Translation of the Original Operating Instructions

Micro-Application Head

HB 11

BÜHNEN
KLEBESYSTEME

FCH0479.2XM (Issue 11/2019)

1 Safety instructions

1.1 Possible dangers

Danger!

Never point the operational device at other persons.
Danger due to high pressure!

Danger of burns!

The nozzle and melted hot melt adhesive can reach temperatures over 200°C. Wear heat protection gloves whenever contact is unavoidable.

Danger due to vapours!

PU hot melt adhesives give off harmful vapours (isocyanates) even when applied in accordance with instructions. If the prescribed processing temperature is exceeded for a longer period, harmful decomposition products will develop.

For your safety, please observe the following notes:

- Make sure there is sufficient ventilation (S statement 51).
- Do not inhale vapours and atomised sprays (S statement 23).
- Do not smoke, eat or drink during work (S statement 20/21).

Measures for First Aid

After skin contact:	Cool the affected areas immediately with plenty of cold water.
After contact with eyes:	Rinse your eyes immediately with running water for several minutes. Have a doctor remove the cooled adhesive.
If nauseous after inhaling vapours:	Provide fresh air. For persistent malaise, consult a doctor.
After swallowing:	For persistent malaise, consult a doctor.

1.2 Notes on safe operation

To avoid functional disruptions and faulty operation, comply exactly with the following notes at all times:

- The maximum permissible operating pressure of the hot melt adhesive (80 bar) must never be exceeded.
- Remove combustible or heat-sensitive objects out of the range of the nozzle.
- Protect the device from moisture and wetness (protection from electric shock).
- Comply with the processing data sheet of the hot melt adhesive (protection from processing errors).
- Disconnect the power supply (plug-in connection at heatable hose) before every engagement at the device (maintenance, cleaning).
- Allow the device to cool off completely before storage.
- Should you become aware of damage to the device or to the supply leads, disconnect the device from the power supply immediately. Have the device inspected immediately by a specialist. It may only be put back into operation after proper repairs (see chapters 6 and 7).

2 General

Please read these operating instructions carefully and thoroughly before putting the micro application head into operation the first time. Pay particular attention to the safety notes in Chapter 1.

These operating instructions must be readily accessible to every user at all times.

Please also comply with the operating instructions for the

- tank system and the
- heatable hose,

especially the safety notes contained within.

2.1 Operative range

The micro application head HB 11 is used for the dosed discharge (dot or bead application) of hot melt adhesives with exchangeable nozzles (intended use).

2.2 Technical data

Model	HB 11
Parts number	NKT 0590.2 (Ni 120) FCH 0479.2 (Pt 100)
Scope of delivery	• Micro Application Head HB 11 • Module HB 1 • Solenoid valve • Solenoid valve plug The nozzle is specific to application and not included in the delivery. Please order separately!
Weight [kg]	0.62
Supply voltage for solenoid valve [V DC]	24
Solenoid valve capacity [W]	12
Heating capacity [W]	100
Class of protection	IP40
Operating temperature [°C]	up to 195
Warming up period [min]	<15
Temperature sensor	Pt 100 or Ni 120 (alternatively: NTC or FeCuNi)
Compressed air connection [bar]	5…6 The compressed air must be free of condensate and acid.
max. hot melt adhesive pressure [bar]	80
Hot melt adhesive viscosity [mPas]	500…15,000
Switching frequency* [cycles/s]	max. 200
Response time of the solenoid valve* [ms]	3
Nozzle thread	UNF 3/8"
Connection for hot melt adhesive	9/16”-18 UNF for standard hose width 8 (other thread types possible)
Head bracket	For holding rod with 11…15 mm Ø
Dimensions [mm]	170 x 18 x 130 (H x W x D)
Recommended hot melt materials	BÜHNEN hot melt adhesive

* depends on utilised hot melt adhesive

2.3 Dimensioned drawing

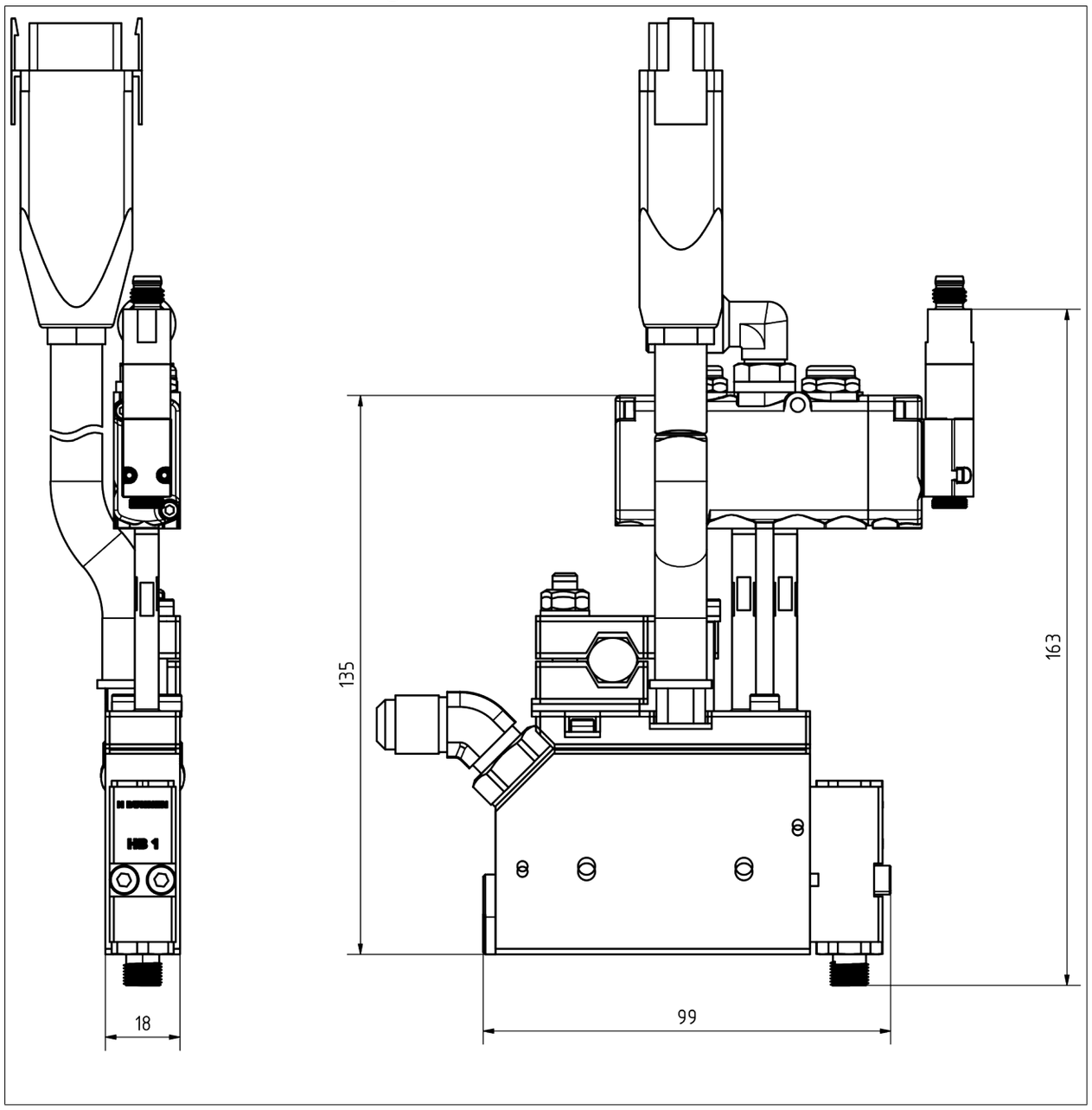

Figure 1: Dimensioned drawing

3 Assembly

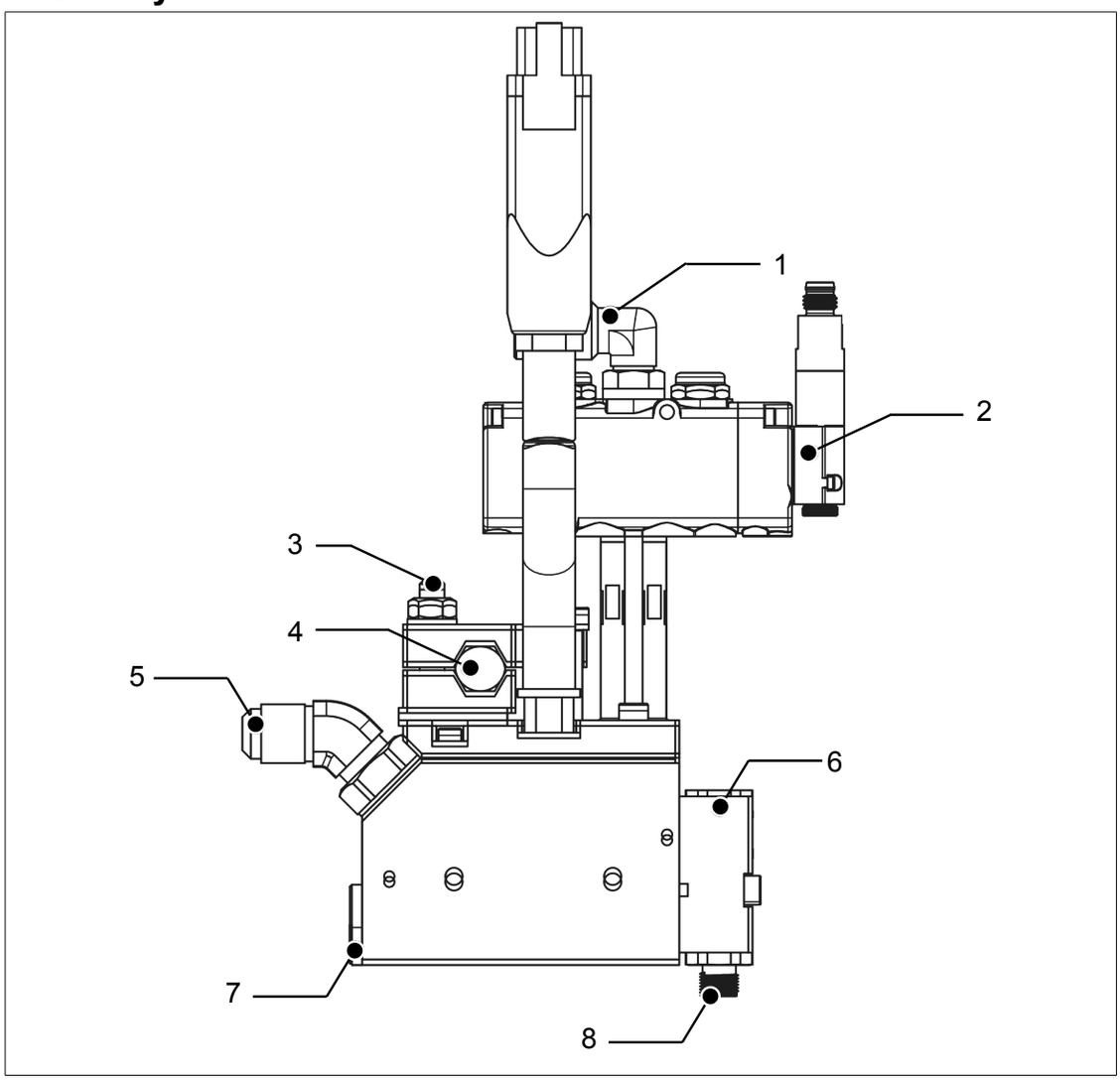

Figure 2: Connections HB 11

Cons. No.	Function
1	Compressed air connection
2	Valve connection (for PLC/controller)
3	Clamping screw
4	Opening for holding rod
5	Connection heatable hose
6	Module HB 1
7	Filter
8	Nozzle foot

3.1 Electrical connection

For the electrical connection, carry out the following steps:

1. At the tank system, switch off the heater of the output to which the application head will be connected.
2. At the controller/PLC, switch off the activation of the solenoid valve.
3. Connect the cable for activating the solenoid valve to the supplied plug and then connect the plug to the solenoid valve and screw it in place.
4. Apply the free ends of the cable to the corresponding connections of the controller/PLC.
5. Connect the plug-in connector at the end of the cable (5) to the mating connector at the heatable hose.

Danger of burns!

If the heater is not switched off *(see step 1),* the application head can be heated now and reach temperatures exceeding 200°C!

3.2 Compressed air connection

Connect the compressed air supply (quick coupler PK4) to the connection (1) *(see Figure 2).*

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

3.3 Heatable hose

Required tools

- 1 open-end wrench size 14
- 1 open-end wrench size 19 (Pt 100) or
- 1 open-end wrench size 18 (Ni 100)

To connect the heatable hose, carry out the following steps:

1. At the tank system, activate the heater of the corresponding output.
2. Switch off the pump.
3. Allow the heatable hose to heat to operating temperature.
4. Screw on the heatable hose with connection (5) *(see “Figure 2: Connections HB 11” on page 6) .*
   While doing so, secure the application head with the open-end wrench size 14.

The application head can now be put into operation.

4 Operation

4.1 Initial operation

The heating time of the application head is significantly less than those of the other components (tank system/heatable hose).

After the tank system has heated, the application head can be put into operation immediately. Additional preparations are not necessary.

4.2 Adjusting the adhesive dosage

The adhesive discharge per timing cycle depends on the parameters

- Adhesive pressure
- Nominal diameter of the nozzle
- Opening time of the solenoid valve

After initial operation, use trials to determine the optimal combination of these parameters for your application.

4.3 Interruptions in work/End of shift

In case of longer periods of interrupted work/end of shift, the application head can be put out of operation by switching off the heater.

When switched back on, the heating time of the heater is less than 10 minutes.

4.4 Processing PU hot melt adhesives

For PU (polyurethane) adhesives, the humidity triggers a chemical reaction which leads to the firm bonding of the objects to be glued.

Please also observe our "Product Information Polyurethane Hot Melt Adhesive."

5 What happens if…

This chapter provides an overview of possible status and error messages and offers help on error correction

In case of occurring functional disruptions, please first check

- the power supply and the
- compressed air supply for proper function as well as
- whether the device or the supply leads (power supply, compressed air) show mechanical damage.

If you notice any mechanical damage, under no circumstances may the device be put back into operation. Have the device inspected and repaired by a qualified service centre.

5.1 Troubleshooting and repair

Fault	Possible Cause	Remedy	see chapter
Nozzle drips	Module HB 1 defective	Clean nozzle foot/needle Replace module	 *6.3*
Too little or no hot melt material is discharged	Operating pressure too low	Increase operating pressure (max. 80 bar)	
	Compressed air supply interrupted	Check compressed air lead	
	Nozzle system clogged	Clean or replace nozzle	*6.2.1*
	Temperature sensor defective	Replace temperature sensor	
	Processing temperature too low	Increase temperature	
	Module HB 1 defective	Replace module	*6.3*

6 Maintenance/servicing

Danger!
Danger due to electrical voltage.
All work which requires the device to be opened must only be carried out by qualified, electrically skilled personnel.

Danger of burns!
The nozzle and melted hot melt adhesive can reach temperatures over 200°C. Wear heat protection gloves for maintenance and repair work.

6.1 Maintenance intervals

Comply with the listed maintenance intervals to ensure continuous faultless and safe operation:

Daily:	Check the nozzle system for passage (visual check)
	Clean the nozzle system as necessary
Weekly:	Check of all attachments for correct fit and tightness (visual check)

6.2 Cleaning

- Do not use aggressive solvents to clean the device. The solvents could damage the device components.
  For cleaning we recommend BÜHNEN Cold Cleaner (Art.-No. F91997).
- Replace parts that cannot be cleaned (e.g. due to burnt or fully cured hot melt material) completely. We recommend having this work done by BÜHNEN Service.
- Remove the residues of hot melted material and other contaminations by mechanical means only, e.g., using a cloth, soft brush, wood spatula or similar.

6.2.1 Clean nozzle

Required tool • 1 open-end wrench 11 mm

Danger of burns!
The module and melted hot melt adhesive can reach temperatures over 200°C. Wear heat protection gloves for the following work steps.

To clean the nozzle, carry out the following steps:

1. Heat up the application head to operating temperature.
2. Unscrew the nozzle with the open-end wrench (11 mm).
3. Push the appropriate nozzle cleaning needle (Art. No. see table) through the nozzle:

For nozzle Ø	Art. No.
0.15…0.20	NKT0244
0.20…0.35	NKT0241
0.30…0.50	NKT0242
> 0.40	NKT0243

4. Screw on nozzle.

6.3 Replace module HB 1

Required tools

- 1 Allen key 3 mm
- 1 open-end wrench 11 mm

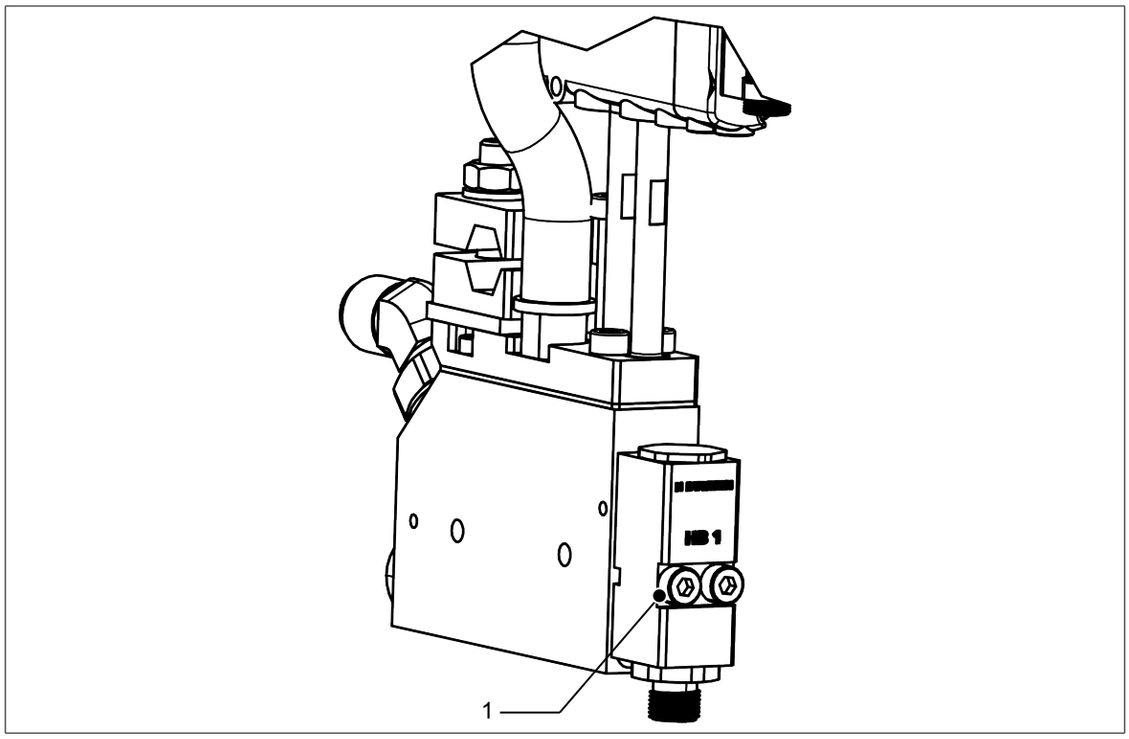

Figure 3: Replacement of module HB 1

Danger of burns!

The module and melted hot melt adhesive can reach temperatures over 200°C. Wear heat protection gloves for the following work steps.

To replace the module HB 1, carry out the following steps:

1. Heat up the application head to operating temperature.
2. Unscrew the nozzle with the open-end wrench (11 mm).
3. Release the screws (1, M4) shown in *Figure 3* using an Allen key (3 mm).
4. Remove the module.

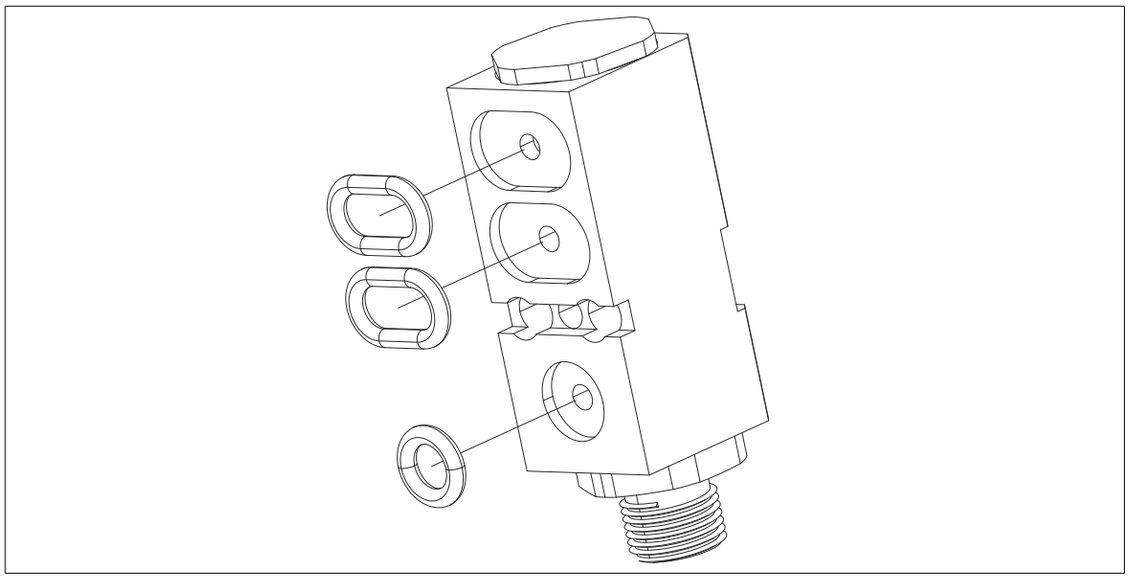

Figure 4: Insert O-rings

5. Check the supplied O-rings for completeness and correct fit *(see Figure 4).*
6. Position the module to the application head and screw on.
7. Screw on the nozzle at the nozzle foot of the module *(Item (8) in Figure 2)*.
   It may be necessary to wait until the new module has reached the operating temperature.

7 Repairs

Repairs other than those described in these operating instructions may only be implemented by competent persons commissioned by BÜHNEN or otherwise competent persons with the use of original BÜHNEN spare parts.

8 Warranty

The device was developed and manufactured according to the latest state of technology. First-time purchasers receive warranty on function, material, and processing according to statutory regulations. Normal wear and tear is excluded.

The warranty is void if improper handling, use of force, third-party repairs and installation of spare parts other than the original has been determined.

The warranty extends to servicing or replacing according to our choice. Warranty beyond our scope of delivery is excluded, as we do not have any influence on the competent and expert use of the unit.

Please observe our terms and conditions!

9 Disposal

Take the device, packaging, and accessories to an environmentally friendly recycling centre (in accordance with Directive 2012/19/EU of the European Parliament and the Council of
4 July 2012).

Also comply with the laws and directives applicable in your country.

10 Spare parts

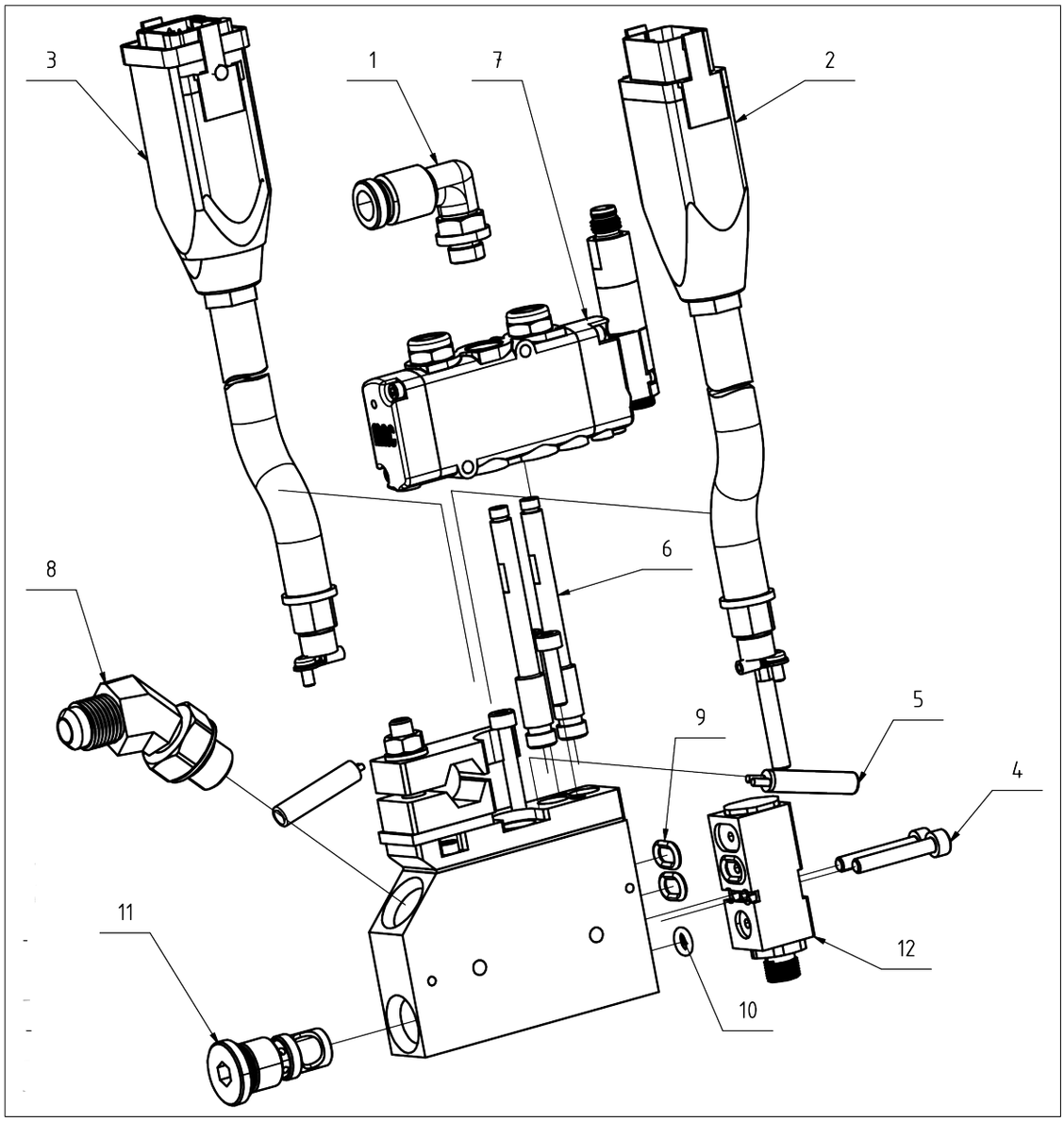

Figure 5: Spare parts

Spare parts list

Item	Order No.	Quantity	Designation
1	NKT0343	1	Plug-in connection 90°
2	B29-021-0504	1	Cord set NI120
3	B29-082-0501	1	Cord set PT100
4	NKT0230	2	Fillister head screw
5	B50-027-0100	1	Heating cartridge HB 11
6	B26-001-0004	2	Air tube
7	NKT1507	1	5/2-way valve
8	NKT0182	1	Adapter 45°, UNF 9/16
9	NKT0218	2	O-ring 21.95 x 1.78
10	NKT0229	1	O-ring
11	NKT0451	1	Head filter unit Series BM
12	NKT0591	1	Module HB 1

Declaration of Conformity

Conformity Declaration

We, the **Bühnen GmbH & Co. KG**

D-28277 Bremen

declare on our sole responsibility that the product

Applicator Head HB 11

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

EN 55014-1: 2012-05

EN 55014-2: 2016-01

EN 60204-1: 2007-06

EN 60519-1: 2017-06

EN 60519-2: 2007-05

EN 61000-3-2: 2015-03

EN 6100-3-3: 2014-03

in accordance with the stipulations of guideline

2006/42/EC

2011/65/EU

2014/30/EU

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