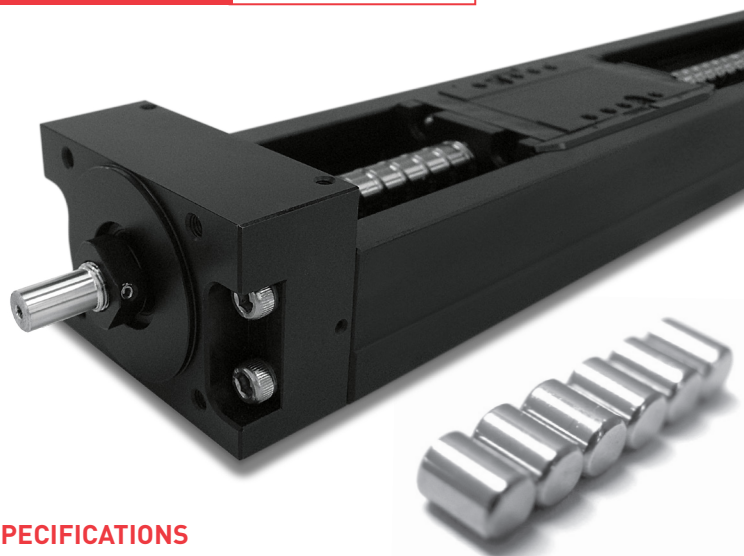


ToughCarrier™ TCH09

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 2x compared to standard (ball type) Monocarrier™.
- › Compression rigidity increased up to 4x 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}	
TCH09-K	5	Ø 15	7 100	44 900	96 800	8 800	13 000	96 900	5 090	2 510	1340	1340	
	10		7 060				76 800						12 700
	20		4 560				60 900						7 750

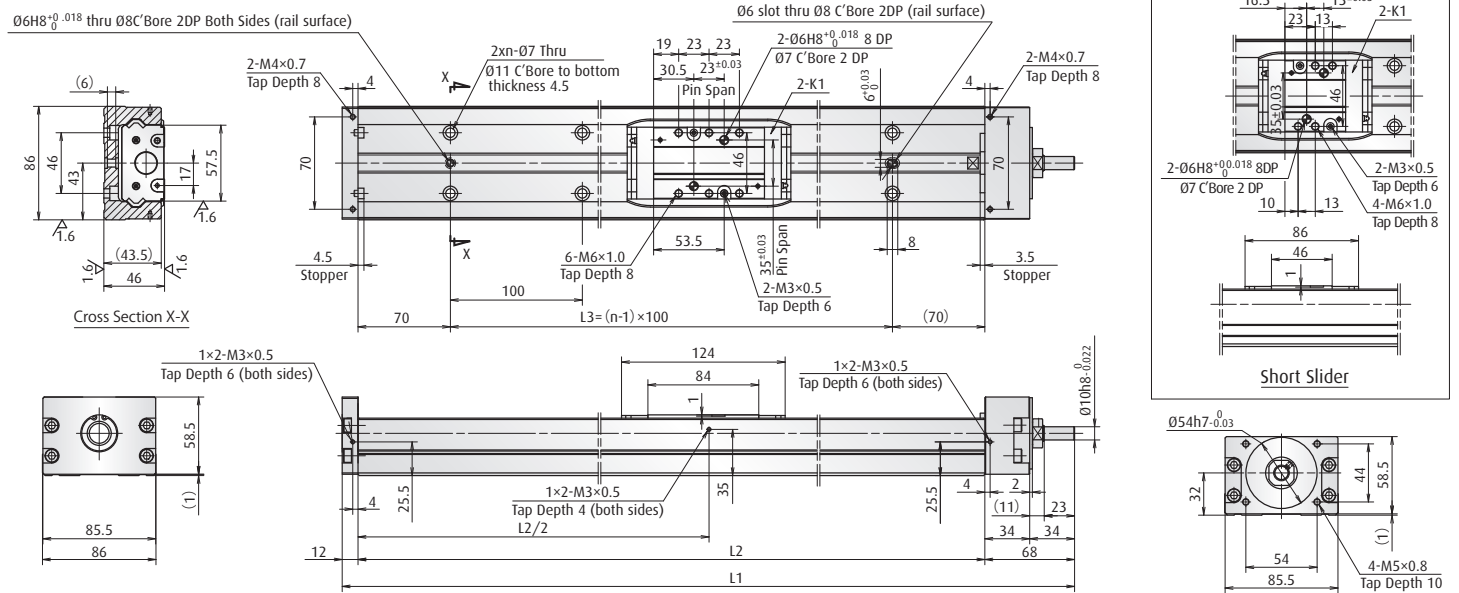
Short Slider Specifications

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}	
TCH09-A	5	Ø 15	7 100	27 900	60 100	8 800	13 000	52 500	5 090	1 350	390	390	
	10		7 060				47 700						12 700
	20		4 560				37 800						7 750

- › 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™ TCH09

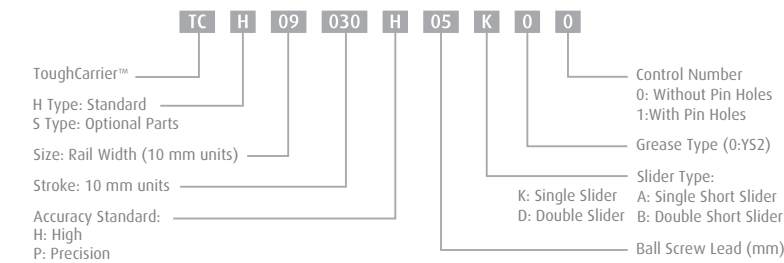


TCH09: Dimension Table

Reference Number	Nominal Stroke (mm)	Stroke Limit (mm)	Ball Screw Lead (mm)	Body Length (mm)			# of Mounting Holes <i>n</i>	Inertia $\times 10^6$ (kg·m ²)	Weight (kg)
				L ₁	L ₂	L ₃			
TCH09010(14)H05K(A)00	100 (140)	108 (146)	5	320	240	100	2	9.13 (8.9)	6.5 (6.1)
TCH09010(14)H10K(A)00			10					11.0 (10.1)	
TCH09010(14)H20K(A)00			20					18.6 (14.6)	
TCH09020(24)H05K(A)00	200 (240)	208 (246)	5	420	340	200	3	14.2 (13.9)	7.9 (7.5)
TCH09020(24)H10K(A)00			10					16.0 (15.1)	
TCH09020(24)H20K(A)00			20					23.6 (19.6)	
TCH09030(34)H05K(A)00	300 (340)	308 (346)	5	520	440	300	4	18.1 (17.8)	9.4 (9.0)
TCH09030(34)H10K(A)00			10					19.9 (18.9)	
TCH09030(34)H20K(A)00			20					27.5 (23.5)	
TCH09040(44)H05K(A)00	400 (440)	408 (446)	5	620	540	400	5	21.9 (21.7)	10.8 (10.4)
TCH09040(44)H10K(A)00			10					23.8 (22.8)	
TCH09040(44)H20K(A)00			20					31.4 (27.4)	
TCH09050(54)H05K(A)00	500 (540)	508 (546)	5	720	640	500	6	25.9 (25.6)	12.3 (11.9)
TCH09050(54)H10K(A)00			10					27.7 (26.7)	
TCH09050(54)H20K(A)00			20					35.3 (31.3)	
TCH09060(64)H05K(A)00	600 (640)	608 (646)	5	820	740	600	7	29.4 (29.2)	13.6 (13.2)
TCH09060(64)H10K(A)00			10					31.3 (30.3)	
TCH09060(64)H20K(A)00			20					38.9 (34.9)	
TCH09070(74)H05K(A)00	700 (740)	708 (746)	5	920	840	700	8	33.5 (33.3)	15.0 (14.6)
TCH09070(74)H10K(A)00			10					35.4 (34.4)	
TCH09070(74)H20K(A)00			20					43.0 (39.9)	
TCH09080(84)H05K(A)00	800 (840)	808 (846)	5	1 020	940	800	9	37.4 (37.2)	16.4 (16.0)
TCH09080(84)H10K(A)00			10					39.3 (38.3)	
TCH09080(84)H20K(A)00			20					46.9 (42.8)	

1) Parentheses indicate short slider. 2) For double slider: specifications, part number and dimensions, contact NSK. 3) For strokes not listed, contact NSK. 4) Dimensions above show optional 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

Grade	Stroke (mm)	High		
		Repeatability	Running Parallelism	Backlash
±10	~200	±10	14	20 or less
	~400		16	
	~600		20	
	~700		23	
	~800			

Grade	Stroke (mm)	Precision			
		Repeatability	Running Parallelism	Positioning Accuracy	Backlash
±3	~200	±3	8	20	3 or less
	~400		10	25	
	~600		12	30	
	~700				
	~800		15	35	