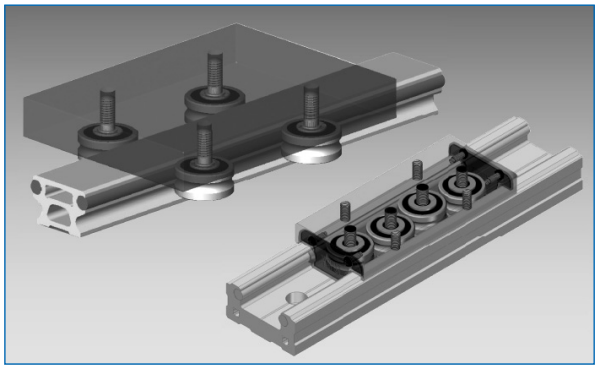
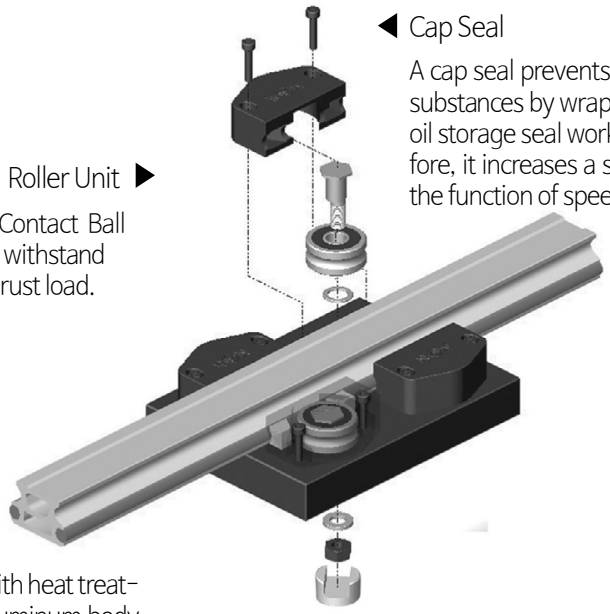
# T.R Guide
## Contents



# 1 Track Roller Guide

## 1. Structure and Features

### Outside Type



◀ Cap Seal

A cap seal prevents any intrusion of foreign substances by wrapping a roller. An internal oil storage seal works for lubrication. There fore, it increases a service life and improves the function of speed.

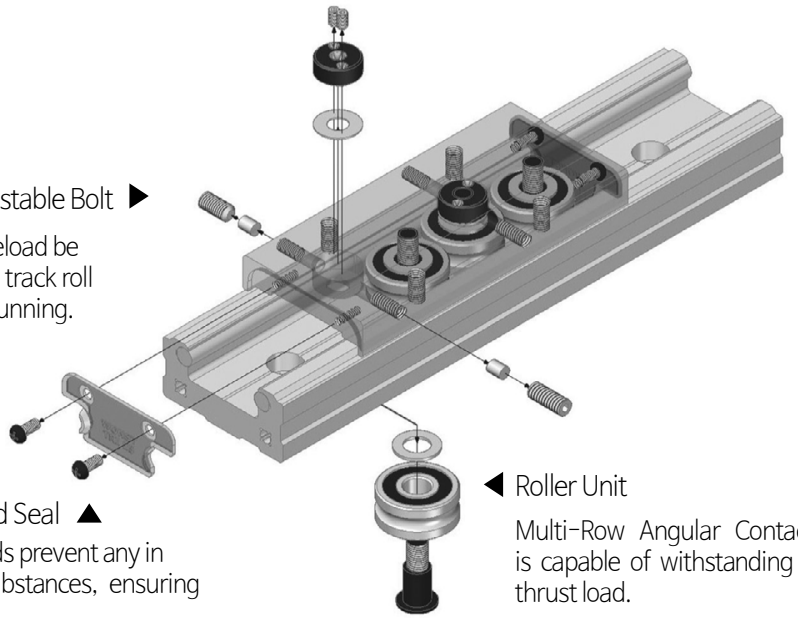
Roller Unit ▶

Multi-Row Angular Contact Ball Bearing is capable of withstand ing radial load and thrust load.

Guide Rail ▶

A precisely polished shaft with heat treat-ment is inserted into the aluminum body of a guide rail.

### Inside Type



Clearance Adjustable Bolt ▶

This bolt adjusts the preload be tween a guide rail and a track roll er, supporting precise running.

◀ Roller Unit

Multi-Row Angular Contact Ball Bearing is capable of withstanding radial load and thrust load.

End Seal ▲

The seals on both ends prevent any in trusion of foreign substances, ensuring stable running

WON Track Roller Guide was developed with the experiences and knowledge that WON ST researchers have accumulated for several years. It consists of the guide rail in which a precisely polished shaft with heat treatment (HRC 62) is inserted, and a roller unit. The device supports high-speed transfer and high precision. It has a simple structure for easy installation and maintenance and a very economic linear motion system.

## 2. Speed and noise

In a conventional linear guide, a ball as a rolling element has the structure of circulation that causes a noise and restricts a speed of motion. In the case of a track roller guide, its circulation part has no noise, and the device can run up to the maximum rotary speed of a ball.

- Max. velocity V max = 10 m/s
- Max. acceleration A max = 50 $m/s^2$

## 3. Clearance

If preload or zero clearance is needed in between a guide rail and a track roller, it is possible to adjust clearance easily with the use of eccentric axis of a roller.

## 4. Load capacity in each direction

A track roller is based on multi-row angular contact ball bearing capable of withstanding load in each direction.

## 5. Perfect sealing and lubrication

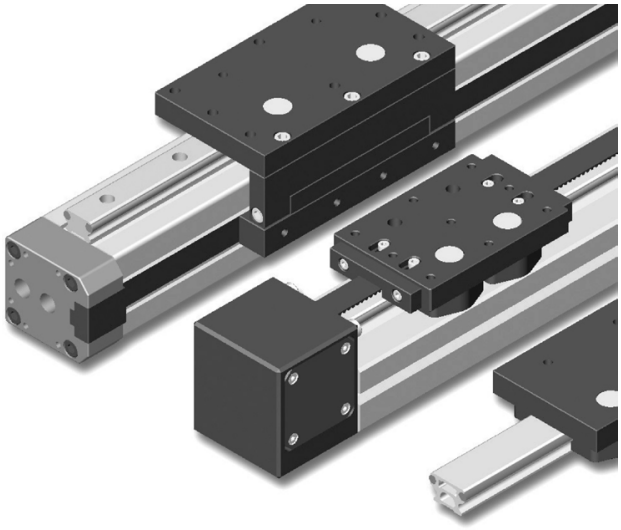
A cap seal prevents any intrusion of foreign substances in between a track roller and a guide rail, and an oil storage seal supports lubrication.

## 6. Available temperature

-20℃ ~ 80℃

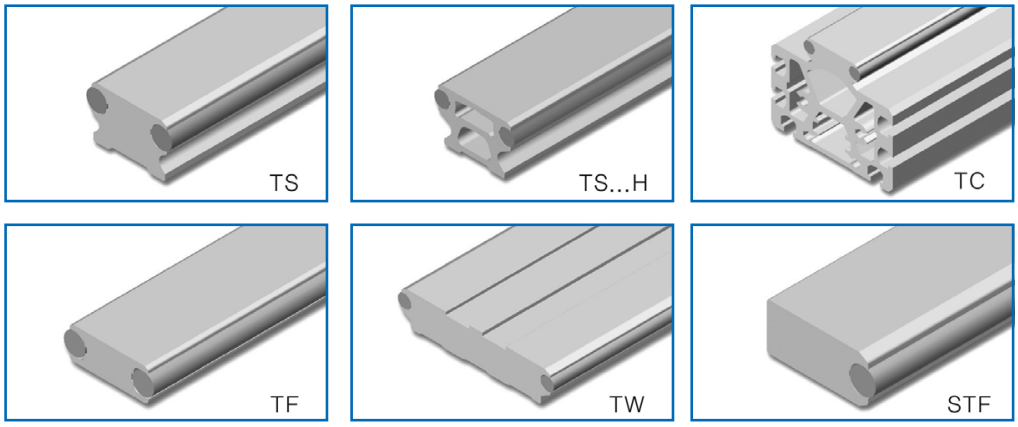
## 7. Simple installation

Thanks to its light weight and simple structure, it is easy to install and handle the product.



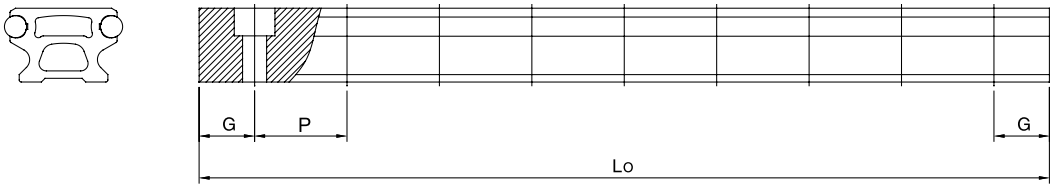
# 2 Types of Guide Rail

## 1. Outside Type




### Standard and maximum lengths of guide rail

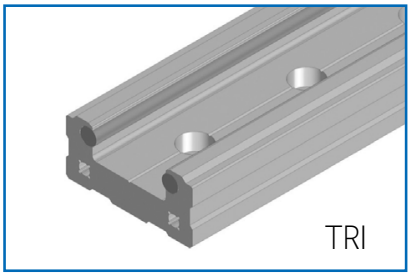
The standard length and maximum length of WON Guide Rail are presented below. In case of over maximum length, it is possible to link multiple guide rails. For other specifications, please contact us.




Unit:mm

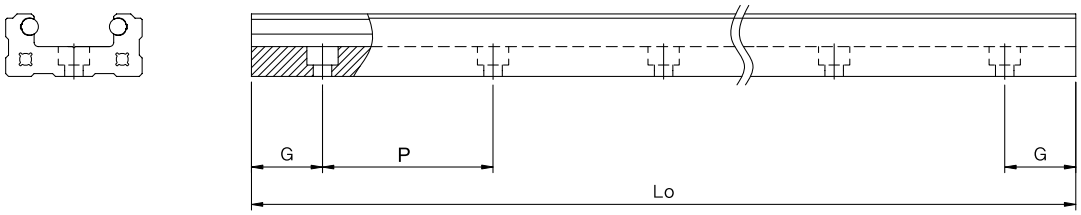
| Model No. | 20 | 25 | 32 | 42 | 52 | TW52 |
|---|---|---|---|---|---|---|
| Standard length of guide rail (Lo) | 300 | 300 | 550 | 675 | 800 | 675 |
| | 550 | 550 | 800 | 925 | 1050 | 925 |
| | 800 | 800 | 1050 | 1175 | 1300 | 1175 |
| | 1050 | 1050 | 1300 | 1425 | 1550 | 1425 |
| | 1300 | 1300 | 1550 | 1675 | 1800 | 1675 |
| | 1550 | 1550 | 1800 | 1925 | 2050 | 1925 |
| | 1800 | 1800 | 2050 | 2175 | 2300 | 2175 |
| | 2300 | 2300 | 2300 | 2425 | 2550 | 2425 |
| | 2800 | 2800 | 2550 | 2675 | 2800 | 2675 |
| | | | 2800 | 2925 | | 2925 |
| P | 62.5 | 62.5 | 125 | 125 | 250 | 250 |
| G | 25 | 25 | 25 | 25 | 25 | 25 |
| Lmax | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 |

## 2. Inside Type




### Standard and maximum lengths of guide rail

The standard length and maximum length of WON Guide Rail are presented below. In case of over maximum length, it is possible to link multiple guide rails. For other specifications, please contact us.




Unit:mm

| Model No. | 15 | 20 | 25 | 30 | 35 | 45 | 55 |
|---|---|---|---|---|---|---|---|
| Standard length of guide rail (Lo) | 170 | 230 | 230 | 310 | 310 | 625 | 820 |
| | 410 | 410 | 410 | 550 | 550 | 1045 | 1060 |
| | 710 | 710 | 710 | 630 | 630 | 1255 | 1540 |
| | 1010 | 1010 | 1010 | 1030 | 1030 | 1570 | 2020 |
| | 1310 | 1310 | 1310 | 1430 | 1430 | 2095 | 2500 |
| | 1610 | 1610 | 1610 | 1510 | 1510 | 2515 | 2740 |
| | 1910 | 1910 | 1910 | 1830 | 1830 | 3040 | 3100 |
| | 2210 | 2210 | 2210 | 2070 | 2070 | 3355 | 3340 |
| | 2510 | 2510 | 2510 | 2230 | 2230 | 3565 | 3580 |
| | 2810 | 2810 | 2810 | 2550 | 2550 | 4090 | 3940 |
| | 3110 | 3110 | 3110 | 2630 | 2630 | 4510 | 4060 |
| | 3410 | 3410 | 3410 | 3030 | 3030 | | 4540 |
| | 3710 | 3710 | 3710 | 3430 | 3430 | | |
| | 4010 | 4010 | 4010 | 3830 | 3830 | | |
| | 4310 | 4310 | 4310 | 4630 | 4630 | | |
| P | 60 | 60 | 60 | 80 | 80 | 105 | 120 |
| G | 25 | 25 | 25 | 35 | 35 | 50 | 50 |
| Lmax | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 |

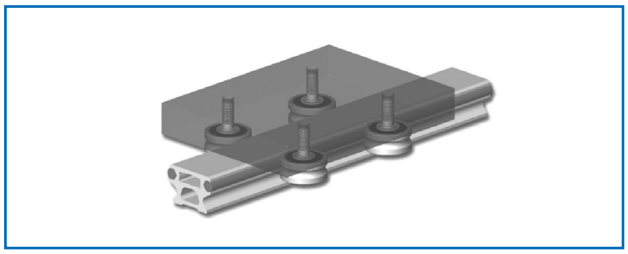
# 3 Types of Block

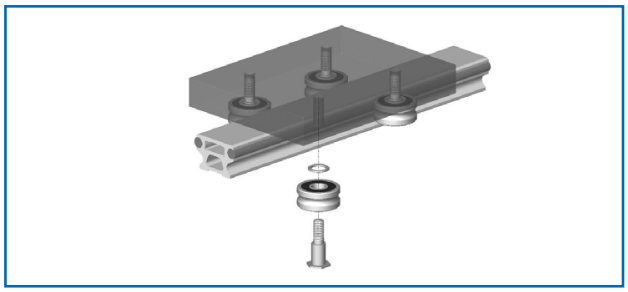
## 1. Outside Type

The block for WON Tracker Roller Guide is classified into Fixture Block and Clearance Adjustable Block.

### - Fixture block

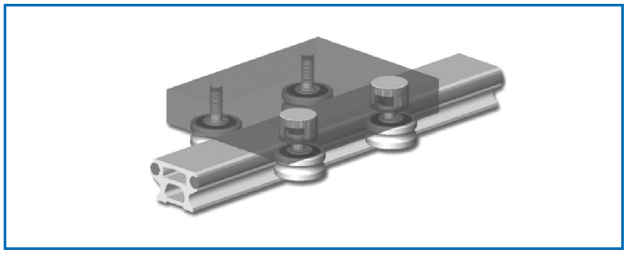
A fixture block is put together with a precise guide rail well. The gap between the rail and the block is 20㎛ or so. Economically, the block needs no eccentric bolt for clearance adjustment.

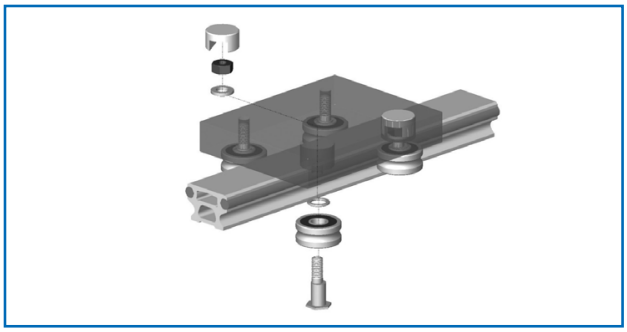




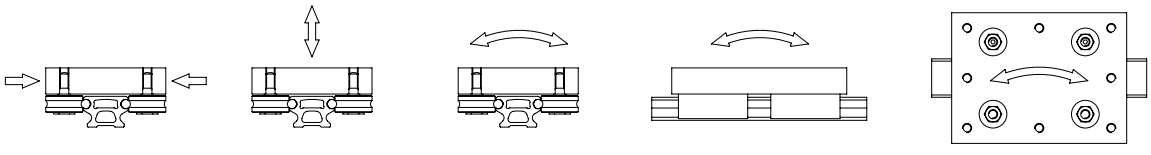
### - Clearance Adjustable Block

A clearance adjustable block is used to apply zero gap or preload.





### - Maximum allowable load



Fy Fz Mx My Mz

| Model No. | Fymax (N) | Foymax (N) | Fzmax (N) | Fozmax (N) | Mxmax (N·m) | Moxmax (N·m) | Mymax (N·m) | Moymax (N·m) | Mzmax (N·m) | Mozmax (N·m) |
|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 406 | 400 | 238 | 200 | 1.9 | 1.6 | 5.9 | 5.0 | 10.2 | 10.0 |
| 25 | 1495 | 1140 | 713 | 560 | 6.8 | 5.3 | 19.6 | 15.4 | 41.1 | 31.4 |
| 32 | 1495 | 1140 | 713 | 560 | 9.3 | 7.3 | 23.2 | 18.2 | 48.6 | 37.1 |
| 42 | 3574 | 2600 | 1663 | 1240 | 26.6 | 19.8 | 58.2 | 43.4 | 125.1 | 91.0 |
| 52 | 3574 | 2600 | 1663 | 1240 | 34.9 | 26.0 | 74.8 | 55.8 | 160.8 | 117.0 |

※ The load in use should not exceed the maximum allowable load shown in the table.

1N≒0.102kgf
1N·m ≒0.102kgf·m

## 2. Inside Type

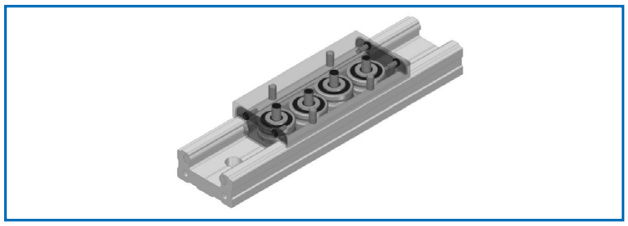
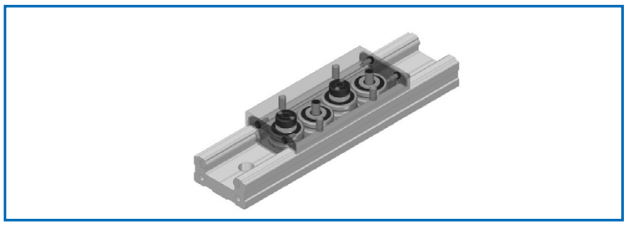
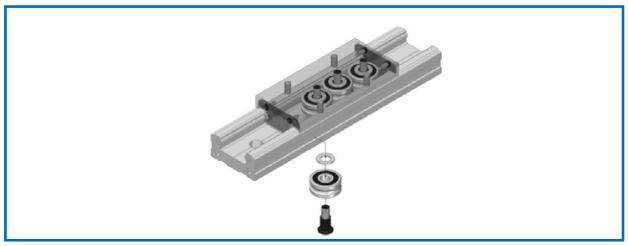
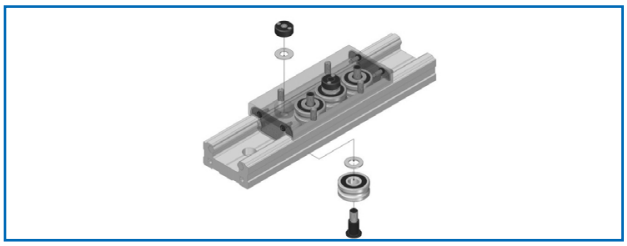
The block for WON Tracker Roller Inside Type (TRI) is classified into Fixture Block and Clearance Ad justable Block.

### - Fixture block

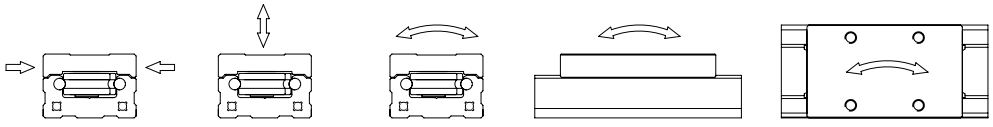
A fixture block is put together with a precise guide rail well. The gap between the rail and the block is 20㎛ or so. Economically, the block needs no eccentric bolt for clearance adjustment.

### - Clearance adjustable block

A clearance adjustable block is used to apply zero gap or preload.

### - Maximum allowable load




| Model No. | $F_{ymax}$ (N) | $F_{oymax}$ (N) | $F_{zmax}$ (N) | $F_{ozmax}$ (N) | $M_{xmax}$ (N·m) | $M_{oxmax}$ (N·m) | $M_{ymax}$ (N·m) | $M_{oymax}$ (N·m) | $M_{zmax}$ (N·m) | $M_{ozmax}$ (N·m) |
|---|---|---|---|---|---|---|---|---|---|---|
| TRI 15 | 406 | 400 | 194 | 150 | 1.8 | 1.4 | 3.3 | 2.6 | 6.9 | 6.8 |
| TRI 15L | 406 | 400 | 238 | 200 | 2.3 | 1.9 | 6.3 | 5.3 | 10.8 | 10.7 |
| TRI 20 | 406 | 400 | 194 | 150 | 2.3 | 1.8 | 3.5 | 2.7 | 7.3 | 7.2 |
| TRI 20L | 406 | 400 | 238 | 200 | 2.9 | 2.4 | 7.8 | 6.6 | 13.4 | 13.2 |
| TRI 25 | 1495 | 1140 | 583 | 420 | 9.0 | 6.5 | 14.6 | 10.5 | 37.4 | 28.5 |
| TRI 25L | 1495 | 1140 | 713 | 560 | 11.0 | 8.7 | 26.7 | 21.0 | 56.0 | 42.8 |
| TRI 30 | 1495 | 1140 | 583 | 420 | 10.5 | 7.6 | 15.7 | 11.3 | 40.4 | 30.8 |
| TRI 30L | 1495 | 1140 | 713 | 560 | 12.8 | 10.1 | 31.0 | 24.4 | 65.0 | 49.6 |
| TRI 35 | 3574 | 2600 | 1359 | 930 | 30.6 | 20.9 | 48.9 | 33.5 | 128.7 | 93.6 |
| TRI 35L | 3574 | 2600 | 1663 | 1240 | 37.4 | 27.9 | 89.8 | 67.0 | 193.0 | 140.4 |
| TRI 45 | 3574 | 2600 | 1359 | 930 | 34.0 | 23.3 | 50.3 | 34.4 | 132.2 | 96.2 |
| TRI 45L | 3574 | 2600 | 1663 | 1240 | 41.6 | 31.0 | 99.8 | 74.4 | 214.4 | 156.0 |
| TRI 55 | 3574 | 2600 | 1359 | 930 | 40.8 | 27.9 | 61.2 | 41.9 | 160.8 | 117.0 |
| TRI 55L | 3574 | 2600 | 1663 | 1240 | 49.9 | 37.2 | 122.2 | 91.1 | 262.7 | 191.1 |

※ The load in use should not exceed the maximum allowable load shown in the table.

1N≒0.102kgf
1N·m ≒0.102kgf·m

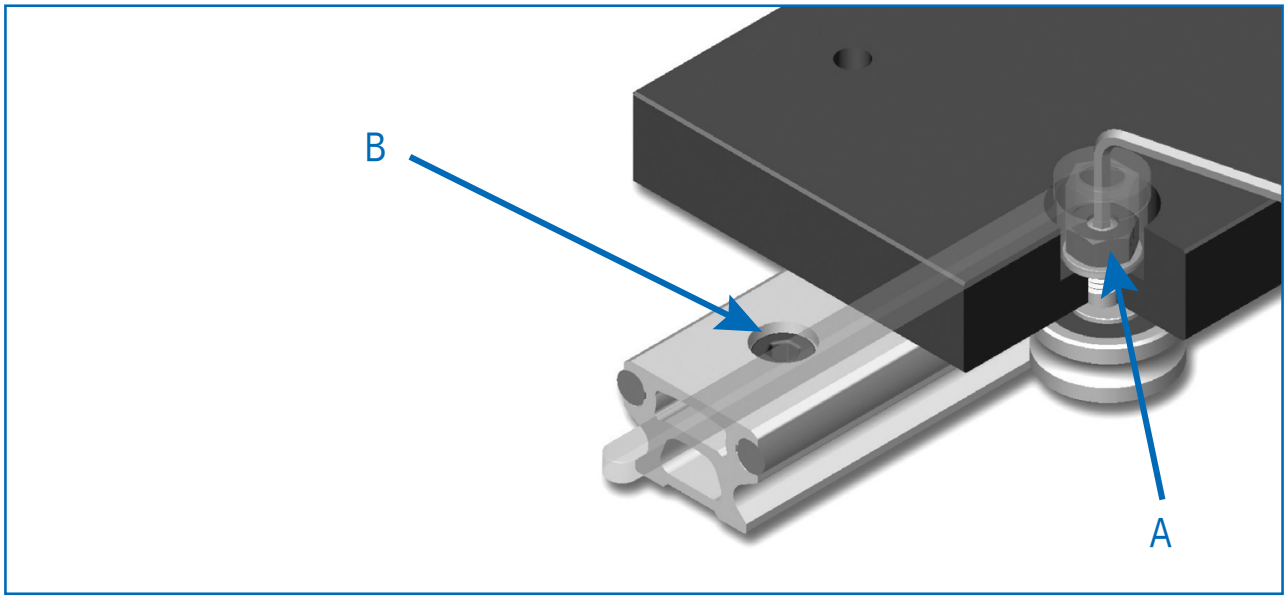
# 4 Assembly and Adjustment

## 1. Outside Type

The clearance adjustable block for WON Track Roller Guide makes it possible to run precisely through clearance adjustment.

※ While the block is running smoothly, all bearings rotate and accurate adjustment is made. If a bearing is adjusted with too much force, it is possible to shorten service life of a system.

1) By connecting fully the bearing in the concentric axis (which is the basis) and temporarily the bearing in the eccentric axis, it is possible to secure a sufficient gap between a rail and a clearance adjustable block.
2) After the block is put together with a rail, slowly turn an adjustment wrench until the bearing in the eccentric axis contacts rightly the rail.
3) If the bearing in the eccentric axis is adjusted accurately, fasten a fixture nut fully according to the roller assembly torque shown below.




### - Roller Assembly Torque (A)

| Model No. | 20 | 25 | 32 | 42 | 52 |
|---|---|---|---|---|---|
| Max (N·m) | 2.0 | 8.0 | 8.0 | 46 | 46 |

### - Rail Assembly Torque(B)

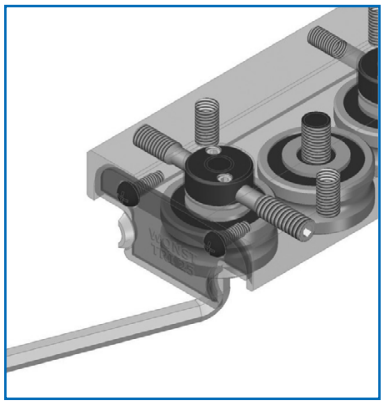
| Model No. | M5 | M6 | M8 | M10 | M12 |
|---|---|---|---|---|---|
| Max (N·m) | 5.8 | 9.9 | 24 | 48 | 80 |

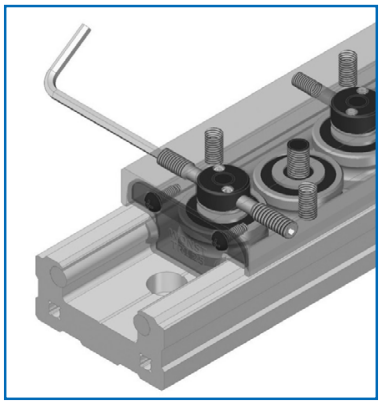
1N≒0.102kgf
1N·m ≒0.102kgf·m

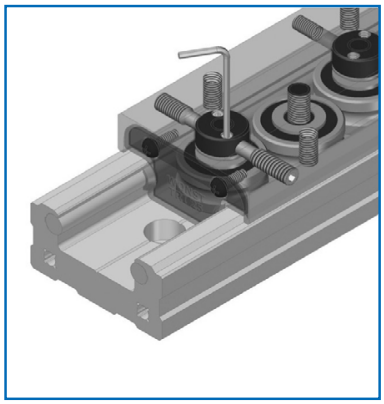
## 2. Inside Type

The clearance adjustable block for WON Track Roller Guide Inside Type (TRI) makes it possible to run precisely through clearance adjustment.

1) By connecting fully a fixture bearing (which is the basis) and temporarily an adjustable bearing, it is possible to secure a sufficient gap between a rail and a clearance adjustable block.
2) After the block is put together with a guide rail, slowly turn the adjustment bolt on the side of the block until a roller contacts the rail.
   - While the block runs smoothly, it is required to rotate all bearings for adjustment.
   - If a bearing is adjusted with too much force, it is possible to shorten service life of a system.
3) If the adjustable bearing is adjusted accurately, fasten a nut and bolt fully according to the roller assembly torque shown below.
4) Fasten the loose-proof bolt on the top of the nut.







### - Roller Assembly Torque

| Model No. | 15 | 20 | 25 | 30 | 35 | 45 | 55 |
|---|---|---|---|---|---|---|---|
| Max (N·m) | 2.0 | 2.0 | 8.0 | 8.0 | 46 | 46 | 46 |

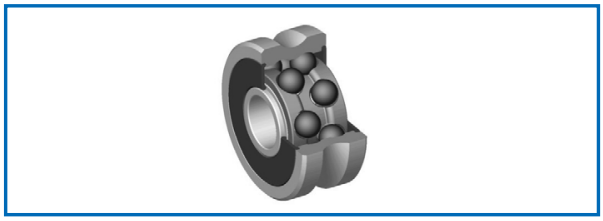
### - Rail Assembly Torque

| Model No. | 15(M4) | 20(M5) | 25(M6) | 30(M6) | 35(M8) | 45(M10) | 55(M12) |
|---|---|---|---|---|---|---|---|
| Max (N·m) | 2.5 | 5.8 | 9.9 | 9.9 | 24 | 48 | 80 |

1N≒0.102kgf
1N·m ≒0.102kgf·m

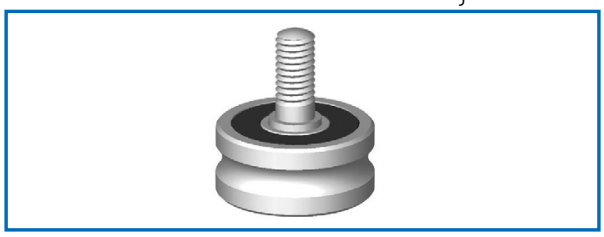
## 5 Track Roller

A track roller based on multi-row angular contact ball bearing is composed of an eccentric axis roller and a concentric axis roller.



- Concentric Axis Roller

This roller is used in the case where there is an instal lation in the fixture axis, the opposite of eccentric axis, or where there is no need of clearance adjustment.

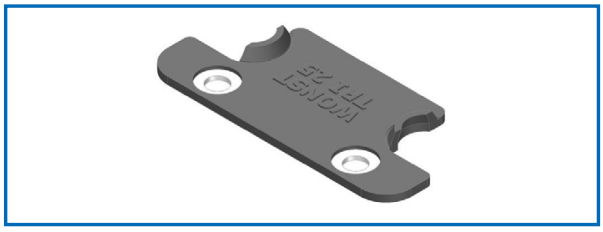


- Eccentric Axis Roller

This roller is used to apply zero clearance between a guide rail and a roller or preload.

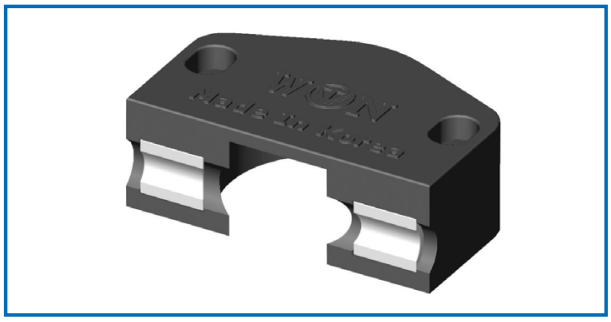
## 6 End Seal (T Type)

This seal is installed before and after a block in order to prevent foreign substances from intruding in a roller. It helps to extend a life and improve running stability.



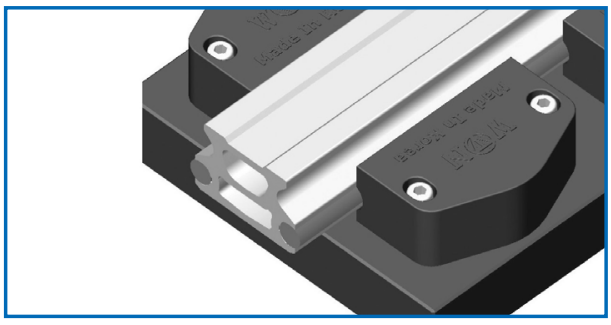
## 7 Cap Seal

- This seal wraps a roller in order to prevent foreign substances from intruding in the raceway surface.
- A seal storing a lubricant supplies the lubricant to the contact surface.
- It is designed to refill the contact surface.
- It helps to extend a life and improve running sta bility.



## 8 Assembly and adjustment of cap seal

It is recommended to mount a cap seal after a roller is adjusted completely.
To mount a cap seal on a block, do the following:
1. Separate the block from a guide rail. 2. Temporarily connect the cap seal with the block in order to secure a sufficient gap of the cap seal. 3. Put the cap seal to gether with the guide rail again. 4. Adjust clearance by making the cap seal in contact with the shaft surface.
※ The more contact with the shaft, the better sealing effect. In this case, be careful of friction increase.



# 9 Precision

For the precision of WON Track Roller Guide, inspect its precision after installing a rail in the datum plane of floor.

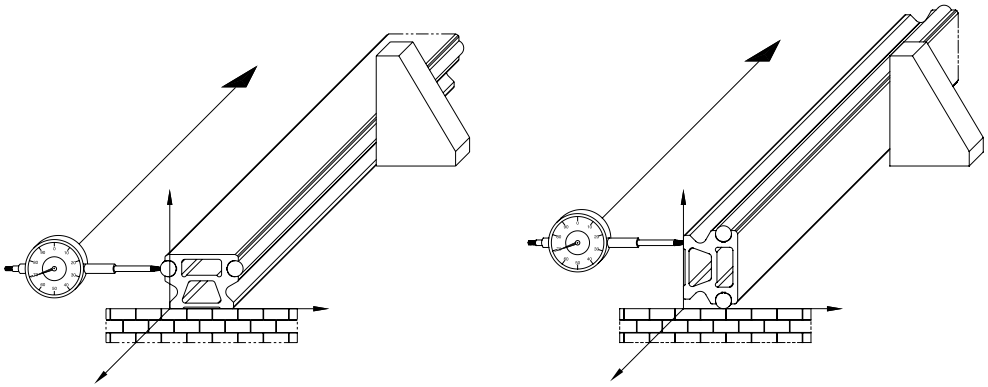


Figure 1. Measurement method

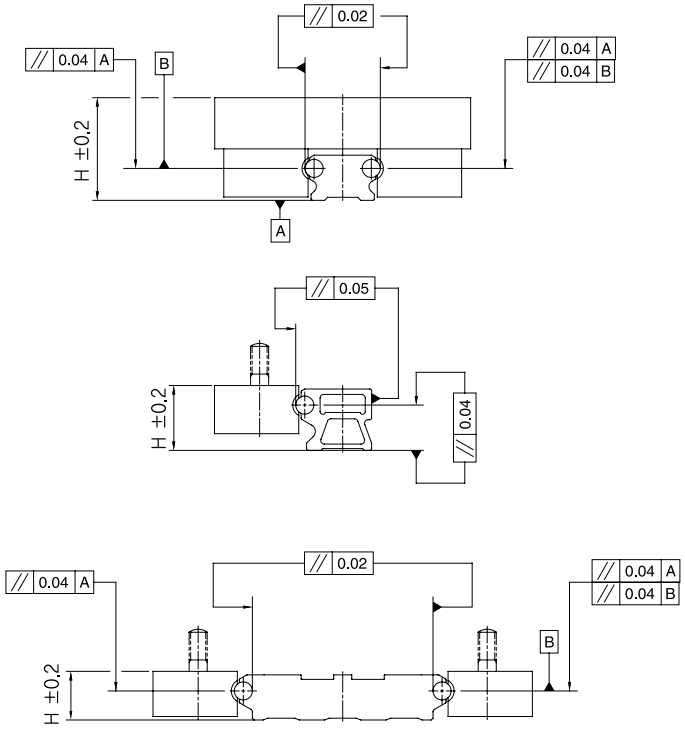



Figure 2. Precision

# 10 Rating life

Rating life refers to a total travel distance that 90% in one group of bearings run without any material damage.

## 1. Basic dynamic load rating C (basic dynamic moment M)

Basic dynamic load rating (basic dynamic rated moment) refers to the load (moment) with which 90% in one group of bearings can run 100km without any material damage.

## 2. Basic static load rating Co (basic static moment Mo)

Basic static load rating (basic static rated moment) refers to the load and (moment) that can cause the race way surface of a bearing and the rolling element to be deformed permanently as many as 0.0001 of diameter of the rolling element.

## 3. Maximum allowable load (maximum allowable moment)

Maximum allowable load (maximum allowable moment) refers to the maximum load (maximum moment) that allows smooth linear motion in consideration of load transmission capacity of a track roller, and the inten sity of rail, block, and jointing bolt.

## 4. Rating life for the load in each direction

$$L = \left(\frac{C_{yz}}{P}\right)^3 \cdot 10^5$$

$$L_h = \frac{L}{2 \cdot \ell_s \cdot n_1 \cdot 60}$$

| | | |
|---|---|---|
| L | : Rating life | (m) |
| Lh | : Rating life | (h) |
| Cyz | : Basic dynamic load rating in each direction | (N) |
| P | : Operating load in each direction | (N) |
| ℓs | : Stroke length | (m) |
| n1 | : No. of strokes | (o.p.m.) |

※ If operating load is less than the maximum allowable load Cyz, it is required to calculated rating life in the above formula.

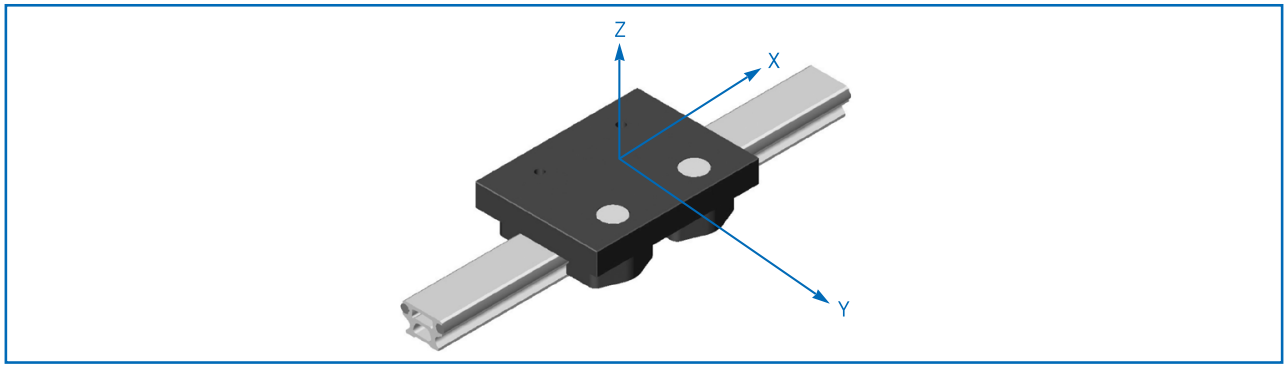
## 5. Rating life for the moment in each direction

$$L = \left(\frac{M_{xyz}}{M}\right)^3 \cdot 10^5$$

$$L_h = \frac{L}{2 \cdot \ell_s \cdot n_1 \cdot 60}$$

| | | |
|---|---|---|
| L | : Rating life | (m) |
| Lh | : Rating life | (h) |
| Mxyz | : Basic dynamic rated moment in each direction | (N • m) |
| M | : Operating moment in each direction | (N • m) |
| ℓs | : Stroke length | (m) |
| n1 | : No. of strokes | (o.p.m.) |

※ If operating moment is less than the maximum allowable moment Mxyz, it is required to calculated rating life in the above formula.

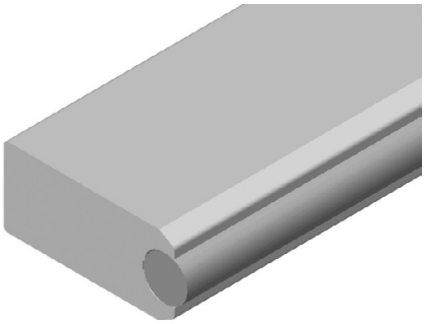


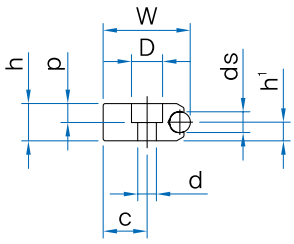
## STF Series Guide Rail

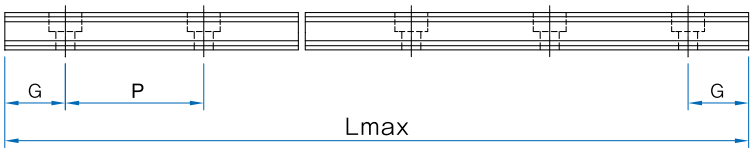
### An example of the composition of model name & number

STF32 — 1300
1 3

1 Model No.
2 Rail length






Unit:mm

| Model No. | Main dimensions | | Dimensions of rail | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | W | L (max.) | c | ds | h | $h_1$ | d×D×p | G | P |
| STF 32 | 26 | 6000 | 10 | 6 | 10 | 5 | 6.5×12×6.5 | 25 | 125 |
| STF 52 | 42 | 6000 | 16 | 10 | 18 | 9 | 11×19×13 | 25 | 250 |

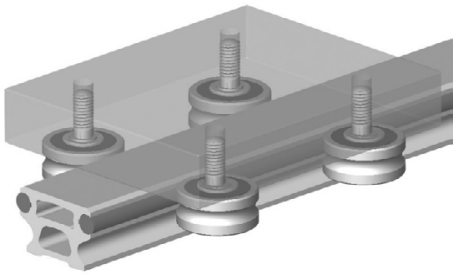
※ For other specifications, please contact us
※ For vertical use, please contact us.

## TS Series

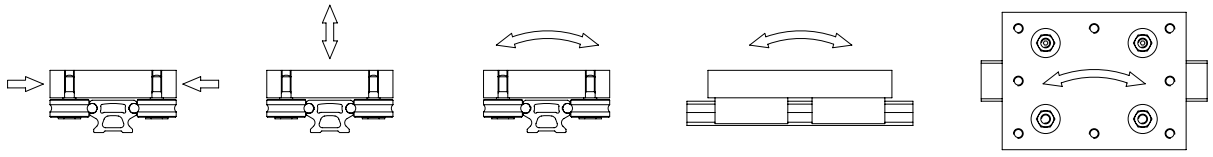
### An example of the composition of model name & number

TS32H — 2 BC ☐ — 1300
1 2 3 4 5

1. Model No.
2. Number of blocks assembled in one shaft
3. Type of block: B-Fixture Block, BC-Clearance Adjustable Block
4. No symbol- No cap seal, S-Cap seal attached
5. Length of rail

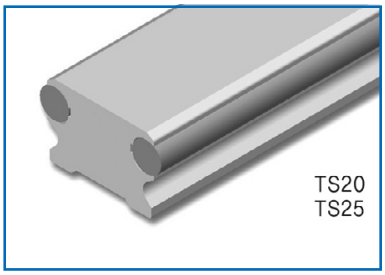


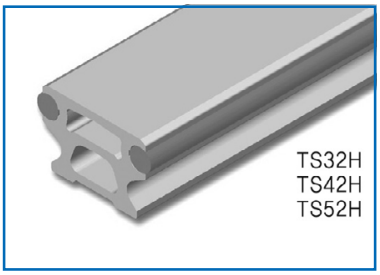
### Basic load rating and moment

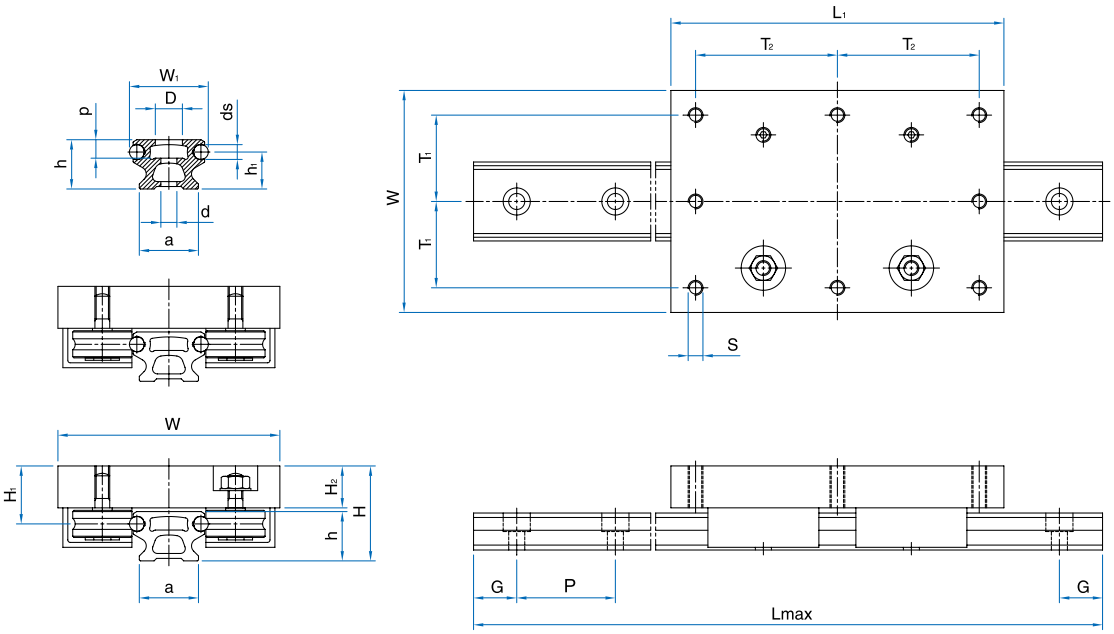



| Model No. | Basic load rating | | | | Allowable static moment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cy (N) | Coy (N) | Cz (N) | Coz (N) | Mx (N·m) | Mox (N·m) | My (N·m) | Moy (N·m) | Mz (N·m) | Moz (N·m) |
| TS 20 | 1860 | 1600 | 870 | 760 | 7.0 | 6.1 | 21.8 | 19.0 | 46.7 | 40.0 |
| TS 25 | 5960 | 4560 | 2850 | 2200 | 27.1 | 20.9 | 78.4 | 60.5 | 164.0 | 125.4 |
| TS 32H | 5960 | 4560 | 2850 | 2200 | 37.1 | 28.6 | 92.6 | 71.5 | 193.8 | 148.2 |
| TS 42H | 13930 | 10200 | 6620 | 4920 | 106.0 | 78.7 | 231 | 172 | 487 | 357 |
| TS 52H | 13930 | 10200 | 6620 | 4920 | 139.0 | 103 | 298 | 221 | 627 | 459 |

※ For other specifications, please contact us.
※ The rail of TS 32H or more has a hollow type.
※ The values of load rating and moment are needed for life calculation. For the value of maximum allowable load, see the information at page 306.
※ For vertical use, please contact us.



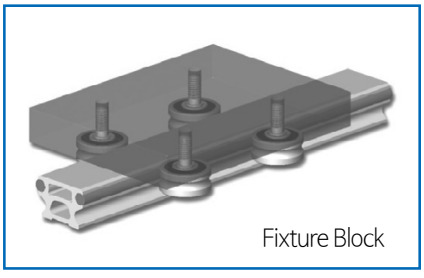


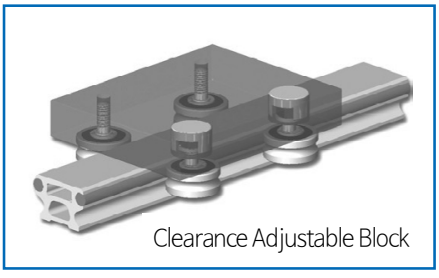

Unit:mm

| Model No. | Main dimensions | | | | | Dimensions of block | | | | | Dimensions of rail | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W | W1 | L (max.) | L1 | H | H1 | H2 | S | T1 | T2 | a | ds | h | h1 | d×D×p | G | P |
| TS 20 | 60 | 20 | 6000 | 110 | 25.5 | 16.5 | 12.5 | M 5 | 25 | 50 | 17 | 4 | 12.2 | 9 | 4.5×8×4.6 | 25 | 62.5 |
| TS 25 | 85 | 25 | 6000 | 125 | 34.1 | 23.5 | 17 | M 6 | 35 | 55 | 21 | 6 | 15 | 10.6 | 5.5×10×6.5 | 25 | 62.5 |
| TS 32H | 90 | 32 | 6000 | 145 | 38.5 | 23.5 | 17 | M 6 | 37.5 | 65 | 24 | 6 | 20 | 15 | 6.5×12×7.5 | 25 | 125 |
| TS 42H | 120 | 42 | 6000 | 170 | 47.5 | 34.9 | 25.2 | M 8 | 50 | 75 | 28 | 10 | 20 | 12.6 | 9×15×8.5 | 25 | 125 |
| TS 52H | 130 | 52 | 6000 | 205 | 60 | 34.9 | 25.2 | M10 | 52.5 | 90 | 40 | 10 | 34 | 25.1 | 11×19×13 | 25 | 250 |

1N ≒ 0.102kgf

1N·m ≒ 0.102kgf • m


Fixture Block


Clearance Adjustable Block

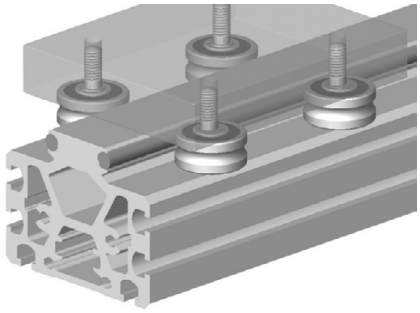
## TC Series

### An example of the composition of model name & number

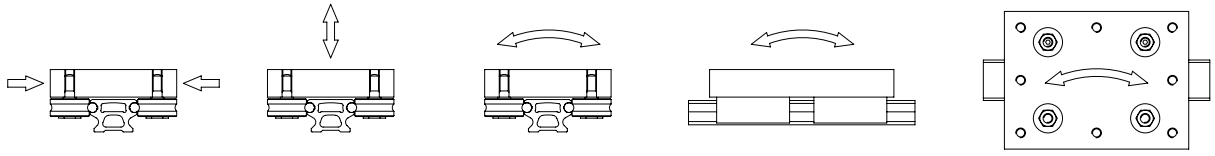
TC25 — 2 BC [ ] — 1300

1 2 3 4 5

1. Model No.
2. Number of blocks assembled in one shaft
3. Type of block: B-Fixture Block, BC-Clearance Adjustable Block
4. No symbol- No cap seal, S-Cap seal attached
5. Length of rail



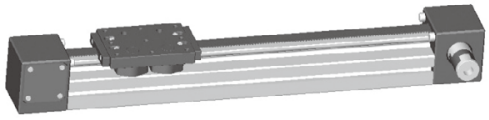
### Basic load rating and moment



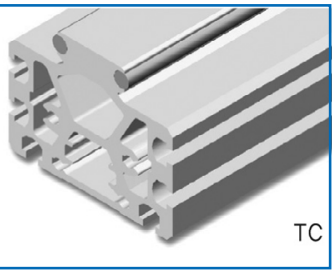
Cy Cz Mx My Mz

| Model No. | Basic load rating | | | | Allowable static moment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cy (N) | Coy (N) | Cz (N) | Coz (N) | Mx (N·m) | Mox (N·m) | My (N·m) | Moy (N·m) | Mz (N·m) | Moz (N·m) |
| TC 20 | 1860 | 1600 | 870 | 760 | 7.0 | 6.1 | 21.8 | 19.0 | 46.7 | 40.0 |
| TC 25 | 5960 | 4560 | 2850 | 2200 | 27.1 | 20.9 | 78.4 | 60.5 | 164 | 125 |
| TC 52 | 13930 | 10200 | 6620 | 4920 | 139 | 103 | 298 | 221 | 627 | 459 |

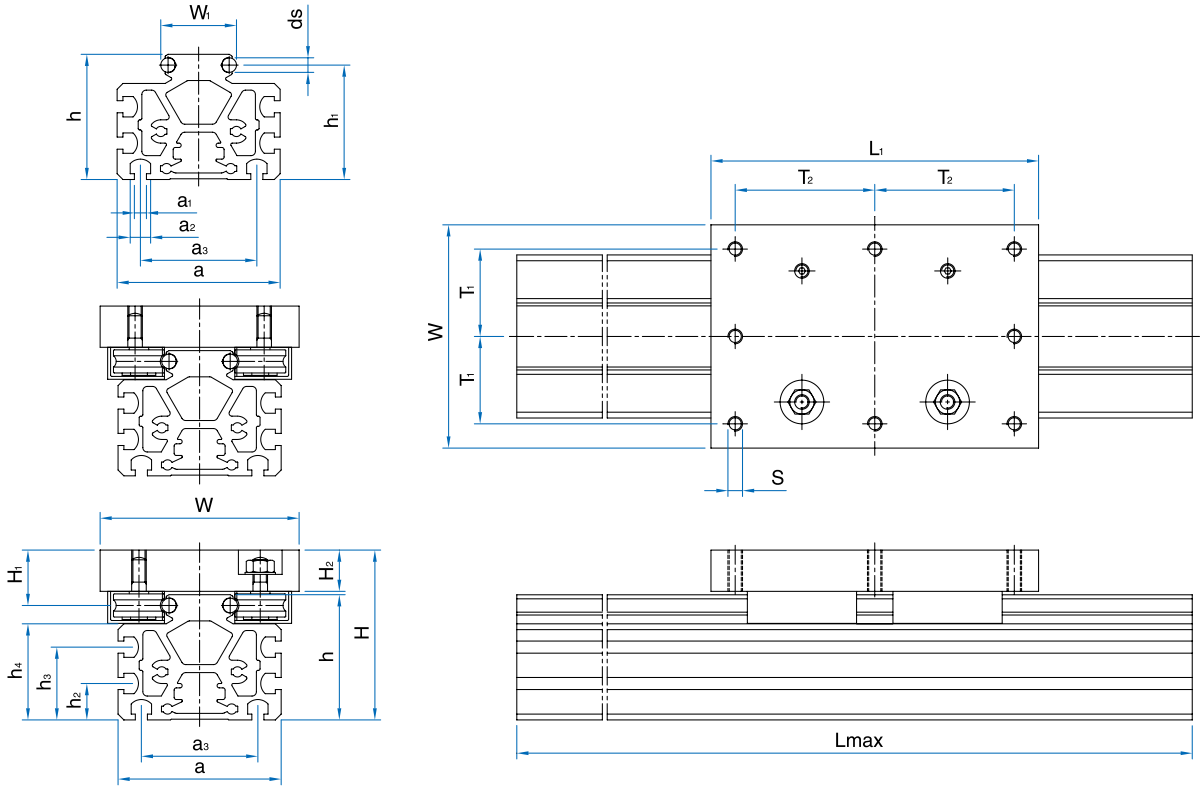
※ For other specifications, please contact us.
※ The values of load rating and moment are needed for life calculation. For the value of maximum allowable load, see the information at page 306.
※ For vertical use, please contact us.



Customized product



TC

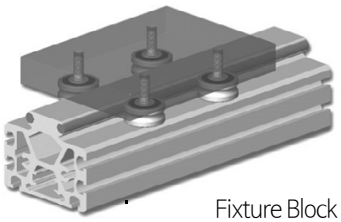


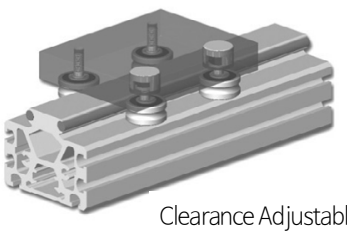

Unit:mm

| Model No. | Main dimensions | | | | | Dimensions of block | | | | | Dimensions of rail | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W | W1 | L (max.) | L1 | H | H1 | H2 | S | T1 | T2 | a | a1 | a2 | a3 | ds | h | h1 | h2 | h3 | h4 |
| TC 20 | 60 | 20 | 6000 | 110 | 57 | 16.5 | 12.5 | M 5 | 25 | 50 | 56 | 5.3 | 8.3 | 30 | 4 | 43.7 | 40.5 | 22 | - | 31.5 |
| TC 25 | 85 | 25 | 6000 | 125 | 81.1 | 23.5 | 17 | M 6 | 35 | 55 | 75 | 8.3 | 14 | 43 | 6 | 62 | 57.6 | 25 | - | 47 |
| TC 52 | 130 | 52 | 3000 | 205 | 113.5 | 34.9 | 25.2 | M10 | 52.5 | 90 | 112 | 8.3 | 14 | 80 | 10 | 86 | 78.6 | 25 | 50 | 66 |

※ For the specifications of bracket, see the information at page 334.

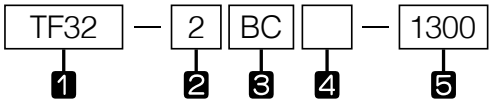
1N ≒ 0.102kgf
1N·m ≒ 0.102kgf • m


Fixture Block

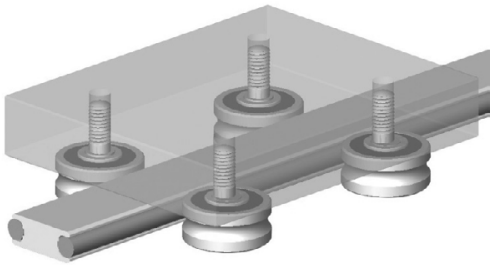

Clearance Adjustable Block

## TF Series

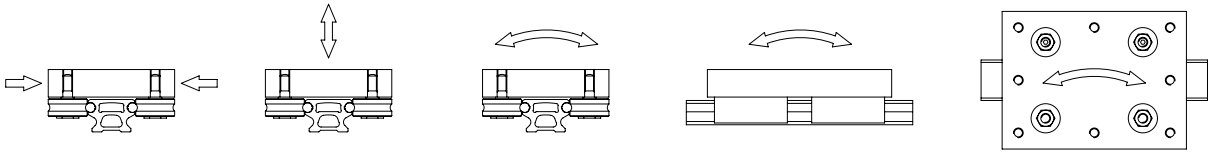
### An example of the composition of model name & number




1 Model No.
2 Number of blocks assembled in one shaft
3 Type of block: B-Fixture Block, BC-Clearance Adjustable Block
4 No symbol- No cap seal, S-Cap seal attached
5 Length of rail

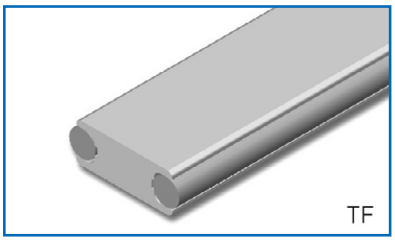


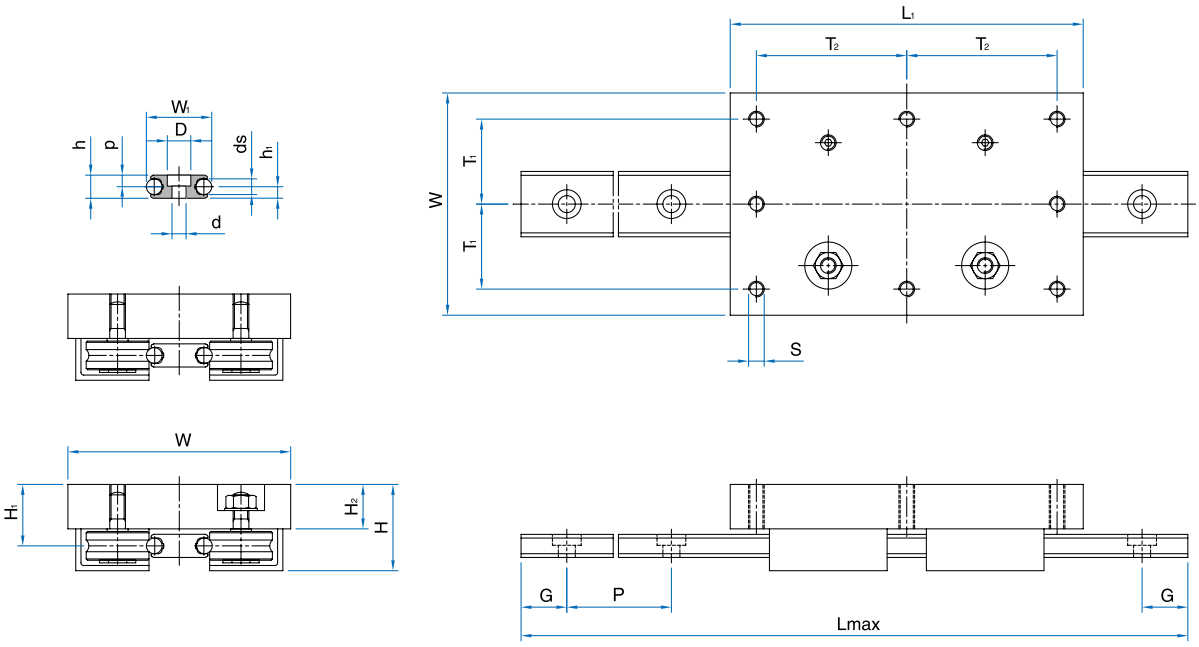
### Basic load rating and moment




| Model No. | Basic load rating | | | | Allowable static moment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cy (N) | Coy (N) | Cz (N) | Coz (N) | Mx (N·m) | Mox (N·m) | My (N·m) | Moy (N·m) | Mz (N·m) | Moz (N·m) |
| TF 32 | 5960 | 4560 | 2850 | 2200 | 37.1 | 28.6 | 92.6 | 71.5 | 193 | 148 |
| TF 42 | 13930 | 10200 | 6620 | 4920 | 106 | 78.7 | 231 | 172 | 487 | 357 |
| TF 52 | 13930 | 10200 | 6620 | 4920 | 139 | 103 | 298 | 221 | 627 | 459 |

※ For other specifications, please contact us.
※ The values of load rating and moment are needed for life calculation. For the value of maximum allowable load, see the information at page 306.
※ For vertical use, please contact us.



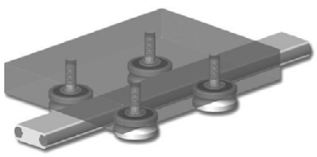



Unit:mm

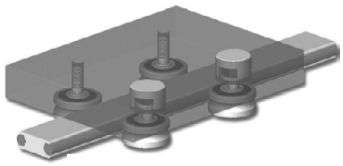
| Model No. | Main dimensions | | | | | Dimensions of block | | | | | Dimensions of rail | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W | W1 | L (max.) | L1 | H | H1 | H2 | S | T1 | T2 | ds | h | h1 | d×D×p | G | P |
| TF 32 | 90 | 32 | 6000 | 145 | 33 | 23.5 | 17 | M 6 | 37.5 | 65 | 6 | 10 | 5 | 6.5×12×6.5 | 25 | 125 |
| TF 42 | 120 | 42 | 6000 | 170 | 47.2 | 34.9 | 25.2 | M 8 | 50 | 75 | 10 | 15 | 7.5 | 9×15×7 | 25 | 125 |
| TF 52 | 130 | 52 | 6000 | 205 | 47.2 | 34.9 | 25.2 | M10 | 52.5 | 90 | 10 | 18 | 9 | 11×19×10 | 25 | 250 |

1N ≒ 0.102kgf

1N·m ≒ 0.102kgf • m



Fixture Block



Clearance Adjustable Block

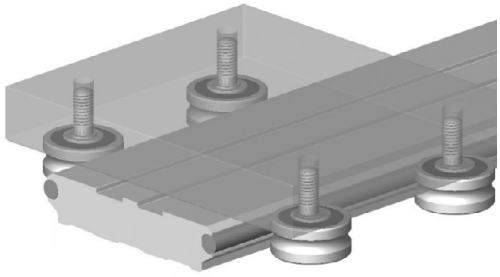
## TW Series

### An example of the composition of model name & number

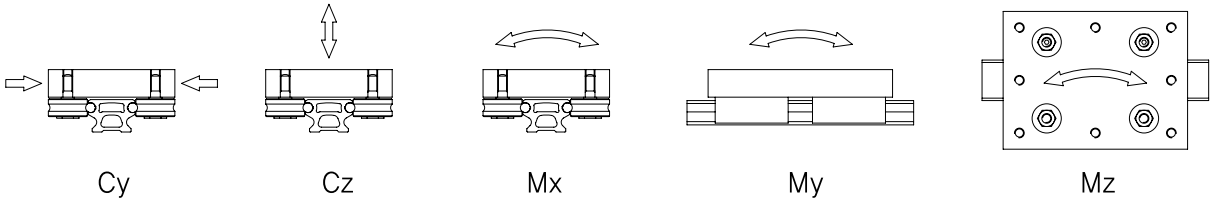
TW52 — 2 BC [ ] — 1425

1 2 3 4 5

1. Model No.
2. Number of blocks assembled in one shaft
3. Type of block: B-Fixture Block, BC-Clearance Adjustable Block
4. No symbol- No cap seal, S-Cap seal attached
5. Length of rail

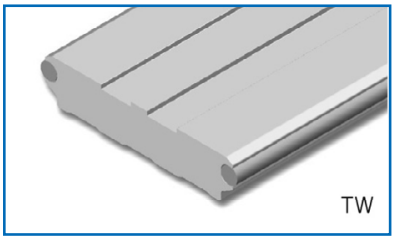


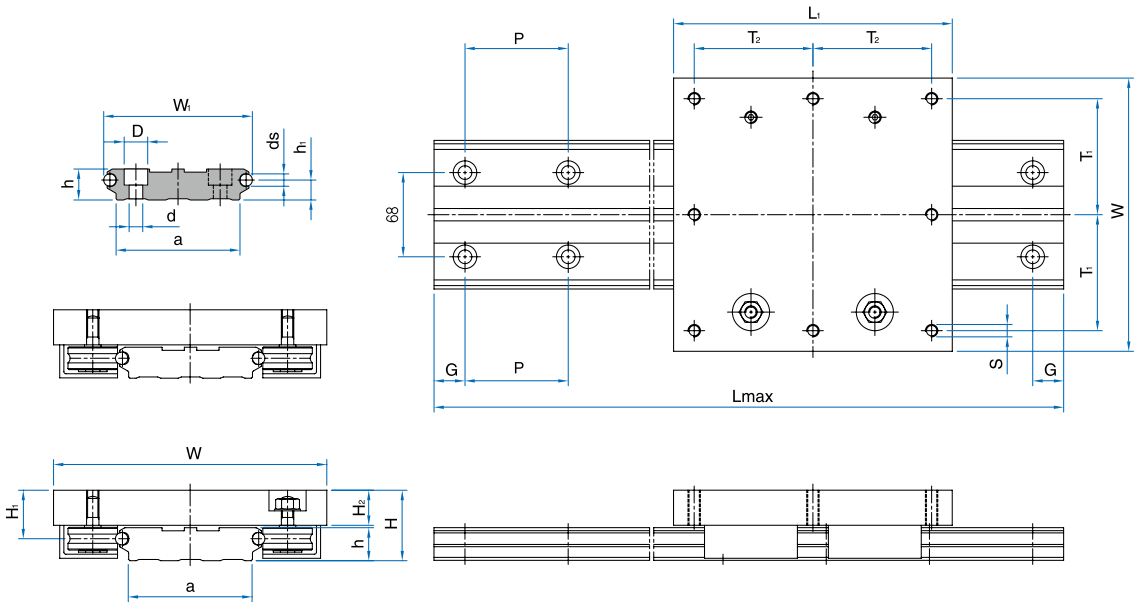
### Basic load rating and moment




| Model No. | Basic load rating | | | | Allowable static moment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cy (N) | Coy (N) | Cz (N) | Coz (N) | Mx (N·m) | Mox (N·m) | My (N·m) | Moy (N·m) | Mz (N·m) | Moz (N·m) |
| TW 52 | 13938 | 10200 | 6620 | 4920 | 364.3 | 270.6 | 298.1 | 221.4 | 627.2 | 459.0 |

※ For other specifications, please contact us.
※ The values of load rating and moment are needed for life calculation. For the value of maximum allowable load, see the information at page 306.
※ For vertical use, please contact us.



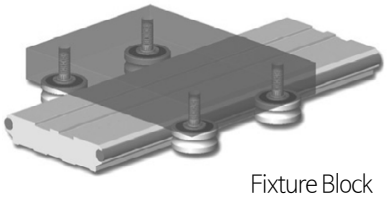



Unit:mm

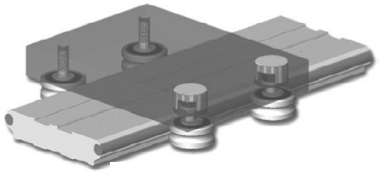
| Model No. | Main dimensions | | | | | Dimensions of block | | | | | Dimensions of rail | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W | W1 | L (max.) | L1 | H | H1 | H2 | S | T1 | T2 | a | ds | h | h1 | d×D×P | G | P |
| TW 52 | 200 | 120 | 6000 | 205 | 51 | 34.9 | 25.2 | M10 | 87.5 | 90 | 100 | 10 | 25 | 16.1 | 11×19×13 | 25 | 250 |

1N ≒ 0.102kgf

1N·m ≒ 0.102kgf • m



Fixture Block



Clearance Adjustable Block

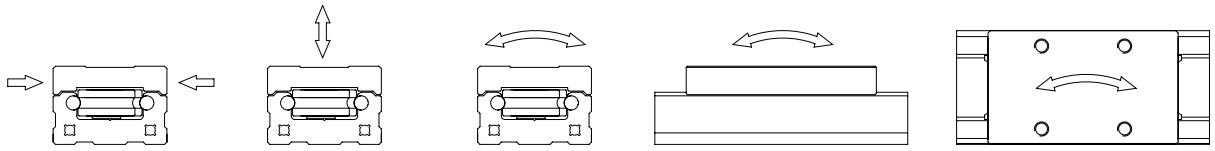
## TRI Series - Standard Type

### An example of the composition of model name & number

TRI25 — 2 BC UU — 1300
1 2 3 4 5

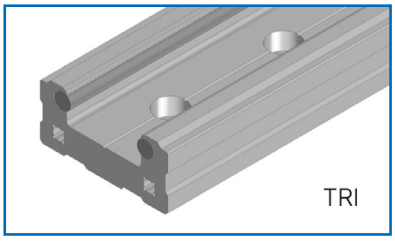
1 Model No.
2 Number of blocks assembled in one shaft
3 Type of block: B-Fixture Block, BC-Clearance Adjustable Block
4 No symbol-No end seal, UU-End seal attached
5 Length of rail

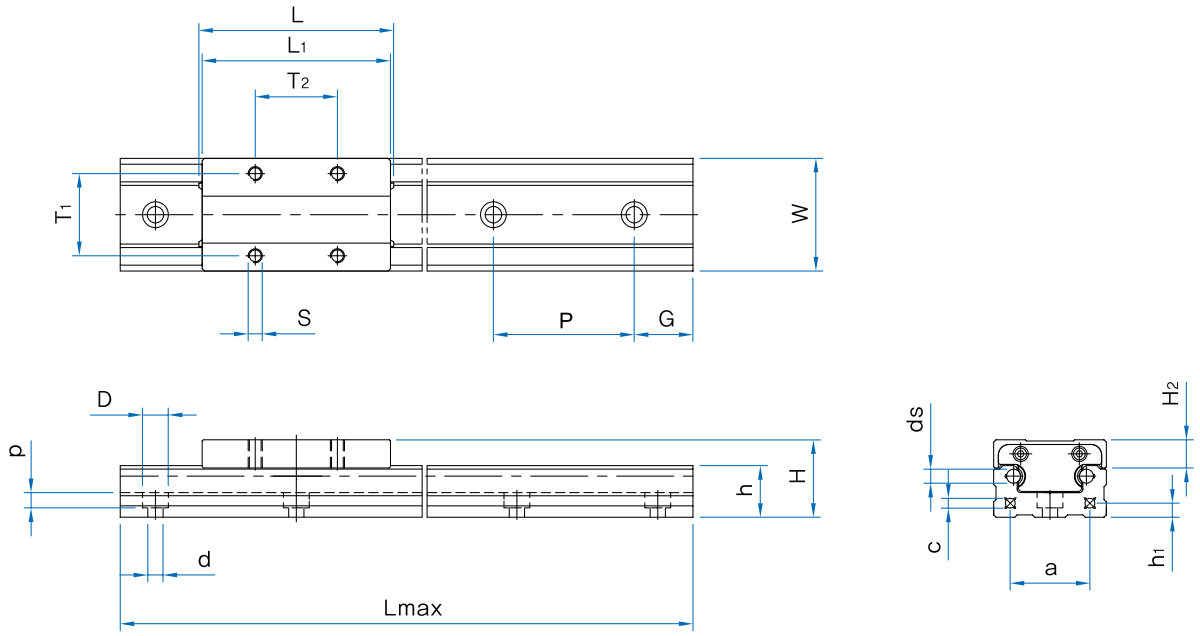
### Basic load rating and moment




| Model No. | Basic load rating | | | | Allowable static moment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cy (N) | Coy (N) | Cz (N) | Coz (N) | Mx (N·m) | Mox (N·m) | My (N·m) | Moy (N·m) | Mz (N·m) | Moz (N·m) |
| TRI 15 | 1860 | 1600 | 710 | 570 | 8.3 | 5.4 | 12.1 | 9.7 | 31.8 | 27.2 |
| TRI 20 | 1860 | 1600 | 710 | 570 | 8.5 | 6.8 | 12.8 | 10.3 | 33.6 | 28.8 |
| TRI 25 | 5960 | 4560 | 2330 | 1650 | 36.1 | 25.6 | 58.3 | 41.3 | 149 | 114 |
| TRI 30 | 5960 | 4560 | 2330 | 1650 | 41.9 | 29.7 | 62.9 | 44.6 | 161 | 123 |
| TRI 35 | 13900 | 10200 | 5410 | 3690 | 121 | 83.0 | 195 | 132 | 501 | 367 |
| TRI 45 | 13900 | 10200 | 5410 | 3690 | 135 | 92.3 | 200 | 136 | 515 | 377 |
| TRI 55 | 13900 | 10200 | 5410 | 3690 | 162 | 110 | 243 | 166 | 627 | 459 |

※ For other specifications, please contact us.
※ The values of load rating and moment are needed for life calculation. For the value of maximum allowable load, see the information at page 307.
※ For vertical use, please contact us.

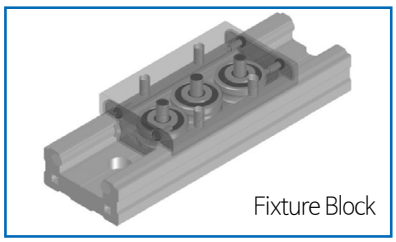


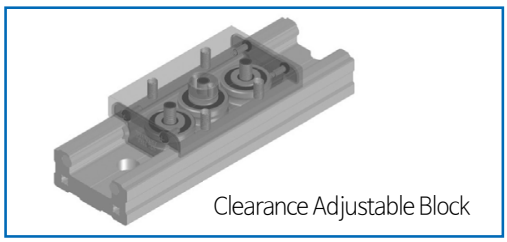



Unit:mm

| Model No. | Main dimensions | | | | Dimensions of block | | | | | Dimensions of rail | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W | H | L | Lmax | L1 | H2 | S | T1 | T2 | ds | h | h1 | a | c | d×D×p | G | P |
| TRI 15 | 34 | 24 | 57 | 6000 | 54.2 | 10.3 | M4 | 26 | 26 | 4 | 14.7 | 4 | 24 | 3.3 | 4.5×8×4.5 | 25 | 60 |
| TRI 20 | 42 | 28 | 66.2 | 6000 | 63.4 | 11.3 | M5 | 32 | 32 | 4 | 17.7 | 5 | 30 | 3.3 | 5.5×9.4×5.5 | 25 | 60 |
| TRI 25 | 48 | 33 | 83 | 6000 | 80.2 | 12 | M6 | 35 | 35 | 6 | 22 | 6 | 34 | 4.2 | 6.5×11×6.5 | 25 | 60 |
| TRI 30 | 60 | 42 | 96.8 | 6000 | 94 | 17.5 | M8 | 40 | 40 | 6 | 26 | 7 | 44 | 5 | 6.5×11×6.5 | 35 | 80 |
| TRI 35 | 70 | 48 | 117 | 6000 | 114.2 | 18.5 | M8 | 50 | 50 | 10 | 31.5 | 8 | 50 | 6.8 | 9×14×9 | 35 | 80 |
| TRI 45 | 86 | 60 | 126 | 6000 | 123.2 | 23 | M10 | 60 | 60 | 10 | 39.5 | 12 | 60 | 6.8 | 11×17.5×11 | 50 | 105 |
| TRI 55 | 100 | 68 | 156 | 6000 | 153.2 | 28 | M12 | 75 | 75 | 12 | 43.5 | 12 | 70 | 8.5 | 13×20×13 | 50 | 120 |

1N ≒ 0.102kgf
1N·m ≒ 0.102kgf·m


Fixture Block


Clearance Adjustable Block

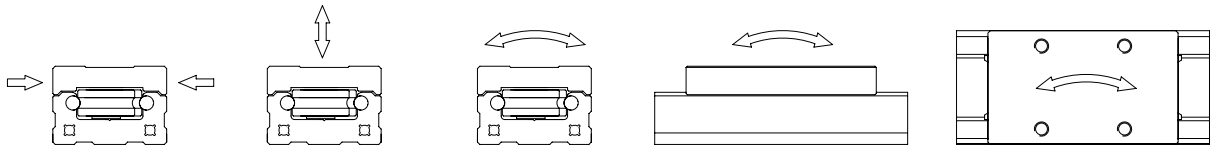
## TRI Series - Long Type

### An example of the composition of model name & number

TRI25L — 2 BC UU — 1300
1 2 3 4 5

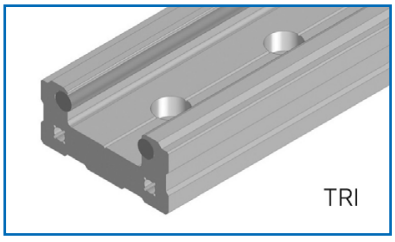
1 Model No.
2 Number of blocks assembled in one shaft
3 Type of block: B-Fixture Block, BC-Clearance Adjustable Block
4 No symbol-No end seal, UU-End seal attached
5 Length of rail

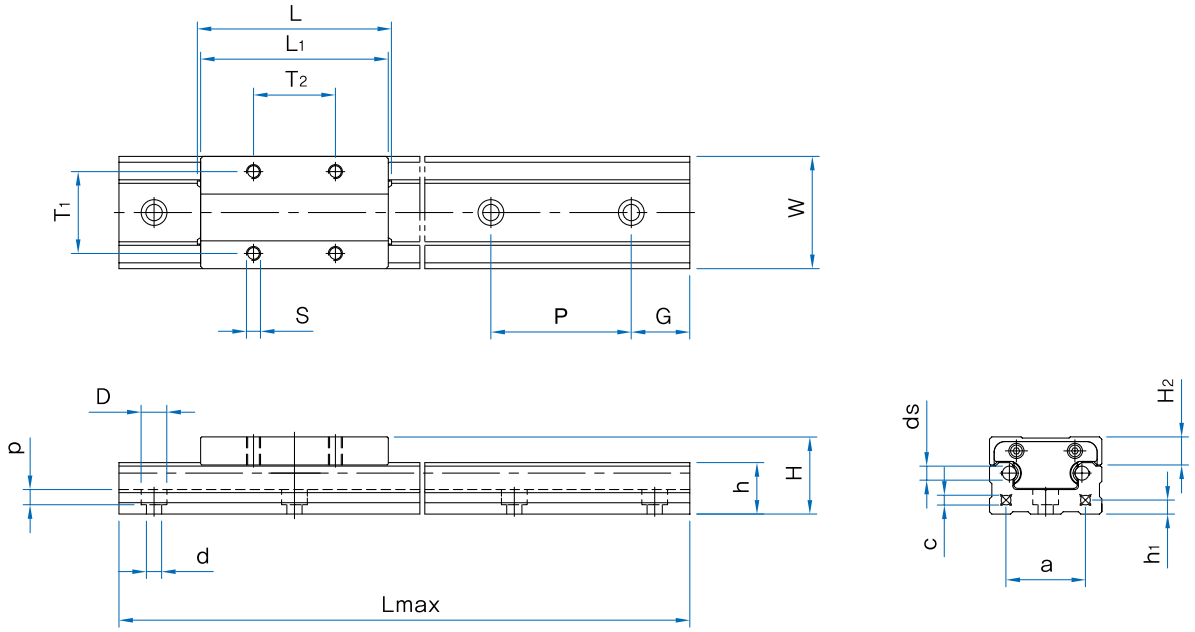
### Basic load rating and moment




| Model No. | Basic load rating | | | | Allowable static moment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cy (N) | Coy (N) | Cz (N) | Coz (N) | Mx (N·m) | Mox (N·m) | My (N·m) | Moy (N·m) | Mz (N·m) | Moz (N·m) |
| TRI 15L | 1860 | 1600 | 870 | 760 | 8.3 | 7.2 | 23.2 | 20.3 | 49.9 | 42.7 |
| TRI 20L | 1860 | 1600 | 870 | 760 | 10.5 | 9.1 | 28.7 | 25.1 | 61.6 | 52.8 |
| TRI 25L | 5960 | 4560 | 2850 | 2200 | 44.2 | 34.1 | 106 | 82.5 | 223 | 171 |
| TRI 30L | 5960 | 4560 | 2850 | 2200 | 51.3 | 39.6 | 124 | 95.7 | 259 | 198 |
| TRI 35L | 13900 | 10200 | 6620 | 4920 | 149 | 110 | 357 | 265 | 752 | 550 |
| TRI 45L | 13900 | 10200 | 6620 | 4920 | 165 | 123 | 397 | 295 | 836 | 612 |
| TRI 55L | 13900 | 10200 | 6620 | 4920 | 198 | 147 | 486 | 361 | 1024 | 749 |

※ For other specifications, please contact us.
※ The values of load rating and moment are needed for life calculation. For the value of maximum allowable load, see the information at page 307.
※ For vertical use, please contact us.

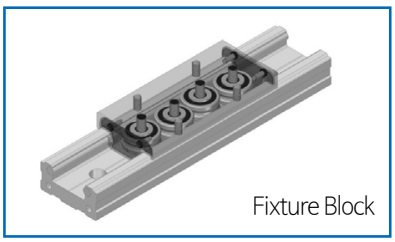

TRI

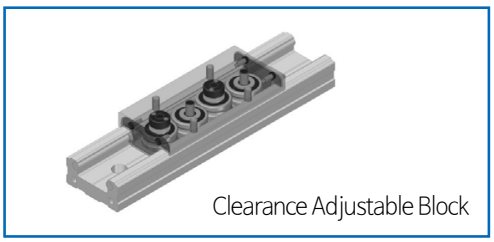



Unit:mm

| Model No. | Main dimensions | | | | Dimensions of block | | | | | Dimensions of rail | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W | H | L | Lmax | L1 | H2 | S | T1 | T2 | ds | h | h1 | a | c | d×D×p | G | P |
| TRI 15L | 34 | 24 | 79.4 | 6000 | 76.6 | 10.3 | M4 | 26 | 34 | 4 | 14.7 | 4 | 24 | 3.3 | 4.5×8×4.5 | 25 | 60 |
| TRI 20L | 42 | 28 | 98 | 6000 | 95.2 | 11.3 | M5 | 32 | 50 | 4 | 17.7 | 5 | 30 | 3.3 | 5.5×9.4×5.5 | 25 | 60 |
| TRI 25L | 48 | 33 | 109 | 6000 | 106.2 | 12 | M6 | 35 | 50 | 6 | 22 | 6 | 34 | 4.2 | 6.5×11×6.5 | 25 | 60 |
| TRI 30L | 60 | 42 | 131 | 6000 | 128.2 | 17.5 | M8 | 40 | 60 | 6 | 26 | 7 | 44 | 5 | 6.5×11×6.5 | 35 | 80 |
| TRI 35L | 70 | 48 | 152 | 6000 | 149.2 | 18.5 | M8 | 50 | 72 | 10 | 31.5 | 8 | 50 | 6.8 | 9×14×9 | 35 | 80 |
| TRI 45L | 86 | 60 | 174 | 6000 | 171.2 | 23 | M10 | 60 | 80 | 10 | 39.5 | 12 | 60 | 6.8 | 11×17.5×11 | 50 | 105 |
| TRI 55L | 100 | 68 | 213 | 6000 | 210.2 | 28 | M12 | 75 | 95 | 12 | 43.5 | 12 | 70 | 8.5 | 13×20×13 | 50 | 120 |

1N ≒ 0.102kgf
1N·m ≒ 0.102kgf·m


Fixture Block

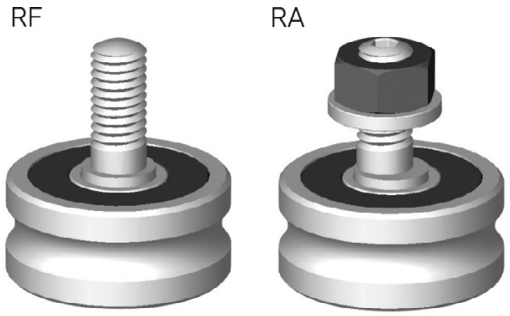

Clearance Adjustable Block

## RF Series/ RA Series Track Roller (Outside Type)

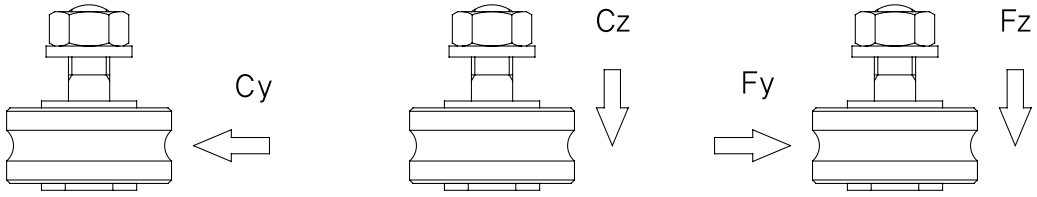
### An example of the composition of model name & number

RF 04
1 2

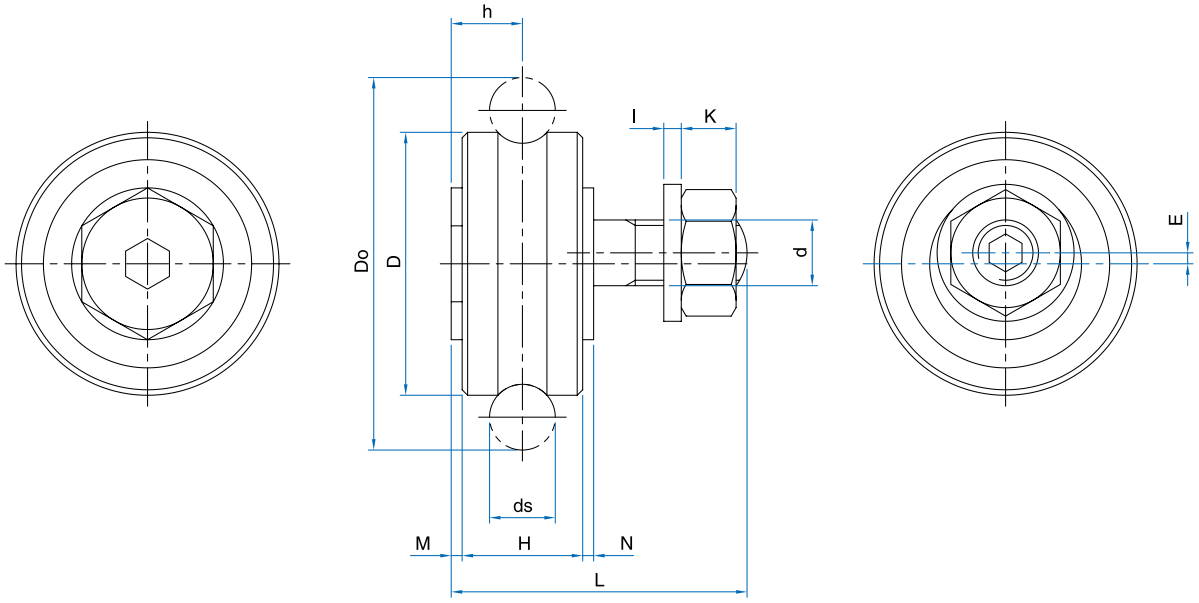
1 Model type: RF-Concentric Roller, RA-Eccentric Roller
2 Model No.




### Load of applied roller




| Model No. | Cy (N) | Coy (N) | Cz (N) | Coz (N) | Fymax. (N) | Fzmax. (N) |
|---|---|---|---|---|---|---|
| RF 04/RA 04 | 1150 | 800 | 330 | 190 | 250 | 100 |
| RF 06/RA 06 | 3670 | 2280 | 1080 | 550 | 920 | 270 |
| RF 10/RA 10 | 8580 | 5100 | 2510 | 1230 | 2200 | 630 |
| RF 12 | 8580 | 5100 | 2510 | 1230 | 2200 | 630 |




Unit:mm

| Model No. | ds | d | D | Do | H | h | E | M | N | L | I | K | Applied rail |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RF 04 | 4 | 4 | 16 | 22 | 7 | 5 | – | 1.5 | 0.5 | 18.5 | 0.5 | 2.4 | 20 |
| RA 04 | | | | | | | 0.5 | | | | | | |
| RF 06 | 6 | 6 | 24 | 34 | 11 | 6.5 | – | 1 | 1 | 27 | 1.6 | 5 | 25, 32 |
| RA 06 | | | | | | | 1 | | | | | | |
| RF 10 | 10 | 10 | 35 | 51.3 | 15.9 | 8.95 | – | 1 | 1.7 | 40.5 | 2 | 8 | 42, 52 |
| RA 10 | | | | | | | 1 | | | | | | |
| RF 12 | 12 | 10 | 42 | 60.93 | 19 | 9.5 | – | – | 3 | 43.2 | 1 | 12.5 | 55 |

1N ≒ 0.102kgf

1N·m ≒ 0.102kgf • m

## RFI Series Track Roller (Inside Type)

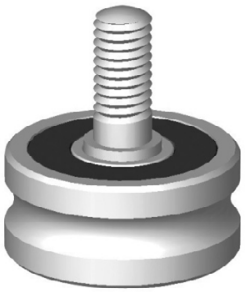
### An example of the composition of model name & number

RFI 04

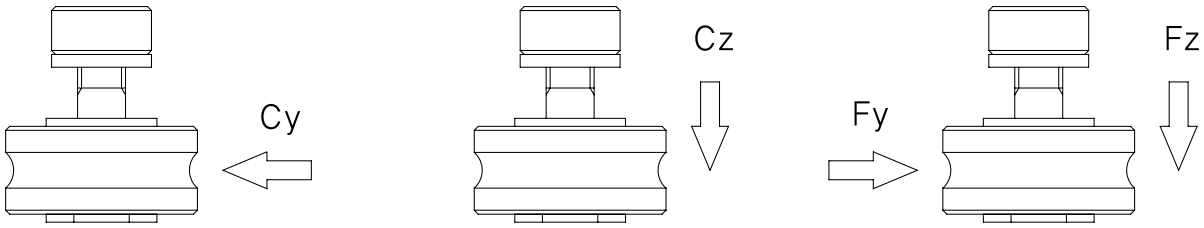
1 2

1 RFI-Concentric Roller
2 Model No.

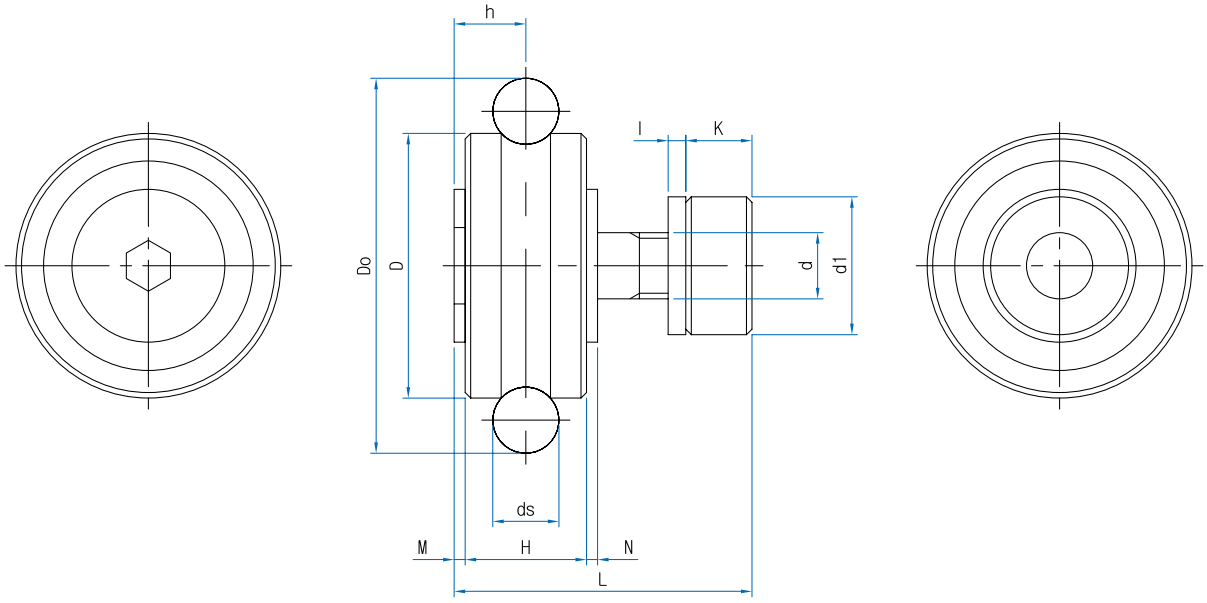
RFI



### Load and moment of applied roller




| Model No. | Cy (N) | Coy (N) | Cz (N) | Coz (N) | Fymax. (N) | Fzmax. (N) |
|---|---|---|---|---|---|---|
| RFI 04 | 1150 | 800 | 330 | 190 | 250 | 100 |
| RFI 06 | 3670 | 2280 | 1080 | 550 | 920 | 270 |
| RFI 10 | 8580 | 5100 | 2510 | 1230 | 2200 | 630 |
| RFI 12 | 8580 | 5100 | 2510 | 1230 | 2200 | 630 |




Unit:mm

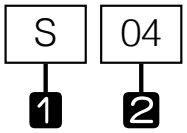
| Model No. | ds | d | D | Do | H | h | d1 | M | N | L | I | K | Applied rail |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RFI 04 | 4 | 4 | 16 | 22 | 7 | 5 | 10 | 1.5 | 0.5 | 17 | 0.5 | 5.5 | TRI 15 |
| RFI 04-1 | | | | | | | | | | 18 | | | TRI 20 |
| RFI 06 | 6 | 6 | 24 | 34 | 11 | 6.5 | 14 | 1 | 1 | 21.5 | 0.5 | 6 | TRI 25 |
| RFI 06-1 | | | | | | | | | | 25.9 | | | TRI 30 |
| RFI 10 | 10 | 10 | 35 | 51.3 | 15.9 | 8.95 | 22 | 1 | 1.75 | 33.35 | 1 | 9 | TRI 35 |
| RFI 10-1 | | | | | | | | | | 37.35 | | | TRI 45 |
| RFI 12 | 12 | 12 | 42 | 60.93 | 19 | 9.5 | 22 | – | 3 | 43.2 | 1 | 12.5 | TRI 55 |

1N ≒ 0.102kgf

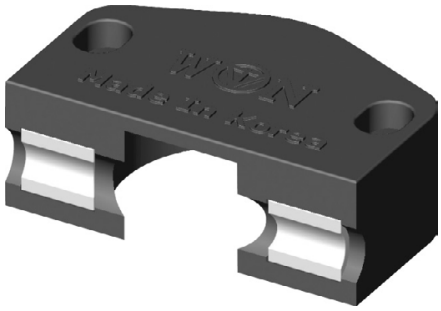
1N·m ≒ 0.102kgf • m

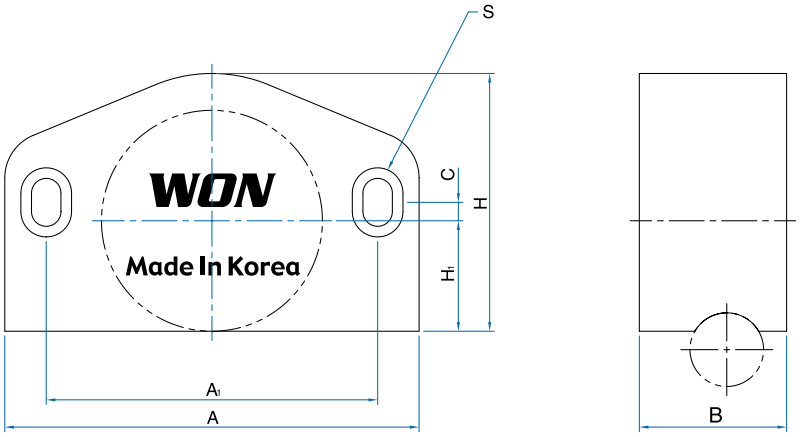
## S Series Cap Seal

### An example of the composition of model name & number




1 Model Type
2 Model No.



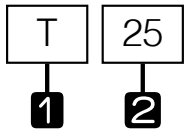




Unit:mm

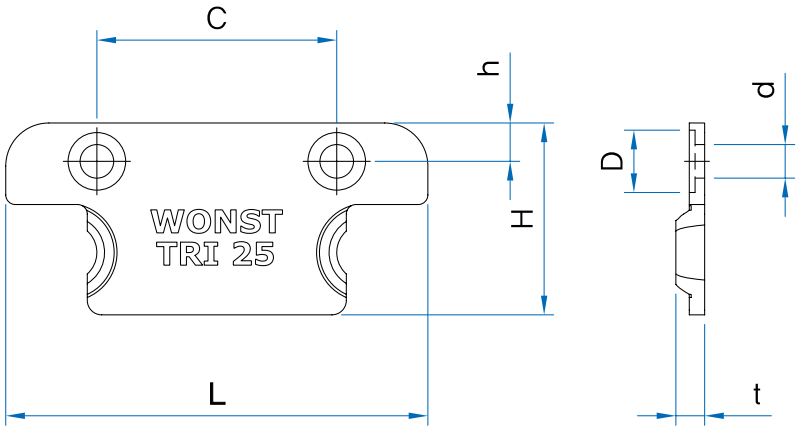
| Model No. | A | $A_1$ | B | H | $H_1$ | C | S | Applied roller |
|---|---|---|---|---|---|---|---|---|
| S 04 | 38 | 30 | 12 | 20 | 8 | 10 | 3.2×6×3.5 | RF, RA 04 |
| S 06 | 45 | 36 | 16 | 28 | 12 | 14 | | RF, RA 06 |
| S 10 | 60 | 50 | 22 | 39 | 17.5 | 19.5 | | RF, RA 10 |

## T Series End Seal

### An example of the composition of model name & number




1 Model Type
2 Model No.

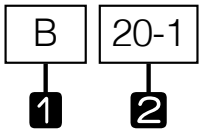




Unit:mm

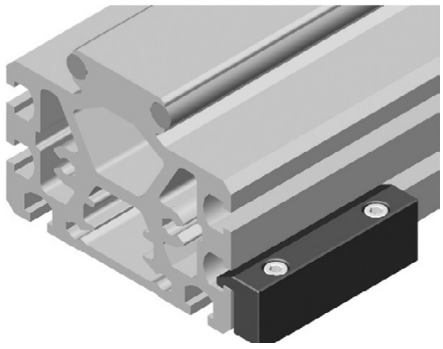
| Model No. | L | H | t | C | h | D | d |
|---|---|---|---|---|---|---|---|
| T 15 | 30 | 15.5 | 3 | 20 | 3 | 5.5 | 3.5 |
| T 20 | 38 | 16.5 | 3 | 22 | 4 | 5.5 | 3.5 |
| T 25 | 44 | 20 | 3 | 25 | 4 | 6 | 3.5 |
| T 30 | 56 | 24.4 | 3 | 36 | 6 | 8 | 4.5 |
| T 35 | 65 | 31.9 | 3 | 40 | 7 | 8 | 4.5 |
| T 45 | 80 | 35.4 | 3 | 46 | 9 | 8 | 4.5 |
| T 55 | 94 | 40.7 | 3 | 66 | 9.5 | 8 | 4.5 |

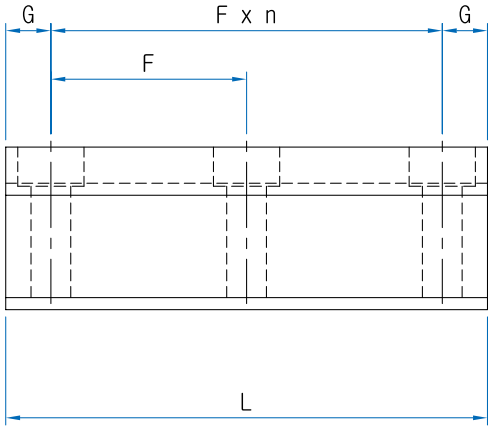
## B Series Bracket

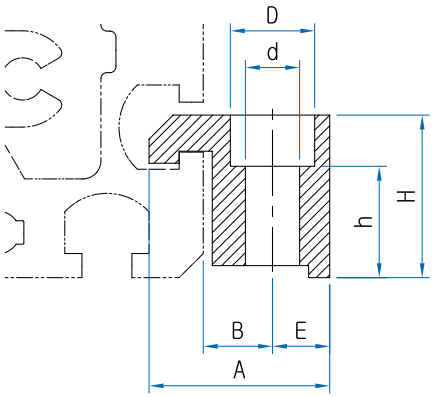
### An example of the composition of model name & number




1 Model Type
2 Model No.






Unit:mm

| Model No. | A | B | H | L | d×D | h | E | F×n | G |
|---|---|---|---|---|---|---|---|---|---|
| B 20-1 | 20 | 7 | 23.5 | 40 | 6.6×11 | 17 | 7.5 | 25 ×1 | 7.5 |
| B 20-2 | | | | 65 | | | | 25 ×2 | |
| B 25-1 | 28 | 10 | 27 | 47.5 | 6.6×11 | 20.5 | 9 | 32.5×1 | 7.5 |
| B 25-2 | | | | 80 | | | | 32.5×2 | |
| B 52-1 | 30 | 11.5 | 27 | 70 | 9 ×14 | 18.5 | 9.5 | 55 ×1 | 7.5 |
| B 52-2 | | | | 125 | | | | 55 ×2 | |

### Bracket Assembly Torque

| Model No. | M5 | M6 | M8 |
|---|---|---|---|
| Max(N·m) | 5.8 | 9.9 | 24 |

1N ≒ 0.102kgf
1N·m ≒ 0.102kgf • m