N1 - MA - 002 -E01

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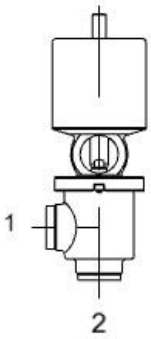
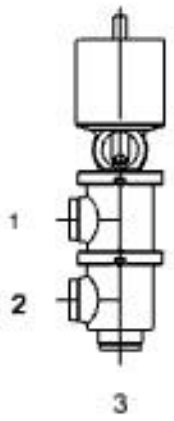
1 General

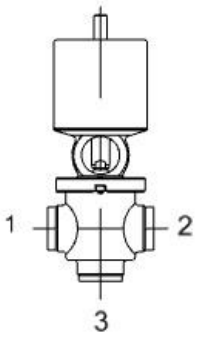
1.1. Type of Valves

Shut-off Valve



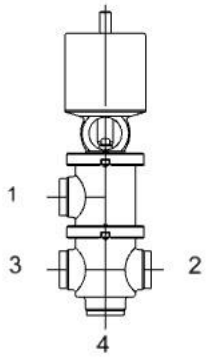
N1



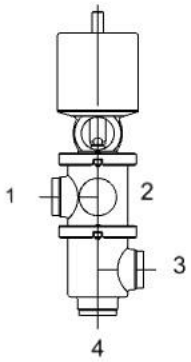


N2

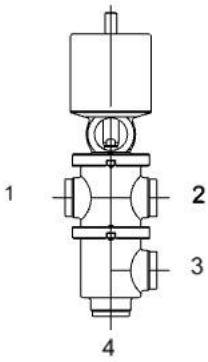
Divert Valve



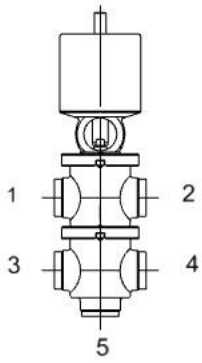
N4L



N4U-90

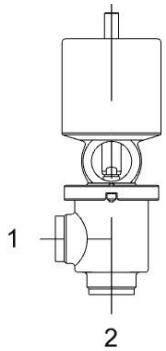


N4U



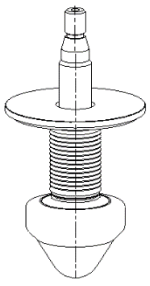
N6

Reducing Valve



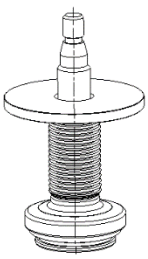
AR

Reducing Cone



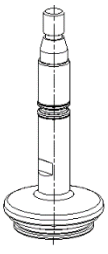
AR-CBS

Aseptic Shut-off Valve



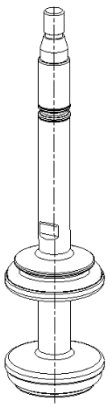
A1-DBS

Sanitairy Shut-off Valve



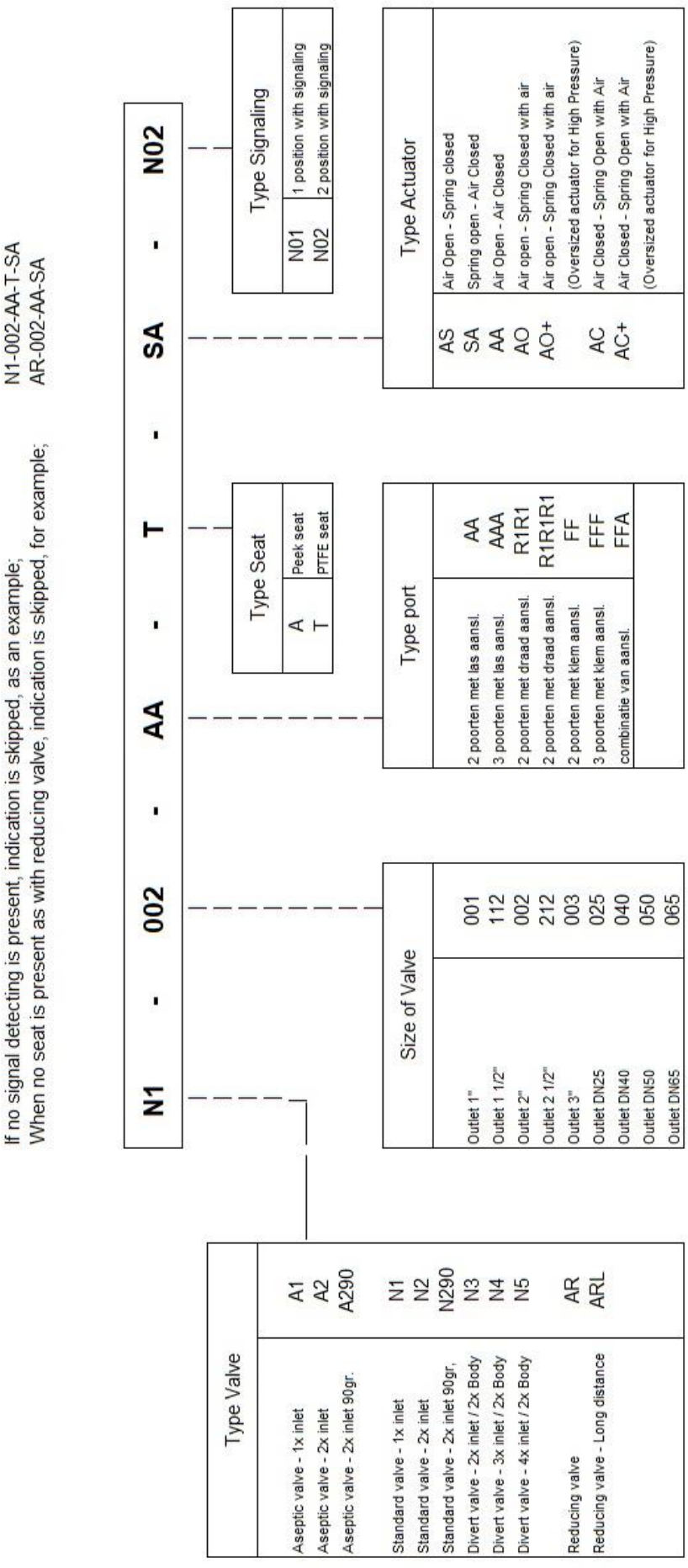
N1-DS

Sanitaity Divert Valve



N3-DS

1.2. Coding of Valves



2 Safety

Unsafe practices and other important information are emphasized in this manual.
Warnings are emphasized by means of special signs.

2.1. Important information

Always read the manual before using the valve!

Expressions used in this manual;

PAY ATTENTION!
Displays important information

WARNING!
Indicates that special procedures must be followed to avoid serious personal injury.

CAUTION!
Indicates that special procedures must be followed to avoid damage to the valve.

NOTE!
Indicates important information to simplify or clarify procedures.

Symbols used in this manual;

General warning

Caustic agents

Cutting danger

2.3. Safety precautions

Installation:

Before installing always read the technical data thoroughly (see chapter 6 Technical data)

Never install the valve with connected compressed air
With a connected airline there is a chance that the actuator will be activated during installation and risk of injury.

During operation:

Never touch the valve or the pipes while processing hot liquids.
Never put your hands under or near the outlet during operation,
there is a risk of injury if the product consists of aggressive or hot liquid.
Never remove the air line during operation, if a loose airline is activated,
there is a risk of injury from a swishing line.

Performing maintenance:

Before starting maintenance, check that the valve with pipe lines are still hot.
Do not perform any maintenance on the hot valve.
Before starting , maintenance, disconnect compressed air line.
If present, disconnect wiring from status report.
Never pressurize the valve when servicing the valve.
Always apply the seals correctly and with care.
The warrantly for TMG Holland products depends on the use of original TMG Holland spare parts.

During transport:

Always ensure that all connections are removed before you remove the valve from the installation.
Check the weight of the valve before removing it from the installation.
Always ensure that the valve is properly secured during transport if specially designed packaging material is available, it must be used.

Residual fluid that flows out of valve and pipe lines can contain acid or lye.
Dispose of spilled liquid according to the rules.

3 Unpacking and disassembling

The instruction manual is part of the delivery.
Study the instructions carefully.

3.1. Unpacking

PAY ATTENTION!
TMG Holland cannot be held responsible for incorrect unpacking.

Check the delivery for:

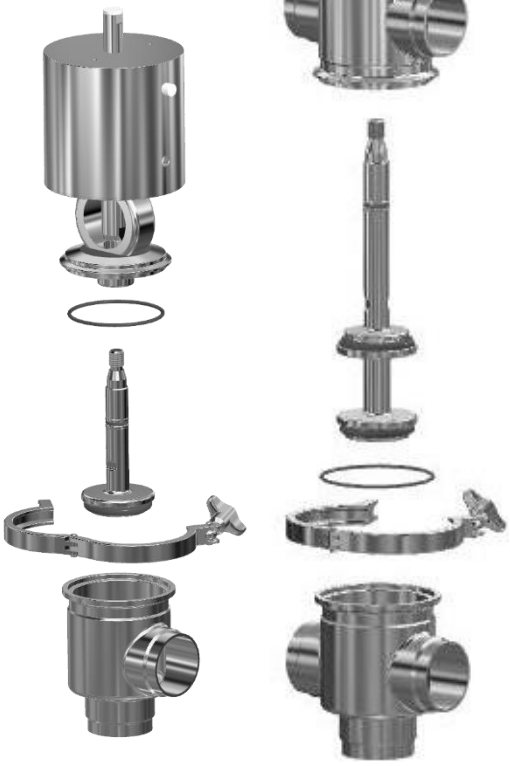
1. Complete valve
2. Instruction manual
3. Valve for damage
4. Delivery note

Step 1
Remove packaging material
Use the right tools to remove staples and / or straps.

Step 2
Please note weight of the valve
Carefully lift the valve out of the package, use lifting equipment if necessary.

Step 3
Remove possible packing materials from the valve ports.

Step 4
Inspect the valve for any transport damage.



3.2 Disassembling

The valve is assembled complete.
When the body of the valve is equipped with welding connections, the valve will have to be disassembled first.
For disassembly, follow the steps according to chapter 5.2 and 5.3
After disassembly, the body can be welded in the piping system.

4 Install and operation

Required tools

- Wrench 14 mm
- Wrench 19 mm
- O-ring remover
- Spring Tensioner
- Grease for threaded ends ; Never Seize pasta - Weicon ASW 040 P or equal
- Grease for cylinder surface; Teflon cylinder grease - Magnalube G MGL 4 or equal
- Lubricant for O-rings, make sure it is allowed in the food industry.

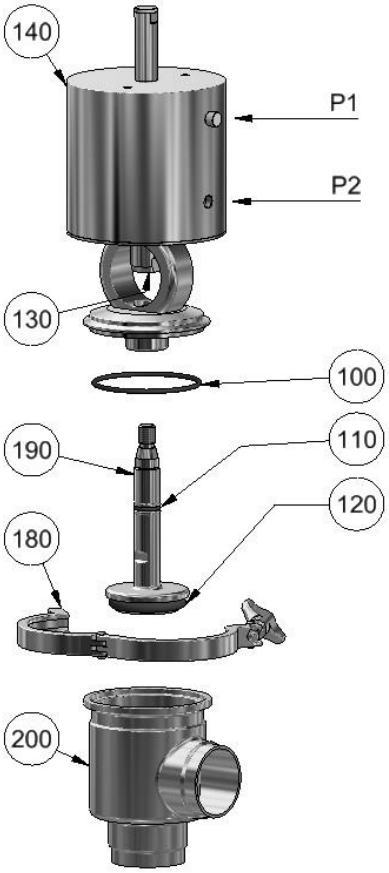
Welding instructions

The valve body can be equipped with welding ends.
Always disassemble the complete valve before welding.
Body must be welded into the pipe system according to ISO 3834 certification

When the Body is installed in the pipework, the Actuator with Disc end Stem can be mounted.
The N7 Valve can be supplied as a Shut-off Valve (N701 N702) or as a Divert Valve (N703 … N706).
Also, the actuator of the N7 Valve can be applied as type AS, SA or AA, depending on the function of the complete valve.
Type AS - Actuator that controls the in-stroke with compressed air. (Valve NC)
Type SA - Actuator that controls the in-stroke with spring force. (Valve NO)
Type AA - Actuator that controls the In-stroke and out-stroke with compressed air.

Different mounting actions are required for all the different types.

4.1 Mounting the valve type N701 or N702.



Actuator type AS

For assembling and testing the actuator it is necessary that the compressed air is connected.
Apply a small amount of air to the actuator at P2 so that Stem (130) rises slightly and there is sufficient space to properly mount Disc and Stem (190)

- Check if O-ring (110) is mounted correctly
- Use a little lubricant for O-ring (110)
- Check if Seat (120) is mounted correctly
- Mount the Disc and Stem (190) to Stem (130) of Actuator
- Now set the full air pressure to P2
- The Actuator will now fully retracted
- Place the O-ring (100) in the Adapter (130)
- Place the Actuator with Disc and Stem on the Body
- Secure the Actuator to the Body with Tri-Clamp (180)
- Operate the actuator by turning off the compressed air

The actuator will close the valve by means of spring force.
Open and close the valve several times by operating the actuator.

Actuator type SA

For assembling and testing the actuator it is necessary
that the compressed air is connected.
Apply a small amount of air to the actuator at P1
The Stem will be pushed out a bit so that there is
enough space to mount Stem (190)

- Check if O-ring (110) is mounted correctly
- Use a little lubricant for O-ring (110)
- Check if Seat (120) is mounted correctly
- Mount the Disc and Stem (190) to the Stem (130) of Actuator
- Place the O-ring (100) in the Adapter (130)
- Place the actuator with Disc and Stem on the body
- Secure the Actuator to the Body with Tri-Clamp
- Now set the full air pressure to P1
- The actuator will close the valve

Open and close the valve several times by operating the actuator.

Actuator type AA

For assembling and testing the actuator it is necessary
that the compressed air is connected.
Slightly push the stem (130) into the actuator to allow enough
clearance to mount the Disc and Stem (190).

- Operate the actuator with compressed air to P2, Stem (130) retracts
- Check if O-ring (110) is mounted correctly
- Use a little lubricant for O-ring (110)

- Check if Seat (120) is mounted correctly
- Mount the Disc and Stem (190) to Stem (130) of actuator
- Make sure the Disc is fully retracted
- Place the O-ring (110) in the Adapter (130)
- Place the actuator with Disc and Stem on the body
- Secure the Actuator to the Body with Tri-Clamp (180)
- Close the valve by controlling P1 and venting P2

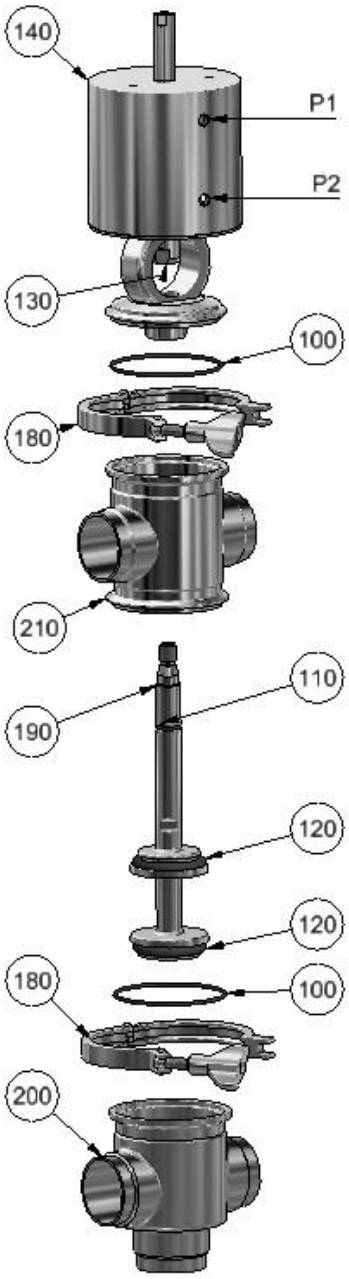
Open and close the valve several times by operating the actuator.

4.2 Mounting the valve type N703 … N706.

Actuator type AS

For assembling and testing the actuator it is necessary
that the compressed air is connected.
Apply a small amount of air to the actuator at P2 so that Stem (130)rises slightly and there is sufficient space to properly mount Disc and Stem (190)

- Place the O-ring (100) in the Adapter (130)
- Mount Upper body (210) to the actuator with clamp (180)
- Check if O-ring (110) is mounted correctly
- Use a little lubricant for O-ring (110)
- Check if Seats (120) are mounted correctly
- Mount disc and Stem (190) through the Upper body to stem (130)
- Control the actuator with compressed air on P2, Stem (130) retracts
- Check whether the disc closes against the upper body seat
- Place the O-ring (100) in the upper Body (210)
- Place the actuator with Disc and Stem and Upper body on the lower body
- Secure the lower Body to upper Body with Tri-Clamp (180)
- Control the actuator by turning off the compressed air
- The actuator will close the lower Body Valve by means of spring force.
- Open and close the Valve several times by operating the actuator.



Actuator type SA

For assembling and testing the actuator it is necessary
that the compressed air is connected.
Apply a small amount of air to the actuator at P1
The Stem will be pushed out a bit so that there is
enough space to mount Stem (190)

- Place the O-ring (100) in the Adapter (130)
- Mount Upper body (210) to the actuator with clamp (180)
- Check if O-ring (110) is mounted correctly
- Use a little lubricant for O-ring (110)
- Check if Seats (120) are mounted correctly
- Control the actuator with compressed air on P1,
- The Stem (130) is driven out of the actuator
- Mount disc and Stem (190) through the Upper body to Actuator stem (130)
- Operate the actuator by turning off the compressed air

- The Upper disc is driven against the seat of the upper body
- Place the O-ring (100) in the upper Body (210)
- Place the actuator with Disc and Stem and upper Body to the lower Body
- Secure the lower Body to upper Body with Tri-Clamp (180)
- Control the actuator with compressed air to P1,
- The actuator will close the lower Body Valve.

Open and close the Valve several times by operating the actuator.

Actuator type AA

For testing the actuator it is necessary
that the compressed air is connected.

- Place the O-ring (100) in the Adapter (130)
- Mount Upper body (210) to the actuator with clamp (180)

Slightly push the stem (130) into the actuator to make enough space
to mount the Disc and Stem (190).

- Check if O-ring (110) is mounted correctly
- Use a little lubricant for O-ring (110)
- Check if Seats (120) are mounted correctly
- Mount disc and Stem (190) through the Upper body to Actuator stem (130)
- Control the actuator with compressed air to P2,
- The Upper disc is driven against the seat of the upper body
- Place the O-ring (100) in the upper Body (210)
- Place the actuator with Disc and Stem and upper Body to the lower Body
- Secure the lower Body to upper Body with Tri-Clamp (180)
- Control the actuator with compressed air to P1,
- The actuator will close the lower Body Valve.

Open and close the Valve several times by operating the actuator.

5 Maintenance

5.1. General maintenance

Recommended spare parts: Maintenance kits (see 6 Technical data)
Order service kits from the service kits section (see 6 Technical data)
Ordering spare parts: Contact the Sales Department.

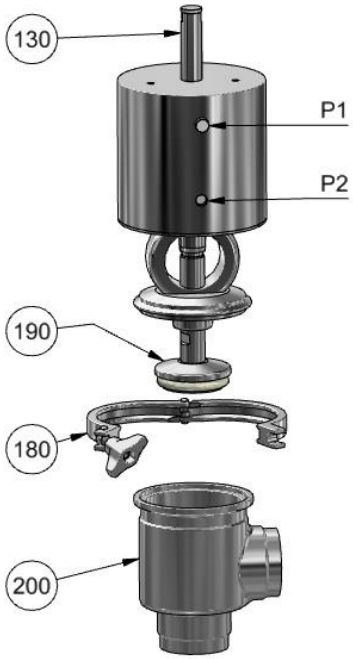
The Actuator is Spring Loaded,
for disassembly it is necessary
to use a Spring Tensioner.

When the Body is installed in the pipework, the Actuator with Disc end Stem can be disassembled. The N7 Valve can be supplied as a Shut-off Valve (N701 N702) or as a Divert Valve (N703 … N706). Also, the actuator of the N7 Valve can be designed as type AS, SA or AA, depending on the function of the complete valve.
Type AS - Actuator that controls the in-stroke with compressed air. (Valve NC)
Type SA - Actuator that controls the in-stroke with spring force. (Valve NO)
Type AA - Actuator that controls the In-stroke and out-stroke with compressed air.

Different disassembly sequences are necessary for different actuator types.

5.2. Disassembly the valve type N701 or N702.

Valve N701 N702 with actuator type AS
The Actuator with Disc and Stem (DS) can be disassembled in the field without disassembling the valve body (200).
- Control the actuator with compressed air to P2,
- Stem (130) retracts
- Remove the Clamp (180)
- Carefully lift the actuator with Disc and Stem (190)
- Control the actuator by turning off the compressed air
- The Stem (130) is driven out by Spring force
- Remove the air hose from the Actuator.
- Place the actuator on the workbench for further maintenance.



Using a 14 and 19 mm wrench to unscrew Disc and Stem (190) from the Actuator.

For easy disassembly of the disc and stem (190)
it is recommended to apply a small amount of compressed air to P2 so that the Stem (130) rises slightly.
This makes it easier to disassemble Stem (190)

Valve N701 N702 with actuator type SA
The Actuator with Disc and Stem (DBS) can be disassembled
in the field without disassembling the valve body (200).
- Make sure the compressed air supply is shut off
- Remove the air hose from the Actuator (P1).
- Remove the Clamp (180)
- Carefully lift the actuator with DBS
- Place the actuator on the workbench for further maintenance.

Using a 14 and 19 mm wrench to unscrew Disc and Stem (190)
from the Actuator.

For easy disassembly of the disc and stem (190)
it is recommended to apply a small amount of compressed air
to P1 so that the Stem (130) rises slightly.
This makes it easier to disassemble Stem (190)

Valve N701 N702 with actuator type AA
The Actuator with Disc and Stem (DBS) can be disassembled
in the field without disassembling the valve body (200).
- Control the actuator with compressed air to P2,
- Stem (130) retracts
- Remove the Clamp (180)
- Carefully lift the actuator with DS
- Remove the air hose from the Actuator.
- Place the actuator on the workbench for further maintenance.

Using a 14 and 19 mm wrench to unscrew Disc and Stem (190)
from the Actuator

5.3. Disassembly the valve type N703 … N706.

Valve N703 … N706 with Actuator type AS
The Actuator with Disc and Stem (DBS) can be disassembled
in the field without disassembling the valve body (200).
- Control the actuator with compressed air to P2,
- Stem (130) retracts
- Remove the lower Clamp (180)
- Carefully lift the actuator with DS out of the lower Body (200)
- Remove O-ring (100) from lower Body
- Control the actuator by turning off the compressed air
- The Stem (130) is driven out by Spring force
- Disassemble the DS (190) from the actuator
- Remove the upper Clamp (180)
- Remove the upper Body (210)
- Remove the air hose from the Actuator.
- Place the actuator on the workbench for further maintenance.

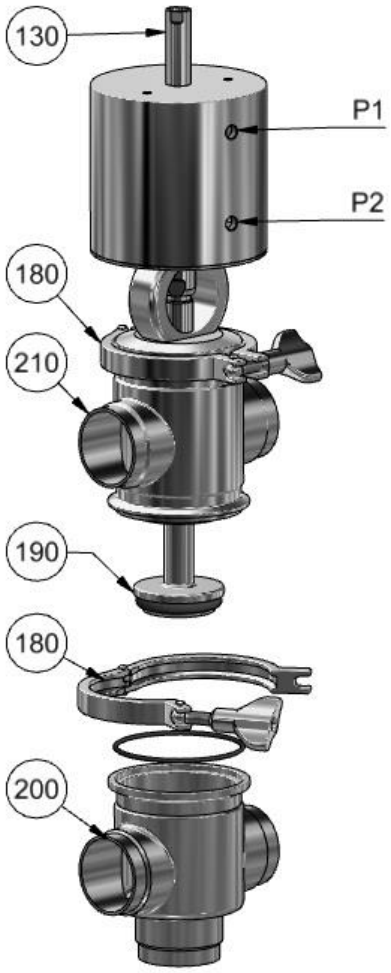
Using a 14 and 19 mm wrench to unscrew Disc and Stem (190)
from the Actuator. For easy disassembly of the disc and stem (190)

it is recommended to apply a small amount of compressed air
to P2 so that the Stem (130) rises slightly.
This makes it easier to disassemble Stem (190)

Valve N703 … N706 with actuator type SA

The Actuator with Disc and Stem (DBS) can be disassembled
in the field without disassembling the valve body (200).

- Make sure the compressed air supply is shut off
- Remove the air hose from the Actuator (P1).
- Remove the lower Clamp (180)
- Carefully lift the actuator with DS out of the lower Body (200)
- Control the actuator with compressed air to P1,
- The Stem (130) is driven out
- Disassemble the DS (190) from the actuator
- Remove the upper Clamp (180)
- Remove the upper Body (210)
- Place the actuator on the workbench for further maintenance.



Using a 14 and 19 mm wrench to unscrew Disc and Stem (190)
from the Actuator. For easy disassembly of the disc and stem (190)
it is recommended to apply a small amount of compressed air
to P2 so that the Stem (130) rises slightly.
This makes it easier to disassemble Stem (190)

Valve N703 … N706 with actuator type AA

The Actuator with Disc and Stem (DS) can be disassembled
in the field without disassembling the valve body (200).

- Control the actuator with compressed air to P2,
- Stem (130) retracts
- Remove the lower Clamp (180)
- Carefully lift the actuator with DS out of the lower Body (200)
- Disassemble the DS (190) from the actuator
- Remove the upper Clamp (180)
- Remove the upper Body (210)
- Remove the air hose from the Actuator.
- Place the actuator on the workbench for further maintenance.

Using a 14 and 19 mm wrench to unscrew Disc and Stem (190)
from the Actuator.

5.4. Actuator maintenance

The N7 Valve can be supplied as a Shut-off Valve (N701 N702) or as a Divert Valve (N703 … N706).
Also, the actuator of the N7 Valve can be designed as type AS, SA or AA, depending on the function of the complete valve.

Type AS - Actuator that controls the in-stroke with compressed air. (Valve NC)
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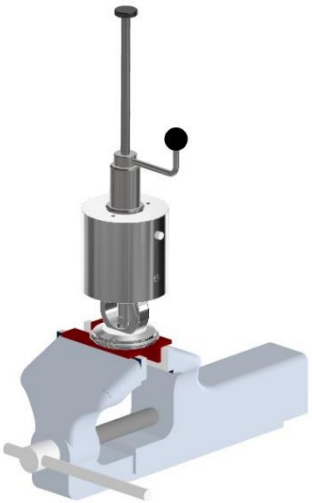
Type AA - Actuator that controls the In-stroke and out-stroke with compressed air.

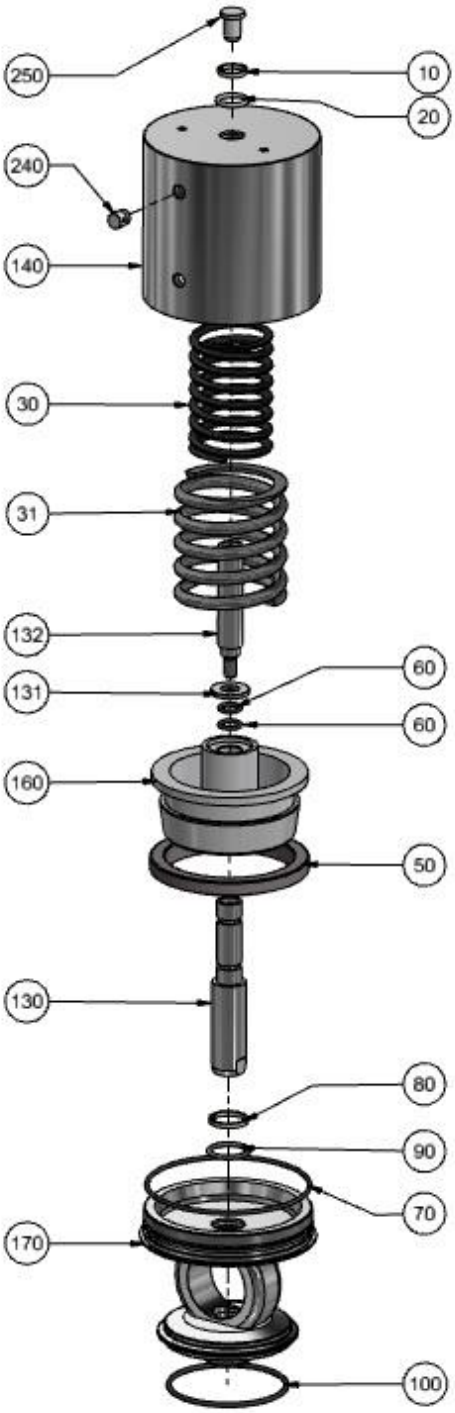
Actuator type AS



The Actuator is Spring Loaded,
Place the Actuator in a vise as shown.
Use soft blocks in the vise to avoid damaging the Actuator.

Install a Spring Tensioner to the head of the actuator as shown.
Pull the piston up by turning the
spring tensioner counterclockwise.
Unscrew the Adapter from the Cylinder
by turning it counterclockwise.
Carefully pull up the cylinder with piston and spring.
The spring can then be released by turning
the spring tensioner clockwise.
Remove the spring tensioner by
turning the spindle out of the Stem.

Maintenance Piston and Stem
Disassemble the Upper Stem (132) from the Stem (130),
and remove the Piston (160) from Stem (130).
Remove de Seal from Piston (160)
Remove O-rings (60) from Stem (130)
Remove O-ring (70) from Adapter (170)
Remove Guide ring (80) from Adapter
Remove O-ring (90) from Adapter
Remove Guide ring (110) from Adapter
Thoroughly clean the Stem, Piston, and Adapter
Make sure that the correct Service kit is used
Mount the new seat (50) on the Piston (160)
Mount the new O-rings (60) on the Stem (130)
Mount the new O-ring (0) in the Adapter (170)
Mount the new Guide strips (80) and (110) in the Adapter.
To get the Guide Ring in the right
shape and in the right place,
it is useful to use a Mandrel.

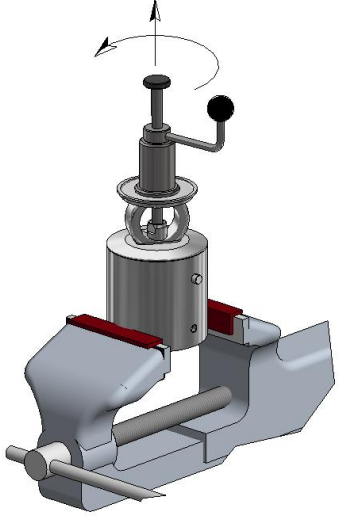


Mount the new O-ring (70) to the Adapter.
Place the Piston on the Stem (130) and assemble with
washer (131) and Upper Stem (132)
Place Spring (30) on Adapter (170) and mount Stem
with Piston In the Adapter.
Install the Spring Tensioner and pull the Piston to the Adapter
by turning the Spring Tensioner clockwise.
Now assemble the Actuator Body.
Afterwards, the spring can be released
and the spring tensioner removed

Example of a Mandrel

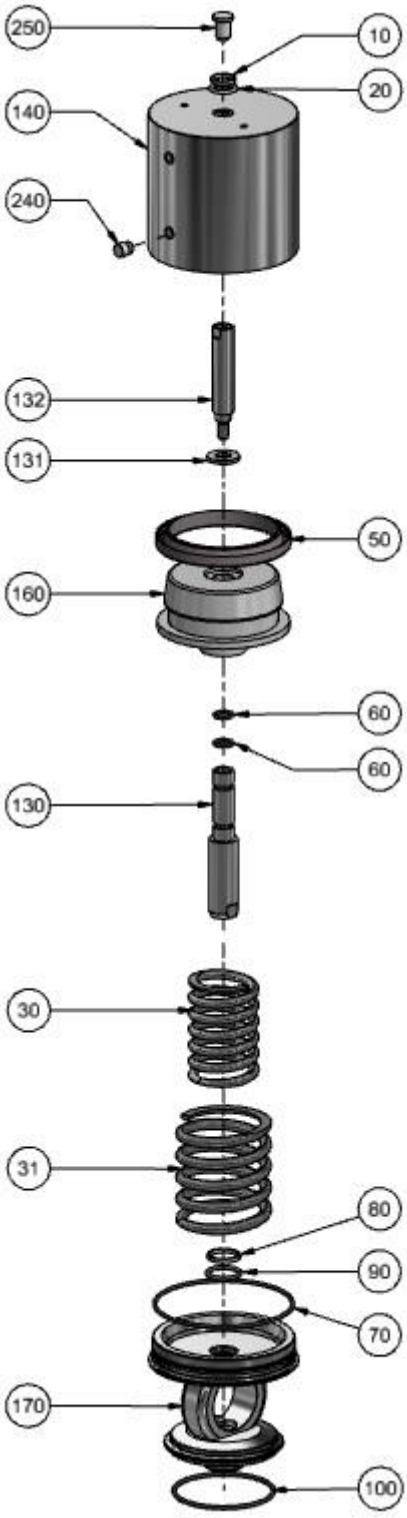
Actuator type SA

The Actuator is Spring Loaded,
Place the Actuator in a vise as shown.
Do not clamp the actuator in the center of the cylinder
Use soft blocks in the vise to avoid damaging the Actuator.



Install a Spring Tensioner to the bottom of the actuator as shown.
Pull the piston up by turning the
spring tensioner counterclockwise.
Unscrew the Adapter from the
Actuator Body by turning it counterclockwise.
Carefully pull the spring tensioner with
piston and spring out of the Cylinder
The spring can then be released by turning
the spring tensioner clockwise.
Remove the spring tensioner by
turning the spindle out of the Stem.

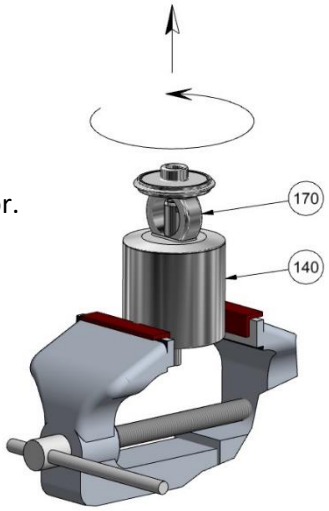
Maintenance Piston and Stem
Disassemble the Upper Stem (132) from the Stem (130),
and remove the Piston (160) from Stem (130).
Remove de Seal from Piston (160)
Remove O-rings (60) from Stem (130)
Remove O-ring (70) from Adapter (170)
Remove Guide ring (80) from Adapter
Remove O-ring (90) from Adapter
Remove Guide ring (110) from Adapter
Thoroughly clean the Stem, Piston, and Adapter
Make sure that the correct Service kit is used
Mount the new seat (50) on the Piston (160)
Mount the new O-rings (60) on the Stem (130)
Mount the new O-ring (0) in the Adapter (170)
Mount the new Guide strips (80) and (110) in the Adapter.
To get the Guide Ring in the right
shape and in the right place,
it is useful to use a Mandrel.



Mount the new O-ring (70) to the Adapter.
Place the Piston on the Stem (130) and assemble with
washer (131) and Upper Stem (132)
Place Spring (30) on Adapter (170) and mount Stem
with Piston In the Adapter.
Install the Spring Tensioner and pull the Piston to the Adapter
by turning the Spring Tensioner clockwise.
Now assemble the Actuator Body.
Afterwards, the spring can be released
and the spring tensioner removed.

Example of a Mandrel 

Actuator type AA



Place the Actuator in a vise as shown.
Do not clamp the actuator in the center of the cylinder
Use soft blocks in the vise to avoid damaging the Actuator.

Unscrew the Adapter (170) from the Cylinder (140)
by turning it counterclockwise.
Remove adapter
Carefully pull the piston with piston rod out of the cylinder.

Maintenance Piston and Stem
Disassemble the Upper Stem (132) from the Stem (130),
and remove the Piston (160) from Stem (130).
Remove de Seal from Piston (160)
Remove O-rings (60) from Stem (130)
Remove O-ring (70) from Adapter (170)
Remove Guide ring (80) from Adapter
Remove O-ring (90) from Adapter
Remove Guide ring (110) from Adapter
Thoroughly clean the Stem, Piston, and Adapter
Make sure that the correct Service kit is used
Mount the new seat (50) on the Piston (160)
Mount the new O-rings (60) on the Stem (130)
Mount the new O-ring (0) in the Adapter (170)
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To get the Guide Ring in the right
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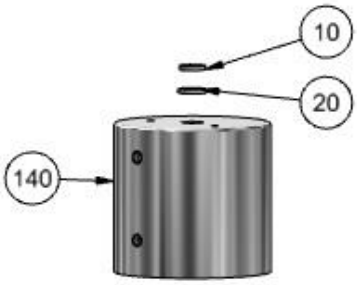

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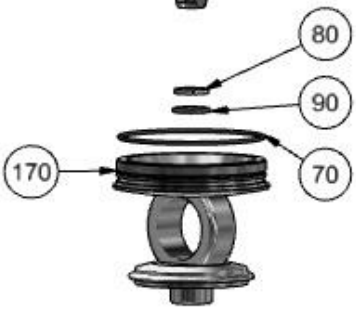
Now assemble the Actuator Body.
Afterwards, the spring can be released
and the spring tensioner removed.



Example of a Mandrel

6 Technical data

It is important to observe the technical data during installation, operation and maintenance.

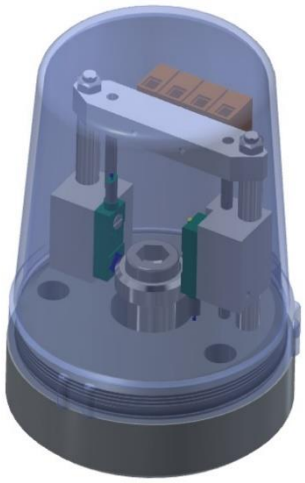
6.1. Technical data

Technische gegevens	*min.*	*max.*		
Product pressure	atm.	6 bar		
Temperature range	-5 °C	140 °C		
Air pressure	atm.	8 bar		
Connection type	Weld			
Materialen				
Product wetted steel parts	AISI 316L			
Other steel parts	AISI 304	or equal		
Product wetted seals	EPDM PC			
Seals according	3A FDA USDA USP Class VI ADI			
	(EC) No. EC1935-2004-FDA 21 CFR 177,2600			
Inside product side	Ra<0,8			
outside	Polish			

6.2. Noise

The noise level of a valve actuator will be approximately 77db(A) without noise damper and approximately 72 db(A) with damper.
- Measured at 6 bar air-pressure.
- Measured at 1 meter distance and 1.6 meter height

7 Options



As an option, a Micro Switch Unit N0900 can be placed on each type of N7 Valve.

- Waterproof transparent cover
- Visible valve position
- Proximity switches PNP or NPN
- 0.5”waterproof cable coupling
- Precisely adjustable open and close position
- easy connection via terminal strip

7.1 Technical data

Model Number

NBN4-F29-E2

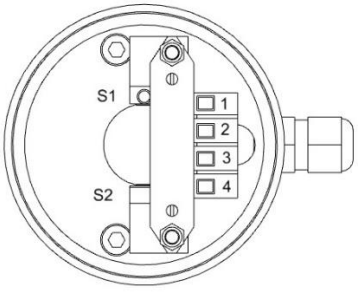
Features

- **4 mm non-flush**
- **3-wire DC**

General specifications		
Switching element function		PNP NO
Rated operating distance	s_n	4 mm
Installation		non-flush
Output polarity		DC
Assured operating distance	s_a	0 ... 3.24 mm
Reduction factor r_{Al}		0.4
Reduction factor r_{Cu}		0.3
Reduction factor r_{304}		0.7
Nominal ratings		
Operating voltage	U_B	4.75 ... 30 V DC
Switching frequency	f	0 ... 1000 Hz
Hysteresis	H	typ. 5 %
Reverse polarity protection		reverse polarity protected
Short-circuit protection		pulsing
Voltage drop	U_d	≤ 3 V
Operating current	I_L	0 ... 100 mA
Off-state current	I_r	0 ... 0.5 mA typ. 0.1 µA at 25 °C
No-load supply current	I_0	≤ 10 mA
Time delay before availability	t_v	≤ 5 ms
Switching state indicator		LED, yellow
Functional safety related parameters		
$MTTF_d$		1680 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		0 %
Ambient conditions		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
Mechanical specifications		
Connection type		cable PVC , 2 m
Core cross-section		0.14 mm^2
Housing material		PPS
Sensing face		PPS
Degree of protection		IP67
Compliance with standards and directives		
Standard conformity		
Standards		EN 60947-5-2:2007 IEC 60947-5-2:2007
Approvals and certificates		
UL approval		cULus Listed, General Purpose
CSA approval		cCSAus Listed, General Purpose
CCC approval		CCC approval / marking not required for products rated ≤36 V

The N0900 can be designed as a PNP circuit or NPN circuit.

A PNP sensor switches the + (plus), where an NPN switches the – (minus). With a PNP sensor, the load to be controlled must be connected to the minus (-) for it to be actuated. With the NPN, it must be connected to the plus (+).



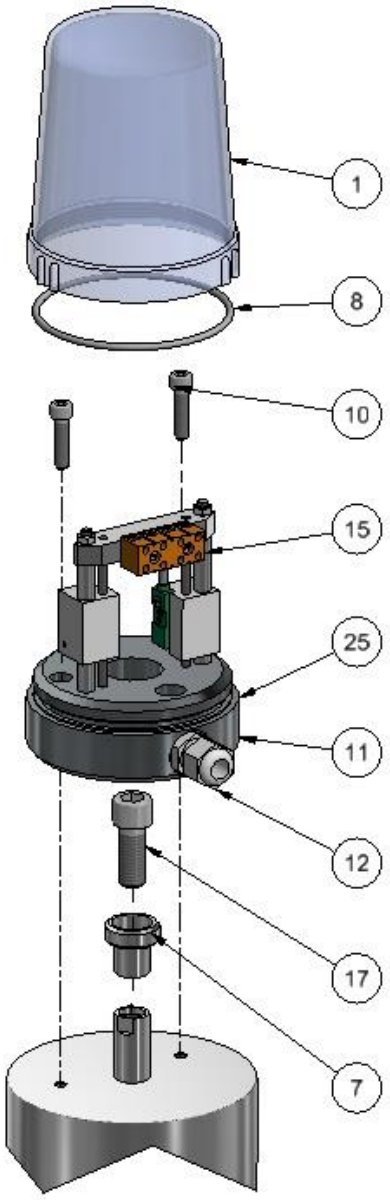
1 = 24 Vdc
2 = 0 Vdc
3 = Signal S1
4 = Signal S2

7.2 Construction guidelines

The N0900 can be mounted on any type of actuator of the N7 series by means of 2 bolts.

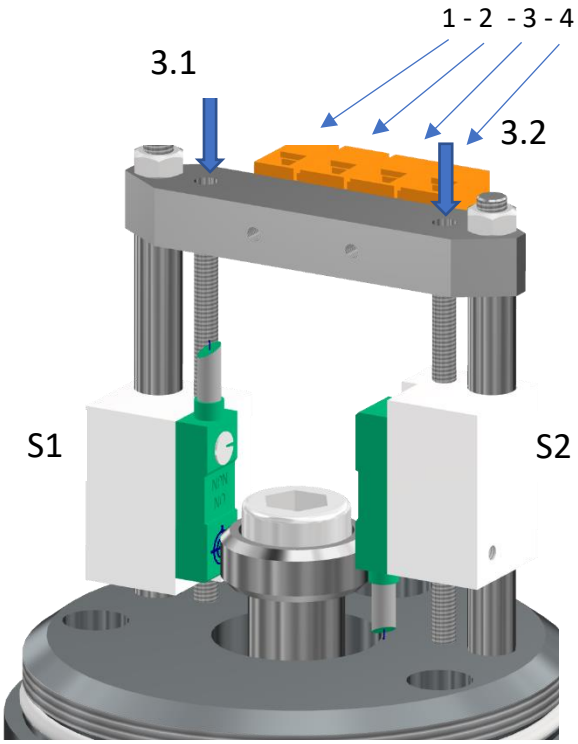
For correct construction, follow the next steps

- Place Switch cam (7) on the Actuator Stem
- Mount Switch Cam (7) with bolt (17) on the actuator
- Mount O-ring (11) in the Base (25) of the N0900
- Place the N0900 over the Switch Cam on the Actuator
- Mount the N0900 with the bolts(10) on the Actuator
- Mount a 4-wire cable via connector (12) in the N0900
- Connect the cable according to technical data
- Mount the O-ring (8) on the Base (11)
- Connect cable to terminal block (15) according diagram
  1=+24Vdc 2=-0Vdc 3=Signal S1 4=Signal S2



7.3 Adjusting the N0900

- Send the Valve in the Closed position
- Use the adjusting screw (3.1) to turn the proximity switch (S1) to its switching point in front of de Switch Cam (7) as shown
- Send the Valve in the open position
- Use the adjusting screw (3.2) to turn the proximity switch (S2) to its switching point in front of de Switch Cam (7)
- Place O-ring (8) on the Base (11)
- Place transparent Cap (1) on the Base (11)



7.4 Testing

- Connect the cable to 24Vdc
- Open the Valve
- Check if the yellow LED on switch (3.2) lights up
- Close the Valve
- Check if the yellow LED on switch (3.1) lights up

Check whether the Open and Close signals are send to the connected control system.