

A photograph of a vertical machining center (VMC) in operation. A metal cutting tool is positioned above two aluminum castings on the worktable. The machine's structure is grey and industrial. A red semi-transparent banner is overlaid on the left side of the image, containing the text "CFV series vertical machining center -introduction".

**CFV** series vertical machining center  
-introduction

# Features



New generation CFV series , equipped with advanced built-in spindle and high dynamic response driven system; result of high speed, high accuracy and high efficiency processing. CFV series have the features of environmental protection and energy saving; widely used in parts and mold processing.

Model	CFV600	CFV900	CFV1100
X/Y/Z travel mm	600/430/510	900/430/510	1100/540/520
Table size mm	900×430	1100×430	1300×550
Built-in spindle	12000rpm		



# Parameter-CFV600 ( M80A STD )



Item			Parameter	Item			Parameter
Processing	X travel	mm	600	Tool magazine	Capacity	T	24
	Y travel	mm	430		Driven system	-	Servo
	Z travel	mm	510		Holder	-	BT40
	Distance between spindle center and table surface	mm	150-660		Max. tool dia. (full/empty adj. position)	mm	Φ80/Φ125
Table	Table ( A×B )	mm	900×430		Max. tool length	mm	300
	Max. load	kg	500		Max. tool weight	kg/T	7
	T slot ( No.×width×distance )	mm	3×18×125		Tool change time ( T-T )	s	1.5
Spindle	Driven system	-	Built-in spindle		Position accuracy	X	mm
	speed	rpm	12000	Y		mm	0.005
	Power ( continuous/10mins )	kW	7.5/11	Z		mm	0.006
	Torque ( continuous/10mins )	Nm	71.6/105	Repeatability position accuracy	X	mm	0.004
	Taper hole	-	BT40		Y	mm	0.003
	Pull stud	-	MAS-P40T-I		Z	mm	0.004
Feedrate	X/Y/Z rapid feed	m/min	36/36/36	Controller		-	M80A
	X/Y/Z servo motor power	kW	2/3/3	Air pressure		MPa	0.6~1
	X/Y/Z servo motor torque	Nm	13.7/22.5/22.5	Machine voltage		V/Hz	380/50
	X/Y/Z ball screw dia.	mm	36/36/36	Machine weight		t	6
	X/Y/Z feedrate	m/min	20/20/20	Occupation		mm	2060×3350





# Parameter-CFV900 ( M80A STD)



Item			Parameter	Item			Parameter
Processing	X travel	mm	900	Tool magazine	Capacity	T	24
	Y travel	mm	430		Driven system	-	Servo
	Z travel	mm	510		Holder	-	BT40
	Distance between spindle center and table surface	mm	150-660		Max. tool dia. (full/empty adj. position)	mm	Φ80/Φ125
Table	Table ( A×B )	mm	1100×430		Max. tool length	mm	300
	Max. load	kg	700		Max. tool weight	kg/T	7
	T slot ( No.×width×distance )	mm	3×18×125		Tool change time ( T-T )	s	1.5
Spindle	Driven system	-	<b>Built-in spindle</b>		Position accuracy	X	mm
	speed	rpm	12000	Y		mm	0.005
	Power ( continuous/10mins )	kW	7.5/11	Z		mm	0.006
	Torque ( continuous/10mins )	Nm	71.6/105	Repeatability position accuracy	X	mm	0.005
	Taper hole	-	BT40		Y	mm	0.003
	Pull stud	-	MAS-P40T-I		Z	mm	0.004
Feedrate	X/Y/Z rapid feed	m/min	36/36/36	Controller		-	M80A
	X/Y/Z servo motor power	kW	2/3/3	Air pressure		MPa	0.6~1
	X/Y/Z servo motor torque	Nm	13.7/22.5/22.5	Machine voltage		V/Hz	380/50
	X/Y/Z ball screw dia.	mm	36/36/36	Machine weight		t	7
	X/Y/Z feedrate	m/min	20/20/20	Occupation		mm	3927×2750





# Parameter-CFV1100 ( M80A STD)



Item			Parameter	Item			Parameter
Processing	X travel	mm	1100	Tool magazine	Capacity	T	24
	Y travel	mm	540		Driven system	-	Servo
	Z travel	mm	520		Holder	-	BT40
	Distance between spindle center and table surface	mm	150-670		Max. tool dia. (full/empty adj. position)	mm	Φ80/Φ125
Table	Table ( A×B )	mm	1300×550		Max. tool length	mm	300
	Max. load	kg	1200		Max. tool weight	kg/T	7
	T slot ( No.×width×distance )	mm	5×18×100		Tool change time ( T-T )	s	1.5
Spindle	Driven system	-	<b>Built-in spindle</b>		Position accuracy	X	mm
	speed	rpm	12000	Y		mm	0.006
	Power ( continuous/10mins )	kW	7.5/11	Z		mm	0.006
	Torque ( continuous/10mins )	Nm	71.6/105	Repeatability position accuracy	X	mm	0.005
	Taper hole	-	BT40		Y	mm	0.004
	Pull stud	-	MAS-P40T-I		Z	mm	0.004
Feedrate	X/Y/Z rapid feed	m/min	36/36/36	Controller		-	M80A
	X/Y/Z servo motor power	kW	2/3/3	Air pressure		MPa	0.6~1
	X/Y/Z servo motor torque	Nm	13.7/22.5/22.5	Machine voltage		V/Hz	380/50
	X/Y/Z ball screw dia.	mm	36/36/36	Machine weight		t	8
	X/Y/Z feedrate	m/min	20/20/20	Occupation		mm	4166×3270



# Parameter-CFV600 ( FANUC OP )



Item			Parameter	Item			Parameter
Processing	X travel	mm	600	Tool magazine	Capacity	T	24
	Y travel	mm	430		Driven system	-	Servo
	Z travel	mm	510		Holder	-	BT40
	Distance between spindle center and table surface	mm	150-660		Max. tool dia. (full/empty adj. position)	mm	Φ80/Φ125
Table	Table ( A×B )	mm	900×430		Max. tool length	mm	300
	Max. load	kg	500		Max. tool weight	kg/T	7
	T slot ( No.×width×distance )	mm	3×18×125		Tool change time ( T-T )	s	1.5
Spindle	Driven system	-	Built-in spindle		Position accuracy	X	mm
	speed	rpm	12000	Y		mm	0.005
	Power ( continuous/10mins )	kW	10/22	Z		mm	0.006
	Torque ( continuous/10mins )	Nm	63.7/118	Repeatability position accuracy	X	mm	0.004
	Taper hole	-	BT40		Y	mm	0.003
	Pull stud	-	MAS-P40T-I		Z	mm	0.004
Feedrate	X/Y/Z rapid feed	m/min	36/36/36	Controller		-	FANUC 0i MF
	X/Y/Z servo motor power	kW	3/3/4	Air pressure		MPa	0.6~1
	X/Y/Z servo motor torque	Nm	12/12/22	Machine voltage		V/Hz	380/50
	X/Y/Z servo motor speed	rpm	3000/3000/3000	Machine weight		t	6
	X/Y/Z ball screw dia.	mm	36/36/36	Occupation		mm	2060×3350
	X/Y/Z feedrate	m/min	20/20/20				

# Parameter-CFV900 ( FANUC OP )



Item			Parameter	Item			Parameter
Processing	X travel	mm	900	Tool magazine	Capacity	T	24
	Y travel	mm	430		Driven system	-	Servo
	Z travel	mm	510		Holder	-	BT40
	Distance between spindle center and table surface	mm	150-660		Max. tool dia. (full/empty adj. position)	mm	Φ80/Φ125
Table	Table ( A×B )	mm	1100×430		Max. tool length	mm	300
	Max. load	kg	700		Max. tool weight	kg/T	7
	T slot ( No.×width×distance )	mm	3×18×125		Tool change time ( T-T )	s	1.5
Spindle	Driven system	-	Built-in spindle		Position accuracy	X	mm
	speed	rpm	12000	Y		mm	0.005
	Power ( continuous/10mins )	kW	10/22	Z		mm	0.006
	Torque ( continuous/10mins )	Nm	63.7/118	Repeatability position accuracy	X	mm	0.005
	Taper hole	-	BT40		Y	mm	0.003
	Pull stud	-	MAS-P40T-I		Z	mm	0.004
Feedrate	X/Y/Z rapid feed	m/min	36/36/36	Controller		-	FANUC Oi MF
	X/Y/Z servo motor power	kW	3/3/4	Air pressure		MPa	0.6~1
	X/Y/Z servo motor torque	Nm	12/12/22	Machine voltage		V/Hz	380/50
	X/Y/Z servo motor speed	rpm	3000/3000/3000	Machine weight		t	7
	X/Y/Z ball screw dia.	mm	36/36/36	Occupation		mm	3927x2750
	X/Y/Z feedrate	m/min	20/20/20				



# Parameter-CFV1100 ( FANUC OP )

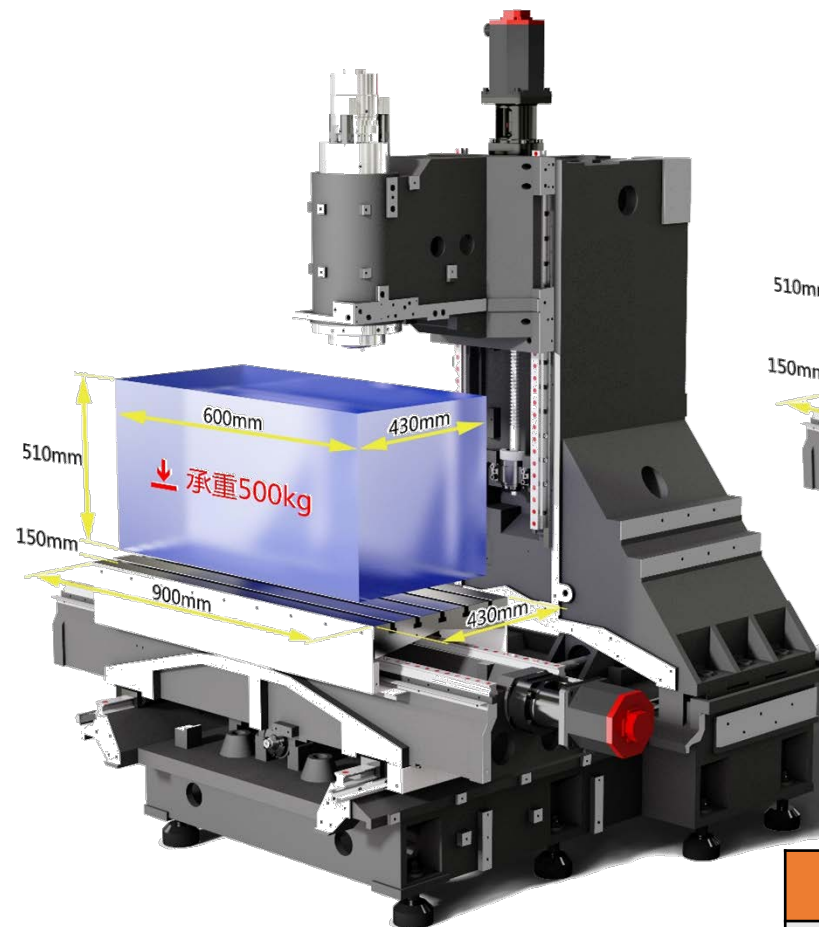


Item			Parameter	Item			Parameter
Processing	X travel	mm	1100	Tool magazine	Capacity	T	24
	Y travel	mm	540		Driven system	-	Servo
	Z travel	mm	520		Holder	-	BT40
	Distance between spindle center and table surface	mm	150-670		Max. tool dia. (full/empty adj. position)	mm	Φ80/Φ125
Table	Table ( A×B )	mm	1300×550		Max. tool length	mm	300
	Max. load	kg	1200		Max. tool weight	kg/T	7
	T slot ( No.×width×distance )	mm	5×18×100		Tool change time ( T-T )	s	1.5
Spindle	Driven system	-	Built-in spindle		Position accuracy	X	mm
	speed	rpm	12000	Y		mm	0.006
	Power ( continuous/10mins )	kW	10/22	Z		mm	0.006
	Torque ( continuous/10mins )	Nm	63.7/118	Repeatability position accuracy	X	mm	0.005
	Taper hole	-	BT40		Y	mm	0.004
	Pull stud	-	MAS-P40T-I		Z	mm	0.004
Feedrate	X/Y/Z rapid feed	m/min	36/36/36	Controller		-	FANUC 0i MF
	X/Y/Z servo motor power	kW	3/4/4	Air pressure		MPa	0.6~1
	X/Y/Z servo motor torque	Nm	12/22/22	Machine voltage		V/Hz	380/50
	X/Y/Z servo motor speed	rpm	3000/3000/3000	Machine weight		t	8
	X/Y/Z ball screw dia.	mm	36/36/36	Occupation		mm	46661x3270
	X/Y/Z feedrate	m/min	20/20/20				

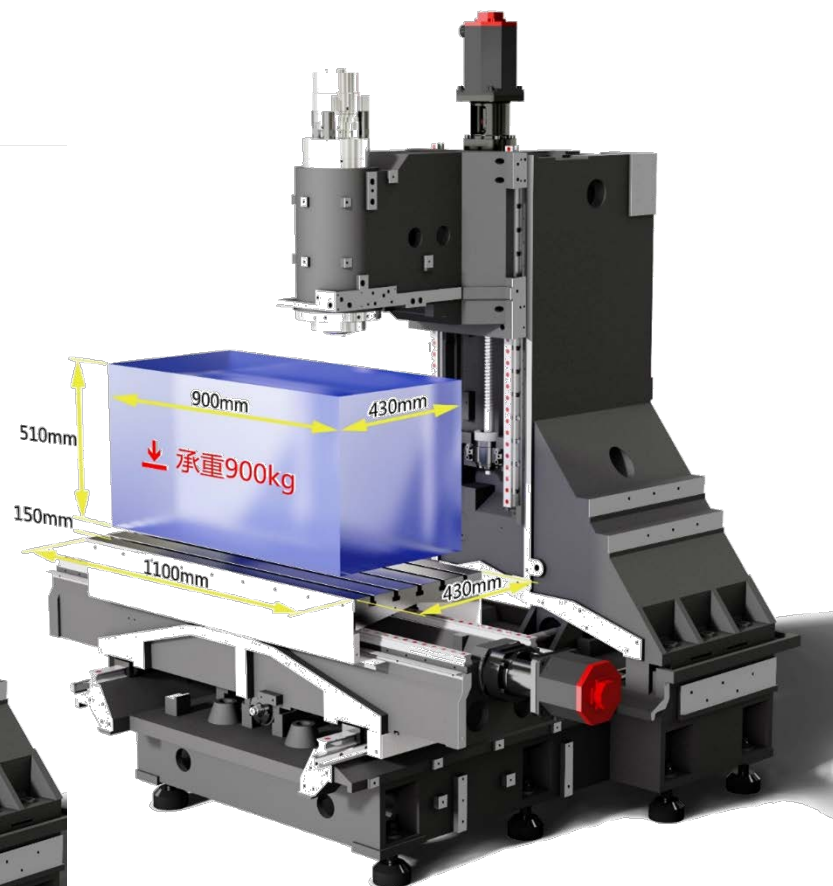
# Processing scope



## CFV600



## CFV900



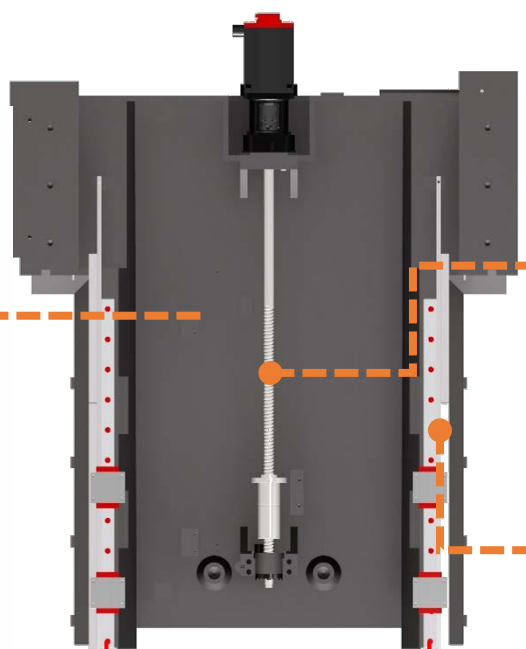
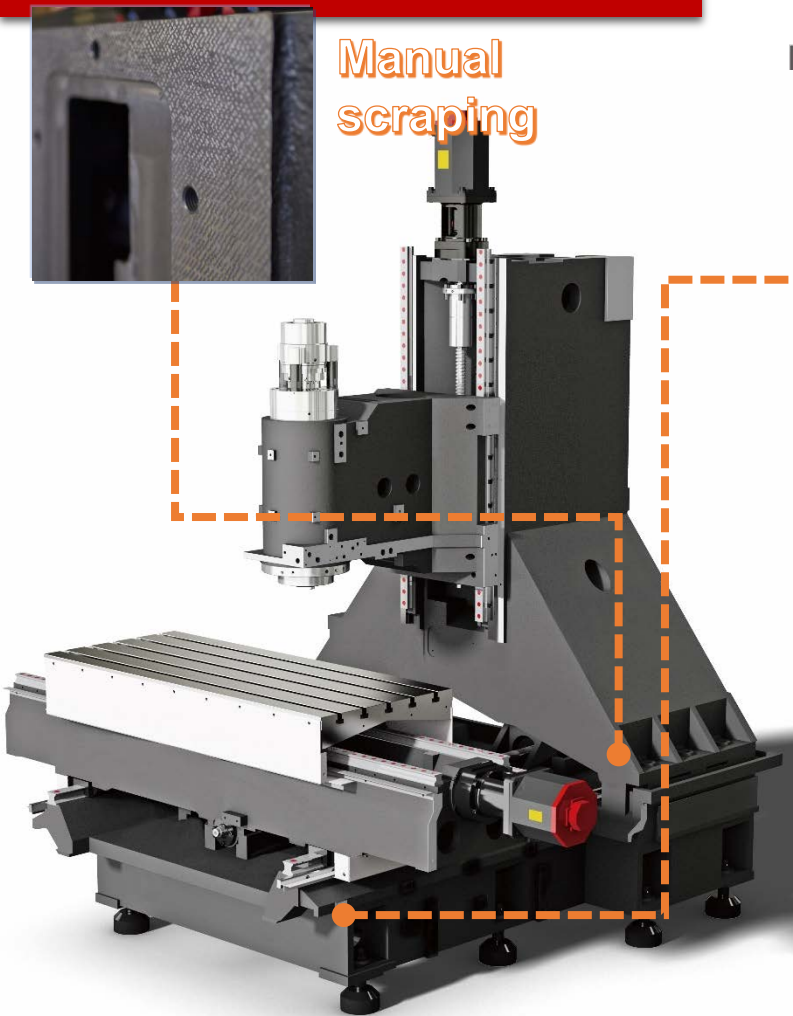
## CFV1100



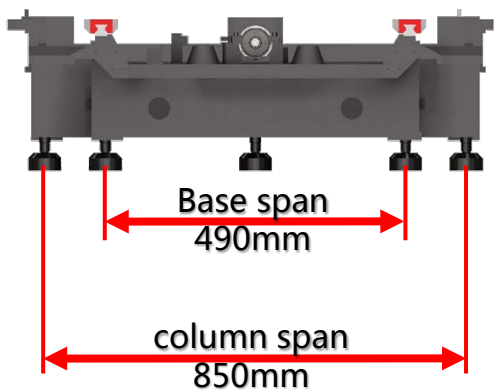
Model	CFV600	CFV900	CFV1100
Rapid feed X/Y/Z m/min		36/36/36	
Max. acceleration X/Y/Z		0.5g	

# Structural features-base CFV600

Manual  
scraping



Linear guideway span  
530mm



Base span  
490mm

column span  
850mm



PMI

HISION

Model	Axis	Ball screw (mm)		Corrected rated load(kgf)		Precision grade	Length (mm)
		Dia.	Lead	Dynamic	Static		
CFV600	Y	36	12	6080	16430	C3	1273

Model	Axis	Brand	Width (mm)	Static load (N)	Dynamic load (N)	Precision grade
CFV600	Y	BMA 35 (Ball)	35	93400	52000	G2



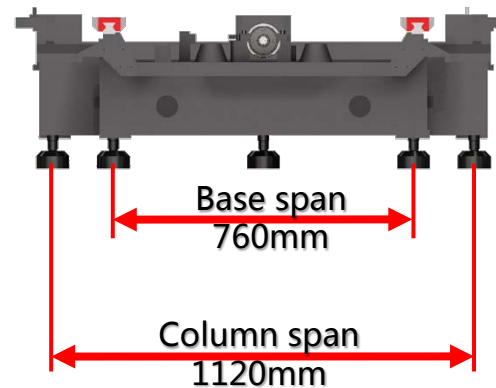
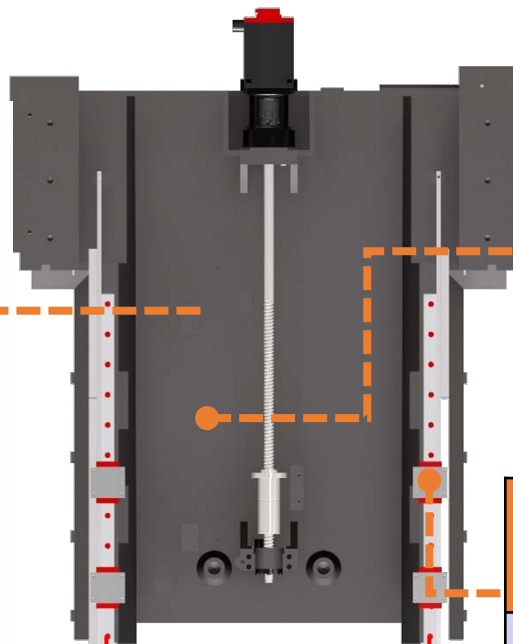
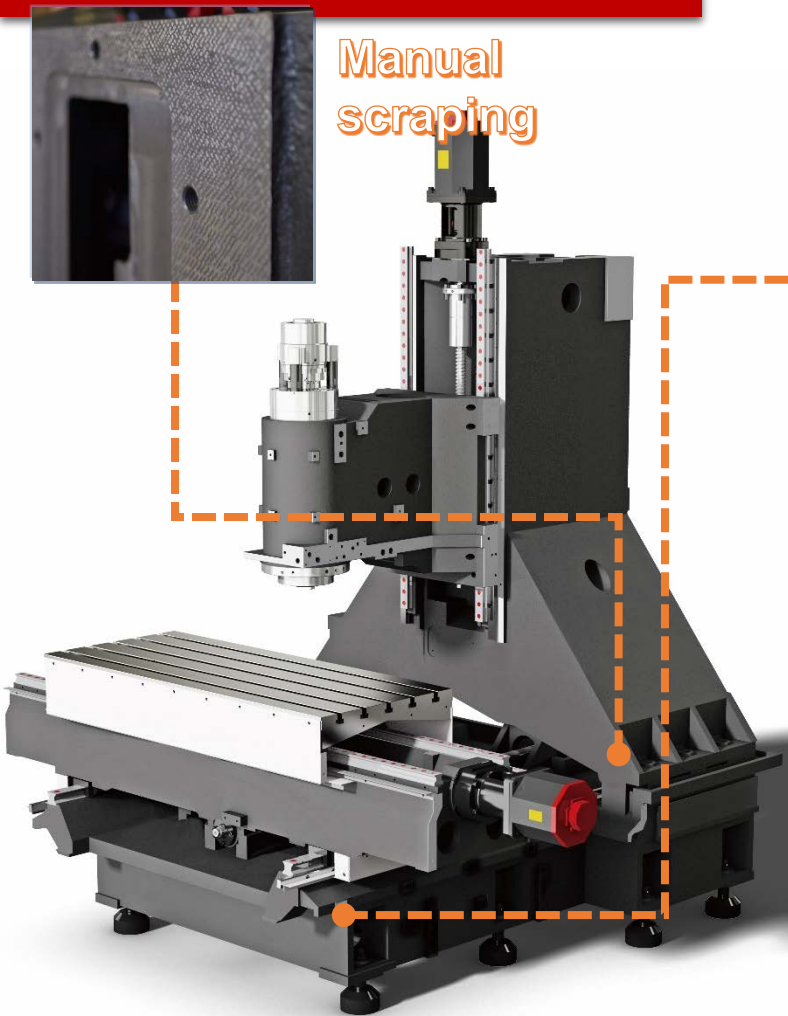
SCHNEEBERGER

Large span base - ensures stability of the base components



# Structural features-base CFV900

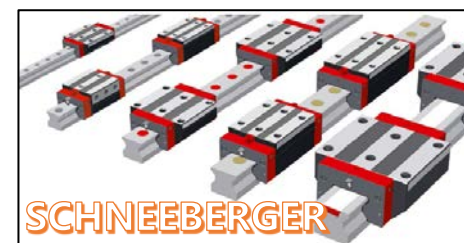
Manual  
scraping



**HISION**

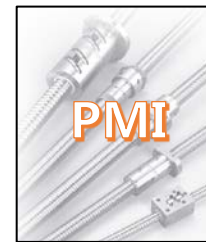
Model	Axis	Ball screw (mm)		Corrected rated load(kgf)		Precision grade	Length (mm)
		Dia.	Lead	Dynamic	Static		
CFV900	Y	36	12	6080	16430	C3	1273

Model	Axis	Brand	Width (mm)	Static load (N)	Dynamic load (N)	Precision grade
CFV900	Y	BMA 35 (ball)	35	84400	38700	G2



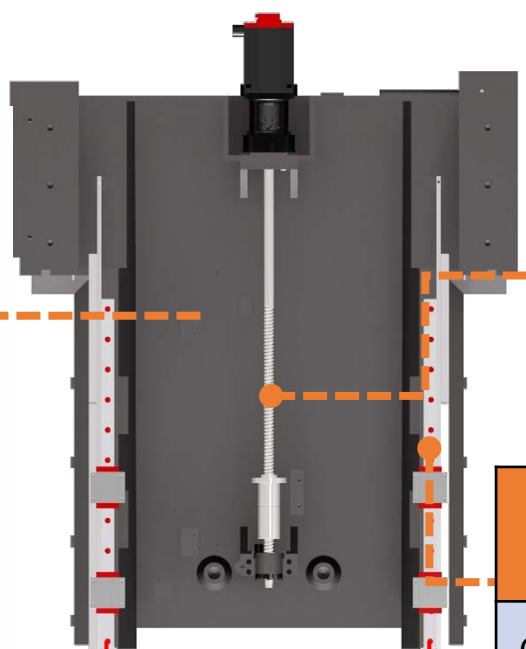
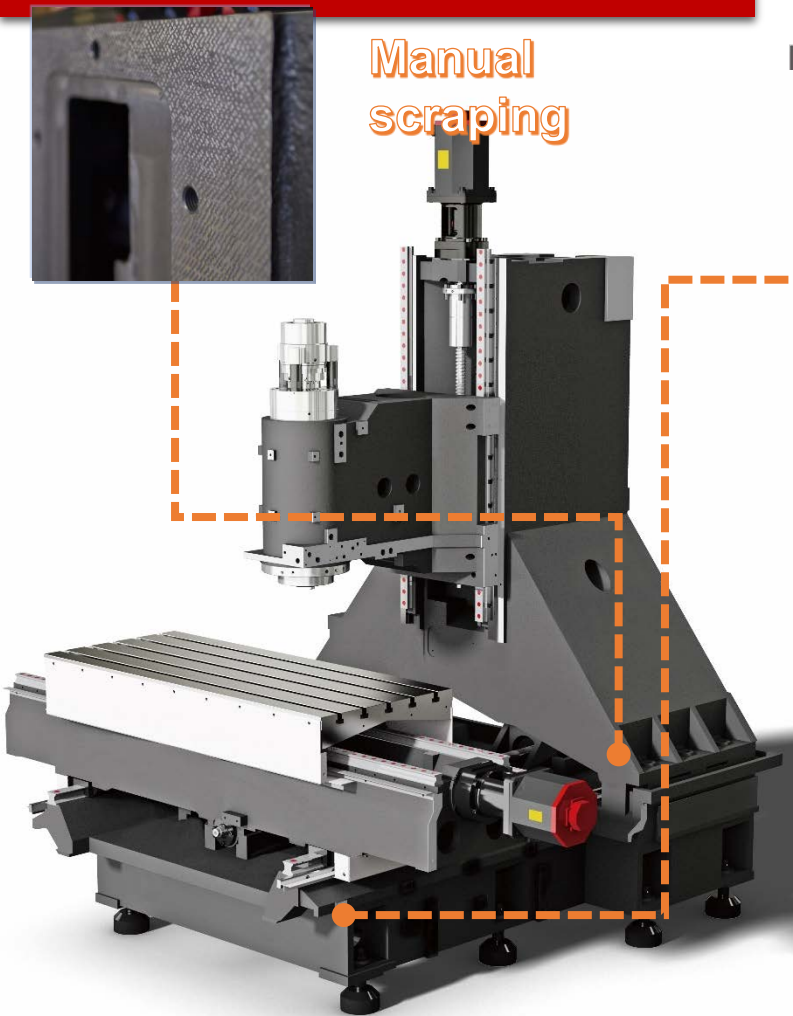
Large span base - ensures stability of the base components

# Structural features-base CFV1100



**HISION**

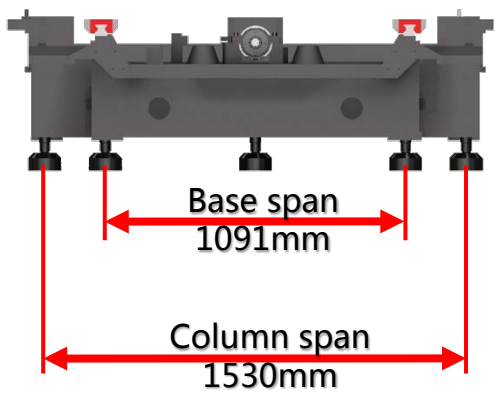
Manual  
scraping



Linear guideway span  
1120mm

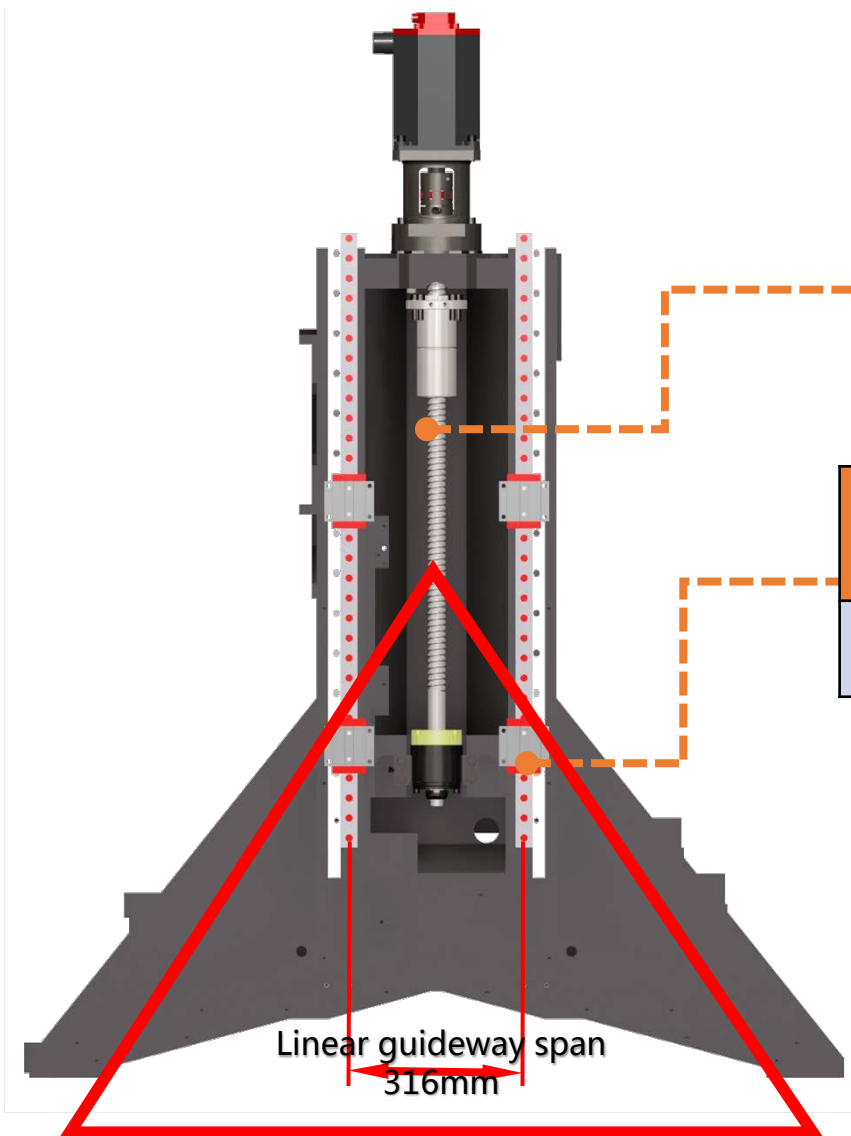
Model	Axis	Ball screw (mm)		Corrected rated load(kgf)		Precision grade	Length (mm)
		Dia.	Lead	Dynamic	Static		
CFV1100	Y	36	12	6080	16430	C3	1622

Model	Axis	Brand	Width (mm)	Static load (N)	Dynamic load (N)	Precision grade
CFV1100	Y	BMA 45 (Ball)	45	134800	61900	G2

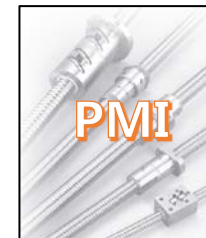


Large span base - ensures stability of the base components

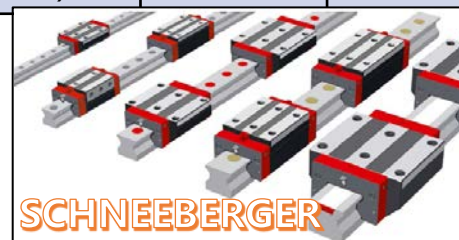
# Structural features-column CFV600



Model	Axis	Ball screw (mm)		Corrected rated load(kgf)		Precision grade	Length (mm)
		Dia.	Lead	Dynamic	Static		
CFV600	Z	36	12	6080	16430	C3	1275.5



Model	Axis	Brand	Width (mm)	Static load (N)	Dynamic load (N)	Precision grade
CFV600	Z	MRA 35 (roller)	35	93400	52000	G2

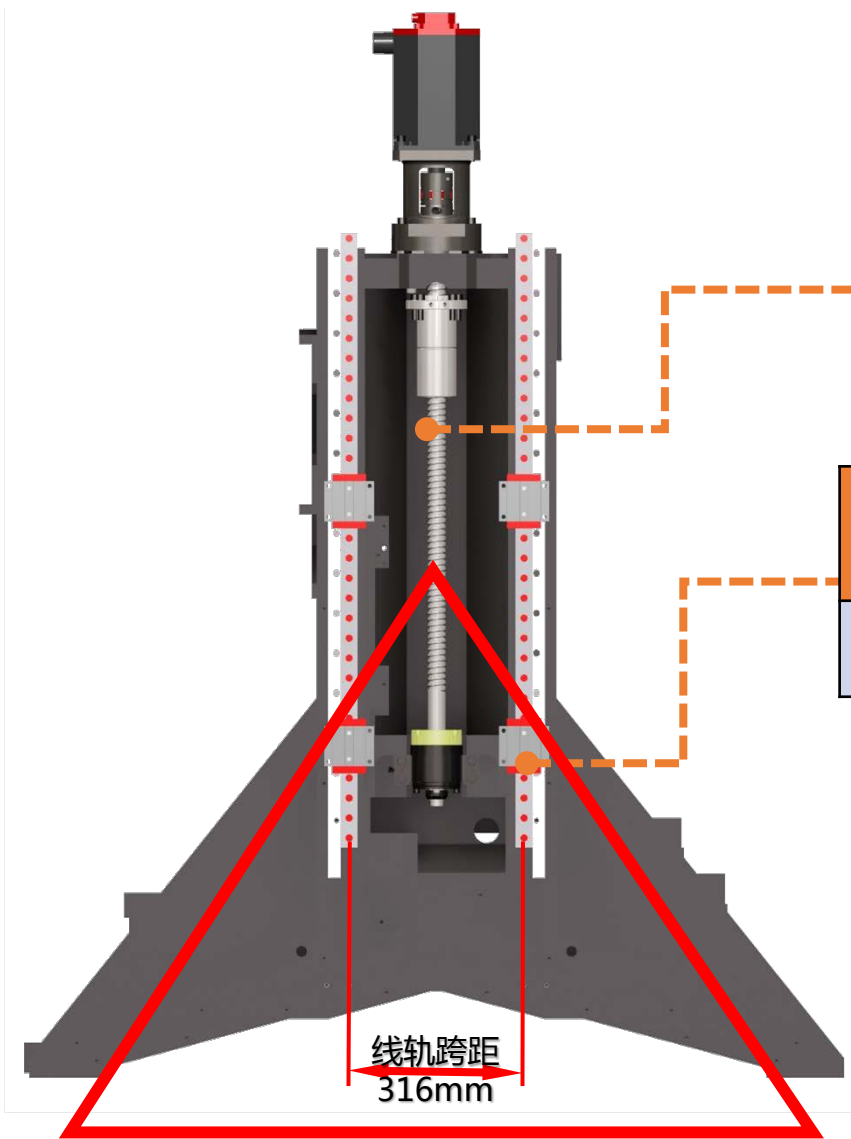


"A" type column -  
Ensures the rigidity of  
the basic components





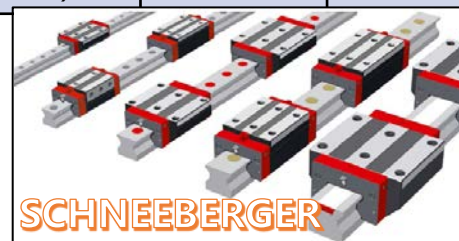
# Structural features-column CFV900



Model	Axis	Ball screw (mm)		Corrected rated load(kgf)		Precision grade	Length (mm)
		Dia.	Lead	Dynamic	Static		
CFV900	Z	36	12	6080	16430	C3	1275.5

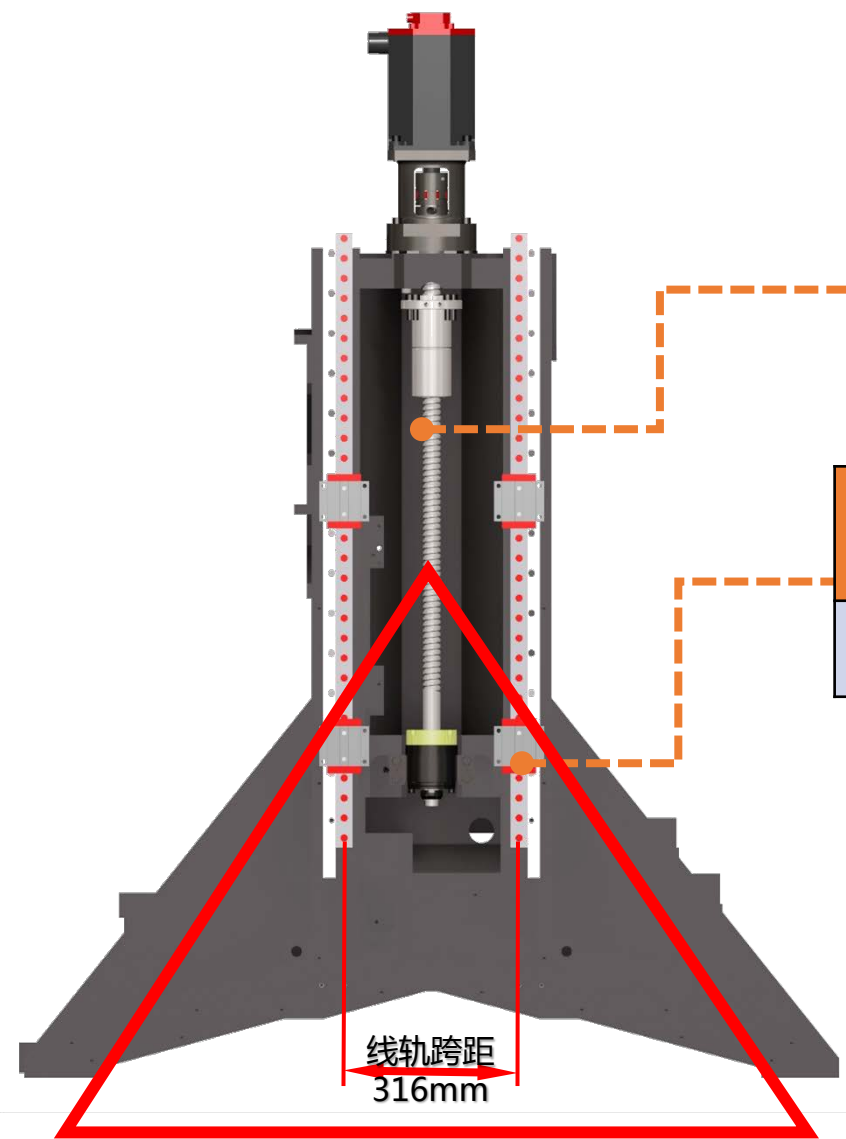


Model	Axis	Brand	Width (mm)	Static load (N)	Dynamic load (N)	Precision grade
CFV900	Z	MRA 35 (Roller)	35	93400	52000	G2

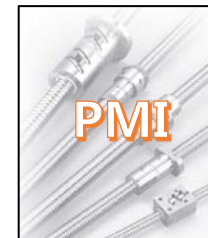


"A" type column -  
Ensures the rigidity of  
the basic components

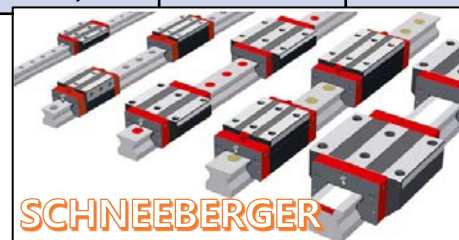
# Structural features-column CFV1100



Model	Axis	Ball screw (mm)		Corrected rated load(kgf)		Precision grade	Length (mm)
		Dia.	Lead	Dynamic	Static		
CFV1100	Z	36	12	6080	16430	C3	1215

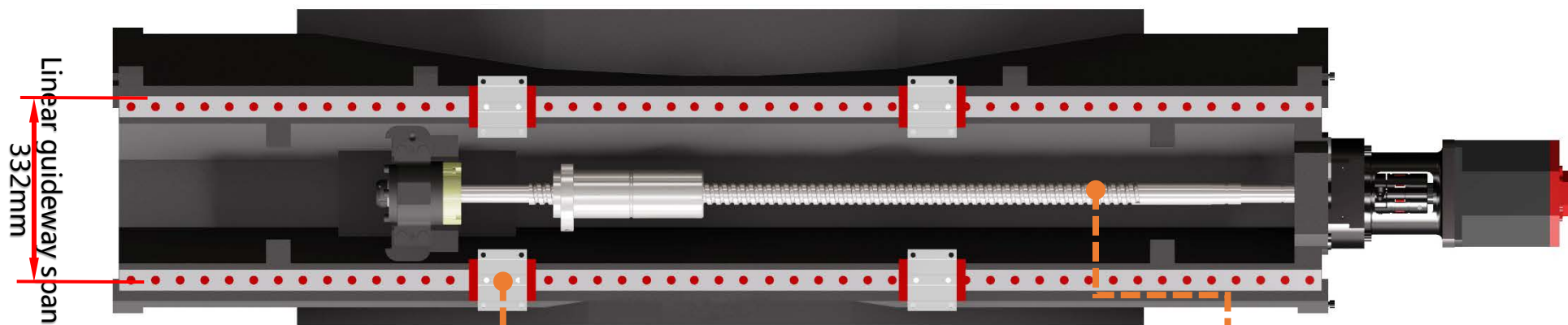


Model	Axis	Brand	Width (mm)	Static load (N)	Dynamic load (N)	Precision grade
CFV1100	Z	MRA 35 (roller)	35	93400	52000	G2



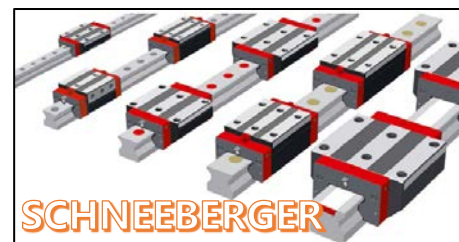
"A" type column -  
Ensures the rigidity of  
the basic components

# Structural features-saddle CFV600



Model	Axis	Ball screw (mm)		Corrected rated load(kgf)		Precision grade	Length (mm)
		Dia.	Lead	Dynamic	Static		
CFV600	X	36	12	6080	16430	C3	1263.5

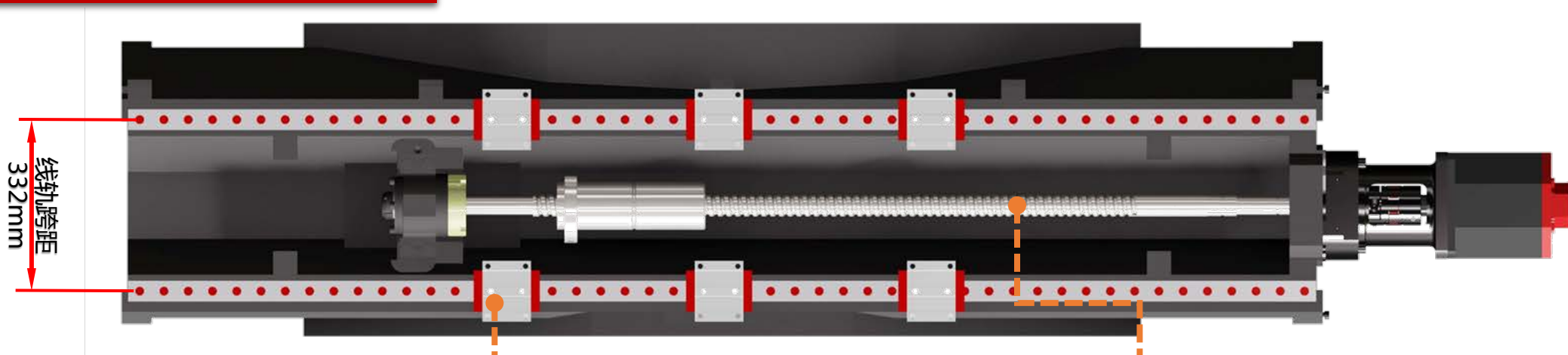
Model	Axis	Brand	Width (mm)	Static load (N)	Dynamic load (N)	Precision grade
CFV600	X	BMA 35 (ball)	35	84400	38700	G2



➤ Motor seat integrated design rigid reinforcement

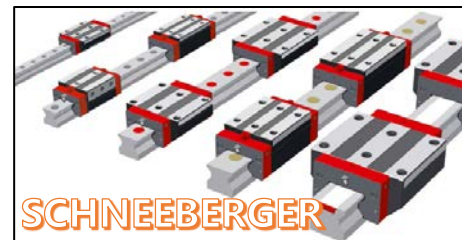


# Structural features-saddle CFV900



Model	Axis	Ball screw (mm)		Corrected rated load(kgf)		Precision grade	Length (mm)
		Dia.	Lead	Dynamic	Static		
CFV900	X	36	12	6080	16430	C3	1486.5

Model	Axis	Brand	Width (mm)	Static load (N)	Dynamic load (N)	Precision grade
CFV900	X	BMA 35 (ball)	35	84400	38700	G2

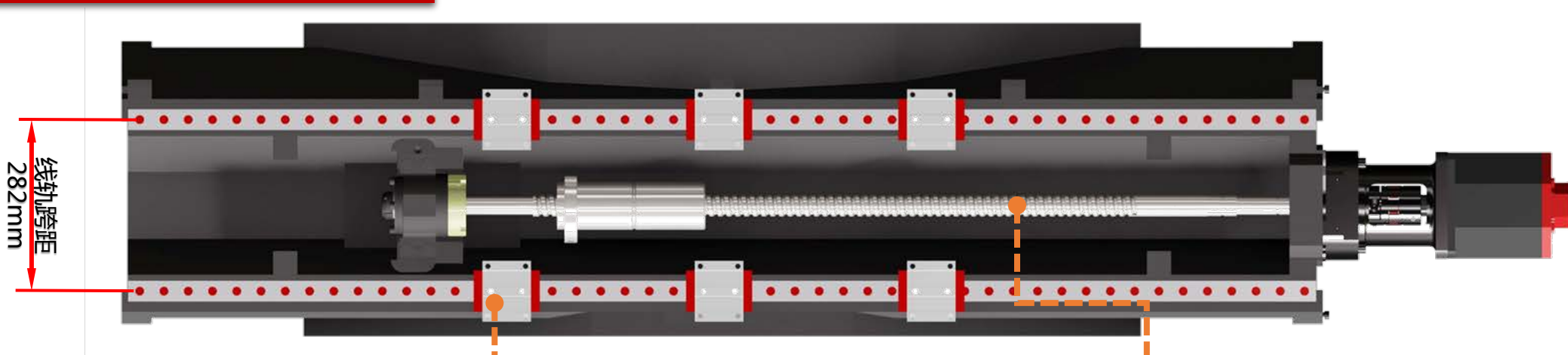


- 6 sliders-big load
- Motor seat integrated design rigid reinforcement



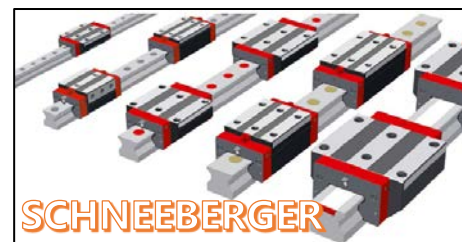


# Structural features-saddle CFV1100



Model	Axis	Ball screw (mm)		Corrected rated load(kgf)		Precision grade	Length (mm)
		Dia.	Lead	Dynamic	Static		
CFV1100	X	36	12	6080	16430	C3	1672

Model	Axis	Brand	Width (mm)	Static load (N)	Dynamic load (N)	Precision grade
CFV1100	X	MRA 35 (roller)	35	93400	52000	G2

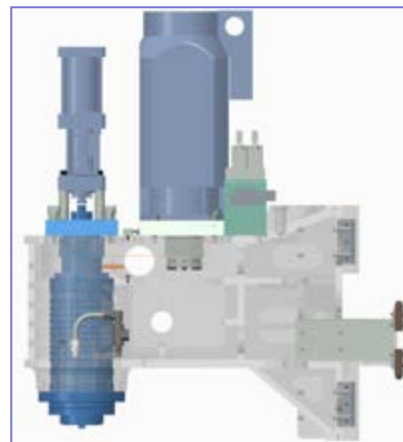


- 6 sliders-big load
- Motor seat integrated design rigid reinforcement

# Structural features-spindle

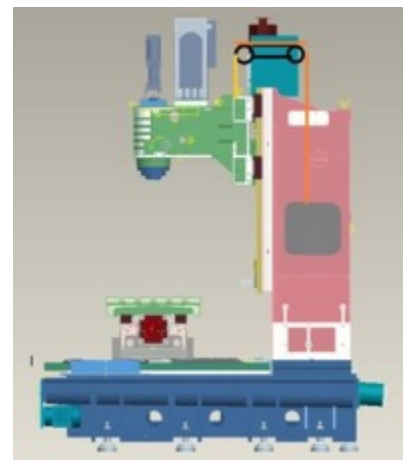
Old design :

Spindle box+spindle+main motor+balance unit+tool release cylinder+belt wheel  
6 units : more than 700kg

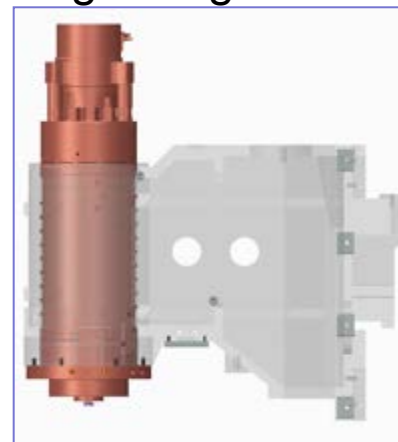


Old design :

Spindle box+spindle+main motor+balance unit+tool release cylinder+belt wheel  
Total weight : 1.2t



Moving parts  
Lightweight



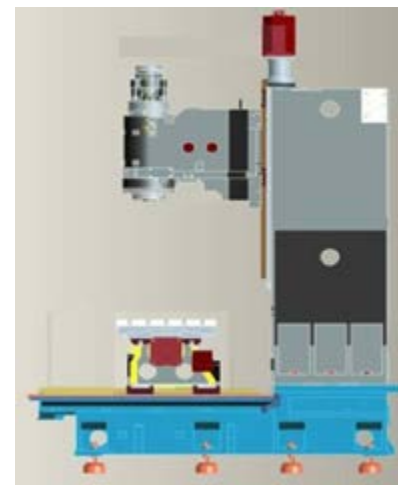
**CFV :**

Spindle box+built-in spindle  
2units : 500kg

More features:

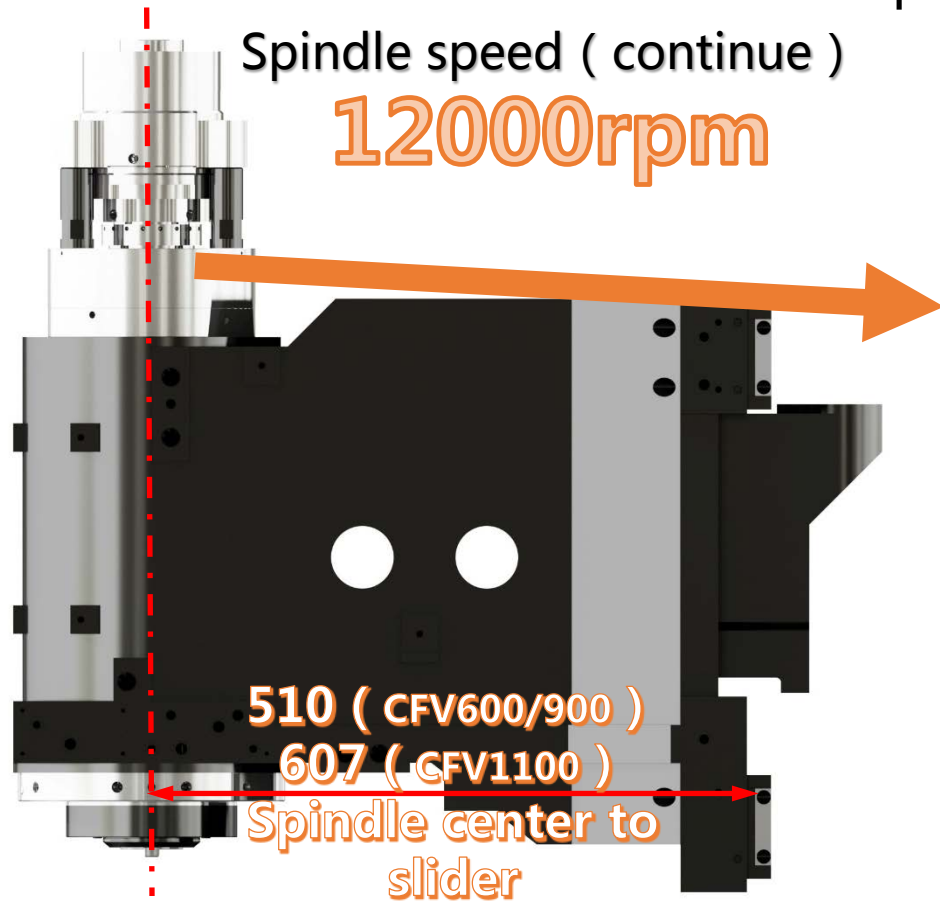
Thickened column

Built-in spindle high efficiency transmission and start and stop

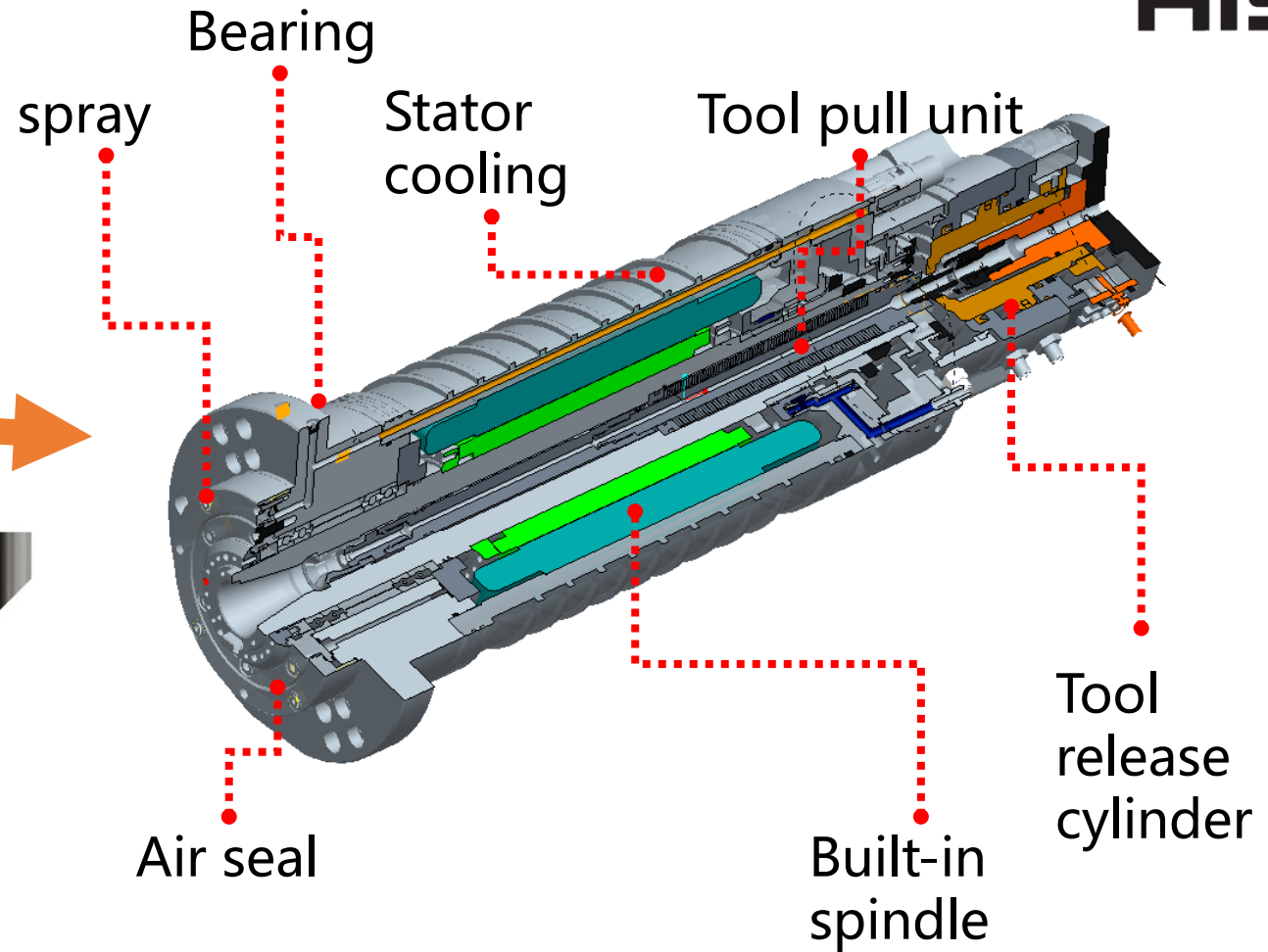


High rigidity of the base part

## Structural features-spindle



Spindle start time ( 0-8000rpm )  
**0.8s**



- High-speed, high-precision built-in electric spindle
- Built-in motor direct drive, dynamic balance levelG0.4
  - Star Delta switch two-speed automatic shifting, low speed and high torque, high speed and constant power

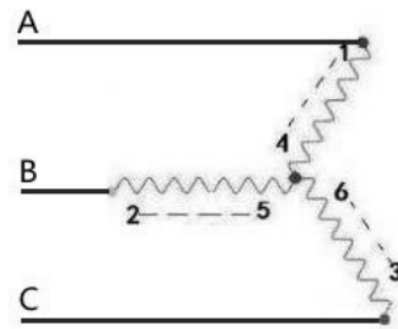
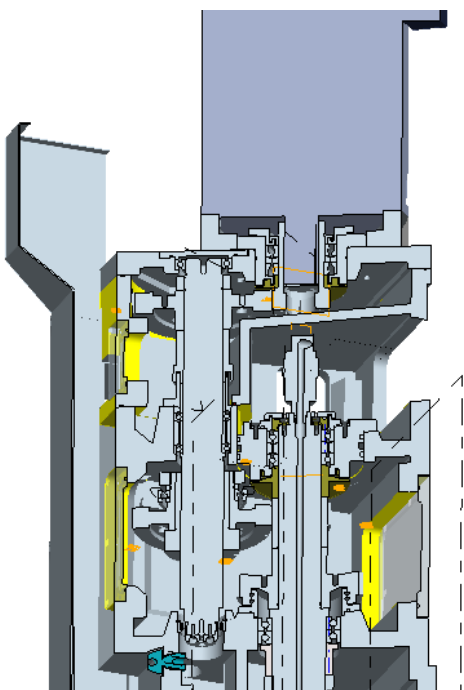


# Spindle features-two level spindle drive ( M80 STD )

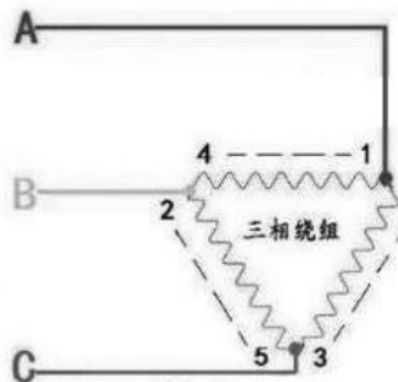


## Built-in spindle diagram

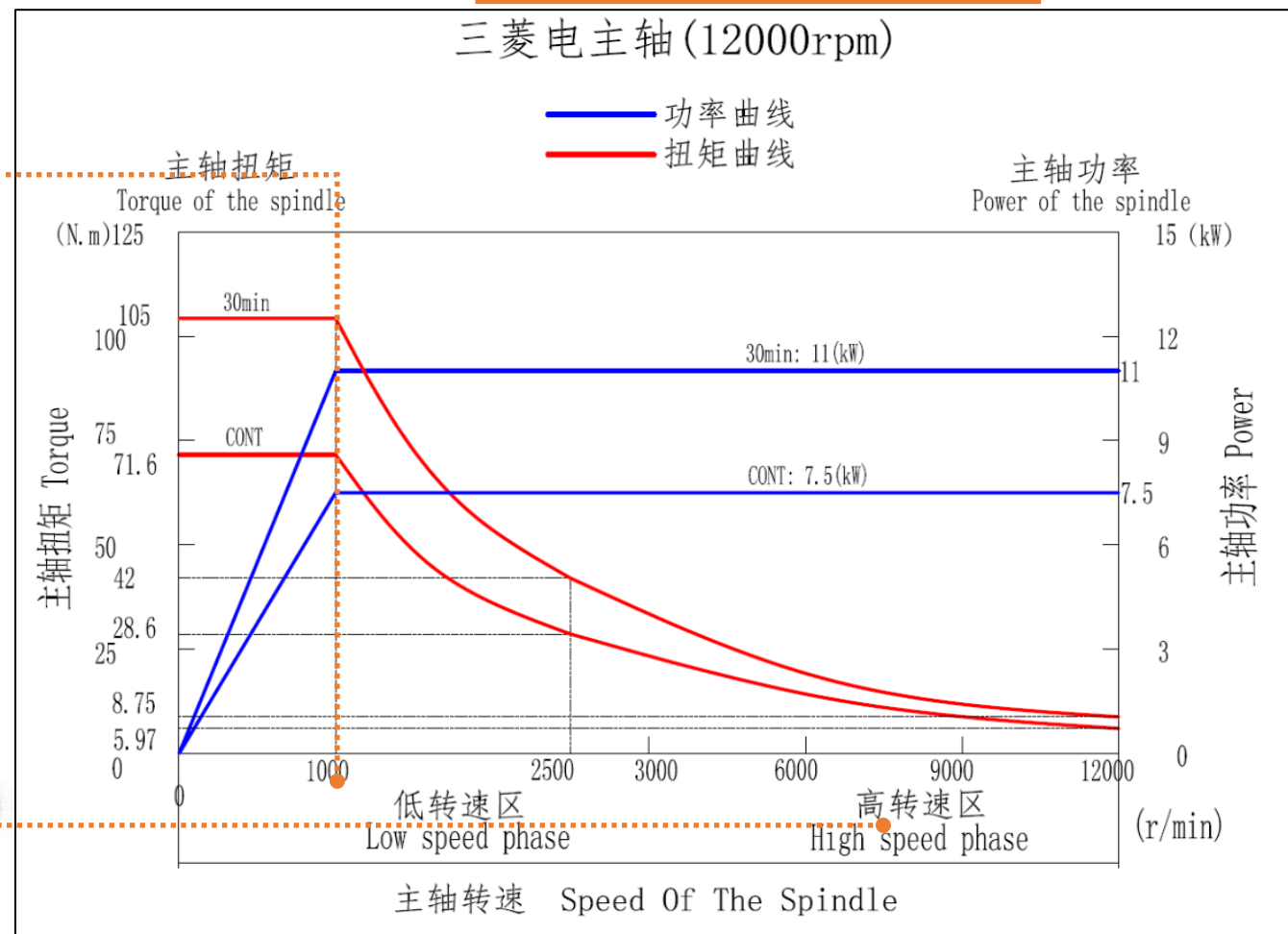
### Mechanical spindle



Low speed



High speed



Low speed-  
big torque

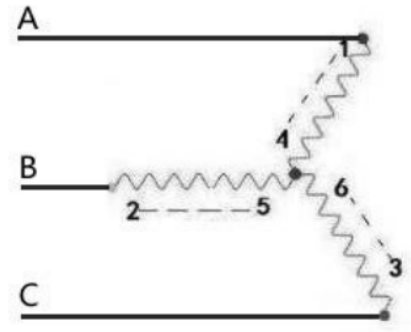
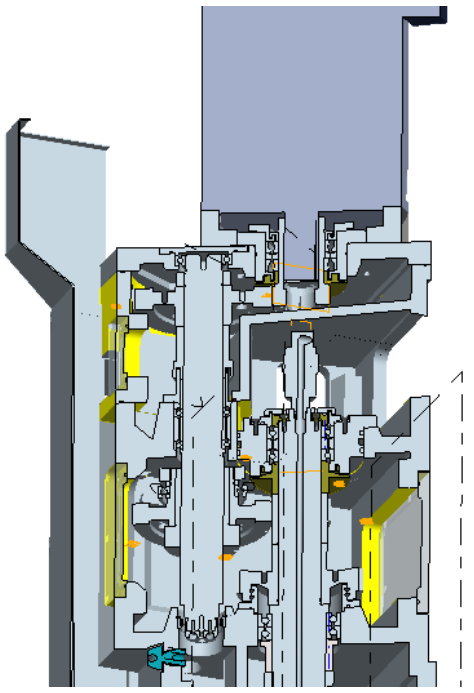
High speed-  
continue  
power



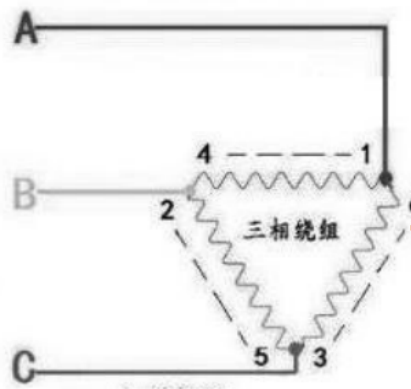
# Spindle features-two level spindle drive ( FANUC OP )



Mechanical spindle

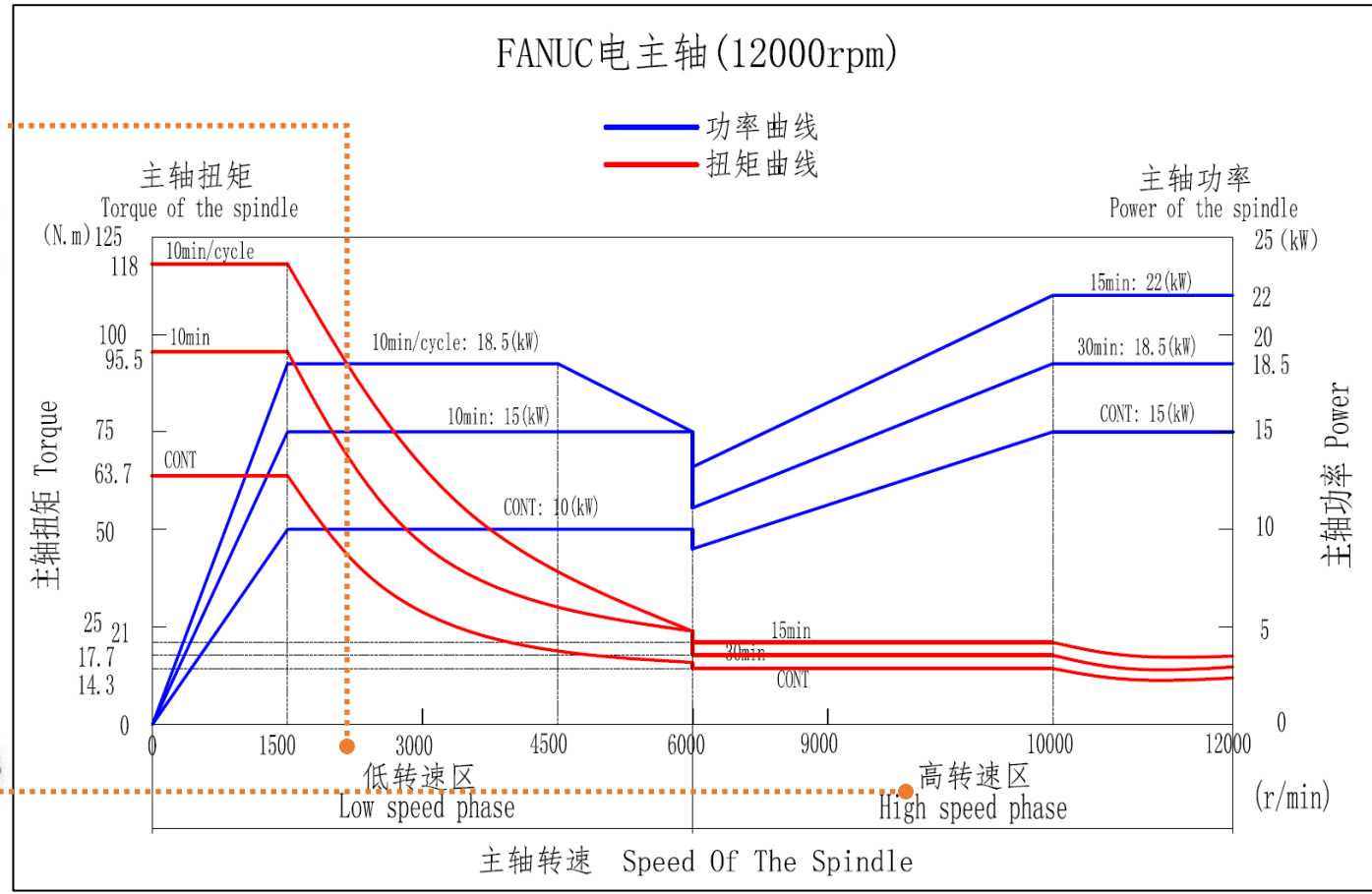


low speed



High speed

Built-in spindle diagram



Low speed-big torque

High speed-continue power

## Spindle features-two –Hision built-in spindle

**HISION**



- ✓ dust-free workshop
- ✓ 20°C Constant temperature assembly
- ✓ Humidity control
- ✓ Positive air pressure working environment
- ✓ Low repair cost
- ✓ Fast repair speed
- ✓ plenty of accessories



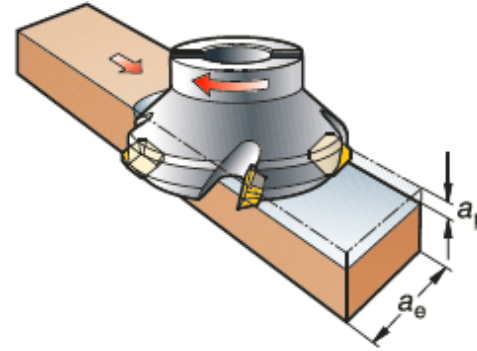
# Spindle feature-process ability



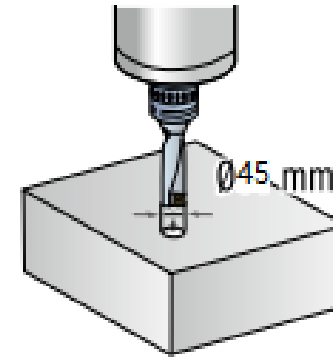
## Milling

Tool	-	Φ80×6z	Φ80×6z	Φ80×6z
Material	-	( AL6061 )	( HT250 )	( SM45C )
Spindle speed	rpm	8000	1650	1500
Deep	mm	1.5	3	2.5
Width	mm	60	68	60
Feed	mm/min	12800	4860	4050
Metal removal	cm <sup>3</sup> /min	1152	991	608

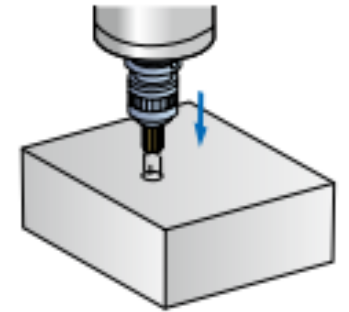
Milling



U type drilling



Tapping



## Tapping

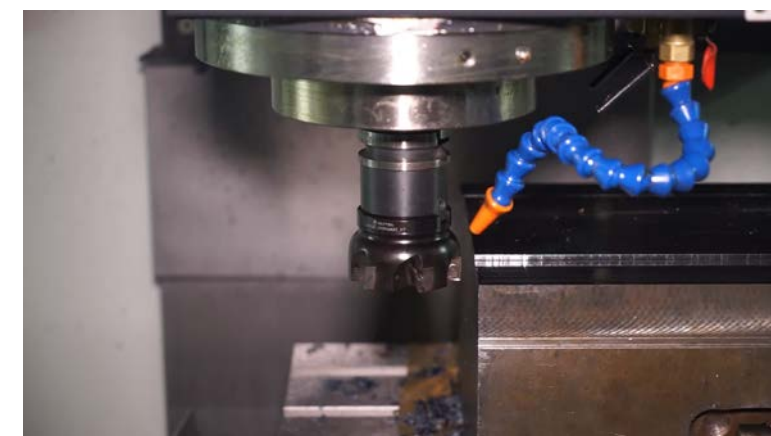
Tool	-	M24 ( Max. )	M2×0.4 ( Min. )
Material	-	( SM45C )	( AL6061 )
Spindle speed	rpm	600	1400
Deep	mm	55	5
Feed	mm/min	1800	560

## Drilling

Tool	-	Φ42U type drilling	Φ0.85 ( Min. )
Material	-	( SM45C )	( AL6061 )
Spindle speed	rpm	800	1000
Deep	mm	80	15
Feed	mm/min	90	30

## CF1100 Different Materials Cutting Parameter Test

Tool	-	Φ80×6z	Φ80×6z	Φ80×6z
Material	-	( AL6061 )	( HT250 )	( SM45C )
Spindle speed	rpm	8000	1650	1500
Deep	mm	1.5	3	2.5
Width	mm	60	68	60
Feed	mm/min	12800	4860	4050
Metal removal	cm <sup>3</sup> /min	1152	991	608





# Structural features-servo ATC



T-T  
1.5s



Capacity  
24T

Servo motor

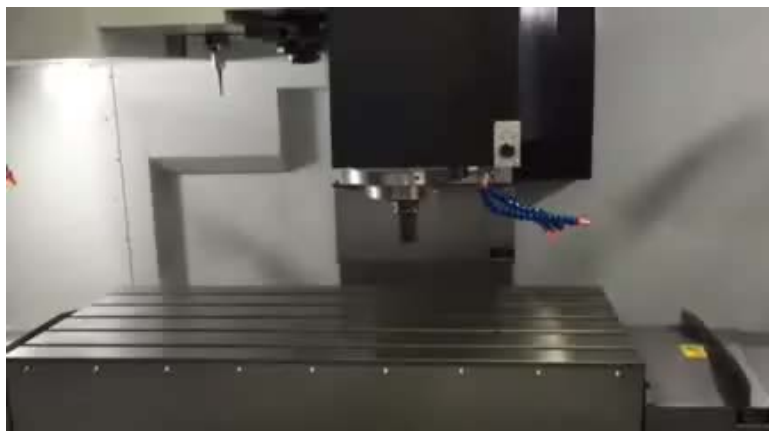


ATC protection door



## Intelligent preparation mode

- Buffering tool to effectively protect the spindle



**Intelligent preparation mode**

## Big tool mode

- Bridge boring tool with a maximum diameter of 180 for automatic tool change



**Big & heavy tool mode**

## Heavy tool mode

- Slow exchange tool in this mode to avoid the risk of rapid tool change



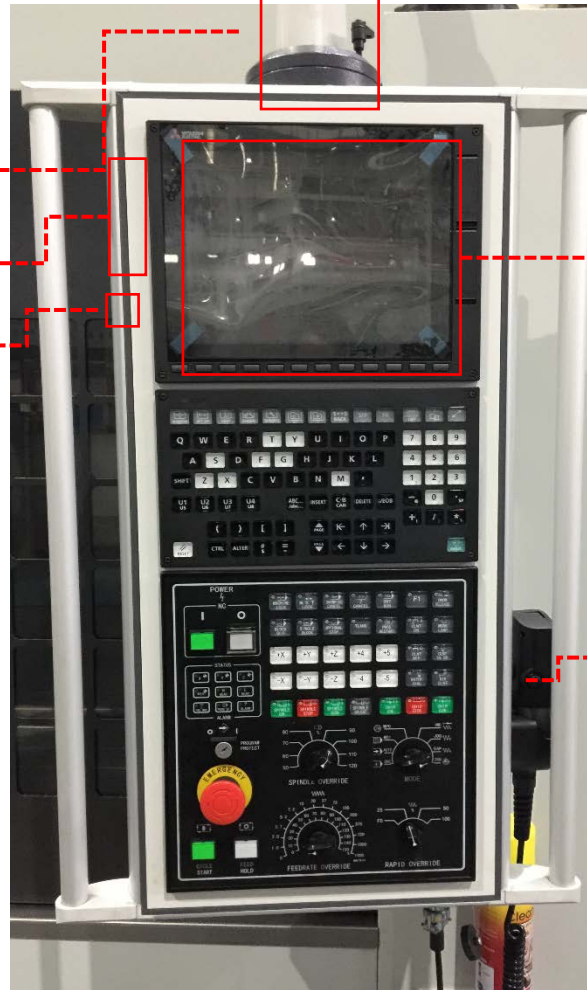
## Controller - MITSUBISHI ( STD )

Control panel

◆ Rotary operation control panel

◆ CF card

◆ USB



◆ 10.4" TFT LCD capacitive touch screen

◆ Hand wheel



M80A	
No.	Name
1	10.4 capacitive touch screen
2	Super smooth surface (SSS) function
3	High speed high accuracy mode I /II/III 33.7KB/min, 67.5KB/min, 135KB/min ( mold )
4	High speed mode I /II 33.7KB/min, 67.5KB/min ( part )
5	Process condition choose
6	Ethernet+USB+RS232
7	SD slot+16GB SD card



## Controller - FANUC ( OP )

Control panel



◆ 10.4" LCD screen without capacitive touch

◆ Hand wheel

◆ Rotary operation control panel

◆ CF card





◆ USB



FANUC 0i MF α motor type1			
STD		OP	
No.	Name	No.	Name
1	10.4 LCD screen	1	R660 mold package (include AICCI, Smooth tolerances, processing conditions, etc.)
2	AICCI (Pre-reading 200 paragraphs )	2	High speed processing(Pre-reading 400 paragraphs)
3	Ethernet	3	Nano smoothing
4	CF slot +USB+RS232	4	High speed ethernet 100M/S
		5	servo data( include 1G original CF card )





Material		Steel	Iron	Aluminum, copper, non-metal	Mix material
Chip type					
Internal	Water flooding	×	○	●	○
	Helix	●	●	○	●
External	Scraper	×	○	●	○
	chain	●	●	○	●

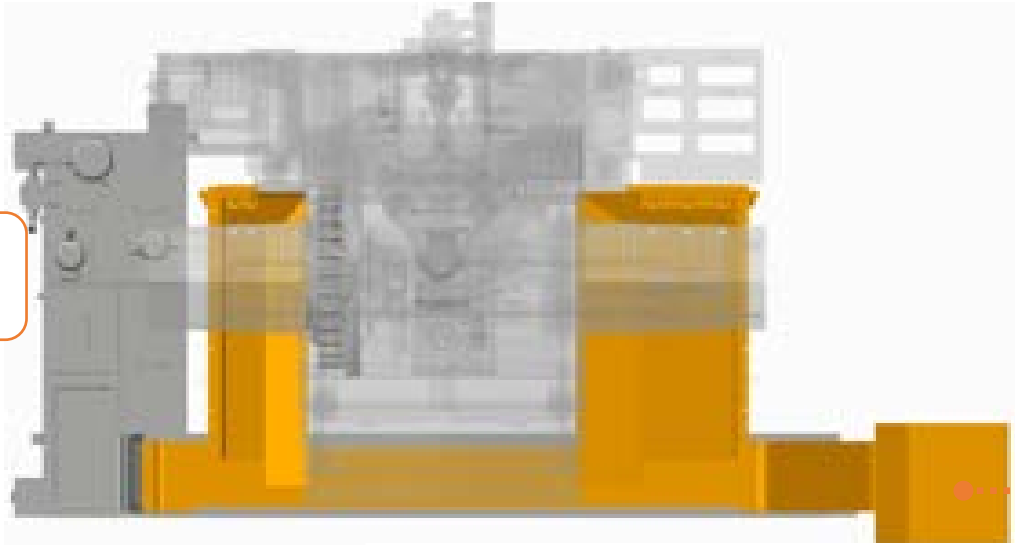


## Chip conveyor

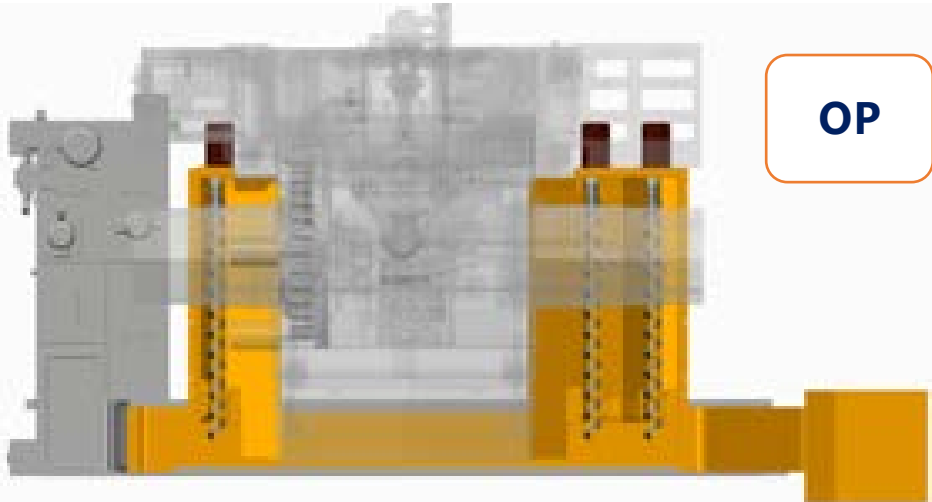
- **CFV** helix chip conveyor assemble on the sheet metal, with large flow spray and internal chain type conveyor, quick chip remove.
- Avoid heat transfer from iron filings to the body of the bed, large flow spray and 300L large water tank, and external temperature changes are difficult to affect the temperature of the processing area.

Internal flooding chip conveyor + external chain type chip conveyor

STD



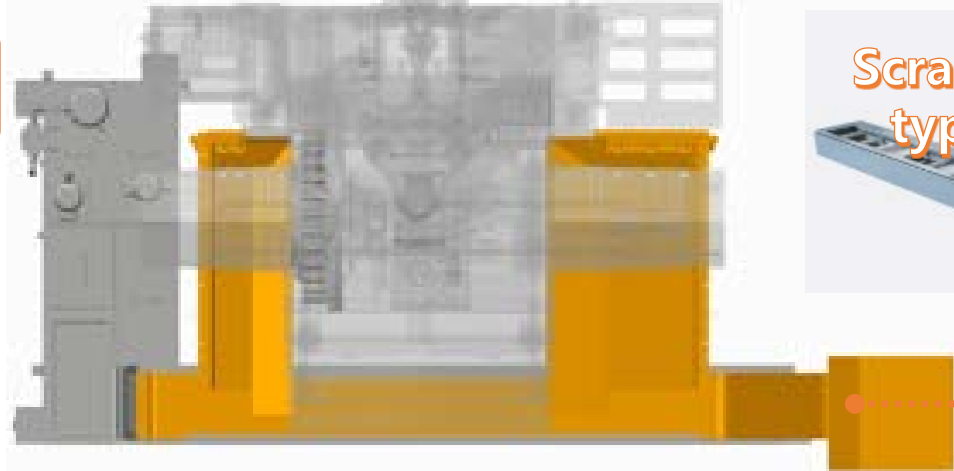
Internal helix chip conveyor + external chain type chip conveyor



OP

Internal flooding chip conveyor + external scraper type chip conveyor

OP



### Spindle hydraulic tool release

#### ◆ Spindle tool release

hydraulic tool release, Spindle built-in cylinder。

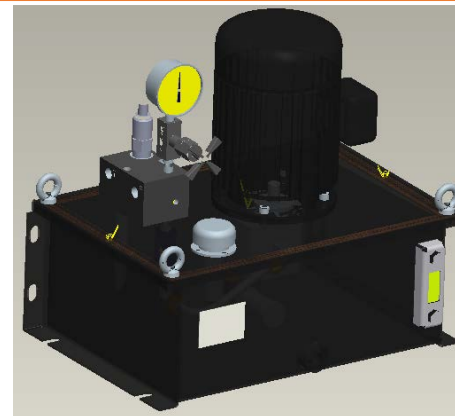
#### ◆ External accumulator

Realize the spindle quick tool release ;

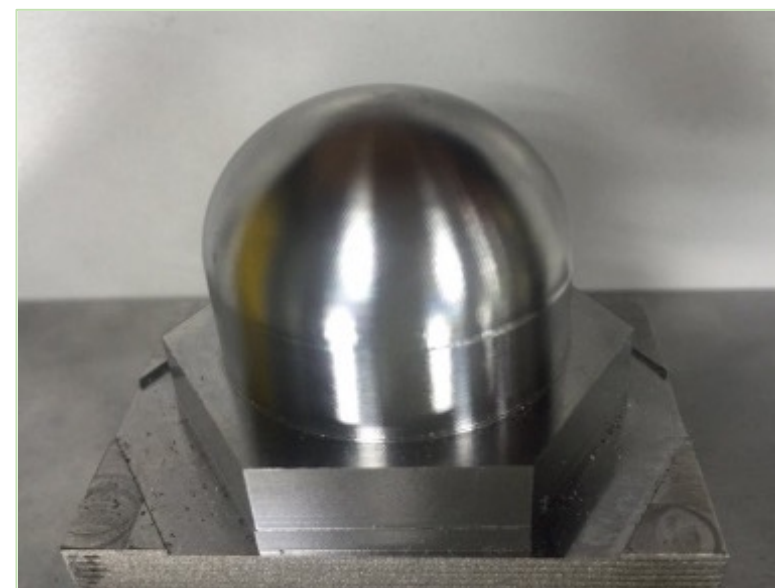
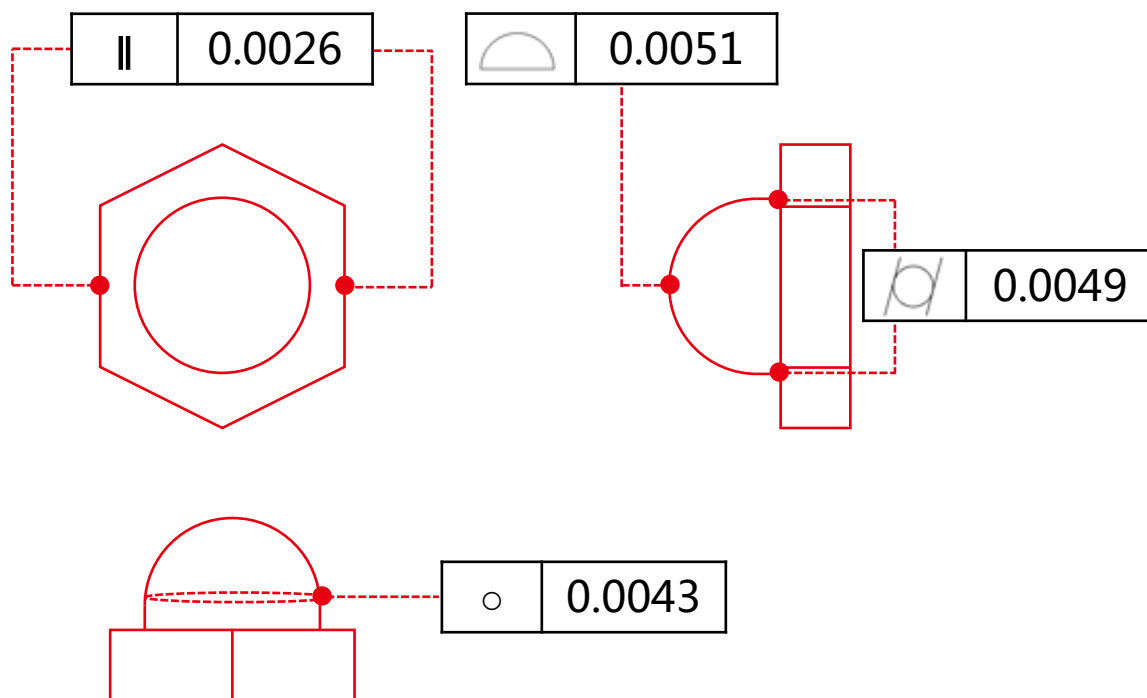
Placed close to the spindle's built-in cylinder ;

Low pressure alarm controls accumulator pressure ;

At low pressure alarms, the accumulator pressure still meets the tool pressure requirements.



# Excellent performance – CFV accuracy



Material : SM45C

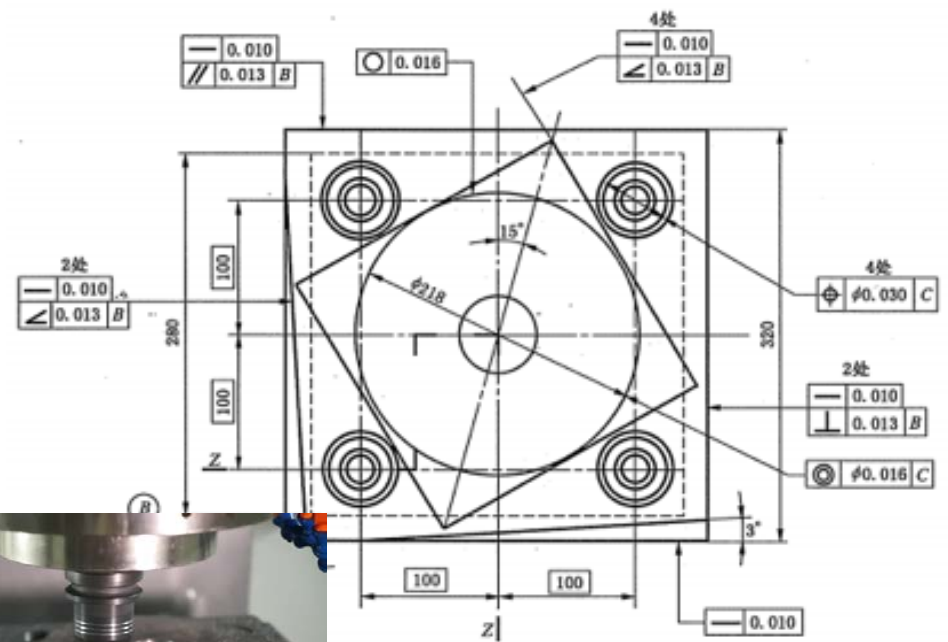
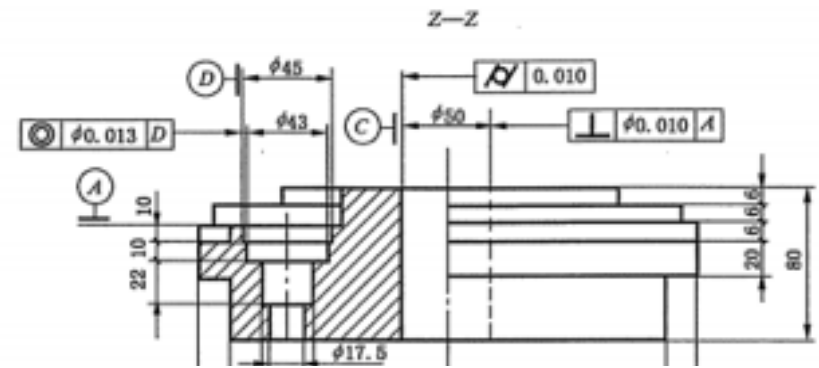




# Process accuracy



Item		Allowable error(mm)	Real error(mm)
Center hole	a)Cylindricity	0.010	0.0035
	b) The perpendicularity of the hole axis to the base A	Φ0.010	Φ0.0017
Positive square	c)Straightness of the edge	0.010	0.0012
	d)The perpendicularity of the adjacent edge to the base B	0.013	0.0039
	e) Parallelism of the opposite side to the base B	0.013	0.0081
Diamond	f) Straightness of the edge	0.010	0.0021
	g)The inclination of the four sides to the reference B	0.013	0.0026
Circle	h) Roundness	0.016	0.0041
	i) Concentricity of the outer circle and the center hole C	Φ0.016	0.0037
Bevel	j) Straightness of the face	0.010	0.0036
	k) Inclined to the inclination of the base B	0.013	0.0045
Boring	l)Position of the hole relative to the center hole C	Φ0.030	Φ0.0174
	m) Concentricity of inner and outer holes D	Φ0.013	Φ0.0026



## Energy saving and environmental protection

### Centralized grease lubrication

Advantage

- ✓ Reduce oil cost
- ✓ Reduce cutting fluid Pollution
- ✓ Improve the service life of cutting fluid
- ✓ Good for environmental protection



### LED work light

Advantage

- ✓ Reduce power cost
- ✓ Improve work life
- ✓ Good earthquake resistance
- ✓ No harmful substances - mercury



### Automatic power off function ( OP )

Advantage

- ✓ Reduce power cost
- ✓ Protect factory safety



### Oil mist collector ( OP )

Advantage

- ✓ Collecting oil mist in the air to purify the air
- ✓ Remove dust and complex particles



建议与主轴中心出水一并使用



# Grease cost



	Lubrication	Oil (Auto)	Grease(Auto)	Mark
Initial input cost	Lubrication equipment	1000CNY	3000CNY	Initial cost input, grease lubrication is about 2550 yuan higher
	Commissioning cost	50CNY	600CNY	
User use cost	Oil supply/time	Oil supply 1.35ml/次	Oil supply 1.35ml/次	2、 save ( 64.6-0.35)*0.85≈55CNY;
	Oil supply interval	5min	10hour	
	Work time	30s	2min	
	Annual consumption of electricity	0.68wh/tiemX95000time/year	0.4wh/timeX876time/year	3、 save 128*10-1.2*400=800CNY ;
		Year electric:64.6KWh	Year electric :0.35KWh	
	Cost	1.35mlX95000time≈128l	1.35mlX876time≈1.2l	In summary, the cost can be recovered in about 3 years
	Annual oil replenishment	128÷1.8≈71tiem 71time	1.2÷0.7≈1.7time 2time	



**Process case**

# Excellent performance– Production capacity



Op	Tool	Deep	Speed rpm	Feed mm
Roughing	D19.7	3mm	10000	12000
Finishing	D15.7	1mm	11150	5000



Case	Aviation aluminum high speed milling
Equipment	CFV900





## Excellent performance— Production capacity



7min02sec

The factory used Taiwan machine tools with American machine

5min30sec

**CFV1100**  
Same program

4min42sec

**CFV1100**  
After exerting CFV rigidity and precision stability, the cutting parameters are optimized

Case	AUTO parts
OP	Transmission box OP20 process
Material	Die-cast aluminum parts
刀具	18T

Efficiency improvement  
**33%**



**Process case**

Excellent performance– Production capacity

4min05sec

3min 10sec



HASS vertical  
machining center  
processes

**CFV1100**  
Same program

Efficiency  
improvement  
**28%**



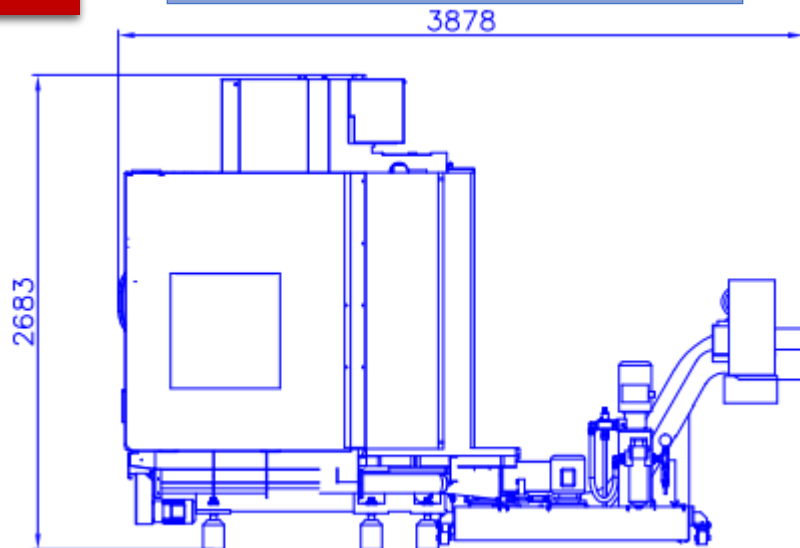
Case	AUTO parts
OP	Air conditioning compressor cylinder block
Material	Die-cast aluminum parts
Tool	5T



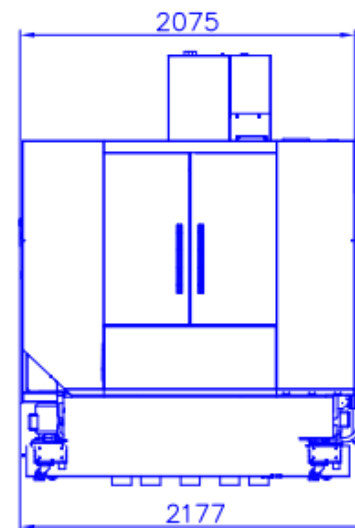
# Machine size-CFV600



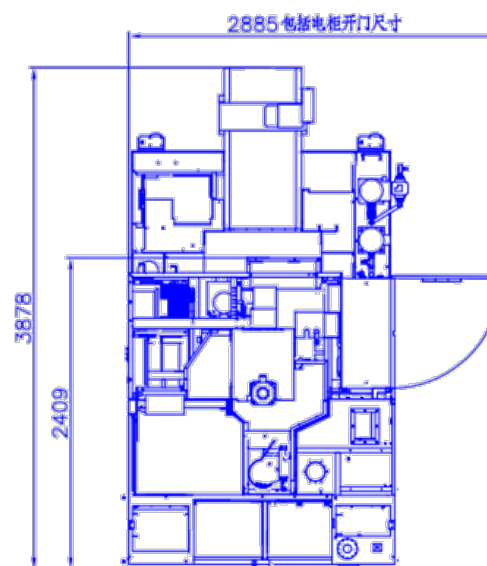
Right view



Main view



Top view



Water tank  
removal direction  
( Right view )



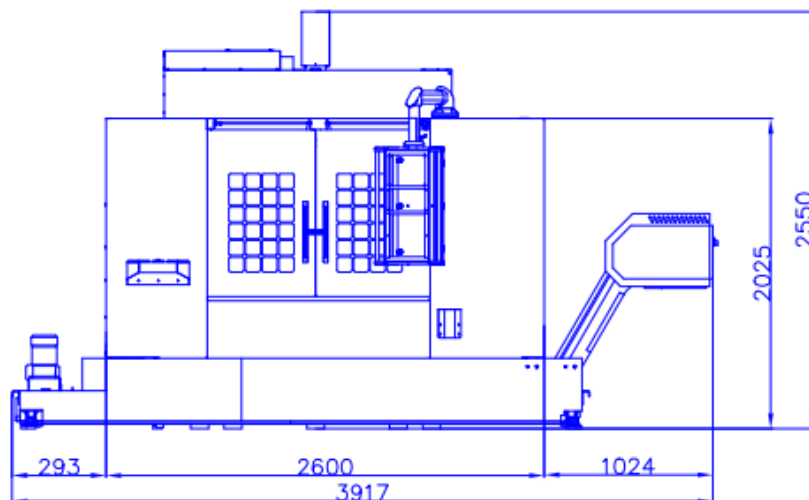
Chip conveyor  
removal direction  
( Right view )



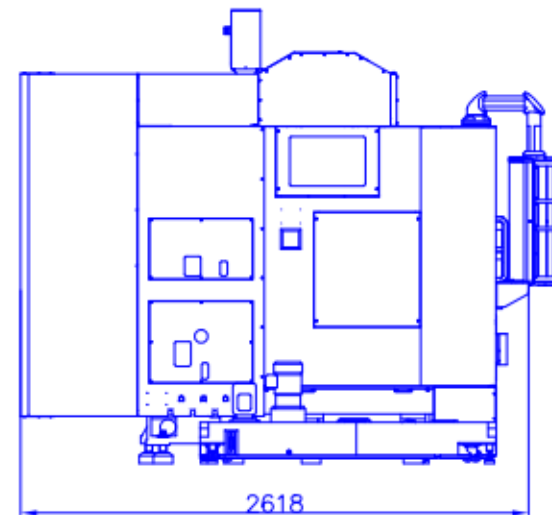
# Machine size-CFV900



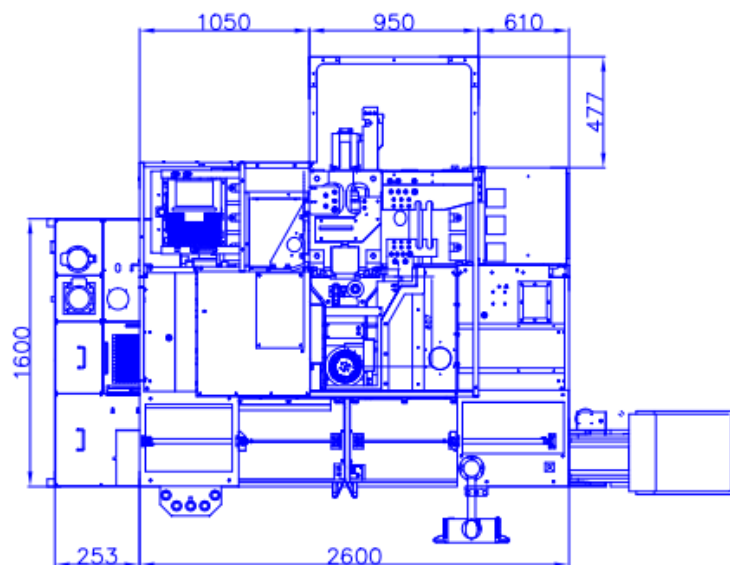
Main view



Left view



Top view



Chip conveyor  
removal direction  
( Top view )



Water tank removal  
direction ( Top view )

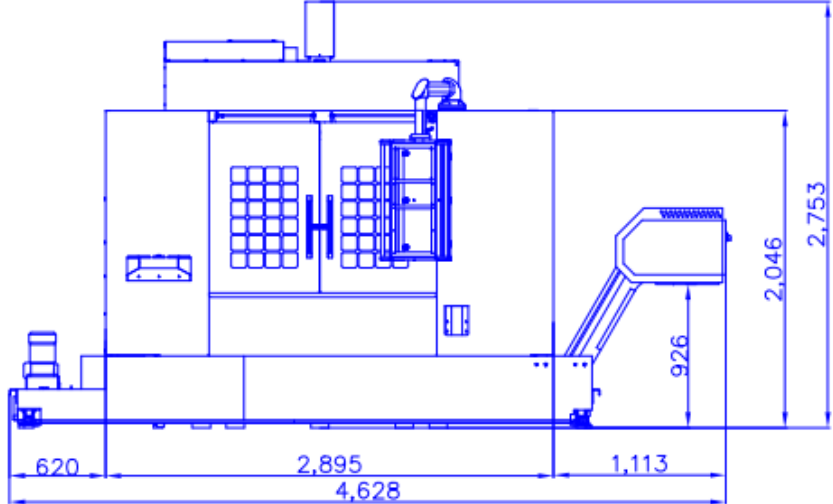




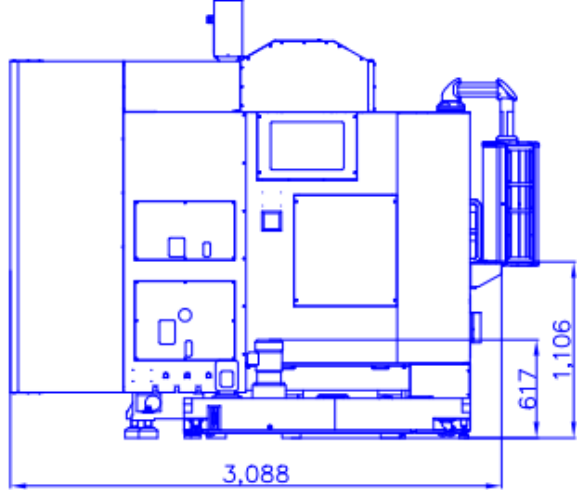
# Machine size-CFV1100



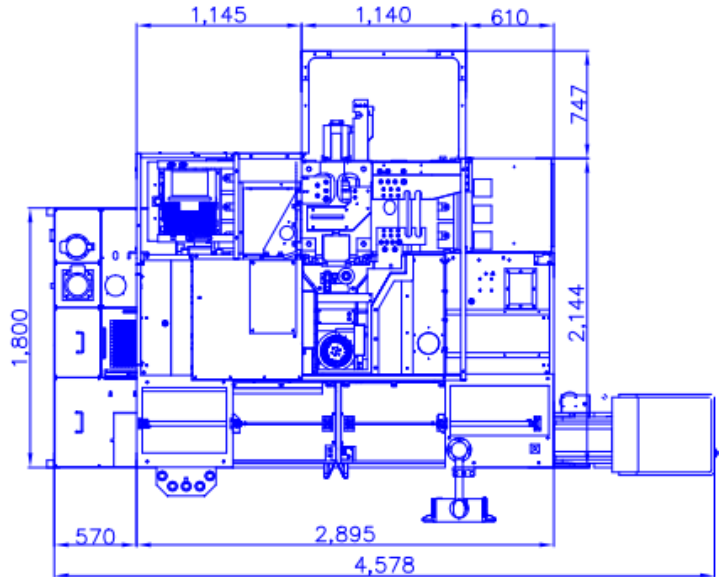
Main view



Left view



Top view



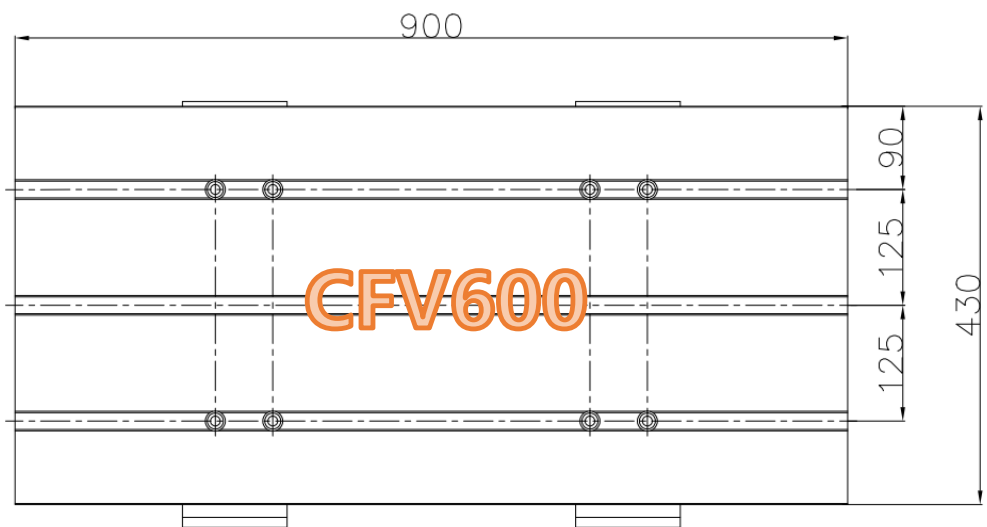
Chip conveyor  
removal direction  
( Top view )



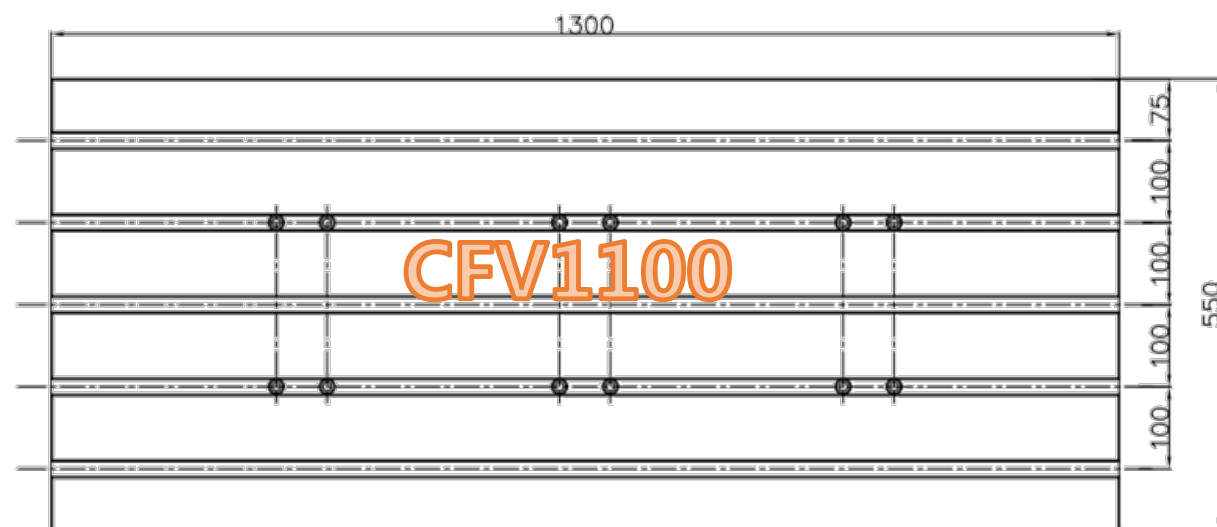
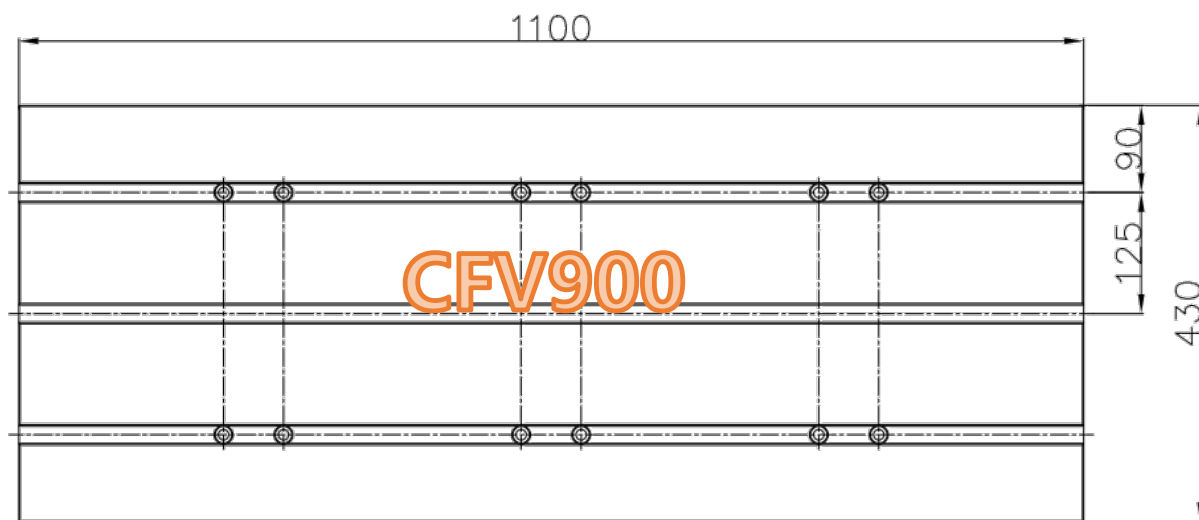
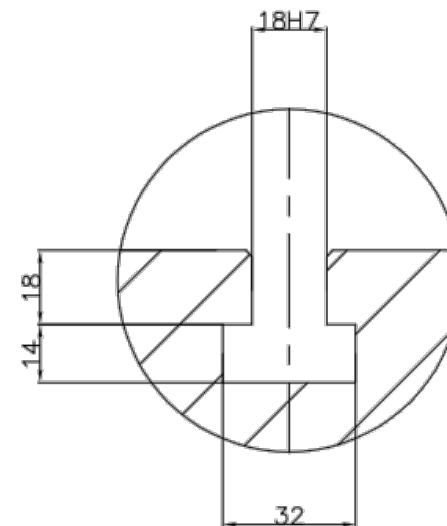
Water tank  
removal direction  
( Top view )



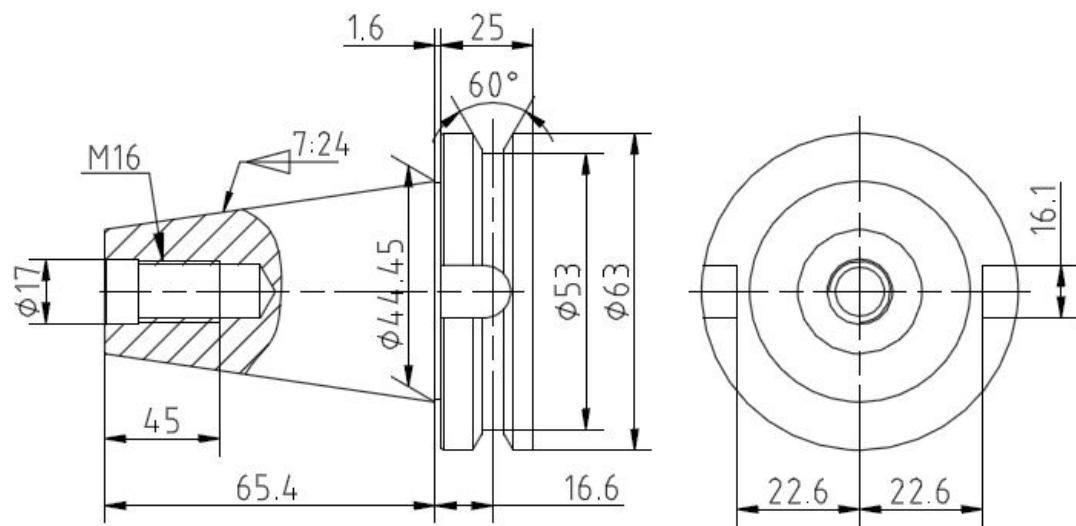
# Base size-table



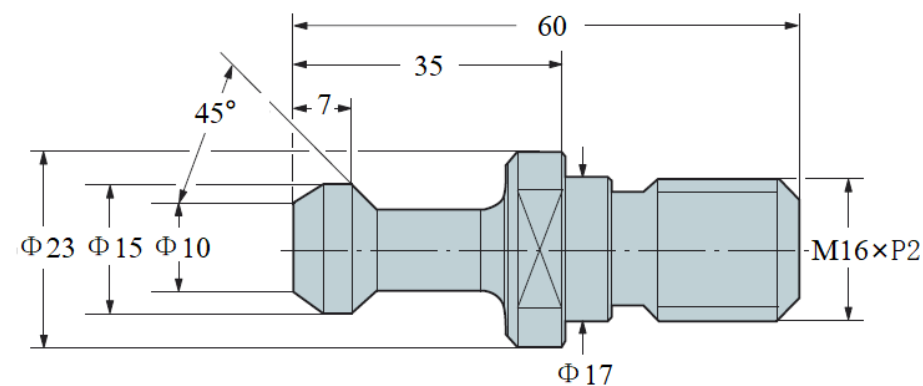
T slot


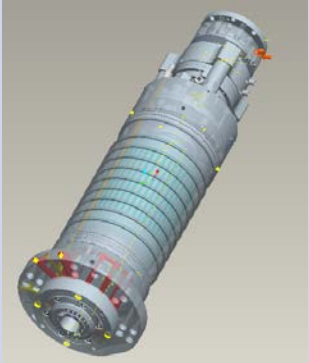
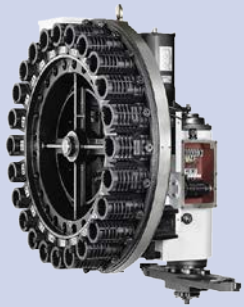




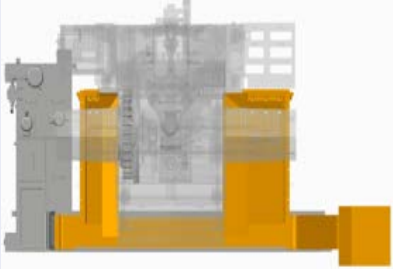


ISO7:24 NO.40 ( BT40 )



MAS-P40T-I ( 45° )




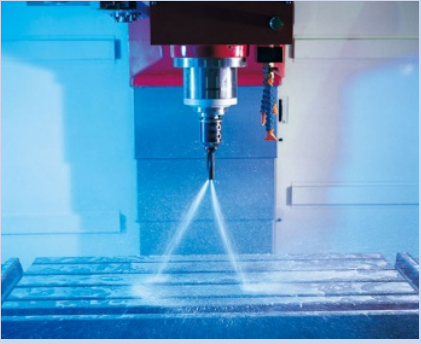







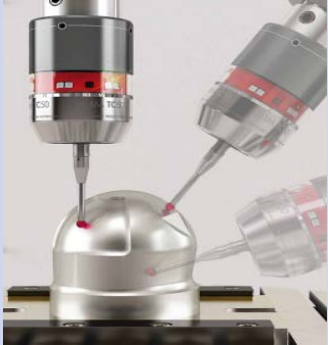


	<p>Controller ·· M80A</p>		<p>12000rpm built-in spindle</p>		<p>24T servo ATC</p>		<p>X/Y/Z axis cover</p>
	<p>Oil chiller</p>		<p>Chain type conveyor</p>		<p>ATC protect door</p>		<p>Internal flooding chip conveyor</p>

Note : the picture is only a reference



# Machine option



	<p>Spindle ring spray</p>		<p>CTS ( 2-6MPa )</p>		<p>Scraper chip conveyor</p>		<p>Oil mist collector</p>
	<p>Air gun</p>		<p>Renishaw /BLUM</p>		<p>CNC rotary table</p>		<p>Air condition</p>
	<p>Helix chip conveyor</p>		<p>BLUM workpiece probe (TC60)</p>		<p>Controller .. FANUC 0i MF</p>		<p>Shower coolant</p>

Note : the picture is only a reference



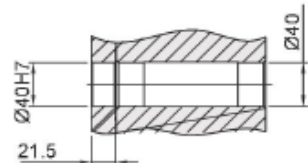
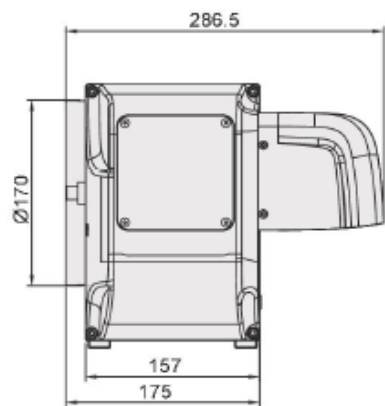
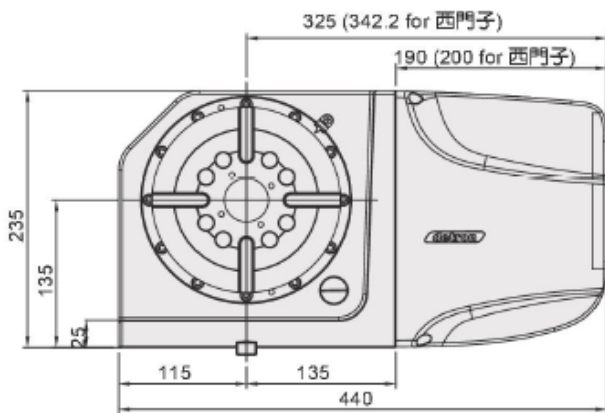


## Machine option- Detron rotary table

型號	單位	GXA-125S	GXA-170S	GXA-210S GVA-210SL	GXA-250S
旋轉台直徑	mm	Ø125	Ø170	Ø210	Ø255
中心孔直徑	mm	Ø30H7	Ø40H7	Ø65H7	Ø65H7
中心貫穿孔直徑	mm	Ø25	Ø40	Ø65	Ø65
工作台高度(臥式位置)	mm	155	175	175	190
中心高度(立式位置)	mm	110	135	160	160
工作台T型槽寬度	mm	12H7	12H7	12H7	12H7
導塊寬度	mm	14	14	18	18
驅動方式/驅動壓力	MPa	空壓 / 0.55 ~ 0.7	空壓 / 0.55 ~ 0.7	空壓 / 0.55 ~ 0.7	空壓 / 0.55 ~ 0.7
鎖緊扭矩	N.m	140	300	400	400
伺服馬達型號		請參考本型錄第69頁			
減速比		1 / 40	1 / 60	1 / 72	1 / 72
線面最大轉速	min <sup>-1</sup>	66.6	53.3	53.3	53.3
容許負載慣性容量 $(\frac{WD^2}{2})$	Kg.m <sup>2</sup>	0.2	0.72	1.38	1.38
最小設定單位	deg.	0.001	0.001	0.001	0.001
分度精度	sec.	40	20	20	20
重複精度	sec.	6	6	6	6
旋轉工作台重量(不含伺服馬達)	Kg	32	52	60	67
容許負載容量	立式	Kg	50	100	
	臥式	Kg	100	200	
	使用尾座	Kg	100	200	
容許切削力 (轉台剎車時)	F	N	9700	14000	
	FXL	N.m	410	1020	
	FXL	N.m	140	300	
蝸輪容許扭矩	N.m	85	200		



GXA-170S ( Pneumatic )

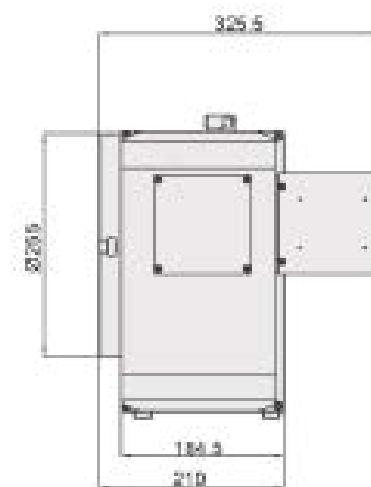
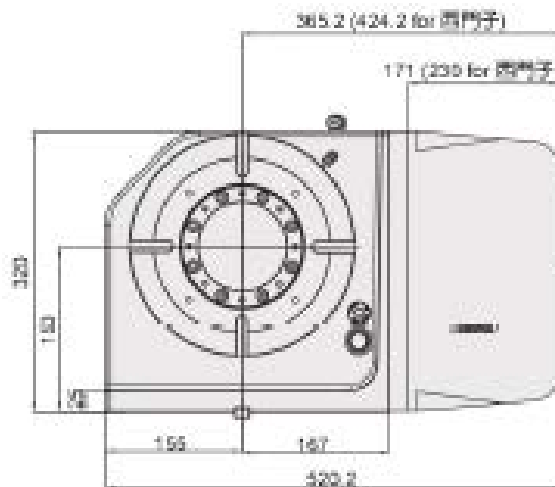


中心孔尺寸

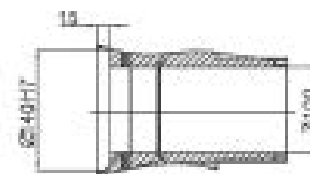
註 1. 蝸輪容許扭矩是指分度盤旋轉速度1min<sup>-1</sup>時蝸輪的耐負荷扭矩。

## Machine option- Detron rotary table

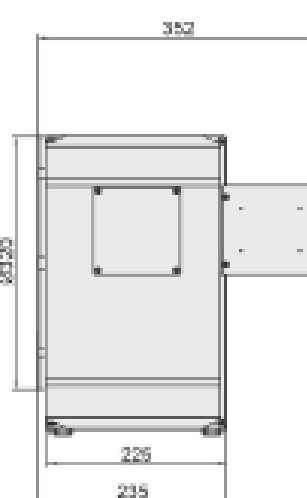
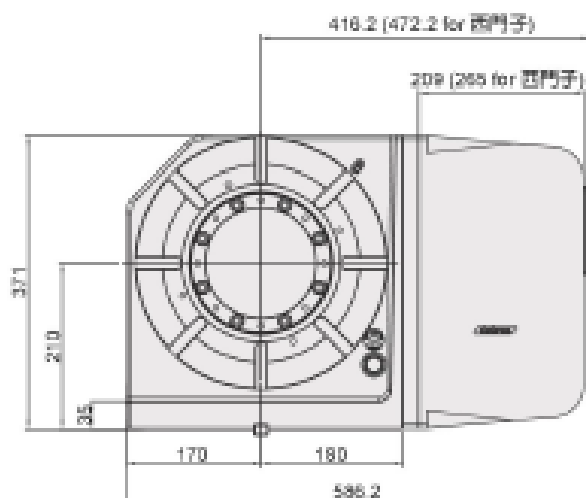
型號	單位	GXA-255H	GXA-320H	
旋轉台直徑	mm	Ø255	Ø320	
中心孔直徑	mm	Ø140H7	Ø180H7	
中心貫穿孔直徑	mm	Ø100	Ø140	
工作台高度(臥式位置)	mm	210	235	
中心高度(立式位置)	mm	190	210	
工作台T型槽寬度	mm	12H7	14H7	
導塊寬度	mm	18	18	
驅動方式/驅動壓力	MPa	油壓 / 5	油壓 / 5	
鎖緊扭矩	N.m	900	1600	
伺服馬達型號		請參考本型錄第69頁		
減速比		1 / 120	1 / 120	
盤面最大轉速	min <sup>-1</sup>	22.2	22.2	
容許負載慣性容量 $(\frac{W D^2}{8})$	Kg.m <sup>2</sup>	2.43	5.12	
最小設定單位	deg.	0.001	0.001	
分度精度	sec.	15	15	
重複精度	sec.	6	6	
旋轉工作台重量(不含伺服馬達)	Kg	114	147	
容許負載容量	立式	Kg	150	200
	臥式	Kg	300	400
	使用尾座	Kg	300	400
容許切削力 (轉台刹車時)	 F	N	20000	28000
	 FXL	N.m	1700	3000
	 FXL	N.m	900	1600
蝸輪容許扭矩	 N.m	550	780	



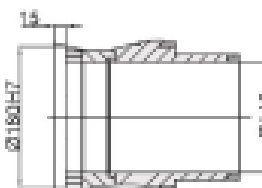
GXA-255H  
(hydraulic)



中心孔尺寸



GXA-320H  
(hydraulic)



中心孔尺寸

註 1. 蝸輪容許扭矩是指分度盤旋轉速度1min<sup>-1</sup>時蝸輪的耐負荷扭矩。

## Machine option- Sanyo rotary table



Sanyo rotary table

产品规格参数		RCC170	RCC200	RCC250	RCC320	RCC400
转台直径	mm	170	200	250	320	400
主轴基准孔	mm	Φ65H7	Φ75H7	Φ110H7	Φ165H7	Φ200H7
中心高度	mm	150	165	210	255	300
总减速比		1/60	1/60	1/60	1/60	1/60
最高转速*1	rpm	75	75	75	50	50
分度精度	arc.sec	± 15	± 10	± 10	± 10	± 10
往复精度	arc.sec	8	4	4	4	4
产品重量	kg	70	100	170	280	410

\*1 的值由搭载的伺服电机决定

负载能力			RCC170	RCC200	RCC250	RCC320	RCC400
承载重量	垂直安装时	Kg	80	100	120	180	250
	横向安装时	Kg	160	200	250	350	500
容许切削力	容许轴向力	N	12740	15789	37420	56000	74220
	连续切削扭矩*2	N·m	168	286	528	768	1368
	最大切削扭矩*2	N·m	287	524	1003	1481	2675
	容许弯曲扭矩	N·m	598	948	2210	3550	8135
最大惯性矩*2		Kg·m <sup>2</sup>	0.6	1.2	2	4.5	10

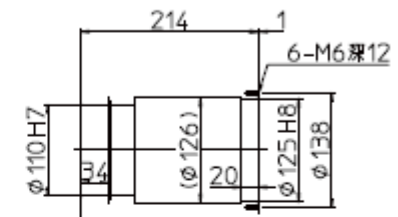
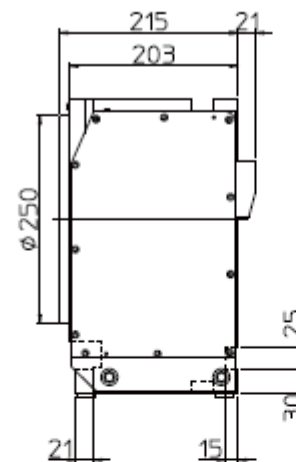
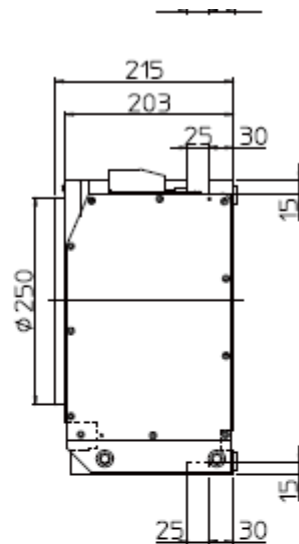
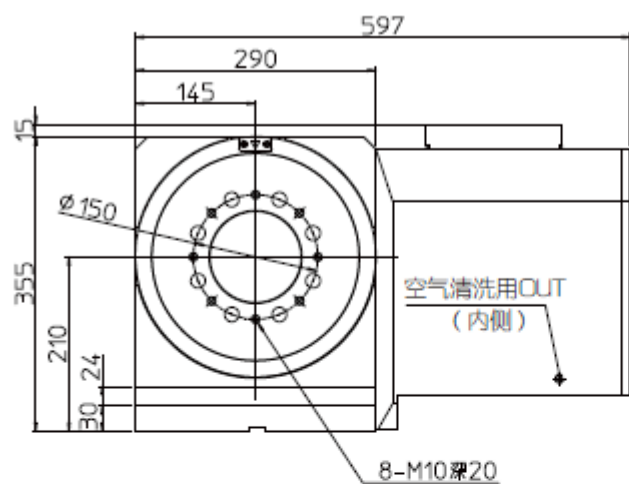
\*2 的值是配置FANUC电机时的数值。最大切削扭矩请控制在切削时间的20%及10秒以内。



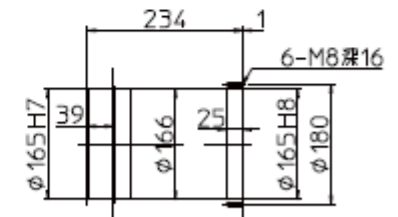
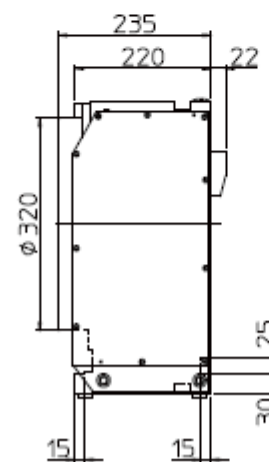
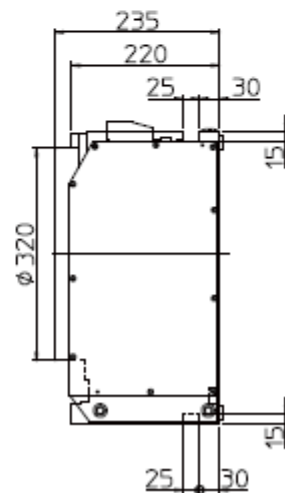
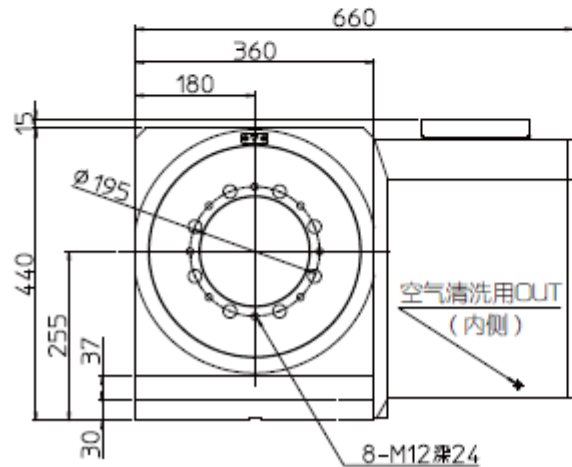
# Machine option- Sanyo rotary table



RCC250



RCC320



Sanyo rotary table size



Broken tool detection in the tool magazine (BK Mikro)

- When the tool is finished and exchanged back to the tool magazine, at the exchange position, the detection device will swing through the pendulum to check whether the tool length is still the original length.





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