



## Chester 5 Axis Milling Machine • 400-5AX



### AUTOMATIC PALLET CHANGER OPTIONAL ACCESSORY



Technical Specifications	400-5AX		
<b>Travel</b>			
X/Y/Z Axes Travel	400/350/350mm		
B Axis Tilting Range	- 50° ~ + 110°degree		
C Rotating Range	360°degree		
Spindle Nose to Table Surface	150-500mm		
<b>Spindle</b>			
Spindle Transmission Type	Direct Drive		
Tool Shank	ISO40		
Spindle Speed	12000rpm		
<b>ATC</b>			
Magazine Capacity	30 Tools		
<b>Taper</b>			
Taper	BBT40		
Max. Tool Length	250mm		
Max. Tool Diameter/No Adjacent Tool)	75/127mm		
<b>Motor</b>			
Spindle Motor (Cont./30 Mins)	10.6kw(14.42hp)		
X/Y/Z Axes Motor Power	3.14/3.3/3.14kw(4.27/4.49/4.27hp)		
B/C Axes Motor	4.9/2.29kw(6.66/3.11hp)		
<b>Accuracy Standards</b>			
	VDI3441	ISO 10791-4 ISO 230-2	JIS B6338
Positioning Accuracy	0.008mm	0.008mm	0.003/300
Repeatability Accuracy	0.004mm	0.004mm	± 0.002
B/C axis 0.001 - Positioning	10"	10"	
B/C axis 0.001 - Repeatability	5"	5"	
<b>B/C Axes</b>			
Worktable Size (External/Inner)	450mm		
Centre Hole Size	55mmH7x12mm In Depth		
T Slot/Pitch/Size	T14 Radial Type 8mm Slots		
Max. workpiece Size	430mmx(50mm+R389mm)L		
Max. Worktable Loading	150kg		
<b>Rapid Travel</b>			
X/Y/Z Axes Rapid Travel	48/48/48M/min		
B/C Axes Rapid Travel	25rpm		
Cutting Feedrate	1-20000mm/min		
<b>Control</b>			
Type	FANUC 0iMF		
<b>Miscellaneous</b>			
Machine Weight	6000kgs		
Coolant Tank	220L		
Dimension (L*W*H)	4126x2737x3013mm		
Power Requirement	20KVA		
Air Source	6kg/cm <sup>2</sup> /(1600c/min)		

### Standard Accessories:

- √ Siemens 840D (5 axes simultaneous)
- √ Direct Drive Spindle 12000rpm
- √ Spindle Oil Cooler
- √ Spindle Motor Plate Cooling System
- √ Spindle Air Seal System
- √ Spindle Programmable Air Blow
- √ Spindle Splash Ring
- √ Chip Auger
- √ Chip Cart
- √ Water Gun
- √ Air Gun
- √ Full Enclosure
- √ Top Enclosure
- √ Worktable Tailstock Support
- √ Front Door/Side Door Safety Switch
- √ Automatic Grease Lubrication(X/Y/Z)
- √ ATC
- √ Taper BBT40
- √ Tool Capacity 30T
- √ 3 Axes Roller Type Linear Guideways
- √ 3 Axes Linear Scales (Heidenhain)
- √ B Axes Linear Scales (Heidenhain)
- √ C Axes Linear Scales (Heidenhain)
- √ Z Axes Motor System w/Brake
- √ Worklight
- √ Alarm Light
- √ M30 Auto Shut Off
- √ Heat Exchanger

### Optional Accessories:

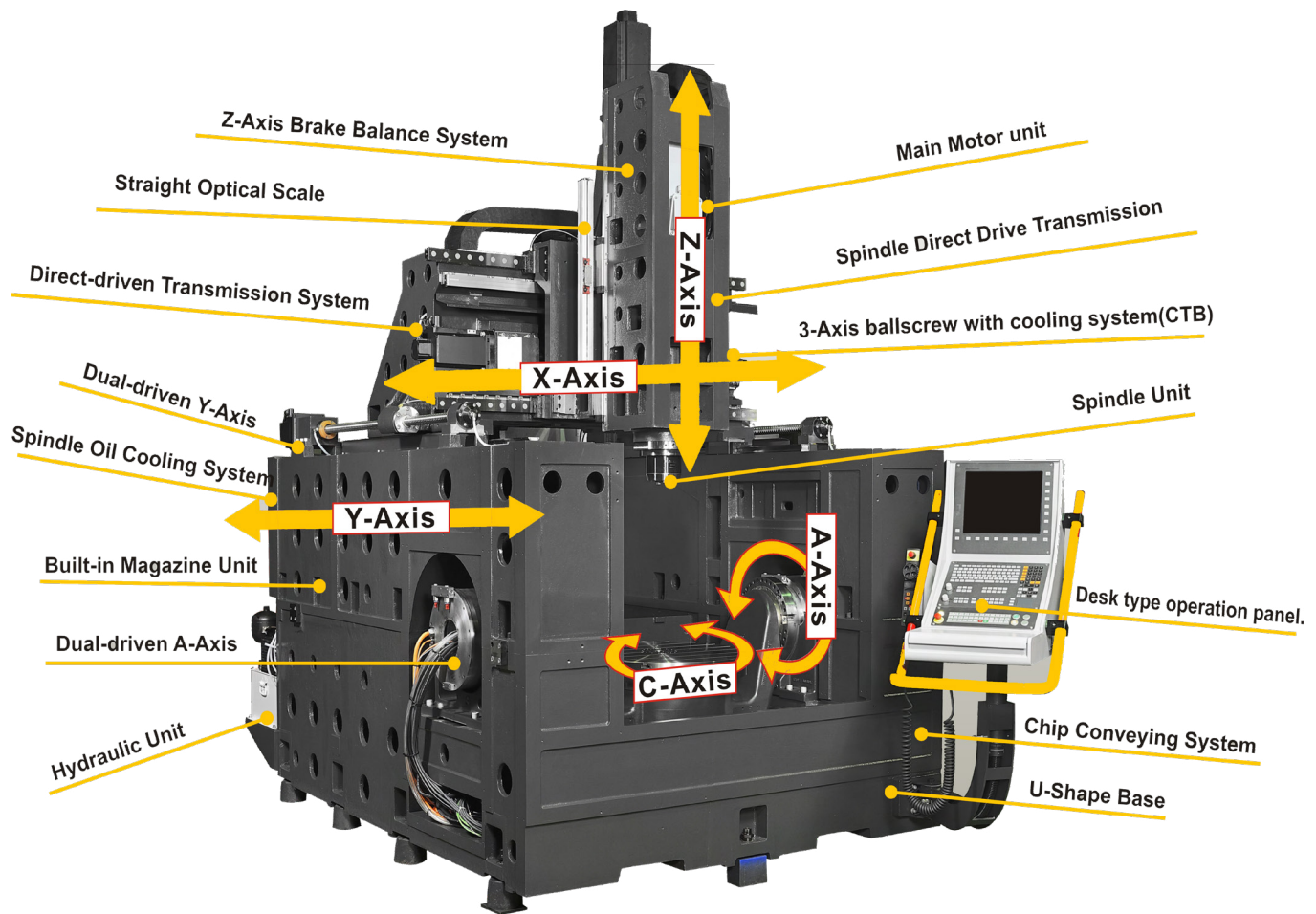
- Fanuc 0iMF(4+1)
- HEIDENHAIN TNC-620 (4+1)
- HEIDENHAIN TNC-640 (5 axes simultaneous)
- Direct Drive Spindle 15000rpm
- Coolant Through Spindle(CTS)
- Coolant Cooling System
- Chain Type Chip Conveyor
- Flush Device
- Laser Tool Length Measurement
- Touch Type Tool Length Measurement TT140
- Wireless workpiece Measurement TS640
- Air Outlet to Fixture
- Large Table 450mm
- Disc Type Coolant Separator
- Tool Capacity 48T
- Air Conditioner
- Transformer
- Anti Collision Software
- Center Calibration Function
- Oil Mist Collector
- Rotary Window
- Thermal Compensation
- Automatic Pallet Changer

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## New Level of Kinematics



### High Performance 5 Axis Machining Centre's

- Through the interaction of 5 axes, the Chester 5AX series will execute machining of complicated Workpiece shapes, they also feature one-process clamping for multi-face machining.
- This new generation of machines offer high-efficiency production achieved by high quality machining and working sequence.
- They provide the perfect integral configuration by combining ergonomics and the latestest operation technology.

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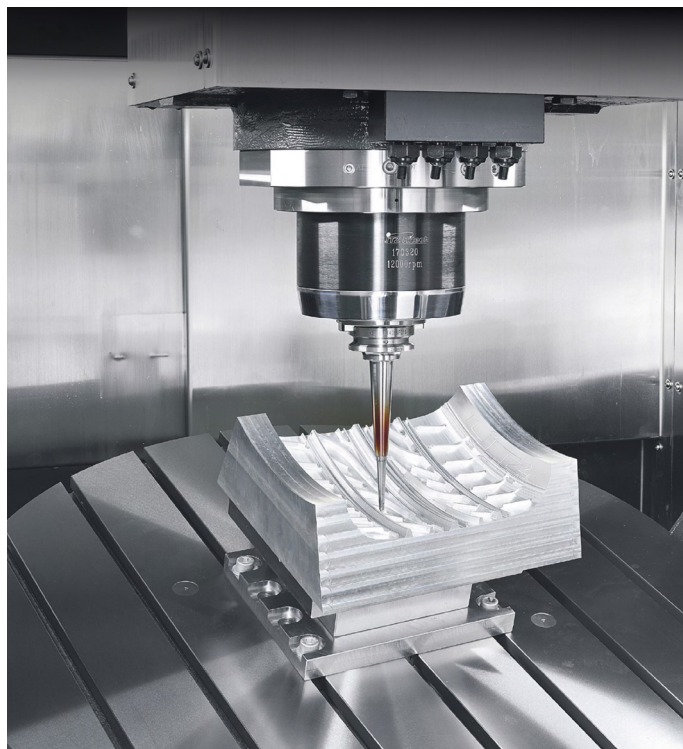
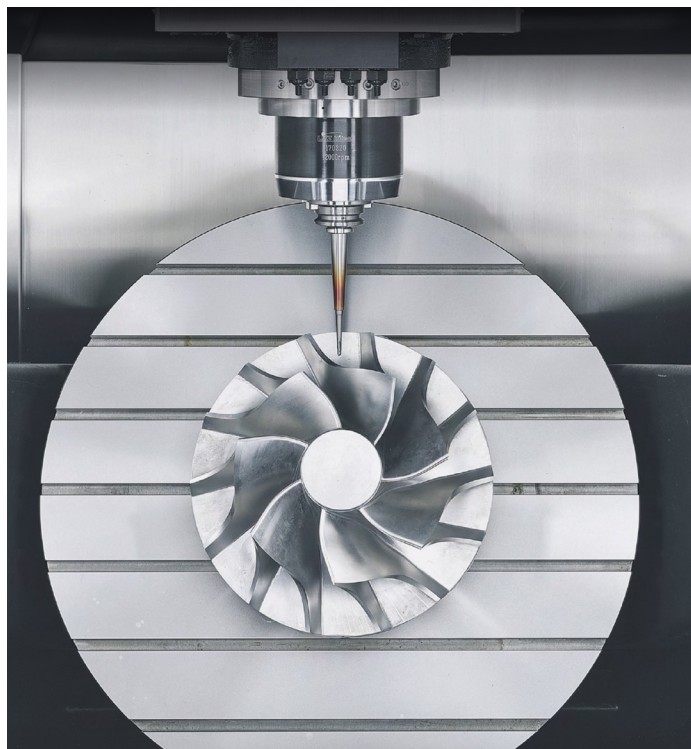
## High Performance Control

The Chester 5AX Series are designed for highly efficient production. They are equipped with a high performance control system to execute high-speed contour control for achieving the optimal surface precision and accuracy within the shortest machining and working time. Driven by a highly dynamic 5-axis.



**Vertical Machining Centre (5 Axis)**  
Entering a new era for 5 axis machining.

**Crane-type High-Level 5 Axis Machining Centre**  
The most advanced Direct drive spindle can handle high speed tooling to carry out economical and accurate machining by direct drive to the Rotary C-Axis and tilt A-Axis.

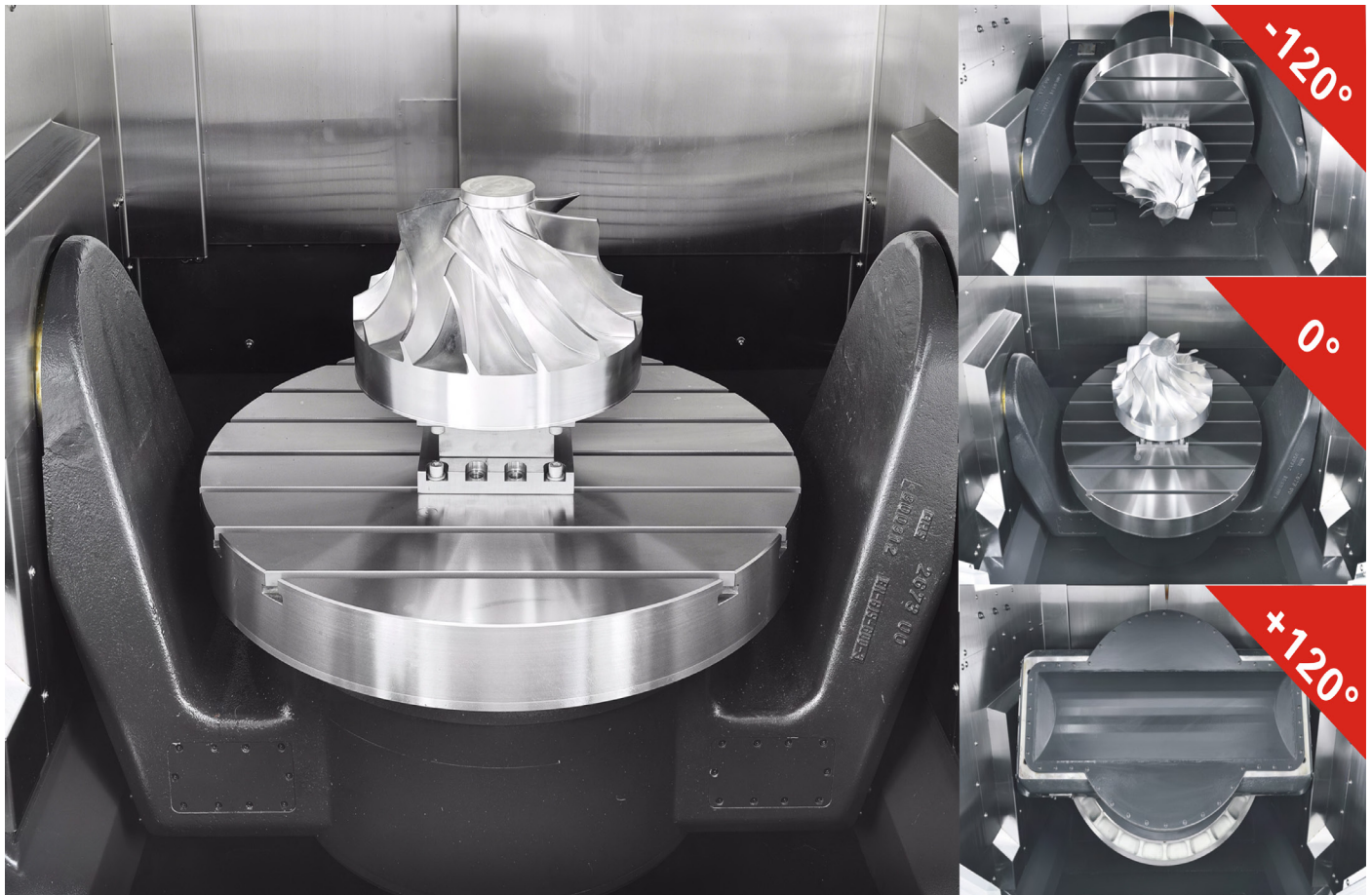


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## A, C Axes (Rotary Axes) Unit



A, C Axes are using the Direct Drive Motor to work with the Rotary Table detected by the encoder. Its performance is superior in power transmission efficiency and the reduction of power consumption than conventional worm gear configuration.

### Higher freedom in the working area

Working Bench load:

- Chester 1200-5AX A/B max. load up to 2000kgs
- Chester 800-5AX A/B max. load up to 1000kgs
- Chester 620-5AX A/B max. load up to 300kgs
- Chester 400-5AX A/B max. load up to 150kgs

Table free of chip swarf

The tilting A-Axis and the Rotary C Axis are in the Workpiece centre (U-shape)

The dual-drive calibration function prevents twisted deformation

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## Tool Magazine Unit



### ■ 1200-5AX

Magazine capacity: 24T  
 Max. Tool Length: 400mm  
 Max. Tool Dia.: 125mm  
 Max. Tool Weight: 15kgs  
 Max. Machine Load: 240kgs

### ■ 800-5AX

Magazine capacity: 32T  
 Max. Tool Length: 300mm  
 Max. Tool Dia.: 75mm  
 Max. Tool Weight: 7kgs  
 Max. Machine Load: 128kgs

### ■ 620-5AX

Magazine capacity: 32T  
 Max Tool Length: 250mm  
 Max Tool Diameter  
 (No adjacent tool): 75 (127)  
 Max Tool Weight: 7kgs  
 Maximum Tool Load: 224kgs

### ■ 400-5AX

Magazine capacity: 30T  
 Max tool length: 250mm  
 Max Tool Diameter  
 (No adjacent tool): 75 (127)  
 Max Tool Weight: 7kgs  
 Maximum Tool Load: 210kgs

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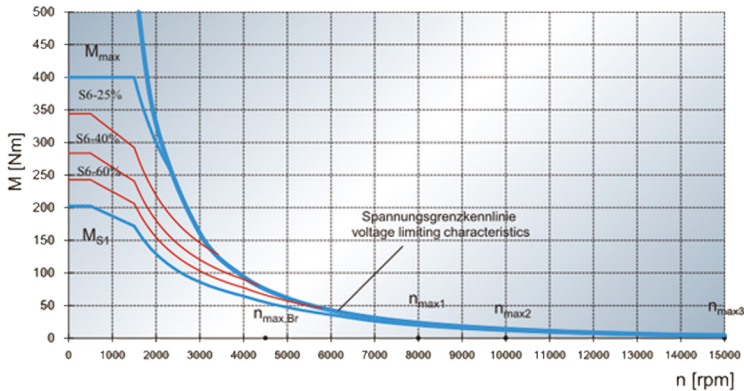
# Spindle Motor Torque

Advanced spindle technology ensures a total-torque output within the low speed range, comprising of a highly stabilised ceramic spindle bearing and housing fitted with a constant temperature cooling unit to maintain the spindle at a fixed temperature during the entire operation process.

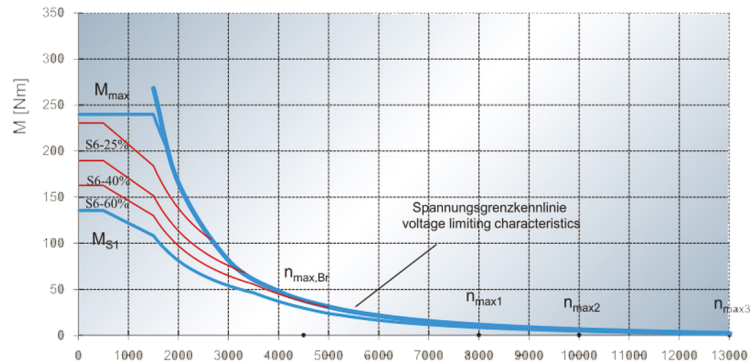
Spindle Motor Torque Curve - 1200-5AX

Spindle Motor Torque Curve - 800-5AX

Spindle Motor: 1PH8137



Spindle Motor: 1PH8133



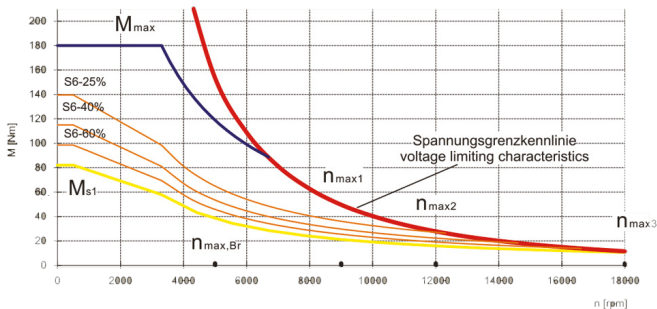
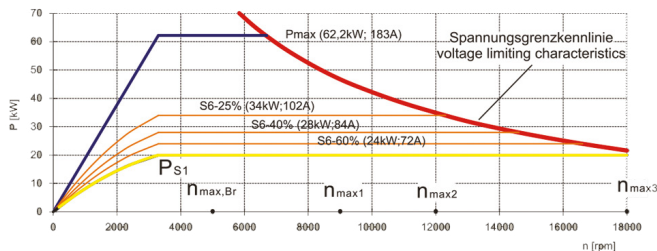
Spindle Motor Torque Curve - 620-5AX

Spindle Motor Torque Curve - 400-5AX

## Heidenhain TNC-640

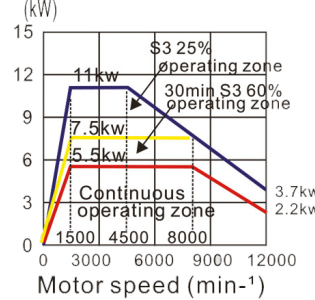
Tabelle 1-476 SINAMICS, 3 AC 400 V, Active Line Module, (ALM), 1PH8107-□□M2□□.

$n_N$ [rpm]	$P_N$ [kW]	$M_N$ [Nm]	$I_N$ [A]	$n_{max1}$ [rpm]	$n_{max2}$ [rpm]	$n_{max3}$ [rpm]	$n_{max, Br}$ [rpm]	$n_2$ [rpm]	$M_{max}$ [Nm]	$I_{max}$ [A]	$M_0$ [Nm]	$I_0$ [A]
3300	20,0	58	60,0	9000	12000	18000	5000	18050	180	183	82	73
3000	18,0	57	60,0					18050				

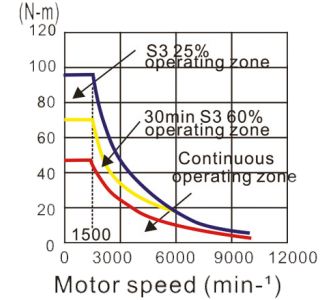


## FANUC 0iMF Applicable amplifier αiSP 11 βiSVSP\*-11

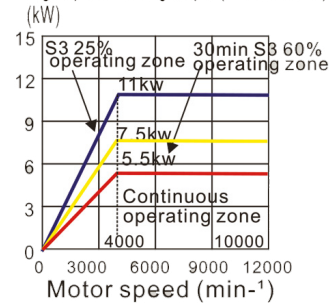
Low-speed winding output (Y connection) (kW)



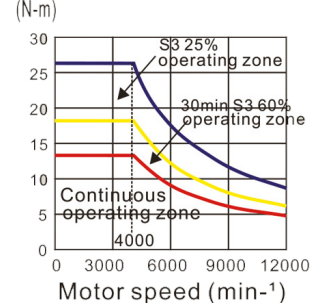
Low-speed winding torque (Y connection) (N·m)



High-speed winding output (Δ connection) (kW)



High-speed winding torque (Δ connection) (N·m)



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