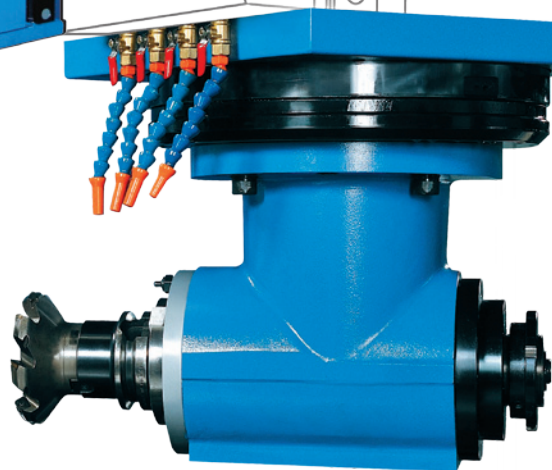
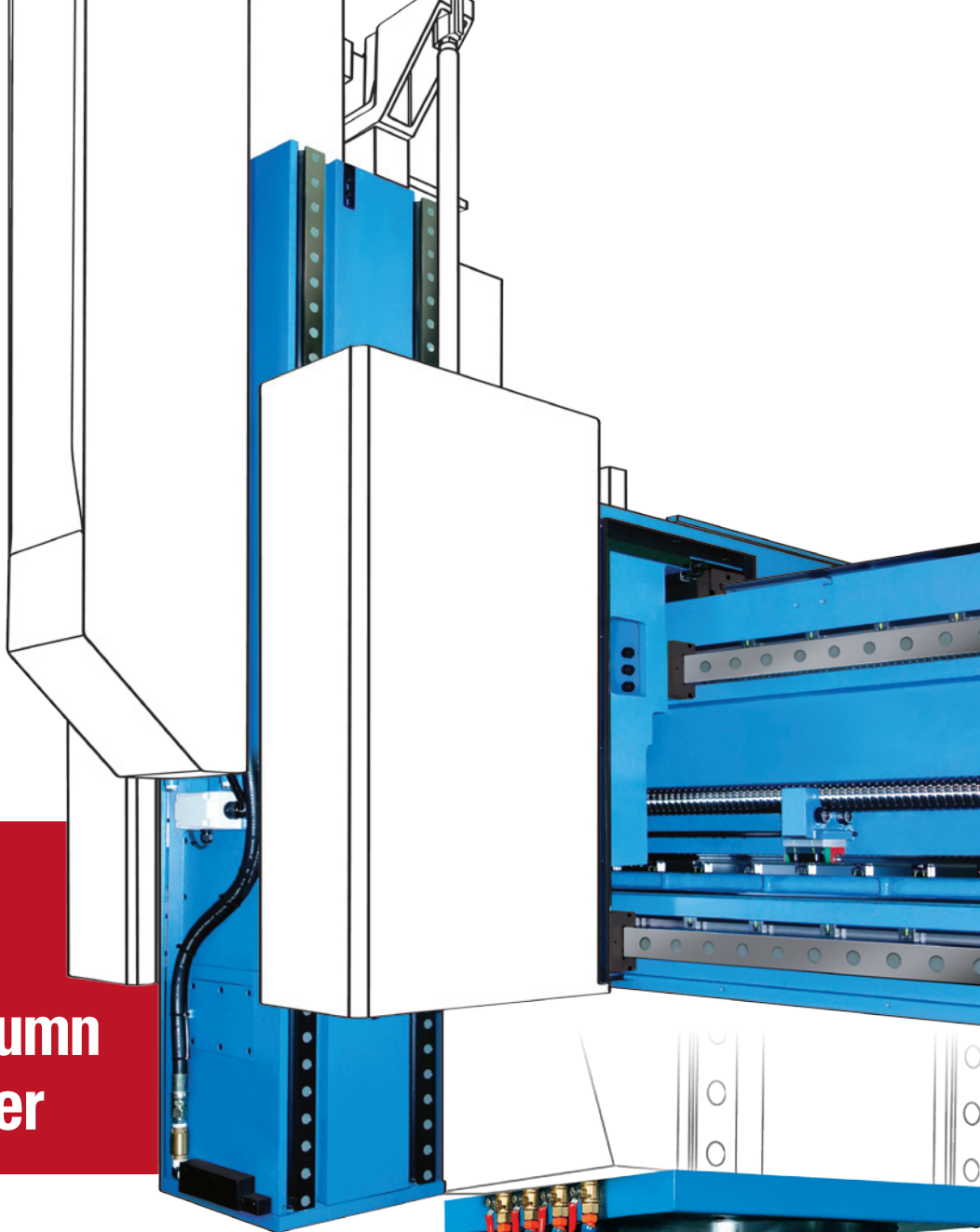


## CNC Double Column Machining Center

# SDV-H Series SDV Series

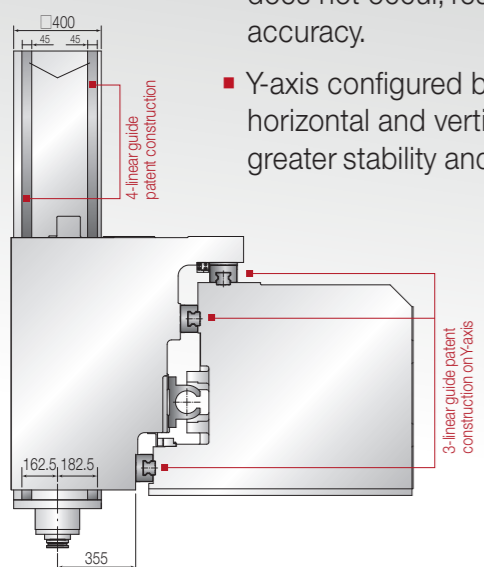


### SDV-H Series

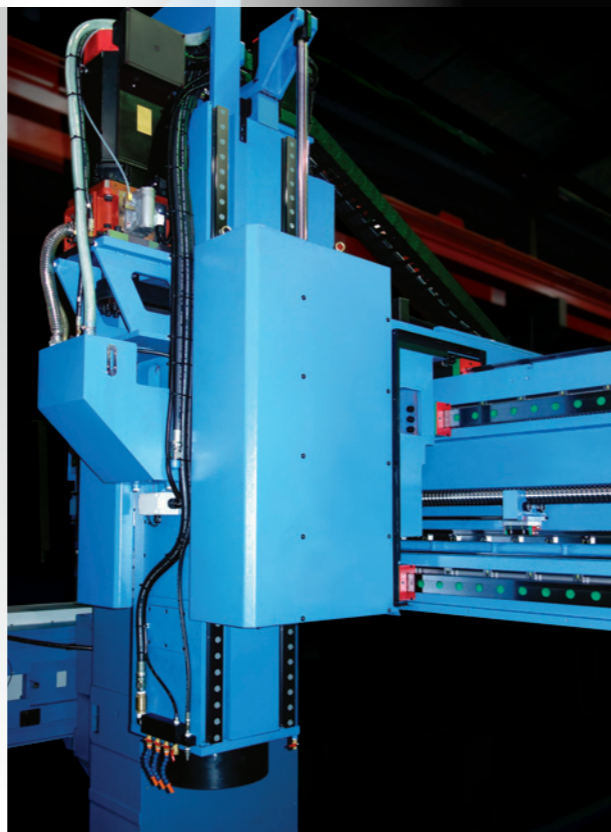
The Motion of Z-axis is Supported by 4 Linear Guideways

#### SIGMA Patent

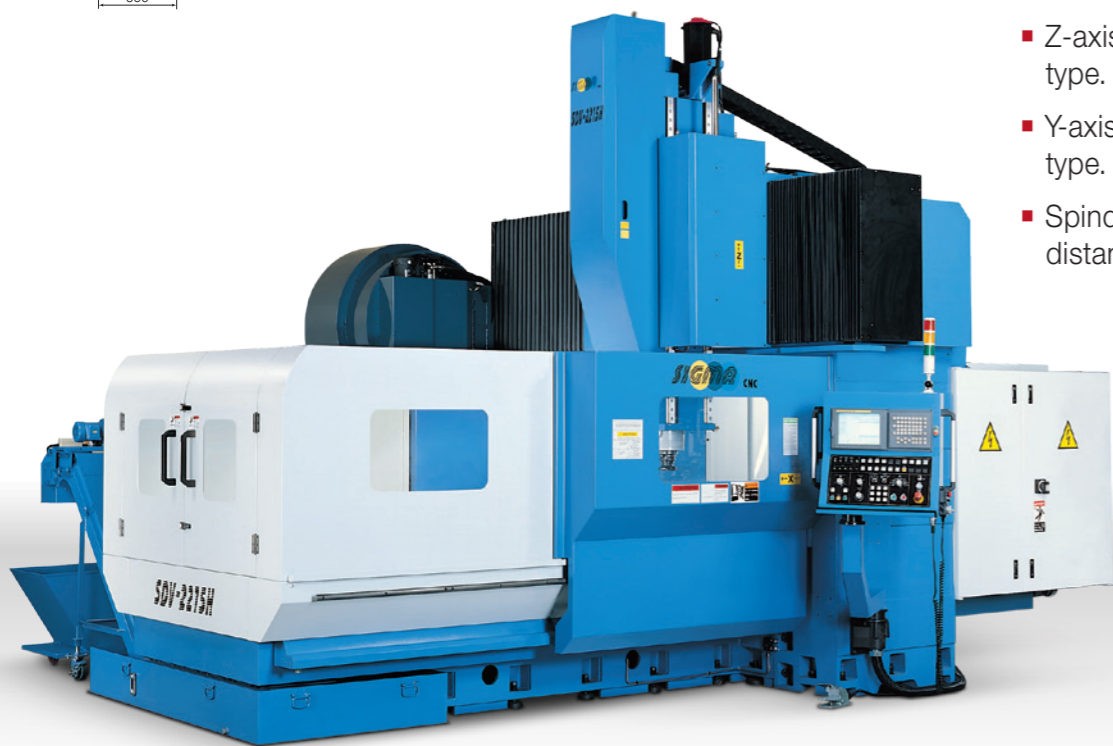
- The spindle head and Z-axis are designed with 4-linear guideways and a box-way construction. During heavy cutting vibrations are eliminated, and during fine cutting inert does not occur, resulting in higher surface accuracy.
- Y-axis configured by 3-linear guideways for horizontal and vertical directions that offer greater stability and rigidity for the machine.



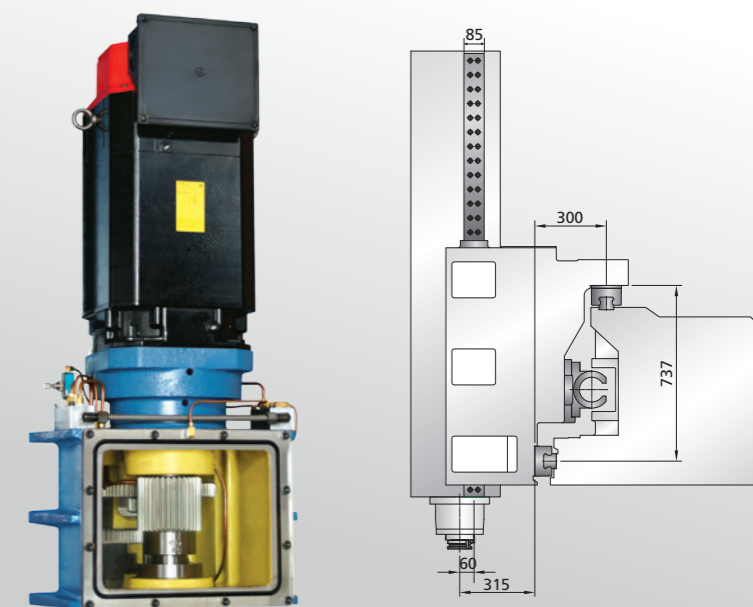
**Patents**  
 No. 286082  
 No. 282769  
 No. 459057



- Z-axis linear guideways are roller type, guideway width 85 mm. THK-SRW series.
- Spindle center to Z-axis linear guideways distance just 60 mm.
- Y-axis linear guideways are roller type and configured for horizontal and vertical directions.
- Spindle center to Y-axis block distance just 315 mm.



- Z-axis linear guideways are roller type. Guideways width 45 mm.
- Y-axis linear guideways are roller type. Guideways width 65 mm.
- Spindle center to Y-axis block distance just 355 mm.



Contents	Features	Structures	Spindle	Optional Accessories	Human Interface & Splash Guarding	Table Dimensions & Accessories	Specifications
	1-2	3-4	5-6	7-8	9-10	11-12	13-14

# High Precision and Process Stability

## SDV-H Series

### High Rigidity Structure

With heavy load roller type linear guideways equipped with linear blocks to balance the load. Low wear rate, high loading capacity and not easy to warp. Maintains precision against jogging. Machining plane precision ensured.

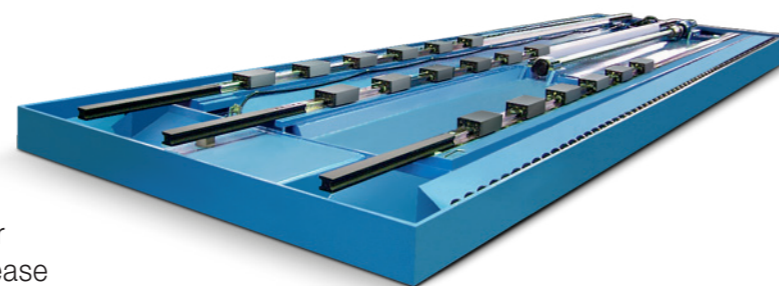
## SDV Series

- Transmission on all 3 axes equipped with dust and water proofing to increase service life and maintain precision.



### Machine Base

- Any table width over 2,200 mm is equally supported with 3 linear guideways. Special design for positioning accuracy, loading balance and heat deformation prevention.
- Welding or casting is custom made to order. For machine models for casting machine bases, please reference machine specifications.



### Beam Structure

SDV-H Series

SDV Series



### Y-axis Ballscrew Support

Machine model column distance over 2.5 m.



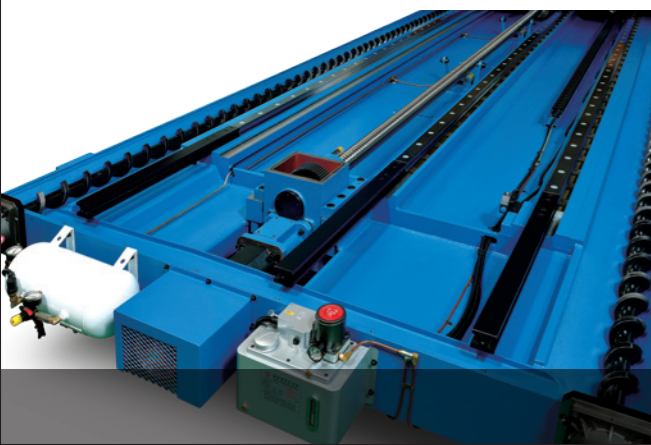
### Machine Base Special Design

#### X-axis Ball-Screw Supporter

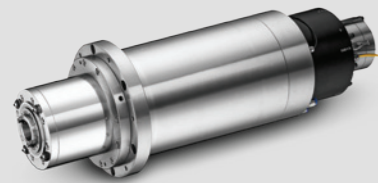
For column distance 2.5 m and higher models or limited to 3 guideways X-axis models.

#### X-axis Gear Transmission Column Distance 2.5 m and higher models

Additional X-axis free backlash gear transmission.

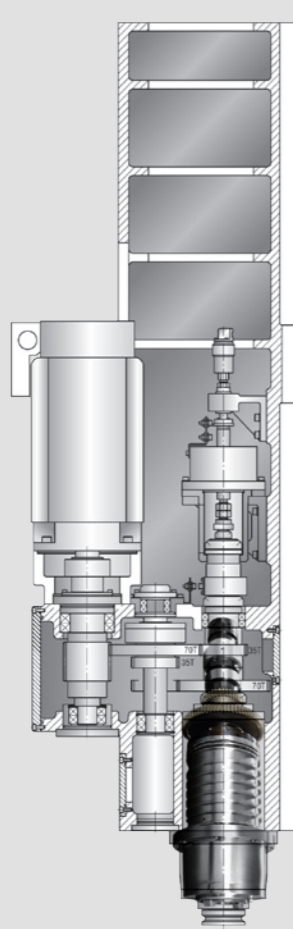


## SDV-H Series



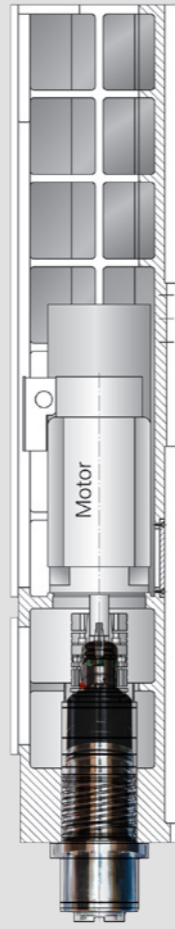
### Built-in Motor Spindle

(BT-50/ HSK-A100, 10,000 rpm)  
 (BT-40/ HSK-A63, 18,000 rpm)  
 (HSK-A63, 12,000~28,000 rpm  
 Inverter Spindle)



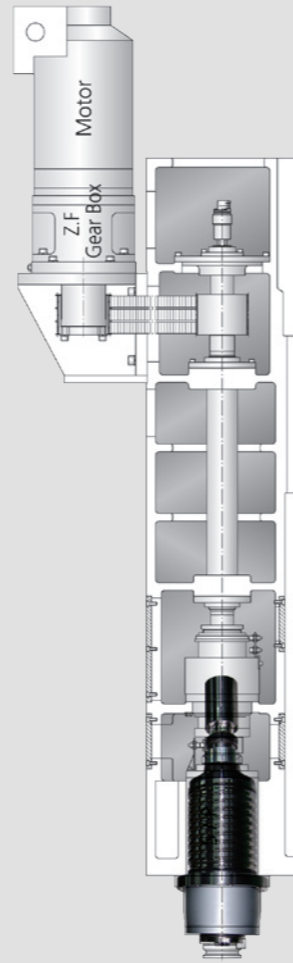
### Self-made Gearbox

Gears Direct-Drive Spindle  
 (6,000 rpm)



### Direct-Drive Spindle

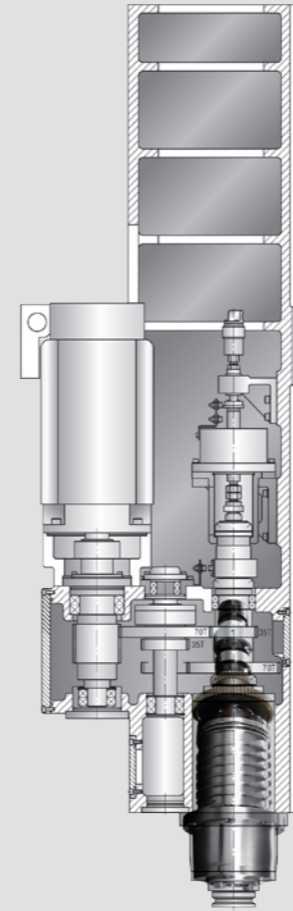
with ZF gearbox (BT-50,  
 10,000 rpm) Available  
 without ZF gearbox



### Belt Drive Spindle

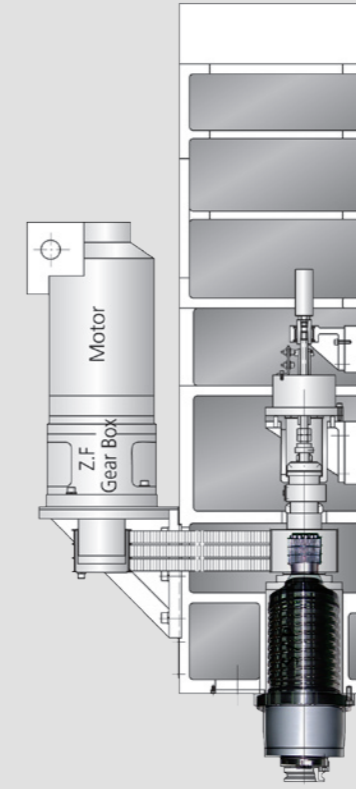
with ZF gearbox  
 (BT-50, 4,000/ 6,000/  
 8,000 rpm)

## SDV Series



### Self-made Gearbox

Gears Direct-Drive Spindle  
 (6,000 rpm)



### Belt Drive Spindle

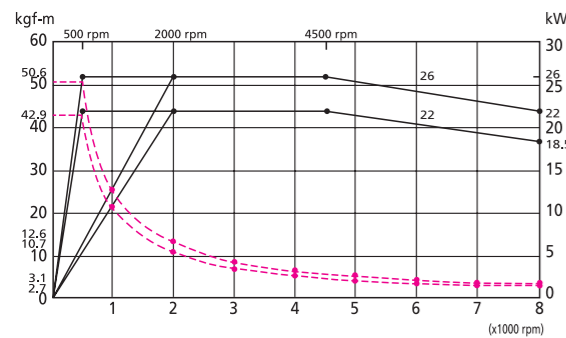
with ZF gearbox  
 (4,000/ 6,000/ 8,000 rpm)

## Spindle Motor with ZF Gearbox (2 Steps)

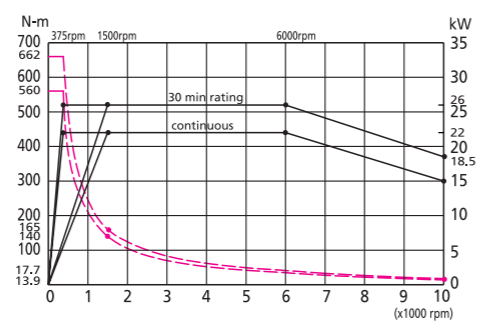


## Spindle Torque

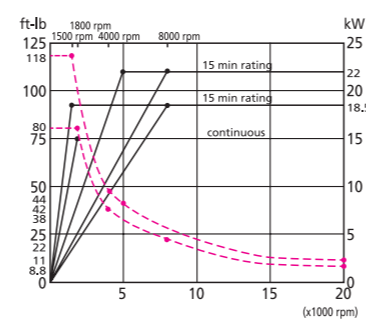
**SDV-H Series**



Motor 26/22 kW BT-50 spindle 8,000 rpm  
 output power and torque characteristic  
 RATE: (1:3, 1.34:1) with ZF gear box 2k250

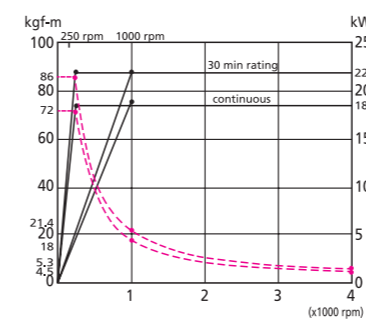


Motor 26/22 kW BT-50 direct drive spindle  
 10,000 rpm output power and torque characteristic  
 RATE: (1:4, 1:1) with ZF gear box 2k250

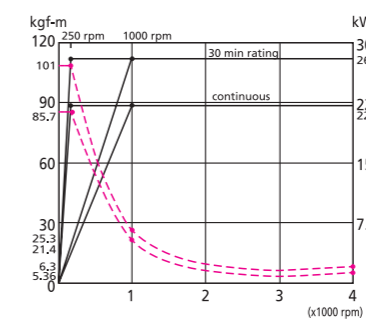


FANUC NSK-Built-in motor 18.5/22 kW  
 spindle α B112L/20000i  
 output power and torque characteristic

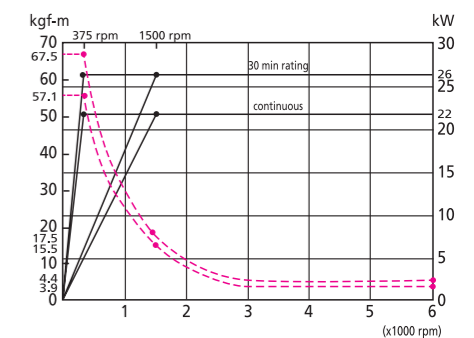
**SDV Series**



Motor 22/18.5 kW BT-50 spindle 4,000 rpm  
 output power and torque characteristic  
 RATE: (1:6, 1:1.5) with ZF gear box 2k250



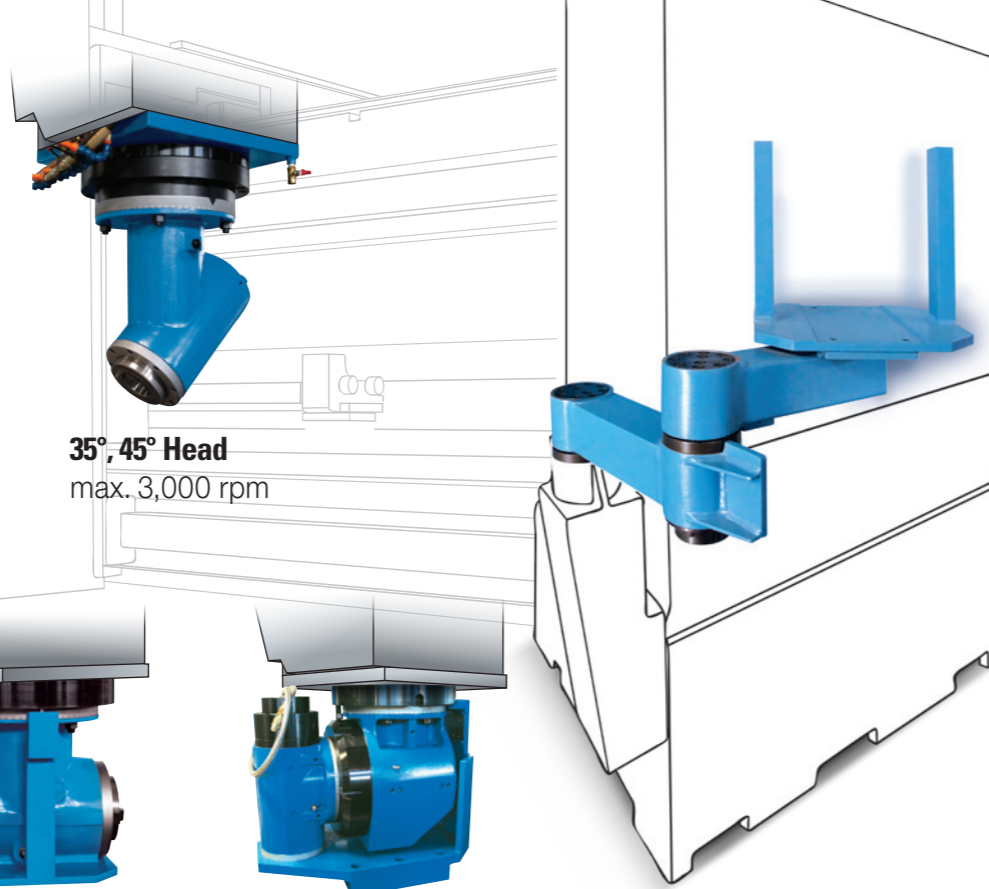
Motor 26/22 kW BT-50 spindle 4,000 rpm  
 output power and torque characteristic  
 RATE: (1:6, 1:1.5) with ZF gear box 2k250



Motor 26/22 kW BT-50 spindle 6,000 rpm  
 output power and torque characteristic  
 RATE: (1:4, 1:1) with ZF gear box 2k250

## Optional Accessories

### Manual Heads SIGMA CNC Made



35°, 45° Head  
max. 3,000 rpm

Extension Head  
max. 4,500 rpm  
(360/ 560 mm)

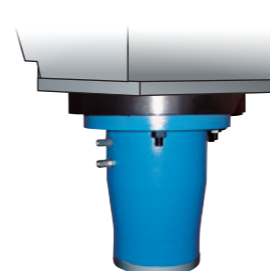
90° Angular Head  
max. 3,000 rpm

Swing Divided Angle Head  
max. 3,000 rpm

Manual Head Supporter

## Auto Attachment Head Change System

SIGMA CNC Made



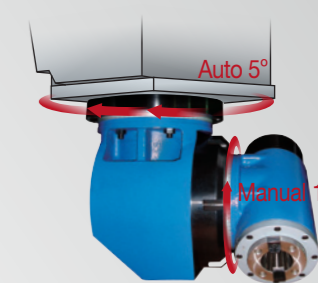
Extension Head  
max. 4,500 rpm  
(360/ 560 mm)



90° Angular Head  
max. 3,000 rpm  
(Auto Tool Changing)



35°, 45° Head  
max. 3,000 rpm



Swing Divided Angle Head  
max. 3,000 rpm

### Compartment Types for Heads

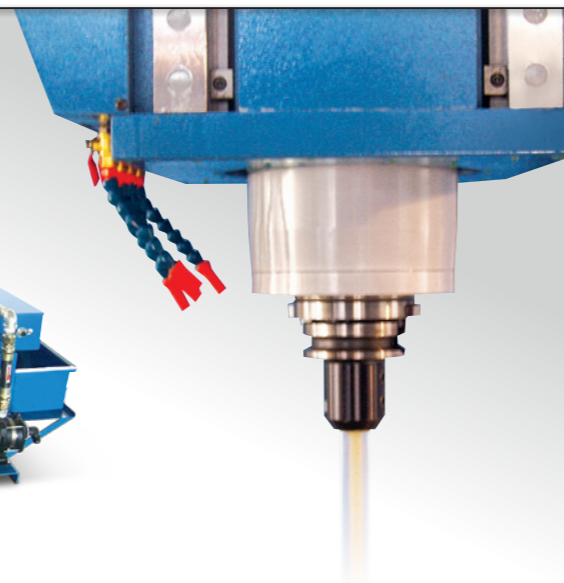
- Column-type head compartment contains 1 head only.
- Multiple heads compartment contains more than 3 heads.
- Table-type head compartment contains 1-3 heads only.

## CTS Coolant Through Spindle System

(20/ 30/ 50 bar)



with Paper Type Filter

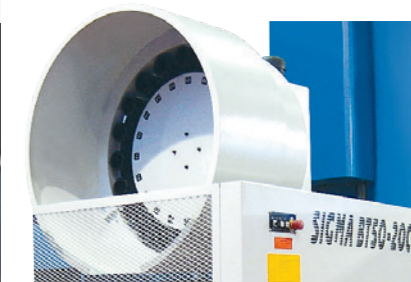


## ATC Various Options

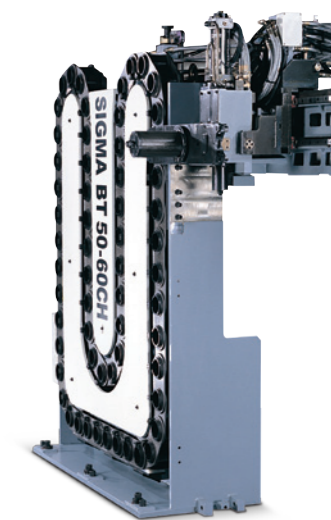
Available for different tool magazine capacities and tool change requirements.



Chain Type  
(32/ 40/ 60 tools)



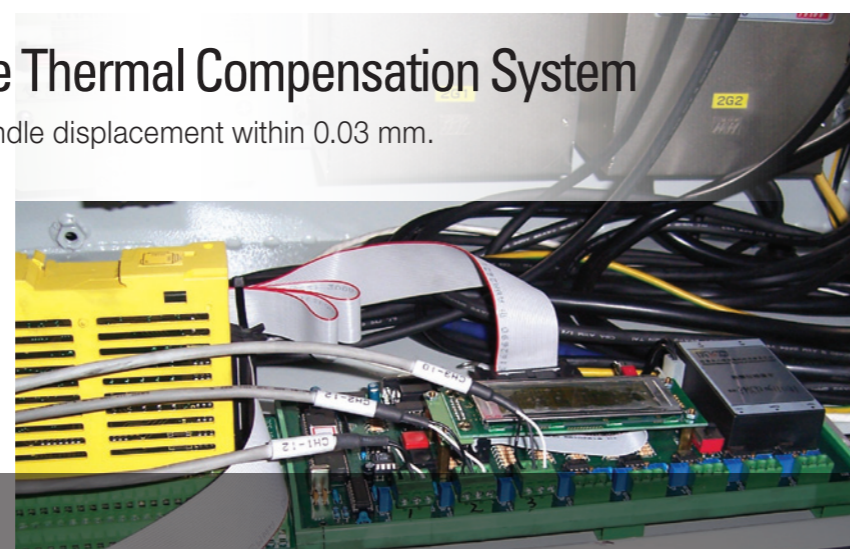
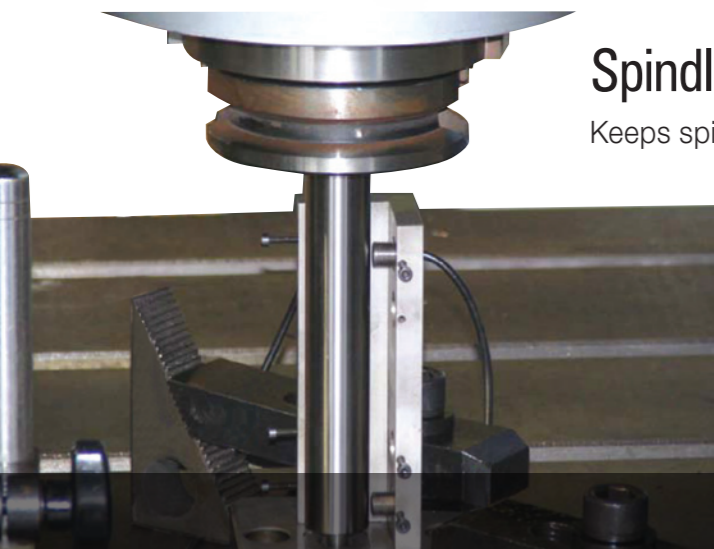
Drum Type (24 tools)



V&H Type (40/ 60/ 80 tools)

## Spindle Thermal Compensation System

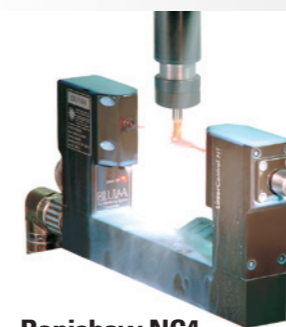
Keeps spindle displacement within 0.03 mm.



## Auto Tool Length Diameter Measurement & Touch Probe System



Renishaw TS-27R



Renishaw NC4



Blum NT-A3 (A5)



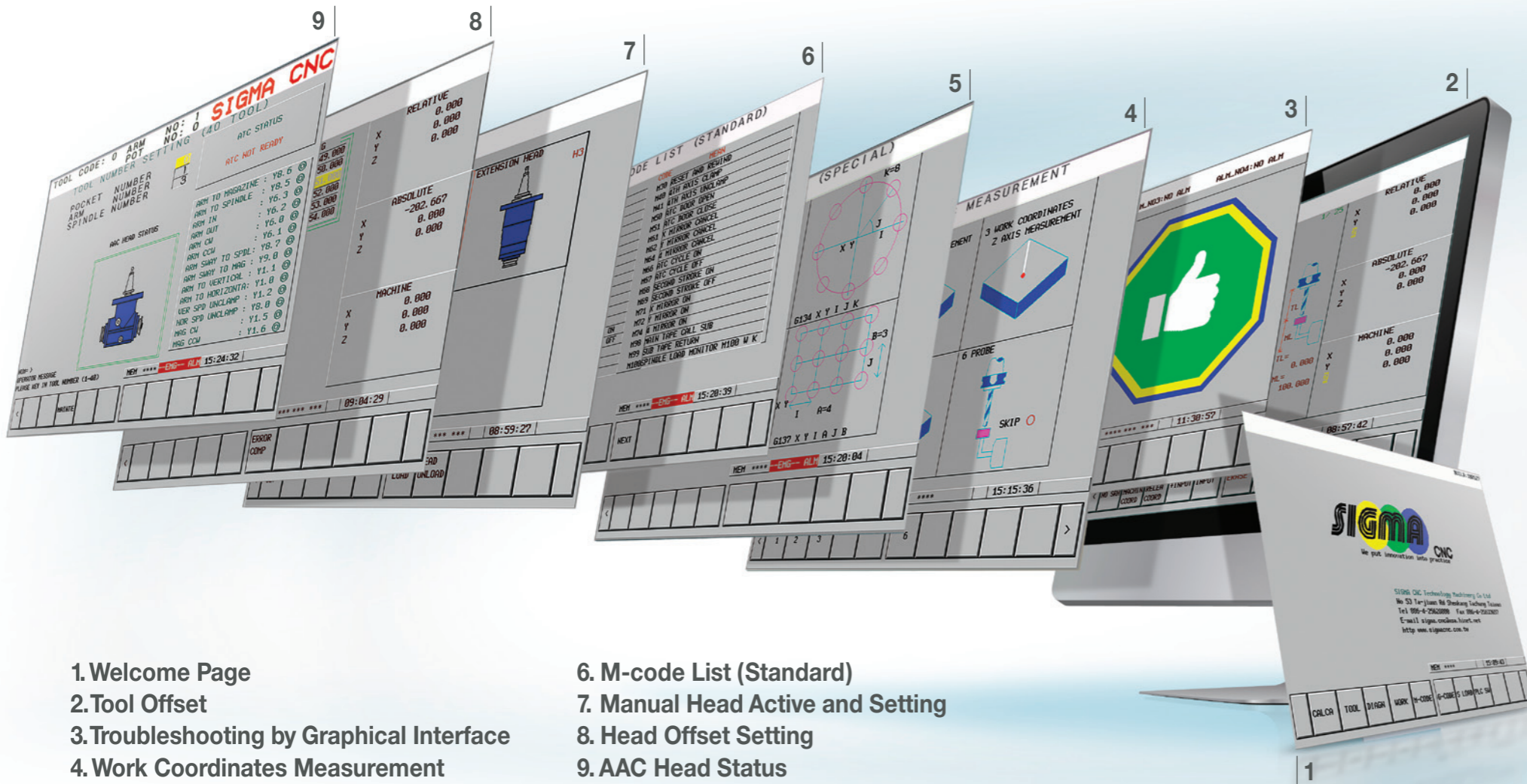
Blum TC50



Renishaw RMP60

# Human Interface

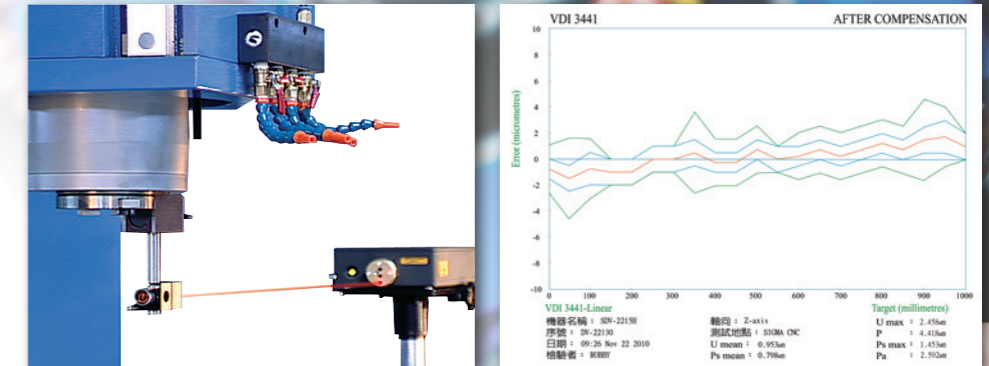
## Easy to Operate Graphical Interface **SIMAGE** Made by SIGMA CNC



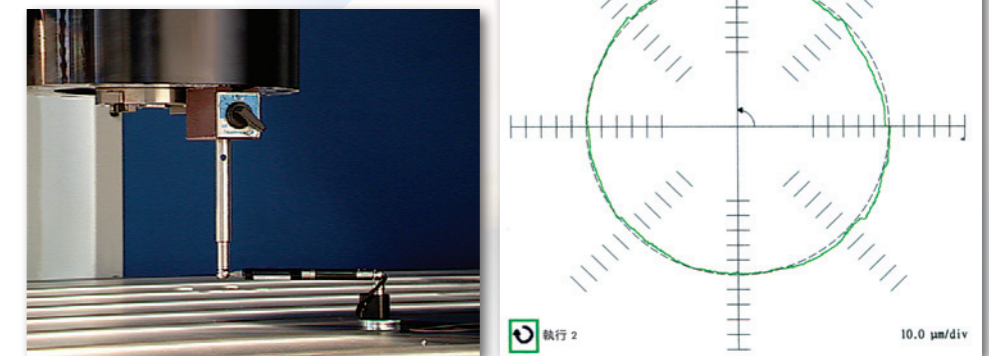
1. Welcome Page
2. Tool Offset
3. Troubleshooting by Graphical Interface
4. Work Coordinates Measurement
5. G Code List (Special)
6. M-code List (Standard)
7. Manual Head Active and Setting
8. Head Offset Setting
9. AAC Head Status

# Our Quality Promise Made by SIGMA CNC

## Laser Inspection



## Ball Bar Test



## Splash Guarding

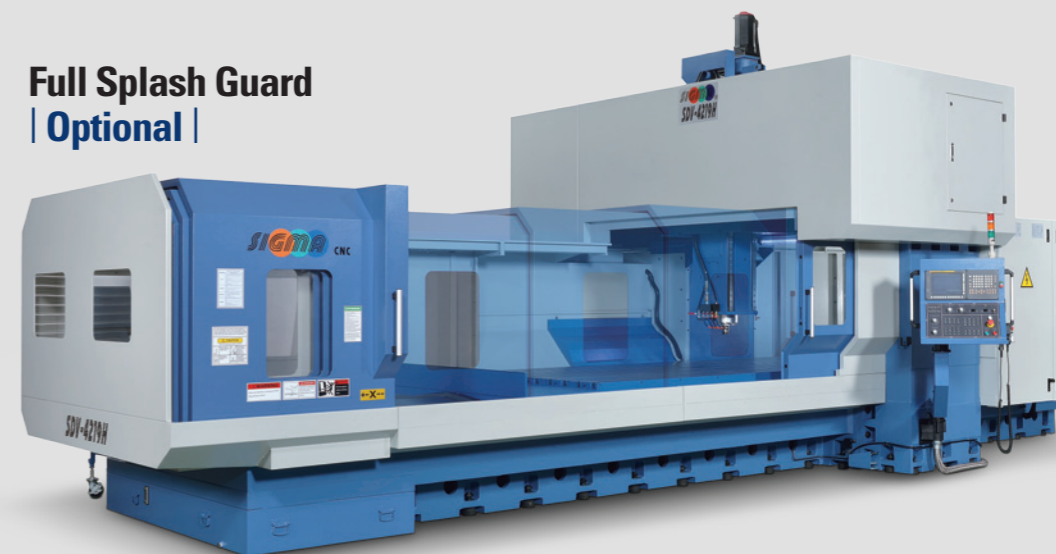
### Glazed Splash Guard | Standard |



### Glazed Splash Guard with Telescope Door (3 piece) | Optional |



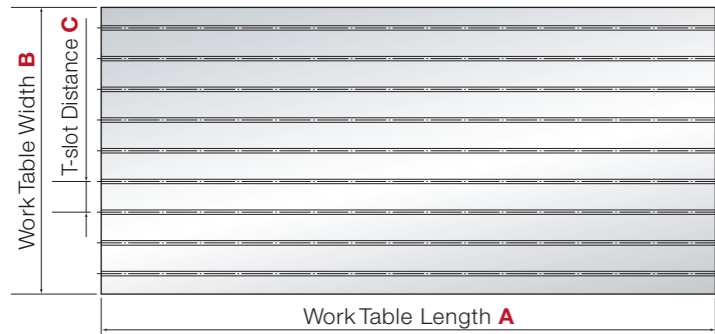
### Full Splash Guard | Optional |



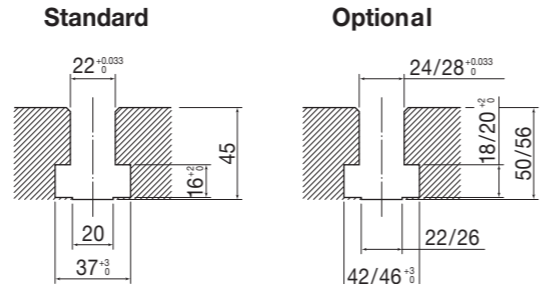
# Table Dimensions & Accessories

# SDV-H with Auto Attachment Head Change System SDV-HLA Series

## Table Size



## T-slot Dimensions



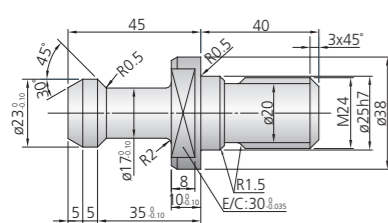
Unit: mm

Model No.	A	B	C	Number of T-slots
<b>1611</b>	1,600	1,000	150 x 6	7
<b>2011</b>	2,040	1,000	150 x 6	7
<b>2215</b>	2,000	1,400	150 x 8	9
<b>3215</b>	3,000	1,400	150 x 8	9
<b>2219</b>	2,000	1,700	160 x 10	11
<b>3219</b>	3,000	1,700	160 x 10	11
<b>3224</b>	3,000	2,200	200 x 10	11
<b>3229</b>	3,000	2,700	200 x 12	13
<b>4219</b>	4,000	1,700	160 x 10	11
<b>4224</b>	4,000	2,200	200 x 10	11
<b>4229</b>	4,000	2,700	200 x 12	13
<b>4234</b>	4,000	3,200	200 x 15	16
<b>4239</b>	4,000	3,700	200 x 18	19
<b>5224</b>	5,000	2,200	200 x 10	11
<b>5229</b>	5,000	2,700	200 x 12	13
<b>5234</b>	5,000	3,200	200 x 15	16
<b>5239</b>	5,000	3,700	200 x 18	19
<b>6224</b>	6,000	2,200	200 x 10	11
<b>6229</b>	6,000	2,700	200 x 12	13
<b>6234</b>	6,000	3,200	200 x 15	16
<b>6239</b>	6,000	3,700	200 x 18	19

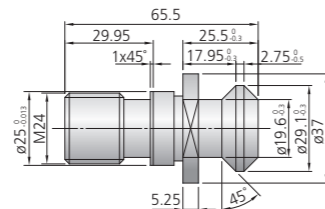
Layout details for any machine model, please contact SIGMA CNC sales.

## Tool Shank

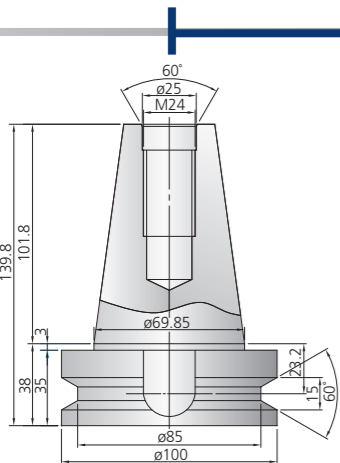
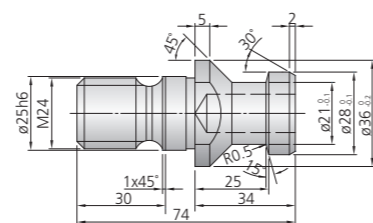
### MAS 403-P50T-1



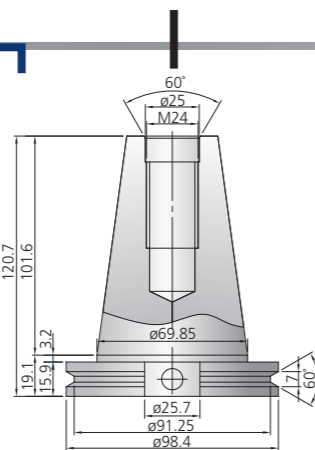
### ISO 7388/2-B, PS-CAT50



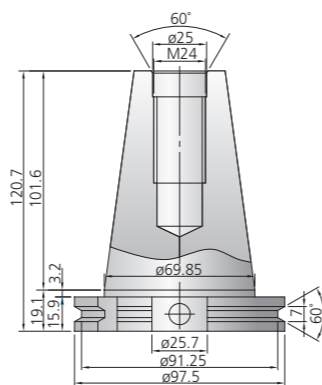
### DIN 69872 Type A



BT-50

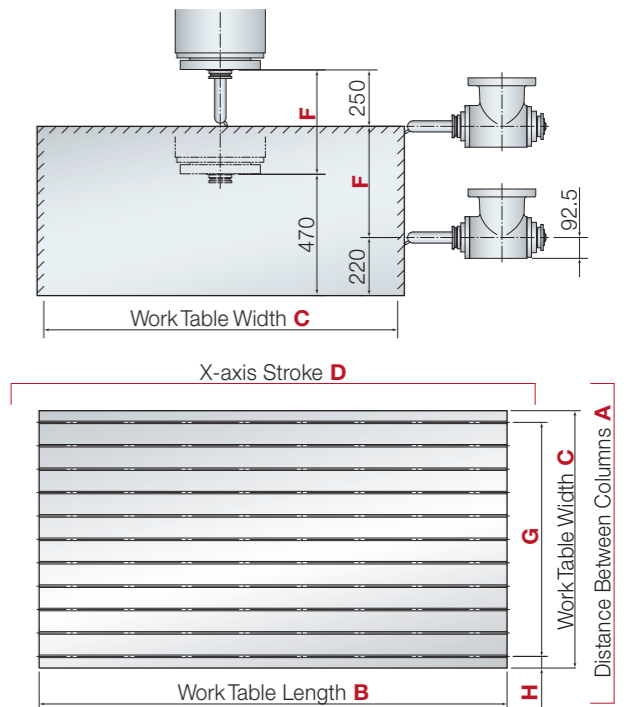
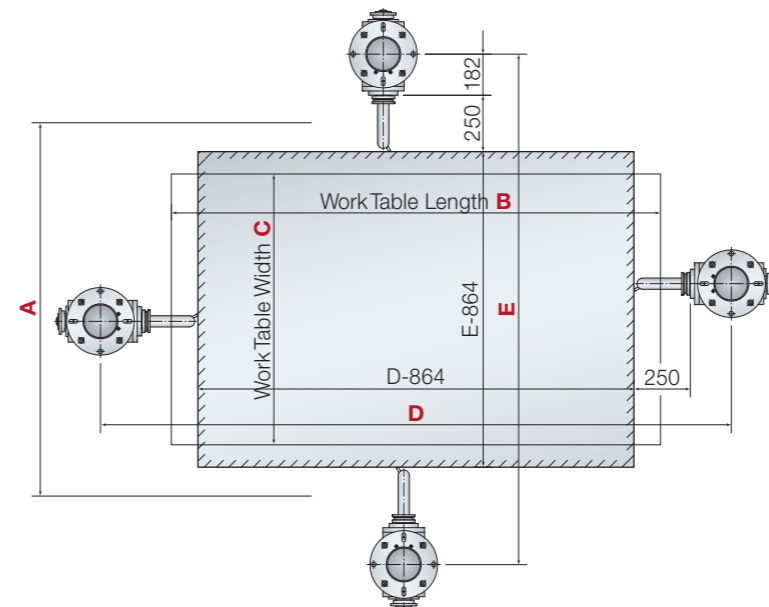


ISO 7388/1-50, CAT-50



DIN 69871 Form A

## Working Area of 90° Right Angle Head



Model	A	B	C	D	E	F	G	H
<b>SDV-1611 HLA</b>	1,200	1,600	1,000	1,600	1,500	760/1,000	150 x 6	50
<b>SDV-2011 HLA</b>	1,200	2,000	1,000	2,040	1,500		150 x 6	50
<b>SDV-2215 HLA</b>	1,600		1,400	1,900	150 x 8		100	
<b>SDV-2219 HLA</b>	2,000	3,000	1,700	2,200	2,400		160 x 10	50
<b>SDV-3215 HLA</b>	1,600		1,400	1,900	150 x 8		100	
<b>SDV-3219 HLA</b>	2,000		1,700	2,400	160 x 10		50	
<b>SDV-3224 HLA</b>	2,500	4,000	2,200	3,200	2,900		200 x 10	100
<b>SDV-3229 HLA</b>	3,000		2,700	3,400	200 x 12		150	
<b>SDV-4219 HLA</b>	2,000		1,700	2,400	160 x 10		50	
<b>SDV-4224 HLA</b>	2,500	5,000	2,200	4,200	2,900		200 x 10	100
<b>SDV-4229 HLA</b>	3,000		2,700	3,400	200 x 12		150	
<b>SDV-4234 HLA</b>	3,500		3,200	3,900	200 x 15		100	
<b>SDV-5224 HLA</b>	2,500	6,000	2,200	5,200	2,900		200 x 10	100
<b>SDV-5229 HLA</b>	3,000		2,700	3,400	200 x 12		150	
<b>SDV-6224 HLA</b>	2,500		2,200	2,900	200 x 10		100	
<b>SDV-6229 HLA</b>	3,000	3,200	2,700	6,200	3,400		200 x 12	150
<b>SDV-6234 HLA</b>	3,500		3,200	3,900	200 x 15		100	

Unit: mm

Working area for other heads or details, please contact SIGMA CNC sales.

## Standard Accessories

- Lubrication System
- Glazed Window-Type Splash Guard
- Screw-Type Chip Conveyor
- Link-Type Chip Conveyor
- Coolant Equipment
- Spindle Oil Cooler
- Z-Axis Hydraulic Balance Unit
- Pneumatic Unit
- Air Blow for Chip (By M-Code)
- Work Lamp
- Auto Power-Off
- M.P.G.
- Program End & Alarm Lamp
- RS-232 Interface
- Leveling Block And Bolts
- Tool Kit

- Maintenance and Operation Manual
- Controller Operation Manual and Electrical Circuit Diagram
- Inspection List

## Optional Accessories

- Auxiliary Table
- Rotary Table, Index Table
- 24/ 32/ 40/ 60/ ATC Magazine Capacity
- Tool Presetter
- Auto Tool Length Diameter Measurement
- Auto Touch Probe System
- Linear Scale Feedback
- Coolant Through Spindle System

- Oil Hole Tool Shank Device
- Coolant Auto Air Mist Device
- Coolant Nozzle Angle Remote Control
- Manual - 35°, 45°, 90° Angle Head, Swing Divided Angle Head, Extension Head
- AAC-Auto Attachment Head Change - 35°, 45°, 90° Angle Head, Swing Divided Angle Head, Extension Head (For SDV-H Series Only)
- Semi-Auto Head Change, Head Change by Manual Set-up, C-Axis Divided by G-Code Control (For SDV-H Series Only)
- Spindle Thermal Compensation
- Available with Different Spindle Spec. & rpm
- Manual Full Splash Guard

# Specifications

# SDV-H & SDV Series

Machine models in blue background can order casting or welding machine base, others are welding machine base only.

**NOTE**

- ( )Description is optional accessories.
- To research and improve, our company reserves the right of changing design and structures at any time, this data is just for reference.

Item	Model	Unit	SDV-1611H	SDV-2011H	SDV-2215H	SDV-3215H	SDV-2219H	SDV-3219H	SDV-3224H	SDV-3229H	SDV-4219H	SDV-4224H	SDV-4229H	SDV-4234H	SDV-4239H	SDV-5224H	SDV-5229H	SDV-5234H	SDV-5239H	SDV-6224H	SDV-6229H	SDV-6234H	SDV-6239H	
X-Axis Travel		mm	1,600	2,040	2,200	3,200	2,200		3,200			4,200				5,200				6,200				
Y-Axis Travel		mm	1,100	1,100	1,500	1,500	1,900	1,900	2,400	2,900	1,900	2,400	2,900	3,400	3,900	2,400	2,900	3,400	3,900	2,400	2,900	3,400	3,900	
Z-Axis Travel		mm	760		760 (1,000)						760 (1,000) (1,200) (1,400)													
Table Size		mm	1,600x1,000	2,000x1,000	2,000x1,400	3,000x1,400	2,000x1,700	3,000x1,700	3,000x2,200	3,000x2,700	4,000x1,700	4,000x2,200	4,000x2,700	4,000x3,200	4,000x3,700	5,000x2,200	5,000x2,700	5,000x3,200	5,000x3,700	6,000x2,200	6,000x2,700	6,000x3,200	6,000x3,700	
T-slots Dimension		mm	22 (24, 28)																					
Table Load Capacity		kgs	3,000	3,500	5,000	7,000	5,000	8,000	10,000	12,500	12,000	15,000	17,000	19,000	21,000	17,500	20,000	22,500	25,000	25,000	27,500	30,000	32,500	
Distance Between Two Columns		mm	1,200		1,600		2,000		2,500	3,000	2,000	2,500	3,000	3,500	4,000	2,500	3,000	3,500	4,000	2,500	3,000	3,500	4,000	
Distance from Spindle Nose to Table		mm	250~1,010		165~925/ 165~1,165 / 270~1,030/ 270~1,270						165~925/ 165~1,165/ 165~1,365/ 165~1,565 / 270~1,030/ 270~1,270/ 270~1,470/ 270~1,670													
Spindle Taper, Tool Shank			ISO NO.50 (40) BT-50, CAT-50, DIN 69871 (BT-40, CAT-40), HSK-A63, HSK-A100										ISO NO.50 (40) BT-50, CAT-50, DIN 69871 (BT-40, CAT-40), HSK-A63, HSK-A100											
Spindle Speed Range		rpm	20~4,000 (30~6,000) (100~10,000) (80~8,000) (12,000~24,000)																					
Main Motor Output (30 min Rating / Cont)		HP	30 / 25 (35 / 30)										30 / 25 (35 / 30)											
Rapid Traverse Rate X,Y Axis		mm/min	15,000 (20,000)		12,000 (15,000)						10,000 (12,000)													
Rapid Traverse Rate Z Axis		mm/min	12,000 (15,000)																					
Cutting Feed Rate		mm/min	1~5,000 (1~8,000)																					
Minimum Input Increment		mm/min	0.001																					
Tool Magazine Capacity		pcs	(24 / 32 / 40)										(24 / 32 / 40 / 60)											
Max. Tool Diameter / Adjacent Empty Pockets		mm	Ø125 / Ø 210																					
Max. Tool Length (From Gauge Line)		mm	350																					
Max. Tool Weight		kgs	(18 / 20)																					
Tool Selection Method			(ABS, Random Bi)										(ABS, Random Bi)											
Tool Change Time (T-T) (approx)		secs	8 (4.5)																					
Power Requirement		kVA	40 (45)						45 (50)				50 (55)				55 (60)				60 (65)			
Floor Space Requirement		mm	7,200x4,800	8,000x4,800	8,000x6,100	10,000x6,100	8,300x6,500	10,700x6,500	10,700x7,000	10,700x7,500	13,000x6,500	13,000x7,000	13,000x7,500	13,000x8,000	13,000x8,500	15,000x7,000	15,000x7,500	15,000x8,000	15,000x8,500	17,300x7,000	17,300x7,500	17,300x8,000	17,300x8,500	
Machine Height from Floor Level		mm	4,355																					
Machine Weight (approx)		kgs	20,000	20,500	23,500	27,000	25,500	31,500	34,000	36,000	36,500	39,500	42,500	45,500	48,500	57,500	61,000	64,500	67,500	71,500	74,500	77,500	80,500	
CNC Controller			Fanuc, Melder, Siemens, Heidenhain Series etc.										Fanuc, Melder, Siemens, Heidenhain Series etc.											
Positioning Accuracy		mm	JIS B6338 0.01/300, VDI 3441 P0.025										JIS B6338 0.01/300, VDI 3441 P0.035											
Repeatability Accuracy		mm	±0.003																					

Item	Model	Unit	SDV-1611	SDV-2011	SDV-2215	SDV-3215	SDV-2219	SDV-3219	SDV-3224	SDV-3229	SDV-4219	SDV-4224	SDV-4229	SDV-4234	SDV-4239	SDV-5224	SDV-5229	SDV-5234	SDV-5239	SDV-6224	SDV-6229	SDV-6234	SDV-6239	
X-Axis Travel		mm	1,600	2,040	2,200	3,200	2,200		3,200			4,200				5,200				6,200				
Y-Axis Travel		mm	1,100	1,100	1,500	1,500	1,900	1,900	2,400	2,900	1,900	2,400	2,900	3,400	3,900	2,400	2,900	3,400	3,900	2,400	2,900	3,400	3,900	
Z-Axis Travel		mm	760 (1,000)																					
Table Size		mm	1,600x1,000	2,000x1,000	2,000x1,400	3,000x1,400	2,000x1,700	3,000x1,700	3,000x2,200	3,000x2,700	4,000x1,700	4,000x2,200	4,000x2,700	4,000x3,200	4,000x3,700	5,000x2,200	5,000x2,700	5,000x3,200	5,000x3,700	6,000x2,200	6,000x2,700	6,000x3,200	6,000x3,700	
T-slots Dimension		mm	22 (24, 28)																					
Table Load Capacity		kgs	3,000	3,500	5,000	7,000	5,000	8,000	10,000	12,500	12,000	15,000	17,000	19,000	21,000	17,500	20,000	22,500	25,000	25,000	27,500	30,000	32,500	
Distance Between Two Columns		mm	1,200		1,600		2,000		2,500	3,000	2,000	2,500	3,000	3,500	4,000	2,500	3,000	3,500	4,000	2,500	3,000	3,500	4,000	
Distance from Spindle Nose to Table		mm	250~1,010 (250~1,250) / 355~1,115 (355~1,355)						250~1,010 (250~1,250) / 145~905 (145~1,145)															
Spindle Taper, Tool Shank			ISO NO.50 (40) BT-50, CAT-50, DIN 69871 (BT-40, CAT-40)										ISO NO.50 (40) BT-50, CAT-50, DIN 69871 (BT-40, CAT-40)											
Spindle Speed Range		rpm	20~4,000 (30~6,000) (100~10,000) (80~8,000)																					
Main Motor Output (30 min Rating / Cont)		HP	25 / 20 (30 / 25)		25 / 20 (30 / 25) (35 / 30)																			
Rapid Traverse Rate X, Y Axis		mm/min	15,000 (20,000)		12,000 (15,000)						10,000 (12,000)													
Rapid Traverse Rate Z Axis		mm/min	12,000 (15,000)																					
Cutting Feed Rate		mm/min	1~5,000 (1~8,000)																					
Minimum Input Increment		mm/min	0.001																					
Tool Magazine Capacity		pcs	(24 / 32 / 40)										(24 / 32 / 40 / 60)											
Max. Tool Diameter / Adjacent Empty Pockets		mm	Ø125 / Ø 210																					
Max. Tool Length (From Gauge Line)		mm	350																					
Max. Tool Weight		kgs	(18 / 20)																					
Tool Selection Method			(ABS, Random Bi)										(ABS, Random Bi)											
Tool Change Time (T-T) (approx)		secs	8 (4.5)																					
Power Requirement		kVA	40 (45)						45 (50)				50 (55)				55 (60)				60 (65)			
Floor Space Requirement		mm	7,200x4,800	8,000x4,800	8,100x5,200	10,100x5,200	8,200x6,500	10,700x6,500	10,700x7,000	10,700x7,500	13,000x6,500	13,000x7,000	13,000x7,500	13,000x8,000	13,000x8,500	15,000x7,000	15,000x7,500	15,000x8,000	15,000x8,500	17,300x7,000	17,300x7,500	17,300x8,000	17,300x8,500	
Machine Height from Floor Level		mm	4,350																					
Machine Weight (approx)		kgs	18,500	19,000	21,000	24,500	22,000	29,000	32,500	35,000	34,000	37,000	40,000	43,000	46,000	55,000	58,500	62,000	65,000	69,000	72,000	75,000	78,000	
CNC Controller			Fanuc, Melder, Siemens, Heidenhain Series etc.										Fanuc, Melder, Siemens, Heidenhain Series etc.											
Positioning Accuracy		mm	JIS B6338 0.01/300, VDI 3441 P0.025										JIS B6338 0.01/300, VDI 3441 P0.035											
Repeatability Accuracy		mm	±0.003																					



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### Products

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- CNC Double Column 5-Axis Machining Center
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- CNC Moving Column Horizontal Machining Center
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