

Declaration of Conformity as per Directive 97/23/EC

The manufacturer	Pfeiffer Chemie-Armaturenbau GmbH, 47906 Kempen, Germany
declares that:	Continuous, PFA-lined, inline sampling valves Series 27e, with packing <ul style="list-style-type: none"> • with pneumatic actuator • with free shaft end for subsequent mounting of an actuator
<p>1. The valves are pressure accessories within the meaning of the Pressure Equipment Directive 97/23/EC and conform with the requirements of this Directive,</p> <p>2. They may only be operated observing the operating instructions <BA27e-01> delivered together with the valve.</p> <p>The commissioning of these valves is only permitted after the valve has been installed from both sides in the pipeline and a risk of injury can be ruled out.</p>	

Applied standards:

AD 2000 Regulations DIN EN ISO 4796	Regulations for pressurized valve body parts Laboratory glassware
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Type designation and technical features:

Pfeiffer data sheets <TB27d (for Series 27e)> <i>NOTE: This Manufacturer's Declaration applies to all valve types listed in this catalogue.</i>

Applied conformity assessment procedure:

Conforming to Annex III of the Pressure Equipment Directive 97/23/EC, Module H

Name of notified body:

Identification number of the notified body:

TÜV Anlagentechnik GmbH Am Grauen Stein 51101 Köln Germany	0035
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These Declarations become invalid when modifications are made to the sampling valves and/or assemblies that affect the technical data of the ball valve or the <Intended use> described in section 1 of the operating instructions, and considerably change the valve or an assembly delivered with it.

Kempen, 19. June 2014 Marcus Miertz, Managing Director Stefan Czayka, QM Representative

These Declaration of Conformity and operating instructions have been generated electronically and are legally binding without signature

Operating instructions

Discontinuous inline sampling valve with PFA lining actuated


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0 Introduction

These instructions are designed to assist the user during installation, operation and maintenance of PFA-lined sampling valves from the Series 27e.

These instructions apply only to the sampling valve itself. In addition, refer to the instructions of the mounted actuator.

 Note	The use of sampling valves involves certain risks. The WARNING and CAUTION notes must be strictly adhered to. Otherwise this may lead to personal injury and equipment damage and the manufacturer's warranty may become void. Please contact the manufacturer if you have any queries, see section 8 for contact address.
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1 Intended use

This continuous sampling valve is exclusively intended for taking samples of liquid media from the pipeline in restricted quantities filled in a sufficiently sturdy sample bottle. The following conditions must be fulfilled before the valve can be taken into service:



- ⇒ The valve must be installed in a pipeline with flange connections.
- ⇒ The actuator must be connected to a compressed air supply up to max. 10 bar.
- ⇒ A sample bottle must be attached underneath the sampling valve.
- ⇒ The permissible pressure and temperature ranges may not be exceeded.

The connection and holding fixture for the sample bottle must be specified beforehand by the customer. The manufacturer has developed various fixtures for this purpose.

The permissible pressure and temperature ranges for these sampling valves are specified in the data sheets <TB27d_EN>.

 Danger	Do not operate a sampling valve when its permissible pressure/temperature rating is not sized for the operating conditions specified in the data sheets <TB27d_EN>. Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.
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Interpretation of declaration to the Directive 94/9/EC

 Note	Pfeiffer valves have no own potential ignition source after testing the hazardous ignition in accordance to DIN EN 13463-1:2002. Therefore Pfeiffer valves do not come under the directive 94/9/EC. Relating to this directive a CE-marking is not permissible. The valve could be incorporated into potential compensation of plants independent of the directive, valid for metallic parts in hazardous areas.
 Note	Valves with Teflon lining (PFA, PTFE) in application with rechargeable media, have to be lined with conductive Teflon lining, surface resistance less 1Gigaohm (10^9 Ohm), in accordance to DIN EN 13463-1:2002.

The following conditions are assumed:

- ⇒ The operation of the valve, in particular, attaching the sample bottle to the valve, may only be performed by experienced and trained personnel who can recognize and react to any possible dangers that could be caused by leaking media.
- ⇒ The supplementary instructions for the holding fixture for the sample bottle are observed.
- ⇒ The instructions in section 2 <Safety instructions> are observed.

The sampling valve body may contain small amounts of medium in the closed and open position:

In the case that the heat in the surroundings where the valve is installed can heat up the process medium in the valve, use the **sampling valve version with a relief bore** to prevent an impermissible rise in pressure.

2 Safety instructions

2.1 General safety instructions



For sampling valves, the same safety regulations apply as for the pipelines in which they are installed, as well as for the control equipment connected to the actuator. These instructions only specify those safety instructions which need to be additionally observed concerning sampling valves.

Additional safety instructions are specified in the instructions for the holding fixture and the actuator assemblies.




2.2 Safety instructions for the operator

The manufacturer does not assume any responsibility. Therefore, on using the sampling valve, make sure the following instructions are observed:

- ⇒ The valve is to be used only for its intended use as described in section 1.






 Danger	Preventing misuse of the sampling valve: It is especially important to make sure that the selected lining for wetted parts in the sampling valve is suitable for the media used as well as the prevailing pressures and temperatures. Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline. The manufacturer does not assume any final responsibility.
 Danger	Preventing using wrong sample bottles: The adapter (or various adapters for exchanging) has been matched to the size and shape of the sample bottles to be used as specified by the customer. In the event that other sample bottles are to be used, the customer must consult the manufacturer beforehand to confirm their use. Failure to follow these instructions may result in personal injury, especially when dangerous media are used.

⇒ Make sure the vent bore and drainage line are not blocked.

 Danger	Protection against excess pressure in the sample bottle: The adapter includes a vent bore which prevents pressure from building up in the sample bottle which could destroy the bottle. This vent bore and the connected drainage line may not be blocked and must be cleaned at regular intervals to prevent blockage.. Failure to follow these instructions may result in personal injury, especially when dangerous media are used.
 Danger	Protection against incorrect use when taking a sample: To avoid over filling the sample glass, the sampling procedure must be observed at all times. Failure to follow these instructions may result in personal injury to the user, especially when using dangerous media.
 Danger	Protection against over filling the sample glass: Due to the continuous sampling procedure, a possible rapid over filling of the sample glass may occur, leading to the sampling media being released into the environment. It is therefore strongly recommended, activating the „dead mans control“ by every sampling procedure, in this way the automation is finished automatically on completion of sampling procedure. Failure to follow these instructions may result in personal injury to the user, especially when using dangerous media .

- ⇒ An actuator unit mounted subsequently onto the valve, imperatively spring closing, must fit the ball valve properly and its final positions, especially the open position, need to be correctly adjusted.
- ⇒ Make sure that the pipeline and control equipment have been installed correctly and are checked at regular intervals. The valve body wall thickness must be designed to take into account an additional load F_z in the usual order ($F_z = \pi/4 \cdot DN^2 \cdot PS$) for a correctly sized pipeline.
- ⇒ The valve needs to be connected correctly to the pipeline and to the control equipment.
- ⇒ Make sure the usual flow velocities are not exceeded in continuous service in this pipeline. Exceptional operating conditions such as oscillations, water hammering, cavitation and large proportions of solid matter in the process medium, especially abrasive, must be clarified beforehand with the manufacturer.
- ⇒ Sampling valves that are operated at temperatures greater than +50°C or lower than -20°C must be protected, together with the pipeline connections, against being touched.
- ⇒ The valve may only be operated and serviced by personnel appropriately qualified to handle sampling systems.
- ⇒ Prior to taking samples of dangerous media, personnel must wear protective clothing (e.g. gloves, goggles), to prevent personal injury that could be caused by any medium escaping during taking a sample.

2.3 Particular hazards

 Danger	The sampling valve may only be operated under operating conditions after a sample bottle or stopper has been mounted properly underneath the valve. The fixtures approved for this are described in section 6.1.
 Danger	Prior to removing the sampling valve from the pipeline, relieve pressure entirely in the pipeline to ensure the process medium cannot escape uncontrollably from the pipeline.
 Warning	Should it be necessary to remove a sampling valve from the pipeline, process medium may escape from the pipe or out of the sampling valve. In the case of process media that can damage health or are dangerous, drain the pipeline completely before removing the sampling valve from the pipeline. Take special care concerning any remaining media that may still be in the pipeline or have collected in the cavities of the valve.
 Warning	Only unscrew or loosen any screws or bolts connecting the body parts after the valve has been removed from the pipeline. Tighten the screws on reassembly with a torque wrench according to repair instructions <EB27e_EN>.
 Warning	Concerning sampling valves installed for taking samples: Sampling valves without a sample bottle attached must be safeguarded appropriately against unauthorized operation or fitted with a warning notice.

2.4 Designation of the sampling valve

The designation of the sampling valve includes the following details:

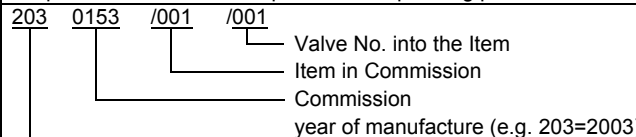

Details	Designation	Comments
Manufacturer	Pfeiffer	Address, see section 8 <Information>
Valve type	BR (and number)	e.g. BR 27e = Series 27e, see Pfeiffer catalog
Body material	e.g.: GGG 40.3	Material number acc. to DIN 1693 (new: EN-GJS 400-15)
Size	DN (and number)	Value in mm, e.g. DN50
Maximum pressure	PN (and number)	Value in bar at room temperature
Perm. temperature	TS (and number)	PS and TS are associated values at maximum permissible operating temperature and maximum permissible operating pressure.
Perm. pressure	PS (and number)	
Serial no.	e.g.: 2030153/001/001	 <p>Valve No. into the Item Item in Commission Commission year of manufacture (e.g. 203=2003)</p>
year of manufacture	e.g.: 2003	On request of customer the year of manufacture is stamped on the valve.
Conformity	CE	Conformity is certified separately by the manufacturer
Identification no.	0035	Notified body as per EU Directive = TÜV Anlagentechnik GmbH
Direction of flow		Note: see note in section 4.2 <Installation instructions>

Table 1 – Designation of the ball valve

Keep the labeling on the valve body and on the nameplate to ensure that the valve can be identified at all times.

3 Transport and storage






Sampling valves **with linings must be carefully handled, transported and stored:**

- ⇒ Store the valve and accessories included in the scope of delivery for the sample bottles with its protective packing and/or with its protective caps in place in the end connections. Store and transport the valves that weigh over approx. 10 kg on pallets (or a similar type of support) right up to the point of installation.
The packing is designed to protect the valve's plastic lining, that is prone to scratching, against being damaged.
- ⇒ Store the valve and accessories included in the scope of delivery in a closed room before it is installed. Protect it against damaging influences such as dirt or moisture.
- ⇒ Make sure, in particular, that the plastic-lined facings of the flanges intended to connect the valve to the pipeline are not damaged through mechanical or other influences. Do not stack sampling valves!
- ⇒ Store the sampling valves in the condition they were delivered in. Do not operate the actuating device.



4 Installation in the pipeline

4.1 General


The same instructions apply for installing the sampling valves in the pipeline as for connecting pipes and similar pipeline equipment. The following instructions additionally apply for sampling valves. Also observe section 3 for transporting the sampling valve to the point of installation.

 Warning	Sampling valves may only be installed in pipelines in such a way that the sample bottle is vertically suspended. Make sure sufficient space is left underneath the valve for connecting and handling the sample bottles. Refer to Data Sheet <TB27d_EN> for these dimensions.
 Caution	<i>The valve is lined with PFA:</i> Handle with special care and follow the instructions for flange connection.
 Note	<i>The facings of the valve body are lined with plastic.</i> The use of flange gaskets made of PTFE is recommended. The mating flanges must have smooth facings. Contact the manufacturer if you intend to use other flange forms.
 Warning	<i>The actuating device is set for the operating data specified in the order.</i> Do not alter the settings for the final positions OPEN and CLOSED without the manufacturer's prior consent.
 Warning	If an actuator unit has been mounted subsequently, torque, direction of rotation, operating angle as well as the final positions OPEN and CLOSED must be adapted to the sampling valve. Only spring closing actuators may be used. Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.


The following warnings are to be observed for actuators:

 Warning	<i>Actuators are not designed to be used as step-ladders:</i> Do not apply any weight/load to the actuators. This can damage or destroy the ball valve.
 Warning	<i>Actuators that weigh more than the ball valve:</i> Support any actuator which due to its size and/or mounting situation would otherwise cause the valve to bend under the load.


4.2 Installation instructions

 Caution	<i>The lined surface of the valve must be specially protected before/during installation:</i> Transport the valve in its original packaging right up to the point of installation. Remove packaging first at the point of installation.
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- ⇒ Check valve and actuator for signs of damage that may have occurred during transportation. Do not install a damaged sampling valve or actuator.
- ⇒ Make sure that only sampling valves are installed when their pressure rating, end connections and face to face dimensions match the conditions of application. See the designation of the sampling valve.

 Danger	Do not install a sampling valve if its permissible pressure/temperature ranges do not apply to the max. perm. operating conditions. The limits of application are marked on the valve, see section 2.4 <Designation>. The permissible range is determined in section 1 <Intended use>. Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.
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- ⇒ The connecting specifications for the actuator unit must match those of the control equipment. See nameplate(s) on the actuator unit.
- ⇒ Make sure the end connections of the pipeline are aligned with the ball valve's end connections and their ends have parallel planes. Connecting flanges that are not parallel can damage the PFA lining during installation!
- ⇒ Prior to installation, carefully clean the valve and the connecting section of the pipeline from dirt, especially hard foreign material.
- ⇒ Make sure, in particular, that flange facings and any flange gaskets are free from any dirt prior to installation.
- ⇒ On inserting the valve and flange gaskets into a ready mounted pipeline, keep a certain clearance between the pipeline ends to ensure that all facings and gaskets remain undamaged.

 Caution	Tighten the flange bolts evenly in at least three stages and in an alternating pattern. Tighten all flange bolts using the torques specified in tables 2 or 3. Use a torque wrench to ensure that the torque specified is reached, but not exceeded.
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DN [mm]	25	50
MA [Nm]	25	60

Table 2 – Flange torques for DIN flanges


DN [inch]	1"	2"
MA [Nm]	15	40

Table 3 – Flange torques for ANSI flanges

- ⇒ Make sure the arrow on the valve body corresponds with the direction of flow in the pipeline.


 Note	In special cases, it may be necessary for the valve to be tightly shut against the direction of flow. The installation in such special cases must be determined by the operator of the pipeline (e.g. to protect a pump).
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- ⇒ The associated instructions apply for connecting the actuator unit to the control equipment.
- ⇒ After completing installation, carry out a function check using the signals issued by the control equipment. The valve must open and close properly corresponding with the control signals. Any function errors that are recognized must be remedied before commissioning. See also section 7 <Troubleshooting>.

 Warning	Control commands that are not carried out correctly may result in personal injury and can damage equipment installed in the pipeline.
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4.3 Attachment of an additionally supplied holding fixture for sampling bottles

⇒ The design and size of the holding fixture has been adapted to the sampling bottles used as specified by the customer. If another holding fixture is intended to be used, Pfeiffer must first check it and approve its use.

 Danger	<p>If a holding fixture is to be retrofitted, it must be adapted to the sampling valve and sampling bottle. Failure to follow these safety precautions may result in personal injury and can damage the pipeline.</p>
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5 Pressure check in pipeline section

The pressure check of valves has already been carried out by the manufacturer. To check the pressure of a section of pipeline with installed valves, the following points must be observed:

- ⇒ Close the sampling valve.
- ⇒ Carefully flush newly installed pipes to remove any foreign material.
- ⇒ **Valve OPEN:** The test pressure should not exceed the value **1.5 x PN** (see nameplate).
- ⇒ **Valve CLOSED:** The test pressure should not exceed the value **1.1 x PN** (see nameplate).

If a valve leaks, see section 7 <Troubleshooting>.

6 Standard operation and maintenance

6.1 Sample bottle fixture

To avoid over filling the sampling glass, the continuous sampling procedure must be observed at all times

Check the vent bore regularly to ensure that the media is able to flow out through the drainage line (in case the bottle is overfilled unintentionally) and to make sure it is not blocked. On cleaning, observe the instructions described in section 2 <Safety instructions> and section 7 <Troubleshooting>.

6.2 Sampling valve

Due to the fact that PFA plastic facings have a tendency to flow, we strongly recommend retightening all the flanges between the pipeline and valve using the tightening torques specified in section 4.2 after commissioning and after the operating temperature has been reached.

The shaft is sealed with a V-ring packing preloaded with a set of spring washers and does not require any maintenance.

Regular maintenance work on the ball valves is not necessary.
 If a valve leaks, proceed as described in section 7 <Troubleshooting>.

6.3 Pneumatic actuator

Only spring closing actuators may be used.


Operate the valve/actuator unit over the control equipment signals. Sampling valves delivered with the actuator already mounted are precisely set and should not be readjusted.



Normal manual force is sufficient to operate the manual override on the actuator (if required). It is not permissible to use extensions to increase the operating torque.

We recommend to operate sampling valves which remain constantly in one position at least three or four times a year.

7 Troubleshooting

Observe the safety instructions listed in section 2 on troubleshooting.

 Warning	<p><i>To remove a valve from a pipeline containing dangerous media and to take it out of the plant:</i> Decontaminate the valves properly first.</p>
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Type of fault	Action to be taken	Comment
Leak at the connection to the pipeline	<p>Tighten flange bolts.</p>  <p>Caution</p> <p>The permissible tightening torque of the flange bolts is restricted. See table 2 or 3 in section 4.2 <Installation instructions>.</p> <p><i>If the medium leaks out at the flanges in a lined valve:</i> Retighten the flanges using the tightening torques specified in table 2 or 3 in section 4.2 <Installation instructions>. If necessary, the tightening torque can be increased by max. 20 %.</p> <p><i>If the medium leaks out at the flanges even after tightening the flange bolts:</i> Unscrew the flange bolts and remove the valve (on doing so, observe the instructions in section 2.3 <Particular hazards>). Check the parallel planes of the flanges and, if necessary, correct them. Also check the facing of all the flanges. If the plastic lining is damaged, replace it together with the associated flange gasket.</p>	<p>Note 1: <i>When ordering spare parts, include all the specifications listed in the valve designation. Only use original parts from Pfeiffer.</i></p> <p>Note 2: <i>If, after removing the valve from the pipeline, it is found that the PTFE/PFA lining is not sufficiently resistant to the process medium, select parts made of a suitable material.</i></p>
Leak at the connection between valve body parts	<p>For the permissible tightening torque to retighten the body halves of the valve, see Pfeiffer repair instructions <EB27e_EN></p> <p><i>If the valve still leaks:</i> Replace the flange gasket and/or valve.</p>	
Leak at the shaft packing	<p>Remove the valve (observing the instructions in section 2.3 <Particular hazards>), dismantle the valve and replace the shaft packing. Contact Pfeiffer for spare parts and necessary instructions.</p>	
No tight shut-off when the valve is closed	<p>Remove the valve (observing the instructions in section 2.3 <Particular hazards >) and check it.</p> <p><i>If the valve is damaged:</i> If it must be repaired, remove the valve, observing section 2.3 <Particular hazards>. Contact Pfeiffer for spare parts and necessary instructions.</p>	
Malfunction	<p>Check actuator unit and control signals</p> <p><i>If actuator and control equipment are in order:</i> Remove the valve (observing the instructions in section 2.3 <Particular hazards>) and check it.</p> <p><i>If the valve is damaged:</i> If it must be repaired, remove the valve, observing section 2.3 <Particular hazards>. Contact Pfeiffer for spare parts and necessary instructions.</p>	
If a pneumatic actuator with springs must be removed from the valve	 <p>Caution: Risk of injury Before removing the actuator from the valve, disconnect the signal pressure.</p>	

For malfunctioning actuator units, refer to the actuator instructions.

8 Further information

Contact the address below for the listed <Data sheets> and <Repair instructions> as well as further information.

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