



Operating and maintenance manual

incl. specifications and drawings for the system and equipment

Purging facility LSE-HD

(basic version with drive, without control)



fig. 1. LSE-HD-E0-0-00-0-0

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1. In general

1.1. Meaning of symbols



Warning of a danger place (caution: consider documentation)
ISO 3864, No. B.3.1

1.2. General hint

For reasons of clarity this manual does not contain detailed information about all types of products and cannot take into account every conceivable case of installation, operation or maintenance. If you require further information or should problems occur which are not sufficiently explained in the manual, you can consult us directly to obtain the necessary information.

CAUTION



This equipment is a Limit Class A once. It can cause radio disturbance in residential. On this case customer has to take care appropriate measure. This equipment should only be installed and operated after qualified personnel have ensured that suitable power supply (see name plate) will be used and that during normal operation or in case of a defect in the system or in components no hazardous situation can occur. Therefore serious injuries and/ or considerable material damage cannot be ruled out in the event of improper handling of the device.

The perfect and safe operation of this equipment is conditional upon proper transport, proper storage, installation and assembly as well as on careful operation and commissioning.

May we also draw your attention to the fact that the contents of the manual are not part of a previous or existing agreement, approval or legal relationship or an amendment thereof. All obligations of the S.K.I. GmbH result from the contract of purchase which also contains the full and solely valid warranty agreement. These contractual warranty conditions are neither extended nor restricted by the contents.

1.3. Qualified personnel



are persons who are familiar with installation, mounting, start-up and operation of the product and possess the appropriate qualifications according to their occupation like e.g.:

- training or instruction or authorization to operate and maintain devices/systems according to the standard of safety technology for electrical installations,
- training or instruction in the proper care and use of protective equipment in accordance with appropriate safety practices,
- rendering first aid.



Caution: *Before the installation and the set-up the piping and process data as well as the electrical connection data is to be compared with the data on the type plate and the delivery note. Only the data on the type plate is valid.*

1.4. Cleaning/ maintenance

On the outside the purging facility must only be cleaned with a dry cloth. Due to the robust mounting the purging facilities have a high stability. Depending on the degree of contamination of the medium the multiway cock must be checked on contamination/ blockage or damage. Maintenance rates are to be fixed according to the specific requirements. Experience shows that with the usual revisions at the latest also the purging facility should be checked.

The actuator does not need any maintenance except the carbon brushes of which the abrasion must be checked (according to strain and type of plant in intervals of 1–3 years).

2. Inspection of incoming goods

All consignments leaving S.K.I. GmbH are checked carefully and to the best of its knowledge. Nevertheless on the part of the customer an appropriate check of the incoming goods must be carried out as fast as possible. Only then justified complaints can be treated by us quickly and without further trouble.

Please check on receipt of goods:

- the accordance of the data on the type plate with those on the delivery note,
- the accordance of the ordered version with the delivered version,
- the accordance with the scope of supply with the acknowledgement of order,
- documentation (instruction manual, drawings etc.).

3. Technical data

Multiway cock	
Material	1.4571
Pressure gauge	PN100
Function	4 positions: operation, zero-point control, purging 1, purging 2 directly flangeable to transmitter according to DIN 19213
Type plate	aluminium, black anodized
Connection	pressure transmitter and compressed air supply: cutting ring or double ferrule connectors for pipe $\varnothing_a 12\text{mm}$
Rotary drive	
Operating voltage	24 VDC
Function	4 positions with limit switch
Torque	23 Nm
Turning time 90°	ca. 8s
Power consumption/ starting	ca. 70 VA for ca. 1s
Power consumption/ operation	ca. 40 VA
Protection class	IP 65
EMC	EN 50081-2 (emitted interference [in the industry]) IEC 801-4 (interference resistance against fast transients [Burst]) IEC 801-5 (interference resistance against overvoltage [Surge])

Subject to technical modifications

4. System description

The purging facility LSE-HD is used with the main of any differential pressure transmitter in gaseous media which is highly dustladen, e.g. dust in waste air. Used regularly, it avoids clogging of the boreholes in the primary flow measurement device by the carried-along pollution, which would influence correct measurements. If and how often the sensor has to be cleaned depends on the particular application.

As rule of thumb it can be said that pollutions up to 150mg/m³ do not require a regular purging. Pollution over 300mg/m³ does make a regular purging with our purging facility LSE-HD absolutely necessary in order to receive dependable measurement results. In the range between 150mg/m³ and 300mg/m³ it is recommended to consider a purging facility when observations show excessive pollution.

5. Functional description

Function of the purging facility is to clean regularly both chambers of the connected sensor with compressed-air in order to avoid, respectively remove sediments from the bore-holes. For this purpose, the flanged-on differential pressure transmitter has to be disconnected on both ends from the pressure piping. Then both pressure pipes including the sensor chambers will be put under compressed air and purged **separately and one after the other**.

Central element of the purging facility is the **multiway cock**, shown in the drawing (see fig. 2), with its four working positions (see fig. 3). The method to purge the chambers separately and one after the other has one decisive advantage compared to our competitor's products – it works. Should one chamber really be blocked, compressed air will not escape idle through the free chamber. The multiway cock can be operated by hand or automatically by an electric drive, depending on the equipment of the purging facility. Before starting both purgings, the Δp -pressure transmitter is to be disconnected from the process by the multiway cock, then both transmitter chambers are connected with each other over a compensating channel, in order to realize a zero-point control of the transmitter.

If the purging facility is also equipped with a controlling computer **μ FLOW-LSE**, the zero-point control will be initiated automatically, whereas a relais contact reports inadmissible deviation (adjustable!) from the zero-point (4mA). On delivery the drive is in position "operation" (switch 1 closed, see fig.3 and 6). At the beginning of the purging the drive has to be accessed until end switch 2 (pos. "zero-point control") is closed. Now the zero-point control can be realized. After this the engine is accessed again until end switch 3 (pos. "purging 1") is closed. Now the first sensor chamber is purged. After the purging process – which can only be defined by the user – as the purging time depends on the degree of pollution and how the plant is run – the engine is accessed anew until end switch 4 (pos. "purging 2") is closed, so that purging of the second chamber is initiated. After this further purging process the drive has to be accessed until its original position is reached again. The drive remains in this position until the next purging is initialized externally.

Hint:

It can not be excluded that the differential pressure transmitter is partly exposed to the purging air during the purging. To avoid this securely a magnetic valve with a preferably large cross-section has to be integrated in the feed line. This control can be simultaneous to the control of the drive (the magnetic valve is closed with the engine rotating).

No additional programming effort necessary.

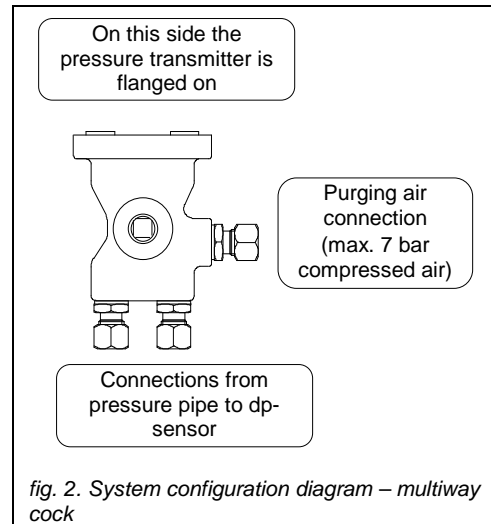


fig. 2. System configuration diagram – multiway cock

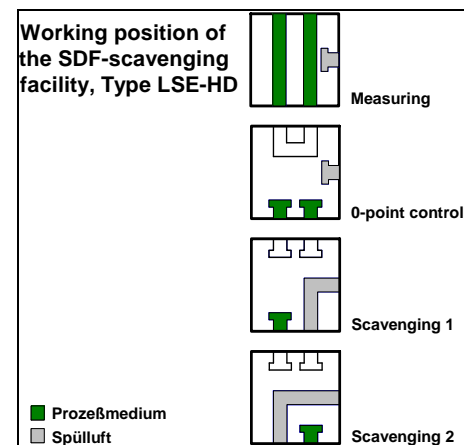


fig. 3. Working positions of LSE-HD

6. Mounting Instruction

6.1. General hint

With the installation (electrical/ mechanical) the valid national regulations are to be considered:

+ mechanical:



- the regulations of the pressure devices guideline 2014/68/EU (where applicable),
- the guideline for machines 2006/42/EG (where applicable),
- before (dis-)mounting the pipe/ channel is to be depressurized,
- before (dis-)mounting the pipe must be cleaned from poisonous/hazardous media,

+electrical:



- the regulations of VDE 0100,
- the execution of the wiring must be measured for the current consumption of the drive.
- When mounting in a building in the power supply to the drive a switch or power switch is to be installed which should be near the device and be marked to belong to the device.
- Before opening the device is to be separated from the supply voltage.

6.2. Equipment

Automatic purging requires an electric drive which replaces operation by hand. This drive contains four end switches, being operated when the corresponding working position is reached and this way gives the information about the cock position to the connected gear. The control can be done by the compact computer **μFLOW-LSE** or a solution realized by the user.

6.3. Specification of erection materials and mechanical connection

The purging facility is supplied by the company completely installed (s. fig. 4) and consists of

- actuator TA-70 **(1)** with clutch **(1a)**
- multiway cock PN100 **(2)**
- mounting bracket **(3)** to connect drive and multiway cock incl. 4x screws M6x16 **(4)**
- mounting bracket for plate/ wall (without screws and seals) and pipe-mounting of the purging facility LSE-HD **(5)**

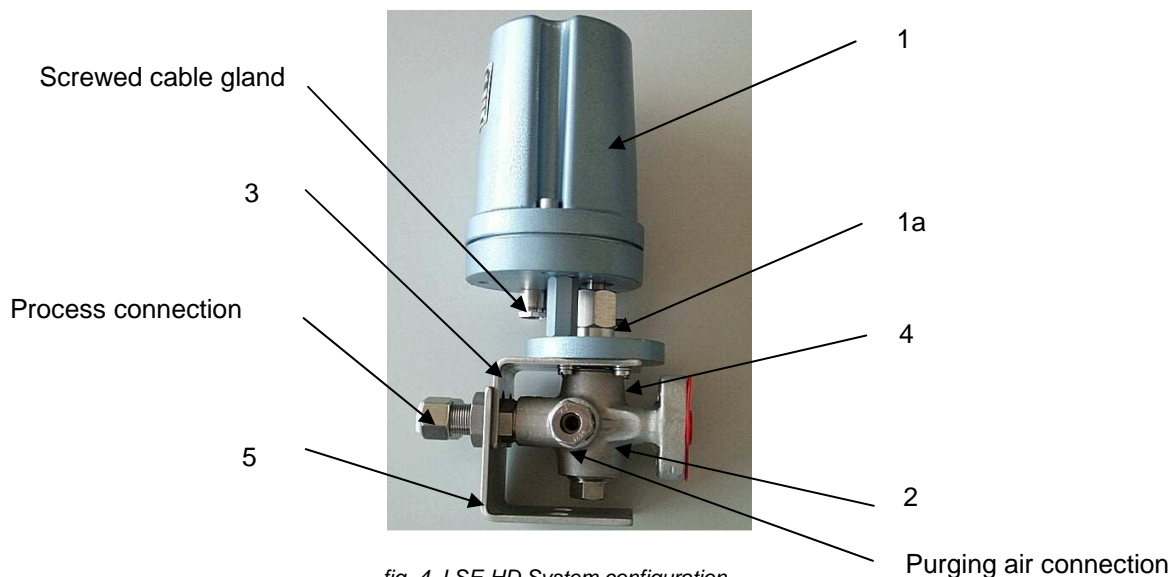


fig. 4. LSE-HD System configuration

The purging facility LSE-HD is to be mounted by a mounting angle (see fig. 4 [item-no. 5] and fig. 5) to a wall, plate or a pipe (only vertical pipeline). For a pipe-mounting a mounting bracket is additionally needed (see fig. 6). Then the process and purging air connections are connected and the differential pressure transmitter is installed. Screws for wall/ plate/ pipe assembly are not a component of the consignment.

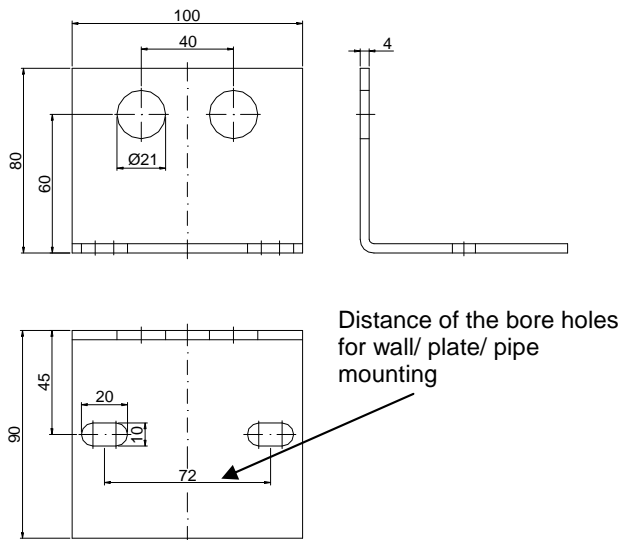


fig. 5. Mounting angle (item-no. 5 on fig. 4) for wall/ plate/ pipe assembly

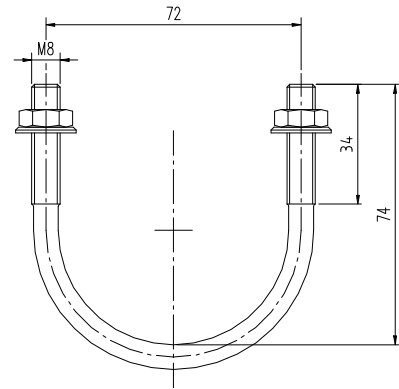


fig. 6. Additional mounting bracket only for pipe assembly

Fig. 7 shows the position of the clutch when delivered. The cam at the clutch goes in direction of the differential pressure transmitter. Multiway cock is in position "operation". If this position had been changed while mounting, this position must be run up **before the first purging**.

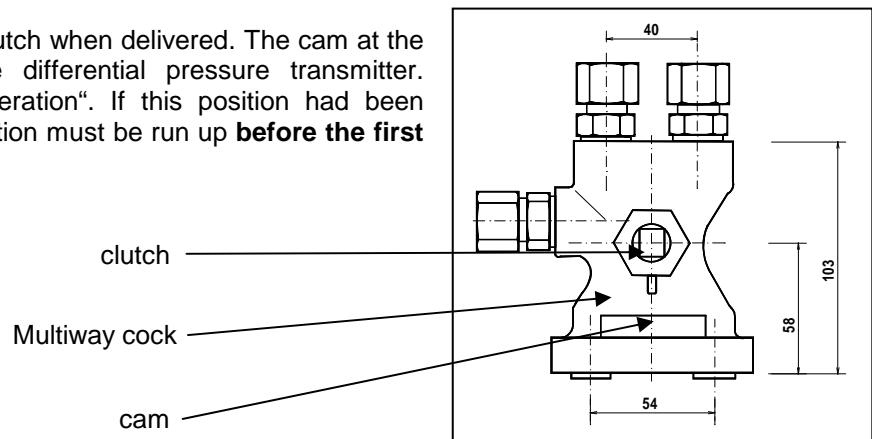


fig. 7. Multiway cock with clutch

6.4. Instruction for electrical erection work

The cable entry (see fig. 4) is under the cover (item-no. 1). To establish the electrical connection the cover must be removed. For this you loosen the two lateral screws M8 and take the cover off. Make sure that the rubber seal does not get lost. After the wiring took place according to below shown wiring and connection diagram (see fig. 8), install the covering cap again onto the actuator. Make sure that the rubber seal is not damaged and suits accurately.

6.5. Wiring and connection diagram

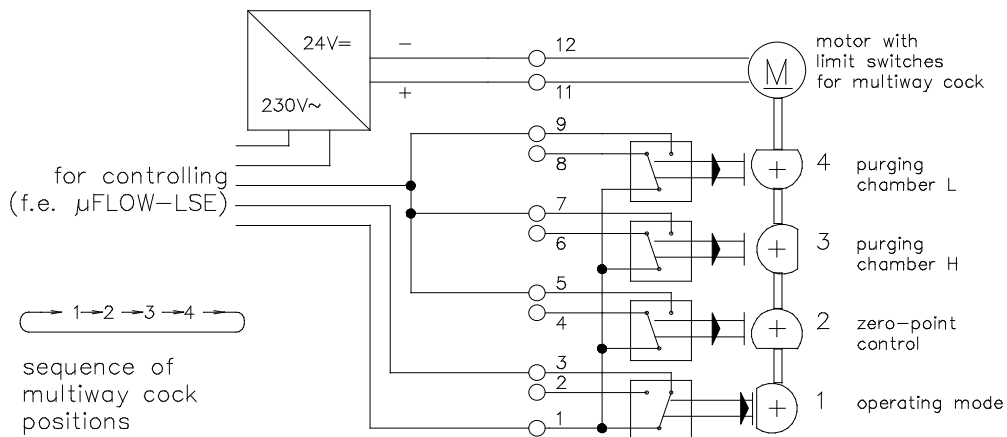


fig. 8. Wiring and connection diagram

Each drive possesses an automatic circuit breaker (mounted under the cover).

Caution: In the case of a fuse failure (surge) the fuse plug must be pressed again into the case after elimination of the disfunction.

7. CE Certificate

Technischer Überwachungs-Verein Nord e. V.



Hamburg, den 03. Februar 1995

Bescheinigung

Das folgend bezeichnete Erzeugnis

Drehantrieb TA 70

der
Fa. Technischer Apparatebau J. & B. Roloff GmbH
Adlerhorst 5
22459 Hamburg

erfüllt die Schutzanforderungen der EG - Richtlinie 89/336/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit bzw. des Gesetzes über die elektromagnetische Verträglichkeit von Geräten (EMVG) vom 9. November 1992.

Zur Beurteilung des Erzeugnisses hinsichtlich der Elektromagnetischen Verträglichkeit wurden die folgenden Vorschriften angewendet:

- EN 50081 - 2 Fachgrundnorm Störaussendung (Industriebereich)
- IEC 801 - 4 Störfestigkeit gegen schnelle Transienten (Burst)
- IEC 801 - 5 Störfestigkeit gegen Überspannungen (Surge)

V. Schmidt
Sachverständiger des Technischen
Überwachungs-Vereins - Nord e.



---translation---

Technical Control Association

Certificate

The product described as follows

actuator TA 70
of
Fa. Technischer Apparatebau J. & B. Roloff GmbH
Adlerhorst 5
22459 Hamburg

accomplishes the protection requirements according to EU guideline 89/336/EWG for the adaptation of the special provisions of law of the member countries about electromagnetic compatibility of devices of Nov. 9th 1992.

The following regulations were used to assess the product concerning its electromagnetic compatibility:

- EN 50081-2 basic standard emitted interference (industrial range)
- IEC 801-4 interference resistance against fast transients (burst)
- IEC 801-5 interference resistance against overvoltage (surge)

8. Troubleshooting

No.	<i>Kind of defect</i>	<i>Possible cause</i>
1	- drive does not work	- automatic circuit breaker activated (see 5.4) - supply voltage is not connected
2	- wrong order of purging cycle	- original position before 1st purging not run up (see 5.3, fig. 6)
3	- multiway cock is not activated	- no positive connection between multiway cock and drive clutch (see fig. 4, pos. 1a) does not suit correctly
4	- chambers are not purged	- purging air connection is not correctly mounted

Of course this listing can not be complete. In the case of arising errors, which are not contained in this list, please contact us directly.

9. Appendix

9.1. Purging facility LSE-HD outline drawing

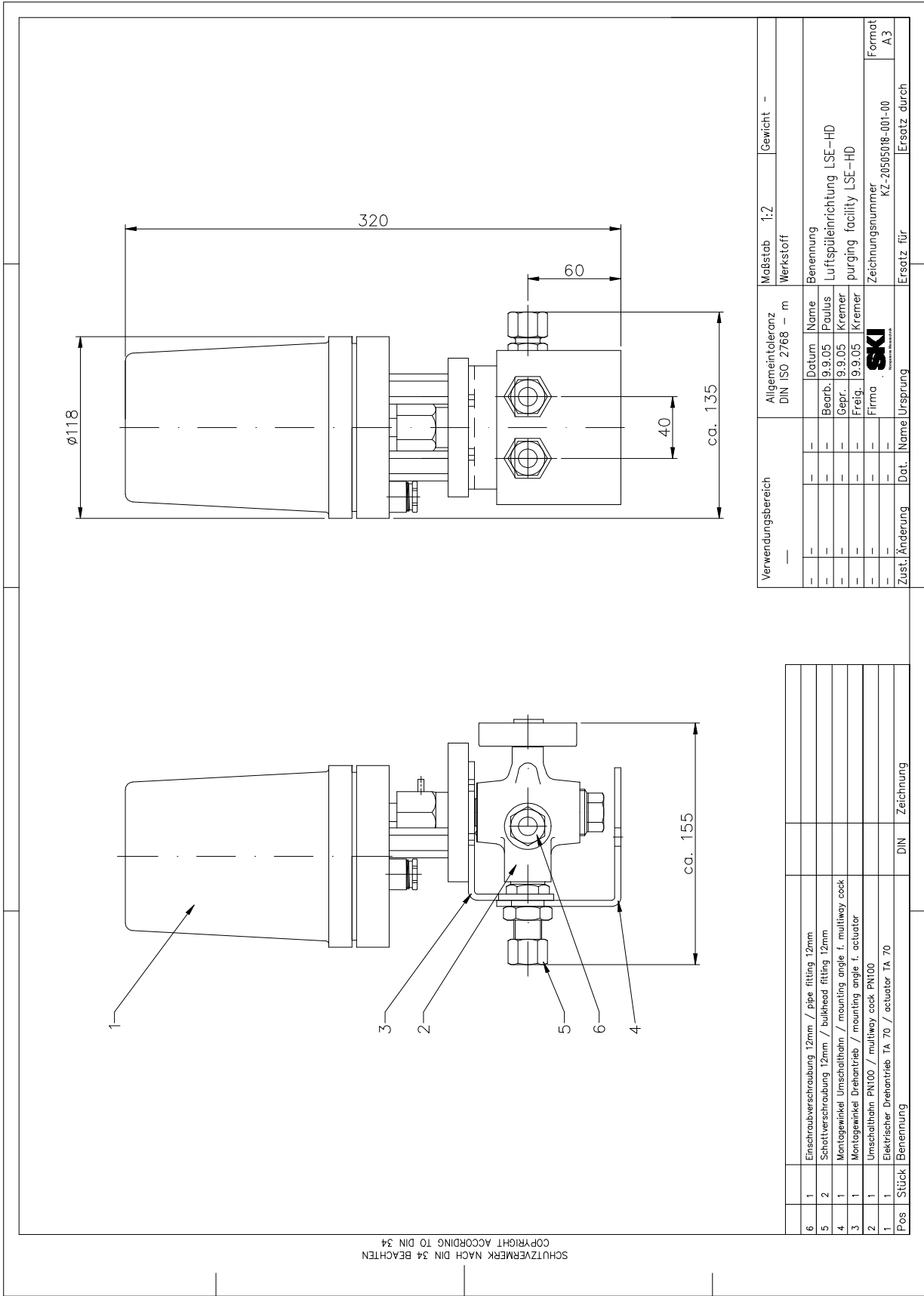


fig. 9. Purging facility LSE-HD outline drawing

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