

The rolling elements have been changed from balls to rollers
Super High Load Capacity Single-Axis Actuator

MOTION & CONTROL™

NSK

RoHS
compliant

Toughcarrier™ TCH06

■ Features

- With rollers as rolling elements, the single-axis actuator can bear a greatly increased load.
- Compared with standard Monocarrier, road ratings increased more than double and rigidity is 1.5x higher (3x in a compressed direction.)
- Interchangeable with MCH series to serve as substitute.



Patent Pending



■ Specifications

Standard slider specifications

Figures marked with * explained in notes below chart.

Model No.	Ball screw lead (mm)	Shaft dia. (mm)	Basic dynamic load rating (N)			Basic static load rating (N)		Support unit load limit (N)	Basic static moment load (N·m)			
			Ball screw Ca	Linear guide C	Support unit Ca	Ball screw Coa	Linear guide Co		Rolling M _{Ro}	Pitching M _{Po}	Yawing M _{Yo}	
TCH06-K	5	φ 12	3 760	20 900	6 600	6 310	45 000	2 700	800	340	340	
	10		*45 000									3 780
	20		*35 700									3 780

Short slider specifications

Model No.	Ball screw lead (mm)	Shaft dia. (mm)	Basic dynamic load rating (N)			Basic static load rating (N)		Support unit load limit (N)	Basic static moment load (N·m)		
			Ball screw Ca	Linear guide C	Support unit Ca	Ball screw Coa	Linear guide Co		Rolling M _{Ro}	Pitching M _{Po}	Yawing M _{Yo}
TCH06-A	5	φ 12	3 760	12 200	6 600	6 310	22 500	2 700	400	85	85
	10		*26 200								

● Basic dynamic and static load ratings indicate values for one slider.

● Basic dynamic load rating of linear guide is a load that allows for a 50-km rating fatigue life and is a vertical and constant load on the ball slide mounting surface.

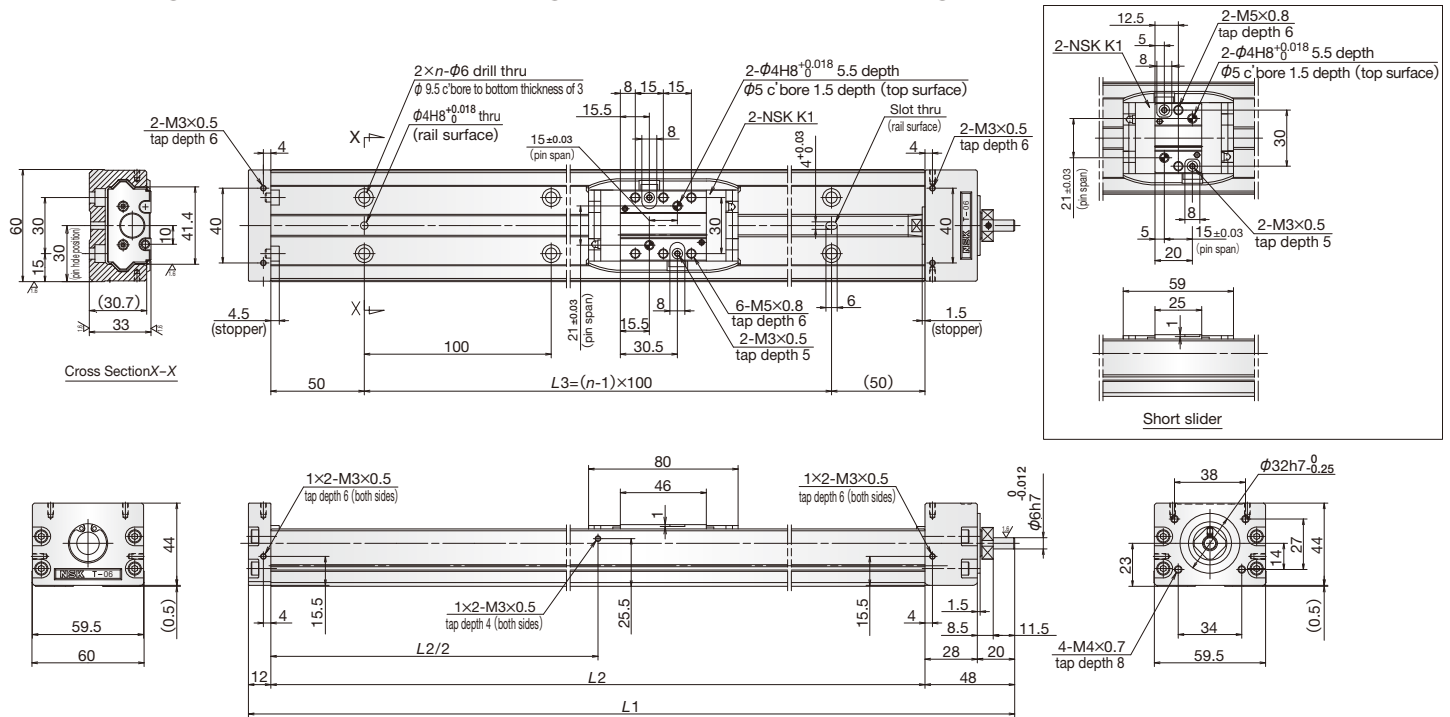
● Basic dynamic load rating of linear guide is load of perpendicular direction to the axis that allows 90% of a group of the same Toughcarriers to operate "Rated running distance" in table, which is equivalent to 1million revolutions of ball screw and support unit under the same conditions without causing flaking by rolling contact fatigue. (*)

● Basic dynamic load rating of ball screw is load in the axial direction that allows 90% of ball screws of a group of the same Toughcarriers to rotate 1 million revolutions under the same condition without causing flaking by rolling contact fatigue.

● Basic static load rating is load that results in combined permanent deformations at contact points of rolling elements and rolling surfaces of respective parts at a diameter of 0.01%.

● In case of moment loading when using short slider, use of two sliders (double short slider specification) is recommended.

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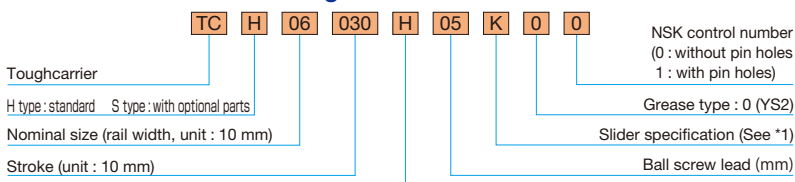


TCH06 Dimension table

Reference number	Nominal stroke (mm)	Stroke limit (mm)	Ball screw lead (mm)	Body length (mm)			No. of mounting hole <i>n</i>	Inertia X10 ⁻⁶ (kg·m ²)	Mass (kg)
				L ₁	L ₂	L ₃			
*TCH06005 (7) H05K (A) 00	50 (70)	64 (85)	5	210	150	100	2	2.94 (2.87)	2.2 (2.1)
*TCH06005 (7) H10K (A) 00			10					3.38 (3.06)	
*TCH06005H20K00			20					5.10	
TCH06010 (12) H05K (A) 00	100 (120)	114 (135)	5	260	200	100	2	3.74 (3.67)	2.5 (2.4)
TCH06010 (12) H10K (A) 00			10					4.18 (3.86)	
TCH06010H20K00			20					5.90	
TCH06020 (22) H05K (A) 00	200 (220)	214 (235)	5	360	300	200	3	5.34 (5.27)	3.3 (3.2)
TCH06020 (22) H10K (A) 00			10					5.78 (5.46)	
TCH06020H20K00			20					7.50	
TCH06030 (32) H05K (A) 00	300 (320)	314 (335)	5	460	400	300	4	6.84 (6.77)	3.9 (3.8)
TCH06030 (32) H10K (A) 00			10					7.28 (6.96)	
TCH06030H20K00			20					9.00	
TCH06040 (42) H05K (A) 00	400 (420)	414 (435)	5	560	500	400	5	8.44 (8.37)	4.6 (4.5)
TCH06040 (42) H10K (A) 00			10					8.88 (8.56)	
TCH06040H20K00			20					10.6	
TCH06050 (52) H05K (A) 00	500 (520)	514 (535)	5	660	600	500	6	10.1 (9.97)	5.3 (5.2)
TCH06050 (52) H10K (A) 00			10					10.5 (10.2)	
TCH06050H20K00			20					12.2	

Note 1) Dimension G is 25 for items marked with *. 2) Reference number and dimensions in parentheses are for short slider specifications. 3) For double slider specifications, reference numbers and dimensions, contact NSK. 4) For strokes not listed in the table, contact NSK. 5) Figures above show specifications with pin holes. 6) There are no specifications available for short slider with a 20 mm lead.

Reference number coding



Application

Automotive manufacturing equipment, general industrial machinery

Optional parts

Cover units, sensor units and motor brackets are available as standard parts. For special requests, contact NSK.

Accuracy grades

Unit: μm

Accuracy	Stroke (mm)	Repeatability	High grade (H)	
			Running parallelism (vertical)	Backlash
±10	~200	±10	14	20 or less
	~400		16	
	~600		20	

Unit: μm

Accuracy	Stroke (mm)	Repeatability	Precision grade (P)		
			Running parallelism (vertical)	Positioning accuracy	Backlash
±3	~200	±3	8	20	3 or less
	~400		10	25	
	~600		12	30	

For more information about NSK products, please contact: www.nsk.com



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