Extreme Temperature Bearings

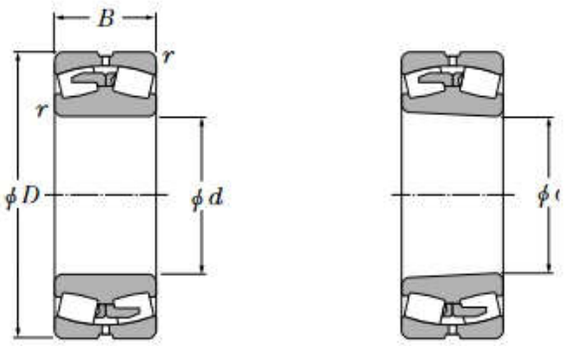
HIGH-TEMP SPHERICAL ROLLER BEARINGS



2023

Every care has been taken to ensure the correctness of the information contained in this document but no liability can be accepted for any errors or omissions. Subject to change without prior notice.

GMW offers open and sealed Spherical Roller Bearings in several versions:



Cylindrical bore **Tapered bore taper 1:12**

Suffix T200 (up to 200°C)

Every T200 bearing comprises the following properties:

- Heat treatment of the bearing up to 200°C
- Sheet steel cage
- Steel fabrication material (SAE52100, Gcr15)
- Manganese phosphate coating (according to EN ISO 9717)
- ✓ Open version:
  - Bore:
    - Cylindrical with radial clearance C3
    - Tapered with radial clearance C3
  - Optional:
    High-quality grease (suitable up to 200°C)

- ✓ Sealed version:
  - Cylindrical bore with radial clearance C3
  - High-quality grease (suitable up to 200°C)
  - NBR seals (2RS1)
  - Viton seals (2RSV)

Suffix T250 (upto 250°C)

Every T250 bearing comprises the following properties:

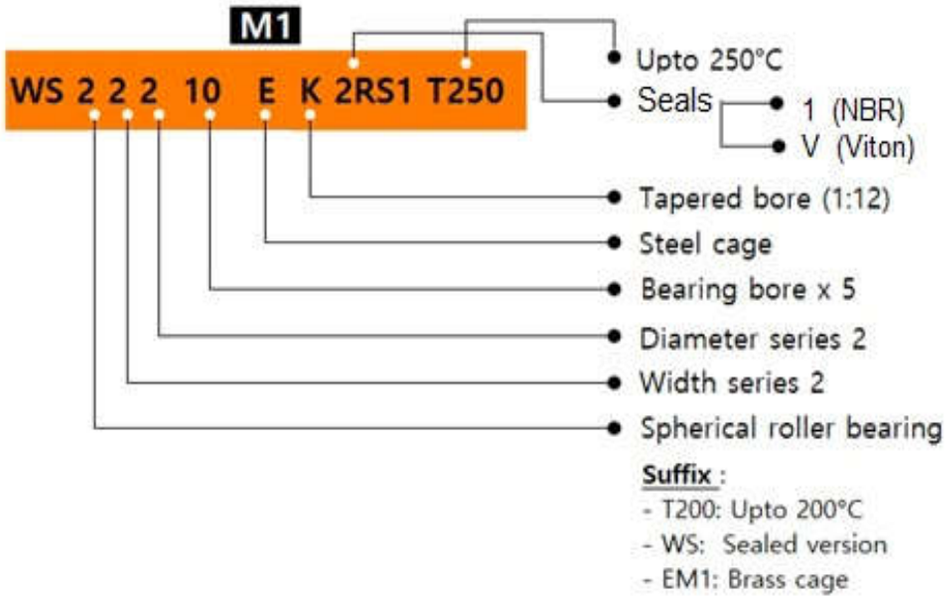
- Heat treatment of the bearing up to 250°C
- Sheet steel cage
- Steel fabrication material (SAE52100, Gcr15)
- Manganese phosphate coating (according to EN ISO 9717)

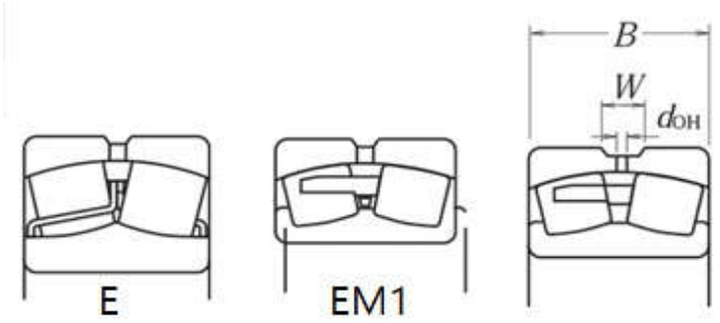
- ✓ Open version:
  - Bore:
    - Cylindrical with radial clearance C3
    - Tapered with radial clearance C3
  - Optional:
    High-quality grease (suitable up to 250°C)
- ✓ Sealed version:
  - Cylindrical bore with radial clearance C3
  - High-quality grease (suitable up to 250°C)
  - Viton seals (2RSV)

Available on request:

- Different types of cages (for open version only): Steel cage and Brass cage

Parameter instructions:





Maximum Speed

✓ Open Spherical Roller Bearings

Code	Max. Speed			
GMW	Oil		Grease	
	T200	T250	T200	T250
	[min^{-1}]	[min^{-1}]	[min^{-1}]	[min^{-1}]
22208	6 900	6 900	5 200	5 200
22209	6 500	6 500	4 900	4 900
22210	6 000	6 000	4 500	4 500
22211	5 400	5 400	4 100	4 100
22212	4 900	4 900	3 700	3 700
22213	4 600	4 600	3 400	3 400
22214	4 300	4 300	3 200	3 200
22215	4 100	4 100	3 100	3 100
22216	3 800	3 800	2 900	2 900
22217	3 600	3 600	2 700	2 700
22218	3 300	3 300	2 500	2 500
22219	3 200	3 200	2 400	2 400
22220	3 000	3 000	2 200	2 200
22222	2 700	2 700	2 000	2 000

Code	Max. Speed			
GMW	Oil		Grease	
	T200	T250	T200	T250
	[min^{-1}]	[min^{-1}]	[min^{-1}]	[min^{-1}]
22308	5 300	5 300	4 000	4 000
22309	4 800	4 800	3 600	3 600
22310	4 300	4 300	3 200	3 200
22311	3 900	3 900	3 000	3 000
22312	3 600	3 600	2 700	2 700
22313	3 400	3 400	2 500	2 500
22314	3 100	3 100	2 400	2 400
22315	2 900	2 900	2 200	2 200
22316	2 100	2 100	1 600	1 600

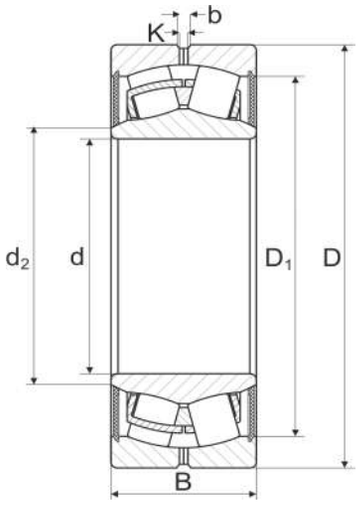
✓ Sealed Spherical Roller Bearings



Code	Max. Speed	
GMW	2RS	
	T200	T250
	[min^{-1}]	[min^{-1}]
WS22208-2RS	2 200	2 200
WS22209-2RS	2 000	2 000
WS22210-2RS	1 900	1 900
WS22211-2RS	1 700	1 700
WS22212-2RS	1 600	1 600
WS22213-2RS	1 500	1 500
WS22214-2RS	1 400	1 400
WS22215-2RS	1 300	1 300
WS22216-2RS	1 200	1 200
WS22217-2RS	1 100	1 100
WS22218-2RS	1 000	1 000
WS22219-2RS	950	950
WS22220-2RS	900	900
WS22222-2RS	800	800

Code	Max. Speed	
GMW	2RS	
	T200	T250
	[min^{-1}]	[min^{-1}]
WS22308-2RS	1 900	1 900
WS22309-2RS	1 500	1 500
WS22310-2RS	1 400	1 400
WS22311-2RS	1 400	1 400
WS22312-2RS	1 100	1 100
WS22313-2RS	1 000	1 000
WS22314-2RS	900	900
WS22315-2RS	950	950
WS22316-2RS	800	800

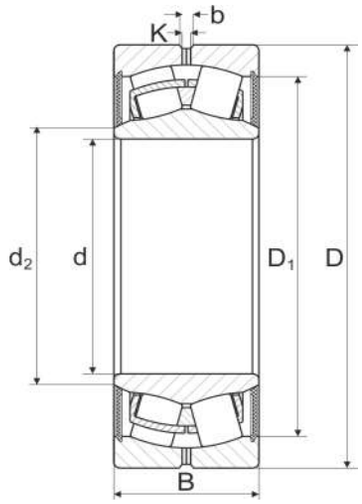
Open Spherical Roller Bearings 222xx



Code	Dimensions							Load Ratings and Factors						Weight
GMW	d	D	B	D_1	d_2	b	K	C_0	C_{dyn}	e	Y_1	Y_2	Y_0	≈ [kg]
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]					
22208	40	80	23	69,4	50,3	5,5	3,0	80,7	90,7	0,29	2,35	3,50	2,30	0,536
22209	45	85	23	73,6	54,5	5,5	3,0	84,2	97,6	0,27	2,50	3,72	2,44	0,597
22210	50	90	23	78,8	59,7	5,5	3,0	86,7	103,5	0,25	2,71	4,04	2,65	0,641
22211	55	100	25	88,0	65,9	5,5	3,0	102,0	119,0	0,26	2,64	3,93	2,58	0,849
22212	60	110	28	96,5	72,6	5,5	3,0	127,0	154,0	0,25	2,71	4,04	2,65	1,200
22213	65	120	31	104,0	78,4	5,5	3,0	151,0	188,0	0,27	2,49	3,71	2,43	1,610
22214	70	125	31	109,6	83,3	5,5	3,0	161,0	204,0	0,24	2,83	4,21	2,77	1,680
22215	75	130	31	114,9	88,2	5,5	3,0	167,0	215,0	0,25	2,74	4,08	2,68	1,770
22216	80	140	33	122,8	95,1	5,5	3,0	181,0	237,0	0,22	3,01	4,48	2,94	2,200
22217	85	150	36	131,8	100,3	5,5	3,0	216,0	277,0	0,23	2,95	4,40	2,89	2,730
22218	90	160	40	141,0	108,0	5,5	3,0	252,0	332,0	0,23	2,90	4,31	2,83	3,470
22219	95	170	43	148,5	113,5	8,3	4,5	285,0	380,0	0,26	2,64	3,93	2,58	4,320
22220	100	180	46	158,1	120,5	8,3	4,5	317,0	423,0	0,26	2,55	3,80	2,50	5,100
22222	110	200	53	173,8	132,5	8,3	4,5	414,0	574,0	0,26	2,55	3,80	2,50	7,690

(These factors apply for both in metric calculations. See engineering section for instructions on use.)

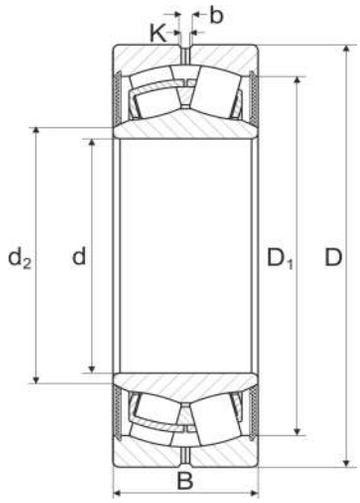
Sealed Spherical Roller Bearings WS222xx



Code	Dimensions							Load Ratings and Factors						Weight
GMW	d	D	B	D_1	d_2	b	K	C_0	C_{dyn}	e	Y_1	Y_2	Y_0	≈ [kg]
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]					
WS22208-2RS	40	80	28	72,0	48,4	5,5	3,0	80,7	90,7	0,29	2,35	3,50	2,30	0,570
WS22209-2RS	45	85	28	77,6	52,8	5,5	3,0	84,2	97,6	0,27	2,50	3,72	2,44	0,660
WS22210-2RS	50	90	28	82,5	57,7	5,5	3,0	86,7	103,5	0,25	2,71	4,04	2,65	0,700
WS22211-2RS	55	100	31	92,1	63,8	5,5	3,0	102,0	119,0	0,26	2,64	3,93	2,58	1,000
WS22212-2RS	60	110	34	99,8	71,2	5,5	3,0	127,0	154,0	0,25	2,71	4,04	2,65	1,300
WS22213-2RS	65	120	38	110,0	77,3	5,5	3,0	151,0	188,0	0,27	2,49	3,71	2,43	1,600
WS22214-2RS	70	125	38	115,0	81,9	5,5	3,0	161,0	204,0	0,24	2,83	4,21	2,77	1,800
WS22215-2RS	75	130	38	120,0	87,0	5,5	3,0	167,0	215,0	0,25	2,74	4,08	2,68	2,100
WS22216-2RS	80	140	40	129,0	93,0	5,5	3,0	181,0	237,0	0,22	3,01	4,48	2,94	2,400
WS22217-2RS	85	150	44	136,5	97,2	8,3	4,5	216,0	277,0	0,23	2,95	4,40	2,89	3,000
WS22218-2RS	90	160	48	149,0	104,0	8,3	4,5	252,0	332,0	0,23	2,90	4,31	2,83	3,700
WS22219-2RS	95	170	51	154,4	110,4	8,3	4,5	285,0	380,0	0,26	2,64	3,93	2,58	4,650
WS22220-2RS	100	180	55	165,5	117,2	8,3	4,5	317,0	423,0	0,26	2,55	3,80	2,50	5,350
WS22222-2RS	110	200	63	182,5	128,8	8,3	4,5	414,0	574,0	0,26	2,55	3,80	2,50	7,600

(These factors apply for both in metric calculations. See engineering section for instructions on use.)

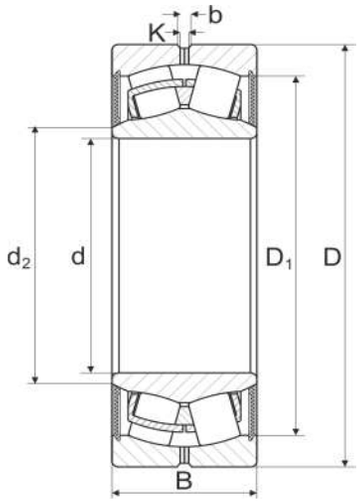
Open Spherical Roller Bearings 223xx



Code	Dimensions							Load Ratings and Factors						Weight
GMW	d	D	B	D_1	d_2	b	K	C_0	C_{dyn}	e	Y_1	Y_2	Y_0	≈ [kg]
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]					
22308	40	90	33	75,2	50,5	5,5	3,0	122,0	132,0	0,39	1,75	2,61	1,71	1,030
22309	45	100	36	83,8	56,8	5,5	3,0	141,0	154,0	0,39	1,71	2,54	1,67	1,430
22310	50	110	40	92,2	62,5	5,5	3,0	173,0	192,0	0,38	1,78	2,65	1,74	1,870
22311	55	120	43	100,5	68,7	5,5	3,0	213,0	248,0	0,37	1,80	2,69	1,76	2,430
22312	60	130	46	109,0	74,8	5,5	3,0	243,0	284,0	0,37	1,80	2,69	1,76	3,010
22313	65	140	48	117,4	81,3	5,5	3,0	266,0	313,0	0,35	1,92	2,86	1,88	3,530
22314	70	150	51	125,9	88,1	8,3	4,5	300,0	362,0	0,35	1,95	2,91	1,91	4,370
22315	75	160	55	133,8	94,5	8,3	4,5	351,0	437,0	0,36	1,87	2,79	1,83	5,500
22316	80	170	58	142,5	100,4	8,3	4,5	396,0	497,0	0,36	1,87	2,79	1,83	6,540

(These factors apply for both in metric calculations. See engineering section for instructions on use.)

Sealed Spherical Roller Bearings WS223xx



Code	Dimensions							Load Ratings and Factors						Weight
GMW	d	D	B	D_1	d_2	b	K	C_0	C_{dyn}	e	Y_1	Y_2	Y_0	≈ [kg]
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]					
WS22308-2RS	40	90	38	80,2	50,5	5,5	3,0	122,0	132,0	0,39	1,75	2,61	1,71	1,200
WS22309-2RS	45	100	42	89,0	55,4	5,5	3,0	141,0	154,0	0,39	1,71	2,54	1,67	1,600
WS22310-2RS	50	110	45	98,0	60,8	5,5	3,0	173,0	192,0	0,38	1,78	2,65	1,74	2,100
WS22311-2RS	55	120	49	108,0	67,0	5,5	3,0	213,0	248,0	0,37	1,80	2,69	1,76	2,800
WS22312-2RS	60	130	53	117,0	72,2	5,5	3,0	243,0	284,0	0,37	1,80	2,69	1,76	3,400
WS22313-2RS	65	140	56	126,0	78,2	5,5	3,0	266,0	313,0	0,35	1,92	2,86	1,88	4,150
WS22314-2RS	70	150	60	135,5	83,9	8,3	4,5	300,0	362,0	0,35	1,95	2,91	1,91	5,100
WS22315-2RS	75	160	64	144,1	91,3	8,3	4,5	351,0	437,0	0,36	1,87	2,79	1,83	6,500
WS22316-2RS	80	170	67	153,2	96,9	8,3	4,5	396,0	497,0	0,36	1,87	2,79	1,83	7,200

(These factors apply for both in metric calculations. See engineering section for instructions on use)