

ALL SERIES



KEN ICHI MACHINE CO., LTD

No. 73, Zhongshan 12th Road., Daya Dist.
Taichung City 428, Taiwan.

Tel: +886 04 2565 3080
Fax: +886 04 2565 3090

info@kencnc.com
www.kencnc.com

Worldwide Agents



The only professional 5-axis machine center manufacture in Asia

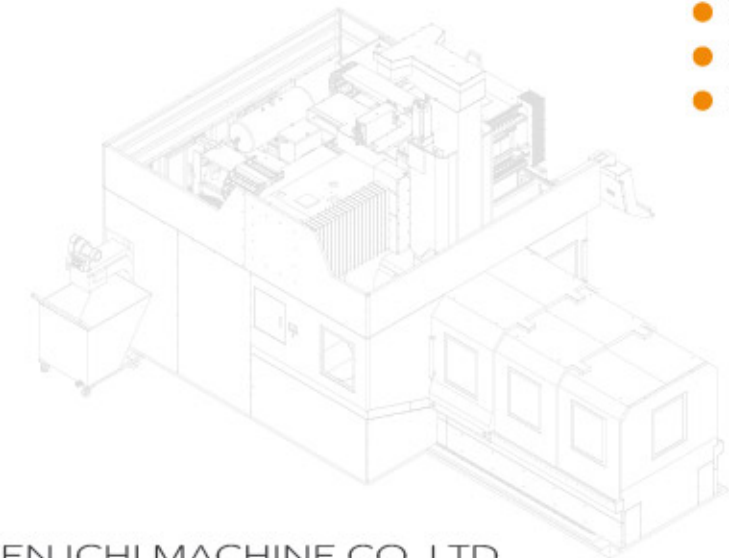
FocusS

LINEAR MOTOR DRIVE



- Reliable
- Precise
- Faster

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KEN ICHI MACHINE CO.,LTD

KEN ICHI MACHINE CO., LTD. - 2019-02

5-Axis Double Column Machine Center

High-Speed Performance

- High rigidity one-piece column and crossbeam structure
- X/Y - axis linear motor drive
- Feedrate : 60 m/min
- Direct-drive motor two-axis milling head

Applications For:

Automotive Plastic Injection Mold Core, Lamp Mold
Aircraft Aluminum Structure, Wing Rib, Floor Beam
Mechanical Component and Electronic Component Mold



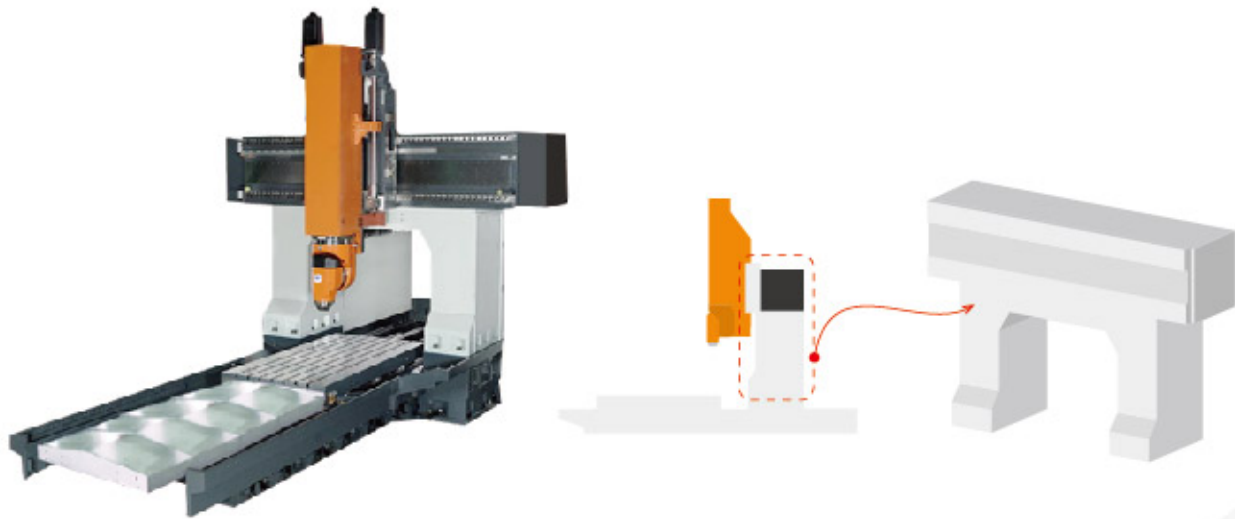
Optimize Structural Design

High-Rigidity Structure

– A Solid Bridge

One-piece base and column with high rigidity, to show the best structural rigidity and stability of high speed cutting.

Three-axis use high-speed and heavy-duty roller linear guideway, can achieve excellent high-speed cutting dynamic and long lasting accuracy.



Wide Opening Door

Interference free by a large opening door. It will be easy for loading and unloading.

Closed

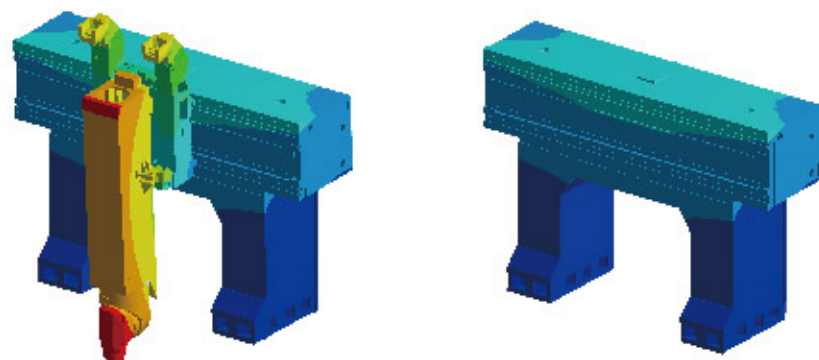


Open



– Structural Analysis Software with Numerical Technique FEM

Advanced FEM analysis and design to optimize higher rigidity, response and provide stability of high speed cutting.



Linear Motor Drive



The inevitable trend in the future

- Backlash free offers high positioning accuracy
- Direct transmission
Reduce ball screw/nut, bearings couplings those components
- Free of wear due to friction free drive concept
- Simple structure / long-term accuracy / easy maintenance

Excellent Design For 5-Axis High Speed Machine

X-Axis

X-axis have two high-speed and heavy-duty roller type linear guide ways,

With large span design to provides high rigidity , The base and column by one piece design can reach high rigidity,By linear motor directly driven, can improve the efficiency and stability during the milling ,and excellent gravity control.

Table for the X-axis by linear motor tech, European direct drive without the belt and coupling to increase the responsiveness of the high-speed movement.



Y-Axis

Y-axis from the saddle to move on to the crossbeam, crossbeam use roller bearing and linear guideways, high rigidity and carriage support saddle to increase rigidity.

Y axis use linear motor movement without coupling, direct drive driven saddle run.

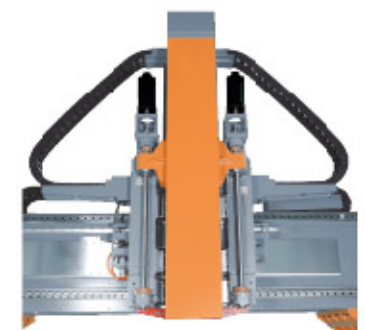
Can produce a high-speed response, high-precision machining efficacy.



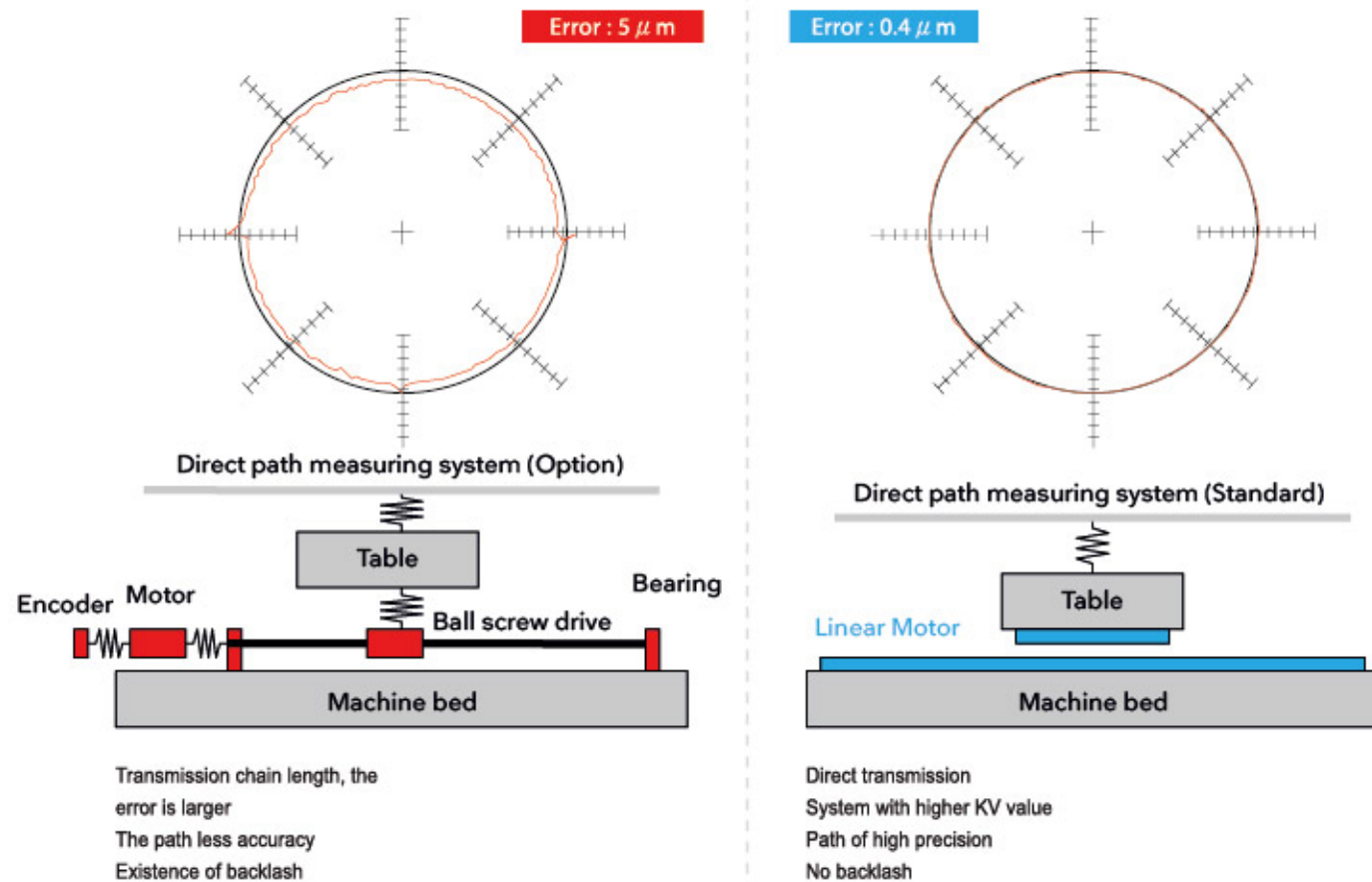
Z-Axis

Z-axis move up and down from the crossbeam, equipped with two roller bearing and linear guideways, each have three slider supported in the crossbeam.

Z-axis equipped with dual ball screw, to achieve high speed response and processing requirements and achieve high-precision, spindle in the center of the 2 axis milling head, to prevent uneven stress and thermal deformation and shift phenomenon.



Ball Screw VS Linear motor



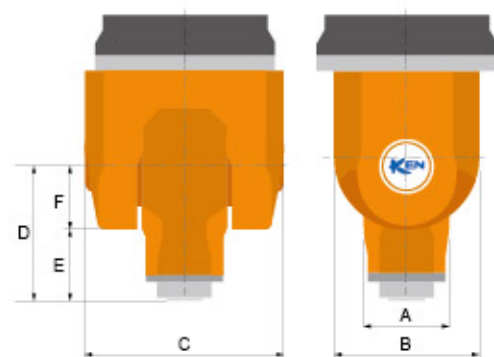
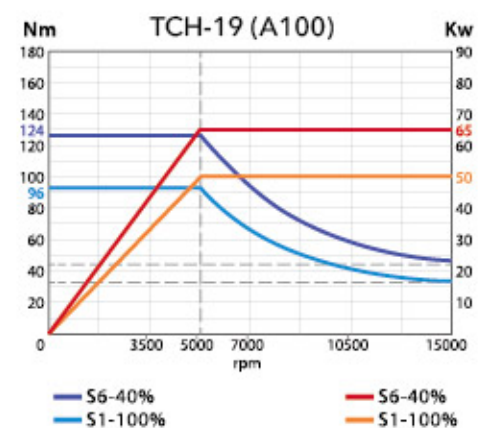
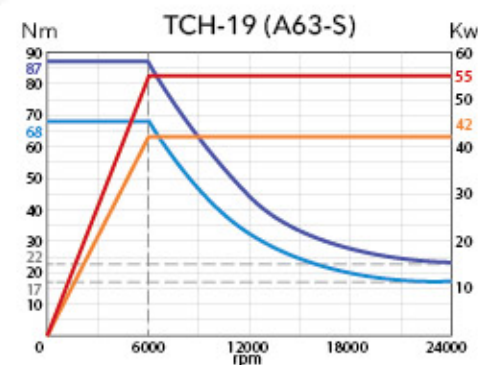
Source by: Siemens laboratory testing

TCH-19

Fork Type Milling Head

Modular Design for Two-Axis Milling

- Fork type modular design, B & C axis use rigidity roller bearing support achieving excellent rigidity and accuracy.
- B & C axis use torque motor direct drive with high speed, high-torque, no backlash, no wear out , achieve long lasting accuracy.
- With hydraulic disc brake system with tightly locked rotation axis can satisfy any position milling.
- Spindle type HSK-A63 with max speed 24,000 rpm, have more efficiency in machining aluminum material components.



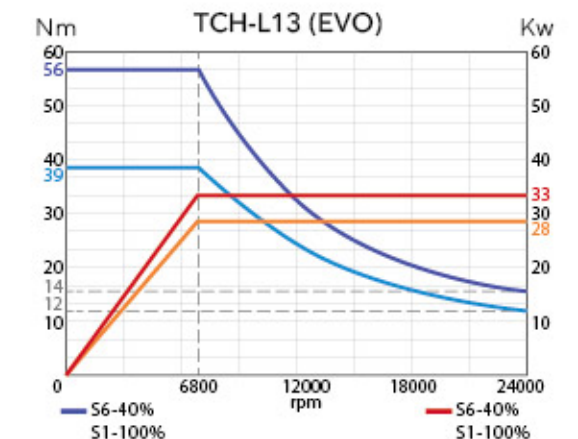
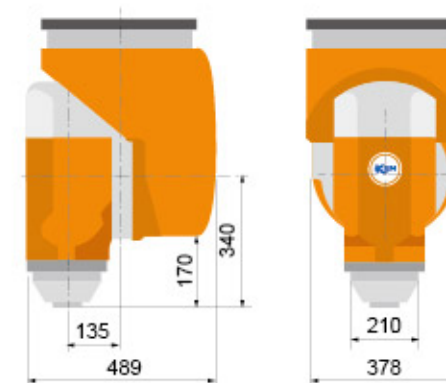
TCH-19		A63-S	A100
A	235	235	
B	405	405	
C	519	519	
D	323	358	
E	148	185	
F	173	173	

TCH-L13 EVO

Side Type Milling Head

Small Size , Less Interference Range Suitable for Plastic Injection Mold

- A & C axis use torque motor direct drive with high-speed, high-torque
- Remove the traditional wear parts, (worm and worm gears, belts....) no backlash no wear and achieve long lasting accuracy.
- Longer spindle extension 170mm, reduce interference range.
- Maximum spindle speed of 24,000 rpm optimizes the use of smaller cutting tools.



MILLING HEAD B&C-AXIS(TORQUE MOTOR DRIVE) TCH-13 (EVO)

Rotation speed : B & C	rpm (360°/ s)	50 / 50
Max. acceleration : B & C	rad / s ²	20 / 20
Max. torque : B & C	Nm	312 / 447
Clamping torque : B & C	Nm	2,000 / 2,000
Positioning accuracy: B & C	arc.sec	± 3 / ± 3
Rotation angle : B & C	deg	± 105° / ± 250°

SPINDLE

Spindle power S1-100% (S6-40%)	kw	28 (33)
Spindle torque S1-100% (S6-40%)	Nm	39 (56)
Max. speed	rpm	24,000
Tool shank	type	HSK-A63

MILLING HEAD B&C-AXIS(TORQUE MOTOR DRIVE) TCH-19 (A63-S) TCH-19 (A100)

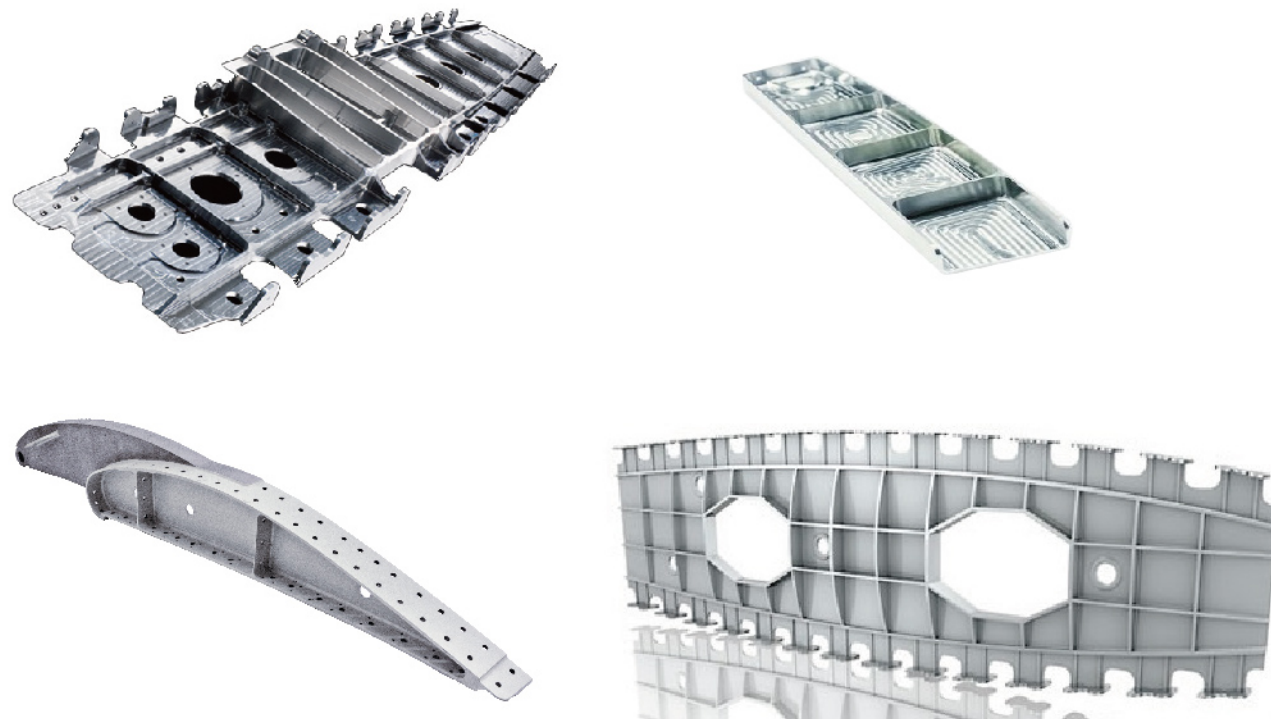
Rotation speed : B & C	rpm (360°/ s)	50 / 50	50 / 50
Max. acceleration : B & C	rad / s ²	30 / 30	30 / 30
Max. torque : B & C	Nm	1,100 / 900	1,100 / 900
Clamping torque : B & C	Nm	4,000 / 4,000	4,000 / 4,000
Positioning accuracy: B & C	arc.sec	± 3 / ± 3	± 3 / ± 3
Rotation angle : B & C	deg	± 100° / ± 240°	± 100° / ± 240°

SPINDLE

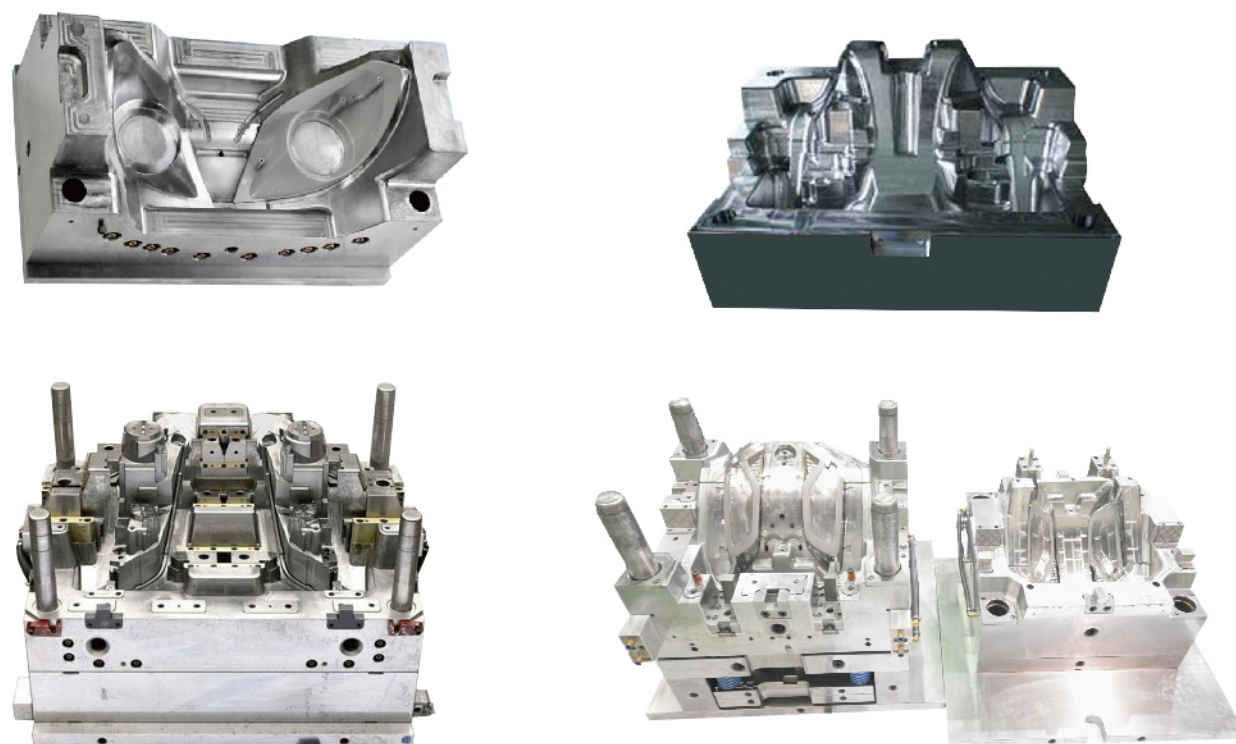
Spindle power S1-100% (S6-40%)	kw	42 (55)	50 (65)
Spindle torque S1-100% (S6-40%)	Nm	67 (87)	96 (124)
Max. speed	rpm	24,000	15,000
Tool shank	type	HSK-A63	HSK-A100

Application

Aircraft (Floor beam, Wing rib structure)



Automotive (Plastic mold, Lamp mold)



Machine Specifications

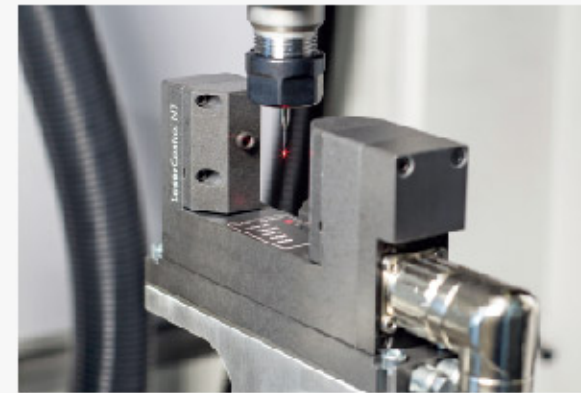
Specifications /Model	Unit	Focus5 - 2022 / 2032 / 2040
Travel		
X-axis travel	mm	2,200 / 3,200 / 4,000
Y-axis travel	mm	2,000
Z-axis travel	mm	1,000
Distance between column	mm	1,650
Table length	mm	2,200 / 3,200 / 4,000
Table width	mm	1,300
T-slot size (Width)	mm	18
Table load	kg	5,000
T-slot spacing	mm	125
Milling head		TCH-L13(EVO)
Distance between spindle nose to table surface	mm	-150-850
Rotation speed A/C	rpm(360°/S)	50 / 50
Max. acceleration:A/C	rad/s ²	30 / 30
Max. torque A/C	Nm	312 / 447
Clamping torque:A/C	Nm	2,000 / 2,000
Positioning accuracy: A/C	arc sec	±3 / ±3
Rotation angle:A/C	deg	±105° / ±250°
Spindle		
Tool shank	Type	HSK-A63
Spindle Max.speed	rpm	2,4000
Spindle power S1-100% (S6-40%)	kw	28 (33)
Spindle torque S1-100% (S6-40%)	Nm	39 (56)
Freedrare		
X/Y/Z-axis drive mode	X/Y/Z	Linear motor/ Linear motor / Dual ball screws
X/Y/Z-axis rapid feedrate	m/min	60/60/50
Auto tool changer		
Tool shank		HSK-A63
Tool magazine capacity	pcs	32
Max. tool weightt	Kgs	8
Max. tool length	mm	300
Max. tool dimensions	mm	Ø 80

Standard

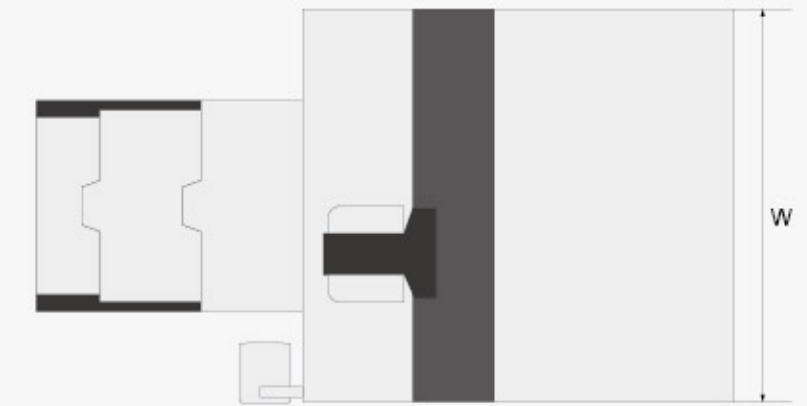
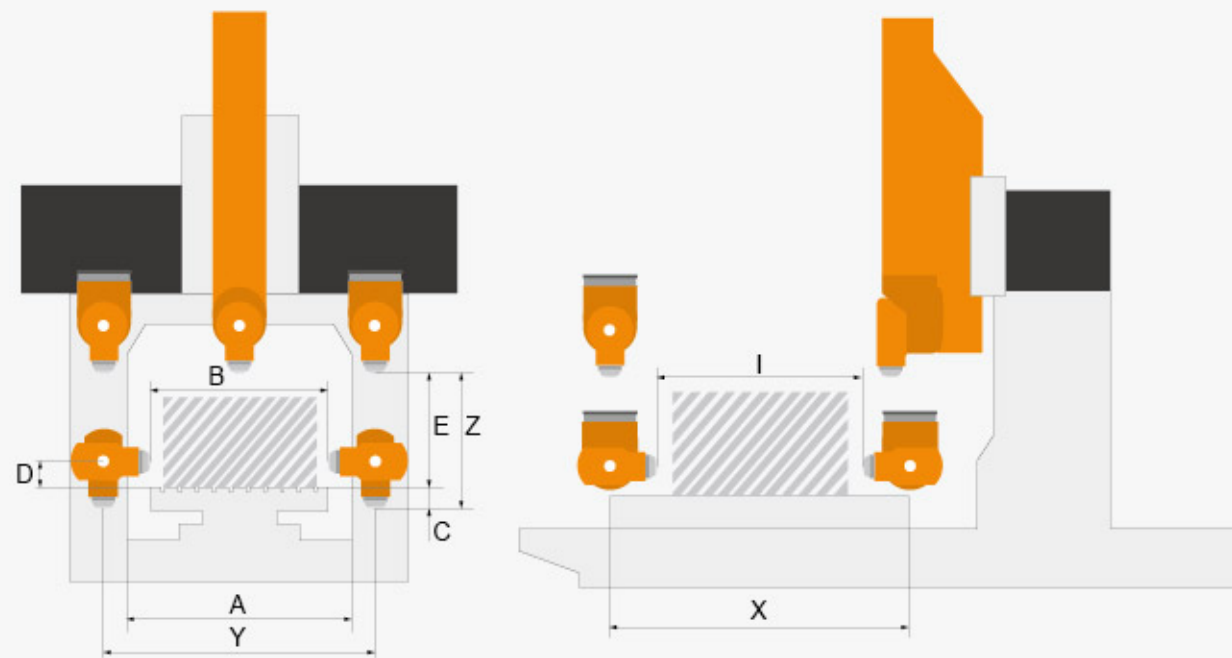
- Heidenhain TNC-640 controllers (X, Y, Z, A, C - five-axis continuous)
- Heidenhain handwheel - HR520
- European 2-axis milling head TCH-L13 (evo)
- European spindle HSK A63 24,000 rpm
- HSK A63 32 tools magazine
- Z-axis by the servo motor dual ball screw drive
- 6 Roller linear guideways (X/Y/Z axis each 2)
- 3 Heidenhain linear scale (X/Y/Z axis each 1)
- Electrical cabinet temperature control device
- XY linear motor - SPINDLE - D.D. motor cooler
- Cutting oil-mist device
- Spiral-type chip conveyor and rear-type chip Conveyor containing iron filings cars each 1 style
- Front and rear working door safety interlock (each type)
- Waterproof work light
- All measurement of machine parts are adopted by international system of unit standard
- Complete workspace security concept, according to iso 12100-1 & -2 1992
- Electrical cabinet with a variety of electrical protection, filtration and ventilation installations and air-conditioning systems
- Standard color

Option

- TCH-19(A63) modular 2-axis milling head +24,000 rpm spindle
TCH-19(A100) modular 2-axis milling head + 15,000 rpm spindle
- Siemens-840D CNC controllers
- ATC system magazine capacity
40 tools
60 tools
- Blum laser tool measuring system
- Blum touch probe for workpiece measuring
- GPS (global pgm settings) hand wheel function for moving direction by normal vector.
- Automatic kinematics compensation system
- Coolant through spindle (CTS)
20 / 30 / 40 Bar
- Transformer
- Voltage stabilizer



Working Area and Layout



Regional (mm)		Focus5		
Model		2022	2032	2040
A	Distance between column		1,650	
B	Distance between spindle nose to spindle nose	TCH-L13 (EVO)	1,320	
		TCH-19 (A63)	1,354	
		TCH-19 (A100)	1,284	
C	Distance between spindle nose to spindle surface	TCH-L13 (EVO)	-150	
		TCH-19 (A63)	-130	
		TCH-19 (A100)	-165	
D	Swing axis 90° spindle nose to table surface	TCH-L13 (EVO)	190	
		TCH-19 (A63)	193	
		TCH-19 (A100)	193	
E	Z-axis opening height	TCH-L13 (EVO)	850	
		TCH-19 (A63)	870	
		TCH-19 (A100)	835	
X	X - axis travel	2,200	3,200	4,000
Y	Y - axis travel		2,000	
Z	Z - axis travel		1,000	
I	Swing axis 90°	TCH-L13 (EVO)	1,520	3,320
		TCH-19 (A63)	1,554	3,354
		TCH-19 (A100)	1,484	3,284

Unit (mm)	Focus5		
Model	2022	2032	2040
L (Length)	7,370	9,370	10,970
W (Width)		3,837	
H (Height)		4,700	