User Manual: OD Lapping Machine

Introduction to OD Lapping Machine:

An OD (Outer Diameter) lapping machine is a precision machining tool used for finishing and polishing the outer surfaces of cylindrical components. It is widely used in industries such as automotive, aerospace, medical, and tool manufacturing to achieve high dimensional accuracy, surface finish, and tight tolerances on cylindrical parts.

The OD lapping machine employs a rotating lapping plate or wheel that is coated with abrasive materials, such as diamond or silicon carbide. The workpiece, held in a fixture or spindle, is pressed against the rotating lapping wheel with a controlled force. As the workpiece and lapping wheel interact, the abrasive action removes material from the outer surface of the workpiece, resulting in a refined and smooth finish.

Key Components of an OD Lapping Machine:

1. Lapping Plate/Wheel: The rotating lapping plate, typically made of cast iron, is coated with abrasive materials. It provides the surface against which the workpiece is lapped.
2. Workpiece Fixture/Spindle: The workpiece is securely held in a fixture or spindle, which allows precise positioning and controlled pressure during the lapping process.
3. Drive Mechanism: The machine is equipped with a motor that drives the rotation of the lapping plate at the desired speed. The motor is usually coupled with a pulley and belt system to transmit the power to the lapping plate.
4. Pressure System: The OD lapping machine includes a pressure system that controls the force applied to the workpiece during lapping. It ensures consistent and uniform pressure distribution for optimal lapping results.
5. Coolant/Lubricant System: Some OD lapping machines incorporate a coolant or lubricant system to enhance the lapping process and control heat generation. Coolant helps to flush away debris and maintain the temperature within acceptable limits.

Benefits and Applications of OD Lapping Machine:

1. Superior Surface Finish: OD lapping machines can achieve extremely fine surface finishes, even on hardened materials. This makes them suitable for applications where precise surface quality is essential, such as sealing surfaces, bearing races, and critical mating parts.
2. Dimensional Accuracy and Tolerance Control: OD lapping machines provide excellent control over dimensional accuracy and tight tolerances. They can remove minimal material to achieve precise diameter, roundness, and concentricity requirements.
3. Versatile Machining: OD lapping machines can be used for a wide range of cylindrical parts, including shafts, sleeves, spindles, valves, and various other precision components.
4. Cost-Effective Solution: Compared to alternative processes like grinding or honing, OD lapping can be a more cost-effective option for achieving high-quality surface finishes and dimensional accuracy.

OD Lapping Machine Do and Don’t

DOs for Operating an OD Lapping Machine:

1. Read the user manual: Familiarize yourself with the specific operating instructions and safety guidelines provided by the manufacturer. Follow the recommended procedures for setup, operation, and maintenance.
2. Wear appropriate protective gear: Always wear safety goggles, gloves, and any other recommended personal protective equipment (PPE) to protect yourself from potential hazards.
3. Check the machine condition: Before starting the machine, inspect it for any damage or loose components. Ensure that all guards and safety devices are in place and functioning correctly.
4. Use proper workpiece fixation: Securely fasten the workpiece in the fixture or spindle to prevent movement during lapping. Ensure that the workpiece is properly aligned with the lapping wheel.
5. Choose the right abrasive material: Select the appropriate abrasive material (such as diamond or silicon carbide) and grit size based on the desired surface finish and the material of the workpiece.
6. Adjust lapping pressure and speed: Set the lapping pressure and speed according to the specifications provided by the manufacturer and the requirements of your workpiece. Make gradual adjustments as needed.
7. Monitor the lapping process: Pay close attention to the lapping operation, ensuring that the workpiece is evenly and consistently contacting the lapping wheel. Observe the progress and make adjustments as necessary.
8. Clean and maintain the machine: Regularly clean the lapping machine, removing any debris or coolant buildup. Perform routine maintenance tasks as recommended by the manufacturer to keep the machine in optimal condition.

DON'Ts for Operating an OD Lapping Machine:

1. Don't operate the machine without proper training: Ensure that only trained and authorized personnel operate the lapping machine. Improper use can lead to accidents or damage to the machine or workpiece.
2. Don't exceed recommended lapping pressures or speeds: Adhere to the specified pressure and speed limits to prevent excessive material removal, damage to the workpiece, or machine malfunction.
3. Don't leave the machine unattended: Always stay near the machine during operation and be ready to respond to any unexpected situations or emergencies.
4. Don't touch rotating parts: Avoid coming into contact with any rotating components, such as the lapping wheel, while the machine is in operation or immediately after turning it off. Wait for all moving parts to come to a complete stop.

5. Don't overload the machine: Follow the machine's capacity limits and avoid overloading it with workpieces that exceed its capabilities. This can lead to poor lapping results, increased wear on the machine, or even machine failure.
6. Don't use damaged or worn-out parts: Inspect and replace any damaged or worn-out parts promptly. Using faulty components can compromise the lapping results, machine performance, and safety.
7. Don't use excessive coolant: Use the appropriate amount of coolant or lubricant as recommended by the manufacturer. Using excessive coolant can create a mess, interfere with lapping accuracy, or affect the performance of the machine.
8. Don't ignore safety precautions: Always follow the safety guidelines provided by the manufacturer, including electrical safety, proper handling of abrasive materials, and safe work practices. Prioritize your safety and the safety of others in the vicinity of the machine.

Remember, these guidelines are general in nature, and it's crucial to consult the specific user manual and safety instructions provided by the manufacturer of your OD lapping machine for detailed and accurate information.

Specifications & Accessories:

1. Overall Size: 900L x 600W x 1100H (in millimetres)
2. Roller Size and Speed: Diameter 150mm, Speed: 101 RPM, Diameter 80mm, Speed: 48 RPM
3. Material of Roller: Cast Iron (CI)
4. Electricity Supply: 415V, 1.09A, 3-Phase Supply
5. Motor: 0.5 HP Cromton Greves Motor, Warranty: 1 year (for 3-Phase Supply), All details can be found on the provided Warranty card.
6. Required Accessories:

   V-Belt and Pulley

   All pulleys and belts are in A section

   Pulley Sizes:

   2.5-13 inches = A43 A1130x (3 Nos.)

   3-4 inches = A26 A696Lp (1 No.)

   2.5-2.5 inches = A24 A646 (2 Nos.)

   2.5-5 inches = A740 A28 (2 Nos.)

   7). Bearings:

   All bearings are from NTN Company

   Bearing Type: P205

One Linear Bearing: LM-20UU (Made in Japan) - Inner diameter: 20mm (Use on handle side)

8) All Fasteners:

Hexagon Head Bolt: M10 x 50mm (with nuts M10) - Use for all bearings

Hexagon Socket Countersunk Head Screw: M8x 30mm - Use for all sheet covers

Hexagon Socket Head Cap Screw Bolt: M8 x 50mm (with nuts M8) - Use for roller bearing side

Hexagon Socket Set Screw with Flat Point Grub Screw: M10 x 30mm - Use for all V pulleys

Please note that this user manual provides the specifications and general information about the OD lapping machine. For detailed operating instructions, safety guidelines, maintenance procedures, and troubleshooting, please refer to the user manual provided by the manufacturer.

Conclusion:

Introducing the revolutionary OD Lapping Machine, designed to meet the highest standards of precision and deliver exceptional surface finishes. In this video, we'll explore the key features and specifications that make this machine a game-changer in the industry

Our OD Lapping Machine is equipped with cutting-edge technology, enabling easy operation and precise control.

One of the standout features of our machine is the use of top-grade roller material. We have carefully chosen a high-quality material that ensures durability and longevity, making it a worthy investment for your business.

Our rollers have been designed to deliver exceptional grinding performance. With their precise dimensions and superior surface finish, they guarantee accurate and consistent results, even for the most demanding applications.

Flexibility is key when it comes to lapping different workpieces. Our machine features an adjustable roller gap mechanism, allowing you to fine-tune the spacing between the two rollers. This ensures optimal lapping performance for various materials and thicknesses.

We understand the importance of a peaceful working environment. Our OD Lapping Machine has been engineered to produce minimal noise, providing a tranquil workspace and reducing operator fatigue.

With the OD Lapping Machine, achieving an impeccable surface finish is no longer a challenge. Our advanced technology allows for a finishing tolerance of up to 0.0008mm, ensuring remarkable precision and quality in every lapped part.

In summary, our OD Lapping Machine sets a new standard in precision lapping. With its high-quality roller material, adjustable roller gap, low noise levels, and exceptional finishing capabilities, it's the

ideal choice for industries that demand the best. Invest in our OD Lapping Machine and experience the pinnacle of lapping performance.

Contact Detail’s

Contact us today to learn more and discover how our OD Lapping Machine can transform your manufacturing processes.

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