

# ENSET<sup>®</sup>

## PNEUMATIC SYSTEMS



## User Manual

EnSet<sup>®</sup> Plus

EnSet<sup>®</sup> Original

EnSet<sup>®</sup> Compact

# GRABO<sup>®</sup>UTIL

ENGRAVING & STONE SETTING SOLUTIONS

**ORIGINAL ENGLISH VERSION: OTHER LANGUAGES AVAILABLE HERE**



**Mandatory**

**Read his manual entirely before connecting to power.**

Damage not covered by the warranty may result from not following the instructions and maintenance in this manual.



**Caution**

This engraving system requires clean, dry, oil-free air. An oil-free compressor is recommended for use with this system. For any oil-type compressors, an oil-removal filter (coalescing type) in the air supply line to this engraving system **must be installed and in use.**



**Caution**

Oil or water contamination is not covered by warranty.

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# I IDENTIFICATION

## I.1 Document

Type: User Manual

Language: English / EN (original version)

## I.2 Version Management

| Revision   | Date       | Author | Description               |
|------------|------------|--------|---------------------------|
| Version 03 | 15.10.2018 | PCA    | Update 2nd and 3rd pages. |

## I.3 Brand owner

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## I.5 Product

### ENSET<sup>®</sup> PNEUMATIC ENGRAVING SYSTEMS

**EnSet<sup>®</sup> Plus**  
ref. PCS-800100



**EnSet<sup>®</sup> Original**  
ref. PCS-800000



**EnSet<sup>®</sup> Compact**  
ref. PCS-800200



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# 1 GENERAL POINTS

## 1.1 General Info

The content of this document is based on the information available at the time of publication.

GRABOUTIL SL pursue a policy of continuous development. Consequently, we reserve the right to modify or improve without notice any product featured in this manual. Moreover, GRABOUTIL SL do not accept liability for any errors in this document.

The original version of the document was written in English.

The information contained within this document is the property of GRABOUTIL SL. It has been compiled solely for internal use by the end customer, to the exclusion of any other usage; copying this information or sending it to a third party is prohibited.

## 1.2 Appropriate Use

The instructions in this manual must be observed, particularly the safety instructions.



Mandatory

**Read this manual entirely before connecting to power.**

Damage not covered by the warranty may result from not following the instructions and maintenance in this manual.

---

## 1.3 Aims of the Documentation

The documentation supplies information necessary for the appropriate use of the machine. It informs the user so that the operation or maintenance procedures can be performed effectively.

For security and environmental protection reasons, it is vital to follow the safety instructions contained in the documentation.

## 1.4 Technical Assistance

### 1.4.1 Procedure

For any technical service request:

| No. | Action  |
|-----|---|
| (A) | Get the information from the EnSet <sup>®</sup> device. |
| (B) | Clearly identify the fault detected.                    |
| (C) | Contact GRABOUTIL SL                                    |

### 1.4.2 Address

GRABOUTIL SL  
C/ Isabel Colbrand Nave 87  
28050 - Madrid  
Spain

Tel. +34 91 886 59 53  
sales@graboutil.com  
www.graboutil.com

## 2 SAFETY

### 2.1 General Principles

---



#### Information

GRABOUTIL SL disclaim all responsibility in the event that these instructions are not observed.



#### Mandatory

The user must have read and understood this document before carrying out any actions or operations on the machine. The manufacturer is not responsible from improper operation or when used by untrained operators.



#### Caution

Do not modify this equipment or remove safety labels. Modifications can increase risks to the operator.



#### Caution

Do not use this equipment if it is damaged.

---

#### 2.1.1 Importance of Safety Requirements

All the safety and protection instructions in this manual must be observed to prevent reversible or irreversible personal injury, material damage or pollution of the environment. Furthermore, the legal regulations, the accident prevention and environmental protection measures, and the recognized technical regulations for appropriate and safe working procedures that are in force in the country and place of use of the machine must be observed.

#### 2.1.2 Non-Compliance with Safety Regulations

Any non-compliance with the safety and protection regulations, or the legal and technical regulations in place, may lead to reversible or irreversible personal injury, material damage or pollution of the environment.

## 2.2 Notation Conventions

Warning and hazard pictograms are used in this document and on the machine. They communicate safety instructions and information relating to safety.

### 2.2.1 General Pictograms

---



**Prohibition**  
Mandatory restriction.



**Danger**  
Warns against serious personal injury or death.



**Warning**  
Warns against serious personal injury and damage to health.



**Caution**  
Warns against minor personal injury or significant material damage to the machine or the environment.



**Mandatory**  
Directive or measure that must be applied.



**Information**  
Informative comment.



**Tips**  
Suggestion or advice.

---

## 2.2.2 Specific Pictograms

---



Mandatory  
Protective eyewear must be worn.



Mandatory  
Protective gloves must be worn.



**Danger**  
Risk of cuts to fingers or hands.

---

## 2.3 Important Notice for Operators

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Always wear appropriate eyewear protection for each application.



Always wear appropriate protect gloves to protect hands from sharp edges.



Like other power tools, this device exposes the operator to mechanical vibration. If any user experiences discomfort, pain, numbness, aching, etc., in their hands, fingers, arms or related joints, discontinue use and consult with an appropriate health professional.



Although this equipment does not generate dust itself, the tools used in the handpieces may do so. When sharpening tools, the user should take appropriate steps to avoid dust inhalation. Certain tool materials generate harmful dust while being ground or sharpened.

---



The proper use of this equipment does not generate significant or harmful noise emissions.



This equipment allows the use of small sharp cutting tools that can break suddenly.



Regular and frequent exposure to vibration may cause, contribute to, or aggravate injury or disorders of the operator's fingers, hands, wrists, arms, shoulders and/or permanent injuries or disorders that may develop gradually over periods of weeks, months or years. Such injury or disorder may include damage to the blood circulatory system, damage to the nervous system, damage to joints and possibly damage to other body structure.



If numbness, tingling, pain, clumsiness, weakened grip, whitening of the skin or other symptoms occur at any time, when operating or not operating the machine, do not resume operation of the machine, but seek medical attention. Continued use of the machine after the occurrence of any symptom may increase the risk of symptoms becoming more severe and/or permanent.



Never hold hand or fingers on moving machine parts or tools. Moving tools or parts of the tool holder have, when touched, very high levels of vibration.

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## 2.4 Required Equipment and Important Notes

### 2.4.1 Included 24 Volt Power Converter

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Use only the supplied 24 Volt power converter.



The included power converter may be connected to any properly grounded single-phase source of AC power within a voltage range of 100 to 240 V, 50 or 60 Hz. If necessary, use the supplied grounded 2-prong plug adapter or other suitable adapter. The power converter must be used with a suitable grounded electrical system. Using it with an ungrounded system could expose the equipment to electrical damage.

---

### 2.4.2 Graver or Similar Tool

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A properly sharpened graver or similar tool is required to cut through the surface of metal and other materials; use with care.



The dust created while sharpening some tool materials may present a health risk.

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### 2.4.3 Sturdy Surface with Adequate Lightning

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Make use of heavy workbench or suitable solid furniture to support this equipment, workpiece, and any additional equipment and supplies. Adequate lightning allows clear sight, and may help prevent accidents and reduce fatigue.



Placement of this engraving system on the bench is solely user preference and may be determined by left or right hand use during operation.



If compressed air supply has excessive water, oil, or contaminants, an additional filter/water trap and oil-removal filter (coalescing type) must be installed ahead of the engraving system.

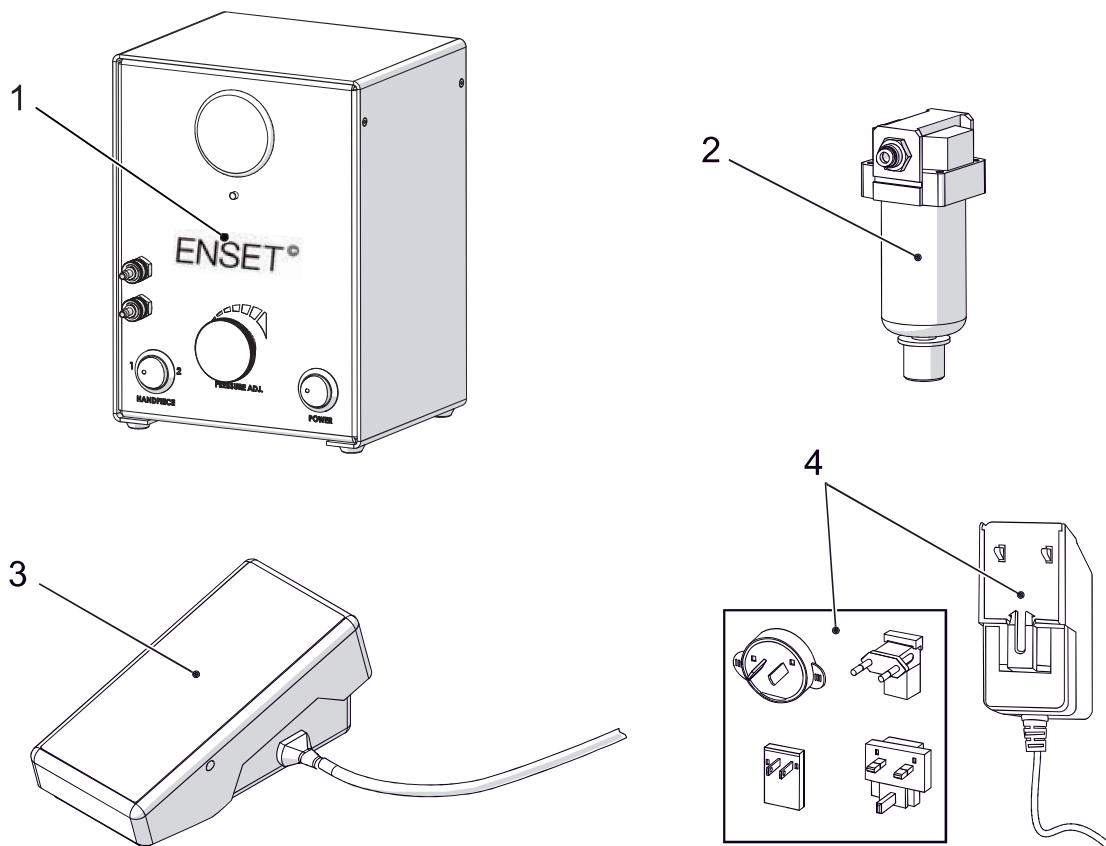
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### 3 SYSTEM CONTENTS


Each EnSet<sup>®</sup> unit (Plus, Original and Compact) includes:

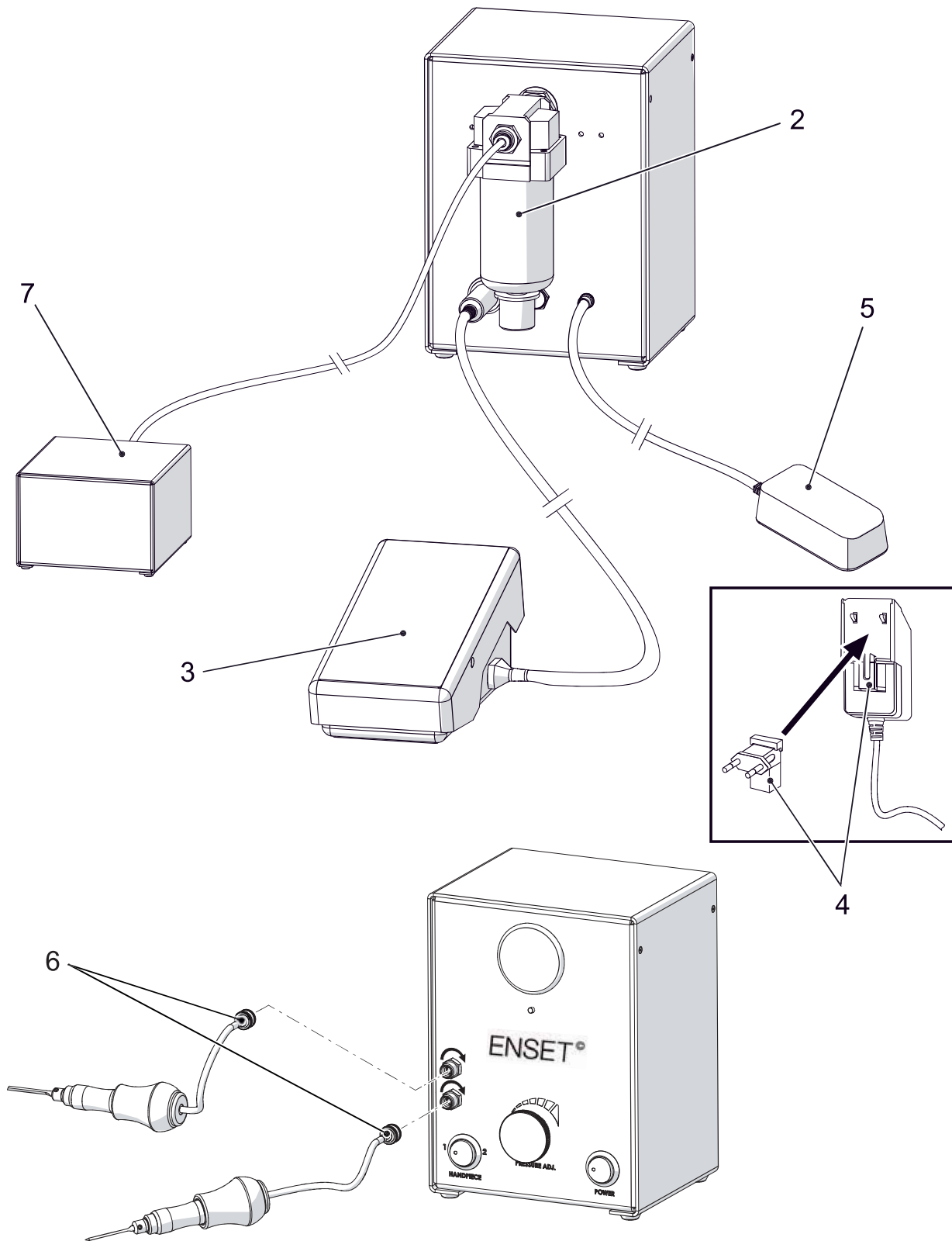
| No. | Content                                  | Quantity |
|-----|--|----------|
| (1) | EnSet <sup>®</sup> complete control unit | 1        |
| (2) | Drain bowl auto-Purging filter           | 1        |
| (3) | Foot pedal and control                   | 1        |
| (4) | Power supply with additional plugs       | 1        |

Please verify the contents in the box before connecting the machine.



## 4 ASSEMBLY

| No.  | Description   |
|--|---|
| (A)  | Place your EnSet <sup>®</sup> unit upright on a level work surface.   |
| (B)  | Plug the foot pedal into the port in the lower left rear of the machine <b>(3)</b> . Align the plug using the small index bump. Push the foot pedal plug into the machine port and turn slightly to the right to lock in the foot pedal cord.   |
| (C)  | Remove the power supply from its box.<br>Select and install the correct plug according to your geographic area <b>(4)</b> (power supply includes international plugs).  |
| (D)  | Plug the power supply into the port in the lower right rear of the EnSet <sup>®</sup> unit <b>(5)</b> .   |
| (E)  | Connect to a source of compressed air <b>(7)</b> .<br>Maximum pressure: 100 psi (7 bar).<br>Maximum consumption: 0.35 CFM (10 l/min).   |
|  | The compressed air source must be clean and not contain oil or excess moisture. The filter on the back of the machine <b>(2)</b> will remove moisture, but it will not remove oil. For best results with an oil compressor use an oil coalescing filter in the line before the EnSet <sup>®</sup> unit. |
| (F)  | Plug handpiece connector into the front panel handpiece port <b>(6)</b> . Align threads and screw in clockwise until snug (do not tight too much). Repeat this operation for the second handpiece (if available).<br><b>Handpiece purchased separately.</b>   |

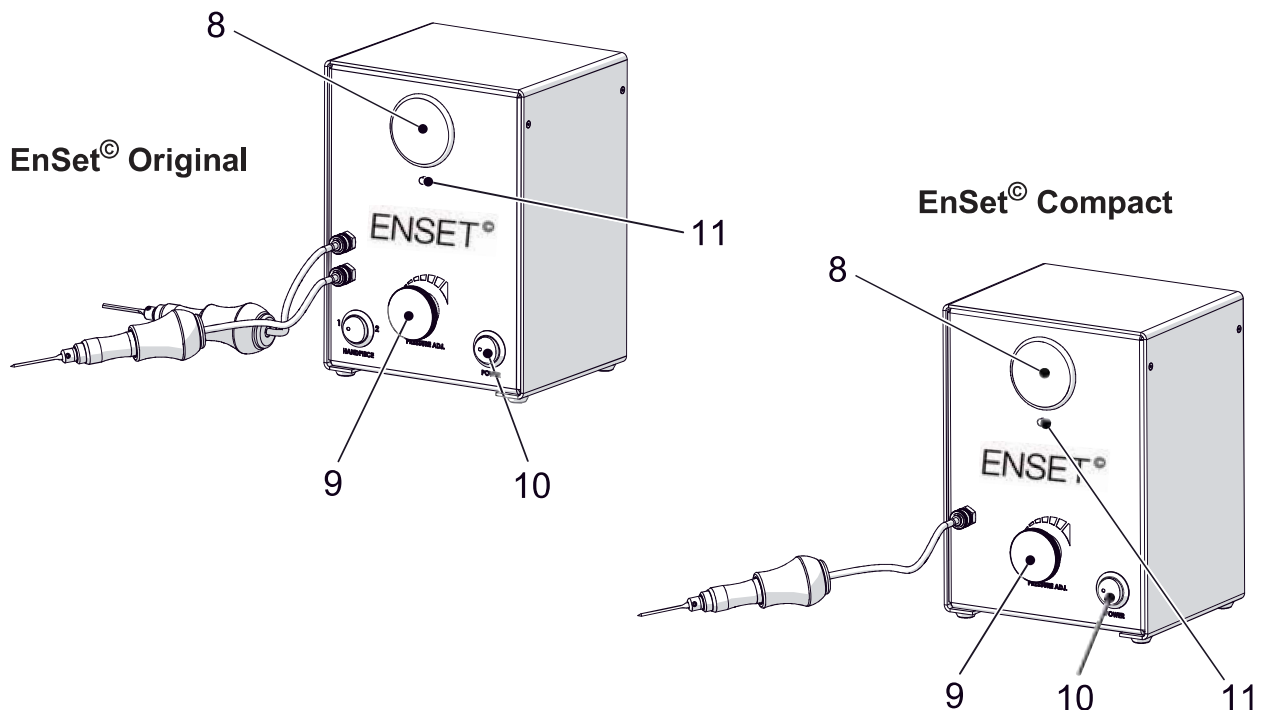


## 5 MACHINE SET UP & OPERATING CONTROL UNIT


Once your new EnSet<sup>®</sup> unit is assembled, some operations and adjustments are required.

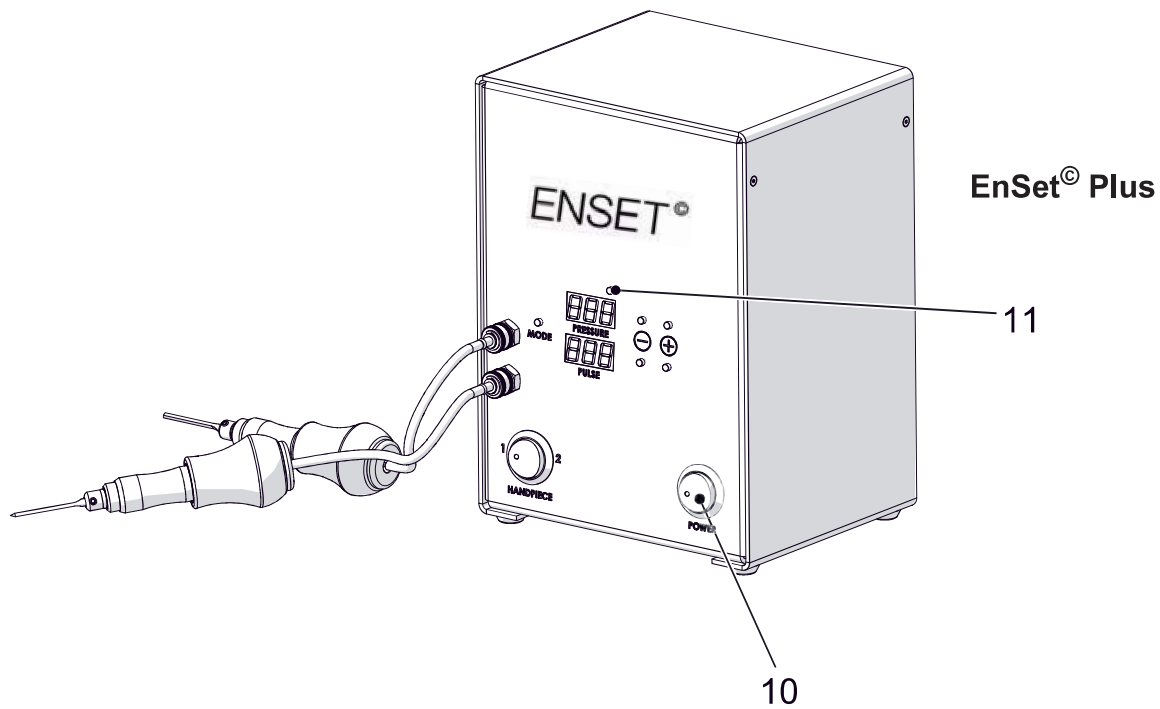
### 5.1 To Adjust EnSet<sup>®</sup> Original and EnSet<sup>®</sup> Compact

| No. | Description  |
|-----|--|
| (A) | Plug the power supply into an outlet.  |
| (B) | Place the foot pedal at your desired position on the floor.  |
| (C) | Turn power ON using the rocker switch on the front of the machine (10). The Power On LED (11) illuminates red.   |
| (D) | Adjust desired pressure between 35 psi (2.41 bar) and 100 psi (7 bar) by adjusting pressure regulator displayed in the monitor windows (8). Turn knob to the right to increase air pressure, to the left to decrease air pressure (9). |
| (E) | Push foot pedal to start cutting with EnSet <sup>®</sup> unit.   |
| (F) | Step on foot pedal to activate machine and handpiece.  |
| (G) | Adjust strokes per minute (60 to 1 500) by applying lighter or heavier pressure on the foot pedal.   |








## 5.2 To Adjust EnSet<sup>®</sup> Plus

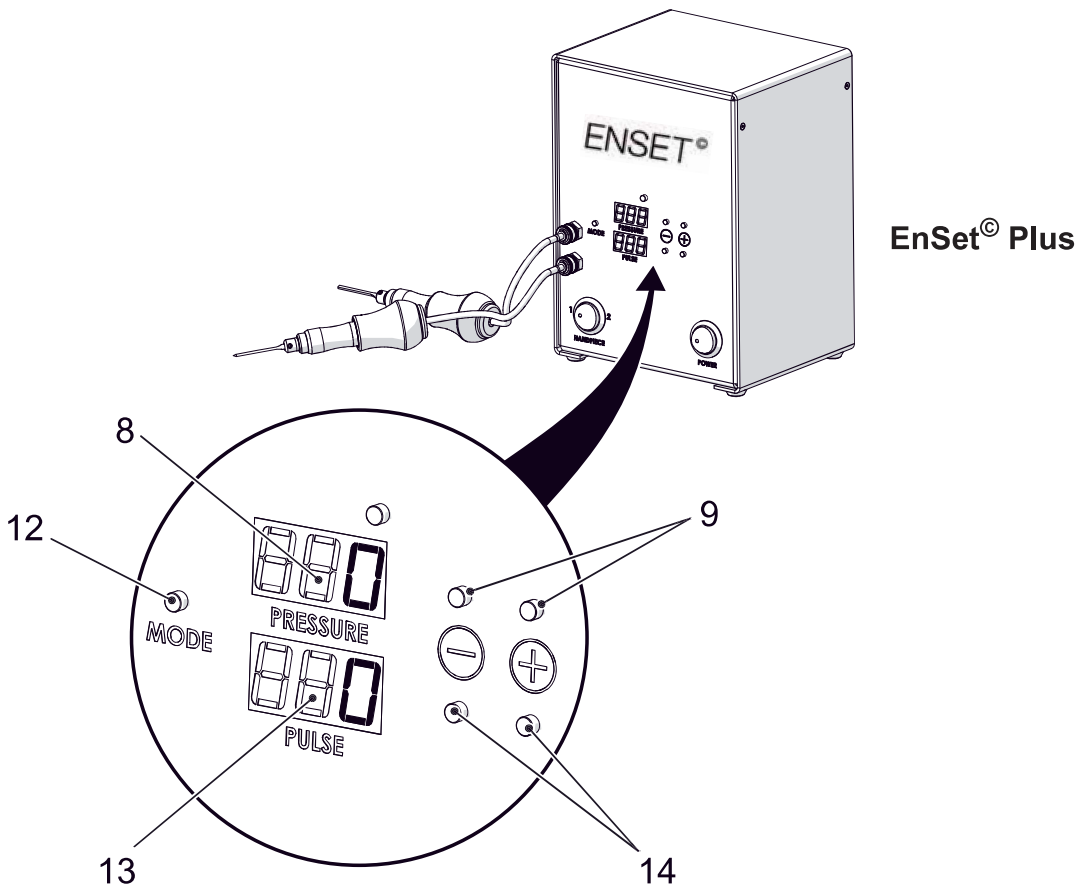
| No.   | Description  |
|---|--|
| <b>(A)</b>  | Plug the power supply into an outlet.  |
| <b>(B)</b>  | Place the foot pedal at your desired position on the floor.  |
| <b>(C)</b>  | Turn power ON using the rocker switch on the front of the machine <b>(10)</b> . The Power On LED <b>(11)</b> illuminates red.  |
|  | <p>EnSet Plus<sup>®</sup> works on a dual control mode basis :</p> <ul style="list-style-type: none"> <li>- EnSet<sup>®</sup> Original mode;</li> <li>- and EnSet<sup>®</sup> Plus mode.</li> </ul> <p>Below indications are described in how to operate both control modes.</p> |







## 5.2.1 EnSet<sup>®</sup> Plus Pulse Mode

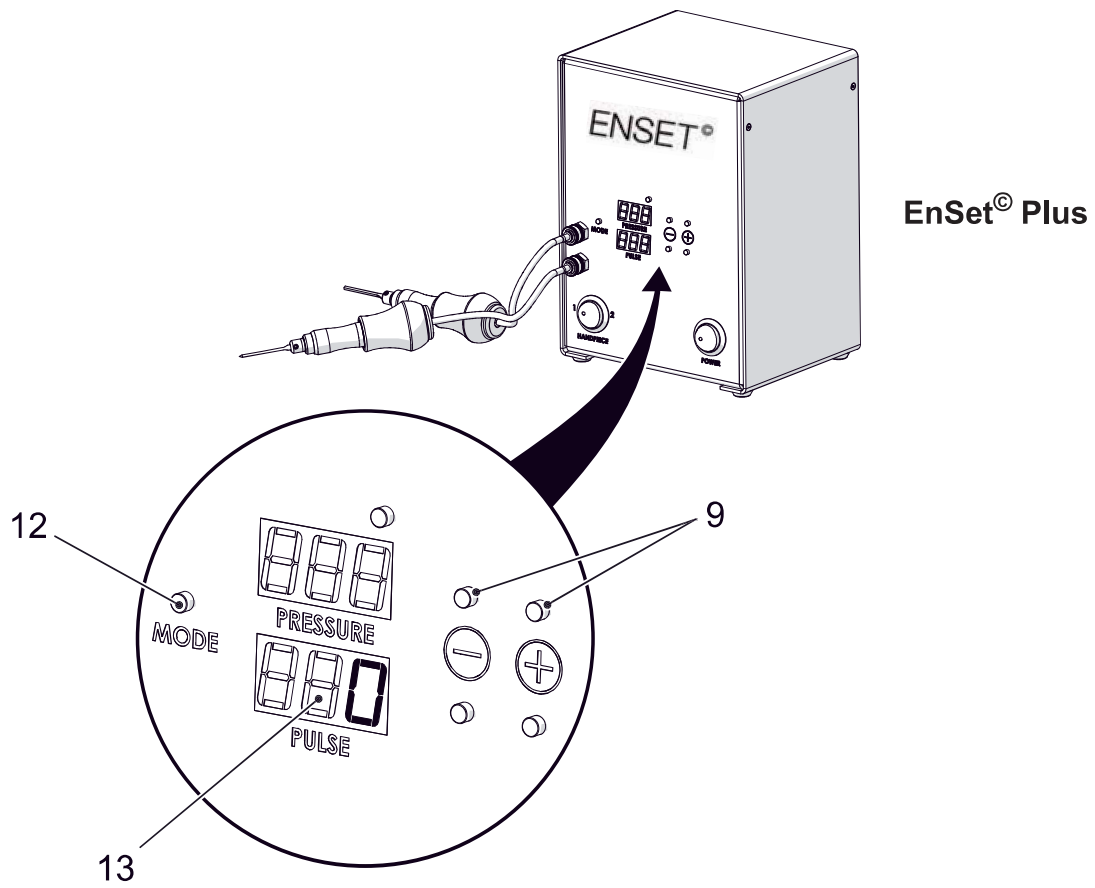
| No.   | Description  |
|---|--|
|    | <p>In this mode you will always have the same number of impacts/minute no matter how much pressure is applied to the foot pedal. The machine will always run at the same speed. As you depress the foot pedal the power in each impact will increase and conversely, as you ease up on the foot pedal the power will decrease.</p>   |
| (A)   | <p>Press « Mode » button <b>(12)</b> to select the EnSet<sup>®</sup> Plus mode. By pressing on the « Mode » button <b>(12)</b> you can toggle back and forth between Original and Plus modes.</p>  |
|    | <p>In the pulse mode both windows will display « 0 » (zero) when you are not actively setting them. During operation the bottom window <b>(13)</b> will display the number of impacts that you set and the top window <b>(8)</b> will display air pressure. The top window air pressure will fluctuate according to how hard you are stepping on the foot pedal. The more pressure on the foot pedal, the more air pressure and power with each impact. The less pressure the less power with each impact.</p> |
| (B)   | <p>Use the « + » and « - » buttons <b>(9)</b> to the right of the top pressure window to set the maximum air pressure desired.</p>   |
|  | <p>The minimum air pressure is already programmed into the system. This feature is useful because it can act as a limiter. Once set, it will only let the machine increase the impact power up to the set air pressure. If you would like it to have the full range of impact set this air pressure to 100 psi (7 bar). The air pressure may be adjusted at any time using the pressure (+) and (-) buttons.</p>   |
| (C)   | <p>Use the « + » and « - » buttons <b>(14)</b> to the right of the Pulse window to set the desired number of impacts/minute.</p>   |

| No.   | Description   |
|---|---|
|  | <p>The window displays a number between 1- 40 corresponding to the speed. Multiply the number by 60 to calculate the actual number of impacts/minute. For example :</p> <p>1 * 60 = 60 impacts/minute<br/>                     4 * 60 = 240 impacts/minute<br/>                     10 * 60 = 600 impacts/minute<br/>                     Maximum number of impacts/minute is 2 400 (40 * 60)</p> |
|  | <p>The number displayed in the bottom window may go above 40 on some units. However, the speed increases only to a maximum of 40 (2 400 impacts/minute). The machine does not go faster even if a number over 40 is selected.</p>   |







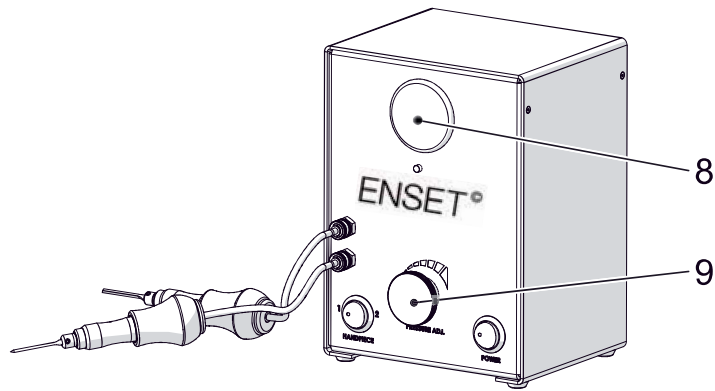
## 5.2.2 EnSet<sup>®</sup> Plus Pressure Mode

| No.   | Description   |
|---|---|
|    | <p>In this mode you set the air pressure for the input and the foot pedal controls the number of impacts per minute (speed) of the tool.</p>  |
| (A)   | <p>Press « Mode » button <b>(12)</b> to select the EnSet<sup>®</sup> Plus mode. By pressing on the « Mode » button <b>(12)</b> you can toggle back and forth between Original and Plus modes.</p>   |
|    | <p>In the pressure mode the air pressure is displayed in the top « Pressure » window. The bottom window displays « 0 » (zero) until you engage the foot pedal. Once you step on the foot pedal you will see a variable number of pulses in the bottom window.</p>   |
| (B)   | <p>Use the « + » and « - » buttons <b>(9)</b> to the right of the top pressure window to adjust the working air pressure up or down between 35 - 100 psi (2.41 - 7 bar).</p>  |
|   | <p>In this mode the number of impacts per minute will be displayed in the bottom window as you step on the foot pedal. The harder you step on the foot pedal the more impacts will occur (faster speed). The display <b>(13)</b> in the bottom window will continually adjust based on how much pressure is being applied to the foot pedal.</p>  |
|  | <p>The number of impacts displayed in the bottom « Pulse » window <b>(13)</b> must be multiplied by 60 to get the actual number of impacts/minute. For example :</p> <ul style="list-style-type: none"> <li>1 * 60 = 60 impacts/minute</li> <li>4 * 60 = 240 impacts/minute</li> <li>10 * 60 = 600 impacts/minute</li> </ul> <p>Maximum number of impacts/minute is 2 400 (40 * 60)</p> |

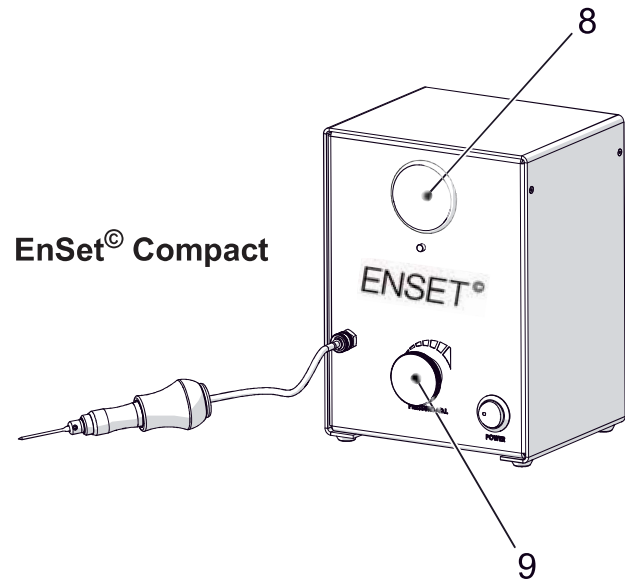


### 5.3 Tuning the EnSet<sup>®</sup> Units for Optimum Air Pressure Through Full Range of Speeds

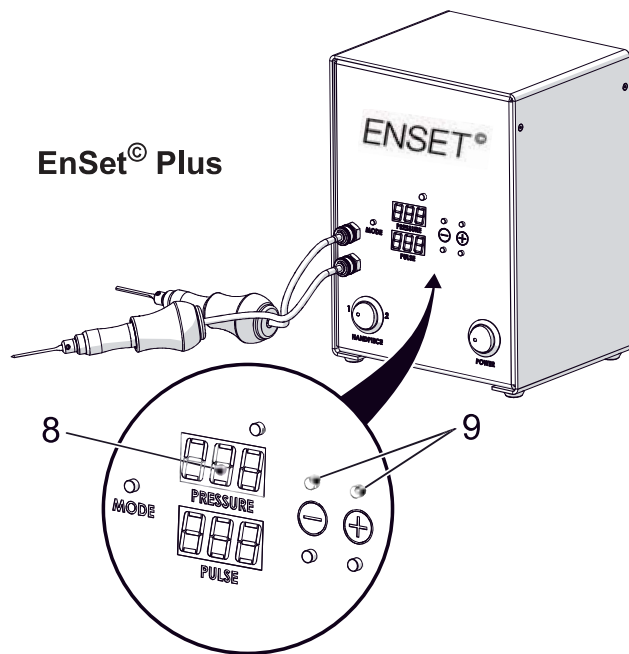
| No.   | Description   |
|---|---|
| <b>(A)</b>  | Turn air pressure on machine to 32 psi (2.20 bar).  |
| <b>(B)</b>  | On EnSet <sup>®</sup> Original or Compact unit:<br>Turn knurled knob <b>(9)</b> to increase or decrease pressure.   |
| <b>(C)</b>  | On EnSet <sup>®</sup> Plus unit:<br>Make sure the « Pressure Mode » is selected when tuning the EnSet <sup>®</sup> Plus.<br>Press « + » or « - » button <b>(9)</b> to right of Pressure window to increase or decrease air pressure.  |
| <b>(D)</b>  | Hold the handpiece in the hand.   |
| <b>(E)</b>  | Step on foot pedal and press until pedal is completely engaged (all the way to floor).  |
| <b>(F)</b>  | Continue to hold foot pedal down.   |
| <b>(G)</b>  | While holding foot pedal slowly increase pressure up to 65 psi (4.48 bar).  |
|  | Watch the air pressure on the gauge <b>(8)</b> for EnSet <sup>®</sup> Compact and Original or in the Pressure window <b>(8)</b> for EnSet <sup>®</sup> Plus.  |
|  | Notice where the handpiece has crisp powerful taps and where the power starts to fall off. There is a pressure around 40-50 psi where there is good power and crisp tapping at the fastest speed (foot pedal to floor). Once the air pressure gets too high the power of the impacts starts to decrease at the highest speed. |
|  | Dial the air pressure back down to the range where you have the best power through the high speed range.  |
| <b>(H)</b>  | This will give you an optimum air pressure to have excellent power through the entire speed range of the tool.  |
|  | If you need increased power especially on the slower speed then you may dial the air pressure up to 100 psi (7 bar). This will give you very powerful impacts on the slow speed needed for setting gold, punch dot backgrounds or for sculpting/heavy work especially when paired with the heaviest striker head (12 grams).  |



EnSet<sup>®</sup> Original



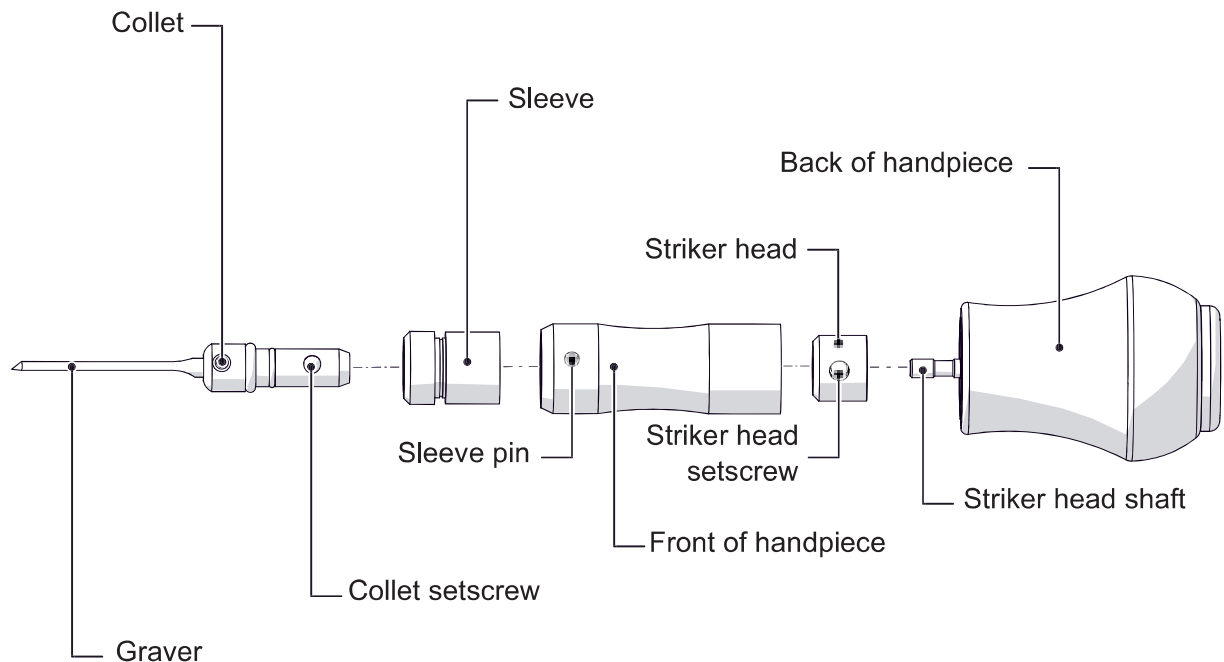
EnSet<sup>®</sup> Compact



EnSet<sup>®</sup> Plus

## 6 HANDPIECE SETTINGS

### 6.1 Description





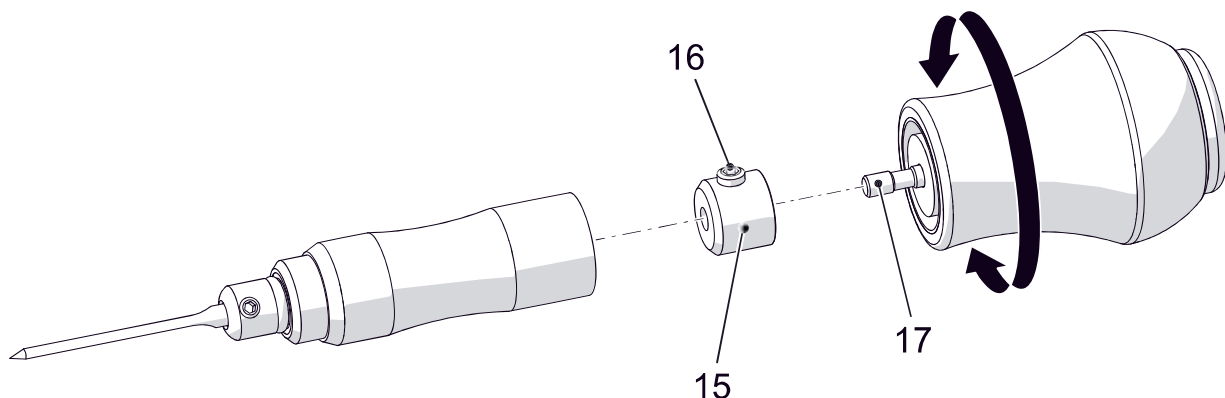
In order to obtain the highest performance of your impact handpiece, make sure to align the striker head on the shaft with the setscrew tightened in the indented area. This will ensure that the tool will move freely so that the striker shaft impacts the graver collet. The machine operates most efficiently with the striker head in this position on the shaft.



**Handpiece purchased separately**

## 6.2 Striker Head




| No.   | Description  |
|---|--|
| <b>(A)</b>  | To change the striker head <b>(15)</b> , unscrew the handpiece in the middle to gain access to the striker head shaft <b>(17)</b> .  |
| <b>(B)</b>  | Select desired striker head according to desired power.  |
|    | <p>There are 3 striker heads that come with the handpiece unit :</p> <ul style="list-style-type: none"> <li>- Small Steel For light shading and fine work</li> <li>- Medium Brass For overall cutting work</li> <li>- Large Tungsten For heavy work</li> </ul>   |
| <b>(C)</b>  | Remove striker head currently on shaft by loosening the setscrew <b>(16)</b> and sliding the striker head <b>(15)</b> off the end.   |
| <b>(D)</b>  | <p>Slide desired striker head on the shaft.<br/>         Note that shaft has indented area that will position striker head correctly. Look through the opposite hole to the setscrew to view indentation on shaft.<br/>         Position striker head so setscrew will tighten in indentation on shaft. Tighten setscrew to affix striker head. Striker head should not be all the way to the bottom of shaft so it is sitting on handpiece handle, nor should it be all the way to the top of shaft or it will impact the inside of cylinder area and not efficiently impact the back of the collet/graver.</p> |
| <b>(E)</b>  | Reassemble handpiece by screwing front and back of handpiece together.   |
|  | <p>Sometimes during heavy hitting the striker head may become loose. You will hear a difference in the sound of impact when this happens. Unscrew the handpiece and re-tighten setscrew to secure striker head.</p>  |

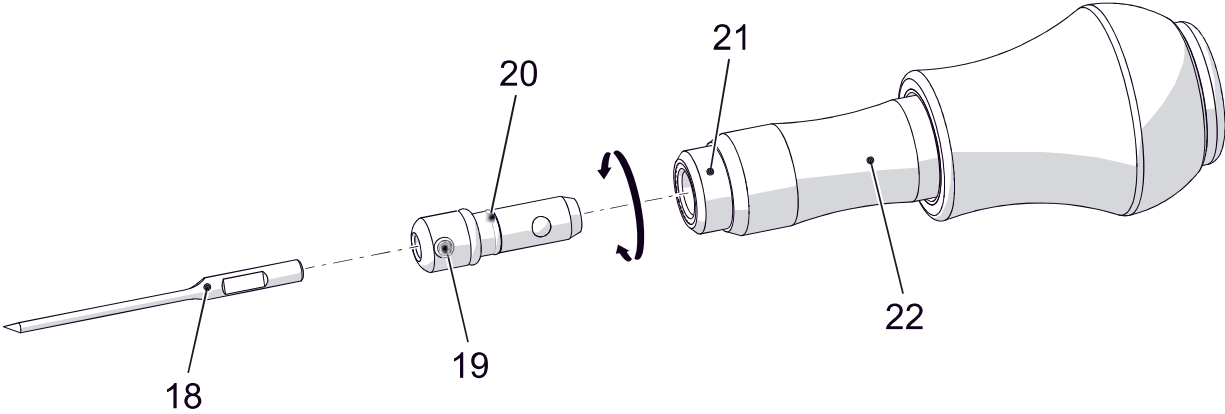


## 6.3 Stroke Length Adjustment

The EnSet<sup>®</sup> tool allows the user to choose the stroke length of each impact by adjusting where the striker head impacts the collet. It can barely tap the back of the collet for light, fine work or it can impact the collet fully for much more power in each stroke.




## 6.4 Basic Stroke Length Adjustment

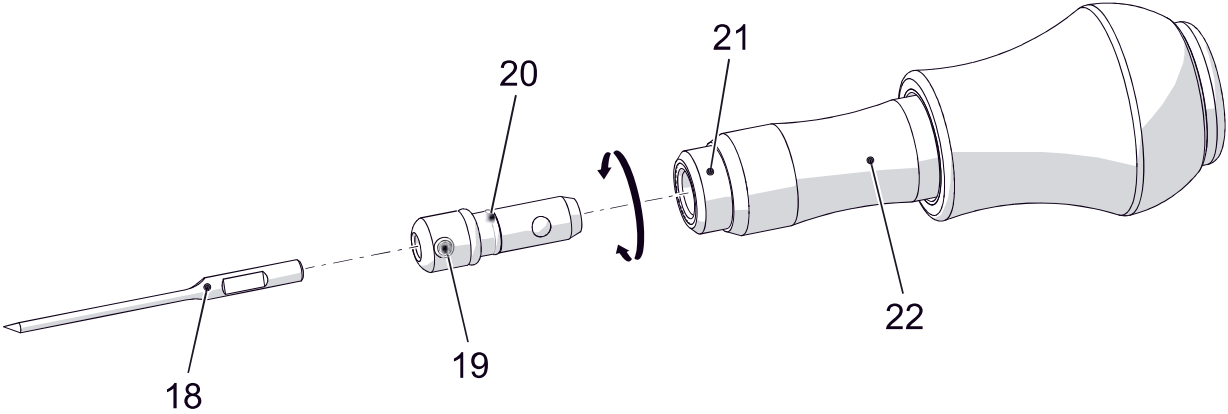
| No.   | Description  |
|---|--|
| (A)   | Install graver <b>(18)</b> into collet <b>(20)</b> , tighten collet setscrew <b>(19)</b> .   |
| (B)   | Insert collet with graver into handpiece barrel <b>(22)</b> . Rotate collet until detent ball « clicks » into position. You will feel that there is resistance to rotating the collet once it is set in position.  |
|    | To remove collet: twist collet/graver until detent ball releases from lock position and remove from handpiece sleeve.  |
| (C)   | While holding collet/graver - step on foot pedal to actuate machine.   |
| (D)   | While handpiece is striking, turn knurled ring <b>(21)</b> to the left until you can hear that the striker head is not directly impacting the back of the collet. You will hear and feel that the striker head does not have a crisp hit on the collet as you turn the knurled ring to the left.                                       |
| (E)   | Keep machine on so that the striker head is active.  |
| (F)   | While the machine is working, slowly turn knurled ring <b>(21)</b> to the right. Listen to the sound and pay attention to the feel of the tool in your hand. Keep turning the ring until you hear crisp taps on the back of the collet. This is where the striker head starts to come into direct contact with the back of the collet. |
|  | <p>For a longer stroke with more power: turn ring more to right.<br/>           For a shorter stroke with less power: turn ring to left.<br/>           If you turn the ring too much to the left so the collet is not impacted, then the tool will not function efficiently.</p>  |
|  | <p>You can re-adjust stroke length at any time depending on the power or character of the cut you wish to make:</p> <ul style="list-style-type: none"> <li>- Shorter strokes = less pronounced progress marks, less power/impact;</li> <li>- Longer strokes = more pronounced progress marks, more power/impact.</li> </ul>            |



## 6.5 Advanced Stroke Length Adjustment

Another way to adjust the stroke length is to adjust it while actively engraving. Use a practice piece for this method until you fully understand the adjustments so as to not ruin your work.

| No.   | Description  |
|---|--|
| <b>(A)</b>  | Install graver <b>(18)</b> into collet <b>(20)</b> , tighten collet setscrew <b>(19)</b> .   |
| <b>(B)</b>  | Insert collet with graver into handpiece barrel <b>(22)</b> . Rotate collet until detent ball « clicks » into position. You will feel that there is resistance to rotating the collet once it is set in position.  |
|    | To remove collet: twist collet/graver until detent ball releases from lock position and remove from handpiece sleeve.  |
| <b>(C)</b>  | While holding collet against front of tool place graver down onto practice plate just like you would engrave.  |
| <b>(D)</b>  | Step on foot pedal and begin to engrave.   |
| <b>(E)</b>  | While continuing to engrave, slowly turn the knurled ring <b>(21)</b> to right or left to adjust stroke length longer or shorter. Use your thumb and index finger to adjust the ring.  |
|  | <p>For a longer stroke with more power: turn ring to right.<br/>           For a shorter stroke with less power: turn ring to left.<br/>           If you turn the ring too much to the left so the collet is not impacted, then the tool will not function efficiently.<br/>           The longer the stroke, the more percussive the collet/graver. It will travel much farther and will need more pressure to hold it into the handpiece.</p> |
| <b>(F)</b>  | Choose a moderate speed to engrave while adjusting. If the speed is too slow it is difficult to feel the stroke length.  |
| <b>(G)</b>  | Identify the stroke length that suits your project/engraving.  |
|  | <p>You can re-adjust stroke length at any time depending on the power or character of the cut you wish to make:</p> <ul style="list-style-type: none"> <li>- Shorter strokes = less pronounced progress marks, less power/impact;</li> <li>- Longer strokes = more pronounced progress marks, more power/impact.</li> </ul>  |



## 7 MAINTENANCE

EnSet<sup>®</sup> is a strong and reliable electro-pneumatic system. However, some elements have a limited life and need to be replaced from time to time. Below please find a detailed list of actions in order to preserve your machine's life.

### 7.1 Drain Bowl – Particle Filter

EnSet<sup>®</sup> incorporates an auto-purging drain bowl on its rear panel **(2)**. Auto purging is intended to occur each time air line is loaded with air. In any case it is important to take constant care of the drain bowl and purge it manually if necessary in order to avoid moisture getting into internal components of the machine (manual air line filter for EnSet<sup>®</sup> Compact).

The particle filter needs to be kept clean. It is recommended to replace the particle filter once per year in order to make sure no dirt reaches the internal components. If the filter becomes visually tarnished or dirty, replace your filter as soon as possible to prevent possible damage.

Air Supply : Some silent air compressors work on basis of an oil cooled motor. If this is the case with your compressor, please remember your compressor can send oil particles into EnSet<sup>®</sup> internal components through the air line. An oil coalescing filter is suggested in order to avoid oil contamination. Oil needs to be fully replaced periodically in oil lubricated compressors.

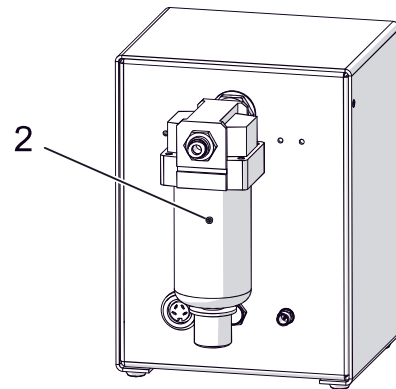


External contamination caused by oil, water, moisture and/or dirt cause damage to the machine.



Damage from failing to properly clean the machine or ensuring a clean air supply is excluded from manufacturer's warranty or responsibility.

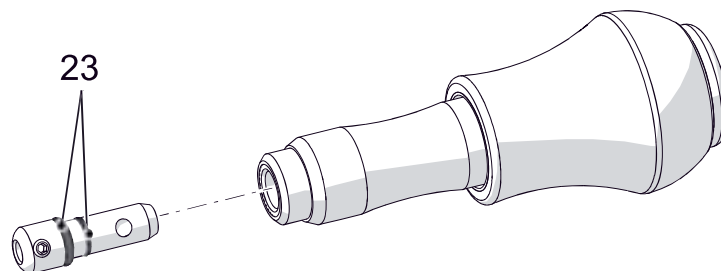
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## 7.2 Lubrication

EnSet<sup>®</sup> system, including control unit, foot pedal and handpiece do not need lubrication for its operation. Do not use oil or other lubrication in them.

Lubricate the EnSet<sup>®</sup> collet O-rings (**23**) periodically for easier insertion into the front of the handpiece.

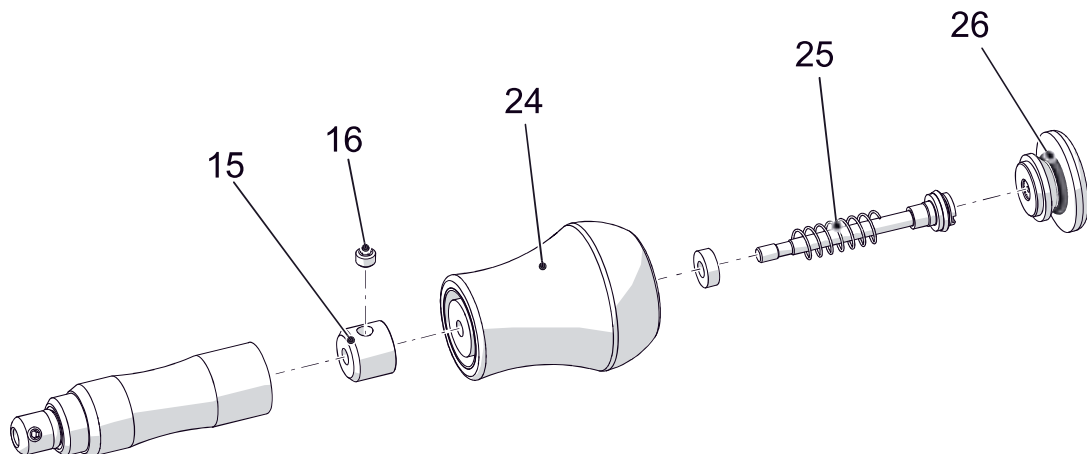


## 7.3 Handpiece

EnSet<sup>®</sup> handpiece incorporates a cylinder/ piston system (**24**). In order to keep maximum power, replacing this mechanism each 18-24 months is recommended, depending on amount of activity.

Lubricate the handpiece once a year with vaseline.

| No. | Action  |
|-----|---|
| (A) | Unscrew the handpiece ( <b>24</b> ) in the middle to access the striker head shaft.   |
| (B) | Remove striker head ( <b>15</b> ) on shaft by loosening the setscrew ( <b>16</b> ).   |
| (C) | Remove the handpiece cap ( <b>26</b> ) to the cylinder / piston system ( <b>25</b> ). |
| (D) | Replace the cylinder / piston system ( <b>25</b> ).                                   |
| (E) | Reverse above procedure steps to rebuild.   |



## 8 WARRANTY

EnSet<sup>®</sup> Plus, EnSet<sup>®</sup> Original and EnSet<sup>®</sup> Compact including the control unit, power supply, foot pedal and handpiece are covered for a one (1) year period under warranty. Warranty covers components, parts and labor.

This warranty excludes misuse, external contamination from the air supply (oil, water, dirt particles), an eventual electrical surge, impacts or accidental situations occasioned by thirds.

If you experience technical problems or questions, please contact GRABOUTIL SL or one of our authorized representatives in your area.



These products are designed for reliable operation using most sources of compressed air. However, some air-supplies contain excessive water, oil, dirt, rust, or other contaminants. The built-in filter of the engraving system is a final filter to protect against normal dirt and water. If the compressed air has excessive contaminants, install the necessary filter(s) and water trap(s) ahead of the engraving system.



Oil contamination can be gradual and subtle. If an oil residue (usually yellow or brown, sticky or liquid) becomes present in the filter bowl of the engraving system, or in the handpiece / throttle hose, the compressed air most likely contains oil or contaminants. Older oil lubricated and "silent" compressors that use internal oil are more likely to cause oil contamination. If this occurs, install a coalescing oil filter.



Damage caused by contaminated compressed air is not covered by the warranty.

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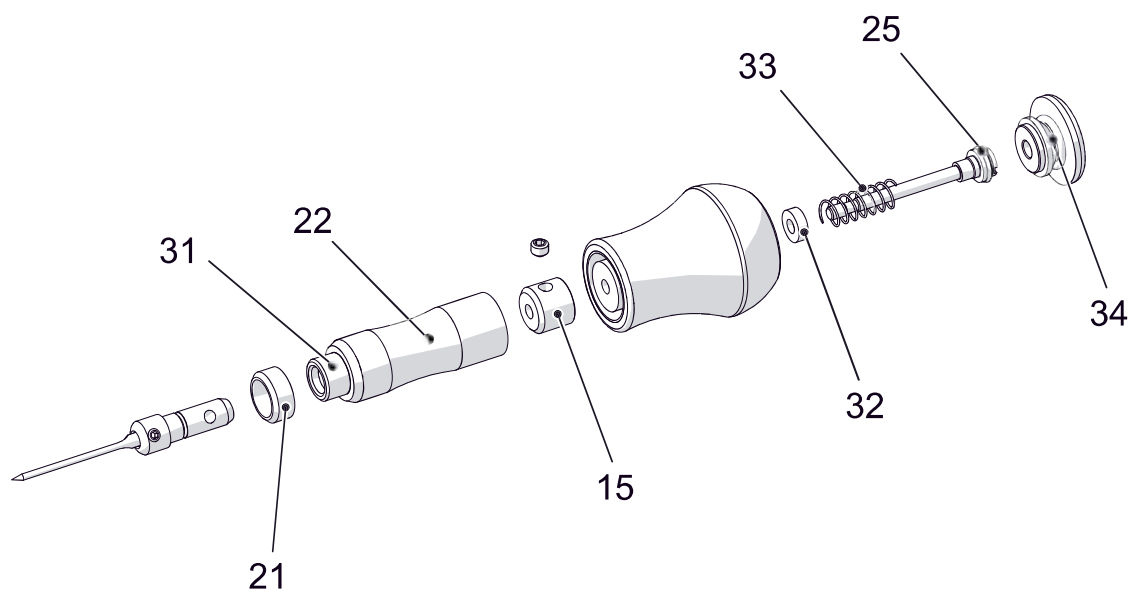
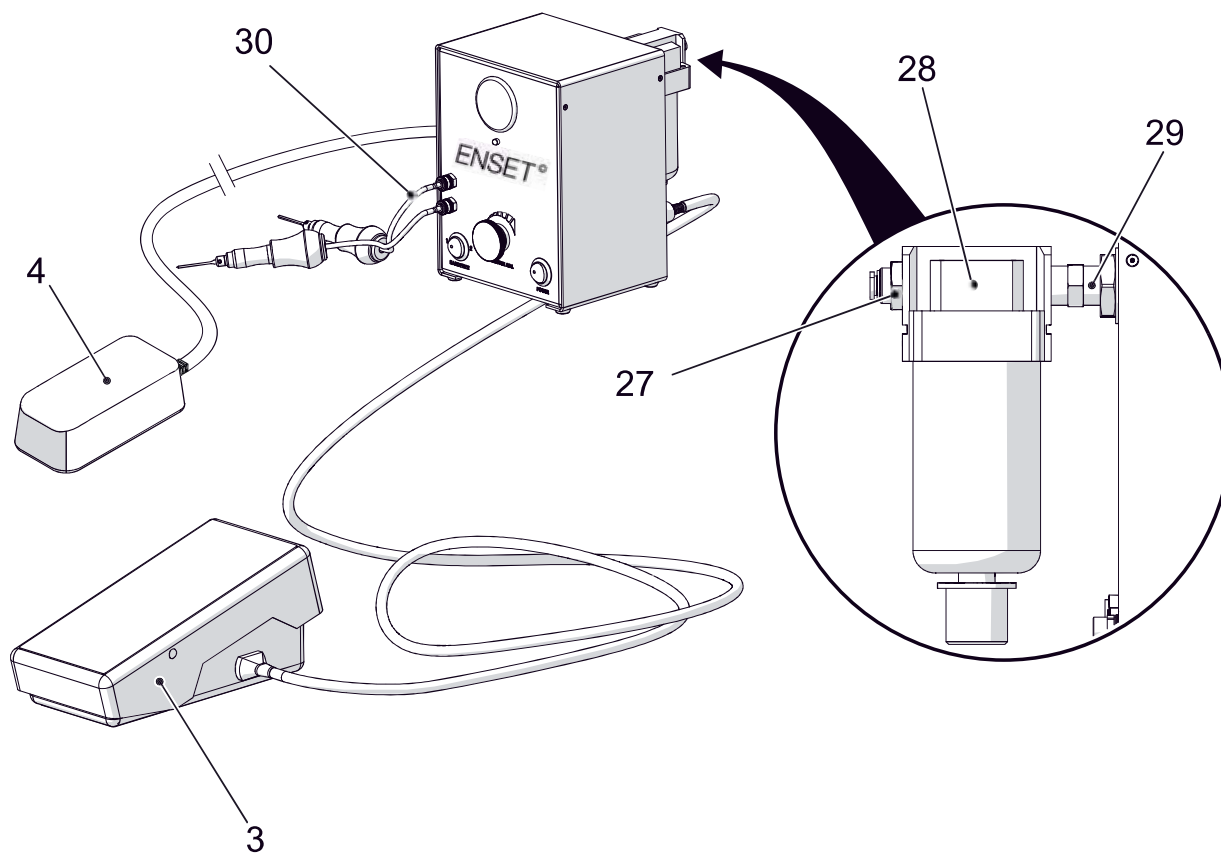
## 9 SPARE PARTS

### 9.1 EnSet<sup>®</sup>

| No.  | Reference   | Description                               |
|------|-------------|---|
| (27) | APPS-8CO001 | Push In Fitting 6 mm Tubing x 1/4 NPT     |
| (28) | APPS-8CO002 | Inline Air Filter                         |
| (29) | APPS-8CO003 | Hex Nipple 1/4" NPT                       |
| (30) | APPS-8CO022 | Polyurethane Tubing 1/16" ID x 1/8" OD Ft |
| (3)  | APPS-8CO037 | Foot Pedal Assembly                       |
| (4)  | APPS-8CO038 | Power Supply                              |

### 9.2 Handpiece

| No.  | Reference   | Description                                     |
|------|-------------|---|
| (15) | APPS-800550 | Tungsten Striking Hammer Head                   |
|      | APPS-800552 | Brass Striking Hammer Head                      |
|      | APPS-800554 | Steel Striking Hammer Head                      |
| -    | APPS-800579 | EnSet WH Handpiece Chrome Connector             |
| (22) | APPS-800580 | EnSet WH Handpiece Barrel                       |
| (31) | APPS-800582 | EnSet WH Handpiece Receiver                     |
| (21) | APPS-800584 | EnSet WH Handpiece Length Brass Ring            |
| -    | APPS-800586 | EnSet WH Handpiece Detent Pin Receiver / Barrel |
| (34) | APPS-800587 | Cylinder O-Ring                                 |
| -    | APPS-800588 | Rubber Bumper for WH Handpiece Cylinder         |
| (25) | APPS-800589 | Piston Seal for WH Handpiece Piston+            |
| (32) | APPS-800590 | WH Handpiece Receiver Spring 11, 3-1, 2         |
| (33) | APPS-804952 | WH Handpiece Cylinder Spring                    |



## 10 SCRAPPING

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Only technical personnel are authorized to dismantle the machine for scrapping.

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The machine must be scrapped in accordance with directive 2012/19/EU or the environmental standards in force in the country of installation.

The materials comprising the machine must be separated and recycled in a waste recycling center that conforms with the legislation in force in the country of installation. This will help to reduce the impact on the environment and health and safety and help to promote recycling.

Contact your local recycling center for more information.

Notes:

# GRABOUTIL

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