or cages and composite Buna-N plus steel seals. They are usually made to our specifications by an outside supplier.



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.



C. Journal Bearings

The Journal Bearings 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

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.

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.

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 materials 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 up 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 180° F (82.2° C) are anticipated. This felt material used in the seal construction is subject to degradation above 180° F (82.2° 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.

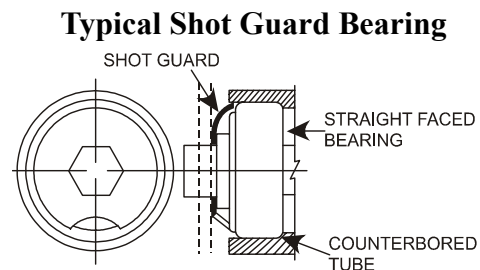
Lubrication

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 regreasable with appropriate grease fittings.

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.



HB822FKI003a

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 in the table of the Bearing Section, 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 Conveyor non-precision ball bearings have endured years of successful 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 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, close tolerance control and ground races, provide bearing designs that have a high degree of life predictability. The ratings shown for Mathews’ 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.

Housing and Shot Guards

Bearing Series	Housing	Roller	Page No.
B1000	B5232	1.625" dia. x .049" Tapered	13 & 14
	B5233	1.90" dia. x .065"	13 & 14
	B5234	1.375" dia. x .049"	13 & 14
B1020	B5235	1.90" dia. x .148"	16 & 17
	B5239	1.90" dia. x .065"	16 & 17
	B5241	1.90" dia. x .109"	16 & 17
	B5251	2.50" Tapered	16 & 17
	B5323	1.90" dia. x .148" Stainless Steel	16 & 17
B1030	B5235	1.90" dia. x .148"	18 & 19
	B5239	1.90" dia. x .065"	18 & 19
	B5241	1.90" dia. x .109"	18 & 19
B1050	B5235	1.90" dia. x .148"	21 & 22
	B5239	1.90" dia. x .065"	21 & 22
	B5241	1.90 dia. x .109"	21 & 22
	B5323	1.90" dia. x .148" Stainless Steel	21 & 22
B1060	B5248	3.50" dia. x .148"	24 & 26
B1070	B5248	3.50" dia. x .148"	27 & 28
B1080	B5245	4.00" dia. x .134"	30 & 32
B1160	B5245	4.00" dia. x .134"	40 & 41
	B5252	4.00 or 4.25" dia.	40 & 41
B1210	B5240	4.25" dia. x .250"	42 & 43
	B5242	4.00" dia. x .134"	42 & 43

Bearing Series	Shot Guard	Roller
B1050	B5264	1.90" dia. x .148"
B1070	B5261	2.56" dia. x .180"
B1080	B5262	3.50" dia. x .300"
B1100	B5263	4.25" dia. x .438"

Bearings

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	●				●		●									●
B1071-2	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	---	126	7/16H		●			●	●	●		●				●		
B2001	---	50	7/16H		●			●	●	●		●				●		

*Bore Size:

“H” = Hexagon

“R” = Round

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

Bearings - B1000 Series

Description

- Flanged Type Non-Precision Bearing
- 5/16" Hex Axle
- 40# Per Bearing Load Rating
- Fifteen 1/8" Dia. Hardened Steel Balls
- Pressed Steel Outer Shell

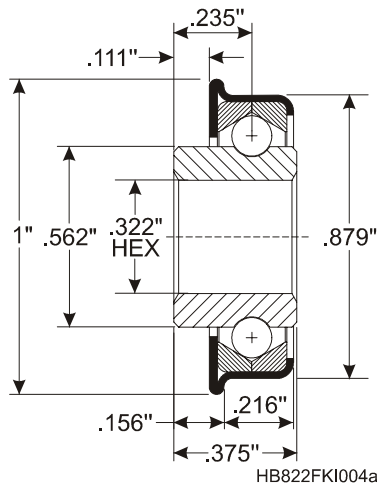
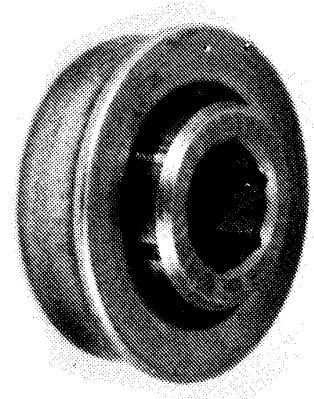
Uses

- Primarily gravity or push line conveyor rollers.
- B1001 is used in corrosive areas.

Bearings

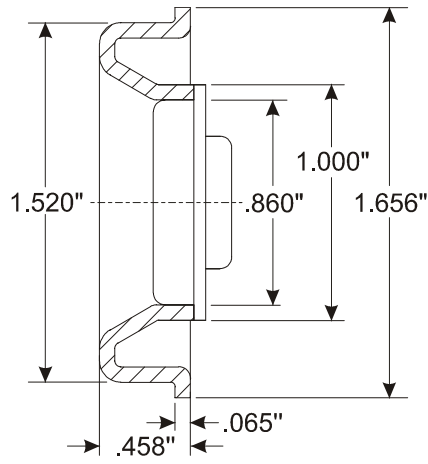
Current Model No. Old Number

B1000-1	11
B1000-2	11G (Grease Packed)
B1001-1	11Z (Zinc Plated)



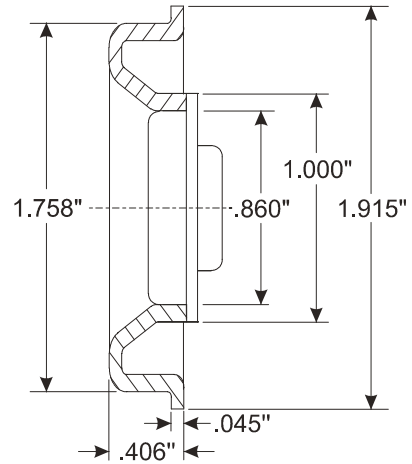
B1000-1, B1000-2, B1001-1

Housings



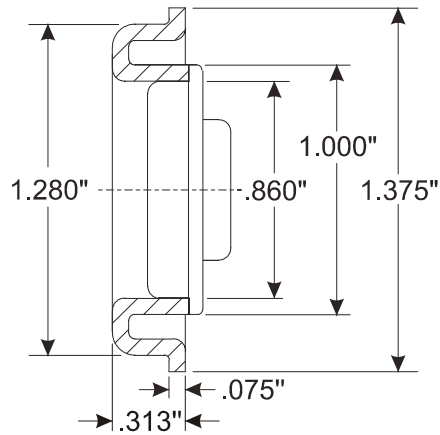
HB822FKI006a

B5232 - Used with 1.625" dia. x .049" Tapered Roller



HB822FKI005a

B5233 - Used with 1.90" dia. x .065" Roller, (For Replacement Only)



HB822FKI007a

B5234 - Used with 1.375" dia. x .049"

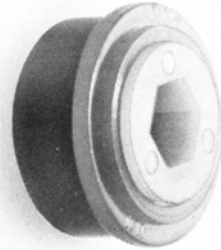
Bearings - B1011 Series

Description

- Flanged Type Journal Bearing
- All Nylon Two Piece Bearing
- 5/16" Hex Axle
- #30 Per Bearing Load Rating

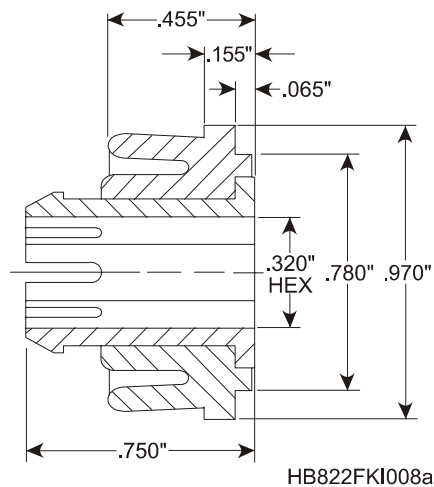
Uses

Primarily Gravity Conveyor. Can be used in low speed and light load powered equipment. Primary uses include wash down areas, low noise requirements and dusty conditions. The B1011-6 should not be used in abrasive conditions. This bearing has a higher coefficient of friction than ball bearings. It requires a steeper gravity grade and more horsepower in power conveyor. A check of the allowable PV factor must be made for powered applications.



Bearing

Current Model No.	Old Number
B1011-6	11 Nylon

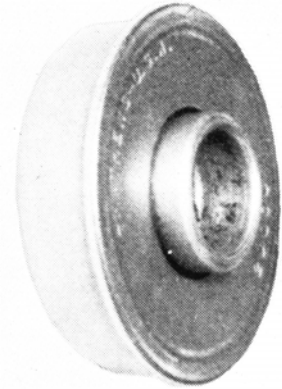


B1011-6

Bearings - B1020 Series

Description

- Flanged Type Non-Precision Bearing
- 155# Per Bearing Load Rating (B1020, B1022)
- Eleven 9/32" Dia. Hardened Steel Balls
- Pressed Steel Outer Shell
- Labyrinth Seals
- 7/16" Hex Axle (B1020)
- 1/2" Dia. Shaft (B1022)



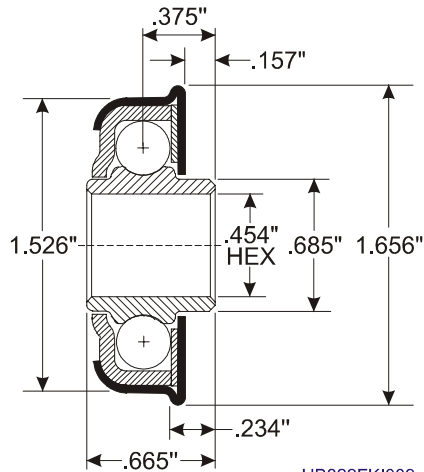
Uses

- General purpose gravity and powered equipment.
- The B1022 uses a round axle. This allows the customer to mount rollers in any frame by just drilling holes.

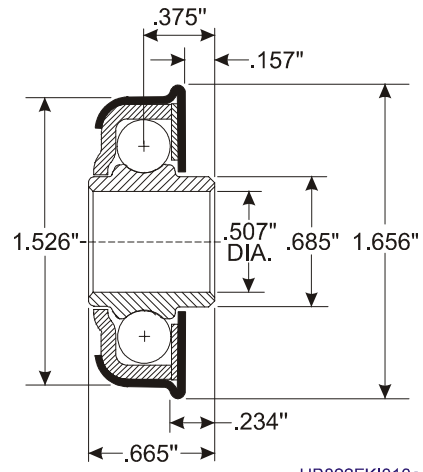
Bearings

Current Model No. Old Number

B1020-1	29000
B1020-2	29010
B1022-1	29013

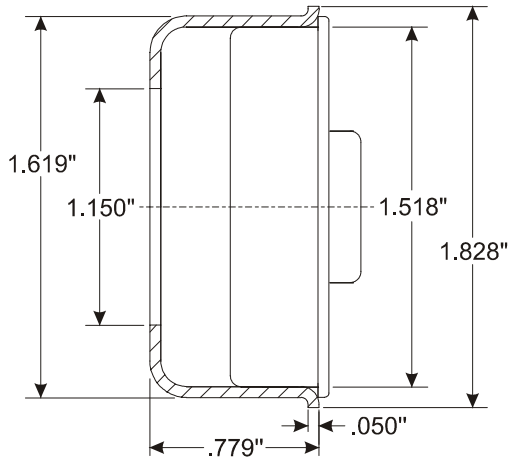


B1020-1 - B1020-2



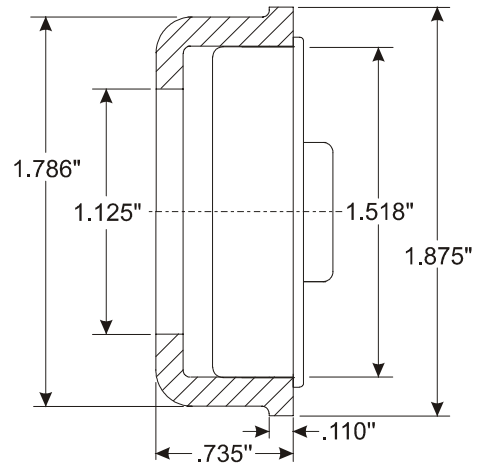
B1022-1

Housings



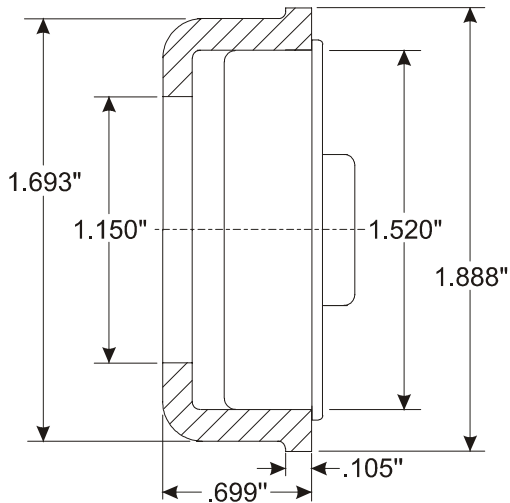
HB822FKI011a

B5235 - Used with 1.90" dia. x .148" Roller, (For Stainless Steel Use B5323)



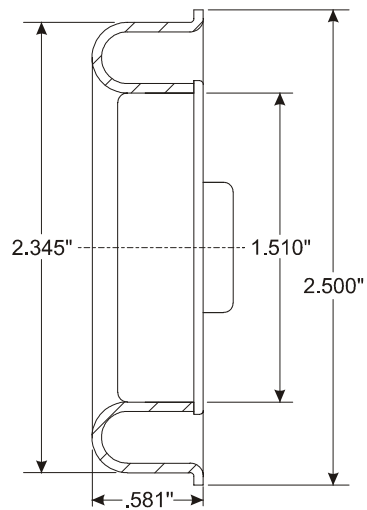
HB822FKI012a

B5239 - Used with 1.90" dia. x .065" Roller



HB822FKI013a

B5241 - Used with 1.90" dia. x .109" Roller



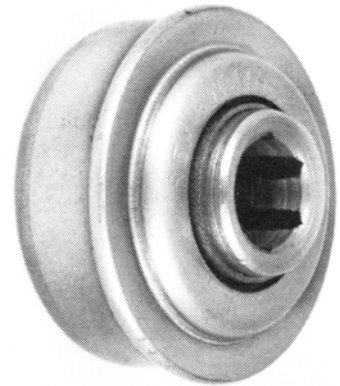
HB822FKI014a

B5251 - Used with 2.50" Tapered Roller

Bearings - B1030 Series

Description

- Flanged Type Non-Precision Bearing
- 7/16" Hex Axle
- 155# Per Bearing Load Rating
- Eleven 9/32" Dia. Hardened Steel Balls
- Front Seal
- Back Retaining Ring
- Pressed Steel Outer Shell
- Inner Race Drilled for Pressure Lubrication (B1030)



Uses

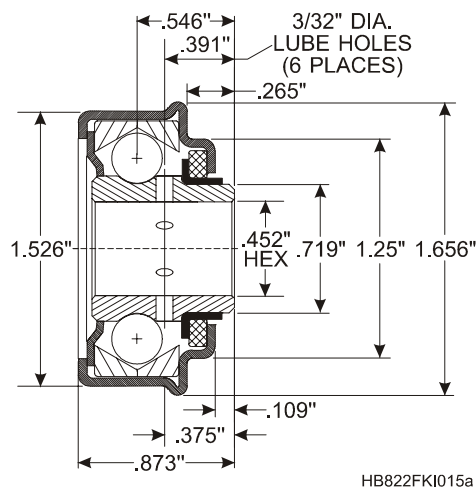
Used in powered equipment where regreasable bearings are required. Since it is grease packed it has limited use in gravity conveyor. The drag, due to the grease and felt seal, create a steeper grade requirement. In powered applications, speed should not exceed 150 F.P.M.

Bearings

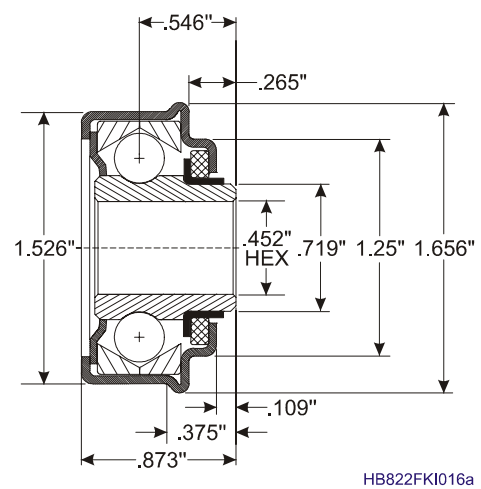
Current Model No. Old Number

B1030-2	294
B1031-2	296

Bearings

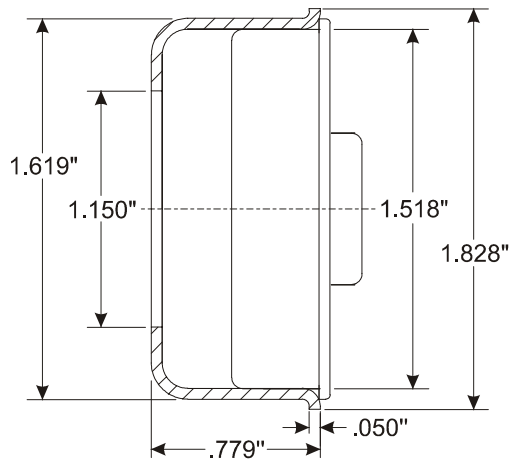


B1030-2



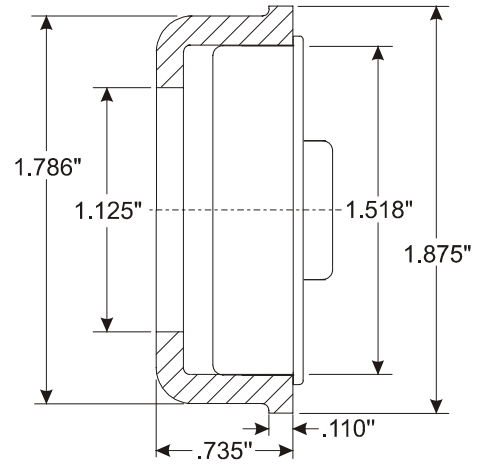
B1031-2

Housings



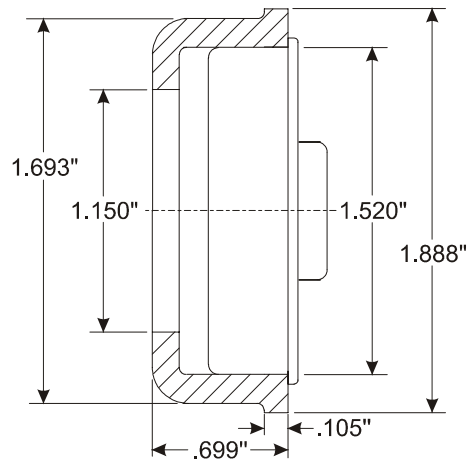
HB822FKI017a

B5235 - Used with 1.90" dia. x .148" Roller



HB822FKI018a

B5239 - Used with 1.90" dia. x .065" Roller



HB822FKI019a

B5241 - Used with 1.90" dia. x .109" Roller

Bearings - B1041 Series

Description

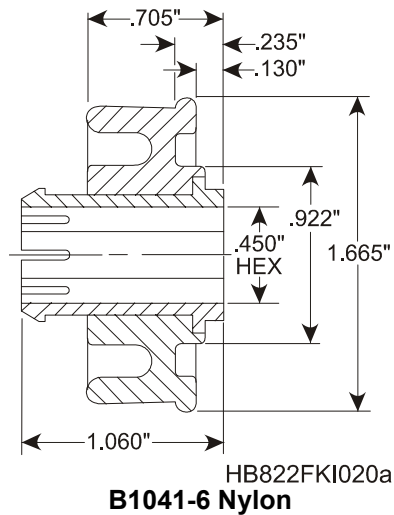
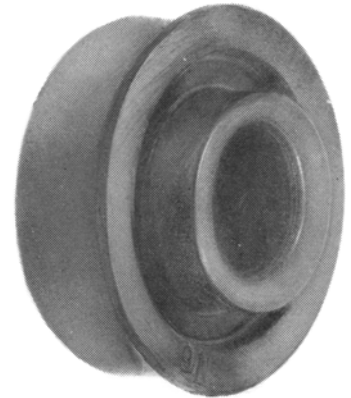
- Flanged Type Journal Bearing
- 7/16" Hex Axle
- All Nylon Two Piece Bearing
- 50# Per Bearing Load Rating

Uses

Similar to applications for B1011, B1041 has a higher load capacity. For both the B1011 and B1041 a check of the allowable PV factor must be made for powered applications.

Bearing

Current Model No.	Old Number
B1041-6	290 Nylon



Bearings - B1050 Series

Description

- Straight Faced Non-Precision Bearing
- 7/16" Hex Axle
- 155# Per Bearing Load Rating
- Eleven 9/32" Dia. Hardened Steel Balls
- Front Seal
- Pressed Steel Outer Shell

Uses

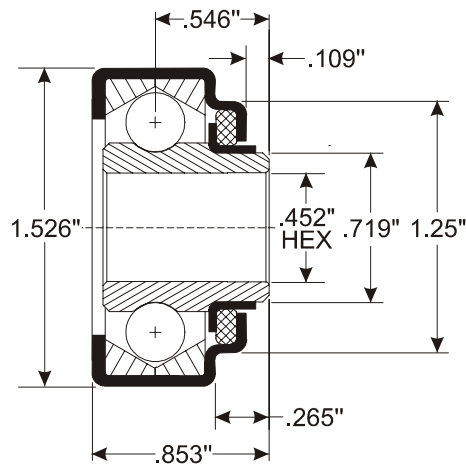
- Used in gravity and powered equipment where the bearing must be completely recessed within the confines of the roller. This is usually done to protect the bearing from dirt and grit, such as a foundry application.
- The B1051 is a regreasable bearing.



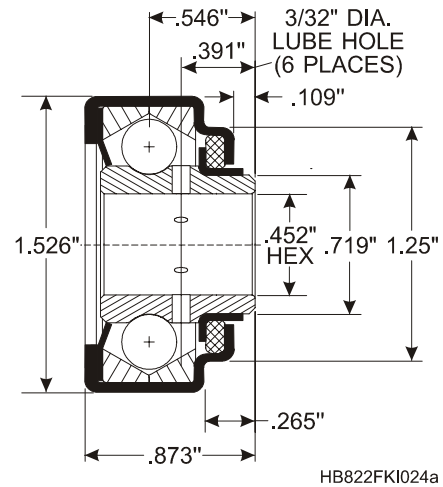
Bearings

Current Model No. Old Number

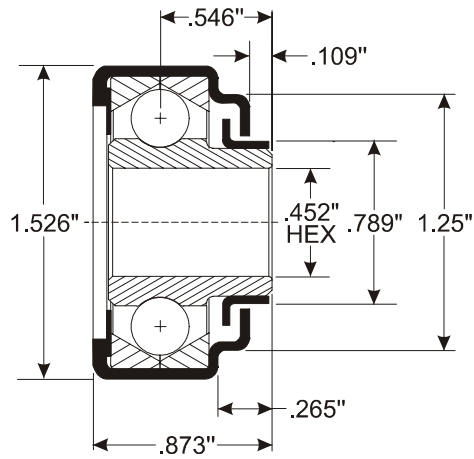
B1050-1	332
B1051-2	334, 336
B1052-2	330SS



B1050-1



B1051-2 - Regreasable (334) (334GP or 336 Grease Packed)

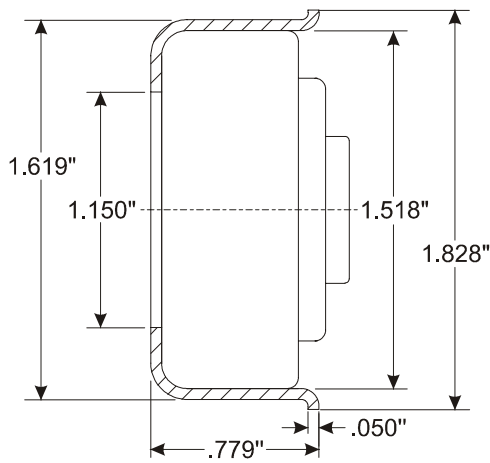


HB822FKI027a

B1052-2 (Stainless Steel)
Note: 30# Per Bearing Load Rating

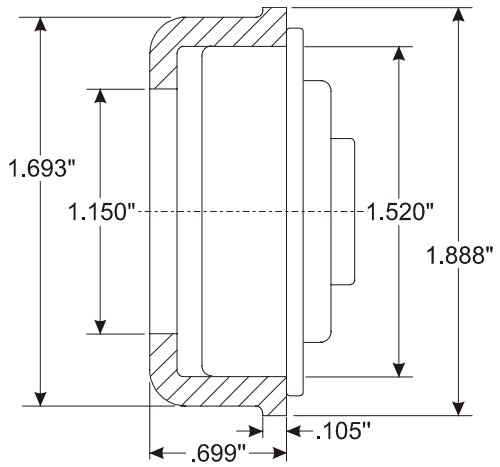
Housings

Shot Guard



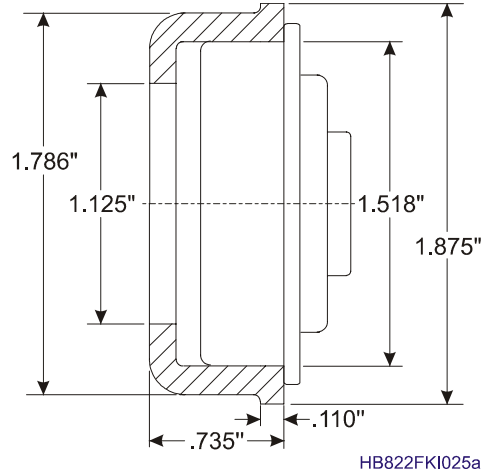
HB822FKI022a

B5235 - Used with 1.90" dia. x .148" Roller

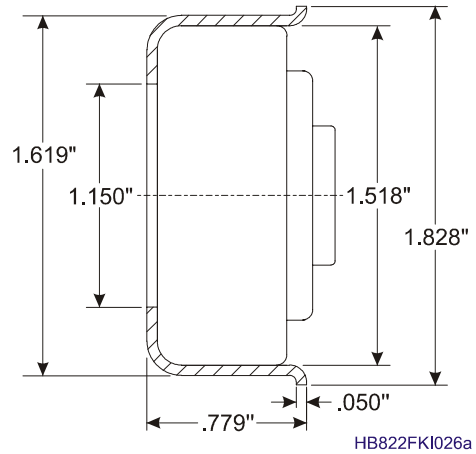


HB822FKI023a

B5241 - Used with 1.90" dia. x .109" Roller

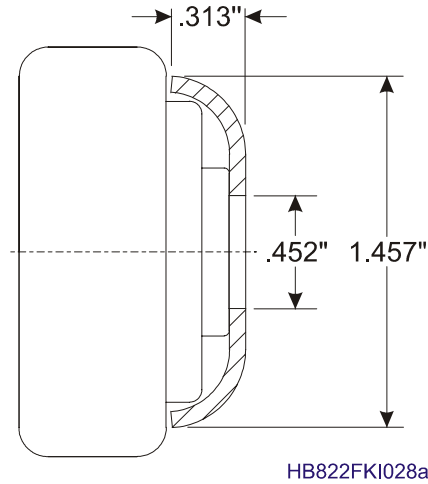


B5239 - Used with 1.90" dia. x .065" Roller



B5323 - Used with 1.90" dia. x .148" Stainless Steel Roller

Shot Guard



B5264 - Used with 1.90" dia. x .148" Roller

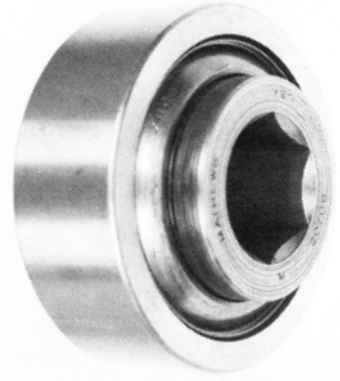
Bearings - B1060 Series

Description

- Flanged Type Non-Precision Bearing
- 11/16" Hex Axle
- 305# Per Bearing Load Rating
- Twelve 3/8" Dia. Hardened Steel Balls
- Pressed Steel Outer Shell

Uses

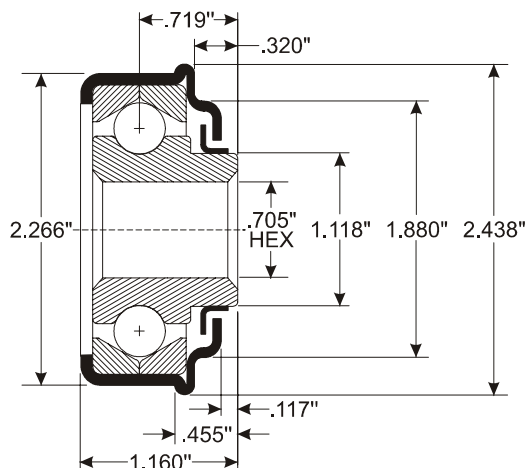
- Primarily used in gravity and push lines where load requirements exceed the capacity of the B1020.
- It can be used in powered equipment when it is grease packed.
- B1061 is used in high temperature applications, up to to 350° F (177° C). It is also used in dusty conditions where frequent regreasing is necessary.
- B1062 is used in low temperature applications where regreasing is required.
- B1063 is similar to the B1062 except it uses a 3/4" diameter shaft. This allows the customer to buy rollers and knurled axles and mount them in any frame. The larger shaft provides better resistance to axle deflection.
- The B1064 is used primarily in powered conveyor. It has a seal, is grease packed and is non-regreasable.



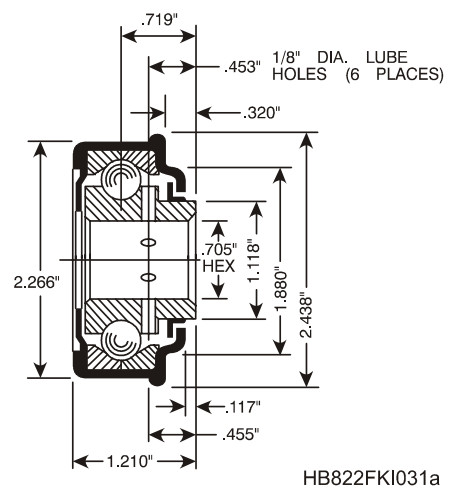
Bearings

Current Model No. Old Number

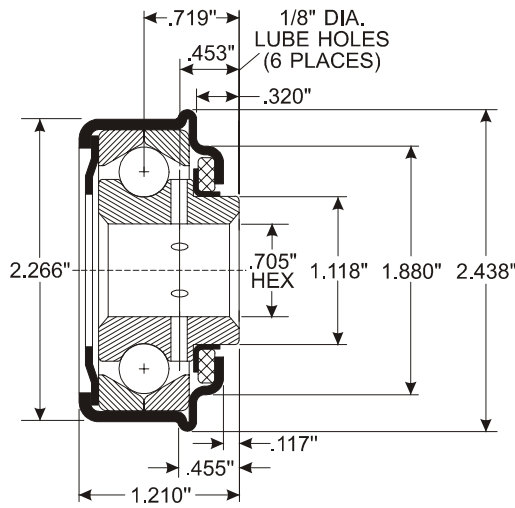
B1060-1	481
B1060-2	481G
B1061-2	483 (Made To Order)
B1062-2	484
B1063-2	484R
B1064-2	486
B1065-1	482



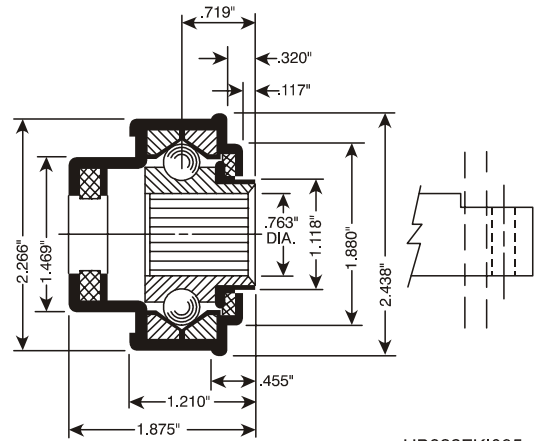
B1060-1 - B1060-2



B1061-2 - Regreasable, Labyrinth Front Shield, Back Shield, Made to Order



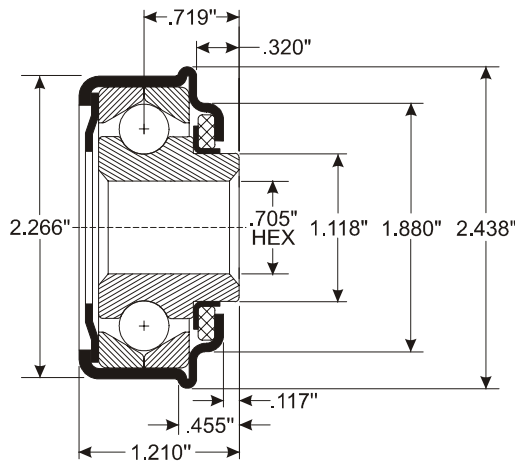
HB822FKI033a



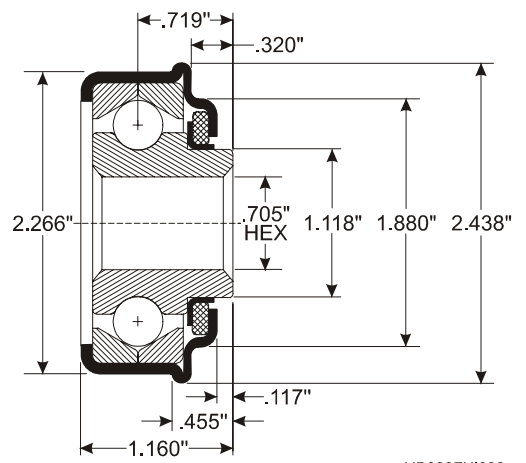
HB822FKI035a

B1062-2 - Regreasable, Front Seal Back Shield

B1063-2 - Regreasable, Back Seal



HB822FKI030a

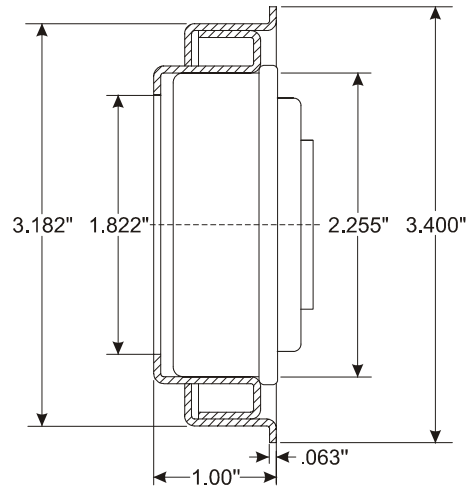


HB822FKI032a

B1064-2 - Front Seal, Back Shield

B1065-1

Housing



HB822FKI034a

B5248 - Used with 3.50" dia. x .148" Roller

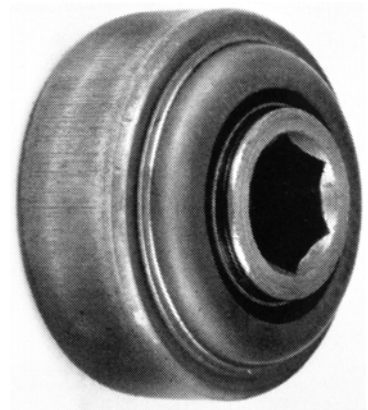
Bearings - B1070 Series

Description

- Straight Faced Non-Precision Bearing
- 11/16" Hex Axle
- 305# Per Bearing Load Rating
- Twelve 3/8" Dia. Hardened Steel Balls

Uses

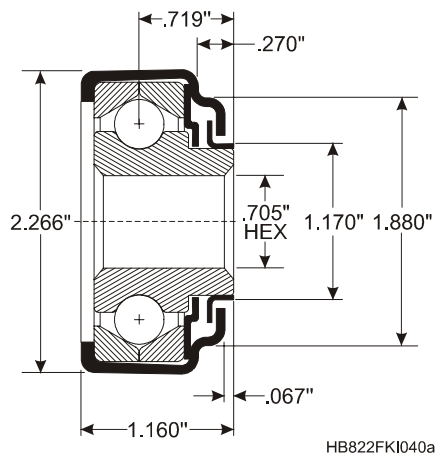
- The B1070 is similar to the B1050 except it has a higher load rating.
- The B1071 is furnished grease packed and it is regreasable.
- The B1072 is a regreasable bearing used in high temperature applications where the bearing must be recessed. It is furnished grease packed.



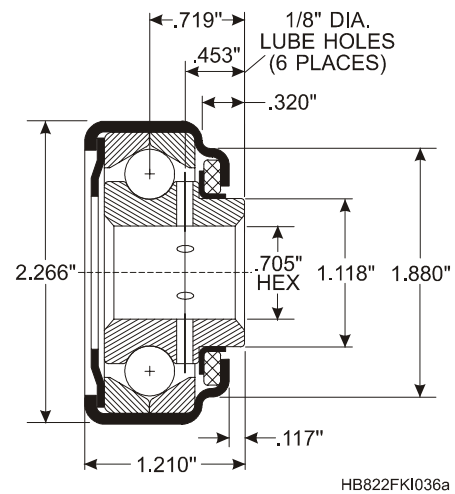
Bearings

Current Model No. Old Number

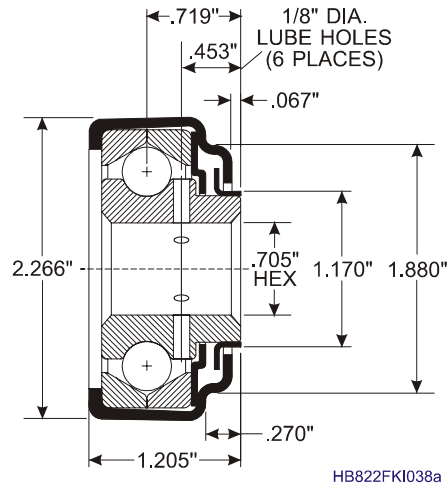
B1070-1	531
B1071-2	534
B1072-2	533 (Made To Order)
B1073-1	532
B1073-2	532G



B1070-1



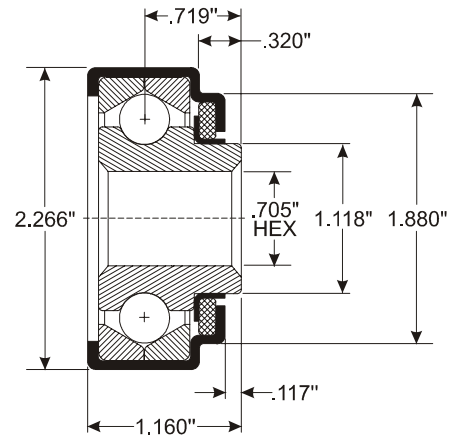
B1071-2 - Front Seal, Back Shield



HB822FKI038a

**B1072-2 - Labyrinth Front Shield,
Back Shield, Made to Order**

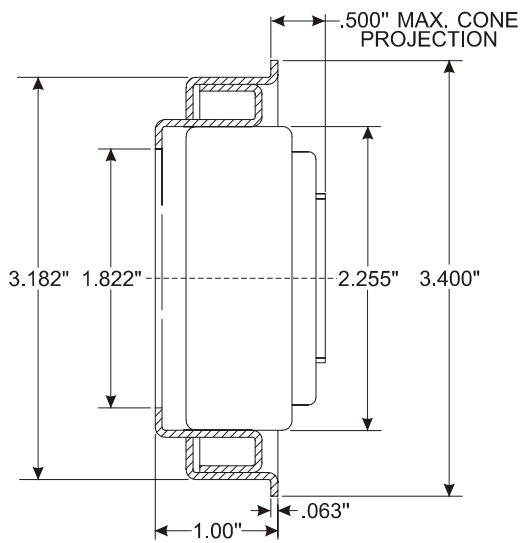
Housing



HB822FKI041a

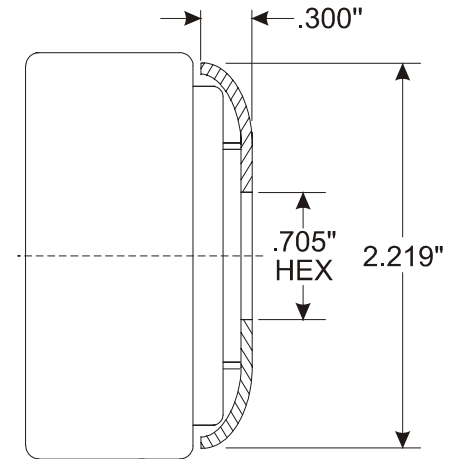
B1073-1 - B1073-2

Shot Guard



HB822FKI037a

B5248 - Used with 3.50\"/>



HB822FKI039a

B5261- Used with 2.56\"/>

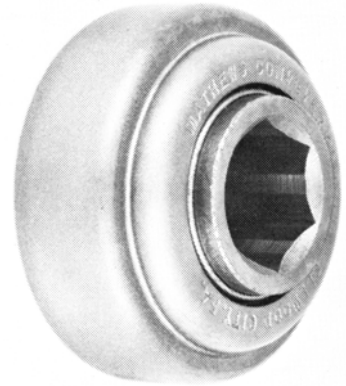
Bearings - B1080 Series

Description

- Straight Faced Non-Precision Bearing
- 1-1/16" Hex Axle
- 1250# Per Bearing Load Rating
- Thirteen 1/2" Dia. Hardened Steel Balls
- Pressed Steel Outer Shell

Uses

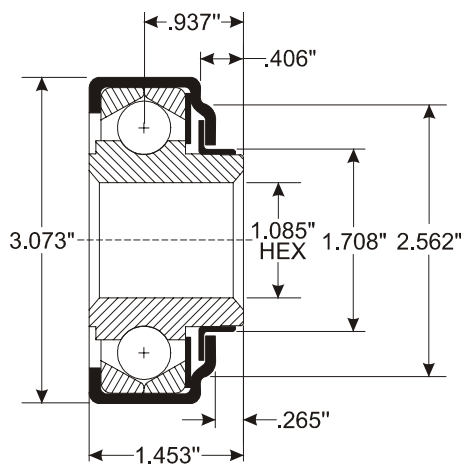
- The B1080 is used mostly in gravity applications. It can be used in powered equipment when grease packed. It is recessed. Shot guards can be used.
- The B1081 is used mainly for CDLR. It can be used for gravity. It is recessed and can be used with shot guards. It is provided grease packed.
- The B1082 is used in power equipment for high temperature or dusty environments. It is grease packed.
- The B1083 is used where a back seal is desirable to prevent dirt, but the drag of a felt front seal is objectionable. It is grease packed.



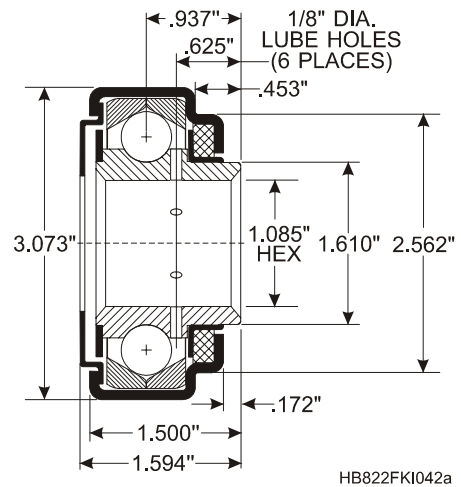
Bearings

Current Model No. Old Number

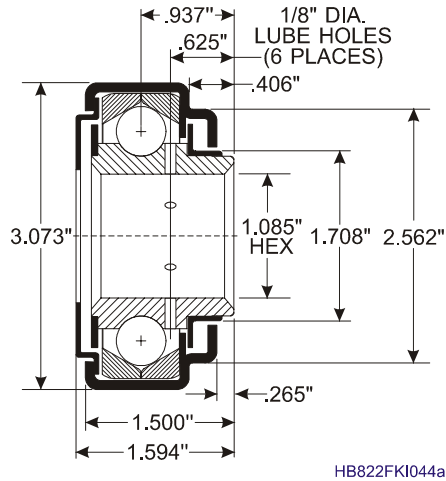
B1080-1	581, 58S
B1081-2	584, 58AB
B1082-2	583, 58SB (Made To Order)
B1083-2	585, 58SBG (Made To Order)
B1084-2	586, 58ABG
B1085-2	58RSBG
B1086-1	582, 58A



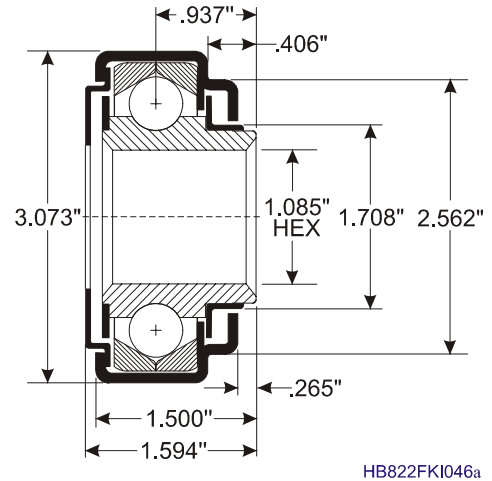
B1080-1



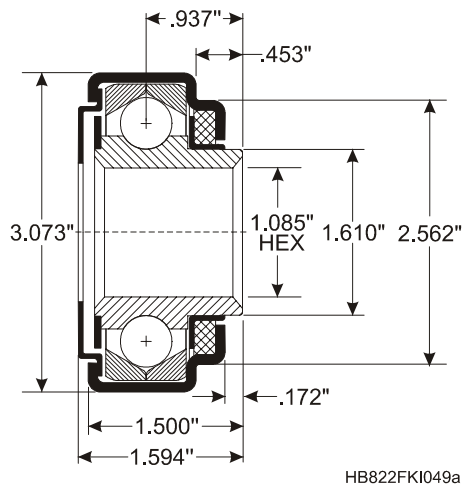
**B1081-2 - Front Seal
Labyrinth Back Shield**



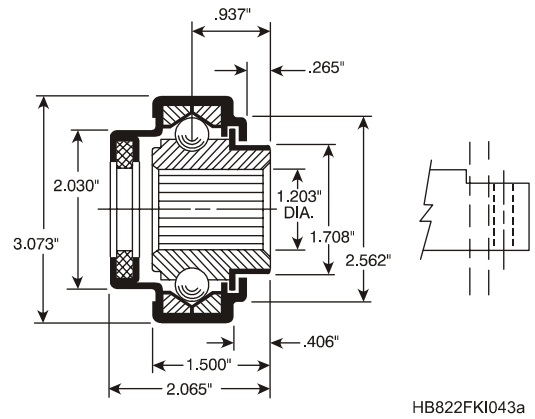
B1082-2 - Front & Back Labyrinth Shields, Made to Order



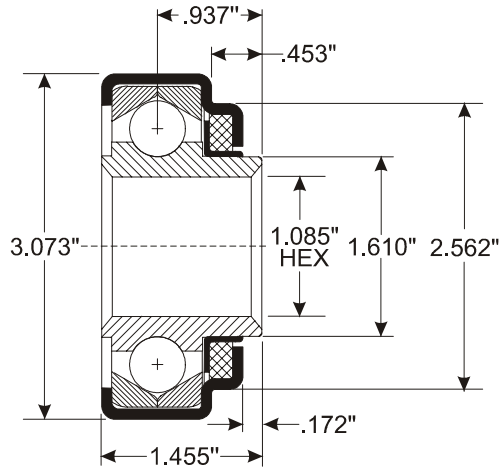
B1083-2 - Front & Back Labyrinth Shields - Made to Order



B1084-2



B1085-2

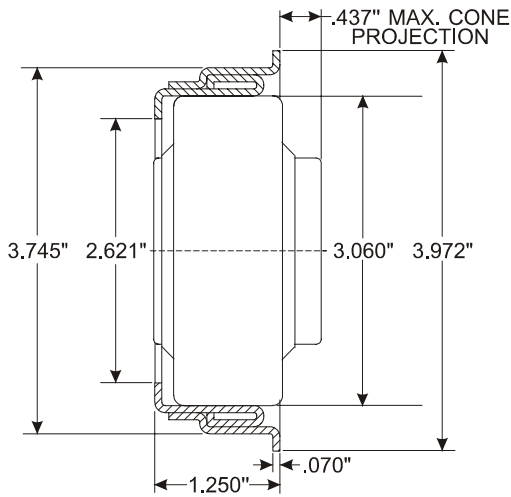


HB822FKI045a

B1086-1

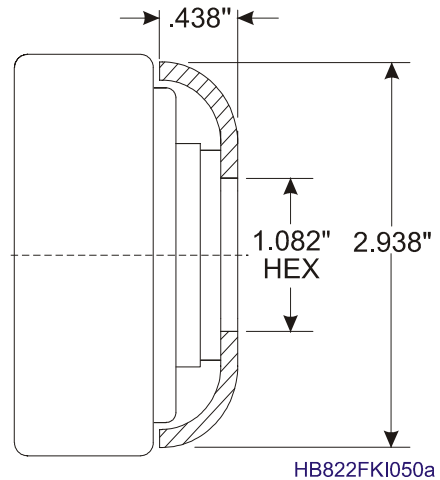
Housing

Shot Guard



HB822FKI047a

B5245 - Used with 4.00" dia. x .134" Roller



HB822FKI050a

B5262 - Used with 3.50" dia. x .300" Roller

Bearings - B1100 Series

Description

- Straight Faced Non-Precision Bearing
- 1-1/4" Hex Axle
- 2250# Per Bearing Load Rating
- Thirteen 9/16" Dia. Hardened Steel Balls
- Pressed Steel Outer Shell

Uses

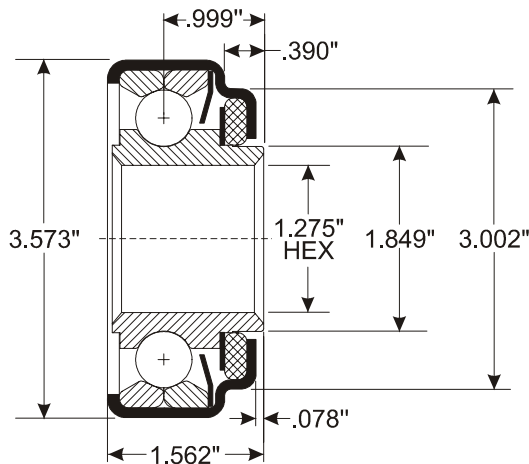
- The B1100 is used for gravity applications, but it can be used for powered equipment when grease packed. It is recessed and can be supplied with shot guards.
- The B1101 is used for powered equipment. It is recessed and can be provided with shot guards. It is regreasable.



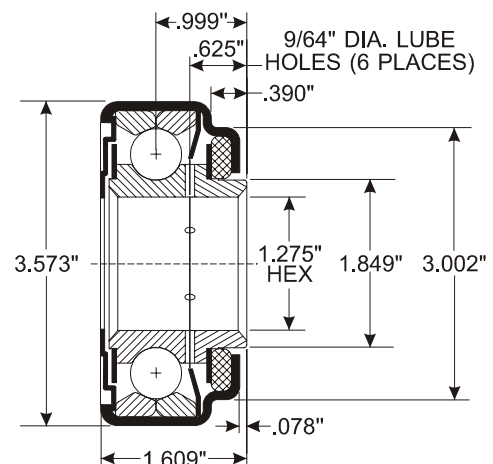
Bearings

Current Model No. Old Number

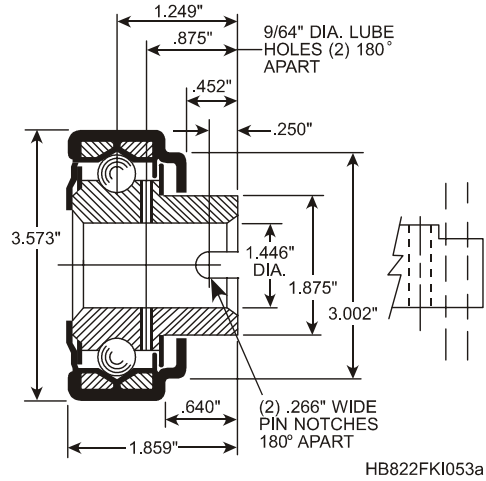
B1100-1	632, 63A
B1101-2	634
B1102-2	63RSBG



B1100-1 - Front Seal

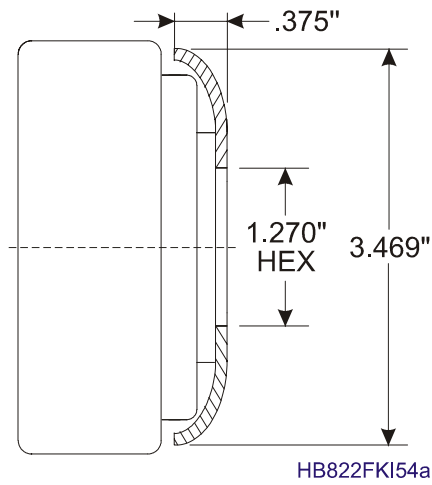


**B1101-2 - Front Seal
Labyrinth Back Shield**



B1102-2

Shot Guard



**B5263 - Used with
4.25" dia. x .438" Roller**

Bearings - B1120 Series

Description

- Straight Faced Non-Precision Bearing
- 1-1/2" Hex Axle
- 3750# Per Bearing Load Rating
- Thirteen 5/8" Dia. Hardened Steel Balls
- Labyrinth Front and Back Shields
- Back Retaining Ring
- Pressed Steel Outer Shell
- Inner Race Drilled For Pressure Lubrication

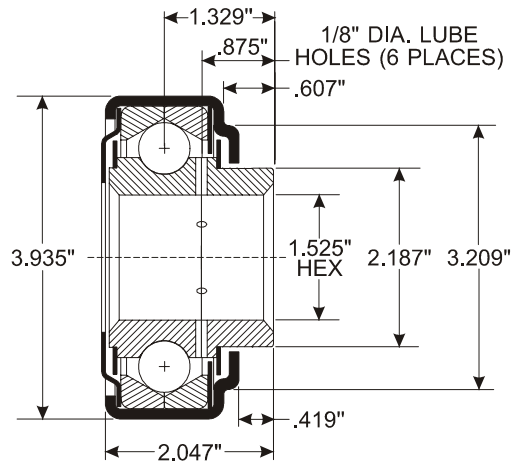


Uses

The B1120 is used primarily in powered equipment. It is recessed and can be used in high temperature and dusty applications. No shot guards are available for use with this bearing.

Bearing

Current Model No.	Old Number
B1120-2	1103m, 110SB



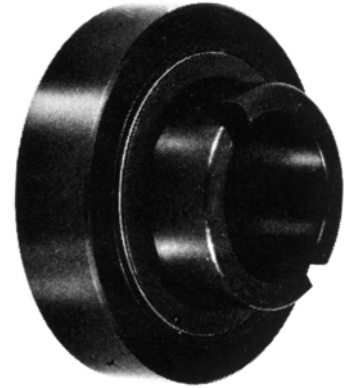
HB822FKI055a

B1120-2

Bearings - B1130 Series

Description

- Straight Faced Precision Bearing
- 1-11/16" Dia. Shaft
- 5700# Per Bearing Load Rating
- Eight 11/16" Dia. Hardened Chrome Alloy Steel Balls
- Front Seal
- Ball Retainer
- Inner Race Notched For 1/4" Dia. Pin to Prevent Cone Rotation



Uses

Used primarily in powered equipment requiring heavy load capacity, high speed, low noise and long life. It is grease packed and regreasable.

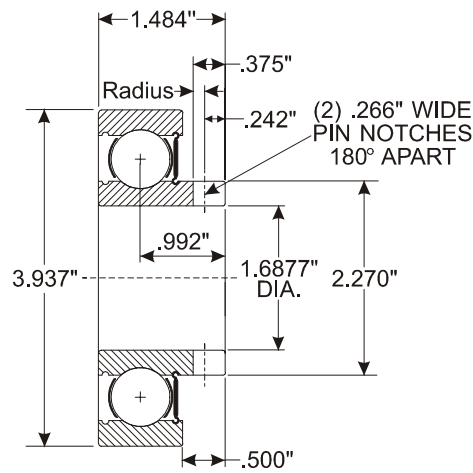
Replacement Use

B1130-2 is available as a replacement for bearing #100BG and #10703. For details see the "Bearing Replacement Instructions" on the following page.

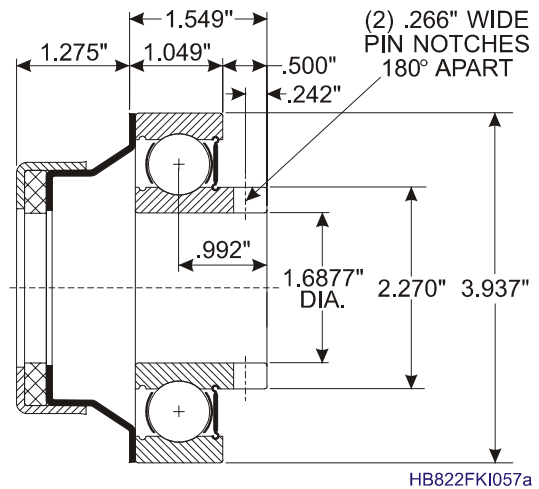
Bearings

Current Model No. Old Number

B1130-2	30900
B1131-2	30900



B1130-2

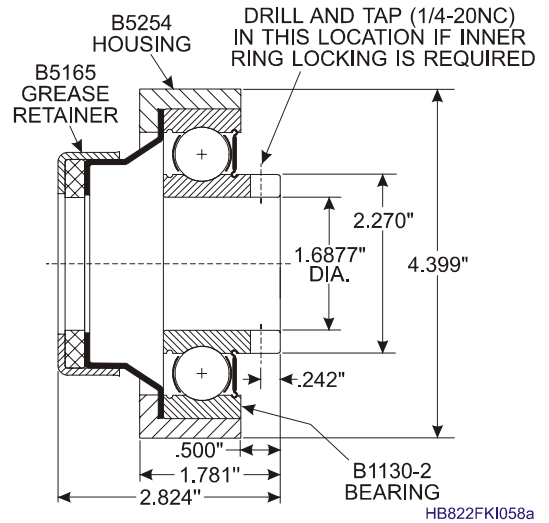


B1131-2 - With Loose Back Grease Retainer

Bearing Replacement Instructions

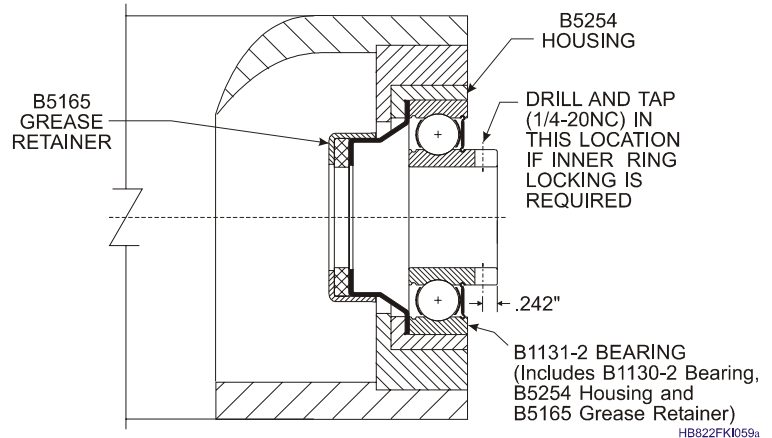
For 100-BG Bearing - Used with 5.56" Dia. x .750" Roller

If there is a need for a direct and complete replacement for a 100-BG Bearing, order as B1131-2/100-BG. If this has been ordered before and the outer housing and back seal retainer are still good, then possibly only the B1130-2 Bearing will be required.



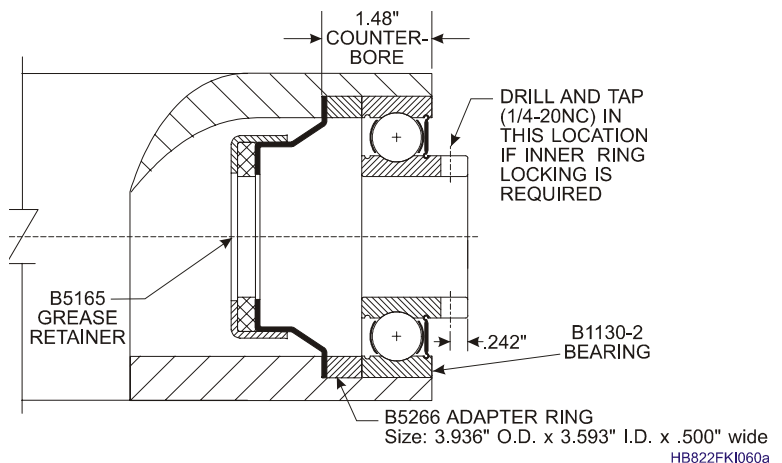
For 100-BG Bearing - Used with 7.625" Dia. x .875" Roller

If there is a need for a direct and complete replacement for a 100-BG Bearing, order as B1131-2/100-BG. If this has been ordered before and the outer housing and back seal retainer are still good, then possibly only the B1130-2 Bearing will be required.



For 10703 Bearing Used with 5.00" Dia. x .710" Roller

If there is a need for a direct and complete replacement for a 10703 Bearing, order as B1131-2/10703. If this has been ordered before and the spacer and back seal are still good, then possibly only the B1130-2 Bearing will be required.



Bearings - B1140 Series

Description

- Straight Faced Precision Bearing
- 2-7/16" Dia. Shaft
- 6500# Per Bearing Load Rating
- Double Row Self Aligning Roller Bearings
- Front and Back Seals
- Inner Race Drilled For Pressure Lubrication
- Collar with Set Screws to Prevent Cone Rotation
- Regreasable

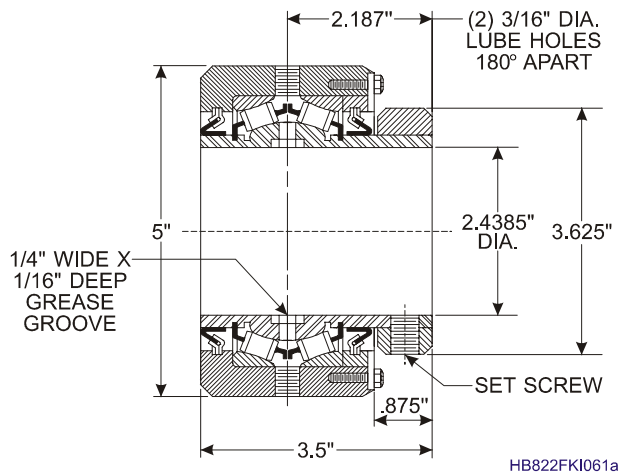


Uses

The B1140 is chosen primarily on the basis of load rating. It is the largest bearing in the Mathews line.

Bearings

Current Model No.	Old Number
B1140-2	210



B1140-2

Bearings - B1150 Series

Description

- Straight Faced Precision Bearing
- 11/16" Hex Axle
- 2380# Per Bearing Load Rating
- Nine 5/16" Dia. Hardened Chrome Alloy Steel Balls
- Front and Back Seals
- Inner Race Drilled for Pressure Lubrication (B1150)

Uses

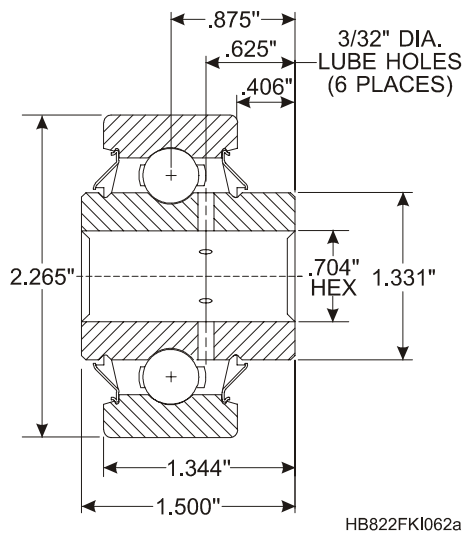
The B1150 is similar to the B1071. However, it has much greater load capacity, yet retains the axle size and O.D. of the B1071. It is also used where low noise levels and high operating speeds are required. It is grease packed.



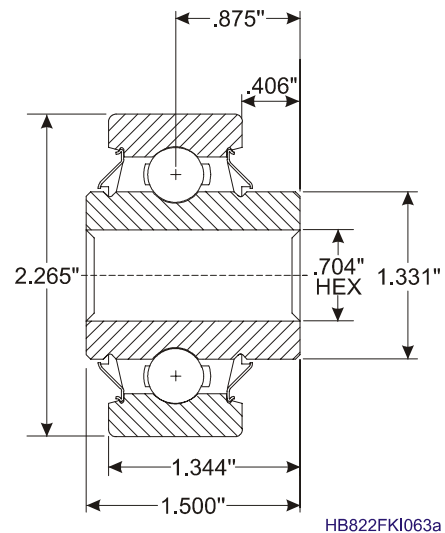
Bearings

Current Model No.	Old Number
B1150-2	20508, 53-205
B1151-2	20506

Bearings



B1150-2

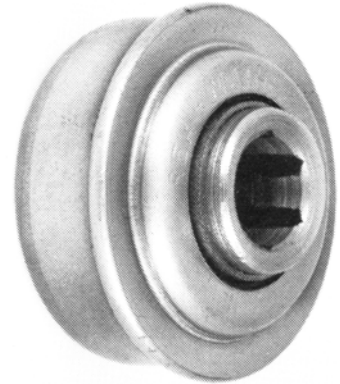


B1151-2

Bearings - B1160 Series

Description

- Straight Faced Precision Bearing
- 1-1/16" Hex Axle
- 4260# Per Bearing Load Rating
- Raceways Hardened and Ground
- Nine 7/16" Dia. Hardened Chrome Alloy Steel Balls
- Front and Back Seals
- Inner Race Drilled for Pressure Lubrication (B1161)



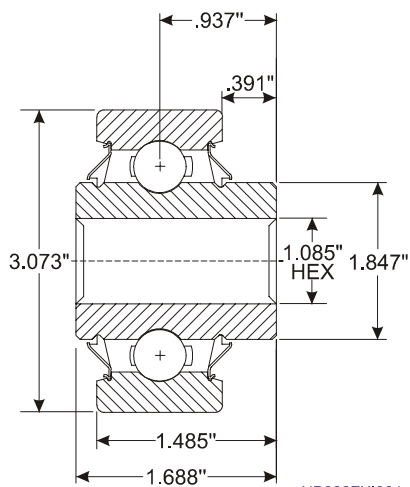
Uses

- The B1160 is similar to the B1080. It is used in powered applications where heavier load capacity, higher speeds and low noise levels are required. It is grease packed and non-regreasable.
- The B1161 is a regreasable bearing.

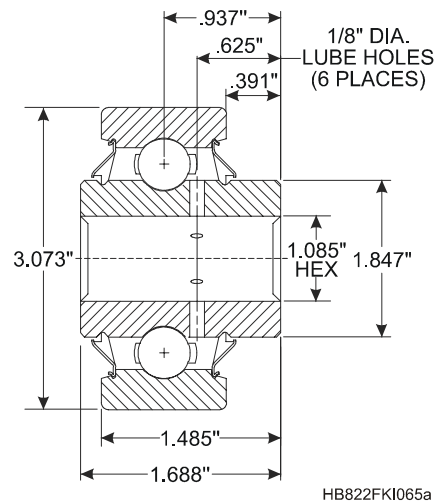
Bearings

Current Model No. Old Number

B1160-2	20706
B1161-2	20708, 58-207

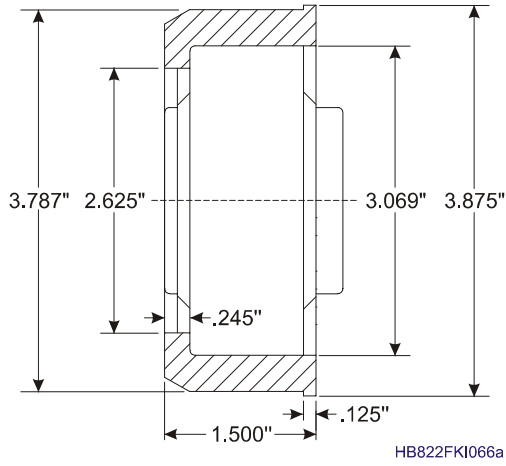


B1160-2

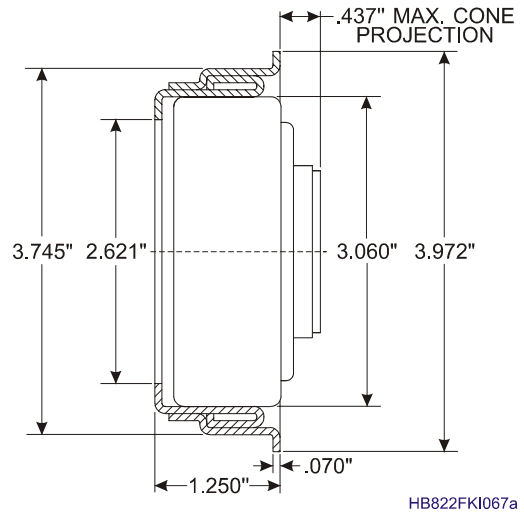


B1161-2

Housings



B5252 - B1160 Bearing - Used with 4.00" or 4.25" dia. x .134" Roller

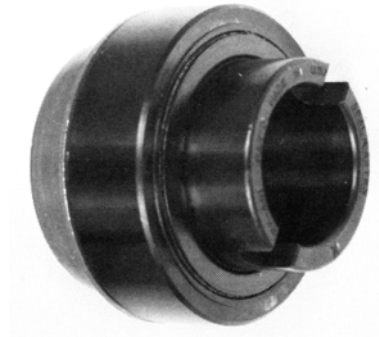


B5245 - B1161 Bearing - Used with 4.00" dia. x .134" Roller

Bearings - B1210 Series

Description

- Straight Faced Precision Bearing
- 1-3/16" Dia. Shaft
- 2100# Per Bearing Load Rating
- Nine 3/8" Dia. Hardened Chrome Alloy Steel Balls
- Ball Retainer
- Front and Back Seals
- Inner Race Notched For 1/4" Dia. Pin to Prevent Cone Rotation
- Can Be Pressure Regreasable



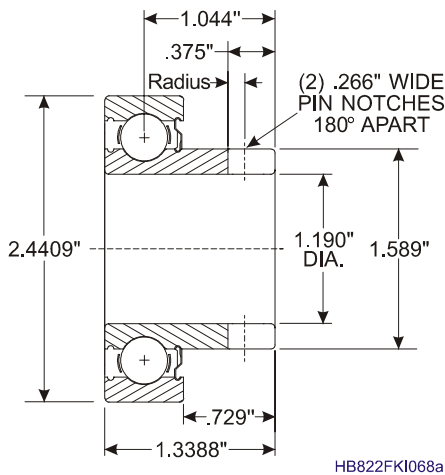
Uses

- Primary use is in powered equipment where low noise, high speed and long life are required.
- The B1210 is grease packed and non-regreasable.
- The B1211 is regreasable. The loose grease retainer is mounted in the counterbored tubing behind the bearing.

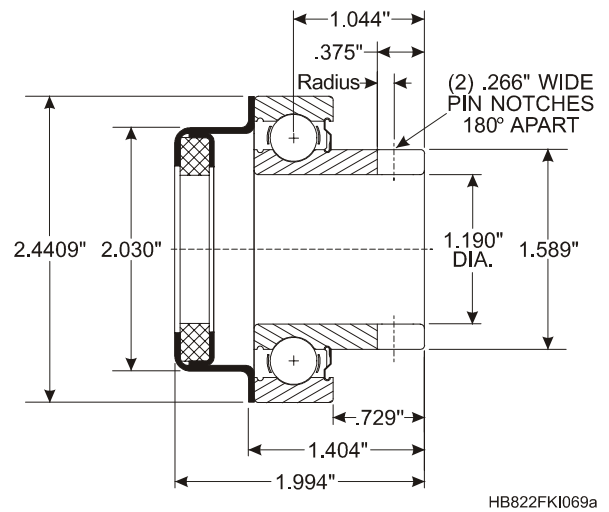
Bearings

Current Model No. Old Number

B1210-2	206J
B1211-2	206J

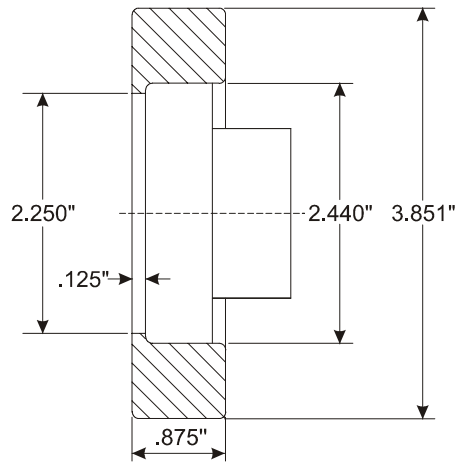


B1210-2 - Without Grease Retainer



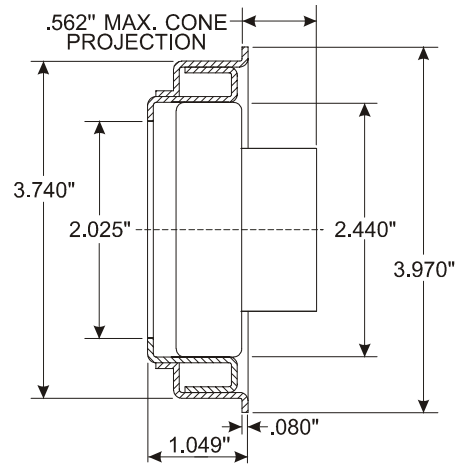
B1211-2 - With Grease Retainer

Housings



HB822FKI070a

B5240 - Used with 4.25" dia. x .250" Roller



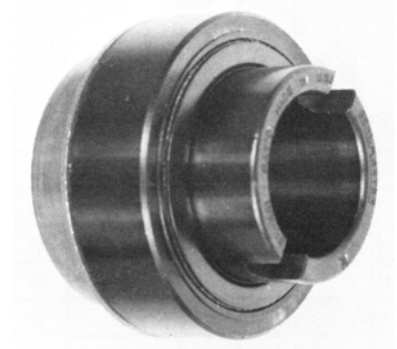
HB822FKI071a

B5242 - Used with 4.00" dia. x .134" Roller

Bearings - B1220 Series

Description

- Straight Faced Precision Bearing
- 1-3/8" Dia. Shaft
- 3770# Per Bearing Load Rating
- Eight 13/32" Dia. Hardened Chrome Alloy Steel Balls
- Ball Retainer
- Front Seal
- Inner Race Notched for 1/4" Dia. Pin to Prevent Cone Rotation.



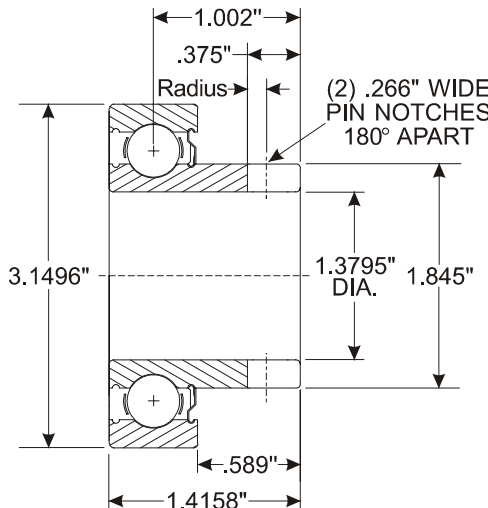
Uses

Primarily used in powered equipment where low noise, high speed and long life are required.

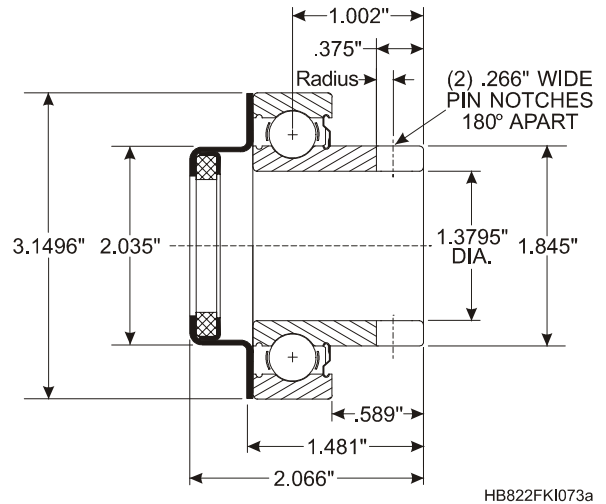
Bearings

Current Model No. Old Number

B1220-2	60A
B1221-2	60B



B1220-2 - Without Grease Retainer



**B1221-2 - With Grease Retainer
Back Seal, Pressure Regreasable**

Bearings - B1271 Series

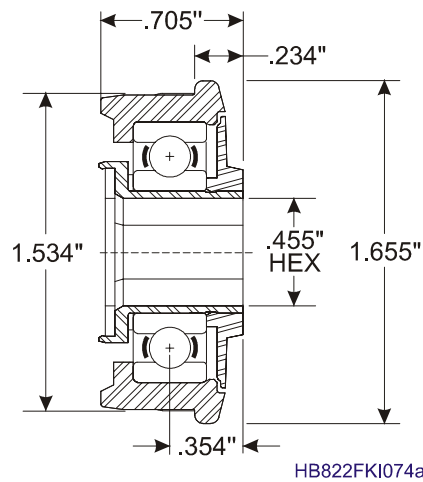
Description

- Flanged Type Precision Bearing
- 7/16" Hex Axle
- 126# Per Bearing Load Rating
- Front and Back Seals
- Grease Packed. Not Regreasable
- Static Conductive Housing
- Temperature Range -20° F to 150° F

Uses

Used in powered equipment where high speed (over 200 FPM) and low noise levels are required.

Bearing



B1271

Bearings - B2001 Series

Description

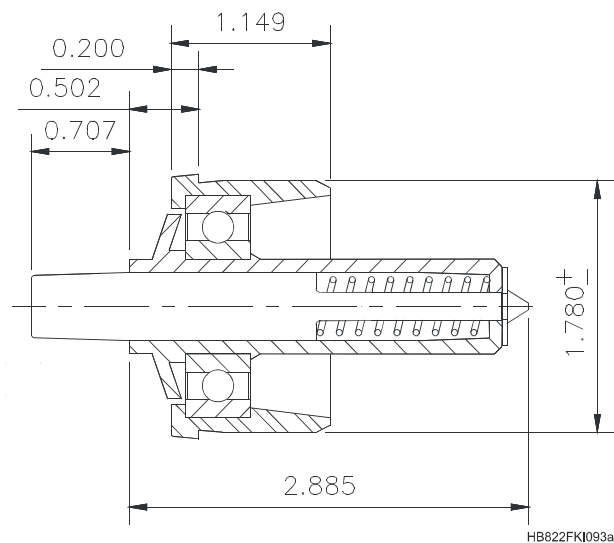
- Flanged type precision bearing
- 7/16" tapered hex, hardened, zinc plated, spring loaded
- 50# per bearing load rating (100#/roller)
Note: Uses 6203 ABEC bearing w/2160# rating.
- Front and back seals
- Grease packed for life (not regreasable)
- Static conductive housing
- Temperature range -20° F to 150° F



Uses

Primarily used for high speed and low noise applications.

Bearing



B2001

Wheels

Wheels		Load Rating (Pounds)	Axle or Bolt Size (Inches)	Integral Screw	Flanged O.D.	Chrowned O.D.	Wheel		Tire Material	Zinc Plated	Grease Packed	Seal Material	Stock	Made To Order
Part Number	Former Part Number						Steel	Aluminum						
B4000-1	115	60	1/4				●			●			●	
B4001-1	115A	40	1/4					●					●	
B4021-1	70RT	20	1/4				●		Rubber				●	
B4031-1	75AC	300	1/2	●			●		Steel			Felt	●	
B4031-2	75ACG	300	1/2	●			●		Steel	●		Felt	●	
B4040-1	75F-1	300	1/2		●		●		Steel				●	
B4050-1	80	30	5/16				●						●	
B4051-1	80C	30	5/16			●	●							●
B4062-1	84-2	50	1/2				●						●	
B4071-1	FF452-A	300	1/2	●	●		●		Steel			Felt	●	
B4080-1	524	300	3/4				●						●	
B4090-1	844RT	50	1/2				●		Rubber				●	
B4091-1	844M	50	1/2				●		Mica rta				●	
B4100-1	552CM	100	3/4				●		Mica rta				●	

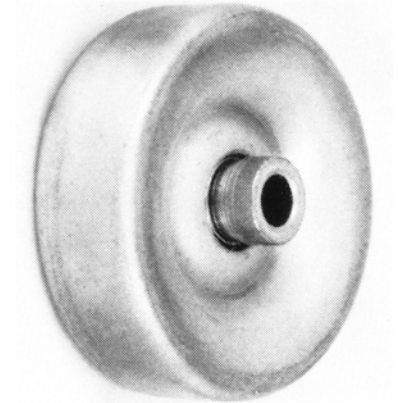
Mathews' industrial wheels are manufactured to exacting standards by Mathews Conveyor. They are available in an unusually wide variety of types and capacities. The assortment ranges from the universally recognized 2" diameter "skate wheel" to 5" diameter wheels. Wheel types include flat face, crowned face, solid tire and flanged wheels. Load capacities run from 20 to 300 pounds per wheel.

Mathews' wheels may be ordered from full-line Authorized Distributors or Bearing Distributors.

Wheels - B4000 Series

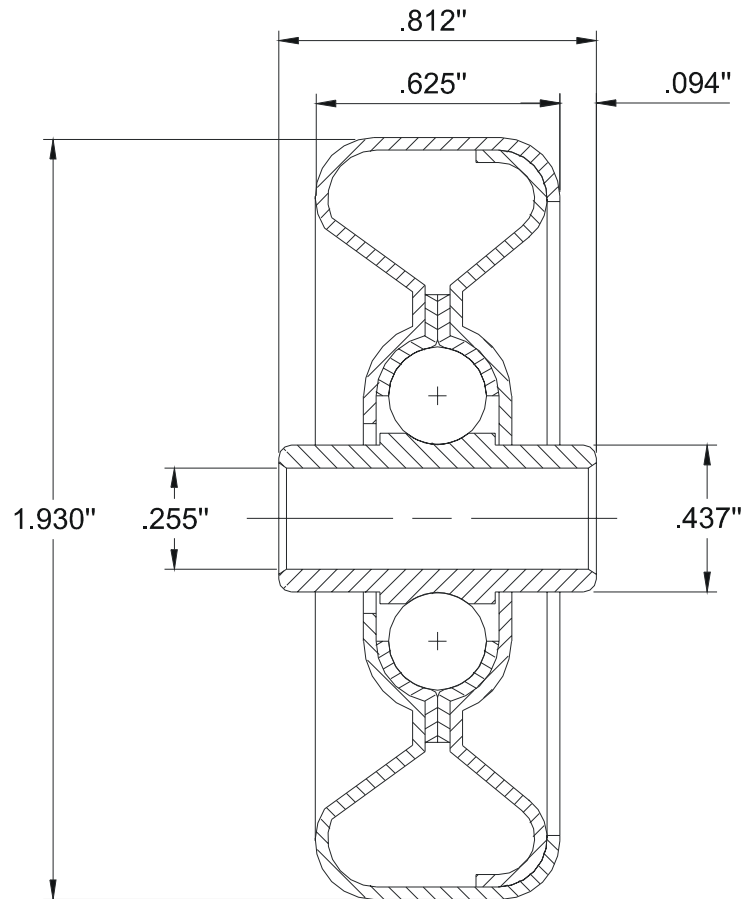
Description

- Straight Faced Skate Wheel
- 60# Per wheel Load Rating (B4000)
- 40# Per wheel Load Rating (B4001)
- 1/4" Dia. Shaft
- Raceways Hardened
- Seven 1/4" Dia. Hardened Steel Balls
- Plated Inner Race and Pressed Outer Shell



Wheels

Current Model No.	Old Number
B4000-1	115 (Zinc Plated)
B4001-1	115A (Aluminum)



HB822FKI075a

B4000-1, B4001-1

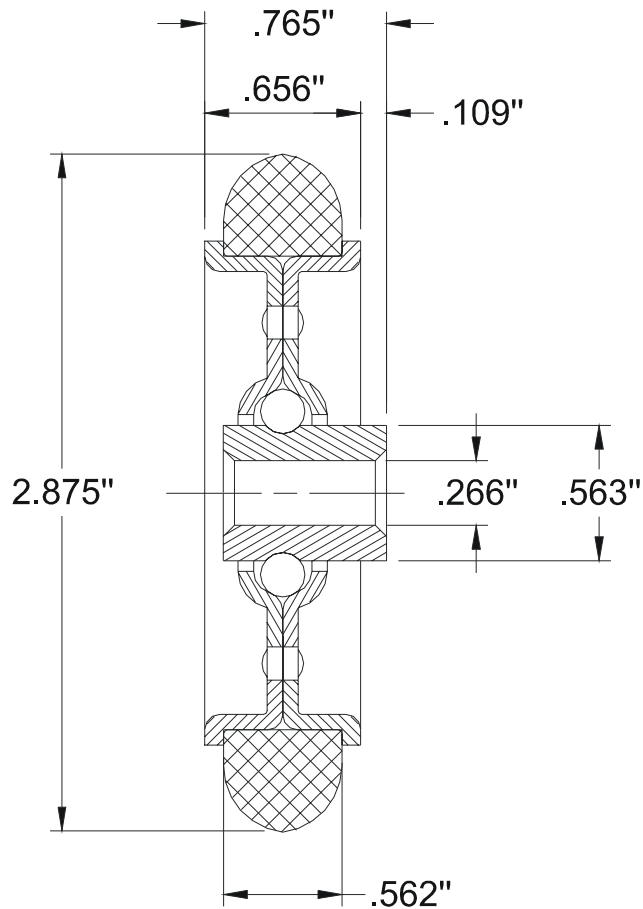
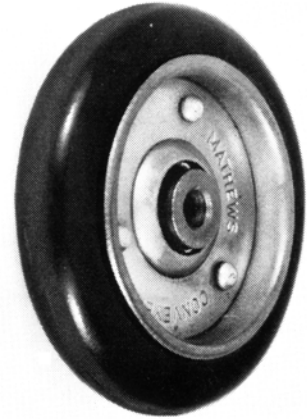
Wheels - B4021 Series

Description

- Rubber Tire Wheel
- Oiled
- 20# Per Wheel Load Rating
- 1/4" Dia. Shaft
- Eleven 3/16" Dia. Hardened Steel Balls

Wheel

Current Model No.	Old Number
B4021-1	70RT



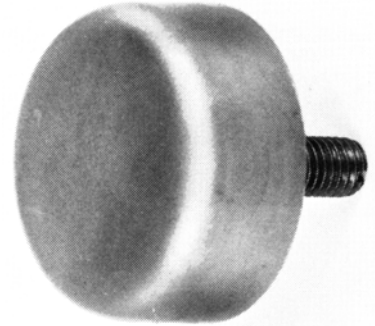
HB822FKI076a

B4021-1

Wheels - B4031 Series

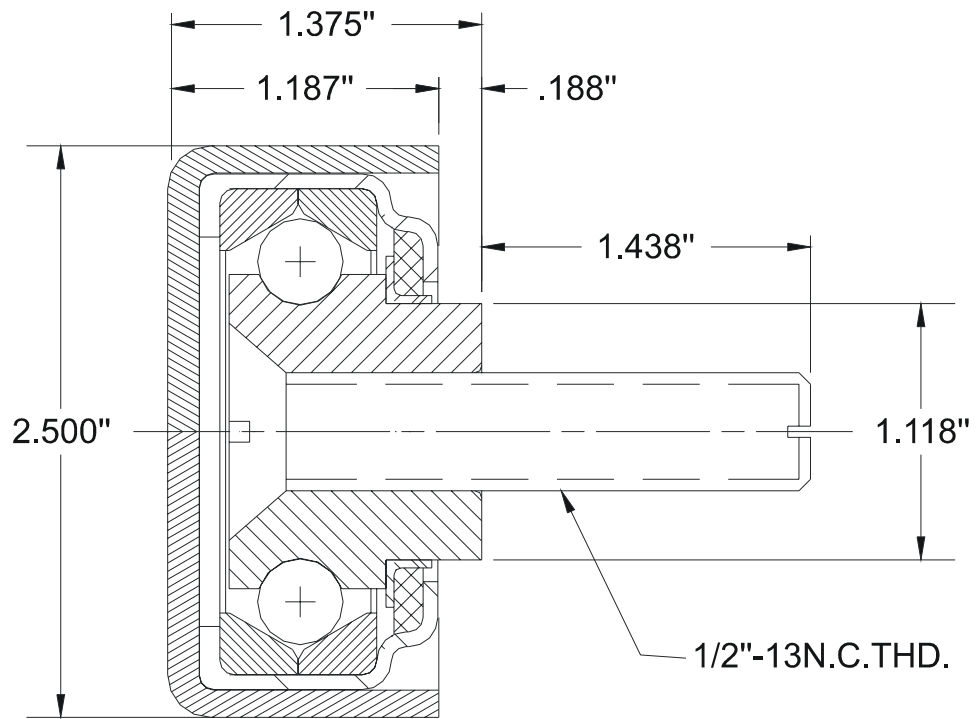
Description

- Straight Faced Wheel
- 300# Per Wheel Load Rating
- 1/2" Bolt
- Raceways Hardened
- Twelve 3/8" Dia. Hardened Steel Balls
- Front Seal
- Back Bearing Sealed by Tire
- Integral Screw



Wheels

Current Model No.	Old Number
B4031-1	75AC
B4031-2	75ACG (Grease Packed)



HB822FKI077a

B4031-1, B4031-2

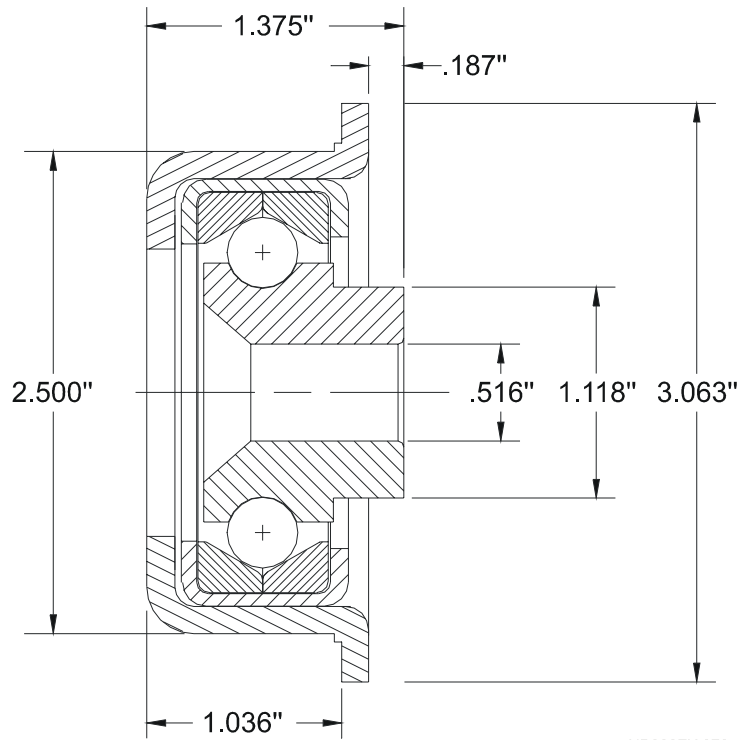
Wheels - B4040 Series

Description

- Flanged Wheel
- 300# Per Wheel Load Rating
- 1/2" Dia. Shaft
- Raceways Hardened
- Twelve 3/8" Dia. Hardened Steel Balls

Wheel

Current Model No.	Old Number
B4040-1	75F-1



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B4040-1

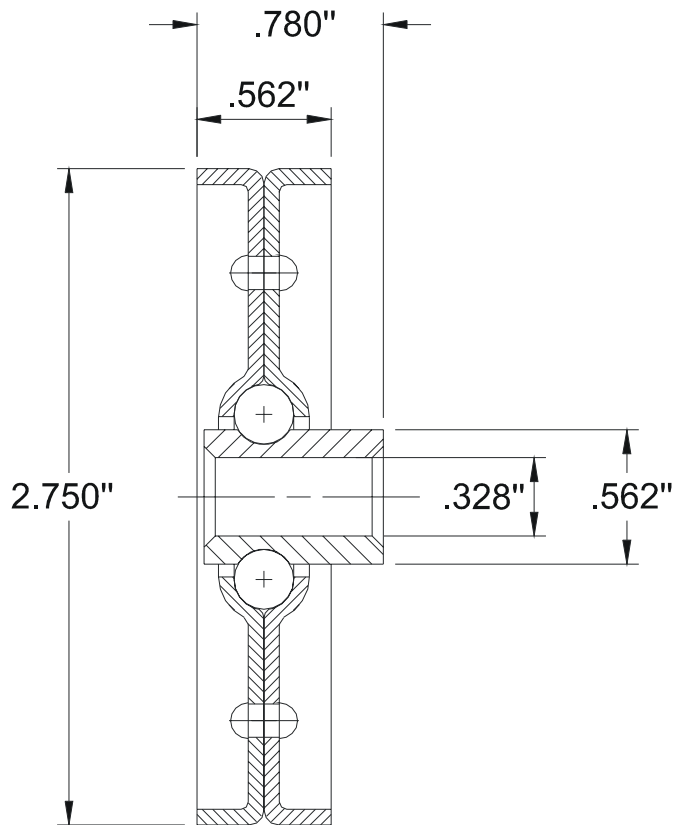
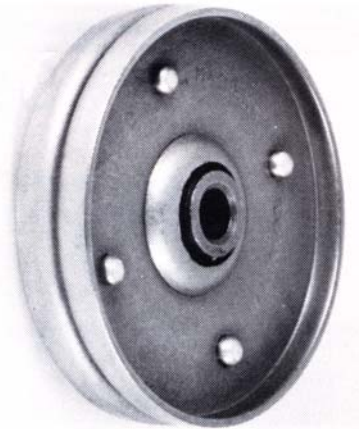
Wheels - B4050 Series

Description

- 30# Per Wheel Load Rating
- 5/16" Dia. Shaft
- Raceways Hardened
- Eight 1/4" Dia. Hardened Steel Balls

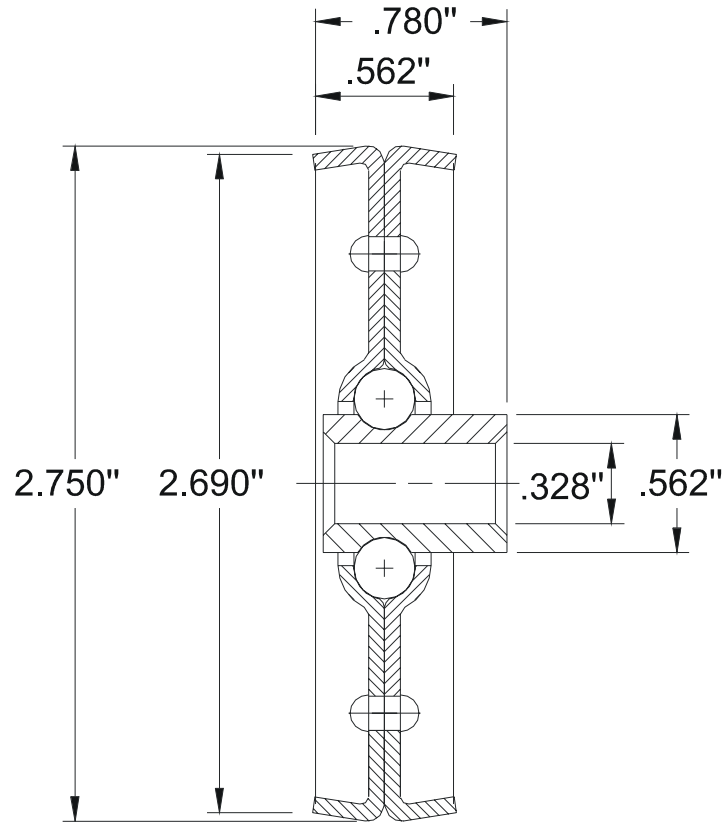
Wheels

Current Model No.	Old Number
B4050-1	80C
B4051-1	80 (Crowned) Made To Order



HB822FKI079a

B4050-1



HB822FK1080a

B4051-1 - Made to Order

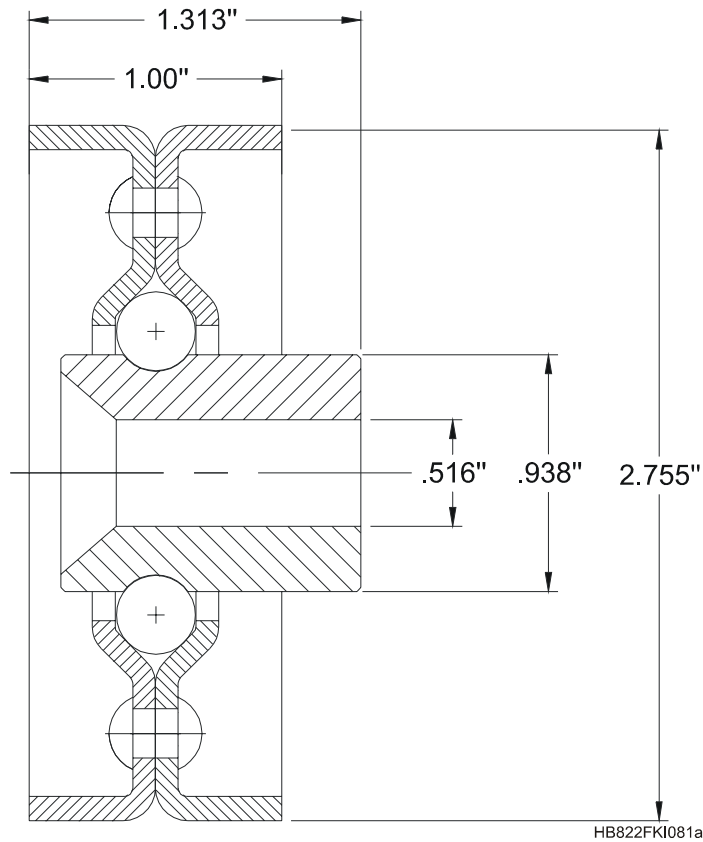
Wheels - B4062 Series

Description

- Straight Faced Wheel
- 50# Per Wheel Load Rating
- 1/2" Dia. Shaft
- Raceways Hardened
- Eleven 5/16" Dia. Hardened Steel Balls

Wheel

Current Model No.	Old Number
B4062-1	84-2



B4062-1

Wheels - B4071 Series

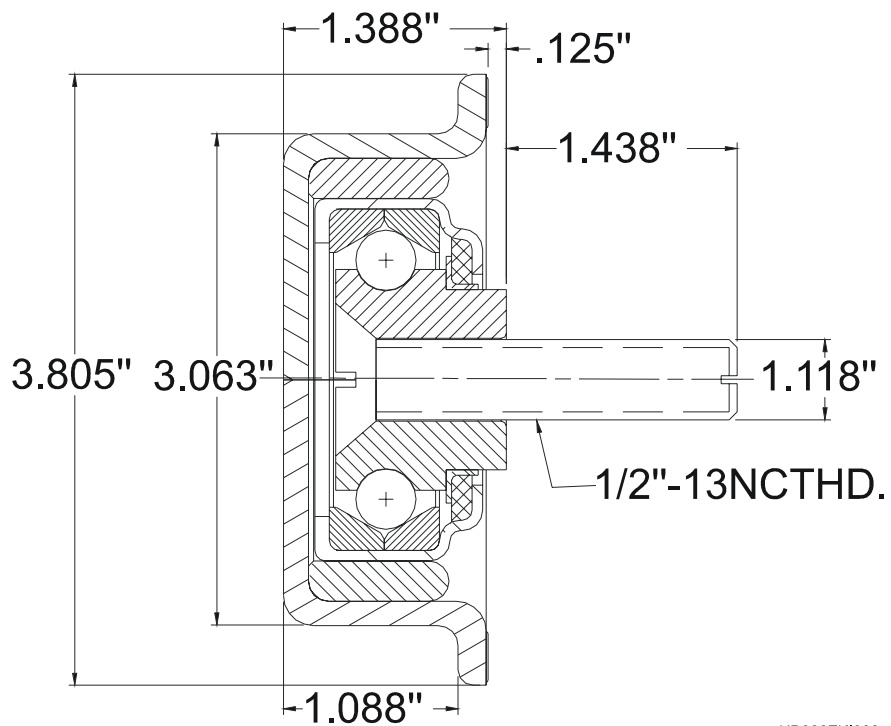
Description

- Flanged Wheel
- 300# Per Wheel Load Rating
- 1/2" Bolt
- Raceways Hardened
- Twelve 3/8" Dia. Hardened Steel Balls
- Front Seal
- Back Bearing Sealed by Tire
- Integral Screw



Wheel

Current Model No.	Old Number
B4071-1	FF452A



HB822FKI082a

B4071-1

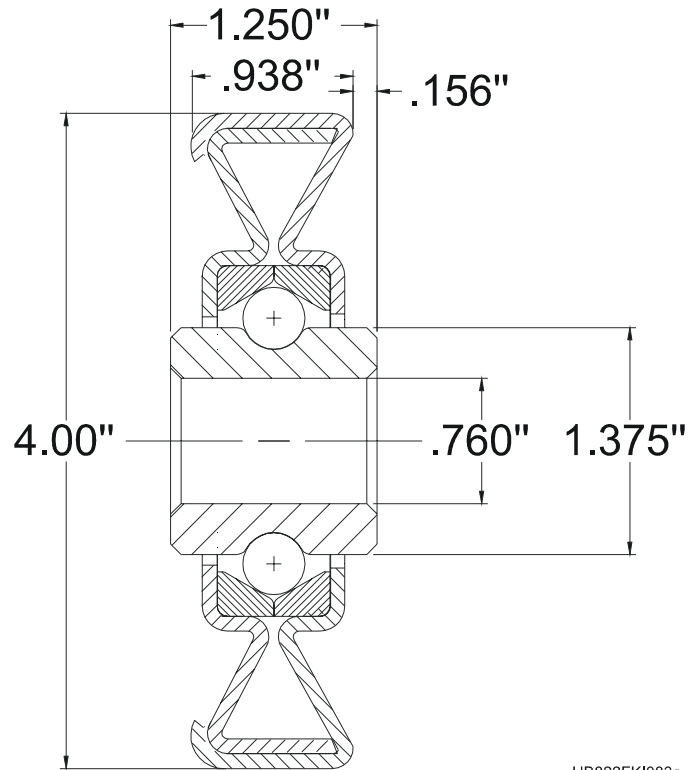
Wheels - B4080 Series

Description

- Straight Faced Wheel
- 300# Per Wheel Load Rating
- 3/4" Dia. Shaft
- Raceways Hardened
- Twelve 3/8" Dia. Hardened Steel Balls

Wheel

Current Model No.	Old Number
B4080-1	524



HB822FKI083a

B4080-1

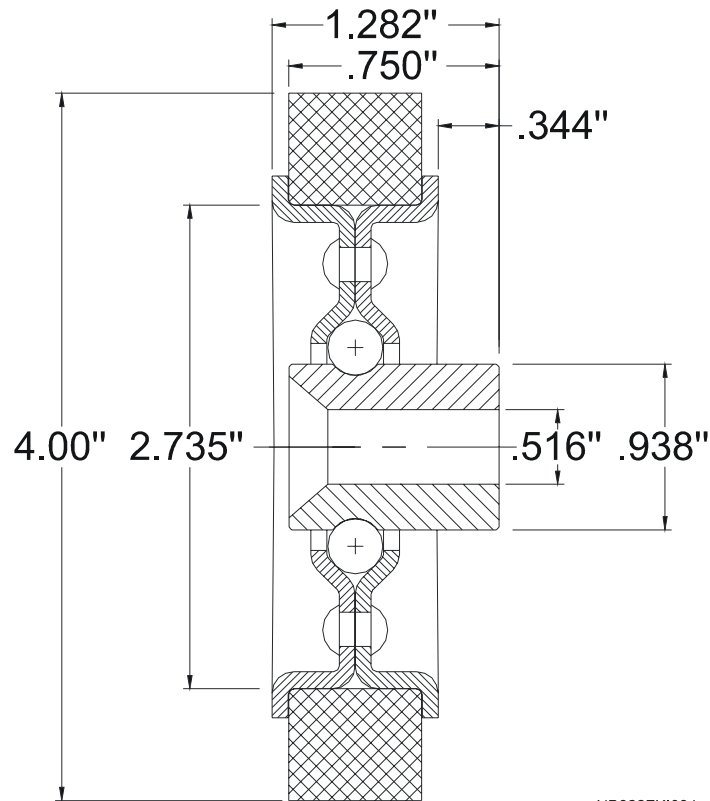
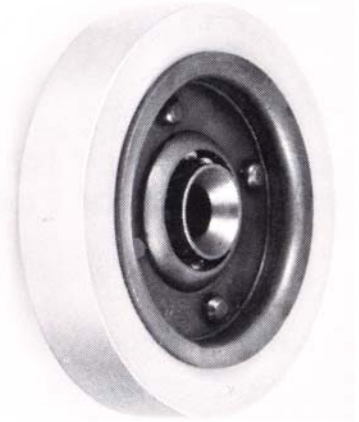
Wheels - B4090 Series

Description

- 50# Per Wheel Load Rating
- 1/2" Dia. Shaft
- Raceways Hardened
- Eleven 5/16" Dia. Hardened Steel Balls

Wheels

Current Model No.	Old Number
B4090-1	844RT (Neoprene Tire)
B4091-1	844M (Micarta Tire)



HB822FKI084a

B4090-1 - B4091-1

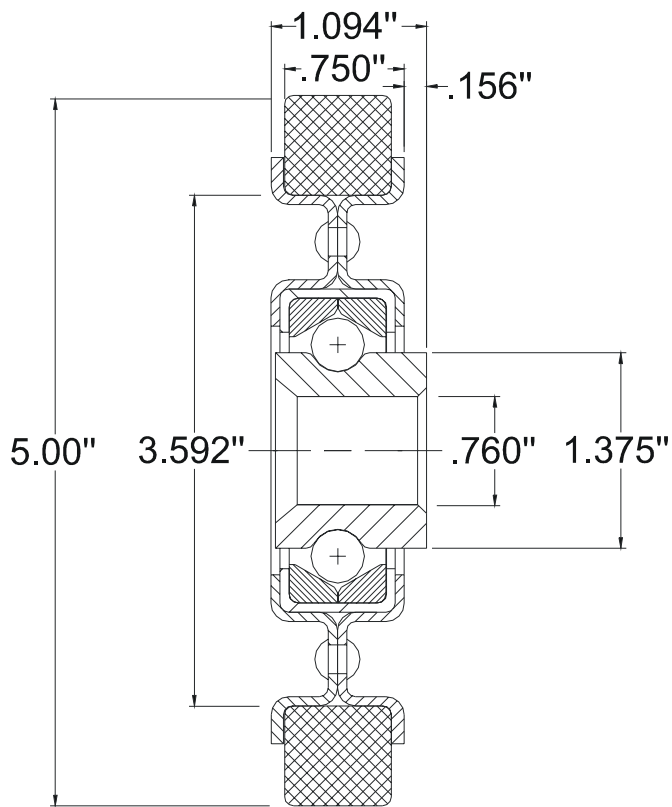
Wheels - B4100 Series

Description

- Micarta Tire Wheel
- 100# Per Wheel Load Rating
- 3/4" Dia. Shaft
- Raceways Hardened
- Twelve 3/8" Dia. Hardened Steel Balls

Wheel

Current Model No.	Old Number
B4100-1	552CM (Micarta Tire)



HB822FKI085a

B4100-1

Ball Transfers

Ball Transfers		Load Rating (Pounds)	Ball Diameter (Inches)	Mountings	Weight (Pounds)	All Steel	All Stainless	Nylon Ball	Stock	Made To Order
Part Number	Former Part Number									
B4500	101	50	1	2-hole	.3	●			●	
B4501	141	125	1	2-hole	.3		●		●	
B4502	101N	5	1	2-hole	.25			●		●
B4510	102	50	1	Plate	.3	●				
B4511	142	125	1	Plate	.3		●		●	
B4520	201A	100	1-1/2	4-hole	1.5	●			●	
B4530	202A	100	1-1/2	Pipe	2.0	●			●	
B4551	Similar to B4550	250	2	Pipe	5.5	●			●	
B4552	Similar to B4550	250	2	Pipe	5.5	●				●
B4560	750	650	3	Pipe	10.0	●			●	

Mathews' ball transfers are manufactured by Mathews Conveyor. A ball transfer consists of a single large steel ball resting on a quantity of small ball bearings. It is contained in a hardened steel cup by a cap. It comes with a base for mounting. The large ball is free to rotate in any direction with a minimum of resistance.

Ball transfers facilitate the movement of smooth, hard-surfaced commodities in varying directions in a horizontal plane. Some of the more common applications include: transferring commodities from one conveyor to another, turning a product without lifting it; and precise positioning of a product. Unlike casters, ball transfers are omnidirectional. This feature allows the user to quickly change the direction of travel of a product. In operations such as punch press or shearing work, positioning of large sheets or plates can be greatly simplified.

Mathews' ball transfers may be tilted approximately 30 degrees from horizontal. Thus a "v" shape can be formed to allow conveying of cylindrical objects, such as pipe.

How To Specify A Ball Transfer

- **Capacity:** The required ball transfer capacity is found by dividing the weight of the heaviest product by three. This implies that a minimum of three ball transfers will be under the product at all times.
- **Spacing:** Ball transfer spacing is determined by dividing the smaller of the product's length or width dimension by 2.5. This yields the maximum ball transfer center distance.
- **Coefficient of Friction:** The force required to move commodities over a ball transfer bed depends primarily on weight and condition of the conveying surface. Experience has shown that from 2 to 15 percent of the unit weight is the force required.

Limitations

There are some limitations which must be considered when using ball transfers.

- The large steel ball will mark soft or brightly finished products. If this marking is a concern, a nylon ball should be specified (only available in 1" dia. balls).
- Ball transfers are usually not lubricated. Oil or grease on ball transfers can pick up dust or waste material. This may either contaminate the product being conveyed or clog the ball transfer. As a result, ball transfers should not be applied in abnormally dusty conditions. Some examples include foundry molding areas and wood working plants.

In order to remove the periodic build-up of dirt, grease, etc., kerosene should be applied to the ball transfer while rubbing it with a clean cloth.

Lubrication can be accomplished by rubbing a block of paraffin over the ball transfer at required intervals.

- Some products which will not convey satisfactorily on ball transfers include: drums with chimes, steel strapped boxes, wire bound crates, bagged material, pallets with spaced bottom boards, tote boxes with runners and wire baskets.
- Ball transfers should not be used where the temperature of any component of the ball transfer may exceed 250° F (121° C).

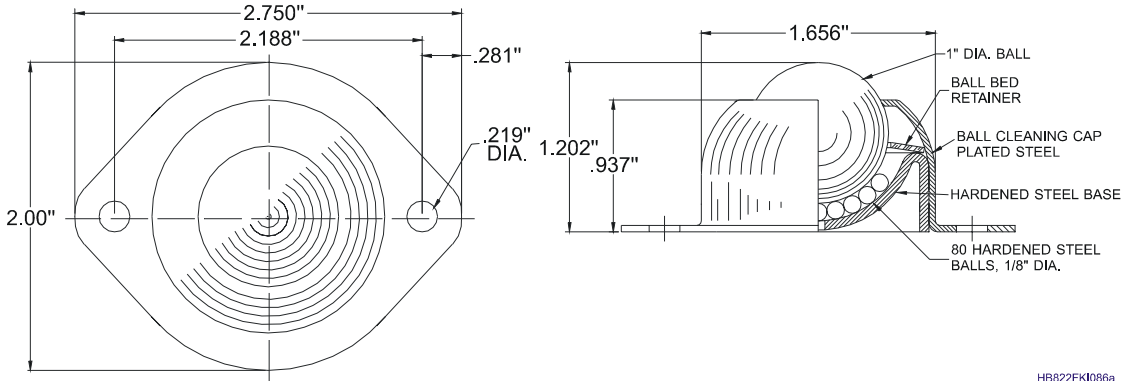
In summary, Mathews' ball transfers are a very effective means for conveying, transferring and positioning products, in the right application.

Mathews' ball transfers may be ordered from full-line Authorized Distributors of Bearing Distributors.

Ball Transfers - B4500 Series

Current Model No.	Old Number	Rating	Material
B4500	101	50#	Steel
B4501	141	125#	Stainless
B4502*	101N	5#	Nylon

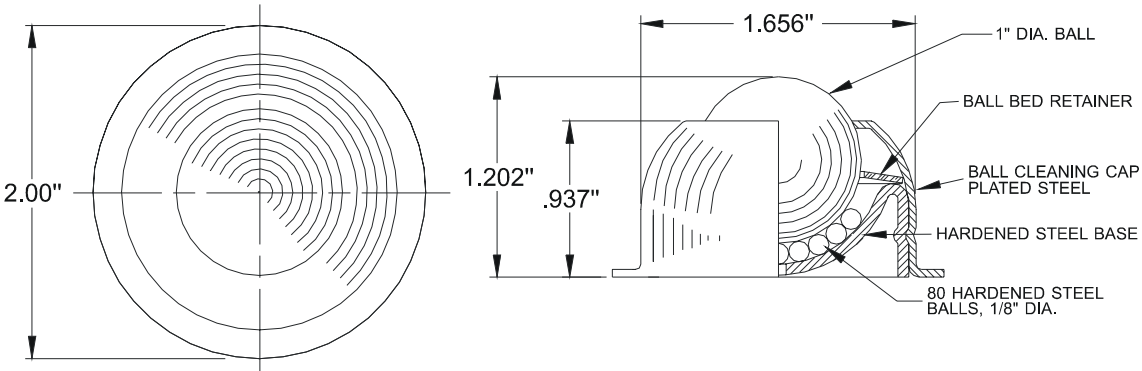
*Made To Order



HB822FKI086a

Ball Transfers - B4510 Series

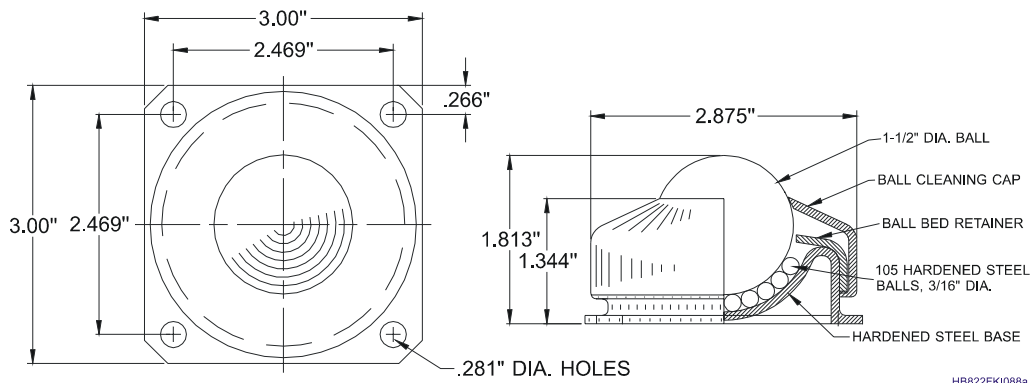
Current Model No.	Old Number	Rating	Material
B4510	102	50#	Steel
B4511	142	125#	Stainless



HB822FKI087a

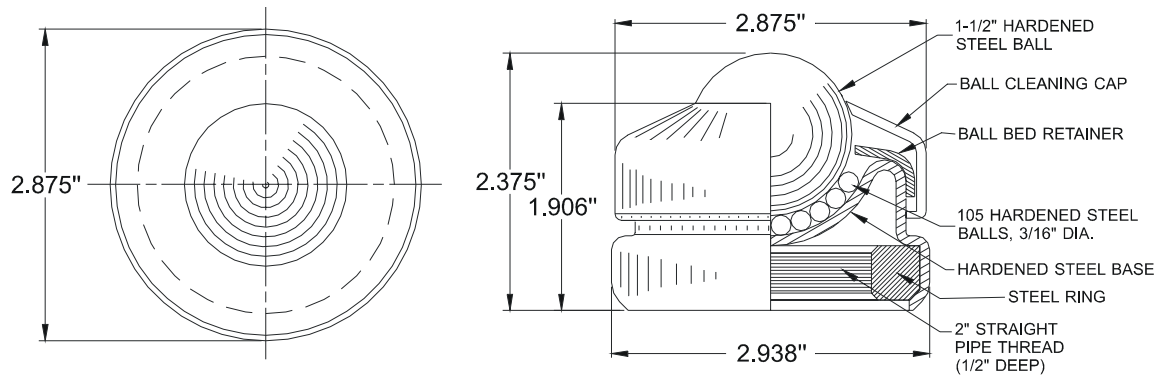
Ball Transfers - B4520 Series

Current Model No.	Old Number	Rating	Material
B4520	201A	100#	Steel



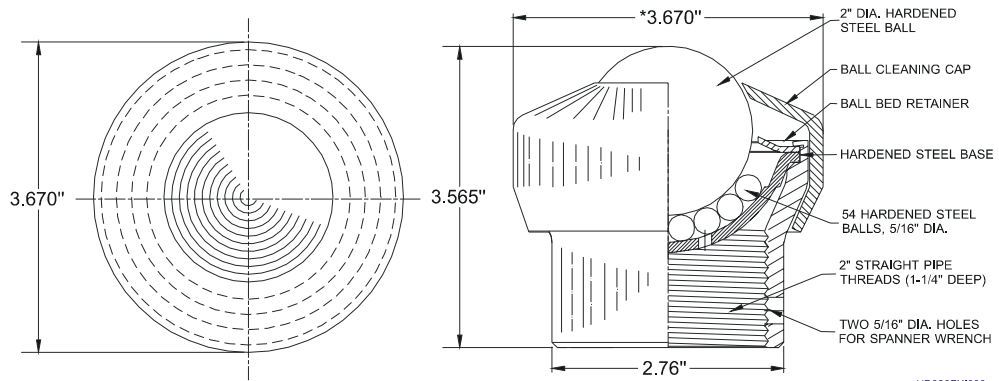
Ball Transfers - B4530 Series

Current Model No.	Old Number	Rating
B4530	202A	100#



Ball Transfers - B4550 Series

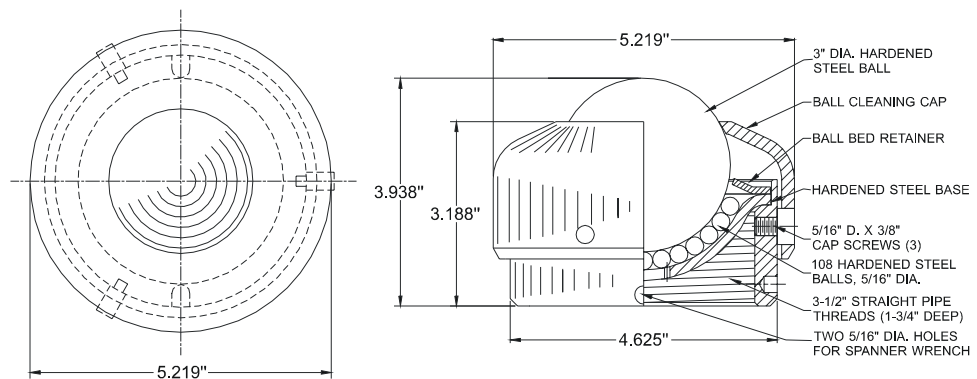
Current Model No.	Old Number	Rating
B4551	B4550/501*	250#
**B4552 w/Removable Cap		250#



HB822FKI090a

Ball Transfers - B4560 Series

Current Model No.	Old Number	Rating
B4560	750	650#



HB822FKI091a

