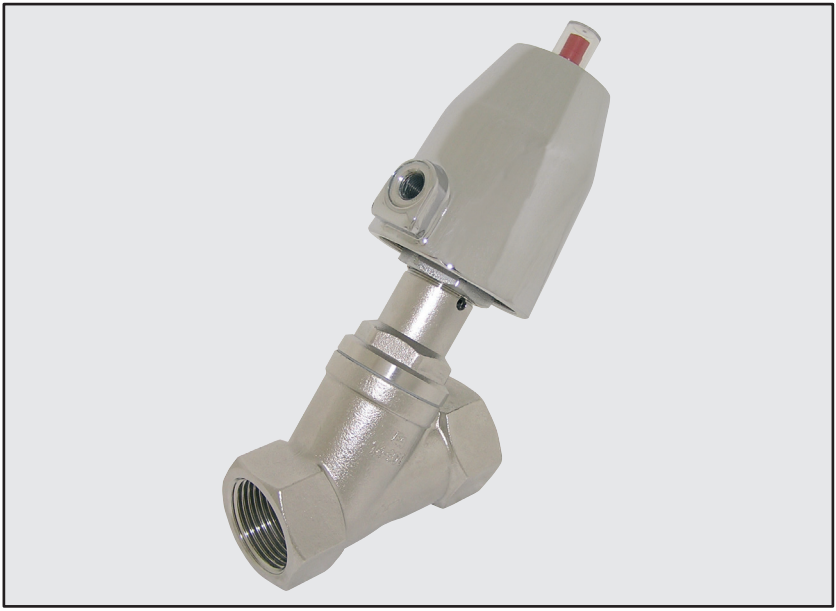
Qualität von Anfang an.

Original Operating Manual
Pressure Actuated Valves
DG2D, DA2D, DL2D, DM2D, DF2D, DFZ, DG3D, DA3D, DL3D, DM3D, DF3D

.../AX version acc.to European Directve 2014/34/EU (ATEX)
for the use in explosive atmosphere



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1 Foreword

Dear customer,
Dear assembler / user,

these operation and installation manuals are intented to give you the knowledge which is necessary for you to be able to carry out the mounting and adjustment of an pressure actuated valve DG2D rapidly and correctly.

Please read these instructions carefully and pay particular attention to the advice and warning notes.

Only instructed and qualyfied mechanician should mount, adjust or maintain the pressure acting valves.

The pressure acting valves will be deliver in several versions relative to

- pilot pressure and pressure range
- operations
- material
- connection type and connection size.

There are also several options available.

With accessories

- it can switch the pilot media
- it can indicate the position of the piston
- it can happen a manual override
- it can stop the stroke

The field of use of this valve is predominantly

- in food and drink industry
- in chemical installtions
- in ventilation and blower construction
- in heating and air-conditioning technology
- in industrial fittings
- in water treatment etc.

If you have any questions in relation to the pressure acting valves DG2D, we shall be pleased to answer them.
The telephone number will be found on the inside cover of these operation and installtion manual.

Yours

END-Armaturen GmbH & Co. KG

2 General advice

2.1 Validity

These mounting and operating manual is valid for the explosion proofed versions of the pressrue actuated vales:

DG2Dxxxxxxx/AX..
DA2Dxxxxxxx/AX..
DL2Dxxxxxxx/AX..
DM2Dxxxxxxx/AX..
DF2Dxxxxxxx/AX..
DFZxxxxxxx/AX..
DG3Dxxxxxxx/AX..
DA3Dxxxxxxx/AX..
DL3Dxxxxxxx/AX..
DM3Dxxxxxxx/AX..
DF3Dxxxxxxx/AX..
and their variants:
- with X as a perface to the type
- and a appendage to the type (e.g. /A05)

Advice

The products descript in this documentation in the conditions of our delivery are partly completed machinery according to annex 2 paragraph g of the directive 2006/42/EC on machinery, which must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Directive 2006/42/EC on machinery, where appropriate.

Please take notice to the Declaration of incorporation and the assembly instruction.

2.2 Inward monitoring

Please check
- directly after delivery the valve for any transport damages and deficiencies
- with reference to the accompanying delivery note the number of parts.

Do not leave any parts in the package.

2.3 Complaints

Claims for replacement or goods which relate to transport damage can only be considered valid if the parcel service / forwarder has notified without delay.

In case of returns (because of transport damage / repair), please make a damage protocol and send the parts back to END-Armaturen, if possible in the original packaging,

In case of a return, please mention the following:

- Name and address of the consignee
- Order-/ article-number
- Description of the defect.

2.4 Guarantee

For our pressure actuated valve we give a guarantee period in accordance with the sales contract. The end of the normal duration of live of the wearing parts represents no defect.

The warrently and guarantee rules of **END-Armaturen GmbH & Co. KG** are applicable.

2.5 Symbols and their signfication

Paragraphs which are identified with this symbol contain very important advices; this also includes advices for averting health risks. Oserve these paragraphs without fail!

Paragraphs which are identified with this symbol contain very important advices; this also includes how to avoid damage to property. Observe these paragraphs without fail!

This symbol indicates paragraphs which contain comments/advice or tips.

This bullet identifies the description of actions which you should carry out.

3 Safety advice

Depending on the technical circumstances and the time under and at which the valve is mounted, adjusted and commissioned, you must in each case take into account particular safety aspects!

If, for example, the valve works in an operational chemical plant, the potential hazards of commissioning have another dimension from that when this is only being carried out for test purposes an a „dry" part of the plant in the assembly room.

Since we do not know the circumstances at the time of the mounting/adjustment/commissioning, you may find advice on hazards in the following descriptions which are not relevant to you .

Please observe (only) the advice which applies to your situation!

3.1. Personal protection

3.1.1. Safety advice for mounting

We wish to point out expressly that the mounting, the electrical installation and the adjustment of the valves and the accessories must be carried out only by trained specialist personnel having mechanical and electrical knowledge!

Switch off all the devices / machines / plant affected by mounting or repair.
If appropriate, isolate the devices / machines / plant from the mains.

Check (for example in chemical plants) whether the switching off of devices / machines / plant will cause potential danger.

If appropriate, in the event of a fault in the valve (in a plant which is in operation) inform the shift forman / safety engineer or the works manager without delay about the fault, in order, for example, to avoid an outflow / overflow of chemicals or the discharge of gases in good time by means of suitable measures!

Before mounting or repair, remove the pressure from pneumatic / hydraulic devices / machines / plant.

Emty the conduit from medium.

If necessary, set up warning signs in order to prevent the inadvertent starting up of the devices / machines / plant.

Observe the respective relevant professional safety and accident prevention regulations when carrying out the mounting / repair work.

Check the correct functioning of the safety equipment (for example the emergency push off buttons/ safety valves, etc)!

3.1.3 Safety advice for adjustment and starting

As a result of the starting (pneumatic or by hand) of a pressure actuated valve the flow of gases, steam, liquids, etc. may be enabled or interrupted!

Satisfy yourself that, as the result of the starting or the test adjustments of the valve, no potential hazards will be produced for the personnel or the environment!

If necessary, set up warning signs in order to prevent the inadvertent starting up or shutting down of the devices / machines / plant.
By ending mounting check the correct function and the tightness of the valve.

Check the right position and correct function of mounted pilot valves and limit switches

Through suitable measures, prevent actuating links being trapped by moving actuating elements!

Check the right function of all saftey devices (for example emergency off push buttons / safety valves, etc.)!

Carry out the starting and the adjustments only in accordance with the instructions discribed in this documentation!

When adjustments are being carried out on an opened and switch on (operational) limit switches or pilot valves, there is the risk that live parts(230V AC~) can be touched!
Therefore the adjustment must be carried out only by the electrican or a person having adequate training, who is aware of the potential hazard.

3.2 Device safety

The pressure actuated valve

- is a quality product which is produced in accordance with the recognized industrial regulations.
- left the manufacturer`s work in a perfect safety condition!

In order to maintain this condition, as installer / user you must carry out your task in accoedance with the discritions in these instructions, technially correctly and with the greatest possible precision!

We assume, as trained specialist you are having mechanical and electrical knowledge !

The valves must be used only for a purpose corresponding to its construction!

The valves must be used within the values specified in the technical data.

Satisfy yourself that, as the result of the mounting, the starting or as a result of the test adjusments on the valves, no potential hazards will be produced for devices / machines / plant!

Open the valve only to such an extant as described in this documentation!

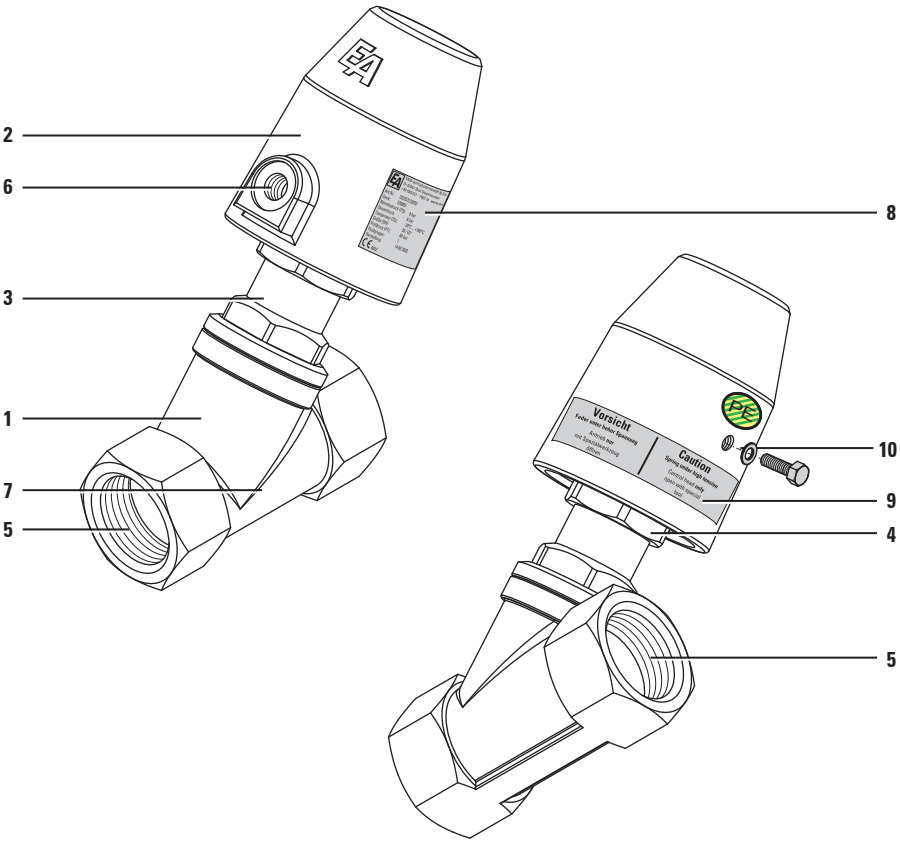
Do not loose the locking ring of the pilot cylinder or don`t try to disassemble the pilot cylinder.

Do not mount the valve, start the valve or carry out any adjusments on it if the valve, the supply lines or the part of the plant on which it is flange- mounted is damaged !

By ending mounting check the correct function and the tightness of the valve and check the correct function of the pilot valve and limit switches.

4 Device description

4.1 Device description



1 Valve body
2 Pilot cylinder
3 Screw joint
4 Cap
5 Connection
6 Pilot port
7 Flow direction indicator
8 Name plate
9 Warning note
10 Connection for grounding

Fig. 4.1 - Device descriptions - front / rear

4.2 Device variants

The pressure actuated valves DG2D will be delivered in various variants.
The following table explains the composition of the article number to you. These article numbers will be seen on the name plate:

For example: **DG2D3112025/AX/OS**
Pressure actuated valve, stainless steel / PTFE, normally close with the flow direction, brass cylinder Ø80mm, G 1", optical position indicator

1. Digit Product	2. Digit Connection	3. Digit Ways	4. Digit Operation	5. Digit Body material
D = Pressure actuated valve	**G** = B.S.P. thread DIN ISO 228 T1 **A** = Welded connection DIN 3293 **L** = Welded connection ISO 4200 **M** = Welded connection DIN 11850-R2 **F** = flanges acc. to DIN 2531 / 2533 / 2545	**2** = 2/2-ways **3** = 3/2-ways	**D** = direct acting	**1** = brass **2** = bronze **3** = stainless steel **4** = Carbon steel **5** = GG (grey cast iron) **6** = GGG (ductile iron) **7** = Light alloy **8** = Plastic

6. Digit Seals material seat / stem	7. Digit Operation	8. Digit Piston- Ø	9. - 11. Digit Connection
1 = PTFE / PTFE **2** = PTFE / NBR **3** = PTFE / FKM **4** = PTFE / EPDM **5** = NBR / PTFE **6** = NBR / NBR **7** = FKM / FKM **8** = FKM / PTFE	**for 2/2-way-version:** **1** = Normally close with the flow direction **2** = Normally close against the flow direction **3** = Normally open against flow direction **4** = Double acting **for 3/2-way-version:** **1** = split function **2** = mixing function	**brass cylinder** **0** = Ø 32 mm **1** = Ø 50 mm **2** = Ø 80 mm **3** = Ø 125 mm (aluminium alloy) **4** = Ø 100 mm **stainless steel cylinder** **5** = Ø 50 mm **6** = Ø 80 mm **7** = Ø 125 mm (aluminium alloy) **8** = Ø 100 mm **9** = Ø 32 mm	threaded connection / flanged and welded connection **006** = G ⅛ **008** = G ¼ **010** = G ⅜ **015** = G ½ — DN 15 **020** = G ¾ — DN 20 **025** = G 1 — DN 25 **032** = G 1¼ — DN 32 **040** = G 1½ — DN 40 **050** = G 2 — DN 50 **065** = G 2½ — DN 65 **080** = G 3 — DN 80 **100** = G 4 — DN 100 **125** = others sizes — DN 125 **150** = on request — DN 150

15. - 20. Digit Options	
AX = **version acc. to ATEX (obligatory)**	**NI** = inductive proximity limit switch
ES = electric / mechanic position indicator	**OF** = free of oil and grease
FL = flanged connection PN 16	**OG** = without valve body
HB = stroke stop	**OS** = optical position indicator
HN = manual override	**NS** = contactless position indicator (Reed-Kontakt)
HY = hygienic version	**V** = for vacuum
HO = stroke stop and optical position indicator	**VD** = for vaccum and pressure

4.3 Name-plate

The pressure acting valves DG2D will be provided with a name- plate, which permitts a definite identification of the valves and shows the most important technical data to you. The name-plate should not be displaced or changed

Abb. 4.2 - name-plate

Art.Nr.	Article number of the valve (see also chapter 4. „device variants“)
Serie	Order- or production-number
Betriebsdruck (PS)	Max. admisable working pressure of the valve [bar]
Steuerdruck	Recommend pilot pressure of the valve[bar]
Temperatur (TS)	Temperature range of the valve
Größe (DN)	Connecting size of the valve
Prüfdruck (PT)	Testing pressure of the valve
Fluidgruppe	Allowed fluid group of the valve
Herstellung	Date of manufacturing
II 2G Ex h IIC T4 Gb :	explosion proofed identification
II 2D Ex h IIIC T135° Db	

4.4 Explosion proof identification

The pressure actuated valves are having an explosion proof identification, which shows the details of the protection class to you:

II 2G Ex h IIC T4 Gb
II 2D Ex h IIIC T135°C Db

II 2G Ex h IIC T5 Gb
II 2D Ex h IIIC T100°C Db

II 2G Ex h IIC T6 Gb
II 2D Ex h IIIC T85°C Db

Explosion proof identification of the pressure actuated valve:
Group II
Category 2G/2D (for zone 1 and zone 21)
Explosion proof classification: h - constructional safety
Temperature class (max. temperature of the surface):
T4 : $T_{max.}$ = 135°C
T5 : $T_{max.}$ = 100°C
T6 : $T_{max.}$ = 85°C

4.5 Corresponding use

Pressure actuated valves are work equipment with constructional safety designed for applications in atmospheres according to category 2G (zone 1 + zone 2) / 2D (zone 21 + zone 22).

The max. temperature of the media, depending ot the switching frequency per minute, should not exceed the following values:
85°C (n ≤ 5/min) / 40°C (n ≥ 60/min) at temperature class T6
100°C (n ≤ 5/min) / 65°C (n ≥ 60/min) at temperature class T5
135°C (n ≤ 5/min) / 100°C (n ≥ 60/min) at temperature class T4. (n: Open- Close- cycle)
The ambient temperature should not exceed 60°C.

By using the pressure actuated valves, observe that the flow rate of potentially explosive media inside the pressure actuated valve will be less than:
v ≤ 2 m/s for potentially explosive liquids and
v ≤ 20 m/s for potentially explosive gaseous fluids.

4.5 Description of function

4.5.1 Description of function: Pressure actuated valve (2/2-way)

A slanting seat in the valve body will be closed with or against the flow direction by a valve disk. The valve disk is connected with the piston by a stem. It`s dynamical sealing and guidance happens by a screw joint between valve body and pilot cylinder. The slanting valve design renders a highly flow rate by low dirtyness.

Pressure actuated valves would be actuated wit a piston by a neutral pilot media (air, water, oil). It works in a pressure range from 0 bar up to the max. nominal pressure which you can see in the pressure table. The flow direction is fixed and signed on the valve.

The electrical control signal will be changed into the pressure media control by an optional available solenoid valve. The figure 4.3 shows a directly mounted solenoid valve type MGAG3D.

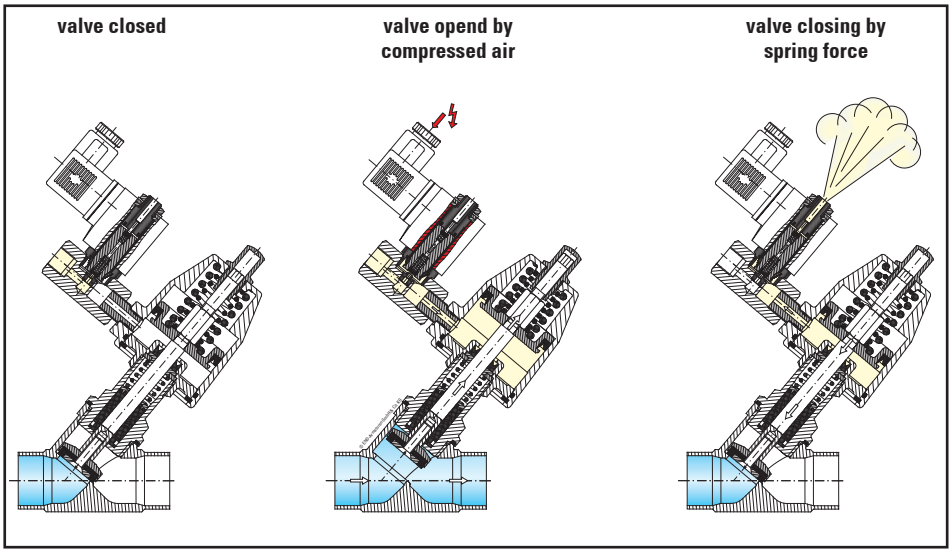


Fig. 4.3 - description of function (Options: optical position indicator, solenoid vavle)

4.5.1.1 Normally close with the flow direction

The in neutral position closed valve obtains this function by a spring, which acts in close direction. By feeding with compressed air the pilot pressure moves the piston against the spring and lift up the valve disk from the seat. Therefore the valves open.
Because the valve closes with the flow direction, the nominal pressure supports the closing process and seals the valve disk against the seat additionally. If the media flows through the valve with a high speed the valve could close to fast and this could causes pressure shocks in the pipes.

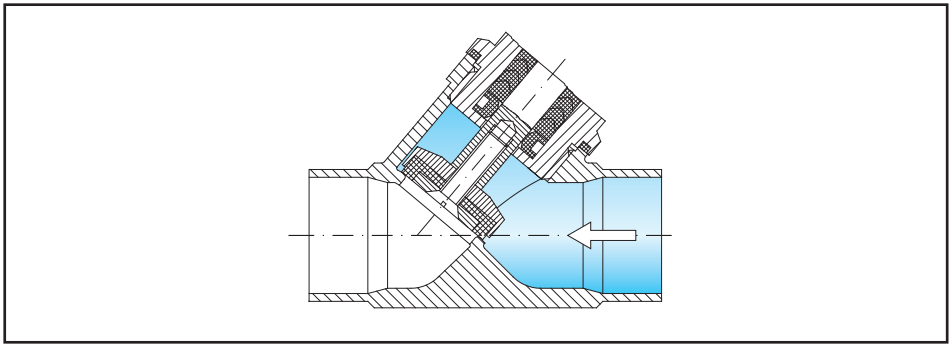


Fig. 4.4 - description of function - normally closed with the flow direction

4.5.1.2 Normally close against the flow direction

The in neutral position closed valve obtains this function by a spring, which acts in close direction. By feeding with compressed air the pilot pressure moves the piston against the spring and lift up the valve disk from the seat. Therefore the valves open.
The valve closes against the flow direction only by the spring force. Therefore the valve closes slowly and prevents pressure shocks in the pipes.

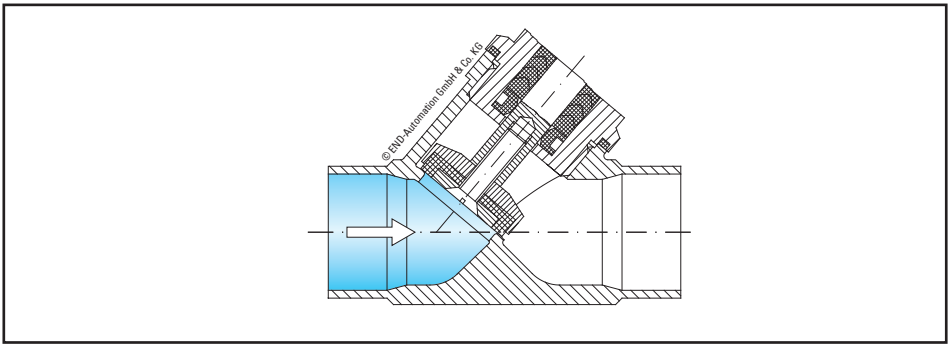


Fig. 4.5 - description of function - Normally close against the flow direction

4.5.1.3 Normally open, close against the flow direction

The in neutral position opened valve obtains this function by springs mounted under the piston. The valve closes against the flow direction only by the pilot pressure.

4.5.1.4 Double acting

The valve closes against the flow direction only by the pilot pressure. Also the valves opens with the flow direction only by the pilot pressure.

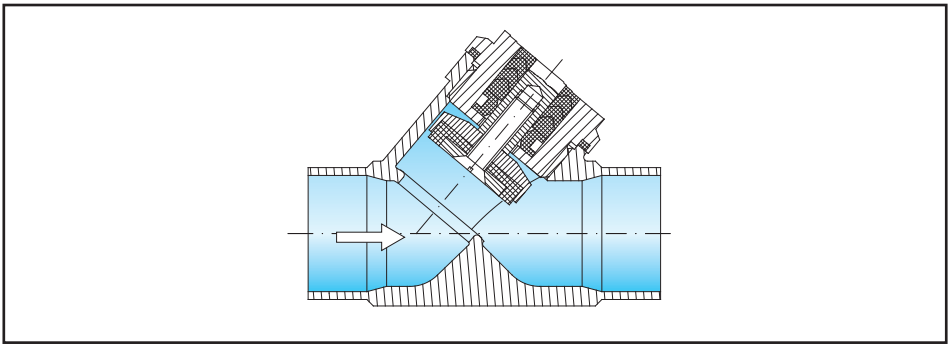


Fig. 4.6 - description of function - normally open, close against flow direction; double acting

4.5.2 Description of function: Pressure actuated valve (3/2-way)

A straight seat in the valve body will be closed with or against the flow direction by a valve disk. The valve disk is connected with the piston by a stem. It`s dynamical sealing and guidance happens by a screw joint between valve body and pilot cylinder. The 3/2-way pressure actuated valve renders two functions:
1. split function
2. mixing function

Pressure actuated valves would be actuated wit a piston by a neutral pilot media (air, water, oil). It works in a pressure range from 0 bar up to the max. nominal pressure which you can see in the pressure table. The flow direction is fixed and signed on the valve.

4.5.2.1 Split function

At this function the valve will be pressurized by the inlet port P. In case of the position of the piston the medium flows from the inlet port to one of the outlet ports. (P►A / P►B)

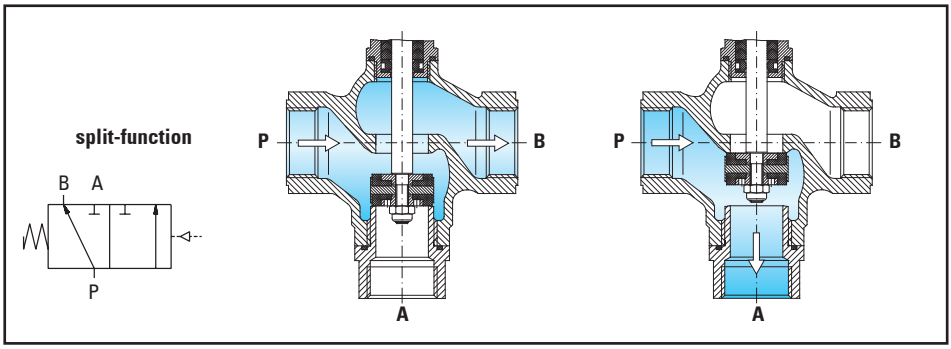


Fig. 4.7 - Description of function: split function

4.5.2.2 Mixing function

At this function the valve valve will be pressurized by two ports (P1/P2). In case of the position of the piston flows from one of the two inlet ports to the outlet port. (P1►A / P2►A)

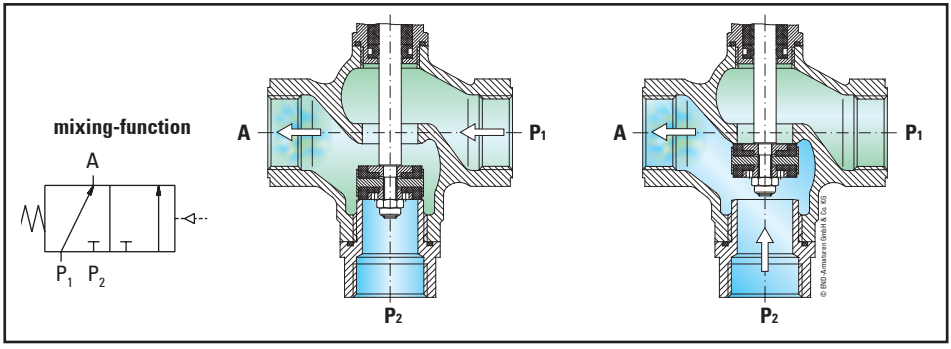


Fig. 4.8 - Description of function: mixing function

4.6 Description of options function

4.6.1 Pilot valve (Option)

The 3/2- ways pilot valve which is necessary to control the pressure actuated valve will be mounted directly on the pilot cylinder or in an external control box. For double acting valves it is necessary to install a 4/2-or 5/2-ways pilot valve. The valve position will be selected by feeding compressed air. The actuating time will be controlled by throttle valves.

The declaration of conformity and the mounting and operating manual of the pilot valve will be separatly add to the delivery of a pressure actuated valve.

4.6.2 Position indicator (Option)

The signal of the position of the pressure actuated valve can be indicate in different ways: by an optical position indicator or by an electrical position indicator.

4.6.3 Optical position indicator (Option)

On the stem there is a red pin mounted, which indicates the position of the valve on top of the pilot cylinder. The hole for the red pin in the pilot cylinder is covered by a clear plastic cap. You can see the pin in the position „open“.

4.6.4 Stroke stop (Option)

You are able to limited the stroke in the valve by a stroke stop. Therefore you can regulate the flow rate of the valve.

4.6.5 Electrical position indicator (Option)

The electrical positon indicator indicates the position of the valve over a long distance or sends a electrical signal to a controll box. For this there are several position indicators available: electric-mechanic position indicator, contactless position indicator (Reed- contact) or inductive proximity limit switch.

By the different variants one or both valve positions can be indicated.

4.6.6 Manual override (Option)

By the option „Manual override“ the pressure actuated valve can be opened or closed by a hand wheel. By turning the hand wheel the stem of the valve lift up the valve disk from the seat or senk down the valve disk. See also chapter 9. „Emergency operation with manual override“.

5 Mounting / Disassembly

The mounting of the pressure actuated valve ristricts to

- the mechanical mounting into the prescribed pipes
- the connection of the hose for the pilot medium with the pilot port
- the electrical mounting of accessories, e.g.. pilot valve or limit switch.

The installation of the pressure actuated valve is as you desired.

In the following description we assume, that you have read the former chapters attentive. We also assume that you will observe the safety advices and warnings from chapter 3. „Safety advice" during the mounting / disassembly.

If you have not read chapter

→ 3 „Safety advices"

until now, read these important advices now and turn back to this page!

The mounting and the electrical installation must be carried out only by trained specialest personnel having mechanical and electrical knowledge!

The following figures are showing the pressure actuated valves without any options! Perhaps the valve mounting by you is equiped with option!

Your device variant you can see at the name-plate on the pilot cylinder of the valve. For their meaning see also chapter

→ 4.2 „Name-plate".

The **mechanical** installation are the same by all variants. It differs only by the type of connection.

Observe the flow direction, specified on the valve body.

Before mounting the valve clean up the pipes. Pollution will be reduce the safety and the lifetime of the valve. If necessary mount a Y- strainer in front of the valve.

Avoif strains of the valve body by non align pipes.

5.1 Electrical installation

On principle you have to earth the pilot cylinder at the assigned connection for grounding.

The electrical installation depends on the used options. Therefore you have to observe the installation and operating manuals of the attached options.

5.2 Mounting of a valve with threaded connection

Before lay on sealing compounds,check the hardly screwing by the pipes into the valve body.

Lay on the correct sealing compounds on the pipes end. By using PTFE-ribbon or hemp sealings observe the screw direction. Don´t use sealing compounds which are not prescribed for your employment.

Screw the pipes into the connection ends of the valves. Don´t use the pilot cylinder as a lever.

Strike up the pipes with pressure after that time the manufacturer of the sealing compounds pretends for harden it.

Check the tightness af all connections.

5.3 Mounting of a valve with welded connection

By welding the valve body with the pipes observe appropriate demands and guide lines.

The safety demands by welding are depending on the place and the position of the point of weld. Welding the parts at a serviceable device/machine/plant the potential of danger is as higher as welding the parts in a welding room.

If appropriate, inform the shift foreman / safety engineer or the works manager and the fire brigade of your factory

By welding observe your own national guide lines about safety and prevention of accidents.

By welding the valve between the pipes you have to take measures first, to prevent the damage of the sealings.

5.3.1 Protection of the sealings by using Heat Absorbing Paste

To protect the seals of the of a pressure actuated valve you have to apply a amount of heat absorbing paste (e.g. TECHNOLIT heat absorbing paste, BLOC-IT heat absorbing paste, METAFLUX THERMEX) to the area to be protected.
By using the heat absorbing paste you have to observe the instructions of the manufacturer.

By making multiple welding seam, the valve will have to be cool down after every working operation.

5.3.2 Protection of the sealings by disassembling the valve top

By welding the valve between the pipes you have to disassemble the valve top first, to prevent the damage of the sealings.

5.3.2.1 Disassembly of the valve top

Clamp the valve between a vice carefully. By using guard plates you can prevent the damage of the ends of the body.

At valves with the function „normally close“ we recommend to lift up the valve disk from the seat (see also chapter 4.2 „Device variants“). Therefore you have to screw a appropriate hose connector into the pilot port and to connect it with a compressed air hose.By feeding the hose with compressed air with a maximum pressure of 6 bar the valve disk will lift up from the seat.

Loosen the valve top with a fit spanner. The spanner have to put on to the hexagon nut of the screw joint.Never put the spanner on to the hexagon nut of the bonnet of the pilot cylinder.

Screw out the valve top of the valve body and take it by side carefully. Place a mark on the body and the pilot cylinder that you will be able to join the correct parts by a subsequent mounting of valve.

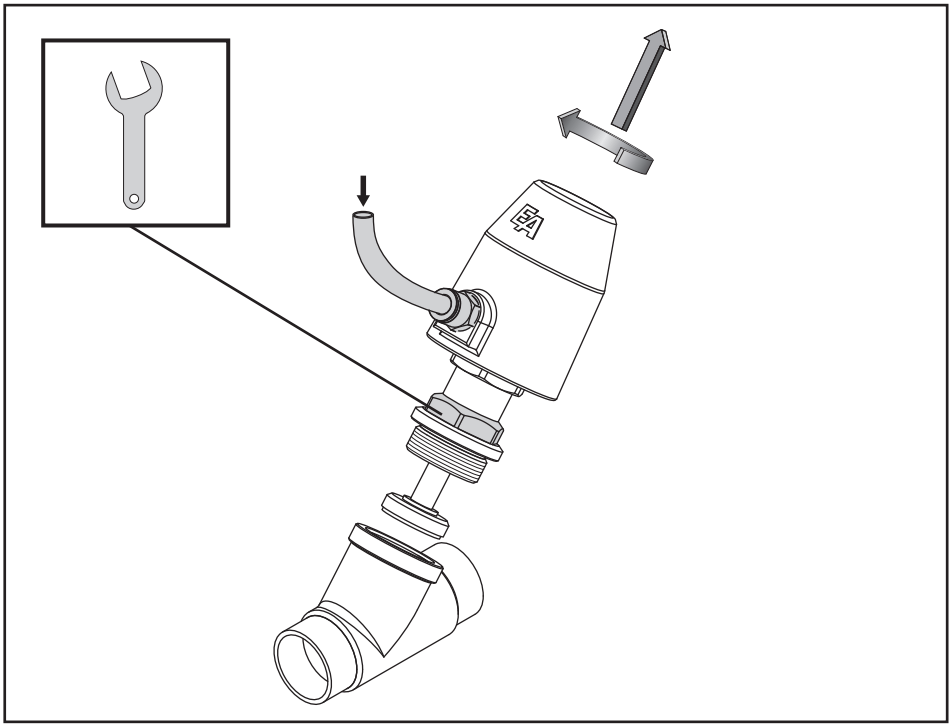


Fig. 5.1 - mounting / disassembly - welded connection, desassembly of the valve top

5.3.2.2 Mounting of the valve top

Before mounting the valve top let the valve body cool down.

Screw the valve top into the body. If necessary attach the valve tops to the bodies.

Take care about the correct placement of the sealing into the screw joint and that there will be no pollution on the sealing or the seat.

Tighten the valve top with a fit spanner. The spanner have to put on to the hexagon nut of the screw joint.Never put the spanner on to the hexagon nut of the bonnet of the pilot cylinder.

Let off the compressed air to get the valve disk in its neutral position.

Check the tightness af all connections.

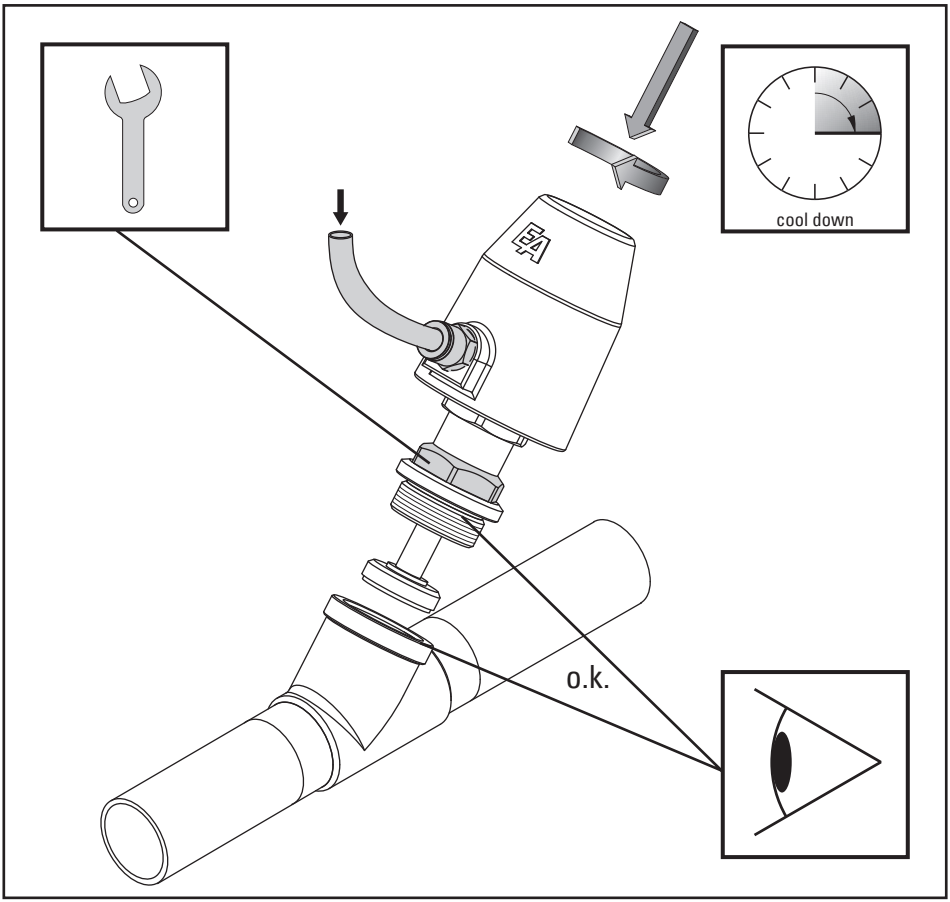


Fig. 5.2 - mounting / disassembly - welded connection, mounting of the valve top

5.4 Mounting of the valve (flanged connection)

We assume, that you have mounted the flanges at the end of pipes and they are cooled down. (e.g. welded flanges).

Push the valve body between the flanges by using the appropriate sealings.

Aligns the flange borings and put the fit screws through the holes.

Screw the fit nuts onto the screws and tighten it up crosswise. By doing this observe the maximum torque moment of the screws.

Check the tightness af all connections.

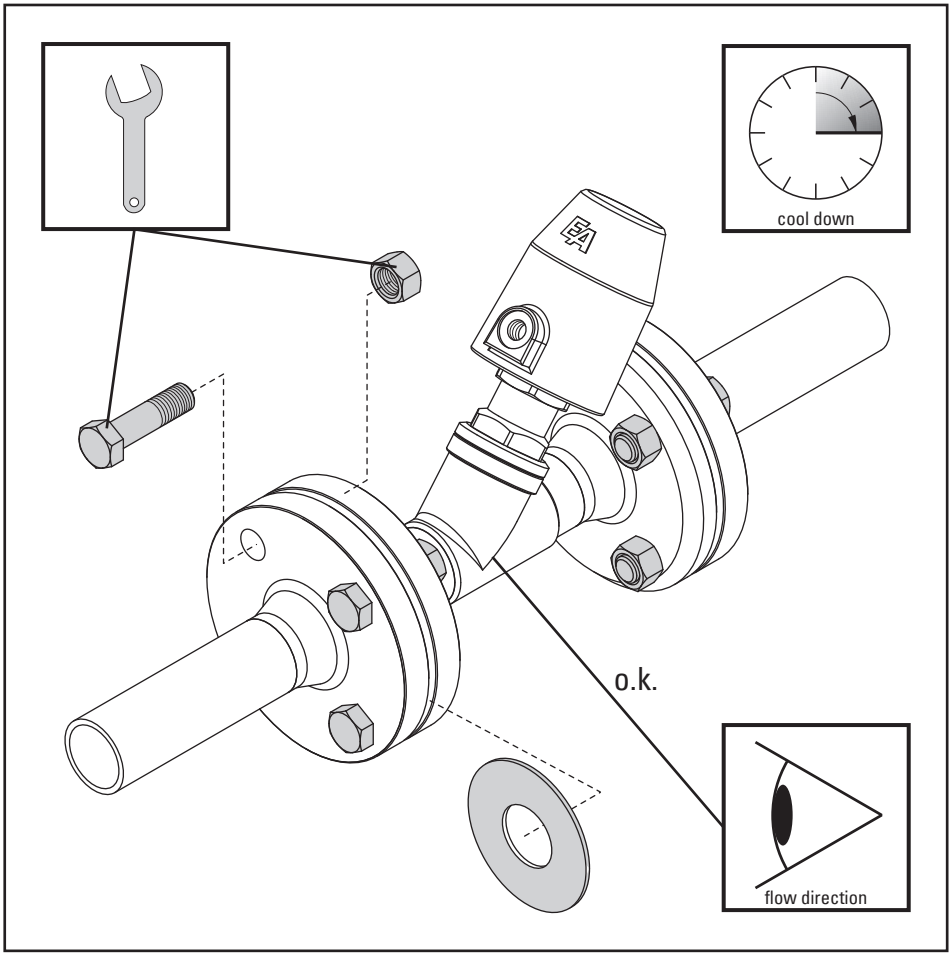


Fig. 5.3 - Mounting / disassembly - flanged connection

5.5 Connection of the pilot medium

- You have to screw a appropriate hose connector into the pilot port.
- By using liquid sealing compounds take care that no surplus sealing compound will flow into the pilot cylinder.
- Feeds the pilot hose with pressure after the time will has gone by the manufacturer prescribes to harden the sealing compound.
- Connect the pilot medium hose with the hose connector. Use only the correct hose for your application.
- Fasten the hose into the hose connector.

By laying the hose take care, that the hose will not be creased, squezzed or sheared or that the hose will be layed over edges. Also take care that there will be no pressure or traction on the hose.

- Lay the hoses to their starting positions as appropriate, in conduits or cable ducts.
- Check the tightness af all connections.

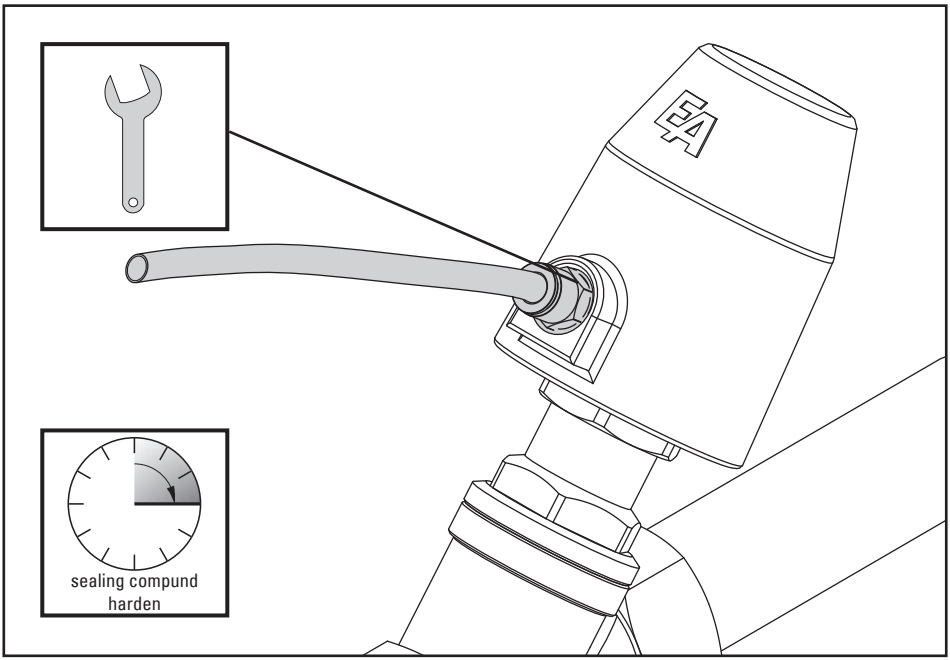


Fig. 5.4 - mounting /disassembly - connection of the pilot medium

5.6. Mounting of a pilot valve (Option)

5.6.1 Pneumatical installation of a pilot valve

If your pressure actuated valve is epuiped with a pilot valve by the manufacturer, the fittings are sealed.

If the solenoid valve is an additional delivery, the solenoid valve must be screw in the pilot port of the pressure actuated valve.

A sealing is on the male thread, other sealing compounds are not necessary.

By tighten the solenoid valve use a suitabel spanner. Don´t use the solenoid valve as a lever.

The connection of the pilot media ensues by the devices of chapter

→ **5.5 „Connection of the pilot medium“,**

by screwing the threaded connection of the hose into the free thread connection of the pilot valve.

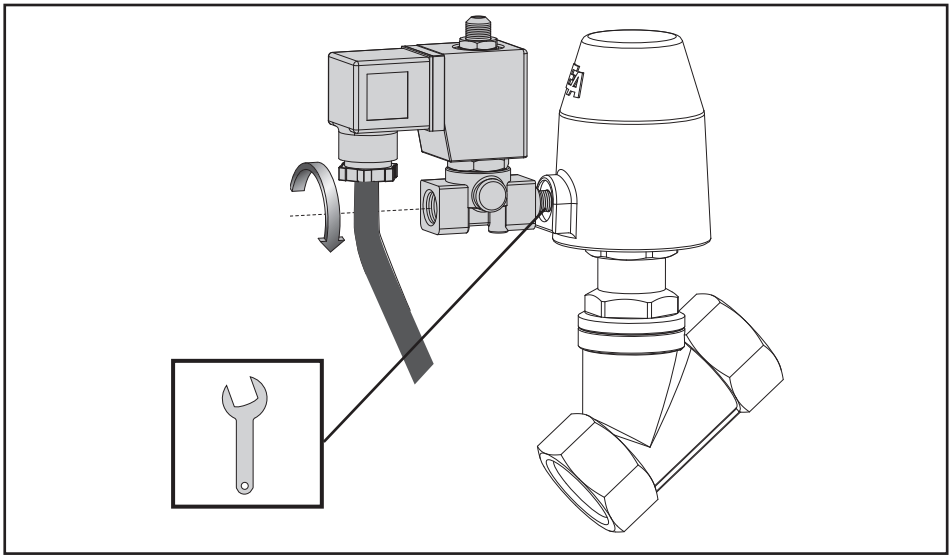


Fig. 5.5 - mounting / disassembly - mounting of a pilot valve

5.6.2 Electrical installation of a pilot valve

STOP

At the electrical installation of the pilot valve you have to observe the attached mounting and installation manual of the used solenoid valve.

5.7 Disassembly

Althought the disassembly of a pressure actuated valve in principle proceeds in the reverse sequence to the mouning; some essential points should be clarified!

- Will the valve to be disassembled be replaced immediately by another?
- Could the valve remain in the pipe?
- If appropriate, does the production process of the plant need to be stopped?
- Is it necessary to inform specific personnel about the disassembly? etc.

Switch off the power and pilot media supply of the device / machine / plant.

Stop the medium. Never remove the armature under pressure.

If necessary, set up warning signs in order to prevent

- **the inadvertent starting up of the devices / machines / plants, or**
- **the switching on of the pilot media supply, or**
- **the switching on of the medium.**

Keep ready some fit tanks to catch up leaking liquids.

5.7.1 Mechanical disassembly

Switch of the pilot media, release the pressure in the pipes and take care to prevent the inadvertent switchnig on.

Loosen the fitting of the pilot medium and take away the pipe of the pilot medium.

Close the pipe of the pilot medium if the pipe is not also being disassembled or is not to be immediately reconnected to another device.

Check up the remaining of the valve body in the pipe. If the valve body must be disassembled loose the flanged connection or screw the pipes out of the valve body.

Don´t use the top of the valve as a lever.

Also close the pipes if the pipes are not also being disassembled or are not to be immediately reconnected to another valve.

6 Starting

Before starting the pressure actuated valve DGxx, you have to read

→ **Safety advice**

If you have not do this until now, read these important advices now and turn back to this page.

The starting of a pressure actuated valve, which is mounted in a plant (e.g.. in a refinery or in a chemical plant) should only happen in accordance with the instructions of the hole plant!

- Switch on the supplying with compressed air and the voltage of control.
- Actuate the pressure actuated valve by hand with the control and check the correct function of the valve.
- Check all pipe connections for tightness.
- Check all the pilot lead for tightness.
- Check the function of the accessory units.

7 Failure

If during, the test run or during operation a functional fault of the pressure actuated valve should occur, please observe also:

→ **Safety advice**

If necessary, inform the shift foreman / safety engineer or the manager about the disturbance without delay in order, for example, to avoid an outflow / overflow of chemicals or a discharge of gases in good time by means of suitable measures!

Next, using the following list (7.1 Failure causes), attempt to find the reason for the causes of the failure and, if it lies within your capabilities, to correct this.

Do not try to repair the pressure actuated valve!

Isolate the failed pressure actuated valve frome the power supply and disconect the pilot pressure port!

In case of defect in the valve make contact with the supplier.
The telephone number will be found on the back cover of these mounting and installation manuel.

7.1 Failure causes

- Is the power supply to the control switched on?
- Is the device for the compressed-air switched on?
- Are the leads from the controller to the pressure actuated valve undamaged?
- Are the leads from the controller to the pilot valve undamaged?

8 Maintenance / Cleaning

8.1 Maintenance

In regular turns check the tightness of the pressure actuated valve.

After 2000000 shiftings or once in a year you will have to renew the grease and the springs of the pressure actuated valve.

At the renewal of the grease you have to observe, that there will be used only the admitted grease for the respective application of the pressure actuated valve:

Standard-application:	Heavy duty grease be based upon silicon oil (designation acc. to DIN: K2U-30)
Oxygen-application :	slip agent for oxygen leading units (designation acc. to DIN: MFSI3S-30)
Food-application:	Heavy duty grease for food applications (designation acc. to DIN: KFHC2-50)

By using the pressure actuated valves at dye and varnish application take care that there will only be used silicon-free grease and slip agents.

In case of a defect in the pressure actuated valve make contact to the supplier. The telephone number will be found on the back cover of these mounting and installation manual.

If you determinate that there is a demage to the pressure actuated valve, isolate it from the supply lines. However before you doing this, it is essential to refer the

→ **Safety advice**

8.2 Cleaning

Clean up the body of the pressure actuated valve as required by using a slightly moistened soft cloth and a normal household cleaner.

By using the pressure actuated valve in dusty areas observe that the thickness of the dust will be less than 4 mm. To avoid the raising of dust use a slightly moistened duster to clean up the pressure actuated valve.

Do not use any abrasive, corrosive or flamable cleaning agents.

Do not use high pressure cleaning devices.

Prevent moisture liquid penetrating into the interrior of the pilot cylinder.

Qualität von Anfang an.

Declaration of conformity

according to Directive 2014/34/EU

We herwith declare, that the products mentioned below comply with the relevant safety requirements.

Name of product: **DG2Dxxxxxxx/AX..**
DA2Dxxxxxxx/AX..
DL2Dxxxxxxx/AX..
DM2Dxxxxxxx/AX..
DF2Dxxxxxxx/AX..
DFZxxxxxxx/AX..
DG3Dxxxxxxx/AX..
DA3Dxxxxxxx/AX..
DL3Dxxxxxxx/AX..
DM3Dxxxxxxx/AX..
DF3Dxxxxxxx/AX..
and their variants

II 2G Ex h IIC T4 Gb
II 2D Ex h IIIC T135°C Db
II 2G Ex h IIC T5 Gb
II 2D Ex h IIIC T100°C Db
II 2G Ex h IIC T6 Gb
II 2D Ex h IIIC T85°C Db

Applied directives:

2006/42/EG	**Machinery Directive**
2014/68/EU	**Pressure Equipment Directive**
2014/34/EU	**Equipment intended for use on potentially explosive atmosphere**

Applied national standards, technical specifications:

EN ISO 12100:2011-03	**Satety of machinery**
EN 60204-1:2014-10	**Electrical equipment of machinery**
DIN EN ISO 80079-36:2016-12	**Non-electrical equipment for potentially explosive atmospheres (Basic methods and requirements)**
DIN EN ISO 80079-37:2016-12	**Non-electrical equipment for potentially explosive atmospheres (Constructional safety „C“)**
EN 1127-1:2011-10	**Explosion Protection**

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Bad Oeynhausen, 24. Oktober 2019

10. Annex

10.1 Conditions in the potentially explosive area

Flammbable material	Temporary behaviour of the flammable material in the potentially explosive atmosphere	Classification of the potentially explosive atmosphere
Gases & vapours	Are present continuously, for long periods or frequently	Zone 0
	Are likely to occur	Zone 1
	Are unlikely to occur or, if they do occur, are likely to do so only frequently and for a short period only	Zone 2
Dusts	Are present continuously, for long periods or frequently	Zone 20
	Are likely to occur	Zone 21
	Are unlikely to occur or, if they do occur, are likely to do so only frequently and for a short period only	Zone 22

10.2 Equipment groups acc. to EC-directive 2014/34/EU, Annex I

Group I (Mining ,Methane and / or flammable gases)		**Group II** (explosive atmosphere aus air-gas- or air-dust- mixtures, mists oder vapours)					
Category M		**Category 1**		**Category 2**		**Category 3**	
1	**2**	**G** (1G) **(gas)** **(Zone 0)**	**D** (1D) **(dust)** **(Zone 20)**	**G** (1G od. 2G) **(gas)** **(Zone 1)**	**D** (1D od. 2D) **(dust)** **(Zone 21)**	**G** (1G / 2G / 3G) **(gas)** **(Zone 2)**	**D** (1D / 2D / 3D) **(dust)** **(Zone 22)**
		Equipment with very high safety level This means equipment of category 1 is intended for use in areas in which explosive atmosheres are present continuously, for long periods or frequently.		Equipment with high safety level This means equipment of category 2 is intended for use in areas in which explosive atmosphreres are likely to occur .		Equipment with normal safety level This means equipment of category 3 is intended for use in areas in which explosive atmospheres are unlikely to occur or , if they do occur, are likely to do so only infrequently and for a short period only.	

END ARMATUREN

Qualität von Anfang an.

watergates
knife-gate-valves - Stoffschieber

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ISO 9001
BUREAU VERITAS Certification
N° INT80209DE