



DE 4002

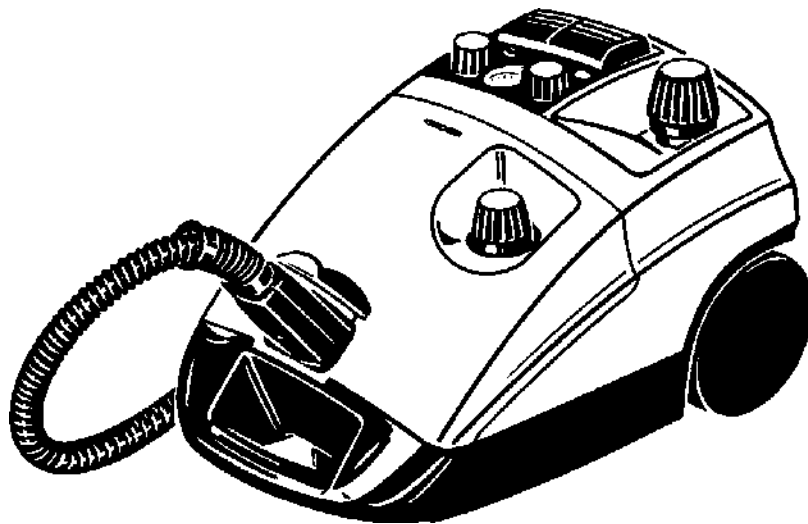
New Product Information

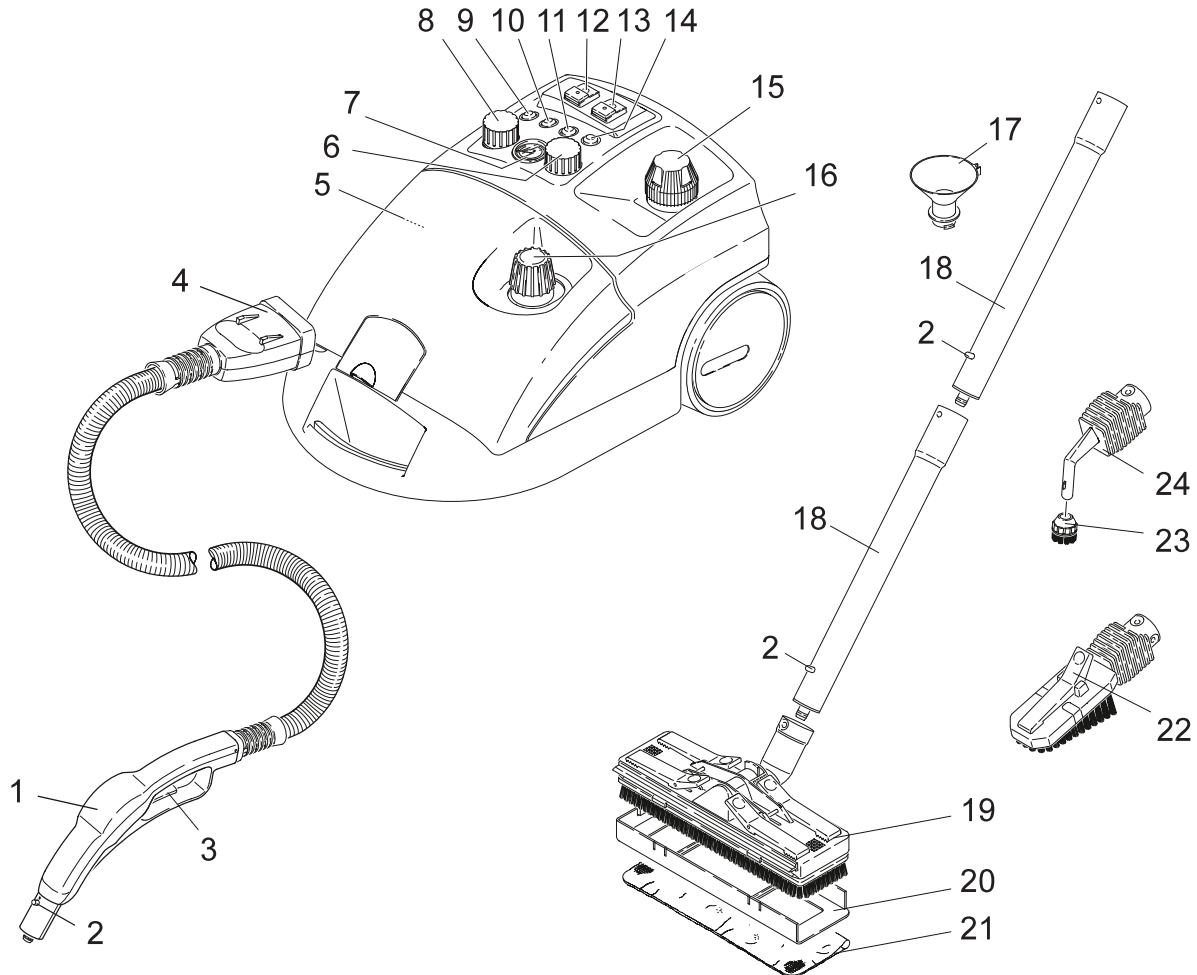
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No. 1997-027 dated 1 April 1997

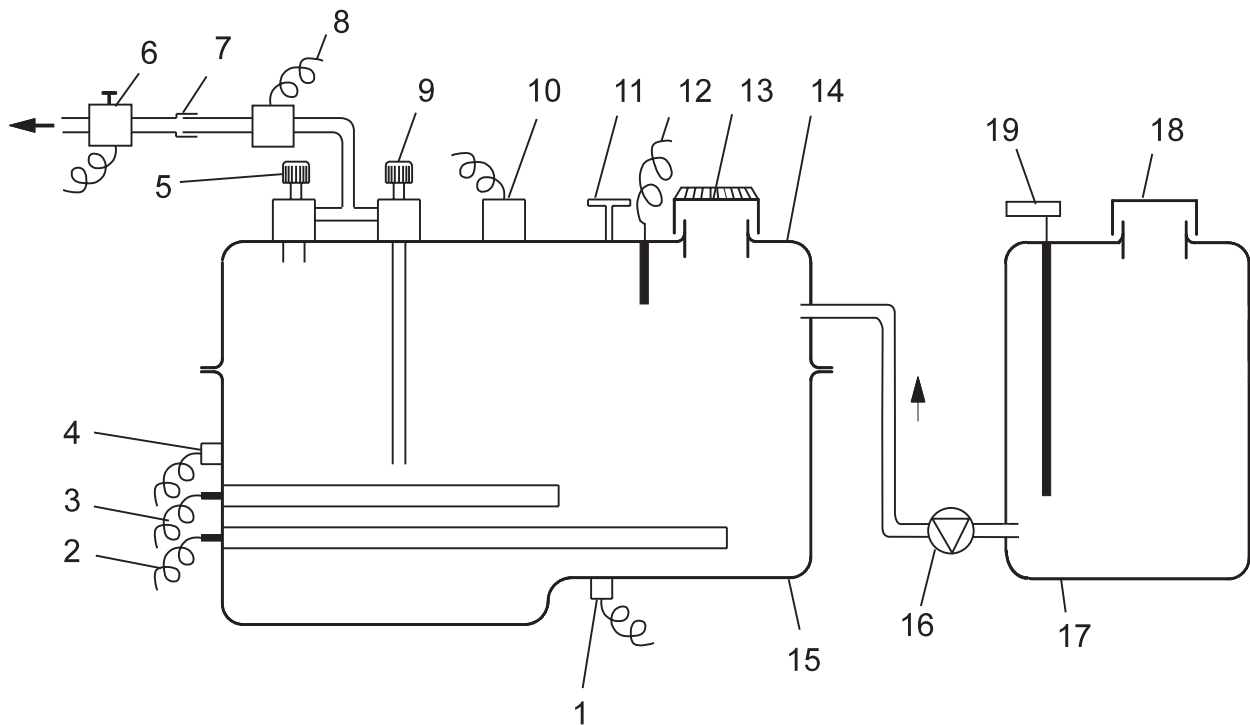
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**DE 4002****New Product Information****International Service Information****No. 1997-027 dated 1 April 1997****Equipment features**

- | | |
|--|---|
| 1 Steam gun | 13 Steam supply switch |
| 2 Lock button | 14 Indicator lamp – Low water warning, boiler (red) |
| 3 Steam switch | 15 Boiler cap with safety valve |
| 4 Modular accessory plug | 16 Tank cap |
| 5 Reset button – Descaling completed (below the cover) | 17 Funnel for filling tank |
| 6 VAPOHYDRO control knob | 18 Extension tube |
| 7 Temperature indicator | 19 Floor nozzle |
| 8 Steam control knob | 20 Carpet adapter |
| 9 Indicator lamp – Descaling due (white) | 21 Cloth set |
| 10 Indicator lamp – Low water warning, additional tank (red) | 22 Hand nozzle |
| 11 Indicator lamp – Heater (yellow) | 23 Circular brush |
| 12 Heater ON/OFF switch | 24 Spot nozzle |

**DE 4002****New Product Information****International Service Information****No. 1997-027 dated 1 April 1997****Unit functions (schematic overview)**

- | | | | |
|----|--|----|---|
| 1 | Low-water thermostat | 11 | Temperature indicator |
| 2 | Heating element, 1500 W | 12 | Level sensor |
| 3 | Heating element, 750 W | 13 | Boiler cap with safety valve |
| 4 | Safety thermostat | 14 | Boiler – upper section |
| 5 | Steam volume control | 15 | Boiler – lower section |
| 6 | Steam switch on gun | 16 | Water pump with non-return valve |
| 7 | Modular accessory plug | 17 | Additional tank |
| 8 | Solenoid valve | 18 | Tank cap |
| 9 | VAPOHYDRO control valve with rising tube | 19 | Printed circuit board with level sensor |
| 10 | Pressure switch | | |

**DE 4002****New Product Information****International Service Information****No. 1997-027 dated 1 April 1997****Unit functions**

The cleaner is almost identical in its functions to the K 1701 but includes, however, an additional tank and water pump (total water capacity is more than 4 litres). It is intended for use in commercial applications.

Filling up with water and heating

The boiler cap with its safety valve (13) can only be opened to allow the boiler to be filled up with water if the internal pressure is less than 0.2 bar. If the pressure is higher, it must first be released by operating the steam gun.

The additional tank (17) contains no heater and there is no pressure inside. The water level is monitored by the level sensor (19).

When the modular accessory plug (7) is attached to the unit, both heating elements (2) and (3) heat up the water in the boiler. If the accessory plug is not attached, only heating element (2) heats up the water. Pressure switch (10) switches both heating elements off as soon as the pre-set level of steam pressure has been reached.

A level sensor (12) monitors the water level inside the boiler. If the water level drops below a certain limit as a result of the consumption of steam, the water pump (16) is switched on. The pump transfers water from the additional tank into the boiler until the level in the boiler has risen sufficiently for the level sensor (12) to switch the pump off again.

When the water in the additional tank has been used up, an acoustic signal sounds 8 times and the "Low water warning, additional tank" indicator lamp illuminates. The tank can be refilled with water immediately without first having to switch off the heater.

When water and steam have been completely used up, the low-water thermostat (1) switches the heating elements off. A small amount of water will remain at the lowest point in the boiler under the heating elements. This is sufficient to cause the boiler temperature to quickly drop below 100 °C. This means that there is no danger of water being sprayed back at the user and causing scalding when the boiler is re-filled.



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Working with the steam gun

When the push button (6) on the steam gun is pressed, solenoid valve (8) opens and steam passes out of the boiler through the accessory adapter (7) and on to the steam gun. The amount of steam can be adjusted with steam volume control (5).

In addition, hot water can be mixed with the steam by adjusting the VAPOHYDRO control valve (9). When the valve is opened, water passes up the rising tube and is mixed with steam via the solenoid valve (8). As a result, the moisture content of the steam can be varied between dry steam (valve closed) and a hot-water jet (valve fully opened).

Working with the iron

When the iron is connected to the unit, the water in the boiler is only heated by heating element (2).

When the steam-mode switch on the iron is pressed, solenoid valve (8) opens and steam flows to the iron. The volume of steam can be adjusted by control valve (5).

The VAPOHYDRO control valve (9) must remain closed while the iron is in use, otherwise hot water will leak out of the iron.

Descaling the boiler

After approx. 50 operating hours the white indicator lamp (9) illuminates. That means that the boiler should now be descaled at the latest.

For that dissolve the contents of one RM 551 bag in 1 litre of warm water. Pour the solution into the boiler, and allow to stand for approx. 8 hours. During this time it is not allowed to close the boiler and to use the cleaner.

Pour the contents of the boiler out and rinse out the boiler at least twice with cold water to ensure that no descaling solution or deposits are left inside.

Afterwards press the reset button "Descaling completed" (located below the cover). The indicator lamp extinguishes then. After approx. 50 operating hours the indicator lamp will illuminate to show that it is time to descale the cleaner once more.



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Unit functions

Safety devices

Low-water thermostat (1)

The low-water thermostat breaks the circuit to the heating elements if the water in the boiler has been consumed and the boiler temperature continues to rise. The low-water indicator lamp illuminates. When the temperature has dropped again, the low-water thermostat automatically closes the circuit, and the indicator lamp extinguishes.

Safety thermostat (4)

The safety thermostat is an additional safety device. It breaks the electrical circuit to the heater if the low-water thermostat (1) is defective and the temperature has continued to rise.

Once the safety thermostat has been activated, it will not close again automatically. The unit must be opened up in order to establish why the low-water thermostat has not functioned correctly. After the cause has been determined and the fault repaired, the pin must be pressed back into the safety valve.

Pressure switch (10)

The pressure switch breaks the circuit to the heater when the prescribed steam pressure inside the boiler has been reached. When the pressure in the boiler drops off again, i.e. steam has been consumed, the pressure switch automatically closes the circuit.

The pressure switch has 3 terminals:

COM = earth

NO = normally opened

NC = normally closed

The pressure switch is connected at terminals COM and NC.

Safety valve (13)

The safety valve is an additional safety device mounted in the boiler cap. It opens if pressure switch (10) is defective.

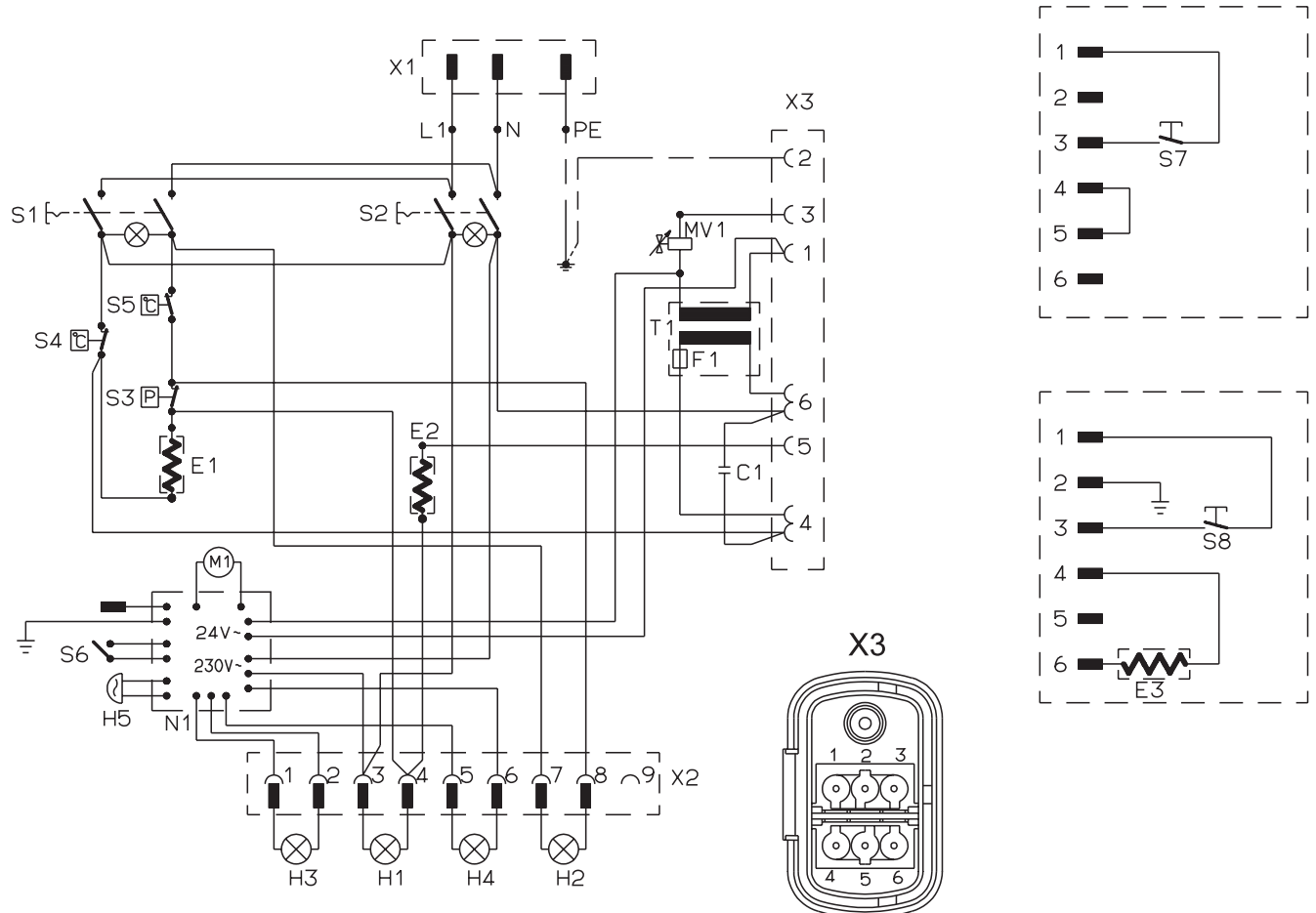
If the safety valve has opened, the pressure switch (10) must be examined to establish why it has not functioned correctly.

**DE 4002****New Product Information****International Service Information****No. 1997-027 dated 1 April 1997****Troubleshooting**

Problem	Cause	Remedy
1. Boiler cap can not be opened	Pressure in boiler is too high	Release pressure
	Defective boiler cap	Replace boiler cap
2. No steam comes out of handgun	Defective steam supply switch on handgun	Replace switch
	Defective transformer, cable, heater, solenoid valve	Replace defective components
3. Volume of steam can not be adjusted	Defective control valve	Inspect control valve and replace defective parts
4. Moisture content of steam can not be adjusted (VAPOHYDRO system)	Calcified VAPOHYDRO control valve	Replace valve
5. Low-water indicator lamp is continuously illuminated	Defective low-water thermostat	Replace low-water thermostat
6. Safety valve has opened	Defective pressure switch	Check pressure switch and replace if required
	Defective safety valve	Replace boiler cap
7. Safety thermostat has switched unit off	Defective pressure switch or low-water thermostat	Replace pressure switch or low-water thermostat and check electrical system
8. Unit does not heat up	Defective heater, cable, safety thermostat, switch, low-water thermostat	Replace defective parts
9. No temperature indication	Defective temperature indicator	Replace temperature indicator
10. Iron does not heat up	Defective electrical connection in the accessory plug/socket on unit	Check electrical connections
	Defective iron	Check iron

**DE 4002****New Product Information****International Service Information****No. 1997-027 dated 1 April 1997****Troubleshooting**

Problem	Cause	Remedy
11. No steam discharged by iron	Calcified steam volume control valve on unit Defective steam switch on iron, Fault elsewhere within electrical system	Replace valve Replace switch and check electrical system
12. No water delivered by pump	Calcified level sensor in boiler Defective water pump or break in electrical circuit	Descale level sensor and boiler Check electrical connections; replace pump
13. Indicator lamp "Descaling due" illuminates	Calcified boiler	Descale boiler, press reset button

**DE 4002****New Product Information****International Service Information****No. 1997-027 dated 1 April 1997****Circuit diagram 0.087-983**

S1	Heater switch	E1	Heating element, boiler, 1500 W
S2	Steam supply switch	E2	Heating element, boiler, 750 W
S3	Pressure switch	E3	Heating element, iron, 750 W
S4	Safety thermostat	MV1	Solenoid valve
S5	Low-water thermostat	M1	Water pump
S6	Reset button – Descaling completed	N1	Printed circuit board with level sensor for additional tank
S7	Steam switch, steam gun	T1	Transformer
S8	Steam switch, iron	F1	Fuse
H1	Indicator lamp – heater (yellow)	C1	Capacitor
H2	Indicator lamp – low water warning, boiler (red)	X1	Mains plug
H3	Indicator lamp – low water warning, additional tank (red)	X2	Multiple terminal strip
H4	Indicator lamp – Descaling due (white)	X3	Modular accessory plug
H5	Acoustic signalling device		

**DE 4002****New Product Information****International Service Information****No. 1997-027 dated 1 April 1997****Technical specifications****Electrical connection**

Voltage	V 230
Current type	Hz 50, single-phase
Voltage in handle	V 24

Performance data

Heating elements (1550 W + 750 W)	A 10-10.5 (approx.)
Water pump	W 50
Pressure switch	bar 3.2
Max. permissible operating pressure (safety valve)	bar 5.0
Heating up time (1 litre of water)	min 4.5 (approx.)
Max. steam volume	g/min 82

Dimensions

Weight without accessories	kg 8.0
Additional tank capacity	l 2.0
Boiler capacity	l 2.4
Width	mm 305
Length	mm 480
Height	mm 265