



PALMARY

Designed and researched through years of efforts, the PALMARY new generation of CNC Cylindrical Grinder will give you competitive edge in today's competitive environment.

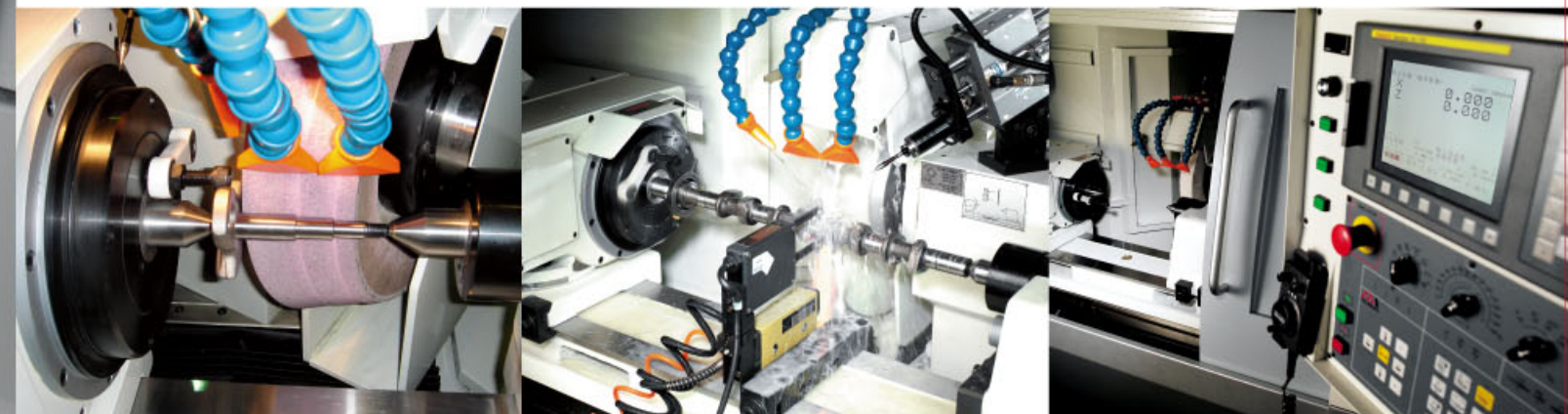


Advanced Design Concepts Peak Performance CNC Cylindrical Grinder

The **EXTOMAX** series CNC cylindrical grinder from PALMARY is designed with high efficiency, high accuracy and maximum operational convenience in mind. The machine structure design fully meets ergonomic theorem for user-friendly operations. Rigid and stable construction, as well as a special wheel spindle design are combined with advanced CNC control to make cylindrical grinding easier and more accurate than ever before.

Committed to Excellence

“Engineered , Design and Built For
Sub-Micron Grinding.
EXTOMAX Series Is Your Answer ”



Fine Craftsmanship and Outstanding Performance

PALMARY **EXTomax** Series Sets a New Standard in Cylindrical Grinders

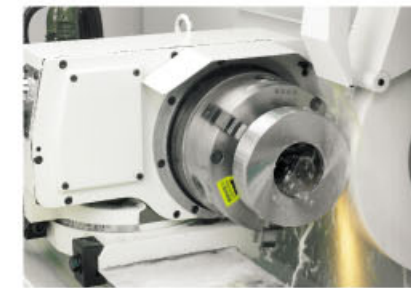
Internal Grinding Attachment (Optional)

- The rotary-type internal grinding attachment is easy to set up by simply swinging down to perform internal grinding operations.

“Advanced concepts, state-of-the-art techniques and innovative design-all this can be found on the PALMARY **EXTomax** Series CNC Cylindrical Grinder. It's a competitive edge for today's precision grinding. The **EXTomax** series features unmatched accuracy, grinding quality and control performance. Specially designed fine feed allows mirror-effect grinding and end face grinding easily - achieving the accuracy of $0.1 \mu\text{m}$. A wide range of optional equipment is available to meet customer's requirement, and effectively upgrades the machine performance.”



OCD-3240
Fully Enclosed Splash Guard (Optional)



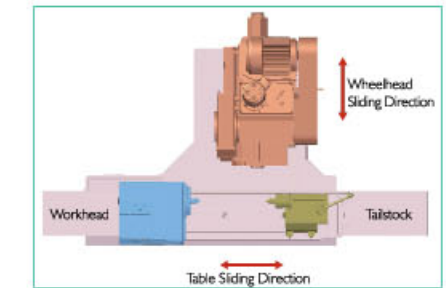
Plunge Cylindrical Grinding

- Two axes control combined with one auxiliary axis for workhead spindle running.
- Least input increment: 0.001 mm .



Hydraulic Tailstock (Optional)

- The rigid tailstock is locked on the slide firmly. The tailstock quill movement is driven by hydraulic power for convenient and fast workpiece clamping and unclamping.



Easy to Check the Table Position

- As the wheelhead advances/retracts in a straight line, even with the angular type, the wheel and workpiece longitudinal positions can be checked easily.



Linear Scale For Z Axis (Optional)

- The linear scale provides closed-loop control, assuring extremely high positioning accuracy and stability.



Automatic Grinding Wheel Balancers (Optional)

- The automatic grinding wheel balancer allows for automatically balancing the grinding wheel at all times. A clearance eliminator is also suggested to order for use together with the automatic grinding wheel balancer.



Touch Probe Gauge (Optional)

- Provides fast measurement for reference point on end face.

Sophisticated Inspection Instruments and Rigorous Quality Control

PALMARY is committed to providing customers the best possible machinery. Rigorous quality control is conducted at each step throughout the entire manufacturing process. Each machine is tested and retested prior to shipping. PALMARY's QC department is fully equipped with a wide range of sophisticated inspection instruments. Our well-trained QC staff thoroughly conducts parts and machinery inspections to assure the dependability of each machine from PALMARY.

Precision Inspection Pay Attention to Every Detail

“The Quality-proven **EXIomax** Series from PALMARY,”



■ OCD-4260

- CNC control.
- Fully enclosed splash guard (optional).
- Swing over table Ø420 mm.
- Distance between centers 600 mm.



■ OCD-32100

- CNC control.
- Fully enclosed splash guard (optional).
- Swing over table Ø320 mm.
- Distance between centers 1,000 mm.



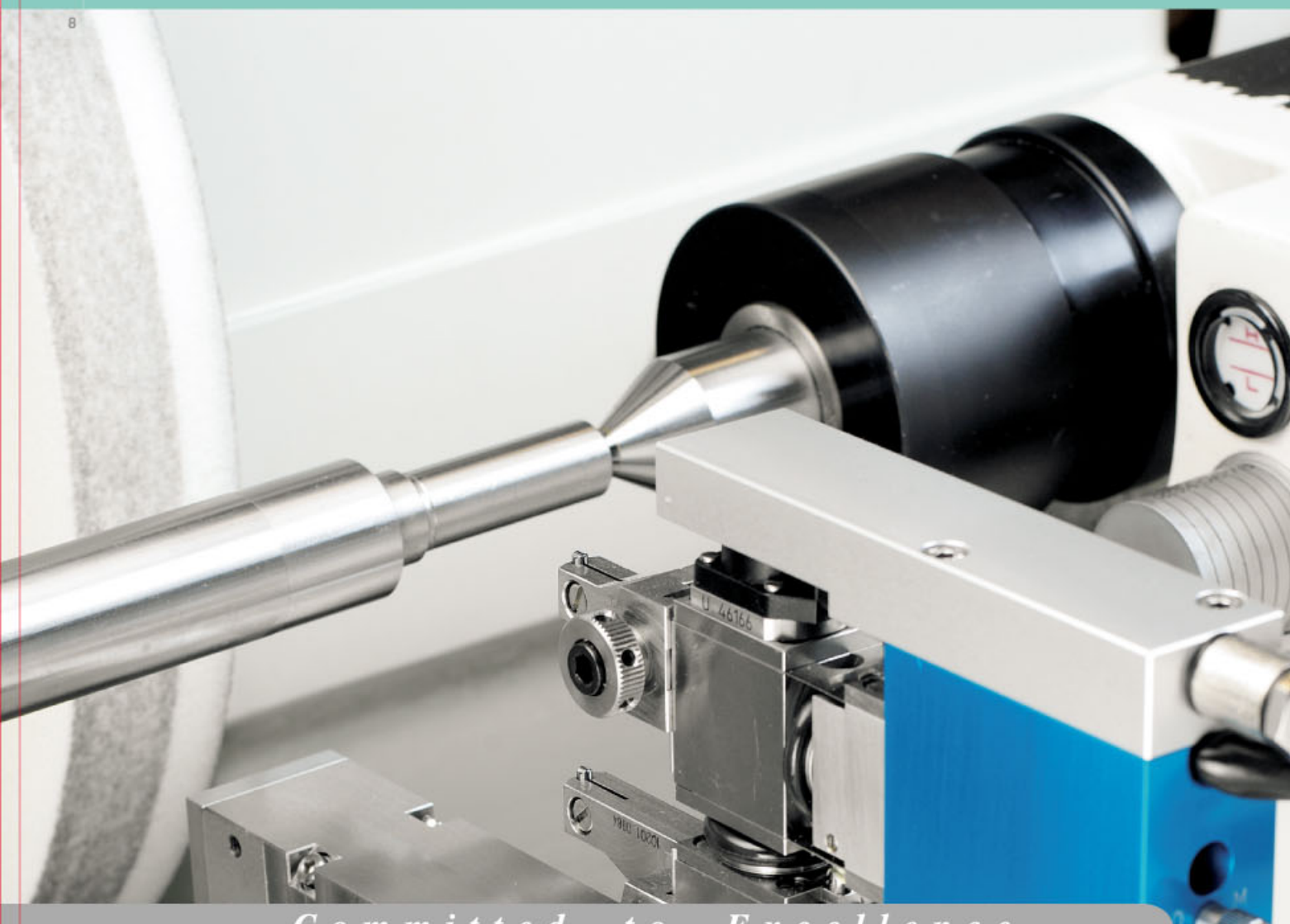
■ OCD-2040

- CNC control.
- Fully enclosed splash guard (optional).
- Swing over table Ø200 mm.
- Distance between centers 400 mm.



■ OCD-3240

- CNC control.
- Fully enclosed splash guard (optional).
- Swing over table Ø320 mm.
- Distance between centers 400 mm.



Committed to Excellence



Massive machine construction combined with through treatment on structural parts is a critical factor to assure lifetime accuracy of a grinder. The **EXIOMAX** series CNC cylindrical grinder is manufactured by an advanced structure design concept and subject to a comprehensive heat treatment. This guarantees consistent accuracy year after year.

- The machine structure is manufactured from high-quality Meehanite cast iron, heat treated and stress relieved for outstanding stability without deformation.
- The lower center of gravity of the bed enormously upgrades machine stability.
- The bed is scientifically rib reinforced for outstanding stability.
- The entire machine structure is ergonomically designed for added operational convenience.
- Slideways are precision ground and scraped.

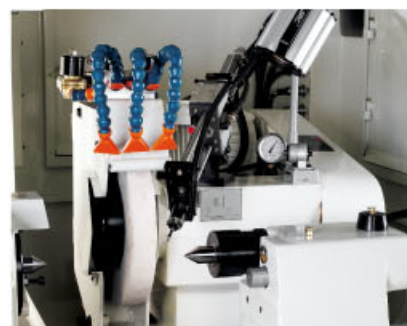
Rigid Spindle Head

- The rigid constructed spindle head employs high precision bearings assuring maximum spindle stability. It guarantees outstanding accuracy for external and internal diameter grinding and face grinding.
- The spindle head on the **EXIOMAX** series cylindrical grinder is driven by servomotor, providing variable speed change.
- The spindle head allows for swiveling positive 90° and negative 30°.

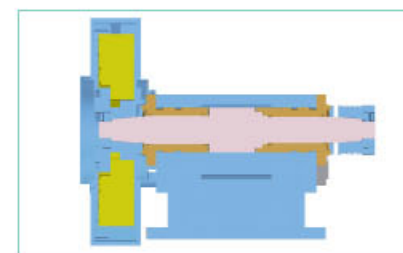


Precision Wheel Spindle

- The grinding wheel spindle is precisely machined from high quality alloy steel (SNCM-220), normalized, tempered, carburized and sub-zero treated, precisely ground and mirror-effect treated. Hardness reaches to over HRC 62°. Non-deformation, maximum wear resistance and lifetime accuracy are assured.



“Based on the company's concept of constant pursuance of "New Lever Performance," PALMARY pioneers competitors in developing the new generation of CNC cylindrical grinder. No matter what in machine appearance or performance, the PALMARY **EXIOMAX** series will let you enjoy its extraordinary value.”

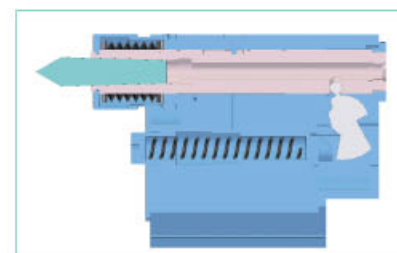


Wheel Spindle with Hydro-static Bearing Absolutely No Metal-to-Metal Contact

- Hybrid Palmary hydro-static Bearings are used for the wheel spindle bearings. Metal-to-metal contact will never occur with these highly rigid bearings which have a damping effect and make 0.5μm the new definition of wheel spindle rotational accuracy.

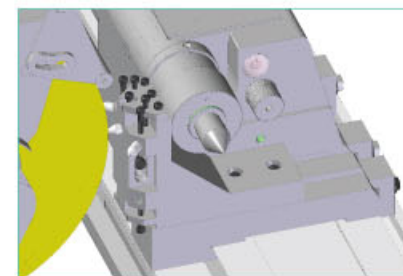
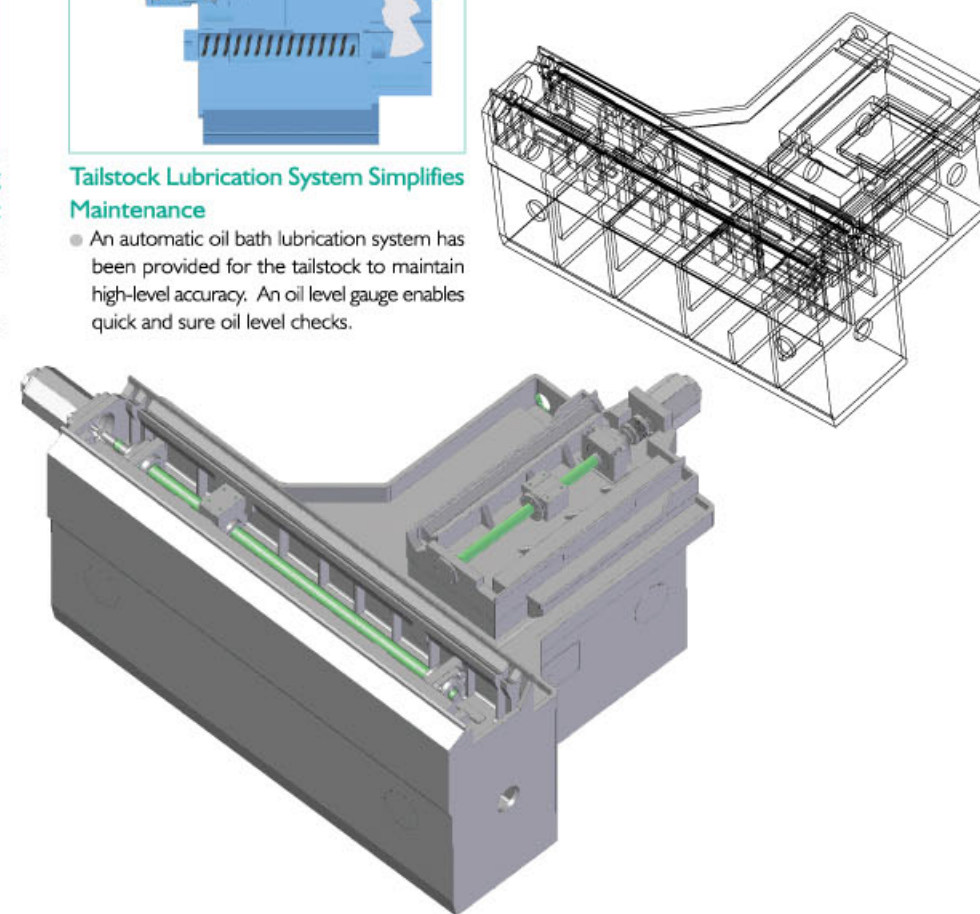
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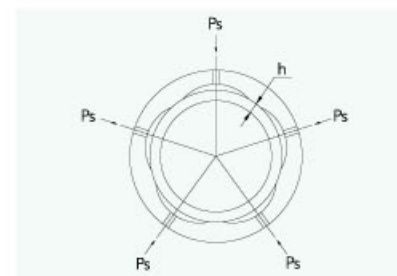
Tailstock Lubrication System Simplifies Maintenance

- An automatic oil bath lubrication system has been provided for the tailstock to maintain high-level accuracy. An oil level gauge enables quick and sure oil level checks.



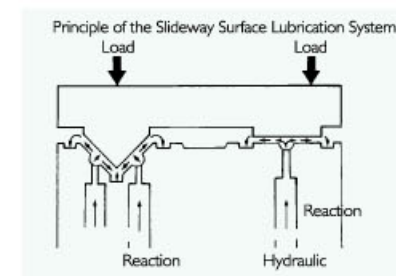
Convenient Wheel Dressing

- The diamond dresser holder is mounted on the traverse table. No diamond dresser position compensation is required after the table has been swiveled.



Special hydro-static Bearing

- The wheel spindle runs by using a special hydro-static bearing and is especially ideal for precision grinding work. It features high speed, no friction between metals, no heat generation, deformation-free, extra high accuracy and continual use.



Advanced Hydro-static Lubrication System

- The slideways of the table and of the wheel head are lubricated by an advanced automatic hydro-static lubrication system. This provides various features such as extremely smooth movement, added feeding accuracy and superior grinding accuracy.

Cycle Patterns Grinding Cycles

Straight Type	Angular Type
1. Plunge Grinding	1. Plunge Grinding
2. Traverse Grinding	2. Traverse Grinding
3. Plunge/Traverse Grinding	3. Plunge/Traverse Grinding
4. Internal Grinding Cycle	4. Shoulder Grinding

Notes:

1. Palmary self-developed function, cycle patterns grinding cycles, makes program editing easier.
2. The optional Crush-Proof / Gap Control device shortens machining time and prevents bumping caused by program errors.
3. Optional Auto. In-process Gauge is ideal for plunge and traverse grinding operations.
4. Multi-step internal grinding can be conducted through program auto grinding control.

Wheel Dressing Cycles

Straight Type	Angular Type
Straight	Rounded Tip Wheel
Form With Curve	

Notes:

1. A tri-direction, single point dresser is standard accessory.
2. A plate-type roller dresser is available as optional.
3. A profile rolling dresser is available as optional.



CNC Control System

- Program Storage 160 M.
- Registered Program
- Program Number Search
- Program Protection
- Background Editing
- Bilingual Display: English / Chinese
- Display of Spindle Speed, T Code, Workpiece Quantity and Processing Time on Screen.
- Actual Speed Display
- External Key Input
- External Message
- I/O Device Control
- MDI Operation
- Reset
- Dry Run
- Single Block
- Program Protection
- Emergency Stop
- Status Display
- Incremental Pulse Coder Interface
- Automatic Coordinates Setting
- Workpiece Coordinates Setting
- Z-axis Simultaneous Controlability
- Least Input Increment - 0.001 mm.
- Least Command Increment - 0.001 mm.
- Rapid Traverse Override - 0, 25, 50, 100
- Automatic Acceleration / Deceleration
- Linear Acceleration / Deceleration After Cutting
- Feed Interpolation
- Feedrate Override 0 to 150%
- Positioning
- Linear Interpolation
- Circular Interpolation
- Reference Position Return
- Reference Position Return Check
- Program Combine
- Special G Code Input
- Programming Input of Offset Data
- Custom Macro B
- Inch / Metric Conversion
- Tool Nose Radius Compensation
- Canned Cycles for Grinding
- X-axis Diameter / Radius Command
- Counter Input of Offset Value
- Radius Designation on Arc
- External Data Input / Output
- Manual Handle Feed - 1 unit
- Manual Handle Feed Rate Adjustable
- Dwell (per sec.)
- High-speed Skip Function
- External Deceleration
- Position Signal Output
- Battery Alarm Output
- Backlash Compensation
- Stored Pitch Error Compensation
- Clock Function
- EIA / ISO Automatic Recognition
- Multi-step Skip
- Miscellaneous Function
- 9" CRT / MDI High-resolution
- Monochrome Screen
- Program Erase Function
- Program Copy Function
- Self-diagnosis Function
- 32 Pairs Tool Offset Memory
- Dressing Compensation
- Tool Geometry/Wear Offset
- Simple Tool Life Management
- Custom Macro



“State-of-the-art Technology - Your Right Choice!
Advanced CNC Control for User-friendly Operation”

CENTRALIZED CONTROL PANEL

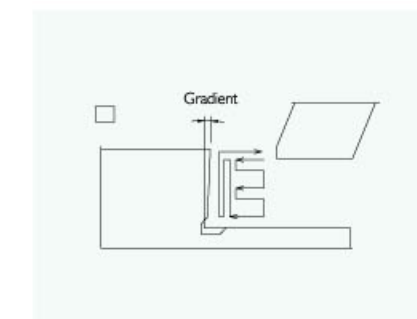
Major Functions:

- Increased operational convenience.
- Three-color alarm light.
- MPG handwheel for easy adjustment.
- Emergency stop button for retracting wheel instantly.
- Colorful graphic display.
- Easy to integrate with other optional functions.



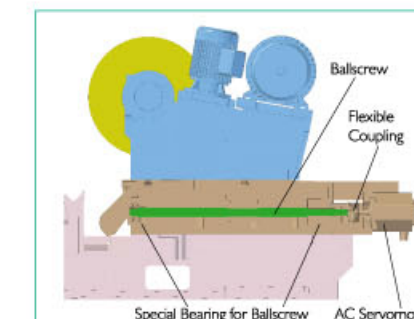
Control Circuit Meets European Standards

- The control circuit consists of high quality electronic components, featuring dependable control performance and long service life.
- The electric cabinet is equipped with a heat exchanger, providing a constant temperature for the control circuit and maximum stability of control performance.
- The electrical cabinet is dust-proof.



High-accuracy Face Grinding Realized by an Angular Wheel

- Less wheel wear on the end face facilitates longitudinal sizing.
- The wheel can be angled and adjusted for contact with the end face. (The table swiveling function is used.)



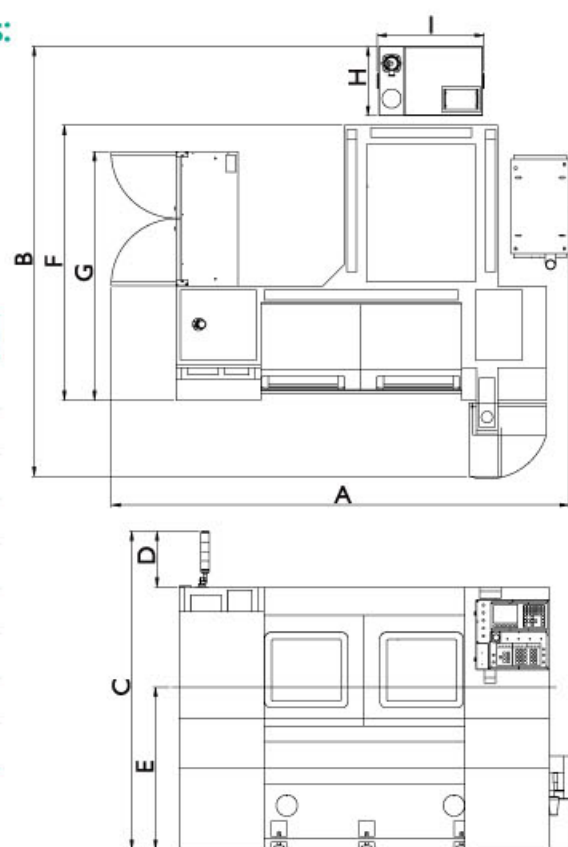
0.1μm Grinding Accuracy

- 0.1μm Grinding Accuracy Specially-designed fine feed allows mirror-effect grinding and end face grinding achieving accuracy of 0.1μm.

Floor Space Occupied and Machine Dimensions:

MODEL	OCD-2040	OCD-3240	OCD-3260	OCD-32100	OCD-32150	OCD-32200
A	2,480mm	3,385mm	3,500mm	3,765mm	6,100mm	7,700mm
B	2,680mm	3,260mm	3,260mm	3,430mm	3,200mm	3,200mm
C	1,880mm	2,300mm	2,300mm	2,300mm	2,300mm	2,300mm
D	400mm	400mm	400mm	400mm	400mm	400mm
E	1,050mm	1,080mm	1,080mm	1,080mm	1,155mm	1,155mm
F	1,580mm	1,960mm	1,960mm	1,960mm	1,960mm	1,960mm
G	1,450mm	1,765mm	1,765mm	1,650mm	1,700mm	1,700mm
H	425mm	700mm	700mm	700mm	700mm	700mm
I	735mm	1,000mm	1,000mm	1,000mm	1,000mm	1,000mm

Remark : Below OCD-42100 (including), E Value: 1130mm.
Over OCD-42150 (including), E Value: 1205mm.



Standard Accessories:



1. Linear Scale (For X Axis)



2. Grinding Wheel and Grinding Wheel Flange x 1 set



5. Carbide Tipped Work Centers x 2 pcs



3. Diamond Tool Holder (Table Mounted Type) x 1 pc



4. Tools and Kits x 1 set



6. Coolant Equipment x 1 set



7. Hydraulic Tank With Oil Cooler x 1 set



8. Work Lamp x 1 set

Optional Accessories:



1. Internal Grinding Attachment



2. Cam Locked Driving Dogs (6 pcs/set)



3. Work Holder (2 pcs/set)



4. 2-point Steady Rest



5. Adjustable 3-point Steady Rest



6. Adjustable 3-jaw Scroll Chuck



7. Adjustable 4-jaw Chuck



8. Magnetic Coolant Separator



9. Magnetic and Paper Filter



10. Automatic Grinding Wheel Balancer



11. Wheel Balancing Stand and Arbor



12. Touch Probe Gauge



13. Auto In-process Gauge



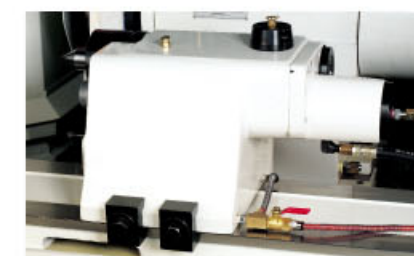
14. Oil Mist Collector



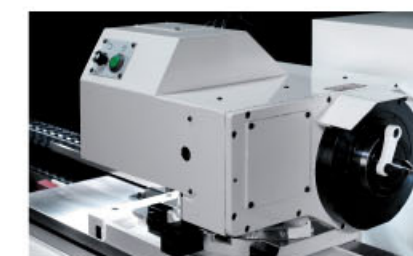
15. Fully Enclosed Splash Guard



16. Spare Grinding Wheel and Grinding Wheel Flange



17. Hydraulic Tailstock

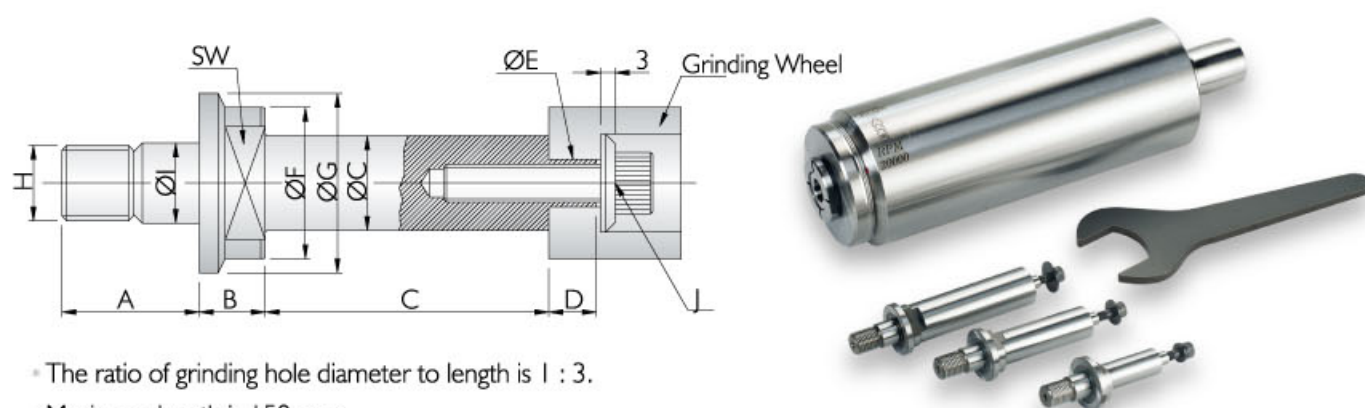


18. Ø80 Spindle Hole

Rotary-type Internal Grinding Attachment (Optional Accessory) by manual control

- Easy to change over from O.D. grinding to I.D. grinding manually. Before you to do I.D. grinding, please dismantle the O.D. grinding wheel first.
- To position the internal grinding attachment, simply turn it downward and fix it in the grinding position.
- Allows for external and internal grinding operations in one process.
- Tapered workpieces can be ground by swiveling on the workhead and table.
- The internal grinding attachment on the OCD-20 series is driven by a 1/2 HP motor.
- The internal grinding attachment on the OCD-32 series is driven by a 1 HP motor.

Internal Grinding Spindle



- The ratio of grinding hole diameter to length is 1 : 3.
- Maximum length is 150 mm.

HOLE DIA.	GREASE TYPE	A	B	C	D	E	F	G	H	I	J	SW
Ø65 ~ Ø150	8,000 rpm	42	16	Ø40 x 100 Ø40 x 85 Ø40 x 55	12	Ø12	Ø50	Ø58	M26 x 2P	Ø28	M8 x 1.25P	41
Ø40 ~ Ø80	10,000 rpm	29	14	Ø30 x 90 Ø25 x 70 Ø20 x 60	10	Ø10	Ø32	Ø38	M16 x 1.5P	Ø17	M8 x 1.25P	24
Ø35 ~ Ø70	15,000 rpm	29	14	Ø30 x 90 Ø25 x 70 Ø20 x 60	10	Ø10	Ø32	Ø38	M16 x 1.5P	Ø17	M8 x 1.25P	24
Ø24 ~ Ø40	20,000 rpm	28	11	Ø24 x 80 Ø20 x 60 Ø16 x 40	8	Ø8	Ø26	Ø32	M14 x 1.5P	Ø15	M6 x 1.0P	19
Ø15 ~ Ø25	30,000 rpm	21	9	Ø16 x 40 Ø13 x 30 Ø10 x 25	6	Ø6	Ø21	Ø26	M10 x 1.5P	Ø10.5	M4 x 0.7P	17
Ø12 ~ Ø16	40,000 rpm	20	8	Ø12 x 35 Ø10 x 30 Ø8 x 25	x	x	Ø18	Ø23	M8 x 1.25P	Ø8.5	M4 x 0.7P	14
Ø9 ~ Ø13	50,000 rpm	18	7	Ø8 x 30 Ø7 x 25 Ø6 x 20	x	x	Ø15	Ø20	M7 x 1P	Ø7.5	M4 x 0.7P	11

Example of Grinding Workpieces



Machine Specifications and Layout

Specification		Model	OCD-2040	OCD-32(42)40	OCD-32(42)60	OCD-32(42)100	OCD-32(42)150	OCD-32(42)200
Swing Over Table			Ø200 mm	Ø320 mm (Ø420 mm)				
Distance Between Centers			400 mm	400 mm	600 mm	1000 mm	1500 mm	2000 mm
Max. Grinding Diameter			Ø180 mm	Ø300 mm (Ø400 mm)				
Max. Load Held Between Centers			60 kgs	100 kgs (150 kgs)				
Wheel	OD x Width x ID	Ø355 x 38 x Ø127 mm	Ø405 x 50~75 x Ø127 (Ø152.4) mm					
	Linear Velocity	30 m/s	30 m/s					
	Speed	2085 RPM	1783 RPM					
Wheelhead	Rapid Feedrate	6 m/min	6 m/min					
	Min. Input Increment	0.001 mm (0.0001 mm)	0.001 mm (0.0001 mm)					
	Internal Grinding	Manual Elevation	Manual Elevation					
Table	Rapid Feedrate	6 m/min	6 m/min					
	Min. Input Increment	0.001 mm (0.0001 mm)	0.001 mm (0.0001 mm)					
	Swiveling Angle	-3°~10°	0°~12°	0°~12°	0~10°	-3°~+8°	-1°~+7°	
Workhead	Swiveling Angle	-30° ~+90°	-30° ~+90°					
	Center	MT. No. 3	MT. No. 4					
	Speed	10-300 rpm	10-300 rpm					
	Max. Load of Spindle (tool holder included)	15 kgs (Max length: 100 mm)	35 kgs (Max length: 150 mm)					
Tailstock	Center	MT. No.3	MT. No.4					
	Tailstock Stroke	20 mm	25 mm					
Power Source	(Fanuc System)	Power: 220 V Cont. Cir: 24 VDC	Power: 220 V Cont. Cir: 24 VDC					
Drive Motors	Wheel Spindle	2.3 kw(4P)	3.75 kw (5.5 kw) (4P)					
	Work Spindle	0.75kw (4P)Freq. Invt.	0.8 kw AC Servomotor		1.3 kw AC Servomotor			
	Wheelhead Feed	0.75 kw (AC Servomotor)	1.2 kw (AC Servomotor)					
	Table Feed	1.2 kw (AC Servomotor)	1.8 kw (AC Servomotor)			2.5 kw (AC Servomotor)		
	Hydraulic Pump	0.37 kw (4P)	0.37 kw (4P)					
	Wheel Spindle Lubricant	0.37 kw (4P)	0.37 kw (4P)					
	Coolant Pump	0.18 kw (2P)	0.18 kw (2P)					
	Internal Grinding Wheel Spindle	0.18 kw (2P)	0.75 kw (2P)					
	Tank Capacities	Wheel Spindle Bearing Lubricant	12 L	18 L				
Lubrication Oil Tank		60 L	60 L					
	Machine Weight	2350 kgs	3300 kgs (3500 kgs)	3600 kgs (3800 kgs)	4300 kgs (4500 kgs)	4800 kgs (5000 kgs)	6000 kgs (6200 kgs)	

* The above specifications are subject to change without prior notice.

Sales Network All Over the World



South Korea	USA
Japan	Mexico
Taiwan	Costa Rica
China	Brazil
(Taiwan)	Colombia
(Hong Kong)	Argentina
Egypt	
Thailand	UK
Malaysia	Germany
Singapore	Italy
Philippines	Switzerland
Vietnam	India
Indonesia	Russia
Sri Lanka	Poland
Turkey	Czech
Pakistan	France
Belgium	Bulgaria
Slovenia	Hungary
	Portugal
	South Africa
	Australia
	New Zealand
	Isreal
	Jordan

Product Range

- | | | |
|---------------------------------|---|--|
| ● Centerless Grinder | ● Precision Universal Cylindrical Grinder | ● NC Internal Grinder |
| ● NC Centerless Grinder | ● NC Universal Cylindrical Grinder | ● CNC Internal Grinder |
| ● CNC Centerless Grinder | ● CNC Universal Cylindrical Grinder | ● Surface Grinder |
| ● High Speed Centerless Grinder | ● CNC Vertical Composite Grinder | ● Automatic Loading / Unloading Device |



EXTomax[®] SERIES

CNC CYLINDRICAL GRINDER



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