

OPERATING MANUAL

**BOEHMER INJECTION
NOZZLE TYPE IDR / IDK**

BÖHMER GmbH

Gedulderweg 95
45549 Sprockhövel / Germany

Phone: +49 2324 7001-0

Fax: +49 2324 7001-79

E-Mail: boehmer@boehmer.de

The technical standards as of March 2018 apply to the descriptions in this operating manual.

The current version of the operating manual can be found on the Boehmer website.



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1. SAFETY INSTRUCTIONS

1.1. Correct usage

The injection nozzle type IDR / IDK is exclusively intended for fully opening or completely shutting off the flow of odorant between an odorization system and a pipeline (IDR) and between an odorization system and an odorization nozzle exchange valve (hereinafter called as OEV) (IDK). The media that may be used should be taken from the supplementary sheet for the injection nozzle. Another correct use is for flushing through the flushing connection. Any other or an extended use, for example, adjustment of position or a structural modification is not regarded as correct usage. Incorrect usage may result in leakages as well as loss of function. In addition, process failures can occur and there is a risk of injury.

Correct usage also includes observance of this operating manual and compliance with the pressure rating indicated on the type identification plate, operating conditions specified in the approval certificates and drawings as well as applicable regional accident prevention and environmental protection regulations.

This operating manual is intended for experts and qualified operators. The safe operation of the injection nozzle is the responsibility of the operator.

Before transporting, installing or repairing the injection nozzle, please read the safety instructions. The operating manual should be kept in a safe place.

The safety instructions are clearly highlighted from the instruction text in this operating manual and are differentiated as follows:



Rule

Gibt Handlungsweisen und Hinweise zum Abwenden von gefährlichen Situationen und Schäden!



Wear ear protection

A suitable ear protection should be used if the sound pressure level of 80 dB (A) is exceeded.



CAUTION

Denotes imminent danger to health and life or risk of extensive damage to property if instructions are disregarded! For example, there may be leakages or loss of function, which can result in risk of injury or process failure!



HOT SURFACES

Warnung vor heißen Oberflächen an der Impfdüse, der OWE oder der Rohrleitung!



COLD SURFACES

Warnung vor niedriger Temperatur/Kälte an der Impfdüse, der OWE oder der Rohrleitung! Bei feuchter Umgebung und Oberfläche besteht die Gefahr des „Festfrierens“!

1.2. Action in case of faults

Following safety instructions should be observed.

Repairs to injection nozzle may be carried out, once approval from Boehmer GmbH is obtained for each individual case and taking into consideration the latest version of the DVGW Worksheet G280 (A).

All other repairs, for example, in case of damages due to external force and due to causes that are not in the range of normal operation should be carried out only by Boehmer GmbH.

If repairs are carried out by operators, the following manufacturer's guidelines should be observed:

- Before carrying out a repair work, an opinion from Boehmer GmbH should be obtained; photographs must be taken before and after each repair job
- Repairs should be carried out only with spare parts and assembly equipment of Boehmer GmbH.
- A report with the following information should be prepared:
 - Cause of damage, impact of the damage
 - Spare parts, special tools and assembly equipment used
 - Repair measures, tests carried out
 - Name of the operator, name of the responsible person, date
 - Photographs

2. ACCEPTANCE & TRANSPORTATION

2.1. As-delivered condition

The injection nozzle consists of three ball valves, a T-piece, a connection screw, a check valve and an *odorant vaporiser* (refer to figures 1 and 2 of chapter 3).

The injection nozzles are provided with an *assembly type identification plate* and are delivered as follows:

- The injection nozzle is packed in a cardboard box and packaging foil.
- The odorant vaporiser is packed in the same cardboard box in a separate packaging foil.

2.2. Receipt inspection

Check the delivered product immediately upon receiving for damages in transit. In case of damages, you will have to pay attention to the insurance company regulations, which stipulate among other things, immediate reporting by the shipping agent. If possible, damages should be documented with photographs.

Furthermore, check the delivery for completeness using the delivery challan. If something is missing, inform Boehmer GmbH without delay.

2.3. Storage

Leave the injection nozzle in the cardboard box and packaging material. If needed, protect the injection nozzle from contamination. The injection nozzles must be stored with *ball valves 1 and 2* in open and *ball valve 3* in closed state (refer to figures 1 and 2 of chapter 3) in a dry and lockable room, protected from weathering influences and tempered at a minimum temperature of 14°C.

Do not operate the ball valves of the injection nozzle during storage

2.4. Transportation



Rule

The injection nozzle is transported in such a way that you do not damage them! Particular attention should be paid to the odorant vaporiser!

3. INSTALLATION AND COMMISSIONING

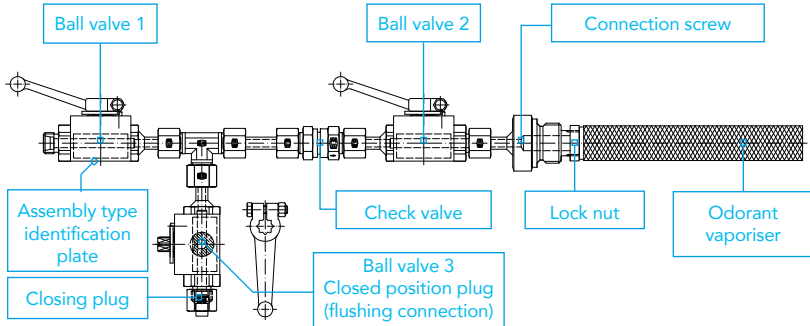


Figure 1: Injection nozzle pipeline – IDR

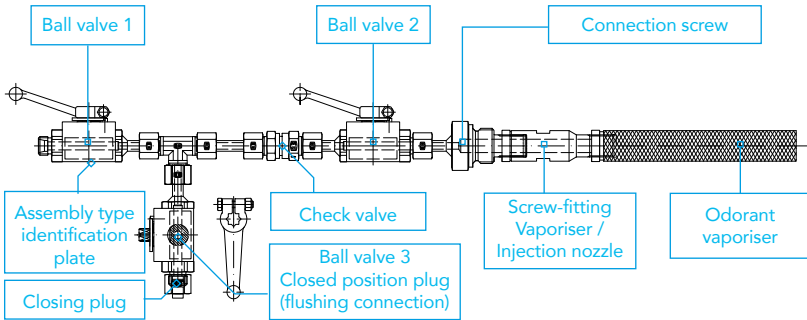


Figure 2: Injection nozzle Ball valve – IDk

3.1. Mounting the odorant vaporiser on the injection nozzle

In order to mount the odorant vaporiser (hereinafter called as vaporiser), the lock nut is rotated in the direction of the *“Connection screw”* or *“Screw-fitting Vaporiser / Injection nozzle”* and the *Vaporiser* must be screwed in up to the specified lengths from figure 3 and 4.

If driven in further, the odorant vaporiser will be damaged. Subsequently, the *lock nut* is tightened with **4Nm** towards the *vaporiser*, which serves as a safety device for the *vaporiser*.

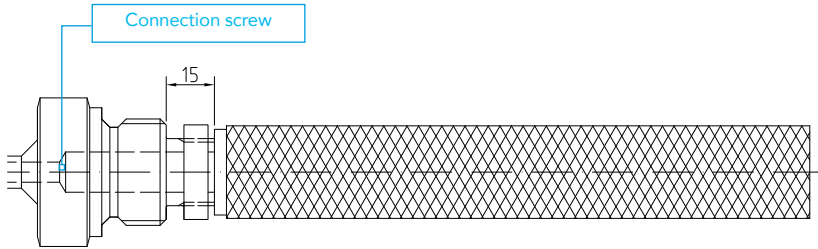


Figure 3: Screw-in length IDR

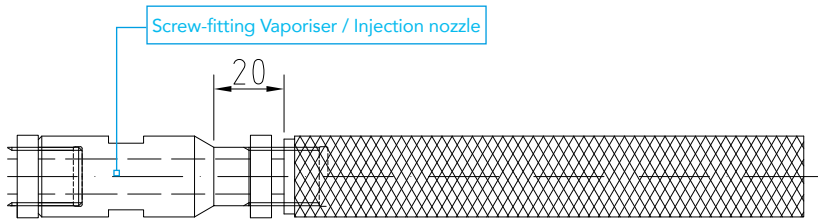


Figure 4: Screw-in length IDK



Rule

Repairs should be carried out only with spare parts of Boehmer GmbH!



Rule

The vaporiser should be installed and removed only by qualified personnel!

3.2. Einbau der Impfdüse

After mounting the vaporiser, the injection nozzle can be installed.

In the delivered condition, the *ball valves 1 and 2* of the injection nozzle are in open position, the *ball valve 3* is in the closed position (figures 1 and 2 of chapter 3) and the flushing connection is closed with a safety plug. Install the injection nozzle in this condition in the pipeline or OEV. Use a copper seal ring for this purpose.

Attention should be paid to an ergonomic installation position of the injection nozzle. The ball valves of the injection nozzle should be sufficiently accessible.



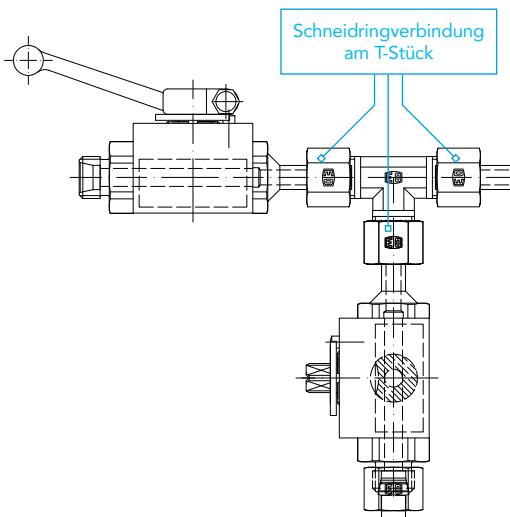
CAUTION

Only a **copper seal ring of the size $\text{Ø}27 \times \text{Ø}32-2$** should be used for mounting the injection nozzle in the pipeline or OEV!



CAUTION

The injection nozzle is mounted by means of the connection screw (refer to figure 1 and 2 of chapter 3)! A jaw spanner of size SW32 should be used for this and the injection nozzle is tightened with a **torque of 90 Nm!**



If another alignment of the *ball valves 1 and 3* is required, the compression fittings at the T-piece can be (refer to figure 5) loosened, the ball valves are positioned and the screw-fittings are screwed back.

Figure 5: Screw-fittings at the T-piece



CAUTION

The compression fitting should be tightened with a jaw spanner of size SW17 and with a torque of 35Nm!



CAUTION

If the compression fitting at the *T-piece* is loosened, a leak test with air at maximum pump pressure, however not higher than 1.1xPN, which can be taken from the type identification plate, should be carried out!

It should be noted, that the pressure downstream of the check valve must be released into the pipeline or OEV.

For this, switch the *ball valve 1* of the injection nozzle to the open position and the *ball valves 2 and 3* to the closed position. After carrying out a leak test, the injection nozzle should be balanced by opening the *ball valve 2* into the pipeline or OEV.



CAUTION

The *ball valve 3* must not be opened in this case!



Rule

The leak test should be carried out only by qualified personnel!



CAUTION

Risk of injury due to pressure and parts under pressure!



CAUTION

The check valve must not be dismantled!



CAUTION

Mechanical load on the injection nozzle must be avoided!



CAUTION

If there is an outward leak, the injection nozzle must not be used!



HOT SURFACES

Warning against hot surfaces on the injection nozzle, OEV or on the pipeline!



COLD SURFACES

Warning against low temperature / cooling on the injection nozzle, OEV or on the pipeline! In a damp environment and surface there is a risk of "freezing"!



CAUTION

Noise hazard! For example, flow noises of the medium!



Wear ear protection

A suitable ear protection should be used if the sound pressure level of 80 dB (A) is exceeded.

4. OPERATION

4.1. Opening and shutting off

By rotating the switching shaft of the ball *valves 1 to 3* by 90° up to the end position, the open or closing position of the ball valve is defined, i.e., the flow rate is released or shut off in its full flow cross-section.

Note:

In order to guarantee a long service life of the ball valves, please note that the ball is always switched to **fully OPEN or fully CLOSED** positions and is never stopped in an intermediate position during operation. During operation, the *ball valve 3 (flushing connection)* **should be retained in the closed position.**



CAUTION

Please comply with the operating conditions specified in the assembly type identification plate (pressure and temperature)!



CAUTION

Danger due to odorant! Material safety data sheets for media should be taken into account! The latest version of the DVGW Worksheet G280 (A) must be complied with! In addition, personal protective equipment must be used!



CAUTION

Risk of injury due to pressure and parts under pressure!



HOT SURFACES

Warning against hot surfaces on the injection nozzle, OEV or on the pipeline!



COLD SURFACES

Warning against low temperature / cooling on the injection nozzle, OEV or on the pipeline! In a damp environment and surface there is a risk of "freezing"!



CAUTION

Noise hazard! For example, flow noises of the medium!



Wear ear protection

A suitable ear protection should be used if the sound pressure level of 80 dB (A) is exceeded.

5. MAINTENANCE / REPAIR



CAUTION

Repairs to injection nozzle must be carried out only if you have been specially trained by Boehmer GmbH and in each individual case the approval of Boehmer GmbH is obtained by you!

All other repairs, for example, in case of damages due to external force and due to causes that are not in the range of normal operation should be carried out only by Boehmer GmbH!

Repairs should be carried out only with spare parts of Boehmer GmbH!



HOT SURFACES

Warning against hot surfaces on the injection nozzle, OEV or on the pipeline!



COLD SURFACES

Warning against low temperature / cooling on the injection nozzle, OEV or on the pipeline! In a damp environment and surface there is a risk of "freezing"!



CAUTION

Noise hazard! For example, flow noises of the medium!



Wear ear protection

A suitable ear protection should be used if the sound pressure level of 80 dB (A) is exceeded.

Check the injection nozzle as part of the maintenance of odorising systems as per intervals stipulated by the latest version of the DVGW Worksheet G280 (A) for possible leakages or loose fastening and connecting parts in the injection nozzle, between odorant supply line and injection nozzle and between injection nozzle and OEV or pipeline.

The ball valves of the injection nozzle are maintenance-free valves. We recommend at least one operating cycle in a year for checking the functional safety of the injection nozzle.

Particularly, repair jobs within the warranty period must be carried out only with approval from Boehmer GmbH. Otherwise, the warranty does not apply.

5.1. Vaporiser maintenance (Flushing process for cleaning the vaporiser)

The injection nozzle makes it possible to carry out the flushing process, for flushing out the *vaporiser* and increasing its service life. For this purpose, the *ball valve 1* is closed. The identification of the ball valves should be taken from figure 1 of chapter 3.



CAUTION

Danger due to odorant! Material safety data sheets for media should be taken into account! The DVGW Worksheet G280 (A) in the most recent valid version must be complied with. In addition, personal protective equipment must be used!



CAUTION

Risk of injury due to pressure and parts under pressure!



CAUTION

Noise hazard! For example, flow noises of the medium



Wear ear protection

A suitable ear protection should be used if the sound pressure level of 80 dB (A) is exceeded.

The closing plug can be dismantled and the flushing circuit can be connected. Subsequently, the corresponding flushing pressure is formed, as the injection nozzle is pressurised by the odorant (the line pressure is shut off in the direction of the injection nozzle due to the check valve). As soon as the flushing pressure is attained, the ball valve 3 can be opened and the flushing process can take place. Ethanol is used as flushing material.

The ball valve 3 is closed after the flushing process is over. The pressure from the flushing circuit should be released. The flushing circuit can now be detached and then the closing plug should be fastened.



Rule

The flushing process should be carried out only by qualified personnel!



CAUTION

Please comply with the operating conditions specified in the assembly type identification plate (pressure and temperature)!



CAUTION

Danger due to odorant and flushing liquid! Material safety data sheets for media should be taken into account! The latest version of the DVGW Worksheet G280 (A) must be complied with. In addition, personal protective equipment must be used!



CAUTION

Risk of injury due to pressure and parts under pressure!

5.2. Removal of the injection nozzle

Before dismantling the injection nozzle, the entire system should be brought to a depressurised state. As the dead space in the ball valves are still under pressure, these are operated once again to ensure pressure compensation. In case of *ball valve 3* (figure 1 and 2 of chapter 3), attention must be paid that the medium escapes during the operation. Suitable precautionary measures should be taken.



CAUTION!

Danger from leaking medium! Danger from odorant! Material safety data sheets for media should be taken into account!

The latest version of the DVGW Worksheet G280 (A) must be complied with! In addition, personal protective equipment must be used!

As the pipework of the injection nozzle is mostly rigid, the connection between the injection nozzle and the odorization system should be disconnected.



CAUTION

During maintenance work, it should be ensured that the system remains depressurised!



Rule

The injection nozzle should be removed only by qualified personnel!

5.2.1. Removal from a pipeline (IDR)

The injection nozzle IDR is unscrewed by loosening the [connection screw](#) (refer to figure 1 of chapter 3) from the pipeline.



CAUTION

The injection nozzle is dismantled by means of the connection screw! For this purpose, a jaw spanner of size SW32 should be used!

5.2.2. Removal from an OEV (IDK)

For removing the injection nozzle from OEV, the operating manual “Fully welded ball valve – Type BBF, Model for odorization nozzle exchange valve (OEV)” should be complied with.

The **injection nozzle of an OEV** can be removed at full line pressure. OEV should be brought to the closed position for this. The dead space is balanced through the test connection and kept in a depressurised state. **The injection nozzle IDK** is unscrewed by loosening the [connection screw](#) (refer to figure 2 of chapter 3) from OEV.



CAUTION

The injection nozzle is dismantled by means of the connection screw! For this purpose, a jaw spanner of size SW32 should be used!

5.2.3. Removal and installing of the odorant vaporiser

For removing the [vaporiser](#), first of all the lock nut on the vaporiser is loosened. The [vaporiser](#) can then be unscrewed.

For installing the *vaporiser*, the *lock nut* is rotated in the direction of the "Connection screw" or "Screw-fitting Vaporiser / Injection nozzle" and must be screwed in up to the specified lengths from figure 3 and 4 (chapter 3.1).

If driven in further, the *odorant vaporiser* will be damaged. Subsequently, the *lock nut* is tightened with **4Nm** towards the *vaporiser*, which serves as a safety device for the *vaporiser*.



Rule

Repairs should be carried out only with spare parts and assembly equipment of Boehmer GmbH!

6. DISMANTLING / DECOMMISSIONING AND DISPOSAL

The dismantling of the injection nozzle is described in chapter 5.2. Attention should be paid to a depressurised system. After removing the injection nozzle, the connection of the pipeline or OEV should be closed with an **ISO safety plug G3/4** or a new injection nozzle with a **copper ring of size Ø27xØ32-2**.



Rule

The injection nozzle should be dismantled only by qualified personnel!



CAUTION

Risk of injury due to pressure and parts under pressure!



CAUTION

While dismantling, it should be ensured that the system remains depressurised!



CAUTION

Danger due to odorant! Material safety data sheets for media should be taken into account! The latest version of the DVGW Worksheet G280 (A) must be complied with. In addition, personal protective equipment must be used!



HOT SURFACES

Warning against hot surfaces on the injection nozzle, OEV or on the pipeline!



COLD SURFACES

Warning against low temperature / cooling on the injection nozzle, OEV or on the pipeline! In a damp environment and surface there is a risk of "freezing"!



CAUTION


Noise hazard! For example, flow noises of the medium!



WEAR EAR PROTECTION

A suitable ear protection should be used if the sound pressure level of 80 dB (A) is exceeded!

Please dispose the injection nozzle through an approved disposal company or at the municipal waste disposal facility. The injection nozzle will be contaminated with the odorant and that is why, the provisions stipulated for this purpose must be complied with.



Pay attention to the degree of contamination. Disposal must be made in accordance with the Waste Catalogue Ordinance codes (WCO codes).

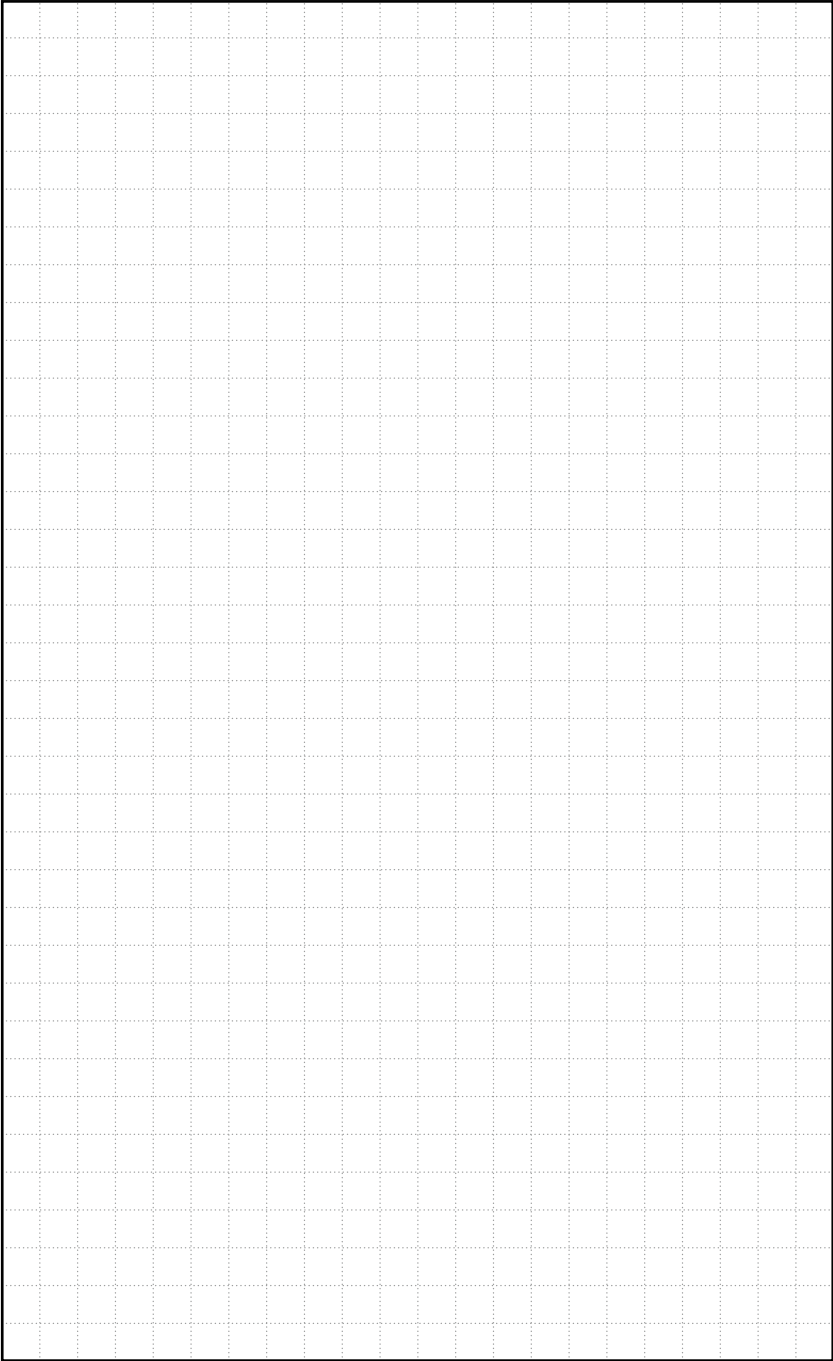
7. CUSTOMER SERVICE

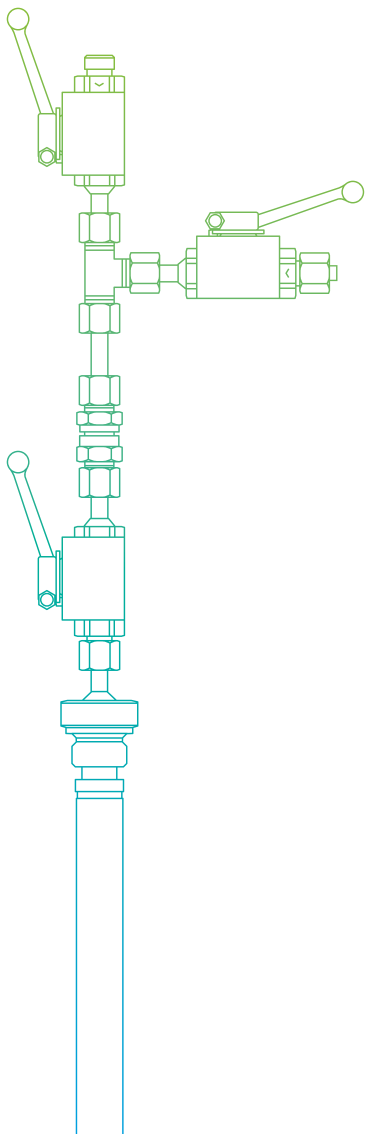
Boehmer GmbH, Customer Service Department

Phone: +49 (0) 2324 7001-0

Fax: +49 (0) 2324 7001-79

E-Mail: boehmer@boehmer.de





BÖHMER GmbH

Gedulderweg 95
45549 Sprockhövel / Germany

Phone: +49 2324 7001-0
Fax: +49 2324 7001-79
E-Mail: boehmer@boehmer.de