

SG-E60 and SG-E70 Gearbox Driven Tools

Description:

The **SG-E60 and SG-E70 Gearbox Driven Assembly** was designed as a powered rotary waterblast tool with rotation speeds of 10-500 rpm, for use in waterblast applications such as thick deposit removal, particularly with larger standoff distances such as shell-side heat exchanger cleaning. The assembly consists of an SG swivel driven by a gearbox which is powered by either an air motor (SG-E60) or a hydraulic motor (SG-E70). There are two different gearbox reduction ratios available. The slow gearbox has a 60:1 ratio, producing a speed range from 10 to 50 rpm; the fast gearbox has a 5:1 ratio, producing speeds from 150 to 500 rpm. The motor may be throttled to control the rotation speeds within the possible range. The assembly is rated up to 15,000 psi or 22,000 psi depending on the swivel and head type; the maximum flow rate is 110 gpm; the assembly must have sufficient support to withstand the reaction force. Various head types may be used, from multiple bent arms on a manifold to a single jet on a lance. The stub shaft has a straight thread called "K", which uses an O-Ring (FS 021-K) to seal to the head. For further information on the SG swivel, refer to the SG Swivel insert sheet.

Operation:

The assembly must be firmly mounted to support the jet reaction force, which could be several hundred pounds of thrust. Make sure the head or arms clear the surface being cleaned as well as any shields or guards. Connect the air line or hydraulic lines to the motor so that the rotation direction will tighten the swivel shaft into the head. The air motor requires an air supply of 25 to 40 cfm at 80 psi; the air motor needs to be provided with lubrication, and an air dryer is recommended. The hydraulic motor requires between 3 and 4.5 gpm at a maximum continuous pressure of 1500 psi; do not exceed this pressure.

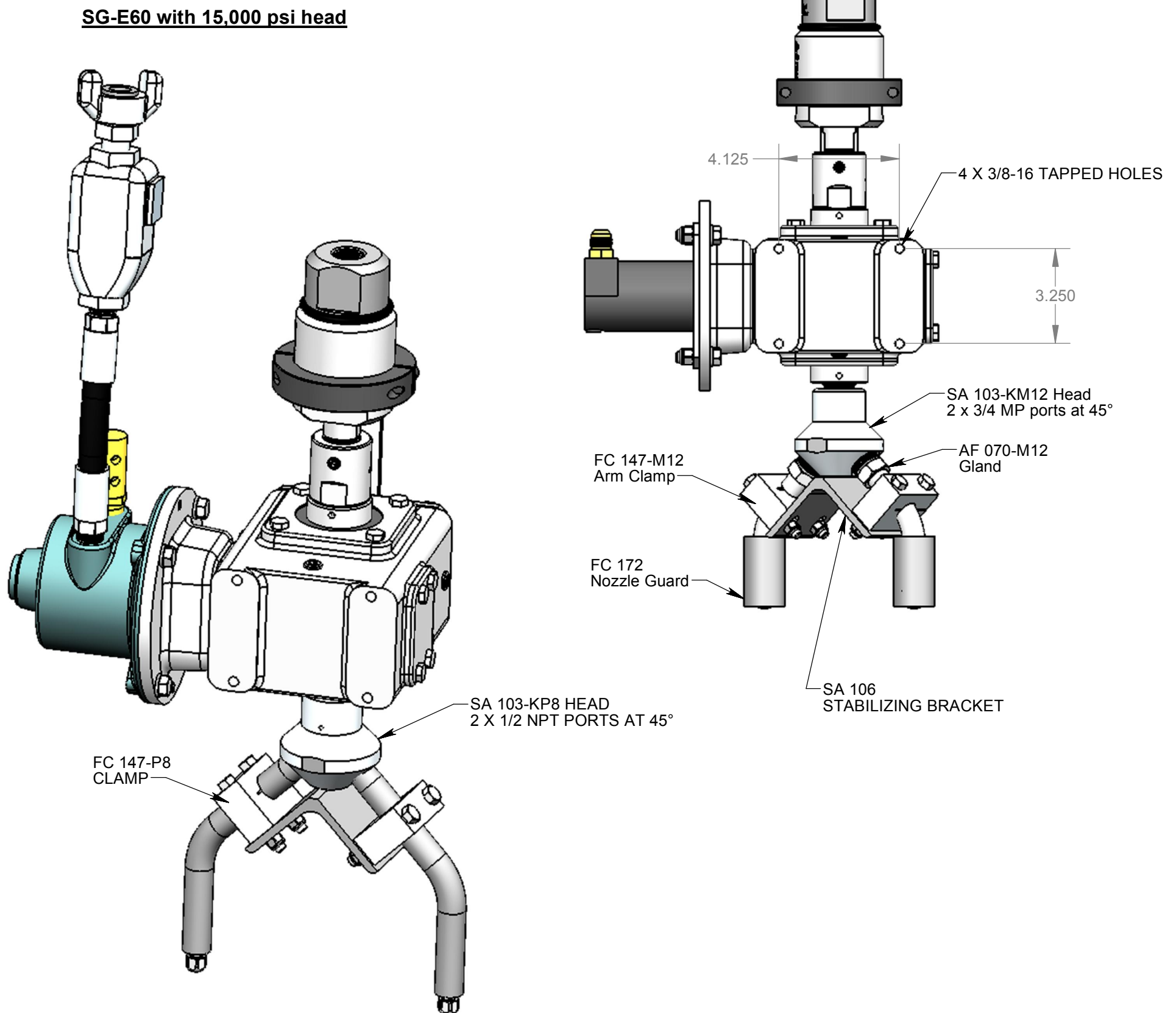
It is okay to spin the unit for short periods without water, but if the time period will be longer than 30 seconds, there should be at least low pressure water supplied to the swivel to prevent excessive heat buildup. Always flush the high pressure water hose before connecting to swivel inlet to avoid plugging nozzles. Once at operating pressure and desired rotation speed, the unit should not severely vibrate or shake. If it does, check that the nozzles are not partially plugged and that they are the same size or otherwise balanced.

When trying to remove thick deposits of material or trying to remove material at large standoff distances (such as through a tube bundle) it is better to use slower rotation speeds and fewer jets. If removing thinner coatings or milling or scarifying, use faster rotation speeds and more jets.

Maintenance:

Grease the swivel after every 100 hours of use; when the swivel seal begins to leak continuously at operating pressure, replace the high pressure seal; refer to the SG Swivel insert sheet. Maintain sufficient lubrication for the air motor drive; if the unit will be stored for more than a few days without use, squirt some air tool oil into the air motor inlet and operate briefly to distribute the oil in the motor. If the unit vibrates or shakes, check nozzles for plugging or wear, which creates unbalanced jet thrust and vibration.

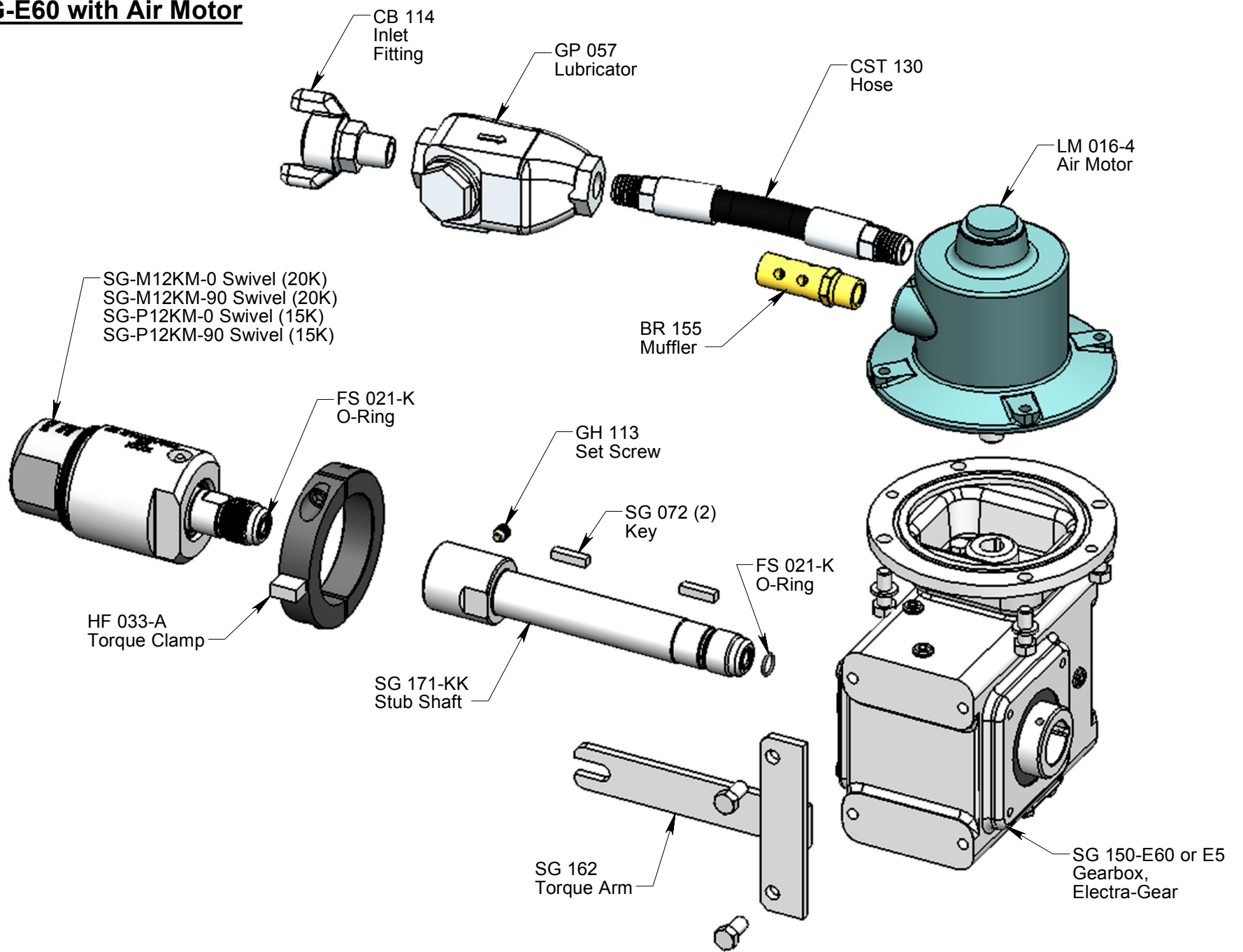
Mounting bolt pattern and 22,000 psi head (SG-E70 shown)



Rotation Direction- stub shaft tightens into head

SG-E60 and SG-E70 Gearbox Driven Tools

SG-E60 with Air Motor



SG-E70 with Hydraulic Motor

