

ToughCarrier™ TCH06

Ultra High Load Capacity Single Axis Actuator

NEW PRODUCT

PATENT PENDING



Product Features and Benefits

- › An industry first: single axis actuator that uses **rollers** instead of balls for the linear guide rolling element.
- › Load ratings increased more than 2x compared to standard (ball type) Monocarrier™.
- › Rigidity increased more than 1.5x compared to standard (ball type) Monocarrier™.
- › Compression rigidity increased more than 3x compared to standard (ball type) Monocarrier™.
- › Monocarrier™, MCH series interchange is possible.
- › Self-lubricating NSK K1™ units (installed as standard).

SPECIFICATIONS

Standard Slider Specifications

Reference Model	Ball Screw Lead (mm)	Shaft Dia. (mm)	Basic Dynamic Load Rating (N)			Basic Static Load Rating (N)		Supporting Unit Limiting Load (N)	Basic Static Moment Load (N)					
			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	Ø 12	3 760	20 900	45 000	6 600	6 310	45 000	2 700	800	340	340		
	10		2 260										35 700	3 780
	20		2 260										28 300	3 780

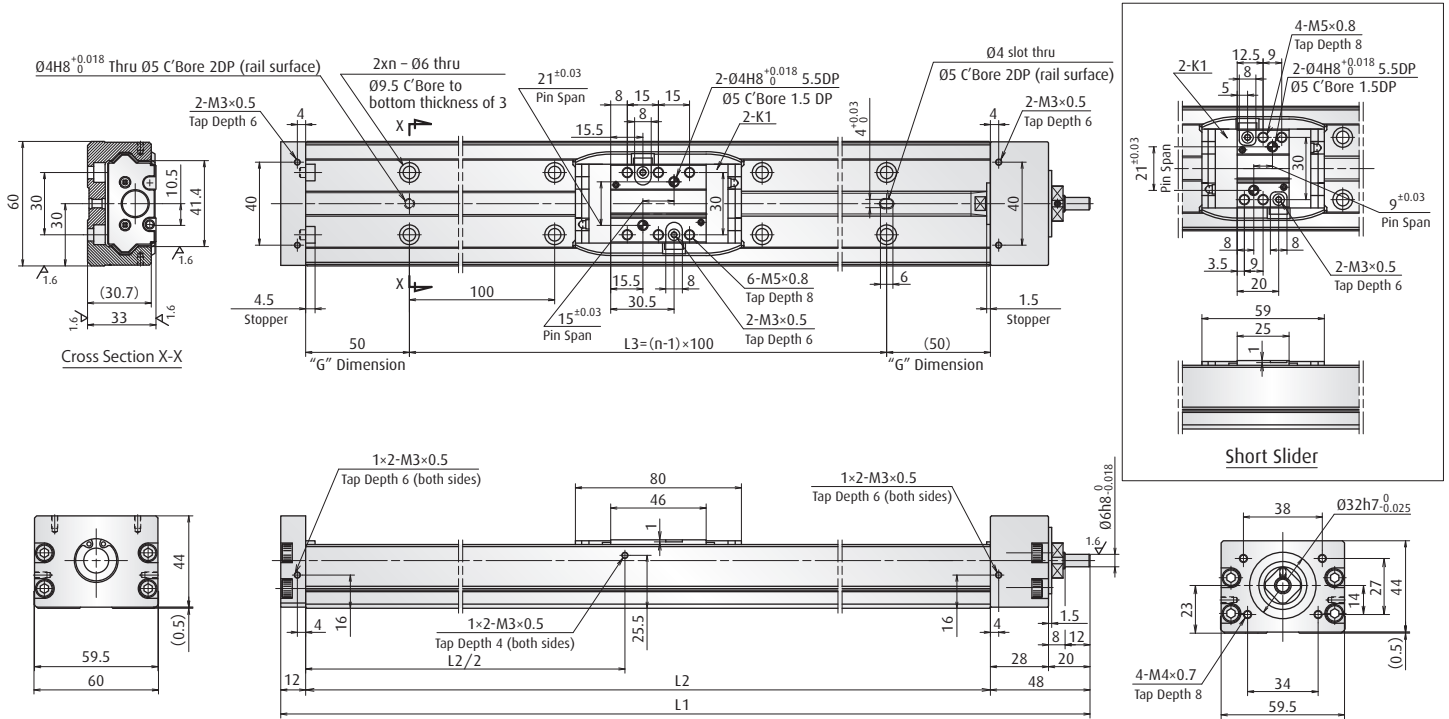
Short Slider Specifications

Reference Model	Ball Screw Lead (mm)	Shaft Dia. (mm)	Basic Dynamic Load Rating (N)			Basic Static Load Rating (N)		Supporting Unit Limiting Load (N)	Basic Static Moment Load (N)			
			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	Ø 12	3 760	12 200	26 200	6 600	6 310	22 500	2 700	400	85	85
	10		2 260									

- › Basic dynamic and static load ratings indicate the values for one slider.
- › Basic dynamic load ratings of the linear guide is based on 50 km fatigue life with unchanging load acting perpendicular to the axis of motion on top of the slider.
- › Basic dynamic load rating of the linear guide is the load in perpendicular direction to the axis of motion that allows 90% of a group of the same ToughCarriers™ to operate equivalent to 1 million revolutions of the ball screw and support unit under the same condition without causing flaking by rolling contact.

- › Basic dynamic load rating of the ball screw is a load to 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.
- › Basic static load rating is a load that results when combined permanent deformations at the contact points of balls and ball grooves is 0.01% of the diameter.
- › In case of moment loading when using short slider, use of 2 sliders (double short slider specification) is recommended.

ToughCarrier™ TCH06

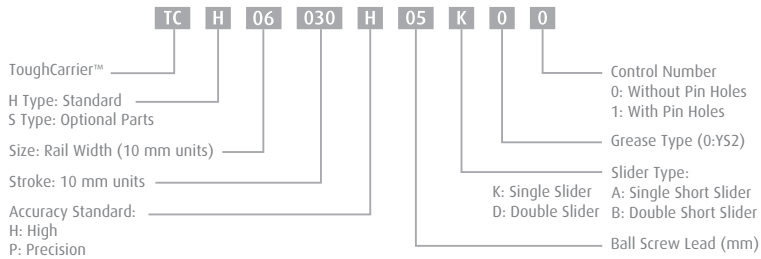


TCH06: Dimension Table

Reference Number	Nominal Stroke (mm)	Stroke Limit (mm)	Ball Screw Lead (mm)	Body Length (mm)			# of Mounting Holes n	Inertia X10 ⁴ (kg·m ²)	Weight (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	

1) * indicates reference number with "G" dimension = 25. 2) Parentheses indicate short slider reference number and dimensions. 3) For double slider specifications, part number and dimensions, contact NSK. 4) For strokes not listed, contact NSK. 5) Dimensions above show optional pin holes. 6) Specification for short slider with 20 mm lead is not established.

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

Grade	Stroke (mm)	High		
		Repeatability	Running Parallelism	Backlash
~200	±10	20 or less	14	
~400			16	
~600			20	

Grade	Stroke (mm)	Precision			
		Repeatability	Running Parallelism	Positioning Accuracy	Backlash
~200	±3	3 or less	8	20	
~400			10	25	
~600			12	30	