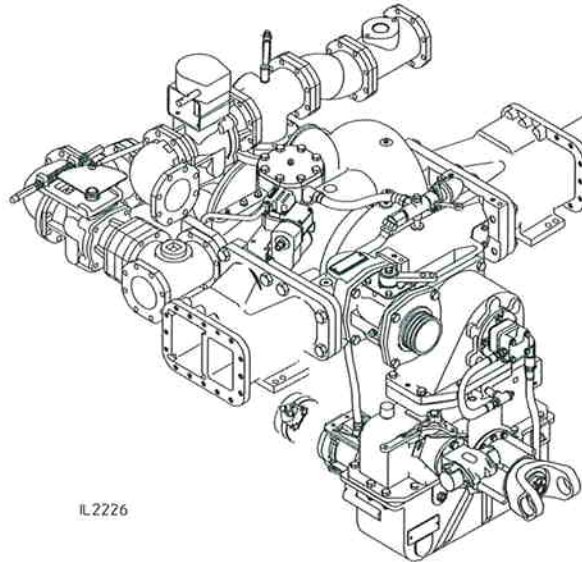


Form No.	Issue Date	Rev. Date
F-2486	04/10/02	12/08/04



IL2226

The CMYCX/CGV pump can operate as a CM pump only or as a CGV pump in series with the CM pump.

Design Features

The CMYCX/CGV pump has a CGV high pressure stage connected to the CM body end opposite the Y series transmission. The two pumps share a common impeller shaft which is spline connected to the Y transmission. A grease lubricated bearing in an adapter housing between the two pumps resists impeller shaft axial loads and (with the Y transmission bearings) radial loads. The intake of the CGV pump is connected through an isolation valve to the left hand side outlet of the CM pump discharge manifold.

The CM pump is sealed by the normal packing stuffing boxes. The CGV pump is sealed with a double mechanical seal. The double mechanical seal chamber provides a water pocket to cool and lubricate the seal surfaces when only the CM pump is being used.

Simple to Operate

At the flip of a single switch or valve the proven power shift system engages the pump, an indicating light system confirms that the shift is complete, and the patented shift lock mechanism assures that the transmission remains in PUMP.

A single control activates the complete priming system, automatically opening the priming valve and starting the primer, which in turn draws lubricant from the reservoir to seal and lubricate the primer.

A single ON-OFF control will activate the automatic relief valve system.

Versatility

The result of Waterous' advanced engineering capabilities is a quality product which has been thoroughly tested to meet NFPA and special contract provisions. Versatility combined with simple operation and exclusive design features have enabled us to continue providing the most reliable fire pumps in the industry for over 100 years.

CM Pump Specifications

Casing

Two-piece, horizontally split, high tensile, close grained gray iron or bronze (optional). All passageways are carefully matched to assure the very best hydraulic flow characteristics.

Wear Rings

Bronze, reverse flow, labyrinth-type replaceable wear rings increase pump life and keep maintenance costs to a minimum.

Impellers

Matched bronze impellers, balanced both mechanically and hydraulically for vibration-free operation. Flame plated impeller hubs are available optionally to assure longer life despite the presence of abrasives in the water supply.

Impeller Shaft

Heat treated stainless steel is ground at all critical areas, polished under packing. An exclusive two-piece impeller shaft allows separation of the transmission from the pump without disassembling either component. This simplifies repair procedures, resulting in less down time.

Bearings

Three deep-groove anti-friction ball bearings, located outside the pumping chamber, give support and proper alignment to the impeller shaft assembly. Bearings are oil or grease lubricated, completely separated from the water being pumped, and protected by seal housings, flinger rings and oil seals.

Shaft Seal

Seal housings on packed pumps are equipped with two-piece fully adjustable packing glands. Grafoil® packing is used, which provides optimum sealing characteristic, minimizes shaft wear, and virtually eliminates repacking.

Flinger Rings

Located on the impeller shaft between seal housings and bearing housings, flinger rings provide added protection and keep water and foreign matter out of the bearings.

Oil Seals

Standard lip type for lubrication and additional bearing protection from dirt and water.

Transfer Valve

Ball type bronze valve, in removable bronze housings with large waterways for smooth flow. Manual operation is standard, electric operation is optional. The Waterous transfer valve provides smooth transfer to either PRESSURE or VOLUME without sticking.

Specifications subject to change without notice

CMYCX/CGV Series Fire Pump

CGV Pump Specifications

Casing:

Two-piece, vertically-split, high-tensile, close-grained gray iron.

Impeller:

Bronze impeller specifically designed for the fire service, double-hubbed to eliminate axial thrust, and accurately balanced for vibration-free running. Impellers with flame-plated hubs for extreme wear resistance are optional.

Wear Rings:

Replaceable bronze wear rings to increase pump life and keep maintenance costs at a minimum.

Impeller Shaft:

Stainless steel, heat treated, precisely ground to size, and polished under shaft seal. Supported by oil lubricated ball bearings.

Bearings:

All bearings are oil or grease lubricated, ball-type, located outside the pump casting to accurately align and support the impeller shaft assembly. Ball bearings are deep-groove type designed to carry both radial and axial thrust.

Shaft Seal:

A face-type, self-adjusting, corrosion and wear resistance mechanical seal is standard.

Y Series Transmission

Housings: High tensile gray iron, three-piece, horizontally split
Drive Ratios: 1.14, 1.27, 1.41, 1.58, 1.69, 1.88, 2.03, 2.27, 2.46, and 2.73

Optional: Oiler cooler available for all ratios.

Shafts: Drive line shafts made from alloy steel forgings, hardened and ground to size, available in 2 inch SAE 10-spline, 2 inch 38 tooth involute spline or 2.35 inch 46 tooth involute spline, depending on torque rating required.

Drive and Driven Sprockets

Made of steel. All sprockets are carburized and hardened, and have ground bores.

Drive Chain

Morse HV[®] high strength involute form chain.

Bearings

Deep groove, anti-friction ball bearings, positive oil splash and pressure lubricated throughout.

Pressure Lubrication System

An impeller shaft driven oil pump delivers lubricant to an integral spray header that completely pressure lubricates the drive chain. This unique transmission design eliminates the need for auxiliary cooling.

Shift Mechanism

Constant-mesh, two position sliding collar that engages all teeth simultaneously. In-cab controlled manual shift, optional electric shift or optional pneumatic shift. A patented internal locking mechanism provides a positive lock in PUMP or ROAD position.

*Registered trade name of Union Carbide Corporation

**Registered trade name of Emerson Power Transmission Corporation

Accessories & Optional Equipment

The accessories below are available for Waterous CM pumps. For detailed information about these accessories, request each specification sheet by number.

Power Shift

Air or electric power allows the operator to shift to ROAD or PUMP position by actuating a simple switch or valve. Electric indicating lights signal completion of shift from ROAD to PUMP. See *Power Shift*, F-1154.

Primer

Select either electric driven or belt driven rotary vane or electric driven rotary gear priming system. All can be factory installed to your Y or W Series pump transmission. See *Priming Systems*, F-1175.

Pressure Control Systems

Discharge Relief Valve

Simple ON-OFF control permits placing the system in or out of operation in seconds. See *Relief Valve*, F-897.

Intake Relief Valves

The Waterous intake relief valve is designed to dump excess pressure from the inlet side of the pump. See *Intake Relief Valves*, F-2192.

Tank to Pump Valve

The tank to pump valve is a full-flow 3-1/2 in. diameter ball valve which is attached directly to the pump. The valve is operated by a 90° spring detent remote control handle.

Discharge Valves

The following Waterous ball-type discharge valves are available: 2-1/2 inch, 3-1/2 inch, rack and sector push-pull, worm gear and electric. Chrome plated brass ball and hydraulically balanced seal assembly standard. See *Discharge Valves*, F-1161.

Electric Transfer Valve

Provides smooth transfer to either PRESSURE or VOLUME. See *Electric Transfer Valve*, F-1155.

Typical Performance

Volume (GPM)	Pressure (psi)
1000	160
500	700
350	800
250	600