

SIGMA RANGE



# SIGMA

## MIG/MAG WELDING FROM TRADES TO HEAVY INDUSTRY



**MICRONIX**  
WELDING VALUE



## SIGMA RANGE

# YOU MAKE THE DEMANDS - WE "TAILOR" THE IDEAL WELDING MACHINE

### SIGMA – WITH OR WITHOUT PULSE

Sigma is the second generation of Migatron's popular Sigma range with power sources in sizes of 300, 400 and 500 A; available in C (Compact) or S (with separate wire-feed unit) versions and combinable with two different control panels. With or without pulse and with infinitely variable adjustment of all parameters, the Sigma machines are designed for advanced

MIG/MAG welding of all types of materials - in trades and assembly, heavy industry, offshore and automation.

### MANUFACTURED TO ORDER

No two Sigma machines are necessarily identical. The machines are made to order in precisely the configuration that matches the welding application.











Some of the Sigma family.  
The machines shown may be illustrated with extra equipment.

### OPTIONAL EQUIPMENT

- Program packages
- RWF Multi (page 7)
- Robot interface (page 7)
- Relief arm
- Dialog and sequence torch
- Flow control for water
- Autotransformer 230-500 V
- Protective frame and set of wheels for wire-feed unit
- MMA kit for wire-feed units
- Push-pull kit
- Remote control unit
- CEE mains plug

# TWO CONTROL PANELS

## DESIGNED FOR FUTURE UPDATES

-  MIG/MAG characteristic
-  MMA characteristic
-  Pulse
-  DUO Plus™
-  Two-stroke or four-stroke
-  Sequence selection 1-9
-  Tack-welding function
-  Panel lock

### CONTROL CONCEPTS AND UPDATES

Migatronic's software development makes it possible to concentrate the intelligence in Sigma. The control panels can be locked with an SD lock card and/or mechanically by means of a key. An SD port inside the control panel makes it possible to update the machine with new program packages through downloads to an SD card.



Synergic features DUO Plus™ and full synergy between parameters, for MIG brazing, etc.



Pulse features up to 200 welding programs and is very easy to use.

PROGRAM PACKAGE	STANDARD	STANDARD PLUS	SPECIAL
Material	with/without pulse	with/without pulse	with/without pulse
Manual MMA-MIG/MAG	•	•	•
Arc Gouging		•	•
Fe	•	•	•
Fe - PowerArc			•
ER 316 LSI	•	•	•
ER 316 LSI - PowerArc			•
ER 347 Si		•	•
Duplex		•	•
AlMg / AISi5	•	•	•
Al99,5 / AISi12		•	•
FCW	•	•	•
CuAl8	•	•	•
CuSn		•	•
CuSi3	•	•	•
Inconel		•	•
FE - Seamtrack			•

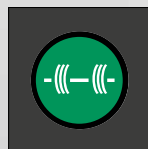
### QUICK CHANGEOVER BETWEEN JOBS



Set primary parameters: welding current, wire-feed speed or thickness of material. The machine puts the finishing touches to the welding result.



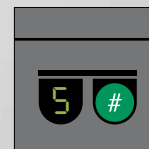
Fine-tuning: welding voltage/trim, arc adjust or seam average log.



Tack-welding function for safe fixation of the work piece during the welding process.



DUO Plus™ function – automatic changeover between two sequences.



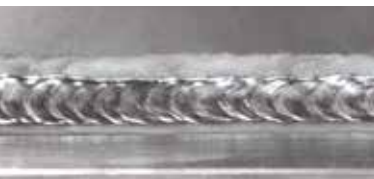
Press one button and switch between up to nine sequences. Display shows the selected sequence.



# BENEFITS TO THE ENVIRONMENT AND BOTTOM LINE PROFITABILITY

## DUO PLUS™ - BETTER FINISH WITH INCREASED AUTOMATIC PROCESS

The DUO Plus™ function optimises control of the weld pool and reduces the heat input. DUO Plus™ is an automatic enhancement of traditional MIG/MAG sequence welding.

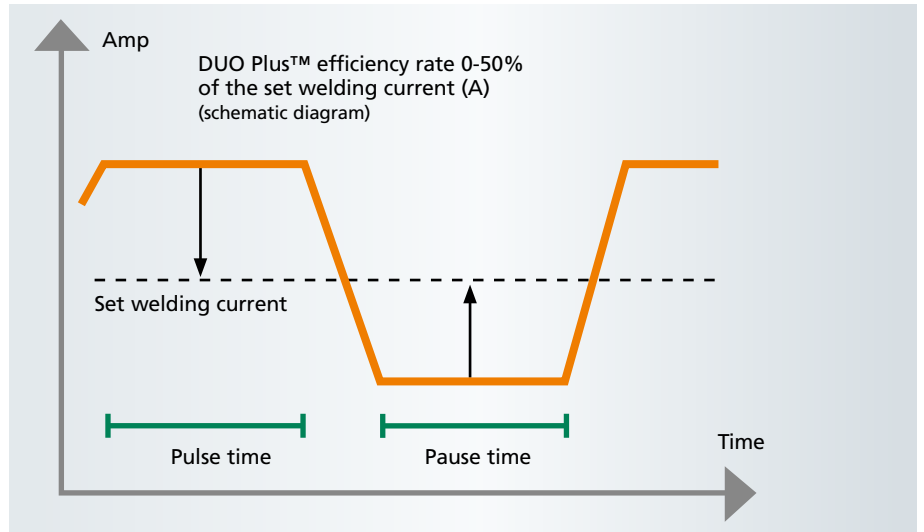


DUO Plus™ - Aluminium



DUO Plus™ - Stainless steel

DUO Plus™ is an automatic sequence function allowing the welder to MIG weld with a "slow pulse" which is known from many TIG machines. This welding method ensures better control of the weld pool and is the optimal solution for welding root passes in open groove joints etc.



## POWERARC™ FOR THICK-WALLED PLATES

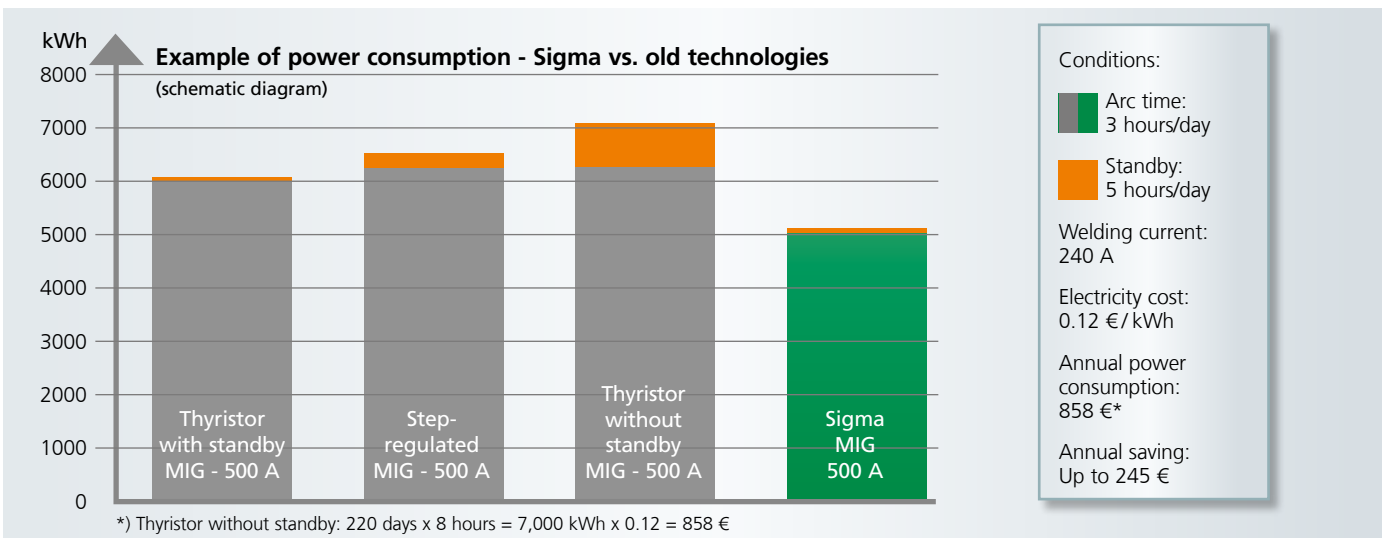
The PowerArc™ programs ensure full penetration in fillet welds and butt welds using mild steel and stainless steel.

## TIME-SAVING SEQUENCE OPTIONS

Sequence welding is a standard function on both control panels. Welding parameters for up to nine repetitive welding jobs can be stored in the machine's internal memory.

## LOWER POWER CONSUMPTION – LESS EFFECT ON THE ENVIRONMENT

Sigma is green throughout and for ease of use and superb performance, there is no better machine. Its state-of-the-art technology gives a power consumption that is much lower than in machines with traditional technologies. See example below.





# INTELLIGENT GAS CONTROL IGC®

## SYNERGIC GAS FLOW WITH LARGE-SCALE REDUCTION OF GAS CONSUMPTION

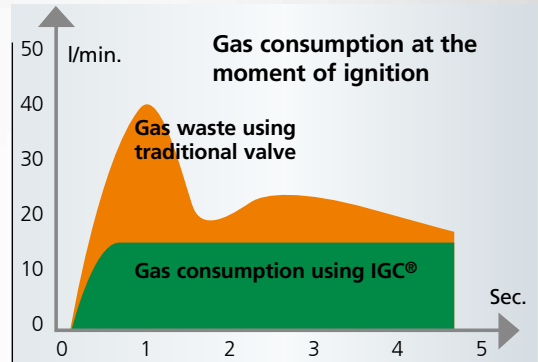
### INTELLIGENT GAS CONTROL

Intelligent Gas Control IGC® is designed specifically for Sigma as a configurable option. An efficient gas-saver kit combined with dynamic gas control that monitors consumption and optimises gas protection for the chosen synergic welding program. Under favourable conditions, IGC® may give gas savings in excess of 50% with proportionally fewer replacements of gas cylinder to the benefit of economy, environment and efficiency.

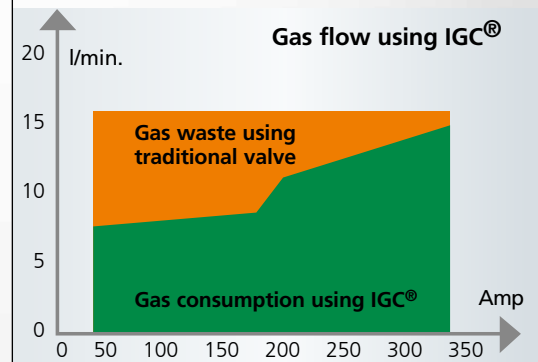


### LARGE-SCALE REDUCTION OF GAS CONSUMPTION

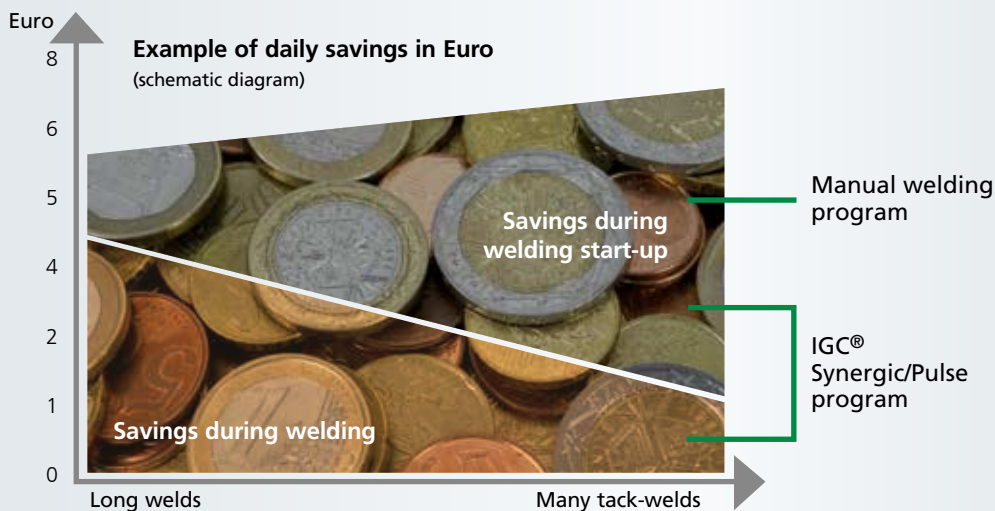
Savings depend on the company's welding profile, arc time and number of welding machines. In the example below, the calculation is based on a varied usage pattern with short-arc welding and spray-arc welding in equal measure.



The more ignitions – the larger gas savings



Optimised gas consumption during the welding process



### Conditions:

- Arc time: 3 hours/day
- Welding profile: Short arc/spray arc
- Average gas consumption: 15 l/min.
- Welding wire: 1.0 mm FE
- Gas cost: 5.00 € / m<sup>3</sup>
- Annual gas costs: 3,168 €\*
  - Annual saving: Up to ≈ 1,600 €

\*) 220 days x 3 hours x 60 min. x 15 litres = 594 m<sup>3</sup> x 5.00 = 3,168 €



# SPECIAL EDITION

## - FOR SHIPYARDS AND OTHER HEAVY INDUSTRIES

### STABLE WIRE-FEEDING IN HARD-TO-REACH LOCATIONS

Two portable yard units, with or without protective frames, increase the operating range of the high-performance Sigma 400/500 welding inverters: a closed wire-feed unit, MWF 50 Yard, for 5 kg wire reels or an open model, MWF 55 Yard, for 5 or 15 kg wire reels.



MWF 50 yard with galvanised protective frame and trolley

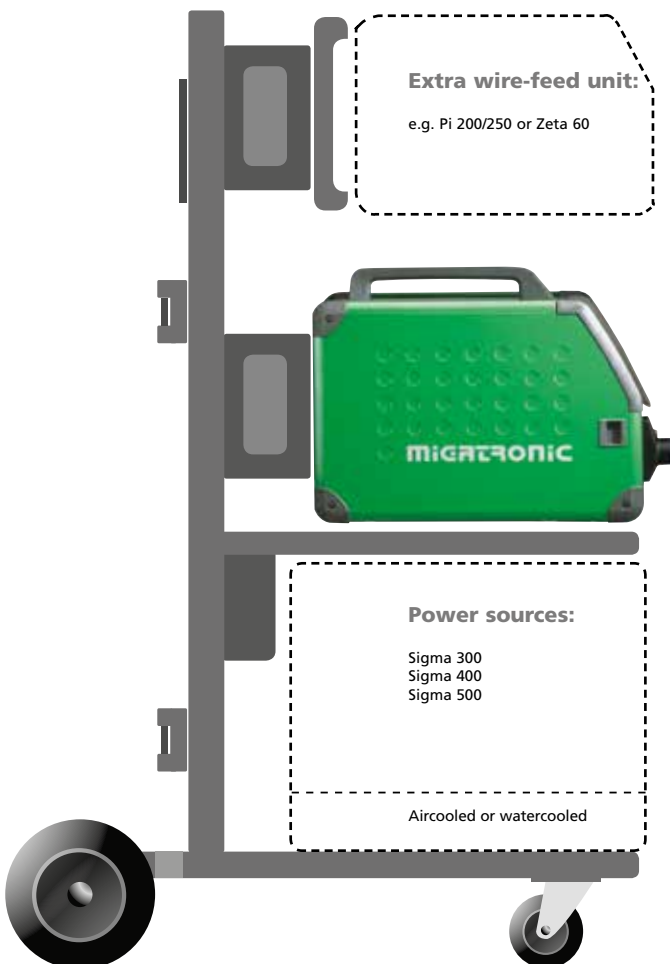


MWF 55 yard with galvanised protective frame



### INTELLIGENT SIGMA ADVANTAGES:

- Intelligent Gas Control IGC®
- Increased memory with the possibility of more program packages
- SD card for program update and/or panel lock against unintended use of control panel
- Better short-arc/DUO Plus™ properties
- Diffusion-safe welding hoses
- Mechanical protective cover with lock-cylinder and key
- Arc Gouging (Sigma 500)
- PowerArc™ – programs for welding thick-walled plates



# AUTOMATED WELDING WITH SIGMA IN A COMPLETE ROBOT SETUP

## ROBOT CONCEPT – FULLY OPERATIONAL WITH ALL UNITS

The two largest Sigma machines in “automated trim” are designed for integration with robots and automated devices along with RWF Multi. I/O robot interface is the communication interface between the CAN-BUS power source and robot or automated device.

## PORTABLE WIRE FEED UNIT FOR THE INDUSTRY

For Sigma, Migatronik has developed the MWF 41, a compact, portable wire feed unit (30 m/min. wire feed speed), that combines the limited dimensions of the open type with the good protection of the closed model.

Robot setup (separate robot brochure available)



Robot interface



RWF Multi



Migatronik trådboks MWF 41



# SIGMA DATA

We reserve the right to make changes.

POWER SOURCE	SIGMA 300 C/S	SIGMA 400 C/S	SIGMA 500 C/S
Mains voltage +/- 15% (50-60 Hz), V	3x400 (3x230-500*)	3x400	3x400
Fuse, A	16	20	32
Mains current, effective A	16,5 (380V)/15,7 (400)	18,2 (380 V)/17,3 (400 V)	29,3 (380V)/27,8 (400V)
Mains current, max., A	19,0 (380)/18,1 (400)	29,5 (380 V)/28,0 (400 V)	36,8 (380V)/35,0 (400V)
Power, 100%, kVA	10,9	12,0	17,9
Power, max., kVA	12,5	19,3	31,0
Power, open circuit, W	40	40	40
Efficiency	0,87	0,88	0,90
Power factor	0,90	0,90	0,90
Current range, A	15-300	15-400	15-500
Duty cycle 100% /20°C (MIG), A%/V	300	330	475
Duty cycle max /20°C (MIG), A%/V	300/100	400/70	500/80
Duty cycle 100% /40°C (MIG), A%/V	270/30,8	290/31,6	420/36,8
Duty cycle 60% /40°C (MIG), A%/V		350/34,0	450/38,0
Duty cycle max /40°C (MIG), A%/V	300/80/32,0	400/40/36,0	500/55/40,0
Application class	S/CE	S/CE	S/CE
Protection class	IP 23	IP 23	IP 23
Standards C Standards S	EN/IEC60974-1, EN/IEC60974-2, EN/IEC60974-5, EN/IEC60974-10 EN/IEC60974-1, EN/IEC60974-2, EN/IEC60974-10		
Dimensions C-L (HxWxL), mm	906x524x925	906x524x925	906x524x925
Dimensions C-W (HxWxL), mm	1051x524x925	1051x524x925	1051x524x925
Dimensions S-L (HxWxL), mm	1144x524x1031	1144x524x1031	1144x524x1031
Dimensions S-W (HxWxL), mm	1144x524x1031	1144x524x1031	1144x524x1031
Weight C-L / C-W, kg	58 / 69	60 / 71	60 / 71
Weight S-L / S-W, kg	74 / 85	76 / 87	76 / 87

\* Configured with autotransformer

WIRE FEED UNIT	MWF 41/internal	RWF Multifeeders	MWF 50	MWF 55
Wire feed speed, m/min.	0,5-30,0	0,5-30,0	0,5-30,0	0,5-30,0
Wire reel diameter, mm	300		300	300
Duty cycle 100%/40°C, A/%	420/100	420/100	420/100	420/100
Duty cycle 60%/40°C, A/%	500/60	500/60	500/60	500/60
Torch connection	EURO	EURO	EURO	EURO
Protection class	IP 23	IP 23	IP 23	IP 23
Standards	EN/IEC60974-5, EN/IEC60974-10			
Dimensions (H x W x L), mm	440x245x780	276x211x276	380x200x540	400x260x620
Weight, kg	19	9	10,1	12

Dealer stamp:

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