

HSL
HIGH SPEED LINE

P F
Power Focus



Pioneer 321 Pulse



Pioneer 321 Pulse

MIG-MAG Pulse device



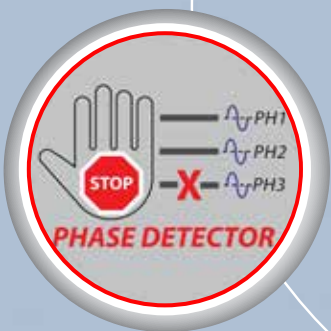
321 Pulse: Applications

Pioneer Pulse 321 is professional **3 Phase** Inverter Power Source (320A 45% at 40°C) MIG-MAG available modes are: **Manual, Synergic, Pulse Synergic** and **Double Pulse Synergic**. **Pulse Synergic** and **Double Pulse Synergic** modes guarantee excellent bead appearance without spatters and deformations on aluminum, stainless steel and mild steel welding.



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.



321 Pulse: Ventilation tunnel

- All electronic pcbs are insulated from ventilation flow.



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: Wire Feeder

- Solid metallic 4 rolls motor drive-system for any type of wire.
- Wire diameters from 0,6 to 1,2mm.
- Wire speed from 2 to 20 meters per minute.
- Wire spools till 300 mm / 15 kg.

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MIG-MAG Pulse device

Control Panel

Easy setting of welding parameters

The diagram illustrates the control panel of the Pioneer 321 Pulse MIG-MAG Pulse device. It features several digital displays and physical controls:

- General alarm Led:** A red octagonal STOP sign.
- Output welding parameter Led:** A green LED display showing '320'.
- Output voltage Led:** A green LED display showing '33.6'.
- Arc correction:** A green LED display showing '0.0'.
- Process Selection:** Three buttons for 2-Strokes process (yellow), 4-Strokes process (green), and 3-Strokes Special process (teal).
- Function selection key:** A grey oval button.
- Encoder:** A red rotary knob.
- Wire Loading:** A button with a plus/minus symbol.
- Gas Test:** A button with a gas cylinder icon.
- Manual MIG-MAG:** A button with a 'MANUAL' label and a torch icon.
- Synergic MIG-MAG:** A button with a torch icon and a pulse symbol.
- Synergic Pulse:** A button with a torch icon and a pulse symbol.
- Synergic Double Pulse:** A button with a torch icon and a pulse symbol.
- Function selection key:** A grey oval button.
- Synergic management key:** A grey oval button.
- Job Management Key:** A button with a double-headed arrow.
- Menu escape Key:** A button with 'ESC'.
- Menu key:** A button with 'Menu'.
- Parameters selection key:** A button with a plus/minus symbol.

The central display shows the following parameters: PULSED, SYN, MAT: AlMg5, Ø: 1,0mm, and GAS: 100%Ar. The device is labeled '321 Pulse' and has CE and S marks.

Torch control panel

The diagram shows the torch control panel, which is a blue and black handheld device. It features a digital display showing '250' and three buttons:

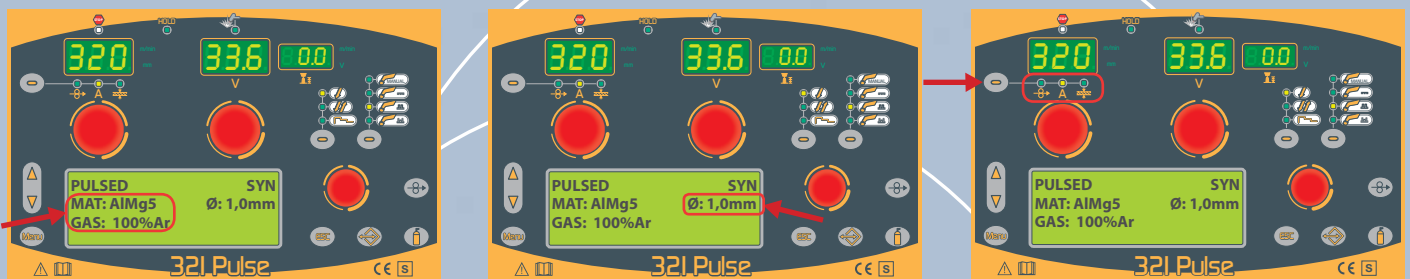
- Down key:** A button with a downward arrow.
- UP key:** A button with an upward arrow.
- Parameter selection key:** A button with a plus/minus symbol.

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3, 2, 1 ... GO!

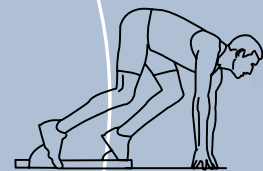
The 3 simple operations for setting and adjusting welding parameters ensure the quick setting-up of the machine without the need to read complicated user manuals, which avoids an unnecessary waste of time. The large and clearly visible front panel shows all the set parameters at any given time.



3

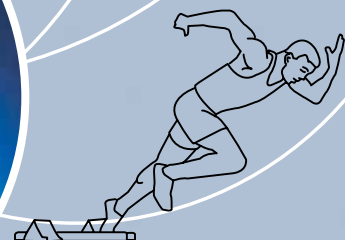


2



1

GO



3 Wire and Gas Type Selection

2 Wire Diameter Selection

1 Synergic parameter Selection (m/min. - Ampere - base material thickness)

The natural increase of productivity

Pulse HS stands for:

1 - Higher execution speed

High dynamics applied to the pulsation of HS Pulse arc gives an extremely and focused arc that increases the fluidity and pression of transfer as well as the wettability of joints.

This allows the operator (or automatism) to proceed faster with the torch and a time saving of 35%.

2 - Higher deposition rate

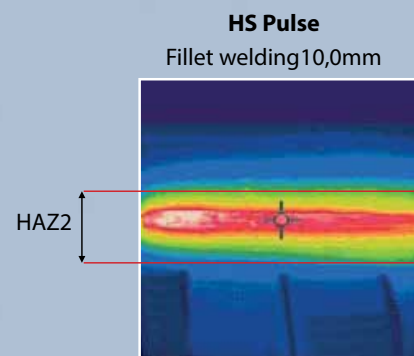
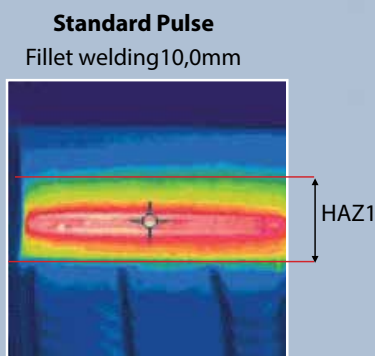
High dynamics applied to the pulse of Pulse HS arc allows to increase wire's speed while keeping same current value when welding in Standard Pulse. The increase of wire quantity in the pool increases consequently the weight of deposit in the unit of time (Kg/h).

3 - Lower heat input and less plastic deformation

In Pulse HS heat input is lower (35%) than Standard Pulse.

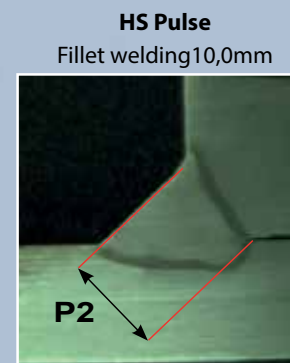
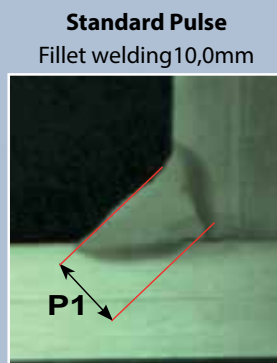
4 - Better mechanical properties

From our tests we obtain that tensile strengths values in the Pure Deposit and Heat Affected Zone (HAZ) are much higher in Standard Pulse. This means that a higher heat input increased considerably tensile strengths. In HS Pulse, hardness and tensile strengths are in line with the class of metal the base material belongs to, therefore the heat input is non influential in the welded material.



5 - Higher penetration, lower risk of lack of fusion

Penetration obtained in HS Pulse (P2) is considerably higher compare to Standard Pulse (P1). Moreover weld face is smoother thanks to the excellent joints' wettability.



6 - Lower production costs and depreciation

The higher execution speed combined with the higher deposition rate reduce remarkably both times and working costs. Less defects on the material and almost no need of reworking allow a always better amortization.

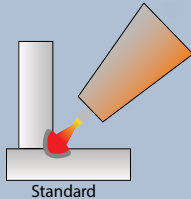


Pioneer 321 Pulse

The solution that allows a higher productivity

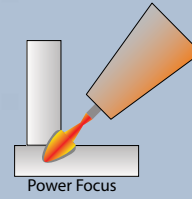
The difference between Standard Mig Mag welding and Power Focus

The difference between Standard Mig Mag welding and Power Focus is to be found on the concentration and precision of the arc. The concentration on the Power Focus mode allows to focalize the high arc temperature precisely on the middle of the deposition, avoiding overheating on the weld edges.



Standard

The heat affected zone (HAZ) is by Power Focus mode less expanded



Power Focus

Specifications of Standard Arc

The main property of the Standard Arc is to be found on its high stability both during the Short Arc and the Spray Arc phase. In most of the commercialized welding machines, a transition phase called Globular phase is present. This welding area is normally characterized by unstable arcs, very difficult to be handled, thus normally causes a lot of spatters.



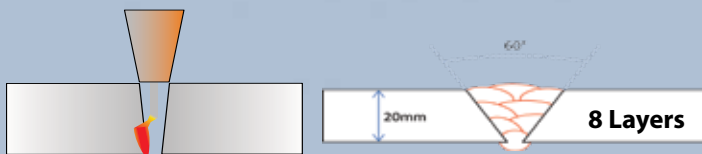
Power Focus Arc Specifications

The Power Focus arc improves all the three arc phases. In short arc we obtain an extremely stable and viscous arc with very linear transfer and with TOTAL ABSENCE OF SPATTERS. In globular by Power Focus the arc maintains a very stable and ordered spatters' transfer, as a result of this, it is possible to obtain a very regular weld.



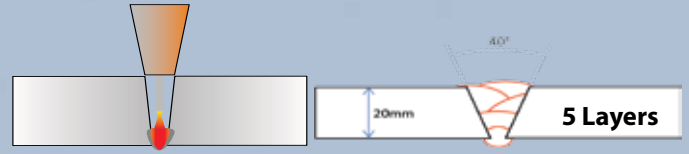
Specifications of Standard Arc

In case of butt weld, if the plates caulkers presents narrow angles, the standard arc has the tendency to get out from the bevel joint and to focus only on one of the two plate corners. In this situation, it is normally necessary to increase the bevel joint angle degree (during the preparation) with consequent need of more filling passes.



Power Focus Arc Specifications

On the butt welding applications the Power Focus Arc keeps on staying concentrated in the exact middle of the bevel joint, so that full penetration is granted. In this way, it is possible to work on very narrow bevel joints, which demands less mechanical preparation and of course, also less filling passes.

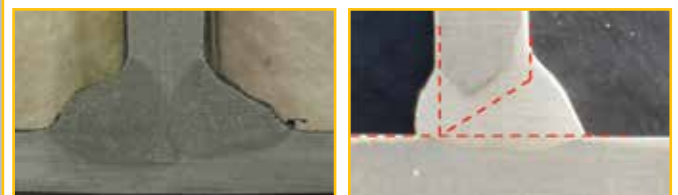


Differences between Power Focus and Standard Arc



Beyond a deeper penetration (see the picture), a significant difference is also to be found on the heated affected zone's extension (HAZ). This area is by Power Focus mode reduced, because of the higher execution's speed.

Penetration by Power Focus



Penetration by Power Focus on a T joint (10 mm thickness), when welded on the two sides, it comes up to intersect crossing.

Thickness 8mm
Angle 30°
No gap between edges

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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 MKS/MSR			
	3x400Vac ± 15% @ 50-60Hz		
	25A		
	MIG/MAG		
$\%_{0_{40^{\circ}C}}$	45%	60%	100%
$\rightarrow I_2$	320A	280A	230A
$\%_{0_{RT}}$	45%	60%	100%
$\rightarrow I_2$	-	320A	290A
I_2	20A – 320A		
U_0	71V		
$P_{1\ MAX}$	14,6KVA - 10,9KW		
IP	23S		
	1110 x 550 x 805mm		
	77,0Kg		
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		



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EN 60974-2



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