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## Compact Performance

Types 459, 462, 450, 460

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## 1 Purpose

This LESER Global Standard (LGS) defines the rules and procedures for special approvals and provides a guideline for local implementation.

## 2 Scope

This document must be used for the assembly of Compact Performance safety valves in agencies and subsidiaries of LESER GmbH & Co. KG.

## 3 References

- LGS 0201 (LWN 220.01)
- LGS 3324 (LWN 324-01)
- LGS 3614 (LWN 614-08)

Note: LESER LWN standards will be replaced by LGS, latest editions apply.

## 4 Disclaimer

LESER puts in a great deal of effort into making up-to-date and correct documentation available. Nevertheless, LESER GmbH & Co. KG gives no guarantee that the recommended actions presented here are entirely correct and error free. This document is to be applied exclusively to the specified type. LESER GmbH & Co. KG declines any liability or responsibility for the correctness and completeness of the content.

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## 5 Qualified fitting personnel

The assembly of LESER safety valves may only be performed by trained or qualified fitters. The qualifications must be obtained through the appropriate training measures.

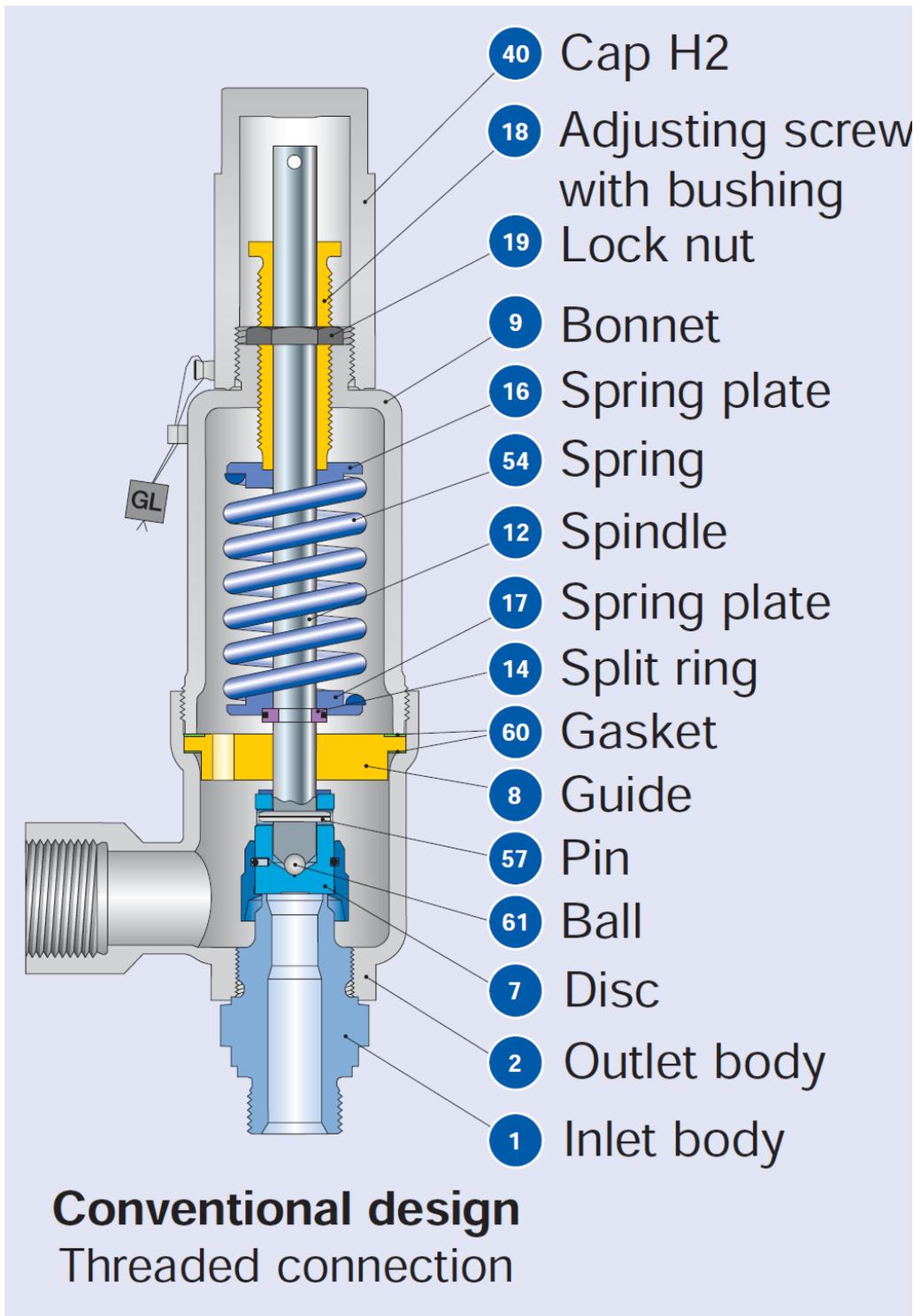
## 6 General Information



- Gloves must be worn during the entire assembly.

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## 7 General illustration



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Figure 7-1

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## 8 Assembly of the Compact Performance

### 8.1 Assembly of the adjusting screw

Illustrations	Description	Aids / Tools
 <p>Figure 8.1-1</p>	Put the bushing in the adjusting screw.	
 <p>Figure 8.1-2</p>	Assemble the adjusting screw and lock nut.	
 <p>Figure 8.1-3</p>	Grease adjusting screw thread	Brush Halocarbon (OI-56 S / 60H)

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Illustrations	Description	Aids / Tools
 <p><b>Figure 8.1-4</b></p>	Grease the front side of the adjusting screw.	Brush Halocarbon (OI-56 S / 60H)
 <p><b>Figure 8.1-5</b></p>	Screw the adjusting screw into the cap (a few turns).	

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## 8.2 Inlet body assembly

### 8.2.1 Inlet body assembly for threaded connector

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.2.1-1</b></p>	<p><b>Visual check of inlet body:</b> Check sealing surface for cleanness or damage.</p> <p>Grease the sealing lip and thread of the inlet body.</p>	<p>Brush</p> <p>Halocarbon (OI-56 S / 60H)</p>
 <p><b>Figure 8.2.1-2</b></p>	<p>Screw the inlet body into the outlet body hand tight.</p>	
 <p><b>Figure 8.2.1-3</b></p>	<p>Screw the assembly device onto the inlet body.</p> <p>Clamp the body onto the test bench.</p>	<p>Assembly device, test bench</p>

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Illustrations	Description	Aids / Tools
 <p><b>Figure 8.2.1-4</b></p>	Tighten the outlet body with 100 Nm.	Torque wrench

## 8.2.2 Assembly of inlet body for flanged connector

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.2.2-1</b></p>	<p>Visual check: Check sealing surface for cleanliness and damage.</p> <p>Grease the sealing lip and thread and clamp the inlet body onto the test bench.</p>	<p>Brush</p> <p>Halocarbon (OI-56 S / 60H)</p>
 <p><b>Figure 8.2.2-2</b></p>	Screw on the outlet body and tighten at approx. 100 Nm.	Torque wrench

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### 8.3 Assembly of disc assembly

#### 8.3.1 Disc with a lifting aid and a securing ring

Illustrations	Description	Aids / Tools
 <p>Figure 8.3.11-1</p>	<p>Put the disc in the lifting aid with hands.</p> <p><b>ATTENTION: Sealing surface must not be damaged!!!</b></p>	-
 <p>Figure 8.3.11-2</p>  <p>Figure 8.3.11-3</p>	<p>Clamp the disc on the clamping vice and insert the marked end (see Figure 9.3.2-3) of the securing ring in the recess on the side of the disc with hands.</p>	Clamping Vice

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Figure 8.3.11-4

Rotate the lifting aid with the sickle spanner.

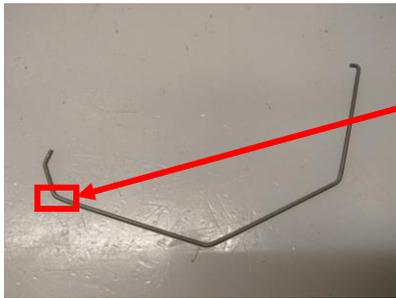


Figure 8.3.11-5

Rotate the lifting aid until the other end of the securing ring sits in the recess of the disc.

Optional: A very slight use of Halocarbon against higher friction between the disc and the lifting aid, when occurs, is allowed.

**!!ATTENTION!!** It is not permitted to rotate the disc after this bent point while tightening.  
Reason: Torque increases exponentially if the disc is rotated after this point.



Figure 8.3.11-6

**!!ATTENTION!!** The securing ring should be rotated until the end bent point of the securing ring. Rotating of the securing ring further of the end bent point of securing ring must be absolutely avoided.

**!!!ATTENTION!!!** The re-use of an already installed securing ring is not permissible.

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### 8.3.2 Metallic seal type 459

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.3.2-1</b></p>	Disc body, lifting aid, locking ring	
 <p><b>Figure 8.3.2-2</b></p>	Put the disc body in the lifting aid.	
 <p><b>Figure 8.3.2-3</b></p>	Put the disc in the assembly device and secure with a screw.	Vice
 <p><b>Figure 8.3.2-4</b></p>	<p>Insert the retaining clip in the hole on the disc body designated for that purpose.</p> <p>Clamp the assembly device onto the vice and tighten the lifting aid with a C-spanner as far as it will go.</p>	C-spanner with a nose

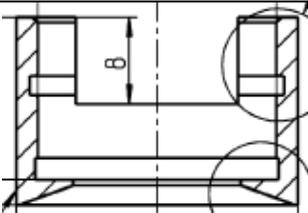
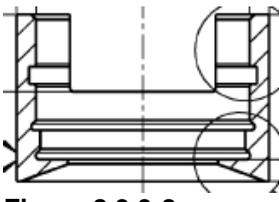
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### 8.3.3 Plastic sealing plate

The described sealing plate assembly has been replaced by a new assembly variant with regard to optimization. The particular components of the assembly variants must not be interchanged! **The sealing plate assembly must be replaced as a complete assembly unit only.**

Old Illustration	New Illustration	Distinguishing Feature
 <p>Figure 8.3.3-1</p>	 <p>Figure 8.3.3-2</p>	<p><b>The colour of the sealing plate is NOT distinguishing feature!</b></p>
 <p>Figure 8.3.3-3</p>	 <p>Figure 8.3.3-4</p>	<p><b>Old disc:</b> Recess for sealing plate</p> <p><b>New disc:</b> smooth end face</p>
 <p>Figure 8.3.3-5</p>	 <p>Figure 8.3.3-6</p>	<p><b>Old disc:</b> Sealing plate is integrated inside the disc</p> <p><b>New disc:</b> Sealing plate is positioned on the plate</p> <p><b>The colour of the sealing plate is NOT distinguishing feature!</b></p>
 <p>Figure 8.3.3-7</p>	 <p>Figure 8.3.3-8</p>	<p><b>Lifting aid</b></p>

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Illustrations	Description	Aids / Tools
 <p><b>Figure 8.3.3-9</b></p>	<p>Insert the sealing plate in the disc body (freely turning up)</p>	
 <p><b>Figure 8.3.3-10</b></p>	<p>Emboss the code letters of the sealing plate on the edge of the disc.</p>	<p>Punch numbers, Hammer</p>
 <p><b>Figure 8.3.3-11</b></p>	<p>Put the body with the sealing plate in the assembly device and secure with a screw.</p>	<p>Assembly Device</p>

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Illustrations	Description	Aids / Tools
 <p><b>Figure 8.3.3-12</b></p>	<p>Insert the retaining clip in the hole of the disc body designated for that purpose.</p>	
 <p><b>Figure 8.3.3-13</b></p>	<p>Clamp the assembly device onto the vice and tighten the lifting aid with a C-spanner as far as it will go.</p>	<p>Vice C-spanner with a nose</p>

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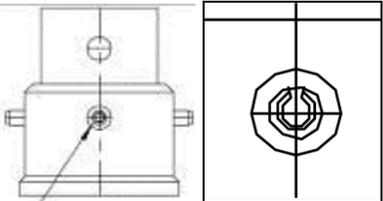
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### 8.3.4 O-ring seal types 462 (do = 9)

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.3.4-1</b></p>	<p>Individual parts of the disc with O-ring seal</p>	
 <p><b>Figure 8.3.4-2</b></p>	<p>Set pressure <math>\leq 5</math> bar Wet the O-ring with "soapy water" and put it on the disc body.</p> <p>Set pressure <math>&gt; 5</math> bar Wet the O-ring with pure water and put it on the disc body.</p> <p>Hammer the code letter into the O-ring body according to the O-ring material.</p>	
 <p><b>Figure 8.3.4-3</b></p>	<p>Put the disc body in the lifting aid.</p>	

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Illustrations	Description	Aids / Tools
 <p>Figure 8.3.4-4</p>	<p>Put the disc <b>with spacers</b> in the assembly device and press it in carefully.</p>  <p>Hammer pins into all four sides of the lifting aid (the axis of the slit of the pin points in the direction of the spindle).</p>	<p>Assembly device</p>

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### 8.3.5 O-Ring seal type 462 (do = 13, do= 17.5)

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.3.5-1</b></p>	<p>Individual parts of the disc with O-ring seal for type 462</p>	
 <p><b>Figure 8.3.5-2</b></p>	<p>Wet the O-ring with "soapy water" and put it on the disc body.</p> <p>Hammer the code letter into the O-Ring body according to the O-ring material.</p>	
 <p><b>Figure 8.3.5-3</b></p>	<p>Wet the inside of the lifting aid with "soapy water".</p>	

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Illustrations	Description	Aids / Tools
 <p data-bbox="188 763 363 790">Figure 8.3.5-4</p>	<p data-bbox="922 376 1185 573">Put the disc body in the lifting aid and press in with the assembly device. Hammer in the pins on both sides.</p>	

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## 8.4 Assembly of spindle/disc assembly

### 8.4.1 Assembly of spindle/disc assembly (without bellows)

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.4.1-1</b></p>	<p>Insert the ball into the disc body.</p>	
 <p><b>Figure 8.4.1-2</b></p>	<p>Put the spindle into the disc and secure the parts with a pin (crimp it first inwards at one end to make installation easier)</p>	
 <p><b>Figure 8.4.1-3</b></p>	<p>Push the guide onto the spindle.</p>	

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Illustrations	Description	Aids / Tools
 <p><b>Figure 8.4.1-4</b></p>	<p>Fit split rings into the recess of the spindle and secure them with a retaining clip.</p>	
 <p><b>Figure 8.4.1-5</b></p>	<p>Push the lower spring plate, the spring and the upper spring plate onto the spindle.</p>	

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### 8.4.2 Assembly of spindle/disc assembly (with stainless steel bellows)

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.4.2-1</b></p>	Grease spindle	Brush Halocarbon (OI-56 S / 60H)
 <p><b>Figure 8.4.2-2</b></p>	Put a very small amount of glue on the spindle thread (1 drop).	Glue
 <p><b>Figure 8.4.2-3</b></p>	Fit the bellows and tighten it quickly hand tight with two pin punches.	Pin punch

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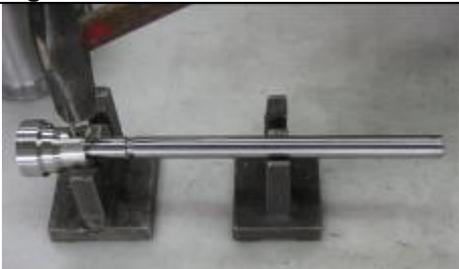
Illustrations	Description	Aids / Tools
 <p><b>Figure 8.4.2-4</b></p>	<p>Fit split rings into the recess of the spindle and secure them with a retaining clip.</p>	
 <p><b>Figure 8.4.2-5</b></p>	<p>Place the sealing ring in the cooling zone/bonnet spacer.</p>	
 <p><b>Figure 8.4.2-6</b></p>	<p>Shift the spindle with the bellows through the cooling zone into the disc. Afterwards, put it onto the assembly device and secure it with a pin (first crimp pin inwards at one end to make installation easier).</p>	

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### 8.4.3 Assembly of spindle/disc assembly (with elastomer bellows)

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.4.3-1</b></p>	<p>Insert the ball into the disc body.</p>	
 <p><b>Figure 8.4.3-2</b></p>	<p>Shift the spindle into the disc and secure with a pin (first crimp the parts inwards at one end to make installation easier)</p>	
 <p><b>Figure 8.4.3-3</b></p>	<p>Push the bellows onto the assembly aid until the thick end is flush.</p>	<p>Assembly aid</p>
 <p><b>Figure 8.4.3-4</b></p>	<p>Fit assembly aid with bellows onto the spindle</p>	

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Illustrations	Description	Aids / Tools
 <p><b>Figure 8.4.3-5</b></p>	<p>Put the bellows over the disc by means of the assembly aid.</p>	
 <p><b>Figure 8.4.3-6</b></p>	<p>Remove the assembly aid from the spindle and put guide on.</p> <p>Put the other end of the bellows over the neck of the guide.</p>	
 <p><b>Figure 8.4.3-7</b></p>	<p>Secure both sides of the bellows with cable ties.</p> <p>Cut off the overlapping end.</p>	<p>Side cutter or similar</p>

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## 8.5 Inserting the spindle/disc assembly

### 8.5.1 Inserting the assembly (without bellows)

Illustrations	Description	Aids / Tools
 <p data-bbox="188 1249 360 1276"><b>Figure 8.5.1-1</b></p>	<p data-bbox="850 443 1144 707">Fit the assembly into the outlet body carefully. In this process, push the guide down and lift the spindle somewhat so that the disc does not touch down.</p> <p data-bbox="850 730 1118 824">Put the disc with the spindle carefully down onto the seat.</p>	

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### 8.5.2 Inserting the assembly (with stainless steel bellows)

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.5.2-1</b></p>	<p>Put the assembly on the outlet body and tighten it hand tight. In this process, pull the spindle up somewhat so that the sealing surface is not scratched.</p> <p>Put the disc with the bellows and spindle carefully down onto the seat.</p> <p>Tighten the bonnet spacer with the C-spanner.</p>	C-spanner with a nose
 <p><b>Figure 8.5.2-2</b></p>	<p>Push the lower spring plate, the spring and the upper spring plate onto the spindle.</p>	

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### 8.5.3 Inserting the assembly (with elastomer bellows)

Illustrations	Description	Aids / Tools
	<p>Put the assembly carefully into the outlet body. In this process, push the guide down and lift the spindle somewhat so that the disc does not touch down. Put the disc with the spindle carefully down onto the seat.</p>	

Figure 8.5.3-1

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## 8.6 Assembly of the bonnet

### 8.6.1 Assembly of bonnet (without stainless steel bellows)

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.6.1-1</b></p>	Grease the front side and threads of the bonnet and put on carefully.	Brush, Halocarbon (OI-56 S/ 60H)
 <p><b>Figure 8.6.1-2</b></p>	Screw the bonnet on hand tight. Secure the spindle/disc against turning.	
 <p><b>Figure 8.6.1-3</b></p>	Afterwards, tighten the bonnet and hold up the outlet body with the torque wrench.	Open-end spanner and torque wrench

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### 8.6.2 Bonnet assembly (with stainless steel bellows)

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.6.2-1</b></p>	<p>Grease the front side and threads of the bonnet and put it on carefully.</p>	<p>Brush, Halocarbon (OI-56 S / 60H)</p>
 <p><b>Figure 8.6.2-2</b></p>	<p>Screw the bonnet on hand tight. Secure the spindle/disc against turning.</p> <p>Afterwards, tighten the bonnet and hold up the outlet body with the torque wrench.</p>	<p>Open-end spanner and torque wrench.</p>

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## 8.7 Determination and installation of the lift stopper

### 8.7.1 Installation of the lift stopper with ring/sleeve

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.7.1-1</b></p>	<p>First of all, insert the spindle assembly into the body <b>without the spring plate and spring</b> and screw the bonnet. After installation of the bonnet, determine the spindle overlap in a non-opened state with a depth gauge.</p>	Sliding Vernier calliper
 <p><b>Figure 8.7.1-2</b></p>	<p>Open the valve completely by hand (e.g. with a pin punch) through the inlet and determine the spindle overlap once again.</p> <p><b>The extent of the lift stopper = spindle overlap (opened) - (spindle overlap not opened) - lift given in the work plan.</b></p> <p>Remove spindle assembly carefully off the body</p>	Pin punch
 <p><b>Figure 8.7.1-3</b></p>	<p>Put the sleeve/ring with the determined thickness on the spindle between the disc and guide.</p>	

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### 8.7.2 Installation of the lift stopper with set screw (taken from LGS 3324)

Illustrations	Description	Aids / Tools
<p><b>Figure 8.7.2-1</b></p>	<p>Use a completely assembled valve to measure the distance "h+x" from the top edge of the cap/lever to the end of the spindle. In accordance with this distance, a screw (DIN 933) is shortened to the size "x". Install the shortened screw with a nut and seal it separately. During the assembly, the screw is secured firmly against the cap, by the nut.</p> <p>Here, the gap between the head of the screw and the nut shall not exceed a maximum of 0.5 mm (approx 1/4 of a screw turn).</p> <p>Seal the screw with PTFE tape within the cap.</p>	

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## 8.8 Adjusting the set pressure

Illustrations	Description	Aids / Tools
	<p><b>CAUTION:</b> </p> <p>The following instructions apply to all valves covered in this work instruction <b>except for 4594 with d0=6mm</b>.</p> <p>LGS 3614 applies in that case.</p> <p>Secure the splint pin against turning when adjusting the adjusting screw.</p> <p>Pressurise the valve and adjust it to the set pressure with the adjusting screw in accordance with the specification.</p> <p>Check whether the valve opens at the set pressure. The set pressure of the valve has been reached when you can hear air escaping. Full opening must be achieved.</p> <p>If the valve opens outside the stipulated set pressure tolerance, then the adjusting screw must be adjusted again.</p> <p>Turning in a clockwise direction causes the valve to open at higher pressure.</p> <p>Turning in a counter-clockwise direction causes the valve to open at lower pressure.</p> <p>Release the pressure when readjusting the adjusting screw. Readjust the adjusting screw and then pressurise the valve again.</p>	

Figure 8.8-1

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## 8.9 Testing and documenting the seat tightness.

Illustrations	Description	Aids / Tools
 <p>Figure 8.9-1</p>	<p>Raise the valve to its set pressure 3x.</p> <p>After the 3<sup>rd</sup> opening, throttle the valve from the set pressure to the test pressure.</p> <p>Screw the test cap onto the outlet body.</p> <p>Seal the valve outlet with the test plug thereby connecting it to the water tank.</p> <p>Adjust the valve to the given test pressure.</p> <p>Check the functional seal tightness according to the order specifications and LGS 0201.</p> <p>If there are leaks, check the components. If necessary, relap the disc and/or seat.</p> <p>If the seal tightness has been met, then document the results.</p> <p>Remove the test cap</p>	<p>Test cap Water tank Test plug</p>

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## 8.10 Assembly of the outlet

### 8.10.1 Assembly of outlet flange (Outlet adapter with cylindrical thread)

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.10.1-1</b></p>	<p>Grease the thread and front side of the outlet adapter.</p>	<p>Brush Halocarbon (OI-56 S / 60H)</p>
 <p><b>Figure 8.10.1-2</b></p>	<p>Place flange over the outlet of the body.</p> <p>Screw the outlet adapter into the outlet body and tighten it.</p>	<p>Open-end spanner</p>

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### 8.10.2 Assembly of outlet flange (outlet adapter with conical NPT thread)

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.10.2-1</b></p>	<p>Wrap the thread of the outlet nozzle with sealing tape (3 full windings in a clockwise direction).</p>	<p>PTFE tape</p>
 <p><b>Figure 8.10.2-2</b></p>	<p>Place flange over the outlet of the body. Screw the outlet adapter into the outlet body and tighten it. Cut off the sealing tape that is not screwed in.</p>	<p>Knife</p>

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## 8.11 Assembly of the cap / lever

### 8.11.1 Assembly of cap H2

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.11.1-1</b></p>	Grease the thread and sealing lip of cap H2.	Brush Halocarbon (OI-56 S / 60H)
 <p><b>Figure 8.11.1-2</b></p>	Screw the lever onto the thread of the bonnet and tighten it by using approx. 80 – 100 Nm. Additional hold up the bonnet with an open end spanner.	Torque wrench and open-end spanner

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### 8.11.2 Assembly of lever H3

Illustrations	Description	Aids / Tools
 <p>Figure 8.11.2-1</p>	Spindle cap with cylinder pin and retaining ring	
 <p>Figure 8.11.2-2</p>	Fasten the spindle cap to the spindle with the cylinder pin and retaining ring.	
 <p>Figure 8.11.2-3</p>	Individual parts of lever H3	
 <p>Figure 8.11.2-4</p>	Screw the lever cover on and put it into position ("nose" must point in the outlet direction).  Use spacers, if necessary	

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Illustrations	Description	Aids / Tools
 <p>Figure 8.11.2-5</p>	<p>Secure the lever with the plastic ball...</p>	
 <p>Figure 8.11.2-6</p>	<p>... and locking screw against twisting.</p>	
 <p>Figure 8.11.2-7</p>	<p>Putting on the venting lever.</p>	
 <p>Figure 8.11.2-8</p>	<p>Fit the bolt and secure it on both sides with retaining clips.</p>	

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### 8.11.3 Assembly of lever H4

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.11.3-1</b></p>		
 <p><b>Figure 8.11.3-2</b></p>	<p>Fasten the spindle cap to the spindle with the cylinder pin and retaining ring.</p>	

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Illustrations	Description	Aids / Tools
<p style="text-align: center;"><i>Position der Anlüftung ohne Ausgleichs Scheiben Handfest</i></p> <p>0,4 → 0,4          0,5 → 0,5          0,7 → 0,7          0,8 → 0,4+0,4          0,9 → 0,5+0,4          1,0 → 0,5+0,5          1,2 → 0,4+0,4+0,4          1,3 → 0,5+0,4+0,4          1,4 → 0,7+0,7          1,7 → 0,7+0,5+0,5          1,8 → 0,5+0,5+0,4+0,4</p> <p><b>Figure 8.11.3-3</b></p>	<p>Screw on the lever and put it into position as illustrated by using spacers (the home position in a completely assembled state is at 1.7).</p>	
<p><b>Figure 8.11.3-4</b></p>	<p>Put on the determined number of spacers.</p> <p>Grease each spacer as well as the metallic sealing surface individually.</p> <p>Screw on the lever and tighten it with approx. 80 – 100 Nm. Additional hold up the bonnet with an open-end spanner</p>	<p>Torque wrench and open-end spanner</p>

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### 8.11.4 Assembly of lift indicator in H4 lever

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.11.4-1</b></p>	<p>Position the eccentric hole that the spindle cap is exactly in the middle.</p>	
 <p><b>Figure 8.11.4-2</b></p>	<p>Secure the position with a lock nut.</p> <p>Screw in the lift indicator as far as it will go, and then unscrew it <u>one turn</u>.</p>	
 <p><b>Figure 8.11.4-3</b></p>	<p>Secure the position of the lift indicator by tightening the first nut hand tight.</p> <p>Then lock with a second nut.</p>	

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### 8.12 Test gag assembly (possible for H2 + H4)

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.12-1</b></p>	Grease the sealing surface of the short bolt.	Brush Halocarbon (OI-56 S / 60H)
 <p><b>Figure 8.12-2</b></p>	Put on the sealing ring and grease it as well.	Brush Halocarbon (OI-56 S / 60H)
 <p><b>Figure 8.12-3</b></p>	<p>Screw the plug screw into the cap or lever and tighten it with 28-32 Nm (or 72-76 Nm for thread size M16).</p> <p>When blocked, the torque for the longer test gag screw is 20 Nm.</p>	Torque wrench

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### 8.13 Documentation and testing the seal tightness to the outside

#### 8.13.1 Testing the seal tightness to the outside for flanged valves through immersion.

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.13.1-1</b></p>	Seal the valve at the inlet with a sealing cap.	Sealing cap
 <p><b>Figure 8.13.1-2</b></p>	Screw a test nozzle onto the outlet.	Test nozzle

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Illustrations	Description	Aids / Tools
 <p><b>Figure 8.13.1-3</b></p>	Hook the valve in the testing assembly device.	Testing assembly device
 <p><b>Figure 8.13.1-4</b></p>	Immerse the valve. Test pressure 6 bar	
<p><u>Test pressure for valves with elastomer bellows:</u></p> <p> Set pressure <math>p_0 &lt; 3 \text{ bar}</math>: <math>0.15 \times p_0</math> Set pressure <math>p_0 \geq 3 \text{ bar}</math>: 2bar</p> <p>If the seal tightness is good (no bubbles), document the test result. If there are any leaks, check the affected sealing surfaces and seals for damage and then test again.</p> <p>Dry the valve with compressed air.</p>		

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### 8.13.2 Testing the seal tightness to the outside for flanged valve

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.13.2-1</b></p>	<p>Clamp the outlet side of the valve to the test bench.</p> <p>Pressurise the valve with 6 bar.</p>	Test bench
 <p><b>Figure 8.13.2-2</b></p>	<p>Wet the valve with leak detector spray on the interconnection points and the outlet area.</p>	Leakdetector spray

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 Test pressure for valves with elastomer bellows:  
 Set pressure  $p_0 < 3 \text{ bar}$ :  $0.15 \times p_0$   
 Set pressure  $p_0 \geq 3 \text{ bar}$ : 2bar

If the seal tightness is good (no bubbles), document the test result.

If there are any leaks, check the affected sealing surfaces and seals for damage and then test again.

Dry the valve with compressed air.

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### 8.14 Sealing the valve

Illustrations	Description	Aids / Tools
 <p><b>Figure 8.14-1</b></p>	<p>Connect the sealing hole or lug with the cap/lever and bonnet closely in a clockwise direction.</p> <p>Seal the lever/cap to the outlet body.</p>	

### 8.15 Visual inspection

Check the valve once again for damage, freedom from burrs, casting faults etc. and replace defective parts if necessary.

Perform visual inspection and document.

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