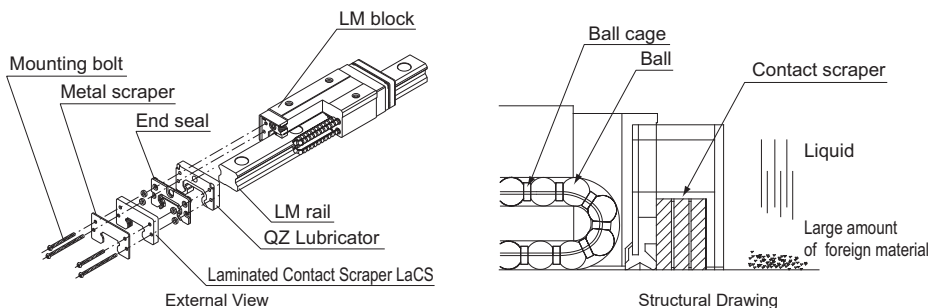


# Laminated Contact Scraper LaCS

- For the supported models, see the table of options by model number on [A1-508](#).
- For the LM block dimension (L dimension) with Laminated Contact Scraper LaCS attached, see [A1-521](#) to [A1-529](#).
- For the resistance value of the Laminated Contact Scraper LaCS, see [A1-538](#).
- For precautions on using the Laminated Contact Scraper LaCS, see [A1-586](#).

For locations with an adverse environment, Laminated Contact Scraper LaCS is available. Minute foreign material adhering to the LM rail is removed in multiple stages and prevented from entering the LM block with a laminated contact structure (3-layer scraper).



## Features

- Since the 3 layers of scrapers fully contact the LM rail, LaCS is highly capable of removing minute foreign material.
- Since it uses oil-impregnated, foam synthetic rubber with a self-lubricating function, low friction resistance is achieved.

Symbol	Contamination protection accessories
SSHH	With end seal + side seal + inner seal <sup>1</sup> + LaCS
DDHH	With double seals + side seal + inner seal <sup>1</sup> + LaCS
ZZHH	With end seal + side seal + inner seal <sup>1</sup> + metal scraper + LaCS
KKHH	With double seals + side seal + inner seal <sup>1</sup> + metal scraper + LaCS
JJHH <sup>2</sup>	With end seal + side seal + inner seal <sup>1</sup> + LaCS + protector (serving also as metal scraper)
TTHH <sup>2</sup>	With double seals + side seal + inner seal <sup>1</sup> + LaCS + protector (serving also as metal scraper)

<sup>1</sup> Some models are not equipped with inner seals (see [A1-508](#)).

<sup>2</sup> JJHH and TTHH are only available for models SVR/SVS, NR-X/NRS-X, SRG, and HRX.

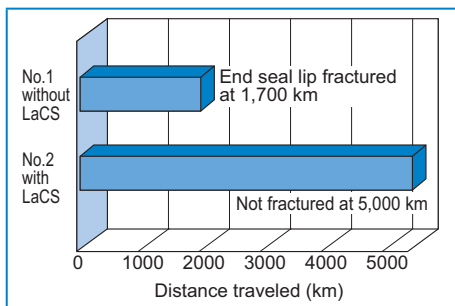
Note: For models SVR/SVS, NR-X/NRS-X, SRG, and HRX with HH specifications (with LaCS), a protector ([A1-517](#)) can be installed. Contact THK if you want to use the protector with other options.

### ● Test in an environment with a water-soluble coolant

Test environment: water-soluble coolant

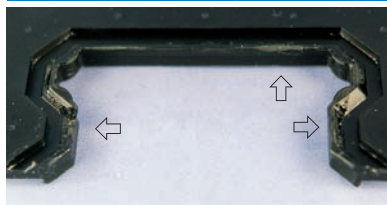
Item	Description	
Tested model	No.1	SHS45R1SS+3000L (end seal only)
	No.2	SHS45R1SSH+3000L (end seal and LaCS)
Maximum speed	200 m/min	
Environmental conditions	Coolant spray amount: 5 times per 24 h	

### Test results



### Magnified view of the end seal lip

No. 1: without LaCS - lip fractured at 1,700 km



↔ Areas marked with arrow are fractured

No. 2: with LaCS - no anomaly observed after traveling 5,000 km



Lip has not been fractured

### ● Test in an environment with minute foreign material

Test environment: minute foreign material

Item	Description	
Tested model	No.1	Caged Ball LM Guide #45R (DD+600L) double seals only
	No.2	Caged Ball LM Guide #45R (HH+600L) LaCS only
Max speed/acceleration	60 m/min, 1 G	
External load	9.6 kN	
Foreign material conditions	Type: FCD450#115 (particle diameter: 125 μm or less)	
	Spray amount: 1 g/1 h (Total: 120 g)	

Test results: amount of foreign material entering the raceway

Seal configuration		Mass (g) of foreign material entering the raceway
Double-seal configuration (2 layers of end seals)	Tested model 1	0.3
	Tested model 2	0.3
	Tested model 3	0.3
Laminated Contact Scraper LaCS specification	Tested model 1	0
	Tested model 2	0
	Tested model 3	0

No. 1 Traveled 100 km (double-seal configuration)



Large amount of foreign matter has entered the raceway

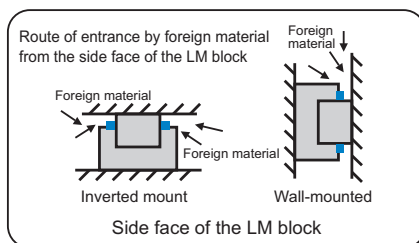
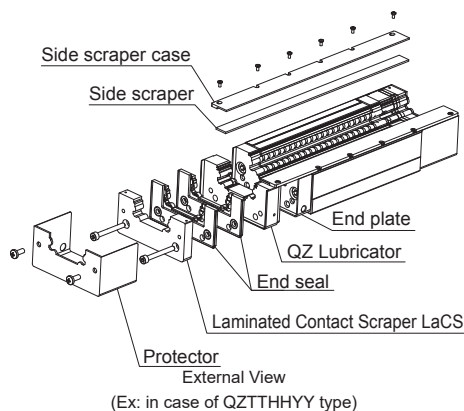
No. 2 Traveled 100 km (LaCS only)



No foreign matter entering the raceway observed

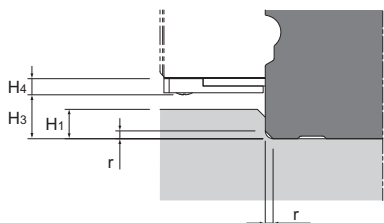
# Side Scraper

- Applicable models: models SVR/SVS, NR-X/NRS-X, and SRG
- For the resistance of side scraper, see [A1-539](#).
- For the LM block length (dimension L) with side scrapers attached, see [A1-521](#).
- For notes regarding how to handle the side scraper, see [A1-586](#).



## Features

- Minimizes foreign material entering from the side of the LM Guide in a dirty environment.
- This is effective at contamination protection when the system is inverted or mounted on a wall.



Side view of the LM block after the side scraper is mounted

Shoulder Height of the Mounting Surface and Corner Radius of Model SVR/SVS or NR-X/NRS-X After Mounting Side Scraper

Unit: mm

Model No.	Corner radius r (max)	Shoulder height of the LM rail H <sub>1</sub>	H <sub>3</sub>	Side scraper thickness H <sub>4</sub>
25	0.5	2	2.9	2.6
30	1	3.5	4.4	
35	1	5.5	6.4	
45	1	8	9	
55	1.5	10.5	11.4	
65	1.5	11	12.3	

## Model number coding

**SVR45 LR 1 QZ JJHH YY C1 +1200L**

With side scraper<sup>1</sup>

<sup>1</sup> The side scraper can accommodate various options of contamination protection accessories and lubrication accessories. For details, contact THK.

Notes: The side scraper is not sold alone.

Models NR-SLRX/NRS-SLRX and NR-SLCX/NRS-SLCX are not supported.

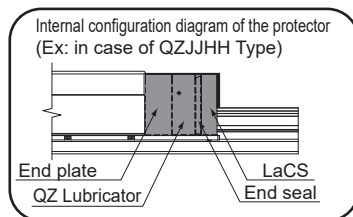
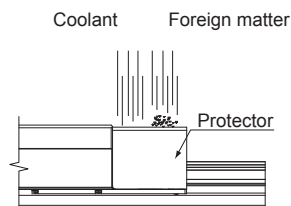
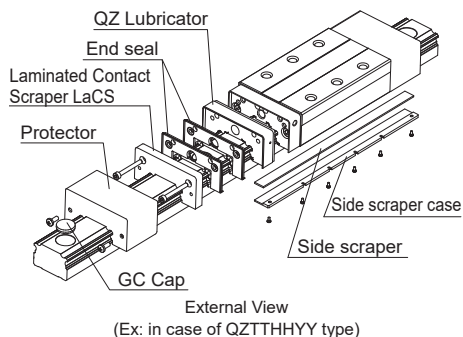
Shoulder Height of the Mounting Surface and Corner Radius of Model SRG After Mounting Side Scraper

Unit: mm

Model No.	Corner radius r (max)	Shoulder height of the LM rail H <sub>1</sub>	H <sub>3</sub>	Side scraper thickness H <sub>4</sub>
35	1	3	4	2
45	1	3.5	5.5	2.5
55	1.5	5.5	7.5	2.5
65	1.5	6	8.5	3

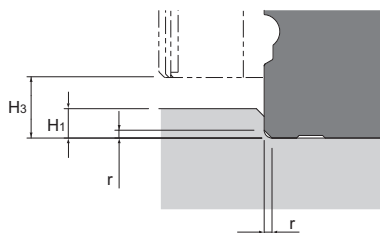
# Protector

- Applicable models: models SVR/SVS, NR-X/NRS-X, SRG, and HRX
- HH type (with LaCS) for models SVR/SVS, NR-X/NRS-X, SRG, and HRX is provided with the protector.
- For the LM block length (dimension L) with protectors attached, see [A1-521](#).



## Features

- The protector minimizes the entrance of foreign material even in harsh environments where foreign material such as fine particles and liquids are present.



Side view of the LM block after the protector is mounted

The shoulder height of the mounting surface and the corner radius after the protector of model HRX is mounted  
Unit: mm

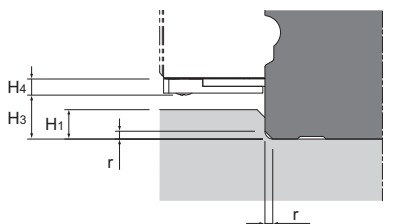
Model No.	Corner radius r (max)	Shoulder height for the LM rail H <sub>1</sub>	H <sub>3</sub>
25	1	4	5
30	1	4	5
35	1	5.5	6.5
45	1.5	6.5	8.5
55	1.5	9	11
65	1.5	9.5	12

The Shoulder Height of the Mounting Surface and Corner Radius of Model SVR/SVS or NR-X/NRS-X After Protector is Mounted  
Unit: mm

Model No.	Corner radius r (max)	Shoulder height of the LM rail H <sub>1</sub>	H <sub>3</sub>
25	0.5	4	5.5
30	1	5	7
35	1	6	9
45	1	8	11.6
55	1.5	10	14
65	1.5	10	15

Shoulder Height of the Mounting Surface and Corner Radius After the Protector of Model SRG is Mounted  
Unit: mm

Model No.	Corner radius r (max)	Shoulder height of the LM rail H <sub>1</sub>	H <sub>3</sub>
30X	1	4	5
35	1	5	6
45	1.5	6	8
55	1.5	8	10
65	1.5	9	11.5



Side view of the LM block after the protector and side scraper are mounted

Shoulder Height of the Mounting Surface and Corner Radius of Model SVR/SVS or NR-X/NRS-X After Protector and Side Scraper are Mounted

Unit: mm

Model No.	Corner radius r (max)	Shoulder height of the LM rail H <sub>1</sub>	H <sub>3</sub>	Side scraper thickness H <sub>4</sub>
25	0.5	2	2.9	2.6
30	1	3.5	4.4	
35	1	5.5	6.4	
45	1	8	9	
55	1.5	10.5	11.4	
65	1.5	11	12.3	

Shoulder Height of the Mounting Surface and Corner Radius of Model SRG after Protector and Side Scraper are Mounted

Unit: mm

Model No.	Corner radius r (max)	Shoulder height of the LM rail H <sub>1</sub>	H <sub>3</sub>	Side scraper thickness H <sub>4</sub>
35	1	3	4	2
45	1	3.5	5.5	2.5
55	1.5	5	7	3
65	1.5	6	8.5	3

Notes: Grease nipples are not installed when there is a QZ Lubricator. Contact THK if you want to use a grease nipple for a model with a QZ.

Contact THK if you want to use the protector with other options.