

Translation of original instructions



Rotary Plug Valves Series 72.3

Purpose of this manual

The Safety Manual SH005.001 contains information relevant for the use of the Series 72.3 Rotary Plug Valve in safety-instrumented systems according to IEC 61508 and IEC 61511. The safety manual is intended for planners, constructors, and operators of safety-instrumented systems.

The images shown in these instructions are for illustration purposes only.

→ For the safe and proper use of these instructions, read them carefully and keep them for later reference.

NOTICE

Risk of malfunction due to incorrect installation or start-up of the device!

→ Refer to the mounting and operating instructions on how to install and start-up the device!

→ Observe the warnings and safety instructions written in the mounting and operating instructions!

Definition of signal words

DANGER

*Hazardous situations which, if not avoided,
will result in death or serious injury*

WARNING

*Hazardous situations which, if not avoided,
could result in death or serious injury*

NOTICE

Property damage message or malfunction

Note

Additional information

Tip

Recommended action

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Further documentation:

Detailed descriptions of the commissioning, function and operation of the valve can be found in the documents listed below. The device-related documents are available on the Internet vetec.samsongroup.com > Service & Support > Downloads > Documentation or can be requested via sales-vetec-de@samsongroup.com:

Series 72.3 Rotary Plug Valve

- | | |
|------------------|--|
| ▶ TY005.001 | Data sheet (DIN/ANSI) |
| ▶ TY005.064/065 | Data sheet for type-tested valves acc. to DVGW/GAR/EN161 |
| ▶ TY005.071 | Data sheet for the mounting types of the actuators / mounting positions of the control valves |
| ▶ TY005.069 | Max. permissible differential pressures |
| ▶ EB005.022 | Mounting and operating instructions rotary plug valve in combination with a pneumatic diaphragm actuator (e.g., Type R, MD, MN, MZ) |
| ▶ EB005.069 | Markings on the device |
| ▶ EB005.045 | Storage of SAMSON VETEC products |
| ▶ EB005.057, 036 | Transporting the valve (depending on the valve configuration) |
| ▶ EB005.031, 032 | Support or suspension of the valve in the pipeline (depending on the valve configuration) |
| ▶ WA 236 | SAMSON brochure "Functional Safety for Control Valves, Rotary Plug Valves, Ball Valves and Butterfly Valves " (www.samsongroup.com) |

Note

In addition to the valve documentation, observe the technical documentation for the actuator and valve accessories.

1. Field of application

1.1. General

The rotary plug valve Series 72.3 in combination with an actuator, e.g., the pneumatic actuator Type MD, MN, MZ, R, is designed to regulate the flow rate of liquid, gaseous, solid-containing, or vaporous media.

The valve and its actuators are designed for precisely defined conditions (such as operating pressure, medium used, temperature, etc.). Therefore, the operator must ensure that the control valve is only used where the operating conditions meet the design criteria.

The control valve is not suitable for the following applications:

- Use outside the limits defined during sizing and by the technical data.
- Use outside the limits defined by the valve accessories connected to the valve

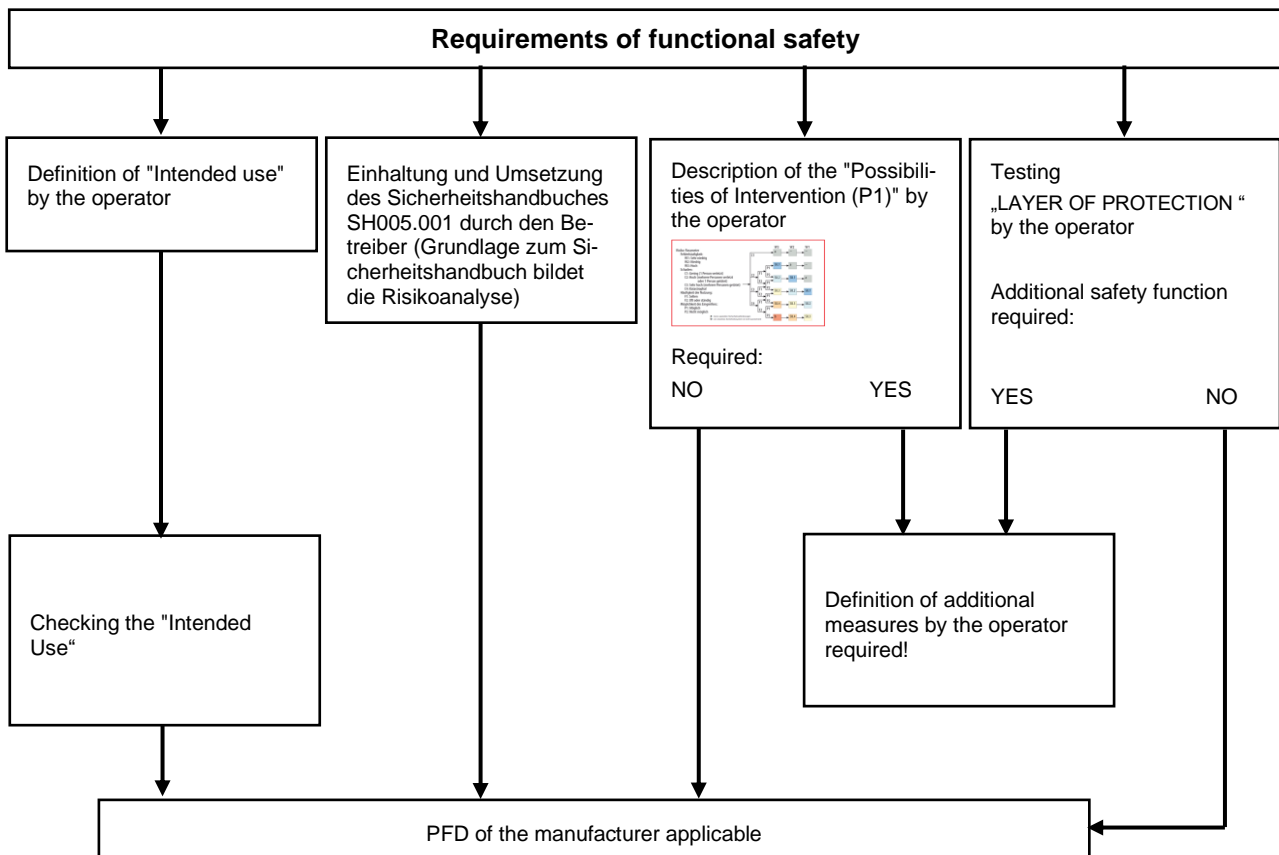
The following activities do not comply with the intended use:

- Use of non-original spare parts
- Performing service and repair work not described

1.2. Use in safety-instrumented systems

The valve can be used in safety-instrumented systems according to IEC 61508 and IEC 61511. The valve can be used in safety-instrumented systems up to SIL 2 (single device) and SIL 3 (redundant configuration) on observing the requirements of IEC 61508.

The safety-instrumented function of the valve is to be regarded as a Type A element in accordance with IEC 61508-2.



i Note

The architecture and the interval between proof tests must be considered in order to achieve the safety integrity level.

💡 Tip

The diagnostic coverage can be increased and, as a result, the probability of failure on demand reduced by mounting a positioner with diagnostic capabilities on the control valve.

1.3. Versions

The control valve (valve, actuator, peripheral devices, etc.) is selected and designed according to the intended use and the technical specification. Applicable regulations and standards are part of the technical specification. The constructive design of the valves is based on technical, chemical, physical and mechanical properties of the application.

The choice of materials and peripheral equipment depends on the intended use and the design specification of the control valve.

Changes, conversions and other modifications to the product are not authorised by SAMSON VETEC. They are carried out exclusively at the user's own risk and may, among other things, lead to safety risks and to the product no longer meeting the requirements necessary for its use.

Valves combined with actuators with **travel stop and/or handwheel are not suitable** for use in safety-instrumented systems.

1.4. Mounting

- ➔ The valve and actuator are normally delivered already assembled by SAMSON VETEC.
- ➔ If the actuator is not mounted, it must be mounted in the specified position on the valve. In case of deviation from this mounting method, consult SAMSON VETEC.

2. Technical Data

Standard designs



Fig. 2.1: Valve Type 72.3

Series 72 valves close counterclockwise and have an opening angle of 75°.

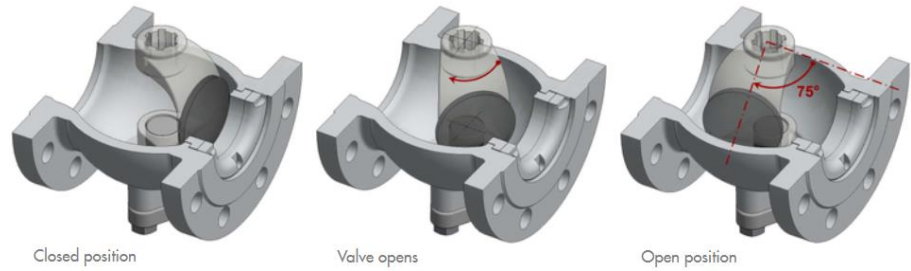


Fig. 2.2: Swivel direction (rotation) of the plug

Sonderkonstruktionen

Valve with insulating section



Fig. 2.3: Insulating section
Type IT1

Valve with double stuffing box



Fig. 2.4: Double stuffing box **DSB**

Valve with heating jacket



Fig. 2.5: Heating jacket
HM

Design changes (New Generation)

Standard design 72.3

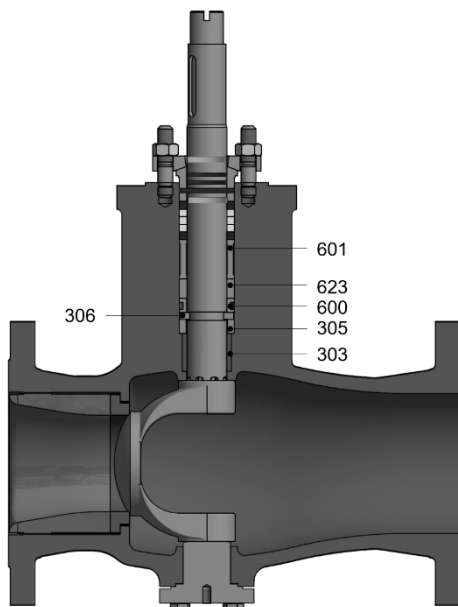
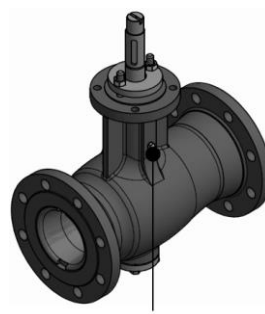


Fig. 2.6: Valve Type 72.3

- Blow-out protection of the shaft by **screw** (101, 102)
- internal parts (303, 305, 306, 600, 601, 623)



101/102
Fig. 2.7: Valve Type 72.3

New Generation 72.3-02

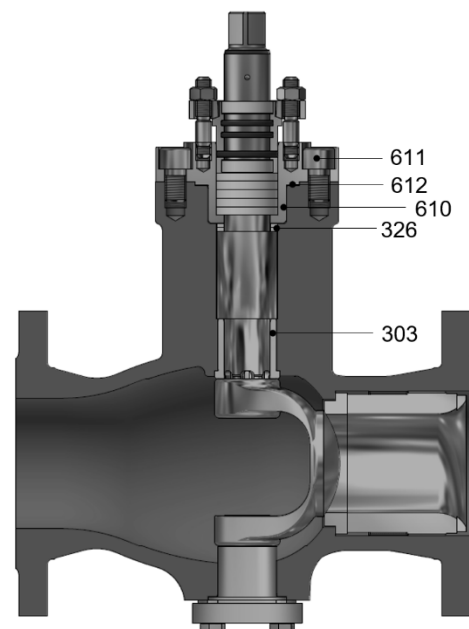


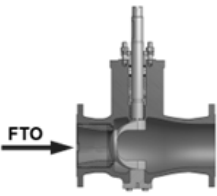
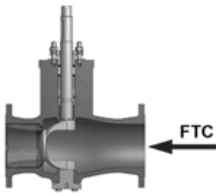
Fig. 2.8: Valve Type 72.3-02

- Blow-out protection of the shaft using a **packing bushing** (610, 611, 612)
- internal parts (303, 326)

i Info

The images shown in these instructions are for illustration purposes only.

Table 1: DIN-Version

Design parameters		
Size	DN 25 · 40 · 50 · 80 · 100 · 150 · 200 · 250 · 300 · 400 · 500 · 600	
Pressure rating	PN 10 · 16 · 25 · 40	
Max. operating pressure	According to pressure-temperature diagram	
Max. permissible differential pressures	According to TY005.069	
Face-to-face dimensions	EN 558 Series 1, 15	
Type of end connection	Flange	According to DIN EN 1092-1
Seat/plug seal	Metal seal · Soft seal	
Seat factors	F1 (100%) · F0,6 (60%) · F0,4 (40%) · F0,25 (25%)	
Characteristic	Equal percentage or linear using a positioner · inherent	
Rangeability	Up to 200:1	
Opening (rotation) angle	75°	
Plug movement (direction of rotation)	closes counterclockwise	
Conformity	CE EAC	
Flow direction	 Flow to open (FTO)	 Flow to close (FTC)
Temperature range in °C ¹⁾		
Body	without insulating section	-40... +350
	with insulating section (IT1)	-100...-40 / 350... 500
Leakage rate according to DIN EN 60534-4		
Seat	Metal seal	IV
	Soft seal	VI

¹⁾ The valve design may vary depending on the sealing elements installed (e.g., packing, O-rings) and operating parameters. The specified temperature values are only to be understood as guide values. The design of the valve is checked in each individual case.

Table 2: DIN · Standard materials

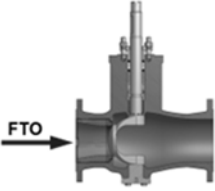
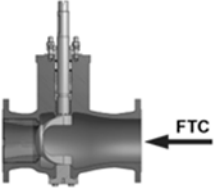
Item	Materials and temperature ranges		
Body	Cast steel 1.0619 -10... +400 °C	Stainless cast steel 1.4408 -100... +500 °C	
Plug	R30006 (Stellite® 6) -10... +400 °C	1.4408 (stellited) -100... +500 °C	
Shaft	1.4542 (17-4PH®) -29... +315 °C	1.4404 -100... +400 °C	1.4980 -100... +500 °C
Trunnion bearing	1.4404 (stellited)	1.4408 (stellited)	
Seat	1.4404 (stellited)	1.4408 (stellited)	
Retaining ring	1.4404	1.4408	
Packing bushing (Version 72.3-02)	1.4404		
Packing	PTFE/Graphite -29... +280 °C	Graphite -100... +500 °C	
Gasket	VA/Graphite		
O-ring	FPM 80		

Other materials on request

i Note

Technical data for further versions (e.g., DVGW, GAR, EN 161) can be found in the corresponding data sheets, see section "Further documentation".

Tabelle 3: ANSI-Version

Design parameters		
Size	NPS 1 · 1½ · 2 · 3 · 4 · 6 · 8 · 10 · 12 · 16 · 20 · 24	
Pressure rating	CL 150 · 300	
Max. operating pressure	According to pressure-temperature diagram	
Max. permissible differential pressures	According to TY005.069	
Face-to-face dimensions	EN 558, Series 37, 38	EN 558 Series 15
Type of end connection	Flange	According to ANSI/ASME B16.5
Seat/plug seal	Metal seal · Soft seal	
Seat factors	F1 (100%) · F0,6 (60%) · F0,4 (40%) · F0,25 (25%)	
Characteristic	Equal percentage or linear using a positioner · inherent	
Rangeability	Up to 200:1	
Opening (rotation) angle	75°	
Plug movement (direction of rotation)	closes counterclockwise	
Conformity	CE EAC	
Flow direction	 Flow to open (FTO)	 Flow to close (FTC)
T Temperature range in °C ²⁾		
Body	without insulating section	-40... +350 (-40... +662 °F)
	with insulating section (IT1)	-100...-40 / 350... 500 (-148...-40 / 662... 932 °F)
Leakage rate according to ANSI/FCI 70-2 (DIN EN 60354-4)		
Seat	Metal seal	IV
	Soft seal	VI

²⁾ The valve design may vary depending on the sealing elements installed (e.g., packing, O-rings) and operating parameters. The specified temperature values are only to be understood as guide values. The design of the valve is checked in each individual case.

Table 4: ANSI · Standard materials

Teil	Werkstoffe und Temperaturbereiche		
Body	Cast steel A216 WCC -10... +400 °C	Stainless cast steel A351 CF8M -100... +500 °C	
Plug	R30006 (Stellite® 6) -10... +400 °C	A351 CF8M (stellite) -100... +500 °C	
Shaft	AISI 630 -29... +315 °C	316L -100... +400 °C	A638 (660) -100... +500 °C
Trunnion bearing	316L (stellite)	A351 CF8M (stellite)	
Seat	316L (stellite)	A351 CF8M (stellite)	
Retaining ring	316L	A351 CF8M	
Packing bushing (Version 72.3-02)	1.4404		
Packing	PTFE/Graphite -29... +280 °C	Graphite -100... +500 °C	
Gasket	VA/Graphite		
O-ring	FPM 80		

Other materials on request

i Note

Technical data for further versions (e.g., DVGW, GAR, EN 161) can be found in the corresponding data sheets, see section "Further documentation".

3. Safety-related functions

3.1. Safety-related fail-safe action

The valve, in combination with a pneumatic actuator, controls the process medium flowing through it. When the signal pressure acting on the actuator is changed, the springs in the actuator move the actuator stem to close or open the valve. The fail-safe action is triggered when no signal pressure is applied to the actuator.

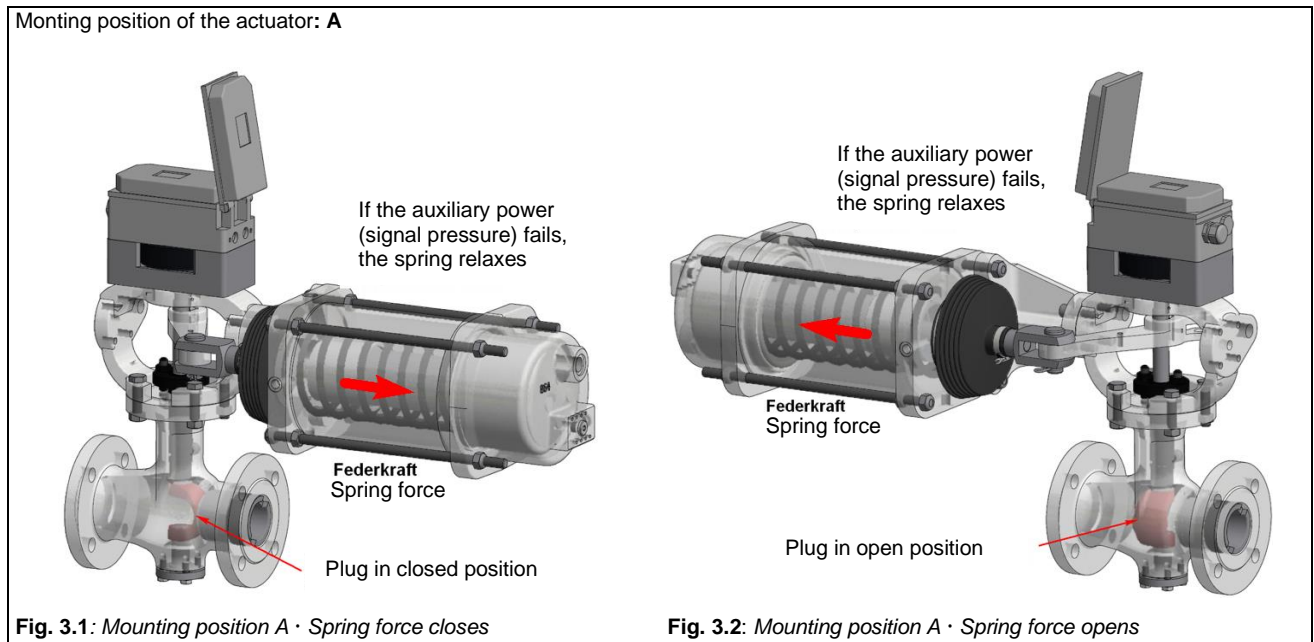
Fail-safe action

The signal pressure is normally applied to the actuator. The actuator is vented upon demand as part of the safety-instrumented function. As soon as the actuator is vented (signal pressure = atmospheric pressure), the spring forces cause the actuator stem to move to the failsafe position. The valve is completely open or completely closed.

Depending on the actuator's direction of action (see the associated actuator documentation), the valve has one of the following fail-safe positions:

- Fail-safe action „**Spring force closes FC**“: In the event of emergency, the springs move the actuator stem and close the valve. The valve opens when the signal pressure increases against the force of the springs.
- Fail-safe action „**Spring force opens FO**“: In the event of emergency, the springs move the actuator stem and open the valve. The valve closes when the signal pressure increases against the force of the springs.

Example: Fail-safe positions illustrated with a control valve with pneumatic actuator Type R *



* The images shown in these instructions are for illustration purposes only.

3.2. Protection against unauthorized changes to the configuration

The valve's fail-safe position depends on the mounted actuator's direction of action. The actuator's direction of action can be reversed. However, this is not possible while the process is running.

4. Installation and start-up

The valve is delivered ready to install and can be installed into the pipeline without the need for any additional installation work. Refer to the valve documentation on how to install and start-up the valve.

- Install the valve in a horizontal pipeline with the actuator facing upwards: Type R-actuator with horizontal piston rod (parallel to the pipeline) and Type M-actuators with vertical piston rod (perpendicular to the pipeline). If another mounting position is used that is less favourable, the plant operator must ensure that the functional safety is not impaired as a result. See data sheet ►TY005.071.
- Tilting or tipping over of the valve must be prevented.

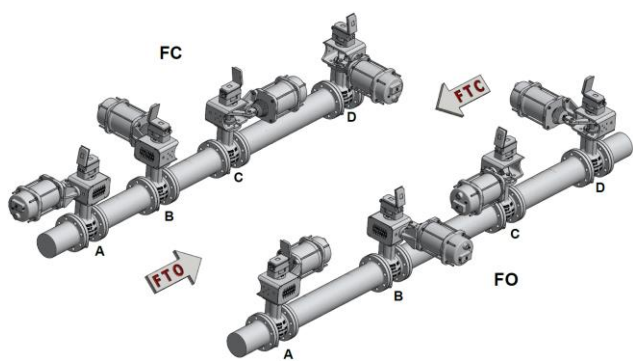


Fig. 4.1: Installation positions in horizontal pipeline / Valve with Type R Actuator

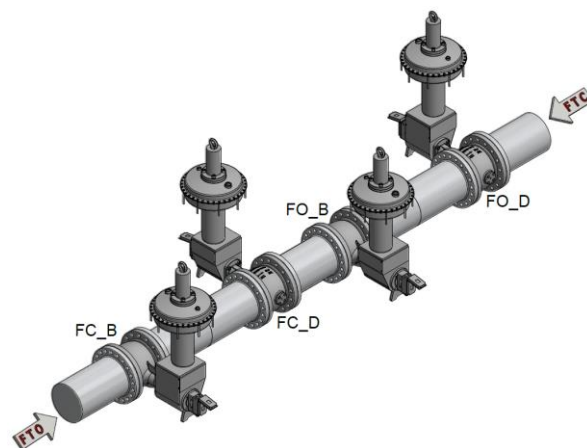


Fig. 4.2: Installation positions in horizontal pipeline / Valve with Type MD, MZ Actuator

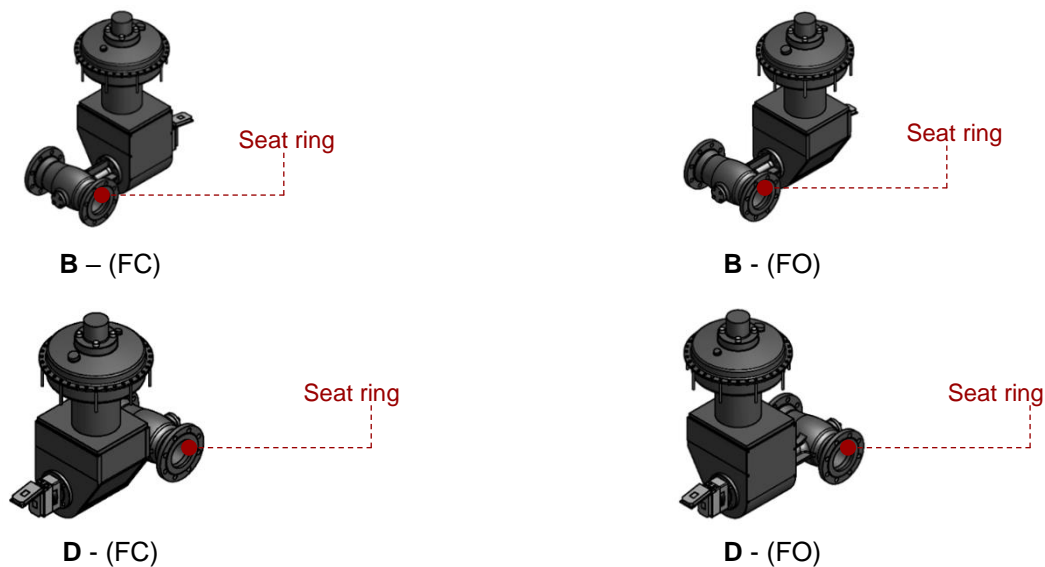
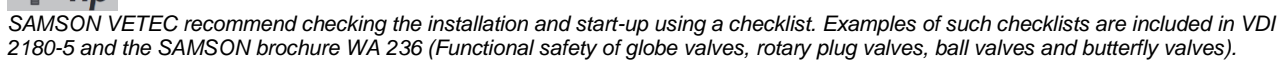
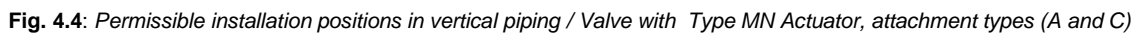


Fig. 4.3: Permissible installation positions in horizontal pipeline / Valve with Type MN Actuator, attachment types (B and D)



Checkliste zum Prüfen von Schutzeinrichtungen										samson	
Aktorprüfung										Ja	Nein
Ist die Dokumentation der PT-Stelle vollständig und auf aktuellem Stand?										<input type="checkbox"/>	<input type="checkbox"/>
Sind die Anschlussschläuche in einem einwandfreien Zustand?										<input type="checkbox"/>	<input type="checkbox"/>
Verschraubungen in Ordnung?										<input type="checkbox"/>	<input type="checkbox"/>
Beschriftung vollständig und lesbar? Schaltraum, vor Ort, Leitsystem und SI-SPS										<input type="checkbox"/>	<input type="checkbox"/>
Sind alle Anschlusshäuser frei von Feuchtigkeit / Wasser / Öl / Staub? (Magnetventil, Rückmeldung, etc.)										<input type="checkbox"/>	<input type="checkbox"/>
Sind der Antrieb und das Magnetventil frei von Korrosion? Ist der Farbanstrich okay?										<input type="checkbox"/>	<input type="checkbox"/>
Sichtkontrolle des Pneumatiksystems. Sind alle Luftanschlüsse in Ordnung und dicht?										<input type="checkbox"/>	<input type="checkbox"/>
Sind Brücke / Laternen / Kupplung / Befestigungsmuttern frei von Korrosion und fest montiert?										<input type="checkbox"/>	<input type="checkbox"/>
Ist die Stopfbuchse des Ventils dicht? Sind keine Spuren vom Prozessmedium sichtbar?										<input type="checkbox"/>	<input type="checkbox"/>
Ist die Balgabdeckung / Balgüberwachung noch in Ordnung?										<input type="checkbox"/>	<input type="checkbox"/>
Kontrolle der Ablass-Öffnungen der Magnetventile										<input type="checkbox"/>	<input type="checkbox"/>
Sicherheitsstellung prüfen											
Aktor in Leitsystem aufrufen auf „Hand“ setzen und ansteuern										<input type="checkbox"/>	<input type="checkbox"/>
RI	Fail Close	PLS	* Ventil: Bei angesteuertem Ventil den Luftschlauch am Luftverteiler abziehen!								
Loop		Ventil									
Stimmt die Stellung des Ventils mit dem Ausgangssignal überein? AUF und ZU fahren!										<input type="checkbox"/>	<input type="checkbox"/>
Fährt der Antrieb über Luft rückfrei in seine Arbeitsposition?										<input type="checkbox"/>	<input type="checkbox"/>
Sind keine Leckagen am Antrieb?										<input type="checkbox"/>	<input type="checkbox"/>
Fährt der Antrieb über die Federn rückfrei in seine Sicherheitsstellung?										<input type="checkbox"/>	<input type="checkbox"/>
Fahrzeit des Ventils	N/A	<input type="checkbox"/>	Zeit zum Öffnen des Ventils	Sek	Zeit zum Schließen des Ventils	Sek					
Schließzeit Ausfallposition	N/A	<input type="checkbox"/>	Erlaubte Zeit des Ventils in die Sicherheitsstellung	Sek	Schließzeit des Ventils in die Sicherheitsstellung	Sek					
Zulässige Leckrate	N/A	<input type="checkbox"/>	Erlaubte Leckage in der Schließstellung	1/min, m³/min	Gemessene Leckage in der Schließstellung	1/min, m³/min					
<p>Zur Ermittlung der Leckrate muss das Ventil ausgebaut werden und in der Werkstatt getestet werden. Die Prüfvorschriften sind in der DIN EN 12266 Teil 1 A.4 „Prüfung der Sitzdichtheit“ zu entnehmen. Die zulässigen Leckraten sind der nachfolgenden Tabelle zu entnehmen.</p> <p>Für Regelventile als Schutzeinrichtung kann auch eine Leckage nach DIN EN 1349 bestimmt werden.</p>											
Prüfmedium	Leckrate A	Leckrate B	Leckrate C	Leckrate D	Leckrate E	Leckrate F	Leckrate G				
Flüssigkeit	feststellbare Undichtheit während der Dauer der Prüfung	0,01 °DN	0,03 °DN	0,1 °DN	0,3 °DN	1,0 °DN	2,0 °DN				
	Gas	0,3 °DN	3,0 °DN	30,0 °DN	300 °DN	3000 °DN	6000 °DN				
<p>Die Leckraten gelten nur, wenn ausgangsseitig Raumtemperatur herrscht. „Keine sichtbar feststellbare Undichtheit“ bedeutet keine sichtbare Feuchtigkeit oder Bildung von Tropfen oder Blasen und entspricht einer niedrigeren Leckrate als Leckrate B.</p> <p>Nach erfolgreicher Prüfung „grünes Schild“ anbringen <input type="checkbox"/></p> <p>Müssen Reparaturarbeiten an dem System erfolgen? Wenn notwendig, einen separaten Auftrag schreiben. <input type="checkbox"/></p>											
Prüfer 1:		Prüfer 2:		Prüfdatum:		Unterschrift:					

Checkliste zum Prüfen von Schutzeinrichtungen					
Owner			Erstellt / Revidiert durch:		
Betrieb		Anlage:		Teilanlage:	
Betriebszustand während Prüfung:		Steuerung:		TAG-No.:	
Sicherheitsstellung:		SIL-Level:		Prüfdatum:	
Hersteller:		Herstellertyp:		Gehäusenummer / Seriennummer / Stempelnummer / ID-No.:	
Ortswelt:		Spermediumbefüllung:			+HS51-14E2
Aktor ist in folgenden SIL Loops vorhanden					
SIF-No.:					
Erstprüfung: <input type="checkbox"/>		Wiederholungsprüfung: <input type="checkbox"/>		Änderungsprüfung: <input type="checkbox"/>	
Aktorprüfung		Verriegelungsprüfung			
	 Jahre	 Jahre	
<p>- Eine Bewertung der Prozess- und Sicherheitsgefahren der Anlage und Installation ist erforderlich.</p> <p>- Arbeitsurlaubsinholen!</p> <p>- Geeignete Schutzausrüstung für die Arbeit tragen! Ex-Vorschriften beachten!</p> <p>- Der Ausführende ist verantwortlich für die Anwendung von geeigneten Instandhaltungsmethoden nach dem Stand der Technik und die Verwendung von geeigneten und geprüften Werkzeugen!</p> <p>- Der Ausführende trägt die Versicherungspflicht während der Dauer der Arbeit!</p> <p>Dies beinhaltet unter anderem das Sichern des Arbeitsplatzes gegen unbefugtes Betreten oder zufälliges Berühren von ungesicherten elektrischen Einrichtungen beim vorübergehenden Verlassen des Arbeitsplatzes</p> <p>- Treffen von Vorkehrungen gegen äußere Einwirkungen, wie Wetter- und andere schädigende Einflüsse aus der Umgebung auf die zu überholende Anlage.</p>					
Messmittelliste:					
Art/Hersteller/Typ:			Seriennummer:		
Art/Hersteller/Typ:			Seriennummer:		
Art/Hersteller/Typ:			Seriennummer:		
Art/Hersteller/Typ:			Seriennummer:		
Art/Hersteller/Typ:			Seriennummer:		
Art/Hersteller/Typ:			Seriennummer:		
Prüfer 1:		Prüfer 2:		Prüfdatum:	
				Unterschrift:	

Seite 12

5. Required conditions

WARNING

Risk of malfunction due to incorrect selection or wrong installation and operating conditions!

→ Only use valves in safety-instrumented systems if the necessary conditions in the plant are fulfilled.

Tip

SAMSON VETEC recommend checking the installation and start-up using a checklist. Examples of such checklists are included in VDI 2180-5 and the SAMSON brochure WA 236 (Functional safety of globe valves, rotary plug valves, ball valves and butterfly valves).

5.1. Selection

- The suitability of the entire control valve assembly (valve, actuator, valve accessories) for the intended use (pressure, temperature) has been checked.
- The valve materials are suitable for the process medium.
- The actuator is correctly sized based on the required transit time and thrust.

5.2. Mechanical and pneumatic installation

- The valve is installed properly into the pipeline as described in the mounting and operating instructions and the actuator is mounted on it. Valve accessories are mounted correctly.
- The prescribed direction of flow is observed. The arrow on the valve indicates the direction of flow.
- The control valve is configured with the correct fail-safe position (FC or FO).
- Specified inlet and outlet lengths are complied with (see installation and operating instructions of the control valve).
- Tightening torques (e.g., for flange connections) are observed.
- If necessary, install supports (valve/actuator) free of vibration and stress. Observe specified support points.
- A strainer must be installed when the process medium contains solids, which could block the valve.
- Auxiliary power and signals are as specified.

5.3. Operation

- The valve is only used in operating conditions that meet the specifications used for sizing at the ordering stage.
- The plug/shaft is not blocked
- The medium flow through the valve is not blocked.

5.4. Maintenance

- Maintenance is only performed by fully trained, qualified operating personnel.
- Only original SAMSON VETEC parts are used as spare parts.
- Service work is performed as described in the 'Servicing' section of the associated valve documentation.

Tip

Contact SAMSON's After-sales Service concerning any work not described in the 'Servicing' section in the associated valve documentation: sales-vetec-de@samsongroup.com, Tel. +49 6232 6412 0

6. Proof testing (periodic testing)

Regular proof testing to verify functional safety is necessary.

The proof test interval and the extent of testing lie within the operator's responsibility. The operator must draw up a test plan, in which the proof tests and the interval between them are specified. We recommend summarizing the requirements of the proof test in a checklist.

DANGER

Risk of dangerous failure due to malfunction in the event of emergency (valve does not move to the fail-safe position)!

→ Only use devices in safety-instrumented systems that have passed the proof test according to the test plan drawn up by the operator!

DANGER

Risk of dangerous failure due to malfunction of the control valve in the event of prolonged non-operation!

→ Check the function and fail-safe action of the valve at regular intervals.

To test the safety-instrumented function properly, the following requirements must be met:

- Valve and actuator are assembled together properly.
- The control valve is installed properly into the plant.

Regularly check the safety-instrumented function of the entire SIS loop. The test interval determines the probability of failure (PFD) and the suitability for a specific safety-related application.

Tip

SAMSON VETEC recommend checking the installation and start-up using a checklist. Examples of such checklists are included in VDI 2180-5 and the SAMSON brochure WA 236 (Functional safety of globe valves, rotary plug valves, ball valves and butterfly valves).

6.1. Visual inspection to avoid systematic failure

To avoid systematic failure, inspect the valve regularly. The frequency and the scope of the inspection lie within the operator's responsibility. Take application-specific influences into account, such as:

- Blockage of plug/shaft
- Corrosion (destruction primarily of metals due to chemical and physical processes)
- Material fatigue
- Wear induced by the process medium
- Abrasion (material removed by solids contained in the process medium)
- Medium deposits
- Aging (damage caused to organic materials, e.g., plastics or elastomers, by exposure to light and heat)
- Chemical attack (organic materials, e.g., plastics or elastomer, which swell, leach out or decompose due to exposure to chemicals)

NOTICE

Risk of malfunction due to the use of unauthorized parts!

→ Only use SAMSON VETEC original parts to replace worn parts.

6.2. Function testing

Regularly check the safety-instrumented function according to the test plan drawn up by the operator.

DANGER

Risk of dangerous failure due to malfunction of the control valve in the event of prolonged non-operation!

→ Check the function and fail-safe action of the valve at regular intervals.

Tip

We recommend the use of SAMSON positioner with integrated diagnostic firmware for valves used for on/off service. The partial stroke test included in this software helps prevent a shut-off valve normally in its end position from seizing up or getting jammed.

Safety-related fail-safe action

1. Supply the actuator with the signal pressure to allow the valve to move to the end position (completely open or closed).
2. Disconnect the signal pressure. This must cause the valve to move to its fail-safe position.
3. Check whether the valve reaches the end position within the required time.
4. Check whether the maximum permissible leakage is observed.

Safety-instrumented function of valve accessories

Check the safety-instrumented function of valve accessories. Refer to the associated safety manuals.

7. Repairs

Only perform the work on the valve described in the valve documentation.

NOTICE

Safety-instrumented function will be impaired if repair work is performed incorrectly!

→ Only allow qualified personnel trained by SAMSON VETEC to perform service and repair work.

HERSTELLERERKLÄRUNG MANUFACTURER DECLARATION



FB002.012

Herstellererklärung zur Betriebsbewährung nach IEC 61508/61511

Der Hersteller

VETEC Ventiltechnik GmbH
Siemensstraße 12
67346 Speyer

bestätigt, dass folgende Produkte:

Stellventile Typ 62, 72, 73, 82

und die dazugehörigen pneumatischen Antriebe von VETEC oder AIR TORQUE, dass die Geräte der o.g. Baureihen für die Verwendung in sicherheitsgerichteten Systemen nach IEC 61508 und IEC 61511 einsetzbar sind. Die Geräte sind geeignet für den Einsatz in sicherheitsgerichteten Anwendungen bis SIL 2 (einzelnes Gerät) und SIL 3 (redundante Verschaltung) gemäß IEC 61508.

Der Nachweis erfolgte auf Basis der Betriebsbewährtheit (proven in use).

Sicherheitstechnische Kenndaten

$\lambda_{\text{safe undetected}}$	$6,7 * 10^{-7} \text{ 1/hr}$
$\lambda_{\text{safe detected}}$	0
$\lambda_{\text{dangerous undetected}}$	$1,7 * 10^{-7} \text{ 1/hr}$
$\lambda_{\text{dangerous detected}}$	0
PFD _{avg} bei jährlicher Prüfung	$7,4 * 10^{-4}$
HFT (Hardware Fault Tolerance)	0
Gerätetyp	A

Nutzbare Lebensdauer

Nach IEC 61508-2 Abschnitt 7.4.9.5 können acht bis zwölf Jahre angenommen werden oder ein Wert benutzt werden, der sich durch Betriebsbewährung des Anwenders ergibt.

Daraus ergeben sich:

SFF (Safe Failure Fraction)	80 %
MTBF _{gesamt}	136 Jahre
MTBF _{dangerous}	671 Jahre
DC (Diagnostic coverage)	0

Bestimmungsgemäße Verwendung ist zu beachten

- Bedienungsanleitung
- Anforderung an Instrumentenluftqualität (Sicherheitshandbuch, soweit vorhanden)

Sicherheitstechnische Annahme

Im Störfall wird der Antrieb entlüftet, dadurch fährt das Ventil in die Sicherheitslage.

Hinweis

Durch den Einsatz eines Stellungsreglers kann eine umfangreiche Diagnose auch im laufenden Betrieb durchgeführt werden. Damit kann sich je nach Einsatzfall ein Diagnosegrad (diagnostic coverage factor) für gefährliche Fehler von größer 70 % ergeben.

Voraussetzungen

Die Reparaturzeit ist klein gegenüber der mittleren Anforderungsrate. Durchschnittliche Beanspruchung in industrielle Umgebung durch Medien und Umgebungsbedingungen. Der Anwender ist für bestimmungsgemäßen Gebrauch verantwortlich.

Speyer, 20.05.2025

Ahmad Razak
Geschäftsführer / Managing Director

Michael Choina
Leiter QW / Head of QA

Burak Tektas
Abteilungsleiter E&K / Head of R&D

VETEC Ventiltechnik GmbH · Siemensstraße 12 · 67346 Speyer · Germany
Sitz der Gesellschaft: 67346 Speyer
Registergericht: Amtsgericht Ludwigshafen, Nr. HRB 51677 · USt-IdNr.: DE149689913

Tel.: 06232 6412-0 · Fax: 06232 42479
E-Mail: sales-vetec-de@samsongroup.com
Internet: vetec.samsongroup.com

Manufacturer's Declaration for proven-in-use according to IEC 61508/61511

The Manufacturer

VETEC Ventiltechnik GmbH
Siemensstrasse 12
67346 Speyer · Germany

confirmed that the following products:

Control valves Type 62, 72, 73, 82

with the corresponding pneumatic actuators, made from VETEC or AIR TORQUE, are suitable for use in safety instrument systems according to IEC 61508 and IEC 61511. The devices are suitable for use in safety-related applications up to SIL 2 (single device) and SIL 3 (redundant configuration) according to IEC 61508.

The evidence is based on proven in use.

Safety related characteristics

$\lambda_{\text{safe undetected}}$	$6,7 * 10^{-7} \text{ 1/hr}$
$\lambda_{\text{safe detected}}$	0
$\lambda_{\text{dangerous undetected}}$	$1,7 * 10^{-7} \text{ 1/hr}$
$\lambda_{\text{dangerous detected}}$	0
PFD _{avg} with annual tests	$7,4 * 10^{-4}$
HFT (Hardware Fault Tolerance)	0
Device type	A

Usable lifetime

According to IEC 61508-2 section 7.4.9.5 a useable lifetime of eight to twelve years can be assumed. Other values can be used based on the user's experience.

This results in:

SFF (Safe Failure Fraction)	80 %
MTBF _{total}	136 Jahre
MTBF _{dangerous}	671 Jahre
DC (Diagnostic coverage)	0

Intended use must be observed

- Operating instructions
- Requirements for instrument air quality (see safety manual, if available)

Safety related assumption

In case of failure, the pneumatic actuator is vented, causing the valve to move to its fail-safe position.

Note

By using digital valve positioners, the user has access to extensive diagnostic functions also while the process is running. As a result, the diagnostic coverage factor for dangerous failures can exceed 70 % depending on the application.

Preconditions

The mean time to repair is short to the average rate of demand. Normal exposure to industrial environment and fluids. The user is responsible for ensuring that the device is used as intended.



SAMSON VETEC Ventiltechnik GmbH
Siemensstrasse 12 · 67346 Speyer · Germany
Phone.: +49 6232 6412-0 · Fax: +49 6232 42479
E-mail: sales-vetec-de@samsongroup.com · Internet: vetec.samsongroup.com