

# New Unit Information



**NT 80/1 B1 M**  
**NT 80/1 B1 MS**

1.667-...

**General**

- Powerful, explosion proof safety wet/dry vacuum cleaner.
- Anti-static model.
- Unit conforms to the new ATEX Directive (valid since 07/2003).
- Suitable and approved for vacuuming combustible dusts of the dust explosion classes in Zone 22 and dusts harmful to health of dust class M.

**NT 80/1 B1 M:**

Explosion proof wet/dry vacuum cleaner for mills, warehouses, food chemistry and pharmaceutical industry.

**NT 80/1 B1 MS:**

Explosion proof wet/dry vacuum cleaner for the police, military, security guard services and rifle associations. Also suitable for vacuuming residual propellant charge powder residues.

**Drive unit**

- 1-phase universal motor.
- Bypass suction motor.
- Encased in a sound absorbing hood.

**Equipment features**

- Filter cartridge for filtering the air drawn in by the suction motor.
- Motor protection filter for filtering the cooling air of the suction motor.
- Stainless steel container (80l), corrosion proof.
- Double float system
- Automatic water level control system (NT 80/1 B1 MS only).

**Electrics**

- Protection class 1.
- Unit switch
- Vacuum display.
- Switch-off electronics (NT 80/1 B1 MS only)
- Connection cable (10 m)

**Accessories**

- Suction hose (4m), DN 40
- Metal suction tube (1 x 1 m), DN 40
- All-purpose floor tool
- Crevice tool
- All-purpose nozzle
- Paper filter bag, 3-layered
- Wet filter bag (optional)

**Note**

All accessory connections are coded, i.e. the unit can only be used with suitable accessories.

View from the front



- 1 Filter cover for motor protection filter
- 2 Push handle
- 3 Suction motor housing
- 4 Container locking latch (2x)
- 5 Container cover
- 6 Container cover handle (2x)
- 7 Tank

- 8 Wheel (2x)
- 9 Swivel castor (2x)
- 10 Earthing strip
- 11 Tubular metal frame
- 12 Suction hose connection
- 13 Inspection glass, water level (NT 80/1 B1 MS only)

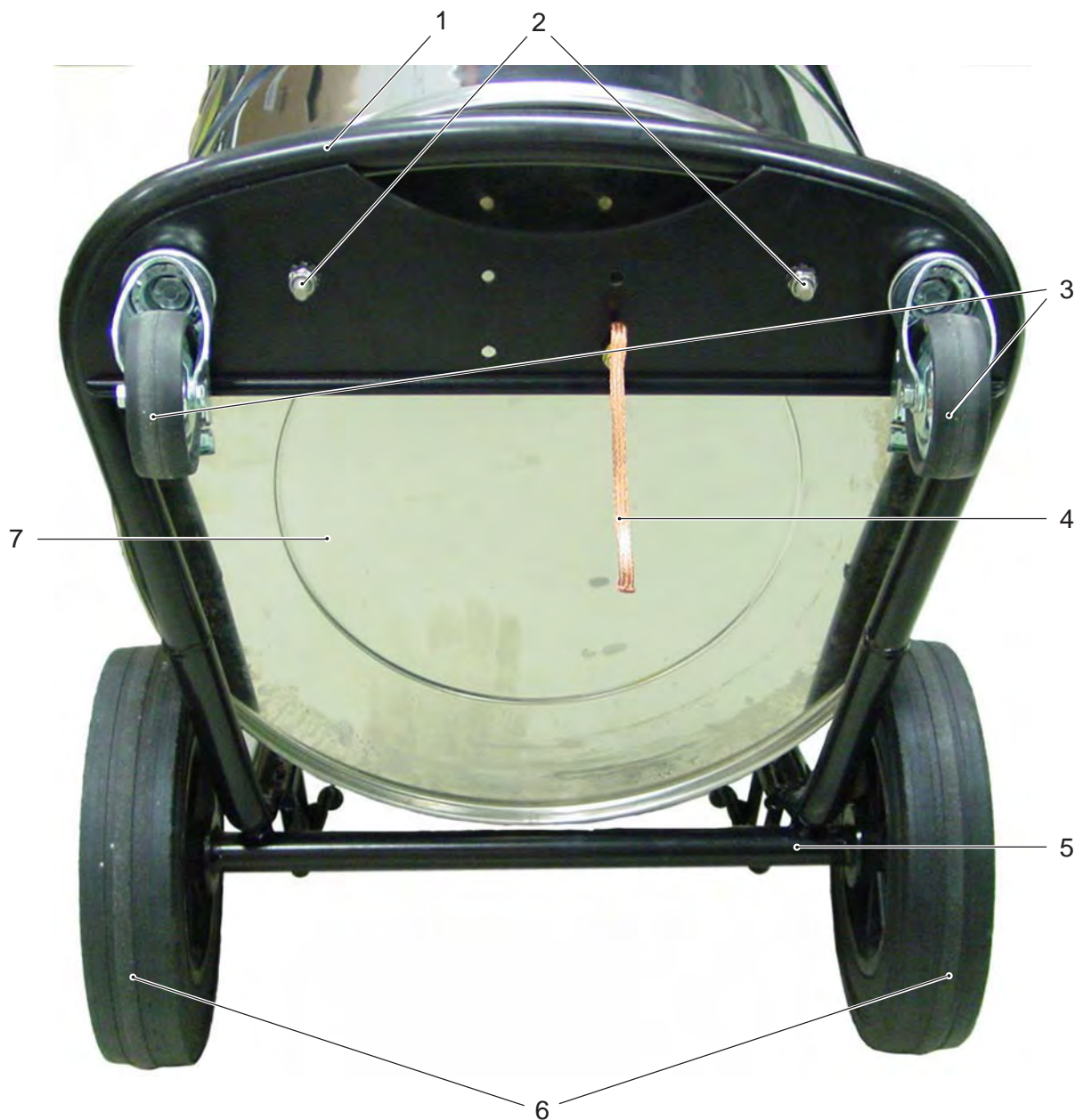
## Rear view



- 1 Filter cover for motor protection filter
- 2 Filter status display (B1)
- 3 Unit switch (S1)
- 4 Electrical box
- 5 Vacuum hose for filter status display
- 6 Accessories holder
- 7 Push handle
- 8 Mains connection cable

- 9 Running wheel
- 10 Tank
- 11 Tank locking latch (2x)
- 12 Handle, container cover (2x)
- 13 Container cover
- 14 Suction motor housing
- 15 Retaining screw, filter cover (1)

## View from below



- 1 Tubular metal frame
- 2 Fastening nut, container
- 3 Swivel castors (2x)
- 4 Earthing strip
- 5 Axle
- 6 Wheels (2x)
- 7 Container

**Water level control system (NT 80/1 B1 MS only).**

- 1 Container
- 2 Electrode (B2)
- 3 Fastening nut, grid tray
- 4 Grid tray, container
- 5 Suction hose

**Note**

Vacuumed (explosive) dusts are bound in the water bath.

The unit cannot be started up until the container has been filled with sufficient water. The water level control system with the electrode (2) prevents the suction motor from switching on (M1).

## Container cover removed



- 1 Container cover
- 2 Seal
- 3 Vacuum hose, filter status display
- 4 Earth
- 5 Mains connection cable
- 6 Retaining screws, electrical box (2x)
- 7 Cartridge filter
- 8 Retaining cage for filter bags
- 9 Knurled nut, cartridge filter fastening
- 10 Fastening nut, earthing cable
- 11 Earthing cable
- 12 Deflection plate

### Replacing the filter

- Open the container cover (1).
- Unscrew the knurled nut (9).
- Unscrew the fastening nut (10) of the earthing cable.
- Remove the cartridge filter (7)
- Assemble in the reverse order.

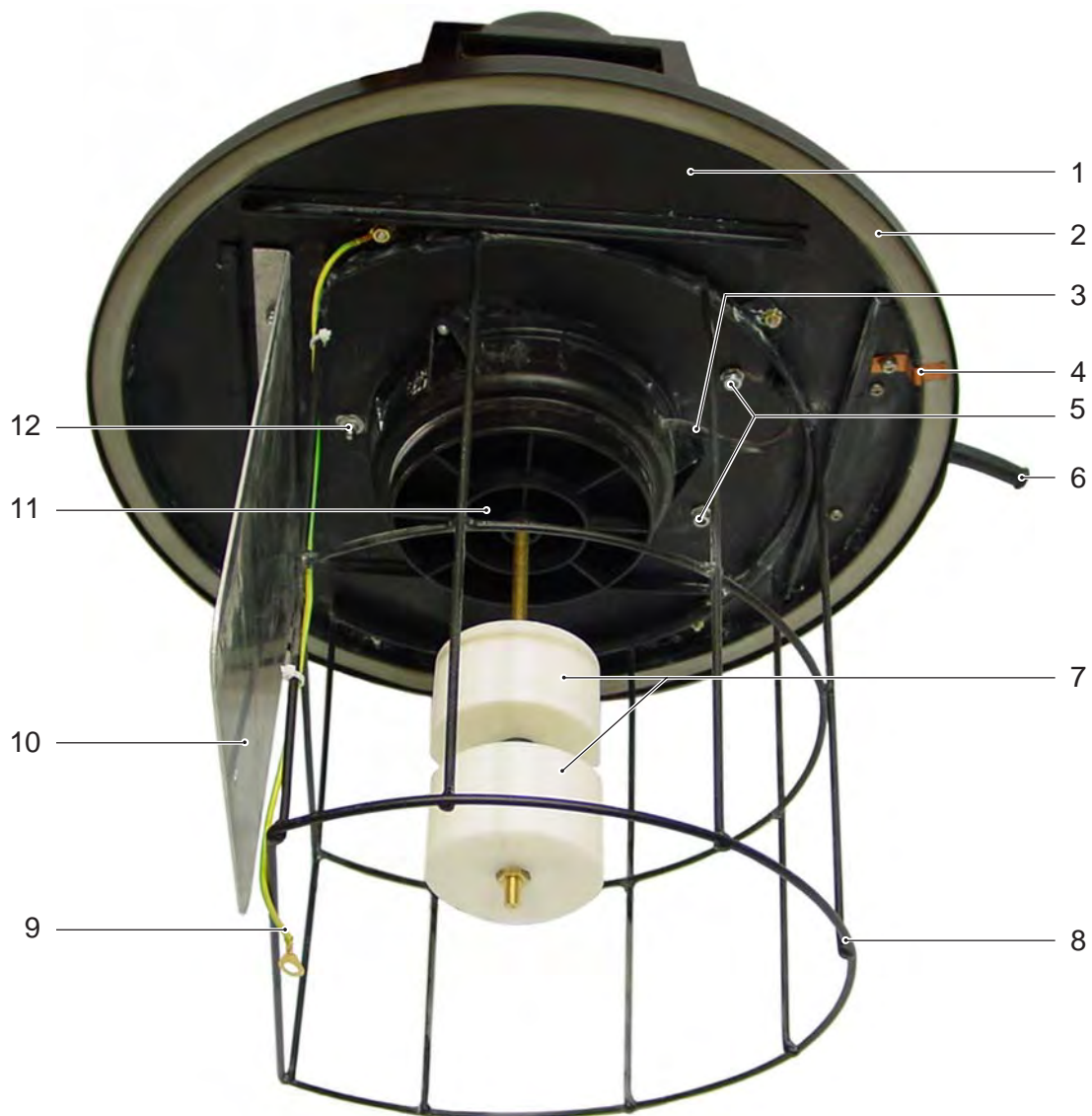
### Note

The cartridge filter (7) must always be installed for wet and dry vacuuming.

After finishing wet vacuuming, the cartridge filter (7) must be cleaned and dried.

An additional paper filter bag must also be used for vacuuming fine dust. This must always be removed before wet vacuuming.

## Container cover removed, motor protection filter dismantled



- 1 Container cover
- 2 Seal, container cover
- 3 Vacuum hose, filter status display (B1)
- 4 Earth
- 5 Retaining screws, suction motor housing (2x)
- 6 Mains connection cable
- 7 Double float
- 8 Retaining cage for filter bags
- 9 Earthing cable
- 10 Deflection plate
- 11 Vacuum channel
- 12 Fastening nut, suction motor housing

### Note

The double float system closes the vacuum channel (11) when the filled level in the container has reached a maximum and interrupts the air current.



## Container cover, cover of motor protection filter removed



- 1 Fastening, filter cover
- 2 Motor protection filter
- 3 Suction motor housing, upper section
- 4 Suction motor housing, middle section
- 5 Electrical box
- 6 Filter status display (B1)
- 7 Vacuum hose, filter status display (B1)
- 8 Earthing cable
- 9 Suction motor housing, lower section
- 10 Unit switch (S1)

### Motor protection filter (2)

The motor protection filter (2) filters the air drawn in by the suction motor. This prevents explosive dusts from entering the motor.

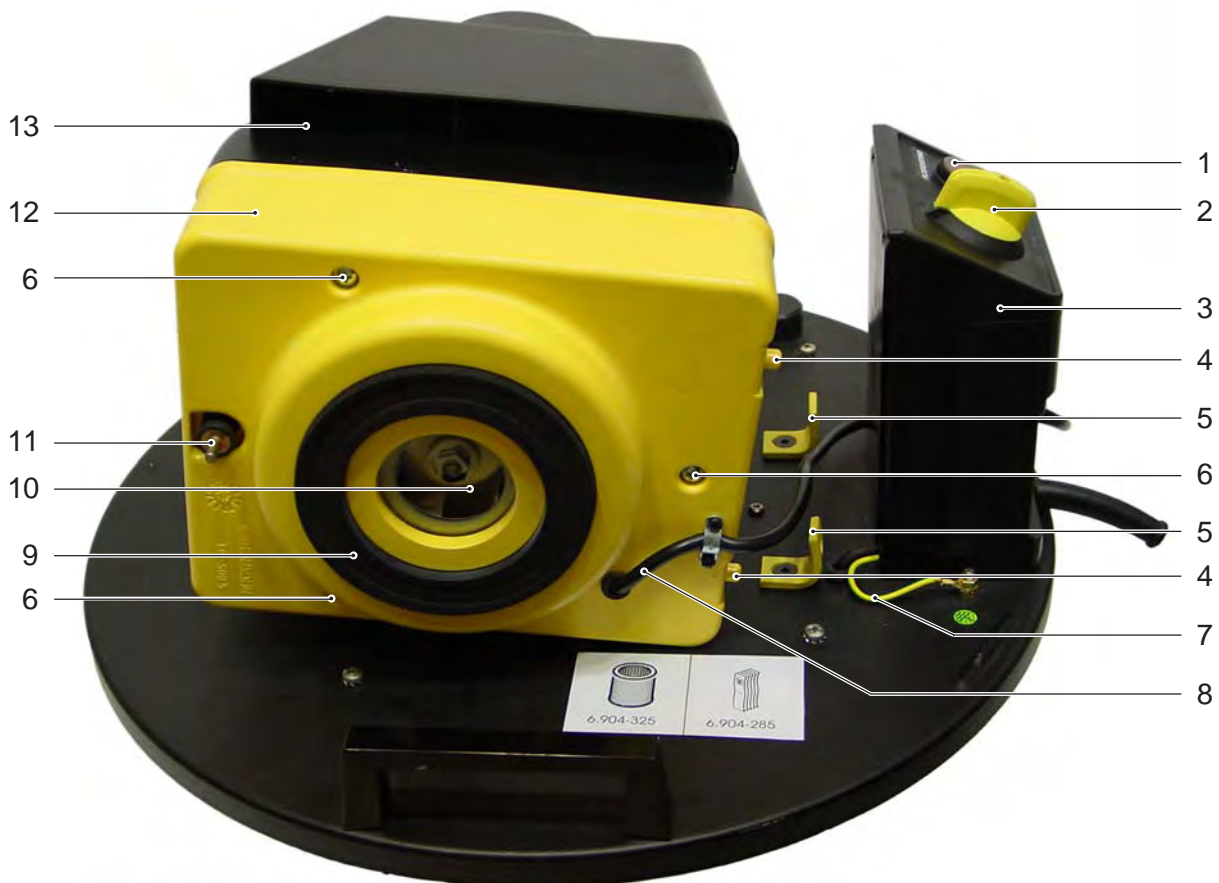
### Replace motor protection filter (2)

- Unscrew the retaining screw (item 16, page 4) of the filter cover (item 1, page 4) and remove the filter cover.
- Remove the motor protection filter (2) from above.
- Assemble in the reverse order.

### Note

The filter status display (6) indicates to the user whether the cartridge filter (item 7, page 7) has to be replaced.

## Suction motor housing removed



- 1 Filter status display (B1)
- 2 Unit switch (S1)
- 3 Electrical box
- 4 Retaining knobble
- 5 Retaining knobble, bracket
- 6 Retaining screws, upper section of motor panelling
- 7 Earthing cable
- 8 Mains cable (X1), suction motor power supply (M1)
- 9 Seal
- 10 Suction motor (M1)
- 11 Retaining screw, suction motor housing
- 12 Suction motor housing - lower section
- 13 Suction motor housing - middle section

**Suction motor housing completely removed**

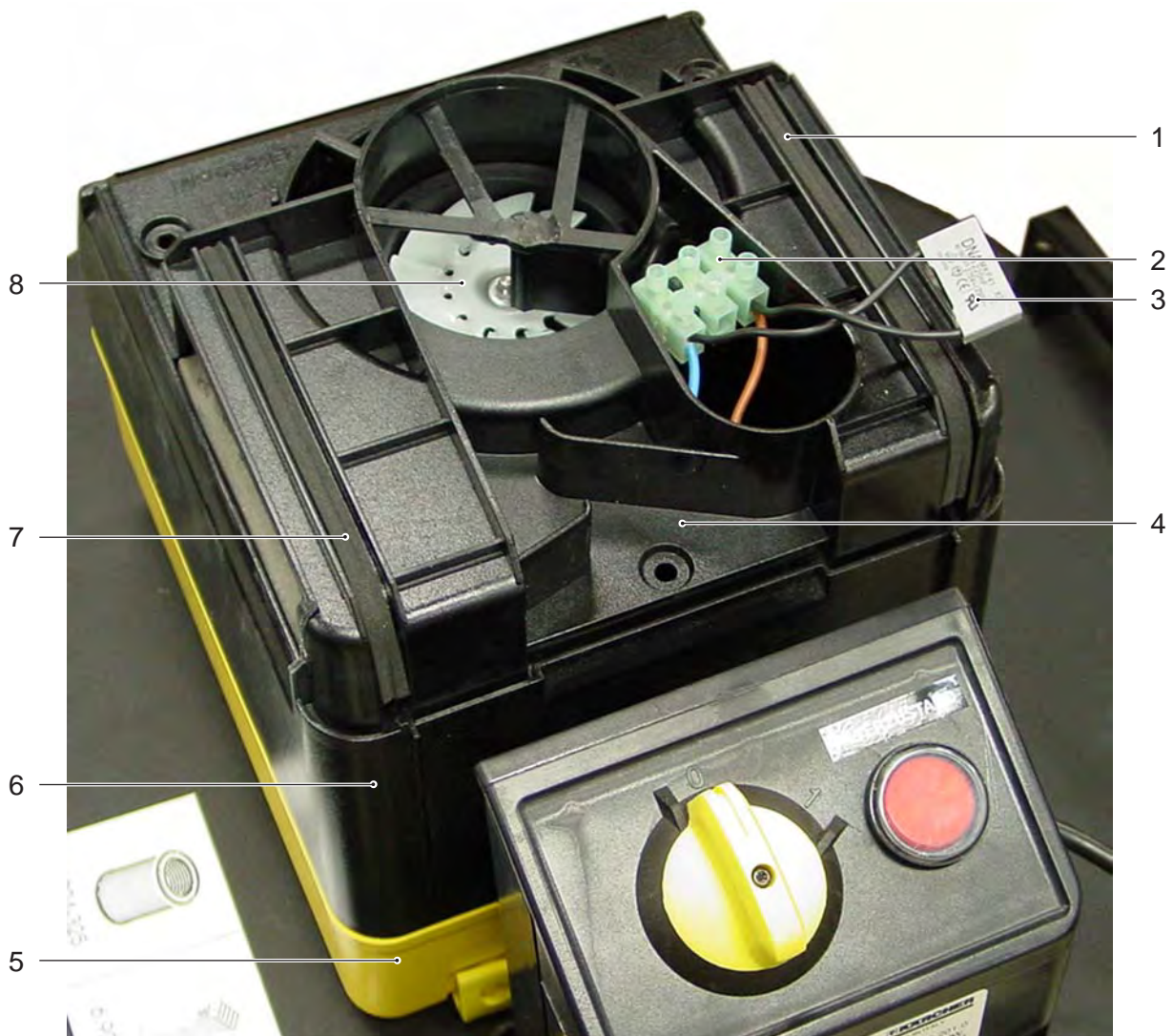
- Unscrew the fastening nut (item 11, page 8).
- Slightly raise the suction motor housing and pull the retaining knobble (4) out of the plug-in angle bracket (5).
- Assemble in the reverse order.

## Suction motor



- 1 Suction motor housing - middle section
- 2 Noise insulation
- 3 Seal
- 4 Power connection, suction motor
- 5 Suction motor housing - lower section
- 6 Interference suppression capacitor connection cable (C1)
- 7 Suction motor (M1)
- 8 Power connection, suction motor

## Suction motor housing - upper section removed



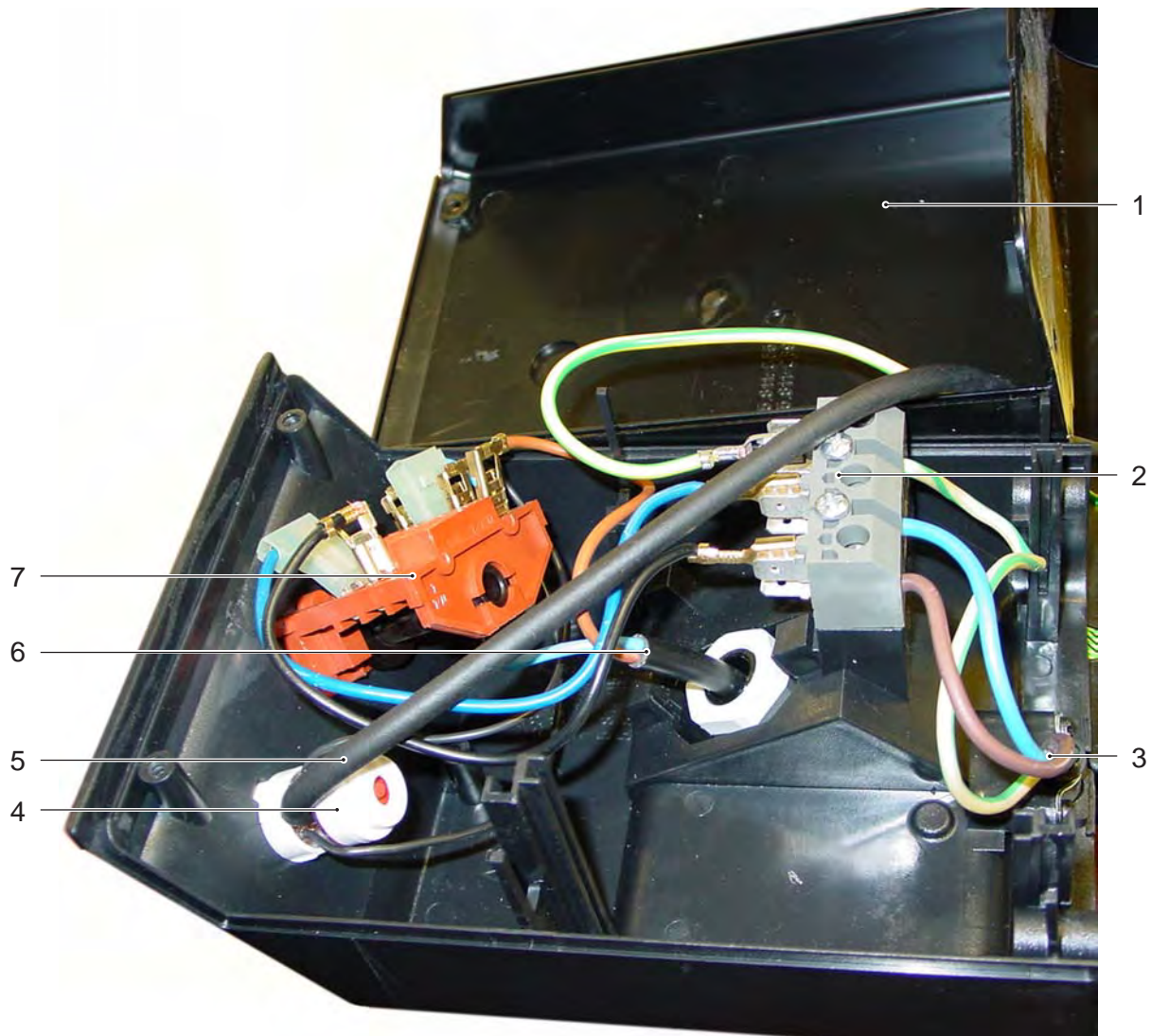
- 1 Seal
- 2 European-style terminal strip
- 3 Interference suppression capacitor (C1)
- 4 Suction channel, suction motor cooling air (M1)
- 5 Suction motor housing - lower section
- 6 Suction motor housing - middle section
- 7 Seal
- 8 Fan wheel, suction motor (M1)

## Suction motor housing - upper section removed

- Unscrew the three retaining screws (item 6, page 10).
- The three suction motor housing sections are separated from each other.
- Suction motor housing - remove upper section
- Assemble in the reverse order.

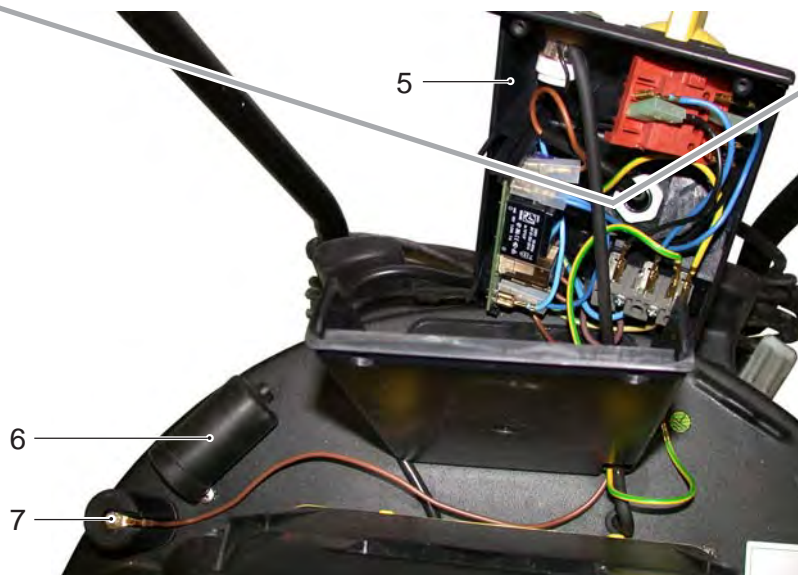
**Note**

When assembling the suction motor housing sections ensure the parts and flat washers precisely fit.

**Electrical box (NT 80/1 B1 M only)**

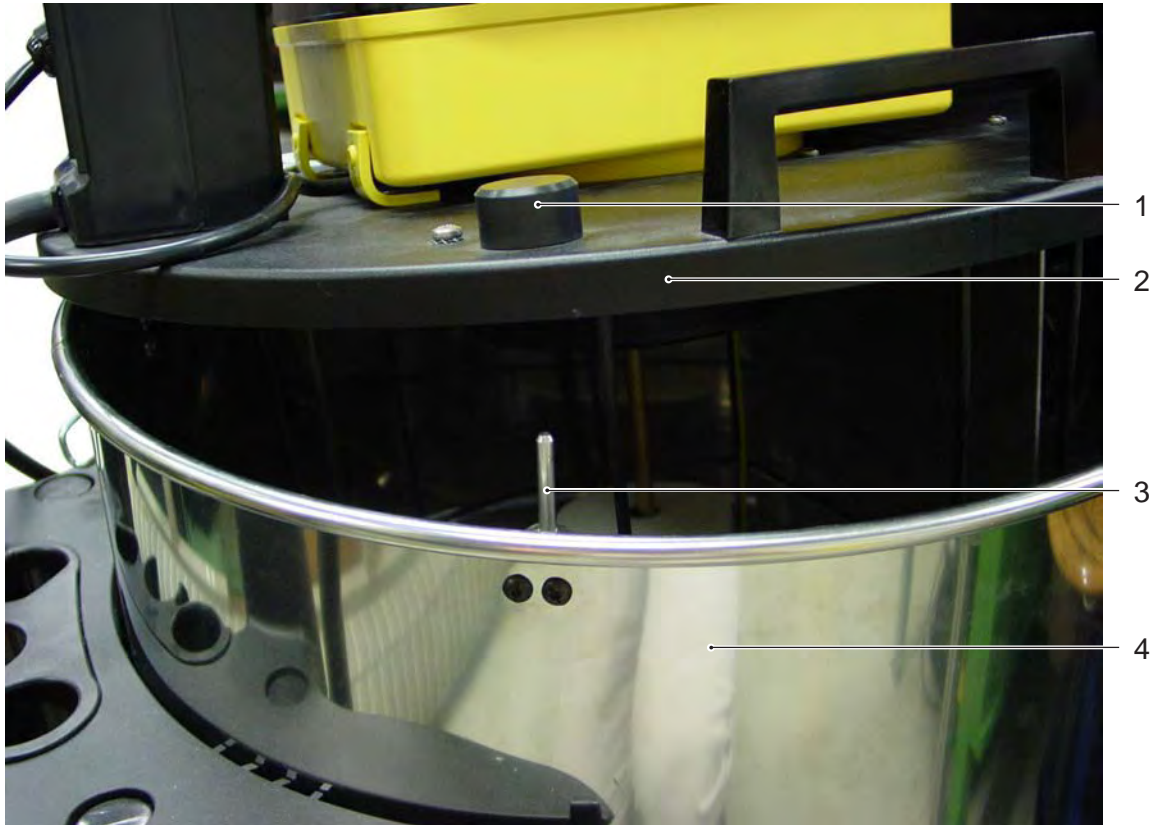
- 1 Cover, electrical box
- 2 Connecting terminal (L1/N/PE)
- 3 Mains connection cable
- 4 Filter status display (B1)
- 5 Vacuum hose, filter status display (B1)
- 6 Connection cable, suction motor
- 7 Unit switch (S1)

Electrical box (NT 80/1 B1 MS only)



- 1 Connecting terminal (L1/N/PE)
- 2 Switch-off electronics (N1)
- 3 Filter status display (B1)
- 4 Unit switch (S1)
- 5 Electrical box
- 6 Cover, electrode (B2)
- 7 Connection, electrode (B2)

## Container fastening coding



- 1 Holder, coding pin
- 2 Container cover
- 3 Coding pin (NT 80/1 B1 M)  
Electrode (B2), (NT 80/1 B1 MS)
- 4 Container

### Container fastening coding

The container and the container cover are coded. The container cover can only be placed on the container in one position. The coding hole in the container cover must be pushed onto the coding pin on the container or on the electrode (NT 80/1 B1 MS).

## Troubleshooting

Fault	Solution
<p><b>Suction motor won't start</b></p> <p style="text-align: center;"><b>NT 80/1 B1 MS only</b></p>	<ul style="list-style-type: none"> <li>– Check cable, plug and power supply.</li> <li>– Check/replace motor protection filter.</li> <li>– Check/replace unit switch (S1).</li> <li>– Check/replace suction motor (M1).</li> <li>– Check filled level of water tray / top-up.</li> <li>– Check electrode (B2) for dirt /clean.</li> <li>– Check electrode (B2) contact with container cover and earthing cable.</li> <li>– Check/replace switch-off printed circuit board.</li> </ul>
<p><b>Vacuuming power recedes</b></p>	<ul style="list-style-type: none"> <li>– Container cover not properly closed/properly close.</li> <li>– Check vacuum nozzle, vacuum tube, vacuum hose and cartridge filter for blockage/remove blockage.</li> <li>– Check/replace paper filter bag.</li> <li>– Cartridge filter is defective/blocked/replace.</li> <li>– Check vacuum system for leaks/remove leak.</li> </ul>
<p><b>Dust escapes during dry vacuuming</b></p>	<ul style="list-style-type: none"> <li>– Container cover not properly closed/properly close.</li> <li>– Cartridge filter defective / replace.</li> </ul>



## Technical specifications

Unit type	Unit No.	Circuit diagram drawing	Operating instructions	Spare parts list
NT 80/1 B1 M (220-240 volt / 50-60 Hz)	1.667-201	0.087-932	5.961-326	5.970-333
NT 80/1 B1 MS (220-240 volt / 50-60 Hz)	1.667-202	0.088-743	5.961-389	5.970-333

The technical data sheet and the circuit diagram will be included in the next issue of the spare parts CD-ROM (DISIS) and are available in kaercher-inside (<https://kaercher-inside.com>).

If required, the operating instructions and the spare parts lists can be ordered as a paper copy from the spare parts service by quoting the relevant part number.

### Special tool

No special tools are required.

### Tightening torque

No details.



## Protective measures

### Safe avoidance of **ONE** of these three prerequisites

You either remove or prevent the creation of an explosive atmosphere, e.g. avoid dust deposits through regular cleaning or you prevent them from igniting. It is not always possible to prevent an explosive atmosphere from arising. Therefore, ignition of this mixture must be prevented. To do this, equipment which could be a possible ignition source must be kept away from these atmospheres or must be designed so that ignition is impossible or improbable. This means it is necessary to obtain approval and to label equipment which can be safely used in explosive atmospheres.

The basis for the approval of equipment for use in potentially hazardous atmospheres is the European Directive 94/9 EC (ATEX), which applies to all EC member states from 30.06.2003. If a unit is explosion protected, it does not necessarily mean that it can be used anywhere. Various high standards are set for equipment for use in potentially explosive atmospheres depending on the risk potential. To this end, **ATEX** specifies various categories and potential risks:

### Classification into equipment groups:




<b>Equipment group I: For use in underground mines</b> Category M1 (M = mining) - category M2
<b>Equipment group II:</b> For non-mining use (NT 80/1 B1)
<b>Category 1:</b> Very high safety requirements
<b>Category 2:</b> High safety requirements
<b>Category 3:</b> Normal safety requirements

### Definition of the equipment categories:

<b>Category 1:</b> Equipment for use in areas in which potentially explosive atmospheres are present continuously, <b>for long periods or frequently</b> . The equipment itself must ensure the requisite safety even in the event of rare faults. Two independent means of protection are necessary.
<b>Category 2:</b> Equipment for use in areas in which potentially explosive atmospheres occur <b>occasionally</b> . Safety must be ensured even in the event of frequently occurring equipment faults.
<b>Category 3:</b> Equipment intended for use in areas in which potentially explosive atmospheres <b>rarely</b> occur and if they do then only for a brief period. The equipment ensures the requisite level of safety during normal operation. (NT 80/1 B1).

## Protective measures




### Zone classification of hazardous gas areas (gases, mist, vapours)

	<b>Zone 0</b> Area in which a dangerous, explosive gas atmosphere is present <b>continuously or for long periods</b> .
	<b>Zone 1</b> Area in which a dangerous, explosive gas atmosphere is likely to occur <b>occasionally</b> during normal operation.
	<b>Zone 2</b> Area in which a dangerous, explosive gas atmosphere is <b>rarely</b> likely to occur and if it does then only for a <b>short time</b> .

### Attention:

The zone is specified by the owner/operator, not the supplier of the equipment!

### Zone classification of hazardous dust areas (dusts)

	<b>Zone 20</b> Area in which an explosive atmosphere in the form of a cloud of combustible dust in air is present continuously or <b>for long periods or frequently</b> .
	<b>Zone 21</b> Area in which an explosive atmosphere in the form of a cloud of combustible dust in air is likely to occur during normal operation <b>occasionally</b> .
	<b>Zone 22</b> Area in which an explosive atmosphere in the form of a cloud of combustible dust in air is <b>not likely to occur in normal operation, but if it does it will be for a short period only</b> .

### Attention:

The zone is specified by the owner/operator, not the supplier of the equipment!

## Protective measures

Classification of the equipment for the different zones:

Category	Designed for type of potentially explosive atmosphere	Usable in zone	Can also be used in zone
1	Gas/air mixture or vapour/air mixture or mist	0	1 + 2
1	Dust/air mixture	20	21 + 22
2	Gas/air mixture or vapour/air mixture or mist	1	2
2	Dust/air mixture	21	22
3	Gas/air mixture or vapour/air mixture or mist	2	
3	Dust/air mixture	22	

Example:

A mill company in which the silos only are filled with flour once a day so that a „potentially explosive atmosphere“ rarely occurs.



<b>Equipment group II</b>
<b>Category 3</b>
<b>Zone 22</b>

## Explosion frequency by branches

The impression that dust explosions rarely occur is deceptive. Approximately 300 accidents happen each year in the Federal Republic of Germany alone. This means more than one explosion each working day. On average, the balance shows the same image: approx 100 deaths and approx 400 injured persons and property damage worth millions.

<b>Injuries to people within the dust groups</b>	<b>Explosions</b>	<b>Deaths</b>	<b>Injured persons</b>
Timber	113	12	124
Food and foodstuffs	88	38	127
Metals	47	18	91
Plastics	46	18	98
Coal / peat	33	7	39
Paper	7	–	–
Other	23	10	13