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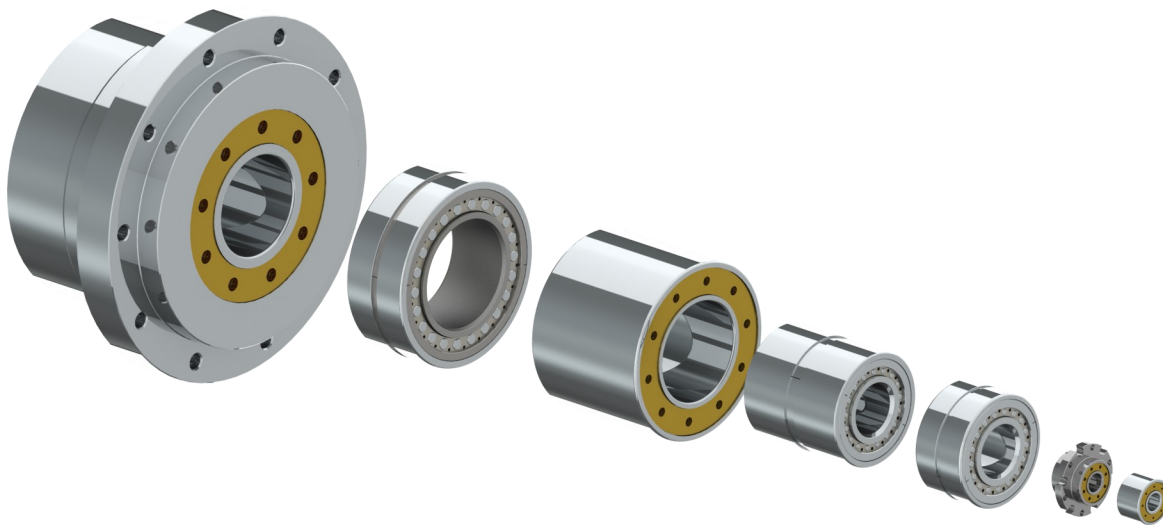
**CREATIVE**  
MOTION CONTROL

# Creative Motion Control

## Grooved Roller Bearings

**A NEW STANDARD IN BEARING TECHNOLOGY**

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## **PRODUCT CATALOG**

CREATIVE SOLUTIONS TO AUTOMATION CHALLENGES

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**CMC: CREATIVE SOLUTIONS TO AUTOMATION CHALLENGES**



We believe the information contained in this publication is accurate, but no liability can be accepted for any loss or damage whether direct, indirect or consequential arising out of the use of the information contained herein. Not approved for manned flight-critical applications without CMC consent.

# The CMC Difference

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## Extended Life:

**CMC has the ONLY thrust, radial and combo bearings that exceed the life of the competition's bearings by a minimum of 5 to 10 times.**

## Patented Design:

CMC's grooved roller bearing design is patent protected, so only CMC can offer these substantial life and load benefits over the competition.

## Customization:

Our customers all have unique needs and requirements, and therefore they often require custom solutions. At CMC, we are ready, able, and willing to help our customers with their custom requirements.

CMC can provide solutions for essentially any custom requirement. We produce bearings as large as 350mm, and as small as 5mm. We can produce any type of custom flange or housing as needed. We can customize chamfers, overall sizes, or any other component change required. We are happy to work with you to ensure that you receive precisely the solution you need.

## Engineering Assistance:

Our CMC engineering staff is standing by to help you with your bearing questions.

## Prototypes:

We welcome the chance to provide prototypes and have no minimum order. Of course, price breaks are substantial as you move into higher quantities.

## Nonstandard Materials:

We are happy to work with your material requirements; our processes are flexible and can work to your requirements as long as the materials selected can sustain the required load.

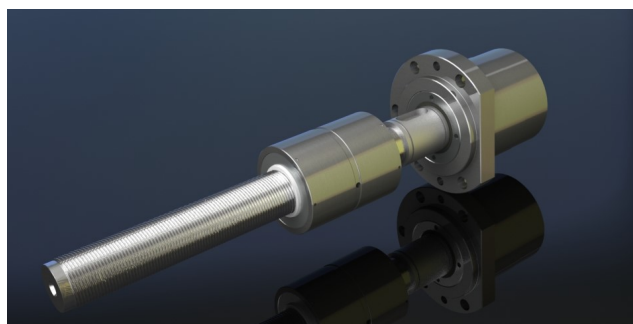
## Made in the US:

CMC is a US company, and all of our parts can be made here in the US. If you require or prefer 100% US made product, CMC is your logical solution. CMC bearings are also made in our Asian factories and of course are shipped all over the world each month.

## Communication:

At CMC, we always remember that our customers are the only essential element to our business, and that satisfied customers require not just great parts delivered on time, but they also require personal time and attention.

Through both the sales and production cycles, you will have a personal single point contact that you can come to with questions at any time.



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# Grooved Roller Design

## The Grooved Roller Difference

The patented CMC Grooved Roller Bearing (GRB) difference lies in the simplicity of more contact points in the same physical space due to the grooved design.

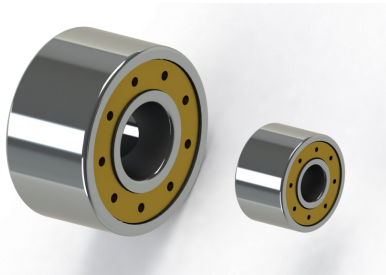
**More contact points = longer life/  
greater load capacity**

**Specifically designed to match the most common envelope dimensions of angular contact bearing duplex or quad pack sets.**

In this way, the CMC GRB can be an exact dimensional replacement for existing designs where significantly longer life is desired.

With new designs, the Grooved Roller Bearing delivers a unique opportunity for size and weight reduction. By providing a smaller yet more capable bearing, overall system size and weight are optimized, and next higher assembly costs are reduced.

Also, in linear motion applications, by providing a smaller bearing the ball or roller screw shaft complexity is simplified, overall system weight is reduced, and next higher assembly costs optimized.



## Grooved Roller Bearing Benefits:

- **Significantly Increased Life:**  
By virtue of the increase in dynamic load capacity, life increases by an order of magnitude. CMC bearing life is generally **five to ten times longer** than that of competitive bearings.

For example, compared to SKF's best performing angular contact ball bearing (Explorer), specifically the 7204 BEGAP in a back-to-back or face-to-face duplex configuration, the **CMC 200S20.47.28 will run just over 10 times longer than the best performing equivalent sized SKF bearing.**

- **Larger Load Capacity:**  
CMC bearings are capable of handling significantly higher loads than the competition.

For example, compared to SKF's best performing angular contact ball bearing (Explorer), specifically the 7313 BEGAP in a back-to-back or face-to-face duplex configuration, the **CMC 300S65.140.66 has 2.2 times the dynamic thrust load carrying capacity than the best performing equivalent sized SKF bearing.**

- **Smaller and Lighter:**  
CMC GRBs do the work of much bigger competitive bearing solutions, enabling optimized designs that reduce overall size and weight of the overall assembly.
- **Standard sizes:**  
Available in common sizes up to 350mm OD. Larger sizes are available upon request.
- **TCO:**  
The cost/performance ratio of the GRB is better than any competitive bearing on the market. This of course reduces total bearing costs, but often more importantly **dramatically reduces maintenance and replacement costs.**

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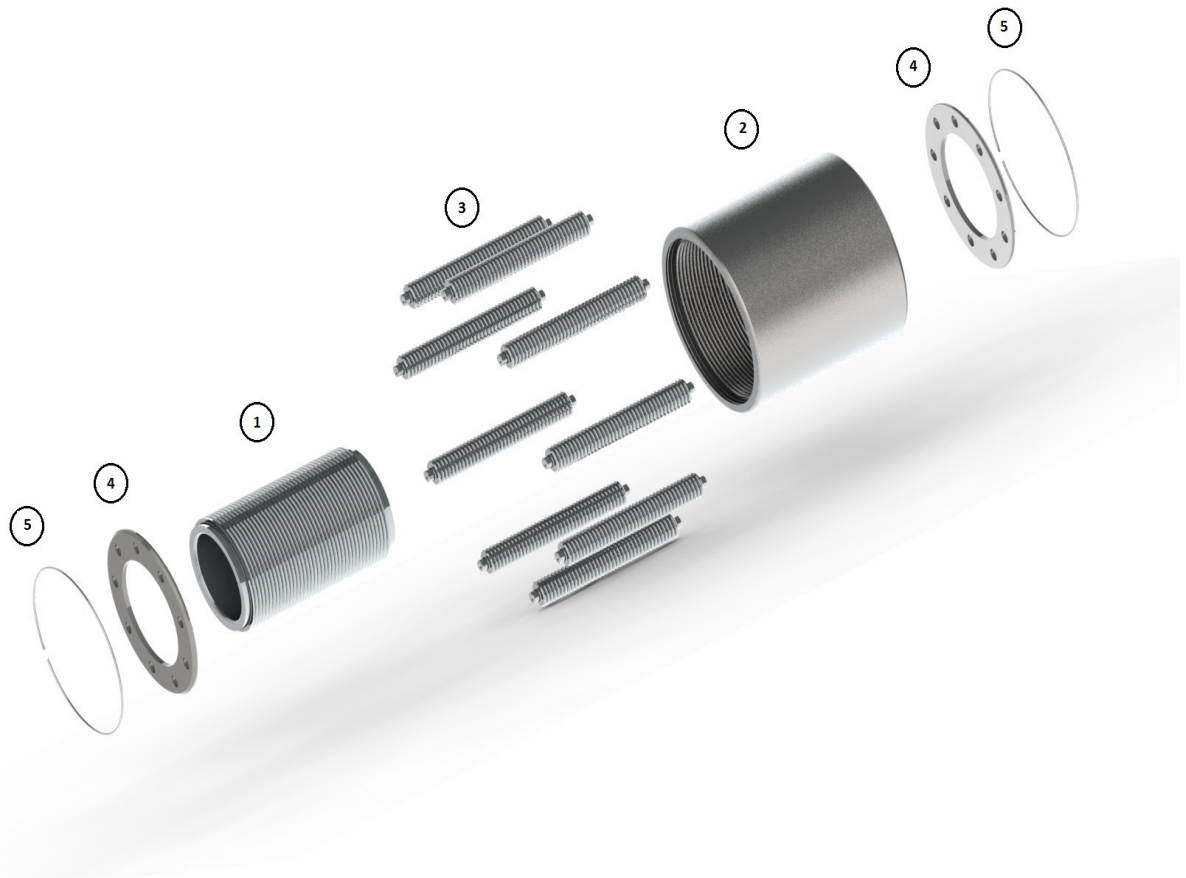
# Grooved Roller Design

## There are five primary components of the patented GRB:

1. Grooved Inner Race
2. Grooved Outer Race (with or without flange)
3. Grooved Rollers
4. Spacers
5. Retaining Rings

## Patented Design

**This patented, grooved design is what makes the CMC GRB able to last so much longer and to be more effective in handling higher loads than other similarly sized bearings.**



The outer race, inner race, and rollers carry load. The spacer retains and spaces the rollers. Pins are used for assembly only.

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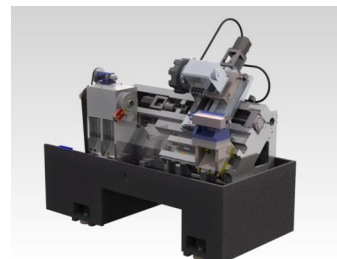
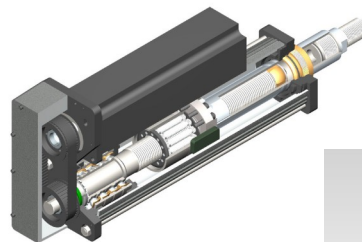


# Market Applications

## CMC Grooved Roller Bearing Applications

Because the patented GRB design is able to achieve much longer life and much higher load capacity than angular contact bearings, deep groove bearings or other roller bearings, the CMC GRB is perfectly suited for:

- Applications where longer life will resolve high maintenance and downtime costs
- Applications where a smaller, lighter bearing will provide desired size and/or weight advantages
- The GRB Thrust Bearing fits applications with high axial or thrust loads and/or long life requirements
- The GRB Radial Bearing fits applications with high radial loads and/or long life requirements
- The GRB Combo Bearing fits applications with a combination of high axial and radial loads and/or long life requirements



## Examples of Applications:

- All types of machine tools (presses, injection molding machines, lathes, turning and grinding machines)
- Gearboxes
- Military/defense apparatus
- Aerospace
- Agriculture
- Heavy Trucks
- Oil and gas
- Wind energy
- Industrial Pumps
- Marine Applications
- Mining
- Material Handling
- Roller screw linear actuation
- Ball screw linear actuation
- Many more!



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# Custom Applications

## Roller Screw Support Bearings

CMC Grooved Roller Bearings are the natural fit for any roller screw application.

With the incredible force density of roller screws (and the CMC Performance Roller Screw in particular), typically sized bearing supports are inadequate to react the thrust loads and, consequently, the bearing becomes the weak link in the entire system.

**Almost all roller screw applications are constrained by the bearing load capacity and not by the load capacity of the roller screw itself.**

Bearings required to match the capability of the roller screw become too large and too expensive to be practical for most high thrust applications. The CMC GRB eliminates this “bearing limited” condition. The GRB affords tremendous life improvements, eliminating the constant bearing replacement that plagues lesser support bearing technologies in roller screw applications.

Further, by using a smaller GRB, shaft end features are simpler, reducing overall costs. Sleeves or shoulders causing extra lathe and/or grinding work can be completely avoided.

The GRB allows for much higher load capacity, and therefore longer life, in the same physical envelope of an existing bearing pack. Therefore a direct replacement with a GRB enables dramatically longer life.

Or, if there is flexibility in design, the same load capacity can be achieved with a much smaller bearing pack than with competitive bearings. If size and weight are an issue, then consider switching to the same load/life but much smaller CMC GRB.

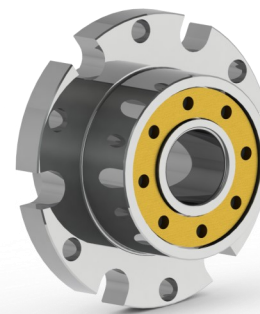
## Ball Screw Support Bearings:

As with roller screws, GRBs are a great choice for ball screw support (thrust) bearings. The high load capacity enables reductions in size and weight, and allows for less complicated and less costly shaft designs.

## Custom Bearings:

CMC takes great pride in our ability to work with our customers and to provide custom solutions to meet their specific requirements.

Custom flanges, protective coatings, custom sizes—any and all of these can be addressed by working with the CMC Sales and/or Engineering teams.



## Large Size Bearings:

CMC specializes in large, hard to manufacture sizes. Where other bearing companies will often no-bid or quote extensive lead times for large bearings, **CMC welcomes these opportunities for large size bearings with catalog sizes up to bores of 150mm, and much larger sizes available on request.**

Contact CMC with any custom requirements that you have struggled to find solutions for in the past—we are here to help you!

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# Speed Capabilities

There are many factors which combine to determine the limiting speed of a rolling element bearing. These include bearing type, size and proportions, bearing ring material, rolling element material, type and magnitude of applied loading, cage material and design, bearing internal fit, and lubrication method and adequacy. In general, however, the maximum bearing speed is limited by three major factors:

- The strengths of the bearing materials
- The ability to provide adequate lubrication at high speeds
- The ability to stabilize operating temperatures at levels compatible with the bearing materials and/or lubricant.

The most frequently used measure of bearing speed level is  $dN$ , where  $d$  is the bearing bore diameter in millimeters and  $N$  is speed in rpm.  $dN$  values in excess of 1 million are generally considered high speed and deserve special consideration.

One possible limitation of high speed bearing operation is the ability to provide adequate amounts of lubricant to raceway contact zones. When there is an insufficient amount of lubricant, lubricant starvation occurs, causing metal-to-metal contact, rolling contact surface damage and eventual bearing failure.

Unfortunately, whether the starvation condition will occur in a new application can only be accurately established by testing; however, experience with previous applications provides a good design starting point.



Rolling bearings operating at high speeds under relatively light loads must overcome “skidding”. Skidding is the sliding between rolling elements and the raceways. If lubricating film thickness is insufficient to completely separate the rolling elements during skidding, smearing and microplating of the raceway surface will occur, which may lead to bearing failure.

In ball bearings, contact angles, stress levels and cage design might also be modified to minimize skidding. In either type of bearing, however, an excess quantity of lubricant in the bearing free volume can increase lubricant drag on the rolling elements resulting in skidding. The amount of lubricant required to avoid starvation must be balanced with the amount which will cause excessive skidding.

In high speed applications, heat caused by bearing friction can be significant. As a result, a major function of the lubrication system in these applications is to remove heat and carry it away from the bearing. If the lubricant flow rate is not sufficient to accomplish this, the bearing will heat up beyond the temperature capability of the lubricant and/or bearing materials, and bearing performance will deteriorate, often rapidly.

CMC has developed a number of bearing performance models and computer programs which CMC can use to predict the ring and raceway stresses as well as thermal performance of bearings in a selected application as functions of the mounting clearances, lubrication conditions, bearing operating conditions and application environment. CMC Applications Engineering is prepared to perform such analyses upon customer request.

***CMC’s bearings carry a standard DN rating of 650,000.***

Higher  $dN$  bearings are available upon request.



# Lubrication

---

## Importance:

Satisfactory bearing performance is dependent upon good lubricants and correct lubrication practices. The lubricant performs the following important functions:

1. Forms a film between the rollers and raceways and between the rollers and spacer thereby minimizing friction and wear.
2. Protects the bearing surfaces against corrosion.
3. Removes heat generated by the bearing when operating under load.
4. Acts as a seal to limit the infiltration of foreign material into bearing.

## Oil Lubrication:

Oil lubrication is generally preferred to grease and is the only satisfactory means of lubricating bearings operating at high speeds as well as those subjected to consistently heavy loads.

Incorporation of oil lubrication in a new design frequently requires the addition of extra parts such as gaskets, seals, slingers, etc. and for this reason grease lubrication is often preferable in a given application.

Mineral oils with rust and oxidation inhibitors are recommended except where temperature requirements prohibit their use.

In general, the oil viscosity should be about 100 Saybolt seconds at the operating temperature. High speed operation dictates the selection of a lower viscosity oil and high loads may require a more viscous oil.

## Common means for oil application:

1. **Jet Oil :**  
Oil under pressure is forced through an orifice into the bearing. The oil jet should be directed at the space between the bore of the cage and the O.D. of the inner race. This means of application is particularly advantageous for heavily loaded and/or high speed operation.
2. **Circulating Oil Feed:**  
In this system, oil is circulated through the bearing by slingers or other means. Circulating systems provide a reliable, relatively low cost method of lubricating heavily loaded bearings.
3. **Splash:**  
The splash system is particularly suitable for oil lubricated gearboxes. The splash from the gears serves to lubricate the bearings.
4. **Oil Level:**  
For the slower speed applications, it is possible to design a reservoir which will keep the bearing partially immersed. The oil level should be approximately to the mid-point of the lowest rollers.
5. **Drop Feed:**  
This system uses a commercial drop feed oiler. The principle disadvantages are that the oil cup must be refilled, and that provisions must be made for the disposal of the waste oil.
6. **Air-Oil Mist:**  
In this system, tiny droplets of oil are suspended in an air stream which passes through the bearing. Commercial units are available which provide excellent lubrication for high speed units such as machine tool spindles.

# Lubrication

## Grease Lubrication:

Grease provides an effective, inexpensive means of lubricating rolling element bearings. Housing designs are simplified and the use of extra parts is minimized.

However, grease is not suitable for combinations of high speeds and loads where the lubricant must carry away significant heat created by the operation of the bearing.

In most applications adequate lubrication is assured if the amount of grease is maintained at 1/3 to 1/2 the open volume of the bearing and the space adjacent. The housing and shaft design should be defined so as to promote the grease to remain in contact with the bearing.

For high speed bearings, the amount to be pre-packed into the bearing should be carefully controlled.

Extremely dusty surroundings indicate that the bearing cavity should be packed nearly full if the operating speed is low.

Periodic re-greasing may be required if the operating temperatures are high or if the surroundings are dirty or moist. The time interval between re-greasing is dependent upon temperatures, speeds, loads, type of grease used and contaminants present. A design in which the new grease passes completely through the bearing and flushes out the old grease is generally preferred. After re-greasing the machine should be operated for a short time with the grease plugs out in order to allow for purging.

Most popular rolling element bearing greases are compounded from mineral oil and a metallic soap or a non-soap thickener. Lithium and sodium soap greases are not water-resistant.

Greases containing thickening agents other than metallic soaps are being used increasingly because they offer good resistance to heat and they are water-resistant. Special greases are available for high and low temperatures, exposure to moisture and other unusual operating conditions.

The two charts on the following page can be used to estimate the required viscosity of lubricant as a function of bearing operating speed and temperature. Figure A shows the relationship between required bearing viscosity, operating speed (rpm) and bearing inner race pitch diameter. Figure B shows the relationship between lubricant ISO viscosity grade (ISO VG) and bearing operating temperature. ISO VG is commonly used to identify the viscosity of both oils and greases.

These charts represent general guidelines for applications where the ratio of the dynamic load capacity of the bearing to the actual working load is between approximately five and ten. For applications where the working load is greater than this threshold range, more sophisticated analysis based on elastohydrodynamic lubrication principles is required to identify the optimal viscosity for the application<sup>1</sup>. This analysis is common within the bearing industry but outside the scope of this product bulletin.

<sup>1</sup> Zaretsky, E.V.: Bearing Elastohydrodynamic Lubrication: A Complex Calculation Made Simple. NASA TM 102575, 1990.

# Lubrication

Figure A

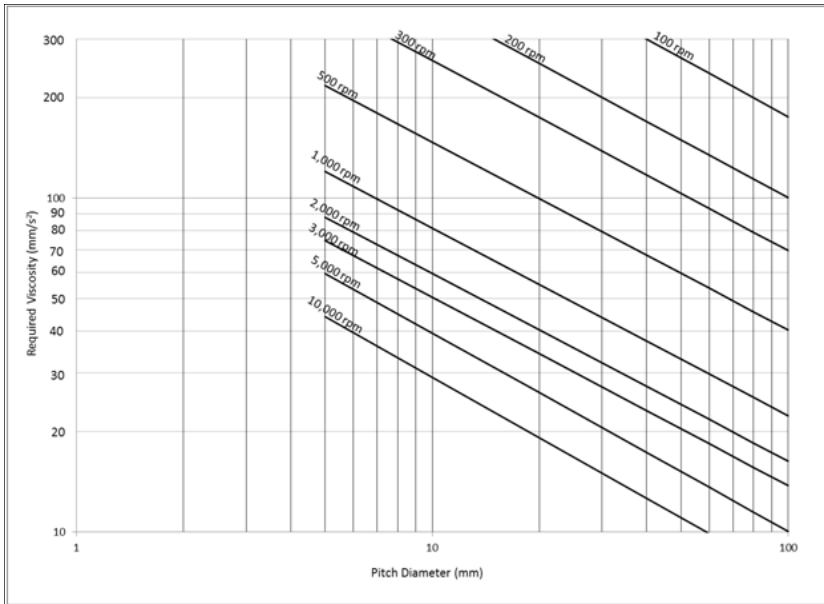
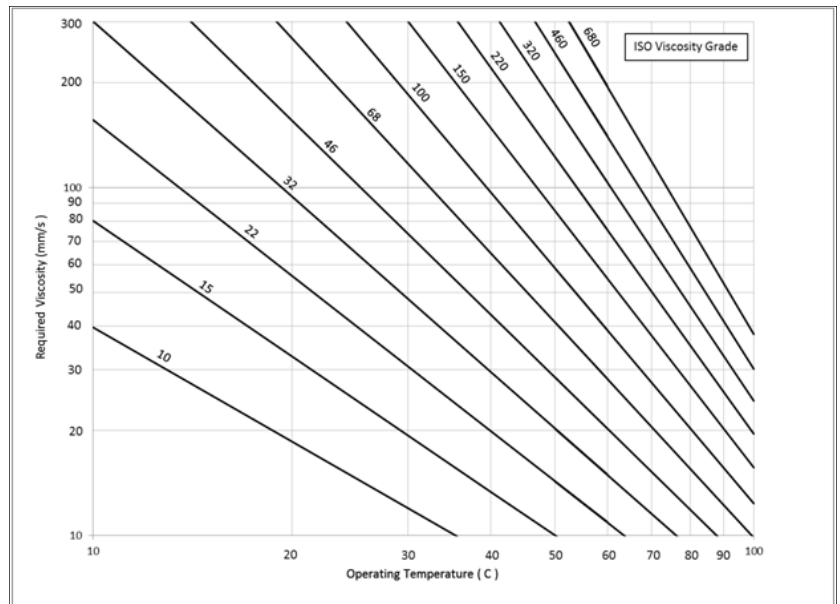


Figure B



## Pre-Lubricated Bearings:

The advantages of pre-lubricated bearings have resulted in widespread usage.

Pre-lubricated bearings are packed at our factory with a high quality grease which will provide maintenance free bearings capable of extended life for the average application.

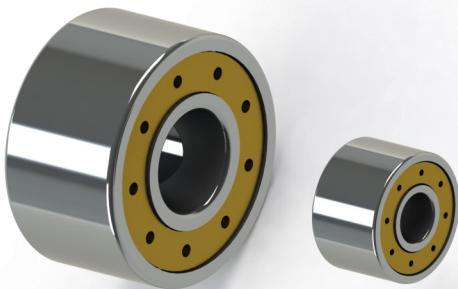
If any special conditions exist such as high temperature or exposure to moisture, please advise at the time of placing the order so that the correct grease type can be packed in the bearing.

# Life and Load

## Basic Load Ratings:

A basic dynamic load rating ( $C_r$ ) is a numerical value that expresses the theoretical load carrying capacity of a bearing.  $C_r$  is used in calculations involving bearings rotating under load. It is the constant load (axial, radial, or a combination of both), which a rolling bearing could theoretically endure for a basic rating life of one million revolutions.

The basic static load rating ( $C_{or}$ ) is the static load which corresponds to a calculated contact stress at the center of the most heavily loaded contact point between the rollers and the inner and outer races. It is used in calculations involving very slow rotational speeds, slow oscillating movements, or no movement under load. This load would theoretically produce a totally permanent deformation of approximately one ten-thousandth of the rolling element diameter.



## Bearing Life:

“Bearing Life” is defined as the number of revolutions (or the number of hours at a constant speed) that the bearing will endure before the first signs of rolling contact fatigue (flaking, pitting) occur on one of its raceways or rolling elements.

By this definition, bearing lives can differ – as both laboratory tests and practical experience have shown seemingly identical conditions can result in different fatigue lives. As a result, qualification of the term “Life” is important in the determination of appropriate bearing size.

For the purposes of this catalog, when we use the term “Life” or “Bearing Life,” it refers to the expected life that 90% of a sufficiently large group of apparently identical bearings can be expected to attain or exceed. This definition is also applicable in defining the “Basic Rating Life” or “Rating Life” and agrees with ISO and ANSI definitions.

There are several other bearing lives. One of these is “service life”, which is the actual life achieved by a specific bearing before it fails. “Service Life” failures are not usually caused by fatigue but by wear, corrosion or seal failure.

Another bearing life is “required life”. This is the life specified by an application and is typically based on hypothetical load and speed data. Required Life is usually a requisite L10 (rating life); and it is assumed that the application has related the requirement to experience gained with similar machinery so that adequate service life will be obtained.

# Life and Load

## Selection of bearing size using life calculations:

Bearing life can be calculated with various degrees of sophistication depending on the accuracy with which the operating conditions are defined.

### Basic Life Rating Equation:

The simplest method of life calculation is to use the standard equation for basic rating life:

$$L_{10} = (C/P)^3 \text{ or } C/P = (L_{10})^{1/3}$$

Where:

$L_{10}$  = basic rating life (millions of revolutions)

C = basic dynamic load rating (N)

P = equivalent dynamic bearing load (N)

## Calculation of Dynamic Bearing Loads:

Bearing loads can be calculated according to the laws of mechanics if the external forces (e.g. forces from power transmission and/or inertial forces) are known or can be calculated.

When calculating the load components for a single bearing, the shaft is assumed to be a beam resting on rigid, moment-free supports for the sake of simplification. Elastic deformations in the bearing, the housing or the machine frame are not considered, nor are the moments produced in the bearing as a result of shaft deflection.

These simplifications are necessary if a bearing arrangement is to be analyzed using relatively available analytical tools.

## Equivalent Dynamic Bearing Loads:

If the calculated bearing load obtained using the above information is found to fulfill the requirement the basic dynamic load rating C; that is, the load, F, is constant in magnitude and direction and acts axially on a thrust bearing, then  $P = F$ , and the load may be substituted directly into the life equations.

In all other cases for the precision rolling bearing applications, it is first necessary to calculate the equivalent dynamic bearing load. This is defined as the hypothetical load, constant in magnitude and direction, acting axially (for thrust bearings), which if applied, would have the same influence on bearing life as the actual loads to which the bearing is subjected.

While the CMC Thrust GRB offers unequalled thrust handling capabilities, the Combo GRB is capable of accommodating combined radial and thrust loads (and purely radial loads with the Radial GRB). If the resultant load is constant in magnitude and direction, the equivalent dynamic bearing load can be obtained from the general equation :

$$P = RF_r + AF_a$$

Where:

F = actual calculated bearing load (N)

P = equivalent dynamic bearing load, (N)

$F_r$  = actual radial bearing load (N)

$F_a$  = actual axial bearing load (N)

R = radial load factor for the bearing, (R ~ 1.14 for GRB)

A = axial load factor for the bearing, (A = 1.0 for GRB)

C = combo load factor for bearing, (C=1.07 for GRB)\*

\* - *combo loads are assumed at equal force in both directions. If unequal force is required, use the equation above for an accurate combo load factor.*



# Integrated Flange

## Optional Integrated Flange Design

The customary method of providing a flange on a bearing pack in thrust applications is to insert a standard bearing pack into a flanged housing and then securing the bearing within the housing.

The GRB's design combines with CMC's manufacturing techniques to eliminate this cumbersome and sometimes risky method of providing a flange on a bearing pack.

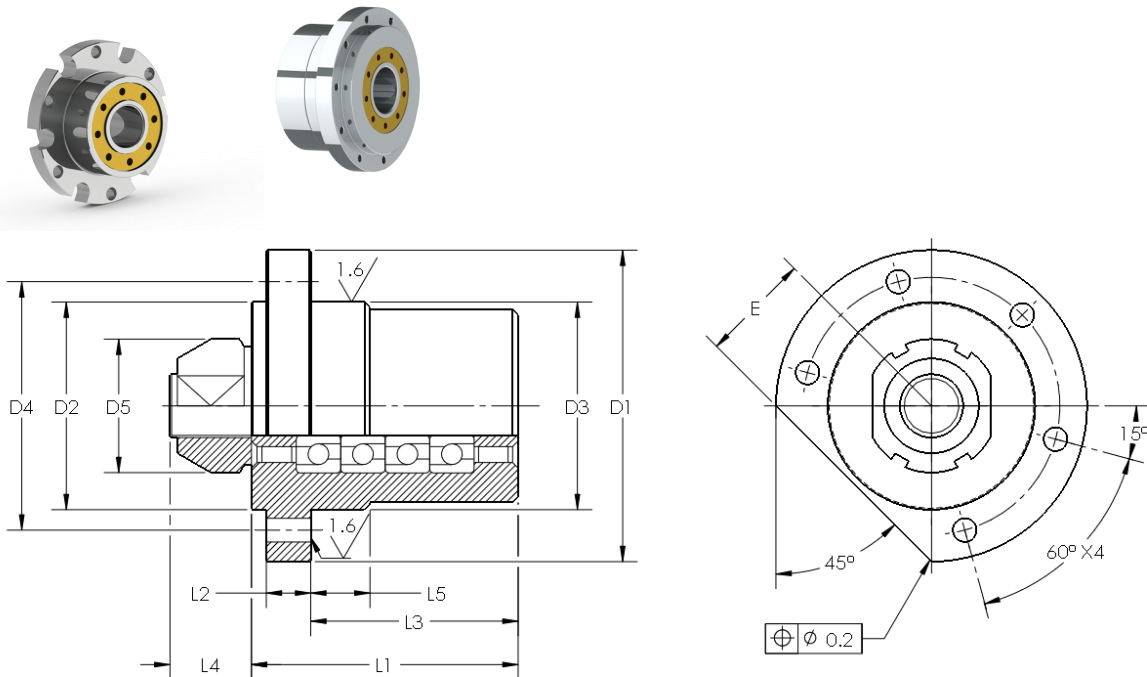
CMC integrates the flange into a one-piece flanged outer race.

CMC's flange methodology reduces size and weight by eliminating the housing and extra parts required to hold the bearing in the housing. It also eliminates the common failure point of the bearing/housing interface.

In addition, CMC can provide custom flange configurations.

## GRB Benefits of Incorporated Flange:

- Lower Cost:**  
 Without the housing and associated additional parts, overall cost is reduced.
- Faster Lead time:**  
 The housing often adds complexity to engineering and extension to production times.
- Lighter Weight:**  
 The bulky housing is replaced with a single integrated flange. Fewer, smaller parts = lighter weight.
- Smaller Envelope:**  
 Reducing the size by removing the housing allows for a much smaller envelope.
- Longer Life:**  
 Maintaining the same envelope size provides room for a larger bearing without the housing, therefore providing even longer life.



CMC: CREATIVE SOLUTIONS TO AUTOMATION CHALLENGES



# Types and Sizes

## Duplex Pairs and Quad Packs:

All CMC bearings are available in sizes equivalent to common angular contact ball bearing duplex pair and quad pack sizes, in both the 200 and 300 series equivalents.

## ABEC Rating:

The Annular Bearing Engineers' Committee scale, more commonly referred to as the ABEC scale, is an industry-accepted standard for the dimensional control and manufacturing tolerances of bearings.

Keeping the ABEC system in mind, bearing manufacturers assign an ABEC rating to their bearings to classify the different precision tolerance ranges for bearings, including dimensional control tolerances of the inner and outer races.

Bearings rated with the ABEC rating system typically have five ratings in the class scale that range from the widest tolerances to the tightest tolerances of the bearings with rating numbers of 1, 3, 5, 7, and 9. The higher the rating, the tighter the tolerances are.

**CMC bearings are manufactured to be compliant with ABEC 5 or 7 rating dimensional tolerances.**

## Load Types:

All CMC bearings are available as **Thrust, Axial, and Combo (both thrust and axial load) bearings**. Load charts are included on the following pages for all three types of bearings.

## Sizes:

The charts on the following pages show only the most common sizes available.

**If you need a size that you do not see in the tables, contact CMC sales support for assistance.**

## Customization:

If you have a specific bearing size, shape, flange design, or configuration that you do not see in this catalog, please contact the CMC Sales team; customization is our specialty, and we would love to help you with your specific requirements.

## Sealed Bearings:

The standard GRB configuration includes a spacer on each end of the bearing with lubrication holes in them to encourage the flow of oil through the unit. These spacers can also be supplied with no lubrication holes, effectively sealing the bearing pack.

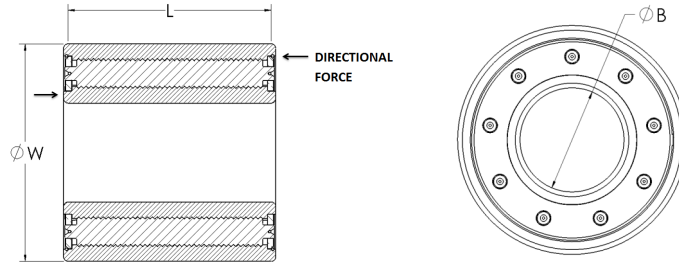
CMC can deliver bearings in any of the following conditions:

- Greased and sealed; spacers with no lube holes
- Greased and open for re-application of grease; spacers with lube holes
- Ungreased, and with a protective coating of oil only

The greased and sealed bearings are available with the CMC standard seal. If you require a shield, then any shield can be incorporated into the next higher assembly.

# Thrust Bearings

## 200 Series



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Duplex, Series 200					Thrust				
CMC GRB Part Nbr	B Bore Diameter mm	W OD mm	L Length mm	Equivalent Bearing Nbr (Duplex)	DYNAMIC LOAD CAPACITY		STATIC LOAD CAPACITY		* CMC Life Advantage
					Ca (kN)	Ca (lbf)	Ca0 (kN)	Ca0 (lbf)	
200S12.32.20	12	32	20	(2) 7201	23	5,151	37	8,369	5x
200S15.35.22	15	35	22	(2) 7202	29	6,464	49	10,955	5x
200S17.40.24	17	40	24	(2) 7203	34	7,691	65	14,695	5x
200S20.47.28	20	47	28	(2) 7204	50	11,237	95	21,391	6x
200S25.52.30	25	52	30	(2) 7205	62	14,030	122	27,422	7x
200S30.62.32	30	62	32	(2) 7206	76	17,023	148	33,166	7x
200S35.72.34	35	72	34	(2) 7207	96	21,567	186	41,924	8x
200S40.80.36	40	80	36	(2) 7208	117	26,378	228	51,194	8x
200S45.85.38	45	85	38	(2) 7209	135	30,347	262	59,010	9x
200S50.90.40	50	90	40	(2) 7210	146	32,840	284	63,790	9x
200S55.100.42	55	100	42	(2) 7211	176	39,629	342	76,878	9x
200S60.110.44	60	110	44	(2) 7212	209	47,041	406	91,161	10x
200S65.120.46	65	120	46	(2) 7213	226	50,793	448	100,814	10x
200S70.125.48	70	125	48	(2) 7214	256	57,522	508	114,104	11x
200S75.130.50	75	130	50	(2) 7215	288	64,660	570	128,198	12x
200S80.140.52	80	140	52	(2) 7216	329	73,975	652	146,565	12x
200S85.150.56	85	150	56	(2) 7217	373	83,905	739	166,142	12x
200S90.160.60	90	160	60	(2) 7218	420	94,460	832	186,944	13x
200S95.170.64	95	170	64	(2) 7219	470	105,630	929	208,955	13x
200S100.180.68	100	180	68	(2) 7220	522	117,425	1,033	232,191	14x
200S110.200.76	110	200	76	(2) 7222	652	146,471	1,318	296,237	14x
200S120.215.80	120	215	80	(2) 7224	742	166,721	1,499	366,977	15x
200S130.230.80	130	230	80	(2) 7226	837	188,210	1,691	380,200	15x
200S140.250.84	140	250	84	(2) 7228	910	204,473	1,836	412,816	17x
200S150.270.90	150	270	90	(2) 7230	1,071	240,794	2,161	485,911	17x

Additional and larger sizes available on request

\* - As compared to ABEC 7 angular contact matched duplex bearing sets in a back-to-back or face-to-face configuration from a leading worldwide manufacturer.

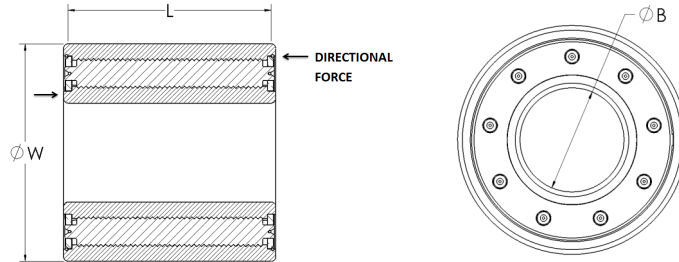
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# Thrust Bearings

## 200 Series



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Quad Pack, Series 200					Thrust				
CMC GRB Part Nbr	B Bore Diameter mm	W OD mm	L Length mm	Equivalent Bearing Nbr (Quad Pack)	DYNAMIC LOAD CAPACITY		STATIC LOAD CAPACITY		* CMC Life Advantage
					Ca (kN)	Ca (lbf)	Ca0 (kN)	Ca0 (lbf)	
200S12.32.40	12	32	40	(4) 7201	46	10,305	88	19,793	5x
200S15.35.44	15	35	44	(4) 7202	59	13,283	113	25,468	5x
200S17.40.48	17	40	48	(4) 7203	76	17,092	145	32,657	5x
200S20.47.56	20	47	56	(4) 7204	109	24,517	208	46,672	6x
200S25.52.60	25	52	60	(4) 7205	135	30,398	264	59,415	7x
200S30.62.64	30	62	64	(4) 7206	177	39,721	344	77,387	7x
200S35.72.68	35	72	68	(4) 7207	221	49,768	431	96,850	8x
200S40.80.72	40	80	72	(4) 7208	268	60,293	521	117,013	8x
200S45.85.76	45	85	76	(4) 7209	304	68,282	591	132,771	9x
200S50.90.80	50	90	80	(4) 7210	341	76,626	662	148,844	9x
200S55.100.84	55	100	84	(4) 7211	407	91,451	789	177,412	9x
200S60.110.88	60	110	88	(4) 7212	463	104,163	898	201,855	10x
200S65.120.92	65	120	92	(4) 7213	533	119,726	1,057	237,630	10x
200S70.125.96	70	125	96	(4) 7214	580	130,383	1,150	258,634	11x
200S75.130.100	75	130	100	(4) 7215	647	145,485	1,283	288,466	12x
200S80.140.104	80	140	104	(4) 7216	716	161,003	1,419	318,995	12x
200S85.150.112	85	150	112	(4) 7217	829	186,455	1,642	369,205	12x
200S90.160.120	90	160	120	(4) 7218	951	213,778	1,882	423,080	13x
200S95.170.128	95	170	128	(4) 7219	1,081	242,949	2,138	480,593	13x
200S100.180.136	100	180	136	(4) 7220	1,219	273,992	2,410	541,776	14x
200S110.200.152	110	200	152	(4) 7222	1,499	336,883	3,031	681,341	14x
200S120.215.160	120	215	160	(4) 7224	1,695	381,077	3,426	770,234	15x
200S130.230.160	130	230	160	(4) 7226	1,827	410,641	3,690	829,524	15x
200S140.250.168	140	250	168	(4) 7228	2,067	464,712	4,173	938,214	17x
200S150.270.180	150	270	180	(4) 7230	2,365	531,755	4,773	1,073,049	17x

Additional and larger sizes available on request

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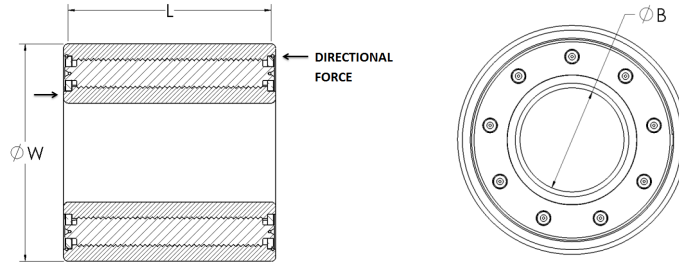


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# Thrust Bearings

## 300 Series



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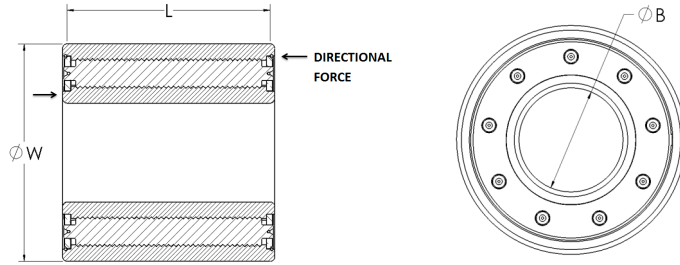
Duplex, Series 300					Thrust				
CMC GRB Part Nbr	B Bore Diameter mm	W OD mm	L Length mm	Equivalent Bearing (Duplex)	DYNAMIC LOAD CAPACITY		STATIC LOAD CAPACITY		* CMC Life Advantage
					Ca (kN)	Ca (lbf)	Ca0 (kN)	Ca0 (lbf)	
300S12.37.24	12	37	24	(2) 7301	32	7,186	66	14,849	5x
300S15.42.26	15	42	26	(2) 7302	39	8,775	87	19,598	5x
300S17.47.28	17	47	28	(2) 7303	51	11,396	120	26,908	5x
300S20.52.30	20	52	30	(2) 7304	58	13,032	136	30,611	6x
300S25.62.34	25	62	34	(2) 7305	83	18,547	182	40,936	7x
300S30.72.38	30	72	38	(2) 7306	113	25,310	264	59,297	7x
300S35.80.42	35	80	42	(2) 7307	137	30,882	321	72,203	8x
300S40.90.46	40	90	46	(2) 7308	169	37,934	394	88,515	8x
300S45.100.50	45	100	50	(2) 7309	202	45,451	471	105,897	9x
300S50.110.54	50	110	54	(2) 7310	252	56,744	587	132,046	9x
300S55.120.58	55	120	58	(2) 7311	293	65,819	681	153,011	9x
300S60.130.62	60	130	62	(2) 7312	353	79,293	819	184,180	10x
300S65.140.66	65	140	66	(2) 7313	418	94,013	971	218,217	10x
300S70.150.70	70	150	70	(2) 7314	450	101,182	1,131	254,272	11x
300S75.160.74	75	160	74	(2) 7315	524	117,853	1,319	296,470	12x
300S80.170.78	80	170	78	(2) 7316	586	131,693	1,473	331,100	12x
300S85.180.82	85	180	82	(2) 7317	651	146,282	1,635	367,593	12x
300S90.190.86	90	190	86	(2) 7318	719	161,624	1,806	405,964	13x
300S95.200.90	95	200	90	(2) 7319	790	177,709	1,985	446,186	13x
300S100.215.94	100	215	94	(2) 7320	880	197,780	2,378	534,527	14x
300S110.240.100	110	240	100	(2) 7322	1,018	228,953	2,751	618,343	14x
300S120.260.110	120	260	110	(2)7324	1,248	280,479	3,374	758,582	15x
300S130.280.116	130	280	116	(2)7326	1,467	329,801	3,965	891,477	15x
300S140.300.124	140	300	124	(2) 7328	1,641	368,933	4,434	996,762	17x
300S150.320.130	150	320	130	(2) 7330	1,824	410,050	4,926	1,107,381	17x

\* as compared to ABEC 7 angular contact matched duplex bearing sets from a leading worldwide manufacturer



# Thrust Bearings

## 300 Series



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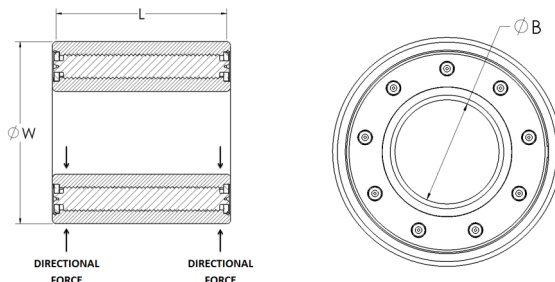
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Quad Pack, Series 300					Thrust				
CMC GRB Part Nbr	B Bore Diameter mm	W OD mm	L Length mm	Equivalent Bearing (Quad Pack)	DYNAMIC LOAD CAPACITY		STATIC LOAD CAPACITY		* CMC Life Advantage
					Ca (kN)	Ca (lbf)	Ca0 (kN)	Ca0 (lbf)	
300S12.37.48	12	37	48	(4) 7301	59	13,364	141	31,719	5x
300S15.42.52	15	42	52	(4) 7302	78	17,568	185	41,504	5x
300S17.47.56	17	47	56	(4) 7303	97	21,917	230	51,620	5x
300S20.52.60	20	52	60	(4) 7304	121	27,150	284	63,773	6x
300S25.62.68	25	62	68	(4) 7305	167	37,606	393	88,392	7x
300S30.72.76	30	72	76	(4) 7306	225	50,621	528	118,594	7x
300S35.80.84	35	80	84	(4) 7307	286	64,297	669	150,317	8x
300S40.90.92	40	90	92	(4) 7308	371	83,455	866	194,731	8x
300S45.100.100	45	100	100	(4) 7309	455	102,265	1,060	238,264	9x
300S50.110.108	50	110	108	(4) 7310	547	122,945	1,273	286,099	9x
300S55.120.116	55	120	116	(4) 7311	647	145,494	1,505	338,234	9x
300S60.130.124	60	130	124	(4) 7312	739	166,126	1,720	386,627	10x
300S65.140.132	65	140	132	(4) 7313	865	194,558	2,180	490,109	10x
300S70.150.140	70	150	140	(4) 7314	979	219,996	2,463	553,778	11x
300S75.160.148	75	160	148	(4) 7315	1,123	252,541	2,826	635,293	12x
300S80.170.156	80	170	156	(4) 7316	1,251	281,345	3,146	707,349	12x
300S85.180.164	85	180	164	(4) 7317	1,415	318,003	3,555	799,116	12x
300S90.190.172	90	190	172	(4) 7318	1,539	345,929	3,875	871,183	13x
300S95.200.180	95	200	180	(4) 7319	1,709	384,117	4,632	1,041,206	13x
300S100.215.188	100	215	188	(4) 7320	1,919	431,441	5,199	1,168,746	14x
300S110.240.200	110	240	200	(4) 7322	2,121	476,841	5,744	1,291,355	14x
300S120.260.220	120	260	220	(4) 7324	2,766	621,931	7,482	1,682,073	15x
300S130.280.232	130	280	232	(4) 7326	3,287	738,965	8,897	2,000,207	15x
300S140.300.248	140	300	248	(4) 7328	3,601	809,644	9,746	2,191,089	17x
300S150.320.260	150	320	260	(4) 7330	4,024	904,687	10,885	2,446,996	17x

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# Radial Bearings

## 200 Series



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Duplex, Series 200					Radial				
CMC GRB Part Nbr	B Bore Diameter mm	W OD mm	L Length mm	Equivalent Bearing Nbr (Duplex)	DYNAMIC LOAD CAPACITY		STATIC LOAD CAPACITY		CMC Life Advantage
					C (kN)	C (lbf)	C0 (kN)	C0 (lbf)	
200S12.32.20	12	32	20	(2) 7201	26	5,872	42	9,541	6x
200S15.35.22	15	35	22	(2) 7202	33	7,369	56	12,489	6x
200S17.40.24	17	40	24	(2) 7203	39	8,768	75	16,753	6x
200S20.47.28	20	47	28	(2) 7204	57	12,810	108	24,386	7x
200S25.52.30	25	52	30	(2) 7205	71	15,994	139	31,262	8x
200S30.62.32	30	62	32	(2) 7206	86	19,407	168	37,809	8x
200S35.72.34	35	72	34	(2) 7207	109	24,586	213	47,793	9x
200S40.80.36	40	80	36	(2) 7208	134	30,071	260	58,361	9x
200S45.85.38	45	85	38	(2) 7209	154	34,596	299	67,272	10x
200S50.90.40	50	90	40	(2) 7210	167	37,437	323	72,721	10x
200S55.100.42	55	100	42	(2) 7211	201	45,177	390	87,641	10x
200S60.110.44	60	110	44	(2) 7212	239	53,627	462	103,924	11x
200S65.120.46	65	120	46	(2) 7213	258	57,904	511	114,928	11x
200S70.125.48	70	125	48	(2) 7214	292	65,575	579	130,079	12x
200S75.130.50	75	130	50	(2) 7215	328	73,712	650	146,146	13x
200S80.140.52	80	140	52	(2) 7216	375	84,331	743	167,084	13x
200S85.150.56	85	150	56	(2) 7217	425	95,651	843	189,402	13x
200S90.160.60	90	160	60	(2) 7218	479	107,684	948	213,116	14x
200S95.170.64	95	170	64	(2) 7219	536	120,418	1,060	238,208	14x
200S100.180.68	100	180	68	(2) 7220	595	133,865	1,177	264,698	15x
200S110.200.76	110	200	76	(2) 7222	743	166,976	1,502	337,710	15x
200S120.215.80	120	215	80	(2) 7224	845	190,062	1,709	384,154	16x
200S130.230.80	130	230	80	(2) 7226	954	214,560	1,928	433,428	16x
200S140.250.84	140	250	84	(2) 7228	1,037	233,099	2,093	470,610	18x
200S150.270.90	150	270	90	(2) 7230	1,221	274,506	2,464	553,939	18x
<b>Additional and larger sizes available on request</b>									

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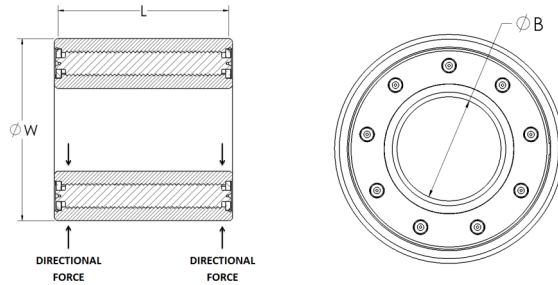
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## 200 Series



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Quad Pack, Series 200					Radial				
CMC GRB Part Nbr	B Bore Diameter mm	W OD mm	L Length mm	Equivalent Bearing Nbr (Quad Pack)	DYNAMIC LOAD CAPACITY		STATIC LOAD CAPACITY		CMC Life Advantage
					C (kN)	C (lbf)	C0 (kN)	C0 (lbf)	
200S12.32.40	12	32	40	(4) 7201	52	11,748	100	22,565	6x
200S15.35.44	15	35	44	(4) 7202	67	15,143	129	29,034	6x
200S17.40.48	17	40	48	(4) 7203	87	19,484	166	37,228	6x
200S20.47.56	20	47	56	(4) 7204	124	27,950	237	53,206	7x
200S25.52.60	25	52	60	(4) 7205	154	34,653	301	67,733	8x
200S30.62.64	30	62	64	(4) 7206	201	45,282	392	88,221	8x
200S35.72.68	35	72	68	(4) 7207	252	56,735	491	110,409	9x
200S40.80.72	40	80	72	(4) 7208	306	68,734	593	133,395	9x
200S45.85.76	45	85	76	(4) 7209	346	77,841	673	151,359	10x
200S50.90.80	50	90	80	(4) 7210	389	87,353	755	169,682	10x
200S55.100.84	55	100	84	(4) 7211	464	104,255	900	202,249	10x
200S60.110.88	60	110	88	(4) 7212	528	118,746	1,024	230,114	11x
200S65.120.92	65	120	92	(4) 7213	607	136,488	1,205	270,899	11x
200S70.125.96	70	125	96	(4) 7214	661	148,636	1,312	294,842	12x
200S75.130.100	75	130	100	(4) 7215	738	165,853	1,463	328,829	13x
200S80.140.104	80	140	104	(4) 7216	816	183,544	1,618	363,654	13x
200S85.150.112	85	150	112	(4) 7217	946	212,559	1,872	420,893	13x
200S90.160.120	90	160	120	(4) 7218	1,084	243,706	2,145	482,311	14x
200S95.170.128	95	170	128	(4) 7219	1,232	276,962	2,437	547,876	14x
200S100.180.136	100	180	136	(4) 7220	1,389	312,351	2,747	617,625	15x
200S110.200.152	110	200	152	(4) 7222	1,708	384,046	3,455	776,729	15x
200S120.215.160	120	215	160	(4) 7224	1,932	434,428	3,906	878,067	16x
200S130.230.160	130	230	160	(4) 7226	2,082	468,131	4,206	945,657	16x
200S140.250.168	140	250	168	(4) 7228	2,357	529,772	4,758	1,069,564	18x
200S150.270.180	150	270	180	(4) 7230	2,697	606,201	5,441	1,223,276	18x
<b>Additional and larger sizes available on request</b>									

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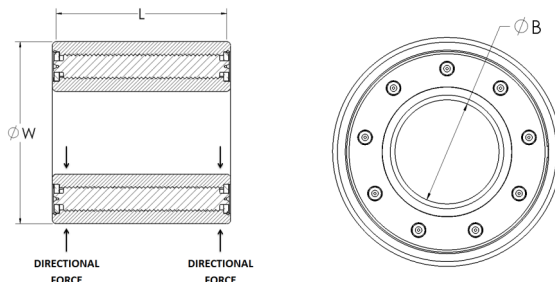
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Duplex, Series 300					Radial				
CMC GRB Part Nbr	B Bore Diameter mm	W OD mm	L Length mm	Equivalent Bearing Nbr (Duplex)	DYNAMIC LOAD CAPACITY		STATIC LOAD CAPACITY		CMC Life Advantage
					C (kN)	C (lbf)	C0 (kN)	C0 (lbf)	
300S12.37.24	12	37	24	(2) 7301	36	8,192	63	14,107	6x
300S15.42.26	15	42	26	(2) 7302	44	10,004	83	18,618	6x
300S17.47.28	17	47	28	(2) 7303	58	12,992	114	25,562	6x
300S20.52.30	20	52	30	(2) 7304	66	14,857	129	29,080	7x
300S25.62.34	25	62	34	(2) 7305	94	21,144	173	38,889	8x
300S30.72.38	30	72	38	(2) 7306	128	28,854	251	56,332	8x
300S35.80.42	35	80	42	(2) 7307	157	35,205	305	68,593	9x
300S40.90.46	40	90	46	(2) 7308	192	43,245	374	84,090	9x
300S45.100.50	45	100	50	(2) 7309	230	51,814	447	100,602	10x
300S50.110.54	50	110	54	(2) 7310	288	64,688	558	125,443	10x
300S55.120.58	55	120	58	(2) 7311	334	75,034	647	145,360	10x
300S60.130.62	60	130	62	(2) 7312	402	90,394	778	174,971	11x
300S65.140.66	65	140	66	(2) 7313	477	107,175	922	207,306	11x
300S70.150.70	70	150	70	(2) 7314	513	115,348	992	222,977	12x
300S75.160.74	75	160	74	(2) 7315	598	134,352	1,156	259,981	13x
300S80.170.78	80	170	78	(2) 7316	668	150,130	1,292	290,349	13x
300S85.180.82	85	180	82	(2) 7317	742	166,761	1,434	322,351	13x
300S90.190.86	90	190	86	(2) 7318	820	184,252	1,584	355,999	14x
300S95.200.90	95	200	90	(2) 7319	901	202,588	1,740	391,271	14x
300S100.215.94	100	215	94	(2) 7320	1,003	225,469	1,936	435,258	15x
300S110.240.100	110	240	100	(2) 7322	1,161	261,006	2,240	503,508	15x
300S120.260.110	120	260	110	(2) 7324	1,422	319,746	2,748	617,702	16x
300S130.280.116	130	280	116	(2) 7326	1,672	375,974	3,229	725,917	16x
300S140.300.124	140	300	124	(2) 7328	1,871	420,583	3,610	811,649	18x
300S150.320.130	150	320	130	(2) 7330	2,079	467,456	4,011	901,724	18x

**Additional and larger sizes available on request**

\* - As compared to ABEC 7 angular contact matched duplex bearing sets from a leading worldwide manufacturer.

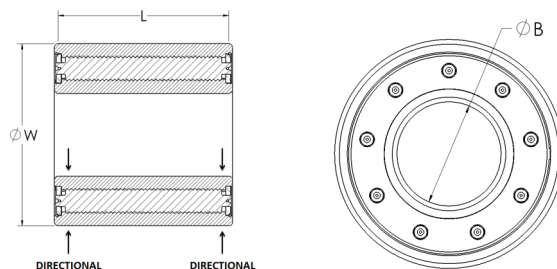
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# Radial Bearings

## 300 Series



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Quad Pack, Series 300					Radial				
CMC GRB Part Nbr	B Bore Diameter mm	W OD mm	L Length mm	Equivalent Bearing Nbr (Quad Pack)	DYNAMIC LOAD CAPACITY		STATIC LOAD CAPACITY		CMC Life Advantage
					C (kN)	C (lbf)	C0 (kN)	C0 (lbf)	
300S12.37.48	12	37	48	(4) 7301	68	15,235	134	30,133	6x
300S15.42.52	15	42	52	(4) 7302	89	20,028	175	39,429	6x
300S17.47.56	17	47	56	(4) 7303	111	24,985	218	49,039	6x
300S20.52.60	20	52	60	(4) 7304	138	30,951	269	60,584	7x
300S25.62.68	25	62	68	(4) 7305	191	42,871	374	83,973	8x
300S30.72.76	30	72	76	(4) 7306	257	57,708	501	112,664	8x
300S35.80.84	35	80	84	(4) 7307	326	73,299	635	142,801	9x
300S40.90.92	40	90	92	(4) 7308	423	95,139	823	184,994	9x
300S45.100.100	45	100	100	(4) 7309	519	116,583	1,007	226,351	10x
300S50.110.108	50	110	108	(4) 7310	623	140,157	1,209	271,794	10x
300S55.120.116	55	120	116	(4) 7311	738	165,864	1,429	321,323	10x
300S60.130.124	60	130	124	(4) 7312	842	189,384	1,634	367,296	11x
300S65.140.132	65	140	132	(4) 7313	987	221,796	1,912	429,787	11x
300S70.150.140	70	150	140	(4) 7314	1,116	250,795	2,160	485,621	12x
300S75.160.148	75	160	148	(4) 7315	1,281	287,897	2,478	557,103	13x
300S80.170.156	80	170	156	(4) 7316	1,427	320,733	2,759	620,291	13x
300S85.180.164	85	180	164	(4) 7317	1,613	362,524	3,117	700,763	13x
300S90.190.172	90	190	172	(4) 7318	1,754	394,359	3,398	763,961	14x
300S95.200.180	95	200	180	(4) 7319	1,948	437,893	3,771	847,839	14x
300S100.215.188	100	215	188	(4) 7320	2,188	491,843	4,233	951,693	15x
300S110.240.200	110	240	200	(4) 7322	2,418	543,599	4,677	1,051,532	15x
300S120.260.220	120	260	220	(4) 7324	3,154	709,001	6,093	1,369,688	16x
300S130.280.232	130	280	232	(4) 7326	3,747	842,421	7,245	1,628,740	16x
300S140.300.248	140	300	248	(4) 7328	4,106	922,995	7,936	1,784,172	18x
300S150.320.260	150	320	260	(4) 7330	4,588	1,031,344	8,863	1,992,554	18x
<b>Additional and larger sizes available on request</b>									

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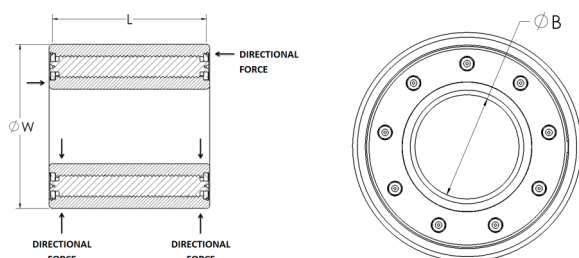


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# Combo Bearings

## 200 Series



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Duplex, Series 200					Combo				
CMC GRB Part Nbr	B Bore Diameter mm	W OD mm	L Length mm	Equivalent Bearing Nbr (Duplex)	** DYNAMIC LOAD CAPACITY		STATIC LOAD CAPACITY		* CMC Life Advantage
					Ca (kN)	Ca (lbf)	Ca0 (kN)	Ca0 (lbf)	
200S12.32.20	12	32	20	(2) 7201	25	5,512	40	8,955	5x
200S15.35.22	15	35	22	(2) 7202	31	6,917	52	11,722	5x
200S17.40.24	17	40	24	(2) 7203	37	8,230	70	15,724	6x
200S20.47.28	20	47	28	(2) 7204	53	12,024	102	22,889	6x
200S25.52.30	25	52	30	(2) 7205	67	15,012	131	29,342	7x
200S30.62.32	30	62	32	(2) 7206	81	18,215	158	35,487	7x
200S35.72.34	35	72	34	(2) 7207	103	23,077	200	44,859	8x
200S40.80.36	40	80	36	(2) 7208	126	28,224	244	54,778	9x
200S45.85.38	45	85	38	(2) 7209	144	32,472	281	63,141	9x
200S50.90.40	50	90	40	(2) 7210	156	35,138	304	68,255	10x
200S55.100.42	55	100	42	(2) 7211	189	42,403	366	82,260	10x
200S60.110.44	60	110	44	(2) 7212	224	50,334	434	97,543	10x
200S65.120.46	65	120	46	(2) 7213	242	54,348	480	107,871	11x
200S70.125.48	70	125	48	(2) 7214	274	61,548	543	122,091	11x
200S75.130.50	75	130	50	(2) 7215	308	69,186	610	137,172	12x
200S80.140.52	80	140	52	(2) 7216	352	79,153	698	156,825	12x
200S85.150.56	85	150	56	(2) 7217	399	89,778	791	177,772	13x
200S90.160.60	90	160	60	(2) 7218	450	101,072	890	200,030	13x
200S95.170.64	95	170	64	(2) 7219	503	113,024	995	223,582	14x
200S100.180.68	100	180	68	(2) 7220	559	125,645	1,105	248,445	14x
200S110.200.76	110	200	76	(2) 7222	697	156,723	1,410	316,973	15x
200S120.215.80	120	215	80	(2) 7224	794	178,392	1,604	360,566	15x
200S130.230.80	130	230	80	(2) 7226	896	201,385	1,810	406,814	16x
200S140.250.84	140	250	84	(2) 7228	973	218,786	1,965	441,713	16x
200S150.270.90	150	270	90	(2) 7230	1,146	257,650	2,313	519,925	17x
<b>Additional and larger sizes available on request</b>									

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\*\* - Assumes equal thrust and radial load sharing. To calculate combo loads for specific load sharing, use equations on page 13.

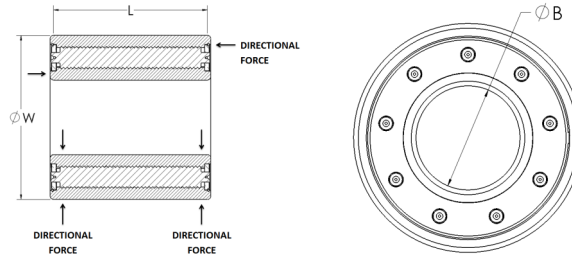
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# Combo Bearings

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Quad Pack, Series 200					Combo				
CMC GRB Part Nbr	B Bore Diameter mm	W OD mm	L Length mm	Equivalent Bearing Nbr (Quad Pack)	** DYNAMIC LOAD CAPACITY		STATIC LOAD CAPACITY		* CMC Life Advantage
					Ca (kN)	Ca (lbf)	Ca0 (kN)	Ca0 (lbf)	
200S12.32.40	12	32	40	(4) 7201	49	11,027	94	21,179	5x
200S15.35.44	15	35	44	(4) 7202	63	14,213	121	27,251	5x
200S17.40.48	17	40	48	(4) 7203	81	18,288	155	34,942	6x
200S20.47.56	20	47	56	(4) 7204	117	26,233	222	49,939	6x
200S25.52.60	25	52	60	(4) 7205	145	32,525	283	63,574	7x
200S30.62.64	30	62	64	(4) 7206	189	42,502	368	82,804	7x
200S35.72.68	35	72	68	(4) 7207	237	53,252	461	103,629	8x
200S40.80.72	40	80	72	(4) 7208	287	64,513	557	125,204	9x
200S45.85.76	45	85	76	(4) 7209	325	73,061	632	142,065	9x
200S50.90.80	50	90	80	(4) 7210	365	81,990	708	159,263	10x
200S55.100.84	55	100	84	(4) 7211	435	97,853	844	189,830	10x
200S60.110.88	60	110	88	(4) 7212	496	111,455	961	215,984	10x
200S65.120.92	65	120	92	(4) 7213	570	128,107	1,131	254,264	11x
200S70.125.96	70	125	96	(4) 7214	621	139,509	1,231	276,738	11x
200S75.130.100	75	130	100	(4) 7215	692	155,669	1,373	308,638	12x
200S80.140.104	80	140	104	(4) 7216	766	172,274	1,518	341,324	12x
200S85.150.112	85	150	112	(4) 7217	887	199,507	1,757	395,049	13x
200S90.160.120	90	160	120	(4) 7218	1,017	228,742	2,014	452,695	13x
200S95.170.128	95	170	128	(4) 7219	1,156	259,955	2,287	514,234	14x
200S100.180.136	100	180	136	(4) 7220	1,304	293,171	2,579	579,700	14x
200S110.200.152	110	200	152	(4) 7222	1,603	360,465	3,243	729,035	15x
200S120.215.160	120	215	160	(4) 7224	1,814	407,753	3,666	824,150	15x
200S130.230.160	130	230	160	(4) 7226	1,954	439,386	3,948	887,591	16x
200S140.250.168	140	250	168	(4) 7228	2,212	497,242	4,466	1,003,889	16x
200S150.270.180	150	270	180	(4) 7230	2,531	568,978	5,107	1,148,163	17x
<b>Additional and larger sizes available on request</b>									

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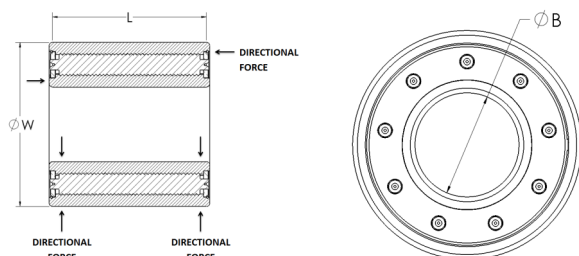
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# Combo Bearings

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Duplex, Series 300					Combo				
CMC GRB Part Nbr	B Bore Diameter mm	W OD mm	L Length mm	Equivalent Bearing Nbr (Duplex)	** DYNAMIC LOAD CAPACITY		STATIC LOAD CAPACITY		* CMC Life Advantage
					Ca (kN)	Ca (lbf)	Ca0 (kN)	Ca0 (lbf)	
300S12.37.24	12	37	24	(2) 7301	34	7,689	59	13,240	5x
300S15.42.26	15	42	26	(2) 7302	42	9,390	78	17,475	5x
300S17.47.28	17	47	28	(2) 7303	54	12,194	107	23,993	6x
300S20.52.30	20	52	30	(2) 7304	62	13,944	121	27,295	6x
300S25.62.34	25	62	34	(2) 7305	88	19,846	162	36,501	7x
300S30.72.38	30	72	38	(2) 7306	120	27,082	235	52,873	7x
300S35.80.42	35	80	42	(2) 7307	147	33,043	286	64,381	8x
300S40.90.46	40	90	46	(2) 7308	181	40,590	351	78,926	9x
300S45.100.50	45	100	50	(2) 7309	216	48,633	420	94,425	9x
300S50.110.54	50	110	54	(2) 7310	270	60,716	524	117,741	10x
300S55.120.58	55	120	58	(2) 7311	313	70,426	607	136,435	10x
300S60.130.62	60	130	62	(2) 7312	377	84,843	731	164,227	10x
300S65.140.66	65	140	66	(2) 7313	447	100,594	866	194,577	11x
300S70.150.70	70	150	70	(2) 7314	482	108,265	931	209,285	11x
300S75.160.74	75	160	74	(2) 7315	561	126,102	1,085	244,018	12x
300S80.170.78	80	170	78	(2) 7316	627	140,912	1,212	272,521	12x
300S85.180.82	85	180	82	(2) 7317	696	156,521	1,346	302,558	13x
300S90.190.86	90	190	86	(2) 7318	769	172,938	1,486	334,139	13x
300S95.200.90	95	200	90	(2) 7319	846	190,148	1,634	367,245	14x
300S100.215.94	100	215	94	(2) 7320	941	211,624	1,817	408,531	14x
300S110.240.100	110	240	100	(2) 7322	1,090	244,980	2,102	472,591	15x
300S120.260.110	120	260	110	(2) 7324	1,335	300,112	2,579	579,773	15x
300S130.280.116	130	280	116	(2) 7326	1,570	352,887	3,031	681,343	16x
300S140.300.124	140	300	124	(2) 7328	1,756	394,758	3,389	761,811	16x
300S150.320.130	150	320	130	(2) 7330	1,952	438,753	3,765	846,355	17x
<b>Additional and larger sizes available on request</b>									

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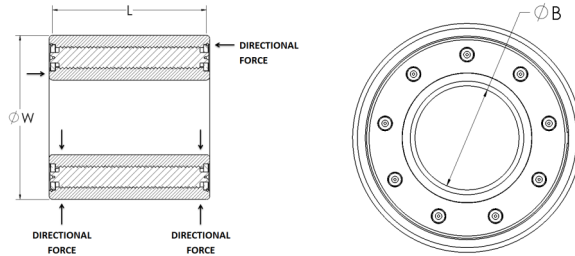


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Quad Pack, Series 300					Combo				
CMC GRB Part Nbr	B Bore Diameter mm	W OD mm	L Length mm	Equivalent Bearing Nbr (Quad Pack)	** DYNAMIC LOAD CAPACITY		STATIC LOAD CAPACITY		* CMC Life Advantage
					Ca (kN)	Ca (lbf)	Ca0 (kN)	Ca0 (lbf)	
300S12.37.48	12	37	48	(4) 7301	64	14,300	126	28,282	5x
300S15.42.52	15	42	52	(4) 7302	84	18,798	165	37,008	5x
300S17.47.56	17	47	56	(4) 7303	104	23,451	205	46,028	6x
300S20.52.60	20	52	60	(4) 7304	129	29,051	253	56,864	6x
300S25.62.68	25	62	68	(4) 7305	179	40,239	351	78,816	7x
300S30.72.76	30	72	76	(4) 7306	241	54,164	470	105,746	7x
300S35.80.84	35	80	84	(4) 7307	306	68,798	596	134,033	8x
300S40.90.92	40	90	92	(4) 7308	397	89,297	772	173,635	9x
300S45.100.100	45	100	100	(4) 7309	487	109,424	945	212,452	9x
300S50.110.108	50	110	108	(4) 7310	585	131,551	1,135	255,105	10x
300S55.120.116	55	120	116	(4) 7311	692	155,679	1,342	301,592	10x
300S60.130.124	60	130	124	(4) 7312	791	177,755	1,533	344,742	10x
300S65.140.132	65	140	132	(4) 7313	926	208,177	1,794	403,397	11x
300S70.150.140	70	150	140	(4) 7314	1,047	235,396	2,028	455,802	11x
300S75.160.148	75	160	148	(4) 7315	1,202	270,219	2,326	522,895	12x
300S80.170.156	80	170	156	(4) 7316	1,339	301,039	2,590	582,203	12x
300S85.180.164	85	180	164	(4) 7317	1,514	340,264	2,926	657,734	13x
300S90.190.172	90	190	172	(4) 7318	1,646	370,144	3,190	717,051	13x
300S95.200.180	95	200	180	(4) 7319	1,828	411,005	3,540	795,779	14x
300S100.215.188	100	215	188	(4) 7320	2,053	461,642	3,973	893,256	14x
300S110.240.200	110	240	200	(4) 7322	2,270	510,220	4,390	986,964	15x
300S120.260.220	120	260	220	(4) 7324	2,960	665,466	5,719	1,285,584	15x
300S130.280.232	130	280	232	(4) 7326	3,517	790,693	6,800	1,528,730	16x
300S140.300.248	140	300	248	(4) 7328	3,854	866,319	7,449	1,674,618	16x
300S150.320.260	150	320	260	(4) 7330	4,306	968,015	8,319	1,870,204	17x
<b>Additional and larger sizes available on request</b>									

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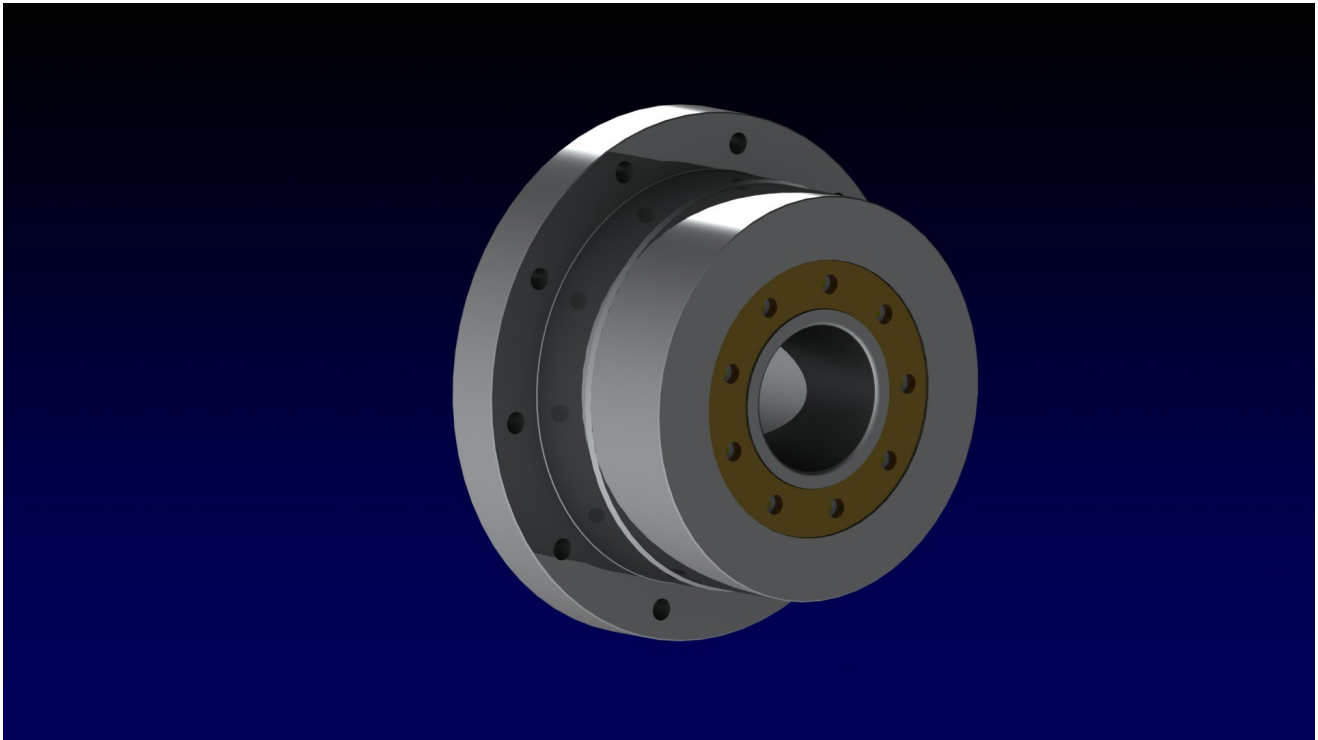


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