



Original Operating Instructions

Spray application head HB 30

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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
- heatable hose,

in particular all safety instructions contained therein.

1.1 Intended Use

The spray application head HB30 with the add-on application module as a compact package serves the dosed application of hot melts (thermoplastic hot melt adhesives, waxes, etc.) with exchangeable nozzels.

1.2 Technical Data

Model	HB 30
Part number	FCH0494/FCH4095/FCH0496/FCH0497
Weight: [kg]	1.2
Supply voltage for solenoid valve [V DC]	24V for FCH0494/ FCH0495 230V for FCH0496/ FCH0497
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 für FCH0494 - FCH0497
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 1/2-20
Connection for heatable hose	UNF 9/16-18 for standard hose width 8 (other types of threads possible)
Head holder	For mounting rods 12 mm Ø
Dimensions [mm]	269 x 44 x 85 (H x W x D)
Recommended hot melts	BÜHNEN-Hot Melt Adhesives

*depending on hot melt adhesive used

1.3 Dimensioned Drawing

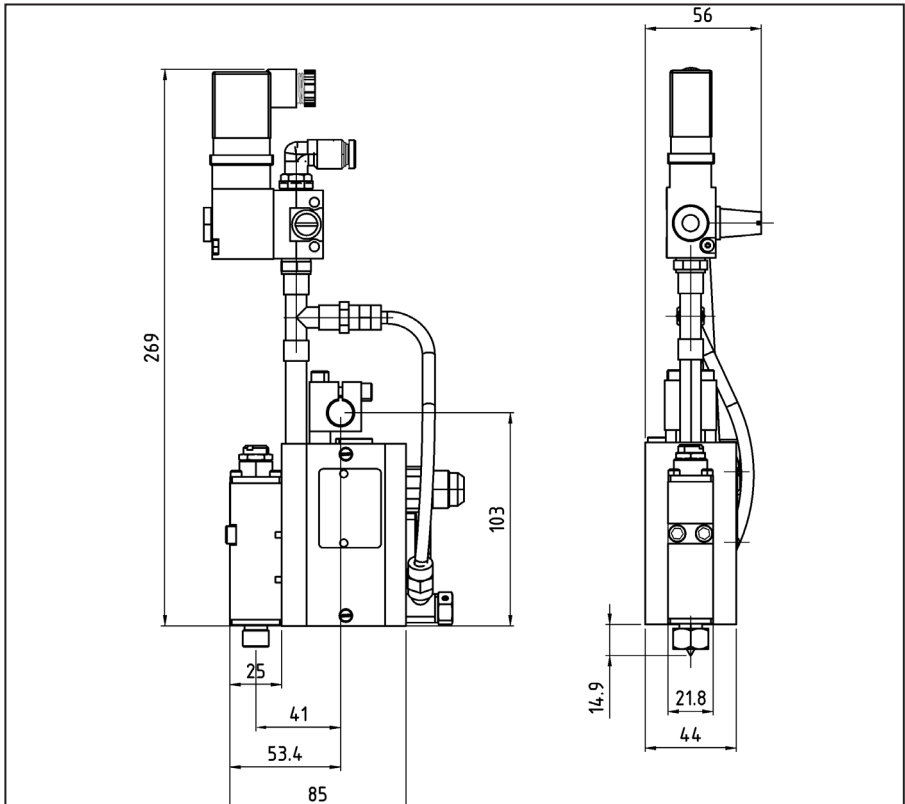


Bild 1: Dimensioned Drawing

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 protection 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 7 and 8).

3 Installation

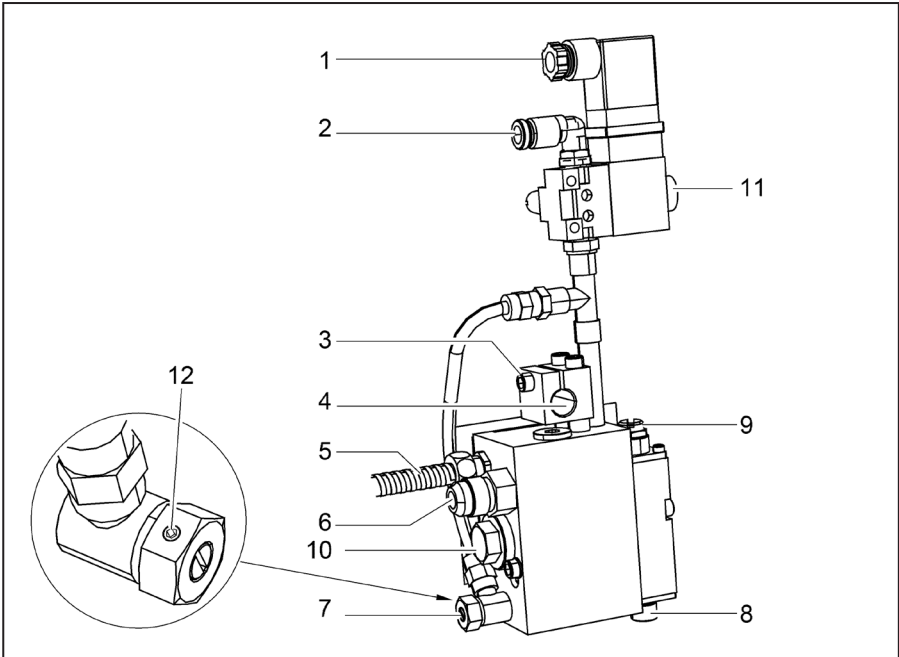


Bild 2: Connections

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, 12 mm Ø
5	Connection heater / temperature sensor (to heatable hose)
6	Connection heatable hose
7	Adjustment spray air
8	Connection for nozzle
9	Preloading screw
10	Head filter
11	Manual trigger of solenoid valve
12	Lock screw

3.1 Mechanical Assembly

Required tools:

- 1 hexagon socket wrench 6 mm

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 (12 mm Ø) schieben.
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 solenoid valve control cable (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 Control and spray 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 dust, condensate and oil.

The operating pressure ranges between 5 and 6 bar

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 of 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.

3.5 Adjusting the closing force



Attention!

The closing force is preset and should not be changed.

3.6 Adjusting the spray pattern/dosage

Required tools:

- 1 hexagon socket wrench 1.5 mm
- 1 flat head screwdriver 4mm

- Loosen lock nut (fig. 2/12) with the 1.5 mm hexagon socket wrench.
- Open the adjusting screw for the spray air volume (fig. 2/7) all the way by turning it to the left (slotted screw).
- Manually trigger solenoid valve (fig. 2/11) so that adhesive is dispensed.
- Fine tune spray air volume with the adjusting screw (fig. 2/7).

The spray pattern is optimised by alternating adjustment of:

- the quantity of the adhesive (on the hot melt application device)
- the pressure of the adhesive (on the hot melt application device)
- Adjusting screw for the spray air volume (fig. 2/7)
- Nozzle diameter (fig. 2/8)

4 Operation

4.1 Commissioning

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

The dosage and the spray pattern must be adjusted on the application head when the reservoir system is heated up. Further preparations are not required.

Please refer to chapter 7 Maintenance/Service for information on adjustment/change attachments.

4.2 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.

4.3 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 B200-FJ is defective	Replace module	6.6
	No closing force	Loosen and readjust the closing force adjusting screw	3.5
Insufficient or no hot melt is dispensed	Nozzle system is clogged (fig. 2/8)	Clean or replace the nozzle	6.3
	Head filter is clogged	Clean the head filter	6.5
	Hot melt is too viscous	Observe the processing instructions of the hot melt manufacturer	
	The conveying system from the reservoir system is defective	Check the reservoir system and/or the heatable hose	
High temperature fluctuations or application system does not heat up	Temperature sensor is defective	Replace temperature sensor	
	Heating cartridge is defective	Replace heating cartridge	
	No power supply from the reservoir system	Check the reservoir system and/or the heatable hose	

6 Maintenance / Repair



Danger!

Electrical hazard

All tasks requiring the opening of the device 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 for tightness, presence of all parts and tight seat of all plug-in and screw connections
Weekly:	Remove all hot adhesive residues and other contamination, rinse application head
Monthly:	Clean or replace filter cartridge

6.2 Cleaning

- Do not use corrosive cleaning solvents to clean the device as these may damage components of the device. We recommend Bühnen cold cleaner (article no. F91500).

6.2.1 Cleaning the application head

The application head should be cleaned when it is warm.

- 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 adhesive residues and other contaminants mechanically, e.g. by using a cloth, a soft brush, wooden spatula or the like.

6.3 Cleaning the Nozzle

Required tools:

- 1 open-end wrench 17 mm

The outside of the warm nozzles are cleaned with a soft brush or cloth. 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 (17 mm) and remove it.
3. Pierce the nozzle using the proper nozzle cleaning pin (see table for the art. no.)
4. Screw the nozzle back on.

The spray head may also be cleaned by rinsing it with a suitable cleaning agent. Contact the manufacturer of the hot melt adhesive to get information about suitable cleaning agents and observe the processing instructions and material safety sheet.

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

6.4 Replacing the nozzle

Required tools:

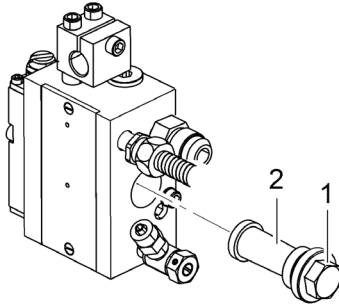
- 1 open-end wrench SW 17

Heat the nozzle to approx. 100°C before replacing it. Lock the add-on module.

- Unscrew and remove the spray nozzle (fig. 2/8).
- Hand-tighten the new nozzle and allow it to heat up for about 2 minutes.
- Tighten the nozzle **without using force**.

6.5 Removing and Installing the Filter Cartridge

Remove and install the filter cartridge only when the system is heated up and depressurized.



- Remove the screw plug (fig. 3/1).
- Pull the filter cartridge (fig. 3/2) out using needle nose pliers.
- Insert the new filter.
- Replace all seals in the process.

Bild 3: Installing or removing filter cartridges

6.6 Replacing the B200-FJ module

Application modules are precision assemblies. In the event of failures, we recommend to replace the complete application module. The replacement is uncomplicated.

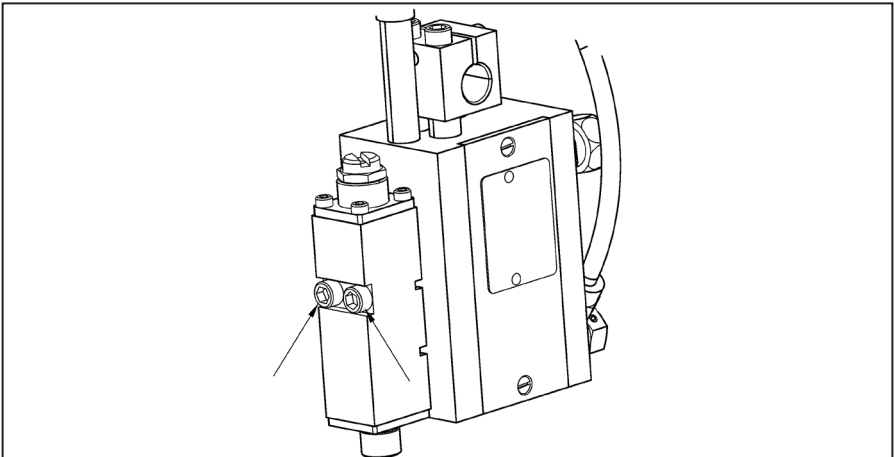


Bild 4: Replacement of the B200-FJ module

Required tools:

- 1 hexagon socket wrench 4 mm
- 1 open-end wrench 17 mm

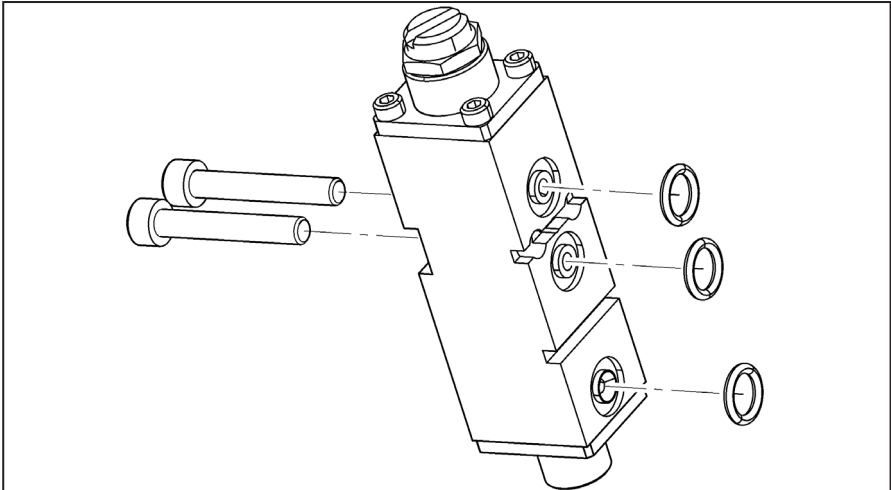


Bild 5: -Fitting O-rings

Follow the steps below to replace the B200-FJ module:

1. Bring the application head to operating temperature.
2. Loosen the nozzle with the open-end wrench (17 mm) and remove it.
3. Switch off the reservoir system and depressurize it. Caution: there may still be residual pressure inside the hose.
4. Loosen the screws (M5) shown in fig. 4 with a hexagon socket wrench (4 mm) and remove it.
5. Remove the module.
6. Check the supplied O-rings for completeness and proper seat (see fig. 5).
7. Attach the module to the application head and screw it in place.
8. Screw the nozzle to the nozzle foot on the module (fig. 2/8).
Wait until the new module has reached the operating temperature.

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 has been designed and constructed in accordance with latest state-of-the-art technology. We offer the first purchaser warranty on function, material and workmanship as prescribed by statutory requirements. Normal wear and tear are not covered by this warranty.

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.

We reserve the right to repair or replace articles covered by warranty at our own discretion. Any warranty above and beyond the scope of supply is excluded as we have no influence on the proper and professional use of the device.

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

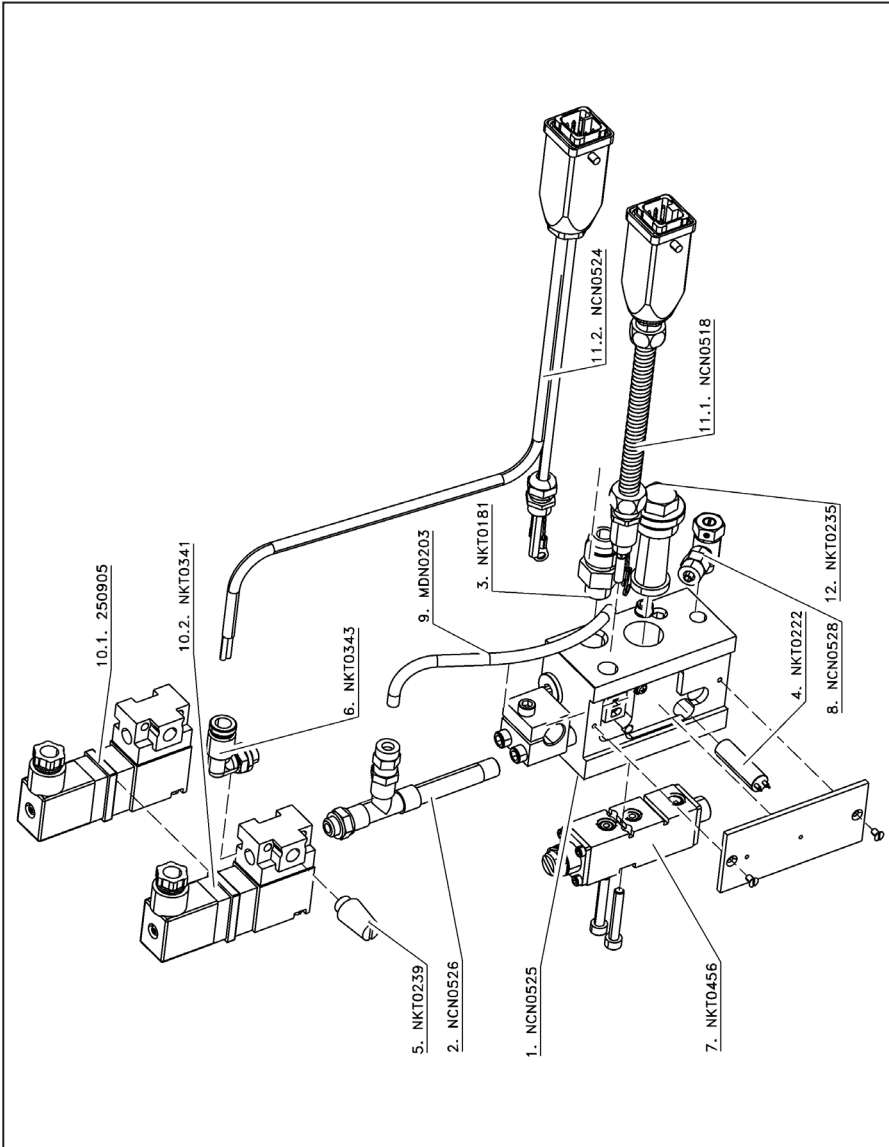


Bild 6: Spare Parts

Disposal

Part list for fig. 5 - spare parts

Pos.	Part No.	Name	Qty.	Included
1	NCN0525	Base body application head	1	
2	NCN0526	Pipe 1/8 10x100	1	
3	NKT0181	Adapter 0°, UNF 9/16	1	
4	NKT0222	Heating cartridge 10x33	2	
5	NKT0239	Sound absorber	1	
6	NKT0343	Air nipple 90°	1	
7	NKT0456	Spray module B200-FJ	1	
8	NCN0528	Throttle screw	1	
9	MDN0203	Air hose NW4 PTFE ecru	1	
10.1	250905	Solenoid valve 3/2 way, 24V	1	FCH0496/ 0497
10.2	NKT0341	Solenoid valve 3/2 way, 230V	1	FCH0494/ 0495
11.1	NCN0518	Wiring harness, PT100, HB 6000	1	FCH0494/ 0496/ 0500
11.2	NCN0524	Wiring harness, PT 100, HB 4000	1	FCH0495/ 0497
12	NKT0235	Head filter unit, series B	1	

11 Declaration of Conformity

<h3>Conformity Declaration</h3>	
We, the	Bühnen GmbH & Co. KG D-28277 Bremen
declare	on our sole responsibility that the product
	Applicator Head HB 30
to	which this declaration refers, complies with the following Standards or normative documents in its supplied condition:
	EN 55014 EN 60204-1 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
Bremen, Mai 2011	 Hermann Kruse Leiter Technik & Bevollmächtigter für Dokumentationen
	 Hanno Pünjer Geschäftsführer



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