Operating Instructions

Autotransformer MW 1700, MW 2200, TT 1700, TT 2200

EN | Operating Instructions

42,0426,0037,EN 003-27092022

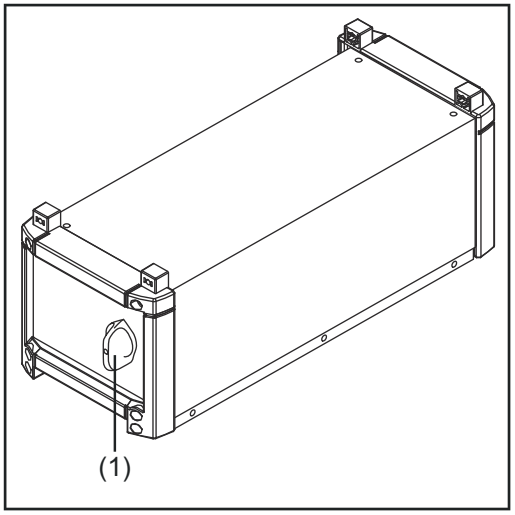
Contents

General

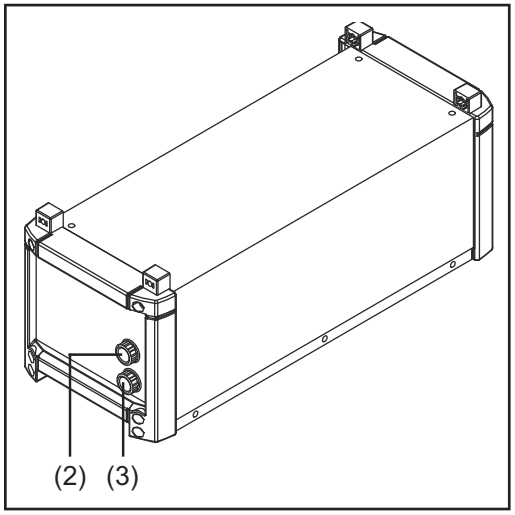
Machine concept

The digital family of machines provides tremendous flexibility and easy adaptability to many varied tasks. The reasons for these welcome characteristics may be found not only in the modular product design, but also in the scope that the system gives for troublefree system extensions. Among other things, features such as their high-grade componentry, protective plastic surround and powder-coated aluminium housing ensure that these units are highly reliable and durable.
The MW/TT 1700/2200 auto-transformer was specially designed to meet the requirements of the digital family of machines and can be used with MW 1700/2200 and TT 1700/2200 power sources. It makes it possible for digital power sources to be run on mains voltages of 460 V as well.

Controls and connections



Front of auto-transformer



Rear of auto-transformer

(1) **Mains switch**
for switching all system components of the welding set on and off centrally

(2) **Strain relief device for the power source**
for leading-through the connection cable to the power source

(3) **Strain relief device for the auto-transformer**
for leading-through the mains cable

Before commissioning

Safety

⚠ WARNING!

Danger from incorrect operation and work that is not carried out properly.
This can result in serious personal injury and damage to property.
- ▶ All the work and functions described in this document must only be carried out by technically trained and qualified personnel.
- ▶ Read and understand this document in full.
- ▶ Read and understand all safety rules and user documentation for this device and all system components.

⚠ WARNING!

Danger from electrical current.
This can result in serious personal injury and damage to property.
- ▶ Before starting work, switch off all devices and components involved and disconnect them from the grid.
- ▶ Secure all devices and components involved so they cannot be switched back on.
- ▶ After opening the device, use a suitable measuring instrument to check that electrically charged components (such as capacitors) have been discharged.

⚠ WARNING!

Danger from electric current due to defective system components and incorrect operation.
This can result in serious personal injury and damage to property.
- ▶ All cables, leads and hosepacks must always be securely connected, undamaged and correctly insulated.
- ▶ Only use adequately dimensioned cables, leads and hosepacks.

⚠ WARNING!

Danger due to insufficient ground conductor connection.
This can result in serious personal injury and damage to property.
- ▶ The housing screws provide a suitable ground conductor connection for grounding the housing.
- ▶ The housing screws must not under any circumstances be replaced by other screws without a reliable ground conductor connection.

Required connection cables

Power source	3x AWG12, 3.31mm² (.1304 in.)	43,0004,1993
Auto transformer	3x AWG12, 3.31mm² (.1304 in.)	43,0004,1993

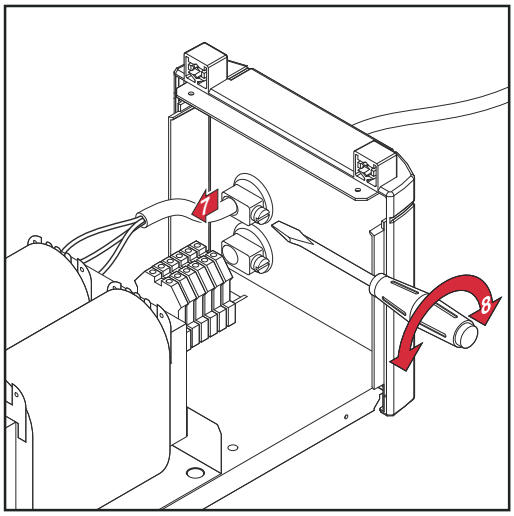
Mounting the connection cables

The following strain relief devices are included in the scope of supply of the auto-transformer:

- Strain relief device for the MW/TT 1700/2200 power source, for 3xAWG12 connection cable
- Strain relief device for the MW/TT 1700/2200 auto-transformer, for 3x-AWG12 connection cable

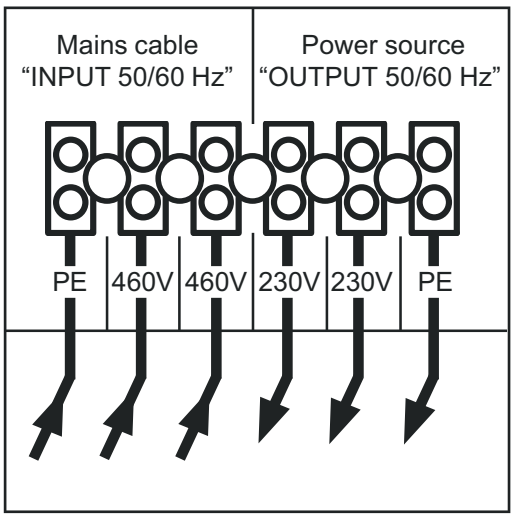
Carry out the following steps for both the power-source connection cable and the connection cable for the auto-transformer.

1. Shift the mains switch on the auto-transformer into the “0” position
2. Unplug the unit from the mains or otherwise disconnect the mains power supply
3. Take the cover off the auto-transformer
4. Strip off the insulation from approx. 170 mm (6.7 in.) of the end of the connection cable



5. Fit a wire-end ferrule to the PE conductor
6. Shorten the phase conductors to approx. 150 mm (5.9 in.) and fit wireend ferrules to them. **IMPORTANT!** If you do not use any wire-end ferrules, there is a risk of short circuiting between the phase conductors.
7. Insert the connection cable into the strain relief device.
8. Tighten the clamping nut

Fitting the connection cable to the autotransformer



Terminal strip

NOTE!

Running the autotransformer without ALL of the cables being properly connected can cause serious damage. Always connect all the phase conductors and the PE conductor.

1. Connect the phase conductors and the PE conductor of the power-source connection cable to the “OUTPUT 50/ 60 Hz” connection points for the power source.
2. Connect the phase conductors and PE conductor of the auto-transformer connection cable to the “INPUT 50/60 Hz” connection points for the mains cable.

Mounting a plug on the mains cable

The auto-transformer is designed to run on the mains voltage given on the rating plate. If you intend to fit a mains plug to the auto-transformer connection cable, this must be mounted in accordance with the applicable national Standards. For details of fuse protection of the mains supply lead, please see the Technical Data.

NOTE!

Inadequately dimensioned electrical installations can lead to serious damage. The mains plug and mains supply lead, and their fuse protection, must be suitably dimensioned.

Final check

1 Check that the phase conductors and PE conductor of the connection cable are correctly connected

2 Check that the phase conductors and PE conductor of the connection cable are firmly attached to the terminal strip

⚠ **WARNING!**

Danger from the mains voltage and the autotransformer output voltage.
An electric shock can be fatal.

▶ The following operations have to be done with the unit switched on. Do NOT on any account touch the auto-transformer or any of its parts while it is still connected to the mains.

3 Shift the mains switch on the auto-transformer into the “0” position

4 Plug the unit into the mains or otherwise restore mains power supply

5 Using a suitable testing instrument, check the mains voltage on the “INPUT 50/60 Hz” mains-cable connection points

6 Shift the mains switch on the auto-transformer into the “I” position

7 Using a suitable testing instrument, check the output voltage on the “OUTPUT 50/60 Hz” power-source connection points

8 Shift the mains switch on the auto-transformer into the “0” position

9 Put the cover back on the auto-transformer

NOTE!

The housing screws provide a suitable PE conductor connection for earthing (grounding) the housing. These screws must NOT be replaced by any other screws which do not provide a reliable PE conductor connection.

10 Shift the mains switch on the auto-transformer into the “I” position

11 Perform an insulation and PE conductor test, using suitable testing equipment. Do this by placing the test-prod against any of the fixing-screws of the cover.

12 Shift the mains switch on the auto-transformer into the “0” position

13 Unplug the unit from the mains or otherwise disconnect the mains power supply

Start-up

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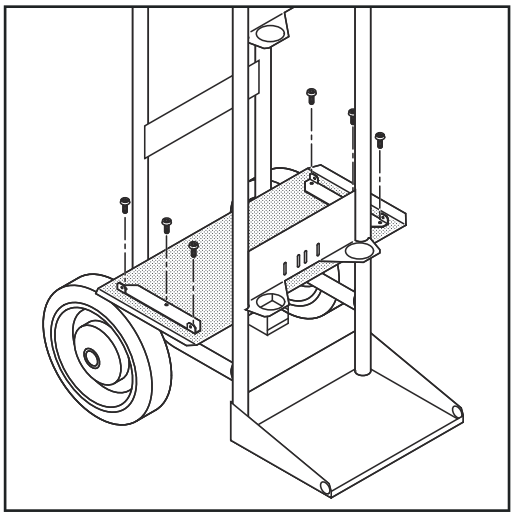
⚠ WARNING!

Danger due to devices toppling over.
This can result in serious personal injury and damage to property.

- ▶ If the welding system is not equipped with an auto-transformer, the cooling unit must be installed right at the bottom.
- ▶ Please see the user documentation for the respective trolley for more information about the trolley.

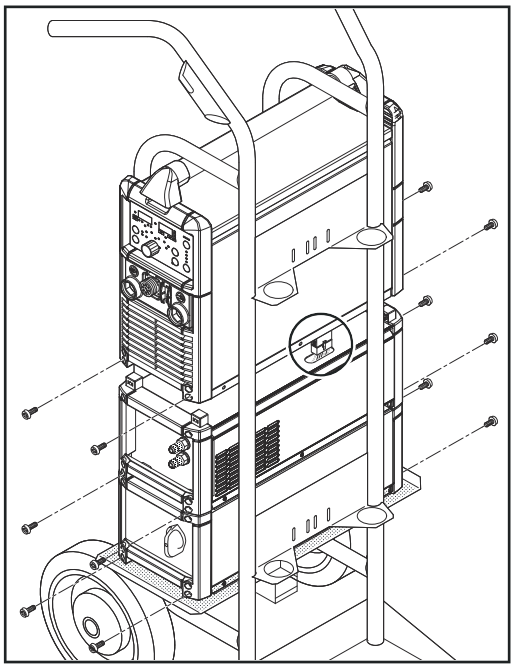
IMPORTANT! The following example of how to mount the auto-transformer onto the trolley is for a combination of an MW 2200 power source, an FK 2200 cooling unit and an “Easy” trolley. To put together any other combination, proceed analogously.

Mounting the fixing brackets to the trolley



1. Turn the trolley upside-down, standing it on its handles, then hold it in the vertical.
2. Use a sharp pointed tool to pierce the rubber mat where it lies over the holes in the baseplate
3. Turn the trolley over and place it on its wheels again
4. Attach each fixing bracket to the baseplate with 3 screws

Mounting the system components on the trolley



1 Stack the system components on top of one another, fixing each unit to the one below it (and the auto-transformer to the trolley) with 4 screws.

IMPORTANT! When mounting the power source, take care with the connector to the cooling unit. Do not subject the cable connection to tensile strain.

Putting the unit into service

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NOTE!

The ventilation arrangements for the auto-transformer are a very important safety feature. When choosing the machine location, make sure that it is possible for the cooling air to enter and exit unhindered through the louvers.

1 Shift the mains switch of the power source into the “O” position
2 Shift the mains switch on the auto-transformer into the “O” position
3 Plug the auto-transformer unit into the mains or otherwise restore mains power supply.
4 Shift the mains switch on the auto-transformer into the “I” position
5 The auto-transformer is now ready for operation

Care, maintenance and disposal

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At every start-up

- Check the mains plug and mains cable for damage
- Check that there is a gap of 0.5 m (1 ft. 8 in.) all around the device to ensure that cooling air can flow and escape unhindered

NOTE!

Air inlets and outlets must never be covered, not even partially.

Every 6 months

⚠ CAUTION!

Danger due to the effect of compressed air.
This can result in damage to property.
▶ Do not bring the air nozzle too close to electronic components.

1 Dismantle device side panels and clean inside of device with dry, reduced compressed air

2 If a lot of dust has accumulated, clean the cooling air ducts

⚠ WARNING!

An electric shock can be fatal!
Risk of electric shock from improperly connected ground cables and equipment grounds.
▶ When reassembling the side panels, make sure that grounding cables and equipment grounds are properly connected.

Disposal

Waste electrical and electronic equipment must be collected separately and recycled in an environmentally-friendly way, in accordance with the European Directive and national legislation. Used equipment must be returned to the distributor or disposed of via an approved local collection and disposal facility. Correct disposal of used equipment promotes the sustainable recycling of material resources. Failing to dispose of used equipment correctly can lead to adverse health and/or environmental impacts.

Packaging materials
Separate collection according to material. Check your local authority regulations. Crush containers to reduce size.

Troubleshooting

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Troubleshooting

Power source inoperative

Mains switch is ON, but indicators are not lit up

Cause: There is a break in the mains lead; the mains plug is not plugged in
Remedy: Check mains lead, check mains voltage if necessary

Cause: Mains outlet socket or plug is faulty
Remedy: Replace faulty components

Cause: The mains switch of the auto-transformer is faulty
Remedy: Contact After-Sales Service (Replace the mains switch of the auto-transformer)

Cause: Phase conductors (L1, L2, L3) connected incorrectly
Remedy: Connect phase conductors as described

Mains fuse or automatic circuit breaker has tripped

Cause: Mains fuse underrated
Remedy: Rate mains lead fuse according to rating plate

Cause: Short circuit on the transformer windings
Remedy: Replace the auto-transformer

Cause: Auto-transformer not connected correctly
Remedy: Correct the mains connection

Output voltage too low

Cause: Incorrect mains voltage
Remedy: Check the mains voltage

Cause: Mains leads are connected incorrectly
Remedy: Correct mains connection

Cause: L1/L2/L3 swapped with N-conductor
Remedy: Correct the mains connection

Output voltage too high

Cause: Actual mains voltage is greater than permitted for the auto-transformer
Remedy: Adjust the mains voltage

Cause: Auto-transformer not connected correctly
Remedy: Correct the mains connection

Surface of auto-transformer housing feels hot

Cause: Permitted duty cycle exceeded

Remedy: Turn mains switch of the auto-transformer to "O" position, allow auto-transformer to cool

Cause: The connected welding machine is drawing too much current

Remedy: Check the current consumption of the connected welding machine

Cause: Unsuitable installation location

Remedy: Change installation location (ensure air can move unhindered through openings in housing)

Cause: Ambient temperature too high

Remedy: Reduce ambient temperature or change installation location

Cause: Housing interior dirty

Remedy: Open auto-transformer and clean with compressed air

Cause: Mains voltage too high

Remedy: Check voltage and correct mains supply

Asymmetric output voltage

Cause: Incorrectly connected mains cable/mains plug

Remedy: Connect the mains cable neutral and phase conductors correctly/ attach a new mains plug/ contact After-Sales Service (replace the wiring terminal)

Cause: Mains switch - break/contact fault

Remedy: Contact After-Sales Service (replace the mains switch)

Cause: Damaged mains cable/PE conductor break/faulty wiring terminal

Remedy: Replace mains cable/contact After-Sales Service (replace wiring terminal)

Cause: Auto-transformer connected asymmetrically

Remedy: Connect auto-transformer symmetrically

Cause: Wiring terminal - break/contact fault

Remedy: Contact After-Sales Service (fix/replace the wiring terminal)

Technical data

Safety

NOTE!

Incorrectly rated mains plugs, mains leads or fuses can result in serious damage. If the power source is designed for a special voltage, the technical data on the rating plate apply. Rate the mains plug, mains lead and their fuse protection accordingly.

MW/TT 1700/2200 autotransformer

Mains voltage	2 x 460 V
Mains voltage tolerance	+/- 10 %
Mains frequency	50 / 60 Hz
Output voltage	2 x 230 V
Mains fuse protection (slow-blow)	16 A
Apparent power, max	6.6 kVA
Apparent power, effective	3.7 kVA
Cos phi	0.9
Primary current, max.	14.5 A
Primary current, effective	8 A
Secondary current at 10 min / 40 °C 40 % d.c. 10 min / 40 °C 100 % d.c.	 28.9 A 16 A
Degree of protection	IP 23
Type of cooling	F
Insulation class	F
Dimensions L x W x H mm	470 x 180 x 175 mm 18.5 x 7.01 x 6.89 in.
Weight	17,55 kg 38.69 lb.
Marks of conformity	CE

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