LiNMAX B

LINEAR MOTOR SERIES

KEN

Focus On High Speed & 5-axis

- Stability
- Precision
- Strength

www.kencnc.com

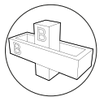
KEN ICHI MACHINE CO.,LTD

HIGH SPEED 5-AXIS MACHINE CENTER

HIGH - DYNAMIC

- Gantry type
- Linear Motor drive
- Rapid feedrate: 50m/min
- Direct-drive milling head

Box in Box, **Symmetrical design**



Driven at the center of gravity

Minimize crossbeam deformation after long period of usage

Reliable and rigidity

Applications for:

Aerospace Aluminum Frame

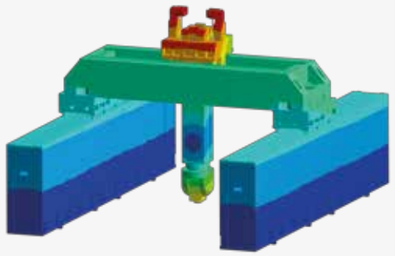
Automotive Stamping die

Mechanical component

OPTIMIZE STRUCTURAL DESIGN

HIGH-PERFORMING structure

- X/Y axis equip with linear motor drive
- B/C axis equip with torque motor drive.
- Z axis equip with dual ball screw.
- High rigidity one piece column design.
- Workable fixed to the foundation above.
- **Advanced FEM analysis** and design to optimize higher rigidity, response and provide stability of high speed cutting.

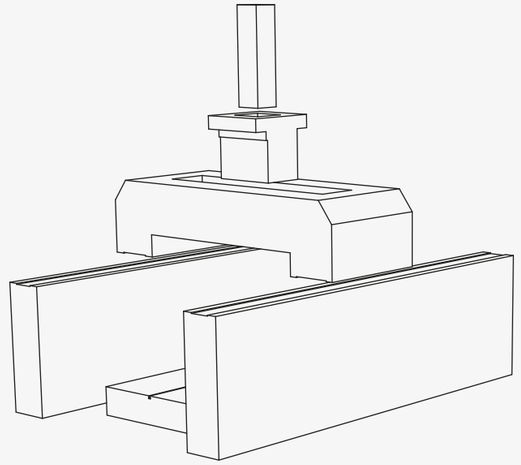


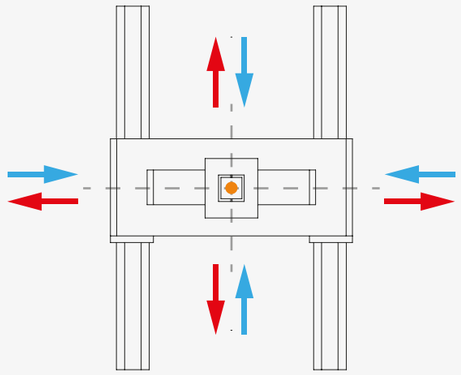
MODULAR STRUCTURE to satisfy yours requests

NEW STANDAD OF QUALITY

SYMMETRICAL DESIGN

More **Stability**
More **Precision**
More **Strength**





hot temperature

coold temperature

- **The expansion of hot or coold temperature does not interfere with the center, so this system can be ensured to have the execellent precision during machining.**

Advantage of BOX IN BOX Structural design:

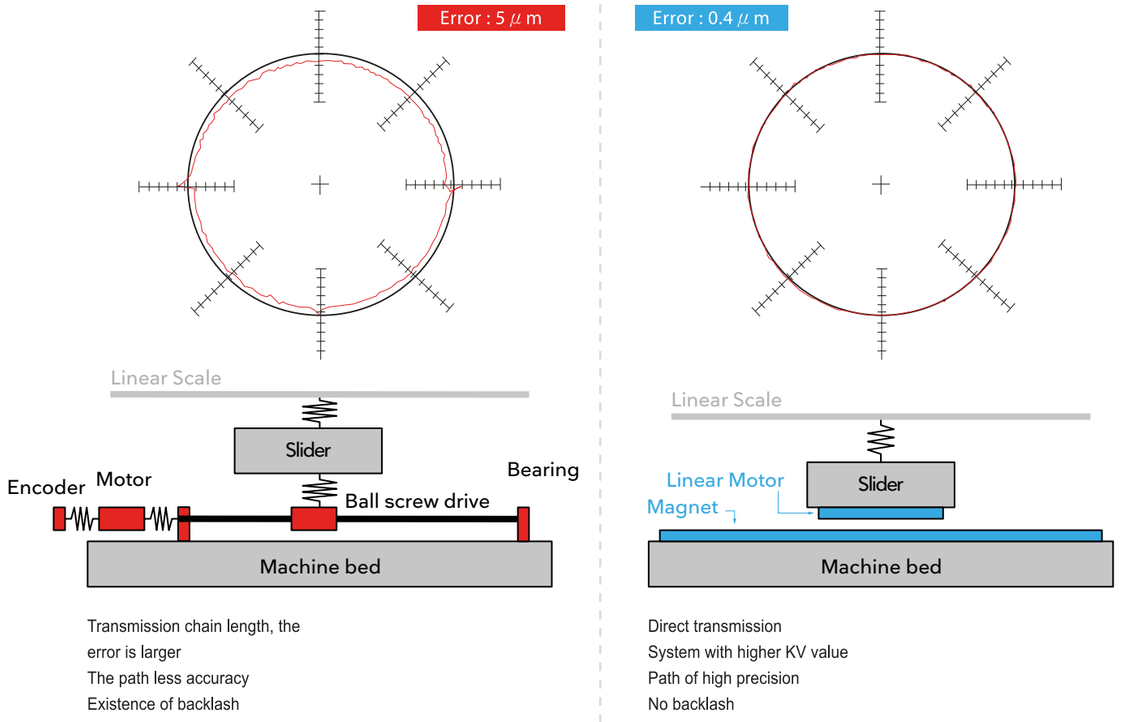
- Crossbeam and Saddle by box in box design, its reliable and high rigidity will minimize the environment temperature affection.
- Y-axis with 4 linear guide ways, the two tracks on XY plan and YZ plan to support Ram & Saddle, which could reach optimize dynamic characteristics.
- Z-axis equipped with 4 linear guide ways on two side of the slider, each side undertake the same cutting force, which balance design would enhance the machine lifetime and accuracy.
- Dual ball screw and dual counterbalance system in Z axis, its stable structure for high speed cutting purpose.

LINEAR MOTOR DRIVE

The inevitable trend in the future

- Backlash free offer 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.

Ball Screw VS Linear motor



Source by: Siemens laboratory testing

Excellent Design For 5-axis High Speed Machine

X-Axis

The Column for the X-axis use the linear motor without the belt and coupling to increase high accuracy and high-speed movement.

X axis is supported by the left and right box column each side use two roller linear guideways, each guideway has three Block, increase rigidity and keep excellent accuracy for long time.

Brakes are immediately clamping the axes in case of an emergency stop or power failure.

Y-Axis

Y axis by symmetrical box-in box design crossbeam , Reduce the thermal deformation and minimal the effects of environment temperature.

Y axis use linear motor without coupling, its directly transmit force for saddle movement. Can produce a high-speed response and high-positioning accuracy.

Y-axis crossbeam equipped with four roller type guide way, each guide way enclose two slider blocks. (Total eight blocks) can reach the high-rigidity.

Z-Axis

Z axis by symmetrical design to remain the center of gravity. Ensure force evenly during cutting and movement.

Z-axis equipped with Dual ball screw & dual counterbalance system, features high stability during high speed cutting

Z axis equipped with four roller type guide way, to provide the best cutting rigidity.

Reduce the thermal deformation and minimal the effects of environment temperature.

TWO-AXIS MILLING HEADS MODULAR DESIGN

Using Italian Two-Axis Milling Heads.

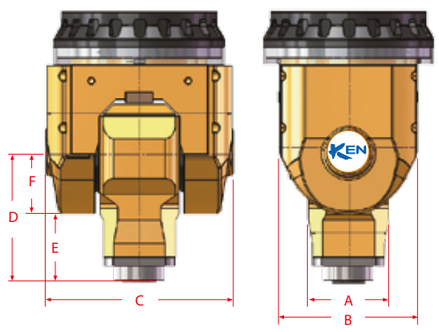
Symmetric “open frame” innovative design made in GGG40 nodular cast iron for head.

Dedicated “Direct-Drive”torque motor with integrated water cooling system for B/C axis.

Double row crossed roller bearing support achieving excellent rigidity and accuracy for B/C axis.

Using high-resolution, high-precision encoder for B/C axis.

KenIchi has prepared modular components spare parts, repair localized to shorten the maintenance cycle.



TCH-19

	A63	A100
A	235	235
B	400	400
C	565	565
D	373	• 358
E	198	• 183
F	175	175

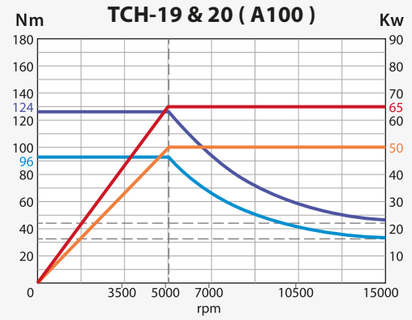
TCH-20

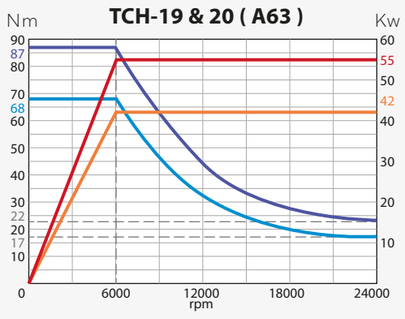
	A63	A100
A	233	233
B	420	420
C	648	648
D	310	• 345
E	127	• 162
F	183	183

TCH-19
AUTOMOTIVE INDUSTRY

TCH-20
AIRCRAFT INDUSTRY

SPINDLE





MILLING HEAD B&C-AXIS(TORQUE MOTOR DRIVE)		TCH-19 (A63)	TCH-19 (A100)	TCH-20 (A63)	TCH-20 (A100)
Rotation speed :	rpm (360º/ s)	50/50	50/50	50/50	50/50
Max. acceleration :	rad / s²	30/30	30/30	30/30	30/30
Max. torque :	Nm	1,100/900	1,100/900	1,400/1,300	1,400/1,300
Clamping torque :	Nm	4,000	4,000	4,000	4,000
Positioning accuracy:	arc.sec	±3 /±3	±3 /±3	±3 /±3	±3 /±3
Rotation angle :	deg	±100°/±240°	±100°/±240°	±100°/±240°	±100°/±240°
SPINDLE					
Spindle Power S1-100% (S6-40%)	kw	42 (55)	50 (65)	42 (55)	50 (65)
Spindle Torque S1-100% (S6-40%)	Nm	67 (87)	96 (124)	68 (87)	96 (124)
Max. Speed	rpm	24,000	15,000	24,000	15,000
Tool Shank	type	HSK-A63	HSK-A100	HSK-A63	HSK-A100

Application

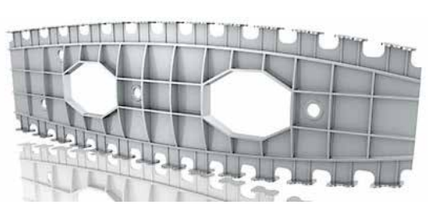
Aerospace - Automotive - Mechanical Component



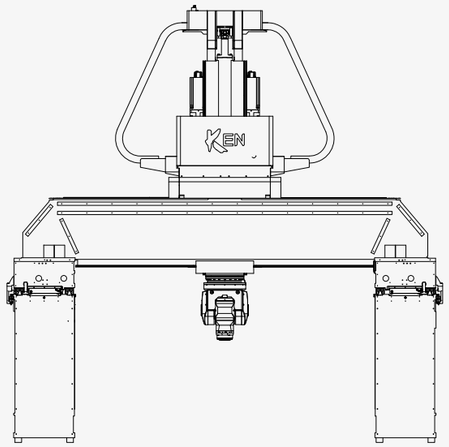

Working pieces



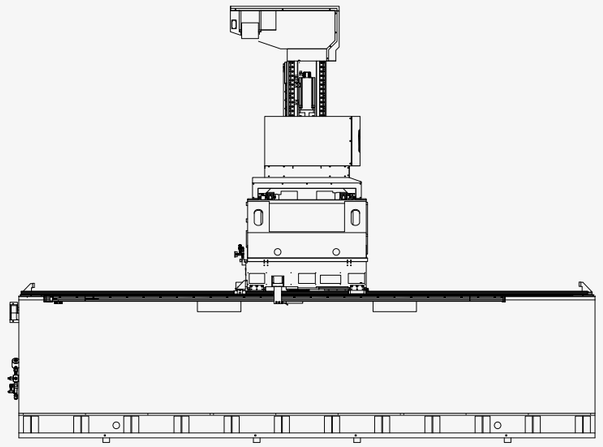




Machine specifications



■ Y-axis Travel direction



■ X-axis Travel direction

Specifications		Model: **Linmax B**		
Travel	**Unit**	2232 2240 22∞	2540 2550 25∞	3050 3060 30∞
■ Y-axis Travel	mm	2,200	2,500	3,000
■ X-axis Travel	mm	3,200 / 4,000 / ∞	4,000 / 5,000 / ∞	5,000 / 6,000 / ∞
Z-axis Travel	mm	1,250	1,250	1,250
Distance between column	mm	3,290	3,590	4,090
Distance between spindle nose to table surface	mm	200~1,450	200~1,450	200~1,450
Table width	mm	2,000	2,200	2,700
Table length	mm	3,200	4,000 / 5,000	6,000
T-slot size (Width)	mm	200	200	200
Table load	kg/m^2	5,000	5,000	5,000
X/Y/Z-axis rapid feedrate	m/min	50	50	50
X/Y/Z-axis acceleration	m/sec^2	5	5	4

∞ = or more

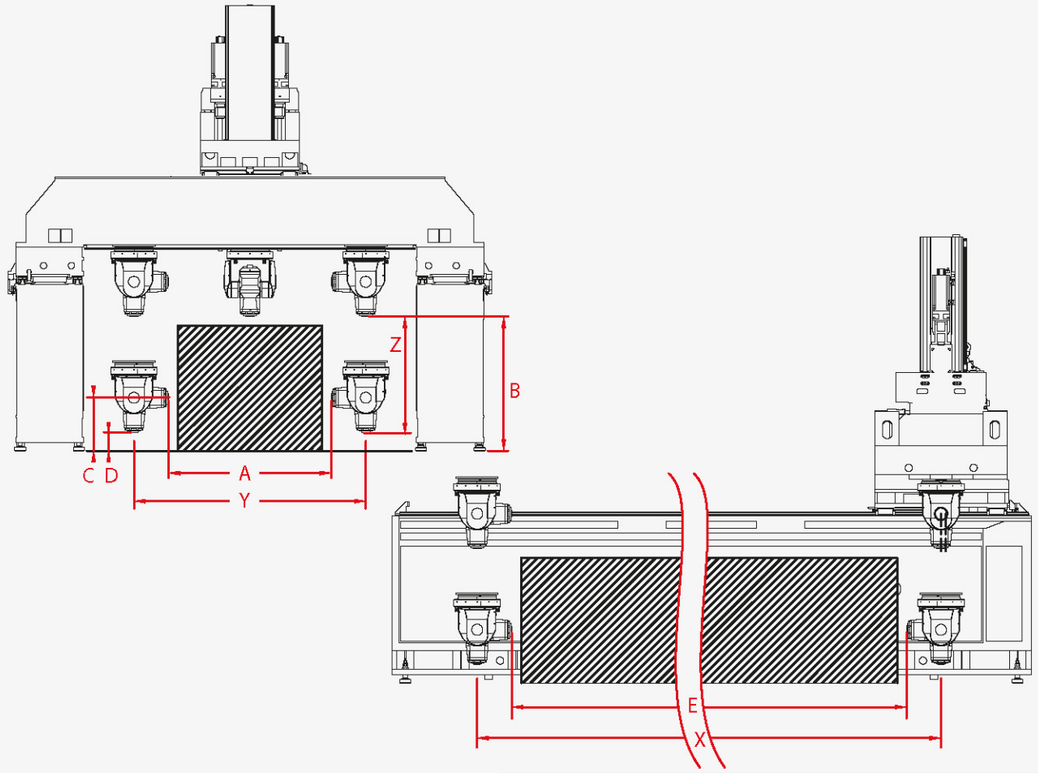
Standard

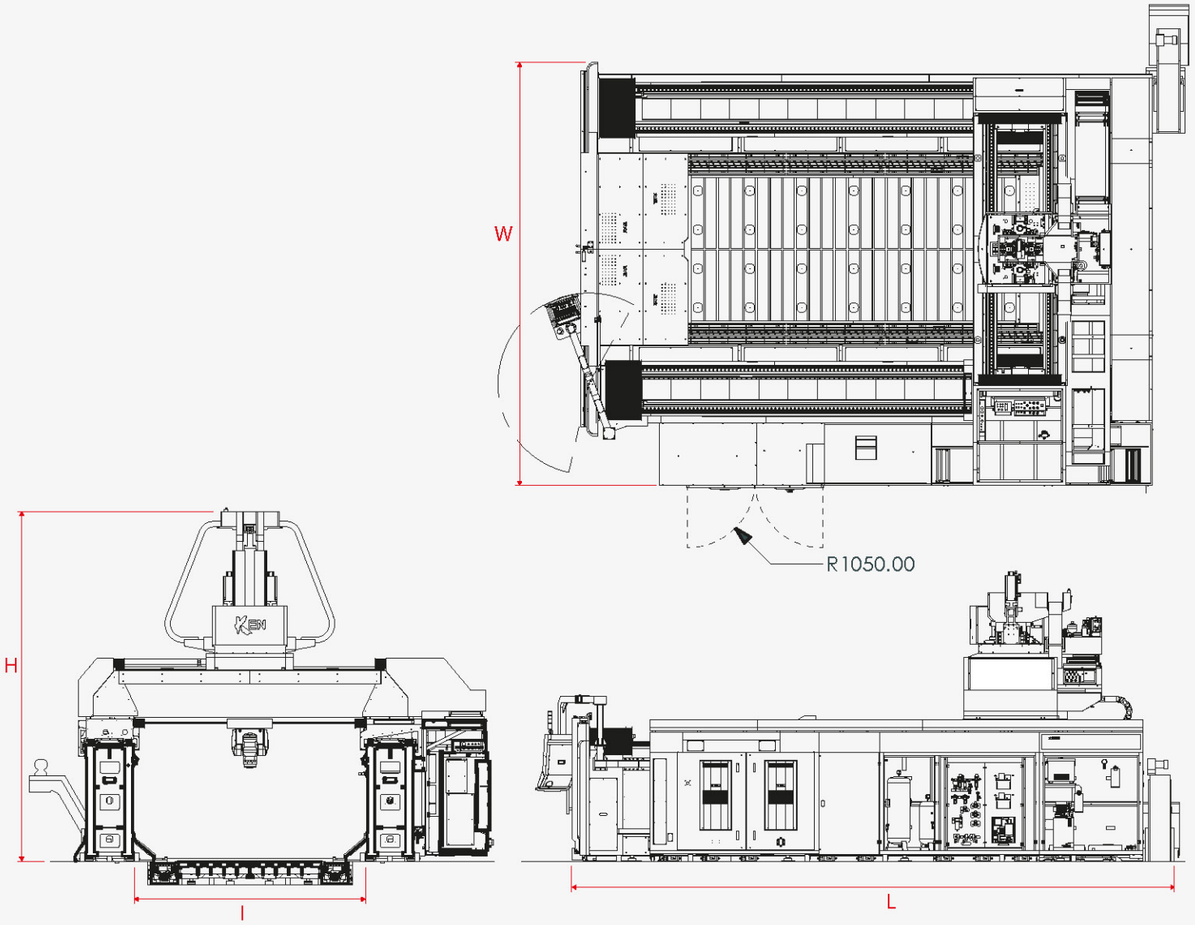
- The HEIDENHAIN ITNC-530 controller,
  X, Y, Z, B, C, five-axis continuous.
- HEIDENHAIN handwheel-HR520.
- European modular 2-axis milling head.
- The European system of vertical spindle HSK A63 24000rpm.
- HSK 63A 30 tool magazine.
- X/Y linear motor direct driven.
- 12 roller linear guideways (Each 4 sets for X/Y/Z axis).
- 4 HEIDENHAIN linear scale(2 sets for X axis 2 sets for Y/Z axis).
- Electrical cabinet temperature control device.
- X/Y linear motor, spindle cooling system.
- Spindle oil-mist device.
- Spiral-type chip conveyor and rear-type chip conveyor
  containing iron filing cars.
- Front and rear working door safety interlock (each type).
- Waterproof work said light.
- Machine all parts and a variety of instrumentation
  unit of measurement.
- Used in all meta international system of units (si) standards.
- Guards cabinet with variety of electrical protection, filtration,
  ventilation and air-conditioning system.
- Machine standard color.

Option

- Siemens 840D CNC control.
- ATC System Magazine Capacity; (option).
  (HSK-A100)-60 tools.
  (HSK-A63)-60 tools.
- Laser Tool Measuring System.
- Touch Probe for Workpiece Measuring.
- Coolant through Spindle (CTS) 20/30/40 Bar.
- Transformer.
- Voltage stabilizer.
- GPS(Global Pgm Setting) Hand wheel function.
- Blum form control comparison software.
- Automatic Kinematics 5-axis compensation function.

Working area and Layout





Regional		Milling heads	Model		
			Linmax B 22	Linmax B 25	Linmax B 30
A	Distance between spindle nose to spindle nose (Y-Direction)	TCH-20 (A63)	Y axis -620		
		TCH-20 (A100)	Y axis -690		
		TCH-19 (A63)	Y axis -746		
		TCH-19 (A100)	Y axis -716		
B	Z-axis opening height		1450		
C	(Swing axis 90 °) Z-Direction	TCH-20 (A63)	510		
		TCH-20 (A100)	545		
		TCH-19 (A63)	573		
		TCH-19 (A100)	558		
D	Distance between spindle nose to table surface	TCH-20 (A63)	200		
		TCH-20 (A100)	200		
		TCH-19 (A63)	200		
		TCH-19 (A100)	200		
E	Distance between spindle nose to spindle nose (X-Direction)	TCH-20 (A63)	X axis -620		
		TCH-20 (A100)	X axis -690		
		TCH-19 (A63)	X axis -746		
		TCH-19 (A100)	X axis -716		
X	X-axis Travel		X axis travel (according to costomer's choice)		
Y	Y-axis Travel		2200	2500	3000
Z	Z-axis Travel		1250		

Axis	Model		
	Linmax B 22	Linmax B 25	Linmax B 30
L	Linmax 2232: 8230	Linmax 2540: 9030 Linmax 2550: 10030	Linmax 3050: 10030 Linmax 3060: 11030 Linmax 3080: 13030
W	6215	6515	7015
H	5450	5450	5450
I	3290	3590	4010

Unit: mm

ALL SERIES

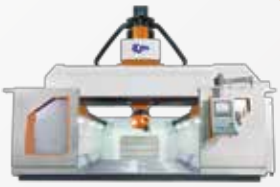
JET

GIGANT

LOADER

LINMAXTWIN

TITAN

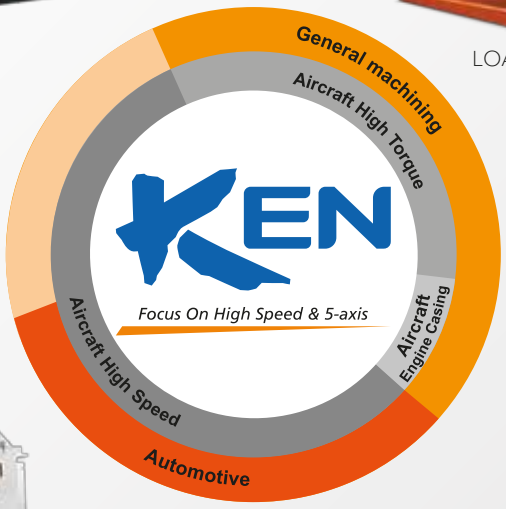


LINMAX

RHINO

COMPACT

FOCUS 5



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