

GRÜN

Roofing Products | Building Technique



100 JAHRE
QUALITÄT
SEIT 1919

www.gruen-gmbh.de



Special machinery factory for roof, road and construction

| Founded 1919

For decades, **GRÜN GMBH** has been involved in developing and producing specialist machines for the building sector.

The goal was and is to provide processors with technically advanced specialist equipment for the efficient use of labour. Particular focus is placed on practical collaboration with installation companies, manufacturers of processing materials and work safety groups, in order to enable operators to carry out high-quality work.





The companies in our Group work in the following areas:

- ! Road construction and road maintenance technology
- ! Road marking technology
- ! High-pressure water surface treatment
- ! Roofing equipment/construction technology
- ! Fall protection

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Roof Repair and Restoration Equipment

The indispensable helpers for cutting and removing of old roof constructions



Petrol operated Roof Cutter DS 31

The robust, powerful cutter with two percussion knives for double cutting capacity.

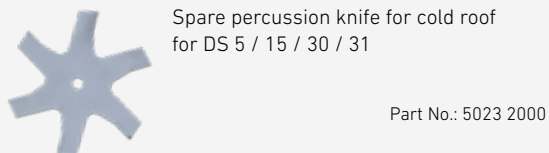
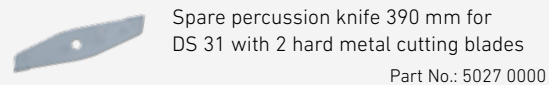
The vertically mounted hard face percussion knives are driven by V-belt. The rotation in forward direction cause self-drive of the cutter. The cutting depth is infinitely variable.

Technical data

Cutting depth:	adjustable up to max. 140 mm
Motor rating:	8,7 kW / 11,1 PS
Cutting capacity at normal proof structure:	approx. 3.500 m/h
Cutting width:	approx. 61 cm
Weight:	approx. 110 kg

Part No.: 5420 0000

Accessories



Petrol operated Roof Cutter DS 30

The robust, powerful cutter with one percussion knife with hard metal cutting blades and big running wheels.

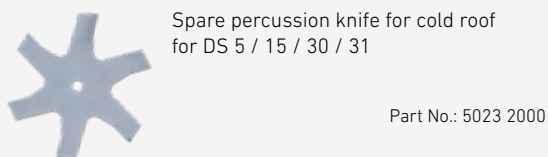
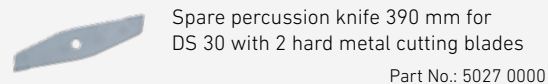
The cutting depth is infinitely variable.

Technical data

Cutting depth:	adjustable up to max. 140 mm
Motor rating:	8,7 kW / 11,1 PS
Cutting capacity at normal proof structure:	approx. 1.800 m/h
Weight:	approx. 104 kg

Part No.: 5422 0000

Accessories



Still produced in usual
proven quality at GRÜN



Petrol operated Roof Cutter DS 15

For minor demolition projects.

The robust, powerful cutter with four-stroke engine 4,8 HP, one percussion knife with hard metal cutting blades.

The cutting depth is infinitely variable.

Technical data

Cutting depth:	adjustable up to max. 120 mm
Motor rating:	3,6 kW / 4,8 PS
Cutting capacity at normal proof structure:	approx. 1.500 m/h
Weight:	approx. 60 kg

Part No.: 5426 0000

Accessories



Spare percussion knife 350 mm for DS 30 with 2 hard metal cutting blades

Part No.: 5023 1000



Spare percussion knife for cold roof for DS 5 / 15 / 30 / 31

Part No.: 5023 2000



Tear-off claw

This well-shaped and handy device, designed to meet ergonomic requirements, develops unimagined forces when being used for tearing off roof sheets and sheetings and enables the operator to achieve remarkable results.

The tear-off claw saves and protects hands and fingers. The special aluminium alloy as well as the extremely robust gripping joints guarantee a long service life. Depending on the thickness, the sheeting is cut into more or less wide stripes and simply pulled off.

Part No.: 5035 0000

NEW



Roof Stripper Turbo

For peeling of roof sheeting and roof insulants like poly styrene plates, PU plates, cork plates and so on.

The Roof Stripper Turbo with driving gear strips the roof sheeting cut off the base. The powerful motor 2400 W / 230 V AC is equipped with starting current limiter and drives the travelling gear and the percussive mechanism. The high number of strokes (5.000 strokes/min.) and an extremely strong bearing guarantee trouble free operation. The travelling gear can be connected and disconnected by means of a coupling.

Because of the compact design and an effective distribution of weight combined with optimum handiness the work can be done with minimum effort. By means of the bow-type guide bar the stripped roof sheeting are thrown rightwards beside the machine. Stripping width approx. 40 - 50 cm, travelling speed approx. 1.000 m/h.

The equipment is dismountable, can be easily transported and is suitable for universal use.

Technical data

Knife width:	35 cm
Gross weight with additional weight:	approx. 130 kg
Travelling speed:	approx. 1.000 m/h
Motor rating:	2.400 W / 230 V AC
Feed cable:	10 m

Part No.: 5030 0000

Accessories



Special-Type knife extended, angled with deflectors for roof structures with insulation

Part No.: 5037 0000



Spare knife blade, standard-type

Part No.: 5032 0000



Set of spike driving wheels for improved power transmission

Part No.: 5033 0000

NEW



Petrol operated Roof Stripper GDS 10

For clearing roof sheeting and roof insulation materials

This high-performance device quickly peels off pre-cut old roof coverings without manual effort and doesn't require a power source.

- High drive power thanks to a powerful Honda four-stroke petrol motor
- Forward and reverse operation for easier handling
- Hydraulic propulsion and a drive
- Infinitely variable travel speed
- High performance thanks to wide stripping plate
- Very agile thanks to compact design
- Borderless work possible
- 1.700 strokes per minute per side in alternation

Technical data

Drive motor:	Honda four-stroke petrol, 11.1 HP
Drive and blade drive:	hydraulic
Travel speed:	infinitely adjustable up to approx. 4 m/min.
Stripping plate:	approx. 700 mm wide
Length:	approx. 1,750 mm
Device width:	approx. 660 mm
Track width, outer:	approx. 640 mm
Height:	approx. 1,000 mm
Weight:	approx. 375 kg
Knife strokes per minute:	approx. 1,700 per side

Part No.: 5138 0000



Scrap'Air - pneumatic tools

The powerful stripping device with patented anti-vibration-system

The different specifications of the SCRAP'AIR are characterized by their lightness, their handiness and their efficiency, so you can find 4 different strike forces adapted to multiple kinds of utilization.



Scrap'Air 24

For renovation of facades and wood work.

Technical data

Strike force:	15 Joules
Air pressure:	6 – 8 bar
Air consumption:	210 l/min
Frequency:	4.750 blows/min
Weight with a short handle:	approx. 4,2 kg

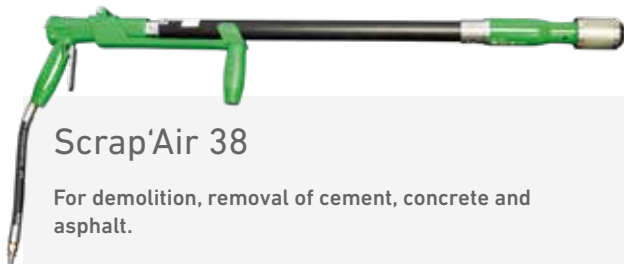


Scrap'Air 36

For walls, tiles and asbestos removal.

Technical data

Strike force:	25 Joules
Air pressure:	6 – 8 bar
Air consumption:	250 l/min
Frequency:	3.500 blows/min
Weight with a short handle:	approx. 4,3 kg

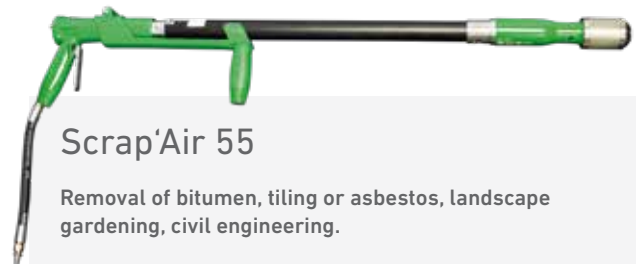


Scrap'Air 38

For demolition, removal of cement, concrete and asphalt.

Technical data

Strike force:	30 Joules
Air pressure:	6 – 8 bar
Air consumption:	280 l/min
Frequency:	2.950 blows/min
Weight with a long handle:	approx. 6,0 kg



Scrap'Air 55

Removal of bitumen, tiling or asbestos, landscape gardening, civil engineering.

Technical data

Strike force:	35 Joules
Air pressure:	6 – 8 bar
Air consumption:	300 l/min
Frequency:	2.250 blows/min
Weight with a long handle:	approx. 6,2 kg



Scrap'Air 55

The right choice for removal bitumen roof covering



Bituminous membranes removal kit

Cutting and removal bitumen roof covering and light demolition.

SCRAP'AIR 55 delivered in a handy-box with:

- 1 carpet knife with a steel blade 20 cm
- 2 steel blades 20 cm
- 1 curved Delta knife 15 cm
- 1 vertical cutter
- 1 chisel 5 cm
- 1 in-line oiler
- 1 adaptor for mobile compressor
- 1 oil-can (250 ml)
- 1 protection kit (goggles, gloves and earplugs)

Part No.: 89027 0000





Removal kit

Wood working, removal of crumbly coatings.

SCRAP^{AIR} 24 delivered in a handy-box with:

- 1 delta knife 8 cm
- 1 chisel 4 cm
- 1 in-line oiler
- 1 oil-can (250 ml)
- 1 protection kit (goggles, gloves and earplugs)

(short handle)

Part No.: 89022 0000



Demolition kit

Removal of resistant concrete and light demolition.

SCRAP^{AIR} 38 delivered in a handy-box with:

- 1 chisel 4 cm
- 1 chisel 2,5 cm
- 1 pointed chisel
- 1 in-line oiler
- 1 oil-can (250 ml)
- 1 protection kit (goggles, gloves and earplugs)

(short handle)
(half-long handle)

Part No.: 89025 0000
Part No.: 89026 0000



Renovation kit

Removal of: wall coatings, tiling, concrete.

SCRAP^{AIR} 36 delivered in a handy-box with:

- 1 delta knife 8 cm
- 1 chisel 4 cm
- 1 pointed chisel
- 1 in-line oiler
- 1 oil-can (250 ml)
- 1 protection kit (goggles, gloves and earplugs)

(short handle)
(half-long handle)

Part No.: 89023 0000
Part No.: 89024 0000



Floor coating removal kit

Removal of PVC-coatings, carpets and parquet floors.

SCRAP^{AIR} 38 delivered in a handy-box with:

- 1 carpet knife with a steel blade
- 2 steel blades
- 1 chisel 5 cm
- 1 in-line oiler
- 1 oil-can (250 ml)
- 1 protection kit (goggles, gloves and earplugs)

(short/long handle)

Part No.: 89028 0000



Floor demolition kit

Removal of resistant concrete and glue, tiling and light demolition.

SCRAP'AIR 55 delivered in a handy-box with:

- 1 curved Delta knife 15 cm
- 1 chisel 5 cm
- 1 pointed chisel
- 1 in-line oiler
- 1 adaptor for mobile compressor
- 1 oil-can (250 ml)
- 1 protection kit (goggles, gloves and earplugs)

Part No.: 89020 0000



Excavation kit

Excavation for civil engineering and landscape.

SCRAP'AIR 55 with T-Handle delivered in a handy-box with:

- 1 spade 18 cm
- 1 chisel 5 cm
- 1 in-line oiler
- 1 adaptor for mobile compressor
- 1 oil-can (250 ml)
- 1 protection kit (goggles, gloves and earplugs)

Part No.: 89021 0000



2-cylinder-piston compressor

This 2-cylinder reciprocating compressor with maintenance entity ¼" incl. lubricator with quick-plug-in-connector allows to work without interruptions with the pneumatic tools.

Technical data

Motor rating:	2,2 kW
Eff. supplying quantity:	350 l
Pressure:	max. 11 bar
Rotation speed:	1.200 U/min.
Weight:	approx. 69 kg

Part No.: 89001 0000

Accessories



Mist oiler

Part No.: 98000 1500



Air hose

10 m air hose with quick coupling for SCRAP'AIR

Part No.: 89000 1600



Asphalt knife

For vertical cutting e.g. bituminous roofings in connection areas

Part No.: 89000 1001



Stripping knife

Bended, 15 cm wide

Part No.: 89000 1002

NEW



Carpet knife with a steel blade

For cutting and removal bitumen roof covering, PVC-, carpet- and parquet floors.

Artikelnummer: 98003 0003

NEW



Steel blade

For cutting and removal bitumen roof covering, PVC-, carpet- and parquet floors.

Artikelnummer: 98003 0004

- ▶ Works fully automatically
- ▶ Stops at 3 mm water level
- ▶ Capacity: max. 100 l/min.
- ▶ Pressure: max. 6.5 m
- ▶ Anti-airlock in the upper pump housing
- ▶ Pumps almost completely dry
- ▶ Start and stop delay
- ▶ 20.8 cm diameter
- ▶ Incl. non-return valve

ANTI-AIRLOCK

NEW

Puddle Buddy LC

Automatic flat-suction SUBMERSIBLE PUMP

The Puddle Buddy is a submersible pump that sucks up water to a depth of around 1 mm and pumps from a water level of just a few mm.

The Sensomaat is an electronic level switch that is mounted directly on the pump. It detects the water level from approx. 3 mm.

The Sensomaat can be set with a start and stop delay. By default, this is set to 5 seconds start delay and 30 seconds stop delay. As soon as the Sensomaat detects the water, the pump switches on after 5 seconds. If no more water is detected, the pump switches off after 30 seconds.

The start and stop delay can be set from a minimum of 1 second to a maximum of 2 minutes. This gives the pump time to pump the surface almost completely dry.

The set is supplied ready to use and consists of the Puddle Buddy with the Senso device and the non-return valve with 3-stage nozzle.

Technical data PUDDLE BUDDY LC

Suction motor:	230 V / 50 Hz / 150 W
Pump rate:	to 100 l/minute
Funding level:	max. 6,5 m
Weight:	approx. 5,25 kg

Part No.: 5057 0010

Accessories



Water hose
20 m ¾"

Part No.: 1601 0000





Puddle Buddy suction and immersion pump

Robust, portable all-metal pump that removes water up to a height of approx. 1 m above the floor surface via the protected floor inlet. Hose connector for ½", ¾" and 1" hose.

- Powerefficient residue pump with a thermal overload, which protects the pump against overheating
- Portable and versatile
- The top outlet and waterjacket design forces the
- Pumped water to cool the motor, allowing prolonged use in low water levels
- Easy to use

including 10 m cable and additional suction grille

Technical data

PUDDLE BUDDY Suction and immersion pump

Suction motor:	230 V / 50 Hz / 150 W
Pump rate:	to 100 l/minute
Head:	max. 6,5 m
Weight:	approx. 5,25 kg

Part No.: 5057 0001

Accessories



Water hose
20 m ¾"

Part No.: 1601 0000



Simer suction and immersion pump

Powerful, portable all-metal pump that removes water up to a height of approx. 2 m above the floor surface via the protected floor inlet. The pump already starts working at a water level of only 5 mm! Hose connector for ½", ¾" and 1" hose.

- Robust cast aluminium construction
- Portable and versatile
- Self-venting starts at a water level of just 5 mm
- Suitable for continuous operation
- 10 m replaceable power cord
- Completely submersible, IP 68
- Stainless steel rotor shaft
- Integrated thermal protection
- Mechanical seal

Technical data

SIMER Suction and immersion pump

Suction motor:	230 V / 50 Hz / 190 W
Pump rate:	to 60 l/minute
Head:	max. 6 m
Weight:	approx. 5 kg

Part No.: 5057 0020

Accessories



Water hose
20 m ¾"

Part No.: 1601 0000

DRYING ROLL

Simple and effective



DRYING ROLL

Absorbs moisture from the roof

Simple and effective thanks to a highly absorbent foam roller.

The DRYING ROLL absorbs moisture over large areas and is ready for the next rolling run without releasing the liquid already absorbed.

Its ergonomic shape allows for easy emptying by squeezing the foam.

High-quality, robust hinge

Quick and easy replacement of foam roller

Technical data

Length x width:	approx. 1.300 mm x 600 mm
Weight:	approx. 5,5 kg

Part No.: 5053 0000

Accessories



Replacement roller

Part No.: 5053 3003



PRIMAT and REKORD

Propane bitumen boilers

NEW

Now with
PIEZO-IGNITION available!

The bitumen boilers PRIMAT and REKORD are the product of years of experience in the manufacture of bitumen boilers. The construction and fitting of the equipment represents the latest technology.

The robust design takes into consideration the rigours of building sites; the heating system – without internal heating tubes – guarantees, because of the large heating areas, a high melting capacity using only small amounts of gas.

Economic viability is achieved both by a high degree of firing efficiency and by double casing insulation.

- GRÜN bitumen boilers are designed on the basis of a modular construction system and can easily be reduced to the main component parts without any tools, as a result of which exchanges of parts within boilers of the same size can be made without any problems, this often solves transportation difficulties.
- The construction is rigid and wholly suitable for building site use, the steel plate is strong and of excellent quality thus extending the life of the equipment.
- A wind-shielded vortex beam and row burners ensure a uniform spread of heat on to the boiler base.
- The standard model includes hand-operated burners. The absence of heating tubes prevents cleaning problems.

- Equipment of 30 litres capacity or above can be fitted with a dial thermometer if required; equipment with more than 50 litres effective contents can be designed, on request, for thermostatic regulation of the burner by an automatic control, the design of which is based on tried and tested component parts. The control is effected via an adjustable valve which regulates the gas discharge rate.





Bitumen boilers tilt 50 and stationary 50

These small manageable boilers with lockable lids will go through almost any roof-hole and are therefore excellently suited for repair work and small jobs. The high-powered propane beam burner ensures a rapid heating up period.

On request the equipment can be equipped with a dial thermometer for temperature control. Bitumen is poured by tilting the boiler in the tilting frame.

The stationary boiler is equipped with footstands and drain cock.

Technical data KIPP 50

Content:	approx. 50 l
Bitumen through-put:	approx. 100 l/h
Max. propane consumption:	approx. max. 0,8 kg/h
Operating pressure:	1,5 bar
Weight:	approx. 38 kg

Part No.: 0211 0000

Technical data STATIONARY 50

Content:	approx. 50 l
Bitumen through-put:	approx. 100 l/h
Max. propane consumption:	approx. max. 0,8 kg/h
Operating pressure:	1,5 bar
Weight:	approx. 35 kg

Part No.: 0215 0000

Accessories see on page 19

NEW

Now with
PIEZO-IGNITION available!



PRIMAT bitumen boilers 150 and 250

In the standard design the heating is by manually controlled 1-flame, 3-flame and 5-flame propane burners respectively.

On request the equipment can be fitted with GRÜN automatic thermostatic controls. The automatic control does not break down easily nor does it require regular maintenance; it works without batteries or mains supply.

The thermometer is built into the casing attachment for temperature control; the thermostatic control unit can be taken out at any time – for instance at the end of the day – even when the bitumen is cold. Energy loss is avoided by means of double casing full insulation. The large opening with sturdy lockable lids facilitates ease of filling. The bitumen drain cock is built in and lockable.

Technical data PRIMAT 150

Content:	approx. 150 l
Bitumen through-put:	approx. 200 l/h
Max. propane consumption:	approx. max. 2,5 kg/h
Operating pressure:	1,5 bar
Weight:	approx. 136 kg

Part No.: 0213 0000

Extra charge piezo-ignition Part No.: 0050 2000

Technical data PRIMAT 250

Content:	approx. 250 l
Bitumen through-put:	approx. 300 l/h
Max. propane consumption:	approx. max. 3,9 kg/h
Operating pressure:	1,5 bar
Weight:	approx. 162 kg

Part No.: 0214 0000

Extra charge piezo-ignition Part No.: 0050 2000

Accessories see on page 19



REKORD bitumen boilers 19, 29 and 49

High-performance small bitumen boilers with removable tub. Heating is by means of a windshielded propane vortex beam burner. Construction and fitting comply with the regulations of the German Bau-Berufsgenossenschaft (construction liability insurance).

With the boiler types 19 and 29 the tub can be easily pulled out and used as a bucket.

The equipment of the bitumen boiler 49 includes a lockable hinged lid, lockable drain cook, double jacket insulation and, on request, a dial thermometer for temperature control.

Technical data REKORD 19

Content:	approx. 19 l
Bitumen through-put:	approx. 40 l/h
Max. propane consumption:	approx. max. 0,6 kg/h
Operating pressure:	1,5 bar
Weight:	approx. 13 kg

Part No.: 0201 0000

Technical data REKORD 29

Content:	approx. 29 l
Bitumen through-put:	approx. 60 l/h
Max. propane consumption:	approx. max. 0,8 kg/h
Operating pressure:	1,5 bar
Weight:	approx. 27 kg

Part No.: 0202 0000

Technical data REKORD 49

Content:	approx. 49 l
Bitumen through-put:	approx. 100 l/h
Max. propane consumption:	approx. max. 1,4 kg/h
Operating pressure:	1,5 bar
Weight:	approx. 49 kg

Part No.: 0203 0000

Accessories see on page 19



NEW

Now with
PIEZO-IGNITION available!



REKORD bitumen boilers 119 and 229

These round bitumen boilers are characterised their specially sturdy design. The wind shielded manually operated propane vortex beam burner guarantees high melting efficiency.

On request the equipment can be fitted with the GRÜN automatic thermostatic control for regulation of the burner. The automatic temperature control of the melting material is by means of a thermometer built into the control attachment.

Further engineering features are the special exhaust gas chimney, double jacket insulation, and removable tub without internal heating tubes. The bitumen is removed with the built in lockable drain cook.

Technical data REKORD 119

Content:	approx. 119 l
Bitumen through-put:	approx. 180 l/h
Max. propane consumption:	approx. max. 2,5 kg/h
Operating pressure:	1,5 bar
Weight:	approx. 86 kg

Part No.: 0204 0000

Extra charge piezo-ignition Part No.: 0050 2000

Technical data REKORD 229

Content:	approx. 229 l
Bitumen through-put:	approx. 280 l/h
Max. propane consumption:	approx. max. 3,9 kg/h
Operating pressure:	1,5 bar
Weight:	approx. 126 kg

Part No.: 0205 0000

Extra charge piezo-ignition Part No.: 0050 2000

Accessories see on page 19

Boiler for special bitumen



Oil bath boiler HR 90i,
HR 180i and RK180i

Firing:

Indirect heating with heat transfer oil. A commercially available oil with a maximum thermal load of approx. 330 °C should be used. Thermostatically controlled, propane vortex jet burner that does not require an electrical power supply. Unit is controlled via a temperature control valve in the heat transfer oil and in the melting pot. Option of controlling the temperature of the melted material with pointer thermometers.

Agitator:

Vertical agitator shaft with horizontal paddles and hand crank. The RK180i is driven by a geared AC motor, 220 V, 0.55 kW.

Included with delivery:

Unit supplied complete with burner, control unit with 2 gas regulator valves, expansion tank, thermometer in the melted material, but with heat transfer oil.

Technical data HR 90i with manual agitator

Capacity in litres:	approx. 90 l
Heat transfer oil filling volume:	30 l
Burner heat output:	32 kW
Unloaded weight (incl. heat transfer oil):	approx. 140 kg

Part No.: 0242 9000

Technical data HR 180i with manual agitator

Capacity in litres:	approx. 180 l
Heat transfer oil filling volume:	60 l
Burner heat output:	50 kW
Unloaded weight (incl. heat transfer oil):	approx. 197 kg

Part No.: 0244 9000

Technical Data RK 180i with electric motor

Capacity in litres:	approx. 180 l
Heat transfer oil filling volume:	60 l
Burner heat output:	50 kW
Unloaded weight (incl. heat transfer oil):	approx. 250 kg

Part No.: 0245 9000



REKORD DIN 119HR,
DIN 229HR and DIN 229MR

The DIN 119HR and 229HR special bitumen boilers are supplied with manual agitator incl. flame shield, excl. hose and regulator.

The DIN 229MR special bitumen boiler is supplied with electric motor agitator incl. flame shield, excl. hose and regulator.

With indirect heating and the agitator, these modified boilers are particularly suitable for polymer bitumen.

Technical data REKORD DIN 119HR with manual agitator

Capacity in litres:	approx. 119 l
Burner heat output:	32 kW
Weight:	approx. 102 kg

Part No.: 0231 9000

Technical data REKORD DIN 229HR with manual agitator

Capacity in litres:	approx. 229 l
Burner heat output:	50 kW
Weight:	approx. 145 kg

Part No.: 0232 9000

Technical data REKORD DIN 229MR with electric motor

Capacity in litres:	approx. 229 l
Burner heat output:	50 kW
Weight:	approx. 200 kg

Part No.: 0233 7000



Piezo ignition




For HR90i, HR180i, RK180i and REKORD DIN 119 HR, 229 HR.

Part No.: 0050 2100










Accessories for bitumen boilers

All of our bitumen boilers PRIMAT and REKORD must be operated with a high pressure hose 6,3 x 5 and a medium pressure regulator 1.5 bar with hose failure valve. Propane gas bottle, gas hoses and pressure regulator aren't scope of the supply.

Tray for bitumen boiler

	Tray for bitumen boiler tray size 1 for bitumen boilers up to 49 litres (not suitable for KIPP 50 or Stationary 50) Setting dimensions: 660 x 660 mm	Part No.: 0305 0000
	Tray for bitumen boiler tray size 2 for bitumen boilers up to 150 litres Setting dimensions: 1.300 x 850 mm	Part No.: 0306 0000
	Tray for bitumen boiler tray size 3 for bitumen boilers up to 250 litres Setting dimensions: 1.700 x 1.000 mm	Part No.: 0307 0000

Hose-Accessories

	Safety medium pressure regulator 1,5 bar with built in hose failure valve in combination with 3 m high-pressure hose	Part No.: 1501 0000
	Safety medium pressure regulator 1,5 bar with built in hose failure valve in combination with 5 m high-pressure hose	Part No.: 1502 0000
	Double bottle connection with quick-change valve for connecting 2 propane gas bottles 11 or 33 kg with combination connection	Part No.: 1556 0000
	Safety medium pressure regulator 1,5 bar with built in hose failure valve	Part No.: 1541 0000
	3 m high pressure hose on both sides 3/8" left	Part No.: 1525 0000
	5 m high pressure hose on both sides 3/8" left	Part No.: 1526 0000
	Protection against leaking gas with adjustable safety medium pressure regulator 0,5 - 4 bar and 5 m high-pressure double hose, M 22 x 1,5 LH, 6 kg/h	Part No.: 1471 0000
	Protection against leaking gas with adjustable safety medium pressure regulator 0,5 - 4 bar and 10 m high-pressure double hose, M 22 x 1,5 LH, 6 kg/h	Part No.: 1470 0000
	Spare gas seal for safety medium pressure regulator	Part No.: 1541 0001

Gas bottle carriage
for easy bottle transport!



Gas bottle carriages and gas bottle heaters

Gas bottle accessories & small devices

Bottle boy, galvanized

for 1 propane gas bottle 11 or 33 kg



Part No.: 5075 0000

Duplo bottle carriage

for 2 propane gas bottles 11 or 33 kg

Part No.: 5059 0000



Mono bottle carriage

for 1 propane gas bottle 33 kg

Part No.: 5058 0000



Two-bottle connection

for simultaneous use of
2 propane gas bottles 33 kg

Part No.: 1556 0000





Gas bottle heater

pot-galvanized design

avoids freezing of gas bottles and guarantees full working capacity and complete gas utilization.

The gas bottles are heated in a temperature-controlled water bath and the steam pressure is increased to approx. 10 bar, so that working pressure and gas quantity are ensured even in case of extreme gas use.

Thermostatic controlled electro heating element 230 V. One gas bottle 33 or 11 kg can be heated.

The bottle carrier belongs to scope of supply.

Part No.: 5073 0000

Accessories

Gas bottle carrier, solo
pot-galvanized, simplifies bottle
transport

Part No.: 5074 0000



Double branch piece
with valves for simultaneous operation
of 2 consumers

Part No.: 1553 0000



Infrared radiant heater

With safety pilot, DIN-DVGW inspected. For all-purpose use: drying out buildings, workplace heating on construction sites, in halls, workshops, outdoors, on terraces etc.

Radiant heater, adjustable from 2500 - 4000 W. Complete with practical cylinder rack for 5 kg and 11 kg gas cylinders, hose and low pressure regulator.

Part No.: 5921 0000



Bitumen bucket with spout

with large grip and handle

Bitumen bucket with ventilated insulating bottom and large base for avoiding damage to the roofing by means of impression and sticking.

30 cm Ø, content approx. 20 l

Part No.: 5003 0000



Bitumen bucket without spout

with large grip and handle

Bitumen bucket with ventilated insulating bottom and large base for avoiding damage to the roofing by means of impression and sticking.

30 cm Ø, content approx. 20 l

Part No.: 5001 0000



Sealing can

with grip, handle and small spout

For filling joints.

Content approx. 3,5 l

Part No.: 5015 0000



Bitumen pouring can

with large spout \varnothing 35 mm

Solid welded design, pot-galvanized, with handle and large filling hole.

Content approx. 12 l

Part No.: 5011 0000



Bitumen pouring can

with extra large spout \varnothing 40 mm

Solid welded design, pot-galvanized, with handle and large filling hole.

Content approx. 12 l

Part No.: 5012 0000



Control thermometer

for indicating the temperature of melted material

Technical data

Overall length:	33,0 cm
Shaft length:	31,0 cm
Gauge \varnothing :	5,5 cm
Temperature indication range:	0 - 300 °C

Part No.: 1567 0000



Control thermometer

for indicating the temperature of melted material

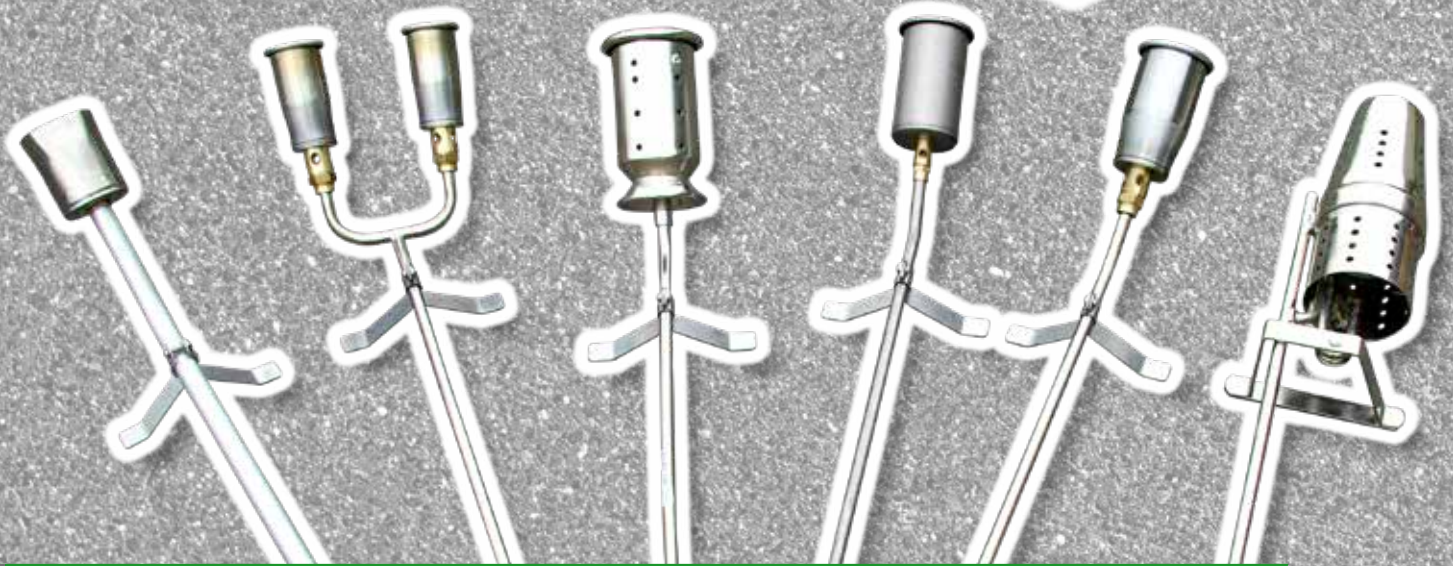
With folding handle.

Technical data

Overall length:	16,5 cm
Gauge \varnothing :	3,0 cm
Temperature indication range:	50 - 250 °C

Part No.: 1566 0000

strong - firm - safe -
functionally tested



Propane burner for professionals

For drying and all aspects of felt laying

The handgrip

With solid brass workmanship to withstand the workload.
The controls give graduated adjustable working flame.



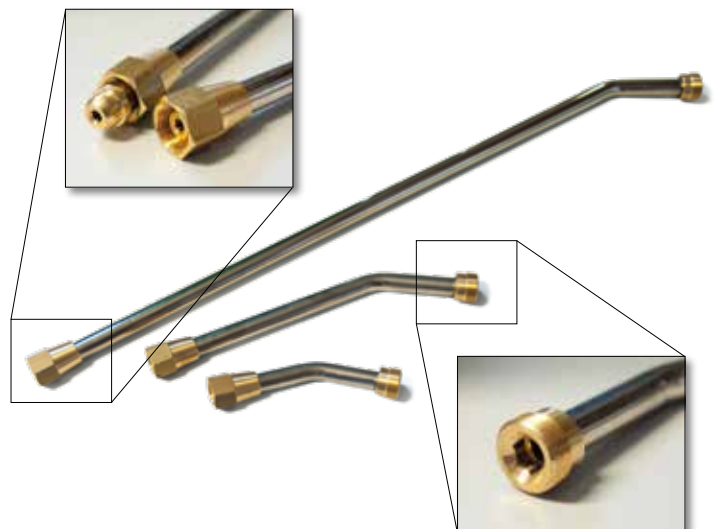
Tube

Manufactured from strengthened, nickel plated, steel pipe.
Extra strong screw threads.



Unbreakable heads

Manufactured from refined stainless steel.





Hand Torch A 25/400

Technical data

Max. heat output:	13,3 kW
Total Length:	approx. 400 mm
Head Ø:	approx. 25 mm
Weight:	approx. 0,60 kg

Part No.: 0101 0000

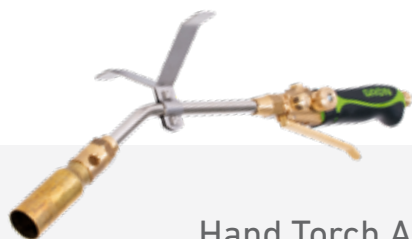


Hand Torch A 25/800

Technical data

Max. heat output:	13,3 kW
Total Length:	approx. 800 mm
Head Ø:	approx. 25 mm
Weight:	approx. 0,70 kg

Part No.: 0103 0000



Hand Torch A 25/500

Technical data

Max. heat output:	13,3 kW
Total Length:	approx. 500 mm
Head Ø:	approx. 25 mm
Weight:	approx. 0,60 kg

Part No.: 0102 0000

Accessories Hand Torch A 25



Hose in 5 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1507 0000



Hose in 10 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1508 0000



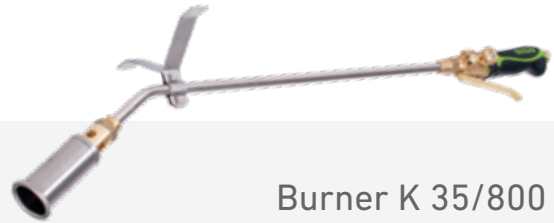


Burner K 35/400

Technical data

Max. heat output:	18,1 kW
Total Length:	approx. 400 mm
Head Ø:	approx. 35 mm
Weight:	approx. 0,60 kg

Part No.: 0104 0000



Burner K 35/800

Technical data

Max. heat output:	18,1 kW
Total Length:	approx. 800 mm
Head Ø:	approx. 35 mm
Weight:	approx. 0,70 kg

Part No.: 0106 0000



Burner K 35/500

Technical data

Max. heat output:	18,1 kW
Total Length:	approx. 500 mm
Head Ø:	approx. 35 mm
Weight:	approx. 0,60 kg

Part No.: 0105 0000

Accessories Burner K 35



Hose in 5 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

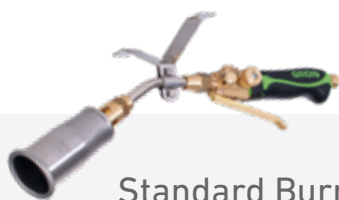
Part No.: 1507 0000



Hose in 10 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1508 0000





Standard Burner S 45/400

Technical data

Max. heat output:	44,6 kW
Total Length:	approx. 400 mm
Head Ø:	approx. 45 mm
Weight:	approx. 0,60 kg

Part No.: 0107 0000



Standard Burner S 45/800

Technical data

Max. heat output:	44,6 kW
Total Length:	approx. 800 mm
Head Ø:	approx. 45 mm
Weight:	approx. 0,80 kg

Part No.: 0109 0000



Standard Burner S 45/500

Technical data

Max. heat output:	44,6 kW
Total Length:	approx. 500 mm
Head Ø:	approx. 45 mm
Weight:	approx. 0,70 kg

Part No.: 0108 0000

Accessories Standard Burner S 45



Hose in 5 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1507 0000



Hose in 10 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1508 0000





Universal Burner U 55/400

Technical data

Max. heat output:	72,2 kW
Total Length:	approx. 400 mm
Head Ø:	approx. 55 mm
Weight:	approx. 0,90 kg

Part No.: 0110 0000



Universal Burner U 55/900

Technical data

Max. heat output:	72,2 kW
Total Length:	approx. 900 mm
Head Ø:	approx. 55 mm
Weight:	approx. 1,11 kg

Part No.: 0112 0001

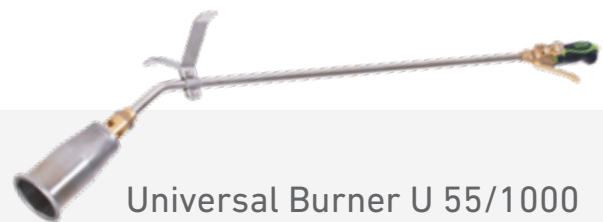


Universal Burner U 55/500

Technical data

Max. heat output:	72,2 kW
Total Length:	approx. 500 mm
Head Ø:	approx. 55 mm
Weight:	approx. 1,00 kg

Part No.: 0111 0000



Universal Burner U 55/1000

Technical data

Max. heat output:	72,2 kW
Total Length:	approx. 1.000 mm
Head Ø:	approx. 55 mm
Weight:	approx. 1,14 kg

Part No.: 0112 0002



Universal Burner U 55/800

Technical data

Max. heat output:	72,2 kW
Total Length:	approx. 800 mm
Head Ø:	approx. 55 mm
Weight:	approx. 1,10 kg

Part No.: 0112 0000

Accessories Universal Burner U 55



Hose in 5 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1507 0000



Hose in 10 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1508 0000





Heavy Duty Burner ST 65/400

Technical data

Max. heat output:	119,4 kW
Total Length:	approx. 400 mm
Head Ø:	approx. 65 mm
Weight:	approx. 0,90 kg

Part No.: 0113 0000



Heavy Duty Burner ST 65/900

Technical data

Max. heat output:	119,4 kW
Total Length:	approx. 800 mm
Head Ø:	approx. 65 mm
Weight:	approx. 1,21 kg

Part No.: 0115 0001



Heavy Duty Burner ST 65/500

Technical data

Max. heat output:	119,4 kW
Total Length:	approx. 500 mm
Head Ø:	approx. 65 mm
Weight:	approx. 1,00 kg

Part No.: 0114 0000



Heavy Duty Burner ST 65/1000

Technical data

Max. heat output:	119,4 kW
Total Length:	approx. 1.000 mm
Head Ø:	approx. 65 mm
Weight:	approx. 1,23 kg

Part No.: 0115 0002



Heavy Duty Burner ST 65/800

Technical data

Max. heat output:	119,4 kW
Total Length:	approx. 800 mm
Head Ø:	approx. 65 mm
Weight:	approx. 1,20 kg

Part No.: 0115 0000

Accessories

Heavy Duty Burner ST 65



Hose in 5 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

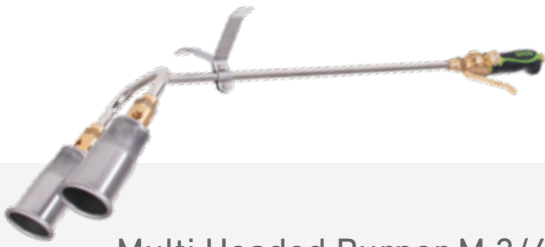
Part No.: 1507 0000



Hose in 10 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1508 0000



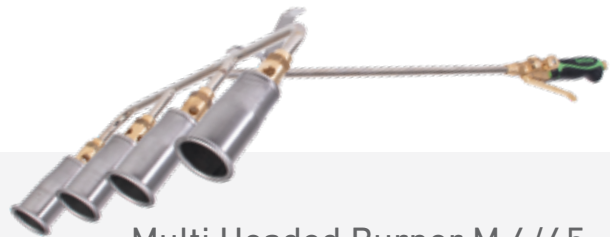


Multi Headed Burner M 2/45

Technical data

Max. heat output:	89,2 kW
Total Length:	approx. 800 mm
Head Ø:	approx. 45 mm
Weight:	approx. 1,60 kg

Part No.: 0126 0000



Multi Headed Burner M 4/45

Technical data

Max. heat output:	178,4 kW
Total Length:	approx. 800 mm
Head Ø:	approx. 45 mm
Weight:	approx. 1,80 kg

Part No.: 0127 0000



Accessories Multi Headed Burner



Hose in 5 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1507 0000



Hose in 10 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1508 0000



Super Turbo

This burner is unrivaled in performance for drying or bonding. The flame is generated by high pressure and turbo design. It saves valuable time as it out-performs other burners.

Technical data

Max. heat output:	147,1 kW
Total Length:	approx. 800 mm
Head Ø:	approx. 75 mm
Weight:	approx. 1,20 kg

Part No.: 0121 0000



Bully-Burner

This is a high performance burner which because it concentrates the heat, is very efficient for drying or warming bitumen or asphalt floors. The gas is pre-heated by means of a tabular coil within the head so guarantees performance.

Technical data

Max. heat output:	119,0 kW
Total Length:	approx. 950 mm
Head Ø:	approx. 85 mm
Weight:	approx. 2,20 kg

Part No.: 0122 0000

Accessories Powerful Burner



Hose in 5 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1507 0000



Hose in 10 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1508 0000





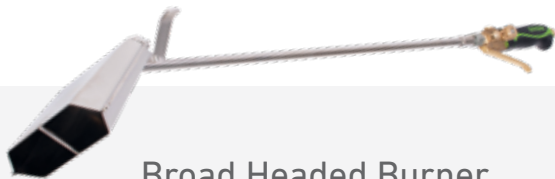
Broad Headed Burner

Specially for large area bonding.

Technical data

Max. heat output:	73,5 kW
Total Length:	approx. 400 mm
Head Ø:	approx. 130 mm
Weight:	approx. 0,80 kg

Part No.: 0818 0000



Broad Headed Burner

Specially for large area bonding.

Technical data

Max. heat output:	147,0 kW
Total Length:	approx. 900 mm
Head Ø:	approx. 180 mm
Weight:	approx. 1,10 kg

Part No.: 0816 0000

Accessories Broad Headed Burner



Hose in 5 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1507 0000



Hose in 10 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1508 0000



Quick Coupling

The GRÜN quick coupling according to EN 561 / ISO 7289 is suitable for safely and quickly connecting the hose to equipment. When disengaging, the shut-off valve of the hose coupling automatically interrupts the flow of gas such that gas cannot escape in an uncontrolled way.

- Quick connection of hose lines
- Quick brass coupling and resistant stainless steel coupling pin (plug nipple)
- For use on manual torches and brazing torches with 3/8" LH hose connection
- Approved for use with propane gas at up to 20 bar operating pressure
- BAM (Federal Institute for Materials Research and Testing) tested and subjected to a 100% production control
- Tamper-proof - unlocking is only possible using plug nipple
- PUSH system prevents accidental disconnection of the coupling connection
- Gas flow is shut off when disconnecting

PUSH-System

Engaging:

Hold the knurled sliding sleeve in one hand and stick the coupling pin into it with the other hand until the lock snaps in place.

Disengaging:

Slide the knurled sliding sleeve forward and pull the coupling pin out of the coupling body.

Article



Quick coupling incl. coupling pin

Part No.: 1780 0000



Quick coupling

Part No.: 1780 0100



Coupling pin

Part No.: 1780 0200

NEW

BURNER BOXES

Indispensable for construction site and trade



Burner box TITAN

Dimensions approx. 1.112 x 411 x 101 mm

- 1 Titanium strong burner TS 65/800
- 1 Titanium burner for pre-heating TK 35/400
- 1 Quick coupling incl. coupling pin
- 1 Coupling pin
- 1 Hose in 10 metre length complete with coupling pieces and Regulator 4 bar with safety valve

Part No.: 0198 3000



Burner box EDELSTAHL

Dimensions approx. 1.112 x 411 x 101 mm

- 1 Heavy Duty Burner ST 65/800
- 1 Burner K 35/400
- 1 Quick coupling incl. coupling pin
- 1 Coupling pin
- 1 Hose in 10 metre length complete with coupling pieces and Regulator 4 bar with safety valve

Part No.: 0198 2000



Burner box LEISE

Dimensions approx. 1.112 x 411 x 101 mm

- 1 Propane silent burner LS 95/900
- 1 Burner K 35/400
- 1 Quick coupling incl. coupling pin
- 1 Coupling pin
- 1 10 m high pressure hose with adjustable regulator 0,5 - 4 bar und hose-failure-protection

Part No.: 0198 4000

Burner boxes

- Usable for welding, edge welding, seam welding of roofing felts, as well as drying, heating, burning off and melting.
- The well proven GRÜN quality products, which are contained in the boxes, are tested and certified by the trade cooperative association for construction.



Burner box STANDARD

Dimensions approx. 610 x 310 x 95 mm

- 1 Burner head A 25 mm Ø, 9,2 kW
- 1 Wide beam burner head K 35 for seam weldings 13,3 kW
- 1 Burner head S 45 mm Ø, 44,6 kW
- 1 Burner head U 55 mm Ø, 72,2 kW
- 1 Burner pipe 500 mm long
- 1 Burner pipe 200 mm long
- 1 Burner pipe 100 mm long
- 3 Spring-supports
- 1 Handle with fast-switch-automatics
- 1 High-pressure hose 6,3 x 5 mm, 5 m long, bilateral 3/8" left
- 1 Medium pressure regulator 4 bar with integrated hose failure valve
- 1 Gas lighter
- 1 can spare-flints
- 1 Hose connector bilateral 3/8" left
- 1 Felt puller
- Face spanner each SW 30, SW 19/22, SW 17/19, SW 14/15
- 1 Screwdriver
- 1 pair working gloves

Part No.: 0191 0000



Burner box EXCLUSIV

Dimensions approx. 810 x 370 x 95 mm

- 1 Universal burner U 55, 72,2 kW complete with handle and burner pipe 500 mm long = 800 mm total length and spring support
- 1 Burner head St 65 mm Ø, 119,4 kW with burner pipe 500 mm and spring support
- 1 Burner head S 45 mm Ø, 44,6 kW with burner pipe 200 mm and spring support
- 1 Burner head A 25 mm Ø, 9,2 kW with burner pipe 100 mm and spring support
- 1 Wide beam burner head K 35, 13,3 kW for seam weldings
- 1 Handle with fast-switch-automatics
- 1 High-pressure hose 6,3 x 5 mm, 5 m long, bilateral 3/8" left
- 1 Medium pressure regulator 4 bar with integrated hose failure valve
- 1 Gas lighter
- 1 can spare-flints
- 1 Hose connector bilateral 3/8" left
- 1 Felt puller
- Face spanner each SW 30, SW 19/22, SW 17/19, SW 14/15
- 1 Screwdriver
- 1 pair working gloves

The burner box EXCLUSIV is designed for one heavy duty burner St 65/800 and one standard burner S 45/800 complete with mounted handles. Additional price for additional handle with fast-switch-automatics Part No. 0100 1000.

Part No.: 0192 0000



Special - welding torch

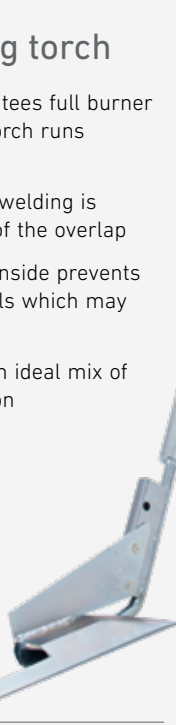
for weld seams of bituminous sealing membranes

Special and extra welding torch

- The special shape of the skid guarantees full burner performance and ensures that the torch runs perfectly below the overlap
- Due to the design of the torch head, welding is carried out specifically in the width of the overlap
- The long flame control plate on the inside prevents damage to fragile insulating materials which may result from overheating
- Maximum energy efficiency due to an ideal mix of gas and air with low gas consumption
- No flame outage even in extreme usage conditions
- Infinitely variable working flame
- Two models with different heating capacities. 18.1 kW special welding torch or 53.0 kW EXTRA special welding torch

Technical data

	Special welding torch	Extra welding torch
Max. heat output:	18,1 kW	53 kW
Nozzle:	0,7 mm	1,2 mm
Total length:	approx. 1.500 mm	approx. 1.500 mm
Total weight:	approx. 2,6 kg	approx. 2,6 kg
Part No.:	0811 0000	0810 0000

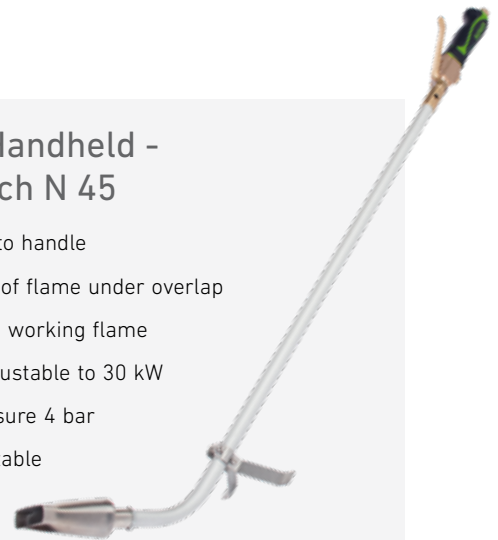


Propane - Handheld - welding torch N 45

- light and easy to handle
- no smothering of flame under overlap
- fully adjustable working flame
- heat output adjustable to 30 kW
- operating pressure 4 bar
- infinitely adjustable working flame

Technical data

Max. heat output:	30,0 kW
Nozzle:	0,9 mm
Gas type:	Propan / Butan
Total length:	approx. 1.250 mm
Weight:	approx. 1,30 kg



Part No.: 0814 0000

Special - welding torch Accessories



High-pressure hose and adjustable medium-pressure safety regulator with manometer

High-pressure hose 3/8" left, 6,3 x 5 mm with adjustable medium-pressure safety regulator 0,5 - 4 bar with integrated hose rupture protection.

Available in the following lengths



5 m high-pressure hose and adjustable medium-pressure safety regulator with manometer

Part No.: 1375 0000



10 m high-pressure hose and adjustable medium-pressure safety regulator with manometer

Part No.: 1377 0000



High-pressure hose and adjustable medium-pressure safety regulator without manometer

High-pressure hose 3/8" links, 6,3 x 5 mm with adjustable medium-pressure safety regulator 0,5 - 4 bar with integrated hose rupture protection.

Available in the following lengths



5 m high-pressure hose and adjustable medium-pressure safety regulator

Part No.: 1513 0000



10 m high-pressure hose and adjustable medium-pressure safety regulator

Part No.: 1514 0000



Rotary hose connection 3/8" 45°

Part No.: 99201 0202



Pressure roller 2 and 9 kg

for rolling overlaps and joints

Pressure roller with silicone coating, for pressing on overlap during seam welding. The silicone protective coating prevents bitumen from soiling the roller.

Technical data

	2 kg	9 kg
Pressure width:	approx. 8 cm	approx. 10 cm
Total length:	approx. 115 cm	approx. 155 cm
External roller diameter:	approx. 9 cm	approx. 12,5 cm
Replacement roller incl. silicon support (Part No.)	2 kg (0329 1000)	9 kg (0350 1000)
Replacement silicone support single (Part No.)	70 x 5 x 76 mm (0329 1102)	110 x 5 x 93 mm (0350 1102)
Part No.:	0329 0000	0350 0000



powerful - silent -
lightweight

Propane silent burner for welding and drying

The new professional burner generation



GRÜN propane silent burners reduce the noise nearly by half at full capacity and decrease the danger for your hearing at approx. 80%.

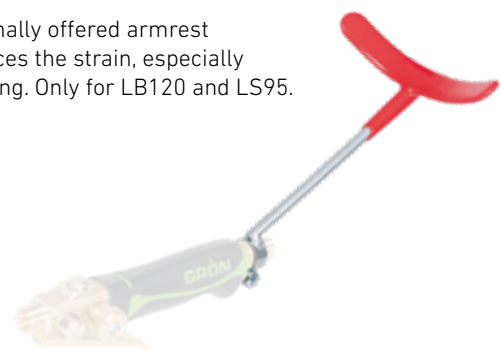
The light and handy burners facilitate a working without exhausting. Due to the low weight of the burner head, a top-heaviness combined with a constant pressure on the worker's forearm is inexistent.

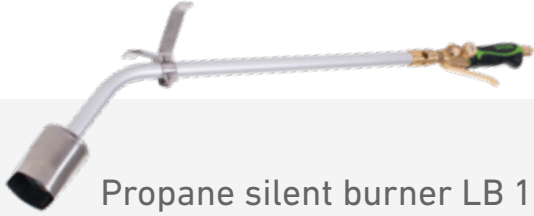


Do you know that while using the standard propane burners with a noise emission higher than 85 dB(A) you have to wear ear protectors?

Only 3 dB(A) more cause a doubling of the danger for your hearing. Test measurements of the BBG, Böblingen, Fachauschuss Bau, confirmed the given values.

The optionally offered armrest also reduces the strain, especially while drying. Only for LB120 and LS95.





Propane silent burner LB 120

Technical data

Max. heat output:	120 kW
Total length:	approx. 900 mm
Weight:	approx. 0,80 kg

Continuous sound level

at 4 bar	120 kW 84,8 dB (A)
at 2 bar	85 kW 81,2 dB (A)
at 1,5 bar	73 kW 79,8 dB (A)

Part No.: 0138 0000

Also in the following sets available



Propane silent burner LB 120 with adjustable regulator 05 - 4 bar with hose-failure-protection incl. 5 m high pressure hose

Part No.: 0138 0500



Propane silent burner LB 120 with adjustable regulator 05 - 4 bar with hose-failure-protection incl. 10 m high pressure hose

Part No.: 0138 1000

Accessories



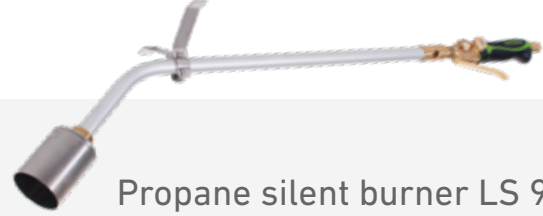
Armrest for propane burner LB 120 / LS 95

Part No.: 0138 0200



Handgrip for armrest LB 120/ LS 95

Part No.: 0138 0100



Propane silent burner LS 95

Technical data

Max. heat output:	95 kW
Total length:	approx. 900 mm
Weight:	approx. 0,80 kg

Continuous sound level

at 4 bar	95 kW 84,9 dB (A)
at 2 bar	85 kW 82,2 dB(A)

Part No.: 0139 0000

Also in the following sets available



Propane silent burner LS 95 with adjustable regulator 05 - 4 bar with hose-failure-protection incl. 5 m high pressure hose

Part No.: 0139 0500



Propane silent burner LS 95 with adjustable regulator 05 - 4 bar with hose-failure-protection incl. 10 m high pressure hose

Part No.: 0139 1000

Accessories



Armrest for propane burner LB 120 / LS 95

Part No.: 0138 0200



Handgrip for armrest LB 120/ LS 95

Part No.: 0138 0100

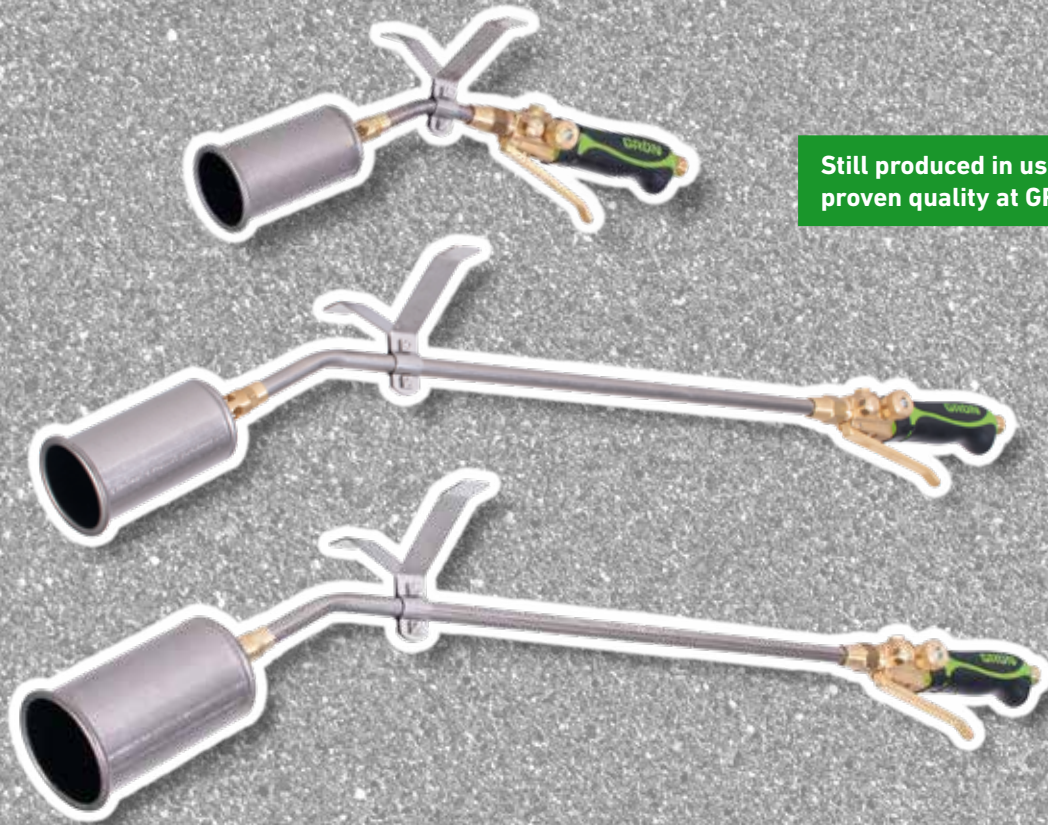


Other Accessories for all Propane silent burners

Hose accessories

	5 m high pressure hose with adjustable regulator 0,5 - 4 bar und hose-failure-protection	Part No.: 1513 0000
	10 m high pressure hose with adjustable regulator 0,5 - 4 bar und hose-failure-protection	Part No.: 1514 0000
	Adjustable regulator 0,5 - 4 bar with scale setting and hose-failure-protection, incoming combined connection for 11 and 33 kg gas bottles, outlet 3/8" left, max 12 kg/h throughput	Part No.: 1550 1000
	Rotary hose connection 3/8" 45°	Part No.: 99201 0202
	Leak gas safety device with 5 m high pressure double hose and adjustable regulator with safety valve 0 - 4 bar, 12 kg/h	Part No.: 1481 0000
	Leak gas safety device with 10 m high pressure double hose and adjustable regulator with safety valve 0 - 4 bar, 12 kg/h	Part No.: 1480 0000
	Leak gas safety device solo with adjustable regulator with safety valve 0 - 4 bar, 12 kg/h	Part No.: 1482 0000





Still produced in usual
proven quality at GRÜN

Titanium propane gas torches

The lightweights among the propane burners

- efficient
- wind rigid
- immune to interference
- rigid
- corrosion-resistant
- ergonomically optimized for antifatigue working without hurting arms

All burners are available as burner sets with 5 or 10 m high pressure hose 6.3 x 5mm and medium pressure regulator 4 bar with hose failure valve, too.

Available in the following designs:

- Titanium strong burner TS 65/800
- Titanium universal burner TM 55/800
- Titanium burner for pre-heating TA 55/400
- Titanium burner for pre-heating TK 35/400

The handgrip

with solid brass workmanship to withstand the workload. The controls give graduated adjustable working flame.





Titanium strong burner
TS 65/800

Technical data

Max. heat output:	120 kW
Total length:	approx. 800 mm
Head Ø:	65 mm
Weight:	approx. 0,80 kg

Part No.: 0128 0000

Also in the following sets available



Titanium strong burner TS 65 with 5 m high pressure hose 6,3 x 5 mm and medium pressure regulator 4 bars including hose failure valve

Part No.: 0128 0500



Titanium strong burner TS 65 with 10 m high pressure hose 6,3 x 5 mm and medium pressure regulator 4 bars including hose failure valve

Part No.: 0128 1000



Titanium strong burner
TS 65/900

Technical data

Max. heat output:	120 kW
Total length:	approx. 900 mm
Head Ø:	65 mm
Weight:	approx. 0,84 kg

Part No.: 0128 1200



Titanium strong burner
TS 65/1000

Technical data

Max. heat output:	120 kW
Total length:	approx. 1.000 mm
Head Ø:	65 mm
Weight:	approx. 0,85 kg

Part No.: 0128 1300

Accessories Titanium
strong burner TS 65



Hose in 5 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1507 0000



Hose in 10 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1508 0000





Titanium universal burner
TM 55/800

Technical data

Max. heat output:	72 kW
Total length:	approx. 800 mm
Head Ø:	55 mm
Weight:	approx. 0,70 kg

Part No.: 0129 0000

Also in the following sets available



Titanium universal burner TM 55 with 5 m high pressure hose 6,3 x 5 mm and medium pressure regulator 4 bars including hose failure valve

Part No.: 0129 0500



Titanium universal burner TM 55 with 10 m high pressure hose 6,3 x 5 mm and medium pressure regulator 4 bars including hose failure valve

Part No.: 0129 1000



Titanium universal burner
TM 55/1000

Technical data

Max. heat output:	72 kW
Total length:	approx. 1.000 mm
Head Ø:	55 mm
Weight:	approx. 0,83 kg

Part No.: 0129 1300

Accessories Titanium universal burner TM 55



Hose in 5 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

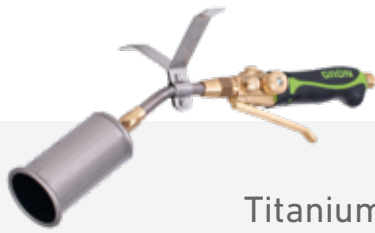
Part No.: 1507 0000



Hose in 10 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1508 0000





Titanium burner for pre-heating TA 55/400

Technical data

Max. heat output:	72 kW
Total length:	approx. 400 mm
Head Ø:	55 mm
Weight:	approx. 0,60 kg

Part No.: 0130 0000

Also in the following sets available



Titanium burner for pre-heating TA 55 with 5 m high pressure hose 6,3 x 5 mm and medium pressure regulator 4 bars including hose failure valve

Part No.: 0130 0500



Titanium burner for pre-heating TA 55 with 10 m high pressure hose 6,3 x 5 mm and medium pressure regulator 4 bars including hose failure valve

Part No.: 0130 1000



Titanium burner for pre-heating TK 35/400

Technical data

Max. heat output:	18 kW
Total length:	approx. 400 mm
Head Ø:	35 mm
Weight:	approx. 0,50 kg

Part No.: 0140 0000

Also in the following sets available



Titanium burner for pre-heating TK 35 with 5 m high pressure hose 6,3 x 5 mm and medium pressure regulator 4 bars including hose failure valve

Part No.: 0140 0500



Titanium burner for pre-heating TK 35 with 10 m high pressure hose 6,3 x 5 mm and medium pressure regulator 4 bars including hose failure valve

Part No.: 0140 1000

Accessories for Titanium burner TA 55 and TK 35



Hose in 5 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

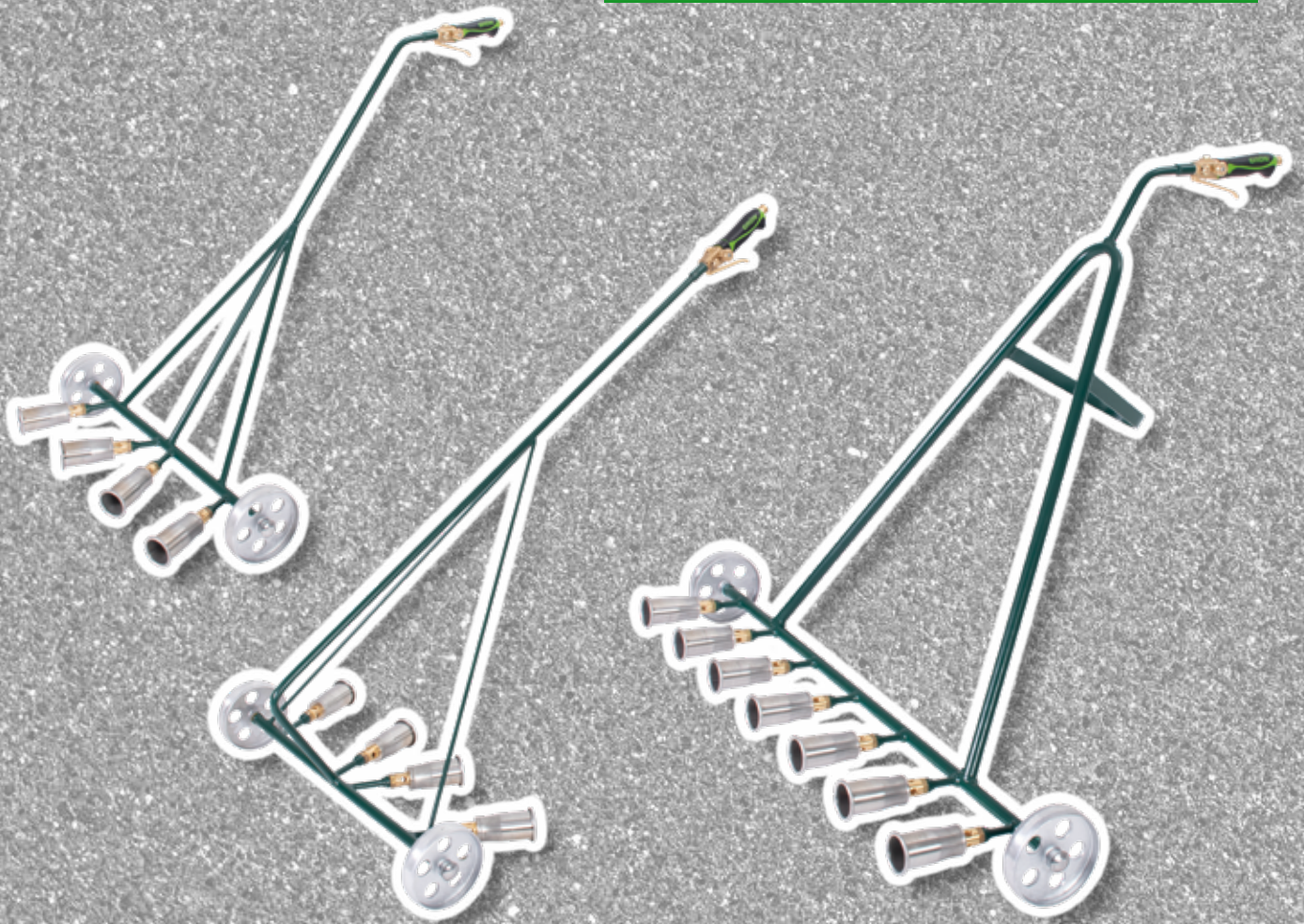
Part No.: 1507 0000



Hose in 10 metre length complete with coupling pieces and Regulator 4 bar with safety valve 6,3 x 5 mm

Part No.: 1508 0000

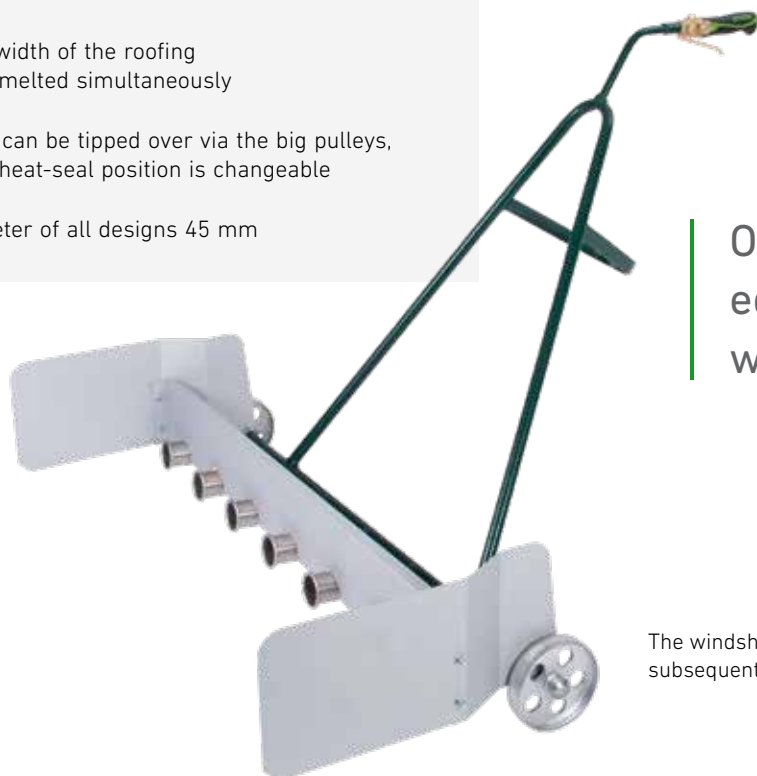




Wide Area Rolling Burners

For holohedral heat-sealing of bituminous roofing material

- The whole width of the roofing material is melted simultaneously
- The burner can be tipped over via the big pulleys, so that the heat-seal position is changeable
- Head diameter of all designs 45 mm



Optional V7/45
equipped
with windshield.

The windshield is available for subsequent mounting, too!



4-head rolling burner V4/45

Technical data

Max. heat output:	177,8 kW
Total length:	approx. 1.200 mm
Width:	580 mm
Head Ø:	4 x 45 mm
Weight:	approx. 4,20 kg

Part No.: 0131 0000

4-head rolling burner E4/45

Technical data

Max. heat output:	177,8 kW
Total length:	approx. 1.200 mm
Width:	580 mm
Head Ø:	4 x 45 mm
Weight:	approx. 4,20 kg

Part No.: 0132 0000

Accessories 4-head rolling burner



5 m High-pressure hose
6,3 x 5 incl. medium pressure
regulator 4 bar and integrat-
ed hose failure valve

Part No.: 1507 0000



10 m High-pressure hose
6,3 x 5 incl. medium pressure
regulator 4 bar and integrat-
ed hose failure valve

Part No.: 1508 0000



20 m High-pressure hose
6,3 x 5 incl. medium pressure
regulator 4 bar and integrat-
ed hose failure valve

Part No.: 1509 0000



7-head rolling burner V7/45

Technical data

Max. heat output:	312,7 kW
Total length:	approx. 1.200 mm
Width:	930 mm
Head Ø:	7 x 45 mm
Weight:	approx. 7,00 kg

Part No.: 0133 0000

Accessories



Windshield for subsequent mounting on V7/45

Part No.: 0133 1000



7-head rolling burner V7/45 with windshield

Technical data

Max. heat output:	312,7 kW
Total length:	approx. 1.200 mm
Width:	1.060 mm
Head Ø:	7 x 45 mm
Weight:	approx. 11,00 kg

Part No.: 0134 0000

Accessories 7-head rolling burner



5 m High-pressure hose
6,3 x 5 incl. medium pressure regulator 4 bar and integrated hose failure valve

Part No.: 1507 0000



10 m High-pressure hose
6,3 x 5 incl. medium pressure regulator 4 bar and integrated hose failure valve

Part No.: 1508 0000



20 m High-pressure hose
6,3 x 5 incl. medium pressure regulator 4 bar and integrated hose failure valve

Part No.: 1509 0000

NEW

WIDE AREA ROLLING BURNER VE7 55/45

For holohedral heat-sealing of
bituminous roofing material



**Outer individually
adjustable
burners**

- ! The entire width of the geomembrane is melted evenly
- ! Optimum seam welding due to individually adjustable outer burner heads
- ! Higher heat output
- ! The burner can be tilted over the large rollers so that the welding position is variable
- ! The wind deflector is available for retrofitting



Technical data

Max. heat output:	367,4 kW
Total length:	approx. 1.200 mm
Width:	930 mm
Head Ø:	5 x 45 mm und 2 x 55 mm
Weight:	approx. 9,00 kg

Part No.: 0133 0200

Roll Accessories

For easier working with roofing felts

This devices allow exact laying of the roofing felt and guarantee free view to the heat-seal procedure. By means of the dead weight of the roller the felt is automatically pressed on uniform when using the felt applicator.



Roller guider

with 2 plastic rollers

Technical data

Total length:	approx. 1.450 mm
Working width:	approx. 750 mm
Weight:	approx. 3,00 kg

Part No.: 0318 0000



roofing membrane transport trolley DBW 1100 Speedy

The transport solution for roofing membrane

- easy and fast transportation of roofing membrane
- roofing membrane can be rolled out conveniently
- ergonomic working
- compact and light design

Technical data

Width:	approx. 1.300 mm
Height:	approx. 1.050 mm
Length:	approx. 1.000 mm
Suitable roll width:	1.000 mm
Unloaded weight:	approx. 12,2 Kg

Part No.: 0319 0100



Felt applicator

with ball beared roller

Technical data

Total length:	approx. 1.200 mm
Working width:	1.050 mm
Weight:	approx. 12,50 kg

Part No.: 0319 0000

FELT EXTRACTOR

Telescopic length adjustment



▮ Rubberised grip plate for secure hand grip



▮ Telescopic adjustment with push button



▮ Rounded hook
No sharp edges



Technical data

Length:	adjustable from min. approx. 750 mm to max. approx. 1,110 mm
Weight:	approx. 1,30 kg

Part No.: 0330 0200



Leak gas safety device

with adjustable regulator and safety valve

According to the regulation of the trade cooperative association for safety and health at work BGV D34 protections against leaking gas have to be used when using consumers, which are driven with liquid gas below ground level.

This means that protections against leaking gas are **compelling** prescribed when working with propane gas hand burners, bitumen boilers and so on.

By means of using protections against leaking gas smallest leakages and damages in the hose are identified and the gas supply is automatically locked.

Note

For the St65 burner, the Super Turbo special burner and the Bully Burner as well as multi-flame burners, **12 kg/h leak gas safety devices** are required otherwise a loss of power will result.

Details



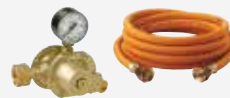
Leak gas safety device Solo with adjustable regulator with safety valve 0 - 4 bar, 6 kg/h

Part No.: 1472 0000



Leak gas safety device Solo with adjustable regulator with safety valve 0 - 4 bar, 12 kg/h

Part No.: 1482 0000



Leak gas safety device with adjustable regulator with safety valve 0 - 4 bar, 6 kg/h with 5 m high pressure double hose, M 22 x 1,5 LH

Part No.: 1471 0000



Leak gas safety device with adjustable regulator with safety valve 0 - 4 bar, 6 kg/h with 10 m high pressure double hose, M 22 x 1,5 LH

Part No.: 1470 0000



Leak gas safety device with adjustable regulator with safety valve 0 - 4 bar, 12 kg/h with 5 m high pressure double hose, M 30 x 1,5 LH

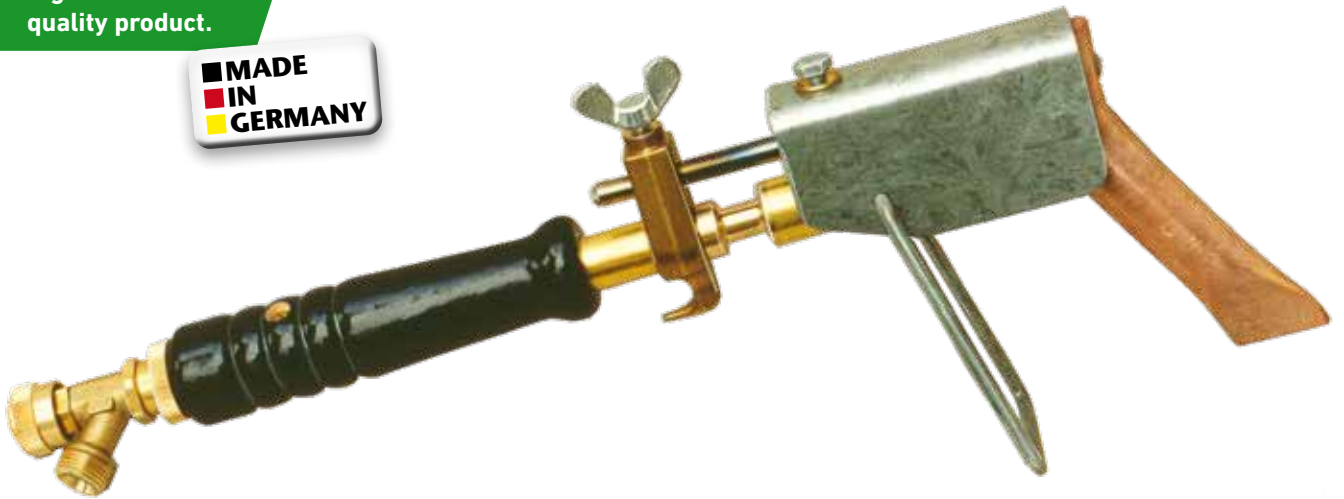
Part No.: 1481 0000



Leak gas safety device with adjustable regulator with safety valve 0 - 4 bar, 12 kg/h with 10 m high pressure double hose, M 30 x 1,5 LH

Part No.: 1480 0000

A german
quality product.



Gas blowpipes

the complete product range for the professional

Soft soldering - spot soldering - hot air

- Ergonomically shaped handle
- Turbo suction intake for high heat output
- Optimum gas/air regulation
- Volume regulation via metering stem in nozzle
- Universal adjustment of the flame with an innovative air slide
- Swivel hose connector



Propane-burner combination

For soft soldering, lead soldering, heating and flame-cleaning



Insert soldering iron

Consisting of: handle, soldering inserts, solder holder and wind cage

Part No.: 2510 0000

Individual parts



Universal soldering handle with volume control, metering stem and air slide. Swivel hose connection R3/8" left. Operating pressure 1.5 - 2.5 bar (propane-butane)

Part No.: 2520 0000



Soldering bit holder with suspension bolts, single

Part No.: 2510 0300



Soldering inserts, single

Part No.: 2510 0100



Wind cage with mounting foot, single

Part No.: 2510 0200



Flat-flame burner 64 mm

Details



Flat-flame burner 64 mm for warming and flame-cleaning

Part No.: 2525 0000



Copper hatchet-type soldering iron 250 g

angled

Part No.: 2511 0000



Copper hatchet-type soldering iron 350 g and 500 g

angled

Details



Copper hatchet-type soldering iron 350 g angled

Part No.: 2512 0000



Copper hatchet-type soldering iron 500 g angled

Part No.: 2509 0000



Copper needle-point soldering tip 250 g and 350 g

Details



Copper needle-point soldering tip 250 g

Part No.: 2514 0000



Copper needle-point soldering tip 350 g

Part No.: 2508 0000

Propane-burner combination

For soft soldering, lead soldering, heating and flame-cleaning



Soft soldering burner

Details



Soft soldering burner size 3
curved

Part No.: 2521 0000



Soft soldering burner size 5
curved

Part No.: 2522 0000



Soft soldering burner size 7
curved

Part No.: 2523 0000



High-pressure hose

6,3 x 5 mm - 1,5m long, on both sides R 3/8" left

Part No.: 2585 0000



Medium pressure regulator 1,5 bar

for small bottle with hose rupture protection,
R 3/8" left

Part No.: 2595 0000



Hatchet-type soldering piece

with special steel coating, 325 g

- very good heat storage
- very good temperature memories, therefore longer able of heat accumulator and low gas consumption
- no tinder deposition on the surface
- storing heat for longer and burning less gas through better heat exchange on metal
- trueing up and reforging wholly avoided
- the design is well-matched to the plumbing
- clean with a damp cloth

Part No.: 2503 0000



Needle-pointed soldering iron piece

with special steel coating, 325 g

- very good heat storage
- very good temperature memories, therefore longer able of heat accumulator and low gas consumption
- no tinder deposition on the surface
- storing heat for longer and burning less gas through better heat exchange on metal
- trueing up and reforging wholly avoided
- the design is well-matched to the plumbing
- clean with a damp cloth

Part No.: 2504 0000

Solder set & Accessories



Solder-Set Premium

in robust sheet-steel case

With burner combinations for soft soldering, lead soldering, heating and flame-cleaning, as well as for light hard soldering.

Content:

- Universal soldering handle
- soldering holder
- wind cage
- copper hatchet-type iron, 350 g, angled
- soft soldering burner sizes 3, 5 and 7
- broad welding torch 64 mm
- refill adaptor
- propane gas igniter
- wrench SW 17/19
- small bottle with stand
- 1.5 m propane hose

Part No.: 2555 0000



Medium pressure regulator 1,5 bar

for small bottle with hose rupture protection,
R 3/8" left

Part No.: 2595 0000



Small bottle

complete with stand, valve and hook

Connection 3/8" left, delivered. Weight when full 0.425 kg. Construction type approved and TÜV-tested.

Part No.: 2480 0000

Soft soldering set Prop 1

with transport case

Content:

- Piston brazing torch with wind protection
- Copper piece 350 g
- Smallest cylinder 425 g
- 1,5 m HP hose
- Medium pressure regulator with hose rupture protection

Part No.: 2575 0000



Soft soldering set Prop 1
without transport case

Part No.: 2576 0000

Soft soldering set Prop 2

with transport case

Content:

- Piston brazing torch with wind protection
- Copper piece 350 g
- Smallest cylinder 425 g
- 5 m HP hose
- Medium pressure regulator with hose rupture protection
- Refill adaptor

Part No.: 2577 0000



Soft soldering set Prop 2
without transport case

Part No.: 2578 0000

Refill adaptor

for filling small bottles of 3, 5 or 11 kg propane
gas bottles

Part No.: 2481 0000





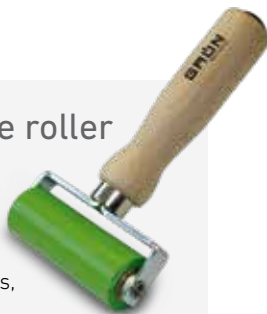
Silicone Pressure roller

and accessories

Silicone pressure double roller

90 mm

Silicone roll, ballbearings, riveted axis, ergonomical wooden handle for maximum pressure, bracketed on both sides, for overlap welding.



Part No.: 1589 0000

Silicone Pressure roller

45 mm

Silicone roll, two smooth running ball bearings, screwed axis, ergonomical wooden handle for maximum pressure, bracketed on one side, for overlap welding.



Part No.: 1590 0000

Silicone Pressure roller

28 mm

Silicone roll, two smooth running ball bearings, screwed axis, ergonomical wooden handle for maximum pressure, bracketed on one side, for overlap welding.



Part No.: 1589 0100

Silicone Pressure roller

45 mm - 45°

Silicone roll, two smooth running ball bearings, screwed axis, ergonomical wooden handle for maximum pressure, bracketed on one side, for overlap welding.



Part No.: 1590 0100

Brass Pressure Roller

Especially small and convex brass roll, smooth running ball bearings, ergonomical wooden handle for maximum pressure.



Part No.: 1590 0200

Weld Seam Tester

Weld seam tester with wooden handle, 90° angled.



Part No.: 1590 0300



Saves working
time and money!

Adhesive application device

For quick, safe processing of polyurethane adhesive.

- handy maintenance
- free energy
- independent
- high laying capacity by means of free outflow
- of the adhesive
- no problems regarding cleaning
- low dead weight

Of course you can lay the PU roof adhesive manually directly from the can. But with the GRÜN adhesive application device laying is blindingly easy and very quick.

The three adhesion bulges, which are at least necessary per meter width (corner and edge areas additional bulges) with a minimum diameter of approx. 8 mm are applied time-saving in one process step. The device works without any external energy, is immediately and at any time ready for usage and absolutely maintenance-free.

In case of adhesions on trapezoidal sheets the adjustment to the particular sheet is carried out with only a few grips. Lateral rollers and the guide wheel guarantee a proper compliance with the running direction. The application tips of the adhesive one way packages have to be cut, each ventilation hole has to be pierced and the packages have to be inserted. By now adhesion can begin by means of raising the tilt device. For stopping adhesion the tilt device has to be set to starting position again.

Details



Adhesive application device, the device is delivered completely with four package supports for adhesion packages in a handy cardboard box

Part No.: 5069 0000



Low-noise, environment-friendly, easy and fast to mount.

Plastic discharge chutes „SchuttStar 120“

made of high-impact polyethylene

- universal usable for steep and flat roofs, repair, modernization and renovation
- easy handling, fast and safe mounting by means of single chain suspension
- chute by chute has to be hanged in easily up to the required length
- low storage and transport room necessary because of conic design
- special and extensive accessories guarantee an efficient use in all ranges of construction sites
- for removal of any kind of demolition waste
- safe and dustfree directly into the container

It is absolutely necessary to attend the usage and mounting of the discharge chutes according to the regulations, e. g. aligning the discharge chutes without formation of areas, where they can hit, with manoeuvring rope, for direct discharge of the demolition waste into a container. Order dust collars and container tarpaulins for dustfree discharge.

✘ **WRONG**



✔ **RIGHT**



The SchuttStar 120 can be easily combined with the GRÜN discharge chute 1100 Part no. 4020, which has been delivered in the past.



Plastic discharge chutes „SchuttStar 120“

Technical data

Total length:	120 cm
Diameter:	57 / 40 cm
Dead weight:	10 kg
Suspension:	with 2 single chains á 20 links
Colour:	green

Part No.: 4025 2000

Accessories

Single spare-chain
galvanized chain 7 mm, 20 links

Part No.: 4025 1102



Plastic branch piece

for lateral charging for SchuttStar 120

Part No.: 4012 0000



Plastic dust collar

for sealing the connecting points of the chutes

Part No.: 4028 0000



Scaffold fastening

galvanized, with rotary double coupling

Part No.: 4055 0000



Manoeuvring ropes



Manoeuvring rope 30 m
with snap hook for aligning the discharge
chutes (plastic rope)

Part No.: 4047 0000



Manoeuvring rope 50 m
with snap hook for aligning the discharge
chutes (plastic rope)

Part No.: 4048 0000



Plastic filling funnel

for sticking into GRÜN discharge chute suspensions

Part No.: 4005 0000



Container tarpaulin

2.900 x 4.800 mm, with filling hole
(special sizes on request)

Part No.: 4051 0000



Sprayers for the roof

Spraying devices for primer and acrylic-based emulsion paint

Our spraying devices offer you maximum performance, manoeuvrability and flexibility for sealing, coating rooves and all kinds of painting jobs.

Whether the job requires high pressure for long hose lines and for spraying very viscous materials or high throughput for maximum productivity: our sprayers offer you exactly what you need.

- Maximum performance
- Extreme flexibility
- Unbeatable manoeuvrability
- Robust steel frame construction
- The large air-filled wheels can even handle rough terrain
- Robust hydraulic lines for long service life (Graco devices)
- High-precision pressure control (Graco devices)





Graco Roof Sprayer ST Max™ II 495 PC Pro Hi-Boy

for primer and acrylic-based emulsion paint, e.g. Sandroplast roof loads

The combination of reliable power and compact design makes the ST Max™ II 495 PC Pro Hi-Boy the ideal device for applying acrylic paints, emulsions, lacquers, stains and dispersions onto walls, wood and metal surfaces.

- SmartControl™ 2.5 with FastFlush™
- Digital display for pressure, litres and duration
- Digital control for variable pressure
- Error message and diagnosis function for optimal maintenance
- FastFlush™ cleaning system is very fast and significantly reduces the cleaning duration
- Completely closed construction protects against dirt and dust
- Brushless direct current motor
- ProGuard™+ protects against unfavourable or extreme power conditions

Included with delivery:

- Contractor™ spray gun
- Filter (spray gun and assembly block)
- BlueMax™ II hose 1/4" x 15 m
- RAC™ X (PAA517) nozzle and nozzle holder
- ProGuard™+ voltage protection

Technical data

Motor:	1,2 kW / 230 V electric direct current motor
Max. nozzle size:	1 gun 0,025"
Max. pressure:	227 bar
Max. output:	2,3 l/min.
Weight:	approx. 30 kg

Part No.: 7999 170000



Graco Roof Sprayer Mark V ProContractor

for primer and acrylic-based emulsion paint, e.g. Sandroplast roof loads

Included with delivery:

- SmartControl™ 3.0
- WatchDog™
- FastFlush™
- ProConnect 2™
- QuikReel™
- Spray gun with HandTite™
- RAC X™ nozzle holder and nozzles
- BlueMax™ II hose whip 0,90 m
- BlueMax II hose 30 m
- TSL™ 0,25 l
- Universal hammer
- Adjustable spanner and blue tool box

Everything completely assembled!

Technical data

Motor:	1.6 kW / 230 V electric direct current motor
Max. nozzle size:	1 gun 0,037"
Max. pressure:	230 bar
Max. output:	4.3 l/min.
Weight:	approx. 65 kg

Part No.: 7999 150000



Graco Roof Sprayer GH5040

for spraying sealants, roof coverings and protective coatings

The GH5040 is a powerful hydraulic spraying device that enable you to spray a wide range of materials: paints and airless sprayed mortar, roof coatings, sealant materials and protective coatings. The GH5040 can be customised to suit numerous applications. Exchange high pressure for high throughput.

- Robust steel frame construction
- Honda motor with electric start
- Recoil starter as failure protection
- Powerful 12 V charging system
- High-performance hydraulic system by Graco
- Even faster switchover
- O-ring seal prevents leakage
- Robust hydraulic lines for long service life

Technical data

Motor:	9,7 kW Honda petrol motor
Max. nozzle size:	1 gun 0,067"
Max. pressure:	345 bar
Max. output:	13,2 l/min.
Weight:	approx. 197 kg

Part No.: 7999 190000

Accessories set

- 5 x H55050 1/2" x 15 m hose
- 1 x H53810 3/8" x 3 m hose
- 1 x H52503 1/4" x 0,9 m hose
- Flex Plus gun
- XHD517 and XHD531 nozzles
- Gun extension of 50 cm

Part No.: X0116 U759



Hand wing pump

for delivery of bitumen emulsion

- robust, efficient hand wing pump for delivery of liquids with dynamic viscosity from approx. 75 m Pas to 4500 m Pas.
- large pressure container. Delivery of approx. 27 litres per minute at 88 double strokes
- the filled container is put onto the chassis and secured by a chain

Technical data

Delivery / capacity:	27 l/min
Length:	approx. 700 mm
Width:	approx. 870 mm
Height:	approx. 1.410 mm
Dead weight:	approx. 33 kg

Part No. (without spray hose & pipe): 5121 0000

Accessories



10 m spray hose 1" / 3/4"

Part No.: 1611 0000



5 m spray hose 1" / 3/4"

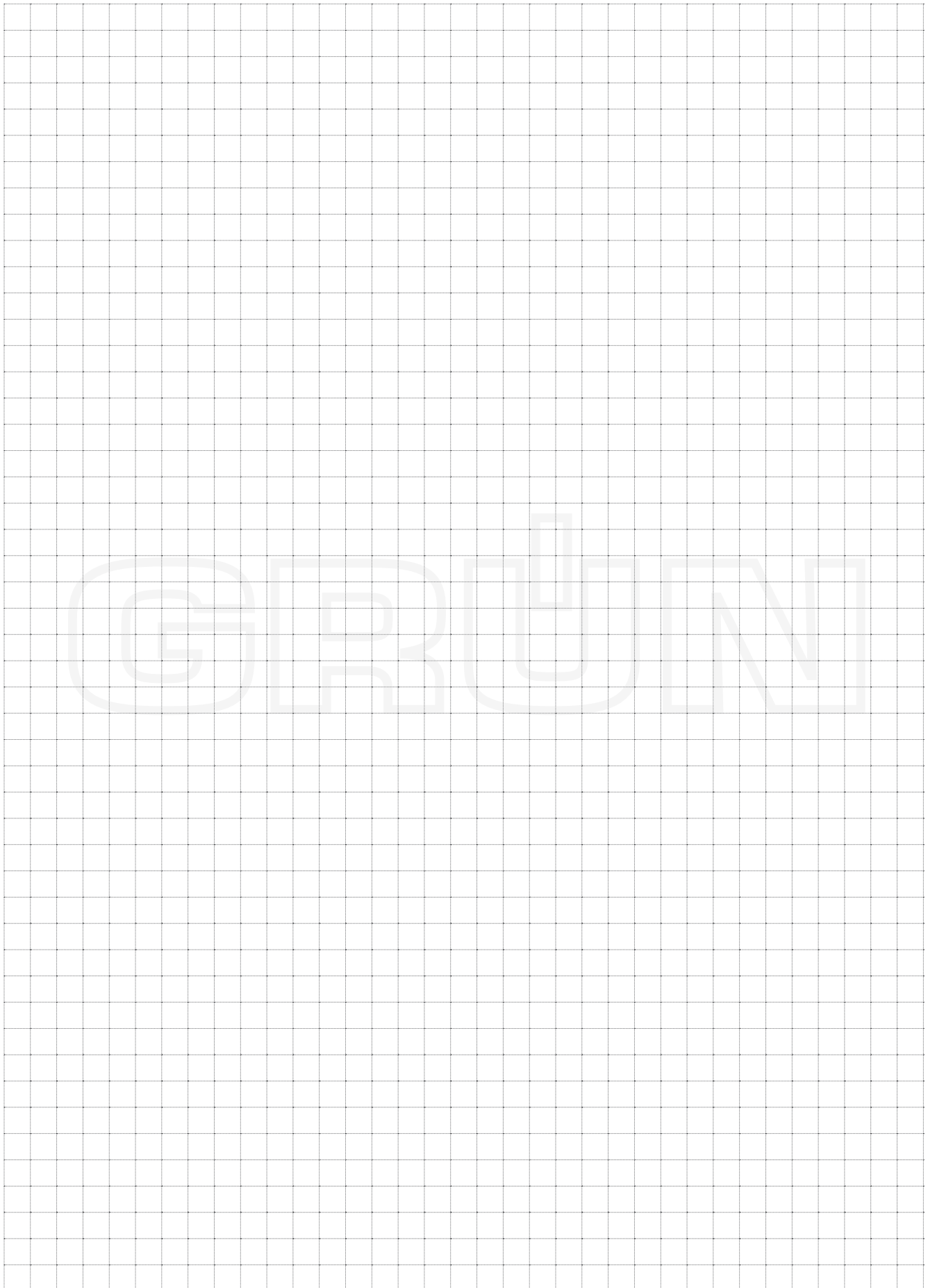
Part No.: 1612 0000



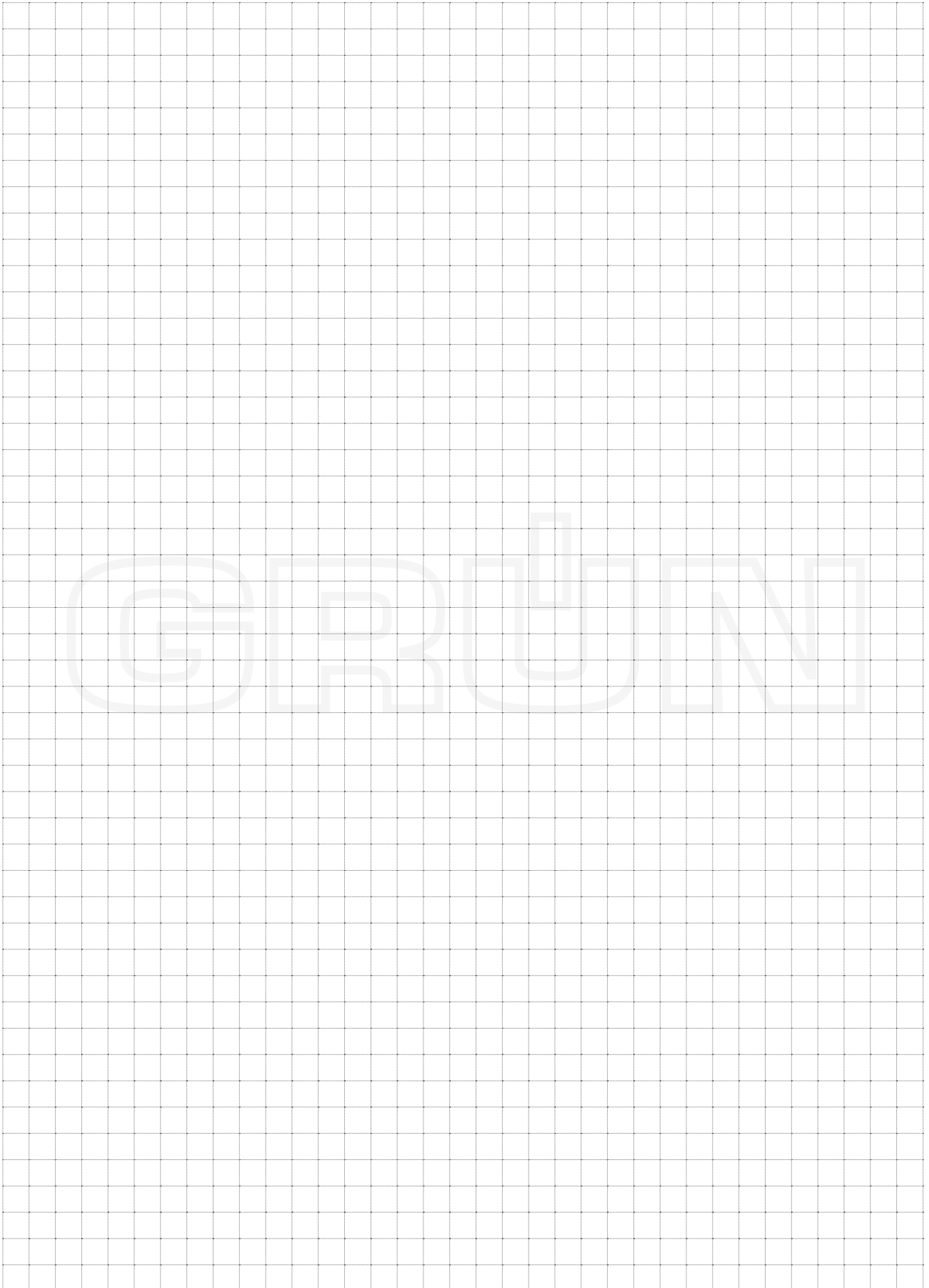
Spray pipe for hand wing pump

Part No.: 1621 9000

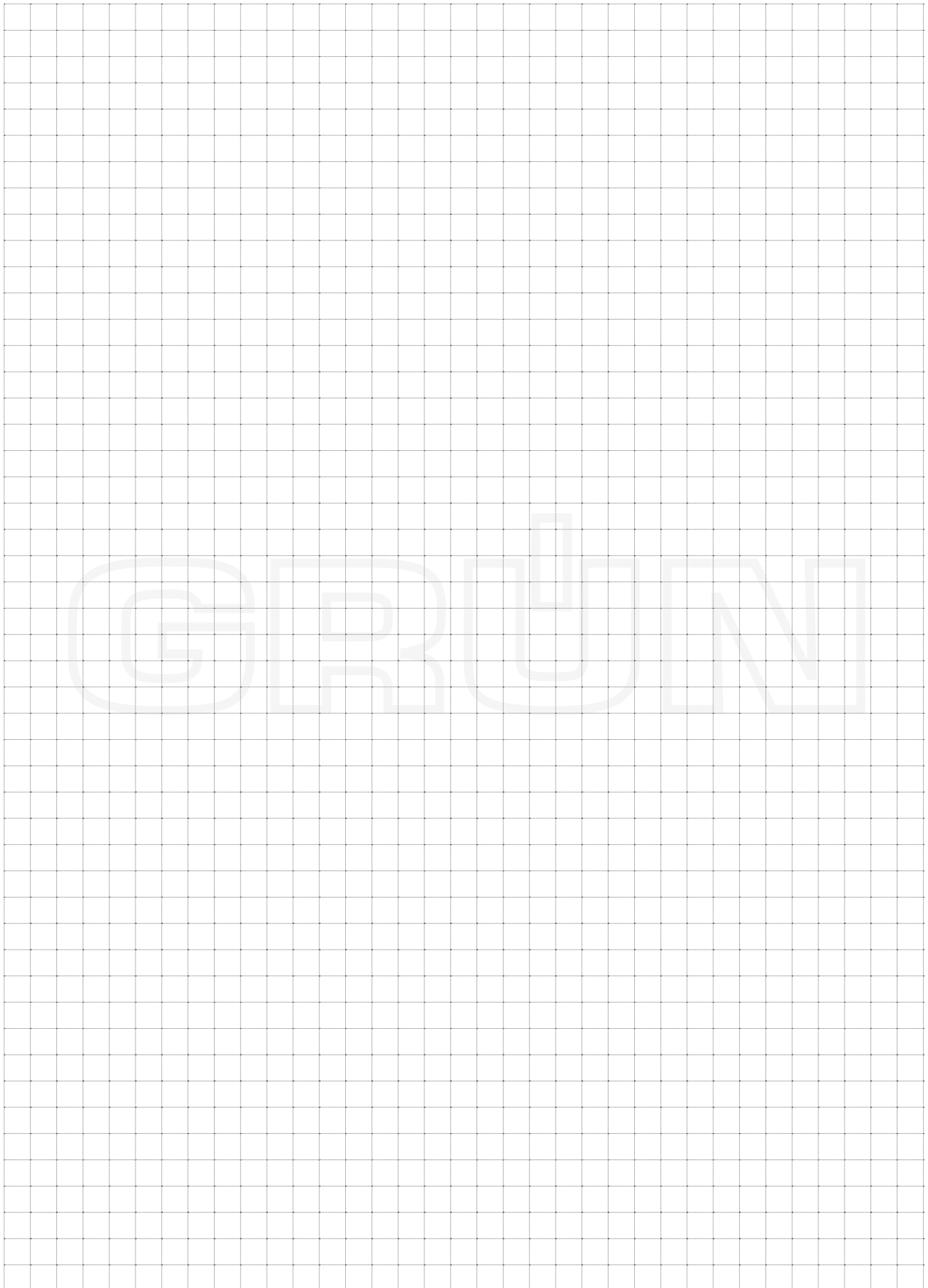
Notes



Notes



Notes



Terms and Conditions of Sale and Delivery

§ 1 Scope of application

The following Terms and Conditions apply to all deliveries and services including future sales and form part of the Contractual Agreement. Contrary General Terms and Conditions of the customer shall not become part of the Contractual Agreement even where no express objection is made and even in circumstances where a service is provided. Any divergence from the present General Terms and Conditions and any other side agreements shall not be valid unless expressly agreed in writing by us. Said requirement for agreement shall apply in every case and shall in particular apply in circumstances where we act unconditionally in executing a delivery or service to a customer in full knowledge of the General Terms and Conditions of such a customer. Only Managing Directors and Authorised Signatories of our company who are entered in the Trade Registry are entitled to agree Terms and Conditions of Delivery and Service which are divergent from the present General Terms and Conditions. The present General Terms and Conditions shall apply until such time as new General Terms and Conditions are published.

§ 2 Offer

Offers made by our company are without engagement and non-binding at all times and subject to delivery to ourselves. This shall also apply in circumstances where prior to the conclusion of the contract we have provided the customer with catalogues, product descriptions or technical documentation (such as user manuals, computations, calculations) in which we reserve rights of ownership and copyright. Design or technical aspects of products may deviate from descriptions or figures shown. The customer may not derive any rights against us from such deviations. Verbal commitments made by employees and representatives shall only be binding for us if expressly confirmed in writing. Insofar as an order may be viewed as an offer pursuant to § 145 German Civil Code (BGB), we may accept such an order within four weeks. Acceptance may be declared either in writing or via the delivery of products or provision of other services to the customer. Notwithstanding confirmation of an order, we shall be entitled to refuse a customer or not execute an order in the event that justified doubts exist as to the correctness of information provided by such a customer or in the event that other reasons, such as impending insolvency or lack of creditworthiness, militate against the execution of the order.

§ 3 Delivery, dispatch, transfer of risk

Delivery deadlines shall only be deemed to have been agreed to be binding if we make an express commitment in writing that such deadlines are binding. Insofar as binding delivery deadlines have been agreed, we shall not be in default without a written reminder from the customer. All delivery deadlines shall be subject to correct and timely delivery to ourselves. Partial deliveries are permitted. Compliance with deadlines for deliveries and services requires all documentation to be supplied by the customer, all approvals and authorisations required, in particular for plans, to be made available in a timely manner and further requires customers to perform all acts of co-involvement incumbent on them and for the agreed payment terms to be observed. Deadlines will be extended accordingly in the event that the above requirements are not met. This shall not apply if we ourselves are responsible for the delay.

Deadlines will be extended accordingly in the event that non-compliance with delivery deadlines is due to Acts of God such as war, riots or similar occurrences, strikes, lock-outs, non-timely delivery to ourselves by a supplier or similar. In the event that we are in default of delivery, customers may require compensation in the amount of 0.5 percent of the price for the part of the delivery which

could not be put into proper operation owing to the delay for each complete week of default. Notwithstanding this, the total amount of compensation payable shall not exceed 5 percent of the price.

Compensation claims asserted by the customer because of delay to delivery and services not rendered which extend beyond the aforementioned limit shall be excluded in all cases of delayed delivery including following the expiry of any delivery deadline which we may have been set. The above shall not apply in circumstances where we are compulsorily liable due to intent, gross negligence or damage to life, limb or health. The present provision does not imply a change in the burden of proof to the detriment of the customer. Within the scope of statutory provisions, the customer may only withdraw from the contract insofar as we are responsible for the delay in delivery.

On request, customers shall be required to declare within a reasonable deadline whether they intend to withdraw from the contract due to delay in delivery or whether they insist on delivery.

Insofar as delivery is impossible, customers shall be entitled to require compensation unless the reason why delivery is impossible is not our responsibility. Notwithstanding this, such a compensation claim of the customer shall be limited to a maximum of 25 percent of the net order value of the part of the delivery which cannot be used in a timely manner or in accordance with the contract due to impossibility of delivery. This is without prejudice to the right of the customer to withdraw from the contract. Our liability in the case of negligent breach of a material contractual duty shall be restricted to foreseeable damages typical to the sort of contract.

Delivery of products takes place directly to the customer. Risk shall be transferred to the customer when the object of delivery has left our works. The same shall apply in circumstances where partial deliveries take place or where we provide further services. Products will be delivered to a different destination at the request of the customer. Insofar as it has not been agreed that products will be collected by customers themselves or by third parties and the customer has not provided any particular instruction, we shall be entitled to determine the type of dispatch (in particular forwarding company, dispatch route, packaging) ourselves.

Risk of accidental destruction of and of accidental impairment to the goods shall pass to the customer when goods are transferred. Transfer shall have been deemed to have taken place if the customer is in default of acceptance. When goods are dispatched, risk of accidental destruction of and/or of accidental impairment shall be transferred once goods are handed over to the forwarding agent, carrier or other person or institute determined for the execution of dispatch.

§ 4 Remuneration, payment conditions

Insofar as fixed prices have not expressly been agreed, the amount of the price for the respective delivery or service shall be the company price list valid at the respective time of confirmation of order. Prices are stated net ex warehouse not including deductions and statutory Value Added Tax. Costs of delivery, packaging and any express surcharges are charged separately.

The price for the installation of accessories is charged separately insofar as nothing to the contrary has been agreed. In such a case, the general list prices and transfer pricing rates at the planned time of installation shall apply.

Cost estimates for repairs are prepared to the best of our knowledge and do not constitute a fixed price agreement. There is no requirement for an object inspected within the scope of a cost estimate to be returned to its original condition if this is not technically and economically feasible.

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In the event that a repair order is placed which does not include a clear indication of fault and cost limitation, we may complete any repairs which we deem to be necessary whilst according due consideration to the market value, operational safety and functionality of the object of repair. In the event that a customer has provided an indication of the fault and further defects are ascertained during the repair, we may remedy such further defects without a specific order if this is necessary for the maintenance of operational safety and if the expense of so doing is proportionate to the costs of the original order.

Customers will be invoiced for costs incurred if the fault forming the object of complaint is not ascertained during inspection, if a replacement part required can no longer be procured or if the order is withdrawn whilst in the process of being executed. The same shall apply if the customer fails to attend an appointment for repair works.

We expressly reserve the right to refuse cheques or bills of exchange. Such means of payment will only be accepted subject to clearance. Discounting and exchange costs are charged to the customer and shall fall due immediately.

Invoices shall fall due for payment without deduction within 14 days of dispatch of invoice from our company insofar as nothing to the contrary has been agreed in the order confirmation and/or on the invoice. Upon expiry of said deadline, the customer shall be in default without any requirement for a separate warning. In the event that a customer is in default of payment, penalty interest will be charged at an annual rate of 5 percentage points above the respective base rate for private consumers and 8 percentage points above the respective base rate for commercial enterprises pursuant to § 247 German Civil Code (BGB). We reserve the right to demonstrate that interest costs incurred are higher.

Amendments to the prices stated in the contract are permissible if at least 4 months elapse between conclusion of the contract and agreed delivery date and if there have been changes to the standard wages as governed by the collective wage agreement which applies in our case or changes to the services to be provided. In such a case, we may adjust the price in accordance with the change. The same shall apply shall apply mutatis mutandis to an amendment to statutory Value Added Tax and in the event that there is a delay in delivery or service due to the fact that customers fail to fulfil their duty with regard to arranging for timely acceptance or installation in respect of said delivery and service. The customer shall be furnished with evidence of reductions or increases in cost on request.

The customer shall only have the right to set off claims in circumstances where counterclaims are established in law or have been recognised by us in writing. In addition, customers may only exercise a right of retention if the claim on which the retention of a payment rests is based on the same contractual relationship and has either been established in law or has been recognised by us.

In the event that the customer is in material default of payment, we shall have the right to cease temporarily or to retain further services to which we have committed under the same contractual relationship and to make all outstanding amounts arising from said same contractual relationship due for immediate payment.

In such a case, any dates or deadlines which may have been agreed for the execution of further deliveries and services shall for our part be deemed to have lapsed without any requirement for particular notification of this circumstance.

§ 5 Retention of title and rights

We reserve ownership of objects delivered and right of exploitation in respect of software included until such time as all claims arisen or arising from the business relationship have been paid in full. The same shall apply in circumstances where individual or all claims have been included by us in a current invoice and the balance of such an invoice has been determined and recognised. The customer is required to keep the goods subject to reservation of title with due diligence on our behalf and to insure them sufficiently, at his own expense, against fire, water, theft or other risks of damage.

The customer shall assign to us relevant claims arising from such insurance contracts at the time when said contracts are concluded. We accept such an assignment.

The customer shall be entitled to resell goods subject to retention of title in the normal course of business. Notwithstanding this, the customer shall assign to us with present effect any claims resulting from such a resale or from relicensing of the software. We accept such an assignment. The customer shall have a revocable right to collect such a claim. The customer shall at our request disclose claims ceded and the relevant debtors. We shall be entitled to disclose the assignment to a debtor of the customer.

Notwithstanding this, we commit not to collect the claim as long as the customer meets payment obligations, as long as the customer does not enter into default of payment and in particular as long as no insolvency proceedings have been instigated against the customer's assets and as long as the customer has not ceased payments. In the event of conduct in a manner contrary to the contract by the customer or in the event of expected cessation of payment, we shall be entitled to take back goods subject to retention of title at the expense of the customer or to require the assignment of any claims the customer may have against third parties with regard to the right to recover possession. Said rights shall also apply in circumstances where secured claims have lapsed. We shall be entitled to dispose of the goods subject to retention of title if necessary and set off any outstanding claims against the proceeds of such a sale.

In the case of simple repossession in accordance with the provision set out above, we shall be entitled to collect any goods subject to retention of title which are still in the customer's possession at the customer's expense. The customer shall grant employees from our company who have been authorised to collect goods subject to retention of title access to the customer's premises during normal office hours and without any requirement for pre-notification.

The exercising of rights arising from retention of title or repossession of goods shall not constitute withdrawal from the contract. Any manufacturing or processing of goods subject to retention of title is undertaken by the customer on our behalf and shall involve no commitment on our part. In the case of processing, combining, mixing or comingling of goods subject to retention of title with other goods which do not belong to us, we shall acquire a co-ownership right in a new product thus created in the ratio of the value of the goods subject to reserved ownership compared with the other materials processed at the time when such processing, combining, mixing or comingling took place. In the event that the customer acquires sole ownership of the product created, both we and the customer shall agree that the customer accords us a co-ownership right in the new product in the ratio of the processed, combined, mixed or comingled goods subject to retention of title and shall keep such co-ownership in safe custody on our behalf.

In the event that liability for a bill of exchange is established on our part in connection with the payment of the purchase price,

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co-ownership and the claim underlying such co-ownership shall not lapse until such time as the bill of exchange is redeemed by the customer as drawee.

We shall commit to release existing collateral at the request of the customer to the extent that the realisable value of such collateral exceeds the claim secured by more than 20 percent. We shall be entitled to select collateral to be released.

§ 6 Liability for material and legal defects

The customer shall be required to act without delay in inspecting deliveries and services for completeness and obvious defects, in particular for obvious incorrect quantities and damage, and to notify us of such circumstances immediately in writing and within one week of receipt of the delivery or service. In the case of non-obvious (hidden) defects, the customer is required to make a complaint to us in writing without delay upon the defect's discovery and by the end of the limitation period at the latest. Timely dispatch of notice of complaint shall be deemed sufficient for compliance with the deadline. In the event that the customer fails to submit complaints as stipulated above, liability shall be excluded in respect of a defect which has not formed an object of complaint. Burden of proof in respect of compliance with the duty to make complaint, the timely compliance with said duty, the existence of defects and the time at which a defect is ascertained rests with the customer.

All customer claims – whatever the legal basis of such claims – shall lapse 12 months after the commencement of the statutory guarantee period. Said deadline shall not apply insofar as the law prescribes longer periods pursuant to German Civil Code (BGB) § 438 Paragraph 1 Clause 2 (buildings and elements of buildings), § 479 Paragraph 1 (recourse claims) and § 634 a Paragraph 1 Clause 2 (construction defects).

We shall be entitled to choose whether to remedy defects or else supply goods not containing defects. We shall further be entitled to carry out such amendments to the product as are necessitated by defects without additional costs for the customer insofar as the service forming the object of the contract is not subjected to anything more than non-material change. In the event of a failure to render the supplementary performance, the customer reserves the right to reduce the price or, if he chooses, to withdraw from the agreement.

The customer shall support us in the remedying of defects and shall in particular provide us with all information and documentation necessary for remedying the defect. In the event of a justified complaint regarding a defect which is our fault, we shall be entitled to choose a replacement delivery or subsequent performance within an appropriate deadline, usually three weeks. If replacement delivery or subsequent performance fails, the customer may choose reduction of remuneration or rescission of the contract.

In all cases of justified complaints regarding defects, we shall have the right to make several attempts to provide subsequent performance before the customer is permitted to require reduction of remuneration or rescission of the contract. Warranty claims in particular do not apply if a defect is caused by unsuitable or improper use, incorrect installation or commissioning on the part of the customer, usual wear and tear, incorrect or negligent treatment, care, maintenance or operation, the use of inappropriate materials or inappropriate accessories, alterations or repair works undertaken by the customer or a third party, damage caused by overload, defective construction works, inappropriate foundations, damage caused by an Act of God (such as a lightning strike) or chemical, electro-chemical or electrical influences insofar as such defects are not attributable to the supplier.

Claims for defects shall not arise in the event of immaterial deviation from the agreed nature of the goods, immaterial impairment of usability, natural wear and tear or defects arising as a result of improper or negligent treatment after transfer of risk, excessive use, the use of inappropriate materials or defects arising as the result of particular external influences not forming an object of provision pursuant to the contract.

Should it emerge that services requested by the customer and provided by us were not necessary as a result of breach of contractual duty by our company, the customer shall remunerate us for such services and shall bear any costs incurred. Such a charge shall be based on our hourly rates and travel expense rates as amended.

Claims of the customer in respect of necessary expenses for the purpose of subsequent performance, in particular transport, forwarding, work and material costs, shall be excluded insofar as such expenses increase because the goods forming the object of delivery are dispatched to a destination other than the delivery address agreed at the time of conclusion of contract.

In addition, we refer to the usual maintenance intervals that are required for the delivered goods. Defects and/or damage resulting from failure to carry out the necessary maintenance work do not constitute material or legal defects. Warranty and/or compensation claims are excluded.

§ 7 Liability

We shall be liable to an unlimited extent in the event of intent and gross negligence on the part of our legal representatives and vicarious agents as well as for damages to life, limb and health caused by a breach of contractual duty which is the fault of us or of our legal representatives or vicarious agents.

The same shall apply in respect of application of the provisions of the German Product Liability Act. Notwithstanding this, our liability shall be limited to compensation for foreseeable and typically occurring damages. Our liability shall also be limited to compensation for foreseeable and typically occurring damages in cases of gross negligence provided one of the exceptional cases stated above does not apply. The provisions stated do not imply a change in the burden of proof to the detriment of the customer. In the event of a breach of obligation not caused by a defect and if further statutory prerequisites apply, the customer may only withdraw from the contract if the breach of obligation is our responsibility. Withdrawal from the contract is excluded if such a breach of obligation is not material. In the case of other culpable breaches of material contractual duties our liability shall be limited to the sum covered under our company liability insurance.

We shall not be liable for damages insofar as the customer might reasonably have been expected to undertake measures to prevent such damages.

The above liability provisions also apply to our employees and other vicarious agents.

§ 8 Compensation in the case of refusal of acceptance

In the event that the customer is in default of collection/acceptance of a service ordered and if we have set the customer an appropriate deadline in writing for the collection/acceptance of our service, we may, once such a deadline has expired, require compensation for non-fulfilment rather than fulfilment of the contract. In such a case, we may require a flat-rate payment of 20 percent of the agreed price as compensation without provision of evidence insofar as it cannot be demonstrated that the damages incurred are materially lower. This shall be without prejudice to the right to assert a claim for highly damages which have actually occurred.

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The present provisions regarding flat-rate calculation of damages shall also apply if an insolvency administrator avails himself of the right not to fulfil the contract in the event of insolvency of the customer.

§ 9 Breach of copyright and of industrial property rights of third parties

In the event that the object of delivery breaches the industrial property rights of third parties and copyright in particular or in the event that third parties are entitled to require the customer to desist from further use of the object of delivery, we shall commit to taking back the delivery and to providing appropriate subsequent performance. The right of the customer to assert further claims for non-fulfilment are excluded.

Insofar as software is included within the scope of delivery, the customer shall be accorded a non-exclusive right to use the software thus supplied for the agreed purpose as well as being accorded the agreed scope of services in respect of the object of delivery determined for the purpose. All other rights in the software shall remain with us. The customer shall not in particular receive the right to reproduce or alter the software or to make the software available to an unauthorised third party unless our express permission has been given. The customer shall commit to notifying us without delay of instances where the industrial property rights of third parties are affected with regard to the software delivered and to bear the costs of legal defence to be undertaken by us. In the event of assertions made regarding the industrial property rights of third parties, we shall be entitled to act at our own expense in undertaking necessary alterations to software even in cases where goods have been delivered and paid for.

In every case where hardware is sold on, only the rights stated above shall be transferred to the new owner. All other rights in the programmes shall be retained exclusively by us.

§ 10 Ownership of and copyright in documentation

We shall retain ownership of and copyright in technical documentation, diagrams and drawings which we make available to the customer. The customer is not permitted to make such documentation accessible to unauthorised third parties. In the event that the customer is in breach of this duty or commits any other misuse, we shall be entitled to require return of the documentation.

§ 11 Secrecy, confidentiality

The customer agrees that data we receive within the scope of the business relationship may be stored and processed via an IT system.

Data will be treated strictly confidentially and statutory stipulations will be complied with. Insofar as the contractual parties exchange confidential information of a commercial or technical nature or one party becomes aware of information from the sphere of the other party which is usually viewed as a business secret, e.g. customer data, they shall commit to treat such information strictly confidentially and not to make the information available to third parties nor use the information for any purpose other than for the execution of the contract.

Information which is demonstrably in the public domain, information which enters the public domain without any action on the part of one of the contractual parties, information which becomes known to one of the contractual parties from another source which has no duty of confidentiality towards the other contractual party and information which must be disclosed by one of the contrac-

tual parties on the basis of compulsory statutory stipulations (in particular to courts, law enforcement agencies and government authorities) shall be exceptions to the mutual duty to maintain confidentiality.

Each of the contractual parties shall commit to returning all confidential information physically transmitted by the respective other contractual party to said other contractual party at any time following a relevant request or, by the choice of the other party, to destroy such information without retaining copies or records. Records, summaries and evaluations made by a contractual party and containing confidential information shall be destroyed without delay at the request of the other contractual party to delete electronically transmitted and/or stored confidential information. Written confirmation shall be provided to the other contractual party on request that destruction/deletion has been carried out.

Notwithstanding this, the above regulations do not apply to copies which need to be kept in a confidential file by one of the contractual parties for the purpose of evidence.

The term of the present duty of confidentiality exceeds the term of purchase, work and service agreements by five years.

§ 12 Miscellaneous provisions

We shall be entitled to avail ourselves of the assistance of third parties for the purpose of fulfilling our contractual obligations. This shall be without prejudice to our responsibility pursuant to the present agreement.

In the case of delivery agreements on a requisition basis, the supplier shall, insofar as nothing to the contrary has been agreed, be notified of binding quantities at least one month prior to the delivery date via requisition. Additional costs caused by delayed requisition or by subsequent amendments to the requisition regarding schedule or quality made by the orderer shall be borne by the orderer.

No side agreements have been made.

In the event that one of the provisions contained within the present agreement should be or should become invalid, this shall be without prejudice to the validity of other provisions herein contained. Such an invalid provision shall be replaced with a valid provision that as closely as possible reflects the economic purpose of said invalid provision. Statutory provisions shall otherwise apply.

Place of jurisdiction shall be Siegen insofar as the customer is a Registered Trader under German Law within the meaning of German Commercial Code (HGB), a legal entity under German public law or a special fund under German public law. The same shall apply in the event that the customer does not have a general place of jurisdiction in the Federal Republic of Germany. Notwithstanding this, we shall also be entitled to assert a legal claim at the location of the Registered Office of the customer.

The present agreement is governed by the law of the Federal Republic of Germany. Conflict-of-law provisions under international civil law shall not apply. The UN Convention on Contracts for the International Sale of Goods (CISG) shall be excluded.

No amendments or supplements to the present General Terms and Conditions shall be valid unless made in writing.

Electronic documents such as e-mails without a qualified electronic signature do not constitute the written form within the meaning of the German Signatures Act. Invoices transmitted to us electronically and not containing a qualified electronic signature of this kind will not be accepted.

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