



## Synergic MIG Pulse Welding Unit HighPULSE 330 K

The Portable Genius!







## Merkle HighPULSE 330 K



Easy to adjust and a maximum of functions in MIG/MAG and Synergic Pulse welding are the major advantages of the Merkle HighPULSE 330 K:

- Continuous one button adjustment.
- Setting and indication of the energy on the TEDAC® welding torch (see rear page).
- 2-stroke/4-stroke/stitch/spot welding.
- 4-roller wire feeding system.
- Reproducible welding results due to digital microprocessor welding control.
- Proven welding programs for steel, stainless steel, aluminium, aluminium alloys and MIG brazing.
- DeepArc process and Interpulse welding as a standard.
- Multifunctional display for easy program selection.
- Digital display for welding current, welding voltage, wire feed speed and material thickness with pre-indication and HOLD-function.
- Approved for operation in confined areas, S-symbol.
- Optional: socket for remote control and push-pull torch.
- TIG-DC welding with lift-arc ignition.
- Stick electrode welding (MMA).

# Multiple Functions

## ■ The portable Genius

This unit incorporates of six different welding processes. According to the welding task, the material and the location, the following welding processes can be selected:

1. Synergic pulse welding
2. MIG/MAG welding (synergic)
3. TIG (DC) welding
4. Stick electrode welding (MMA)
5. Core wire welding (gasless)
6. MIG brazing



## ■ Push-Pull-Torches:



- The torch length can be increased by using the Merkle push-pull torches.
- These torches are recommended for welding thin aluminium wires.
- Available with TEDAC® energy display and control.



Sockets for earth cable, electrode welding cable and water cooling unit are mounted on the rear. Quick polarity change for welding gasless core wires by using different plugs mounted on the rear.

## ■ Functions in TIG operation mode:

- Perfect lift-arc ignition.
- Variable down-slope time.
- Gas pre/post flow time adjustable.
- 2 welding currents separately adjustable at the welding torch.
- TIG pulsation as a standard.



As a standard precise 4-roller drive. Suitable for 5 kg or 15 kg wire spools.



## Water Cooling Unit and Trolley

Useful accessories available!



Water Cooling Unit WK 300



Trolley TW 110

### Water cooling unit WK 300

The water cooling unit WK 300 can be used as an option. The mounting and dismounting is done in a few seconds. One pluggable electrical connection is placed on the rear of the unit. Different applications are possible, for example: welding with a water cooled torch in the workshop or using a gas cooled torch on site.

### Trolley TW 110

The trolley TW 110 is designed for easy transportation of the welding unit in the workshop or on site:

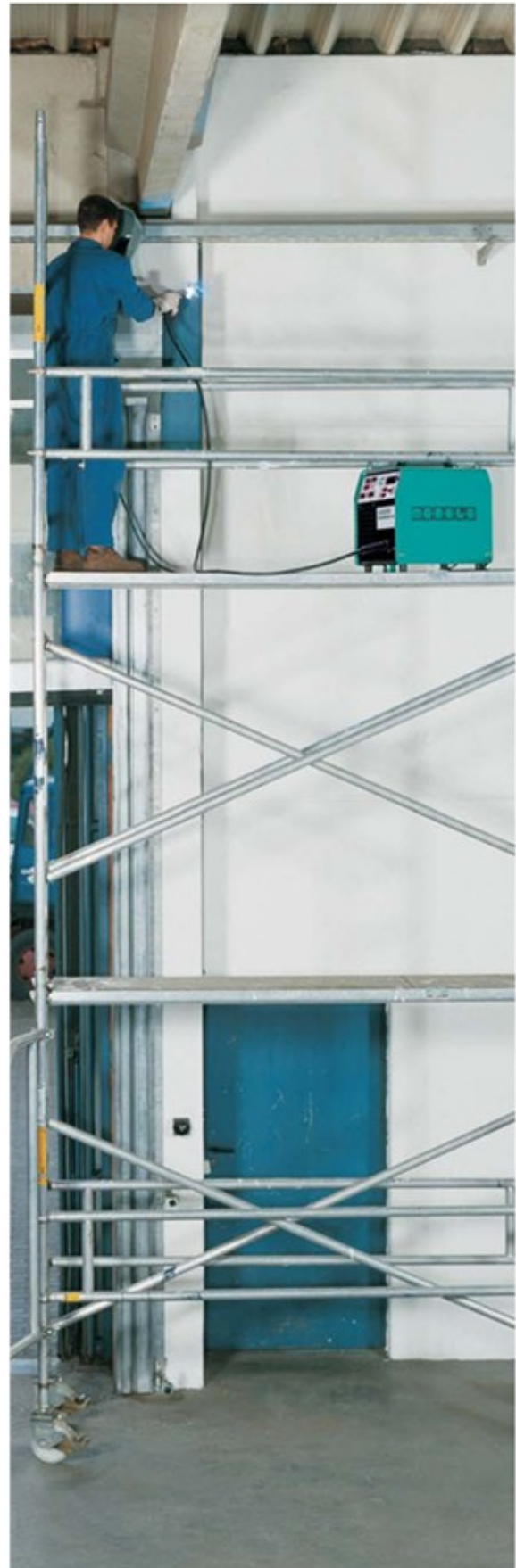
- Extra large wheels.
- Gas bottle holder for a 10, 20 or 50 l cylinder.
- Lowered galvanized gas bottle holder.
- 2 supports for torch and cables.



# Universal in Use

## ■ Various operational areas

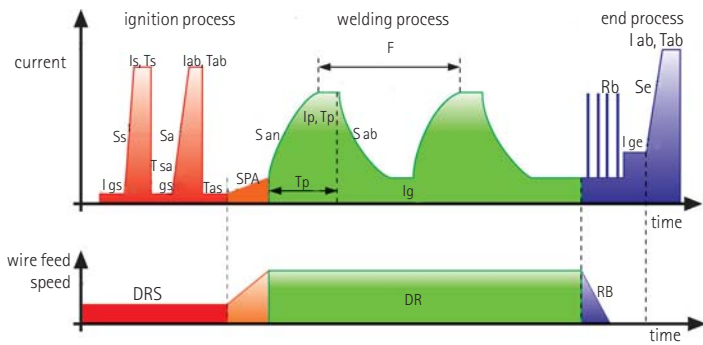
The unit is manufactured to operate in medium size metal fabrication companies, workshops, installation companies, on site and in automobile production and repair. It is lightweight and portable at a weight of only 36 kg. It can be used even in difficult working areas. With a suspension device the complete machine can be mounted to a special track (option). All control functions are easy accessible direct at the working place, only the main supply cable has to be connected.





# Merkle Pulse-Technology

## Pulse Welding Programs



### Structure of the Pulse welding programs:

Welding process control with 35 free programmable parameters. Perfect ignition due to 13 variable parameters within the ignition process. 144 different pulse forms programmable. The generation of different forms of welding characteristic curves for the welding parameters are possible.



Spatter free welding in Synergic Pulse mode.

### Extremely spatterfree welding due to one-drop-transfer:

- tremendous time saving due to reduction of working hours for cleaning,
- high deposition rates,
- long life torch consumables,
- less down time due to cleaner consumables.

### Perfect welding of aluminium and aluminium alloys:

### Safe, spatter reduced ignition due to a new ignition process controlled by 13 parameters:

- 2 independent ignition pulses,
- precise soft start,
- anti balling of MIG wire automatically ready for re-ignition.

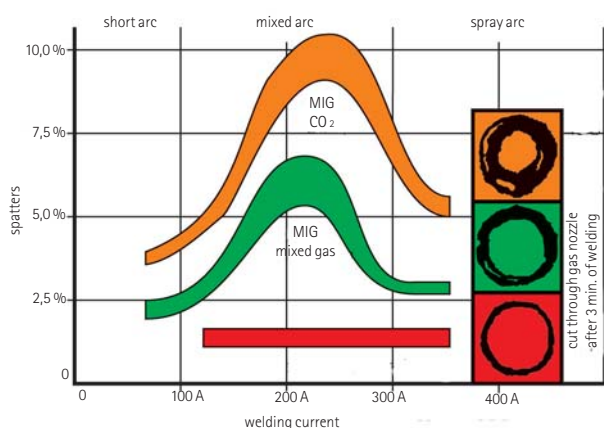
### Up to 144 stored welding programs for

- different materials,
- different wire diameters,
- different protective gases,
- Pulse-Arc, MIG/MAG and Interpulse welding.

### Multiple variations of the pulse parameters:

Manipulation of the arc characteristics and the penetration.

- Alloy elements are maintained due to adaption of the pulse parameters when using stainless steel wires.



## Comparison between MIG and Pulse welding:

Spatter emission in relation to the welding current in percent. The comparison shows the outstanding results in favour of the Pulse welding over the traditional MIG welding using CO<sub>2</sub> or mixed gas as shielding gas.

# MIG Brazing, Interpulse Welding, DeepArc

## ■ MIG brazing

Galvanized or aluminium coated sheets can be brazed together by the MIG brazing process. When using a wire with a low melting temperature and special welding programs a brazed joint can be achieved without melting the sheets. Due to the low temperatures, the coating will not be burnt in a large area. The weld is resistant against corrosion.



## ■ Interpulse Welding



We enter in a new dimension of welding aluminum.

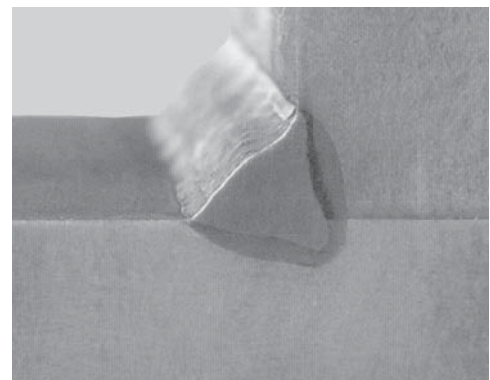
### The advantages:

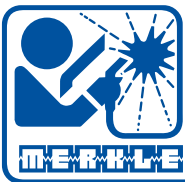
- Scaled welds and welding quality similar to TIG welding process.
- Welding speed as high as in MIG welding.
- Exact manipulation of the scaled weld.
- Reduced heating up of the material.
- Reduced distortion of the work piece.
- Easy adjustment by only one variable resistor (different pulse parameters are adapted automatically).

## ■ NEW: The DeepArc process

With a highly dynamic voltage regulator the series HighPULSE is able to form a arrow like arc (similar to plasma), which shows some very interesting characteristics:

- High penetration
- Guaranteed root penetration
- Concentrated heat affected zone
- 50 % higher welding speed
- Spatter-free welding process
- Drastically reduced undercut





# Merkle HighPULSE 330 K, WK 300

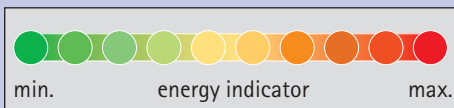
## Technical Data:

<b>Primary:</b>				<b>Water cooling unit WK 300</b>
Power supply	3 x 400 V (3x 440 V / 3 x 220 V)	Welding processes	MIG/MAG/MIG Pulse/Interpulse/ MMA/stick electrode/DeepArc	<b>Power supply</b>
Frequency	50/60 Hz		TIG DC (option)/MIG brazing	Pluggable cable to the power source
Continuous power	12.5 kVA*	Setting energy	at the machine, at the TEDAC torch, job mode (max. 256 jobs)	<b>Water pump Pressure switch</b> integrated
Continuous current	18 A*		automatic adjusting	<b>Water connection</b>
Max. current	23 A*	Arc length	variable resistor +/- 30 %	2 quick disconnect couplings
		Arc trim	2-stroke/4-stroke/4-stroke with start current	<b>Water tank</b>
		Operation mode	0.8/1.0/1.2 mm	3.0 l
<b>Secondary:</b>				<b>Weight</b>
No load voltage	57 V	Wire diameter	button with HOLD-function and automatic switch off	23 kg
<b>Pulse-Arc-/MIG-MAG:</b>				<b>Dimensions (l x w x h)</b>
Welding voltage	15-30,5 V	Gas test	inverter	600 x 300 x 260 mm
Welding range	25-330 A	Power source	gas (option: water)	
Duty cycle 35 % (10 min.)	330 A (40°C)	Torch cooling	Euro connector	
Duty cycle 100 %	250 A (40°C)	Torch connection	4-roller-drive DV-26 (0.5-25 m/min.)	
<b>TIG operation:</b>				
Welding voltage	10-23,2 V	Wire feeding system	IP 23	
Welding current	10-330 A	Protection class	EN 60974-1 "S" / CE	
Duty cycle 60 % (10 min.)	330 A (40°C)	Norm	36.5 kg (without wire spool)	
Duty cycle 100 %	250 A (40°C)	Weight	600 x 300 x 565 mm	
<b>MMA/Stick electrode operation:</b>				
Welding voltage	20-33,2 V	Dimension (l x w x h)		
Welding range	20-330 A			
Duty cycle 60 % (10 min.)	330 A (40°C)			
Duty cycle 100 %	250 A (40°C)			

\* depending on the selected welding process. Technical changes reserved.

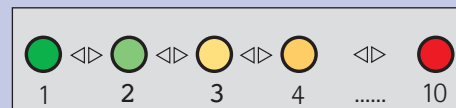
- Energy control and display directly on the torch
- Activation of programmable welding jobs

**TEDAC®-System**  
(Torch Energy Display and Control)



### Continuous setting and indication of the energy

Precise continuous setting of the energy by means of a slide switch mounted on the torch – before, during and after the welding. Display of the present energy by a multicoloured LED-indicator.



### Activation of programmable welding positions (jobs)

Up to 10 programmable welding positions (jobs) can be stored and recalled by means of a slide switch. Free setting over the full range of the welding characteristic curve.



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