



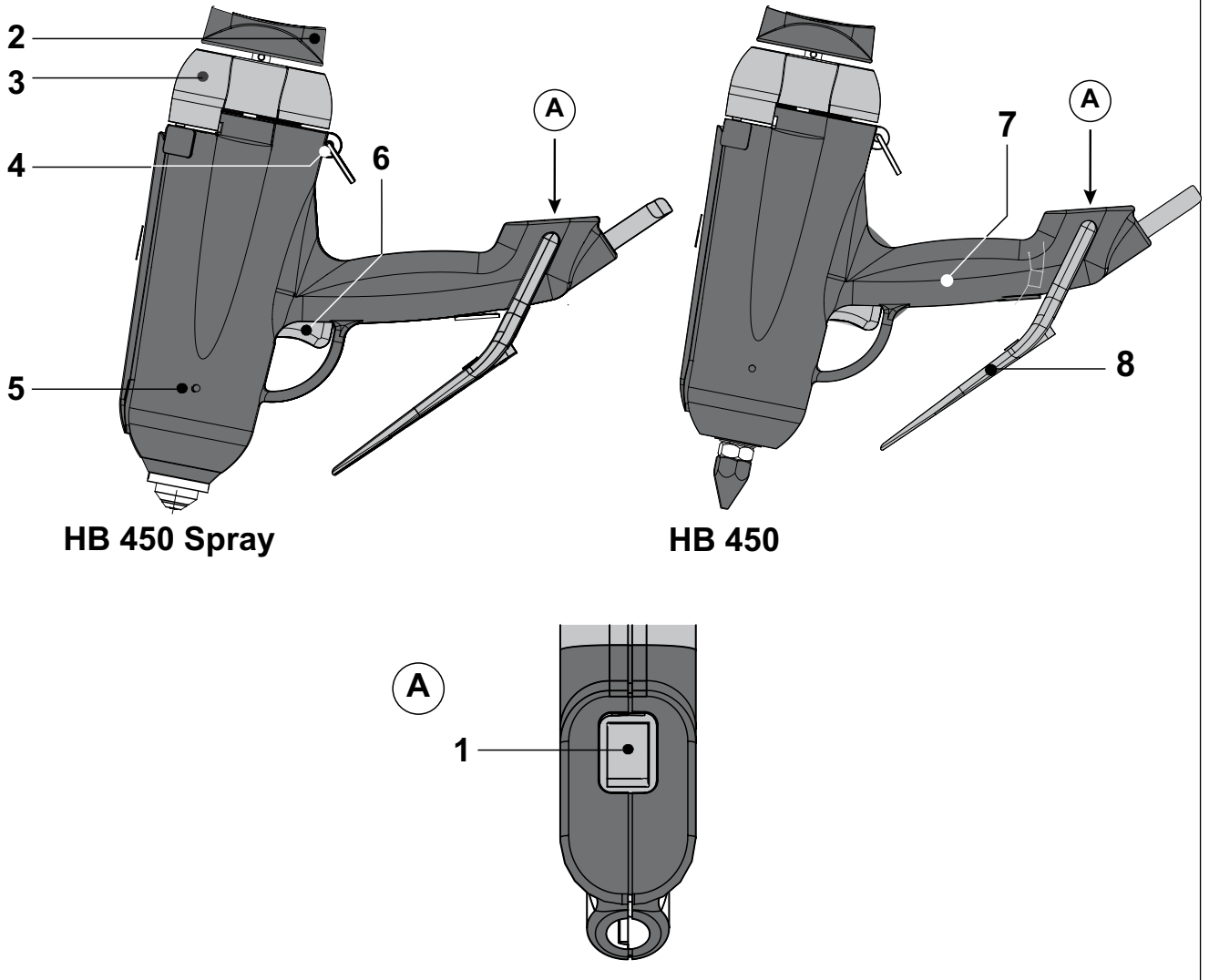
Translation of the original Operating Manual

Hot Melt Applicator

HB 450/HB 450 Spray

1	General	4
1.1	Scope of use	4
1.2	Technical data	4
2	Safety instructions	5
2.1	Potential hazards	5
2.2	Instructions for safe operation	5
3	Starting	6
3.1	Connecting up	6
4	Operation	7
4.1	Operating position	7
4.2	Charging	7
4.3	Discharging and metering melt	7
4.4	Adjusting the spray pattern (HB 450 Spray only)	8
4.5	Switching off	8
5	What if...	9
5.1	Troubleshooting	9
6	Servicing/maintenance	10
6.1	Service intervals	10
6.2	Cleaning	10
6.2.1	Cleaning the nozzle	10
6.3	Nozzle systems	11
6.3.1	Replacing the cone nozzle (HB 450)	11
6.3.2	Replacing the nozzle end (HB 450)	11
6.3.3	Replacing the swirl nozzle, pressure spring & ball (HB 450 Spray)	12
6.4	Adjusting the cover pressure	12
6.5	Replacing the cover gasket	13
6.6	Replacing the valve assembly	14
6.7	Replacing the (complete) cover	15
7	Repairs	16
8	Warranty	16
9	Disposal	16
10	Diagrams	17
10.1	Wiring diagram	17
10.2	Pneumatic diagram	18
11	Accessories	18

Applicator



Pos.	Description
1	Start/Stop button
2	Lever
3	Closure cap
4	Suspension hook

Pos.	Description
5	Spray air choke
6	Trigger
7	Handle
8	Stand foot

1 General

Please read this Operating Manual through carefully and completely before first using the Applicator. Pay particular attention to the safety instructions in Section 2.

This Operating Manual must always be within easy reach for any user.

1.1 Scope of use

The HB 450/HB 450 Spray Applicator is for the melting and metered discharge of melts (thermoplastic substances such as hot-melt adhesives, waxes, etc.) as a bead (HB 450) or spray-on coating (HB 450 Spray) using interchangeable application tools (use as intended).

1.2 Technical data

Model	HB 450	HB 450 Spray
Part No.	H218800	H218850
Kit includes	Applicator, toolset	
Weight [lbs]	~2.75	~3.20
Power connection	115V AC / 60 Hz / earthing-pin plug	
Power requirement [W]	600	
Power consumption [A]	2.6	
Protection (as per DIN IEC 34 T5)	IP30	
Safety class (as per DIN VDE 0720)	I (safety earth terminal)	
Temperature control	Bimetal	
Temperature limitation [° F]	thermal cut-out (307 ±41)	
Operating temperature [° F]	356 constant	
Temperature constancy [° F]	±45	
Factory presetting [° F]	356	
Warm-up time [min]	~10.0	
Hot-melting capacity (dependent on melt) [lbs/h]	with slugs: 7.0 with granulate: 2.9	
Capacity of melt reservoir [ml]	200	
Conveyor system	compressed air	
Compressed-air connection	max. 87 psi (6 bar) The compressed air must be condensate- and acid-free	
Operating pressure	21.7 to 87.0 psi (1.5...6.0 bar)	
Air consumption (at 72.5 psi / 5 bar operating pressure)	1 l per trigger actuation	max. 1 l/s
Nozzles (standard)	cone nozzle Ø 1.5 mm	swirl spray head Ø 1.5 mm
Length of supply line with electrical and pneumatic connections [m]	3.0	
Recommended melting stock	BÜHNEN hot-melt adhesives in plug or granular form	

2 Safety instructions

2.1 Potential hazards

**Danger!**

Never point the operation-ready device at people.
Danger from high pressure!

**Burn Hazard**

Nozzle (1) and molten adhesive can be over 392° F (200° C) hot.
Wear heat-resistant gloves if contact is unavoidable.

**Risk of Explosion!**

When working with oxygen or combustible gases there is risk of explosion!

**Odor nuisance!**

Hot-melt adhesives give off fumes which can cause odour nuisance – so ensure adequate ventilation.

Improper use may in isolated cases lead to irritation of the mucous membrane. In this case seek immediate medical advice!

2.2 Instructions for safe operation

Guard against malfunctions and operating errors by always following these instructions precisely:

- In no circumstances may the maximum permitted operating pressure (87 psi, 6 bar) be exceeded.
- Remove combustible or heat-sensitive objects from the area of the nozzle.
- When warm the device must be put down on the stand foot (8) or, alternatively on the working console (see section 11, Accessories). It must not be laid on its side. Otherwise melt may escape uncontrolled through the vent holes and present a burn hazard.
- Never operate the trigger (6) forcibly.
- Protect the device from moisture and damp (protection against electric shock).
- Observe the instruction leaflet for the hot-melt adhesive (protection against processing errors).
- Operate the device only with the nozzle pointing downwards. It must not be operated above head height!
- Unplug from the mains before performing any operation on the device (servicing, cleaning).
- The device must be powered only from sockets with a protective conductor.
- Any extension cable used must have a protective conductor. Check that the protective conductor is undamaged before use.
- Unplug from the mains after each use. Allow the device to cool down completely before putting it away.
- If you notice any damage to the device or leads, unplug from the mains immediately. Have the device promptly checked over by an expert. It must not be used again until it has been properly repaired (see Sections 6 and 7).

3 Starting

3.1 Connecting up

To connect up the device proceed as follows:

1. Mount the stand:

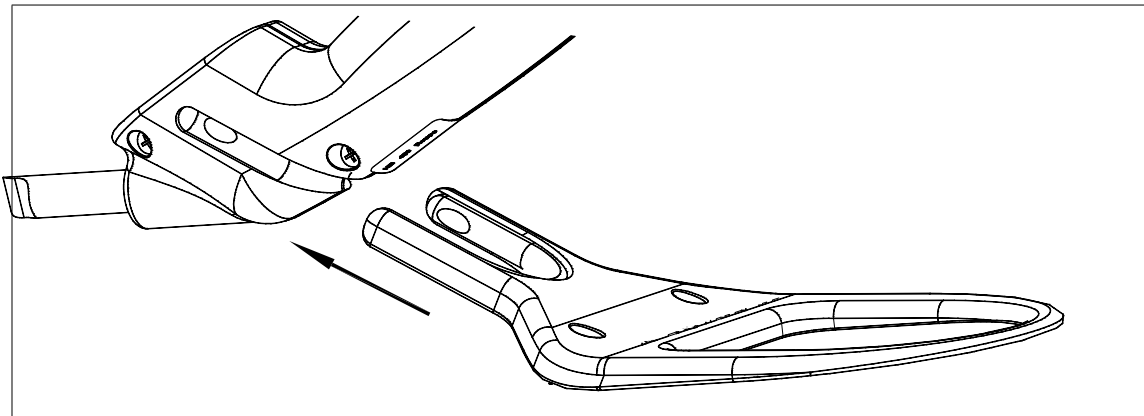


Fig. 3/1: Mounting the stand foot

- To do so, insert the stand foot in the recess at the housing.
 - The stand foot must engage.
2. Place the device on the base and stand foot.
 3. Mount the device to a pressure regulator (see accessories). The device may be operated with a maximum pressure of 87 psi / 6 bar.
 4. Set the operating pressure to 58 psi / 4 bar with the pressure regulator (3).
 5. Connect the mains plug to a socket outlet with earthing contact.
 6. Switch on the device.

The device is now ready for use.

4 Operation

4.1 Operating position

The device may be operated **only with the nozzle pointing downwards**. In other positions melt may get into the compressed-air ducts and damage the device.

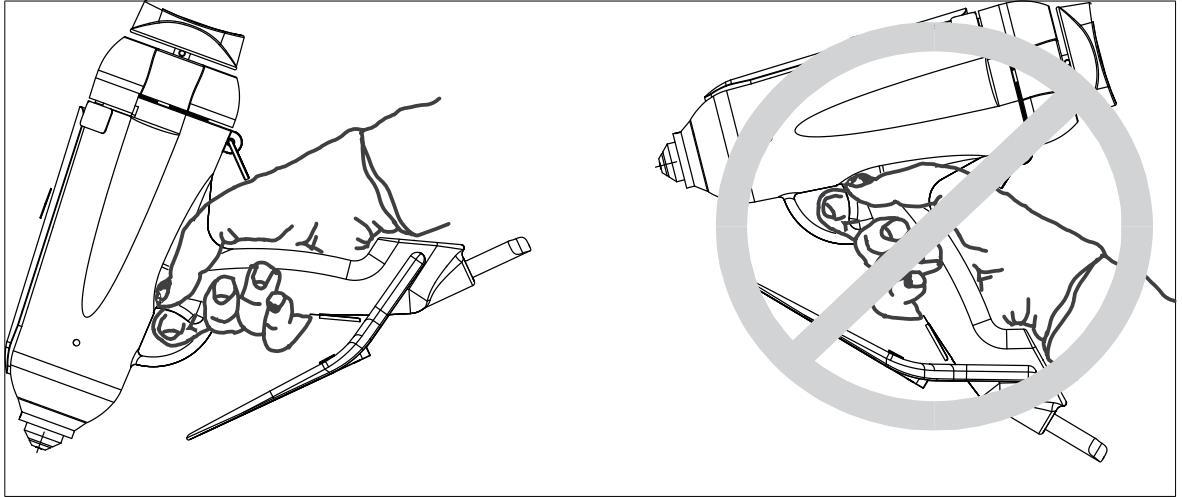


Fig. 4/1: Permitted operating position

4.2 Charging

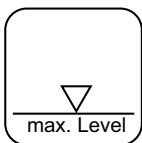


Burn hazard!

Nozzle and molten adhesive can be over 392° F (200° C) hot. Always wear heat-resistant gloves when performing the steps described below.

The adhesive can be refilled as soon as the fill level has dropped below the reserve in the tank or below the marking on the outside of the housing.

1. Place the device in the working bracket or on the base.
2. Switch the device on. Wait approx 10 min. until the working temperature has been reached.
3. Take hold of the device by the handle with one hand (7). With the other hand turn the lever (2) clockwise through 180° and swivel the closure cap open.
4. Fill the tank to a level not less than 2 cm below the rim. The maximum level is marked on the device with a sticker (see illustration left). Do not charge the device above this level since the melt expands when heated.
5. Swivel the closure cap back. Turn the lever (2) anticlockwise as far as it will go, in order to lock the cap.



4.3 Discharging and metering melt

1. Place the device in the working bracket or on the base.
2. Switch the device on. Wait until working temperature has been reached.
3. Check that there is enough melt in the tank.



Burn hazard!

If the device is “run dry” drops of melt may escape uncontrolled and endanger the operator and persons in the vicinity.

Every time you actuate the trigger, therefore, first carry out step (3.) above.

4. Actuate the trigger (6)
You can meter the quantity discharged by altering the pressure (max. 87 psi / 6 bar) at the pressure regulator and/or selecting an appropriate nozzle.

5. After the trigger (6) has been released the compressed-air supply is cut off immediately and the tank vented.

4.4 Adjusting the spray pattern (HB 450 Spray only)

The spray pattern is altered by adjusting the spray air.

Set the optimum spray pattern by turning the spray-air choke (5) in the protective sleeve (Opening on the side in the left housing half):

- Turning it clockwise decreases the spray-air pressure.
- Turning it anticlockwise increases the spray-air pressure.

4.5 Switching off

1. Press the Start/Stop button (1).
2. Adjust the operating pressure down to "0" with the pressure regulator or disconnect the compressed-air supply.

5 What if...

This Section summarises the status and error messages and provides help in eliminating errors.

If malfunctions occur please check first

- that the power supply and compressed-air supply are functioning correctly, and
- whether there is mechanical damage to the device or supply lines (power supply, compressed air).

If you find any mechanical damage, the device may in no circumstances be started up again. Have it checked and repaired by a qualified service agent.

5.1 Troubleshooting

Fault	Possible cause	Remedy	See Section
Nozzle goes on dripping	Nozzle valve partially obstructed or damaged	Drain the device. Actuate the trigger for approx. 5 s to clear the nozzle. HB450: Clean or replace nozzle end HB 450 Spray: Clean or replace swirl nozzle, pressure spring and ball	6.2
Too little or no melt is discharged	Operating pressure too low	Increase operating pressure (max. 87 psi / 6 bar)	4.3
	Compressed-air supply disconnected	Check compressed-air supply	
	Nozzle system clogged	HB450: Clean or replace cone nozzle and if necessary nozzle end HB 450 Spray: Clean or replace swirl nozzle, pressure spring and ball	6.2, 6.3
Compressed air escapes from closure cap (3)	Insufficient cover pressure	Increase cover pressure	6.4
	Gasket dirty	Clean sealing faces	
Compressed air escapes from service unit	Connections not airtight	Tighten or replace gaskets	
HB 450 Spray only			
Spray pattern not ideal	Spray pattern wrongly set	Adjust spray air	4.4
	Nozzle system clogged or damaged	Clean or replace swirl nozzle, pressure spring and ball	6.3.3

6 Servicing/maintenance



Danger!

Danger due to inadvertent triggering.

Disconnect the compressed air supply before all maintenance and service work.



Danger!

Voltage hazard.

All operations which necessitate opening the device may be performed only by qualified electricians.



Burn hazard!

Nozzle (1) and molten adhesive can be over 392° F (200° C) hot. Wear heat-resistant gloves when performing servicing and maintenance operations.

6.1 Service intervals

Observe the stated service intervals to ensure always correct and reliable operation:

Weekly:	Check that all parts are present, leak-free and undamaged and all screws and lines securely seated
	Remove adhesive residues and other contaminants, especially on the inside of the cover

6.2 Cleaning

- Do not use aggressive cleaning agents for cleaning the device. These may damage device components.
We recommend cleaning with paraffin oil.
- Replace completely parts which are no longer cleanable (e.g. because of burnt-on or reacted hot-melt adhesive). We recommend having this work done by the manufacturer or distributor.
- Remove residues of hot-melt adhesive and other contaminants by mechanical means only, e.g. with a cloth, soft brush, wooden spatula or similar.

6.2.1 Cleaning the nozzle

- Wipe the nozzle with a cloth to remove slight external dirt.
- To remove blockages insert a drill bit, needle or wire of suitable diameter into the nozzle orifice.

In stubborn cases replace the nozzle (see Section 6.3).

6.3 Nozzle systems

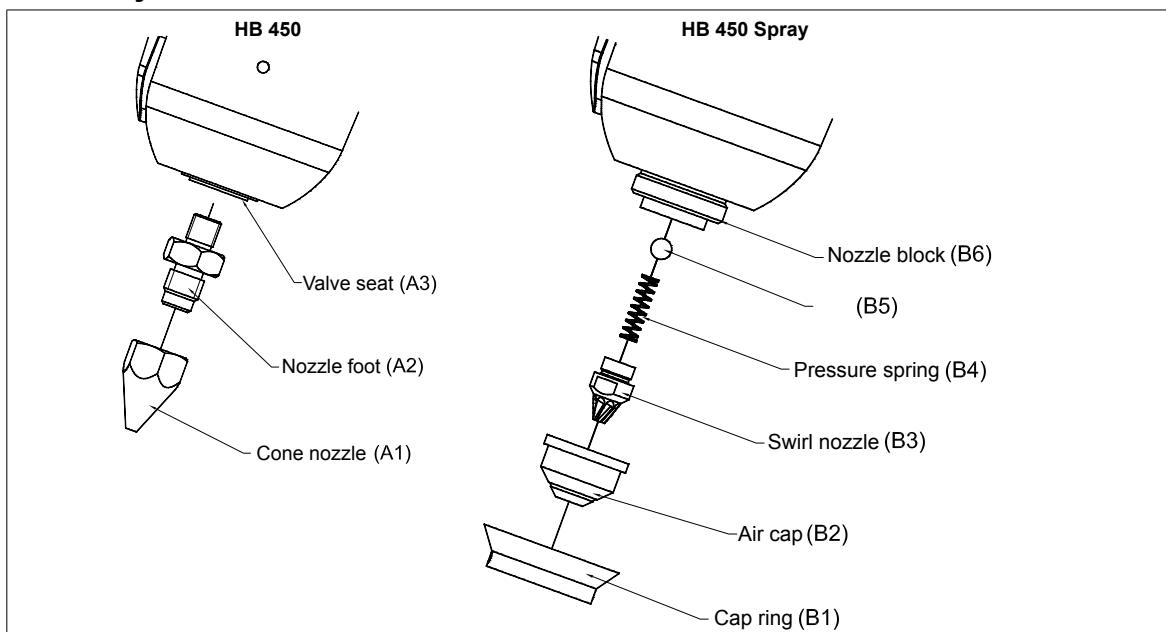


Fig. 6/1: Nozzle systems in detail

6.3.1 Replacing the cone nozzle (HB 450)

Tools needed • 2 open-end spanners size 19

1. Disconnect the compressed air supply.
2. Let the device heat up thoroughly.
3. Secure the nozzle foot (A2) and unscrew the cone nozzle (A1).
4. Screw on the new cone nozzle (A1) by hand first and allow to heat up for 2 minutes.
5. Re-secure the nozzle foot (A2). Tighten the new cone nozzle (A1) without using force.

6.3.2 Replacing the nozzle end (HB 450)

Tools needed • 2 open-end spanners size 19

There must be no melt at all in the tank when the nozzle end is replaced.

Therefore discharge the melt completely, e.g. into a collecting vessel.

1. First, proceed as described in chapter 6.3.1 up to Point 3 (dismantling the nozzle).
2. Unscrew the nozzle foot (A2).
3. Screw on the new nozzle foot handtight. Now tighten lightly (without using force) with the open-end spanner.
4. Assemble the cone nozzle (A1).

6.3.3 Replacing the swirl nozzle, pressure spring & ball (HB 450 Spray)**Tools needed**

- 1 hook spanner
- 1 open-end spanner size 11

There must be no melt at all left in the tank when the nozzle end is replaced. Therefore discharge the melt completely, e.g. into a collecting vessel.

1. Disconnect the compressed-air supply.
2. Release the cap ring (B1) by turning it **when warm** without using force.
3. Remove the air cap (B2).
4. Loosen the swirl nozzle (B3) with the open-end spanner size 11.
5. Remove the pressure spring (B4) behind the swirl nozzle and the ball (B5).
6. Fit the new components in reverse order.

6.4 Adjusting the cover pressure**Tools needed**

- 1 hexagon socket spanner size 1.5
- 1 hexagon socket spanner size 2,5
- 1 hexagon socket spanner size 3

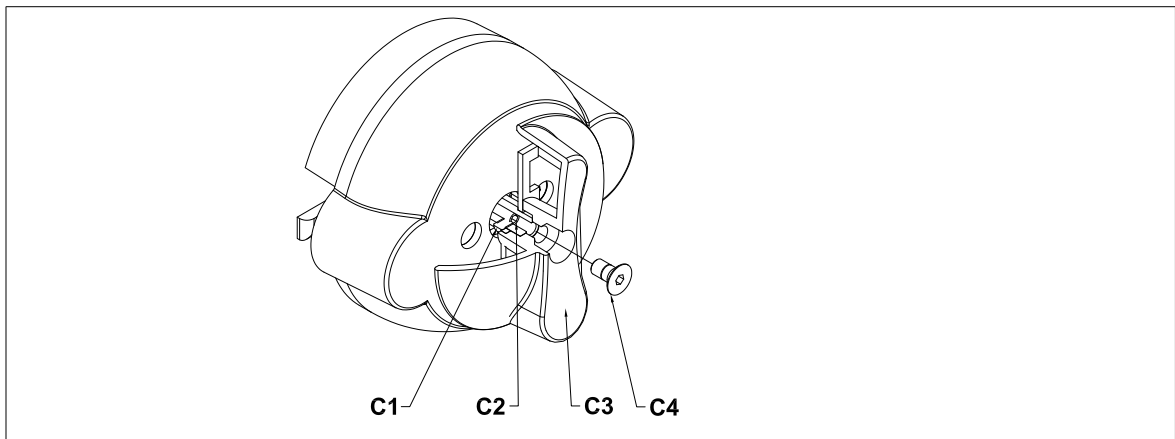


Fig. 6/2: Adjusting the cover pressure

1. Rotate the lever (C3) clockwise and swivel the cover until fully open.
2. Loosen the lever fixing screw (C4) with the hexagon socket spanner SW3. Withdraw the screw.
3. Loosen the clamping screw (C1) with the hexagon socket spanner size 1.5 (approx. 1.5 turns).
4. Insert the hexagon socket spanner size 2.5 into the adjusting screw through the lever screw-hole. Turn the adjusting screw clockwise initially by approx. 90°.
5. Close and lock the cover.
If the cover will not close, keep turning the adjusting screw back (clockwise) by approx. 15° until the cover closes easily.
6. Actuate the trigger.
 - If the cover now closes correctly, proceed at step 7.
 - If the cover still does not close correctly, repeat the adjustment from section 4.
7. Open the cover again.
8. Tighten the clamping screw (C1).
9. Fit the lever fixing screw (C4).

6.5 Replacing the cover gasket

Tools needed

- 1 Phillips-type screwdriver size 1

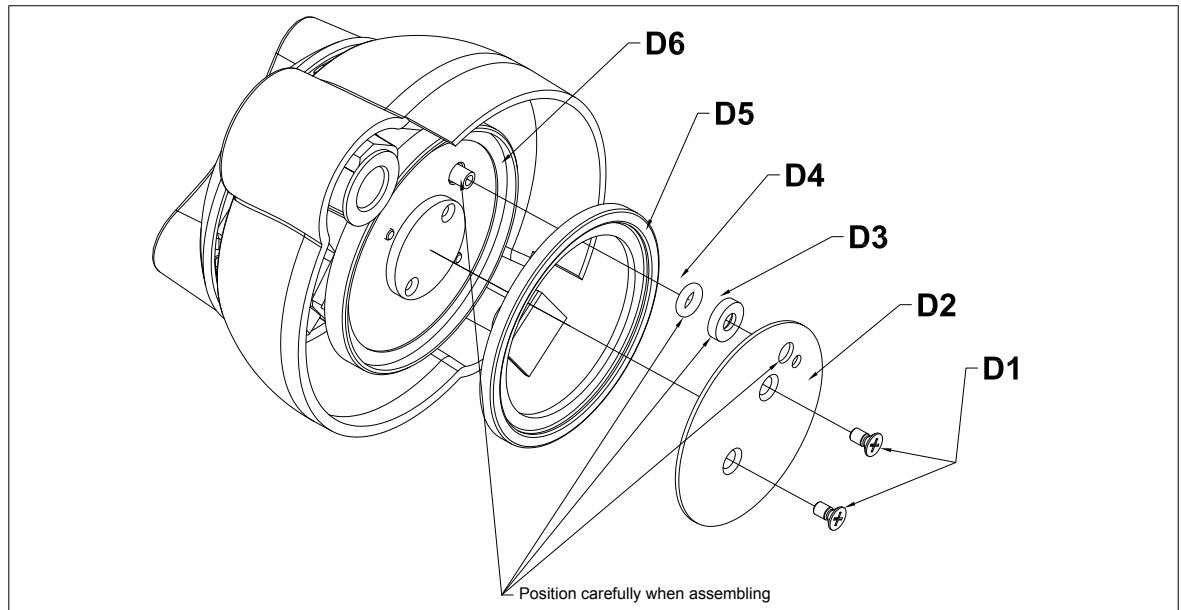


Fig. 6/3: Replacing the cover gasket

There must be no melt at all left in the tank when the cover gasket is replaced. Therefore discharge the melt completely, e.g. into a collecting vessel.

1. Let the device heat up.
Continue activating the trigger until the tank is completely empty.
2. Disconnect the compressed air supply.
3. Disassemble the entire closure unit (see Chapter 6.7).
4. Release the fastening screws (D1) of the sealing plate (D2) with the Phillips screwdriver. Carefully remove the sealing plate.
5. Carefully remove the gasket (D5) from the pressure plate (D6).
6. Set the new gasket in the pressure plate in such a way that it fits evenly all over.
7. Mount the sealing plate. Observe the position of the washer (D3) and the O-ring (D4) of the ventilation opening. Tighten the counter nuts (D1) alternately.

6.6 Replacing the valve assembly

Tools needed

- 1 hexagon socket spanner size 2.5
- 1 hexagon socket spanner size 3
- 1 auxiliary screw M4

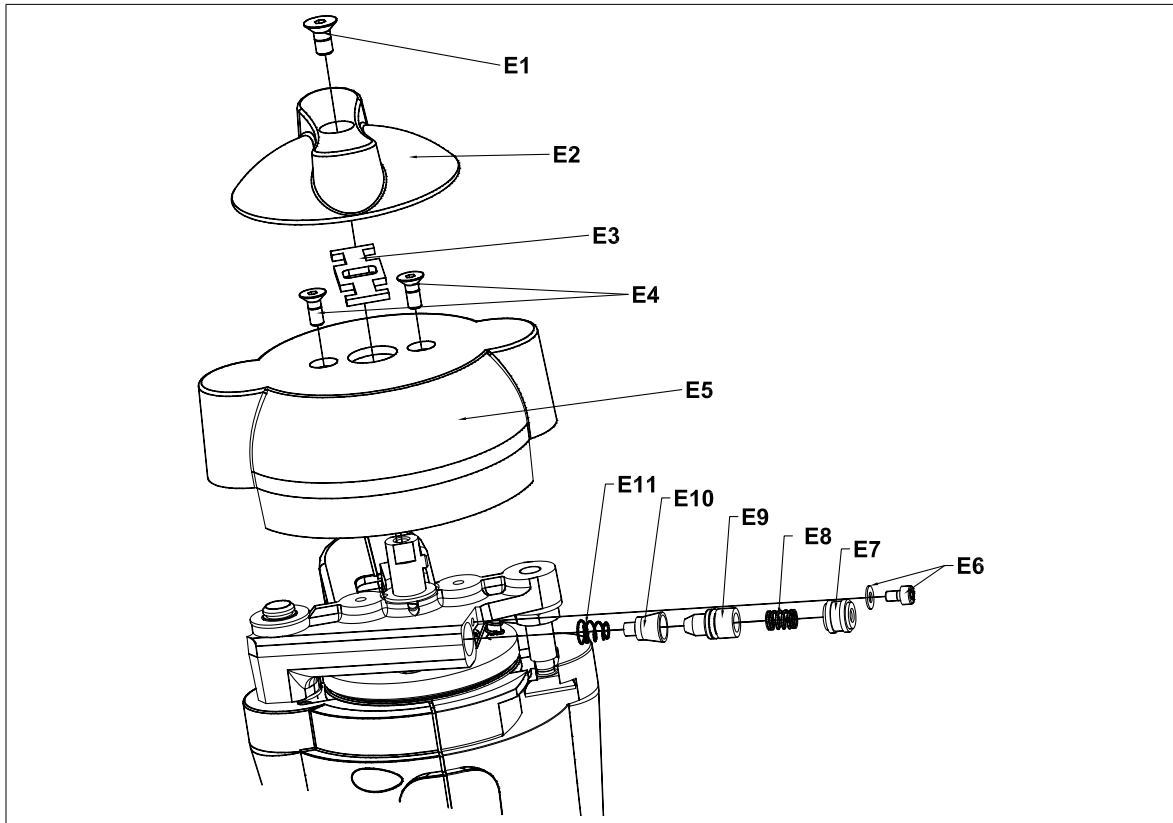


Fig. 6/4: Replacing the valve assembly

1. Let the device heat up. Continue activating the trigger until the tank is completely empty.
2. With the cover closed undo the fixing screw (E1) of the lever (E2) with the hexagon socket spanner size 3. Remove the lever and carrier (E3).
3. Undo the screws (E4) with the hexagon socket spanner size 2.5. Remove the cover casing (E5).
4. Screw the auxiliary screw M4 in to the clamping piece (E7). Release the clamping screw (E6) with washer with a 2.5 mm Allen key. Carefully remove the clamping piece with auxiliary screw M4 from the valve housing. Also remove the spring (E8) and the cone (E9).
5. Decrease the pressure to 14.5...29 psi / 1...2 bar. Briefly actuate the trigger. The burst of pressure ejects the valve (E9) and spring (E10) from the valve housing. Hold a cloth in front of the opening to catch these (hot!) parts.
6. Fit the new components, cover casing and lever in reverse order.

6.7 Replacing the (complete) cover

Tools needed

- 1 hexagon socket spanner size 2.5
- 1 hexagon socket spanner size 3
- 1 open-end spanner size 13

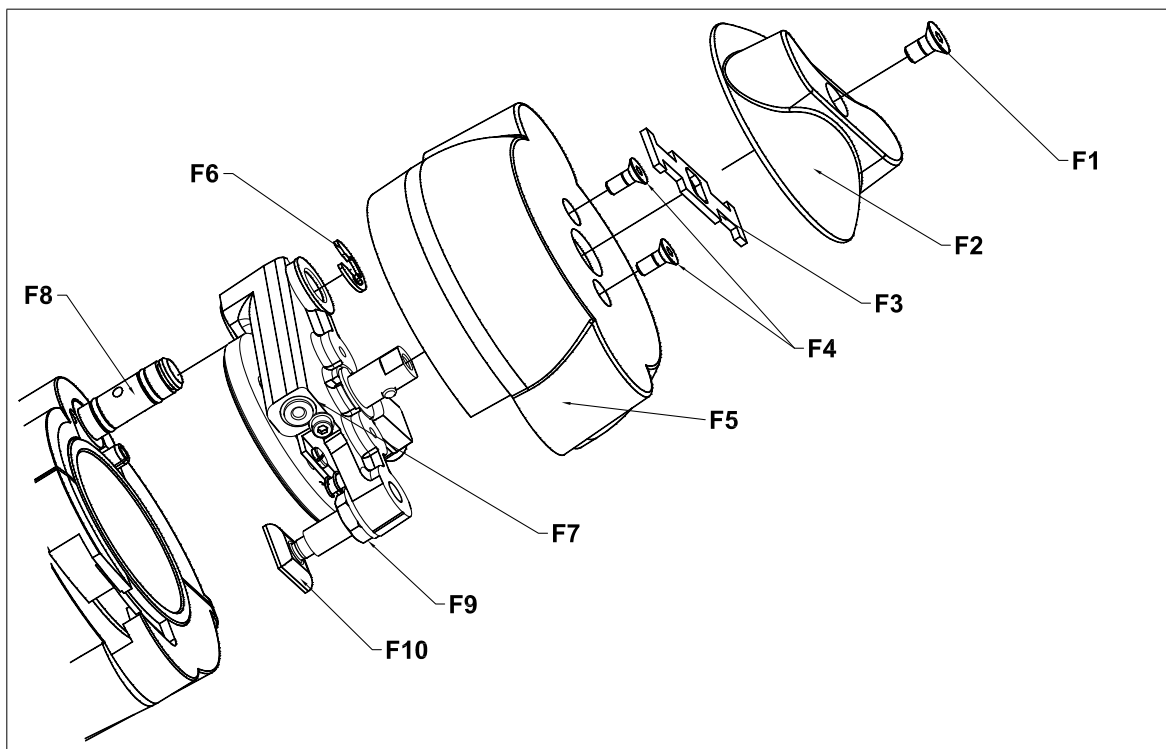


Fig. 6/5: Replacing the cover

1. Let the device heat up. Continue activating the trigger until the tank is completely empty.
2. With the cover open undo the fixing screw (F1) of the lever (F2) with the hexagon socket spanner size 3. Remove the lever and carrier (F3).
3. Undo the screws (F4) with the hexagon socket spanner size 2.5. Remove the cover casing (F5).
4. Release and remove the Seeger circlip ring (F6).
5. Pull the entire closure unit (F7) off from the axle (F8). Carefully set the new closure unit on the axle.
6. Mount the Seeger circlip ring (F6).
7. Release the counter nut (F9) with the SW 13 open-end wrench.
8. Adjust the tie bolt by twisting it so that its foot slides cleanly into the recess in the housing when the lid closes. Then retighten the counter nuts. Check again to see if the cover closes cleanly. If necessary, readjust the tie bolt.
9. Mount the cover casing and the lever.

7 Repairs

Repairs other than those described in this Operating Manual may be undertaken only by persons appointed by the manufacturer or other technically competent persons using BÜHNEN original replacement parts.

8 Warranty

The device has been developed and manufactured in accordance with the most up-to-date technical knowledge. We provide the initial purchaser with a warranty according to statutory requirements for function, materials and processing. Normal wear and tear is excepted.

The warranty ends if improper treatment, use of force, repairs by third parties or the fitting of non-original replacement parts is evident.

The warranty covers repair or replacement at our discretion. A warranty extending beyond the kit supplied by us is precluded, since proper and expert use of the device is outside our control.

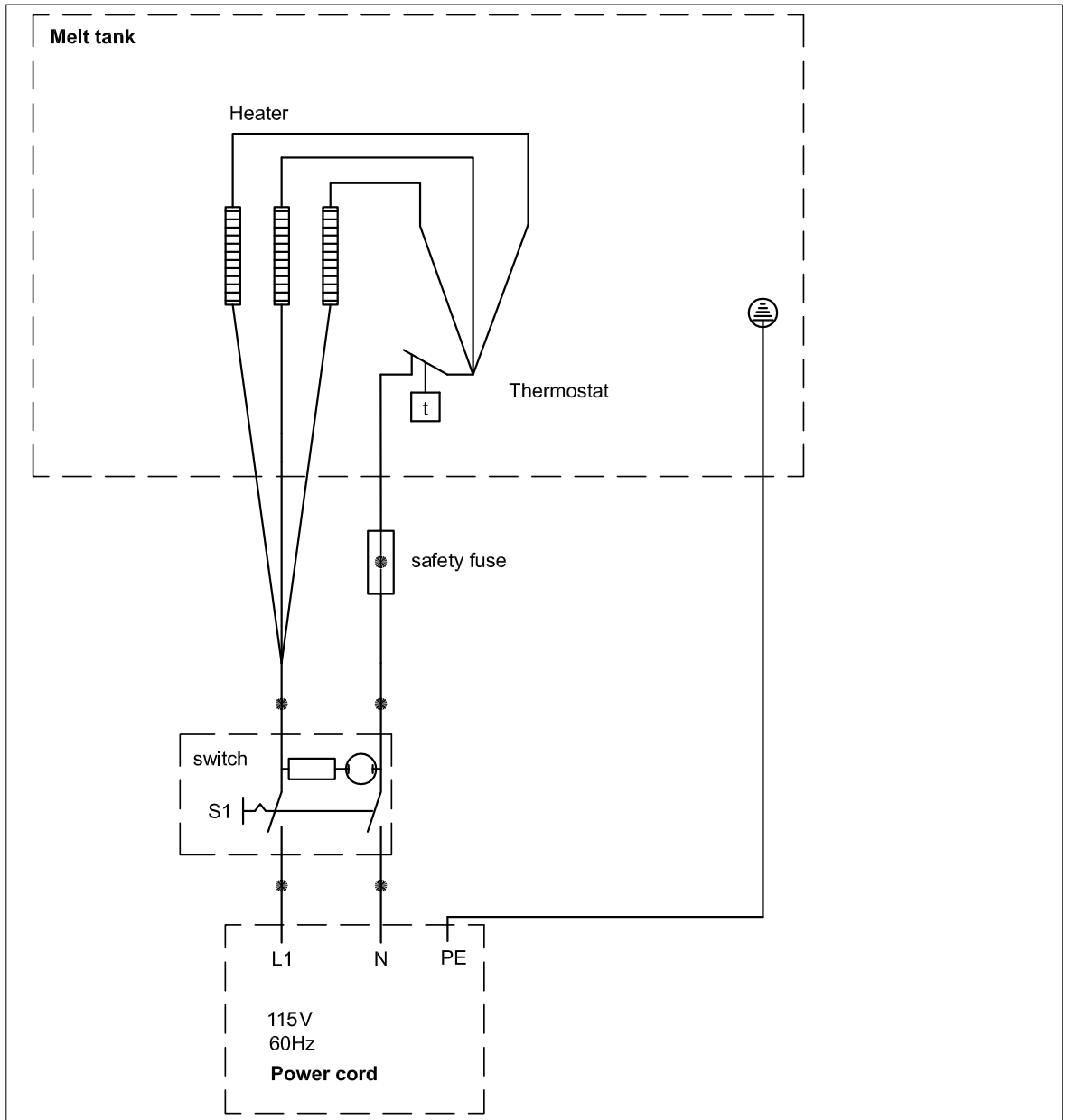
Please note our terms of business!

9 Disposal

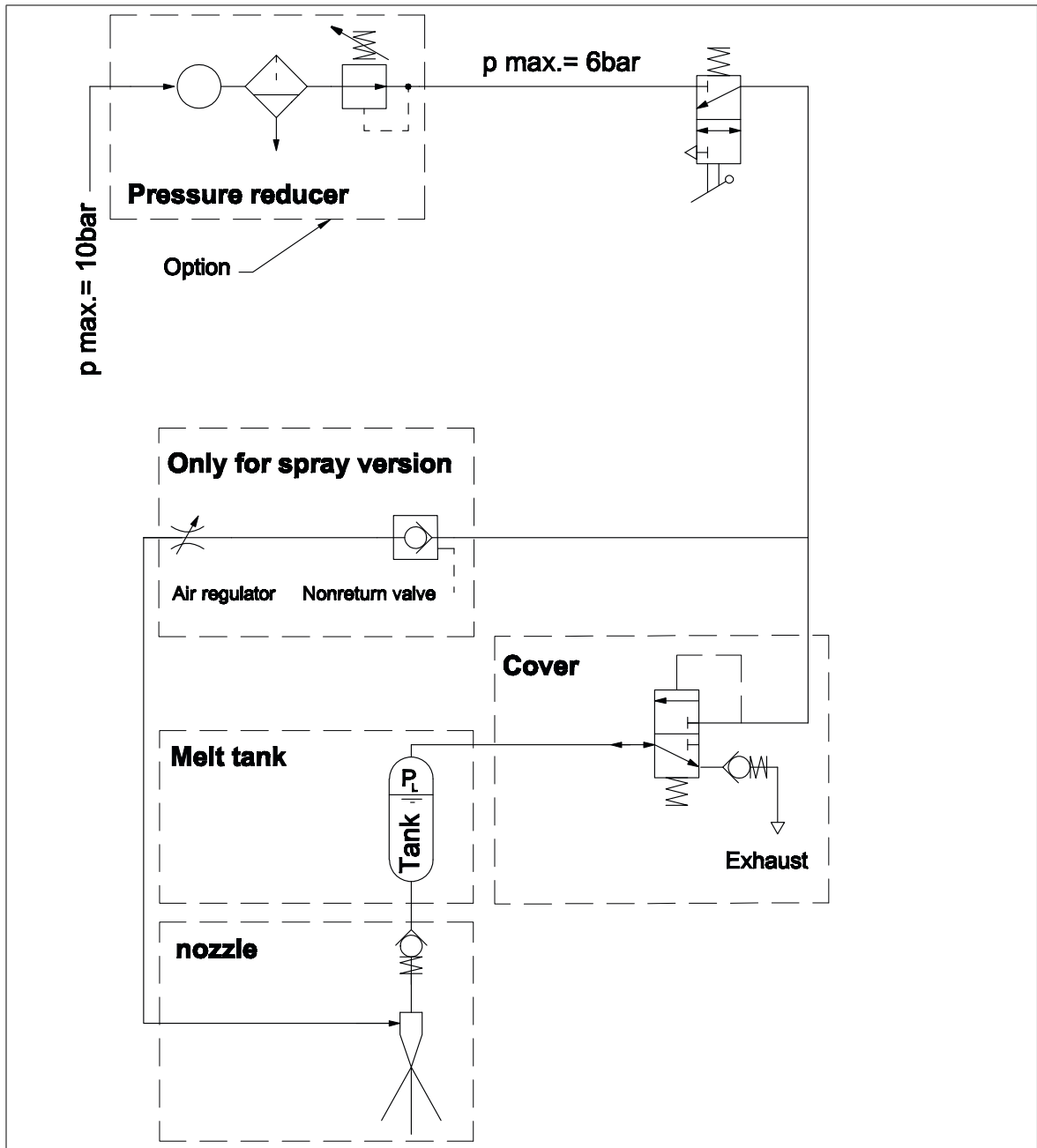


Pass the device, packing and fittings for environmentally correct recycling/reuse (in accordance with European Parliament and Council Directive 2002/96/EC of 27th January 2003).

10 Diagrams
10.1 Wiring diagram



10.2 Pneumatic diagram



11 Accessories

Designation	Article No.
Rack	H217903
Pressure reducer	H206426



Conformity Declaration

We, the **Bühnen GmbH & Co. KG**
D-28277 Bremen

declare on our sole responsibility that the product

Hot melt adhesive pistol
Type HB 450

to which this declaration refers, complies with the following Standards or normative documents in its supplied condition:

EN55014

EN 60204-1

EN60335-1

EN 61000-3

in accordance with the stipulations of guideline

2001/95/EC

2002/95/EC


2002/96/EC


2004/108/EC

2006/95/EC

2011/65/EU

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