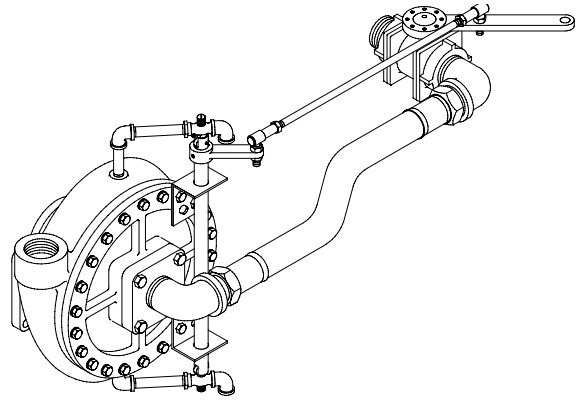




## **SPECIFICATIONS – ACCESSORIES: EXTRA PRESSURE STAGE** **Operates in Series with the Main Fire Pump**

The extra-pressure stage is a simple way of providing extra pressure with a compact fire pump. This feature eliminates the need for a separate PTO driven pump and the associated transmission mounted power take-off, propeller shaft and piping.

This drawing shows the extra-pressure stage with intake hose, control valve and drain linkage. This feature is available on all Waterous Model CSH and CMH centrifugal fire pumps to provide utmost versatility for complete firefighting performance.



### **Description:**

All Waterous midship mounted single-stage (Model CS) and two-stage series/parallel (Model CM) pumps with rated capacities of 500 to 2000 GPM (1900 to 7800 l/min.) are available with this option. Adding the extra-pressure stage is accomplished simply by installing a longer impeller shaft in the main pump, adding a high-pressure impeller, an extra volute and a control valve with drain/vent linkage. With the extra-pressure stage, the model designations are CSH or CMH.

The extra-pressure or booster stage is operated in series with the main pump and is engaged merely by opening a quarter-turn valve allowing main pump discharge to enter the extra-pressure stage intake. When the quarter-turn valve is opened, control linkage automatically closes the drain and vent cocks on the extra-pressure stage. When high pressure is not required, and the quarter-turn valve is closed, the control linkage opens the drain and vent cocks to permit rapid draining of the extra-pressure stage volute. The CSH is the first pump

designed specifically for the fire departments that want advantages of both a single-stage midship pump and the efficient high pressure capability of a two-stage pump. The extra-pressure stage of the CSH can increase the main pump booster to 500 psi (34.5 bar) or more to supply two or more booster lines.

The CMH has been providing fire departments with versatility and lasting performance for years. The extra-pressure stage (third stage) develops pressures up to 800 psi (55.2 bar) for two or more booster lines. Waterflow in either SERIES or PARALLEL through the first two stages is unaffected by the third, high-pressure stage. Each of the three impellers develops approximately one-third of the total pressure. An unlimited variety of pressure and capacity combinations is available from Waterous CMH pumps.

### **Industry-Leading Sales and Support**

When you purchase Waterous equipment, not only do you get quality products, you get quality service. Our expert service technicians are the best in the business and they are always happy to answer any service questions you might have.

**Sales/Applications Assistance**  
 Phone: 651-450-5234 (Press 3)  
 pumps@waterousco.com

**Service Assistance**  
 Phone: 651-450-5200  
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 service@waterousco.com

## SPECIFICATIONS - ACCESSORIES: DISCHARGE VALVES

### Specifications

Each CSH and CMH pump / transmission combination is specifically designed to furnish the best possible match with truck chassis and engine - custom or commercial. All Waterous pumps are tested to contract requirements and thoroughly broken in under full power before shipment. The extremely accurate test facility proves pump performance, efficiency, casting soundness and integrity before the pump is mounted in your apparatus.

#### Casing:

Extra-pressure stage casing is vertically-split, bronze-fitted, high-tensile, close-grained gray iron or bronze.

#### Wear Ring:

Replaceable wear ring is used to increase pump life and keep maintenance costs at a minimum. Wear ring material is made of tough corrosion resistant Ni-Resist to reduce wear from abrasive matter normally found in the water supply.

#### Impeller:

Single Intake, high-pressure bronze impeller, accurately balanced for vibration-free operation. Splined impeller hub to permit a close fit to impeller shaft for even torque-load distribution. Impeller wear ring hub is radially grooved to prevent metal-to-metal wear due to sand or other abrasives.

#### Impeller Shaft:

Heat-treated stainless steel, ground at all critical areas, polished under packing and is fully ball bearing supported.

#### Bearings:

Three deep-groove, anti-friction ball bearings located outside the pumping chamber, give rugged 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 stuffing boxes, flinger rings and oil seals.

#### Stuffing Boxes:

The extra-pressure stage has a single stuffing box with square, metallic-foil packing. Packing rings are held in place by fully adjustable, split-bronze glands which can be completely removed for easy packing replacement. Packing is water lubricated and cooled.

#### Flinger Ring:

Located on impeller shaft between the extra-pressure stage stuffing box and bearing housing to provide added protection in keeping water and foreign matter out of the bearings.

#### Hose Assembly:

Wire braided, oil-resistant jacket with steel end fittings. Rated 2000 psi burst pressure.

#### Ball Valve:

Lever controlled, 1-1/2 in. quarter-turn bronze bodied ball valve assembly.

#### Drain/Vent Control:

Brass drain and vent cocks actuated by a double swivel rod assembly connecting quarter-turn ball valve lever to drain linkage assembly.

#### Extra-Pressure Stage Ratings:

- Model CSH pumps - 500 psig operating pressure
- Model CMH pumps - 800 psig operating pressure

