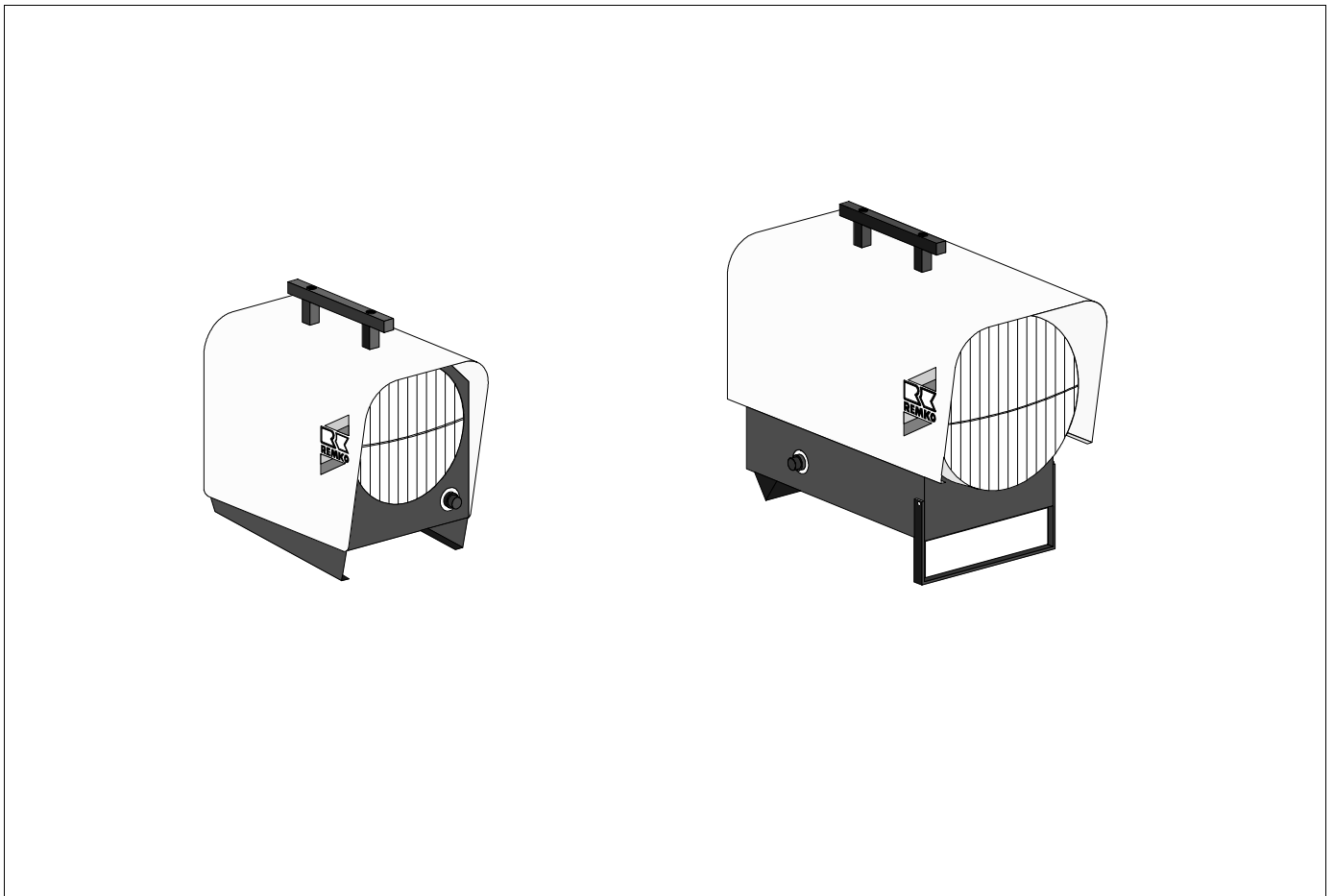


Propane - Heater
REMKO PG 25
REMKO PG 50



Operation
Technology
Spare Parts

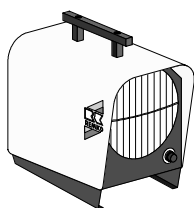
Operating instructions

Make sure to read these instructions carefully before starting/using the unit!

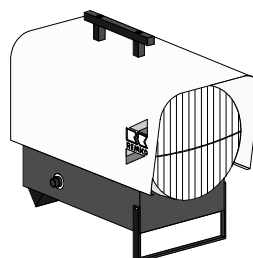
Our guarantee will become void when the unit supplied by us is used and installed for inadequate purposes, or maintained incorrectly, etc., or if it is changed without our prior consent.

Mobile Propane heaters

CE



PG 25



PG 50

Contents	Page	Contents	Page
Safety hints	4	Block diagram	9
Gas supply	4-5	Technical data	9
Starting	6	Drawing PG 25	10
Shut down	6	List of spare parts PG 25	11
Unit function	7	Drawing PG 50	12
Interference elimination	7	List of spare parts PG 50	13
Maintenance	8	Troubleshooting instructions	14

 **Always keep these operating instructions near or on the device!** 

Safety hints

Please make sure that the relevant local building and fire protection codes as well as the regulations of the employer's liability insurance associations are observed when the units are used.

- The units may be operated only by persons who have been trained in this field.
- The units are to be installed and operated in such a way as to ensure that the personnel is not jeopardized by waste gases and radiation heat and that no fire can break out.
- The units may be installed and operated in rooms only if sufficient air can be fed to the units to ensure perfect burning.
- Fuel may be supplied only based on the VGB 21 regulations (use of liquid gas).
- Make sure that mobile liquid gas holders are installed in a stable way and in an upright position.
- During the unit's operation liquid gas holders are not to be used in a lying position; (gas leakage in the liquid phase!).
- The units may be operated only in well aerated rooms. The permanent stay of persons in the rooms where the units are installed is prohibited. Appropriate prohibition signs are to be fitted at the entrances.
- The units may be installed only on a non-combustible base.
- The units may not be installed and operated in environments which are endangered by fire and explosions.
- A safety zone of 1.5 m around the unit, as well as a minimum distance of 3 m from the unit's blower aperture is to be maintained, even in the case of non-combustible objects.
- The blower aperture of the unit may not be narrowed or equipped with hoses or conduits.
- Never place foreign matters/objects into the unit.
- The air suction grid must be free from dirt and loose objects.
- The units may not be exposed to direct water jets.
- All electric cables outside the unit are to be protected from damage (e.g. caused by animals, etc.).
- When maintenance work and repairs are carried out the gas supply is to be cut off and the mains plug to be pulled out of the mains socket.
- **Safety devices may be neither bridged nor blocked!**


Gas supply

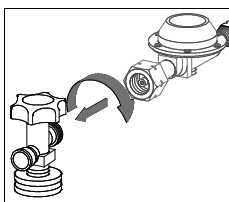
The gas supply/operation of the unit may be carried out only based on the safety regulations VBG 21 as well as on the applicable local building and fire protection codes.

The units have been conceived for a constant supply pressure of 1.5 bar (liquid gas according to DIN 51622 Kat I_{3B/P}, I₃₊).

A higher or lower supply pressure is inadmissible. When longer hoses or conduits are used the resulting loss of pressure is to be taken into account. Only tested components, such as gas hose, pressure controller, hose shearing pin or gas leakage safety device, which are suitable for the intended purpose are to be used. Only pressure controllers with firmly set outlet pressure are admissible.

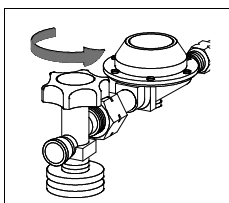
The units may be operated only based on the gas phase.

 A constant gas supply pressure of 1.5 bar (1500 mbar) is to be ensured, even under continuous duty!

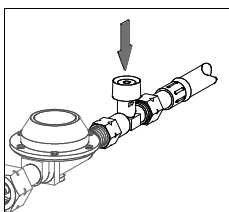


Connect the pressure controller to gas cylinder(s) or supply plant.

 **Attention!**
left-handed thread!

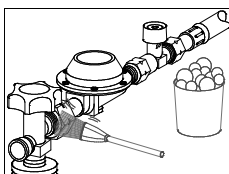


Open the cylinder valve(s) or stop valve of supply line. If gas is taken out of several gas cylinders simultaneously all the valves are to be opened.



Press the unlocking button of hose shearing pin **after having opened** the valve(s).

This must also be done each time when having replaced the cylinders.



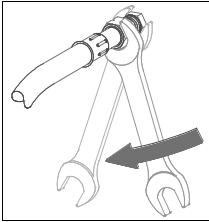
When the units have been installed and connected, all gas bearing connections are to be checked to ensure that they are tight (soap solution, leakage detection spray).

Important Installation Hint

When the gas hose is installed or removed make sure to **counteract** at the **gas connection nipple** of the unit (according to DIN 4815, part 2) by means of an open-ended spanner SW 19, whereby the left-handed thread is to be taken into account.

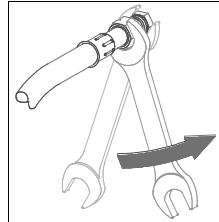
Loosen gas hose

Turn the union nut clockwise




Fasten gas hose

Turn the union nut anticlockwise



This procedure is to be carried out also for all further gas components, such as pressure controller, hose shearing pin, etc.

 **When any work is carried out on the gas supply line and when the gas cylinder is replaced, all stop valves must be closed and there may be no ignition sources in the direct surroundings.**

Hint!

Insufficiently dimensioned supply plants can cause icing of the pressure gas or pressure reservoirs.

When the gas pressure falls, a proper gas supply to the consumer points can no longer be ensured in many cases.

This will result in imperfect combustion, harmful waste gases or extinction of the flame. Therefore the supply plant is to be dimensioned in such a way as to ensure that problems of this kind cannot be caused.

The crystalline white frost may not be removed by open fire, glowing objects or radiators. Sufficient gas supply to the consumer points can be ensured by using an evaporator.

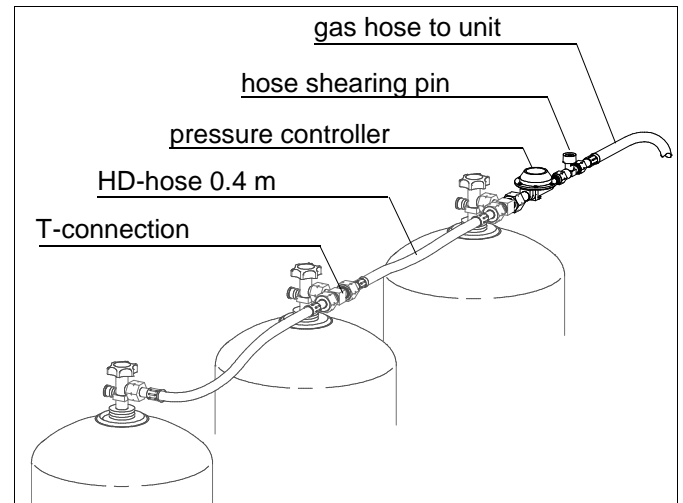
Sufficient gas supply is to be ensured according to the unit power rating (see identification plate), service life and ambient temperature of the supply tanks.

In principle, we recommend that you use a set of at least 3 cylinders to avoid intensive icing of the reservoirs.

The number of cylinders can be increased by using a set of several cylinders (accessories), depending on the unit capacity and the service life.

Multi - cylinder Set

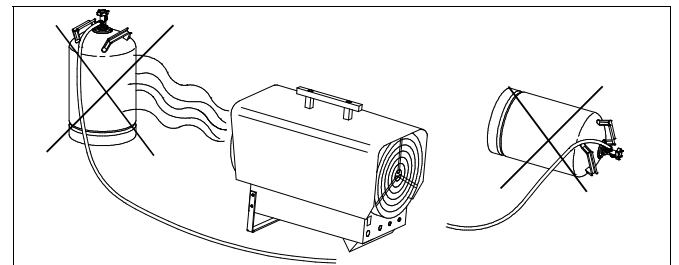
All cylinder valves are to be opened to ensure regular gas tapping.



Important!

The pressure gas tanks are to be installed laterally behind the unit. The tanks may never be heated and defrosted, respectively by the unit's hot air current (**danger of explosion!**)

Cylinders with liquid gas may never be used in a lying position when the unit is in operation (gas leakage in the liquid phase).



Tank Gas Plants

When the units are connected to tank gas plants, make sure that the pipes are properly dimensioned according to the conduit length.

We recommend that a permanently set pressure controller with an outlet pressure of 1.5 bar and an appropriate gas throughput (please refer to unit type plate) is installed directly beside the unit, as well as a certified stop valve which has been adapted to the admission pressure concerned, to ensure a perfect function of the unit.

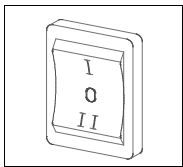
It has proven that the installation of a gas filter in front of the control and safety devices of the units is absolutely necessary (please also refer to DIN 4788 and TRF 88, section 5), to avoid operating troubles of the control and safety devices of the unit which can be caused by harmful substances such as rust and dust from the gas supply line (or tank).

 **Clean gas supply line thoroughly before starting the unit for the first time!** 


Starting

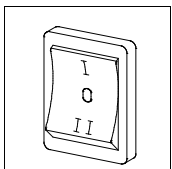
A properly trained person is to be charged with the operation of the units, as well as with the control of the holders and the cylinder stock.

 **The operator's attention is to be drawn to any dangers in connection with the use of liquid gas.**



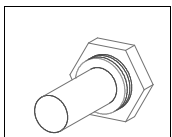
Put the operating switch into "0" position (= Off) and plug the mains into an appropriate mains socket (230V/ 1~ 50 Hz).

 **The electric connection of the units is to be carried out according to the VDE 0100 regulations § 55, via a special supply point with fault current safety switch.**

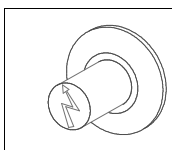


Put the operating switch into "I" position (= heating operation)

The supply air fan starts.



Press down pin of thermoelectric gas valve (safety pilot).



After approx. 2 or 3 sec. the piezo igniter is to be actuated (possibly several times) with the pin still held down, until a formation of flames has occurred.

After the formation of flames still hold down the pin for approx. 10 seconds, until the thermoelectric flame-monitoring has started.

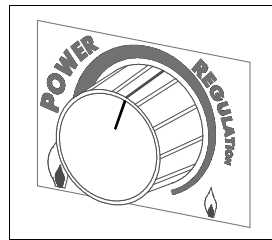
Do not release the pin before this.

If the flame is extinguished after the pin has been released, repeat the ignition procedure after having waited for approx. 1 minute. Then keep the pin pressed down a little longer.

 **Install only in well aerated rooms, but not in living areas and recreation rooms!** 

Setting/Regulation of Heating Capacity

Set desired heating capacity at the continuous "Power-Regulation".

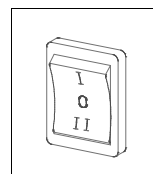


Turn to the left:
larger heating capacity

Turn to the right:
smaller heating capacity

The setting can also be continuously changed during the unit operation.

Ventilation



Put the operating switch into position "II".

In this position only the supply air fan runs and the unit can be used for air circulation.

Heating is not possible!

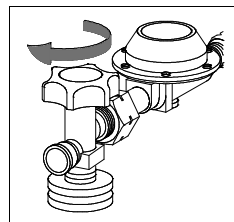
Important Hint!

Make sure that the supply air can be freely sucked and the heated air can be blown off without problems.

Make sure to keep the safety distance from combustible and inflammable materials and to observe the local fire protection codes.

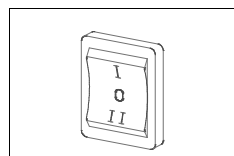


Shut-down



Close all the cylinder valves and stop valves of the supply line.

Let the flame burn out.



Put the operating switch into "0" position (= Off) and unplug the mains plug from mains socket.

Unit function

When the unit has been switched on (operating switch in position "I" = heating operation), the supply air fan is started and the electric solenoid opens. However, gas supply to the burner is still blocked. Gas supply to the burner is released only after having pressed on the pin of the thermoelectric gas valve (safety pilot).

The liquid gas is supplied by means of a nozzle under pressure to the burner pipe, where it is enriched with an adequate quantity of oxygen which has been adapted to the burner capacity concerned.

The generated gas-air-mixture is ignited at the burner head by an electric ignition spark. The spark is generated by the manual actuation of the piezo igniter. The thermoelectric control of the flame is started by heating the thermocouple. The pin of the safety pilot is to be released.

Gas supply is interrupted in case of operating troubles or when the flame goes out. However, the supply air fan continues working. The unit has to be restarted.

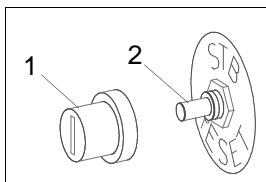
In the case of overheating, the gas supply is interrupted by a safety thermostat (STB) which blocks all the functions of the unit. A manual release of the STB can be carried out only after the unit has cooled down.

During the operation of the unit the min/max heating capacity can be regulated continuously by means of the built-in "Power Regulation".

Interference elimination

The unit is equipped with a **safety thermostat (STB)** which, in the case of overheating, interrupts gas supply and locks the electric devices of the unit. Any functions of the unit are switched off.

If the safety thermostat has been released, the reason for the trouble is to be localized and to be eliminated. Release is to be carried out after having screwed off the protecting cap and after having pressed down the key "STB-RESET".



- Remove protecting cap (1)
- Press key (2)
- Fit protective cap (1)

The "RESET" position can only be set when the feeler has cooled to a temperature below approx. 90°C.

In the chapter "Troubleshooting Instructions" you will find a detailed chart regarding the elimination of faults.

Maintenance

The units are to be checked by an expert as to their perfect operation, when it is necessary and in accordance with the terms of use, but at least every two years.

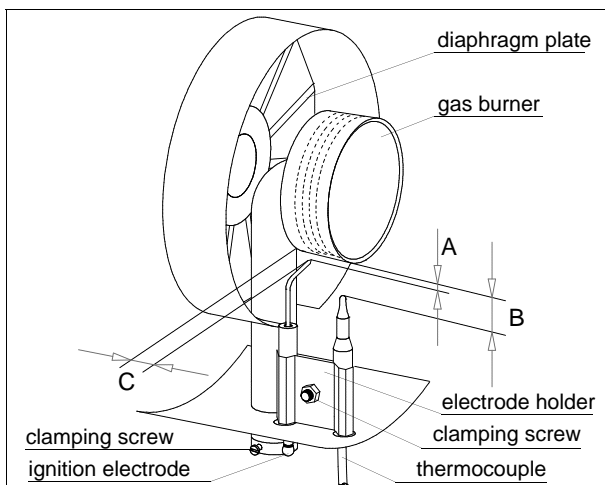
The result of this check is to be recorded in a test certificate, which is to be kept safely until the next check is carried out, and which can be presented to authorized persons at any time.

The persons charged with the operation of the units have to check these before starting the operation as to visual faults at the control and safety devices, and they have to make sure that the protective devices have been fitted.

In the case of faults the supervisor is to be informed.

If those faults endanger the operational reliability of the unit, its operation is to be stopped!

- The units are to be maintained regularly, but at least after each heating period to ensure their trouble-free operation and a long service life.
- The units are to be kept free from dust and other dirt, and it is to be cleaned with a dry or humid cloth (do not use water jets for cleaning).
- Do not use any aggressive cleaning agents or cleaners containing solvents.
- The suction opening for combustion air, as well as the injector fitted behind it and the gas nozzle are to be checked regularly to ensure that they are free from dirt.
- Clean gas burner and gas nozzle regularly.
- Clean diaphragm plate regularly.
- The suction and blow off grid are to be checked regularly to ensure that they are free from dirt, otherwise they are to be cleaned.



Removal and Cleaning of the Gas Burner

- Remove blow-off protective grid and outside casing, as well as the inspection cover at the lower side of the unit.
- Loosen clamping screw of the nozzle holding device.
- Remove ignition cable from ignition electrode (Take care of cap nut and lock washer).
- Screw capillary tube off the safety pilot.
- Release clamping screw of electrode holder and remove ignition electrode and thermocouple.
- Loosen 4 fastening screws of the burner and take burner out of unit.
- Clean burner using a steel brush and compressed air and assemble in reverse order.
- Set ignition electrode and thermocouple according to the following instructions.
- Assemble all the parts thoroughly in reverse order.
- **Control the functions of the complete unit and carry out a tightness check for all gas-bearing connections using soap solution and leakage detection spray, respectively.**
- **Intensive yellowish flames indicate that the fresh air supply is probably insufficient and that there is some dirt inside the unit, respectively.**

Setting Hints:

Size A = distance of ignition electrode to burner

Size B = position of thermocouple tip

Size C = position of ignition electrode tip

		Sizes in mm		
Type		A	B	C
PG	25	3	20	15
PG	50	3	35	15

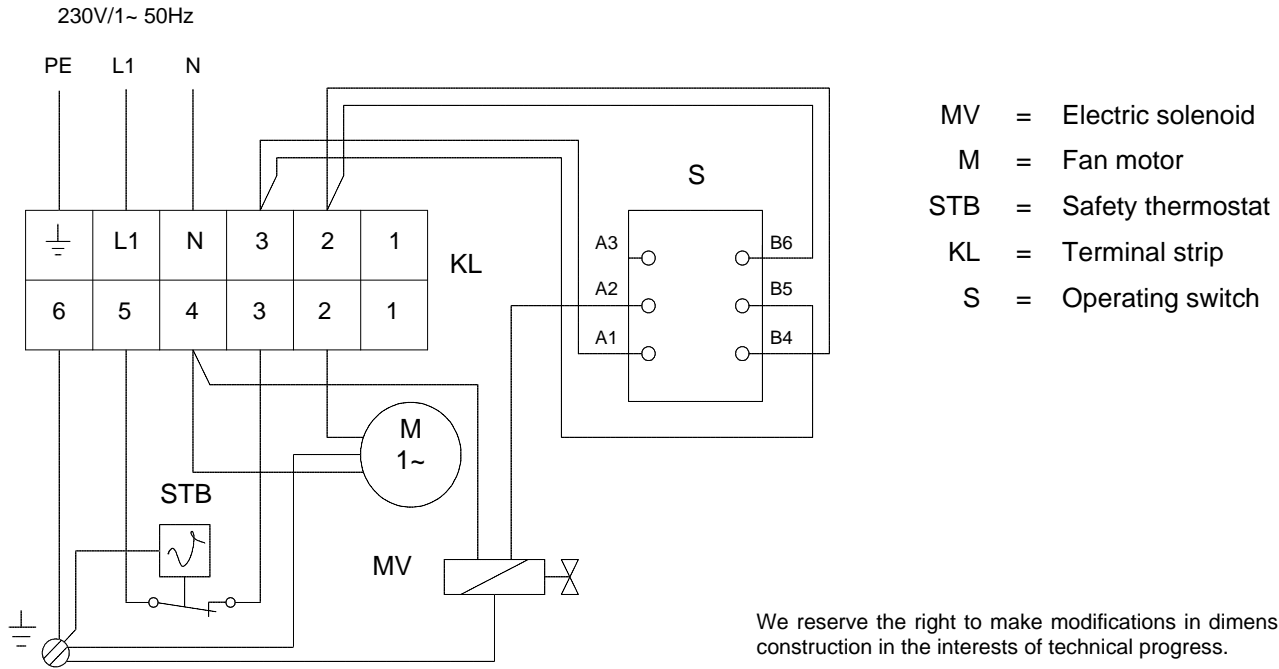
The indicated sizes are based on approximate values.



Make sure that the gas supply opening has been closed and the mains plug has been taken out of the mains socket before carrying out any work regarding the unit.

Setting and maintenance is to be carried out only by authorized experts!

Block diagram



Technical data:

Series		PG 25	PG 50
Nominal heat output	kW	25	50
Heating capacity	kW	10 – 25	25 – 50
Air output	m ³ /h	800	1.450
Fuel/type of gas		liquified gas Kat. I ₃ B/P, I ₃ +	
Gas pressure	bar	1,5	1,5
Gas consumption	kg/h	0,78 – 1,95	1,95 – 3,95
Electrical connection 1~	V	230	230
Frequency	Hz	50	50
Power consumption	kW	0,07	0,11
Fuse-protection (required)	A	10	10
Kind of protection		IP 44	IP 44
Sound pressure level L _{pA} 1m ¹⁾	dB(A)	56 – 69	62 – 72
Weight (without accessories)	kg	12	20
Dimensions	Length	mm	450
	Width	mm	260
	Height	mm	410

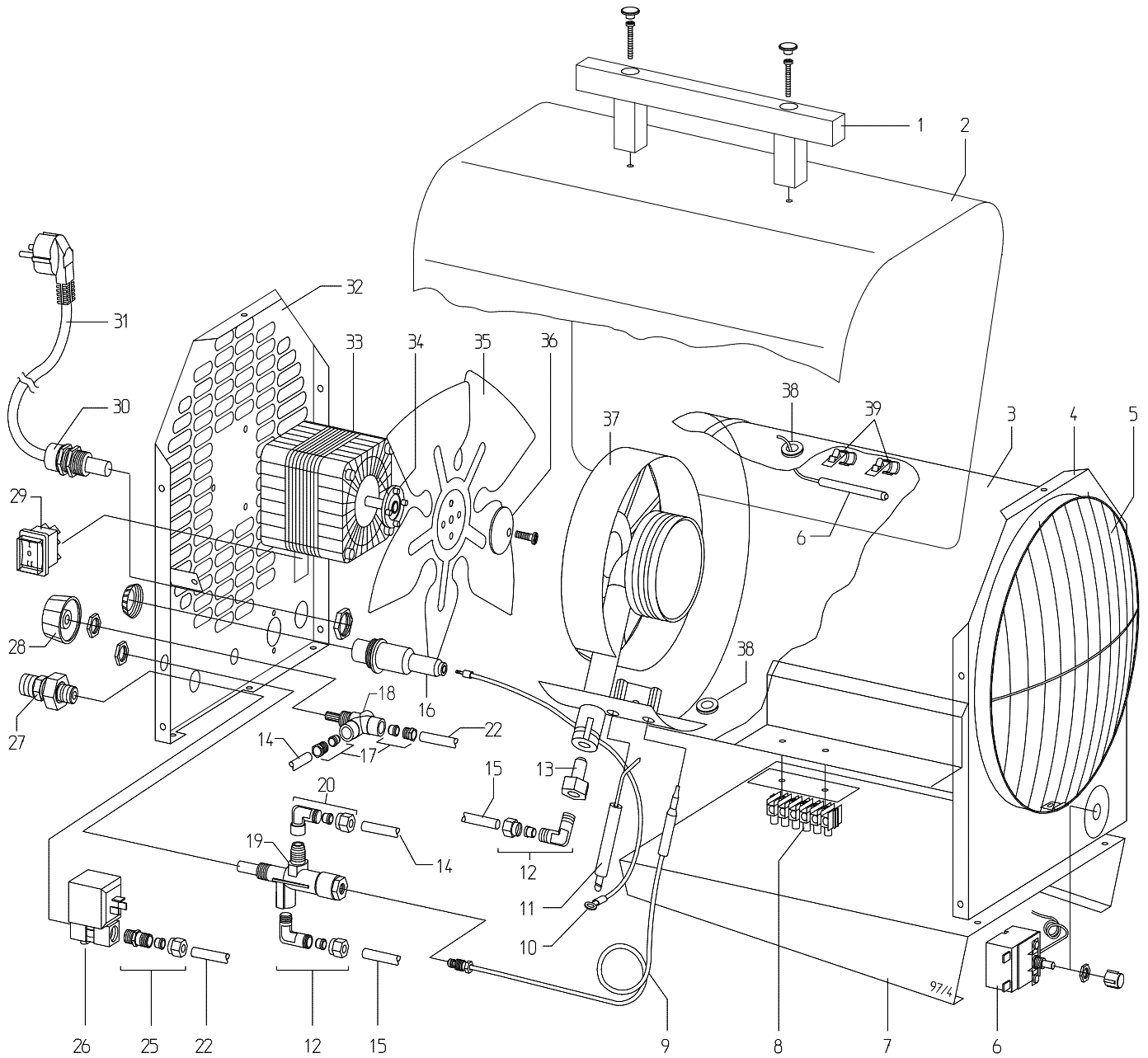
1) Noise measuring DIN 45635 - 01- KL 3

Note!

Any mode of operation other than specified in these operating instructions is not permissible! Failing to observe it causes the customer to lose all rights to guarantee or damage claims.

A prerequisite for any material guarantee claims is that the orderer or the orderer's customer filled out a „**guarantee certification**” at the time of the purchase and start-up and returned it to REMKO GmbH & Co KG. Guarantee certificates are enclosed with every REMKO-heater.

Drawing PG 25



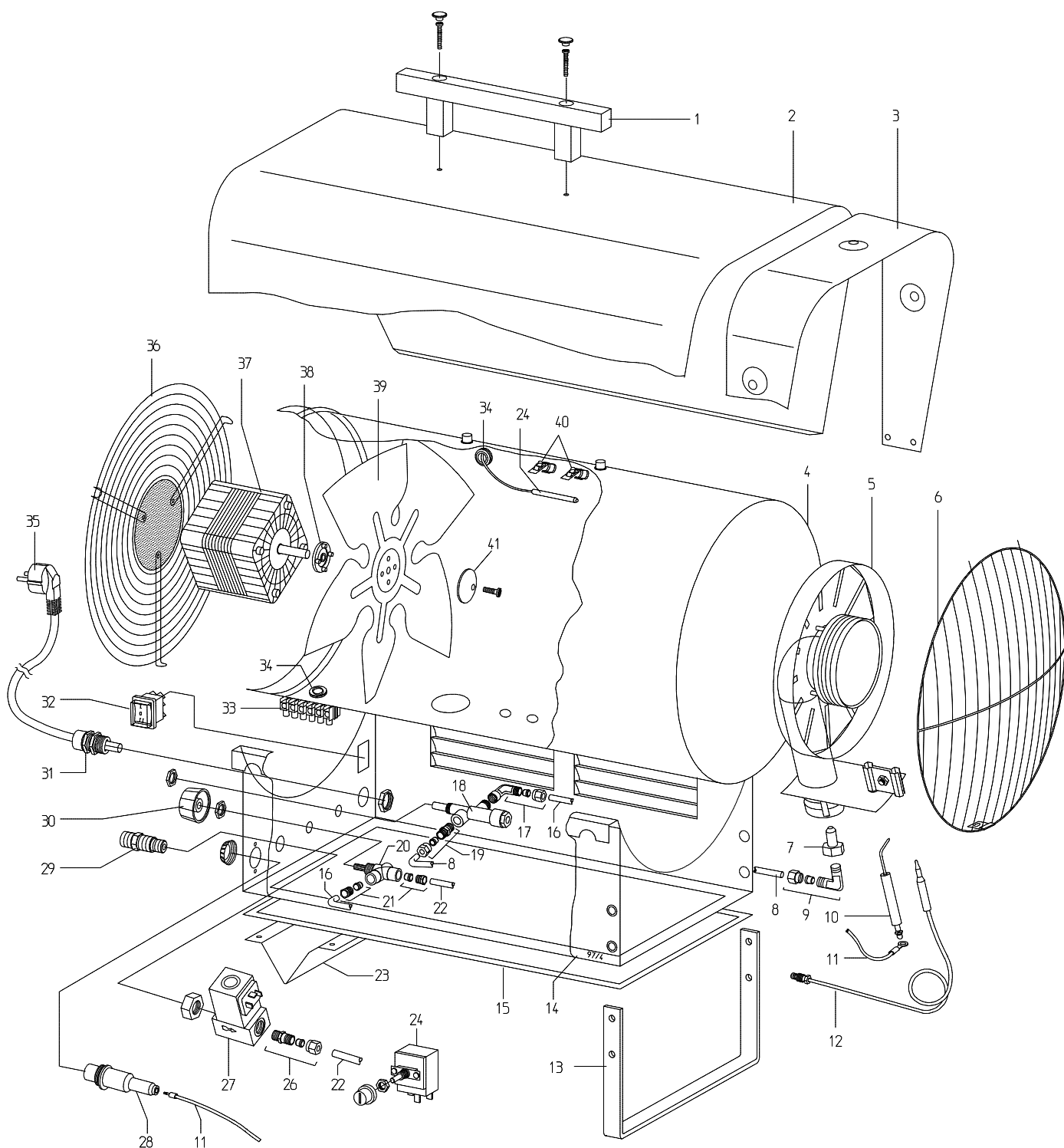
We reserve the right to make modifications in dimensions and construction in the interests of technical progress.

List of spare parts PG 25

Fig.-No.	Description	EDV-No.
1	transport handle	1101142
2	outside casing	1101381
3	combustion chamber	1101384
4	end plate, front	1101382
5	blow out protection grille	1101383
6	safety thermostat with sensitive element	1101197
7	inspection cover	1101385
8	terminal strip, 6er	1101366
9	thermocouple	1101164
10	ignition cable	1101283
11	ignition electrode	1101180
12	angled screw coupling 1/8" x 6 mm	1101316
13	gas nozzle	1101159
14	gas pipe R/Z	1101451
15	gas pipe Z/D	1101452
16	piezo igniter	1101364
17	tube fitting M10 x 1	1101409
18	gas regulator	1101411
19	thermoelectric gas valve	1101169
20	angled coupling 1/8" x 6 mm	1101468
22	gas pipe M/R	1101441
25	GE - coupling 1/4" x 6 mm	1101396
26	solenoid valve	1101376
27	gas connection nipple 3/8", left handed thread	1101134
28	control knob, cpl.	1101192
29	operating switch, cpl.	1101188
30	traction relief	1101267
31	connecting cable with plug	1101320
32	end plate, rear	1101415
33	fan motor	1108049
34	clutch plate B 6 Ø	1108455
34	clutch plate B 7 Ø	1108014
35	fan blade	1101392
36	clutch disc	1101375
37	gas burner	1101417
38	protection socket	1101304
39	retaining bracket	1101395
not shown:	pressure controller with hose-break protection	1101470
	2 running metres gas hose	1101369
	2 running metres HD-gas hose	1101174
	multi-cylinder set (2 - 3 cylinders)	1014050
	T - connection for multi-cylinder set	1101177
	nylon seal for T - connection	1101178
	HD - gas hose 0,4m for multi-cylinder set	1101179

**When ordering spare parts it is necessary to indicate
EDV-No. and machine no.(see data plate)!**

Drawing PG 50



We reserve the right to make modifications in dimensions and construction in the interests of technical progress.

List of spare parts PG 50

Fig.-No.	Description	EDV-No.
1	transport handle	1101142
2	outside casing	1101378
3	insulation	1101379
4	combustion chamber	1101422
5	gas burner	1101423
6	blow out protection grille	1101424
7	gas nozzle	1101426
8	gas pipe Z/D	1101458
9	angled screw coupling 1/8" x 6 mm	1101316
10	ignition electrode	1101280
11	ignition cable	1101283
12	thermo couple	1101164
13	support bracket, front	1101427
14	base	1101428
15	inspection cover	1101429
16	gas pipe R/Z	1101459
17	angled coupling 1/8" x 6 mm	1101468
18	thermoelectric gas valve	1101169
19	GE-coupling 1/8" x 6 mm	1101359
20	gas regulator	1101412
21	tube fitting M10 x 1	1101409
22	gas pipe M/R	1101441
23	support bracket, rear	1101149
24	safety thermostat with sensitive element	1101197
26	GE-coupling 1/4" x 6 mm	1101396
27	solenoid valve	1101376
28	piezo igniter	1101364
29	gas connection nipple 3/8" left handed thread	1101134
30	control knob, cpl.	1101192
31	traction relief	1101267
32	operating switch, cpl.	1101188
33	terminal strip, 6er	1101366
34	protection socket	1101304
35	connecting cable with plug	1101320
36	air suction grille	1101432
37	fanmotor	1101254
38	clutch plate B 8 ø	1101255
39	fan blade	1101150
40	retaining bracket	1101395
41	clutch disc	1101375
not shown:	pressure controller with hose-break protection	1101470
	2 running metres gas hose	1101369
	2 running metres HD-gas hose	1101174
	multi-cylinder set (2 - 3 cylinders)	1014050
	T - connection for multi-cylinder set	1101177
	nylon seal for T - connection	1101178
	HD - gas hose 0,4m for multi-cylinder set	1101179

**When ordering spare parts it is necessary to indicate
EDV-No. and machine no.(see data plate)!**

Troubleshooting instructions

trouble:	cause:
- unit doesn't start	1 – 2 – 3 – 4 – 7
- unit stops during operation	2 – 4 – 7 – 13 – 14
- fan blows, but gas supply is blocked resp. no ignition	4 – 5 – 9 – 10 – 13
- flame goes out after having released the pin of thermoelectric gas valve	9 – 11 – 12
- gas supply is blocked, resp. flame goes out	4 – 6 – 7 – 11 – 12 – 13 – 14
- fuel consumption is too high	13 – 16
- unit can't be shut down	3 – 15
- heating capacity drops during continuous operation	13
- heating capacity can't be regulated	8

cause:	remedy:
1) no electrical connection	- plug the mains into an appropriate mains socket (230V/1~ 50Hz)
2) fan motor is overcharged (fan blows irregularly or is blocked)	- check fan motor, fan blade and clutch plate and replace if necessary.
3) operating switch defect	- close gas supply, unplug the mains and replace defect operating switch
4) no gas pressure on solenoid valve	- check gas supply - check contents of gas cylinders - check gas hose(s) for damage - release hose break protection resp. replace it
5) no ignition spark	- set ignition electrode - check ignition cable - check porcelain insulation of ignition electrode
6) air-suction grille impurified	- clean air-suction grille
7) unit is shut down by safety thermostat (STB)	- check air-suction and blow-out grille - check fresh air supply - release safety thermostat (STB - Reset)
8) gas regulation defect resp. impurified	- replace gas regulation
9) safety pilot does not open (resp. does not lock)	- replace safety pilot
10) piezo igniter defect	- replace piezo igniter
11) thermocouple is not getting warm enough	- check position of thermocouple and adjust according to setting hints
12) loose or impurified connection between safety pilot and thermocouple	- check connection and clean if necessary
13) pressure controller defect or false pressure controller mounted resp. hose break protection is blocked	- mount original pressure controller - release hose break protection resp. replace it
14) gas cylinder(s) iced over due to low temperatures and too high gastaking	- replace empty gas cylinder(s) and connect 2-3 cylinders using multi cylinder set (EDV-No. 1014050)
15) solenoid valve does not open	- close gas supply - let flame burn out - put operating switch in position „0“ and unplug the mains - replace solenoid valve
16) leak gas hose(s)	- find leakage by foam forming mediums - eliminate leakage

Make sure that the gas supply has been closed and the mains plug has been taken out of the mains socket before carrying out any work regarding the unit!

Setting and maintenance is to be carried out only by authorized experts!

REMKO GmbH & Co. KG
Klima- und Wärmetechnik

32791 Lage · Im Seelenkamp 12
32777 Lage · Postfach 1827
Telefon (0 52 32) 606-0
Telefax (0 52 32) 606260