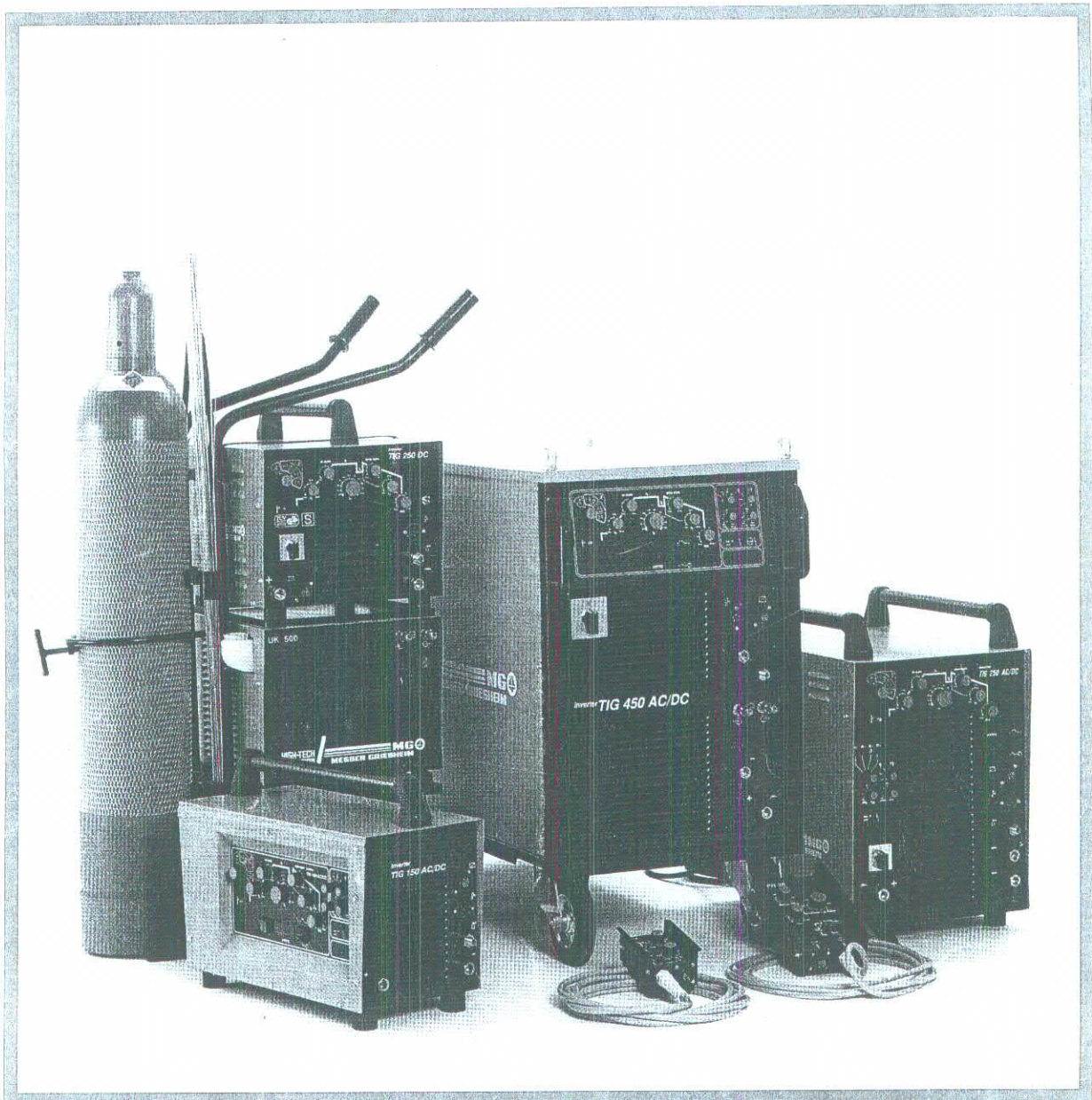


Inverter TIG Welding Machines



inverter TIG DC and AC/DC 150A - 450A



Subject to alteration without prior notice

Main Features at a Glance:

Mobile and Robust

The mobile machines are mounted on caster wheels which means that it is easy to move about. It can also be transported by crane. Stable and robust, therefore well suited to various applications. The portable machines are extremely light and compact, which has obvious advantages in service.

Panel Layout

All controls are ergonomically positioned for the operator and clearly marked with symbols. This enables the controls to be accessed quickly and assists in safe use of the equipment.

Quality assured manufacture

Through 100% testing and inspection of every individual component, continuous quality assurance in accordance with ISO 9000 is guaranteed. Our state-of-the-art computer integrated production plant is fully automated. Continuous 100% testing of all modules and machines is carried out as a standard procedure.

Run by highly trained and well motivated staff, guarantees outstanding operational dependability and service life.

Economic to use

High efficiency and a favourable power factor result in lower power consumption, saving money.

Comprehensive Range of Accessories

A full and comprehensive range of accessories ensure optimum adaptability to all types of welding applications.

ARC Ignition Characteristics

Excellent ignition characteristics with contact-free ignition can be achieved, even when using pure tungsten electrodes. The electrode is preheated by an initial adjustable ignition half wave (AC units only), which ensures trouble-free ignition, even with electrodes which normally have starting problems.

Stable Arc Stability

The high switching speed of the EWM Inverter (50KHz), ensures that, whether welding in the DC or AC mode, the arc is both stable and elastic. Thanks to high voltage reserves, even MMA welding of usually difficult electrodes (e.g. Cellulosic Electrodes) is simplified. Good bridging, high recovery and low spatter loss characteristics are achievable. Difficult positional welding applications can be accomplished with ease.

Automatic Mains Voltage Compensation

Even in circumstances where the mains voltage drops (down to -40%) as is often the

case with site work, either when using long supply cables or mobile generators, the Inverter unit will still continue to operate satisfactorily.

Pre-setting of Welding Current

On all AC/DC, and DC mobile units the operator can preset the complete welding current programme. It can be dry run before welding commences. During the dry run, the digital ammeter displays the set values, which can also be altered if required.

Safety Shut-down Circuit

If the arc fails to strike within 3 seconds of depressing the torch start button, the HF, gas and open circuit voltage is automatically switched off.

State of the Art Cooling System

Air is drawn through a duct and flows over dust-proofed components. For some applications (e.g. with extremely dusty environments), all mobile machines can be fitted with additional dust protection filters. When the machine is on standby, the cooling fan and water pump run at a reduced speed in order to extend their working life. This also reduces maintenance, and avoids unnecessary noise pollution. The torch is cooled by a powerful recirculation pump, which forces the coolant around the cooling circuit under pressure. Coolant flow is monitored by a pressure switch. When changing the welding torches, quick release couplings prevent coolant from being lost from the system.

Search Arc (Ignition Current)

The variable ignition current setting enables the welder to find the beginning of the welding joint with ease.

AC Frequency Control

Fitted to AC/DC machines, the AC frequency is infinitely variable between 50 and 200 Hz. This is particularly useful, when welding thin sheets at low currents using higher frequencies.

AC Balance Control

During AC welding this control alters the cleaning effect and penetration, i.e. when welding aluminium, joint quality can be optimised with this additional feature.

Electrode Polarity Selector Switch

This switch is fitted to all AC/DC machines and gives a selection of 4 operating modes:

- 1) AC welding
- 2) Positive torch or electrode holder polarity
- 3) Negative torch or electrode holder polarity
- 4) Negative torch or electrode holder polarity, but ignition taking place with positive polarity.

When MMA welding, the welder can alter the electrode polarity, in positions 2 and 3, without having to physically move the cable position on the outlet sockets. In position 4, when welding with DC TIG the ignition takes place with the electrode at positive polarity and welding with negative polarity. This results in perfect ignition, even in the most extreme of conditions.

The Packaged strength of the Power sinus series

Ideal for use on general site work, light and simple to use, with high operating performance, enabling 200A welding current from a normal single 16A phase socket.

This outstanding performance has only been made possible by the revolutionary new EWM patented power saving unit.

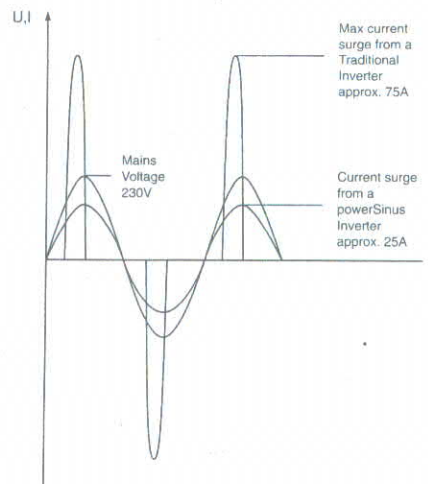
A special electronic control eliminates any mains power spikes, which are inherent with traditional inverters, giving a pure sinusoidal input to the Inverter unit, this enables 200A to be generated, when the supply is fused at 16A because the power factor, Cos Phi is at unity i.e. Cos Phi = 1.

The power savings made with this machine, when compared with traditional Inverters, can easily allow the machine to pay for itself within a short period of time.

When using this type of equipment on construction sites, there are particular difficulties with variations in the mains supply voltage, similarly when using mobile generators.

The packaged power of the Power Sinus series operates satisfactorily with a mains voltage of between 138V and 264V (230V +15%; -40%).

Mains power loading of traditional Inverters and the Power Sinus range machines.



Patent numbers:
DE 42 11 906 C1
EP 0 410 088 B1

Machines with TIG - Functions

	Pico140	inverter TIG150 DC inverter TIG151 DC*	inverter TIG200 DC powerSinus	inverter TIG230 DC	inverter TIG300 DC
Type:	portable, gas cooled	portable, gas cooled	portable, gas cooled	portable, gas cooled	portable, gas cooled
Individual Torch Connections	90.2000.01	90.0016.04/90.0034.01*	90.0030.03	90.0042.05	90.0040.07
Central Torch Connections	-	-	90.0030.08	90.0042.06	-
Weight:	5A - 140A	5A - 150A	5A - 200A	5A - 230A	5A - 300A
Current 25%ED TIG / MMA	- / -	- / 150A	- / 200A	- / 230A	- / -
Current 35%ED TIG / MMA	140A / 140A	150A / 125A	200A / -	230A / -	- / -
Current 40%ED TIG / MMA	- / -	- / -	- / -	- / -	300A / 300A
Current 60%ED TIG / MMA	- / -	115A / 95A	150A / 130A	180A / 150A	250A / 250A
Current 100%ED TIG / MMA	100A / 100A	90A / 75A	120A / 100A	140A / 110A	190A / 190A
Duty Cycle	10min	10min	10min	10min	10min
Current adjustment range	-	-	-	-	-
Speed adjustment range	-	-	-	-	-
Open Circuit Voltage (OCV)	97V	95V	75V	75V	106V
Power Input (fluctuations)	1x230V (+15%;-40%)	1x230V (+10%;-40%)	1x230V (+15%;-40%)	400V (+15%;-40%)	3x400V (+20%;-25%)
Frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Blow-out fuse (slow blow-out fuse)	1 x 16A	1 x 16A	1 x 16A	25A	3 x 16A
Efficiency	88%	85%	89%	85%	89%
Power factor cos phi	0,99	0,9	1	1	0,9
Operating temperature range	-10°C bis +40°C	-10°C bis +40°C	-10°C bis +40°C	-10°C bis +40°C	-10°C bis +40°C
Protection Classification	IP23	IP23	IP23	IP23	IP23
Classification	F	H	H	H	H
Cooling method	Fan	Fan	Fan	Fan	Fan
Shielding method	Gas	Gas	Gas	Gas	Gas
Dimensions L x W x H mm	335 x 110 x 200	450 x 290 x 400	530 x 260 x 400	600 x 315 x 410	480 x 355 x 400
Weight	4,6kg	23kg	22kg	31kg	26kg
Approved for use in areas with increased danger (vessel welding) in accordance with:	(VDE 0544) EN 60974-1	(VDE 0544) EN 60974-1	(VDE 0544) EN 60974-1	(VDE 0544) EN 60974-1	(VDE 0544) EN 60974-1
and Remote control compatibility					
Electrode holder cable size (mm ²)	16mm ²	35mm ²	35mm ²	35mm ²	50mm ²
Coupling size	-	1/4"	1/4"	1/4"	1/4"
Note Current FR30	-	Yes	Yes	Yes	Yes
Note Hot Start FR35	-	-	Yes	Yes	Yes
Note Current with Digital Ammeter FRA40	-	Yes	Yes	Yes	Yes
Note Pulse FRP10	-	Yes	Yes	Yes	Yes
Note Pulse & Current FRP15	-	Yes	Yes	Yes	Yes
Note for Current FR21	-	Yes	Yes	Yes	Yes
Welding carriage	-	TRW 1 / 2	TRW 1 / 2	TRW 2 / 7	TRW 2 / 7
Input connections voltages	-	-	1x115V (150A)	1x230V with adapter	Yes
Input connections	-	-	Yes	Yes	-
Welding current, (Dry run)	-	-	-	-	-
Digital Ammeter	-	Yes	standard	standard	Yes
Generator power (KVA)	8,1kVA	9kVA	9kVA	12kVA	17,5kVA

Functions:

- TIG - DC - welding.
- Infinitely variable welding current output.
- Non-latched mode without Up/Down slope.
- Non-latched mode with Up/Down slope.
- Latched mode with Up/Down slope.
- Infinitely variable Up slope time (0-25sec.).
- Infinitely variable Down slope time (0-25sec.).
- Excellent contact free ignition with HF ignition unit
- Either liftarc or HF ignition is selectable when DC TIG welding
- Gas Pre flow time (0,2 - 5sec., internal variable).
- Gas Post flow time (0 - 20sec.).
- Automatic shut down of HF Gas and open circuit voltage. If arc fails to strike (safety feature).
- Ignition current is (search arc) infinitely variable as % of main welding current.
- Craterfill current I_E.
- Down slope current I₂ infinitely variable as % of main welding current.
- Antistick and Arc force control (variable above 200A).
- Extremely good ignition characteristics with automatic Hot Start feature.

inverter TIG 151 DC* T

Comparison of Funktionen:
 • Gas post flow time
 • Second stage current
 • Selectable ignition
 • Up slope 2 sec..
 • Down slope 6 sec..
 • Up slope 2 sec..
 The fixed settings for these functions can only be altered from the factory.

inverter TIG 150 DC, n

(same design like inverter)

inverter TIG200 DC pow

- Retrofit set: Cooling fan

Welding.
 Ignition with Liftarc Ignition.
 Infinitely variable current output.
 Welding current stepless adjustable.
 Hotstart prevents the electrode from glowing out.
 Hotstart prevents the electrode from attaching.
 Hotstart Hotstart for Ignition of critical electrodes without preheating elements.
 High efficiency for readiness of operation and breakdown.

C - Welding Machines

<i>Inverter</i> TIG300 DC CEL	<i>Inverter</i> TIG300 DC	<i>Inverter</i> TIG303 DC	<i>Inverter</i> TIG350 DC	<i>Inverter</i> TIG450 DC	<i>Inverter</i> TIG150 A
portable, gas cooled	mobile, water cooled	mobile, water cooled	mobile, water cooled	mobile, water cooled	portable, gas cooled
90.0048.02	90.0032.02	90.0055.02	90.0020.07	90.0021.04	90.0029.01
90.0048.04	90.0032.03	90.0055.03	90.0020.08	90.0021.05	90.0029.06
5A - 300A	5A - 300A	5A - 300A	5A - 350A	5A - 450A	5A - 150A
- / -	- / -	- / -	- / -	- / -	- / 150A
- / -	- / -	- / -	- / -	- / -	150A / 125A
300A (45%ED)	300A / 300A	300A / 300A	- / -	- / -	- / -
250A / 250A	250A / 250A	250A / 250A	350A / 350A	450A / 450A	115A / 90A
190A / 190A	190A / 190A	190A / 190A	270A / 270A	350A / 350A	90A / 75A
10min	10min	10min	10min	10min	10min
-	-	-	-	-	+/- 30%
-	-	-	-	-	50Hz - 200Hz
92V	106V	106V	78V	78V	75V
3x400V (+20%/-25%)	3x400V (+20%/-25%)	3x400V (+20%/-25%)	3x400V (+20%/-25%)	3x400V (+20%/-25%)	1x230V (+15%/-4
50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
3 x 16A	3 x 16A	3 x 16A	3 x 25A	3 x 35A	1 x 16A
91%	89%	89%	91%	91%	85%
0,9	0,9	0,9	0,9	0,9	0,9
-10°C bis +40°C	-10°C bis +40°C	-10°C bis +40°C	-10°C bis +40°C	-10°C bis +40°C	-10°C bis +40°C
IP23	IP23	IP23	IP23	IP23	IP23
H	H	H	H	H	H
Fan	Fan	Fan	Fan	Fan	Fan
Gas	Water (KF23E-10)	Water (KF23E-10)	Water (KF23E-10)	Water (KF23E-10)	Gas
690 x 290 x 460	890 x 500 x 890 incl. Cylinder Holder	650 x 780 x 1500 incl. Cylinder Holder	890 x 500 x 890 incl. Cylinder Holder	890 x 500 x 890 incl. Cylinder Holder	530 x 260 x 40
40,5kg	100kg	119kg	115kg	125kg	26kg
S (VDE 0544) EN 60974-1	S (VDE 0544) EN 60974-1	S (VDE 0544) EN 60974-1	S (VDE 0544) EN 60974-1	S (VDE 0544) EN 60974-1	S Optional (VDE 0544) EN 609
50mm ²	50mm ²	50mm ²	50mm ²	70mm ²	35mm ²
1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
TRW 2 / 7	-	-	-	-	TRW 1 / 2
Yes	Yes	Yes	Yes	Yes	-
Yes	Yes	Yes	Yes	Yes	Yes
standard	standard	standard	standard	standard	standard
22,1kVA	17,5kVA	17,5kVA	22kVA	34kVA	9,5kVA

is a basic machine, with a single knob control

of the *Inverter* TIG 150 DC

etc..

I_2 is set at 50% of the value set on I_1 .

er HF or Liftarc.

Open, Down slope, Gas post flow time and I_2 ,
side the unit.

115V

G 200 DC).

and *Inverter* TIG230 DC

module for water cooled welding torches.

Inverter TIG 300 DC CEL

- 100% suitable for vertical down welding, also for welding of cellulosic electrodes.

Inverter TIG 303 DC:

- Especially low maintenance and easily serviced machine design for site work and installation.
- Inverter and cooling module built as pull-out drawers:
 - Checking and cleaning in pulled out position,
 - Easy to transport and to ship.
- Optional:
 - Mains voltage 400V and 500V with internal tapping changes,
 - Optimum cooling of the welding torch even with great feeding heights with heavy duty cooling system.

Inverter TIG 300 DC; *Inverter* TIG 350 DC; *Inverter* TIG 450 DC machines:






- Can be supplied with a Pilot Arc System and special torch connection outlets for plasma welding.

Functions:

- TIG - DC - weldi
- TIG - AC - weldi
- Infinitely variable
- Non-latched mod
- Non-latched mod
- Latched mode wi
- Infinitely variable
- Infinitely variable
- Excellent contac
- Either liftarc or H
- Gas Pre flow tim
- Gas Post flow tir
- Automatic shut c
- If arc fails to stri
- Ignition current i
- of main welding
- Craterfill current
- Infinitely variabl
- Infinitely variabl
- Infinitely variabl



TIG AC / DC - Welding Machines

C	<i>inverter</i> TIG200 AC/DC <i>powerSinus</i>	<i>inverter</i> TIG230 AC/DC	<i>inverter</i> TIG300 AC/DC	<i>inverter</i> TIG350 AC/DC	<i>inverter</i> TIG450 AC/DC
	portable, gas cooled	portable, gas cooled	mobil, water cooled	mobil, water cooled	mobil, water cooled
	90.0031.01	90.0041.05	90.0033.02	90.0025.05	90.0026.04
	90.0031.04	90.0041.06	90.0033.03	90.0025.12	90.0026.06
	5A - 200A	5A - 230A	5A - 300A	5A - 350A	5A - 450A
	- / 200A	- / 230A	- / -	- / -	- / -
	200A / -	230A / 190A	- / -	- / -	- / -
	- / -	- / -	300A / 300A	- / -	- / -
	150A / 130A	180A / 150A	250A / 250A	350A / 350A	450A / 450A
	120A / 100A	140A / 110A	190A / 190A	270A / 270A	350A / 350A
	10min	10min	10min	10min	10min
	+/- 30%	+/- 30%	+/- 30%	+/- 30%	+/- 30%
	50Hz - 200Hz	50Hz - 200Hz	50Hz - 200Hz	50Hz - 200Hz	50Hz - 200Hz
	75V	75V	106V	78V	78V
	1x230V (+15%;-40%)	400V (+15%;-40%)	3x400V (+20%;-25%)	3x400V (+20%;-25%)	3x400V (+20%;-25%)
	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
	1 x 16A	25A	3 x 16A	3 x 25A	3 x 35A
	85%	89%	85%	85%	85%
	1	1	0,9	0,9	0,9
	-10°C bis +40°C	-10°C bis +40°C	-10°C bis +40°C	-10°C bis +40°C	-10°C bis +40°C
	IP23	IP23	IP23	IP23	IP23
	H	H	H	H	H
	Fan	Fan	Fan	Fan	Fan
	Gas	Gas	Water (KF23E-10)	Water (KF23E-10)	Water (KF23E-10)
	530 x 260 x 400	600 x 315 x 410	890 x 500 x 890	1110 x 500 x 890 incl. Cylinder Holder	1110 x 500 x 890 incl. Cylinder Holder
	29kg	35kg	120kg	130kg	145kg
	 Optional (VDE 0544) EN 60974-1	 Optional (VDE 0544) EN 60974-1	 Optional (VDE 0544) EN 60974-1	 Optional (VDE 0544) EN 60974-1	 Optional (VDE 0544) EN 60974-1
	35mm ²	50mm ²	50mm ²	50mm ²	70mm ²
	1/4"	1/4"	1/4"	1/4"	1/4"
	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	Yes
	TRW 1 / 2	TRW 2 / 7	-	-	-
	1x115V (150A)	1x230V with adapter	-	Yes	-
	Yes	Yes	Yes	Yes	Yes
	standard	standard	standard	standard	standard
	9,5kVA	12kVA	16kVA	24kVA	28kVA

- Down slope current I_2 infinitely variable as % of main welding current.
- Antistick and variable Arcforce control.
- Extremely good ignition characteristics with automatic Hot Start feature.

inverter TIG 150 AC/DC, machine with mains voltage 115V
(same design like *inverter* TIG 200 AC/DC).

inverter TIG200 AC/DC *powerSinus* and *inverter* TIG230 AC/DC

- Retrofit set: Cooling modul for water cooled welding torches.

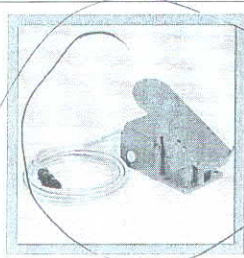
ding current output.
hout Up/Down slope.
h Up/Down slope.
v/Down slope.
slope time (0-25sec.).
n slope time (0-25sec.).
ignition with HF ignition unit
ition is selectable when DC TIG welding
2 - 5sec., internal variable).
- 20sec.).
of HF Gas and open circuit voltage.
fety feature).
rch arc) infinitely variable as %
t.

waveform balance from +30% to -30%.
frequency setting from 50 to 200Hz.
ion half wave (optimises arc ignition).

Accessories:

Foot operated remote current control

FR 21 Art. No. 94.0051.00
For infinitely variable welding current I_1 , in an industrial housing with 5m long cable.



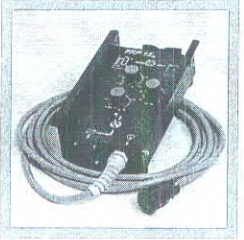
Hand operated remote control for Pulsed Welding

FRP 10 Art. No. 90.8002.00
Pulsed and spot welding duration times infinitely variable, with 5m long cable.



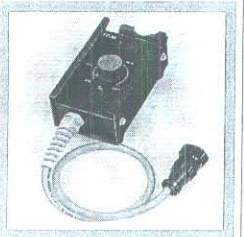
Hand operated remote control for Pulsed welding

FRP 15 Art. No. 90.8045.00
Pulsed and spot welding duration times infinitely variable, in addition to this the main welding current I_1 , can be preset to the desired value, with 5m long cable.



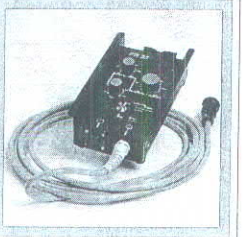
Hand operated Remote control for Main current

FR 30 Art. No. 90.8005.00
Main welding current I_1 can be infinitely varied as desired, with 5m cable.



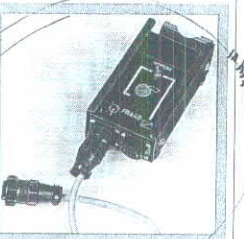
Hand operated Remote control for Hot Start

FR 35 Art. No. 90.8044.00
Infinitely variable, Hot Start current, Hot Start duration time, and main current I_1 , with 5m long cable



Hand operated Remote control for Main current

FRA 40 Art. No. 90.8032.00
Main welding current can be infinitely varied as desired, and displayed on a digital ammeter with 0.3m long cable.



Carriage Unit (for transporting machine)

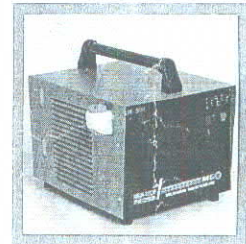
TRW 1 Art. No 90.8006.00
suitable for all welding machines combined with UK500 Cooler.



Air Blast Closed Loop Cooler

UK 500
1 x 230V Art. No. 90.8026.00

UK500S (with 3 x 400 V/16A CEE plug connector for a welding machine) 3 x 400V Art. No. 90.8026.02
Complete with water pressure switch and heavy duty recirculating pump, for cooling torches of up to 500A capacity.



Coolant **KF 24E-10** (Frost protection down to -10°C) can be ordered separately Art. No. 94.0530.00.

Connection & Extension cables for Remote controls

FRV 3	3m long	92.0005.03
FRV 5	5m long	92.0005.00
FRV 10	10m long	92.0005.01

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Accessories:

Electrode Holders

EH25	with 4m cable 25mm ²	92.0017.00
EH35	with 4m cable 35mm ²	92.0052.00
EH50	with 4m cable 50mm ²	92.0004.00
EH70	with 4m cable 70mm ²	92.0011.00

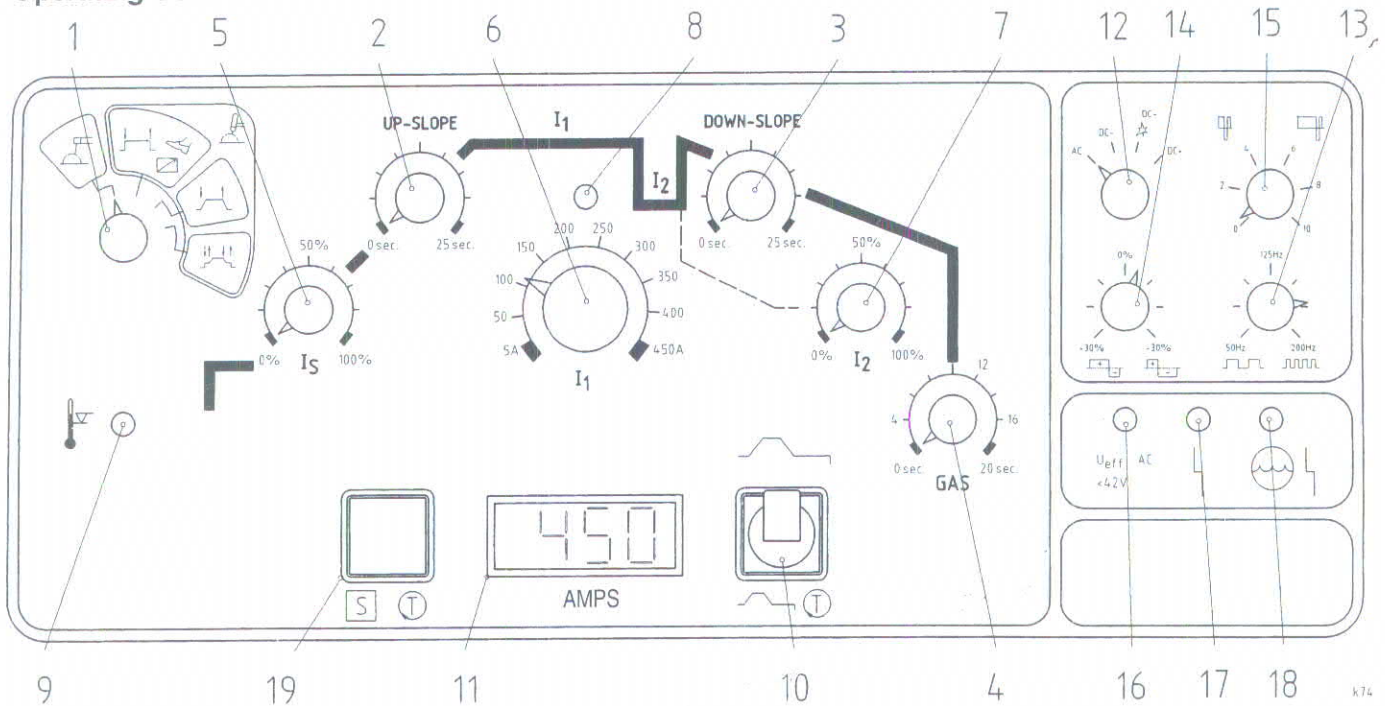
Work Piece Connection Cables

WK25QMM-4M/K	with 4m cable 25mm ² and clamp	92.0016.00
WK35QMM-4M/K	with 4m cable 35mm ² and clamp	92.0008.00
WK50QMM-4M/K	with 4m cable 50mm ² and clamp	92.0003.00
WK50QMM-4M/Z	with 4m cable 50mm ² and clamp	92.0012.00
WK70QMM-4M/Z	with 4m cable 70mm ² and clamp	92.0013.00
WK95QMM-4M/Z	with 4m cable 95mm ² and clamp	92.0171.00

General Accessories

2m gas hose	94.0010.00
Pressure regulator with contents gauge	94.0408.00
Pressure regulator with	94.0009.00
Shielding gas flow gauge	94.0074.00
Coolant KF24 E-10 (container capacity 9.3L)	94.0530.00
Safety Belt ZG900x25 for gas cylinder, black, suitable for all mobile units (for self-fixing).	94.0371.00
Protective Head Shield	94.0011.00
Hand Shield	94.0012.00
Replacement Protective glass, 1000h	94.0073.00
Replacement Protective glass	94.0072.00
Wire Brush V2A	94.0071.00
Chipping Hammer	94.0014.00
Welder's glove, 3 finger	94.0013.00
Welder's gloves, 5 finger	94.0070.00

Operating Controls



Basic provision on DC and AC TIG Units

- 1) Mode selector switch
- 2) Up-Slope Time (current increase)
- 3) Down-Slope Time (current decrease)
- 4) Variable gas post flow time
- 5) Variable ignition current (search arc) I_S
- 6) Variable main welding current I_1
- 7) Variable crater fill current I_2
- 8) Arc on LED
- 9) Overtemperature condition LED

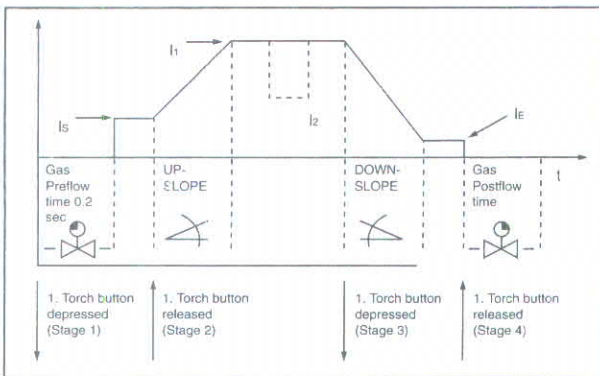
Further functions on the Mobile series and inverter TIG 250 AC/DC portable units

- 10) Preset current test switch (dry run)
- 11) Digital Ammeter
- 17) Fault indicator LED
- 18) Coolant deficiency LED

Additional Functions on AC/DC Units

- 12) Electrode Polarity selector switch
- 13) Variable AC frequency
- 14) Variable AC balance
- 15) Variable adjustment of ignition half wave
- 16) Overvoltage indicator
- 19) Test Switch for voltage reduction device

Description of Function in latched-operating mode:



During welding, if the second torch button is depressed the welding current will reduce to that set on I_2 , which is the value set with potentiometer number 7.

Standard Package

The ignition current I_S and down-slope current is given as a % of main current I_1 .

Optional Package

As opposed to the standard package, I_S and I_2 can be set as absolute values, enabling them to be independent of I_1 setting if required.

Your contact is:

Messer Griesheim Ltd.
 Atley Way North Nelson Industrial Estate
 Cramlington GB-Northumberland, NE23 9LL
 Tel. 01670.73 74 44
 Fax 01670.73 77 47