



Original Operating Instructions

Bead Application Head HB 20

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1 General

Please read the complete operating instructions carefully prior to the initial commissioning of the application head. Pay particular attention to the safety instructions in chapter 2.

These operating instructions must be accessible for all operators at all times.

Please also observe the operating instructions on

- fueling system and
- the heatable hose,

in particular all safety instructions contained therein.

1.1 Scope of application

The application head HB20 serves the dosed application (spot or bead-wise) of hot melt adhesives with changeable nozzles (proper use).

1.2 Technical Data

Model	HB 20
Part number	FCH0490/ FCH4091/ FCH0492/ FCH0493
Weight: [kg]	1.0
Supply voltage for solenoid valve [V DC]	24 for FCH0490/ FCH0491 230 for FCH0492/ FCH0493
Operating current solenoid valve [A]	0.4
Heat output [W]	180
Protection class	IP40
Operating temperature [C]	up to 200
Heating time [min]	> 15
Temperature sensor	Pt100 for FCH0490 - FCH0493
Compressed air supply [bar]	5..6
max. hot melt pressure [bar]	100
Hot melt viscosity [mPas]	500...15000
Switching frequency* [cycle/s]	max. 130
Response time of solenoid valve [ms]	min. 5
Nozzle thread	UNF 3/8-24
Connection for heatable hose	UNF 9/16-18 for standard hose width 8 (other types of threads possible)
Head holder	For mounting rods 7 ... 12 mm Ø
Dimensions [mm]	256 x 44 x 80 (H x W x D)
Recommended hot melts	BÜHNEN-Hot Melt Adhesives

*depending on hot melt adhesive used

1.3 Dimensioned Drawing

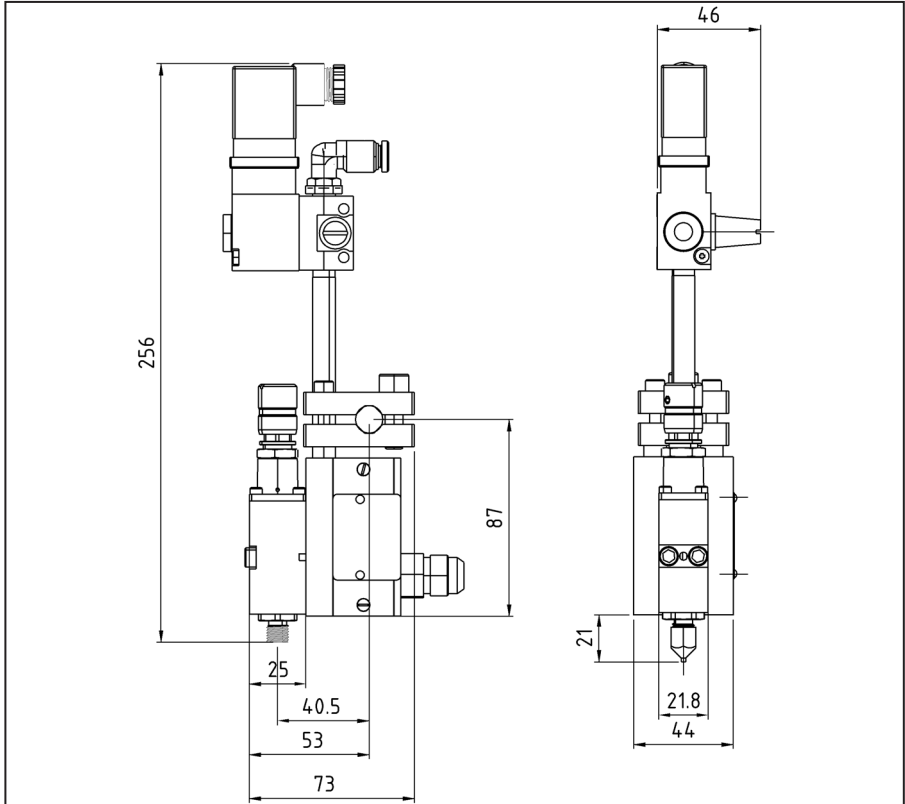


Bild 1: Dimensioned Drawing

2 Safety Instructions

2.1 Potential Hazards



Danger!

Never point the operational device at persons. Danger from high pressure!



Burn hazard!

Nozzle and melted hot melt adhesives may reach temperatures over 200°C. Wear heat protections gloves when contact cannot be avoided.



Danger from fumes!

Even when used properly, PU hot melt adhesives emit harmful fumes (isocyanate). Harmful decomposition products will develop when the allowed processing temperature is exceeded for a prolonged period of time.

Please observe the following instructions for your own safety:

- Provide for adequate ventilation (safety phrase 51).
- Do not inhale fumes and spray (safety phrase 23).
- Do not smoke, eat or drink during work (safety phrase 20/21).

First aid measures

After skin contact: Cool affected area with plenty of cold water.

After eye contact: Flush eyes immediately with running water for several minutes. Have cooled off adhesive removed by a physician.

When feeling discomfort after the inhalations of fumes: Remove to fresh air. Consult a physician if the feeling of discomfort persists.

2.2 Instructions on Safe Operation

Strictly adhere to the following instructions to prevent malfunctions and operating errors:

- The max. allowed operating pressure of the hot melt adhesive (100 bar) must never be exceeded.
- Remove all flammable or heat-sensitive objects from the area around the nozzle.
- Protect the device against humidity and moisture (protection against electric shock).
- Observe the processing sheet of the hot melt adhesive (protection against processing errors)
- Disconnect the device from the power supply (plug-in connector on heatable hose) before carrying out any work on it (maintenance, repair).
- Allow device to cool off completely before storing it.
- Immediately remove the device from the power supply if you notice any damage on the device itself or on the cables. Have the device checked by a specialist immediately. The device must only be put back into operation after it has been properly repaired (see chapters 6 and 7).

3 Assembly

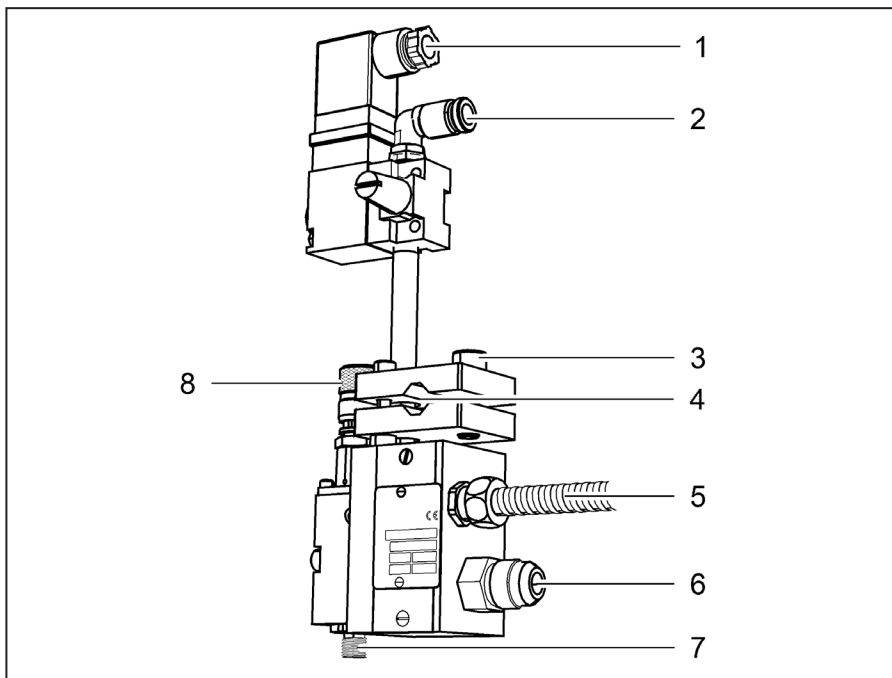


Bild 2: Connections

Item No.	Function
1	Connection solenoid valve (to PLC/ control system)
2	Connection compresses air (PK 6)
3	Lock screw
4	Opening for mounting rod, 7-12 mm Ø
5	Connection heater / temperature sensor (to heatable hose)
6	Connection heatable hose
7	Connection for nozzle
8	Knurled screw stroke adjustment

3.1 Mechanical Assembly

Required tools:

- 1 hexagon socket wrench, 6mm

Follow the steps below for assembly:

1. Loosen the screw (fig. 2/3) with the hexagon socket wrench and remove it.
2. Move the opening (fig. 2/4) of the clamp over the mounting rod (7 ... 12 mm Ø).
3. Align the application head in the desired position.
4. Replace and tighten the screw (fig. 2/3).

3.2 Electrical connection

Follow the steps below for the electrical connection:

1. Switch the output heater to which the application head is to be connected off on the fueling system.
2. Deactivate the solenoid valve on the control system / PLC.
3. Attach the plug of the control cable for the solenoid valve (fig. 2/1).
4. Attach the free cable end to the corresponding connections of the control system / PLC.
5. Connect the plug-in connector at the end of the cable (fig. 2/5) with the mating plug on the heatable hose.



Burn hazard!

If the heater is not switched off (see step 1), the application head will heat up immediately and may reach temperatures over 200°C!

3.3 Compressed air connection

Connect the compressed air supply line (quick release coupling PK 6) with the connection (fig. 2/2).

The supplied compressed air must be free from condensate and oil.

3.4 Heatable hose

Required tools

- 1 open-end wrench SW 17
- 1 open-end wrench SW 18
- 1 open-end wrench SW 19

Follow the steps below to connect the heatable hose:

1. Activate the heater of the corresponding outlet on the fueling system.
2. Allow heatable hose to reach the operating temperature.
3. Screw the heatable hose to the connection (fig. 2/6) with the open-end wrench (SW 17 or SW 19) while using the open-end wrench SW 18 on the application head to lock the screw.

The application head can now be put into operation.

4 Operation

4.1 Commissioning

The heating time of the application head is significantly below that of the other components (fuelling system / heatable hose).

The application head can be put into operation as soon as the fuelling system has reached its operating temperature.

4.2 Adjusting the adhesive dose

The quantity of adhesive dispensed per clock cycle depends on the parameters

- adhesive pressure
- nominal nozzle diameter
- open time of solenoid valve
- setting of knurled screw for stroke adjustment (fig. 2/8)

Determine the optimal combination of these parameter by tests when putting the device into operation.

4.3 Interruptions of work/ end of shift

For longer interruptions of work / at the end of the shift, the application head can be shut down by switching the heater off.

The heat-up period upon restart of the heater is less than 10 min.

4.4 Processing PU hot melt adhesives

With PU (polyurethane) adhesives, the chemical reaction causing a tight bond between the glued objects is triggered by humidity.

Please refer to our "Production Information on Polyurethane Hot Melt Adhesives".

5 What, if...

This chapter give you an overview of the possible status and error messages and offers troubleshooting help.

In the event of any malfunctions, please check

- the power supply and
- compressed air supply for proper function and inspect the device or supply lines (power supply, compressed air) for mechanical damage.

If you detect any mechanical damage, the device must under no circumstance be put back into operation. Have the device checked and repaired by a qualified service.

5.1 Troubleshooting

Fault	Possible Cause	Remedy	<i>see chapter</i>
Nozzle drips	Module B400-FJ is defective	Replace module	6.3
Insufficient or no hot melt is dispensed	Operating pressure is too low	Increase operating pressure (max. 100 bar)	
	Compressed air supply is interrupted	Check compressed air supply lines	
	Nozzle system is clogged	Clean or replace nozzle	6.2.1
	Temperature sensor is defective	Replace temperature sensor	
	Processing temperature is too low	Increase temperature	
	Module B400-FJ is defective	Replace module	6.3

6 Maintenance / Repair



Danger!

Electrical hazard

All tasks requiring the device to be opened must only be carried out by qualified electricians.



Burn hazard!

Nozzle and melted hot melt adhesives may reach temperatures over 200°C. Wear heat protection gloves when carrying out maintenance and repair tasks.

6.1 Maintenance Intervals

Please adhere to the specified maintenance intervals to ensure an error-free and safe operation at all times:

Daily:	Check passage ways of nozzle system (visual inspection)
	Clean nozzle system, if necessary.
Weekly:	Check all mounting parts for proper seat and tightness (visual inspection)

6.2 Cleaning

- Do not use aggressive cleaning agents to clean the device. These may damage components of the device. We recommend the use of Bühnen cold cleaning solvent (Art. No. F91500).
- Replace any parts that can no longer be cleaned (e.g. due to burned or fully reacted hot melts). We recommend to have these tasks carried out by the Bühnen Service Department.
- Only remove any hot melt residue and other contaminants mechanically, e.g. by using a cloth, a soft brush, wooden spatula or the like.

6.2.1 Cleaning the nozzle

Required tools:

- 1 open-end wrench 11 mm



Burn hazard!

Module and melted hot melt adhesives may reach temperatures over 200°C. Always wear heat protection gloves when carrying out the following tasks.

Follow the steps below to clean the nozzle:

1. Bring the application head to operating temperature.
2. Loosen the nozzle with the open-end wrench (11 mm) and remove it.
3. Pierce the nozzle using the proper nozzle cleaning pin.
(Art. No. see table):

For nozzle Ø	Art. No.
0.3	FD 0232
0.4	FD 0233
0.6	FD 0234
0.8	FD 0235
1.0	FD 0236
1.2	FD 0237
1.5	FD 0238
2.0	FD 0239
2.5	FD 0240

4. Screw the nozzle back on.

6.3 Replacing the B400-FJ module

Required tools

- 1 hexagon socket wrench 4 mm
- 1 open-end wrench 11 mm

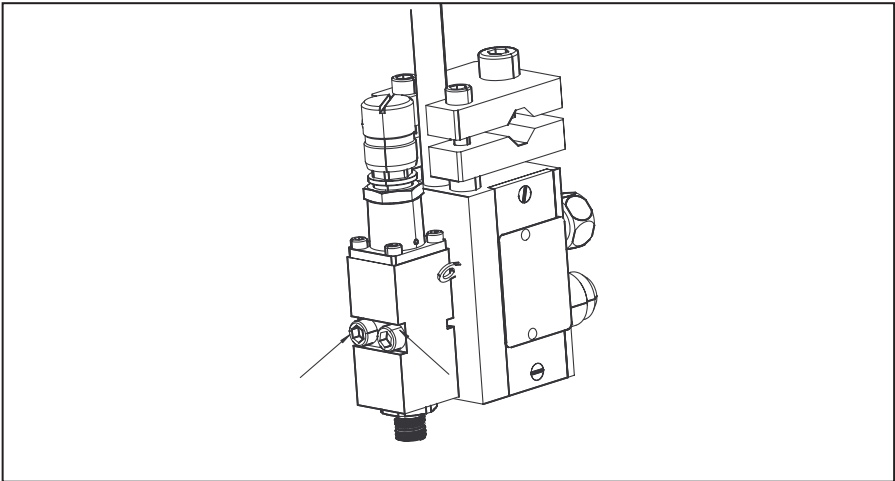


Bild 3: Replacement of the B400-FJ module



Burn hazard!

The module and hot melt adhesives may reach temperatures over 200°C. Always wear heat protection gloves when carrying out the following tasks.

Follow the steps below to replace the B400-FJ module:

1. Bring the application head to operating temperature.
2. Loosen the nozzle with the open-end wrench (11 mm) and remove it.
3. Switch off the fuelling system and depressurize it. Caution: there may still be residual pressure inside the hose.
4. Loosen the screws (M5) illustrated in fig. 3 with a hexagon socket wrench (4 mm) and remove them.
5. Remove the module

6. Check the supplied O-rings for completeness and proper seat (see fig. 4).
7. Attach the module to the application head and screw it in place.
8. Screw the nozzle to the nozzle foot of the module (fig. 2/7).
You may have to wait until the new module has reached its operating temperature.

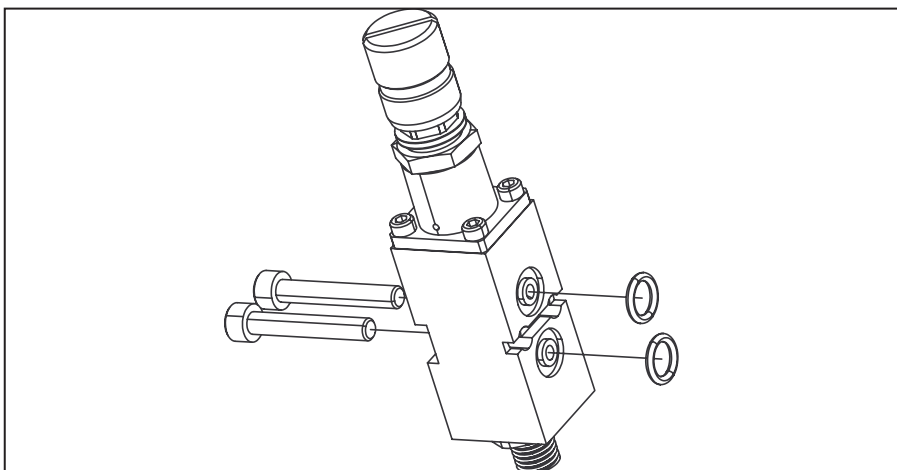


Bild 4: Fitting O-rings

7 Repairs

Any repairs that are not specified in these operating instructions must only be carried out by persons authorized by BÜHNEN or other expert personnel, using original Bühnen spare parts.

8 Warranty

The device was designed and constructed according to state-of-the-art technology. We offer the original purchaser a warranty on function, material and workmanship as prescribed by statutory regulations. Normal wear and tear is excluded.

The warranty shall become void in any event of improper handling, use of force, repair by third parties and installation of any parts other than original spare parts.

The warranty covers repair or replacement at our own discretion. Warranty extending beyond the scope of the goods delivered by us is excluded as we do not have any influence on the proper and professional use of the device.

Please observe our terms and conditions!

9 Disposal



Please recycle the device, packaging and accessories in an environmentally sound way (in accordance with Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003).

10 Spare parts

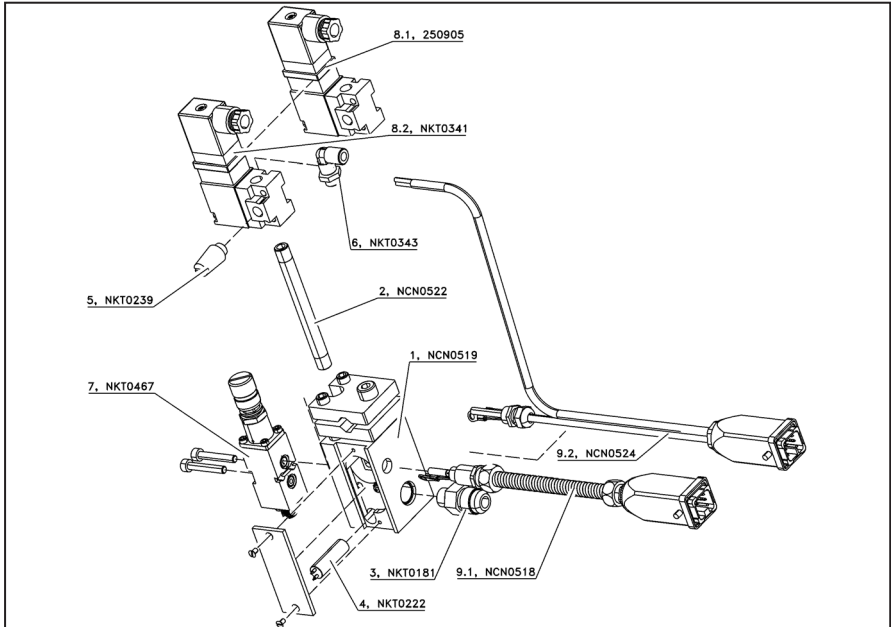


Bild 5: Spare Parts

Part list for fig. 5 - spare parts

Pos.	Part No.	Name	Qty.	Included
1	NCN0519	Base body application head	1	
2	NCN0522	Pipe 1/8 10x100	1	
3	NKT0181	Adapter 0°, UNF 9/16	1	
4	NKT0222	Heating cartridge 10x33	1	
5	NKT0239	Sound absorber	1	
6	NKT0343	Air nipple 90°	1	
7	NKT0467	Module B400-FJ	1	
8.1	250905	Solenoid valve 3/2 way, 230V	1	FCH0492/ 93
8.2	NKT0341	Solenoid valve 3/2 way, 24V	1	FCH0490/ 91
9.1	NCN0518	Wiring harness, PT100, HB 6000	1	FCH0490/ 92
9.2	NCN0524	Wiring harness, PT 100, HB 4000	1	FCH0491/ 93

11 Declaration of Conformity

		
Conformity Declaration		
We, the	Bühnen GmbH & Co. KG D-28277 Bremen	
<u>declare</u>	on our sole responsibility that the product	
	Applicator Head HB 20	
<u>to</u>	which this declaration refers, complies with the following Standards or normative documents in its supplied condition:	
	EN 55014 EN 60204-1 EN 61000-3	
<u>in</u>	accordance with the stipulations of guideline	
	2001/95/EC 2002/95/EC 2002/96/EC 2004/108/EC 2006/95/EC	
<u>Bremen, May 2011</u>		
	Hermann Kruse Technical Manager & Documentation Representative	Hanno Pünjer General Manager



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