CCVI
BEARING INDUSTRIES

mast bearings

CCVI
BEARING INDUSTRIES

contents

symbols and units in the catalogue

B	nominal inner ring (shaft washer) width, mm
C	nominal outer ring (housing washer) width, mm
D	bearing housing bore diameter or outer ring external diameter, mm
M	bearing friction torque, Nm
P	bearing equivalent load, kN
s_r	radial internal clearance, μm
C_r	basic dynamic radial load rating, kN
C_o	basic static load rating, kN
C_{or}	basic static radial load rating, kN
b_m	rating factor
f_c	factor related to bearing part geometry
f_o	factor related to bearing part geometry and stress level
i	row number of ball bearings or roller bearings
α	bearing nominal contact angle
Z	ball number or roller number in single-row bearings
D_w	ball diameter, mm
D_{we}	roller diameter, mm
D_{pw}	pitch diameter of ball set and roller set, mm
F_r	radial load, kN
F_a	axial load, kN
X	radial load factor
Y	axial load factor
L	bearing basic rating life , r
L_{we}	roller length, mm
L_{10}	basic rating life, 10^6r
L_{10h}	basic rating life, h
L_h	bearing basic rating life , h
n	speed, rpm
p	life index, p=3 for ball bearings; p=10/3 for roller bearings
R	outer ring chamfer or outer ring outside diameter circular radius, mm
r	inner ring assembly chamfer, mm
f_1	load factor
f_2	load distribution factor
f_n	speed factor
f_h	life factor
S	working clearance, mm
S_0	theoretical clearance, mm
S_f	clearance decrease amount caused by fit
S_{fi}	inner ring raceway diameter expansion amount, mm
S_{fO}	outer ring raceway diameter shrink amount, mm
S_{t1}	clearance decrease amount caused by inner and outer ring temperature difference, mm
S_{t2}	clearance decrease amount caused by rolling elements temperature rise, mm
$\triangle_{deff}$	inner ring effective interference, mm
d_0	hollow shaft inner diameter, mm
D_i	inner ring raceway diameter, mm
$\triangle_{Deff}$	outer ring effective interference, mm
D_h	housing outside diameter, mm
D_e	outer ring raceway diameter, mm
D_r	mean diameter of rolling elements, mm
t_i	inner ring temperature rise, ^{0}C
t_e	outer ring temperature rise, ^{0}C
t_r	rolling element temperature rise, ^{0}C

engineering data

structure and designation

◇ Structure styles

style 1

style 1A

style 2

style 2A

style 3

style 3A

style 4

style 5

style 5A

style 5B

style 6

style 6A

style 7

style 7A

style 8

style 9

style 10

style 11

style 12

style 13

style 14

style 15

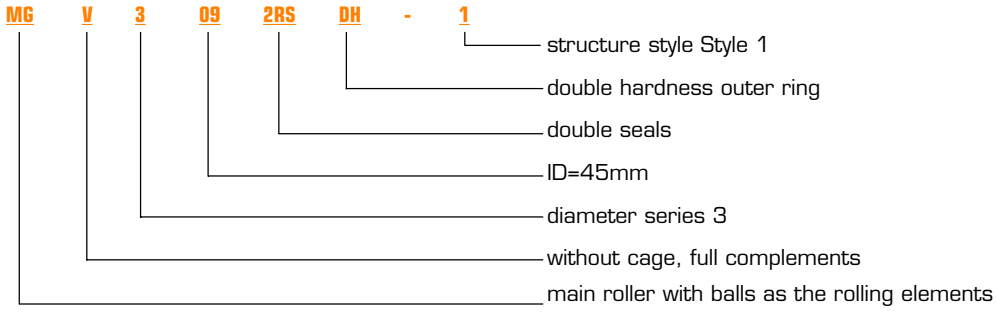
style 16

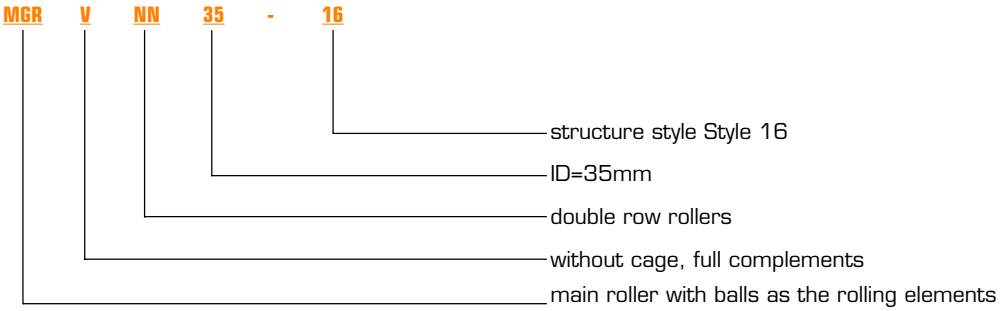
◇ Mast bearings

Table 1. mast bearings designation

Primary codes										Secondary codes									
bearing series		with /without cages		number of row(s)		diameter series		ID code		seal		double hardness (Y/N)		material code		size, clearance surface treatment variation		structure variation	
code	item	code	item	code	detail	code	detail	code	detail	code	detail	code	detail	code	detail	code	detail	code	detail
MG	main rollers (rolling element-ball)	-	with cages	-	single row		only refer to main rollers and chain rollers, no side rollers code					-	single hard-ness	-	high carbon chromium bearing steel	X1	1st change		see figures
		V	without cages	5	double row balls	2		05	ID, 25mm		(shield)	DH	double hard-ness of outer rings		carburized steel		2nd change	1	
SG	side rollers (rolling element-ball)					3		06	ID, 30mm	Z	single shield			C	stainless steel	X2		1A	
						4		07	ID, 35mm	ZZ	double shields			SS				1B	
CG	chain rollers (rolling element-ball)							…	…						steel		3rd change	1C	
									I.D. is designated	RS	single seal								
MGR	main rollers (rolling element-rollers)			NN	double row rollers			30	as code for roller-element bearings	2RS	double seals (non-contact seals)			MC	medium carbon steel	X3		2	
																		2B	
SGR	side rollers (rolling element-rollers)								I.D. 30mm	RZ	single shield					…	…	…	
									O.D. is designated	2RZ	double shields								
CGR	chain rollers (rolling element-roller)							40	as code for side roller O.D. 40mm		(non-contact seals)								
								…	…										

Designation example:





load calculation for mast bearings

◇ Bearing life calculation

◇ Dynamic equivalent load

Most bearings sustain a combined load of radial and axial loads. Since the load and its direction are changing all the time, it is not appropriate to compare actual load with basic dynamic rating load directly.
At this time, the actual load has to be assumed as a fixed load, which passes through bearing center in one direction. Bearings have the same life under the assumed load as they are under actual load. This conversed assumed load is called dynamic equivalent load and expressed as P.

◇ Basic dynamic load rating

Bearing basic dynamic load rating is determined at assumed conditions. The loading condition is that radial bearings only have radial load, while thrust bearings only have axial load. Actually, in most applications, bearings sustain radial and axial loads simultaneously. So in bearing life calculation, the actual load must be changed to dynamic equivalent load in accordance with dynamic load rating. Radial dynamic equivalent load is a constant radial load, expressed as C_r. Axial dynamic equivalent load is a constant center axial load, under which rolling bearings have the same life as in actual load condition. It is expressed as C_a.

· Basic dynamic radial load rating

Basic dynamic load rating C_r for radial contact and angular contact ball bearings is as:

when, $D_w \leqslant 25.4mm$ $C_r = b_m f_c (i\cos\alpha)^{0.7} Z^{2/3} D_w^{1.8}$

when, $D_w > 25.4mm$ $C_r = 3.647 b_m f_c (i\cos\alpha)^{0.7} Z^{2/3} D_w^{1.4}$

C_r	basic dynamic radial load rating, kN
b_m	material factor
f_c	factor related to bearing part geometry
i	row number of ball bearings or roller bearings
α	bearing nominal contact angle
Z	ball number or roller number in single-row bearings
D_w	ball diameter, mm

Table 2 lists b_m values. Table 3 lists f_c values. These values apply to radial contact and angular contact ball bearings with their inner ring raceway curvature radius $\leqslant 0.52D_w$ and outer ring raceway curvature radius $\leqslant 0.53D_w$, and self-aligning ball bearings with the inner ring raceway curvature radius $\leqslant 0.53D_w$.

table 2. b_m values for mast bearings

bearing type	b_m
radial contact and angular contact ball bearings & self-aligning ball bearings	1.3
bearings with filling slots	1.1

· Basic load rating of radial contact roller bearings

basic dynamic load rating C_r of radial contact roller type track rollers is:

$$C_r = b_m f_c (iL_{we}\cos\alpha)^{7/9} Z^{3/4} D_{we}^{29/27}$$

b_m	rating factor, for track rollers b_m=1.1
f_c	factor related to bearing part geometry, manufacturing accuracy and material, see table 4
i	row number of ball bearings or roller bearings
α	bearing nominal contact angle
Z	number of balls or rollers of single-row bearings
L_{we}	roller length, mm
D_{we}	roller diameter, mm

table 3. f_c value of radial ball type track rollers

$\frac{D_w \cos \alpha}{D_{pw}}$ [a]	single-row radial contact groove type ball bearings, single-row and double-row angular contact groove type ball bearings	double-row radial self-aligning ball bearings
0.01	29.1	27.5
0.02	35.8	33.9
0.03	40.3	38.2
0.04	43.8	41.5
0.05	46.7	44.2
0.06	49.1	46.5
0.07	51.1	48.4
0.08	52.8	50.0
0.09	54.3	51.4
0.10	55.5	52.6
0.11	56.6	53.6
0.12	57.5	54.5
0.13	58.2	55.2
0.14	58.8	55.7
0.15	59.3	56.1
0.16	59.6	56.5
0.17	59.8	56.7
0.18	59.9	56.8
0.19	60.0	56.8
0.20	59.9	56.8
0.21	59.8	56.6
0.22	59.6	56.5
0.23	59.3	56.2
0.24	59.0	55.9
0.25	58.6	55.5
0.26	58.2	55.1
0.27	57.7	54.6
0.28	57.1	54.1
0.29	56.6	53.6
0.30	56.0	53.0
0.31	55.3	52.4
0.32	54.6	51.8
0.33	53.9	51.1
0.34	53.2	50.4
0.35	52.4	49.7
0.36	51.7	48.9
0.37	50.9	48.2
0.38	50.0	47.4
0.39	49.2	46.6
0.40	48.4	45.8

a) For the medium values of $\frac{D_w \cos \alpha}{D_{pw}}$, the value of f_c can be calculated by linear interpolation method

table 4. f_c value of radial contact roller type track rollers

$\frac{D_w \cos \alpha}{D_{pw}}$ [a]	f_c
0.01	52.1
0.02	60.8
0.03	66.5
0.04	70.7
0.05	74.1
0.06	76.9
0.07	79.2
0.08	81.2
0.09	82.8
0.10	84.2
0.11	85.4
0.12	86.4
0.13	87.1
0.14	87.7
0.15	88.2
0.16	88.5
0.17	88.7
0.18	88.7
0.19	88.8
0.20	88.7
0.21	88.5
0.22	88.2
0.23	87.9
0.24	87.5
0.25	87
0.26	86.4
0.27	85.8
0.28	85.2
0.29	84.5
0.30	83.8

Dynamic equivalent radial load

equivalent radial dynamic load P of radial ball bearings under constant radial and axial load:

$$P = XF_r + YF_a$$

P equivalent dynamic load, kN
F_r radial load, kN
F_a axial load, kN
X radial load factor, ball bearing see table 5, roller bearing see table 6
Y axial load factor, ball bearing see table 5, roller bearing see table 6

Table 5. X and Y values of radial ball bearings

bearing type	"relative bearing load"[a b]		single-row bearing				Double-row bearing				e
	$\frac{F_a}{F_r} \le e$				$\frac{F_a}{F_r} > e$		$\frac{F_a}{F_r} \le e$		$\frac{F_a}{F_r} > e$		
			X	Y	X	Y	X	Y	X	Y	
radial contact groove type ball bearing	$\frac{f_o F_{ac}}{C_{or}}$	$\frac{F_a}{iZD_w^2}$									
	0.172	0.172				2.3				2.3	0.19
	0.345	0.345				1.99				1.99	0.22
	0.689	0.689				1.71				1.71	0.26
	1.03	1.03				1.55				1.55	0.28
	1.38	1.38	1	0	0.56	1.45	1	0	0.56	1.45	0.3
	2.07	2.07				1.31				1.31	0.34
	3.45	3.45				1.15				1.15	0.38
	5.17	5.17				1.04				1.04	0.42
	6.89	6.89				1				1	0.44
angular contact groove type ball bearing	$\frac{f_o i F_a}{C_{or}}$ [c]	$\frac{F_a}{ZD_w^2}$									
	0.173	0.172						2.78		3.74	0.23
	0.346	0.345						2.4		3.23	0.26
	0.692	0.689						2.07		2.78	0.3
	1.04	1.03	1	0			1	1.87	0.78	2.52	0.34
$\alpha=5^0$	1.38	1.38						1.75		2.36	0.36
	2.08	2.07						1.58		2.13	0.4
	3.46	3.45						1.39		1.87	0.45
	5.19	5.17						1.26		1.69	0.5
	6.92	6.89						1.21		1.63	0.52
	0.175	0.172				1.88		2.18		3.06	0.29
	0.35	0.345				1.71		1.98		2.78	0.32
	0.7	0.689				1.52		1.76		2.47	0.36
	1.05	1.03				1.41		1.63		2.29	0.38
$\alpha=10^0$	1.4	1.38	1	0	0.46	1.34	1	1.55	0.75	2.18	0.4
	2.1	2.07				1.23		1.42		2	0.44
	3.50	3.45				1.1		1.27		1.79	0.49
	5.25	5.17				1.01		1.17		1.64	0.54
	7	6.89				1		1.16		1.63	0.54
	0.178	0.172				1.47		1.65		2.39	0.38
	0.357	0.345				1.4		1.57		2.28	0.4
	0.714	0.689				1.3		1.46		2.11	0.43
	1.07	1.03				1.23		1.38		2	0.46
$\alpha=15^0$	1.43	1.38	1	0	0.44	1.19	1	1.34	0.72	1.93	0.47
	2.14	2.07				1.12		1.26		1.82	0.5
	3.57	3.45				1.02		1.14		1.66	0.55
	5.35	5.17				1		1.12		1.63	0.56
	7.14	6.89				1		1.12		1.63	0.56
$\alpha=20^0$	-	-			0.43	1		1.09	0.7	1.63	0.57
$\alpha=25^0$	-	-			0.41	0.87		0.92	0.67	1.41	0.68
$\alpha=30^0$	-	-	1	0	0.39	1.76	1	0.78	0.63	1.24	0.8
$\alpha=35^0$	-	-			0.37	1.66		0.66	0.6	1.07	0.95
$\alpha=40^0$	-	-			0.35	1.57		0.55	0.57	0.93	1.14
$\alpha=45^0$	-	-			0.33	0.5		0.47	0.54	0.81	1.34

a the allowed max value depends on bearing design (clearance and groove depth). Values in column 1 and column 2 may be adopted according to the given conditions.

b as to " relative axial load" or the medium values of the contact angle, the values of X, Y and e can be calculated by linear interpolation method

c see GB/T 4662-2003 for f_c values

Table 6. X and Y values of radial contact roller type track rollers

bearing Type	Fa/Fr ⩽ e		Fa/Fr > e		e
	X	Y	X	Y	
single-row $\alpha \neq 0$	1	0	0.4	0.4cot α	1.5tan α
double-row $\alpha \neq 0$	1	0.45cot α	0.67	0.67cot α	1.5tan α

• Basic static radial load rating

Basic load rating C_{or} of radial contact ball type track rollers is calculated as the following formula:

$$C_{or} = f_o i Z D_w^2 \cos\alpha$$

C_{or} basic static load rating, kN
D_w ball diameter, mm
i row number of ball bearings or roller bearings
f_O factor related to bearing part geometry and stress level, see table 7
Z number of balls or rollers of single-row bearings, rolling element number of each row for multi-row bearings with same rolling elements of each row
α bearings nominal contact angle, °

Basic radial static load rating of radial contact roller type track rollers is calculated according to the following formula:

$$C_{or} = 44(1-D_{we}\cos\alpha/D_{pw})iZL_{we}D_{we}\cos\alpha$$

D_{we} roller diameter, mm
L_{we} roller length, mm
D_{pw} pitch diameter of ball set and roller set, mm

table 7. f_o value of radial contact ball type track rollers

$\frac{D_w \cos\alpha}{D_{pw}}$ a)	f_o	$\frac{D_w \cos\alpha}{D_{pw}}$ a)	f_o	$\frac{D_w \cos\alpha}{D_{pw}}$ a)	f_o
0	14.7	0.14	15.4	0.28	12.1
0.01	14.9	0.15	15.2	0.29	11.8
0.02	15.1	0.16	14.9	0.3	11.6
0.03	15.3	0.17	14.7	0.31	11.4
0.04	15.5	0.18	14.4	0.32	11.2
0.05	15.7	0.19	14.2	0.33	10.9
0.06	15.9	0.2	14	0.34	10.7
0.07	16.1	0.21	13.7	0.35	10.5
0.08	16.3	0.22	13.5	0.36	10.3
0.09	16.5	0.23	13.2	0.37	10
0.1	16.4	0.24	13	0.38	9.8
0.11	16.1	0.25	12.8	0.39	9.6
0.12	15.9	0.26	12.5	0.4	9.4
0.13	15.6	0.27	12.3	-	-

◇ Basic rating life

Dynamic equivalent radial load P for radial ball bearings under constant radial and axial load:

$$L_{10} = (C/P)^p$$

$$L_{10h} = (10^6/60n) (C/P)^p$$

L_{10}	basic rating life, 10^6r
L_{10h}	basic rating life, h
P	equivalent dynamic load, kN
C	basic dynamic load rating, kN
n	rotating speed, rpm
p	life factor, p=3 for ball bearings and p=10/3 for roller bearings

◇ In actual situations, different material, different hardness and strength, different working conditions and different mounting methods will lead to unequivalence between actual bearing load and life and the theoretically calculated values. At this time, please contact CCVI for optimum solutions.

mast bearings internal clearance

Bearing internal clearance refers to the amount of movement of the inner (outer) ring when the other outer (inner) ring is fixed. Radial movement amount is called radial internal clearance, while axial movement amount is called axial internal clearance, see fig 1.

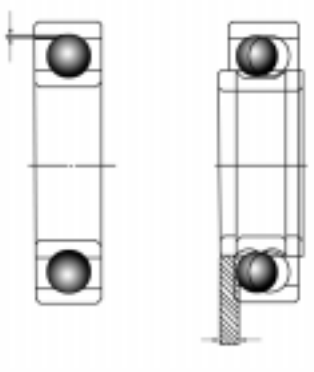


Fig 1. Radial clearance and axial clearance

◇ How to select bearing internal clearance

Mounting clearance, the theoretical clearance minus bearing ring expansion amount or shrink amount caused by the interference, fits when mounting on the shaft or in the housing.
Effective clearance: mounting clearance +/- bearing dimension variation caused by internal temperature difference.
Working clearance: bearing internal clearance when it is running on the machine under certain load after mounting, i.e. effective clearance plus the elastic deformation caused by bearing load.

$$S = S_0 - (S_f + S_{t1} + S_{t2})$$

Clearance decrease amount Sf caused by fit:

for hollow shaft, $S_{fi} = \triangle_{deff}\, d/D_i \cdot (1-d_o^2/d_2)/(1-d_o^2/D_i^2)$

$S_{fo} = \triangle_{deff} D_e/D \cdot (1-D^2/D_h^2)/(1-D_e^2/D_h^2)$

for solid shaft, $S_{fi} = \triangle_{deff}\, d/D_i$, $\triangle_{deff} D_e/D$

clearance decrease amount S_{t1} caused by inner and outer ring temperature difference: $S_{t1} = \alpha (D_i \cdot t_i - D_e \cdot t_e)$

clearance decrease amount S_{t2} caused by rolling elements temperature rise(increase is better than rise): $S_{t2} = 2\alpha \cdot D_r \cdot t_r$

engineering data

lubrication

◇ Lubrication purpose

The purpose of rolling bearing lubrication is to reduce bearing internal friction and wear out to prevent burning. Lubrication functions include:

- **Reduce friction and wear**

Prevent metal contacts and reduce frictional wear at the inter-contact positions between bearing rings, rolling elements and cage.

- **Extend fatigue life**

Good lubrication on the contact surfaces will extend bearing fatigue life; otherwise lower oil viscosity and uneven-distributed lubricating oil film will shorten bearing life.

- **Take away frictional heat , cooling**

Good lubrication on the contact surfaces will extend bearing fatigue life; otherwise lower oil viscosity and uneven-distributed lubricating oil film will shorten bearing life.

- **Prevent external substances from entering bearing and prevent rust or corrosion.**

◇ Grease lubrication

◇ Amount of grease fill lubrication

Generally speaking, the grease fill amount is about 80% of the bearing space to prevent external substances from entering.

◇ Filling amount of lubricating grease

Lubricating grease has limited service life. Its lubricating function becomes weaker during operation and more wear debris produced. Therefore the grease has to be replenished or replaced at certain interval periods in most supporting systems applications. The replenishment period is related to bearing structure, size, rotation speed, temperature and environmental conditions.

◇ Lubricating grease mixture

Different brands of lubricating grease shall not be mixed together. Mixture of greases with different thickness is harmful to the structure and viscosity of the grease. Mixture of greases with different base oils will cause two-element-liquids and affect continuous lubrication. Therefore, it is generally advised not to mix various greases together. If a different brand grease must be used, it is highly recommended to thoroughly remove the original grease before adding the new grease.

mast bearings fit

To prevent skidding between bearing inner ring and shaft, bearing outer ring and housing bore, it is very important to choose and keep correct bearing fit. In order to choose a proper fit, all factors like bearing load and load type, bearing type and other design or performance requirements must be considered simultaneously.

◇ How to choose rolling bearing fit

- **Bearings with cylindrical bore**

When choosing bearing fit, the following factors must be taken into account.

Load type

Fixed load, it is a combined radial load acted on bearing rings, which is sustained at local raceway areas and is transferred to the corresponding local areas of the shaft and housing. Bearing rings under fixed load usually have loose fit.

Rotary load, it is a combined radial load acted on bearing rings, which rotates in raceway circular direction and sustains at any raceway positions. Bearing rings under rotary load should have transition or interference fit with the shaft or housing bore. If clearance fit is adopted, temperature will increase sharply and the bearing will be destroyed in a short time. The interference amount depends on the running condition and a basic principle is that there is no "creep" on the fit surface of bearing rings with the shaft or housing bore.

Oscillatory load, it is a combined radial load acted on bearing rings, which makes relative oscillatory movement in certain raceway areas and sustains at certain raceway positions. It may be an impact load with variable directions and values. For bearings under oscillatory load, especially under heavy load, the inner and outer rings must have interference fit. If inner ring rotates, normally the fit is under rotary load, but sometimes the outer ring must move freely in the bearing housing. Another case is a fit looser than under rotary load when bearing outer ring is under lighter load.

Load

Under the radial load component, bearing rings are pressed and have a loose fit surface as a result. Especially when under heavy rotary load, skidding is easy to occur. Therefore, for heavy load applications, normally choose tighter fit than under light load and normal load applications. Heavier loads need larger interference fit amount.

Bearing size
Larger bearing sizes need larger interference amounts in interference fit and larger clearances in clearance fit.

Bearing clearance
Interference fit will result in smaller bearing clearance. Bearing clearance must be checked after mounting to see if it meets with the operational requirements.

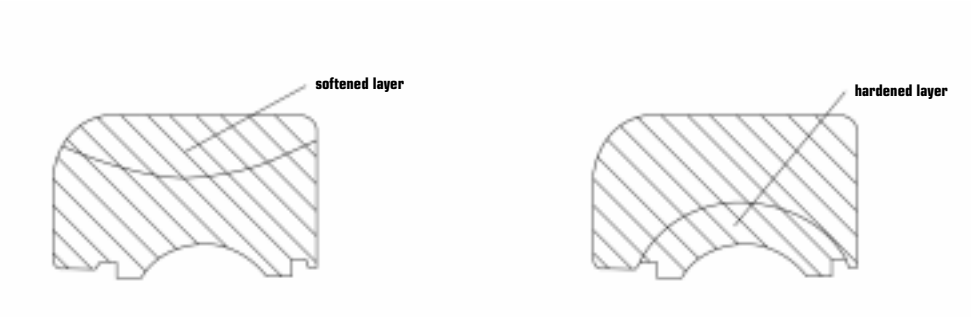
Working temperature
When bearings are running, bearing ring temperature is usually higher than its adjacent parts. The inner ring may have loose contact with the shaft because of heat expansion. The outer ring may affect axial movement of the bearing because of the heat expansion. Temperature difference and heat transfer direction must be taken into account when choosing bearing fit.

Bearing rotation accuracy
When higher rotation accuracy and operational stability is required, in order to eliminate the effect of elastic deformation and vibration, clearance fit must be avoided.

Easy mounting and dismounting
In many applications, clearance fits are adopted for easy mounting and dismounting. According to the running condition, if interference fit must be applied, you usually have separable bearings or taper bore bearings for the purpose of easy mounting and dismounting.

Floating end bearing displacement
Floating end bearings require a certain axial movable amount of one ring. Generally the ring under fixed load is mounted with clearance fit. If cylindrical roller bearings with no inner ring (outer ring) rib or needle roller bearings are mounted at the floating end, both inner ring and outer ring can be mounted with interference fit.

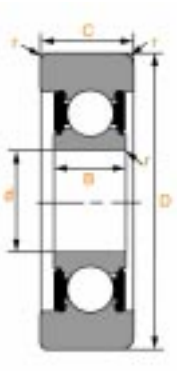
double hardness bearing



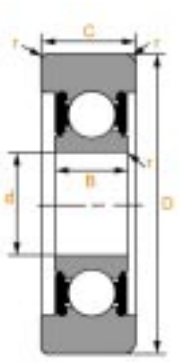
Double hardness bearing: bearing outer ring surface hardness < HRC40, external surface softened layer hardness > 3mm, standard raceway hardness. The products have been specially heat-treated to significantly improve track roller service life and reduce the contact surface wear

mast rollers

style 1



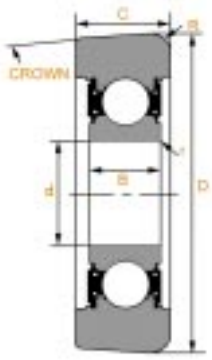
Designation	style	Dimensions								Basic radial load(N)	
		d		D		B		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MG 205 2RS-1	1	25	0.9843	65.10	2.5630	15.00	0.5906	21.29	0.8382	7830	14010
MG 305 2RS-1	1	25	0.9843	76.20	3.0000	17.00	0.6693	25.40	1.0000	11120	20510
MG 305 2RS X1-1	1	25	0.9843	79.55	3.1319	17.00	0.6693	24.00	0.9449	11120	20510
MG 305 2RS X2-1	1	25	0.9843	80.00	3.1496	17.00	0.6693	22.00	0.8661	11390	17200
MG 16 2RS-1	1	25.4	1.0000	74.60	2.9370	17.00	0.6693	25.40	1.0000	11120	20510
MG 206 2RS-1	1	30	1.1811	76.20	3.0000	16.00	0.6299	26.97	1.0618	11255	19490
MG 206 2RS X1-1	1	30	1.1811	76.20	3.0000	16.00	0.6299	28.58	1.1252	11255	19490
MG 306 2RS-1	1	30	1.1811	82.55	3.2500	19.00	0.7480	26.97	1.0618	14900	26600
MG 306 2RS X1-1	1	30	1.1811	88.90	3.5000	19.00	0.7480	25.40	1.0000	14900	26600
MG 306 2RS X2-1	1	30	1.1811	91.50	3.6024	19.00	0.7480	24.00	0.9449	14800	21660
MG 207 2RS-1	1	35	1.3780	94.62	3.7252	17.00	0.6693	25.30	0.9961	15300	25670
MG 307 2RS-1	1	35	1.3780	94.62	3.7252	21.00	0.8268	25.40	1.0000	20380	36890
MG 307 2RS X1-1	1	35	1.3780	94.62	3.7252	21.00	0.8268	25.40	1.0000	19130	33330
MG 307 2RS X2-1	1	35	1.3780	95.89	3.7752	21.00	0.8268	28.50	1.1220	19130	33330
MG 307 2RS X3-1	1	35	1.3780	95.89	3.7752	21.00	0.8268	25.30	0.9961	19130	33330
MG 307 2RS X4-1	1	35	1.3780	101.35	3.9902	21.00	0.8268	28.58	1.1252	19130	33330
MG 307 2RS X5-1	1	35	1.3780	101.60	4.0000	21.00	0.8268	28.58	1.1252	19130	33330
MG 307 2RS X6-1	1	35	1.3780	101.98	4.0150	21.00	0.8268	28.58	1.1252	19130	33330
MG 307 2RS X7-1	1	35	1.3780	102.00	4.0157	21.00	0.8268	25.50	1.0039	17900	26220
MG 307 2RS X8-1	1	35	1.3780	107.70	4.2402	21.00	0.8268	25.00	0.9843	19130	33330



Designation	style	Dimensions								Basic radial load(N)	
		d		D		B		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MG 208 2RS-1	1	40	1.5748	95.76	3.7701	21.00	0.8268	28.57	1.1248	17790	11120
MG 208 2RS X1-1	1	40	1.5748	101.98	4.0150	21.00	0.8268	28.57	1.1248	28420	19990
MG 208 2RS X2-1	1	40	1.5748	107.28	4.2236	22.00	0.8661	26.17	1.0303	28420	19990
MG 208 2RS X3-1	1	40	1.5748	112.30	4.4213	18.00	0.7087	29.00	1.1417	25600	18100
MG 308 2RS-1	1	40	1.5748	101.60	4.0000	23.00	0.9055	28.58	1.1252	40800	24030
MG 308 2RS X1-1	1	40	1.5748	109.70	4.3189	23.00	0.9055	32.00	1.2598	31350	22380
MG 308 2RS X2-1	1	40	1.5748	110.21	4.3390	23.00	0.9055	32.51	1.2799	40800	24030
MG 308 2RS X3-1	1	40	1.5748	111.10	4.3740	23.00	0.9055	32.51	1.2799	40800	24030
MG 308 2RS X4-1	1	40	1.5748	111.28	4.3811	23.00	0.9055	32.00	1.2598	40800	24030
MG 308 2RS X5-1	1	40	1.5748	113.94	4.4858	23.00	0.9055	28.58	1.1252	40800	24030
MG 308 2RS X6-1	1	40	1.5748	114.20	4.4961	23.00	0.9055	28.19	1.1098	40800	24030
MG 308 2RS X7-1	1	40	1.5748	119.70	4.7126	23.00	0.9055	28.00	1.1024	40800	24030
MG 309 2RS-1	1	45	1.7717	119.00	4.6850	25.00	0.9843	29.00	1.1417	37800	26700
MG 309 2RS X1-1	1	45	1.7717	120.00	4.7244	25.00	0.9843	29.00	1.1417	52590	31950
MG 309 2RS X2-1	1	45	1.7717	125.53	4.9421	25.00	0.9843	38.10	1.5000	52590	31950
MG 309 2RS X3-1	1	45	1.7717	127.08	5.0031	25.00	0.9843	31.75	1.2500	52590	31950
MG 311 2RS-1	1	55	2.1654	151.89	5.9799	29.00	1.1417	38.10	1.5000	71550	44580
MG 311 2RS X1-1	1	55	2.1654	164.29	6.4681	29.00	1.1417	38.10	1.5000	71550	44580
MG 311 2RS X2-1	1	55	2.1654	119.20	4.6929	25.00	0.9843	34.00	1.3386	53360	35000
MG 311 ZZ X1-1	1	55	2.1654	151.89	5.9799	29.00	1.1417	38.10	1.5000	71550	44580
MG 311 ZZ-1	1	55	2.1654	164.08	6.4598	29.00	1.1417	38.10	1.5000	71550	44580

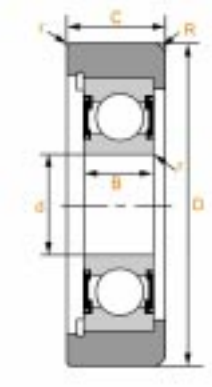
mast rollers

style 1A



Designation	style	Dimensions								Basic radial load(N)	
		d		D		B		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MG 305 2RS-1A	1A	25	0.9843	76.20	3.0000	17.00	0.6693	25.40	1.0000	20510	11120
MG 307 2RS-1A	1A	35	1.3780	101.42	3.9929	21.00	0.8268	28.58	1.1252	33330	19130
MG 307 2RS X1-1A	1A	35	1.3780	101.35	3.9902	21.00	0.8268	28.58	1.1252	33330	19130
MG 307 2RS X2-1A	1A	35	1.3780	97.00	3.8189	21.00	0.8268	28.00	1.1024	26100	18400
MG 307 2RS X3-1A	1A	35	1.3780	105.00	4.1339	21.00	0.8268	28.00	1.1024	26100	18400
MG 307 2RS X4-1A	1A	35	1.3780	102.00	4.0157	21.00	0.8268	28.00	1.1024	26100	18400
MG 307 2RS X5-1A	1A	35	1.3780	109.00	4.2913	21.00	0.8268	28.00	1.1024	26100	18400
MG 308 2RS-1A	1A	40	1.5748	108.68	4.2787	23.00	0.9055	30.99	1.2201	40800	24030
MG 308 2RS X1-1A	1A	40	1.5748	109.68	4.3181	23.00	0.9055	30.99	1.2201	40800	24030
MG 308 2RS X2-1A	1A	40	1.5748	110.78	4.3614	23.00	0.9055	30.99	1.2201	40800	24030
MG 308 2RS X3-1A	1A	40	1.5748	115.00	4.5276	23.00	0.9055	32.00	1.2598	32000	23000
MG 308 2RS X4-1A	1A	40	1.5748	123.00	4.8425	23.00	0.9055	32.00	1.2598	32000	23000
MG 309 2RS-1A	1A	45	1.7717	127.06	5.0024	25.00	0.9843	31.75	1.2500	52590	31950
MG 309 2RS X1-1A	1A	45	1.7717	127.86	5.0339	25.00	0.9843	31.75	1.2500	52590	31950
MG 311 2RS-1A	1A	55	2.1654	151.50	5.9646	29.00	1.1417	45.00	1.7717	56000	42500
MG 313 2RS-1A	1A	65	2.5591	183.50	7.2244	33.00	1.2992	45.00	1.7717	72700	57600

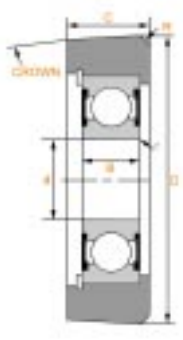
style 2



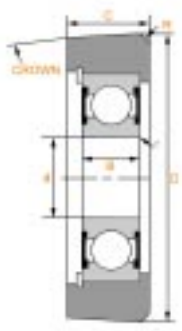
Designation	style	Dimensions								Basic radial load(N)	
		d		D		B		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MG 307 2RS-2	2	35	1.3780	101.60	4.0000	21.00	0.8268	28.58	1.1252	52640	34530
MG 208 2RS-2	2	40	1.5748	95.00	3.7402	21.00	0.8268	28.83	1.1350	40980	28910
MG 208 2RS X1-2	2	40	1.5748	101.35	3.9902	21.00	0.8268	28.83	1.1350	40980	28910
MG 208 2RS X2-2	2	40	1.5748	102.01	4.0161	21.00	0.8268	28.83	1.1350	40980	28910
MG 209 2RS-2	2	40	1.5748	101.35	3.9902	21.00	0.8268	28.83	1.1350	44540	34660
MG 310 2RS-2	2	50	1.9685	126.87	4.9949	25.25	0.9941	30.23	1.1902	59400	46720
MG 32 2RS-2	2	51	2.0000	126.75	4.9902	27.00	1.0630	33.00	1.2992	40000	31150
MG 32 2RS X1-2	2	51	2.0000	127.00	5.0000	24.00	0.9449	30.60	1.2047	40950	31850
MG 32 2RS X2-2	2	51	2.0000	132.70	5.2244	25.00	0.9843	30.00	1.1811	40950	31850

mast rollers

style 2A



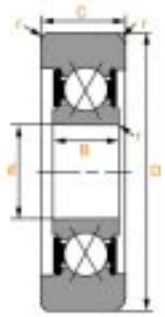
Designation	style	Dimensions								Basic radial load(N)	
		d		D		B		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MGV 206 2RS-2A	2A	30	1.1811	79.50	3.1299	16.59	0.6531	28.58	1.1252	27360	18860
MGV 206 2RS X1-2A	2A	30	1.1811	79.73	3.1390	16.59	0.6531	28.58	1.1252	27360	18860
MGV 206 2RS X2-2A	2A	30	1.1811	80.49	3.1689	16.59	0.6531	28.58	1.1252	27360	18860
MGV 206 2RS X3-2A	2A	30	1.1811	81.13	3.1941	16.59	0.6531	29.26	1.1520	27360	18860
MGV 206 2RS X4-2A	2A	30	1.1811	81.25	3.1988	16.59	0.6531	28.58	1.1252	27360	18860
MGV 206 2RS X5-2A	2A	30	1.1811	81.64	3.2142	16.59	0.6531	29.26	1.1520	27360	18860
MGV 206 2RS X6-2A	2A	30	1.1811	82.14	3.2339	16.59	0.6531	29.26	1.1520	27360	18860
MGV 206 2RS X7-2A	2A	30	1.1811	82.17	3.2350	19.58	0.7709	25.40	1.0000	27360	18860
MGV 206 2RS X8-2A	2A	30	1.1811	86.36	3.4000	16.59	0.6531	28.58	1.1252	27360	18860
MGV 206 2RS X9-2A	2A	30	1.1811	86.72	3.4142	16.59	0.6531	28.58	1.1252	27360	18860
MGV 206 2RS X10-2A	2A	30	1.1811	87.48	3.4441	16.59	0.6531	28.58	1.1252	27360	18860
MGV 206 2RS X11-2A	2A	30	1.1811	88.14	3.4701	16.59	0.6531	29.26	1.1520	27360	18860
MGV 206 2RS X12-2A	2A	30	1.1811	88.24	3.4740	16.59	0.6531	28.58	1.1252	27360	18860
MGV 206 2RS X13-2A	2A	30	1.1811	88.53	3.4854	16.59	0.6531	29.26	1.1520	27360	18860
MGV 206 2RS X14-2A	2A	30	1.1811	89.04	3.5055	16.59	0.6531	29.26	1.1520	27360	18860



Designation	style	Dimensions								Basic radial load(N)	
		d		D		B		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MGV 207 2RS-2A	2A	35	1.3780	81.86	3.2228	20.00	0.7874	31.12	1.2252	38930	26780
MGV 207 2RS X1-2A	2A	35	1.3780	91.67	3.6091	20.00	0.7874	31.12	1.2252	38930	26780
MGV 207 2RS X2-2A	2A	35	1.3780	91.87	3.6169	20.00	0.7874	31.12	1.2252	38930	26780
MGV 207 2RS X3-2A	2A	35	1.3780	91.92	3.6189	19.96	0.7858	31.88	1.2551	38930	26780
MGV 207 2RS X4-2A	2A	35	1.3780	100.63	3.9618	20.00	0.7874	30.28	1.1921	38930	26780
MGV 207 2RS X5-2A	2A	35	1.3780	101.35	3.9902	21.00	0.8268	28.58	1.1252	38930	26780
MGV 207 2RS X6-2A	2A	35	1.3780	111.07	4.3728	19.96	0.7858	30.28	1.1921	38930	26780
MGV 207 2RS X7-2A	2A	35	1.3780	111.20	4.3780	20.00	0.7874	30.10	1.1850	38930	26780
MGV 207 2RS X8-2A	2A	35	1.3780	111.23	4.3791	20.00	0.7874	30.10	1.1850	38930	26780
MGV 207 2RS X9-2A	2A	35	1.3780	111.53	4.3909	20.00	0.7874	30.10	1.1850	38930	26780
MGV 308 2RS-2A	2A	40	1.5748	111.20	4.3780	21.59	0.8500	32.23	1.2689	56370	39000
MGV 308 2RS X1-2A	2A	40	1.5748	111.58	4.3929	21.59	0.8500	32.23	1.2689	56370	39000
MGV 308 2RS X2-2A	2A	40	1.5748	112.73	4.4382	21.59	0.8500	32.23	1.2689	56370	39000
MGV 209 2RS-2A	2A	45	1.7717	101.35	3.9902	19.00	0.7480	28.50	1.1220	31200	20480

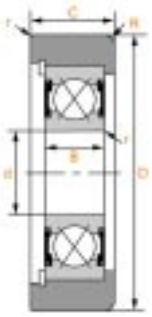
mast rollers

style 3



Designation	style	Dimensions								Basic radial load(N)	
		d		D		B		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MG 208 2RS-3	3	40	1.5748	100.84	3.9701	19.59	0.7713	25.40	1.0000	39100	20322
MG 208 2RS X1-3	3	40	1.5748	125.53	4.9421	18.00	0.7087	25.40	1.0000	34000	20322
MG 306 2RS-3	3	30	1.1811	82.17	3.2350	19.59	0.7713	25.40	1.0000	32687	11419
MG 309 2RS-3	3	45	1.7717	127.08	5.0031	25.00	0.9843	31.75	1.2500	32687	32217

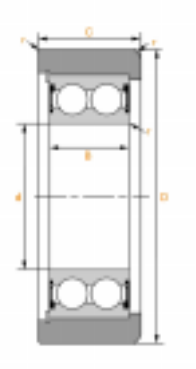
style 3A



Designation	style	Dimensions								Basic radial load(N)	
		d		D		B		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MG 306 2RS-3A	3A	30	1.1811	81.28	3.2000	19.59	0.7713	25.40	1.0000	34000	24000
MG 207 2RS-3A	3A	35	1.3780	81.26	3.2228	17.00	0.6993	26.97	1.0618	39100	26800

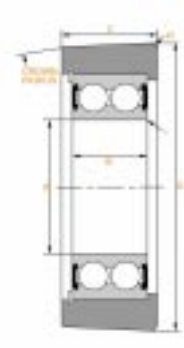
mast rollers

style 5



Designation	style	Dimensions								Basic radial load(N)	
		d		D		B		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MGV 5211 2RS-5	5	55	2.1654	151.89	5.9799	35.08	1.3811	47.88	1.8850	19473	83970
MGV 5311 2RS-5	5	55	2.1654	163.58	6.4402	49.21	1.9374	52.50	2.0669	51831	129400
MGV 5311 ZZ-5	5	55	2.1654	163.58	6.4402	49.21	1.9374	52.50	2.0669	84060	129400

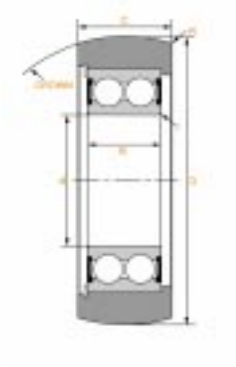
style 5A



Designation	style	Dimensions								Basic radial load(N)	
		d		D		B		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MGV 5208 2RS-5A	5A	40	1.5748	103.56	4.0772	30.10	1.1850	42.88	1.6882	138260	55530
MGV 5208 2RS X1-5A	5A	40	1.5748	104.32	4.1071	30.10	1.1850	42.88	1.6882	138260	55530
MGV 5208 2RS X2-5A	5A	40	1.5748	105.05	4.1358	30.10	1.1850	42.88	1.6882	62120	55530
MGV 5208 2RS X3-5A	5A	40	1.5748	126.75	4.9902	30.10	1.1850	42.88	1.6882	62120	55530
MGV 5208 2RS X4-5A	5A	40	1.5748	127.38	5.0150	30.10	1.1850	42.88	1.6882	62120	55530
MGV 5208 2RS X5-5A	5A	40	1.5748	128.14	5.0449	30.10	1.1850	42.88	1.6882	62120	55530

mast rollers

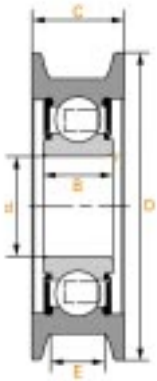
style 5B



Designation	style	Dimensions								Basic radial load(N)	
		d		D		B		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MGV 5210 2RS-5B	5B	50	1.9685	163.83	6.4500	30.10	1.1850	42.93	1.6902	69550	69730
MGV 5211 2RS-5B	5B	55	2.1654	136.78	5.3850	38.56	1.5181	47.88	1.8850	84060	83970
MGV 5211 2RS X1-5B	5B	55	2.1654	159.26	6.2701	38.56	1.5181	47.88	1.8850	84060	83970
MGV 5211 2RS X2-5B	5B	55	2.1654	189.48	7.4598	38.51	1.5161	45.97	1.8098	84060	83970
MGV 5212 ZZ-5B	5B	60	2.3622	189.48	7.4598	36.51	1.4374	54.10	2.1299	102790	104440
MGV 5212 ZZ X1-5B	5B	60	2.3622	202.18	7.9598	36.51	1.4374	54.10	2.1299	102790	104440
MGV 5213 2RS-5B	5B	65	2.5591	188.26	7.4118	46.81	1.8429	52.32	2.0598	123220	127000

CCVI BEARING INDUSTRIES

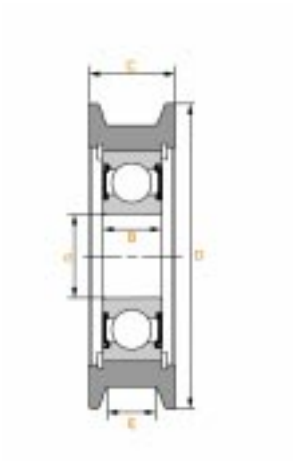
style 6



Designation	style	Dimensions										Basic radial load(N)	
		d		D		B		E		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
CG 16 2RS-6	6	25.4	1.0000	63.50	2.5000	15.88	0.6252	18.29	0.7201	23.11	0.9098	14010	7830
CG 307 2RS-6	6	35	1.3780	91.00	3.5827	21.00	0.8268	21.00	0.8268	30.00	1.1811	33400	19300
CG 307 2RS X1-6	6	35	1.3780	92.00	3.6220	21.00	0.8268	27.00	1.0630	36.00	1.4173	33400	19300
CG 307 2RS X2-6	6	35	1.3780	105.00	4.1339	21.00	0.8268	21.00	0.8268	30.00	1.1811	33400	19300
CG 307 2RS X3-6	6	35	1.3780	109.00	4.2913	21.00	0.8268	20.00	0.7874	30.00	1.1811	25580	17840
CG 307 2RS X4-6	6	35	1.3780	118.52	4.6661	21.00	0.8268	20.50	0.8071	30.30	1.1929	33330	19130
CG 208 2RS-6	6	40	1.5748	88.90	3.5000	21.00	0.8268	20.80	0.8189	25.40	1.0000	19990	13330
CG 308 2RS-6	6	40	1.5748	90.00	3.5433	23.00	0.9055	30.00	1.1811	35.00	1.3780	31900	22900
CG 308 2RS X1-6	6	40	1.5748	113.00	4.4488	23.00	0.9055	21.00	0.8268	32.00	1.2598	31360	22380
CG 308 2RS X2-6	6	40	1.5748	118.00	4.6457	23.00	0.9055	28.00	1.1024	37.00	1.4567	31360	24030
CG 308 2RS X3-6	6	40	1.5748	118.00	4.6457	23.00	0.9055	27.00	1.0630	34.00	1.3386	31360	22380
CG 308 2RS X4-6	6	40	1.5748	118.01	4.6461	23.00	0.9055	26.01	1.0240	32.00	1.2598	52820	31680
CG 308 2RS X5-6	6	40	1.5748	120.50	4.7441	23.00	0.9055	25.00	0.9843	33.00	1.2992	40700	24030
CG 308 2RS X6-6	6	40	1.5748	138.00	5.4331	23.00	0.9055	28.00	1.1024	37.00	1.4567	40700	24030
CG 308 2RS X7-6	6	40	1.5748	142.00	5.5906	23.00	0.9055	27.00	1.0630	34.00	1.3386	31360	22380
CG 308 2RS X8-6	6	40	1.5748	95.25	3.7500	25.40	1.0000	28.16	1.1087	34.54	1.3598	31120	22230
CG 309 2RS-6	6	45	1.7717	123.00	4.8425	25.00	0.9843	32.00	1.2598	44.00	1.7323	40670	29890
CG 309 2RS X1-6	6	45	1.7717	138.00	5.4331	25.00	0.9843	25.00	0.9843	36.00	1.4173	40670	29890
CG 310 2RS-6	6	50	1.9685	155.00	6.1024	27.00	1.0630	33.00	1.2992	42.00	1.6535	48600	36600

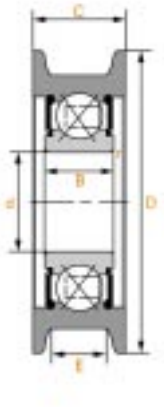
chain rollers

style 6A



Designation	style	Dimensions										Basic radial load(N)	
		d		D		B		E		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
CG 307 2RS-6A	6A	35	1.3780	111.13	4.3752	21.00	0.8268	27.94	1.1000	38.10	1.5000	52820	31680
CG 309 2RS-6A	6A	45	1.7717	130.30	5.1299	25.00	0.9843	29.72	1.1701	39.37	1.5500	52820	31680

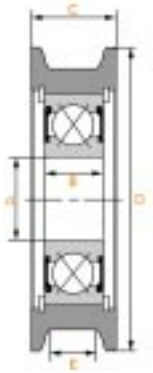
style 7



Designation	style	Dimensions										Basic radial load(N)	
		d		D		B		E		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
CG 308 2RS-7	7	40	1.5748	88.90	3.5000	20.57	0.8098	20.83	0.8201	25.40	1.0000	29108	17900

mast bearings

style 7A



Designation	style	Dimensions										Basic radial load(N)	
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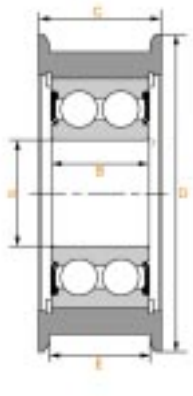
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
CG 307 2RS-7A	7A	35	1.3780	111.13	4.3752	21.00	0.8268	27.94	1.1000	38.10	1.5000	11500	13800

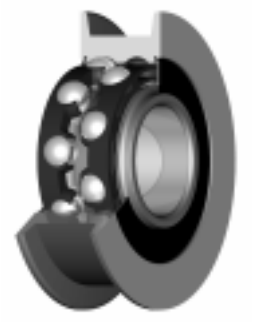
style 8

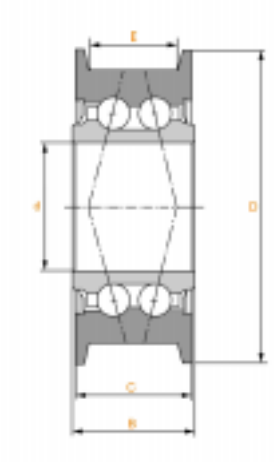


Designation	style	Dimensions										Basic radial load(N)	
		d		D		B		E		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
CG 5205 2RS X1-8	8	25	0.9843	107.95	4.2500	23.81	0.9374	31.75	1.2500	38.61	1.5201	41830	35420
CG 5206 2RS-8	8	30	1.1811	107.95	4.2500	23.81	0.9374	31.75	1.2500	38.61	1.5201	41830	35420
CGV 5108 2RS-8	8	40	1.5748	89.15	3.5098	20.57	0.8098	20.96	0.8252	25.53	1.0051	36750	37510
CGV 5207 2RS-8	8	40	1.5748	93.98	3.7000	30.16	1.1874	28.19	1.1098	34.80	1.3701	42230	42580
CGV 5208 2RS-8	8	40	1.5748	143.00	5.6299	30.16	1.1874	28.19	1.1098	34.80	1.3701	62120	55530
CGV 5208 2RS X1-8	8	40	1.5748	120.90	4.7598	30.16	1.1874	25.65	1.0098	34.80	1.3701	62120	55530
CG 5208 2RS-8	8	40	1.5748	95.25	3.7500	30.28	1.1921	28.16	1.1087	34.54	1.3598	31120	22230
CG 5208 2RS X1-8	8	40	1.5748	123.70	4.8701	30.28	1.1921	27.94	1.1000	34.54	1.3598	31120	22230
CGV 5210 2RS-8	8	50	1.9685	123.70	4.8701	30.54	1.2024	34.80	1.3701	42.50	1.6732	80630	84810
CGV 5210 2RS X1-8	8	50	1.9685	123.70	4.8701	33.50	1.3189	30.48	1.2000	38.10	1.5000	80630	84810
CGV 5210 2RS X2-8	8	50	1.9685	123.95	4.8799	30.54	1.2024	30.73	1.2098	38.35	1.5098	80630	84810
CGV 5210 2RS X3-8	8	50	1.9685	127.25	5.0098	30.54	1.2024	28.19	1.1098	35.81	1.4098	80630	84810
CGV 5210 2RS X4-8	8	50	1.9685	147.57	5.8098	30.54	1.2024	28.19	1.1098	35.81	1.4098	80630	84810
CGV 5210 2RS X5-8	8	50	1.9685	175.51	6.9098	30.54	1.2024	28.19	1.1098	35.81	1.4098	80630	84810

chain rollers

style 9

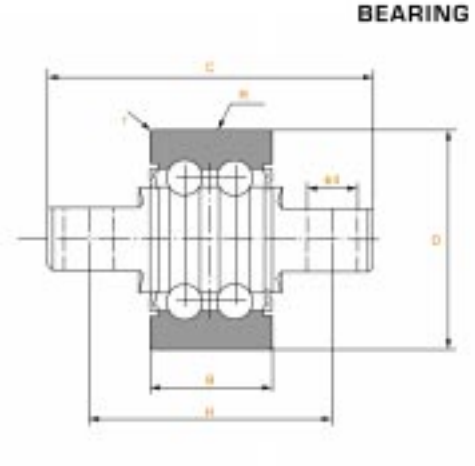




Designation	style	Dimensions										Basic radial load(N)	
		d		D		B		E		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
CG 307 2RS-9	9	45	1.7717	105.00	4.1339	40.00	1.5748	31.50	1.2402	38.00	1.4961	47500	38000

side rollers

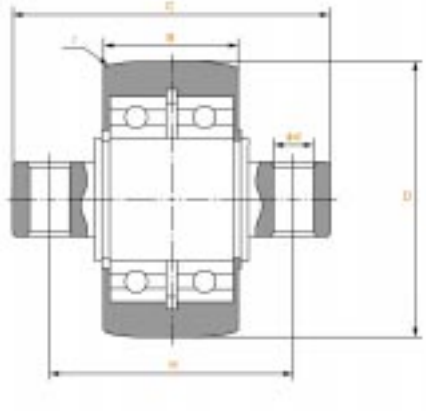
style 10



Designation	style	Dimensions										Basic radial load(N)	
		D		C		B		d		H		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
SGV 40 2RS-10	10	40	1.5748	80	3.1496	30	1.1811	11	0.4331	60	2.3622	12600	10800
SGV 40 2RS X1-10	10	40	1.5748	80	3.1496	21	0.8268	9	0.3543	45	1.7717	12600	10800
SGV 41 2RS-10	10	41	1.6142	70.5	2.7756	30	1.1811	9	0.3543	54.5	2.1457	15860	9860
SG 47 2RS-10	10	47	1.8504	75	2.9528	30	1.1811	12	0.4724	55	2.1654	18300	10700
SG 54 2RS-10	10	54	2.1260	80	3.1496	30	1.1811	12.5	0.4921	60	2.3622	22250	12390

side rollers

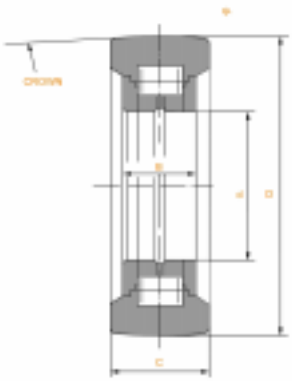
style 11



Designation	style	Dimensions										Basic radial load(N)	
		D		C		B		d		H		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
SG 58 2RS-11	11	58	2.2835	80	3.1496	30	1.1811	12.5	0.4921	60	2.3622	19760	12400
SG 82 2RS-11	11	82	3.2283	90	3.5433	34.5	1.3583	13	0.5118	70	2.7559	30000	22600
SG 82 2RS-11	11	82	3.2283	90	3.5433	36	1.4173	13	0.5118	70	2.7559	30000	22600

mast rollers

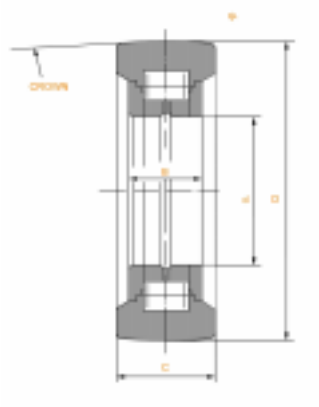
style 12



Designation	style	Dimensions d		D		B		C		Basic radial load(N) dyn.	Basic radial load(N) stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MGRV 25-12	12	25.00	0.9843	76.00	2.9921	20.70	0.8150	25.40	1.0000	51700	58200
MGRV 25 X1-12	12	25.00	0.9843	76.10	2.9961	20.70	0.8150	25.40	1.0000	49400	54700
MGRV 25 X2-12	12	25.00	0.9843	52.00	2.0472	16.00	0.6299	15.50	0.6102	23700	30700
MGRV 28-12	12	28.00	1.1024	75.20	2.9606	18.00	0.7087	35.00	1.3780	64000	81000
MGRV 28 X1-12	12	28.00	1.1024	77.20	3.0394	18.00	0.7087	27.00	1.0630	54700	64800
MGRV 30-12	12	30.00	1.1811	76.00	2.9921	19.00	0.7480	23.00	0.9055	48800	58800
MGRV 30 X1-12	12	30.00	1.1811	88.90	3.5000	19.00	0.7480	25.00	0.9843	59600	66400
MGRV 35-12	12	35.00	1.3780	60.30	2.3740	16.00	0.6299	20.00	0.7874	31800	51300
MGRV 35 X1-12	12	35.00	1.3780	83.50	3.2874	29.50	1.1614	33.00	1.2992	70800	94800
MGRV 35 X2-12	12	35.00	1.3780	84.50	3.3268	29.50	1.1614	33.00	1.2992	72500	96600
MGRV 35 X3-12	12	35.00	1.3780	85.50	3.3661	29.50	90.0000	33.00	1.2992	71100	93200
MGRV 35 X4-12	12	35.00	1.3780	88.20	3.4724	24.00	0.9449	37.00	1.4567	82400	109400
MGRV 35 X5-12	12	35.00	1.3780	91.20	3.5906	29.50	1.1614	33.00	1.2992	76900	97000
MGRV 35 X6-12	12	35.00	1.3780	96.50	3.7992	29.50	1.1614	33.00	1.2992	81300	99000
MGRV 35 X7-12	12	35.00	1.3780	97.50	3.8386	29.50	1.1614	33.00	1.2992	82500	100300
MGRV 35 X8-12	12	35.00	1.3780	98.50	3.8780	29.50	1.1614	33.00	1.2992	84100	101700
MGRV 35 X9-12	12	35.00	1.3780	101.50	3.9961	23.80	0.9370	28.60	1.1260	75600	86400
MGRV 35 X10-12	12	35.00	1.3780	101.50	3.9961	22.50	0.8858	27.00	1.0630	73000	82600
MGRV 35 X11-12	12	35.00	1.3780	101.50	3.9961	23.80	0.9370	28.60	1.1260	76300	87500
MGRV 35 X12-12	12	35.00	1.3780	60.50	2.3819	20.00	0.7874	23.00	0.9055	36000	59600
MGRV 35 X13-12	12	35.00	1.3780	77.70	3.0591	21.00	0.8268	23.00	0.9055	49900	65100
MGRV 40-12	12	40.00	1.5748	89.90	3.5394	29.00	1.1417	27.00	1.0630	64600	85000
MGRV 40 X1-12	12	40.00	1.5748	90.20	3.5512	29.00	1.1417	27.00	1.0630	65000	85400

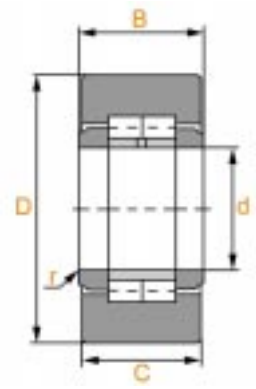
chain rollers

style 12



Designation	style	Dimensions d		D		B		C		Basic radial load(N) dyn.	Basic radial load(N) stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MGRV 40 X2-12	12	40.00	1.5748	90.50	3.5630	29.00	1.1417	27.00	1.0630	65400	85900
MGRV 40 X3-12	12	40.00	1.5748	100.00	3.9370	29.50	1.1614	33.00	1.2992	85800	110400
MGRV 40 X4-12	12	40.00	1.5748	101.20	3.9843	28.00	1.1024	40.00	1.5748	101900	136100
MGRV 40 X5-12	12	40.00	1.5748	113.00	4.4488	26.80	1.0551	31.60	1.2441	94500	111900
MGRV 45-12	12	45.00	1.7717	73.00	2.8740	16.00	0.6299	21.00	0.8268	40800	70000
MGRV 45 X1-12	12	45.00	1.7717	80.20	3.1575	18.00	0.7087	22.00	0.8661	47300	73400
MGRV 45 X2-12	12	45.00	1.7717	105.40	4.1496	34.00	1.3386	32.00	1.2598	86800	114400
MGRV 45 X3-12	12	45.00	1.7717	105.80	4.1654	34.00	1.3386	32.00	1.2598	87800	115400
MGRV 45 X4-12	12	45.00	1.7717	106.10	4.1772	34.00	1.3386	32.00	1.2598	88600	116200
MGRV 45 X5-12	12	45.00	1.7717	127.00	5.0000	27.75	1.0925	31.50	1.2402	106800	125400
MGRV 45 X6-12	12	45.00	1.7717	128.00	5.0394	27.90	1.0984	31.80	1.2520	104100	120300
MGRV 45 X7-12	12	45.00	1.7717	88.80	3.4961	28.60	1.1260	30.00	1.1811	0	0
MGRV 50-12	12	50.00	1.9685	124.20	4.8898	30.00	1.1811	44.00	1.7323	131800	182200
MGRV 55-12	12	55.00	2.1654	100.00	3.9370	20.00	0.7874	25.00	0.9843	66900	102500
MGRV 55 X1-12	12	55.00	2.1654	152.20	5.9921	33.00	1.2992	38.00	1.4961	148300	180100
MGRV 55 X2-12	12	55.00	2.1654	110.00	4.3307	26.10	1.0276	26.00	1.0236	78100	110100
MGRV 60-60	12	60.00	2.3622	107.50	4.2323	36.00	1.4173	37.00	1.4567	98200	165900
MGRV 65-12	12	65.00	2.5591	107.30	4.2244	23.00	0.9055	27.00	1.0630	74500	128200
MGRV 65 X1-12	12	65.00	2.5591	120.30	4.7362	23.00	0.9055	27.00	1.0630	86700	130900
MGRV 65 X2-12	12	65.00	2.5591	123.00	4.8425	37.00	1.4567	38.00	1.4961	116600	185500
MGRV 65 X3-12	12	65.00	2.5591	130.40	5.1339	25.00	0.9843	29.00	1.1417	102400	145900
MGRV 82-12	12	82.00	3.2283	149.00	5.8661	45.00	1.7717	46.00	1.8110	165200	281000

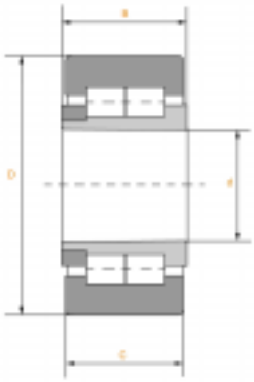
style 13



Designation	style	Dimensions								Basic radial load(N)	
		d		D		B		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MGRNNV 65-13	13	65.00	2.5591	149.00	5.8661	50.00	1.9685	47.50	1.8701	175500	250500
MGRNNV 65 X1-13	13	65.00	2.5591	160.00	6.2992	59.00	2.3228	53.00	2.0866	202700	281100
MGRNNV 80-13	13	80.00	3.1496	175.00	6.8898	72.00	2.8346	72.00	2.8346	284900	454500
MGRNNV 90-13	13	90.00	3.5433	190.00	7.4803	83.00	3.2677	83.00	3.2677	346600	581200

side rollers

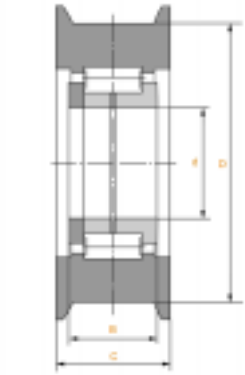
style 14



Designation	style	Dimensions d		D		B		C		Basic radial load(N) dyn.	Basic radial load(N) stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
MGRNNV 35-14	14	35.00	1.3780	88.00	3.4646	36.00	1.4173	31.00	1.2205	71600	91400
MGRNNV 50-14	14	50.00	1.9685	109.00	4.2913	41.00	1.6142	37.00	1.4567	101800	145200
MGRNNV 55-14	14	55.00	2.1654	120.00	4.7244	49.00	1.9291	45.00	1.7717	131500	194500
MGRNNV 55 X1-14	14	55.00	2.1654	123.00	4.8425	49.00	1.9291	45.00	1.7717	138500	202300
MGRNNV 65-14	14	65.00	2.5591	124.20	4.8898	40.00	1.5748	37.00	1.4567	116700	184000
MGRNNV 70-14	14	70.00	2.7559	148.60	5.8504	59.00	2.3228	55.00	2.1654	194500	302300
MGRNNV 80-14	14	80.00	3.1496	175.00	6.8898	66.00	2.5984	60.00	2.3622	247500	378800
MGRNNV 95-14	14	95.00	3.7402	150.00	5.9055	38.00	1.4961	37.00	1.4567	134300	256900
MGRNNV 95 X1-14	14	95.00	3.7402	165.00	6.4961	48.00	1.8898	47.00	1.8504	186900	334100
MGRNNV 95 X2-14	14	95.00	3.7402	185.00	7.2835	48.00	1.8898	47.00	1.8504	215500	340700
MGRNNV 120-14	14	120.00	4.7244	185.00	7.2835	52.00	2.0472	50.00	1.9685	208700	433100
MGRNNV 120 X1-14	14	120.00	4.7244	200.00	7.8740	57.00	2.2441	55.00	2.1654	256900	492700
MGRNNV 120 X2-14	14	120.00	4.7244	220.00	8.6614	62.00	2.4409	60.00	2.3622	311600	546000
MGRNNV 150-14	14	150.00	5.9055	280.00	11.0236	72.10	2.8386	70.00	2.7559	456200	796500

chain rollers

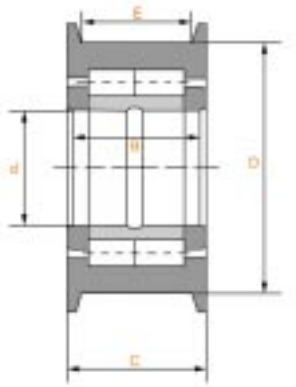
style 15



Designation	style	Dimensions d		D		B		C		Basic radial load(N) dyn.	Basic radial load(N) stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
CGRV 30-15	15	30.00	1.1811	65.00	2.5591	25.50	1.0039	28.00	1.1024	46500	65000
CGRV 30 X1-15	15	30.00	1.1811	80.00	3.1496	26.00	1.0236	38.00	1.4961	75700	98900
CGRV 30 X2-15	15	30.00	1.1811	73.00	2.8740	28.00	1.1024	27.00	1.0630	51300	65100
CGRV 35-15	15	35.00	1.3780	79.00	3.1102	20.00	0.7874	26.00	1.0236	54700	72100
CGRV 35 X1-15	15	35.00	1.3780	88.00	3.4646	27.00	1.0630	28.10	1.1063	66300	82900
CGRV 40-15	15	40.00	1.5748	70.00	2.7559	26.50	1.0433	25.00	0.9843	45000	73600
CGRV 40 X1-15	15	40.00	1.5748	80.00	3.1496	28.00	1.1024	26.00	1.0236	55000	80100
CGRV 40 X2-15	15	40.00	1.5748	80.00	3.1496	43.00	1.6929	41.00	1.6142	79000	126300
CGRV 40 X3-15	15	40.00	1.5748	85.00	3.3465	38.00	1.4961	36.00	1.4173	76000	113200
CGRV 40 X4-15	15	40.00	1.5748	102.00	4.0157	28.00	1.1024	42.00	1.6535	103100	136900
CGRV 45-15	15	45.00	1.7717	120.00	4.7244	33.00	1.2992	55.00	2.1654	156100	214700
CGRV 50-15	15	50.00	1.9685	100.00	3.9370	42.00	1.6535	40.00	1.5748	9800	153900
CGRV 50 X1-15	15	50.00	1.9685	90.80	3.5748	20.00	0.7874	27.00	1.0630	64100	100400
CGRV 55-15	15	55.00	2.1654	110.00	4.3307	58.00	2.2835	56.00	2.2047	141800	237100
CGRV 55 X1-15	15	55.00	2.1654	130.00	5.1181	67.00	2.6378	65.00	2.5591	191500	289500
CGRV 55 X2-15	15	55.00	2.1654	156.00	6.1417	44.60	1.7559	57.00	2.2441	211700	279100
CGRV 60-15	15	60.00	2.3622	120.00	4.7244	59.00	2.3228	68.00	2.6772	181100	314200
CGRV 70 X1-15	15	70.00	2.7559	176.00	6.9291	53.30	2.0984	68.00	2.6772	277700	401300
CGRV 75-75	15	75.00	2.9528	216.00	8.5039	53.60	2.1102	72.00	2.8346	347200	461600

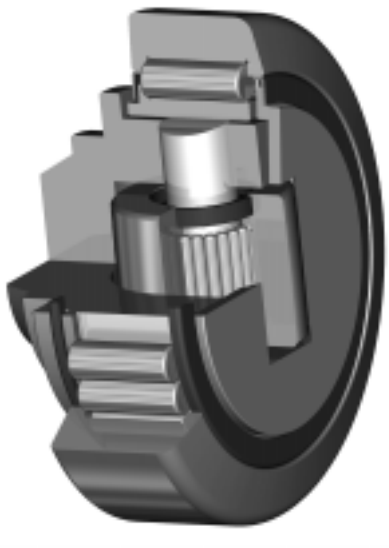
chain rollers

style 16

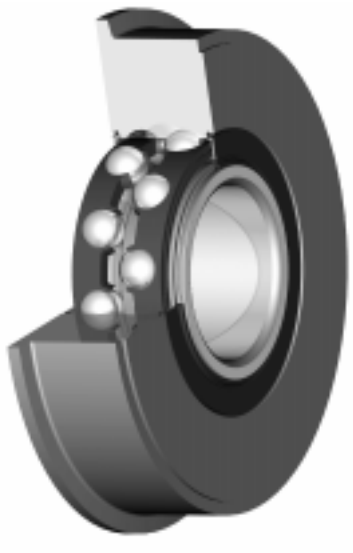


Designation	style	Dimensions								Basic radial load(N)	
		d		D		B		C		dyn.	stat.
		mm	inch	mm	inch	mm	inch	mm	inch	Cr	Cor
CGRNNV 07-16	16	35.00	1.3780	70.00	2.7559	42.00	1.6535	44.00	1.7323	72300	118500
CGRNNV 10-16	16	50.00	1.9685	90.00	3.5433	51.00	2.0079	54.00	2.1260	108200	204200
CGRNNV 12-16	16	60.00	2.3622	110.00	4.3307	51.00	2.0079	60.00	2.3622	145500	272900
CGRNNV 14-16	16	70.00	2.7559	148.00	5.8268	62.00	2.4409	70.00	2.7559	232400	382200

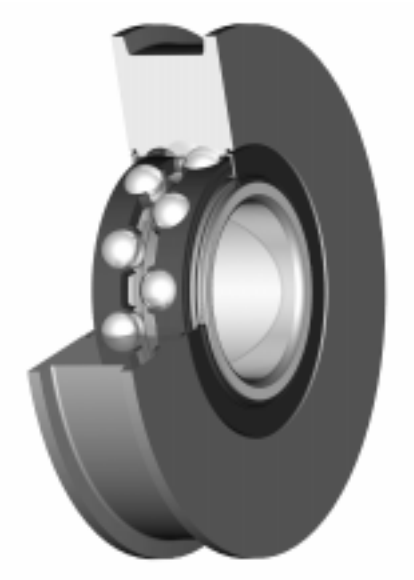
other special mast bearings



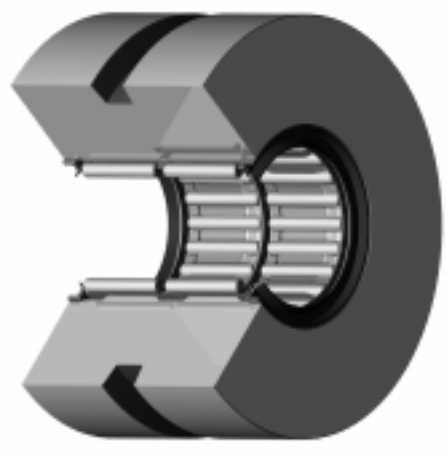
Combined mast bearings



Special chain rollers



Special chain rollers



Special chain rollers

NOTE

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mast bearings

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ball bearings

needle bearings

inner rings

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