MIGHTY ViPER

CNC Double Column Machining Center

5-axis

PR5 Series

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MIGHTY ViPER

Specialized in aerospace industry

PR5 Series 5-axis Double Column Machining Center features high speed and high accuracy, perfectly meeting the demands for aluminum parts machining for the aerospace industry.

PR5 Series

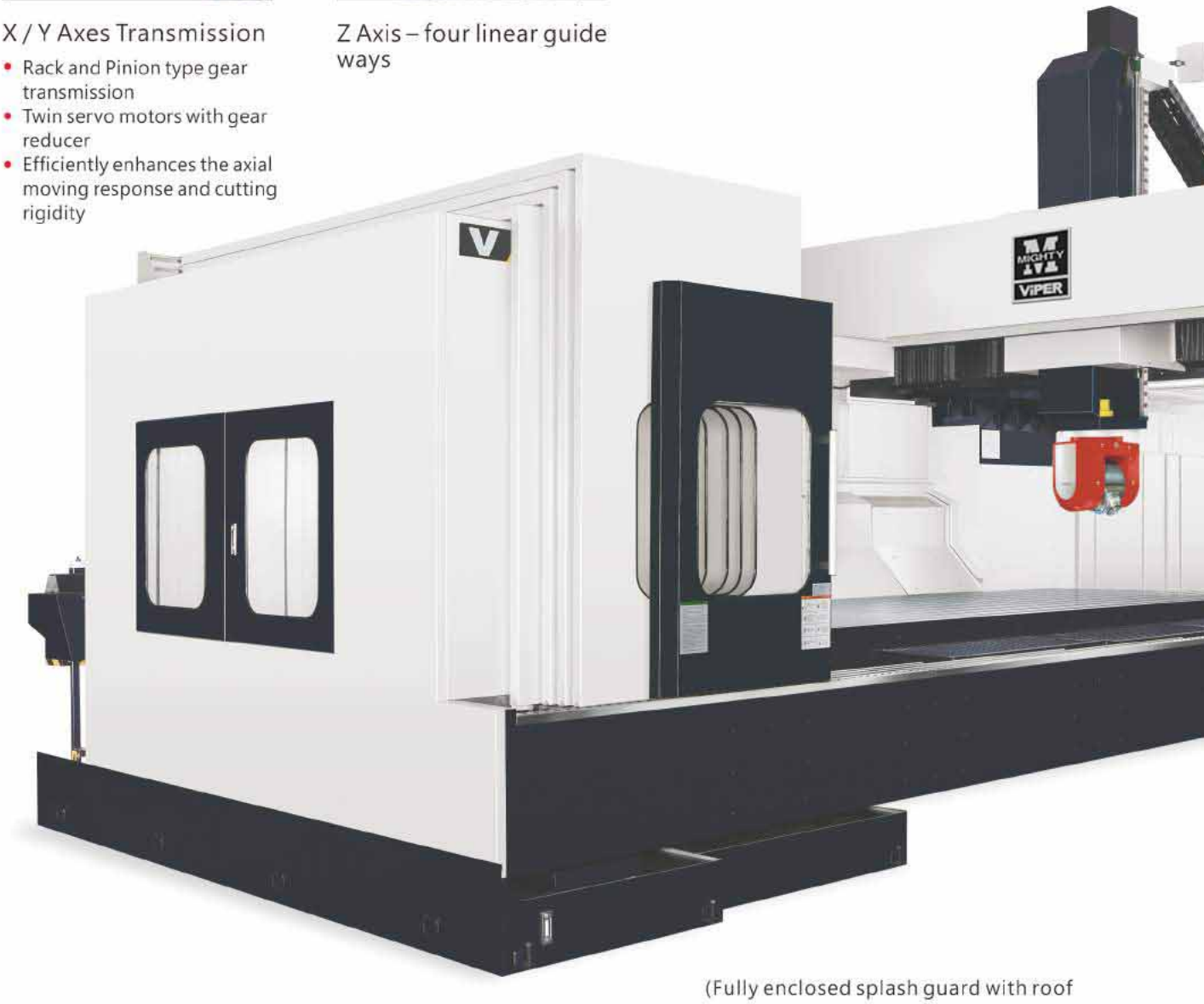
Why is 5-axis machining?

- For pursuing higher efficiency – one setup can achieve a multi-face machining process. So the time is reduced, the accuracy is secured, the machining application is more flexible and the productivity is increased.
- For expanding shop capability – a complicated workpiece involves 5-axis machining to complete.

X / Y Axes Transmission

- Rack and Pinion type gear transmission
- Twin servo motors with gear reducer
- Efficiently enhances the axial moving response and cutting rigidity

Z Axis – four linear guide ways

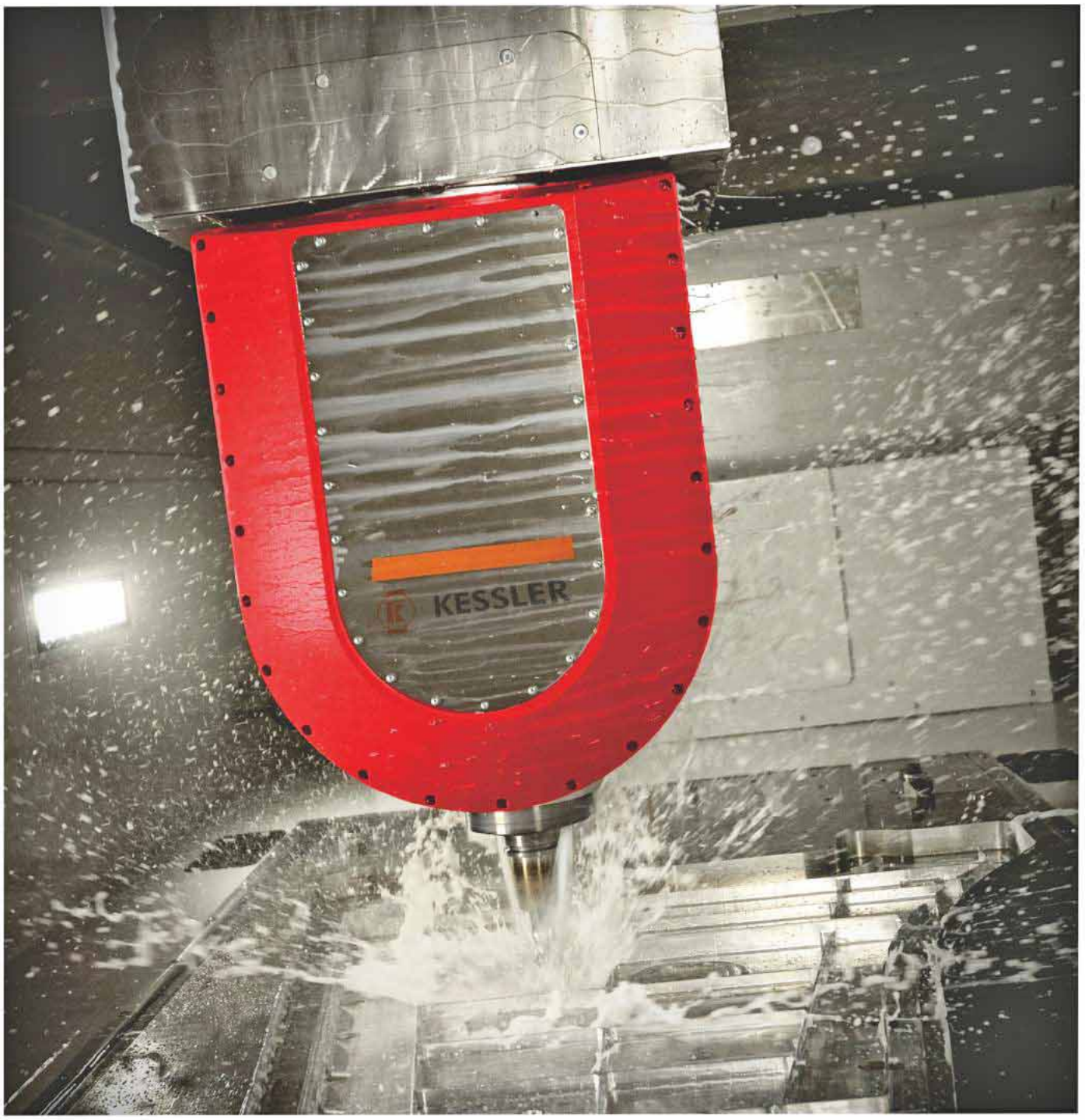


(Fully enclosed splash guard with roof is optional)

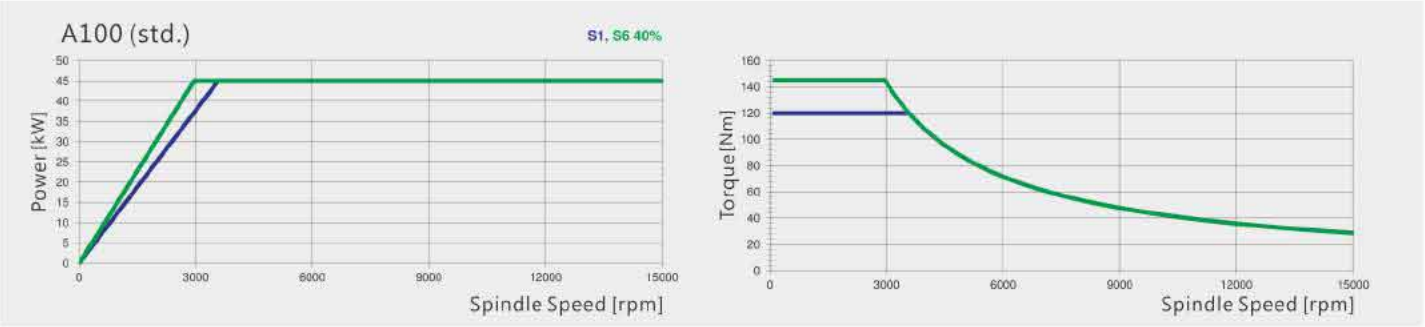
- Large capacity – X axis travel 10,200mm, Y axis travel 3,400mm, Z axis travel is standard with 1,000mm and optional 1,200/1,500mm
- X and Y axes are equipped with Rack and Pinion type gear transmission and twin servo motors from WITTENSTEIN alpha, featuring high efficiency, high accuracy and quick dynamic response
- Z axis is equipped with four roller type linear guide ways from SCHNEEBERGER, featuring high position accuracy and low backlash. Four guide ways design offers a stable support to the headstock.
- The swiveling spindle head package is from KESSLER which has over 90 years of expertise as a partner of the machine tool industry
- X / Y / Z axes are standard with HEIDENHAIN linear scales to ensure the machine accuracy and stability
- HEIDENHAIN iTNC530 features optimized motion control for five-axis machining with swivel head

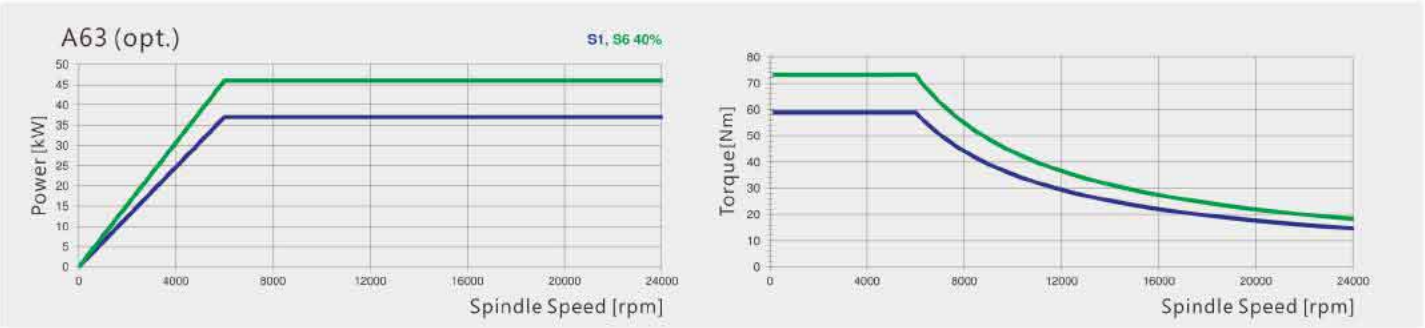
2-AXIS SWIVELING HEAD

- The swiveling spindle head package is from KESSLER which has over 90 years of expertise as a partner of the machine tool industry.
- One piece fork design – in case of a crash, it is almost impossible to generate the geometric impact.
- High tilting speed - 600°/s = High productivity
- If the clamp system or motor of A-axis is defective, it can be changed without touching bearings which means no loss in geometric accuracy. And repair can be done at site.
- Lightweight design – the total weight including the spindle is just 580kg.



Spindle Torque

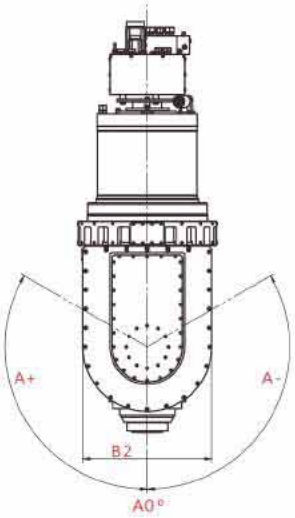


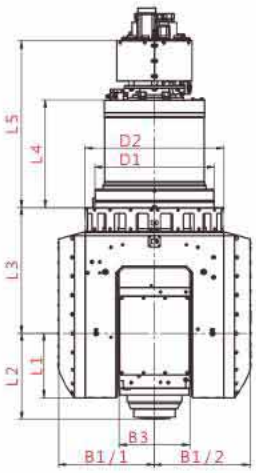


Spindle	Power S1 (100%) [kW]	Torque S1 (100%) [Nm]	Power S6 (40%) [kW]	Torque S6 (40%) [Nm]	Speed [rpm]	Taper	Bearing lubricated
A100 (std.)	45	119	45	144	15,000	HSK-A100	Oil-air lubricated
A63 (opt.)	37	60	46	73	24,000	HSK-A63	Oil-air lubricated

Specification

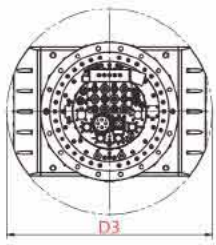
		A-axis	C-axis
Rated torque	[Nm]	382	810
Maximum torque	[Nm]	575	1,100
Clamping torque at P max	[Nm]	2,160	1,680
Clamping torque at P 0	[Nm]	1,200	930
Clamping		pneumatic	pneumatic
Swivelling angle	[°]	±105	±200
Swivelling accuracy	["]	±5	±3



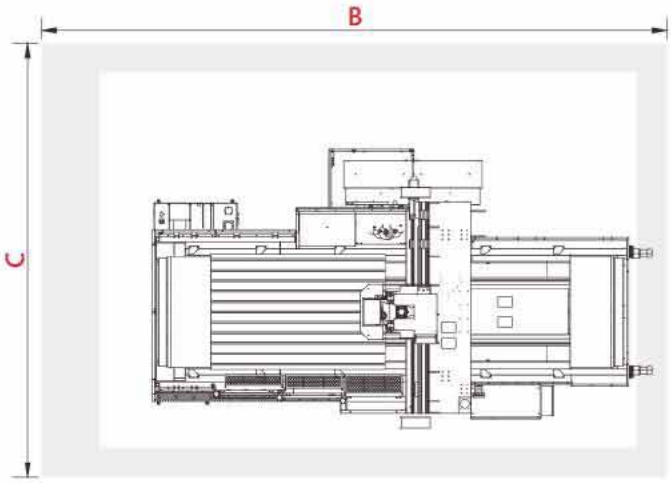


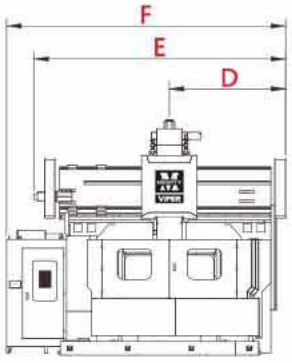
Dimension

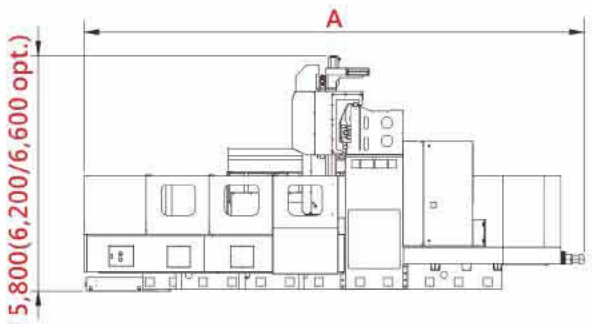
	D1	D2	B1/1	B1/2	B2	B3	L1	L2	L3	L4	L5	D3
[mm]	335	406	312	312	420	240	210	280	470	290	483	670



Machine Specifications







Model	Unit	PR5-3231	PR5-4231	PR5-5231	PR5-6231
Travel					
X axis	mm	3,200	4,200	5,200	6,200
Y axis	mm	3,100			
Z axis	mm	1,000 (1,200 / 1,500 opt.)			
Spindle nose to table	mm	80~1,080 (80~1,280 / 80~1,580 opt.)			
Spindle center to column	mm	508			
Distance between columns (max. workpiece width)	mm	2,500 (2,450)			
Table					
Table dimensions (L)	mm	3,000	4,000	5,000	6,000
Table dimensions (W)	mm	2,000			
T-slot (width x number x pitch)		28 x 11 x 180			
Max. table load	kg	11,000	13,000	15,000	17,000
Feed					
Rapid feed-rate (X / Y / Z)	m/min	20 / 20 / 12			
Cutting feed-rate	mm/min	10,000			
Accuracy					
Positioning accuracy	mm	±0.005 / 300 ; ±0.015 / full travel			
	mm	P0.03		P0.04	
Repeatability	mm	±0.002			
	mm	Ps0.023		Ps0.025	
ATC					
Tool storage capacity	pcs	24 (32 / 40 opt.)			
Max. tool length	mm	300			
Max. tool weight	kg	8			
Tool size (full tools)	mm	Ø 75			
Max. tool size (next pockets empty)	mm	Ø 130			
Other					
Power consumption	kVA	HSK-A100 : 130 (HSK-A63 : 110 opt.)			
Compressed air	kg/cm^2	6.5			
Machine weight (approx.)	tons	42	46	52	57
Machine floor space (L x W x H)(approx.)	m	10.8 x 7.5 x 5.8	12.8 x 7.5 x 5.8	14.8 x 7.5 x 5.8	16.8 x 7.5 x 5.8

※ All specification are subjected to change without prior notice.

Model	Unit	A	B	C	D	E	F
PR5-3231	mm	8,700	10,800	7,500	2,550	5,700	6,400
PR5-4231	mm	10,700	12,800	7,500	2,550	5,700	6,400
PR5-5231	mm	12,700	14,800	7,500	2,550	5,700	6,400
PR5-6231	mm	14,700	16,800	7,500	2,550	5,700	6,400
PR5-3234	mm	8,700	10,800	8,100	2,700	6,000	6,700
PR5-4234	mm	10,700	12,800	8,100	2,700	6,000	6,700
PR5-5234	mm	12,700	14,800	8,100	2,700	6,000	6,700
PR5-6234	mm	15,500	17,600	8,100	2,700	6,000	6,700
PR5-8234	mm	20,000	22,100	8,100	2,700	6,000	6,700
PR5-10234	mm	24,400	26,500	8,100	2,700	6,000	6,700

Model	Unit	PR5-3234	PR5-4234	PR5-5234	PR5-6234	PR5-8234	PR5-10234
Travel							
X axis	mm	3,200	4,200	5,200	6,200	8,200	10,200
Y axis	mm	3,400					
Z axis	mm	1,000 (1,200 / 1,500 opt.)					
Spindle nose to table	mm	80~1,080 (80~1,280 / 80~1,580 opt.)					
Spindle center to column	mm	508					
Distance between columns (max. workpiece width)	mm	2,800 (2,750)					
Table							
Table dimensions (L)	mm	3,000	4,000	5,000	6,000	8,000	10,000
Table dimensions (W)	mm	2,400					
T-slot (width x number x pitch)		28 x 13 x 180					
Max. table load	kg	11,000	13,000	15,000	17,000	21,000	25,000
Feed							
Rapid feed-rate (X / Y / Z)	m/min	20 / 20 / 12					
Cutting feed-rate	mm/min	10,000					
Accuracy							
Positioning accuracy	mm	±0.005 / 300 ; ±0.015 / full travel					
	mm	P0.03		P0.04			
Repeatability	mm	±0.002					
	mm	Ps0.023		Ps0.025			
ATC							
Tool storage capacity	pcs	24 (32 / 40 opt.)					
Max. tool length	mm	300					
Max. tool weight	kg	8					
Tool size (full tools)	mm	Ø 75					
Max. tool size (next pockets empty)	mm	Ø 130					
Other							
Electric power consumption	kVA	HSK-A100 : 130 (HSK-A63 : 110 opt.)					
Pneumatic input pressure	kg/cm^2	6.5					
Machine weight (approx.)	tons	46	50	56	61	71	91
Machine floor space (L x W x H)(approx.)	m	10.8 x 8.1 x 5.8	12.8 x 8.1 x 5.8	14.8 x 8.1 x 5.8	17.6 x 8.1 x 5.8	22.1 x 8.1 x 5.8	26.5 x 8.1 x 5.8

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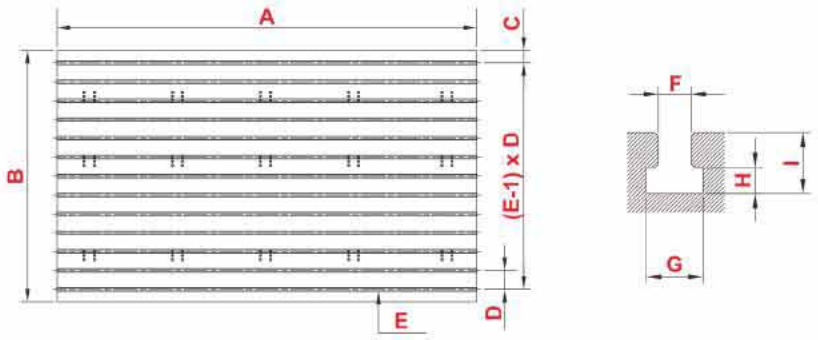
PR5 Series

Table and T-Slot Dimensions

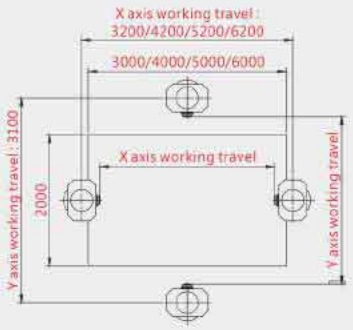


Model	Unit	A	B	C	D	E	F	G	H	I
PR5-3231	mm	3,000	2,000	100	180	11	28H8	48	22	52
PR5-4231	mm	4,000	2,000	100	180	11	28H8	48	22	52
PR5-5231	mm	5,000	2,000	100	180	11	28H8	48	22	52
PR5-6231	mm	6,000	2,000	100	180	11	28H8	48	22	52
PR5-3234	mm	3,000	2,400	120	180	13	28H8	48	22	52
PR5-4234	mm	4,000	2,400	120	180	13	28H8	48	22	52
PR5-5234	mm	5,000	2,400	120	180	13	28H8	48	22	52
PR5-6234	mm	6,000	2,400	120	180	13	28H8	48	22	52
PR5-8234	mm	8,000	2,400	120	180	13	28H8	48	22	52
PR5-10234	mm	10,000	2,400	120	180	13	28H8	48	22	52

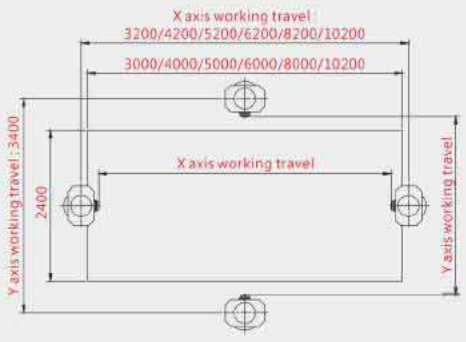
Working Area

Model	Spindle taper	Unit	X	Y	A	B	C	D	E	F
PR5-3231	HSK-A100 (std.)	mm	2,520	2,420	340	80	1,000 (1,200/ 1,500 opt.)	1,080 (1,280/ 1,580 opt.)	210	420
PR5-4231		mm	3,520							
PR5-5231		mm	4,520							
PR5-6231		mm	5,520							
PR5-3234		mm	2,520	2,720						
PR5-4234		mm	3,520							
PR5-5234		mm	4,520							
PR5-6234		mm	5,520							
PR5-8234		mm	7,520							
PR5-10234		mm	9,520							
PR5-3231	HSK-A63 (opt.)	mm	2,640	2,540	280	80	1,000 (1,200/ 1,500 opt.)	1,080 (1,280/ 1,580 opt.)	150	360
PR5-4231		mm	3,640							
PR5-5231		mm	4,640							
PR5-6231		mm	5,640							
PR5-3234		mm	3,640	2,840						
PR5-4234		mm	4,640							
PR5-5234		mm	5,640							
PR5-6234		mm	6,640							
PR5-8234		mm	7,640							
PR5-10234		mm	9,640							

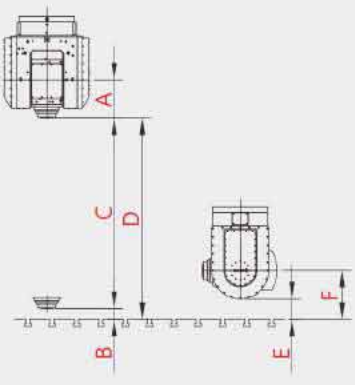
Working Travel



V-xx31 series



V-xx34 series



Accessory List

Category	Description	PR5 Series
Controller	HEIDENHAIN iTNC530 controller	●
	SIEMENS 840D controller	◎
Spindle	HSK-A100 15,000 rpm 45/45 kW	●
	HSK-A63 24,000 rpm 37/46 kW	◎
Z travel	Z travel 1,000mm	●
	Z travel 1,200mm	◎
	Z travel 1,500mm	◎
ATC	Automatic tool changer 24 tools	●
	Automatic tool changer 32 / 40 tools	◎
Splash guard	Semi splash guard	★
	Fully enclosed splash guard (roof excluded)(X<6m)	●
	Fully enclosed splash guard (roof included)(X<6m)	◎
Mechanical	X / Y axis rack and pinion type gear transmission with twin servo motors	●
	Z axis four roller type linear guide ways	●
	Twin hydraulic cylinders	●
	Nitrogen balancing system	●
	Automatic lubrication system	●
	Spindle oil cooler	●
	Air blast through spindle	●
	Manual pulse generator	●
	Working lamp	●
	3-color alarm lamp	●
	RS-232 interface	●
	Heat exchanger for electrical cabinet	●
	Water gun and air gun interface	●
	Cutting coolant unit	●
	Twin auger chip removal system	●
	Belt type chip conveyor with cart	●
	Oil skimmer	●
	Higher suspension type controller panel	●
	Coolant through spindle at 20 / 40 / 70 bar	◎
	Coolant through tool holder interface	◎
	Transformer	◎
	Oil mist device	◎
Others	Leveling bolts & blocks	●
	Tool box	●
	CE norm	◎
Measurement	HEIDENHAIN linear scale	●
	Automatic tool measuring system	◎
	Automatic work piece measuring system	◎

Optional : ◎ Standard : ● N/A : X Depending on the model : ★

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● Catalog_PR5-0517.v1