

Stud Type Track Rollers Curve Rollers



Curve roller is composed of a stud used as the tray of a group of rollers and a thick wall outer ring. The shoulder of the stud and the surface retaining ring on the stud form the guiding faces on the two sides of the outer ring. When the curve rollers are running on the plain tray or cam wheel, the inner stress on the rollers will increase due to the deformation of the outer ring. Therefore the rated load should be selected as curve roller column in this operational case.



Structure

KR	Curve rollers radically guided by the retaining edge and ring
KR...PP	Curve rollers with sealing ring
KRE	Curve rollers with eccentric sleeve
KRE...PP	Curve rollers with eccentric sleeve and retaining sleeve
KRV	Curve rollers radically guided by the retaining edge and ring, full complement needle roller type
KRV...PP	Curve rollers with sealing ring
KRVE	Curve rollers with eccentric sleeve
KRVE...PP	Curve rollers with eccentric sleeve and retaining sleeve
NUKR	Curve rollers axle guided by rolling bodies, full roller type
NUKRE	Curve rollers with eccentric sleeve
CR	Inch series curve rollers

KR and KR...PP series curve rollers

In KR, KR...PP curve rollers, the rolling needles are guided by the retainer while the outer ring is guided by the retaining ring shaft on the stud. These rollers are suitable for heavy load and middle speed revolution. The lubricating can last a long period due to the bigger grease storage space inside the bearing. KR...PP curve roller is of contacting sealing structure. The operational temperature is -30°C-100°C.

KRV and KRV...PP series curve rollers

KRV, KRV...PP curve rollers have the same structure as KR, KR...PP type but they are filled with needle bearings. They can be used to bear heavier load and run with lower speed. They should be lubricated very often.

NUKR series curve rollers

This series curve rollers are of double lines full-roller structure. Like all cylindrical roller bearings, they are composed of outer ring cages pressed in the rolling bodies axle guidance and the retaining edge steps which forms highly effective gap sealing.

Especially heavy load can be borne by these rollers and also they can sustain the axle load impact due to the axle guidance by the rollers.

KRE, KRE...PP, KREV, KREV...PP, NUKRE series curve rollers

Curve rollers of all these types can be supplied with eccentric sleeve. The rollers can be adjusted by adjusting the stud end face. The top of the eccentric sleeve is situated at the place. Lubricating grease can be made through the both ends of the stud.

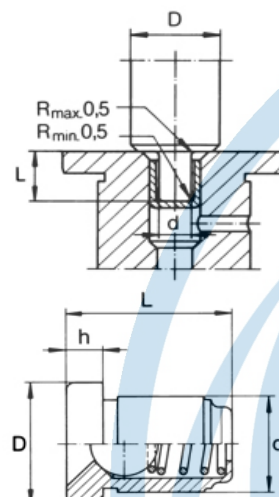
Tolerance

The dimensional tolerance and rotation precision of the standard bearing out ring is PO grade which is not applicable to the arc shaped surface with tolerance 0/-0.05mm. The diameter tolerance of the stud is h7.

Assemblies

Sealing plug, lubricating spout

The oil holes that are not used must be plugged with sealing plugs in fitting. The sealing plugs should be pressed into the oil holes with fitting central shaft with the dimensions in the table below. SPT Bearing will supply it when necessary. SPT Bearing will also supply the pressure oil spouts with the dimensions listed in the following table:



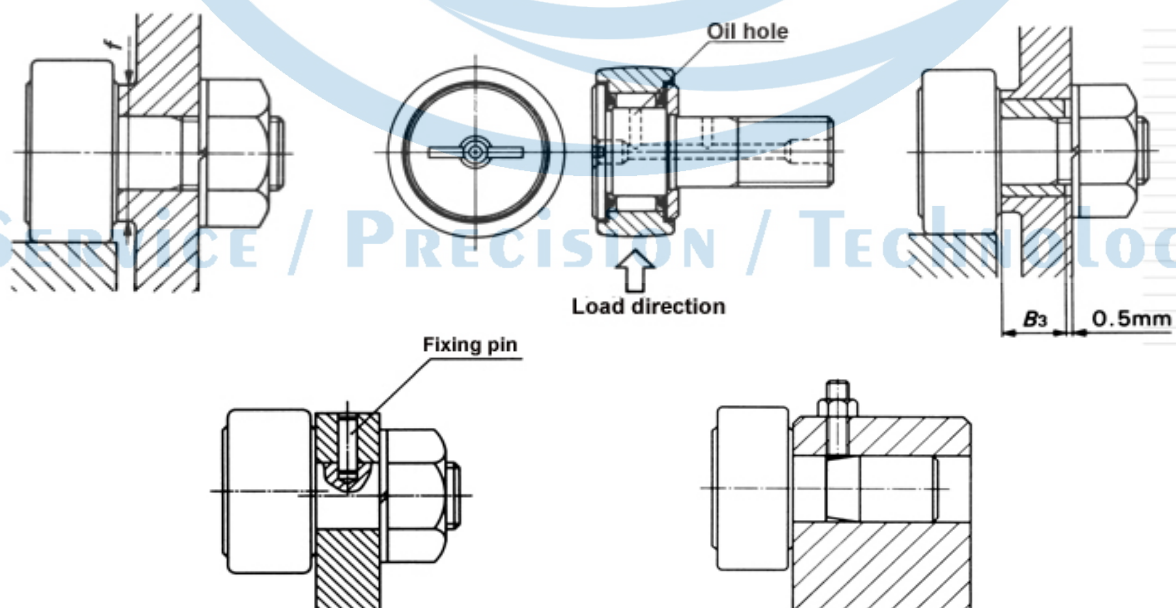
Technical drawings showing the dimensions for sealing plugs and oil spouts. The top drawing shows a sealing plug with dimensions D, d, L, R_{max,0,5}, and R_{min,0,5}. The bottom drawing shows an oil spout with dimensions D, d, L, h, and d.

Sealing plug	Nominal diameter	Fitting central shaft dimensions			Applicable size
		D	d-1	L-01	
VD1	4	10	2.7	5.2	16-26
VD2	6	12	4.7	7.3	30-40
VD3	8	15	6.7	1	47-90

Oil spout	Size mm				Applicable size
	D	d	L	h	
NPA1	6	4	6	1.5	16-26
NPA2	8	6	9	2	30-40
NPA3	10	8	12	3	47-90

Mounting

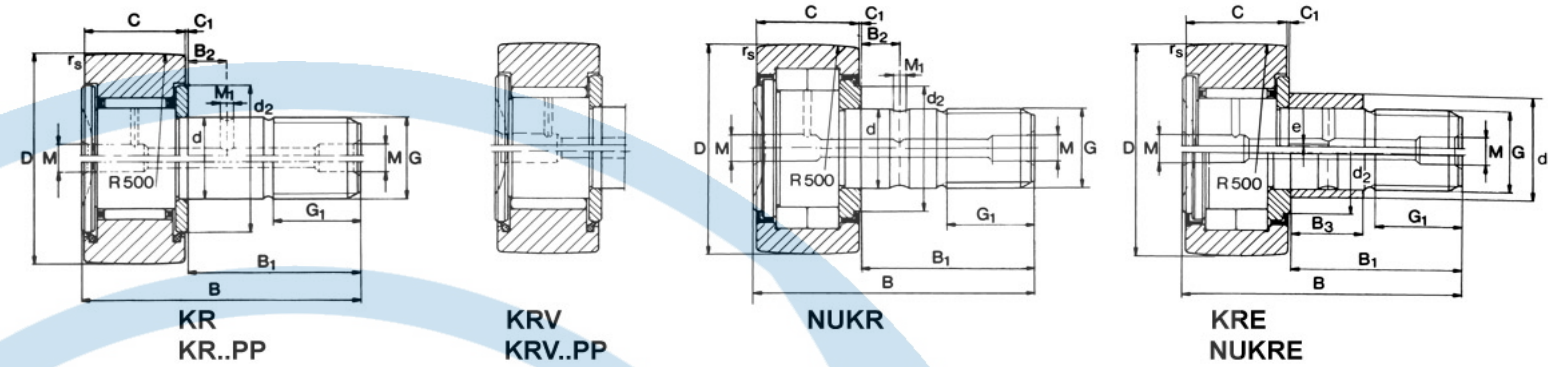
When mounting the curve rollers, attention must be given to the combination between the stud and hole. There should be no gaps. The tolerances of the combinative hole are recommended as H7. There must be a small chamfered angle in the combinative hole on the shaft to achieve the best support face. Anti-loosen measures must be taken for the clamping stud. No hammer striking on the retaining edge of the stud is permitted in fitting. The groove on the top of the stud and be used to tighten the rollers with suitable tools or to adjust the positions of the eccentric sleeves. The oil holes on the stud tray should be located in the non load area which is marked on the top of the stud retaining edge with "SPT"



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Series 1) KR, KR..PP
KRE, KRE..PP
KRV, KRV..PP
NUKR, NUKRE

1) For cylindrical outside surface, add suffix X

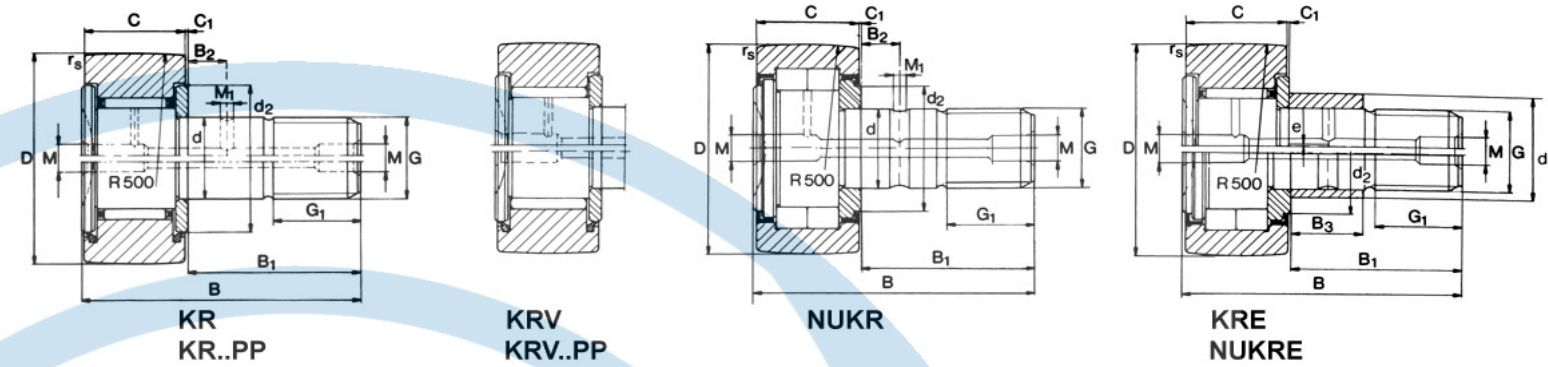


Outside diameter (mm)	Designation		Dimension(mm)																Nut tightening torgue	Basic load ratings ²⁾				Limiting speed ³⁾
																						As track rollers		
		With eccentric collar ¹⁾	D	d	C	rs	B	B1	B2 min	G	G1	M	M ₁	C1	d2	d 1	B3	e		M _A Nm	C	C ₀	C _w	C _{ow}
																	N	min ⁻¹						
16	KR 16	KRE 16	16	6	11	0.15	28	16	--	M 6	8	4 ⁴⁾	--	0.6	12	9	7	0.5	3	3800	3750	3150	3300	22000
	KR 16 PP	KRE 16 PP	16	6	11	0.15	28	16	--	M 6	8	4 ⁴⁾	--	0.6	12	9	7	0.5	3	3800	3750	3150	3300	16000
	KRV 16	KRVE 16	16	6	11	0.15	28	16	--	M 6	8	4 ⁴⁾	--	0.6	12	9	7	0.5	3	6400	8500	4850	6500	8500
	KRV 16 PP	KRVE 16 PP	16	6	11	0.15	28	16	--	M 6	8	4 ⁴⁾	--	0.6	12	9	7	0.5	3	6400	8500	4850	6500	8500
19	KR 19	KRE 19	19	8	11	0.15	32	20	--	M 8	10	4 ⁴⁾	--	0.6	14	11	9	0.5	8	4250	4600	3500	3900	20000
	KR 19PP	KRE 19 PP	19	8	11	0.15	32	20	--	M 8	10	4 ⁴⁾	--	0.6	14	11	9	0.5	8	4250	4600	3500	3900	14000
	KRV 19	KRVE 19	19	8	11	0.15	32	20	--	M 8	10	4 ⁴⁾	--	0.6	14	11	9	0.5	8	7300	10800	5500	7900	7000
	KRV 19PP	KRVE 19 PP	19	8	11	0.15	32	20	--	M 8	10	4 ⁴⁾	--	0.6	14	11	9	0.5	8	7300	10800	5500	7900	7000
22	KR 22	KRE 22	22	10	12	0.3	36	23	--	M 10X1	12	4	--	0.6	17	13	10	0.5	15	5700	6500	4450	5200	16000
	KR 22 PP	KRE 22 PP	22	10	12	0.3	36	23	--	M 10X1	12	4	--	0.6	17	13	10	0.5	15	5700	6500	4450	5200	11000
	KRV 22	KRVE 22	22	10	12	0.3	36	23	--	M 10X1	12	4	--	0.6	17	13	10	0.5	15	8600	12900	6300	9100	6000
	KRV 22 PP	KRVE 22 PP	22	10	12	0.3	36	23	--	M 10X1	12	4	--	0.6	17	13	10	0.5	15	8600	12900	6300	9100	6000
26	KR 26	KRE 26	26	10	12	0.3	36	23	--	M 10X1	12	4	--	0.6	17	13	10	0.5	15	5700	6500	5100	6200	16000
	KR 26 PP	KRE 26 PP	26	10	12	0.3	36	23	--	M 10X1	12	4	--	0.6	17	13	10	0.5	15	5700	6500	5100	6200	11000
	KRV 26	KRVE 26	26	10	12	0.3	36	23	--	M 10X1	12	4	--	0.6	17	13	10	0.5	15	8600	12900	7300	11300	6000
	KRV 26 PP	KRVE 26 PP	26	10	12	0.3	36	23	--	M 10X1	12	4	--	0.6	17	13	10	0.5	15	8600	12900	7300	11300	6000
30	KR 30	KRE 30	30	12	14	0.6	40	25	6	M 12X1.5	13	4	3	0.6	23	15	11	0.5	22	8100	9700	6800	8400	11000
	KR 30 PP	KRE 30 PP	30	12	14	0.6	40	25	6	M 12X1.5	13	6	3	0.6	23	15	11	0.5	22	8100	9700	6800	8400	8300
	KRV 30	KRVE 30	30	12	14	0.6	40	25	6	M 12X1.5	13	6	3	0.6	23	15	11	0.5	22	12200	19000	9500	14600	4500
	KRV 30 PP	KRVE 30 PP	30	12	14	0.6	40	25	6	M 12X1.5	13	6	3	0.6	23	15	11	0.5	22	12200	19000	9500	14600	4500
32	KR 32	KRE 32	32	12	14	0.6	40	25	6	M 12X1.5	13	6	3	0.6	23	15	11	0.5	22	8100	9700	7100	9000	11000
	KR 32 PP	KRE 32PP	32	12	14	0.6	40	25	6	M 12X1.5	13	6	3	0.6	23	15	11	0.5	22	8100	9700	7100	9000	8300
	KRV 32	KRVE 32	32	12	14	0.6	40	25	6	M 12X1.5	13	6	3	0.6	23	15	11	0.5	22	12200	19000	10000	15800	4500
	KRV 32 PP	KRVE 32 PP	32	12	14	0.6	40	25	6	M 12X1.5	13	6	3	0.6	23	15	11	0.5	22	12200	19000	10000	15800	4500
35	KR 35	KRE 35	35	16	18	0.6	52	32.5	8	M 16X1.5	17	6	3	0.8	27	20	14	1	58	12900	19000	9700	14100	7000
	KR 35 PP	KRE 35 PP	35	16	18	0.6	52	32.5	8	M 16X1.5	17	6	3	0.8	27	20	14	1	58	12900	19000	9700	14100	7000
	KRV 35	KRVE 35	35	16	18	0.6	52	32.5	8	M 16X1.5	17	6	3	0.8	27	20	14	1	58	18300	35000	12800	23000	3400
	KRV 35 PP	KRVE 35 PP	35	16	18	0.6	52	32.5	8	M 16X1.5	17	6	3	0.8	27	20	14	1	58	18300	35000	12800	23000	3400
	NUKR 35	NUKRE 35	35	16	18	0.6	52	32.5	8	M 16X1.5	17	6	3	0.8 4)	21 4)	20	14	1	58	23000	27000	16000	18300	6500

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KRE, KRE..PP
KRV, KRV..PP
NUKR, NUKRE

1) For cylindrical outside surface, add suffix X

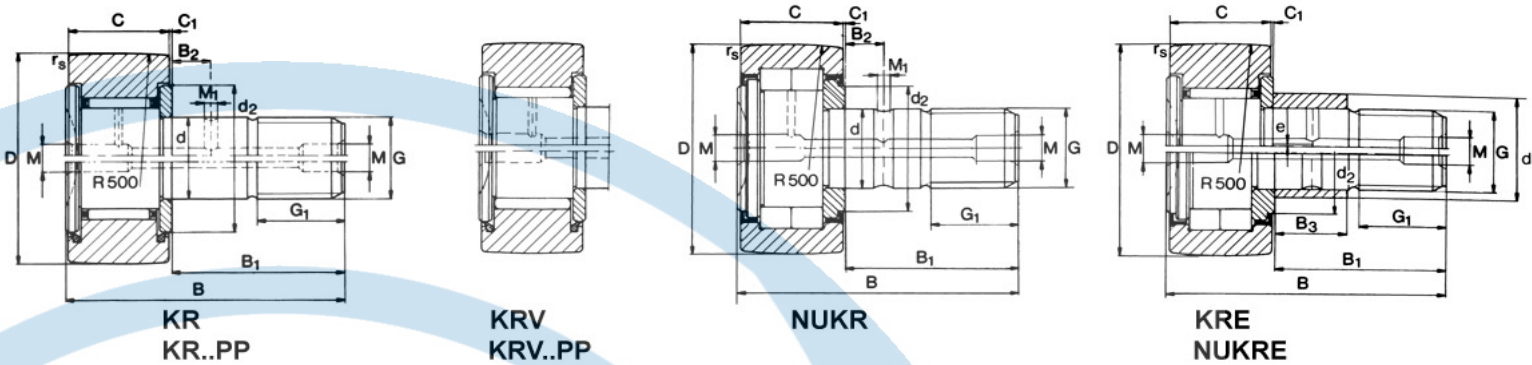


Outside diameter (mm)	Designation		Dimension(mm)																Nut tightening torgue	Basic load ratings ²⁾				Limiting speed ³⁾
																						As track rollers		
		With eccentric collar ¹⁾	D	d	C	rs	B	B1	B2	G	G1	M	M ₁	C1	d2	d 1	B3	e		C	C _o	C _w	C _{ow}	n1 grease
									min										N	min ⁻¹				
M _A Nm																								
40	KR 40	KRE 40	40	18	20	1	58	36.5	8	M 18X1.5	19	6	3	0.8	32	22	16	1	87	14200	20400	10900	15500	6000
	KR 40 PP	KRE 40 PP	40	18	20	1	58	36.5	8	M 18X1.5	19	6	3	0.8	32	22	16	1	87	14200	20400	10900	15500	6000
	KRV 40	KRVE 40	40	18	20	1	58	36.5	8	M 18X1.5	19	6	3	0.8	32	22	16	1	87	21000	39500	14800	26500	2900
	KRV 40 PP	KRVE 40 PP	40	18	20	1	58	36.5	8	M 18X1.5	19	6	3	0.8	32	22	16	1	87	21000	39500	14800	26500	2900
	NUKR 40	NUKRE 40	40	18	20	1	58	36.5	8	M 18X1.5	19	6	3	0.8 4)	23 4)	22	16	1	87	24800	31000	18500	22800	5500
47	KR 47	KRE 47	47	20	24	1	66	40.5	9	M 20X1.5	21	8	4	0.8	37	24	18	1	120	19500	32000	15500	25500	4900
	KR 47 PP	KRE 47 PP	47	20	24	1	66	40.5	9	M 20X1.5	21	8	4	0.8	37	24	18	1	120	19500	32000	15500	25500	4900
	KRV 47	KRVE 47	47	20	24	1	66	40.5	9	M 20X1.5	21	8	4	0.8	37	24	18	1	120	28000	59000	20600	42000	2600
	KRV 47 PP	KRVE 47 PP	47	20	24	1	66	40.5	9	M 20X1.5	21	8	4	0.8	37	24	18	1	120	28000	59000	20600	42000	2600
	NUKR 47	NUKRE 47	47	20	24	1	66	40.5	9	M 20X1.5	21	8	4	0.8	27	24	18	1	120	39000	50000	28000	34500	4200
52	KR 52	KRE 52	52	20	24	1	66	40.5	9	M 20X1.5	21	8	4	0.8	37	24	18	1	120	19500	32000	16800	28500	4900
	KR 52 PP	KRE 52 PP	52	20	24	1	66	40.5	9	M 20X1.5	21	8	4	0.8	37	24	18	1	120	19500	32000	16800	28500	4900
	KRV 52	KRVE 52	52	20	24	1	66	40.5	9	M 20X1.5	21	8	4	0.8	37	24	18	1	120	28000	59000	22500	48000	2600
	KRV 52 PP	KRVE 52 PP	52	20	24	1	66	40.5	9	M 20X1.5	21	8	4	0.8	37	24	18	1	120	28000	59000	22500	48000	2600
	NUKR 52	NUKRE 52	52	20	24	1	66	40.5	9	M 20X1.5	21	8	4	0.8	31	24	18	1	120	43500	60000	29000	37500	3400
62	KR 62	KRE 62	62	24	29	1	80	49.5	11	M 24X1.5	25	8	4	0.8	44	28	22	1	220	30500	53000	26500	47500	3800
	KR 62 PP	KRE 62 PP	62	24	29	1	80	49.5	11	M 24X1.5	25	8	4	0.8	44	28	22	1	220	30500	53000	26500	47500	3800
	KRV 62	KRVE 62	62	24	29	1	80	49.5	11	M 24X1.5	25	8	4	0.8	44	28	22	1	220	41500	91000	34000	76000	2200
	KRV 62 PP	KRVE 62 PP	62	24	29	1	80	49.5	11	M 24X1.5	25	8	4	0.8	44	28	22	1	220	41500	91000	34000	76000	2200
	NUKR 62	NUKRE 62	62	24	29	1	80	49.5	11	M 24X1.5	25	8	4	0.8	38	28	22	1	220	59000	79000	40500	51000	2600
72	KR 72	KRE 72	72	24	29	1.1	80	49.5	11	M 24X1.5	25	8	4	0.8	44	28	22	1	220	30500	53000	28000	53000	3800
	KR 72 PP	KRE 72 PP	72	24	29	1.1	80	49.5	11	M 24X1.5	25	8	4	0.8	44	28	22	1	220	30500	53000	28000	53000	3800
	KRV 72	KRVE 72	72	24	29	1.1	80	49.5	11	M 24X1.5	25	8	4	0.8	44	28	22	1	220	41500	91000	37000	85000	2200
	KRV 72 PP	KRVE 72 PP	72	24	29	1.1	80	49.5	11	M 24X1.5	25	8	4	0.8	44	28	22	1	220	41500	91000	37000	85000	2200
	NUKR 72	NUKRE 72	72	24	29	1.1	80	49.5	11	M 24X1.5	25	8	4	0.8	44	28	22	1	220	65000	93000	45000	61000	2100
80	KR 80	KRE 80	80	30	35	1.1	100	63	15	M 30X1.5	32	8	4	1	53	35	29	1.5	450	45000	85000	39500	77000	2600
	KR 80 PP	KRE 80 PP	80	30	35	1.1	100	63	15	M 30X1.5	32	8	4	1	53	35	29	1.5	450	45000	85000	39500	77000	2600
	KRV 80	KRVE 80	80	30	35	1.1	100	63	15	M 30X1.5	32	8	4	1	53	35	29	1.5	450	60000	142000	49500	120000	1700
	KRV 80 PP	KRVE 80 PP	80	30	35	1.1	100	63	15	M 30X1.5	32	8	4	1	53	35	29	1.5	450	60000	142000	49500	120000	1700
	NUKR 80	NUKRE 80	80	30	35	1.1	100	63	15	M 30X1.5	32	8	4	1	47	35	29	1.5	450	95000	133000	67000	93000	1800

Stud Type Track Rollers
Curve Rollers

Series 1) KR, KR..PP
KRE, KRE..PP
KRV, KRV..PP
NUKR, NUKRE

1) For cylindrical outside surface, add suffix X



Outside diameter (mm)	Designation		Dimension(mm)																Nut tightening torgue	Basic load ratings ²⁾				Limiting speed ³⁾	
																						As track rollers			
		With eccentric collar ¹⁾	D	d	C	rs	B	B1	B2	G	G1	M	M ₁	C1	d2	d 1	B3	e		C	C _o	C _w	C _{ow}	n1 grease	
									min																
																				M _A Nm	N				min ⁻¹
85	KR 85	KRE 85	85	30	35	1.1	100	63	15	M 30X1.5	32	8	4	1	53	35	29	1.5	450	45000	85000	40500	80000	2600	
	KR 85 PP	KRE 85 PP	85	30	35	1.1	100	63	15	M 30X1.5	32	8	4	1	53	35	29	1.5	450	45000	85000	40500	80000	2600	
90	KR 90	KRE 90	90	30	35	1.1	100	63	15	M 30X1.5	32	8	4	1	53	35	29	1.5	450	45000	85000	41500	83000	2600	
	KR 90 PP	KRE 90 PP	90	30	35	1.1	100	63	15	M 30X1.5	32	8	4	1	53	35	29	1.5	450	45000	85000	41500	83000	2600	
	KRV 90	KRVE 90	90	30	35	1.1	100	63	15	M 30X1.5	32	8	4	1	53	35	29	1.5	450	60000	142000	53000	130000	1700	
	KRV 90 PP	KRVE 90 PP	90	30	35	1.1	100	63	15	M 30X1.5	32	8	4	1	53	35	29	1.5	450	60000	142000	53000	130000	1700	
	NUKR 90	NUKRE 90	90	30	35	1.1	100	63	15	M 30X1.5	32	8	4	1	47	35	29	1.5	450	95000	133000	77000	110000	1800	

1) The suffix X indicates a cylindrical outside surface e.g. KR 16 X.

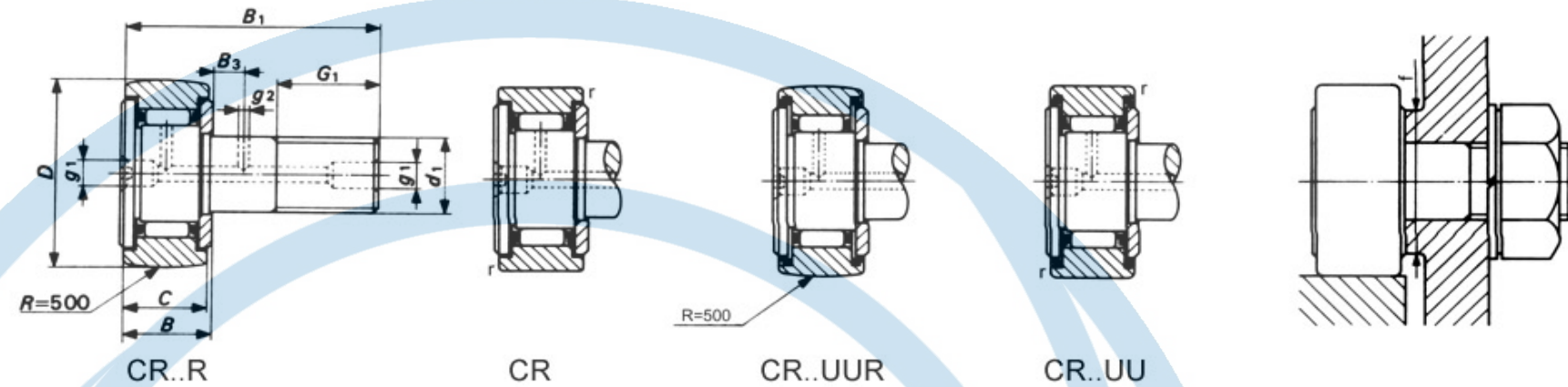
2) The basic load ratings C and C₀ apply if the bearing outer ring (with cylindrical outside surface) is mounted in a housing bore with the normal rolling bearing fit; when used as a track roller, the load ratings CW and COW apply.

3) Limiting speed for grease lubrication. For oil lubrication, the speed can be increased by approximately 30% except for sealed executions.

4) Lubrication hole is the end face at the ribbed end of the stud only.

Stud Type Track Rollers © Inch Series Curve Rollers

Series CR..R, CR
CR..UUR, CR..UU



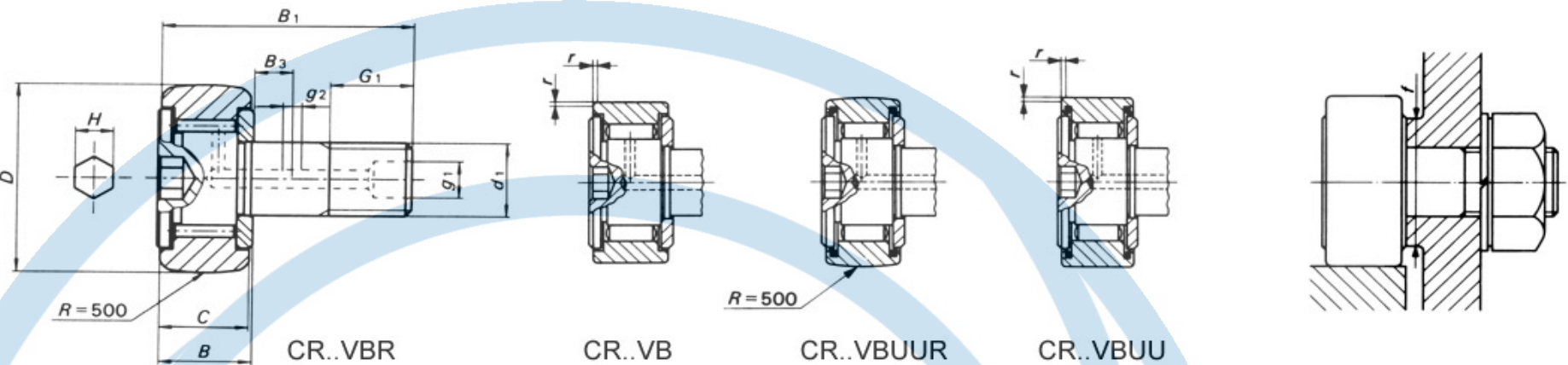
Shaft diameter (mm)	Bearing Designation				Boundary Dimensions (mm)										Mounting dimension (mm)	Maximun tightening torgue	Basic Load Ratings		Limiting Speed rpm
	Basic type		Sealed type														C	C ₀	
	With crowned outside diameter	With cylindrical outside diameter	With crowned outside diameter	With cylindrcial outside diameter	d ₁	D	B	B ₁	g ₁	g ₂	G1	B3	r	kgf.m					
4.826	CR 8 R	CR 8	CR 8 UUR	CR 8 UU	4.826	12.7	8.731	9.525	22.225	3.175	--	6.35	--	0.397	8.334	0.2	260	220	28000
	CR 8-1 R	CR 8-1	CR 8-1 UUR	CR 8-1 UU	4.826	12.7	9.525	10.319	26.194	3.175	--	6.35	--	0.397	8.334	0.2	260	220	28000
6.35	CR 10 R	CR 10	CR 10 UUR	CR 10 UU	6.35	15.875	10.319	11.112	26.988	3.175	--	7.938	--	0.397	11.509	0.3	370	370	21000
	CR 10-1 R	CR 10-1	CR 10-1 UUR	CR 10-1 UU	6.35	15.875	11.112	11.906	30.956	3.175	--	7.938	--	0.397	11.509	0.3	370	370	21000
9.525	CR 12 R	CR 12	CR 12 UUR	CR 12 UU	9.525	19.05	12.7	13.494	35.719	4.762	2.381	9.525	6.35	0.794	13.494	1.8	450	520	15000
	CR 14 R	CR 14	CR 14 UUR	CR 14 UU	9.525	22.225	12.7	13.494	35.719	4.762	2.381	9.525	6.35	0.794	15.081	1.8	490	590	14000
11.112	CR 16 R	CR 16	CR 16 UUR	CR 16 UU	11.112	25.4	15.875	16.669	42.063	4.762	3.175	12.7	6.35	1.191	17.859	2	900	1100	13000
	CR 18 R	CR 18	CR 18 UUR	CR 18 UU	11.112	28.575	15.875	16.669	42.063	4.762	3.175	12.7	6.35	1.588	19.05	2	940	1180	12000
12.7	CR 20 R	CR 20	CR 20 UUR	CR 20 UU	12.7	31.75	19.05	19.844	51.594	4.762	3.175	15.875	7.938	1.588	21.828	2.9	1450	1630	11000
	CR 22 R	CR 22	CR 22 UUR	CR 22 UU	12.7	34.925	19.05	19.844	51.594	4.762	3.175	15.875	7.938	1.588	21.828	2.9	1450	1630	11000
15.875	CR 24 R	CR 24	CR 24 UUR	CR 24 UU	15.875	38.1	22.225	23.019	61.119	4.762	3.969	19.05	9.525	1.588	26.196	6.6	1890	2470	8500
	CR 26 R	CR 26	CR 26 UUR	CR 26 UU	15.875	41.275	22.225	23.019	61.119	4.762	3.969	19.05	9.525	1.588	26.196	6.6	1890	2470	8500
19.05	CR 28 R	CR 28	CR 28 UUR	CR 28 UU	19.05	44.45	25.4	26.194	70.644	4.762	3.969	22.225	11.112	1.588	32.543	12	2560	3900	7000
	CR 30 R	CR 30	CR 30 UUR	CR 30 UU	19.05	47.625	25.4	26.194	40.644	4.762	3.969	22.225	11.112	1.588	32.543	12	2560	3900	7000
22.225	CR 32 R	CR 32	CR 32 UUR	CR 32 UU	22.225	50.8	31.75	32.544	83.344	4.762	4.762	25.4	12.7	1.588	37.306	19	3310	6510	5500
	CR 36 R	CR 36	CR 36 UUR	CR 36 UU	22.225	57.15	31.75	32.544	83.344	4.762	4.762	25.4	12.7	1.588	37.306	19	3310	6510	5500

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Stud Type Track Rollers © Inch Series
Curve Rollers



Series CR..VBR, CR..VB
CR..VBUUR, CR..VBUU



Shaft diameter (mm)	Bearing Designation				Boundary Dimensions (mm)											Mounting dimension (mm)	Maximun tightening torgue kgf.m	Basic Load Ratings		Limiting Speed rpm
	Basic type		Sealed type															C	C ₀	
	With crowned outside diameter	With cylindrical outside diameter	With crowned outside diameter	With cylindrical outside diameter																
					d ₁	D	B	B ₁	g ₁	g ₂	G ₁	B ₃	H	r	kgf					
4.826	CR 8 VBR	CR 8 VB	CR 5 VBUUR	CR 8 VBUU	4.826	12.7	8.731	9.525	22.225	3.175	--	6.35	--	3.175	0.397	8.334	0.2	430	480	15000
	CR 8-1 VBR	CR 8-1 VB	CR 8-1 VBUUR	CR 8-1 VBUU	4.826	12.7	9.525	10.319	26.194	3.175	--	6.35	--	3.175	0.397	8.334	0.2	480	550	15000
6.35	CR 10 VBR	CR 10 VB	CR 10 VBUUR	CR 10 VBUU	6.35	15.875	10.319	11.112	26.988	3.175	--	7.938	--	3.175	0.397	11.509	0.3	590	780	11000
	CR 10-1 VBR	CR 10-1VB	CR 10-1 VBUUR	CR 10-1 VBUU	6.35	15.875	11.112	11.906	30.956	3.175	--	7.938	--	3.175	0.397	11.509	0.3	650	870	11000
9.525	CR 12 VBR	CR 12 VB	CR 12 VBUUR	CR 12 VBUU	9.525	19.05	12.7	13.494	35.719	4.762	2.381	9.525	6.35	4.762	0.794	13.494	1.8	890	1250	8000
	CR 14 VBR	CR 14 VB	CR 14 VBUUR	CR 14 VBUU	9.525	22.225	12.7	13.494	35.719	4.762	2.381	9.525	6.35	4.762	0.794	15.081	1.8	890	1250	8000
11.112	CR 16 VBR	CR 16 VB	CR 16 VBUUR	CR 16 VBUU	11.112	25.4	15.875	16.669	42.063	4.762	3.175	12.7	6.35	6.35	1.191	17.859	2	1330	2310	6500
	CR 18 VBR	CR 18 VB	CR 18 VBUUR	CR 18 VBUU	11.112	28.575	15.875	16.669	42.063	4.762	3.175	12.7	6.35	6.35	1.588	19.05	2	1330	2310	6500
12.7	CR 20 VBR	CR 20 VB	CR 20 VBUUR	CR 20 VBUU	12.7	31.75	19.05	19.844	51.594	4.762	3.175	15.875	7.938	6.35	1.588	21.828	2.9	2400	3230	5500
	CR 22 VBR	CR 22 VB	CR 22 VBUUR	CR 22 VBUU	12.7	34.925	19.05	19.844	51.594	4.762	3.175	15.875	7.938	6.35	1.588	21.828	2.9	2400	3230	5500
15.875	CR 24 VBR	CR 24 VB	CR 24 VBUUR	CR 24 VBUU	15.875	38.1	22.225	23.019	61.119	4.762	3.969	19.05	9.525	7.938	1.588	26.196	6.6	2870	4090	4500
	CR 26 VBR	CR 26 VB	CR 26 VBUUR	CR 26 VBUU	15.875	41.275	22.225	23.019	61.119	4.762	3.969	19.05	9.525	7.938	1.588	26.196	6.6	2870	4090	4500
19.05	CR 28 VBR	CR 28 VB	CR 28 VBUUR	CR 28 VBUU	19.05	44.45	25.4	26.194	70.644	4.762	3.969	22.225	11.112	7.938	1.588	32.543	12	3590	5670	4000
	CR 30 VBR	CR 30 VB	CR 30 VBUUR	CR 30 VBUU	19.05	47.625	25.4	26.194	40.644	4.762	3.969	22.225	11.112	7.938	1.588	32.543	12	3590	5670	4000
22.225	CR 32 VBR	CR 32 VB	CR 32 VBUUR	CR 32 VBUU	22.225	50.8	31.75	32.544	83.344	4.762	4.762	25.4	12.7	11.112	1.588	37.306	19	4660	8220	3500
	CR 36 VBR	CR 36 VB	CR 36 VBUUR	CR 36 VBUU	22.225	57.15	31.75	32.544	83.344	4.762	4.762	25.4	12.7	11.112	1.588	37.306	19	4660	8220	3500

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