



1 (800) 249-1349 phone
(952) 873-4117 fax
www.Hennes-Johnson.com

711 E. Main St. * Belle Plaine MN 56011

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Regarding a comparison of the Garlock 2120 Commander sprayer & Hot Maxx in-line heater spray system to our Hennes-Johnson model 4520X sprayer and 1000 in-line heater complete spray system for your review. Although it has never been the policy of Hennes-Johnson or its dealers to criticize another manufacturer's product by speculating fault, it will be our pleasure to offer our findings based on experiences taken from our own repair shop here at Hennes-Johnson where we service and maintain Garlock, Graco, SpeeFlo, Titan, and other major brands of spray and cold process related equipment.

Regarding the HJ4520 and Commander sprayers, perhaps the most significant difference lies in the serviceability of the fluid pump. You may already know that the displacement pump is considered the heart of the spray system. Its role is to draw fluid in using the physics law of positive displacement, trap it, and then apply mechanical force to the fluid sending it out under pressure.

The Garlock company has chosen a displacement pump design that is identical to the now outdated double ball pumps that were common in the 1970s, 80s, and early 90s. The major draw back to this older design is that in the event of contamination entering the pump (an unavoidable occurrence when spraying cold process roof coatings) the fluid section must be removed from the Commander and then completely disassembled in order to clear an obstruction lodged in the piston area. (The piston is considered the bottle neck of the pump as this is where fluid is restricted the most as it flows through). Imagine the time involved in first having to remove the pump, transporting it to a mechanic shop where a vise and specialty tools are available, performing the repairs, and then returning it to the job site where it can then be reinstalled and returned to service. Years ago, this procedure was considered to be an "acceptable inconvenience" associated with the day to day workings of spray applied cold process coatings.

Fortunately, times have changed and advancements in pump technology have simplified procedures associated with clearing pump contamination and general maintenance. Our Hennes-Johnson Xtreme Series displacement pumps are designed to be quickly disassembled in the field while still remaining attached to the main power unit. The unique fluid intake is made to resemble a knock off pipe flange and the operator or mechanic needs only a hammer to remove the foot valve housing. This simple procedure allows the lower ball and seat to be easily cleared of any foreign debris. The repair is performed quickly and the unit returned immediately to service. Should further maintenance require that the upper body be disassembled, removing a single lock pin allows the operator to un-thread and remove the pump cylinder from the main housing. Performing this task exposes the piston, piston packings, upper ball, ball seat, and displacement rod for service. To change out the upper packings, the operator simply slides the packing nut assembly over the top of the displacement rod and easily performs the upper packing stack replacement. This new generation of Hennes-Johnson fluid pumps have been a welcome and appreciated feature among seasoned spray veterans and has helped those new to the spray market perform at peak efficiency without the worries of major maintenance issues.

Next, Garlock's engine and hydraulic pump choice versus Hennes-Johnson's hydraulic power pack configuration is an area of extreme importance when estimating each system's life expectancy and maintenance requirements.

The Garlock company has chosen an 18hp Kohler engine with a spline shaft receiver to accept an Oil Gear brand hydraulic pump. This spline shaft connection allows the Commander frame to be slightly shorter in length by eliminating the pump to engine mounting bracket. Their decision to use a spline shaft coupler however has proven to be a problem area for the Commander as there is no practical way to lubricate this semi-rigid engine to pump connection. As the unit ages, the normal pulsing action from the hydraulic motor can cause the pump splines to shatter causing damage to the engine crank shaft receiver and especially to the Oil Gear pump input shaft. Replacing the input shaft and shaft receiver is labor intense, expensive, and can only return the connection to its original state which was the cause of the failure to begin with.

Hennes-Johnson combines a 20.8 bhp Honda GX630 engine with a time-tested Nachi brand hydraulic pump using a pulse compensating coupler assembly to join the two components. It is the coupling assembly that absorbs the shock created by the hydraulic motor and not the hydraulic pump's input shaft. Another important component consideration is that the Nachi hydraulic pumps have proven themselves to be much more forgiving when it comes to less than favorable conditions such as higher than normal oil temperatures and moisture contaminated or overly worn hydraulic oil.

Another concern worth exposing is that the hydraulic controls on the Commander are configured in a manner that demand the lift tower be locked into place with a manually operated shut off valve. This lock valve is the only means to prevent the pump from drifting out of the drum (causing the pump to fail) or from breaking loose from its connection to a transportable tote. Failure to activate the lock valve after switching tanks can cause the cam lock connections to crack and break as the pump rises under force. Left unattended, this hydraulic failure could easily result in an accidental mastic spill and create the need for hazardous waste cleanup. The lift tower drifting out of the drum is normally not as serious but will frustratingly cause the pump to lose prime and fail as the inlet screen rises above the fluid level.

By design, the Hennes-Johnson model 4520X hydraulic control configuration automatically prevents lift tower upward drift from occurring and eliminates the need to manually lock the system every time a new connection is made or each time an empty drum is switched out. The integrity of the tote connection and pump inlet screen height remain constant as determined by the operator.

A significant design feature on the 4520X that is not available on the Commander is Hennes-Johnson's quick access auxiliary port and control. This standard feature on the 4520X allows hydraulically driven components such as hydraulic hose reels, hydraulic mixers, and hydraulic transfer pumps to be driven from the same hydraulic power pack used to power the displacement pump. Another appreciated advantage to the auxiliary port feature is that it allows the operator to check and adjust the pump pressure setting without having to engage the displacement pump. While positioned in the auxiliary mode, an instant "at-a-glance" monitor reading provides the operator with important information to assist in diagnosing pump performance issues.

Next, a lesser difference but one that has proven important to many of our customers is that our model 4520X has a standard 6 gallon fuel cell that is used commonly in commercial and marine applications. The fuel tank can be re-filled while on its mounting cradle or can be easily removed from the spray unit and filled off site for the greatest amount of refueling safety. If a secondary tank is made available, switching out the empty tank for a full tank takes less than 30 seconds and eliminates the chance for any fuel to be spilled near the machine. The Garlock Commander's fuel tank is mounted stationary to the frame and re-fueling takes place in an area above the engine exhaust manifold.

With regard to comparing the Garlock model Hot Maxx to the Hennes-Johnson Model 1000, it is important to understand the general working principles of all in-line liquid asphalt heating systems.

Temperature sensitive asphalt materials respond favorably when warmed. The purpose of any in-line heating system is to gently increase and hold the material temperature to a level at which it responds favorably for delivery through long lengths of hose to the point of application where the liquid asphalt can be sprayed in a precise manner. Too cold and the material refuses to spray. Too hot and the material formulation itself can become compromised and not as the manufacturer intended it be applied. To accomplish this task, the product to be applied is forced under pressure through a high pressure pipe coil that is submerged in a closely controlled hot oil bath. As the mastic passes through the coil, it warms to a selected temperature setting that offers the greatest amount of efficiency to the pumping system allowing considerations to variables such as hose lengths, hose size, and product formulation.

If you've had a chance to review the Hot-Maxx sales brochure from Garlock, you'll quickly note the great amount of emphasis placed on how much smaller the Hot-Maxx is versus other heaters. This is, by all means, a true statement. The reason the Hot-Maxx can be made smaller and lighter is because it is built with less available heating coil and a much smaller oil chamber. It is coil size and length that determines the efficiency of all in-line heaters and it is the volume capacity of the oil chamber that determines the heater's ability to maintain a steady outlet fluid temperature. The Hennes-Johnson model 1000 in-line heater has a 50% longer fluid coil and a 25% larger oil chamber. When combined, these two significant advantages allow the mastic to be gently warmed without the concerns of cooking out the solvents from exposure to high heat and yet maintain correct application temperatures under the most severe conditions.

Fuel source is a significant difference between the Garlock Hot-Maxx and Hennes-Johnson model 1000 heater. The Hot Maxx is offered only in a diesel fuel burner configuration while the Hennes-Johnson 1000's most popular fuel source choice is the LP burner system. We also offer the diesel burner option which is identical to the Hot Maxx but has always proven to be a less than favorable option. (We sell perhaps fifty LP heaters to one diesel burner). One reason LP burners are the favorite choice is that a good share of all cold process jobs are performed in environmentally sensitive locations (i.e. schools, hospitals, airports, occupied buildings, etc.), and here the cleaner burning LP system quickly becomes the logical choice. As you may have already experienced, smoke and odor from a malfunctioning diesel nozzle will quickly shut down a job with a single complaint from one unhappy building occupant. Also, voltage requirements are higher and stricter for the diesel burner systems and a weak battery or faulty charging system will cause a diesel burner to react with a stop-start-stop-start cycle resulting in the release of highly visible black puffs of smoke. The LP units are cleaner burning, more reliable, and have a higher BTU rating. A one hundred pound LP tank will last for hundreds of squares eliminating the need for extra diesel fuel containers at the job site.

Another comparison to note is; How well are the electronic controls protected from the elements on the Hot Maxx versus the Hennes-Johnson 1000? If you examine both you'll notice the Hot Maxx electronic controls are mounted onto a panel that is easily exposed to moisture and dust contamination either at the job or during storage while the electronic controls on the Hennes-Johnson model 1000 are totally enclosed in a moisture-proof, watertight control box and greatly reduces the chance for any electronic problems to occur from exposure to adverse weather conditions.

Thank you for your time and consideration. Hennes-Johnson & our dealers look forward to serving your cold process needs in the near future.

With Best Regards,

Hennes-Johnson Equipment Co., Inc.

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