



*USER MANUAL*

**BUTT FUSION MACHINES  
TRACK RANGE  
(models from 160 to 1200)**

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**NOTE !**

The modifications made with respect to the revision immediately prior to this edition are indicated by using || in the right hand margin.

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## **CHAPTER 1: INTRODUCTION**

### 1.1 OVERVIEW

The butt fusion machines of the **TRACK** range are used for the butt fusion of polythene (PE) tubes and fittings although they can also be used to join other plastic resins (PP, PB, PVDF, ...), in diameters ranging between 40 to 1200 mm (consult models in the following section).

The **Track** range are butt fusion machines equipped with a manually operated electro-hydraulic unit. They are of simple construction, ergonomic and easy to handle.

The technical data provided in this *Manual* is purely informative in nature and is subject to changes without prior warning. ACUSTER GLOBAL, S.L., does not make itself responsible for complaints made deriving from the incorrect use of this publication or of the errors and/or omissions that might be detected after publication. This *Manual* should be considered as part of the unit.

### 1.2 RANGE OF MODELS

The range of models available at the time of writing up this *Manual* are:

<u>MODEL</u>	<u>RANGE OF DIAMETERS</u>	
<b>TRACK 160</b>	40(SDR11) to 160 mm	
<b>TRACK 250</b>	63 to 250 mm	
<b>TRACK 315</b>	90 to 315 mm	
<b>TRACK 315R</b>	90 to 315 mm	
<b>TRACK 400</b>	140(SDR9) to 400 mm	
<b>TRACK 400R</b>	75 to 400 mm	
<b>TRACK 500</b>	200(SDR9) to 500 mm	
<b>TRACK 500R</b>	200(SDR9) to 500 mm	
<b>TRACK 630</b>	315(SDR9) to 630 mm	
<b>TRACK 800</b>	500(SDR9) to 800 mm	
<b>TRACK 1000</b>	450(SDR9) to 1000 mm	
<b>TRACK 1200</b>	630 to 1200 mm	

### 1.3 GENERAL INFORMATION

The development, documentation, production, testing and shipping of the products here described have been manufactured:

- complying with the applicable security measures, and
- in accordance with the quality control requirements guaranteed by STPACUSTER group.



**WARNING !**

Only qualified personnel is authorized to carry out tasks either of fusion or of reparation. This qualified personnel must be familiar with all the security measures, potential dangers and maintenance regulations described in this *Manual*.

The safe use of the products described require the appropriate transportation, storing, installation and utilisation, and the careful handling and monitoring of their periodic pre-established maintenance.

### 1.4 IDENTIFYING THE UNIT

#### 1.4.1 **Marking the Serial Number:**

All the components of the **TRACK** range of machines: base framework, heating plate, the trimmer and hydraulic station are marked with their corresponding identity plate.

#### 1.4.2 **"EC" Marking:**

The machines come provided with the plate corresponding to the "EC" marking, complying with the European Union regulations of the new Machinery Directive (Directive 98/37/EC of the European Parliament and Council, of 22nd June, 1998)

## 1.5 MEASURES OF PROTECTION AGAINST ACCIDENTS

### 1.5.1 Read User Manual:



Do not operate this equipment until you have read and understand the contents of this *Manual*.

Your safety and the safety of others depends upon care and judgment in the operation of this equipment. Follow all rules and regulations relating to machines with specific jobs in PE piping networks.

In this *Manual* they have not been able to foresee every possible circumstance that might involve a potential hazard. Therefore, notice symbols included here and in the machine, are not necessarily inclusive.

The user must be convinced that the use and mode of use of this equipment is safe for him/her and for others. Also be sure to care and maintenance before and after use.

### 1.5.2 Safety alert symbols:

This *User Manual* employs the following safety alert symbols:



Indicates information, considered important, but not hazard-related.



When appears this hazard alert sign in this manual, carefully read what it says.



Indicates a hazardous situation that, if not avoided, will result in death or serious injury.



Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

### 1.5.3 Operator's and machine safety measures:

- Always use adequate working clothes.  
For outside work, it is recommended to use rubber gloves and boots with insulating soles (in wet areas, this advice is essential), and other applicable personal protective equipment such as hard hat, safety glasses, etc.  
For indoor fusion jointing work, adequate ventilation of the premises must be provided.
- Keep the machine out of the reach of non authorised personnel, non qualified personnel and children. Protect it from water, rain, snow, etc.
- When transporting the machine, and during loading and unloading operations, the appropriate precautionary measures must be taken to ensure that all machine components are completely secured in the vehicle, and that they are free from impact during transportation.

- Do not expose the machine to heavy weights. All slight damage caused to the external components or to other elements will have to be replaced immediately by the After-Sales Service of ACUSTER GLOBAL, S.L.
- The machines which are not being used must be kept out of the reach of the non authorised personnel. They will have to be kept in rooms of low humidity degrees and of restricted access.
- Before using the equipment, its external condition will have to be checked, as well as its working condition. All components must be correctly assembled in order to guarantee the correct functioning of the unit. The damaged components must be repaired or replaced by the After-Sales Service of ACUSTER GLOBAL, S.L.
- Should the machine not work properly, it will have to be sent immediately to the After-Sales Service of ACUSTER GLOBAL, S.L.. It can only be fitted by the After-Sales Service of ACUSTER GLOBAL, S.L.

#### 1.5.4 **Electrical safety measures:**

- Always connect the machine to electrical outlets that have differential and earth. It is important to remember that you are working in a wet environment with electrical devices. Proper grounding helps minimize the chances of an electric shock.
- Inspect electrical cords often. Protect the electric cables, electrical connections to the trimmer, heating plate, and hydraulic pack of sharp objects. Damaged cables must be replaced immediately by the After-Sales Service of ACUSTER GLOBAL, S.L.
- Always connect the equipment to the appropriate power source. Refer to label of technical specifications.
- Disconnect the equipment from the power supply before carrying out any maintenance or adjustment.
- Electric motors are not explosion proof. The operation of these components in a hazardous environment without necessary safety precautions can result in explosion and death.

#### 1.5.5 **Machines with hydraulic system:**

- For hydraulic equipment, it is important to remember that a sudden hydraulic oil leak can cause serious injury or even be fatal if the pressure is high enough. The fluid escaping under pressure can penetrate the skin and cause serious injury. Keep hands and body away from pipes and hoses pressurized fluid flows. It is recommended to correct the leak. If any fluid is injected into the skin must be removed immediately by a doctor familiar with this type of injury.  
NOTICE: Use safety glasses and keep your face away from the area when an air leak in the hydraulic system occurs to avoid spraying oil into eyes.
- In the base frameworks hydraulic drive, the displacement of the movable clamps is danger of crushing in certain automatic manoeuvres. Keep all parts of the body outside the bars of the hydraulic cylinders.



1.6 DECLARATION "CE" OF CONFORMITY

ACUSTER, S.L.  
Ctra. Montcada, 608  
08223 Terrassa (Barcelona)  
SPAIN

we declare under our sole responsibility that the butt fusion machines of the **TRACK** range, are manufactured in agreement with the requirements of the following Directives based on the following specifications:

Directive	Related Standards
2006/42/EC <i>Machine Safety Directive</i>	EN-ISO 12100 EN 60204-1
2014/35/EC <i>Low voltage</i>	EN 60204-1 EN 60335-1; EN 60519-1
2014/30/EC <i>Electromagnetic compatibility</i>	EN 61000-6-2 EN 61000-6-3
2002/95/CE RoHS	EN 62321-1
2002/96/CE WEEE	
	ISO 12176-1

Sant Just Desvern, 8<sup>th</sup> January 2008



Jaume Puig  
General Manager

1.7 GUARANTEE

**Statement of guarantee:**

All the butt fusion machines of the **TRACK** range are manufactured with high quality materials and have been subjected to demanding tests of resistance and operation, passing all the quality controls required in compliance with the applicable regulations (see "EC" Declaration of Conformity).

Whatever the case and in the face of any eventuality that might arise during the period of guarantee, we recommend that the following general conditions of guarantee be read carefully.

**General conditions of guarantee:**

1. ACUSTER GLOBAL, S.L. guarantees that this product does not have any manufacturing defects at the time of purchase and extends this GUARANTEE for a period of TWO YEARS.
2. If during this period, the product sustains any kind of defect due to the materials or its assembly, it will be possible to repair it without any extra charge, whether for materials or labour, in the Technical Assistance Service of ACUSTER GLOBAL, S.L..
3. The Guarantee will not be valid in the following circumstances:  
  
When the flaw in the product is due to:
  - Usual wear and tear resulting from its use.
  - Abuse or incorrect use of the unit.
  - Not following the connecting instructions to a power generator as specified in this *User Manual*.
  - Repairs carried out without the authorisation of ACUSTER GLOBAL, S.L.
  - Accidents, natural disasters (including the effects of lightning, water, etc..), as well as any cause unrelated to ACUSTER GLOBAL, S.L.
4. In the claims that might be made against this guarantee, the details related to the model, the date of purchase, serial number, as well as other additional information will need to be made available at all times.

## CHAPTER 2: UNIT DESCRIPTION

### 2.1 GENERAL INFORMATION

The complete butt fusion machine of the **TRACK** range is made up of the following components:

1. A **base framework** (*Figure 3a*), consisting of a frame equipped with handles for transportation (for those models whose weight allows this). The frame incorporates four lower aluminium clamps and four detachable upper clamps made of aluminium too.  
The base frameworks for large diameter sizes (*Figure 3b*) the clamps are made of steel and could be supplied with a crane for trimmer and heating plate handling. The securing together of the upper and lower clamps is achieved by use of securing braces equipped with handles which serve as spigots (for large diameter sizes the upper clamps are locked by means of high nuts which require spanner to fix them).

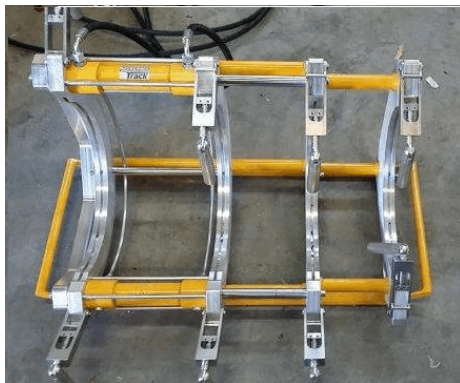


Figure 3a: Track 315

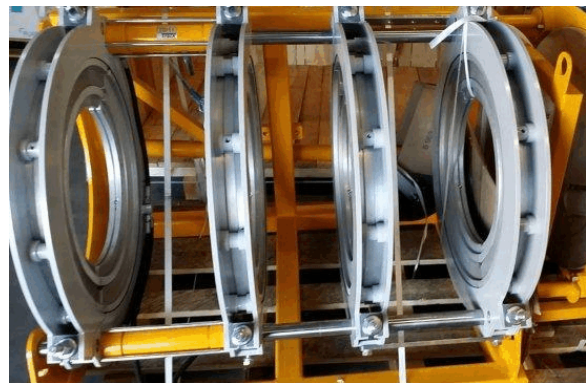


Figure 3b: Track 630

The movement of the moveable clamps is achieved via two hydraulic cylinders of double effect, connected to flexible high pressure hoses with quick connectors mounted on the ends.



**NOTE !**

For the care and maintenance of the base framework, consult CHAPTER 4: MAINTENANCE, of this same *User Manual*.

2. A **heating plate** (*Figure 4*), manufactured in aluminium coated with PTFE cloth, with electronic temperature regulation.



**NOTE !**

For the care and maintenance of the heating plate, consult CHAPTER 4: MAINTENANCE, of this same *User Manual*.

3. A **trimmer** (Figure 5) activated via an electric motor with chain transmission. It has a safety switch to avoid undesirable actions.



**NOTE !**

For the care and maintenance of the trimmer, consult CHAPTER 4: MAINTENANCE, of this same *User Manual*.



Figure 4: Heating plate Model 2018



Figure 5: Trimmer



Figure 6: Heating plate and trimmer holder 2018

4. An **Electro-hydraulic station** (Figure 7a), which integrates the hydraulic pack composed of: electric motor, pump, distributor, pressure throttle (equipped with a pressure limiter), lever to open and close (joystick style), circuit discharge valve lever, quick connectors and an oil deposit (with visor). The large diameter size machines uses hydraulic packs provided with a plastic connection box (Figure 7b). Such hydraulic station has a distribution box where the trimmer and heating plate feed at 400 Vac (three phases) are plugged in.



Figure 7a: hydraulic station at 230 Vac



Figure 7b: hydraulic station at 400 Vac



**NOTE !**

For the care and maintenance of the hydraulic station, consult CHAPTER 4: MAINTENANCE, of this same *User Manual*.

## 2.2 ELECTRO-HYDRAULIC STATION

### 2.2.1 **Introduction:**

The electro-hydraulic station consists of an electric motor, a gear pump, a tank with suction filter, quick connectors and the control levers needed to operate it.



#### **WARNING !**

Depending on the model of the machine used in the **TRACK** range, the power of the electric motor and the pump's capacity varies, as well as other features. Consult CHAPTER 5: TECHNICAL CHARACTERISTICS, of this *User Manual*.



Figure 8a: hydraulic station at 230 Vac



Figure 8b: hydraulic station at 400 Vac

### 2.2.2 **Parts of the hydraulic station:**

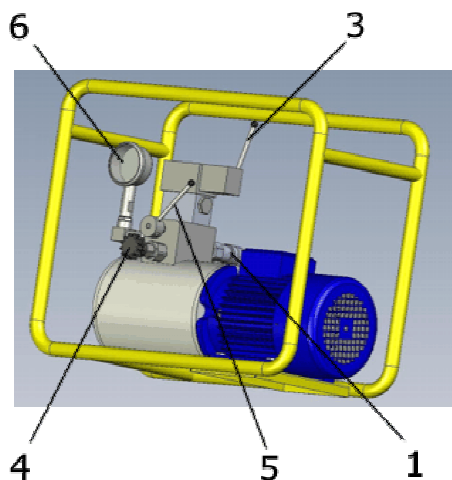


Figure 9

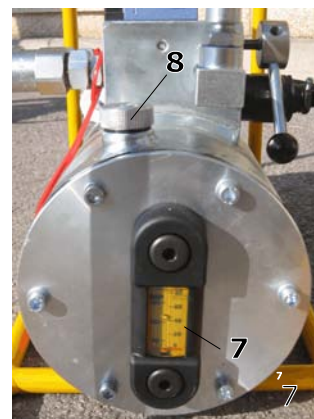


Figure 10

- 1** Flat-sided quick connectors
- 2** Electric cable for connection with Schuko type connectors (not shown)
- 3** Lever for OPEN-NEUTRAL-CLOSED (joystick type)
- 4** Valve for regulating pressure
- 5** Lever valve for discharging the hydraulic circuit
- 6** Pressure gauge
- 7** Oil tank level visor
- 8** Cap for oil tank



## 2.2.3 Use of the hydraulic system:

Once the quick connectors of the hydraulic pressure hose of the base framework have been connected to the corresponding connectors of the hydraulic station (1) and the hydraulic station connected to a power source using the electric cable (2), the electro-hydraulic station will be operational.

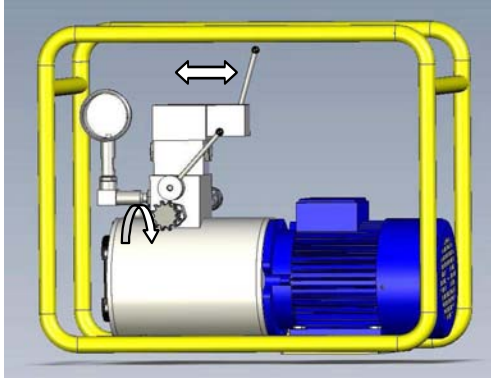


Figure 11

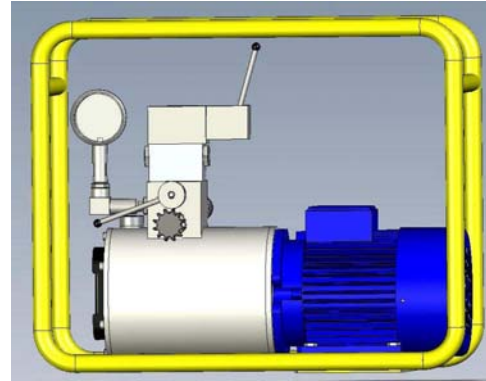


Figure 12

Moving the joystick type lever (3) from one side to another ( $\Leftarrow$  OPEN /  $\Rightarrow$  CLOSE), the operation of the electric motor and the pump is activated automatically, and it also serves to open and close the moveable clamps of the base framework.

**NOTE:** For old 400 Vac hydraulic stations, the clamps open-close operations were carried out by push-buttons.

The pressure is regulated by means of the control knob (4). Turning the control knob clockwise increases the pressure in the circuit, while turning it anti-clockwise reduces the pressure down to zero.



### NOTES !

If the knob (4) is in the wide open position, there will be no movement of the moveable clamps given that the pressure in the circuit will be zero or residual.

The stud of the control knob (4) has a nut to end the chain transmission which limits the maximum pressure of the circuit. This nut is deliberately blocked in manufacture and the tare weight must not, under any circumstance, be altered. An increase in the circuit pressure could irreparably damage the control pressure gauge (6).

To carry out the butt fusion cycle, the necessary pressure for the successive phases is adjusted by tightening (increasing the pressure) or untightening (reducing the pressure) the control knob (4). The pressure gauge (6) is used to check the pressure obtained.

Once the desired pressure has been set, it is applied by tightening the moveable clamps using the joystick (3), or push-buttons, according to model. To release pressure from Phase 1 to Phase 2, lower the lever of the discharge valve (5). See Figure 12. Raise it again once the pressure of the circuit has decreased sufficiently.



### NOTES !

The joystick type lever has three positions: Open-Neutral-Close. When it is put in the CLOSED position, the lever remains in that position until it is moved to the NEUTRAL position. When it is put in the OPEN position, it must be kept in position using the hand, returning automatically to the NEUTRAL position when released.

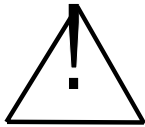
To apply the correct parameters of the butt fusion cycle the Fusion Tables must be used depending on the model of the machine and selecting the tube diameter and thickness: refer to the corresponding annexes.

## 2.3 CONNECTIONS

### 2.3.1 **Electrical connections:**

Each component of the machine: heating plate, trimmer and electro-hydraulic station, is supplied in series with electric cables of Schuko type connection (for 230 Vac) or type 400 Vac (three-phasic connection), depending on the model.

Before connecting, check that the generator or the connection to the power point have the necessary power for the machine to be connected.



**WARNING !**

To consult the necessary power for each of the models of the **TRACK** range, refer to CHAPTER 5: TECHNICAL CHARACTERISTICS, of this *User Manual*.

### 2.3.2 **Hydraulic connections:**

Both the base framework and the electro-hydraulic station have flat-sided quick connectors. With this system, the possibility of an incorrect connection does not exist.

## **CHAPTER 3:   MODE OF USE**

### 3.1   PREPARING THE UNIT

#### 3.1.1   **Electrical connection of the machine:**



Connect all the components of the machine **TRACK** (electro-hydraulic station, heating plate and trimmer) to an alternating electricity power point appropriate to the voltage and power of the model being used.



**IMPORTANT!**

For the specifications of the machine and generator to be used, refer to *CHAPTER 5: TECHNICAL CHARACTERISTICS*, of this *Manual*.

**Connection to the generator:** the connection of the generator to which the unit will be connected will be normalised and equipped with an earth connection and a differential. Refer to the manufacturer's safety instructions for the generator.


**Connecting to the mains:** the electrical installation of the building where the unit is connected must have an earth and circuit breakers connection with a curve type D (EN 60898).

Do not disconnect the plug from the power source pulling directly on the cable.

#### 3.1.2   **Verifying the temperature of the heating plate:**

##### **MODELS PREVIOUS TO 2018:**



Once the heating plate is connected to the power supply, turn it on by means of the provided switch -*Figure 13* (on older models thus switch was not fitted). The heater will start the heating up until the settled temperature is achieved. The current temperature is displayed in real time on the display.

Regardless of the original factory setting (210°C/225°C, depending on model), it is advisable to check the temperature at the start of the day or whenever you change the parameters of the pipes or fittings used. To do this, press the  key. The display will show this value.



*Figure 13*


If having to modify the existing value, set as follows:


1. With the heating plate connected to a power supply (the top right LED will be on), press the spanner sign key.
2. The display shows the temperature at which the plate is programmed. Click the arrows  or , as desired to reduce or increase the temperature (each press goes 5 for 5 degrees).
3. Once these steps are done, after few seconds the display reverts to the actual temperature of the heating plate. When it reaches operating temperature, the lower right LED turns off.





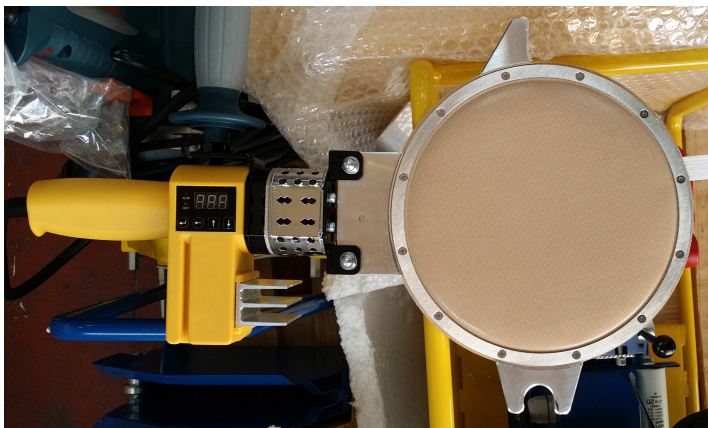
**IF THE  KEY IS NOT PRESSED!**

By pressing the arrow  the display will show the regulator duty cycle settled at factory. The operation cycle last 21 seconds, and 20 is the value showed during the heating plate warming up process (20 seconds of heating and 1 of cooling). This value could automatically change in the case the heating plate has reached the working temperature, thus not needing a large duty cycle (for instance, 15 - 6).

By pressing the arrow  the display will indicate the percentage that the triac is working in the cycle. Both entries are purely informative.

**MODELS 2018:**

Since 2018, the heating plates are equipped with a new regulator. This regulator is mounted on the plate itself (*Figure 13b*) or on the hydraulic power unit (*Figure 13c*) depending on the model.




*Figure 13b*



*Figure 13c*

**Switching On and off of the plate:**





Once the heating plate is connected to the power supply, start it by pressing any of the 4 push buttons. To turn it off, press the  key.

**Verification / Temperature adjustment:**

Once the heating plate is activated, the display will show the default temperature value for a moment. The heater will start heating until the programmed temperature is reached (if the green LED is on, the plate is heating, if it flashes, the programmed temperature has already been reached). The current temperature is displayed in real time on the display.

The original factory setting is (220°C). Modify it according to need (range of 180-280°C) and it is advisable to check the temperature at the beginning of the day or whenever the parameters of the pipes or fittings that are used are changed.

Modify the programmed temperature:

- Press the Enter key . The display will show the current value.
- Modify by pressing the arrows  or , as desired to reduce or increase the temperature (each press goes from 1 to 1 degree).
- Press Enter  to validate.

### **Use as a timer:**

The use of the display as a timer can be done in an incremental or decreasing direction. Incremental count from **000**:

- Press arrow **↑** and Enter **↵** to start counting; press **←** to returns the counter to zero.
- Press **←** to exit and return to the main menu.

Countdown:

- Press the arrow **↓**; the time of the last programming is shown.
- Use arrows **↑** and **↓** to change the time.
- Press Enter **↵** to start counting. An acoustic signal will sound in the final 10 seconds.
- Press **←** to exit and return to the main menu.

### **Error detection:**

In case of detecting any error of operation, the display will show the corresponding error code:

**Er0** Fault / disconnection of the temperature probe.

**Er1** Excessive temperature or triac defective.

**Er2** Defective triac temperature sensor.

**Er3** Excessive temperature or regulator circuit defective. It happens when the interior temperature of the regulator reaches 85°C.

#### **3.1.3 Hydraulic connections:**

Connect the two quick connectors to the hydraulic pressure hoses of the base framework to the points of the hydraulic station. Each of the two hoses has a male and female quick connector. Therefore, there is no possibility of confusion in the connection.

Open and close the moveable clamps of the base framework with the lever of the joystick to check that the hydraulic action is correct.



#### **WARNING !**

If there is air in the hydraulic circuit (producing erratic movements when moving the moveable clamps), the circuit draining is automatically achieved carrying out a number of open-close operations: the hydraulic system is provided with a self-purging system.

#### **3.1.4 Type of hydraulic station:**

On the butt fusion procedure explained on the next clause 3.2, it is stated all the time the use of the hydraulic station which has a joystick type lever to select open, close and neutral positions.

**NOTE:** The hydraulic stations for old machines Track 630/800 and Track 1200, the hydraulic pack was provided with open-close push buttons (instead of joystick). To close and open the movable clamps keep pushed the relevant push-button as many time as it is required: the directional valve is electrically operated by solenoid-valves.

## 3.2 BUTT FUSION PROCEDURE FOR PIPES AND FITTINGS

### 3.2.1 **General criteria for jointing by butt fusion:**

The chemic-physical characteristics of the materials to be joined using this technique must be compatible with each other, with the compatibility between the materials needing to be certified by the manufacturer of the pipes and fittings.

The thickness of the walls of the elements to be joined must be the same, that is to say, belonging to the same series S or PN.

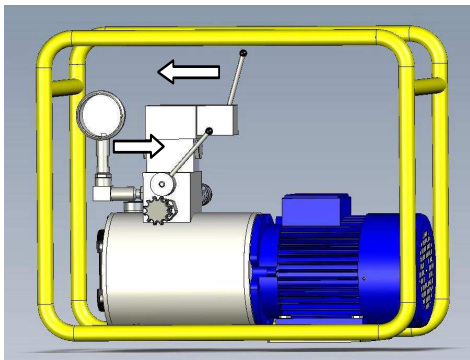
The butt fusion must be carried out respecting the following conditions:

- Butt fusions must only be carried out by qualified personnel. The workspace where the machine is located must be horizontal, and level.
- In the case of humidity, wind or low temperatures, the butt fusion area must be covered with a protecting curtain. The room temperature, measured in the pipes/fittings to be united, should vary between 0°C and +40°C.
- The ends of the pipes/fittings to be joined must be sealed by means of protection caps to avoid the cooling of the surfaces to be joined as a result of draughts of air.
- The ends of the pipes to be joined must be placed on rollers which enable them to be moved.
- The butt fusion machine must always be in perfect working shape, taking care especially to keep it clean and greased.
- The non-stick surface of the heating plate must be cleaned before every fusion cycle by using non-fraying paper and alcohol.
- The heating plate must be programmed with the correct working temperature depending on the material of the pipes and fittings to be used.
- Before carrying out the butt fusion operations, check that the working temperature is stable on the display screen of the heating plate.
- To check the temperature of the heating plate, use a digital type contact thermometer or otherwise a pyrometric pencil. If using a pyrometric pencil, the liquefaction of the mark made on the heating plate tells us that the heater is above the specified temperature for the pencil.

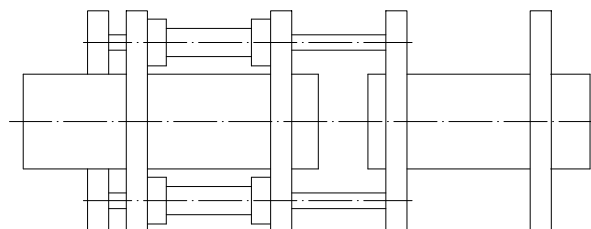
### 3.2.2 **Preparation of the pipes and the machine:**

- ① Position the base framework making sure that it is firmly placed on the job spot in this way avoiding any form of movement during the butt fusion cycle that could cause strain on the pipes to be joined.
- ② Place the electro-hydraulic station and the heating plate and trimmer holder near the base framework.

- ③ Place the movable clamps of the base framework in wide open position moving the joystick type lever in the direction indicated in *Figure 14* (the lever of the discharge valve will be in closed position). Prepare the clamps to the size of the pipes/fittings to be joined.



*Figure 14*

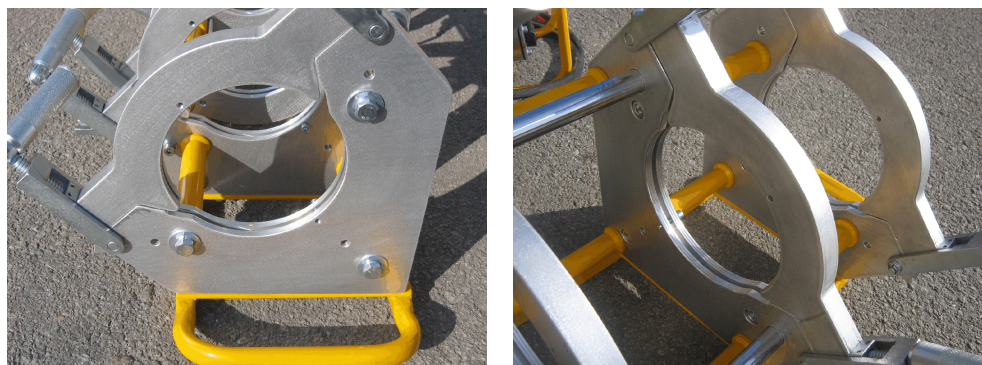


*Figure 15*

- ④ If joining a pipe with a fitting or a fitting to another, prepare the base framework in such a way that the fitting can be clamped down. The fittings to be butt fused can be, among others:

- Elbow joints of 90°, 45° or 30°
- Curve of 90°
- Tees of 90° (equal or reduced)
- Reducer (concentric and eccentric)
- Flange adaptor
- Cap

- ⑤ The exterior clamps of the fixed side (the first of the one on the right as in *Figure 16a*) is removable to accommodate fittings. To detach it, loosen the screws to free the lower clamp and the spacer tubes which attach it to the inner fixed clamp. To set up, follow the sequence in reverse order.



*Figure 16a: Exterior removable clamp*

Currently, in some models it is not necessary to disassemble the clamp to butt fuse fittings. In the standard configuration the two fixed clamps (No. 3 and No. 4) are joined by two handrails (*Figure 16b*). For the butt fusion of fittings such as elbows, tees, etc., fix them to the outer clamp No. 4 and move the two handrails so that they join the clamps No. 2 and No. 3 (*Figure 16c*). The distance between these two clamps can also be adjusted according to the type and volume of the fitting (*Figure 16d*).



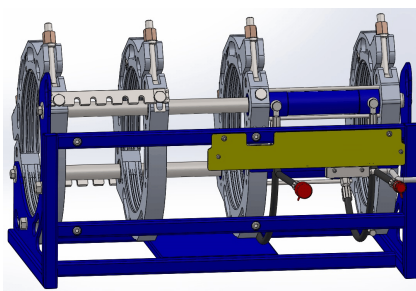


Figura 16b

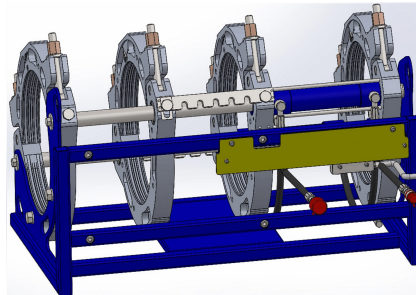


Figura 16c

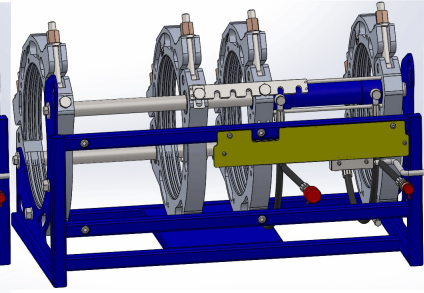


Figura 16d

- ⑥ With the upper clamps dismantled, place the pipes/fittings on each of the sides in such a way that they jut out a minimum distance from the clamps and that it is possible to position the trimmer between the pipes/fittings (before assembling, check the insides and outsides of the pipes/fittings to be fused); make sure that they are level (use support rollers). *Figure 15.*
- ⑦ Mount the upper clamps and fasten the bindings on both sides of the clamp, making sure to tighten them evenly.
- ⑧ After assembly, check the alignment of the pipes/fittings. The maximum allowed alignment tolerance according to ISO 12176-1 is 10% of the thickness of the pipes. Correct the alignment by adjusting the upper and lower tautness of the clamps, to that appropriate. Take advantage of this tightening operation to measure the drag.

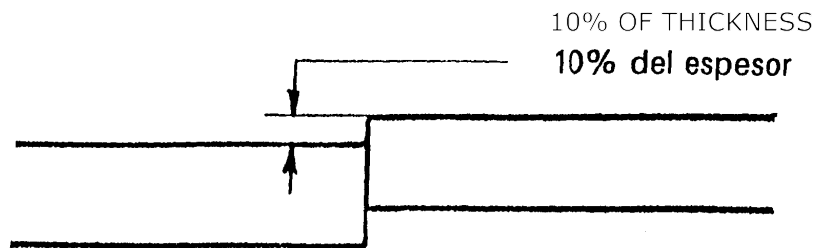


Figure 17

- ⑨ Measure of drag:
  - Position the pressure regulating valve of the hydraulic station in the wide open position (*Figure 18*).
  - Position the lever of the joystick in the CLOSED position (*Figure 19*).
  - Begin closing the pressure regulating valve (clockwise direction) until the moveable clamps move.
  - Have a look at the pressure being indicated by the needle of the pressure gauge.

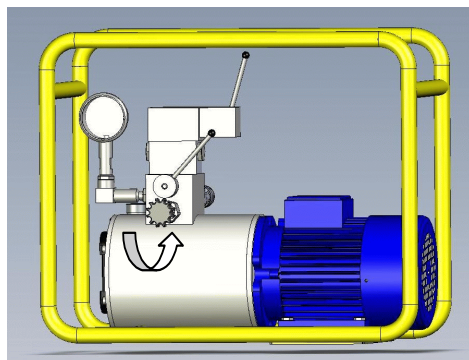


Figure 18

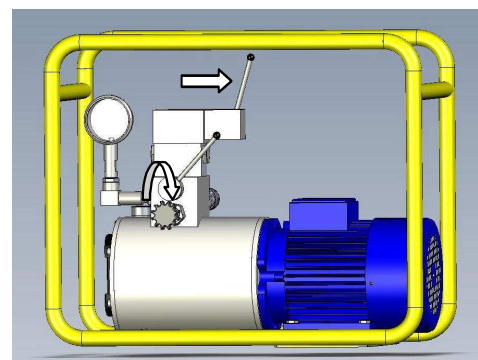


Figure 19

### 3.2.3 Trimming of the pipes/fittings:

- ① Position the trimmer between the pipes/fittings to be joined, placing them on the bar guides of the base framework and on the face of the pipe tied to the fixed clamps.
- ② Switch on the trimmer motor.



**ATTENTION !**  
 Handle the trimmer with caution. There is a risk of being cut by the blades.  
 The trimmer is equipped with a safety switch which prevents it from being switched on if it is not situated on the bar guides.

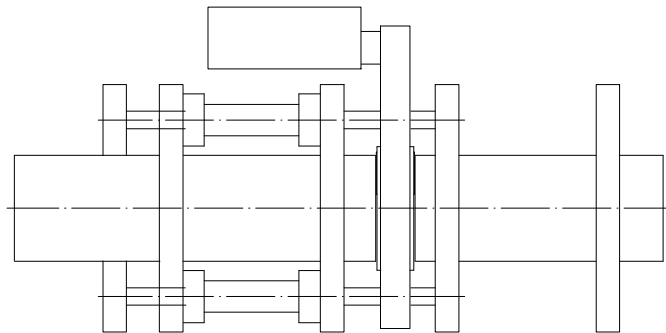


Figure 20

- ③ Bring the pipes towards the trimmer by means of the joystick lever. *Figure 21.*
- ④ Trim both pipe ends until the shavings obtained come out in continuous fashion on both sides.  
NOTE: in case of pure trimming, add to the drug pressure, already adjusted, the necessary pressure for the blades to begin shaving.
- ⑤ At this stage, invert the sense of the action lever to separate the pipes from the trimmer. *Figure 22.*

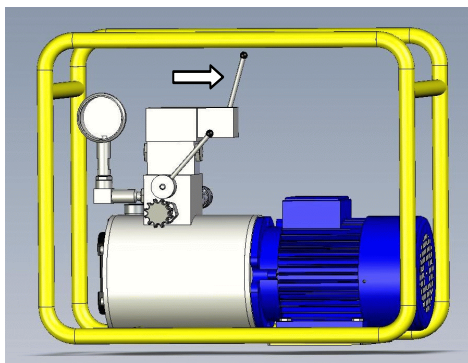


Figure 21

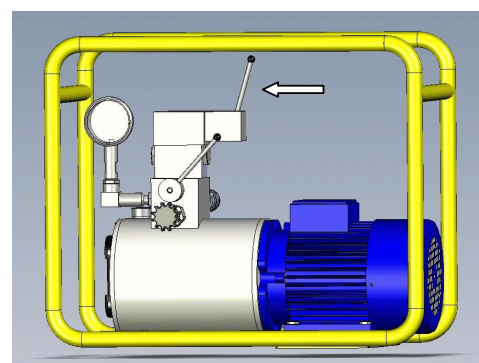


Figure 22

- ⑥ Stop the trimmer motor and remove the trimmer from the base framework.

- ⑦ Carry out the visual control. On this step, it is recommended to check again the drug pressure to guarantee that any of the initial conditions have been modified. To check the drag again, slightly open the pressure regulating valve of the hydraulic station and position the lever of the joystick in the CLOSED position; begin closing the pressure regulating valve (clockwise direction) until the moveable clamps move. Have a look at the pressure being indicated by the needle of the pressure gauge.
- ⑧ Checking the cut obtained: according to ISO 12176-1, the perpendicularity of the cut of the ends of the pipes will have a maximum tolerance of play (depending on the diameter of the pipe/fitting) between both.

P = 0,3 mm	for $\phi. \leq 250$ mm
P = 0,5 mm	for $\phi. 250 < a \leq 400$ mm
P = 1 mm	for $\phi. 400 < a \leq 630$ mm
P = 0,2% de $d_n$	for $\phi. \geq 630$ mm

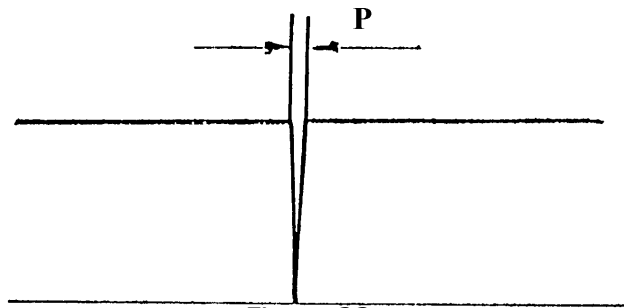


Figure 23

To guarantee that the pipe end sides remain flat, the thickness of the shavings obtained must be the minimum possible (preferably between 0.2 and 0.3 mm, depending on the diameter).



**NOTE !**

If the cut of the blades were not correct, check and adjust following the procedure described in CHAPTER 4: MAINTENANCE, of this *User Manual*.

If the tolerances of the specification to be applied are not attained, trim again.

**3.2.4 Heating plate:**

- ① Make sure that the temperature of the heater is correct (temperature shown on display screen should depend on the specification used: refer to Annex corresponding to the model used on Chapter 5 - Technical Characteristics).



**ATTENTION !**

Hot surfaces! DO NOT touch !  
You are recommended to use protective gloves.  
The working temperature of the plate must be perfectly stable.



**OPTIONAL RETRACTOR PLATE**

Some models can incorporate a mechanism for mounting and removing the heater in an automatic way. Request additional information.

### 3.2.5 Butt fusion procedure:

- ① With the help of the butt fusion Table (see the number of the corresponding Annex of the model being used in Chapter 5 - *Technical Characteristics*), identify the fusion parameters: once you know the diameter and thickness of the pipe, locate the pressures to apply in the different phases of the butt fusion cycle (you will have to add the necessary drag pressure to move the pipes) and the appropriate times of each phase as well.
- ② On the step of visual control, where the pipes/fittings were brought nearer together, increase the pressure by turning the knob of the regulating valve clockwise until you achieve the appropriate pressure (initial heating pressure + drag). See *Figure 24*.

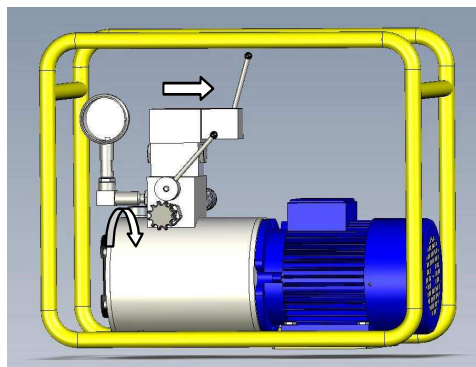


Figure 24

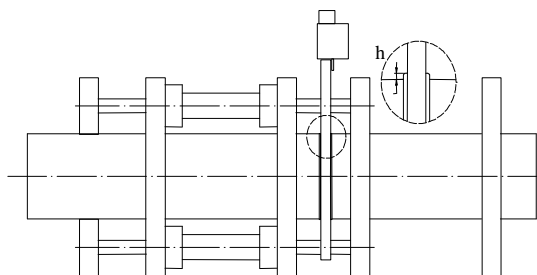


Figure 25

- ③ Open the moveable clamps sufficiently so as to introduce the heating plate and place it on the guide bars of the base framework and between the pipes/fittings to be joined. Bring the pipes/fittings to the heating plate, applying the pressure obtained in clause ② (initial heating pressure + drag). *Figure 25*.
- ④ PHASE 1: Put the joystick in the CLOSED position (*Figure 24*). Let the material flow until a bead of certain thickness is formed (consult the Table).
- ⑤ PHASE 2: Put the joystick in NEUTRAL and reduce the pressure of the circuit by lowering the lever of the discharge valve until the pressure is the minimum necessary to maintain contact of the heating plate with the pipes (never less than the drag pressure) and raise it once again to block it (*Figure 26-27*). Calculate the appropriate time of Phase 2 indicated in the Table.

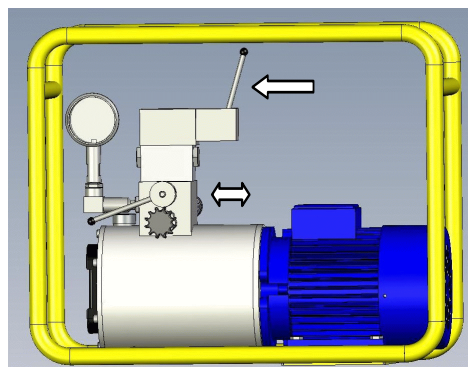


Figure 26

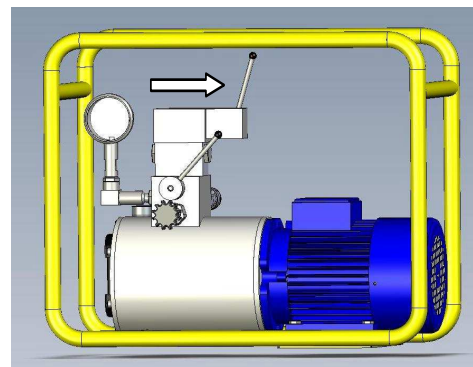


Figure 27



- ⑥ **PHASE 3:** After a time has elapsed, separate the pipes from the heating plate ( $\Leftrightarrow$ ), remove the heater rapidly and bring the pipe ends together to join them ( $\Rightarrow$ ). The maximum opening and closing time should not be greater than the time indicated in the Table (it is recommended that this time be the minimum possible time to avoid the oxidation of the ends of PE to be joined as they are exposed to the room air temperature).

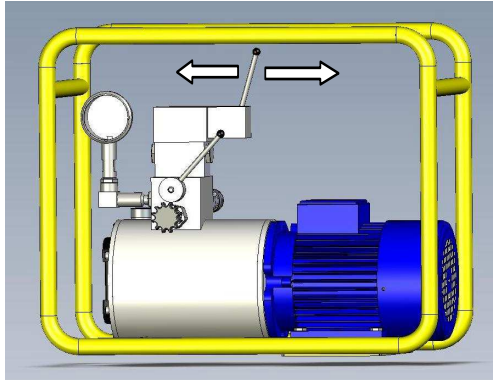


Figure 28

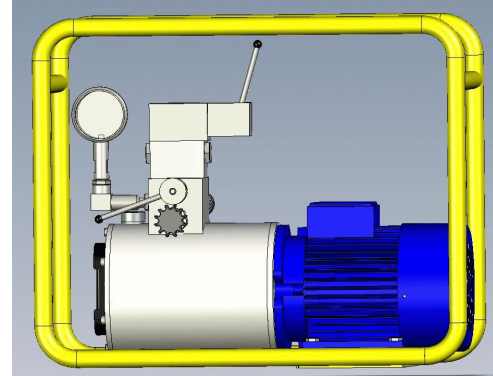


Figure 29

- ⑦ **PHASE 4-5:** Keep the lever of the joystick in CLOSED position to apply the fusion pressure (already adjusted in Phase 1) and time of Phase 5 indicated in the Table. To optimize resources, after 2-3 minutes you can switch the lever to NEUTRAL until the end of time; however, regularly check the pressure gauge and pump if necessary (by placing the lever in CLOSE for a few seconds to restore pressure). In case of excessive pressure loss (greater than 3-4 bar), the problem may lie in the check valve (incorrect closing for dirt in the circuit, etc.). Send the hydraulic pack to revise the hydraulic system.
- ⑧ **PHASE 6:** Once the time of Phase 5 has expired, keep or put the joystick in NEUTRAL position and remove the pressure by lowering the lever of the discharge valve (Figure 29) and wait during the immobilisation period without applying pressure (cooling stage) indicated in the Table (Phase 6).
- ⑨ Once the fusion has terminated, we recommend you take advantage of the cooling time before dismantle the pipes/fittings and to jot down the following data on both sides of the pipes or fittings with a permanent marker:
- Date  
Time  
Operator's ID  
Join number
- ⑩ Once the cooling time has elapsed, check the bead width of the join obtained, comparing it to the margins of tolerance indicated in the Table (if applicable).

## **CHAPTER 4: MAINTENANCE**

### 4.1 GENERAL INFORMATION

#### 4.1.1 **Introduction:**

The butt fusion machines of the **TRACK** range, are equipment designed and built to work for a long time without the need to carry out expensive maintenance repairs; one only has to try to handle them with care when loading and unloading and during transportation (it is recommended to always use the original boxes when transporting), to maintain general cleanliness and to abide by the specified preventive maintenance. The costs of this preventive maintenance are very low and allow for the investment to be regained rapidly, if one has a unit in a perfect working state at all times.

This chapter includes those operations of use and general upkeep of the unit. In the case of an anomaly of any kind, carry out the verifications outlined in this Chapter. Nevertheless, it is made clear that any work carried out by unqualified personnel which may go beyond that specified here, could cause damage to the unit, mainly in the hydraulic system.

#### 4.1.2 **Storage:**

In the case of having the unit unused for some time, keep all the components stored in packaging which protect them from dust, humidity, extreme temperatures, direct sunlight, etc.. The placement of the unit within a storeroom can be done directly on the floor or on palletisations shelves.

#### 4.1.3 **Services:**

It is recommended to have a minimum yearly Service of the machine, sending it to the After-sales Service of ACUSTER GLOBAL, S.L.

## 4.2 BASE FRAMEWORK MAINTENANCE

### 4.2.1 **Hydraulic cylinders, pressure hoses and quick connectors:**

Check periodically that the hydraulic cylinders do not exude oil and that the drain screws and their joint washer is firmly in place.  
Check that the hydraulic hoses do not have any cuts or incisions that might cause an oil leak and that the quick connectros are clean and protected from dust and dirt (maintain the oil circuit free from impurities).

### 4.2.2 **Pipe adaptors:**

Before assembling the pipe adaptors in position, make sure they are clean and fit correctly. Do not tighten the securing screws in excess.

### 4.2.3 **General cleaning and greasing:**

Always keep the base framework clean and in a perfect condition of use. Clean it after doing a job.  
Grease the guide bars with a cloth dampened with oil.

## 4.3 MAINTENANCE OF THE HEATING PLATE

Clean it periodically to avoid the PE particles being gradually deposited on the sides of the heater forming an insulating layer which might alter its heating performance when in operation. To clean it, only use white paper or a clean cotton cloth, that does not leave hairs (NEVER EVER use Tangit, isopropanol nor trichloroethylene, especially when the heating plate is hot).

## 4.4 MAINTENANCE OF THE TRIMMER

### 4.4.1 **Trimmer face discs:**

Verify the correct cutting of the blades. The shearing of shavings must be uniform and with a recommended thickness of between 0.2 and 0.3 mm on both sides. If the cut is not correct (both in terms of the thickness and evenness of the shavings), proceed to adjust the blade(s). To do this, dismantle the blade and supplement with gauges if necessary. If the edge of the blade shows signs of wear or is nicked, reverse the blade to the other side of the cut (double-edged blades).

One must also bear in mind that the adjustment of the blades may vary according to the diameter of the pipes/fittings to be trimmed, needing to be adjusted to adapt to the specific dimension of the pipe size used.

#### 4.4.2 **Electric motor (drilling machine or motor):**

For the trimmer to function the switch of the machine must be activated, putting it on by means of the blockage button of the switch. For this, it is necessary that the trimmer be positioned in the area of work, seeing that the safety switch which it is equipped impedes an inappropriate usage. Check that the switch is working.

#### 4.5 MAINTENANCE OF THE HYDRAULIC STATION

##### 4.5.1 **Introduction:**

Check the oil level in the visor with which the deposit is equipped.  
Do this check on a weekly basis.  
If the level is low, top up with oil using the upper cap to fill the deposit.  
The original is HYDROL HL-46 for hydraulic systems.



##### **WARNING !**

Different types of oil must not be mixed in a hydraulic circuit, even though they may have similar characteristics. Always use the same brand and type of oil when adding some to the hydraulic circuit.  
In the case of not having the oil here specified, substitute the entire system with an equivalent oil approved by the After-sales Service of ACUSTER GLOBAL, S.L.  
Claims will not be admitted for a breakdown of hydraulic components (piston actuator and operational pump) due to a violation of that mentioned above.

##### 4.5.2 **Maintenance:**

The main cause of leaks is brought on by the infiltration of dirt into the circuit, and thus it is very important to ensure the cleanliness of the hydraulic oil at all times. Other breakdowns in operation might be due to normal wear and tear, as well as flaws or breakages due to incorrect usage.

In the case that dirt has penetrated into the circuit, it is very probable that a thorough cleaning will solve many of the problems. It is recommended to send the hydraulic generator to the After-sales Service of ACUSTER GLOBAL, S.L. for an adequate check and repair.

## CHAPTER 5: TECHNICAL CHARACTERISTICS

### 5.1 BASE FRAMEWORK

MODEL	TRACK 160	TRACK 250	TRACK 315	TRACK 315R	TRACK 400	TRACK 400R
Range of sizes	40-160	63-250	90-315	90-315	140-400	75-400
Exterior dimensions (cm)	79x39x41	79x44x47	79x55x54	82x59x55	120x65x65	95x67x66
Weight without pipe adapters (kg)	32.5	41	44.5	66	87.5	87
Set of basic pipe adapters	Aluminium 50-140	Aluminium 75-225	Aluminium 90-280	Steel 90-280	Aluminium 160-355	Al/Steel 160-355
Transport case dimensions (cm)	54x37x12	64x36x17	64x36x17	66.5x36x20.5	80x48x24	80x48x24
Weight of pipe adapters (with case) (kg)	13.7	30.7	40.1	107.7	61.1	86.8

MODEL	TRACK 500	TRACK 500R	TRACK 630	TRACK 800	TRACK 1000	TRACK 1200
Range of sizes	200-500	200-500	315-630	500-800	450-1000	630-1200
Exterior dimensions (cm)	121x66x70	116x70x74	170x115x105	170x115x126	223x153x146	290x170x180
Weight without pipe adapters (kg)	107	200	300	410	1020	3250
Set of basic pipe adapters	Aluminium 250-450	Aluminium 250-450	Aluminium 355-560	Steel 500-800	Steel 450-900	Steel 710-1000
Transport case dimensions (cm)	76x43x35	76x43x35	110x70x43	4+1 palets	7 palets	4+1 palets
Weight of pipe adapters (with case) (kg)	81.8	81.8	200.3	776	1376	1189

### 5.2 HEATING PLATE

MODEL	TRACK 160	TRACK 250	TRACK 315	TRACK 315R	TRACK 400	TRACK 400R
Voltage (Vac)	230 (Mono-phasic)					
Power (W)	1000	1900	2100	2100	3100	3100
Temperature regulation	Adjustable electronically from 180 to 280°C					
Coating	PTFE					
Exterior dimensions (cm)	27.5x6.5x50	36x12x58	47x11x70	44.5x12x57	52x12x75	51.5x12x64
Weight (kg)	3.35	5.5	7.2	10	12	14

MODEL	TRACK 500	TRACK 500R	TRACK 630	TRACK 800	TRACK 1000	TRACK 1200
Voltage (Vac)	230 (Mono-phasic)		400 (Three-phasic)			
Power (W)	3800	3800	6800	8000	15000	18000
Temperature regulation	Adjustable electronically from 180 to 280°C					
Coating	PTFE					
Exterior dimensions (cm)	64x8x110	84.4x62x81	82x10x110	85x10x120	223x153x146	160x12x18
Weight (kg)	17.5	18	30	46	92	180

### 5.3 TRIMMER

MODEL	TRACK 160	TRACK 250	TRACK 315	TRACK 315R	TRACK 400	TRACK 400R
Voltage (Vac)	230 (Mono-phasic)					
Power (W)	1200	1200	1200	1200	1300	1300
Cutting blades	Double edge, adjustable					
Exterior dimensions (cm)	36x26x45	41x36x42	46x47x55	48x28.5x53	62x16x90	78.5x16.5x77.5
Weight (kg)	8.3	15.3	21.8	22	35.5	37

MODEL	TRACK 500	TRACK 500R	TRACK 630	TRACK 800	TRACK 1000	TRACK 1200
Voltage (Vac)	230 (Mono-phasic)		400 (Three phasic)			
Power (W)	750	750	1100	1500	2200	2200
Cutting blades	Double edge, adjustable					
Exterior dimensions (cm)	62x23x98	96x73x21.5	92x25x120	90x25x135	144x128x262	170x300x180
Weight (kg)	58	58	102	120	250	390

### 5.4 HEATING PLATE AND TRIMMER HOLDER

MODEL	TRACK 160	TRACK 250	TRACK 315	TRACK 315R	TRACK 400	TRACK 400R
Exterior dimensions (cm)	32x25.5x34	36x33x34	40x37x42	38x45.5x42.5	50x42x50	42x58x57
Weight (kg)	4.22	6.5	8	8.5	13	15

MODEL	TRACK 500	TRACK 500R	TRACK 630	TRACK 800	TRACK 1000	TRACK 1200
Exterior dimensions (cm)	60x60x70	66x62x81	78x78x60	120x100x110	108x96x135	150x105x160
Weight (kg)	22.5	26	40.5	90	210	260

### 5.5 ELECTRO-HYDRAULIC STATION

MODEL	TRACK 160/400R	TRACK 500	TRACK 500R	TRACK 630/800	TRACK 1000/1200
Voltage (Vac)	230 (Mono-phasic)			400 (Three-phasic)	
Power (Kw)	0.55	0.55	0.75	0.75	2.2
Maximum pressure (bar)	95	155	155	155	155
Pressure gauge (bar)	0-100	0-160	0-160	0-160	0-160
Oil tank (litres)	2.5				10
Exterior dimensions (cm)	51x31x41.5	51x31x41.5	51x31x41.5	77x44x47	75x45x70
Weight (kg)	31.5	31.5	31.5	47.5	70

### 5.6 COMPLETE MACHINE

MODEL	TRACK 160	TRACK 250	TRACK 315	TRACK 315R	TRACK 400	TRACK 400R	TRACK 500	TRACK 500R	TRACK 630	TRACK 800	TRACK 1000	TRACK 1200
Voltage (Vac)	230 (Mono-phasic)								400 (Three-phasic)			
Total power (Kw)	2.75	3.65	3.85	3.85	4.95	4.95	5.1	5.3	8.75	10.25	19.14	22.4
Nett weight w/o pipe adapters (kg)	80	100	109	138	179.5	184.5	236.5	333.5	520	713.5	1642	4150
Nett weight w. pipe adapters (kg)	93.7	130.7	149	245.7	240.6	271.3	318.3	415.3	720.3	1489.5	3018	5339

### 5.7 GENERATOR SPECIFICATIONS

MODEL	TRACK 160	TRACK 250	TRACK 315	TRACK 315R	TRACK 400	TRACK 400R	TRACK 500	TRACK 500R	TRACK 630	TRACK 800	TRACK 1000	TRACK 1200
Voltage (Vac)	230 (Mono-phasic)								400 (Three-phasic)			
Advisable minimum power (VA)	3500	4500	4500	4500	6000	6000	6000	6500	10500	12500	23000	27000

### 5.8 DOCUMENTATION:

List of documents included with the machine:

- User Manual (Publication MU-78-09E)
- Table of butt fusion parameters:

MODEL	PUBLICATION
TRACK 160	ANX-169E
TRACK 250	ANX-170E
TRACK 315	ANX-171E
TRACK 315R	ANX-176E
TRACK 400	ANX-172E
TRACK 500	ANX-173E
TRACK 630/800	ANX-174E
TRACK 800 (model 2015)	ANX-175E

