

# Operating instructions for KLINGER SCHÖNEBERG sampling device ball valves type INTEC K730/K740-STD

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## 1 Validity

These operating instructions are valid for the valve series listed below:

INTEC K730/K740-STD

## 2 Predefined application and maximum pressure load

Sampling device ball valves are valves for horizontal installation (other positions on request). They may only be used for the approved media at permissible pressure and temperature conditions.



In case of non-compliance with the permitted technical parameters such as pressure or temperature, or with the use of material streams (media) not approved, safety can no longer be guaranteed. The valves must not be operated beyond the specified limits for pressure and temperature in the respective technical data sheet, since then use leads to overloading, which the valves cannot withstand. The manufacturer assumes no responsibility in this case.

For actuated valves, specified connection values, as well as installation and maintenance instructions – also those belonging to the drive Instruction Manual – must be strictly observed.

## 3 Safety

### 3.1 Safety instructions

- The non-compliance of these safety notes leads to the loss of any claim for damages.
- Beside our safety notes, national rules and regulations regarding the accident prevention, working-, operating and safety rules of the operator must be kept.
- For the use of valves, the recognized rules of the technology must be kept e.g. standards, code of practice, VDI- and VDE guide lines etc. Plants which must be observed are subject to decisive laws, instructions and technical rules.
- The operation of the ball valves should be carried out constantly and not too fast. Otherwise the system could be overloaded.
- Heating or cooling should not be carried out too fast to avoid an overload of the material caused by an uneven distribution of the temperature.
- At the use of pneumatic or electromechanical actuators, the maintenance personnel must safeguard themselves as there is the danger of cramping and squeezing. Protection facilities shall be installed if necessary.

### 3.2 Working at valves

- Work on the valve is only to be carried out after it is depressurized and cooled. In all areas which are in contact with the medium, the temperature must be below the evaporation temperature of the medium.
- Work on (actuated) valves must be carried out only when the system is shut down. The procedure described in the operating instructions for the shutdown must be strictly adhered to. Valves which come into contact with media hazardous to health must be decontaminated.
- Immediately after completion of the work, all safety and protective devices must be replaced or re-activated.

### 3.3 Staff

Technically trained staff is the prerequisite for operating the valves. KLINGER SCHÖNEBERG ball valves are manufactured according to the current state of the art and operationally reliable. However, if they are operated or not properly installed by untrained staff it can be dangerous, as the valves are comparable with pressure vessels. The following points must be taken into consideration.

- The staff must be technically trained.
- The operator must assure that the content of the operating instructions is fully understood by the staff.
- The staff for operation, inspection and assembly must be aware of the mutual reaction between valve and plant.
- Operating error of a valve can lead to emphatic consequences e.g.:
  - outflow of the medium
  - machine/plant down time
  - impairment (decrease/increase of the effect/function) of the plant/machine
  - fail of important functions of the valve/plant
  - fail of specified methods for maintenance
  - endangering of persons because of thermal, electric, mechanical and chemical influences
  - endangering of the environment due to leakage of dangerous substances.



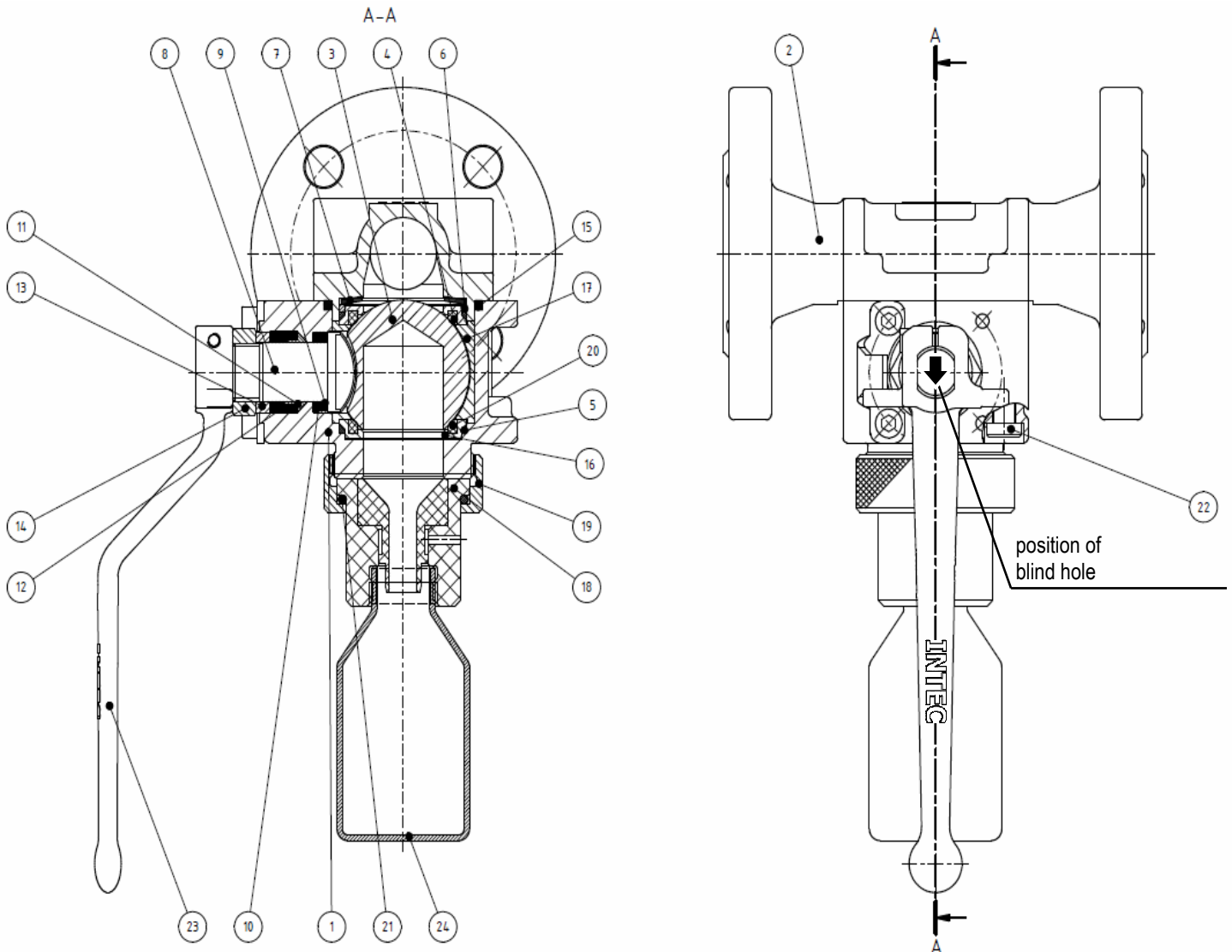
Due to the wrong handling, leaving media can lead to injury to persons, to damage and alteration of the environment. Therefore, beside this operating instruction, relevant regulations of rules for prevention of accidents and technical rules must be taken into consideration.

### 3.3 Information for the operator

- If hot or cold valve parts (e.g. housing components or hand lever) are hazardous, the operating company must install guards to prevent inadvertent contact.
- Hazardous transported medium (e.g. explosive, toxic, hot) that has leaked out (e.g. at the spindle seal) must be disposed of in such a way so that no danger to persons or the environment exists. Legal provisions must be observed.
- Hazards resulting from electricity are to be excluded (for details see, for example, the VDE regulations and the local electricity supply company regulations).

KLINGER SCHÖNEBERG GmbH assumes no liability for damage or operational faults caused by improper handling or non-observance of these operating instructions and for modifications to the valve undertaken without consultation with the manufacturer.

## 4 Construction and Components INTEC K730/K740-STD



Pos.	Part
1	body
2	adapter
3	ball with blind hole
4	seat
5	bearing ring seal
6	follower ring
7	plate spring
8	stem

Pos.	Part
9	below seal ring
10	below cone ring
11	upper seal ring
12	upper cone ring
13	upper bearing stem
14	nut
15	body seal
16	seat bearing ring

Pos.	Part
17	spherical cap
18	bottle adapter
19	cap nut
20	seat exit port *1
21	o-ring
22	allen screw
23	hand lever
24	sampling bottle *2

\*1: PEEK at PN 40

\*2: not in scope of supply

## 5 Installation

### 5.1 General points

The sampling device ball valve is a sensitive valve because of its connection to the outside. Therefore, the ball valve should be installed in a bypass if possible, rather than in the main line. It is important to ensure that the sampling ball valve is easily accessible for operation.

Valves and pipes that are operated at high ( $> 50^{\circ}\text{C}$ ) or low ( $< 0^{\circ}\text{C}$ ) temperatures must be protected against contact by insulation, or it must be pointed out by appropriate warning signs regarding the danger from contact.

If condensation forms or there is a risk of icing in air conditioning, cooling and refrigeration systems, a professional, diffusion-tight insulation of the complete valve including the hand lever, is necessary. With ice, there is the danger that the valve may not be able to be actuated. For this purpose, request the special "low temperature version".

During installation, no static or dynamic forces may act on the sampling ball valve, the prescribed torques for the bolts must be observed. The sampling valves must not be used as a fixed point of the pipeline. Should the user install self-actuating devices, mechanical stops must be removed. The plastic caps are to be removed just before the installation of the sampling device ball valve. The pipe must be flushed to remove dirt, burrs, zinc and welding residues etc.

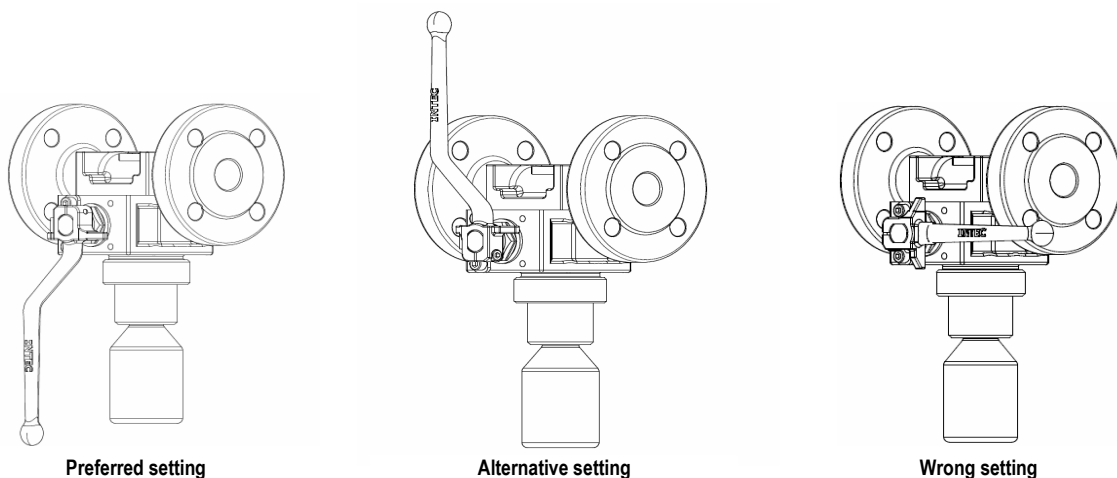
#### 5.1.1 Sampling device ball valves with flange connection



During installation, pay attention especially that flange connections are parallel as well as to an exact snug fit. Only appropriate screws, nuts and gaskets are allowed to be used. If appropriate, installation instructions applicable to the installation of the seals as well as the media and temperature compatibility must be observed.

#### 5.1.2 Sampling device ball valves

The sampling device ball valve must only be installed in horizontal directions (vertical mounting optional).

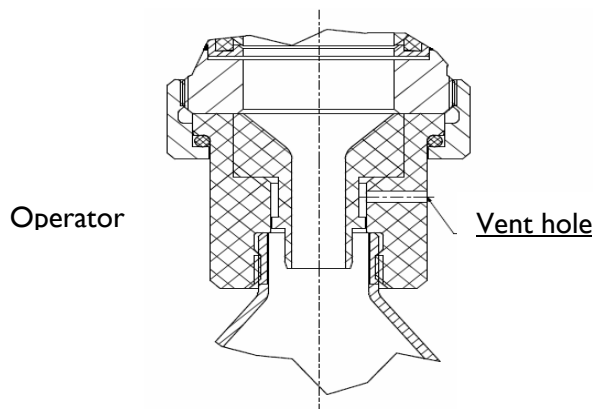


To prevent additional contamination of the sample, the sample bottle must also be screwed on when not in use.

In order to prevent damage to the ball seats, a strainer can be installed to clean the medium before the sampling ball valve.

To protect the user from any injuries caused by the escape of the medium, the vent hole at the bottle adapter should point away from the operator.

In case of flashing products an adapter with drain off protection must be used.



Please note when changing the sample bottle that the nut is tight and does not rotate when unscrewing the bottle.

## 5.2 Valves with actuator

### 5.2.1 General notes



The electrical connection must only be carried out by qualified personnel. The requirements of VDE 0100 and VDE 0165 (EX protection) must be observed! All electrical devices such as the actuator, control box, solenoid valve, limit switches, etc. must be installed in dry rooms protected from flooding. Voltage and frequency must be as specified on the nameplate.

### 5.2.2 Functional testing

The shut-off function is to be tested by repeated operation. For valves with electric and pneumatic actuators, travel range / actuating forces are to be limited. The operating manual of the manufacturer of the actuators shall be noticed here.

## 6 Handling

The sampling is done via a blind hole in the ball, which is either pointing up (filling the hole) or down (emptying the hole).

To remove the sample from the pipe, the hand lever must be pivoted upward through 180°: the blind hole is thus filled. To pour the sample into the sampling bottle, the hand lever must be pivoted downward once again through 180°.

When sampling, at no time is there a direct link between the media stream and the sample container. The capacity is defined by the blind bore (ml), the amount removed can be determined as desired via the number of actuations of the ball.

## 7 Operation

If the hand lever is improperly handled, for example by use of a lever extension or if it should be used as a climbing aid, the functionality is no longer guaranteed. If the lever has not been operated for a very long time, an increased operating torque may be required. As a prevention measure, we recommend regular functional checks. If the surface is damaged by impact or friction this can lead to corrosion and thus to a reduction of service life.

## 8 Storage and Transport

The sampling device ball valves should be stored dry and protected from contamination. When loading and unloading and during transport of the valves, make sure that the sampling ball valves are not thrown or hit to avoid damage. Any fallen covers are to be cleaned and put back on. Sampling ball valves are protected against corrosion by the factory.



The sampling device ball valves must be stored in a 180° position, in which the hand lever points toward the bottle adapter. The plastic protective caps should not be removed. Sampling ball valves must be protected from environmental influences such as moisture, humidity, rain, dust, dirt, sand, mud, salt air or spray and salt water. When storing, the temperature limits of -20° C to + 50° C should not be exceeded or fallen short of. Sudden changes in temperature should be avoided (condensation water). After extended storage, lubrication is recommended (note, not with the oxygen version).



Especially actuated valves with mounted solenoid valves and limit switches must be treated with extreme caution. It is best to remove packaging just before installation. Do not lift heavy valves by their hand levers or body sections.

## 9 Maintenance

The sampling device ball valves from KLINGER SCHÖNEBERG are maintenance-free under normal use. Monitoring of the functioning and tightness should be performed at regular intervals. Should a need for maintenance arise, please note the following:



Maintenance work must be carried out only by trained specialist staff. During maintenance whilst in operation, residual pressure in the line and the sampling valve must not be present. The sampling ball valve is to be operated at least once (180° and back) to ensure that the dead space is no longer under pressure.

In case of leaks, all bolts should be checked. If this is not the cause of the leak, the sampling ball valve must be disassembled (see the Repair Manual).

## 10 Stopping and dismantling of sampling device ball valves

### 10.1 General points

During prolonged shutdowns, fluids which change their state by a change of concentration, or due to polymerization, crystallization, solidification, etc. must be drained from the piping system. If necessary, the piping system including valves must be flushed.



Before removing the complete valve from the pipeline or before repairs and maintenance on the valve itself, the entire assembly must be depressurised and then cooled to the extent so that in all areas which are in contact with the medium, the temperature is below the evaporation temperature of the medium and there is no danger of scalding.

***Disassembling a valve under pressure can be fatal!***

If toxic or flammable media or media whose residues with ambient humidity might lead to corrosion damage, the valve has to be drained and rinsed, and/or vented.

Due to the mounting position it may be necessary to collect the remaining residual liquid in the valves and discard it.

Before transporting the valve it is to be thoroughly flushed and drained. If the sampling ball valves are being returned, they are to be delivered free of contamination.

## 10.2 Actuators

If valves have drives powered by external energy (electric or pneumatic) which have to be uninstalled or disassembled, then the external power is to be switched off before starting work and the instructions of the drive manual observed.

## 11 Inspection

Abrasion can cause damage to the seal, the sampling ball valve is therefore to be checked regularly for leaks.



Should the valve be disassembled, then it is essential that the respective KLINGER SCHÖNEBERG repair instructions be observed.

## 12 Marking of sampling ball valves (serial number marking)

All ball valves are marked with size DN, pressure PN, manufacturer and a year code letter followed by a running number. These letters are dedicated to the listed manufacturing date.

T ⇒ 2002	N ⇒ 2007	H ⇒ 2012
S ⇒ 2003	M ⇒ 2008	G ⇒ 2013
R ⇒ 2004	L ⇒ 2009	F ⇒ 2014
Q ⇒ 2005	K ⇒ 2010	E ⇒ 2015
P ⇒ 2006	I ⇒ 2011	

In the interest of technical progress, designs and dimensions are subject to modification.