



Hydraulic/Pneumatic Products

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To: ALL PERMCO DISTRIBUTORS

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Subject: 3000/3100 and 5000/5100 2-Speed Motors

Permco's Two-Speed motors have the two-speed valve built into the bearing carrier providing compact packaging and offering lower system cost by eliminating expensive external components. The two-speed valve can be shifted on the fly to either low speed/high torque or high speed/low torque modes.

Two-Speed motors are ideal for winch, crawler, conveyer, auger and many other types of applications with low speed/high torque and high speed/low torque requirements. In winch or over hung load applications a counterbalance valve should be included in the hydraulic circuit; the counterbalance valve can be mounted directly to the bearing carrier outlet port if needed. It should be noted that two-speed motors should not be used in applications where counterbalancing in both directions is required.

Two-speed motors can be constructed with our ten-tooth count standard motor (M) gears or our thirteen-tooth count winch motor (W) gears depending on the application. In low speed/high torque applications (below 400 RPM) it is best to utilize the thirteen-tooth winch motor (W) gears; this will provide improved starting torque, smoother low speed operation and lower torque ripple.

Typical starting torque is up to 80%+ of theoretical in the low speed mode utilizing winch motor (W) gears. Typical running torque is 28 in-lbs per 1" of gear per 100 PSI for the M3000/3100 and W3000/3100 series (2.00 CID per 1" gear) and 36 in-lbs per 1" of gear per 100 PSI for the M5000/5100 and W5000/5100 series (2.57 CID per 1" gear). Operating pressures range up to 3000 PSI dependent on gear size and configuration. Refer to Permco's Engineer's Handbook for available gear sizes and maximum operating pressures. Case drain required in most applications with less than 100 PSI backpressure; consult factory.

Note: When ordering please specify right hand (CW) or left hand (CCW) orientation, low or high speed start-up, operating RPM's and pressures for high and low speed modes. Refer to 2-Speed Motor bulletin # 06-TS100A and the Permco website (www.permco.com) under the PDF downloadable tab for more information.



The Sensible Choice