MIG-MAG welding equipment

Quality made in Europe
SYN-MIG 200i – Portable MIG/MAG inverter 230 V - small, light and handy - for workshops and especially for use on the construction site

- Portable, continuously variable control MIG/MAG inverter with 230 V mains voltage
- A great choice for welding flux core wire without shield gas - the polarity change required for this is easily achieved

State-of-the-art microprocessor-controlled inverter power sources with two operation modes:

1. MIG/MAG - manual:
   - Conventional setting of the operating point via 2-button control
   - Setting for voltage and wire speed required

2. MIG/MAG - Synergie:
   - The system gives you the perfect setting for any operating point automatically and with continuously variable control based on characteristic curves
   - There is no easier way: settings via the sheet thickness and single button control
   - Incorrect setting are virtually rule out: very easy and virtually self-explanatory user guidance via LCD display
   - Control over heat input and the weld shape by changing the arc length
   - Visualisation of weld shape or a dimension changes
   - Benefits in Synergie mode: easy to leverage the versatile operating mode options: 2-cycle, 4-cycle, spot (and interval) welding

Process
- MAG
- MIG

Sheet thicknesses
- From 0.8 mm in steel and stainless steel (MAG)
- From 2 mm in aluminium (MIG)

Base materials
- Construction steels
- Non-alloy and low-alloy materials
- CrNi steels ferritic/austenitic
- Aluminium alloy

Typical applications
- Metalworking/mechanical engineering
- Agriculture/vehicle workshops
- Body repairs/maintenance

Synergie characteristic curves for:

<table>
<thead>
<tr>
<th>Material/Process</th>
<th>Sheet thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>0.6 + 0.8 + 1.0 mm</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>0.6 + 1.0 mm</td>
</tr>
<tr>
<td>Aluminium (AlMg5 + AlSi)</td>
<td>0.8 + 1.0 mm</td>
</tr>
<tr>
<td>MIG soldering (CuSi 3 + CuAl8)</td>
<td>0.8 + 1.0 mm</td>
</tr>
<tr>
<td>Flux (flux core wires without shield gas)</td>
<td>0.8 + 0.9 mm</td>
</tr>
</tbody>
</table>

Control elements

- LCD display
- Multifunctional display with easy settings

Welding performance adjustment (synergetic operation) or wire feed speed (manual operation). Pressing the button selects the operating mode, SYNERGETIC or MANUAL

Arc length adjustment (synergetic operation) or welding voltage (manual operation). Pressing the button calls up the various menus for setting up the welding system.
Model | SYN-MIG 200i  
--- | ---  
Art. no. | 1089200  
--- | ---  
**Technical specifications**  
| Setting range MIG/MAG | 20 - 200 A  
| 2-roll wire feed | 2 - 20 m/min  
| Mains voltage + 10% | 230 V  
| Frequency | 50/60 Hz  
| Fuse | 16 A  
| Open circuit voltage | 60 V  
| Power consumption MIG/MAG | 7.1 kVA  
| MIG/MAG duty cycle at I = 200 A and 40 °C | 15 %  
| MIG/MAG welding current at DC = 60% and 40 °C | 100 A  
| MIG/MAG welding current at DC = 100% and 40 °C | 80 A  
| Required generator output | 9 kVA  
| Degree of efficiency | 0.86  
| Cos phi power factor | 0.7  
| Degree of protection | IP 23 S  
| Operating temperature | max. 40 °C  
| Dimensions (L x W x H) | 460 x 240 x 360 mm  
| Weight | 13.3 kg  
| Standards: | EN 60974-1;-3;-10 / S mark / EMC - class A  

--- | ---  
| Scope of supply SYN-MIG 200i |  
- Torch MT 15, 3 m  
- Earth cable 3 m  
- Basket spool adapter  
- Gas hose 2 m  
- Pressure regulator small  
- With content and operation manometer  
--- | ---  
| **Torch**  
Designation | Art. no.  
Torch SMB 15/3 m | 1091503  
Torch SMB 25/3 m | 1092503  
--- | ---  
| **Accessories**  
Designation | Art. no.  
Trolley (self-assembly kit) | 1090015  
--- | ---  
| **Wear part set**  
Designation | Art. no.  
Wear part set SMB 15 | 1091500  
consisting of: 1 x gas tip holder, 3 x retaining spring, 3 x each contact tip 0.6/0.8 mm, 3 x gas tip conical, 1 x gas tip cylindrical size 12, large sorting box  
Wear part set SMB 25 | 1092500  
consisting of: 3 x retaining spring, 2 x tip assembly, 5 x each contact tip 0.6/0.8 mm 2 x gas tip conical, 1 x gas tip cylindrical size 12, large sorting box  
--- | ---  
| **Filler wires (D 200)**  
Designation | Weight | Art. no.  
Filler wire SG2 0.6 mm | 5 kg | 1110206  
Filler wire SG2 0.8 mm | 5 kg | 1110208  
Filler wire SG2 1.0 mm | 5 kg | 1110210  
Filler wire 1.4316 0.8 mm | 5 kg | 1130238  
Filler wire 1.4316 1.0 mm | 5 kg | 1130231  
Filler wire A5Mg6,5 mn 1.0 mm | 2 kg | 1126210  
Filler wire CuSi 3 0.8 mm | 5 kg | 1131620  
Filler wire CuSi 3 1.0 mm | 5 kg | 1131619  
Filler wire CuAl8 0.8 mm | 5 kg | 1131630  
Filler wire CuAl8 1.0 mm | 5 kg | 1131629  
Filler wire MT-FD 0.9 mm 4.5 kg/D200 | 5.4 kg | 1132000  
--- | ---  
| **Wire feeder rolls**  
Designation | Art. no.  
Wire feed roll 0.6/0.8 mm V groove for steel and stainless steel | 1019010  
Wire feed roll 0.6/0.9 mm V groove for steel and stainless steel | 1019011  
Wire feed roll 1.0 mm U groove for aluminium | 1019012  
Wire feed roll 0.9/1.2 mm K groove for flux core wire | 1019013  
--- | ---
SCHWEIßKRAFT EASY-MAG – the level entry class for MIG/MAG shield gas welding equipment

- Low-budget shield gas welding equipment for car repairs, hobbyists and semi-professionals
- For steel and stainless steel welding
- Easy to use and set up
- The soft and stable arc guarantees low-spatter welding results
- Continuously variable wire feed
- Robust chassis with steering rollers for easy transport (chassis for self-assembly)
- Practical gas cylinder holder
- S mark: approved for welding in cramped welding conditions with an increased risk of electrical hazard

EASY-MAG 171, 193 and 213-1
- With 2-reel wire feed

EASY-MAG 213/1
- Suitable for 230 V and 400 V operations

EASY-MAG 253, 4 and 303-4
- With 4-reel wire feed
- With current and voltage display

**Process**
- MIG/MAG

**Sheet thicknesses**
- 1.0 - 10 mm (MAG)
- 1.0 - 8 mm (MIG)

**Base materials**
- Construction steels
- CrNi steels ferritic/austenitic
- Duplex steels

**Typical applications**
- Body repairs/maintenance
- Agriculture
- Tack welding

**Sheet thicknesses**
- 1.0 - 10 mm (MAG)
- 1.0 - 8 mm (MIG)

**Base materials**
- Construction steels
- CrNi steels ferritic/austenitic
- Duplex steels

**Typical applications**
- Body repairs/maintenance
- Agriculture
- Tack welding

**Quality made in Europe**

**The control system:**

1. Volt/Ampere switch
2. Digital display

**Operational modes**
3. 2-cycle, 4-cycle, spot, gas test

4. Control light
5. Temperature
6. Operation control lamp
7. Arc length and voltage display
8. Wire speed control
9. On/off switch
10. Welding stages
11. Torch connection
12. Welding current socket
**Technical specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>EASY-MAG 171</th>
<th>EASY-MAG 193</th>
<th>EASY-MAG 213/1</th>
<th>EASY-MAG 253-4</th>
<th>EASY-MAG 303-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. no.</td>
<td>1081171</td>
<td>1081193</td>
<td>1081213</td>
<td>1081253</td>
<td>1081303</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>EASY-MAG 171</th>
<th>EASY-MAG 193</th>
<th>EASY-MAG 213/1</th>
<th>EASY-MAG 253-4</th>
<th>EASY-MAG 303-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire Ø</td>
<td>0.6 – 0.8 mm</td>
<td>0.6 – 1.0 mm</td>
<td>0.8 – 1.0 mm</td>
<td>0.8 – 1.2 mm</td>
<td></td>
</tr>
<tr>
<td>Number of wire feed rolls</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wire feed speed m/min</td>
<td>1 – 14</td>
<td>3 x 400</td>
<td>230/400</td>
<td>3 x 400</td>
<td>30 – 300</td>
</tr>
<tr>
<td>Power connector V</td>
<td>4</td>
<td>30 – 190</td>
<td>30 – 140 / 140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wire at I&lt;sub&gt;max&lt;/sub&gt; and 40 °C</td>
<td>%</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Welding current at DC 100% at 40 °C</td>
<td>A</td>
<td>60</td>
<td>90</td>
<td>65</td>
<td>140</td>
</tr>
<tr>
<td>Switching stages</td>
<td>6</td>
<td>7</td>
<td>9</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Power factor cos phi</td>
<td>0.8</td>
<td>0.75</td>
<td>0.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective power consumption kVA</td>
<td>2.5</td>
<td>2</td>
<td>2.6</td>
<td>5.3</td>
<td>6.6</td>
</tr>
<tr>
<td>Required generator output kW</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Open circuit voltage V</td>
<td>18 – 43</td>
<td>18 – 33</td>
<td>24 – 51</td>
<td>16 – 32</td>
<td>16 – 35</td>
</tr>
<tr>
<td>Fuse A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling type</td>
<td>AF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Torch cooling</td>
<td>Gas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP 21I</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulation class</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Torch recommendation</td>
<td>SMB 15/3 m</td>
<td>SMB 25/4 m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight kg</td>
<td>36</td>
<td>39</td>
<td>41</td>
<td>69</td>
<td>90</td>
</tr>
<tr>
<td>Dimensions (L x W x H)</td>
<td>810 x 406 x 685</td>
<td>823 x 510 x 735</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standards</td>
<td>EN 60 974-1,-3,-10 / S mark / EMC - class A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Wire feeder roll for EASY-MAG 171**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Art. no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.6/0.8 mm V groove</td>
<td>1015908</td>
</tr>
<tr>
<td>Counterpressure roll smooth</td>
<td>1015910</td>
</tr>
</tbody>
</table>

**Wire feeder roll for EASY-MAG 193/213/253-4/303-4**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Art. no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.6/0.8 mm V groove</td>
<td>1016008</td>
</tr>
<tr>
<td>0.8/1.0 mm V groove</td>
<td>1016010</td>
</tr>
<tr>
<td>1.0/1.2 mm V groove</td>
<td>1016012</td>
</tr>
<tr>
<td>0.8/1.0 mm U groove</td>
<td>1016110</td>
</tr>
<tr>
<td>1.0/1.2 mm U groove</td>
<td>1016112</td>
</tr>
<tr>
<td>Counterpressure roll smooth</td>
<td>1016202</td>
</tr>
</tbody>
</table>

**Accessories - torch kits**

- Consisting of: Torch 4 m, earth cable, 315 bar Argon/CO<sub>2</sub> pressure regulator

<table>
<thead>
<tr>
<th>Designation</th>
<th>Art. no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>for EASY-MAG 171/193/213</td>
<td></td>
</tr>
<tr>
<td>Torch kit 15/25 SMB 15/4 m</td>
<td>1091510</td>
</tr>
<tr>
<td>Gas-cooled, earth cable 25 mm² 4 m, pressure regulator</td>
<td></td>
</tr>
<tr>
<td>for EASY-MAG 253-4/303-4</td>
<td></td>
</tr>
<tr>
<td>Torch kit 25/35 SMB 25/4 m</td>
<td>1092510</td>
</tr>
<tr>
<td>Gas-cooled, earth cable 35 mm 24 m, pressure regulator</td>
<td></td>
</tr>
</tbody>
</table>

*Prices for torch kits only apply in combination with purchasing a welding device*

**Wear part set for torch**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Art. no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wear part set SMB 15</td>
<td>1091500</td>
</tr>
<tr>
<td>consisting of: 1 x gas tip holder, 3 x retaining spring, 3 x each contact tip 0.6/0.8 mm</td>
<td></td>
</tr>
<tr>
<td>3 x gas tip conical, 1 x gas tip cylindrical size 12, large sorting box</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Designation</th>
<th>Art. no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wear part set SMB 25</td>
<td>1092500</td>
</tr>
<tr>
<td>consisting of: 3 x retaining spring, 2 x tip assembly, 5 x each contact tip 0.6/0.8 mm</td>
<td></td>
</tr>
<tr>
<td>2 x gas tip conical, 1 x gas tip cylindrical size 12, large sorting box</td>
<td></td>
</tr>
</tbody>
</table>

**Basket spool adapter**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Art. no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basket spool adapter KA 1, single-part, pluggable</td>
<td>1110001</td>
</tr>
<tr>
<td>Basket spool adapter KA 2, with quick release coupling</td>
<td>1110005</td>
</tr>
</tbody>
</table>

SYN-MIG 211i MULTI – mobile MAG inverter 230 V continuously variable control

- The SYN-MIG is an ideal combination of state-of-the-art inverter technology with simple and conventional operation
- Using only 2 buttons (potentiometers) the operation point is continuously set via the voltage and wire speed
- Reliable ignition and a stable arc then ensure best possible welding results
- Also suitable for welding with filler wire electrodes

SYN-MIG 201i MULTI & SYN-MIG 211i MULTI
- Infinitely variable control Multi-MIG/MAG system for perfect results
- Electrode and TIG machine
- Easy to set up no matter what method you use
- Infinitely variable control Multi-MIG/MAG system for perfect results
- Electrode and TIG machine
- Easy to set up no matter what method you use

Process
- MAG
- MIG

Sheet thicknesses
- From 0.8 mm in steel and stainless steel (MAG)
- From 2 mm in aluminium (MIG)

Base materials
- Construction steels
- Non alloy and low alloy materials
- CrNi steels ferritic/austenitic
- Aluminium alloy

Typical applications
- Metalworking, mechanical engineering
- Agriculture, vehicle workshops
- Maintenance/repairs

Weldable materials

<table>
<thead>
<tr>
<th>Wire Ø</th>
<th>SYN-MIG 161i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>0.6 mm</td>
</tr>
<tr>
<td>stainless steel</td>
<td>0.8 mm – 3 mm</td>
</tr>
<tr>
<td>Filler wire</td>
<td>0.9 mm – 2.0 mm</td>
</tr>
<tr>
<td></td>
<td>1.0 mm – 4 mm</td>
</tr>
<tr>
<td></td>
<td>2.0 mm – 4 mm</td>
</tr>
</tbody>
</table>

The control system:

1. LED overheating indicator
2. Wire speed control
3. LED display: "On" - "Off"
4. Voltage controller
5. Welding current socket
6. Torch connection
7. On/off switch
8. Operational modes:
   1. 2-cycle, 4-cycle, spot, gas test
   2. Wire speed control
   3. Voltage controller
   4. LED display "on" - "off"
   5. LED overheating indicator
   6. Torch connection
7. Rotary control for "Arc Force" setting
8. On/off switch
9. Torch connection
10. Welding current socket
### Technical specifications

<table>
<thead>
<tr>
<th></th>
<th>SYN-MIG 161i</th>
<th>SYN-MIG 201i MULTI</th>
<th>SYN-MIG 211i MULTI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. no.</td>
<td>1089017</td>
<td>1089020</td>
<td>1089021</td>
</tr>
<tr>
<td><strong>Model</strong></td>
<td>SYN-MIG 161i</td>
<td>SYN-MIG 201i MULTI</td>
<td>SYN-MIG 211i MULTI</td>
</tr>
<tr>
<td><strong>Technical specifications</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuously variable setting range</td>
<td>25 – 160 A</td>
<td>20 – 200 A</td>
<td>20 – 200 A</td>
</tr>
<tr>
<td>Duty cycle at ( I_{\text{max}} ) and 40 °C:</td>
<td>20%</td>
<td>35%</td>
<td>35%</td>
</tr>
<tr>
<td>Welding current at DC = 100% and 40 °C:</td>
<td>80 A</td>
<td>110 A</td>
<td>110 A</td>
</tr>
<tr>
<td>Wire Ø steel/special steel</td>
<td>0.6 - 0.8 mm</td>
<td>0.6 - 0.8 mm</td>
<td>0.6 - 0.8 mm</td>
</tr>
<tr>
<td>Wire Ø aluminium</td>
<td>–</td>
<td>1.0 mm</td>
<td>1.0 mm</td>
</tr>
<tr>
<td>Gasless filler wire</td>
<td>0.9 mm</td>
<td>0.9 mm</td>
<td>0.9 mm</td>
</tr>
<tr>
<td>Wire feed speed</td>
<td>1.0 - 14 m/min</td>
<td>1.0 - 14 m/min</td>
<td>1.0 - 14 m/min</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>1 x 230 V</td>
<td>1 x 230 V</td>
<td>1 x 230 V</td>
</tr>
<tr>
<td>Cos phi power factor</td>
<td>0.73</td>
<td>0.96</td>
<td>0.96</td>
</tr>
<tr>
<td>Required generator output</td>
<td>10 KW</td>
<td>12 KW</td>
<td>12 KW</td>
</tr>
<tr>
<td>Open circuit voltage</td>
<td>17 - 28 V</td>
<td>33 V</td>
<td>33 V</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP 21</td>
<td>IP 21</td>
<td>IP 21</td>
</tr>
<tr>
<td>Dimensions L x W x H</td>
<td>525 x 260 x 340 mm</td>
<td>525 x 260 x 340 mm</td>
<td>795 x 540 x 700 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>14.5 kg</td>
<td>16 kg</td>
<td>25 kg</td>
</tr>
</tbody>
</table>

### Accessory Kits

#### Accessories - torch kits

**Designation**

*Prices for torch kits only apply in combination with purchasing a welding device*

**Art. no.**

1091510

**Torch kit 15/25 SMB 15/4 m gas-cooled, earth cable 25 mm² 4 m, pressure reg.**

#### Wear part set for torch

**Designation**

**Art. no.**

1091500

**Wear part set SMB 15**

**Designation**

**Art. no.**

1090015

**Universal carriage**

**Accessories - wire feed rolls**

**Designation**

**Art. no.**

1016010

**V groove for steel and stainless steel**

0.8 + 1.0 mm

1.0 + 1.2 mm

1.2 + 1.6 mm

1016012

1016016

10160110

1016112

1016116

**U groove for aluminium**

0.8 + 1.0 mm

1.0 + 1.2 mm

1.2 + 1.6 mm

**K groove for filler wire (FCW)**

1.0 + 1.2 mm

1016210

1016202

**Counterpressure roll smooth**

**Accessories - wire feeder roll for SYN-MIG 201i MULTI**

**Designation**

**Art. no.**

1033605

1033606

**Feed roll solid wire 0.8/1.0 mm**

**Feed roll solid wire 1.0/1.2 mm**
SYN-MIG series – portable MIG/MAG inverter continuously variable control. Universally deployable workshop machine for steel, stainless steel and aluminium

- Using 2 potentiometers, the operation point is continuously set via the voltage and wire speed, and the welding current can be adjusted with one-ampere precision during welding.
- State-of-the-art and proven inverter technology
- The systems have the following properties or equipment as standard:
  - 2-cycle/4-cycle, spot and interval welding
  - Gas test function
  - Operation indicator
  - Overload indicator
  - Temperature controlled fan

Totally easy setting thanks to Synergie function:
3 steps for welding:
- 1st step: Gas, material, diameter
- 2nd step: 2/4 cycle, spot, interval
- 3rd step: Adjust material thickness

Granular setting thanks to continuous control. Your benefits: Perfect results, fast

<table>
<thead>
<tr>
<th>Process</th>
<th>MAG</th>
<th>MIG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheet thickness</td>
<td>From 0.8 mm in steel and stainless steel (MAG)</td>
<td>From 2 mm in aluminium (MIG)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Base materials</th>
<th>Construction steels</th>
<th>Non alloy and low alloy materials</th>
<th>CrNi steels ferritic/austenitic</th>
<th>Aluminium alloy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical applications</td>
<td>Metalworking, mechanical engineering</td>
<td>Agriculture, vehicle workshops</td>
<td>Maintenance/repairs</td>
<td></td>
</tr>
</tbody>
</table>

Weldable materials

<table>
<thead>
<tr>
<th></th>
<th>SYN-MIG 253i</th>
<th>SYN-MIG 303i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>0.8 mm – 8 mm</td>
<td>0.8 mm – 10 mm</td>
</tr>
<tr>
<td>stainless steel</td>
<td>1.5 mm – 6 mm</td>
<td>1.5 mm – 8 mm</td>
</tr>
<tr>
<td>Aluminium</td>
<td>2 mm – 5 mm</td>
<td>2 mm – 7 mm</td>
</tr>
</tbody>
</table>

The control system:

1. Operation indicator, overload indicator, “Auto” display
2. Selection switch “Automatic” or Manual
3. Wire threading
4. Digital display for welding voltage
5. Digital display for welding current
6. Selection switch “2- or 4-cycle”, “Spot welding” or “Interval welding”
7. Selection switch “Wire thickness”
8. Selection switch “Material”
9. Selection switch “Gas”
10. Multifunctional head
11. Arc length setting
12. Stage switch
13. On/off switch
14. Torch connection
15. Welding current socket
<table>
<thead>
<tr>
<th>Model</th>
<th>SYN-MIG 253i SC</th>
<th>SYN-MIG 303i SC</th>
<th>SYN-MIG 403i SC</th>
<th>SYN-MIG 403i SC-W</th>
<th>SYN-MIG 403i SC-WS</th>
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<tr>
<td>Art. no.</td>
<td>1089026</td>
<td>1089033</td>
<td>1089040</td>
<td>1089041</td>
<td>1089042</td>
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### Technical specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>SYN-MIG 253i SC</th>
<th>SYN-MIG 303i SC</th>
<th>SYN-MIG 403i SC</th>
<th>SYN-MIG 403i SC-W</th>
<th>SYN-MIG 403i SC-WS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuously variable setting range</td>
<td>25 – 250 A</td>
<td>30 – 300 A</td>
<td>30 – 400 A</td>
<td>30 – 400 A</td>
<td>30 – 400 A</td>
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<tr>
<td>Duty cycle at Imax and 40 °C</td>
<td>60%</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
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<tr>
<td>Welding current at DC = 100% and 40 °C</td>
<td>190 A</td>
<td>200 A</td>
<td>250 A</td>
<td>250 A</td>
<td>250 A</td>
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<tr>
<td>Wire Ø steel/special steel</td>
<td>0.8 - 1.0 mm</td>
<td>0.8 - 1.2 mm</td>
<td>0.8 - 1.2 mm</td>
<td>0.8 - 1.2 mm</td>
<td>0.8 - 1.2 mm</td>
</tr>
<tr>
<td>Wire Ø aluminium</td>
<td>1.0 - 1.2 mm</td>
<td>1.0 - 1.2 mm</td>
<td>1.0 - 1.2 mm</td>
<td>1.0 - 1.2 mm</td>
<td>1.0 - 1.2 mm</td>
</tr>
<tr>
<td>Wire feed speed</td>
<td>1.0 - 22 m/min</td>
<td>1.0 - 22 m/min</td>
<td>1.0 - 22 m/min</td>
<td>1.0 - 22 m/min</td>
<td>1.0 - 22 m/min</td>
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<tr>
<td>Supply voltage</td>
<td>3 x 400 V</td>
<td>3 x 400 V</td>
<td>3 x 400 V</td>
<td>3 x 400 V</td>
<td>3 x 400 V</td>
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<tr>
<td>Fuses slow-blow</td>
<td>16 A</td>
<td>16 A</td>
<td>25 A</td>
<td>25 A</td>
<td>25 A</td>
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<tr>
<td>Cos phi power factor</td>
<td>0.93</td>
<td>0.93</td>
<td>0.93</td>
<td>0.93</td>
<td>0.93</td>
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<td>Required generator output</td>
<td>14 kW</td>
<td>18 kW</td>
<td>25 kW</td>
<td>25 kW</td>
<td>25 kW</td>
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<td>Open circuit voltage</td>
<td>55 V</td>
<td>55 V</td>
<td>63 V</td>
<td>63 V</td>
<td>63 V</td>
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<tr>
<td>Degree of protection</td>
<td>IP 21</td>
<td>IP 21</td>
<td>IP 21</td>
<td>IP 21</td>
<td>IP 21</td>
</tr>
<tr>
<td>Dimensions L x W x H</td>
<td>795 x 540 x 700 mm</td>
<td>795 x 540 x 700 mm</td>
<td>795 x 510 x 720 mm</td>
<td>860 x 550 x 815 mm</td>
<td>935 x 550 x 1 290 mm</td>
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<tr>
<td>Weight</td>
<td>29.5 kg</td>
<td>31 kg</td>
<td>33 kg</td>
<td>45 kg</td>
<td>68 kg</td>
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</table>

### Standards
EN 60 974-1;-3;-10 / S mark / EMC - class A

---

**Scope of supply:**

**SYN-MIG:**

*Without intermediate hose pack, torch, earth cable and pressure regulator in all cases*

---

### Accessories - torch kits

**Accessories**

Consisting of: torch 4 m, earth cable, 315 bar Argon/CO2 pressure regulator

For **SYN-MIG 253i**

**Torch kit 25/35 SMB 25/4 m gas-cooled, earth cable 35 mm² 24 m, pressure reg.**

Art. no. 1092510

**For SYN-MIG 303i / SYN-MIG 403i SC**

**Torch kit 36/50 SMB 36/4 m gas-cooled, earth cable 50 mm², pressure reg.**

Art. no. 1093611

**For SYN-MIG 403i / SYN-MIG 403i SC-WS**

**Torch kit 400/50 SMB 400/4 m liquid-cooled, earth cable 50 mm² 4 m, pressure reg. Universal torch holder**

Art. no. 1094010

---

### Wear part set for torch

**Designation**

**Wear part set SMB 25**

Consisting of: 3 x retaining spring, 2 x tip assembly, 5 x each contact tip 0.6/0.8 mm

2 x gas tip conical, 1 x gas tip cylindrical size 12, large sorting box

Art. no. 1092500

**Wear part set SMB 36**

Consisting of: 2 x tip assembly M6, 3 x gas distributor brown, 5 x each contact tip

0.8/1.0/1.2 mm, 4 x gas tip conical, 1 x gas tip cylindrical, large sorting box

Art. no. 1093600

**Wear part set SMB 400**

Consisting of: 2 x ring, 2 x tip assembly M8, 3 x gas distributor brown highly heat resistant, 5 x contact tip 1.0 mm, 10 x contact tip 1.2 mm, 4 x gas tip cylindrical

1 x gas tip cylindrical, large sorting box

Art. no. 1094000

---

### Intermediate hose pack for case system

**Mandatory for case system purchases!**

**Designation**

**For SYN-MIG 403i SC-WS water-cooled**

Hose pack liquid cooled pluggable 1.5 m length, 70 mm²

Art. no. 1018016

Hose pack liquid cooled pluggable 5 m length, 70 mm²

Art. no. 1018051

Hose pack liquid cooled pluggable 10 m length, 70 mm²

Art. no. 1018101

---

### Wire feed rolls for 4-roll wire feed

**Designation**

**V groove for steel and stainless steel**

0.8 + 1.0 mm

Art. no. 1016010

1.0 + 1.2 mm

Art. no. 1016012

1.2 + 1.6 mm

Art. no. 1016016

**U groove for aluminium**

0.8 + 1.0 mm

Art. no. 1016110

1.0 + 1.2 mm

Art. no. 1016112

1.2 + 1.6 mm

Art. no. 1016116

**K groove for filler wire (FCW)**

1.0 + 1.2 mm

Art. no. 1016210

Counterpressure roll smooth

Art. no. 1016202
**MIG/MAG shield gas welding equipment**

**SYN-MAG 273/323** – step controlled shield gas welding equipment

**MIG/MAG all-round machines for trades**

The state-of-the-art synergie control supports precise regulation of the wire feed with automatic wire adjustment, and fast and easy setting of welding parameters.

- Inexpensive, but really good!
- Suitable for thin to thicker materials (0.8 mm up to max. approx. 15 mm in steel)
- Universally deployable thanks to characteristic curves for steel, stainless steel, aluminium, and gas shielded filler wires (FCW = Flux Cored Wire)

- Central connection - Binzel system
- Temperature overload display
- Powerful 4-roll feed ensures reliable and constant wire feeding and a stable arc
- Always the right setting with 10 or 21 power stages
- With current and voltage display
- With 2-cycle/4-cycle/spot and interval control
- With automatic wire feed correction
- With temperature-controlled fan

**Process**

- MAG
- MIG

**Sheet thicknesses**

- From 0.8 mm in steel and stainless steel (MAG)
- From 2 mm in aluminium (MIG)

**Base materials**

- Construction steels
- Non alloy and low alloy materials
- CrNi steels ferritic/austenitic
- Aluminium alloys

**Typical applications**

- Metalworking, mechanical engineering
- Agriculture, vehicle workshops
- Maintenance/repairs

**The control system:**

1. **ON – display (green LED)**
2. **OVERLOAD – display (orange LED)**
3. **Ampere/welding program display**
4. **Wire feed adjustment, multifunctional button**
5. **Operating mode (red LED)**
6. **Granular step switch**
7. **Step switch - fine 1 – 7**
8. **Step switch - coarse 0 – 3**
9. **Torch connection**
10. **Welding current socket**
### Technical specifications

<table>
<thead>
<tr>
<th></th>
<th>SYN-MAG 273</th>
<th>SYN-MAG 323</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Art. no.</strong></td>
<td>1089273</td>
<td>1089323</td>
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<table>
<thead>
<tr>
<th><strong>Model</strong></th>
<th>SYN-MAG 273</th>
<th>SYN-MAG 323</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technical specifications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wire Ø steel/stainless steel</td>
<td>0.8 - 1.2 mm</td>
<td>0.8 - 1.2 mm</td>
</tr>
<tr>
<td>Wire Ø aluminium</td>
<td>1.0 - 1.2 mm</td>
<td>1.0 - 1.2 mm</td>
</tr>
<tr>
<td>Wire Ø filler wire</td>
<td>1.0 - 1.2 mm</td>
<td>1.0 - 1.2 mm</td>
</tr>
<tr>
<td>Wire feed</td>
<td>1.0 - 22 m/min</td>
<td>1.0 - 22 m/min</td>
</tr>
<tr>
<td>Adjusting range</td>
<td>30 - 270 A</td>
<td>40 - 320 A</td>
</tr>
<tr>
<td>Duty cycle ( I_{\text{max.}} \text{ at } 40^\circ \text{C} )</td>
<td>35 %</td>
<td>30 %</td>
</tr>
<tr>
<td>Welding current at 60% DC ([40^\circ \text{C}])</td>
<td>190 A</td>
<td>230 A</td>
</tr>
<tr>
<td>Welding current at 100% DC ([40^\circ \text{C}])</td>
<td>160 A</td>
<td>180 A</td>
</tr>
<tr>
<td>Open circuit voltage</td>
<td>16.3 - 33.5 V</td>
<td>14.8 - 37.9 V</td>
</tr>
<tr>
<td>Switching stages</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>Wire feed rolls/driver</td>
<td>4/4</td>
<td>4/4</td>
</tr>
<tr>
<td>Power connector</td>
<td>3 x 400 V</td>
<td>3 x 400 V</td>
</tr>
<tr>
<td>Permanent output at 100% DC</td>
<td>5.5 kVA</td>
<td>6.2 kVA</td>
</tr>
<tr>
<td>Slow-blow fuse</td>
<td>16 A</td>
<td>16 A</td>
</tr>
<tr>
<td>Cos phi power factor</td>
<td>0.96</td>
<td>0.96</td>
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<tr>
<td>Cooling type</td>
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<tr>
<td>Degree of protection</td>
<td>IP 23</td>
<td>IP 23</td>
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<tr>
<td>Torch cooling</td>
<td>Gas</td>
<td>Gas</td>
</tr>
<tr>
<td>Gas cylinder max.</td>
<td>20 l</td>
<td>20 l</td>
</tr>
<tr>
<td>Dimensions (L x W x H) compact unit</td>
<td>823 x 510 x 735 mm</td>
<td>830 x 540 x 815 mm</td>
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<tr>
<td>Weight</td>
<td>82 kg</td>
<td>94 kg</td>
</tr>
<tr>
<td>Standards</td>
<td>EN 60 974-1;3;10 / S mark / EMC - class A</td>
<td></td>
</tr>
</tbody>
</table>

### Scope of supply SET SYN-MAG 273
- Torch SMB 25 / 4 m
- Earth cable 4 m with 35 mm²
- Pressure regulator Argon/CO\(_2\) (large)
- Basket spool adapter

### Scope of supply SET SYN-MAG 323
- Torch SMB 36 4 m
- Earth cable 4 m with 50 mm²
- Pressure regulator Argon/CO\(_2\) (large)
- Basket spool adapter

### Accessories - torch kits

**Designation**

**Art. no.**

for SYN - MAG
- Torch kit 36/50 SMB 36/4 m gas-cooled, earth cable 50 mm², pressure reg. 1093611

*Prices for torch kits only apply in combination with purchasing a welding device

### Wear part set for torch

**Designation**

**Art. no.**

Wear part set SMB 36 1093600

consisting of: 2 x tip assembly M6, 3 x gas distributor brown, 5 x each contact tip 0.8/1.0/1.2 mm, 4 x gas tip conical, 1 x gas tip cylindrical, large sorting box

### Wire feed rolls for 4-roll wire feed

**Designation**

**Art. no.**

V groove for steel and stainless steel
- 0.8 + 1.0 mm 1016010
- 1.0 + 1.2 mm 1016012
- 1.2 + 1.6 mm 1016016

U groove for aluminium
- 0.8 + 1.0 mm 1016110
- 1.0 + 1.2 mm 1016112
- 1.2 + 1.6 mm 1016116

K groove for filler wire (FCW)
- 1.0 + 1.2 mm 1016210

Counterpressure roll smooth 1016202
SYN-MAG 353/453 – step controlled shield gas welding systems MIG/MAG all-round machines

The state-of-the-art synergie control supports precise regulation of the wire feed with automatic wire adjustment, and fast and easy setting of welding parameters.

- Perfect for welding work on thicker to thick steel, stainless steel and aluminium components
- Stable working conditions thanks to chassis width extension, even with a 50 l gas cylinder
- With characteristic curves for steel, stainless steel, aluminium, and gas shielded filler wires (FCW – Flux Cored Wire)
- Optionally as compact design or with case and intermediate hose pack for extending the radius of operation

- Central connection - Binzel system
- Temperature overload display
- Basket spool adapter
- With current and voltage display
- With 2-cycle/4-cycle/spot and interval control
- With automatic wire feed correction
- With temperature-controlled fan
- Case system without intermediate hose pack
- With case holder
- Carriage for case with four swivel castors - two of which can be braked (holder and carriage for self-assembly)

SYN-MAG 453-4 W
- Compact system

SYN-MAG 453-4 WS
- Case system
- Fully assembled
- Case quickly and easily removable
- Case with easy-action, robust chassis

Case easily rotatable

The control system:

1. Digital display for welding current
2. Digital display for welding voltage
3. Overload indicator, “Auto” display
4. Wire feed adjustment, multifunctional button
5. Operating mode (red LED)
6. Torch connection
7. Selection switch “Gas”, “Material” and “Wire thickness”
8. Water connection - return red
9. Water connection - supply blue

Process
- MAG
- MIG

Sheet thicknesses
- From 1.0 mm in steel and stainless steel (MAG)
- From 2 mm in aluminium (MIG)

Base materials
- Construction steels
- Non alloy and low alloy materials
- CrNi steels ferritic/austenitic
- Aluminium alloys

Typical applications
- Metalworking, mechanical engineering, steel construction
- Agriculture, building equipment, commercial vehicle manufacturing, vehicle workshops
- Maintenance/repairs

Standard equipment SYN-MAG 353/453
- 4-roll drive
- Wire feed 4 driven rolls
- With 2-cycle/4-cycle/interval control
- Wire feed automatic
- Stand-by fan circuitry
- Volt and Ampere indicator
- Central connection
- Basket spool adapter
- Mains cable 5 m with CEE plug

All case systems S:
- (for self-assembly) with case holder and chassis with 4 steering rollers, two of which can be braked
- Without intermediate hose pack, torch, earth cable and pressure regulator in all cases

ON/OFF switch
10
Step switch - coarse 1 – 3
11
Step switch - fine 1 – 10
12
Ground cable connection
13
## Technical Specifications

<table>
<thead>
<tr>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Wire Ø steel/special steel</td>
<td>0.8 - 1.2 mm</td>
<td>0.8 - 1.6 mm</td>
<td>0.8 - 1.6 mm</td>
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<tr>
<td>Wire Ø aluminium</td>
<td>1.0 - 1.2 mm</td>
<td>1.0 - 1.2 mm</td>
<td>1.0 - 1.2 mm</td>
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<tr>
<td>Wire Ø filler wire</td>
<td>1.0 - 1.2 mm</td>
<td>1.0 - 1.2 mm</td>
<td>1.0 - 1.2 mm</td>
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<tr>
<td>Wire feed</td>
<td>1.0 - 22 m/min</td>
<td>1.0 - 22 m/min</td>
<td>1.0 - 22 m/min</td>
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<tr>
<td>Adjusting range</td>
<td>30 - 350 A</td>
<td>40 - 450 A</td>
<td>40 - 450 A</td>
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<td>DC at I_max. 40 °C</td>
<td>60 %</td>
<td>35%</td>
<td>35%</td>
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<td>Welding current at 60% DC 40 °C</td>
<td>350 A</td>
<td>400 A</td>
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<tr>
<td>Welding current at 100% DC 40 °C</td>
<td>260 A</td>
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<td>310 A</td>
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<td>Open circuit voltage</td>
<td>15.8 - 36.7 V</td>
<td>16.8 - 44.2 V</td>
<td>16.8 - 44.2 V</td>
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<td>Switching stages</td>
<td>21</td>
<td>30</td>
<td>30</td>
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<tr>
<td>Wire feed rolls/driver</td>
<td>4/4</td>
<td>4/4</td>
<td>4/4</td>
</tr>
<tr>
<td>Power connector</td>
<td>3 x 400 V</td>
<td>3 x 400 V</td>
<td>3 x 400 V</td>
</tr>
<tr>
<td>Permanent output at 100% DC</td>
<td>9.7 kVA</td>
<td>12.5 kVA</td>
<td>12.5 kVA</td>
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<tr>
<td>Fuse</td>
<td>20 A</td>
<td>25 A</td>
<td>25 A</td>
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<tr>
<td>Cos phi power factor</td>
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<td>Insulation class</td>
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<tr>
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</tr>
<tr>
<td>Torch cooling</td>
<td>Gas</td>
<td>Water</td>
<td>Water</td>
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<tr>
<td>Gas cylinder max.</td>
<td>50 l</td>
<td>50 l</td>
<td>50 l</td>
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<td>121 kg</td>
<td>149 kg</td>
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<td>850 x 550 x 720 mm</td>
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<td>935 x 550 x 1 240 mm</td>
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<td>EN 60 974-1;3;30 / S mark / EMC - class A</td>
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</tr>
</tbody>
</table>

## Accessories - torch kits

Consisting of: torch 4 m, earth cable, 315 bar Argon/CO₂ pressure regulator

**Designation**  
**Art. no.**  
**for SYN-MAG 353-4:** torch kit 36/50, SMB 36 / 4 m gas-cooled  
1093611  
**for SYN-MAG 453-4 W:** torch kit 400/50, SMB 400 / 4 m water-cooled  
1094010  
**for SYN-MAG 453-4 WS, torch kit 400/70, SMB 400 / 4 m water-cooled,**  
Ground cable 70 mm², pressure regulator large  
1094011

*Prices for torch kits only apply in combination with purchasing a welding device*

## Wear part set for torch

**Designation**  
**Art. no.**  
**Wear part set SMB 36 consisting of:**  
1093600  
2 x tip assembly M6, 3 x gas distributor brown, 5 x each contact tip 0.8/1.0/1.2 mm, 4 x gas tip conical, 1 x gas tip cylindrical, large sorting box  
**Wear part set SMB 400 consisting of:**  
1094000  
2 x ring, 2 x tip assembly M8, 3 x gas distributor brown highly heat resistant, 5 x contact tip 1.0 mm, 10 x contact tip 1.2 mm, 4 x gas tip conical, 1 x gas tip cylindrical, large sorting box

## Intermediate hose pack for SYN-MAG case systems

### Mandatory for case system purchases!

**Designation**  
**Art. no.**  
**For SYN-MAG 453-4 WS liquid-cooled**  
1018016  
Hose pack liquid cooled pluggable  
1.5 m length, 70 mm²  
1018051  
Hose pack liquid cooled pluggable  
5 m length, 70 mm²  
1018101  
Hose pack liquid cooled pluggable  
10 m length, 70 mm²

## Wire feed rolls for 4-roll wire feed

**Designation**  
**Art. no.**  
**V groove for steel and stainless steel**  
1016010  
0.8 + 1.0 mm  
1016012  
1.0 + 1.2 mm  
1016016  
1.2 + 1.6 mm  
**U groove for aluminium**  
1016110  
0.8 + 1.0 mm  
1016112  
1.0 + 1.2 mm  
1016116  
1.2 + 1.6 mm  
**K groove for filler wire (FCW)**  
1016210  
1.0 + 1.2 mm  
**Counterpressure roll smooth**  
1016202

## Accessories for liquid-cooled welding equipment

**Designation**  
**Art. no.**  
**Coolant “RKF 15”**  
5 l - can (pre-mixed)  
1030005  
**Coolant “RKF 15”**  
10 l - can (pre-mixed)  
1030010  
**Coolant “RKF 15”**  
25 l - can (pre-mixed)  
1030025