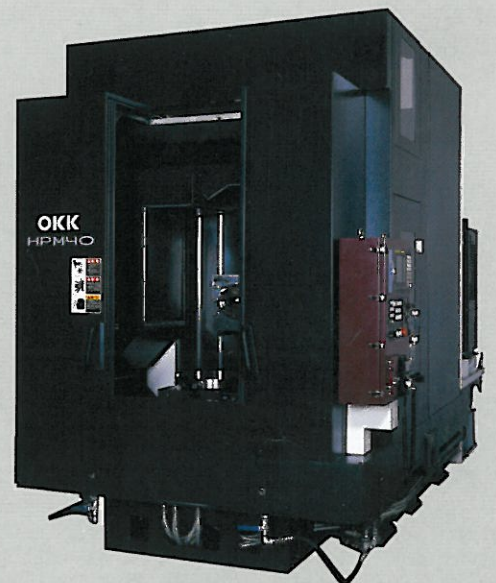


Horizontal Machining Center

HPM40



経験と実績から生まれた量産対応横型マシニングセンタ

OKK's HPM40 Horizontal Machining Center for Mass Production.
Compact, Powerful, Rigid, Accurate

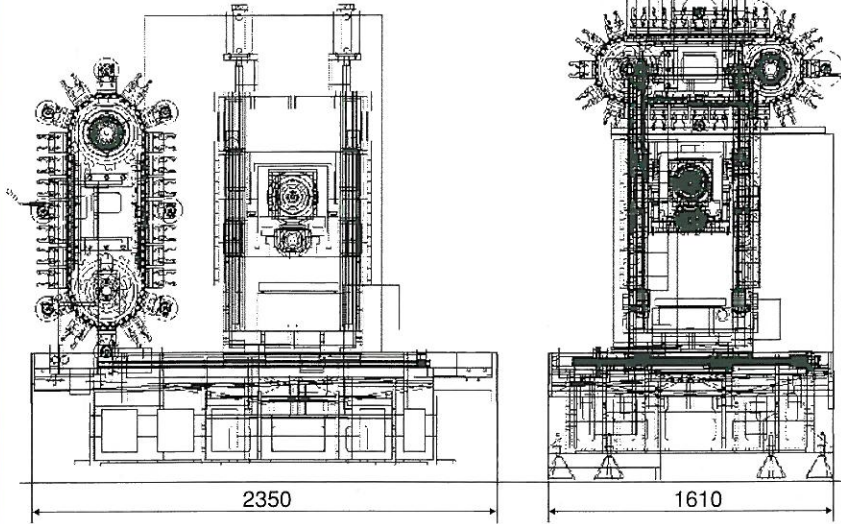
BT40マシニングセンタの定番機PM400の派生機として2006年に発表以降、ご愛顧いただいている HPM40 を次世代工場に適合すべく更なる進化を遂げました。

The HPM40 horizontal machining center was designed for the next generation factory. Our new design was based off of our 20 plus years of experience building our PM400 series machine. This 40 taper machine proved to be a staple within the industry for mass production machining.

ユーザー仕様に合わせた柔軟なフロアレイアウト
Flexible machine layout based on customer's specification.

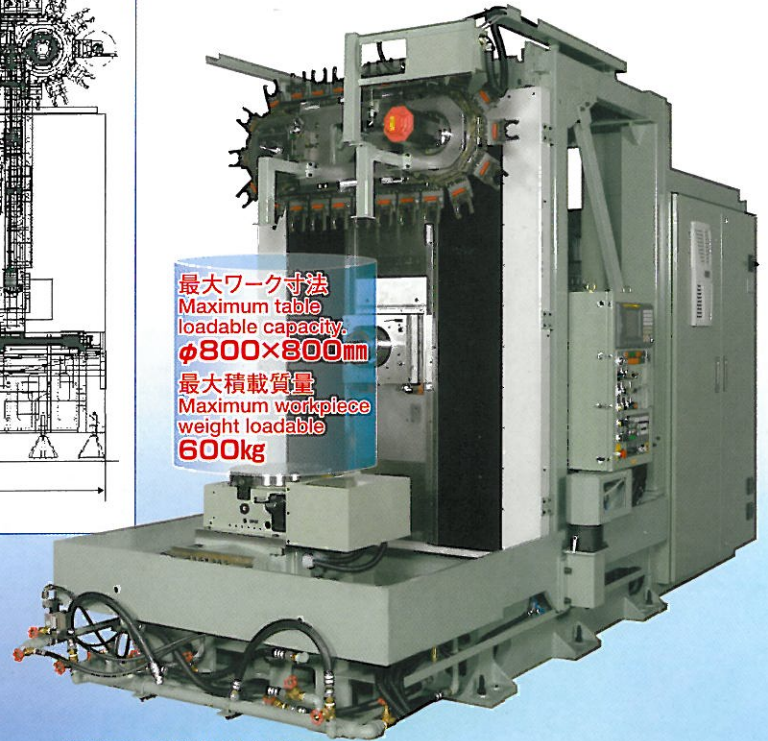
TYPE A

TYPE B



HPM40

TYPE B



●塗装色は、特殊仕様となります。

The painting color of the machine in this catalog is optional.

経験から生まれた量産支援機能 Standard Accessories need for 24/7 production environment.

Y軸にデュアルボールスクリューを採用

Use of Y-Axis twin ball screw drives suppresses machine vibration.

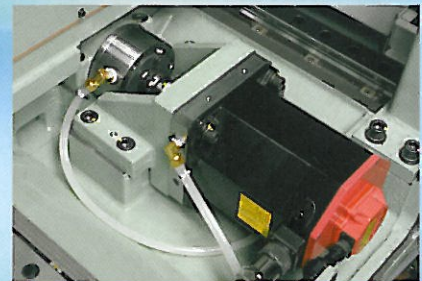
ソフトスケールⅡmを標準装備

送り軸及びモータフランジを強制冷却

Original OKK software Soft Scale Ⅱm compensates for thermal displacement.

中空ボールねじ冷却・モータフランジ冷却を採用することにより、加工精度の経時変化の低減を図っています。

All axis ball screws and motor flanges are core cooled to control thermal displacement.



ソフトスケールⅡmによる熱変位補正は、従来のデータを更に量産加工用にファインチューンし、より一層実環境に適応するバーチャルスケールフィードバックシステムとして再構築致しました。

Soft Scale Ⅱm monitors the machine's temperature at critical locations on the machine's casting and ambient temperature. An algorithm calculates the thermal displacement error and the NC unit automatically adjusts the X, Y and Z axis scale in accordance with the calculated error.

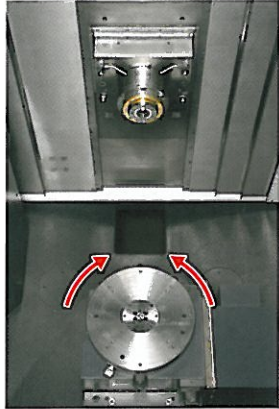
経験と実績を基に安定した量産加工を支援

HPM40 has demonstrated its capability in a 24/7 production environment.

経験から生まれた信頼性 Reliability backed up with experiences.

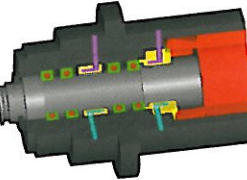
セントラフ切粉直下形
ヘッド構造

A center disposal trough design allows for efficient chip disposal.



抜群の信頼性を誇る
自社主轴

OKK manufactured spindle has demonstrated incomparable reliability.

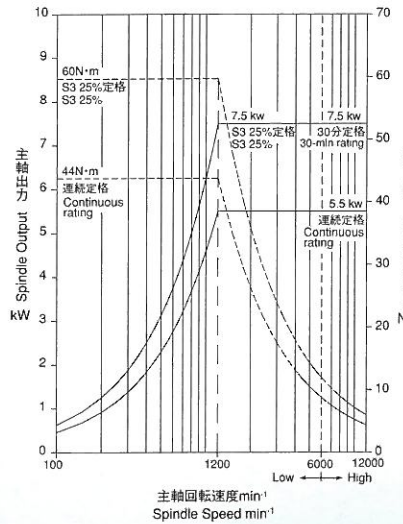


アームレスダイレクトATC

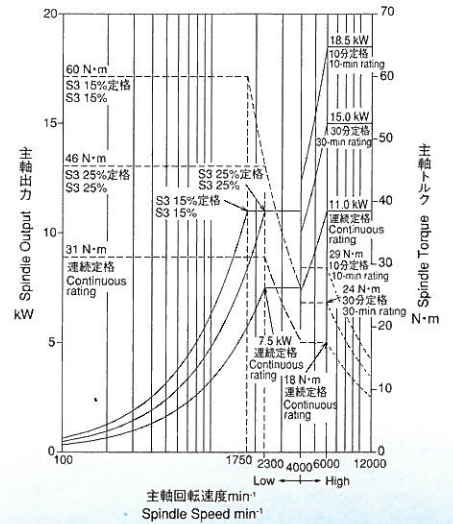
Armless direct ATC is a simple mechanical design. ie: No moving parts

主轴回転速度出力線図 Spindle motor

省エネタイプ
Energy-saving type



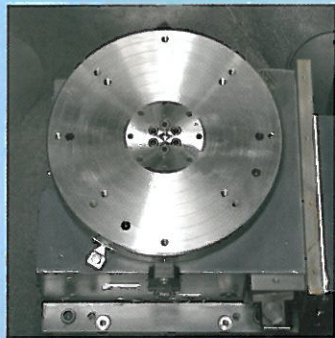
高馬力タイプ
High-power type



経験から生まれた機械構造 Machine structure based on experiences.

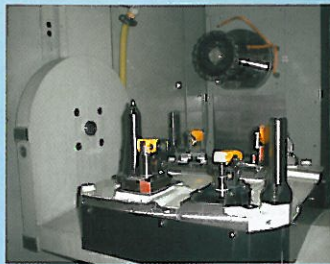
B軸機構内に治具制御用として6ポートを標準装備

B-Axis rotary table comes standard with 6-port internal rotary union.



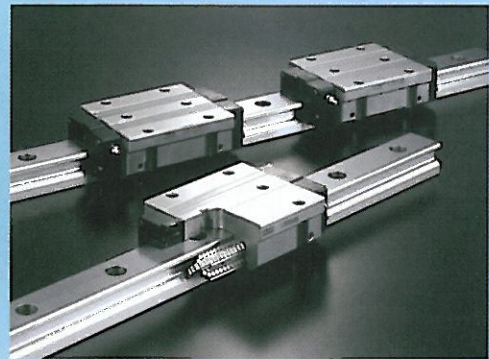
A軸治具仕様

Trunnion Fixture Design with A-axis



高剛性円筒ころスライドの採用

Use of highly rigid cylindrical roller slide.



Corporate Ecological Responsibility. (企業の社会的責任) という観点からも省資源化を促進。

Energy saving features have been included that incorporate ecological responsibility.

好環境対応 (オプション仕様含む)

Ecological improvements (Includes optional specifications)

- グリス潤滑方式の採用 Use of grease lubrication system
- インバーター制御機器の採用 Use of inverter controlled equipment
- 工具振れ検知装置の搭載 Use of tool runout detector
- クーラントフラッシュの最適化 Optimized coolant flush

エネルギーの削減可能率

Energy Saving Rates

- エア消費量……………30%削減 Air consumption: 30% reduction
- 電力消費量……………30%削減 Power consumption: 30% reduction
- 加工 仕損……………50%削減 Defective processing: 50% reduction (特定部位) (optional specification)
- クーラント使用量…20%削減 Coolant consumption: 20% reduction
- 圧力損失……………20%削減 Pressure loss: 20% reduction

機械本体主要仕様 Main Specifications

項目 Item	単位 Unit	TYPE A	TYPE B
X軸移動量 Travel on X axis	mm	600	
Y軸移動量 Travel on Y axis	mm	600	500
Z軸移動量 Travel on Z axis	mm	500	
テーブル中心から主軸端面までの距離 Distance from table center to spindle nose	mm	120~620	
床面からテーブル作業面までの高さ Distance from floor to table work surface	mm	1,015	
最大ワーク寸法 Maximum workpiece dimensions	mm	φ800 × (Height) 800	
テーブルの最大積載質量 Max. workpiece weight loadable on table	kg	600	
テーブルの最小割出し角度 BRT Minimum indexable angle of table (BRT specification)	deg	0.001	
主軸回転速度 Spindle speed	min ⁻¹	100~12,000	
主軸回転速度域変換数 Number of spindle speeds		電気式2段 2 speeds changed electrically	
ツールシャंक形式 Tool shank (nominal number)		JIS B6339 BT40	
主軸軸受内径 Spindle bearing bore diameter	mm	φ65	
主軸モータ出力 Spindle motor output	30分/連続 30-min/cont. rating		7.5/5.5
	高速(10分/連続) High speed (10-min/cont. rating)	kW	18.5/11
	低速(25%/連続) Low speed (25%/cont. rating)		11/7.5
主軸最大トルク Maximum spindle torque	30分/連続 30-min/cont. rating		60/44
	高速(10分/連続) High speed (10-min/cont. rating)	N·m	29/18
	低速(25%/連続) Low speed (25%/cont. rating)		46/31
早送り速度 Rapid traverse rate	mm/min	50,000	
切削送り速度 Cutting feed rate	mm/min	1~20,000	
プルスタッド形式 Pull stud (nominal number)		MAS403P40T-1	

■ : 省エネタイプ/Energy-saving type
■ : 高馬力タイプ/High-power type

項目 Item	単位 Unit	TYPE A	TYPE B
工具選択方式 Tool selection method	-	番地固定式ランダム Address fixed random method	
工具収納本数 Number of stored tools		24	
		OP : 40	—
工具最大径(隣接工具なし) Maximum tool diameter (When no tools in adjacent pots)	mm	φ110 (φ200)	
工具最大長さ Maximum tool length	mm	300	
工具最大質量 Maximum tool weight	kg	7	
工具交換時間(ツール ツール ツール) Tool exchange time (tool-to-tool)	sec	1.7 (隣接工具) (adjacent tools)	2.0 (隣接工具) (adjacent tools)
所要電源電力 Power supply	kVA	30 52	
所要電源電圧・周波数 Supply voltage and supply frequency	V·Hz	AC200V±10%・50/60HZ±1 AC220V±10%・60HZ±1	
所要空気圧源圧力 Compressed air supply pressure	MPa	0.4~0.6	
機械の高さ Machine height	mm	2,750	2,980
所要床面の大きさ(左右×前後) Required floor space (width × depth)	mm×mm	2,450 × 5,000	1,750 × 5,495
機械質量 Machine weight	kg	9,500	9,000



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再生紙を使用し、環境にやさしい植物性大豆油インクを使用しています。

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15.01.1M(H)



OKK

The Manufacturing Solution

OKK
Solution & Sales team
K.Saito



Introduction of OKK Product for Mass-Production use

GOAL

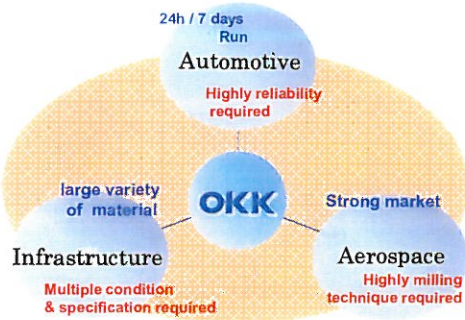
On task : Reducing Down Time.

On target : Increase Durability .

On time : Keep High-reliability.

We do not look for any fancy and unique function in this product line.
These models have equipped with only the functions required to provide maximum productivity at the user.

We Cover All Industries



Fixed Table type series

PM400 III

• Modular type Horizontal Machining Center

HPM40

• (ATC) Arm less Horizontal Machining Center

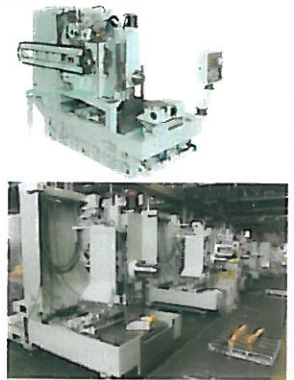
PM500 as horizontal & vertical MC

• Capable ultra heavy cut model

All models have NC rotary table as B axis with STD

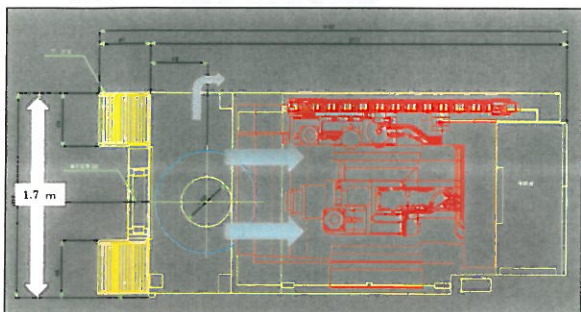
PM400 III

Started delivery since 1985 (name as MPH400)
More than 600 units installed at major automobile company.
Extremely suitable custom design.
Small foot print
Powerful cutting capability.
Modular type available.



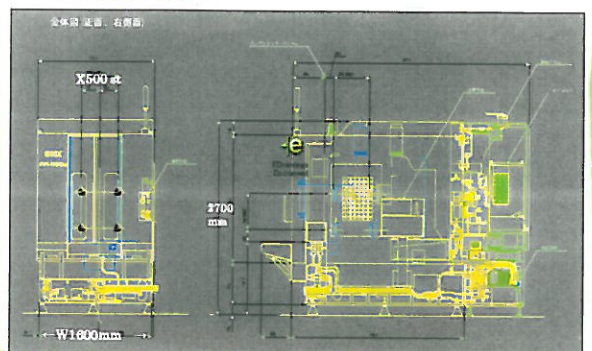
PM400 III

Foot print



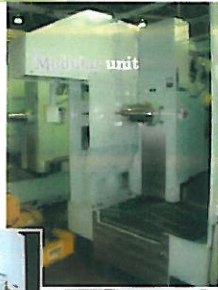
PM400 III

CAD Package





PM400 III



Tool MG & ATC

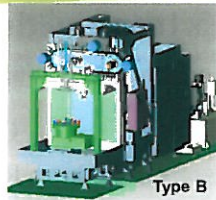
PM400III

PM400 III	
X Y Z travel	500 (op 600) x 500 x 500
Spindle power	22 kW / 18.5 kW
Max. Spindle speed	100 ~ 14000 rpm
Spindle Taper	BT 40 (HSK63A)
Tool storage	20, 24, 30, 40 tools
ATC tool dimension	Φ125 (200)mm, L: 300mm, 7 kg
ATC speed	3.5 sec (C - C)
Equipment weight	7,200 kg
Floor space	1.7 m x 3.5 m + coolant unit

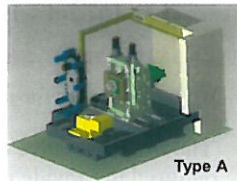
•Module style model available.
•APC components available.

HPM40

The HPM40 has designed for the next generation factory. It was based off of our 20 plus years of experience building our PM100 series machine. Armless direct ATC is a simple mechanical design. Use of Y Axis twin ball screw drives suppresses machine vibration. Energy saving features have been included that incorporate ecological responsibility.

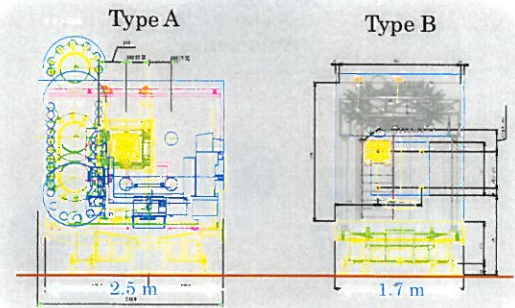


Type B



Type A

HPM40



HPM40

(...) as Optional spec.

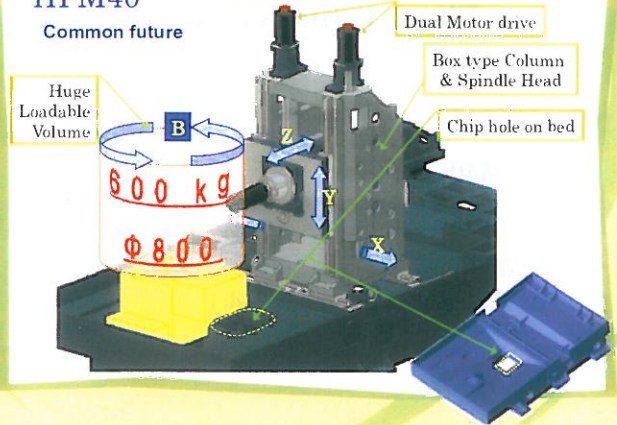
	Type A	Type B
X Y Z travel	600 x 600 x 500	600 X 500 X 500
Spindle power	7.5/5.5 kW (18.5/11 kW)	
Max. Spindle speed	100 ~ 12000 rpm	
Spindle Taper	BT 40 (HSK63A)	
Tool storage	24 tools (40)	20 tools (30)
ATC tool dimension	Φ110 (200)mm L 300mm, 7 kg	
ATC speed	2.0 (tool - tool)	
Equipment weight	7,200 kg	
Floor space	2.5 m x 5 m	1.7 m x 5 m

Standard equipment

- Lift up type chip arguer
- Thru coolant spindle function.

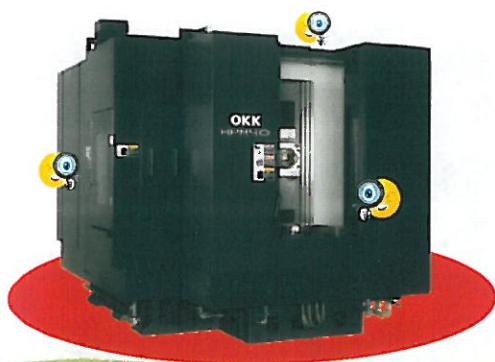
HPM40

Common future



HPM40

Type A



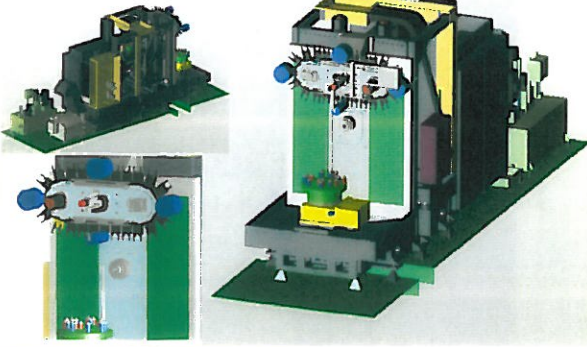
HPM40

Type B



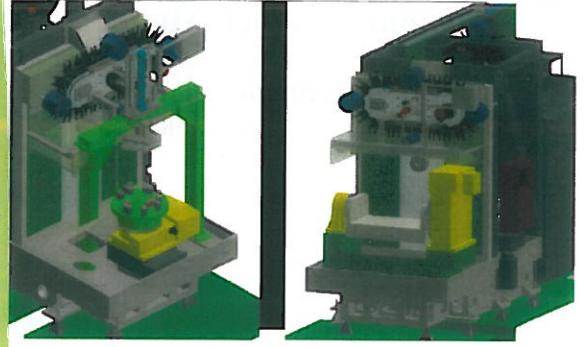
HPM40

Type B

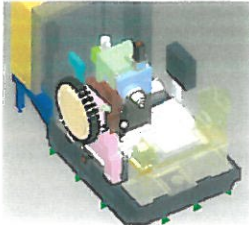


HPM40

Type B



PM500

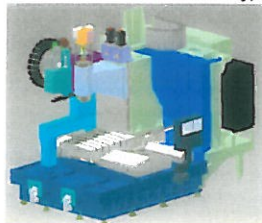


Horizontal type

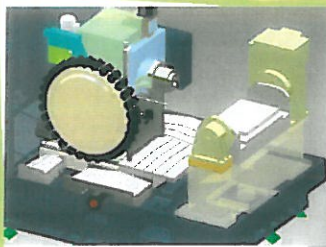
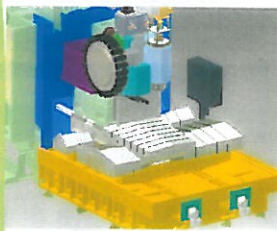
i.e.
Gasket face mill
Rough / Fine Boring
Multiple spindle holder

Spindle diameter 110mm is it possible to handle large dia. and heavy tool , and to achieve a heavy cutting.

Vertical type



PM500 (V)

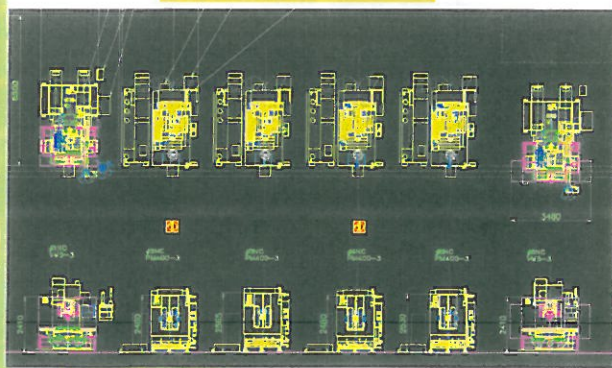


PM500 (H)



PM500	Horizontal	Vertical
X Y Z travel	650 x 600 x 600	800 X 800 X 560
Additional axis (as Option on V)	NC rotary table (B) or Trunnion (A)	
Spindle power	22 kW /18.5kW	
Max Spindle speed	100 ~ 6000 rpm	
Spindle Taper	BT 50 with 110mm Boring	
Tool storage	30 tools	24 tools (30)
ATC tool dimension	Φ110 (250)mm. L. 350 mm. 20 kg	
ATC speed second	T - T :2.0 (C-C 6.5)	
Equipment weight	14000 kg	
Floor space (wo coolant unit)	3 m x 4 m	3 m x 4 m

Typical application



Other
Successful
Custom designed model

Custom Designed Model

Twin spindle Boring machine

- Equipped (2) built-in spindle with BT50.

HM5000FB

- Developed for Big bore machining.

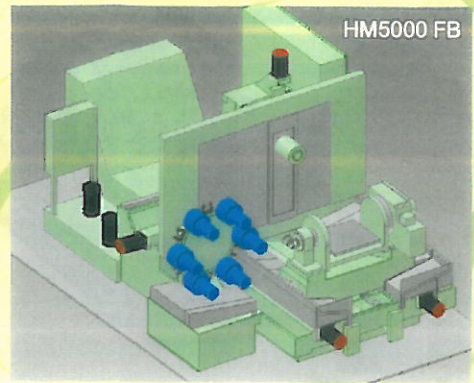
HTR40

- HPM style Module unit.

Index Mill

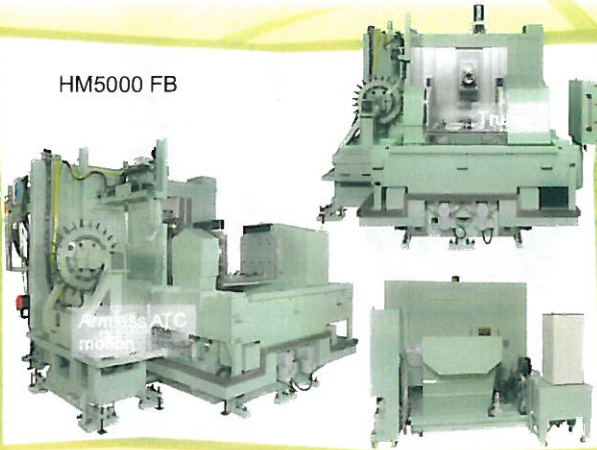
- It is composed of three milling units.

For Big bore machining



HM5000 FB

HM5000 FB



HM500 FB

X Y Z travel (mm)	800 x 600 x 930
Spindle power	30 kw / 26 kw
Max Spindle speed	35 ~ 12000 rpm
Spindle Taper	BT 50 (Op HSK100)
Rapid speed (n / min)	X/Z axes: 75 m. Y axis: 60 m
ATC tool dimension	Φ110 (270)mm L 500mm 25 kg
Stored tools	12 tools

- Swing type arm less ATC motion.
- Auto loader capability with ceiling shatter.
- Equipped Trunnion A axis with NC rotary unit.

Twin spindle Fine Boring machine



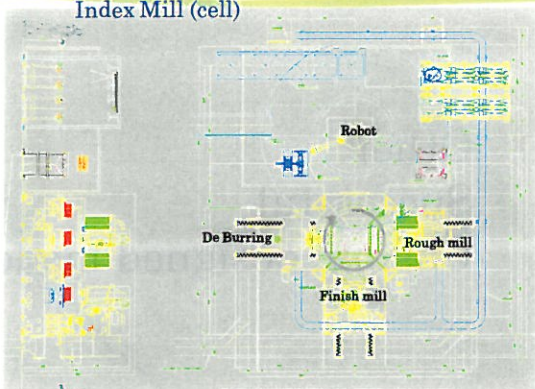
Main spec.	
Spindle	BT50, 5000 rpm
Motor	5.5/7.5 x twin
(2) Spindle dist.	From 226 ~ 290 mm
Travel	X:500, Y:530, Z:510

HTR40



Main spec.	Modular style
Spindle	BT40,
Motor	18.5 / 11.5 kW
Stored tools	10 tools
Travel	X:600, Y:500, Z:500
Foot print	1.6 m x 3.75 m

Index Mill (cell)



Roughing



Finishing With 500 mm dia.



De Burring