

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

Toughcarrier™ TCH10

■ Features

- World-class load capacity for a single-axis actuator (more than double compared with standard Monocarrier)
- Compared with standard Monocarrier, rigidity is double (4x 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 C_a	Linear guide C	Support unit C_a	Ball screw C_{0a}	Linear guide C_0		Rolling M_{R0}	Pitching M_{P0}	Yawing M_{Y0}
TCH10-K	10	φ20	10 900	62 400	*106 700	21 700	132 000	5 670	3 980	2 150	2 150
	20		7 060		*84 600						

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 C_a	Linear guide C	Support unit C_a	Ball screw C_{0a}	Linear guide C_0		Rolling M_{R0}	Pitching M_{P0}	Yawing M_{Y0}
TCH10-A	10	φ20	10 900	38 700	*66 100	21 700	71 500	5 670	2 150	630	630
	20		7 060		*52 500						

● 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.

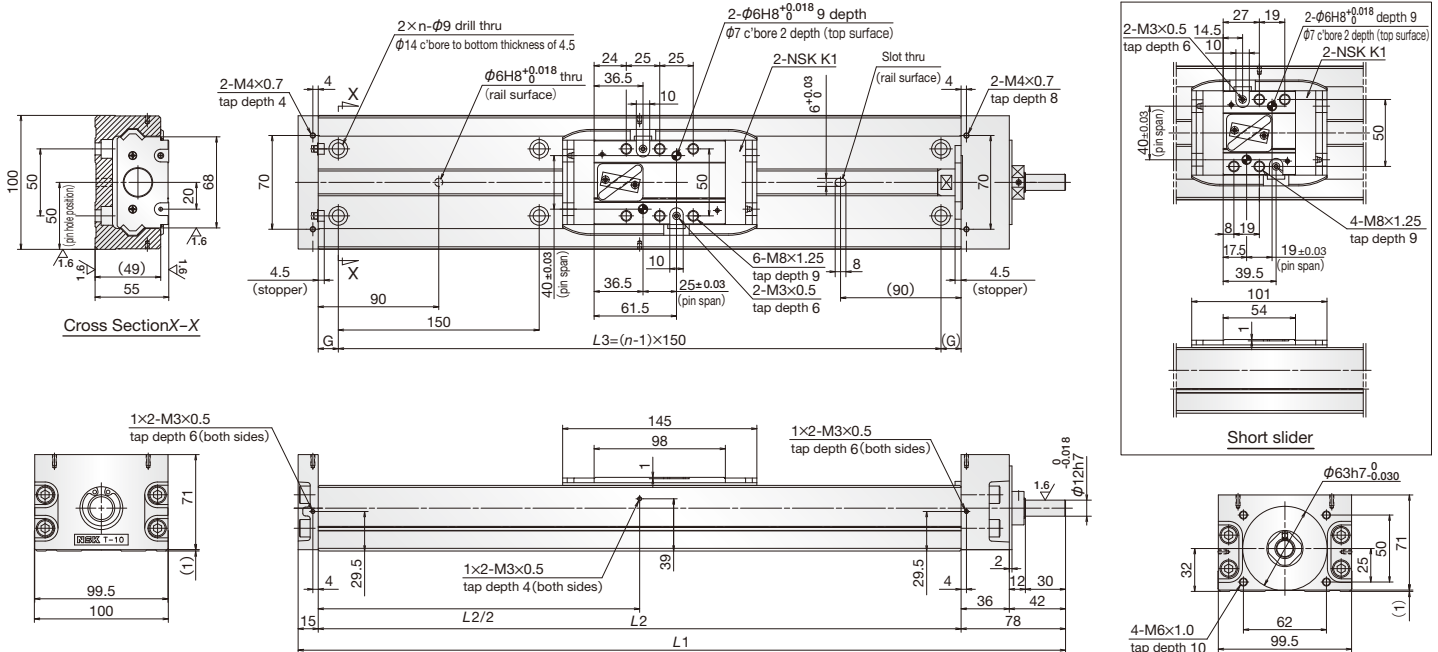
● Basic dynamic load rating of linear guide is load of perpendicular direction to the axis that allows 90% of a group of the same Toughcarriers to operate "Rated running distance" in table, which is equivalent to 1million revolutions of ball screw and support unit under the same conditions without causing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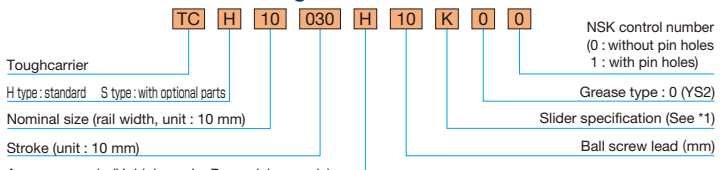


TCH10 Dimension table

Reference number	Nominal stroke (mm)	Stroke limit (mm)	Ball screw lead (mm)	Body length(mm)				No. of mounting hole n	Inertia X10 ⁴ (kg·m ²)	Mass (kg)
				L ₁	L ₂	L ₃	G			
TCH10010 (15) H10K (A) 00	100 (150)	126 (170)	10	373	280	150	65	2	4.27 (4.13)	9.6 (8.9)
TCH10010 (15) H20K (A) 00			20							
TCH10020 (25) H10K (A) 00	200 (250)	226 (270)	10	473	380	300	40	3	5.49 (5.35)	11.5 (10.9)
TCH10020 (25) H20K (A) 00			20							
TCH10030 (35) H10K (A) 00	300 (350)	326 (370)	10	573	480	450	15	4	6.72 (6.58)	13.5 (12.8)
TCH10030 (35) H20K (A) 00			20							
TCH10040 (45) H10K (A) 00	400 (450)	426 (470)	10	673	580	450	65	4	7.94 (7.80)	15.4 (14.8)
TCH10040 (45) H20K (A) 00			20							
TCH10050 (55) H10K (A) 00	500 (550)	526 (570)	10	773	680	600	40	5	9.17 (9.03)	17.4 (16.7)
TCH10050 (55) H20K (A) 00			20							
TCH10060 (65) H10K (A) 00	600 (650)	626 (670)	10	873	780	750	15	6	10.40 (10.26)	19.3 (18.6)
TCH10060 (65) H20K (A) 00			20							
TCH10070 (75) H10K (A) 00	700 (750)	726 (770)	10	973	880	750	65	6	11.62 (11.48)	21.2 (20.6)
TCH10070 (75) H20K (A) 00			20							
TCH10080 (85) H10K (A) 00	800 (850)	826 (870)	10	1 073	980	900	40	7	12.85 (12.71)	23.2 (22.6)
TCH10080 (85) H20K (A) 00			20							
TCH10090 (95) H10K (A) 00	900 (950)	926 (970)	10	1 173	1 080	1 050	15	8	14.07 (13.93)	25.2 (24.5)
TCH10090 (95) H20K (A) 00			20							
TCH10100 (105) H10K (A) 00	1 000 (1 050)	1 026 (1 070)	10	1 273	1 180	1 050	65	8	15.29 (15.15)	27.1 (26.5)
TCH10100 (105) H20K (A) 00			20							
TCH10110 (115) H10K (A) 00	1 100 (1 150)	1 126 (1 170)	10	1 373	1 280	1 200	40	9	16.52 (16.38)	29.1 (28.4)
TCH10110 (115) H20K (A) 00			20							
TCH10120 (125) H10K (A) 00	1 200 (1 250)	1 226 (1 270)	10	1 473	1 380	1 350	15	10	17.74 (17.60)	31.1 (30.4)
TCH10120 (125) H20K (A) 00			20							

Note 1) Reference number and dimensions in parentheses are for short slider specifications. 2) For double slider specifications, reference numbers and dimensions, contact NSK. 3) For strokes not listed in the table, contact NSK. 4) Figures above show specifications with pin holes.

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

Accuracy	High grade(H)			Backlash
	Stroke (mm)	Repeatability	Running parallelism (vertical)	
~200	±10	14	20 or less	
~400				
~600				
~700				
~1 000				
~1 200				

Accuracy	Precision grade(P)			Backlash
	Stroke (mm)	Repeatability	Running parallelism (vertical)	
~200	±3	8	30	3 or less
~400				
~600				
~700				
~1 000				
~1 200				

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



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