



SINCE 1961

SPHERICAL ROLLER BEARINGS

PRODUCT CATALOGUE - 2022 - 2023



BEARINGSTECHNOLOGY

COMPANY











Established in 1961, today TEXSPIN[®] is one of the major contributors to the automotive industry and has carved out a niche for itself as a provider of unmatched innovative solution and products predominantly to the automotive industry and to other engineering industry.

Major focus of TEXSPIN^{∞} is on technological products, components & systems with customized solutions. It is dedicated to being a development partner to the automotive industry in providing innovative technological product and solutions.

TEXSPIN'S[®] continuous growth is supported by its Research & Development centre which guarantees number of innovations to serve the high standard set by the automotive industry. The R & D centre is equipped with the advanced software technology to design and accurately simulate, analyze, validate, test and develop systems for varied applications.

TEXSPIN[®]'s core competence lies in its vast reservoir of Expertise and infrastructure created over the decades. An indepth understanding of the technological requirement of the automotive industry through our long association over the years, has helped us to provide contemporary customized technological products and solutions to our customers through a synergetic enhancement of indigenous technologies and world benchmark requirements.

With over 61 years experience and over 1600 experienced employees dedicated to the culture of quality and innovation, engaged in manufacturing and sales, and with Quality Systems like QS 9000 / TS16949, TEXSPIN^{∞} is committed to exceed the high standards of the automotive industry.

INNOVATE TO CREA





TEXSPIN'S 'CW'DOUBLE RAW SPHERICAL ROLLER BEARINGS

TEXSPIN Self-aligning double-row spherical roller bearing is a combination of radial and axial bearing. It is designed to operate even if shaft and housing are, or become, misaligned under load. The internal design of bearing enables them to withstand very high redial loads in both directions. Bearing can take high degrees of misalignment depending on the size and series of the bearing.

Most types have circular groove and lubrication holes in the outer ring. This feature facilitates more effective lubrication. TEXSPIN Manufactures spherical roller bearings with cylindrical and taper bore. Tapered bore bearing may be used either in Plummer blocks or conventional housing.

Features of TEXSPIN's 'CW' Spherical Roller Bearings

Symmetrical Roller of LARGE DIAMETER by optimizing the wall thickness of ring. This become possible by making improvements in steel, heat treatment techniques and machining. (figure SB1.1)

Rollers LONGER in LENGTH by eliminating the center collar in C design of bearing.

MORE NUMBER of ROLLERS by optimizing the design of cage which enables to reduce the distance between rollers, hence it become possible to accommodate more number of roller in a cage. (Figure SB1.2)

Redesigned bearing tracks for

- Greater contact area
- Better load distribution
- Improved contact between track and roller.

Maximum dynamic load rating for longer life and better reliability.

High Static load rating for high performance under low speeds and heavy loads.

Lower operating temperature (down by 10° C) due to reduced internal friction.

Higher limiting speed, diversifying the application range for TEXSPIN double-row spherical roller bearings.

Misalignment capability, about 0.5° without reducing bearing loading capacity

The precision in the design and in the production, with respect to the micro-geometry of the profiles and surfaces enabled to obtain

- Self aligning rollers. The raceway curvatures are designed to assure that the rollers are perfectly guided.
- Roller are perfectly guided by the raceways and the cage thus eliminating the guide ring.



(Figure SBI.I)



(Figure SBI.2)

SINCE 1961



Advantages offered by CW series steel cage



(Figure SBI.4)

(Figure SB1.5)

Functional Advantages of Spherical Roller Bearings

- Spherical Roller Bearings have designed with accurate cage positioning, ground inner ring raceway supports cage to keep it perfectly centered.
- Accurate guiding of roller, the cage pockets incorporate 4 guiding flats to maintain rollers. The main guidance being assured by bearing raceways. The cage is simplified and lightened. (Figure SB1.3)
- Excellent Lubrication
- Resistance at high temperatures

Benefits of Spherical Roller Bearings

- Spherical Roller Bearings can accommodate misalignment, due to their self-aligning convex roller design.
- Double row spherical roller bearings have an extremely high load carrying capacity, tolerating both radial and axial loads in both directions.
- The spherical rollers within these bearings are self guiding, meaning that they are able to reduce the coefficient of friction.
- By virtue of the line contact between rolling elements and raceways, Spherical roller bearings have high radial load capacity and are suited for high-speed applications
- A high strength cage design in pressed steel our Spherical roller bearings are comprised of machined brass or polyamide and offer low noise, low heat generation. (Figure SB1.4)
- High precision Spherical roller can carry large load and long service life. (Figure SB1.5)
- The combined load of radial and thrust can be borne simultaneously.
- Within a large load velocity range, the unique bearing design can achieve excellent performance.



Suffixes

- CW Internal Design feature, high capacity bearing with steel cage.
- MB Internal Design feature, high capacity bearing with machined brass cage
- K Tapered Bore, 1:12 taper
- W33 Lubrication Groove & Holes in outer ring (=B33)
- C2 ISO C2 radial clearance \pounds C0, Marked C2
- C0 ISO Normal radial clearance not marked
- C3 ISO C3 Radial clearance ³ C0, Marked C3
- C4 ISO C4 radial clearance ³ C3, Marked C4
- C5 ISO C5 radial clearance ³ C4, Marked C5

Bearing Tolerances

Dimensional and geometrical tolerances correspond to ISO 492 Standard. TEXSPIN can supply bearings with closer tolerances on bore, outside diameter, specific redial clearance to suit the application, etc.

Radial Clearance

The redial clearance as defined in ISO 5753 Standers, the values for tapered bore bearings are different for bearings with cylindrical bore. In tapered bore bearings there is reduction of the internal clearance when fitting them on their seat.

Radial Clearance

The redial clearance as defined in ISO 5753 Standers, the values for tapered bore bearings are different for bearings with cylindrical bore. In tapered bore bearings there is reduction of the internal clearance when fitting them on their seat. Approximate recommended residual clearance, Jrm after fitting:

Jrm = 5 d1/2 10-3 mmD, bearing bore in mm

Axial Clearance

Axial clearance, Ja depends on the radial clearance, J. Approximately it can be calculated by using the formula:

 $Ja = 2.27 \, Y.0 J \, r$

Monitoring of Bearing Fitting and Radial Clearance

Radially

Drive up the bearing until the clearance has been reduced to the indicated limits. Check that the final residual clearance is no smaller then the value stated for the particular clearance class.

Axially

The axial movement corresponding to the tightening must be within the indicated limit. Check that the final residual clearance is no smaller then the value stated for the particular clearance class.





DEAL		Prior Mounting					After Mounting						Axial Drive-up				
BO	RE	CO		C3		C4		CO		C3		C4		C3		C4	
mm		According to ISO 5753 (i				in mm)		Feeler Gauge*		Feeler Gauge*		Feeler Gauge*		Taper 1:30		Taper 1:30	
From	Incl.	Min.	Max.	Min.	Max.	Min.	Max.	Yes	No	Yes	No	Yes	No	Min.	Max.	Min.	Max.
30	40	0.035	0.050	0.050	0.065	0.065	0.085	2	3	3	4	4	5	0.350	0.400	-	-
40	50	0.045	0.060	0.060	0.080	0.080	0.100	3	4	3	5	4	6	0.400	0.450	-	-
50	65	0.055	0.075	0.075	0.095	0.095	0.120	3	5	4	6	5	7	0.450	0.600	-	-
65	80	0.070	0.095	0.095	0.120	0.120	0.150	4	6	5	7	6	8	0.600	0.750	-	-
80	100	0.080	0.110	0.110	0.140	0.140	0.180	4	6	6	8	7	10	0.700	0.900	1.700	2.200
100	120	0.100	0.135	0.135	0.170	0.170	0.220	5	7	7	9	9	12	0.750	1.100	1.900	2.700
120	140	0.120	0.160	0.160	0200	0.200	0.260	8	11	10	13	12	17	1.100	1.400	2.700	3.500
140	160	0.130	0.180	0.180	0.230	0.230	0.300	8	12	11	15	14	19	1.200	1.600	3.000	4.000
160	180	0.140	0.200	0.200	0.260	0.260	0.340	9	13	12	17	16	21	1.300	1.700	3.200	4.200
180	200	0.160	0.220	0.220	0.290	0.290	0.370	11	16	15	20	20	26	1.400	2.000	3.500	5.000
200	225	0.180	0.250	0.250	0.320	0.320	0.410	12	17	17	22	22	28	1.600	2.200	4.000	5.500
225	250	0.200	0.270	0.270	0.350	0.350	0.450	14	19	18	24	24	31	1.700	2.400	4.200	6.700

Measurement of radial clearance during fitting

Bearing Mounting Criteria

The Residual clearance of the bearing must be checked after fitting. This check is vital for bearings with a tapered bore. Relation between the axial displacement 'a' of a tapered bore bearing and the corresponding reduction in its redial clearance, DJr:

taper 1:12 $a = 12 D_{Jr}/ti$

Taper 1:30 a = 30 DJr/ti

- A: axial displacement
- Djr

reduction in radial clearance

ti: repercussion factor for the interference fit of the inner ring

ti= 0.75 if the bearing is mounted directly on a tapered seat of a solid shaft ti= 0.7 id the bearing is mounted on a tapered adapter sleeve





BEARING BORE DIAMETER (d)		Radial Internal Clearance (Values in μ m)												
		C	2	NOR	MAL	С	3	С	4	C5				
	mm	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.			
	$14 < d \le 18$	10	20	20	35	35	45	45	60	60	75			
	$18 < d \le 24$	10	20	20	35	35	45	45	60	60	75			
	$24 < d \le 30$	15	25	25	40	40	55	55	75	75	95			
	$30 < d \le 40$	15	30	30	45	45	60	60	80	80	100			
	$40 < d \le 50$	20	35	35	55	55	75	75	100	100	125			
	$50 < d \le 65$	20	40	40	65	65	90	90	120	120	150			
	$65 < d \le 80$	30	50	50	80	80	110	110	145	145	180			
	$80 < d \le 100$	35	60	60	100	100	135	135	180	180	225			
	$100 < d \le 120$	40	75	75	120	120	160	160	210	210	260			
	$120 < d \le 140$	50	95	95	145	145	190	190	240	240	330			
	$140 < d \le 160$	60	110	110	170	170	220	220	280	280	350			
	$160 < d \le 180$	65	120	120	180	180	240	240	310	310	390			
	$180 < d \le 200$	70	130	130	200	200	260	260	340	340	430			
	$200 < d \le 225$	80	140	140	220	220	290	290	380	380	470			
	225 < d ≤ 250	90	150	150	240	240	320	320	420	420	520			

Radial Internal Clearance (Values in µm)

Radial Internal Clearance (Values in µm)

DEADINO	Radial Internal Clearance (Values in μ m)												
BEARING BORE DIAMETER (d)	С	2	NOR	MAL	С	3	С	4	C5				
mm	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.			
18 < d ≤ 24	15	25	25	35	35	45	45	60	60	75			
$24 < d \le 30$	20	30	30	40	40	55	55	75	75	95			
$30 < d \le 40$	25	35	35	50	50	65	65	85	85	105			
$40 < d \le 50$	30	45	45	60	60	80	80	100	100	130			
$50 < d \le 65$	40	55	55	75	75	95	95	120	120	160			
$65 < d \le 80$	50	70	70	95	95	120	120	150	150	200			
$80 < d \le 100$	55	80	80	110	110	140	140	180	180	230			
$100 < d \le 120$	65	100	100	135	135	170	170	220	220	280			
$120 < d \le 140$	80	120	120	160	160	200	200	260	260	330			
$140 < d \le 160$	90	130	130	180	180	230	230	300	300	380			
$160 < d \le 180$	100	140	140	200	200	260	260	340	340	430			
$180 < d \le 200$	110	160	160	220	220	290	290	370	370	470			
$200 < d \le 225$	120	180	180	250	250	320	320	410	410	520			
225 < d ≤ 250	140	200	200	270	270	350	350	450	450	570			



Boundary Dimensions & Selection of Bearing

Static Load Calculation formula as per ISO:76

$$C_{0r} = 44 \left(1 - \frac{D_{we} \cos \alpha}{D_{pw}} \right) i Z L_{we} D_{we} \cos \alpha$$

Dynamic Load Calculation formula as per ISO:281

$$C_{\rm r} = b_{\rm m} f_{\rm c} \left(i L_{\rm we} \cos \alpha \right)^{7/9} Z^{3/4} D_{\rm we}^{29/27}$$



Product Life Enhancement

Result overview											
Basic reference rating life	130	411.072		Basic reference rating life	1,304	13702.4	h.	Modified reference rating life	Low	153.274	
Modified reference rating life	Lowth	5109.13	h	Reference rating life	Link	13702.4	h	Effective axial dearance	Pacf	r o	rem
Reference load	Pref	12590.8	N	Static safety factor	90eff	3,82907		Static safety factor	Ŧ	3.62287	
Life modification factor for reliability	81	L.		Life modification factor	atso	0.372964		Titting Stiffness around Y	σy	17158.7	Ninitad
Tilting Stiffness around Z	or 3	4215.3	Nn/ra	d Axial Stiffness	OX	115890	Nim	n Radial Stiffness in Y	CYY	1.409e+06	Nirem
Radial Stiffness in Z	CER	1.468e+06	N/m	 Outer race diameter for calculation of fit. 	dRit_e	0	m	Inner race diameter for calculation of fit	d'it,	0	ren
Change of dearance	&Pd	0	-	Distance between rolling elements	5RE	2.25863	an	Depth for maximal shear stress outer race	h(max_t	0.127388	(97)
Depth for maximal shear stress inner race	h(men_i)	0.903751	(W)	Distance to centre of pressure	8	15.3872	m	Contamination family Activate Wine	low et	0.148388	
Dynamic equivalent load	P	20000	N	Static equivalent load	PD	15200	N	Basic Me So to PC Settings	10.01539	2936-05	h i
11-12-210	11000	anen ma	14	1 de la defendar de des		in second		Contraction and the Martine Street and		a belowing 1	

Product Analysis & Life Enhancement





Radial Internal Clearance (Values in µm)







Chaft Dia				Basic Capabilities					
d d	Designation	D	В	b	k	h	Dynamic Cr	Static Cor	
mm		mm	mm	mm	mm	mm	kN	kN	
35	TX-22207CW33C3	72	23	4.9	2	3.5	75.4	86.2	
10	TX-22208CW33C3	80	23	5.4	2.5	3.5	84.7	96.5	
40	TX-22308CW33C3	90	33	5.9	3	4.5	134.4	150.6	
45	TX-22209CW33C3	85	23	5.8	2.5	3.5	88.5	103.9	
40	TX-22309CW33C3	100	36	6.4	3	4.5	153	179	
50	TX-22210CW33C3	90	23	5.8	2.5	3.5	91.9	111.8	
50	TX-22310CW33C3	110	40	7.4	3.5	5.5	193.4	227.3	
55	TX-22211CW33C3	100	25	6.3	3	4.5	114.2	138.4	
55	TX-22311CW33C3	120	43	7.8	3.5	5.5	217.6	260	
60	TX-22212CW33C3	110	28	6.9	3	4.5	135.4	167.6	
60	TX-22312CW33C3	130	46	8.7	4	6	255.3	309	
65	TX-22213CW33C3	120	31	7.8	3.5	4.5	166.5	212.8	
	TX-22313CW33C3	140	48	9.2	4	6	292.5	361.3	
70	TX-22314CW33C3	125	31	7.4	3.5	4.5	172.4	226.3	
	TX-22314CW33C3	150	51	10.4	5	6	338	422.3	
75	TX-22215CW33C3	130	31	7.4	3.5	4.5	178.2	239.5	
75	TX-22315CW33C3	160	55	10.3	5	6	376.6	478.6	
00	TX-22216CW33C3	140	33	7.9	3.5	5.5	189.1	250.5	
80	TX-22316CW33C3	170	58	10.4	5	6	408.3	507.9	
05	TX-22217CW33C3	150	36	7.9	3.5	5.5	224.5	297.2	
60	TX-22317CW33C3	180	60	11	5	7	460.3	582.2	
00	TX-22218CW33C3	160	40	10.2	4.5	5.5	267.1	365.4	
90	TX-22318CW33C3	190	64	11.56	5	7	499.6	654.4	
05	TX-22219CW33C3	170	43	9.93	4.5	6	308.3	422.3	
95	TX-22319CW33C3	200	67	12.15	6	7	554.9	772.3	
100	TX-22220CW33C3	180	46	11.2	5	6	341.9	472.9	
100	TX-22320CW33C3	215	73	13.3	6	7	654	872.2	
110	TX-2222CW33C3	200	53	12.2	6	6	441.8	626.1	
110	TX-22322CW33C3	240	80	15.6	7	7	782.7	961	
120	TX-22224CW33C3	215	58	12.16	6	6	486.5	690.7	



At 60 TEXSPIN[®] rededicates itself to our core value of strong relationship with our valued partners and will remain the central guiding principle towards building a rock-solid partnership for the coming 60 years of our journey. TEXSPIN[®] stands committed to provide cutting edge technologies & products through its culture of innovation to exceed the expectation of the industry.

OUR QUEST REMAINS ENDLESS



TEXSPIN BEARINGS LIMITED PLANT - I

Opp. BAPS Temple, Station Road, RANPUR - 382245 Dis.: Ahmedabad, Gujarat, INDIA Phone:+91-2711-238234,238190,238191

f @texspinbearings in @texspinbearings

@texspinbearings

TEXSPIN BEARINGS LIMITED PLANT - II

Survey No.199/1-2, Limbdi -

Ranpur Road, RANPUR - 382245

Dis.: Ahmedabad, Gujarat, INDIA

Phone:+91-2711-238234,238190,238191

@TEXSPINBearingsIndia @texspinbearings

BRANCHES & WORLDWIDE

Head Office : Ahmedabad - Pune -Chennai - Kolkata - Delhi Overseas : Europ, North America, Asia E-mail: mail@texspin.com www.texspin.com

