

# ARMSTRONG



## Vertical In-line Duty / Standby Pumps

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# The Armstrong 4392 Series Vertical In-Line pump



## Twin Smart Pump Design for the commercial HVAC market

The Armstrong 4392 Twin Vertical In-Line pump design eliminates the need to install two pumps in duty / standby applications saving on capital and installation costs.

Thereby the 4392 Twin Vertical In-Line pump becomes an integral component of the piping system. This configuration eliminates the need for flexible connectors, inertia bases, grouting and field alignment.

### ► Customer Benefits

#### ► Best First Installed Cost

Can save 30-40% on installation costs compared to two base mounted pumps. The need for inertia base, flexible, coupling and/or shaft alignment is eliminated. Ideal for retrofit projects. Armstrong Twin Vertical In-Line pumps can be installed directly into the piping.

#### ► Installation Advantages

The 4392 Twin Vertical In-Line pump design means only one pump to install in duty / standby installations, thus reducing the space required. Installation in the piping removes the need for poured concrete basis, and the space-saving reduces the length of pipe required.

#### ► Project Risk Minimisation

Replacement bearings and seals available locally. No lubrication required or seal adjustments necessary. Seal flush / vent line eliminates air entrapment in the casing, ensuring that the mechanical seal is lubricated. A proven well tested design, the 4392 Twin Vertical In-Line is installed in thousands of buildings around the world. Replacement bearings and seals are readily available .

#### ► Improved Maintenance

Life cycle cost is reduced by up to 50% compared to two separate base-mounted pumps. The Twin VIL design requires virtually zero maintenance. Self lubricated mechanical seals and motor bearings are installed in standard units. Silicone Carbide is the standard mechanical seal material offering for the series. Back pull-out design allows for easy servicing of the mechanical seal and motor removal for service without disturbing the casing or piping.

#### ► Energy Savings

Extensive use of computational fluid dynamics (CFD) in the hydraulic design ensures hydraulic efficiency is optimised.

# Series 4392 Twin Vertical In-Line pump

## ► The Series 4392 Twin Vertical In-Line pump offers:

- Technical excellence
- Compact configuration
- Robust construction
- All made-to-order pumps are labeled to show flow and head data
- All pumps have unique serial number, ensuring traceability

## ► Applications

- Flows up to 180 l/s, heads to 950 kPa
- Powers to 55kW
- Suitable for LTHW, MTHW, Chilled and Condenser Water
- Static pressures up to 16 bars
- Temperatures up to 145°C at 10 bar

## ► Superior Components, Features and Benefits

- Mechanical seal with carbon versus silicon carbide faces for long life
- Impellers are trimmed to suit specified duties, to ensure efficient performance, low absorbed power and optimized motor selection
- IEC 72 standard motor for ease of supply and replacement
- Grades 220 cast iron casings for robustness
- Pressure gauge tapping on inlet/outlet flanges for ease of performance checks

## ► Optional Certified Performance Testing

Pumps can be tested to the customer's specified duty conditions in line with BSEN 9906-2000 requirements

## ► Long Life and Reliability

- Impeller back vanes provide hydraulic balance and reduce bearing loads, extending bearing life
- One-piece gunmetal, bronze impeller resists corrosion, and prevents seizure
- Impellers are statically balanced
- Substantial shaft diameters reduce deflection, increasing seal life

## ► Installation

- In-line arrangement allows easy installation
- Suitable for horizontal pipelines
- Suitable for vertical pipelines up to 11kW motor size
- The Series 4392 range offers the most compact duty / standby arrangement
- Provides the lowest installed cost
- Chilled water pumps require suitable lagging on-site against condensation
- Back pull-out design provides easy access for maintenance

## ► Construction

- Pump Body: Close grained cast iron Grade 220
- Impeller: Gunmetal Bronze BS1400 LG2C
- Stub Shaft: Stainless Steel BS970 431S29
- Mechanical Seal: Carbon rotating face with stationary silicon carbide seat, EPDM flexible element, stainless steel metal parts
- Motor: IEC 72 standard IP55, EFF2 motor  
Class F insulation with Class B temperature rise

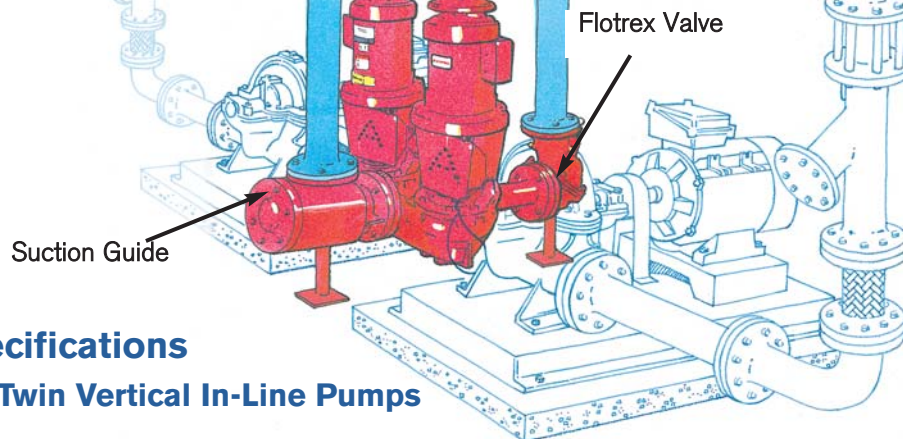
Armstrong Twin Vertical In-Line pumps, when installed with Armstrong Suction Guides and Flo-Trex combination valves, result in greater added value and lower life cycle costs.

The Armstrong Suction Guide, designed with flow stabilizing plates in the outlet port, allows the guide to be bolted directly onto the pump suction flange, enabling the vertical piping to turn 90° into the pump. A disposable fine mesh start-up strainer and permanent perforated stainless steel strainer complete this valuable fitting.

The Suction Guide eliminates the need for a separate suction strainer, long radius elbow and minimum straight pipe run to the pump suction.

The Armstrong Flo-Trex triple function combination valve is designed to operate equally as a non-slam check valve, isolation valve and a properly designed throttling valve. This uniquely designed valve is field-convertible from 90° angle type to 180° straight type.

The Flo-Trex combination valve eliminates the need for a discharge elbow, a separate check valve and a throttling isolation valve.



## ► Typical Specifications

### ► Series 4392 Twin Vertical In-Line Pumps

Supply and install as shown on the plans and specifications, Armstrong Twin Vertical In-Line 4392 Series centrifugal pumps, with rising head characteristics to pump shut off. Refer to the schedule for pump flows and heads and motor speed, efficiency, enclosure and power requirements.

The pumps shall be Armstrong 4392 Series motor mounted Twin vertical in-line.

### ► Pump Construction

- Pump casing shall be cast iron or gunmetal bronze
- Pressure limits: Pressure up to 16 bar for Cast Iron
- Temperature limits: Temperature up to 145°C at 10 Bar working pressure
- The casing suction and discharge connections shall be the same size and shall be provided with drilled and tapped seal vent and pressure gauge connections
- For constant speed pumps over 1kW, impellers must be made of bronze, trimmed and then balanced to the design conditions specified. Balancing must be single-plane or two-plane as required by ISO 1940
- Mechanical Seal shall be single spring inside type with carbon against silicone carbide faces. EPDM elastomer with stainless steel spring and hardware shall be provided
- A bronze shaft sleeve, extending the full length of the mechanical seal area, shall be provided
- Motor power requirements shown on the pump schedule are the minimum acceptable and have been sized for continuous operation without exceeding the full load nameplate rating over the entire pump curve, exclusive of service factor

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