TIMKEN

SEALED ROLL NECK BEARINGS

ADVANCING TECHNOLOGY FOR THE METALS INDUSTRY

Photo courtesy of SMS Siemag

STRENGTH WHERE IT COUNTS

Flat product rolling mills require well-engineered bearings that can operate at high speeds and withstand harsh environments, all while carrying heavy loads. At the same time, there's constant pressure to increase productivity while reducing costs.

For more than 100 years, Timken has provided high-quality bearings for rigorous applications in hot and cold rolling mills, while continuously improving the company's bearings and seals to keep pace with the demands of the metals industry.

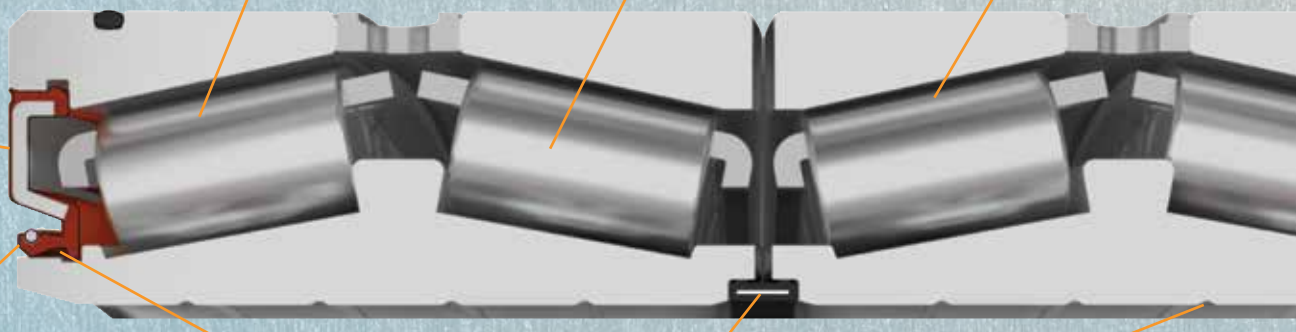
Timken engineering experience and know-how are reflected in the newest sealed roll neck bearing design. It offers industry-leading tapered roller bearing design, combined with advanced proprietary sealing solutions to reduce contamination ingress and extend bearing life, expected to result in a lower cost-per-ton-rolled for mill operators.

IMPROVED MAIN SEAL DESIGN CAN SIGNIFICANTLY BOOST PERFORMANCE

Contaminants and water ingress can reduce bearing life and excessive grease loss can lead to increased maintenance costs or strip staining. Timken technologists developed new, innovative seals that can address these operating concerns with a design that's also easy for the maintenance professional to use, resulting in the integrated main seal design.

Leveraging 50 years of seal development expertise, Timken created innovative sealing solutions that may provide major benefits to mill operators, including:

- Longer bearing life due to improved sealing against water and contaminant ingress and maximum bearing load rating within the envelope.
- Potential for extended maintenance intervals due to reduced grease loss and contamination ingress.
- Lower cost of ownership due to less required maintenance and longer bearing life.
- Easy-to-assemble seals that reduce bearing maintenance time.



ENGINEERED FOR RELIABILITY UNDER HARSH CONDITIONS

Mill operators depend on high-performance bearings to keep their operations running smoothly. The Timken roll neck bearing with an integrated seal can handle difficult working conditions, including high temperatures and speeds, as well as heavy shock loads and misalignment.

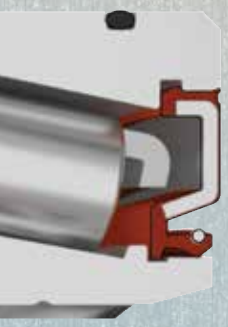
- Enhanced sealing due to high-performance seal designs with improved contact geometry.
- Improved performance in marginal lubrication due to better surface finishes.
- Misalignment accommodated by enhanced roller profiling for uniform load distribution.
- Increased toughness and fatigue life from case-carburized components.
- Improved load sharing provided by four single cups.
- Reduced cone face wear due to inboard and outboard cone face slots.
- Reduced potential for roll neck damage due to spiral bore grooves with blended radii that provide lubricant access to the roll neck.
- Fewer components to handle due to advanced integrated design with no center spacers or seal carriers.
- More effective exclusion of contaminants from the chock bore due to sealing at cup outer diameter.

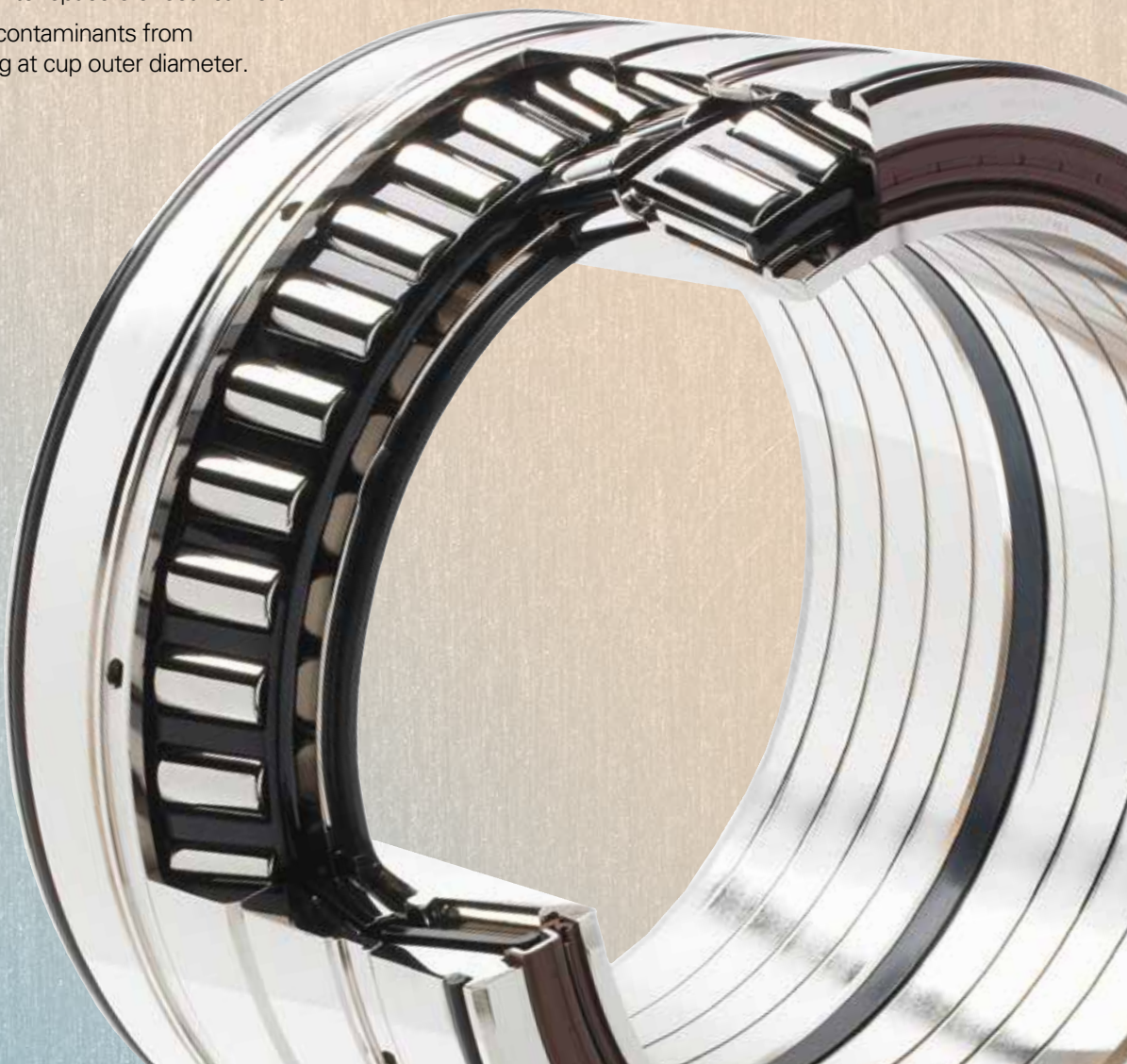
OPTIONAL FEATURES

PRE-GREASED ASSEMBLY: Bearings can be supplied as pre-greased assemblies. Several grease options are available, including Timken Premium Mill grease, which is known for its excellent resistance to water washout. Timken sealed roll neck bearings and seals are designed to work with different types of oil lubrication systems, as well. Contact your Timken engineer for assistance with grease type, fill recommendations and applications in oil-lubricated systems.

SOLID CUP SPACERS: The standard sealed bearing can be re-lubricated in the chock through the holes in the cup spacers. For chocks which are not configured with lubrication lines, the sealed bearing can be provided with solid cup spacers.

CENTER DOUBLE CUP: The standard sealed bearing design contains four single cups; however, a double cup version is available upon request.

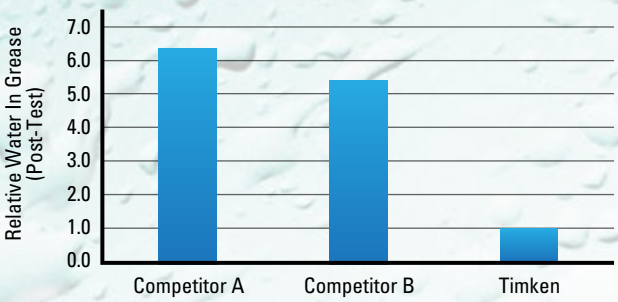




TESTING PROVES PERFORMANCE OF NEW SEALS

With more than 55 patents in seal technology, Timken understands sealing performance. Timken sealing engineers used advanced seal testing facilities to extensively develop and test main seal designs for the bearing. The positive results of this work are shown below.

WATER INGRESS TEST RESULTS



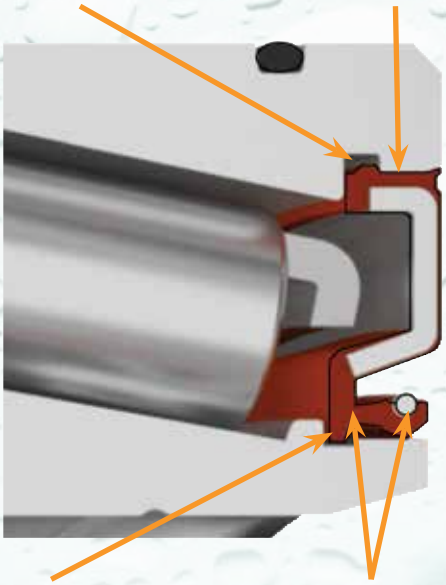
Statistically small sample size in dynamic lab test simulating rolling mill conditions. Actual experience may vary.

Not only is water effectively excluded from entering the bearing, but the grease is better retained as well, resulting in reduced grease consumption and related disposal costs.

RESILIENT MAIN SEALS HANDLE HIGH SPEEDS, MISALIGNMENT AND ECCENTRICITY

Easy installation and removal. No special tools or staking required. Positive retention.

Positive sealing at seal outer diameter.



Grease retention barrier: secondary lip interfaces with cone to form labyrinth.

Improved dynamic response for extreme load conditions: optimized independent spring design.

SOLID COMBINATION: HIGHLY RATED BEARINGS PACKAGED WITH DEPENDABLE MAIN SEALS

Timken engineers designed the bearing to optimize space for the main seals, while still maintaining industry-leading bearing load ratings inside the same bearing envelope.

The enhanced design of the main seal lip geometry improves operation under extreme conditions of speed, misalignment and eccentricity. To aid in grease retention, a labyrinth-type secondary lip was added, without increasing bearing torque or heat generation.

Positive sealing at the main seal-to-cup interface helps prevent ingress of water or contaminants. This design feature not only provides positive seal location and retention, it also allows for easy seal installation and removal. Seals are made from a fluoroelastomer material, which is resistant to most rolling fluids and can perform throughout a large operating temperature range between -25° C and 200° C (-13° F - 390° F).*

**As reported by NAK Sealing Technologies Corporation.*

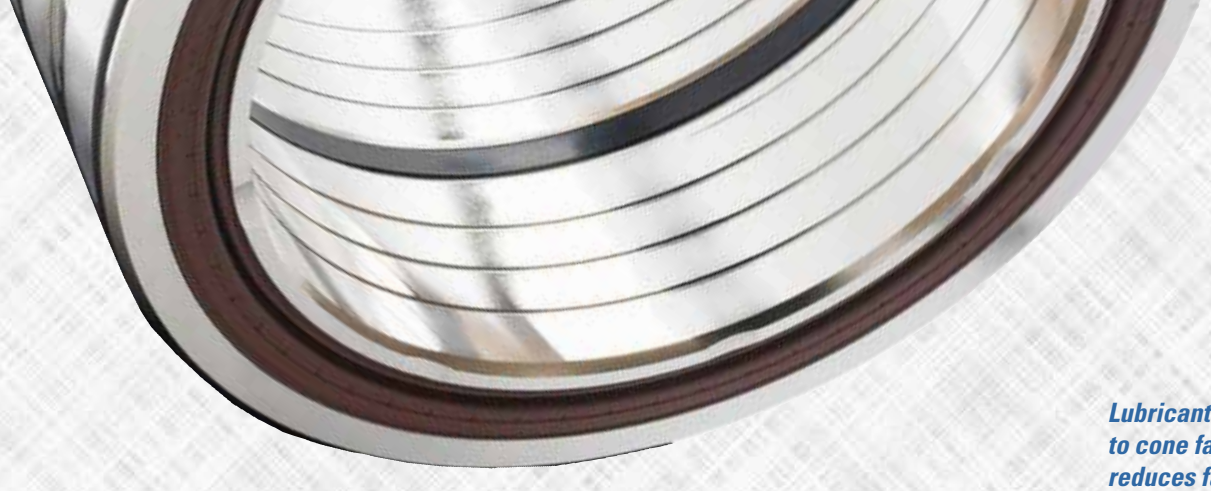
Warning: Do not exceed the fluoroelastomer temperature of 250° C (482° F).

MAIN SEAL INSTALLATION

Main seals for the integrated roll neck bearing can be easily installed and removed without special tools. These seals have a unique design and dimensions, so they are not interchangeable with other bearings or seals.

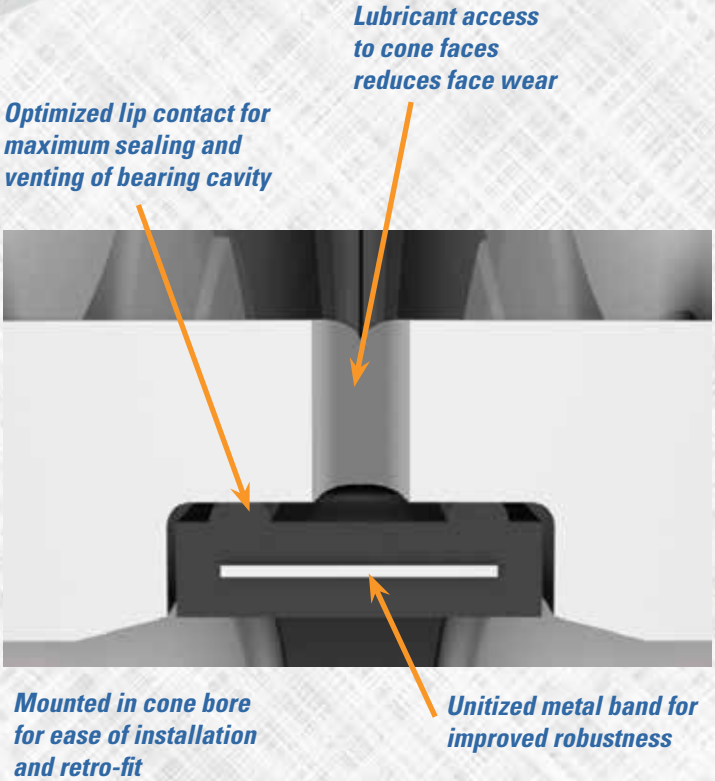
Install or remove the integrated seal by working it in or out gradually by hand or with a soft-headed mallet.

Do not attempt to install or remove these seals with a press because that may cause damage to the outer diameter (OD) of the seal. Also, these seals should not be staked into place and do not require a clamping device to retain them axially. The rubber OD design is sufficient to ensure positive retention.



ROBUST BORE SEAL BLOCKS WATER AND RELIEVES PRESSURE

The bore seal provides excellent water-exclusion capabilities, and the design has been optimized to vent under pressure, preventing the build-up of internal bearing pressure, which can be detrimental to the performance of the main seals. A fully unitized design improves the overall robustness of the seal.



BORE SEAL INSTALLATION

The bore seal design is easy to mount through the cone bore and snaps positively in place to ensure proper mounting.

INSTALLATION PROCEDURE

The installation procedure for the bore seals is a simple, manual method requiring no special tools or skills. The picture below demonstrates the basic installation process.

Bend the lubricated seal into a curved shape and locate it in the groove formed by the intersection of the two cones. Release the seal and allow it to snap in to place. Check that the seal is properly seated.

CHOOSE THE SEALED ROLL NECK BEARING THAT'S RIGHT FOR YOUR MILL

Timken offers a wide range of sealed roll neck bearings to meet the needs of the rolling mill industry, including the following options:

- **Integrated Seal Design**
- **Seal Carrier Design**
- **Special Designs (available upon request)**

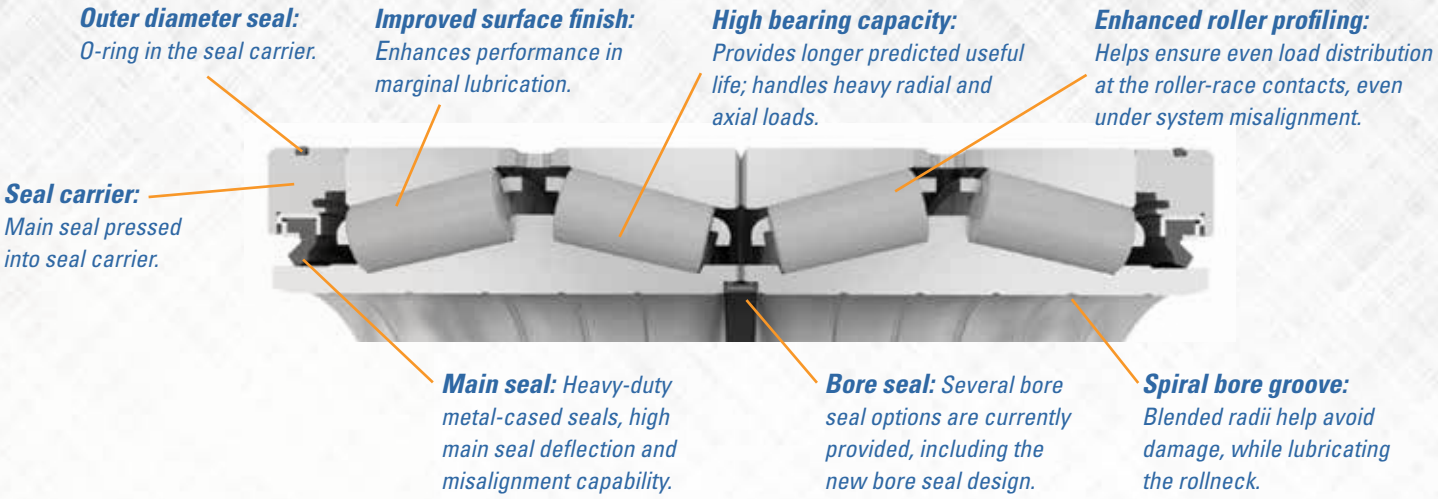
SEAL CARRIER DESIGN

Engineered with heavy-duty main seals in independent seal carriers, this design offers a very high level of protection against contamination ingress.

Due to the addition of the seal carrier, the overall bearing width is typically increased to maintain the same bearing capacity, compared to an integrated seal design with similar load ratings. When existing roll neck bearing space is limited, a seal carrier bearing can fit into the available envelope, but this typically results in decreased bearing capacity.

BENEFITS AVAILABLE WITH THE SEAL CARRIER DESIGN:

- Dependable protection against contamination ingress
- Main seals that can handle high levels of misalignment
- Heavy-duty metal-encased main seals handle tough applications
- Longer expected bearing life, due to Timken premium bearing design and materials



Options include: Center double cup; solid cup spacers; pre-greased assembly.

SPECIAL DESIGNS

In addition to the integrated seal design and seal carrier design, Timken manufactures many special designs that meet the needs of mill operators. These special designs are listed in the product tables of this brochure. Additionally, custom designs can be created upon request. Contact your Timken engineer to learn more about existing Timken special designs or to initiate a new custom design.

PRODUCT TABLES

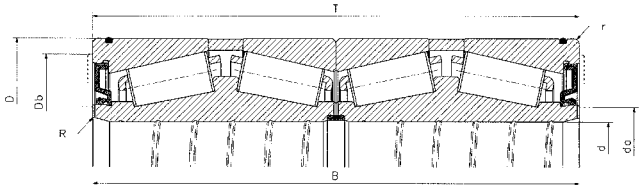


FIGURE 1

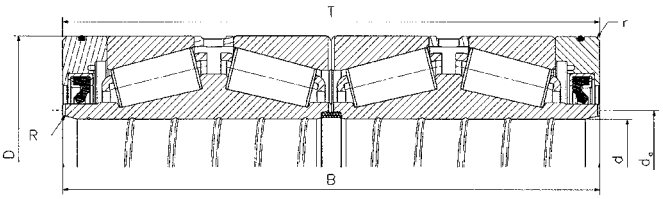


FIGURE 2

Base Part No.	Design Type	Bore	O.D.	Width Over Cups	Width Over Cones	Dynamic Load Rating	Dynamic Load Rating	K Factor	Max. Shaft Radius	Cone Backing Diameter	Max. Housing Radius	Cup Backing Diameter	Weight*
		d	D	T	B	$C_{90\ (4)}$	$C_{1\ (4)}$		R	d_a	r	D_b	
		mm inch	**mm** inch	**mm** inch	**mm** inch	**kN** Lbf	**kN** Lbf		**mm** inch	**mm** inch	**mm** inch	**mm** inch	**Kg** Lbs
NP935171	Fig 2	**195.000**	**270.000**	**250.000**	**250.000**	**404**	**1560**	1.20	**2.0**	**211.0**	**1.5**	**237.0**	**44**
		7.6772	10.6300	9.8425	9.8425	90800	350000		0.08	8.31	0.06	9.33	96
NP851756	Fig 2	**220.000**	**295.000**	**315.000**	**315.000**	**478**	**1844**	1.57	**1.0**	**234.0**	**0.8**	**277.0**	**57**
		8.6614	11.6142	12.4016	12.4016	107400	414000		0.04	9.21	0.03	10.91	125
NP115001	Fig 2	**220.000**	**295.000**	**315.000**	**315.000**	**526**	**2020**	1.65	**1.0**	**233.0**	**0.8**	**277.0**	**54**
		8.6614	11.6142	12.4016	12.4016	118200	456000		0.04	9.17	0.03	10.91	120
NP617527	Fig 1	**220.663**	**314.325**	**239.712**	**239.712**	**618**	**2380**	1.45	**1.5**	**237.0**	**3.3**	**288.0**	**58**
		8.6875	12.3750	9.4375	9.4375	138800	536000		0.06	9.33	0.13	11.34	127
NP759868	Fig 2	**240.000**	**320.000**	**294.000**	**294.000**	**476**	**1836**	1.44	**1.5**	**255.0**	**0.8**	**303.0**	**51**
		9.4488	12.5984	11.5748	11.5748	107000	412000		0.06	10.04	0.03	11.93	112
NP184658	Fig 2	**240.000**	**338.000**	**340.000**	**340.000**	**676**	**2600**	1.51	**1.5**	**258.0**	**0.8**	**313.0**	**90**
		9.4488	13.3071	13.3858	13.3858	151800	586000		0.06	10.16	0.03	12.32	198
NP526790	Fig 2	**240.000**	**338.000**	**340.000**	**340.000**	**836**	**3220**	1.5	**1.5**	**258.0**	**0.8**	**314.0**	**93**
		9.4488	13.3071	13.3858	13.3858	187800	724000		0.06	10.16	0.03	12.36	206
NP210270	Spec.	**241.478**	**349.148**	**228.600**	**228.600**	**696**	**2680**	1.64	**1.5**	**259.0**	**3.3**	**329.0**	**71**
		9.5070	13.7460	9.0000	9.0000	156600	604000		0.06	10.2	0.13	12.95	155
NP167500	Fig 2	**245.000**	**345.000**	**310.000**	**310.000**	**606**	**2340**	1.52	**1.5**	**263.0**	**1.5**	**325.0**	**89**
		9.6457	13.5827	12.2047	12.2047	136000	524000		0.06	10.35	0.06	12.8	196
NP390849	Fig 1	**247.650**	**393.700**	**269.876**	**269.876**	**1114**	**4300**	1.49	**1.5**	**299.0**	**3.3**	**370.0**	**129**
		9.7500	15.5000	10.6250	10.6250	250000	966000		0.06	11.77	0.13	14.57	284
NP831379	Fig 1	**254.000**	**358.775**	**269.875**	**269.875**	**830**	**3200**	1.58	**3.3**	**271.0**	**5.0**	**340.0**	**82**
		10.0000	14.1250	10.6250	10.6250	186800	720000		0.13	10.67	0.2	13.39	180
NP588161	Fig 2	**260.000**	**365.000**	**340.000**	**340.000**	**954**	**3680**	1.45	**2.5**	**278.0**	**3.3**	**339.0**	**98**
		10.2362	14.3701	13.3858	13.3858	214000	828000		0.098	10.94	0.13	13.35	215
NP348929	Fig 1	**266.700**	**355.600**	**228.600**	**230.185**	**688**	**2660**	1.62	**1.5**	**280.0**	**3.3**	**336.0**	**60**
		10.5000	14.0000	9.0000	9.0624	154800	598000		0.06	11.02	0.13	13.23	132
NP954936	Fig 1	**269.875**	**381.000**	**282.575**	**282.575**	**1000**	**3860**	1.76	**3.3**	**291.3**	**3.3**	**354.0**	**98**
		10.6250	15.0000	11.1250	11.1250	224000	866000		0.13	11.47	0.13	13.94	216
NP810309	Fig 1	**273.050**	**380.898**	**244.475**	**244.475**	**758**	**2920**	1.76	**1.5**	**292.0**	**3.3**	**363.0**	**81**
		10.7500	14.9960	9.6250	9.6250	170200	656000		0.06	11.5	0.13	14.29	177
NP814280	Fig 1	**276.225**	**393.700**	**269.875**	**269.875**	**904**	**3480**	1.49	**3.2**	**300.0**	**3.3**	**370.0**	**108**
		10.8750	15.5000	10.6250	10.6250	204000	784000		0.126	11.81	0.13	14.57	238
NP962698	Fig 1	**279.400**	**393.700**	**269.875**	**269.875**	**868**	**3340**	1.44	**3.2**	**300.0**	**3.3**	**371.0**	**99**
		11.0000	15.5000	10.6250	10.6250	195200	754000		0.126	11.81	0.13	14.61	219
NP962698	Fig 1	**279.400**	**393.700**	**320.000**	**320.000**	**868**	**3340**	1.44	**3.2**	**300.0**	**3.3**	**371.0**	**100**
		11.0000	15.5000	12.5984	12.5984	195200	754000		0.126	11.81	0.13	14.61	219
NP919993	Fig 1	**279.578**	**380.898**	**244.475**	**244.475**	**758**	**2920**	1.76	**1.5**	**297.0**	**3.3**	**363.0**	**75**
		11.0070	14.9960	9.6250	9.6250	170200	656000		0.06	11.69	0.13	14.29	166

**Assembly weight does not include auxiliary components.*

Spec. indicates special designs not shown in the figures above.

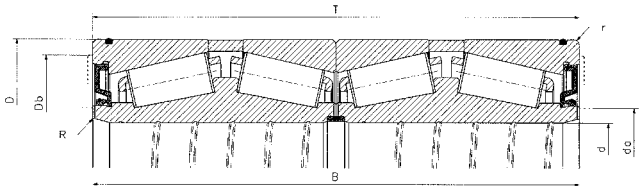


FIGURE 1

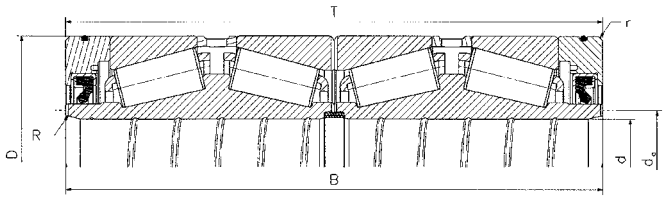


FIGURE 2

Base Part No.	Design Type	Bore	O.D.	Width Over Cups	Width Over Cones	Dynamic Load Rating	Dynamic Load Rating	K Factor	Max. Shaft Radius	Cone Backing Diameter	Max. Housing Radius	Cup Backing Diameter	Weight*
		d	D	T	B	$C_{90\ (4)}$	$C_{1\ (4)}$		R	d_a	r	D_b	
		mm inch	**mm** inch	**mm** inch	**mm** inch	**kN** Lbf	**kN** Lbf		**mm** inch	**mm** inch	**mm** inch	**mm** inch	**Kg** Lbs
NP229649	Spec.	**280.000**	**380.000**	**290.000**	**290.000**	**1196**	**4620**	1.56	**3.3**	**299.0**	**6.4**	**351.0**	**90**
		11.0236	14.9606	11.4173	11.4173	270000	1038000		0.13	11.77	0.25	13.82	197
NP385213	Fig 2	**280.000**	**380.000**	**340.000**	**340.000**	**988**	**3820**	1.56	**1.5**	**296.0**	**0.8**	**350.0**	**110**
		11.0236	14.9606	13.3858	13.3858	222000	858000		0.06	11.65	0.03	13.78	241
NP558574	Fig 1	**285.750**	**380.898**	**244.475**	**244.475**	**758**	**2920**	1.76	**1.5**	**301.0**	**3.3**	**363.0**	**70**
		11.2500	14.9960	9.6250	9.6250	170200	656000		0.06	11.85	0.13	14.29	154
NP163219	Spec.	**295.000**	**389.950**	**220.000**	**220.000**	**768**	**2960**	1.71	**1.5**	**308.0**	**1.5**	**367.0**	**66**
		11.6142	15.3524	8.6614	8.6614	172600	666000		0.06	12.13	0.06	14.45	146
NP464305	Spec.	**304.648**	**438.048**	**279.400**	**280.990**	**996**	**3840**	1.4	**3.3**	**327.0**	**4.8**	**404.0**	**137**
		11.9940	17.2460	11.0000	11.0626	224000	864000		0.13	12.87	0.19	15.91	302
NP898539	Fig 1	**304.800**	**419.100**	**269.875**	**269.875**	**1006**	**3880**	1.83	**3.3**	**328.0**	**7.0**	**397.0**	**108**
		12.0000	16.5000	10.6250	10.6250	226000	872000		0.13	12.91	0.275	15.63	237
NP435619	Spec.	**304.902**	**412.648**	**266.700**	**266.700**	**990**	**3820**	1.76	**3.3**	**322.0**	**1.5**	**395.0**	**99**
		12.0040	16.2460	10.5000	10.5000	222000	858000		0.13	12.68	0.06	15.55	217
NP377177	Spec.	**305.003**	**438.048**	**279.400**	**280.990**	**996**	**3840**	1.4	**3.3**	**327.0**	**4.8**	**404.0**	**137**
		12.0080	17.2460	11.0000	11.0626	224000	864000		0.13	12.87	0.19	15.91	301
NP305400	Fig 1	**310.000**	**430.000**	**350.000**	**350.000**	**1214**	**4680**	1.7	**3.2**	**331.0**	**4.0**	**407.0**	**152**
		12.2047	16.9291	13.7795	13.7795	272000	1052000		0.126	13.03	0.157	16.02	334
NP683330	Fig 1	**317.500**	**422.275**	**269.875**	**269.875**	**1006**	**3880**	1.83	**3.3**	**332.0**	**3.3**	**403.0**	**99**
		12.5000	16.6250	10.6250	10.6250	226000	872000		0.13	13.07	0.13	15.87	218
NP999842	Spec.	**330.302**	**438.023**	**254.000**	**247.650**	**662**	**2560**	1.27	**1.5**	**347.0**	**3.3**	**415.0**	**97**
		13.0040	17.2450	10.0000	9.7500	149000	574000		0.06	13.66	0.13	16.34	213
NP416510	Fig 1	**341.312**	**457.098**	**254.000**	**254.000**	**948**	**3660**	1.24	**1.5**	**365.0**	**3.3**	**432.0**	**111**
		13.4375	17.9960	10.0000	10.0000	214000	822000		0.06	14.37	0.13	17.01	245
NP996241	Fig 1	**343.052**	**457.098**	**254.000**	**254.000**	**948**	**3660**	1.24	**1.5**	**365.0**	**3.3**	**432.0**	**108**
		13.5060	17.9960	10.0000	10.0000	214000	822000		0.06	14.37	0.13	17.01	237
NP719584	Fig 1	**343.052**	**457.098**	**254.000**	**254.000**	**802**	**3100**	0.82	**1.5**	**365.0**	**3.3**	**434.0**	**110**
		13.5060	17.9960	10.0000	10.0000	180200	696000		0.06	14.37	0.13	17.09	243
NP974481	Spec.	**355.600**	**457.200**	**252.413**	**252.413**	**834**	**3220**	1.48	**1.5**	**366.0**	**2.0**	**432.0**	**96**
		14.0000	18.0000	9.9375	9.9375	187600	724000		0.06	14.41	0.08	17.01	211
NP631856	Spec.	**355.600**	**482.600**	**269.876**	**265.116**	**1088**	**4200**	1.29	**1.5**	**374.0**	**3.3**	**454.0**	**135**
		14.0000	19.0000	10.6250	10.4376	244000	944000		0.06	14.72	0.13	17.87	296
NP096778	Spec.	**355.600**	**488.950**	**265.110**	**265.110**	**1088**	**4200**	1.29	**1.5**	**374.0**	**3.3**	**460.0**	**144**
		14.0000	19.2500	10.4374	10.4374	244000	944000		0.06	14.72	0.13	18.11	316
NP587863	Spec.	**355.600**	**488.950**	**317.500**	**317.500**	**1394**	**5380**	1.76	**1.5**	**374.0**	**3.3**	**466.0**	**172**
		14.0000	19.2500	12.5000	12.5000	314000	1208000		0.06	14.72	0.13	18.35	378
NP272258	Spec.	**384.175**	**546.100**	**400.050**	**400.050**	**2020**	**7800**	1.76	**3.0**	**410.0**	**6.4**	**513.0**	**283**
		15.1250	21.5000	15.7500	15.7500	454000	1752000		0.12	16.14	0.25	20.2	622

**Assembly weight does not include auxiliary components.*

Spec. indicates special designs not shown in the figures above.

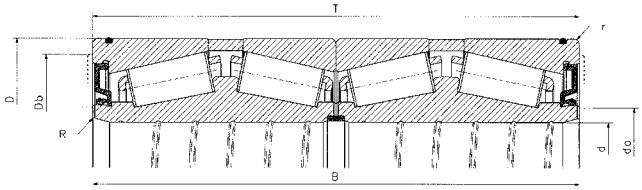


FIGURE 1

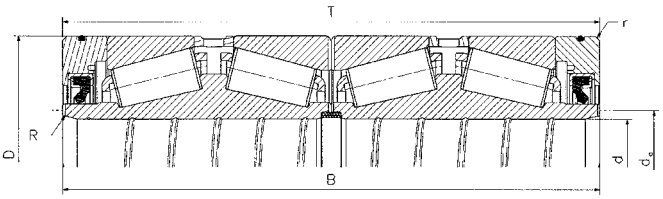


FIGURE 2

Base Part No.	Design Type	Bore	O.D.	Width Over Cups	Width Over Cones	Dynamic Load Rating	Dynamic Load Rating	K Factor	Max. Shaft Radius	Cone Backing Diameter	Max. Housing Radius	Cup Backing Diameter	Weight*
		d	D	T	B	$C_{90\ (4)}$	$C_{1\ (4)}$		R	d_a	r	D_b	
		mm inch	**mm** inch	**mm** inch	**mm** inch	**kN** Lbf	**kN** Lbf		**mm** inch	**mm** inch	**mm** inch	**mm** inch	**Kg** Lbs
T-6241-A	Fig 2	**390.000**	**510.000**	**350.800**	**350.000**	**1050**	**4041**	1.40	**2.0**	**411.0**	**4.5**	**479.0**	**190**
		15.3543	20.0787	13.8110	13.8110	235000	908500		0.078	16.18	0.177	18.86	417
NP041977	Spec.	**406.400**	**546.100**	**288.924**	**288.924**	**1332**	**5140**	1.37	**1.5**	**425.0**	**6.4**	**516.0**	**183**
		16.0000	21.5000	11.3750	11.3750	300000	1154000		0.06	16.73	0.25	20.31	402
NP706368	Spec.	**406.400**	**546.100**	**330.000**	**330.000**	**1358**	**5240**	1.23	**1.5**	**435.0**	**6.4**	**516.0**	**209**
		16.0000	21.5000	12.9921	12.9921	306000	1178000		0.06	17.13	0.25	20.31	459
NP553477	Fig 1	**406.400**	**562.000**	**381.000**	**381.000**	**1922**	**7400**	1.76	**3.3**	**413.0**	**6.4**	**534.0**	**266**
		16.0000	22.1260	15.0000	15.0000	432000	1666000		0.13	16.26	0.25	21.02	585
NP561275	Fig 2	**409.575**	**546.100**	**334.975**	**334.975**	**1166**	**4500**	0.96	**3.3**	**428.0**	**6.4**	**510.0**	**226**
		16.1250	21.5000	13.1880	13.1880	262000	1012000		0.13	16.85	0.25	20.08	498
NP895224	Fig 1	**415.925**	**590.550**	**435.000**	**435.000**	**1958**	**7560**	1	**3.3**	**444.0**	**6.4**	**540.0**	**392**
		16.3750	23.2500	17.1260	17.1260	440000	1698000		0.13	17.48	0.25	21.26	863
NP800471	Spec.	**430.000**	**575.000**	**380.000**	**380.000**	**1646**	**6340**	1.33	**1.5**	**452.0**	**6.4**	**537.0**	**275**
		16.9291	22.6378	14.9606	14.9606	370000	1428000		0.06	17.8	0.25	21.14	604
NP186641	Spec.	**431.800**	**571.500**	**336.550**	**336.550**	**1592**	**6140**	1.33	**2.0**	**453.0**	**3.3**	**537.0**	**231**
		17.0000	22.5000	13.2500	13.2500	358000	1380000		0.08	17.83	0.13	21.14	509
NP981440	Spec.	**440.000**	**590.000**	**481.500**	**481.500**	**2320**	**8960**	1.73	**3.5**	**463.0**	**7.5**	**552.0**	**368**
		17.3228	23.2283	18.9567	18.9567	522000	2020000		0.138	18.23	0.295	21.73	810
NP189922	Fig 1	**450.000**	**595.000**	**368.000**	**368.000**	**1920**	**7400**	1.96	**3.0**	**481.0**	**6.0**	**567.0**	**269**
		17.7165	23.4252	14.4882	14.4882	432000	1664000		0.118	18.94	0.24	22.32	592
NP189922	Fig 1	**450.000**	**595.000**	**404.000**	**404.000**	**1920**	**7400**	1.96	**3.0**	**481.0**	**6.0**	**567.0**	**289**
		17.7165	23.4252	15.9055	15.9055	432000	1664000		0.118	18.94	0.24	22.32	636
NP428889	Fig 1	**457.200**	**596.900**	**279.400**	**276.225**	**1278**	**4920**	1.44	**3.0**	**480.0**	**3.5**	**570.0**	**200**
		18.0000	23.5000	11.0000	10.8750	288000	1108000		0.118	18.9	0.14	22.44	439
NP062614	Spec.	**457.200**	**606.000**	**381.000**	**381.000**	**1946**	**7500**	1.92	**3.0**	**482.0**	**6.0**	**576.0**	**290**
		18.0000	23.8583	15.0000	15.0000	438000	1688000		0.12	18.98	0.24	22.68	638
NP105083	Fig 1	**460.000**	**625.000**	**421.000**	**421.000**	**2260**	**8740**	1.76	**3.0**	**486.0**	**9.0**	**588.0**	**362**
		18.1102	24.6063	16.5748	16.5748	508000	1962000		0.118	19.13	0.35	23.15	796
NP471919	Fig 1	**482.600**	**615.950**	**330.200**	**330.200**	**1682**	**6480**	1.76	**6.4**	**507.0**	**6.5**	**585.0**	**232**
		19.0000	24.2500	13.0000	13.0000	378000	1458000		0.25	19.96	0.254	23.03	510
NP998820	Fig 2	**482.600**	**615.950**	**379.984**	**379.984**	**1400**	**5400**	1.76	**3.3**	**507.0**	**6.0**	**585.0**	**259**
		19.0000	24.2500	14.9600	14.9600	314000	1214000		0.13	19.96	0.24	23.03	571
NP453574	Fig 1	**482.600**	**615.950**	**377.825**	**406.400**	**1752**	**6760**	1.76	**4.1**	**507.0**	**6.4**	**582.0**	**266**
		19.0000	24.2500	14.8750	16.0000	394000	1520000		0.16	19.96	0.25	22.91	585
NP216529	Fig 2	**482.600**	**615.950**	**400.050**	**400.050**	**1834**	**7080**	1.76	**6.4**	**504.0**	**7.4**	**582.0**	**282**
		19.0000	24.2500	15.7500	15.7500	412000	1592000		0.25	19.84	0.29	22.91	620
NP630107	Fig 2	**482.600**	**615.950**	**400.050**	**419.100**	**1682**	**6480**	1.76	**4.0**	**507.0**	**6.4**	**585.0**	**281**
		19.0000	24.2500	15.7500	16.5000	378000	1458000		0.16	19.96	0.25	23.03	617
NP471919	Fig 1	**482.600**	**615.950**	**420.000**	**420.000**	**1682**	**6480**	1.76	**6.4**	**507.0**	**6.5**	**585.0**	**262**
		19.0000	24.2500	16.5354	16.5354	378000	1458000		0.25	19.96	0.254	23.03	576

**Assembly weight does not include auxiliary components.*

Spec. indicates special designs not shown in the figures above.

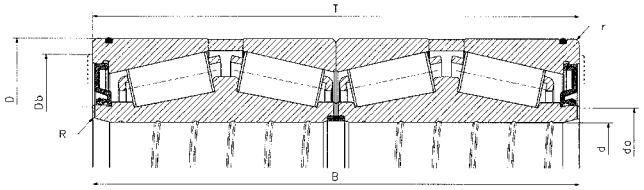


FIGURE 1

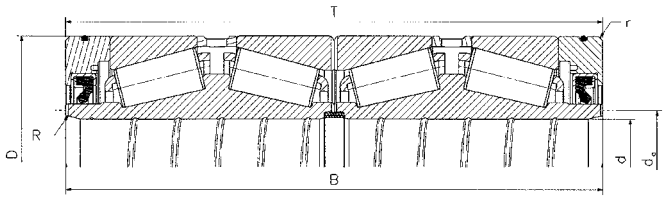


FIGURE 2

Base Part No.	Design Type	Bore	O.D.	Width Over Cups	Width Over Cones	Dynamic Load Rating	Dynamic Load Rating	K Factor	Max. Shaft Radius	Cone Backing Diameter	Max. Housing Radius	Cup Backing Diameter	Weight*
		d	D	T	B	$C_{90\ (4)}$	$C_{1\ (4)}$		R	d_a	r	D_b	
		mm inch	**mm** inch	**mm** inch	**mm** inch	**kN** Lbf	**kN** Lbf		**mm** inch	**mm** inch	**mm** inch	**mm** inch	**Kg** Lbs
NP644633	Fig 1	**482.600**	**615.950**	**500.000**	**500.000**	**1682**	**6480**	1.76	**6.4**	**507.0**	**6.5**	**585.0**	**342**
		19.0000	24.2500	19.6850	19.6850	378000	1458000		0.25	19.96	0.254	23.03	752
NP313976	Fig 2	**482.600**	**615.950**	**379.984**	**379.984**	**1400**	**5400**	1.76	**3.3**	**507.0**	**6.0**	**585.0**	**259**
		19.0000	24.2500	14.9600	14.9600	314000	1214000		0.13	19.96	0.24	23.03	570
NP780879	Spec.	**489.026**	**634.873**	**320.675**	**320.675**	**1692**	**6520**	1.71	**3.3**	**513.0**	**2.0**	**597.0**	**246**
		19.2530	24.9950	12.6250	12.6250	380000	1468000		0.13	20.2	0.08	23.5	541
NP109340	Spec.	**490.000**	**625.000**	**385.000**	**385.000**	**1766**	**6820**	1.77	**3.0**	**513.0**	**3.0**	**591.0**	**284**
		19.2913	24.6063	15.1575	15.1575	398000	1532000		0.12	20.2	0.12	23.27	624
NP409679	Fig 1	**510.000**	**655.000**	**379.000**	**377.000**	**2100**	**8120**	1.79	**1.5**	**531.0**	**6.4**	**624.0**	**314**
		20.0787	25.7874	14.9213	14.8426	472000	1824000		0.06	20.91	0.25	24.57	690
DX283454	Spec.	**510.000**	**655.000**	**410.000**	**408.000**	**2580**	**9980**	1.79	**1.6**	**531.0**	**6.4**	**624.0**	**331**
		20.0787	25.7874	16.1417	16.0630	582000	2240000		0.063	20.91	0.25	24.57	727
NP877970	Spec.	**558.800**	**736.600**	**457.200**	**455.612**	**2580**	**9960**	1.69	**4.0**	**588.0**	**6.4**	**693.0**	**510**
		22.0000	29.0000	18.0000	17.9375	580000	2240000		0.16	23.15	0.25	27.28	1123
NP321803	Spec.	**585.788**	**771.525**	**479.425**	**479.425**	**3060**	**11800**	1.54	**4.8**	**618.0**	**6.4**	**732.0**	**588**
		23.0625	30.3750	18.8750	18.8750	688000	2660000		0.19	24.33	0.25	28.82	1294
NP264014	Fig 2	**585.788**	**771.525**	**567.000**	**567.000**	**3400**	**13140**	1.76	**3.3**	**615.0**	**6.4**	**726.0**	**698**
		23.0625	30.3750	22.3228	22.3228	766000	2960000		0.13	24.21	0.25	28.58	1535
NP324718	Spec.	**609.600**	**787.400**	**361.950**	**361.950**	**2120**	**8160**	1.58	**6.4**	**642.0**	**1.5**	**738.0**	**438**
		24.0000	31.0000	14.2500	14.2500	476000	1834000		0.25	25.28	0.06	29.06	964
NP891876	Spec.	**685.500**	**862.000**	**375.000**	**375.000**	**2500**	**9600**	1.76	**3.3**	**714.0**	**2.0**	**837.0**	**478**
		26.9882	33.9370	14.7638	14.7638	560000	2160000		0.13	28.11	0.08	32.95	1051
NP145790	Spec.	**685.800**	**876.300**	**355.600**	**352.425**	**2500**	**9600**	1.76	**3.3**	**714.0**	**6.4**	**843.0**	**504**
		27.0000	34.5000	14.0000	13.8750	560000	2160000		0.13	28.11	0.25	33.19	1108
NP026261	Spec.	**685.800**	**876.300**	**428.625**	**428.625**	**2500**	**9600**	1.76	**3.3**	**714.0**	**6.4**	**843.0**	**580**
		27.0000	34.5000	16.8750	16.8750	560000	2160000		0.13	28.11	0.25	33.19	1276
277TQS 9801	Spec.	**704.850**	**914.400**	**552.450**	**552.450**	**3540**	**13665**	1.36	**0.1**	**738.2**	**8.8**	**856.4**	**977**
		27.7500	36.0000	21.7500	21.7500	800000	3072000		0.006	29.06	0.346	33.72	2150
NP388194	Fig 2	**708.025**	**930.275**	**565.150**	**565.150**	**3980**	**15320**	1.72	**4.0**	**744.0**	**5.0**	**882.0**	**1032**
		27.8750	36.6250	22.2500	22.2500	894000	3440000		0.16	29.29	0.2	34.72	2270
NP019603	Fig 1	**710.000**	**900.000**	**410.000**	**410.000**	**2580**	**9940**	1.11	**3.5**	**741.0**	**6.4**	**852.0**	**594**
		27.9528	35.4331	16.1417	16.1417	580000	2240000		0.138	29.17	0.25	33.54	1306
NP778193	Fig 2	**711.200**	**914.400**	**390.000**	**390.000**	**2020**	**7800**	1.36	**3.5**	**744.0**	**5.0**	**870.0**	**622**
		28.0000	36.0000	15.3543	15.3543	454000	1754000		0.14	29.29	0.2	34.25	1368
NP746115	Fig 2	**711.200**	**914.400**	**420.000**	**420.000**	**2020**	**7800**	1.36	**4.0**	**744.0**	**5.0**	**870.0**	**655**
		28.0000	36.0000	16.5354	16.5354	454000	1754000		0.16	29.29	0.2	34.25	1440
NP839885	Fig 2	**717.550**	**946.150**	**660.000**	**660.000**	**4820**	**18620**	1.76	**3.3**	**753.0**	**1.5**	**900.0**	**1313**
		28.2500	37.2500	25.9843	25.9843	1086000	4180000		0.13	29.65	0.06	35.43	2889

**Assembly weight does not include auxiliary components.*
Spec. indicates special designs not shown in the figures above.

SOLUTIONS FOR MILLS

From the edger to the coiler, Timken meets the challenges of modern metal mills. Our broad product offering includes a full line of tapered, cylindrical and spherical bearings, as well as housed unit assemblies. These advanced bearings – along with other innovative products like our Timken® ADAPT™ bearing – offer maximum bearing performance for many mill applications.

For rolling mills, Timken offers a wide range of solutions, including an extensive offering of multi-row cylindrical roller bearings for flat- and long-product roll neck applications, high performance multi-row taper roller bearings and a broad line of high-capacity thrust bearings.

Tapered roller bearings are available in several combinations of product features and designs, including sealed versions, to meet the specific needs of each mill. Timken's full line of specialized metal mills bearings is the logical choice for your demanding mill applications.

LUBRICATION

Our engineers understand the importance of proper lubrication and have formulated grease specifically for bearings used in rolling mills. Timken® Premium Mill Grease is made with a calcium-complex soap base and a high-viscosity-index paraffinic mineral oil, resulting in good water absorption and oxidation stability. This grease offers excellent resistance to water washout in steel mills, aluminum mills and other industrial applications. Timken sealed roll neck bearings can be pre-filled with Timken Mill Grease upon request.

CHOOSE TIMKEN FOR QUALITY

Backed by 100 years of mill experience, Timken offers bearings, chain, couplings, lubrication, seals, repair services, maintenance practices, gear drive repair, condition monitoring and training for the rolling mill and continuous casting industries. Turn to Timken for expertise in bearings and mechanical power transmission solutions. To learn more, visit ***www.timken.com***

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 high-performance mechanical components, including bearings, belts, gears, chain and related mechanical power transmission products and services.

Stronger. **Commitment.** Stronger. **Value.** Stronger. **Worldwide.** Stronger. **Together.** | **Stronger.** By Design.

www.timken.com