



Gearbox Selection

K and G Gearbox Comparison

Hale currently produces two midship gearboxes that are used on our Qmax, Qmax-XS, Qtwo, and 8F pumps. Hale's G gearbox has been offered on all midship pumps for the last 30 years. The K gearbox was introduced in 2008 in support of the larger engines that were introduced by manufacturers at the time.

Gearbox Design

Both G and K gearboxes are designed with 2.75" diameter, heat-treated chrome nickel steel drive shafts for superior strength. The G gearbox utilizes spur gears, while the K gearbox utilizes helical gears. The use of helical gears result in the K gearbox being quieter, which allows easier communication at the pump panel.

Strength

Both gearboxes use high strength iron housings for durability and noise reduction and both are available in different lengths to allow proper driveline arrangements. Rolling element bearings and cooling water tubes are also common features of each gearbox.

The spur gears used in the G gearbox allow for torques up to 16,000 lb.ft. making it a strong choice for today's standard engines.

The K gearbox is used in high powered apparatus, where horsepower exceed 450 HP. In addition, departments with high mileage requirements benefit from the 250,000 road mile design of the K gearbox. The K gearbox uses heavy duty bearings that are 20% stronger than the industry standard, able to withstand 18,500 lb.ft. of torque. Furthermore, the K gearbox's helical gears allow for an anti-hop out design that keeps the pump firmly in gear. The more torque that is applied to the gearbox the more the gearbox resists being pulled out of gear.

Shifting Mechanism

The G gearbox is offered with an optional VPS control valve. Without proper interlocks, it is possible for operators to shift between road and pumping mode without placing the apparatus in neutral. The G gearbox requires constant air to be supplied to maintain pump or road gear. This is due to the features of spur or straight, cut gears.

The K gearbox's optional KPS control valve includes a solenoid that is tied into the neutral gear of the apparatus. When the transmission is in neutral, it allows air to pass through the shifter allowing the shift to occur. This anti-crash feature prevents the pump from being taken out of pump or road modes while the apparatus is still in drive. When an OEM uses their own shifting mechanism, it is important that they only provide air to the KPS shifter when making the shift instead of constantly providing air to the KPS. This is important due to the design of the helical gears. The helical gears work to keep the pump in gear, while the spur gears need pressure to ensure the pump stays in gear.

Optional Accessory Drive

The G gearbox has an optional accessory drive for hydraulically driven accessories, to drive foam pumps or hydraulics. This is available in SAE B or C. This option is not available on the K gearbox at this time.

In conclusion, the K gearbox builds on the strength and benefits of the G gearbox while adding higher power handing capability, quieter operation, and safer shifting.

If you have any further questions or would like additional information about these gearboxes or any of our pumps, please feel free to contact our customer service center at 1-800-533-3569.