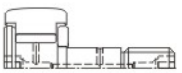
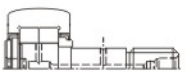
Cam followers

TECHNICAL SUPPLEMENT T148 - 149

PRODUCT INFORMATION P150 - 155

 **KR** P150 - 151

 **KRV** P152 - 153

 **NUKR** P154 - 155

1. Bearing materials

SLB Stud-type Track Rollers are available in three basic series: the series KR, whose rolling elements are needle rollers retained and guided by a cage; the full-complement series KRV lacking a cage, whose rolling elements are needle rollers; and the series NUKR, a full-complement type whose rolling elements are double-row cylindrical rollers. The cage of the stud-type track rollers is pressed steel. However, cages of molded polyamide reinforced with giass fiber or carbon fibre may be used. The carbon fibre cage features a maximum allowable operating temperature of 120° C and maximum allowable continuous operating temperature of 100° C. The series KR is suitable for high-speed applications because the cage guides the needle rollers. Compared with a full-comple -ment configuration, this bearing's larger internal volume holds a larger amount of grease, which contributes to relatively extended relubrication intervals. Also available is a variant (suffix PP) with synthetic rubber seal located between the outer ring, flange, and side plate.

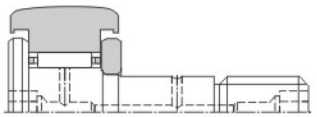


Fig. 1 Series KR

Compared with the series KR, the track roller series KRV has more needle rollers and therefore is suitable for heavy load applications, but it has a lower limiting speed. A variant (suffix PP) with seals is also available. Because this bearing holds less grease, the relubrication intervals for this type are shorter.

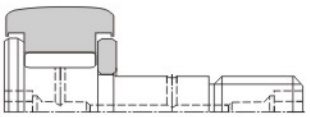


Fig. 2 Series KRV

Compared with full-complement needle roller bearings. The series NUKR track rollers can carry a greater load and are therefore suitable for applications involving heavy load and impact load, as they are full-complement types using double-row cylindrical rollers as rolling elements. They are guided in the axial direction by the outer ring rib and end faces of cylindrical rollers, and can carry some axial load. Although they are a full-complement configuration, their limiting speed is greater than that of series KRV rollers. Their outer ring incorporates a press-fit steel plate to form a labyrinth between the flange and the outer surface of the side plate. Because there is limited space available for adding grease to the bearing, the bearing must be relubricated more frequently.

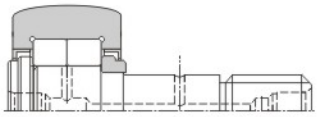


Fig. 3 Series NUKR

2. Interpreting bearing numbers

The bearing numbers of **SLB** Stud-type Track Rollers comprise a series number, dimension code (outside diameter), and suffix.

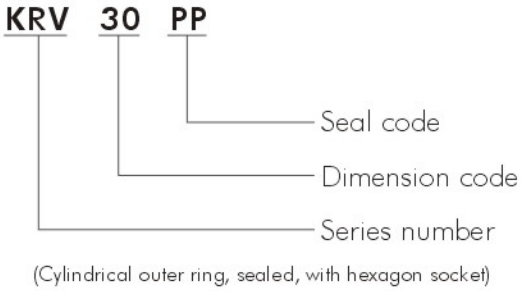
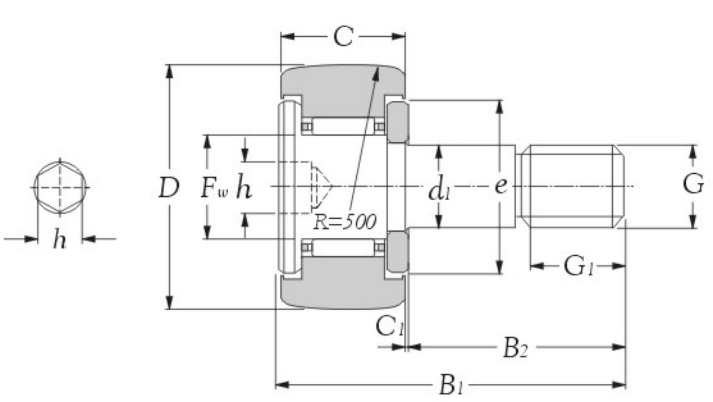


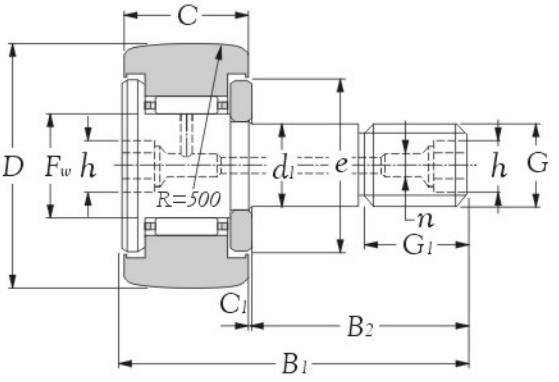
Fig. 4

3. Lubrication

The rollers having synthetic rubber seals (suffix PP) as well as the full-complement type are pre-filled with lithium soap grease and can operate at a temperature range of -25°C to 100°C. The inside of the bearing can be refilled tirough a grease nipple installed on the bearing-side end face (flange end face) or threaded end face of the stud. Any lubrication holes not used for relubrication must be plugged. The necessary grease nipple and plug are included in the package and must be installed on the toller before the cam follower is mounted.



Type KR (10~19 mm)

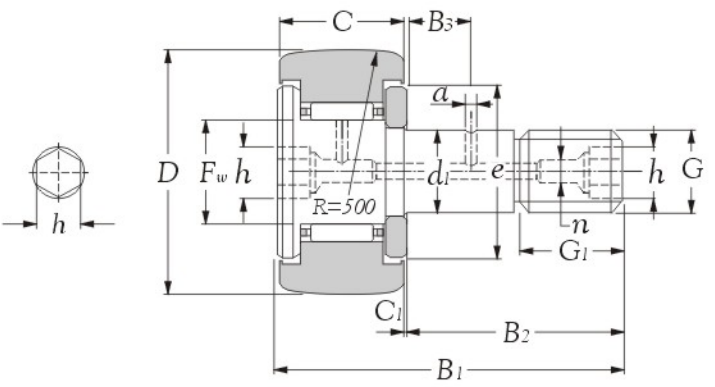


Type KR (22~26 mm)

Inner bore D 0/-0.05 mm	Bearing number		Boundary dimensions												
			C	d_1	F_w	B_1	B_2	G	G_1	C_1	n	B_3	a	e	h
			mm												
10	KR 10	KR 10 PP	7	$3^{\ 0}_{-0.010}$	4.00	17	9.0	M3 X 0.5	5.0	0.5	-	-	-	7.0	-
12	KR 12	KR 12 PP	8	$4^{\ 0}_{-0.012}$	4.80	20	11.0	M4 X 0.7	6.0	0.5	-	-	-	8.5	-
13	KR 13	KR 13 PP	9	$5^{\ 0}_{-0.012}$	5.75	23	13.0	M5 X 0.8	7.5	0.5	-	-	-	9.5	-
16	KR 16	KR 16 PP	11	$6^{\ 0}_{-0.012}$	8.00	28	16.0	M6 X 1.0	8.0	0.6	-	-	-	12.0	4
19	KR 19	KR 19 PP	11	$8^{\ 0}_{-0.015}$	10.00	32	20.0	M8 X 1.25	10.0	0.6	-	-	-	14.0	4
22	KR 22	KR 22 PP	12	$10^{\ 0}_{-0.015}$	12.00	36	23.0	M 10 X 1.0	12.0	0.6	4	-	-	17.0	5
26	KR 26	KR 26 PP	12	$10^{\ 0}_{-0.015}$	12.00	36	23.0	M 10 X 1.0	12.0	0.6	4	-	-	17.0	5
30	KR 30	KR 30 PP	14	$12^{\ 0}_{-0.018}$	15.00	40	25.0	M 12 X 1.5	13.0	0.6	4	6	3	23.0	6
32	KR 32	KR 32 PP	14	$12^{\ 0}_{-0.018}$	15.00	40	25.0	M 12 X 1.5	13.0	0.6	4	6	3	23.0	6
35	KR 35	KR 35 PP	18	$16^{\ 0}_{-0.018}$	18.00	52	32.5	M 16 X 1.5	17.0	0.8	6	8	3	27.0	8
40	KR 40	KR 40 PP	20	$18^{\ 0}_{-0.018}$	22.00	58	36.5	M 18 X 1.5	19.0	0.8	6	8	3	32.0	8
47	KR 47	KR 47 PP	24	$20^{\ 0}_{-0.021}$	25.00	66	40.5	M20 X 1.5	21.0	0.8	6	9	4	37.0	10
52	KR 52	KR 52 PP	24	$20^{\ 0}_{-0.021}$	25.00	66	40.5	M20 X 1.5	21.0	0.8	6	9	4	37.0	10
62	KR 62	KR 62 PP	29	$24^{\ 0}_{-0.021}$	30.00	80	49.5	M24 X 1.5	25.0	0.8	8	11	4	44.0	14
72	KR 72	KR 72 PP	29	$24^{\ 0}_{-0.021}$	30.00	80	49.5	M24 X 1.5	25.0	0.8	8	11	4	44.0	14
80	KR 80	KR 80 PP	35	$30^{\ 0}_{-0.021}$	38.00	100	63.0	M30 X 1.5	32.0	1.0	8	15	4	53.0	14
85	KR 85	KR 85 PP	35	$30^{\ 0}_{-0.021}$	38.00	100	63.0	M30 X 1.5	32.0	1.0	8	15	4	53.0	14
90	KR 90	KR 90 PP	35	$30^{\ 0}_{-0.021}$	38.00	100	63.0	M30 X 1.5	32.0	1.0	8	15	4	53.0	14

Technical supplement

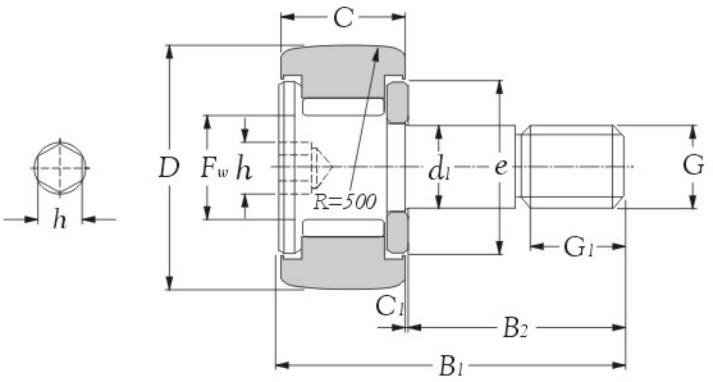
Cages		Precision	Grease
Steel -	√		
Polymid -	X	Normal (ISO)	Shell Alvania S2
Brass -	X		



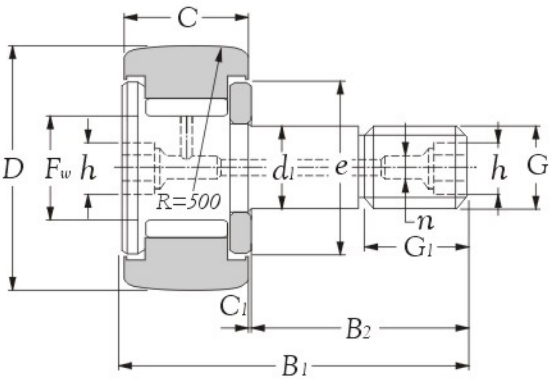
Type KR (30~90 mm)

Basic load ratings				Load ratings of truck				Max runout speed		Maximum tightening torque		Weight	Stud diameter
dynamic C	static Co	dynamic C	static Co	Spherical outer ring	Cylindrical outer ring	Spherical outer ring	Cylindrical outer ring	grease	oil				
N		kgf		N		kgf		r/min		N.m	Kgf.m	kg(s).	mm
1510	1140	154	116	560	1360	57	139	※27000	※40000	0.5	0.05	0.005	3
2030	1550	207	159	725	1790	74	183	※25000	※36000	1.0	0.10	0.008	4
2480	2070	253	211	805	2220	82	226	※23000	※33000	2.0	0.20	0.010	5
3850	3950	395	400	1080	3400	110	350	※19000	※25000	3.0	0.30	0.019	6
4500	5100	460	520	1380	4050	141	415	※15000	※20000	8.0	0.80	0.031	8
5050	6250	515	635	1690	5150	172	525	※12000	※16000	15.0	1.50	0.046	10
5050	6250	515	635	2120	6100	216	620	※12000	※16000	15.0	1.50	0.059	10
7500	9100	765	930	2620	7700	267	785	10000	※13000	22.0	2.20	0.087	12
7500	9100	765	930	2860	8200	291	835	10000	※13000	22.0	2.20	0.097	12
11800	17300	1210	1760	3200	11900	325	1220	8000	※11000	58.0	5.80	0.169	16
13600	22100	1390	2250	3850	14500	390	1480	7000	9000	87.0	8.70	0.248	18
20300	33000	2070	3350	4700	21000	480	2150	6000	8000	120.0	12.00	0.386	20
20300	33000	2070	3350	5550	23300	565	2370	6000	8000	120.0	12.00	0.461	20
29100	55000	2960	5650	6950	34500	710	3500	5000	6500	220.0	22.00	0.790	24
29100	55000	2960	5650	8050	38500	820	3900	5000	6500	220.0	22.00	1.040	24
44000	86500	4500	8800	9800	53000	1000	5400	4000	5500	450.0	45.00	1.550	30
44000	86500	4500	8800	10400	56000	1060	5750	4000	5500	450.0	45.00	1.740	30
44000	86500	4500	8800	11400	59000	1160	6100	4000	5500	450.0	45.00	1.950	30

Notes: Limiting speed of sealed type bearings marked with ※ is approximately 10 000 r/min.



Type KRV (10~19 mm)

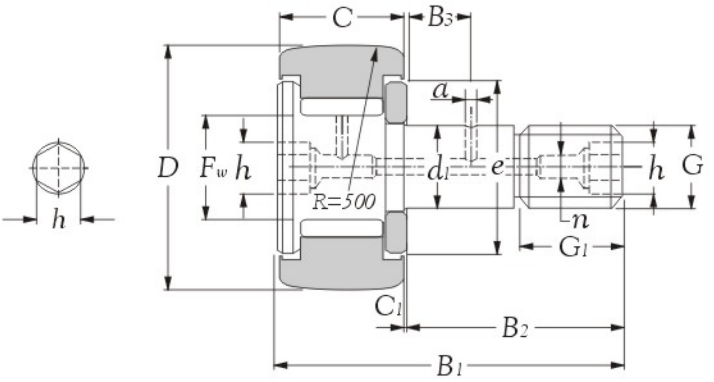


Type KRV (22~26 mm)

Inner bore D 0/-0.05 mm	Bearing number		Boundary dimensions												
			C	d_1	F_w	B_1	B_2	G	G_1	C_1	n	B_3	a	e	h
			mm												
10	KRV 10	KRV 10 PP	7	$3^{\ 0}_{-0.010}$	4.00	17	9.0	M3 X 0.5	5.0	0.5	-	-	-	7.0	-
12	KRV 12	KRV 12 PP	8	$4^{\ 0}_{-0.012}$	4.80	20	11.0	M4 X 0.7	6.0	0.5	-	-	-	8.5	-
13	KRV 13	KRV 13 PP	9	$5^{\ 0}_{-0.012}$	5.75	23	13.0	M5 X 0.8	7.5	0.5	-	-	-	9.5	-
16	KRV 16	KRV 16 PP	11	$6^{\ 0}_{-0.012}$	8.00	28	16.0	M6 X 1.0	8.0	0.6	-	-	-	12.0	-
19	KRV 19	KRV 19 PP	11	$8^{\ 0}_{-0.015}$	10.00	32	20.0	M8 X 1.25	10.0	0.6	-	-	-	14.0	-
22	KRV 22	KRV 22 PP	12	$10^{\ 0}_{-0.015}$	12.00	36	23.0	M 10 X 1.0	12.0	0.6	4	-	-	17.0	5
26	KRV 26	KRV 26 PP	12	$10^{\ 0}_{-0.015}$	12.00	36	23.0	M 10 X 1.0	12.0	0.6	4	-	-	17.0	5
30	KRV 30	KRV 30 PP	14	$12^{\ 0}_{-0.018}$	15.00	40	25.0	M 12 X 1.5	13.0	0.6	4	6	3	23.0	6
32	KRV 32	KRV 32 PP	14	$12^{\ 0}_{-0.018}$	15.00	40	25.0	M 12 X 1.5	13.0	0.6	4	6	3	23.0	6
35	KRV 35	KRV 35 PP	18	$16^{\ 0}_{-0.018}$	18.00	52	32.5	M 16 X 1.5	17.0	0.8	6	8	3	27.0	8
40	KRV 40	KRV 40 PP	20	$18^{\ 0}_{-0.018}$	22.00	58	36.5	M 18 X 1.5	19.0	0.8	6	8	3	32.0	8
47	KRV 47	KRV 47 PP	24	$20^{\ 0}_{-0.021}$	25.00	66	40.5	M20 X 1.5	21.0	0.8	6	9	4	37.0	10
52	KRV 52	KRV 52 PP	24	$20^{\ 0}_{-0.021}$	25.00	66	40.5	M20 X 1.5	21.0	0.8	6	9	4	37.0	10
62	KRV 62	KRV 62 PP	29	$24^{\ 0}_{-0.021}$	30.00	80	49.5	M24 X 1.5	25.0	0.8	8	11	4	44.0	14
72	KRV 72	KRV 72 PP	29	$24^{\ 0}_{-0.021}$	30.00	80	49.5	M24 X 1.5	25.0	0.8	8	11	4	44.0	14
80	KRV 80	KRV 80 PP	35	$30^{\ 0}_{-0.021}$	38.00	100	63.0	M30 X 1.5	32.0	1.0	8	15	4	53.0	14
90	KRV 90	KRV 90 PP	35	$30^{\ 0}_{-0.021}$	38.00	100	63.0	M30 X 1.5	32.0	1.0	8	15	4	53.0	14

Technical supplement

Cages		Precision	Grease
Steel-	X		
Polymid-	X	Normal (ISO)	Shell Alvania S2
Brass-	X		

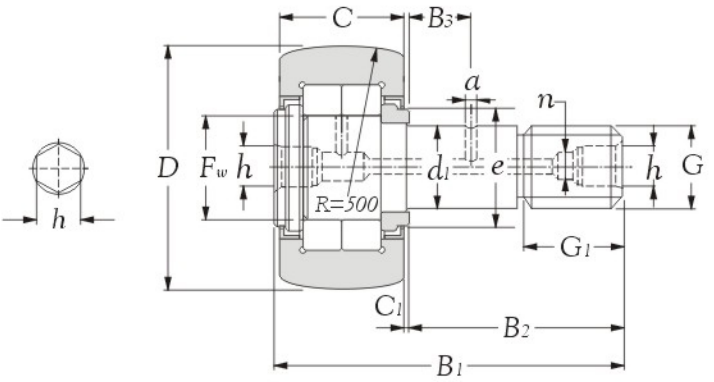


Type KRV (30~90 mm)

Basic load ratings				Load ratings of truck				Max runout speed		Maximum tightening torque		Weight	Stud diameter
dynamic C	static Co	dynamic C	static Co	Spherical outer ring	Cylindrical outer ring	Spherical outer ring	Cylindrical outer ring	grease	oil				
N		kgf		N		kgf		r/min		N.m	Kgf.m	kg(s).	mm
2330	2400	238	244	560	1360	57	139	※25000	※32000	0.5	0.05	0.005	3
3350	3550	340	360	725	1790	74	183	※20000	※27000	1.0	0.10	0.008	4
4300	5050	435	510	805	2220	82	226	※17000	※22000	2.0	0.20	0.011	5
6250	8900	640	910	1080	3400	110	350	※13000	※16000	3.0	0.30	0.020	6
7200	11200	735	1140	1380	4050	141	415	10000	※13000	8.0	0.80	0.032	8
7900	13300	810	1360	1690	5150	172	525	8500	※11000	15.0	1.50	0.047	10
7900	13300	810	1360	2120	6100	216	620	8500	※11000	15.0	1.50	0.061	10
11700	19500	1190	1980	2620	7700	267	785	6500	8500	22.0	2.20	0.089	12
11700	19500	1190	1980	2860	8200	291	835	6500	8500	22.0	2.20	0.100	12
17200	33000	1750	3400	3200	11900	325	1220	5500	7000	58.0	5.80	0.172	16
18900	40500	1930	4150	3850	14500	390	1480	4500	6000	87.0	8.70	0.252	18
28300	60000	2890	6100	4700	21000	480	2150	4000	5000	120.0	12.00	0.390	20
28300	60000	2890	6100	5550	23300	565	2370	4000	5000	120.0	12.00	0.465	20
39000	96500	3950	9850	6950	34500	710	3500	3300	4500	220.0	22.00	0.800	24
39000	96500	3950	9850	8050	38500	820	3900	3300	4500	220.0	22.00	1.050	24
57000	144000	5800	14700	9800	53000	1000	5400	2600	3500	450.0	45.00	1.560	30
57000	144000	5800	14700	11400	59000	1160	6100	2600	3500	450.0	45.00	1.970	30

Notes: Limiting speed of sealed type bearings marked with ※ is approximately 10 000 r/min.

CAM FOLLOWERS STUD TYPE TRUCK ROLLERS
(MULTI-ROW CYLINDRICAL ROLLER BEARINGS)



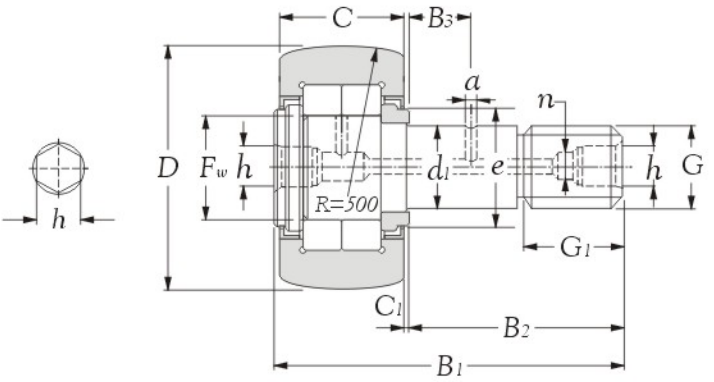
Type NUKR (D<100 mm) (Double row type full complement with seals)

Inner bore D 0/-0.05 mm	Bearing number	Boundary dimensions												
		C	d_1	F_w	B_1	B_2	G	G_1	C_1	n	B_3	a	e	h
		mm												
35	NUKR 35	18	$16^{0}_{-0.018}$	19.0	52	32.5	M 16 X 1.5	17	0.8	6	8	3	21	8
40	NUKR 40	20	$18^{0}_{-0.018}$	21.5	58	36.5	M 18 X 1.5	19	0.8	6	8	3	23	8
47	NUKR 47	24	$20^{0}_{-0.021}$	25.5	66	40.5	M 20 X 1.5	21	0.8	6	9	4	27	10
52	NUKR 52	24	$20^{0}_{-0.021}$	30.0	66	40.5	M 20 X 1.5	21	0.8	6	9	4	31	10
62	NUKR 62	29	$24^{0}_{-0.021}$	35.0	80	49.5	M 24 X 1.5	25	0.8	8	11	4	38	14
72	NUKR 72	29	$24^{0}_{-0.021}$	41.5	80	49.5	M 24 X 1.5	25	0.8	8	11	4	44	14
80	NUKR 80	35	$30^{0}_{-0.021}$	47.5	100	63.0	M 30 X 1.5	32	1.0	8	15	4	51	14
90	NUKR 90	35	$30^{0}_{-0.021}$	47.5	100	63.0	M 30 X 1.5	32	1.0	8	15	4	51	14

Technical supplement

Cages		*Precision*	*Grease*
Steel-	X		
Polymid-	X	Normal (ISO)	Shell Alvania S2
Brass -	X		

CAM FOLLOWERS STUD TYPE TRUCK ROLLERS
(MULTI-ROW CYLINDRICAL ROLLER BEARINGS)



Type NUKR (D<100 mm) (Double row type full complement with seals)

Basic load ratings				Load ratings of truck				Max runout speed grease	Maximum tightening torque		Weight	Stud diameter
dynamic C	static Co	dynamic C	static Co	Spherical outer ring	Cylindrical outer ring	Spherical outer ring	Cylindrical outer ring					
N		kgf		N		kgf		r/min	N.m	Kgf.m	kg(s)	mm
22300	25700	2280	2620	3200	11900	325	1220	5500	58	5.8	0.165	16
24100	29100	2450	2970	3850	14500	390	1480	4700	87	8.7	0.242	18
38500	48000	3950	4900	4700	21000	480	2150	4000	120	12.0	0.380	20
42500	57500	4350	5850	5550	23300	565	2370	3300	120	12.0	0.450	20
56500	72500	5750	7400	6950	34500	710	3500	2900	220	22.0	0.795	24
62000	85500	6350	8700	8050	38500	820	3900	2400	220	22.0	1.010	24
101000	151000	10300	15400	9800	53000	1000	5400	2100	450	45.0	1.540	30
101000	151000	10300	15400	11400	59000	1160	6100	2100	450	45.0	1.960	30