Operation Manual

Models: EHD-765, 750, 735, 728, 716
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1. **Before Starting to Use the sPINner**

A. Before powering on the sPINner Magnetic Deburring Machine, thoroughly read this operation manual and familiarize yourself with all operations.

B. Make sure the power voltage is correct before plugging the machine in.

C. Keep a 4” clearance to the wall. Operate in a cool, well-ventilated area.

D. Prevent deburring solution from spilling into the well of the machine. Clean the well and keep it dry immediately after spilling to prevent damage to the machine.

E. A powerful magnetic field exists at the bottom of the well. Keep the machine clear of any strong magnetic fields.

F. Do not move the machine while operating.

G. Keep articles such as credit cards, watches, cellular phones, etc. which are prone to interference from magnetic fields away from the machine to avoid possible damage.

H. The temperature of the deburring solution rises during operation and may rise to 90°C (194°F) during continuous use. Handle with care to avoid injury.

I. The media is small and sharp. Handle with care to avoid injury.

J. Do not dismantle or remodel this machine. The manufacturer will accept no responsibility for injury or machine failure resulting from dismantling of remodeling the machine.

K. Operate with proper safety precautions (goggles, rubber gloves, etc.)

2. **Functions**

This Magnetic Deburring machine is excellent for high precision grinding including deburring, chamfering, and polishing on products made of non-ferrous metal, light metal, and some ferrous materials.

3. **Features & Applications**

A. Excellent for deburring and chamfering.

B. Great for irregular parts, internal holes, blind angles, and clearance, etc.

C. No deformation of parts, no surface damage, no effect on accuracy of parts.

D. Works well on internal tubular surfaces or high precision parts with no deformation.

E. Long life cycle of media. Typical applications can result in 3-5 years of use.

F. Easy to use. The workpieces can be removed without interruption of the machine.
Other Applications Include:

- Surface polishing
- Internal deburring
- Pre-electroplating processing
- Oxidized film cleaning
- Removing Heat Treat Scaling
- Removing rust

4. Principle of sPINner

The magnetized medium (stainless steel pins), the workpieces and the polishing fluid are put together in a container placed in the well of the machine. A powerful moving magnetic field is generated when powering on the machine. The result excites the media and causes the media to bounce off the workpieces to achieve deburring.

5. Operation

A. Put the magnetic media (stainless steel pins) in the container. The quantity of pins should be:
   - EHD-716: ½Kg
   - EHD-728: 1Kg
   - EHD-735: 3Kg’s
   - EHD-750: 4Kg’s
   - EHD-765: 6Kg’s

B. Place a single layer of parts in the bottom of the container so they do not overlap.

C. Add enough water to just cover the parts. Add deburring solution to create a 50:1 water to solution. (Add more solution for brighter, shiny parts)

D. Place the lid on the container and place the container in the well of the machine.

E. Enter the cycle times in the digital timers on the control panel. (Note: cycle time, media size, and parts quantity will depend on the specific application.)

F. Press the green, start cycle button on the control panel.

G. Adjust the spin frequency with the spin frequency control knob on the control panel.

6. Comments

A. Cycle times can vary between 2-30 minutes depending on the effect needed on the parts.

B. Demagnetizing ferrous materials: If the container is removed while the magnetic disc is rotating, the contents of the container will be demagnetized. We are simply changing the magnetic polls rapidly.
7. Parts and Media Separation Procedure

A. Slowly pour off the water and solution leaving the parts and media. (Dispose of the fluid in a method consistent with regulations and company policy.) Avoid letting the media fall into your water disposal area. Now you are ready to place the media and parts into the separation container. Place the lid on the separation container.

B. Place the separation container in the well of the machine.

C. Turn the spin frequency to about 1/2 power. Turn on the machine for about 10 seconds.

D. Lift the separation container out of the well of the machine.

E. Stop the machine. The parts should be trapped in the top of the separation container. The pins will be pulled through the separation container to the bottom. (Do this until media and parts are fully separated.)

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Note: Some pins may remain in the top of the Separation Container. Remove the parts and reclaim the pins for reuse. Also, some pins may fall off the parts after separation. Use the magnetic syringe to reclaim these pins for reuse.

The handling of work after deburring, such as rinsing and rust proofing, etc, should be subject to your normal procedures.

Cleaning the Media:

Occasionally the media will need cleaned to insure the best possible results on the parts being processed. To clean the media simply run a 10-minute cycle with only the media, water and PFS-747 deburring compound mixed to 25:1 with the water. The action of the pins on themselves with the soap solution will clean the media. Rinse the media when complete and repeat if necessary.

8. Deburring Solution (PFS-747)

The fluid is restricted for use with the magnetic deburring machine. No other purpose is allowed.

The fluid is concentrated and therefore different than the cleaning mixture ratio. Dilute in water 50:1.

Caution: Do not eat/drink the fluid. If the fluid is accidentally consumed, drink large amounts of water and seek medical attention.

Caution: The temperature of the fluid in the container rises during operation. Temperatures may approach 90º C after continuous operation.
9. Control Panel for EHD-765 (configuration may vary)

1. POWER SOURCE: When turning power to ON position, the power is connected and the power indicator is illuminated.

2. START SWITCH: Press start switch to begin a cycle.

3. STOP SWITCH: Press the stop switch to end a cycle.

4. TIMER #1: The unit of time is in minutes. Press the timer buttons for the desired time. (Ex. A value of 15 will run for 15 minutes in this direction). The number shown in the upper part is the completed time while running.

5. TIMER #2: Setting instructions are the same for TIMER #1.

   Timer preset and performance: After starting, TIMER #2 will first spin in a counter-clockwise direction. Timer stops when the preset time is reached and will automatically switch to TIMER #1. The magnets will rotate in a clockwise direction until the preset time is reached.

   Total cycle time is the sum of both TIMER #1 and TIMER #2. After a cycle, the lamp will illuminate for 3 minutes.

   If a single direction of spin is desired, set the timer in the direction of spin desired to the appropriate time, set the other timer to “0”.

6. SPEED ADJUST: This knob controls the spin speed of the magnets. Turning the knob in a clockwise direction increases the spin speed, counter-clockwise decreases speed. A faster spin rate makes a more powerful deburring action.

7. SPEED DISPLAY: This displays the speed of the magnets via 10 lamps, dividing the speed into percentages from 20-100%.

8/9. L/R/ FUNCTION: These two switches control rotation direction for each timer.

10/11. FINISH ALARM: When a cycle is complete, the lamp will illuminate for 3 minutes. If the switch (10) is ON, an end cycle buzzer will sound. To stop the lamp and/or the buzzer, press the STOP button (3).

12. FREQ, HZ DISPLAY: This displays the frequency in Hz of the rotation of the magnets. When the frequency is higher the speed is faster. 60 Hz is the maximum setting.

   This display can also show some fault settings in the event of machine malfunction.

   Other buttons on this display are for programming machine performance parameters. Please do not press these buttons.
10. Control Panel for EHD-750

1. **POWER SOURCE**: When turning power to ON position, the power is connected and the power indicator is illuminated.

2. **START SWITCH**: Press start switch to begin a cycle.

3. **STOP SWITCH**: Press the stop switch to end a cycle.

4. **TIMER #1**: The unit of time is in minutes. Press the timer buttons for the desired time. (Ex. A value of 15 will run for 15 minutes in this direction). The number shown in the upper part is the completed time while running.

5. **TIMER #2**: Setting instructions are the same for TIMER #1.

   **Timer preset and performance**: After starting, TIMER #2 will first spin in a counter-clockwise direction. The timer stops when the preset time is reached and will automatically switch to TIMER #1. The magnets will rotate in a clockwise direction until the preset time is reached.

   Total cycle time is the sum of both TIMER #1 and TIMER #2. After a cycle, the lamp will illuminate for 3 minutes.

   If a single direction of spin is desired, set the timer in the direction of spin desired to the appropriate time, set the other timer to “0”.

6. **SPEED ADJUST**: This knob controls the spin speed of the magnets. Turning the knob in a clockwise direction increases the spin speed, counter-clockwise decreases speed. A faster spin rate makes a more powerful deburring action.

7. **SPEED DISPLAY**: This display the speed of the magnets via 10 lamps, dividing the speed into percentages from 20-100%.

8/9. **FINISH ALARM**: When a cycle is complete, the lamp will light for 3 minutes. If the switch (8) is ON, an end cycle buzzer (9) will sound.

   To stop the lamp and/or the buzzer, press the STOP button.

10. **L/R/ FUNCTION**: These two switches control rotation direction for each timer.

11. **FREQ, HZ DISPLAY**: This displays the frequency in Hz of the rotation of the magnets. When the frequency is higher the speed is faster. 60 Hz is the maximum setting.

   This display can also show some fault settings in the event of machine malfunction.

   Other buttons on this display are for programming machine performance parameters. Please do not press these buttons.
11. Control Panel for EHD-735

1. Power Source: When turning power to ON position, the power is connected and the power indicator is illuminated.

2. Start Switch: Press start switch to begin a cycle.

3. Stop Switch: Press the stop switch to end a cycle.

4. TIMER #1: The unit of time is in minutes. Press the timer buttons for the desired time.
   (Ex. A value of 15 will run for 15 minutes in this direction). The number shown in the upper part is the completed time while running.

5. TIMER #2: Setting instructions are the same for TIMER #1.

   **Timer preset and performance:** After starting, TIMER #2 will first spin in a counter-clockwise direction. Timer stops when the preset time is reached and will automatically switch to TIMER #1. The magnets will rotate in a clockwise direction until the preset time is reached.

   Total cycle time is the sum of both TIMER #1 and TIMER #2. After a cycle, the lamp will illuminate for 3 minutes.

   If a single direction of spin is desired, set the timer in the direction of spin desired to the appropriate time, set the other timer to “0”.

6. SPEED ADJUST: This knob controls the spin speed of the magnets. Turning the knob in a clockwise direction increases the spin speed, counter-clockwise decreases speed. A faster spin rate makes a more powerful deburring action.

7. L/R/ FUNCTION: This switch controls rotation direction for each timer.

8. FREQ, HZ DISPLAY: This displays the frequency in Hz of the rotation of the magnets. When the frequency is higher the speed is faster. 60 Hz is the maximum setting.

   This display can also show some fault settings in the event of machine malfunction.

   Other buttons on this display are for programming machine performance parameters. Please do not press these buttons.
12. Control Panel for EHD-728

1. Power Source: When turning power to ON position, the power is connected and the power indicator is illuminated.

2. Start Switch: Press start switch to begin a cycle.

3. Stop Switch: Press the stop switch to end a cycle.

4. TIMER #1: The unit of this timer is minutes. Press the timer buttons for the desired time. (Ex. A value of 15 will run for 15 minutes in the direction set by switch 7). The number shown in the upper part is the completed time while running.

5. TIMER #2: This timer is preset to the Reverse (counter-clockwise) direction. Setting instructions are the same for the TIMER #1.

   Timer preset and performance order are below: After starting the REV TIMER will first operate to spin in a counter-clockwise direction. Timer stops when the preset time is reached and will automatically switch to TIMER #1. The magnets will rotate in a clockwise direction until the preset time is reached.

   Total cycle time is the sum of both the TIMER #2 and TIMER #1. After a cycle, the lamp will illuminate for 3 minutes.

   If a single direction of spin is desired, set the timer in the direction of spin desired to the appropriate time, set the other timer to “0”.

6. FREQ, HZ DISPLAY: This displays the frequency in Hz of the rotation of the magnets. When the frequency is higher the speed is faster. 60 Hz is the maximum setting.

   This display can also show some fault settings in the event of machine malfunction.

   Other buttons on this display are for programming machine performance parameters. Please do not press these buttons.

7. L/R/ FUNCTION: This switch controls rotation direction for each timer.

8. FREQ, HZ DISPLAY: This displays the frequency in Hz of the rotation of the magnets. When the frequency is higher the speed is faster. 60 Hz is the maximum setting.

   This display can also show some fault settings in the event of machine malfunction.

   Other buttons on this display are for programming machine performance parameters. Please do not press these buttons
13. Control Panel for EHD-716

1. Power Source (Start & Stop Switch): When the power is ON, the power is connected.

2. 60 Minute Timer: Turn this knob to select the cycle time. Turning the knob to the right increases the cycle time. When a cycle is complete a tone will sound and the machine will stop.

14. Troubleshooting and Fault Information for EHD-765, 750, 735, & 728

The AC motor drive has a comprehensive fault diagnosis system that includes more than 20 different alarms and fault messages. Once a fault is detected, the corresponding protective functions will be activated to shut down the AC motor drive output. The different AC motor drive failures may be classified as follows:

- Over Voltage/Lower Voltage
- Heat-sink Over Temperature
- Motor Overload
- AC Motor Drive Overload
- Motor Stalled
- Microprocessor System Failure

15. Power Requirements

- EHD-765: 208-240V 3-Phase / 30A
- EHD-750: 220V Single Phase / 15A
- EHD-735: 220V Single Phase / 10A
- EHD-728: 220V Single Phase / 5A
- EHD-716/715: 110V / 3A

Please note: the machine should be placed on a dedicated circuit and be protected with a surge protector to insure maximum protection for the machine. Failure to place the machines on a dedicated circuit will void the warranty as power fluctuations from other equipment can cause malfunction or damage to the machine.

16. Service Information

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