Power Hand 2X controllers and handpieces combine to create the most versatile finishing system in the industry, offering rotary, profiling and belt sanding action.

Power Hand 2X component selection:
- Three controllers
- Six straight (four standard, two slimline) and two angle rotaries
- Two reciprocating profilers
- One side-to-side profiler
- One belt sander
- One 4:1 reduction gear
- Separate motors and handpiece heads
Introduction

The Gesswein Dual Controller is a compact variable-speed power pack that can run any two of the Power Hand 2X rotary, reciprocating or belt sanding handpieces simultaneously. Backed by a full one-year warranty.

Two output stations on the Dual Controller are provided so that two operators can each use a handpiece at the same time. If just one operator is using the Dual Controller, the two output stations are a convenience for finishing operations requiring more than one handpiece.

These two stations further ensure optimum speed and torque for each of the handpieces. Handpiece speed control is provided by either of the individual manual slide rheostats on the Dual Controller or by optional foot rheostats. Rotation selectors on each output station allow the operator(s) to select the required direction of rotation.

Each of the two output stations on the Gesswein Dual Controller is equipped with a positive motor overload cutoff switch that delivers maximum energy output to Power Hand 2X handpieces while providing motor protection. In addition, the Dual Controller has a built-in thermal sensor for circuitry protection.

The Gesswein Power Hand 2X handpiece series consists of nine models and eleven head assemblies with maximum operating speeds ranging from 8,000 to 55,000rpm and 0 to 117 strokes per second. All models are identified by their names, which are engraved on the motor housings.

Electronic Feedback Circuitry

Built into the Gesswein Dual Controller, Electronic Feedback Circuitry senses handpiece load and maintains constant speed. As load increases on the handpiece, more current is sent to the motor armature to maintain torque (power) and speed (RPM) according to the setting on the rheostat.

Carrying Handle and Handpiece Rest

As a convenience to the operator, the Dual Controller sits at an angle for improved viewing of the control functions. The Dual Controller also has an attached carrying handle (15) located on top of the unit. The handle is provided for ease in moving the controller. On the top-front of the Dual Controller is a rubber-covered anti-slip Handpiece Holder (16) designed to hold one extra handpiece when not in use.

Fuse

The Gesswein Dual Controller uses a 2A fuse in the 115V AC model and a 1A fuse in the 230V AC model. The Fuse Holder is located on the back panel. To replace the fuse, remove the holder with a Phillips head screwdriver as illustrated below.

6. Precautions

The internal circuitry of the Dual Controller is cooled by natural convection through ventilation grills located on top and bottom of the unit. To prevent overheating and possible damage, do not obstruct or cover these ventilation grills. Always disengage from power outlet by plug, not cord. Unplug unit when not in use for long periods of time.
5. Controller Features and Safety Devices

Rotation Switch
The Forward-Reverse Selector Switch (7) for each station is located on the front panel of the Dual Controller. If you wish to change the direction of handpiece rotation, push the Rotation Switch to the UP position for forward rotation or DOWN for reverse rotation.

It is not necessary to either turn power off or slow handpiece speed when changing rotation direction since the controller has an automatic current limitation feature that brings handpiece speeds to zero before turning in the opposite direction. This feature eliminates the current arcing that can damage motor armatures. As a reminder of which rotation direction has been chosen, indicator lights will turn red.

Overload Reset Button
An overload cutoff switch is built into the Gesswein Dual Controller and is designed to prevent overloading of the Power Hand 2X Handpiece DC drive motors. A circuit breaker will shut off current to the motor and the motor will stop under one of three conditions:

A. The rotor is in a locked condition (this happens when the power switch is turned ON but the handpiece collet release mechanism is positioned in the Release direction);
B. The collet release moves during handpiece operation;
C. The motor overloads.

In all cases, the overload condition will be indicated by the red illumination of the Overload Indicator Light (11) below the Overload Reset Button (10). To restart a handpiece motor, depress the Overload Reset Button.

Thermal Protection Sensor
The internal circuitry is cooled by natural convection through ventilation grills located on the top and bottom of the unit. The Gesswein Dual Controller is protected from overheating damage by a Thermal Protection Sensor. This safety device acts to shut the power off temporarily under one of two conditions:

A. The handpiece overloads;
B. The electronic circuitry of the controller overheats.

If the Thermal Sensor activates, it shuts the power off automatically. When this occurs, turn OFF the Power Switch on the controller and allow it to cool for approximately 10 minutes. Current flow will automatically begin after this short interval. The unit can then be turned on, and normal operation can be resumed.

1. Accessories

Included Accessories
A. Two 2A Fuses with 115V model; Two 1A Fuses with 230V model.

Optional Accessories
A. Variable-Speed Foot Rheostat (#510-3100)
B. On/Off Foot Switch (#510-3105)
C. Handpiece Extension Cord (#510-1120): adds 1.5 meters (6 feet) to the 1.7-meter rotary handpiece cord
D. Handpiece Cradle Rest (#510-1130): provides a safe holding place for the rotary handpiece when not in use

2. Specifications

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<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Voltage</td>
<td>115V (#510-2100) or 230V (#510-2110) AC</td>
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<tr>
<td>Input Voltage Frequency</td>
<td>50/60Hz</td>
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<tr>
<td>Rated Power</td>
<td>60V AC</td>
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<tr>
<td>Output Voltage</td>
<td>3-30V DC (continuously variable)</td>
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<tr>
<td>Fuse</td>
<td>2A (115V) 1A (230V)</td>
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Dimensions:

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<tr>
<td>Depth</td>
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<tr>
<td>Height</td>
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<tr>
<td>Weight</td>
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4. General Description of Use

**Function**

Electric power to the Gesswein Power Hand 2X Dual Controller is supplied from a 115V or 230V AC source. The Dual Controller converts alternating current to direct current (3-30V DC) and automatically supplies the necessary power to the electric handpiece motors according to the speed setting and station selected.

Since the Dual Controller is specifically designed to function with 30V DC Power Hand 2X handpieces, it cannot be used with 20V DC Power Hand handpieces or other makes of handpieces.

**Commissioning**

A. Select a Power Hand 2X Handpiece and connect to Output Socket Station 1 or 2.

B. Set the Forward-Reverse Rotation Selector Switch (7) to the desired direction of handpiece rotation. Move the switch to the UP position for forward rotation and to the DOWN position for reverse rotation. Indicator lights will turn on to indicate the rotation direction chosen.

C. Check to ensure correct single-phase voltage available is the same as that marked on the Specification Plate located on the back of the Controller. Connect the Controller Power Cable (20) to electrical supply and push On/Off Switch (1) up toward the pilot light. This is the Dual Controller ON position and is indicated by illumination of the On/Off Pilot Light (2).

With the power ON, activate Station 1, Station 2 or both by pushing the Station On/Off Switch (3 or 5) up toward the Station Pilot Light (4 or 6), which will turn on. Providing the equipment has been connected as directed, your Power Hand 2X Handpiece is ready to operate.

D. To control handpiece speed manually, ensure the Manual/Foot Rheostat Selector Switch (8) is in the UP position, otherwise the Manual Slide Rheostat (12) will not operate. Select desired speed by moving the rheostat from 0-10.

E. To control handpiece speed by foot, plug the Variable-Speed Foot Rheostat or On/Off Foot Switch into Station 1 (17) or Station 2 (18) located on the back of the unit. Move the Manual/Foot Rheostat Selector Switch (8) to the DOWN position. The speed of your Power Hand 2X Handpiece may now be controlled by varying the position of the Foot Rheostat.

Note: To revert to manual control, the Manual/Foot Rheostat Selector Switch must be moved back to the UP position.