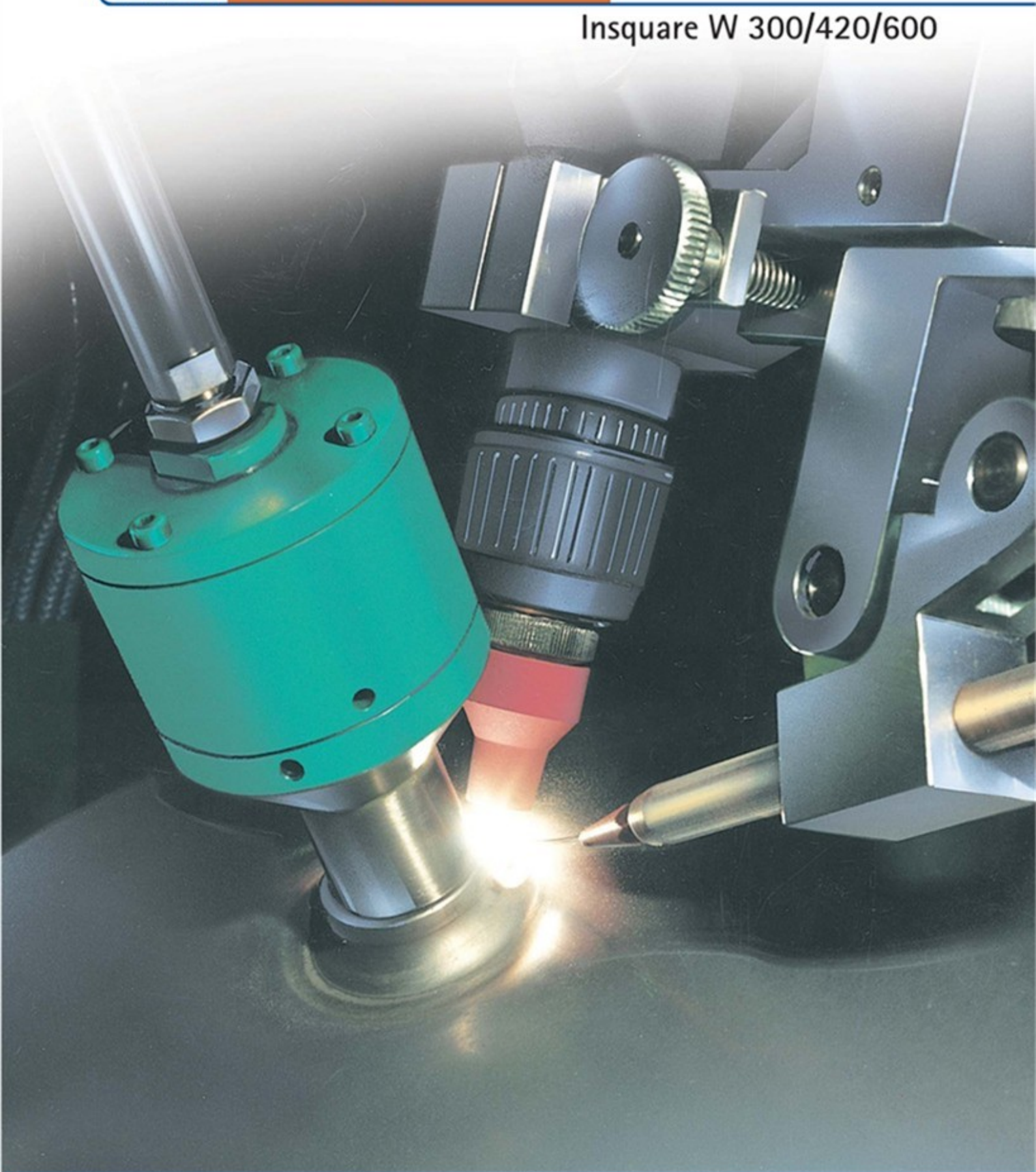




TIG Series

Insquare W 300/420/600





Insquare W 300/420/600

Perfect Technology for Highest Demands!

The series of TIG inverter welding units model Insquare consists of five models:

Insquare W 300 DC:	320 A (60 % duty cycle) direct current (DC)
Insquare W 300 AC/DC:	320 A (60 % duty cycle) direct and alternating current (AC-DC)
Insquare W 420 DC:	420 A (50 % duty cycle) direct current (DC)
Insquare W 420 AC/DC:	420 A (50 % duty cycle) direct and alternating current (AC-DC)
Insquare W 600 AC/DC:	600 A (80 % duty cycle) direct and alternating current (AC-DC)

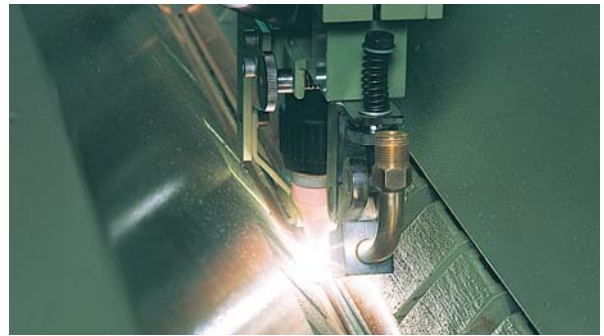
■ A perfect technique with optimal features meets highest demands in the field of TIG welding:

- IGBT inverter power sources.
- 3-phase inverter with low primary current.
- Stable arc in AC over the full range due to square wave or noice reduced wave.
- Continuous setting of the welding frequency in AC.
- MMA/stick electrode welding.
- Perfectly smoothed DC gives outstanding welding characteristics in TIG and electrode welding.
- Perfect arc ignition over the whole range due to separate ignition circuit.
- A minimum of radiation caused by the HF-ignition unit.
- Efficient cleaning in AC.
- Adjustables arc shapes:
narrow: for fillet weld,
wide: for butt weld.
- Special filters mounted to avoid radiation.

■ Automated and robot operation

The welding units are specially designed for industrial purposes and suitable for manual, automatic or robot operation. A PLC or a robot control takes over the transmission of the following parameters:

- a) welding current
- b) frequency (in AC)
- c) balance (in AC)



TIG series Insquare:

Ideal for machine welding due to outstanding ignition characteristics of the arc using the HF.



Insquare W 300 AC/DC

Insquare W 300/420/600

Easy operation!



Multitude of control functions:

- TIG welding process:
 - TIG DC minus, TIG DC plus*
 - TIG DC minus with start impulse*
 - TIG AC "noise reduced"*
 - TIG AC "square wave"*
 - TIG AC "sinusoidal"*
- MMA/Electrode welding process:
 - Electrode minus, electrode plus*
 - Electrode "sinus"*
 - Electrode "square wave"*
- 20 programmable jobs.
- 2 welding currents separately adjustable; in 4-stroke recallable by a short touch on the torch trigger or using a welding torch with two triggers.
- Adjustable parameters: gas pre-flow and gas post-flow time, start and final current, timer for current up and down slope.
- Parameter pre-selection by 2 switches.
- 2 large LED-displays with pre-indication and Hold function for current, voltage, time and frequency.
- Pulse device and spot welding.
- High frequency pulsation up to 5 kHz.
- Current remote control with potentiometer at the torch (option).
- High frequency (HF) or lift arc ignition.
- 2-stroke, 4-stroke, 4-stroke with 2 currents.
- AC-frequency setting: 50–200 Hz*.
- AC-balance: continuous setting of the plus/minus from 9 % to 91 %*.
- Remote control; manually, at the torch or by foot pedal.
- Testing function for S-protection device*.

* only mounted in AC/DC models

Insquare W 300/420/600

Multiple Functions!

■ Functions in MMA/stick electrode operation:

1. Outstanding welding characteristics for applications like construction of tubes and pipelines:
safe in position down, suitable for cellulose electrode. Safe ignition due to a high no load voltage.
2. Dynamic setting of Arc Force:
increasing of the welding current in order to avoid adherence of the electrode.
3. Electrode Hotstart:
increasing of the start current to assure a safe ignition. Continuous setting of the Hotstart time and Hotstart current.
4. Anti stick function:
In case of adherence of the electrode, the current is switched off immediately. Re-ignition after separation only possible with a short retardation.

■ Chassis construction:

- Easy to service, easy to open.
- Good accessibility of all electronic components.
- Efficient cooling of the power moduls due to an air channel.
- Dust protected mounting of the electronic components.
- Efficient water cooling system compactly installed in the housing.

■ Merkle TIG welding torches with Quick TIG System



Model	DC	AC	cooling
TH 451 W	450 A	400 A	water

- Only few spare parts.
- Torch cap and back cap form one single part.
- Double button torch switch.
- Torch with integrated potentiometer (option).
- High-flexible torch lead with partial leather protection.
- Ball joint at the handle.



Overview TIG Insquare Series



Technical Data:	W 300 DC	W 300 AC/DC	W 420 DC	W 420 AC/DC	W 600 AC/DC
Primary:					
Power supply	3 x 400 V	3 x 400 V	3 x 400 V	3 x 400 V	3 x 400 V
Frequency	50 (60) Hz	50 (60) Hz	50 (60) Hz	50 (60) Hz	50 (60) Hz
Continuous power	9.5 kVA	9.5 kVA	12.0 kVA	12.0 kVA	24.2 kVA
Continuous current	13.7 A	13.7 A	17.4 A	17.4 A	35 A
cos phi	0.95	0.95	0.95	0.95	0.95
Secondary:					
Operation mode	DC	AC and DC	DC	AC and DC	AC and DC
No load voltage	80 V	80 V	80 V	80 V	80 V
Welding voltage	10 - 22.8 V	10 - 22.8 V	10 - 26.8 V	10 - 26.8 V	10 - 34 V
Welding range	5 - 320 A	5 - 320 A	5 - 420 A	5 - 420 A	20 - 600 A
Duty cycle 50% (10 min)			420 A	420 A	
Duty cycle 60% (10 min)	320 A	320 A	400 A	400 A	
Duty cycle 80% (10 min)	300 A	300 A			600 A
Duty cycle 100% (40°C)	260 A	260 A	310 A	310 A	500 A
MMA/Electrode Welding:					
No load voltage	80 V	80 V	80 V	80 V	80 V
Welding voltage	20 - 32.8 V	20 - 32.8 V	20 - 36.8 V	20 - 36.8 V	20 - 44 V
Welding range	5 - 320 A	5 - 320 A	5 - 420 A	5 - 420 A	20 - 600 A
Duty cycle 50% (10 min)			420 A	420 A	600 A
Duty cycle 60% (10 min)	320 A	320 A	400 A	400 A	550 A
Duty cycle 80% (10 min)	300 A	300 A			
Duty cycle 100% (40°C)	260 A	260 A	300 A	300 A	450 A
Protection mode	IP 23	IP 23	IP 23	IP 23	IP 23
Insulation class	H	H	H	H	H
Cooling	AF	AF	AF	AF	AF
Adjustings	2 rotary switches and 2 selectors for: current 1, time 1, current 2, time 2 (for pulsation), gas pre and post flow time, up and down slope time, start current, final current, timer spot welding, AC-balance, AC-frequency, Arc force, Hotstart time and current				
Timer functions	quick and slow pulsation, spot welding				
Energy adjusting	at the unit, manual remote control, foot pedal, torch potentiometer				
Operation modes	2-stroke, 4-stroke, 4-stroke with 2 currents				
Indications	2 LED displays with pre-indication and Hold-function for current, voltage, time and frequency				
Ignition	high frequency (HF) or Lift-Arc				
Protection device		testing button		testing button	testing button
Generator	IGBT-inverter				
Norm	EN 60974-1 „S“ / CE				
Torch connection	Euro connector with 5-pole plug				
Torch cooling	integrated water cooling system				
Weight	115 kg	130 kg	125 kg	140 kg	255 kg
Dimensions (LxWxH)	910 x 600 x 910 mm				1055x630x1290 mm
Gas bottle holder	incl. gas bottle holder for 10, 20 or 50 l cylinders				

(Technical changes reserved.)

Shaping a successful future



Shape your own successful future.

With Merkle. Your specialist for welding units, welding equipment, torches and intelligent quality assurance systems. With our own subsidiaries and factory representatives in Germany, Europe and many other countries.

Welcome to Merkle

