

PI 200-500

**Detail-oriented, innovative and simple -
welding machines packed with intelligent
technology**

Pi are user-friendly welding machines, which meet every need for TIG and MMA welding. High-performance inverter machines for precision welding in mild steel, stainless steel, aluminium and other high-alloy materials.



MIGATRONIC
WELDING VALUE

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MORE AUTOMATION AND SUPER DESIGN



ADVANCED TIG AND MMA THE EASY WAY

Migatronic Pi are user-friendly welding machines, which meet every need for TIG and MMA welding. High-performance inverter machines for precision welding in mild steel, stainless steel, aluminium and other high-alloy materials.

There is a Migatronic Pi machine for any type of welding operation: repair, assembly, construction, industry and robot. Processes include TIG HP (high-frequency with pulse), TIG H (without pulse), TIG AC/DC, and MMA welding with covered electrodes.

ROBUST AND RELIABLE WELDING QUALITY

All Pi machines are delivered with coated PCB's and carry Eurocodes calibration certificate.



MMA in a V-joint



Migatronic Pi – also suitable for automation (Pi 350-500)



Advanced TIG - very easy

VERSATILE RANGE OF MACHINES: FOURTEEN DIFFERENT POSSIBILITIES

POWER SOURCE	AC/DC	DC HP	DC H	MMA	CELL
Pi 200	●	●			
Pi 250	●	●		●	
Pi 350	●	●	●	●	●
Pi 500	●	●	●	●	

FOR BOTH MANUAL AND AUTOMATIC/ROBOT WELDING



Migatronik's Pi range covers the entire spectrum from portable on-location versions to dedicated special and heavy duty machines with up to 500 A for automatic/robot welding.

AWARD-WINNING USER-FRIENDLY DESIGN WITH FUNCTIONAL DETAILS



Migatronic's Pi machines combine proven inverter technology with new control and communication options. These features optimise welding performance and make the most advanced functions child's play to use.

NEW PULSE SOUND WITH SYNERGY PLUS

In addition to traditional pulse and quick pulse for TIG DC, Pi offers the Migatronic invention Synergy PLUS; A special pulse function where the machine automatically and dynamically sets all primary pulse parameters when welding in synergy mode.

The traditional sound of pulse welding has therefore been replaced by clean metallic tones thanks to Synergy PLUS.

WELDING WITH UP TO 200 A USING JUST A 16 AMP FUSE

Both mono-phase Pi 200 TIG machines feature PFC – Power Factor Correction: an electronic circuit which makes it possible to weld using up to 200 A using just a 16 A fuse.

UP TO 4 X 64 PROGRAM SETTINGS

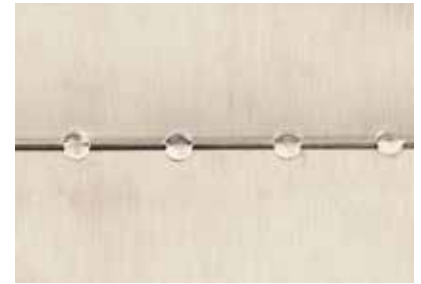
All Pi 350-500 TIG versions contain 64 program settings per welding process: TIG DC, TIG AC, MMA DC and MMA AC, so that the welder can quickly and safely call up customised settings for repetitive welding jobs. Pi 200-250 contain 10 program settings per welding process.

TIG LIFTIG IS STANDARD ON ALL MACHINES

All Pi TIG and MMA machines are supplied as standard with TIG LIFTIG function (ignition without HF) for TIG welding in electrically sensitive environments.

TRIGGER MODES IN THE SUB-MENU

The user-friendly control panels of the Pi machines feature many short-cuts that make welding much easier. In the sub-menu there are various possibilities for individual setting of the welding progress.



TIG-A-Tack is designed for use in austenitic stainless steel.

TIG-A-TACK - ULTIMATE TACK-WELDING

TIG-A-Tack (standard) is a feature that makes quick and extremely small and precise fixations points. This reduces the risk of distortion and damage to the material.

FAN REDUCES NOISE AND ENERGY CONSUMPTION

Migatronic Pi was developed with respect for both environment and work environment. The infinitely variable fan operates precisely and adapts automatically to the actual load/cooling requirement of the machine. The results are reduced noise level, energy consumption and dust intake and longer life of the machine.

GOUGING FOR THICK-WALLED MATERIAL

Pi 500 features gouging function for gouging root passes or locating lack of fusion.

AWARD-WINNING USER-FRIENDLY DESIGN WITH FUNCTIONAL DETAILS

AC WELDING: ONE BUTTON – FOUR PARAMETERS

The art of simplification: On the Pi AC/DC versions, the welder can adjust four primary AC parameters using just one button:

- 1 Time balance**
 - overall control of cleaning effect
- 2 AC frequency**
 - arc control and control of weld pool
- 3 Electrode preheating**
 - perfect ignition and reduced electrode wear - ready for new gas types
- 4 Current balance**
 - maintains a DC-like tungsten tip - ensures arc focus

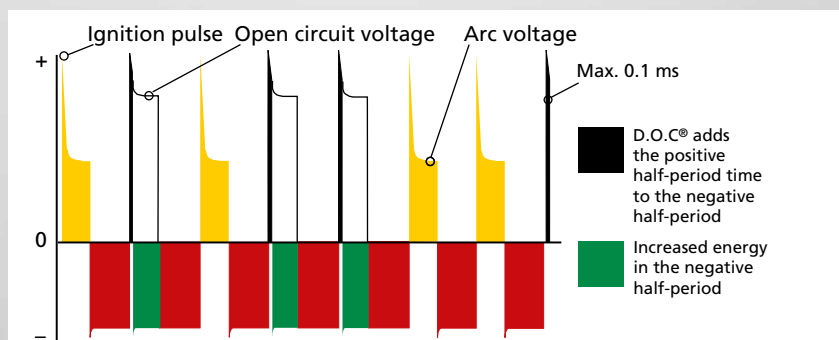


D.O.C.[®] - QUICKER AC WELDING





All Pi AC machines are equipped with D.O.C. function (Dynamic Oxide Control): a Migatron patent that ensures a controlled, narrow cleaning zone. The result is an increase in welding speed of up to 30% and a corresponding reduction in the consumption of both energy and tungsten electrodes.





SYNCHRONISED AC WELDING




Pi 350/500 can be used for synchronised AC welding by means of a synchronising kit; an efficient welding method using two arcs in the weld pool. The method is used for butt welding of large aluminium structures in wall thicknesses from approx. 3 mm and gives metallurgically pure joints.



FOUR DIFFERENT CONTROL PANELS WITH OPTIMIZED OPERATIONAL COMFORT

-  4-AC balance parameters
-  TIG-A-Tack function (standard)
-  Program settings*
-  D.O.C.®-function

-  Traditional pulse with time adjustment
-  Quick pulse with frequency adjustment
-  Synergi PLUS. All important parameters in one button
-  Program settings*

-  LIFTIG - simple TIG ignition of the arc
-  Hot start - safe ignition
-  ArcPower - prevents the electrode from sticking to the weld pool

The software in the control panel meets future demands. The machines are easily adjustable according to new user-defined applications.



Pi AC/DC with D.O.C.®
TIG AC/DC control panel with all relevant parameters for professional welding results in all materials



Pi DC H
TIG H special version for high frequency ignition without pulse. This option is only available in combination with Pi 350/500



Pi DC HP with Synergi Plus
TIG HP control panel in all its simplicity with Synergi Plus as standard



Pi MMA
MMA control panel with the option of TIG process with LIFTIG ignition

Pi MMA CELL
The same facilities as for Pi MMA plus special program for vertical downwards welding position using cellulose electrodes

* Pi 200-250: 10 program settings per welding process
Pi 350-500: 64 program settings per welding process

MIGATRONIC MIGATRONIC PI – IT'S QUITE SIMPLE

QUICK CHANGE-OVER BETWEEN JOBS



Press one button and change over between up to 64 different fixed settings in the welding process chosen.



Activate Synergy PLUS and Pi automatically sets all primary pulse parameters (synergy mode).



TIG-A-Tack: a quick and extremely precise function with ultra-small fixations points.



IGC® Intelligent Gas Control (option) reduces the gas consumption by up to 50%. Gas consumption read-out on the display.



The D.O.C.® system is always active and ensures a controlled narrow cleaning zone along the TIG weld. Welding speed is increased by up to 30%.



PI 350 MMA CELL

PI 350 MMA CELL is designed specifically for tube/pipeline welding and vertical downwards welding position using cellulose electrodes. This means considerably increased welding speed, increased melting performance and higher efficiency. PI 350 MMA CELL can be used with an asynchronous generator.



The Pi 350 is available with five different control panels. DC HP, DC H, AC/DC, MMA, and MMA CELL

INTELLIGENT GAS CONTROL IGC® SYNERGIC GAS FLOW WITH LARGE-SCALE REDUCTION OF GAS CONSUMPTION



IGC® OFFERS MORE ADVANTAGES FOR THE INDUSTRIAL MACHINES

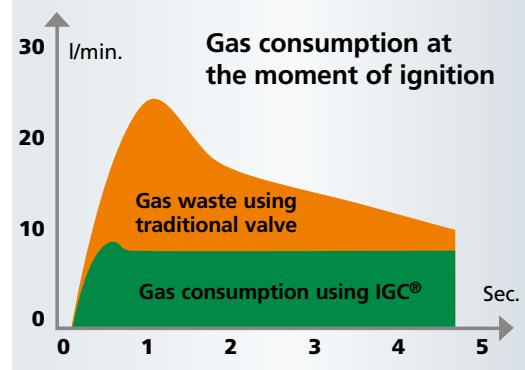
Intelligent gas post flow, a special feature for use with IGC, is dedicated to the large Pi machines (350 and 500). It automatically provides the required gas post flow time, and oxidized tungsten electrodes and welds are eliminated at finalizing welds.

INTELLIGENT GAS CONTROL

IGC® is a configurable option for Pi 350 and Pi 500 for TIG. An efficient gas-saver kit combined with dynamic gas control that monitors consumption and optimises gas protection in both DC and AC welding. Often, the IGC function may give gas savings up to 50% with proportionally fewer replacements of gas cylinder to the benefit of economy, environment and efficiency.

BETTER WELDING, BETTER FINISH

At the start of the welding process, Migatronics IGC prevents over-consumption of gas and gives a good start performance. IGC takes control once the weld pool is established and ensures extensive savings thanks to the controlled gas consumption which is always optimized to current needs.



The more ignitions - the greater the gas savings



GAS FLOW CONTROL

IGC also functions as an efficient gas flow control that automatically stops the process in case of insufficient gas protection.

LARGE-SCALE REDUCTION OF GAS CONSUMPTION

Savings depend on the company's welding profile, arc time and number of welding machines. Calculate your savings and see what you can save on the bottom line.

THE PI CAN BE CUSTOMISED TO ANY WELDING SITUATION - INCLUDING AUTOMATED DEVICES AND ROBOTS

Robotinterface



Extra identical control panel



RWF - Robot Wire Feeder.



AUTOMATED TIG WELDING

The two largest TIG inverters, the Pi 350 and 500, are obvious power sources for automatic devices/robots and prepared for communication with a robot or automatic device in a setup with the CWF Multi.

INTERFACES FOR ALL TYPES OF ROBOTS

The RCI (Robot Communication Interface) integrates the large Pi machines with most types of robots and controllers. RCI is also used for retrofitting old types of robots - state-of-the-art technology. All RCI's are supplied to order by Migatronik in the required configuration.

THE OPERATING COMFORT FOLLOWS THE OPERATOR

All Pi machines for automated welding processes can be equipped with an extra identical control panel at the robot cell where the robot operator gets the same functions and facilities for setting the welding parameters.



Pi 350 and 500 are suitable power sources for automated welding processes.

FLEXIBLE RANGE OF ACCESSORIES AND TORCHES OFFERING NEW ADVANTAGES

TIG TORCHES FOR QUALITY WELDING

The torch is the welder's auxiliary arm and quite decisive for the welding result. That is why Migatronik develops and designs its own comprehensive range of ergonomically correct welding torches; The TIG Adjust, for example, can be turned in any direction and TIG Flex is flexible and can be shaped to a welding angle of choice.



FIVE CONTROL UNITS IMPROVE THE EFFICIENCY

The Migatronik TIG Ergo torches can be equipped with five optional control units for adjustment of the welding current from the torch handle. The units are easily replaceable without using any tools.

TIG ADJUST PROVIDES FULL 360 DEGREES-OF-FREEDOM

TIG Adjust is designed for welding operations where repeated adjustments of the torch body are an everyday occurrence and use of standard torches is physically impossible. TIG Adjust is designed as a custom-built solution for Migatronik's TIG Ergo torches and matches all TIG Ergo wear parts and control units.

EXAMPLES OF ACCESSORIES FOR MIGATRONIC PI:

- IGC® Intelligent Gas Control
- Trolley with integrated cylinder console and torch holder
- Frame for mounting in rack system
- Autotransformer 230–500 V
- Cooling unit/ Water control unit
- Foot control unit/pocket control unit
- Welding torches/cables in various lengths



Blank cover for use with e.g. foot switch

Control unit



Control unit with vertical TIG control knob (RV)

Control unit with horizontal TIG control knob (RH)



Foot switch, 7 pole aircooled (78815016)
Foot switch, 7 pole watercooled (78815015)
Foot switch, 8 pole (78815010)



Left: Up/Down control unit with 4-function key for adjustment of welding current incl. TIG-A Tack function.

Right: Up/Down control unit with 3-function key for adjustment of welding current.

The welding current is increased / reduced by 2 amps. Long press for constant increase / decrease.

CWF MULTI SIKRER ENSARTET KVALITET OG HØJ SVEJSEHASTIGHED



CWF Multi features infinitely variable adjustment of wire feed speed from 0.2 to 5.0 m/min.

TIG WELDING NON-STOP

CWF Multi (Cold Wire Feeder) is a separate wire feed unit designed specifically for setups with automatic devices and for optimization of manual TIG welding.

The CWF Multi control panel allows the welder to switch between programs and features automatic wire-feeding synchronously with the machine's pulse function (Pi 350-500).

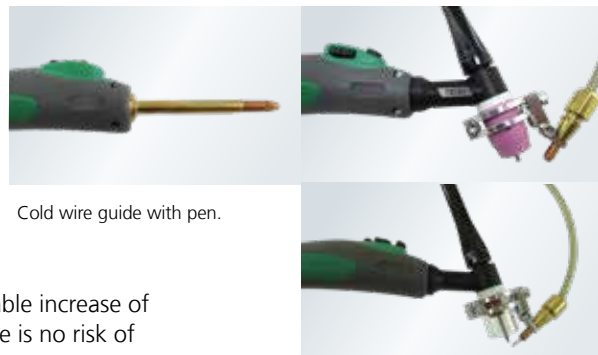
AUTOMATIC WIRE-FEEDING

For optimization of welding quality and speed, the TIG torches can be fitted with special equipment for automatic wire feeding.

Pi 350-500 machines can via CWF Multi feed the correct quantity of wire into the weld pool; with or without pulse on the wire.

COLD WIRE FEEDER	CWF MULTI
Wire feed speed m/min.	0,2-5,0
Wire diameter mm	0,6-1,6
Dimensions (HxWxL), mm	276x211x276
Weight, kg	9,6

We reserve the right to make changes.



Cold wire guide with pen.

Cold wire guide mounted on torch.

The result is a considerable increase of welding speed and there is no risk of non-uniform welds and undesirable contact with the tungsten electrode.

PI	200 DC HP	200 AC/DC	250 E/DC HP	250 AC/DC
Current range, A	5-200	5-200	5-250	5-250
Mains voltage +/- 15 %,V	1x230	1x230	3x400	3x400
Mains v. auto transformer, V			3x230-500	3x230-500
Fuse, A	16	16	10	10
Mains current, effective, A	17,5	18,6	7,1	7,3
Max mains current, A	24,3	26,0	13,0	10,3
Open circuit voltage, V	95	95	95	95
Efficiency	0,85	0,80	0,87	0,81
Application class	S/CE	S/CE	S/CE	S/CE/CCC
Protection class	IP 23	IP 23	IP 23	IP 23
Norm	ENIEC60974-1, ENIEC60974-3, ENIEC60974-10			
Dimensions (HxWxL), mm	360x220x520	360x220x520	360x220x520	360x220x520
Weight, kg	22	24	20 / 23	25

DUTY CYCLE	200 DC HP	200 AC/DC	250 E DC	250 DC HP	250 AC/DC
100% at/20°C MMA, A/%V			170/100		
100% at/20°C TIG, A/%V	170	160		170	170
60% at/20°C MMA, A/%V			210/60		
60% at/20°C TIG, A/%V	200	200		210	200
100% at/40°C MMA, A/%V	130/25,2	130/25,2	150/100/26,0	150/26,0	150/26,0
100% at/40°C TIG, A/%V	150/16,0	140/15,6		150/16,0	150/16,0
60% at/40°C MMA, A/%V	150/26,0	150/26,0	190/60/27,6	190/27,6	170/26,8
60% at/40°C TIG, A/%V	170/16,8	170/16,8		190/27,6	180/17,2
Max. at/40°C MMA, A/%V	170/40/26,8	170/40/26,8	250/35/30,0	250/35/30,0	250/35/28,0
Max. at/40°C TIG, A/%V	200/40/18,0	200/40/18,0		250/35/20,0	250/30/20,0

We reserve the right to make changes.

PI DATA

We reserve the right to make changes.

PI	350 E CELL DC	350 E DC	350 DC	350 AC/DC	500 E DC	500 DC HP / AC/DC
Current range, A	5/20,2-300/32,0	5/20,2-350/34,0	5-350	5-350	5-500	5-500
Mains voltage +/- 15 %,V	3x400	3x400	3x400	3x400	3x400	3x400
Fuse, A	16	25	25	25	32	32
Mains current, effective, A	15,4	18,0	18,0	17,3	22,5	26,1 / 27,2
Max mains current, A	19,1	23,1	23,1	22,7	33,7	33,7 / 35,1
Open circuit voltage, V	95	95	95	95	95	95
Efficiency	0,79	0,79	0,80	0,88	0,90	0,91 / 0,87
Application class	S/CE	S/CE	S/CE/CCC	S/CE/CCC	S/CE	S/CE/CCC
Protection class	IP 23	IP 23	IP 23	IP 23	IP 23	IP 23
Standards	EN/IEC60974-1, EN/IEC60974-10	EN/IEC60974-1, EN/IEC60974-10	EN/IEC60974-1, EN/IEC60974-2, EN/IEC60974-3, EN/IEC60974-10	EN/IEC60974-1, EN/IEC60974-2, EN/IEC60974-3, EN/IEC60974-10	EN/IEC60974-1, EN/IEC60974-10	EN/IEC60974-1, EN/IEC60974-2, EN/IEC60974-3, EN/IEC60974-10
Dimensions (HxWxL), mm	550x250x640	550x250x640	550x250x640	980x545x1090	550x250x640	980x545x1090
Weight, kg	31	31	31	72	33	68 / 77

DUTY CYCLE	350 E CELL DC	350 E DC	350 DC	350 AC/DC	500 E DC	500 DC HP / AC/DC
100% at/20°C MMA, A	300	330	330	330	400	475
100% at/20°C TIG, A	-	-	340	340	-	475
60% at/20°C MMA, A	-	-	-	-	500	-
60% at/20°C TIG, A	-	-	350	350	-	500
Max. at/20°C MMA, A/%	-	-	350/90	350/90	-	500/65
Max. at/20°C TIG, A/%	-	-	350/95	350/95	-	500/80
100% at/40°C MMA, A/V	250/30,0	290/31,6	290/31,6	290/31,6	330/33,2	420/36,8
100% at/40°C TIG, A/V	-	-	300/22,0	290/21,6	-	420/26,8
60% at/40°C MMA, A/V	275/31,0	340/33,6	340/33,6	350/34,0	400/36,0	450/38,0
60% at/40°C TIG, A/V	-	-	350/24,0	350/24,0	-	500/30,0
Max. at/40°C MMA, A/%/V	300/35/32,0	350/40/34,0	350/50/34,0	350/60/24,0	500/35/40,0	500/40/40,0
Max. at/40°C TIG, A/%/V	-	-	350/60/24,0	350/60/24,0	-	500/60/30,0

COOLING UNIT	MCU 1000*	MCU 1100**	MCU***
Cooling output 1 l/min., W	900	900	1100
Tank capacity, liter	2,5	3,5	3,5
Max pressure, bar	3,5	3,5	3
Flow bar °C, l/min.	1,2 - 60 - 1,75	1,2 - 60 - 1,75	1,2 - 60 - 1,75
Dimensions (HxWxL), mm	270x220x520	276x211x276	-
Weight incl. fluid, kg	15,0	16,0	-

*) Separate cooling unit for Pi 200/250. **) Separate cooling unit for Pi 350.

***) Integrated cooling unit in Pi 350 AC/DC / Pi 500 DC-AC/DC.

Dealer stamp: