

Technical Specification for Rolling BearingsDRAWINGS AND TECHNICAL INFORMATION TO BE SUBMITTED WITH QUOTATION EVERY TIME ON BEARING OFFERED

1. Dimensioned drawing of the bearing.
2. Type & Make of bearing.
3. Significance of each suffix/prefix.
4. Accuracy class: (Normal/P5/P6)
5. Suitability for application : (Traction / Industrial)
6. Number of rollers & size.
7. Radial internal clearance.
8. Axial clearance.
9. Type of cage construction : (Standard/Drop roller).
10. Type of cage guiding : (Roller/Outer race)
11. Cage Material : (Brass/Steel)
12. Material specification for rollers & races.
13. Surface finish on rollers and races.
14. Dynamic capacity of bearing.
15. Static capacity of bearing.
16. Maximum permissible speed (with Grease lubrication)

GENERAL REQUIREMENTS:

Bearings offered should conform to the below mentioned requirements :

1. Bearings should be of special execution for traction application with suffix VA301 (SKF), F1(FAG), SV1(STEYR), MT(RHP) etc. Following special features may be envisaged in design and manufacturing processes.
 - 1.1 Improved and uniform surface finish by grinding of track chamfers, honning of tracks and lapping of rollers.
 - 1.2 Optimized cage construction for efficient lubrication.
 - 1.3 Vibration and noise level specially controlled.
 - 1.4 Bearings rings stabilised for higher temperatures.
 - 1.5 Uniform hardness on bearing rings and rollers, variation not exceeding 1/2 RC with in the same element.
 - 1.6 WE REQUIRE BEARINGS WITH INTERCHANGABLE ASSEMBLY ONLY.
2. Boundary dimensions and its tolerance to be as per this drawing and is generally based on ISO 15:1981 and ISO 492:1981.
3. Radial Bearing clearance & Axial clearance in roller bearing to be as per this drawing and is generally based on draft ISO 5742 Rev., DIN 620 & DIN 43283 unless stated otherwise in the drawing.
4. Accuracy class for internal dimensions of bearing to be P5/P6.
5. Rollers should be designed to cater for increased load carrying capacity.

REV. REVISED & REDRAWN.

15

BHARAT HEAVY ELECTRICALS LTD

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APPRO.:

TRACTION M&E D.O.

CHANGED BY:

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REVISIONS:

REVISIONS:

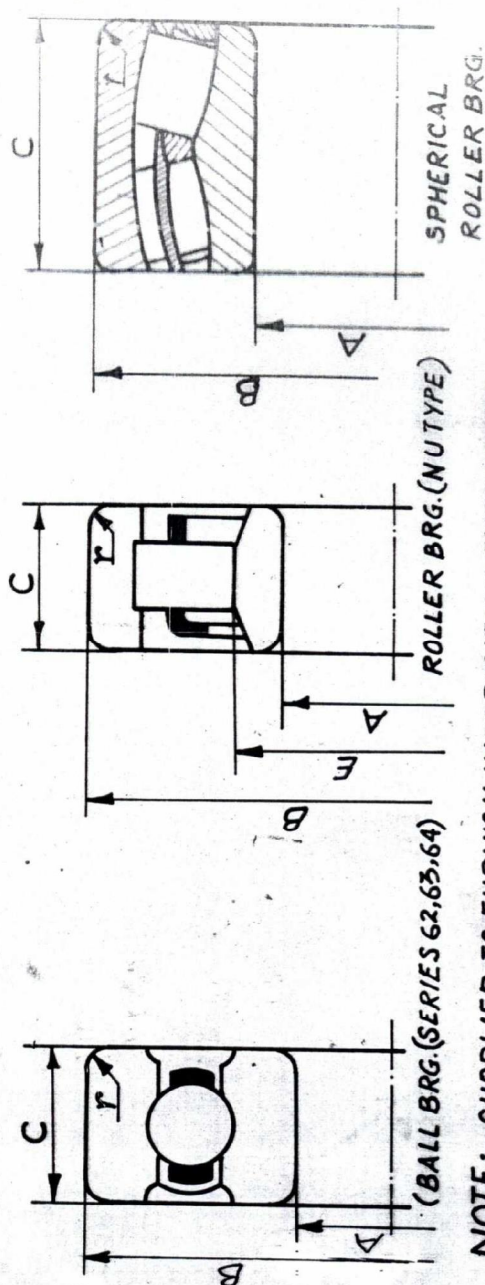
SCALE: NTS

C450067(SH.1/2)

DIVISIONAL STANDARDS

C450067(SH.1/2)

DIVISIONAL STANDARDS



NOTE:- SUPPLIER TO FURNISH INFORMATION EVERY TIME WITH OFFERS AS PER DRG. C450067(SHEET-1)

DIVISIONAL STANDARDS

C450067

(BALL BRG. (SERIES 62, 63, 64))

ROLLER BRG. (NU TYPE)

SPHERICAL
ROLLER BRG.

NOTE:- SUPPLIER TO FURNISH INFORMATION EVERYTIME
WITH OFFERS AS PER DRG. C450067 (SHEET-1)

R26	M/C REF. TG 4302 STYLE NO. CHANGED
R25	IT NO. 24 WAS NOT ON. 11/6/87
REV. 24	IT. NO. 17 DESCRIPTION 6318 MCA WAS 6318CA. 11/6/87
REV. 23	SL. NO. 17 ASSY. DRG. REF 3-439-44-53002 WAS 3 439 43 53 002. 11/6/87
REV. 22	IN SH. 2 BRG. NO. FOR IT. 001 WAS NU 309/C3. IN CH. 3 BRG. NO. FOR IT. 001 WAS NU 310. 25 MIC REF. DRG. REF. 3-439-44-53002, 3-439-43-53001 WERE NOT ON. 11/6/87
REV. 21	IT. 014 MODIFIED FOR POLYAMIDE CAGE. 11/6/87
REV. 20	IN BOM SL. NO. 19 & 20 WERE NOT ON. 11/6/87
REV. 19	IN BOM M/C REF. MA 3503 AT 2 ASSY. DRG. REF. 3-439-44-53002, 3-439-43-53001 WERE NOT ON. 11/6/87
REV. 18	IN SL. NO. 15 DIA. CLEARANCE WAS 0.030/0.051. IN SL. NO. 15 ASSY. DRG. REF. 24434447001, 24434347002 & SL. NO. 18 WERE NOT ON. 11/6/87
REV. 17	IN ITS. 5 & 7 ASSY. DRG. 64515445 WAS NOT ON. 11/6/93

SL. NO.	SL. BEARING NO.	M/C REF.	ASSY. DRG. REFERENCE	STYLE/ CODE NO.	BOUNDRY DIMENSIONS (MM)						CLEARANCE		MAX. SPEED OVER SPEED	DYN. LOAD (N)	STAT. LOAD (N)
					A	B	C	E	r	DIA.	AXIAL				
1	NU 309/C4	AG 51-DE PTU-NDE AG-51/M	04334017001	BP 7211532807	45.000 44.988	100.000 99.985	25.00 24.88	58.5	1.5	0.070 0.100	-	2380 3000	99000 100000		
2	6308Z/C4	AG 51/M (CE)	04334017001	BP 7210144994	40.000 39.988	90.000 89.986	23.00 22.88	-	2	0.028 0.046	-	2380 3000	41000 24000		
3	6309/C4	GB 13A GB 13A/M PTU (DE)	04341016001	BP 7210143971	45.000 44.988	100.000 99.985	25.00 24.88	-	2	0.03 0.051	-	2380 3000	52700 31500		
5	6308/C4	MG 51BY MG 51BX BX/M (CE)	64515445 (54)	BP 7210143904	40.000 39.988	90.000 89.985	23.00 22.88	-	2	0.028 0.046	-	1320 2400	41000 24000		

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SCALE :- N.T.S.

C450067 (SH 2/5)

DIVISIONAL STANDARDS

C450067

SL. NO.	BEARING NO.	M/C REF.	ASSY. DRG. REFERENCE	STYLE/ CODE NO.	BOUNDARY DIMENSIONS					CLEARANCE		MAX. SPEED OVER SPEED	DYN. LOAD (STAT. LOAD)
					A	B	C	E	F	D/A.	AXIAL		
6	6310/C4	MG51BY (GE)	24414333001	BP7210143912	50.000 49.988	110.000 109.985	27.00 26.88	-	2	0.050 0.080	-	1320 2400	61800 380000
7	NU310/C4	MG51BX MG51BX/M MG51CW AG-2702AX	24414333001 G4515445(59) 24334326001(4)	BP7211532815	50.000 49.988	110.000 109.985	27.00 26.88	65	3	0.070 0.100	-	1320 2400	110000 112000
8	SPHERICAL ROLLER BRG 23230CC/C3	TG 10901AZ	H4505015(52)	BP721233899	150.00 149.975	270.000 269.965	96.00 95.75	-	2.5	0.170 0.220	-	1000 1250	937000 1460000
9	NU415/C4	TM2701/AZ (PE)	34394452003	BP7211553987	75.000 74.985	190.000 189.970	45.00 44.85	104.5	4	0.090 0.125	-	850 1710	264000 280000
10	NU313/C4	TM2701AZ TM3604AZ (CE)	34394352004	BP7211532831	65.000 64.985	140.000 139.982	35.00 32.85	82.5	3.5	0.080 0.110	0.000 0.000	850 1710 *1512 2230	183000 196000
11	6216/C4	TM2701AZ (CE)	24414333001	-	80.000 79.985	140.000 139.982	26.00 25.85	-	3	0.046 0.071	-	850 1710	70200 550000
12	6316/C3	MA3501AZ (NCE) MA3505AZ	24324450004 2-432-44-34-002	BP7210143920	80.000 79.985	170.000 169.975	39.00 38.85	-	3.5	0.025 0.051	-	1800 2250	124000 86500
13	NU316/C3	MA3501AZ (CE) MA3501AZ	24324350001 2-432-43-34001	BP7211532858	80.000 79.985	170.000 169.975	39.00 38.85	101.5	3.5	0.065 0.100	-	1800 2250	260000 290000

REV.

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O/C - 1, TAM - 3
TNX - 1
TXM - 3

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C450067 (SH 3/5)

BEARINGS

DIVISIONAL STANDARDS

C450067(SH45)

DIVISIONAL STANDARDS														C450067	
SL. NO.	BEARING NO.	M/C REF.	ASSY DRG. REFERENCE	STYLE/ CODE NO.	BOUNDARY DIMENSIONS						CLEARANCE		MAX. SPEED OVER SPEED	DYN. LOAD (N)	
					A	B	C	E	T	DIA.	AXIAL	STAT LOAD (N)			
14	6313Z/C4 (CAN BE OVER POLYAMIDE CAGE.)	AG3101AY	H4505048(14)	BP7210144986	65.00	140.00	33.00	-	35	0.038	-	2380	92300		
		TM3604AZ (CE)	H4505061	-	64.985	139.982	32.85	-	-	0.061	-	3000 151/2	60000		
15	6409/C3	DY3423/M	24434447001	BP7210161996	45.00	120.00	29.00	-	2	0.018	-	3500	76100		
		(CE & NCE)	24434347002	-	44.988	119.985	28.88	-	-	0.036	-	6000	45000		
16	SPHERICAL ROLLER BRG. 22312CC/C3	TG4302	14314156005	BP902467917	60.000	130.000	46.00	-	2.1	0.065	-	2100	235000		
		-	-	-	59.985	129.982	45.88	-	-	0.090	-	2625	280000		
17	6318MC4	TM4501	34394153002	BP7210143939	90.000	190.000	43.00	-	3	0.053	-	3100	143000		
		(CE)	-	-	89.980	189.970	42.88	-	-	0.084	-	3800	108000		
18	6314Z/C3	PTU70AZ	14341021001	-	70.000	150.000	35.00	-	2.5	0.025	0.040	2500	104000		
		(NDE)	-	-	69.985	149.982	34.85	-	-	0.051	0.070	3740	68000		
19	NU312 EC/C3	JA-2601AZ	24324478001	-	60.00	130.00	31.00	-	2	0.055	-	4300	151000		
		(NDE)	-	-	59.985	129.982	30.85	-	-	0.075	-	5000	98000		
20	7312B (ANGULAR CONTACT BALL BRG.)	JA2601AZ	24324378001	-	60.00	130.00	62.00	-	2	0.022	0.025	3400	146000		
		(DE)	-	-	59.985	129.982	61.70	-	-	0.055	0.065	4500	112000		

REV.	ISSUED. <i>[Signature]</i>		ISSUED BY		BHARAT HEAVY ELECTRICALS LTD.	
	APPD.		TRACTION M&S D.O.		BHOVAL	
CHANGES TO BE APPD. BY			SCALE: M.T.S			C450067(SH45)
DESIGNER/ENGR. ONLY			TAM-3			

417470(4)/2021/HEP-TAM21302

DIVISIONAL STANDARDS										C450067		BEARINGS					
REV	SL	BEARING NO.	MIC REF	ASSY. DRG. REFERENCE	STYLE/ CODE NO.	BOUNDARY DIMENSION						CLEARANCE		MAX SPEED OVER SPEED	DYN LOAD		
						A	B	C	E	E1	B1	C1	Y	DIA	AXIAL	STAT LOAD	
17	21	6326-M/C5 VA 309 TO DIN 43203	IM4807 NDE	24454492001	9024720133	130 129.975	280 279.965	58 57.75	-	-	-	-	4	0.105 0.160	X	-	280000 186000
18	22	22324 VAJ DOUBLE ROW SPHERICAL ROLLER BEAR 15 ROLLER ROW	TA9901	44304476001	9024677766	199.999 119.979	259.999 259.963	85.99 85.796	-	-	-	-	3	0.160 0.210	-	-	480960 325555
19	23	6312/C3	632608 AZ	14321093001	9024812011	60.000 59.985	130.000 129.982	31.00 30.85	-	-	-	-	2.1	0.023 0.043	-	-	81500 45000
20	24	6326M/C4 VA 301	TA7005 (NDE) TA6301 (NDE) TA7001 (NDE)	37164434004 34304411001 34304411001	130.000 129.975	280.000 279.965	58.00 57.75	-	-	-	-	4	0.071 0.114	0.060 0.100	1800 2160	229000 216000	

REV 17, 21 & 22 WERE NOT ON. & NOT ON.

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