TOPWELL®

PROFESSIONAL IN WELDING

PROMIG 500SYN DPulse

High Speed Pulse MIG Welding

Ultra High Deposition Rate, Ultra High Welding Performance

DPulse ST | Mild Steel

DPulse XT | Aluminum, Mild Steel

DPulse XT Plus | Stainless Steel, Aluminum, Mild Steel

Quick Specs

Input Voltage	3PH ~ 400V ±15%
Output Range	30A/15.5V~500A/39V
Rated Output(40℃) 60%	500A / 39V
Net Weight	81.5kg
Wire Feeder	4-Rollers

Machines Processes

SMAW	GMAW-P
GMAW	GMAW-HDP
FCAW	GMAW-HSP

Industrial Applications

Boat, ship and yacht building	General manufacturing
General fabrication	Structural steel fabrication
Transportation	Sheet metal fabrication
Light-gauge tube and sheet	

Equipment

Welding process package	
Synergy Control	●
Pulse MIG	●
HSP (High Speed Pulse)	●
HDP (High-Speed Double Pulse)	●
HSA (High-Speed Spray Arc)	○
MDP (Micro Double Process)	○
ULS (Ultra Low Spatter)	○
HPC (Hybrid Pulse Control)	○
HSS (High Speed Spot)	○

Cooling system	
Air-cooled	○
Water-cooled	●

Operational options	
At the wire feeder unit	●
At the power source	○
At the remote control unit	○

● Standard options ○ Optionally available

Advanced Features

- **Synergy Control**

  Set weld procedures with one control. Just easily takes 3 Steps to achieve weld perfection.

- **Improved Operation Process & Controls**

  Initial Arc control, Burn Back control, Arc Length control, Dynamic control, these make an easier operation and handling for welding.

- **High Speed Pulse (HSP)**

  The deposition rate can increase 25~48% for M.S. by comparing with MAG process.

- **High-Speed Double Pulse (HDP)**

  By the HDP process, it's easy to get a beautiful TIG-Like weld appearance, and the deposition rate could be increased up to 30% if compare to the standard double pulse process, especially in Aluminum.

- **High-Speed Spray Arc (HSA)**

  Highly concentrated and extremely stable arc with high density, up to 30% faster welding speed than conventional MIG-MAG welding.

- **Micro Double Process (MDP)**

  Precise energy input, low distortion, perfect TIG-like welding appearance easily produced by anyone, and the welding productivity can up to twice as quick as the conventional TIG.

- **Ultra Low Spatter (ULS)**

  It is a modified short-arc transfer arc, it controls the volatility during the change of state between short and arc to control the amount and size of the spatter generated. Up to 75% less spatter, up to 25% saving on gas costs.

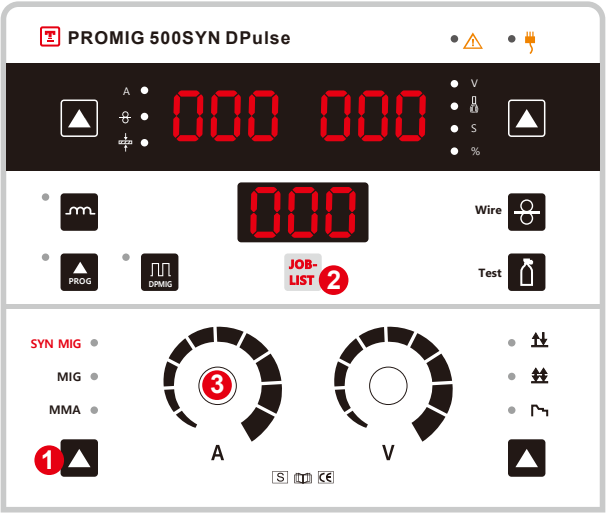
- **Hybrid Pulse Control (HPC)**

  Mixes Pulse (spray arc) and short-circuit transfer types in one duty cycle. It great performance for all pipe welding solutions.

- **High Speed Spot (HSS)**

  Offers a faster travel speed and better welding performance, especially for thin (less than 2mm) pipes or frame/structure welding jobs, like the furnitures etc.

Simple Operation



JOBs-list

	Material		Gas	Wire 0.8	Wire 1.0	Wire 1.2	Wire 1.6
				JOBs No.			
No Pulse	M.S.		100%CO_2	101	102	103	104
			82%Ar 18%CO_2	201	202	203	204
	Flux Cored		100%CO_2	/	/	303	304
	AL		100%Ar	/	/	113	/
HSP (High Speed Pulse)	M.S.		82%Ar 18%CO_2	/	402	403	/
	S.S.	308	98%Ar 2%CO_2	/	502	503	/
		316		/	602	603	/
	AL	4043	100%Ar	/	702	703	/
		5356		/	802	803	/
		Al99		/	902	903	/

3 Steps To Achieve Weld Perfection

1. Select operation mode.
2. Select Job-list No. (Welding process)
3. Adjust welding current.

(always the perfect setting by the synergic function using the material thickness)

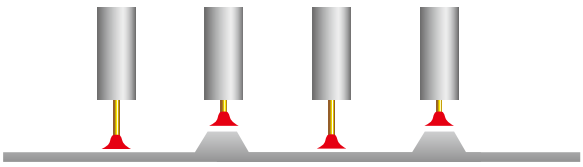
Synergy Control With Job-list

The Job-lists display is easily and intuitively controlled through its graphical user interface. We assembled the perfect welding curve in every Job-No. to help the users choose the best welding process for carbon steels, aluminum alloys and stainless steel. Operation is easier than ever before.

Improved Operation Process & Controls

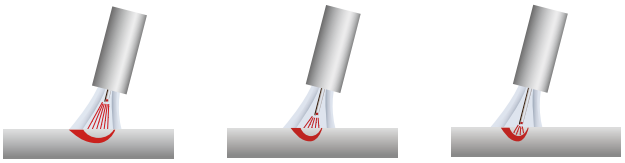
Arc Length control

With the arc length control, no matter the changing distance between the torch and the workpiece, or the welding voltage, the arc length is kept constant, and the seam quality and appearance remain unchanged.



Dynamic control

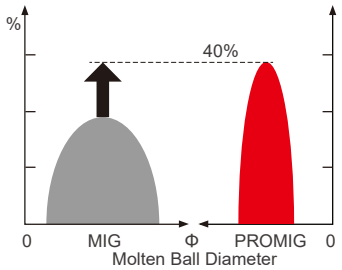
The arc can easily be adjusted depending on the workpiece and positions as well as to the individual preferences of the welder through Dynamic Control. Changing the arc to soft or hard or anywhere in between, increases the reliability for a good root formation and side fusion even with a non-ideal position of the torch.

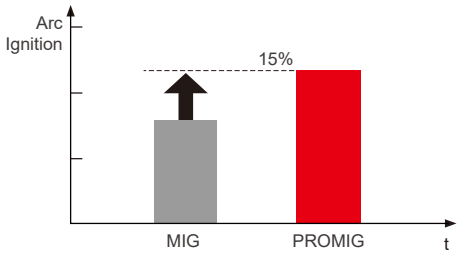


Arc setting: soft　Arc setting: medium　Arc setting: hard

Initial Arc control & Burn Back control

Initial Arc control is used to improve the success rate of arc ignition and form a smaller molten ball. Burn Back Control enhances the function of eliminating molten ball, making the secondary arc initial easier.



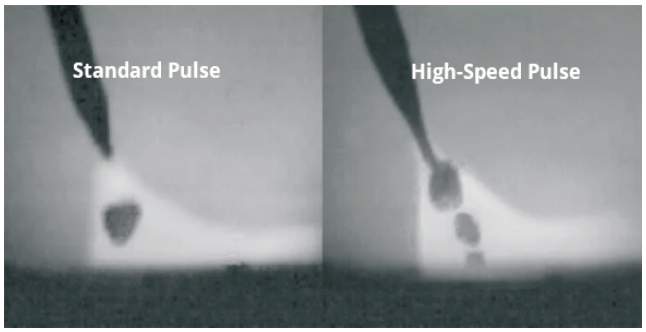


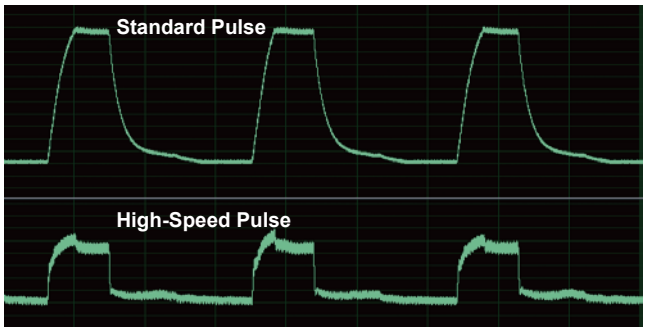
HSP - High Speed Pulse

Specifically designed for demanding workshop use,the deposition rate can increase 25~48 % for various materials, whether used in manufacturing thick materials or sheet metal.

The High-Speed Pulse(HSP) process enables you to save time, money, and energy compared to traditional pulse welding. This process is ready to raise pulse welding to a whole new level!

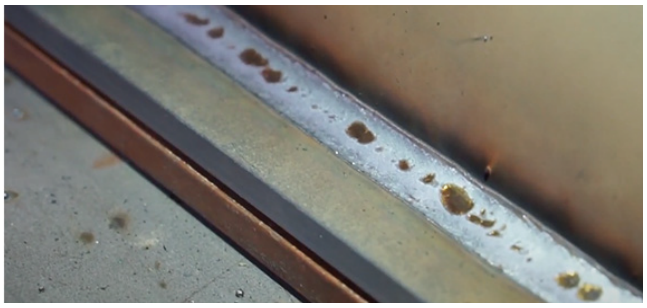
In general, One pulse melt one droplet, but we increase the submission of these droplets by TOPWELL' s New High-Speed pulse process.The transition will be faster, narrower HAZ zone and deeper penetration!





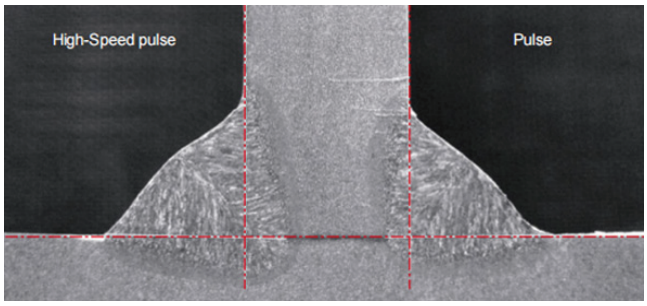
Get better welding seam

Less heat input, less spatters, less rework.



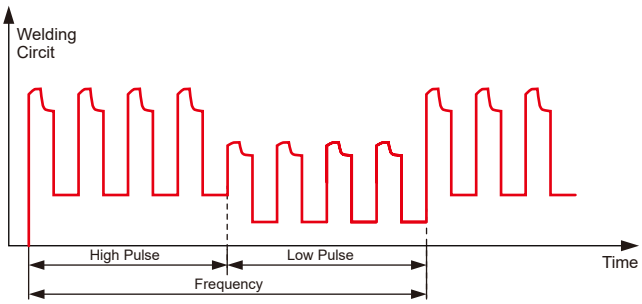
Get higher welding strength

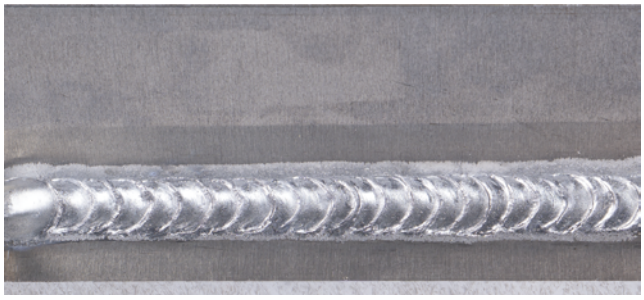
Deeper penetration, no undercut defects, higher strength.



HDP - High-speed Double Pulse

HDP is the High-Speed Double Pulse. The high and low pulse phases of the double pulse work with the High Speed Pulse process, the deposition rate is increased by up to 30%, the welding productivity is significantly improved than a standard double pulse. The professional welding curve for excellent control of heating and cooling phases, ensures precise energy input, low spatter, low distortion and a beautiful TIG-like welding appearance. HDP is particularly suitable for medium to thick-walled welding, especially for Aluminum and Steel applications.

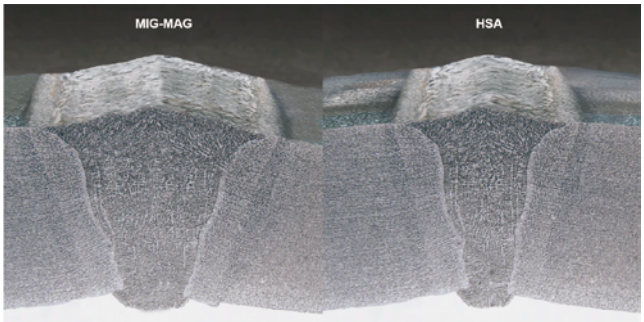


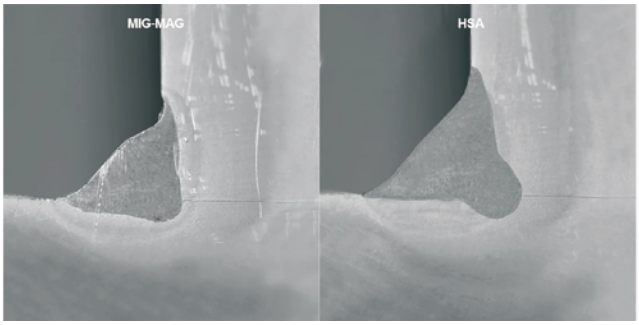


5356 φ1.2mm, HDP 5mm AL. welding current: 170A

HSA - High Speed Spray Arc

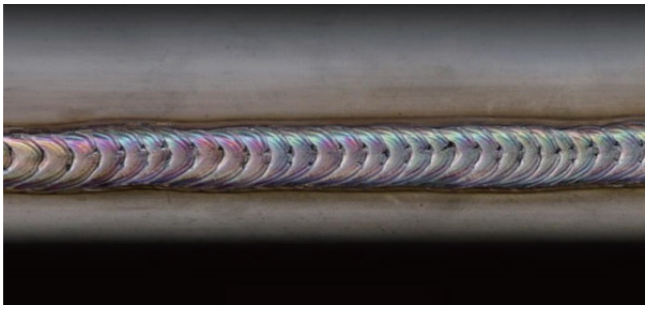
The perfect combination of a highly concentrated and extremely stable arc with high density. HSA delivers deeper penetration, narrower heating zone, allows smaller opening angles for multi-layer welding, significantly improves the welding speed up to 30% faster than conventional MIG-MAG welding. It makes welding more efficient and more economical.

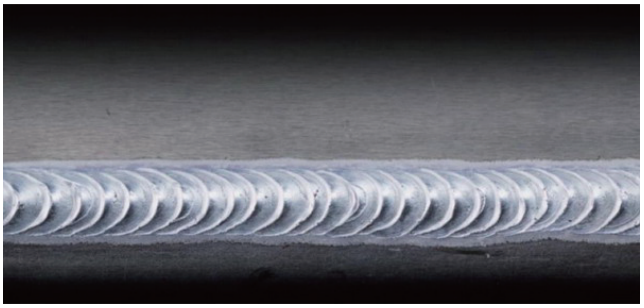




MDP - Micro Double Process

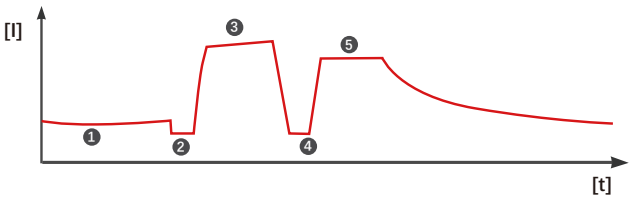
MDP is Micro Double Process, ultra-precise on the synergy Pulse wave-form controlled process-control, freely adjust the weld seam chevrons from coarse to fine. The key is that when the high and low pulses alternate, there is no droplet formation in the low pulse phase. The advantage of MDP are precise energy input, low distortion, perfect TIG-like welding appearance easily produced by anyone, and the welding productivity can up to twice as quick as the conventional TIG. MDP is particularly suitable for thin to medium-walled (1-8mm) Aluminum, Steel, and CrNi applications, like frames, tables, beds, and furniture structures.

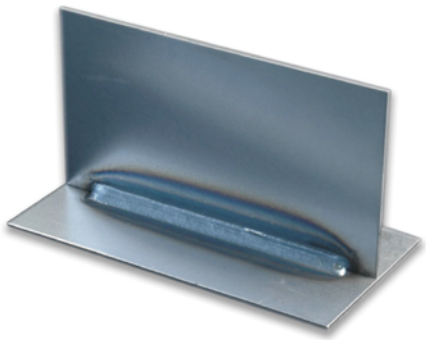




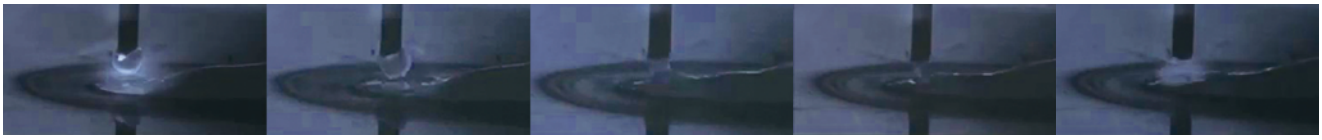
ULS - Ultra Low Spatters

The ULS process is a modified short-arc transfer arc, it controls the volatility during the change of state between short and arc to control the amount and size of the spatter generated. Even in CO_2 and MAG welding, it can minimize the spatters, which means less rework, fewer rejects, less cleaning required and savings on wearing parts.





· Welding current: 130A · Shield gas: MAG



1 Droplet formation

2 Component contact current is reduced lower droplet load

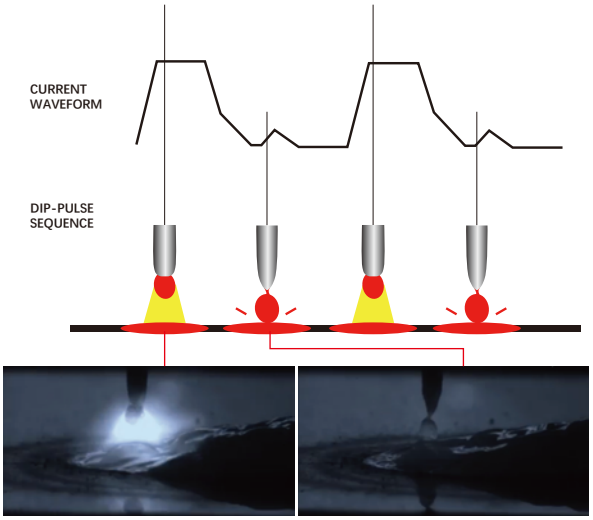
3 Droplet is "pinched"

4 Droplet detachment current is reduced spattering is minimised

5 Deeper penetration is achieved by increasing the current

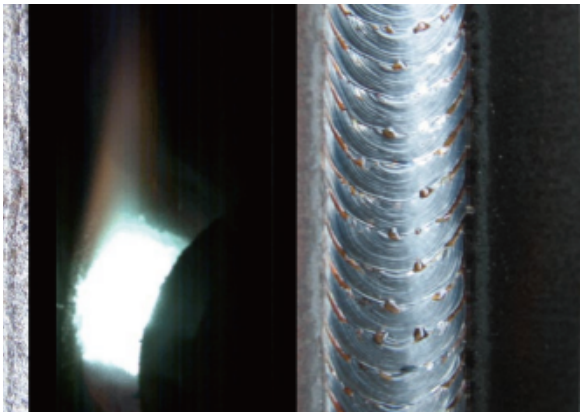
HPC - Hybrid Pulse Control

The key is synergetic waveform controlled welding process control variants applied in MIG welding which are Pulse (spray arc) and short-circuit transfer types in one duty cycle. It delivers exceptional directional stability, deep penetration and free-spatters.



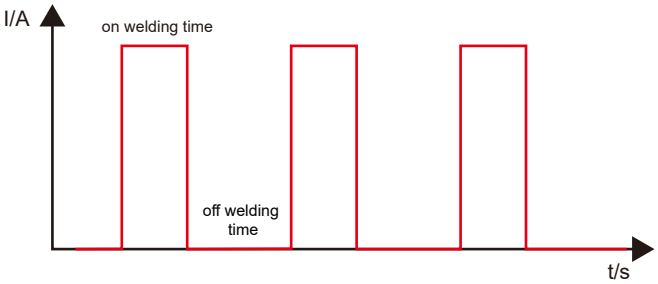
HPC Vertical-up Welding Process

The secret is the combination of two processes: one is the high energy phase to heat up the material quickly. Topwell's control technology ensures a perfect transition to the rapidly reduced energy phase. It ensures reliable penetration, precisely sized weld filling and a near- optimal throat thickness.Vertical-up welding with Topwell's HPC process is significantly much faster and simpler than classical "X-Mas tree".

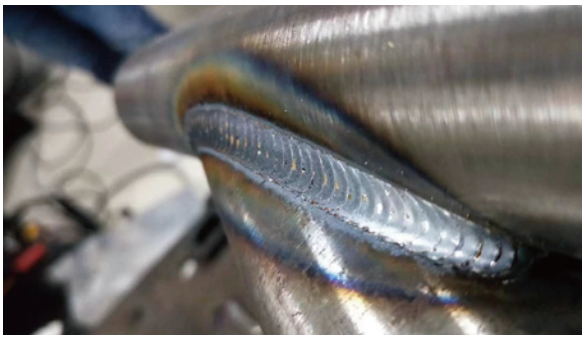


HSS - High Speed Spot Technology

HSS is the high speed spot welding, which is perfectly combining the welding process, arc physics, high dynamic power response and powerful motor control technology, short in arc ignition time and arc ending time, a welding spool can be formed swiftly. A spot welding cycle is quickly completed, cycle over and over, by adjusting the time gap with the robot to get the fish scale you wish, weld seam is clear and beautiful.



Tack welding: by robot



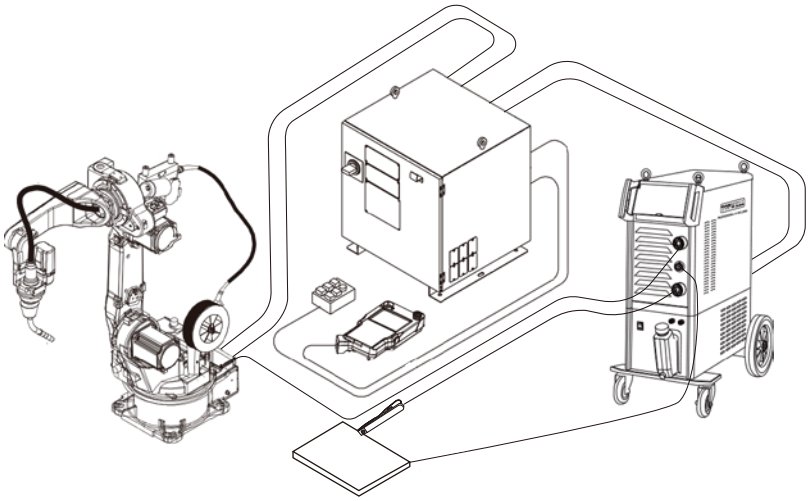
Widely applied on the thin (≤2mm thickness) pipes or frame/structure welding jobs.

Separated Wire Feeder & Remote Control, Robotic Ready

Robotic with advanced MIG process package, achieve ultra-high efficient welding with perfect welding performance.Optional package for robot interface by Analog connectors or Digital ports including EtherNetIP, DeviceNet, CAN, CANOPEN, RJ485 etc.

Robot Welding Requirement	
Synergy Control	●
Pulse MIG	●
HSP	●
HDP	●
HSA	○
MDP	●
ULS	○
HPC	○
HSS	○

● Standard options ○ Optionally available



Specifications

Item No.	PROMIG 500SYN DPulse
Mains voltage(V)	3PH~400V±15%（50/60Hz）
Max.Load Power Capacity	25.18KVA
Output Range	30A/15.5V~500A/39V
Rated Duty cycle at 40℃(105℉): 60%	500A/39V
100%	400A/31.5V
Open Circuit Voltage	70V~80V
Power Factor	0.87
Efficiency	89%
Wire feed unit	4 rollers
Wire feed speed range	0~25m/min
Wire Spool Capacity	300mm(15kg)
Wires φ (mm): Fe	0.8~1.6mm
Alu	1.0~1.6mm
Flux-cored	0.8~1.6mm
Dimension (L x W x H): Machine	950x460x1080 mm
Wire feeder	710x350x500 mm
Net Weight : Machine	66.5KG
Wire feeder	15KG