PALMARRY

Committed to Excellence

PALMARRY CNC Centerless Grinder
Innovative Design Concepts
Internationally Recognized Performance

With a highly experienced design and manufacturing background in centerless grinders, PALMARRY presents a new series of CNC centerless grinders. It is designed and engineered to offer the operational performance you've come to expect, to go along with an advanced CNC control, featuring easy-to-use operation with maximum control convenience. When you require a machine that will greatly improve production efficiency and generate more profits, PALMARRY's new CNC centerless grinder will fully meet your requirements.

FCL-184
- 4 axis servo drive
- CNC control
- Grinding range (standard) 40 mm to 200 mm
- Grinding wheel diameter 505 x 325 x 63.5 mm

FCL-121
- 1 axis servo drive
- CNC control
- Grinding range (standard) 60 mm to 160 mm
- Grinding wheel diameter 635 x 190 x 63.5 mm

FCL-18123
- 3 axis servo drive
- CNC control
- Grinding range (standard) 32 mm to 162 mm
- Grinding wheel diameter 505 x 325 x 63.5 mm

FCL-18101
- 1 axis servo drive
- CNC control
- Grinding range (standard) 60 mm to 140 mm
- Grinding wheel diameter 635 x 225 x 63.5 mm

PALMARRY FIRMUS Series
Sets a New Performance Standard
Optimal Machine Structure Design.
Maximum Rigidity and Stability.

High Precision.
Deformation-free for Life.

The CNC centerless grinder from PALMARY fully presents high accuracy, high efficiency and user-friendly operational performance.

Rigid Machine Structure
- The machine structure is manufactured from high quality materials and is hard finished to ensure precise and efficient operation.
- Sides that are high frequency hardened and precision ground ensure minimal wear and stability during operation.

Hydraulic Cooling Device
- The hydraulic system is designed to keep the grinding wheel and workpiece at an optimal temperature, ensuring consistent performance.
- The pressure valve allows for precise control of the fluid flow to maintain temperature stability.

Regulating Wheel is driven by AC servo motor
- The regulating wheel is driven by an AC servo motor for precise and efficient operation.

Precision Sideways Smooth Feed
- The precision feed system ensures smooth movement for precise and accurate operation.
- The slide tables are equipped with a positive feed mechanism to ensure consistent and accurate feed rates.

To ensure that each CNC centerless grinder from PALMARY maintains the best possible precision and stability, PALMARY's R&D staff employ the most advanced structural design concepts. They conduct a deep structure analysis for the stress/strain conditions. Outstanding structure reinforcement design is combined with thorough stress relief to ensure that PALMARY's centerless grinders always present the perfect machining condition even after years of operation.
PALMARY CNC Centerless Grinder
State-of-the-Art Manufacturing Technique Quality Guaranteed

"Insisting on quality is a tradition at PALMARY. Each part is subject to rigorous quality control before entering the machine assembly line. Our highly skilled assembly technicians pay special care to every detail during assembly. A good deal of time is spent on dynamic operation tests, conducted before each machine leaves our factory. This is done to ensure that each PALMARY machine offers the perfect operational performance."

CNC Control (ALL SLIDES CONTROLLED BY CNC)
Z Axis: Grinding wheel auto. dressing (vertical), FCL-12/18 0.75 kW
Y Axis: Grinding wheel auto. dressing (horizontal), FCL-12/18 0.75 kW
A Axis: Regulating wheel auto. dressing (vertical), FCL-12/18 0.75 kW
B Axis: Regulating wheel auto. dressing (horizontal), FCL-12/18 0.75 kW
C Axis: Regulating wheel upper slide auto. infeed, FCL-12 1.2 kW, FCL-18 1.8 kW
X Axis: Regulating wheel lower slide auto. infeed, FCL-12 1.2 kW, FCL-18 1.8 kW

Axial Combination:

- Latest digital servo technology
- Easy to operate
- Excellent for efficient grinding applications
- Convenient editing
- Complete software package

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 electric cabinet is dust-proof.
PALMARY Centerless Grinder

Designed for Upgrading your Competitive Edge

The PALMARY Centerless grinder employs advanced CNC control providing powerful functions and is easy to operate. Precision construction throughout guarantees high parts accuracy, its a machine that will boost your production efficiency and competitive edge.
Rigorous Quality Inspection
PALMARY's QC department is fully equipped with comprehensive high precision inspection instruments, providing in-process and final product inspections. These precision instruments enable us to achieve the highest levels of quality. PALMARY's cylindrical grinders are fully satisfied to every customer around the world. This achievement results from our tradition of "insisting on Quality."

Insisting on Quality is a Tradition at PALMARY

Grinding Test Report

- Work sample: Motor shaft
- Grinding wheel: GC100RV
- Peripheral speed: 2,000 M/min
- Workpiece material: SU35KD
- Roundness: 0.6 μm (stock removal 0.15)
- Cylindricity: 2 μm
- Stock Removal:
  - R1st rough: 0.15
  - R2nd fine: 0.025
  - R3rd finish: 0.02
- Feed Speed: 2.6 M/min
- Surface Finish:
  - Ra = 0.19 μm
  - Rz = 0.85 μm

Automation Process

- Work sample: Shaft
- Material: S45C
- Grinding wheel: WANGIL
- Peripheral speed: 2,000 M/min
- Regulating wheel: A1 20R
- Regulating wheel speed: 35 rpm
- Cycle time:
  - Stock removal: 22 sec,
  - 0.05 mm/da, 1 μ
  - 1.5 μ
  - 0.3 Ra
Carbide Blade for Both Thrufeed and Infeed Grinding (Selection Table)

<table>
<thead>
<tr>
<th>Workpiece</th>
<th>Carbide Blade Thickness</th>
<th>Workpiece</th>
<th>Carbide Blade Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 - 2.5 m/m</td>
<td>t=1 mm</td>
<td>8.1 - 10 m/m</td>
<td>t=6 mm for Ø10</td>
</tr>
<tr>
<td>2.6 - 4.0 m/m</td>
<td>t=2 mm</td>
<td>10.1 - 16 m/m</td>
<td>t=8 mm for Ø16</td>
</tr>
<tr>
<td>4.1 - 5.0 m/m</td>
<td>t=3 mm</td>
<td>12 - 20 m/m</td>
<td>t=8 mm for Ø20</td>
</tr>
<tr>
<td>5.1 - 7.0 m/m</td>
<td>t=4 mm</td>
<td>15 - 30 m/m</td>
<td>t=13 mm for Ø30</td>
</tr>
<tr>
<td>7.1 - 8.0 m/m</td>
<td>t=5 mm</td>
<td>25 - 50 m/m</td>
<td>t=20 mm for Ø40</td>
</tr>
</tbody>
</table>

Optional Accessories:

1. Wheel balancing stand and arbor
2. Manual feeder for infeed grinding (up and down)
3. Hydraulic work ejector (infeed grinding)
4. Automatic loading attachment (thrufeed grinding) (Ø5-20 mm, L100-600 mm)
5. Automatic feeder for thrufeed grinding (hopper type) (Ø2-8 mm, L50-180 mm)
6. Automatic unloading attachment (thrufeed grinding)
7. V Type Supporter for long bar grinding (Ø2-14 mm)
8. Magnetic coolant separator
9. Magnetic with paper filter
10. Hydrocyclone coolant separator
11. Auto. loading and unloading attachment (infeed grinding)
12. Vibratory feeder (thrufeed grinding)
13. Large work rest (thrufeed grinding) L: 250 - 500mm

Standard Accessories:

1. Regulating wheel and flange x 1 set (mounted on machine)
2. Grinding wheel and flange x 1 set (mounted on machine)
3. CNC Control x 1 set
4. Infeed work rest x 1 set and carbide blade x 1 pcs
5. Thrufeed work rest x 1 set and carbide blade x 1 pcs
6. Standard coolant system x 1 set
7. Diamond tools x 2 pcs (mounted on machine)
8. Work lamp x 1 set (mounted on machine)
9. Tool box and kits x 1 set