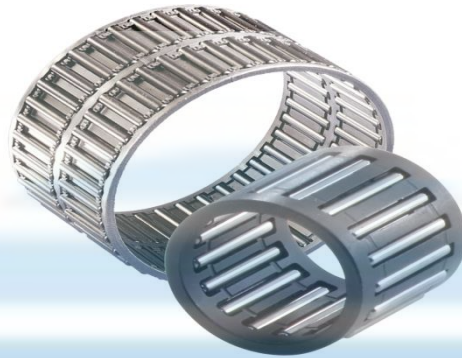




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Needle Roller Bearing



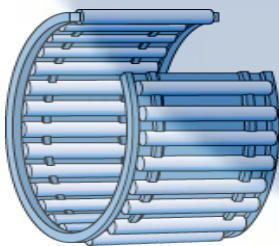
We offers Needle Roller and Cage Assemblies are self-contained, ready-to-mount bearings. In applications where the shaft and housing bore can serve as raceways, the assemblies can be used to create bearing arrangements that require minimal radial space.

Needle Roller Bearing

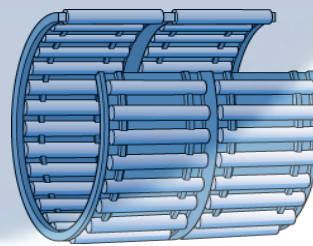
Item	Needle roller bearings, needle roller and cage assemblies
Diameter under Roller [Fw]	3-265 mm
Outside Diameter Roller Complement [Ew]	5-280 mm
Width Needle Roller and Cage Assembly [U]	7-50 mm

A. Basic Design Bearing

Single Row Design



Double Row Design



Characteristics;

They are characterized by the following properties:

- Simple to mount and robust.
- Accurate roller guidance in the cage pockets.
- Good running performance.





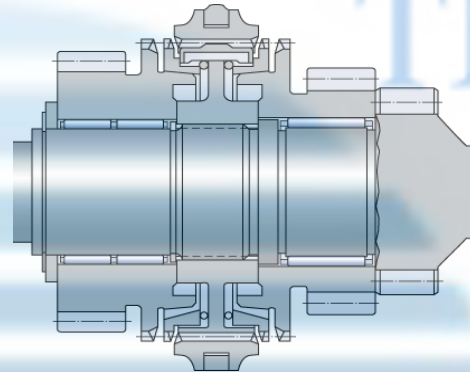
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B. Other Needle Roller and Cage Assemblies

Needle Roller Bearing (With Split Cage)

Image

Needle roller and cage assemblies with a split cage can be used where raceways are recessed in the shaft. (fig. 1)

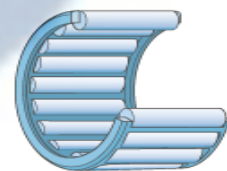
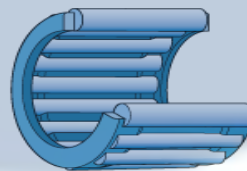
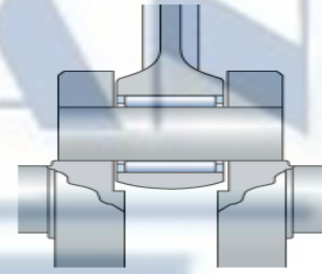
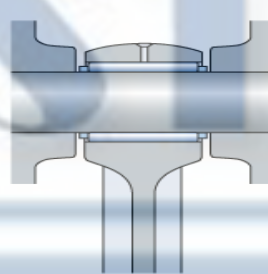


(fig. 1)

Special Needle Roller and Cage Assemblies

Image

Special needle roller and cage assemblies are used for the gudgeon (wrist) pin (fig. 2) and crankpin (crankshaft journal) (fig. 3) for connecting rods of internal combustion engines and compressors. They provide excellent service in spite of rapid accelerations, elevated temperatures, unfavorable load, and poor lubrication conditions.



(Fig.2)

(Fig.3)



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Fw [mm]	Ew [mm]	U [mm]	C [kN]	C0 [kN]	Pu [kN]	Reference speed [r/min]	Limiting speed [r/min]	
3	5	7	1.51	1.34	0.134	40000	45000	<u>K 3x5x7 TN</u>
3	5	9	1.68	1.53	0.153	40000	45000	<u>K 3x5x9 TN</u>
3	6	7	1.42	1.02	0.104	38000	43000	<u>K 3x6x7 TN</u>
4	7	7	1.72	1.32	0.137	36000	43000	<u>K 4x7x7 TN</u>
4	7	10	2.29	1.9	0.204	36000	43000	<u>K 4x7x10 TN</u>
5	8	8	2.29	2	0.212	36000	40000	<u>K 5x8x8 TN</u>
5	8	10	2.92	2.7	0.29	36000	40000	<u>K 5x8x10 TN</u>
6	9	8	2.55	2.36	0.25	34000	38000	<u>K 6x9x8 TN</u>
6	9	10	3.3	3.2	0.345	34000	38000	<u>K 6x9x10 TN</u>
7	9	7	1.68	1.83	0.19	34000	38000	<u>K 7x9x7 TN</u>
7	10	8	2.81	2.75	0.29	32000	36000	<u>K 7x10x8 TN</u>
7	10	10	3.58	3.75	0.415	32000	36000	<u>K 7x10x10 TN</u>
8	11	10	3.8	4.25	0.465	32000	36000	<u>K 8x11x10 TN</u>
8	11	13	5.01	5.85	0.67	32000	36000	<u>K 8x11x13 TN</u>
8	12	10	4.84	4.75	0.54	30000	34000	<u>K 8x12x10 TN</u>
9	12	10	4.4	5.2	0.57	30000	34000	<u>K 9x12x10 TN</u>
9	12	13	5.72	7.2	0.815	30000	34000	<u>K 9x12x13 TN</u>
10	13	10	4.57	5.7	0.63	28000	32000	<u>K 10x13x10 TN</u>
10	13	13	5.94	8	0.9	28000	32000	<u>K 10x13x13 TN</u>
10	13	16	6.82	9.5	1.08	28000	32000	<u>K 10x13x16 TN</u>
10	14	10	5.61	6.1	0.695	28000	32000	<u>K 10x14x10 TN</u>
10	14	13	7.21	8.5	0.98	28000	32000	<u>K 10x14x13 TN</u>
10	16	12	7.65	7.2	0.85	28000	32000	<u>K 10x16x12 TN</u>
12	15	10	4.73	6.2	0.695	26000	30000	<u>K 12x15x10 TN</u>
12	15	13	6.16	8.65	0.98	26000	30000	<u>K 12x15x13 TN</u>
12	16	13	7.65	9.5	1.1	26000	30000	<u>K 12x16x13 TN</u>
12	17	13	9.13	10.4	1.22	26000	30000	<u>K 12x17x13 TN</u>
12	18	12	9.52	10	1.18	26000	30000	<u>K 12x18x12 TN</u>
14	18	10	6.93	8.65	1	24000	28000	<u>K 14x18x10</u>
14	18	13	7.92	10.2	1.18	24000	28000	<u>K 14x18x13</u>
14	18	15	9.13	12.5	1.46	24000	28000	<u>K 14x18x15 TN</u>
14	18	17	10.5	14.6	1.7	24000	28000	<u>K 14x18x17</u>
14	20	12	9.9	10.6	1.25	24000	28000	<u>K 14x20x12</u>
15	19	10	7.21	9.3	1.08	24000	28000	<u>K 15x19x10</u>
15	19	13	8.25	11.2	1.29	24000	28000	<u>K 15x19x13</u>
15	19	17	10.8	15.6	1.86	24000	28000	<u>K 15x19x17</u>
15	20	13	9.52	11.6	1.34	24000	26000	<u>K 15x20x13</u>





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Fw [mm]	Ew [mm]	U [mm]	C [kN]	C0 [kN]	Pu [kN]	Reference speed [r/min]	Limiting speed [r/min]	
16	20	10	7.48	10	1.16	24000	26000	<u>K 16x20x10</u>
16	20	13	8.58	12	1.37	24000	26000	<u>K 16x20x13</u>
16	20	17	11.2	17	2	24000	26000	<u>K 16x20x17</u>
16	22	12	11	12.5	1.5	22000	26000	<u>K 16x22x12</u>
16	22	16	14.2	17.6	2.12	22000	26000	<u>K 16x22x16</u>
16	22	20	17.6	22.8	2.8	22000	26000	<u>K 16x22x20</u>
16	24	20	20.5	23.6	2.9	22000	24000	<u>K 16x24x20</u>
17	21	10	7.81	10.8	1.22	22000	26000	<u>K 17x21x10</u>
17	21	13	10.1	14.6	1.73	22000	26000	<u>K 17x21x13</u>
17	21	17	11.7	18.3	2.12	22000	26000	<u>K 17x21x17</u>
18	22	10	8.09	11.4	1.32	22000	24000	<u>K 18x22x10</u>
18	22	13	8.8	12.9	1.5	22000	24000	<u>K 18x22x13</u>
18	22	17	11.7	18.3	2.16	22000	24000	<u>K 18x22x17</u>
18	24	12	12.1	15	1.8	20000	24000	<u>K 18x24x12</u>
18	24	13	12.5	15.3	1.86	20000	24000	<u>K 18x24x13</u>
18	24	20	19.4	27	3.25	20000	24000	<u>K 18x24x20</u>
18	25	22	22	29	3.55	20000	24000	<u>K 18x25x22</u>
19	23	13	9.13	13.7	1.6	20000	24000	<u>K 19x23x13</u>
19	23	17	12.1	19.3	2.28	20000	24000	<u>K 19x23x17</u>
20	24	10	8.58	12.9	1.46	20000	22000	<u>K 20x24x10</u>
20	24	13	9.52	14.6	1.66	20000	22000	<u>K 20x24x13</u>
20	26	12	12.8	16.3	1.96	19000	22000	<u>K 20x26x12</u>
20	26	13	13.8	18	2.16	19000	22000	<u>K 20x26x13</u>
20	26	17	18.3	26	3.2	19000	22000	<u>K 20x26x17</u>
20	26	20	20.1	29	3.6	19000	22000	<u>K 20x26x20</u>
20	28	16	19	22.4	2.7	18000	20000	<u>K 20x28x16</u>
20	28	20	22.9	28.5	3.45	18000	20000	<u>K 20x28x20</u>
20	28	25	29.2	39	4.9	18000	20000	<u>K 20x28x25</u>
20	30	30	34.1	41.5	5.2	17000	20000	<u>K 20x30x30</u>
21	25	13	9.68	15.3	1.76	19000	22000	<u>K 21x25x13</u>
22	26	10	8.8	13.7	1.56	18000	20000	<u>K 22x26x10</u>
22	26	13	10.1	16.3	1.86	18000	20000	<u>K 22x26x13</u>
22	26	17	13.2	22.8	2.7	18000	20000	<u>K 22x26x17</u>
22	28	17	18.3	27	3.25	17000	20000	<u>K 22x28x17</u>
22	29	16	19.4	25.5	3.05	17000	19000	<u>K 22x29x16</u>
22	30	15	19	23.6	2.8	17000	19000	<u>K 22x30x15 TN</u>
22	32	24	31.9	40	4.9	16000	18000	<u>K 22x32x24</u>





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Fw [mm]	Ew [mm]	U [mm]	C [kN]	C0 [kN]	Pu [kN]	Reference speed [r/min]	Limiting speed [r/min]	
23	35	16	24.2	23.2	2.9	15000	17000	<u>K 23x35x16 TN</u>
24	28	10	9.35	15	1.73	17000	19000	<u>K 24x28x10</u>
24	28	13	10.6	18	2.08	17000	19000	<u>K 24x28x13</u>
24	28	17	14	25.5	3	17000	19000	<u>K 24x28x17</u>
24	30	17	18.7	27.5	3.4	16000	18000	<u>K 24x30x17</u>
25	29	10	9.52	15.6	1.8	16000	18000	<u>K 25x29x10</u>
25	29	13	10.8	18.6	2.16	16000	18000	<u>K 25x29x13</u>
25	29	17	14.2	26.5	3.1	16000	18000	<u>K 25x29x17</u>
25	30	17	17.9	30.5	3.6	16000	18000	<u>K 25x30x17</u>
25	30	20	20.9	36.5	4.4	16000	18000	<u>K 25x30x20</u>
25	31	17	18.7	28.5	3.45	16000	18000	<u>K 25x31x17</u>
25	31	21	23.3	38	4.75	16000	18000	<u>K 25x31x21</u>
25	32	16	19.8	27.5	3.35	15000	17000	<u>K 25x32x16</u>
25	33	20	27.5	38	4.65	15000	17000	<u>K 25x33x20</u>
25	33	24	31.9	47.5	5.85	15000	17000	<u>K 25x33x24</u>
25	35	30	44.6	62	7.8	15000	17000	<u>K 25x35x30</u>
26	30	13	11.2	19.6	2.28	16000	18000	<u>K 26x30x13</u>
26	30	17	14.7	27.5	3.25	16000	18000	<u>K 26x30x17</u>
28	33	13	14.7	24.5	2.85	14000	16000	<u>K 28x33x13</u>
28	33	17	19	33.5	4.05	14000	16000	<u>K 28x33x17</u>
28	34	17	20.9	33.5	4.15	14000	16000	<u>K 28x34x17</u>
28	35	16	20.5	30	3.55	14000	16000	<u>K 28x35x16</u>
28	35	18	22.9	34.5	4.15	14000	16000	<u>K 28x35x18</u>
28	40	25	42.9	55	6.95	13000	15000	<u>K 28x40x25</u>
30	34	13	11.9	22	2.55	14000	15000	<u>K 30x34x13</u>
30	35	13	15.1	25.5	3	13000	15000	<u>K 30x35x13</u>
30	35	17	18.7	34	4.05	13000	15000	<u>K 30x35x17</u>
30	35	27	29.2	60	7.35	13000	15000	<u>K 30x35x27</u>
30	37	16	22	33.5	4	13000	15000	<u>K 30x37x16</u>
30	37	18	25.1	39	4.65	13000	15000	<u>K 30x37x18</u>
30	40	30	46.8	69.5	8.65	12000	14000	<u>K 30x40x30</u>
32	37	13	14.7	25.5	3	13000	14000	<u>K 32x37x13</u>
32	37	17	19	35.5	4.25	13000	14000	<u>K 32x37x17</u>
32	37	27	28.6	60	7.35	13000	14000	<u>K 32x37x27</u>
32	38	20	25.1	45	5.6	12000	14000	<u>K 32x38x20</u>
32	39	16	22.9	35.5	4.25	12000	14000	<u>K 32x39x16</u>
32	39	18	25.5	41.5	5	12000	14000	<u>K 32x39x18</u>





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Fw [mm]	Ew [mm]	U [mm]	C [kN]	C0 [kN]	Pu [kN]	Reference speed [r/min]	Limiting speed [r/min]	
32	40	25	35.8	58.5	7.2	12000	14000	<u>K 32x40x25</u>
32	40	42	48.4	83	10.2	12000	14000	<u>K 32x40x42 ZWTN</u>
32	46	32	62.7	83	10.4	11000	13000	<u>K 32x46x32</u>
35	40	13	15.4	28	3.25	12000	13000	<u>K 35x40x13</u>
35	40	17	19.8	39	4.65	12000	13000	<u>K 35x40x17</u>
35	40	25	28.1	60	7.35	12000	13000	<u>K 35x40x25</u>
35	40	27	23.8	49	6	12000	13000	<u>K 35x40x27 TN</u>
35	42	16	23.3	37.5	4.5	11000	13000	<u>K 35x42x16</u>
35	42	18	26.4	44	5.3	11000	13000	<u>K 35x42x18</u>
35	42	20	29.2	50	6	11000	13000	<u>K 35x42x20</u>
35	42	30	37.4	68	8.5	11000	13000	<u>K 35x42x30</u>
35	45	20	35.2	50	6.2	11000	12000	<u>K 35x45x20</u>
35	45	30	50.1	80	10	11000	12000	<u>K 35x45x30</u>
37	42	17	21.6	43	5.2	11000	13000	<u>K 37x42x17</u>
38	43	17	19.8	39	4.65	11000	12000	<u>K 38x43x17</u>
38	46	20	34.1	57	6.95	10000	12000	<u>K 38x46x20</u>
38	46	32	52.3	100	12.5	10000	12000	<u>K 38x46x32</u>
40	45	13	16.8	32.5	3.8	10000	12000	<u>K 40x45x13</u>
40	45	17	20.5	41.5	5	10000	12000	<u>K 40x45x17</u>
40	45	27	31.4	73.5	9	10000	12000	<u>K 40x45x27</u>
40	47	18	28.6	50	6.1	10000	11000	<u>K 40x47x18</u>
40	47	20	31.4	57	6.95	10000	11000	<u>K 40x47x20</u>
40	48	20	34.7	58.5	7.35	10000	11000	<u>K 40x48x20</u>
42	47	13	17.2	33.5	4	10000	11000	<u>K 42x47x13</u>
42	47	17	20.9	43	5.2	10000	11000	<u>K 42x47x17</u>
42	50	20	33.6	57	7.1	9500	11000	<u>K 42x50x20</u>
43	48	17	20.9	43	5.2	9500	11000	<u>K 43x48x17</u>
43	48	27	31.9	76.5	9.3	9500	11000	<u>K 43x48x27</u>
45	50	17	21.6	46.5	5.6	9000	10000	<u>K 45x50x17</u>
45	50	27	33	81.5	10	9000	10000	<u>K 45x50x27</u>
45	52	18	30.3	57	6.95	9000	10000	<u>K 45x52x18</u>
45	53	20	37.4	68	8.3	9000	10000	<u>K 45x53x20</u>
45	53	21	36.9	67	8.3	9000	10000	<u>K 45x53x21</u>
45	53	28	49.5	98	12.2	9000	10000	<u>K 45x53x28</u>
45	59	32	69.3	102	12.9	8500	9500	<u>K 45x59x32</u>
47	52	17	22.4	49	6	9000	10000	<u>K 47x52x17</u>





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Fw [mm]	Ew [mm]	U [mm]	C [kN]	C0 [kN]	Pu [kN]	Reference speed [r/min]	Limiting speed [r/min]	
47	52	27	33.6	83	10.2	9000	10000	<u>K 47x52x27</u>
50	55	13.5	17.6	36.5	4.3	8500	9500	<u>K 50x55x13.5</u>
50	55	20	25.5	60	7.2	8500	9500	<u>K 50x55x20</u>
50	55	30	37.4	98	12	8500	9500	<u>K 50x55x30</u>
50	57	18	31.9	64	7.8	8000	9000	<u>K 50x57x18</u>
50	58	20	34.1	62	7.65	8000	9000	<u>K 50x58x20</u>
50	58	25	41.8	81.5	10.2	8000	9000	<u>K 50x58x25</u>
52	57	12	17.2	36.5	4.3	8000	9000	<u>K 52x57x12</u>
55	60	20	27	67	8.15	7500	8500	<u>K 55x60x20</u>
55	60	30	39.6	108	13.4	7500	8500	<u>K 55x60x30</u>
55	62	18	34.1	71	8.5	7500	8500	<u>K 55x62x18</u>
55	63	20	38	75	9.15	7500	8500	<u>K 55x63x20</u>
55	63	25	49.5	104	12.9	7500	8500	<u>K 55x63x25</u>
55	63	32	59.4	129	16.3	7500	8500	<u>K 55x63x32</u>
58	65	18	33.6	71	8.65	7000	8000	<u>K 58x65x18</u>
60	65	20	28.1	72	8.8	7000	8000	<u>K 60x65x20</u>
60	65	30	41.3	116	14.3	7000	8000	<u>K 60x65x30</u>
60	66	40	55	150	18.6	7000	8000	<u>K 60x66x40 ZW</u>
60	68	20	41.8	86.5	10.6	6700	7500	<u>K 60x68x20</u>
60	68	23	47.3	102	12.5	6700	7500	<u>K 60x68x23</u>
60	68	25	51.2	112	14	6700	7500	<u>K 60x68x25</u>
65	70	20	29.2	76.5	9.3	6300	7500	<u>K 65x70x20</u>
65	70	30	41.8	125	15.3	6300	7500	<u>K 65x70x30</u>
65	73	23	44	95	11.6	6300	7000	<u>K 65x73x23</u>
65	73	30	53.9	125	15.6	6300	7000	<u>K 65x73x30</u>
68	74	20	33.6	83	10.4	6000	7000	<u>K 68x74x20</u>
68	74	30	44.6	118	15	6000	7000	<u>K 68x74x30</u>
68	74	35	46.8	125	15.3	6000	7000	<u>K 68x74x35 ZW</u>
70	76	20	34.1	86.5	10.6	6000	6700	<u>K 70x76x20</u>
70	76	30	50.1	140	17.6	6000	6700	<u>K 70x76x30</u>
70	78	30	57.2	137	17	6000	6700	<u>K 70x78x30</u>
72	80	20	39.6	85	10.6	5600	6300	<u>K 72x80x20</u>
73	79	20	35.2	90	11.2	5600	6300	<u>K 73x79x20</u>
75	81	20	35.8	93	11.6	5600	6300	<u>K 75x81x20</u>
75	81	30	50.1	143	18	5600	6300	<u>K 75x81x30</u>
75	83	23	47.3	110	13.7	5300	6300	<u>K 75x83x23</u>
75	83	35	60.5	146	18	5300	6300	<u>K 75x83x35 ZW</u>





AUMSHIVAY ENGINEERING PRIVATE LIMITED

- B-21, Bhan Nagar, Queens Road, Jaipur-302021
- Website: www.aumshivay.com, www.omengineering.in
- E-mail: admin@aumshivay.com

Principal dimensions			Basic load ratings		Fatigue load limit	Speed ratings		Designation Bearing
Fw [mm]	Ew [mm]	U [mm]	C [kN]	C0 [kN]	Pu [kN]	Reference speed [r/min]	Limiting speed [r/min]	
75	83	40	69.3	176	22	5300	6300	<u>K 75x83x40 ZW</u>
80	86	20	36.9	98	12.2	5300	6000	<u>K 80x86x20</u>
80	88	30	68.2	176	22	5000	6000	<u>K 80x88x30</u>
80	88	40	72.1	193	23.6	5000	6000	<u>K 80x88x40 ZW</u>
80	88	46	84.2	232	28.5	5000	6000	<u>K 80x88x46 ZW</u>
85	92	20	42.9	108	13.2	4800	5600	<u>K 85x92x20</u>
90	97	20	42.9	114	13.7	4500	5300	<u>K 90x97x20</u>
90	98	30	64.4	173	21.6	4500	5300	<u>K 90x98x30</u>
95	103	30	66	180	22.8	4300	5000	<u>K 95x103x30</u>
95	103	40	79.2	228	28.5	4300	5000	<u>K 95x103x40 ZW</u>
100	107	21	45.7	127	15.3	4000	4800	<u>K 100x107x21</u>
100	108	27	55	143	17.6	4000	4800	<u>K 100x108x27</u>
105	112	21	45.7	129	15.3	4000	4500	<u>K 105x112x21</u>
110	117	24	53.9	160	18.6	3800	4300	<u>K 110x117x24</u>
110	118	30	73.7	220	26.5	3800	4300	<u>K 110x118x30</u>
115	123	27	60.5	170	20	3600	4000	<u>K 115x123x27</u>
120	127	24	56.1	176	20.4	3400	4000	<u>K 120x127x24</u>
125	133	35	82.5	260	30.5	3200	3800	<u>K 125x133x35</u>
130	137	24	58.3	186	21.2	3200	3600	<u>K 130x137x24</u>
135	143	35	88	290	33.5	3000	3400	<u>K 135x143x35</u>
145	153	26	70.4	224	25	2800	3200	<u>K 145x153x26</u>
150	160	46	140	475	53	2800	3000	<u>K 150x160x46</u>
155	163	26	72.1	236	25.5	2600	3000	<u>K 155x163x26</u>
160	170	46	145	510	56	2600	2800	<u>K 160x170x46</u>
165	173	26	76.5	265	28.5	2400	2800	<u>K 165x173x26</u>
175	183	32	95.2	355	37.5	2400	2600	<u>K 175x183x32</u>
185	195	37	123	425	45	2200	2400	<u>K 185x195x37</u>
240	250	42	157	630	62	1700	1900	<u>K 240x250x42</u>
265	280	50	242	850	83	1500	1700	<u>K 265x280x50</u>

Features and Benefits;

- **Lowest cross section among rolling bearings;** In applications where less space is available, needle roller and cage assemblies offer a very compact solution.
- **High load carrying capacity;** Owing to their large number of rollers, needle roller and cage assemblies have a high load carrying capacity.
- **High Stiffness;** Because of their large number of small-diameter rollers, needle roller and cage assemblies have high stiffness.

