NBC LARGE DIAMETER PRECISION – ENGINEERED HEAVY DUTY BEARINGS

First in india

National Engineering Industries Limited, The first Bearing Manufacturing Industry, established as National Bearing Co. Ltd. in 1946 in the Pink City of India, Jaipur, had association and technical collaboration with renowned world manufactures :

- The Hoffmann Manufacturing Co., Chelmsford, U.K. (now RHP).
- Wilhelm Stahlecker GMBH, West Germany.
- Federal Mogul Corporation, U.S.A.
- S.R.O. Switzerland.

Presently NEI is having association and technical collaboration with

1. NTN Ltd., Japan
2. BRENCO Inc., USA

NEI is the only producer manufacturing all types and configuration of rolling bearings under the Trade name NBC, viz. Ball Bearing, Cylindrical Roller Bearings, Tapered Roller Bearings , Spherical Roller Bearings, covering 400 different sizes ranging from 8mm inside diameter to 2000mm outside diameter. Thus NEI is always able to give the best proposal for bearing arrangements incorporating the most suitable bearings.

Besides domestic market, our products are being exported to several countries in the world.

Steel Mill Bearings

In this steel age nothing is more pleasing to the eyes than the sight of Rolled metal speeding out of modern high speed steel rolling mills. Self-sufficiency in steel is the call of the day and so is the importance of self-sufficiency in Bearings for Steel Mills equipment.

In the years to come we are planning for rolled metal in still larger quantities. As this demand increases, so will the demand on mills increase . Modern mills are being developed to run at higher and higher speeds and to roll wider and wider materials to closer and closer tolerances. NEI is now well-equipped to fulfil the exacting requirements of bearings.

Heavy Engineering Power plant Bearings

With the increase in India's industrial potential and as a large producer of Heavy Engineering Equipment, Large Power Plant Equipment , Heavy Earth Moving Machinery, etc. NEI had come forward to make these strategic industries **self-reliant and secure from vagaries of international rivalries, as has already been achieved in** Defence Production, Railways, Automobiles, Electric Motors & Pumps, Fans, Conveyors, Bicycles etc.

Research & development

In order to minimize the shut down of costly equipment, it is important that the bearings stand upto the heavy loads. NBC bearings are manufactured of high quality materials to high precision and are the results of many years of research and development.

At NEI the development of better bearings is a never ending job. NEI research and development has created new standards for bearing performance and produced many advances in the field of bearings technology, all leading to more reliable products. NBC bearing are designed on computers for optimum load carrying capacity and life. NEI is supplying the most sophisticated preloaded four row tapered roller

Product Reliability

National Engineering Industries Ltd. Feels proud of itself on its ability to offer the finest engineering service in the bearing industry. A complete engineering and research facility is available for solving intricate design and application problems with expert advice on installation and maintenance problems.

BEARING SIZES

NBC Bearing No.	BEARING DIMENSIONS (mm)			EQUIVALENT	
	Bore	O.D.	Width	Make	Number
BALL BEARINGS					
TL-110	110.00	230.00	73.00	Siemens	TL-110
TL-120	120.00	250.00	78.00	Siemens	TL-120
6224	120.00	215.00	40.00	SKF-Sweden	6224
TL-140	140.00	280.00	85.00	Siemens	TL-140
TL-160	160.00	320.00	95.00	Siemens	TL-160
8368	340.00	540.00	160.00	GPZ-USSR	8368
8791	455.00	650.00	120.00	GPZ-USSR	8791
BB 1037	593.73	790.58	117.48	Torrington	233TVL303AA341
60/630	630.00	920.00	128.00	FAG	60/630
82/630	630.00	850.00	175.00	GPZ-USSR	82/630
81/670	670.00	800.00	105.00	GPZ-USSR	81/670
60/670 MAC 3	670.00	980.00	136.00	FAG-Germany	60/670 MAC 3
N-1013	710.00	950.00	185.00	GPZ-USSR	78682/710
BB 1038	806.45	1025.53	127.00	Torrington-USA	317TVL307AA470
CYLINDERICAL ROLLER BEARINGS					
T 624	76.20	119.84	25.40	Rollway-USA	T-624
AT-626	88.90	138.89	33.32	Rollway-USA	AT-626
NU 320	100.00	215.00	47.00	SKF-Sweden	NU-320
				Rollway-USA	MUC-320
N324	120.00	260.00	55.00	SKF-Sweden	N-324
				Rollway-USA	MCS-324
				Torrington	120-RN-03
NJ 226	130.00	230.00	40.00	GPZ-USSR	42226
BB 5054	130.00	250.00	80.00	GPZ-USSR	42726
RB 5055	130.00	250.00	80.00	GPZ-USSR	232726
NU 5226 M	130.00	230.00	79.40	Cooper-England	SS-9925
NU 5230 M	150.00	270.00	88.90	Cooper-England	SS-9926
NU 330	150.00	320.00	65.00	SKF-Sweden	NU-330
				Torrington-USA	150-RU-3
9923	152.40	254.00	50.80	Cooper-England	FT-9923
N 334	170.00	360.00	72.00	SKF-Sweden	N-334
				Rollway-USA	MCS-334
				Torrington-USA	170-RM-03
NJ 336	180.00	380.00	75.00	GPZ-USSR	42336
RB 5060	180.00	406.00	217.00	SKF-Sweden	451585A
NU 5236 M	180.00	320.00	108.00	Cooper-England	SS-9927
NU 5240	200.00	360.00	120.65	Rollway-USA	MUC-5240
				Torrington-USA	200-RU-92
NJ 240	200.00	360.00	58.00	GPZ-USSR	42240
NU 2244	220.00	400.00	108.00	GPZ-USSR	32544
6943	220.00	350.00	98.40	Cooper-England	SS-6943
NJ 1052	260.00	400.00	65.00	GPZ-USSR	42152
NUP 1052	260.00	400.00	65.00	GPZ-USSR	92152
NF 1952	260.00	360.00	46.00	NTN	NF 1952
NU 1956	280.00	380.00	46.00	NTN	NU1956
NF 1956	280.00	380.00	46.00	NTN	NF 1956

NBC Bearing No.	BEARING DIMENSIONS (mm)			EQUIVALENT	
	Bore	O.D.	Width	Make	Number
NNU 4956	280.00	380.00	100.00	FAG-Germany	NNU-4956
NU 5256	280.00	500.00	165.10	Rollway-USA	E-5256 UMR
				Torrington-USA	280-RU-92
N 1011	304.80	609.60	114.30	Cooper-England	FT-9924
NN 3064K	320.00	480.00	121.00	GPZ-USSR	3182164
NN 3072K	360.00	540.00	134.00	GPZ-USSR	3182172
NU 2276	380.00	680.00	175.00	NTN	NU-2276
NN 3080K	400.00	600.00	148.00	GPZ-USSR	3182180
2032780	400.00	650.00	145.00	GPZ-USSR	2032780
4202192	460.00	680.00	218.00	GPZ-USSR	4202192
RB 5061	460.00	650.00	470.00	SKF-Sweden	314560
NN 3092K	460.00	680.00	163.00	GPZ-USSR	3182192
N1050	469.90	698.50	139.70	Torrington	185 RIN 696BA1655
42629/530	530.00	710.00	180.00	GPZ-USSR	42629/530
327/600	600.00	830.00	150.00	GPZ-USSR	327/600
N 1009	670.00	980.00	308.00	FAG-Germany	218-504387
42629/710	710.00	950.00	243.00	GPZ-USSR	42629/710

SINGLE ROW TAPERED ROLLER BEARINGS

32222	110.00	200.00	56.00	SKF-Sweden	32222
938/932	114.30	212.73	66.68	Timken-USA	938/932
HM926747/HM926710	127.00	228.60	53.98	Timken-USA	HM926747/HM926710
HM231132/HM231110	139.70	236.54	57.15	Timken-USA	HM231132/HM231110
H936340/H936213	155.57	336.55	86.00	Timken-USA	H936340/H936313
7832	160.00	375.00	87.30	GPZ-USSR	7832
2007132	160.00	240.00	51.50	GPZ-USSR	2007132
32232	160.00	290.00	84.00	GPZ-USSR	7532
HH437549/HH437510	165.10	336.55	92.08	Timken-USA	HH437549/HH437510
67787/67720	174.63	247.65	47.63	Timken-USA	67787/67720
M236848/M236810	177.80	260.35	53.98	Timken-USA	M236848/M236810
HM237545/HM237510	177.80	288.93	63.50	Timekn-USA	HM237545/HM237510
32236	180.00	320.00	91.00	GPZ-USSR	7536
32238	190.00	340.00	97.00	GPZ-USSR	7538
EE350750/351687	190.50	428.63	106.36	Timken	EE350750/351687
67885/67820	190.50	266.70	47.63	Timken-USA	67885/67820
H242649/H242610	206.37	336.55	98.43	Timken-USA	H242649/H242610
2007144	220.00	340.00	76.50	GPZ-USSR	2007144
88900/88126	228.60	320.68	50.80	Timken-USA	88900/88126
544090/544118	228.60	300.04	33.34	Timken-USA	544090/544118
HH249949/HH249910	247.65	406.40	115.89	Timken-USA	HH249949/HH249910
2007952	260.00	360.00	64.50	GPZ-USSR	2007952
7352	260.00	540.00	110.00	GPZ-USSR	7352
2007160	300.00	460.00	100.70	GPZ-USSR	2007160
HM266449/HM266410	384.18	546.10	104.78	Timken-USA	HM266449/HM266410
7184	420.00	620.00	95.00	GPZ-USSR	7184

NBC Bearing No.	BEARING DIMENSIONS (mm)			EQUIVALENT	
	Bore	O.D.	Width	Make	Number
77/520	520.00	740.00	95.00	GPZ-USSR	77/520
71/600	600.00	870.00	124.00	GPZ-USSR	71/600
10079/710	710.00	950.00	114.00	GPZ-USSR	10079/710
10079/900	900.00	1180.00	124.00	GPZ-USSR	10079/900
DOUBLE ROW TAPERED ROLLER BEARINGS					
98400/98789D	101.60	200.03	115.89	Timken-USA	98400/98789D
NA782/774D	104.78	180.98	104.78	Timken-USA	NA782/774D
782/774D	104.78	180.98	104.78	Timken-USA	782/774D
97526	130.00	230.00	150.00	GPZ-USSR	97526
HM127446/HM127415XD	131.75	207.96	146.05	Timken-USA	HM 127446/ HM127415XD
99550/99102D	139.70	254.00	149.23	Timken-USA	99550/99102D
NA48686/48620D	142.88	200.03	87.32	Timken-USA	NA48686/48620D
2097730	150.00	250.00	138.00	GPZ-USSR	2097730
97530	150.00	270.00	172.00	GPZ-USSR	97530
81630/81963D	159.95	244.48	107.95	Timken-USA	81630/81963D
94650/94114D	165.10	288.93	142.88	Timken-USA	94650/94114D
82680X/82620D	177.80	279.40	133.35	Timken-USA	82680X/82620D
HM237545/HM237510D	177.80	288.93	142.88	Timken-USA	HM237545/HM237510
2097136	180.00	280.00	134.00	GPZ-USSR	2097136
2097736	180.00	300.00	164.00	GPZ-USSR	2097736
67885/67820D	190.50	266.70	103.19	Timken-USA	67885/67820D
93750W/93125DE	190.50	317.50	146.05	Torrington-USA Timken-USA	75TDO-421-H2 93750W/93125DE
2097740	200.00	340.00	184.00	GPZ-USSR	2097740
2097140	200.00	310.00	152.00	GPZ-USSR	2097140
LM241149NW/LM241110D	203.20	276.23	90.49	Timken-USA	LM241149NW/ LM241110D
H242649D/H242610	206.38	336.55	180.98	Timken-USA	H242649D/H242610
67985/67920D	206.38	282.58	101.60	Timken-USA	67985/67920D
2097144	220.00	340.00	165.00	GPZ-USSR	2097144
M244249/M244210D	220.66	314.33	106.36	Timken-USA	M244249/M244210D
EE130902/131401D	228.60	355.60	152.40	Timken-USA	EE130902/131401D
2097148	240.00	360.00	165.00	GPZ-USSR	2097148
2097748	240.00	400.00	210.00	GPZ-USSR	2097748
2097948	240.00	320.00	110.00	GPZ-USSR	2097948
LM247748D/LM247710	244.48	327.03	92.08	Timken-USA	LM247748D/ LM 247710
M252338DW/M252310	250.83	381.00	74.61	Timken-USA	M252338DW/ M252310
LM249747NW/LM249710D	254.00	347.66	101.60	Timken-USA	LM249747NW/ LM249710D
47752	260.00	420.00	170.00	GPZ-USSR	47752
2097152	260.00	400.00	186.00	GPZ-USSR	2097152
2097952	260.00	360.00	134.00	GPZ-USSR	2097952
2097752	260.00	440.00	225.00	GPZ-USSR	2097752
EE722115/722186D	292.10	469.90	200.03	Timken-USA	EE722115/722186D
HM259038DW/HM259010	298.45	447.68	158.75	Timken-USA	HM259038DW/ HM 259010
2097960	300.00	420.00	160.00	GPZ-USSR	2097960

NBC Bearing No.	BEARING DIMENSIONS (mm)			EQUIVALENT	
	Bore	O.D.	Width	Make	Number
97760	300.00	500.00	180.00	GPZ-USSR	97760
L357049NW/L357010D	304.80	393.70	107.95	Timken-USA	L357049NW/L357010D
N1021	305.08	499.99	200.00	FAG-Germany	531296A
N1051	320.00	620.00	282.75	FAG-Germany	531814
2097968	340.00	460.00	160.00	GPZ-USSR	2097968
1097768	340.00	580.00	242.00	GPZ-USSR	1097768
HM262749/HM262710D	346.08	488.95	200.03	Timken-USA	HM262749/HM262710D
332298MA	347.66	680.00	330.50	SKF-Sweden	332298MA
1097776	380.00	620.00	242.00	GPZ-USSR	1097776
HM266449DW/HM266410	384.18	546.10	193.68	Timken-USA	HM266449DW/ HM266410
97180	400.00	600.00	206.00	GPZ-USSR	97180
EE911600/912401D	406.40	609.60	187.33	Timken-USA	EE911600/912401D
EE234160/234213D	406.40	539.75	142.88	Timken-USA	EE234160/234213D
1097784	420.00	700.00	275.00	GPZ-USSR	1097784
97192	460.00	680.00	230.00	GPZ-USSR	97192
1097996	480.00	650.00	180.00	GPZ-USSR	1097996
EE640192/640261D	488.95	660.40	206.38	Timken-USA	EE640192/640261D
EE243192/243251D	489.03	634.87	177.80	Timken-USA	EE243192/243251D
EE243193D/243250	489.03	634.87	152.40	Timken-USA	EE243193D/243250
40471/500	500.00	720.00	216.00	GPZ-USSR	40471/500
10979/530	530.00	710.00	190.00	GPZ-USSR	10979/530
EE843220/843291D	558.80	736.60	187.33	Timken-USA	EE843220/843291D
10979/560	560.00	750.00	213.00	GPZ-USSR	10979/560
8471/560	560.00	820.00	242.00	GPZ-USSR	8471/560
971/600	600.00	870.00	270.00	GPZ-USSR	971/600
10979/600	600.00	800.00	210.00	GPZ-USSR	10979/600
EE649240/649313D	609.60	793.75	206.38	Timken-USA	EE649240/649313D
				Torrington-USA	240TDO-776D-A180-G8
10979/710	710.00	950.00	240.00	GPZ-USSR	10979/710
EE752300/752381D	762.00	965.20	187.33	Timken-USA	EE752300/752381D
				Torrington-USA	300TDO-380-G8
971/800	800.00	1150.00	307.00	GPZ-USSR	971/800
10979/850	850.00	1120.00	268.00	GPZ-USSR	10979/850
10979/950	950.00	1250.00	300.00	GPZ-USSR	10979/950
FOUR ROW TAPERED ROLLER BEARINGS					
48290DW/20/20D	127.00	182.56	158.75	Timken-USA	48290DW/20/20D
67790D/20/21D	177.80	247.65	192.09	Timken-USA	67790D/20/21D
M238849D/10/10D	187.33	269.88	211.14	Timken-USA	M238849D/10/10D
M240631T/644TD/647T/611D	180.84	284.16	239.72	Timken-USA	M240631T/644TD/ 647T/611D
67985DW/920/921D	206.38	282.58	190.50	SKF	331486
2077144	220.00	340.00	305.00	GPZ-USSR	2077144
M244249D/210/210D	220.66	314.33	239.71	Timken-USA	M244249D/210/210D
				FAG-Germany	506200
LM247748D/710/710D	244.48	327.03	193.68	Timken-USA	LM247748D/710/710D
477752	260.00	440.00	330.00	GPZ-USSR	477752

NBC Bearing No.	BEARING DIMENSIONS (mm)			EQUIVALENT	
	Bore	O.D.	Width	Make	Number
LM451349DW/310/310D	266.70	355.60	228.60	Timken-USA	LM451349DW/310/310D
M252349D/310/310D	269.88	381.00	282.58	Timken-USA	M252349D/310/310D
1077756	280.00	460.00	324.00	GPZ-USSR	1077756
N 1028	280.27	379.89	244.48		
LM654648DW/610/610D	285.75	380.90	244.47	Timken-USA	LM654648DW/610/610D
M255449D/410/410D	288.93	406.40	298.45	Timken-USA	M255449D/410/410D
EE330116D/166/167D	292.10	422.28	269.88	Timken-USA	EE330116D/166/167D
				FAG-Germany	512630
2077160	300.00	460.00	390.00	GPZ-USSR	2077160
LM761649DW/610/610D	343.05	457.10	254.00	Timken-USA	LM761649DW/ 610/610D
M262449DW/410/410D	374.66	469.90	292.10	Timken-USA	M262449DW/410/410D
HM265049DW/010/010D	368.30	523.88	382.59	Timken-USA	HM265049DW/ 010/010D
1077776	380.00	620.00	420.00	GPZ-USSR	1077776
HM266449DW/10/10D	384.18	546.10	400.05	Timken-USA	HM266449DW/10/10D
LM767749DW/710/710D	406.40	546.10	288.93	Timken-USA	LM767749DW/ 710/710D
77788	440.00	650.00	355.00	GPZ-USSR	77788
M270449DW/10/10D	450.00	595.00	368.00	Timken-USA	M270449DW/10/10D
777792	460.00	730.00	440.00	GPZ-USSR	777792
577796	480.00	700.00	420.00	GPZ-USSR	577796
LM272248DW/10/10D	482.60	615.95	330.20	Timken-USA	LM272248DW/10/10D
EE243193D/250/251D	489.03	634.87	320.68	Timken-USA	EE243193D/250/251D
771/500	500.00	720.00	420.00	GPZ-USSR	771/500
10777/500	500.00	830.00	570.00	GPZ-USSR	10777/500
M274149D/110/110D	501.65	711.20	520.70	Timken-USA	M274149D/110/110D
LM277149DA/10/10D	558.80	736.60	457.20	Timken-USA	LM277149DA/10/10D
EE843221D/290/291D	558.80	736.60	322.26	Timken-USA	EE843221D/290/291D
LM278849D/810/810D	585.79	771.53	479.43	Timken-USA	LM278849D/810/810D
779/600	600.00	800.00	365.00	GPZ-USSR	779/600
771/630	630.00	920.00	515.00	Timken-USA	771/630
L281149D/110/110D	660.40	812.80	365.13	Timken-USA	L281149D/110/110D
N1014D/15/16/D	670.00	1090.00	710.00	GPZ-USSR	10777/670
777/750	750.00	1130.00	690.00	GPZ-USSR	777/750
LM287849D/810/810D	939.80	1333.50	952.50	Timken-USA	LM287849D/810/810D
TAPERED ROLLER THRUST BEARINGS					
T-611-TTHD	152.40	317.50	69.85	Timken-USA	T-611-TTHD
T-811-TTHD	203.20	419.10	92.08	Timken-USA	T-811-TTHD
T-911A	234.95	482.60	104.78	Timken-USA	T-911A
9019452	260.00	480.00	132.00	GPZ-USSR	9019452
T-1120-TTHD	279.40	603.25	136.53	Timken-USA	T-1120-TTHD
9019476	380.00	670.00	175.00	GPZ-USSR	9019476
9009580	400.00	850.00	272.00	GPZ-USSR	9009580

DISTINCTIVE FEATURES OF NBC BEARING

NBC heavy duty bearings are made of more expensive carburising grade finest bearing quality high nickel Molybdenum alloy steels such as modified SAE 4620, 3310 depending on size of bearing, than the conventional through hardened steel SAE 52100.

Case carburising grades have favourable hardenability characteristics leaving compressive residual stress on the surface of the races and tensile stress in service, thus giving much longer life than through hardened steel.

The raceways are hard wear resistant surface due to Molybdenum in the steel yet have a tough, elastic inner core to absorb shock loads.

Forged and rolled bearing rings conforming to grain flow has been developed for heavy duty applications. This advanced ring rolling process improves fatigue life appreciably.

Crowned Rollers

To avoid severe edge loading which causes metal fatigue and finally bearing failure, NEI is purposely building crowned rollers, which keep higher stress off the edge to lengthen the life of the bearing.

High speed computer analysis of bearing design has been adapted as partof engineering research. New techniques provide a mathematical aid for optimum performance under a variety of conditions.

Strict quality control at every step of manufacturing results in the recognised reliability and high performance of NBC bearings.

On the smaller sizes the steel stamped cage is used predominantly. On the larger sizes, where maximum capacity must be provided in limited space, the pin type cage is used. Lifting holes are provided in cage rings.

Frequency of Inspection

In metal rolling Industry, dirt and water contamination in the bearing is possible. For assuring maximum roll neck/special bearing life, it is necessary to inspect them periodically. Inspection should be made on a regular schedule. The frequency of inspection will vary with the operating conditions. Experience will dictate whether the inspection period should be at three months, six months, or 12 months interval.

After inspection, bearing wear can be measured and corrections in the size of the spacer made. Also the cup load zones should be changed in the chocks/housings, and the bearing shifted from drive side to operating side as well as from top roll to bottom roll chock/housing. The chock/housing can also be inspected at this time and repaired if necessary. All these practices play an important part in good bearing performance.

Cleaning

Cleaning of the bearing is necessary to remove any accumulation of scale, water, old lubricant or any other contaminants which can act as lapping agent to cause excessive wear in the bearings. Small bearings may be cleaned with kerosene, or other commercial solvents. For larger bearing, a neutral oil may be used in cleaning tanks.

Alkali cleaners such as trisodium phosphate, soda ash, or meta silicates mixed 15 to 20 grammes per litre of hot water may also be used. The cleaning tank should have provisions for heating the oil or water solutions as well as for agitating and recirculating the cleaner.

Immediately after cleaning, the bearing should be covered with a coating of light oil to protect against rusting.

Bearing Marking for Correct Stacking Sequence

Every Preloaded Bearing has a serial number and all parts of that bearing assembly must have the same number. The parts are not internally interchangeable in normal conditions. In addition to the serial number, there is also a suffix letter on each side of the matching part to establish its proper position within the bearing. Each cone, cup and spacer must be in correct position in the stacked bearing in accordance with the markings for all the rows of the rollers within the bearing to maintain the correct adjustment or running clearance.

Chock/Housing Inspection

The bearing chock/housing should be cleaned out thoroughly and all lubrication and vent holes cleaned out with compressed air. Heavy corrosion or fretting in chock/housing bore should be buffed or polished out. This removes any accumulation or rust which could work loose and contaminate the bearing lubricant.

Periodic checks for bore size and out of roundness should be made and recorded. A complete record of inspection and measurement should be kept and the chock/housing repaired when necessary.

Roll Neck/Journal Inspection

Before fitting the chock/housing and bearing assembly to the roll neck/journal the neck should be inspected for size and general condition. The neck diameter should be rebuilt if the diameter is below the recommended fit. Make sure any bad nicks or gouges on the roll neck/journal are stoned or filed down before reassembly.

Lubrication

While the bearings are in service, they should be kept adequately lubricated at all times. If circulating oil or mist lubricating systems are used, periodic checks for contamination of the oil in the chock/housing should be made.

Chock/housing should be drained often enough to prevent any accumulation of water or rolling solutions. After draining the chock/housing new oil must be added to maintain the proper level.

With proper care, maintenance and lubrication, NBC bearings will continue to do the tough, rugged job expected of them in heavy industries.

NATIONAL ENGINEERING INDUSTRIES LTD. ,
Khatipura Road, Jaipur-302006
Phone : 2223221 (10 Lines)
Fax : 0141 - 2221926, 2222259
Email : neisales@neibearing.com