

–weishaupt–

# manual

Installation and operating instruction

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**1 User instructions**

**1 User instructions**

These installation and operating instructions form part of the equipment and must be kept on site.

**1.1 User guide**

**1.1.1 Symbols**

 <b>DANGER</b>	Immediate danger with high risk. Non observance can lead to serious injury or death.
 <b>WARNING</b>	Danger with medium risk. Non observance can lead to environmental damage, serious injury or death.
 <b>CAUTION</b>	Danger with low risk. Non observance can cause damage to the equipment and injury to personnel.
	Important information
	Requires direct action
	Result after an action
	Itemisation
	Range of values

**1.1.2 Target group**

These installation and operating instructions are intended for the operator and qualified personnel. They should be observed by all personnel working on the unit.

Work on the unit must only be carried out by personnel who have the relevant training and instruction.

Persons with limited physical, sensory or mental capabilities may only work on the unit if they are supervised or have been trained by an authorised person.

Children must not play near or on the unit.

## 1 User instructions

### 1.2 Guarantee and Liability

Guarantee and liability claims for personal and equipment damage are excluded, if they can be attributed to one or more of the following causes:

- Non approved application,
- non-observance of the installation and operating instruction,
- operation with faulty safety equipment,
- continual operation despite a fault,
- improper installation, commissioning, operation and service,
- unauthorised modifications made to the unit,
- the installation of additional components, which have not been tested with the unit,
- repairs, which have been carried out incorrectly,
- the use of non original Weishaupt parts,
- unsuitable heat transfer media,
- unsuitable fuels,
- defects in the inlet lines,
- acts of God.

## 2 Safety

## 2 Safety

### 2.1 Permissible application

The oil preheaters are suitable for:

- installation on Weishaupt medium and heavy oil burners
- medium and heavy fuel oil
- a viscosity of up to 60 mm<sup>2</sup>/s at 100 °C (approx. 700 mm<sup>2</sup>/s at 50 °C)
- oil temperatures up to 160 °C

Any other application is only permitted with prior written agreement from Max Weishaupt GmbH.

The oil preheaters are suitable for:

- use within the ratings given on the name plate
- indoor operation
- use within the permissible temperature range

Improper use could:

- endanger the health and safety of the user or third parties,
- cause damage to the appliance or other material assets.

### 2.2 Safety measures

Safety relevant fault conditions must be eliminated immediately.

#### 2.2.1 Normal operation

- All labels on the unit must be kept in a legible condition,
- the unit should only be operated with its cover in the closed position,
- do not touch moving and oil carrying parts during operation,
- stipulated settings, service and inspection work should be carried out at regular intervals.

#### 2.2.2 Electrical connection

For work carried out on live parts:

- Observe the accident prevention instructions BGV A3 and adhere to local directives,
- tools in accordance with EN 60900 should be used.

### 2.3 Alterations to the construction of the equipment

All conversions require written approval from Max Weishaupt GmbH.

- No additional components may be fitted, which have not been tested for use with the equipment,
- use only original Weishaupt replacement parts.

### 2.4 Disposal

Dispose of all materials used in a safe and environmentally friendly way. Observe local regulations.

### 3 Product description

### 3 Product description

#### 3.1 Type key

Example EV2D

EV	Series: Electric oil preheaters
2	Size
D	Ratings size

Example: WEV2.2/01

WEV	Series: Electric oil preheaters
2.2/01	Size

#### 3.2 Function

##### 3.2.1 Electric oil preheaters EV2

###### Heat exchanger

The heating elements heat the oil in the heat exchanger to the temperature set at the temperature regulator.

###### Temperature switch ①

The temperature switch (S20) measures the minimum operating temperature of the electric oil preheater via a compensation plate on the heat exchanger. It is not adjustable and switches at 55 °C. This reduces temperature deviations following fuel release. The temperature switch (S20) is connected in series with the temperature switch (S21) which is integrated in the temperature regulator ③. The burner only starts once both temperature switches are closed.

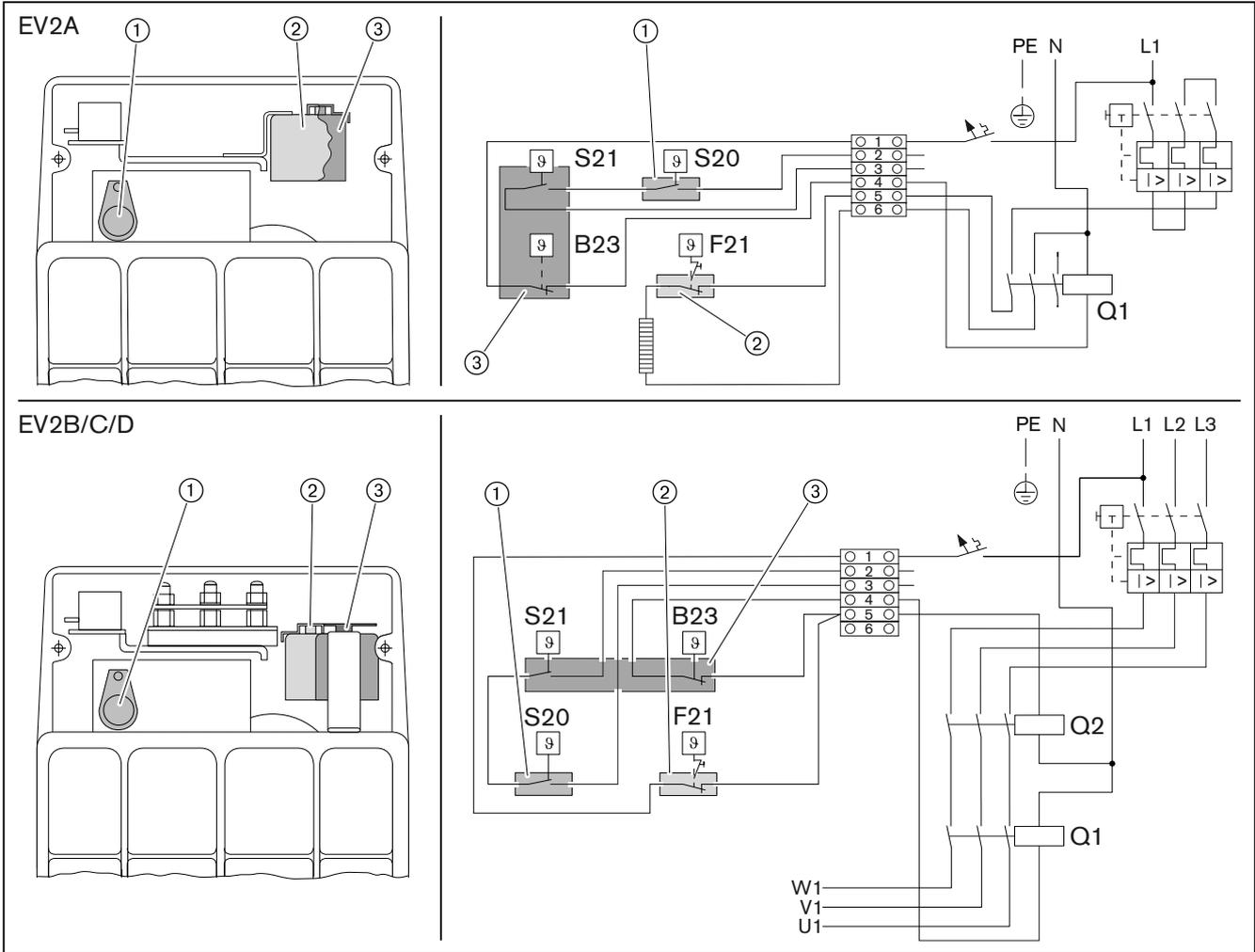
###### Temperature limiter ②

The temperature limiter (F21) measures the oil temperature. The temperature limiter reacts, if the temperature exceeds the value set. It mechanically locks and can only be reset manually.

###### temperature regulator ③

The oil outlet temperature is set at the temperature regulator (B23). In addition, a temperature switch (S21) is integrated for burner release. The temperature switch (S21) switches 30 K below the control temperature set.

3 Product description



- ① Temperature switch
- ② Temperature limiter
- ③ temperature regulator

### 3 Product description

#### 3.2.2 Electric oil preheaters WEV

##### Heat exchanger

The heating elements heat the oil in the heat exchanger to the temperature set at the external digital controller DR 100 ⑦.

##### Temperature limiter ②

The temperature limiter (F21) measures the oil temperature. If the temperature exceeds the value set, the temperature limiter reacts and the safety contactor ④ drops out. It mechanically locks and can only be reset manually.

##### Temperature control

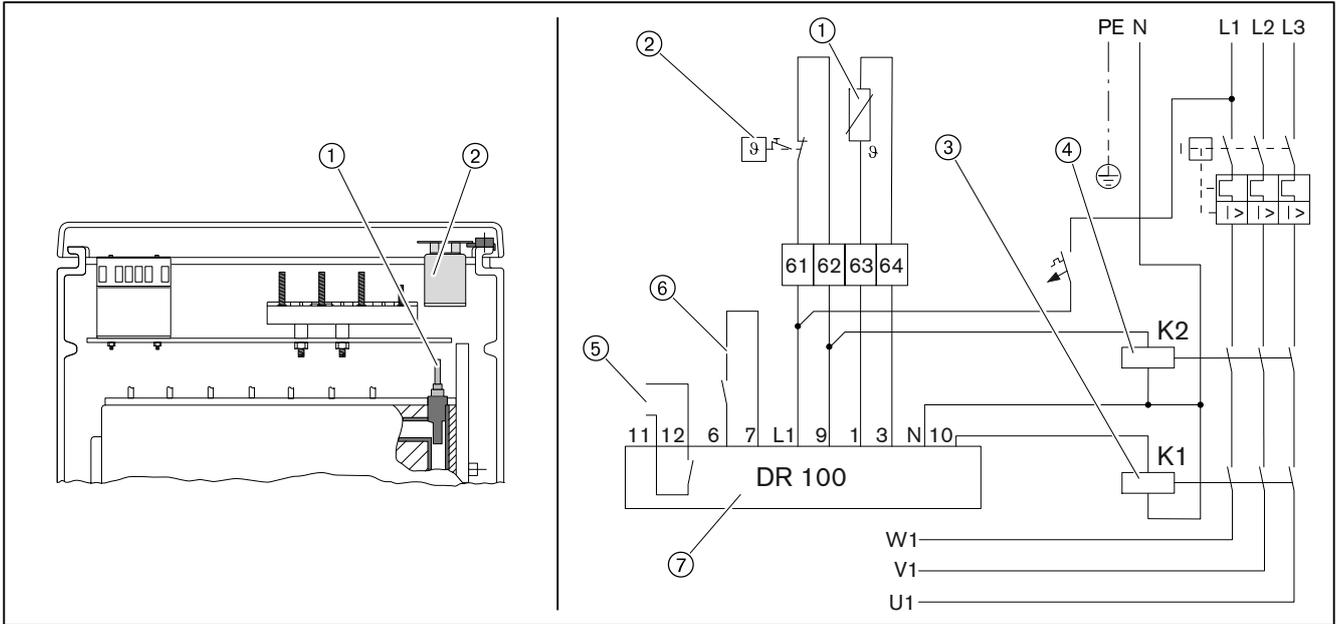
The setpoint temperatures for operation (SP1) and Standby (SP2) are set on the external digital controller DR 100.

Setpoint switching is carried out via contact ⑥. In standby, contact ⑥ is closed and the controller maintains the oil temperature at the selected setpoint in standby (SP2). At heat demand, contact ⑥ opens and the controller heats up to the operating setpoint (SP1).

The two setpoints have a hysteresis of 5 K. When the oil at the temperature sensor ① reaches the selected setpoint, the contactor ③ drops out and the oil preheater switches off. If the temperature drops 5 K below the selected setpoint, contactor ③ is activated and the electric oil preheater resumes the heating process.

The release temperature is 15 K below the selected operating setpoint. When the oil at the temperature sensor ① reaches the release temperature, contact ⑤ closes and the burner starts. If the temperature at the sensor ① drops 25 K below the selected operating setpoint, contact ⑤ opens and the burner shuts down.

3 Product description



- ① Temperature sensor PT 100
- ② Temperature limiter
- ③ Contactor
- ④ Safety contactor
- ⑤ Release contact
- ⑥ Potential free contact
- ⑦ Digital controller DR 100

**3 Product description**

**3.3 Technical data**

**3.3.1 Electrical data**

**Electric oil preheaters EV2**

	<b>EV2A/01</b>	<b>EV2B/01</b>	<b>EV2C</b>	<b>EV2D</b>
Mains voltage (Δ) Mains voltage (Y)	230 V	220 ... 230 V 380 ... 400 V	220 ... 230 V 380 ... 400 V	220 ... 230 V 380 ... 400 V
Mains frequency	50 ... 60 Hz	50 ... 60 Hz	50 ... 60 Hz	50 ... 60 Hz
Consumption	2.2 kW	4.5 kW	6.6 kW	13.2 kW
Consumption 220 ... 230 V	9.6 A	11.3 A	16.6 A	33.2 A
Consumption 380 ... 400 V	-	6.8 A	9.6 A	20.1 A
Pre-fuse heating element 220 ... 230 V	16 A	16 A	20 A	35 A
Pre-fuse heating element 380 ... 400 V	-	10 A	16 A	25 A

**Electric oil preheaters WEV**

	<b>WEV2.2/01</b>	<b>WEV3.1/01</b>	<b>WEV3/01</b>
Mains voltage (Δ) Mains voltage (Y)	220 ... 230 V 380 ... 400 V	220 ... 230 V 380 ... 400 V	220 ... 230 V 380 ... 400 V
Mains frequency	50 ... 60 Hz	50 ... 60 Hz	50 ... 60 Hz
Consumption	13.8 kW	17.0 kW	22.4 kW
Consumption 220 ... 230 V	34.7 A	42.7 A	56.3 A
Consumption 380 ... 400 V	21 A	25.9 A	34.1 A
Pre-fuse heating element 220 ... 230 V	35 A	50 A	63 A
Pre-fuse heating element 380 ... 400 V	25 A	35 A	35 A

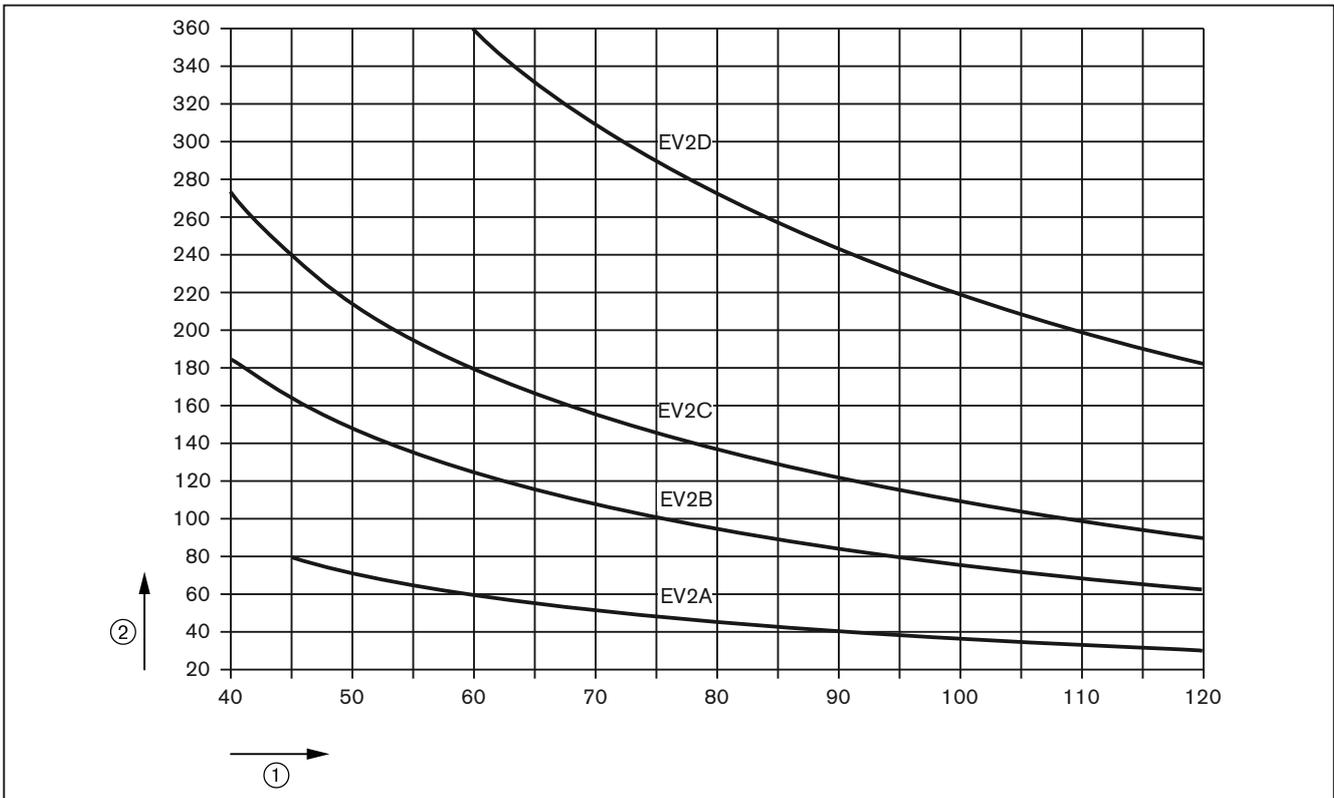
3 Product description

3.3.2 Ratings diagram

Electric oil preheaters EV2

	EV2A/01	EV2B/01	EV2C	EV2D
Oil throughput	50 kg/h	100 kg/h	150 kg/h	270 kg/h

Oil throughput at maximum temperature regulator setting



① Temperature increase Δt in Kelvin

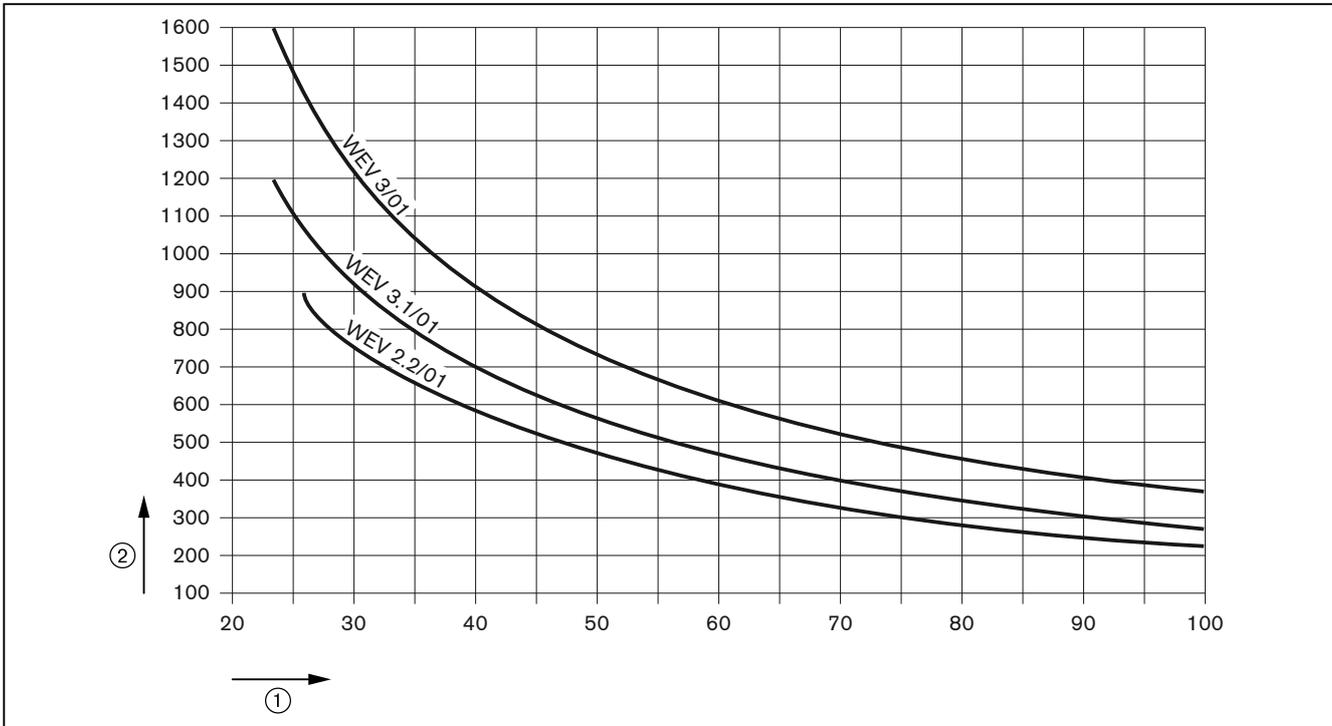
② Oil throughput in kg/h

**3 Product description**

**Electric oil preheaters WEV**

	<b>WEV2.2/01</b>	<b>WEV3.1/01</b>	<b>WEV3/01</b>
Oil throughput	300 kg/h	375 kg/h	500 kg/h

Oil throughput at maximum temperature regulator setting



- ① Temperature increase  $\Delta t$  in Kelvin
- ② Oil throughput in kg/h

**3.3.3 Operating pressure**

**EV2...**  
max 30 bar

**WEV...**  
max 32 bar

**3 Product description**

**3.3.4 Pressure loss**

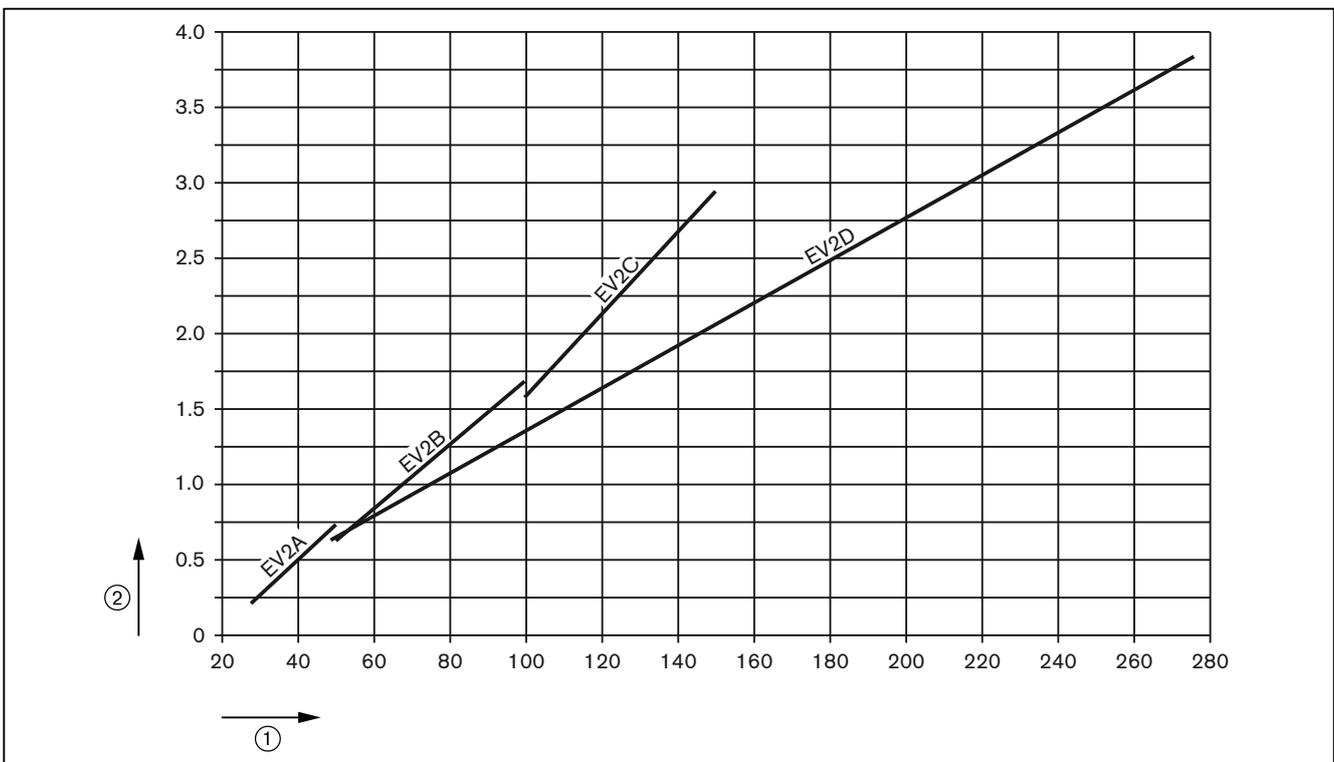


The details of the pressure losses are reference values.

**Pressure loss EV2**

The curves were calculated with the following values.

	<b>EV2A</b>	<b>EV2B...EV2D</b>
Fuel oil	Fuel oil M (viscosity 37 mm <sup>2</sup> /s at 50 °C)	Fuel oil S (viscosity 450 mm <sup>2</sup> /s at 50 °C)
Oil inlet temperature	20 °C	60 °C
Oil outlet temperature	95 °C	150 °C



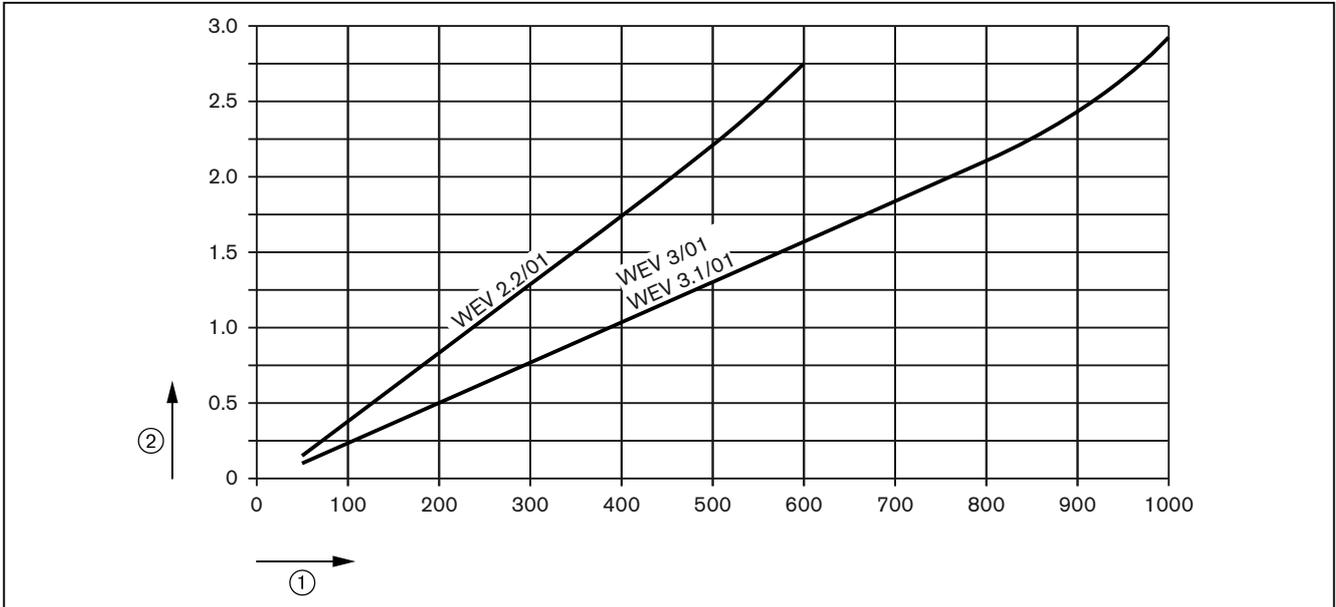
- ① Oil throughput in kg/h
- ② Pressure loss in bar

**3 Product description**

**Pressure loss WEV**

The curves were calculated with the following values.

- Fuel oil S (viscosity 450 mm<sup>2</sup>/s at 50 °C)
- Oil inlet temperature at 60 °C
- Oil outlet temperature at 150 °C



- ① Oil throughput in kg/h
- ② Pressure loss in bar

**3.3.5 Contents**

**Electric oil preheaters EV2**

	EV2A/01	EV2B/01	EV2C	EV2D
Oil contents	0.24 l	0.8 l	0.8 l	1.6 l

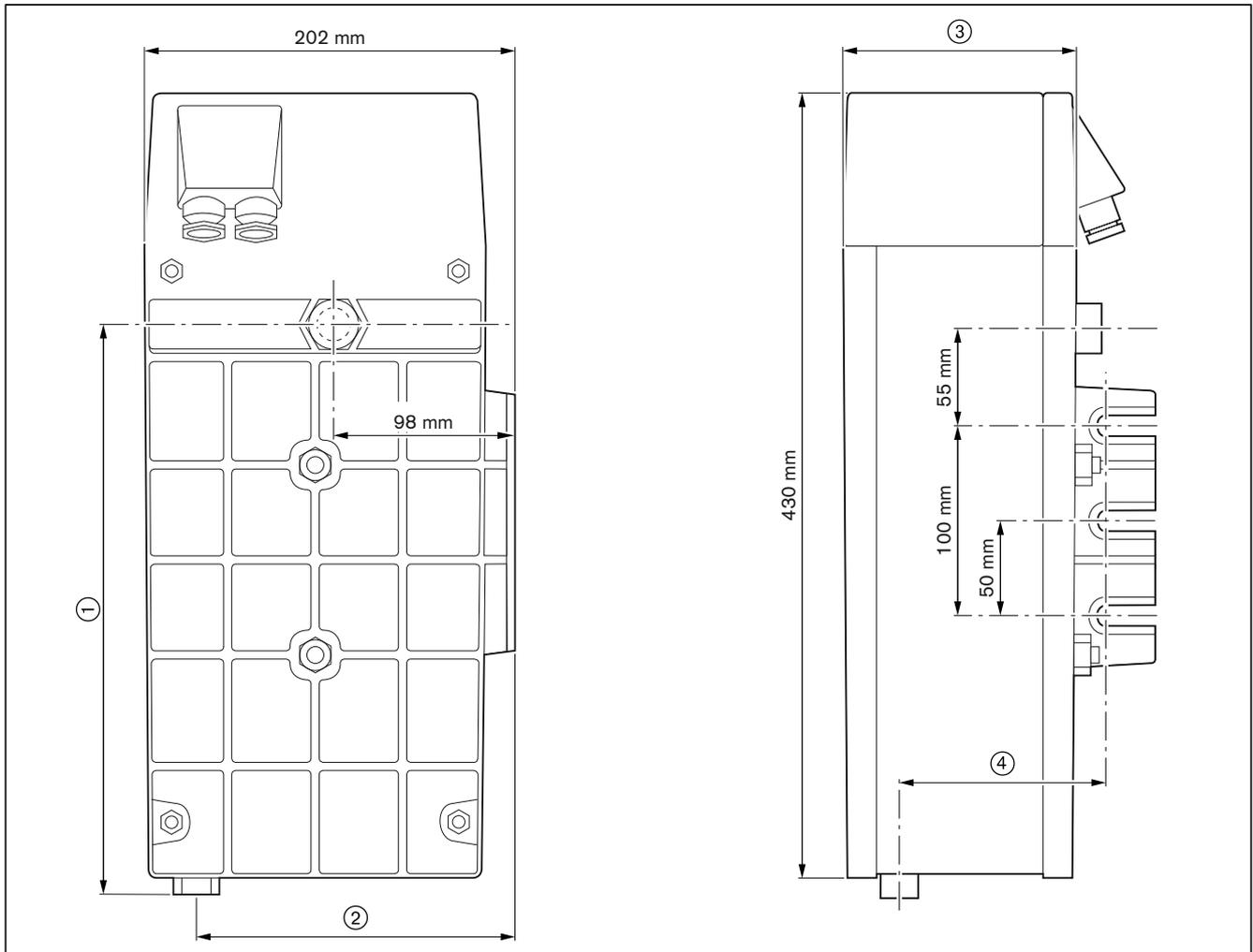
**Electric oil preheaters WEV**

	WEV2.2/01	WEV3.1/01	WEV3/01
Oil contents	0.75 l	1.55 l	1.55 l

**3 Product description**

**3.3.6 Dimensions**

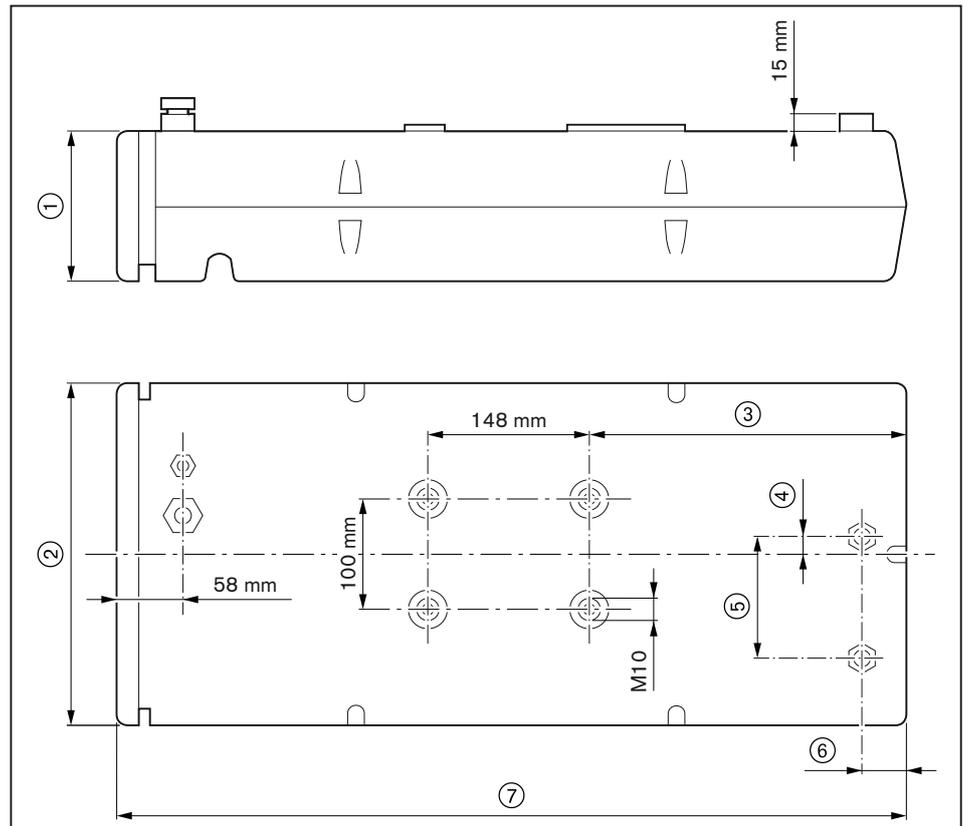
**Dimensions EV2**



	EV2A/01	EV2B/01	EV2C	EV2D
①	305 mm	305 mm	309 mm	312 mm
②	162 mm	173 mm	173 mm	173 mm
③	105 mm	130 mm	130 mm	200 mm
④	65 mm	112 mm	112 mm	182 mm

**3 Product description**

**Dimensions WEV**



	WEV2.2...	WEV3...
①	126 mm	140 mm
②	254 mm	314 mm
③	231 mm	288 mm
④	33 mm	13 mm
⑤	112 mm	110 mm
⑥	42 mm	43 mm
⑦	630 mm	744 mm

**3.3.7 Weight**

**Weight EV**

	EV2A	EV2B	EV2C	EV2D
Weight empty	8 kg	15 kg	15 kg	24 kg

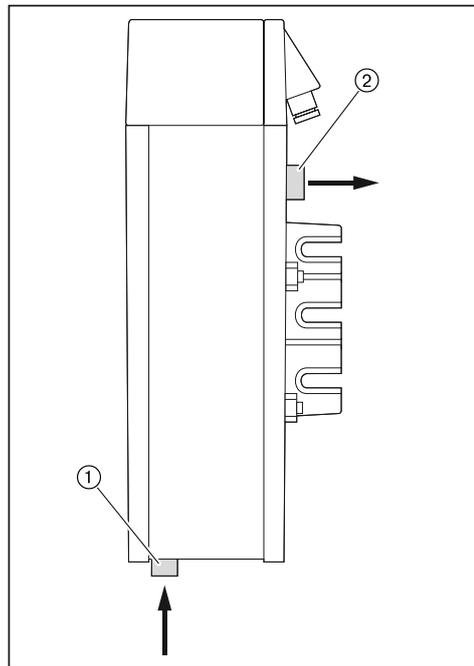
**Weight WEV**

	WEV2.2	WEV3.1	WEV3
Weight empty	27 kg	42 kg	42 kg

4 Installation

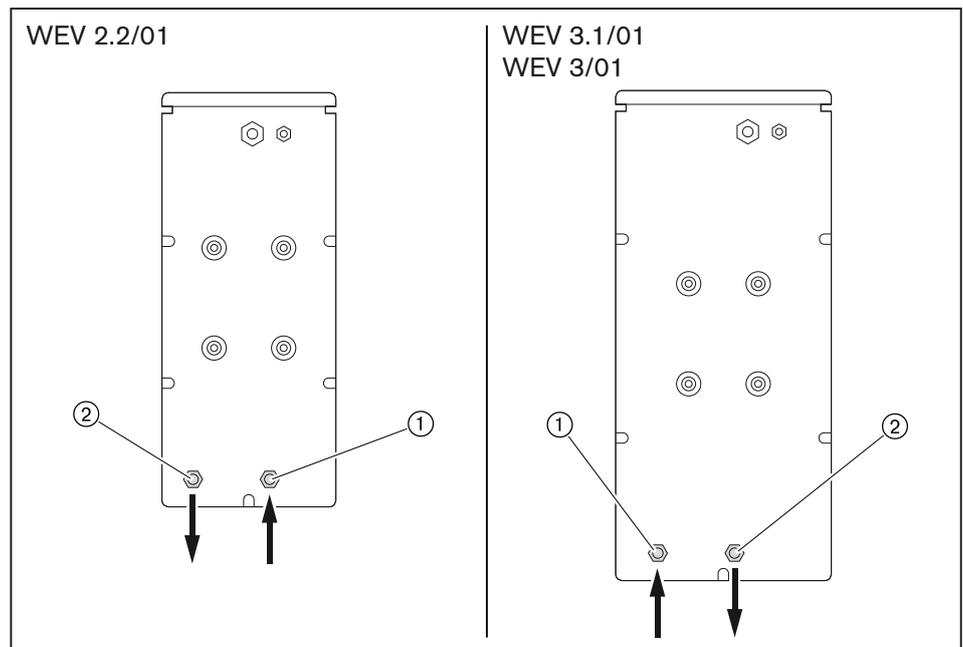
4 Installation

4.1 Oil supply EV2



	EV2A/01	EV2B/01	EV2C	EV2D
① Inlet	G'1/4"	G'1/4"	G <sup>3/8</sup> "	G <sup>3/8</sup> "
② Outlet	M20 x 1.5	M20 x 1.5	M20 x 1.5	M20 x 1.5

4.2 Oil supply WEV



- ① Inlet G'1/2"
- ② Outlet G'1/2"

## 4 Installation

### 4.3 Electrical installation

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#### **Risk of electric shock**

Working on the unit when voltage is applied can lead to electric shock.

- ▶ Isolate unit from mains prior to carrying out work.
  - ▶ Safeguard against accidental re-start.
- 

The electrical installation must only be carried out by qualified electricians. Observe local regulations.

#### **Connect electric oil preheater.**

- ▶ Open cover on oil preheater.
- ▶ Connect oil preheater to wiring diagram enclosed.

## 5 Commissioning

### 5 Commissioning

#### 5.1 Prerequisite

Commissioning must only be carried out by qualified personnel.

Only correctly carried out commissioning ensures the operational safety of the burner.

- ▶ Prior to commissioning ensure:
  - All installation work has been completed and checked.
  - Electrical installation duly completed, electric circuits duly fused and measures for contact protection of electrical components and of all wiring checked.
  - The device has been filled with media and vented.

Additional system-related tests could be necessary. Please observe the operating guidelines for the individual components.

## 5 Commissioning

### 5.2 Setting the electric oil preheater

#### 5.2.1 Setting EV2

- ▶ Fill oil preheater with oil.



CAUTION

#### Damage to the heating elements

Heating up an empty oil preheater damages the heating elements.

- ▶ Fill oil preheater.



WARNING

#### Danger of getting burned on oil carrying components

The oil carrying components are heated up by the hot oil and could cause burns if touched.

- ▶ Do not touch the components.

- ▶ Heat up oil preheater.
- ▶ Check oil supply is tight.

#### Set temperature regulator

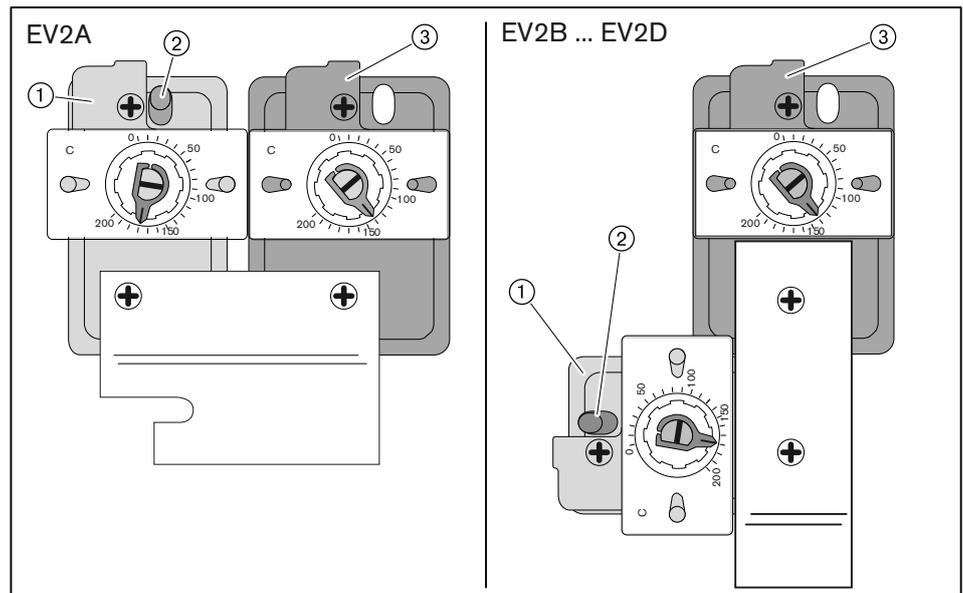
- ▶ Set temperature regulator (B23) ③ to the atomising temperature required (see Ch. 6.1).
- ▶ Measure oil outlet temperature prior to fuel release.
- ▶ If necessary, adjust temperature regulator setting.

#### Check temperature limiter

- ▶ Set temperature limiter (F21) ① below temperature regulator value.
- ✓ Limiter will react before the regulator switches off.

#### Set temperature limiter

- ▶ Once checked, set temperature limiter (F21) ① to approx. 40 K above the regulator.
- ▶ Press reset ②.



- ① Temperature limiter (F21)
- ② Reset
- ③ Temperature regulator (B23)

## 5 Commissioning

### 5.2.2 Set WEV

- ▶ Fill oil preheater with oil.



#### Damage to the heating elements

Heating up an empty oil preheater damages the heating elements.

- ▶ Fill oil preheater.



#### Danger of getting burned on oil carrying components

The oil carrying components are heated up by the hot oil and could cause burns if touched.

- ▶ Do not touch the components.

- ▶ Heat up oil preheater.
- ▶ Check oil supply is tight.

#### Set temperature regulator DR100

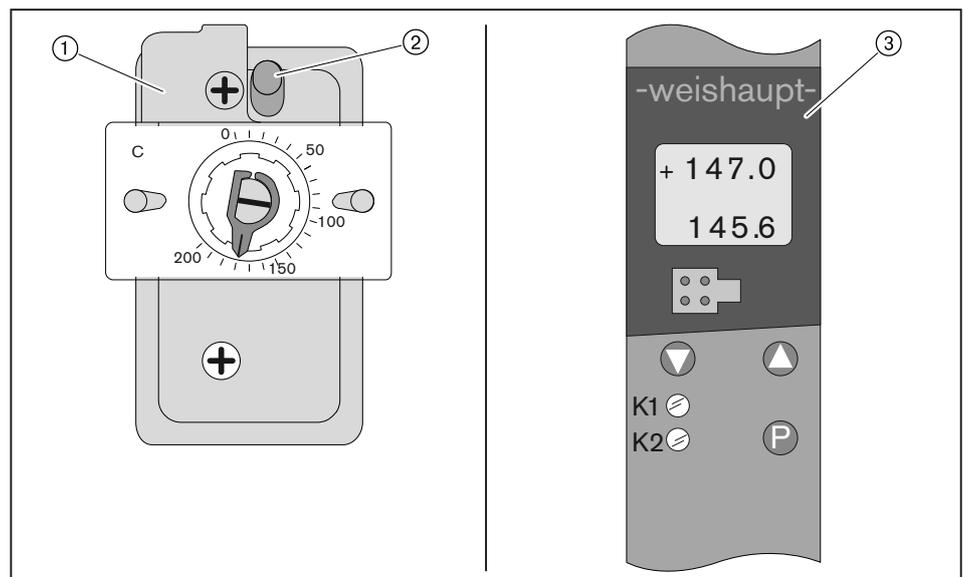
- ▶ Set operating setpoint (SP1) to required atomising temperature at temperature regulator ③ (see Ch. 6.1).
- ▶ Set setpoint in standby (SP2) 30 K below the atomising temperature at temperature regulator ③ (see Ch. 6.1).
- ▶ Measure oil outlet temperature prior to fuel release.
- ▶ If necessary, adjust the setting at temperature regulator.

#### Check temperature limiter

- ▶ Set temperature limiter ① below the operating setpoint (SP1).
- ✓ Limiter will react before the regulator switches off.

#### Set temperature limiter

- ▶ Once checked, set temperature limiter ① to approx. 40 K above the operating setpoint (SP1).
- ▶ Press reset ②.



- ① Temperature limiter (F21)
- ② Reset
- ③ Temperature regulator (DR 100)

## 5 Commissioning

### 5.3 Concluding work

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#### **Oil leakage from oil pressure measuring devices due to constant load**

Oil pressure measuring devices could be damaged and cause environmental pollution through leakage.

▶ Close or remove oil pressure measuring devices once commissioning is complete.

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- ▶ Check and adjust the function of all regulating, control and safety devices of the installation during operation.
- ▶ Check tightness of oil carrying components.
- ▶ Enter combustion values and settings in the commissioning record and/or test sheet.
- ▶ Inform the operator about the use of the equipment.
- ▶ Hand the installation and operating manual to the operator and inform him that this should be kept with the appliance.
- ▶ Point out to operator that the installation should be service annually.

6 Technical documentation

6 Technical documentation

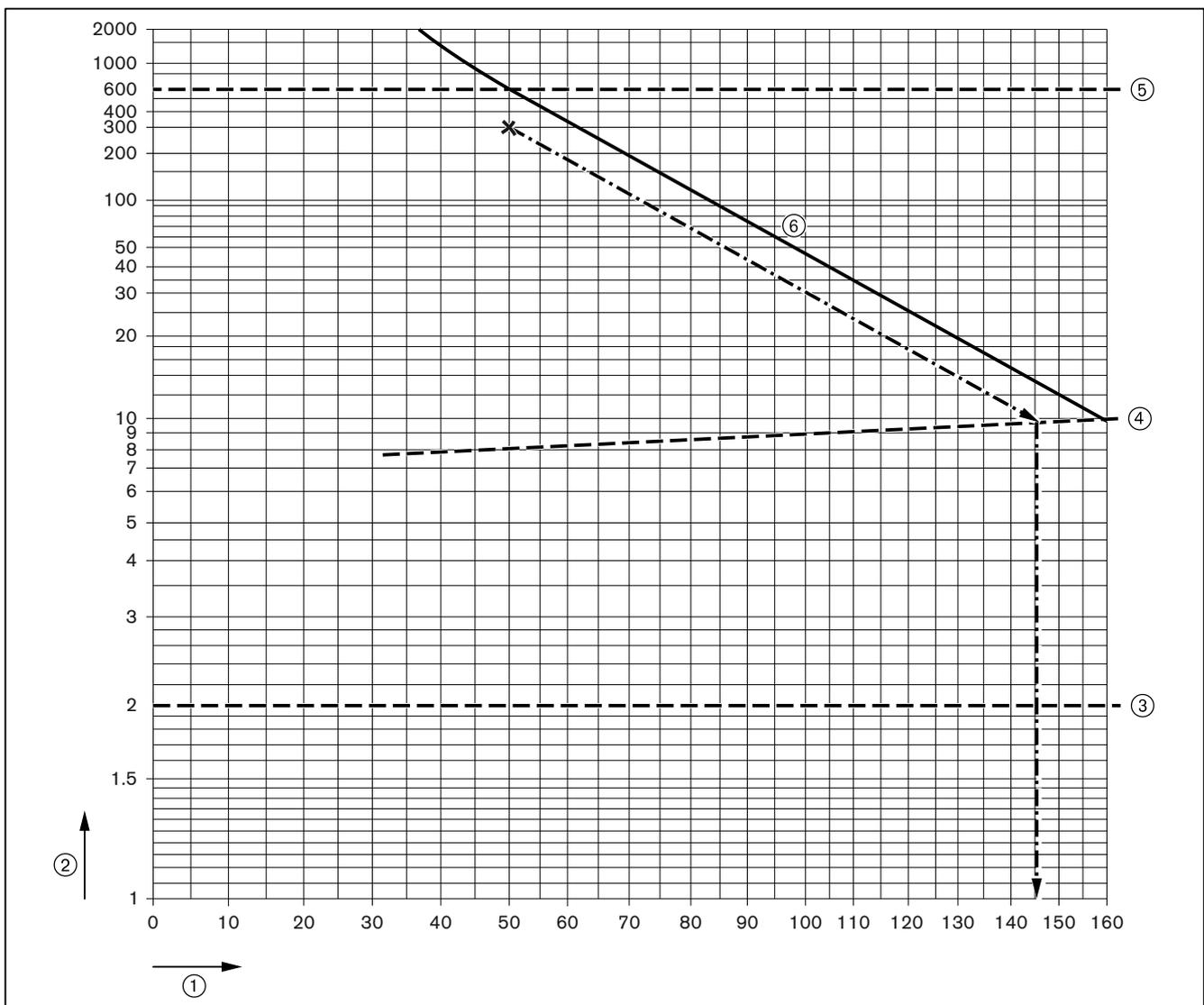
6.1 Oil preheater viscosity chart

Determine atomising temperature

Example

Known fuel oil viscosity	300 mm <sup>2</sup> /s at 50 °C
Atomising temperature sought	147 °C

- ▶ Find the point of the known fuel oil viscosity (300 mm<sup>2</sup>/s at 50 °C) in the chart.
- ▶ Draw a line parallel to the oil reference line to intersect with the recommended nozzle viscosity line ④.
- ▶ Draw a line perpendicular to the temperature axis ① from this intersection and read the atomising temperature.

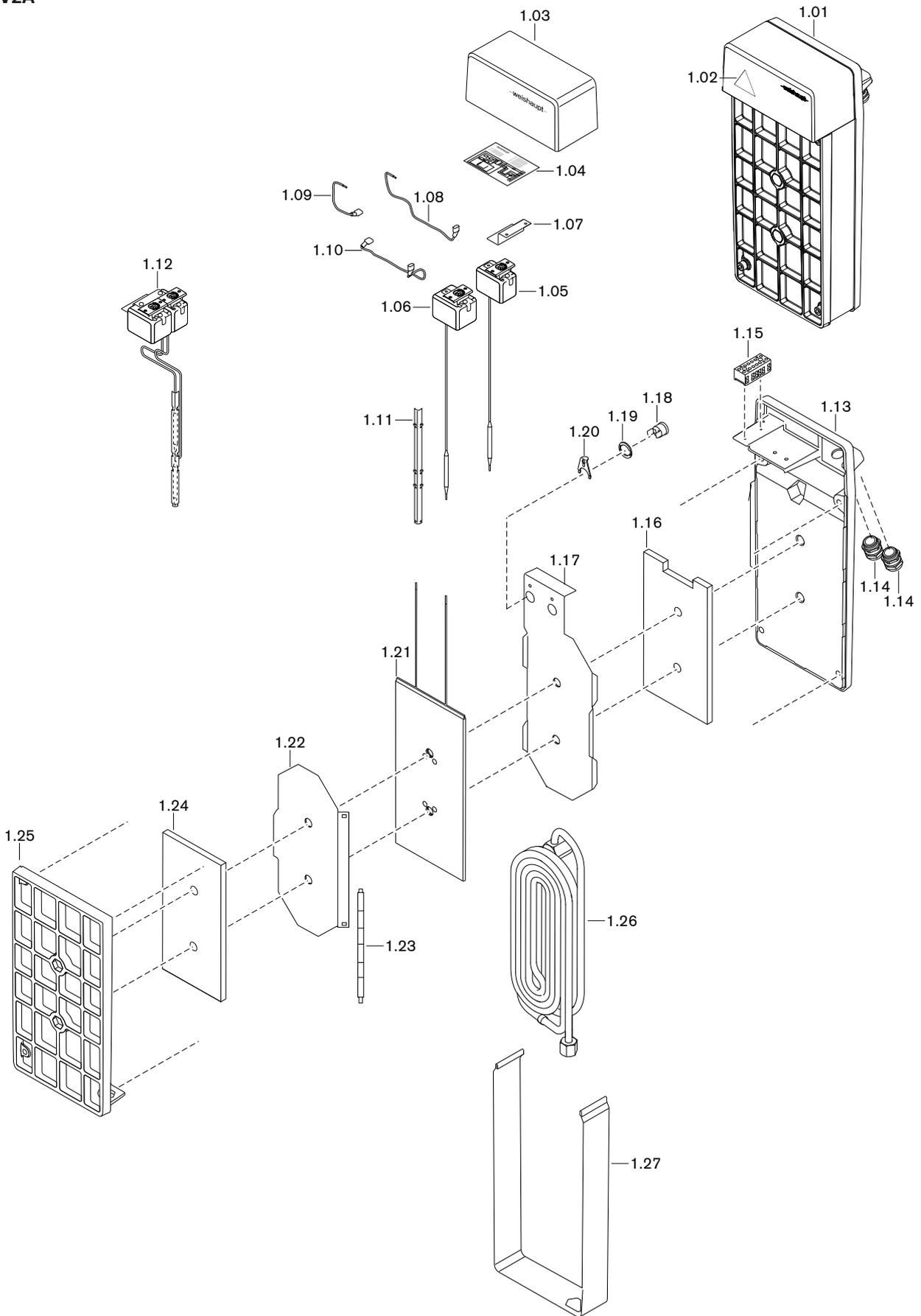


- ① Temperature in °C
- ② Viscosity in mm<sup>2</sup>/s
- ③ Minimum pump viscosity
- ④ Recommended pump viscosity
- ⑤ Maximum pump viscosity
- ⑥ Maximum viscosity fuel oil S

7 Spares

7 Spares

EV2A

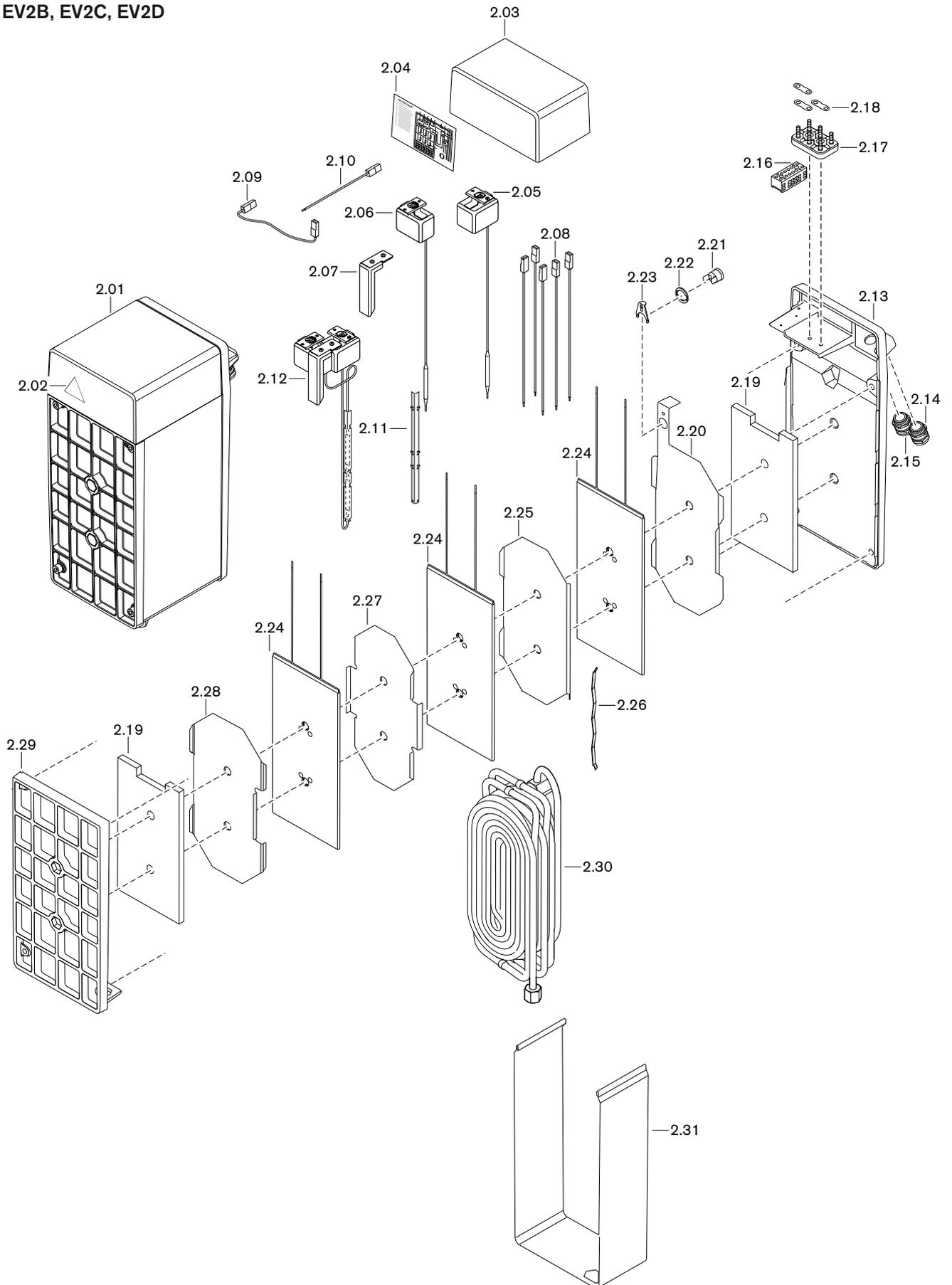


**7 Spares**

<b>Pos.</b>	<b>Description</b>	<b>Order No.</b>
1.01	Oil preheater EV2A/01 220-230 V 2.2 kW	511 210 01 01 0
1.02	Label	793 924
1.03	Cover	051 121 00 11 7
1.04	Label	201 000 03 56 7
1.05	Temperature limiter EMf-5U	691 115
1.06	Temperature regulator EMFf-23	691 119
1.07	Fixing plate for thermostat	051 121 01 30 7
1.08	Connection wire 190 mm	511 227 01 07 2
1.09	Connection wire 140 mm	051 121 00 04 2
1.10	Connection wire (bridge) 160 mm	511 227 01 06 2
1.11	Bracket for temperature sensor	051 121 01 31 7
1.12	Thermostat combination EMFf-23/EMf-5U	511 227 01 08 2
1.13	Front base plate	051 121 01 01 7
1.14	Cable gland M20 x 1.5, SW 24	730 640
1.15	Terminal rail BK 6 CRN	735 107
1.16	Plate 128 x 240 Isoplan 750	051 121 01 27 7
1.17	Thermostat sheet	051 121 01 10 7
1.18	Temperature switch 1 NT 01 F-0290 F55-17	690 166
1.19	Washer 21 x 1.5 CuZn37 F30	053 300 10 06 7
1.20	Bracket for temperature switch	053 300 10 03 7
1.21	Heating cartridge 230V 2200 W with plug	051 121 01 13 2
1.22	Sensor plate	051 121 01 09 7
1.23	Tension spring	053 111 01 24 7
1.24	Plate EV2A 120 x 240 Isoplan 750	051 121 01 28 7
1.25	Base plate rear	051 121 01 02 7
1.26	Oil coil complete	051 121 01 23 2
1.27	Casing	051 121 01 13 7

7 Spares

EV2B, EV2C, EV2D

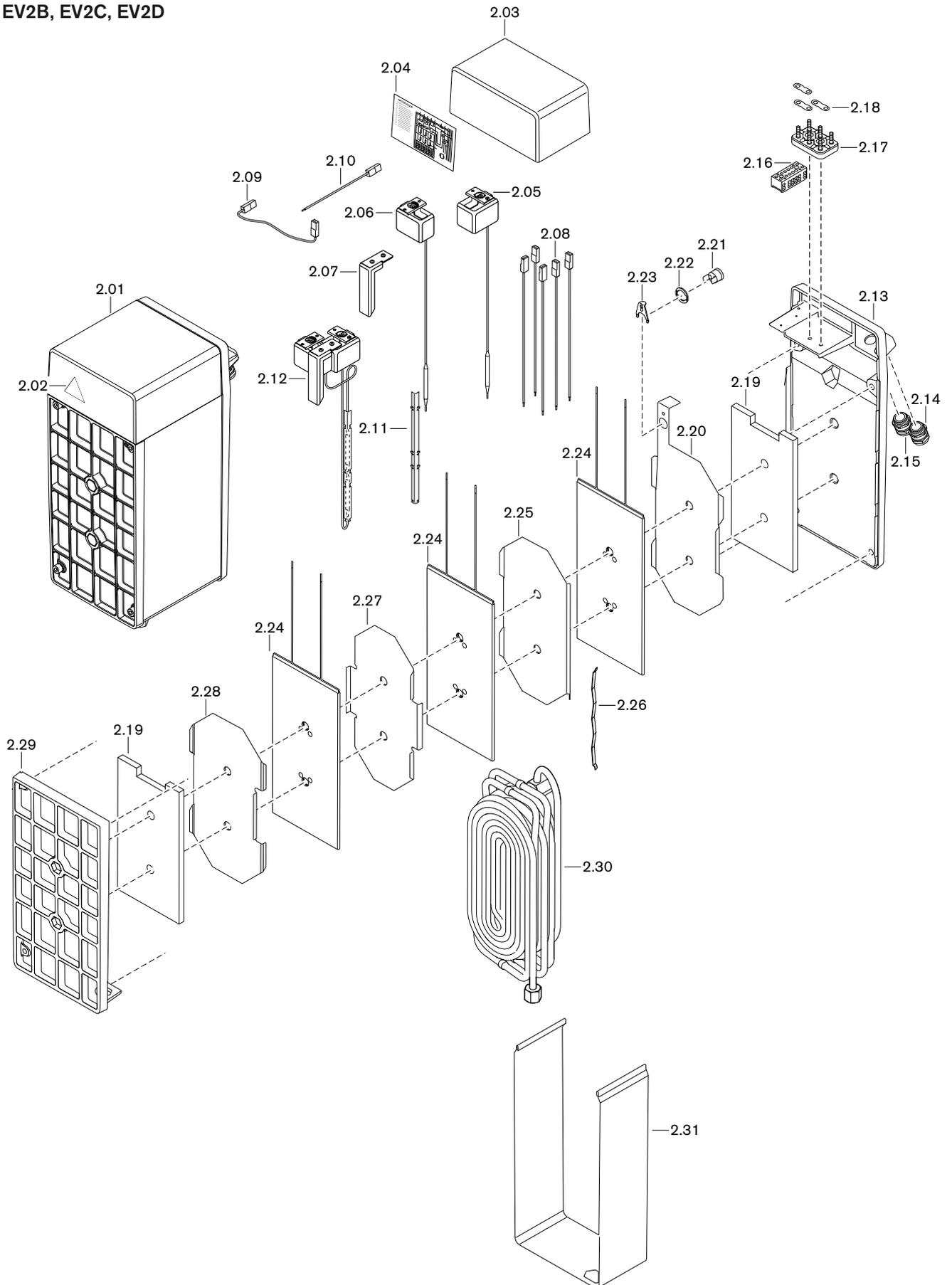


**7 Spares**

<b>Pos.</b>	<b>Description</b>	<b>Order No.</b>
2.01	Oil preheater complete	
	– EV2B/01 220-230/380-400 V 4.5 kW	511 220 01 01 0
	– EV2C 220-230/380-400 V 6.6 kW	511 230 01 00 0
	– EV2D 220-230/380-400 V 13.2 kW	511 240 01 00 0
2.02	Label	793 924
2.03	Cover cpl.	
	– EV2B, EV2C	051 122 00 03 2
	– EV2D	051 124 00 11 7
2.04	Label	201 000 03 57 7
2.05	Temperature regulator EMFf-23	691 119
2.06	Temperature limiter EMf-5U	691 115
2.07	Bracket for thermostat combination	511 227 01 05 7
2.08	Connection wire 240 mm	511 227 01 03 2
2.09	Connection wire (bridge) 185 mm	511 227 01 02 2
2.10	Connection wire 140 mm	051 121 00 02 2
2.11	Bracket for temperature sensor	051 121 01 31 7
2.12	Thermostat combination EMFf-23/EMf-5U	511 227 01 05 2
2.13	Front base plate	051 121 01 01 7
2.14	Cable gland M20 x 1.5	
	– EV2B	730 641
	– EV2C, EV2D	730 899
2.15	Cable gland M20 x 1.5	
	– EV2B	730 640
	– EV2C, EV2D	730 899
2.16	Terminal rail BK 6 CRN	735 107
2.17	Terminal board M5, 6 pin DIN 46294	733 021
2.18	Bridge KLV 100/1	733 005
2.19	Plate 128 x 240 Isoplan 750	051 121 01 27 7
2.20	Thermostat sheet	051 124 01 02 7
2.21	Temperature switch 1 NT 01 F-0290 F55-17	690 166
2.22	Washer 21 x 1.5 CuZn37 F30	053 300 10 06 7
2.23	Bracket for temperature switch	053 300 10 03 7
2.24	Heating element 230 V without plug	
	– EV2B 1500 W	051 123 01 02 2
	– EV2C, EV2D 2200 W	051 121 01 01 2
2.25	Sensor plate	051 122 01 05 7
2.26	Tension spring	053 111 01 24 7
2.27	Spacer plate	
	– EV2B	051 123 01 02 7
	– EV2C, EV2D	051 124 01 01 7
2.28	Cover plate	051 122 01 06 7

7 Spares

EV2B, EV2C, EV2D



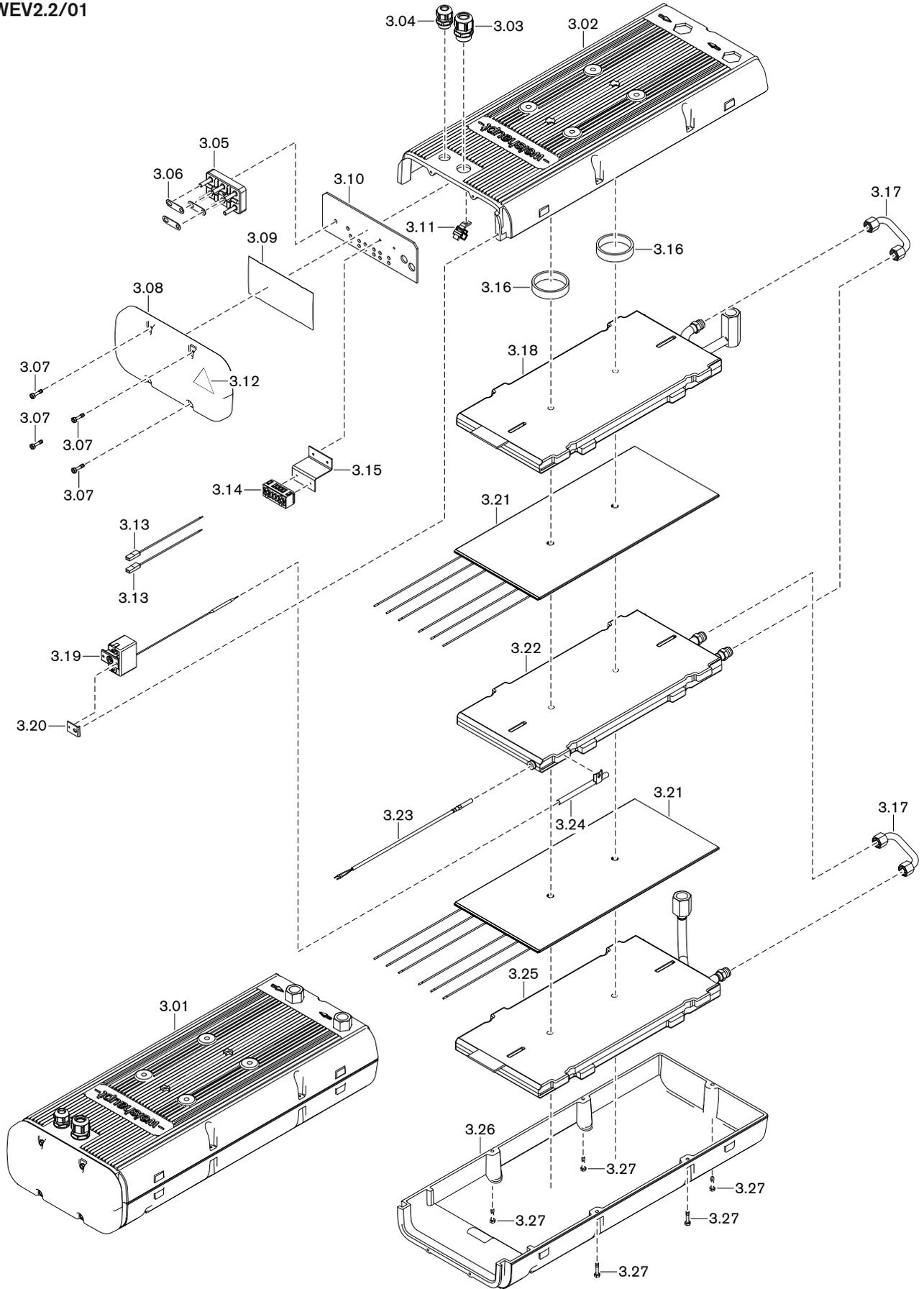
**7 Spares**

<b>Pos.</b>	<b>Description</b>	<b>Order No.</b>
2.29	Base plate rear	051 121 01 02 7
2.30	Oil coil complete	
	- EV2B	051 122 01 11 2
	- EV2C	051 123 01 01 2
	- EV2D	051 124 01 01 2
2.31	Casing	
	- EV2B, EV2C	051 123 01 03 7
	- EV2D	051 124 01 03 7

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7 Spares

WEV2.2/01

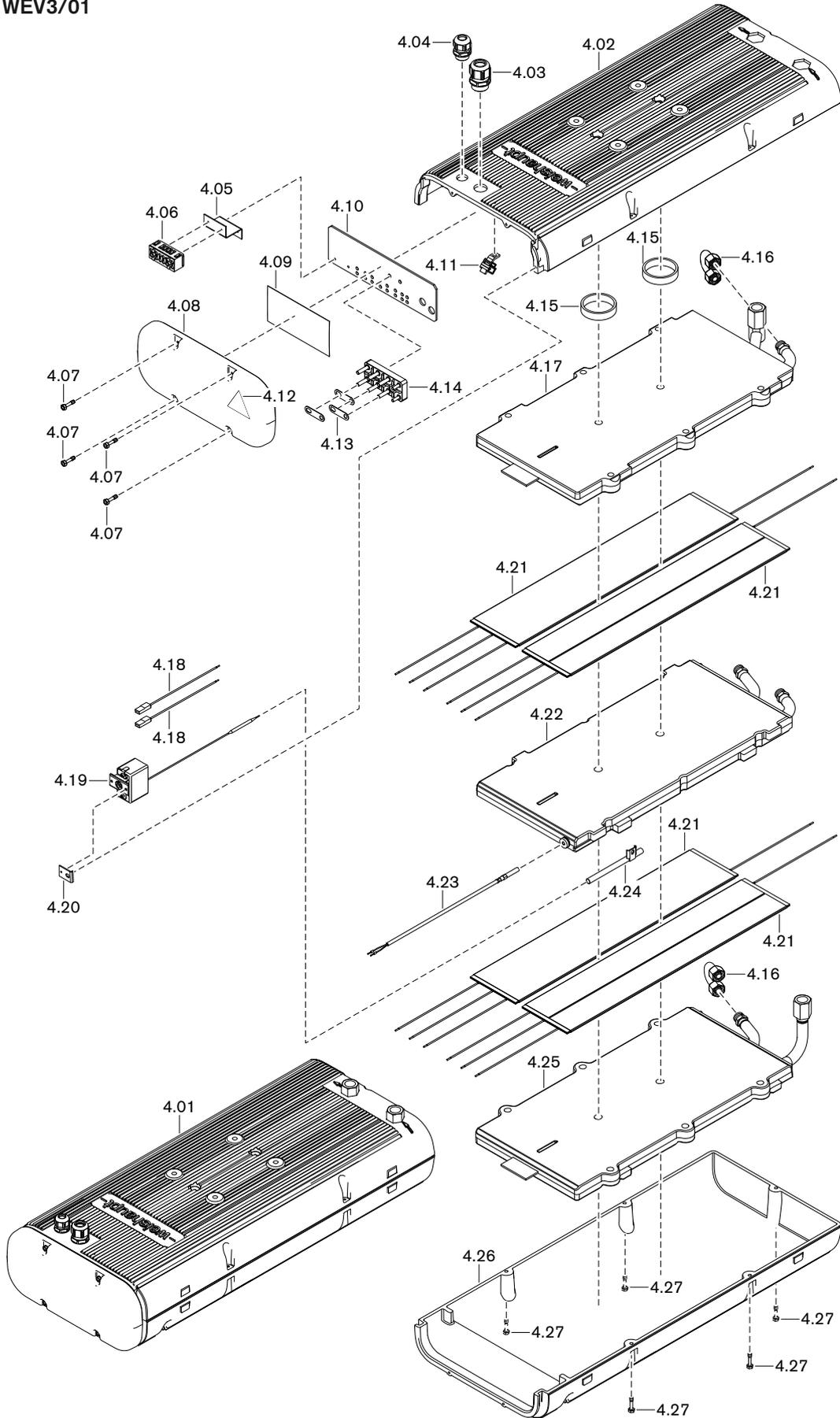


**7 Spares**

<b>Pos.</b>	<b>Description</b>	<b>Order No.</b>
3.01	Oil preheater WEV2.2/01 220-230/380-400 V 13.8 kW	512 220 01 02 0
3.02	Base plate	512 210 01 01 7
3.03	Cable gland M25 x 1.5 IP68	730 603
3.04	Cable gland M20 x 1.5 IP68	730 602
3.05	Terminal board M 6, 6 pin DIN 46294	733 020
3.06	Bridge KLV 683/2	733 012
3.07	Screw M 5 x 20 DIN 7964	403 261
3.08	Cover WEV	512 210 01 03 7
3.09	Label WEV	201 000 03 58 7
3.10	Plate 3 x 76 x 216 WEV	512 210 01 45 7
3.11	Earth terminal	
	– Bracket	512 210 01 34 7
	– Connection terminal ZB4 0.5- 4	735 128
	– Connection terminal ZB16 4 -16	735 131
3.12	Label	793 924
3.13	Connection wire 140 long	051 121 00 02 2
3.14	Terminal rail	
	Terminal rail BK 6	735 107
	Labelling strip 6 pole	736 221
	Expansion rivet SN No. 2001.0	736 038
3.15	Mounting bracket terminal rail BK 6	512 210 01 48 7
3.16	Spacer tube 53 x 60 x 14	512 300 01 24 7
3.17	Oil line 10 x 1.0	512 220 01 03 8
3.18	Plate WEV cpl. oil outlet	512 220 01 01 2
3.19	Temperature limiter EMf-5U	691 115
3.20	Bracket for temperature limiter	512 210 01 42 7
3.21	Heating element WEV 230 V 6900 W	512 210 01 22 7
3.22	Plate cpl. WEV for PT100 sensor	512 210 01 14 2
3.23	Pt 100 sensor term. box 2 x 0.35 x 280 lg.	512 210 01 52 7
3.24	Bracket for temperature sensor	512 210 01 18 2
3.25	Plate WEV cpl. oil inlet	512 210 01 01 2
3.26	Cover WEV	512 210 01 02 7
3.27	Screw M 5 x 22 DIN 7964	403 262

7 Spares

WEV3/01



**7 Spares**

<b>Pos.</b>	<b>Description</b>	<b>Order No.</b>
4.01	Oil preheater complete	
	– WEV3/01 220-230/380-400 V 22.4 kW	512 300 01 02 0
	– WEV3/01.1 220-230/380-400 V 17.0 kW	512 310 01 02 0
4.02	Base plate WEV	512 300 01 01 7
4.03	Cable gland M25 x 1.5 IP68	730 603
4.04	Cable gland M20 x 1.5 IP68	730 602
4.05	Mounting bracket terminal rail BK 6	512 210 01 48 7
4.06	Terminal rail	
	Terminal rail BK 6	735 107
	Labelling strip 6 pole	736 221
	Expansion rivet SN No. 2001.0	736 038
4.07	Screw M 5 x 20 DIN 7964	403 261
4.08	Cover WEV	512 300 01 19 7
4.09	Label WEV 90 x 115	201 000 03 59 7
4.10	Plate 3 x 75 x 258 WEV	512 300 01 37 7
4.11	Earth terminal	
	– Bracket	512 210 01 34 7
	– Connection terminal ZB4 0.5- 4	735 128
	– Connection terminal ZB16 4 -16	735 131
4.12	Label	793 924
4.13	Terminal board M6/M5 DIN 46294	733 024
4.14	Bridge KLV 683/2	733 012
4.15	Spacer tube 53 x 60 x 14	512 300 01 24 7
4.16	Oil line 12 x 1.5	512 300 01 15 8
4.17	Plate WEV cpl. oil outlet	512 300 01 05 2
4.18	Connection wire 280 mm	512 300 01 18 2
4.19	Temperature limiter EMf-5U	691 115
4.20	Bracket for temperature limiter	512 210 01 42 7
4.21	Heating element WEV	
	– WEV3/01 230 V 5600 W	512 300 01 26 7
	– WEV3/01.1 230 V 4250 W	512 310 01 01 7
4.22	Plate cpl. WEV sensor	512 300 01 13 2
4.23	Pt 100 sensor term. box 2 x 0.35 x 280 lg.	512 210 01 52 7
4.24	Bracket for temperature sensor	512 210 01 18 2
4.25	Plate WEV cpl. oil inlet	512 300 01 03 2
4.26	Cover WEV	512 300 01 02 7
4.27	Screw M 5 x 22 DIN 7964	403 262

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## The complete program: Reliable technology and prompt, professional service

	<p><b>W Burners</b> <span style="float: right;"><b>up to 570 kW</b></span></p> <p>The compact burners, proven millions of times over, are economical and reliable. Available as gas, oil and dual fuel burners for domestic and commercial applications.</p> <p>The purflam® burner version with special mixing head gives almost soot-free combustion of oil with greatly reduced NOx emissions.</p>	<p><b>Wall-hung condensing boilers for oil and gas</b> <span style="float: right;"><b>up to 240 kW</b></span></p> <p>The wall-hung condensing boilers WTC-GW and WTC-OW have been developed to meet the highest demands in ease of operation and efficiency.</p> <p>Modulating operation means these units operate quietly and economically.</p>	
	<p><b>monarch® WM Burners and Industrial Burners</b> <span style="float: right;"><b>up to 11,700 kW</b></span></p> <p>These legendary industrial burners are durable and versatile.</p> <p>Numerous variations of oil, gas and dual fuel burners meet a wide range of applications and capacity requirements.</p>	<p><b>Floor standing condensing boiler for oil and gas</b> <span style="float: right;"><b>up to 1,200 kW</b></span></p> <p>The floor-standing boilers WTC-GB and WTC-OB are efficient, low in emissions and versatile. Higher capacities are achieved by cascading up to four gas-fired condensing boilers.</p>	
	<p><b>WK Burners</b> <span style="float: right;"><b>up to 28,000 kW</b></span></p> <p>These industrial burners of modular construction are adaptable, robust and powerful.</p> <p>Even on the toughest industrial applications these oil, gas and dual fuel burners operate reliably.</p>	<p><b>Solar systems</b></p> <p>The stylish flat-plate collectors are the ideal complement for any Weishaupt heating system. They are suitable for solar water heating and for combined heating support. With versions for on-roof, in-roof and flat roof installations, solar energy can be utilised on almost any roof.</p>	
	<p><b>multiflam® Burners</b> <span style="float: right;"><b>up to 17,000 kW</b></span></p> <p>This innovative Weishaupt technology for medium and large burners provides minimum emission values at capacities up to 17 MW. The burners with the patented mixing head are available for oil, gas and dual fuel operation.</p>	<p><b>Water heaters / energy storage tanks</b></p> <p>This attractive program for domestic water heating includes classic water heaters, solar storage tanks, heat pump storage tanks and energy storage tanks.</p>	
	<p><b>MCR Technology / Building Automation from Neuberger</b></p> <p>From control panels to complete building management systems - at Weishaupt you can find the entire spectrum of modern control technology. Future orientated, economical and flexible.</p>	<p><b>Heat pumps</b> <span style="float: right;"><b>up to 130 kW</b></span></p> <p>The heat pump range offers solutions for the utilisation of heat from the air, the soil or ground water.</p> <p>Some systems are also suitable for cooling buildings.</p>	
	<p><b>Service</b></p> <p>Weishaupt customers can be assured that specialist knowledge and tools are available whenever they are needed. Our service engineers are fully qualified and have extensive product knowledge, be it for burners, heat pumps, condensing boilers or solar collectors.</p>	<p><b>Geothermal probe drilling</b></p> <p>With its daughter company, BauGrund Süd, Weishaupt also offers geothermal probe and well drilling. With the experience of more than 10,000 systems and more than 2 million meters of drilling, BauGrund Süd offers a comprehensive service program.</p>	