

MEGA5 Series

Bridge Type 5-Axis Machining Centers



AWEA MECHANTRONIC CO., LTD.

HEADQUARTERS

629, Suezhetou Section, Kwanpu Rd., Wenshan Li,
Hsinpu, Hsinchu 305, Taiwan

TEL : +886-3-588-5191

FAX : +886-3-588-5194

Website : www.awea.com

CENTRAL TAIWAN SCIENCE PARK BRANCH

15, Keyuan 2nd Rd., Central Taiwan Science Park,
Taichung 407, Taiwan

TEL : +886-4-2462-9698

FAX : +886-4-2462-8002

E-mail : sales@awea.com

ISO 9001



ISO 14001



MEGA5 *Series*

Maximum Performance Bridge Type 5-Axis Machining Centers

Relying on our outstanding integration of electro-mechanics and high quality components, AWEA presents the MEGA5 5-axis machining center. The MEGA5 series is available with a fixed bridge (MEGA5 P series) or with a dynamic gantry (MEGA5 G series).

Both versions are based on AWEA's super rigid bridge type design. The two axes ITALIAN made high performance milling head enables simultaneous 5 axes (X , Y , Z , B , C) machining of large, compound angular work-piece machining needs. The MEGA5 series is the best choice when advanced machining requirements need to be met.



MEGA5 Series

ITALIAN Made Two Axes Head

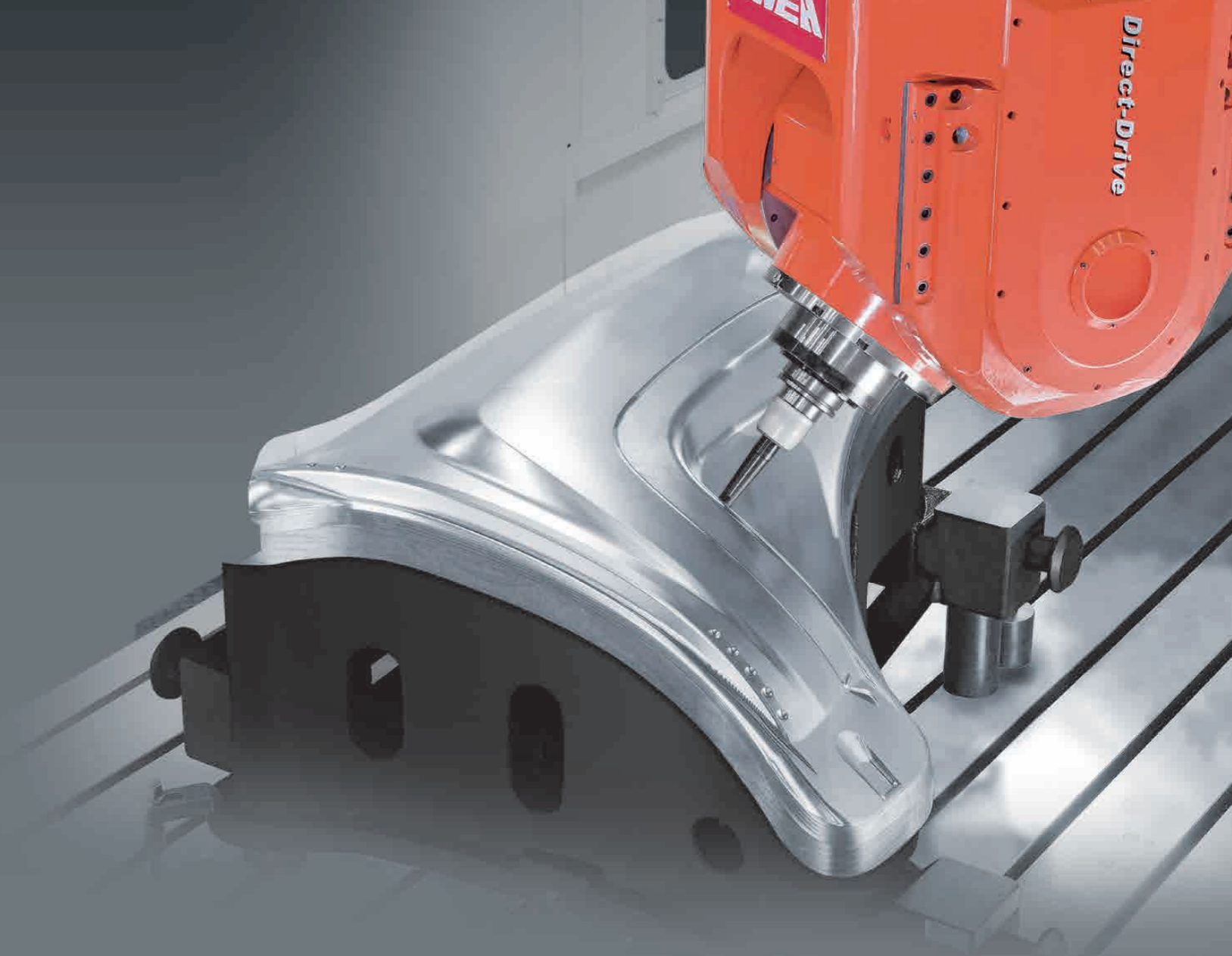
The MEGA5 series is available with two kinds of two axes heads : the compact structure series (TCH-20F) and the high torque series (TCH-30F), to address various cutting requirements.

- The B and C axes are driven by direct drive motors that provide high speed, high torque, and zero backlash.
- The B-axis is equipped with two motors to help overcome inertia and improve agility.
- A hydraulic clamping system provides ample locking force to support heavy cutting at fixed angles.

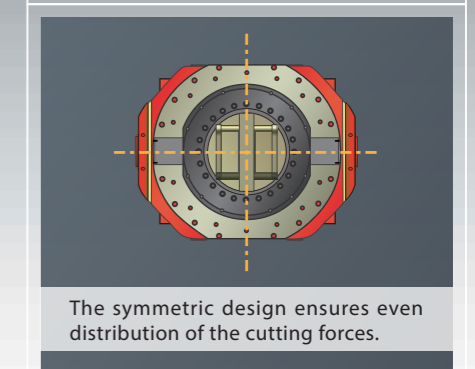
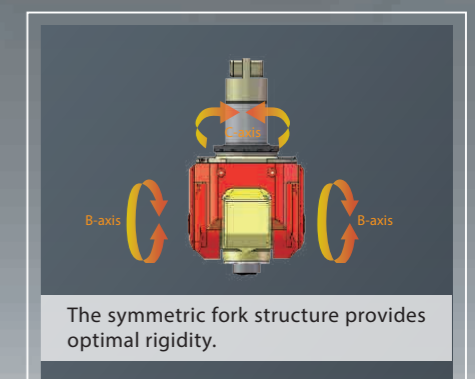
TCH-20F		
Axis	B-axis	C-axis
Max. speed	50 rpm	50 rpm
Max. torque	1,400 Nm	1,300 Nm
Clamping torque	4,000 Nm	4,000 Nm
Positioning accuracy	± 3 arc.sec	± 3 arc.sec
Rotary range	± 100°	± 250°



TCH-30F		
Axis	B-axis	C-axis
Max. speed	50 rpm	50 rpm
Max. torque	2,200 Nm	2,400 Nm
Clamping torque	8,000 Nm	8,000 Nm
Positioning accuracy	± 3 arc.sec	± 3 arc.sec
Rotary range	± 110°	± 250°



- The B-axis fork structure of the TCH-30F is made from ultra-strong GGG40 modular graphite cast iron.
- Super rigid cross roller bearings greatly improve cutting capability.
- High resolution absolute encoders ensure optimal machining accuracy (standard equipment).
- Integrated water cooling circuit provides reliable accuracy during long-term machining operations.
- Optional coolant through spindle (CTS) is available.



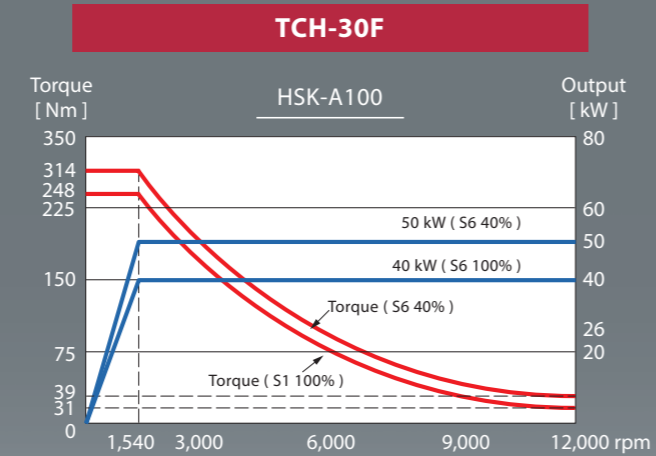
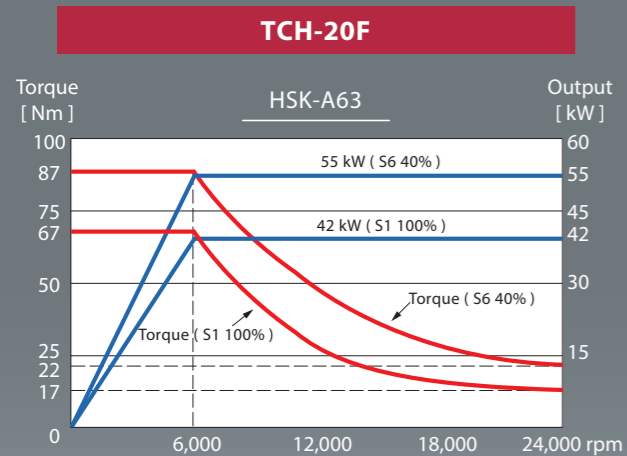
MEGA5 Series

Ultimate Machining Capability

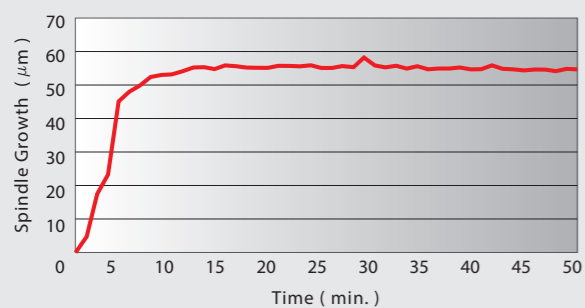
The built-in spindle motor design reduces centrifugal force effects and minimizes vibrations, which increases the spindles life span and ensures long-term machining accuracy.

■ The TCH-20F series is equipped with a powerful 55 kW motor with a maximum spindle speed up to 24,000 rpm.

■ The TCH-30F provides a maximum torque of 314 Nm at 1,540 rpm for heavy duty cutting operations.



Thermal stability of the two axes milling head



The spindle reaches its optimal temperature within 10 minutes from a cold start and, due to the intelligent spindle cooling system, stays stable from then on. Long time machining, even under varying load conditions, causes no significant thermal expansion of the spindle

AWEA

MEGA5

P5032



MEGA5 P Series

Bridge Type 5-Axis Machining Centers

The rigid double column bridge type structure paired with the high performance two axes milling head can easily accomplish any tough machining tasks.

- The bed utilizes four compound guide ways to support the table*. The travel range is enlarged to eliminate table overhang, ensuring optimal support and rigidity.
- Wide span symmetrical center-driven X-axis design with the ball screw placed in the center of the table to provide high precision axial feeding.

* MEGA5 xx26 models have two guideways.



MEGA5 P3026 with fully enclosed splash guard and roof (optional)



MEGA5 P4032 with fully enclosed splash guard w/o roof (optional)

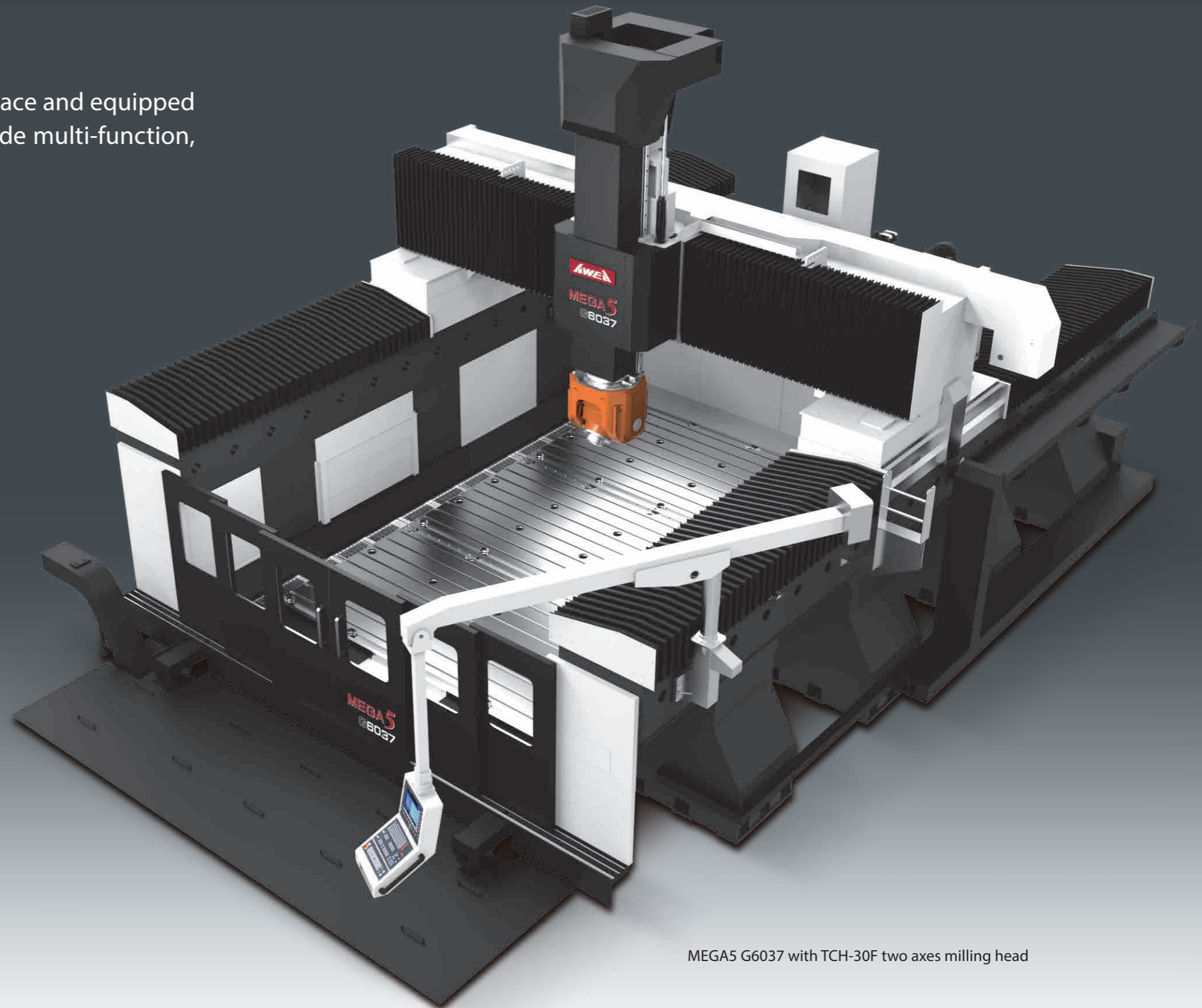
- Super rigid roller type linear guide ways on the X and Y axes enable fast, low friction movements and provide stability for heavy-duty cutting.
- The Z-axis consists of a super rigid box structure headstock with linear guide ways, along with a large saddle, which provides excellent cutting rigidity.
- Machines with an X-axis of 5 m and longer are equipped with a ball screw vibration absorber to reduce vibration and deformation problems of the ball screw, thus increasing machining accuracy.
- The ATC with a 32 tools chain type tool magazine (standard equipment) effectively raises machining efficiency.

MEGA5 G Series

Gantry Type 5-Axis Machining Centers

Gantry type structure with a large area of utilizable space and equipped with a high performance two axes milling head provide multi-function, heavy load and extra-large range cutting solutions.

- The gantry type structure provides the highest structural rigidity, while still offering dynamic performance. The X-axis travel can be expanded according to customer requests.
- The X-axis features AWEA's "simultaneous-controlled technology" and is driven by a rack and pinion system with no backlash. Dual servo motors and dual linear scales to ensure optimal dynamic and positioning accuracy.
- The extra large bases of the gantry combined with the super rigid roller type linear guide ways on the Y-axis offer fast and low friction movements and allow for extra heavy cutting.
- The Z-axis consists of a super rigid box structure headstock with linear guide ways, along with a large saddle, which provides excellent cutting rigidity.
- Standard ATC with a 20 tools (40 optional) drum type tool magazine. The tool exchange procedure is executed outside of the machining area to avoid contamination of the tools or the ATC by cutting fluid and chips.



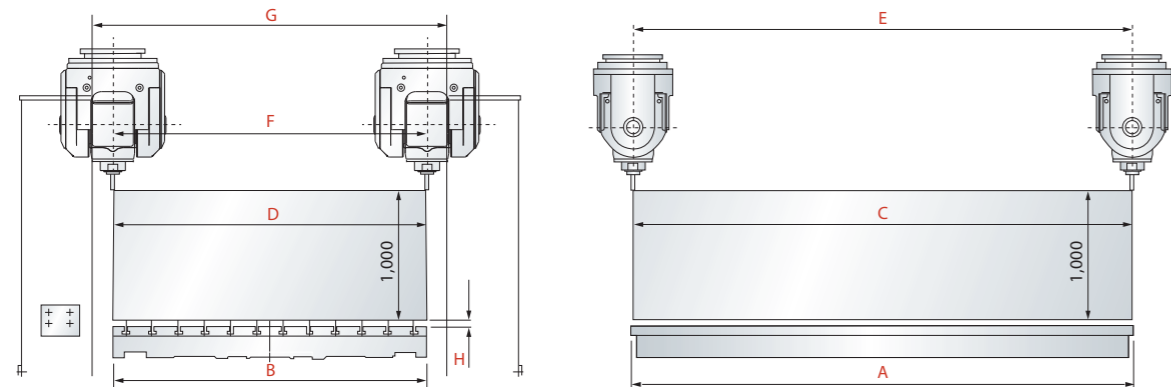
MEGA5 G6037 with TCH-30F two axes milling head

Working Range

MEGA5 P Vertical

Unit : mm

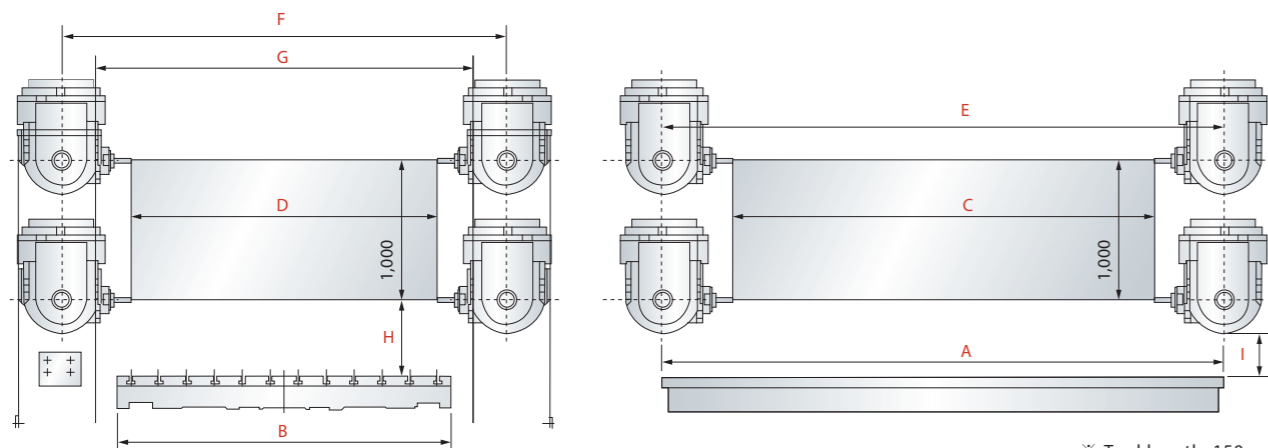
Models	Two Axes Head	A	B	C	D	E	F	G	H		
MEGA5 P2526	TCH-20F	2,310	1,500	2,310	1,500	2,500	2,620	1,700	50		
MEGA5 P3026	TCH-20F	3,260		3,000		3,000					
MEGA5 P4026	TCH-20F	4,200		4,000		4,000					
MEGA5 P5026	TCH-20F	5,000	2,400	5,000	2,400	5,000	3,200	2,708	50		
MEGA5 P3032	TCH-30F	3,020		3,000		3,000					
MEGA5 P4032	TCH-20F	4,020		4,000		4,000				4,000	4,000
	TCH-30F										
MEGA5 P5032	TCH-20F	5,020		5,000		5,000				5,000	5,000
	TCH-30F										
MEGA5 P6032	TCH-30F	6,020	6,000	6,000	6,000	6,000					
	TCH-20F										



※ Tool length: 150 mm

MEGA5 P Horizontal

Models	Two Axes Head	A	B	C	D	E	F	G	H	I		
MEGA5 P2526	TCH-20F	2,310	1,500	1,580	1,700	2,500	2,620	1,700	510	327.5		
MEGA5 P3026	TCH-20F	3,260		2,080		3,000						
MEGA5 P4026	TCH-20F	4,200		3,080		4,000						
MEGA5 P5026	TCH-20F	5,000	2,400	4,080	2,400	5,000	3,200	2,708	550	310		
MEGA5 P3032	TCH-30F	3,020		2,000		2,200					3,000	
MEGA5 P4032	TCH-20F	4,020		3,000		2,200					4,000	4,000
	TCH-30F											
MEGA5 P5032	TCH-20F	5,020		4,000		2,200					5,000	5,000
	TCH-30F											
MEGA5 P6032	TCH-30F	6,020	5,000	2,200	6,000	6,000						
	TCH-20F											

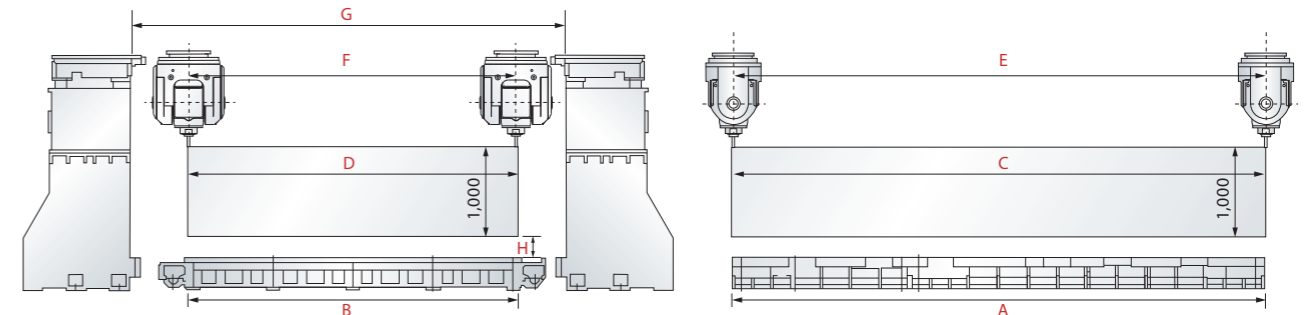


※ Tool length: 150 mm

MEGA5 G Vertical

Unit : mm

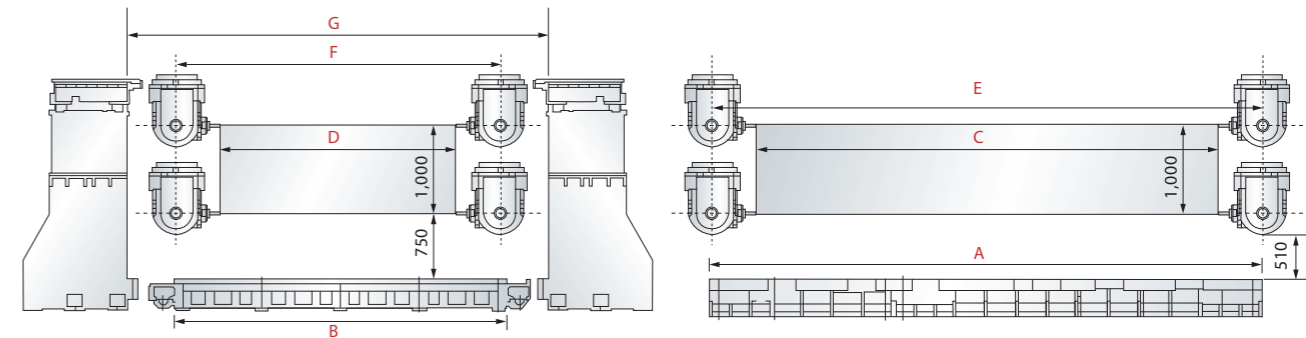
Models	Two Axes Head	A	B	C	D	E	F	G	H
MEGA5 G4037	TCH-30F	4,000	3,800	3,000	3,700	4,000	3,700	4,800	250
	TCH-20F			3,080		4,000			405
MEGA5 G6037	TCH-30F	6,000	3,800	5,000	3,700	6,000	3,700	4,800	250
	TCH-20F			5,080		6,000			405
MEGA5 G8037	TCH-30F	8,000	3,800	7,000	3,700	8,000	3,700	4,800	250
	TCH-20F			7,080		8,000			405
MEGA5 G10037	TCH-30F	10,000	3,800	9,000	3,700	10,000	3,700	4,800	250
	TCH-20F			9,080		10,000			405



※ Tool length: 150 mm

MEGA5 G Horizontal

Models	Two Axes Head	A	B	C	D	E	F	G
MEGA5 G4037	TCH-30F	4,000	3,800	3,000	2,700	4,000	3,700	4,800
	TCH-20F			3,080	2,780			
MEGA5 G6037	TCH-30F	6,000	3,800	5,000	2,700	6,000	3,700	4,800
	TCH-20F			5,080	2,780			
MEGA5 G8037	TCH-30F	8,000	3,800	7,000	2,700	8,000	3,700	4,800
	TCH-20F			7,080	2,780			
MEGA5 G10037	TCH-30F	10,000	3,800	9,000	2,700	10,000	3,700	4,800
	TCH-20F			9,080	2,780			



※ Tool length: 150 mm

Dimensions

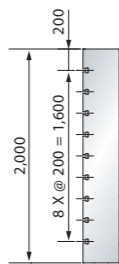
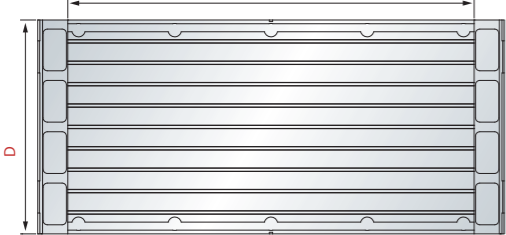
Table Dimensions

MEGA5 P
 MEGA5 P2526 = 2,310
 MEGA5 P3026 = 3,260
 MEGA5 P4026 = 4,200
 MEGA5 P5026 = 5,000
 MEGA5 P3032 = 3,020
 MEGA5 P4032 = 4,020
 MEGA5 P5032 = 5,020
 MEGA5 P6032 = 6,020



Models	MEGA5 PXX26	MEGA5 PXX32
A	1,500	2,400
B	7x@170=1,190	11x@200=2,200
C	155	100

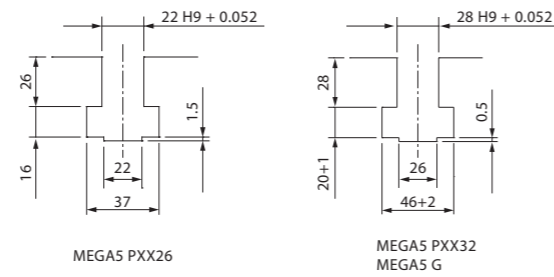
MEGA5 G
 MEGA5 GXX37 = 3,800
 MEGA5 GXX47 = 4,800



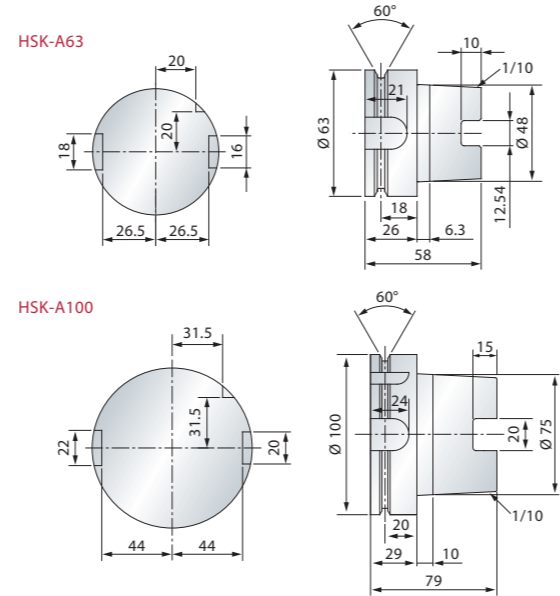
Models	MEGA5 G40XX	MEGA5 G60XX	MEGA5 G80XX	MEGA5 G100XX
D	4,000	6,000	8,000	10,000

Unit : mm

T-slot Dimensions

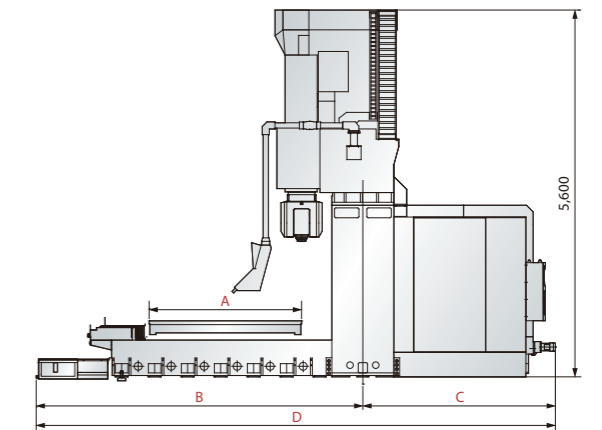
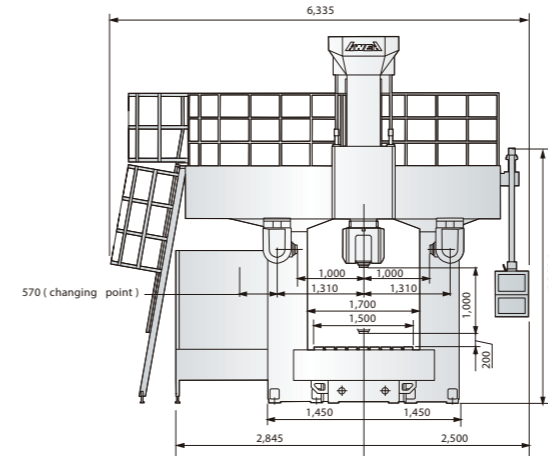
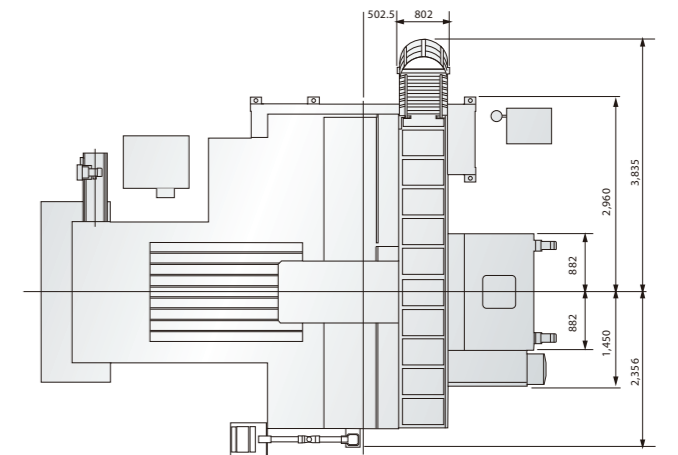


Tool Shank and Pull Stud Dimensions



MEGA5 PXX26 Machine Dimensions

Models	MEGA5 P2526	MEGA5 P3026	MEGA5 P4026	MEGA5 P5026
A	2,310	3,260	4,200	5,000
B	4,950	5,450	6,450	7,450
C	2,920	3,420	4,420	5,420
D	7,870	8,870	10,870	12,870

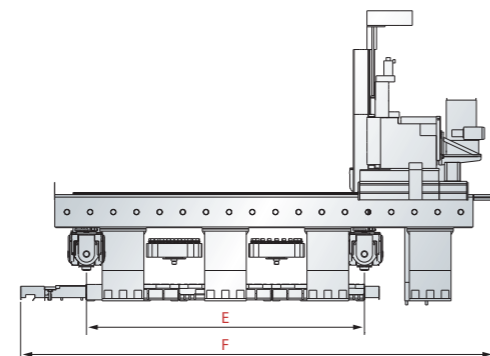
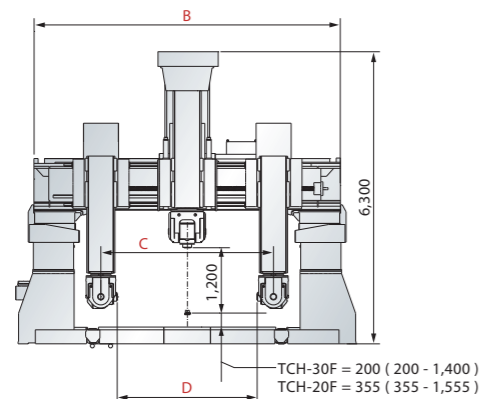
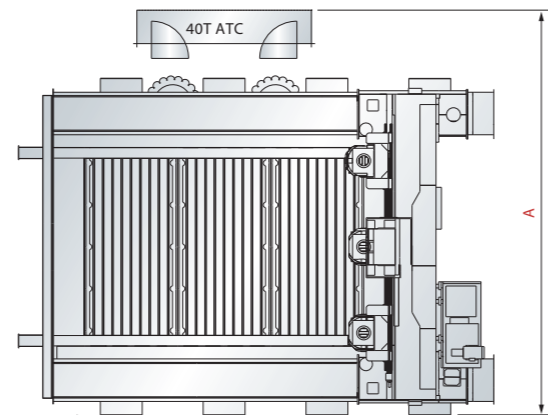


Unit : mm

MEGA5 G Machine Dimensions

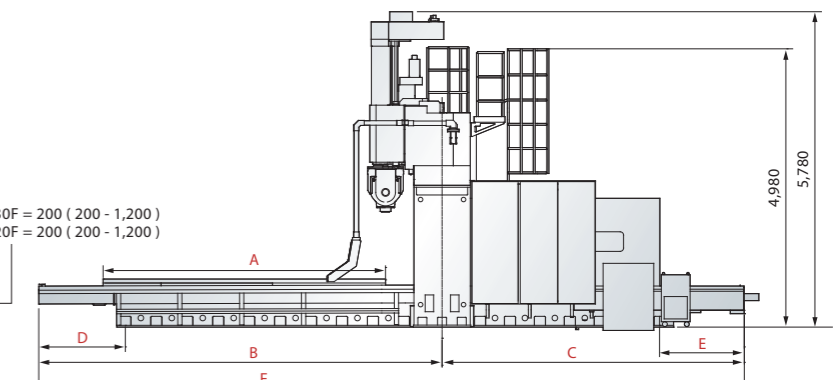
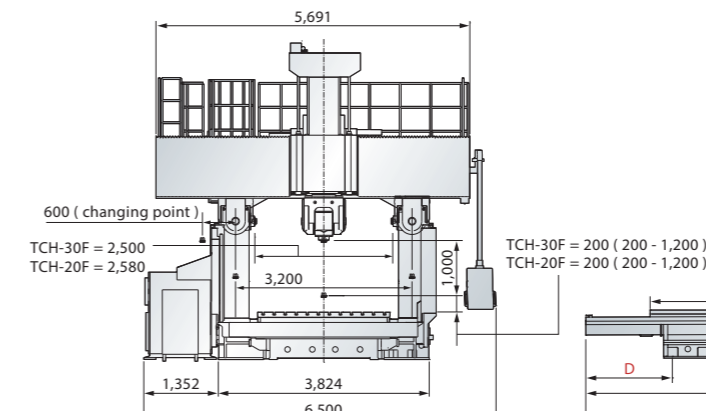
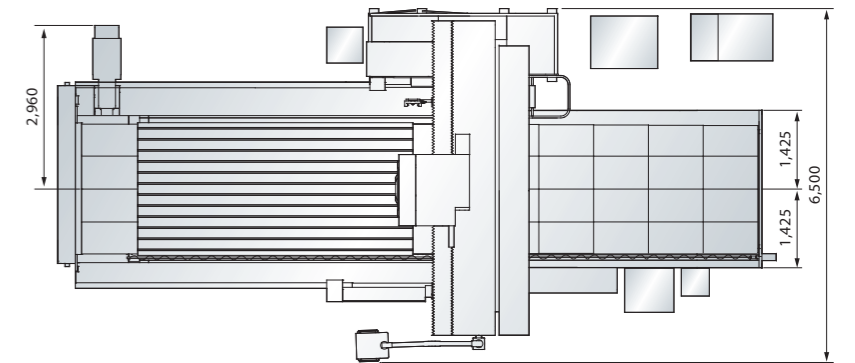
Models	MEGA5 GXX37		MEGA5 GXX47	
A	9,455		10,465	
B	6,563		7,563	
C	3,700		4,700	
D	TCH-30F 3,000	TCH-20F 3,080	TCH-30F 4,000	TCH-20F 4,080

Models	MEGA5 G40XX	MEGA5 G60XX	MEGA5 G80XX	MEGA5 G100XX
E	4,000	6,000	8,000	10,000
F	7,800	9,800	11,800	13,800



MEGA5 PXX32 Machine Dimensions

Models	MEGA5 P3032	MEGA5 P4032	MEGA5 P5032	MEGA5 P6032
A	3,020	4,020	5,020	6,020
B	4,840	5,965	7,125	8,145
C	3,075	4,115	5,270	6,260
D	1,115	1,205	1,540	1,530
E	1,130	1,210	1,405	1,380
F	8,580	10,580	12,680	14,680



MEGA5 P Series

		MEGA5 P2526	MEGA5 P3026	MEGA5 P4026	MEGA5 P5026	
SPECIFICATIONS						
X-axis travel	mm	2,500	3,000	4,000	5,000	
Y-axis travel	mm	2,620				
Z-axis travel	mm	1,000				
Distance between columns	mm	1,700				
Distance from spindle nose to table top	mm	200 ~ 1,200 *1				
Distance from 90° spindle center line to table	mm	510 ~ 1,510 *1				
TABLE						
Table size (X x Y)	mm	2,310 x 1,500	3,260 x 1,500	4,200 x 1,500	5,000 x 1,500	
T slot (Width x Pitch)	mm	22 x 170				
Table load capacity	kg	8,000	10,000	12,000	14,000	
SPINDLE						
Spindle taper		HSK-A63 *1				
Spindle motor (S1 / S6 40%)	kW	42 / 55 *1				
Max. spindle speed	rpm	24,000 *1				
FEED RATE						
X-axis rapid feed rate	m/min.	20	20	15	10	
Y-axis rapid feed rate	m/min.	20				
Z-axis rapid feed rate	m/min.	15				
Cutting feed rate	m/min.	10				
TOOL MAGAZINE						
Tool magazine capacity	T	40				
Max. tool length	mm	350				
Max. tool weight	kg	8				
Max. tool diameter / adj. pocket empty	mm	Ø140 / Ø180				
ACCURACY						
Positioning accuracy (JIS B 6338)	mm	± 0.015 / Full Travel				
Positioning accuracy (VDI 3441)	mm	P ≤ 0.025 / Full Travel	P ≤ 0.025 / Full Travel	P ≤ 0.030 / Full Travel	P ≤ 0.040 / Full Travel	
Repeatability (JIS B 6338)	mm	± 0.003				
Repeatability (VDI 3441)	mm	Ps ≤ 0.020	Ps ≤ 0.020	Ps ≤ 0.025	Ps ≤ 0.030	
GENERAL						
Coolant tank capacity	liter	420				
Lubrication oil tank capacity	liter	6				
Hydraulic tank capacity	liter	100				
Pneumatic pressure requirement	kg/cm ²	5 - 8				
Machine weight	kg	33,000	35,000	37,000	41,000	
Max. work-piece dimension	Length (X-axis)	mm	2,310	3,000	4,000	5,000
	Width (Y-axis)	mm	1,500			
	Height (Z-axis)	mm	850			

*1 Specifications for the TCH-20F, please contact AWEA representative for other options.

Standard Accessories

- Spindle cooling system
- X / Y / Z axes with optical linear scales
- Centralized automatic lubricating system
- Coolant system with pump and tank
- Dual chip augers
- Caterpillar type chip conveyor and bucket
- Electric cabinet with air conditioner
- Manual Pulse Generator (MPG)
- Foot switch for tool release
- Swing type control panel

		MEGA5 P3032	MEGA5 P4032	MEGA5 P5032	MEGA5 P6032	
SPECIFICATIONS						
X-axis travel	mm	3,000	4,000	5,000	6,000	
Y-axis travel	mm	3,200				
Z-axis travel	mm	1,000 (1,200 opt.)				
Distance between columns	mm	2,700				
Distance from spindle nose to table top	mm	TCH-30F = 200 ~ 1,200 (200 ~ 1,400 opt.) TCH-20F = 200 ~ 1,200 (200 ~ 1,400 opt.)				
Distance from 90° spindle center line to table	mm	TCH-30F = 550 ~ 1,550 (550 ~ 1,750 opt.) TCH-20F = 510 ~ 1,510 (510 ~ 1,710 opt.)				
TABLE						
Table size (X x Y)	mm	3,020 x 2,400	4,020 x 2,400	5,020 x 2,400	6,020 x 2,400	
T slot (Width x Pitch)	mm	28 x 200				
Table load capacity	kg	12,000	15,000	18,000	20,000	
SPINDLE						
Spindle taper		HSK-A100 *2				
Spindle motor (S1 / S6 40%)	kW	40 / 50 *2				
Max. spindle speed	rpm	12,000 *2				
FEED RATE						
X-axis rapid feed rate	m/min.	20	15	10	10	
Y-axis rapid feed rate	m/min.	12				
Z-axis rapid feed rate	m/min.	10				
Cutting feed rate	m/min.	10	8	5		
TOOL MAGAZINE						
Tool magazine capacity	T	40				
Max. tool length	mm	350				
Max. tool weight	kg	15				
Max. tool diameter / adj. pocket empty	mm	Ø140 / Ø180				
ACCURACY						
Positioning accuracy (JIS B 6338)	mm	± 0.010 / Full Travel				
Positioning accuracy (VDI 3441)	mm	P = 0.025 / Full Travel	P = 0.025 / Full Travel	P = 0.030 / Full Travel	P = 0.035 / Full Travel	
Repeatability (JIS B 6338)	mm	± 0.003				
Repeatability (VDI 3441)	mm	Ps = 0.018	Ps = 0.018	Ps = 0.022	Ps = 0.026	
GENERAL						
Coolant tank capacity	liter	750				
Lubrication oil tank capacity	liter	6				
Hydraulic tank capacity	liter	150				
Pneumatic pressure requirement	kg/cm ²	5 - 8				
Machine weight	kg	46,500	51,500	56,500	60,500	
Max. work-piece dimension	Length (X-axis)	mm	3,000	4,000	5,000	6,000
	Width (Y-axis)	mm	2,400			
	Height (Z-axis)	mm	850			

*2 Specifications for the TCH-30F, please contact AWEA representative for other options. Specifications are subject to change without notice.

Optional Accessories

- 20 / 40 bar Coolant through spindle
- Automatic tool length measurement
- Automatic work piece measurement
- Fully enclosed splash guard w/o roof
- Pendulum type control panel

MEGA5 G Series

		MEGA5 G4037	MEGA5 G6037	MEGA5 G8037	MEGA5 G10037	
SPECIFICATIONS						
X-axis travel	mm	4,000	6,000	8,000	10,000	
Y-axis travel	mm	3,700				
Z-axis travel	mm	1,200 (1,400 opt.)				
Distance between columns	mm	4,800				
Distance from spindle nose to table top	mm	TCH-30F = 200 ~ 1,400 (200 ~ 1,600 opt.) TCH-20F = 355 ~ 1,555 (355 ~ 1,755 opt.)				
Distance from 90° spindle center line to table	mm	TCH-30F = 550 ~ 1,750 (550 ~ 1,950 opt.) TCH-20F = 665 ~ 1,865 (665 ~ 2,065 opt.)				
TABLE						
Table size (X x Y)	mm	4,000 x 3,800	6,000 x 3,800	8,000 x 3,800	10,000 x 3,800	
T slot (Width x Pitch)	mm	28 x 200				
Table load capacity	kg/m ²	2,500				
SPINDLE						
Spindle taper		HSK-A100 *2				
Spindle motor (S1 / S6 40%)	kW	40 / 50 *2				
Max. spindle speed	rpm	12,000 *2				
FEED RATE						
X-axis rapid feed rate	m/min.	20				
Y-axis rapid feed rate	m/min.	15				
Z-axis rapid feed rate	m/min.	10				
Cutting feed rate	m/min.	10				
TOOL MAGAZINE						
Tool magazine capacity	T	20				
Max. tool length	mm	350				
Max. tool weight	kg	15				
Max. tool diameter / adj. pocket empty	mm	Ø160 / Ø230				
ACCURACY						
Positioning accuracy (JIS B 6338)	mm	± 0.010 / Full Travel				
Positioning accuracy (VDI 3441)	mm	P=0.025 / Full Travel	P=0.035 / Full Travel	P=0.040 / Full Travel	P=0.050 / Full Travel	
Repeatability (JIS B 6338)	mm	± 0.003				
Repeatability (VDI 3441)	mm	Ps = 0.018	Ps = 0.026	Ps = 0.030	Ps = 0.038	
GENERAL						
Coolant tank capacity	liter	1,600				
Lubrication oil tank capacity	liter	6				
Hydraulic tank capacity	liter	150				
Pneumatic pressure requirement	kg/cm ²	6 - 8				
Machine weight	kg	72,000	84,500	104,500	132,000	
Max. work-piece dimension	Length (X-axis)	mm	4,000	6,000	8,000	10,000
	Width (Y-axis)	mm	3,700			
	Height (Z-axis)	mm	1,050			

*2 Specifications for the TCH-30F, please contact AWEA representative for other options.

Standard Accessories

- Spindle cooling system
- X / Y / Z axes with optical linear scales
- Centralized automatic lubricating system
- Coolant system with pump and tank
- Dual chip augers
- Caterpillar type chip conveyor and bucket
- Electric cabinet with air conditioner
- Swing type control panel
- Mobile handwheel
- Foot swith for tool release
- ATC with 20 tools magazine

		MEGA5 G6047	MEGA5 G8047	MEGA5 G10047	
SPECIFICATIONS					
X-axis travel	mm	6,000	8,000	10,000	
Y-axis travel	mm	4,700			
Z-axis travel	mm	1,200 (1,400 opt.)			
Distance between columns	mm	5,800			
Distance from spindle nose to table top	mm	TCH-30F = 200 ~ 1,400 (200 ~ 1,600 opt.) TCH-20F = 355 ~ 1,555 (355 ~ 1,755 opt.)			
Distance from 90° spindle center line to table	mm	TCH-30F = 550 ~ 1,750 (550 ~ 1,950 opt.) TCH-20F = 665 ~ 1,865 (665 ~ 2,065 opt.)			
TABLE					
Table size (X x Y)	mm	6,000 x 4,800	8,000 x 4,800	10,000 x 4,800	
T slot (Width x Pitch)	mm	28 x 200			
Table load capacity	kg/m ²	2,500			
SPINDLE					
Spindle taper		HSK-A100 *2			
Spindle motor (S1 / S6 40%)	kW	40 / 50 *2			
Max. spindle speed	rpm	12,000 *2			
FEED RATE					
X-axis rapid feed rate	m/min.	20			
Y-axis rapid feed rate	m/min.	12			
Z-axis rapid feed rate	m/min.	10			
Cutting feed rate	m/min.	10			
TOOL MAGAZINE					
Tool magazine capacity	T	20			
Max. tool length	mm	350			
Max. tool weight	kg	15			
Max. tool diameter / adj. pocket empty	mm	Ø160 / Ø230			
ACCURACY					
Positioning accuracy (JIS B 6338)	mm	± 0.010 / Full Travel			
Positioning accuracy (VDI 3441)	mm	P=0.035 / Full Travel	P=0.040 / Full Travel	P=0.050 / Full Travel	
Repeatability (JIS B 6338)	mm	± 0.003			
Repeatability (VDI 3441)	mm	Ps = 0.026	Ps = 0.030	Ps = 0.038	
GENERAL					
Coolant tank capacity	liter	1,900			
Lubrication oil tank capacity	liter	6			
Hydraulic tank capacity	liter	150			
Pneumatic pressure requirement	kg/cm ²	6 - 8			
Machine weight	kg	119,500	139,500	167,000	
Max. work-piece dimension	Length (X-axis)	mm	6,000	8,000	10,000
	Width (Y-axis)	mm	4,700		
	Height (Z-axis)	mm	1,050		

Please check with our sales representative the possibility for machine sizes other than listed above.

Specications are subject to change without notice.

Optional Accessories

- 20 / 40 bar coolant through spindle
- ATC with 40 tools magazine
- Automatic tool length measurement
- Automatic work piece measurement