

micatronic
WELDING VALUE

BUILT IN SAFETY
SYSTEM
CE APPROVED


SMALL
AND SMART

**CALL ME
COWELDER**

A COLLABORATIVE WELDING ROBOT

CoWelder is a complete welding robot solution, all parts supplied, ready to install in an existing production. It makes the production of workpieces more efficient no matter the quantity and frequency. This is an affordable step into welding automation.

WHY COWELDER?

- 
- A robotic welding arm is shown in a green-tinted industrial setting. The arm is positioned diagonally across the frame, with its welding torch pointing towards the bottom right. The background is dark and industrial, with some structural elements visible. The overall image has a green monochrome filter.
- Reduced arc time per weld
 - Increased production capacity
 - Optimum welding quality
 - Gas savings
 - Operators need no welding skills
 - Safe, flexible, compact solution
 - Easy programming and verification

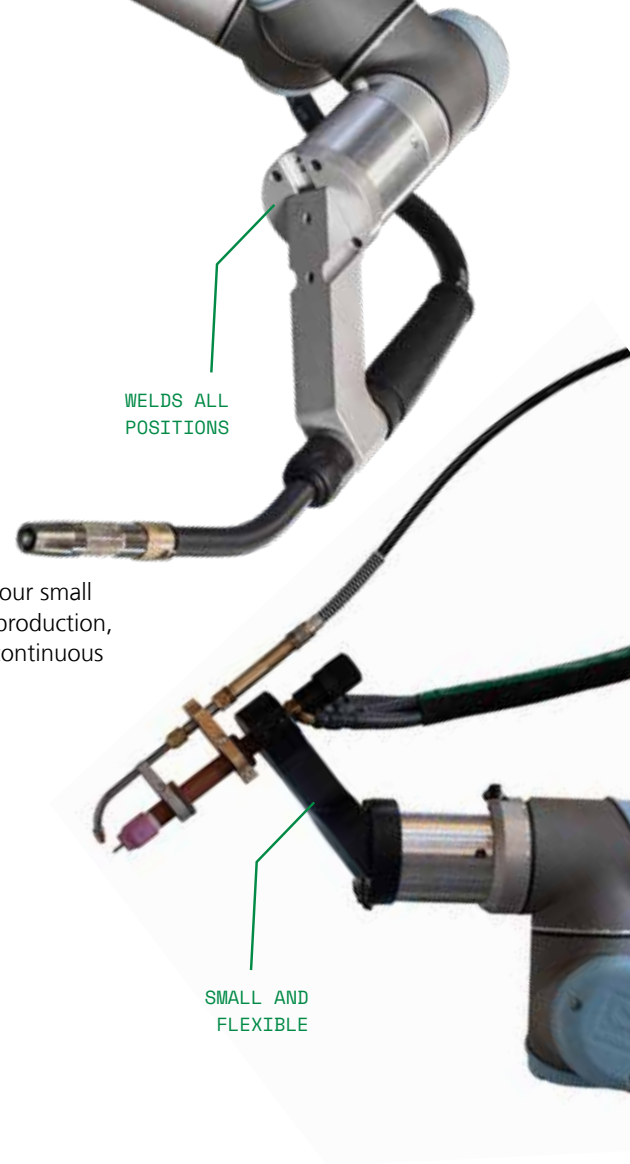


A NEW WELDING ASSISTANT

The CoWelder is possibly the smartest and smallest automated welding solution on the market. It joins the family of cobots: collaborative robots working together with humans in a shared workspace.

With this flexible and easy-to-program cobot you can increase work efficiency, releasing skilled welders for other tasks, therefore saving time and costs.

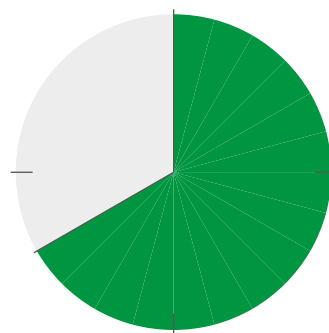
The CoWelder can improve your small and large batch component production, delivering uniform welds of continuous high quality.



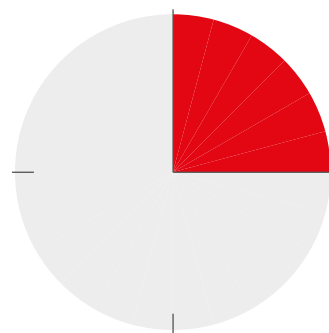
FLEXIBILITY IS THE KEY

A high-performance Migatron welding machine and the CoWelder are a perfect match. With the CoWelder, you can optimise your welding production of workpieces no matter the quantity and frequency. This automated welding solution is so flexible that it pays off, no matter if you weld one workpiece or a thousand at a time.

The six axes robot arm moves quickly between various welding positions. In this way, it can weld workpieces faster than you can do manually. The speed of rotating joints is up to 180° per second with a repetitive accuracy of ± 0.1 mm.



*CoWelder™
39 minutes of arc time per hour*



*Manual production
15 minutes of arc time per hour*

LEARNING BY DOING

EASY INSTALLATION AND PROGRAMMING

It takes little time to install the CoWelder in your existing production and you can start welding on the first day. Mount the CoWelder on your welding table, turn on your welding assistant and start programming.

Programming the CoWelder is simple and intuitive. Staff with no programming experience can easily learn how to operate the cobot. Build up a catalogue of workpieces each with an attached program and switch between them as required during a workday.

USING MIGATRONIC TEMPLATES

Teach the cobot and it will remember your movements and repeat them. Press the free drive button and move the robot arm to demonstrate the welding path from start to stop. Use the teach pendant with a 12" touch screen and the unique, user-friendly Migatronik templates for further programming and adjustment. Depending on the complexity, it takes only about half an hour to program a new workpiece.



The CoWelder is easy to program by means of the robot arm and teach pendant with 12" touch screen.

“

It used to take at least twice the amount of time for the same volume of production. For some components, we are able to reduce delivery time from two weeks to one.

Torsten Lezius, CEO,
L&S Technischer Handel GmbH, Germany








CHOOSE YOUR FAVOURITE COWELDER

The CoWelder product packages match customers' requirements for optimum welding performance; from simple welding to highly sophisticated pulse MIG or TIG welding (with or without cold wire feeding). Choose between UR5 and UR10 robot - depending on the requested maximum working radius.

- 01 Balancing holder
- 02 Rear protective cover
- 03 Power Source
- 04 Start/stop unit with 5m cable
- 05 Teach pendant
- 06 Mobile table mount, auto-balancing system
- 07 Free drive button
- 08 UR robot arm



COWELDER™ UR5	POWER SOURCES	OPTIONS		PACKAGES	
		Omega 300 air-cooled ^{*)}	Analog	No option	79115001 CoWelder UR5 Omega ² CoWelder 300 Advanced
		Sigma Select 400 air-cooled ^{**)}	Digital	Synergic	79115002 CoWelder UR5 Select 400 Synergic
			Digital	Pulse	79115004 CoWelder UR5 Select 400 Pulse
			Digital	IAC Sync	79115006 CoWelder UR5 Select IAC 400 Synergic
		Sigma Select 400 water-cooled ^{**)}	Digital	Synergic	79115003 CoWelder UR5 Select 400 W Synergic
			Digital	Pulse	79115005 CoWelder UR5 Select 400 W Pulse
			Digital	IAC Sync	79115007 CoWelder UR5 Select IAC 400 W Synergic
		Pi 350 AC/DC water-cooled ^{***)}	Digital	No option	79115050 CoWelder UR5 PI 350 AC/DC W
			Digital	Cold wire feeder	79115051 CoWelder UR5 PI 350 AC/DC W + CWF






*) MIG/MAG Power source. Features DC welding and various Migatronic technologies such as IGC® (Intelligent Gas Control) for gas savings, DUO Plus for TIG-like welds and synergic programs.

**) MIG/MAG Power Source. Features pulse welding and various Migatronic technologies, such as IGC® (Intelligent Gas Control) for gas savings, Miga Job Control for creation of individual jobs, DUO Plus for TIG-like welds and MigaLog for logging welding data.

***) TIG Power Source. Features pulse welding and Migatronic technologies, such as IGC® (Intelligent Gas Control) for gas savings, TIG-A-Tack for fixation without root protection gas and D.O.C.® (Dynamic Oxide Control) for a controlled cleaning zone.

IN THE SUPPLY OF THE PRODUCT PACKAGES THE FOLLOWING IS INCLUDED:

- UR robot
- Free drive button on the 6th joint of the robot arm for easy programming of the robot
- Robot controller incl. teach pendant with E-stop and 5 m cable
- ARC safety control. Ensuring the robot will only process/weld when a welding arc is present.
- ROBOT motion safety control. Ensuring welding process and arc ignition are not initiated until the robot is in the right execution mode.
- Start/stop unit with 5 m cable
- Robot welding torch, 4 m length
- Standard robot torch holder
- Mobile table mount, autobalancing system
- Migatronik programming templates
- IGC® Intelligent Gas Control
- Calibration certificate
- CE-marking
- Instruction manual

COWELDER™ UR10	POWER SOURCES	OPTIONS		PACKAGES	
		Omega 300 air-cooled ^{*)}	Analog	No option	79115011 CoWelder UR10 Omega ² CoWelder 300 Advanced
		Sigma Select 400 air-cooled ^{**)}	Digital	Synergic	79115012 CoWelder UR10 Select 400 Synergic
			Digital	Pulse	79115014 CoWelder UR10 Select 400 Pulse
			Digital	IAC Sync	79115016 CoWelder UR10 Select IAC 400 Synergic
		Sigma Select 400 water-cooled ^{**)}	Digital	Synergic	79115013 CoWelder UR10 Select 400 W Synergic
			Digital	Pulse	79115015 CoWelder UR10 Select 400 W Pulse
			Digital	IAC Sync	79115017 CoWelder UR10 Select IAC 400 W Synergic
		Pi 350 AC/DC water-cooled ^{***)}	Digital	No option	79115060 CoWelder UR10 PI 350 AC/DC W
			Digital	Cold wire feeder	79115061 CoWelder UR10 PI 350 AC/DC W + CWF

^{*)} MIG/MAG Power source. Features DC welding and various Migatronik technologies such as IGC® (Intelligent Gas Control) for gas savings, DUO Plus for TIG-like welds and synergic programs.

^{**)} MIG/MAG Power Source. Features pulse welding and various Migatronik technologies, such as IGC® (Intelligent Gas Control) for gas savings, Miga Job Control for creation of individual jobs, DUO Plus for TIG-like welds and MigaLog for logging welding data.

^{***)} TIG Power Source. Features pulse welding and Migatronik technologies, such as IGC® (Intelligent Gas Control) for gas savings, TIG-A-Tack for fixation without root protection gas and D.O.C.® (Dynamic Oxide Control) for a controlled cleaning zone.

MAXIMUM
... FLEXIBILITY

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Our time saved per workpiece is about 50 %.
We produce from 10 to 1000 workpieces at a time.
Our efficiency gains are 30-40 % owing to the
easy switching between programs and welded
workpiece. And this is just the beginning ...

Jens Christian Lægsgaard, General Manager,
MVI Maskinfabrik, Denmark



EASY AND INEXPENSIVE VERIFICATION OF PROGRAMS

On the CoWelder, as opposed to traditional robots, program verification is easy and inexpensive.

Arc control is a unique function, which enables program verification without welding, so you avoid spending money on expensive samples.

The built-in counter function makes it easy to measure the welding cycle time and verify whether new optimisation ideas can be realised, for example by changing the robot arm position before start.

MOBILE AT ANYTIME

The CoWelder solution is easy to move around as required, using a forklift. You can place it in an existing manual welding booth or make a dedicated CoWelder working place.

SAFETY IS ALL-IMPORTANT

The CoWelder is designed with focus on safety. No physical safety fence is required, as the CoWelder has a built-in virtual safety fence that limits the three-dimensional working range.

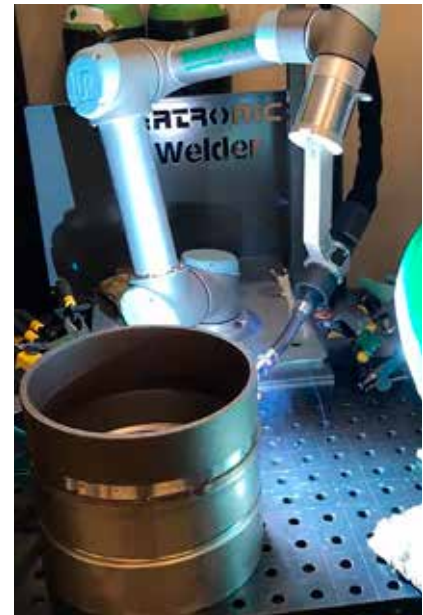
The built-in ARC safety control ensures that the robot will only process/weld when a welding arc is present.

The ROBOT motion safety control ensures that welding process and arc ignition are not initiated until the robot is in the right execution mode.

A resistance sensor automatically stops the cobot at a resistance of 8 kg m/s. As an extra safety precaution, the emergency button is next to the on/off button, enabling the operator to stop the process at any time.

CE APPROVED PACKAGE

All robot installations require CE marking according to European legislation (The Machinery Directive 2006/42/EC) with the purpose of ensuring the safety of the user. The CoWelder package includes a CE marking, so no complicated approval process is required. Just follow the instructions and get ready to use the CoWelder from day one.



On each side of the component, the axle bushings are welded with two circular fillet welds. Semi-automatic production with CoWelder has clearly improved both production speed and welding quality.



MIG/MAG POWER SOURCES

OMEGA 300 COWELDER

The Omega 300 CoWelder, a compact air-cooled MIG/MAG inverter, is perfect for welding in mild steel. The machine features more than 70 synergic welding programs.

The Omega 300 CoWelder package is ideal for simple MIG/MAG welding tasks.

Omega 300 CoWelder includes IGC® (Intelligent Gas Control). IGC saves gas, optimises gas protection and improves welding quality.



DUO PLUS

For a perfect finish

Get stunning TIG-like welds with a MIG/MAG welding machine. DUO Plus technology automatically ensures a perfect final touch. It works in all materials, for all welding positions and all welders can do it. It's quite simple.



ADVANCED CONTROL PANEL

Advanced, yet simple. Add all the functions you want for Omega to match your exact needs. Features MIG brazing and automatic functions for easier welding.

Advanced panel featuring DUO Plus. DUO Plus provides a TIG-like weld appearance and better control of the weld pool. The panel contains programs for MIG brazing and welding using flux-cored or solid wires in mild and stainless steels and aluminium.



SIGMA SELECT 400

The Sigma Select 400, a compact MIG/MAG welding machine, is ideal for complicated welding task. It is tough, versatile and built to meet the future.

You will find a wide selection of CoWelder packages to choose from. The machine comes with a well-assorted standard program package, which can be extended with various sophisticated programs at any time.

Sigma Select 400 includes IGC® (Intelligent Gas Control). IGC saves gas, optimises gas protection and improves welding quality.

WATER COOLING (OPTIONAL)

The Sigma Select can be equipped with a water-cooling unit for cooling of the robot torch. The built-in water flow control with temperature sensor automatically stops the process in case of insufficient cooling, e.g. if the cooling liquid level is too low.



Sigma Select 400 Graphic Control panel

GRAPHIC CONTROL PANEL

Built to meet the future

Choose Synergic or Pulse with or without IAC*) and upgrade if your needs change. The digital soft-key control panel is prepared for multiple add-ons including automatic functions for easier welding. Pick it up and take it with you.

Synergic

In the Synergic level, all primary welding parameters are linked and work together. Synergic includes a standard package of more than 50 welding programs.

Pulse (optional)

The Pulse level is perfect for stainless steel and aluminium because it provides spatter-free welding. Pulse includes Synergic and more than 50 welding programs.



*) Power source must be prepared for IAC when purchased.

SIGMA SELECT FUNCTIONS



DUO PLUS

For a perfect finish

Get stunning TIG-like welds with a MIG/MAG welding machine. DUO Plus technology automatically ensures a perfect final touch. It works in all materials, for all welding positions and all welders can do it. It's quite simple.



SEQUENCE

Tab your way to the perfect settings

The Sequence function makes it possible for you to save up to 9 personal sequences in each welding program. Switch between them with just a tap on the welding torch. Use Sequence for mounting and assembly, for instance where welders carry out many different welds during their workday.

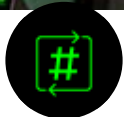


SEQUENCE REPEAT

Invent your own arc

The Sequence Repeat technology provides maximum freedom to construct the ideal arc for your specific welding tasks.

Link together individual sequences and customise welding cycles.



MIGA JOB CONTROL

A clever digital memory

Take advantage of a digital memory in your welding machine - save your favourite welding settings and recall them anytime you want. Transfer settings to other Select machines. Miga Job Control makes it easy to find your routine settings and start welding right away.



MIGALOG

Register every weld

Keep track of your welding data with MigaLog software.

Analyse and document your work. Use MigaLog to extract conclusive evidence for verification in accordance with EN and ISO welding standards.



IGC® - Intelligent Gas Control

Less gas for every weld

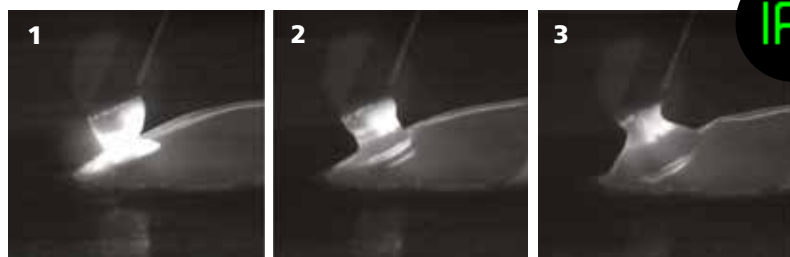
IGC® technology prevents over-consumption of gas and gives you long term savings.

With weld pools always perfectly protected, you increase the quality of each weld and your investment will quickly pay for itself.

IAC INTELLIGENT ARC CONTROL AUTOMATICALLY ADJUSTS THE ARC 50,000 TIMES PER SECOND...

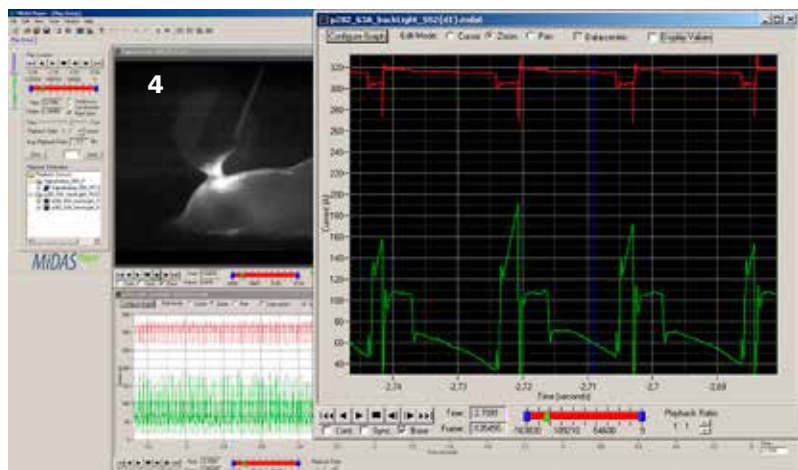
SIMPLIFY COMPLEX WELDS

IAC (Intelligent Arc Control) makes difficult downward welding of root passes easy, even for less experienced welders. With a 100% stable and focused short arc, you achieve complete fusion in root passes. This increases the quality of each weld and your product.



WELD A SOLID FOUNDATION

Use IAC to make the first joint, the root pass. IAC makes sure that fusion in this first joint is perfect. It makes up a solid groundwork with a flat weld appearance and you can proceed with the rest of your weld.



Real time laboratory records showing full control of the IAC process, also during droplet pinch-off.

BENEFITS

- Not sensitive to a varying stickout in a weld pass = easier to carry out root passes
- Significantly increases welding speed in downward welding of root passes compared to traditional upward welding
- Weld faster = produce more
- Less heat input = less deformation of the welded material but still with sufficient penetration
- No weld spatter = less time spent on post-treatment
- Lower production costs for each workpiece



IAC - Vertical downward welding of a root pass in a district heating pipe. Welding speed is significantly increased compared to traditional upward welding.

IAC IS IDEAL FOR

- Root passes
- Pipes, tubes and tanks
- Butt welds
- Mild and stainless steel
- All plate thicknesses
- Manual and automated welding
- Standard welding procedures according to EN 1090/15612

MAXIMUM
... FLEXIBILITY



When we heard of the CoWelder with TIG from Migatronik we started considering how the welding concept could benefit our company and, in the end, we decided to invest. So far, we have found a number of products where the welding robot can increase our productivity.

Lars Ryefalk,
market director at AB Furhoffs Rostfria, Sweden



TIG POWER SOURCES

PI 350 AC/DC

Pi 350 AC/DC water-cooled is a high-performance inverter TIG machine for precision welding in mild steel, stainless steel, aluminium and other high-alloy materials.

Pi 350 includes IGC® (Intelligent Gas Control). IGC saves gas, optimises gas protection and improves welding quality.

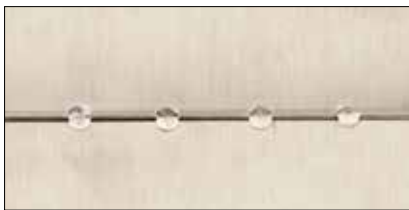


PULSE CONTROL PANEL

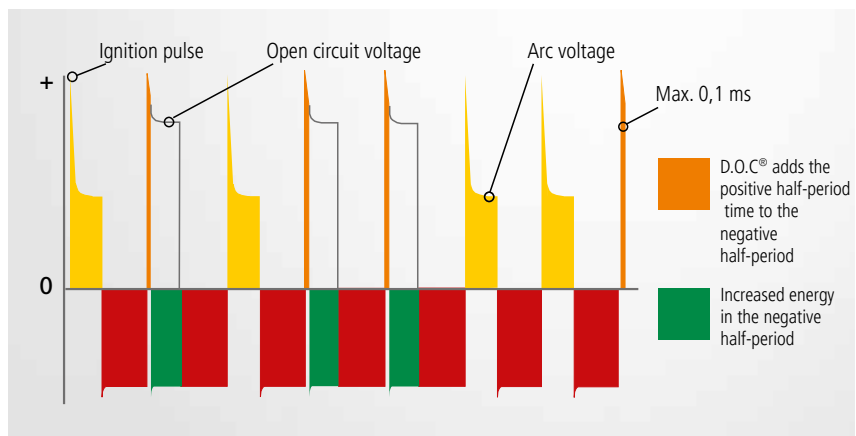
Sub-menus in the user-friendly control panel enable individual setting of the welding operation.

SYNERGY PLUS

Synergy Plus is a special pulse function for TIG DC welding which dynamically sets all primary pulse parameters.



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



TIG-A TACK

The ultimate fixation

Make extremely small and precise TIG-A-Tack fixations without root protection gas in austenitic stainless steel. The fixations are invisible in the final weld seam. Use TIG-A-Tack for quick tack welding of tubes, pipes or plates of austenitic stainless steel.

D.O.C.® (DYNAMIC OXIDE CONTROL)

Quicker AC welding

Pi 350 AC/DC is equipped with the D.O.C.® function, which increases welding speed by 30 % and reduces your consumption of both energy and tungsten electrodes. D.O.C.® ensures a controlled, narrow cleaning zone when welding aluminium.



TIG WELDING NON-STOP

CWF MULTI (OPTIONAL)

CWF Multi (Cold Wire Feeder) with four-roll wire feed system is a separate wire feed unit designed specifically for setups with automatic devices.

The CWF Multi control panel allows you to switch between programs and features automatic wire feeding synchronously with the machine's pulse function.

Twenty individual wire programs allow you to control the wire feeding process from start to stop.

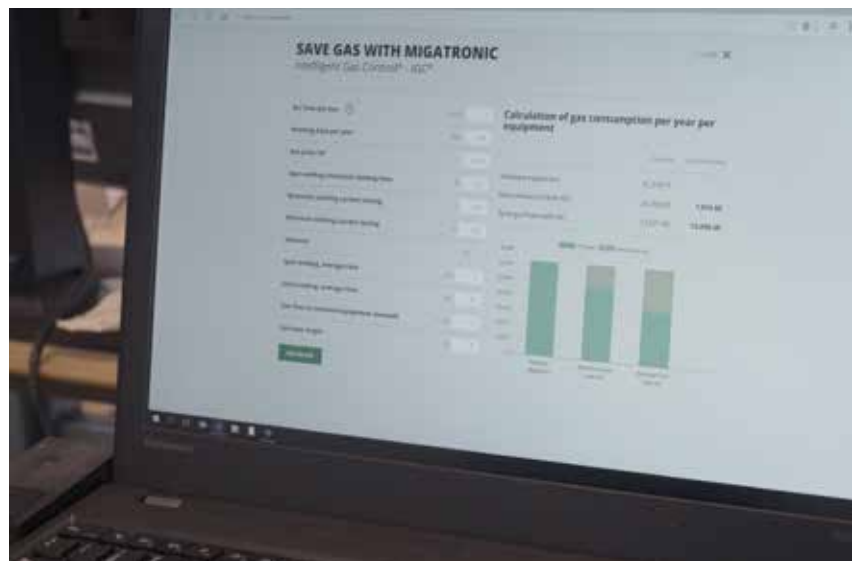


INTELLIGENT GAS CONTROL IGC® - SYNERGIC GAS FLOW WITH LARGE-SCALE REDUCTION OF GAS CONSUMPTION

SAVE UP TO 50% WITH AUTOMATIC GAS CONTROL

IGC (Intelligent Gas Control) technology prevents over-consumption of gas and gives you long-term savings.

With weld pools always perfectly protected, you increase the quality of each weld. Make sure that all your welding machines are equipped with IGC and save money every day. Your investment will quickly pay for itself.



BENEFITS

- Always optimum gas protection = no holes, pores or impure welds. Less failures created by insufficient gas flow or gas turbulence
- No unnecessary loss of gas, so-called gas puff at ignition = no over-consumption of gas
- No change in working procedures = easy for welders
- Fewer replacements of gas cylinders = save money and time
- Gas synergy lines are pre-adjusted for MIG and TIG welding – for gas and type of wire

IGC® IS IDEAL FOR:

- All welding processes
- All materials
- All kinds of welds
- Manual and automated welding

TECHNICAL DATA UR5 // UR10

COWELDER 6-JOINTED ROBOT ARM	UR5	UR10
Power consumption, watts	Approx. 200 (using a typical program)	Approx. 300 (using a typical program)
Power supply	100-240 VAC, 50-60 Hz	
Ambient temperature	The robot can work in the 0-40° range	
Collaborative operation	15 advanced safety functions tested according to EN ISO 13849:2008 PL d EN ISO 10218-1:2011, 5.4.3	
Programming	Graphical user interface on 12" touchscreen	
Repetitive accuracy, mm	+/- 0.1	
Speed of rotating joints	Up to 180° per second	
Rotation of joints	+/- 360°	
Degree of freedom	6 rotating joints	
Minimum size of welding table (LxW)	2000x1200	3000x1700
Working radius, mm	850	1300
Payload ability, kg	5	10
Weight, kg	18.4*)	28.9**)
*) Total weight of CoWelder UR5 solution excl. welding machine: 105 kg		
**) Total weight of CoWelder UR10 solution excl. welding machine: 115,5 kg		

EXAMPLES OF ACCESSORIES:

- Teach pendant safety cover incl. protection glass
- Teach pendant holder
- Wear parts starter kit
- TCP calibration pins
- Alu-kit holder for CWF
- Protective cover for robot
- Forklift transportation kit



TECHNICAL DATA WELDING MACHINES



COWELDER PACKAGE SOLUTIONS

MIG

TIG

OMEGA² COWELDER 300
AIR-COOLED

SIGMA SELECT 400
PULSE AIR-COOLED

SIGMA SELECT 400
PULSE AIR-COOLED

SIGMA SELECT IAC 400
SYNERGIC AIR-COOLED

SIGMA SELECT 400
PULSE WATER-COOLED

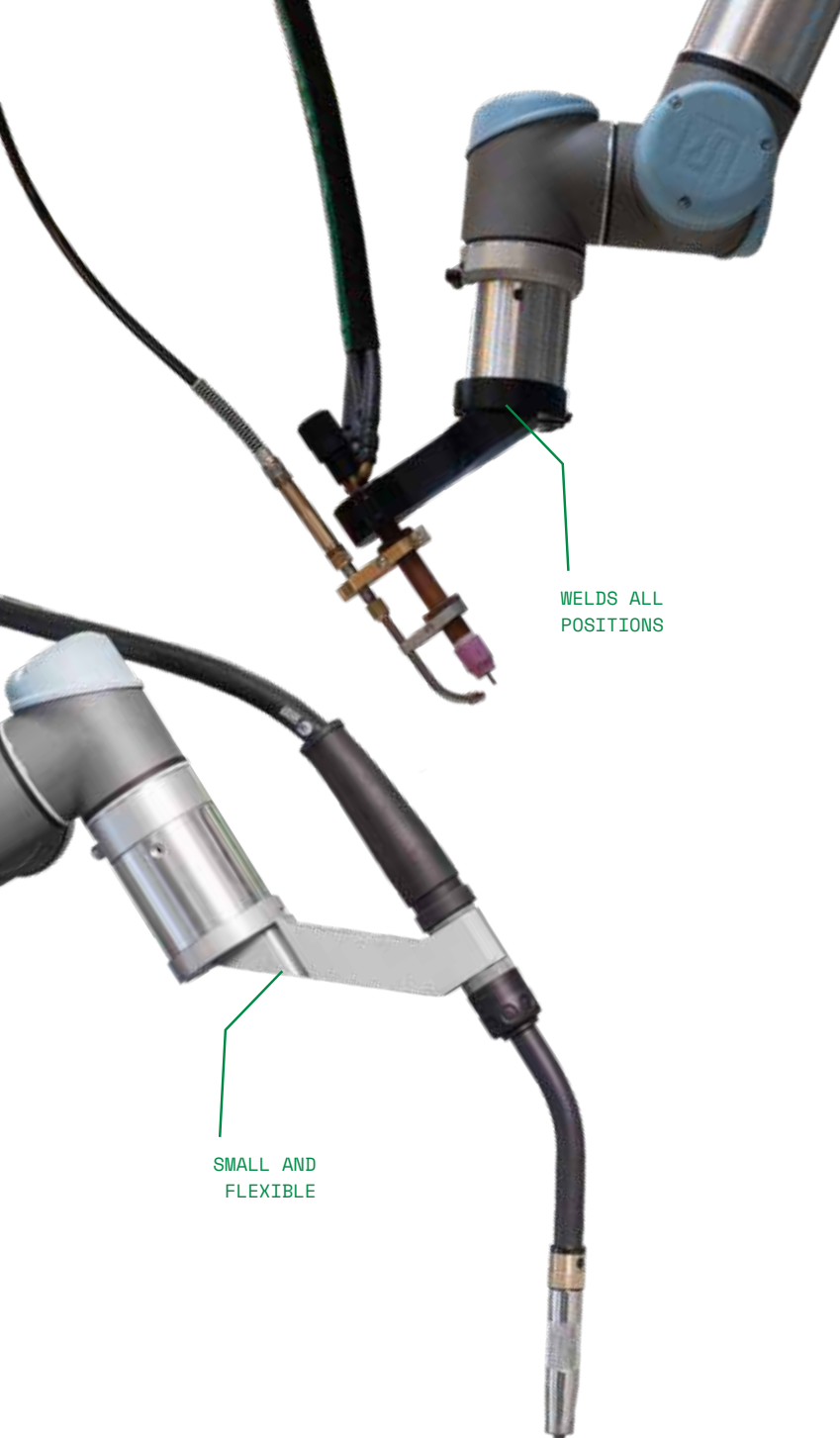
SIGMA SELECT 400
PULSE WATER-COOLED

SIGMA SELECT IAC 400
PULSE WATER-COOLED

PI 350 AC/DC
WATER-COOLED

	OMEGA ² COWELDER 300 AIR-COOLED	SIGMA SELECT 400 PULSE AIR-COOLED	SIGMA SELECT 400 PULSE AIR-COOLED	SIGMA SELECT IAC 400 SYNERGIC AIR-COOLED	SIGMA SELECT 400 PULSE WATER-COOLED	SIGMA SELECT 400 PULSE WATER-COOLED	SIGMA SELECT IAC 400 PULSE WATER-COOLED	PI 350 AC/DC WATER-COOLED
Current range, A	15-300	15-400	15-400	15-400	15-400	15-400	15-400	5-350
Mains voltage $\pm 15\%$, V	3x400	3x400	3x400	3x400	3x400	3x400	3x400	3x400
Fuse, A	10	20	20	20	20	20	20	25
Duty cycle 100%/40°C, A/V	175/22.8	300/100/32.0	280/100/28.0	300/100/29.0	280/100/28.0	290/21.6	350/24.0	350/24.0
Duty cycle 60%/40°C, A/V	195/23.8	370/60/32.5	350/60/31.5	370/60/32.5	350/60/31.5	350/60/24.0	350/60/24.0	350/60/24.0
Duty cycle max./40°C, A/%V	300/24/29.0	400/50/34.0	400/40/34.0	400/50/34.0	400/40/34.0	340	340	340
Duty cycle 100%/20°C, A/V	230/25.5	345/100/31.5	310/100/29.5	345/100/31.5	310/100/29.5	350	350	350
Duty cycle 60%/20°C, A/V	245/26.3					95	95	95
Open circuit voltage, V	52	65-70	65-70	65-70	65-70	IP23	IP23	IP23
Protection class	IP23S	IP23	IP23	IP23	IP23	IP23	IP23	IP23
Norm	EN/IEC60974-1. EN/IEC60974-5. EN/IEC60974-10	IEC60974-1. IEC60974-5. IEC60974-10 Cl. A	IEC60974-1. IEC60974-5. IEC60974-10 Cl. A	IEC60974-1. IEC60974-5. IEC60974-10 Cl. A	IEC60974-1. IEC60974-5. IEC60974-10 Cl. A	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/IEC60974-2. EN/IEC60974-3. EN/IEC60974-10
Dimensions (H x W x L), mm	550x250x640	700x260x735	700x260x735	700x260x735	700x260x735	980x545x1090	980x545x1090	980x545x1090
Weight, kg	26	52	52	52	52	72	72	72
COOLING UNIT				MCU 1300			MCU ^{*)}	
Cooling capacity (1 l/min.), W	-	-	-	1300	1300	1300	1200	1200
Tank capacity, l	-	-	-	5	5	5	3.5	3.5
Max. pressure, bar	-	-	-	5	5	5	3	3
Max. temperature, °C	-	-	-	70	70	70	-	-
Dimensions (HxWxL), mm	-	-	-	207x260x680	207x260x680	207x260x680	-	-
Weight, kg	-	-	-	20	20	20	-	-

*) Integrated cooling unit



—
... MAXIMUM
FLEXIBILITY
—

WELDS ALL
POSITIONS

SMALL AND
FLEXIBLE

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We reserve the right to make correction in
the event of a misprint.

MIGATRONIC
WELDING VALUE