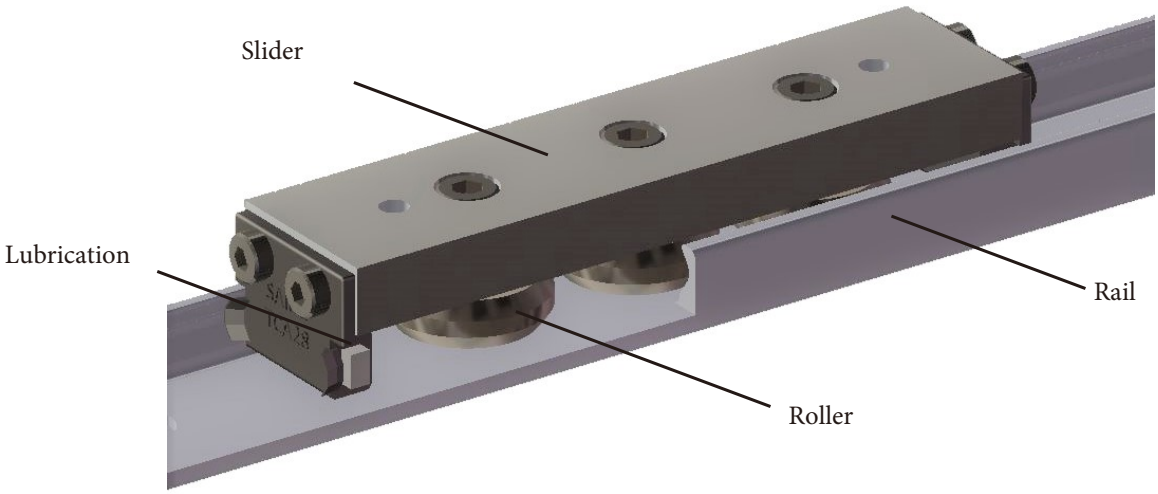
SNIBO
Innovation in Motion

SLIDING
SYSTEMS

COMPACT LINEAR RAIL

TV Roller Guide

Construction: TLC roller guide is composed of C-shape rail and roller slider. The C-shape rail is processed by heat treatment and grinding, which possesses great durability and precision.
The slider can be applied with concentric and eccentric design, number of rollers can be adjusted according to different load requirement.

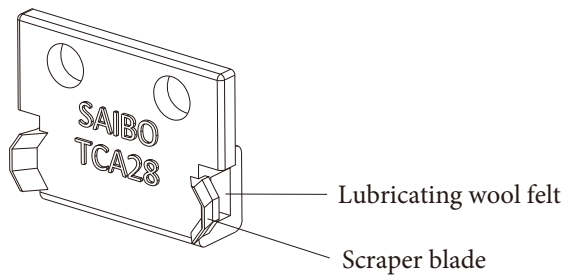


Rail: Rail is manufactured from quality cold extrusion, the raceway is then hardened and ground. 20μm Black Zinc Corrosion Protection as standard

Slider: Slider is anodized aluminum alloy.
The rollers are precision bearing, the central roller being eccentric
Optional wiper and lubrication device are available for both ends of slider.

Lubrication: Lubrication plays a big role to guide's life-cycle, as well as decreasing the operation noise. Assembled sliders are per-lubricted, with lubrication suitable for temperature ranging from -20°C to 120°C. Wool felts are equipped on both sides of lubricating device on slider, please refill grease every 100km or 6 months. Wool felts should also be replaced is excessively worn.

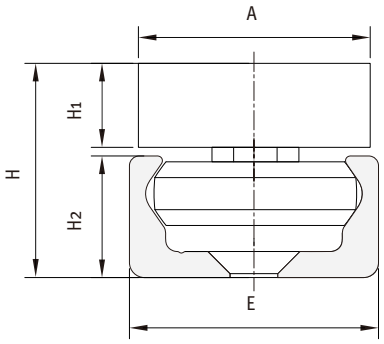
Features: High load capacity, Excellent rigidity, Stable performance. Low coefficient of friction, Superb wear resistance, Long life cycle. Capable of withstanding high speed and acceleration, Little noise. Rails can be spliced to fulfill longer transportation distance gap between rail and slider can be adjusted; Pre-load is also available.



Operation Parameters: Maximum operation speed: TLC28: 5m/s
TLC43: 7m/s

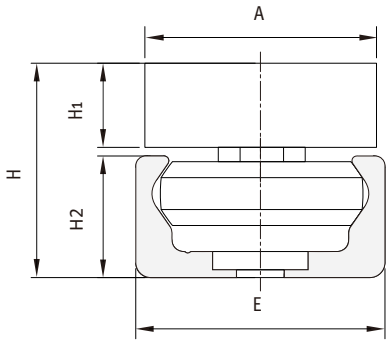
Working temperature: -30°C ~ 120°C

TV Dimension & Capacity



V-hole

Countersunk



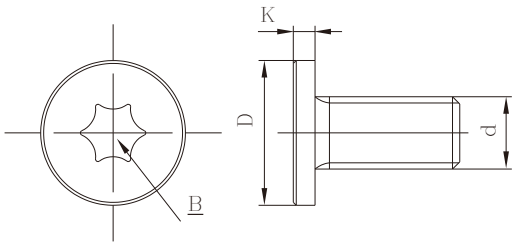
C-hole

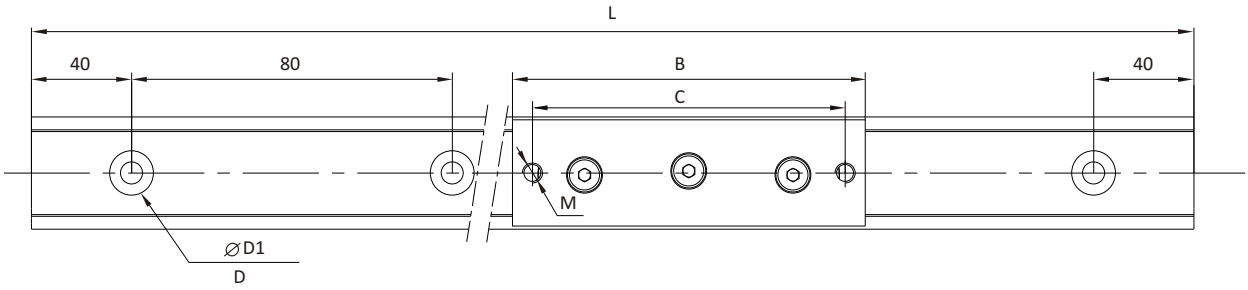
Counterbored

Code	Assembly Dimensions			Carriage Dimensions			
	H (mm)	E (mm)	A (mm)	B (mm)	C (mm)	H1 (mm)	M (mm)
TV28	24	28	26.5	88	78	9.8	M5
TV43	37	43	40	134	114	14.5	M8

* Please apply standard DIN7991 bolt for V-hole
Please apply following bolt spec for C-hole

Slider specification	d (mm)	D (mm)	K (mm)	B (mm)
28	M5x0.8	10	1.5	T10
43	M8x1.25	16	1.5	T45





Rail Dimensions						Carriage type (Standard 3 rollers)
D*		D1 (mm)	H2 (mm)	P (mm)	S (mm)	
V type	C type					
⌵⌀ 10.6x90°	⌀ 11x2.1	5.5	12.25	80	40	TCA28
⌵⌀ 17x90°	⌀ 18x3.1	9	21	80	40	TCA43

Product Code

TV **28** **C** **- L** Rail length

Hole type, leave blank for standard countersunk holes

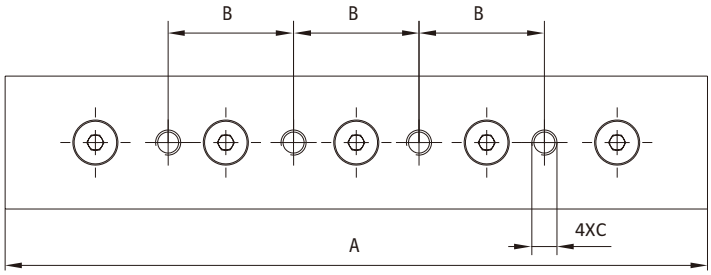
Size

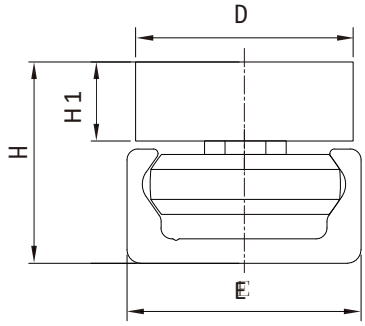
Rail type

TV Extended Slider

SAIBO can also supply longer length sliders with more rollers to achieve higher load capacity

Carriage Dimension

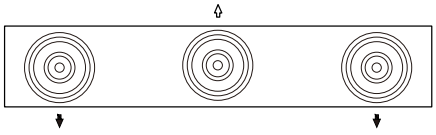




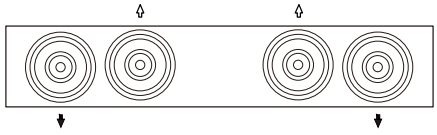
Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	H (mm)	H1 (mm)
TCA28L	140	25	M5	26.5	28	24	9.8
TCA43L	208	40	M8	40	43	37	14.5

Roller Configuration

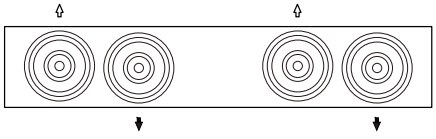
TCA-3-A



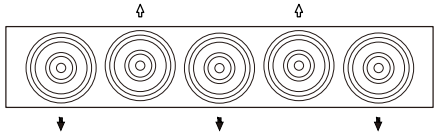
TCA-4-C



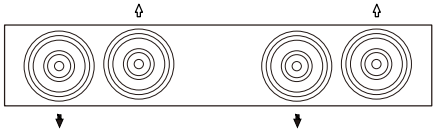
TCA-4-A



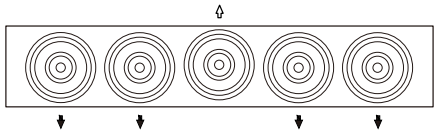
TCA-5-A

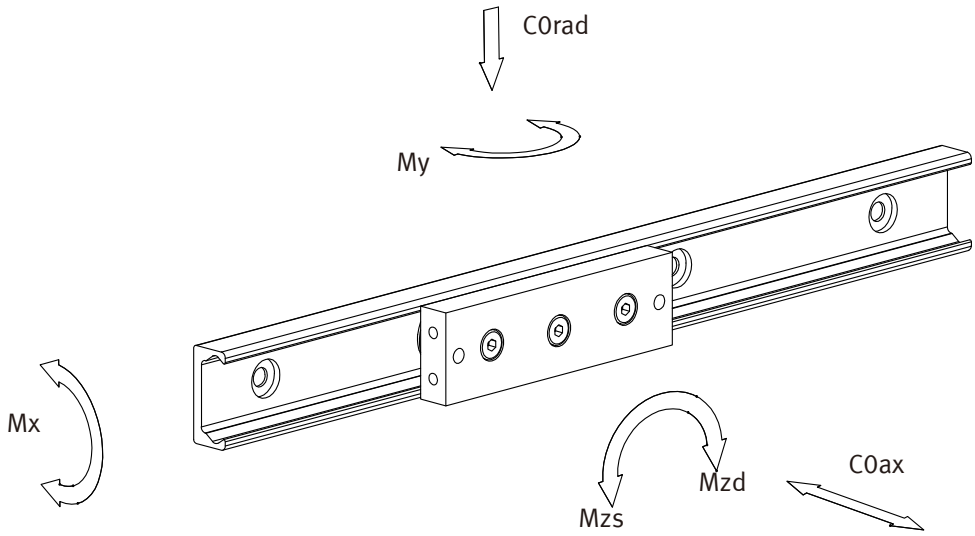


TCA-4-B



TCA-5-B



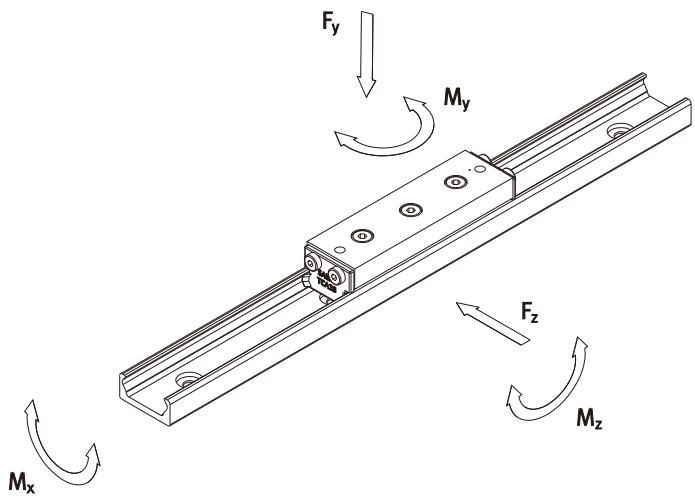


Max Load Capacity

Type	Numbers of rollers	Load capacity						
		C_{100} (N)	Corad (N)	Coax (N)	M_x (Nm)	M_y (Nm)	M_z (Nm)	
							Mzd	Mzs
TCA28	3	4285	2170	640	6.3	16	27.3	27.3
TCA28-3-A	3	4285	2170	640	6.3	29	54.4	54.4
TCA28-4-A	4	4285	2170	750	11.5	29	54.4	109
TCA28-4-B	4	4285	2170	750	11.5	29	109	54.4
TCA28-4-C	4	4285	2170	750	11.5	29	81.6	81.6
TCA28-5-A	5	5065	2580	900	11.5	29	81.6	81.6
TCA28-5-B	5	6816	3472	640	6.2	29	54.4	54.4
TCA43	3	12280	5515	1575	23.6	60	104.5	104.5
TCA43-3-A	3	12280	5515	1575	23.6	108.4	212	212
TCA43-4-A	4	12280	5515	1855	43.6	108.4	212	418
TCA43-4-B	4	12280	5515	1855	43.6	108.4	418	210
TCA43-4-C	4	12280	5515	1855	43.6	108.4	313.5	313.5
TCA43-5-A	5	14675	6540	2215	43.6	108.4	313.5	313.5
TCA43-5-B	5	19650	8800	1570	23.6	108.4	210	210

Load Calculations

Load capacity of the motion guide system can vary due to the size of bearing and railway, lubricated or not, and the load magnitude and direction.
As well as other factors include speed and acceleration and environment etc. To calculate system life, loading factor LF needs be calculated first, please see below:



Equivalent Load LF:

$$LF = F_z + \left(\frac{F_y}{C_{oax}} + \frac{M_x}{M_{Xmax}} + \frac{M_y}{M_{ymax}} + \frac{M_z}{M_{Zmax}}\right) \times C_{0rad}$$

F_y – Actual load in Y direction (N)
F_z – Actual load in Z direction
M_x – Actual moment load in X direction (N · m)
M_y – Actual moment in Y direction (N · m)
M_z – Actual moment in Z direction (N · m)

(Below Parameters can be taken from the table of Load Capacity)
C_{0rad} – Load capacity in Y direction (N)
C_{0ax} – Load capacity in Z direction (N)
M_x max – Moment capacity in X direction (N · m)
M_y max – Moment capacity in Y direction (N · m)
M_z max – Moment capacity in Z direction (N · m)

Life Calulation:

$$L\,km = 100 \cdot \left(\frac{C_{100}}{LF \cdot f}\right)^3$$

C_{100} – Load capacity factor

(Please check detailed parameter in each product's load capacity table)

F – Application Coefficient

None vibration or shock, Low speed Low frequency direction shift, clean environment.	1.0 - 1.5
Light vibration or shock, medium speed Medium frequency direction shift, some dirtiness.	1.5 - 2.0
Heavy vibration or shock, high speed High frequency direction shift, heavy dirtiness	2.0 - 3.5

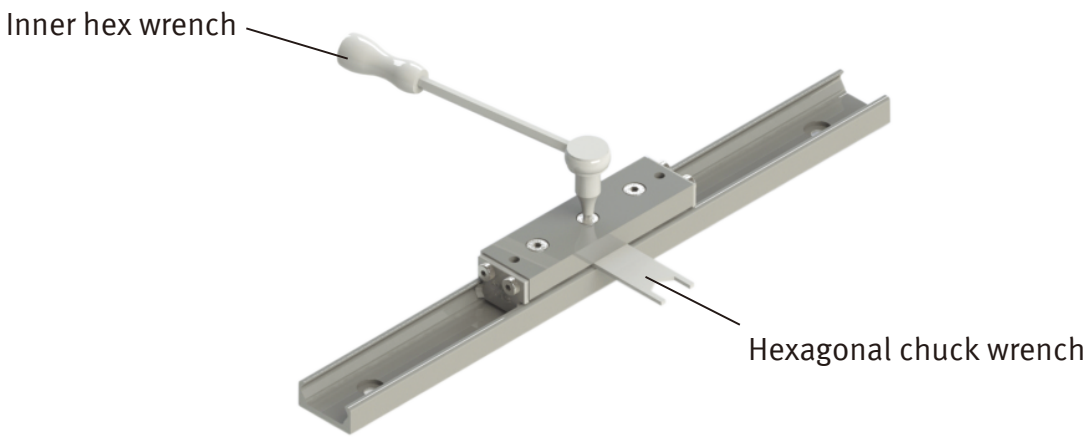
Pre-Load Settings

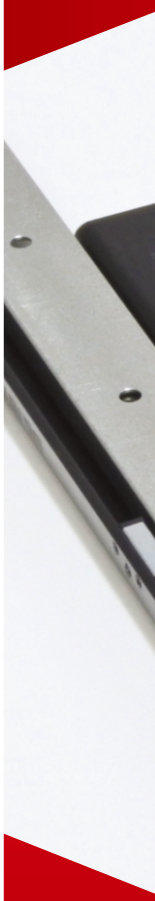
Eliminating the gap between rail and slider can effectively increase guide's rigidity and stability. The TLC slider is fitted with concentric rollers at each end of the slider and eccentric roller in the middle. The eccentric roller is used to adjust the gap between rail and slider. Please follow the adjusting method detailed below:

- Install the 2 off concentric rollers on the slider body using a hex wrench, ensuring that the screws are tightened to the correct torque. See table below
- Install the central eccentric roller on slider using a hex wrench, slowly adjust the screw until the roller is touching the raceway.
- Whilst adjusting the eccentric bearing, move the slider in the rail to ensure the slider can move smoothly, with minimal resistance along the full length of the rail.
- Once the adjustment is completed, ensure all screws are tightened to the torque outlined in the table below.

Slider Specification	Tightening torque (Nm)
28	7
43	12

Pre-Load Setting: Appropriate pre-load maximize system's rigidity. However, please note that the excessive pre-load could decrease guide's life-cycle rapidly.





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