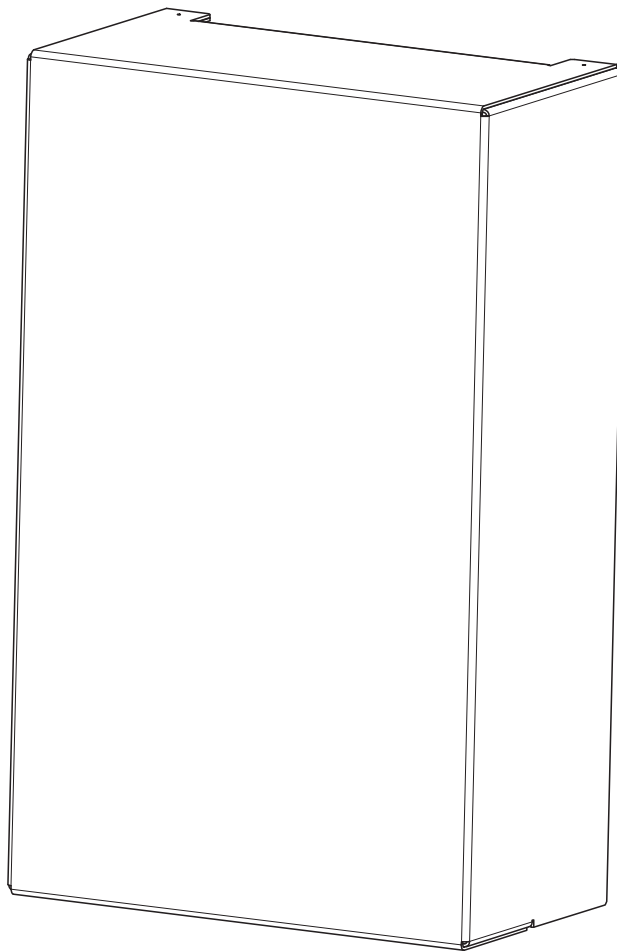




WPM Touch +2 Box



Installation manual for technicians

Extension box

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1 Safety notes

1.1 Symbols and markings

Particularly important information in these instructions is marked with **CAUTION!** and **NOTE**.

CAUTION!

Immediate danger to life or danger of severe personal injury or significant damage to property.

NOTE

Risk of damage to property or minor personal injury or important information with no further risk of personal injury or damage to property.

1.2 Regulations and safety notes

- During commissioning, observe the respective country-specific safety regulations and the applicable VDE safety regulations, particularly VDE 0100 as well as the technical connection requirements of the utility companies (EVU) and supply network operators!
- The extension box should only be operated in dry rooms with temperatures ranging between 0 °C and 35 °C. Ensure that no condensation forms on the device.
- All sensor connecting cables with a conductor cross-section of 0.75 mm² can be extended to a maximum of 40 m. Sensor cables should not be installed next to power cables.
- To ensure that the frost protection function of the heat pump works properly, the heat pump controller must remain connected to the power supply and the flow must be maintained through the heat pump at all times.
- The switching contacts of the output relay are interference-suppressed. Therefore, depending on the internal resistance of the measuring instrument, a voltage can also be measured when the contacts are open. However, this will be much lower than the line voltage.
- At the adapter boards -N17/LV as well as the pins -N1/J9 .. J14 and J29 and -N17/J6 and J9, an extra-low voltage is present. If, due to a wiring error, the line voltage is mistakenly connected to these terminals, the heat pump manager will be destroyed.

2 Extension box scope of supply

The scope of supply of the extension box includes:

- Extension box with casing
- 3 dowels (6 mm) with screws for wall mounting
- Installation manual for specialists
- Operating manual for users and specialists

3 Mounting

3.1 Extension box mounting

The controller is attached to the wall with the 3 screws and dowels (6 mm) included in the scope of supply. The following installation procedure must be followed to avoid soiling or damaging the controller:

- Open the controller cover (Fig. 3.2 on page 3)

- Mount the dowels for the upper fastening eyelet at operator level.
- Screw the screw into the dowel so that the controller can be mounted.
- Mount the controller by the upper fastening eyelet.
- Mark the position of the side drill-holes.
- Unhook the controller.
- Mount the dowels for the side drill-holes.
- Remount the controller at the top and tighten the screws.

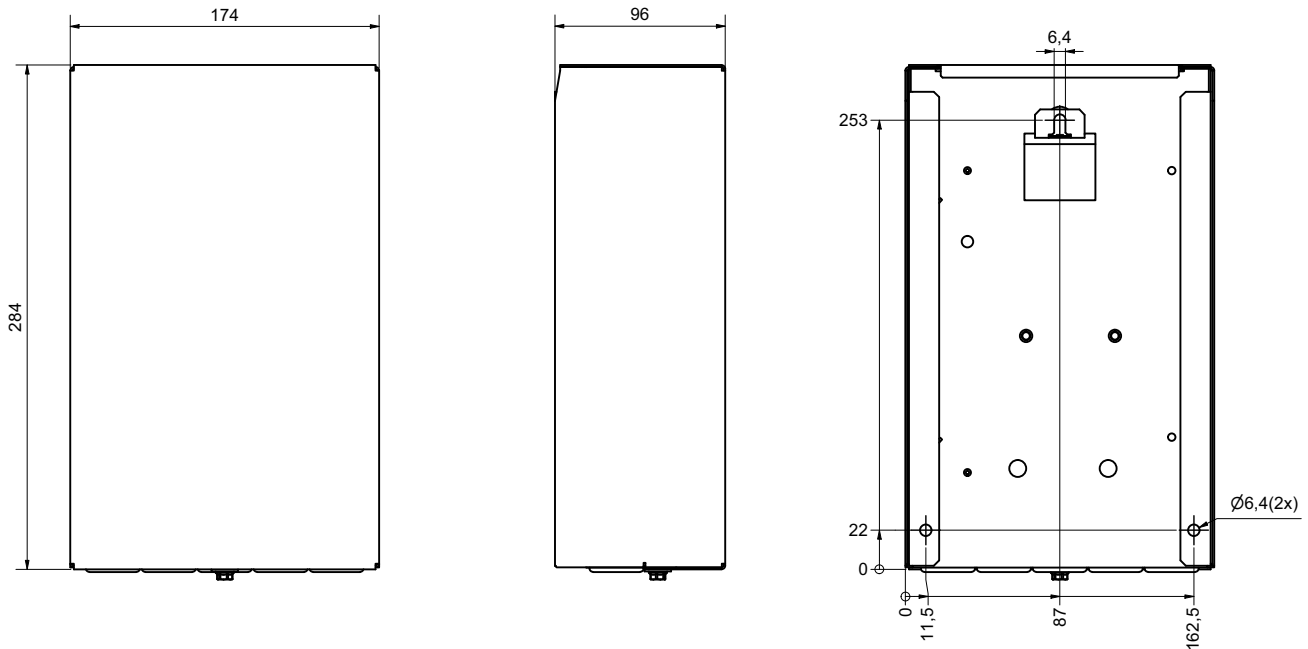


Fig. 3.1: Extension box dimensions

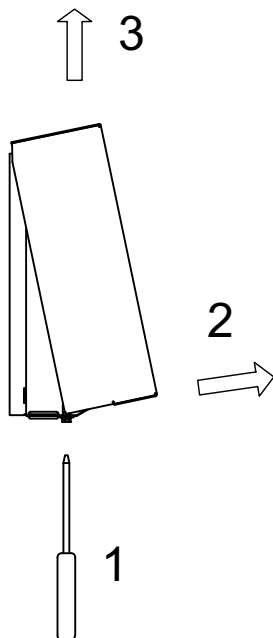


Fig. 3.2: Open the cover

3.2 Temperature sensor

Depending on the heat pump type used, the following temperature sensors are already installed or must be additionally mounted:

NTC-2 sensor:

- Outside temperature sensor (R1)

NTC-10 sensor:

- 1st, 2nd and 3rd heating circuit temperature sensors (R35, R5 and R21)
- Demand sensor (R2.2)
- Domestic hot water temperature sensor (R3)
- Renewable cylinder temperature sensor (R13)

3.2.1 Sensor characteristic curves

Temperature in °C	-20	-15	-10	-5	0	5	10			
NTC-2 in kΩ	14.6	11.4	8.9	7.1	5.6	4.5	3.7			
NTC-10 in kΩ	67.7	53.4	42.3	33.9	27.3	22.1	18.0			
	15	20	25	30	35	40	45	50	55	60
	2.9	2.4	2.0	1.7	1.4	1.1	1.0	0.8	0.7	0.6
	14.9	12.1	10.0	8.4	7.0	5.9	5.0	4.2	3.6	3.1

The temperature sensors to be connected to the heat pump manager must correspond to the sensor characteristic curve illustrated in Fig. 3.3 on page 4. The only exception is the outside temperature sensor included in the scope of supply of the heat pump (see Fig. 3.4 on page 4)

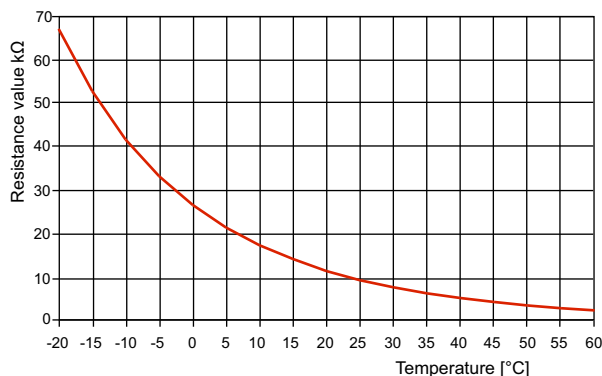


Fig. 3.3: Sensor characteristic curve NTC-10 for connecting to the heating controller

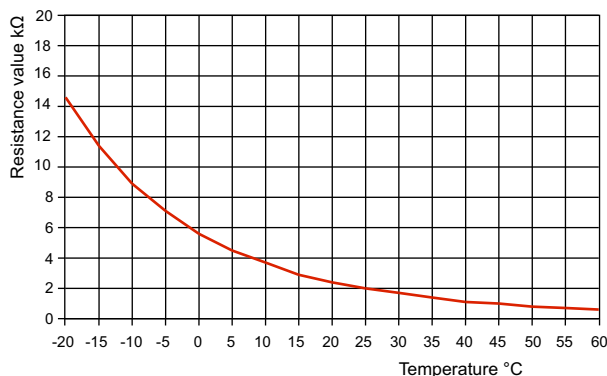


Fig. 3.4: Sensor characteristic curve NTC-2 according to DIN 44574

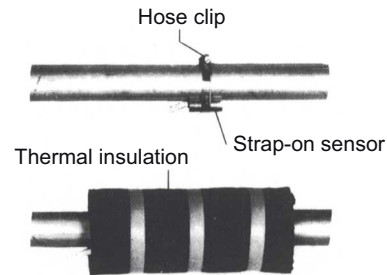
3.2.2 Installing the strap-on sensor

It is only necessary to mount the strap-on sensors if they are included in the scope of supply of the heat pump but have not yet been installed.

The strap-on sensors can be fitted as pipe-mounted sensors or installed in the immersion sleeve of the compact manifold.

Mounting as a pipe-mounted sensor

- Remove paint, rust and scale from heating pipe
- Coat the cleaned surface with heat transfer compound (apply sparingly)
- Attach the sensor with a hose clip (tighten firmly, as loose sensors can cause malfunctions) and thermally insulate



4 Electrical installation work for the extension box

4.1 Electrical installation work

- 1) The three-core electrical supply cable for the extension box (N17) is fed into the heat pump (device with integrated controller) or to the future mounting location of the heat pump manager (WPM).
The (L/N/PE~230 V, 50 Hz) supply cable for the extension box must have a continuous voltage. For this reason, it should be tapped upstream from the utility blocking contactor or be connected to the household current, as important protection functions may otherwise be lost during a utility block.
- 2) It is connected to either the -N1/MH X1.2 230V: OUT connector in the heat pump manager (WPM) or directly to the extension box (N17). The extension box itself is connected at the -N17/HV X1 230V IN connector. Details can be found in the accompanying electrical documentation.
- 3) A shielded communication cable (e.g. Y(ST)Y..LG) must be installed between the extension box and the heat pump manager. It is connected between the -N17/J6 and -N1/MH J29 connectors. Details can be found in the accompanying electrical documentation.

NOTE

When using three-phase current pumps, a power contactor can be activated with the 230 V output signal from the extension box.

Sensor cables can be extended with 2 x 0.75 mm cables up to 50 m.

NOTE

Further information on the wiring of the heat pump manager is available in the electrical documentation.

CAUTION!

The communication cable is necessary for the function of air-to-water heat pumps in outdoor installation. It must be shielded and installed separately from the mains cable. It is connected to N1-J25. For further information, see electrical documentation.

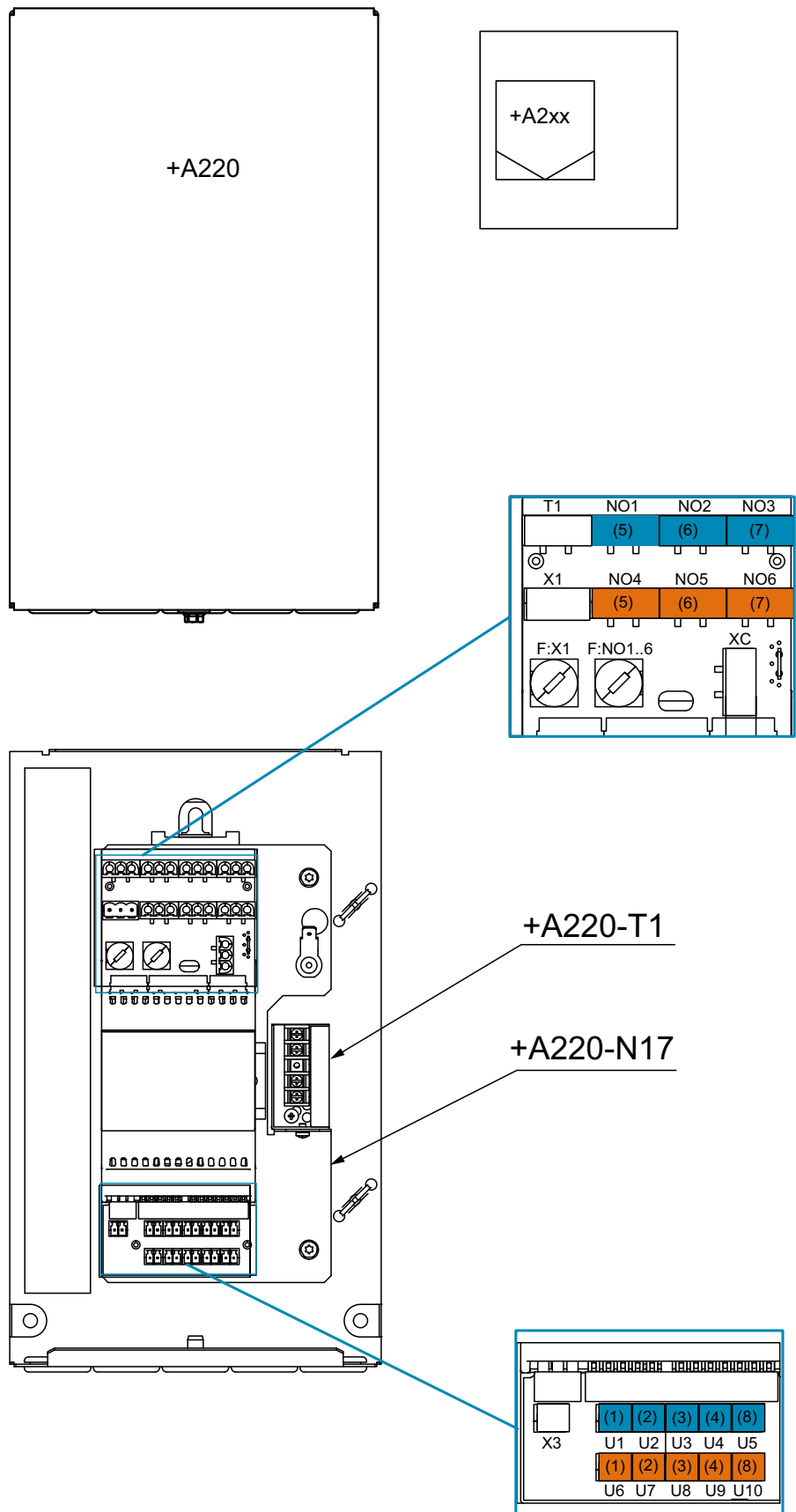


Fig. 4.1:Extension box

4.2 Functions

The basic version of the WPM Touch heat pump manager comes with one unchangeable pin assignment on the “grey” function block for the “General/unmixed circuit 1” function. Additional functions can be assigned as desired to three function blocks (yellow, green, red) (see Cap. 4.2.1 on page 7).

If these three function blocks are not enough, you can add two more function blocks (orange, blue) using the extension box

4.2.1 Overview of functions

General/1st unmixed circuit +A400

A1/K22	Utility company disable contactor
A2/K23	External disable contactor
R1	Outside temperature sensor
R2.2	Demand sensor
M13	Heat circulating pump
H5	Remote fault indicator
E10.1/K20	Pipe heater/immersion heater
N27.1	Smart Grid green
N27.2	Smart Grid red
M16	Auxiliary circulating pump
AO M16	Auxiliary circulating pump control signal

Domestic hot water +A420

K31	Circulation system requirements
B8	Thermostat
R3	Domestic hot water sensor
(Y)M18	Circulating pump/reversing valve
E9/K21	Flange heater
AO M18	Circulating pump control signal

1st mixed circuit +A411

R35	Sensor
M13	Circulating pump
M21↑	Mixer open
M21↓	Mixer closed

2nd mixed circuit +A412

R5	Sensor
M15	Circulating pump
M22↑	Mixer open
M22↓	Mixer closed

3rd mixed circuit +A413

R21	Sensor
M20	Circulating pump
M29↑	Mixer open
M29↓	Mixer closed

Bivalent +A441

E10.2/3	Oil/gas boiler
M26↑	Mixer open
M26↓	Mixer closed

Renewable +A442

R13	Sensor
M27↑	Mixer open
M27↓	Mixer closed

Swimming pool +A430

B4	Thermostat
R20	Domestic hot water sensor
(Y)M19	Circulating pump/reversing valve
K36	Flange heater
AO M19	Circulating pump control signal

Cooling active +A451

N5	Dew point monitor
K28	Switching heating/cooling
R24.2	Return sensor primary circuit cooling
R39	Cooling demand sensor
N9/M17	Switching room thermostat/cooling circulating pump
Y12↑	External 4-way reversing valve open
Y12↓	External 4-way reversing valve closed

Cooling passive +A452

N5	Dew point monitor
K28	Switching heating/cooling
R11	Flow cooling water
R4	Return cooling water
M12	Primary circulating pump passive cooling
Y5/Y6	3 or 2-way valve
M17	Cooling circulating pump

Solar +A443

R22	Solar cylinder
R23	Collector sensor
M24	Solar pump
Y11	Solar reversing valve

available as an optional special accessory. Five is the maximum possible number of function blocks (yellow, green, red, orange, blue).

i NOTE

The "Active cooling" function can only be selected with a reversible heat pump.

4.2.2 Overview of pin assignment for fixed functional block

	Pin number													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
function block 0	grey	grey	grey	grey	grey	grey	grey	grey	grey	grey	grey	grey	grey	grey
Function														
General / 1st unmixed circuit +A400	A1 K22	A2 K23	R1	R2.2	M13	H5	E10.2 K20	-	N27.1	N27.2	-	-	M16	M16 AO

4.2.3 Overview of pin assignment for flexible functional block

	Pin number								
	1	2	3	4	5	6	7	8	
Function block I	yellow	yellow	yellow	yellow	yellow	yellow	yellow	yellow	
Function block II	green	green	green	green	green	green	green	green	
Function block III	red	red	red	red	red	red	red	red	
Function block IV (Accessories)	orange	orange	orange	orange	orange	orange	orange	orange	
Function block V (Accessories)	blue	blue	blue	blue	blue	blue	blue	blue	
Function									
Domestic hot water +A420		K31	B3	R3	-	(Y)M18	M24	E9/K21	M18 AO
1st mixed circuit +A411		-	-	R35	-	M13	M21↑	M21↓	-
2nd mixed circuit +A412		-	-	R5	-	M15	M22↑	M22↓	-
3rd mixed circuit +A413		-	-	R21	-	M20	M29↑	M29↓	-
Bivalent +A441		-	-	-	-	E10.2/3	M26↑	M26↓	-
Renewable +A442		-	-	R13	-	-	M27↑	M27↓	-
Swimming pool +A430		-	B4	R20	-	M19	-	K36	M19 AO
Cooling active +A451		N5	K28	R24.2	R39	N9/M17	Y12↑	Y12↓	-
Passive cooling +A452		N5	K28	R11	R4	M12	Y5/Y6	M17	-
Solar +443		-	R22	R23	-	M24	Y11	-	-

Example: Pin assignment selection when the domestic hot water function is selected for the yellow function block

First of all, the function to be used (here domestic hot water) and the function block to be assigned in terms of colour (here yellow) are selected. In the table in the domestic hot water row, the component to be connected is now selected, for example the domestic hot water sensor R3. In the 1st row, the pin to be assigned from the yellow function block is then selected. In this

case the R3 domestic hot water sensor is to be connected to the yellow pin with the number 3. This process is to be selected for each component to be connected.

i NOTE

During commissioning of the system via the touch display, the function to be used with the applicable colour assignment is queried and set.

	Pin number								
	1	2	3	4	5	6	7	8	
Function block I	yellow	yellow	yellow	yellow	yellow	yellow	yellow	yellow	
Function block II	green	green	green	green	green	green	green	green	
Function block III	red	red	red	red	red	red	red	red	
Function block IV (Accessories)	orange	orange	orange	orange	orange	orange	orange	orange	
Function block V (Accessories)	blue	blue	blue	blue	blue	blue	blue	blue	
Function									
Domestic hot water +A420	→	K31	B3	R3	-	(Y)M18	M24	E9/K21	M18 AO
1st mixed circuit +A411		-	-	R35	-	M13	M21 ↑	M21 ↓	-

i NOTE

You can find the detailed electrical documentation in the accessories pack

i NOTE

Communication and control voltage cables are to be laid between a wall-mounted heat pump manager and the heat pumps

4.3 Connection of electronically regulated circulating pumps

Electronically regulated circulating pumps may have high starting currents, which may reduce the service life of the heat pump manager. In the event of a high or unknown starting current value, a coupling relay must be installed. The coupling relay must be supplied on-site. This is not necessary if the maximum permissible operating current of the heat pump manager (see information in electrical documentation) is not exceeded by the electronically regulated circulating pump or a relevant approval has been issued by the pump manufacturer.

i NOTE

The high-efficiency pumps (UPH) are supplied with the relevant coupling relay for connecting and operating the electronically regulated circulating pump.

⚠ CAUTION!

It is not permitted to connect more than one electronically regulated circulating pump via a relay output.

5 Technical device information

Line voltage	230 V AC 50 Hz
Voltage range	195 to 253 V AC
Power consumption	Approx. < 50 VA
Degree of protection according to EN 60529	IP 20
Switching capacity of outputs	min. 2 A (2 A) $\cos(\varphi) = 0.6$ LRA = 12 A at 230 V
Switch-off capacity	≥ 1.5 kA
Operating temperature	0 °C bis / to / à +35 °C
Storage temperature	-15 °C bis / to / à +60 °C
Gewicht / Weight / Poids	-
Mode of action	Type 1.C
Degree of soiling	2
Heat/fire resistance	Category D
Temperature for ball pressure test	125 °C



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