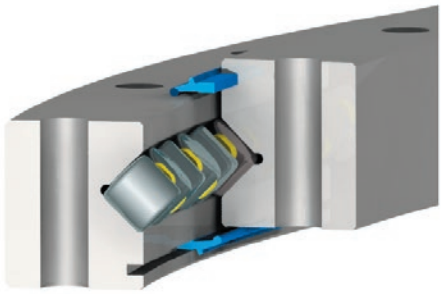
XR Series



Introduction

The XR Series consists of Kaydon cross roller bearings. They provide a high degree of stiffness and low rotational torque within a minimal envelope. This design should be considered when a four-point contact ball bearing does not meet the operating performance requirements for torque and stiffness.

Design Features

The internal configuration consists of cylindrical rollers in a v-shaped groove in each ring. The rollers are oriented with alternating axes of rotation. Positioned in this manner, the bearing accepts all combinations of radial, thrust, and moment loads. Rotational torque is less than a four-point contact ball design because each roller only transmits load in a single direction, and the greater contact area and geometry of a roller versus a ball provides a higher degree of stiffness and rigidity.

A roller of approximately the same size as a ball has greater load-carrying ability. However, because not all the rollers are oriented in one direction, their thrust and moment load capacity is less than that of a four-point ball bearing.

Gear teeth or other drive mechanisms can be provided on the inner or outer support ring, and your choice of hole pattern can be added for bearing retention.

Availability

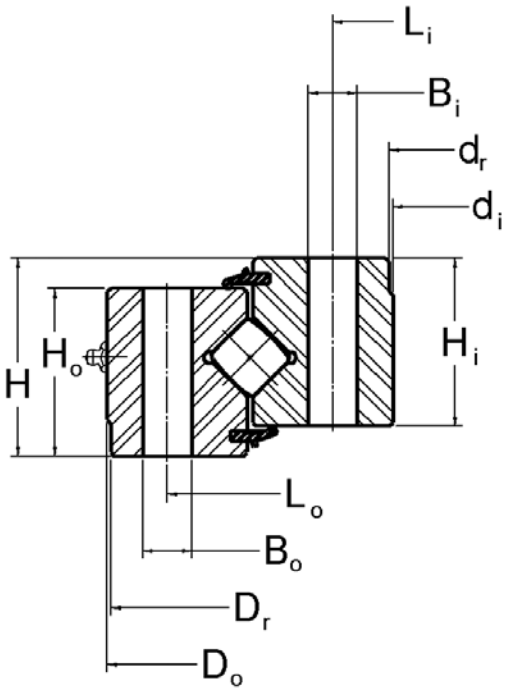
XR Series bearings are custom manufactured to fit the design and specification.

Applications

XR Series bearings have been used successfully in applications requiring extra stiffness with a low torque requirement including:

- Radar
- Military turrets
- Machine tools
- Tunnel boring machines

XR Series



No Gear

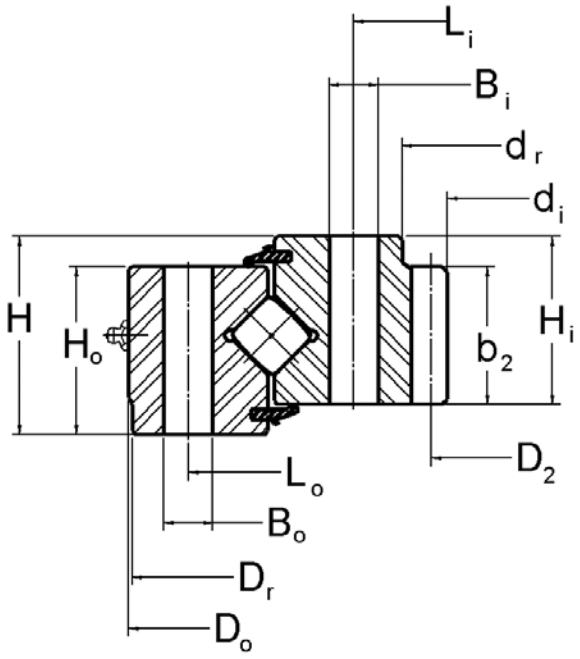
Kaydon P/N	OUTLINE DIMENSIONS AND WEIGHT								HOLE DATA					
									OUTER RING			INNER RING		
	D_o (in)	d_i (in)	H (in)	H_o (in)	H_i (in)	D_r (in)	d_r (in)	G APPROX. (lbs)	L_o (in)	n_o	B_o (in)	L_i (in)	n_i	B_i (in)
16318001	11.811	5.512	1.417	1.181	1.181	—	—	30	10.630	6	M16x2	6.693	6	M16x2
16319001	15.886	9.055	2.165	1.772	1.850	—	—	65	14.094	24	0.512	10.197	24	0.512
16320001	27.362	18.779	3.031	2.520	2.244	27.283	18.897	185	25.197	28	0.709	20.000	28	0.709
16321001	35.312	26.625	2.953	2.863	2.863	35.251	26.750	325	34.000	24	1/2-13	29.000	24	0.590
16322001	46.250	34.250	4.250	3.880	3.880	—	34.380	765	44.000	28	1-8	36.250	28	1.063
16323001	56.380	46.770	3.820	3.470	3.430	56.295	46.850	710	40.000	36	0.813	33.875	36	3/4-16
16324001	85.000	74.000	3.750	3.250	3.250	84.880	74.120	1,190	83.000	42	0.938	76.000	42	0.938
16325001	95.000	82.000	4.000	3.500	3.500	94.875	82.063	1,660	93.000	48	1.063	85.000	48	1.063
16326001	131.890	112.205	7.874	6.496	7.087	131.250	120.866	6,500	127.559	40	M36x3	116.535	40	1.496
16327001	158.661	140.945	8.819	6.654	6.654	—	—	6,400	155.315	92	1.654	144.291	92	1.654

Note: Capacities are dynamic and based on an L_{10} life of 1 million revolutions per ABMA Std 11-1990. Values listed do not apply simultaneously. Ring cross section and bolted joint configuration used may result in lower bearing capacity ratings.

XR Series

GEAR DATA $\alpha = 20°$						GEAR TOOTH RATING F_z	DYNAMIC CAPACITIES 1 MILLION REVOLUTIONS L_{10} LIFE		
TOOTH FORM	D_2 (in)	P_d or (m)	z_2	x_2	b_2 (in)	(lbs)	RADIAL (lbs)	THRUST (lbs)	MOMENT (ft-lbs)
—	—	—	—	—	—	—	19,150	22,340	7,530
—	—	—	—	—	—	—	36,850	42,830	20,140
—	—	—	—	—	—	—	64,560	73,730	65,660
—	—	—	—	—	—	—	81,310	91,980	116,170
—	—	—	—	—	—	—	235,420	270,010	425,900
—	—	—	—	—	—	—	209,680	237,380	482,960
—	—	—	—	—	—	—	267,330	300,410	956,430
—	—	—	—	—	—	—	362,100	407,250	1,450,300
—	—	—	—	—	—	—	762,050	858,130	4,185,500
—	—	—	—	—	—	—	723,870	812,130	4,879,900

XR Series



Internal Gear

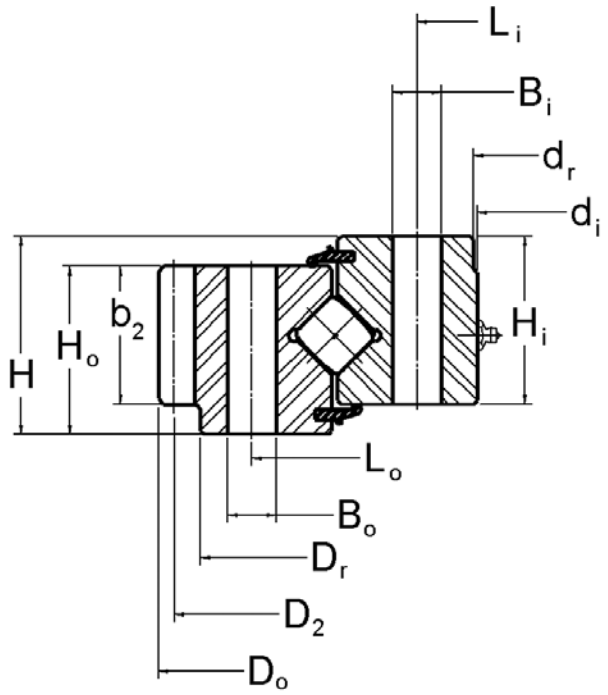
Kaydon P/N	OUTLINE DIMENSIONS AND WEIGHT								HOLE DATA					
									OUTER RING			INNER RING		
	D_o (in)	d_i (in)	H (in)	H_o (in)	H_i (in)	D_r (in)	d_r (in)	G APPROX. (lbs)	L_o (in)	n_o	B_o (in)	L_i (in)	n_i	B_i (in)
16328001	26.700	18.667	2.500	2.000	2.000	—	—	130	24.500	18	1/2-13	20.500	18	1/2-13
16329001	36.000	24.160	3.880	3.380	3.380	—	—	465	33.250	24	0.813	27.250	30	3/4-10
16330001	41.500	30.320	4.190	3.370	4.000	—	32.360	510	40.000	36	0.807	33.500	36	3/4-16
16331001	41.970	30.828	3.350	2.560	2.950	41.929	—	400	39.961	24	M20x2.5	34.646	24	M20x2.5
16332001	54.740	44.400	4.500	3.750	4.130	—	46.380	500	53.000	36	0.922	48.000	36	7/8-14
16333001	78.819	62.913	5.906	4.921	4.921	—	65.157	2,050	76.575	48	1.181	67.520	48	1.181
16334001	114.000	95.000	6.000	5.500	5.500	—	97.500	4,250	111.000	48	1.063	100.000	48	1-8
16335001	121.496	97.717	6.772	6.299	6.299	—	—	6,080	117.795	72	1.535	105.512	72	1.535
16336001	142.000	123.200	6.000	5.500	5.500	—	—	5,370	139.000	72	1.063	128.000	72	1.063

Note: Capacities are dynamic and based on an L_{10} life of 1 million revolutions per ABMA Std 11-1990. Values listed do not apply simultaneously. Ring cross section and bolted joint configuration used may result in lower bearing capacity ratings.

XR Series

GEAR DATA α = 20°						GEAR TOOTH RATING F_z	DYNAMIC CAPACITIES 1 MILLION REVOLUTIONS L_{10} LIFE		
TOOTH FORM	D_2 (in)	P_d or (m)	z_2	x_2	b_2 (in)	(lbs)	RADIAL (lbs)	THRUST (lbs)	MOMENT (ft-lbs)
FD	19.000	6	114	0	2.000	6,345	64,620	73,810	65,430
SD	24.800	2.5	62	0	3.380	27,300	157,900	181,900	213,180
FD	30.800	2.5	77	-.400	3.500	27,600	220,820	254,250	362,220
FD	31.102	(10)	79	-.625	2.950	22,820	125,790	142,740	211,160
FD	45.200	2.5	113	0	3.750	28,600	205,410	232,690	460,450
FD	63.307	(12)	134	-.500	4.528	40,350	406,070	459,660	1,315,740
FD	96.000	2	192	0	5.000	54,550	500,930	563,230	2,389,570
FD	98.268	(24)	104	-.708	6.299	134,270	755,820	854,030	3,797,780
SD	124.000	2	248	0	5.500	50,440	675,310	758,460	4,057,130

XR Series



External Gear

Kaydon P/N	OUTLINE DIMENSIONS AND WEIGHT								HOLE DATA					
									OUTER RING			INNER RING		
	D_o (in)	d_i (in)	H (in)	H_o (in)	H_i (in)	D_r (in)	d_r (in)	G APPROX. (lbs)	L_o (in)	n_o	B_o (in)	L_i (in)	n_i	B_i (in)
16337001	16.000	9.190	2.170	1.770	1.850	14.880	9.250	55	14.094	24	0.562	10.197	24	0.562
16338001	23.333	13.750	2.750	2.500	2.500	—	—	175	20.875	12	0.688	15.375	12	0.688
16339001	27.362	18.780	3.030	2.520	2.240	26.380	18.900	180	25.197	18	0.688	20.000	18	0.688
16340001	33.627	26.535	2.205	1.752	1.752	—	—	140	30.906	36	M12x1.75	27.480	40	0.551
16341001	36.333	24.500	4.690	4.310	3.880	35.500	24.625	580	33.625	24	0.813	26.125	24	0.813
16342001	45.050	34.180	3.930	3.360	3.470	42.840	34.250	470	41.338	24	0.866	35.826	24	0.866
16343001	51.040	40.000	4.000	3.500	3.500	—	—	680	48.200	36	0.813	41.800	36	0.813
16344001	63.150	47.480	5.118	4.409	4.409	61.063	47.559	1,420	58.819	36	1.023	50.394	36	1.023
16345001	70.510	53.540	5.040	4.330	4.330	—	—	1,460	65.354	42	1.063	55.906	42	1.063
16346001	85.866	75.250	3.300	2.800	2.800	—	—	920	82.750	48	0.813	77.250	48	0.813
16347001	100.667	84.000	6.500	6.500	4.000	98.750	84.250	3,240	95.000	48	1-8	87.000	48	1.063
16348001	159.843	141.732	6.142	5.748	5.748	—	—	5,480	154.528	100	1.299	144.685	100	1.299
16393001	209.843	188.583	7.047	6.417	6.024	206.299	188.858	9,750	202.362	100	1.299	191.339	100	1.299

Note: Capacities are dynamic and based on an L_{10} life of 1 million revolutions per ABMA Std 11-1990. Values listed do not apply simultaneously. Ring cross section and bolted joint configuration used may result in lower bearing capacity ratings.

XR Series

GEAR DATA $\alpha = 20°$						GEAR TOOTH RATING F_z	DYNAMIC CAPACITIES 1 MILLION REVOLUTIONS L_{10} LIFE		
TOOTH FORM	D_2 (in)	P_d or (m)	z_2	x_2	b_2 (in)	(lbs)	RADIAL (lbs)	THRUST (lbs)	MOMENT (ft-lbs)
FD	15.600	5	78	0	1.460	4,320	24,130	27,780	13,190
FD	23.000	6	138	0	2.500	7,430	85,170	99,260	69,470
FD	26.969	(5)	137	0	1.650	5,725	64,560	73,730	65,660
FD	33.071	(8)	105	0	1.752	9,130	58,790	66,360	77,600
FD	36.000	6	216	0	4.000	12,700	204,020	236,880	274,290
FD	43.701	(10)	111	+.713	2.580	15,490	128,480	145,650	223,060
SD	50.400	2.5	126	0	3.500	24,380	195,710	222,290	396,330
FD	61.811	(10)	157	+.750	3.346	20,640	350,400	399,710	861,070
FD	68.346	(14)	124	+1.150	4.330	36,690	293,690	332,590	801,340
SD	85.333	3	256	0	2.800	18,280	190,740	213,890	686,710
FD	100.000	3	300	0	6.000	32,030	376,230	422,960	1,557,670
FD	158.110	(16)	251	+.500	5.748	67,650	724,030	812,320	4,874,640
FD	206.929	(18)	292	+1.150	6.102	81,360	1,005,010	1,126,290	8,903,140