

THE NEW MIG/MAG GENERATION **SYNERGIC.PRO²** 170-2 – 450-4

REHM – Setting the pace in cutting and welding today



SYNERGIC.PRO² I 70-2 – 450-4

Innovation in Action



> The industry is delighted!

Some 10 000 tonnes of steel floating above the A8 motorway. The new trade fair car park at Stuttgart airport is, from an engineering point of view, an absolute masterpiece, created using the new yardstick for modern MIG/MAG inert gas welding technology.

SYNERGIC.PRO² – Innovation in Action

SYNERGIC.PRO² I70-2 – 450-4

Power beyond belief and amazingly safe – Simple to use



> **Smart Machine Control:** You make your selection, the new SMC[®] does all the regulating

SMC[®] is a completely new type of intelligent and super-ordinated machine control concept.

> **Amazing POWER**

Phenomenal power on tap:
Where all others reach their limits, the SYNERGIC.PRO² is only getting started.

> **Best cost/benefit ratio** in all MIG/MAG classes

We have succeeded in forcing a new quantum leap in MIG/MAG technology.

The result: The SYNERGIC.PRO²

- Power beyond belief, high duty cycle and an extremely robust trolley
- With the revolutionary Smart Machine Control
- With the tried and tested SDI technology
- With an extended model range
- With more feed case options

YOU CAN CONCENTRATE ON WELDING –
SMC[®] TECHNOLOGY DOES THE REST!

SYNERGIC.PRO²
Don't settle for anything less!

THE NEW SMC[®] TECHNOLOGY FROM REHM



SMC[®] (Smart Machine Control)

is a completely new type of intelligent and super-ordinated machine control concept. SMC[®] brings excellent welding results and not only makes operation easy, it is also amazingly safe.

SDI (Stepless Dynamic Induction)

Stepless electronic welding choke with ultra-fast automatic regulator for excellent ignition properties and an extremely stable arc.

RSC[®] (Realtime Speed Control)

Extremely precise regulation and real time monitoring of the wire feed rate with digital signal feedback for consistent and accurate wire feeding.

CCM (Characteristic Curve Memory)

Integrated welding parameter database containing concentrated expert knowledge.

RMI (REHM Machine Interface)

Rapid and safe setting of the welding parameters, but at the same time, simple to operate.

SYNERGIC.PRO² 170-2 – 450-4

The quantum leap in MIG/MAG welding technology



REHM SMC[®] (Smart Machine Control)



Unique regulation concept developed by REHM in a stepped transformer system. The arc length is not controlled just by measuring the arc voltage and the welding current, but also by digital capture of the wire feed rate.

- During the entire ignition and arc process, the droplet transfer is constantly monitored and regulated digitally, normally only found on very expensive pulsed mig power sources.
- The setting of the correct welding parameters is simple and safe thanks to the integrated welding parameter database and the intuitive operating concept.
- The integrated microprocessor rapidly and very efficiently evens out changes and maintains a precise constant arc length.

REHM SDI (Stepless Dynamic Induction)



SDI increases efficiency: Because the application of heat can, compared to traditional stepped MIG/MAG units, be better controlled and the formation of spatters in mixed arcs is considerably reduced, there is much less post-welding work required

This means that the welding properties can be further optimised to meet the welding conditions, in positional welding, for example, for vertical-up welds, overhead welding or welding with a long stick-out in a place that is difficult to access.

The **REHM SDI technology with the stepless, electronic welding choke** provides the SYNERGIC.PRO² with excellent ignition properties and an extremely stable arc. The choke effect is optimised by the integrated processor controller.

This ensures that spatter formation is reduced to a minimum.

SYNERGIC.PRO² I70-2 – 450-4

SMC[®] – Smart Machine Control



REHM RSC[®]
(Realtime Speed Control)

RSC[®]

Arc length changes are smoothed more quickly and more efficiently due to RSC[®].

Alongside the measuring of the arc voltage, the feed rate is also recorded by an incremental encoder directly at the feed motor. RSC[®] enables changes of the arc length to be recognised and corrected early enough. RSC[®] is a guarantee for constant wire feed rates – **regardless of the temperature of the motor or poorly maintained torch wire feed liners.**

REHM CCM[®]
(Characteristic Curve Memory)

CCM

Automatic setting of welding parameters according to material thickness.

All corresponding welding parameters are selected automatically, using the optimum parameter specifications.

The comprehensive, integrated welding parameter database (CCM) is filled with the knowledge of experts with many years of practical experience. The combination of material, wire diameter and voltage level is used to pre-select the synergy parameters required for a successful welding process. During welding, the actual values are constantly compared to the process specifications and, if necessary, corrected instantly.

All parameters (over 900) required to ensure perfect welding are selected by CCM in accordance with the requirements of the machine being used.

REHM RMI[®]
(REHM Machine Interface)

RMI

Child's play – No mistakes – Guaranteed: RMI ensures rapid and safe setting of the correct welding parameters and, at the same time, simple handling – select the material, set the material thickness and then start welding.

SYNERGIC.PRO² 170-2 – 450-4

The handling: Simple to use and amazingly safe



REHM RMI
(REHM Machine Interface)

RMI

Rapid and yet safe setting of the correct welding parameters.

1. Digital display for welding voltage with Hold function.
2. Digital display for welding current with Hold function and material thickness display.
3. Operating modes: Material thickness display, 2-step, 4-step, spot, interval.
In order to simplify correct voltage settings, this can be specified using the material thickness. The remaining welding parameters are then automatically selected by the SYNERGIC.PRO² unit.
4. Setting of spot and interval time
5. Rotary knob for wire speed rate and arc length correction.

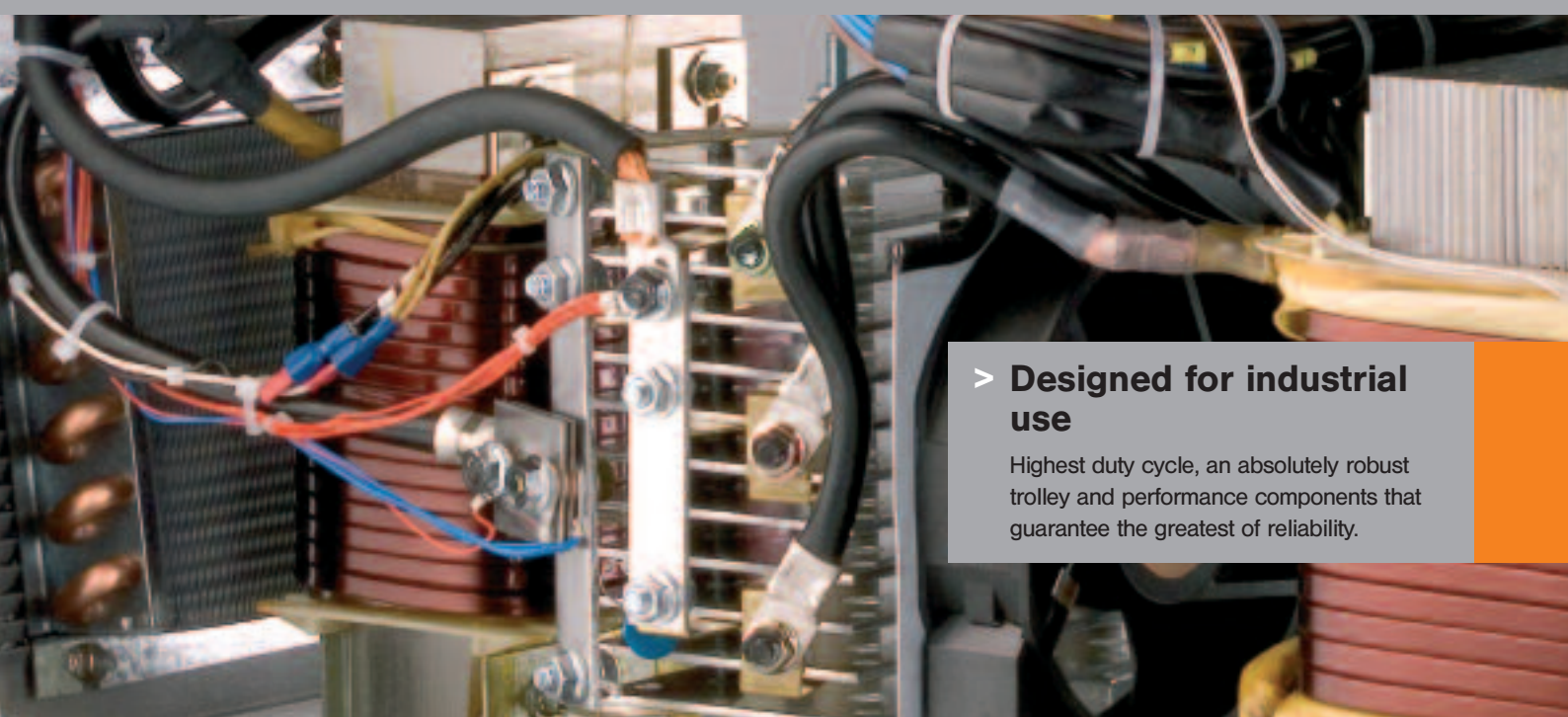
6. Synergy program selection: Material/wire diameter combination and manual operation.

The program selection switch is used to select the synergy characteristic curve for the present material/wire diameter combination.

7. Stepless arc strength regulation (SDI technology).
The additional, **stepless choke comparison by the SDI regulator** can be used to optimise the effect of the welding choke or the arc characteristic **and can be adjusted automatically or by hand as well**. This makes it possible to optimise the welding characteristics even more closely, to suit the welding conditions.
8. Coarse step switch
9. Fine step switch

SYNERGIC.PRO² I 70-2 – 450-4

Designed for industrial use



> Designed for industrial use

Highest duty cycle, an absolutely robust trolley and performance components that guarantee the greatest of reliability.

■ Perfect reliability

We can be absolutely sure of the reliability and quality. All parts of the SYNERGIC.PRO² range, right down to the smallest of screws, have been tested for tough conditions in a comprehensive, mature testing process. We can therefore offer a works guarantee of 3 years with no hesitation.

■ Exceptional wire feed accuracy and consistency

A powerful, electronically regulated, precise wire drive provides full power, even with 5 m hose packages.

■ Easy to manoeuvre

The robust trolley with the large, easy-running wheels means that the units can easily be manoeuvred and transported both in the workshop and on the building site. They are also suitable (as of 250-4) for crane and forklift transportation.

■ Safe ignition

The REHM automatic creep function controls the wire feed rate until the ignition of the arc. At the same time, the ignition process is considerably improved by the optimised setting of the electronically regulated choke. The creep speed can also be adjusted by hand if required.

■ Easy to use wire feed housing

The wire feed housing is seated directly on the power source. However, it can still be rotated easily through 360°. Obviously, the wire feed housing can be removed with a single hand movement and without the need for tools and can also be fitted on a trolley (optional).

■ Stable arc

The permanent monitoring of input voltage and the voltage fluctuation compensation ensures an even, stable arc and thus optimal welding results.

■ No burning

The digitally regulated wire feed controller guarantees a constant wire stick out and thus automatically ensures the correct wire free burning time. This eliminates sticking and burning to the piece you are working on or to the contact tip. The wire free burning time can be adjusted manually if required.

■ Gas post flow

The gas post flow time defined by the program can be modified manually if required.

■ Low noise emission

The optimum housing construction and the standby switches for the fans and water pumps ensure that even when in constant use the units remain quiet and pleasant, and conserve power when possible.

SYNERGIC.PRO² 170-2 – 450-4

Universal application



Whether you want to

- Weld steel, stainless steel or aluminium,
- Process thick or thin materials,
- MIG solder galvanised or aluminium sheets,

the precise working of the high-quality performance components in our units leads to convincing welding characteristics and, at the same time, high melting performance.

HIGH-PERFORMANCE WATER COOLING

The SYNERGIC.PRO² 350-4W + WS and 450-4W + WS are fitted with a particularly powerful water cooling system with integral heat exchanger.

OPTIONAL WIRE FEED UNITS IN “CONSTRUCTION” OR “SHIPYARD” VERSIONS

The SYNERGIC.PRO² 300-4S, 350-4S, 350-4WS, 450-4S and 450-4WS are also available with optional “CONSTRUCTION” and “SHIPYARD” wire feed unit.

230 V / 400 V

The SYNERGIC.PRO² 190-2 allows switching from 230 V to 400 V and thus enables the extension of application to workshop and building site.

SYNERGIC.PRO² 230-2AM + SYNERGIC.PRO² 230-4 QUATTRO-MIG

The new special models for thin sheet applications



> SYNERGIC.PRO² 230-4 QUATTRO-MIG

The all-rounder with aluminium characteristic curves included

> SYNERGIC.PRO² 230-2 AM

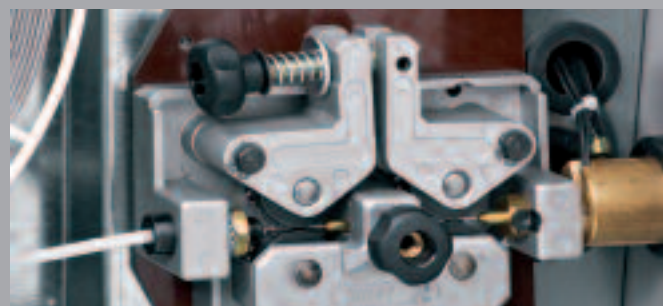
MIG brazing of galvanised and aluminium sheet steel

SYNERGIC.PRO² 230-4 QUATTRO MIG AND 230-2 AM – WELDING WITH SENSATIONAL 15 A LOW CURRENT

The SYNERGIC.PRO² 230-4 Quattro-MIG and 230-2 AM are particularly suitable for use in thin sheet steel applications due to a sensational 15 A low welding current. The special synergy programs for MIG/MAG welding and MIG brazing of galvanised and aluminium sheet steel make it the perfect unit for use in automobile workshops.

SYNERGIC.PRO² 230-4 QUATTRO-MIG – ALLROUNDER WITH ALUMINIUM CHARACTERISTIC CURVES INCLUDED

The 230-4 Quattro-MIG with its powerful 4-roller drive and the additional synergy characteristic curves for the welding of aluminium materials is a real all-round talent. Anyone who needs to weld with thin wire should not be denied this 4-roller drive. This enables you to carry out fine welding work on thin sheet with even more process accuracy.



SYNERGIC.PRO² 250-4 – 450-4 WS

Comprehensive program range from 170 – 450 A gas-cooled and 350 – 450 A water-cooled with no gaps



- **SYNERGIC.PRO² 170-2 – 280-2**
compact, gas-cooled units with 2-roller drives
- **SYNERGIC.PRO² 230-4, 280-4 und 310-4**
compact, gas-cooled units with 4-roller drives
- **SYNERGIC.PRO² 250-4 – 450-4**
compact, gas-cooled industrial units with 4-roller drives
- **SYNERGIC.PRO² 300-4 S – 450-4 S**
gas-cooled industrial units with separate wire feed housing and 4-roller drives
- **SYNERGIC.PRO² 350-4 W – 450-4 W**
compact, water-cooled industrial units with 4-roller drives
- **SYNERGIC.PRO² 350-4 WS – 450-4 WS**
water-cooled industrial units with separate wire feed housing and 4-roller drive

TECHNICAL DATA FOR SYNERGIC.PRO² 170-2 – 310-4

Type		170-2	190-2		230-2 AM	230-4 QUATTRO MIG	280-2	280-4	310-4
Setting range	[A]	30-170	30-140	50-190	15-230	15-230	35-280	35-280	35-300
Duty cycle I _{max} 40 °C	[%]	30	50	30	40	40	40	40	40
Welding current*	[A]	80	100	105	150	150	180	180	210
Open circuit voltage	[V]	22-37	22-33	23-40	15-37	15-37	17-37	17-37	17-41
Switching levels		6	6		10	10	10	10	12
Wire feed		2 rollers	2 rollers		2 rollers	4 rollers	2 rollers	4 rollers	4 rollers
Power supply	[V]	1x230	1x230	2x400	3x400	3x400	3x400	3x400	3x400
Fuse (time lag)	[A]	20	20	16	16	16	16	16	16
Torch cooling type		Gas	Gas		Gas	Gas	Gas	Gas	Gas
Protection grade		IP 21	IP 21		IP 21	IP 21	IP 21	IP 21	IP 21
Weight	[kg]	54	60		68	68	72	72	78
Dimensions LxWxH	[mm]	800 x 330 x 620							
Part number		103 1705	103 1905		103 2302	103 2304	103 2802	103 2804	103 3105
Premium set recommendation		MM 15/25	MM 15/25		MM 15/25	MM 15/25	MM 25/35	MM 25/35	MM 25/35
Part number		118 4200	118 4200		118 4200	118 4200	118 4202	118 4202	118 4202

We reserve the right to make technical changes. All units carry the CE and S mark and meet the EN 60974-1 standard.

* at 100 % of power on time 40 °C

SYNERGIC.PRO² 250-4 – 450-4 WS

Absolutely reliable even under the toughest conditions



OUR ACCESSORY OPTIONS

Our range of accessories leaves no wishes unfulfilled.

- Air filter adapter
- Tool set
- Hose package holder
- Crane eyes
- Trolley for wire feed housing
- Push-Pull torch
- Feed housing for Construction and Shipyard
- and much more

OUR PREMIUM PACKAGE

Complete accessory packages can also be purchased as optional premium sets. These particularly high-quality accessory sets are all compatible with branded products, such as

- Abicor-Binzel torches with 4 m hose packages,
- 200 bar Argon/CO₂ pressure reducers (32 l/min),
- 4 m Earth Return Cable with high quality clamp.

The very cost-effective set price can only be offered in conjunction with the purchase of the appropriate welding units.

TECHNICAL DATA FOR SYNERGIC.PRO² 250-4 – 450-4 WS

Type		250-4	300-4 300-4 S	350-4 350-4 S	350-4 W 350-4 WS	450-4 450-4 S	450-4 W 450-4 WS
Setting range	[A]	35-250	40-300	40-350	40-350	45-450	45-450
Duty cycle I _{max} 40 °C	[%]	50	50	50	50	50	50
Welding current*	[A]	180	210	260	260	320	320
Open circuit voltage	[V]	18-37	17-42	18-43	18-43	18-51	18-51
Switching levels		10	12	20	20	30	30
Wire feed		4 rollers	4 rollers	4 rollers	4 rollers	4 rollers	4 rollers
Power supply	[V]	3x400	3x400	3x400	3x400	3x400	3x400
Fuse (time-lag)	[A]	16	16	32	32	32	32
Torch cooling type		Gas	Gas	Gas	Water	Gas	Water
Protection grade		IP 23	IP 23	IP 23	IP 23	IP 23	IP 23
Weight (with case)	[kg]	100	110 (134)	123 (147)	127 (151)	136 (160)	140(164)
Dimensions LxWxH (with case)	[mm]			1040 x 560 x 850 (1040 x 560 x 1400)			
Part number, compact with wire feed housing		112 2505	112 3005 112 3006	112 3600 112 3601	112 3610 112 3611	112 4600 112 4601	112 4610 112 4611
Premium set recommendation		MM 25/35	MM 25/35	MM 26/50	MM 401/50	MM 36/70	MM 401/70
Part number		118 4202	118 4202	118 4204	118 4208	118 4206	118 4210

S = with separate wire feed housing, W = water-cooled

We reserve the right to make technical changes. Additional equipment for the machines is available at an additional cost. All units carry the CE and S mark and meet the EN 60974-1 standard.

* at 100 % of power on time 40 °C

REHM welding technology – about us!

THE REHM PERFORMANCE PROGRAM

- **REHM MIG/MAG inert gas welding units**
 - SYNERGIC.PRO² gas-cooled to 450 A
 - SYNERGIC.PRO² water-cooled to 450 A
 - MEGA.ARC stepless regulation to 450 A
 - RP REHM Professional to 560 A
 - MEGAPULS pulse welding units to 500 A
- **REHM TIG inert gas welding units**
 - TIGER, portable 100 KHz inverter
 - TRANSTIG/INVERTIG water-cooled TIG units (on wheels)
- **REHM inverter technology**
 - TIGER and BOOSTER 100 KHz electrode inverter
- **REHM plasma cutting units**
- **Welding accessories and additional materials**
- **Welding smoke extraction fans**
- **Welding rotary table**
- **Technical welding consultation**
- **Torch repair**
- **Service**

Development, construction and production – all under one roof – in our factory in Uchingen. Thanks to this central organisation and our forward-thinking policies, new discoveries can rapidly be incorporated into our production. The wishes and requirements of our customers form the basis of our innovative product development. A multitude of patents and awards represent the precision and quality of our products. Customer proximity and competence are the principles which take highest priority in our consultation, training and service. Our products represent the very best of German technology and engineering.

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