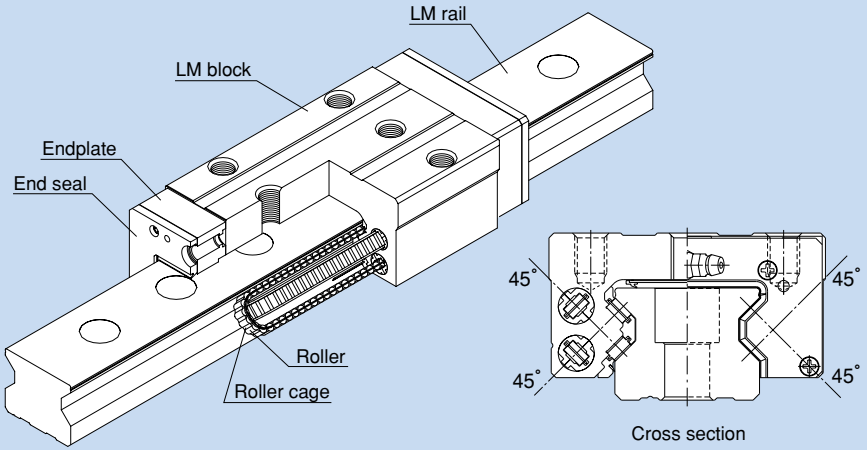


Fig. 1 Structure of Model SRN

Structure and Features

SRN is an ultra-high rigidity Roller Guide that uses roller cages to allow low-friction, smooth motion and achieve long-term maintenance-free operation.

●Thin, low gravity center

Since the overall height is lower than Caged Roller LM Guide model SRG, this model is optimal for compact design.

●Ultra-high rigidity

To achieve ultra-high rigidity, it uses rollers, which are less subject to elastic deformation, for the rolling elements, and optimizes the roller diameter and the roller length.
In addition, each row of rollers is arranged at a contact angle of 45° so that the guide receives an equal load rating in all four directions (radial, reverse-radial and lateral directions).

●Smooth motion through skewing prevention

The roller cage allows rollers to form an evenly spaced line while circulating, thus preventing the rollers from skewing as the block enters a loaded area. As a result, fluctuation of the rolling resistance is minimized, and stable, smooth motion is achieved.

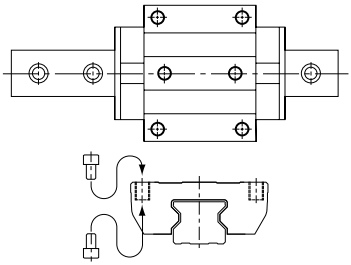
●Long-term maintenance-free operation

Use of roller cages eliminates friction between rollers and increases grease retention, enabling long-term maintenance-free operation to be achieved.

Types and Features

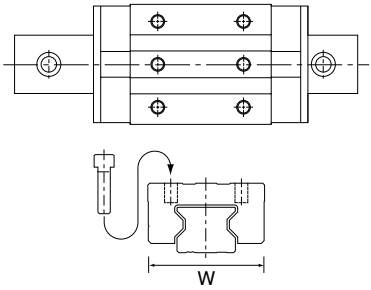
Model SRN-C

The flange of the LM block has tapped holes.
Can be mounted from the top or the bottom.
Used in places where the table cannot have through holes for mounting bolts.



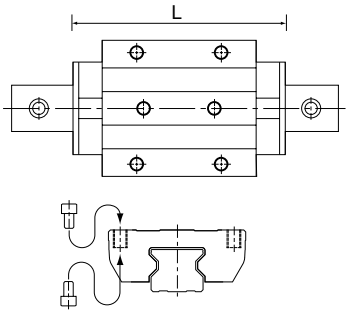
Model SRN-R

The LM block has a smaller width (W) and is equipped with tapped holes.
Suitable for places where space for the table width is limited.



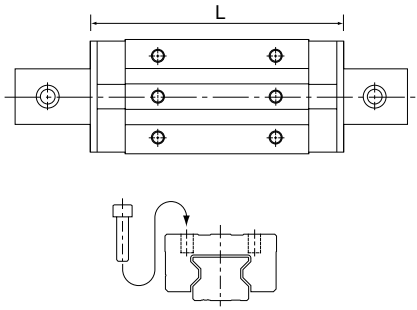
Model SRN-LC

The LM block has the same sectional shape as model SRN-C, but has a longer overall LM block length (L) and a greater rated load.



Model SRN-LR

The LM block has the same sectional shape as model SRN-R, but has a longer overall LM block length (L) and a greater rated load.



Rated Loads in All Directions

Model SRN is capable of receiving loads in all four directions: radial, reverse-radial and lateral directions.
The basic load ratings are uniform in the four directions (radial, reverse-radial and lateral directions), and their actual values are provided in the dimensional table for SRN.

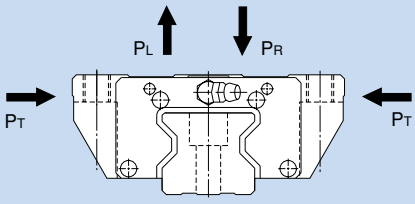


Fig. 2

Equivalent Load

When the LM block of model SRN receives loads in all directions simultaneously, the equivalent load is obtained from the equation below.

$$P_E = P_R\ (P_L) + P_T$$

where

P_E : Equivalent load (N)
- Radial direction
- Reverse-radial direction
- Lateral direction

P_R : Radial load (N)
P_L : Reverse-radial load (N)
P_T : Lateral load (N)

Options

Dust Prevention Accessories

THK offers various dust prevention accessories for model SRN.
When a dust prevention accessory is required, specify the desired item with the corresponding symbol provided in table 1 (for details of dust prevention accessories, see pages a-24 and a-25).
For supported model numbers for dust prevention accessories and overall LM block length with dust prevention accessories attached (dimension L), see page a-218.

Table 1 Symbols of Dust Prevention Accessories for Model SRN

Symbol	Dust prevention accessory
UU	With end seal
SS	With end seal + side seal + inner seal
DD	With double seals + side seal + inner seal
ZZ	With end seal + side seal + inner seal + metal scraper
KK	With double seals + side seal + inner seal + metal scraper

Seal resistance value

For the maximum seal resistance value per LM block when a lubricant is applied on seals SRN···SS, refer to the corresponding value provided in table 2.

Table 2 Maximum Seal Resistance Value of Seals SRN···SS

Unit: N

Model No.	Seal resistance value
SRN 35	30
SRN 45	30
SRN 55	35
SRN 65	40

●Dedicated Cap C for LM Rail Mounting Holes

If any of the LM rail mounting holes of an LM Guide is filled with cutting chips or foreign matter, they may enter the LM block structure. Entrance of such foreign matter can be prevented by covering each LM rail mounting hole with the dedicated cap so that the top of the mounting holes is on the same level as the LM rail top face.

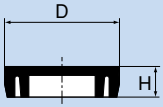
Since the dedicated cap C for LM rail mounting holes uses a special synthetic resin with high oil resistance and high wear resistance, it is highly durable.

When placing an order, specify the desired cap type with the corresponding cap number indicated in table 3.

For the procedure for mounting the cap, see page a-22.

Table 3 Major Dimensions of Dedicated Cap C

Model No.	Cap C model No.	Bolt used	Major dimensions (mm)	
			D	H
SRN 35	C 8	M 8	14.4	3.7
SRN 45	C12	M12	20.5	4.7
SRN 55	C14	M14	23.5	5.7
SRN 65	C16	M16	26.5	5.7



Dedicated Cap C

●Plate Cover

By covering the LM rail mounting holes with an ultra thin stainless steel (SUS304) plate, the plate cover drastically increases sealability of the end seal, thus to prevent the penetration of foreign matter or water from the top face of the LM rail.

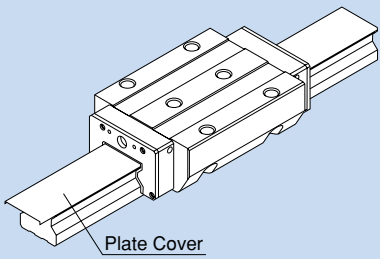


Fig. 3

Note 1: When mounting the plate cover, it is important to take into account the seal shape. Indicate that the plate cover is required when ordering the LM Guide.

Note 2: To mount the plate cover, it is necessary to remove the LM block from the LM rail using an LM block removing/mounting jig. Contact THK for details of the jig.

Note 3: If two or more rails are connected to exceed the maximum manufacturing length, it is necessary to also connect two or more plate covers. In such cases, the plate covers must closely contact with each other and there must be no level difference between the plate covers. Contact THK for details.

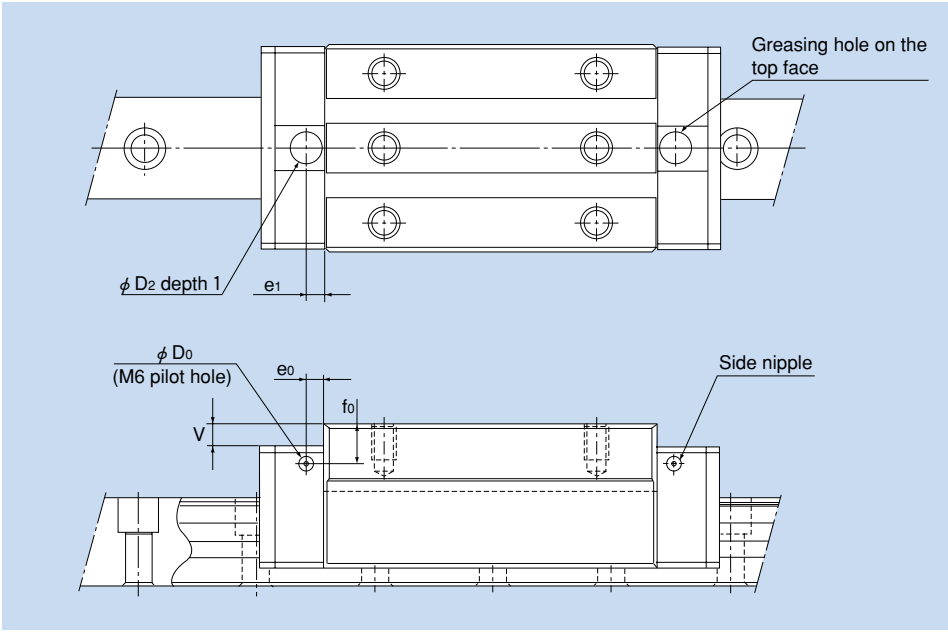
●Removing/mounting Jig

When assembling the guide, do not remove the LM block from the LM rail whenever possible. If it is inevitable to remove the LM block due to the plate cover type or the assembly procedure, be sure to use the removing/mounting jig.

Note: For details on the removing/mounting jig, contact THK.

Greasing Hole

Model SRN allows lubrication from both the side and top faces of the LM block. The greasing hole of standard types is not drilled through in order to prevent foreign matter from entering the LM block.
When using the greasing hole, contact THK .



Model No.	Pilot hole for side nipple			Applicable nipple	Greasing hole on the top face			
	e_0	f_0	D_0		D_2	(O ring)	V	e_1
SRN 35C SRN 35LC	8	6.5	5.2	M6F	10.2	(P7)	0.4	6
SRN 45C SRN 45LC	8.5	7	5.2	M6F	10.2	(P7)	0.4	7
SRN 55C SRN 55LC	10	8	5.2	M6F	10.2	(P7)	0.4	11
SRN 65LC	9	11	5.2	M6F	10.2	(P7)	0.4	10

Model No.	Pilot hole for side nipple			Applicable nipple	Greasing hole on the top face			
	e_0	f_0	D_0		D_2	(O ring)	V	e_1
SRN 35R SRN 35LR	8	6.5	5.2	M6F	10.2	(P7)	0.4	6
SRN 45R SRN 45LR	8.5	7	5.2	M6F	10.2	(P7)	0.4	7
SRN 55R SRN 55LR	10	8	5.2	M6F	10.2	(P7)	0.4	11
SRN 65LR	9	11	5.2	M6F	10.2	(P7)	0.4	10

●Greasing

The greasing interval is longer than that of full-roller types because of the roller cage effect. However, the actual greasing interval may vary depending on the service environment, such as a high load and high speed. Contact THK for details.

Error Allowance of the Mounting Surface

The following tables show error allowances of the mounting surface that will not affect the rolling resistance or service life in normal operation.

Table 4 Error Allowance in Parallelism (P) between Two Rails

Unit: mm

Model No. \ Radial clearance	Normal	C1	C0
SRN 35	0.014	0.010	0.007
SRN 45	0.017	0.013	0.009
SRN 55	0.021	0.014	0.011
SRN 65	0.027	0.018	0.014

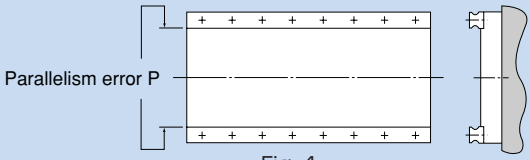


Fig. 4

Table 5 Error Allowance in Level (X) between the Rails

Unit: mm

Radial clearance	Normal	C1	C0
Error allowance (X) of the mounting surface	0.00030 a	0.00021 a	0.00011 a

$X=X_1+X_2$

Example of calculation

Rail span when a = 500mm

Error allowance of the mounting surface

$X=0.0003\times500$

$=0.15$

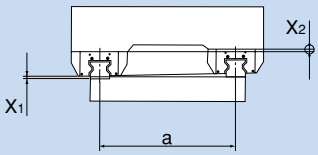


Fig. 5

X_1: Level difference on the rail mounting surface

X_2: Level difference on the block mounting surface

Table 6 Error Allowance in Level (Y) in the Axial Direction

Unit: mm

Error allowance of the mounting surface (mm)	0.000036 b

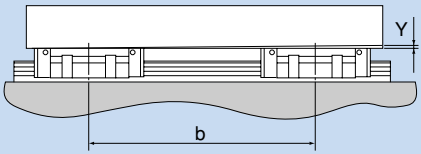


Fig. 6

Standard Length and Maximum Length of the LM Rail

Table 7 shows the standard lengths and the maximum lengths of model SRN variations. If the maximum length of the desired LM rail exceeds them, connected rails will be used. Contact THK for details.

For the G dimension when a special length is required, we recommend selecting the corresponding G value from the table. The longer the G dimension is, the less stable the G area may become after installation, thus causing an adverse impact to accuracy.

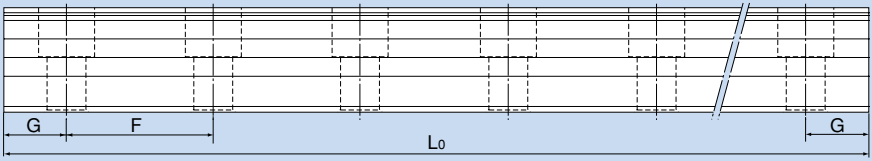
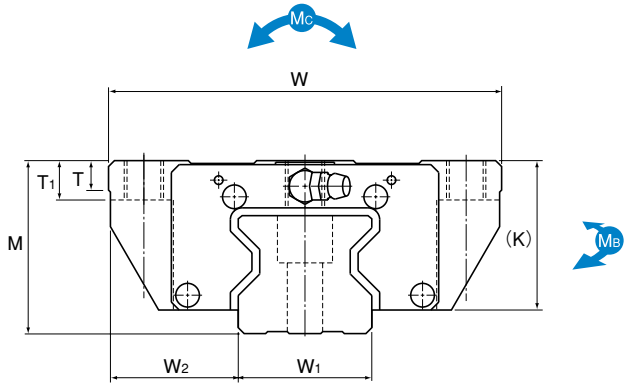


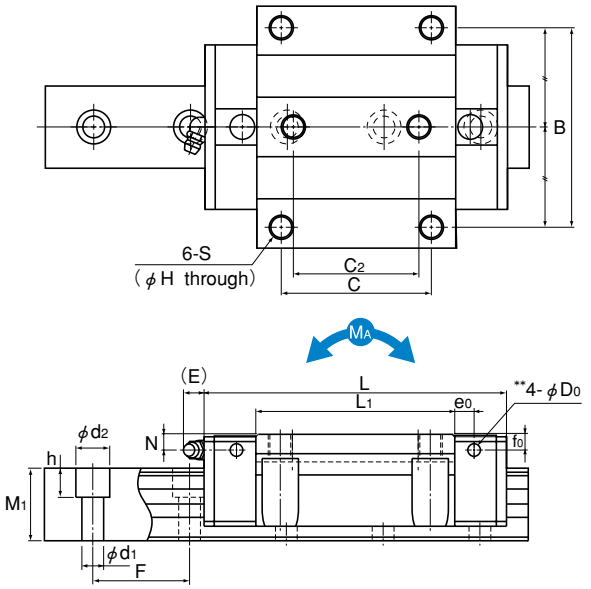
Table 7 Standard Length and Maximum Length of the LM Rail for Model SRN Unit: mm

Model No.	SRN 35	SRN 45	SRN 55	SRN 65
Standard LM rail length (Lo)	280 360 440 520 600 680 760 840 920 1000 1080 1160 1240 1320 1400 1480 1560 1640 1720 1800 1880 1960 2040 2200 2360 2520 2680 2840 3000	570 675 780 885 990 1095 1200 1305 1410 1515 1620 1725 1830 1935 2040 2145 2250 2355 2460 2565 2670 2775 2880 2985 3090	780 900 1020 1140 1260 1380 1500 1620 1740 1860 1980 2100 2220 2340 2460 2580 2700 2820 2940 3060	1270 1570 2020 2620
Standard pitch F	40	52.5	60	75
G	20	22.5	30	35
Max length	3000	3090	3060	3000

Note 1: The maximum length varies with accuracy grades. Contact THK for details.
Note 2: If connected rails are not allowed and a greater length than the maximum values above is required, contact THK.

Models SRN-C | SRN-LC





Unit: mm

Model No.	External dimensions Height M	Width W	Length L	B	C	C2	S	H	L1	T	T1	K	N	E	e0	f0	D0	Grease nipple	LM rail dimensions Width W1 0 −0.05	W2	Height M1	Pitch F	d1×d2×h	Basic load rating C kN	Co kN	Static permissible moment kN-m* MA 1 block	MA 2 blocks in close contact	MB 1 block	MB 2 blocks in close contact	MC 1 block	Mass LM block kg	LM rail kg/m
SRN 35C	44	100	125	82	62	52	M10	8.5	82.2	7.5	10	38	6.5	12	8	6.5	5.2	B-M6F	34	33	30	40	9×14×12	59.1	119	1.66	10.1	1.66	10.1	2.39	1.6	6.9
SRN 35LC			155						112.2															76	165	3.13	17	3.13	17	3.31	2	
SRN 45C	52	120	155	100	80	60	M12	10.5	107	7.5	15	45	7	12	8.5	7	5.2	B-M6F	45	37.5	36	52.5	14×20×17	91.9	192	3.49	20	3.49	20	4.98	3	11.3
SRN 45LC			190						142															115	256	6.13	32.2	6.13	32.2	6.64	3.6	
SRN 55C	63	140	185	116	95	70	M14	12.5	129	10.5	18	53	8	16	10	8	5.2	PT1/8	53	43.5	43	60	16×23×20	131	266	5.82	33	5.82	33	8.19	4.9	15.8
SRN 55LC			235						179.2															167	366	10.8	57	10.8	57	11.2	6.4	
SRN 65LC	75	170	303	142	110	82	M16	14.5	229.8	19.5	20	65	14	16	9	11	5.2	PT1/8	63	53.5	49	75	18×26×22	278	599	22.7	120	22.7	120	22.1	12.7	21.3

Note The greasing hole on the top face and the pilot hole of the side nipple** are not drilled through in order to prevent foreign matter from entering the block.
See pages a-210 and a-211 for details.

Static permissible moment*: 1 block: static permissible moment value with 1 LM block
2 blocks: static permissible moment value with 2 blocks closely contacting with each other

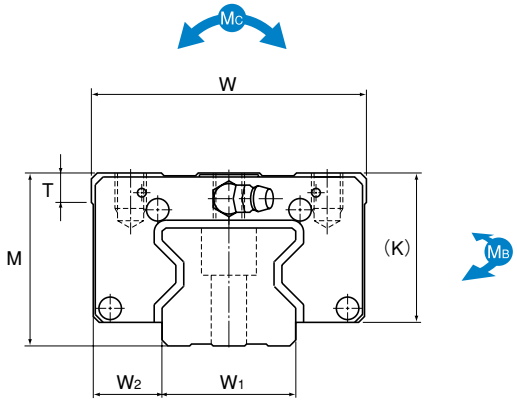
Model number coding SRN45 C 2 KK C0 +1160L P Z-II

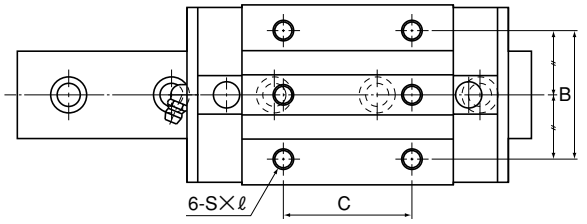
1 2 3 4 5 6 7 8 9

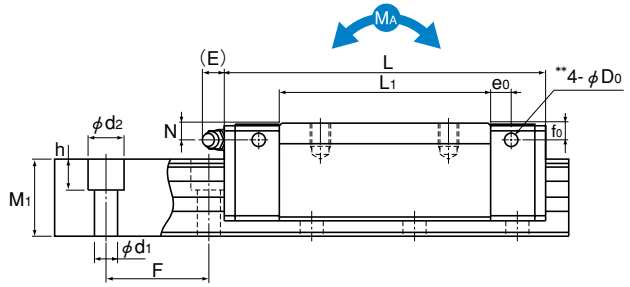
1 Model number 2 Type of LM block 3 No. of LM blocks used on the same rail
4 Dust prevention accessory symbol (see page a-207) 5 Radial clearance symbol (see page a-35)
6 LM rail length (in mm) 7 Accuracy symbol (see page a-38) 8 With plate cover
9 No. of rails used on the same plane

Note This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).

Models SRN-R | SRN-LR







Unit: mm

Model No.	External dimensions Height M	Width W	Length L	B	C	S×ℓ	L1	T	K	N	E	e0	f0	D0	Grease nipple	LM rail dimensions Width W1 0 −0.05	W2	Height M1	Pitch F	d1×d2×h	Basic load rating C kN	Co kN	Static permissible moment kN-m* MA 1 block	MA 2 blocks in close contact	MB 1 block	MB 2 blocks in close contact	MC 1 block	Mass LM block kg	LM rail kg/m
SRN 35R	44	70	125	50	50	M8×9	82.2	7.5	38	6.5	12	8	6.5	5.2	B-M6F	34	18	30	40	9×14×12	59.1	119	1.66	10.1	1.66	10.1	2.39	1.1	6.9
SRN 35LR			155		72		112.2														76	165	3.13	17	3.13	17	3.31	1.4	
SRN 45R	52	86	155	60	60	M10×11	107	7.5	45	7	12	8.5	7	5.2	B-M6F	45	20.5	36	52.5	14×20×17	91.9	192	3.49	20	3.49	20	4.98	1.9	11.3
SRN 45LR			190		80		142														115	256	6.13	32.2	6.13	32.2	6.64	2.5	
SRN 55R	63	100	185	75	75	M12×13	129	10.5	53	8	16	10	8	5.2	PT1/8	53	23.5	43	60	16×23×20	131	266	5.82	33	5.82	33	8.19	3.2	15.8
SRN 55LR			235		95		179.2														167	366	10.8	57	10.8	57	11.2	4.5	
SRN 65LR	75	126	303	76	120	M16×16	229.8	19.5	65	14	16	9	11	5.2	PT1/8	63	31.5	49	75	18×26×22	278	599	22.7	120	22.7	120	22.1	9.4	21.3

Note The greasing hole on the top face and the pilot hole of the side nipple** are not drilled through in order to prevent foreign matter from entering the block.
See pages a-210 and a-211 for details.

Static permissible moment*: 1 block: static permissible moment value with 1 LM block
2 blocks: static permissible moment value with 2 blocks closely contacting with each other

Model number coding SRN45 LR 2 KK C0 +1200L P Z- II
1 2 3 4 5 6 7 8 9

1 Model number 2 Type of LM block 3 No. of LM blocks used on the same rail
4 Dust prevention accessory symbol (see page a-207) 5 Radial clearance symbol (see page a-35)
6 LM rail length (in mm) 7 Accuracy symbol (see page a-38) 8 With plate cover
9 No. of rails used on the same plane

Note This model number indicates that a single-rail unit constitutes one set (i.e., required number of sets when 2 rails are used in parallel is 2 at a minimum).

Overall LM Block Length with Options

Overall LM Block Length (Dimension L) of Model SRN with a Dust Prevention Accessory Attached

Unit: mm

Model No.	UU	SS	DD	ZZ	KK
SRN 35C/R	125	125	132.8	131.4	139.2
SRN 35LC/LR	155	155	162.8	161.4	169.2
SRN 45C/R	155	155	164.2	162.2	171.4
SRN 45LC/LR	190	190	199.2	197.2	206.4
SRN 55C/R	185	185	194.2	192.2	201.4
SRN 55LC/LR	235	235	244.2	242.2	251.4
SRN 65LC/LV	303	303	314.2	311.4	322.6