

# DCV Series

*Advanced Double Column Vertical Machining Center*



# DCV 2012A / 2012B

## Superb Body Structure

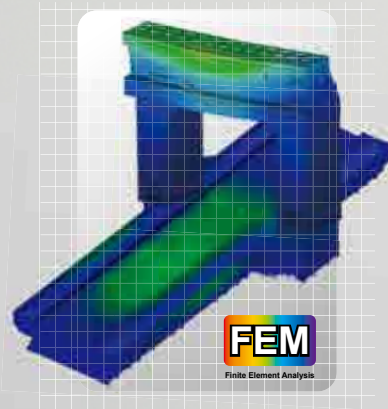
- One-piece Column
- One-piece Base

## High Rigidity Guideways

- Roller type guideways on X/Y axis
- Horizontal and vertical support of the headstock
- Direct drive motors on 3 axes reduce backlash and ensure perfect axial accuracy

## High Quality Work Table

- The work table is precisely ground before assembled to ensure DCV series excellent machining results



### DCV2012A

Z-axis is equipped with roller type guideway and 6 slider blocks to enhance cutting rigidity and smooth movement during 3D contouring operations

### DCV2012B

Z-axis is equipped with box guideway reinforced through induction hardening process, precision ground and FEM analysis to offer superb cutting rigidity and short force flow



- Three axes adopt highly responsive servo motor, configuring ball screws with direct drive. Measuring with absolute encoder to ensure high rigidity and positioning accuracy without backlash.



■ Horizontal and Vertical Support of the Headstock



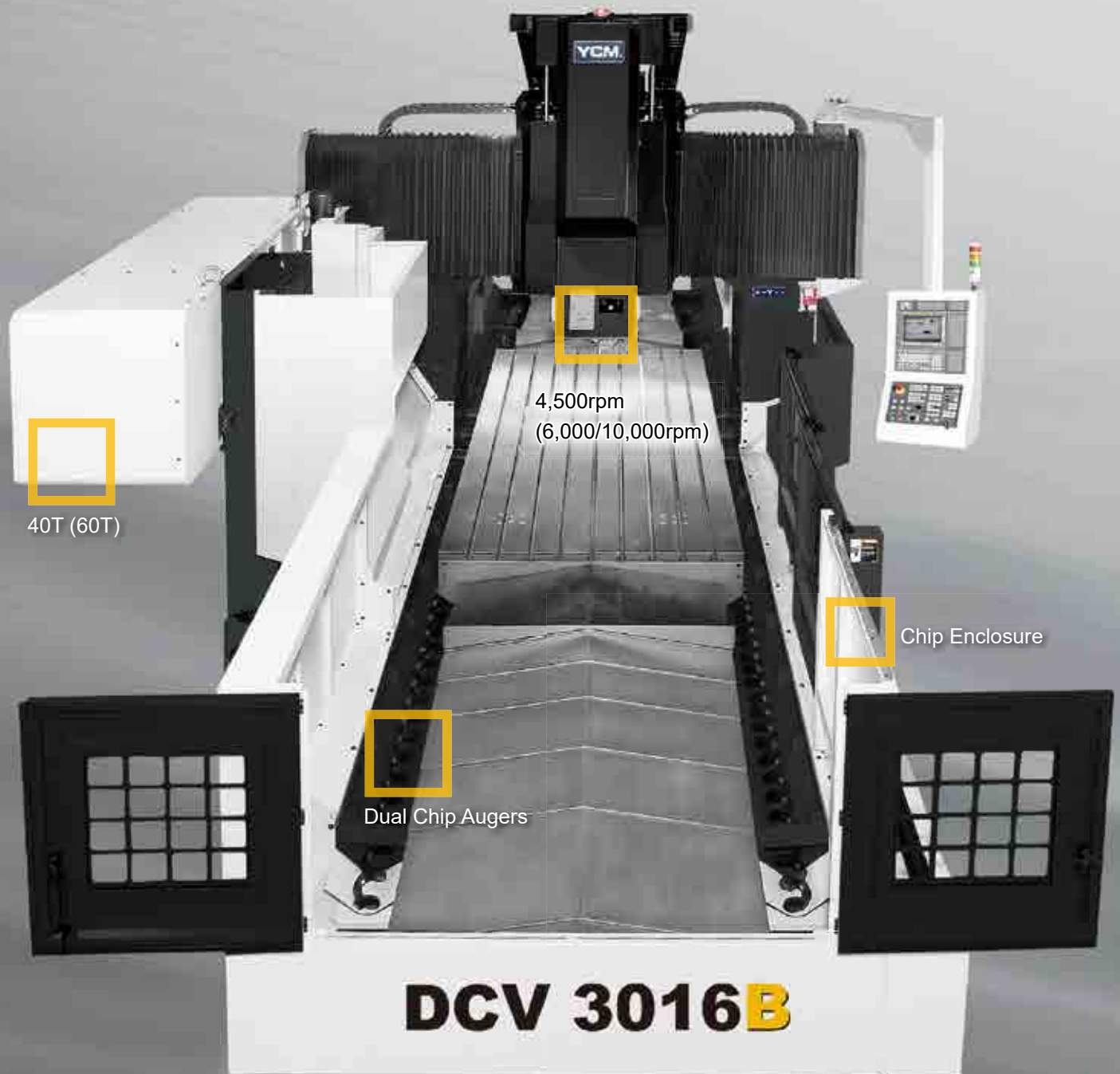
■ Roller Type Guideway on Z-axis (DCV2012A)



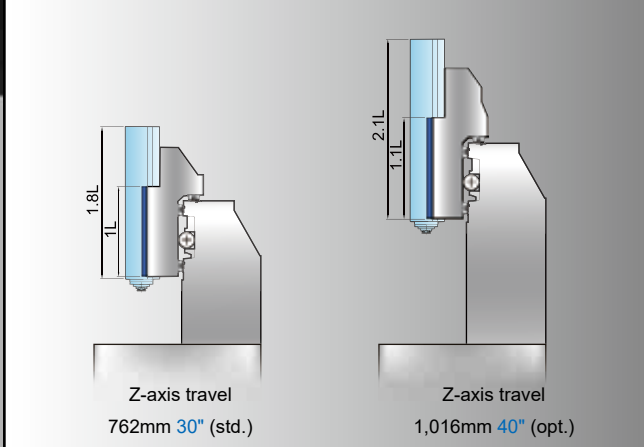
■ Hardened and Ground Box Guideway on Z-axis (DCV2012B)

# DCV 3016B / 4016B

YCM keeps building up the in-house ability and seriously examines the workflow for upgrading DCV series to the limit. DCV series is exactly the ultimate double column vertical machining center combining flawless accuracy, rigidity, and power.







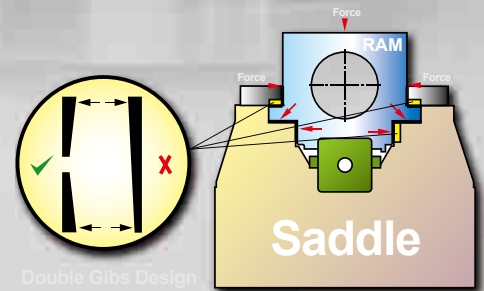
■ Hardened and Ground Box Guideway on Z-axis

■ Rigid Proportion of the Headstock

■ Horizontal and Vertical Support of the Headstock

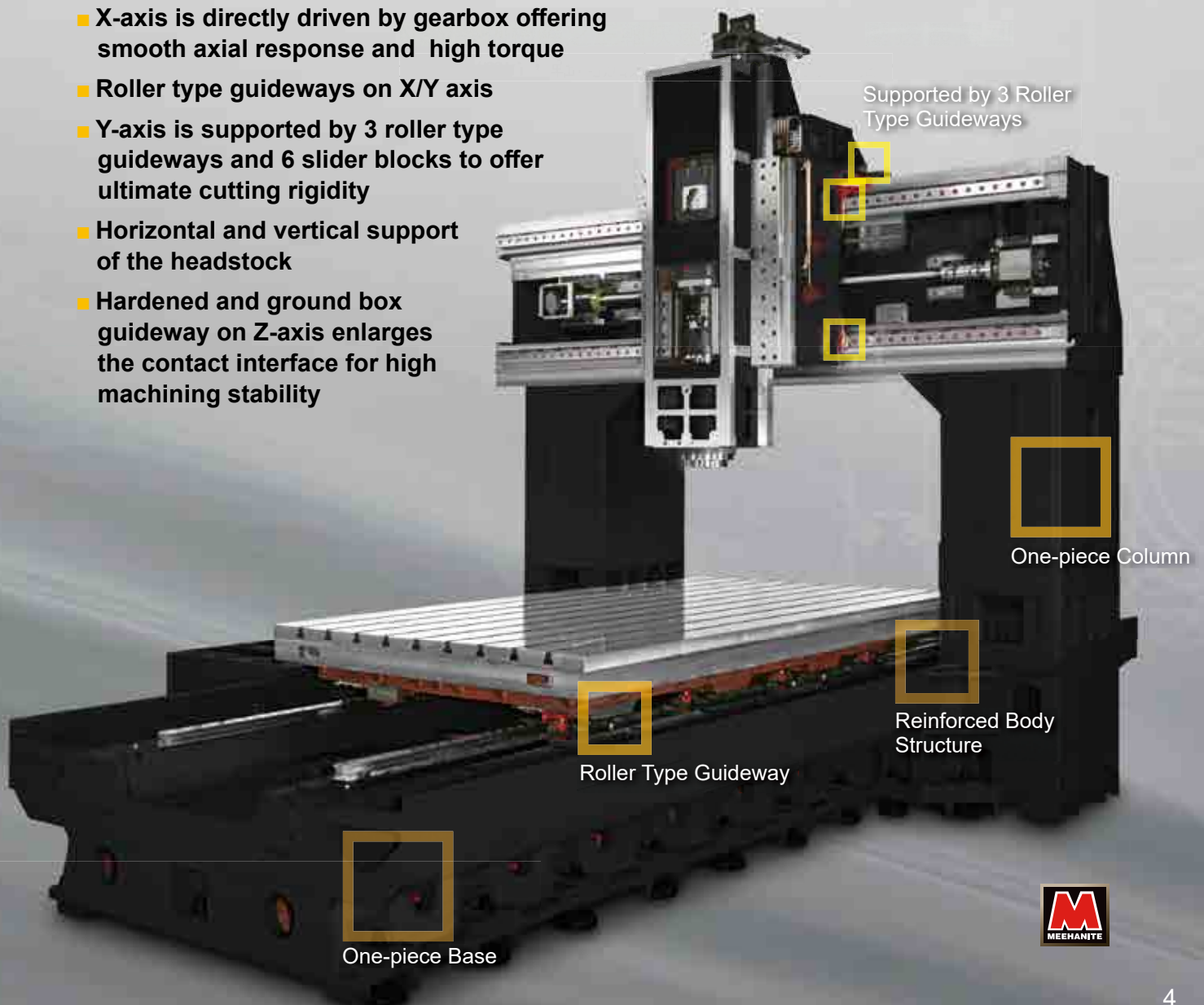
## Superb Body Structure

- One-piece Column
- One-piece Base
- Rigid proportion of the headstock



## High Rigidity Guideways

- X-axis is directly driven by gearbox offering smooth axial response and high torque
- Roller type guideways on X/Y axis
- Y-axis is supported by 3 roller type guideways and 6 slider blocks to offer ultimate cutting rigidity
- Horizontal and vertical support of the headstock
- Hardened and ground box guideway on Z-axis enlarges the contact interface for high machining stability



# DCV 3021B / 4021B 3025B / 4025B / 4035B

DCV series flawless accuracy, rigidity, and power are suitable for diverse requirements from automotive, die & mold, energy and aerospace industries.



Max. Tool Magazine Capacity: 120T (opt.)

YCM Self-developed STC PLUS Spindle Thermal Compensation Achieves High Accuracy (opt.)

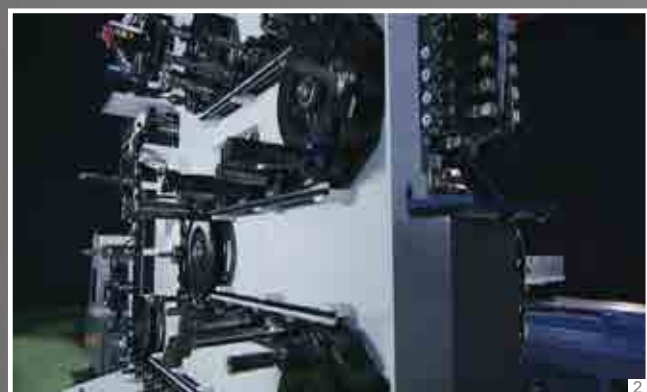
DCV 4021B

Full Chip Enclosure (opt.)

Front or Rear Chip Conveyor

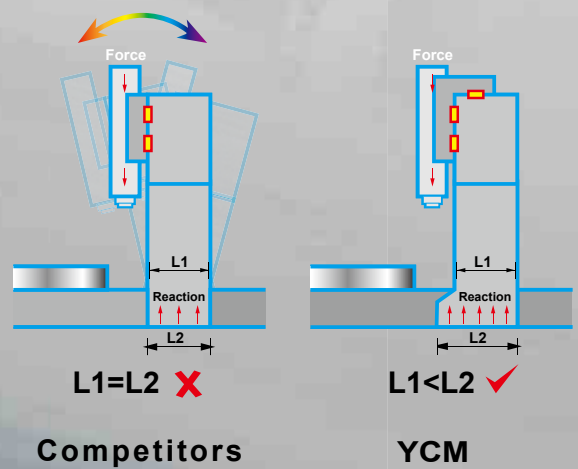
DCV 4021B

DCV 4021B



# Superb Body Structure

- Turcite-B design on Z-axis strengthens rigidity and damping capacity reducing overhang and vibration problems
- Extra wide column base with boots design prevents the headstock from leaning forward
- Internal ribs structure design through FEM analysis delivers high rigidity and stability



- 40T
- 60/120T (opt.)
- Arm Type ATC System; Prevents Tools from Dropping; Tool to Tool: 3 Sec.



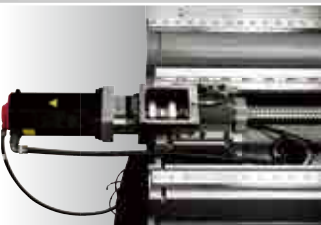


## High Rigidity Guideways

- Direct drive gearbox design on X-axis offers smooth axial response, high torque, and low backlash
- X-axis is equipped with 3 roller type guideways and numerous slider blocks for great load capacity (3021B & 3025: 12 slider blocks / 4021B, 4025B & 4035B: 15 slider blocks)
- 3 roller type guideways on Y-axis strongly support the headstock and saddle



■ 3 Roller Type Guideways



■ Direct Drive with Compact Epicyclic Gear on X-axis





Advanced Double Column 5-axis Vertical Machining Center

# DCV4030 **B**-**5AX**

Equipped with ROBO I, YCM-made high performance universal milling head, DCV4030B-5AX is specialized for applications demanding complex machining such as aerospace, automotive, medical and energy industries.



Spindle Speed: 10,000rpm  
Spindle Power: 46kW / 61.7HP  
Max. Torque: 242Nm

**B/C-axis** Max. Rotary Speed

**50 rpm**

Roller Type Guideways

Extra Wide  
Column Base with  
Boots Design

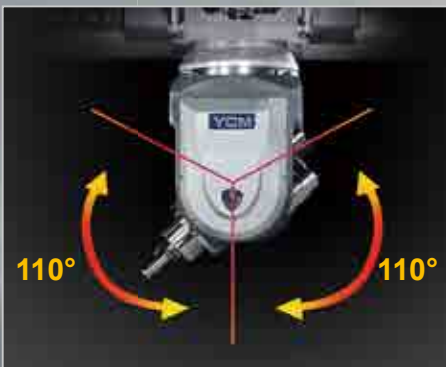
One-piece Base

## 5AX ROBO I Achieves Perfect 3D Contouring Operations

- High rigidity symmetrical fork type structure design minimizes heat deformation during heavy cutting applications.
- The main structure is made of superior nodular graphite cast iron.
- High dynamic universal milling head, built-in motorized spindle with HSK-A100 taper offers max. spindle speed 10,000rpm.
- Coolant through spindle system: 20 bar. (opt.)
- Superb spindle coolant system.

## High Rigidity B/C Axis

- Direct drive motor design delivers high torque, low backlash and perfect clamping capacity.
- HEIDENHAIN encoder enhances the cutting accuracy.
- Disc type hydraulic clamping device.
- Rotary joint design prevents the damage on the hydraulic tubes caused during rotation.
- Double direction roller bearings for perfect cutting rigidity.
- Superb spindle coolant system.



- $\pm 110^\circ$  Swivel Angle (B-axis)
- $\pm 360^\circ$  Rotary Angle (C-axis)



## Superb Body Structure & X/Y/Z Guideways Designs

- Massive MEEHANITE® casting through FEM analysis offers exceptional damping capacity.
- Direct drive gearbox design on X/Y/Z axis offers smooth axial response, high torque, and low backlash.
- Extra wide column base with boots design.
- Equipped with roller type guideways and numerous slider blocks for great load capacity and cutting rigidity.

## HEIDENHAIN Control

- 5-axis simultaneous control by HEIDENHAIN TNC640 HSCI increases efficiency, tool life, and cutting accuracy.
- Tool center point management [TCPM], dynamic collision monitoring [DCM] and DFX converter (opt.).
- Program memory hard disk with 21GB.



High Accuracy 5-axis Double Column Vertical Machining Center

# DCV2018A-5AX

DCV 2018A-5AX, a 5-axis double column vertical machining center, is combined with the advanced manufacturing technology of 5-axis milling head that integrates accuracy, rigidity and efficiency into this ultimate machining center.



Enlarged I value, enlarging rigidity as well



I



6 slide blocks on Z-axis improve rigidity with stable performance on 3 dimensions surface profile.

B/C-axis Rotary Speed

**100 rpm**

High torque upgrading machining efficiency

**18,000rpm**

**70 kW**



Finite Element Analysis





## Reinforced Body Structure

- One-piece Column
- One-piece Base
- Ultimate rigidity and proportion of the headstock
- Internal double A type ribbed bed design through FEM analysis offers full support for table.
- 1,800 mm distance between columns increases the stability of machine

## Extra Rigidity Guideways

- Roller type linear guideways on X / Y / Z-axis.
- Y axis linear guideways design with large span with horizontal and vertical directions which can take the saddle weight and machining force.
- Direct driven motors on Y / Z-axis reduce backlash and ensure perfect axial accuracy.
- X-axis is gearbox driven.

## High Payload Table

- The work table is precisely ground before assembled to ensure DCV series excellent machining results.
- 8 tons maximum table machining loading.

## B/C-axis Head

- DD motor drive, no backlash.
- B/C-axis rotary speed 100 rpm.
- C-axis includes three roller bearings to increase rigidity and accuracy.
- B-axis high rigidity and high accuracy cross roller bearing.
- Heidenhain accuracy encoder included as standard.
- Pneumatic positioning clamping equipment.
- Over travel protection design.
- B-axis anti-drop function at power outage.

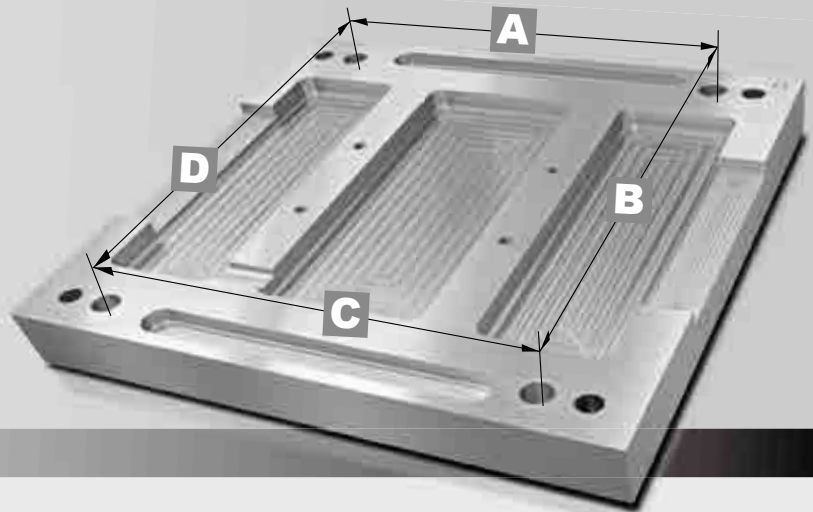


# DCV ACCURACY

DCV series is assembled through serious quality control process to ensure high dynamic accuracy during contouring operations.

## POSITIONING ACCURACY 614mm x 454mm

- A** -1.4 $\mu$ m/613.9986mm
- B** +4.8 $\mu$ m/454.0048mm
- C** -4.4 $\mu$ m/613.9956mm
- D** -2.8 $\mu$ m/453.9972mm



Test Model: DCV3016B

DCV 2012A/2012B/2018A-5AX ACCURACY		
Standard	ISO 10791-4	JIS B 6338
Tolerances		
Axial Travel	Full Length	—
Positioning A	0.015mm 0.00059"	0.010/300mm 0.00039"/11.81"
Repeatability R	0.010mm 0.00039"	±0.003mm ±0.00012"

VDI/DGQ3441 is equivalent to A of ISO10791-4, and PS is equivalent to R.  
All values shown above are measured for the machine in good air-conditioned environments.

DCV 3016B/3021B/3025B/3018A-5AX ACCURACY		
Standard	ISO 10791-4	JIS B 6338
Tolerances		
Axial Travel	Full Length	—
Positioning A	0.020mm 0.00079"	0.010/300mm 0.00039"/11.81"
Repeatability R	0.015mm 0.00059"	±0.003mm ±0.00012"

VDI/DGQ3441 is equivalent to A of ISO10791-4, and PS is equivalent to R.  
All values shown above are measured for the machine in good air-conditioned environments.

DCV 4016B/4021B/4025B/4018A-5AX ACCURACY		
Standard	ISO 10791-4	JIS B 6338
Tolerances		
Axial Travel	Full Length	—
Positioning A	0.025mm 0.00098"	0.010/300mm 0.00039"/11.81"
Repeatability R	0.020mm 0.00079"	±0.003mm ±0.00012"

VDI/DGQ3441 is equivalent to A of ISO10791-4, and PS is equivalent to R.  
All values shown above are measured for the machine in good air-conditioned environments.

DCV 4035B/4030B-5AX ACCURACY		
Standard	ISO 10791-4	JIS B 6338
Tolerances		
Axial Travel	Full Length	—
Positioning A	0.025mm 0.00098"	0.010/300mm 0.00039"/11.81"
Repeatability R	0.020mm 0.00079"	±0.003mm ±0.00012"

VDI/DGQ3441 is equivalent to A of ISO10791-4, and PS is equivalent to R.  
All values shown above are measured for the machine in good air-conditioned environments.

DCV 4030B-5AX (B/C axis) ACCURACY	
Standard	ISO 10791-4
Tolerances	
Axial Travel	Full Length
Positioning A	20"
Repeatability R	15"

VDI/DGQ3441 is equivalent to A of ISO10791-4, and PS is equivalent to R.  
All values shown above are measured for the machine in good air-conditioned environments.

DCV 2018A~4018A-5AX (B/C axis) ACCURACY	
Standard	ISO 10791-4
Tolerances	
Axial Travel	Full Length
Positioning A	20"
Repeatability R	15"

VDI/DGQ3441 is equivalent to A of ISO10791-4, and PS is equivalent to R.  
All values shown above are measured for the machine in good air-conditioned environments.

The test data in this brochure is provided as an example under specific guidelines. Results may be different due to variation in machine settings or environmental conditions during machining and measuring.

# Cutting Tests

BT50/4, 500rpm

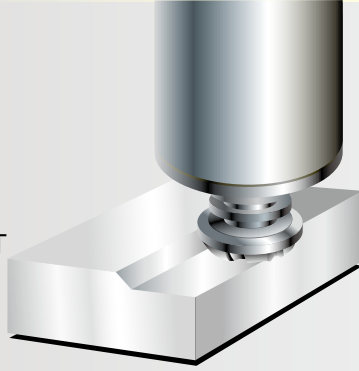
## FACE MILLING

S45C Steel

Material Removal Rate

**1,000**  
cc/min.

Tool  $\phi 160\text{mm} \times 10\text{T}$   
Spindle Speed 375rpm  
Feedrate 1,600mm/min.  
Width of Cut 125mm  
Depth of Cut 5mm  
Spindle Load 144%



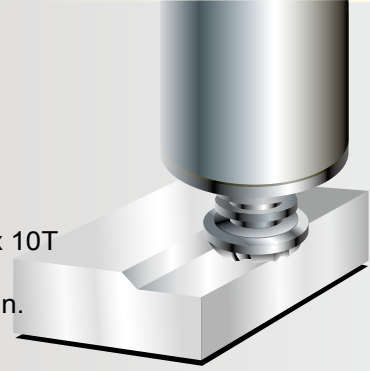
## FACE MILLING

S45C Steel

Material Removal Rate

**450**  
cc/min.

Tool  $\phi 160\text{mm} \times 10\text{T}$   
Spindle Speed 300rpm  
Feedrate 400mm/min.  
Width of Cut 125mm  
Depth of Cut 9mm  
Spindle Load 75%



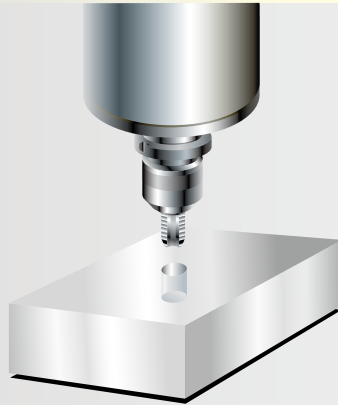
## TAPPING

S45C Steel

TAP

**M48**

Tool M48 x 5P  
Spindle Speed 45rpm  
Feedrate 225mm/min.  
Spindle Load 72%



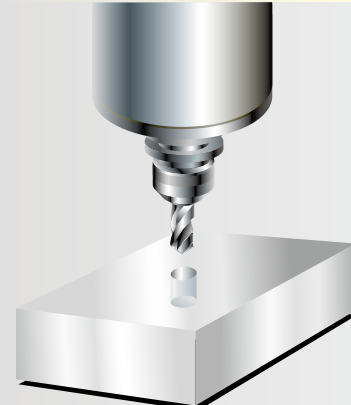
## DRILLING

S45C Steel

Cutter Diameter

**$\phi 60$**   
mm

Tool  $\phi 60\text{mm}$   
Spindle Speed 133rpm  
Feedrate 48mm/min.  
Spindle Load 25%



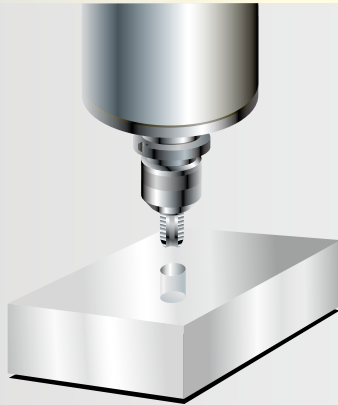
## TAPPING

Aluminum

TAP

**0#**

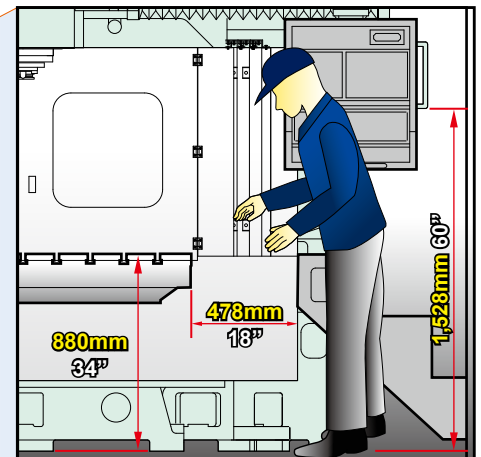
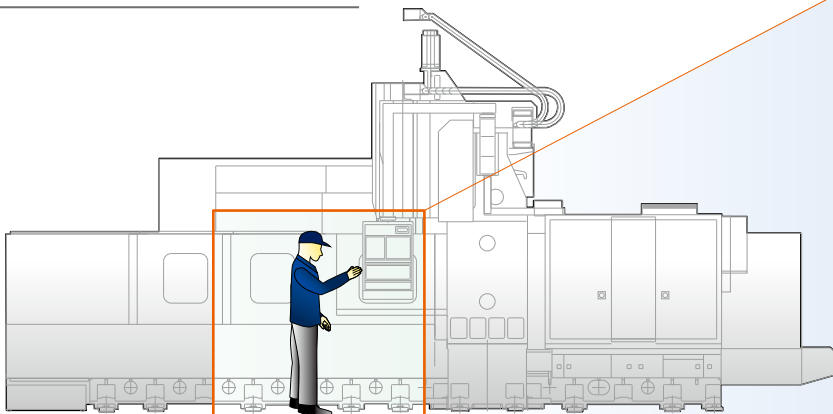
Tool 0#80UNF  
Spindle Speed 1,200rpm  
Feedrate 381mm/min.  
Tooth Pitch 0.3175mm



Note: The above data is for reference only. All the cutting tests are designed to demonstrate maximum machining capabilities without preserving tool life.

## User-friendly Design

Model: DCV3016B





4,500rpm Spindle

Torque  
**89kgf-m**  
 DCV Max. Torque at Low Speed  
**644 lb-ft**

## 4,500rpm Spindle

With Hi-lo Gear Transmission

4,500rpm spindle speed is standard with 2-step gear transmission. The spindle incorporates roller type spindle bearings for extremely high cutting rigidity. The 2-step gear transmission provides 88.87kgf-m torque output at 241rpm ideal for machining hard material.

## 6,000rpm Spindle

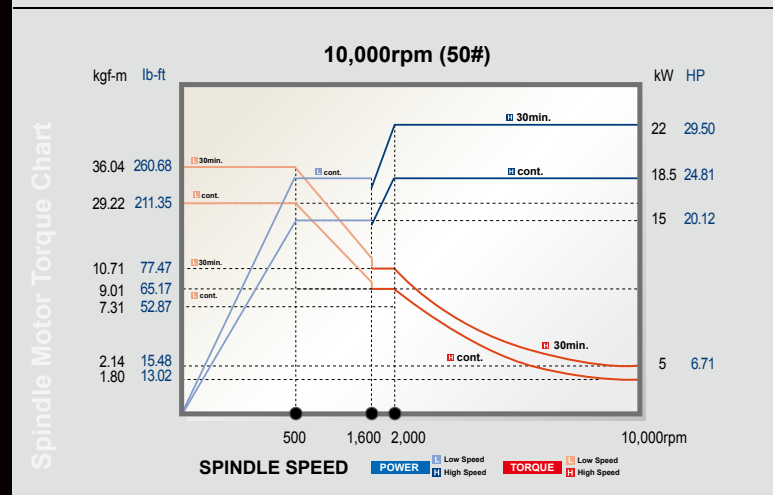
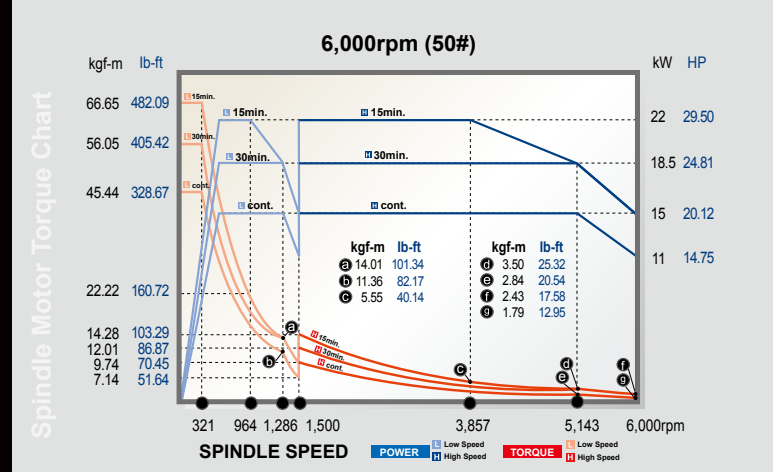
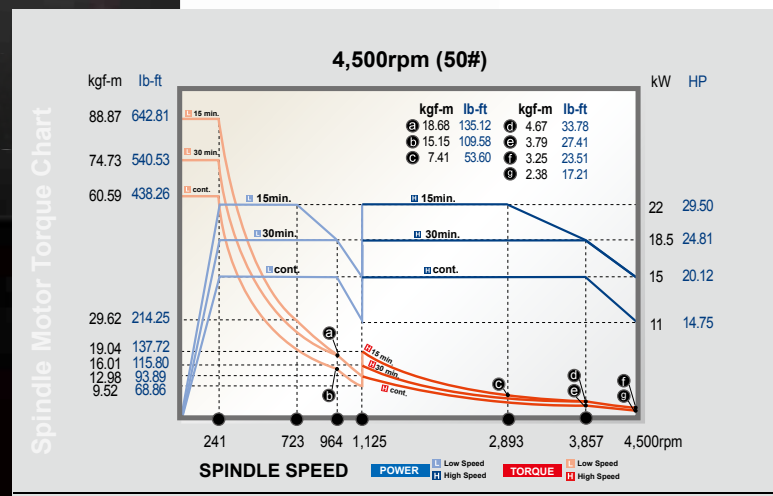
With Hi-lo Gear Transmission

6,000rpm spindle is available for diverse requirements. The design of 2-step gear transmission is complimented with a powerful AC digital spindle motor and ceramic roller type bearings. The 6,000rpm spindle is capable of reaching up to 22kW and 66.65kgf-m torque output at 321rpm. DCV series can easily achieve 1,000 cc/min. chip removal rate and promote productivity.

## 10,000rpm Spindle

Isolated Direct Drive Design

10,000rpm IDD spindle is optional to be equipped with DCV series. Driven by 22kW dual step AC digital spindle motor, the spindle is able to reach max. 36.04kgf-m torque output at 500rpm. Unique IDD design offers low spindle vibration and optimal heat isolation that results in excellent accuracy after long-term operation.



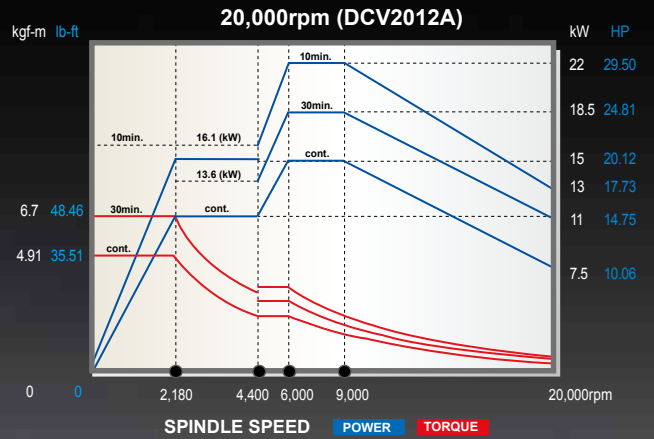


# HIGH SPEED HIGH PRECISION SPINDLES

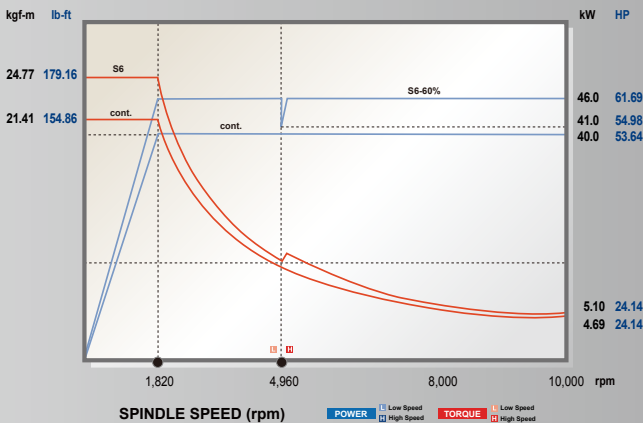
## Built-in Motorized Spindle

DCV2012A is equipped with YCM made built-in motorized spindle delivering 20,000rpm high speed. The ultra smooth movement achieves various machining results.

- Patented circulated cooling system
- Patented suppressing vibration design
- Floating design of rear bearing
- Bearing with micro oil-air lubrication system
- BBT40 with simultaneous taper and flange contact design

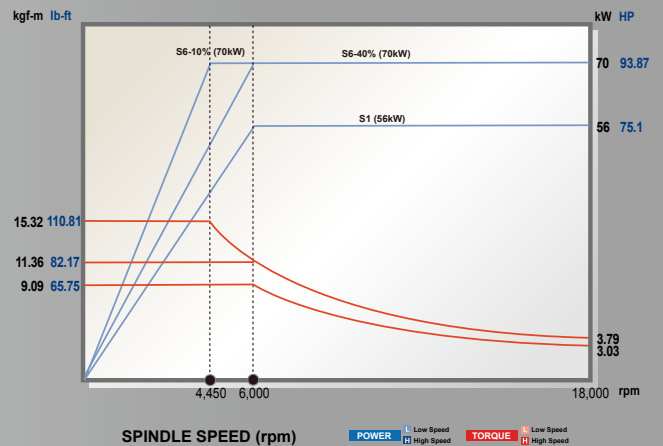


STANDARD 10,000rpm (DCV4030B-5AX)



(HEIDENHAIN)

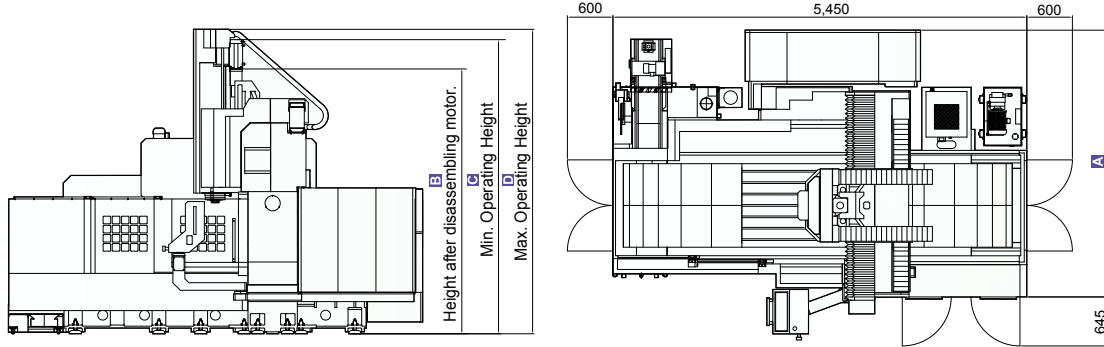
STANDARD 18,000rpm (DCV2018A-5AX)



# DIMENSIONS

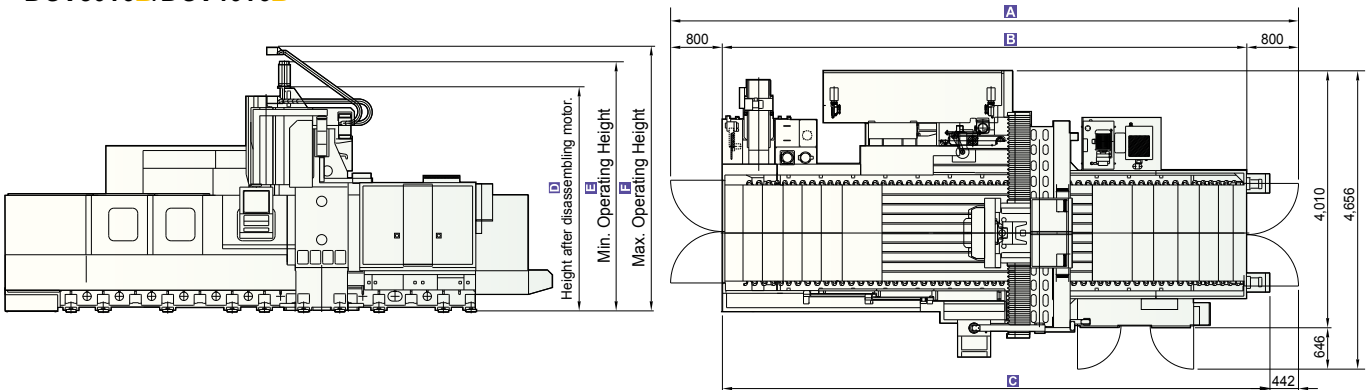
Unit: mm inch

## DCV2012A/B



	A	B	C	D
DCV2012A	3,112 122.5"	3,085 121.5"	3,471 136.7"	3,607 142.01"
DCV2012B	3,513 138.3"	3,487 137.3"	3,873 152.48"	4,009 157.8"

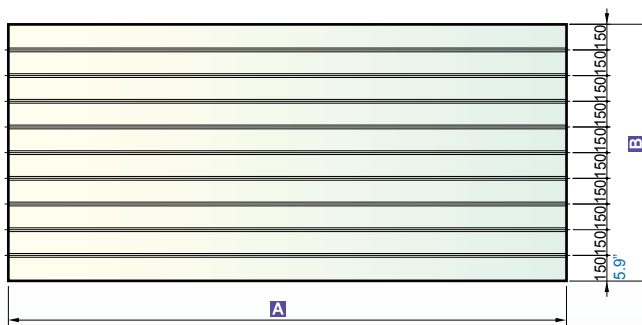
## DCV3016B/DCV4016B



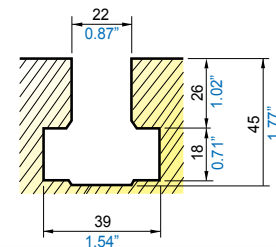
### Standard (250mm Raised Column/Z-axis Travel 1,016mm)

	A	B	C	D	E	F
DCV3016B	9,730 383.1"	8,129 320.04"	8,485 334.1"	3,523 (3,773) 138.7" (148.5")	3,914 (4,164/4,483) 154.1" (163.9/176.5")	4,162 (4,412/4,845) 163.9" (173.7/190.8")
DCV4016B	11,730 461.8"	10,129 398.8"	10,485 412.8"	3,523 (3,773) 138.7" (148.5")	3,914 (4,164/4,483) 154.1" (163.9/176.5")	4,162 (4,412/4,845) 163.9" (173.7/190.8")

### ▼ TABLE SIZE



### ▼ T-SLOTS

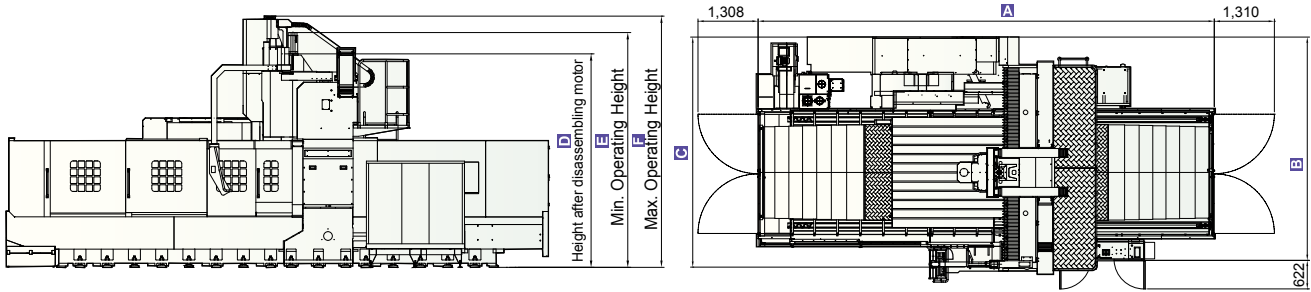


	A	B
DCV2012A/B	2,000 78.7"	1,100 43.3"
DCV3016B	3,260 128.4"	1,500 59.1"
DCV4016B	4,260 167.7"	1,500 59.1"

# DIMENSIONS

Unit: mm inch

DCV3021B/DCV4021B/DCV3025B/DCV4025B/DCV4035B



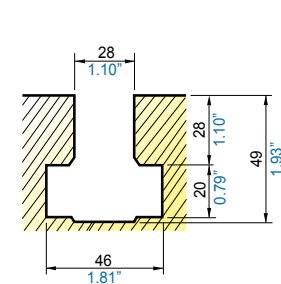
## Standard (250mm Raised Column/Z-axis Travel 1,016mm)

	A	B	C	D	E	F
<b>DCV3021B</b>	7,945 312.8"	4,868 191.7"	5,015 197.4"	3,678 (3,928/4,178) 144.8" (154.7/164.5")	4,069 (4,319/4,709) 160.2" (170.04/185.4")	4,324 (4,517/5,011) 170.2" (177.8/197.3")
<b>DCV4021B</b>	9,945 391.5"	4,868 191.7"	5,015 197.4"	3,678 (3,928/4,178) 144.8" (154.7/164.5")	4,069 (4,319/4,709) 160.2" (170.04/185.4")	4,324 (4,517/5,011) 170.2" (177.8/197.3")
<b>DCV3025B</b>	7,945 312.8"	5,154 202.9"	5,379 211.8"	3,678 (3,928/4,178) 144.8" (154.7/164.5")	4,069 (4,319/4,709) 160.2" (170.04/185.4")	4,324 (4,517/5,011) 170.2" (177.8/197.3")
<b>DCV4025B</b>	9,945 391.5"	5,154 202.9"	5,379 211.8"	3,678 (3,928/4,178) 144.8" (154.7/164.5")	4,069 (4,319/4,709) 160.2" (170.04/185.4")	4,324 (4,517/5,011) 170.2" (177.8/197.3")
<b>DCV4035B</b>	9,945 391.5"	6,154 242.3"	6,379 251.1"	3,678 (3,928/4,178) 144.8" (154.7/164.5")	4,069 (4,319/4,709) 160.2" (170.04/185.4")	4,324 (4,517/5,011) 170.2" (177.8/197.3")

### ▼ TABLE SIZE



### ▼ T-SLOTS

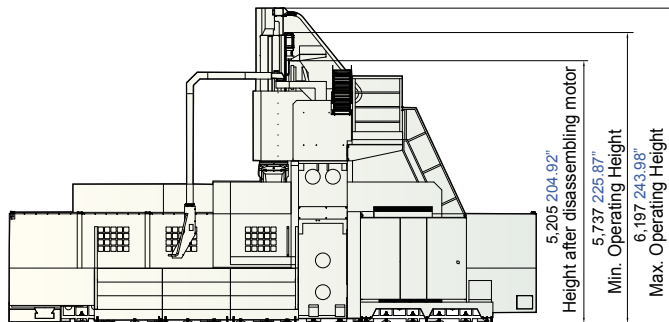
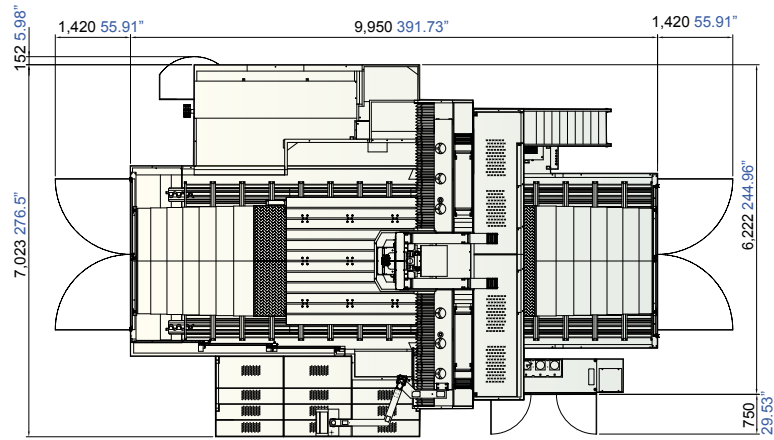


	A	B
<b>DCV3021B</b>	3,100 122.05"	2,000 78.7"
<b>DCV4021B</b>	4,100 161.4"	2,000 78.7"
<b>DCV3025B</b>	3,100 122.05"	2,400 94.5"
<b>DCV4025B</b>	4,100 161.4"	2,400 94.5"
<b>DCV4035B</b>	4,100 161.4"	2,400 94.5"

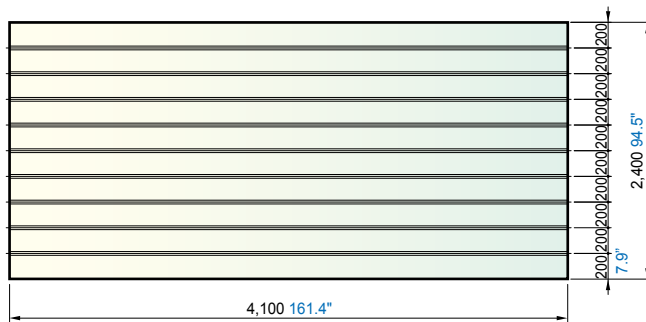
# DIMENSIONS

Unit: mm inch

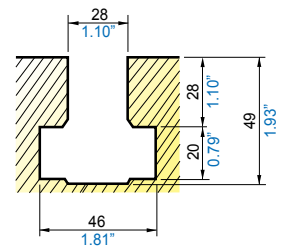
DCV4030B-5AX



## ▼ TABLE SIZE



## ▼ T-SLOTS

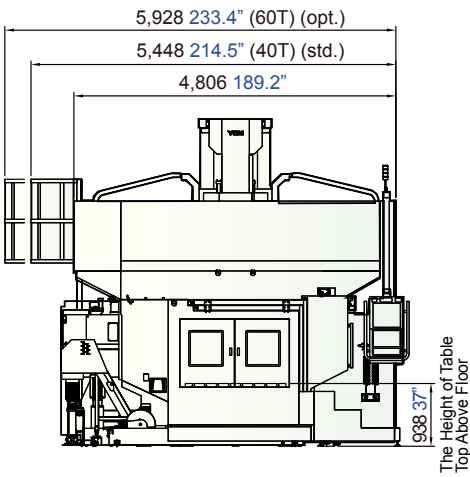
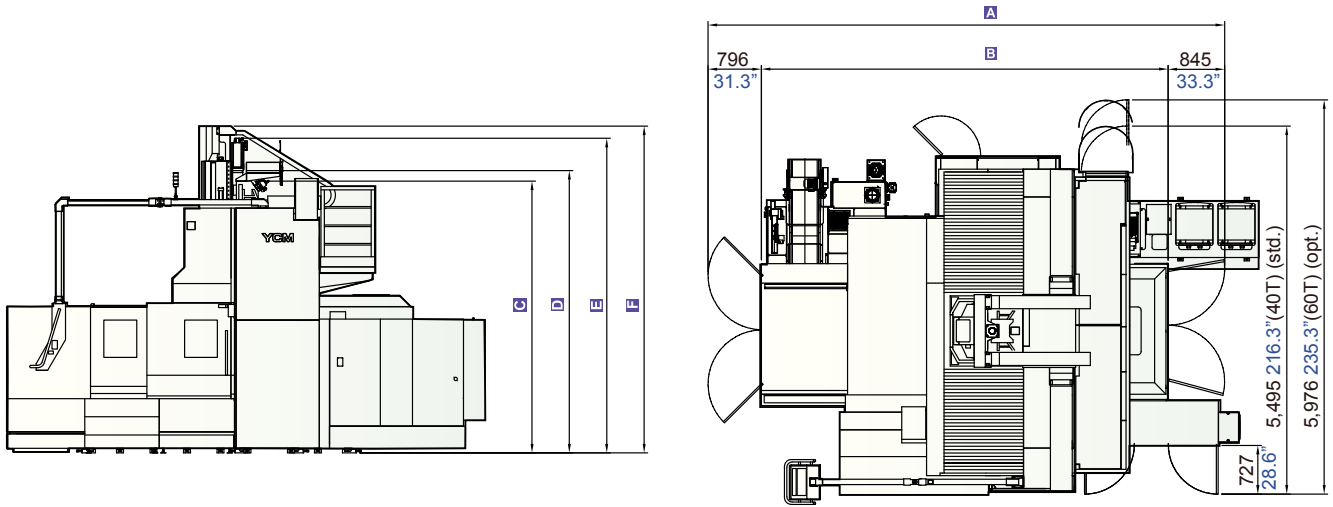




# DIMENSIONS

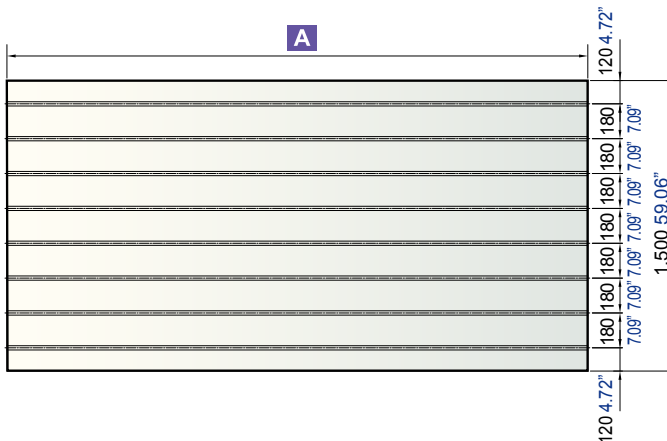
Unit: mm inch

DCV2018A-5AX / DCV3018A-5AX / DCV4018A-5AX

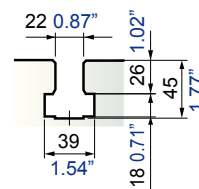


	Z-axis Travel : 30" Std. (40") Opt.					
	A	B	C	D	E	F
<b>DCV2018A-5AX</b>	7,713 303.7"	6,072 239.1"	4,067 (4,536)	4,225 (4,475)	4,706 (5,345)	4,888 (5,597)
<b>DCV3018A-5AX</b>	9,873 388.7"	8,232 324.1"	160.1" (178.6")	166.3" (176.2")	185.3" (210.4")	192.4" (220.4")
<b>DCV4018A-5AX</b>	12,033 473.7"	10,392 409.1"				

## ▼ TABLE SIZE



## ▼ T-SLOTS



	A
<b>DCV2018A-5AX</b>	2,000 mm 78.7"
<b>DCV3018A-5AX</b>	3,000 mm 118.1"
<b>DCV4018A-5AX</b>	4,000 mm 157.5"

# SPECIFICATIONS

	DCV2012A	DCV2012B	DCV3016B	DCV4016B
<b>SPINDLE</b>				
Spindle Speed/Power (std.)	20,000rpm 15/18.5/22 20/25/30HP (cont./30min./10min.)	10,000rpm 18.5/22 25/30HP (cont./30min.)	4,500rpm	15/18.5/22 20/25/30HP (cont./30min./15min.)
Spindle Speed/Power (opt.1)	-	-	6,000rpm	15/18.5/22 20/25/30HP (cont./30min./15min.)
Spindle Speed/Power (opt.2)	-	-	10,000rpm	18.5/22 25/30HP (cont./30min.)
Spindle Taper	BBT40			BBT50
<b>TRAVEL</b>				
X-axis Travel	2,000mm 78.74"		3,060mm 120.47"	4,065mm 160.04"
Y-axis Travel	1,200mm 47.24"		1,600mm 62.99"	
Z-axis Travel (opt.)	600mm 23.62"	762mm 30"	762mm (1,016mm) 30" (40")	
Distance Between Spindle Nose & Table Top	100~700mm 3.94~27.56"	200~962mm 7.87~37.87"	200~962mm 7.87~37.87" (250mm Raised Column: 450~1,212mm 17.72~47.72"/ Z-axis Travel 1,016mm: 200~1,216mm 7.87~47.87")	
Distance Between Columns	1,340mm 52.76"		1,820mm 71.65"	
<b>TABLE</b>				
Table Size	2,000 x 1,100mm 78.74" x 43.31"		3,260 x 1,500mm 128.35" x 59.06"	4,260 x 1,500mm 167.72" x 59.06"
No. T-slots x Size x Pitch	7 x 22mm x 150mm 7 x 0.87" x 5.91"		9 x 22mm x 150mm 9 x 0.87" x 5.91"	
Max. Load on Table	4,000kg 8,818 lb		10,000kg 22,046 lb	12,000kg 26,455 lb
<b>FEEDRATE</b>				
Rapid Feedrate (X/Y/Z)	24/24/15 m/min. 945/945/591ipm	20/20/15 m/min. 787/787/591ipm	20/15/15 m/min. 787/591/591ipm	15/15/15 m/min. 591/591/591ipm
Cutting Feedrate	1~10,000mm/min. 0.04~394ipm			
<b>ATC</b>				
Tool Magazine Capacity (opt.)	24T (30T)	32T (40T)	40T (60T)	
Max. Tool Weight	6kg 13.23 lb	20kg 44.09 lb		
Max. Tool Dimensions (W/O Adjacent Tool)	ø76 x 250mm (ø100 x 250mm) ø2.99 x 9.84" (ø3.94 x 9.84")	ø125 x 350mm (ø240 x 350mm) ø4.92 x 13.78" (ø9.45 x 13.78")		
Tool Changer Method	Arm Type			
Tool Selection Method	Random			
<b>GENERAL</b>				
Pneumatic Supplier	5.5kg/cm <sup>2</sup> 78.2psi			
Power Consumption (Transformer)	51kVA (65kVA)	69kVA (80kVA)		
Machine Weight	16,000kg 35,274 lb	21,000kg 46,297 lb	31,000kg 68,343lb	35,000kg 77,161 lb

Note: Above specifications may vary depending on the machine and the surrounding environment. The manufacturer reserves the right to modify the design, specifications, mechanisms, etc., to improve the performance of the machine without notice. The test data provided in this catalog is performed under specific test procedures and environmental conditions. The data for Power Consumption (Transformer) is standard, and different spindle motor may vary from those stated here. If you have any questions about other CNC controllers, please contact YCM sales representative.

## Linear Encoder

- HEIDENHAIN linear encoders are available on 3 axes
- With the absolute measuring method, the position value is available from the encoder immediately upon switch-on
- The absolute position information is read from the scale graduation, which is formed from a serial absolute code structure



## Auto Tool Length Measurement System

- BLUM Z-3D tool length & radius measurement
- Universal and economic solution for fast tool setting and breakage control



## Laser Measuring System

- BLUM non-contact precise tool setting and breakage control
- The integrated electronic system checks each individual cutting edge at full speed



## Workpiece Measurement System

- BLUM TC50 multidirectional touch probe
- Allows fast, precise, and automatic calculation of workpiece position and dimensions



# SPECIFICATIONS

	DCV3021S	DCV4021S	DCV3025S	DCV4025S	DCV4035S	DCV4030S-5AX
<b>SPINDLE</b>						
Spindle Speed/Power (std.)	4,500rpm 15/18.5/22 20/25/30HP (cont./30min./15min.)					10,000rpm 40/46kW 54/62HP (cont./S6-60%)
Spindle Speed/Power (opt.1)	6,000rpm 15/18.5/22 20/25/30HP (cont./30min./15min.)					-
Spindle Speed/Power (opt.2)	10,000rpm 18.5/22 25/30HP (cont./30min.)					-
Spindle Taper	BBT50					HSK A100
<b>TRAVEL</b>						
X-axis Travel	3,060mm 120.47"	4,065mm 160.04"	3,060mm 120.47"	4,065mm 160.04"		
Y-axis Travel	2,100mm 82.68"		2,500mm 98.43"		3,500mm 137.8"	
Z-axis Travel (opt.)	762mm (1,016mm) 30" (40")					1,016mm 40"
Distance Between Spindle Nose & Table Top	200~962mm 7.87~37.87" (250mm Raised Column: 450~1,212mm 17.72~47.72" Z-axis Travel 1,016mm: 200~1,216mm 7.87~47.87")					270~1,286mm 10.63"~50.63"
Distance Between Columns	2,320mm 91.34"	2,720mm 107.09"		3,600mm 141.73"	3,100mm 122.1"	
<b>TABLE</b>						
Table Size	3,100 x 2,000mm 122.1 x 78.7"	4,100 x 2,000mm 161.4 x 78.7"	3,100 x 2,400mm 122.1 x 94.5"	4,100 x 2,400mm 161.4 x 94.5"		
No. T-slots x Size x Pitch	9 x 28mm x 200mm 9 x 1.1" x 7.87"			11 x 28mm x 200mm 11 x 1.1" x 7.87"		
Max. Load on Table	15,000kg 33,069 lb	20,000kg 44,092 lb	15,000kg 33,069 lb	20,000kg 44,092 lb		
<b>FEEDRATE</b>						
Rapid Feedrate (X/Y/Z)	15/15/15 m/min. 591/591/591ipm	12/15/15 m/min. 472/591/591ipm	15/15/15 m/min. 591/591/591ipm	12/15/15 m/min. 472/591/591ipm	20/20/15 m/min. 787/787/591ipm	
Cutting Feedrate	1~10,000mm/min. 0.04~394ipm					15/15/10 m/min. 591/591/394ipm
<b>ATC</b>						
Tool Magazine Capacity (opt.)	40T (60/120T)					
Max. Tool Weight	20kg 44.1 lb					13kg 28.7 lb
Max. Tool Dimensions (W/O Adjacent Tool)	ø125 x 350mm (ø240 x 350mm) ø4.92 x 13.78" (ø9.45 x 13.78")					
Tool Changer Method	Arm Type					
Tool Selection Method	Random					
<b>GENERAL</b>						
Pneumatic Supplier	5.5kg/cm <sup>2</sup> 78.2psi					
Power Consumption (Transformer)	65kVA (80kVA)					113kVA (120kVA)
Machine Weight	41,000kg 90,389 lb	44,000kg 97,002 lb	43,000kg 94,798 lb	46,000kg 101,412 lb	50,000kg 110,230 lb	58,500kg 128,969 lb

Note: Above specifications may vary depending on the machine and the surrounding environment. The manufacturer reserves the right to modify the design, specifications, mechanisms, etc., to improve the performance of the machine without notice. The test data provided in this catalog is performed under specific test procedures and environmental conditions. The data for Power Consumption (Transformer) is standard, and different spindle motor may vary from those stated here. If you have any questions about other CNC controllers, please contact YCM sales representative.

## MILLING HEAD

Note:  
Milling heads shown above are optional exclusively for DCV 3016B, 4016B, 3021B, 4021B, 3025B, 4025B, 4035B with 6,000 rpm spindle (gearbox) and raised base 250mm.

### 90°Milling Head



2,000 rpm  
(Manual)



3,500 rpm  
(Manual Head / Tool Change)  
(C-axis Auto Indexing Angle: 5°)

### Extended 90°Milling Head



2,000 rpm  
(Manual)

### Extended Milling Head



2,000 rpm  
(Manual)

### Universal Milling Head



1,500 rpm  
(Manual)

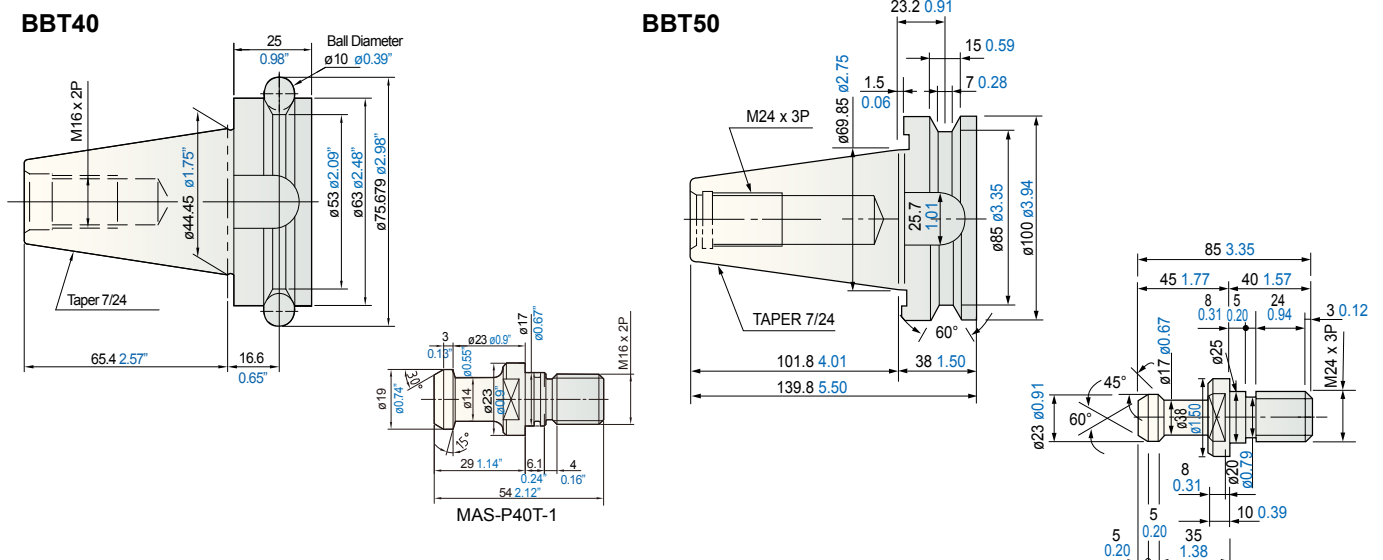
# SPECIFICATIONS

	DCV2018A-5AX	DCV3018A-5AX	DCV4018A-5AX
<b>SPINDLE</b>			
Spindle Speed	18,000rpm		
Spindle Power	56 / 70kW 75 / 94 HP (cont. / S6-40%)		
Spindle Taper	HSK A63		
<b>TRAVEL</b>			
X-axis Travel	2,200 mm 86.6"	3,200mm 126"	4,200mm 165.3"
Y-axis Travel	2,400 mm 94.5"		
Z-axis Travel (opt.)	762mm (1,016mm) 30" (40")		
Vertical / Horizontal Distance Between Spindle Nose & Table Top	150~912 / 430~1,192mm 5.9"~35.9" / 16.9"~46.9" (250mm Raised Column / Z-axis Travel 1,016mm ) (150~1,116 / 430~1,446mm 5.9"~43.94" / 16.93"~56.93")		
Distance between Column	1,800mm 70.9"		
<b>B/C axis</b>			
B-axis degree	± 105°		
C-axis degree	± 360°		
<b>TABLE</b>			
Table Size	2,000 x 1,500mm 78.7" x 59.1"	3,000 x 1,500mm 118.11" x 59.1"	4,000 x 1,500mm 157.5" x 59.1"
No. T-slots x Size x Pitch	8 x 22mm x 180mm 8 x 0.87" x 7.09"		
Max. Load on Table	8,000kg 17,637 lb	10,000kg 22,046 lb	12,000kg 26,455 lb
<b>FEEDRATE</b>			
Rapid Feedrate (X/Y/Z)	24 / 24 / 20 m/min. 945 / 945 / 787 ipm	20 / 24 / 20 m/min. 787 / 945 / 787 ipm	15 / 24 / 20 m/min. 591 / 945 / 787 ipm
Cutting Feedrate	1~20,000mm/min. 0.04~787ipm		
<b>ATC</b>			
Tool Magazine Capacity (opt.)	40T (60/120T)		
Max. Tool Weight	6kg 13.2 lb		
Max. Tool Dimensions (W/O Adjacent Tool)	ø76 x 300 mm ø3" x 11.8" (ø125 x 300mm ø4.92" x 11.8")		
Tool Changer Method	Arm Type		
Tool Selection Method	Random		
<b>GENERAL</b>			
Pneumatic Supplier	5.5kg/cm <sup>2</sup> 78.2 psi		
Power Consumption (Transformer)	135 kVA (140 kVA)		
Machine Weight	26,000kg 57,320 lb	29,000kg 63,933 lb	32,000kg 70,547 lb

Note: Above specifications may vary depending on the machine and the surrounding environment. The manufacturer reserves the right to modify the design, specifications, mechanisms, etc., to improve the performance of the machine without notice. The test data provided in this catalog is performed under specific test procedures and environmental conditions. The data for Power Consumption (Transformer) is standard, and different spindle motor may vary from those stated here. If you have any questions about other CNC controllers, please contact YCM sales representative.

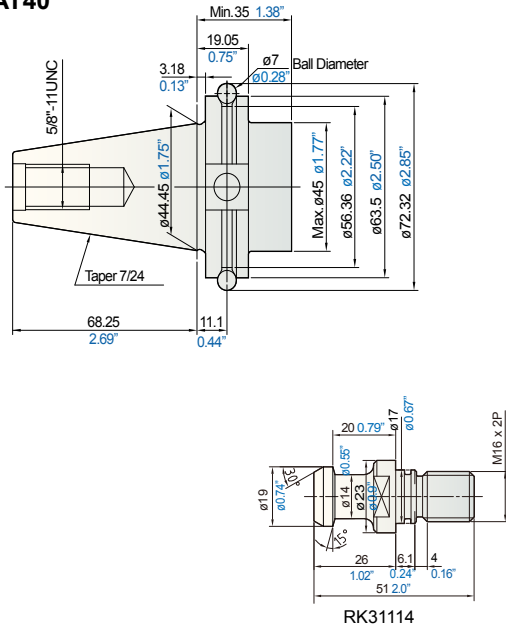
## TOOL SHANK

Unit: mm inch

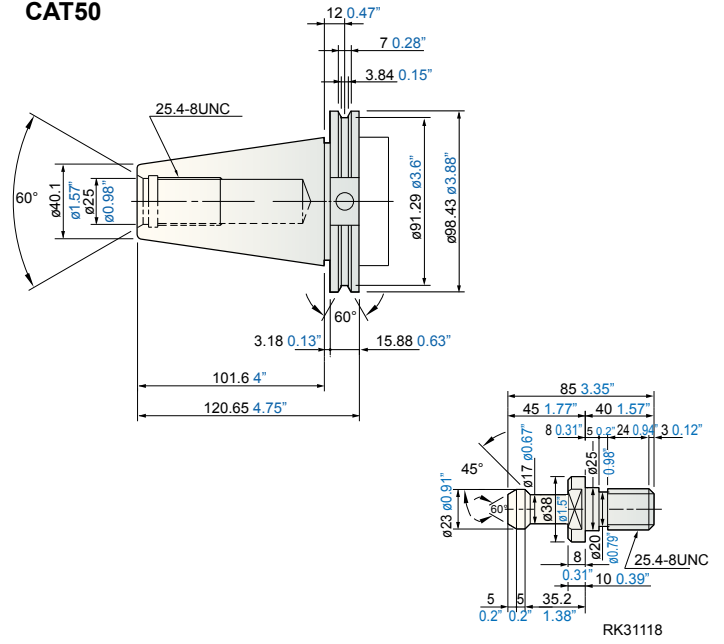




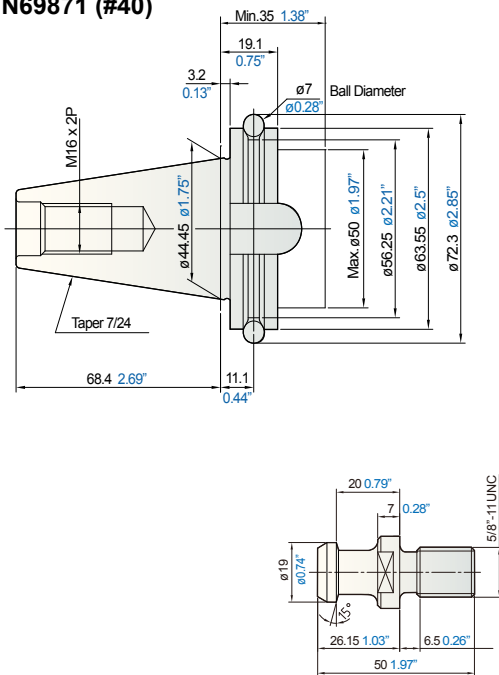
**CAT40**



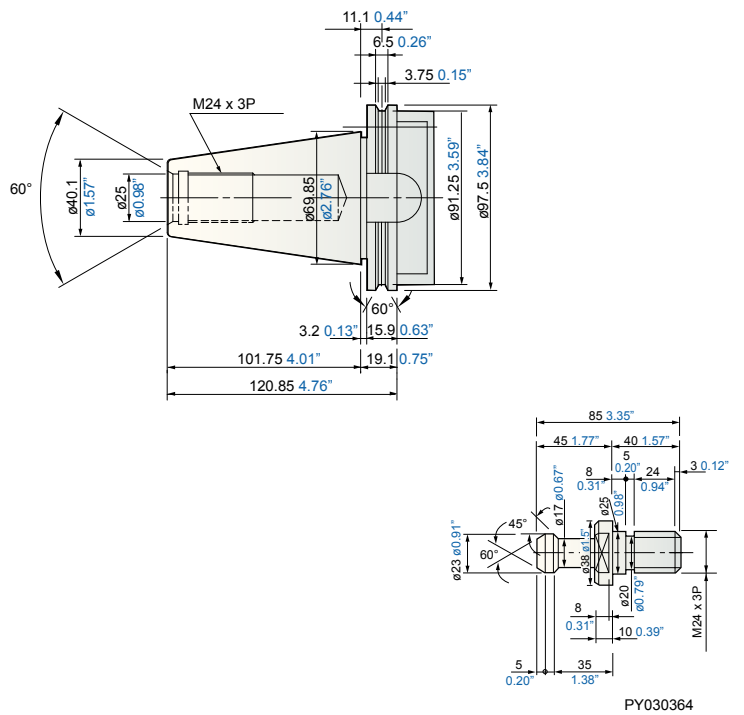
**CAT50**



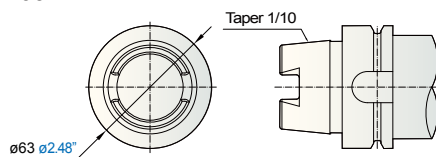
**DIN69871 (#40)**



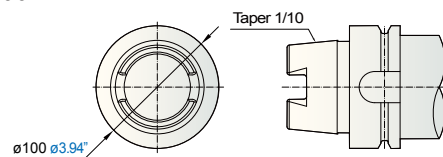
**DIN69871 (#50)**



**HSK-A63**



**HSK-A100**



# ACCESSORIES

● Standard ○ Optional – None

	DCV						
	2012A	2012B	3016B	4016B	3021B	4021B	3025B
Tool Kit	●	●	●	●	●	●	●
Work Lamp	●	●	●	●	●	●	●
Pilot Lamp	●	●	●	●	●	●	●
Coolant Equipment System	●	●	●	●	●	●	●
Spindle Air Blast	●	●	●	●	●	●	●
Cutting Air Blast	●	●	●	●	●	●	●
Leveling Blocks and Foundation Bolts	●	●	●	●	●	●	●
Foundation Bolts	●	●	●	●	●	●	●
Central Lubrication System	●	●	●	●	●	●	●
A/C Cooler for Electrical Cabinet	●	●	●	●	●	●	●
Full Chip Enclosure	●	○	○	○	○	○	○
Chip Enclosure	—	●	●	●	●	●	●
Workpiece Measurement System	○	○	○	○	○	○	○
Auto Tool Length Measurement System	○	○	○	○	○	○	○
4th Axis Rotary Table	○	○	○	○	○	○	○
Chip Conveyor	●	●	●	●	●	●	●
Dual Chip Augers	●	●	●	●	●	●	●
Mechanical, Electrical & Operating Manuals	●	●	●	●	●	●	●
Optical Scale	○	○	○	○	○	○	○
Oil-mist Coolant System	○	○	○	○	○	○	○
Coolant Through Spindle System	○	○	○	○	○	○	○
Spindle & Gearbox Coolant System	●	●	●	●	●	●	●
Hi-lo Gearbox	—	—	●	●	●	●	●
Oil Skimmer	●	●	●	●	●	●	●
Oil Hole Holder Function	○	○	○	○	○	○	○
Heavy Duty Coolant Pump	●	●	●	●	●	●	●
Unclamp Pedal	●	●	●	●	●	●	●
Air Gun	●	●	●	●	●	●	●
CNC Control: FANUC MXP-200FB+	●	●	●	●	●	●	●
CNC Control: FANUC MXP-200FC	○	○	○	○	○	○	○
CNC Control: HEIDENHAIN TNC-640	○	○	○	○	○	○	○
CNC Control: FANUC 31i-MB5	—	—	—	—	—	—	—
90° Milling Head / 2,000 rpm (Manual)	—	—	○	○	○	○	○
90° Milling Head / 3,500 rpm (Manual Head/ Tool Change: C-axis Auto Indexing Angle: 5°)	—	—	○	○	○	○	○
Extended 90° Milling Head / 2,000 rpm (Manual)	—	—	○	○	○	○	○
Extended Milling Head / 2,000 rpm (Manual)	—	—	○	○	○	○	○
Universal Milling Head / 1,500 rpm (Manual)	—	—	○	○	○	○	○
250mm Raised Column	—	—	○	○	○	○	○
Z-axis Travel 1,016mm	—	—	○	○	○	○	○

Note: The manufacturer reserves the right to modify the design, specifications, mechanisms, etc. to improve the performance of the machine without notice.  
All the specifications shown above are just for reference.

● Standard ○ Optional – None

	DCV					
	4025B	4035B	4030B -5AX	2018A -5AX	3018A -5AX	4018A -5AX
Tool Kit	●	●	●	●	●	●
Work Lamp	●	●	●	●	●	●
Pilot Lamp	●	●	●	●	●	●
Coolant Equipment System	●	●	●	●	●	●
Spindle Air Blast	●	●	●	●	●	●
Cutting Air Blast	●	●	●	●	●	●
Leveling Blocks and Foundation Bolts	●	●	●	●	●	●
Foundation Bolts	●	●	●	●	●	●
Central Lubrication System	●	●	●	●	●	●
A/C Cooler for Electrical Cabinet	●	●	●	●	●	●
Full Chip Enclosure	○	○	○	○	○	○
Chip Enclosure	●	●	●	●	●	●
Workpiece Measurement System	○	○	○	○	○	○
Auto Tool Length Measurement System	○	○	○	○	○	○
4th Axis Rotary Table	○	○	—	—	—	—
Chip Conveyor	●	●	●	●	●	●
Dual Chip Augers	●	●	●	●	●	●
Mechanical, Electrical & Operating Manuals	●	●	●	●	●	●
Optical Scale	○	○	○	○	○	○
Oil-mist Coolant System	○	○	○	○	○	○
Coolant Through Spindle System	○	○	○	○	○	○
Spindle & Gearbox Coolant System	●	●	●	●	●	●
Hi-lo Gearbox	●	●	—	—	—	—
Oil Skimmer	●	●	●	●	●	●
Oil Hole Holder Function	○	○	○	○	○	○
Heavy Duty Coolant Pump	●	●	●	●	●	●
Unclamp Pedal	●	●	●	●	●	●
Air Gun	●	●	●	●	●	●
CNC Control: FANUC MXP-200FB+	●	●	—	—	—	—
CNC Control: FANUC MXP-200FC	○	○	—	—	—	—
CNC Control: HEIDENHAIN TNC-640	○	○	●	●	●	●
CNC Control: FANUC 31i-MB5	—	—	○	○	○	○
90° Milling Head / 2,000 rpm (Manual)	○	○	—	—	—	—
90° Milling Head / 3,500 rpm (Manual Head/ Tool Change: C-axis Auto Indexing Angle: 5°)	○	○	—	—	—	—
Extended 90° Milling Head / 2,000 rpm (Manual)	○	○	—	—	—	—
Extended Milling Head / 2,000 rpm (Manual)	○	○	—	—	—	—
Universal Milling Head / 1,500 rpm (Manual)	○	○	—	—	—	—
250mm Raised Column	○	○	●	○	○	○
Z-axis Travel 1,016mm	○	○	●	○	○	○

Note: The manufacturer reserves the right to modify the design, specifications, mechanisms, etc. to improve the performance of the machine without notice.  
All the specifications shown above are just for reference.

**YCM**<sup>®</sup>

# MXP-200FB+



by **FANUC**

## Communication Interface

RJ45 Ethernet  
RS-232C  
USB  
CompactFlash Card

## Excellent Vision Quality

10.4" LCD display

## User-Friendly Design

Detachable keyboard  
(QWERTY)

## Fine Surface Setting Technology

1. AICC II+, high precision and high accuracy AI contour control
2. Smooth tolerance control+
3. Machining quality level adjustment function

## Fast Cycle Time Technology

1. Maximum 400 blocks of look-ahead for pre-calculating the machining program
2. Block processing time 1ms for achieving high-speed machining requirement
3. Smart rigid tapping function combined with spindle capability for high-speed machining

## Program Dynamic Simulation

Manual Guide i features dynamic simulation of machining programs with full-screen display

## Upgraded Setting & Programming Application

1. 2 MB program storage size
2. Built-in memory card for easy program editing
3. Directory filing structure with organized file management
4. 400 pairs of tool offset, 1,000 registrable programs, 48 pairs of workpiece coordinate system, 256 pairs of tool life management



**YCM**<sup>®</sup>

# i-OPERATION

Software Enhancement Exclusively from **YCM**

*Plus II*

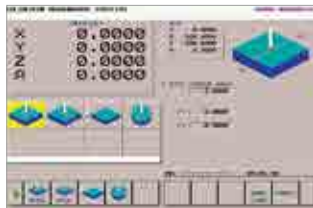


## Pre-Machining



### Intelligent Tool Data Management

Comprehensive tool data management function allows operators to monitor and manage all positions in tool magazine



### Workpiece Coordinate Calculation

Conversational window provides convenient and fast setup of workpiece coordinates

### RENISHAW GUI System (Conversational Graphic Operating Interface)



### Tool Measurement & Measurement Calibration



### Workpiece Measurement (applicable to certain models)

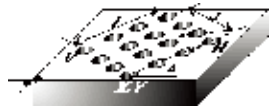
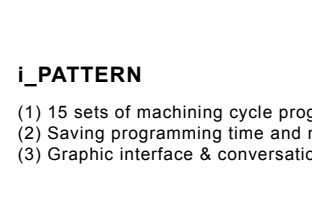
## Program Editing



CIRCULAR HOLE PATTERN  
(G120 P1) Function



RECTANGULAR HOLE PATTERN  
(G120 P4) Function



GRID HOLE PATTERN  
(G120 P5) Function

### i\_PATTERN

- (1) 15 sets of machining cycle program
- (2) Saving programming time and memory time
- (3) Graphic interface & conversational command input

## Machining

### High Performance Machining Mode M300

With 5 sets of parameter settings, it's easy to find suitable and optimized machining.

### High Speed Machining Mode M400

Reducing machining time for drilling and tapping process

### Tool Load Management

Instant tool load monitoring with alarm function

### Multi-Display Function

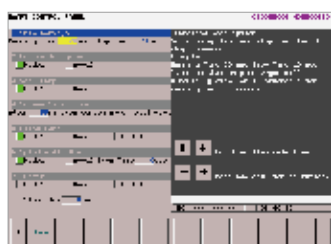
Displaying 4 statuses simultaneously with configurable status display

### Tool Life Management

Indicating tool status of each group with tool life alarm



## Smart Control Panel



### iPANEL

Easy to set up and operate important functions

## Intelligent Counter



Instantly providing users with periodic maintenance notifications and work-pieces counter management

## VMC

### Vertical Machining Center

**FP Series** High Precision High Performance Die Mold Vertical Machining Center  
**FP66A, FP100A, NFP66A**



**NXV Series** High Performance Vertical Machining Center  
**NXV600A, NXV560A-APC, NXV1020A/AM, NXV1380A, NXV1680A/B**



**TV Series** Heavy Duty Vertical Machining Center  
**TV116B, TV146B, TV158B, TV188B, TV2110B, TV2610B**

**NTV Series** High Efficiency T-base Vertical Machining Center  
**NTV158A/B**

**NMV Series** High Performance High Rigidity Vertical Machining Center  
**NMV76A, NMV106A**



**WV Series** Ultra Wide High Performance Vertical Machining Center  
**WV108A/B**

**NFX Series** High Performance 5-axis Vertical Machining Center  
**NFX400A**

**NSV Series** Ultra High Performance Vertical Machining Center  
**NSV66A, NSV106A/AM/AS/AMS, NSV156A/AM**



**TCV Series** High Performance Traveling Column Vertical Machining Center  
**TCV2000A, TCV3000A, TCV4500B, TCV2300A-4A, TCV3000A-4A/5AF/5AX**

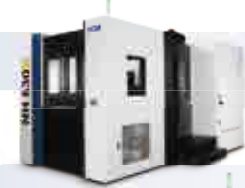
**DCV Series** Advanced Double Column Vertical Machining Center  
**DCV2012A/B, DCV3016B-6035B, DCV2018A-4018A-5AX, DCV4030B-6030B-5AX, DCV4030B-5AF**

**NDC Series** High Performance Double Column Vertical Machining Center  
**NDC2016B-4016B, NDC3022B-6027B, NDC2018B-4018B-AHC, NDC3022B-6027B-AHC**

## HMC

### Horizontal Machining Center

**NH Series** High Speed High Precision Horizontal Machining Center  
**NH500A, NH630B, NH800B**



## CNC LATHES

### CNC Turning Center

**NT Series** High Performance Mill/Turn Center  
**NT-2500SY**



**GT Series** High Performance Geo Turning Center  
**GT-200B/MA, GT-250B/MA, GT-300B/MA/LMB**

**TC Series** High Performance High Precision CNC Lathe  
**TC-16LA/LB, TC-26, TC-36, TC-46 1000/1650/2300/3200, TC-46M 3200**



**NTC Series** High Efficiency CNC Turning Center  
**NTC-2000LY/LSY**



**Integrated Operation Control System**



**Intelligent Production Management**

**Automation Solutions**



INTEGRATION  
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