

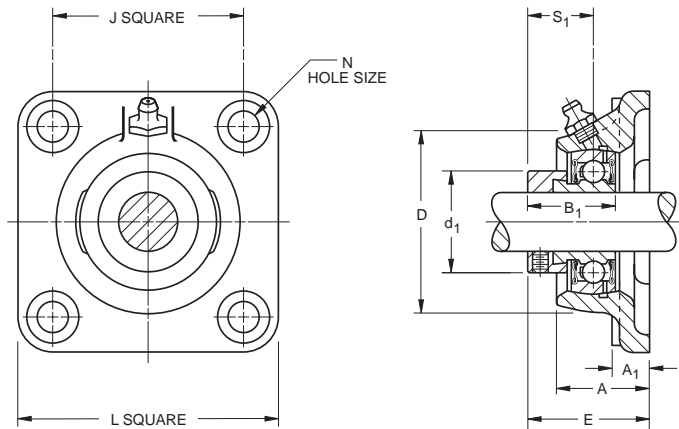


BALL BEARINGS

VCJ STANDARD SERIES

- Flange cartridges come assembled and ready for mounting by using four bolts through the flange.
- VCJ Series flange cartridges are ideal for applications where minimum machining is to be done.
- Units are assembled with GRA-RRB bearings with positive contact land-riding seals and self-locking collars.
- Units are factory prelubricated, but a grease fitting is provided for relubrication if required.
- Safety end caps are available for selected sizes.

Suggested shaft tolerances: $\frac{1}{2}$ " - $1 \frac{15}{16}$ ", nominal to $-.013$ mm, $-.0005$ ";
 2" - $2 \frac{3}{16}$ ", nominal to $.025$ mm, $-.0010$ ".



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
VCJ	GRA-RRB	Page D57

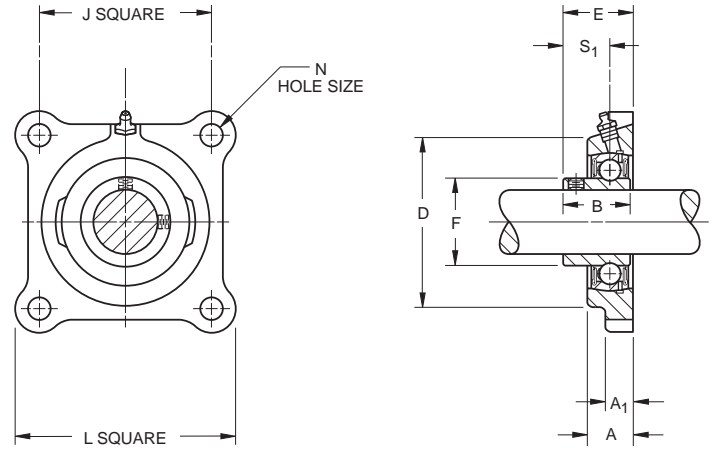
TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: VCJ 1". POPULAR SIZES ARE IN BOLD.

Unit	Shaft Dia.	L ref.	J ref.	A ₁ ref.	A ±.015"	E max.	N	B ₁	D ref.	d ₁ ±.005	S ₁ ref.	Bearing Number	Collar Number	Housing Number	Unit
															mm
VCJ	$\frac{1}{2}$	76.2	53.98	10.3	23.6	39.3	10.7	28.6	52.4	28.1	22.2	GRA008RRB	S1008K	T-40278	0.527
VCJ	$\frac{5}{8}$	3	$2 \frac{1}{8}$	$\frac{13}{32}$	0.929	1.548	$\frac{27}{64}$	$1 \frac{1}{8}$	$2 \frac{1}{16}$	1.105	$\frac{7}{8}$	GRA010RRB	S1010K	(T-16659)	1.16
VCJ	17											GRAE17RRB	SE17K		
VCJ	$\frac{3}{4}$	85.7	63.5	11.1	27.8	43.3	10.7	31	60.3	32.8	23.4	GRA012RRB	S1012K	T-40267	0.654
VCJ	20	$3 \frac{3}{8}$	$2 \frac{1}{2}$	$\frac{7}{16}$	1.094	1.706	$\frac{27}{64}$	$1 \frac{7}{32}$	$2 \frac{3}{8}$	1.292	$\frac{59}{64}$	GRAE20RRB	SE20K	(T-16661A)	1.44
VCJ	$\frac{7}{8}$											GRA014RRB	S1014K		
VCJ	$\frac{15}{16}$	95.2	69.85	12.7	27.9	43.1	11.5	31	65.1	37.6	23.4	GRA015RRB	S1015K	T-40262	0.894
VCJ	1	$3 \frac{3}{4}$	$2 \frac{3}{4}$	$\frac{1}{2}$	1.100	1.696	$\frac{29}{64}$	$1 \frac{7}{32}$	$2 \frac{9}{16}$	1.480	$\frac{59}{64}$	GRA100RRB	S1100K	(T-16663A)	1.97
VCJ	25											GRAE25RRB	SE25K		
VCJ	$1 \frac{1}{8}$											GRA102RRB	S1102K		
VCJ	$1 \frac{3}{16}$	107.9	82.55	13.5	29.9	47.1	11.5	35.7	76.2	43.9	27	GRA103RRB	S1103K	T-40266	1.239
VCJ	$1 \frac{1}{4}$ S	$4 \frac{1}{4}$	$3 \frac{1}{4}$	$\frac{17}{32}$	1.178	1.856	$\frac{29}{64}$	$1 \frac{13}{32}$	3	1.730	$1 \frac{1}{16}$	GRA103RRB2	S1103K3	(T-16664A)	2.73
VCJ	30											GRAE30RRB	SE30K		
VCJ	$1 \frac{1}{4}$	117.5	92.08	13.5	31.8	50.5	13.1	38.9	88.9	53.6	29.4	GRA104RRB	S1104K	T-40253	1.707
VCJ	$1 \frac{3}{8}$	$4 \frac{5}{8}$	$3 \frac{5}{8}$	$\frac{17}{32}$	1.254	1.989	$\frac{33}{64}$	$1 \frac{17}{32}$	$3 \frac{1}{2}$	2.112	$1 \frac{5}{32}$	GRA106RRB	S1106K	(T-16617A)	3.76
VCJ	$1 \frac{7}{16}$											GRA107RRB	S1107		
VCJ	35											GRAE35RRB	SE35K		
VCJ	$1 \frac{1}{2}$	130.2	101.6	14.3	38.1	58.3	13.1	43.7	98.4	58.2	32.5	GRA108RRB	S1108KT	T-40263	2.175
VCJ	40	$5 \frac{1}{8}$	4	$\frac{9}{16}$	1.500	2.297	$\frac{33}{64}$	$1 \frac{23}{32}$	$3 \frac{7}{8}$	2.292	$1 \frac{9}{32}$	GRAE40RRB	SE40K	(T-16666A)	4.79
VCJ	$1 \frac{5}{8}$											GRA110RRB	S1110K		
VCJ	$1 \frac{11}{16}$	136.5	104.78	14.3	38.9	57.0	13.1	43.7	104.8	63.0	32.5	GRA111RRB	S1111K	T-40264	2.438
VCJ	$1 \frac{3}{4}$	$5 \frac{3}{8}$	$4 \frac{1}{8}$	$\frac{9}{16}$	1.531	2.244	$\frac{33}{64}$	$1 \frac{23}{32}$	$4 \frac{1}{8}$	2.480	$1 \frac{9}{32}$	GRA112RRB	S1112K	(T-16667A)	5.37
VCJ	45											GRAE45RRB	SE45K		
VCJ	$1 \frac{7}{8}$											GRA114RRB	S1114K		
VCJ	$1 \frac{15}{16}$	142.9	111.12	14.3	42.9	61.0	17.1	43.7	112.7	69.3	32.5	GRA115RRB	S1115K	T-40265	2.788
VCJ	2 S	$5 \frac{5}{8}$	$4 \frac{3}{8}$	$\frac{9}{16}$	1.688	2.400	$\frac{43}{64}$	$1 \frac{23}{32}$	$4 \frac{7}{16}$	2.730	$1 \frac{9}{32}$	GRA115RRB2	S1115K2	(T-16668A)	6.14
VCJ	50											GRAE50RRB	SE50K		
VCJ	2	161.9	130.18	16.7	46.8	67.9	17.1	48.4	120.6	75.7	36.5	GRA200RRB	S1200K	T-40236	3.269
VCJ	$2 \frac{3}{16}$	$6 \frac{3}{8}$	$5 \frac{1}{8}$	$\frac{21}{32}$	1.844	2.672	$\frac{43}{64}$	$1 \frac{29}{32}$	$4 \frac{3}{4}$	2.980	$1 \frac{7}{16}$	GRA203RRB	S1203K	(T-16683A)	7.2
VCJ	55											GRAE55RRB	SE55K		

Shaft diameter with an S = smaller housing.

SCJ STANDARD SERIES

- Flange cartridges come assembled and ready for mounting by using four bolts through the flange.
- Ideal for applications where minimum shaft length is required.
- Units are assembled with GYA-RRB bearings with positive contact land-riding seals and setscrew locking.
- Units are factory prelubricated, but a grease fitting is provided for relubrication if required.
- Safety end caps available for selected sizes.



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
SCJ	GYA-RRB	Page D59

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: SCJ 1". POPULAR SIZES ARE IN BOLD.

Unit	Shaft Dia.		L	J	A ₁	A	E	N	B	D	F	S ₁	Bearing Number	Housing Number	Unit Wt.
	mm	in.													
SCJ	1/2		76.2	53.98	11.1	17.9	25.4	13.1	23.8	52.4	24.6	15.9	GYA008RRB	T-40124	0.47
SCJ	5/8		3	2 1/8	7/16	45/64	1	33/64	15/16	2 1/16	31/32	5/8	GYA010RRB		1.03
SCJ	17												GYAE17RRB		
SCJ	3/4		85.7	63.5	11.1	19	28.6	10.7	27	60.3	29	18.3	GYA012RRB	T-40126	0.52
SCJ	20		3 3/8	2 1/2	7/16	3/4	1 1/8	27/64	1 1/16	2 3/8	1 9/64	23/32	GYAE20RRB		1.14
SCJ	7/8												GYA014RRB		
SCJ	15/16		95.2	69.85	13.5	19.8	29.8	11.5	28.2	65.1	33.7	19.4	GYA015RRB	T-40128	0.68
SCJ	1		3 3/4	2 3/4	17/32	25/32	1 11/64	29/64	1 7/64	2 9/16	1 21/64	49/64	GYA100RRB		1.5
SCJ	25												GYAE25RRB		
SCJ	1 1/8												GYA102RRB		
SCJ	1 3/16		107.9	82.55	14.3	21.4	34.1	11.5	32.5	76.2	40.1	23	GYA103RRB	T-40130	1.19
SCJ	1 1/4 S		4 1/4	3 1/4	9/16	27/32	1 11/32	29/64	1 9/32	3	1 37/64	29/32	GYA103RRB2		2.62
SCJ	30												GYAE30RRB		
SCJ	1 1/4												GYA104RRB		
SCJ	1 3/8		117.5	92.08	15.1	24.6	38.1	13.1	36.5	88.9	46.8	25.8	GYA106RRB	T-40132	1.35
SCJ	1 7/16		4 5/8	3 5/8	19/32	31/32	1 1/2	33/64	1 7/16	3 1/2	1 27/32	1 1/64	GYA107RRB		2.98
SCJ	35												GYAE35RRB		
SCJ	1 1/2		130.2	101.6	15.9	26.2	40.9	13.1	39.3	98.4	52.4	27.8	GYA108RRB	T-40134	2.1
SCJ	40		5 1/8	4	5/8	1 1/32	1 39/64	33/64	1 35/64	3 7/8	2 1/16	1 3/32	GYAE40RRB		4.63
SCJ	1 5/8												GYA110RRB		
SCJ	1 11/16		136.5	104.78	15.9	28.6	43.6	13.1	42.1	104.8	57.9	28.6	GYA111RRB	T-40164	2.24
SCJ	1 3/4		5 3/8	4 1/8	5/8	1 1/8	1 23/32	33/64	1 21/32	4 1/8	2 9/32	1 1/8	GYA112RRB		4.94
SCJ	45												GYAE45RRB		
SCJ	1 15/16		142.9	111.12	16.7	28.6	46	17.1	44.4	112.7	62.6	30.9	GYA115RRB	T-40166	2.55
SCJ	2 S		5 5/8	4 3/8	21/32	1 1/8	1 13/16	43/64	1 3/4	4 7/16	2 15/32	1 7/32	GYA115RRB2		5.63
SCJ	50												GYAE50RRB		
SCJ	2		161.9	130.18	18.2	30.9	48	17.1	46.4	120.6	69.8	31.7	GYA200RRB	T-40168	2.96
SCJ	2 3/16		6 3/8	5 1/8	23/32	1 7/32	1 57/64	43/64	1 53/64	4 3/4	2 3/4	1 1/4	GYA203RRB		6.53
SCJ	55												GYAE55RRB		

Shaft diameter with an S = smaller housing.

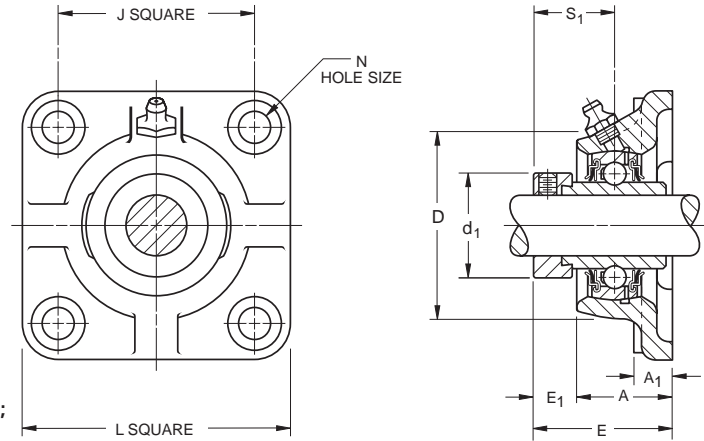


BALL BEARINGS

RCJO, LCJO HEAVY SERIES

- Flange cartridges are similar in design to the standard series.
- Ideal for applications where minimum machining is to be done.
- Units come assembled and ready for mounting by using four bolts through the flange.
- RCJO units are assembled with GN-KRRB (R-Seal) wide inner ring bearings. LCJO units are equipped with GN-KLLB (L-Seal) wide inner ring bearings.
- Units are factory prelubricated, but a grease fitting is provided for relubrication if required.
- Units are supplied with self-locking collars and are dimensionally interchangeable.

Suggested shaft tolerances: 1 3/16" - 1 15/16", nominal to **-.013 mm, -.0005"**;
2" - 3 15/16", nominal to **-.025 mm, -.0010"**.



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
RCJO	GN-KRRB	Page D55
LCJO	GN-KLLB	Page D64

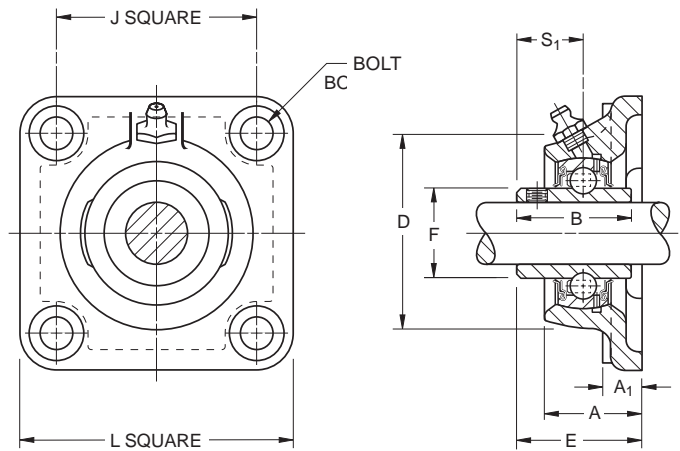
TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: RCJO 1 7/16", LCJO 1 11/16".

Unit	Shaft Dia.	L ref.	J ref.	A ₁ ref.	A ±.010"	E max.	N	E ₁ ref.	S ₁ ref.	D ref.	d ₁ ±.005"	Bolt Size	Bearing Number		Collar Number	Housing Number	Unit Wt.
													RCJO	LCJO			
RCJO, LCJO	1 3/16	120.6 4 3/4	92.1 3 5/8	14.3 9/16	38.1 1.500	53.7 2.115	14.3 9/16	15.1 19/32	32.5 1 9/32	96.8 3 13/16	48.7 1.918	12.7 1/2	GN103KRRB (KLLB)	SN103K	T-19165	1.816 4.0	
RCJO, LCJO	1 7/16	130.2 5 1/8	101.6 4	15.9 5/8	40.5 1.594	55.3 2.177	14.3 9/16	14.3 9/16	33.3 1 5/16	104.8 4 1/8	55.1 2.168	12.7 1/2	GN107KRRB (KLLB)	SN107	T-19167	2.497 5.50	
RCJO, LCJO	1 1/2	136.5 5 3/8	104.8 4 1/8	15.9 5/8	44.4 1.750	60.8 2.396	15.9 5/8	15.9 5/8	37.3 1 15/32	114.3 4 1/2	63.0 2.480	14.3 9/16	GN108KRRB (KLLB)	SN108K	T-19169	3.133 6.90	
RCJO, LCJO	1 11/16	142.9 5 5/8	111.1 4 3/8	17.5 1 1/16	46.8 1.844	62.4 2.458	15.9 5/8	15.1 19/32	38.9 1 17/32	123.8 4 7/8	69.3 2.730	14.3 9/16	GN111KRRB (KLLB)	SN111K	T-19171	3.573 7.87	
RCJO	1 15/16	165.1 6 1/2	130.2 5 1/8	17.5 1 1/16	53.2 2.094	70.4 2.771	17.5 1 1/16	16.7 2 1/32	42.1 1 2 1/32	141.3 5 9/16	75.7 2.980	15.9 5/8	GN115KRRB	SN115K	T-19173	5.185 11.42	
RCJO	2 3/16	177.8 7	142.9 5 5/8	17.5 1 1/16	58.7 2.312	76.7 3.021	17.5 1 1/16	17.5 1 1/16	45.2 1 25/32	154 6 1/16	82.0 3.230	15.9 5/8	GN203KRRB	SN203K	T-19175	6.424 14.15	
RCJO	2 7/16	190.5 7 1/2	149.2 5 7/8	19 3/4	65.1 2.562	84.7 3.333	20.6 13/16	19 3/4	48.4 1 29/32	160.3 6 5/16	88.4 3.480	19 3/4	GN207KRRB	SN207K	T-19177	7.409 16.32	
RCJO	2 11/16	225.4 8 7/8	177.8 7	22.2 7/8	72.2 2.844	89.4 3.521	23.8 15/16	21.4 27/32	54.8 2 5/32	185.7 7 5/16	101.1 3.980	22.2 7/8	GN211KRRB	SO211K	T-19179	9.534 21.0	
RCJO	2 15/16	231.8 9 1/8	184.2 7 1/4	22.2 7/8	77.8 3.062	105.3 4.146	23.8 15/16	27 1 1/16	62.7 2 15/32	198.4 7 13/16	112.2 4.418	22.2 7/8	GN215KRRB	SN215K	T-19181	14.128 31.12	
RCJO	3 7/16	279.4 11	215.9 8 1/2	28.6 1 1/8	84.1 3.312	121.2 4.770	27 1 1/16	36.5 1 7/16	73.8 2 29/32	228.6 9	132.3 5.210	25.4 1	GN307KRRB	SN307K	T-24475	21.474 47.3	
RCJO	3 15/16	317.5 12 1/2	241.3 9 1/2	31.8 1 1/4	96.8 3.812	133.6 5.260	30.2 1 3/16	36.5 1 7/16	78.6 3 3/32	266.7 10 1/2	145.5 5.730	28.6 1 1/8	GN315KRRB	SN315K	T-24477	30.645 67.5	

YCJM MEDIUM DUTY SERIES SETSCREW LOCK

- Four-bolt flanged cartridges featuring GYM-KRRB bearing inserts.
- Ideal for conveyor, fan and blower, sawmill, and feed and grain handling applications.
- Durable, cast iron housings are powder-paint coated and maintain an excellent finish while resisting corrosion, chemicals and weather exposure.
- Industrial-duty flanged cartridges incorporate premium features designed to extend bearing life.

Suggested shaft tolerances: 1" -1¹⁵/₁₆", nominal to -.013 mm, -.0005";
2" - 3", nominal to -.025 mm, -.0010".



TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: YCJM 1⁷/₁₆".

Unit	Shaft Dia.	L ref.	J ref.	A ₁ ref.	A ±.015"	E max.	B	D ref.	F ±.001"	S ₁ ref.	Bolt Size	Bearing Number
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	
YCJM	1	107.9 4 1/4	82.6 3 1/4	13.5 17/32	29.9 1.178	42.4 1.671	38.1 1 1/2	76.2 3	40.31 1.587	22.2 7/8	10 3/8	GYM1100KRRB
YCJM	1 3/16	117.5 4 5/8	92.1 3 5/8	13.5 17/32	31.8 1.254	46.4 1.827	42.9 1 11/16	88.9 3 1/2	46.81 1.843	25.4 1	12 1/2	GYM1103KRRB
YCJM	1 7/16	130.2 5 1/8	101.6 4	14.8 9/16	38.1 1.500	54.4 2.141	49.2 1 15/16	98.4 3 7/8	52.27 2.058	30.2 1 3/16	12 1/2	GYM1107KRRB
YCJM	1 1/2	136.5 5 3/8	104.8 4 1/8	14.3 9/16	38.9 1.531	54.4 2.141	49.2 1 15/16	104.8 4 1/8	57.92 2.28	30.2 1 3/16	12 1/2	GYM1108KRRB
YCJM	1 11/16	142.9	111.1	14.3	42.9	60.7	51.6	112.7	62.84	32.5	16	GYM1111KRRB
YCJM	1 3/4	5 5/8	4 3/8	9/16	1.688	2.390	2 1/32	4 7/16	2.474	1 9/32	5/8	GYM1112KRRB
YCJM	1 15/16	161.9	130.2	16.7	46.8	64.7	55.6	120.7	69.77	33.3	16	GYM1115KRRB
YCJM	2	6 3/8	5 1/8	2 1/32	1.844	2.546	2 3/16	4 3/4	2.747	1 15/16	5/8	GY1200KRRB
YCJM	2 3/16	174.6	142.9	17.5	49.2	74.3	65.1	136.5	76.48	39.1	16	GYM1203KRRB
YCJM	2 1/4	6 7/8	5 5/8	1 1/16	1.937	2.926	2 9/16	5 3/8	3.011	1 9/16	5/8	GY1204KRRB
YCJM	2 7/16	187.3	149.2	19.0	63.5	81.5	69.9	152.4	86.92	42.9	16	GYM1207KRRB
YCJM	2 1/2	7 3/8	5 7/8	3/4	2.500	3.208	2 3/4	6	3.422	1 11/16	5/8	GYM1208KRRB
YCJM	2 11/16	196.8 7 3/4	152.4 6	22.2 7/8	66.7 2.625	86.2 3.396	77.8 3 1/16	161.9 6 3/8	91.92 3.619	44.4 1 3/4	20 3/4	GYM1211KRRB
YCJM	2 15/16	196.8	152.4	22.2	66.7	90.8	77.8	179.4	98.37	44.4	20	GYM1215KRRB
YCJM	3	7 3/4	6	7/8	2.625	3.576	3 1/16	7 1/16	3.873	1 15/16	3/4	GYM1300KRRB
YCJM	3 7/16	214.3 8 7/16	242.1 9 17/32	25.4 1	70.5 2.776	101.1 3.981	95.94 3 25/32	196.8 7 3/4	111.68 4.397	56.4 2 7/32	20 3/4	GYM1307KRRB
YCJM	3 15/16	268.3 10 9/16	298.4 11 3/4	31.8 1 1/4	95.4 3.755	127.3 5.014	117.35 4 5/8	235.0 9 1/4	131.3 5.171	68.3 2 11/16	25 1	GYM1315KRRB

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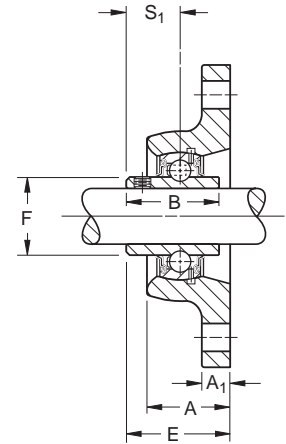
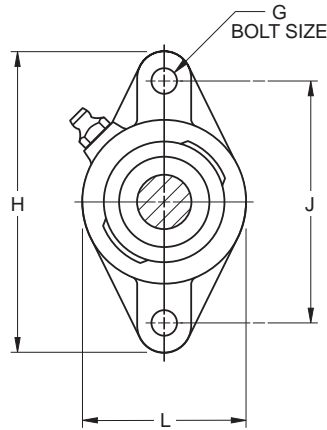




YCJTM MEDIUM DUTY SERIES SETSCREW LOCK

- Medium-duty, two-bolt flanged cartridges feature GYM-KRRB bearing inserts.
- Ideal for conveyor, fan and blower, sawmill, and feed and grain handling applications.
- Durable, cast iron housings are powder-paint coated and maintain an excellent finish while resisting corrosion, chemicals and weather exposure.
- Industrial-duty flanged cartridge units incorporate premium features designed to extend bearing life. They can replace competitive designs.

Suggested shaft tolerances: 1" - 1 15/16", nominal to **-.013 mm, -.0005"**; 2" - 3", nominal to **-.025 mm, -.0010"**.



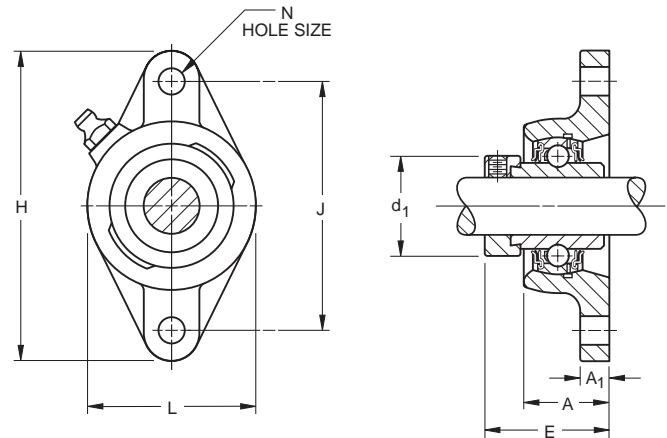
TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: YCJTM 1 7/16".

Unit	Shaft Dia.	H ref.	J ±.010"	L ref.	A ±.015"	E max.	B	A ₁ ref.	F ±.001"	S ₁	Bolt G	Bearing Number
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	
YCJTM	1	141.3 5 9/16	116.7 4 19/32	79.5 3 1/8	29.9 1.178	42.4 1.671	38.1 1 1/2	13.5 17/32	40.31 1.587	22.2 7/8	10 3/8	GYM1100KRRB
YCJTM	1 3/16	155.6 6 1/8	130.2 5 1/8	92.1 3 5/8	31.8 1.254	46.4 1.827	42.9 1 11/16	11.9 15/32	46.79 1.843	25.4 1	12 1/2	GYM1103KRRB
YCJTM	1 7/16	171.5 6 3/4	143.7 5 21/32	104.8 4 1/8	38.1 1.500	54.4 2.141	49.2 1 15/16	12.7 1/2	52.27 2.058	30.2 1 3/16	12 1/2	GYM1107KRRB
YCJTM	1 1/2	179.4 7 1/16	148.4 5 27/32	111.1 4 3/8	38.9 1.531	54.4 2.141	49.2 1 15/16	12.7 1/2	57.92 2.280	30.2 1 3/16	12 1/2	GYM1108KRRB
YCJTM	1 11/16	188.9	157.2	115.9	42.9	60.7	51.6	12.7	62.81	32.5	16	GYM1111KRRB
YCJTM	1 3/4	7 7/16	6 3/16	4 9/16	1.688	2.390	2 1/32	1/2	2.473	1 9/32	5/8	GYM1112KRRB
YCJTM	1 15/16	215.9	184.2	127.0	46.8	64.7	55.6	16.7	69.77	33.3	16	GYM1115KRRB
YCJTM	2	8 1/2	7 1/4	5	1.844	2.546	2 9/16	2 1/32	2.747	1 15/16	5/8	GY1200KRRB

D

RCJT, TCJT, LCJT INDUSTRIAL SERIES

- Cartridges are the same basic design as RCJ, TCJ, and LCJ types, except they have two bolt holes instead of four.
- Primarily designed for applications where the mounting area is restricted.
- RCJT cartridge is equipped with G-KRRB (R-Seal) wide inner ring bearings. The TCJT is equipped with G-KPPB (Tri-Ply Seal) wide inner ring bearings. The LCJT is equipped with the G-KLLB (Mechani-Seal) wide inner ring bearings.
- Units are factory prelubricated, but a grease fitting is provided for relubrication.
- Safety end caps are available for selected sizes.



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
RCJT	G-KRRB	Page D54
TCJT	G-KPPB	Page D65
LCJT	G-KLLB	Page D62

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: RCJT 1 3/16", TCJT 1 3/16". POPULAR SIZES ARE IN BOLD.

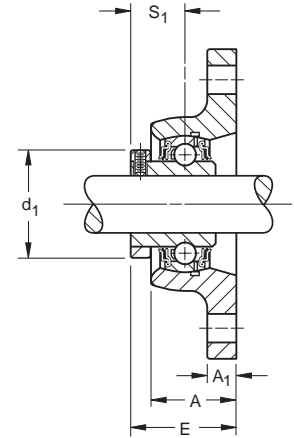
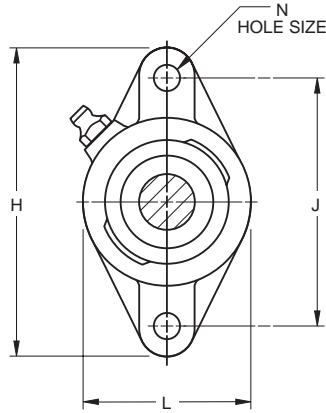
Unit	Shaft Dia.	H ref.	J ±.010"	L ref.	A ±.015"	N	E max.	A1 ref.	d1 ±.005"	Bearing Number		Collar Number	Housing Wt.	Unit
										RCJT	TCJT			
	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				new (old)	kg lbs.
RCJT	1/2									G1008KRRB	—	S1008K		
RCJT	5/8	98.4	76.2	54.0	23.6	10.7	40.6	10.3	28.1	G1010KRRB	—	S1010K	T-40219	0.590
RCJT	11/16	37/8	3	2 1/8	0.929	27/64	1.599	13/32	1.105	G1011KRRB	—	S1011K		1.30
RCJT	17									GE17KRRB	—	SE17K		
RCJT	3/4	111.9	89.7	60.5	27.8	10.7	46.4	11.1	32.8	G1012KRRB	—	S1012K	T-40220	0.590
RCJT	20	4 13/32	3 17/32	2 3/8	1.094	27/64	1.828	7/16	1.292	GE20KRRB	—	SE20K		1.30
RCJT, TCJT	13/16									G1013KRRB	G1013KPPB3	S1013K		
RCJT, TCJT	7/8	123.8	99.2	69.8	27.9	11.5	46.7	11.1	23.9	G1014KRRB	G1014KPPB3	S1014K	T-40221	0.785
RCJT, TCJT	15/16	47/8	3 29/32	2 3/4	1.100	29/64	1.839	7/16	1.480	G1015KRRB	G1015KPPB3	S1015K	(T-21412P)	1.73
RCJT, TCJT	1									G1100KRRB	G1100KPPB3	S1100K		
RCJT, TCJT	25									GE25KRRB	GE25KPPB3	SE25K		
RCJT, TCJT	1 1/16									G1101KRRB	G1101KPPB3	S1101K		
RCJT, TCJT	1 1/8	141.3	116.7	79.4	29.9	11.5	50.5	11.9	43.7	G1102KRRB	G1102KPPB3	S1102K	T-40222	1.09
RCJT, TCJT	1 3/16	5 9/16	4 19/32	3 1/8	1.178	29/64	1.990	15/32	1.730	G1103KRRB	G1103KPPB3	S1103K	(T-21548P)	2.40
TCJT	1 1/4 S									—	G1103KPPB4	S1103K3		
RCJT, TCJT	30									GE30KRRB	GE30KPPB3	SE30K		
RCJT, TCJT	1 1/4									G1104KRRB	G1104KPPB2	S1104K ⁽¹⁾		
RCJT, TCJT	1 5/16	155.6	130.2	92.1	31.8	13.1	53.5	11.9	53.6	G1105KRRB	G1105KPPB2	S1105K ⁽¹⁾	T-40223	1.444
RCJT, TCJT	1 3/8	6 1/8	5 1/8	3 5/8	1.254	33/64	2.106	15/32	2.112	G1106KRRB	G1106KPPB2	S1106K ⁽¹⁾	(T-21414)	3.18
RCJT, TCJT	1 7/16									G1107KRRB	G1107KPPB2	S1107K ⁽¹⁾		
RCJT, TCJT	35									GE35KRRB	GE35KPPB2	SE35K		
RCJT, TCJT	1 1/2	171.4	143.6	104.7	38.1	13.1	59.3	12.7	58.2	G1108KRRB	G1108KPPB3	S1108KT	T-40224	2.193
RCJT, TCJT	1 9/16	6 3/4	5 21/32	4 1/8	1.500	33/64	2.334	1/2	2.292	—	G1109KPPB3	S1109KT	(T-22529)	4.83
RCJT, TCJT	40									GE40KRRB	GE40KPPB3	SE40K		
RCJT, TCJT	1 5/8									G1110KRRB	G1110KPPB4	S1110K		
RCJT, TCJT	1 11/16	179.4	148	111.1	38.9	13.1	59.3	12.7	63.0	G1111KRRB	G1111KPPB4	S1111K	T-40225	2.379
RCJT, TCJT	1 3/4	7 1/16	5 27/32	4 3/8	1.531	33/64	2.334	1/2	2.480	G1112KRRB	G1112KPPB4	S1112K	(T-21416)	5.24
RCJT, TCJT	45									GE45KRRB	GE45KPPB4	SE45K		
RCJT, TCJT	1 7/8	188.9	157.2	115.9	42.9	17.1	66.4	12.7	69.3	G1114KRRB	G1114KPPB3	S1114K	T-40226	2.724
RCJT, TCJT	1 15/16	7 7/16	6 3/16	4 9/16	1.688	43/64	2.615	1/2	2.730	G1115KRRB	G1115KPPB3	S1115K	(T-21418)	6
RCJT, TCJT	50									GE50KRRB	GE50KPPB3	SE50K		
RCJT, TCJT	2									G1200KRRB	G1200KPPB4	S1200K		
RCJT, TCJT	2 1/8	215.9	184.1	127	46.8	17.1	75.1	16.7	75.7	G1202KRRB	G1202KPPB4	S1202K	T-40227	3.668
RCJT, TCJT	2 3/16	8 1/2	7 1/4	5	1.844	43/64	2.958	21/32	2.980	G1203KRRB	G1203KPPB4	S1203K	(T-23788)	8.08
RCJT, TCJT	55									GE55KRRB	GE55KPPB4	SE55K		

⁽¹⁾ Add C1 suffix to collar numbers for G...KPPB2 bearings (TCJT). Shaft diameter with an S = smaller housing.



RCJTC INDUSTRIAL SERIES CONCENTRIC COLLAR

- Same basic design as RCJT, except they use the concentric collar rather than the self-locking eccentric collar as the shaft locking device.
- All units are equipped with GC-KRRB wide inner ring concentric collars.
- The spherical outside diameter mounted in the corresponding machined housing seats provides the initial self-alignment.
- Bolt hole spacing dimensions are interchangeable with the RCJT Series and most competitive units.
- Units are factory prelubricated. A grease fitting is provided for relubrication.
- Safety end caps are available for selected sizes.



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
RCJTC	GC-KRRB	Page D66

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: RCJTC 1 3/16"

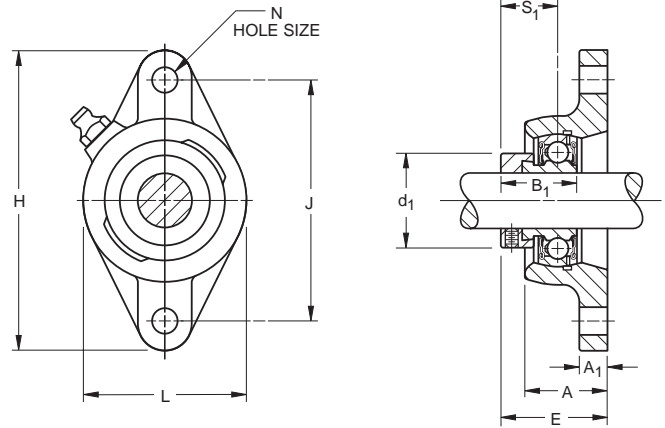
Unit	Shaft Dia.	H ref.	J ±.010"	L ref.	A ±.015"	E max.	N	A1 ref.	d1 ±.005"	S1 ref.	Bearing Number	Collar Number	Housing Number	Unit Wt.
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			new (old)	kg lbs.
RCJTC	5/8	98.4 3 7/8	76.2 3	60.3 2 3/8	23.6 0.929	32.7 1.287	9.9 25/64	8.3 21/64	33.8 1.329	15.5 39/64	GC1010KRRB	C203	T-40270 (T-27181)	0.368 0.81
RCJTC	3/4	111.9 4 13/32	89.7 3 17/32	60.3 2 3/8	27.8 1.094	38.2 1.502	9.9 25/64	11.1 7/16	37.7 1.485	18.7 47/64	GC1012KRRB	C204	T-40271 (T-27183)	0.545 1.2
RCJTC	1	123.8 4 7/8	98.81 3 57/64	69.8 2 3/4	27.9 1.100	39.8 1.569	11.9 15/32	13.5 17/32	44.1 1.735	20.2 51/64	GC1100KRRB	C205	T-40272 (T-27200)	0.717 1.58
RCJTC	1 1/8	141.3	116.7	81	29.9	43.0	11.5	13.5	52.3	22.6	GC1102KRRB	C206	T-401273	1.035
RCJTC	1 3/16	5 9/16	4 19/32	3 3/16	1.178	1.693	29/64	17/32	2.058	57/64	GC1103KRRB		(T-27197)	2.28
RCJTC	1 1/4 S										GC1103KRRB3			
RCJTC	1 1/4	155.6	130.2	92.1	31.8	46.6	13.1	14.3	58.2	25.4	GC1104KRRB	C207	T-40252	1.498
RCJTC	1 3/8	6 1/8	5 1/8	3 5/8	1.254	1.834	33/64	9/16	2.292	1	GC1106KRRB			3.30
RCJTC	1 7/16										GC1107KRRB			
RCJTC	1 11/16	179.4 7 1/16	148.4 5 27/32	111.1 4 3/8	38.9 1.531	53.7 2.116	13.1 33/64	14.3 9/16	72.9 2.871	29.4 1 5/32	GC1111KRRB	C209	T-40275	2.097 4.62
RCJTC	1 15/16	188.9 7 7/16	157.2 6 3/16	115.9 4 9/16	42.9 1.688	58.5 2.303	17.1 43/64	14.3 9/16	79.3 3.121	30.2 1 3/16	GC1115KRRB	C210	T-40276	2.497 5.50

Shaft diameter with an S = smaller housing.

D

VCJT STANDARD SERIES

- Same design and features as the VCJ Type, but has two bolt holes instead of four. This allows for mounting in restricted areas.
- Assembled with GRA-RRB bearings with positive contact land-riding seals and self-locking collars.
- Units are factory prelubricated. A grease fitting is provided for relubrication.
- Safety end caps are available for selected sizes.



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
VCJT	GRA-RRB	Page D57

Suggested shaft tolerances: **1/2" - 1 15/16", nominal to -.013 mm, -.0005";**
2" - 2 3/16", nominal to -.025 mm, -.0010".

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: VCJT 1". POPULAR SIZES ARE IN BOLD.

Unit	Shaft Dia.		H ref.	J ±.010	L ref.	A ±.015"	E max.	N	B ₁	A ₁ ref.	d ₁ ±.005"	S ₁	Bearing Number	Collar Number	Housing Number	Unit Wt.
	mm	in.														
VCJT	1/2		98.4	76.2	53.9	23.6	39.3	10.7	28.6	10.3	28.1	22.2	GRA008RRB	S1008K	T-40219	0.59
VCJT	5/8		3 7/8	3	2 1/8	0.929	1.548	27/64	1 1/8	13/32	1.105	7/8	GRA010RRB	S1010K	(T-22244P)	1.3
VCJT	17												GRAE17RRB	SE17K		
VCJT	3/4		111.9	89.7	60.3	27.8	43.3	9.9	31	11.1	32.8	23.4	GRA012RRB	S1012K	T-40220	0.518
VCJT	20		4 13/32	3 17/32	2 3/8	1.094	1.706	25/64	1 7/32	7/16	1.292	59/64	GRAE20RRB	SE20K	(T-21409P)	1.44
VCJT	7/8												GRA014RRB	S1014K		
VCJT	15/16		123.8	99.2	69.8	27.9	43.2	11.5	31	11.1	23.9	23.4	GRA015RRB	S1015K	T-40221	0.74
VCJT	1		4 7/8	3 29/32	2 3/4	1.100	1.701	29/64	1 7/32	7/16	1.480	59/64	GRA100RRB	S1100K	(T-21412P)	1.63
VCJT	25												GRAE25RRB	SE25K		
VCJT	1 1/8												GRA102RRB	S1102K		
VCJT	1 3/16		141.3	116.7	79.4	29.9	47.1	11.5	35.7	11.9	43.7	27	GRA103RRB	S1103K	T-40222	1.026
VCJT	1 1/4 S		5 9/16	4 19/32	3 1/8	1.178	1.856	29/64	1 13/32	15/32	1.730	1 1/16	GRA103RRB2	S1103K3	(T-21548P)	2.26
VCJT	30												GRAE30RRB	SE30K		
VCJT	1 1/4												GRA104RRB	S1104K		
VCJT	1 3/8		155.6	130.2	92.1	31.8	50.5	13.1	38.9	11.9	53.6	29.4	GRA106RRB	S1106K	T-40223	1.362
VCJT	1 7/16		6 1/8	5 1/8	3 5/8	1.254	1.989	33/64	1 17/32	15/32	2.112	1 5/32	GRA107RRB	S1107K	(T-21414)	3
VCJT	35												GRAE35RRB	SE35K		
VCJT	1 1/2		171.4	143.6	104.7	38.1	56.9	13.1	43.7	12.7	58.2	32.5	GRA108RRB	S1108KT	T-40224	2.075
VCJT	40		6 3/4	5 21/32	4 1/8	1.500	2.243	33/64	1 23/32	1/2	2.292	1 9/32	GRAE40RRB	SE40K	(T-22529)	4.57
VCJT	1 5/8												GRA110RRB	S1110K		
VCJT	1 11/16		179.4	148.0	111.1	38.9	57.0	13.1	43.7	12.7	63.0	32.5	GRA111RRB	S1111K	T-40225	2.229
VCJT	1 3/4		7 1/16	5 27/32	4 3/8	1.531	2.244	33/64	1 23/32	1/2	2.480	1 9/32	GRA112RRB	S1112K	(T-21416)	4.91
VCJT	45												GRAE45RRB	SE45K		
VCJT	1 7/8												GRA114RRB	S1114K		
VCJT	1 15/16		188.9	157.2	115.8	42.9	61.0	17.1	43.7	12.7	69.3	32.5	GRA115RRB	S1115K	T-40226	2.492
VCJT	2 S		7 7/16	6 3/16	4 9/16	1.688	2.400	43/64	1 23/32	1/2	2.730	1 9/32	GRA115RRB2	S1115K2	(T-21418)	5.49
VCJT	50												GRAE50RRB	SE50K		
VCJT	2		215.9	184.1	127	46.8	67.9	17.1	48.4	16.7	75.7	36.5	GRA200RRB	S1200K	T-40227	3.092
VCJT	2 3/16		8 1/2	7 1/4	5	1.844	2.672	43/64	1 29/32	21/32	2.980	2 7/16	GRA203RRB	S1203K	(T-23788)	6.81
VCJT	55												GRAE55RRB	SE55K		

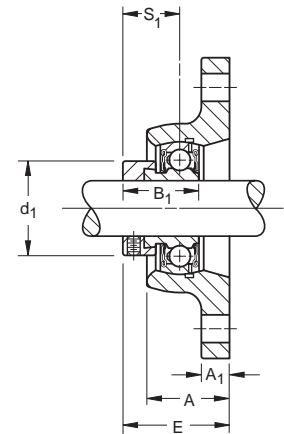
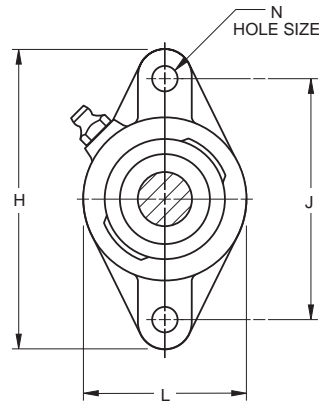
Shaft diameter with an S = smaller housing.



YCJT INDUSTRIAL SETSCREW SERIES

- Same design as the YCJ Series, but mounted with two bolts instead of four.
- All are equipped with GY-KRRB wide inner ring, setscrew bearings.
- Spherical outside diameter mounted in the corresponding machined housings seats provides the initial self-alignment.
- Units are factory prelubricated. A grease fitting is provided for relubrication.
- Safety end caps are available for selected sizes.

Suggested shaft tolerances: $\frac{1}{2}'' - 1\frac{15}{16}''$, nominal to $-.0013$ mm, $-.0005''$;
 $2'' - 3\frac{1}{16}''$, nominal to $-.025$ mm, $-.0010''$.



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
YCJT	GY-KRRB	Page D67

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: YCJT 1 7/16". POPULAR SIZES ARE IN BOLD.

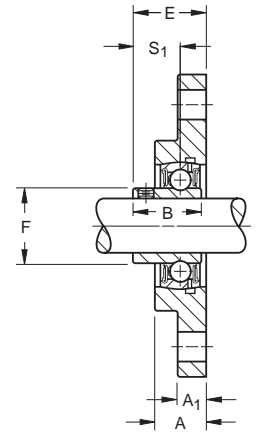
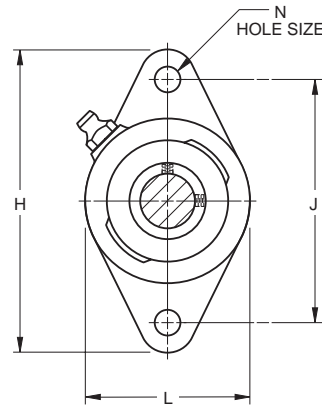
Unit	Shaft Dia.		H ref.	J $\pm .010''$	L ref.	A $\pm .015''$	E max.	B	A ₁ ref.	F $\pm .001''$	S ₁ ref.	Hole Size	Bearing Number
	mm	in.											
YCJT	$\frac{1}{2}$		98.4	76.2	54.0	23.6	32.9	27.4	11.1	23.9	15.9	10	GY1008KRRB
YCJT	$\frac{5}{8}$		$3\frac{7}{8}$	3	$2\frac{1}{8}$	0.929	1.296	$1\frac{5}{64}$	$\frac{7}{16}$	0.941	$\frac{5}{8}$	$2\frac{7}{64}$	GY1010KRRB GYE17KRRB
YCJT	17												
YCJT	$\frac{3}{4}$		111.9	89.7	60.3	27.8	37.7	30.9	11.1	27.6	18.3	10	GY1012KRRB
YCJT	20		$4\frac{13}{32}$	$3\frac{17}{32}$	$2\frac{3}{8}$	1.094	1.484	$1\frac{7}{32}$	$\frac{7}{16}$	1.085	$2\frac{3}{32}$	$2\frac{7}{64}$	GYE20KRRB
YCJT	$\frac{7}{8}$												GY1014KRRB
YCJT	$\frac{19}{16}$		123.8	99.2	69.9	27.9	39.3	34.1	11.1	33.8	19.8	11.5	GY1015KRRB
YCJT	1		$4\frac{7}{8}$	$3\frac{29}{32}$	$2\frac{3}{4}$	1.100	1.546	$1\frac{11}{32}$	$\frac{7}{16}$	1.331	$2\frac{5}{32}$	$2\frac{9}{64}$	GY1100KRRB GYE25KRRB
YCJT	25												
YCJT	$1\frac{1}{8}$												GY1102KRRB
YCJT	$1\frac{3}{16}$		141.3	116.7	79.45	29.9	42.4	38.1	11.9	40.3	22.2	11.5	GY1103KRRB
YCJT	$1\frac{1}{4}$ S		$5\frac{9}{16}$	$4\frac{19}{32}$	$3\frac{1}{8}$	1.178	1.671	$1\frac{1}{2}$	$\frac{15}{32}$	1.587	$\frac{7}{8}$	$2\frac{9}{64}$	GY1103KRRB3 GYE30KRRB
YCJT	30												
YCJT	$1\frac{1}{4}$												GY1104KRRB
YCJT	$1\frac{3}{8}$		155.6	130.2	92.1	31.8	46.4	42.9	11.9	46.8	25.4	13	GY1106KRRB
YCJT	$1\frac{7}{16}$		$6\frac{1}{8}$	$5\frac{1}{8}$	$3\frac{5}{8}$	1.254	1.827	$1\frac{11}{16}$	$\frac{15}{32}$	1.843	1	$3\frac{3}{64}$	GY1107KRRB GYE35KRRB
YCJT	35												
YCJT	$1\frac{1}{2}$		171.5	143.7	104.8	38.1	54.4	49.2	12.7	52.2	30.2	13	GY1108KRRB
YCJT	40		$6\frac{3}{4}$	$5\frac{21}{32}$	$4\frac{1}{8}$	1.500	2.141	$1\frac{15}{16}$	$\frac{1}{2}$	2.057	$1\frac{3}{16}$	$3\frac{3}{64}$	GYE40KRRB
YCJT	$1\frac{5}{8}$												GY1110KRRB
YCJT	$1\frac{11}{16}$		179.4	148.4	111.1	38.9	54.4	49.2	12.7	57.9	30.2	13	GY1111KRRB
YCJT	$1\frac{3}{4}$		$7\frac{1}{16}$	$5\frac{27}{32}$	$4\frac{3}{8}$	1.531	2.14	$1\frac{15}{16}$	$\frac{1}{2}$	2.279	$1\frac{3}{16}$	$3\frac{3}{64}$	GY1112KRRB GYE45KRRB
YCJT	45												
YCJT	$1\frac{15}{16}$		188.9	157.2	115.9	42.9	60.7	51.6	12.7	62.8	32.5	17	GY1115KRRB
YCJT	2 S		$7\frac{7}{16}$	$6\frac{3}{16}$	$4\frac{9}{16}$	1.688	2.390	$2\frac{1}{32}$	$\frac{1}{2}$	2.473	$1\frac{9}{32}$	$4\frac{3}{64}$	GY1115KRRB3 GYE50KRRB
YCJT	50												
YCJT	2		215.9	184.2	127	46.8	64.7	55.6	16.7	69.7	33.3	17	GY1200KRRB
YCJT	$2\frac{3}{16}$		$8\frac{1}{2}$	$7\frac{1}{4}$	5	1.844	2.547	$2\frac{9}{16}$	$2\frac{1}{32}$	2.745	$1\frac{15}{16}$	$4\frac{3}{64}$	GY1203KRRB GYE55KRRB
YCJT	55												

Shaft diameter with an S = smaller housing.

SCJT STANDARD SERIES

- Same construction and design as SCJ Type, but mounted with two bolts instead of four.
- Assembled with GYA-RRB bearings with positive contact land-riding seals and setscrew locking.
- Units are factory prelubricated. A grease fitting is provided for relubrication.

Suggested shaft tolerances: $\frac{1}{2}$ " - $1 \frac{15}{16}$ ", nominal to $-.013$ mm, $-.0005$ ";
 2" - $3 \frac{1}{16}$ ", nominal to $-.025$ mm, $-.0010$ ".



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
SCJT	GYA-RRB	Page D59

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: SCJT 1". POPULAR SIZES ARE IN BOLD.

Unit	Shaft Dia.	H	J	L	A	E	N	B	A ₁	F	S ₁	Bearing Number	Housing Number	Unit Wt.
		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			
SCJT	$\frac{1}{2}$	98.4	76.2	60.3	17.9	25.4	9.9	23.8	11.1	24.6	15.9	GYA008RRB	T-40136	0.34
SCJT	$\frac{5}{8}$	$3 \frac{7}{8}$	3	$2 \frac{3}{8}$	$\frac{45}{64}$	1	$\frac{25}{64}$	$\frac{15}{16}$	$\frac{7}{16}$	$\frac{31}{32}$	$\frac{5}{8}$	GYA010RRB		0.75
SCJT	17											GYAE17RRB		
SCJT	$\frac{3}{4}$	111.9	89.69	65.1	19	28.6	9.9	27	11.1	29	18.3	GYA012RRB	T-40138	0.43
SCJT	20	$4 \frac{13}{32}$	$3 \frac{17}{32}$	$2 \frac{9}{16}$	$\frac{3}{4}$	$1 \frac{1}{8}$	$\frac{25}{64}$	$1 \frac{1}{16}$	$\frac{7}{16}$	$1 \frac{9}{64}$	$\frac{23}{32}$	GYAE20RRB		0.94
SCJT	$\frac{7}{8}$											GYA014RRB		
SCJT	$\frac{15}{16}$	123.8	98.82	69.9	19.8	29.8	11.9	28.2	11.1	33.7	19.4	GYA015RRB	T-40140	0.48
SCJT	1	$4 \frac{7}{8}$	$3 \frac{57}{64}$	$2 \frac{3}{4}$	$\frac{25}{32}$	$1 \frac{11}{64}$	$\frac{15}{32}$	$1 \frac{7}{64}$	$\frac{7}{16}$	$1 \frac{21}{64}$	$\frac{49}{64}$	GYA100RRB		1.07
SCJT	25											GYAE25RRB		
SCJT	$1 \frac{1}{8}$											GYA102RRB		
SCJT	$1 \frac{3}{16}$	141.3	116.68	79.4	21.4	34.1	11.5	32.5	13.5	40.1	23	GYA103RRB	T-40142	0.72
SCJT	$1 \frac{1}{4}$ S	$5 \frac{9}{16}$	$4 \frac{19}{32}$	$3 \frac{1}{8}$	$\frac{27}{32}$	$1 \frac{11}{32}$	$\frac{29}{64}$	$1 \frac{9}{32}$	$\frac{17}{32}$	$1 \frac{37}{64}$	$\frac{29}{32}$	GYA103RRB3		1.58
SCJT	30											GYAE30RRB		
SCJT	$1 \frac{1}{4}$											GYA104RRB		
SCJT	$1 \frac{3}{8}$	155.6	130.18	92.1	24.6	38.1	13.1	36.5	14.3	46.8	25.8	GYA106RRB	T-40144	1.08
SCJT	$1 \frac{7}{16}$	$6 \frac{1}{8}$	$5 \frac{1}{8}$	$3 \frac{5}{8}$	$\frac{31}{32}$	$1 \frac{1}{2}$	$\frac{33}{64}$	$1 \frac{7}{16}$	$\frac{9}{16}$	$1 \frac{27}{32}$	$1 \frac{1}{64}$	GYA107RRB		2.37
SCJT	35											GYAE35RRB		
SCJT	$1 \frac{1}{2}$	171.5	143.67	104.8	26.2	40.9	13.1	39.3	14.3	52.4	27.8	GYA108RRB	T-40146	1.97
SCJT	40	$6 \frac{3}{4}$	$5 \frac{21}{32}$	$4 \frac{1}{8}$	$1 \frac{1}{32}$	$1 \frac{39}{64}$	$\frac{33}{64}$	$1 \frac{35}{64}$	$\frac{9}{16}$	$2 \frac{1}{16}$	$1 \frac{3}{32}$	GYAE40RRB		4.34
SCJT	$1 \frac{5}{8}$											GYA110RRB		
SCJT	$1 \frac{11}{16}$	179.4	148.0	111.1	28.6	43.6	13.1	42.1	15.8	57.9	28.6	GYA111RRB	T-40170	2.03
SCJT	$1 \frac{3}{4}$	$7 \frac{1}{16}$	$5 \frac{27}{32}$	$4 \frac{3}{8}$	$1 \frac{1}{8}$	$1 \frac{23}{32}$	$\frac{33}{64}$	$1 \frac{21}{32}$	$\frac{5}{8}$	$2 \frac{5}{32}$	$1 \frac{7}{8}$	GYA112RRB		4.48
SCJT	45											GYAE45RRB		
SCJT	$1 \frac{15}{16}$	189.9	157.16	115.8	28.6	46	17.1	44.4	16.6	62.7	30.9	GYA115RRB	T-40172	2.26
SCJT	2 S	$7 \frac{7}{16}$	$6 \frac{3}{16}$	$4 \frac{9}{16}$	$1 \frac{1}{8}$	$1 \frac{13}{16}$	$\frac{43}{64}$	$1 \frac{3}{4}$	$\frac{21}{32}$	$2 \frac{15}{32}$	$1 \frac{7}{32}$	GYA115RRB2		4.98
SCJT	50											GYAE50RRB		
SCJT	2	215.9	184.15	127	30.9	48	17.1	46.4	18.2	69.8	31.7	GYA200RRB	T-40174	2.79
SCJT	$2 \frac{3}{16}$	$8 \frac{1}{2}$	$7 \frac{1}{4}$	5	$1 \frac{7}{32}$	$1 \frac{57}{64}$	$\frac{43}{64}$	$1 \frac{53}{64}$	$\frac{23}{32}$	$2 \frac{3}{4}$	$1 \frac{1}{4}$	GYA203RRB		6.14
SCJT	55											GYAE55RRB		

Shaft diameter with an S = smaller housing.



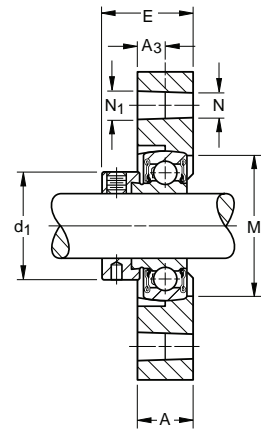
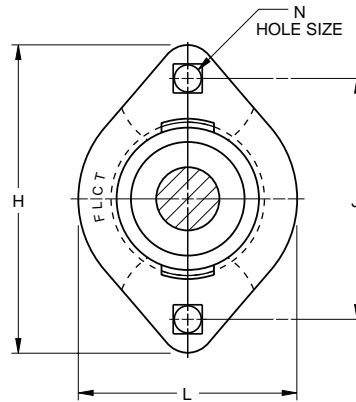


BALL BEARINGS

FLCT STANDARD SERIES

- Versatile power transmission units are designed to provide sturdy shaft support in minimum space at minimum cost.
- Space-saving, two-bolt unit mounts flush against the frame.
- Bolt hole spacing and size is the same as the pressed-steel flange unit.
- Equipped with RA-RRB extended inner ring ball bearings with positive contact land-riding seals.
- Permanently prelubricated.
- Positively resistant against contaminants.

Suggested shaft tolerances: nominal to $-.013 \text{ mm}$, $-.0005''$.



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
FLCT	RA-RRB	Page D56

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: FLCT 1 3/16".

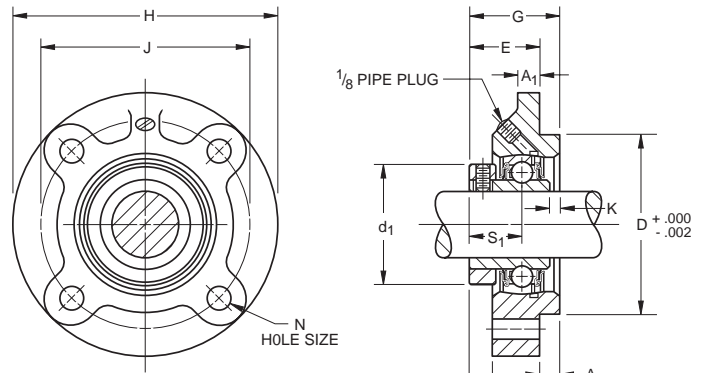
Unit	Shaft Dia.	H	J	L	E	A	A ₃	N ₁ Sq.	Bolt Diam.	d ₁	M	Bearing Number	Collar Number	Housing Number	Unit Wt.
															kg lbs.
FLCT	1/2	81	63.5	58.7	30.2	14.7	7.1	7.1	6.4	28.6	38.1	RA008RRB	S1008K	T-34124	0.322
FLCT	5/8	3 3/16	2 1/2	2 5/16	1 3/16	37/64	9/32	9/32	1/4	1 1/8	1 1/2	RA010RRB	S1010K		0.71
FLCT	17											RAE17RRB	SE17K		
FLCT	3/4	90.5	71.4	66.7	32.9	17.1	8.7	8.7	7.9	33.3	45.2	RA012RRB	S1012K	T-34122	0.445
FLCT	20	3 9/16	2 13/16	2 5/8	1 19/64	43/64	11/32	11/32	5/16	1 5/16	1 25/32	RAE20RRB	SE20K		0.98
FLCT	7/8											RA014RRB	S1014K		
FLCT	15/16	95.2	76.2	71	34.5	17.5	8.7	8.7	7.9	38.1	50.4	RA015RRB	S1015K	T-33753	0.499
FLCT	1	3 3/4	3	2 51/64	1 23/64	11/16	11/32	11/32	5/16	1 1/2	1 63/64	RA100RRB	S1100K		1.1
FLCT	25											RAE25RRB	SE25K		
FLCT	1 1/8											RA102RRB	S1102K		
FLCT	1 3/16	112.7	90.5	84.1	38.5	20.6	10.3	10.3	9.5	44.4	59.5	RA103RRB	S1103K	T-34120	0.835
FLCT	1 1/4 S	4 7/16	3 9/16	3 5/16	1 33/64	13/16	13/32	13/32	3/8	1 3/4	2 11/32	RA103RRB2	S1103K3		1.84
FLCT	30											RAE30RRB	SE30K		
FLCT	1 1/4											RA104RRB	S1104K		
FLCT	1 3/8	125.4	100	93.7	41.1	22.2	11.1	10.3	9.5	54	69.5	RA106RRB	S1106K	T-34118	1.075
FLCT	1 7/16	4 15/16	3 15/16	3 11/16	1 21/32	7/8	7/16	13/32	3/8	2 1/8	2 47/64	RA107RRB	S1107K		2.37
FLCT	35											RAE35RRB	SE35K		

Shaft diameter with an S = smaller housing.

RFC INDUSTRIAL PILOTED SERIES CONCENTRIC COLLAR

- Piloted flange cartridges assure accurate mounting fits and provide better support for heavy loads.
- Cast iron units are suited for applications such as material handling, industrial conveyor equipment, and farm and construction equipment.
- Assembled with R-Seal (GC-KRRB) bearings with a concentric locking collar.
- Units are factory prelubricated. A grease fitting is provided for relubrication if required.

Suggested shaft tolerances: $\frac{1}{2}$ " - $1 \frac{15}{16}$ ", nominal to $-.013$ mm, $.0005$ ";
 2" - $2 \frac{3}{16}$ ", nominal to $-.025$ mm, $-.0010$ ".



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
RFC	GC-KRRB	Page D66

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: RFC 1 7/16".

Unit	Shaft Dia.	D	J	H	S ₁	K	N	G	A	E ₁	A ₃	E	A ₁	d ₁	Bearing Number	Collar Number	Housing Number	Unit Wt.
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				kg lbs.
RFC	1	76.2 3	92.1 3 5/8	111.1 4 3/8	20.2 51/64	3.6 9/64	10.3 13/32	37.7 1 31/64	28.2 1 7/64	9.5 3/8	6.4 1/4	31.4 1 15/64	9.5 3/8	44.4 1 3/4	GC1100KRRB	C205	T-27031	1.152 2.54
RFC	1 1/8	85.72	104.8	127	22.6	3.6	11.9	40.9	30.6	10.3	10.7	30.2	9.5	52.4	GC1102KRRB	C206	T-27021	1.742
RFC	1 3/16	3.375	4 1/8	5	57/64	9/64	15/32	1 39/64	1 13/64	13/32	27/64	1 3/16	3/8	2 1/16	GC1103KRRB			3.84
RFC	1 1/4 S														GC1103KRRB3			
RFC	1 1/4	92.08	111.1	133.4	25.4	3.2	11.9	44.4	34.1	10.3	11.9	32.5	12.7	59.5	GC1104KRRB	C207	T-26730	1.864
RFC	1 3/8	3.625	4 3/8	5 1/4	1	1/8	15/32	1 3/4	1 11/32	13/32	15/32	1 9/32	1/2	2 11/32	GC1106KRRB			4.11
RFC	1 7/16														GC1107KRRB			
RFC	1 1/2	92.08 3.625	111.1 4 3/8	133.4 5 1/4	27.4 1 5/64	4.8 3/16	11.9 15/32	48.8 1 59/64	38.1 1 1/2	10.7 27/64	11.9 15/32	36.9 1 29/64	12.7 1/2	68.3 2 11/16	GC1108KRRB	C208	T-26587	2.141 4.72
RFC	1 11/16	107.95	130.2	155.6	29.4	—	13.5	46.8	34.1	12.7	11.9	34.9	11.5	73	GC1111KRRB	C209	T-27276	2.817
RFC	1 3/4	4.25	5 1/8	6 1/8	1 5/32	—	17/32	1 27/32	1 11/32	1/2	15/32	1 3/8	29/64	2 7/8	GC1112KRRB			6.21
RFC	1 15/16	114.3 4.5	136.5 5 3/8	161.9 6 3/8	30.2 1 3/16	6.4 1/4	13.5 17/32	54.8 2 5/32	42.9 1 11/16	11.9 15/32	15.9 5/8	38.9 1 17/32	12.7 1/2	79.4 3 1/8	GC1115KRRB	C210	T-26743	3.211 7.08
RFC	2	127	152.4	181	33.3	7.1	15.1	61.1	44.4	16.7	22.2	38.9	12.7	88.9	GC1200KRRB	C211	T-28287	4.082
RFC	2 3/16	5	6	7 1/8	1 5/16	9/32	19/32	2 13/32	1 3/4	21/32	7/8	1 17/32	1/2	3 1/2	GC1203KRRB			9

Shaft diameter with an S = smaller housing.



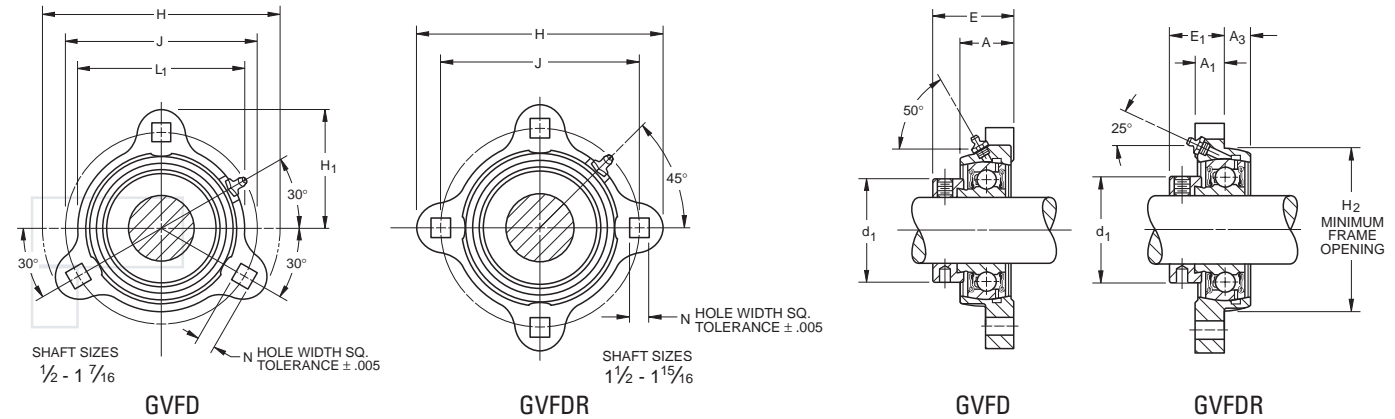


BALL BEARINGS

GVFD, GVFDR RELUBRICATABLE SERIES - VFD, VFDR NON-RELUBRICATABLE SERIES

- Malleable iron flange cartridges provide self-alignment and rigid support for medium-duty applications.
- Mounting bolt holes are interchangeable with pressed steel flangette units of corresponding size.

Suggested shaft tolerances: nominal to $-.013$ mm, $-.0005$ ".



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
VFD, VFDR	RA...RRB	Page D56
GVFD, GVFDR	GRA...RRB	Page D57

FOR NON-RELUBRICATABLE SERIES, OMIT G PREFIX ON UNIT AND BEARING NUMBER.

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: VFD 1 3/16" or VFDR 1 3/16" or GVFD 1 3/16" or GVFDR 1 3/16".

Unit face mounted	Unit reverse mounted	Shaft Dia.	H ₁	L ₁	H	J	N	H ₂	E	A	E ₁	A ₃	A ₁	d ₁	Bearing Number	Collar Number	Unit Wt.
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			
RELUBRICATABLE SERIES ⁽¹⁾																	
GVFD	GVFDR	1/2	40.5	53.2	81	63.5	7.1	47.6	31.8	17.5	22.2	7.9	9.5	28.6	GRA008RRB	S1008K	2.63
GVFD	GVFDR	5/8	1 19/32	2 3/32	3 3/16	2 1/2	9/32	1 7/8	1 1/4	1 1/16	7/8	5/16	3/8	1 1/8	GRA010RRB	S1010K	0.58
GVFD	GVFDR	17													GRAE17RRB	SE17K	
GVFD	GVFDR	3/4	45.2	60.3	90.5	71.4	8.7	54.8	34.1	19.8	23.4	9.1	10.7	33.3	GRA012RRB	S1012K	0.336
GVFD	GVFDR	20	1 25/32	2 3/8	3 9/16	2 13/16	1 1/32	2 5/32	1 11/32	25/32	59/64	23/64	27/64	1 5/16	GRAE20RRB	SE20K	0.74
GVFD	GVFDR	7/8													GRA014RRB	S1014K	
GVFD	GVFDR	15/16	47.6	66.7	95.2	76.2	8.7	60.3	34.1	19.8	23.4	9.1	10.7	38.1	GRA015RRB	S1015K	0.386
GVFD	GVFDR	1	1 7/8	2 5/8	3 3/4	3	1 1/32	2 3/8	1 11/32	25/32	59/64	23/64	27/64	1 1/2	GRA100RRB	S1100K	0.85
GVFD	GVFDR	25													GRAE25RRB	SE25K	
GVFD	GVFDR	1 1/8													GRA102RRB	S1102K	
GVFD	GVFDR	1 3/16	56.4	78.6	112.7	90.5	10.3	71.4	38.9	22.2	26.6	10.7	11.9	44.5	GRA103RRB	S1103K	0.608
GVFD	GVFDR	1 1/4 S	2 7/32	3 3/32	4 7/16	3 9/16	13/32	2 13/16	1 17/32	7/8	1 3/64	27/64	15/32	1 3/4	GRA103RRB2	S1103K3	1.34
GVFD	GVFDR	30													GRAE30RRB	SE30K	
GVFD	GVFDR	1 1/4													GRA104RRB	S1104K	0.821
GVFD	GVFDR	1 3/8	61.1	88.9	122.2	100	10.3	81.8	42.1	23.8	29.4	11.1	12.7	54	GRA106RRB	S1106K	1.81
GVFD	GVFDR	1 7/16	2 13/32	3 1/2	4 13/16	3 15/16	13/32	3 7/32	1 21/32	15/16	1 5/32	7/16	1/2	2 1/8	GRA107RRB	S1107	
GVFD	GVFDR	35													GRAE35RRB	SE35K	
GVFD	GVFDR	1 1/2	73.8	98.4	147.6	119.1	13.5	89.7	48.4	28.6	32.5	12.7	15.9	60.3	GRA108RRB	S1108KT	1.334
GVFD	GVFDR	40	2 29/32	3 7/8	5 13/16	4 11/16	17/32	3 17/32	1 29/32	1 1/8	1 9/32	1/2	5/8	2 3/8	GRAE40RRB	SE40K	2.94
GVFD	GVFDR	1 5/8													GRA110RRB	S1110K	
GVFD	GVFDR	1 11/16	74.6	107.2	149.2	120.6	13.5	96	48.4	28.6	32.5	12.7	15.9	63.5	GRA111RRB	S1111K	1.361
GVFD	GVFDR	1 3/4	2 15/16	4 7/32	5 7/8	4 3/4	17/32	3 25/32	1 29/32	1 1/8	1 9/32	1/2	5/8	2 1/2	GRA112RRB	S1112K	3
GVFD	GVFDR	45													GRAE45RRB	SE45K	
GVFD	GVFDR	1 7/8	77.8	113.5	155.6	127	13.5	100.8	48.4	28.6	32.5	12.7	15.9	69.8	GRA114RRB	S1114K	1.451
GVFD	GVFDR	1 15/16	3 1/16	4 15/32	6 1/8	5	17/32	3 31/32	1 29/32	1 1/8	1 9/32	1/2	5/8	2 3/4	GRA115RRB	S1115K	3.2
GVFD	GVFDR	50													GRAE50RRB	SE50K	

⁽¹⁾ All units have a 1/4-28 grease fitting, except as noted.

□ : 10-32 grease fitting.

Shaft diameter with an S = smaller housing.

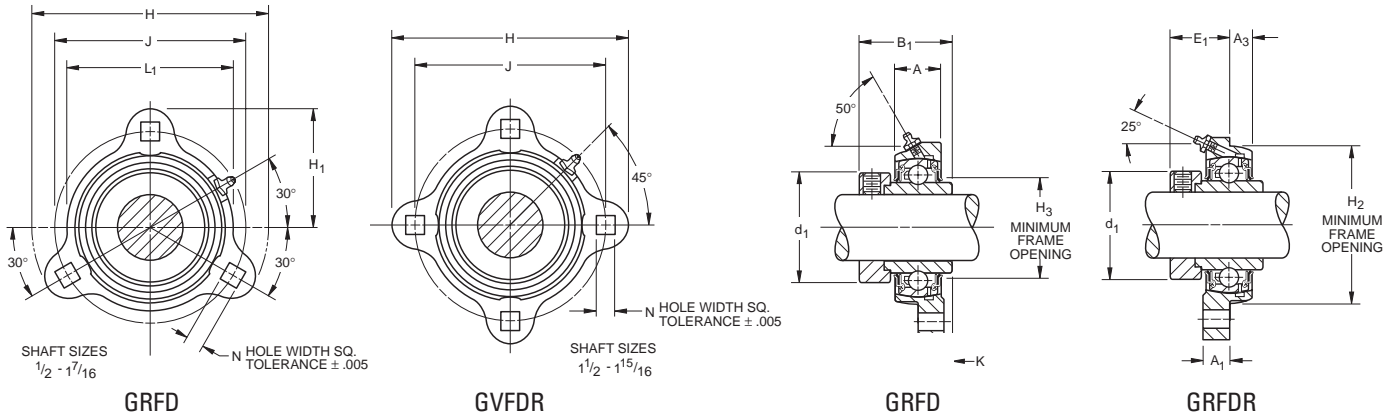
GRFD, GRFDR RELUBRICATABLE SERIES - RFD, RFDR NON-RELUBRICATABLE SERIES

- Malleable iron flange cartridges provide self-alignment and rigid support for medium-duty applications.

Suggested shaft tolerances: nominal to $-.013$ mm, $-.0005$ ".

BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
RFD, RFDR	...KRRB	Page D53
GRFD, GRFDR	G...KRRB	Page D54



FOR NON-RELUBRICATABLE SERIES, OMIT G PREFIX ON UNIT AND BEARING NUMBER.

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: GRFD 1 3/16" or GRFDR 1 3/16" or RFD 1 3/16" or RFDR 1 3/16".

Unit face mounted	Unit reverse mounted	Shaft Dia.	H ₁	L ₁	H	J	N	H ₂	E	A	E ₁	A ₃	A ₁	d ₁	H ₃	K	Bearing Number	Collar Number	Unit Wt.	
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				mm in.
RELUBRICATABLE SERIES ⁽¹⁾																				
GRFD	GRFDR	1/2															G1008KRRB	S1008K		
GRFD	GRFDR	5/8	40.5	53.2	81	63.5	7.1	47.6	37.3	17.5	23.4	7.9	9.5	28.6	29.4	4.4	G1010KRRB	S1010K	0.259	
GRFD	GRFDR	11/16	1 19/32	2 3/32	3 3/16	2 1/2	9/32	1 7/8	1 15/32	1 1/16	59/64	5/16	3/8	1 1/8	1 5/32	1 1/64	G1011KRRB	S1011K	0.57	
GRFD	GRFDR	17															GE17KRRB	SE17K		
GRFD	GRFDR	3/4	45.2	60.3	90.5	71.4	8.7	54.8	43.7	19.8	26.6	9.1	10.7	33.3	34.1	6.4	G1012KRRB	S1012K	0.395	
GRFD	GRFDR	20	1 25/32	2 3/8	3 9/16	2 13/16	1 1/32	2 5/32	1 23/32	2 5/32	1 3/64	23/64	27/64	1 5/16	1 11/32	1/4	GE20KRRB	SE20K	0.87	
GRFD	GRFDR	7/8															G1014KRRB	S1014K		
GRFD	GRFDR	15/16	47.6	66.7	95.2	76.2	8.7	60.3	44.4	19.8	27	9.1	10.7	38.1	38.9	6.7	G1015KRRB	S1015K	0.463	
GRFD	GRFDR	1	1 7/8	2 5/8	3 3/4	3	1 1/32	2 3/8	1 3/4	2 5/32	1 1/16	23/64	27/64	1 1/2	1 17/32	1 7/64	G1100KRRB	S1100K	1.02	
GRFD	GRFDR	25															GE25KRRB	SE25K		
GRFD	GRFDR	1 1/16															G1101KRRB	S1101K		
GRFD	GRFDR	1 1/8	56.4	78.6	112.7	90.5	10.3	71.4	48.4	22.2	30.2	10.7	11.9	44.5	46	6.4	G1102KRRB	S1102K	6.26	
GRFD	GRFDR	1 3/16	2 7/32	3 3/32	4 7/16	3 9/16	1 3/32	2 13/16	1 29/32	7/8	1 3/16	27/64	15/32	1 3/4	1 13/16	1/4	G1103KRRB	S1103K	1.38	
GRFD	GRFDR	1 1/4 S															G1103KRRB3	S1103K3		
GRFD	GRFDR	30															GE30KRRB	SE30K		
GRFD	GRFDR	1 1/4															G1104KRRB	S1104K		
GRFD	GRFDR	1 5/16	61.1	88.9	122.2	100	10.3	81.8	51.2	23.8	32.5	11.1	12.7	54	53.2	6.4	G1105KRRB	S1105K	0.857	
GRFD	GRFDR	1 3/8	2 15/32	3 1/2	4 13/16	3 15/16	1 3/32	3 7/32	2 1/64	1 5/16	1 9/32	7/16	1/2	2 1/8	2 3/32	1/4	G1106KRRB	S1106K	1.89	
GRFD	GRFDR	1 7/16															G1107KRRB	S1107K		
GRFD	GRFDR	35															GE35KRRB	SE35K		
GRFD	GRFDR	1 1/2	73.8	98.4	147.6	119.1	13.5	89.7	56.4	28.6	34.9	12.7	15.9	60.3	59.5	5.6	G1108KRRB	S1108KT	1.138	
GRFD	GRFDR	1 9/16	2 29/32	3 7/8	5 13/16	4 1 1/16	1 7/32	3 17/32	2 7/32	1 1/8	1 3/8	1/2	5/8	2 3/8	2 1 1/32	7/32	G1109KRRB	S1109KT	2.50	
GRFD	GRFDR	40															GE40KRRB	SE40K		
GRFD	GRFDR	1 5/8															G1110KRRB	S1110K		
GRFD	GRFDR	1 11/16	74.6	107.2	149.2	120.6	13.5	96	56.4	28.6	34.9	12.7	15.9	63.5	65.1	5.6	G1111KRRB	S1111K	1.488	
GRFD	GRFDR	1 3/4	2 15/16	4 7/32	5 7/8	4 3/4	1 7/32	3 25/32	2 7/32	1 1/8	1 3/8	1/2	5/8	2 1/2	2 9/16	7/32	G1112KRRB	S1112K	3.28	
GRFD	GRFDR	45															GE45KRRB	SE45K		
GRFD	GRFDR	1 7/8	77.8	113.5	155.6	127	13.5	100.8	62.7	28.6	38.1	12.7	15.9	69.8	69.8	8.7	G1114KRRB	S1114K	1.692	
GRFD	GRFDR	1 15/16	3 1/16	4 15/32	6 1/8	5	1 7/32	3 31/32	2 15/32	1 1/8	1 1/2	1/2	5/8	2 3/4	2 3/4	1 1/32	G1115KRRB	S1115K	3.73	
GRFD	GRFDR	50															GE50KRRB	SE50K		

⁽¹⁾ All units have a 1/4-28 grease fitting, except as noted.

: 10-32 grease fitting.

Shaft diameter with an S = smaller housing.



BALL BEARINGS

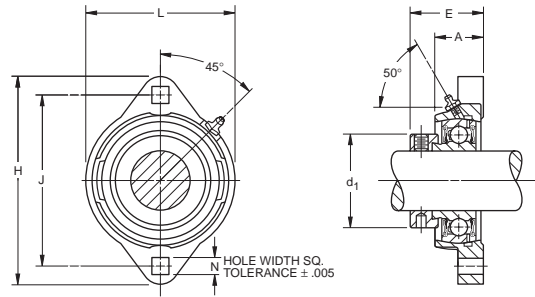
GVFTD, GVFTDR RELUBRICATABLE SERIES - VFTD, VFTDR NON-RELUBRICATABLE SERIES

- Malleable iron flange cartridges provide self-alignment and rigid support for medium-duty applications.

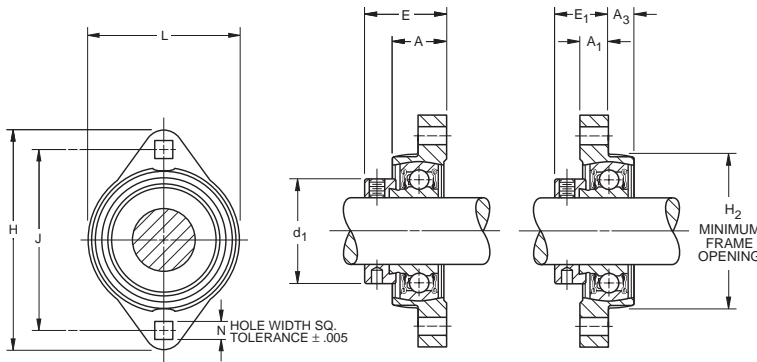
Suggested shaft tolerances: nominal to $-.013$ mm, $-.0005$ "

BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
VFTD, VFTDR	RA...RRB	Page D56
GVFTD, GVFTDR	GRA...RRB	Page D57

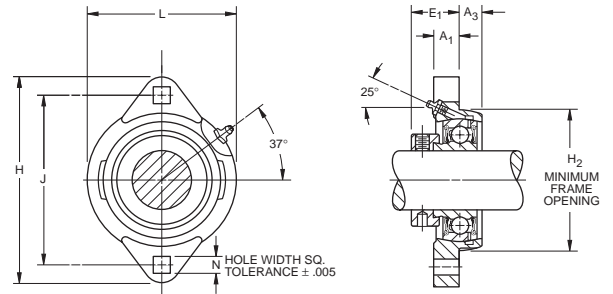


GVFTD



VFTD

VFTDR



GVFTDR

FOR NON-RELUBRICATABLE SERIES, OMIT G PREFIX ON UNIT AND BEARING NUMBER.

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: VFTD 1 3/16" or VFTDR 1 3/16" or GVFTD 1 3/16" OR GVFTDR 1 3/16".

Unit face mounted	Unit reverse mounted	Shaft Dia.	H	J	L	N	H ₂	E	A	E ₁	A ₃	A ₁	d ₁	Bearing Number	Collar Number	Unit Wt.
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			
RELUBRICATABLE SERIES (1)																
GVFTD	GVFTDR	1/2	81	63.5	53.2	7.1	47.6	31.8	17.5	22.2	7.9	9.5	28.6	GRA008RRB	S1008K	0.245
GVFTD	GVFTDR	5/8	3 3/16	2 1/2	2 3/32	9/32	17 7/8	1 1/4	11 1/16	7 7/8	5 1/16	3 7/8	1 1/8	GRA010RRB	S1010K	0.54
GVFTD	GVFTDR	17												GRAE17RRB	SE17K	
GVFTD	GVFTDR	3/4	90.5	71.4	60.3	8.7	54.8	34.1	19.8	23.4	9.1	10.7	33.3	GRA012RRB	S1012K	0.331
GVFTD	GVFTDR	20	3 9/16	2 13/16	2 3/8	11 1/32	2 5/32	1 11 1/32	25 1/32	59 64	23 64	27 64	1 5 1/16	GRAE20RRB	SE20K	0.73
GVFTD	GVFTDR	7/8												GRA014RRB	S1014K	
GVFTD	GVFTDR	1 5/16	95.2	76.2	66.7	8.7	60.3	34.1	19.8	23.4	9.1	10.7	38.1	GRA015RRB	S1015K	0.363
GVFTD	GVFTDR	1	3 3/4	3	2 5/8	11 1/32	2 3/8	1 11 1/32	25 1/32	59 64	23 64	27 64	1 1/2	GRA100RRB	S1100K	0.8
GVFTD	GVFTDR	25												GRAE25RRB	SE25K	
GVFTD	GVFTDR	1 1/8												GRA102RRB	S1102K	
GVFTD	GVFTDR	1 3/16	112.7	90.5	78.6	10.3	71.4	38.9	22.2	26.6	10.7	11.9	44.5	GRA103RRB	S1103K	0.608
GVFTD	GVFTDR	1 1/4 S	4 7/16	3 9/16	3 3/32	13 1/32	2 13 1/16	1 17 1/32	7 7/8	1 3 64	27 64	15 32	1 3/4	GRA103RRB2	S1103K3	1.34
GVFTD	GVFTDR	30												GRAE30RRB	SE30K	
GVFTD	GVFTDR	1 1/4												GRA104RRB	S1104K	0.862
GVFTD	GVFTDR	1 3/8	122.2	100	88.9	10.3	81.8	42.1	23.8	29.4	11.1	12.7	54	GRA106RRB	S1106K	1.9
GVFTD	GVFTDR	1 7/16	4 13/16	3 15/16	3 1/2	13 1/32	3 7 3/32	1 21 1/32	15 1/16	1 5 32	7 1/16	1 1/2	2 1/8	GRA107RRB	S1107K	
GVFTD	GVFTDR	35												GRAE35RRB	SE35K	

(1) All units have a 1/4-28 grease fitting.
Shaft diameter with an S = smaller housing.

GRFTD, GRFTDR RELUBRICATABLE SERIES - RFTD, RFTDR NON-RELUBRICATABLE SERIES

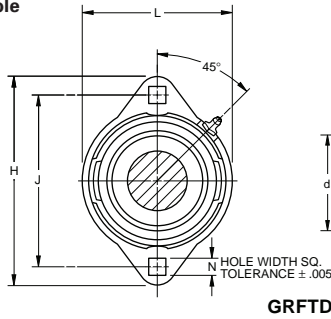
- Malleable iron flange cartridges provide self-alignment and rigid support for medium-duty applications.

Suggested shaft tolerances: nominal to $-.013$ mm, $-.0005$ ".

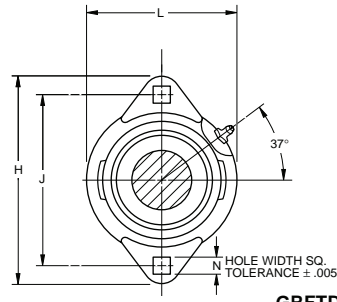
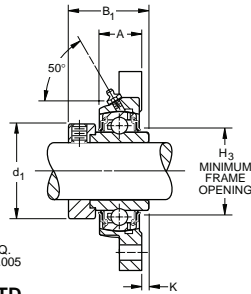
BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
RFTD, RFTDR	...KRRB	Page D53
GRFTD, GRFTDR	G...KRRB	Page D54

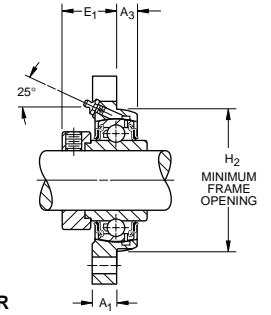
Relubricatable Series



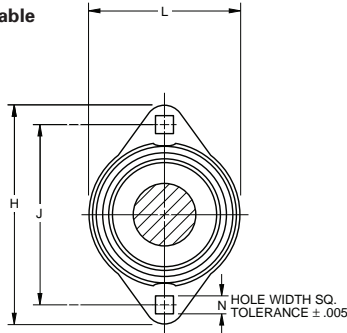
GRFTD



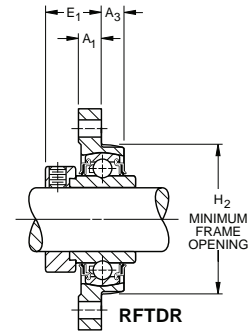
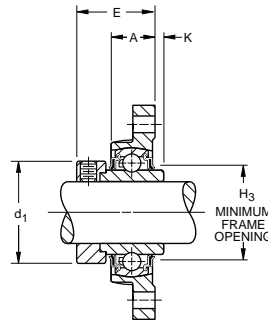
GRFTDR



Non-Relubricatable Series



RFTD



RFTDR

FOR NON-RELUBRICATABLE SERIES, OMIT G PREFIX ON UNIT AND BEARING NUMBER.

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: RFTD 1 3/16" or RFTDR 1 3/16" or GRFTD 1 3/16" or GRFTDR 1 3/16".

Unit face mounted	Unit reverse mounted	Shaft Dia.	H	J	L	N	H ₂	B ₁	A	E ₁	A ₃	A ₁	d ₁	H ₃	K	Bearing Number	Collar Number	Unit Wt.
			mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			
RELUBRICATABLE SERIES ⁽¹⁾																		
GRFTD	GRFTDR	1/2														G1008KRRB	S1008K	
GRFTD	GRFTDR	5/8	81	63.5	53.2	7.1	47.6	37.3	15.9	23.4	7.9	9.5	28.6	29.4	4.4	G1010KRRB	S1010K	0.254
GRFTD	GRFTDR	11/16	3 9/16	2 1/2	2 3/32	9/32	1 7/8	1 15/32	5/8	59/64	5/16	3/8	1 1/8	1 5/32	1 1/64	G1011KRRB	S1011K	0.56
GRFTD	GRFTDR	17														GE17KRRB	SE17K	
GRFTD	GRFTDR	3/4	90.5	71.4	60.3	8.7	54.8	43.7	19.8	26.6	9.1	10.7	33.3	34.1	6.4	G1012KRRB	S1012K	0.386
GRFTD	GRFTDR	20	3 9/16	2 13/16	2 3/8	1 1/32	2 5/32	1 23/32	25/32	1 3/64	23/64	27/64	1 5/16	1 11/32	1/4	GE20KRRB	SE20K	0.85
GRFTD	GRFTDR	7/8														G1014KRRB	S1014K	
GRFTD	GRFTDR	15/16	95.2	76.2	66.7	8.7	60.3	44.4	19.8	27	9.1	10.7	38.1	38.9	6.7	G1015KRRB	S1015K	0.386
GRFTD	GRFTDR	1	3 3/4	3	2 5/8	1 1/32	2 3/8	1 3/4	25/32	1 1/16	23/64	27/64	1 1/2	1 17/32	17/64	G1100KRRB	S1100K	0.85
GRFTD	GRFTDR	25														GE25KRRB	SE25K	
GRFTD	GRFTDR	1 1/16														G1101KRRB	S1101K	
GRFTD	GRFTDR	1 1/8	112.7	90.5	78.6	10.3	71.4	48.4	22.2	30.2	10.7	11.9	44.5	46	6.4	G1102KRRB	S1102K	0.712
GRFTD	GRFTDR	1 3/16	4 7/16	3 9/16	3 3/32	1 3/32	2 13/16	1 29/32	7/8	1 3/16	27/64	15/32	1 3/4	1 13/16	1/4	G1103KRRB	S1103K	1.57
GRFTD	GRFTDR	1 1/4 S														G1103KRRB3	S1103K3	
GRFTD	GRFTDR	30														GE30KRRB	SE30K	
GRFTD	GRFTDR	1 1/4														G1104KRRB	S1104K	
GRFTD	GRFTDR	1 5/16	122.2	100	88.9	10.3	81.8	51.2	23.8	32.5	11.1	12.7	54	53.2	6.4	G1105KRRB	S1105K	0.962
GRFTD	GRFTDR	1 3/8	4 13/16	3 15/16	3 1/2	1 3/32	3 7/32	2 1/64	15/16	1 9/32	7/16	1/2	2 1/8	2 3/32	1/4	G1106KRRB	S1106K	2.12
GRFTD	GRFTDR	1 7/16														G1107KRRB	S1107K	
GRFTD	GRFTDR	35														GE35KRRB	SE35K	

⁽¹⁾ All units have a 1/4-28 grease fitting.
Shaft diameter with an S = smaller housing.



BALL BEARINGS

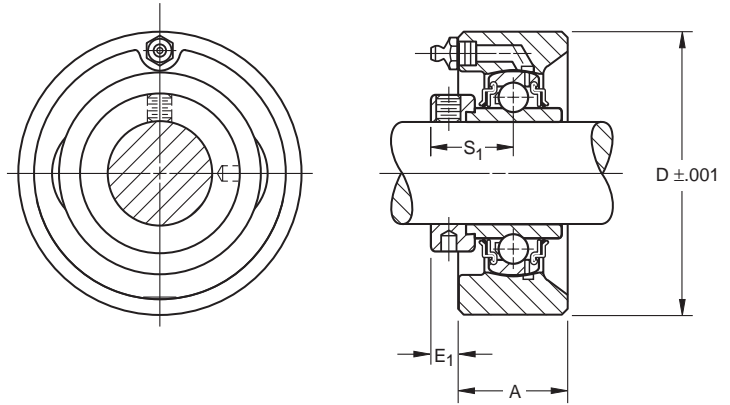
RC SERIES

- Convenient for mounting in straight-bore housings.
- Bearing features a self-locking collar and spherical outside diameter fitted to a corresponding spherical seat in the cartridge that provides self-alignment.
- Equipped with a G-KRRB (R-Seal) bearing.

Suggested housing bore:

Shaft Rotating: nominal +.025 mm to +.076 mm, +.001" to +.003".
 Shaft Stationary: nominal +.00 mm to -.050 mm, +.000" to -.002".
 Avoid excessive tightening of anchor bolts.

Suggested shaft tolerances: $\frac{1}{2}$ " - $1\frac{15}{16}$ ", nominal to -.013 mm, -.0005";
 2" - $3\frac{15}{16}$ ", nominal to -.025 mm, -.0010".



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
RC	G...KRRB	Page D54

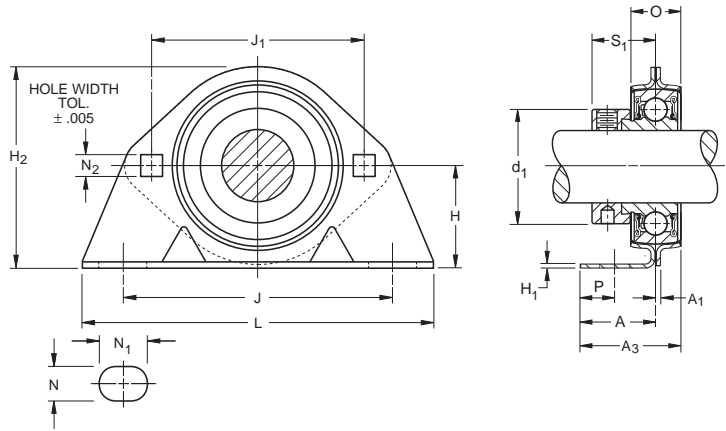
TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: RC $1\frac{3}{16}$ ". POPULAR SIZES ARE IN BOLD.

Unit	Shaft Dia.		D	A	E ₁	S ₁	Bearing Number	Collar Number	Housing Number	Unit Wt.
	mm	in.								
RC	$\frac{1}{2}$						G1008KRRB	S1008K		
RC	$\frac{5}{8}$		68.27	30.2	8.3	23.4	G1010KRRB	S1010K	T-16793	0.549
RC	$\frac{11}{16}$		$2\frac{11}{16}$	$1\frac{3}{16}$	$\frac{21}{64}$	$\frac{59}{64}$	G1011KRRB	S1011K		1.21
RC	17						GE17KRRB	SE17K		
RC	$\frac{3}{4}$		74.61	36.5	8.3	26.6	G1012KRRB	S1012K	T-16795	0.804
RC	20		$2\frac{15}{16}$	$1\frac{7}{16}$	$\frac{21}{64}$	$\frac{13}{64}$	GE20KRRB	SE20K		1.77
RC	$\frac{7}{8}$						G1014KRRB	S1014K		
RC	$\frac{15}{16}$		79.38	38.1	7.9	27	G1015KRRB	S1015K	T-16797	0.876
RC	1		$3\frac{1}{8}$	$1\frac{1}{2}$	$\frac{5}{16}$	$1\frac{1}{16}$	G1100KRRB	S1100K		1.93
RC	25						GE25KRRB	SE25K		
RC	$1\frac{1}{16}$						G1101KRRB	S1101K		
RC	$1\frac{1}{8}$		88.9	38.1	11.1	30.2	G1102KRRB	S1102K	T-16798	1.171
RC	$1\frac{3}{16}$		$3\frac{1}{2}$	$1\frac{1}{2}$	$\frac{7}{16}$	$\frac{13}{16}$	G1103KRRB	S1103K		2.58
RC	30						GE30KRRB	SE30K		
RC	$1\frac{1}{4}$						G1104KRRB	S1104K		
RC	$1\frac{5}{16}$		98.43	39.7	12.7	32.5	G1105KRRB	S1105K	T-16686	1.448
RC	$1\frac{3}{8}$		$3\frac{7}{8}$	$1\frac{9}{16}$	$\frac{1}{2}$	$\frac{19}{32}$	G1106KRRB	S1106K		3.19
RC	$1\frac{7}{16}$						G1107KRRB	S1107K		
RC	35						GE35KRRB	SE35K		
RC	$1\frac{1}{2}$		106.36	44.4	12.7	34.9	G1108KRRB	S1108KT	T-16800	1.87
RC	$1\frac{9}{16}$		$4\frac{3}{16}$	$1\frac{3}{4}$	$\frac{1}{2}$	$\frac{13}{8}$	G1109KRRB	S1109KT		4.12
RC	40						GE40KRRB	SE40K		
RC	$1\frac{5}{8}$						G1110KRRB	S1110K		
RC	$1\frac{11}{16}$		111.13	44.4	12.7	34.9	G1111KRRB	S1111K	T-16687	1.97
RC	$1\frac{3}{4}$		$4\frac{3}{8}$	$1\frac{3}{4}$	$\frac{1}{2}$	$\frac{13}{8}$	G1112KRRB	S1112K		4.34
RC	45						GE45KRRB	SE45K		
RC	$1\frac{7}{8}$		115.89	52.4	11.9	38.1	G1114KRRB	S1114K	T-16802	2.452
RC	$1\frac{15}{16}$		$4\frac{9}{16}$	$2\frac{1}{16}$	$\frac{15}{32}$	$1\frac{1}{2}$	G1115KRRB	S1115K		5.4
RC	50						GE50KRRB	SE50K		
RC	2						G1200KRRB	S1200K		
RC	$2\frac{1}{8}$		125.41	58.7	14.3	43.7	G1202KRRB	S1202K	T-16804	3.164
RC	$2\frac{3}{16}$		$4\frac{15}{16}$	$2\frac{5}{16}$	$\frac{9}{16}$	$1\frac{23}{32}$	G1203KRRB	S1203K		6.97
RC	55						GE55KRRB	SE55K		
RC	$2\frac{7}{16}$		149.23	65.1	14.3	46.8	G1207KRRB	S1207K	T-17927	5.13
RC	60		$5\frac{7}{8}$	$2\frac{9}{16}$	$\frac{9}{16}$	$1\frac{27}{32}$	GE60KRRB	SE60K		11.30

All units have $\frac{1}{4}$ "-28 grease fittings.

PBS SERIES

- Economical transmission unit for light-duty, moderate-speed requirements.
- Housing includes two heavy-gage, zinc-plated steel stampings. One is a standard stamping used in the MST two-bolt flangette unit.
- RA-RRB (extended inner-ring) bearings are regularly furnished with this bearing. RR wide inner rings also can be used.
- Timken self-locking collar completes the assembly.
- Made with precision bearing seat and dimensions held to close tolerances. This provides accurate bearing-to-housing fit and assures proper alignment of parts.
- RA-RRB bearing used in the PBS pillow block has positive contact land-riding seals. It includes a shroud cap design and is permanently prelubricated.
- Base-to-center height and bolt spacing are interchangeable with many other pillow blocks on the market.



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
PBS	RA...RRB	Page D56

Suggested shaft tolerances: nominal to **-.013 mm, -.0005"**.

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: PBS 1 7/16"

Unit	Shaft Dia.	H	J	N ₁	L	H ₂	J ₁	d ₁	S ₁	O	A	H ₁	A ₁	A ₃	N ₂	P	N	Bearing Number	Flangette Number	Stamping Radial Load Rating ⁽¹⁾	Unit Wt.
	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			N lbs.	kg lbs.
PBS	1/2	30.2	92.1	15.9	123.8	59.5	63.5	28.6	22.2	14.3	25.4	2.64	1.9	32.5	7.1	10.3	10.3	RA008RRB	40	2650	0.34
PBS	5/8	1 3/16	3 5/8	5/8	4 7/8	2 11/32	2 1/2	1 1/8	7/8	9/16	1	0.104	0.075	1 9/32	9/32	13/32	13/32	RA010RRB	MST-(ZP)	600	0.75
PBS	17																	RAE17RRB			
PBS	3/4	33.3	96.8	15.9	127	68.3	71.4	33.3	23.4	15.9	25.4	3.02	2.11	33.3	8.7	10.3	10.3	RA012RRB	47	3100	0.44
PBS	20	1 5/16	3 13/16	5/8	5	2 11/16	2 13/16	1 5/16	59/64	5/8	1	0.119	0.083	1 5/16	11/32	13/32	13/32	RAE20RRB	MST-(ZP)	700	0.97
PBS	7/8																	RA014RRB			
PBS	15/16	36.5	95.2	20.6	133.4	72.2	76.2	38.1	23.4	17.5	25.4	3.4	2.11	34.1	8.7	11.1	11.1	RA015RRB	52	3550	0.544
PBS	1	1 7/16	3 3/4	13/16	5 1/4	2 27/32	3	1 1/2	59/64	11/16	1	0.134	0.083	1 11/32	11/32	7/16	7/16	RA100RRB	MST-(ZP)	800	1.2
PBS	25																	RAE25RRB			
PBS	1 1/8																	RA102RRB			
PBS	1 3/16	42.9	119.1	22.2	158.8	84.9	90.5	44.4	26.6	17.5	30.2	3.4	2.64	37.3	10.3	14.3	14.3	RA103RRB	62	3550	0.744
PBS	1 1/4 S	1 11/16	4 11/16	7/8	6 1/4	3 11/32	3 9/16	1 3/4	1 3/64	11/16	1 3/16	0.134	0.104	1 15/32	13/32	9/16	9/16	RA103RRB2	MST-(ZP)	800	1.64
PBS	30																	RAE30RRB			
PBS	1 1/4	47.6	127	22.2	165.1	94.5	100	54	29.4	22.2	34.9	3.78	2.64	46	10.3	14.3	14.3	RA104RRB	72	4000	1.089
PBS	1 3/8	1 7/8	5	7/8	6 1/2	3 23/32	3 15/16	2 1/8	1 5/32	7/8	1 3/8	0.149	0.104	1 13/16	13/32	9/16	9/16	RA106RRB	MST-(ZP)	900	2.4
PBS	1 7/16																	RA107RRB			
PBS	35																	RAE35RRB			

⁽¹⁾ Stamping thrust rating is 1/5 of stamping radial load rating.
Shaft diameter with an S = smaller housing.





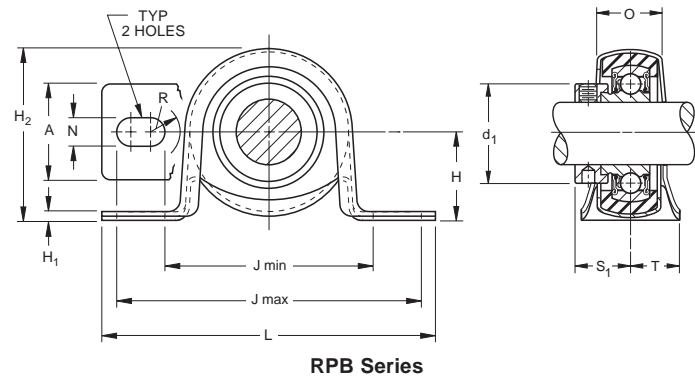
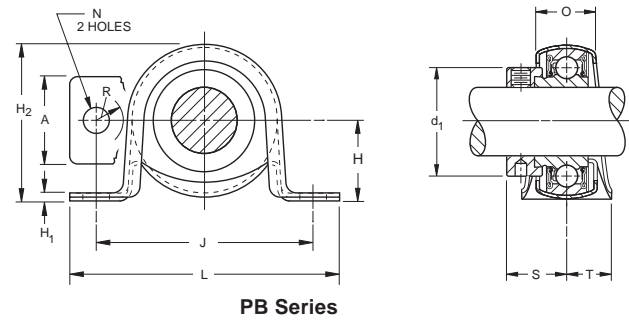
PB SERIES - RPB SERIES

- PB Series provides the advantages of ball bearings at an economical price.
- Used for light-duty applications.
- Consists of a two-piece separable zinc-plated steel housing with spherical bearing seat. This allows the spherically ground bearing to have initial self-alignment in all directions.
- The ball bearing is a RA-RRB extended inner ring type with positive contact land-riding seals and a self-locking collar.
- Incorporates improved shroud cap design and comes permanently prelubricated.
- RPB has same construction as PB-Type, but with a thick, electrically-conductive rubber interliner.
- Bearings in the RPB unit are designated as RA-RRB F-450 and have a special ball and race finish for quiet operation.
- RABR unit consists of the bearing with the rubber interliner.

Suggested shaft tolerances: nominal to **-.013 mm, -.0005"**.

BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
PB	RA...RRB	Page D56
RPB	RA...RRB	Page D56



TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: PB 1 3/16". POPULAR SIZES ARE IN BOLD.

Unit	Shaft Dia.	H	H ₂	J max.	J min.	L	A	H ₁	N	R	d ₁	O	S ₁	T	Bearing Number	Collar Number	Stamping Radial Load Rating ⁽²⁾	Unit Wt.	
																		N	kg
	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			lbs.	kg	
PB	1/2	22.2	44.4	81	55.6	92.1	25.4	2.54	8.7	8.7	28.6	18.24	22.07	12.7	RA008RRB	S1008K	1340	0.2	
PB	5/8	7/8	1 3/4	3 3/16	2 3/16	3 5/8	1	0.1	1 1/32	1 1/32	1 1/8	0.718	0.869	1/2	RA010RRB	S1010K	300	0.44	
PB	17														RAE17RRB	SE17K			
PB	3/4	25.4	52.4	88.9	63.5	104.8	25.4	2.54	10.3	10.3	33.3	21.82	23.44	15.9	RA012RRB	S1012K	1560	0.259	
PB	20	1	2 1/16	3 1/2	2 1/2	4 1/8	1	0.1	1 3/32	1 3/32	1 5/16	0.859	0.923	5/8	RAE20RRB	SE20K	350	0.57	
PB	7/8														RA014RRB	S1014K			
PB	15/16	28.6	56.4	100	71.4	114	28.6	5.28	10.3	10.3	38.1	25.4	23.44	14.3	RA015RRB	S1015K	1760	0.295	
PB	1	1 1/8	2 7/32	3 15/16	2 13/16	4 1/2	1 1/8	0.208	1 3/32	1 3/32	1 1/2	1	0.923	9/16	RA100RRB	S1100K	400	0.65	
PB	25														RAE25RRB	SE25K			
PB	1 1/8														RA102RRB	S1102K			
PB	1 3/16	33.3	66.7	104.8	76.2	123.8	31.8	3.68	10.3	10.3	44.5	25.4	26.72	19	RA103RRB	S1103K	2650	0.476	
PB	1 1/4 S	1 5/16	2 5/8	4 1/8	3	4 7/8	1 1/4	0.145	1 3/32	1 3/32	1 3/4	1	1.052	3/4	RA103RRB2	S1103K3	600	1.05	
PB	30														RAE30RRB	SE30K			

⁽¹⁾ Housing thrust rating is 1/3 of housing radial load rating.

Load ratings are upright mounted capacities with load direction toward base. These units should not be mounted vertically or upside down.

Shaft diameter with an S = smaller housing.

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: RPB 1 3/16". POPULAR SIZES ARE IN BOLD.

Unit	Shaft Dia.	H	H ₂	J max.	J min.	L	A	H ₁	N (width)	R	d ₁	O	S ₁	T	Bearing Number ⁽¹⁾	Collar Number	Stamping Radial Load Rating ⁽²⁾	Unit Wt.	
																		N	kg
	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			lbs.	kg	
RPB	1/2	25.4	52.4	88.9	63.5	104.8	25.4	2.54	10.3	10.3	28.6	21.59	22.07	15.9	RA008RRB	S1008K	880	0.2	
RPB	5/8	1	2 1/16	3 1/2	2 1/2	4 1/8	1	0.1	1 3/32	1 3/32	1 1/8	0.85	0.869	5/8	RA010RRB	S1010K	200	0.44	
RPB	17														RAE17RRB	SE17K			
RPB	3/4	28.58	56.4	100	71.4	114	28.6	5.28	10.3	10.3	33.3	25.4	23.44	14.3	RA012RRB	S1012K	1120	0.259	
RPB	20	1 1/8	2 7/32	3 5/16	2 13/16	4 1/2	1 1/8	0.208	1 3/32	1 3/32	1 5/16	1	0.923	9/16	RAE20RRB	SE20K	250	0.57	
RPB	7/8														RA014RRB	S1014K			
RPB	15/16	33.34	66.7	104.8	76.2	123.8	31.8	3.68	10.3	10.3	38.1	25.4	23.44	19	RA015RRB	S1015K	1340	0.295	
RPB	1	1 5/16	2 5/8	4 1/8	3	4 7/8	1 1/4	0.145	1 3/32	1 3/32	1 1/2	1	0.923	3/4	RA100RRB	S1100K	300	0.65	
RPB	25														RAE25RRB	SE25K			
LRPB	1 3/16	33.34	66.7	104.8	76.2	123.8	31.8	3.68	10.3	10.3	44.4	25.4	28.3	19	RAL103NPPB	LS103K	1340	0.476	
		1 5/16	2 5/8	4 1/8	3	4 7/8	1 1/4	0.145	1 3/32	1 3/32	1 3/4	1	1.114	3/4			300	1.05	

⁽¹⁾ Bearing suffix number FS450.

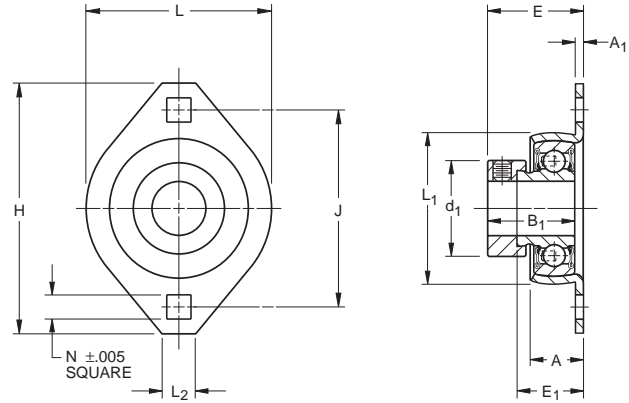
⁽²⁾ Housing thrust rating is 1/3 of housing radial load rating. Maximum suggested speed is 2400 RPM.

VFMST SERIES

- Zinc-plated, pressed-metal flange unit is assembled with an RA-RR prelubricated extended inner ring type bearing.
- Ideal for light-duty applications.
- Features flush-mounting.
- Additional contamination protection.
- Self-aligning.

BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
VFMST	RA...RRB	Page D56



POPULAR SIZES ARE IN BOLD.

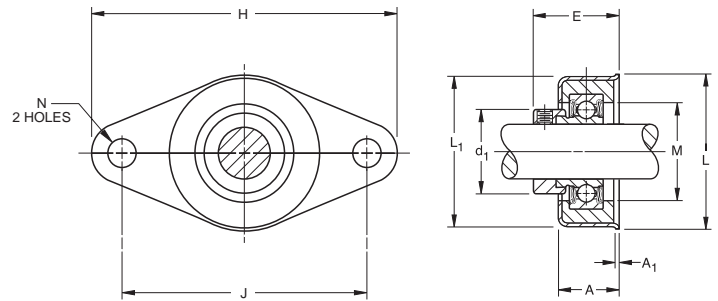
Unit	Shaft Dia.	H	J	L	E	A	N	L ₁	E ₁	L ₂	B ₁	d ₁	A ₁	Bearing Number	Collar Number	Stamping Size	Radial Load Rating ⁽¹⁾	
																	N	lbs.
VFMST	3/4	90.5	71.4	66.7	33.3	16.7	8.7	50.8	23	12.7	31	33.3	2.64	RA012RRB	S1012K	47FMST	2240	
VFMST	20	3 9/16	2 13/16	2 5/8	1 5/16	2 1/32	1 1/32	2	29/32	1/2	1 7/32	1 5/16	0.104	RAE20RRB	SE20K		500	
VFMST	7/8													RA014RRB	S1014K			
VFMST	1 5/16	95.2	76.2	71	33.3	18.3	8.7	55.6	23.8	12.7	31	38.1	2.64	RA015RRB	S1015K	52FMST	2650	
VFMST	1	3 3/4	3	2 51/64	1 5/16	2 3/32	1 1/32	2 3/16	1 5/16	1/2	1 7/32	1 1/2	0.104	RA100RRB	S1100K		600	
VFMST	25													RAE25RRB	SE25K			
VFMST	1 1/8													RA102RRB	S1102K			
VFMST	1 3/16	112.7	90.5	84.1	38.9	23	10.3	66.7	27.8	15.9	35.7	44.4	3.4	RA103RRB	S1103K	62FMST	3550	
VFMST	1 1/4 S	4 7/16	3 9/16	3 5/16	1 17/32	2 9/32	1 3/32	2 5/8	1 3/32	5/8	1 13/32	1 3/4	0.134	RA103RRB2	S1103K3		800	
VFMST	30													RAE30RRB	SE30K			

Shaft diameter with an S = smaller housing.

⁽¹⁾ Housing thrust rating is 1/3 of housing radial load rating.

LFST SERIES

- Zinc-plated, pressed-steel and flush-mounted.
- Simplifies bearing flange unit installations.
- Conductive rubber interliner reduces noise and vibration. Allows for alignment while pressed-steel flange assures rigid bearing support.
- Bolt hole spacing permits interchangeability with competitive mountings.
- Offers compact, economical, corrosion-resistant housing and balanced design.
- Features Timken RAL light series ball bearings. The RAL provides precision in an extended inner ring bearing with superior shroud seal protection and self-locking collar.
- Bearings are prelubricated.



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
LFST	RAL...NPP	Page D60

Suggested shaft tolerances: nominal to -.013 mm, -.0005".

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: LFST 1". POPULAR SIZES ARE IN BOLD.

Unit	Shaft Dia.	H	J	L	L ₁	E	N	A	A ₁	d ₁	M	Bearing Number	Collar Number	Housing Radial Load Rating ⁽¹⁾	
														N	lbs.
LFST	1/2	114.3	92.1	57.2	55.6	31	9.5	23	1.52	25.4	29.4	RAL008NPP	LS008K	880	
LFST	5/8	4 1/2	3 5/8	2 1/4	2 3/16	1 7/32	3/8	2 9/32	0.06	1	1 5/32	RAL010NPP	LS010K	200	
LFST	3/4	114.3	92.1	57.2	55.6	31	9.5	23	1.52	29.8	34.9	RAL012NPP	LS012K	1120	
		4 1/2	3 5/8	2 1/4	2 3/16	1 7/32	3/8	2 9/32	0.06	1 11/64	1 3/8			250	
LFST	1 5/16	114.3	92.1	57.2	55.6	31	9.5	23	1.52	36.1	39.7	RAL015NPP	LS015K	1340	
LFST	1	4 1/2	3 5/8	2 1/4	2 3/16	1 7/32	3/8	2 9/32	0.06	1 27/64	1 9/16	RAL100NPP	LS100K	300	

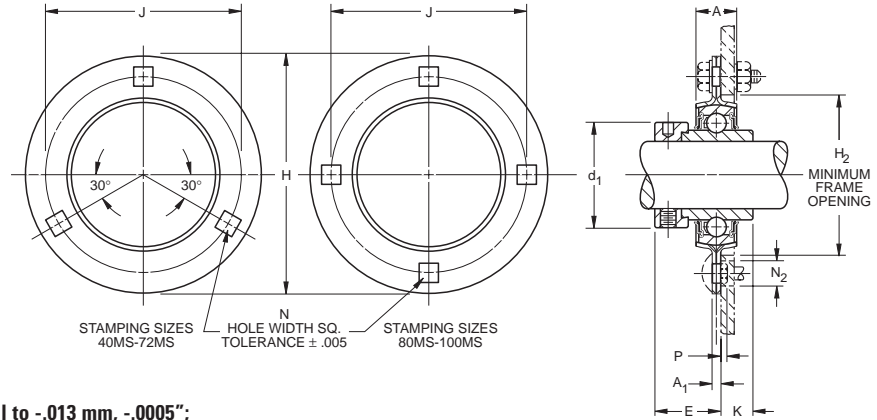
⁽¹⁾ Housing thrust rating is 1/3 of housing radial load rating. Maximum suggested speed is 2400 RPM.



BALL BEARINGS

RR FLANGETTE UNIT

- Consists of two interchangeable, pressed-steel, zinc-plated flanges housing a standard bearing with self-locking collar.
- Spherical inside surfaces of each pair of flanges mate with the spherical outside surface of the bearing's outer ring. This provides initial self-alignment.
- Flangette is equipped with the KRRB (R-Seal) wide inner ring ball bearing.
- All units are non-relubricatable.



Suggested shaft tolerances: $\frac{1}{2}$ " - $1 \frac{15}{16}$ ", nominal to $-.013$ mm, $-.0005$ ";
 2 " - $2 \frac{3}{16}$ ", nominal to $-.025$ mm, $-.0010$ ".

BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
RR	KRRB	Page D53

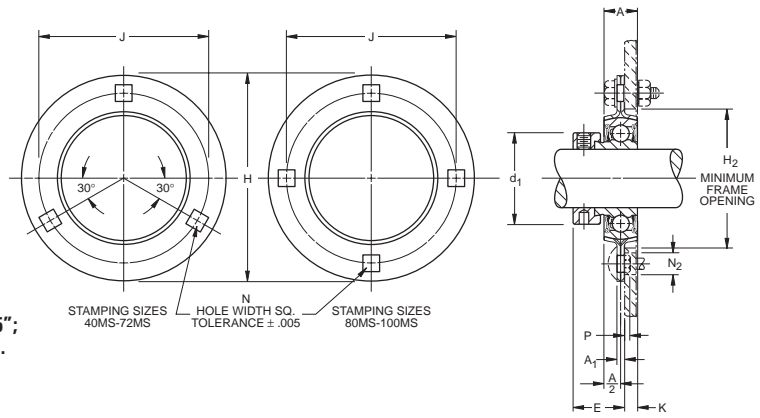
Unit	Shaft Dia.	H	A	J	N Hole Width	H ₂	A ₁	E	K	d ₁	Bolt Size	P		N ₂ Flange Hole Diam to Clear Sq. Shank	Bearing Number	Collar Number	Stamping ⁽²⁾ Size	Radial Load Rating ⁽¹⁾		Unit Wt.
												Short Shank	Long Shank					N lbs.	kg lbs.	
RR	$\frac{1}{2}$	81	14.2	63.5	7.1	49.2	3.8	25.4	11.9	28.6	6.4	0.15	2.54	10.3	1008KRRB	S1008K	40MS	2650	0.295	
RR	$\frac{5}{8}$	$3 \frac{3}{16}$	$\frac{9}{16}$	$2 \frac{1}{2}$	$\frac{9}{32}$	$1 \frac{15}{16}$	0.15	1	$\frac{15}{32}$	$1 \frac{1}{8}$	$\frac{1}{4}$	0.006	0.1	$\frac{13}{32}$	1010KRRB	S1010K		600	0.65	
RR	17														E17KRRB	SE17K				
RR	$\frac{3}{4}$	90.5	15.8	71.4	8.7	55.6	4.22	28.6	15.1	33.3	7.9	0.53	2.92	12.7	1012KRRB	S1012K	47MS	3100	0.404	
RR	20	$3 \frac{3}{16}$	$\frac{5}{8}$	$2 \frac{13}{16}$	$\frac{11}{32}$	$2 \frac{3}{16}$	0.166	$1 \frac{1}{8}$	$\frac{19}{32}$	$1 \frac{5}{16}$	$\frac{5}{16}$	0.021	0.115	$\frac{1}{2}$	E20KRRB	SE20K		700	0.89	
RR	$\frac{7}{8}$														1014KRRB	S1014K				
RR	$\frac{15}{16}$	95.2	17.4	76.2	8.7	60.3	4.22	28.6	15.1	38.1	7.9	0.53	2.92	12.7	1015KRRB	S1015K	52MS	3550	0.49	
RR	1	$3 \frac{3}{4}$	$\frac{11}{16}$	3	$\frac{11}{32}$	$2 \frac{3}{8}$	0.166	$1 \frac{1}{8}$	$\frac{19}{32}$	$1 \frac{1}{2}$	$\frac{5}{16}$	0.021	0.115	$\frac{1}{2}$	1100KRRB	S1100K		800	1.08	
RR	25														E25KRRB	SE25K				
RR	$1 \frac{1}{8}$														1102KRRB	S1102K				
RR	$1 \frac{3}{16}$	112.7	17.4	90.5	10.3	71.4	5.28	32.5	15.9	44.5	9.5	0.28	2.64	15.1	1103KRRB	S1103K	62MS	4900	0.753	
RR	$1 \frac{1}{4}$ S	$4 \frac{7}{16}$	$\frac{11}{16}$	$3 \frac{9}{16}$	$\frac{13}{32}$	$2 \frac{13}{16}$	0.208	$1 \frac{9}{32}$	$\frac{5}{8}$	$1 \frac{3}{4}$	$\frac{3}{8}$	0.011	0.104	$\frac{19}{32}$	1103KRRB3	S1103K3		1100	1.66	
RR	30														E30KRRB	SE30K				
RR	$1 \frac{1}{4}$														1104KRRB	S1104K				
RR	$1 \frac{5}{16}$	122.2	19	100	10.3	81	5.28	34.9	15.9	54	9.5	0.28	2.64	15.1	1105KRRB	S1105K	72MS	6220	0.962	
RR	$1 \frac{3}{8}$	$4 \frac{13}{16}$	$\frac{3}{4}$	$3 \frac{15}{16}$	$\frac{13}{32}$	$3 \frac{3}{16}$	0.208	$1 \frac{3}{8}$	$\frac{5}{8}$	$2 \frac{1}{8}$	$\frac{3}{8}$	0.011	0.104	$\frac{19}{32}$	1106KRRB	S1106K		1400	2.12	
RR	$1 \frac{7}{16}$														1107KRRB	S1107K				
RR	35														E35KRRB	SE35K				
RR	$1 \frac{1}{2}$	147.6	20.6	119.1	13.5	90.5	6.8	38.1	18.3	60.3	12.7	0.33	2.72	19.4	1108KRRB	S1108KT	80MS	7500	1.143	
RR	$1 \frac{9}{16}$	$5 \frac{13}{16}$	$\frac{13}{16}$	$4 \frac{11}{16}$	$\frac{17}{32}$	$3 \frac{9}{16}$	0.268	$1 \frac{1}{2}$	$\frac{23}{32}$	$2 \frac{3}{8}$	$\frac{1}{2}$	0.013	0.107	$\frac{49}{64}$	1109KRRB	S1109KT		1700	2.52	
RR	40														E40KRRB	SE40K				
RR	$1 \frac{5}{8}$	149.2	22.2	120.6	13.5	96.8	6.8	38.1	18.3	63.5	12.7	0.33	2.72	19.4	1110KRRB	S1110K	85MS	7500	1.651	
RR	$1 \frac{11}{16}$	$5 \frac{7}{8}$	$\frac{7}{8}$	$4 \frac{3}{4}$	$\frac{17}{32}$	$3 \frac{13}{16}$	0.268	$1 \frac{1}{2}$	$\frac{23}{32}$	$2 \frac{1}{2}$	$\frac{1}{2}$	0.013	0.107	$\frac{49}{64}$	1111KRRB	S1111K		1700	3.64	
RR	45														E45KRRB	SE45K				
RR	$1 \frac{7}{8}$	155.6	22.2	127	13.5	101.6	7.56	42.1	20.6	69.8	12.7	0	1.96	19.4	1114KRRB	S1114K	90MS	8500	1.878	
RR	$1 \frac{15}{16}$	$6 \frac{1}{8}$	$\frac{7}{8}$	5	$\frac{17}{32}$	4	0.298	$1 \frac{21}{32}$	$\frac{19}{16}$	$2 \frac{3}{4}$	$\frac{1}{2}$	0	0.077	$\frac{49}{64}$	1115KRRB	S1115K		1900	4.14	
RR	50														E50KRRB	SE50K				
RR	2														1200KRRB	S1200K				
RR	$2 \frac{1}{8}$	166.7	23.8	138.1	13.5	112.7	7.56	47.6	23.8	76.2	12.7	0	1.96	19.4	1202KRRB	S1202K	100MS	10200	2.268	
RR	$2 \frac{3}{16}$	$6 \frac{9}{16}$	$\frac{15}{16}$	$5 \frac{7}{16}$	$\frac{17}{32}$	$4 \frac{7}{16}$	0.298	$1 \frac{7}{8}$	$\frac{15}{16}$	3	$\frac{1}{2}$	0	0.077	$\frac{49}{64}$	1203KRRB	S1203K		2300	5	
RR	55														E55KRRB	SE55K				

⁽¹⁾ Thrust ratings for stamping are 50% of radial ratings.
⁽²⁾ Stampings must be ordered in pairs to assemble bearing.
 Shaft diameter with an S = smaller housing.

RA FLANGETTE UNIT

- Similar to Timken RR flangette unit.
- Consists of two interchangeable, pressed-steel, zinc-plated flanges that house a standard ball bearing.
- Incorporates an extended inner ring bearing with a self-locking collar and spherical seat in the cartridge, providing initial self-alignment.
- Equipped with a RA-RRB extended inner ring ball bearing.
- Units are non-relubricatable.

Suggested shaft tolerances: $\frac{1}{2}$ " - 1 $\frac{15}{16}$ " , nominal to -.013 mm, -.0005";
 2" - 2 $\frac{3}{16}$ " , nominal to -.025 mm, -.0010".



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
RA	RA...RRB	Page D56

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: RA 1" Flangette.

Unit	Shaft Dia.	H	A	J	N Hole Width	H ₂	A ₁	E	K	d ₁	Bolt Size	P		N ₂ Flange Hole Diam to Clear Sq. Shank	Bearing Number	Collar Number	Stamping ⁽²⁾ Size	Radial Load Rating ⁽¹⁾	Unit Wt.
												Short Shank	Long Shank						
	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				N lbs.	kg lbs.
RA	$\frac{1}{2}$														RA008RRB	S1008K			
RA	$\frac{9}{16}$	81	14.2	63.5	7.1	49.2	3.81	23.8	5.6	28.6	6.4	0.15	2.54	10.3	RA009RRB	S1009K	40MS	2650	0.277
RA	$\frac{5}{8}$	3 $\frac{3}{16}$	$\frac{9}{16}$	2 $\frac{1}{2}$	$\frac{9}{32}$	1 $\frac{15}{16}$	0.150	$\frac{15}{16}$	$\frac{7}{32}$	1 $\frac{1}{8}$	$\frac{1}{4}$	0.006	0.1	$\frac{13}{32}$	RA010RRB	S1010K		600	0.61
RA	17														RAE17RRB	SE17K			
RA	$\frac{3}{4}$	90.5	15.8	71.4	8.7	55.6	4.22	25	6.4	33.3	7.9	0.53	2.92	12.7	RA012RRB	S1012K	47MS	3100	0.363
RA	20	3 $\frac{9}{16}$	$\frac{5}{8}$	2 $\frac{13}{16}$	$\frac{11}{32}$	2 $\frac{3}{16}$	0.166	$\frac{63}{64}$	$\frac{1}{4}$	1 $\frac{5}{16}$	$\frac{5}{16}$	0.021	0.115	$\frac{1}{2}$	RAE20RRB	SE20K		700	0.8
RA	$\frac{13}{16}$	95.2	17.4	76.2	8.7	60.3	4.22	25	7.1	38.1	7.9	0.53	2.92	12.7	RA013RRB	S1013K			
RA	$\frac{7}{8}$	3 $\frac{3}{4}$	$\frac{11}{16}$	3	$\frac{11}{32}$	2 $\frac{3}{8}$	0.166	$\frac{63}{64}$	$\frac{9}{32}$	1 $\frac{1}{2}$	$\frac{5}{16}$	0.021	0.115	$\frac{1}{2}$	RA014RRB	S1014K	52MS	3550	0.408
RA	$\frac{15}{16}$	3 $\frac{3}{4}$	$\frac{11}{16}$	3	$\frac{11}{32}$	2 $\frac{3}{8}$	0.166	$\frac{63}{64}$	$\frac{9}{32}$	1 $\frac{1}{2}$	$\frac{5}{16}$	0.021	0.115	$\frac{1}{2}$	RA015RRB	S1015K		800	0.9
RA	1														RA100RRB	S1100K			
RA	25														RAE25RRB	SE25K			
RA	$\frac{1 \frac{1}{16}}$														RA101RRB	S11013K			
RA	$\frac{1 \frac{1}{8}}$	112.7	17.4	90.5	10.3	71.4	5.28	29.0	6.7	44.5	9.5	0.28	2.64	15.1	RA102RRB	S1102K	62MS	4900	0.667
RA	$\frac{1 \frac{3}{16}}$	4 $\frac{7}{16}$	$\frac{11}{16}$	3 $\frac{9}{16}$	$\frac{13}{32}$	2 $\frac{13}{16}$	0.208	1 $\frac{9}{64}$	$\frac{17}{64}$	1 $\frac{3}{4}$	$\frac{3}{8}$	0.011	0.104	$\frac{19}{32}$	RA103RRB	S1103K		1100	1.47
RA	$\frac{1 \frac{1}{4} S$														RA103RRB3	S1103K3			
RA	30														RAE30RRB	SE30K			
RA	$\frac{1 \frac{1}{4}}$														RA104RRB	S1104K			
RA	$\frac{1 \frac{5}{16}}$	122.2	19	100	10.3	81	5.28	31.8	7.5	54	9.5	0.28	2.64	15.1	RA105RRB	S1105K	72MS	6220	0.889
RA	$\frac{1 \frac{3}{8}}$	4 $\frac{13}{16}$	$\frac{3}{4}$	3 $\frac{15}{16}$	$\frac{13}{32}$	3 $\frac{3}{16}$	0.208	1 $\frac{1}{4}$	$\frac{19}{64}$	2 $\frac{1}{8}$	$\frac{3}{8}$	0.011	0.104	$\frac{19}{32}$	RA106RRB	S1106K		1400	1.96
RA	$\frac{1 \frac{7}{16}}$														RA107RRB	S1107K			
RA	35														RAE35RRB	SE35K			
RA	$\frac{1 \frac{1}{2}}$	147.6	20.6	119.1	13.5	90.5	6.8	36.1	7.5	60.3	12.7	0.33	2.72	19.4	RA108RRB	S1108KT	80MS	7500	1.447
RA	$\frac{1 \frac{9}{16}}$	5 $\frac{13}{16}$	$\frac{13}{16}$	4 $\frac{11}{16}$	$\frac{17}{32}$	3 $\frac{9}{16}$	0.268	1 $\frac{27}{64}$	$\frac{19}{64}$	2 $\frac{3}{8}$	$\frac{1}{2}$	0.013	0.107	$\frac{49}{64}$	RA109RRB	S1109KT		1700	3.19
RA	40														RAE40RRB	SE40K			
RA	$\frac{1 \frac{5}{8}}$														RA110RRB	S1110K			
RA	$\frac{1 \frac{11}{16}}$	149.2	22.2	120.6	13.5	96.8	6.8	36.1	7.5	63.5	12.7	0.33	2.72	19.4	RA111RRB	S1111K	85MS	7500	1.479
RA	$\frac{1 \frac{3}{4}$	5 $\frac{7}{8}$	$\frac{7}{8}$	4 $\frac{3}{4}$	$\frac{17}{32}$	3 $\frac{13}{16}$	0.268	1 $\frac{27}{64}$	$\frac{19}{64}$	2 $\frac{1}{2}$	$\frac{1}{2}$	0.013	0.107	$\frac{49}{64}$	RA112RRB	S1112K		1700	3.26
RA	45														RAE45RRB	SE45K			
RA	$\frac{1 \frac{13}{16}}$														RA113RRB	S1113K			
RA	$\frac{1 \frac{7}{8}}$	155.6	22.2	127	13.5	101.6	7.56	36.5	7.1	69.8	12.7	0	1.96	19.4	RA114RRB	S1114K	90MS	8500	1.669
RA	$\frac{1 \frac{15}{16}}$	6 $\frac{1}{8}$	$\frac{7}{8}$	5	$\frac{17}{32}$	4	0.300	1 $\frac{7}{16}$	$\frac{9}{32}$	2 $\frac{3}{4}$	$\frac{1}{2}$	0	0.077	$\frac{49}{64}$	RA115RRB	S1115K		1900	3.68
RA	50														RAE50RRB	SE50K			
RA	2														RA200RRB	S1200K			
RA	2 $\frac{1}{16}$	166.7	23.8	138.1	13.5	112.7	7.56	40.5	8.3	76.2	12.7	0	1.96	19.4	RA201RRB	S1201K	100MS	10200	2
RA	$\frac{2 \frac{1}{8}}$	6 $\frac{9}{16}$	$\frac{15}{16}$	5 $\frac{7}{16}$	$\frac{17}{32}$	4 $\frac{7}{16}$	0.300	1 $\frac{19}{32}$	$\frac{29}{64}$	3	$\frac{1}{2}$	0	0.077	$\frac{49}{64}$	RA202RRB	S1202K		2300	4.41
RA	$\frac{2 \frac{3}{16}}$														RA203RRB	S1203K			
RA	55														RAE55RRB	SE55K			

(1) Thrust ratings for stamping are 50% of radial ratings.
 (2) Stampings must be ordered in pairs to assemble bearing.
 Shaft diameter with an S = smaller housing.



BALL BEARINGS

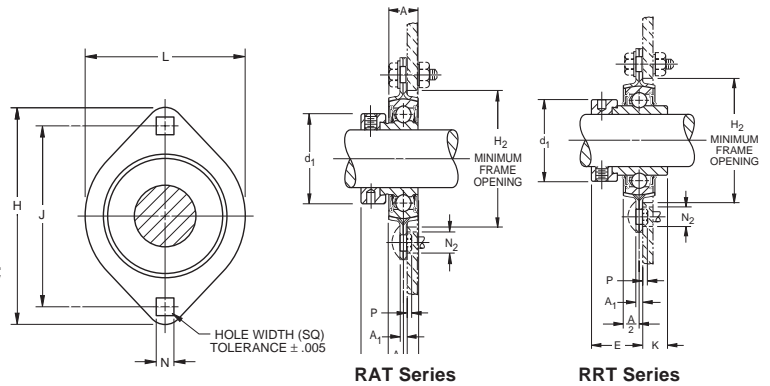
RAT, RRT TWO-BOLT FLANGETTE UNITS

- Designed for installations where the standard three-bolt flangettes cannot be used due to space limitations.
- Like standard three-bolt flangettes, they are available with RA-RRB extended inner ring ball bearings and the KRRB wide inner ring ball bearings (RRT) with self-locking collars.
- All units are non-relubricatable.

Suggested shaft tolerances: $\frac{1}{2}$ " $1\frac{15}{16}$ ", nominal to $-.013$ mm, $-.0005$ ";
 2 " - $2\frac{3}{16}$ ", nominal to $-.25$ mm, $-.0010$ ".

BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
RAT	RA...RRB	Page D56
RRT	...KRRB	Page D53



TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: RAT 1" Flangette or RRT 1" Flangette.

Unit	Shaft Dia.	L	H	A	J	N Hole Width	H ₂	A ₁	E	K	d ₁	Bolt Size		P ₂ Flange Hole Diam to Clear Sq. Shank	Bearing Number	Collar Number	Stamping ⁽²⁾ Size	Radial Load Rating ⁽¹⁾	Unit Wt.	
												Short Shank	Long Shank							
mm	in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm				N lbs.	kg lbs.	
RAT																				
RAT	$\frac{1}{2}$	58.7	81	14.2	63.5	7.1	49.2	3.81	23.8	5.6	28.6	6.4	0.15	2.54	10.3	RA008RRB	S1008K	40MST	2650	0.213
RAT	$\frac{5}{8}$	$2\frac{5}{16}$	$3\frac{3}{16}$	$\frac{9}{16}$	$2\frac{1}{2}$	$\frac{9}{32}$	$1\frac{15}{16}$	0.150	$\frac{15}{16}$	$\frac{7}{32}$	$1\frac{1}{8}$	$\frac{1}{4}$	0.006	0.1	$\frac{13}{32}$	RA010RRB	S1010K		600	0.47
RAT	17															RAE17RRB	SE17K			
RAT	$\frac{3}{4}$	66.7	90.5	15.8	71.4	8.7	55.6	4.22	25	6.4	33.3	7.9	0.53	2.92	12.7	RA012RRB	S1012K	47MST	3100	0.299
RAT	20	$2\frac{5}{8}$	$3\frac{9}{16}$	$\frac{5}{8}$	$2\frac{13}{16}$	$\frac{11}{32}$	$2\frac{3}{16}$	0.166	$\frac{63}{64}$	$\frac{1}{4}$	$1\frac{5}{16}$	$\frac{5}{16}$	0.021	0.115	$\frac{1}{2}$	RAE20RRB	SE20K		700	0.66
RAT	$\frac{7}{8}$															RA014RRB	S1014K			
RAT	$\frac{15}{16}$	71	95.2	17.4	76.2	8.7	60.3	4.22	25	7.1	38.1	7.9	0.53	2.92	12.7	RA015RRB	S1015K	52MST	3550	0.331
RAT	1	$2\frac{51}{64}$	$3\frac{3}{4}$	$\frac{11}{16}$	3	$\frac{11}{32}$	$2\frac{3}{8}$	0.166	$\frac{63}{64}$	$\frac{9}{32}$	$1\frac{1}{2}$	$\frac{5}{16}$	0.021	0.115	$\frac{1}{2}$	RA100RRB	S1100K		800	0.73
RAT	25															RAE25RRB	SE25K			
RAT	$1\frac{1}{16}$															RA101RRB	S1103K			
RAT	$1\frac{1}{8}$	84.1	112.7	17.4	90.5	10.3	71.4	5.28	29	6.7	44.5	9.5	0.28	2.64	15.1	RA102RRB	S1102K	62MST	4900	0.531
RAT	$1\frac{3}{16}$	$3\frac{5}{16}$	$4\frac{7}{16}$	$\frac{11}{16}$	$3\frac{9}{16}$	$\frac{13}{32}$	$2\frac{13}{16}$	0.208	$1\frac{9}{64}$	$\frac{17}{64}$	$1\frac{3}{4}$	$\frac{3}{8}$	0.011	0.104	$\frac{19}{32}$	RA103RRB	S1103K		1100	1.17
RAT	$1\frac{1}{4}$ S															RA103RRB2	S1103K3			
RAT	30															RAE30RRB	SE30K			
RAT	$1\frac{1}{4}$															RA104RRB	S1104K			
RAT	$1\frac{5}{16}$	93.7	125.4	22.2	100	10.3	81	5.28	32.1	6.7	54	9.5	0.28	2.64	15.1	RA105RRB	S1105K	72MST	6220	0.476
RAT	$1\frac{3}{8}$	$3\frac{11}{16}$	$4\frac{15}{16}$	$\frac{7}{8}$	$3\frac{15}{16}$	$\frac{13}{32}$	$3\frac{3}{16}$	0.208	$1\frac{17}{64}$	$\frac{17}{64}$	$2\frac{1}{8}$	$\frac{3}{8}$	0.011	0.104	$\frac{19}{32}$	RA106RRB	S1106K		1400	1.05
RAT	$1\frac{7}{16}$															RA107RRB	S1107K			
RAT	35															RAE35RRB	SE35K			
RRT																				
RRT	$\frac{1}{2}$	58.7	81	14.2	63.5	7.1	49.2	3.81	23.8	5.6	28.6	6.4	0.15	2.54	10.3	1008KRRB	S1008K	40MST	2650	0.213
RRT	$\frac{5}{8}$	$2\frac{5}{16}$	$3\frac{3}{16}$	$\frac{9}{16}$	$2\frac{1}{2}$	$\frac{9}{32}$	$1\frac{15}{16}$	0.150	$\frac{15}{16}$	$\frac{7}{32}$	$1\frac{1}{8}$	$\frac{1}{4}$	0.006	0.1	$\frac{13}{32}$	1010KRRB	S1010K		600	0.47
RRT	17															E17KRRB	SE17K			
RRT	$\frac{3}{4}$	66.7	90.5	15.8	71.4	8.7	55.6	4.22	25	6.4	33.3	7.9	0.53	2.92	12.7	1012KRRB	S1012K	47MST	3100	0.299
RRT	20	$2\frac{5}{8}$	$3\frac{9}{16}$	$\frac{5}{8}$	$2\frac{13}{16}$	$\frac{11}{32}$	$2\frac{3}{16}$	0.166	$\frac{63}{64}$	$\frac{1}{4}$	$1\frac{5}{16}$	$\frac{5}{16}$	0.021	0.115	$\frac{1}{2}$	E20KRRB	SE20K		700	0.66
RRT	$\frac{7}{8}$															1014KRRB	S1014K			
RRT	$\frac{15}{16}$	71	95.2	17.4	76.2	8.7	60.3	4.22	25	7.1	38.1	7.9	0.53	2.92	12.7	1015KRRB	S1015K	52MST	3550	0.331
RRT	1	$2\frac{51}{64}$	$3\frac{3}{4}$	$\frac{11}{16}$	3	$\frac{11}{32}$	$2\frac{3}{8}$	0.166	$\frac{63}{64}$	$\frac{9}{32}$	$1\frac{1}{2}$	$\frac{5}{16}$	0.021	0.115	$\frac{1}{2}$	1100KRRB	S1100K		800	0.73
RRT	25															E25KRRB	SE25K			
RRT	$1\frac{1}{16}$															1101KRRB	S1103K			
RRT	$1\frac{1}{8}$	84.1	112.7	17.4	90.5	10.3	71.4	5.28	29	6.7	44.5	9.5	0.28	2.64	15.1	1102KRRB	S1102K	62MST	4900	0.531
RRT	$1\frac{3}{16}$	$3\frac{5}{16}$	$4\frac{7}{16}$	$\frac{11}{16}$	$3\frac{9}{16}$	$\frac{13}{32}$	$2\frac{13}{16}$	0.208	$1\frac{9}{64}$	$\frac{17}{64}$	$1\frac{3}{4}$	$\frac{3}{8}$	0.011	0.104	$\frac{19}{32}$	1103KRRB	S1103K		1100	1.17
RRT	$1\frac{1}{4}$ S															1103KRRB3	S1103K3			
RRT	30															E30KRRB	SE30K			
RRT	$1\frac{1}{4}$															1104KRRB	S1104K			
RRT	$1\frac{5}{16}$	93.7	125.4	22.2	100	10.3	81	5.28	32.1	6.7	54	9.5	0.28	2.64	15.1	1105KRRB	S1105K	72MST	6220	0.476
RRT	$1\frac{3}{8}$	$3\frac{11}{16}$	$4\frac{15}{16}$	$\frac{7}{8}$	$3\frac{15}{16}$	$\frac{13}{32}$	$3\frac{3}{16}$	0.208	$1\frac{17}{64}$	$\frac{17}{64}$	$2\frac{1}{8}$	$\frac{3}{8}$	0.011	0.104	$\frac{19}{32}$	1106KRRB	S1106K		1400	1.05
RRT	$1\frac{7}{16}$															1107KRRB	S1107K			
RRT	35															E35KRRB	SE35K			

(1) Thrust ratings for stamping are 50% of radial ratings.

(2) Stampings must be ordered in pairs to assemble bearing.

Shaft diameter with an S = smaller housing.

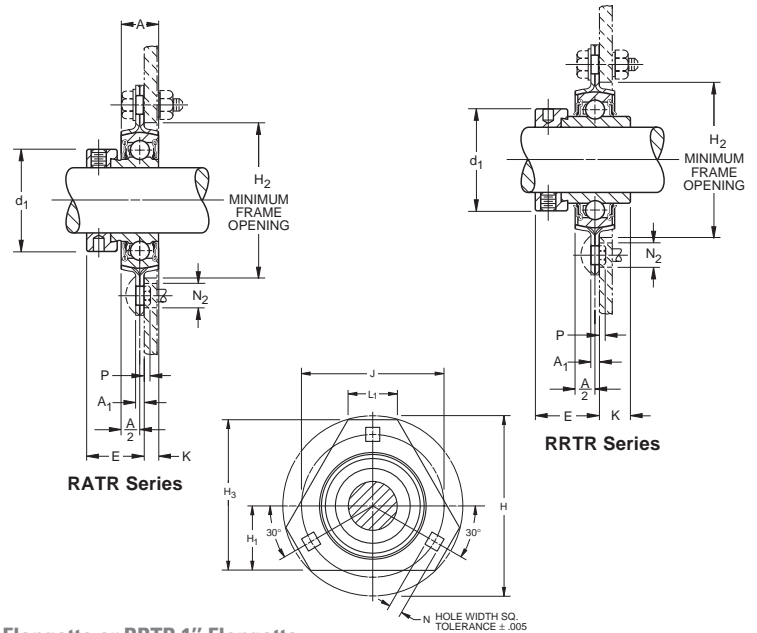
RATR, RRTR TRIANGLE FLANGETTE UNITS

- Similar to standard 47MS, 52MS, 62MS and 72MS, except the stamping is triangular instead of round.
- Used where space is a factor or where it is necessary to cut off one or more sides of the standard flangette stamping.
- RA-RRB and KRRB may be used with this stamping, as with other types of flangettes.
- All units are non-relubricatable.

Suggested shaft tolerances: 1/2" - 1 15/16", nominal to -.013 mm, -.0005";
2" - 2 3/16", nominal to -.025 mm, -.0010".

BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
RATR	RA...RRB	Page D56
RRTR	...KRRB	Page D53



TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: RATR 1" Flangette or RRTR 1" Flangette.

Unit	Shaft Dia.	H ₃	H	A	J	N Hole Width	H ₂	A ₁	E	K	d ₁	H ₁	L ₁	Bolt Size	P		N ₂ Flange Hole Diam to Clear Sq. Shank	Bearing Number	Collar Number	Stamping ⁽²⁾ Size	Radial Load Rating ⁽¹⁾	Unit Wt.
															Short Shank	Long Shank						
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			lbs.	lbs.	
RATR																						
RATR	3/4	76.2	90.5	15.8	71.4	8.7	55.6	4.22	25	6.4	33.3	33.3	27	7.9	0.15	2.54	12.7	RA012RRB	S1012K	47MSTR	3100	0.313
RATR	20	3	3 9/16	5/8	2 13/16	11/32	2 3/16	0.166	63/64	1/4	1 5/16	1 5/16	1 1/16	5/16	0.006	0.1	1/2	RAE20RRB	SE20K		700	0.69
RATR	7/8	79.4	95.2	17.4	76.2	8.7	60.3	4.22	25	7.1	38.1	34.9	27.8	7.9	0.53	2.92	12.7	RA014RRB	S1014K			
RATR	1 5/16																	RA015RRB	S1015K	52MSTR	3550	0.354
RATR	1	3 1/8	3 3/4	1 1/16	3	1 1/32	2 3/8	0.166	63/64	9/32	1 1/2	1 3/8	1 3/32	5/16	0.021	0.115	1/2	RA100RRB	S1100K		800	0.78
RATR	25																	RAE25RRB	SE25K			
RATR	1 1/16																	RA101RRB	S1103K			
RATR	1 1/8	93.7	112.7	17.4	90.5	10.3	71.4	5.28	29	6.7	44.5	38.1	25.4	9.5	0.28	2.64	15.1	RA102RRB	S1102K	62MSTR	4900	0.526
RATR	1 3/16	3 11/16	4 7/16	1 1/16	3 9/16	1 3/32	2 13/16	0.208	1 9/64	1 7/64	1 3/4	1 1/2	1	3/8	0.011	0.104	1 9/32	RA103RRB	S1103K		1100	1.16
RATR	1 1/4 S																	RA103RRB2	S1103K3			
RATR	30																	RAE30RRB	SE30K			
RATR	1 1/4																	RA104RRB	S1104K			
RATR	1 5/16	105.6	127	19	100	10.3	81	5.28	32.1	6.7	54	44.4	32.1	9.5	.028	2.64	15.1	RA105RRB	S1105K	72MSTR	6300	0.703
RATR	1 3/8	4 5/32	5	3/4	3 15/16	1 3/32	3 3/16	0.208	1 17/64	1 7/64	2 1/8	1 3/4	1 17/64	3/8	0.011	0.104	1 9/32	RA106RRB	S1106K		1400	1.55
RATR	1 7/16																	RA107RRB	S1107K			
RATR	35																	RAE35RRB	SE35K			
RRTR																						
RRTR	3/4	76.2	90.5	15.8	71.4	8.7	55.6	4.22	28.6	15.1	33.3	33.3	27	7.9	0.15	2.54	12.7	1012KRRB	S1012K	47MSTR	3100	0.313
RRTR	20	3	3 9/16	5/8	2 13/16	11/32	2 3/16	0.166	1 1/8	19/32	1 5/16	1 5/16	1 1/16	5/16	0.006	0.1	1/2	E20KRRB	SE20K		700	0.69
RRTR	7/8																	1014KRRB	S1014K			
RRTR	1 5/16																	1015KRRB	S1015K	52MSTR	3550	0.354
RRTR	1	3 1/8	3 3/4	1 1/16	3	1 1/32	2 3/8	0.166	1 1/8	19/32	1 1/2	1 3/8	1 3/32	5/16	0.021	0.115	1/2	1100KRRB	S1100K		800	0.78
RRTR	25																	E25KRRB	SE25K			
RRTR	1 1/16																	1101KRRB	S1103K			
RRTR	1 1/8	93.7	112.7	17.4	90.5	10.3	71.4	5.28	32.5	15.9	44.5	38.1	25.4	9.5	0.28	2.64	15.1	1102KRRB	S1102K	62MSTR	4900	0.526
RRTR	1 3/16	3 11/16	4 7/16	1 1/16	3 9/16	1 3/32	2 13/16	0.208	1 9/32	5/8	1 3/4	1 1/2	1	3/8	0.011	0.104	1 9/32	1103KRRB	S1103K		1100	1.16
RRTR	1 1/4 S																	1103KRRB3	S1103K3			
RRTR	30																	E30KRRB	SE30K			
RRTR	1 1/4																	1104KRRB	S1104K			
RRTR	1 5/16	105.6	127	19	100	10.3	81	5.28	34.9	16.3	54	44.4	32.1	9.5	.028	2.64	15.1	1105KRRB	S1105K	72MSTR	6300	0.703
RRTR	1 3/8	4 5/32	5	3/4	3 15/16	1 3/32	3 3/16	0.208	1 3/8	4 1/64	2 1/8	1 3/4	1 17/64	3/8	0.011	0.104	1 9/32	1106KRRB	S1106K		1400	1.55
RRTR	1 7/16																	1107KRRB	S1107K			
RRTR	35																	E35KRRB	SE35K			

(1) Thrust ratings for stamping are 50% of radial ratings.

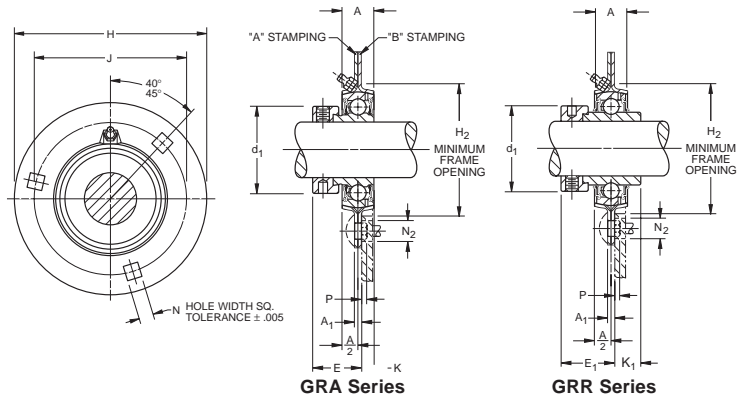
(2) Stampings must be ordered in pairs to assemble bearing.

Shaft diameter with an S = smaller housing.



GRA AND GRR RELUBRICATABLE FLANGETTE UNITS

- Supplement to the standard non-relubricatable type.
- Zinc-plated and designed for relubrication in applications where excessive moisture and severe contamination are present.
- Relubricatable flangettes are dimensionally interchangeable with the non-relubricated types. Load ratings are also the same.
- Relubricatable units incorporate G-KRRB bearings and GRA-RRB inner ring bearings with positive contact land-riding seals and self-locking collars.
- Two stampings are needed to make a complete relubricatable flangette. Stamping A contains the boss for the grease fitting and a grease groove to allow grease to enter holes in the outer ring of the bearing. Stamping B contains a similar groove for the same purpose. With the grease groove in both stampings, the bearing can be reversed in the housing and still be relubricated.



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
GRA	GRA...RRB	Page D57
GRR	G...KRRB	Page D54

Suggested shaft tolerances: 1/2" - 1 15/16", nominal to -.10 mm, -.0005";
2" - 2 3/16", nominal to -.0255 mm, -.0010".

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: GRA 1" Flangette.

Unit	Shaft Dia.	H	A	J	N Hole Width	H ₂	A ₁	E	E ₁	K	K ₁	d ₁	P	N ₂ Flange Hole Diam. to Clear Sq. Shank	Bearing Number		Collar	Stamping Radial Load Rating ⁽¹⁾	
															(GRA)	(GRR)			
G52MSA & G52MSB	1 13/16 7/8 15/16 1	95.2 3 3/4	17.4 1 1/16	76.2 3	8.7 1 1/32	60.3 2 3/8	4.22 0.166	25.4 1	29 1 9/64	6.7 1 7/64	13.5 1 7/32	38.1 1 1/2	0.53 0.021	2.92 0.115	12.7 1/2	GRA013RRB GRA014RRB GRA015RRB GRA100RRB GRAE25RRB	G1013KRRB G1014KRRB G1015KRRB S1100K GE25KRRB	S1013K S1014K S1015K S1100K SE25K	3550 800
G62MSA & G62MSB	1 1/16 1 1/8 3/16 1 1/4 S	112.7 4 7/16	19.05 3/4	90.5 3 9/16	10.3 1 3/32	71.4 2 13/16	5.28 0.208	29.4 1 5/32	32.9 1 19/64	6.7 1 7/64	15.5 3 9/64	44.1 1 47/64	0.28 0.011	2.64 0.104	15.1 1 9/32	GRA101RRB GRA102RRB GRA103RRB GRA103RRB2 GRAE30RRB	G1101KRRB G1102KRRB G1103KRRB G1103KRRB3 GE30KRRB	S1103K S1102K S1103K S1103K3 SE30K	4900 1100
G72MSA & G72MSB	1 1/4 1 5/16 3/8 1 7/16	122.2 4 13/16	22.2 7/8	100 3 15/16	10.3 1 3/32	81 3 3/16	6.8 0.268	32.9 1 19/64	35.7 1 13/32	7.9 5/16	15.5 3 9/64	54 2 1/8	0.28 0.011	2.64 0.104	15.1 1 9/32	GRA104RRB GRA105RRB GRA106RRB GRA107RRB GRAE35RRB	G1104KRRB G1105KRRB G1106KRRB G1107KRRB GE35KRRB	S1104K S1105K S1106K S1107K SE35K	6220 1400
G80MSA ⁽²⁾ & G80MSB ⁽²⁾	1 1/2 1 9/16	147.6 5 13/16	31.8 1 1/4	119.1 4 11/16	13.5 1 7/32	90.4 3 9/16	7.56 0.298	36.5 1 7/16	38.9 1 17/32	12.3 3 1/64	17.9 4 5/64	60.3 2 3/8	0.33 0.013	2.72 0.107	19.4 4 9/64	GRA108RRB GRA109RRB GRAE40RRB	G1108KRRB G1109KRRB GE40KRRB	S1108KT S1109KT SE40K	7500 1700
G85MSA ⁽²⁾ & G85MSB ⁽²⁾	1 5/8 1 11/16 3/4	149.2 5 7/8	31.8 1 1/4	120.6 4 3/4	13.5 1 7/32	96.8 3 13/16	7.56 0.298	36.5 1 7/16	38.9 1 17/32	11.9 1 5/32	17.9 4 5/64	63.5 2 1/2	0.33 0.013	2.72 0.107	19.4 4 9/64	GRA110RRB GRA111RRB GRA112RRB GRAE45RRB	G1110KRRB G1111KRRB G1112KRRB GE45KRRB	S1110K S1111K S1112K SE45K	7500 1700
G90MSA ⁽²⁾ & G90MSB ⁽²⁾	1 13/16 1 7/8 1 15/16	155.6 6 1/8	25.4 1	127 5	13.5 1 7/32	101.6 4	8.34 0.328	36.9 1 29/64	42.5 1 43/64	8.3 2 1/64	20.6 1 3/16	69.8 2 3/4	- 0.077	1.96 4 9/64	19.4 4 9/64	GRA113RRB GRA114RRB GRA115RRB GRAE50RRB	G1113KRRB G1114KRRB G1115KRRB GE50KRRB	S1113K S1114K S1115K SE50K	8500 1900
G100MSA & G100MSB	2 2 1/16 2 1/8 2 3/16	166.7 6 9/16	31.8 1 1/4	138.1 5 7/16	13.5 1 7/32	112.7 4 7/16	8.34 0.328	40.5 1 19/32	47.6 1 7/8	11.9 1 5/32	23.8 1 5/16	76.2 3	- 0.077	1.96 4 9/64	19.4 4 9/64	GRA200RRB GRA201RRB GRA202RRB GRA203RRB GRAE55RRB	G1200KRRB G1201KRRB G1202KRRB G1203KRRB GE55KRRB	S1200K S1201K S1202K S1203K SE55K	10200 2300

⁽¹⁾ Thrust ratings for stampings are 50% of radial ratings.

⁽²⁾ Four bolt holes.

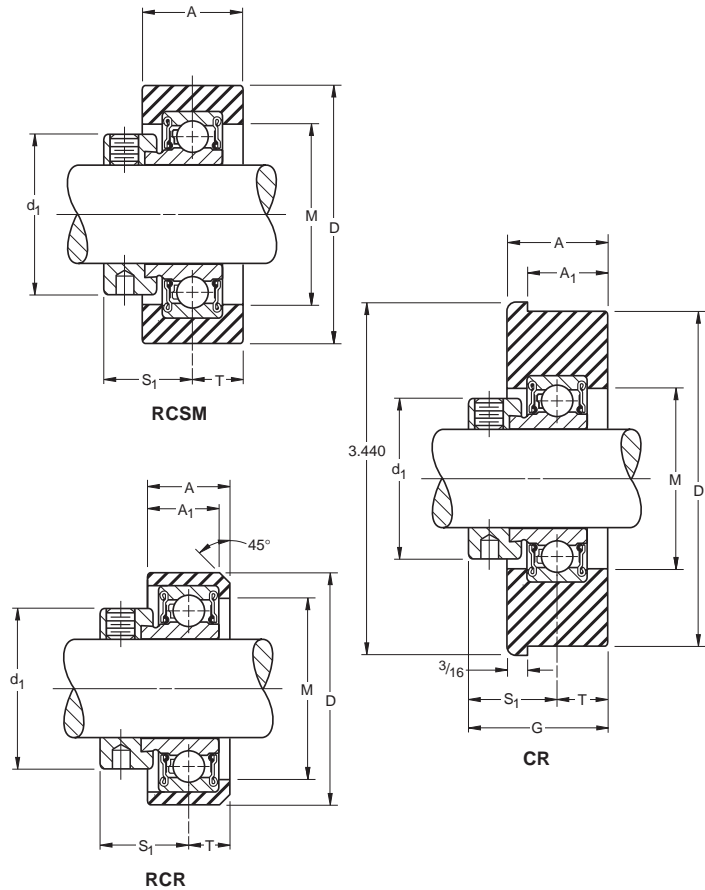
Shaft diameter with an S = smaller housing.

RCSM, RCR, CR SERIES

- RCSM and RCR are quiet, synthetic, conductive rubber cylindrical cartridges designed for domestic heating, air-conditioning, ventilating equipment and other applications that require noise-free operation.
- All units are available with the RA-RRB extended inner ring bearings with positive contact land-riding seals and self-locking collar.
- Initial supply of grease is provided in the one-piece, non-relubricatable cartridges.
- Timken patented CR unit was designed to accommodate the wide tolerances of hot or cold rolled #10 gage (.134 in.), 3 1/2 in. O.D., electric resistance welded mechanical tubing similar to what is found in post office conveyor systems.

BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
RCSM, RCR, CR	RA...RR	Page D56



TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: RCSM 3/4" or RCR 3/4" or CR 3/4". POPULAR SIZES ARE IN BOLD.

Unit	Shaft Dia.	D	A	A ₁	G	M	d ₁	S ₁	T	Bearing Number ⁽²⁾	Collar Number	Housing Radial Load Rating ⁽¹⁾	Unit Wt.
	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			N lbs.	kg lbs.
RCSM SERIES													
Suggested Housing Diameter = Nominal D ± .013 mm ± .005"													
RCSM	1/2	64.3	25.4	-	-	34.9	28.6	22.2	12.7	RA008RR	S1008K	880	0.395
RCSM	5/8	2 17/32	1	-	-	1 3/8	1 1/8	7/8	1/2	RA010RR	S1010K	200	0.87
RCSM	17									RAE17RR	SE17K		
RCSM	3/4	64.3	25.4	-	-	39.7	33.3	23.4	12.7	RA012RR	S1012K	1120	0.472
RCSM	20	2 17/32	1	-	-	1 9/16	1 5/16	59/64	1/2	RAE20RR	SE20K	250	1.04
RCSM	15/16	64.3	25.4	-	-	45.2	38.1	23.4	12.7	RA015RR	S1015K	1340	0.527
RCSM	1	2 17/32	1	-	-	1 25/32	1 1/2	59/64	1/2	RA100RR	S1100K	300	1.16
RCSM	25									RAE25RR	SE25K		
LRCSM	1 3/16	64.3	25.4	-	-	47.6	42.1	19.8	12.7	RAL103NPP	LS103K	1340	0.627
LRCSM	1 3/16	2 17/32	1	-	-	1 7/8	1 21/32	25/32	1/2			300	1.38
RCSM SERIES													
Suggested Housing Diameter = Nominal D -0.13 mm to -0.38 mm, -.005" to -.0015"													
LRCR	3/4	46	18.3	15.9	-	34.9	30.2	18.7	9.9	RAL012NPP	LS012K	880	0.272
LRCR	3/4	1 13/16	23/32	5/8	-	1 3/8	1 3/16	47/64	25/64			200	0.6
RCR	1	57.2	19.8	17.5	-	44.4	38.1	23.4	9.9	RA100RR	S1100K	1340	0.409
RCR	25	2 1/4	25/32	11/16	-	1 3/4	1 1/2	59/64	25/64	RAE25RR	SE25K	300	0.9
RCSM SERIES													
Suggested Housing Diameter 82.73 mm to 81.76 mm, 3.257" to 3.219"													
CR	3/4	83.57	25.4	22.2	36.1	39.7	33.3	23.4	12.7	RA012RR	S1012K	670	0.318
CR	20	3.29	1	7/8	1 27/64	1 9/16	1 5/16	59/64	1/2	RAE20RR	SE20K	150	0.7
CR	1	83.57	25.4	22.2	36.1	45.2	38.1	23.4	12.7	RA100RR	S1100K	880	0.34
CR	25	3.29	1	7/8	1 27/64	1 25/32	1 1/2	59/64	1/2	RAE25RR	SE25K	200	0.75
LRCR	1	83.57	25.4	20.6	33.3	39.7	36.1	19.8	14.3	RAL100NPP	S1100K	880	0.309
LRCR	25	3.29	1	13/16	1 5/16	1 9/16	1 27/64	25/32	9/16	RALE25NPP	SE25K	200	0.68

(1) Steady loads only. Thrust load is 1/3 radial load rating. Maximum suggested speed – 2400 RPM.

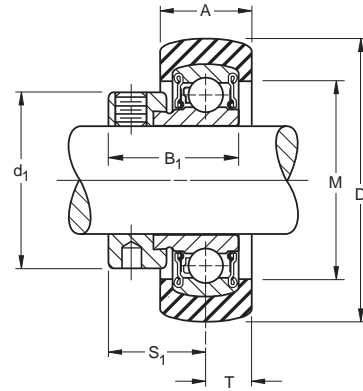
(2) Suffix for RA bearing is FS450 (RCSM and RCR Series).



RABR HVAC SPECIAL SERIES

- Features a conductive rubber interliner to dissipate static charges.
- Quiet RA-RRB extended inner ring bearings are prelubricated and have positive-contact, land-riding seals with self-locking collars.
- RABR units can be mounted in tri-arm brackets or pressed-steel stampings.
- Maximum suggested speed: 2400 RPM.

Suggested housing diameter = Nominal (A) -.130 mm -.380 mm, -.005", -.015".



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
RABR	RA..RRB	Page D56

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: RABR 1". POPULAR SIZES ARE IN BOLD.

Unit	Shaft Dia.	D	B ₁	A	M	d ₁	S ₁	T	Bearing Number ⁽¹⁾	Collar Number	Housing Radial Load Rating ⁽²⁾
		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			
RABR	1/2	47.37	28.6	17.5	34.9	28.6	22.2	8.7	RA008RRB	S1008K	880
RABR	5/8	1.865	1 1/8	1 1/16	1 3/8	1 1/8	7/8	1 1/32	RA010RRB	S1010K	200
RABR	17								RAE17RRB	SE17K	
RABR	3/4	53.37	31	17.5	41.3	33.3	23.4	8.7	RA012RRB	S1012K	1120
RABR	20	2.062	1 7/32	1 1/16	1 5/8	1 5/16	59/64	1 1/32	RAE20RRB	SE20K	250
RABR	15/16	62.38	31	20.6	46.8	38.1	23.4	10.3	RA015RRB	S1015K	1340
RABR	1	2.456	1 7/32	1 3/16	1 27/32	1 1/2	59/64	1 3/32	RA100RRB	S1100K	300
RABR	25								RAE25RRB	SE25K	
RABR	1 3/16	62.38	35.7	20.6	46.8	44.4	28.6	10.3	RAL103PP	LS103K	1340
RABR	30	2.456	1 13/32	1 3/16	1 27/32	1 3/4	1 1/8	1 3/32	RAE30PP3	SE30K	300

⁽¹⁾ For replacement of bearings, specify suffix FS-450.

⁽²⁾ Thrust load is 1/3 radial load rating.

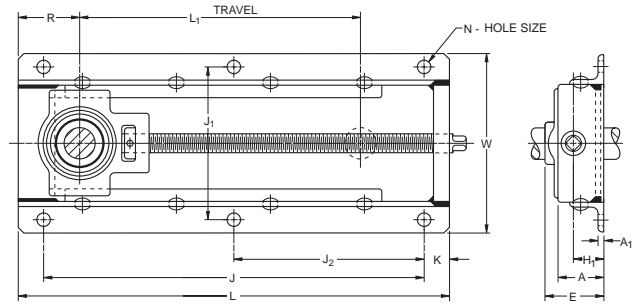
Maximum suggested speed is 2400 RPM.

D

NLTU SERIES

SIDE-MOUNTED, PRESSED-STEEL NLTU SERIES

- Take-up frame incorporates RTU take-up units as shown on the following pages.
- The frame is designed for side mounting and made of welded steel.



TO ORDER, COMPLETE ASSEMBLY, SPECIFY NLTU FRAME AND RTU TAKE-UP UNIT REQUIRED.

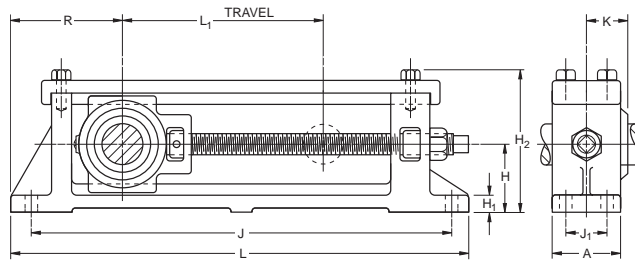
Example: NLTU5 frame and RTU 1 11/16". If frame only is required, order by frame number. Example: NLTU3.

NLTU Frame No.	Shaft Dia.	L ₁	R	J	L	A ₁	H ₁	E	J ₁	W	A	J ₂	K	N	Bolts 6 req'd.	Unit Wt.
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	in.	kg lbs.
1	5/16, 3/4,	231.8	62.7	327	377.8	4.8	27	54	141.3	166.7	44.4	163.5	25.4	12.7	7/16	3.691
	13/16, 7/8, 15/16, 1	9 1/8	2 15/32	12 7/8	14 7/8	3/16	1 1/16	2 1/8	5 9/16	6 9/16	1 3/4	6 7/16	1	1/2		8.13
3	1 1/16, 1 1/8, 1 3/16, 1 1/4, 1 5/16, 1 3/8, 1 7/16	290.5	64.23	392.1	432.2	4.8	31.8	61.9	154	179.4	50.8	196.1	25.4	12.7	7/16	5.003
		11 7/16	2 17/32	15 7/16	17 7/16	3/16	1 1/4	2 7/16	6 1/16	7 1/16	2	7 23/32	1	1/2		11.02
		290.5	61.9	392.1	432.2	4.8	31.8	64.3	154	179.4	50.8	196.1	25.4	12.7	7/16	
5	1 1/2, 1 9/16, 1 5/8, 1 11/16, 1 3/4, 1 13/16, 1 7/8, 1 15/16	298.4	92.9	444.5	501.6	4.8	36.5	71.4	185.7	223.8	57.2	222.5	28.6	14.3	1/2	8.217
		11 3/4	3 21/32	17 1/2	19 3/4	3/16	1 7/16	2 13/16	7 5/16	8 13/16	2 1/4	8 3/4	1 1/8	9/16		18.1
7	2, 2 1/16, 2 1/8, 2 3/16, 2 1/4, 2 5/16, 2 3/8, 2 7/16	362	92.9	546.1	603.2	4.8	38.1	81.8	219.1	265.1	63.5	273	28.6	15.9	9/16	12.312
		14 1/4	3 21/32	21 1/2	23 3/4	3/16	1 1/2	3 7/32	8 5/8	10 7/16	2 1/2	10 3/4	1 1/8	5/8		27.12
		362	92.9	546.1	603.2	4.8	38.1	84.9	219.1	265.1	63.5	273	28.6	15.9	9/16	
		14 1/4	3 21/32	21 1/2	23 3/4	3/16	1 1/2	3 11/32	8 5/8	10 7/16	2 1/2	10 3/4	1 1/8	5/8		

TU SERIES

TOP-MOUNTED CAST IRON TU SERIES

- Take-up frame incorporates RTU take-up units as shown on the following pages.
- The frame is designed for top mounting and is made of cast iron.



TO ORDER, COMPLETE ASSEMBLY, SPECIFY TU FRAME AND RTU OR TU TAKE-UP UNIT REQUIRED. Example: TU5 frame and RTU 1 11/16".

TU Frame No.	Shaft Dia.	L ₁	R	J	L	H ₁	H	H ₂	J ₁	A	K	Bolts 4 req'd.	Unit Wt.
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	in.	kg lbs.
1	3/4, 13/16, 7/8, 15/16, 1	203.2	114.3	419.2	469.9	14.3	63.5	131	34.9	54	—	3/8	7.491
		8	4 1/2	16 1/2	18 1/2	9/16	2 1/2	5 5/32	1 3/8	2 1/8	—		16.5
3	1 1/16, 1 1/8, 1 3/16, 1 1/4, 1 5/16, 1 3/8, 1 7/16	254	127	492.1	542.9	15.9	71.4	149.2	38.1	65.1	—	7/16	11.464
		10	5	19 3/8	21 3/8	5/8	2 13/16	5 7/8	1 1/2	2 9/16	—		25.25
5	1 1/2, 1 9/16, 1 5/8, 1 11/16, 1 3/4, 1 13/16, 1 7/8, 1 15/16	254	139.7	530.2	581	19	82.6	171.4	50.8	88.9	—	1/2	20.203
		10	5 1/2	20 7/8	22 7/8	3/4	3 1/4	6 3/4	2	3 1/2	—		44.5
7	2, 2 1/16, 2 1/8, 2 3/16, 2 1/4, 2 5/16, 2 3/8, 2 7/16	304.8	168.3	644.5	708	22.2	101.6	211.9	63.5	101.6	—	5/8	36.320
		12	6 5/8	25 3/8	27 7/8	7/8	4	8 11/32	2 1/2	4	—		80
9	2 11/16, 2 15/16 ⁽¹⁾	304.8	193.7	695.3	771.5	25.4	117.5	243.7	82.6	120.6	65.1	5/8	52.778
		12	7 5/8	27 3/8	30 3/8	1	4 5/8	9 19/32	3 1/4	4 3/4	2 9/16		116.25

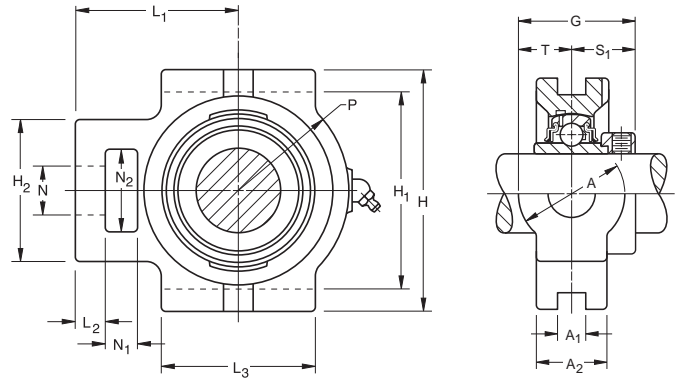
⁽¹⁾ Dimension K is 69.1 mm (2 23/32") for 2 15/16" shaft diameters.



BALL BEARINGS

RTU INDUSTRIAL SERIES

- Ball bearing take-up units are used where shaft adjustment and belt-tightening devices are required, such as in conveyor applications.
- Both types of take-up units incorporate self-aligning B-Type wide inner ring ball bearings with self-locking collars
- Use a G-KRRB, R-Seal Type wide inner ring bearing.
- Provides compact, efficient supports for adjustable shafts and conveyor take-up pulleys.
- Units are factory prelubricated. A grease fitting is provided for relubrication if required.
- See preceding page for take-up frames to fit these units.
- **Contact your Timken representative to discuss highly corrosive applications (e.g., food processing, chemical exposure) where Timken thin dense chrome coated bearings can be utilized.**



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
RTU	G-KRRB	Page D54

Suggested shaft tolerances: $\frac{3}{4}'' - 1 \frac{15}{16}''$, nominal to $-.013$ mm, $-.0005''$;
 $2'' - 2 \frac{15}{16}''$, nominal to $-.025$ mm, $-.0010''$.

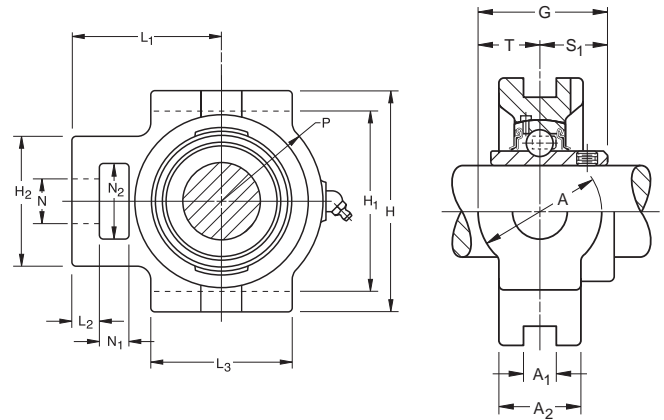
TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: RTU $\frac{3}{4}''$ or RTU $2 \frac{11}{16}''$. POPULAR SIZES ARE IN BOLD.

Unit	Shaft Dia.	G	T	S ₁	A ₂	A ₁	A	L ₁	H ₂	N	N ₂	L ₂	N ₁	P	L ₃	H ₁	H	Bearing Number	Collar Number	Housing Number	Unit Wt.
																					kg lbs.
RTU	$\frac{3}{4}$	47.6	20.6	27	34.1	13.5	41.3	67.5	57.2	19	31.8	12.7	15.9	49.2	57.2	76.2	92.1	G1012KRRB	S1012K	T-18832	1.444
RTU	20	1 $\frac{7}{8}$	1 $\frac{13}{16}$	1 $\frac{1}{16}$	1 $\frac{11}{32}$	1 $\frac{7}{32}$	1 $\frac{5}{8}$	2 $\frac{21}{32}$	2 $\frac{1}{4}$	3 $\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{2}$	5 $\frac{5}{8}$	1 $\frac{15}{16}$	2 $\frac{1}{4}$	3	3 $\frac{5}{8}$	GE20KRRB	SE20K		3.18
RTU	$\frac{7}{8}$																	G1014KRRB	S1014K		
RTU	$\frac{15}{16}$	42.9	22.2	27	37.3	13.5	44.4	67.5	57.2	19	31.8	12.7	15.9	34.9	57.2	76.2	92.1	G1015KRRB	S1015K	T-18696	1.498
RTU	1	1 $\frac{15}{16}$	$\frac{7}{8}$	1 $\frac{1}{16}$	1 $\frac{15}{32}$	1 $\frac{7}{32}$	1 $\frac{3}{4}$	2 $\frac{21}{32}$	2 $\frac{1}{4}$	3 $\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{2}$	5 $\frac{5}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{4}$	3	3 $\frac{5}{8}$	G1100KRRB	S1100K		3.3
RTU	25																	GE25KRRB	SE25K		
RTU	$1 \frac{1}{16}$																	G1101KRRB	S1101K		
RTU	$1 \frac{1}{8}$	55.6	25.4	30.2	38.1	13.5	50.8	72.2	61.9	22.2	36.5	12.7	15.9	41.3	63.5	88.9	104.8	G1102KRRB	S1102K	T-18694	1.92
RTU	$1 \frac{3}{16}$	2 $\frac{3}{16}$	1	1 $\frac{3}{16}$	1 $\frac{1}{2}$	1 $\frac{7}{32}$	2	2 $\frac{27}{32}$	2 $\frac{7}{16}$	7 $\frac{7}{8}$	1 $\frac{7}{16}$	1 $\frac{1}{2}$	5 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{1}{2}$	3 $\frac{1}{2}$	4 $\frac{1}{8}$	G1103KRRB	S1103K		4.23
RTU	30																	GE30KRRB	SE30K		
RTU	$1 \frac{1}{4}$																	G1104KRRB	S1104K		
RTU	$1 \frac{5}{16}$	54.8	22.2	32.5	36.5	13.5	44.5	74.6	63.5	22.2	36.5	12.7	15.9	49.2	69.8	88.9	104.8	G1105KRRB	S1105K	T-18692	2.025
RTU	$1 \frac{3}{8}$	2 $\frac{5}{32}$	$\frac{7}{8}$	1 $\frac{9}{32}$	1 $\frac{7}{16}$	1 $\frac{7}{32}$	1 $\frac{3}{4}$	2 $\frac{15}{16}$	2 $\frac{1}{2}$	7 $\frac{7}{8}$	1 $\frac{7}{16}$	1 $\frac{1}{2}$	5 $\frac{5}{8}$	1 $\frac{15}{16}$	2 $\frac{3}{4}$	3 $\frac{1}{2}$	4 $\frac{1}{8}$	G1106KRRB	S1106K		4.46
RTU	$1 \frac{7}{16}$																	G1107KRRB	S1107K		
RTU	35																	GE35KRRB	SE35K		
RTU	$1 \frac{1}{2}$	67.5	32.5	34.9	44.4	17.5	65.1	88.1	82.6	28.6	49.2	15.9	19	53.3	82.6	100.8	120.6	G1108KRRB	S1108KT	T-18834	3.314
RTU	$1 \frac{9}{16}$	2 $\frac{21}{32}$	1 $\frac{9}{32}$	1 $\frac{3}{8}$	1 $\frac{3}{4}$	1 $\frac{11}{16}$	2 $\frac{9}{16}$	3 $\frac{15}{32}$	3 $\frac{1}{4}$	1 $\frac{1}{8}$	1 $\frac{15}{16}$	5 $\frac{5}{8}$	3 $\frac{3}{4}$	2 $\frac{3}{32}$	3 $\frac{1}{4}$	3 $\frac{31}{32}$	4 $\frac{3}{4}$	G1109KRRB	S1109K		7.3
RTU	40																	GE40KRRB	SE40K		
RTU	$1 \frac{5}{8}$																	G1110KRRB	S1110K		
RTU	$1 \frac{11}{16}$	67.5	32.5	34.9	44.4	17.5	65.1	88.1	82.6	28.6	49.2	15.9	19	53.3	82.6	100.8	120.6	G1111KRRB	S1111K	T-18762	3.164
RTU	$1 \frac{3}{4}$	2 $\frac{21}{32}$	1 $\frac{9}{32}$	1 $\frac{3}{8}$	1 $\frac{3}{4}$	1 $\frac{11}{16}$	2 $\frac{9}{16}$	3 $\frac{15}{32}$	3 $\frac{1}{4}$	1 $\frac{1}{8}$	1 $\frac{15}{16}$	5 $\frac{5}{8}$	3 $\frac{3}{4}$	2 $\frac{3}{32}$	3 $\frac{1}{4}$	3 $\frac{31}{32}$	4 $\frac{3}{4}$	G1112KRRB	S1112K		6.97
RTU	45																	GE45KRRB	SE45K		
RTU	$1 \frac{7}{8}$	70.6	32.5	38.1	49.2	17.5	65.1	91.3	82.6	28.6	49.2	15.9	19	59.5	85.7	100.8	120.6	G1114KRRB	S1114K	T-18690	3.587
RTU	$1 \frac{15}{16}$	2 $\frac{25}{32}$	1 $\frac{9}{32}$	1 $\frac{1}{2}$	1 $\frac{15}{16}$	1 $\frac{11}{16}$	2 $\frac{9}{16}$	3 $\frac{19}{32}$	3 $\frac{1}{4}$	1 $\frac{1}{8}$	1 $\frac{15}{16}$	5 $\frac{5}{8}$	3 $\frac{3}{4}$	2 $\frac{11}{32}$	3 $\frac{3}{8}$	3 $\frac{31}{32}$	4 $\frac{3}{4}$	G1115KRRB	S1115K		7.9
RTU	50																	GE50KRRB	SE50K		
RTU	2																	G1200KRRB	S1201K	T-18828	6.333
RTU	$2 \frac{1}{8}$	77	34.9	43.7	55.6	27	69.8	119.9	101.6	34.9	63.5	19	31.8	69.1	101.6	129.4	149.2	G1202KRRB	S1202K		13.95
RTU	$2 \frac{3}{16}$	3 $\frac{1}{32}$	1 $\frac{3}{8}$	1 $\frac{23}{32}$	2 $\frac{3}{16}$	1 $\frac{1}{16}$	2 $\frac{3}{4}$	4 $\frac{23}{32}$	4	1 $\frac{3}{8}$	2 $\frac{1}{2}$	3 $\frac{3}{4}$	1 $\frac{1}{4}$	2 $\frac{23}{32}$	4	5 $\frac{3}{32}$	5 $\frac{7}{8}$	G1203KRRB	S1203K		
RTU	55																	GE55KRRB	SE55K		
RTU	$2 \frac{1}{4}$	81.8	34.9	46.8	52.4	27	69.8	119.9	101.6	34.9	63.5	19	31.8	69.1	101.6	129.4	149.2	G1204KRRB	S1204K	T-18830	5.993
RTU	$2 \frac{3}{8}$	3 $\frac{7}{32}$	1 $\frac{3}{8}$	1 $\frac{27}{32}$	2 $\frac{1}{16}$	1 $\frac{1}{16}$	2 $\frac{3}{4}$	4 $\frac{23}{32}$	4	1 $\frac{3}{8}$	2 $\frac{1}{2}$	3 $\frac{3}{4}$	1 $\frac{1}{4}$	2 $\frac{23}{32}$	4	5 $\frac{3}{32}$	5 $\frac{7}{8}$	G1206KRRB	S1206K		13.2
RTU	$2 \frac{7}{16}$																	G1207KRRB	S1207K		
RTU	60																	GE60KRRB	SE60K		

YTU INDUSTRIAL SERIES

- Used where shaft adjustment and belt-tightening devices are required, such as conveyer applications.
- Incorporates self-aligning B-Type extra wide inner ring ball bearings with setscrew lock.
- Provides compact, efficient supports for adjustable shafts and conveyor take-up pulleys.
- Factory prelubricated. A grease fitting is provided for relubrication if required.
- See preceding pages for take-up frames to fit these units.
- Safety end caps are available for selected sizes.
- **Contact your Timken representative to discuss highly corrosive applications (e.g., food processing, chemical exposure) where Timken thin dense chrome coated bearings can be utilized.**

Suggested shaft tolerances: $\frac{1}{2}$ " - 1 $\frac{15}{16}$ ", nominal to -.013 mm, -.0005";
 2" - 2 $\frac{15}{16}$ ", nominal to -.025 mm, -.0010".



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
YTU	GY...KRRB	Page D67

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: YTU $\frac{3}{4}$ ". POPULAR SIZES ARE IN BOLD.

Unit	Shaft Dia.	G	T	S ₁	A ₂	A ₁	A	L ₁	H ₂	N	N ₂	L ₂	N ₁	P	L ₃	H ₁	H	Bearing Number	Housing Number
		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		
YTU	$\frac{3}{4}$	38.9	20.6	18.3	34.1	13.5	41.3	67.5	57.2	19	31.8	12.7	15.9	33.3	57.2	76.2	92.1	GY1012KRRB	T-18832
YTU	20	1 $\frac{17}{32}$	1 $\frac{13}{16}$	0.719	1 $\frac{11}{32}$	1 $\frac{17}{32}$	1 $\frac{5}{8}$	2 $\frac{21}{32}$	2 $\frac{1}{4}$	3/4	1 $\frac{1}{4}$	1/2	5/8	1 $\frac{5}{16}$	2 $\frac{1}{4}$	3	3 $\frac{5}{8}$	GYE20KRRB	
YTU	$\frac{7}{8}$	42.1	22.2	19.8	37.3	13.5	44.4	67.5	57.2	19	31.8	12.7	15.9	34.9	57.2	76.2	92.1	GY1014KRRB	T-18696
YTU	$\frac{15}{16}$	42.1	22.2	19.8	37.3	13.5	44.4	67.5	57.2	19	31.8	12.7	15.9	34.9	57.2	76.2	92.1	GY1015KRRB	
YTU	1	1 $\frac{21}{32}$	1 $\frac{7}{8}$	0.781	1 $\frac{15}{32}$	1 $\frac{17}{32}$	1 $\frac{3}{4}$	2 $\frac{21}{32}$	2 $\frac{1}{4}$	3/4	1 $\frac{1}{4}$	1/2	5/8	1 $\frac{3}{8}$	2 $\frac{1}{4}$	3	3 $\frac{5}{8}$	GY1100KRRB	
YTU	25																	GYE25KRRB	
YTU	1 $\frac{1}{8}$	47.6	25.4	22.2	38.1	13.5	50.8	72.2	61.9	22.2	36.5	12.7	15.9	41.3	63.5	88.9	104.8	GY1102KRRB	T-18694
YTU	1 $\frac{3}{16}$	1 $\frac{7}{8}$	1	0.875	1 $\frac{1}{2}$	1 $\frac{17}{32}$	2	2 $\frac{27}{32}$	2 $\frac{7}{16}$	7/8	1 $\frac{7}{16}$	1/2	5/8	1 $\frac{5}{8}$	2 $\frac{1}{2}$	3 $\frac{1}{2}$	4 $\frac{1}{8}$	GY1103KRRB	
YTU	30																	GYE30KRRB	
YTU	1 $\frac{1}{4}$	47.6	22.2	25.4	36.5	13.5	44.5	74.6	63.5	22.2	36.5	12.7	15.9	49.2	69.8	88.9	104.8	GY1104KRRB	T-18692
YTU	1 $\frac{3}{8}$	1 $\frac{7}{8}$	1 $\frac{7}{8}$	1	1 $\frac{7}{16}$	1 $\frac{17}{32}$	1 $\frac{3}{4}$	2 $\frac{15}{16}$	2 $\frac{1}{2}$	7/8	1 $\frac{7}{16}$	1/2	5/8	1 $\frac{15}{16}$	2 $\frac{3}{4}$	3 $\frac{1}{2}$	4 $\frac{1}{8}$	GY1106KRRB	
YTU	1 $\frac{7}{16}$																	GY1107KRRB3	
YTU	35																	GYE35KRRB	
YTU	1 $\frac{1}{2}$	62.7	32.5	30.2	44.4	17.5	65.1	88.1	82.6	28.6	49.2	15.9	19	53.3	82.6	100.8	120.6	GY1108KRRB	T-18834
YTU	40	2 $\frac{15}{32}$	1 $\frac{9}{32}$	1.188	1 $\frac{3}{4}$	1 $\frac{11}{16}$	2 $\frac{9}{16}$	3 $\frac{15}{32}$	3 $\frac{1}{4}$	1 $\frac{1}{8}$	1 $\frac{15}{16}$	5/8	3/4	2 $\frac{3}{32}$	3 $\frac{1}{4}$	3 $\frac{31}{32}$	4 $\frac{3}{4}$	GYE40KRRB	
YTU	1 $\frac{5}{8}$																	GY1110KRRB	
YTU	1 $\frac{11}{16}$	62.7	32.5	30.2	44.4	17.5	65.1	88.1	82.6	28.6	49.2	15.9	19	53.3	82.6	100.8	120.6	GY1111KRRB	T-18762
YTU	1 $\frac{3}{4}$	2 $\frac{15}{16}$	1 $\frac{9}{32}$	1.188	1 $\frac{3}{4}$	1 $\frac{11}{16}$	2 $\frac{9}{16}$	3 $\frac{15}{32}$	3 $\frac{1}{4}$	1 $\frac{1}{8}$	1 $\frac{15}{16}$	5/8	3/4	2 $\frac{3}{32}$	3 $\frac{1}{4}$	3 $\frac{31}{32}$	4 $\frac{3}{4}$	GY1112KRRB	
YTU	45																	GYE45KRRB	
YTU	1 $\frac{15}{16}$	65	32.5	32.5	49.2	17.5	65.1	91.3	82.6	28.6	49.2	15.9	19	59.5	85.7	100.8	120.6	GY1115KRRB	T-18690
YTU	50	2 $\frac{9}{16}$	1 $\frac{9}{32}$	1.281	1 $\frac{15}{16}$	1 $\frac{11}{16}$	2 $\frac{9}{16}$	3 $\frac{19}{32}$	3 $\frac{1}{4}$	1 $\frac{1}{8}$	1 $\frac{15}{16}$	5/8	3/4	2 $\frac{11}{32}$	3 $\frac{3}{8}$	3 $\frac{31}{32}$	4 $\frac{3}{4}$	GYE50KRRB	
YTU	2 $\frac{3}{16}$	68.3	34.9	33.3	55.6	27	69.8	119.9	101.6	34.9	63.5	19	31.8	69.1	101.6	129.4	149.2	GY1203KRRB	T-18828
YTU	55	2 $\frac{11}{16}$	1 $\frac{3}{8}$	1.312	2 $\frac{3}{16}$	1 $\frac{1}{16}$	2 $\frac{3}{4}$	4 $\frac{23}{32}$	4	1 $\frac{3}{8}$	2 $\frac{1}{2}$	3/4	1 $\frac{1}{4}$	2 $\frac{23}{32}$	4	5 $\frac{3}{32}$	5 $\frac{7}{8}$	GYE55KRRB	
YTU	2 $\frac{1}{4}$	74.6	34.9	39.7	52.4	27	69.8	119.9	101.6	34.9	63.5	19	31.8	69.1	101.6	129.4	149.2	GY1204KRRB	T-18830
YTU	2 $\frac{7}{16}$	2 $\frac{15}{16}$	1 $\frac{3}{8}$	1.562	2 $\frac{1}{16}$	1 $\frac{1}{16}$	2 $\frac{3}{4}$	4 $\frac{23}{32}$	4	1 $\frac{3}{8}$	2 $\frac{1}{2}$	3/4	1 $\frac{1}{4}$	2 $\frac{23}{32}$	4	5 $\frac{3}{32}$	5 $\frac{7}{8}$	GY1207KRRB	



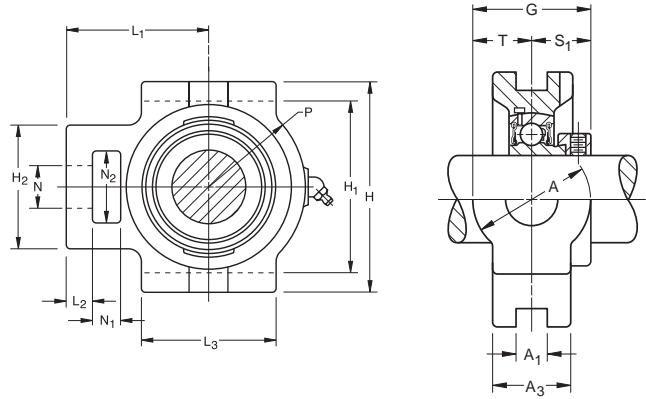


BALL BEARINGS

VTU STANDARD SERIES

- Used where shaft adjustment and belt-tightening devices are required (e.g., conveyor belt applications).
- Provides shaft-aligning B-Type wide inner ring ball bearings with self-locking collars.
- Provides compact, efficient supports for adjustable shafts and conveyor take-up pulleys.
- Units are factory prelubricated. A grease fitting is provided for relubrication if required.
- See preceding pages for take-up frames to fit these units.

Suggested shaft tolerances: $\frac{3}{4}$ " - $1 \frac{15}{16}$ ", nominal to $-.013$ mm, $-.0005$ ".
 2 " - $2 \frac{15}{16}$ ", nominal to $-.025$ mm, $-.0010$ ".



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
VTU	GRA...RRB	Page D57

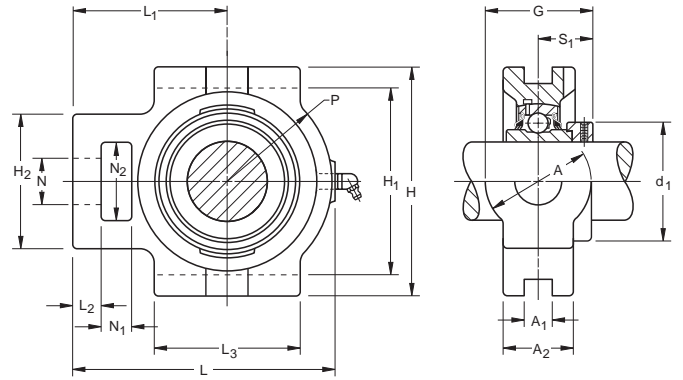
TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: VTU $\frac{3}{4}$ " or VTU $2 \frac{11}{16}$ ". POPULAR SIZES ARE IN BOLD.

Unit	Shaft Dia.		G	T	S ₁	A ₂	A ₁	A	L ₁	H ₂	N	N ₂	L ₂	N ₁	P	L ₃	H ₁	H	Bearing Number	Collar Number	Housing Number	Unit Wt.
	mm	in.																				mm
VTU	$\frac{3}{4}$		44.1	20.6	23.4	34.1	13.5	41.3	67.5	57.2	19	31.8	12.7	15.9	33.3	57.2	76.2	92.1	GRA012RRB	S1012K	T-18832	1.372
VTU	20		$1 \frac{47}{64}$	$\frac{13}{16}$	$\frac{59}{64}$	$1 \frac{11}{32}$	$\frac{17}{32}$	$1 \frac{5}{8}$	$2 \frac{21}{32}$	$2 \frac{1}{4}$	$\frac{3}{4}$	$1 \frac{1}{4}$	$\frac{1}{2}$	$\frac{5}{8}$	$1 \frac{5}{16}$	$2 \frac{1}{4}$	3	$3 \frac{5}{8}$	GRAE20RRB	SE20K		3.02
VTU	$\frac{7}{8}$																		GRA014RRB			
VTU	$\frac{15}{16}$		45.2	22.2	23.0	37.3	13.5	44.4	67.5	57.2	19	31.8	12.7	15.9	34.9	57.2	76.2	92.1	GRA015RRB	S1015K	T-18696	1.458
VTU	1		$1 \frac{25}{32}$	$\frac{7}{8}$	$\frac{29}{32}$	$1 \frac{15}{32}$	$\frac{17}{32}$	$1 \frac{3}{4}$	$2 \frac{21}{32}$	$2 \frac{1}{4}$	$\frac{3}{4}$	$1 \frac{1}{4}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{13}{8}$	$2 \frac{1}{4}$	3	$3 \frac{5}{8}$	GRA100RRB	S1100K		3.21
VTU	25																		GRAE25RRB	SE25K		
VTU	$1 \frac{1}{8}$		52	25.4	27	38.1	13.5	50.8	72.2	61.9	22.2	36.5	12.7	15.9	41.3	63.5	88.9	104.8	GRA102RRB	S1102K	T-18694	1.862
VTU	$1 \frac{3}{16}$		$2 \frac{1}{16}$	1	$1 \frac{1}{16}$	$1 \frac{1}{2}$	$\frac{17}{32}$	2	$2 \frac{21}{32}$	$2 \frac{7}{16}$	$\frac{7}{8}$	$1 \frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$1 \frac{5}{8}$	$2 \frac{1}{2}$	$3 \frac{1}{2}$	$4 \frac{1}{8}$	GRA103RRB	S1103K3		4.10
VTU	30																		GRAE30RRB	SE30K		
VTU	$1 \frac{1}{4}$																		GRA104RRB	S1104K		
VTU	$\frac{13}{8}$		51.6	22.2	29.4	36.5	13.5	44.5	74.6	63.5	22.2	36.5	12.7	15.9	49.2	69.8	88.9	104.8	GRA106RRB	S1106K	T-18692	1.953
VTU	$1 \frac{7}{16}$		$2 \frac{1}{32}$	$\frac{7}{8}$	$1 \frac{5}{32}$	$1 \frac{7}{16}$	$\frac{17}{32}$	$1 \frac{3}{4}$	$2 \frac{15}{16}$	$2 \frac{1}{2}$	$\frac{7}{8}$	$1 \frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$1 \frac{15}{16}$	$2 \frac{3}{4}$	$3 \frac{1}{2}$	$4 \frac{1}{8}$	GRA107RRB	S1107K		4.30
VTU	35																		GRAE35RRB	SE35K		
VTU	$1 \frac{1}{2}$		65	32.5	32.5	44.4	17.5	65.1	88.1	82.6	28.6	49.2	15.9	19	53.3	82.6	100.8	120.6	GRA108RRB	S1108KT	T-18834	3.192
VTU	40		$2 \frac{9}{16}$	$1 \frac{9}{32}$	$1 \frac{9}{32}$	$1 \frac{3}{4}$	$\frac{11}{16}$	$2 \frac{9}{16}$	$3 \frac{15}{32}$	$3 \frac{1}{4}$	$1 \frac{1}{8}$	$1 \frac{15}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$2 \frac{3}{32}$	$3 \frac{1}{4}$	$3 \frac{31}{32}$	$4 \frac{3}{4}$	GRAE40RRB	SE40K		7.03
VTU	$1 \frac{5}{8}$																		GRA110RRB	S1110K		
VTU	$1 \frac{11}{16}$		65	32.5	32.5	44.4	17.5	65.1	88.1	82.6	28.6	49.2	15.9	19	53.3	82.6	100.8	120.6	GRA111RRB	S1111K	T-18762	3.009
VTU	$\frac{13}{4}$		$2 \frac{9}{16}$	$1 \frac{9}{32}$	$1 \frac{9}{32}$	$1 \frac{3}{4}$	$\frac{11}{16}$	$2 \frac{9}{16}$	$3 \frac{15}{32}$	$3 \frac{1}{4}$	$1 \frac{1}{8}$	$1 \frac{15}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$2 \frac{3}{32}$	$3 \frac{1}{4}$	$3 \frac{31}{32}$	$4 \frac{3}{4}$	GRA112RRB	S1112K		6.63
VTU	45																		GRAE45RRB	SE45K		
VTU	$1 \frac{7}{8}$		65	32.5	32.5	49.2	17.5	65.1	91.3	82.6	28.6	49.2	15.9	19	59.5	85.7	100.8	120.6	GRA114RRB	S1114K	T-18690	3.342
VTU	$1 \frac{15}{16}$		$2 \frac{9}{16}$	$1 \frac{9}{32}$	$1 \frac{9}{32}$	$1 \frac{5}{16}$	$\frac{11}{16}$	$2 \frac{9}{16}$	$3 \frac{19}{32}$	$3 \frac{1}{4}$	$1 \frac{1}{8}$	$1 \frac{15}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$2 \frac{11}{32}$	$3 \frac{3}{8}$	$3 \frac{31}{32}$	$4 \frac{3}{4}$	GRA115RRB	S1115K		7.36
VTU	50																		GRAE50RRB	SE50K		
VTU	2		71.4	34.9	36.5	55.6	27	69.8	119.9	101.6	34.9	63.5	19	31.8	69.1	101.6	129.4	149.2	GRA200RRB	S1200K	T-18828	5.784
VTU	$2 \frac{3}{16}$		$2 \frac{13}{16}$	$\frac{13}{8}$	$\frac{17}{16}$	$2 \frac{3}{16}$	$\frac{11}{16}$	$2 \frac{3}{4}$	$4 \frac{23}{32}$	4	$\frac{13}{8}$	$2 \frac{1}{2}$	$\frac{3}{4}$	$1 \frac{1}{4}$	$2 \frac{23}{32}$	4	$5 \frac{3}{32}$	$5 \frac{7}{8}$	GRA203RRB	S1203K		12.73
VTU	55																		GRAE55RRB	SE55K		

TTU INDUSTRIAL SERIES

- Used where shaft adjustment and belt-tightening devices are required (e.g., in conveyor belt applications).
- Incorporates self-aligning, B-Type, extra wide inner ring ball bearings with self-locking collars.
- Uses a G-KPPB4 (Tri-Ply) type wide inner ring bearing.
- Provides compact, efficient supports for adjustable shafts and conveyor take-up pulleys.
- Units are factory prelubricated. A grease fitting is provided for relubrication if required.
- **Contact your Timken representative to discuss highly corrosive applications (e.g., food processing, chemical exposure) where Timken thin dense chrome coated bearings can be utilized.**

Suggested shaft tolerances: 2" - 2 3/16", nominal to -.025 mm, -.0010".



BEARING DATA

Unit	Bearing Number	Dimensions and Load Ratings
TTU	G-KPPB4	Page D65

TO ORDER, SPECIFY UNIT AND SHAFT DIAMETER. Example: TTU 3/4". POPULAR SIZES ARE IN BOLD.

Unit	Shaft Dia.		G (max.)	L	S1	d1 ±.005"	A2 ±.010"	A1	A	L1 ref.	H2	N min.	N2 ref.	L2	N1	P ref.	L3	H1 ref.	H	Bearing Number	Housing Number	
	mm	in.																				mm
TTU	2																				G1200KPPB4	
TTU	2 1/16		79	190.5	43.6	75.7	55.6	27	69.8	119.9	101.6	63.5	34.7	19	31.8	69.1	101.6	129.4	149.2		G1201KPPB4	T-18830
TTU	2 1/8		3.109	7 1/2	1.716	2.980	2 3/16	1 1/16	2 3/4	4 23/32	4	2 1/2	1.365	3/4	1 1/4	2 23/32	4	5 3/32	5 7/8		G1202KPPB4	
TTU	2 3/16																				G1203KPPB4	
TTU	55																				GE55KPPB4	

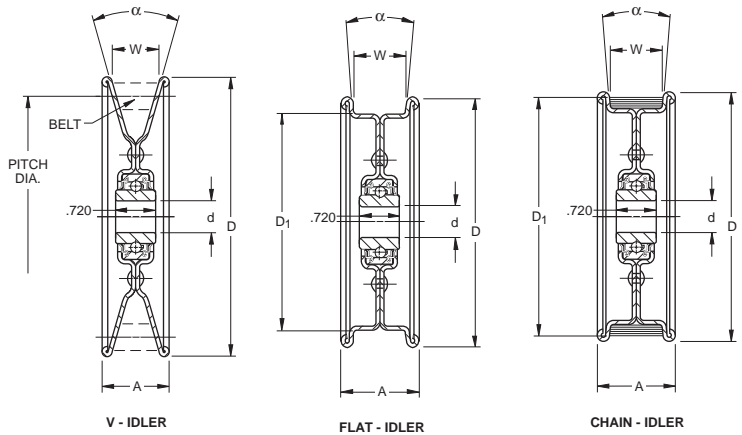
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IDLER PULLEY UNITS

- A pressed-steel pulley and a Timken precision ball bearing with rubber seals are combined to make a self-contained unit.
- Two pulley designs are available. One for V-belts and another for the backs of V-belts. Both are made for A, B, C and D section belts.
- A chain idler is available that is identical in construction to the flat idler, with the addition of an assembled rubber "tire" (part number A-10927). The rubber "tire" cushions the chain, preventing undue wear on the pulley surface or chain.
- Idler pulley units feature a Timken single-row radial ball bearing with an inner ring extended on both sides. This provides clearance for abutting parts and greater support on the shaft.
- Contact-type rubber seals assure positive retention for lubricant and full protection against dirt, dust and foreign matter.



- All units are non-relubricatable. Special features include smoothly rolled-over edges, eliminating belt chafing and scuffing. The "weep holes" on the rivet circle allow water drainage when the pulley is mounted in a horizontal position.

TO ORDER, SPECIFY PULLEY NUMBER. Example: 008-10853 Idler Pulley.

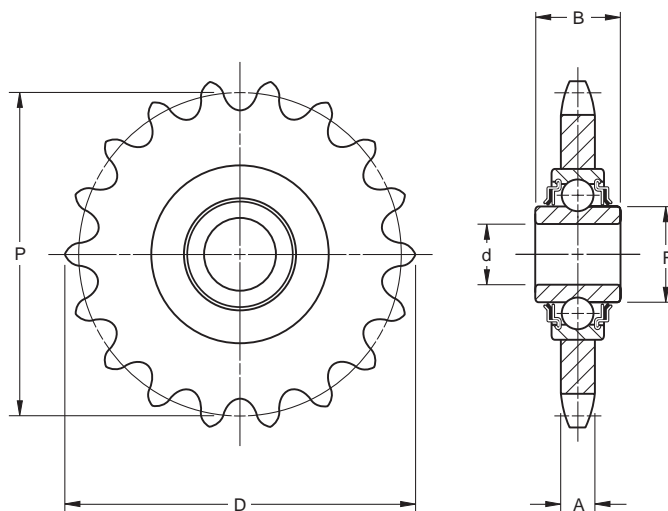
Pulley Number	α Included Angle Degrees	Bearing Number	Bore d	D	A	D ₁	W	Belt Pitch Dia.			Wt.
								A Section	B Section	C Section	
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
V IDLERS											
006-11520A ⁽¹⁾	32	WS3NPP3	10.01 / 9.78 0.394 / 0.385	76.2 3	19 3/4	76.2 3	12.45 .049	63.5 2 1/2			0.145 0.32
10874 ⁽²⁾	34	203NPP	17.000 / 16.993 0.6693 / 0.6690	101.6 4	22.2 7/8	101.6 4	12.7 0.5	92.1 3 5/8			0.417 0.92
010-10874	34	203KRR2	16.13 / 16.26 0.635 / 0.640	101.6 4	22.2 7.8	101.6 4	12.7 0.5	92.1 3 5/8			0.435 0.96
008-10482	32	203KRR5	13.08 / 12.95 0.515 / 0.510	128.6 5 1/16	31.8 1 1/4	128.6 1 1/4	22.15 0.872	95.2 3 3/4	114.3 4 1/2		0.572 1.26
010-10482	32	203KRR2	16.13 / 16.26 0.635 / 0.640	128.6 5 1/16	31.8 1 1/4	128.6 1 1/4	22.15 0.872	95.2 3 3/4	114.3 4 1/2		0.558 1.23
008-10853	32	203KRR5	13.08 / 12.95 0.515 / 0.510	185.7 7 5/16	31.8 1 1/4	185.7 1 1/4	22.15 0.872	152.4 6	171.4 6 3/4		1.134 2.5
010-10853	32	203KRR2	16.13 / 16.26 0.635 / 0.640	185.7 7 5/16	31.8 1 1/4	185.7 1 1/4	22.15 0.872	152.4 6	171.4 6 3/4		1.12 2.47
FLAT IDLERS											
006-11581A ⁽¹⁾	10	WS3NPP3	10.01 / 9.78 0.394 / 0.385	92.1 3 5/8	30.6 1 7/32	76.2 3	22.2 7/8				0.259 0.57
008-10601	10	203KRR5	13.08 / 12.95 0.515 / 0.510	117.5 4 5/8	36.5 1 7/16	101.6 4	25.4 1				0.503 1.11
010-10601	10	203KRR2	16.13 / 16.26 0.635 / 0.640	117.5 4 5/8	36.5 1 7/16	101.6 4	25.4 1				0.49 1.08
008-10483	10	203KRR5	13.08 / 12.95 0.515 / 0.510	158.8 6 1/4	36.5 1 7/16	139.7 5 1/2	25.4 1				0.803 1.77
010-10483	10	203KRR2	16.13 / 16.26 0.635 / 0.640	158.8 6 1/4	36.5 1 7/16	139.7 5 1/2	25.4 1				0.789 1.74
008-10650	50	203KRR5	13.08 / 12.95 0.515 / 0.510	158.8 6 1/4	36.5 1 7/16	139.7 5 1/2	25.4 1				0.785 1.73
010-10650	50	203KRR2	16.13 / 16.26 0.635 / 0.640	158.8 6 1/4	41.3 1 7/16	139.7 5 1/2	25.4 1				0.771 1.7
008-11515	10	203KRR5	13.08 / 12.95 0.515 / 0.510	222.2 8 3/4	35.7 1 13/32	203.2 8	25.4 1				1.238 2.73
010-11515	10	203KRR2	16.13 / 16.26 0.635 / 0.640	222.2 8 3/4	35.7 1 13/32	203.2 8	25.4 1				1.225 2.7
008-10731	10	203KRR5	13.08 / 12.95 0.515 / 0.510	222.2 8 3/4	48.4 1 29/32	203.2 8	38.1 1 1/2				1.488 3.38
010-10731	10	203KRR2	16.13 / 16.26 0.635 / 0.640	222.2 8 3/4	48.4 1 29/32	203.2 8	38.1 1 1/2				1.474 3.25
CHAIN IDLERS											
008-10927	10	203KRR5	13.08 / 12.95 0.515 / 0.510	117.5 4 5/8	36.5 1 7/16	111.1 4 3/8	25.4 1				0.576 1.27
010-10927	10	203KRR2	16.13 / 16.26 0.635 / 0.640	117.5 4 5/8	36.5 1 7/16	111.1 4 3/8	25.4 1				0.562 1.24

⁽¹⁾ Inner ring width 13.891 mm - 13.764 mm; .5469" - .5419"

⁽²⁾ 12 mm Inner ring width .4724" - .4674"

ROLLER CHAIN IDLER SPROCKETS

- Sintered steel sprockets are hardened and provide an economical means of suitability.
- Replaces the hardened plate steel sprockets on most applications.
- All units are non-relubricatable.



TO ORDER, SPECIFY SPROCKET NUMBER. Example: 010-5017S Idler Sprocket.

Sprocket Number	Bearing Number	Bore d	A.S.A. Chain No.	No. of Teeth	Pitch	P	D	A	F	B	Bearing Radial Load Rating @ 500 RPM	Wt.
						mm in.	mm in.	mm in.	mm in.	mm in.		
008-4018-S	203KRR5	13.08 / 12.95	40	18	12.7	73.13	79.88	7.21	24.43	18.29	3550	0.2
	E8728	0.515 / 0.500				2.879	3.145	0.284	0.962	0.72	800	0.44
008-5017-S	203KRR5	13.08 / 12.95	50	17	15.9	86.36	94.72	8.71	24.43	18.29	3550	0.299
	E8728	0.515 / 0.500				3.4	3.729	0.343	0.962	0.72	800	0.66
008-6015-S	203KRR5	13.08 / 12.95	60	15	19	91.62	101.32	11.66	24.43	18.29	3550	0.417
	E8728	0.515 / 0.500				3.607	3.989	0.459	0.962	0.72	800	0.92
010-4018-S	203KRR2	16.26 / 16.13	40	18	12.7	73.13	79.88	7.21	24.43	18.29	3550	0.2
	E8728	0.640 / 0.635				2.879	3.145	0.284	0.962	0.72	800	0.44
010-5017-S	203KRR2	16.26 / 16.13	50	17	15.9	86.36	94.72	8.71	24.43	18.29	3550	0.299
	E8728	0.640 / 0.635				3.4	3.729	0.343	0.962	0.72	800	0.66
010-6015-S	203KRR2	16.26 / 16.13	60	15	19	91.62	101.32	11.66	24.43	18.29	3550	0.417
	E8728	0.640 / 0.635				3.607	3.989	0.459	0.962	0.72	800	0.92
011H-5017-S	204KRR2	17.65 / 17.52	50	17	15.9	86.36	94.72	8.71	28.73	18.29	3550	0.299
	E8728	HEX 0.695 / 0.690				3.4	3.729	0.343	1.131	0.72	800	0.66
011H-6015-S	204RR2	17.65 / 17.52	60	15	19	91.62	101.32	11.66	24.43	18.29	3550	0.417
	E8728	HEX 0.695 / 0.690				3.607	3.989	0.459	0.962	0.72	800	0.92
012-8012-S	204RR6	19.18 / 19.05	80	12	25.4	98.15	110.41	14.6	26.62	15.49	4800	0.676
	E8728	0.7500 / 0.7505				3.864	4.347	0.575	1.048	0.61	1080	1.49





HOUSED UNITS REPLACEMENT CHART

Housed Units	Replacement Bearing Assembly	Features	Part Number
C	MUB replaced by 1000KRB & Col.	Standard Series (SM) wide inner ring (B-Type), collar, caps, and wire	Example: 2 1 ¹ / ₁₆ inch (uses MUB 2 1 ¹ / ₁₆ inch)
DRNR	1000KR & Col. (Two)	Single R-Seal (A-Type), complete bearing number marked on seal	Example: DRNR 1 3 ¹ / ₁₆ inch (uses two 1103KR & Col.)
FLCT	RA000RRB & Col.	Non-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Bearing identification marked on seal.
GRFD, GRFDR, GRFTD, GRFTDR	G1000KRRB & Col.	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Complete bearing number marked on seal. Example: GRFD 1 3 ¹ / ₁₆ inch (uses G1103KRRB & Col.)
GRKD, GRSD	G1000KRRB & Col.	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Complete bearing number marked on seal. Example: GRKD 1 3 ¹ / ₁₆ inch (uses G1103KRRB & Col.)
GVFD, GVFDR, GVFTD, GVFTDR	GRA000RRB & Col.	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Bearing identification marked on seal.
GVKD, GVSD	GRA000RRB & Col.	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Bearing identification marked on seal.
LAK, LAS	G1000KLLB & Col.	G-Relubricatable; B-Spherical outer ring; LL-Double Mechani-Seal	Complete bearing number marked on seal. Example: LAK 1 3 ¹ / ₁₆ inch (uses G1103KLLB & Col.)
LAKHL	1000KLS & Col.	L-Single Mechani-Seal; S-External self-aligning	Complete bearing number marked on seal. Example: LAKHL 1 3 ¹ / ₁₆ inch (uses 1103KLS & Col.)
LAO, LSAO	GN000KLLB & Col.	G-Relubricatable; B-Spherical outer ring; LL-Double Mechani-Seal	Complete bearing number marked on seal. Example: LAO 1 3 ¹ / ₁₆ inch (uses GN103KLLB & Col.)
LCJ, LCJT	G1000KLLB & Col.	G-Relubricatable; B-Spherical outer ring; LL-Double Mechani-Seal	Complete bearing number marked on seal. Example: LCJ 1 3 ¹ / ₁₆ inch (uses G1103KLLB & Col.)
LCJO	GN000KLLB	G-Relubricatable; N-Heavy Series; B-Spherical outer ring; LL-Double Mechani-Seal	Complete bearing number marked on seal. Example: LCJO 1 3 ¹ / ₁₆ inch (uses GN103KLLB & Col.)
PB, PBS, VKD, VSD	RA000RRB & Col.	Non-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Bearing identification marked on seal.
RA Flangette, RAT Flangette	RA000RRB & Col.	Non-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Bearing identification marked on seal.
RA Relubricatable Flangette	GRA000RRB & Col.	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	To order, specify bearings & markings, Example: 1-GRA103RRB & Col., 1-G62MSA marking, 1-G62MSB marking
RAK, RAS, RAKH, RSA	G1000KRRB & Col.	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Complete bearing number marked on seal. Example: RAK 1 3 ¹ / ₁₆ inch (uses G1103KRRB & Col.)
RAKHL	1000KRS & Col	R-Single R-Seal; S-External self-aligning	Complete bearing number marked on seal. Example: RAKHL 1 3 ¹ / ₁₆ inch (uses 1103KRS & Col.)
RAKN, RASN	1000KRRB & Col.	Non-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Complete bearing number marked on seal. Example: RAKN 1 3 ¹ / ₁₆ inch (uses 1103KRRB & Col.)
RAO, RSAO	GN000KRRB & Col.	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Complete bearing number marked on seal. Example: RSAO 3 3 ¹ / ₁₆ inch (uses GN303KRRB & Col.)
RASC	GC1000KRRB & Col.	G-Relubricatable; C-Concentric collar; B-Spherical outer ring; RR-Double R-Seal	Complete bearing number marked on seal. Example: RASC 1 3 ¹ / ₁₆ inch (uses GC1103KRRB & Col.)
RCJ, RCJT, RC	G1000KRRB & Col.	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Complete bearing number marked on seal. Example: RCJ 1 3 ¹ / ₁₆ inch (uses G1103KRRB & Col.)
RCJN, RR Flangette, RRT Flangette	1000KRRB & Col.	Non-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Complete bearing number marked on seal. Example: RCJN 1 3 ¹ / ₁₆ inch (uses 1103KRRB & Col.)
RFC, RCJC, RCJTC	GC1000KRRB & Col.	G-Relubricatable; C-Concentric collar; B-Spherical outer ring; RR-Double R-Seal	Complete bearing number marked on seal. Example: 1 3 ¹ / ₁₆ inch (uses GC1103KRRB & Col.)
RFD, RFD, RFTD, RFTDR	1000KRRB & Col.	Non-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Complete bearing number marked on seal. Example: RFD: 1 3 ¹ / ₁₆ inch (uses 1103KRRB & Col.)

D

Housed Units	Replacement Bearing Assembly	Features	Part Number
RKD, RSD	1000KRRB & Col.	Non-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Complete bearing number marked on seal. Example: RKD 1 3/16 inch (uses 1103KRRB & Col.)
RPB	RABR (Shaft Size)	Non-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	RA000RRB FS-450 Bearing & Col. mounted in rubber interliner. Example: RPB 1 3/16 (uses an RABR 1 3/16 inch)
RR Relubricatable Flangette	G1000KRRB & Col.	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	To order, specify bearing & markings, Example: 1-G1100KRRB & Col., 1-G52MSA marking, 1-G52MSB marking
SA	MUB replaced by 1000KRB & Col.	Standard Series (SM) wide inner ring bearing (B-Type), collar, caps and wire	Example: SA 1 3/16 inch (uses MUB 1 3/16 inch)
SAD	MUBD replaced by 1000KRB & Col.	Standard Series (SM) wide inner ring bearing (B-Type), dust seal, collar, caps and wire	Example: SA 1 3/16 inch (uses MUB 1 3/16 inch)
SADD	MUBD replaced by N000KRB & Col.	Rear dust seal, otherwise same as SAD	
SAL	SM1000KS & Col.	S-External self-aligning ring	Example: SAL 1 3/16 inch (uses SM1103KS & Col.)
SAO	MUOB replaced by 100KRB & Col.	Heavy Series (SMN) wide inner ring bearing (B-Type), collar, caps and wire	Example: SAO 1 3/16 inch (uses MUOB 1 3/16 inch)
SAOD	MUOBD (Shaft Size)	Heavy Series (SMN) wide inner ring bearing (B-Type), dust seal, collar, caps and wire	Example: SAOD 1 3/16 inch (uses MUOBD 1 3/16 inch)
SAODD	MUOBD (Shaft Size)	Rear dust seal, otherwise same as SAOD	
SAOL	SMN000KS & Col.	S-External self-aligning ring Heavy Series	Example: SAOL 1 3/16 inch (uses SMN103KS & Col.)
SAS, SAK	GYA000RRB	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Bearing identification marked on seal.
SCJ, SCJT	GYA000RRB	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Bearing identification marked on seal.
TAK, TAS	G1000KPPB & Col.	G-Relubricatable; B-Spherical outer ring; PP-Double Tri-Ply-Seal	Complete bearing number marked on seal. Example: TAK 1 3/16 inch (uses G1103KPPB3 & Col.)
TCJ, TCJT	G1000KPPB & Col.	G-Relubricatable; B-Spherical outer ring; PP-Double Tri-Ply Seal	Complete bearing number marked on seal. Example: TCJ 1 3/16 inch (uses G1103KPPB3 & Col.)
VAK, VAS	GRA000RRB & Col.	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Bearing identification marked on seal.
VCJ, VCJT	GRA000RRB & Col.	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Bearing identification marked on seal.
VFD, VFDR, VFTD, VFTDR	RA000RRB & Col.	Non-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Bearing identification marked on seal.
YAS, YAK, YASM YCJ, YCJT, YTU	GY-KRRB	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal Y-Series wide inner ring	Bearing identification marked on seal.

OTHER TYPES

LTU Take-Up	G1000KLLB & Col.	G-Relubricatable; B-Spherical outer ring; LL-Double Mechani-Seal	Complete bearing number marked on seal. Example: LTU 1 3/16 inch (uses G1103KLLB & Col.)
RHC, RHCM Hanger	GC1000KRRB & Col.	G-Relubricatable; C-Concentric collar; B-Spherical outer ring; RR-Double R-Seal	Complete bearing number marked on seal. Example: RCH 1 1/2 inch (uses GC1108KRRB & Col.)
RTU Take-Up	G1000KRRB & Col.	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Complete bearing number marked on seal. Example: RTU 1 3/16 inch (uses G1103KRRB & Col.)
STU Take-Up	GYA-RRB	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal	Complete bearing number marked on seal. Example: STU 1 3/16 inch (uses GYA103RRB)
TU Take-Up	MUB replaced by 1000KRB & Col.	Standard Series (SM) wide inner ring bearing (B-Type), collar, caps and wire	Example: TU 2 11/16 inch (uses MUB 2 11/16 & Col.)
YTU Take-Up	GY-KRRB	G-Relubricatable; B-Spherical outer ring; RR-Double R-Seal; Y-Series wide inner ring with setscrew lock	Complete bearing number marked on seal. Example: YTU 1 3/16 inch (uses GY1103KRRB)





MACHINE UNITS

A complete machine unit consists of either a standard (SM) or heavy (SMN) Series wide inner ring bearing, an inner and outer sealing cap, a retaining wire and self-locking collar – or an integrally sealed bearing and collar. These units are available as bearing replacements for Timken power transmission units such as the SA, SAO, DSA and DSAO pillow blocks, C and Co cylindrical cartridges or special housings.

The “caps” are two steel members which comprise a non-integral frictionless labyrinth seal. The inner member is pressed on

the inner ring and rotates with it. The outer member is pressed in the housing against the face of the outer ring and is held in place by the round retaining wire.

The A-Type unit is designated MUA (standard series) or MUOA (heavy series); the B-Type MUB (standard series) or MUOB (heavy series). The B-Type bearing is mounted in the spherical housing seat by means of two slots milled diametrically opposite each other in the housing. The bearing can be inserted at right angles and swiveled into position.

A-TYPE

Figure 1 shows a machine unit with an A-Type bearing carrying the designation MUA (standard series) and MUOA (heavy series). It consists of a wide inner ring, open type or one-piece R-seal bearing, collar, caps and wire. The “caps” are two steel members which comprise a non-integral frictionless labyrinth seal. The inner member is pressed on the inner ring and rotates with it. The outer member is pressed in the housing against the face of the outer ring and is held in place by the round retaining wire.

A-Type units are being converted to a KR-Type bearing with collar, B-Type cap and wire.

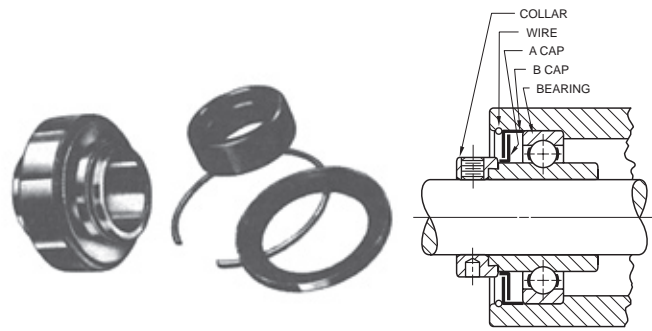


Figure 1 – MUA, MUOA

B-TYPE

Figure 2 is the same as Figure 1, except that the bearing is B-Type and seal on collar side is either a labyrinth seal (as shown) or a one-piece R-Seal. In the latter case no wire is supplied. The designation of the machine unit is MUB (standard series) or MUOB (heavy series). The B-Type bearing is mounted in the spherical housing seat by means of two slots milled diametrically opposite each other in the housing. The bearing can be inserted at right angles and swiveled into position. No additional shoulders or snap rings are required to locate this type.

B-Type units are being converted to a KRB-Type bearing and collar.

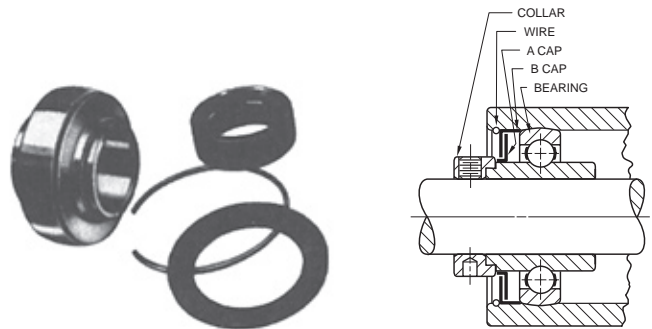


Figure 2 – MUB, MUOB

TIMKEN® SAFETY END CAPS MAKE WORKPLACE PROTECTION A SNAP

Easy-to-install Timken Safety End Caps protect exposed rotating shafts, reducing hazards around many types of equipment. The patent-pending design meets all applicable OSHA requirements.

The Timken safety product line consists of a mounting ring and snap-on cover, both molded in durable, bright yellow polymer. The end cap snaps into the adhesive-backed ring that adheres to the outboard face of most flanged bearing housings. The secure 360 degree fit makes for a rugged unit that also provides basic protection and washdown.

Factory retrofits are a snap with everything provided in a handy kit. The cost-effective end covers are simple to install on Timken and most other flanged units. Current sizes range from 3/4 in. to 1 15/16 in. (20 mm to 50 mm) shaft sizes for two or four-bolt flanged cast iron, malleable iron, and other selected housing styles and sizes.

KIT CONTENTS

Timken safety end caps come in a convenient kit that contains everything required for a safe and durable mounting:

- Polymer end cap
- Adhesive-backed polymer mounting ring
- Scuffing pad
- Cleaning cloth

INSTALLATION

Steps in the simple mounting procedure include:

1. Use the scuffing pad on housing's mating surface where the mounting ring will be placed.
2. Clean off mounting area.
3. Attach adhesive-backed mounting ring.
4. Hold mounting ring in place with pressure for 60 seconds.
5. Allow adhesive to set for minimum of one hour.
6. Snap end cap into place.



Safety end caps protect against rotating stub shafts.

ORDERING INFORMATION

Kit *	Shaft Sizes
204 ECY Kit	3/4, 20 mm
205 ECY KIT	7/8, 15/16, 1, 25 mm
206 ECY KIT	1 1/16, 1 1/8, 1 3/16, 1 1/4 S, 30 mm
207 ECY KIT	1 1/4, 1 5/16, 1 3/8, 1 7/16, 35 mm
208 ECY KIT	1 1/2, 40 mm
209 ECY KIT	1 5/8, 1 11/16, 1 3/4, 45 mm
210 ECY KIT	1 15/16, 2 S, 50 mm

* Kits are designed to fit the following housed units -
 4-Bolt: YCJ, RCJ, RCJC, TCJ, LCJ, SCJ, VCJ
 2-Bolt: YCJT, RCJT, RCJTC, TCJT, LCJT, SCJT, VCJT

TIMKEN BALL BEARING PILLOW BLOCK GREASE

Timken Ball Bearing Pillow Block grease is a NLGI No. 2 polyurea-thickened grease. It provides outstanding long-life, moderately high-temperature lubrication to ball bearings. This grease maintains its mechanical shear stability and provides corrosion resistance, even in the presence of salt water. Timken Ball Bearing Pillow Grease features low-noise characteristics and excellent pumpability. This grease does not contain extreme-pressure additives but is inhibited against rust and oxidation. Operating temperatures range from -40° F to 400° F (-40° C to 163° C). This grease is typically used in lightly loaded ball bearings in pillow blocks and conveyors that operate in high-temperature environments, including kiln and glasswork applications, electric motors, chemical manufacturing and noise-sensitive environments.

SINGLE-POINT AND CENTRALIZED MULTI-POINT LUBRICATORS

Proper lubrication is critical to bearing and machine performance. To help prevent damage, Timken G-Power and M-Power single-point lubricators deliver periodic grease to bearings, chains, guideways and other industrial equipment components. You can choose from gas-powered or electromechanical varieties to meet your operating specifications. C-Power multi-point lubricators are a centralized lubrication system capable of delivering grease to up to six lubrication points. Oil is not an option for this unit.

G-Power and M-Power and C-Power canisters can be filled with Timken-formulated lubricants or many other types of commercial lubricants. A full line of accessories – including brackets, clamps, brushes, fittings and hose extensions – ease installation and offer a host of mounting options for hard-to-reach locations.





LUBRICATION

The Timken Company understands the importance of friction management. Our line of application- and environment-specific lubricants have been developed by leveraging our knowledge of tribology and anti-friction bearings and how these two elements affect overall system performance.

Timken lubricants help bearings and related components operate effectively in demanding industrial operations. High temperature, anti-wear and water-resistant additives offer superior protection in challenging environments.

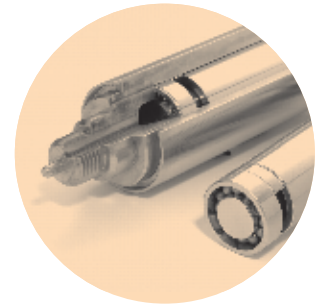
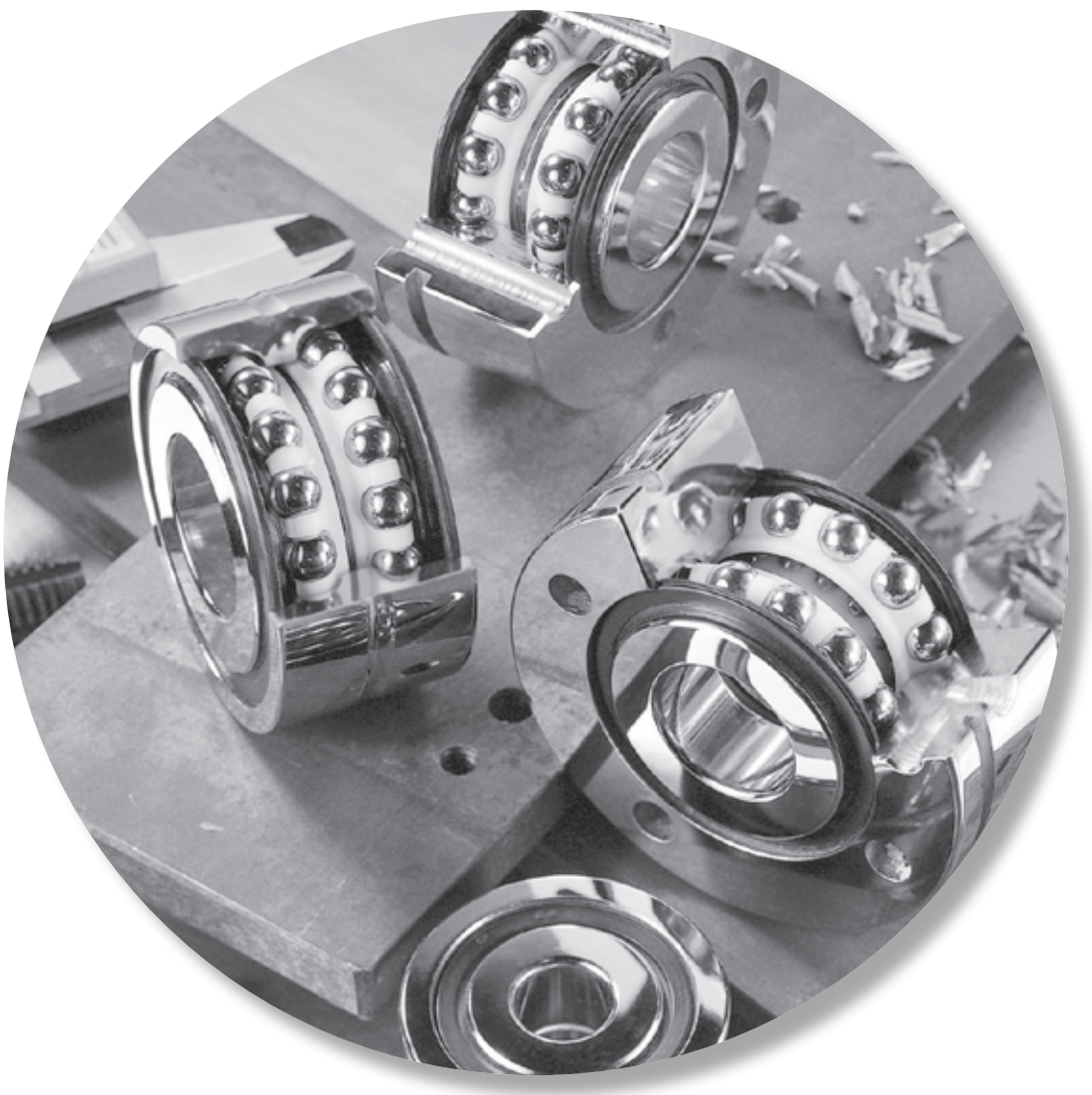
Similar to our bearings, all Timken lubricants are backed by highly trained customer service and technical support. Industrial customers turn to Timken for comprehensive friction management solutions, and we help customers analyze performance and suggest options that make sense for their unique operating conditions and maintenance intervals.

D

SUPER PRECISION MACHINE TOOL BEARINGS

Overview: Timken is a premier manufacturer of Fafnir® super precision machine tool ball bearings. From standard catalog ABMA/ISO designs to custom sizes and features, Timken has the super precision ball bearing to meet your needs.

- **Sizes:** 10 mm - 300 mm (.3937 in. - 11.8110 in.) bore.
26 mm - 400 mm (1.0236 in. - 15.7480 in.) O.D.
- **Markets:** High speed machine tool spindles, high stiffness ball screw support systems, low noise “quiet” bearings, aircraft generator, defense.
- **Features:** ABMA ABEC 7/9 (ISO P4/P2) precision level angular contact 15°, 25°, 60°; single and double-row ball screw; high speed seals’ ceramic balls; advanced materials.
- **Benefits:** Very high speed; high accuracy; high stiffness; low operating temperature; low noise; low vibration.

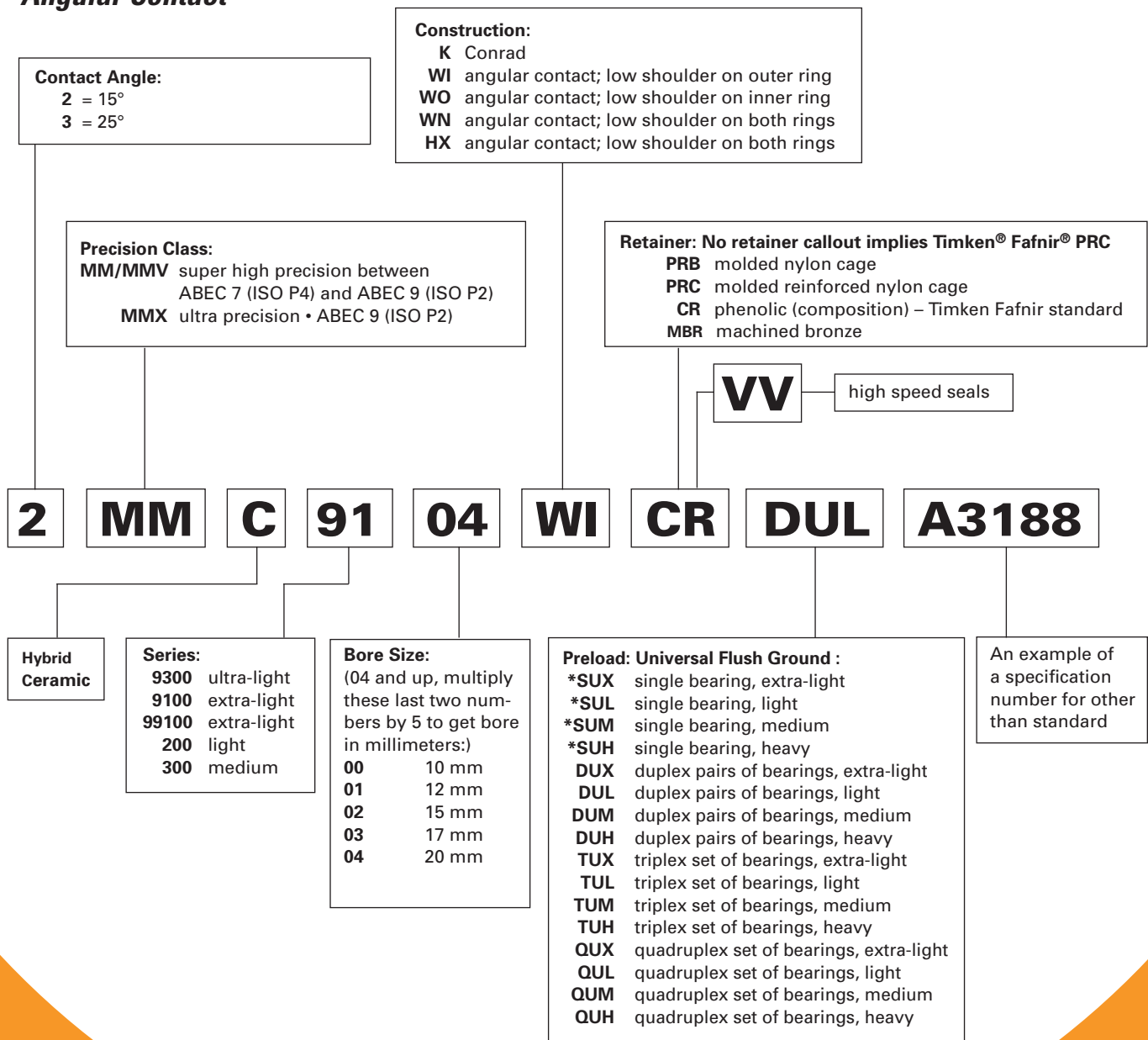


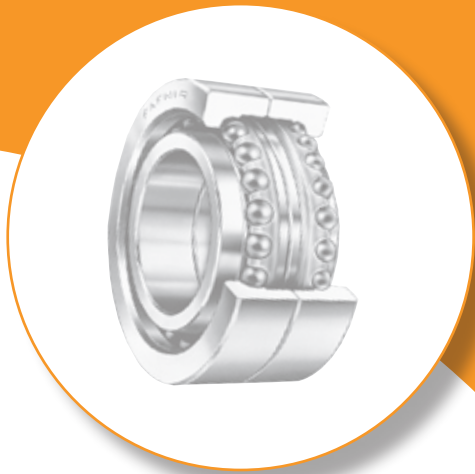
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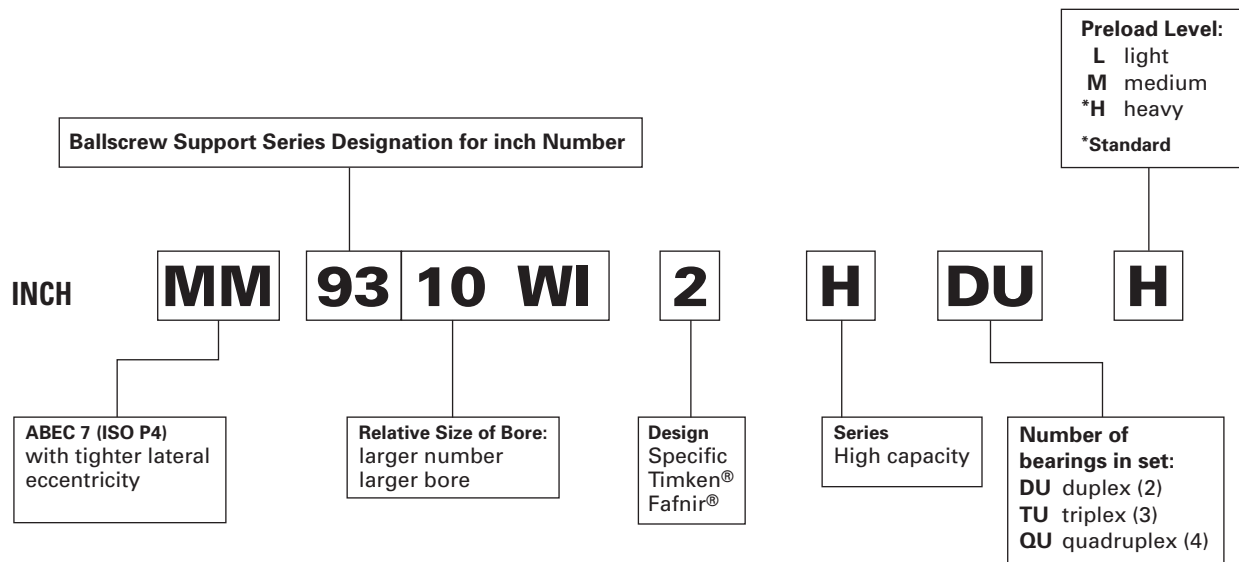
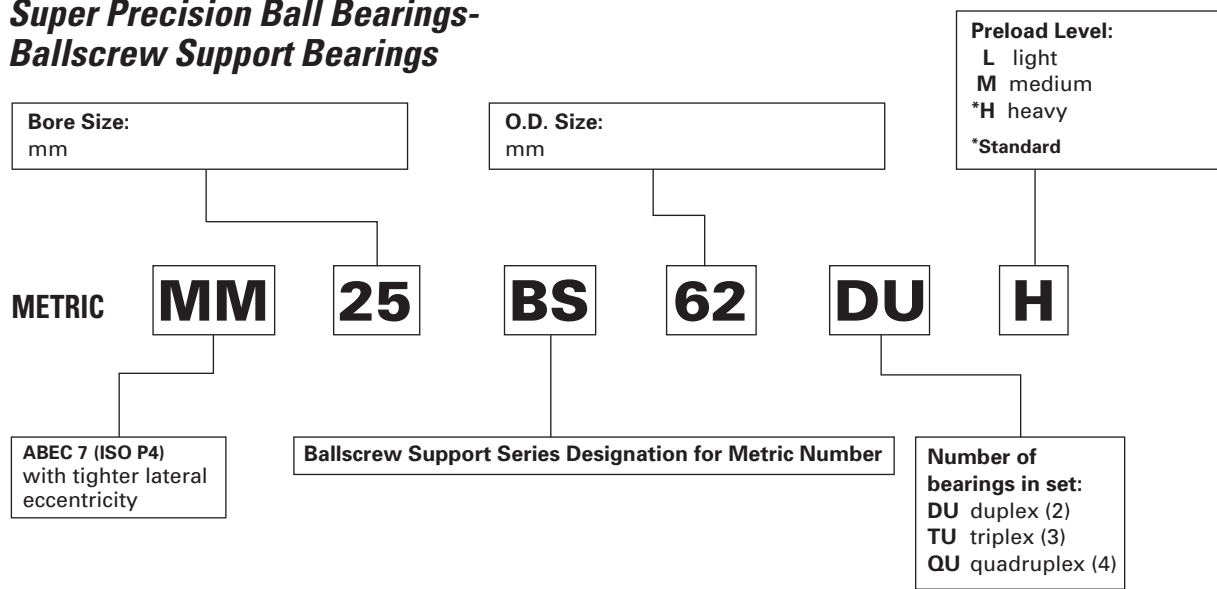
Super Precision Ball Bearings Angular Contact

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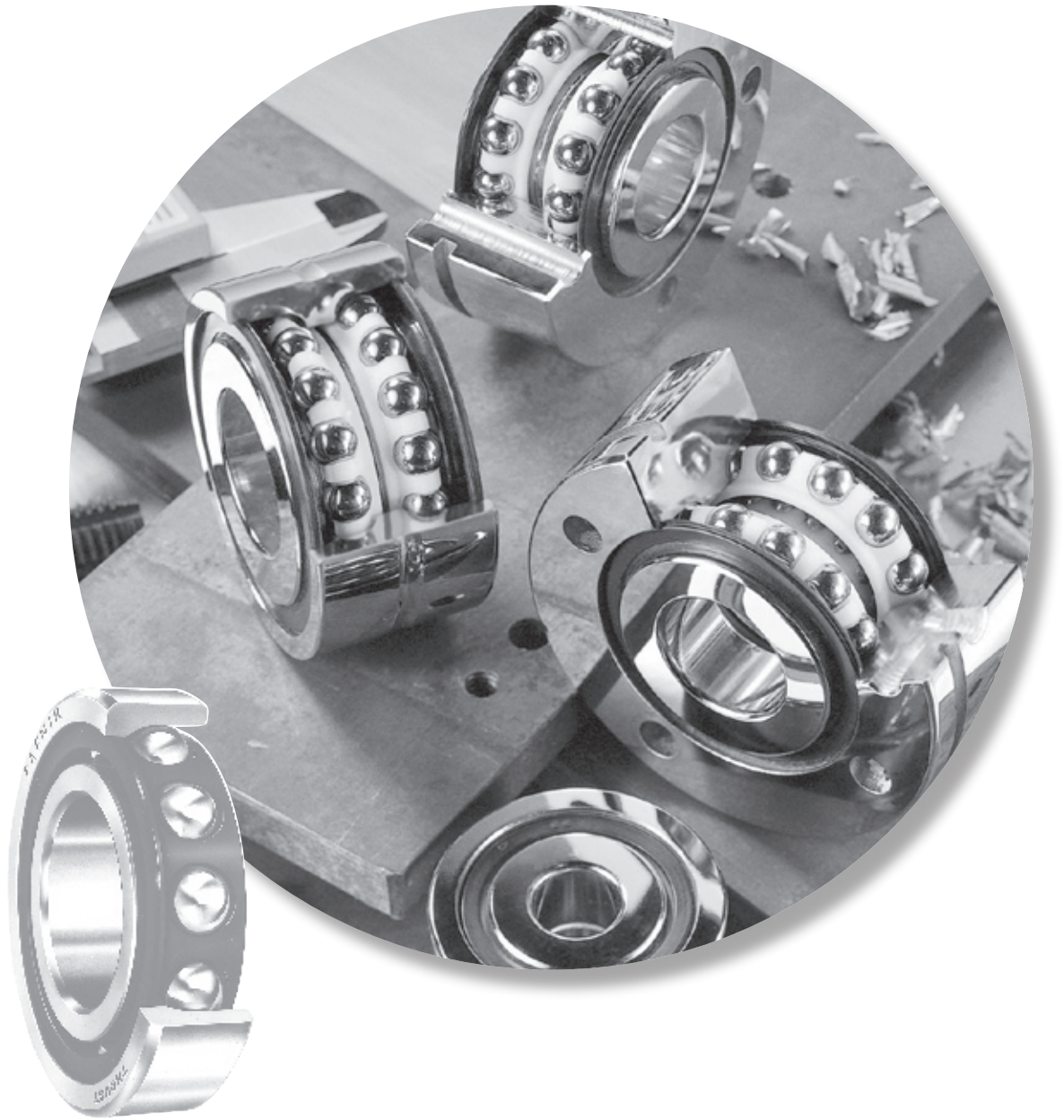
Super Precision Ball Bearings- Ballscrew Support Bearings



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Super Precision Ball Bearings

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INTRODUCTION

MEANINGS OF PREFIXES AND SUFFIXES

In the Timken® Fafnir® numbering system the basic number which denotes the size and series is always retained. When special variations are made, as in the case of precision bearings, prefixes and suffixes are added which have definite meanings as follows:

PREFIXES

- MM** • Super Precision • ABEC 7/ABEC 9 (ISO P4/P2)
- 2MM/2MMV** • Super Precision between ABEC 7 and ABEC 9 (ISO P4/P2) • low contact angle - 15°
- 3MM/3MMV** • Super Precision between ABEC 7 and ABEC 9 (ISO P4/P2) • high contact angle - 25°
- MMX** • Ultra Precision • ABEC 9 • (ISO P2)

SUFFIXES

- K** • Deep groove radial
- WI** • Angular contact-low shoulder on outer
- WO** • Angular contact-low shoulder on inner
- WN** • Angular contact-low shoulder on both inner and outer
- HX** • Angular contact-low shoulder on both inner and outer
- CR** • Composition cage (non-metallic)
- MBR** • Machined bronze cage
- SR** • Machined steel cage
- PRB** • Molded nylon cage
- PRC** • Molded nylon cage (reinforced)
- PRF, PRG** • Special high performance material
- SUL** • Flush-ground single bearing • Light preload
- SUM** • Flush-ground single bearing • Medium preload
- SUH** • Flush-ground single bearing • Heavy preload
- DUL** • Flush-ground duplex bearings • Light preload
- DUM** • Flush-ground duplex bearings • Medium preload
- DUH** • Flush-ground duplex bearings • Heavy preload
- TUL** • Flush-ground triplex bearings • Light preload
- TUM** • Flush-ground triplex bearings • Medium preload
- TUH** • Flush-ground triplex bearings • Heavy preload
- QUL** • Flush-ground quadruplex bearings • Light preload
- QUM** • Flush-ground quadruplex bearings • Medium preload
- QUH** • Flush-ground quadruplex bearings • Heavy preload

PERFORMANCE

The performance of a super precision bearing is not completely defined by the ABEC/ISO classes. The latitude of these classes allows for a significant range of variability in product performance among bearing manufacturers. Characteristics such as raceway curvature and uniformity; the balls' conformance to sphericity; race and ball surface finish; waviness of contact areas; preload offset tolerance; cleanliness; calibration of envelope dimensions; matching of bearings within a set; cage design and material; lubricant; radial play; contact angle and precision of ball complement are not defined by ABEC/ISO. All have a direct impact on the service life and performance of a bearing. The lack of a comprehensive standard allows inferior bearings to be marketed as ABEC 7 or 9 (ISO P4 or P2) without the ability to produce superior performance. All Timken MM, MMV, and MMX precision grade comply with strict controls over these non-specified parameters, to provide premium performance.

OPTIMIZED GRADES OF PRECISION

MM, MMV – SUPER PRECISION, SUPER HIGH PRECISION (ABEC 7/9, ISO P4/P2)

Super precision bearings manufactured to the MM(V) tolerance class operate with running accuracy and performance levels meeting ABEC 9 (ISO P2) yet maintain non-critical features at ABEC 7 (ISO P4) level for cost-effectiveness. Bore and O.D. surfaces are coded in micron units for the convenience of the discriminating machine tool builder striving for optimum fitting of crucial spindle components.

MMX – ULTRAPRECISION (ABEC 9, ISO P2)

Super precision bearings with closer tolerances and running accuracies than ABEC 7 (ISO P4) bearings are made to ABEC 9 (ISO P2) tolerances. Bearings produced to these tolerances are generally used on ultra-high-speed grinding spindles designed for tight dimensional tolerances and super-fine surface finishes. Contact your Timken representative for availability of product range.

BEARING TYPES

ANGULAR-CONTACT BEARINGS

2MM-WI types with 15 degree initial contact angle are designed to meet the needs of machine builders for precision bearings which will operate at as low a temperature as possible for a wide range of speeds and operating loads. In order for machines to produce more accurate work at a higher production rate, the bearings must provide a high degree of rigidity in both axial and radial directions while operating at minimum temperatures. For example, precision machining or cutting tools impose heavier loads on bearings than those encountered in precision grinding. In the former, speeds are slower and loads heavier than the latter, where speeds are high and loads light. The 2MM-WI Type gives the machine builder the flexibility required to meet such variations in applications.

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3MM-WI manufactured with 25 degree contact angle, are for use on applications where the loading on the bearings is predominately thrust – and a high degree of axial rigidity is a definite requirement. Typical applications for these are large vertical rotary surface grinders, horizontal and vertical disc grinders, and thrust bearing applications for heavy-duty lathes where the bearings must directly carry extremely high tail stock or chucking pressure.

2MM-WO with 15 degree initial contact angle are designed for extremely high-speed applications where centrifugal force of the balls is the principal load on the bearing. Unlike the MM-WI Type, which has a low shoulder outer ring, the 2MM-WO Type has full shoulders on both sides of the outer race and a low shoulder on one side of the inner ring. This design permits assembly with a maximum complement of balls and a one-piece cage which pilots against the precision-ground lands of the outer ring. Generally this bearing series is supplied with a separable inner ring and ball retaining cage along with special race geometry for extremely high-speed operation.

2MMV and 3MMV-HX are dimensionally interchangeable with equivalent 9100, 99100, 9300 and ISO Series-10 and 19 bearings. These designs enable spindle heads to remove more material in less time while maintaining superior machining tolerances. This is achieved through a proven combination of unique ball complements with precision engineering raceway geometries.

2MMV and 3MMV-HX VV possess all of the high-speed advantages of the HX but with true high speed seals. These bearing seals protect lubricant from outside contaminants while ensuring internal lubricant retention, extending service life significantly.

2MMV and 3MMV 99100WN are available with 15 degree or 25 degree contact angle variations and have been developed to operate under the demanding requirements of high-speed machine tools. They incorporate design features which permit operation at higher speeds than standard angular contact ball bearings. The bore, outside diameter and width are the same as the MM9100 Series.

BALL SCREW SUPPORT BEARINGS

To meet the demands of the servo-controlled machinery field, the Timken® Fafnir® ball screw support bearings are specially designed with steep contact angles and offer high levels of stiffness for ball screw application requirements. Timken's most recent product offering in this area is a series of double-row, sealed, flanged (or cartridge) units that use an integral double-row outer ring to help simplify installation procedures. Timken offers the following ball screw support bearing products:

- Inch Series bearings (MM9300)
- Metric Series bearings (MMBS)
- Flanged Cylindrical Cartridge housings (BSBU)
- Pillow Block housings (BSPB)
- Integral Double-Row units (MMN, MMF)



2MM-WI &
3MM-WI Types



HXVV Types



2MMV99100 Types



MM9300WI DUH (Inch)
MM...BS...DUH (Metric)





INTRODUCTION

Workhead and tool spindles are the most important components of machine tools. Consequently, to reach the requirements for spindle speed, work accuracy and finish, selection of the proper size and type of ball bearings to support these spindles is a critical design problem.

Of all the anti-friction bearing types, super precision ball bearings have proved to be the best value for the wide variety of bearing applications covering broad ranges of operating loads, speeds and lubrication conditions. Duplexed, preloaded, angular contact bearings with one-piece composition retainers, have excellent capacity and provide maximum spindle rigidity. These bearings are widely used in achieving faster speeds, greater accuracy, smoother finishes and higher production rates.

Many considerations are involved in the choice of bearings for precision applications. Among those which influence the performance of machine tool spindles are the internal fit-up and geometry of the bearings, the mounting arrangement, the shaft and housing mounting fits, the balance and alignment of the rotating parts, and last, but equally important, the lubrication. While many of these factors are significant in slow-speed applications, all of them must be considered for high-speed spindles.

To minimize deflection under load, shafts for machine tool spindles are designed to have a minimum unsupported length and maximum cross-section. For the same reason, spindle housings are designed heavy enough to carry the work load. Their cross-sections are made as uniform as possible to reduce stress concentration during uneven deflection of the frame due to thermal changes. In addition, heavy, well-proportioned housings can function as sinks to conduct heat away from ball bearings.

SELECTIVE ASSEMBLY

Under certain conditions it may be desirable to control fits more accurately without the added expense of using closer tolerance bearings and assembly parts. This can be accomplished by selective assembly of the bearings, shafts, and housings, after they have been sized and sorted according to bores and outside diameters. Timken provides bore and O.D. micron coding as standard practice for super precision angular contact radial ball bearings. This improved fit-up at assembly provides a higher degree of precision from the spindle.

SUCCESSFUL APPLICATIONS

Detailed assembly drawings on the following pages are representative of successful applications of Timken® Fafnir® super precision bearings on such equipment; high-cycle wheel heads; high-speed internal grinding spindles; super precision work heads; and high-speed router spindles. It is hoped that these arrangements will stimulate questions regarding your particular application problems which will promptly be addressed by your Timken representative.

SPECIAL REQUIREMENTS

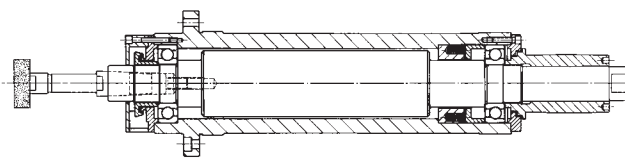
High-speed grease-lubricated spindles and heavy precision workheads requiring unusual rigidity and running accuracy are a few of the many special problems involving super precision bearings. These and many other applications generally require design features that can be reviewed by your Timken representative.

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APPLICATIONS

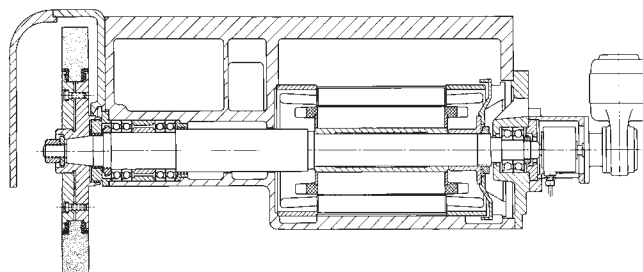
HIGH-SPEED INTERNAL GRINDING SPINDLE

Designed for internal precision grinding, this spindle incorporates 2MM9106WO-CR super precision bearings, preloaded by a nest of coiled helical springs mounted in a cartridge. Thrust load exerted by the springs assures intimate contact of the balls with the bearing raceways under all operating conditions. The sealed construction provides highly effective protection against intrusion of coolant and foreign matter. Grease, packed in each bearing prior to assembly, is sealed-in for life. Operating speed of this spindle is 25000 RPM.



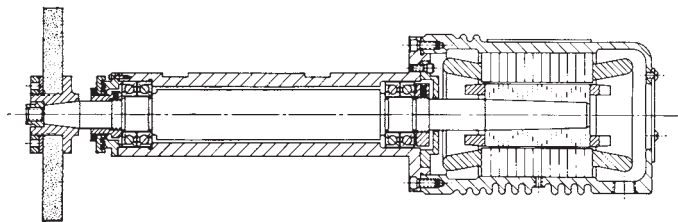
ULTRA PRECISION SURFACE GRINDING SPINDLE

2MMX9122WI-DUM super precision bearings, produced to ABEC9 tolerances, are employed in this horizontal surface grinding spindle for maximum rigidity and accuracy. A back-to-back pair of 2MM312WI-CR-DUL super precision bearings is used at the floating location. This spindle grinds surfaces that are accurate within .000025 inch, flat and parallel, are square within .000010 inch, and to a surface finish of 5 rms, or better. The spindle, driven by a 30 hp motor, operates at 900 RPM. Bearings are packed with grease prior to assembly.



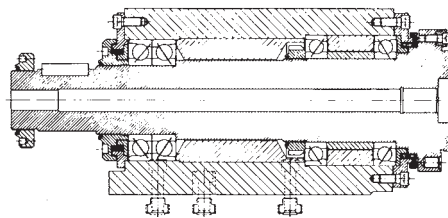
PRECISION SURFACE GRINDING SPINDLE

This motorized surface grinding spindle, operating at 3600 RPM, uses 2MM9107WI-DUM duplex super precision preloaded bearings at both locations, mounted back-to-back, with one pair floating. Labyrinth slinger-type sealing prevents entry of contaminants and seals in the lubrication. Bearings are grease lubricated for life.



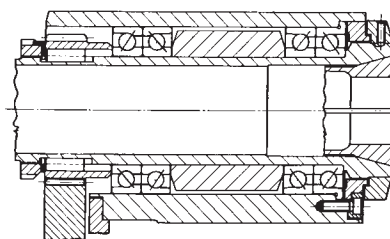
HEAVY-DUTY PRECISION BORING SPINDLE

Super precision, duplexed, preloaded bearings mounted back-to-back are used at each location in this boring spindle to assure smooth performance and a high degree of radial and axial rigidity. Operating speeds vary between 200 and 3000 RPM. Equal-length spacers between the bearings at the work end increase spindle rigidity. When the bearings are properly positioned on the shaft and the respective rings securely clamped, the preload is reproduced and no subsequent adjustment is required. Just prior to assembly, each bearing is packed with grease for life.



SIX-SPINDLE AUTOMATIC SCREW MACHINE

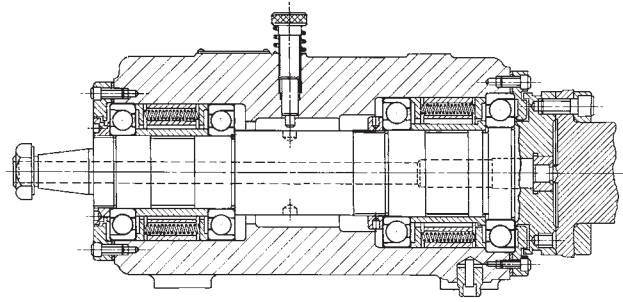
This bearing arrangement meets the demand for a high-speed, heavy-duty, multiple-spindle screw machine to operate with constant accuracy at maximum production. Because of the hollow shaft construction and the short distance between bearings, extra-light series duplex pairs are used at each location. This affords a high degree of radial rigidity and adds stiffness to the shaft. By mounting a duplex pair of flanged (3MMF) bearings with a 2MM super precision bearing, back-to-back, under a predetermined preload at the front end, accuracy and rigidity of the spindle are assured and permit a straight housing bore. The rear pair of back-to-back bearings is allowed to float in the housing, making an outer-ring spacer unnecessary. Lubrication is by pressure-feed oil circulation.





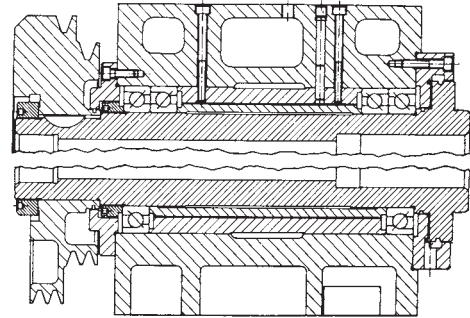
HIGH-SPEED PRECISION BORING HEAD

This high-speed boring head operates at 2500 to 3000 RPM, employing angular-contact, super precision bearings. The front bearings are of different sizes. The outer ring of the larger bearing abuts and is clamped against the housing shoulder. The inboard bearing is permitted to move axially in its housing under spring load. At the rear location two bearings, of the same size and spring loaded, are allowed to float in the housing as temperature differentials occur in the operation spindle. With this head, interference shafts may be permitted without affecting bearing preload. Excessive heat generation is prevented, resulting in low operating temperatures. Bearings are grease lubricated.



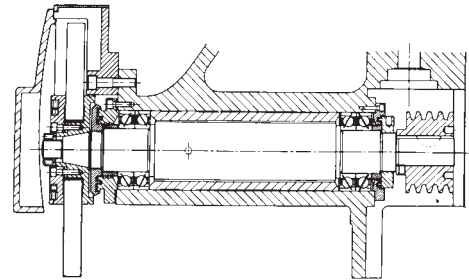
ULTRA PRECISION GRINDING WORKHEAD

This workhead must maintain straightness and roundness accuracy within ten millionths (.000010) of an inch. To meet such rigid requirements for extremely close dimensional control, ultra precision ball bearings and a shaft of extra stiffness are used. The bearings for such applications are manufactured to tolerances closer than those for ABEC 9 (ISO P2) specifications. Equally important is the high degree of workmanship and accuracy with which the shaft, housing and component parts of the workhead must be made. Upper section shows a four-bearing arrangement for heavy work. Lower half shows a two-bearing mounting for lighter work. In either case, the bearings are packed with grease, prior to mounting.



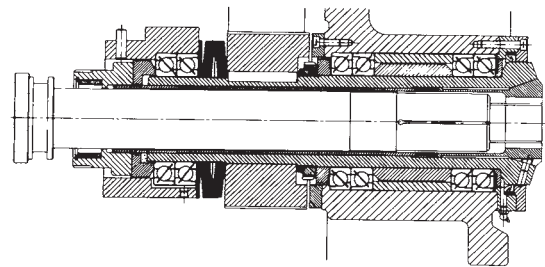
PRECISION TOOLROOM SURFACE GRINDER SPINDLE

Timken® Fafnir® duplexed, super precision, preloaded bearings used in this spindle provide the high degree of rigidity in both directions necessary to meet requirements for modern surface grinding and to assure efficient performance at a low operating temperature. The housing is bored straight-through to assure true alignment – the housing shoulders are eliminated. The precision ground outer sleeve is doveled to the housing to provide the means for stabilizing the spindle axially at the work end bearing location. The rear pair of bearings floats to compensate for thermal changes. Bearings are grease lubricated for life just prior to assembly.



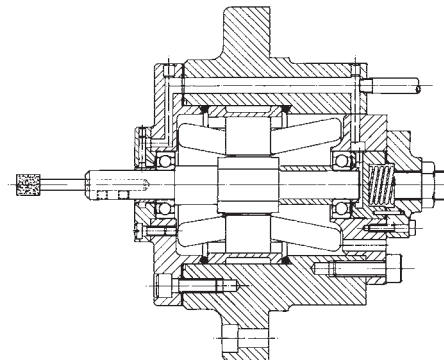
SINGLE BAR MACHINE

This spindle is supported by two pairs of 2MM9124WI-DUM super precision bearings, mounted back-to-back in tandem pairs. Operating speeds vary from 78 to 1500 RPM. A pair of 2MM9122WI-DUM bearings mounted in tandem carries a 25000 pound thrust load during the unchucking operation. The bearings are grease packed for life prior to assembly.



100,000 RPM HIGH-CYCLE WHEELHEAD

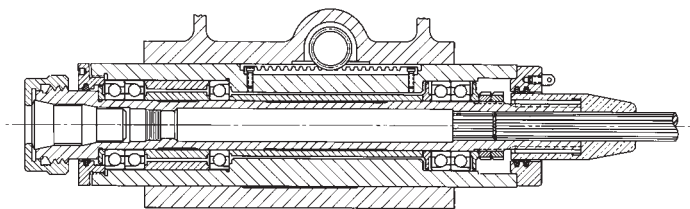
Super precision 2MMX9101WO-CR bearings produced to ABEC 9 (ISO P2) RPM tolerances are spring-loaded in this wheelhead which operates at 100,000 RPM. Oil mist lubrication is employed and the motor is water cooled.



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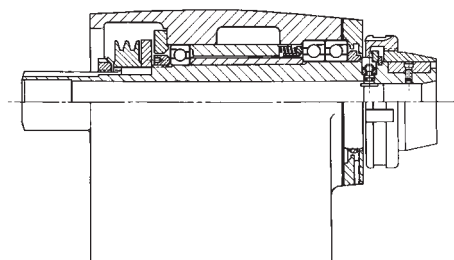
PRECISION JIG-BORING SPINDLE

This jig-boring spindle delivers extreme accuracy over a wide range of speeds. Excellently designed, it is supported with 2MM210WI-DUM grease-lubricated super precision bearings. With this spindle, holes located to an accuracy of one ten-thousandth (.0001) of an inch are bore ground straight and to size limits of better than two ten-thousandths (.0002) of an inch.



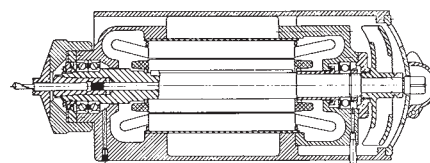
SUPER PRECISION LATHE HEADSTOCK

This lathe spindle produces work held to a roundness of 35 millionths (.000035) of an inch. Maximum operating speed is 4800 RPM. Tandem pair of 3MM9114WI-DUL bearings is opposed by a spring-loaded 3MM9113WI bearing, resulting in excellent spindle rigidity. Bearings are prelubricated with grease.



HIGH-SPEED MOTORIZED ROUTER

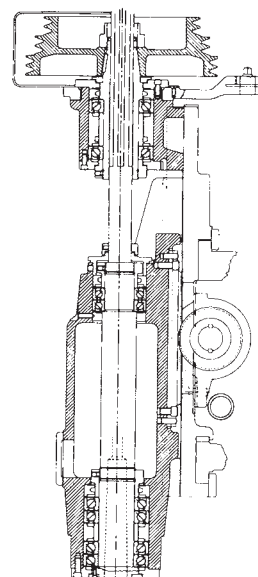
A specially matched duplex pair of Timken® Fafnir® 2MM210WI-DU-FS223 super precision ball bearings, mounted back-to-back at the work end, affords the necessary bearing rigidity to permit routing through aluminum plate one inch thick with a single pass. The upper bearing is spring-loaded and permitted to float. Router is driven by a 30 hp motor at speeds up to 15000 RPM, and uses oil mist lubrication.



PRECISION VERTICAL MILLING SPINDLE

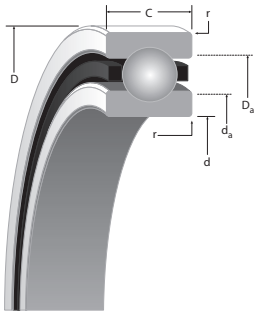
This spindle operates at 12 different speeds ranging from 260 to 6200 rpm under a wide variety of conditions. At the work end, two duplex pairs of Timken Fafnir 2MM212WI-DUL preloaded bearings are mounted in tandem in a back-to-back arrangement, separated by spacers of equal length. This affords extremely high radial and axial rigidity. At the center, a pair of Timken Fafnir 2MM210WI-DUL bearings mounted back-to-back permits axial float of the spindle to compensate for thermal changes.

The driving pulley shaft is rigidly supported by a widely spaced duplex pair of Timken Fafnir 2MM212WI-DUL preloaded bearings. All bearings are grease packed for life.



ULTRA-LIGHT 2(3)MM9300WI (ISO 19) SERIES

DIMENSIONAL SERIES METRIC



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SUPER PRECISION MM:

Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

WI CONSTRUCTION:

- Incorporates low shoulder on non-thrust side of outer rings.
- Maximum complement of balls separated by one-piece cage piloted against a ground thrust shoulder land of the outer ring.

Bearing Number 2MM or 3MM	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt. kg	(2MM) LOAD RATINGS (steel ball & ceramic ball)			(3MM) LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat)	C _e (dyn)	Limiting Speed ^(Ng)	C ₀ (stat)	C _e (dyn)	Limiting Speed ^(Ng)
						N		RPM	N		RPM
9300WI	10 (4)	22 (5)	6 (40)	12 x 3.2	0.01	1640 1460	3510 3510	77500 93000	1580 1410	3380 3380	69800 83760
9301WI	12 (4)	24 (5)	6 (80)	13 x 3.2	0.01	1840 1640	3690 3690	67200 80640	1770 1580	3550 3550	66500 79800
9302WI	15 (4)	28 (5)	7 (80)	13 x 3.6	0.02	2370 2110	4560 4560	55600 66720	2280 2030	4360 4360	50000 60000
9303WI	17 (4)	30 (5)	7 (80)	14 x 3.6	0.02	2800 2500	4970 4970	50100 60120	2680 2380	4740 4740	45100 5120
9304WI	20 (5)	37 (6)	9 (120)	14 x 4.8	0.04	4560 4050	8080 8080	42100 50520	4360 3880	7700 7700	41600 49920
9305WI	25 (5)	42 (6)	9 (120)	17 x 4.8	0.04	5750 5120	9040 9040	34800 41760	5470 4860	8590 8590	31300 37500
9306WI	30 (5)	47 (6)	9 (120)	19 x 4.8	0.05	6610 5890	9540 9540	29700 35640	6270 5580	9040 9040	26700 32000
9307WI	35 (6)	55 (7)	10 (120)	19 x 5.6	0.08	9020 8020	12600 12600	25400 30480	8530 7590	11600 11600	22900 27500
9308WI	40 (6)	62 (7)	12 (120)	19 x 6.4	0.11	11700 10400	16000 16000	22400 26880	11100 9890	15100 15100	20200 2250
9309WI	45 (6)	68 (7)	12 (120)	21 x 6.4	0.13	13200 11700	16800 16800	20000 24000	12500 11100	15900 15900	18000 21600
9310WI	50 (6)	72 (7)	12 (120)	23 x 6.4	0.14	14600 13000	17600 17600	18300 21960	13800 12300	16600 16600	16500 14800
9311WI	55 (7)	80 (7)	13 (150)	23 x 7.1	0.19	18500 16400	21800 21800	16600 19920	17400 15500	20600 20600	14900 17900
9312WI	60 (7)	85 (8)	13 (150)	25 x 7.1	0.20	20200 18000	22700 22700	15300 18360	19000 16900	21400 21400	13800 16500
9313WI	65 (7)	90 (8)	13 (150)	27 x 7.1	0.22	21900 19500	23600 23600	14200 17040	20400 18100	22200 22200	12800 15300
9314WI	70 (7)	100 (8)	16 (150)	24 x 8.7	0.34	29000 25800	32000 32000	13100 15720	27300 24300	30200 30200	11800 14100
9315WI	75 (7)	105 (8)	16 (150)	25 x 8.7	0.36	30300 26900	32500 32500	12300 14760	28400 25200	30600 30600	11100 13300
9316WI	80 (7)	110 (8)	16 (150)	27 x 8.7	0.39	32700 29100	33800 33800	11600 13920	30500 27100	31900 31900	10400 12500
9317WI	85 (8)	120 (8)	18 (200)	26 x 9.5	0.56	37500 33400	38700 38700	10800 12960	35000 31200	36500 36500	9700 11600
9318WI	90 (8)	125 (9)	18 (200)	26 x 10.3	0.57	44000 39200	45000 45000	10300 12360	41200 36700	42400 42400	9300 11100
9319WI	95 (8)	130 (9)	18 (200)	28 x 10.3	0.60	47400 42200	46800 46800	9800 11760	44200 39300	44100 44100	8800 10500
9320WI	100 (8)	140 (9)	20 (200)	29 x 10.3	0.85	48800 43400	47200 47200	9100 10920	45500 40500	44400 44400	8200 9800
9322WI	110 (8)	150 (9)	20 (200)	31 x 10.3	0.92	51700 46000	48400 48400	8400 10080	48200 42900	45600 45600	7600 9100
9324WI	120 (8)	165 (10)	22 (200)	30 x 11.9	1.24	66900 59500	62000 62000	7700 9240	62300 55,500	58300 58300	6900 8300
9326WI	130 (10)	180 (10)	24 (250)	30 x 13.5	1.65	86400 76900	78500 78500	7100 8520	80500 71700	73900 73900	6400 7700
9328WI	140 (10)	190 (10)	24 (250)	32 x 13.5	1.75	91600 81500	80700 80700	6600 7920	85400 76000	76000 76000	5900 7000
9330WI	150 (10)	210 (10)	28 (250)	27 x 17.5	2.61	130800 116400	119200 119200	6200 7440	122700 109200	112400 112400	5600 6700
9332WI	160 (10)	220 (10)	28 (250)	27 x 18.3	2.75	143100 127300	128900 128900	5800 6960	134100 119300	121600 121600	5800 6690
9334WI	170 (10)	230 (11)	28 (250)	29 x 18.3	2.88	153600 13670	133700 133700	5500 6600	143200 127500	126000 126000	5000 6000
9340WI	200 (12)	280 (13)	38 (300)	27 x 23.8	6.29	243300 216300	209400 209400	4600 5520	228800 203600	19700 19700	4100 4900

(Ng) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.

(1) Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

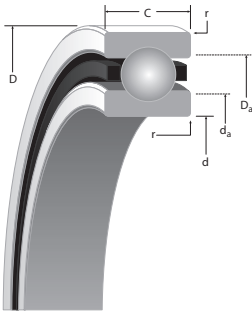
(2) ABMA STD 20 (r_{as} max).

r Rad. ⁽²⁾	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				Bearing Number 2MM or 3MM
	d _a (Shaft)		D _a (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits		Housing Bore (Stationary)		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Tight	Loose	Max.	Min.	Max.	Min.	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
0.3	13.2	13	19.6	19.3	9.995	10.000	0.005	0.004	22	22.005	0.000	0.010	22.010	22.005	0.015	0.005	9300WI
0.3	15.2	14.9	21.6	21.3	11.995	12.000	0.005	0.004	24	24.005	0.000	0.010	24.010	24.005	0.015	0.005	9301WI
0.3	18.3	18.1	25.5	25.2	14.995	15.000	0.005	0.004	28	28.005	0.000	0.010	28.010	28.005	0.015	0.005	9302WI
0.3	20.3	20	27.5	27.2	16.995	17.000	0.005	0.004	30	30.005	0.000	0.010	30.010	30.005	0.015	0.005	9303WI
0.3	24.1	23.9	33.7	33.4	19.995	20.000	0.005	0.005	37	37.006	0.000	0.012	37.010	37.005	0.016	0.005	9304WI
0.3	29.1	28.9	38.7	38.4	24.995	25.000	0.005	0.005	42	42.006	0.000	0.012	42.010	42.005	0.016	0.005	9305WI
0.3	34.1	33.9	43.7	43.4	29.995	30.000	0.005	0.005	47	47.006	0.000	0.012	47.012	47.007	0.018	0.007	9306WI
0.6	40	39.5	51.1	50.6	34.995	35.000	0.005	0.006	55	55.008	0.000	0.015	55.012	55.007	0.019	0.007	9307WI
0.6	45.1	44.6	57.9	57.4	39.995	40.000	0.005	0.006	62	62.008	0.000	0.015	62.012	62.007	0.019	0.007	9308WI
0.6	50.7	50.1	63.4	62.9	44.995	45.000	0.005	0.006	68	68.008	0.000	0.015	68.012	68.007	0.019	0.007	9309WI
0.6	55.1	54.6	67.9	67.4	49.995	50.000	0.005	0.006	72	72.008	0.000	0.015	72.011	72.007	0.019	0.007	9310WI
1	60.9	60.4	75.2	74.7	54.995	55.000	0.005	0.007	80	80.008	0.000	0.015	80.012	80.008	0.020	0.008	9311WI
1	65.8	65.3	80.2	79.7	59.995	60.000	0.005	0.007	85	85.008	0.000	0.016	85.016	85.009	0.024	0.009	9312WI
1	70.8	70.3	85.2	84.7	64.995	65.000	0.005	0.007	90	90.008	0.000	0.016	90.015	90.007	0.023	0.007	9313WI
1	76.8	76.3	94.3	93.8	69.995	70.000	0.005	0.007	100	100.008	0.000	0.016	100.018	100.010	0.025	0.010	9314WI
1	81.9	81.1	99.4	98.6	74.995	75.005	0.005	0.012	105	105.008	0.000	0.016	105.019	105.011	0.026	0.011	9315WI
1	86.9	86.1	104.4	103.6	79.995	80.005	0.005	0.012	110	110.008	0.000	0.016	110.018	110.010	0.025	0.010	9316WI
1	93.6	92.8	112.7	111.9	84.995	85.005	0.005	0.012	120	120.008	0.000	0.016	120.018	120.010	0.025	0.010	9317WI
1	97.8	97	118.5	117.7	89.995	90.005	0.005	0.013	125	125.008	0.000	0.017	125.021	125.011	0.030	0.011	9318WI
1	102.8	102	123.5	122.7	94.995	95.005	0.005	0.013	130	130.009	0.000	0.018	130.020	130.010	0.029	0.010	9319WI
1	110.3	109.5	131	130.2	99.995	100.005	0.005	0.013	140	140.009	0.000	0.018	140.020	140.010	0.029	0.010	9320WI
1	120.3	119.5	141	140.2	109.995	110.005	0.005	0.013	150	150.009	0.000	0.018	150.023	150.012	0.032	0.012	9322WI
1	131.2	130.4	155	154.3	119.995	120.005	0.005	0.013	165	165.01	0.000	0.020	165.022	165.012	0.032	0.012	9324WI
1.5	142.1	141.4	169.2	168.4	129.995	130.005	0.005	0.015	180	180.01	0.000	0.020	180.022	180.012	0.032	0.012	9326WI
1.5	152.1	151.4	179.2	178.4	139.995	140.005	0.005	0.015	190	190.01	0.000	0.021	190.022	190.012	0.033	0.012	9328WI
2	163.1	162.4	198.2	197.4	149.995	150.005	0.005	0.015	210	210.011	0.000	0.022	210.025	210.015	0.036	0.015	9330WI
2	173.2	172.4	208.2	207.4	159.995	160.005	0.005	0.015	220	220.011	0.000	0.022	220.025	220.015	0.036	0.015	9332WI
2	185.4	184.7	216.1	215.4	169.995	170.005	0.005	0.015	230	230.011	0.000	0.022	230.025	230.015	0.036	0.015	9334WI
2.1	216.8	216	264.5	263.7	199.993	200.008	0.007	0.019	280	280.013	0.000	0.026	280.031	280.018	0.044	0.018	9340WI



ULTRA-LIGHT 2(3)MM9300WI (ISO 19) SERIES

DIMENSIONAL SERIES INCHES



D

SUPER PRECISION MM:

Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

WI CONSTRUCTION:

- Incorporates low shoulder on non-thrust side of outer rings.
- Maximum complement of balls separated by one-piece cage piloted against a ground thrust shoulder land of the outer ring.

Bearing Number 2MM or 3MM	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt.	(2MM) LOAD RATINGS (steel ball & ceramic ball)			(3MM) LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat)	C _e (dyn)	Limiting Speed ^(N_g)	C ₀ (stat)	C _e (dyn)	Limiting Speed ^(N_g)
						lbs.	lbs.	RPM	lbs.	RPM	
9300WI	0.3937 (1.5)	0.8661 (2)	0.2362 (16)	12 x 1/8	0.02	370 330	790 790	77500 93000	360 320	760 760	69800 83760
9301WI	0.4724 (1.5)	0.9449 (2)	0.2362 (31)	13 x 1/8	0.03	410 370	830 830	67200 80640	400 350	800 800	60500 79800
9302WI	0.5906 (1.5)	1.1024 (2)	0.2756 (31)	13 x 9/64	0.04	530 470	1030 1030	55600 66720	510 460	980 980	50000 60000
9303WI	0.6693 (1.5)	1.1811 (2)	0.2756 (31)	14 x 9/64	0.04	630 560	1120 1120	50100 60120	600 540	1070 1070	45100 54120
9304WI	0.7874 (2)	1.4567 (2.5)	0.3543 (47)	14 x 3/16	0.08	1020 910	1820 1820	42100 50520	920 870	1730 1730	37900 49920
9305WI	0.9843 (2)	1.6535 (2.5)	0.3543 (47)	17 x 3/16	0.1	1290 1150	2030 2030	34800 41760	1230 1090	1930 1930	31300 37560
9306WI	1.1811 (2)	1.8504 (2.5)	0.3543 (47)	19 x 3/16	0.11	1490 1320	2150 2150	29700 35640	1410 1260	2030 2030	26700 32040
9307WI	1.378 (2.5)	2.1654 (3)	0.3937 (47)	19 x 7/32	0.17	2030 1800	2830 2830	25400 30480	1920 1710	2680 2680	22900 27480
9308WI	1.5748 (2.5)	2.4409 (3)	0.4724 (47)	19 x 1/4	0.25	2640 2350	3600 3600	22400 26880	2500 2220	3400 3400	20200 24240
9309WI	1.7717 (2.5)	2.6772 (3)	0.4724 (47)	21 x 1/4	0.29	2960 2640	3785 3785	20000 24000	2810 2500	3560 3560	18000 21600
9310WI	1.9685 (2.5)	2.8346 (3)	0.4724 (47)	23 x 1/4	0.3	3290 2930	3950 3950	18300 21960	3100 2760	3730 3730	16500 19800
9311WI	2.1654 (3)	3.1496 (3)	0.5118 (59)	23 x 9/32	0.41	4150 3700	4900 4900	16600 19920	3920 3490	4620 4620	14900 17880
9312WI	2.3622 (3)	3.3465 (3)	0.5118 (59)	25 x 9/32	0.44	4540 4040	5100 5100	15300 18360	4270 3800	4820 4820	13800 16560
9313WI	2.5591 (3)	3.5433 (3)	0.5118 (59)	27 x 9/32	0.47	4910 4370	5290 5290	14200 17040	4580 4080	4990 4990	12800 15360
9314WI	2.7559 (3)	3.937 (3)	0.6299 (59)	24 x 11/32	0.76	6510 5800	7200 7200	13100 15720	6130 5450	6790 6790	11800 14160
9315WI	2.9528 (3)	4.1339 (3)	0.6299 (59)	25 x 11/32	0.80	6810 6060	7310 7310	12300 14760	6380 5670	6890 6890	11100 13320
9316WI	3.1496 (3)	4.3307 (3)	0.6299 (59)	27 x 11/32	0.85	7350 6540	7600 7600	11600 13920	6860 6100	7170 7170	10400 12480
9317WI	3.3465 (3)	4.7244 (3)	0.7087 (79)	26 x 3/8	1.23	8440 7510	8700 8700	10800 12960	7880 7010	8200 8200	9700 11640
9318WI	3.5433 (3)	4.9213 (3.5)	0.7087 (79)	26 x 13/32	1.26	9900 8810	10100 10100	10300 12360	9270 8250	9540 9540	9300 11160
9319WI	3.7402 (3)	5.1181 (3.5)	0.7087 (79)	28 x 13/32	1.33	10700 9480	10500 10500	9800 11760	9930 8840	9910 9910	8800 10560
9320WI	3.937 (3)	5.5118 (3.5)	0.7874 (79)	29 x 13/32	1.87	11000 9760	10600 10600	9100 10920	10200 9100	9900 9900	8200 9840
9322WI	4.3307 (3)	5.9055 (3.5)	0.7874 (79)	31 x 13/32	2.02	11600 10300	10900 10900	8400 10080	10800 9650	10200 10200	7600 9120
9324WI	4.7244 (3)	6.4961 (4)	0.8661 (79)	30 x 15/32	2.74	15000 13400	13900 13900	7700 9240	14000 12500	13100 13100	6900 8280
9326WI	5.1181 (4)	7.0866 (4)	0.9449 (98)	30 x 17/32	3.63	19400 17300	17600 17600	7100 8520	18100 16100	16600 16600	6400 7680
9328WI	5.5118 (4)	7.4803 (4.5)	0.9449 (98)	32 x 17/32	3.85	20600 18300	18200 18200	6600 7920	19200 17100	17100 17100	5900 7080
9330WI	5.9055 (4)	8.2677 (4.5)	1.1024 (98)	27 x 11/16	5.75	20400 26200	26805 26805	6200 7440	21600 24500	25300 25300	5600 6720
9332WI	6.2992 (4)	8.6614 (4.5)	1.1024 (98)	27 x 23/32	6.06	32200 28600	29000 29000	5800 6960	30100 26800	27300 27300	5800 6960
9334WI	6.6929 (4)	9.0551 (4.5)	1.1024 (98)	29 x 23/32	6.34	34500 30700	30100 30100	5500 6600	32200 28700	28300 28300	5000 6000
9340WI	7.874 (4.5)	11.0236 (5)	1.4961 (118)	27 x 15/16	13.87	54600 48600	47100 47100	4600 5520	51400 45800	44400 44400	4100 4920

^(N_g) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.

(1) Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

(2) ABMA STD 20 (r_{as} max).

r Rad. (2)	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				
	d _a (Shaft)		D _a (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits		Housing Bore (Stationary)		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Tight	Loose	Max.	Min.	Max.	Min.	
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
0.012	0.52	0.51	0.77	0.76	0.3935	0.3937	0.0002	0.00015	0.8661	0.8663	0.0000	0.0004	0.86650	0.86630	0.00060	0.00020	9300WI
0.012	0.60	0.59	0.85	0.84	0.4722	0.4724	0.0002	0.00015	0.9449	0.9451	0.0000	0.0004	0.94530	0.94510	0.00060	0.00020	9301WI
0.012	0.72	0.71	1.00	0.99	0.5904	0.5906	0.0002	0.00015	1.0236	1.0238	0.0000	0.0004	1.02400	1.02380	0.00060	0.00020	9302WI
0.012	0.80	0.79	1.08	1.07	0.6691	0.6693	0.0002	0.00015	1.1811	1.1813	0.0000	0.0004	1.18150	1.18130	0.00060	0.00020	9303WI
0.012	0.95	0.94	1.33	1.32	0.7872	0.7874	0.0002	0.0002	1.4567	1.4570	0.0000	0.0005	1.45710	1.45690	0.00070	0.00020	9304WI
0.012	1.15	1.14	1.52	1.51	0.9841	0.9843	0.0002	0.0002	1.6535	1.6538	0.0000	0.0005	1.65390	1.65370	0.00070	0.00020	9305WI
0.012	1.34	1.33	1.72	1.71	1.1809	1.1811	0.0002	0.0002	1.8504	1.8507	0.0000	0.0005	1.85090	1.85070	0.00080	0.00030	9306WI
0.024	1.57	1.55	2.01	1.99	1.3778	1.3780	0.0002	0.00025	2.1654	2.1657	0.0000	0.0006	2.16590	2.16570	0.00080	0.00030	9307WI
0.024	1.78	1.76	2.28	2.26	1.5746	1.5748	0.0002	0.00025	2.4409	2.4412	0.0000	0.0006	2.44140	2.44120	0.00080	0.00030	9308WI
0.024	1.99	1.97	2.50	2.48	1.7715	1.7717	0.0002	0.00025	2.6772	2.6775	0.0000	0.0006	2.67770	2.67750	0.00080	0.00030	9309WI
0.024	2.17	2.15	2.67	2.65	1.9683	1.9685	0.0002	0.00025	2.8346	2.8349	0.0000	0.0006	2.83510	2.83490	0.00080	0.00030	9310WI
0.039	2.40	2.38	2.96	2.94	2.1652	2.1654	0.0002	0.0003	3.1496	3.1499	0.0000	0.0006	3.15010	3.14990	0.00080	0.00030	9311WI
0.039	2.59	2.57	3.16	3.14	2.3620	2.3622	0.0002	0.0003	3.3465	3.3468	0.0000	0.0006	3.34710	3.34680	0.00090	0.00030	9312WI
0.039	2.79	2.77	3.35	3.33	2.5589	2.5591	0.0002	0.0003	3.5433	3.5436	0.0000	0.0006	3.54390	3.54360	0.00090	0.00030	9313WI
0.039	3.02	3.00	3.71	3.69	2.7557	2.7559	0.0002	0.0003	3.9370	3.9373	0.0000	0.0006	3.93770	3.93740	0.00100	0.00040	9314WI
0.039	3.22	3.19	3.91	3.88	2.9526	2.9530	0.0002	0.0005	4.1339	4.1342	0.0000	0.0006	4.13460	4.13430	0.00100	0.00040	9315WI
0.039	3.42	3.39	4.11	4.08	3.1494	3.1498	0.0002	0.0005	4.3307	4.3310	0.0000	0.0006	4.33140	4.33110	0.00100	0.00040	9316WI
0.039	3.69	3.66	4.44	4.41	3.3463	3.3467	0.0002	0.0005	4.7244	4.7247	0.0000	0.0006	4.72510	4.72480	0.00100	0.00040	9317WI
0.039	3.85	3.82	4.66	4.63	3.5431	3.5435	0.0002	0.0005	4.9213	4.9216	0.0000	0.0007	4.92210	4.92170	0.00120	0.00040	9318WI
0.039	4.05	4.02	4.86	4.83	3.7400	3.7404	0.0002	0.0005	5.1181	5.1185	0.0000	0.0007	5.11890	5.11850	0.00110	0.00040	9319WI
0.039	4.34	4.31	5.16	5.13	3.9368	3.9372	0.0002	0.0005	5.5118	5.5122	0.0000	0.0007	5.51260	5.51220	0.00110	0.00040	9320WI
0.039	4.74	4.71	5.55	5.52	4.3305	4.3309	0.0002	0.0005	5.9055	5.9059	0.0000	0.0007	5.90640	5.90600	0.00120	0.00050	9322WI
0.039	5.16	5.13	6.10	6.07	4.7242	4.7246	0.0002	0.0005	6.4961	6.4965	0.0000	0.0008	6.49700	6.49660	0.00130	0.00050	9324WI
0.059	5.60	5.57	6.66	6.63	5.1179	5.1183	0.0002	0.0006	7.0866	7.0870	0.0000	0.0008	7.08750	7.08710	0.00130	0.00050	9326WI
0.059	5.99	5.96	7.05	7.02	5.5116	5.5120	0.0002	0.0006	7.4803	7.4807	0.0000	0.0008	7.48120	7.48080	0.00140	0.00050	9328WI
0.079	6.42	6.39	7.80	7.77	5.9053	5.9057	0.0002	0.0006	8.2677	8.2682	0.0000	0.0009	8.26870	8.26830	0.00150	0.00060	9330WI
0.079	6.82	6.79	8.20	8.17	6.2990	6.2994	0.0002	0.0006	8.6614	8.6619	0.0000	0.0009	8.6624	8.6620	0.00150	0.00060	9332WI
0.079	7.30	7.27	8.51	8.48	6.6927	6.6931	0.0002	0.0006	9.0551	9.0556	0.0000	0.0009	9.05610	9.05570	0.00150	0.00060	9334WI
0.083	8.54	8.51	10.41	10.38	7.8737	7.8743	0.0003	0.0008	11.0236	11.0241	0.0000	0.0010	11.02490	11.02440	0.00180	0.00080	9340WI



**ULTRA-LIGHT
2MM9300WI
(ISO 19) SERIES**

**DUPLEX
PERFORMANCE DATA**

MOUNTING ARRANGEMENTS



**Suggested
DB**



**Tandem
DT**



**Special Applications
DF**

Bearing Number	PRELOAD				AXIAL STIFFNESS ⁽¹⁾				RADIAL STIFFNESS ⁽¹⁾			SPACER OFFSETS ⁽¹⁾		
	DUX	DUL	DUM	DUH	X-light	Light	Medium	Heavy	Light	Medium	Heavy	X-Light to Light	Light to Medium	Medium to Heavy
	N				N/µm				N/µm			µm		
METRIC DUPLEX PERFORMANCE DATA 2MM9300WI SERIES														
2MM9300WI	—	15	25	55	14.17	16.44	21.69	29.21	73.11	92.17	115.43	1.3	2.8	4.1
2MM9301WI	—	15	25	55	14.87	17.32	22.74	30.61	76.96	97.42	121.91	1.0	2.5	4.1
2MM9302WI	—	20	45	90	16.44	20.11	26.76	36.55	98.12	123.30	153.91	2.0	3.8	5.6
2MM9303WI	—	20	65	130	17.84	21.86	34.63	47.75	107.91	154.96	192.74	1.8	6.4	6.4
2MM9304WI	—	45	90	160	18.19	26.41	35.68	46.17	148.32	186.09	222.47	4.8	5.8	6.6
2MM9305WI	—	45	110	180	20.64	29.56	43.90	54.57	168.78	228.24	265.15	4.3	7.4	5.3
2MM9306WI	—	45	110	180	22.04	31.48	46.52	57.89	181.55	246.08	286.14	4.1	6.9	5.1
2MM9307WI	—	45	110	240	25.36	33.06	48.27	68.74	189.42	258.68	333.53	3.0	6.6	9.1
2MM9308WI	30	65	160	310	27.28	39.00	55.44	76.08	229.12	304.68	380.76	4.8	7.6	9.4
2MM9309WI	30	90	180	360	30.78	46.35	62.26	85.35	270.22	340.18	425.53	5.8	6.6	9.7
2MM9310WI	40	90	200	400	34.28	48.97	68.91	94.80	286.84	376.21	469.96	5.1	7.6	9.7
2MM9311WI	40	110	240	490	38.83	55.27	76.96	105.46	320.24	416.96	521.03	5.6	8.1	10.7
2MM9312WI	40	110	240	510	43.73	58.24	80.63	112.64	338.08	441.10	559.51	4.6	7.6	10.9
2MM9313WI	70	130	270	530	50.02	65.59	87.62	119.63	378.83	478.00	597.63	4.6	6.9	10.4
2MM9314WI	70	180	360	710	49.67	69.44	93.05	127.50	416.61	525.40	656.75	6.9	8.6	13.0
2MM9315WI	90	180	380	760	53.17	71.18	97.77	134.15	427.81	550.94	688.58	6.1	9.4	13.0
2MM9316WI	90	200	400	800	57.89	78.18	104.59	143.59	468.73	591.16	738.95	6.4	8.6	13.0
2MM9317WI	110	270	530	1070	61.39	85.88	115.78	160.03	521.20	655.00	817.48	8.1	10.7	15.5
2MM9318WI	110	270	530	1070	65.06	90.25	120.51	164.93	528.37	666.72	833.75	7.9	10.2	15.0
2MM9319WI	130	290	580	1160	70.13	97.42	130.13	178.05	570.17	719.36	899.51	7.9	10.2	15.0
2MM9320WI	130	360	710	1470	75.38	108.26	145.52	203.23	626.49	788.27	993.43	9.1	11.2	17.3
2MM9322WI	180	400	800	1600	88.15	125.75	169.48	234.19	681.41	856.84	1068.81	9.1	11.4	17.0
2MM9324WI	200	490	980	1960	97.77	144.47	192.74	265.50	752.94	947.08	1181.97	10.7	13.2	19.3
2MM9326WI	220	620	1220	2450	106.69	150.06	201.48	280.36	846.52	1058.84	1322.07	13.0	14.2	21.3
2MM9328WI	270	620	1250	2560	105.11	159.68	214.43	297.33	883.59	1112.54	1401.30	11.2	14.2	21.8
2MM9330WI	290	850	1690	3450	119.98	181.72	243.99	332.14	954.95	1203.31	1512.71	16.8	18.0	27.4
2MM9332WI	489	980	1980	3960	131.9	173.6	234.1	322.1	1013.5	1281.0	1600.0	12.70	19.80	28.45
2MM9334WI	360	1020	2050	4000	163.36	215.13	288.76	397.02	1085.95	1367.72	1696.36	17.5	19.3	27.2
2MM9340WI	778	1560	3110	6230	164.93	217.05	291.03	399.82	1296.71	1634.27	2042.83	16.3	24.4	36.1
	lbs.				10⁶lbs./in.				10⁶lbs./in.			in.		
INCH DUPLEX PERFORMANCE DATA 2MM9300WI SERIES														
2MM9300WI	—	3	6	12	0.081	0.094	0.124	0.167	0.418	0.527	0.66	0.00005	0.00011	0.00016
2MM9301WI	—	3	6	12	0.085	0.099	0.13	0.175	0.44	0.557	0.697	0.00004	0.0001	0.00016
2MM9302WI	—	5	10	20	0.094	0.115	0.153	0.209	0.561	0.705	0.88	0.00008	0.00015	0.00022
2MM9303WI	—	5	15	30	0.102	0.125	0.198	0.273	0.617	0.886	1.102	0.00007	0.00025	0.00025
2MM9304WI	—	10	20	35	0.104	0.151	0.204	0.264	0.848	1.064	1.272	0.00019	0.00023	0.00026
2MM9305WI	—	10	25	40	0.118	0.169	0.251	0.312	0.965	1.305	1.516	0.00017	0.00029	0.00021
2MM9306WI	—	10	25	40	0.126	0.18	0.266	0.331	1.038	1.407	1.636	0.00016	0.00027	0.00020
2MM9307WI	—	10	25	55	0.145	0.189	0.276	0.393	1.083	1.479	1.907	0.00012	0.00026	0.00036
2MM9308WI	5	15	35	70	0.156	0.223	0.317	0.435	1.31	1.742	2.177	0.00019	0.00030	0.00037
2MM9309WI	10	20	40	80	0.176	0.265	0.356	0.488	1.545	1.945	2.433	0.00023	0.00026	0.00038
2MM9310WI	10	20	45	90	0.196	0.28	0.394	0.542	1.64	2.151	2.687	0.00020	0.0003	0.00038
2MM9311WI	10	25	55	110	0.222	0.316	0.44	0.603	1.831	2.384	2.979	0.00022	0.00032	0.00042
2MM9312WI	10	25	55	115	0.25	0.333	0.461	0.644	1.933	2.522	3.199	0.00018	0.0003	0.00043
2MM9313WI	15	30	60	120	0.286	0.375	0.501	0.684	2.166	2.733	3.417	0.00018	0.00027	0.00041
2MM9314WI	15	40	80	160	0.284	0.397	0.532	0.729	2.382	3.004	3.755	0.00027	0.00034	0.00051
2MM9315WI	20	40	85	170	0.304	0.407	0.559	0.767	2.446	3.15	3.937	0.00024	0.00037	0.00051
2MM9316WI	20	45	90	180	0.331	0.447	0.598	0.821	2.68	3.38	4.225	0.00025	0.00034	0.00051
2MM9317WI	25	60	120	240	0.351	0.491	0.662	0.915	2.98	3.745	4.674	0.00032	0.00042	0.00061
2MM9318WI	25	60	120	240	0.372	0.516	0.689	0.943	3.021	3.812	4.767	0.00031	0.00040	0.00059
2MM9319WI	30	65	130	260	0.401	0.557	0.744	1.018	3.26	4.113	5.143	0.00031	0.00040	0.00059
2MM9320WI	30	80	160	330	0.431	0.619	0.832	1.162	3.582	4.507	5.68	0.00036	0.00044	0.00068
2MM9322WI	40	90	180	360	0.504	0.719	0.969	1.339	3.896	4.899	6.111	0.00036	0.00045	0.00067
2MM9324WI	45	110	220	440	0.559	0.826	1.102	1.518	4.305	5.415	6.758	0.00042	0.00052	0.00076
2MM9326WI	50	140	275	550	0.61	0.858	1.152	1.603	4.84	6.054	7.559	0.00051	0.00056	0.00084
2MM9328WI	60	140	280	575	0.601	0.913	1.226	1.7	5.052	6.361	8.012	0.00044	0.00056	0.00086
2MM9330WI	65	190	380	775	0.686	1.039	1.395	1.899	5.46	6.88	8.649	0.00066	0.00071	0.00108
2MM9332WI	110	220	445	890	0.753	0.991	1.337	1.839	5.787	7.315	9.135	0.00050	0.00078	0.00112
2MM9334WI	80	230	460	900	0.934	1.23	1.651	2.27	6.209	7.82	9.699	0.00069	0.00076	0.00107
2MM9340WI	175	350	700	1400	0.943	1.241	1.664	2.286	7.414	9.344	11.68	0.00064	0.00096	0.00142

Notes: ⁽¹⁾ For DB or DF arrangements only. For other mounting arrangements contact your Timken representative.

ULTRA-LIGHT 3MM9300WI (ISO 19) SERIES

DUPLEX PERFORMANCE DATA

MOUNTING ARRANGEMENTS



Suggested
DB



Tandem
DT



Special Applications
DF

Bearing Number	PRELOAD				AXIAL STIFFNESS ⁽¹⁾			RADIAL STIFFNESS ⁽¹⁾			SPACER OFFSETS ⁽¹⁾	
	DUX	DUL	DUM	DUH	Light	Medium	Heavy	Light	Medium	Heavy	Light to Medium	Medium to Heavy
	N				N/μm			N/μm			μm	
METRIC DUPLEX PERFORMANCE DATA 3MM9300WI SERIES												
3MM9300WI	—	20	45	90	32.7	42.3	55.3	70.5	88.7	110.9	2.54	3.81
3MM9301WI	—	20	45	90	34.5	44.5	58.14	74.4	93.7	117.3	2.03	3.81
3MM9302WI	—	45	90	160	46.4	60.2	75.2	96.9	121.6	145.2	3.30	4.06
3MM9303WI	—	45	130	240	50.7	77.0	98.6	106.5	152.5	184.5	5.59	5.08
3MM9304WI	—	45	155	265	51.8	82.7	102.4	112.4	170.6	202.6	6.60	5.08
3MM9305WI	—	65	180	310	67.9	97.9	122.4	146.7	202.9	242.8	5.33	4.83
3MM9306WI	—	70	180	310	72.9	105.3	130.7	157.8	218.8	262.0	5.08	4.57
3MM9307WI	45	90	240	420	84.6	123.3	152.5	182.8	255.7	304.9	5.84	5.08
3MM9308WI	65	130	310	560	101.8	139.4	174.9	218.8	289.8	349.3	5.84	6.10
3MM9309WI	90	160	360	670	114.7	156.2	199.7	246.3	323.9	396.3	5.84	6.86
3MM9310WI	90	160	400	670	121.5	174.6	210.9	261.5	357.8	419.6	6.60	5.59
3MM9311WI	90	200	490	850	138.7	193.8	239.8	294.5	396.3	472.6	6.86	6.60
3MM9312WI	90	200	510	890	146.7	207.6	257.5	311.1	425.4	508.4	6.86	6.60
3MM9313WI	110	220	530	1070	159.7	221.2	290.0	339.3	454.4	599.2	6.60	8.38
3MM9314WI	130	290	710	1290	171.6	239.4	301.7	366.4	494.8	599.2	8.13	8.64
3MM9315WI	155	310	760	1330	180.8	251.3	313.4	385.7	518.8	622.8	8.13	8.13
3MM9316WI	180	330	800	1380	194.8	269.3	332.7	415.7	556.7	663.4	7.87	7.62
3MM9317WI	220	440	1070	1870	214.9	298.2	371.8	462.1	617.0	738.3	9.65	9.65
3MM9318WI	220	400	930	1670	212.7	290.5	363.1	455.3	605.2	730.2	8.38	8.89
3MM9319WI	220	470	1160	2000	235.8	329.9	408.0	504.1	682.1	814.2	9.65	9.14
3MM9320WI	310	600	1470	2560	264.3	369.2	459.8	562.0	754.7	901.4	10.92	10.41
3MM9322WI	330	670	1600	2780	286.5	397.9	494.8	608.7	812.1	968.6	10.92	10.41
3MM9324WI	400	800	1960	3450	311.7	421.3	543.9	663.7	891.8	1,069.2	12.19	12.19
3MM9326WI	510	1020	2450	4340	352.6	488.3	611.5	751.2	1002.2	1,198.9	13.46	13.72
3MM9328WI	530	1070	2560	4450	373.1	516.8	642.1	795.4	1062.2	1,268.5	13.21	13.21
3MM9330WI	710	1450	3450	6000	401.1	551.1	688.2	854.6	1144.0	1,363.0	16.76	16.26
3MM9332WI	800	1580	3950	6940	418.2	588.9	734.1	876.5	1,215.9	1,455.7	18.80	17.78
3MM9334WI	800	1600	4000	6940	440.0	618.2	760.4	944.3	1,280.7	1,519.0	18.29	16.26
3MM9340WI	1250	3110	6230	12460	580.1	751.0	985.0	1,222.0	1,537.0	1,920.4	18.80	28.70
	lbs.				10 ⁶ lbs./in.			10 ⁶ lbs./in.			in.	
INCH DUPLEX PERFORMANCE DATA 3MM9300WI SERIES												
3MM9300WI	—	5	10	20	0.187	0.242	0.316	0.403	0.507	0.634	0.00010	0.00015
3MM9301WI	—	5	10	20	0.197	0.254	0.332	0.425	0.535	0.670	0.00008	0.00015
3MM9302WI	—	10	20	35	0.265	0.344	0.430	0.554	0.695	0.830	0.00013	0.00016
3MM9303WI	—	10	30	55	0.290	0.440	0.564	0.609	0.872	1.055	0.00022	0.00020
3MM9304WI	—	10	35	60	0.296	0.472	0.585	0.642	0.974	1.157	0.00026	0.00020
3MM9305WI	—	15	40	70	0.388	0.560	0.700	0.839	1.160	1.388	0.00021	0.00019
3MM9306WI	—	15	40	70	0.417	0.602	0.747	0.902	1.251	1.498	0.00020	0.00018
3MM9307WI	10	20	55	95	0.484	0.705	0.872	1.045	1.462	1.743	0.00023	0.00020
3MM9308WI	15	30	70	125	0.582	0.797	1.000	1.251	1.657	1.997	0.00023	0.00024
3MM9309WI	20	35	80	150	0.656	0.893	1.142	1.408	1.852	2.266	0.00023	0.00027
3MM9310WI	20	35	90	150	0.695	0.998	1.206	1.495	2.046	2.399	0.00026	0.00022
3MM9311WI	20	45	110	190	0.793	1.108	1.371	1.684	2.266	2.702	0.00027	0.00026
3MM9312WI	20	45	115	200	0.839	1.187	1.472	1.779	2.432	2.907	0.00027	0.00026
3MM9313WI	25	50	120	240	0.913	1.265	1.658	1.940	2.598	3.426	0.00026	0.00033
3MM9314WI	30	65	160	290	0.981	1.369	1.725	2.095	2.829	3.426	0.00032	0.00034
3MM9315WI	35	70	170	300	1.034	1.437	1.792	2.205	2.966	3.561	0.00032	0.00032
3MM9316WI	40	75	180	310	1.114	1.540	1.902	2.377	3.183	3.793	0.00031	0.00030
3MM9317WI	50	100	240	420	1.229	1.705	2.126	2.642	3.528	4.221	0.00038	0.00038
3MM9318WI	50	90	210	375	1.216	1.661	2.076	2.603	3.460	4.175	0.00033	0.00035
3MM9319WI	50	105	260	450	1.348	1.886	2.333	2.882	3.900	4.655	0.00038	0.00036
3MM9320WI	70	135	330	575	1.511	2.111	2.629	3.213	4.315	5.154	0.00043	0.00041
3MM9322WI	75	150	360	625	1.638	2.275	2.829	3.480	4.643	5.538	0.00043	0.00041
3MM9324WI	90	180	440	775	1.782	2.409	3.110	3.795	5.099	6.113	0.00048	0.00048
3MM9326WI	115	230	550	975	2.016	2.792	3.496	4.295	5.730	6.855	0.00053	0.00054
3MM9328WI	120	240	575	1000	2.130	2.950	3.660	4.548	6.073	7.253	0.00052	0.00052
3MM9330WI	160	325	775	1350	2.296	3.172	3.939	4.886	6.519	7.793	0.00066	0.00064
3MM9332WI	180	355	890	1560	2.388	3.363	4.192	5.119	6.943	8.312	0.00074	0.00070
3MM9334WI	180	360	900	1560	2.512	3.530	4.342	5.392	7.313	8.674	0.00072	0.00064
3MM9340WI	280	700	1400	2800	3.317	4.294	5.632	6.987	8.788	10.980	0.00074	0.00113

Notes: ⁽¹⁾ For DB or DF arrangements only. For other mounting arrangements contact your Timken representative.

**ULTRA-LIGHT 2MM9300WI
(ISO 19) SERIES****SPEED CAPABILITY DATA**

Bearing Number	Grease Capacity		Kluber Isoflex		Operating Speeds ⁽²⁾ (DB Mounting) ⁽¹⁾					
	NBU15		NBU15		DUL	Grease DUM	DUH	DUL	Oil DUM	DUH
	25%	40%	15%	20%						
2MM9300WI	0.09	0.15	0.06	0.08	62000	46500	31000	105400	79100	52700
2MM9301WI	0.11	0.17	0.07	0.10	53800	40300	26900	91500	68500	45700
2MM9302WI	0.17	0.28	0.12	0.15	44500	33400	22200	75700	56800	37700
2MM9303WI	0.19	0.30	0.12	0.16	40100	30100	20000	68200	51200	34000
2MM9304WI	0.40	0.60	0.25	0.34	33700	25300	16800	57300	43000	28600
2MM9305WI	0.40	0.70	0.29	0.39	27800	20900	13900	47300	35500	23600
2MM9306WI	0.50	0.80	0.34	0.45	23800	17800	11900	40500	30300	20200
2MM9307WI	0.80	1.20	0.51	0.68	20300	15200	10200	34500	25800	17300
2MM9308WI	1.20	1.90	0.80	1.07	17900	13400	9000	30400	22800	15300
2MM9309WI	1.30	2.10	0.88	1.18	16000	12000	8000	27200	20400	13600
2MM9310WI	1.40	2.30	0.95	1.27	14600	11000	7300	24800	18700	12400
2MM9311WI	1.90	3.00	1.30	1.70	13300	10000	6600	22600	17000	11200
2MM9312WI	2.00	3.20	1.40	1.80	12200	9200	6100	20700	15600	10400
2MM9313WI	2.10	3.40	1.40	1.90	11400	8500	5700	19400	14500	9700
2MM9314WI	3.60	5.70	2.40	3.20	10500	7900	5200	17900	13400	8800
2MM9315WI	3.80	6.10	2.50	3.40	9800	7400	4900	16700	12600	8300
2MM9316WI	4.00	6.40	2.70	3.50	9300	7000	4600	15800	11900	7800
2MM9317WI	5.30	8.60	3.60	4.80	8600	6500	4300	14600	11100	7300
2MM9318WI	5.90	9.40	3.90	5.20	8200	6200	4100	13900	10500	7000
2MM9319WI	6.10	9.70	4.10	5.40	7800	5900	3900	13300	10000	6600
2MM9320WI	7.50	12.00	5.00	6.70	7300	5500	3600	12400	9400	6100
2MM9322WI	8.10	13.00	5.40	7.30	6700	5000	3400	11400	8500	5800
2MM9324WI	11.10	17.80	7.40	9.90	6200	4600	3100	10500	7800	5300
2MM9326WI	14.60	23.30	9.70	13.00	5700	4300	2800	9700	7300	4800
2MM9328WI	15.50	24.80	10.40	13.80	5300	4000	2600	9000	6800	4400
2MM9330WI	24.80	39.70	16.60	22.10	5000	3700	2500	8500	6300	4300
2MM9332WI	26.20	41.90	17.50	23.30	4600	3500	2300	7900	5900	3900
2MM9334WI	28.20	45.20	18.90	25.10	4400	3300	2200	7500	5600	3700
2MM9340WI	56.80	90.90	37.90	50.60	3700	2800	1800	6300	4700	3100

⁽¹⁾ For other mounting arrangement configurations refer to the engineering section on Permissible Speed calculation methods.⁽²⁾ For ceramic ball complements use 120% of speeds shown.

ULTRA-LIGHT 3MM9300WI (ISO 19) SERIES

SPEED CAPABILITY DATA

Bearing Number	Grease Capacity		Kluber Isoflex		Operating Speeds ⁽²⁾ (DB Mounting) ⁽¹⁾					
	NBU15		NBU15		DUL	Grease DUM	DUH	DUL	Oil DUM	DUH
	25%	40%	15%	20%						
3MM9300WI	0.09	0.15	0.06	0.08	55800	41850	27900	94860	71190	47430
3MM9301WI	0.11	0.17	0.07	0.10	48420	36270	24210	82350	61650	41130
3MM9302WI	0.17	0.28	0.12	0.15	40050	30060	19980	68130	51120	33930
3MM9303WI	0.19	0.30	0.12	0.16	36090	27090	18000	61380	46080	30600
3MM9304WI	0.40	0.60	0.25	0.34	30330	22770	15120	51570	38700	25740
3MM9305WI	0.40	0.70	0.29	0.39	25020	18810	12510	42570	31950	21240
3MM9306WI	0.50	0.80	0.34	0.45	21420	16020	10710	36450	27270	18180
3MM9307WI	0.80	1.20	0.51	0.68	18270	13680	9180	31050	23220	15570
3MM9308WI	1.20	1.90	0.80	1.07	16110	12060	8100	27360	20520	3770
3MM9309WI	1.30	2.10	0.88	1.18	14400	10800	7200	24480	18360	12240
3MM9310WI	1.40	2.30	0.95	1.27	13140	9900	6570	22320	16830	11160
3MM9311WI	1.90	3.00	1.30	1.70	11970	9000	5940	20340	15300	10080
3MM9312WI	2.00	3.20	1.40	1.80	10980	8280	5490	18630	14040	9360
3MM9313WI	2.10	3.40	1.40	1.90	10260	7650	5130	17460	13050	8730
3MM9314WI	3.60	5.70	2.40	3.20	9450	7110	4680	16110	12060	7920
3MM9315WI	3.80	6.10	2.50	3.40	8820	6660	4410	15030	11340	7470
3MM9316WI	4.00	6.40	2.70	3.50	8370	6300	4140	14220	10710	7020
3MM9317WI	5.30	8.60	3.60	4.80	7740	5850	3870	13140	9990	6570
3MM9318WI	5.90	9.40	3.90	5.20	7380	5580	3690	12510	9450	6300
3MM9319WI	6.10	9.70	4.10	5.40	7020	5310	3510	11970	9000	5940
3MM9320WI	7.50	12.00	5.00	6.70	6570	4950	3240	11160	8460	5490
3MM9322WI	8.10	13.00	5.40	7.30	6030	4500	3060	10260	7650	5220
3MM9324WI	11.10	17.80	7.40	9.90	5580	4140	2790	9450	7020	4770
3MM9326WI	14.60	23.30	9.70	13.00	5130	3870	2520	8730	6570	4320
3MM9328WI	15.50	24.80	10.40	13.80	4770	3600	2340	8100	6120	3960
3MM9330WI	24.80	39.70	16.60	22.10	4500	3330	2250	7650	5670	3870
3MM9332WI	26.20	41.90	17.50	23.30	4140	3150	2070	7110	5310	3510
3MM9334WI	28.20	45.20	18.90	25.10	3960	2970	1980	6750	5040	3330
3MM9340WI	56.80	90.90	37.90	50.60	3330	2520	1620	5670	4230	2790

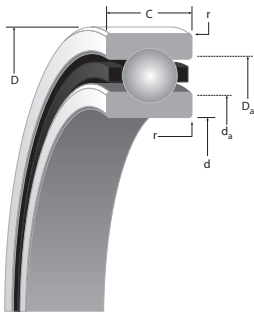
⁽¹⁾ For other mounting arrangement configurations refer to the engineering section on Permissible Speed calculation methods.

⁽²⁾ For ceramic ball complements use 120% of speeds shown.



ULTRA-LIGHT 2(3)MMV9300HX (ISO 19) SERIES

DIMENSIONAL SERIES METRIC



D

SUPER PRECISION MM:

Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

WI CONSTRUCTION:

- Incorporates low shoulder on non-thrust side of outer rings.
- Maximum complement of balls separated by one-piece cage piloted against a ground thrust shoulder land of the outer ring.

Bearing Number 2MM or 3MM	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt. kg	(2MM) LOAD RATINGS (steel ball & ceramic ball)			(3MM) LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat)	C _e (dyn)	Limiting Speed ^(Ng)	C ₀ (stat)	C _e (dyn)	Limiting Speed ^(Ng)
						N	N	RPM	N	N	RPM
9300HX	10 (4)	22 (5)	6 (40)	12 x 3.2	0.01	534 489	1468 1468	91700 110040	534 489	1379 1379	82500 99000
9301HX	12 (4)	24 (5)	6 (80)	14 x 3.2	0.01	610 540	1500 1500	80000 96000	580 520	1420 1420	72000 86400
9302HX	15 (4)	28 (5)	7 (80)	13 x 3.6	0.02	979 890	2091 2091	66800 80160	890 801	2046 2046	60100 72120
9303HX	17 (4)	30 (5)	7 (80)	14 x 3.6	0.02	1023 934	2224 2224	60400 72480	979 890	2091 2091	54400 65280
9304HX	20 (5)	37 (6)	9 (120)	14 x 4.8	0.04	1690 1512	3514 3514	50200 60240	1601 1423	3336 3336	45200 54240
9305HX	25 (5)	42 (6)	9 (120)	17 x 4.8	0.04	2046 1824	3781 3781	41800 50160	1913 1735	3603 3603	37600 45120
9306HX	30 (5)	47 (6)	9 (120)	19 x 4.8	0.05	2402 2135	4048 4048	35900 43080	2224 1957	3825 3825	32300 38760
9307HX	35 (6)	55 (7)	10 (120)	19 x 5.6	0.08	3158 2847	5115 5115	30500 36600	2980 2624	4804 4804	27500 33000
9308HX	40 (6)	62 (7)	12 (120)	19 x 6.4	0.11	6005 5338	10675 10675	28000 33600	5693 5071	10097 10097	25200 30240
9309HX	45 (6)	68 (7)	12 (120)	21 x 6.4	0.13	6716 6005	11164 11164	25000 30000	6405 5693	10586 10586	22500 27000
9310HX	50 (6)	72 (7)	12 (120)	23 x 6.4	0.14	7473 6672	11698 11698	22900 27480	7072 6405	11031 11031	20600 24720
9311HX	55 (7)	80 (7)	13 (150)	23 x 7.1	0.19	9430 8407	14500 14500	20700 24840	8896 7917	13700 13700	18600 22320
9312HX	60 (7)	85 (8)	13 (150)	25 x 7.1	0.2	10319 9207	15123 15123	19200 23040	9697 8629	14278 14278	17300 20760
9313HX	65 (7)	90 (8)	13 (150)	27 x 7.1	0.22	11164 9919	15701 15701	17800 21360	10400 9250	14800 14800	16000 19200
9314HX	70 (7)	100 (8)	16 (150)	24 x 8.7	0.34	14767 13166	21306 21306	16400 19680	13922 12365	20105 20105	14800 17760
9315HX	75 (7)	105 (8)	16 (150)	25 x 8.7	0.36	15435 13744	21617 21617	15400 18480	14500 12899	20416 20416	13900 16680
9316HX	80 (7)	110 (8)	16 (150)	27 x 8.7	0.39	16680 14856	22507 22507	14500 17400	15568 13833	21217 21217	13100 15720
9317HX	85 (8)	120 (8)	18 (200)	26 x 9.5	0.56	19171 17036	25754 25754	13500 16200	17836 15879	24242 24242	12200 14640
9318HX	90 (8)	125 (9)	18 (200)	26 x 10.3	0.57	22462 19972	29935 29935	12900 15480	20995 18682	28200 28200	11600 13920
9319HX	95 (8)	130 (9)	18 (200)	28 x 10.3	0.6	24197 21528	31136 31136	12300 14760	22507 20060	29312 29312	10300 12360
9320HX	100 (8)	140 (9)	20 (200)	29 x 10.3	0.85	24864 22151	31403 31403	11400 13680	23174 20639	29535 29535	9900 11800
9322HX	110 (8)	150 (9)	20 (200)	31 x 10.3	0.92	26377 23485	32204 32204	10500 12600	24597 21884	30291 30291	9500 11400
9324HX	120 (8)	165 (10)	22 (200)	30 x 11.9	1.24	34,161 30424	41277 41277	9600 11520	31803 28334	38831 38831	8600 10320
9326HX	130 (10)	180 (10)	24 (250)	30 x 13.5	1.65	44035 39187	52042 52042	8900 10680	41055 36518	48928 48928	8000 9600
9328HX	140 (10)	190 (10)	24 (250)	32 x 13.5	1.75	46704 41544	53821 53821	8300 9960	43501 38742	50707 50707	7500 9000
9330HX	150 (10)	210 (10)	28 (250)	27 x 17.5	2.61	66720 59603	79174 79174	7700 9240	62717 55600	74726 74726	6900 8280

^(Ng) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.

⁽¹⁾ Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

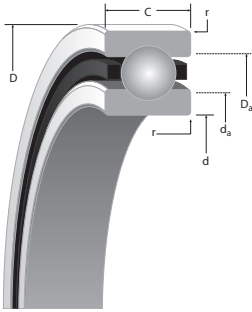
⁽²⁾ ABMA STD 20 (r_{as} max).

r Rad. ⁽²⁾	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				Bearing Number 2MM or 3MM
	d _a (Shaft)		D _a (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits		Housing Bore (Stationary)		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Tight	Loose	Max.	Min.	Max.	Min.	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
0.3	13.2	13	19.6	19.3	9.995	10.000	0.005	0.004	22.000	22.005	0.0000	0.010	22.010	22.005	0.015	0.005	9300HX
0.3	15.2	14.9	21.6	21.3	11.995	12.000	0.005	0.004	24.000	24.005	0.000	0.010	24.010	24.005	0.015	0.005	9301HX
0.3	18.3	18.1	25.5	25.2	14.995	15.000	0.005	0.004	28.000	28.005	0.000	0.010	28.010	28.005	0.015	0.005	9302HX
0.3	20.3	20	27.5	27.2	16.995	17.000	0.005	0.004	30.000	30.005	0.000	0.010	30.010	30.005	0.015	0.005	9303HX
0.3	24.1	23.9	33.7	33.4	19.995	20.000	0.005	0.005	37.000	37.006	0.000	0.012	37.010	37.005	0.016	0.005	9304HX
0.3	29.1	28.9	38.7	38.4	24.995	25.000	0.005	0.005	42.000	42.006	0.000	0.012	42.010	42.005	0.016	0.005	9305HX
0.3	34.1	33.9	43.7	43.4	29.995	30.000	0.005	0.005	47.000	47.006	0.000	0.012	47.012	47.007	0.018	0.007	9306HX
0.6	40	39.5	51.1	50.6	34.995	35.000	0.005	0.006	55.000	55.008	0.000	0.015	55.012	55.007	0.019	0.007	9307HX
0.6	45.1	44.6	57.9	57.4	39.995	40.000	0.005	0.006	62.000	62.008	0.000	0.015	62.012	62.007	0.019	0.007	9308HX
0.6	50.7	50.1	63.4	62.9	44.995	45.000	0.005	0.006	68.000	68.008	0.000	0.015	68.012	68.007	0.019	0.007	9309HX
0.6	55.1	54.6	67.9	67.4	49.995	50.000	0.005	0.006	72.000	72.008	0.000	0.015	72.011	72.007	0.019	0.007	9310HX
1.0	60.9	60.4	75.2	74.7	54.995	55.000	0.005	0.007	80.000	80.008	0.000	0.015	80.012	80.008	0.020	0.008	9311HX
1.0	65.8	65.3	80.2	79.7	59.995	60.000	0.005	0.007	85.000	85.008	0.000	0.016	85.016	85.009	0.024	0.009	9312HX
1.0	70.8	70.3	85.2	84.7	64.995	65.000	0.005	0.007	90.000	90.008	0.0000	0.016	90.015	90.007	0.023	0.007	9313HX
1.0	76.8	76.3	94.3	93.8	69.995	70.000	0.005	0.007	100.000	100.008	0.0000	0.016	100.018	100.010	0.025	0.010	9314HX
1.0	81.9	81.1	99.4	98.6	74.995	75.005	0.005	0.012	105.000	105.008	0.0000	0.016	105.019	105.011	0.026	0.011	9315HX
1.0	86.9	86.1	104.4	103.6	79.995	80.005	0.005	0.012	110.000	110.008	0.0000	0.016	110.018	110.010	0.025	0.010	9316HX
1.0	93.6	92.8	112.7	111.9	84.995	85.005	0.005	0.012	120.000	120.008	0.0000	0.016	120.018	120.010	0.025	0.010	9317HX
1.0	97.8	97.0	118.5	117.7	89.995	90.005	0.005	0.013	125.000	125.008	0.0000	0.017	125.021	125.011	0.030	0.011	9318HX
1.0	102.8	102.0	123.5	122.7	94.995	95.005	0.005	0.013	130.000	130.009	0.0000	0.018	130.020	130.010	0.029	0.010	9319HX
1.0	110.3	109.5	131	130.2	99.995	100.005	0.005	0.013	140.000	140.009	0.0000	0.018	140.020	140.010	0.029	0.010	9320HX
1.0	120.3	119.5	141	140.2	109.995	110.005	0.005	0.013	150.000	150.009	0.0000	0.018	150.023	150.012	0.032	0.012	9322HX
1.0	131.2	130.4	155	154.3	119.995	120.005	0.005	0.013	165.000	165.010	0.0000	0.020	165.022	165.012	0.032	0.012	9324HX
1.5	142.1	141.4	169.2	168.4	129.995	130.005	0.005	0.015	180.000	180.010	0.0000	0.020	180.022	180.012	0.032	0.012	9326HX
1.5	152.1	151.4	179.2	178.4	139.995	140.005	0.005	0.0150	190.000	190.010	0.0000	0.021	190.022	190.012	0.033	0.012	9328HX
2.0	163.1	162.4	198.2	197.4	149.995	150.005	0.005	0.015	210.000	210.011	0.0000	0.022	210.025	210.015	0.036	0.015	9330HX



ULTRA-LIGHT 2(3)MMV9300HX (ISO 19) SERIES

DIMENSIONAL SERIES INCHES



D

SUPER PRECISION MM:

Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

WI CONSTRUCTION:

- Incorporates low shoulder on non-thrust side of outer rings.
- Maximum complement of balls separated by one-piece cage piloted against a ground thrust shoulder land of the outer ring.

Bearing Number 2MM or 3MM	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt. lbs.	(2MM) LOAD RATINGS (steel ball & ceramic ball)			(3MM) LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat)	C _e (dyn)	Limiting Speed ^(Ng)	C ₀ (stat)	C _e (dyn)	Limiting Speed ^(Ng)
						lbs.	RPM	lbs.	RPM		
9300HX	0.3937 (1.5)	0.8661 (2)	0.2362 (16)	13 x 3/32	0.02	120 110	330 330	91700 110040	120 110	310 310	82500 99000
9301HX	0.4724 (1.5)	0.9449 (2)	0.2362 (31)	14 x 3/32	0.03	140 120	340 340	80000 96000	130 120	320 320	72000 86400
9302HX	0.5906 (1.5)	1.1024 (2)	0.2756 (31)	16 x 7/64	0.04	220 200	470 470	66800 80160	200 180	460 460	60100 72120
9303HX	0.6693 (1.5)	1.1811 (2)	0.2756 (31)	17 x 7/64	0.04	230 210	500 500	60400 72480	220 200	470 470	54400 65280
9304HX	0.7874 (2)	1.4567 (2.5)	0.3543 (47)	17 x 9/64	0.08	380 340	790 790	50200 60240	360 320	750 750	45200 54240
9305HX	0.9843 (2)	1.6535 (2.5)	0.3543 (47)	20 x 9/64	0.1	460 410	850 850	41800 50160	430 390	810 810	37600 45120
9306HX	1.1811 (2)	1.8504 (2.5)	0.3543 (47)	23 x 9/64	0.11	540 480	910 910	35900 43080	500 440	860 860	32300 38760
9307HX	1.378 (2.5)	2.1654 (3)	0.3937 (47)	25 x 5/32	0.18	710 640	1150 1150	30500 36600	670 590	1080 1080	27500 33000
9308HX	1.5748 (2.5)	2.4409 (3)	0.4724 (47)	19 x 1/4	0.25	1350 1200	2400 2400	28000 33600	1280 1140	2270 2270	25200 30240
9309HX	1.7717 (2.5)	2.6772 (3)	0.4724 (47)	21 x 1/4	0.29	1510 1350	2510 2510	25000 30000	1440 1280	2380 2380	22500 27000
9310HX	1.9685 (2.5)	2.8346 (3)	0.4724 (47)	23 x 1/4	0.3	1680 1500	2630 2630	22900 27480	1590 1440	2480 2480	20600 24720
9311HX	2.1654 (3)	3.1496 (3)	0.5118 (59)	23 x 9/32	0.39	2120 1890	3260 3260	20700 24840	2000 1780	3080 3080	18600 22320
9312HX	2.3622 (3)	3.3465 (3)	0.5118 (59)	25 x 9/32	0.43	2320 2070	3400 3400	19200 23040	2180 1940	3210 3210	17300 20760
9313HX	2.5591 (3)	3.5433 (3)	0.5118 (59)	27 x 9/32	0.45	2510 2230	3530 3530	17800 21360	2340 2080	3320 3320	16000 19200
9314HX	2.7559 (3)	3.937 (3)	0.6299 (59)	24 x 11/32	0.75	3320 2960	4790 4790	16400 19680	3130 2780	4520 4520	14800 17760
9315HX	2.9528 (3)	4.1339 (3)	0.6299 (59)	25 x 11/32	0.8	3470 3090	4860 4860	15400 18480	3260 2900	4590 4590	13900 16680
9316HX	3.1496 (3)	4.3307 (3)	0.6299 (59)	27 x 11/32	0.8	3750 3340	5060 5060	14500 17400	3500 3110	4770 4770	13100 15720
9317HX	3.3465 (3)	4.7244 (3)	0.7087 (79)	26 x 3/8	1.16	4310 3830	5790 5790	13500 16200	4010 3570	5450 5450	12200 14640
9318HX	3.5433 (3)	4.9213 (3.5)	0.7087 (79)	26 x 13/32	1.2	5050 4490	6730 6730	12900 15480	4720 4200	6340 6340	11600 13920
9319HX	3.7402 (3)	5.1181 (3.5)	0.7087 (79)	28 x 13/32	1.26	5440 4840	7000 7000	12300 14760	5060 4510	6590 6590	10300 12360
9320HX	3.937 (3)	5.5118 (3.5)	0.7874 (79)	29 x 13/32	1.8	5590 4980	7060 7060	11400 13680	5210 4640	6640 6640	10000 12000
9322HX	4.3307 (3)	5.9055 (3.5)	0.7874 (79)	31 x 13/32	1.92	5930 5280	7240 7240	10500 12600	5530 4920	6810 6810	9500 11400
9324HX	4.7244 (3)	6.4961 (4)	0.8661 (79)	30 x 15/32	2.6	7680 6840	9280 9280	9600 11520	7150 6370	8730 8730	8600 10320
9326HX	5.1181 (4)	7.0866 (4)	0.9449 (98)	30 x 17/32	3.63	9900 8810	11700 11700	8900 10680	9230 8210	11000 11000	8000 9600
9328HX	5.5118 (4)	7.4803 (4.5)	0.9449 (98)	32 x 17/32	3.85	10500 9340	12100 12100	8300 9960	9780 8710	11400 11400	7500 9000
9330HX	5.9055 (4)	8.2677 (4.5)	1.1024 (98)	27 x 11/16	5.75	15000 13400	17800 17800	7700 9240	14100 12500	16800 16800	6900 8200

^(Ng) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.

⁽¹⁾ Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

⁽²⁾ ABMA STD 20 (r_{as} max).

r Rad. ⁽²⁾	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				Bearing Number 2MM or 3MM
	d _a (Shaft)		D _a (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits		Housing Bore (Stationary)		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Tight	Loose	Max.	Min.	Max.	Min.	
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
0.012	0.52	0.51	0.77	0.76	0.3935	0.3937	0.0002	0.00015	0.8661	0.8663	0.0000	0.0004	0.8665	0.8663	0.0006	0.0002	9300HX
0.012	0.6	0.59	0.85	0.84	0.4722	0.4724	0.0002	0.00015	0.9449	0.9451	0.0000	0.0004	0.9453	0.9451	0.0006	0.0002	9301HX
0.012	0.72	0.71	1	0.99	0.5904	0.5906	0.0002	0.00015	1.0236	1.0238	0.0000	0.0004	1.0240	1.0238	0.0006	0.0002	9302HX
0.012	0.8	0.79	1.08	1.07	0.6691	0.6693	0.0002	0.00015	1.1811	1.1813	0.0000	0.0004	1.1815	1.1813	0.0006	0.0002	9303HX
0.012	0.95	0.94	1.33	1.32	0.7872	0.7874	0.0002	0.0002	1.4567	1.4570	0.0000	0.0005	1.4571	1.4569	0.0007	0.0002	9304HX
0.012	1.15	1.14	1.52	1.51	0.9841	0.9843	0.0002	0.0002	1.6535	1.6538	0.0000	0.0005	1.6539	1.6537	0.0007	0.0002	9305HX
0.012	1.34	1.33	1.72	1.71	1.1809	1.1811	0.0002	0.0002	1.8504	1.8507	0.0000	0.0005	1.8509	1.8507	0.0008	0.0003	9306HX
0.024	1.57	1.55	2.01	1.99	1.3778	1.3780	0.0002	0.00025	2.1654	2.1657	0.0000	0.0006	2.1659	2.1657	0.0008	0.0003	9307HX
0.024	1.78	1.76	2.28	2.26	1.5746	1.5748	0.0002	0.00025	2.4409	2.4412	0.0000	0.0006	2.4414	2.4412	0.0008	0.0003	9308HX
0.024	1.99	1.97	2.5	2.48	1.7715	1.7717	0.0002	0.00025	2.6772	2.6775	0.0000	0.0006	2.6777	2.6775	0.0008	0.0003	9309HX
0.024	2.17	2.15	2.67	2.65	1.9683	1.9685	0.0002	0.00025	2.8346	2.8349	0.0000	0.0006	2.8351	2.8349	0.0008	0.0003	9310HX
0.039	2.4	2.38	2.96	2.94	2.1652	2.1654	0.0002	0.0003	3.1496	3.1499	0.0000	0.0006	3.1501	3.1499	0.0008	0.0003	9311HX
0.039	2.59	2.57	3.16	3.14	2.3620	2.3622	0.0002	0.0003	3.3465	3.3468	0.0000	0.0006	3.3471	3.3468	0.0009	0.0003	9312HX
0.039	2.79	2.77	3.35	3.33	2.5589	2.5591	0.0002	0.0003	3.5433	3.5436	0.0000	0.0006	3.5439	3.5436	0.0009	0.0003	9313HX
0.039	3.02	3	3.71	3.69	2.7557	2.7559	0.0002	0.0003	3.9370	3.9373	0.0000	0.0006	3.9377	3.9374	0.0010	0.0004	9314HX
0.039	3.22	3.19	3.91	3.88	2.9526	2.9530	0.0002	0.0005	4.1339	4.1342	0.0000	0.0006	4.1346	4.1343	0.0010	0.0004	9315HX
0.039	3.42	3.39	4.11	4.08	3.1494	3.1498	0.0002	0.0005	4.3307	4.3310	0.0000	0.0006	4.3314	4.3311	0.0010	0.0004	9316HX
0.039	3.69	3.66	4.44	4.41	3.3463	3.3467	0.0002	0.0005	4.7244	4.7247	0.0000	0.0006	4.7251	4.7248	0.0010	0.0004	9317HX
0.039	3.85	3.82	4.66	4.63	3.5431	3.5435	0.0002	0.0005	4.9213	4.9216	0.0000	0.0007	4.9221	4.9217	0.0012	0.0004	9318HX
0.039	4.05	4.02	4.86	4.83	3.7400	3.7404	0.0002	0.0005	5.1181	5.1185	0.0000	0.0007	5.1189	5.1185	0.0011	0.0004	9319HX
0.039	4.34	4.31	5.16	5.13	3.9368	3.9372	0.0002	0.0005	5.5118	5.5122	0.0000	0.0007	5.5126	5.5122	0.0011	0.0004	9320HX
0.039	4.74	4.71	5.55	5.52	4.3305	4.3309	0.0002	0.0005	5.9055	5.9059	0.0000	0.0007	5.9064	5.9060	0.0012	0.0005	9322HX
0.039	5.16	5.13	6.1	6.07	4.7242	4.7246	0.0002	0.0005	6.4961	6.4965	0.0000	0.0008	6.4970	6.4966	0.0013	0.0005	9324HX
0.059	5.6	5.57	6.66	6.63	5.1179	5.1183	0.0002	0.0006	7.0866	7.0870	0.0000	0.0008	7.0875	7.0871	0.0013	0.0005	9326HX
0.059	5.99	5.96	7.05	7.02	5.5116	5.5120	0.0002	0.0006	7.4803	7.4807	0.0000	0.0008	7.4812	7.4808	0.0014	0.0005	9328HX
0.079	6.42	6.39	7.8	7.77	5.9053	5.9057	0.0002	0.0006	8.2677	8.2682	0.0000	0.0009	8.2687	8.2683	0.0015	0.0006	9330HX



ULTRA-LIGHT 2MMV9300HX (ISO 19) SERIES

DUPLEX PERFORMANCE DATA

MOUNTING ARRANGEMENTS



Suggested
DB



Tandem
DT



Special Applications
DF

Bearing Number	PRELOAD			AXIAL STIFFNESS ⁽¹⁾			RADIAL STIFFNESS ⁽¹⁾			SPACER OFFSETS ⁽¹⁾	
	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy	Light to Medium	Medium to Heavy
	N			N/μm			N/μm			μm	
METRIC DUPLEX PERFORMANCE DATA 2MMV9300HX SERIES											
2MMV9300HX	9	25	55	10.2	15.6	21.0	61.0	88.5	110.8	5.6	5.6
2MMV9301HX	9	25	55	10.7	16.7	22.8	61.3	88.2	110.2	5.1	5.6
2MMV9302HX	20	45	85	17.0	22.7	31.0	96.4	120.9	150.9	4.6	6.6
2MMV9303HX	20	45	85	16.9	22.3	30.0	100.9	127.1	159.1	4.6	6.6
2MMV9304HX	20	65	135	18.2	28.5	38.7	109.6	157.9	197.3	7.6	8.1
2MMV9305HX	20	65	135	20.2	31.3	42.3	122.0	176.3	220.5	7.1	7.1
2MMV9306HX	20	65	135	22.0	33.9	45.7	133.7	193.6	242.6	6.1	6.6
2MMV9307HX	45	110	225	30.8	44.6	60.5	185.7	251.7	314.6	7.1	8.6
2MMV9308HX	45	135	265	29.5	45.1	60.1	177.9	259.6	325.7	9.7	10.2
2MMV9309HX	45	155	310	31.5	50.9	68.0	189.4	292.1	366.4	10.7	10.7
2MMV9310HX	65	175	355	38.7	56.7	75.9	232.6	324.6	407.0	9.1	10.7
2MMV9311HX	65	200	400	39.5	60.3	80.5	241.2	352.2	442.0	10.7	11.2
2MMV9312HX	65	225	445	41.7	66.2	88.3	254.1	385.7	483.9	11.7	11.7
2MMV9313HX	65	225	445	43.7	69.3	92.3	266.7	406.1	509.8	11.2	11.2
2MMV9314HX	110	335	665	51.0	78.1	104.5	316.6	461.2	578.4	13.7	14.7
2MMV9315HX	110	335	665	52.3	80.0	107.0	325.0	474.0	594.7	13.2	14.2
2MMV9316HX	110	335	665	54.9	83.8	111.8	341.2	499.0	626.5	12.7	13.7
2MMV9317HX	135	400	800	58.4	89.3	119.3	365.2	533.1	669.2	14.2	15.2
2MMV9318HX	135	400	800	59.4	90.4	120.2	373.1	548.1	688.9	14.2	15.2
2MMV9319HX	135	400	800	62.2	94.5	125.5	390.6	575.9	724.3	13.7	14.7
2MMV9320HX	155	490	975	67.4	104.6	139.5	423.4	630.5	791.8	15.2	15.7
2MMV9322HX	175	535	1065	73.8	112.7	150.4	464.0	678.6	851.9	15.2	16.3
2MMV9324HX	225	665	1335	80.9	123.4	164.7	513.7	752.1	944.3	17.3	18.3
2MMV9326HX	245	735	1465	87.9	133.4	177.0	545.9	805.2	1012.7	17.8	18.8
2MMV9328HX	265	800	1600	94.6	143.6	190.6	587.5	865.4	1088.2	17.8	19.3
2MMV9330HX	355	1065	2135	99.6	151.1	200.6	630.0	930.8	1170.8	22.4	24.4
	lbs.			10 ⁶ lbs./in.			10 ⁶ lbs./in.			in.	
INCH DUPLEX PERFORMANCE DATA 2MMV9300HX SERIES											
2MMV9300HX	2	6	12	0.0581	0.0894	0.1202	0.3489	0.5059	0.6337	0.00022	0.00022
2MMV9301HX	2	6	12	0.0614	0.0957	0.1301	0.3506	0.5044	0.6300	0.00020	0.00022
2MMV9302HX	5	10	20	0.0972	0.1297	0.1770	0.5509	0.6912	0.8627	0.00018	0.00026
2MMV9303HX	5	10	20	0.0966	0.1275	0.1718	0.5769	0.7266	0.9097	0.00018	0.00026
2MMV9304HX	5	15	30	0.1043	0.1627	0.2213	0.6269	0.9029	1.1280	0.00030	0.00032
2MMV9305HX	5	15	30	0.1154	0.1787	0.2417	0.6977	1.0080	1.2610	0.00028	0.00028
2MMV9306HX	5	15	30	0.1258	0.1940	0.2611	0.7644	1.1070	1.3870	0.00024	0.00026
2MMV9307HX	10	25	50	0.1759	0.2550	0.3460	1.0620	1.4390	1.7990	0.00028	0.00034
2MMV9308HX	10	30	60	0.1688	0.2576	0.3437	1.0170	1.4840	1.8620	0.00038	0.00040
2MMV9309HX	10	35	70	0.1799	0.2910	0.3889	1.0830	1.6700	2.0950	0.00042	0.00042
2MMV9310HX	15	40	80	0.2214	0.3243	0.4340	1.3300	1.8560	2.3270	0.00036	0.00042
2MMV9311HX	15	45	90	0.2260	0.3449	0.4603	1.3790	2.0140	2.5270	0.00042	0.00044
2MMV9312HX	15	50	100	0.2382	0.3783	0.5051	1.4530	2.2050	2.7670	0.00046	0.00046
2MMV9313HX	15	50	100	0.2501	0.3962	0.5278	1.5250	2.3220	2.9150	0.00044	0.00044
2MMV9314HX	25	75	150	0.2915	0.4465	0.5977	1.8100	2.6370	3.3070	0.00054	0.00058
2MMV9315HX	25	75	150	0.2991	0.4575	0.6117	1.8580	2.7100	3.4000	0.00052	0.00056
2MMV9316HX	25	75	150	0.3140	0.4790	0.6390	1.9510	2.8530	3.5820	0.00050	0.00054
2MMV9317HX	30	90	180	0.3339	0.5104	0.6820	2.0880	3.0480	3.8260	0.00056	0.00060
2MMV9318HX	30	90	180	0.3396	0.5167	0.6874	2.1330	3.1340	3.9390	0.00056	0.00060
2MMV9319HX	30	90	180	0.3559	0.5403	0.7174	2.2330	3.2930	4.1410	0.00054	0.00058
2MMV9320HX	35	110	220	0.3852	0.5978	0.7975	2.4210	3.6050	4.5270	0.00060	0.00062
2MMV9322HX	40	120	240	0.4221	0.6444	0.8601	2.6530	3.8800	4.8710	0.00060	0.00064
2MMV9324HX	50	150	300	0.4624	0.7057	0.9418	2.9370	4.3000	5.3990	0.00068	0.00072
2MMV9326HX	55	165	330	0.5028	0.7627	1.0120	3.1210	4.6040	5.7900	0.00070	0.00074
2MMV9328HX	60	180	360	0.5408	0.8209	1.0900	3.3590	4.9480	6.2220	0.00070	0.00076
2MMV9330HX	80	240	480	0.5694	0.8640	1.1470	3.6020	5.3220	6.6940	0.00088	0.00096

Notes: ⁽¹⁾ For DB or DF arrangements only. For other mounting arrangements contact your Timken representative.

**ULTRA-LIGHT
3MMV9300HX
(ISO 19) SERIES**

**DUPLEX
PERFORMANCE DATA**

MOUNTING ARRANGEMENTS



**Suggested
DB**



**Tandem
DT**



**Special Applications
DF**

Bearing Number	PRELOAD			AXIAL STIFFNESS ⁽¹⁾			RADIAL STIFFNESS ⁽¹⁾			SPACER OFFSETS ⁽¹⁾	
	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy	Light to Medium	Medium to Heavy
	N			N/μm			N/μm			μm	
METRIC DUPLEX PERFORMANCE DATA 3MMV9300HX SERIES											
3MMV9300HX	22	45	90	28.53	36.82	48.06	60.22	75.61	94.48	2.79	4.06
3MMV9301HX	22	45	90	29.93	38.58	50.28	63.30	79.51	99.41	2.54	4.06
3MMV9302HX	22	65	135	34.07	50.72	66.06	72.78	104.78	131.04	4.06	4.57
3MMV9303HX	22	65	135	35.45	52.71	68.60	75.75	109.14	136.54	4.06	4.32
3MMV9304HX	45	110	225	48.76	67.98	88.46	103.86	140.69	175.95	4.57	5.59
3MMV9305HX	45	110	225	54.17	75.33	97.75	115.68	156.99	196.59	4.06	5.08
3MMV9306HX	45	110	225	59.33	82.33	106.58	126.87	172.47	216.18	3.56	4.57
3MMV9307HX	65	175	355	74.51	106.06	137.72	159.18	220.72	276.34	5.08	5.59
3MMV9308HX	65	225	445	70.62	108.04	139.41	154.45	233.67	293.31	7.11	7.11
3MMV9309HX	90	245	490	83.32	119.21	153.84	182.60	257.80	323.74	6.10	7.11
3MMV9310HX	90	265	535	88.43	130.41	168.25	193.61	282.11	354.17	6.60	7.11
3MMV9311HX	110	335	665	99.24	146.29	188.72	216.70	315.69	396.50	7.11	8.13
3MMV9312HX	110	335	665	104.80	154.33	198.86	228.59	333.88	419.41	6.60	7.62
3MMV9313HX	110	335	665	110.22	162.15	208.66	239.96	351.37	441.80	6.60	7.11
3MMV9314HX	155	490	980	122.31	183.12	235.94	265.50	394.05	495.14	8.64	9.14
3MMV9315HX	155	490	980	125.63	187.84	242.06	272.49	404.89	508.96	8.64	9.14
3MMV9316HX	155	490	980	132.14	197.46	254.13	285.96	426.23	536.07	8.13	8.64
3MMV9317HX	200	625	1245	144.52	215.48	277.74	313.42	463.66	582.59	9.14	10.16
3MMV9318HX	200	625	1245	148.32	220.72	283.69	319.72	475.73	598.51	9.14	9.65
3MMV9319HX	200	625	1245	155.70	231.57	297.33	334.58	499.86	629.12	8.64	9.14
3MMV9320HX	245	735	1465	170.75	251.16	323.04	369.04	540.62	679.84	9.14	10.16
3MMV9322HX	265	800	1600	183.82	270.40	348.05	397.55	581.89	731.61	9.14	10.16
3MMV9324HX	310	935	1870	198.51	291.73	374.99	427.46	628.07	790.37	10.16	11.18
3MMV9326HX	355	1065	2135	216.35	317.27	407.34	462.79	684.21	861.73	10.67	11.68
3MMV9328HX	400	1200	2400	235.07	344.90	443.02	504.06	743.15	935.54	10.67	12.19
3MMV9330HX	535	1600	3200	249.06	365.54	469.26	540.62	799.12	1006.55	13.72	15.24
	lbs.			10 ⁶ lbs./in.			10 ⁶ lbs./in.			in.	
INCH DUPLEX PERFORMANCE DATA 3MMV9300HX SERIES											
3MMV9300HX	5	10	20	0.163	0.211	0.275	0.344	0.432	0.540	.00011	.00016
3MMV9301HX	5	10	20	0.171	0.221	0.288	0.362	0.455	0.568	.00010	.00016
3MMV9302HX	5	15	30	0.195	0.290	0.378	0.416	0.599	0.749	.00016	.00018
3MMV9303HX	5	15	30	0.203	0.301	0.392	0.433	0.624	0.781	.00016	.00017
3MMV9304HX	10	25	50	0.279	0.389	0.506	0.594	0.804	1.006	.00018	.00022
3MMV9305HX	10	25	50	0.310	0.431	0.559	0.661	0.898	1.124	.00016	.00020
3MMV9306HX	10	25	50	0.339	0.471	0.609	0.725	0.986	1.236	.00014	.00018
3MMV9307HX	15	40	80	0.426	0.606	0.787	0.910	1.262	1.580	.00020	.00022
3MMV9308HX	15	50	100	0.404	0.618	0.797	0.883	1.336	1.677	.00028	.00028
3MMV9309HX	20	55	110	0.476	0.682	0.880	1.044	1.474	1.851	.00024	.00028
3MMV9310HX	20	60	120	0.506	0.746	0.962	1.107	1.613	2.025	.00026	.00028
3MMV9311HX	25	75	150	0.567	0.836	1.079	1.239	1.805	2.267	.00028	.00032
3MMV9312HX	25	75	150	0.599	0.882	1.137	1.307	1.909	2.398	.00026	.00030
3MMV9313HX	25	75	150	0.630	0.927	1.193	1.372	2.009	2.526	.00026	.00028
3MMV9314HX	35	110	220	0.699	1.047	1.349	1.518	2.253	2.831	.00034	.00036
3MMV9315HX	35	110	220	0.718	1.074	1.384	1.558	2.315	2.910	.00034	.00036
3MMV9316HX	35	110	220	0.756	1.129	1.453	1.635	2.437	3.065	.00032	.00034
3MMV9317HX	45	140	280	0.826	1.232	1.588	1.792	2.651	3.331	.00036	.00040
3MMV9318HX	45	140	280	0.848	1.262	1.622	1.828	2.720	3.422	.00036	.00038
3MMV9319HX	45	140	280	0.890	1.324	1.700	1.913	2.858	3.597	.00034	.00036
3MMV9320HX	55	165	330	0.976	1.436	1.847	2.110	3.091	3.887	.00036	.00040
3MMV9322HX	60	180	360	1.051	1.546	1.990	2.273	3.327	4.183	.00036	.00040
3MMV9324HX	70	210	420	1.135	1.668	2.144	2.444	3.591	4.519	.00040	.00044
3MMV9326HX	80	240	480	1.237	1.814	2.329	2.646	3.912	4.927	.00042	.00046
3MMV9328HX	90	270	540	1.344	1.972	2.533	2.882	4.249	5.349	.00042	.00048
3MMV9330HX	120	360	720	1.424	2.090	2.683	3.091	4.569	5.755	.00054	.00060

Notes: ⁽¹⁾ For DB or DF arrangements only. For other mounting arrangements contact your Timken representative.

**ULTRA-LIGHT 2MMV9300HX
(ISO 19) SERIES****SPEED CAPABILITY DATA**

Bearing Number	Grease Capacity		Kluber Isoflex		Operating Speeds ⁽²⁾ (DB Mounting) ⁽¹⁾					
	NBU15		NBU15		DUL	Grease DUM	DUH	DUL	Oil DUM	DUH
	25%	40%	15%	20%						
2MMV9300HX	0.11	0.18	0.06	0.09	73360	55020	36680	123795	93534	62310
2MMV9301HX	0.13	0.20	0.07	0.11	64000	48000	32000	108000	81600	54360
2MMV9302HX	0.20	0.33	0.12	0.17	53440	40080	26720	90180	68136	45391
2MMV9303HX	0.23	0.36	0.12	0.18	48320	36240	24160	81540	61608	41042
2MMV9304HX	0.48	0.71	0.25	0.39	40160	30120	20080	67770	51204	34111
2MMV9305HX	0.48	0.83	0.29	0.44	33440	25080	16720	56430	42636	28403
2MMV9306HX	0.60	0.95	0.34	0.51	28720	21540	14360	48465	36618	24394
2MMV9307HX	0.95	1.43	0.51	0.77	24400	18300	12200	41175	31110	20725
2MMV9308HX	1.43	2.26	0.8	1.22	22400	16800	11200	37800	28560	19026
2MMV9309HX	1.55	2.50	0.88	1.34	20000	15000	10000	33750	25500	16988
2MMV9310HX	1.67	2.74	0.95	1.44	18320	13740	9160	30915	23358	15561
2MMV9311HX	2.26	3.57	1.3	1.93	16560	12420	8280	27945	21114	14066
2MMV9312HX	2.38	3.81	1.4	2.05	15360	11520	7680	25920	19584	13046
2MMV9313HX	2.50	4.05	1.4	2.16	14240	10680	7120	24030	18156	12095
2MMV9314HX	4.29	6.79	2.4	3.64	13120	9840	6560	22140	16728	11144
2MMV9315HX	4.52	7.26	2.5	3.86	12320	9240	6160	20790	15708	10464
2MMV9316HX	4.76	7.62	2.7	3.98	11600	8700	5800	19575	14790	9853
2MMV9317HX	6.31	10.24	3.6	5.45	10800	8100	5400	18225	13770	9173
2MMV9318HX	7.02	11.19	3.9	5.91	10320	7740	5160	17415	13158	8766
2MMV9319HX	7.26	11.55	4.1	6.14	9840	7380	4920	16605	12546	8358
2MMV9320HX	8.93	14.29	5	7.61	9120	6840	4560	15390	11628	7746
2MMV9322HX	9.64	15.48	5.4	8.30	8,400	6300	4200	14175	10710	7135
2MMV9324HX	13.21	21.19	7.4	11.25	7680	5760	3840	12960	9792	6523
2MMV9326HX	17.38	27.74	9.7	14.77	7088	5316	3540	11960	9037	6020
2MMV9328HX	18.45	29.52	10.4	15.68	6616	4962	3300	11165	8435	5619
2MMV9330HX	29.52	47.26	16.6	25.11	6168	4626	3080	10410	7864	5239

⁽¹⁾ For other mounting arrangement configurations refer to the engineering section on Permissible Speed calculation methods.⁽²⁾ For ceramic ball complements use 120% of speeds shown.

ULTRA-LIGHT 3MMV9300HX (ISO 19) SERIES

SPEED CAPABILITY DATA

Bearing Number	Grease Capacity		Kluber Isoflex		Operating Speeds ⁽²⁾ (DB Mounting) ⁽¹⁾					
	NBU15		NBU15		DUL	Grease DUM	DUH	DUL	Oil DUM	DUH
	25%	40%	15%	20%						
3MMV9300HX	0.11	0.18	0.06	0.08	66080	49560	33040	111510	84250	56125
3MMV9301HX	0.13	0.20	0.07	0.10	57600	43200	28800	97200	73440	48900
3MMV9302HX	0.20	0.33	0.12	0.15	48080	36060	24040	81135	61300	40850
3MMV9303HX	0.23	0.36	0.12	0.16	43440	32580	21720	73305	55390	36900
3MMV9304HX	0.48	0.71	0.25	0.34	36160	27120	18080	61020	46100	30700
3MMV9305HX	0.48	0.83	0.29	0.39	30080	22560	15040	50760	38350	25550
3MMV9306HX	0.60	0.95	0.34	0.45	25840	19380	12920	43605	32950	21950
3MMV9307HX	0.95	1.43	0.51	0.69	22000	16500	11000	37125	28050	18690
3MMV9308HX	1.43	2.26	0.8	1.08	20160	15120	10080	34020	25700	17125
3MMV9309HX	1.55	2.50	0.88	1.19	18000	13500	9000	30375	22950	15290
3MMV9310HX	1.67	2.74	0.95	1.28	16480	12360	8240	27810	21000	14000
3MMV9311HX	2.26	3.57	1.3	1.72	14960	11220	7480	25245	19075	12700
3MMV9312HX	2.38	3.81	1.4	1.82	13760	10320	6880	23220	17500	11690
3MMV9313HX	2.50	4.05	1.4	1.92	12800	9600	6400	21600	16320	10875
3MMV9314HX	4.29	6.79	2.4	3.23	11840	8880	5920	19980	15100	10060
3MMV9315HX	4.52	7.26	2.5	3.43	11120	8340	5560	18765	14175	9450
3MMV9316HX	4.76	7.62	2.7	3.54	10480	7860	5240	17685	13360	8900
3MMV9317HX	6.31	10.24	3.6	4.85	9680	7260	4840	16335	12350	8225
3MMV9318HX	7.02	11.19	3.9	5.25	9280	6960	4640	15660	11825	7880
3MMV9319HX	7.26	11.55	4.1	5.45	8800	6600	4400	14850	11220	7475
3MMV9320HX	8.93	14.29	5	6.77	8240	6180	4120	13905	10500	7000
3MMV9322HX	9.64	15.48	5.4	7.37	7544	5658	3772	12731	9620	6400
3MMV9324HX	13.21	21.19	7.4	10.00	6912	5184	3456	11664	8810	5875
3MMV9326HX	17.38	27.74	9.7	13.13	6376	4782	3188	10760	8130	5415
3MMV9328HX	18.45	29.52	10.4	13.94	5960	4470	2980	10058	7600	5050
3MMV9330HX	29.52	47.26	16.6	22.32	5552	4164	2776	9369	7080	4710

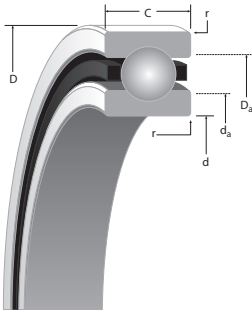
⁽¹⁾ For other mounting arrangement configurations refer to the engineering section on Permissible Speed calculation methods.

⁽²⁾ For ceramic ball complements use 120% of speeds shown.



EXTRA-LIGHT 2(3)MMV99100WN (ISO 10) SERIES

DIMENSIONAL SERIES METRIC



D

SUPER PRECISION MM:

Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

WN CONSTRUCTION:

- Incorporates low shoulder on non-thrust side of outer and inner rings.
- Maximum complement of balls separated by one-piece cage piloted against a ground thrust shoulder land of the outer ring.

Bearing Number 2MM or 3MM	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt. kg.	(2MM) LOAD RATINGS (steel ball & ceramic ball)			(3MM) LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat)	C _e (dyn)	Limiting Speed ^(Ng)	C ₀ (stat)	C _e (dyn)	Limiting Speed ^(Ng)
						N	RPM	N	RPM		
99101WN	12 (4)	28 (5)	8 (80)	9 x 4.76	0.019	1740 1550	4540 4540	75800 90960	1670 1490	4360 4360	68200 81840
99102WN	15 (4)	32 (6)	9 (80)	11 x 4.76	0.028	2240 1990	5220 5220	64300 77160	2140 1900	5000 5000	57900 69480
99103WN	17 (4)	35 (6)	10 (80)	13 x 4.76	0.038	2510 2230	5530 5530	56900 68280	2400 2140	5280 5280	51200 61440
99104WN	20 (5)	42 (6)	12 (120)	11 x 6.35	0.064	4690 4180	9760 9760	43800 52200	4470 3980	9310 9310	39400 47280
99105WN	25 (5)	47 (6)	12 (120)	13 x 6.35	0.074	5800 5160	10900 10900	36500 43800	5510 4900	10300 10300	32900 39480
99106WN	30 (5)	55 (7)	13 (120)	16 x 6.35	0.116	7460 6640	12300 12300	29500 35400	7060 6280	11600 11600	26600 31920
99107WN	35 (6)	62 (7)	14 (120)	21 x 5.56	0.167	7840 6980	11100 11100	25300 30360	7440 6620	10500 10500	22800 27360
99108WN	40 (6)	68 (7)	15 (120)	24 x 5.56	0.207	9150 8140	11900 11900	22000 26400	8590 7650	11200 11200	19800 23760
99109WN	45 (6)	75 (7)	16 (120)	23 x 6.35	0.259	11400 10200	14800 14800	20200 24240	10700 9560	14000 14000	18200 21840
99110WN	50 (6)	80 (7)	16 (120)	25 x 6.35	0.281	12500 11100	15400 15400	18500 22200	11700 10400	14500 14500	16700 20040
99111WN	55 (7)	90 (8)	18 (150)	25 x 7.14	0.417	15800 14100	19100 19100	16600 19920	14800 13200	18000 18000	14900 17880
99112WN	60 (7)	95 (8)	18 (150)	26 x 7.14	0.445	16400 14600	19300 19300	15400 18480	15300 13600	18200 18200	13900 16680
99113WN	65 (7)	100 (8)	18 (150)	28 x 7.14	0.474	17600 15700	20000 20000	14400 17280	16400 14600	18800 18800	13000 15600
99114WN	70 (7)	110 (8)	20 (150)	28 x 7.94	0.665	21700 19300	24300 24300	13200 15840	20300 18000	22900 22900	11900 14280
99115WN	75 (7)	115 (8)	20 (150)	30 x 7.94	0.699	23100 20600	25000 25000	12300 14760	21600 19200	23500 23500	11100 13320
99116WN	80 (7)	125 (9)	22 (150)	29 x 8.73	0.944	27200 24200	29300 29300	11600 13920	25300 22500	27500 27500	10400 12480
99117WN	85 (8)	130 (9)	22 (200)	31 x 8.73	0.991	28900 25700	30200 30200	11000 13200	26900 23900	28400 28400	9900 11880
99118WN	90 (8)	140 (9)	24 (200)	28 x 10.32	1.266	36100 32700	39000 39000	10400 12480	34400 30600	36800 36800	9400 11280
99119WN	95 (8)	145 (9)	24 (200)	29 x 10.32	1.303	37900 33800	39600 39600	9900 11880	35400 31500	37300 37300	8900 10680
99120WN	100 (8)	150 (9)	24 (200)	31 x 10.32	1.374	40400 35900	40900 40900	9400 11280	37700 33600	38500 38500	8500 10200
99121WN	105 (8)	160 (10)	26 (200)	30 x 11.11	1.729	45400 40400	45900 45900	8900 10680	42400 37800	43400 43400	8000 9600
99122WN	110 (8)	170 (10)	28 (200)	30 x 11.91	2.188	52100 46400	52200 52200	8500 10200	48800 43400	49300 49300	7700 8880
99124WN	120 (8)	180 (10)	28 (200)	32 x 11.91	2.343	55200 49200	53500 53500	7900 9480	51700 46000	50600 50600	7100 8520
99126WN	130 (10)	200 (11)	33 (250)	32 x 13.49	3.563	71200 63400	67500 67500	7100 8520	66600 59200	63700 63700	6400 7680
99128WN	140 (10)	210 (11)	33 (250)	34 x 13.49	3.776	75200 67000	69300 69300	6600 7920	70300 62600	65300 65300	5900 7080
99130WN	150 (10)	225 (11)	35 (250)	34 x 15.08	4.509	91500 81400	83800 83800	6200 7440	85600 76200	79100 79100	5600 6720

^(Ng) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.

⁽¹⁾ Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

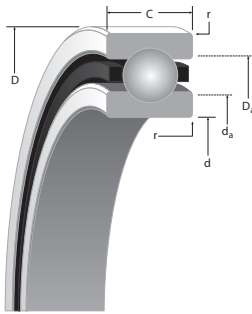
⁽²⁾ ABMA STD 20 (r_{as} max).

r Rad. ⁽²⁾	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				Bearing Number 2MM or 3MM
	d _a (Shaft)		D _a (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits		Housing Bore (Stationary)		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Tight	Loose	Max.	Min.	Max.	Min.	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
0.3	15.64	15.44	24.56	24.36	11.995	12.000	0.005	0.004	28	28.005	0.0000	0.010	28.010	28.005	0.015	0.005	99101WN
0.3	19.14	18.94	28.06	27.86	14.995	15.000	0.005	0.004	32	32.005	0.0000	0.011	32.010	32.005	0.016	0.005	99102WN
0.3	21.64	21.44	30.56	30.36	16.995	17.000	0.005	0.004	35	35.006	0.0000	0.012	35.010	35.005	0.016	0.005	99103WN
0.6	25.05	24.85	37.15	36.95	19.995	20.000	0.005	0.005	42	42.006	0.0000	0.012	42.010	42.005	0.016	0.005	99104WN
0.6	30.05	29.85	42.15	41.95	24.995	25.000	0.005	0.005	47	47.006	0.0000	0.012	47.012	47.007	0.018	0.007	99105WN
1	36.55	36.35	48.65	48.45	29.995	30.000	0.005	0.005	55	55.008	0.0000	0.015	55.012	55.007	0.019	0.007	99106WN
1	43.34	43.14	53.86	53.66	34.995	35.000	0.005	0.006	62	62.008	0.0000	0.015	62.012	62.007	0.019	0.007	99107WN
1	48.84	48.64	59.36	59.16	39.995	40.000	0.005	0.006	68	68.008	0.0000	0.015	68.012	68.007	0.019	0.007	99108WN
1	54.05	53.85	66.15	65.95	44.995	45.000	0.005	0.006	75	75.008	0.0000	0.015	75.014	75.009	0.022	0.009	99109WN
1	59.05	58.85	71.15	70.95	49.995	50.000	0.005	0.006	80	80.008	0.0000	0.015	80.012	80.008	0.020	0.008	99110WN
1	65.76	65.56	79.44	79.24	54.995	55.000	0.005	0.007	90	90.008	0.0000	0.016	90.015	90.007	0.023	0.007	99111WN
1	70.76	70.56	84.44	84.24	59.995	60.000	0.005	0.007	95	95.008	0.0000	0.016	95.016	95.009	0.024	0.009	99112WN
1	75.76	75.56	89.44	89.24	64.995	65.000	0.005	0.007	100	100.008	0.0000	0.016	100.016	100.009	0.024	0.009	99113WN
1	82.46	82.26	97.74	97.54	69.995	70.000	0.005	0.007	110	110.008	0.0000	0.016	110.018	110.010	0.025	0.010	99114WN
1	87.46	87.26	102.74	102.54	74.995	75.005	0.005	0.012	115	115.008	0.0000	0.016	115.019	115.011	0.026	0.010	99115WN
1	94.17	93.97	111.03	110.83	79.995	80.005	0.005	0.012	125	125.008	0.0000	0.017	125.021	125.011	0.030	0.011	99116WN
1	99.17	98.97	116.03	115.83	84.995	85.005	0.005	0.012	130	130.009	0.0000	0.018	130.020	130.010	0.029	0.010	99117WN
1.5	105.08	104.88	125.12	124.92	89.995	90.005	0.005	0.013	140	140.009	0.0000	0.018	140.020	140.010	0.029	0.010	99118WN
1.5	110.08	109.88	130.12	129.92	94.995	95.005	0.005	0.013	145	145.009	0.0000	0.018	145.021	145.011	0.030	0.011	99119WN
1.5	115.08	114.88	135.12	134.92	99.995	100.005	0.005	0.013	150	150.009	0.0000	0.018	150.023	150.012	0.032	0.012	99120WN
2	121.79	121.59	143.41	143.21	104.995	105.005	0.005	0.013	160	160.009	0.0000	0.022	160.022	160.012	0.033	0.012	99121WN
2	128.49	128.29	151.71	151.51	109.995	110.005	0.005	0.013	170	170.010	0.0000	0.020	170.022	170.012	0.032	0.012	99122WN
2	138.49	138.29	161.71	161.51	119.995	120.005	0.005	0.013	180	180.010	0.0000	0.020	180.022	180.012	0.032	0.012	99124WN
2	151.91	151.71	178.29	178.09	129.995	130.005	0.005	0.015	200	200.011	0.0000	0.022	200.025	200.015	0.036	0.015	99126WN
2	161.91	161.71	188.29	188.09	139.995	140.005	0.005	0.015	210	210.011	0.0000	0.022	210.025	210.015	0.036	0.015	99128WN
2	172.82	172.62	202.38	202.18	149.995	150.005	0.005	0.015	225	225.011	0.0000	0.022	225.025	225.015	0.036	0.015	99130WN



EXTRA-LIGHT 2(3)MMV99100WN (ISO 10) SERIES

DIMENSIONAL SERIES INCHES



D

SUPER PRECISION MM:

Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

WN CONSTRUCTION:

- Incorporates low shoulder on non-thrust side of outer and inner rings.
- Maximum complement of balls separated by one-piece cage piloted against a ground thrust shoulder land of the outer ring.

Bearing Number 2MM or 3MM	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt.	(2MM) LOAD RATINGS (steel ball & ceramic ball)			(3MM) LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat)	C _e (dyn)	Limiting Speed ^(N_g)	C ₀ (stat)	C _e (dyn)	Limiting Speed ^(N_g)
INCH	in/tol: +0; -0.000(μm)			in.	lbs.	lbs.		RPM	lbs.		RPM
99101WN	0.4724 (1.5)	1.1024 (2)	0.315 (31)	9 x 3/16	0.04	390 360	1020 1020	7580 90960	380 340	980 980	68200 81840
99102WN	0.5906 (1.5)	1.2598 (2.5)	0.3543 (31)	11 x 3/16	0.06	500 450	1170 1170	64300 77160	480 430	1120 1120	57900 69480
99103WN	0.6693 (1.5)	1.378 (2.5)	0.3937 (31)	13 x 3/16	0.08	560 500	1240 1240	56900 68280	540 480	1190 1190	51200 61440
99104WN	0.7874 (2)	1.6535 (2.5)	0.4724 (47)	11 x 1/4	0.14	1050 940	2190 2190	43800 52560	1000 890	2090 2090	39400 47280
99105WN	0.9843 (2)	1.8504 (2.5)	0.4724 (47)	13 x 1/4	0.16	1300 1160	2450 2450	36500 43800	1240 1100	2330 2330	32900 39480
99106WN	1.1811 (2)	2.1654 (3)	0.5118 (47)	16 x 1/4	0.25	1680 1490	2770 2770	29500 35400	1590 1410	2620 2620	26600 31920
99107WN	1.378 (2.5)	2.4409 (3)	0.5512 (47)	21 x 7/32	0.37	1760 1570	2510 2510	25300 30360	1670 1490	2360 2360	22800 27360
99108WN	1.5748 (2.5)	2.6772 (3)	0.5906 (47)	24 x 7/32	0.46	2060 1830	2670 2670	22000 26400	1930 1720	2510 2510	19800 23760
99109WN	1.7717 (2.5)	2.9528 (3)	0.6299 (47)	23 x 1/4	0.57	2570 2280	3340 3340	20200 24240	2410 2150	3140 3140	18200 21840
99110WN	1.9685 (2.5)	3.1496 (3)	0.6299 (47)	25 x 1/4	0.62	2810 2500	3470 3470	18500 22200	2630 2340	3260 3260	16700 20040
99111WN	2.1654 (3)	3.5433 (3)	0.7087 (59)	25 x 9/32	0.92	3550 3160	4290 4290	16600 19920	3330 2960	4040 4040	14900 17880
99112WN	2.3622 (3)	3.7402 (3)	0.7087 (59)	26 x 9/32	0.98	3700 3290	4340 4340	15400 18480	3440 3060	4080 4080	13900 16680
99113WN	2.5591 (3)	3.937 (3)	0.7087 (59)	28 x 9/32	1.05	3960 3520	4500 4500	14400 17280	3680 3280	4230 4230	13000 15600
99114WN	2.7559 (3)	4.3307 (3)	0.7874 (59)	28 x 5/16	1.47	4890 4350	5450 5450	13200 15840	4569 4060	5140 5140	11900 14280
99115WN	2.9528 (3)	4.5276 (3)	0.7874 (59)	30 x 5/16	1.54	5200 4630	5620 5620	12300 14760	4850 4320	5290 5290	11100 13320
99116WN	3.1496 (3)	4.9213 (3.5)	0.8661 (59)	29 x 11/32	2.08	6110 5440	6580 6580	11600 13920	5690 5070	6190 6190	10400 12480
99117WN	3.3465 (3)	5.1181 (3.5)	0.8661 (79)	31 x 11/32	2.18	6490 5770	6780 6780	11000 13200	6040 5380	6380 6380	9900 11880
99118WN	3.5433 (3)	5.5118 (3.5)	0.9449 (79)	28 x 13/32	2.79	8270 7360	8780 8780	10400 13480	7720 6870	8280 8280	9400 11280
99119WN	3.7402 (3)	5.7087 (3.5)	0.9449 (79)	29 x 13/32	2.87	8530 7590	8890 8890	9900 11880	7970 7090	8390 8390	8900 10680
99120WN	3.937 (3)	5.9055 (3.5)	0.9449 (79)	31 x 13/32	3.03	9070 8080	9190 9190	9400 11280	8480 7540	8660 8660	8500 10200
99121WN	4.1339 (3)	6.2992 (4)	1.0236 (79)	30 x 7/16	3.81	10200 9080	10300 10300	8900 10680	9540 8490	9750 9750	8000 9600
99122WN	4.3307 (3)	6.6929 (4)	1.1024 (79)	30 x 15/32	4.82	11700 10400	11700 11700	8500 10200	11000 9760	11100 11100	7700 8880
99124WN	4.7244 (3)	7.0866 (4)	1.1024 (79)	32 x 15/32	5.17	12400 11100	12000 12000	7900 9480	11600 10300	11400 11400	7100 8520
99126WN	5.1181 (4)	7.874 (4.5)	1.2992 (98)	32 x 17/32	7.85	16000 14300	15200 15200	7100 8520	15000 13300	14300 14300	6400 7680
99128WN	5.5118 (4)	8.2677 (4.5)	1.2992 (98)	34 x 17/32	8.32	16900 15100	15600 15600	6600 7920	15800 14100	14700 14700	5900 7080
99130WN	5.9055 (4)	8.8583 (4.5)	1.378 (98)	34 x 19/32	9.94	20600 18300	18800 18800	6200 7440	19300 17100	17800 17800	5600 6720

^(N_g) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.

⁽¹⁾ Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

⁽²⁾ ABMA STD 20 (r_{as} max).

r Rad. ⁽²⁾	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				Bearing Number 2MM or 3MM
	d _a (Shaft)		D (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits		Housing Bore (Stationary)		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Tight	Loose	Max.	Min.	Max.	Min.	
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
0.012	0.62	0.61	0.99	0.98	0.4722	0.4724	0.0002	0.00015	1.1024	1.1026	0.0000	0.0004	1.1028	1.1026	0.0006	0.0002	99101WN
0.012	0.76	0.75	1.13	1.12	0.5904	0.5906	0.0002	0.00015	1.2598	1.2600	0.0000	0.00045	1.2602	1.2600	0.0007	0.0002	99102WN
0.012	0.86	0.85	1.23	1.22	0.6691	0.6693	0.0002	0.00015	1.3780	1.3783	0.0000	0.0005	1.3784	1.3782	0.0007	0.0002	99103WN
0.024	0.99	0.98	1.49	1.48	0.7872	0.7874	0.0002	0.00020	1.6535	1.6538	0.0000	0.0005	1.6539	1.6537	0.0007	0.0002	99104WN
0.024	1.19	1.18	1.69	1.68	0.9841	0.9843	0.0002	0.00020	1.8504	1.8507	0.0000	0.0005	1.8509	1.8507	0.0008	0.0003	99105WN
0.039	1.44	1.43	1.94	1.93	1.1809	1.1811	0.0002	0.00020	2.1654	2.1657	0.0000	0.0006	2.1659	2.1657	0.0008	0.0003	99106WN
0.039	1.71	1.70	2.15	2.14	1.3778	1.378	0.0002	0.00025	2.4409	2.4412	0.0000	0.0006	2.4414	2.4412	0.0008	0.0003	99107WN
0.039	1.93	1.92	2.36	2.35	1.5746	1.5748	0.0002	0.00025	2.6772	2.6775	0.0000	0.0006	2.6777	2.6775	0.0008	0.0003	99108WN
0.039	2.13	2.12	2.63	2.62	1.7715	1.7717	0.0002	0.00025	2.9528	2.9531	0.0000	0.0006	2.9533	2.9531	0.0008	0.0003	99109WN
0.039	2.33	2.32	2.83	2.82	1.9683	1.9685	0.0002	0.00025	3.1496	3.1499	0.0000	0.0006	3.1501	3.1499	0.0008	0.0003	99110WN
0.039	2.59	2.58	3.16	3.15	2.1652	2.1654	0.0002	0.00030	3.5433	3.5436	0.0000	0.0006	3.5439	3.5436	0.0009	0.0003	99111WN
0.039	2.79	2.78	3.35	3.34	2.362	2.3622	0.0002	0.00030	3.7402	3.7405	0.0000	0.0006	3.7408	3.7405	0.0009	0.0003	99112WN
0.039	2.99	2.98	3.55	3.54	2.5589	2.5591	0.0002	0.00030	3.9370	3.9373	0.0000	0.0006	3.9377	3.9374	0.0010	0.0004	99113WN
0.039	3.25	3.24	3.88	3.87	2.7557	2.7559	0.0002	0.00030	4.3307	4.3310	0.0000	0.0006	4.3314	4.3311	0.0010	0.0004	99114WN
0.039	3.45	3.44	4.07	4.06	2.9526	2.9530	0.0002	0.00050	4.5276	4.5279	0.0000	0.0006	4.5283	4.5280	0.0010	0.0004	99115WN
0.039	3.71	3.70	4.40	4.39	3.1494	3.1498	0.0002	0.00050	4.9213	4.9216	0.0000	0.0007	4.9221	4.9217	0.0012	0.0004	99116WN
0.039	3.91	3.90	4.60	4.59	3.3463	3.3467	0.0002	0.00050	5.1181	5.1185	0.0000	0.0007	5.1189	5.1185	0.0011	0.0004	99117WN
0.059	4.14	4.13	4.95	4.94	3.5431	3.5435	0.0002	0.00050	5.5118	5.5122	0.0000	0.0007	5.5126	5.5122	0.0011	0.0004	99118WN
0.059	4.34	4.33	5.15	5.14	3.7400	3.7404	0.0002	0.00050	5.7087	5.7091	0.0000	0.0007	5.7095	5.7091	0.0011	0.0004	99119WN
0.059	4.54	4.53	5.35	5.34	3.9368	3.9372	0.0002	0.00050	5.9055	5.9059	0.0000	0.0007	5.9064	5.9060	0.0012	0.0005	99120WN
0.079	4.80	4.79	5.67	5.66	4.1337	4.1341	0.0002	0.00050	6.2992	6.2996	0.0000	0.0008	6.3001	6.2997	0.0013	0.0005	99121WN
0.079	5.06	5.05	6.00	5.99	4.3305	4.3309	0.0002	0.00050	6.6929	6.6933	0.0000	0.0008	6.6938	6.6934	0.0013	0.0005	99122WN
0.079	5.46	5.45	6.39	6.38	4.7242	4.7246	0.0002	0.00050	7.0866	7.0870	0.0000	0.0008	7.0875	7.0871	0.0013	0.0005	99124WN
0.079	5.98	5.97	7.05	7.04	5.1179	5.1183	0.0002	0.00060	7.8740	7.8745	0.0000	0.0009	7.8750	7.8746	0.0015	0.0006	99126WN
0.079	6.38	6.37	7.44	7.43	5.5116	5.512	0.0002	0.00060	8.2677	8.2682	0.0000	0.0009	8.2687	8.2683	0.0015	0.0006	99128WN
0.079	6.81	6.80	8.00	7.99	5.9053	5.9057	0.0002	0.00060	8.8583	8.8588	0.0000	0.0009	8.8593	8.8589	0.0015	0.0006	99130WN



EXTRA-LIGHT 2MMV99100WN (ISO 10) SERIES

DUPLEX PERFORMANCE DATA

MOUNTING ARRANGEMENTS



Suggested
DB



Tandem
DT



Special Applications
DF

Bearing Number	PRELOAD				AXIAL STIFFNESS ⁽¹⁾				RADIAL STIFFNESS ⁽¹⁾			SPACER OFFSETS ⁽¹⁾		
	DUX	DUL	DUM	DUH	X-light	Light	Medium	Heavy	Light	Medium	Heavy	X-Light to Light	Light to Medium	Medium to Heavy
	N (= lbs x 4.448)				N/μm (= 10 ⁶ lbs/in x 175.12)				N/μm (= 10 ⁶ lbs/in x 175.12)			μm		
METRIC DUPLEX PERFORMANCE DATA 2MMV99100WN SERIES														
2MMV99101WN	-	20	40	90	-	13.47	17.84	24.14	60.69	78.71	99.52	—	5.59	8.38
2MMV99102WN	-	20	40	90	-	15.22	20.11	27.11	89.72	113.86	139.92	—	5.08	7.62
2MMV99103WN	-	20	40	90	-	16.97	22.21	29.73	99.69	127.15	156.71	—	4.57	6.86
2MMV99104WN	20	40	90	180	17.14	22.39	29.91	40.75	125.75	155.84	195.54	4.57	6.86	10.16
2MMV99105WN	20	70	130	270	21.51	29.21	39.18	53.87	140.09	174.20	218.97	5.59	7.87	11.43
2MMV99106WN	20	70	130	270	24.49	33.06	44.07	60.17	173.50	220.20	276.52	4.83	6.86	10.16
2MMV99107WN	40	90	180	360	33.41	44.07	59.12	81.15	209.71	269.00	337.03	4.57	6.86	10.16
2MMV99108WN	70	110	220	440	39.00	52.12	70.13	96.72	247.13	312.37	391.25	5.08	7.37	10.67
2MMV99109WN	70	130	270	530	41.45	54.74	73.81	101.79	279.67	352.95	441.80	5.59	8.38	12.19
2MMV99110WN	70	130	270	530	43.55	57.54	77.31	106.34	295.41	373.24	467.51	5.33	7.87	11.68
2MMV99111WN	90	180	360	710	51.07	67.16	90.25	124.35	349.45	440.40	550.94	6.10	9.14	13.21
2MMV99112WN	90	180	360	710	52.30	68.74	92.35	126.80	358.55	452.29	565.80	5.84	8.89	12.95
2MMV99113WN	110	220	440	890	59.64	78.71	106.16	146.74	376.38	475.38	595.18	6.35	9.65	13.97
2MMV99114WN	110	220	440	890	62.26	81.68	109.14	149.36	426.58	538.17	626.14	6.10	9.40	13.72
2MMV99115WN	130	270	530	1070	69.61	91.65	122.95	168.95	446.34	563.70	705.90	6.60	9.91	14.73
2MMV99116WN	160	310	620	1250	0.17	95.67	128.55	177.00	489.55	617.57	772.53	7.37	11.18	11.18
2MMV99117WN	180	360	710	1420	79.58	105.11	141.67	195.36	511.41	645.73	808.56	7.62	11.43	16.76
2MMV99118WN	200	400	800	1600	80.63	106.16	142.54	196.06	537.12	678.61	850.01	8.64	12.95	18.80
2MMV99119WN	200	400	800	1600	82.38	108.44	145.34	199.74	549.54	694.70	870.65	8.38	12.70	12.70
2MMV99120WN	220	440	890	1780	89.37	117.71	158.11	217.58	605.50	764.49	957.05	8.64	12.95	19.05
2MMV99121WN	240	490	980	1960	94.10	123.83	165.81	229.99	631.91	797.72	823.60	8.89	13.46	20.57
2MMV99122WN	270	530	1070	2140	99.87	131.00	175.07	244.34	642.58	813.11	1019.49	9.14	13.97	22.10
2MMV99124WN	310	620	1250	2490	110.19	144.99	194.31	264.45	724.26	914.03	1144.20	9.65	14.73	20.83
2MMV99126WN	400	800	1600	3200	121.56	160.21	215.30	292.43	810.49	1023.51	1281.67	11.43	17.02	23.88
2MMV99128WN	420	850	1690	3380	128.73	169.65	228.07	311.85	889.19	1121.46	1395.00	11.18	17.02	24.38
2MMV99130WN	440	890	1780	3560	135.20	177.35	236.99	323.74	937.99	1184.25	1490.15	11.43	17.02	25.40
		lbs.				10⁶lbs./in.				10⁶lbs./in.			in.	
INCH DUPLEX PERFORMANCE DATA 2MMV9100WN SERIES														
2MMV99101WN	—	5	10	20	—	0.077	0.102	0.138	0.347	0.450	0.569	—	0.00022	0.00033
2MMV99102WN	—	5	10	20	—	0.087	0.115	0.155	0.513	0.651	0.800	—	0.00020	0.00030
2MMV99103WN	—	5	10	20	—	0.097	0.127	0.170	0.570	0.727	0.896	—	0.00018	0.00027
2MMV99104WN	5	10	20	40	0.098	0.128	0.171	0.233	0.719	0.891	1.118	0.00018	0.00027	0.00040
2MMV99105WN	5	15	30	60	0.123	0.167	0.224	0.308	0.801	0.996	1.252	0.00022	0.00031	0.00045
2MMV99106WN	5	15	30	60	0.140	0.189	0.252	0.344	0.992	1.259	1.581	0.00019	0.00027	0.00040
2MMV99107WN	10	20	40	80	0.191	0.252	0.338	0.464	1.199	1.538	1.927	0.00018	0.00027	0.00040
2MMV99108WN	15	25	50	100	0.223	0.298	0.401	0.553	1.413	1.786	2.237	0.00020	0.00029	0.00042
2MMV99109WN	15	30	60	120	0.237	0.313	0.422	0.582	1.599	2.018	2.526	0.00022	0.00033	0.00048
2MMV99110WN	15	30	60	120	0.249	0.329	0.442	0.608	1.689	2.134	2.673	0.00021	0.00031	0.00046
2MMV99111WN	20	40	80	160	0.292	0.384	0.516	0.711	1.998	2.518	3.150	0.00024	0.00036	0.00052
2MMV99112WN	20	40	80	160	0.299	0.393	0.528	0.725	2.050	2.586	3.235	0.00023	0.00035	0.00051
2MMV99113WN	25	50	100	200	0.341	0.450	0.607	0.839	2.152	2.718	3.403	0.00025	0.00038	0.00055
2MMV99114WN	25	50	100	200	0.356	0.467	0.624	0.854	2.439	3.077	3.580	0.00024	0.00037	0.00054
2MMV99115WN	30	60	120	240	0.398	0.524	0.703	0.966	2.552	3.223	4.036	0.00026	0.00039	0.00058
2MMV99116WN	35	70	140	280	0.001	0.547	0.735	1.012	2.799	3.531	4.417	0.00029	0.00044	0.00044
2MMV99117WN	40	80	160	320	0.455	0.601	0.810	1.117	2.924	3.692	4.623	0.00030	0.00045	0.00066
2MMV99118WN	45	90	180	360	0.461	0.607	0.815	1.121	3.071	3.880	4.860	0.00034	0.00051	0.00074
2MMV99119WN	45	90	180	360	0.471	0.620	0.831	1.142	3.142	3.972	4.978	0.00033	0.00050	0.00050
2MMV99120WN	50	100	200	400	0.511	0.673	0.904	1.244	3.462	4.371	5.472	0.00034	0.00051	0.00075
2MMV99121WN	55	110	220	440	0.538	0.708	0.948	1.315	3.613	4.561	4.709	0.00035	0.00053	0.00081
2MMV99122WN	60	120	240	480	0.571	0.749	1.001	1.397	3.674	4.649	5.829	0.00036	0.00055	0.00087
2MMV99124WN	70	140	280	560	0.630	0.829	1.111	1.512	4.141	5.226	6.542	0.00038	0.00058	0.00082
2MMV99126WN	90	180	360	720	0.695	0.916	1.231	1.672	4.634	5.852	7.328	0.00045	0.00067	0.00094
2MMV99128WN	95	190	380	760	0.736	0.970	1.304	1.783	5.084	6.412	7.976	0.00044	0.00067	0.00096
2MMV99130WN	100	200	400	800	0.773	1.014	1.355	1.851	5.363	6.771	8.520	0.00045	0.00067	0.00100

Notes: ⁽¹⁾ For DB or DF arrangements only. For other mounting arrangements contact your Timken representative.

**EXTRA-LIGHT
3MMV99100HX
(ISO 10) SERIES**

**DUPLEX
PERFORMANCE DATA**

MOUNTING ARRANGEMENTS



**Suggested
DB**



**Tandem
DT**



**Special Applications
DF**

Bearing Number	PRELOAD				AXIAL STIFFNESS ⁽¹⁾				RADIAL STIFFNESS ⁽¹⁾			SPACER OFFSETS ⁽¹⁾		
	DUX	DUL	DUM	DUH	X-light	Light	Medium	Heavy	Light	Medium	Heavy	X-Light to Light	Light to Medium	Medium to Heavy
	N				N/μm				N/μm			μm		
METRIC DUPLEX PERFORMANCE DATA 3MMV99100WN SERIES														
3MMV99101WN	—	40	90	180	—	35.85	46.00	59.99	58.77	75.03	92.52	—	4.32	6.60
3MMV99102WN	—	40	90	180	—	40.75	52.30	67.86	85.70	105.99	132.92	—	3.81	5.84
3MMV99103WN	—	40	90	180	—	45.30	58.07	75.21	95.50	118.41	148.84	—	3.30	5.33
3MMV99104WN	40	90	180	360	47.92	61.39	79.23	103.37	115.26	145.52	182.60	3.30	5.08	7.87
3MMV99105WN	70	130	270	530	61.74	79.05	102.49	134.32	128.55	162.83	204.46	3.81	5.84	8.89
3MMV99106WN	70	130	270	530	70.48	90.25	116.66	152.16	162.66	205.86	258.15	3.30	5.08	7.87
3MMV99107WN	90	180	360	710	90.07	115.61	149.89	196.76	200.79	253.26	317.09	3.56	5.33	8.13
3MMV99108WN	110	220	440	890	106.34	136.60	177.17	233.14	233.32	294.01	368.16	3.56	5.59	8.64
3MMV99109WN	130	270	530	1070	114.03	146.39	189.94	249.76	262.00	329.86	412.76	4.06	6.35	9.65
3MMV99110WN	130	270	530	1070	120.33	154.44	200.09	262.52	276.69	348.75	436.73	3.81	6.10	9.14
3MMV99111WN	180	360	710	1420	137.12	176.12	228.42	300.13	330.56	415.91	519.98	4.57	7.11	10.67
3MMV99112WN	180	360	710	1420	140.62	180.50	234.02	307.30	339.31	426.93	533.97	4.32	6.86	10.41
3MMV99113WN	220	440	890	1780	159.68	205.33	266.72	351.55	356.27	448.79	561.60	4.83	7.62	11.43
3MMV99114WN	220	440	890	1780	163.53	210.05	271.97	356.80	407.17	512.46	640.83	4.83	7.37	11.18
3MMV99115WN	270	530	1070	2220	182.42	234.54	304.33	406.99	426.23	536.77	671.62	5.08	7.87	12.95
3MMV99116WN	310	620	1250	2450	193.96	249.23	323.22	422.03	464.18	584.17	733.58	5.59	8.64	12.95
3MMV99117WN	360	710	1420	2670	212.33	273.02	354.52	454.91	485.00	610.93	764.31	5.84	9.14	12.19
3MMV99118WN	400	800	1600	3110	216.18	277.74	360.29	468.21	510.36	643.11	805.06	6.35	9.91	14.48
3MMV99119WN	400	800	1600	3110	221.25	284.04	368.16	478.00	522.43	658.50	824.48	6.35	9.91	14.22
3MMV99120WN	440	890	1780	3560	239.79	308.00	399.47	525.05	575.25	724.44	901.08	6.35	9.91	15.24
3MMV99121WN	490	980	2000	4000	246.61	316.74	414.34	544.99	603.75	760.12	955.48	6.86	11.18	16.51
3MMV99122WN	530	1070	2220	4450	259.55	333.18	438.47	576.30	617.75	779.00	980.49	7.11	11.94	17.53
3MMV99124WN	620	1250	2450	4890	285.79	367.29	473.28	622.47	695.40	875.20	1094.70	7.62	11.43	17.78
3MMV99126WN	800	1600	3110	6230	323.91	416.44	534.49	702.75	771.31	971.39	1211.71	8.64	12.70	20.07
3MMV99128WN	850	1690	3340	6670	343.33	441.27	569.82	749.27	845.82	1057.97	1323.29	8.64	12.95	20.07
3MMV99130WN	890	1780	3560	7120	352.25	451.94	585.39	767.81	900.39	1139.47	1425.44	8.89	13.72	21.08
	lbs.				10⁶lbs./in.				10⁶lbs./in.			in.		
INCH DUPLEX PERFORMANCE DATA 3MMV99100WN SERIES														
3MMV99101WN	—	10	20	40	—	0.205	0.263	0.343	0.336	0.429	0.529	—	0.00017	0.00026
3MMV99102WN	—	10	20	40	—	0.233	0.299	0.388	0.490	0.606	0.760	—	0.00015	0.00023
3MMV99103WN	—	10	20	40	—	0.259	0.332	0.430	0.546	0.677	0.851	—	0.00013	0.00021
3MMV99104WN	10	20	40	80	0.274	0.351	0.453	0.591	0.659	0.832	1.044	0.00013	0.0002	0.00031
3MMV99105WN	15	30	60	120	0.353	0.452	0.586	0.768	0.735	0.931	1.169	0.00015	0.00023	0.00035
3MMV99106WN	15	30	60	120	0.403	0.516	0.667	0.870	0.93	1.177	1.476	0.00013	0.0002	0.00031
3MMV99107WN	20	40	80	160	0.515	0.661	0.857	1.125	1.148	1.448	1.813	0.00014	0.00021	0.00032
3MMV99108WN	25	50	100	200	0.608	0.781	1.013	1.333	1.334	1.681	2.105	0.00014	0.00022	0.00034
3MMV99109WN	30	60	120	240	0.652	0.837	1.086	1.428	1.498	1.886	2.360	0.00016	0.00025	0.00038
3MMV99110WN	30	60	120	240	0.688	0.883	1.144	1.501	1.582	1.994	2.497	0.00015	0.00024	0.00036
3MMV99111WN	40	80	160	320	0.784	1.007	1.306	1.716	1.890	2.378	2.973	0.00018	0.00028	0.00042
3MMV99112WN	40	80	160	320	0.804	1.032	1.338	1.757	1.940	2.441	3.053	0.00017	0.00027	0.00041
3MMV99113WN	50	100	200	400	0.913	1.174	1.525	2.010	2.037	2.566	3.211	0.00019	0.0003	0.00045
3MMV99114WN	50	100	200	400	0.935	1.201	1.555	2.040	2.328	2.930	3.664	0.00019	0.00029	0.00044
3MMV99115WN	60	120	240	500	1.043	1.341	1.740	2.327	2.437	3.069	3.840	0.0002	0.00031	0.00051
3MMV99116WN	70	140	280	550	1.109	1.425	1.848	2.413	2.654	3.340	4.176	0.00022	0.00034	0.00051
3MMV99117WN	80	160	320	600	1.214	1.561	2.027	2.601	2.773	3.493	4.370	0.00023	0.00036	0.00048
3MMV99118WN	90	180	360	700	1.236	1.588	2.060	2.677	2.918	3.677	4.603	0.00025	0.00039	0.00057
3MMV99119WN	90	180	360	700	1.265	1.624	2.105	2.733	2.987	3.765	4.714	0.00025	0.00039	0.00056
3MMV99120WN	100	200	400	800	1.371	1.761	2.284	3.002	3.289	4.142	5.152	0.00025	0.00039	0.00060
3MMV99121WN	110	220	450	900	1.410	1.811	2.369	3.116	3.452	4.346	5.463	0.00027	0.00044	0.00065
3MMV99122WN	120	240	500	1000	1.484	1.905	2.507	3.295	3.532	4.454	5.606	0.00028	0.00047	0.00069
3MMV99124WN	140	280	550	1100	1.634	2.100	2.706	3.559	3.976	5.004	6.259	0.0003	0.00045	0.00070
3MMV99126WN	180	360	700	1400	1.852	2.381	3.056	4.018	4.410	5.554	6.928	0.00034	0.00050	0.00079
3MMV99128WN	190	380	750	1500	1.963	2.523	3.258	4.284	4.836	6.049	7.566	0.00034	0.00051	0.00079
3MMV99130WN	200	400	800	1600	2.014	2.584	3.347	4.390	5.148	6.515	8.150	0.00035	0.00054	0.00083

Notes: ⁽¹⁾ For DB or DF arrangements only. For other mounting arrangements contact your Timken representative.

**EXTRA-LIGHT 2MMV99100WN
(ISO 10) SERIES****SPEED CAPABILITY DATA**

Bearing Number	Grease Capacity		Kluber Isoflex		Operating Speeds ⁽²⁾ (DB Mounting) ⁽¹⁾					
	NBU15		NBU15		DUL	Grease DUM	DUH	DUL	Oil DUM	DUH
	25%	40%	15%	20%						
2MMV99101WN	0.3	0.5	0.2	0.27	68200	60600	45500	116000	103000	77400
2MMV99102WN	0.4	0.6	0.24	0.32	57900	51400	38600	98400	98400	65600
2MMV99103WN	0.5	0.7	0.31	0.41	51200	45500	34100	87100	87100	58000
2MMV99104WN	0.9	1.4	0.58	0.77	39400	35000	26300	67000	67000	44700
2MMV99105WN	1	1.6	0.67	0.9	32900	29200	21900	55800	55800	37200
2MMV99106WN	1.3	2.1	0.87	1.17	26600	23600	17700	45100	45100	30100
2MMV99107WN	1.4	2.2	0.91	1.22	22800	20200	15200	38700	38700	25800
2MMV99108WN	1.7	2.7	1.14	1.52	19800	17600	13200	33700	33700	22400
2MMV99109WN	2.2	3.5	1.47	1.96	18200	16200	12100	30900	30900	20600
2MMV99110WN	2.4	3.8	1.58	2.11	16700	14800	11100	28300	28300	18900
2MMV99111WN	3.4	5.4	2.2	3	14900	13300	10000	25400	25400	17000
2MMV99112WN	3.6	5.8	2.4	3.2	13900	12300	9200	23600	23600	15600
2MMV99113WN	3.8	6.1	2.6	3.4	13000	11500	8600	22000	22000	14600
2MMV99114WN	5.1	8.2	3.4	4.6	11900	10600	7900	20200	20200	13400
2MMV99115WN	5.5	8.8	3.7	4.9	11100	9800	7400	18800	18800	12600
2MMV99116WN	7.1	11.3	4.7	6.3	10400	9300	7000	17700	17700	11900
2MMV99117WN	7.4	11.8	4.9	6.6	9900	8800	6600	16800	16800	11200
2MMV99118WN	9.7	15.6	6.5	8.7	9400	8300	6200	15900	15900	10500
2MMV99119WN	13.3	21.3	7.1	9.5	8900	7900	5900	15100	15100	10000
2MMV99120WN	10.6	17	7.4	9.9	8500	7500	5600	14400	14400	9500
2MMV99121WN	17.1	27.4	9.1	12.2	8000	7100	5300	13600	13600	9000
2MMV99122WN	16	25.6	10.7	14.2	7700	6800	5100	13000	13000	8700
2MMV99124WN	17.1	27.4	11.4	15.3	7100	6300	4700	12100	12100	8000
2MMV99126WN	25.8	41.3	17.2	23	6400	5700	4300	10900	10900	7300
2MMV99128WN	27.5	43.9	18.3	24.4	5900	5300	4000	10100	10100	6800
2MMV99130WN	43.9	70.3	29.3	39.1	5600	5000	3700	9500	9500	6300

⁽¹⁾ For other mounting arrangement configurations refer to the engineering section on Permissible Speed calculation methods.⁽²⁾ For ceramic ball complements use 120% of speeds shown.

D

EXTRA-LIGHT 3MMV99100WN (ISO 10) SERIES

SPEED CAPABILITY DATA

Bearing Number	Grease Capacity		Kluber Isoflex		Operating Speeds ⁽²⁾ (DB Mounting) ⁽¹⁾					
	NBU15		NBU15		DUL	Grease DUM	DUH	DUL	Oil DUM	DUH
	25%	40%	15%	20%						
3MMV99101WN	0.3	0.5	0.2	0.3	58000	47700	34100	86900	71600	51100
3MMV99102WN	0.4	0.6	0.2	0.3	49000	40500	28900	73800	60800	43400
3MMV99103WN	0.5	0.7	0.3	0.4	43500	35800	25600	65300	53800	38400
3MMV99104WN	0.9	1.4	0.6	0.8	33500	27600	19700	50200	41400	29500
3MMV99105WN	1.0	1.6	0.7	0.9	27900	23000	16400	41800	34400	24600
3MMV99106WN	1.3	2.1	0.9	1.2	22500	18500	13200	33800	27800	19900
3MMV99107WN	1.4	2.2	0.9	1.2	19300	15900	11300	28900	23800	17000
3MMV99108WN	1.7	2.7	1.1	1.5	16800	13900	9900	25200	20800	14800
3MMV99109WN	2.2	3.5	1.5	2.0	15500	12700	9100	23200	19100	13600
3MMV99110WN	2.4	3.8	1.6	2.1	14200	11700	8300	21300	17500	12500
3MMV99111WN	3.4	5.4	2.2	3.0	12700	10400	7400	19000	15600	11200
3MMV99112WN	3.6	5.8	2.4	3.2	11800	9700	6900	17700	14600	10400
3MMV99113WN	3.8	6.1	2.6	3.4	11000	9100	6500	16600	13600	9700
3MMV99114WN	5.1	8.2	3.4	4.6	10100	8300	5900	15200	12500	8900
3MMV99115WN	5.5	8.8	3.7	4.9	9400	7800	5500	14100	11700	8300
3MMV99116WN	7.1	11.3	4.7	6.3	8800	7300	5200	13300	10900	7800
3MMV99117WN	7.4	11.8	4.9	6.6	8400	6900	4900	12600	10400	7400
3MMV99118WN	9.7	15.6	6.5	8.7	7900	6500	4700	11900	9800	7000
3MMV99119WN	13.3	21.3	7.1	9.5	7600	6200	4500	11400	9400	6700
3MMV99120WN	10.6	17.0	7.4	9.9	7200	5900	4200	10800	8900	6300
3MMV99121WN	17.1	27.4	9.1	12.2	6800	5600	4000	10300	8500	6000
3MMV99122WN	16.0	25.6	10.7	14.2	6500	5300	3800	9700	8000	5700
3MMV99124WN	17.1	27.4	11.4	15.3	6000	4900	3500	9000	7400	5300
3MMV99126WN	25.8	41.3	17.2	23.0	5400	4500	3200	8100	6700	4800
3MMV99128WN	27.5	43.9	18.3	24.4	5100	4200	3000	7600	6300	4500
3MMV99130WN	43.9	70.3	29.3	39.1	4800	3900	2800	7200	5900	4200

⁽¹⁾ For other mounting arrangement configurations refer to the engineering section on Permissible Speed calculation methods.

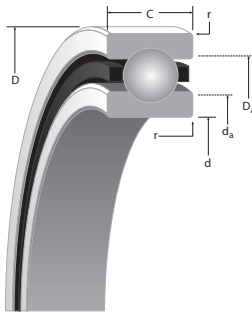
⁽²⁾ For ceramic ball complements use 120% of speeds shown.





**ULTRA-LIGHT
MM9100K
(ISO 10) SERIES**

**DIMENSIONAL SIZES
METRIC**



SUPER PRECISION MM:

Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

CONRAD CONSTRUCTION:

- Maximum complement of balls separated by two-piece land piloted cage

Bearing Number	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt. kg	LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat) N	C _e (dyn)	Limiting Speed ^(Ng) RPM
METRIC	mm/tol: +0; (µm)			mm	kg	N		RPM
MM9101K	12 (4)	28 (5)	8 (80)	8 x 4.76	0.020	2400 2130	5670 5670	52800 63400
MM9103K	17 (4)	35 (6)	10 (80)	10 x 4.76	0.038	3300 2890	6660 6660	39600 47500
MM9104K	20 (5)	42 (6)	12 (120)	8 x 6.35	0.064	4400 3980	9620 9620	34000 40800
MM9105K	25 (5)	47 (6)	12 (120)	10 x 6.35	0.074	5900 5210	11200 11200	28300 34000
MM9106K	30 (5)	55 (7)	13 (120)	11 x 7.14	0.109	8300 7390	14700 14700	23300 28000
MM9107K	35 (6)	62 (7)	14 (120)	11 x 7.94	0.144	10300 9150	17700 17700	20700 24800
MM9108K	40 (6)	68 (7)	15 (120)	12 x 7.94	0.180	11600 10300	18600 18600	18200 21800
MM9109K	45 (6)	75 (7)	16 (120)	13 x 8.73	0.230	15100 13500	23300 23300	16300 19600
MM9110K	50 (6)	80 (7)	16 (120)	14 x 8.73	0.248	16700 14700	24200 24200	14900 17900
MM9111K	55 (7)	90 (8)	18 (150)	13 x 10.32	0.362	21400 18900	31400 31400	13500 16200
MM9112K	60 (7)	95 (8)	18 (150)	14 x 10.32	0.430	23200 20600	32600 32600	12500 15000
MM9113K	65 (7)	100 (8)	18 (150)	15 x 10.32	0.450	25200 22400	33900 33900	11600 13900
MM9114K	70 (7)	110 (8)	20 (150)	14 x 11.91	0.620	30900 27500	42200 42200	10700 12800
MM9115K	75 (7)	115 (8)	20 (150)	15 x 11.91	0.606	33400 29800	43800 43800	10100 12100
MM9116K	80 (7)	125 (9)	22 (150)	14 x 13.49	0.804	40000 35300	52800 52800	9420 11300
MM9117K	85 (8)	130 (9)	22 (200)	15 x 13.49	0.845	42900 38300	54900 54900	8900 10700
MM9118K	90 (9)	140 (9)	24 (200)	14 x 15.08	1.092	49800 44100	64500 64500	8390 10100
MM9120K	100 (8)	150 (9)	24 (200)	15 x 15.08	1.208	54300 48200	66700 66700	7630 9160
MM9122K	110 (8)	170 (10)	28 (200)	14 x 17.46	1.882	66700 59900	83400 83400	6840 8240
MM9124K	120 (8)	180 (10)	28 (200)	15 x 17.46	2.019	72500 65000	86300 86300	6320 7500
MM9126K	130 (10)	200 (11)	33 (250)	14 x 20.64	3.041	94300 83600	112600 112600	5810 6975

(Ng) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.

(1) Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

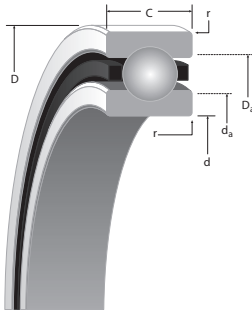
(2) ABMA STD 20 (r_{as} max).

r Rad. ⁽²⁾	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				
	d _a (Shaft)		D _a (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits		Housing Bore (Stationary)		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Tight	Loose	Max.	Min.	Max.	Min.	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
0.3	16.1	15.9	25.5	25.3	11.995	12.000	0.005	0.004	28	28.005	0.000	0.010	28.010	28.005	0.015	0.005	MM9101K
0.3	21.7	21.5	31.1	30.9	16.995	17.000	0.005	0.004	35	35.006	0.000	0.012	35.010	35.005	0.016	0.005	MM9103K
0.6	25.0	24.8	37.7	37.5	19.995	20.000	0.005	0.005	42	42.006	0.000	0.012	42.010	42.005	0.016	0.005	MM9104K
0.6	30.1	29.9	42.6	42.3	24.995	25.000	0.005	0.005	47	47.006	0.000	0.012	47.012	47.007	0.018	0.007	MM9105K
1.0	36.2	35.9	50.7	50.4	29.995	30.000	0.005	0.005	55	55.008	0.000	0.015	55.012	55.007	0.019	0.007	MM9106K
1.0	41.2	40.6	56.6	56.1	34.995	35.000	0.005	0.006	62	62.008	0.000	0.015	62.012	62.007	0.019	0.007	MM9107K
1.0	46.2	45.7	62.2	61.7	39.995	40.000	0.005	0.006	68	68.008	0.000	0.015	68.012	68.007	0.019	0.007	MM9108K
1.0	51.8	51.3	69.3	68.8	44.995	45.000	0.005	0.006	75	75.008	0.000	0.015	75.014	75.009	0.022	0.009	MM9109K
1.0	56.6	56.1	74.2	73.7	49.995	50.000	0.005	0.006	80	80.008	0.000	0.015	80.012	80.008	0.020	0.008	MM9110K
1.0	62.7	62.2	83.3	82.8	54.995	55.000	0.005	0.007	90	90.008	0.000	0.016	90.015	90.007	0.023	0.007	MM9111K
1.0	67.8	67.3	88.1	87.6	59.995	60.000	0.005	0.007	95	95.008	0.000	0.016	95.016	95.009	0.024	0.009	MM9112K
1.0	72.6	72.1	93.2	92.7	64.995	65.000	0.005	0.007	100	100.008	0.000	0.016	100.018	100.010	0.025	0.010	MM9113K
1.0	78.2	77.7	102.4	101.9	69.995	70.000	0.005	0.007	110	110.008	0.000	0.016	110.018	110.010	0.025	0.010	MM9114K
1.0	83.4	82.7	107.3	106.6	74.995	75.005	0.005	0.012	115	115.008	0.000	0.016	115.019	115.011	0.026	0.010	MM9115K
1.0	89.3	88.5	116.5	115.7	79.995	80.005	0.005	0.012	125	125.008	0.000	0.017	125.021	125.011	0.030	0.011	MM9116K
1.0	94.9	94.1	122.1	121.3	84.995	85.005	0.005	0.012	130	130.009	0.000	0.018	130.020	130.010	0.029	0.010	MM9117K
1.5	100.5	99.7	130.9	130.2	89.995	90.005	0.005	0.013	140	140.009	0.000	0.018	140.020	140.010	0.029	0.010	MM9118K
1.5	110.6	109.9	140.8	140.1	99.995	100.005	0.005	0.013	150	150.009	0.000	0.018	150.023	150.012	0.032	0.012	MM9120K
2.0	123.1	122.3	158.4	157.6	109.995	110.005	0.005	0.013	170	170.010	0.000	0.020	170.022	170.012	0.032	0.012	MM9122K
2.0	133.2	132.5	168.3	167.5	119.995	120.005	0.005	0.013	180	180.010	0.000	0.020	180.022	180.012	0.032	0.012	MM9124K
2.0	144.9	144.2	186.6	185.8	129.995	130.005	0.005	0.015	200	200.011	0.000	0.022	200.025	200.015	0.036	0.015	MM9126K



EXTRA-LIGHT MM9100K (ISO 10) SERIES

DIMENSIONAL SIZES INCHES



SUPER PRECISION MM:

Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

CONRAD CONSTRUCTION:

- Maximum complement of balls separated by two-piece land piloted cage.

Bearing Number	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt. lbs.	LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat) lbs.	C _e (dyn) lbs.	Limiting Speed RPM
INCH	in./tol: +0; -0.000(X)			in.	lbs.	lbs.		RPM
MM9101K	0.4724 (1.5)	1.1024 (2)	0.3150 (31)	8 x 3/16	0.04	540 480	1280 1280	52800 63400
MM9103K	0.6693 (1.5)	1.3780 (2.5)	0.3937 (31)	10 x 3/16	0.08	735 650	1500 1500	39600 47500
MM9104K	0.7874 (2)	1.6535 (2.5)	0.4724 (47)	8 x 1/4	0.14	1000 890	2160 2160	34000 40800
MM9105K	0.9843 (2)	1.8504 (2.5)	0.4724 (47)	10 x 1/4	0.16	1320 1170	2510 2510	28300 34000
MM9106K	1.1811 (2)	2.1654 (3)	0.5118 (47)	11 x 9/32	0.24	1860 1660	3300 3300	23300 28000
MM9107K	1.3780 (2.5)	2.4409 (3)	0.5512 (47)	11 x 5/16	0.32	2320 2060	3980 3980	20700 24800
MM9108K	1.5748 (2.5)	2.6772 (3)	0.5906 (47)	12 x 5/16	0.40	2600 2310	4180 4180	18300 21800
MM9109K	1.7717 (2.5)	2.9528 (3)	0.6299 (47)	13 x 11/32	0.51	3400 3030	5230 5230	16300 19600
MM9110K	1.9685 (2.5)	3.1496 (3)	0.6299 (47)	14 x 11/32	0.55	3750 3310	5440 5440	14900 17900
MM9111K	2.1654 (3)	3.5433 (3)	0.7087 (59)	13 x 13/32	0.80	4800 4250	7050 7050	13500 16200
MM9112K	2.3622 (3)	3.7402 (3)	0.7087 (59)	14 x 13/32	0.95	5210 4630	7340 7340	12500 15000
MM9113K	2.5591 (3)	3.9370 (3)	0.7087 (59)	15 x 13/32	0.99	5650 5030	7610 7610	11600 13900
MM9114K	2.7559 (3)	4.3307 (3)	0.7874 (59)	14 x 15/32	1.37	6940 6180	9490 9490	10700 12800
MM9115K	2.9528 (3)	4.5276 (3)	0.7874 (59)	15 x 15/32	1.34	7500 6700	9850 9850	10100 12100
MM9116K	3.1496 (3)	4.9213 (3.5)	0.8661 (59)	14 x 17/32	1.77	9000 7940	11900 11900	9420 11300
MM9117K	3.3465 (3)	5.1181 (3.5)	0.8661 (79)	15 x 17/32	1.86	9650 8600	12300 12300	8900 10700
MM9118K	3.5433 (3)	5.5118 (3.5)	0.9449 (79)	14 x 19/32	2.41	11200 9920	14500 14500	8390 10100
MM9120K	3.9370 (3)	5.9055 (3.5)	0.9449 (79)	15 x 19/32	2.66	12200 10800	15000 15000	7630 9160
MM9122K	4.3307 (3)	6.6929 (4)	1.1024 (79)	14 x 11/16	4.15	15000 13500	18700 18700	6840 8,210
MM9124K	4.7244 (3)	7.0866 (4)	1.1024 (79)	15 x 11/16	4.45	16300 14600	19400 19400	6320 7580
MM9126K	5.1181 (4)	7.8740 (4.5)	1.2992 (98)	14 x 13/16	6.70	21200 18800	25300 25300	5810 6975

(N₉) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.

(1) Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

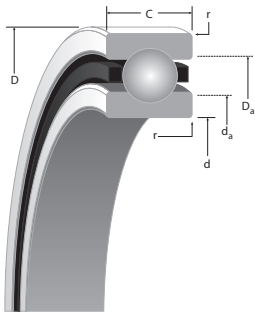
(2) ABMA STD 20 (r_{as} max).

r Rad. ⁽²⁾	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				
	d _a (Shaft)		D _a (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits		Housing Bore (Stationary)		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Tight	Loose	Max.	Min.	Max.	Min.	
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
0.012	0.64	0.63	1.01	1.00	0.4722	0.4724	0.0002	0.00015	1.1024	1.1026	0.0000	0.0004	1.1028	1.1026	0.00060	0.00020	MM9101K
0.012	0.86	0.85	1.23	1.22	0.6691	0.6693	0.0002	0.00015	1.3780	1.3783	0.0000	0.0005	1.3784	1.3782	0.00070	0.00020	MM9103K
0.024	0.99	0.98	1.49	1.48	0.7872	0.7874	0.0002	0.0002	1.6535	1.6538	0.0000	0.0005	1.6539	1.6537	0.00070	0.00020	MM9104K
0.024	1.19	1.18	1.68	1.67	0.9841	0.9843	0.0002	0.0002	1.8504	1.8507	0.0000	0.0005	1.8509	1.8507	0.00080	0.00030	MM9105K
0.039	1.43	1.42	2.00	1.99	1.1809	1.1811	0.0002	0.0002	2.1654	2.1657	0.0000	0.0006	2.1659	2.1657	0.00080	0.00030	MM9106K
0.039	1.62	1.60	2.23	2.21	1.3778	1.3780	0.0002	0.00025	2.4409	2.4412	0.0000	0.0006	2.4414	2.4412	0.00080	0.00030	MM9107K
0.039	1.82	1.80	2.45	2.43	1.5746	1.5748	0.0002	0.00025	2.6772	2.6775	0.0000	0.0006	2.6777	2.6775	0.00080	0.00030	MM9108K
0.039	2.04	2.02	2.73	2.71	1.7715	1.7717	0.0002	0.00025	2.9528	2.9531	0.0000	0.0006	2.9533	2.9531	0.00080	0.00030	MM9109K
0.039	2.23	2.21	2.92	2.90	1.9683	1.9685	0.0002	0.00025	3.1496	3.1499	0.0000	0.0006	3.1501	3.1499	0.00080	0.00030	MM9110K
0.039	2.47	2.45	3.28	3.26	2.1652	2.1654	0.0002	0.0003	3.5433	3.5436	0.0000	0.0006	3.5439	3.5436	0.00090	0.00030	MM9111K
0.039	2.67	2.65	3.47	3.45	2.3620	2.3622	0.0002	0.0003	3.7402	3.7405	0.0000	0.0006	3.7408	3.7405	0.00090	0.00030	MM9112K
0.039	2.86	2.84	3.67	3.65	2.5589	2.5591	0.0002	0.0003	3.9370	3.9373	0.0000	0.0006	3.9377	3.9374	0.00100	0.00040	MM9113K
0.039	3.08	3.06	4.03	4.01	2.7557	2.7559	0.0002	0.0003	4.3307	4.3310	0.0000	0.0006	4.3314	4.3311	0.00100	0.00040	MM9114K
0.039	3.29	3.26	4.23	4.20	2.9526	2.9530	0.0002	0.0005	4.5276	4.5279	0.0000	0.0006	4.5283	4.5280	0.00100	0.00040	MM9115K
0.039	3.52	3.49	4.59	4.56	3.1494	3.1498	0.0002	0.0005	4.9213	4.9216	0.0000	0.0007	4.9221	4.9217	0.00120	0.00040	MM9116K
0.039	3.74	3.71	4.81	4.78	3.3463	3.3467	0.0002	0.0005	5.1181	5.1185	0.0000	0.0007	5.1189	5.1185	0.00110	0.00040	MM9117K
0.059	3.96	3.93	5.16	5.13	3.5431	3.5435	0.0002	0.0005	5.5118	5.5122	0.0000	0.0007	5.5126	5.5122	0.00110	0.00040	MM9118K
0.059	4.36	4.33	5.55	5.52	3.9368	3.9372	0.0002	0.0005	5.9055	5.9059	0.0000	0.0007	5.9064	5.9060	0.00120	0.00050	MM9120K
0.079	4.85	4.82	6.24	6.21	4.3305	4.3309	0.0002	0.0005	6.6929	6.6933	0.0000	0.0008	6.6938	6.6934	0.00130	0.00050	MM9122K
0.079	5.25	5.22	6.63	6.60	4.7242	4.7246	0.0002	0.0005	7.0866	7.0870	0.0000	0.0008	7.0875	7.0871	0.00130	0.00050	MM9124K
0.079	5.71	5.68	7.35	7.32	5.1179	5.1183	0.0002	0.0006	7.8740	7.8745	0.0000	0.0009	7.8750	7.8746	0.00150	0.00060	MM9126K



LIGHT 2(3)MM200WI (ISO 02) SERIES

DIMENSIONAL SERIES METRIC



D

SUPER PRECISION MM:

Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

WI CONSTRUCTION:

- Incorporates low shoulder on non-thrust side of outer rings.
- Maximum complement of balls separated by one-piece cage piloted against a ground thrust shoulder land of the outer ring.

Bearing Number 2MM or 3MM	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt. kg	(2MM) LOAD RATINGS (steel ball & ceramic ball)			(3MM) LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat)	C _e (dyn)	Limiting Speed ^(N9)	C ₀ (stat)	C _e (dyn)	Limiting Speed ^(N9)
METRIC	mm/tol: +0; -(µm)			mm	kg	N		RPM	N		RPM
200WI	10 (3.8)	30 (5.1)	9 (40)	8 x 5.56	0.03	2900 2610	7100 7100	62800 75400	2800 2540	6900 6900	56500 67800
201WI	12 (3.8)	32 (6.4)	10 (80)	9 x 5.95	0.036	3800 3410	8760 8760	56700 68000	3700 3320	8500 8500	51000 61200
202WI	15 (3.8)	35 (6.4)	11 (80)	10 x 5.95	0.044	4500 4010	9580 9580	47800 57400	4400 3880	9250 9250	43000 51600
203WI	17 (3.8)	40 (6.4)	12 (80)	10 x 6.75	0.064	5900 5170	12000 12000	41900 50300	5600 5000	11600 11600	37700 45200
204WI	20 (5.1)	47 (6.4)	14 (130)	10 x 7.94	0.103	8100 7160	16100 16100	35700 42800	7700 6900	15500 15500	32100 38500
205WI	25 (5.1)	52 (7.7)	15 (130)	12 x 7.94	0.127	10200 9110	18400 18400	29800 35800	9800 8690	17600 17600	26800 32200
206WI	30 (5.1)	62 (7.7)	16 (130)	12 x 9.53	0.195	14700 13100	25500 25500	25100 30100	14000 12500	24400 24400	22600 27100
207WI	35 (6.4)	72 (7.7)	17 (130)	12 x 11.11	0.282	20000 17800	33700 33700	21600 25900	19100 17100	32200 32200	19400 23300
208WI	40 (6.4)	80 (7.7)	18 (130)	11 x 12.70	0.352	23800 21100	40,400 40400	19300 23100	22700 20200	38700 38700	17400 20900
209WI	45 (6.4)	85 (7.7)	19 (130)	13 x 12.70	0.408	28800 25600	45200 45200	17500 21000	27600 24500	43100 43100	15800 19000
210WI	50 (6.4)	90 (7.7)	20 (130)	14 x 12.70	0.457	31700 28200	47400 47400	16000 19200	30200 26900	45200 45200	14400 17300
211WI	55 (7.7)	100 (7.7)	21 (150)	14 x 14.29	0.608	40000 35500	58700 58700	14500 17400	38500 34000	55900 55900	13100 15700
212WI	60 (7.7)	110 (7.7)	22 (150)	14 x 15.88	0.787	48900 43600	71000 71000	13200 15800	47100 41800	67700 67700	11900 14300
213WI	65 (7.7)	120 (7.7)	23 (150)	14 x 16.67	0.998	54700 48700	77400 77400	12100 14300	52500 46500	73700 73700	10900 13100
214WI	70 (7.7)	125 (9)	24 (150)	14 x 17.46	1.074	60000 53600	84200 84200	11400 13700	57400 51100	80200 80200	10300 12400
215WI	75 (7.7)	130 (9)	25 (150)	15 x 17.46	1.174	64900 58200	87900 87900	10800 13000	62300 55600	83700 83700	9700 11600
216WI	80 (7.7)	140 (9)	26 (150)	15 x 19.05	1.448	77000 69000	102900 102900	10100 12100	73800 65800	98000 98000	9100 10900
217WI	85 (7.7)	150 (9)	28 (200)	15 x 20.64	1.817	90700 80,700	118900 118900	9400 11300	85800 76800	113300 113300	8500 10200
218WI	90 (7.7)	160 (10.3)	30 (200)	14 x 22.23	2.196	97900 87100	129900 129900	8900 10700	92500 82900	123700 123700	8000 9600
219WI	95 (7.7)	170 (10.3)	32 (200)	14 x 23.81	2.669	111200 9600	147100 147100	8400 10100	106800 94900	140100 140100	7600 9100
220WI	100 (7.7)	180 (10.3)	34 (200)	14 x 25.40	3.209	126800 112900	165200 165200	8000 9600	120100 107800	15500 157500	7200 8600
222WI	110 (7.7)	200 (11.5)	38 (200)	14 x 28.58	4.486	160100 142000	194900 194900	7200 8600	153500 135900	185800 185800	6500 7800
224WI	120 (7.7)	215 (11.5)	40 (200)	14 x 30.16	5.358	180100 159600	210100 210100	6700 8000	173500 152400	200500 200500	6000 7200
226WI	130 (10.3)	230 (11.5)	40 (250)	17 x 30.16	6.468	222400 197400	238200 238200	6100 7300	211300 188800	226800 226800	5500 6600
230WI	150 (10.3)	270 (12.8)	45 (250)	15 x 38.10	9.98	302500 272100	305200 305200	5300 6400	291300 259900	290900 290900	4800 5800

^(N9) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.

⁽¹⁾ Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

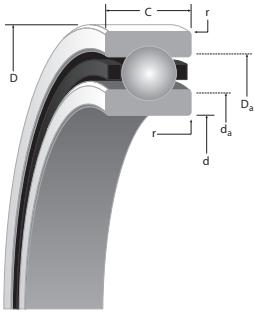
⁽²⁾ ABMA STD 20 (r_{as} max).

r Rad. ⁽²⁾ mm	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				Bearing Number 2MM or 3MM
	d _a (Shaft)		D _a (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits		Housing Bore (Stationary)		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Tight	Loose	Max.	Min.	Max.	Min.	
0.6	15.1	14.9	26	25.8	9.995	10.000	0.005	0.004	30	30.005	0.000	0.010	30.010	30.005	0.015	0.005	200WI
0.6	16.6	16.4	28.1	27.8	11.995	12.000	0.005	0.004	32	32.005	0.000	0.011	32.010	32.005	0.016	0.005	201WI
0.6	19.2	18.9	31.1	30.9	14.995	15.000	0.005	0.004	35	35.006	0.000	0.012	35.010	35.005	0.016	0.005	202WI
0.6	21.7	21.5	35.7	35.4	16.995	17.000	0.005	0.004	40	40.006	0.000	0.012	40.010	40.005	0.016	0.005	203WI
1	26	25.8	41.5	41.3	19.995	20.000	0.005	0.005	47	47.006	0.000	0.012	47.012	47.007	0.018	0.007	204WI
1	31.1	30.9	47.1	46.9	24.995	25.000	0.005	0.005	52	52.006	0.000	0.013	52.012	52.007	0.019	0.007	205WI
1	36.7	36.5	56	55.8	29.995	30.000	0.005	0.005	62	62.008	0.000	0.015	62.012	62.007	0.019	0.007	206WI
1	42.7	42.2	65.3	64.8	34.995	35.000	0.005	0.006	72	72.008	0.000	0.015	72.011	72.007	0.019	0.007	207WI
1	47.8	47.2	73.2	72.6	39.995	40.000	0.005	0.006	80	80.008	0.000	0.015	80.012	80.008	0.02	0.008	208WI
1	52.8	52.3	78.2	77.7	44.995	45.000	0.005	0.006	85	85.008	0.000	0.016	85.016	85.009	0.024	0.009	209WI
1	57.9	57.4	83.3	82.8	49.995	50.000	0.005	0.006	90	90.008	0.000	0.016	90.015	90.007	0.023	0.007	210WI
1.5	63.8	63.3	92.2	91.7	54.995	55.000	0.005	0.007	100	100.008	0.000	0.016	100.018	100.010	0.025	0.01	211WI
1.5	69.9	69.3	101.4	100.8	59.995	60.000	0.005	0.007	110	110.008	0.000	0.016	110.018	110.010	0.025	0.010	212WI
1.5	76.2	75.7	109.7	109.2	64.995	65.000	0.005	0.007	120	120.008	0.000	0.016	120.018	120.010	0.025	0.010	213WI
1.5	80.8	80.3	115.8	115.3	69.995	70.000	0.005	0.007	125	125.008	0.000	0.017	125.021	125.011	0.03	0.011	214WI
1.5	86	85.2	120.8	120	74.995	75.005	0.005	0.012	130	130.009	0.000	0.018	130.020	130.010	0.029	0.010	215WI
2	91.3	90.6	129.9	129.2	79.995	80.005	0.005	0.012	140	140.009	0.000	0.018	140.020	140.010	0.029	0.010	216WI
2	97.4	96.7	138.8	138.1	84.995	85.005	0.005	0.012	150	150.009	0.000	0.018	150.023	150.012	0.032	0.012	217WI
2	103.5	102.7	148	147.2	89.995	90.005	0.005	0.013	160	160.009	0.000	0.022	160.022	160.012	0.033	0.012	218WI
2.1	109.4	108.6	157.1	153.3	94.995	95.005	0.005	0.013	170	170.010	0.000	0.02	170.022	170.012	0.032	0.012	219WI
2.1	115.2	114.4	166	165.2	99.995	100.005	0.005	0.013	180	180.010	0.000	0.02	180.022	180.012	0.032	0.012	220WI
2.1	127.1	126.4	184.3	183.5	109.995	110.005	0.005	0.013	200	200.011	0.000	0.022	200.025	200.015	0.036	0.015	222WI
2.1	138.1	137.3	198.5	197.7	119.995	120.005	0.005	0.013	215	215.011	0.000	0.022	215.025	215.015	0.036	0.015	224WI
2.5	150.5	149.7	211	210.2	129.995	130.005	0.005	0.015	230	230.011	0.000	0.022	230.025	230.015	0.036	0.015	226WI
2.5	172.6	171.8	248.8	248	149.995	150.005	0.005	0.015	270	270.013	0.000	0.026	270.031	270.018	0.044	0.018	230WI



LIGHT 2(3)MM200WI (ISO 02) SERIES

DIMENSIONAL SERIES INCHES



D

SUPER PRECISION MM:

Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

WI CONSTRUCTION:

- Incorporates low shoulder on non-thrust side of outer rings.
- Maximum complement of balls separated by one-piece cage piloted against a ground thrust shoulder land of the outer ring.

Bearing Number 2MM or 3MM	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt.	(2MM) LOAD RATINGS (steel ball & ceramic ball)			(3MM) LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat)	C _e (dyn)	Limiting Speed (N _g)	C ₀ (stat)	C _e (dyn)	Limiting Speed (N _g)
INCHES	in./tol: +0; -.000(X)			in.	lbs.	lbs.		RPM	lbs.		RPM
200WI	0.3937 (1.5)	1.1811 (2)	0.3543 (16)	8 x 7/32	0.07	660 590	1600 1600	62800 75400	640 570	1550 1550	56500 67800
201WI	0.4724 (1.5)	1.2598 (2.5)	0.3937 (31)	9 x 15/64	0.08	860 770	1970 1970	56700 68000	830 750	1910 1910	51000 61200
202WI	0.5906 (1.5)	1.378 (2.5)	0.4331 (31)	10 x 15/64	0.1	1010 900	2200 2200	47800 57400	980 870	2080 2080	43000 51600
203WI	0.6693 (1.5)	1.5748 (2.5)	0.4724 (31)	10 x 17/64	0.14	1320 1160	2750 2750	41900 50300	1270 1120	2600 2600	37700 45200
204WI	0.7874 (2)	1.8504 (2.5)	0.5512 (47)	10 x 5/16	0.23	1810 1610	3620 3620	35700 42800	1730 1550	3490 3490	32100 38500
205WI	0.9843 (2)	2.0472 (3)	0.5906 (47)	12 x 5/16	0.28	2320 2050	4130 4130	29800 35800	2200 1950	3950 3950	26800 32100
206WI	1.1811 (2)	2.4409 (3)	0.6299 (47)	12 x 3/8	0.43	3310 2940	5740 5740	25100 30100	3150 2810	5490 5490	22600 27100
207WI	1.378 (2.5)	2.8346 (3)	0.6693 (47)	12 x 7/16	0.62	4490 4000	7580 7580	21600 25900	4300 3820	7240 7240	19400 23300
208WI	1.5748 (2.5)	3.1496 (3)	0.7087 (47)	11 x 1/2	0.78	5340 4750	9070 9070	19300 23200	5100 4550	8690 8690	17400 20900
209WI	1.7717 (2.5)	3.3465 (3)	0.748 (47)	13 x 1/2	0.9	6470 5760	10200 10200	17500 21000	6200 5500	9700 9700	15800 19000
210WI	1.9685 (2.5)	3.5433 (3)	0.7874 (47)	14 x 1/2	1.01	7130 6340	10700 10700	16000 19200	6800 6050	10200 10200	14400 17300
211WI	2.1654 (3)	3.937 (3)	0.8268 (59)	14 x 9/16	1.34	9000 7980	13200 13200	14500 17400	8650 7640	12600 12600	13100 15700
212WI	2.3622 (3)	4.3307 (3)	0.8661 (59)	14 x 5/8	1.74	11000 9810	16000 16000	13200 15800	10600 9400	15200 15200	11900 14300
213WI	2.5591 (3)	4.7244 (3)	0.9055 (59)	14 x 21/32	2.2	12300 11000	17400 17400	12100 14500	11800 10400	16600 16600	10900 13100
214WI	2.7559 (3)	4.9213 (3.5)	0.9449 (59)	14 x 11/16	2.37	13400 12100	18900 18900	11400 13700	12900 11500	18000 18000	10300 12400
215WI	2.9528 (3)	5.1181 (3.5)	0.9843 (59)	15 x 11/16	2.59	14600 13100	19800 19800	10800 13000	14000 12500	18800 18800	9700 11600
216WI	3.1496 (3)	5.5118 (3.5)	1.0236 (59)	15 x 3/4	3.19	17300 15500	23100 23100	10100 12100	16600 14800	22000 22000	9100 10900
217WI	3.3465 (3)	5.9055 (3.5)	1.1024 (79)	15 x 13/16	4.01	20400 18200	26700 26700	9400 11300	19300 17300	25500 25500	8500 10200
218WI	3.5433 (3)	6.2992 (4)	1.1811 (79)	14 x 7/8	4.84	22000 19600	29200 29200	8900 10700	20800 18600	27800 27800	8000 9600
219WI	3.7402 (3)	6.6929 (4)	1.2598 (79)	14 x 15/16	5.88	25000 22400	33100 33100	8400 10100	24000 21300	31500 31500	7600 9100
220WI	3.937 (3)	7.0866 (4)	1.3386 (79)	14 x 1	7.07	28500 25400	37100 37100	8000 9600	27000 24200	35400 35400	7200 8600
222WI	4.3307 (3)	7.874 (4.5)	1.4961 (79)	14 x 1 1/8	9.89	36000 31900	43800 43800	7200 8600	34500 30600	41800 41800	6500 7800
224WI	4.7244 (3)	8.4646 (4.5)	1.5748 (79)	14 x 1 3/16	11.81	40500 35900	47200 47200	6700 8000	39000 34300	45100 45100	6000 7200
226WI	5.1181 (4)	9.0551 (4.5)	1.5748 (98)	17 x 1 3/16	14.26	50000 44400	53500 53500	6100 7300	47500 42500	51000 51000	5500 6600
230WI	5.9055 (4)	10.6299 (5)	1.7717 (98)	15 x 1 1/2	22	68000 61200	68600 68600	5300 6400	65500 58400	65400 65400	4800 5800

(N_g) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.

⁽¹⁾ Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

⁽²⁾ ABMA STD 20 (r_{as} max).

r Rad. ⁽²⁾	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				Bearing Number 2MM or 3MM
	d _a (Shaft)		D _a (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits		Housing Bore (Stationary)		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Tight	Loose	Max.	Min.	Max.	Min.	
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
0.024	0.60	0.59	1.03	1.02	0.3935	0.3937	0.0002	0.00015	1.1811	1.1813	0.000	0.0004	1.18150	1.18130	0.00060	0.00020	200WI
0.024	0.66	0.65	1.11	1.10	0.4722	0.4724	0.0002	0.00015	1.2598	1.2600	0.000	0.00045	1.26020	1.26000	0.00070	0.00020	201WI
0.024	0.76	0.75	1.23	1.22	0.5904	0.5906	0.0002	0.00015	1.3780	1.3783	0.000	0.0005	1.37840	1.37820	0.00070	0.00020	202WI
0.024	0.86	0.85	1.41	1.40	0.6691	0.6693	0.0002	0.00015	1.5748	1.5751	0.000	0.0005	1.57520	1.57500	0.00070	0.00020	203WI
0.039	1.03	1.02	1.64	1.63	0.7872	0.7874	0.0002	0.0002	1.8504	1.8507	0.000	0.0005	1.85090	1.85070	0.00080	0.00030	204WI
0.039	1.23	1.22	1.86	1.85	0.9841	0.9843	0.0002	0.0002	2.0472	2.0475	0.000	0.00055	2.04770	2.04750	0.00080	0.00030	205WI
0.039	1.45	1.44	2.21	2.20	1.1809	1.1811	0.0002	0.0002	2.4409	2.4412	0.000	0.0006	2.44140	2.44120	0.00080	0.00030	206WI
0.039	1.68	1.66	2.57	2.55	1.3778	1.3780	0.0002	0.00025	2.8346	2.8349	0.000	0.0006	2.83510	2.83490	0.00080	0.00030	207WI
0.039	1.88	1.86	2.88	2.86	1.5746	1.5748	0.0002	0.00025	3.1496	3.1499	0.000	0.0006	3.15010	3.14990	0.00080	0.00030	208WI
0.039	2.08	2.06	3.08	3.06	1.7715	1.7717	0.0002	0.00025	3.3465	3.3468	0.000	0.0006	3.34710	3.34680	0.00090	0.00030	209WI
0.039	2.28	2.26	3.28	3.26	1.9683	1.9685	0.0002	0.00025	3.5433	3.5436	0.000	0.0006	3.54390	3.54360	0.00090	0.00030	210WI
0.059	2.51	2.49	3.63	3.61	2.1652	2.1654	0.0002	0.0003	3.9370	3.9373	0.000	0.0006	3.93770	3.93740	0.00100	0.00040	211WI
0.059	2.75	2.73	3.99	3.97	2.3620	2.3622	0.0002	0.0003	4.3307	4.3310	0.000	0.0006	4.33140	4.33110	0.00100	0.00040	212WI
0.059	3.00	2.98	4.32	4.30	2.5589	2.5591	0.0002	0.0003	4.7244	4.7247	0.000	0.0006	4.72510	4.72480	0.00100	0.00040	213WI
0.059	3.18	3.16	4.56	4.54	2.7557	2.7559	0.0002	0.0003	4.9213	4.9216	0.000	0.0007	4.92210	4.92170	0.00120	0.00040	214WI
0.059	3.39	3.36	4.76	4.73	2.9526	2.9530	0.0002	0.0005	5.1181	5.1185	0.000	0.0007	5.11890	5.11850	0.00110	0.00040	215WI
0.079	3.60	3.57	5.12	5.09	3.1494	3.1498	0.0002	0.0005	5.5118	5.5122	0.000	0.0007	5.51260	5.51220	0.00110	0.00040	216WI
0.079	3.84	3.81	5.47	5.44	3.3463	3.3467	0.0002	0.0005	5.9055	5.9059	0.000	0.0007	5.90640	5.90600	0.00120	0.00050	217WI
0.079	4.08	4.05	5.83	5.8	3.5431	3.5435	0.0002	0.0005	6.2992	6.2996	0.000	0.0008	6.30010	6.29970	0.00130	0.00050	218WI
0.079	4.31	4.28	6.19	6.16	3.7400	3.7404	0.0002	0.0005	6.6929	6.6933	0.000	0.0008	6.69380	6.69340	0.00130	0.00050	219WI
0.079	4.54	4.51	6.54	6.51	3.9368	3.9372	0.0002	0.0005	7.0866	7.0870	0.000	0.0008	7.08750	7.08710	0.00130	0.00050	220WI
0.079	5.01	4.98	7.26	7.23	4.3305	4.3309	0.0002	0.0005	7.8740	7.8745	0.000	0.0009	7.87500	7.87460	0.00150	0.00060	222WI
0.079	5.44	5.41	7.82	7.79	4.7242	4.7246	0.0002	0.0005	8.4646	8.4651	0.000	0.0009	8.46560	8.46520	0.00150	0.00060	224WI
0.098	5.93	5.9	8.31	8.28	5.1179	5.1183	0.0002	0.0006	9.0551	9.0556	0.000	0.0009	9.05610	9.05570	0.00150	0.00060	226WI
0.098	6.8	6.77	9.8	9.77	5.9053	5.9057	0.0002	0.0006	10.6299	10.6304	0.000	0.0010	10.63120	10.63070	0.00180	0.00080	230WI





LIGHT 2MM200WI (ISO 02) SERIES

DUPLEX PERFORMANCE DATA

MOUNTING ARRANGEMENTS



Suggested DB



Tandem DT



Special Applications DF

Table with columns: Bearing Number, PRELOAD (DUX, DUL, DUM, DUH), AXIAL STIFFNESS (X-light, Light, Medium, Heavy), RADIAL STIFFNESS (Light, Medium, Heavy), SPACER OFFSETS (X-Light to Light, Light to Medium, Medium to Heavy). Includes sub-sections for METRIC and INCH DUPLEX PERFORMANCE DATA.

Notes: (1) For DB or DF arrangements only. For other mounting arrangements contact your Timken representative.

**LIGHT
3MM200WI
(ISO 02) SERIES**

**DUPLEX
PERFORMANCE DATA**

MOUNTING ARRANGEMENTS



**Suggested
DB**



**Tandem
DT**



**Special Applications
DF**

Bearing Number	PRELOAD				AXIAL STIFFNESS ⁽¹⁾			RADIAL STIFFNESS ⁽¹⁾			SPACER OFFSETS ⁽¹⁾		
	DUX	DUL	DUM	DUH	Light	Medium	Heavy	Light	Medium	Heavy	X-Light to Light	Light to Medium	Medium to Heavy
	N				N/μm			N/μm			μm		
METRIC DUPLEX PERFORMANCE DATA 3MM200WI SERIES													
3MM200WI	—	40	130	270	39.35	59.99	79.75	84.65	121.38	150.94	—	7.11	7.62
3MM201WI	—	40	130	270	44.77	67.51	88.85	94.10	135.90	169.48	—	6.35	6.86
3MM202WI	—	70	180	360	55.44	80.45	106.51	115.96	160.21	199.39	—	6.60	6.60
3MM203WI	—	90	330	440	63.84	105.99	119.28	132.92	204.46	223.87	—	11.43	4.06
3MM204WI	—	130	360	560	75.21	109.66	131.35	159.51	220.02	253.26	—	9.65	6.60
3MM205WI	—	160	400	670	89.20	128.20	157.76	189.59	258.50	303.98	—	8.89	7.37
3MM206WI	—	220	560	890	106.16	150.76	182.42	227.02	306.77	356.10	—	10.41	7.87
3MM207WI	130	310	780	1330	126.45	179.62	223.52	267.42	360.99	428.33	6.86	12.19	12.19
3MM208WI	160	360	890	1330	132.57	187.84	220.90	275.64	372.71	423.96	7.11	13.21	8.64
3MM209WI	180	440	1110	1780	159.86	226.85	274.24	332.14	448.44	520.50	7.87	13.72	10.67
3MM210WI	200	490	1220	2000	173.68	246.43	300.65	360.12	486.22	568.25	7.62	13.97	11.43
3MM211WI	220	620	1560	2450	193.61	274.94	330.21	407.34	549.71	634.36	9.65	15.75	11.68
3MM212WI	240	760	1890	2890	213.73	303.63	360.47	450.02	607.43	695.05	11.18	17.53	11.94
3MM213WI	270	850	2110	3340	225.62	320.42	385.65	474.50	640.48	740.18	11.94	18.54	13.72
3MM214WI	290	890	2220	3560	231.39	328.46	397.37	492.87	665.67	772.53	12.19	19.05	14.73
3MM215WI	360	980	2450	3780	250.28	355.75	424.13	532.75	719.19	825.53	11.68	19.30	13.72
3MM216WI	400	1110	2780	4450	269.87	383.03	462.79	570.35	770.61	894.61	12.45	20.32	15.75
3MM217WI	440	1200	3000	4890	280.36	397.37	483.42	600.43	812.41	949.18	12.45	21.08	17.02
3MM218WI	490	1330	3110	5560	286.14	394.75	498.12	608.83	805.06	968.42	13.72	20.83	21.84
3MM219WI	560	1560	3110	6230	310.27	402.97	531.00	655.70	824.65	1029.29	15.24	17.27	26.67
3MM220WI	600	1730	3470	6940	328.29	426.41	561.60	694.18	873.45	1090.50	16.26	18.29	27.94
3MM222WI	690	2050	4082	8180	359.94	466.81	613.90	762.39	960.03	1199.46	17.78	19.81	30.23
3MM224WI	820	2250	4480	8980	377.78	490.07	643.98	805.76	1014.77	1267.85	17.53	20.57	31.50
3MM226WI	980	2560	5120	10230	448.09	580.49	761.86	954.08	1190.72	1503.97	16.51	19.81	30.48
3MM230WI	1290	3110	6230	12450	473.63	612.32	801.04	1009.87	1276.25	1598.24	17.53	22.86	35.05
	lbs.				10⁶lbs./in.			10⁶lbs./in.			in.		
INCH DUPLEX PERFORMANCE DATA 3MM200WI SERIES													
3MM200WI	—	10	30	60	0.225	0.343	0.456	0.484	0.694	0.863	—	0.00028	0.00030
3MM201WI	—	10	30	60	0.256	0.386	0.508	0.538	0.777	0.969	—	0.00025	0.00027
3MM202WI	—	15	40	80	0.317	0.460	0.609	0.663	0.916	1.140	—	0.00026	0.00026
3MM203WI	—	20	75	100	0.365	0.606	0.682	0.76	1.169	1.280	—	0.00045	0.00016
3MM204WI	—	30	80	125	0.430	0.627	0.751	0.912	1.258	1.448	—	0.00038	0.00026
3MM205WI	—	35	90	150	0.510	0.733	0.902	1.084	1.478	1.738	—	0.00035	0.00029
3MM206WI	—	50	125	200	0.607	0.862	1.043	1.298	1.754	2.036	—	0.00041	0.00031
3MM207WI	30	70	175	300	0.723	1.027	1.278	1.529	2.064	2.449	0.00027	0.00048	0.00048
3MM208WI	35	80	200	300	0.758	1.074	1.263	1.576	2.131	2.424	0.00028	0.00052	0.00034
3MM209WI	40	100	250	400	0.914	1.297	1.568	1.899	2.564	2.976	0.00031	0.00054	0.00042
3MM210WI	45	110	275	450	0.993	1.409	1.719	2.059	2.780	3.249	0.00030	0.00055	0.00045
3MM211WI	50	140	350	550	1.107	1.572	1.888	2.329	3.143	3.627	0.00038	0.00062	0.00046
3MM212WI	55	170	425	650	1.222	1.736	2.061	2.573	3.473	3.974	0.00044	0.00069	0.00047
3MM213WI	60	190	475	750	1.290	1.832	2.205	2.713	3.662	4.232	0.00047	0.00073	0.00054
3MM214WI	65	200	500	800	1.323	1.878	2.272	2.818	3.806	4.417	0.00048	0.00075	0.00058
3MM215WI	80	220	550	850	1.431	2.034	2.425	3.046	4.112	4.720	0.00046	0.00076	0.00054
3MM216WI	90	250	625	1000	1.543	2.190	2.646	3.261	4.406	5.115	0.00049	0.00080	0.00062
3MM217WI	100	270	675	1100	1.603	2.272	2.764	3.433	4.645	5.427	0.00049	0.00083	0.00067
3MM218WI	110	300	700	1250	1.636	2.257	2.848	3.481	4.603	5.537	0.00054	0.00082	0.00086
3MM219WI	125	350	700	1400	1.774	2.304	3.036	3.749	4.715	5.885	0.00060	0.00068	0.00105
3MM220WI	135	390	780	1560	1.877	2.438	3.211	3.969	4.994	6.235	0.00064	0.00072	0.00110
3MM222WI	155	460	920	1840	2.058	2.669	3.510	4.359	5.489	6.858	0.00070	0.00078	0.00119
3MM224WI	185	505	1010	2020	2.160	2.802	3.682	4.607	5.802	7.249	0.00069	0.00081	0.00124
3MM226WI	220	575	1150	2300	2.562	3.319	4.356	5.455	6.808	8.599	0.00065	0.00078	0.00120
3MM230WI	290	700	1400	2800	2.708	3.501	4.580	5.774	7.297	9.138	0.00069	0.00090	0.00138

Notes: ⁽¹⁾ For DB or DF arrangements only. For other mounting arrangements contact your Timken representative.

**LIGHT 2MM200WI
(ISO 02) SERIES****SPEED CAPABILITY DATA**

Bearing Number	Grease Capacity		Kluber Isoflex		Operating Speeds ⁽²⁾ (DB Mounting) ⁽¹⁾					
	NBU15		NBU15		DUL	Grease DUM	DUH	DUL	Oil DUM	DUH
	25%	40%	15%	20%						
2MM200WI	0.30	0.50	0.20	0.27	50200	37700	25100	85300	64100	42700
2MM201WI	0.40	0.60	0.25	0.33	45400	34000	22200	79100	57800	39400
2MM202WI	0.50	0.80	0.32	0.43	38200	28700	19100	66300	48800	33200
2MM203WI	0.70	1.10	0.45	0.59	33500	25100	16500	58100	42700	29100
2MM204WI	1.10	1.70	0.72	0.96	28600	21400	14300	48600	36400	24300
2MM205WI	1.30	2.10	0.88	1.18	23800	17900	11900	40500	30400	20200
2MM206WI	2.00	3.10	1.31	1.74	20000	15100	10000	34200	25600	17000
2MM207WI	2.70	4.40	1.82	2.43	17300	13,000	8600	29400	22000	14600
2MM208WI	3.70	6.00	2.49	3.32	15400	11600	7700	26200	19700	13100
2MM209WI	4.20	6.60	2.77	3.70	14000	10500	7000	22800	17900	11900
2MM210WI	4.80	7.60	3.20	4.30	12500	9600	6400	21800	16300	10900
2MM211WI	6.10	9.70	4.10	5.40	11600	8700	5800	19700	14800	9900
2MM212WI	7.50	12.00	5.00	6.70	10600	7920	5300	18000	13500	9000
2MM213WI	9.20	14.60	6.10	8.10	9700	7260	4800	16500	12300	8200
2MM214WI	10.60	16.90	7.00	9.40	9100	6840	4600	15500	11600	7800
2MM215WI	11.60	18.60	7.80	10.30	8600	6480	4300	14600	11020	7300
2MM216WI	13.70	22.00	9.20	12.20	8100	6060	4000	13800	10300	6800
2MM217WI	16.90	27.10	11.30	15.10	7500	5640	3800	12800	9590	6500
2MM218WI	21.50	34.40	14.40	19.10	7100	5340	3600	12100	9080	6100
2MM219WI	25.80	41.40	17.30	23.00	6700	5040	3400	11400	8570	5800
2MM220WI	30.70	49.10	20.50	27.30	6400	4800	3200	10900	8160	5400
2MM222WI	42.30	67.60	28.20	37.60	5800	4320	2900	9900	7340	4900
2MM224WI	51.40	82.30	34.30	45.80	5400	4020	2700	9200	6830	4600
2MM226WI	50.80	81.30	33.90	45.20	4900	3660	2400	8300	6220	4100
2MM230WI	82.40	131.90	55.00	73.40	4200	3180	2160	7100	5410	3600

⁽¹⁾ For other mounting arrangement configurations refer to the engineering section on Permissible Speed calculation methods.⁽²⁾ For ceramic ball complements use 120% of speeds shown.

LIGHT 3MM200WI (ISO 02) SERIES

SPEED CAPABILITY DATA

Bearing Number	Grease Capacity		Kluber Isoflex		Operating Speeds ⁽²⁾ (DB Mounting) ⁽¹⁾					
	NBU15		NBU15		DUL	Grease DUM	DUH	DUL	Oil DUM	DUH
	25%	40%	15%	20%						
3MM200WI	0.30	0.50	0.20	0.27	45180	33930	22590	76770	57690	38430
3MM201WI	0.40	0.60	0.25	0.33	40860	30600	19980	71190	52020	35460
3MM202WI	0.50	0.80	0.32	0.43	34380	25830	17190	59670	43920	29880
3MM203WI	0.70	1.10	0.45	0.59	30150	22590	14850	52290	38430	26190
3MM204WI	1.10	1.70	0.72	0.96	25740	19260	12870	43740	32760	21870
3MM205WI	1.30	2.10	0.88	1.18	21420	16110	10710	36450	27360	18180
3MM206WI	2.00	3.10	1.31	1.74	18000	13590	9000	30780	23040	15300
3MM207WI	2.70	4.40	1.82	2.43	15570	11700	7740	26460	19800	13140
3MM208WI	3.70	6.00	2.49	3.32	13860	10440	6930	23580	17730	11790
3MM209WI	4.20	6.60	2.77	3.70	12600	9450	6300	20520	16110	10710
3MM210WI	4.80	7.60	3.20	4.30	11250	8640	5760	19620	14670	9810
3MM211WI	6.10	9.70	4.10	5.40	10440	7830	5220	17730	13320	8910
3MM212WI	7.50	12.00	5.00	6.70	9540	7128	4770	16200	12150	8100
3MM213WI	9.20	14.60	6.10	8.10	8730	6534	4320	14850	11070	7380
3MM214WI	10.60	16.90	7.00	9.40	8190	6156	4140	13950	10440	7020
3MM215WI	11.60	18.60	7.80	10.30	7740	5832	3870	13140	9918	6570
3MM216WI	13.70	22.00	9.20	12.20	7290	5454	3600	12420	9270	6120
3MM217WI	16.90	27.10	11.30	15.10	6750	5076	3420	11520	8631	5850
3MM218WI	21.50	34.40	14.40	19.10	6390	4806	3240	10890	8172	5490
3MM219WI	25.80	41.40	17.30	23.00	6030	4536	3060	10260	7713	5220
3MM220WI	30.70	49.10	20.50	27.30	5760	4320	2880	9810	7344	4860
3MM222WI	42.30	67.60	28.20	37.60	5220	3888	2610	8910	6606	4410
3MM224WI	51.40	82.30	34.30	45.80	4860	3618	2430	8280	6147	4140
3MM226WI	50.80	81.30	33.90	45.20	4410	3294	2160	7470	5598	3690
3MM230WI	82.40	131.90	55.00	73.40	3780	2862	1944	6390	4869	3240

⁽¹⁾ For other mounting arrangement configurations refer to the engineering section on Permissible Speed calculation methods.

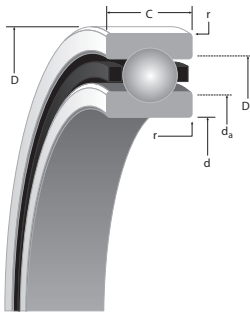
⁽²⁾ For ceramic ball complements use 120% of speeds shown.





**LIGHT
MM200K
(ISO 02) SERIES**

**DIMENSIONAL SIZES
METRIC**



SUPER PRECISION MM:

Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

CONRAD CONSTRUCTION:

- Maximum complement of balls separated by two-piece land piloted cage.

Bearing Number	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt. kg	LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat) N	C _e (dyn) N	Limiting Speed ^(N_g) RPM
METRIC	mm/tol: +0; -(µm)			mm	kg	N		RPM
MM201K	12 (4)	32 (6)	10 (80)	7 x 5.95	0.035	3000 2710	7550 7550	52200 62600
MM202K	15 (4)	35 (6)	11 (80)	8 x 5.95	0.043	3700 3290	8450 8450	44000 52800
MM203K	17 (4)	40 (6)	12 (80)	8 x 6.75	0.062	4700 4230	10600 10600	38500 46200
MM204K	20 (5)	47 (6)	14 (130)	8 x 7.94	0.1	6500 5860	14200 14200	32800 39400
MM205K	25 (5)	52 (7)	15 (130)	9 x 7.94	0.122	7800 6980	15500 15500	27400 32900
MM206K	30 (5)	62 (7)	16 (130)	9 x 9.53	0.185	11300 10000	21600 21600	23000 27600
MM207K	35 (6)	72 (7)	17 (130)	9 x 11.11	0.267	15300 13600	28500 28500	19800 23800
MM208K	40 (6)	80 (7)	18 (130)	9 x 12.70	0.337	20000 17700	36200 36200	17700 21200
MM209K	45 (6)	85 (8)	19 (130)	9 x 12.70	0.377	20200 18200	36300 36300	16000 19200
MM210K	50 (6)	90 (8)	20 (130)	10 x 12.70	0.425	23100 20600	38900 38900	14600 17500
MM211K	55 (7)	100 (8)	21 (150)	10 x 14.29	0.564	29100 26000	48100 48100	13300 16000
MM212K	60 (7)	110 (8)	22 (150)	10 x 15.88	0.727	36300 32000	58200 58200	12100 14500
MM213K	65 (7)	120 (8)	23 (150)	10 x 16.67	0.928	40000 35600	63400 63400	11100 13300
MM214K	70 (7)	125 (9)	24 (150)	10 x 17.46	0.994	43600 39200	69000 69000	10500 12600
MM215K	75 (7)	130 (9)	25 (150)	10 x 17.46	1.074	44500 39900	68900 68900	9900 11900
MM216K	80 (7)	140 (9)	26 (150)	10 x 19.05	1.317	53400 47200	80600 80600	9200 11000

^(N_g) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.

⁽¹⁾ Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

⁽²⁾ ABMA STD 20 (r_{as} max).

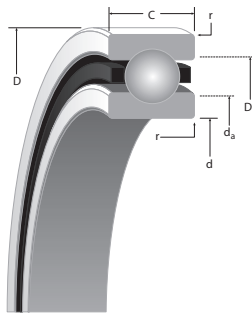
r Rad. ⁽²⁾	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				
	d _a (Shaft)		D _a (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits		Housing Bore (Stationary)		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Tight	Loose	Max.	Min.	Max.	Min.	
mm	mm	mm	mm	mm	mm	mm	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
0.6	16.6	16.4	28.1	27.8	11.9950	12.000	0.005	0.004	32	32.005	0.000	0.011	32.010	32.005	0.016	0.005	MM201K
0.6	19.2	18.9	31.1	30.9	14.9950	15.000	0.005	0.004	35	35.006	0.000	0.012	35.010	35.005	0.016	0.005	MM202K
0.6	21.7	21.5	35.7	35.4	16.9950	17.000	0.005	0.004	40	40.006	0.000	0.012	40.010	40.005	0.016	0.005	MM203K
1	26	25.8	41.5	41.3	19.9950	20.000	0.005	0.005	47	47.006	0.000	0.012	47.012	47.007	0.018	0.007	MM204K
1	31.1	30.9	47.1	46.9	24.9950	25.000	0.005	0.005	52	52.006	0.000	0.013	52.012	52.007	0.019	0.007	MM205K
1	36.7	36.5	56	55.8	29.9950	30.000	0.005	0.005	62	62.008	0.000	0.015	62.012	62.007	0.019	0.007	MM206K
1	42.7	42.2	65.3	64.8	34.9950	35.000	0.005	0.006	72	72.008	0.000	0.015	72.011	72.007	0.019	0.007	MM207K
1	47.8	47.2	73.2	72.6	39.9950	40.000	0.005	0.006	80	80.008	0.000	0.015	80.012	80.008	0.020	0.008	MM208K
1	52.8	52.3	78.2	77.7	44.9950	45.000	0.005	0.006	85	85.008	0.000	0.016	85.016	85.009	0.024	0.009	MM209K
1	57.9	57.4	83.3	82.8	49.9950	50.000	0.005	0.006	90	90.008	0.000	0.016	90.015	90.007	0.023	0.007	MM210K
1.5	63.8	63.3	92.2	91.7	54.9950	55.000	0.005	0.007	100	100.008	0.000	0.016	100.018	100.010	0.025	0.010	MM211K
1.5	69.9	69.3	101.4	100.8	59.9950	60.000	0.005	0.007	110	110.008	0.000	0.016	110.018	110.010	0.025	0.010	MM212K
1.5	76.2	75.7	109.7	109.2	64.9950	65.000	0.005	0.007	120	120.008	0.000	0.016	120.018	120.010	0.025	0.010	MM213K
1.5	80.8	80.3	115.8	115.3	69.9950	70.000	0.005	0.007	125	125.008	0.000	0.017	125.021	125.011	0.030	0.011	MM214K
1.5	86	85.2	120.8	120	74.9950	75.005	0.005	0.012	130	130.009	0.000	0.018	130.020	130.010	0.029	0.010	MM215K
2	91.3	90.6	129.9	129.2	79.9950	80.005	0.005	0.012	140	140.009	0.000	0.018	140.020	140.010	0.029	0.010	MM216K





**LIGHT
MM200K
(ISO 02) SERIES**

**DIMENSIONAL SIZES
INCHES**



SUPER PRECISION MM:

Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

CONRAD CONSTRUCTION:

- Maximum complement of balls separated by two-piece land piloted cage.

Bearing Number	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt.	LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat)	C _e (dyn)	Limiting Speed ^(Ng)
INCH	in./tol: +0; -.000(µm)			in.	lbs.	lbs.	RPM	
MM201K	0.4724 (1.5)	1.2598 (2.5)	0.394 (31)	7 x 15/64	0.08	680 610	1700 1700	52200 62600
MM202K	0.5906 (1.5)	1.378 (2.5)	0.4331 (31)	8 x 15/64	0.09	830 740	1900 1900	44000 52800
MM203K	0.6693 (1.5)	1.5748 (2.5)	0.4724 (31)	8 x 17/64	0.14	1060 950	2380 2380	38500 46200
MM204K	0.7874 (2)	1.8504 (2.5)	0.5512 (47)	8 x 5/16	0.22	1460 1320	3190 3190	32800 39400
MM205K	0.9843 (2)	2.0472 (3)	0.5906 (47)	9 x 5/16	0.27	1760 1570	3490 3490	27400 32900
MM206K	1.1811 (2)	2.4409 (3)	0.6299 (47)	9 x 3/8	0.41	2550 2.25	4850 4850	23000 27600
MM207K	1.378 (2.5)	2.8346 (3)	0.6693 (47)	9 x 7/16	0.59	3450 3060	6400 6400	19800 23800
MM208K	1.5748 (2.5)	3.1496 (3)	0.7087 (47)	9 x 1/2	0.74	4500 3970	8130 8130	17700 21200
MM209K	1.7717 (2.5)	3.3465 (3)	0.748 (47)	9 x 1/2	0.83	4550 4090	8160 8160	16000 19200
MM210K	1.9685 (2.5)	3.5433 (3)	0.7874 (47)	10 x 1/2	0.94	5200 4640	8740 8740	14600 17500
MM211K	2.1654 (3)	3.937 (3)	0.8268 (59)	10 x 9/16	1.24	6550 5850	10800 10800	13300 16000
MM212K	2.3622 (3)	4.3307 (3)	0.8661 (59)	10 x 5/8	1.60	8150 7190	13100 13100	12100 14500
MM213K	2.5591 (3)	4.7244 (3)	0.9055 (59)	10 x 21/32	2.05	9000 8000	14300 14300	11100 13300
MM214K	2.7559 (3)	4.9213 (3.5)	0.9449 (59)	10 x 11/16	2.19	9800 8800	15500 15500	10500 12600
MM215K	2.9528 (3)	5.1181 (3.5)	0.9843 (59)	10 x 11/16	2.37	10000 8960	15500 15500	9900 11900
MM216K	3.1496 (3)	5.5118 (3.5)	1.0236 (59)	10 x 3/4	2.9	12000 10600	18100 18100	9200 11000

^(Ng) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.

⁽¹⁾ Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

⁽²⁾ ABMA STD 20 (r_{as} max).

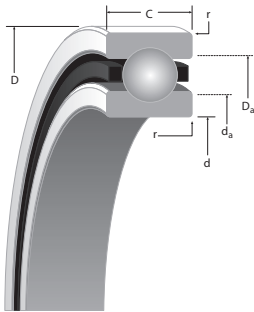
r Rad. ⁽²⁾	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				
	d _a (Shaft)		D _a (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits		Housing Bore (Stationary)		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Tight	Loose	Max.	Min.	Max.	Min.	
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
0.024	0.66	0.65	1.11	1.10	0.4722	0.4724	0.0002	0.00015	1.2598	1.2600	0.000	0.00045	1.26020	1.26000	0.00070	0.00020	MM201K
0.024	0.76	0.75	1.23	1.22	0.5904	0.5906	0.0002	0.00015	1.3780	1.3783	0.000	0.0005	1.37840	1.37820	0.00070	0.00020	MM202K
0.024	0.86	0.85	1.41	1.40	0.6691	0.6693	0.0002	0.00015	1.5748	1.5751	0.000	0.0005	1.57520	1.57500	0.00070	0.00020	MM203K
0.039	1.03	1.02	1.64	1.63	0.7872	0.7874	0.0002	0.0002	1.8504	1.8507	0.000	0.0005	1.85090	1.85070	0.00080	0.00030	MM204K
0.039	1.23	1.22	1.86	1.85	0.9841	0.9843	0.0002	0.0002	2.0472	2.0475	0.000	0.00055	2.04770	2.04750	0.00080	0.00030	MM205K
0.039	1.45	1.44	2.21	2.20	1.1809	1.1811	0.0002	0.0002	2.4409	2.4412	0.000	0.0006	2.44140	2.44120	0.00080	0.00030	MM206K
0.039	1.68	1.66	2.57	2.55	1.3778	1.3780	0.0002	0.00025	2.8346	2.8349	0.000	0.0006	2.83510	2.83490	0.00080	0.00030	MM207K
0.039	1.88	1.86	2.88	2.86	1.5746	1.5748	0.0002	0.00025	3.1496	3.1499	0.000	0.0006	3.15010	3.14990	0.00080	0.00030	MM208K
0.039	2.08	2.06	3.08	3.06	1.7715	1.7717	0.0002	0.00025	3.3465	3.3468	0.000	0.0006	3.34710	3.34680	0.00090	0.00030	MM209K
0.039	2.28	2.26	3.28	3.26	1.9683	1.9685	0.0002	0.00025	3.5433	3.5436	0.000	0.0006	3.54390	3.54360	0.00090	0.00030	MM210K
0.059	2.51	2.49	3.63	3.61	2.1652	2.1654	0.0002	0.0003	3.9370	3.9373	0.000	0.0006	3.93770	3.93740	0.00100	0.00040	MM211K
0.059	2.75	2.73	3.99	3.97	2.3620	2.3622	0.0002	0.0003	4.3307	4.3310	0.000	0.0006	4.33140	4.33110	0.00100	0.00040	MM212K
0.059	3.00	2.98	4.32	4.30	2.5589	2.5591	0.0002	0.0003	4.7244	4.7247	0.000	0.0006	4.72510	4.72480	0.00100	0.00040	MM213K
0.059	3.18	3.16	4.56	4.54	2.7557	2.7559	0.0002	0.0003	4.9213	4.9216	0.000	0.0007	4.92210	4.92170	0.00120	0.00040	MM214K
0.059	3.39	3.36	4.76	4.73	2.9526	2.9530	0.0002	0.0005	5.1181	5.1185	0.000	0.0007	5.11890	5.11850	0.00110	0.00040	MM215K
0.079	3.60	3.57	5.12	5.09	3.1494	3.1498	0.0002	0.0005	5.5118	5.5122	0.000	0.0007	5.51260	5.51220	0.00110	0.00040	MM216K





MEDIUM
2(3)MM300WI
(ISO 03) SERIES

DIMENSIONAL SERIES
METRIC



D

SUPER PRECISION MM:

Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

WI CONSTRUCTION:

- Incorporates low shoulder on non-thrust side of outer rings.
- Maximum complement of balls separated by one-piece cage piloted against a ground thrust shoulder land of the outer ring.

Bearing Number 2MM or 3MM	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt. kg	(2MM) LOAD RATINGS (steel ball & ceramic ball)			(3MM) LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat)	C _e (dyn)	Limiting Speed ^(Ng)	C ₀ (stat)	C _e (dyn)	Limiting Speed ^(Ng)
METRIC	mm/tol: +0; -(µm)			mm	kg	N		RPM	N		RPM
301WI	12 (4)	37 (6)	12 (80)	8 x 7.14	0.061	4700 4230	11000 11000	47600 57100	4600 4060	10900 10900	42800 51400
302WI	15 (4)	42 (6)	13 (80)	10 x 6.75	0.087	5810 5170	12900 12900	38100 45700	5600 5000	11600 11600	34300 41200
303WI	17 (4)	47 (6)	14 (80)	7 x 9.53	0.104	7280 6480	16900 16900	36800 44200	7100 6300	16400 16400	33100 39700
304WI	20 (5)	52 (7)	15 (120)	8 x 10.32	0.137	10000 8900	21500 21500	32200 38600	9650 8590	20900 20900	29000 34800
305WI	25 (5)	62 (7)	17 (120)	9 x 11.91	0.221	15300 13600	30500 30500	26200 31400	14800 13200	29500 29500	23600 28300
306WI	30 (5)	72 (7)	19 (120)	10 x 13.49	0.328	22200 19800	34120 34120	22100 26500	21500 19100	39900 39900	19900 23900
307WI	35 (6)	80 (7)	21 (120)	10 x 14.29	0.443	25600 22800	46200 46200	19200 23000	24700 22000	44500 44500	17300 20800
308WI	40 (6)	90 (8)	23 (120)	11 x 15.88	0.608	35000 31200	59700 59700	16900 20300	38900 30100	57500 57500	15200 18200
309WI	45 (6)	100 (8)	25 (120)	10 x 17.46	0.809	38700 34500	66500 66500	15100 18100	37400 33300	64100 64100	13600 16300
310WI	50 (6)	110 (8)	27 (120)	10 x 19.05	1.046	46200 41200	77900 77900	13600 16300	44700 39800	75100 75100	12200 14600
311WI	55 (7)	120 (8)	29 (150)	10 x 20.64	1.332	54600 48600	90200 90200	12400 14900	52600 46800	86700 86700	11200 13400
312WI	60 (7)	130 (9)	31 (150)	10 x 22.23	1.665	63500 56600	103100 103100	11400 13700	61100 54400	99100 99100	10300 12400
313WI	65 (7)	140 (9)	33 (150)	11 x 23.81	2.101	80500 71700	124400 124400	10500 12600	77400 68900	119700 119700	9500 11400
314WI	70 (7)	150 (9)	35 (150)	11 x 25.40	2.548	91900 81800	139900 139900	9800 11800	88300 78500	134500 134500	8800 10600
319WI	95 (7)	200 (10)	45 (200)	10 x 34.93	5.587	155900 138800	204400 204400	7400 8900	150400 133900	196800 196800	6700 8000

^(Ng) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.

⁽¹⁾ Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

⁽²⁾ ABMA STD 20 (r_{as} max).

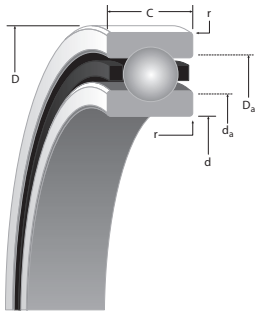
r Rad. ⁽²⁾	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				Bearing Number 2MM or 3MM
	d _a (Shaft)		D _a (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits (Stationary)		Housing Bore		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Tight	Loose	Max.	Min.	Max.	Min.	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1	17.7	17.4	32.1	31.9	11.995	12.000	0.005	0.004	37.000	37.006	0.000	0.012	37.010	37.005	0.016	0.005	301WI
1	22.2	22.0	35.7	35.4	14.995	15.000	0.005	0.004	42.000	42.006	0.000	0.012	42.010	42.005	0.016	0.005	302WI
1	22.7	22.5	42.0	41.8	16.995	17.000	0.005	0.004	47.000	47.006	0.000	0.012	47.012	47.007	0.018	0.007	303WI
1	30.1	29.9	46.6	46.4	19.995	20.000	0.005	0.005	52.000	52.006	0.000	0.013	52.012	52.007	0.019	0.007	304WI
1	32.1	31.9	55.8	55.5	24.995	25.000	0.005	0.005	62.000	62.008	0.000	0.015	62.012	62.007	0.019	0.007	305WI
1	37.7	37.5	65.2	64.9	29.995	30.000	0.005	0.005	72.000	72.008	0.000	0.015	72.011	72.007	0.019	0.007	306WI
1.5	43.7	43.2	72.1	71.6	34.995	35.000	0.005	0.006	80.000	80.008	0.000	0.015	80.012	80.008	0.020	0.008	307WI
1.5	49.8	49.3	81.3	80.8	39.995	40.000	0.005	0.006	90.000	90.008	0.000	0.016	90.015	90.007	0.023	0.007	308WI
1.5	55.9	55.4	90.2	89.7	44.995	45.000	0.005	0.006	100.000	100.008	0.000	0.016	100.018	100.010	0.025	0.010	309WI
2	61.2	60.7	99.8	99.3	49.995	50.000	0.005	0.006	110.000	110.008	0.000	0.016	110.018	110.010	0.025	0.010	310WI
2	67.3	66.8	108.7	108.2	54.995	55.000	0.005	0.007	120.000	120.008	0.000	0.016	120.018	120.010	0.025	0.010	311WI
2	43.2	72.6	117.9	117.3	59.995	60.000	0.005	0.007	130.000	130.009	0.000	0.018	130.020	130.010	0.029	0.010	312WI
2	80.3	79.8	126.8	126.2	64.995	65.000	0.005	0.007	140.000	140.009	0.000	0.018	140.020	140.010	0.029	0.010	313WI
2	85.3	84.8	135.6	135.1	69.995	70.000	0.005	0.007	150.000	150.009	0.000	0.018	150.023	150.012	0.032	0.012	314WI
3	113.2	112.4	183.3	182.5	94.995	95.000	0.005	0.013	200.00	200.011	0.000	0.022	200.025	200.015	0.036	0.015	319WI





**MEDIUM
2(3)MM300WI
(ISO 03) SERIES**

**DIMENSIONAL SERIES
INCHES**



Bearing Number 2MM or 3MM	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt.	(2MM) LOAD RATINGS (steel ball & ceramic ball)			(3MM) LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat)	C _e (dyn)	Limiting Speed ^(N_g)	C ₀ (stat)	C _e (dyn)	Limiting Speed ^(N_g)
INCH	in/100: +0; -0.000(µm)			in.	lbs.	lbs.		RPM	lbs.		RPM
301WI	0.4724 (1.5)	1.4567 (2.5)	0.4724 (31)	8 x 9/32	0.13	1,060 950	2450 2450	47600 57100	1040 920	2450 2450	42800 51400
302WI	0.5906 (1.5)	1.6535 (2.5)	0.5118 (31)	10 x 17/64	0.19	1320 1160	2700 2700	38100 45700	1270 1120	2600 2600	34300 41200
303WI	0.6693 (1.5)	1.8504 (2.5)	0.5512 (31)	7 x 3/8	0.23	1630 1460	3900 3900	36800 44100	1600 1420	3690 3690	33100 39700
304WI	0.7874 (2)	2.0472 (3)	0.5906 (47)	8 x 13/32	0.30	2200 2000	4840 4840	32200 38600	2160 1930	4700 4700	29000 34800
305WI	0.9843 (2)	2.4409 (3)	0.6693 (47)	9 x 15/32	0.49	3450 3060	6850 6850	26200 31400	3350 2970	6630 6630	23600 28300
306WI	1.1811 (2)	2.8346 (3)	0.748 (47)	10 x 17/32	0.72	4990 4440	9270 9270	22100 26500	4820 4290	8960 8960	19900 23900
307WI	1.378 (2.5)	3.1496 (3)	0.8268 (47)	10 x 9/16	0.98	5700 5130	10400 10400	19200 23000	5600 4940	10000 10000	17300 20800
308WI	1.5748 (2.5)	3.5433 (3)	0.9055 (47)	11 x 5/8	1.34	7800 7010	13400 13400	16900 20300	7600 6770	12900 12900	15200 18200
309WI	1.7717 (2.5)	3.937 (3)	0.9843 (47)	10 x 11/16	1.78	8650 7750	15000 15000	15100 18100	8500 7480	14400 14400	13600 16300
310WI	1.9685 (2.5)	4.3307 (3)	1.063 (47)	10 x 3/4	2.31	10400 9250	17500 17500	13600 16300	10000 8940	16900 16900	12200 14600
311WI	2.1654 (3)	4.7244 (3)	1.1417 (59)	10 x 13/16	2.94	12200 10900	20300 20300	12400 14900	11800 10500	19500 19500	11200 13400
312WI	2.3622 (3)	5.1181 (3.5)	1.2205 (59)	10 x 7/8	3.67	14300 12700	23200 23200	11400 13700	13700 12200	22300 22300	10300 12400
313WI	2.5591 (3)	5.5118 (3.5)	1.2992 (59)	11 x 15/16	4.63	18000 16100	28000 28000	10500 12600	17300 15500	26900 26900	9500 11400
314WI	2.7559 (3)	5.9055 (3.5)	1.378 (59)	11 x 1	5.62	20800 18400	31500 31500	9800 11800	20000 17700	30200 30200	8800 10600
319WI	3.7402 (3)	7.8740 (4)	1.7717 (79)	10 x 1 3/8	12.32	35100 31200	46000 46000	7400 8900	33800 30100	44200 44200	6700 8000

SUPER PRECISION MM:
Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

WI CONSTRUCTION:

- Incorporates low shoulder on non-thrust side of outer rings.
- Maximum complement of balls separated by one-piece cage piloted against a ground thrust shoulder land of the outer ring.

^(N_g) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.
⁽¹⁾ Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").
⁽²⁾ ABMA STD 20 (r_{as} max).

r Rad. ⁽²⁾	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				Bearing Number 2MM or 3MM
	d _a (Shaft)		D _a (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits		Housing Bore (Stationary)		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Might	Loose	Max.	Min.	Max.	Min.	
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
0.039	0.7	0.69	1.27	1.26	0.4722	0.4724	0.0002	0.00015	1.4567	1.4570	0.000	0.0005	1.45710	1.45690	0.00070	0.00020	301WI
0.039	0.88	0.87	1.41	1.4	0.5904	0.5906	0.0002	0.00015	1.6535	1.6538	0.000	0.0005	1.65390	1.65370	0.00070	0.00020	302WI
0.039	0.9	0.89	1.66	1.65	0.6691	0.6693	0.0002	0.00015	1.8504	1.8507	0.000	0.0005	1.85090	1.85070	0.00080	0.00030	303WI
0.039	1.19	1.18	1.84	1.83	0.7872	0.7874	0.0002	0.00020	2.0472	2.0475	0.000	0.00055	2.04770	2.04750	0.00080	0.00030	304WI
0.039	1.27	1.26	2.2	2.19	0.9841	0.9843	0.0002	0.00020	2.4409	2.4412	0.000	0.0006	2.44140	2.44120	0.00080	0.00030	305WI
0.039	1.49	1.48	2.57	2.56	1.1809	1.1811	0.0002	0.00020	2.8346	2.8349	0.000	0.0006	2.83510	2.83490	0.00080	0.00030	306WI
0.059	1.72	1.7	2.84	2.82	1.3778	1.3780	0.0002	0.00025	3.1496	3.1499	0.000	0.0006	3.15010	3.14990	0.00080	0.00030	307WI
0.059	1.96	1.94	3.2	3.18	1.5746	1.5748	0.0002	0.00025	3.5433	3.5436	0.000	0.0006	3.54390	3.54360	0.00090	0.00030	308WI
0.059	2.2	2.18	3.55	3.53	1.7715	1.7717	0.0002	0.00025	3.9370	3.9373	0.000	0.0006	3.93770	3.93740	0.00100	0.00040	309WI
0.079	2.41	2.39	3.93	3.91	1.9683	1.9685	0.0002	0.00025	4.3307	4.3310	0.000	0.0006	4.33140	4.33110	0.00100	0.00040	310WI
0.079	2.65	2.63	4.28	4.26	2.1652	2.1654	0.0002	0.00030	4.7244	4.7247	0.000	0.0006	4.72510	4.72480	0.00100	0.00040	311WI
0.079	2.88	2.86	4.64	4.62	2.3620	2.3622	0.0002	0.00030	5.1181	5.1185	0.000	0.0007	5.11890	5.11850	0.00110	0.00040	312WI
0.079	3.16	3.14	4.99	4.97	2.5589	2.5591	0.0002	0.00030	5.5118	5.5122	0.000	0.0007	5.51260	5.51220	0.00110	0.00040	313WI
0.079	3.36	3.34	5.34	5.32	2.7557	2.7559	0.0002	0.00030	5.9055	5.9059	0.000	0.0007	5.90640	5.90600	0.00120	0.00050	314WI





**MEDIUM
2(3)MM300WI
(ISO 03) SERIES**

**DUPLEX
PERFORMANCE DATA**

MOUNTING ARRANGEMENTS



**Suggested
DB**



**Tandem
DT**



**Special Applications
DF**

Bearing Number 2MM or 3MM	PRELOAD				AXIAL STIFFNESS ⁽¹⁾				RADIAL STIFFNESS ⁽¹⁾			SPACER OFFSETS ⁽¹⁾		
	DUX	DUL	DUM	DUH	X-light	Light	Medium	Heavy	Light	Medium	Heavy	X-Light to Light	Light to Medium	Medium to Heavy
	N				N/μm				N/μm			μm		

METRIC DUPLEX PERFORMANCE DATA 2MM300WI SERIES

2MM301WI	—	20	70	180	—	17.49	27.81	44.25	98.82	153.56	183.30	—	7.87	12.45
2MM302WI	20	40	110	220	—	27.46	40.93	57.19	143.24	164.93	205.51	—	7.87	9.14
2MM303WI	40	70	160	310	—	26.58	38.83	54.57	147.44	197.46	263.05	—	10.92	13.46
2MM304WI	40	90	220	400	—	33.06	49.85	66.46	181.72	232.97	289.81	—	12.95	121.92
2MM305WI	90	160	330	620	—	46.17	65.24	88.50	247.83	283.16	340.88	—	12.7	14.99
2MM306WI	90	180	440	780	—	49.50	74.68	98.47	271.27	303.10	405.77	—	17.27	15.49
2MM307WI	110	220	560	1000	—	55.97	85.18	114.38	323.91	388.10	478.70	—	18.8	17.78
2MM308WI	130	290	670	1220	—	64.71	94.62	127.85	364.67	392.65	489.20	—	19.05	20.07
2MM309WI	180	330	780	1560	—	70.13	103.02	145.17	393.18	472.58	588.36	—	20.57	25.15
2MM310WI	220	440	1000	1780	—	81.15	117.36	156.01	366.24	496.89	637.86	—	22.35	22.86
2MM311WI	270	560	1110	2110	—	88.15	121.38	167.20	382.86	582.42	724.61	—	21.34	27.69
2MM312WI	270	560	1330	2450	—	89.72	133.80	180.85	456.31	632.26	802.44	—	27.94	28.19
2MM313WI	330	670	1670	3000	—	104.24	157.93	211.28	511.76	668.64	846.52	—	30.48	28.96
2MM314WI	400	780	1890	3450	—	110.89	166.33	224.22	519.80	703.80	876.25	—	32.26	32.00
2MM319WI	670	1330	3110	6230	—	140.44	206.03	290.33	726.88	932.74	1183.02	—	41.05	50.24

Bearing Number 2MM or 3MM	PRELOAD				AXIAL STIFFNESS ⁽¹⁾				RADIAL STIFFNESS ⁽¹⁾			SPACER OFFSETS ⁽¹⁾		
	DUX	DUL	DUM	DUH	X-light	Light	Medium	Heavy	Light	Medium	Heavy	X-Light to Light	Light to Medium	Medium to Heavy
	N				N/μm				N/μm			μm		

METRIC DUPLEX PERFORMANCE DATA 3MM300WI SERIES

3MM301WI	40	90	180	310	—	58.59	76.61	96.37	94.10	135.90	169.48	—	5.33	6.10
3MM302WI	40	90	180	360	—	66.46	86.75	115.08	115.96	160.21	199.39	—	4.57	7.11
3MM303WI	40	110	270	440	—	63.66	89.02	109.49	132.92	204.46	223.87	—	8.13	7.11
3MM304WI	90	160	360	620	—	79.23	108.96	136.77	159.51	220.02	253.26	—	8.38	8.64
3MM305WI	110	220	530	890	—	101.62	142.19	174.90	189.59	258.50	303.98	—	10.16	8.89
3MM306WI	135	270	670	1110	—	112.29	159.33	196.06	227.02	306.77	356.10	—	11.68	9.91
3MM307WI	180	360	850	1560	—	134.85	187.84	241.01	267.42	360.99	428.33	—	12.19	13.21
3MM308WI	220	440	1110	1780	—	150.41	214.08	259.20	275.64	372.71	423.96	—	14.48	11.18
3MM309WI	270	530	1330	2220	—	165.98	235.94	290.51	332.14	448.44	520.50	—	15.75	13.46
3MM310WI	310	620	1560	2670	—	178.75	254.13	316.57	360.12	486.22	568.25	—	17.27	15.49
3MM311WI	400	780	1780	3110	—	198.16	272.32	342.10	407.34	549.71	634.36	—	17.02	17.27
3MM312WI	450	890	2000	3560	—	213.38	291.21	367.81	450.02	607.43	695.05	—	17.53	18.80
3MM313WI	560	1110	2670	4450	—	249.23	348.93	429.55	474.50	640.48	740.18	—	20.83	18.29
3MM314WI	620	1220	2890	5120	—	262.52	365.02	460.34	492.87	665.67	772.53	—	21.08	21.59
3MM319WI	1070	2110	4890	8900	—	328.81	453.52	578.22	655.70	824.65	1029.29	—	28.19	30.99

Notes: ⁽¹⁾ For DB or DF arrangements only. For other mounting arrangements contact your Timken representative.

MEDIUM 2(3)MM300WI (ISO 03) SERIES

SPEED CAPABILITY DATA

Bearing Number	Grease Capacity		Kluber Isoflex		Operating Speeds ⁽²⁾			(DB Mounting) ⁽¹⁾		
	NBU15		NBU15		DUL	Grease DUM	DUH	DUL	Oil DUM	DUH
	25%	40%	15%	20%						
2MM300WI SERIES										
2MM301WI	0.6	1.0	0.40	0.53	35700	28600	19000	60700	48600	32400
2MM302WI	0.7	1.2	0.49	0.65	28600	22900	15200	48600	38900	25900
2MM303WI	1.2	2.0	0.83	1.10	27600	22100	14700	46900	37500	25000
2MM304WI	1.5	2.5	1.03	1.38	24200	19300	12900	41100	32800	21900
2MM305WI	2.3	3.8	1.57	2.09	19700	15700	10500	33400	26700	17800
2MM306WI	3.5	5.6	2.35	3.14	16600	13300	8800	28200	22500	15000
2MM307WI	4.6	7.4	3.07	4.10	14400	11500	7700	24500	19600	13100
2MM308WI	6.4	10.2	4.25	5.66	12700	10100	6800	21500	17200	11500
2MM309WI	8.5	13.6	5.68	7.58	11300	9100	6000	19300	15400	10300
2MM310WI	11.1	17.8	7.40	9.90	10200	8200	5400	17300	13900	9200
2MM311WI	14.2	22.7	9.50	12.60	9300	7400	5000	15800	12600	8400
2MM312WI	17.7	28.3	11.80	15.80	8600	6800	4600	14500	11600	7800
2MM313WI	20.7	33.2	13.80	18.50	7900	6300	4200	13400	10700	7100
2MM314WI	25.2	40.3	16.80	22.40	7400	5900	3900	12500	10000	6700
2MM319WI	60.9	97.4	40.60	54.10	5600	4400	3000	9400	7500	5000
3MM300WI SERIES										
3MM301WI	0.6	1.0	0.40	0.53	32130	25740	17100	54630	43740	29160
3MM302WI	0.7	1.2	0.49	0.65	25740	20610	13680	43740	35010	23310
3MM303WI	1.2	2.0	0.83	1.10	24840	19890	13230	42210	33750	22500
3MM304WI	1.5	2.5	1.03	1.38	21780	17370	11610	36990	29520	19710
3MM305WI	2.3	3.8	1.57	2.09	17730	14130	9450	30060	24030	16020
3MM306WI	3.5	5.6	2.35	3.14	14940	11970	7920	25380	20250	13500
3MM307WI	4.6	7.4	3.07	4.10	12960	10350	6930	22050	17640	11790
3MM308WI	6.4	10.2	4.25	5.66	11430	9090	6120	19350	15480	10350
3MM309WI	8.5	13.6	5.68	7.58	10170	8190	5400	17370	13860	9270
3MM310WI	11.1	17.8	7.40	9.90	9180	7380	4860	15570	12510	8280
3MM311WI	14.2	22.7	9.50	12.60	8370	6660	4500	14220	11340	7560
3MM312WI	17.7	28.3	11.80	15.80	7740	6120	4140	13050	10440	7020
3MM313WI	20.7	33.2	13.80	18.50	7110	5670	3780	12060	9630	6390
3MM314WI	25.2	40.3	16.80	22.40	6660	5310	3510	11250	9000	6030
3MM319WI	60.9	97.4	40.60	54.10	5040	3960	2700	8460	6750	4500

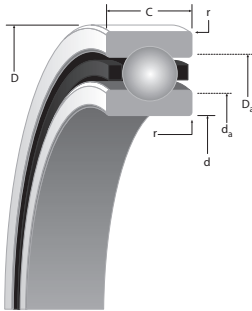
⁽¹⁾ For other mounting arrangement configurations refer to the engineering section on Permissible Speed calculation methods.

⁽²⁾ For ceramic ball complements use 120% of speeds shown.



**MEDIUM
MM300K
(ISO 03) SERIES**

**DIMENSIONAL SIZES
METRIC / INCH**



SUPER PRECISION MM:

Running accuracy and performance meet ABEC 9 (ISO P2) levels. Non-critical features conform to ABEC 7 (ISO P4) requirements.

CONRAD CONSTRUCTION:

- Maximum complement of balls separated by two-piece land piloted cage.

Bearing Number	d Bore	D O.D.	C Width ⁽¹⁾	Ball Qty. x Dia.	Wt.	LOAD RATINGS (steel ball & ceramic ball)		
						C ₀ (stat) N	C _e (dyn)	Limiting Speed ^(Ng) RPM
METRIC	in./tol: +0; -(µm)			mm	kg	N		RPM
MM305K	25 (5)	62 (7)	17 (130)	7 x 11.9	0.222	12200	26700	26,500
MM306K	30 (5)	72 (7)	19 (130)	7 x 13.5	0.327	15800	34000	22,300
MM307K	35 (6)	80 (7)	21 (130)	7 x 14.3	0.431	18500	37800	19,400
MM308K	40 (6)	90 (8)	23 (130)	8 x 15.9	0.594	22700	46300	17,100
MM309K	45 (6)	100 (8)	25 (130)	8 x 17.5	0.807	31600	59600	15,200
MM310K	50 (6)	110 (8)	27 (130)	8 x 19.1	1.052	37800	69400	13,800
MM311K	55 (7)	120 (8)	29 (150)	8 x 20.6	1.329	44500	81400	12,500
MM312K	60 (7)	130 (9)	31 (150)	8 x 22.2	1.665	51600	92500	11,500
MM313K	65 (7)	140 (9)	33 (150)	8 x 23.8	2.046	59600	105000	10,700
MM314K	70 (7)	150 (9)	35 (150)	8 x 25.4	2.486	68100	115600	9,900
INCH	in./tol: +0; -.000(X)			in.	lbs.	lbs.		RPM
MM305K	0.9843 (2)	2.4409 (3)	0.6693 (47)	7 x ¹⁵ / ₃₂	0.49	2750	6000	26,500
MM306K	1.1811 (2)	2.8346 (3)	0.748 (47)	7 x ¹⁷ / ₃₂	0.72	3550	7650	22,300
MM307K	1.378 (2.5)	3.1496 (3)	0.8268 (47)	7 x ⁹ / ₁₆	0.95	4150	8500	19,400
MM308K	1.5748 (2.5)	3.5433 (3)	0.9055 (47)	8 x ⁵ / ₈	1.31	5100	10400	17,100
MM309K	1.7717 (2.5)	3.937 (3)	0.9843 (47)	8 x ¹¹ / ₁₆	1.78	7100	13400	15,200
MM310K	1.9685 (2.5)	4.3307 (3)	1.063 (47)	8 x ³ / ₄	2.32	8500	15600	13,800
MM311K	2.1654 (3)	4.7244 (3)	1.1417 (59)	8 x ¹³ / ₁₆	2.93	10000	18300	12,500
MM312K	2.3622 (3)	5.1181 (3.5)	1.2205 (59)	8 x ⁷ / ₈	3.67	11600	20800	11,500
MM313K	2.5591 (3)	5.5118 (3.5)	1.2992 (59)	8 x ¹⁵ / ₁₆	4.51	13400	23600	10,700
MM314K	2.7559 (3)	5.9055 (3.5)	1.378 (59)	8 x 1	5.48	15300	26000	9,900

^(Ng) For a single, grease lubricated, spring preloaded bearing. This value to be used in permissible Operating Speed (Sp) calculation.

⁽¹⁾ Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

⁽²⁾ ABMA STD 20 (r_{as} max).

r Rad. ⁽²⁾	Suggested Shoulder Diameters				Shaft Diameter		Mounting Fits		FIXED				FLOATING				
	d _a (Shaft)		D _a (Housing)		Min.	Max.	Loose	Tight	Housing Bore (Stationary)		Mounting Fits		Housing Bore (Stationary)		Housing Clearance		
	Max.	Min.	Max.	Min.					Min.	Max.	Tight	Loose	Max.	Min.	Max.	Min.	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm.	mm.	mm.	mm.	
1	32.1	31.9	55.8	55.5	24.995	25.000	0.005	0.005	62	62.008	0.000	0.015	62.012	62.007	0.019	0.007	MM305K
1	37.7	37.5	65.2	64.9	29.995	30.000	0.005	0.005	72	72.008	0.000	0.015	72.011	72.007	0.019	0.007	MM306K
1.5	43.7	43.2	72.1	71.6	34.995	35.000	0.005	0.006	80	80.008	0.000	0.015	80.012	80.008	0.020	0.008	MM307K
1.5	49.8	49.3	81.3	80.8	39.995	40.000	0.005	0.006	90	90.008	0.000	0.016	90.015	90.007	0.023	0.007	MM308K
1.5	55.9	55.4	90.2	89.7	44.995	45.000	0.005	0.006	100	100.008	0.000	0.016	100.018	100.010	0.025	0.010	MM309K
1.5	61.2	60.7	99.8	99.3	49.995	50.000	0.005	0.006	110	110.008	0.000	0.016	110.018	110.010	0.025	0.010	MM310K
2	67.3	66.8	108.7	108.2	54.995	55.000	0.005	0.007	120	120.008	0.000	0.016	120.018	120.010	0.025	0.010	MM311K
2	43.2	72.6	117.9	117.3	59.995	60.000	0.005	0.007	130	130.009	0.000	0.018	130.020	130.010	0.029	0.010	MM312K
2	80.3	79.8	126.8	126.2	64.995	65.000	0.005	0.007	140	140.009	0.000	0.018	140.020	140.010	0.029	0.010	MM313K
2	85.3	84.8	135.6	135.1	69.995	70.000	0.005	0.007	150	150.009	0.000	0.018	150.023	150.012	0.032	0.012	MM314K
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
0.039	1.27	1.26	2.2	2.19	0.9841	0.9843	0.0002	0.0002	2.4409	2.4412	0.0000	0.0006	2.44140	2.44120	0.00080	0.0003	MM305K
0.039	1.49	1.48	2.57	2.56	1.1809	1.1811	0.0002	0.0002	2.8346	2.8349	0.0000	0.0006	2.83510	2.83490	0.00080	0.0003	MM306K
0.059	1.72	1.7	2.84	2.82	1.3778	1.3780	0.0002	0.00025	3.1496	3.1499	0.0000	0.0006	3.15010	3.14990	0.00080	0.0003	MM308K
0.059	1.96	1.94	3.2	3.18	1.5746	1.5748	0.0002	0.00025	3.5433	3.5436	0.0000	0.0006	3.54390	3.54360	0.00090	0.0003	MM308K
0.059	2.2	2.18	3.55	3.53	1.7715	1.7717	0.0002	0.00025	3.9370	3.9373	0.0000	0.0006	3.93770	3.93740	0.00100	0.0004	MM309K
0.059	2.41	2.39	3.93	3.91	1.9683	1.9685	0.0002	0.00025	4.3307	4.3310	0.0000	0.0006	4.33140	4.33110	0.00100	0.0004	MM310K
0.079	2.65	2.63	4.28	4.26	2.1652	2.1654	0.0002	0.0003	4.7244	4.7247	0.0000	0.0006	4.72510	4.72480	0.00100	0.0004	MM311K
0.079	2.88	2.86	4.64	4.62	2.3620	2.3622	0.0002	0.0003	5.1181	5.1185	0.0000	0.0007	5.11890	5.11850	0.00110	0.0004	MM312K
0.079	3.16	3.14	4.99	4.97	2.5589	2.5591	0.0002	0.0003	5.5118	5.5122	0.0000	0.0007	5.51260	5.51220	0.00110	0.0004	MM313K
0.079	3.36	3.34	5.34	5.32	2.7557	2.7559	0.0002	0.0003	5.9055	5.9059	0.0000	0.0007	5.90640	5.90600	0.00120	0.00050	MM314K

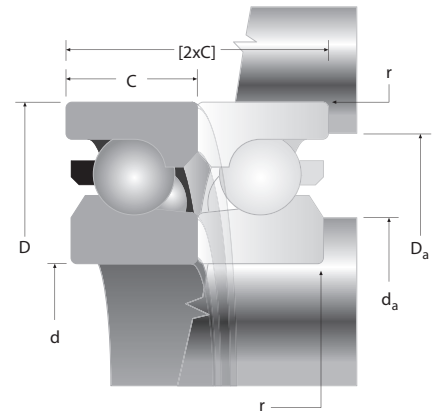




BALL SCREW SUPPORT SERIES

DIMENSIONAL SIZES – METRIC SERIES (METRIC UNITS)

- Designed for maximum axial rigidity, low drag torque, and extreme control of lateral eccentricity.
- Manufactured to ABEC 9 axial tolerances.
- Nonseparable angular-contact type design (60° contact angle).
- Manufactured to ABEC 7 radial and envelope tolerances.
- Maximum complement of balls.
- Supplied prelubricated with heavy-duty grease NLGI #2.
- Packaged in DB arrangement [can be mounted in duplexed pairs and in multiplexed sets in either Back-to-Back (DB), Face-to-Face (DF) or Tandem (DT) arrangements].



Bearing Number	d	D	C	Wt.	Ball Qty. x Dia.	r Rad. ⁽²⁾	d _a (Shaft)		D _a (Housing)		Shaft Dia.		Housing Dia.	
	Bore	O.D.	Width ⁽¹⁾				Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
METRIC	mm/toI: +0; -(µm)			kg	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
MM12BS32	12 (4)	32 (6)	10 (80)	.04	11 x 4.8	0.8	17.63	17.37	26.63	26.37	11.996	11.992	32.006	32
MM15BS35	15 (4)	35 (6)	11 (80)	.05	13 x 4.8	0.8	20.63	20.37	29.63	29.37	14.996	14.992	35.006	35
MM17BS47	17 (4)	47 (6)	15 (80)	.13	12 x 7.9	0.8	23.13	22.87	41.63	41.37	16.996	16.992	47.006	47
MM20BS47	20 (5)	47 (6)	15 (120)	.12	12 x 7.9	0.8	26.13	25.87	41.63	41.37	19.995	19.99	47.006	47
MM25BS52	25 (5)	52 (7)	15 (120)	.14	13 x 7.9	0.8	31.63	31.37	43.63	43.37	24.995	24.99	52.007	52
MM25BS62	25 (5)	62 (7)	15 (120)	.23	17 x 7.9	0.8	35.13	34.87	56.13	55.87	24.995	24.99	62.007	62
MM30BS62	30 (5)	62 (7)	15 (120)	.21	17 x 7.9	0.8	40.13	39.87	56.13	55.87	29.995	29.99	62.007	62
MM30BS72	30 (5)	72 (7)	15 (120)	.32	18 x 8.7	0.8	40.13	39.87	56.13	55.87	29.995	29.99	72.007	72
MM35BS72	35 (6)	72 (7)	15 (120)	.29	18 x 8.7	0.8	42.13	41.87	64.13	63.87	34.994	34.988	72.007	72
MM35BS100	35 (6)	100 (8)	20 (120)	.86	18 x 12.7	0.8	42.13	41.87	90.13	89.87	39.994	39.988	72.007	72
MM40BS72	40 (6)	72 (7)	15 (120)	.25	18 x 8.7	0.8	47.13	46.87	64.13	63.87	44.994	44.988	75.007	75
MM40BS90	40 (6)	90 (8)	15 (120)	.49	24 x 8.7	0.8	47.13	46.87	82.13	81.87	39.994	39.988	90.008	90
MM40BS90-20	40 (6)	90 (8)	20 (120)	.66	24 x 8.7	0.8	47.13	46.87	82.13	81.87	39.994	39.998	90.008	90
MM40BS90-23	40 (6)	90 (8)	23 (120)	.75	24 x 8.7	0.8	47.13	46.87	82.13	81.87	39.994	39.988	90.008	90
MM40BS100	40 (6)	100 (8)	20 (120)	.82	18 x 12.7	0.8	47.13	46.87	90.13	89.87	39.994	39.988	100.007	100
MM45BS75	45 (6)	75 (7)	15 (120)	.25	20 x 8.7	0.8	52.13	51.87	69.13	68.87	39.994	39.988	72.007	72
MM45BS100	45 (6)	100 (8)	20 (120)	.76	18 x 12.7	0.8	54.13	53.87	90.13	89.87	44.994	44.988	100.008	100
MM50BS90	50 (6)	90 (8)	15 (120)	.41	24 x 8.7	0.8	59.13	58.87	82.13	81.87	49.994	49.988	90.008	90
MM50BS100	50 (6)	100 (8)	20 (120)	.71	18 x 12.7	0.8	59.13	58.87	90.13	89.87	49.994	49.988	100.008	100
MM55BS90	55 (7)	90 (8)	15 (150)	.36	24 x 8.7	0.8	63.13	62.87	82.13	81.87	54.993	54.986	90.008	90
MM55BS120	55 (7)	120 (8)	20 (150)	1.14	21 x 12.7	1	65.13	64.87	110.13	109.87	54.993	54.986	120.008	120
MM60BS120	60 (7)	120 (8)	20 (150)	1.06	21 x 12.7	1	70.13	69.87	110.13	109.87	59.993	59.986	120.008	120
MM75BS110	75 (7)	110 (8)	15 (150)	.46	30 x 8.7	0.8	84.13	83.87	102.13	101.87	74.993	74.986	110.008	110
MM100BS150	100 (8)	150 (9)	20 (200)	1.28	26 x 12.7	1	110.13	109.87	138.13	137.87	99.992	99.984	150.009	150

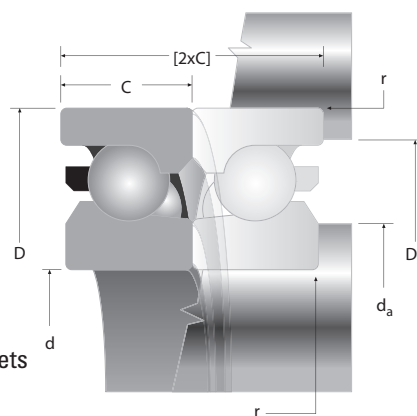
(1) Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

(2) ABMA STD 20 (r_{as} max).

BALL SCREW SUPPORT SERIES

DIMENSIONAL SIZES – METRIC SERIES (INCH UNITS)

- Designed for maximum axial rigidity, low drag torque, and extreme control of lateral eccentricity.
- Manufactured to ABEC 9 axial tolerances.
- Nonseparable angular-contact type design (60° contact angle).
- Manufactured to ABEC 7 radial and envelope tolerances.
- Maximum complement of balls.
- Supplied prelubricated with heavy-duty grease NLGI #2.
- Packaged in DB arrangement [can be mounted in duplexed pairs and in multiplexed sets in either Back-to-Back (DB), Face-to-Face (DF) or Tandem (DT) arrangements].



Bearing Number	d	D	C	Wt. ⁽³⁾	Ball Qty. x Dia.	r	d _a (Shaft)		D _a (Housing)		Shaft Dia.		Housing Dia.	
	Bore	O.D.	Width ⁽¹⁾				Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
INCH	mm/tol: +0; -(µm)			lbs.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
MM12BS32	0.4724 (1.5)	1.2598 (2.5)	0.3937 (31)	0.09	11 x 3/16	0.031	0.6941	0.6839	1.0484	1.0382	0.4723	0.4721	1.2601	1.2598
MM15BS35	0.5906 (1.5)	1.3780 (2.5)	0.4331 (31)	0.11	13 x 3/16	0.031	0.8122	0.8020	1.1665	1.1563	0.5904	0.5902	1.3782	1.3780
MM17BS47	0.6693 (1.5)	1.8504 (2.5)	0.5906 (31)	0.29	12 x 5/32	0.031	0.9106	0.9004	1.6390	1.6287	0.6691	0.6690	1.8506	1.8504
MM20BS47	0.7874 (2)	1.8504 (2.5)	0.5906 (47)	0.26	12 x 5/32	0.031	1.0287	1.0185	1.6390	1.6287	0.7872	0.7870	1.8506	1.8504
MM25BS52	0.9843 (2)	2.0472 (3)	0.5906 (47)	0.37	13 x 5/32	0.031	1.2453	1.2350	1.7177	1.7075	0.9841	0.9839	2.0475	2.0472
MM25BS62	0.9843 (2)	2.4409 (3)	0.5906 (47)	0.51	17 x 5/32	0.031	1.3831	1.3728	2.2098	2.1996	0.9841	0.9839	2.4412	2.4409
MM30BS62	1.1811 (2)	2.4409 (3)	0.5906 (47)	0.46	17 x 5/32	0.031	1.5799	1.5697	2.2098	2.1996	1.1809	1.1807	2.4412	2.4409
MM30BS72	1.1811 (2)	2.8346 (3)	0.5906 (47)	0.71	18 x 11/32	0.031	1.5799	1.5697	2.2098	2.1996	1.1809	1.1807	2.8349	2.8346
MM35BS72	1.3780 (2.5)	2.8346 (3)	0.5906 (47)	0.64	18 x 11/32	0.031	1.6587	1.6484	2.5248	2.5146	1.3777	1.3775	2.8349	2.8346
MM35BS100	1.3780 (2.5)	3.9370 (3)	0.7874 (47)	1.90	18 x 1/2	0.031	1.6587	1.6484	3.5484	3.5382	1.3777	1.3775	3.9373	3.9370
MM40BS72	1.5748 (2.5)	2.8346 (3)	0.5906 (47)	0.55	18 x 11/32	0.031	1.8555	1.8453	2.5248	2.5146	1.5746	1.5743	2.8349	2.8346
MM40BS90	1.5748 (2.5)	3.5433 (3)	0.5906 (47)	1.08	24 x 11/32	0.031	1.8555	1.8453	3.2335	3.2232	1.5746	1.5743	3.5436	3.5433
MM40BS90-20	1.5748 (2.5)	3.5433 (3)	0.7874 (47)	1.46	24 x 11/32	0.031	1.8555	1.8453	3.2335	3.2232	1.5746	1.5743	3.5436	3.5433
MM40BS90-23	1.5748 (2.5)	3.5433 (3)	0.9055 (47)	1.65	24 x 11/32	0.031	1.8555	1.8453	3.2335	3.2232	1.5746	1.5743	3.5436	3.5433
MM40BS100	1.5748 (2.5)	3.9370 (3)	0.7874 (47)	1.81	18 x 1/2	0.031	1.8555	1.8453	3.5484	3.5382	1.5746	1.5743	3.9373	3.9370
MM45BS75	1.7717 (2.5)	2.9528 (3)	0.5906 (47)	0.55	20 x 11/32	0.031	2.0524	2.0421	2.7217	2.7114	1.7714	1.7712	2.9530	2.9528
MM45BS100	1.7717 (2.5)	3.9370 (3)	0.7874 (47)	1.68	18 x 1/2	0.031	2.1311	2.1209	3.5484	3.5382	1.7714	1.7712	3.9373	3.9370
MM50BS90	1.9685 (2.5)	3.5433 (3)	0.5906 (47)	0.90	24 x 11/32	0.031	2.3280	2.3177	3.2335	3.2232	1.9683	1.9680	3.5436	3.5433
MM50BS100	1.9685 (2.5)	3.9370 (3)	0.7874 (47)	1.57	18 x 1/2	0.031	2.3280	2.3177	3.5484	3.5382	1.9683	1.9680	3.9373	3.9370
MM55BS90	2.1654 (3)	3.5433 (3)	0.5906 (59)	0.79	24 x 11/32	0.031	2.4854	2.4752	3.2335	3.2232	2.1651	2.1648	3.5436	3.5433
MM55BS120	2.1654 (3)	4.7244 (3)	0.7874 (59)	2.51	21 x 1/2	0.039	2.5642	2.5539	4.3358	4.3256	2.1651	2.1648	4.7247	4.7244
MM60BS120	2.3622 (3)	4.7244 (3)	0.7874 (59)	2.34	21 x 1/2	0.039	2.7610	2.7508	4.3358	4.3256	2.3619	2.3617	4.7247	4.7244
MM75BS110	2.9528 (3)	4.3307 (3)	0.5906 (59)	1.01	30 x 11/32	0.031	3.3122	3.3020	4.0209	4.0106	2.9525	2.9522	4.3310	4.3307
MM100BS150	3.9370 (3)	5.9055 (3.5)	0.7874 (79)	2.82	26 x 1/2	0.039	4.3358	4.3256	5.4382	5.4280	3.9367	3.9364	5.9059	5.9055

⁽¹⁾Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").

⁽²⁾ABMA STD 20 (r_{as} max).

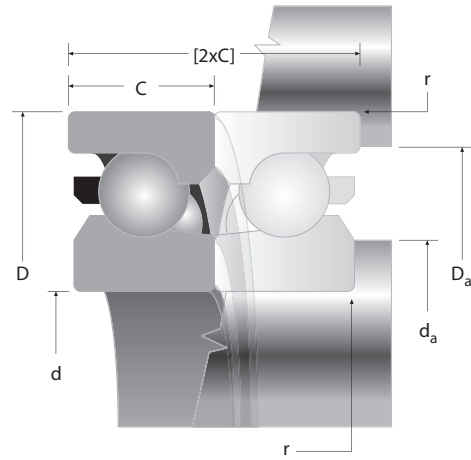
⁽³⁾Single bearing.



BALL SCREW SUPPORT SERIES

DIMENSIONAL SIZES – INCH SERIES

- Designed for maximum axial rigidity, low drag torque, and extreme control of lateral eccentricity.
- Manufactured to ABEC 9 axial tolerances.
- Nonseparable angular-contact type design (60° contact angle).
- Manufactured to ABEC 7 radial and envelope tolerances.
- Maximum complement of balls.
- Supplied prelubricated with heavy-duty grease NLGI #2.
- Packaged in DB arrangement [can be mounted in duplexed pairs and in multiplexed sets in either Back-to-Back (DB), Face-to-Face (DF) or Tandem (DT) arrangements].



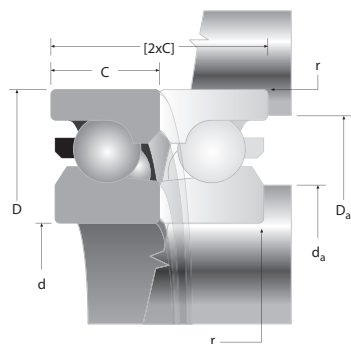
INCHES DIMENSIONAL SIZES - BALL SCREW SUPPORT SERIES

Bearing Number	d Bore	D O.D.	C Width ⁽¹⁾	Wt. ⁽⁴⁾ lbs.	Ball Qty. x Dia. in.	r Rad. ⁽²⁾ in.	d _a (Shaft)		D _a (Housing)		Shaft Dia.		Housing Dia.	
							Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
INCHES	in/100: +0; -0.000(X)						in.	in.	in.	in.	in.	in.	in.	in.
MM9306WI2H	0.7874 (2)	1.8504 (2.5)	0.625 (47)	0.28	12 x 5/16	0.031	1.083	1.073	1.641	1.631	0.7872	0.787	1.8507	1.8504
MM9308WI2H	0.9385 (2)	2.4409 (3)	0.625 (47)	0.56	17 x 5/16	0.031	1.321	1.311	2.179	2.169	0.9383	0.9381	2.4412	2.4409
MM9310WI2H	1.5000 (2.5)	2.8346 (3)	0.6250 (47)	0.62	18 x 11/32	0.031	1.865	1.855	2.479	2.469	1.4997	1.4994	2.8349	2.8346
MM9311WI3H	1.7510 (2.5)	3.0000 (3)	0.6250 (47)	0.63	20 x 11/32	0.031	2.057	2.047	2.672	2.662	1.7507	1.7504	3.0003	3.0000
MM9313WI5H	2.2500 (3)	3.5433 (3)	0.6250 (59)	0.80	24 x 11/32	0.031	2.577	2.567	3.196	3.186	2.2497	2.2494	3.5436	3.5433
MM9316WI3H	3.0000 (3)	4.3307 (3)	0.6250 (59)	1.04	30 x 11/32	0.031	3.380	3.370	4.000	3.990	2.9997	2.9994	4.3310	4.3307
MM9321WI3	4.0000 (3)	5.7087 (3.5)	0.8750 (79)	2.60	37 x 3/8	0.039	4.418	4.408	5.301	5.291	3.9997	3.9994	5.7091	5.7087
MM9326WI6H	5.0000 (3)	7.0866 (4)	0.8750 (98)	3.85	35 x 1/2	0.039	5.669	5.659	6.611	6.601	4.9997	4.9994	7.0870	7.0866
MWTRIC	mm/100: +0; -(mm)			kg	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
MM9306WI2H	20 (5)	47 (6)	15.88 (120)	0.13	12 x 7.9	0.8	27.508	27.254	41.681	41.427	19.995	19.990	47.008	47.000
MM9308WI2H	23.8 (5)	62.0 (7)	15.88 (120)	0.25	17 x 7.9	0.8	33.553	33.299	55.347	55.093	23.833	23.828	62.006	61.999
MM9310WI2H	38.1 (6)	72 (7)	15.88 (120)	0.28	18 x 8.7	0.8	47.371	47.117	62.967	62.713	38.092	38.085	72.006	71.999
MM9311WI3H	44.5 (6)	76.2 (7)	15.88 (120)	0.29	20 x 8.7	0.8	52.248	51.994	67.869	67.615	44.468	44.460	76.208	76.200
MM9313WI5H	57.2 (7)	90 (7)	15.88 (150)	0.36	24 x 8.7	0.8	65.456	65.202	81.178	80.924	57.142	57.135	90.007	90.000
MM9316WI3H	76.2 (7)	110 (7)	15.88 (150)	0.47	30 x 8.7	0.8	85.852	85.598	101.600	101.346	76.192	76.185	110.007	110.000
MM9321WI3	101.6 (7)	145 (9)	22.23 (200)	1.18	37 x 9.5	1	112.217	111.963	134.645	134.391	101.592	101.585	145.011	145.001
MM9326WI6H	127 (7)	180 (10)	22.23 (250)	1.75	35 x 12.7	1	143.993	143.739	167.919	167.665	126.992	126.985	180.010	180.000

(1) Width tolerance of preloaded bearing set +0/-0.25 mm (+0/-0.010").
 (2) Refer to engineering section for width tolerance of preloaded ball screw support bearings.
 (3) ABMA Std. 20 (r_{as} max).
 (4) Single bearing.

BALL SCREW SUPPORT SERIES

PERFORMANCE DATA METRIC SERIES (METRIC UNITS)



Bearing Number	Static Limiting Thrust Capacity ⁽³⁾ T _L N	Dynamic Axial Thrust Load Rating ⁽¹⁾⁽³⁾ C _{ae} N	Max. Speed RPM	Axial Spring Constant ⁽³⁾ N/μm	Drag Torque (preloaded set) N-m	Preload ⁽²⁾⁽³⁾ (Heavy) N
METRIC SERIES - METRIC UNITS - DUH						
MM12BS32DUH	11400	9500	7300	425	0.28	1000
MM15BS35DUH	13700	10400	6400	490	0.30	1200
MM17BS47DUH	24900	24900	4700	750	0.32	3110
MM20BS47DUH	24900	24900	4700	750	0.32	3110
MM25BS52DUH	27100	26000	4300	780	.39	2700
MM25BS62DUH	35600	29800	3300	1050	0.44	4450
MM30BS62DUH	35600	29800	3300	1050	0.44	4450
MM30BS72DUH	45400	36300	2900	1260	0.44	6230
MM35BS72DUH	45400	36300	2900	1260	0.44	6230
MM40BS72DUH	45400	36300	2900	1260	0.44	6230
MM45BS75DUH	50700	38500	2700	1380	0.56	6670
MM40BS90DUH	60900	41400	2200	1660	0.82	8010
MM40BS90-20DUH	60900	41400	2200	1660	.82	8010
MM40BS90-23DUH	60900	41400	2200	1660	.82	8010
MM50BS90DUH	60900	41400	2200	1660	0.82	8010
MM55BS90DUH	60900	41400	2200	1660	0.82	8010
MM35BS100DUH	93400	71200	2000	1750	1.02	12900
MM40BS100DUH	93400	71200	2000	1750	1.02	12900
MM45BS100DUH	93400	71200	2000	1750	1.02	12900
MM50BS100DUH	93400	71200	2000	1750	1.02	12900
MM75BS110DUH	77000	44500	1700	2080	1.00	9790
MM55BS120DUH	133400	75600	1700	2150	1.36	15570
MM60BS120DUH	133400	75600	1700	2150	1.36	15570
MM100BS150DUH	115600	57400	1300	3400	2.18	21350
METRIC SERIES - METRIC UNITS - QUH						
MM12BS32QUH	22800	15400	5100	850	0.56	2000
MM15BS35QUH	27400	16850	4500	980	0.60	2400
MM17BS47QUH	49800	40500	3300	1510	0.64	6230
MM20BS47QUH	49800	40500	3300	1510	0.64	6230
MM25BS52QUH	54300	42300	3000	1560	0.49	5400
MM25BS62QUH	71200	48500	2300	2100	0.88	8900
MM30BS62QUH	71200	48500	2300	2100	0.88	8900
MM30BS72QUH	90700	58700	2000	2520	0.88	12450
MM35BS72QUH	90700	58700	2000	2520	0.88	12450
MM40BS72QUH	90700	58700	2000	2520	0.88	12450
MM45BS75QUH	101400	62700	1900	2770	1.12	13340
MM40BS90QUH	121900	67200	1500	3330	1.64	16010
MM50BS90QUH	121900	67200	1500	3330	1.64	16010
MM55BS90QUH	121900	67200	1500	3330	1.64	16010
MM35BS100QUH	186800	115600	1400	3500	2.04	25800
MM40BS100QUH	186800	115600	1400	3500	2.04	25800
MM45BS100QUH	186800	115600	1400	3500	2.04	25800
MM50BS100QUH	186800	115600	1400	3500	2.04	25800
MM75BS110QUH	153900	72100	1200	4170	2.00	19570
MM55BS120QUH	266900	122800	1200	4310	2.72	31140
MM60BS120QUH	266900	122800	1200	4310	2.72	31140
MM100BS150QUH	231300	93400	900	6790	4.36	42700

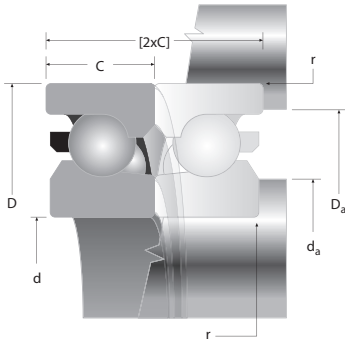
(1) Based on 1500 hours L₁₀ life and permissible speed.

(2) Heavy preload is standard.

(3) Data presented is for a single bearing in a DUH set and for two bearings in a QUH set mounted DB or DF.

BALL SCREW SUPPORT SERIES

PERFORMANCE DATA METRIC SERIES (INCH UNITS)



Bearing Number	Static Limiting Thrust Capacity ⁽³⁾	Dynamic Axial Thrust Load Rating ⁽¹⁾⁽³⁾	Max. Speed	Axial Spring Constant ⁽³⁾	Drag Torque (preloaded set)	Preload ⁽²⁾⁽³⁾ (Heavy)
	T _L	C _{ae}		10 ⁶ lbs./in.	in.-lbs.	lbs.
	lbs.	lbs.	RPM			
METRIC SERIES - INCH UNITS - DUH						
MM12BS32DUH	2600	2140	7300	2.4	2.48	200
MM15BS35DUH	3100	2340	6400	2.8	2.65	300
MM17BS47DUH	5600	5600	4700	4.3	2.83	700
MM20BS47DUH	5600	5600	4700	4.3	2.83	700
MM25BS52DUH	6100	5850	4300	4.5	3.45	600
MM25BS62DUH	8000	6700	3300	6	3.88	1000
MM30BS62DUH	8000	6700	3300	6	3.88	1000
MM30BS72DUH	10200	8160	2900	7.2	3.88	1400
MM35BS72DUH	10200	8160	2900	7.2	3.88	1400
MM40BS72DUH	10200	8160	2900	7.2	3.88	1400
MM45BS75DUH	11400	8660	2700	7.9	4.96	1500
MM40BS90DUH	13700	9310	2200	9.5	7.26	1800
MM40BS90DUH-20	13700	9310	2200	9.5	7.26	1800
MM40BS90DUH-23	13700	9310	2200	9.5	7.26	1800
MM50BS90DUH	13700	9310	2200	9.5	7.26	1800
MM55BS90DUH	13700	9310	2200	9.5	7.26	1800
MM35BS100DUH	21000	16010	2000	10	9.03	2900
MM40BS100DUH	21000	16010	2000	10	9.03	2900
MM45BS100DUH	21000	16010	2000	10	9.03	2900
MM50BS100DUH	21000	16010	2000	10	9.03	2900
MM75BS110DUH	17300	10000	1700	11.9	8.85	2200
MM55BS120DUH	30000	17000	1700	12.3	12.04	3500
MM60BS120DUH	30000	17000	1700	12.3	12.04	3500
MM100BS150DUH	26000	12900	1300	19.4	19.29	4800
METRIC SERIES - INCH UNITS - QUH						
MM12BS32QUH	5100	3500	5100	4.9	4.96	400
MM15BS35QUH	6200	3800	4500	5.6	5.31	500
MM17BS47QUH	11200	9100	3300	8.6	5.65	1400
MM20BS47QUH	11200	9100	3300	8.6	5.65	1400
MM25BS52QUH	12200	9500	3000	8.9	6.90	1200
MM25BS62QUH	16000	10900	2300	12	7.78	2000
MM30BS62QUH	16000	10900	2300	12	7.78	2000
MM30BS72QUH	20400	13200	2000	14.4	7.78	2800
MM35BS72QUH	20400	13200	2000	14.4	7.78	2800
MM40BS72QUH	20400	13200	2000	14.4	7.78	2800
MM45BS75QUH	22800	14100	1900	15.8	9.92	3000
MM40BS90QUH	27400	15100	1500	19	14.51	3600
MM50BS90QUH	27400	15100	1500	19	14.51	3600
MM55BS90QUH	27400	15100	1500	19	14.51	3600
MM35BS100QUH	42000	26000	1400	20	18.05	5800
MM40BS100QUH	42000	26000	1400	20	18.05	5800
MM45BS100QUH	42000	26000	1400	20	18.05	5800
MM50BS100QUH	42000	26000	1400	20	18.05	5800
MM75BS110QUH	34600	16200	1200	23.8	17.70	4400
MM55BS120QUH	60000	27600	1200	24.6	24.08	7000
MM60BS120QUH	60000	27600	1200	24.6	24.08	7000
MM100BS150QUH	52000	21000	900	38.8	38.59	9600

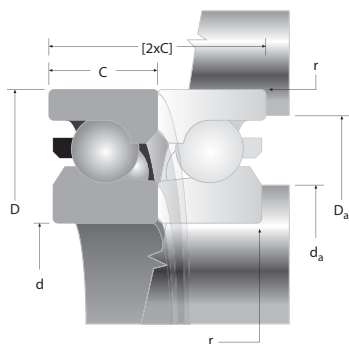
(1) Based on 1500 hours L₁₀ life and permissible speed.

(2) Heavy preload is standard.

(3) Data presented is for a single bearing in a DUH set and for two bearings in a QUH set mounted DB or DF.

BALL SCREW SUPPORT SERIES

PERFORMANCE DATA INCH SERIES (INCH UNITS)



Bearing Number	Static Limiting Thrust Capacity ⁽³⁾	Dynamic Axial Thrust Load Rating ⁽¹⁾⁽³⁾	Max. Speed	Axial Spring Constant ⁽³⁾	Drag Torque (preloaded set)	Preload ⁽²⁾⁽³⁾ (Heavy)
	T _L	C _{ae}		10 ⁶ lbs./in.	in.-lbs.	(lbs.)
	lbs.	lbs.	RPM			lbs.
INCH SERIES - INCH UNITS - DUH / QUH						
MM9306W12H DUH	5600	5600	4700	4.30	2.83	700
MM9308W12H DUH	8000	6700	3300	6.00	3.89	1000
MM9310W12H DUH	10200	8150	2900	7.20	3.89	1400
MM9311W13H DUH	11400	8650	2700	7.90	4.96	1500
MM9313W15H DUH	13700	9300	2200	9.50	7.26	1800
MM9316W13H DUH	17300	10000	1700	11.90	8.85	2200
MM9321W13D DUH	26000	12900	1300	19.40	9.01	4800
MM9326W16H DUH	42000	21200	1000	20.70	11.1	6000
MM9306W12HQ UH	11200	9100	3300	8.60	5.66	1400
MM9308W12HQ UH	16000	10900	2300	12.00	7.78	2000
MM9310W12HQ UH	20400	13200	2000	14.40	7.78	2800
MM9311W13HQ UH	22800	14100	1900	15.80	9.92	3000
MM9313W15HQ UH	27400	15100	1500	19.00	14.52	3600
MM9316W13HQ UH	34600	16200	1200	23.80	17.7	4400
MM9321W13Q UH	52000	21000	900	38.80	18.02	9600
MM9326W16HQ UH	84000	34400	700	41.40	22.22	12000
	N	N	RPM	N/μm	N-m	N
INCH SERIES - METRIC UNITS - DUH / QUH						
MM9306W12H DUH	24900	24900	4700	750	0.32	3110
MM9308W12H DUH	35600	29800	3300	1050	0.44	4450
MM9310W12H DUH	45400	36300	2900	1260	0.44	6230
MM9311W13H DUH	50700	38500	2700	1380	0.56	6670
MM9313W15H DUH	60900	41400	2200	1660	0.82	8010
MM9316W13H DUH	77000	44500	1700	2080	1	9790
MM9321W13D DUH	115700	57400	1300	3400	1.02	21350
MM9326W16H DUH	186800	94300	1000	3630	1.26	26690
MM9306W12HQ UH	49800	40500	3300	1510	0.64	6230
MM9308W12HQ UH	71200	48500	2300	2100	0.88	8900
MM9310W12HQ UH	90700	58700	2000	2520	0.88	12450
MM9311W13HQ UH	101400	62700	1900	2770	1.12	13340
MM9313W15HQ UH	121900	67200	1500	3330	1.64	16010
MM9316W13HQ UH	153900	72100	1200	4170	2	19570
MM9321W13Q UH	231300	93400	900	6800	2.04	42700
MM9326W16HQ UH	373600	153000	700	7250	2.51	53380

(1) Based on 1500 hours L₁₀ life and permissible speed.

(2) Heavy preload is standard.

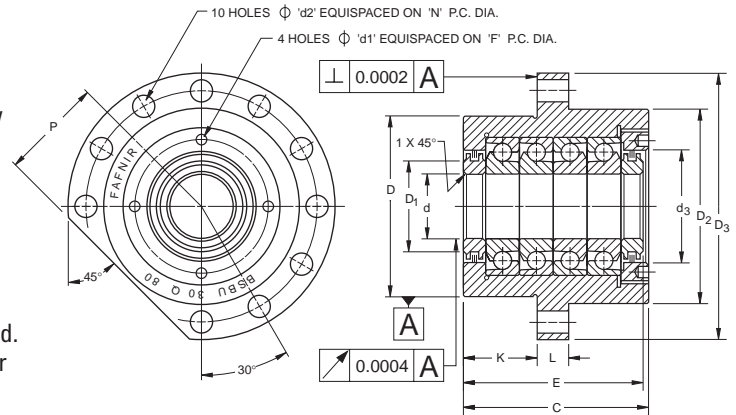
(3) Data presented is for a single bearing in a DUH set and for two bearings in a QUH set mounted DB or DF.



BSBU D

STANDARD AND HEAVY-DUTY BEARINGS

- Designed and developed to give the machine manufacturer a ready-made unit providing excellent stiffness and accuracy in ball screw applications.
- Units combine the features of MM-BS-DU (Duplex) ball screw bearings with an accurately manufactured housing and laminar ring seals.
- Each unit is prepacked with a measured quantity of high quality bearing grease and requires no further lubrication.
- Units are supplied with the bearings in pairs mounted in the "DB" ("O") arrangement.
- Other bearing arrangements can be accommodated if required. Please consult your Timken representative with details of your requirements or for suggested shaft and housing fits.



STANDARD SERIES – DIMENSIONAL TOLERANCES $\pm .13$ mm (± 0.005 ") UNLESS OTHERWISE STATED.

Shaft Dia.	Unit Number	C	d	d ₁	d ₂	d ₃	D	D ₁	D ₂	D ₃	E	F	K	L	N	P	Wt.
mm	(Bearing Set)	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
17	BSBU17D60	47.0	17.000 16.996	4.3	6.6	36.0	60.000 59.987	26.0	64.0	90.0	44.26 43.24	42.5	32.0	13.0	76.0	32	1.1
	(MM17BS47DUH)	1.85	0.6693 0.6691	0.17	0.26	1.42	2.3622 2.3617	1.02	2.52	3.54	1.742 1.702	1.67	1.26	0.51	2.99	1.26	2.42
20	BSBU20D60	47.0	20.000 19.996	4.3	6.6	36.0	60.000 59.987	26.0	64.0	90.0	44.26 43.24	42.5	32.0	13.0	76.0	32	1.1
	(MM20BS47DUH)	1.85	0.7874 0.7872	0.17	0.26	1.42	2.3622 2.3617	1.02	2.52	3.54	1.742 1.702	1.67	1.26	0.51	2.99	1.26	2.42
25	BSBU25D80	52.0	25.000 24.996	4.3	9.2	50.0	80.000 79.987	40.0	88.0	120.0	50.26 49.24	59.5	32.0	15.0	102.0	44	2.3
	(MM25BS62DUH)	2.05	0.9842 0.9841	0.17	0.36	1.97	3.1496 3.1491	1.57	3.46	4.72	1.979 1.938	2.34	1.26	0.59	4.02	1.73	5.06
30	BSBU30D80	52.0	30.000 29.996	4.3	9.2	50.0	80.000 79.987	40.0	88.0	120.0	50.26 49.24	59.5	32.0	15.0	102.0	44	2.2
	(MM30BS62DUH)	2.05	1.1811 1.1809	0.17	0.36	1.97	3.1496 3.1491	1.57	3.46	4.72	1.979 1.938	2.34	1.26	0.59	4.02	1.73	4.84
35	BSBU35D90	52.0	35.000 34.995	4.3	9.2	60.0	90.000 89.985	46.0	98.0	130.0	50.26 49.24	66.5	32.0	15.0	113.0	49	3.2
	(MM35BS72DUH)	2.05	1.378 1.3778	0.17	0.36	2.36	3.5433 3.5427	1.81	3.86	5.12	1.979 1.938	2.62	1.26	0.59	4.45	1.93	7.04
40	BSBU40D90	52.0	40.000 39.995	4.3	9.2	60.0	90.000 89.985	46.0	98.0	130.0	50.26 49.24	66.5	32.0	15.0	113.0	49	3.1
	(MM40BS72DUH)	2.05	1.5748 1.5746	0.17	0.36	2.36	3.5433 3.5427	1.81	3.86	5.12	1.979 1.938	2.62	1.26	0.59	4.45	1.93	6.82

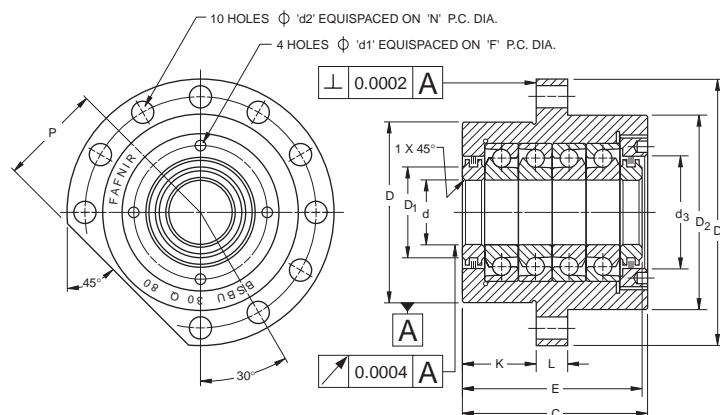
HEAVY-DUTY SERIES

35	BSBU35D124	66.0	35.000 34.995	5.3	11.4	76.0	124.000 123.982	66.0	128.0	165.0	64.26 63.24	90.0	43.5	17.0	146.0	64	6.3
	(MM35BS100DUH)	2.60	1.3780 1.3778	0.21	0.45	2.99	4.8819 4.8812	2.6	5.04	6.50	2.530 2.490	3.54	1.71	0.67	5.75	2.52	13.86
40	BSBU40D124	66.0	40.000 39.995	5.3	11.4	76.0	124.000 123.982	66.0	128.0	165.0	64.26 63.24	90.0	43.5	17.0	146.0	64	6.1
	(MM40BS100DUH)	2.60	1.5748 1.5746	0.21	0.45	2.99	4.8819 4.8812	2.6	5.04	6.50	2.530 2.490	3.54	1.71	0.67	5.75	2.52	13.42
45	BSBU45D124	66.0	45.000 44.995	5.3	11.4	76.0	124.000 123.982	66.0	128.0	165.0	64.26 63.24	90.0	43.5	17.0	146.0	64	6.0
	(MM45BS100DUH)	2.60	1.7716 1.7714	0.21	0.45	2.99	4.8819 4.8812	2.6	5.04	6.50	2.530 2.490	3.54	1.71	0.67	5.75	2.52	13.2
50	BSBU50D124	66.0	50.000 49.995	5.3	11.4	76.0	124.000 123.982	66.0	128.0	165.0	64.26 63.24	90.0	43.5	17.0	146.0	64	5.9
	(MM50BS100DUH)	2.60	1.9685 1.9683	0.21	0.45	2.99	4.8819 4.8812	2.6	5.04	6.50	2.530 2.490	3.54	1.71	0.67	5.75	2.52	12.898

BSBU Q

STANDARD AND HEAVY-DUTY BEARINGS

- Similar in design and features to the series BSBU D except MM-BS-QU Quadruplex bearings are used.
- Units are supplied with the bearings in quad sets mounted in the "DB" ("O") arrangement.
- Consult your Timken representative for suggested shaft.



STANDARD SERIES – DIMENSIONAL TOLERANCES ± 0.005" ± .13 mm (± 0.005") UNLESS OTHERWISE STATED.

Shaft Dia.	Unit Number	C	d	d ₁	d ₂	d ₃	D	D ₁	D ₂	D ₃	E	F	K	L	N	P	Wt.
mm	(Bearing Set)	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
17	BSBU17Q60 (MM17BS47QUH)	77.0 3.03	17.000 16.996 0.6693 0.6690	4.3 0.17	6.6 0.26	36.0 1.42	60.000 59.987 2.3622 2.3617	26.0 1.02	64.0 2.52	90.0 3.54	74.26 72.74 2.924 2.864	42.5 1.67	32.0 1.26	13.0 0.51	76.0 2.99	32.0 1.26	1.7 3.74
20	BSBU20Q60 (MM20BS47QUH)	77.0 3.03	20.000 19.996 0.7874 0.7872	4.3 0.17	6.6 0.26	36.0 1.42	60.000 59.987 2.3622 2.3617	26.0 1.02	64.0 2.52	90.0 3.54	74.26 72.74 2.924 2.864	42.5 1.67	32.0 1.26	13.0 0.51	76.0 2.99	32.0 1.26	1.7 3.74
25	BSBU25Q80 (MM25BS62QUH)	82.0 3.23	25.000 24.996 0.9842 0.9841	4.3 0.17	9.2 0.36	50.0 1.97	80.000 79.987 3.1496 3.1491	40.0 1.57	88.0 3.46	120.0 4.72	80.26 78.74 3.160 3.100	59.5 2.34	32.0 1.26	15.0 0.59	102.0 4.02	44.0 1.73	3.5 7.7
30	BSBU30Q80 (MM30BS62QUH)	82.0 3.23	30.000 29.996 1.1811 1.1809	4.3 0.17	9.2 0.36	50.0 1.97	80.000 79.987 3.1496 3.1491	40.0 1.57	88.0 3.46	120.0 4.72	80.26 78.74 3.160 3.100	59.5 2.34	32.0 1.26	15.0 0.59	102.0 4.02	44.0 1.73	3.4 7.48
35	BSBU35Q90 (MM35BS72QUH)	82.0 3.23	35.000 34.995 1.3780 1.3778	4.3 0.17	9.2 0.36	60.0 2.36	90.000 89.985 3.5433 3.5427	46.0 1.81	98.0 3.86	130.0 5.12	80.26 78.74 3.160 3.100	66.5 2.62	32.0 1.26	15.0 0.59	113.0 4.45	49.0 1.93	4.6 10.12
40	BSBU40Q90 (MM40BS72QUH)	82.0 3.23	40.000 39.995 1.5748 1.5746	4.3 0.17	9.2 0.36	60.0 2.36	90.000 89.985 3.5433 3.5427	46.0 1.81	98.0 3.86	130.0 5.12	80.26 78.74 3.160 3.100	66.5 2.62	32.0 1.26	15.0 0.59	113.0 4.45	49.0 1.93	4.5 9.9

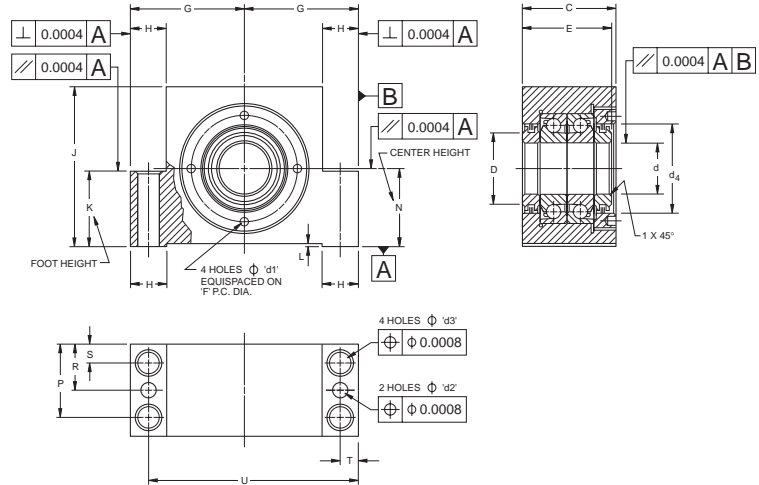
HEAVY-DUTY SERIES

35	BSBU35Q124 (MM35BS100QUH)	106.0 4.17	35.000 34.995 1.3780 1.3778	5.3 0.21	11.4 0.45	76.0 2.99	124.000 123.982 4.8819 4.8812	66.0 2.6	128.0 5.04	165.0 6.5	104.26 102.74 4.105 4.045	90.0 3.54	43.5 1.71	17.0 0.67	146.0 5.75	64.0 2.52	10.1 22.22
40	BSBU40Q124 (MM40BS100QUH)	106.0 4.17	40.000 39.995 1.5748 1.5746	5.3 0.21	11.4 0.45	76.0 2.99	124.000 123.982 4.8819 4.8812	66.0 2.6	128.0 5.04	165.0 6.5	104.26 102.74 4.105 4.045	90.0 3.54	43.5 1.71	17.0 0.67	146.0 5.75	64.0 2.52	9.7 21.34
45	BSBU45Q124 (MM45BS100QUH)	106.0 4.17	45.000 44.995 1.7716 1.7714	5.3 0.21	11.4 0.45	76.0 2.99	124.000 123.982 4.8819 4.8812	66.0 2.6	128.0 5.04	165.0 6.5	104.26 102.74 4.105 4.045	90.0 3.54	43.5 1.71	17.0 0.67	146.0 5.75	64.0 2.52	9.5 20.9
50	BSBU50Q124 (MM50BS100QUH)	106.0 4.17	50.000 49.995 1.9685 1.9683	5.3 0.21	11.4 0.45	76.0 2.99	124.000 123.982 4.8819 4.8812	66.0 2.6	128.0 5.04	165.0 6.5	104.26 102.74 4.105 4.045	90.0 3.54	43.5 1.71	17.0 0.67	146.0 5.75	64.0 2.52	9.3 20.46

BSPB D

STANDARD AND HEAVY-DUTY BEARINGS

- Design of bearing pillow block unit for ball screw applications.
- Incorporates similar features to the series BSBU D but is designed to bolt down onto a flat surface, parallel to the ball screw axis.
- In the standard unit, pilot holes for dowels are provided.
- Units with finished holes for dowels can be supplied by special order if required.
- Consult your Timken representative for suggested shaft.



STANDARD SERIES – DIMENSIONAL TOLERANCES ± .13 mm (± 0.005") UNLESS OTHERWISE STATED.

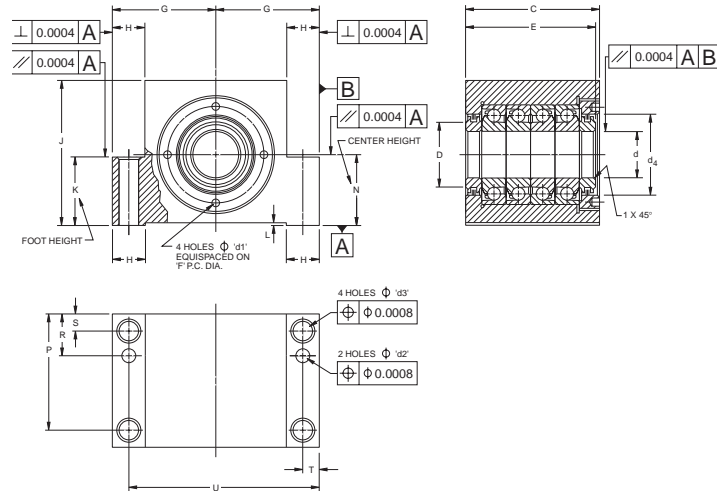
Shaft Dia.	Unit Number	C	d	d ₁	d ₂	d ₃	d ₄	D	E	F	G	H	J	K	L	N	P	R	S	T	U	Wt.	
mm	(Bearing Set)	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
17	BSPB17D32 (MM17BS47DUH)	47.000 46.950	17.000 16.996	4.3	7.8	9.0	36.0	26.0	44.26 43.24	42.5	47.000 46.987	17	62	32.0	1.0	32.000 31.987	38.0	22.0	9.0	8.5	85.5	1.5	
		1.850 1.848	0.6693 0.6691	0.17	0.31	0.35	1.42	1.02	1.742 1.702	1.67	1.8504 1.8499	0.67	2.44	1.26	0.04	1.2598 1.2593	1.50	0.87	0.35	0.33	3.37	3.3	
20	BSPB20D32 (MM20BS47DUH)	47.000 46.950	20.000 19.996	4.3	7.8	9.0	36.0	26.0	44.26 43.24	42.5	47.000 46.987	17	62	32.0	1.0	32.000 31.987	38.0	22.0	9.0	8.5	85.5	1.5	
		1.850 1.848	0.7874 0.7872	0.17	0.31	0.35	1.42	1.02	1.742 1.702	1.67	1.8504 1.8499	0.67	2.44	1.26	0.04	1.2598 1.2593	1.50	0.87	0.35	0.33	3.37	3.3	
25	BSPB25D42 (MM25BS62DUH)	52.000 51.950	25.000 24.996	4.3	9.8	11.0	50.0	40.0	50.26 49.24	59.5	62.500 62.487	20	85	42.0	1.0	42.000 41.987	42.0	25.0	10.0	10.0	115.0	2.8	
		2.047 2.045	0.9842 0.9841	0.17	0.39	0.43	1.97	1.57	1.979 1.938	2.34	2.4606 2.4601	0.79	3.35	1.65	0.04	1.6535 1.6530	1.65	0.98	0.39	0.39	4.53	6.16	
30	BSPB30D42 (MM30BS62DUH)	52.000 51.920	30.000 29.996	4.3	9.8	11.0	50.0	40.0	50.26 49.24	59.5	62.500 62.487	20	85	42.0	1.0	42.000 41.987	42.0	25.0	10.0	10.0	115.0	2.7	
		2.047 2.045	1.1811 1.1809	0.17	0.39	0.43	1.97	1.57	1.979 1.938	2.34	2.4606 2.4601	0.79	3.35	1.65	0.04	1.6535 1.6530	1.65	0.98	0.39	0.39	4.53	5.94	
35	BSPB35D50 (MM35BS72DUH)	52.000 51.950	35.000 34.995	4.3	13.0	13.0	60.0	46.0	50.26 49.24	66.5	68.000 67.987	20.5	95	50	1.0	50.000 49.987	42.0	25.0	10.0	10.0	126.0	3.8	
		2.047 2.045	1.3780 1.3778	0.17	0.51	0.51	2.36	1.81	1.979 1.938	2.62	2.6772 2.6767	0.81	3.74	1.97	0.04	1.9685 1.9680	1.65	0.98	0.39	0.39	4.96	8.36	
40	BSPB40D50 (MM40BS72DUH)	52.000 51.950	40.000 39.995	4.3	13.0	13.0	60.0	46.0	50.26 49.24	66.5	68.000 67.987	20.5	95	50.0	1.0	50.000 49.987	42.0	25.0	10.0	10.0	126.0	3.7	
		2.047 2.045	1.5748 1.5746	0.17	0.51	0.51	2.36	1.81	1.979 1.938	2.62	2.6772 2.6767	0.81	3.74	1.97	0.04	1.9685 1.9680	1.65	0.98	0.39	0.39	4.96	8.14	

HEAVY-DUTY SERIES

35	BSPB35D65 (MM35BS100DUH)	66.000 65.950	35.000 34.995	5.3	11.8	18.0	76.0	66.0	64.26 63.24	90.0	95.000 94.987	30.0	130.0	65.0	1.0	65.000 64.987	53.0	32.0	13.0	15.0	175.0	9.7
		2.598 2.596	1.3780 1.3778	0.21	0.46	0.71	2.99	2.6	2.530 2.490	3.54	3.7402 3.7396	1.18	5.12	2.56	0.04	2.5590 2.5585	2.09	1.26	0.51	0.59	6.89	21.34
40	BSPB40D65 (MM40BS100DUH)	66.000 65.950	40.000 39.995	5.3	11.8	18.0	76.0	66.0	64.26 63.24	90.0	95.000 94.987	30.0	130.0	65.0	1.0	65.000 64.987	53.0	32.0	13.0	15.0	175.0	9.5
		2.598 2.596	1.5748 1.5746	0.21	0.46	0.71	2.99	2.6	2.530 2.490	3.54	3.7402 3.7396	1.18	5.12	2.56	0.04	2.5590 2.5585	2.09	1.26	0.51	0.59	6.89	20.9
45	BSPB45D65 (MM45BS100DUH)	66.000 65.950	45.000 44.995	5.3	11.8	18.0	76.0	66.0	64.26 63.24	90.0	95.000 94.987	30.0	130.0	65.0	1.0	65.000 64.987	53.0	32.0	13.0	15.0	175.0	9.3
		2.598 2.596	1.7716 1.7714	0.21	0.46	0.71	2.99	2.6	2.530 2.490	3.54	3.7402 3.7396	1.18	5.12	2.56	0.04	2.5590 2.5585	2.09	1.26	0.51	0.59	6.89	20.46
50	BSPB50D65 (MM50BS100DUH)	66.000 65.950	50.000 49.995	5.3	11.8	18.0	76.0	66.0	64.26 63.24	90.0	95.000 94.987	30.0	130.0	65.0	1.0	65.000 64.987	53.0	32.0	13.0	15.0	175.0	9.1
		2.598 2.596	1.9685 1.9683	0.21	0.46	0.71	2.99	2.6	2.530 2.490	3.54	3.7402 3.7396	1.18	5.12	2.56	0.04	2.5590 2.5585	2.09	1.26	0.51	0.59	6.89	20.02

BSPB Q BALL SCREW SUPPORT BEARING PILLOW BLOCK UNITS

- Similar in design and features to the Series BSPB D, except MM-BS-QU quadroplex bearings are used.
- Units are supplied with the bearings in quad sets mounted in the "DB" ("O") arrangement.
- Consult your Timken representative for suggested shaft fits.



STANDARD SERIES – DIMENSIONAL TOLERANCES ±.13 mm (± 0.005") UNLESS OTHERWISE STATED.

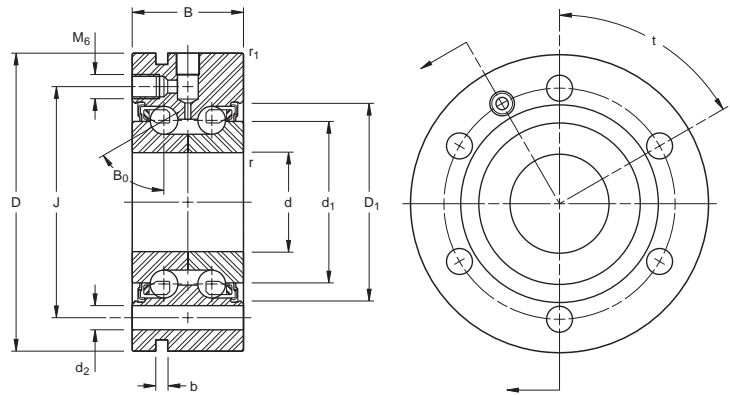
Shaft Dia.	Unit Number	C	d	d ₁	d ₂	d ₃	d ₄	D	E	F	G	H	J	K	L	N	P	R	S	T	U	Wt.
mm	(Bearing Set)	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
17	BSPB17Q32 (MM17BS47QUH)	77.00 76.95 3.031 3.03	17.000 16.996 0.6693 0.6691	4.3 0.17	7.8 0.31	9.0 0.35	36.0 1.42	26.0 1.02	74.26 72.74 2.924 2.864	42.5 1.67	47.000 46.987 1.8504 1.8499	17 0.67	62 2.44	32.0 1.26	1.0 0.04	32.000 31.987 1.2598 1.2593	38.0 1.50	22.0 0.87	9.0 0.35	8.5 0.33	85.5 3.37	1.5 3.3
20	BSPB20Q32 (MM20BS47QUH)	77.00 76.95 3.031 3.03	20.000 19.996 0.7874 0.7872	4.3 0.17	7.8 0.31	9.0 0.35	36.0 1.42	26.0 1.02	74.26 72.74 2.924 2.864	42.5 1.67	47.000 46.987 1.8504 1.8499	17 0.67	62 2.44	32.0 1.26	1.0 0.04	32.000 31.987 1.2598 1.2593	38.0 1.50	22.0 0.87	9.0 0.35	8.5 0.33	85.5 3.37	1.5 3.3
25	BSPB25Q42 (MM25BS62QUH)	82.00 81.95 3.228 3.226	25.000 24.996 0.9842 0.9841	4.3 0.17	9.8 0.39	11.0 0.43	50.0 1.97	40.0 1.57	80.26 78.74 3.16 3.1	59.5 2.34	62.500 62.487 2.4606 2.4601	20 0.79	85 3.35	42.0 1.65	1.0 0.04	42.000 41.987 1.6535 1.6530	42.0 1.65	25.0 0.98	10.0 0.39	10.0 0.39	115.0 4.53	2.8 6.16
30	BSPB30Q42 (MM30BS62QUH)	82.00 81.95 3.228 3.226	30.000 29.996 1.1811 1.1809	4.3 0.17	9.8 0.39	11.0 0.43	50.0 1.97	40.0 1.57	80.26 78.74 3.16 3.1	59.5 2.34	62.500 62.487 2.4606 2.4601	20 0.79	85 3.35	42.0 1.65	1.0 0.04	42.000 41.987 1.6535 1.6530	42.0 1.65	25.0 0.98	10.0 0.39	10.0 0.39	115.0 4.53	2.7 5.94
35	BSPB35Q50 (MM35BS72QUH)	82.00 81.95 3.228 3.226	35.000 34.995 1.3780 1.3778	4.3 0.17	13.0 0.51	13.0 0.51	60.0 2.36	46.0 1.81	80.26 78.74 3.16 3.1	66.5 2.62	68.000 67.987 2.6772 2.6767	20.5 0.81	95 3.74	50 1.97	1.0 0.04	50.000 49.987 1.9685 1.9680	42.0 1.65	25.0 0.98	10.0 0.39	10.0 0.39	126.0 4.96	3.8 8.36
40	BSPB40Q50 (MM40BS72QUH)	82.00 81.95 4.173 4.171	40.000 39.995 1.5748 1.5746	4.3 0.17	13.0 0.51	13.0 0.51	60.0 2.36	46.0 1.81	80.26 78.74 4.105 4.045	66.5 2.62	68.000 67.987 2.6772 2.6767	20.5 0.81	95 3.74	50 1.97	1.0 0.04	50.000 49.987 1.9685 1.9680	42.0 1.65	25.0 0.98	10.0 0.39	10.0 0.39	126.0 4.96	3.7 8.14

HEAVY-DUTY SERIES

35	BSPB35Q65 (MM35BS100QUH)	106.00 105.95 3.228 3.226	35.000 34.995 1.3780 1.3778	5.3 0.21	11.8 0.46	18.0 0.71	76.0 2.99	66.0 2.6	104.26 102.74 3.16 3.1	90.0 3.54	95.000 94.987 3.7402 3.7396	30.0 1.18	130.0 5.12	65.0 2.56	1.0 0.04	65.000 64.987 2.5590 2.5585	53.0 2.09	32.0 1.26	13.0 0.51	15.0 0.59	175.0 6.89	9.7 21.34
40	BSPB40Q65 (MM40BS100QUH)	106.00 105.95 4.173 4.171	40.000 39.995 1.5748 1.5746	5.3 0.21	11.8 0.46	18.0 0.71	76.0 2.99	66.0 2.6	104.26 102.74 4.105 4.045	90.0 3.54	95.000 94.987 3.7402 3.7396	30.0 1.18	130.0 5.12	65.0 2.56	1.0 0.04	65.000 64.987 2.5590 2.5585	53.0 2.09	32.0 1.26	13.0 0.51	15.0 0.59	175.0 6.89	9.5 20.9
45	BSPB45Q65 (MM45BS100QUH)	106.00 105.95 4.173 4.171	45.000 44.995 1.7716 1.7714	5.3 0.21	11.8 0.46	18.0 0.71	76.0 2.99	66.0 2.6	104.26 102.74 4.105 4.045	90.0 3.54	95.000 94.987 3.7402 3.7396	30.0 1.18	130.0 5.12	65.0 2.56	1.0 0.04	65.000 64.987 2.5590 2.5585	53.0 2.09	32.0 1.26	13.0 0.51	15.0 0.59	175.0 6.89	9.3 20.46
50	BSPB50Q65 (MM50BS100QUH)	106.00 105.95 4.173 4.171	50.000 49.995 1.9685 1.9683	5.3 0.21	11.8 0.46	18.0 0.71	76.0 2.99	66.0 2.6	104.26 102.74 4.105 4.045	90.0 3.54	95.000 94.987 3.7402 3.7396	30.0 1.18	130.0 5.12	65.0 2.56	1.0 0.04	65.000 64.987 2.5590 2.5585	53.0 2.09	32.0 1.26	13.0 0.51	15.0 0.59	175.0 6.89	9.1 20.02

SEALED, DOUBLE-ROW BALL SCREW SUPPORT BEARINGS FLANGED STYLE

MMF SERIES

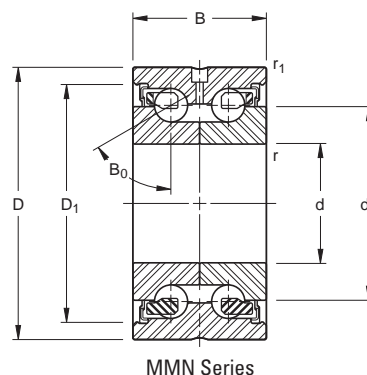


MMF Series Flanged

METRIC AND INCH DIMENSIONAL SIZES

Bearing Number	Bore d/Tol	O.D. D/Tol	Width B/Tol	Wt.	Outer Rs ₁ r ₁	Inner Rs r	Min. D ₁	Max. d ₁	Housing Shoulder Dia.	Shaft Shoulder Dia.	d ₂ Hole Dia.	Holes	b	Pitch Circle J	Hole Spacing t	Contact Angle B ₀	Heavy Series
METRIC	mm +0/ - (µm)			kg	mm	mm	mm	mm	mm	mm	mm	Qty.		mm	degrees		
MMF512BS55PP DM	12 (3.8)	55 (7.6)	25 (254)	0.40	0.6	0.3	33.1	25.0	32.0	19.0	6.5	3	3	42	120	60	
MMF515BS60PP DM	15 (3.8)	60 (7.6)	25 (254)	0.47	0.6	0.3	37.0	27.6	34.5	21.5	6.5	3	3	46	120	60	
MMF517BS62PP DM	17 (3.8)	62 (7.6)	25 (254)	0.49	0.6	0.3	37.8	28.4	36.5	23.5	6.5	3	3	48	120	60	
MMF520BS68PP DM	20 (5.1)	68 (7.6)	28 (254)	0.64	0.6	0.3	43.2	34.5	42.5	27.5	6.5	4	3	53	90	60	
MMF525BS75PP DM	25 (5.1)	75 (7.6)	28 (254)	0.76	0.6	0.3	49.5	40.6	48.0	33.5	6.5	4	3	58	90	60	
MMF530BS80PP DM	30 (5.1)	80 (7.6)	28 (254)	0.84	0.6	0.3	54.3	45.6	53.5	38.5	6.5	6	3	63	60	60	
MMF540BS100PP DM	40 (6.4)	100 (7.6)	34 (254)	1.50	0.6	0.3	68.7	57.5	67.0	49.0	8.5	4	3	80	90	60	
MMF550BS115PP DM	50 (6.4)	115 (7.6)	34 (254)	1.37	0.6	0.3	82.6	71.5	81.0	63.0	8.5	6	3	94	60	60	
MMF550BS140PP DM	50 (6.4)	140 (8.9)	54 (254)	4.89	0.6	0.6	99.6	81.1	98.5	66.0	10.5	12	3	113	30	60	H
MMF560BS145PP DM	60 (7.6)	145 (8.9)	45 (254)	4.28	0.6	0.6	100.0	89.0	98.0	72.0	8.5	8	3	120	45	60	
INCHES	in. +0/ -(x)			lbs.	in.	in.	in.	in.	in.	in.	in.	Qty.		in.	degrees		
MMF512BS55PP DM	0.4724 (0.00015)	2.1654 (0.0003)	0.9843 (0.0100)	0.88	0.024	0.012	1.304	0.905	1.260	0.748	0.256	3	.118	1.654	120	60	
MMF515BS60PP DM	0.5906 (0.00015)	2.3622 (0.0003)	0.9843 (0.0100)	1.04	0.024	0.012	1.456	1.088	1.358	0.846	0.256	3	.118	1.811	120	60	
MMF517BS62PP DM	0.6693 (0.00015)	2.4409 (0.0003)	0.9843 (0.0100)	1.08	0.024	0.012	1.490	1.117	1.437	0.925	0.256	3	.118	1.890	120	60	
MMF520BS68PP DM	0.7874 (0.0002)	2.6772 (0.0003)	1.1024 (0.0100)	1.42	0.024	0.012	1.700	1.357	1.673	1.083	0.256	4	.118	2.087	90	60	
MMF525BS75PP DM	0.9843 (0.0002)	2.9528 (0.0003)	1.1024 (0.0100)	1.68	0.024	0.012	1.943	1.599	1.890	1.319	0.256	4	.118	2.283	90	60	
MMF530BS80PP DM	1.1811 (0.0002)	3.1496 (0.0003)	1.1024 (0.0100)	1.86	0.024	0.012	2.138	1.795	2.106	1.516	0.256	6	.118	2.480	60	60	
MMF540BS100PP DM	1.5748 (0.00025)	3.937 (0.0003)	1.3386 (0.0100)	3.41	0.024	0.012	2.704	2.264	2.638	1.929	0.335	4	.118	3.150	90	60	
MMF550BS115PP DM	1.9685 (0.00025)	4.5276 (0.0003)	1.3386 (0.0100)	4.37	0.024	0.012	3.250	2.815	3.189	2.408	0.335	6	.118	3.701	60	60	
MMF550BS140PP DM	1.9685 (0.00025)	5.5118 (0.00035)	2.1260 (0.0100)	10.78	0.024	0.024	3.919	3.192	3.878	2.598	0.413	12	.118	4.449	30	60	H
MMF560BS145PP DM	2.3622 (0.0003)	5.7087 (0.00035)	1.7717 (0.0100)	9.43	0.024	0.024	3.938	3.308	3.858	2.835	0.335	8	.118	4.724	45	60	

**SEALED, DOUBLE-ROW
BALL SCREW SUPPORT BEARINGS
CARTRIDGE STYLE
MMN SERIES**



METRIC AND INCH DIMENSIONAL SIZES

Bearing Number	Bore d/Tol	O.D. D/Tol	Width B/Tol	Wt.	Outer R ₁	Inner r	Min. d ₁	Max. dia.	Housing Shoulder Dia.	Shaft Shoulder Dia.	Contact Dia. B ₀	Heavy Series
METRIC	mm +0/- (µm)			kg	mm	mm	mm	mm	mm	mm	degrees	
MMN512BS42PP DM	12 (3.8)	42 (6.4)	25 (254)	0.20	0.6	0.3	33.1	25.0	32.0	19.0	60	
MMN515BS45PP DM	15 (3.8)	45 (6.4)	25 (254)	0.23	0.6	0.3	37.0	27.6	34.5	21.5	60	
MMN517BS47PP DM	17 (3.8)	47 (6.4)	25 (254)	0.24	0.6	0.3	37.8	28.4	36.5	23.5	60	
MMN520BS52PP DM	20 (5.1)	52 (7.6)	28 (254)	0.32	0.6	0.3	43.2	34.5	42.5	27.5	60	
MMN525BS57PP DM	25 (5.1)	57 (7.6)	28 (254)	0.35	0.6	0.3	49.3	40.6	48.0	33.5	60	
MMN530BS62PP DM	30 (5.1)	62 (7.6)	28 (254)	0.40	0.6	0.3	54.3	45.6	53.5	38.5	60	
MMN540BS75PPDM	40 (6.4)	75 (7.6)	34 (254)	0.64	0.6	0.3	68.7	57.5	67.0	49.0	60	
MMN550BS90PP DM	50 (6.4)	90 (7.6)	34 (254)	0.91	0.6	0.3	82.6	71.5	81.0	63.0	60	
MMN550BS110PP DM	50 (6.4)	110 (8.9)	54 (254)	2.42	0.6	0.6	99.6	81.1	98.5	66.0	60	H
MMN560BS110PP DM	60 (7.6)	110 (8.9)	45 (254)	1.82	0.6	0.6	100.0	84.0	98.0	72.0	60	
INCHES	in. +0/-(x)			lbs.	in.	in.	in.	in.	in.	in.	degrees	
MMN512BS42PP DM	0.4724 (0.00015)	1.6535 (0.00025)	0.9843 (0.0100)	0.44	0.024	0.012	1.304	0.985	1.259	0.748	60	
MMN515BS45PP DM	0.5906 (0.00015)	1.7717 (0.00025)	0.9843 (0.0100)	0.50	0.024	0.012	1.456	1.088	1.358	0.846	60	
MMN517BS47PP DM	0.6693 (0.00015)	1.8504 (0.00025)	0.9843 (0.0100)	0.54	0.024	0.012	1.490	1.117	1.437	0.925	60	
MMN520BS52PP DM	0.7874 (0.0002)	2.0472 (0.0003)	1.1024 (0.0100)	0.70	0.024	0.012	1.700	1.357	1.673	1.083	60	
MMN525BS57PP DM	0.9843 (0.0002)	2.2441 (0.0003)	1.1024 (0.0100)	0.78	0.024	0.012	1.943	1.599	1.890	1.319	60	
MMN530BS62PP DM	1.1811 (0.0002)	2.4409 (0.0003)	1.1024 (0.0100)	0.88	0.024	0.012	2.138	1.795	2.106	1.516	60	
MMN540BS75PPDM	1.5748 (0.00025)	2.9528 (0.0003)	1.3386 (0.0100)	1.42	0.024	0.012	2.704	2.264	2.638	1.929	60	
MMN550BS90PP DM	1.9685 (0.00025)	3.5433 (0.0003)	1.3386 (0.0100)	2.02	0.024	0.012	3.250	2.815	3.189	2.408	60	
MMN550BS110PP DM	1.9685 (0.00025)	4.3307 (0.00035)	2.1260 (0.0100)	5.34	0.024	0.024	3.919	3.192	3.878	2.598	60	H
MMN560BS110PP DM	2.3622 (0.0003)	4.3307 (0.00035)	1.7717 (0.0100)	4.02	0.024	0.024	3.938	3.308	3.858	2.835	60	





EX-CELL-O SPINDLE BEARINGS

- “EX” Series (Timken® Fafnir® WI construction) designed to meet Ex-Cell-O replacement requirements for inch nominal spindles with bore and O.D. tolerances nominal to plus.
- “XWO” Series (Timken Fafnir WO separable construction) designed to meet Ex-Cell-O replacement requirements for inch nominal spindles with bore and O.D. tolerances nominal to minus.
- Measurement of shafts and housings (or reconditioning of parts) should determine replacement bearing style.
- Shafts and housings should be checked (and reworked) to avoid improper shaft and housing fits.
- Preload selection should be based on operating speed and lubrication system of spindle.

MM-EX

REPLACEMENT BEARINGS - FOR EX-CELL-O SPINDLES

Bearing Number	Ex-Cell-O Part No.	Preload lbs.	Bore (in.)		O.D. (in.)		Width - Pair (in.)		Maximum Speed (RPM)
			Max.	Min.	Max.	Min.	Max.	Min.	
MM20EXCR DU FS223	20	0	0.3752	.3750	1.1252	1.1250	0.6875	0.6775	65000
MM30EXCR DU FS223	30	0	0.6252	.6250	1.5002	1.5000	1.0000	0.9900	35000
MM30EXCR DU 5 #	30	5	0.6252	.6250	1.5002	1.5000	1.0000	0.9900	25000
MM50EXCR DU FS223	50	0	0.8127	.8125	2.0002	2.0000	1.0000	0.9900	30000
MM50EXCR DU 10 #	50	10	0.8127	.8125	2.0002	2.0000	1.0000	0.9900	18000
MM50EXCR DU 50 #	50	50	0.8127	.8125	2.0002	2.0000	1.0000	0.9900	5000
*MM55EXCR DU 10 #	55	10	0.8127	.8125	2.0002	2.0000	1.0000	0.9900	22000
MM57EXCR DU FS223	57	0	1.0627	1.0625	2.2502	2.2500	1.0000	0.9900	30000
MM57EXCR DU 10 #	57	10	1.0627	1.0625	2.2502	2.2500	1.0000	0.9900	15000
MM57EXCR DU 50 #	57	50	1.0627	1.0625	2.2502	2.2500	1.0000	0.9900	5000
MM67EXCR DU FS223	67	0	1.2502	1.2500	2.4377	2.4375	1.2500	1.2400	30000
MM67EXCR DU 10 #	67	10	1.2502	1.2500	2.4377	2.4375	1.2500	1.2400	12500
MM67EXCR DU 30 #	67	30	1.2502	1.2500	2.4377	2.4375	1.2500	1.2400	7500
MM67EXCR DU 75 #	67	75	1.2502	1.2500	2.4377	2.4375	1.2500	1.2400	4500
MM90EXCR DU 20 #	90	20	1.6252	1.6250	3.4377	3.4375	1.6250	1.6150	10000
MM90EXCR DU 100 #	90	100	1.6252	1.6250	3.4377	3.4375	1.6250	1.6150	4500
MM90EXCR DU 150 #	90	150	1.6252	1.6250	3.4377	3.4375	1.6250	1.6150	2700
MM90EXCR DU 250 #	90	250	1.6252	1.6250	3.4377	3.4375	1.6250	1.6150	900
**MM92EXCR DU 20 #	92	20	1.7502	1.7500	3.4377	3.4375	1.6250	1.6150	12000
**MM92EXCR DU 100 #	92	100	1.7502	1.7500	3.4377	3.4375	1.6250	1.6150	4500
**MM92EXCR DU 150 #	92	150	1.7502	1.7500	3.4377	3.4375	1.6250	1.6150	2700
**MM92EXCR DU 250 #	92	250	1.7502	1.7500	3.4377	3.4375	1.6250	1.6150	900
MM115EXCR DU 30 #	115	30	2.2502	2.2500	4.7502	4.7500	2.2500	2.2400	5000
MM115EXCR DU 250 #	115	250	2.2502	2.2500	4.7502	4.7500	2.2500	2.2400	3600
MM115EXCR DU 350 #	115	350	2.2502	2.2500	4.7502	4.7500	2.2500	2.2400	1800
MM135EXCR DU 20 #	135	20	1.2502	1.2500	2.6877	2.6875	1.2500	1.2400	8000
MM135EXCR DU 75 #	135	75	1.2502	1.2500	2.6877	2.6875	1.2500	1.2400	4000
MM155EXCR DU 150 #	155	150	2.7502	2.7500	4.7502	4.7500	2.2500	2.2400	4000
MM155EXCR DU 300 #	155	300	2.7502	2.7500	4.7502	4.7500	2.2500	2.2400	1800
MM165EXCR DU 200 #	165	200	3.5002	3.5000	6.3127	6.3125	3.0000	2.9900	2800
MM165EXCR DU 400 #	165	400	3.5002	3.5000	6.3127	6.3125	3.0000	2.9900	1200

These bearings not intended for new design applications. Consult your local Timken representative.

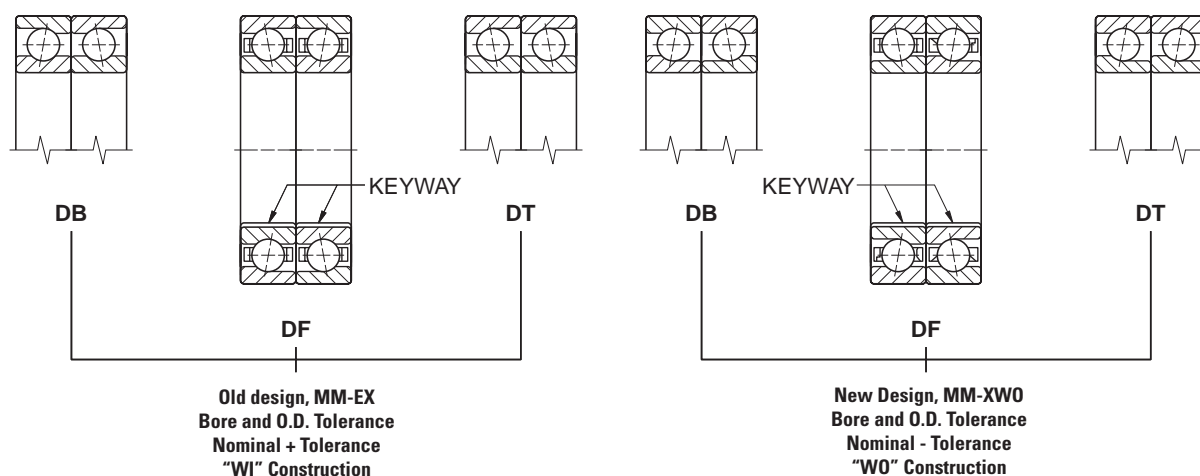
Do not interchange with MM-XWO.

* Four slots in outer ring faces.

** No keyway in bore.

FS-223 Zero to negative preload.

TIMKEN MM-EX AND MM-XWO BEARINGS FOR REPLACEMENT ON EX-CELL-O SPINDLES



MM-XWO

REPLACEMENT BEARINGS -FOR EX-CELL-O SPINDLES

Bearing Number	Ex-Cell-O Part No.	Preload lbs.	Bore (in.)		O.D. (in.)		Width - Pair (in.)		Maximum (RPM)		
			Max.	Min.	Max.	Min.	Max.	Min.	Grease	Oil	Mist
MM20XWOCRDU E9103A	XLO 20-107	0	0.37500	0.37485	1.1250	1.1248	0.6875	0.6675	40000	65000	80000
MM30XWOCRDU E9103C	XLO 30-57	10	0.62500	0.62485	1.5000	1.4998	1.0000	0.9800	27000	30000	35000
MM30XWOCRDU E9103A	XLO 30-107	0	0.62500	0.62485	1.5000	1.4998	1.0000	0.9800	35000	40000	60000
MM55XWOCRDU E9103E	XLO 55-27	50	0.81250	0.81235	2.0000	1.9998	1.0000	0.9800	5000	8000	12000
MM55XWOCRDU E9103C	XLO 55-57	20	0.81250	0.81235	2.0000	1.9998	1.0000	0.9800	20000	22000	24000
MM55XWOCRDU E9103A	XLO 55-107	0	0.81250	0.81235	2.0000	1.9998	1.0000	0.9800	24000	27000	45000
MM57XWOCRDU E9103F	XLO 57-17	100	1.06250	1.06235	2.2500	2.2498	1.0000	0.9800	2000	4000	6000
MM57XWOCRDU E9103C	XLO 57-57	20	1.06250	1.06235	2.2500	2.2498	1.0000	0.9800	18000	20000	22000
MM57XWOCRDU E9103A	XLO 57-107	0	1.06250	1.06235	2.2500	2.2498	1.0000	0.9800	22000	25000	35000
MM67XWOCRDU E9103F	XLO 67-17	90	1.25000	1.24980	2.4375	2.4373	1.2500	1.2300	36000	4500	6000
MM67XWOCRDU E9103C	XLO 67-57	20	1.25000	1.24980	2.4375	2.4373	1.2500	1.2300	12500	15000	20000
MM67XWOCRDU E9103A	XLO 67-107	0	1.25000	1.24980	2.4375	2.4373	1.2500	1.2300	16000	20000	30000
MM90XWOCRDU E9103F	XLO 90-17	250	1.62500	1.62480	3.4375	3.4372	1.6250	1.6050	1000	2000	4000
MM90XWOCRDU E9103D	XLO 90-47	175	1.62500	1.62480	3.4375	3.4372	1.6250	1.6050	3000	5000	8000
MM90XWOCRDU E9103C	XLO 90-57	100	1.62500	1.62480	3.4375	3.4372	1.6250	1.6050	5000	7000	11000
MM90XWOCRDU E9103A	XLO 90-77	20	1.62500	1.62480	3.4375	3.4372	1.6250	1.6050	10000	14000	20000
MM115XWOCRDU E9103E	XLO 115-27	300	2.25000	2.24980	4.7500	4.7496	2.2500	2.2300	1000	2000	3000
MM115XWOCRDU E9103C	XLO 115-47	150	2.25000	2.24980	4.7500	4.7496	2.2500	2.2300	3000	4500	7000
MM115XWOCRDU E9103A	XLO 115-77	30	2.25000	2.24980	4.7500	4.7496	2.2500	2.2300	6000	8000	15000
MM135XWOCRDU E9103C	XLO 135-67	50	1.25000	1.24980	2.6875	2.6873	1.2500	1.2300	6000	7000	12000
MM135XWOCRDU E9103A	XLO 135-10	70	1.25000	1.24980	2.6875	2.6873	1.2500	1.2300	15000	19000	28000
MM155XWOCRDU E9103D	XLO 155-37	300	2.75000	2.74980	4.7500	4.7496	2.2500	2.2300	1000	2000	3000
MM155XWOCRDU E9103B	XLO 155-67	150	2.75000	2.74980	4.7500	4.7496	2.2500	2.2300	4000	5000	6500
MM155XWOCRDU E9103A	XLO 155-87	50	2.75000	2.74980	4.7500	4.7496	2.2500	2.2300	6000	7000	10000
MM165XWOCRDU E9103E	XLO 165-27	800	3.50000	3.49975	6.3125	6.3121	3.0000	2.9800	500	1000	2000
MM165XWOCRDU E9103C	XLO 165-57	250	3.50000	3.49975	6.3125	6.3121	3.0000	2.9800	2000	3000	5000
MM165XWOCRDU E9103A	XLO 165-87	50	3.50000	3.49975	6.3125	6.3121	3.0000	2.9800	5000	6500	9000

Do not interchange with MM-EX.
MM-XWO produced to nominal minus tolerance.

