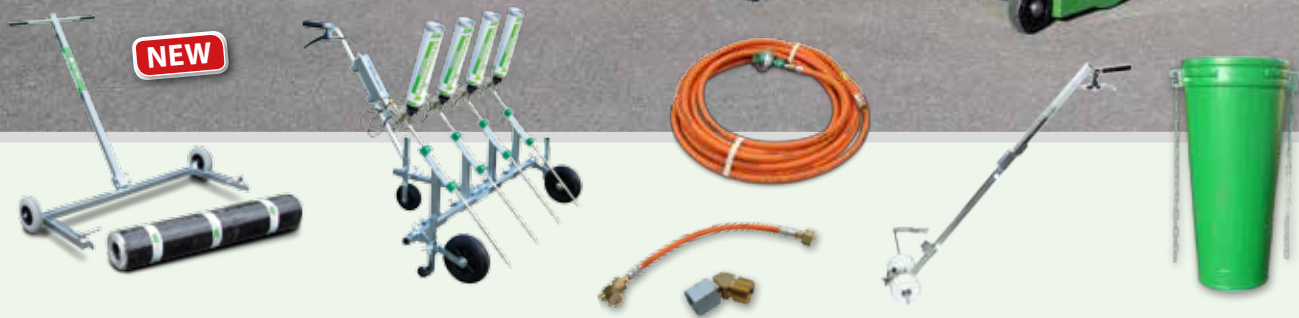


GRÜN

GRÜN GmbH
Special Machinery Factory
for Roof, Road and Construction

*Innovative developments
for your success!*

Quality & Performance



Roofing Products / Building Technique

www.gruen-gmbh.de





Special machinery factory for roof, road and construction

Founded 1919

Since decades the GRÜN GmbH has been engaged in development and manufacture of special machines for the building sector. It has been our target to place technical high developed special devices to the user to grant a high-efficiency working method. Importance is attached to a practice orientated cooperation with contractors, manufacturers of materials for the usage, like casting compound and marking materials and so on and furthermore to associations for the working technicals, to enable the operator to execute high-quality working results.

Production and sale takes place on the premises in Wilnsdorf-Niederdielfen / Germany.

Products

Machines for Marking Technology, Boilers for Sealing Compound, Boilers with Hand-operated or Motor Driven Agitator, Mastic Asphalt Boiler and Boiler for the Transport of Mastic Asphalt, Disk Milling Cutter and Joint and Crack Milling Cutter, Lance-type Propane Hot-air Burner, Hand-operated and Motor Driven Spraying Devices, Joint Sealing Applicator, Propane-Burners, Soldering Devices, Hot Air Welding Machines, Gas Bottle Carriages and Gas Bottle Heaters, Bitumen Boilers, Flat Roof Fasteners, Bitumen Buckets, Bitumen Pouring Cans, Roof Repair and Restoration Equipment, Water and Dirt Suction Equipment, Safety Devices against Falling Down, Roof Safety Systems, Flat Roof Guard Rail, Discharge Chutes, Roof Adhesive.





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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

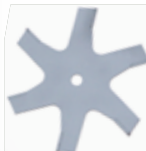
Part No. 5420 0000

Accessories



Spare percussion knife 390 mm for DS 31
with 2 hard metal cutting blades

Part No. 5027 0000



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

Part No. 5023 2000



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



Spare percussion knife 390 mm for DS 30
with 2 hard metal cutting blades

Part No. 5027 0000



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

Part No. 5023 2000

Hergestellt in gewohnter
GRÜN-Qualität



Petrol operated Roof cutter DS 15

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

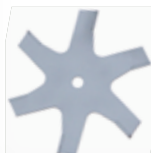
Part No. 5426 0000

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



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.

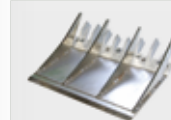
The equipment is dismountable, can be easily transported and is suitable for universal use.

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

Restoration Equipment



Scarafier DH 8

to plane old pebble stone roofs

Equipped with 4 plane blocks, mounted on an flywheel which rotates horizontally. Old coatings of pebble stones can be removed and the underground can be made plane.

Technical data

Engine:	4-stroke-petrol, 5,9 kW = 8 hp
Flywheel (with 4 plane blocks; 1 spare plane block):	approx. 305 mm Ø
Weight:	approx. 100 kg
Length:	approx. 1.550 mm
Width:	approx. 610 mm
Height:	approx. 715 mm

Part No. 5038 0000

Accessories



Spare planer blades Set

Part No. 5038 1010



BE 600 petrol-powered stripper

for stripping roof sheeting and roof insulation

Using the roof cutters of this high-performance machine, old roof coverings can be sheared off quickly and without manual effort, and independently of mains electricity.

- Great drive performance thanks to a powerful Honda four-stroke petrol engine
- The base unit can be used as a multi-drive for other attachments, such as sweeping brooms
- Forward and reverse gears for easier handling
- Fully hydraulic stroke movement and traction drive
- Stepless adjustable speed
- High output thanks to wide stripping plate

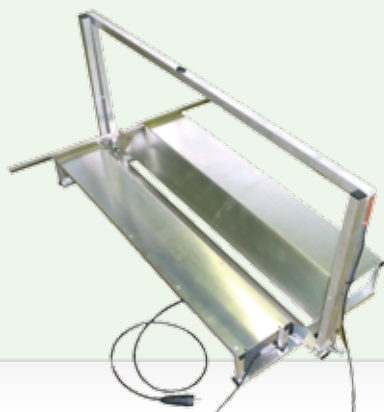


Technical data

Drive motor:	Four-stroke petrol, 9,5 HP
Drive and stroke:	hydraulic
Speed:	stepless adjustable up to 4 m/min.
Stripper plate:	approx. 60 cm breit
Length:	approx. 2.400 mm
Width:	approx. 750 mm
Height:	approx. 1.090 mm
Weight:	approx. 250 kg

Part No. 5039 0000





GRÜN Styrofoam Cutter

The rigid foam cutter allows for producing slope insulation, wedges, section cuts etc. immediately on building site.



- Straight, clean cuts with heating wire. The thermocouple wire reaches a temperature of about 360 °C.
- Vertical and horizontal operation
- Possible inclination angle of the cutting hoops for cutting slope(d) insulation
- V-shaped design of the cutting table for cutting wedges
- Lightweight aluminum frame
- Delivery in cartons

Technical data

Cutttable board size:	1.200 mm
HubHeight:	approx. 350 mm
Trafo:	230 / 24 V fully moulded
Length:	approx. 1.530 mm
Width:	approx. 650 mm
Height:	approx. 950 mm
Weight:	ca.15 kg

Part No. 5110 0000

Accessories



Spare heating wire
1 roll = 10 m

Part No. 5110 0001

NEW



Roof Membrane Cutter TRENNFIX

Cuts bitumen and PVC membranes without damaging the substrate thanks to precise cutting depth adjustment.



- Ergonomic working in upright position
- Can be folded up for easy transport
- With integrated adjustable cutting guide for straight, precision cuts
- Hooked blade included with the delivery

Technical data

Weight: approx. 4,2 kg

Part No. 5410 0000

Accessories



Replacement blade

Part No. 5410 5005



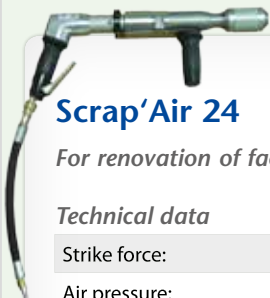


- ✓ lightness
- ✓ handiness
- ✓ efficiency

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

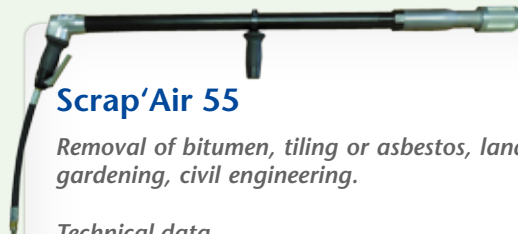


Scrap'Air 38

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



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



Scrap´Air



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)

Part No. 89025 0000

(half-long handle)

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)

Part No. 89023 0000

(half-long handle)

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

Scrap´Air



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

Scrap´Air



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. 89001 0000



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



Stripping knife

Bended, 20 cm wide

Part No. 89000 1003



Carpet knife with a steel blade

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

Part No. 98003 0001



Steel blade

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

Part No. 98003 0002



Gas bottle accessories & small devices

Gas bottle carriages and gas bottle heaters

**Gas bottle carriage
for easy bottle transport!**

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

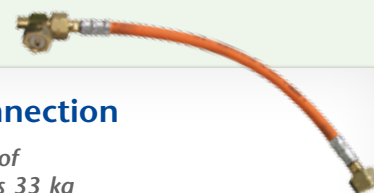
Part No. 5058 0000



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 220 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

Accessories & small devices



Bitumen pouring can

with large spout

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

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 Ø: 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 Ø: 3,0 cm

Temperature indication range: 50 - 250 °C

Part No. 1566 0000

**NEW****Now with
PIEZO-IGNITION
available!**

PRIMAT and REKORD

Propane bitumen boilers

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 steelplate 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.

Propan bitumen boilers

GRÜN



NEW

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PIEZO-IGNITION
available!



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 consumpt.:	approx. max. 0,8 kg/h
Operating pressure:	1,5 bar
Weight:	approx. 38 kg

Part No. 0211 0000

Technical data STATIONÄR 50

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

Part No. 0215 0000

Accessories see on page 19

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 builtin and lackable.

Technical data PRIMAT 150

Content:	approx. 150 l
Bitumen through-put:	200 l/h
Max. propane consumpt.:	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:	300 l/h
Max. propane consumpt.:	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

Propan bitumen boilers



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 consumpt.:	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 consumpt.:	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 consumpt.:	approx. max. 1,4 kg/h
Operating pressure:	1,5 bar
Weight:	approx. 49 kg

Part No. 0203 0000

Accessories see on page 19

MADE
IN
GERMANY

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 consumpt.:	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 consumpt.:	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

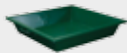
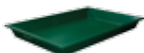
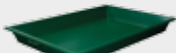
Propan bitumen boilers












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 size 1 for bitumen boilers up to 50 litres	Part No. 0305 0000
	Tray size 2 for bitumen boilers up to 150 litres	Part No. 0306 0000
	Tray size 3 for bitumen boilers up to 250 litres	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 combinationconnection	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



Water and dirt suction equipment INOX 1545 SFE

with special filter and plug socket for tools and input electronics for handcraft and trade

- Suction motor 220-240 V / 16 A / 1200-1500 W, motor housing made of high-impact plastics
- separate Bypass Motor cooling
- protected against splashed water
- compact 45 l stainless steel tank - rustless
- 5 m connecting cable
- chassis with plastic covering, 2 big rubber wheels rear and 2 pulleys in front
- useful driving facility, useful metal box for accessories
- Weight: 12,7 kg
- Accessory included in scope of supply para. 1-9 complete

Part No. 5056 0001

Accessories

Description	Pic.-No.	Part No.
Water suction nozzle	1	5056 0144
Triangle nozzle 50 mm Ø	2	-
All-purpose nozzle with brushes	3	5056 0141
Joint nozzle, narrow	4	5056 0143
Inclined-tube nozzle 50 mm Ø	5	-
Joint nozzle 50 mm	6	-
Suction pipe - stainless steel	7	5056 0139
Suction pipe - plastics	8	-
Suction hose complete for stainless steel suction pipe	9	5056 0138



Suction & Immersion pump

GRÜN

NEW



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 1/2", 3/4" 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 / 400 W
Pump rate:	to 60 l/minute
Head:	max. 6 m
Weight:	approx. 5 kg

Part No. 5057 0000

Accessories

	Water hose 20 m 3/4"	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 1/2", 3/4" and 1" hose.

- Power efficient residue pump & fitted 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 3/4"	Part No. 1601 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.

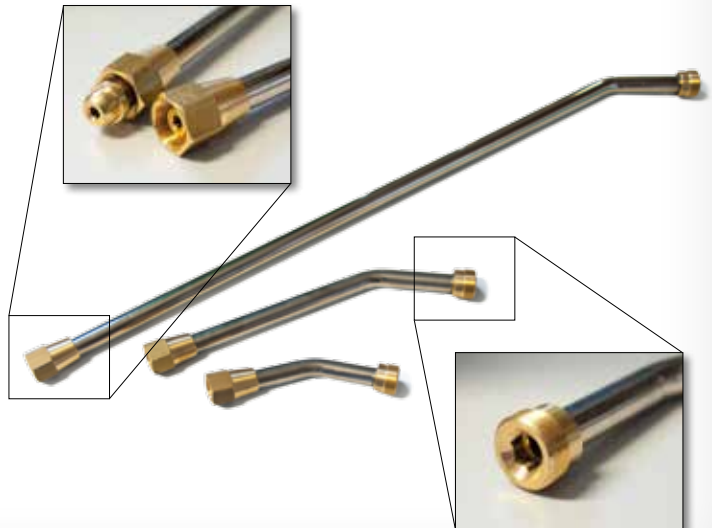


Unbreakable heads

Manufactured from refined stainless steel.

Tube

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



Hand Torch A 25

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

Accessories



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

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



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



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

Accessories



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



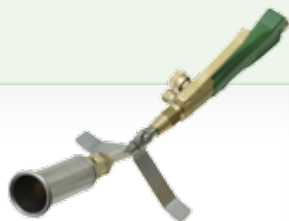
Hose in 10 metre length complete
with coupling pieces and Regulator 4 bar
with safety valve 6,3 x 5 mm

Part No. 1508 0000



Burner K 35

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

Accessories



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 35/500



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



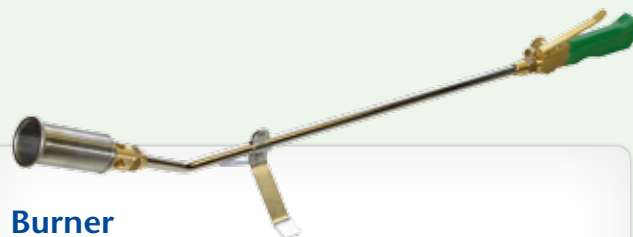
Hose in 5 metre length complete
with coupling pieces and Regulator 4 bar
with safety valve 6,3 x 5 mm

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 35/800

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

Accessories



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

GRÜN

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

Accessories



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 45/800

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

Accessories



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 45/500



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



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

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

Accessories



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 55/800

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



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 55/500



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

Accessories



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



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

Accessories



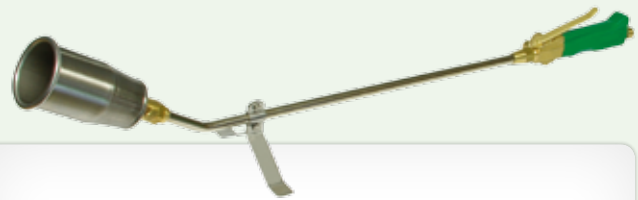
Hose in 5 metre length complete
with coupling pieces and Regulator 4 bar
with safety valve 6,3 x 5 mm

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 65/800

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



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 65/500



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

Accessories



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 Burners



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

Accessories



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 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



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



Powerful Brenner



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

Accessories



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



Bully-Brenner

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



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



Broad Headed Burner

Specially for large area bonding.

Technical data

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

Part No. 0816 0000

Accessories



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

NEW



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



Rotary quick coupling

Design up until 06/13

Article

	Rotary quick coupling fully integrated in 5m high pressure hose 6,3 x 5 mm, alternatively 3/8" swivel nut	Part No. 1574 0000
	Rotary quick coupling fully integrated in 10m high pressure hose 6,3 x 5 mm, alternatively 3/8" swivel nut	Part No. 1575 0000
	Complete Rotary quick coupling with hose clip	Part No. 1570 0000
	Plug nipple with 3/8" swivel nut on the left	Part No. 1572 0000
	Coupling with hose nozzle for 6 mm hose	Part No. 1573 0000
	Hose clip for coupling	Part No. 1525 0004



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:	Propane / Butane
Total Length:	approx. 1.250 mm
Total 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" 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 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



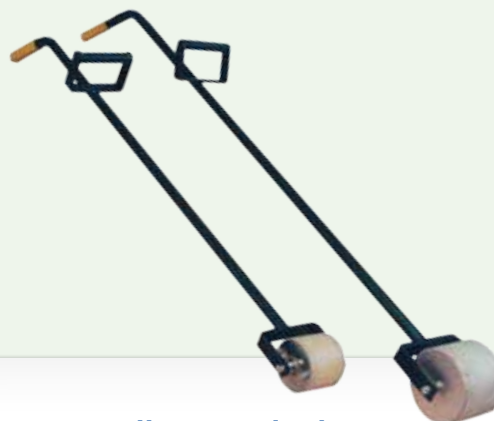
10 m high-pressure hose
and adjustable medium-pressure safety regulator

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



Propane-burner for welding and drying

The new professional burner generation



✓ powerful
✓ silent
✓ lightweight

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, Fachausschuss Bau, confirmed the given values.

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



Propane-burner for welding and drying



Propane-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

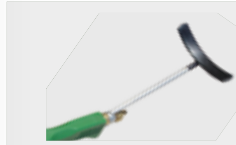
Part No. 0138 0500



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



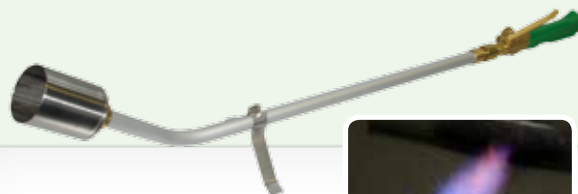
Armrest
for propane burner
LB 120 / LS 95

Part No. 0138 0200



Handgrip
for armrest LB 120/ LS 95

Part No. 0138 0100



Propane-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

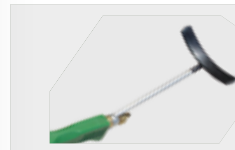
Part No. 0139 0500



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

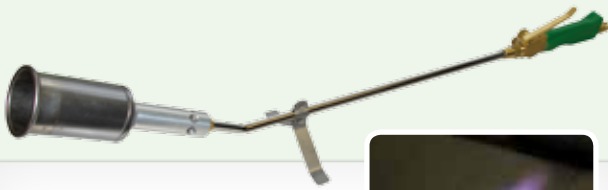


Handgrip
for armrest LB 120/ LS 95

Part No. 0138 0100



Propan-Aufschweiß- und Trockenbrenner



Propane-burner LSt 105



Technical data

Max. heat output:	105 kW
Total Length:	approx. 800 mm
Weight:	approx. 0,80 kg

Continuous sound level

at 3 bar	105 kW 84,0 dB (A)
at 2 bar	85 kW 81,2 dB (A)
at 1,5 bar	73 kW 79,8 dB (A)

Part No. 0137 0000

Also in the following sets available



Propane silent burner LSt 105
with adjustable regulator 0,5 - 4 bar
with hose-failure-protection incl.
5 m high pressure hose

Part No. 0137 0500



Propane silent burner LSt 105
with adjustable regulator 0,5 - 4 bar
with hose-failure-protection incl.
10 m high pressure hose

Part No. 0137 1000



Other Accessories for all Propane-silent-burners



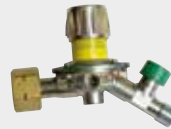
5 m high pressure hose
with adjustable regulator 0,5 - 4 bar
and hose-failure-protection

Part No. 1513 0000



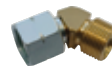
10 m high pressure hose
with adjustable regulator 0,5 - 4 bar
and hose-failure-protection

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





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



Made according to the
quality standards of
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



- Available in the following designs:
Strong burner TS 65/800, universal burner TM 55/800 and
burner for pre-heating TA 55/400

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.

The handgrip

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



Titanium propane gas torches



Titanium strong burner TS 65

Technical data

Max. heat output:	120 kW
Burner head size:	65 mm
Total Length:	approx. 800 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

Accessories



5 m high pressure hose 6,3 x 5 mm
and medium pressure regulator 4 bars
including hose failure valve

Part No. 1507 0000



10 m high pressure hose 6,3 x 5 mm
and medium pressure regulator 4 bars
including hose failure valve

Part No. 1508 0000



Titanium universal burner TM 55

Technical data

Max. heat output:	72 kW
Burner head size:	55 mm
Total Length:	approx. 800 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

Accessories



5 m high pressure hose 6,3 x 5 mm
and medium pressure regulator 4 bars
including hose failure valve

Part No. 1507 0000

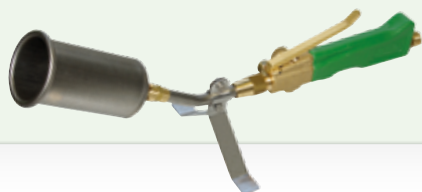


10 m high pressure hose 6,3 x 5 mm
and medium pressure regulator 4 bars
including hose failure valve

Part No. 1508 0000



Titanium propane gas torches



Titanium burner for pre-heating TA 55

Technical data

Max. heat output:	72 kW
Burner head size Ø:	55 mm
Total Length:	approx. 400 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

Accessories



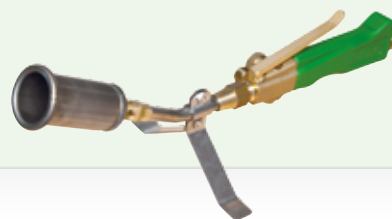
5 m high pressure hose 6,3 x 5 mm
and medium pressure regulator 4 bars
including hose failure valve

Part No. 1507 0000



10 m high pressure hose 6,3 x 5 mm
and medium pressure regulator 4 bars
including hose failure valve

Part No. 1508 0000



Titanium burner for pre-heating TK 35

Technical data

Max. heat output:	18 kW
Burner head size Ø:	35 mm
Total Length:	approx. 400 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



5 m high pressure hose 6,3 x 5 mm
and medium pressure regulator 4 bars
including hose failure valve

Part No. 1507 0000



10 m high pressure hose 6,3 x 5 mm
and medium pressure regulator 4 bars
including hose failure valve

Part No. 1508 0000



Burner boxes

GRÜN

- 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.

Indispensable
for construction
site and trade.



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



Wide Area Rolling Burners

For holohedral heat-sealing of bituminous roofing material

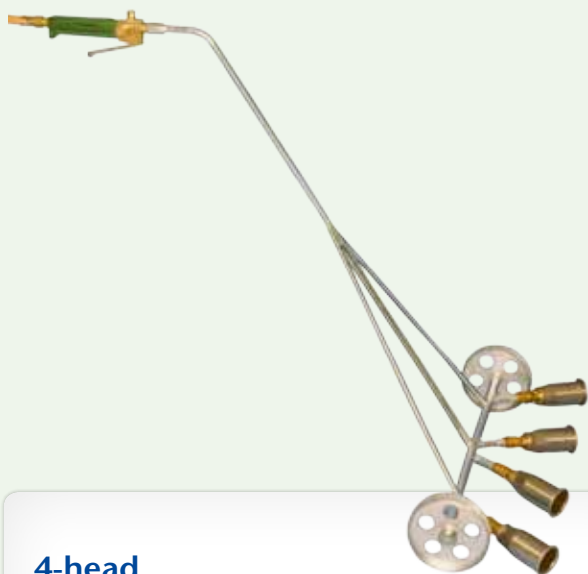
- The whole width of the roofing material is melted simultaneously
- The burner can be tipped over via the big pulleys, so that the heat-seal position is changeable
- Head diameter of all designs 45 mm

Optional V7/45 equipped with windshield.

The windshield is available for subsequent mounting, too!



Wide Area Rolling Burners



4-head rolling burner V4/45

Technical data

Max. heat output:	177,8 kW
Heads:	4 x 45 mm
Total Length:	approx. 1.200 mm
Width:	580 mm
Weight:	approx. 4,2 kg

Part No. 0131 0000

Accessories



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



4-head rolling burner E4/45

Technical data

Max. heat output:	177,8 kW
Heads:	4 x 45 mm
Total Length:	approx. 1.200 mm
Width:	580 mm
Weight:	approx. 4,7 kg

Part No. 0132 0000

Accessories



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

Wide Area Rolling Burners



7-head rolling burner V7/45

Technical data

Max. heat output:	312,7 kW
Total Length:	approx. 1.200 mm
Heads:	7 x 45 mm
Width without rolls:	930 mm
Width with rolls:	1.060 mm
Weight:	approx. 7,0 kg

Part No. 0133 0000

Accessories



Windshield

for subsequent mounting on V7/45

Part No. 0133 1000



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



7-head rolling burner V7/45 with windshield

Technical data

Max. heat output:	312,7 kW
Total Length:	approx. 1.200 mm
Heads:	7 x 45 mm
Width without rolls:	930 mm
Width with rolls:	1.060 mm
Weight:	approx. 11,0 kg

Part No. 0134 0000

Accessories



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

Burners Accessories

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.



Felt applicator

with ball beared roller

Technical data

Total Length:	approx. 1.200 mm
Working width:	approx. 1.050 mm
Weight:	approx. 12,5 kg

Part No. 0319 0000



Roller guider

with 2 plastic rollers

Technical data

Total Length:	approx. 1.450 mm
Working width:	approx. 750 mm
Weight:	approx. 3,0 kg

Part No. 0318 0000



Felt puller

Technical data

Total Length:	approx. 1.000 mm
Weight:	approx. 0,4 kg

Part No. 0330 0000



Pressure roller 2 and 9 kg

for pressing on overlap during seam welding

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



DBW 1100 Speedy roofing membrane transport trolley

The transport solution for roofing membrane

Thanks to its specialised spring mechanism, the transport trolley enables the easy and fast transportation of roofing membrane.

Work is easy on the back, even for taller people due to the three-level height adjustment.

Its wide rollers ensure good distribution of weight and the galvanised surface protects the trolley from corrosion. The compact and light design enables easy transportation.



Three-level height adjustment



Specialised spring mechanism



The spring mechanism yields when subjected to counter-pressure ...



... and then springs back to its original position.



- 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



A german
quality product.

MADE
IN
GERMANY

Gas blowpipes - the complete product range for the professional

Soft soldering - hot coldering - 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



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

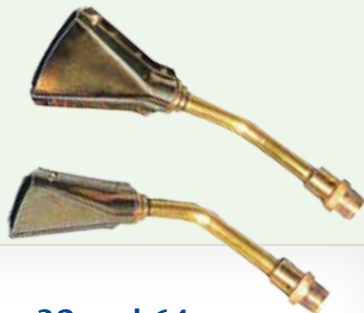
Part No. 2510 0100



Wind cage

with mounting foot, single

Part No. 2510 0200



Flat-flame burner 32 and 64 mm

Details



Flat-flame burner 32 mm

for warming and flame-cleaning

Part No. 2524 0000



Flat-flame burner 64 mm

for warming and flame-cleaning

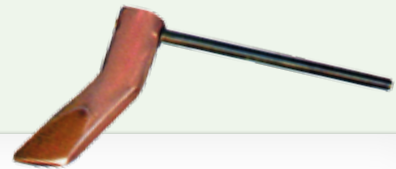
Part No. 2525 0000

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



Copper hatchet-type soldering iron 250 g angled

Part No. 2511 0000



Copper hatchet-type soldering iron 350 g and 500 g angled

angled

Details



Copper hatchet-type soldering iron 350 g

angled

Part No. 2512 0000



Copper hatchet-type soldering iron 500 g

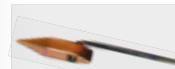
angled

Part No. 2509 0000



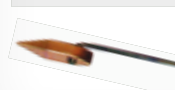
Copper needle-point soldering tip 250 g and 350 g

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

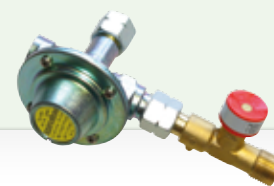
Part No. 2523 0000



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

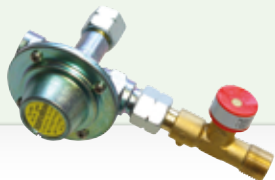
in robust sheet-steel case

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, 32 and 64 mm, refill adaptor, propane gas igniter, wrench SW 17/19, small bottle with stand and 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

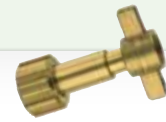


Small bottle

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



Refill adaptor

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

Part No. 2481 0000



Soft soldering set Prop 1

with transport case

Content:

Piston brazing torch with wind protection, Copper piece 350 g, Smallest cylinder 435 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 435 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

Propane Turbo hard soldering and hot-air burner

For universal use in roofing and plumbing work, sanitation, heating, air conditioning and electronics. For soft and hard soldering of gutters, cornices, copper, brass and steel tubes, sheet metal, for heating and bending of plastic pipe joints, welding of plastic parts, etc..

Grip

with quick regulation

- swivel hose connector (no distortion of the propane hose)
- operating pressure 1,5 bar to 4 bar



Part No. 2530 0000

Turbo hard solderer

Details



Turbo hard solderer Ø 12 mm
angled

Part No. 2540 0000



Turbo hard solderer Ø 15 mm
angled

Part No. 2541 0000



Turbo hard solderer Ø 19 mm
angled

Part No. 2542 0000



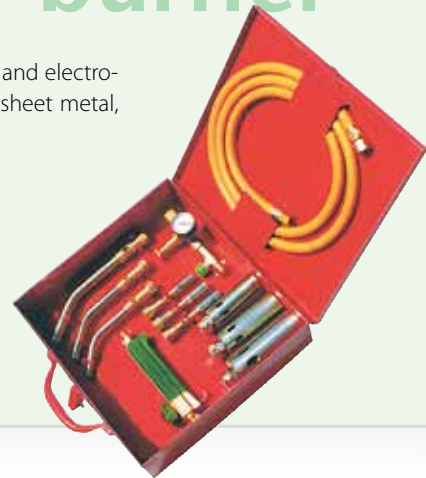
High-pressure hose

6,3 x 5 mm, 2 m long

- both sides R 3/8" left, with adjustable pressure regulator
- gauge and hose rupture protection



Part No. 2591 0000



Hard soldering and hot air set

in a robust steel case, for hard and soft soldering, heating and hot air

Content:

Handle with quick regulation, pistol grip, angled turbo burner 12, 15 and 18 mm, straight turbo burner 12, 16 and 19 mm, hot-air burner heads 35, 40 and 50 mm, 2 m high pressure hose and various pressure regulators with gauge and hose rupture protection, spanner and propane gas igniter.

Part No. 2550 0000

Hot air burner tip assemblies

For combination with the handgrip item no. 2530 and the angled turbo hard solderer, as depicted. Through the simple insertion of the burner heads on the turbo burner, the hot air burner is converted to a hard soldering burner. Adjustable outlet temperature max. approx. 800°C.

Details



Hot-air burner tip Ø 35 mm
for hard soldering burners 12 mm

Part No. 2545 0000



Hot-air burner tip Ø 40 mm
for hard soldering burners 15 mm

Part No. 2546 0000



Hot-air burner tip Ø 50 mm
for hard soldering burners 19 mm

Part No. 2547 0000



With
internal flame!



Brazing torch „Exclusive“

For soft soldering and tin-coating

Main features - your advantages:

- long-life soldering iron pieces 350 g with inner combustion chamber
- reaches operating temperature after only 2 minutes
- maintenance-free and long-lasting
- no external flame
- increased safety
- piezo-ignition
- separate mixing of gas and air over diffuser
- flame thickness and air-gas mixture very easy to regulate
- safety through sintered-filter flashback arrestor
- rotary connection prevents hose connection from coiling
- operating material: propane, butane, propane-butane mixture
- max. operating pressure 4 bar
- operation with 11-kg. propane gas cylinders recommended

Part No. 2527 0000

Accessories:



1,5 m high-pressure hose
6,3 x 5, 3/8" left

Artikelnummer: 2585 0000



3,0 m high-pressure hose
6,3 x 5, 3/8" left

Part No. 1525 0000



5,0 m high-pressure hose
6,3 x 5, 3/8" left

Part No. 1526 0000



Regulator 0,5 - 4 bar
with scale and hose-failure-protection

Part No. 1550 1000



Small bottle complete with stand
for 0,425 kg Propane

Part No. 2480 0000



Medium pressure regulator 1,5 bar
for small bottles with hose rupture protection

Part No. 2595 0000



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

Part No. 2481 0000



Hard and soft soldering device PROP-SA

Soldering with propane gas and oxygen with the portable PROP-SA soldering device

Advantages of the pro devices:

- Small and handy
- Ideally suited for work at workplaces that are difficult to access
- Light and easy to transport
- No handling of heavy cylinders necessary
- Propane gas cylinder 0.425 kg can be refilled from larger propane gas cylinders with the help of the refilling adaptor.
- It is very well suited for smaller soldering and melting jobs up to 2,850° C.

Additional Accessories:



Refill adaptor

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

Part No. 2481 0000



Technical data

Oxygen cylinder	2 litre (200 bar) incl. initial filling
Propane gas cylinder, Propane low pressure regulator with pressure gauge and hose rupture protection	425 g empty / 0 - 4 bar
Hart soldering insert	17 mm Ø shaft 2 - 4 mm
Hand grip	CKE 17 mm Ø shaft
Oxygen-propane hose	3 m
Weight	12 kg

Part No. 2361 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.

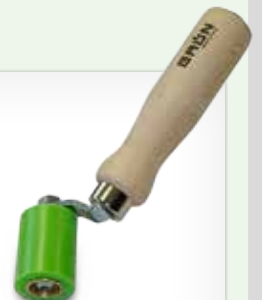


Part No. 1589 0100

Silicone Pressure roller

45 mm - 45°

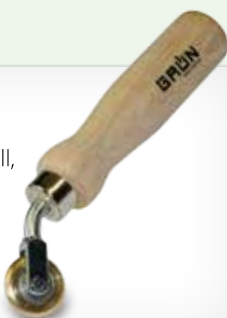
Silicone roll, two smooth running ball bearings, screwed axis, ergonomical wooden handle for maximum pressure, bracketed on one side, for overlap welding.



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

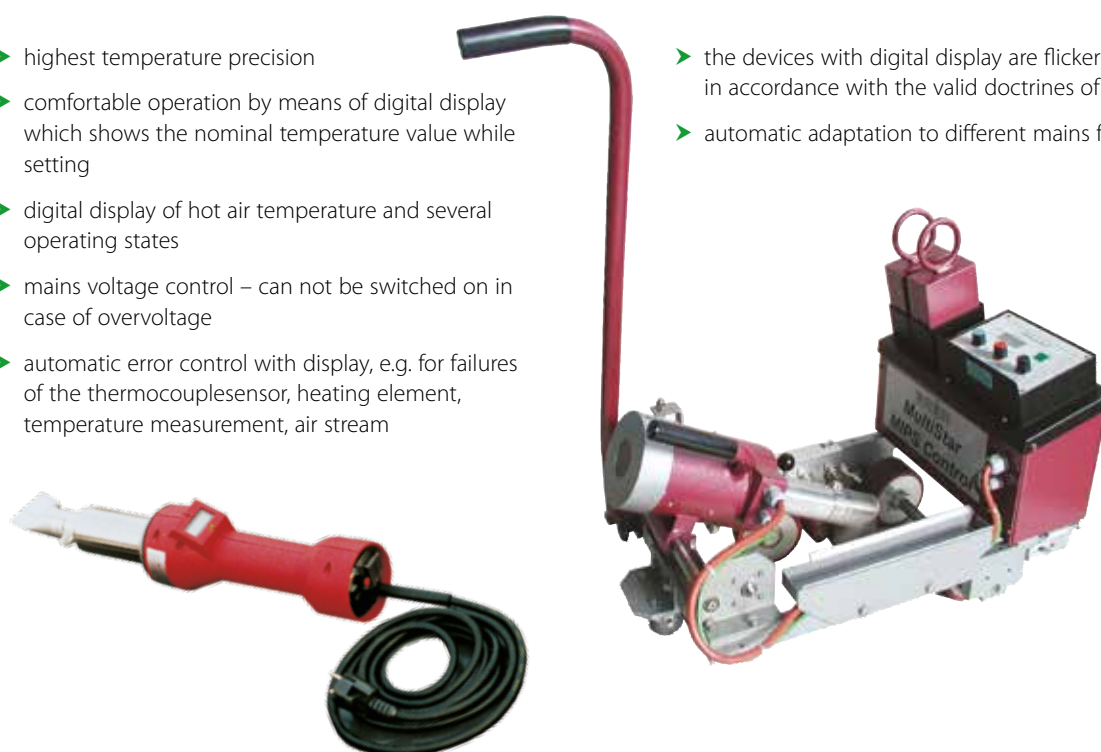


Hot-Air-Torches and Hot-Air-Machines MIPS

with microprocessor control for overlap welding of plastic sheets and bituminous membranes

- highest temperature precision
- comfortable operation by means of digital display which shows the nominal temperature value while setting
- digital display of hot air temperature and several operating states
- mains voltage control – can not be switched on in case of overvoltage
- automatic error control with display, e.g. for failures of the thermocouplesensor, heating element, temperature measurement, air stream

- the devices with digital display are flickering-optimized in accordance with the valid doctrines of the EU
- automatic adaptation to different mains frequencies



AirTronic with microprocessor control MIPS



AirTronic

For overlap welding of plastic sheets and bituminous membranes, for deforming and welding of thermoplastics, for pre-heating and thawing. Fully electronic controlled, 230 V, 50 Hz, temperature adjustment approx. 50° - 700° C, infinitely variable blower adjustment, follow-up cooling.

Details



AirTronic 3000 T MIPS
with nozzle 45 mm, digital display for temperature, heating capacity 3000 W

Part No. 5231 0000



AirTronic 4000 T MIPS
with nozzle 80 mm, digital display for temperature, heating capacity 3500 W

Part No. 5233 0000

Hot-Air-Nozzles for AirTronic 3000 T



Round nozzle

Part No. 5230 8000



45 mm bended, buckled, right

Part No. 5230 8310



45 mm bended, buckled, left

Part No. 5230 8300



Stainless steel nozzle, bended 40 mm

Part No. 5285 0100



Stainless steel nozzle, bended 20 mm

Part No. 5285 0200

Hot-Air-Nozzles for AirTronic 4000 T



80 mm flat, bended, buckled, left, for bituminous welding

Part No. 5230 8410



80 mm straight for preheating

Part No. 5230 8400



Welding Device Boxes

Details



**Welding device box
AirTronic 3000 T MIPS**

With nozzles 20, 45 and 80 mm flat, spare heating element, screwdriver, folding rule and pressure roller 40 mm with hand device AirTronic 3000 T MIPS.

Part No. 5236 0000



**Welding device box
AirTronic 4000 T MIPS**

With nozzles 80 mm flat and straight, spare heating element, screwdriver, folding rule and pressure roller 85 mm and hand device AirTronic 4000 T MIPS.

Part No. 5238 0000

Spare Heating Elements



AirTronic 3000/3000 T MIPS
(ab 06/02) 3000 W, 230 V

Part No. 5231 5000



AirTronic 4000 T MIPS and cross overlap welding device 4000 T MIPS
(since 06/02) 3500 W, 230 V, 16 A

Part No. 5233 5000

Silicone Pressure roller



Silicone Pressure roller 45 mm

Part No. 1590 0000



Silicone pressure double roller 90 mm

Part No. 1589 0000

Other Silicone Pressure roller Accessories on page 53.

Hot-Air-Welding-Machine MultiStar



Hot-Air-Welding-Machine MultiStar with microprocessor control MIPS

with special equipment for welding of plastic sheets

For overlap welding of plastic sheets and bituminous membranes with automatic power voltage adaptation, therefore can be operated at 230 or 400 Volt without changing the heating element!

The full electronic control guarantees a reliable welding meter by meter. Welding near edges (parapet, domelights and so on) is possible.

- microprocessor control MIPS
- thermostatic temperature control
- exact adjustment of the blower
- digital temperature display
- infinitely variable driving speed
- electronical controlled follow-on cooling
- 2 pressure weights each approx. 4,5 kg

Content:

40 mm nozzle, pressure roller 50 mm wide, holding down appliance with fixing roller, hot-air-separation, steering roller and additional rigid guide roller for special plastic membranes to avoid puckering. Heating capacity: 3.500 W at 230 V / 6.300 W at 400 V

Part No. 5245 0000

Conversion kit

Conversion kit for MultiStar for bituminous welding

roller-hotair-separation, nozzle 80 mm, pressure roller 80 mm

Part No. 5221 0000



MultiStar MIPS Control with equipment for bituminous membranes

Content:

movable guide roller, wheel 50 mm, roller-hot-air-separation approx. 5,0 kg, silicone pressure roller 80 mm wide and hot air nozzle 80 mm with preheating

Part No. 5246 0000

Special socket nozzle

for welding machines, cross overlap welding devices and welding boy

40 mm

up to approx. 40 mm welding width

Part No. 5230 8800

60 mm

up to approx. 60 mm welding width

Part No. 5230 8600

80 mm

up to approx. 80 mm welding width

Part No. 5230 8900

90 mm

up to approx. 90-100 mm welding width

Part No. 5230 9000

100 mm

up to approx. 120 mm welding width

Part No. 5230 9100

Welding device ProStar



Welding device ProStar

More safety - because of working without open flame

- Ideal for bituminous weldings
- Safety working because of working without open flame - only by "hot air"

Technical data

heating capacity:	13 kW
propane transfer rate:	max. 1 kg/h
connected load:	350 Watt
blowing unit:	continuously adjustable
driving speed:	continuously adjustable
outlet temperature of hot air:	up to approx. 900°C
standard welding width:	approx. 100 mm with nozzle 90 mm
possible welding width with special nozzle (accessories):	max. 120 mm with nozzle 100 mm
voltage:	230 V ~ AC

Part No. 5260 0000



Hot Air Blower HG 2300 GEM

with infinitely variable air quantity and temperature regulation

- full electronic temperature and air quantity regulation, adjustable infinitely variable
- heating element is easy to change
- durable, brushless high-performance blower motor
- can optimal be used in machines, too
- can be delivered complete inclusive accessory in a functional burner box

Efficient, electronic controlled professional hot air blower!



Hot Air Blower HG 2300 GEM



Hot Air Blower HG 2300 GEM

Technical data

Voltage:	230 V / 50 Hz (special voltages on request)
Air quantity / Air quantity regulation:	max. 600 l/min / infinitely variable regulation
Blower pipe:	Suitable for screwable „Professional“ - nozzles (Ø 30mm)
Capacity:	2.300 W
Temperature:	50 °C - 600 °C
Temperature regulation:	Infinitely variable
Lifetime motor:	approx. 5.000 hours
Lifetime heating system:	approx. 800 hours
Power cable:	H07 RN-F 2 x 1 length 2,5 m
Weight:	850 g

Part No. 5285 0000

Stainless steel nozzle for HG 2300 GEM



Stainless steel nozzle, bended 20 mm

Part No. 5285 0200



Stainless steel nozzle, bended 40 mm

Part No. 5285 0100



Stainless steel round nozzle Ø 5 mm

Part No. 5285 0500



Stainless steel round nozzle Ø 10 mm

Part No. 5285 1000



Stainless steel welding element for
10 mm round nozzle

Part No. 5285 0010



Hot Air Blower HG 2300 GEM in a sheet steel box

Content:

Hand hot air blower HG 2300GEM without nozzle, spare heating element, stainless steel nozzle Ø 40 mm bended, stainless steel nozzle Ø 20 mm bended, silicone pressure roller 40mm, folding rule, cross-head screwdriver, wire brush

Part No. 5286 0000

Spare heating element



Spare heating element 2300 W

Part No. 5285 0001

Silicone pressure roller



Silicone pressure roller 45 mm

Part No. 1590 0000



Silicone pressure double roller 90 mm

Part No. 1589 0000

Other Silicone Pressure roller Accessories on page 53.



Flatroof Foam

1010 S Insulation Adhesive

GRÜN 1010 S Flatroof Foam is a singlecomponent, self-expanding polyurethane adhesive for bonding heat insulation panels for flat and sloped roofs.

Suitable for:

- EPS insulation panels
- Polystyrene
- stone wool
- polyurethane panels
- sanded bituminous sheeting

Advantages of Grün 1010 S Flatroof Foam:

- simple and clean application
- lower material consumption
- cost-effective and quick working method
- fast hardening, waterproof and durable against low temperatures
- long-lasting, secure bond
- waterproof, maximum water-absorption is 1 % as a result of its composition
- environmentally-friendly due to absence of CFCs
- smooths out unevenness
- outstanding adhesive properties
- less post-expansion
- B1 EN13501-1
- tested at the Institute of Industrial Aerodynamics Aachen

Application:

The surfaces to be bonded must be dry, stable, fixed, level and clean. Wetting the surfaces with water is recommended before applying the adhesive. Wet substrates that are covered by a film of water and substrates with standing water are not suitable. The optimum temperature of the spray can for the application is 20 - 25 °C.

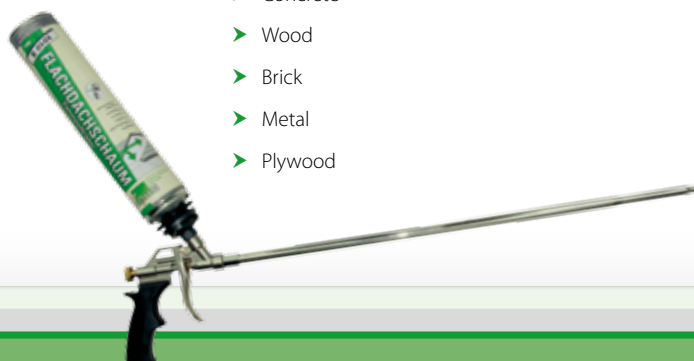
The PU adhesive should be applied to 1 m² of insulation material in 3 horizontal lines that should be evenly spaced from one another. The individually applied lines should have minimum diameter of 30 mm. The edge lines may not be more than 3 - 5 cm away from the edge of the panels to be fixed. Adjustment can take place up to 10 - 15 minutes after application.

The precise dosage of the polyurethane adhesive enables less consumption. An insulation layer of 8 - 12 m² can be affixed with the contents of one can.

Owing to the variety of applications and working conditions we recommend pretests for all areas of application.

Suitable substrates:

- bituminous surfaces, sanded and unsanded
- Chipboards (coarse + fine)
- Concrete
- Wood
- Brick
- Metal
- Plywood



Flatroof Foam & PU-Gun Cleaner



Flatroof Foam 1010 S Insulation Adhesive

Technical specifications:

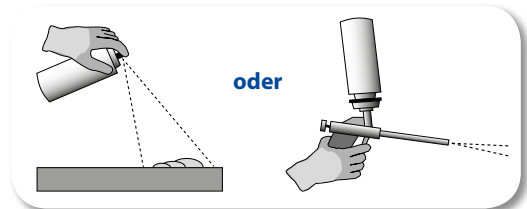
Gross density:	12 - 16 kg/m ³
Application/ substrate temp.:	mind. -5 °C to max. 40 °C
Can temperature:	+5° C to +25 °C optimum +15 bis +25° C
Non-adhesive time:	5 - 10 min. at 18 °C, 60 % rel. humid.
Hardening time:	1,5 - 5 h, depending on temperature and humidity
Temp.resistance:	-40 °C to +90 °C
Water absorption:	DIN 53428 max. 1 Vol. %
Compressive strength:	DIN 53421 0,04 - 0,05 MPa
Tensile strength:	DIN 53455 0,15 - 0,18 MPa
Breaking elongation:	DIN 53455 15 - 25 %
Heat conductivity:	DIN 52612 0,036 W/m K at 20 °C
Filling amount per can:	800 ml

Part No. 6091 0000



PU-Gun Cleaner

GRÜN spray & gun cleaner (PU Foam Cleaner) for removing fresh staining which has not yet hardened and for flushing & cleaning assembly guns.



Can be relied on to remove:

- fresh PU foam
- fresh sealant
- paint & adhesive residue
- oil, grease, wax
- tar

Suitable for:

- cleaning using included attachable spray nozzle
- cleaning and flushing foam guns

Part No. 9970 0086



PU-Foam Gun

with 60 cm lance

Part No. 9970 0087



„Schaum-Fix“ - Applicator

Processes up to four aerosol cans at the same time

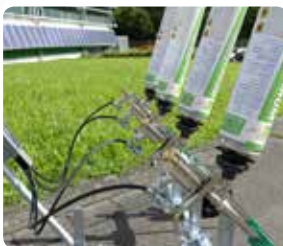
The GRÜN "Foam Fix" Applicator significantly accelerates the processing speed of single-component flatroof foam (polyurethane foam) whilst also improving the quality of the processing.

It can process up to four aerosol cans at the same time. Up to four foam beads can be applied in a single operation to save time. Suitable for all customary applicator gun foams in aerosol cans with screw adapter.

Due to its particular construction, the GRÜN "Foam Fix" Applicator is highly versatile and can be adapted in just a few steps to suit the structural conditions. The four applicator gun holders can be shifted laterally, and where necessary the spraying angle of the foam lance can be altered using the rear guide wheel.



- high laying performance
- simultaneous trigger via a hand lever
- complete with four foam can holders which can be shifted laterally across the main cross beam.
- the track width of the running wheels can be altered by simply fitting and locking both running wheel carriers in the desired position.
- easy cleaning
- lightweight



4 foam can holders



Adjustable guide/running wheels



Adjustable spray angle/distance



Customary aerosol cans with screw adapter

Technical information

Foam applicator guns:	max. 4 pieces, 4 pieces included with delivery
Applicator gun connection:	Screw connection
Spray angle:	45°
Lance distance (with 2 pistols):	min. 110 mm -> max. 1020 mm
Overall width:	1090 mm
Length:	1180 mm
Empty weight:	approx. 15 kg

Part No. 6069 0000



PU-Adhesive for roofs and roofing felts

Universal usable for nearly all adhesive sealings in roof areas

- quick, error-free processing, nearly irrespective of climatic conditions
- durable fixing
- low consumption
- temperature resistant from -40°C to +100°C
- does not dissolve polystyrene
- adhesion even at wet surfaces
- high aging resistance



Safety,
because GRÜN adhesive for roofs keeps the requirements of DIN 1055, part 4. test certificates according to UEATc-regulations are present.

PU-adhesive for roofs and roofing felts



PU-roof-adhesive 1010

Fields of application and surfaces:

Adhesion of insulation materials as polystyrene, polyurethane and rigid expanded phenol resin, foam glass, perlite insulation boards, high-strength mineral fibre insulation and fibreboards on different surfaces and/or among one another. E.g. suitable surfaces: heavy-weight and light-weight



Adhesion of rigid polystyrene foam on plastic-coated trapezoidal sheets.

concrete, gas concrete, galvanized steel trapezoidal sheets and plastic-coated, timber and derived timber products, fibre cement, insulation materials, minerally coated or talced and bitumen roofing felts, which are brushed in the redevelopment area, and so on. In case of special adhesion request help of the application technology department if necessary.

Characteristics:

Moisture-hardened, crack-bridging by means of foaming, aging resistant, wind pull resistant, flexible, no embrittlement, not thermoplastic, poor of solvent, temperature resistant from -40 °C to + 100 °C, storage stability approx. 12 months at cool, dry storage in closed original canisters.



Adhesive consumption on flat surfaces regularly approx. 100 g/m²



Adhesive consumption in edge and corner areas regularly approx. 120 g/m² approx. 100 g/m²

Processing:

The surface has to be solid, clean and free of mould release agents. But wetness is no obstacle. Open can, pierce aluminium membrane, screw on outlet nozzle and cut it. Punch ventilation hole opposite and apply approx. 3 to 4 adhesive lines of approx. 8 mm Ø per 1 m width on the surface. For speeding up work we recommend the GRÜN adhesive application device.

Put in materials, which shall be bonded contacting each other during 5 minutes, press on carefully and if necessary weight down. At pitched areas protect against sliding. During the open time of the adhesive of approx. 10 minutes it is possible to correct positions. Wetness – no standing water – supports the foaming for crack bridging and reduces the setting time.

Curing:

The cure time of insulation material adhesions is 2 to 6 hours dependent on the temperature and the environmental wetness. When bonding bitumen roofing felts among one another and bituminous vapour barriers on trapezoidal sheets cure times of several days could become necessary (delay by means of lower moisture absorption).

Technical data

Raw material base:	Polyurethan MDI-Prepolymer
Processing temperature:	+5 °C bis +80 °C
open adhesion time:	approx. 10 minutes
Density:	approx. 1,12 g/cm ³
Viscosity:	approx. 3800 mPas

Please clarify the consumption quantity with help of the application technique department.

Consumption on flat surfaces: Regularly approx. 100 / 120 g pro m². In edge and corner areas the adhesive quantity has to be increased by approx. 20 to 30 %.

Packing units:



6,5 kg sheet steel one way package
84 package on a flat pallet = 546 kg

Part No. 5100 0000



2,2 kg sheet steel one way package
each 6 packages in
a cardboard box = 13,2 kg

36 cardboard boxes on a flat pallet = 475,2 kg

Part No. 5097 0000

PU-adhesive for roofs and roofing felts



PU-roofing-felt-adhesive 1014

Fields of application and surfaces:

This one-component polyurethane adhesive has been developed especially for the adhesion of fleeccovered plastic roofing felts and at the bottom side fine sand-coated, talced or fleece-covered bitumen roofing felts at different surfaces as minerally coated or talced bitumen roofing felts, bitumen roofing felts, which are brushed in the redevelopment area, concrete, derived timber products, covered and unlaminated insulation materials and boards as for example polystyrene rigid expanded as roofing felts for rolling or folding down as well as adherent mineral fibre insulation materials, polyurethane and phenol resin rigid expanded insulation material.

Conducted tests and investigations have shown excellent adhesion results.

Besides the adhesive has been designed in a way that the adhesion bulge is not pressed into the felt very strong and therefore the optics are not influenced.

Technical data

Raw material base:	polyurethane MDI-Prepolymer
Processing temperature:	+5 °C to +80 °C
open adhesion time:	approx. 10 minutes
Density:	approx. 1,13 g/cm ³
Viscosity:	approx. 5000 mPas

Please clarify the consumption quantity with help of the application technique department.

Consumption on flat surfaces: Regularly approx. 100 / 120 g pro m². In edge and corner areas the adhesive quantity has to be increased by approx. 20 % -30 %.

Packing unit:



2,2 kg sheet steel one way package
each 6 packages in
one cardboard box = 13,2 kg
36 cardboard boxes on one flat pallet = 475,2 kg

Part No. 5092 0000



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

Saves working time and money!

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 & Accessories

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

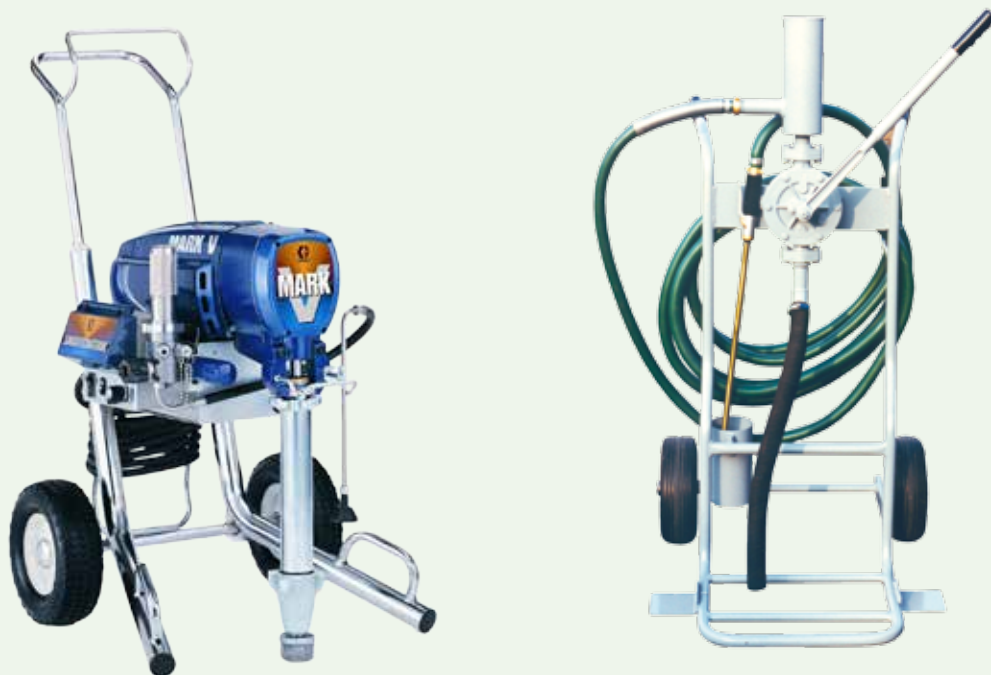


Container tarpaulin

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

Part No. 4051 0000





Roof sprayer

Spraying devices for priming and emulsion paints on base of acrylic



BMK roof sprayer

BMK roof sprayer

BMK roof sprayer

Area of application

Airless BMK 25 is an electric piston unit for the processing of undercoatings, primers, varnishes, wood preservatives, emulsion and acrylic paints.

Description

The electric high-pressure sprayer BMK 25 reaches a max. pressure of 207 bar. The device works, by means of the piston technology, only when the gun is disengaged. The piston packs can be adjusted several times, thus keeping wear and maintenance costs to a minimum.

Thanks to the single-phase power supply, the unit can be adjusted at each worksite without supplementary air pressure. Its low weight makes it easy to transport and allows portable use, especially for remediation and renovation work. Depending on the accessories, the unit can be used as a high-pressure injection device, primarily for airless spraying in different application areas.

Direct suction via a rigid suction tube allows the processing of highly viscous materials. The working pressure is continuously adjustable via the unit's pressure regulator and can be read off the digital display. The carbon brushes of the motor can be easily exchanged. The material is prefiltered at the high-pressure filter at the pump outlet, thus preventing the nozzles from becoming plugged. The trolley has an integrated tool compartment for nozzles, filters, packer etc. Delivery includes: two filter cartridges for the high-pressure filter, a special wrench for maintenance as well as a separating agent for lubricating the separating agent chamber.



Scope of delivery

- 1 x 15 m 1/4" high-pressure hose
- 1 x inversion nozzle 517
- 1 x high-pressure pistol

Technical data

Motor:	1,3 kW / 230 V Electric motor (With an alternating current connection for Schuko sockets)
Max. nozzle size:	0,025"
Max. pressure:	207 bar
Max. capacity:	2,7 l/min.
Weight:	approx. 43 kg

Part No. 7999 300000

Accessories:

pistol extension, 500 mm

Part No. 7999 301000

Roof sprayer

GRÜN

In case of priming it can be worked with 2 pistols simultaneously!



Spraying device Mark V

Spraying device for priming and emulsion paints on base of acrylic.

Application area:

for priming, emulsion paints on base of acrylic e. g. „Dach-elast“ made by Sandroplast.

Scope of delivery:

- 1 x 15 m 3/8" high-pressure hose
- 1 x Texspray pistol
- 1 x GHD-nozzle 631
- 1 x 1/4" 0,9 m whip end
- 1 x manometer

Technical data

Motor:	1,2 kW / 230 V electric powered-direct current motor
Max. nozzle size:	1 pistole: 0,039" 2 pistols: 0,028"
Max. pressure:	230 bar
Max. capacity:	5,5 l/min.
Weight:	approx. 65 kg

Part No. 7999 150000



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:	approx. 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 3/4" with nozzle 3.0 Part No. 1621 0000

§ 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.

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, 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 con-

tractual 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.

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 contractual 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.

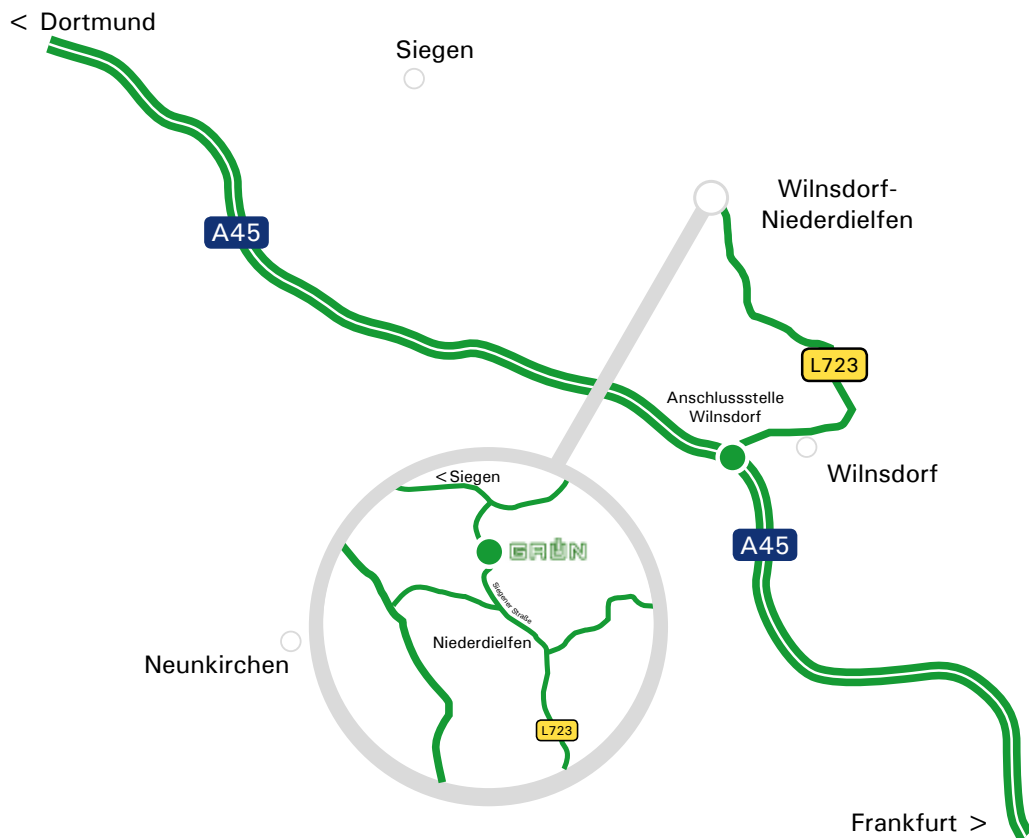
No amendments or supplements to the present General Terms and Conditions shall be valid unless made in writing.

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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