Extra Fusion

MIX AC/DC

START

Q Spot

Dynamic Arc

MULTITACK

SYN

2,5KHz

WELDING

WECO

EQUIPMENT

Pioneer
321T - 321AC/DC

English

Pioneer 321T - 321 AC/DC

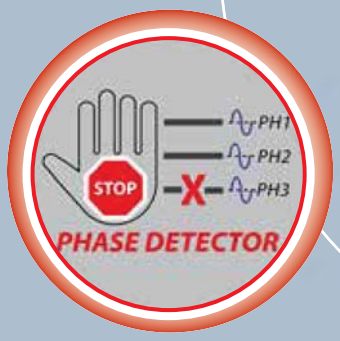
Heavy Duty Industrial TIG

321: Applications

The Pioneer 321T e Pioneer 321-AC/DC 3-phases Inverter welding machine for professional applications (Duty cycle : 320A - 35% at 40°C)
The innovative TIG DC functions available are: Q-Start, Q-Spot, Dynamic Arc, Multitack and Synergic Pulse.
The innovative TIG AC functions available are: Mix AC/DC and Extra Fusion.
This machine is ideal for industrial applications on aluminum, stainless steel, copper, bronze and ordinary steels.

321 Pulse: Remote Controls

- Connector with insulated pins for remote control of welding parameters.
- Torches with potentiometers and up/down switches can be used as well.



Integrated phases control

- Net's phases detector led.

Cooling Unit C.U.07B

(optional)

- C.U.07B is robust, powerful and can be easily connected to the power source.
- It's placed in the back of the power source in order to minimize space, volume and to improve movement.

321 Pulse: Ventilation tunnel

- All electronic pcbs are insulated from ventilation flow.

Pioneer 321T - 321 AC/DC

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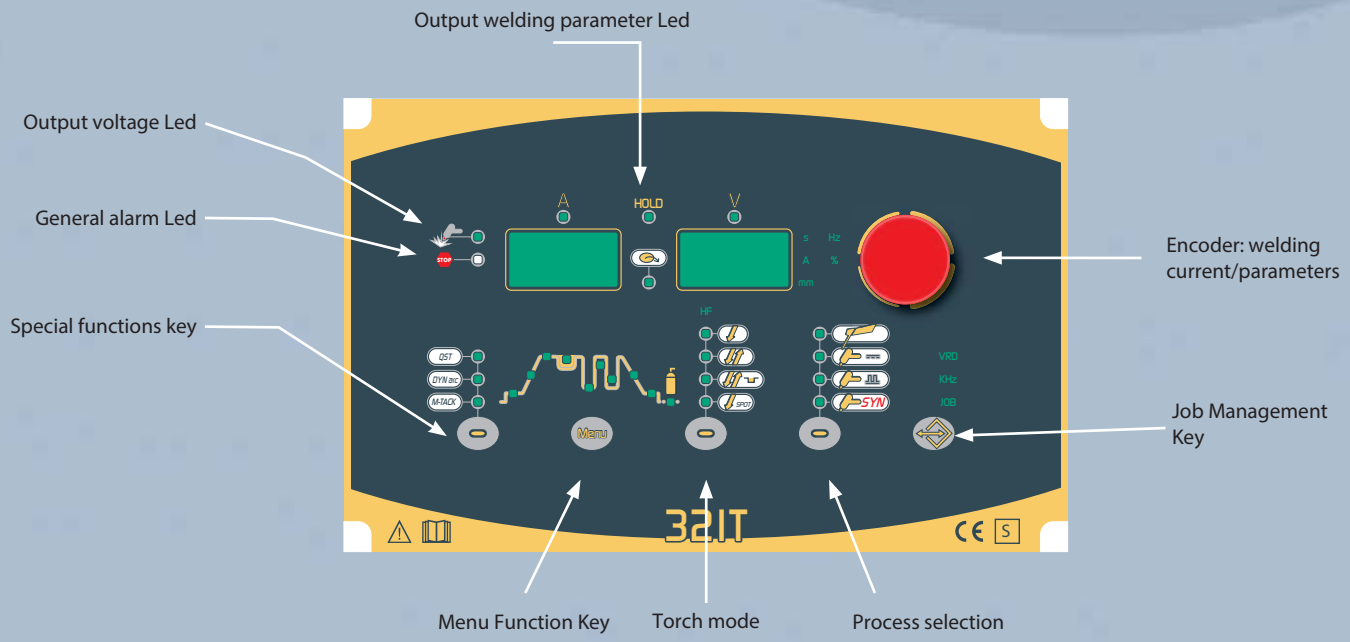
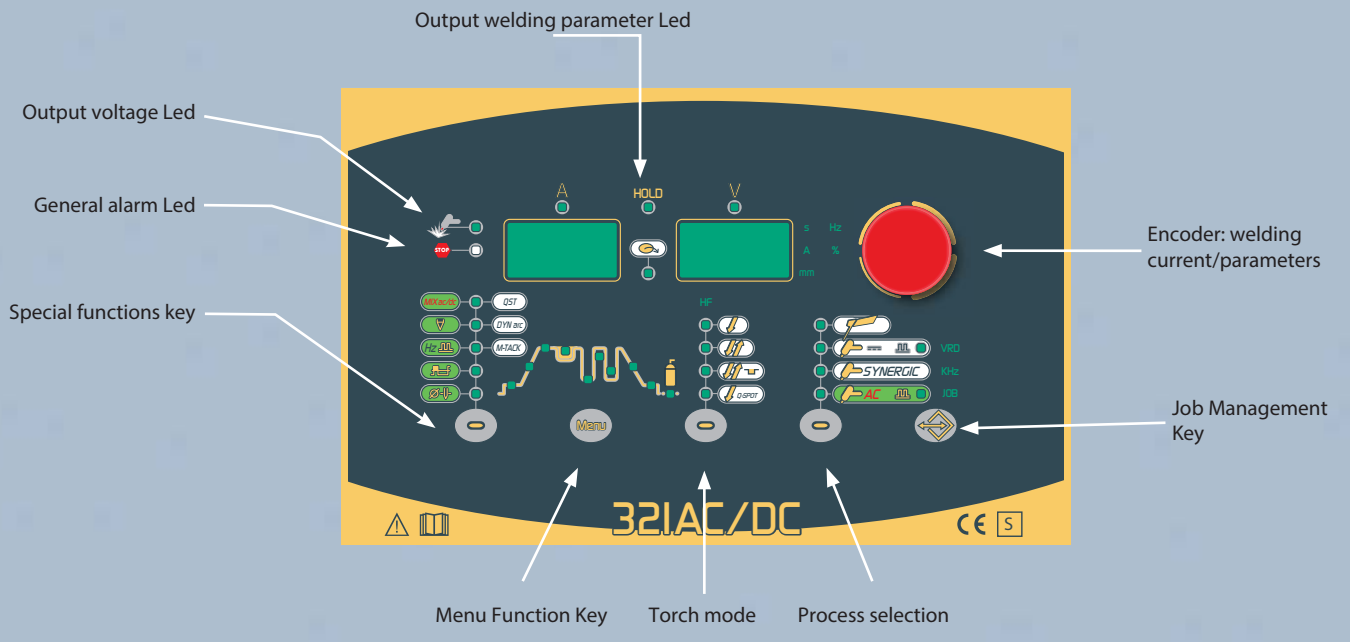
Control Panel

Easy setting of welding parameters



Pioneer 321 T

Processes: MMA - TIG DC - TIG DC PULSE - TIG DC SYNERGIC PULSE
Special functions DC: Q-START - Q-SPOT - DYNAMIC ARC - MULTITACK



Pioneer 321 AC/DC

Processes: MMA - TIG DC - TIG DC PULSE - TIG DC SYNERGIC PULSE - TIG AC - TIG AC PULSE
Special functions AC: MIX AC/DC - EXTRA FUSION
Special functions DC: Q-START - Q-SPOT - DYNAMIC ARC - MULTITACK

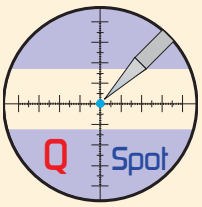
Pioneer 321T - 321 AC/DC

Heavy Duty Industrial TIG

Q-START

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 10 second) depending on the thickness and shape of the sheet to be welded.

Q-START



Q-Spot

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
thichness 0,6 mm

Pioneer 321T - 321 AC/DC

Heavy Duty Industrial TIG

DYNAMIC ARC

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 10 Ampere to a maximum of 50 Ampere at each 1 Volt variation, whether positive or negative.

Welding benefits of the DynARC function:

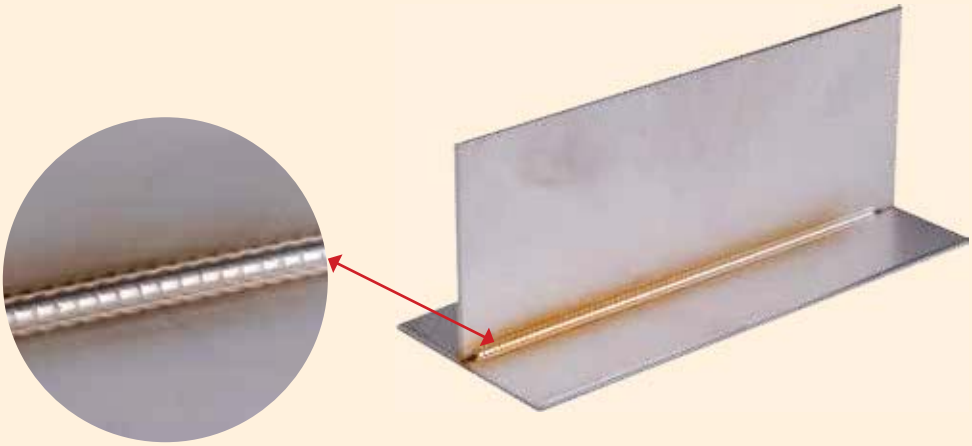
Faster welding - Less plastic deformation of the welded part. Increased vertex angle penetration - Heat input concentrated exclusively on the weld and not on the surrounding area - Less oxidation of the part and hence reduced post-welding reworking costs - Improved control of the first root pass (helpful for plumbers and plant engineers) - Reduced risk of the electrode sticking when it touches the weld puddle - Facility to work with the electrode very close to the weld puddle in order to concentrate the arc.

Dynamic Arc TIG welding

Standard TIG welding

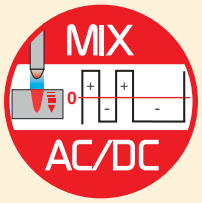
MULTITACK

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.



Pioneer TIG 321 AC/DC

Heavy Duty Industrial TIG



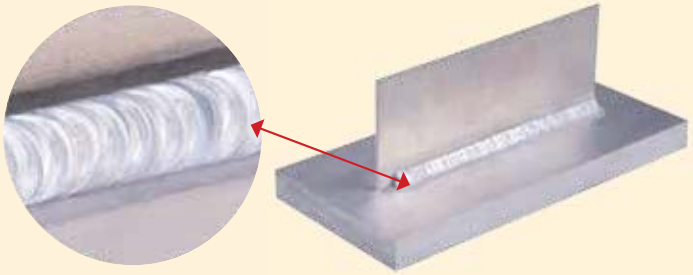
MIX AC/DC
(321 AC/DC)

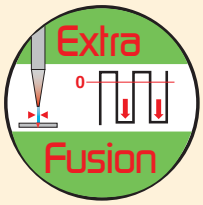
This function **MIX AC/DC** makes it possible to modulate the welding current, alternating a half-period of TIG AC with a half-period of TIG DC-. This means that the efficacy of AC TIG welding can be combined with the high penetration of DC TIG welding, thus obtaining high welding speed and creating 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%.

Main benefits of MIX AC/DC

- Welding of heavy gauge sheets with lower current than necessary when using an exclusively AC supply
- Very fast execution thanks to the high percentage of DC - current present in the period
- Very fast creation of the weld puddle (ideal for facing of tools, dies and heavy gauge castings)
- Welding of extremely diverse thickness sheets (1 mm to 10 mm)

It is good practice never to exceed the value of 50% DC - waveform, which would otherwise impair pickling of the part and the appearance of the weld bead.

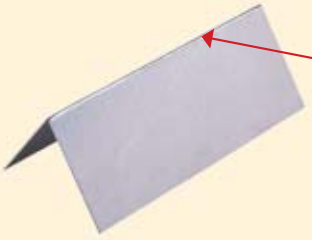




Extra Fusion
(321 AC/DC)

Thus 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

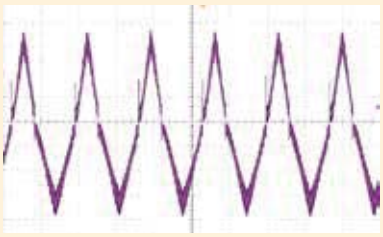
Particular on the fillet welding. It is possible to notice the remarkable degree of finishing and the high welding precision

Pioneer TIG 321 AC/DC

Heavy Duty Industrial TIG

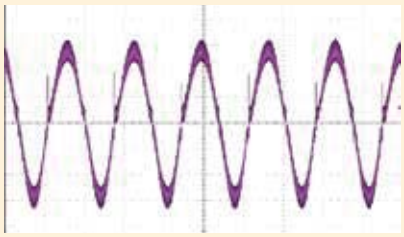
Effects of the different Wave forms by TIG AC welding

TRIANGULAR WAVE



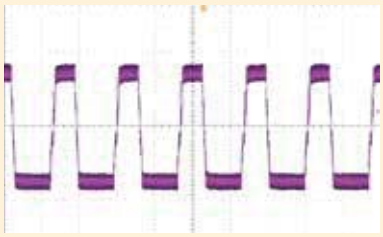
It is characterized from a particularly soft and concentrated arc.
This wave form is ideal for very precise welding of thin Aluminum plates.

SINE WAVE



It is the standard Wave form, characterized by low noise and excellent arc control.

RECTANGULAR WAVE



This allows a deep penetration and higher welding speed; the cleaning effect is also increased. This specific wave, compared with other rectangular waves present in the market, results to emit particular low noise.

APPLICATION FIELD

Industrial assembly
Maintenance and servicing
Naval shipbuilding industry
Electro-mechanical assembly Agricultural machine servicing
Air conditioning plants
Hydraulics
Pipe welding
Metal windows and door frames
Fabrication

Pioneer 321 T						
	3x400Vac ± 15% @ 50-60Hz					
	20A					
	TIG - WIG			MMA		
$\%_{40\,°C}$	-	60%	100%	-	60%	100%
I_2	-	320A	260A	-	300A	250A
$\%_{RT}$	70%	-	100%	80%	-	100%
I_2	320A	-	290A	300A	-	290A
I_2	5A – 320A			10A – 300A		
U_0	72V			74V		
$P_{1\,MAX}$	14,3kVA – 11,0kW					
IP	23					
	1110 x 550 x 805mm					
	77,5Kg					

Pioneer 321 AC/DC						
	3x400Vac ± 15% @ 50-60Hz					
	25A					
	TIG - WIG			MMA		
$\%_{40\,°C}$	45%	60%	100%	50%	60%	100%
I_2	320A	280A	240A	300A	280A	240A
$\%_{RT}$	70%	-	100%	80%	-	100%
I_2	320A	-	290A	300A	-	290A
I_2	5A – 320A			10A – 300A		
U_0	66V			71V		
$P_{1\,MAX}$	15,5kVA – 12.1kW					
IP	23					
	1110 x 550 x 805mm					
	78,6Kg					

C.U.07B	
	1x230Vac ± 15% @ 50-60Hz
	1,35A
$P_{1\,L/MIN}$	1.10kW
P_{MAX}	0,44MPa
	3,0l
IP	23S
	280 x 142 x 570mm
	12,0Kg

CE EN60974-1/10 EN 60974-2 S

WELDING WECO EQUIPMENT

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05/2014