

# ***CITOSTEEL 420***

MIG/MAG equipment  
for superior welding results.



# CITOSTEEL 420



**CITOSTEEL 420** is the a new product on the MIG/MAG welding market offering superior quality welding and advanced welding processes with a simple interface at a competitive price. Moreover CITOSTEEL 420 is designed in a modular system to fit with all users' requirements.

## Superior quality welding Advanced processes and features

- Fully digital controlled inverter: for process repeatability and consequently higher welding quality with simpler regulation
- In Synergic mode, more than 80 synergies are available for flat current
- Soft switching inverter (increasing efficiency of the power source)
- Full range of processes
  - Standard MIG/MAG
  - Speed Short Arc™ (for high quality thin sheet welding & root passes)
  - Very high quality welds on thin material)
  - MIG brazing
  - Gouging (up to 6.3 mm diameter electrode)
  - MMA coated electrodes
- Powerful installation up to 420 A at 60%
- Storage of 100 welding programs (with expert wire feeder DMU P500 or advanced remote control RC JOB)
- Parameter locking with a digit code (with expert wire feeder DMU P500 or advanced remote control RC JOB). When this function is activated, the welder can still fine-tune the parameters in a +/- 20% range



CITOSTEEL 420 is mainly dedicated to carbon steel application for example : infrastructure, boiler making or waste and earthmoving machinery.



### 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:

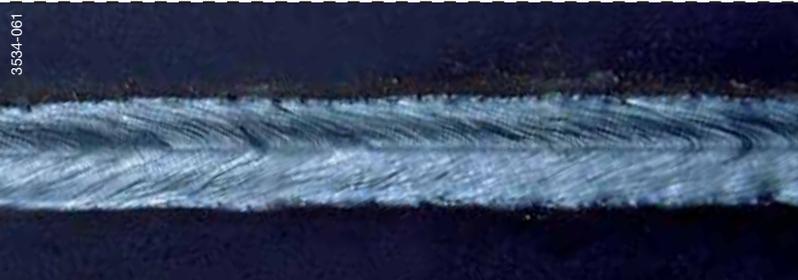
- Power sources
- Wire feeders
- Cooling unit
- Harnesses (up to 50 m for shipbuilding applications)
- Trolleys for the installation and the wire-feeder
- Remote control
- Torches (standard, with potentiometer, push-pull, automatic...)

### 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

3534-061



Speed Short Arc™ (SSA™)



Root pass with flux cored wire

2002-563

CITOSTEEL 420 integrated advanced welding processes in an easy to use interface.

## Speed Short Arc™ (SSA™)

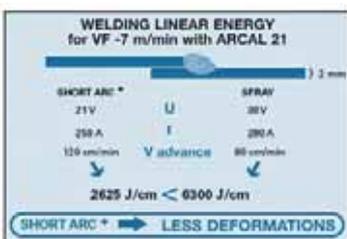
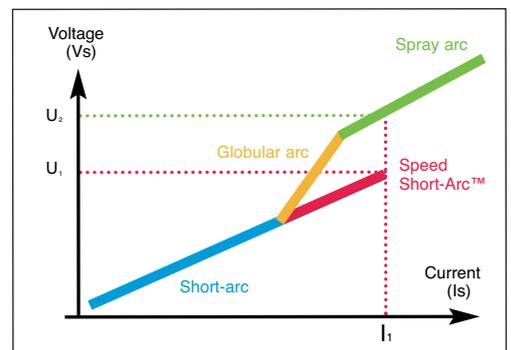
Speed Short Arc™ provides a transfer mode using short circuits in a wire speed domain usually governed by globular conditions.

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 quicker.

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.

## Flux cored wire

From the beginning, it has become day after day an essential process in all construction applications.

The use of digital technology increases the performance of this process both from the point of view of the quality of the joint produced and the productivity obtained.

### Flux cored wire advantages

- Large joint tolerance
- Good mechanical characteristics

#### Main applications:

Cranes, earthmoving machinery, truck, train construction and repair, boilers, hard facing, galvanised sheet for ventilation ducting.

# Segment Activities

The CITOSTEEL 420 high tech MIG/MAG equipment fits perfectly with the needs of the most demanding welding applications in various segments. Whatever your requirements, you will find with the CITOSTEEL 420 a superior welding quality with advanced processes with simple settings through an easy to use interface.

## Infrastructure



## Cranes and heavy lifting construction



- For infrastructure, cranes and heavy lifting equipment construction, CITOSTEEL 420 is a high tech MIG/MAG power source; light and robust delivering a good short arc for angle high penetration welding

## Boiler Making



## Earthmoving machinery construction and repair



- For earth machinery construction and heavy boiler making CITOSTEEL 420 high power is dedicated to use flux cored wires for steel and stainless steels applications
- For agriculture CITOSTEEL 420 is dedicated for hardfacing applications

## Truck construction and repair



## Railway construction



- In addition gouging electrode up to 6.3 mm diameter can be used for maintenance and repair

## Hydroelectric



## Shipbuilding



- For outside applications, the machine is IP 23S and can be equipped with long harnesses (up to 50 m). In addition for shipbuilding or building a trolley used with the light YARD PC D200 wire feeder is easy to move and friendly use

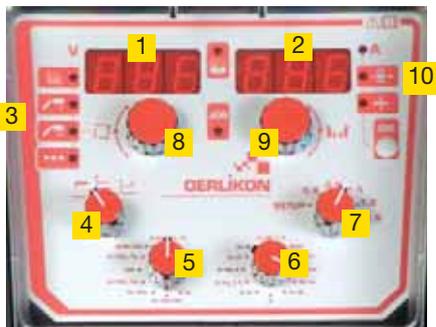
# Front panels are easy to understand and use

2010-500



CITOSTEEL 420 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

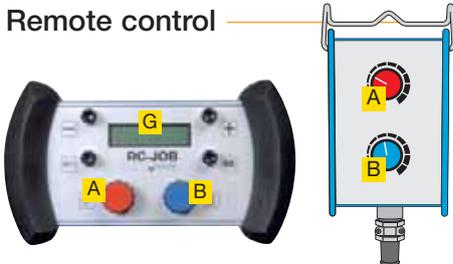


2011-374

- 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

## Remote control

2008-778



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

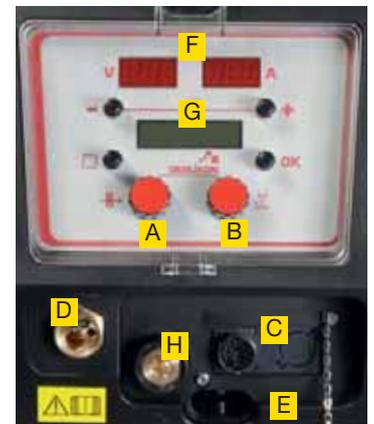
## Wire feeders

DMU P400



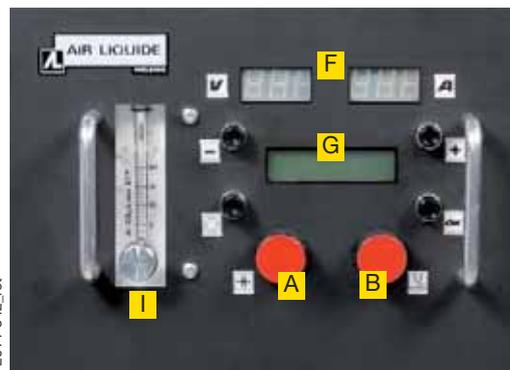
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DMU P500



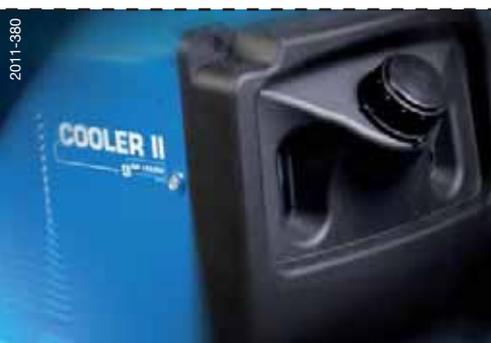
2010-496

DV YARD PC D200



2011-342\_ret

- 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
- I Flowmeter



Power source	CITOSTEEL 420
<b>PRIMARY</b>	
Power supply – 3 Phases - 50/60 Hz	400 V (+ 15% / - 20%)
Maximum primary consumption (100%)	29 A
Temporised fuses	32 A
<b>SECONDARY</b>	
Open circuit voltage	86 V
Welding range	15 A - 420 A
Duty cycle 60%	420 A
Duty cycle 100%	350 A
<b>APPLICATION</b>	
Processes	MIG-MAG / Speed Short Arc™ / MIG Brazing / MMA / Gouging
Additional Feature	Synergic machine
Programs	100 (with expert wire feeder or RC JOB)
<b>GENERAL</b>	
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	DMU P400	DMU P500 expert	YARD PC D200
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	3 LCD displays + flowmeter
<b>GENERAL</b>			
Protection / Insulation	IP 23S - H		In progress
Standards	EN 60974-5 - EN 60974-10		
Dimensions (l x w x h)	265 x 590 x 383 mm	230 x 650 x 400 mm	
Weight	17.5 kg	11 kg	

Cooling unit	COOLER II
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

This equipment is 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 CITOSTEEL 420 allows you to build the perfect configuration for your requirement. From offshore & shipbuilding to boiler makers, train production and small workshops.

## 1 Power sources



2011-371

420 A @ 60 % CITOSTEEL 420 W000371643

## 2 Wire feeders



2010-492

2010-497

Standard

Expert

DMU P400 (Standard) W000275265  
DMU P500 (Expert) W000275915

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



2011-346\_net

YARD PC D200  
W000372373

## 3 Cooling unit



2010-464

COOLER II  
W000273516

## 4 Trolley for installation



2010-862

TROLLEY II  
W000279927

## 4<sub>2</sub> Trolley extension



2010-861

ARMS TROLLEY II  
W000279930

## 5 Trolley On site



2011-377

Trolley On site  
W000372274

## 6 Trolley for wire feeder



2010-462

TROLLEY WF II  
W000275908

## 9 Remote control



2008-778

RC JOB (10 m)  
W000273134



RC SIMPLE (10 m)  
W000275904

## 7 Swivel



2010-860

SWIVEL TROLLEY II  
W000279932

## 8 Harnesses

Length	Air	Water
2 m	W000275894	W000275898
5 m	W000275895	W000275899
10 m	W000275896	W000275900
15 m	W000275897	W000275901
25 m	W000276901	W000276902
30 m	W000371246	-
40 m	W000371245	-
50 m	W000371244	-



## 10 Push-pull Puls II electronic circuit



2011-113

Push-pull puls II  
W000275907

Allowing to connect a push-pull torch or gun.

## 11 Adaptator for exhaust fume arm



W000371976

## 12 Flowmeter to measure gas flowrate

Flowmeter W000275905



## 13 Anti-dust filter for power source protection



2011-366

W000370924

## Examples of configuration

### CITOSTEEL 420 air - DMU P400 2 m long harness

#### Is composed of:

- 1 Power source  
CITOSTEEL 420  
W000371643
- 2 Wire feeder  
DMU P400  
W000275265
- 8 Harness II air  
2 m long  
W000275894



### CITOSTEEL 420 water - DMU P400 2 m long harness

#### Is composed of:

- 1 Power source  
CITOSTEEL 420  
W000371643
- 2 Wire feeder DMU P400  
W000275265
- 3 Cooling unit  
W000273516
- 8 Harness II water  
2 m long  
W000275898



### CITOSTEEL 420 "on site" air 25 m long harness + Trolley

#### Is composed of:

- 1 Power source CITOSTEEL 420  
W000371643
- 2 DV YARD PC D 200 - W000372373
- 5 On site trolley for power source  
W000372274
- 8 Harness II air 25 m long  
W000276901



### CITOSTEEL 420 Expert water - DMU P500 10 m long harness + Trolley + Swivel

#### Is composed of:

- 1 Power source  
CITOSTEEL 420  
W000371643
- 2 Wire feeder  
DMU P500 expert  
W000275915
- 4 Trolley for power  
source  
W000279927
- 4<sub>2</sub> 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

OERLIKON propose a complete range of manual MIG-MAG torches **CITORCH M 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

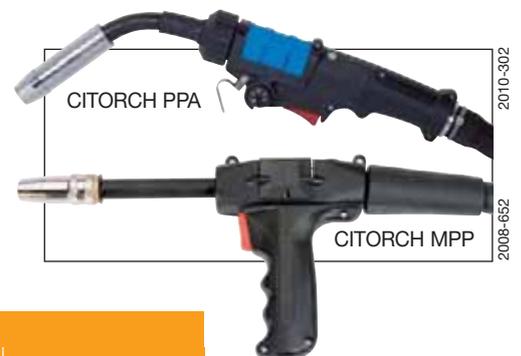
The **CITORCH MP** range meets the challenge of making the torch as small and easy to handle as a conventional torch with the inclusion of remote control facilities.



Designation	Duty Cycle Ar+CO <sub>2</sub>	Cooling	Ordering information		
			3 m long	4 m long	5 m long
<b>Conventional torches</b>					
CITORCH M 341 NG	320A @ 60%	Air	W000345091	W000345092	W000345093
CITORCH M 441 NG	380A @ 60%	Air	W000345097	W000345098	W000345099
CITORCH M 341W NG	320A @ 100%	Water	W000345094	W000345095	W000345096
CITORCH M 441W NG	380A @ 100%	Water	W000345100	W000345101	W000345102
CITORCH M 450W NG	450A @ 100%	Water	W000274868	W000274869	W000274870
<b>Torches with potentiometer</b>					
CITORCH MP 341	320A @ 60%	Air	-	W000345118	-
CITORCH MP 341W	320A @ 100%	Water	-	W000345120	-
CITORCH MP 441W	380A @ 100%	Water	-	W000345122	-
CITORCH MP 450W	450A @ 100%	Water	-	W000278705	-

## Push-pull torches and guns

Several push-pull systems are available for use with **CITOPULS II**. The **CITORCH PPA (torches)** and **CITORCH MPP (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 <sub>2</sub>	Cooling	Ordering information		
			8 m long curved 45°	8 m long straight	10 m long curved
<b>Push-Pull Torches</b>					
CITORCH PPA 342	300 A @ 40%	Air	-	-	W000265068
CITORCH PPA 441W	450 A @ 60%	Water	-	-	W000265069
<b>Push-Pull Guns</b>					
CITORCH MPP 352	270 A @ 60%	Air	W000267609	-	-
CITORCH MPP 451W	450 A @ 60%	Water	W000267608	W000271007	-





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