1. Product features:
- Power supply of AC90~240V at 50/60Hz.
- High-efficiency microprocessor, with more flexible and user-friendly functions.
- Regulated power supply for low power consumption and over-heating.
- Overload protective circuitry and load indicator incorporated to enable safe and continuous usage.
- Ultrasonic function, DC rotary and DC brushless rotary functions incorporated and one single unit.
- High torque and high power output for DC and DC brushless motor output.

Specification:

<table>
<thead>
<tr>
<th>Power supply</th>
<th>AC90~240V 50/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. power consumption</td>
<td>300 Watts</td>
</tr>
<tr>
<td>Ultrasonic frequency range</td>
<td>18-50 kHz</td>
</tr>
<tr>
<td>Adjustment of ultrasonic output</td>
<td>Constant waves</td>
</tr>
<tr>
<td>Ultrasonic amplitude</td>
<td>40 +/- 10</td>
</tr>
<tr>
<td>Method of frequency adjustment</td>
<td>Auto-tracking</td>
</tr>
<tr>
<td>Inhibition detection &amp; protective circuit</td>
<td>Yes</td>
</tr>
<tr>
<td>Output of DC rotary tool</td>
<td>153V DC, continuous adjustment</td>
</tr>
<tr>
<td>Output brushless DC rotary tool</td>
<td>1.000~5.000+ p.m., continuous adjustment</td>
</tr>
<tr>
<td>DC brush output power</td>
<td>Max. 100 Watts</td>
</tr>
<tr>
<td>DC brushless output power</td>
<td>Max. 250 Watts</td>
</tr>
<tr>
<td>Overload protection circuit</td>
<td>Yes</td>
</tr>
<tr>
<td>Load indicator</td>
<td>S 200mm loading type</td>
</tr>
<tr>
<td>Dimensions</td>
<td>W170 x D214 x H40 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>2.5 Kg</td>
</tr>
</tbody>
</table>

3. Usage

5-1 Ultrasonic lapping tools
1. Please confirm the voltage before connecting the power supply.
2. Install a correct holder or tool onto the Ultrasonic handpiece. (Please use the tool changing rack to avoid damage.)
3. Insert the hand-piece plug into the socket 1 on both handpiece and main unit.
4. Turn on the power switch 2. The power indicator lamp 3 will light up, push button 6 to output speed indicator lamp 5, which shows it is tracing the correct frequency. In about 3 seconds, the output speed indicator lamp will stop blinking and indicate min. level, and it is now ready to use.
5. Adjust the output power. During usage, the output power can be adjusted by turning the Output speed and power adjusting knob. 6
6. Tools and clamp horns must be securely fastened; otherwise full power will not be utilized. And the power pack cannot adjust to the correct frequency.
7. If the tool is not securely fastened and/or the clamp horn fully clamped a high pitched noise will be emitted. Please secure all joints. If the noise persists replace the tool clamp horn, switch power off and restart to activate the automatic frequency adjustment.

3.2 DC rotary tools
1. The 3N1 power pac is intended for D.C.90V micro motor hand piece.
2. Please turn off the power before using the rotary tools.
3. Connect the rotary tool to the jack 1 on the main unit, and install the proper polishing tool.
4. Turn on the power of the main unit 2, and the main unit will enter the last user's mode. Please press the Function selector button to switch to DC rotary mode.
5. Push the DC rotary function and output button 3 then the DC rotary hand-piece will start running. Adjust to the required speed.
6. When the tool is rotating, the load indicator 7 starts functioning, keep load below the red LED level.
7. When using the foot switch keep depressed to maintain rotation.
8. Change in rotation is achieved by depressing the forward/reverse selector button 8.
9. Switch the function off to change tools.
10. In case of abnormal load. The overload function will switch the tool off and indicate in, which case the power switch should be switched off and on again to recommence operation.
11. When there is a machine failure, do not attempt to disassemble the unit. Please contact your supplier for repair.

3.3 Brushless DC rotary tools
1. Please turn off the power before using the brushless DC rotary hand-piece.
2. Connect the hand-piece to the jack 2 on the main unit, and install the proper polishing tool.
3. Turn on the power of the main unit, and the main unit will enter to last user's mode. Please press the button 4 function and output switch to brushless DC rotary mode.
4. Adjust to the required speed by knob 5.
5. When the tool is rotating, the Load indicator 7 will indicate the tool loading. To protect your hand piece please do not operate over the red light level.
6. When using foot switch, keep depressing it to produce output.
7. To change between forward and reverse rotations, it is possible to press the Forward/reverse selector button 6 during use.
8. Please turn off the power before changing tools, to avoid accidents.
9. In case of abnormal use or overload, the overload protection will cut off the output and the function indicators lamp will blink. Please turn the power switch on and off again to restart.
10. If there is a machine failure, do not attempt to disassemble the unit. Please contact your supplier for repair.

3.4 Foot switch
[ON/OFF-type foot switch]
1. This switch can be plugged in any time during use, when using the foot switch, keep depressing it to produce output.
2. The output (speed) indicator lamp 8 will blink after the foot switch is connected, but will light up at the level set by the knob after the foot switch is released.

3.5 Other notices
1. It is necessary to turn off the power before changing lapping and polishing tools each time.
2. Use only correct tools (Ultrasonic tool changing rack and wrenches) when changing tools to avoid damage.
3. On the ultrasonic function please switch the Power off & on to allow the unit to adjust to the correct frequency.
4. Ensure your 3nt equipment is protected from impact, moisture or corrosive materials.

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