Contents

This document describes the maintenance of LESER safety valves type 447. It is translated from an official LESER document; namely WI 4600.25, but not an official LESER quality management document on its own.

1 Disclaimer

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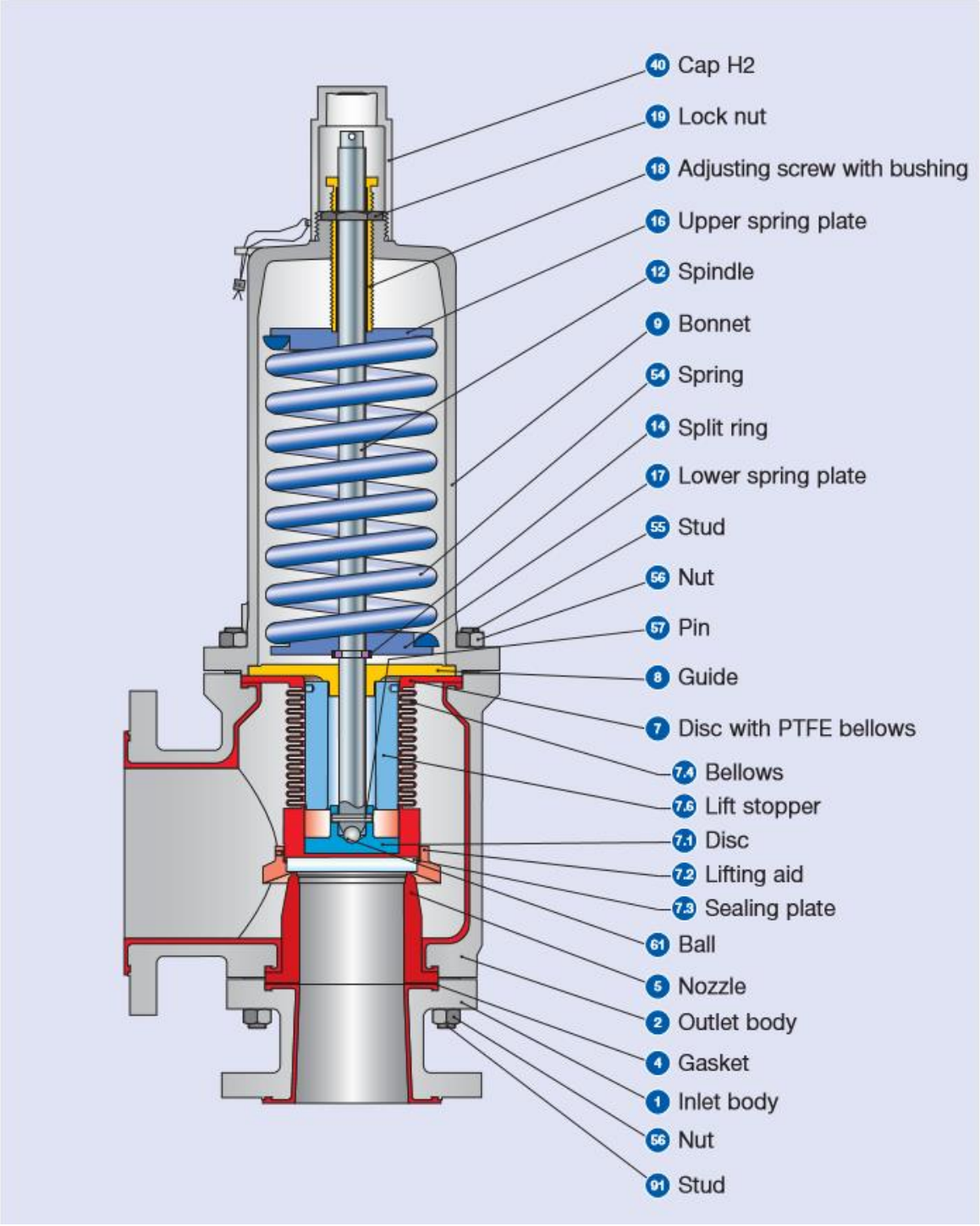
2 Qualified assembly personnel

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

3 General illustration



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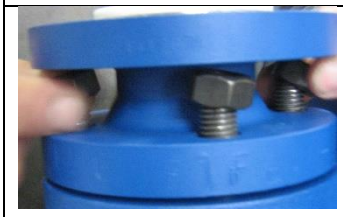
4 Assembly

The torque ranges can be found in the LGS 3323. This LESER global standard, as well as all other referenced standards, are available on leser.com under the maintenance section in English language.

4.1 Assembly of the valve with H2 cap

Illustration	Description	Aids /Tools
	Clamp the body in a vise (inlet side of body downwards). Fit the bonnet studs with their short thread-end into body and fasten them until stop with an impact wrench.	Torque wrench
	Turn the body over and clamp it again in the vise (inlet side showing upwards). Fit the studs with their short thread-end into body and fasten them also until stop with an impact wrench. Insert the nozzle into inlet side of the body.	Torque wrench
	Place the gylon gasket onto the nozzle and align with it.	
	Fit the inlet body cantered onto the studs. Screw the nuts on the studs crosswise so that both bodies are / keep aligned.	Torque wrench

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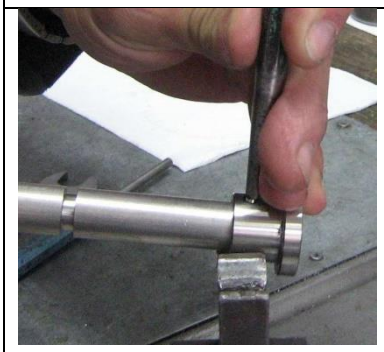
	Tighten nuts with a torque wrench crosswise so that both bodies are / keep aligned.	Torque wrench
	Place the ball inside the disc.	
	Plug the spindle into the disc and fasten it with a pin by using a hammer.	Hammer
	Screw the lift stopper on the guide and fix it with instant glue (recommended glue: Delo-Ca 2106) or with punch mark as an option. Please note: Do not fix in case of a variable lift stopper.	

		
	Slide the guide with lift stopper onto the spindle.	
	Place the split rings into the designated recess and fasten them with snap ring.	
 	Slide the bottom spring plate, the spring and the upper spring plate in correct orientation onto the spindle one after the other. Slide the spacing ring on top of the upper spring plate.	

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	Place the glas sealing plate on the bellows with the rough side showing to the bellows. Screw on the lifting aid by hand until stop so that the sealing plate is clamped. Only DN80 / 100: Fix the lifting aid additionally with a grub screw. Please note: Hold the PTFE-bellows only at the shaft.	
	Turn the body again (inlet side showing downwards and fix the body to the table (e.g. on the test bench). Fit the preassembled bellows into the body.	
	Fit the preassembled spindle-/spring-components carefully into the bellows within the body.	

 	Place the bonnet cantered on top of the studs. Screw nuts onto studs. Tighten them by means of a torque wrench crosswise so that both bodies are / keep aligned.	Torque Wrench
 	Place the PTFE-bushing into the adjusting screw.	
	Lubricate the adjusting screw (not for oil-/grease-free). Screw it into the bonnet so that **the spring is not compressed (!)**.	

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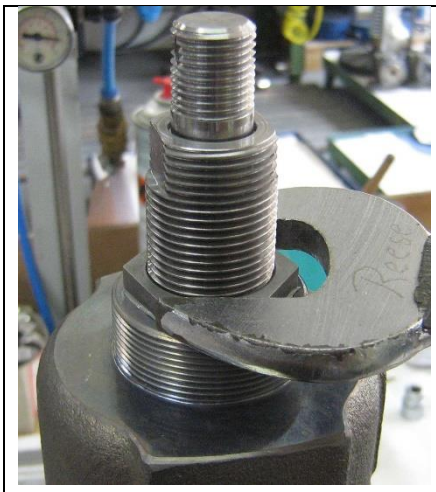
	Secure the spindle against rotation with a drift pin. On the test bench, increase the pressure on the valve slowly and check if the valve opens at set pressure. The set pressure of the valve is reached when a discharge of the air is audible. Do not pop the valve.	Drift pin, wrench
	Slowly pressurise the valve on the test bench to find out 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. If the valve opens outside the stipulated set pressure tolerance, then the adjusting screw must be adjusted again. Turning in a clockwise direction causes the valve to open at higher pressure. Turning in a counter-clockwise direction causes the valve to open at lower pressure. Release the pressure when readjusting the adjusting screw. Readjust the adjusting screw and then pressurise the valve again.	

	If the valve opens outside of the tolerance of the set pressure, the adjusting screw has to be re-adjusted: a) turning clockwise – Valve opens at higher pressure b) turning counter-clockwise – Valve opens at lower pressure When re-adjusting: Decrease the pressure, re-adjust the screw and increase the pressure again. Secure with lock nut. Check the set-pressure again afterwards.	Wrench

4.2 Adjustung the set pressure

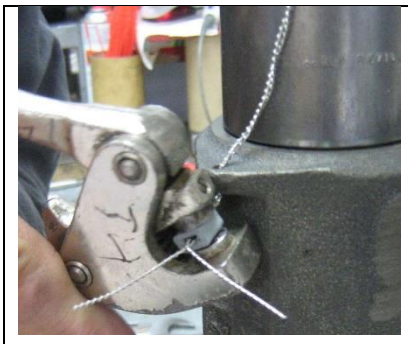
Please see LID 2812.01_EN_Test procedures for valve repair shops for the set pressure testing instructions. Afterwards finish the assembly of the valve.

4.3 Assembly of Caps and Assecoirs

4.3.1 Assembly of H2 Cap

	Assembly of cap H2: Lubricate thread and contact surface of the cap. (not for oil-/grease-free)	

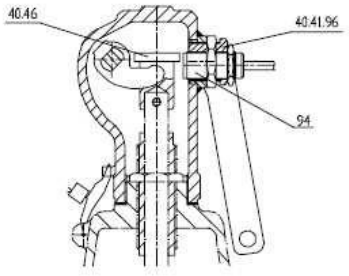
	Place the H2-cap onto the Bonnet and tighten it with a wrench.	Wrench
	Link the sealing hole of the cap / lifting-device to the sealing hole of the bonnet, hereby twirl the wires clockwise and close to each other.	

	Use sealing tongs to seal the cap/lifting device to the bonnet.	

4.3.2 Assembly of lifting device H4

	Shift the snap ring loosely onto the spindle. Place the spindle cap on top of the spindle and lock it with the pin. Position the snap ring in the groove of the spindle cap to lock the pin.	
	Lubricate and apply lifting device and gaskets. Hereby, place the lever in a position that the lifting fork is pushed away from the spindle cap (see photo). Adjust the lifting device with gaskets so that the lever is 180° in opposite to the outlet. Test that the spindle will be lifted correctly by pulling the lever. Tighten the lifting device with a wrench.	Torque wrench

4.3.3 Assembly of lift indicator

	Assemble and tighten lifting device as described before. (Fixture in compliance with fixture catalog)	
 	Adjust the excentric hole of the adapter so that the top of the spindle cap is in line with the top of the lift indicator (see figure). Secure the adjustment of the adapter with lock nut.	

4.3.4 Assembly test gag

	Lubricate the sealing area of the short screw. Put on a gasket and lubricate it as well.	

	Screw the test gag into the cap/lifting device and tighten it with a torque wrench.	Torque wrench.

4.4 Leakage and tightness test.

Please see LID 2812.01_EN_Test procedures for valve repair shops for the testing instructions.

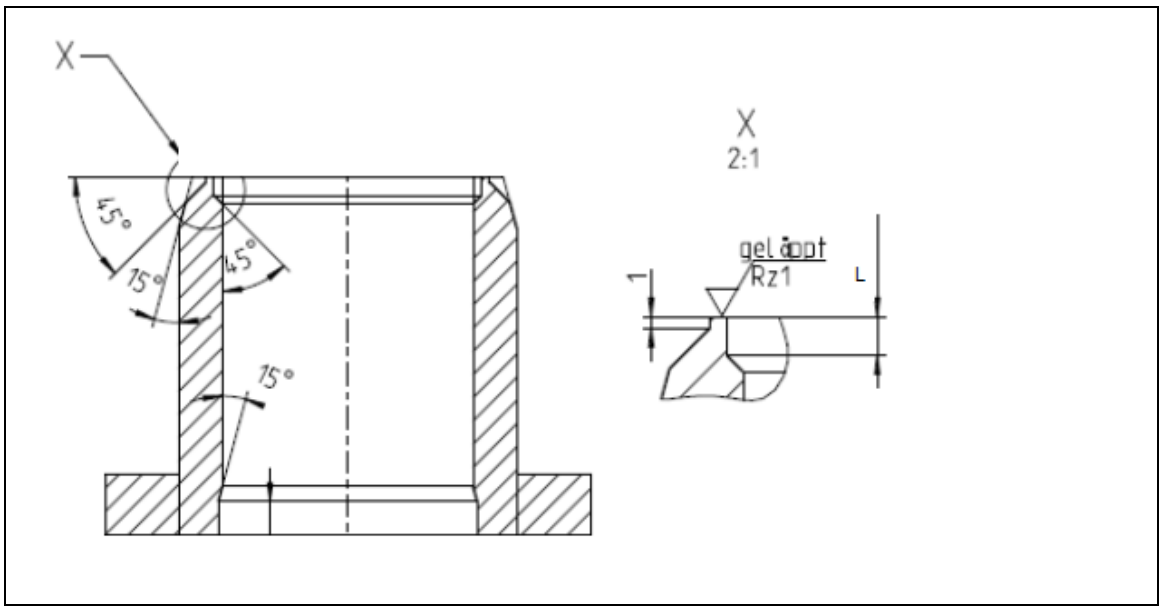
5 Critical dimensions

5.1 Discs

The safety valve has a glass disc. This should prevent wear and make rework unnecessary. In case of severe damage to the disc or thingness problems, please replace the disc with a new one.

5.2 Nozzle

Rework is not allowed on PTFE nozzles. Here a new nozzle is required in case of wear or server damage. For Hastelloy nozzles work is to be carried out according to the below illustrations and table.



Valve DN	d0	Seat tolerance as shown above (L) minimum
25	**23**	**4,9 mm**
50	**46**	**3,4 mm**
80	**60**	**3,6 mm**
100	**92**	**3,6 mm**