

DIGIPULS II

MIG/MAG equipment
for superior welding results.



**SIMPLY
INNOVATIVE**

DIGIPULS II



DIGIPULS II is the only product on the MIG/MAG welding market offering superior quality welding and advanced welding processes with a simple interface at a competitive price. Moreover DIGIPULS II is designed in a modular system to fit with all users' requirements.

Superior quality welding Advanced processes and features

- Fully digitally controlled inverter: for process repeatability and consequently higher welding quality and simpler regulation
- In Synergic mode, more than 100 synergies are available
- Soft switching inverter (increased efficiency of the power source)
- Full range of processes
 - Standard MIG/MAG
 - Pulsed MIG/MAG
 - Speed Short Arc™ (for high quality thin sheet welding & root pass)
 - Spray Modal™ (special for high quality welding of aluminium)
 - Cold Double Pulse (producing very high quality welds on thin material)
 - MIG brazing
 - MMA coated electrodes
 - Gouging (up to 6.3 mm diameter electrode)
- Powerful installation up to 420 A at 60%
- Full A1 automatic interface. This level of synchronization does not require an additional card, for simpler automatisation
- Storage of 100 welding programs (with expert wire feeder DVU P500 or advanced remote control RC JOB)
- Parameter locking with a digit code (with expert wire feeder DVU P500 or advanced remote control RC JOB). When this function is activated, the welder can still fine-tune the parameters in a +/- 20% range





A user designed interface for a really easy to use front panel

- Power source and wire feeder

A modular concept to fit with all users' requirements

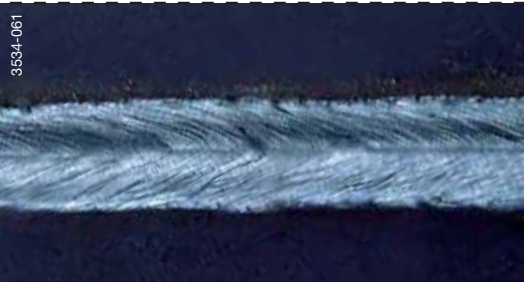
Specify and build your own installation:

- Power source
- Wire feeders
- Cooling unit
- Harnesses (up to 50 m for shipbuilding applications)
- Trolleys for the installation and the wire-feeder
- Remote control
- Torches (standard, with potentiometer, push-pull, automatic...)

More benefits for the user

- Small machine for easier access
- Light installation (37 kg for the power source)
- Compatible with motor generator
- A powerful 4-wheel feeder unit

Focus on advanced processes for thin sheet welding



Speed Short Arc™ (SSA™)



MIG Brazing



Cold Double Pulse

DIGIPULS II integrated advanced welding processes in an easy to use interface.

Speed Short Arc™ (SSA™)

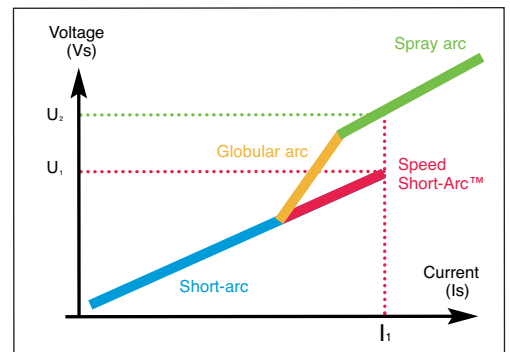
Speed Short Arc™ provides a transfer mode using short circuits in a wire speed domain usually governed by globular conditions.

The current values used in this mode are very different from those used in conventional “short arc” operation.

Faster wire speeds require a medium current together with a large peak current in order to form and detach the droplet more quickly.

This is done by programming a digitally-regulated inverter where the current is controlled and where, for wire speeds governed by globular conditions, a specific current profile is required (particularly the rise and fall gradients of the current as well as the maximum peak current).

This means the appearance of short-circuits is “forced” in a mode where, under natural conditions, they appear only erratically.



As seen in the diagram, by applying Speed Short Arc™ to the welding of medium-thickness sheet (2mm), the large increase in travel speed induces a much lower linear energy than that of the conventional mode.

SSA™ advantages

- Large increase in travel speed
- Reduction in distortion
- Reduction of adhering spatter
- Reduction of fume

Main applications:

Parts and products in alloy steels; Containers, steel trailers, infrastructure, agricultural trailers, public works plant.

MIG Brazing

MIG brazing appeared in the late 1990' s as a better replacement for flame brazing.

Since this time, it has gone from strength to strength and has become an essential process in automobile construction.

The use of digital technology further increases the performance of this process both from the point of view of the quality of the joint produced, the productivity obtained and also the preservation of coatings applied to steel sheets for corrosion protection.

MIG Brazing advantages

- Effective on thin coated sheets
- Reduces distortion
- Large joint tolerance
- Good mechanical characteristics

Main applications:

Parts and products in aluminium; automobile construction and repair, metal furniture, ventilation ducting.

Cold Double Pulse

Cold Double Pulse produces very high quality welds on thin material while avoiding distortion.

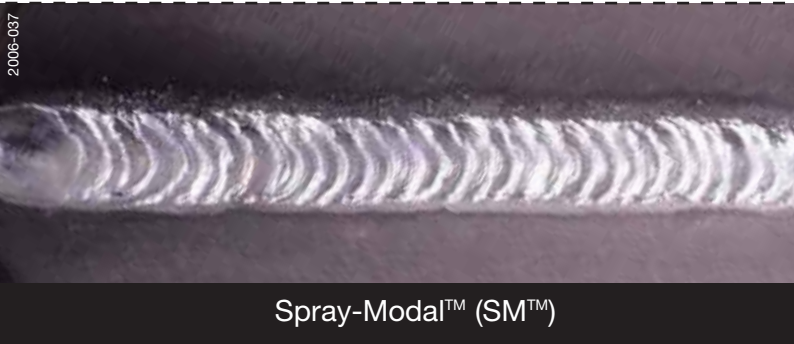
The operating technique is made easier due to good control of the weld pool even on badly-prepared sheets. This sequencer mode automatically chains hot arc and cold arc regimes together.

Cold Double Pulse advantages

CDP™ gives a TIG appearance to the weld and is very effective on very thin aluminium or stainless steel sheet (< 2mm).

Focus on advanced processes for high quality welding of aluminium

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Spray-Modal™ (SM™)

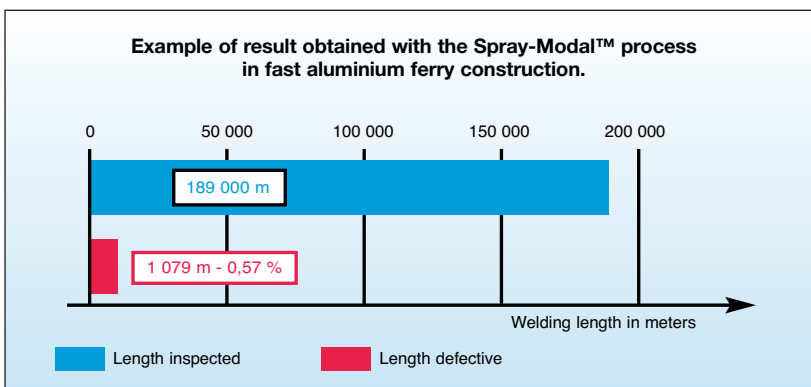
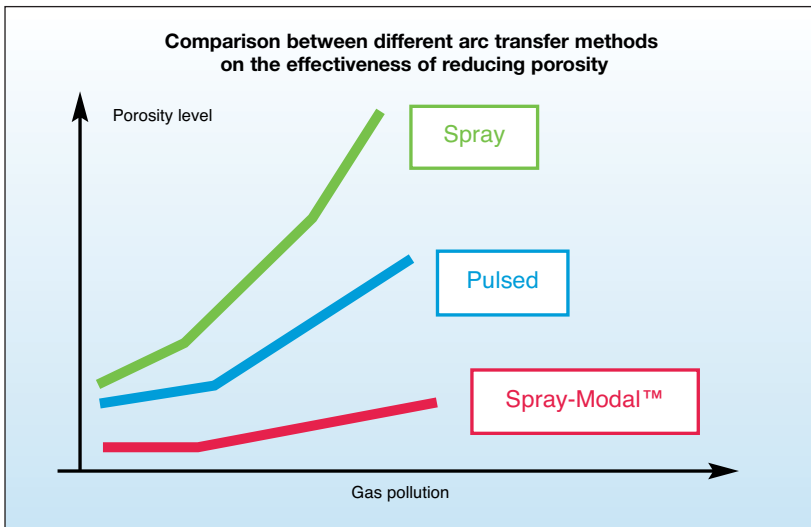
Spray-Modal™

This is a special transfer mode which uses a modulated current at frequencies of 30 to 50 Hz that produce vibrations in the liquid weld pool that have the effect of removing most of the hydrogen bubbles before the metal solidifies.

These modulations strengthen the rigidity of the welding arc making it possible to use this process in all positions.

The use of low frequency modulation also gives a TIG-like appearance to the weld bead.

This process is particularly suitable for aluminium applications using sheet thicknesses of > 2 mm.

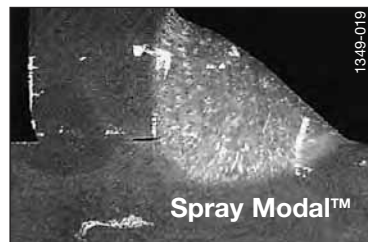
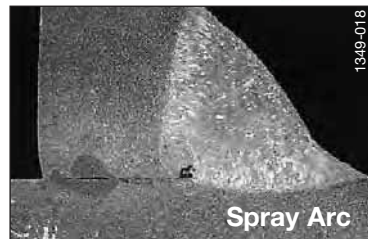
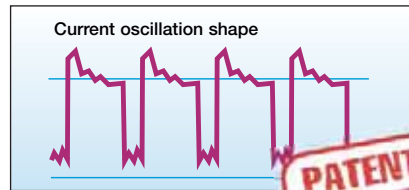


Spray-Modal™ advantages

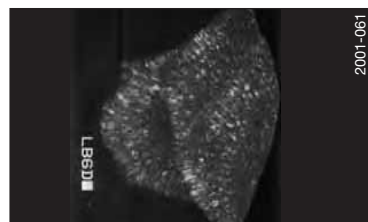
- Large reduction in porosity
- Increases penetration
- Increase in travel speeds
- All-position welding

Main applications:

Parts and products in aluminium; automobile construction and repair; metal furniture, ventilation ducting.



Porosity level: comparison of Spray Arc, Spray-Modal™



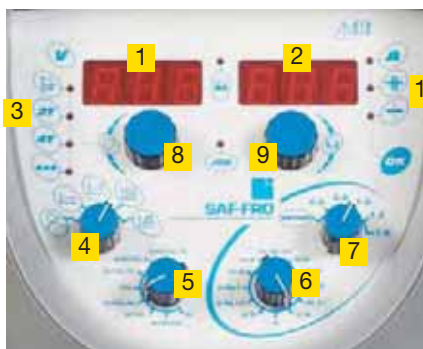
Front panels are easy to understand and use

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DIGIPULS II power source and wire feeder have been designed to improve welding processes. They are built with a user interface designed for a really easy to understand and to use front panel.

Power source

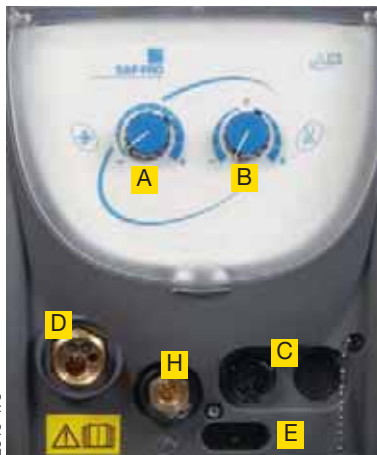


2010-468

- 1 Welding voltage and set up parameter display
- 2 Welding current or wire speed or thickness display
- 3 Mode and welding cycle selection LEDs
- 4 Process choice selector
- 5 Gas selector
- 6 Wire grade selector
- 7 Wire diameter selector
- 8 Scrolling of set up parameters
- 9 Parameter setting
- 10 Selector for wire speed or thickness display

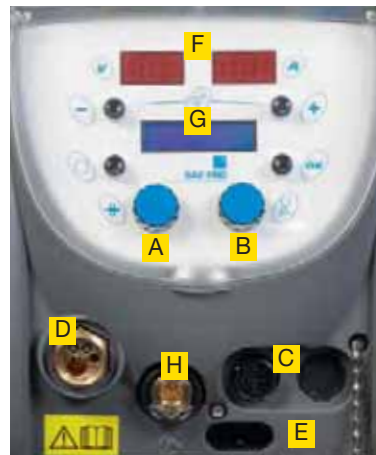
Wire feeders

DVU P400



2010-478

DVU P500



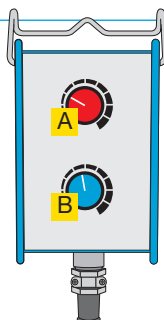
2010-484

- A Wire speed regulation
- B Arc length setting
- C Remote control and push-pull connector
- D Torch connector
- E Coolant connections
- F Display of welding parameters
- G Program selection and advance parameters display and buttons
- H MMA electrode holder connection

Remote control



2008-778



- A Wire speed regulation
- B Arc length setting
- G Program selection and advance parameters display and buttons



Power source	<i>DIGIPULS II 320</i>	<i>DIGIPULS II 420</i>
PRIMARY		
Power supply – 3 Phases - 50/60 Hz	400 V (+ 15% / - 20%)	
Maximum primary consumption (100%)	21.2 A	29 A
Temporised fuses	32 A	
SECONDARY		
Open circuit voltage	86 V	
Welding range	15 A - 320 A	15 A - 420 A
Duty cycle 60%	320 A	420 A
Duty cycle 100%	270 A	350 A
APPLICATION		
Processes	MIG-MAG / Speed Short Arc™ / MIG-MAG pulsed / Cold Double Pulse / Spray Modal™ / MIG Brazing / MMA / Gouging	
Additional Feature	Synergic machine	
Programs	100 (with expert wire feeder or RC JOB)	
GENERAL		
Standard	EN 60974-1 - EN 60974-10	
Protection index	IP 23S	
Dimensions (l x w x h)	738 x 273 x 521 mm	
Weight	37 kg	
Wire feeder		
	<i>DVU P400</i>	<i>DVU P500 expert</i>
Rollers	4 drive rollers	
Wire speed	1 to 25 m/min	
Wire Ø - Stainless steel	0.6 - 1.6 mm	
Wire Ø Cored wires	1.0 - 1.6 mm	
Wire Ø Aluminium	1.0 - 1.6 mm	
Regulation	2 potentiometers	2 encoders
Additional feature		Program management
Display	-	3 LCD displays
GENERAL		
Protection / Insulation	IP 23S - H	
Standards	EN 60974-5 - EN 60974-10	
Dimensions (l x w x h)	265 x 590 x 383 mm	
Weight	17.5 kg	
Cooling unit		
	<i>COOLER II</i>	
Cooling power	1.3 kW	
Maximum pressure	4.5 bar	
Dimensions (l x w x h)	720 x 280 x 270 mm	
Weight	16 kg	

These equipment are designed for industrial and professional use only and does not comply with EN 61000-3-2/12. If it is connected to a public low voltage system, it is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment may be connected. (See also the instruction manual)

References

The modular concept of DIGIPULS II allows you to build the perfect configuration for your requirement. From offshore & shipbuilding to boiler makers, train production and small workshops.

1 Power sources



320 A @ 60 %	DIGIPULS II 320	W000275263
420 A @ 60 %	DIGIPULS II 420	W000274838

2 Wire feeders



DVU P400 (Standard)	W000275266
DVU P500 (Expert)	W000275267

3 Cooling unit



COOLER II | W000273516

- Expert**
- 100 programs
 - possibility to lock welding parameters
 - LCD display

4 Trolley for installation



TROLLEY II
W000279927

4.2 Trolley extension



ARMS TROLLEY II | W000279930

5 Trolley on site



TROLLEY ON SITE
W000372274

6 Trolley for wire feeder



TROLLEY WF II
W000275908

8 Harnesses



Length	Air	Water
2 M	W000275894	W000275898
5 M	W000275895	W000275899
10 M	W000275896	W000275900
15 M	W000275897	W000275901
25 M	W000276902	-
30 M	W000271246	-
40 M	W000271245	-
50 M	W000271244	-

9 Remote control



RC JOB (10 m)
W000273134

RC SIMPLE (10 m)
W000275904

10 Push-pull Puls II electronic circuit

Allowing to connect a push-pull torch or gun.



W000275907

11 Adaptor for exhaust fume arm



W000371976

12 Flowmeter to measure gas flowrate

W000275905



13 Anti-dust filter for power source protection

W000370925

14 Aluminium welding kit

ALUKIT DVU 1.0 -1.2	W000277622
ALUKIT DVU 1.2-1.6	W000277623
ALUKIT DVU 1.6-2.4	W000277624

A composition of wire guides and rollers for perfect aluminium welding

Examples of configuration

DIGIPULS II 320 air - DVU P400 2 m long harness

Is composed of:

- 1 Power source
DIGIPULS II 320
W000275263
- 2 Wire feeder
DVU P400
W000275266
- 8 Harness II air
2 m long
W000275894



DIGIPULS II 420 water - DVU P400 2 m long harness

Is composed of:

- 1 Power source
DIGIPULS II 420
W000274838
- 2 Wire feeder DVU P400
W000275266
- 3 Cooling unit
W000273516
- 8 Harness II water
2 m long
W000275898



DIGIPULS II 320 Expert air - DVU P500 10 m long harness + Trolley + Swivel

Is composed of:

- 1 Power source
DIGIPULS II 320
W000275263
- 2 Wire feeder
DVU P500 expert
W000275267
- 4₁ Trolley for power
source
W000279927
- 4₂ Trolley extension
W000279930
- 7 Swivel
W000279932
- 8 Harness II air
10 m long
W000275896



DIGIPULS II 420 Expert water - DVU P500 10 m long harness + Trolley + Swivel

Is composed of:

- 1 Power source
DIGIPULS II 420
W000274838
- 2 Wire feeder
DVU P500 expert
W000275267
- 4₁ Trolley for power
source
W000279927
- 4₂ Trolley extension
W000279930
- 3 Cooling unit
W000273516
- 7 Swivel
W000279932
- 8 Harness II water
10 m long
W000275900



Torches



Although it is true that welding performance is linked to the technology of the current source and the correct regulation of the wire speed, the welding torch makes an equally important contribution. The parameters sent by the power source must be very accurately transferred by the torch to the arc.

Conventional torches

SAF-FRO propose a complete range of manual MIG-MAG torches **PROMIG NG** which are innovative, powerful and suited to quality applications in the various market sectors. Torches comply with the EN 60974-7 standard and use the European standard connector.



Torches with integrated potentiometer

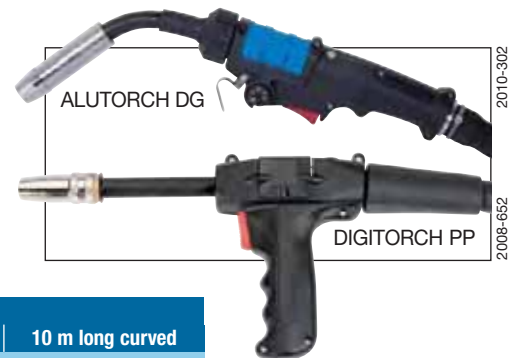
The **DIGITORCH P** range meets the challenge of making the torch as small and easy to handle as a conventional torch with the inclusion of remote control facilities.



Designation	Duty Cycle Ar+CO ₂	Cooling	Ordering information		
			3 m long	4 m long	5 m long
Conventional torches					
PROMIG NG 341	320A @ 60%	Air	W000345066	W000345067	W000345068
PROMIG NG 441	380A @ 60%	Air	W000345072	W000345073	W000345074
PROMIG NG 341W	320A @ 100%	Water	W000345069	W000345070	W000345071
PROMIG NG 441W	380A @ 100%	Water	W000345075	W000345076	W000345077
PROMIG NG 450W	450A @ 100%	Water	W000274865	W000274866	W000274867
Torches with potentiometer					
DIGITORCH P 341	320A @ 60%	Air	-	W000345014	-
DIGITORCH P 341W	320A @ 100%	Water	-	W000345016	-
DIGITORCH P 441W	380A @ 100%	Water	-	W000345018	-

Push-pull torches and guns

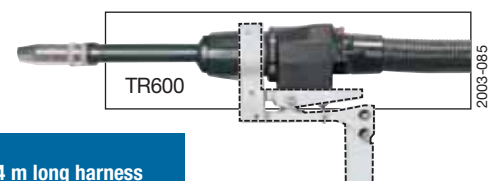
Several push-pull systems are available for use with **DIGIPULS II**. The **ALUTORCH (torches)** and **DIGITORCH PP (guns)** ranges have excellent operation due to the miniaturization of the wire drive system in line with the push-pull wire feeding axis. These torches and guns give an excellent wire feeding quality, and therefore an excellent weld quality and are particularly recommended for aluminium applications or use with small diameter wires. They can be easily adapted with a push-pull kit.



Designation	Duty Cycle Ar+CO ₂	Cooling	Ordering information		
			8 m long curved 45°	8 m long straight	10 m long curved
Push-Pull Torches					
ALUTORCH DG 342	300 A @ 40%	Air	-	-	W000264913
ALUTORCH DG 441W	450 A @ 60%	Water	-	-	W000265067
Push-Pull Guns					
DIGITORCH PP 352	270 A @ 60%	Air	W000267606	-	-
DIGITORCH PP 451W	450 A @ 60%	Water	W000267607	W000271006	-

Automatic torch

The **TR600** is the most popular torch in the SAF-FRO range for applications application. The torch is available with a 0° neck and in standard lengths of 3 or 4 m.



Designation	Duty Cycle Ar+CO ₂	Cooling	Ordering information		
			0° neck	3 m long harness	4 m long harness
TR600	400 A @ 100%	Water	W000370103	W000370111	W000370112

Segment Activities

The DIGIPULS II high tech MIG/MAG equipment fits perfectly with the needs of the most demanding welding applications in various segments of activity. Whatever your requirements, you will find with the DIGIPULS II a superior welding quality with advanced processes with simple settings through an easy to use interface.

Energy

Petrochemicals



Wind turbines



Thermal power stations



Hydroelectric



Transport

Rail



Shipbuilding



Road



Infrastructure



Offshore



General industry





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Air Liquide is the world leader in gases for industry, health and the environment, and is present in over 80 countries with 43.600 employees. Oxygen, nitrogen, hydrogen and rare gases have been at the core of Air Liquide's activities since its creation in 1902. Using these molecules, Air Liquide continuously reinvents its business, anticipating the needs of current and future markets. The Group innovates to enable progress, to achieve dynamic growth and a consistent performance. Air Liquide combines many products and technologies to develop valuable applications and services not only for its customers but also for society.