



# Discovery 221AC/DC Evo

WELD THE WORLD



# Discovery 221AC/DC Evo

TIG AC/DC - MMA



User interface simple and informative



1 Graphic Display complete with multi-language Menu



2 Encoder with push button navigation permits the setting with one hand



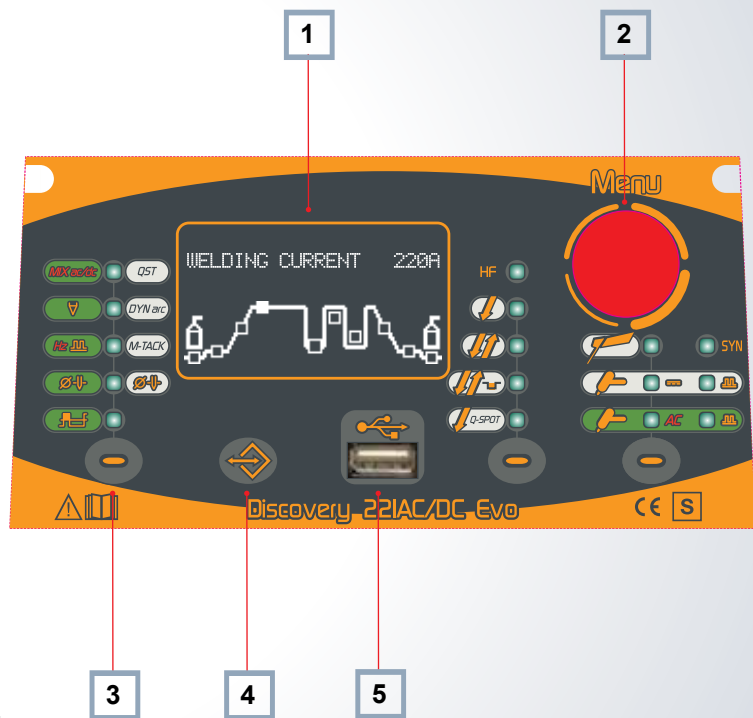
3 Direct access to all special functions



4 Quick Jobs` Management



5 USB Connection for Jobs back up and rapid transmission



# Discovery 221AC/DC Evo

## Technical Data



**Discovery 221 AC/DC Evo** is a revolutionary state-of-the-art 1Phase portable TIG AC/DC welding Inverter. TIG AC functions are ideal for welding aluminum, magnesium, and related alloys. Ordinary steels, stainless steel and copper can be easily welded in TIG DC.

**Discovery 221 AC/DC Evo** is specifically designed for extremely precise welding in the construction, petrochemical, food industries and other applications that require very a high welding performance.

The new user interface (EVO) provides fast and effective access to all available functions. 50 programs can be loaded and saved in memory (JOB), All programs can be easily recalled when using an Up/Down torch. It is also possible to create different jobs' sequences to be used on specific applications. Simple selection of the MMA mode provides a choice of the electrode-type (basic, rutile, CrNi, Alu) setting, resulting in optimizing the weldability and parameters. It is also possible to control the polarity switch (swap) directly from the user interface, avoiding any cable disconnection. Finally the function AC (for welding in alternate current) is additionally available, this is particularly suitable for the welding of special electrodes.

Discovery 221AC/DC Evo						
	1x230Vac ± 15% @ 50-60Hz					
	16A			25A		
	TIG			MMA		
% <sub>40°C</sub>	35%	60%	100%	40%	60%	100%
$I_2$	220A	180A	160A	180A	150A	120A
$I_2$	5A – 220A			10A – 180A		
$U_0$	79,5V					
$P_{MAX}$	6,2kVA – 6,1kW					
IP	23S					
	460 x 230 x 325mm					
	19,5Kg					

TECHNOLOGY				PROCESSES			
<b>SPECIAL FUNCTIONS</b>							
MATERIALS							
Aluminium	Mild steel	Stainless steel	Copper				
INDUSTRIES							
Maintenance	Industry	Shipyard	Pipe welding				

# Discovery 221AC/DC Evo

## Technology and Special Functions



W.ECO PFC reduces harmonic current emissions and 20% input current, increasing the power inverter efficiency.



Function VRD (Volt Reduction Device) reduces automatically the voltage of the welding machine during the Standby mode in order to allow the processing in those building site where low voltages are demanded for safety reasons (Dockyards, petrol platforms and so on).



The pulse TIG with frequency until 2500Hz allows to weld very thin materials with easy arc control and very low heat input on workpiece.



Pre-set balanced parameters, stored in the Synergic Pulse TIG DC SYN curve, simplify Pulsed welding by adjusting only welding current.



The Q START (Quick start) function facilitates the joining of the parts in the initial stage of the welding process. On activating this function the machine automatically switches to Synergic pulsed mode for a preset time. The resulting pulses create movement of the molten metal on the two sheet metal edges thereby accelerating formation of the join. This function is invaluable in the case of seams with slight openings or with irregular preparation. The duration of the series of pulses can be adjusted, (from 0.1 to 60 second) depending on the thickness and shape of the sheet to be welded.



The DYNAMIC ARC function makes it possible to keep the product of Voltage x Current constant. The power source increases the welding current as the arc voltage decreases and reduces the welding current if the arc voltage increases. The DynARC value can be adjusted from a minimum of 1 Ampere to a maximum of 50 Ampere at each 1 Volt variation, whether positive or negative.



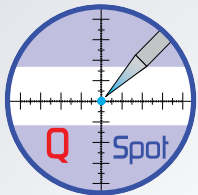
Dynamic Arc TIG welding



Standard TIG welding

# Discovery 221AC/DC Evo

## Special Functions

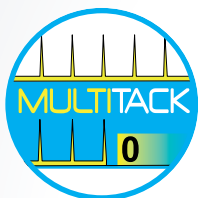


The Q-SPOT (Quick Spot) function makes it possible to minimise tacking times for light gauge sheet metal. The operator conveniently places the tungsten electrode on the fixing point, thereby obtaining perfect control of the position of the join. Once the electrode has been lifted the machine emits a very high intensity welding current pulse with a very short preset time (from 0.01 Sec to 1 Sec). The pulse time varies depending on the type of sheet metal to be joined. In this way the welded point closes instantly with minimum heat transfer, leaving the metal white, clean and almost cold.

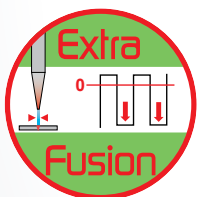
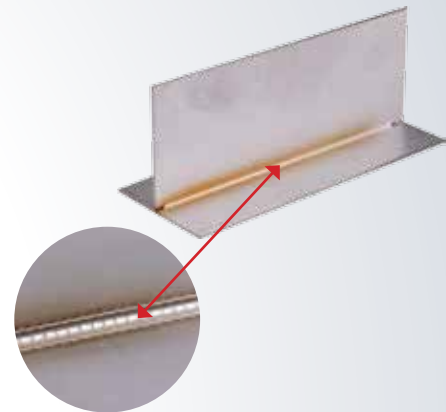
Pipe butt weld  
Ø 31.75 x 2 mm



Corner spot welding thickness 0,6 mm

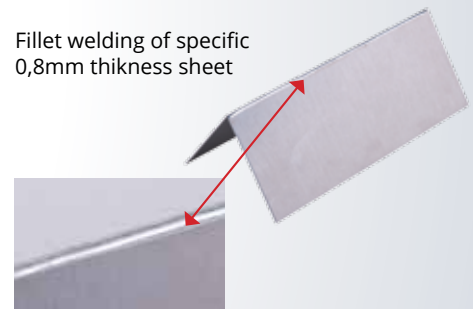


The MULTITACK system makes it possible to reduce heat output while joining two light gauge parts (0.6mm – 0.8mm). The series of arc strikes at short time intervals allows the material to cool during the pause between one strike and the other and thus minimizes its deformation. The facility to adjust the frequency of the series of arc strikes in the time unit makes it possible to adapt the electric arc to the welding speed and the joint geometry.

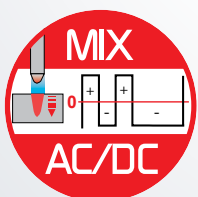


This function makes it possible to shift the waveform towards the negative part with respect to zero. This makes it possible to create a highly penetrative and precise fusion bath so that very light gauge sheets can be welded with an electrode tip comparable to that of an electrode for DC - TIG welding. The adjustable value in our AC/DC TIG power sources ranges from 0% to 80% (with respect to the DC - half-wave percentage). The Extra Fusion function is not recommended when welding heavy gauges because the DC+ component is insufficient to ensure optimal cleaning (pickling) of the part during the welding process.

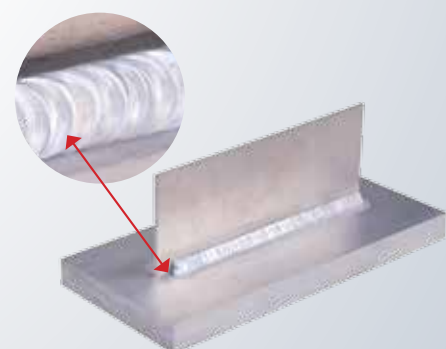
Fillet welding of specific  
0,8mm thickness sheet



Particular on the fillet welding. It is possible to notice the remarkable degree of finishing and the high welding precision



This function MIXAC/DC makes it possible to modulate the welding current, alternating a half-period of TIG AC with a half-period of TIG DC-. This means that the efficacy of AC TIG welding can be combined with the high penetration of DC TIG welding, thus obtaining high welding speed and creating the weld puddle rapidly on a cold workpiece. It is also possible to weld heavier gauges with lower amperage, since the DC- portion is far higher than when using an entirely AC waveform. The operator adjustable parameter is the percentage of AC waveform compared to DC- waveform over the entire period, which can be varied from 10% to 80%.



# Discovery 221AC/DC Evo

## User friendly Menu

### User friendly Menu

MENU FOR USE WITH A USB-STICK

```
JOB MENU
--->> USB EXPORT
MENU to confirm
```

DIFFERENT REMOTE-CONTROL TYPES CAN BE APPLIED INCLUDING SELECTION OF DIFFERENT TORCH SETTINGS

```
SET-UP (10/15)
ENABLE READ I. ON
TORCH TYPE 1
PEDAL TYPE 2
```

WELDING HOUR COUNTER

```
SET-UP (13/15)
POWER ON : 20.4h
T. ARC ON : 0.2h
P. ARC ON : 0.1h
```

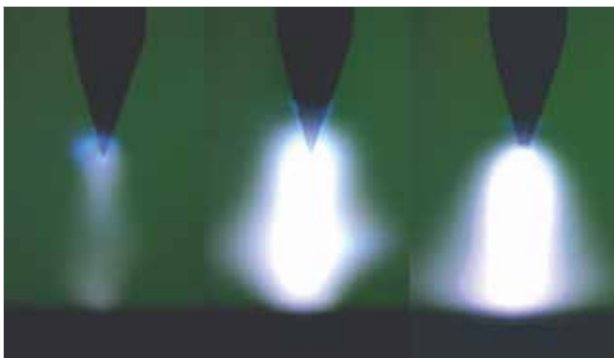
VALIDATION AND CALIBRATION SYSTEM FOR WELDING PARAMETERS READING IN ACCORDANCE WITH EN 60974-14 (EN50504)

```
SET-UP (15/15)
SET VAL. CURR. 10A
MENU --->> OFF
0 A 9.1 U
```

### TIG AC and DC Ignitions have been optimized

It is possible to regulate the current impulse dynamics in relation to the electrode diameter in order to achieve perfect arc-ignitions and optimum weld conditions every time. This setting avoids inconsistent arc-ignitions and welding defects.

ELECTRODE DIAM. 1.6mm



# Discovery 221AC/DC Evo

Available configurations



**Discovery 221AC/DC Evo with Trolley P and C.U.12**

**Discovery 221AC/DC Evo with Trolley 02 and C.U.12**

**AIR Version**

**H<sub>2</sub>O Version**

## PLUS



### LIGHTNESS

The lightness of Discovery 221 AC/DC Evo makes it particularly suitable for maintenance and mobile welding.



### COMPACTNESS

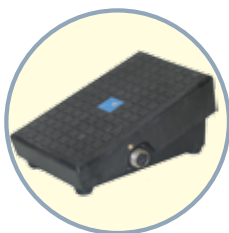
The compactness of Discovery 221 AC/DC Evo makes it easy to place it even on a working environment of small size



### TRANSPORTABILITY

A sturdy strap makes Discovery 221 AC/DC Evo easily transported from one workplace to another.

## ACCESSORIES



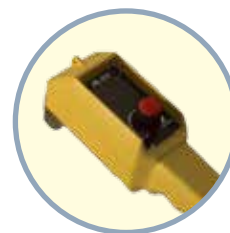
**FOOT PEDAL**



**SOFTWARE UPGRADE OF THE WHOLE MACHINE**



**UP & DOWN TORCH**



**REMOTE CONTROL**

**A solid industrial activity, where the production is based on substantial investments for the supporting of research, projection and continuous testing.**

Since 1997 Weco has been producing and selling welding machines Both registered office and production plant are based on the north east of Italy. Our offices, technical/project department, production and warehouse are able to serve both our national and international sales net. A wide range of welding machines together with a huge stock, allow us to encounter and fully satisfy our customers requests in short time. A dynamic management supported by solid experience on the main sales arguments and a deep knowledge on the application issues, allow this company to be ahead in the welding sector. WECO means better solution for improving the production, optimizing the intervention time, minimizing the processes costs, with the highest perform-standards granted.



**WELD THE WORLD**

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Dealer