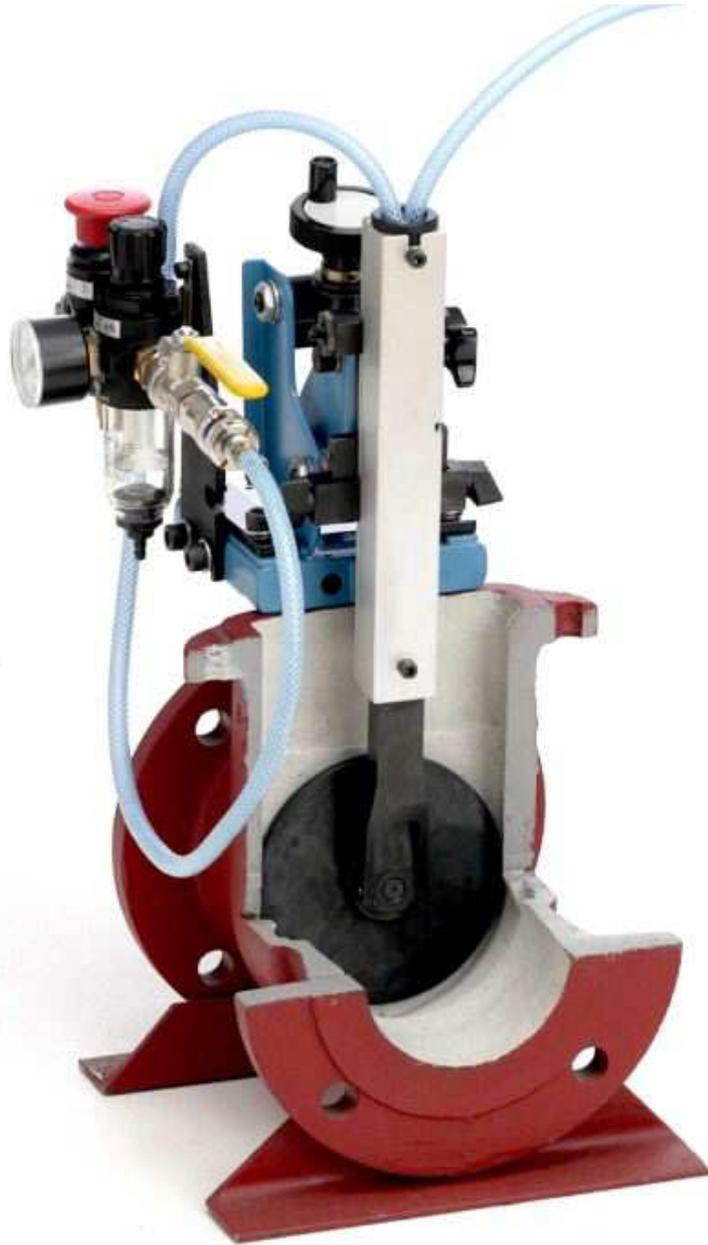


LarsLap Model S

Tools with the cutting edge

LarsLap
Model S



Users Guide

LarsLap®

LarsLap Model S

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Welcome to the LarsLap family

Thank you for choosing LarsLap Valve grinder model S.

By choosing a LarsLap valve grinder you have received a high quality product where we have carefully selected parts with great care for best possible performance.

To achieve a long and trouble free lifetime of your LarsLap Valve grinder, we ask you to read this operation manual thoroughly before you take the machine in use and only to use original spare parts or parts recommended by LarsLap.

If there would be problems that are not included in this operation manual, we ask you to contact your LarsLap dealer for further instructions.

We wish you good luck with your LarsLap valve grinder.

LarsLap

Helena Larsson Häger
President

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SAFETY INSTRUCTIONS

- Keep the working area clean. Dirty areas may cause injury.
- Evaluate working environment. Make certain that lighting is satisfactory.
- **Use suitable clothing.** Do not wear loose clothes or accessories it can cause injury.
- **Wear protective goggles and ear protection.** Use face or dust mask as needed.
- Stand firm. Stand on steady ground and maintain balance while working.
- Make certain that the **air supply valve is in a closed position** before connecting air.
- Before start, check the machine for damaged parts and make sure that safety arrangements are working.
- Make sure that all adjusting keys, wrenches and other **tools are removed before starting** the machine.
- **Be alert**, and keep your eyes on the job. Use common sense. Do not operate the machine if you are tired or taking medication.
- **Handle the machine with care.** Careless handling can affect the machine capacity and accuracy.
- Keep wires and cables from heat oil and sharp edges.
- **Do not overload** the machine. Performance is best at designated load.
- Store all tools in the supplied case. Keep the case in a **locked and dry facility.**
- **Keep unauthorized people away.** Do not permit untrained visitors or staff to be in contact with the tools.
- Use of parts not authorized by LarsLap may cause damage to the equipment and could cause injury to the operator.
- Personnel authorized by LarsLap must repair damaged machinery.
- **Caution!!!!** All electrical equipment must be handled with care. **Do not under any circumstances** open parts of the electrical motor or charger! This can cause serious **body injury or death** by electric shock or damage the machine.
- Never use a battery charger on floor or ground, keep away from water and dust. Damaged charger may not be used.

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Instructions prior to and after use

Your valve grinder **model S** is manufactured and tested according to LarsLap specifications and high standards. To ensure your S a long and trouble free lifetime, please follow the instructions below.

Prior to and after use you must consider the following:

- Check all parts to make sure that they are not damaged or have been influenced so that the performance can be effected, if so contact your LarsLap dealer for further instructions.
- That all parts are cleaned from water, dirt, oil and grinding dust.
- Check the schedule provided in the case that no parts are missing before and after use.

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Parts

A **fully equipped** LarsLap model **S-C 100** valve grinder consists of:

Part no.	Qty	Description	Picture
40 101 00	1	Gate valve drive shaft including pneumatic reversible motor	
40 004 00	1	Machine frame	
40 005 00	1	Wedge plate	
40 006 00	1	Mounting plate	
90 301 01	1	Regulator (pneumatic option)	
93 300 01	1	Grinding plate DN 25 mm	
93 300 02	1	Grinding plate DN 32 mm	
93 300 03	1	Grinding plate DN 40 mm	
93 300 04	1	Grinding plate DN 45 mm	
93 300 05	1	Grinding plate DN 50 mm	
93 300 06	1	Grinding plate DN 65 mm	
93 300 07	1	Grinding plate DN 80 mm	
93 300 08	1	Grinding plate DN 100 mm	

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Part no.	Qty	Description
90 531 01	100	Grinding disc SPA P80 17mm
90 531 02	100	Grinding disc SPA P80 20mm
90 531 03	100	Grinding disc SPA P80 25mm
90 531 21	100	Grinding disc SPA 100 μ 17mm
90 531 22	100	Grinding disc SPA 100 μ 20mm
90 531 23	100	Grinding disc SPA 100 μ 25mm
90 531 41	100	Grinding disc SPA 100 μ 17mm
90 531 42	100	Grinding disc SPA 100 μ 20mm
90 531 43	100	Grinding disc SPA 100 μ 25mm
90 900 26	1	Hexagon screw driver 6 mm
	1	Hexagon screw driver 3 mm
	1	Allen key set 1,5 – 6 mm
	1	Measuring tape 2 m
	1	Flash light
10 103 33	1	Operations manual
10 101 11	1	Spare parts kit

Check the specifications for your machine and make sure that it has been delivered complete.

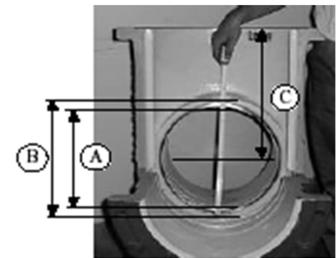
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How to use your LarsLap valve grinder

Before you start:

1. Make sure that no parts are missing or damaged, if necessary contact your LarsLap dealer for advice.
2. Measure the internal (A) and external (B) diameter of the seat.
3. Measure the distance (C) between the center of the seat and the flange top.
4. To make sure that the machine and grinding-material will work as expected, clean the valve from moisture and dirt.
5. In the case that you S is equipped with a pneumatic drive unit, make sure that you have a sufficient air supply with a maximum of 8bar.
6. After measuring A and B choose the correct grinding plate.
7. Before you assemble the grinding heads, make sure all contact surfaces are cleaned carefully.
8. Mount the grinding plate on the drive shaft as shown on the pictures.
9. When the grinding plate is assembled on the drive shaft check it in the valve to make sure that there is adequate space.



- *Grinding of a gate valve, continue on page 9
- *Grinding of a gate valve wedge, continue on page 11

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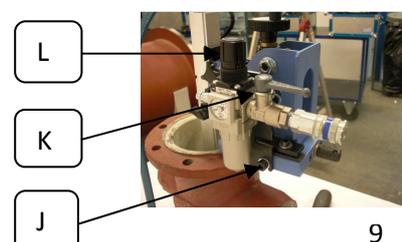
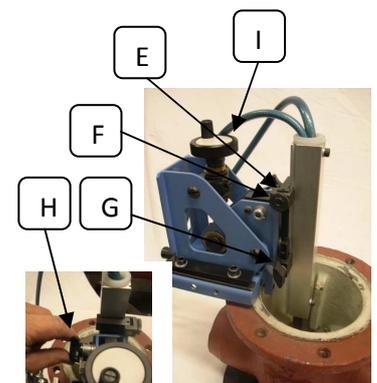
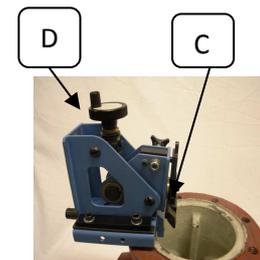
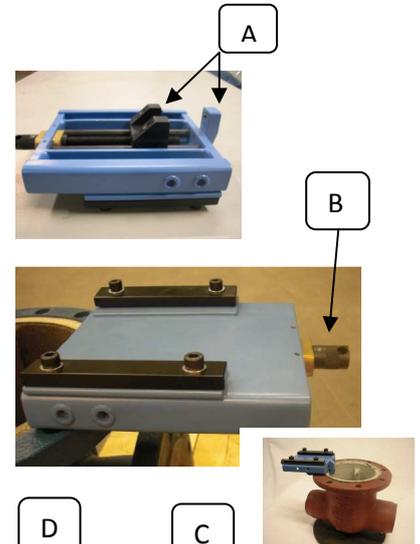
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Grinding of a gate valve body.

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Continued from How to use your LarsLap valve grinder on page 8

11. Assemble the mounting plate. Ensure the pointed grub screws on the clamp (A) are visible 6-8 mm. Fasten the mounting plate on the flange or valve body and lock by tightening the clamp screw (B) with a torque about 20 Nm. To make the grinding easier the mounting plate should be placed behind the seat, but can, if necessary be placed anywhere around the flange. Make sure that all 3 pointed grub screws (A) are locked on to the body.
12. If the flange has non removable bolts a recommendation is to use the mounting device for narrow seats (part number 90 401 00).
13. Assemble the machine frame so that the drive shaft clamp reaches out, over the seat, this to make sure you receive a positive angle between the drive shaft and the seat. Tighten the 4 screws (C). Adjust the drive shaft mount plate to a perpendicular position with the pressure feed (D).
14. Attach the grinding discs on the plate as shown on the picture (see recommendation on page 16). Always start with a finer grit and check the seat after one minute of grinding. If the damage is small continue with the same grit or finer.
15. Hold the drive unit steady and mount it on the machine frame and make sure that the fixed point depth adjustment clamp point (E) falls in position. Set the vertical position of the unit by releasing and tightening the adjustment clamp (F). Lock the drive unit using the two knobs (G). For adjustment in the horizontal plane, use the side adjustment knob (H). Remember to use care while adjusting the drive shaft depth, a dropped drive shaft could cause damage to the equipment. Adjust drive shaft angle by using the grinding pressure knob (I).
16. Attach the speed regulator on the mounting plate by using the two screws (J). Connect the air hose to the speed regulator. Make sure that the shut off valve (K) is closed before you connect the air supply and that the air regulator (L) is closed (turned counterclockwise). To be able to operate the knob you have to lift the knob and then turn.



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17. Add a light grinding pressure about 0,5 kg. Start the machine slowly by opening the shut off valve (K) maximum and then turn the regulator knob (L) clockwise until correct speed is reached (60-80 rpm). Add sufficient grinding pressure 1-2 kg (half to a whole revelation on the grinding pressure knob).
18. Change direction of the rotation every 2-3 minutes to get the most out of the grinding discs. You might have to adjust the air input when working the air motor in reversed direction due to power loss.
19. When changing grinding discs, stop the machine by turning of the shut off valve (M) and disconnect the air hose. Release grinding - pressure and loosen the drive unit with the clamp knob (H) and then lift the whole drive unit out of the valve and change grinding discs. When the discs are switched, re-install the drive unit back in the valve and tighten the clamp knob (H), re-connect the air supply, add grinding pressure and continue the grinding - procedure.
20. To grind the seat on the opposite side. Rotate the driveshaft 180° and add pressure the opposite way.
21. When you are done grinding go thru the machine and check for damages. Make sure that all parts are cleaned and dried before you put them back in the case. Do a final check that all parts are in the box.

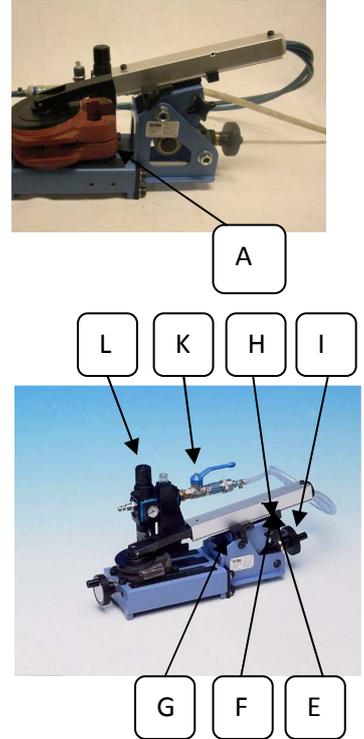


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Grinding of a gate valve wedge.

11. Assemble the machine frame on the wedge plate as the picture shows. Place the wedge on the plate and lock it with the wedge lock (A).
12. Attach the appropriate grinding discs to the grinding plate (see recommendation on page 20).
11. Hold the drive unit steady and mount it on the machine frame and make sure that the fixed point depth adjustment clamp point (E) falls in position. Set the vertical position of the unit by releasing and tightening the adjustment clamp (F). Lock the drive unit using the two knobs (G). For adjustment in the horizontal plane, use the side adjustment knob (H). Adjust drive shaft angle by using the grinding pressure knob (I).
13. Mount the air regulator on the wedge plate. Connect the air hose to the regulator. Make sure that the shut off valve (H) is closed before you connect the air supply and that the regulator knob (I) is closed (turned counterclockwise), to be able to operate the knob you have to lift the knob and then turn.
14. Add a light grinding pressure and rotate the driving head by hand one turn to check that the whole wedge is covered, then start the machine slowly by opening the shut off valve (K) maximum and then turn the air regulator knob (L) clockwise until you received the correct speed (60-80 rpm). Add sufficient grinding pressure (half to a whole revelation on the grinding pressure knob).
15. Change direction of the rotation every 2-3 minutes to get the most out of the grinding discs. You might have to adjust the air input when working the air motor in reversed direction due to power loss.
16. When you are done grinding go thru the machine and check for damages. Make sure that all parts are cleaned and dried before you put them back in the case. Do a final check that all parts are in the box.



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Service schedule.

External gears (1)

Graphite spray (Loctite 8191 or similar)

Every 50 hour in use

Internal gears (2)

MoS₂ grease (Molykote BR2plus or similar)

Every 100 hour in use

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Choosing grinding material.

Before you start the grinding, check what type of material the seat is made of. Make sure that the seat is clean before you start.

Start grinding with a relative fine (for the surface) grit and just grind a short while, 20-40 seconds, inspect the surface and determine the damage or there might not be any damage so you just have to change grit to a finishing grit, but if there is a damage you have to decide what grinding material and grit you need to use (see list on the next page).

LarsLap Grinding discs SPY/SPX (grit)

Is a very useful disc and the most commonly used together with the LarsLap valve grinders. The grinding material is a mix of Aluminum Oxide and Ceramic, and can be used for the hardest material and to take away a lot of material. Only diamond discs and LarsLap Long Life boron nitride discs is capable removing harder seat material.

Grinding discs (micron)

This is the mostly used for the finer type of grinding and polishing. LarsLap 3M discs are produced so that all grinding grains are the exact same size which produces a smooth surface on most of the materials. Available all the way down to 3 microns.

Diamond

Used at hard surfaces and heavy cutting but not on materials like brass or stainless steel. For stainless LarsLap Long Life boron nitride is recommended. As lubricant you can use water. Too high speed will burn the diamond.

LamPlan (Polishing)

For lapping surfaces, is used with diamond paste or diamond slurry.

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RECOMMENDED GRINDING ABRASIVES

SEAT CONDITION	BRASS SEAT		STAINLESS STEEL SEAT		STELLITE SEAT	
	Gr/μ	Material	Gr/μ	Material	Gr/μ	Material
Poor Condition						
1	180μ	Micron Alumina	40-80 Gr	LL Ceramic Alumina	40-80 Gr	LL Ceramic Alumina
2	100μ	Micron Alumina	80 Gr	LL Ceramic Alumina	80 Gr	LL Ceramic Alumina
3	70μ	Micron Alumina	120 Gr	LL Ceramic Alumina	120 Gr	LL Ceramic Alumina
4	35μ	Micron Alumina	180 Gr	LL Ceramic Alumina	180 Gr	LL Ceramic Alumina
5			35 μ	Micron Alumina		

SEAT CONDITION	BRASS SEAT		STAINLESS STEEL SEAT		STELLITE SEAT	
	Gr/μ	Material	Gr/μ	Material	Gr/μ	Material
Normal Condition						
1	180μ	Micron Alumina	80 Gr	LL Ceramic Alumina	80 Gr	LL Ceramic Alumina
2	100μ	Micron Alumina	120 Gr	LL Ceramic Alumina	120 Gr	LL Ceramic Alumina
3	70μ	Micron Alumina	180 Gr	LL Ceramic Alumina	180 Gr	LL Ceramic Alumina
4	35μ	Micron Alumina	35μ	Micron Alumina	35μ	Micron Alumina

SEAT CONDITION	BRASS SEAT		STAINLESS STEEL SEAT		STELLITE SEAT	
	Gr/μ	Material	Gr/μ	Material	Gr/μ	Material
Good Condition						
1	100μ	Micron Alumina	120 Gr	LL Ceramic Alumina	120 Gr	LL Ceramic Alumina
2	70μ	Micron Alumina	180 Gr	LL Ceramic Alumina	180 Gr	LL Ceramic Alumina
3	35μ	Micron Alumina	35μ	Micron Alumina	35μ	Micron Alumina

Gr = Grit
μ = Micron

Permanent diamond & LarsLap Long Life boron nitride adding plates available for stellite and other hard seated material

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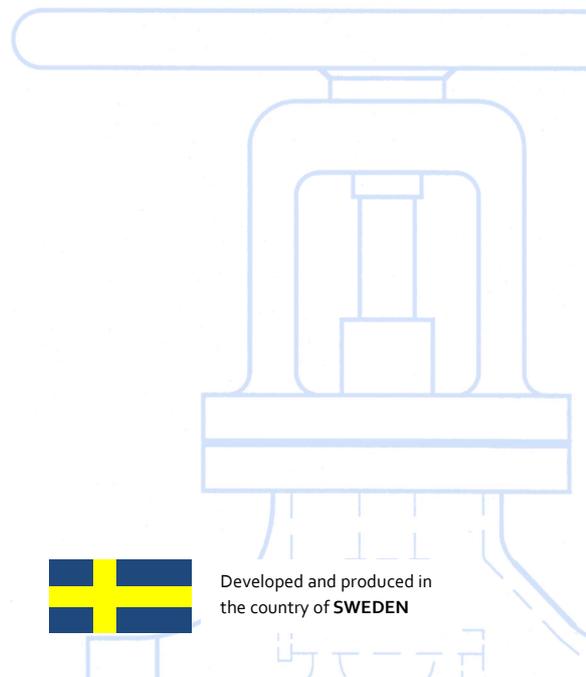
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Options for your LarsLap S

Part no.	Description	Picture
40 000 00	Grinding plate DN125	
40 000 00	Grinding plate DN150	
90 401 00	Mounting device for narrow	
90 402 00	Distance plates	



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