

SEMPELL

Nominal size	DN	10 - 50
	NVS	1/2" - 2"
Nominal pressure	DIN	PN 500
	ASME	Class 2680



Observe design data on the nameplate!

Design according to TO.080.01/080.02

- One piece body made of forged steel
- Valve yoke with needle bearing
- Packing made of pure graphite or PTFE (SN 99)

With accessories

SN 30	Watertight seal for gland
SN 33	Electrical actuator
SN 36/37	Electrical contactor
SN 38.1	Handwheel interlocking with padlock
SN 53	Backseat
SN 160.1	Spring-loaded gland
SN 182	Spindle lubrication
SN 371 - 373	Prepared for Valve lock A3-A5



Note!

This instruction does not specify the extent of delivery. It is valid for several sizes, designs, accessories and additional devices. It contents generally exceeds the contractual determined extent of delivery.

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1 Danger and Warning Indications

Danger for Persons and Materials

- Use valve only for the intended purpose.
- Additional mountings and modifications at valves and aggregates are only allowed with our approval. The same applies for foreign utilities or spare parts.
- Observe installation instructions.
- Adhere to the rules for prevention of accidents and to the safety instructions related to plant.
- During operation of valve danger by moving components is possible.
- Extreme vibrations may impair tightness and function.

Avoidance of Danger

A safe operation of the valve is only guaranteed when this instruction is observed (installation, operation, regular maintenance).

Working at valves only by skilled personnel and with special work order.

For disassembling the plant must be pressureless. Wait until the valve is cooled down. In case of opening and disassembling the valve residual medium may escape. Also for pressureless systems further evaporation is possible.

Disconnect electrical devices and auxiliary energy (e.g. compressed-air) before beginning of the inspection and maintenance works.

After each action control the ready-to-operate state of the valve and of all sealing points.

Exclusion of Liability

The Sempell GmbH does not accept liability when the regulations, rules and warning indications of this instruction are not observed and adhered to.

2 Description

The one-piece, die-forged body with hardfaced valve seat only needs an outward sealing of the disc stem (12). This sealing takes place by pre-compressed packing rings (14)(14.1) which guarantee a high tightness and a long service life. Due to the bipartite gland the packing with disc stem (12) can very easily be disassembled.

As standard the valve yoke is equipped with slide ring (33) below and needle bearing (32) above. Cup springs (30) prevent inadmissible stresses between body seat and disc, e.g. caused by temperature variations. All sliding surfaces are provided with a durable long-term lubrication. The dust-proof full casing of the valve yoke will be reached by round sealing rings (29, 21) that prevent outer damaging effects and losses of lubricants. Cylindrical welding ends allow an easy testing.

Only at DN 40/50 (NVS 2") the use of valve hooks for operation is admissible while considering the torque of max. 250 Nm.

A re-equipment from handwheel to electrical actuator is possible without difficulties while operating (see section 7, SN 33).

3 Directions for Installing

3.1 Limits of Application



Attention!

The application limits according to nameplate must not be exceeded in any case.

3.2 As-Delivered Condition

The valves are supplied ready for fitting. The welding ends or flanges are protected by plastic caps.

3.3 Storage

Store the valves in dry and weather-protected condition.

Protect gland area and disc stem against fouling, paint, etc.

To prevent damages by loading and unloading, move the valves by hand or by suitable lifting gears (weights see table 1). Handwheels or other driving elements are unsuitable as impact points.

3.4 Installation

Installation in any position. If possible, install valves with actuators with disc stem in vertical position. Direction of flow: Inlet preferable below the disc. Provide 400 mm as free space for operation, maintenance and disassembly (fig. 1).

Required supports are provided by the piping company.

For design with valve lock SN 371-373:

Check number of lock cylinder and shut position of valve locks or interlockings according to locking plan. Take removable keys under lock.



Application Limits

It is only allowed to use the valves according to the details of this operating instructions and / or according to the parameters and application cases agreed in the delivery contract (see nameplate). The application of the valve has to take place adequate to the medium tolerances of the used materials.



Attention!

Observe and adhere to the precautionary measures marked in the sections of this operating instruction.

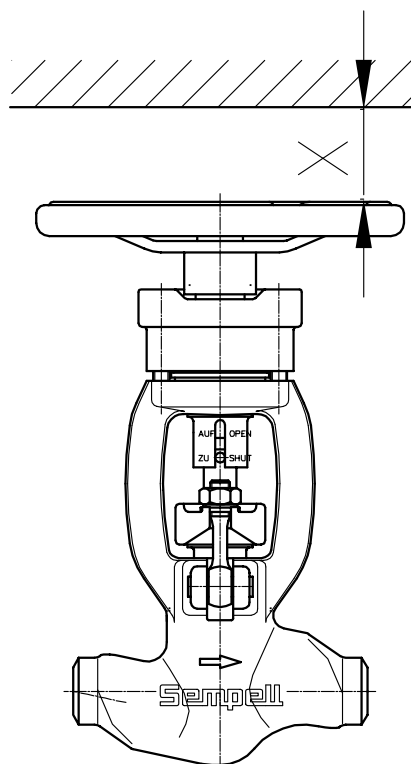


Fig. 1 – Free space for operation and maintenance

Table 1 - Weights

Size DN	NVS	Weight (kg) without accessories	
		With welding end	With flange
10/15	1/2"	8	16
25	1"	12	28
40/50	2"	40	88



Attention!

To be observed in any case!

Before commissioning the system the piping must be cleaned, as otherwise the seat tightness is not guaranteed.

3.5 Welding

Pay attention to regulations for welding, heat treatment, cleaning and testing. Do not fasten welding cable (return line) to valve. Check valve and welding ends for damages. Insert valve into the piping, align and lock it to enable welding free of stress. Control valve in regard of fouling, if necessary clean.

Move valve into OPEN position. Weld in valve. The welding nozzles have a sufficient length for the possibly required heat treatment and non-destructive testing. Disassembly of the packing (14)(14.1) will not be necessary, if the annealing temperature remains limited to the weld zone.

3.6 Pickling

Usually used valve materials are resistant against pickling fluids. As a rule slight attacks at the surface of valve parts are harmless.

Move valve into position OPEN and do not actuate during pickling and flushing. The pickling process has to take place uninterrupted. Do prevent unnecessary long impinge of the pickling fluid. Remove pickling fluid completely, e. g. by flushing. Thereby take special care to dead spaces in valves and dead pipe sections.



Attention!

Replace gaskets and gland packings coming in touch with the pickling fluid. Carefully clean sealing areas before replacement.

3.7 Installation Instruction for Double Shutoff

Valve 1 normal position "OPEN" (repair valve)

Valve 2 normal position "SHUT" (stop valve)

Both valves are installed with pressure below piston (usual flow). This has the advantage that in case of throttling with valve 2 the disc stem (12) is centred and thus the vibration are minimised. Furthermore the gland packing (14)(14.1) is released.

It is also possible to install valve 2 with pressure above piston. Thus, the necessary closing forces are reduced. This can be advantageous at high operation pressures, especially at DN 40 / 50 (NVS 2").

For safe operation keep a minimum distance of the valves of 120 mm in case of double shutoff (fig. 2). It is also possible to arrange the valves in V-shape.



Caution!

During installation of double shut-off valves in piping systems, in which water or other condensing liquids can gather, avoid that this liquid will be enclosed between the valves 1 and 2 in any case.

Attention! There is danger of destruction by excess-pressure in case of new heating.

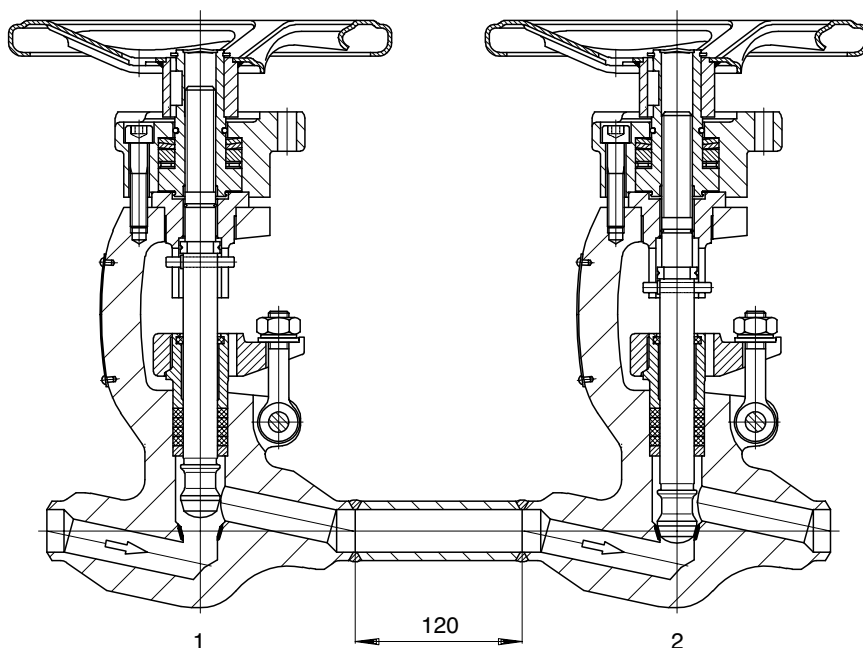


Fig. 2 – Double shutoff

Preventive measures:

- at operation always keep repair valve in OPEN position. If necessary provide for interlocking or
- effective excess-pressure safety device.

3.8 Insulating

Attach necessary insulation according to drawing (fig. 3) only up to the eyebolts, so that elements for adjustment and operation are permanently accessible (X = upper edge of insulation).

4 Inspection and Maintenance Works

4.1 Warning Indications



Caution!

If operating pressure is applied, neither loosen gland flange (16) nor repack gland, as otherwise the packing (14)(14.1) may suddenly be forced out. Danger of accident by escaping medium. Also in case of valves with backseat (accessory SN 53) the repacking of the gland under operating pressure is forbidden in a lot of countries by laws and regulations. The Sempell GmbH also strongly warns against this method for reasons of working safety as the backseat can be leaky e.g. by foreign bodies.

4.2 For Commissioning

After the first pressure charge, after each disassembly and after the first heating:

- Check gland. When retightening the packing (14)(14.1): Observe tightening torques. Check movability of the disc stem (12).

4.3 During Revision (once a year, under severe conditions twice a year)

- Control gland and retighten, if necessary; for accessory SN 160.1 (spring-loaded gland) perceptible at the gap between guide bush (65) and disc (67). Observe tightening torques (section 6.2). Replace leaky packing (14)(14.1).
If required, clean disc stem (12) above gland shaft (15).
- Check valve for easy motion. If necessary, lubricate disc stem (12).
With accessory SN 182 this can be executed through the grease nipple (86). At standard design disassemble valve yoke.
- With accessory SN 371-373 (valve lock):
Externally clean valve lock. Check function of the interlocking by actuating the key. In case of binding use lubricant capable of creeping. In case of trouble, contact customer service.
- With accessory SN 30 (watertight seal for gland):
Check tightness. If necessary, replace sealing ring (98).
- Standard valve has a long-term lubrication for max. 3 years. Change grease at valve yoke completely after 3 years at the latest.



In case of frequent operating and extreme application conditions we recommend to provide the valves with accessory SN 182 (spindle lubrication, standard at DN 40 / 50, NVS 2"). Lubrication interval about 1-4 weeks. An extension of the interval is possible on ground of operational experiences.

4.4 At Dismantled Valve

Required tools see section 5.3.

- Clean disc stem (12) in the area of the packing (14)(14.1). For rework: Cylinder shape 0.05 mm (DIN 7184), surface polished in longitudinal direction (Ra 0.2 µm), max. tolerance h9.
- Use new packing (14)(14.1).
- Lubricate movable parts in the valve yoke. Lubricate disc stem (12) using brush.
- While changing the grease of the rotary actuator, relubricate also the valve yoke.
- Rework seat faces in body (1) and at disc stem (12), if necessary. The disc stem (12) may subsequently dip deeper to the body (1) by max. 3 mm (see table 2).
Record actual dimension before first rework. Valve seat inclination 15°, rework disc seat on turning lathe according to pattern.
If reworking of the disc seat is impossible, the seat can also be ground together with the body seat.

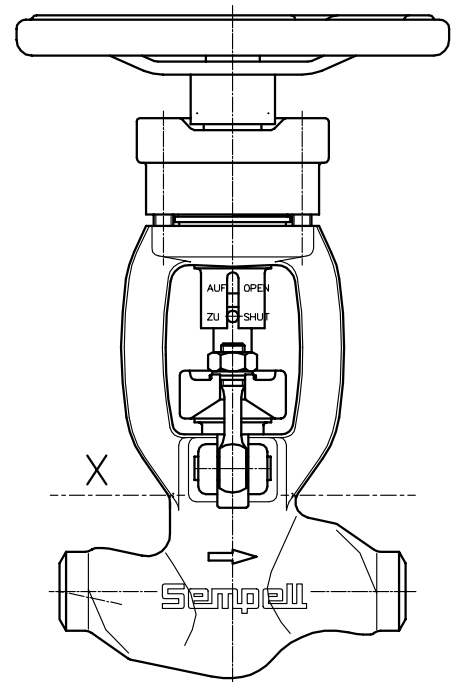


Fig. 3 – Insulation

Table 2 - Max. abrasion

Max. admissible removal in (mm)	DN 10/15	DN 25	DN 40/50
	NVS 1/2"	NVS 1"	NVS 2"
Seat	2	2	2
Disc stem	2	2	2
Total (max.)	3	3	3

5 Disassembly

5.1 Warning Indications



Attention!

Check if valve and pipe system are pressureless.

Caution!

Residual medium may escape while opening the valve.

Before disassembly, wait until the valve is cooled down.

Before disassembling switch off electrical supply, disconnect plug or cable.

Before disassembling, shut off and loosen existing compressed-air lines.

5.2 Instructions and Sequence of Disassembly

- Move valve into OPEN position.
- In case of valves with mounted accessories, first dismount accessories according to section 7. Then continue dismantling according to section 5.5.
- Dismantle valves without accessories according to section 5.5.

5.3 Tools

- Fixed spanner 22, 27, 36 mm
- Hexagonal screwdriver 6, 8, 14 mm
- Torque wrench and adapter
- Straight retaining ring pliers for outer rings Ø 22-42 mm
- Hammer
- Distance piece

For efficient assembly and maintenance works we recommend to use the Sempell revision toolbox which includes all tools listed above (see also section 9).

5.4 Utilities

- Lapping abrasive: Tetra-Borcarbid 180-1200, Wasels, Altena (if disc seat is partially ground with body seat, see section 4.4)
- Degreasant: Kaltron 113MDS/113MDK/113MDI35. Frigen 113TR-T. Freon PCA/TF/T-P35/TA. Isopropanol with acetone, mixture 1:1, white spirit 180/200.
- Lubricant for assembly (MoS₂): Molykote-Spray, Dow Corning, Munich.
- Lubricating grease for bearings, stem thread:

Application Limits

Material of threaded bush	Temperature limits at stem thread/valve yoke	
	Up to 120°C	Above 120°C
Non-ferrous metal	Molykote-BG20	Barrierta L55/2
Free from non-ferrous metal	Barrierta L55/2	Barrierta L55/2

(The temperature limit 120°C corresponds to a medium temperature of about 400°C!)

Lubricant for screws: Molykote-BR2plus

Source of supply: Molykote BR2 Plus / BG20 DOW Corning, Munich;

Barrierta L55/2, Klüber, Munich, Mobilgrease Spec, Mobil Oil



When using Barrierta L55/2 carefully clean components with white spirit 180/200 or Klüberalfa XZ3-1 before assembling as otherwise loss of lubricity is possible. Never mix Barrierta L55/2 with other lubricants.

5.5 Dismantling the Valve

Move disc stem (12) into position OPEN. Loosen hexagonal nuts (37), swing off eyebolts (39). Detach allen bolts (22). By turning handwheel (26) to the right, turn up complete valve yoke and slide in distance piece (D) (e.g. from the toolbox or alternatively screw in 2 allen bolts (22)) between body flange (1) and cover (24) (fig. 4).

Now by turning handwheel (26) to the left, pull packing (14)(14.1) by means of flange at disc stem (12) until the topmost packing ring appears. Lift gland flange (16) about 5 mm and turn gland shaft (15) by 90° (bayonet). Lay gland flange (16) on the body (1). Afterwards further turn handwheel (26) and remove packing (14)(14.1) out of the body (1). Disassemble complete valve insert as an unit.

Unscrew complete valve yoke from the disc stem (12). Draw off guide bush (20). Remove split ring (34) including ring (35). Take out guide bolt (36). Remove gland shaft (15), packing (14)(14.1) and base ring (13). For rework of body (1) and disc stem (12) observe section 4.4.

Disassembling Valve Yoke

Remove retaining ring (27) and handwheel (26) including parallel key (25). Take off cover (24). Remove sealing ring (29), cup spring (30), disc rings (31) and needle bearing (32). Take off slide ring (33).

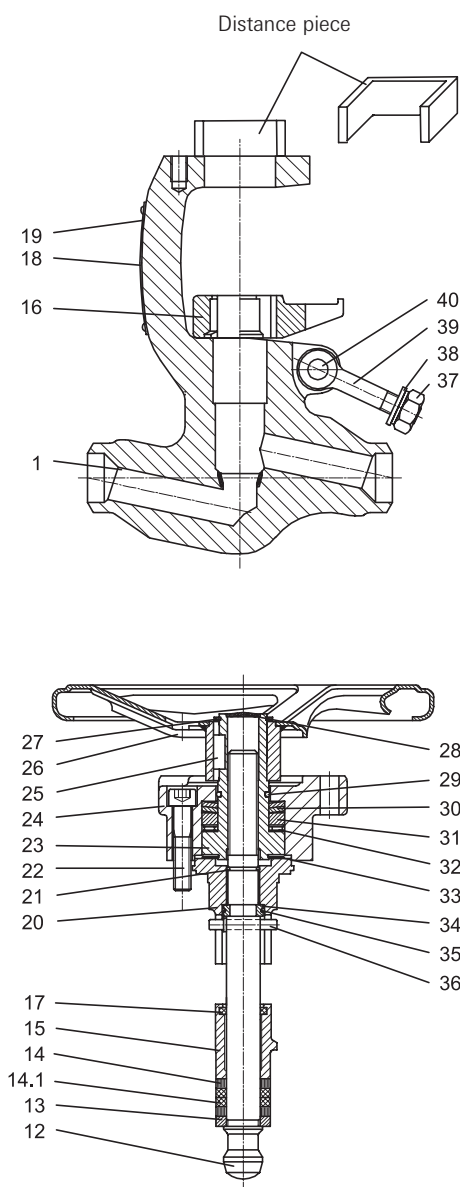


Fig. 4 – Dismantling the valve

6 Assembly

6.1 Assembling the Valve

• Assembling Valve Yoke

Control threaded bush (23), needle bearing (32), slide ring (33) and sealing ring (29) in regard of damages and, if necessary, replace them. Provide each part with new grease. Put needle bearing (32), disc ring (31) and cup spring (30) onto the threaded bush (23). The cup springs (30) are supported with the small diameter on the disc ring (31). Insert sealing ring (29) and mount slide ring (33) with the PTFE-silk towards the threaded bush (23). Put cover (24) on threaded bush (23). Mount handwheel (26) with parallel key (25) and secure by means of retaining ring (27).

• Assembling the Valve

Check sealing ring (21) in regard of damages, if required, replace and lubricate it. Insert disc stem (12) with base ring (13) through gland flange (16) into the body (1). While doing so, the bore of the guide bolt (36) has to stand at 90° to the pipe axle. Move packing rings (14) (14.1) separately over disc stem (12) and apply a blow by means of a ramming tube (toolbox). Put gland shaft (15) with possibly new stripper (17) over disc stem (12). Assemble split ring (34) and secure with ring (35). Tap guide bolt (36) slightly into the disc stem (12) (safety lip). Move guide bush (20) over the disc stem (12). Lubricate the threads of disc stem (12) and of allen bolts (22) with the appropriate grease (see section 5.4).

The bearing surfaces between cover (24), guide bush (20) and body (1) must be grease-free.

Total grease amount for one valve yoke (see fig. 5)

DN10/25 NVS 1/2" / 1" about 2 cm³

DN 40/50 NVS 2" about 3 cm³

I thread of disc stem (12) and threaded bush (23)

II sealing rings (21)(29)

III needle bearing (32) and slide rings (33)

IV cup spring (30) and disc ring (31)

Turn complete valve yoke on the disc stem (12) and tighten by means of allen bolts (22). Observe tightening torques (section 10). Lift gland flange (16) and turn gland shaft (15) until it clicks into place (90° bayonet).

Swing up eyebolts (39) and fasten by means of hexagonal nuts (37). In doing so, lubricate bearing areas and threads. Tighten gland flange (16) according to following description:

- Move valve into position OPEN.
- Pre-stress with increased torque.
- Loosen nuts.
- Retighten with torque for the operation.
- Move valve into position SHUT.
- Retighten again with torque for the operation.

6.2 Tightening Torques and Extrusion Travel of Gland Packing

Table 3 - Tighten torques and travel ways

Packing di / da / l	Screws	Tightening torques (Nm)	Md- Installation	Md-Operation		
				pB = 100	pB > 100	pB > 350
16 / 24 / 16 (DN 10/15) (NVS 1/2")	2 x M12	Tightening torques (Nm)	19.0	6.0	9.0	11.0
	Way Graphite (mm)		-	1.2	1.6	1.9
	Way PTFE (mm)		-	1.4	1.6	1.7
20 / 32 / 24 (DN 25) (NVS 1")	2 x M12	Tightening torques (Nm)	29.0	12.0	18.0	22.0
	Way Graphite (mm)		-	1.8	2.4	2.8
	Way PTFE (mm)		-	2.0	2.4	2.7
32 / 50 / 36 (DN 40/50) (NVS 2")	2 x M16	Tightening torques (Nm)	75.0	36.0	54.0	65.0
	Way Graphite (mm)		-	2.7	3.5	4.0
	Way PTFE (mm)		-	3.0	3.6	4.0

Sempell recommends the tightening procedure depending on torque. The travel data are approximate values. The specified tightening torques must not be exceeded.

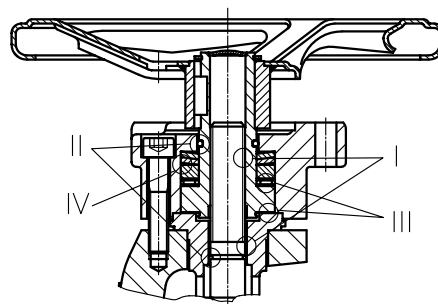


Fig. 5 – Lubrication points at valve yoke

7 Disassembly and Assembly of Accessories

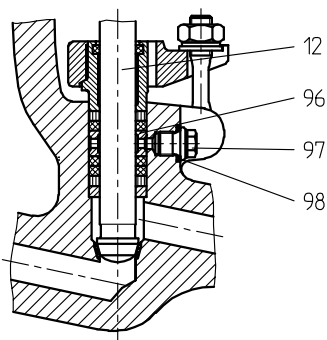


Fig. 6 – SN 30

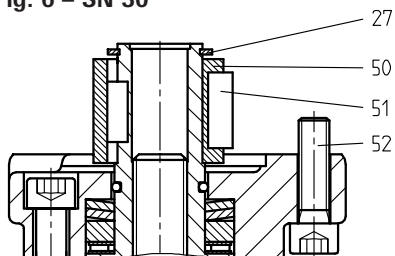


Fig. 7 – SN 33.A (DN 10-25, NVS 1/2-1''), SN 33.B (DN 40/50, NVS 2'')

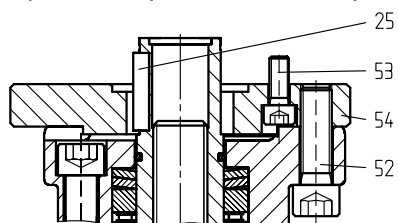


Fig. 8 – SN 33.A (DN 40/50, NVS 2'')

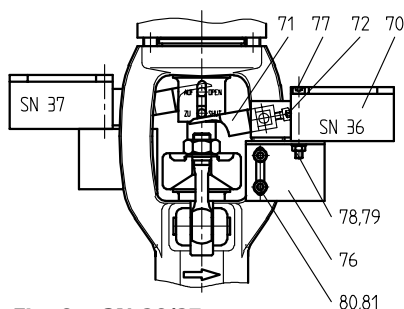


Fig. 9 – SN 36/37

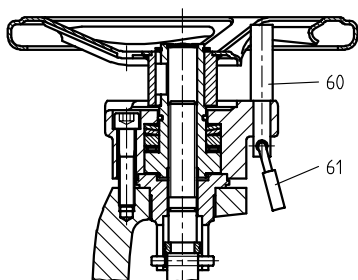


Fig. 10 – SN 38

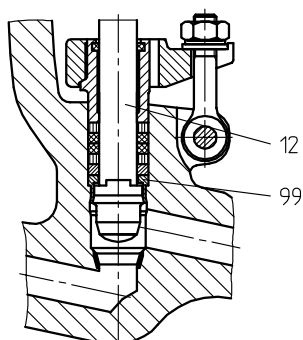


Fig. 11 – SN 53

SN 30 Watertight Seal for Gland (Fig. 6)

The valves will be delivered with a locking screw (97). Change the sealing ring (98) while installing the suction device (96). In any case pay attention to a clean sealing surface. Tightening torque for locking screw (97): 80 Nm.

SN 33.A Electrical Actuator DN 10-25, NVS 1/2-1" (ISO 5210 F10 B1) and SN 33.B DN 40/50, NVS 2" (ISO 5210 F14 B1) (Fig. 7)

A reequipment from handwheel to electric actuator and reverse is possible without difficulties during operation.

* Disassembly:

Loosen allen bolts (52) and lift off rotary actuator. In doing so, take care of the parallel key (51). For further disassembly of the valve: Remove retaining ring (27) and bush (50). Mount handwheel (assembly support) and secure by means of allen bolts (52).

* Assembly:

Screw tightening torques see section 10. If necessary, put on bush (50) and secure by retaining ring (27). Mount electric actuator with parallel key (51) and fasten by means of allen bolts (52).

Adjustment electric actuator

Closing: torque switched

Opening: stroke switched, torque superimposed

The torque adjusted at works must not be exceeded.

SN 33.A Electrical Actuator DN 40/50, NVS 2" (ISO 5210 F10 B1) (Fig. 8)

A reequipment from handwheel to electric actuator and reverse is possible without difficulties during operation.

* Disassembly:

Loosen allen bolts (52) and lift off rotary actuator. In doing so, take care of the parallel key (25). Mount handwheel (assembly support) and secure by means of allen bolts (52).

* Assembly:

Screw tightening torques see section 10. Mount electric actuator with parallel key (25) and fasten by means of allen bolts (52).

Adjustment electric actuator

Closing: torque switched

Opening: stroke switched, torque superimposed

The torque adjusted at works must not be exceeded.

SN 36/37 Electrical Contactor (Fig. 9)

* Disassembly:

Loosen allen bolts (80) and remove electrical contactors.

* Assembly:

Fasten electrical contactors with allen bolts (80) and washers (81) to the body. The distance to the disc stem (12) can be changed through the slotted boreholes by means of hexagonal nuts (78). The contactors are adjusted through the slotted boreholes by means of allen bolts (80). Move disc stem (12) into SHUT position and adjust contactor (SN 36) for the lower stop. Move disc stem (12) into OPEN position and adjust contactor (SN 37) for the upper stop.

SN 38 Handwheel Interlocking with Padlock (Fig. 10)

* Disassembly:

Open padlock (61) and remove pin (60) from cover (24).

* Assembly:

Put pin (60) into cover (24) and secure with padlock (61).

SN 53 Backseat (Fig. 11)



Attention!

The repacking of the gland under operating pressure by means of the backseat is forbidden in a lot of countries by laws and regulations. The Sempell GmbH also strongly warns against this method for reasons of working safety as the backseat can be leaky e.g. by foreign bodies.

* Disassembly:

At disassembly take care that contrary to the standard design the disc stem (12) is turned by 90° while drawing the packing (14)(14.1), e. g. the signal pin (36) shows into flow direction. Please note: Use a new bush (99) after each disassembly.

* Assembly:

Insert disc stem (12). Put in bush (99). In doing so, observe that the milling-out shows into flow direction. Insert base ring (13) and extended gland shaft (15) (assembly support see toolbox). Further assembly as for standard design but without split ring (34) and ring (35). Tighten gland studs. Draw disc stem (12) with about 50 Nm into the backseat to pre-form bush (99). Afterwards screw off valve yoke, remove extended gland shaft (15). Duly pack and assemble valve.

SN 160.1 Spring-loaded Gland

For assembling, pay attention to the correct arrangement of the layers of the cup springs (66).

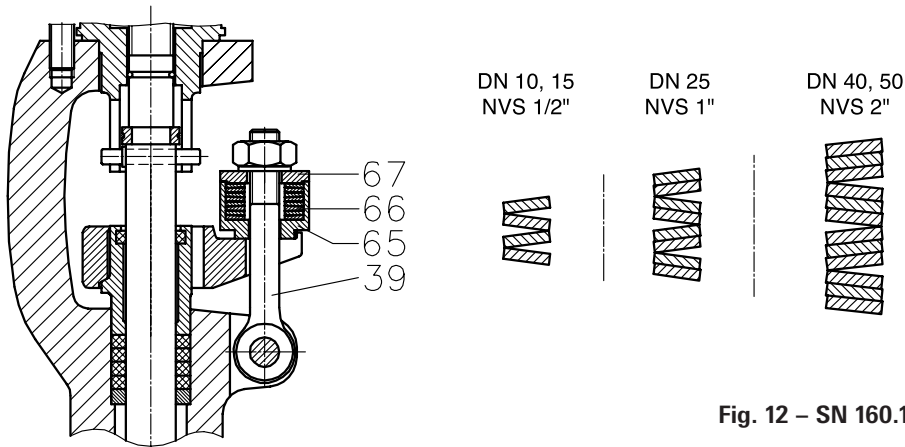


Fig. 12 – SN 160.1

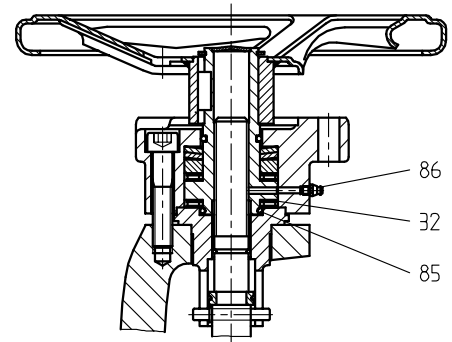


Fig. 13 – SN 182

SN 182 Spindle Lubrication (Standard for DN 40/50, NVS 2")

Disassembly and assembly as in case of standard valve but use a second needle bearing (32) instead of the slide ring (33) and secure with circlip (85).

SN 371 - 373 Valve Lock

* Disassembly:

Unlock valve lock with numbered releasing key. Drive valve into medium position. Bores in the bush (57) have to align with threaded pin (56). Loosen threaded pin (56). Screw off valve lock.

* Assembly:

Mount bush (57) on valve with extended disc stem (12).

Drive valve into medium position. Screw on valve lock up to the stop (left-turn thread) and then turn it back max. 180° until the bore in the bush aligns with the bore of the disc stem (12). In this position tighten threaded pin (56). Drive valve into locking position. Turn key, draw off and take under lock.

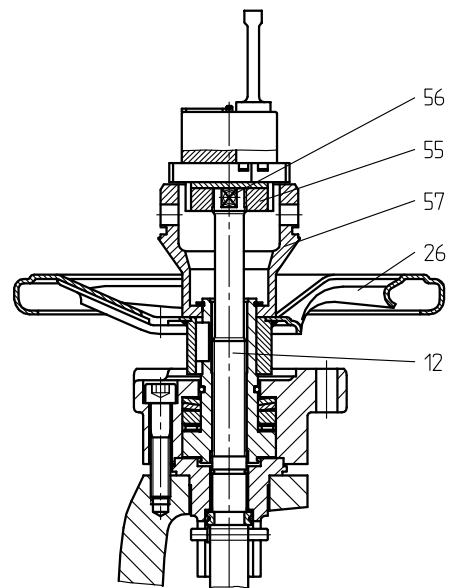


Fig. 14 – SN 371 - 373

8 Spare Parts

Please specify job no. / position according to nameplate in case of order.

- Disc stem (12) with sealing ring (21)
- Threaded bush (23) with lock washer (28)
- Packing insert (14)(14.1)
- Needle bearing (32)
- Stripper (17)
- Sealing ring (29)
- Slide ring (33)

9 Toolbox

The toolbox includes all tools and auxiliary means (additional to section 5.1) needed for satisfactory and easy assembling and maintenance work:

- Ramming tubes for packing according to required nominal size.
- Distance pieces for disassembling valve yoke.
- Grinding mandrels including abrasive paper for grinding the body seats.
- Drive machine optional with 220 V alternating current, 40 V direct current, 6 - 8 bar compressed air.
- Not-go gauge for body seat and spindle with the body seat gauge integrated into the grinding mandrel.
- Lamp with mirror for inspection of the body seat.



Fig. 15 – Toolbox part 1

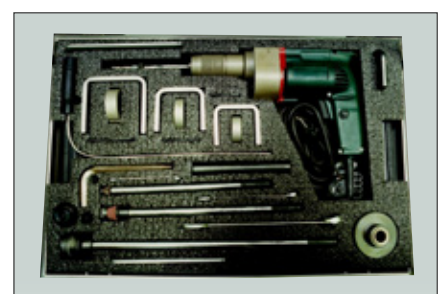


Fig. 16 – Toolbox part 2

10 Declaration to EC-Directive

For valves with CE-approval mark applies the following declaration:

Declaration of Conformity

According to Pressure Equipment Directive 97/23/EC

1	Manufacturer	Sempell GmbH Werner von Siemens Straße 41352 Korschenbroich
2	Pressure Device	Stop Valves VA500, VA510 with CE-Marking
3	Conformity Valuation Procedure	Module H
4	Notified Bodies	TÜV-CERT-Certification agency for QM-Systems of TÜV Rheinland Anlagentechnik GmbH Am Grauen Stein, 51101 Köln registration number 0035
5	Applied documents	type test VdTÜV 234 (only VA500)
6	Notified Body Supervising Quality Assurance System	TÜV-CERT-Certification agency for QM-Systeme of TÜV Rheinland Anlagentechnik GmbH Am Grauen Stein, 51101 Köln
7	Applied co-ordinated standards	valid EN material standards
8	Applied Standards and Specification	TRD 110, AD 2000 ASME B16.34
9	Other Applied EC-Directives	None

10 Authorised representative of the manufacturer in EC

11 Signature: i.A.  i.V. 

12 Date 11.21.2013 11.21.2013

13 Name D. Schulz Dr. H.D.Perko

14 Function responsible for product authorised representative for PED

Fig. 17 – Conformity declaration

11 Part List and Assembly Drawing

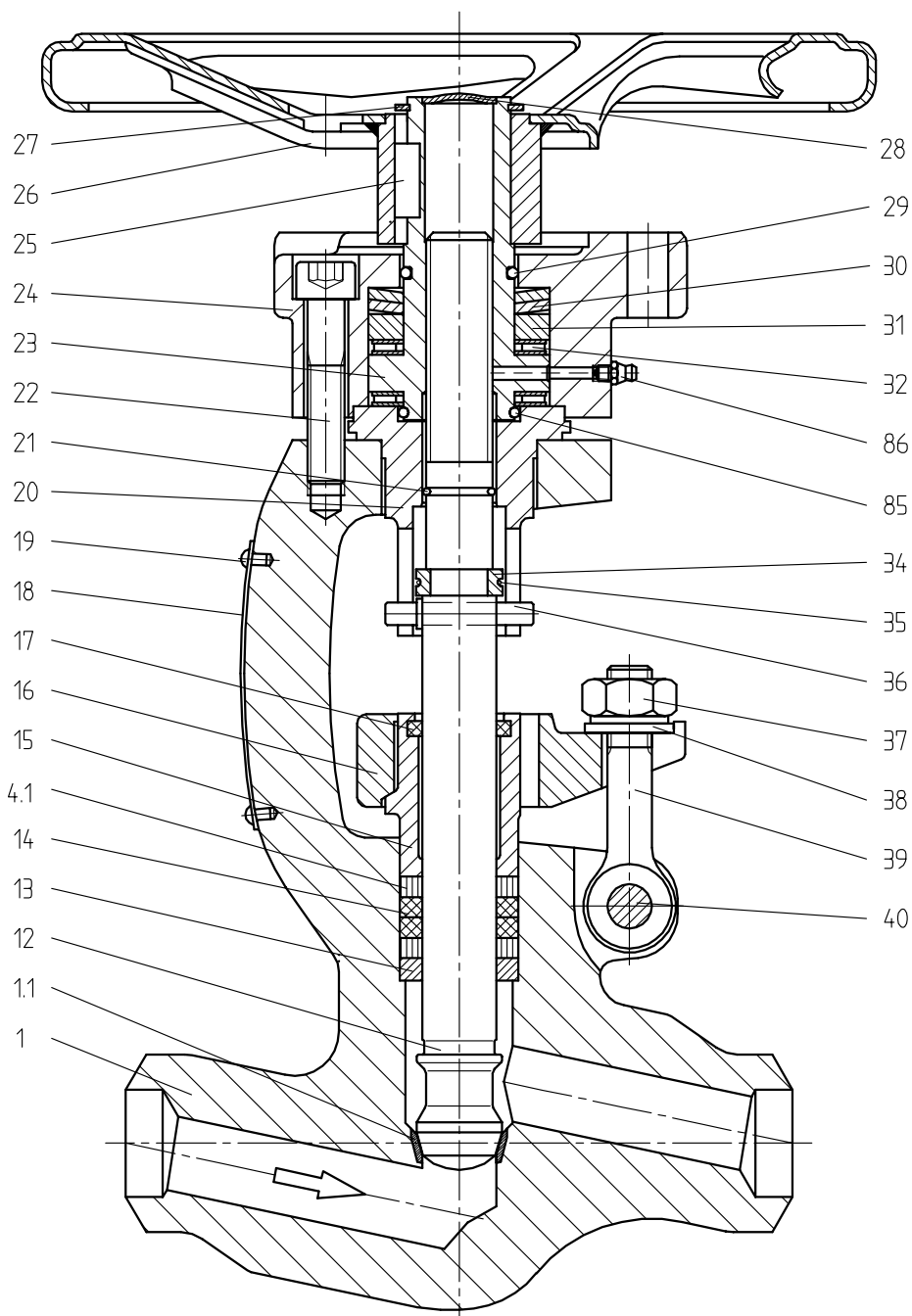


Table 4 - Parts list

Part	Name	Piece
1	Body	1
12	Disc stem	1
13	Base ring	1
14	Packing	2 1)
14.1	Packing	2
15	Gland shaft	1
16	Gland flange	1
17	Stripper	1
18	Nameplate	1
19	Notched nail	2
20	Guide bush	1
21	Sealing ring	1
22	Allen bolt	4
23	Threaded bush	1
24	Cover	1
25	Parallel key	1
26	Handwheel	1
27	Retaining ring	1
28	Lock washer	1
29	Sealing ring	1
30	Cup spring	2 2)
31	Disc ring	1
32	Needle bearing	1 3)
33	Slide ring	1 3)
34	Split ring	1
35	Ring	1
36	Guide bolt	1
37	Hexagonal nut	2
38	Washer	2
39	Eyebolt	2
40	Slotted pin	2

Notes

- 1) For DN 10-25 / NVS 1/2-1" 3 pieces
 - 2) For DN 15 / NVS 1/2" 1 piece
 - 3) For SN 182 instead of the slide ring 2 needle bearings (standard at DN 40/50, NVS 2", see description of accessory SN 182)
 - 4) Description of the position see accessory SN 33.
- Tightening torques for position 37 see section 6.2.

Table 5 - Bolt tightening torques (Nm)

DN	NVS	Part 22	Part 52 4)
10/15	1/2"	20	40
25	1"	40	40
40/50	2"	120	120