

# TIG-MAX®

**XT 2500 | XT 4000 | XT 6000  
XT 7000 | XT 9000**



**OPERATING INSTRUCTIONS**

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## 1. FOREWORD

These operating instructions are an important aid. Keep them with the device. The instruction manual provides information on the operating procedures and precautions necessary for the safe and proper operation of TIG-MAX® XT that are required.

### 1.1. Product description

The TIG-MAX® XT Stainless Steel Weld Cleaners (strippers) are metal cleaning, polishing, electropolishing and etch plating machines that are ideal for processing materials such as stainless steel, copper and brass. The cleaning system consists of a control unit, a wand with a conductive brush on the end and a cable set. The weld can be treated within seconds by using the brush. This unique cleaning system is fast and delivers a safe and high quality - without any pickling paste.

# TIG-MAX®

**The fastest, safest and most efficient  
cleaning method for stainless steel welds**



## 2. SAFETY PRECAUTIONS

### 2. SAFETY MEASURES



Protect yourself and others by following all safety information, warnings, and precautions. Failure to follow instructions can result in personal injury and/or damage to the product or property. Please be sure to observe the detailed information on our EC safety data sheet for the electrolytes.

Before using the TIG-MAX® XT, make sure the work area is well ventilated and there are no flammable substances nearby.

#### 2.1. Safety information

- The stainless steel cleaning device (pickling device) may only be used for the electrolytic processing methods described in these instructions. Inappropriate uses are not permitted.
- Before each start-up, the mains cable, the mains plug, the electrode cable, the cleaning electrode, the handle, the ground cable and the workpiece clamp must be checked for external damage.
- Place the device in a dry place or make sure that it cannot fall down.
- Route cables so that people cannot trip over them.
- Never place the cleaning brush or the handle on the workpiece or work surface in such a way that the electrode or the carbon fiber cleaning brush can come into contact with the metal surface. Otherwise current will continue to flow, which can lead to damage or even danger.

## 2. SAFETY PRECAUTIONS

- Always switch off the device before changing the carbon brushes.
- Warning! Over extended treatment periods, the temperature of the carbon brush can reach as high as 200°C (400°F).
- You must wear suitable protective clothing when using the device (acid-resistant gloves, apron and goggles).
- If the electrolyte comes into contact with your skin or face, you should rinse the affected areas of skin with plenty of water immediately. If you continue to experience any discomfort, visit a doctor: do not forget to take the label with you.
- Do not eat or drink at the workplace. After working with electrolytes, always wash your hands thoroughly with soap and plenty of water.

#### 2.2. Environmental conditions

Ambient air temperature range:

- -10°C to +40°C,
- during transport and storage -25°C to +55°C

relative humidity:

- up to 50% at 40°C
- up to 90% at 20°C

Ambient air must be free from abnormal amounts of dust, acids, corrosive gases or substances, etc., other than those generated by welding.

Examples of unusual operating conditions:

- unusual corrosive smoke,
- Steam,
- excessive oil haze,
- unusual vibrations or shocks,
- Excessive dust such as grinding dust, etc.,
- harsh weather conditions,
- unusual seacoast or shipboard conditions.

Ensure free supply and exhaust air when setting up the device.

The device has been tested according to protection class IP23, which means:

- Protection against ingress of solid foreign bodies  $\varnothing > 12\text{mm}$ ,
- Protection against spray water up to an angle of 60° from the vertical.

### 3. TIPS - CARE - MAINTENANCE

#### 3.1. Cleaning and maintenance after using the TIG-MAX® XT

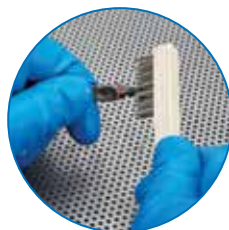
After completing work with the TIG-MAX® XT observe the following simple care and maintenance instructions!



1. Turn off the device and unplug the blue cable.
2. Unscrew the brush from the wand.
3. Remove the sliding shroud.
4. Unscrew the wand from the handle.
5. Wash all parts thoroughly under running water.
6. Allow the parts to dry overnight before packing them away.



1. Thoroughly rinse the brushes with warm water after each weld cleaning and allow them to dry thoroughly, taking care to keep the fibers straight.



2. If the copper socket on the brush starts to run or becomes dirty, clean it with a small stainless steel wire brush to ensure good electrical contact.



3. If hard deposits pads form on or in the threads of the brush, wand or handle, clean them with a miniature wire brush. The threads could otherwise seize and the cleaning performance could be reduced or completely lost.



### 3. TIPS - CARE - MAINTENANCE

#### 3.2. Care of the earth clamp

Dirt, corrosion or deposits on the earth clamp can affect the electrical continuity, which reduces the cleaning performance!



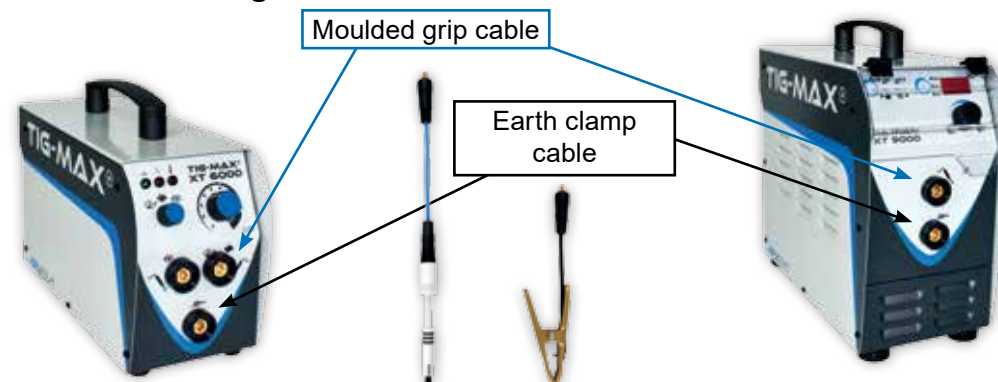
1. Turn off the device and disconnect the earth cable from the TIG-MAX® XT device. Lock the clamp in a vice with soft jaws.
2. Clean the clamp and especially the prongs with a fine wire brush.
3. The earth clamp now has the full electrical continuity again.

### 4. COMMISIONING

#### 4.1. Mains connection

Ensure that the voltage specified on the rating plate is compatible with the rated voltage of your AC voltage supply.

#### 4.2. Connecting the cable

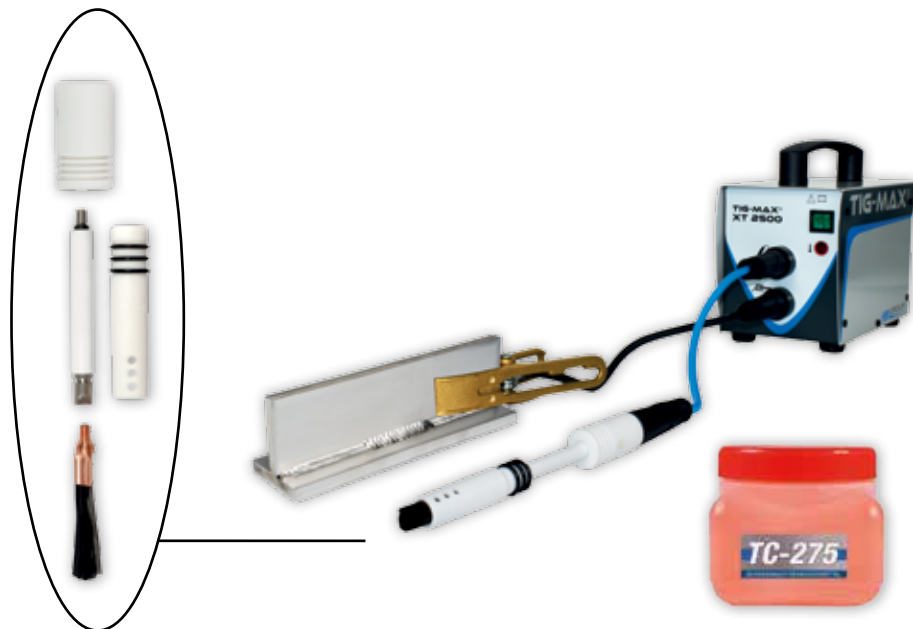




### 4.3. TIG-MAX® XT 2500

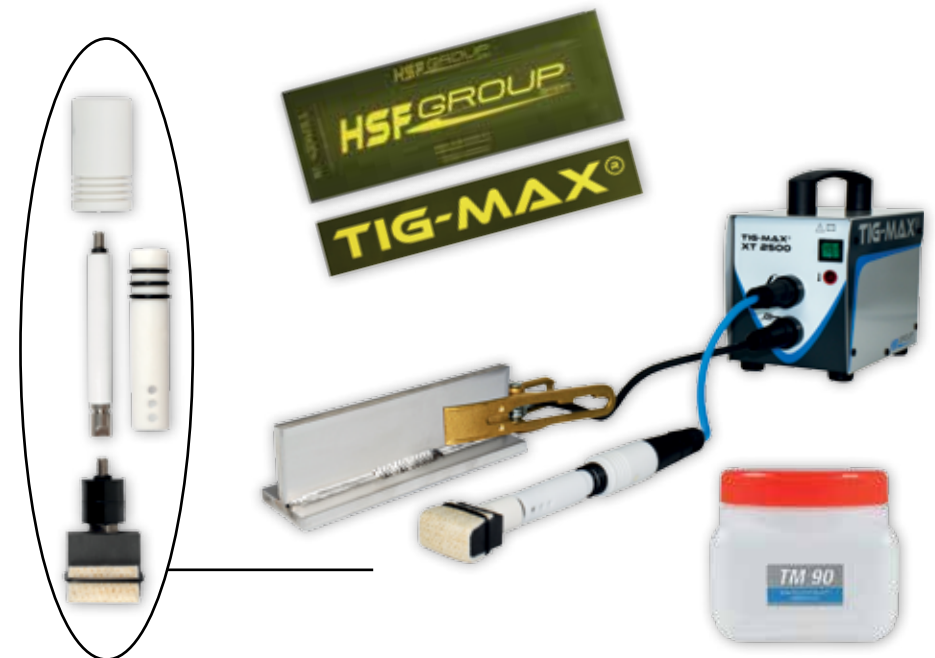
#### 4.3.1. Cleaning

- Only use the brush tip to clean.
- The container must be close to the workplace, since the brush must be regularly dipped in the liquid.
- The brush and the surface to be cleaned must be kept moist with the TC-225 cleaning electrolyte during the cleaning process.
- At the end spray with the TC-510 neutralizer. Then rinse well with clear water to remove all the cleaning electrolyte.
- Clean contacts and threads well. The brush must be removed from the wand and carefully cleaned. To maintain full performance, we recommend placing the brush in warm water to remove any remaining liquid.



#### 4.3.2. Marking/etching

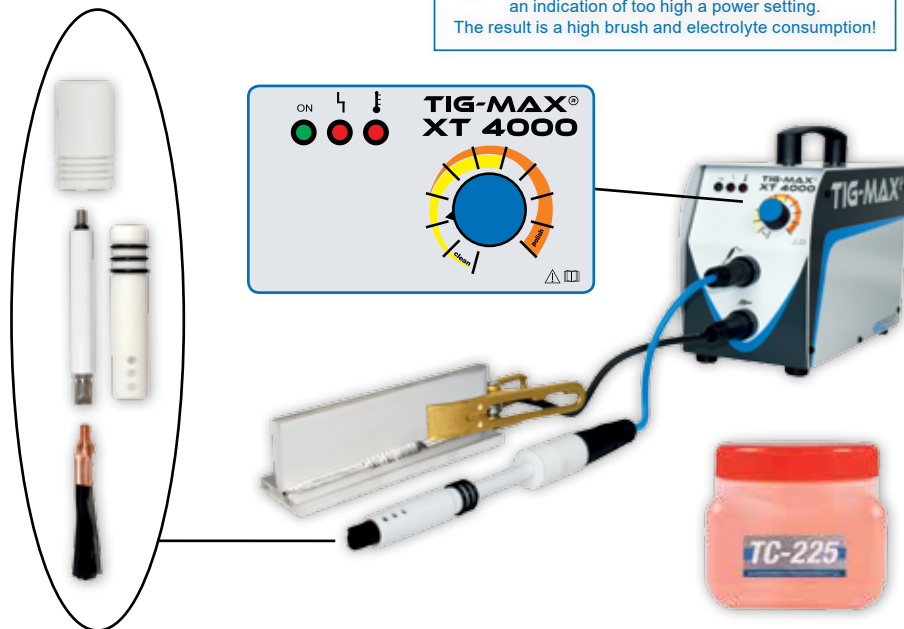
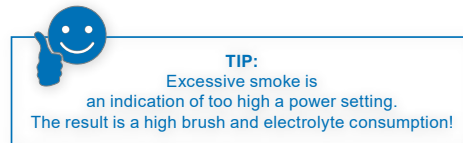
- Place the template in the desired position and fix it with some adhesive tape at the corners to prevent it from slipping.
- Slightly wet the stencil with the TM-90 marking liquid.
- Moisten the felt on the marking electrode with TM-90 marking fluid.
- Now stroke the stencil with only light pressure and a slow movement.
- The felt and the area to be marked must be kept wet with the marking liquid during the marking process.
- At the end, remove the template from the workpiece and rinse off the electrolyte residues well with water.



### 4.4. TIG-MAX® XT 4000

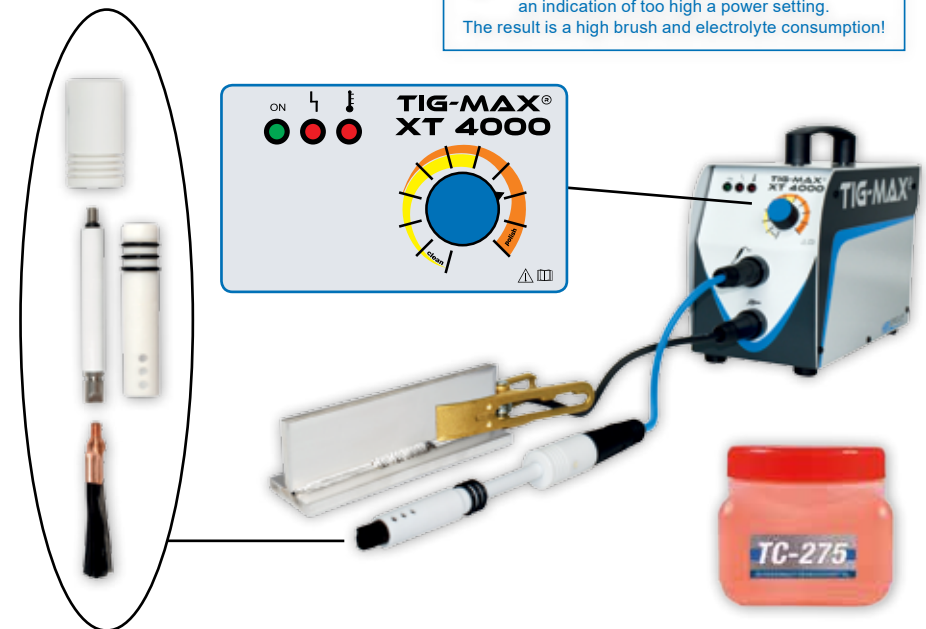
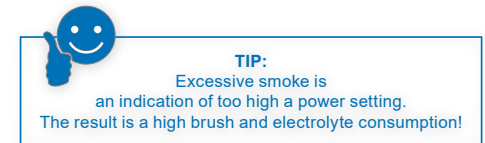
#### 4.4.1. Cleaning

- Only use the brush tip to clean.
- The container must be close to the workplace, since the brush must be regularly dipped in the liquid.
- The brush and the surface to be cleaned must be kept moist with the TC-225 cleaning electrolyte during the cleaning process.
- At the end spray with the TC-510 neutralizer. Then rinse well with clear water to remove all the cleaning electrolyte.
- Clean contacts and threads well. The brush must be removed from the wand and carefully cleaned. To maintain full performance, we recommend placing the brush in warm water to remove any remaining liquid.



#### 4.4.2. Polishing

- Only use the brush tip for polishing.
- The container must be close to the workplace, since the brush must be regularly dipped in the liquid.
- The brush and the surface to be polished must be kept wet with the TC-275 cleaning electrolyte during the cleaning process.
- At the end spray with the TC-510 neutralizer. Then rinse well with clear water to remove all the cleaning electrolyte.
- Clean contacts and threads well. The brush must be removed from the wand and carefully cleaned. To maintain full performance, we recommend placing the brush in warm water to remove any remaining liquid.



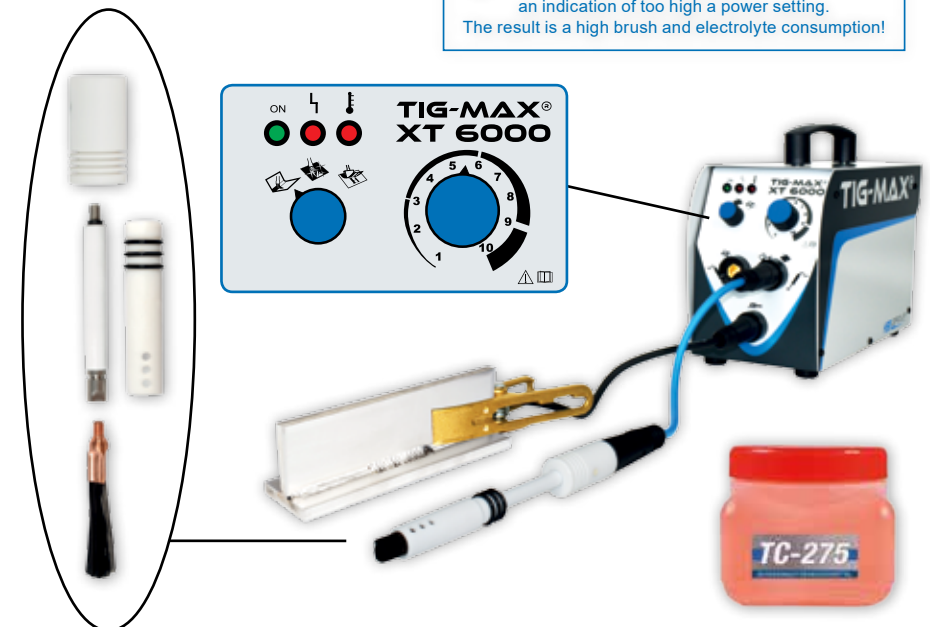
## 4.5. TIG-MAX® XT 6000

### 4.5.1. Cleaning

- Only use the brush tip to clean.
- The container must be close to the workplace, since the brush must be regularly dipped in the liquid.
- The brush and the surface to be cleaned must be kept moist with the TC-225 cleaning electrolyte during the cleaning process.
- At the end spray with the TC-510 neutralizer. Then rinse well with clear water to remove all the cleaning electrolyte.
- Clean contacts and threads well. The brush must be removed from the wand and carefully cleaned. To maintain full performance, we recommend placing the brush in warm water to remove any remaining liquid.



**TIP:**  
Excessive smoke is  
an indication of too high a power setting.  
The result is a high brush and electrolyte consumption!

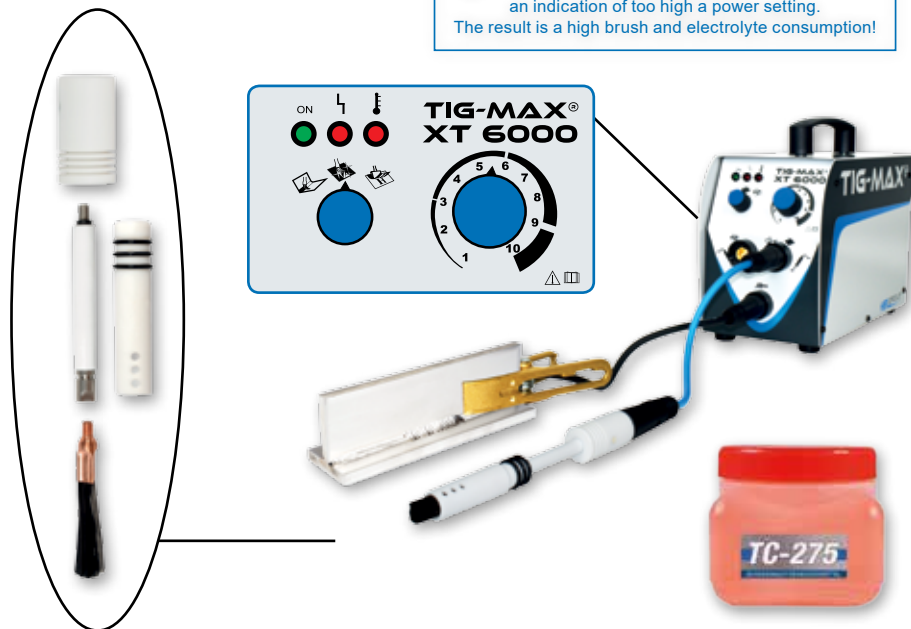




### 4.5.2. Polishing

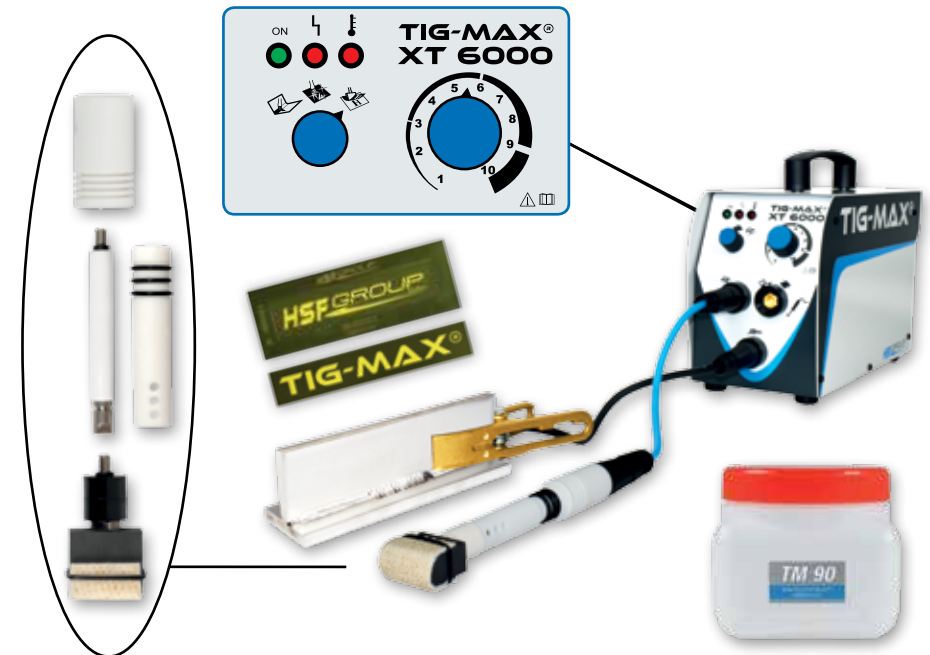
- Only use the brush tip for polishing.
- The container must be close to the workplace, since the brush must be regularly dipped in the liquid.
- The brush and the surface to be polished must be kept wet with the TC-275 cleaning electrolyte during the cleaning process.
- At the end spray with the TC-510 neutralizer. Then rinse well with clear water to remove all the cleaning electrolyte.
- Clean contacts and threads well. The brush must be removed from the wand and carefully cleaned. To maintain full performance, we recommend placing the brush in warm water to remove any remaining liquid.

**TIP:**  
Excessive smoke is  
an indication of too high a power setting.  
The result is a high brush and electrolyte consumption!



### 4.5.3. Marking/etching

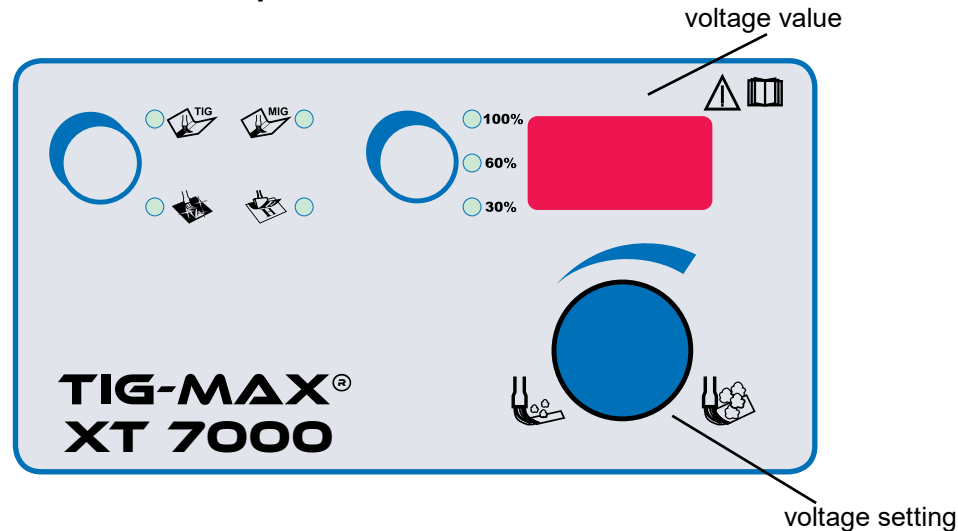
- Place the template in the desired position and fix it with some adhesive tape at the corners to prevent it from slipping.
- Slightly wet the stencil with the TM-90 marking liquid.
- Moisten the felt on the marking electrode with TM-90 marking fluid.
- Now stroke the stencil with only light pressure and a slow movement.
- The felt and the area to be marked must be kept wet with the marking liquid during the marking process.
- At the end, remove the template from the workpiece and rinse off the electrolyte residues well with water.





### 4.6. TIG-MAX® XT 7000

#### 4.6.1. The front panel



#### 4.6.2. Description of buttons

Operating menu:

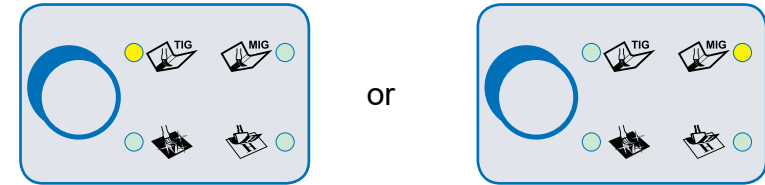
- – WIG cleaning
- – MIG cleaning
- – Polishing with brush
- – Dark marking

Operating button to control voltage output:

- 100 % – Cleans at 100% of the maximum current
- 60 % – Cleans at 60% of the maximum current
- 30 % – Cleans at 30% of the maximum current

#### 4.6.3. Cleaning

Setting:



*Setting tips on page 24*

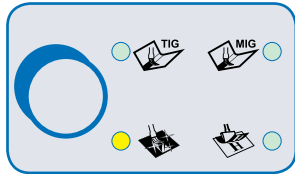
Electrolyte:



- Only use the brush tip to clean.
- The container must be close to the workplace, since the brush must be regularly dipped in the liquid.
- The brush and the surface to be cleaned must be kept moist with the TC-225 cleaning electrolyte during the cleaning process.
- At the end spray with the TC-510 neutralizer. Then rinse well with clear water to remove all the cleaning electrolyte.
- Clean contacts and threads well. The brush must be removed from the wand and carefully cleaned. To maintain full performance, we recommend placing the brush in warm water to remove any remaining liquid.

### 4.6.4. Polishing

Setting:



*Setting tips on page 25*

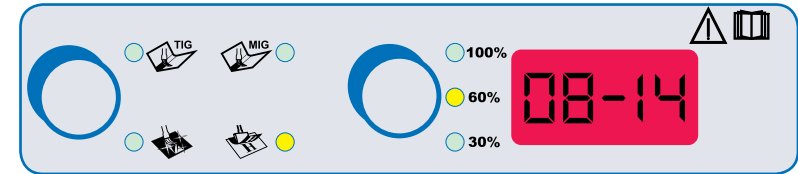
Electrolyte:



- Only use the brush tip for polishing.
- The container must be close to the workplace, since the brush must be regularly dipped in the liquid.
- The brush and the surface to be polished must be kept wet with the TC-275 cleaning electrolyte during the cleaning process.
- At the end spray with the TC-510 neutralizer. Then rinse well with clear water to remove all the cleaning electrolyte.
- Clean contacts and threads well. The brush must be removed from the wand and carefully cleaned. To maintain full performance, we recommend placing the brush in warm water to remove any remaining liquid.

### 4.6.5. Marking/etching

Setting:



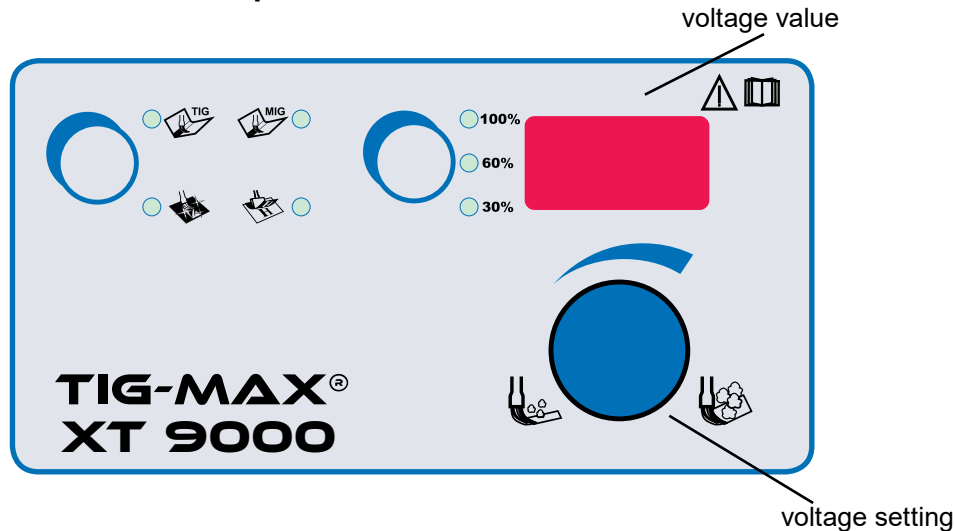
Electrolyte:



- Place the template in the desired position and fix it with some adhesive tape at the corners to prevent it from slipping.
- Slightly wet the stencil with the TM-90 marking liquid.
- Moisten the felt on the marking electrode with TM-90 marking fluid.
- Now stroke the stencil with only light pressure and a slow movement.
- The felt and the area to be marked must be kept wet with the marking liquid during the marking process.
- At the end, remove the template from the workpiece and rinse off the electrolyte residues well with water.

### 4.7. TIG-MAX® XT 9000

#### 4.7.1. The front panel



#### 4.7.2. Description of buttons

Operating menu:

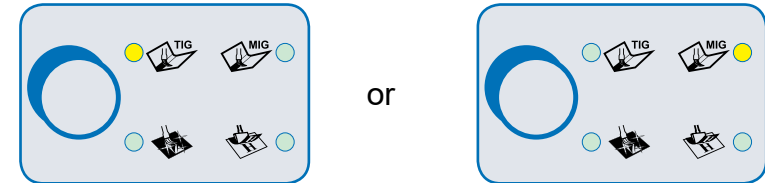
- – WIG cleaning
- – MIG cleaning
- – Polishing with brush
- – Dark marking

Operating button to control voltage output:

- 100 % – Cleans at 100% of the maximum current
- 60 % – Cleans at 60% of the maximum current
- 30 % – Cleans at 30% of the maximum current

#### 4.7.3. Cleaning

Setting:



*Setting tips on page 24*

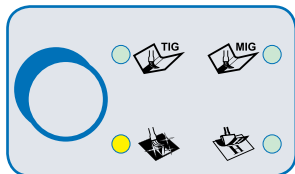
Electrolyte:



- Only use the brush tip to clean.
- The container must be close to the workplace, since the brush must be regularly dipped in the liquid.
- The brush and the surface to be cleaned must be kept moist with the TC-225 cleaning electrolyte during the cleaning process.
- At the end spray with the TC-510 neutralizer. Then rinse well with clear water to remove all the cleaning electrolyte.
- Clean contacts and threads well. The brush must be removed from the wand and carefully cleaned. To maintain full performance, we recommend placing the brush in warm water to remove any remaining liquid.

### 4.7.4. Polishing

Setting:



*Setting tips on page 25*

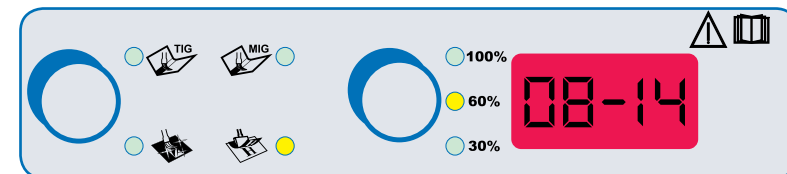
Electrolyte:



- Only use the brush tip for polishing.
- The container must be close to the workplace, since the brush must be regularly dipped in the liquid.
- The brush and the surface to be polished must be kept wet with the TC-275 cleaning electrolyte during the cleaning process.
- At the end spray with the TC-510 neutralizer. Then rinse well with clear water to remove all the cleaning electrolyte.
- Clean contacts and threads well. The brush must be removed from the wand and carefully cleaned. To maintain full performance, we recommend placing the brush in warm water to remove any remaining liquid.

### 4.7.5. Marking/etching

Setting:



Electrolyte:



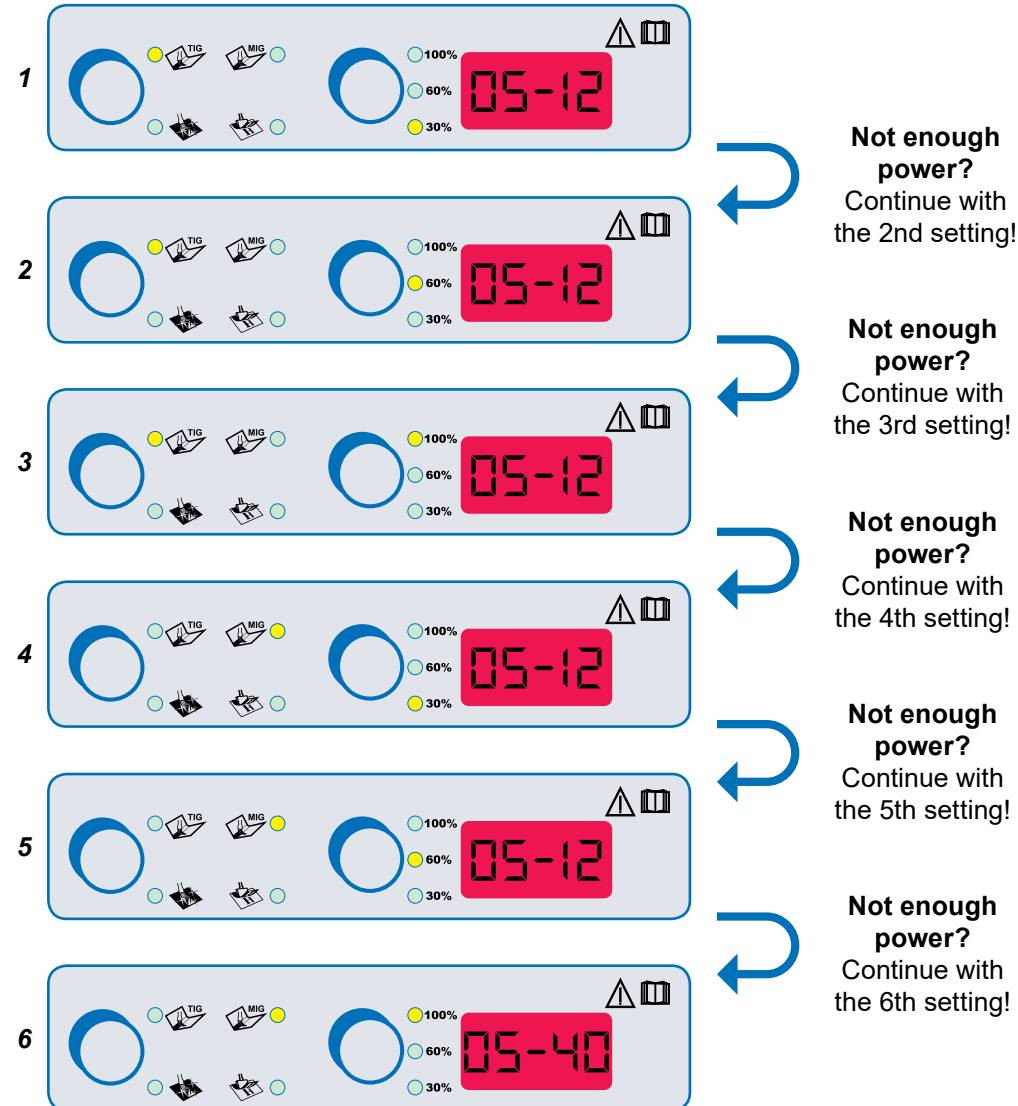
- Place the template in the desired position and fix it with some adhesive tape at the corners to prevent it from slipping.
- Slightly wet the stencil with the TM-90 marking liquid.
- Moisten the felt on the marking electrode with TM-90 marking fluid.
- Now stroke the stencil with only light pressure and a slow movement.
- The felt and the area to be marked must be kept wet with the marking liquid during the marking process.
- At the end, remove the template from the workpiece and rinse off the electrolyte residues well with water.



## 5. SETTING TIPS

### 5.1. Cleaning with TIG-MAX® XT 7000 / XT 9000

Feel your way towards the optimal setting.  
Start with the 1st setting:



## 5. SETTING TIPS

### 5.2. Polishing with TIG-MAX® XT 7000 / XT 9000

Feel your way towards the optimal setting.  
Start with the 1st setting:



#### TIP:

Excessive smoke is  
an indication of too high a power setting.  
The result is a high brush and electrolyte consumption!

## 6. TROUBLESHOOTING

### Potential faults and their rectification

#### The device is switched on, but there is no light on:

- Check the connection cable to the plug.

#### The device shuts down and the red LED lights up:

- **The output current is too high:** Make sure that the brush has been moistened with the cleaning solution.
- **Switch-on duration exceeded:** Allow the device to cool down.

#### The device is switched on, but its cleaning performance is poor:

- **Poor electrical contact:** Make sure that none of the cables is damaged and that they are all properly connected. To ensure good contact, you may have to carefully adjust the earth clamp.
- Dirt on the earth clamp can affect contact quality, so make sure that the earth clamp is clean. Ensure that the brush is tightly screwed in the wand. Take care when checking this - a loose connection can be extremely hot.

If you encounter any problems not mentioned here, please contact HSF on +49 (0) 2776-922780.

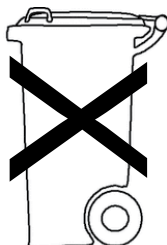
We will be happy to help!

## 7. CARE AND MAINTENANCE

Before carrying out any maintenance or troubleshooting activities, always disconnect the device from the mains. After using the brush, rinse it ideally in warm/hot water to remove all traces of cleaning electrode. Any cleaning solution that comes into contact with the TIG-MAX® XT itself, the cables or other components should be wiped off immediately with a damp cloth.

### 6.1. Device disposal

TIG-MAX® XT must not be disposed of with ordinary household waste! EU Directive 2002/96/EC states the following on the disposal of waste electrical and electronic equipment: „Equipment must be disposed of in an environmentally compatible manner and separated according to recyclable materials.“



## 8. TECHNICAL DATA

### 8.1. TIG-MAX® XT 2500

Supply voltage	1~ 230V +10%/-20%	Temperature range	+5 ..+40°C - in use
Fuse	10Amp		-40 ..+ 80°C - storage
Power cable	3x0.75qmm	Housing LxWxH	240x130x160mm
No-load output voltage	12V AC	Weight	6.0Kg
Output load	456W	Protection class	IP23
Efficiency	75%	EMC class	A
Power factor	0.85		

### 8.2. TIG-MAX® XT 4000

Supply voltage	1~ 230V +10%/-20%
Fuse	16Amp
Power cable	3x1.5qmm
No-load output voltage	5 - 36V
Output load	1440W
Efficiency	87%
Power factor	0.75 @ 70Amp/35V
Temperature range	+5 ..+40°C - in use
	-40 ..+ 80°C - storage

Housing LxWxH	350x133x213mm
Weight	7.0Kg
Protection class	IP23
EMC class	A

### 8.3. TIG-MAX® XT 6000

Supply voltage	1~ 230V +10%/-20%
Fuse	16Amp
Power cable	3x1.5qmm
No-load output voltage	5 - 36V
Output load	2880W
Efficiency	87%
Power factor	0.75 @ 70Amp/35V
Temperature range	+5 ..+40°C - in use
	-40 ..+ 80°C - storage

Housing LxWxH	350x133x213mm
Weight	7.5Kg
Protection class	IP23
EMC class	A

### 8.4. TIG-MAX® XT 7000

Supply voltage	1~ 230V +10%/-20%
Fuse	16Amp
Power cable	3x2.5qmm
No-load output voltage	10-37V AC/9.5-36V DC
Output load	2500W
Output current	70A
Efficiency	87%
Power factor	0.75 @ 50Amp/30V
Temperature range	+5 ..+40°C - in use
	-40 ..+ 80°C - storage

Housing LxWxH	385x170x315mm
Weight	17.0Kg
Protection class	IP23
EMC class	A

### 8.5. TIG-MAX® XT 9000

Supply voltage	1~ 230V +10%/-20%
Fuse	16Amp
Power cable	3x2.5qmm
No-load output voltage	10-37V AC/9.5-36V DC
Output load	4000W
Output current	110A
Efficiency	87%
Power factor	0.75 @ 50Amp/30V
Temperature range	+5 ..+40°C - in use
	-40 ..+ 80°C - storage

Housing LxWxH	385x170x315mm
Weight	17.0Kg
Protection class	IP23
EMC class	A

The machines fulfil the requirements for CE and S classification.



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