

SealBoss®

P2002 Injection Pump



Product Data Sheet

Electric High Pressure Injection Pump

SealBoss® P2002 Injection Pump Manual

- Easy To Use
- Easy To Clean
- Easy To Maintain
- Modular, Compact & Sturdy Design
- Single Component
- Electric Drill Operated
- Heavy Duty For Daily Use
- Pressure Gauge, Hose Set, Hopper Included
- Recommended For Beginners & Injection Pros
- > 5000 PSI Injection Pressure Possible

The **SealBoss® P2002 Injection Pump** features a very compact design with integrated stand.

This extremely lightweight and powerful injection pump can be used for most of the SealBoss® polyurethane injection line products with viscosities between 10 and 1000 cps. Call your SealBoss® technician for details. Suitable for mid-size jobs and daily use this is the perfect machine for waterproofing contractors performing commercial work and residential injection.

With this pump it is a snap to get in and out of basements and confined areas as found on many job sites. This pump is of professional grade quality for every day use. The output and pressure are exceptional for a machine of this size. The modular design keeps maintenance cost low and allows for easy cleaning.

Parts can be replaced by the savvy contractor to keep downtime at an absolute minimum.

This pump is powered by a Metabo® electric drill which is sold separately by SealBoss®. The drill offers a variable speed adjustment to adjust material volume and pressure.

North America: Standard Metabo® drill 110V sold separately.

International Orders: Special order Metabo® drill 220V (lead time and cost subject to availability at time of order) or voltage converter available on request. Please consult with your SealBoss® Technician. Contact your SealBoss® Technician to confirm that your product is suitable for use with this machine.

Technical Data:

Max pressure:	> 5000 psi
Flowrate:	~ 1 quart/min / 1l/min
Weight:	8.5 lb
Typical Product Viscosity:	50-800 cps

Recommended drill: Metabo®, call for specifications hose set included. Electric drill & packers sold separately.



Contents

1. SealBoss® P2002 Injection Pump.
2. Metabo® Electric Drill is sold separately, 110V or 220V (Special Order)
3. Wrench Set
5. Pressure Hose Set With Coupler

READ CAREFULLY BEFORE USING YOUR P2002 INJECTION MACHINE

General Information:

Your pump has been tested during a trial run and pressure test to ensure highest quality control. You might find some residue of hydraulic oil in the system and some residue in the packaging. This is normal and does not impair operation.

Getting Started:

The pump is delivered ready for operation. The drill is sold separately and might not be part of the package if not specifically ordered. Proceed as follows: Screw the pressure hose into front of the pump and tighten firmly. Introduce the electronic drill to the drill holding device. Then tighten the clamping ring (Snug, but not excessively).

CAUTION:

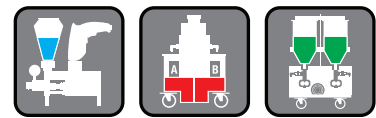
USE CLOCKWISE ROTATION SETTING ON DRILL ONLY! NEVER PUMP WATER! DO NOT RUN THE PUMP DRY! YOUR PUMP IS NOW READY FOR OPERATION! CAUTION! THIS PUMP MAY CREATE VERY HIGH INJECTION PRESSURES IN EXCESS OF 6000 PSI. EXTREMELY HIGH PRESSURES CAN CAUSE DAMAGE TO ATTACHED HOSES, VALVES ETC. AND CAN ALSO CAUSE DAMAGE IN THE STRUCTURE TO BE INJECTED. SUDDEN RUPTURES OR LEAKS IN THE DELIVERY SYSTEMS MAY BE HAZARDOUS TO YOUR HEALTH AND CAN CAUSE INJURY OR DEATH. MAKE SURE THAT THE PUMP AND ATTACHED HOSES AND FITTINGS ARE CONNECTED TIGHTLY AND ARE IN A NEW CONDITION AT ANY GIVEN TIME DURING OPERATION. THE EQUIPMENT IS DESIGNED FOR PROFESSIONAL USE ONLY. PLEASE OBSERVE CAUTION AT ANY TIME WHEN OPERATING THIS MACHINE TO AVOID SERIOUS INJURIES.

Safety Instruction:

- Protection while working
- Follow product data sheets and MSDS; wear protective goggles and protective gloves.

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Operation:

Use the Metabo® drill as supplied by us for best results. Do NOT use Drill in Hammer - Drill setting (if applicable). Use a very low speed to start the pumping process. If you are not experienced with this kind of injection pump, we suggest that you perform tests with hydraulic oil or resin without added hardener, to get used to handling of the machine. Once the desired working pressure is obtained, set the dial switch of the electronic drill so that this pressure will not be exceeded. In regular injection procedures your injection pressure should be well below the 400 bar mark. Please follow the instructions of the resin supplier carefully. Make sure that no foreign particles will enter the pump with the resin. This will help to prolong the service life of your pump.

Maintenance:

Immediately after use, clean the pump with **SealBoss® R70 Pump Flush**. This product is not harmful to seals and hoses and may be left in the system as lubrication. Solvents should only be used briefly for the initial flush to cut thicker residue - Follow all safety guidelines. Do not leave solvent in the system as it is caustic towards seals and hoses. Fill up the resin tank (2), clean the inner walls, and pump cleaner out. Repeat this several times.

1. Setup

The SealBoss® P2002 Injection Pump drill operated injection machine is straight forward to setup. The first thing to take note of is to make sure that the Metabo drill, that operates the SealBoss® P2002 Injection Pump, is turning in the clockwise direction only. Running the drill in reverse can, and will, strip gears in the gear box and render the pump non-functioning. Once the drill is ready, thread on the pump housing adapter onto the end of the drill. This will ensure a flush and secure fitting into the drill housing. Once this is confirmed to be secure, tighten the u-bolt nuts around the housing. Before mixing activated material, it is good practice to run a small bit of pump flush through the pump to make sure that the pump is developing pressure, there are no leaks, and the pump is holding pressure. A good way to do this is to make sure that the flush is flowing freely through the hose line and through the zerk coupler on the end of the hose set applicator. Once this is confirmed, shut the valve on the applicator to make sure that the pump develops pressure. Once the pump develops approximately 2000 psi, release the drill, and confirm that the pump is holding pressure for 1 minute. Once this is confirmed, open the valve, purge the line of flush, and you are ready to pump chemical injection grouts.

2. Maintenance / Cleaning Tips

DO NOT CLEAN OR TEST WITH WATER!

It is always recommended to purge the entire pump of catalyzed PU before any breaks of 30 minutes or longer. Take care to note the reaction time of the material being pumped for urgency of cleaning. You cannot leave mixed material in the pump for a longer duration than the pot life on the technical data sheet. When injection is completed, purge the hoppers and lines of all activated materials. Hydroactive polyurethanes will develop a small 'skin' of cured material on the top of the mixed batch. This can act as a barrier to the underlying mixed material from contaminants, but must be observed so as to not pump this skin through the piston. As the skin nears the filter, and while wearing safety gloves and goggles, remove the skin, discard, and refill the hopper with a fresh batch of catalyzed material. Once the pump is purged

of material, the pump must be cleaned with a solvent/pump flush procedure to remove the curing polymer followed by lubricating the seals and piston. This is done by running solvent through the pump first, and once all visible remnants of polyurethane are discarded, closing the shut off valve, once again building pressure, and then relieving this pressure with a slow open/close movement of the shut-off valve. This produces a pressurized, fluid 'rocking' flow dynamic that aids in removing the activated polymer from the side walls of the hose sets. After solvent is purged and discarded per local and job site regulation, repeat this procedure with SealBoss R70 pump flush. The pump can then be stored with R70 for future use.

AGAIN, DO NOT CLEAN OR TEST WITH WATER!

3. Losing Pressure

Loss of pressure is most commonly due to the seal sets in the piston assembly. Often this can be diagnosed by observing material or flush around the piston as it moves back and forth. This condition should be identified with pump flush prior to mixing material and filling the hoppers with mixed material. If no material is observed around the pressure, there may be build up of cured material in the ball/spring assembly below the gauge. This can easily be accessed by removing the three allen screws on the front of the gauge seat, and exposing the ball/spring. (Take note of the ball/spring order position for re-assembly). In some cases, simply cleaning these parts allows the piston to operate with more efficiency and build better pressure. If the piston is operating well, and the ball/spring is cleaned, and the pump still does not develop pressure, the last place to look is at the shut-off valve. If the pump is producing a steady flow of material, and shutting the valve does not completely stop this flow and build pressure, replace the shut off valve and applicator. All piston kits, seal sets, balls, springs, hoses, and applicators are stocked by SealBoss® for immediate repairs.

4. Obstruction in Hose

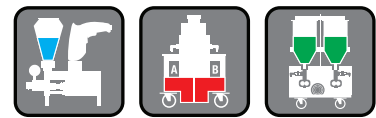
In the event the pump is not cleaned thoroughly, and corners are cut at day's end, a common consequence is cured material in the hose line. This is relatively easy to diagnose as material will not flow through the hose during pump tests. Upon disconnecting the hose set, material would then flow from the pump itself with as usual. In this case, replace the hose set.

5. Obstruction at Ball / Spring

If the hose is disconnected, and the pump does not dispense material, it is necessary to work backwards to diagnose the obstruction. The first place to look is the ball/spring assembly. As previously mentioned, this is easily done by removing the 3 allen screws on the front of the gauge seat and cleaning the ball and spring. If there is cured material in this assembly, this is a good sign that this is the obstruction. Reassemble the pump test again.

6. Obstruction in Piston Assembly

If, upon re-test, the pump still does not dispense material, the piston must be examined for cured material and sea set function. The most common repair for this pump is a piston kit replacement. If the seals are not operating correctly, the piston will simply move back and forth, with no pressure created to positively displace any material. There is a small seal set available as a spare part kit that could be tried first. If this does not produce pressure, the entire piston kit must be replaced. (Take note to count the threads visible at the back of the piston where it screws into the gear box.



The replacement piston must be set to the same depth for optimal performance. Setting a replacement piston at the wrong depth can also cause lack of pressure generation). Be sure not to tighten the piston with anything that can score the piston shaft as this will cause loss of pressure. Once the piston depth is set, reassemble the front plate of the pump, install the ball/spring, and re-assemble the gauge seat. Perform testing procedure again.

7. Obstruction in Hopper

A very simple cause to some pump issues can also be a small bit of cured material in the bottom of the hopper or in the top of the pump that feeds the piston assembly. This is a simple diagnosis by simply removing the hopper, and observing any build up of cured material in the pump. If no material is observed, proceed with other tests referenced above.

8. Pumping Pressures

The SealBoss® P2002 Injection Pump generates up to 6,000 psi. Use extreme caution when pressures build at the packer. Pressures can cause packers to blow out of the drill hole. It is good practice to note 'acceptance pressures' at each section of the substrate so that each crew and quality control professional can pass this information along to other crews and clients. The acceptance pressure is the pressure required to see observable flow of grout in a specific substrate. If pressures spike to extreme values above this pressure, stop injection, and reassess the substrate to ensure that connectivity is being achieved between the drill hole and crack/joint. Many contractors have a separate pumping apparatus for water tests to ensure that the drill holes contact the crack and to introduce water into the substrate prior to injecting hydroactive grouts.

9. Suitable Materials

The SealBoss® P2002 Injection Pump is designed to inject single component hydrophilic and hydrophobic polyurethane grouts. Dual component epoxy resins have also been used with this machine if pot life allows for the application and cleaning procedures. SealBoss® does not recommend dual component material through the SealBoss® P2002 Injection Pump. The only 2-component system recommended is a catalyzed polyurethane in which water introduction is required for reaction initiation. The SealBoss® P2002 Injection Pump is a piston pump that creates a pulsing motion as the piston pumps. For pressurized systems, such as chemical injection, this is ideal. The pulsation created by the piston would not be suitable for gravity filling of joints. The SealBoss® P2002 Injection Pump applicator connects to a standard zerk fitting and can be fitted to couple to a button head fitting. Button head fittings and couplers sold separately.

10. Storage

Storage of the pump is to be in a climate-controlled warehouse. Best storage is with SealBoss® R70 Pump Flush, following adequate and thorough cleaning procedure referenced above, or with low viscosity motor oil. When pump is stored for long durations, it is always recommended to perform the maintenance and performance tests about a week prior to application to ensure optimal performance and to allow for the procurement of replacement parts as needed. Please keep in mind that, while SealBoss does stock many of the parts for the SealBoss® P2002 Injection Pump, some parts are special order and will have lead times. The SealBoss® P2002 Injection Pump is a versatile, high pressure, light weight, and compact chemical injection pump sure to provide efficiency for any injection contractor. The straight forward design provides minimal waste operation while providing the applicator with the ability to perform on-site maintenance

procedures with ease.

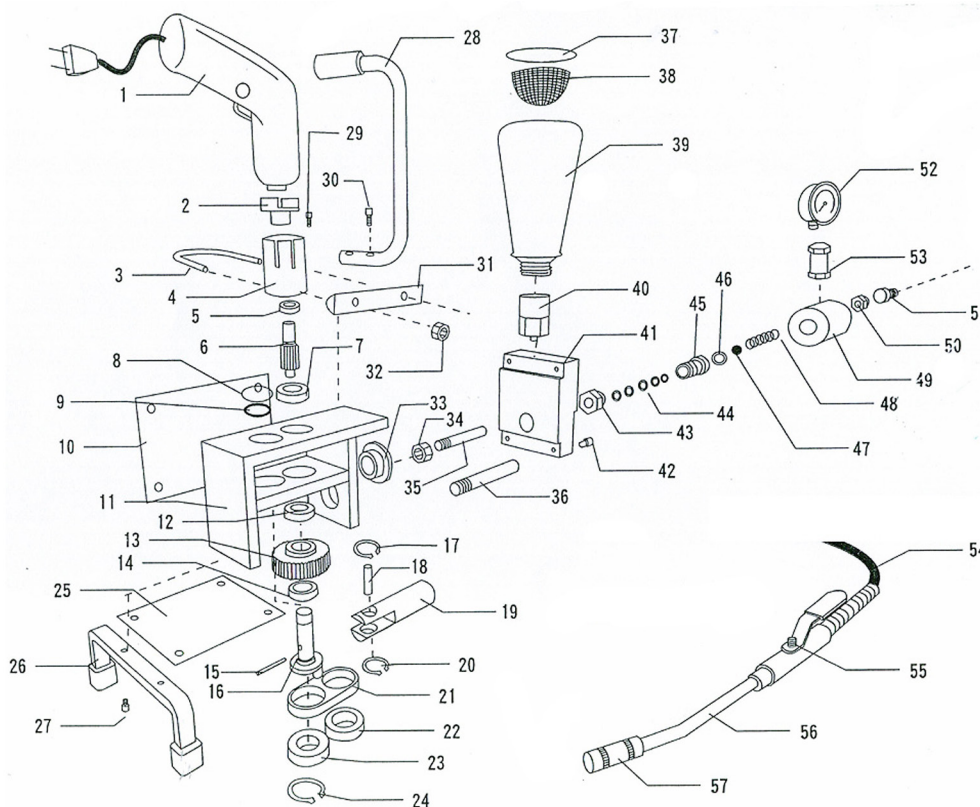
P2002 Piston Replacement Procedure

1. Remove the 3 allen screws from the front of the gauge seat. Note the order of ball/spring when removing the gauge seat for reassembly. Ball faces piston.
2. Clean ball/spring chamber – confirm no PU build up.
3. Remove 4 allen screws on front plate of the pump (front plate also seats the hopper threading).
4. Note the length of screws removed from the face plate – 2 are long, and 2 are shorter.
5. Remove set screw from side of the front plate to release the piston (the entire front plate can now be pulled off).
6. Loosen the brass locking nut at the base of the piston shaft.
7. Unscrew piston from the pump. The entire piston assembly can now be removed.
8. Screw / attach the new piston kit (be sure to set piston depth at 1.5 threads showing. Accuracy of piston depth is very important!).
9. Tighten brass locking nut once again.
10. Be sure to orient piston assembly to have material flow chamber facing the hopper and recessed hole for set screw facing the correct side.
11. Reassemble the front plate, allen screws, and ball/spring assembly.
12. Pressure test the pump with SealBoss® R70 Pump Flush prior to filling with PU.



Parts List

1 IMPACT DRILL	16 ECCENTRIC SHAFT	33 BUSH	50 NUT
2 PITMAN SHAFT	17 "C"TYPE SNAP RING	34 SHANK NUT	51 COMPRESS SCREW
3 "U" CLAMP	18 JUNCTION PANEL SHAFT	35 PISTON SHANK	52 PRESSURE GAUGE
4 SLEEVES	19 GUIDE BAR	36 PRESSURE SLEEN NUT	53 DIAPHRAGM PRESSURE GAUGE SEAT
5 #6000 BEARING	20. "C" TYPE SNAP RING	37 METAL LID	54 HIGH PRESSURE HOSE
6 PINION	21 JUNCTION PANEL	38 FILTER BOWL	55 AIR VALVE
7 BEARING	22 #608 BEARING	39 PLASTIC CONTAINER	56 BEND SPOUT
8 HUBCAP	23 #6000 BEARING	40 ADAPTER	57 COUPLER
9 "C' TYPE SNAP	24 "C" TYPE SNAP RING	41 BUSH BLOCK	
10 LATERAL HOUSING	25 LOWER HOUSING	42 SOCKET SCREW M5 x 25 MM	
11 BODY	26 LEGS	43 CLAMPING BAR	
12 BEARING	27 SOCKET SCREW M5 x 25MM	44 O. RING	
13 GEARS	28 HANDLE BAR	45 PRESSURE FEED BODY	
14 BEARING	29 SOCKET SCREW M5x 12MM	46 BRASS PACKING	
15 PIN	30 SOCKET SCREW M5 x 25MM	47 STEEL BALL	
	31 CLAMPING BAR	48 SPRING	
	32 5/16" UNC NUT	49 PRESSURE SLEEVES	



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