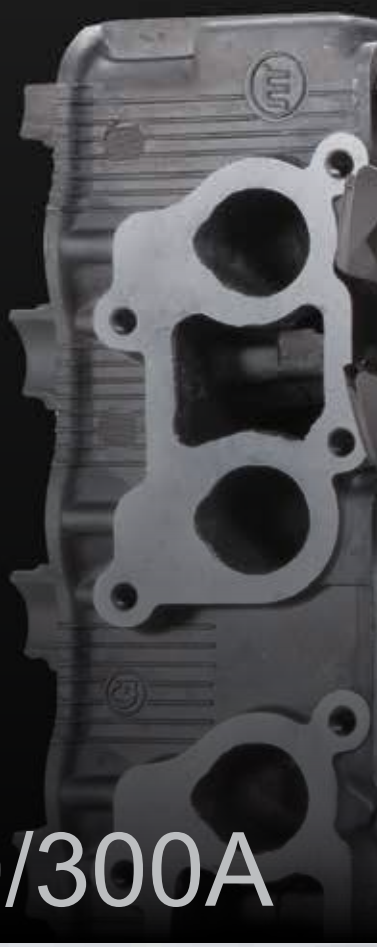
KMH

KMH300/300A

HORIZONTAL MACHINING CENTERS

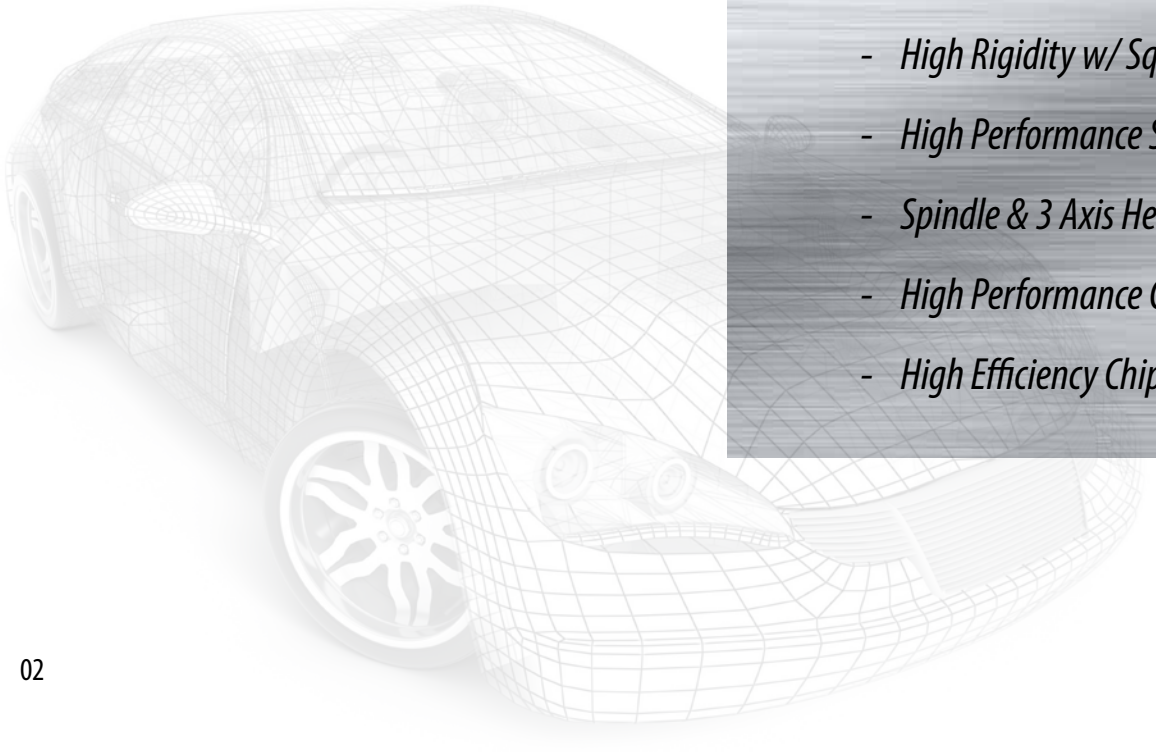
Methods

Index



KMH300/300A

- *Available in 30 & 40 Taper Versions*
- *Advanced Technology & Design*
- *High Rigidity w/ Square T Structural Design*
- *High Performance Setup & Maintainability*
- *Spindle & 3 Axis Heat Displacement Control*
- *High Performance Control System & HMI*
- *High Efficiency Chip Removal System*




KIWA Methods
KMH-300A
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Methods

Rigid & Compact Machine Casting

Meehanite casting is used on all major casting components, for its stable material composition & casting quality.

All casting is analyzed by Finite Element Analysis, to ensure structural rigidity.

Special Rib Construction

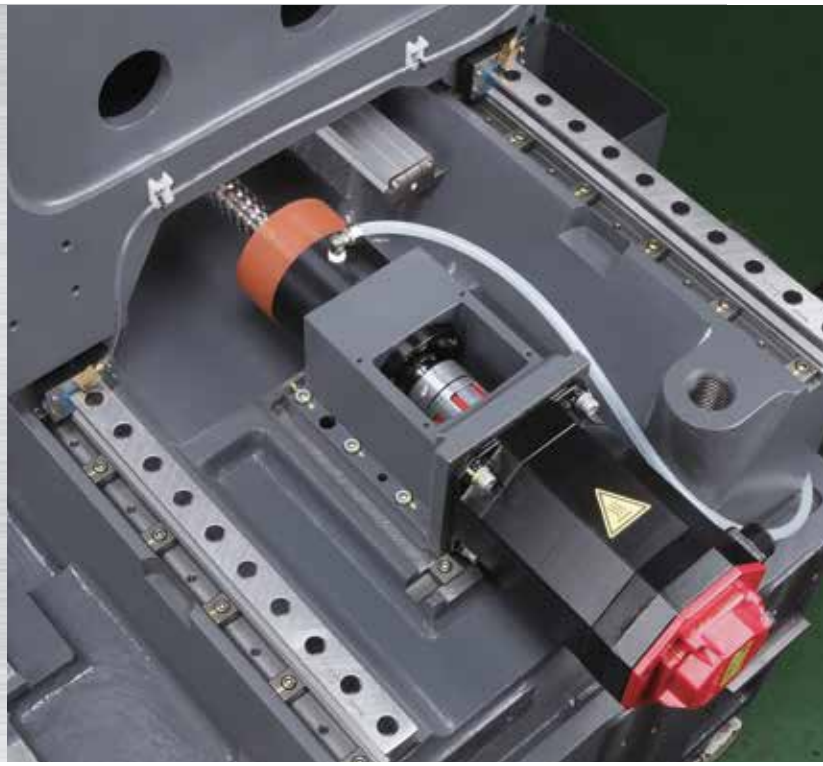
Wide base, and robust structure, ensure steady machining against heavy loads.

Rigidity

3 Axis Transmission System

3 Axis Ball-Type Ballscrews System

- Large Diameter ball-type ballscrews are used for transmission rigidity, to ensure positioning and repeatability.
- X/Y/Z rapid speed
  48m/min (KMH300/KMH300A)
- Telescopic cover: X/Y-axis are fin-type, and Z-axis is two pieces-type, for reduced vibration and noise.

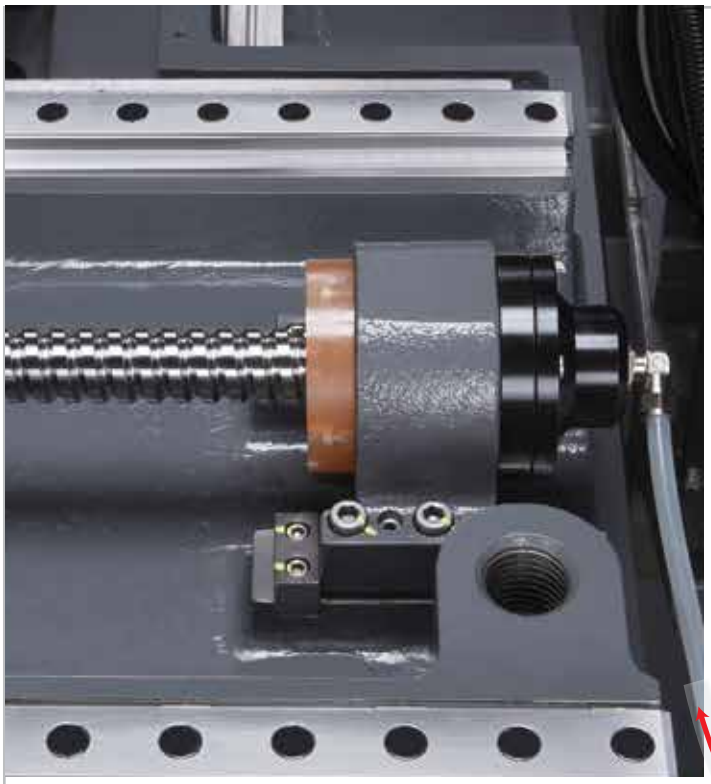


Cylinder Type Linear Guideway

High Speed, High Precision, Linear Guideways

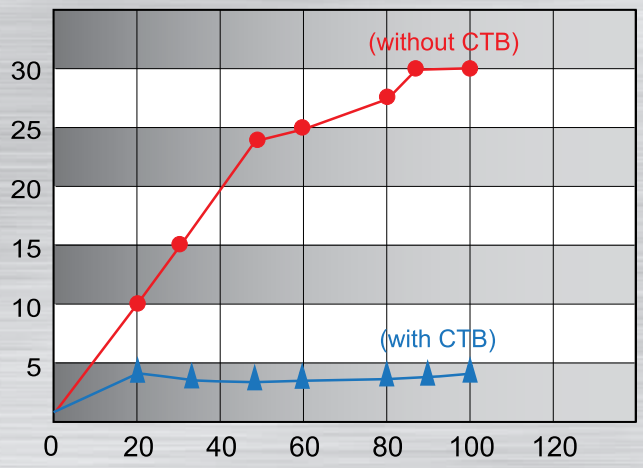
- Zero backlashes for the linear guideways. Great cutting surface for the contour cutting and etc.
- Suitable for high speed operation, to reduce the power required.
- Linear guideway has low friction during movement, which increases the lifespan of the guideway.

3 Axis Chilled Ballscrews (CTB)



Hollow Ballscrew Efficiency Chart

Hollow coolant design is used for the 3 axis ballscrews. Coolant oil is constantly recycling through the ballscrews to reduce the heat.



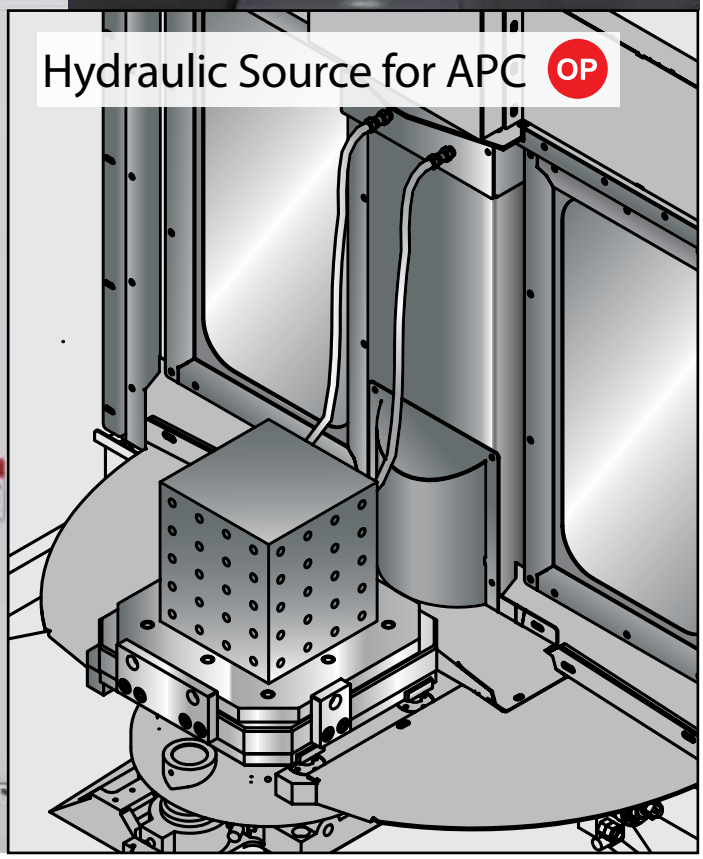
Testing Conditions

Ballscrew Diameter (mm)	Revolution (RPM)	Oil Temperature (°C)	Ball Diameter (mm)
Ø32xP12	1000	20	6.35

APC Pallet System

Rotary 2 Sided Type APC

- APC is high speed and high reliability
- Minimum pallet indexing **0.001°** (standard)
- The pre-loading pallet can be rotated randomly **0° to 90°**

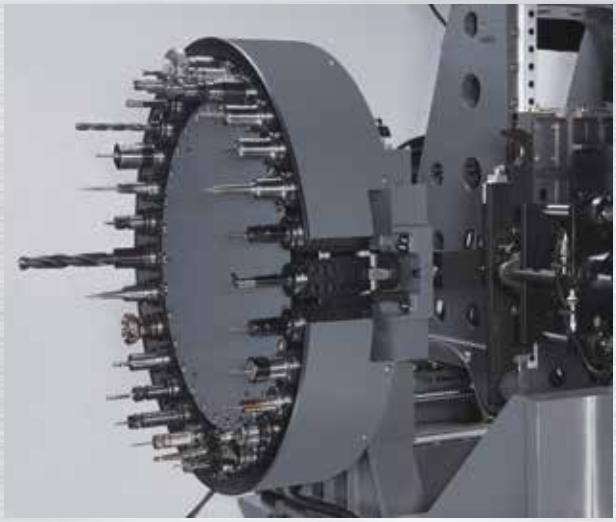


Pallet (Work Table)

Automatic Tool Changing (ATC) & Magazine

Pictured: 40 Taper ATC

- Rapid, simple, reliable, and long lifespan tool changing unit, for the most reliable tool changing operation
- Unique tool changing design with cam-type transmission mechanism is used. Tools are selected by random tool selection method with PLC control software.



Wash Down System

Disc Type Oil-Coolant Separator & Coolant Device OP

Oil-coolant separator can be easily installed with small floor occupancy.

Higher cutting quality can be achieved from stable coolant quality provided by constant separation of oil and coolant.

Wash Down System

Wash down system can be equipped to avoid accumulation of the chips inside the machine.

Coolant Gun

Coolant gun is equipped for cleaning the chips in the working area.

Chain Type Chip Conveyor and Chip Cart (PC2)

Chip auger is equipped on both sides of the worktable. Chip conveyor and chip cart are also equipped at the rear of the machine for chip removal solutions.

OP Optional Filtering Converyors Available

High Performance Equipment

Spindle Splash Ring

- Four nozzles are equipped for the spindle splash ring system. The four nozzles are equipped around the spindle to lower the cutting temperature, and increase the machining quality.

Coolant through Spindle (CTS) Unit OP

- CTS is optional. CTS allows high pressure coolant to travel through the spindle and tool, to immediately take away the heat.

Linear Scales OP

- X/Y/Z Axis can be equipped with linear scales.
- Air purge is equipped to protect the linear scales, to avoid dust or oil mist contamination. This helps the precision and lifespan of the linear scales.

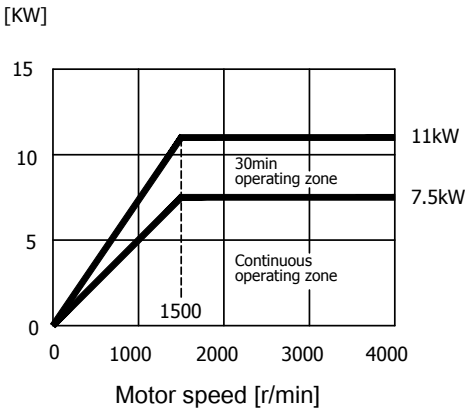
Tool Length Measurement OP

- Renishaw NC4S
- Automatic tool measurement
- Automatic measurements application (as shown on the right.)

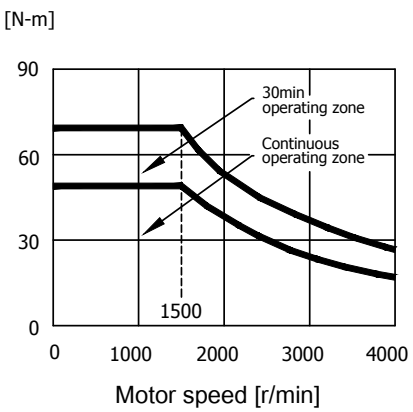
KMH300

KMH-300 Spindle Power-Torque Chart

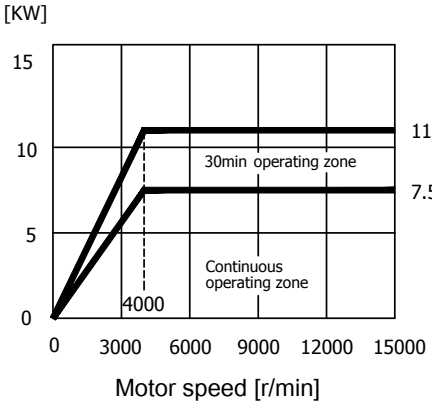
Low-speed winding output(Y connection)



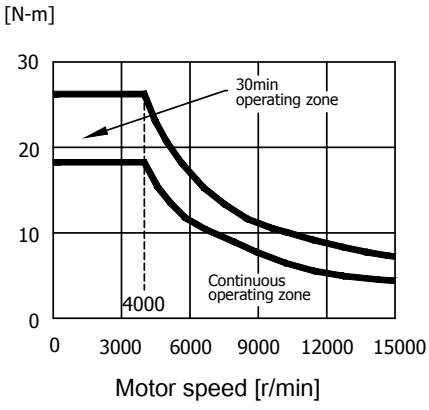
Low-speed winding torque(Y connection)



High-speed winding output(△ connection)

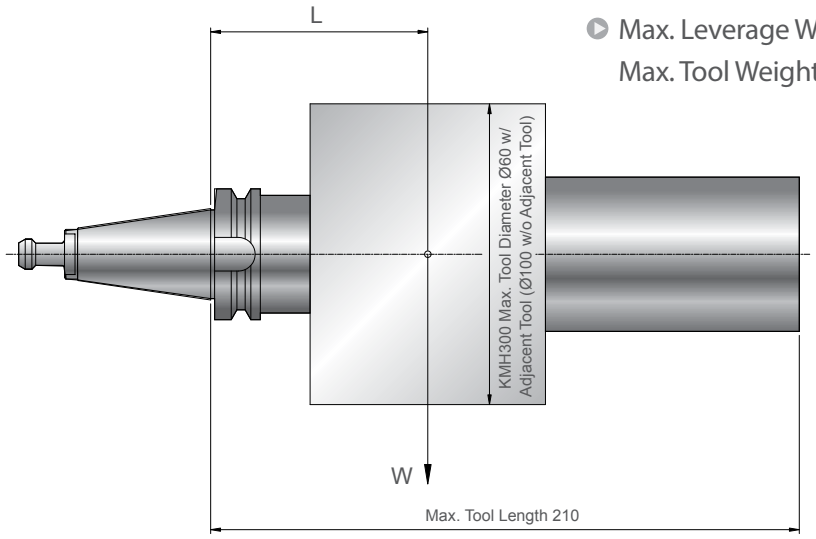


High-speed winding torque(△ connection)



BBT-30

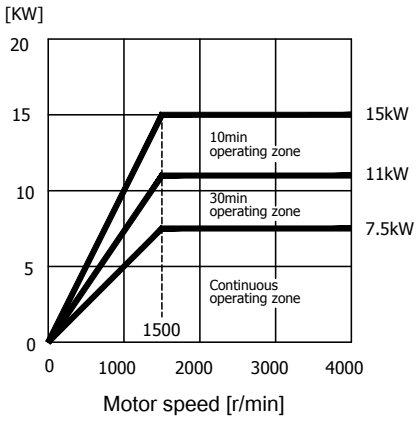
- Max. Leverage WxL ≦ 300Kgf-Cm
  Max. Tool Weight 5Kgf



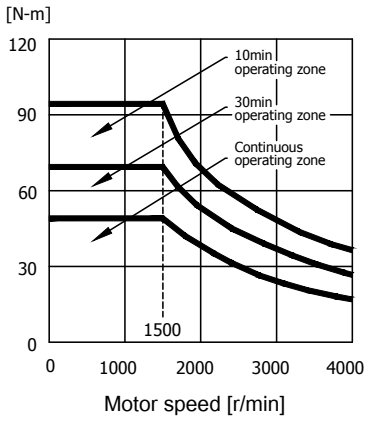
KMH300A

KMH-300A Spindle Power-Torque Chart

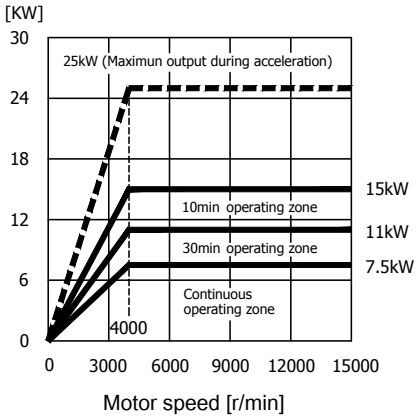
Low-speed winding output(Y connection)



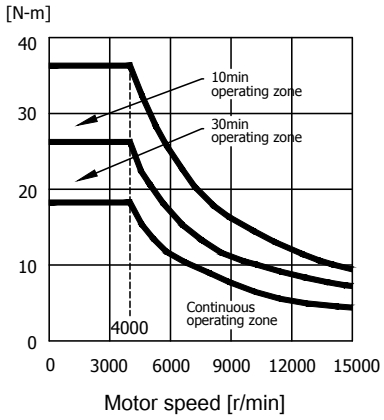
Low-speed winding torque(Y connection)



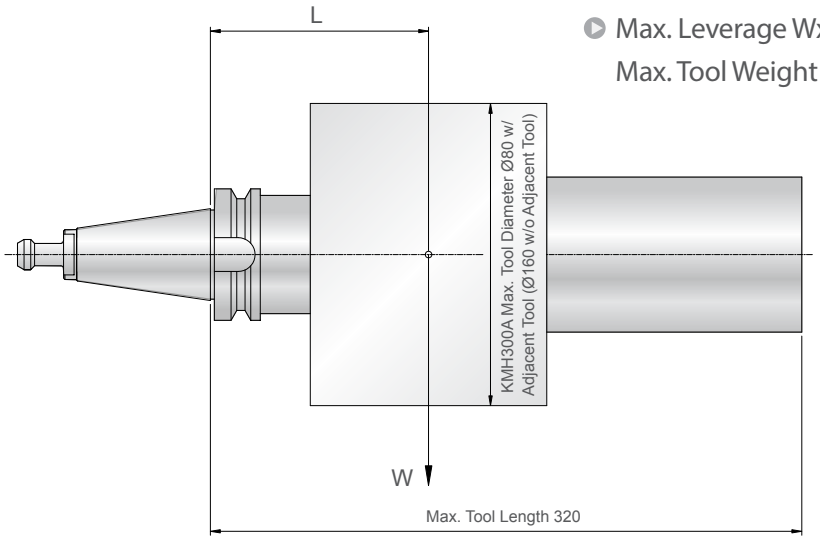
High-speed winding output(△connection)



High-speed winding torque(△connection)



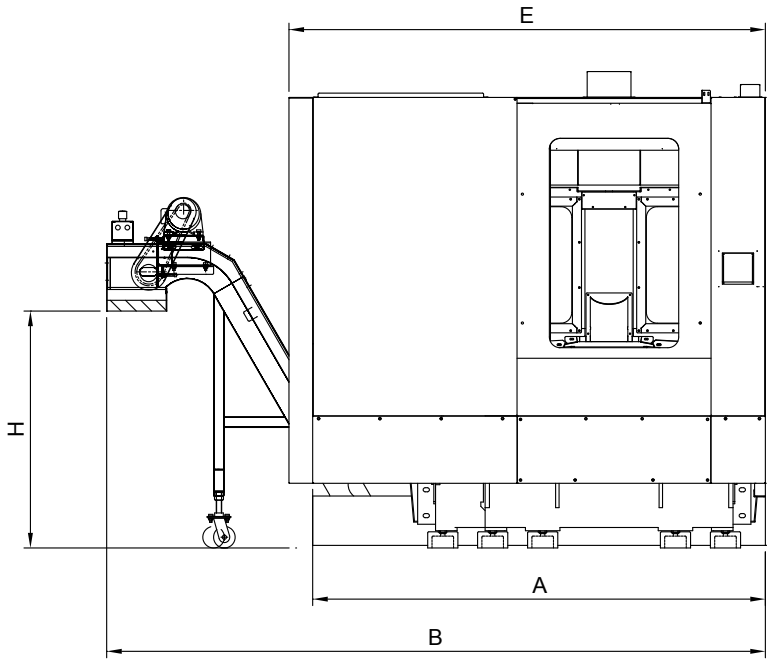
CAT-40



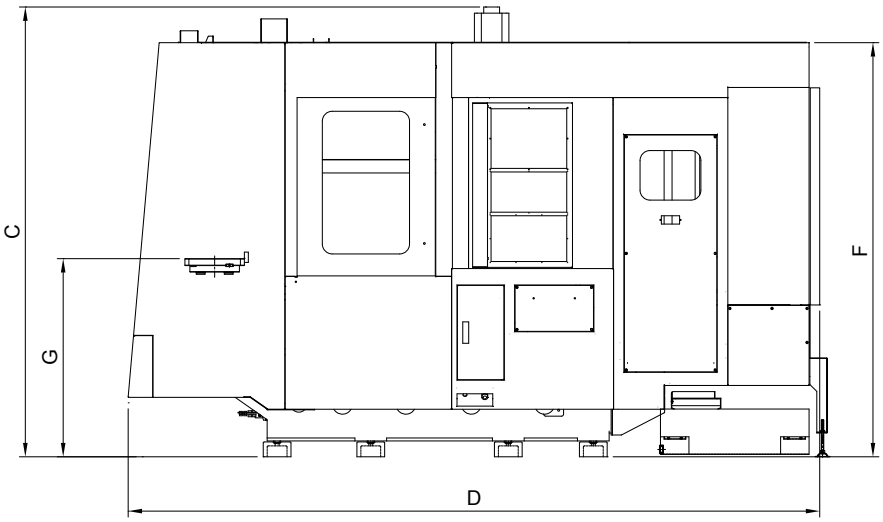
- Max. Leverage WxL ≦ 300Kgf-Cm
  Max. Tool Weight 8Kgf

Machine Exterior Dimension

KMH300/300A PC2



Dimension / Model	A	B	C	D	E	F	G	H
KMH300	82.6 in (2100 mm)	120.3 in (3056 mm)	89.4 in (2270 mm)	136.4 in (3465 mm)	87 in (2210 mm)	82.3 in (2090 mm)	39.4 in (1000 mm)	43.3 in (1100 mm)
KMH300A	82.6 in (2100 mm)	120.3 in (3056 mm)	89.4 in (2270 mm)	136.4 in (3465 mm)	88 in (2235 mm)	82.3 in (2090 mm)	39.4 in (1000 mm)	43.3 in (1100 mm)

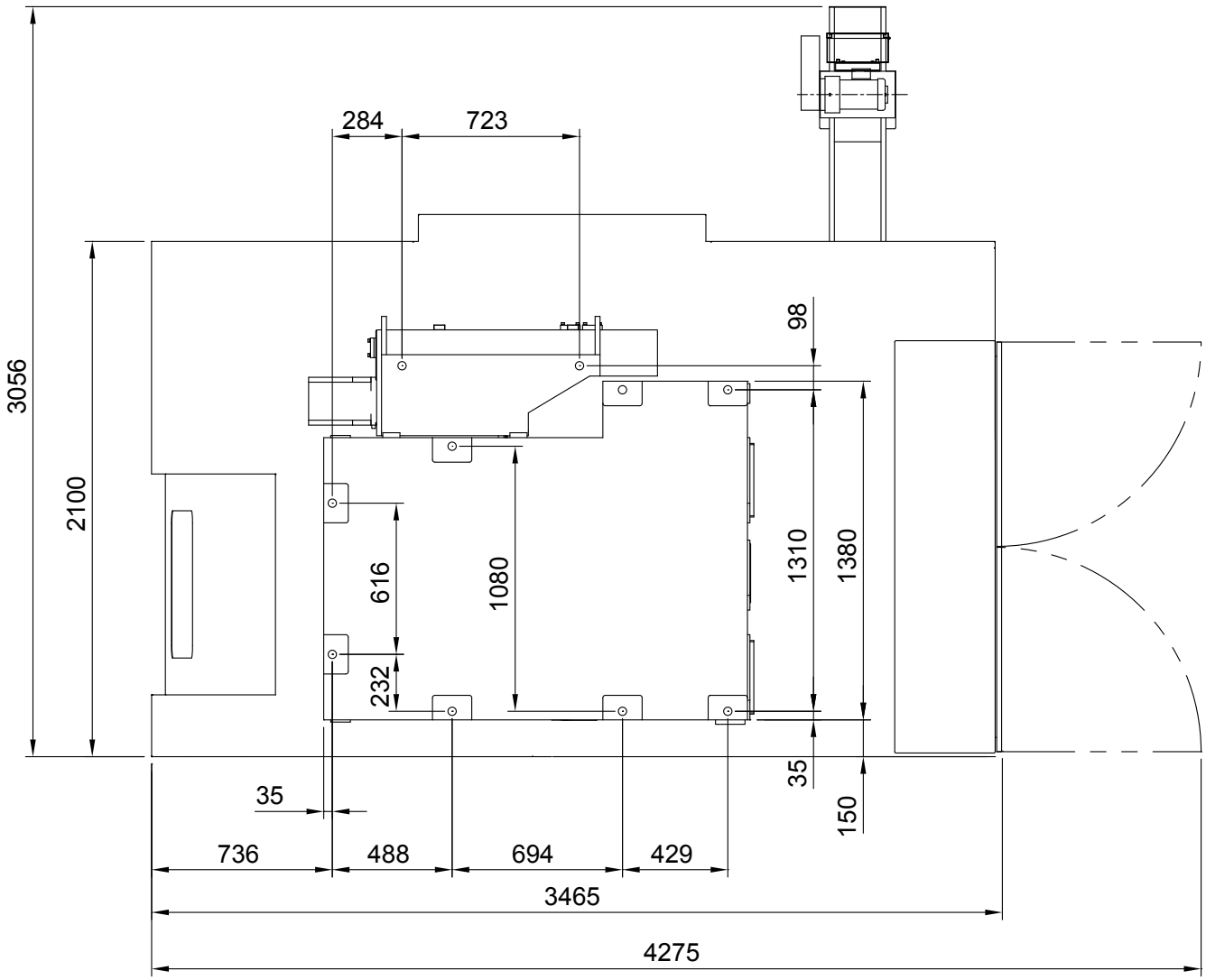


Machine Exterior Dimension

KMH300/300A PC2

Floor Space & Foundation

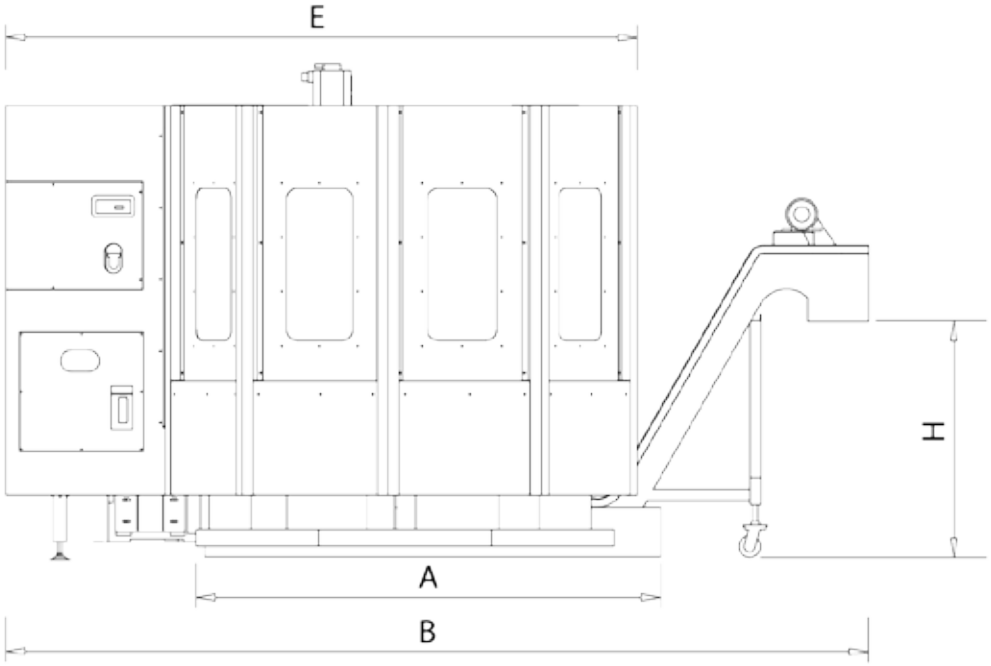
unit : mm



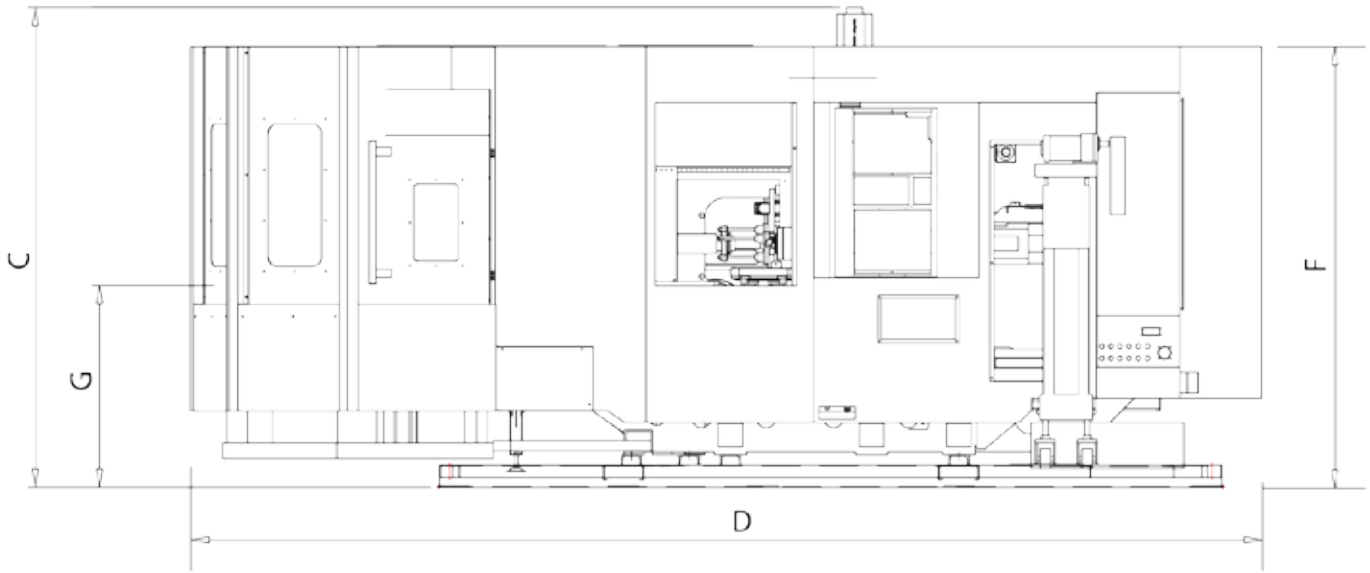
Machine Exterior Dimension

KMH300A PC6

unit : mm



Dimension / Model	A	B	C	D	E	F	G	H
KMH300A PC6	118.5 in (3011 mm)	156.2 in (3967 mm)	93 in (2362mm)	207.4 in (5269 mm)	114 in (2898 mm)	89.8 in (2282 mm)	39.4 in (1000 mm)	43.3 in (1100 mm)

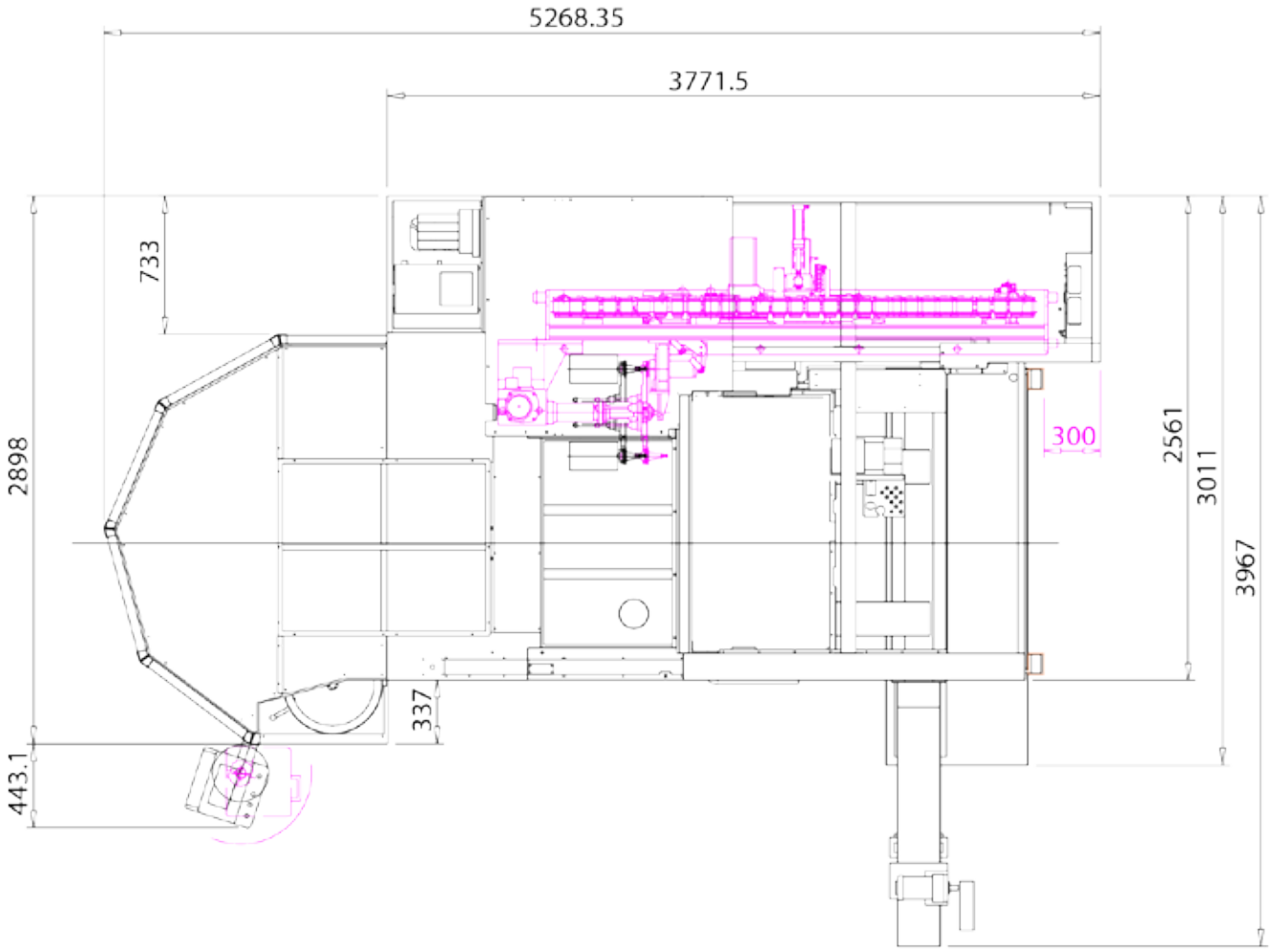


Machine Exterior Dimension

KMH300A PC6

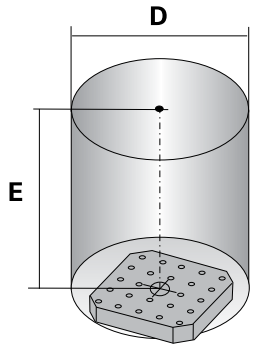
Floor Space & Foundation

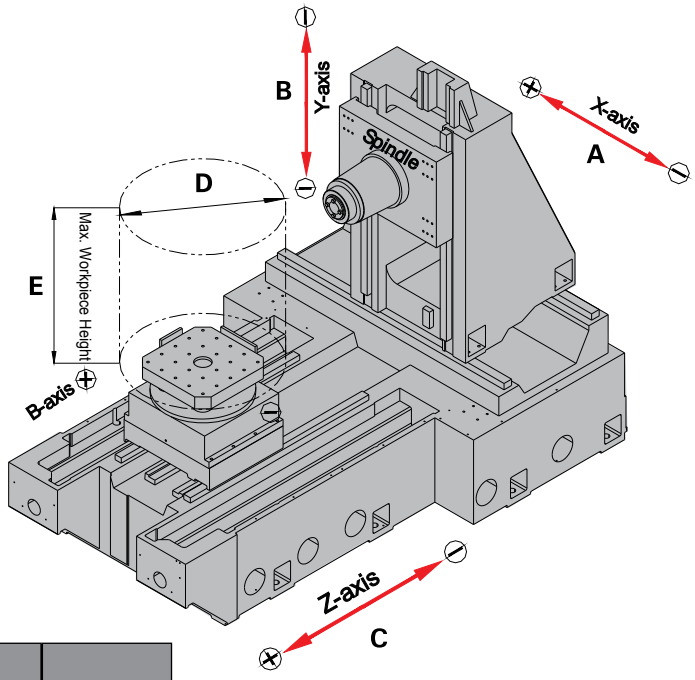
unit : mm



Machine Dimension

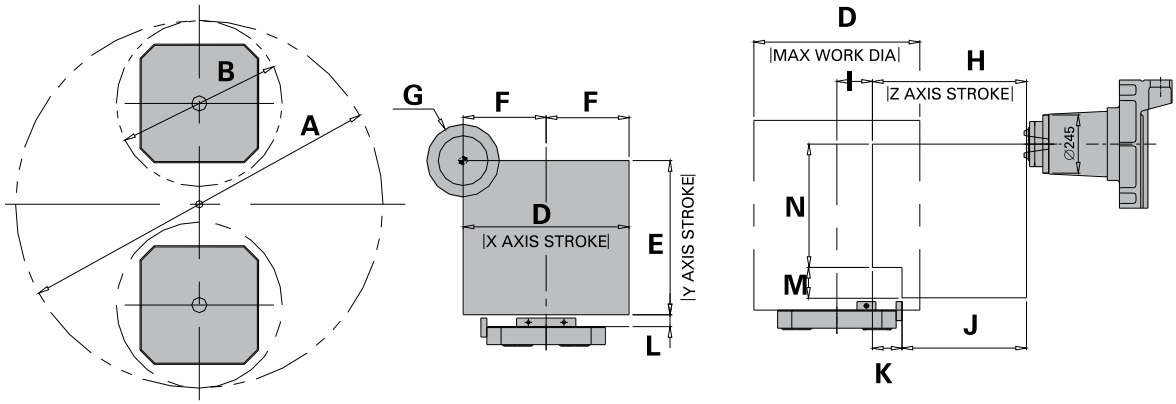
3 Axis Travel Diagram





Dimension / Model	A	B	C	D	E
KMH300	18.1 in (460 mm)	18.1 in (460 mm)	13.7 in (350 mm)	16.9 in (430 mm)	18.7 in (475 mm)
KMH300A					

Cutting Range

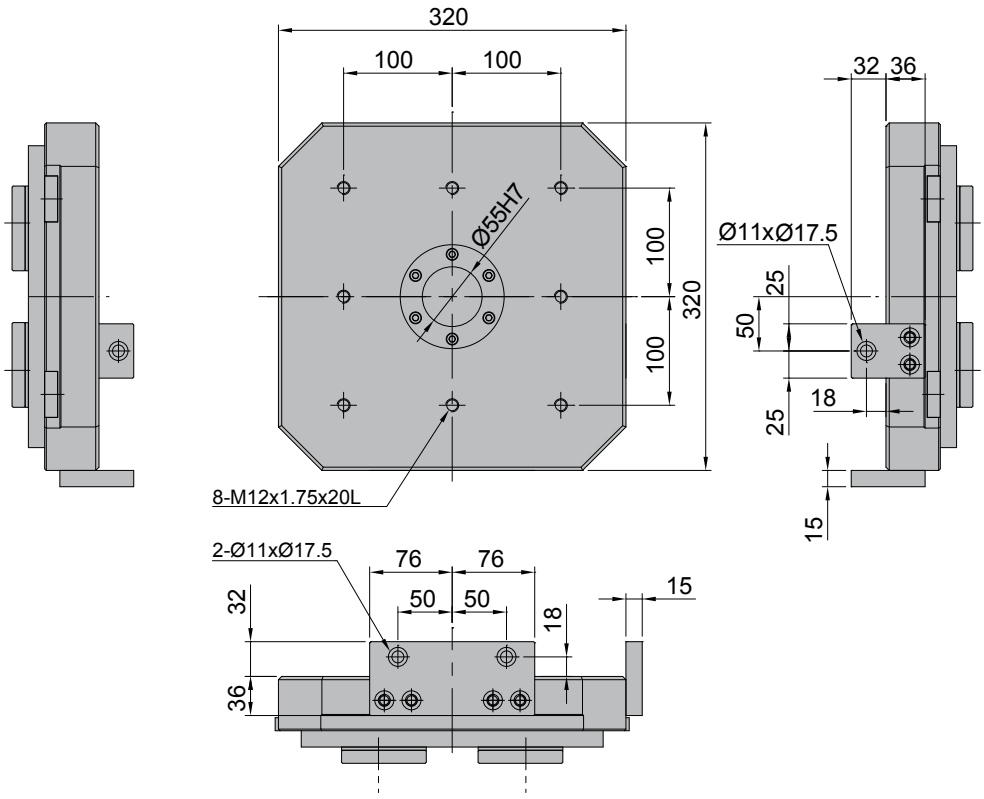


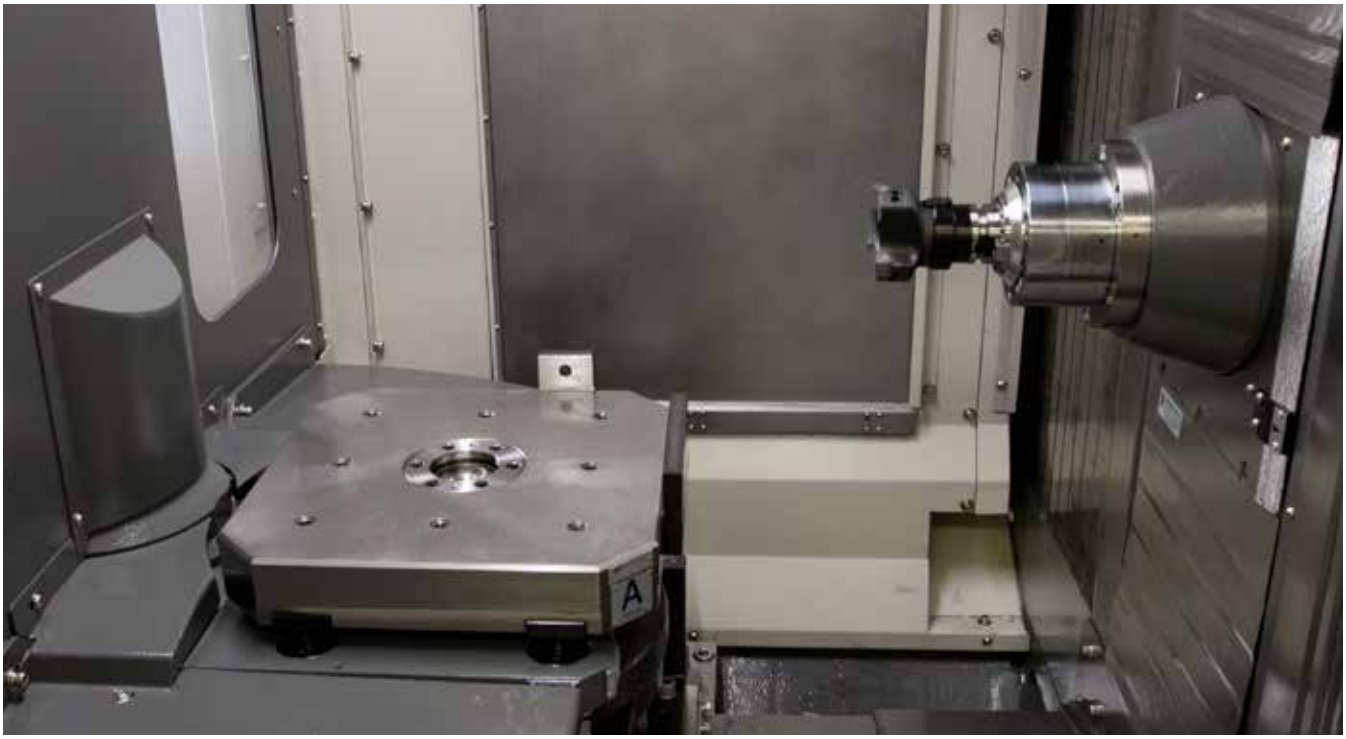
Dimension / Model	A	B	D	E	F	G	H	I	J	K	L	M	N
KMH300	40.6 in (1030 mm)	16.9 in (430 mm)	18.1 in (460 mm)	18.1 in (460 mm)	9.1 in (230 mm)	4.3 in (110 mm)	13.7 in (350 mm)	2.4 in (60 mm)	11.8 in (300 mm)	2 in (50 mm)	2.4 in (60 mm)	1.2 in (30 mm)	16.9 in (430 mm)
KMH300A	40.6 in (1030 mm)	16.9 in (430 mm)	18.1 in (460 mm)	18.1 in (460 mm)	9.1 in (230 mm)	6.3 in (160 mm)	13.7 in (350 mm)	2.4 in (60 mm)	10.2 in (260 mm)	3.5 in (90 mm)	2.4 in (60 mm)	1.2 in (30 mm)	16.9 in (430 mm)

Machine Dimension

Worktable Size

unit : mm





KMH300A PC6

Standalone Pallet Pool

Load/Unload Station

Option List

	KMH300	KMH300A
Spindle		
Spindle Speed 12000RPM	○	●
Spindle Speed 15000RPM	●	○
Spindle Speed 20000RPM	○	—
Spindle Oil Cooler	●	●
Air Curtain System	●	●
Direct Drive Spindle	●	●
3Axis Transmission		
3 Axis Roller Linear Guide	●	●
3 Axis Hollow Cooling	●	●
3 Axis Linear Scale	○	○
4th Axis Scale	○	○
Pallet		
Worktable 1° Indexing	Δ	Δ
Worktable 0.001 Indexing	●	●
M12 Position Holes	●	●
Worktable T Slot	○	○
Coolant System		
Splash Ring	●	●
Spindle Air Blow	○	○
Center Through Spindle	○	○
Chip Removal		
Chain Type Chip Removal System	●	●
Chip Cart	●	●
Chip Auger	●	●
Machine Oil-Coolant Separator	●	●
Wash Down	●	●
Disc Type Oil-Coolant Separator	●	●

	KMH300	KMH300A
Safety System		
Front/Side Door Safety Switch	●	●
CE Compliance	○	○
Measurement System		
Tool Length Measurement NC-4S	○	○
Workpiece Measurement OMP-400	○	○
Tool Breakage Detection (Magazine)	Δ ○	Δ ○
ATC & Magazine		
Tool Capacity 30T	●	●
Tool Holder Taper BBT	●	—
Tool Holder Taper CAT	—	●
Spindle Taper #30	●	—
Spindle Taper #40	—	●
Electrical		
M30 Auto Power Off	●	●
Work Light	●	●
Alarm Light	●	●
Air Conditioner for Cabinet	○	○
Heat Exchanger for Cabinet	●	●
Control		
Fanuc 31i	○	○
Fanuc 0i-MF	●	●
Miscellaneous		
Oil Demister	○	○
Rotary Window	○	○

● : Standard ○ : Optional Δ : Inquiry Required — : Not Available

Technical Specification

Description	Unit	KMH300	KMH300A
Travel			
X/Y/Z Axis Travel	in (mm)	18.1 / 18.1 / 13.7 (460 / 460 / 350)	18.1 / 18.1 / 13.7 (460 / 460 / 350)
Spindle Center to Worktable Surface	in (mm)	2.36 ~ 20.4 (60 ~ 520)	2.36 ~ 20.4 (60 - 520)
Spindle Nose to Worktable Center	in (mm)	2.36 ~ 16.1 (60 - 410)	2.36 ~ 16.1 (60 - 410)
Worktable			
Worktable Size	in (mm)	12.6 x 12.6 (320 x 320)	12.6 x 12.6 (320 x 320)
Max. Workpiece Size	in (mm)	Ø16.9 (Ø430)	Ø16.9 (Ø430)
Max. Table Loading	lbs (kg)	551.2 (250)	551.2 (250)
Max. Workpiece Height	in (mm)	18.7 (475)	18.7 (475)
Worktable Setup		8-M12 Pitch 100	20-M12
Min. Worktable Indexing	degree	0.001°	0.001°
Spindle			
Max. Spindle Speed	RPM	15000	12000
Max. Spindle Cutting Torque	N·m	70	70
Spindle Taper		7/24 Taper, No.30	7/24 Taper, No.40
Spindle Bearing Diameter	in (mm)	1.8 (45)	2.75 (70)
Spindle Transmission		Direct Drive	Direct Drive
Spindle Tool Pull Force	kgf	250	1000
Spindle Acceleration	sec / RPM	0.6 / 0 ~ 6000	0.6 / 0 ~ 6000
Spindle Deceleration	sec / RPM	1.2 / 6000 ~0	1.2 / 6000 ~ 0
Auto Tool Changing Unit			
Tool Taper		BBT-30	CAT-40
Tool Capacity	Pcs	30	30 (OPT 90, 120)
Max. Tool Diameter (No Adjacent Tool)	in (mm)	3.94 (100)	6.3 (160)
Max. Tool Length	in (mm)	8.3 (210)	12.6 (320)
Max. Tool Weight	lbs (kg)	11 (5)	17.6 (8)
Tool Selection		Random	Random
Tool Changing Time (Tool to Tool)	sec	2.5	2.5

Technical Specification

Description	Unit	KMH300	KMH300A
Feedrate			
Max. X/Y/Z Rapid Speed	in/min (mm/min)	1968 (50000)	1968 (50000)
Rapid Feed (4th Axis)	rpm	33	33
Cutting Feedrate	in/min (mm/min)	1 - 472.5 (1 - 12000)	1 - 472.5 (1 - 12000)
Manual Feedrate	in/min (mm/min)	49.6 (1260)	49.6 (1260)
Auto Pallet Changer			
Number of Pallets	Pcs	2	2 (OPT 6)
Pallet Changing Type		Swing Type	Swing Type
Pallet Changing Time	sec	10	10
Control			
Fanuc Control		0i-MF	0i-MF
Motor			
Spindle Motor Power	KW	7.5 / 11	7.5 / 15
Spindle Motor Torque	N·m	70	70
X/Y/Z/B Axis Motor Power	KW	2.7 / 4.5 / 2.7 / 1.6	2.7 / 4.5 / 2.7 / 1.6
Hydraulic Motor	KW	1.5	1.5
Cutting Fluid Motor	KW	1.5	1.5
Power			
Power Consumption	KVA	25	25
Oil/Coolant Tank			
Hydraulic System Capacity	gal (L)	13.2 (50)	13.2 (50)
Lubrication System Capacity	gal (L)	0.5 (2)	0.5 (2)
Cutting Fluid System Capacity	gal (L)	92.5 (350)	92.5 (350)
Machine Dimension			
Machine Height	in (mm)	89.4 (2270)	89.4 (2270)
Floor Space (PC2)	in (mm)	140 x 107 (3540 x 2710)	140 x 121 (3540 x 3060)
Machine Weight (PC2)	lbs (kg)	13227.7 (6000)	13889.2 (6300)

- The catalog is only for reference purposes. Actual machine may differ to this specification.
- Kiwa reserves the rights to modify, or to stop adopting the specification of this catalog.

Methods

Methods

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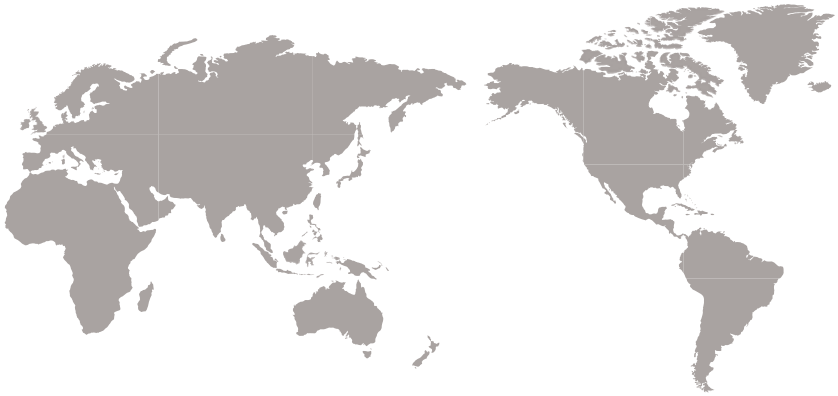
TECHNICAL CENTERS FROM COAST TO COAST

BOSTON	CHARLOTTE	CHICAGO	DETROIT	LOS ANGELES	PHOENIX	SAN FRANCISCO
978.443.5388	704.587.0507	847.783.6800	248.624.8601	714.521.2507	602.437.2220	510.636.1430

MACHINE TOOLS ■ TURNKEY SOLUTIONS ■ AUTOMATION CELLS ■ PARTS AND SERVICE ■ TOOLING



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