

TIMKEN SOLID-BLOCK MOUNTED SPHERICAL ROLLER BEARING PRIMARY SEALING

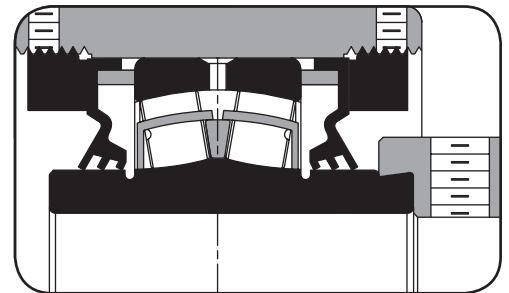
PRIMARY SEALS

Primary seals are installed between the inner ring of the bearing and the housing. They are held securely in place by the external housing nut. Primary seals can be contacting or non-contacting, purging or non-purging and are available in several material compounds for a variety of applications.

TRIPLE-LIP SEALS – CONTACTING, SELF-PURGING, LOW TO MODERATE SPEEDS⁽¹⁾

Timken offers three kinds of medium-contact triple-lip seals. Choose from seals made of nitrile synthetic rubber (acrylonitrile butadiene), Viton™ fluor elastomer or urethane.

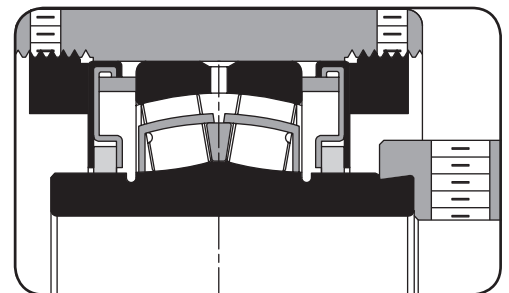
- **M Seal** – This seal, made of nitrile rubber, offers superior sealing in moist and dirty applications. It is chemical- and corrosion-resistant and provides excellent lubrication retention. It also allows excess grease to purge from the bearing cavity.
- **N Seal** – Made of Viton, this seal provides excellent chemical resistance and can operate at higher temperatures than nitrile rubber.
- **O Seal** – This seal, made of high-strength urethane for superior abrasion resistance.



LABYRINTH SEALS – NON-CONTACTING, NON-PURGING, ALL SPEEDS⁽²⁾

Instead of trying to form a seal with a single strong barrier, a labyrinth seal uses a winding passageway to accomplish the same reduction in flow. Not only is seal friction reduced, but so is seal wear.

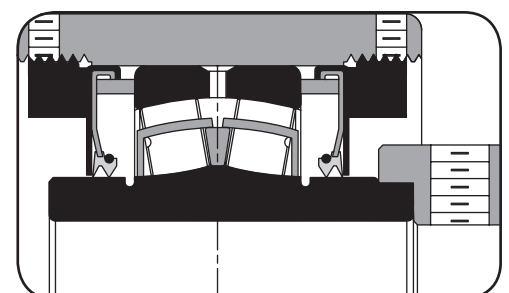
- **T Seal** – This seal consists of a DuPont™ Teflon® ring pressed onto the inner ring of the bearing that floats between two pieces of formed steel to accommodate misalignment. When using this seal, the housing comes with a vent fitting. Developed for higher-speed applications involving dirty conditions or moisture-affected areas, it is able to operate at higher temperatures and is impervious to most chemicals.



DOUBLE-LIP SEALS – CONTACTING, NON-PURGING, LOW SPEEDS⁽¹⁾⁽²⁾

These seals incorporate a double-lip seal, a garter spring for maximum contact, and a heavy-duty steel shield that protects the seal from large pieces of debris that could damage the seal itself.

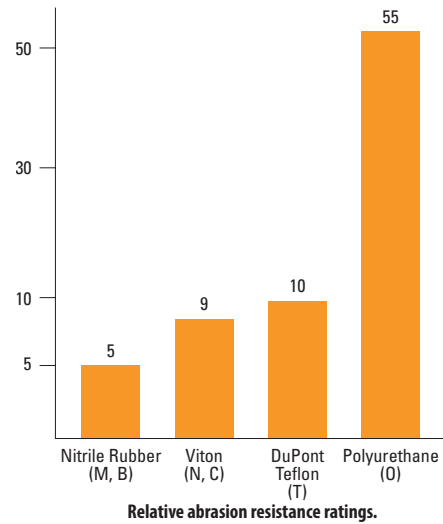
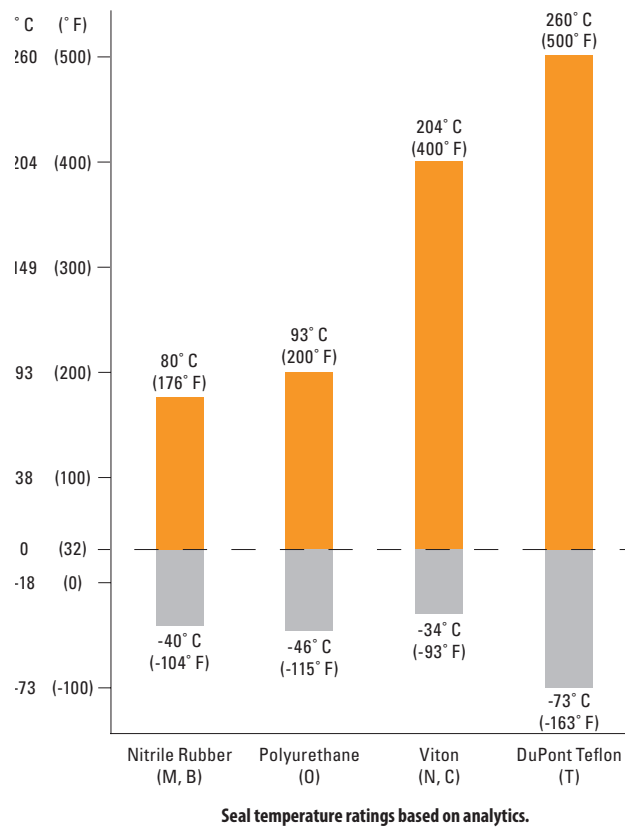
- **B Seal** – Made of nitrile rubber, this seal offers superior protection in applications with oil lubrication and is designed for extreme moisture, fine dust or extremely dirty applications. When using this seal, the housing comes with a vent fitting.
- **C Seal** – Made of Viton, this seal provides excellent chemical and abrasion resistance and can operate at higher temperatures than nitrile rubber. When using this seal, the housing comes with a vent fitting.



⁽¹⁾Temperature limit -40° C to 121° C (-40° F to 250° F) continuous, 149° C (300° F) intermittent. Constant seal-lip pressure on the inner ring results in higher operating temperatures of the complete unit.

⁽²⁾Relief valve is standard.

SEAL OPERATING TEMPERATURE AND ABRASION RESISTANCE



EC SERIES (QM) NORMAL SPEED RATINGS

Shaft Dia.	Bearing No.	Oil Lubrication			Grease Lubrication		
		M/N Seal ⁽¹⁾	T Seal	B/C/O Seal ⁽¹⁾	M/N Seal ⁽¹⁾	T Seal	B/C/O Seal ⁽¹⁾
mm in.		RPM	RPM	RPM	RPM	RPM	RPM
35 1 1⁄16, 1 1⁄2	22208	2700	4500	1950	2700	4000	1950
40, 45 1 1⁄16, 1 3⁄4	22209	2700	4500	1950	2700	4000	1950
50 1 15⁄16, 2	22210	2400	4200	1800	2400	3550	1800
55 2 3⁄16, 2 1⁄4	22211	2200	3800	1600	2200	3200	1600
60, 65 2 7⁄16, 2 1⁄2	22213	1800	3200	1500	1800	2800	1500
70, 75 2 11⁄16, 2 3⁄4, 2 15⁄16, 3	22215	1600	2900	1300	1600	2400	1300
80, 85, 90 3 3⁄16, 3 1⁄4, 3 7⁄16, 3 1⁄2	22218	1400	2400	1000	1400	2000	1000
100 3 11⁄16, 3 3⁄4, 3 15⁄16, 4	22220	1200	2000	900	1200	1600	900
110, 115 4 7⁄16, 4 1⁄2	22222	900	1700	600	900	1200	600
125, 130 4 15⁄16, 5	22226	700	1500	400	700	1000	400
140, 150 5 7⁄16, 5 1⁄2, 5 15⁄16, 6	23230	650	950	350	600	800	350
170, 180 6 7⁄16, 6 1⁄2, 6 15⁄16, 7	23234	600	900	350	600	800	350

⁽¹⁾Bearings with contact seals will have higher operating temperatures than bearings with labyrinth seals.

CL SERIES (QA/QAA) NORMAL SPEED RATINGS

Shaft Dia.	Bearing No.	Oil Lubrication			Grease Lubrication		
		M/N Seal ⁽¹⁾	T Seal	B/C/O Seal ⁽¹⁾	M/N Seal ⁽¹⁾	T Seal	B/C/O Seal ⁽¹⁾
mm in.		RPM	RPM	RPM	RPM	RPM	RPM
35 1 7⁄16, 1 1⁄2	22208	2700	4500	1950	2700	4000	1950
40, 45 1 11⁄16, 1 3⁄4	22209	2700	4500	1950	2700	4000	1950
50 1 15⁄16, 2	22210	2400	4200	1800	2400	3550	1800
55 2 3⁄16, 2 1⁄4	22211	2200	3800	1600	2200	3200	1600
60, 65 2 7⁄16, 2 1⁄2	22213	1800	3200	1500	1800	2800	1500
70, 75 2 11⁄16, 2 3⁄4, 2 15⁄16, 3	22215	1600	2900	1300	1600	2400	1300
80, 85, 90 3 3⁄16, 3 1⁄4, 3 7⁄16, 3 1⁄2	22218	1400	2400	1000	1400	2000	1000
100 3 15⁄16, 4	22220	1200	2000	900	1200	1600	900
110, 115 4 7⁄16, 4 1⁄2	22222	900	1700	600	900	1200	600
125, 130 4 15⁄16, 5	22226	700	1500	400	700	1000	400

⁽¹⁾Bearings with contact seals will have higher operating temperatures than bearings with labyrinth seals.

V SERIES (QV/QVV) NORMAL SPEED RATINGS

Shaft Dia.	Bearing No.	Oil Lubrication			Grease Lubrication		
		M/N Seal ⁽¹⁾	T Seal	B/C/O Seal ⁽¹⁾	M/N Seal ⁽¹⁾	T Seal	B/C/O Seal ⁽¹⁾
mm in.		RPM	RPM	RPM	RPM	RPM	RPM
50 1 15⁄16, 2	22211	2200	3800	1800	2200	3200	1600
55 2 3⁄16, 2 1⁄4	22212 22213	2000 1800	3500 3200	1650 1500	2000 1800	3000 2800	1550 1500
60, 65 2 7⁄16, 2 1⁄2	22214 22215	1700 1600	3050 2900	1400 1300	1700 1600	2600 2400	1400 1300
70, 75 2 11⁄16, 2 3⁄4, 2 15⁄16, 3	22216 22217	1500 1400	2650 2400	1200 1100	1500 1400	2200 2000	1150 1100
80, 85, 90 3 3⁄16, 3 1⁄4, 3 7⁄16, 3 1⁄2	22219 22220	1300 1200	2200 2000	1000 900	1300 1200	1800 1600	950 900
100 3 11⁄16, 3 3⁄4, 3 15⁄16, 4	22222	900	1700	600	900	1200	600
110, 115 4 7⁄16, 4 1⁄2	22224 22226	700	1500	400	700	1000	400
125, 130 4 15⁄16, 5	22228	650	1200	350	650	900	350

⁽¹⁾Bearings with contact seals will have higher operating temperatures than bearings with labyrinth seals.

K SERIES (TA/TAA AND DV/DAA) NORMAL SPEED RATINGS

Shaft Dia.	Bearing No.	Oil Lubrication			Grease Lubrication		
		M/N Seal ⁽¹⁾	T Seal	B/C/O Seal ⁽¹⁾	M/N Seal ⁽¹⁾	T Seal	B/C/O Seal ⁽¹⁾
mm in.		RPM	RPM	RPM	RPM	RPM	RPM
40 1 7/16, 1 1/2	22209	2700	4500	1950	2700	4000	1950
45 1 11/16, 1 3/4	22210	2400	4200	1800	2400	3550	1800
50 1 15/16, 2	22211	2200	3800	1800	2200	3200	1600
55 —	22212	2000	3500	1650	2000	3000	1550
60 2 3/16, 2 1/4	22213	1800	3200	1500	1800	2800	1500
65 2 7/16, 2 1/2	22215	1600	2900	1300	1600	2400	1300
70 2 11/16, 2 3/4	22216	1500	2650	1200	1500	2200	1150
75 2 15/16, 3	22217	1400	2400	1100	1400	2000	1100
80 3 3/16, 3 1/4	22218	1400	2400	1000	1400	2000	1000
85 —	22219	1300	2200	1000	1300	1800	950
90 3 7/16, 3 1/2	22220	1200	2000	900	1200	1600	900
100 3 15/16, 4	22222	900	1700	600	900	1200	600
110 4 3/16, 4 1/4	22224	800	1600	500	800	1100	500
115 4 7/16, 4 1/2	22226	700	1500	400	700	1000	400
125 4 15/16, 5	22228	650	1200	350	650	900	350
135 5 3/16, 5 1/4	23130	-	-	-	-	875	350
140 5 3/8, 5 7/16, 5 1/2	23132	-	-	-	-	750	500 ⁽²⁾
150 5 13/16, 5 7/8, 5 15/16, 6	23134	-	-	-	-	700	470 ⁽²⁾
160 6 5/16, 6 3/8, 6 7/16, 6 1/2	23136	-	-	-	-	650	430 ⁽²⁾
170 6 13/16, 6 7/8, 6 15/16, 7	23138	-	-	-	-	600	400 ⁽²⁾
180 7 1/8, 7 3/16, 7 1/4	23140	-	-	-	-	600	400 ⁽²⁾
200 7 13/16, 7 7/8, 7 15/16, 8	23144	-	-	-	-	500	330 ⁽²⁾
220 8 7/16, 8 1/2, 8 15/16, 9	23148	-	-	-	-	470	310 ⁽²⁾
240 9 7/16, 9 1/2	23152	-	-	-	-	380	250 ⁽²⁾
260 9 15/16, 10, 10 7/16, 10 1/2	23156	-	-	-	-	360	240 ⁽²⁾
280 10 15/16, 11	23160	-	-	-	-	320	210 ⁽²⁾
300 11 7/16, 11 1/2, 11 15/16, 12	23164	-	-	-	-	290	190 ⁽²⁾
320 12 7/16, 12 1/2	23168	-	-	-	-	270	180 ⁽²⁾
340 12 15/16, 13, 13 7/16, 13 1/2	23172	-	-	-	-	250	170 ⁽²⁾
360 13 15/16, 14	23176	-	-	-	-	240	160 ⁽²⁾
380 14 15/16, 15	23180	-	-	-	-	230	150 ⁽²⁾

⁽¹⁾Bearings with contact seals will have higher operating temperatures than bearings with labyrinth seals.

⁽²⁾Only available in O seal.

TIMKEN

The Timken team applies their know-how to improve the reliability and performance of machinery in diverse markets worldwide. The company designs, makes and markets bearings, gear drives, automated lubrication systems, belts, brakes, clutches, chain, couplings, linear motion products and related industrial motion rebuild and repair services.

Stronger. By Design.

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