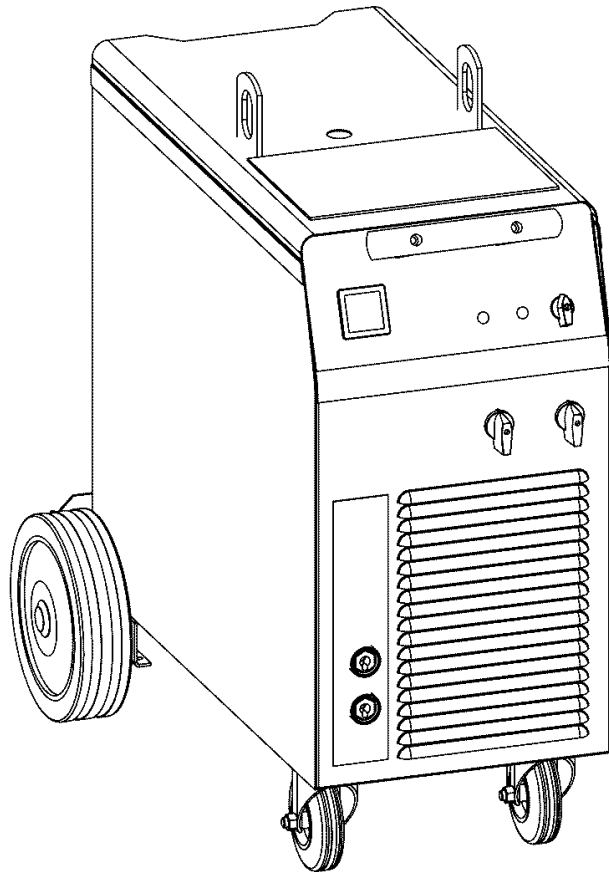


# *Challenger 400*



**Instruction manual**



# DECLARATION OF CONFORMITY

## Murex Welding Products Ltd.

Declare hereby that:

### **Murex Challenger 400**

Part No. 0349 308 110, 0349 308 120

Manufactured after 1st May 2005

- conform with the requirements of Council Directive 72/23/EEC, amended by Council Directive 93/68/EEC, relating to electrical equipment designed for use within certain voltage limits.
- conform with the requirements of Council Directive 89/336/EEC, amended by Council Directive 93/68/EEC, relating to electromagnetic compatibility.
- are manufactured in accordance with EN60974-1 Safety Requirements for Arc Welding Equipment.
- are manufactured in accordance with EN50199 Electromagnetic Compatibility for Arc Welding Equipment.

On behalf of Murex Welding Products Ltd.  
Hanover House, Queensgate  
Britannia Road, Waltham Cross  
Herts. EN8 7TF  
England

A handwritten signature in black ink, appearing to read "H. Selenius".

Henry Selenius  
Vice President  
ESAB Welding Equipment AB  
695 81 LAXA  
SWEDEN

Manufactured by Esab Welding Equipment AB.

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# 1 SAFETY

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Users of welding equipment have the ultimate responsibility for ensuring that anyone who works on or near the equipment observes all the relevant safety precautions. Safety precautions must meet the requirements that apply to this type of welding equipment. The following recommendations should be observed in addition to the standard regulations that apply to the workplace.

All work must be carried out by trained personnel well-acquainted with the operation of the welding equipment. Incorrect operation of the equipment may lead to hazardous situations which can result in injury to the operator and damage to the equipment.

1. Anyone who uses the welding equipment must be familiar with:
  - its operation
  - location of emergency stops
  - its function
  - relevant safety precautions
  - welding
2. The operator must ensure that:
  - no unauthorised person is stationed within the working area of the equipment when it is started up.
  - no-one is unprotected when the arc is struck
3. The workplace must:
  - be suitable for the purpose
  - be free from draughts
4. Personal safety equipment
  - Always wear recommended personal safety equipment, such as safety glasses, flame-proof clothing, safety gloves.
  - Do not wear loose-fitting items, such as scarves, bracelets, rings, etc., which could become trapped or cause burns.
5. General precautions
  - Make sure the return cable is connected securely.
  - Work on high voltage equipment **may only be carried out by a qualified electrician.**
  - Appropriate fire extinguishing equipment must be clearly marked and close at hand.
  - Lubrication and maintenance must **not** be carried out on the equipment during operation.



# WARNING



**ARC WELDING AND CUTTING CAN BE INJURIOUS TO YOURSELF AND OTHERS. TAKE PRECAUTIONS WHEN WELDING. ASK FOR YOUR EMPLOYER'S SAFETY PRACTICES WHICH SHOULD BE BASED ON MANUFACTURERS' HAZARD DATA.**

**ELECTRIC SHOCK – Can kill**

- Install and earth the welding unit in accordance with applicable standards.
- Do not touch live electrical parts or electrodes with bare skin, wet gloves or wet clothing.
- Insulate yourself from earth and the workpiece.
- Ensure your working stance is safe.

**FUMES AND GASES – Can be dangerous to health**

- Keep your head out of the fumes.
- Use ventilation, extraction at the arc, or both, to take fumes and gases away from your breathing zone and the general area.

**ARC RAYS – Can injure eyes and burn skin.**

- Protect your eyes and body. Use the correct welding screen and filter lens and wear protective clothing.
- Protect bystanders with suitable screens or curtains.

**FIRE HAZARD**

- Sparks (spatter) can cause fire. Make sure therefore that there are no inflammable materials nearby.

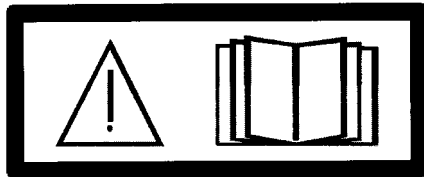
**NOISE – Excessive noise can damage hearing**

- Protect your ears. Use earmuffs or other hearing protection.
- Warn bystanders of the risk.

**MALFUNCTION – Call for expert assistance in the event of malfunction.**

**READ AND UNDERSTAND THE INSTRUCTION MANUAL BEFORE INSTALLING OR OPERATING.**

**PROTECT YOURSELF AND OTHERS!**



## WARNING!

Read and understand the instruction manual before installing or operating.



## WARNING!

Do not use the power source for thawing frozen pipes.



**This product is solely intended for arc welding.**

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## 2 INTRODUCTION

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The Challenger 400 are step switched power sources designed for MIG/MAG-welding with wire feed units.

The power units are fan-cooled and equipped with thermal overload protection. The machines can be fitted with an instrument that displays current and voltage.

It incorporates a hold function and can be calibrated.

### 2.1 Equipment

The power source is supplied with:

- Return cable 5m with return clamp
- Shelf for gas cylinder
- Guide pin for wire feed unit
- Instruction manual

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## 3 TECHNICAL DATA

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<b>Voltage</b>	400–415V, 3–50/60 Hz
<b>Permissible load</b> at 100 % duty cycle	280 A/28 V
at 60 % duty cycle	365 A/32 V
at 50 % duty cycle	400 A/34 V
<b>Setting range (DC)</b>	50A/16,5V–400A/34V
<b>Open circuit voltage</b>	17–45 V
<b>Open circuit power</b>	360 W
<b>Efficiency</b> at max current	71%
<b>Power factor</b> at max current	0,98
<b>Control voltage</b>	42 V, 50/60 Hz
<b>Dimensions l x w x h</b>	812 x 552 x 925
<b>Weight</b>	142 kg
<b>Operating temperature</b>	–10 to +40°C
<b>Enclosure class</b>	IP 23
<b>Application classification</b>	<b>S</b>

#### Duty cycle

The duty cycle refers to the time as a percentage of a ten-minute period that you can weld at a certain load without overloading.

#### Enclosure class

The IP code indicates the enclosure class, i. e. the degree of protection against penetration by solid objects or water. Equipment marked **IP23** is designed for indoor and outdoor use.

#### Application class

The symbol **S** indicates that the power source is designed for use in areas with increased electrical hazard.

## 4 INSTALLATION

*The installation must be executed by a professional.*

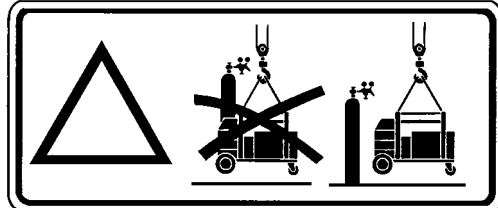


### WARNING!

This product is intended for industrial use. In a domestic environment this product may cause radio interference. It is the user's responsibility to take adequate precautions.

### Lifting instructions

The power supply should be lifted by means of its lifting eye. The handle is only intended for pulling it along the ground.

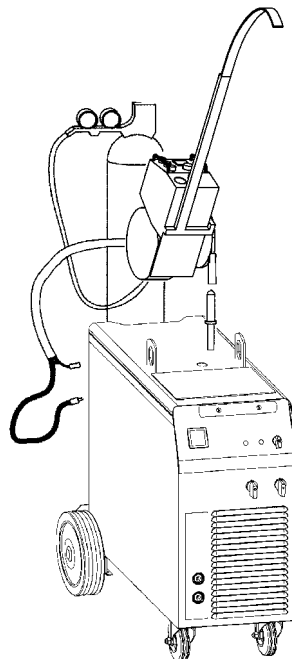


### 4.1 Placing

Position the welding power source such way that its cooling air inlets and outlets are not obstructed.

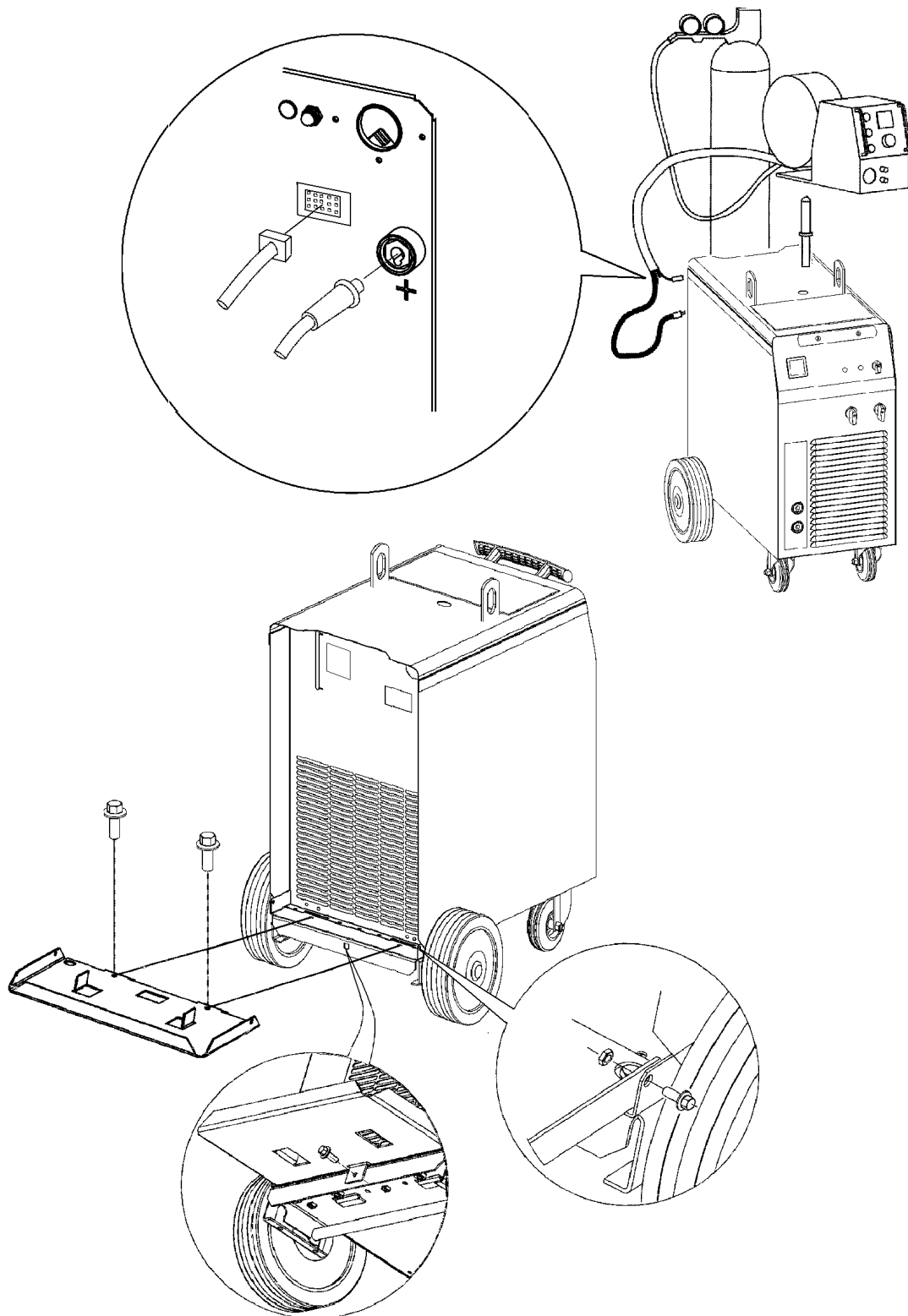
### 4.2 Assembly of stabilizer

Assemble the stabilizer if counter balance is to be installed on machine. The stabilizer is an accessory. Ordering number you can find on page 14.



**Attention!** Utilization of counter balance without stabilizer may cause the machine tipping over.

### 4.3 Assembly of components

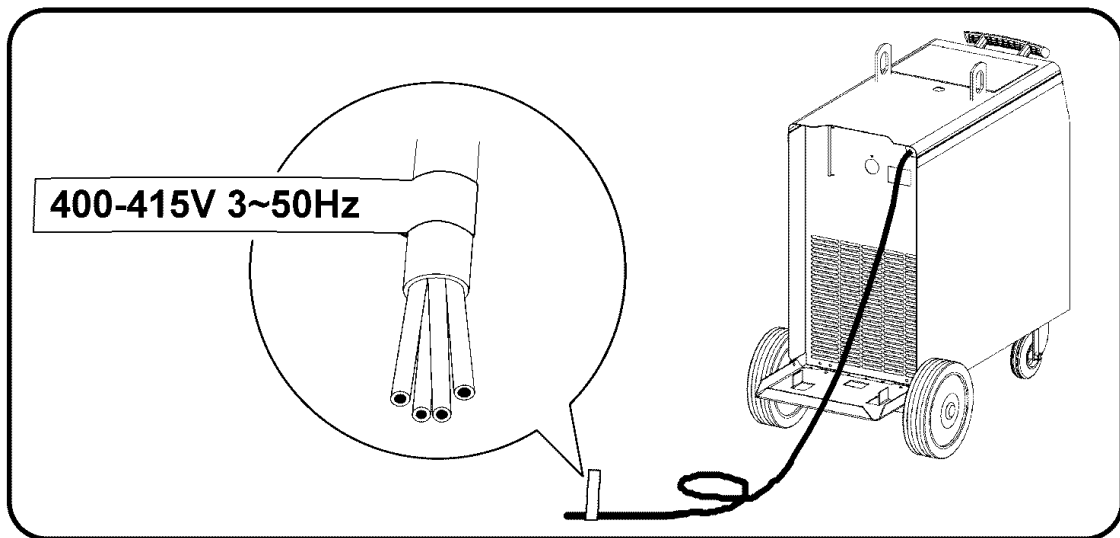


#### **WARNING!**

During transport, the rear wheels of the power source are in their forward position. Before use, place the wheels in their rear position.



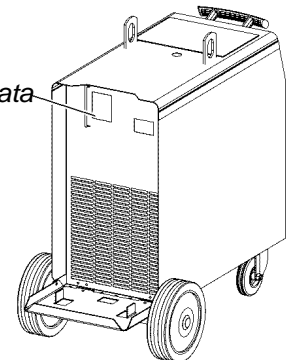
## 4.4 Electrical installation



## 4.5 Mains power supply

Check that the unit is connected to the correct mains power supply voltage, and that it is protected by the correct fuse size. A protective earth connection must be made, in accordance with regulations.

*Rating plate with supply connection data*



<b>Voltage V</b>	400/415 3~ 50/60 Hz
<b>Current A</b>	
at 100% duty cycle	16
at 60% duty cycle	24
at 50% duty cycle	28
<b>Cable area mm<sup>2</sup></b>	4 x 2,5
<b>Fuse, slow A</b>	20

## 5 OPERATION

**General safety regulations for the handling of the equipment can be found on page 4. Read through before you start using the equipment!**

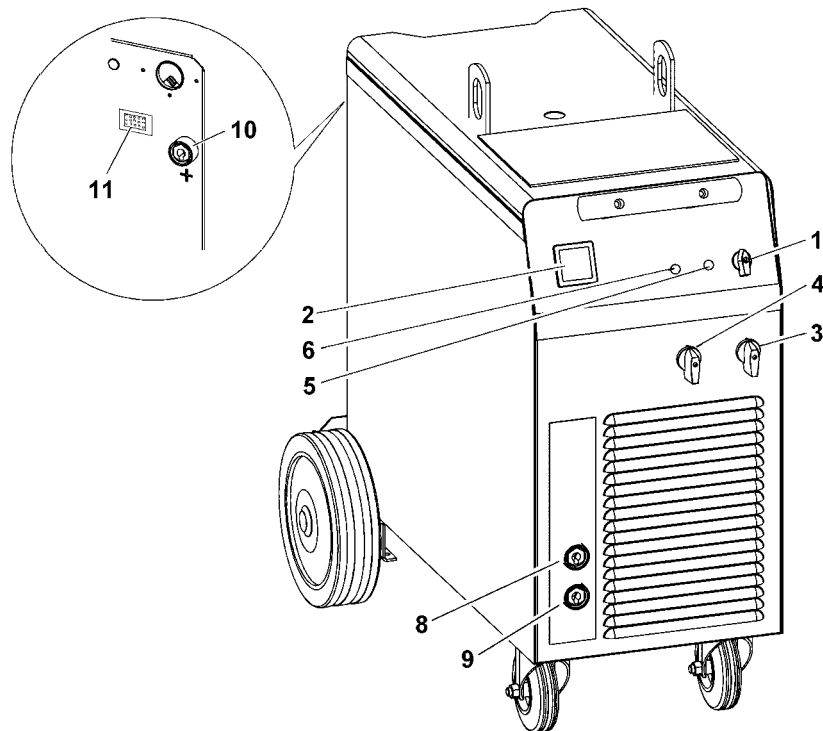


### WARNING – TIPPING RISK!

There is a risk of tipping while transportation and operation, if the welding machine leans more than 10°. In that case appropriate securing has to be provided !

### 5.1 Connection and control devices

- |   |   |    |  |
|---|---|----|--|
| 1 | Mains supply switch                             | 8  | Connection for return cable (-), high inductance |
| 2 | Space for digital meter (optional), see page 14 | 9  | Connection for return cable (-), low inductance  |
| 3 | Switch, precise control                         | 10 | Connection for welding current cable (+)         |
| 4 | Switch, coarse control                          | 11 | Connection for control cable for wire feeder     |
| 5 | Indicating lamp, power supply ON                |    |  |
| 6 | Orange indicating lamp, overheating             |    |  |



### 5.2 Function explanations

#### 5.2.1 Overheating protection

A thermal overload cutout protects against overheating. The cutout resets automatically when the unit has cooled.

#### 5.2.2 Inductance connection

Higher inductance produces a more flowing weld and fewer spatters. Lower inductance produces a harsher sound and a stable, concentrated arc.

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## 6 MAINTENANCE

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*Regular maintenance is important for safe, reliable operation.*

### **Note!**

*All guarantee undertakings from the supplier cease to apply if the customer himself attempts any work in the product during the guarantee period in order to rectify any faults.*

### 6.1 Inspection and cleaning

Check regularly that the power source is free from dirt.

The power source should be regularly blown clean using dry compressed air at reduced pressure. More frequently in dirty environments.

Otherwise the air inlet/outlet may become blocked and cause overheating.

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## 7 FAULT TRACING

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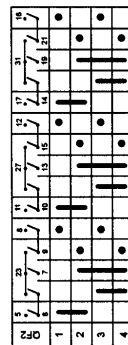
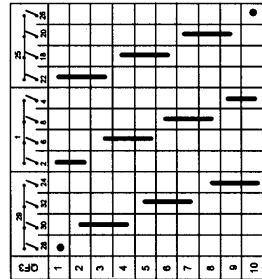
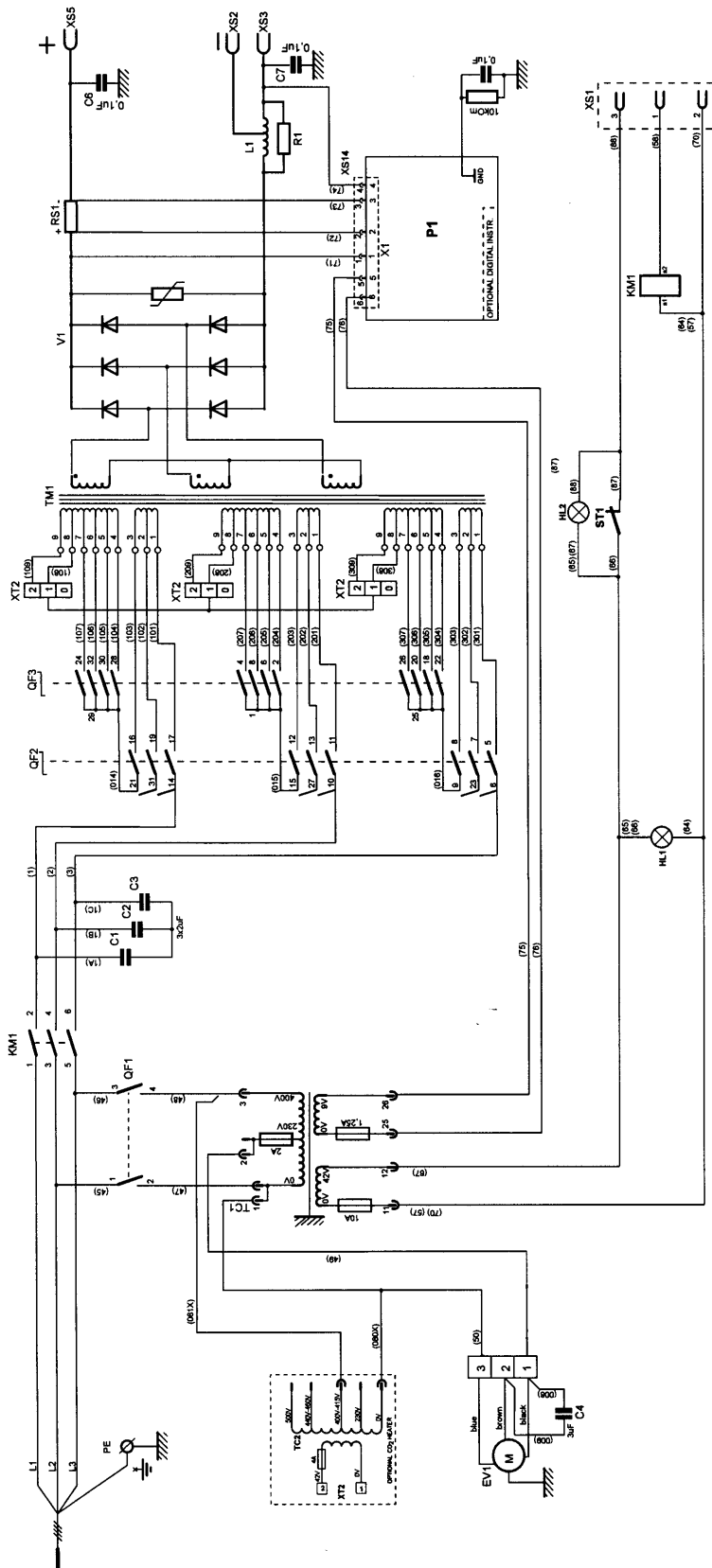
*Try these recommended checks and inspections before sending for an authorised service technician.*

Type of fault	Actions
No arc	<ul style="list-style-type: none"><li>• Check that the mains power supply switch is turned on.</li><li>• Check that the welding current supply and return cables are correctly connected.</li><li>• Check that correct current value is set.</li><li>• Check to see whether the MCB has tripped.</li></ul>
Welding current is interrupted during welding	<ul style="list-style-type: none"><li>• Check whether the thermal overload trip has operated (indicated by the orange lamp on the front).</li><li>• Check the main power supply fuses.</li></ul>
Thermal overload trips operate frequently	<ul style="list-style-type: none"><li>• Check to see whether the air inlets/outlets are clogged.</li><li>• Make sure that you are not exceeding the rated data for the power source (i.e. that the unit is not being overloaded).</li></ul>
Poor welding performance	<ul style="list-style-type: none"><li>• Check that the welding current supply and return cables are correctly connected.</li><li>• Check that the correct current value is set.</li><li>• Check that the correct welding wires are being used.</li><li>• Check the main power supply fuses.</li></ul>

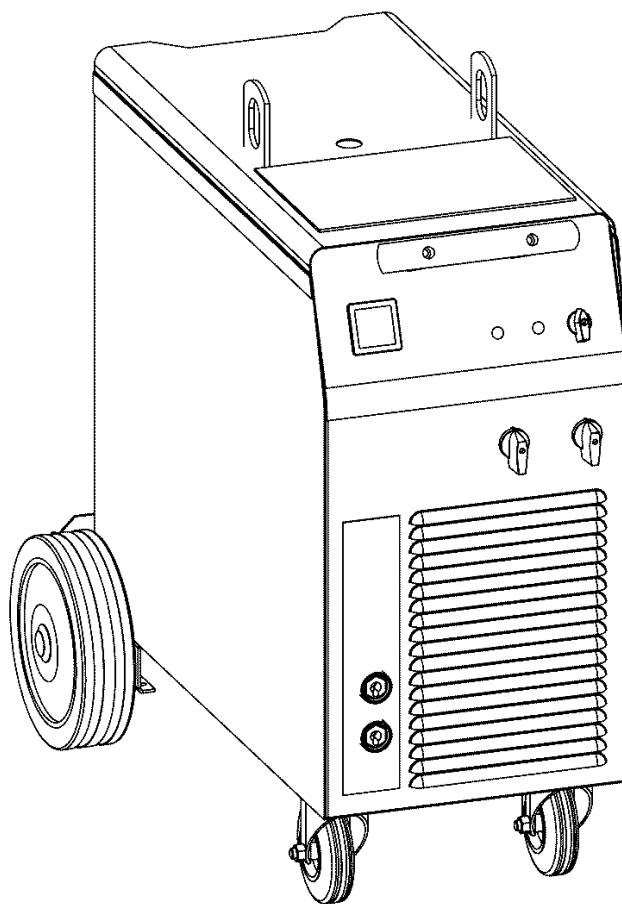
**Challenger 400 is designed and tested in accordance with the international and European standards IEC/EN 60974-1 and EN 50199. It is the obligation of the service unit which has carried out the service or repair work to make sure that the product still conforms to the said standard.**

# Diagram

## Challenger 400, 400-415V



## Challenger 400



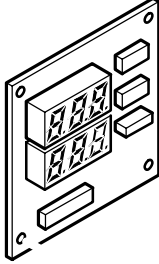
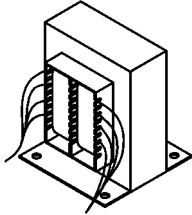
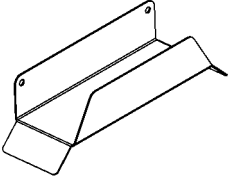

Valid for serial no. 448-XXX-XXXX

### Ordering numbers

0349 308 110	Challenger 400	400-415V 3~50Hz
0349 308 120	Challenger 400	400-415V 3~50Hz, with meter

# Challenger 400

## Accessories

 A digital meter with a rectangular face, a central display area, and several control buttons and ports on the right side.	<b>Digital meter</b> ..... 0349 302 451
 A transformer kit consisting of a rectangular metal housing with a central core and several electrical terminals on the front.	<b>Transformer kit for CO<sub>2</sub> heater</b> ..... 0349 308 890
 A U-shaped metal cable holder with a flat base and two raised sides.	<b>Cable holder</b> ..... 0349 303 362
 A long, thin metal stabilizer bar with four mounting holes, one at each end.	<b>Stabilizer</b> ..... 0349 303 474