

## PALMARY PRODUCTS

- Centerless Grinder
- Cylindrical Grinder
- Internal Grinder
- Vertical Grinder
- Surface Grinder
- Special Purpose Grinder

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# VERTICAL GRINDER

CNC series VIG



# PALMARY

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# PALMARY

PALMARY MACHINERY CO., LTD.

# CONCERTO OF HIGH ACCURACIES AND PRODUCTION

LEAD YOUR GAZE  
TO THE TECHNICAL  
ART PATTERN



## VERTICAL SERIES

CNC VERTICAL INTERNAL,  
END FACE, EXTERNAL  
COMPOSITE GRINDER

### OUTSTANDING FEATURES

- No vibration and run-out caused by self-weights of the workpieces and chucks that may affect grinding accuracy.
- Irregularly shaped workpieces are easy to chuck.
- Non-symmetric part between inside hole and external shape can also proceed inside hole and end face grinding process.

### HIGH RIGIDITY MACHINE BED

The machine structure is manufactured from high-quality Meehanite cast iron, heat treated and stress relieved for outstanding stability and without deformation.



[ VIG-2015 / VIG-2015E ]



[ VIG-50 ]



[ VIG-80 ]



[ VIG-120 ]

# VIG-2015 / 2015E

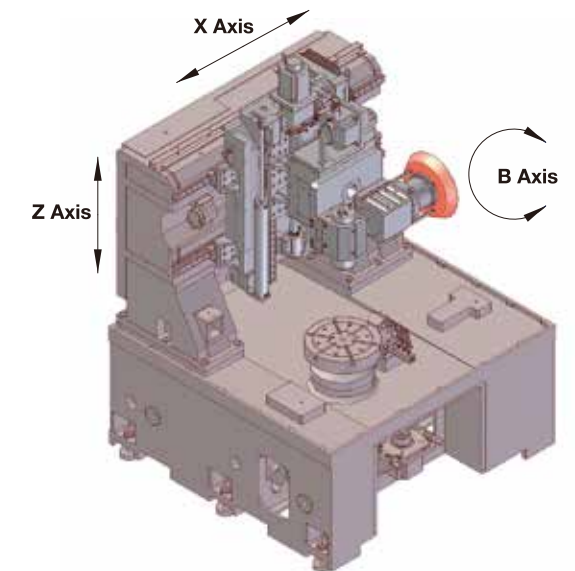
## GRINDING EXAMPLE

MODEL	GRINDING TYPE		
VIG-2015E VIG-50/80/120	O.D. Plunge Grinding 	O.D. Oscillation Grinding 	O.D. Grinding (Indirect Position) 
VIG-2015 VIG-2015E VIG-50/80/120	O.D. Grinding 		
VIG-2015E VIG-50/80/120	End Face Grinding 	End Face Oscillation Grinding 	O.D. + O.D. Face Grinding 
VIG-2015 VIG-2015E VIG-50/80/120	I.D. Oscillation Grinding 	I.D. Plunge Grinding 	I.D. Step Grinding 
VIG-2015 VIG-2015E VIG-50/80/120	I.D. Face Grinding 	I.D. Taper Grinding 	I.D. Radius Grinding 

## PURSUANCE OF PERFECTION

### EXTRAORDINARY DESIGN! USER-FRIENDLY OPERATION!

Based on PALMARY's tradition of "Pursuing Quality Perfection", combined with human engineering design and peak performance concepts, each machine fully reflects PALMARY's unmatched design and technique.



[ VIG-2015E ]



#### BUILT-IN TYPE HIGH SPEED WHEEL SPINDLE

- 10000~45000 r.p.m. spindle for widely internal diameter range use.
- The spindle runs in ceramic angular contact ball bearings, with outstanding radial and axial loading capability, low heat growth at high speed operation and has a long service life.



#### BUILT-IN TYPE EXTERNAL WHEEL SPINDLE

- 1500~4500 r.p.m. spindle for standard wheel O.D. 355 mm.
- For CBN wheel (optional), the speed could change to 4500 r.p.m..
- For model VIG-2015E only.



# VIG-50 / 80 / 120



X & Z axes are equipped with special cross roller type Linear guideways, featuring extra heavy loading capability.



[ VIG-50 ]

## OUTSTANDING FEATURES

### 1. High Rigidity Machine Bed

The design of honeycomb tubular type machine bed and cross guideway structure for improving the higher rigidity and stability.

### 2. Space Saving

The round rotating dressing device saving more interior space reduced machine layout for saving more space.

### 3. High Rigidity Work Spindle

The work spindle uses high accuracy bearings in the turn table.

### 4. High Precision

- The Standard accessories 2 axes full-close loop digital linear scales equipped.
- Thermal displacement countermeasures

### 5. Multi-Function

ID, OD, Taper, End Face Process



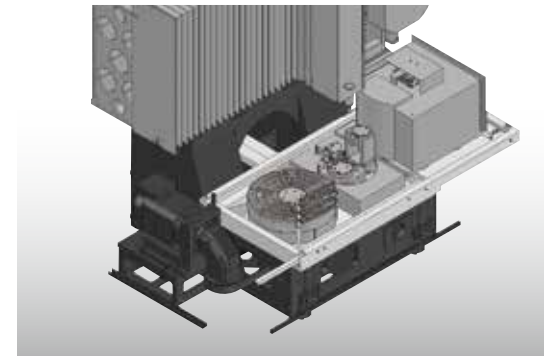
[ VIG-80 ]



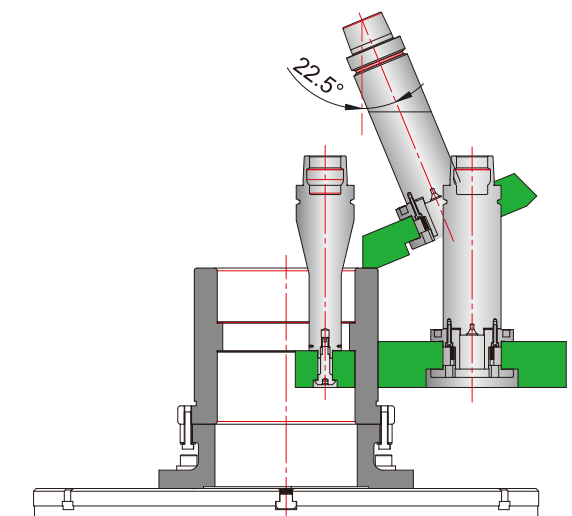
[ VIG-120 ]

## THERMAL DISPLACEMENT COUNTERMEASURES

The coolant flow has an isolation design from the machine bed and can reduce the heat deformation and dirt contamination on the bed.



## MULTI-FUNCTION



### FANUC CONTROLLER

Equipped with Graphic and Dialogue Operation Screen for easy operation and for great reduction of set up time and consequently enhance production efficiency.



### BUILT-IN TYPE WHEEL SPINDLE

- Variable speed range from 2700 to 15000 r.p.m.
- The forced spindle lubrication system and oil-cooling system bring the higher stability.



### ANGULAR WHEEL

For end face grinding application, the wheel spindle could swivel to 22.5 degrees for easily grinding.



### AUTO. TOOL CHANGE SYSTEM (ATC)

- Equipped max. 6 no. grinding wheels for different diameter or accuracy requirement.
- The tool holder is HSK-E63 or HSK-E100 type for higher rigidity.



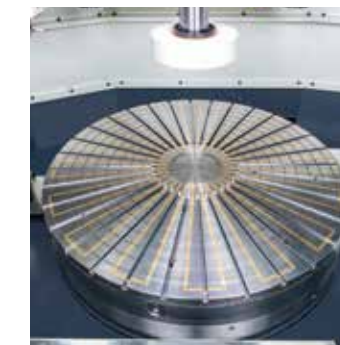
### WHEEL DRESSING DEVICE

The round rotating dressing device save more interior space.



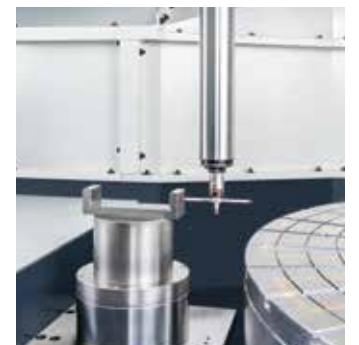
### DIAMOND ROLLER DRESSING DEVICE (OPT.)

For variable process requested grinding wheel shape to dressing and to provide variable composite dressing application.



### HYDROSTATIC WORKING TABLE (VIG-120 only)

Working table with hydrostatic system, without bearing wear and precision life long, low friction to achieve higher loading capacity.



### AUTO. FACE MEASUREMENT COMPENSATION (OPT.)

Use gauge and workpiece to check size and system will make the compensation auto. in order to achieve process quality and reduce NG parts and short the machine waiting time.

SPECIFICATIONS

VIG-2015 / 2015E

MODEL	VIG-2015	VIG-2015E	
<b>Capacity</b>	Internal grinding range (I.D. : length = 1 : 3)	Ø14 ~ 200 mm	Ø14 ~ 200 mm
	Max. external grinding dia.	Ø200 mm	Ø200 mm
	Max. workpiece swivel	Ø300 mm	Ø300 mm
	Max. grinding length	150 mm	150 mm
	Max. workpiece Length	150 mm	150 mm
<b>Internal grinding spindle (Z axis)</b>	Max. workpiece load	100 kg	100 kg
	Internal grinding spindle speed	10,000 ~ 45,000 r.p.m.	10,000 ~ 45,000 r.p.m.
<b>External grinding spindle (Z axis) (2015E only)</b>	G.W. dia.	Ø10 ~ 65 mm	Ø10 ~ 65 mm
	Max. linear velocity	45 m/s	45 m/s
	Spindle speed	-	1,500 ~ 4,500 r.p.m.
<b>G.W. rotary axis (B axis) (2015E only)</b>	G.W.size (O.D. x width x I.D.)	-	Ø355 x 50 x Ø127 mm
	Max. linear velocity	-	45 m/s
	External grinding spindle speed	-	25 r.p.m.
<b>Work spindle</b>	Min. Setting Angle	-	5°
	Positioning precision	-	±5"
	Repeating precision	-	±1"
<b>Work spindle</b>	Work spindle speed	40 ~ 800 r.p.m.	40 ~ 800 r.p.m.
	Chuck size	Ø200 mm	Ø200 mm
	X axis traverse	500 mm	500 mm
	X axis speed	0 ~ 6 M/min	0 ~ 6 M/min
	X axis min. setting unit	Ø0.001 mm	Ø0.001 mm
	X axis micro movement / each graduation	Ø0.001, Ø0.01, Ø0.1 mm	Ø0.001, Ø0.01, Ø0.1 mm
	Z axis traverse	400 mm	400 mm
	Z axis speed	0 ~ 6 M/min	0 ~ 6 M/min
	Z axis min. setting unit	0.001 mm	0.001 mm
	Z axis micro movement / each graduation	0.001, 0.01, 0.1 mm	0.001, 0.01, 0.1 mm
<b>Motor</b>	X, Z axis slide ways	Linear guideway	Linear guideway
	Work spindle	3.5 kW	3.5 kW
	Internal G.W.	3.0 kW; Torque: S1 = 1.1 Nm, S6 = 1.5 Nm	3.0 kW; Torque: S1 = 1.1 Nm, S6 = 1.5 Nm
	X axis	1.6 kW	1.6 kW
	Z axis	1.6 kW	1.6 kW
	B axis	2.0 kW	2.0 kW
	Hydraulic pump (2015E only)	-	0.75 kW
	Lubrication system pump	20 W	20 W
	Coolant pump	0.75 kW	0.75 kW
	Electricity	32 KVA	32 KVA
<b>Power</b>	Air (work pressure & useful discharge)	0.7 Mpa & 1,800 NL/min	0.7 Mpa & 1,800 NL/min
	Hydraulic oil tank (2015E only)	-	20 L
<b>Tank capacity</b>	Spindle oil cooler tank	15 L	15 L
	Coolant tank	140 L	140 L
<b>Machine weight</b>	Net weight	5,500 kg	5,500 kg

• The mentioned specifications & dimensions are subject to change without notice.

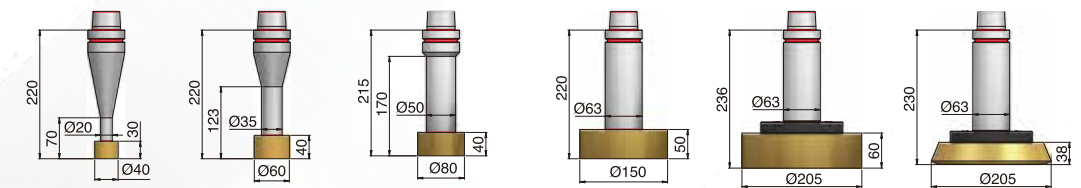
VIG-50 / 80 / 120

MODEL	VIG-50	VIG-80	VIG-120		
<b>Capacity</b>	O.D. grinding range	Ø38 ~ 500 mm	Ø65 ~ 800 mm	Ø65 ~ 1,200 mm	
	Max. I.D. grinding length	~ Ø199 : 200 mm ; Ø200 ~ : 350 mm	~ Ø225 : 275 mm ; Ø225 ~ : 500 mm	~Ø225 : 275 mm ; Ø225 ~ 1,200 : 500 mm	
	Max. O.D. grinding length	350 mm	500 mm	500 mm	
	Spindle swivel dia.	Ø550 mm	Ø850 mm	Ø1,250 mm	
	Max. workpiece length	410 mm	500 mm	500 mm	
<b>Wheel spindle (Z axis)</b>	Max. workpiece load	500 kg	1,000 kg	5,000 kg	
	Distance between spindle upper side to G.W.	510 mm	650 mm	670 mm	
	Spindle speed	2,700 ~ 15,000 r.p.m.	1,800 ~ 10,000 r.p.m.	1,800 ~ 10,000 r.p.m.	
	G.W. diameter	Ø40 ~ 205 mm	Ø60 ~ 305 mm	Ø60 ~ 305 mm	
	Max. linear speed	45 m/s	45 m/s	45 m/s	
<b>Work spindle</b>	Tool holder type	HSK-E63	HSK-E100	HSK-E100	
	Work table size (face plate)	Ø550 mm	Ø850 mm	Ø1,250 mm	
	Work spindle speed	20 ~ 220 r.p.m.	15 ~ 150 r.p.m.	10 ~ 100 r.p.m.	
<b>Traverse</b>	X axis traverse	970 mm	1,330 mm	2,252 mm	
	X axis speed	Ø0 ~ 10 M/min	Ø0 ~ 10 M/min	Ø0 ~ 10 M/min	
	X axis min. setting unit	Ø0.0001 mm	Ø0.0001 mm	Ø0.0001 mm	
	X axis MPG each graduation movement	Ø0.0001, Ø0.001, Ø0.05 mm	Ø0.0001, Ø0.001, Ø0.05 mm	Ø0.0001, Ø0.001, Ø0.05 mm	
	Z axis traverse	550 mm	700 mm	700 mm	
	Z axis speed	0 ~ 10 M/min	0 ~ 10 M/min	0 ~ 10 M/min	
	Z axis min. setting unit	0.0001 mm	0.0001 mm	0.0001 mm	
	Z axis MPG each graduation movement	0.0001, 0.001, 0.05 mm	0.0001, 0.001, 0.05 mm	0.0001, 0.001, 0.05 mm	
	X, Z axis slide ways	Linear guideway	Linear guideway	Linear guideway	
	<b>Motor</b>	Work spindle	3.7 kW	3.7 kW	5.5 kW
Grinding wheel spindle		15 kW	22 kW	22 kW	
X axis		4.0 kW	7.0 kW	7.0 kW	
Z axis		4.0 kW	7.0 kW	7.0 kW	
ATC		0.75 kW	1.4 kW	1.4 kW	
Hydraulic pump		0.75 kW	0.75 kW	0.75 kW	
Coolant pump		0.375 kW	0.375 kW	0.375 kW	
High pressure coolant pump (for wheel spindle)		2.1 kW	2.1 kW	2.1 kW	
<b>Power</b>		Electricity	30 KVA	42 KVA	42 KVA
		Air (work pressure & useful discharge)	0.7 Mpa & 1,800 NL/min	0.7 Mpa & 2,400 NL/min	0.7 Mpa & 2,400 NL/min
	Hydraulic oil tank	30 L	30 L	30 L	
<b>Tank</b>	Oil tank for spindle change	12 L	12 L	12 L	
	spindle oil cooler tank	45 L	45 L	45 L	
	Coolant tank	600 L	1,200 L	1,200 L	
<b>Machine Weight</b>	Net weight	7,000 kg	13,000 kg	16,000 kg	

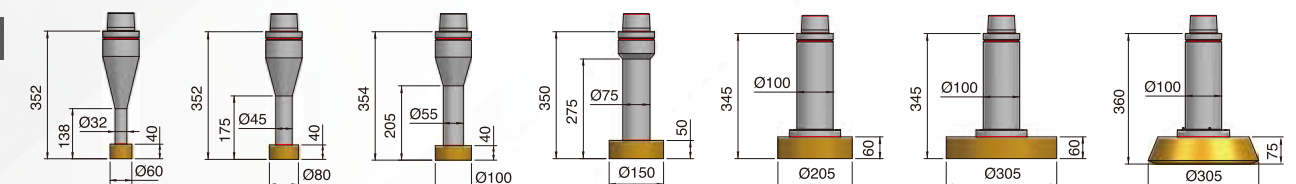
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GRINDING WHEEL TYPE (unit: mm)

VIG-50



VIG-80/120





STANDARD ACCESSORIES

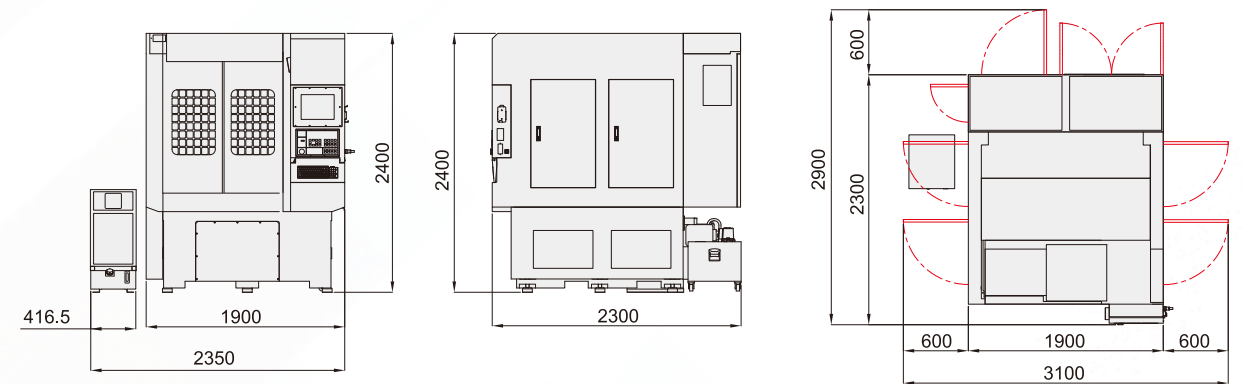
	VIG-2015	VIG-2015E	VIG-50	VIG-80	VIG-120
CNC Controller - FANUC (Included current gap control function)	1	1	1	1	1
Fully enclosed splash guard	1	1	1	1	1
Built-in type internal grinding wheel spindle	1	1	1	1	1
Built-in type external grinding wheel spindle	-	1	-	-	-
ATC system (auto. tool change system, max. 6 no. wheels)	-	-	1	1	1
Standard HSK-E63 tool	-	-	4	-	-
Standard HSK-E100 tool	-	-	-	4	4
Grinding wheel	1	2	4	4	4
Single point diamond dresser	3	3	2	2	2
Face plate	-	-	Ø550	Ø850	Ø1,250
Hydro. static Working Table	-	-	-	-	1
Full-close loop digital scale (for X & Z axes)	2	2	2	2	2
Electric system	1	1	1	1	1
Hydraulic system	1	1	1	1	1
Oil tank for spindle change	-	-	1	1	1
Wheel spindle oil cooler system	1	1	1	1	1
Hyd. static Working Table Coolant Chiller	-	-	-	-	1
Coolant system	1	1	1	1	1
Wheel balancing stand	1	1	1	1	1
Work lamp	1	1	1	1	1
Tools and tool box	1	1	1	1	1

OPTIONAL ACCESSORIES

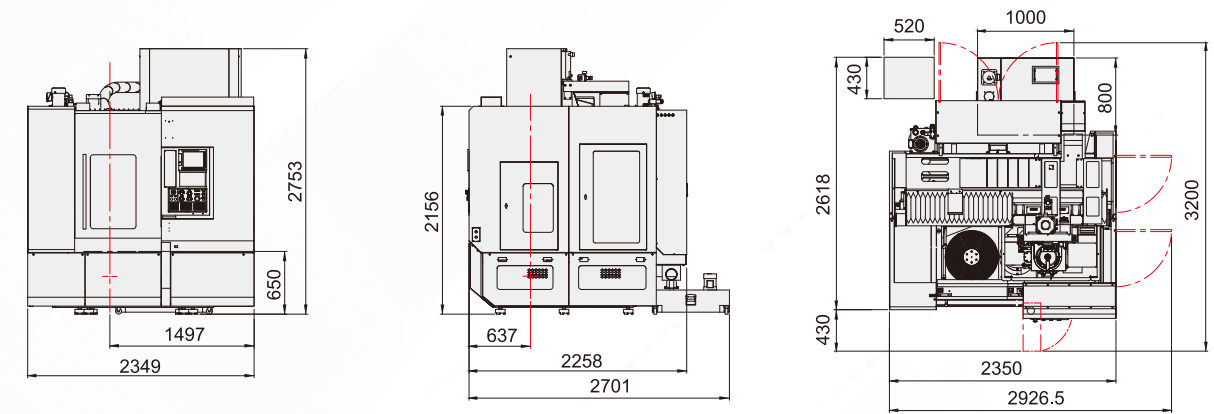
	VIG-2015	VIG-2015E	VIG-50	VIG-80	VIG-120
CNC Controller - Mitsubishi	○	○	○	○	○
Magnetic chuck with demagnetizer	-	-	Ø550	Ø800	Ø1,250
Special chuck (individual design)	○	○	○	○	○
3-jaw chuck	○	○	-	-	-
Soft jaw turning device	○	○	-	-	-
Diamond roller dressing device	○	○	○	○	○
Magnetic coolant separator	○	○	○	○	○
Paper filter	○	○	○	○	○
Hydrocyclone coolant separator	○	○	○	○	○
Chiller for coolant tank	○	○	○	○	○
Oil-water separator	○	○	○	○	○
Oil mist collector	○	○	○	○	○
Touch probe gauge	-	-	○	○	○

MACHINE DIMENSIONS (unit: mm)

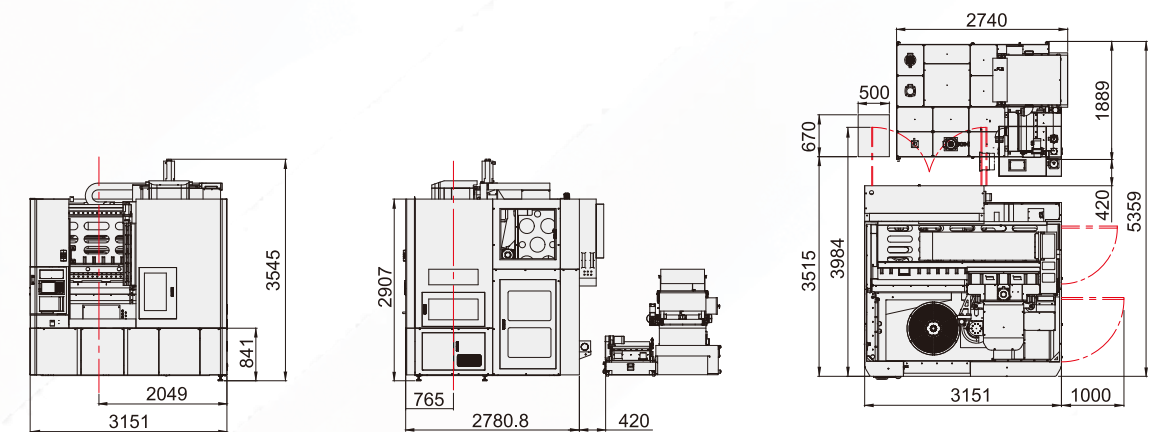
[ VIG-2015 / 2015E ]



[ VIG-50 ]



[ VIG-80 ]



[ VIG-120 ]

