



AMS[®]
In Pursuit of Excellence

HORIZONTAL

Machining Centers HMC & CMH Series



- PROTON 40
- HMC - 400 XL
- FIER - H
- CMH - 400
- CMH - 400 XL
- CMH - 500
- CMH - 500/50

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Horizontal Machining Centers



Proton

The surge in demand for high technological products has provided a great opportunity for the development of horizontal machining centers in the country. Leveraging on the successful development of vertical machining centers, AMS has developed horizontal machining centers to cater to the high demand for such products. In the past decade AMS has designed and developed horizontal machining centers with different configurations and sizes to meet the requirement of machines with higher productivity. The new generation of horizontal machining centers includes the standard table moving machine series (HMC) as well as the moving column machine series (CMH). Both the varieties have created a large market for themselves based on the application. AMS horizontal machines are designed and manufactured to suit production application. It is a constant endeavor of our engineering team to enhance the reliability and performance of these machine models.

The HMC series which is on an economical platform, has undergone continuous evolution and the new generation machines include the preferred products with the most favored specifications. This configuration has machines with the X and Z axes provided to the table and the spindle moves in the Y axis alone. The HMC 400 XL machine in its standard form comes with an index table and the automatic pallet changer is offered as an option & In CMH series all 3 axes provided to column only & Table stationary.

The column moving machines (CMH) are the new generation of horizontal machining centers introduced by AMS in the recent years. Continuous demand from the customers has inspired AMS to adapt the column moving configurations to meet the varying application requirements.

High Speed Spindles

Quadruplex back to back arrangement, optimally pre-loaded and grease lubricated. The spindles are dynamically balanced to perform better.



BT-40

BT-50

Automatic Tool Changer

CMH 400 /CMH 500 comes with 20 / 30 / 40 & 60 tool Automatic Tool Changer as standard feature.

CMH 500 comes with 20 tool ATC as standard feature for BT 50 Spindle taper.

Proton & HMC 400 XL come with 16 & 24 tool ATC as standard feature. 30 tool ATC can be provided as an optional feature for both HMCs.

Fier H can be equipped with 20 / 30 tool ATC with BT 40 spindle taper.



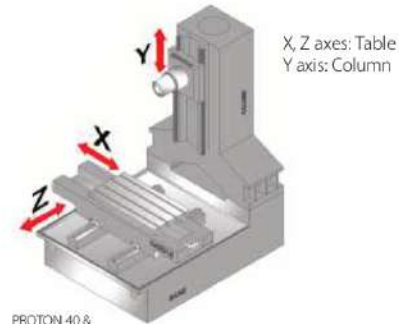
Ease of Operation

In the design of our machines, in addition to the functional aspects, ergonomics are given equal priority. Optimum job loading height, easy access to the spindle, ease of chip removal, maintenance friendliness are some of the key aspects considered. We also provide Total Productive Maintenance (TPM) features on the machines as options. It is our continuous endeavor to improve the existing products to cater to the needs and expectations of the customer.



Axes configuration

HMC – Stationary column

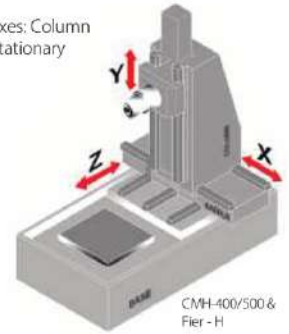


X, Z axes: Table
Y axis: Column

PROTON 40 & HMC 400 XL

HMC – Column moving & Stationary table (CMH)

X, Y, Z axes: Column
Table: Stationary



CMH-400/500 & Fier - H

Automatic Pallet Changer

Automatic pallet changer is an optional feature in Proton 40, HMC-400 XL & CMH series

The pallets can be mounted on an index table or a rotary table as an option



Total Solutions

- Process identification
- Fixture development & interface
- Automation integration
- Complete prove-out

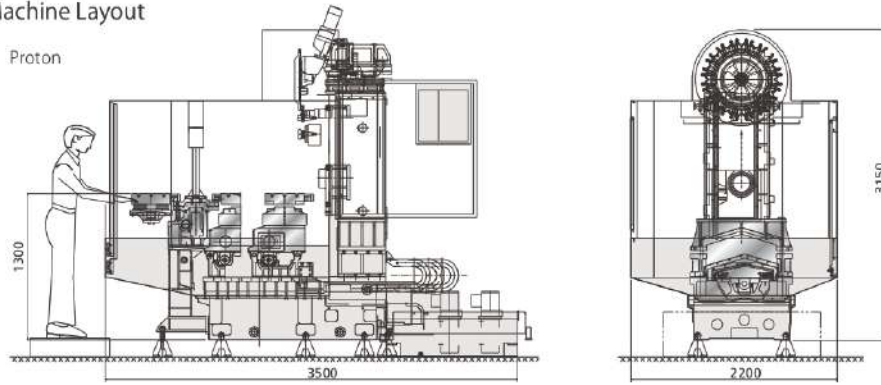
Tooled up solutions

The application engineering team of AMS has wide experience in identifying the process for machining and providing suitable workholding and tooling solutions. This ranges across the markets from high speed & productivity solutions for the automotive industry to the high precision and accuracy solutions for the aerospace or mould making industry. This not only includes support in selection of the most suitable machines but also designing the fixtures and identification of the ideal cutting tool for the selected process. The entire prove out of the components to meet the desired cycle time can be undertaken when solutions are opted for.

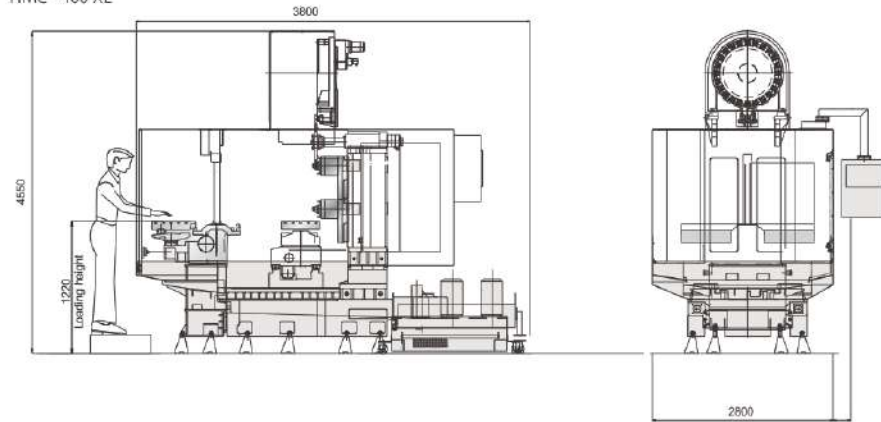


Machine Layout

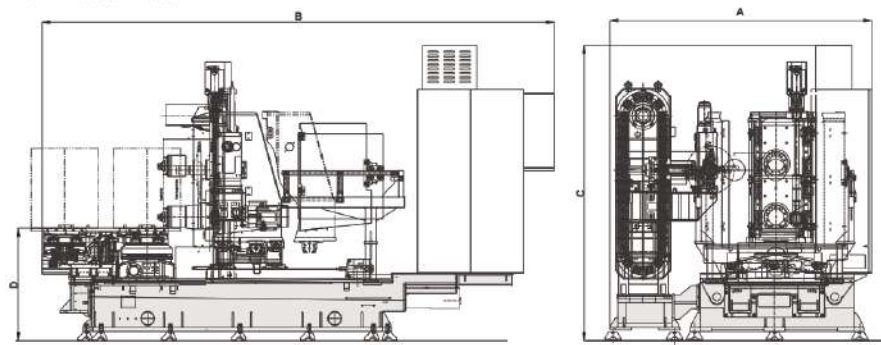
Proton



HMC - 400 XL



CMH-400 / CMH-500



	A (width)	B (depth)	C (height)	D
PROTON	2200	3500	3150	1200 / 1300
HMC - 400 XL	2800	3800	4450	1220
FIER-H	1850	4200	3300	1160
CMH 400	2800	4200	2700	1050
CMH 400 XL	2800	5200	3000	1050
CMH 500	3300	5500	3000	1060
CMH 500 / 50	3500	5500	3000	1060

Horizontal Machining Centers

COLUMN TYPE	Unit	STATIONARY			MOVING				
		PROTON	HMC - 400 XL	FIER-H	CMH 400	CMH 400 XL	CMH 500	CMH 500 / 50 CMH 500 XL	
CAPACITY									
Longitudinal travel (X - Axis)	mm	500	600	550	600	600	800	800	
Headstock travel (Y - Axis)	mm	400	500	500	500	500	550	550	
Cross travel (Z - Axis)	mm	400	500	500	500	500	550	550	
Spindle center to table / pallet	mm	125-525 (P)	125 - 625 (I.T)	100 - 600	110 - 610	110 - 610	120 - 670	150 - 700	
Table center to spindle face	mm	160-580	150 - 650	160 - 680	150 - 650	150 - 650	150 - 700	150 - 700	
Index table height from floor (Std. m/c)	mm	1200 / 1300	1220	1160	1070	1070	1070	1070	
TABLE									
Table / Pallet size	mm x mm	400x320	400 x 500	400 x 500	400 x 500 (2)	400 x 500	500 x 630	500 x 630	
T - slot (No.x size x pitch)		3 x 14 x 100	5 x 14 x 80	5 x 14 x 80	5 x 14 x 80	5 x 14 x 80	5 x 18 x 100	5 x 18 x 100	
Number of indexing position	Deg x Pos	1° x 360	1° x 360	1° x 360	1° x 360	1° x 360	1° x 360	1° x 360	
Max. load on Table / Pallet	kgf	200	400	400	400	400	500	500	
SPINDLE & AXES									
Spindle taper		7 / 24 No. 40	7 / 24 No. 40	7 / 24 No.40	7 / 24 No.40	7 / 24 No.40	7 / 24 No.40	7 / 24 No.50	
Spindle speed - Std.	rpm	60 - 6000	60 - 6000	60-6000	60 - 6000	60 - 6000	60 - 6000	40 - 4000	
Spindle speed - Opt	rpm	80 - 8000	80 - 8000	80-8000	80 - 8000	80 - 8000 /	80 - 8000 /	50-5000	
						100 - 10000	100 - 10000		
Spindle power - Std	kW	7.5 / 5.5	11 / 7.5	7.5 / 5.5	11 / 7.5	11 / 7.5	15 / 11	15 / 11	
Spindle power - Opt	kW	11 / 7.5	15 / 11	11 / 7.5	15 / 11	15 / 11			
Rapid traverse - X / Y / Z	m/min	40 / 40 / 40	40 / 40 / 32	40/40/40	40 / 40 / 32	50 / 50 / 40	32 / 32 / 32	32 / 32 / 32	
							40 / 40 / 40*	40 / 40 / 40*	
Feed rate	mm/min	1 - 10000	1 - 10000	1 - 10000	1 - 10000	1 - 10000	1 - 10000	1 - 10000	
Guideway Type		LM	LM	LM	LM	LM	LM	LM	
ACCURACY -- As per ISO 230-2									
Positioning accuracy	mm	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Repeatability	mm	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003	± 0.003	
AUTOMATIC TOOL CHANGER									
Tool change system		Disc Armless	Disc with twin arm	Disc with twin arm	Twin Arm	Twin Arm	Twin Arm	Twin Arm	
Tool storage capacity - Std / Opt	Nos.	16/30	24/30/40	24/30	20/30/40/60	20/30/40/60	40/60	20 / 30	
Pull stud - Std.		MAS-403	MAS-403	MAS-403	MAS-403	MAS-403	MAS-403	DIN 69872	
Max. tool dia with adjacent pockets full	mm	80	80	80	80	80	80	100	
Max. tool dia with adjacent pockets empty	mm	125	125	125	155	155	155	200	
Max. tool length	mm	250	250	250	250	300	350	400	
Max. tool weight	kgf	6	8	8	8	8	8	20	
Chip to chip time	sec	6.5 / 7.5	5	5.5	5.7	5	6	8	
Tool shank type		BT - 40	BT - 40	BT - 40	BT - 40	BT - 40	BT - 40	BT - 50	
CNC System FANUC - Std									
		0IMF	0IMF	0IMF	0IMF	0IMF	0IMF	0IMF	
INSTALLATION DATA									
Floor space	mm x mm	2200 x 3500	2800 x 3800	1850 x 4200	2800 x 4200	2800 x 5200	3300 x 5500	3500 x 5500	
Machine height	mm	3150	4550	3300	2700	3000	3000	3000	
Basic machine weight	kgf	5380	7000	7250	7500	7800	8500	8500	
Power supply (Basic Machine)	kVA	15	25	21	23	23	40	40	

* For CMH 500 XL & CMH 500 / 50 XL

All Specifications are subject to change without prior notice

Standard features

- Tool shank BT-40
- Rigid tapping
- Flood coolant, Coolant gun (HMC-400 XL & CMH series)
- 16 tool ATC for Proton 40 – Disc armless type
- 24 tool ATC for HMC-400 XL – Disc with twin arm type
- 20 / 40 tool Side mounted ATC for CMH series
- Chip flushing for HMC-400 XL & CMH series
- Laser calibration & Ball bar test
- Panel cooler for electrical cabinet

Optional features

- Higher Spindle power & Spindle speed
- HSK A63 Spindle in lieu of BT-40 for CMH series
- Through spindle coolant system
- Chip conveyor & Coil conveyor
- Index table - 1° x 360 Positions/ Rotary table 0.001°
- Automatic pallet changer – Rotary type
- Linear scale
- Ball screw cooling
- Spindle cooling
- TPM Friendly machine
- Tooling up solutions & Automation