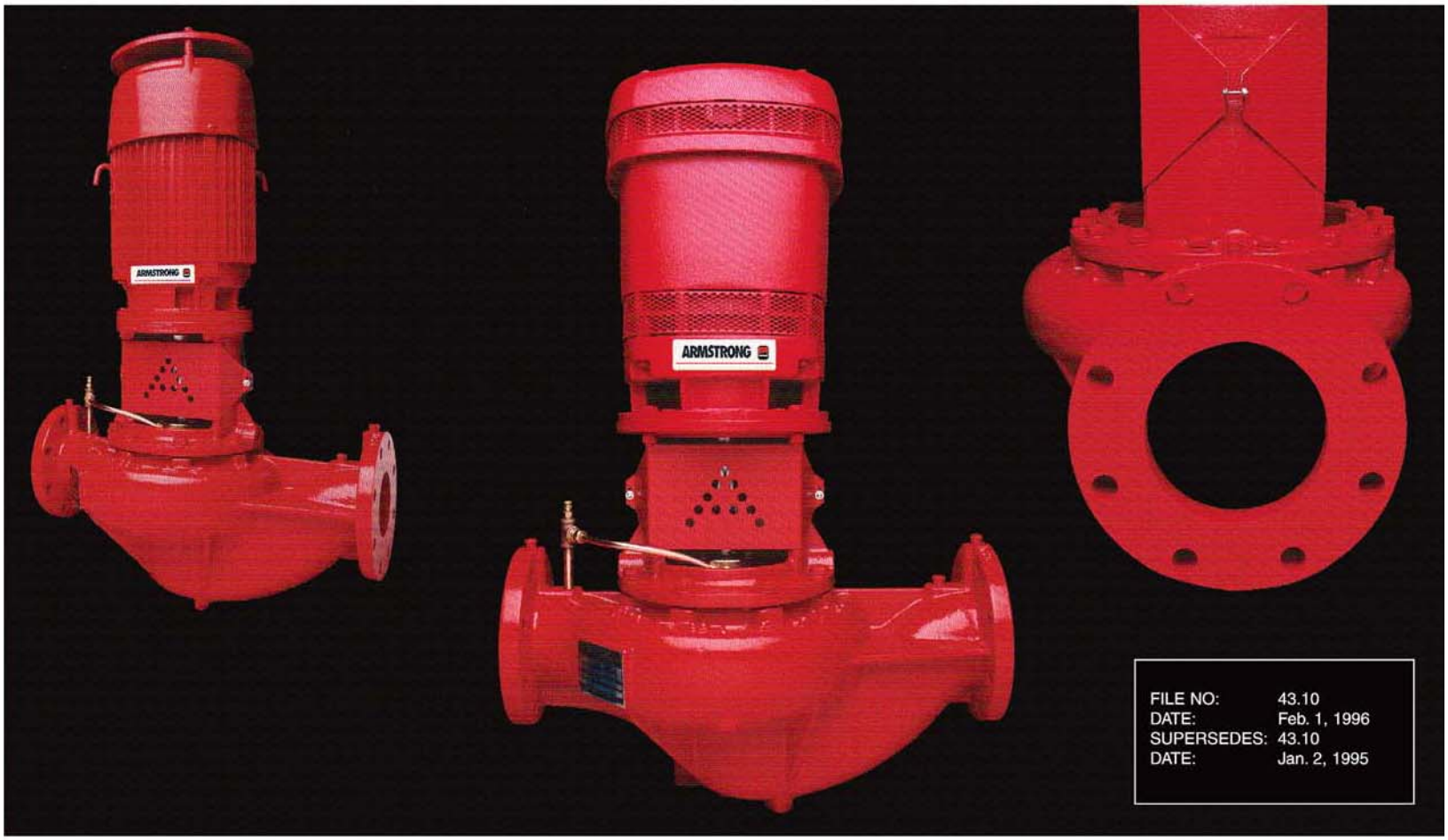
ARMSTRONG

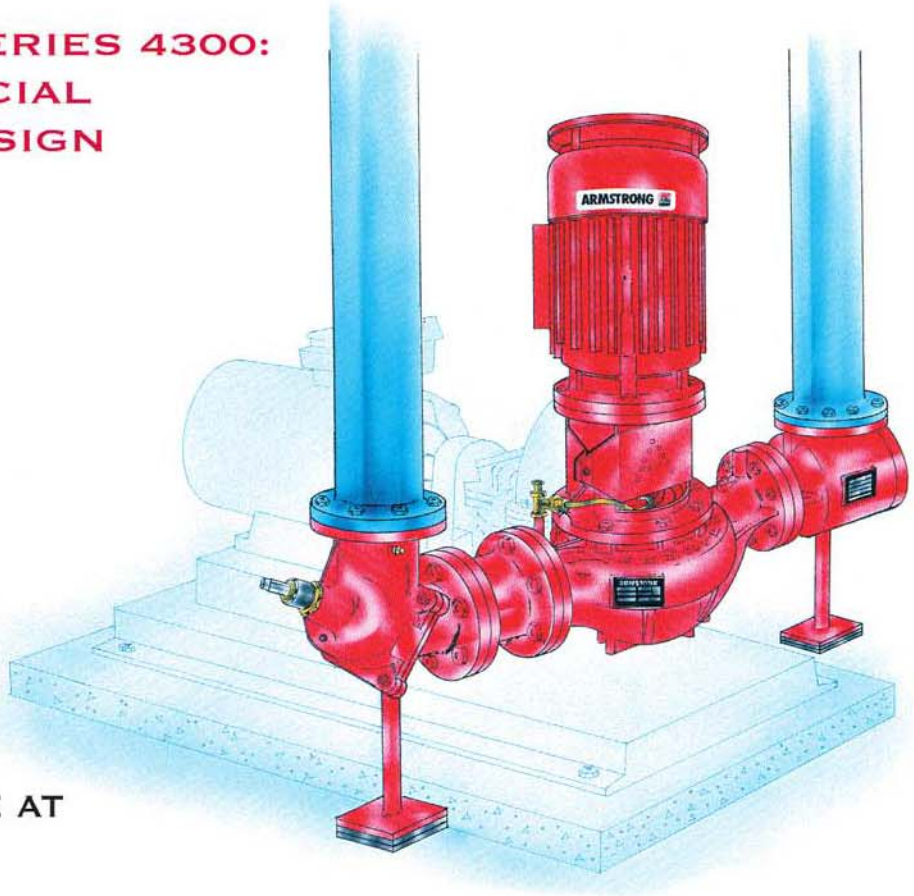
Series 4300



FILE NO:	43.10
DATE:	Feb. 1, 1996
SUPERSEDES:	43.10
DATE:	Jan. 2, 1995

Split Coupled Vertical In-Line Pumps

ARMSTRONG SERIES 4300: BEST COMMERCIAL HVAC PUMP DESIGN AVAILABLE – SINCE 1969



LIFE CYCLE VALUE AT EVERY TURN:

INSTALLATION: Vertical In-Line pumps, being integral components of the pipework, eliminate need for inertia bases, inertia base springs, flexible pipe connectors, field grouting and alignment. Pipe hangers, sized for the weight of pump, piping and fittings, are the only supports required. Pipe stools, with vibration isolating pads, may be installed under each pipe leg.

SPACE SAVING: Greatest floor space savings result when Vertical In-Line pumps are installed with Armstrong Suction Guides and Flo-Trex valves. (see above illustration)
Equivalent base mounted horizontal split case pumps may take 3 times more floor space.

MAINTENANCE: Mechanical seal is the critical service item in any pump. Removal of the Series 4300 split spacer coupling allows all mechanical seal components to be withdrawn for servicing, through the resulting space between pump and motor shafts, without disturbing other pump components or motor connection. Re-installing the rigid coupling brings the unit rotating assembly back to factory alignment specifications.

RELIABILITY: Dynamically balanced impeller, and shaft assembly rotating vertically on the Series 4300 centerline means a quiet, long lasting pump with minimum vibration, as static shaft deflection is eliminated. There are no pump bearings to service in the Vertical In-Line design. Series 4300 is a reliable, time-proven unit with less down time.

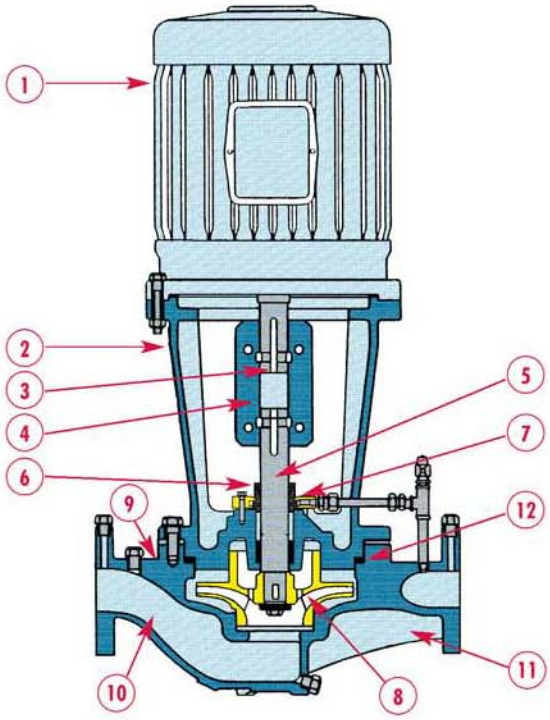
FLEXIBILITY: Small footprint, low installation costs, reliable and easy to maintain. These features, combined with flow range in excess of 10,000 gpm (630 l/s), affirms the Series 4300 as the most flexible pump design available.

SPLIT COUPLED

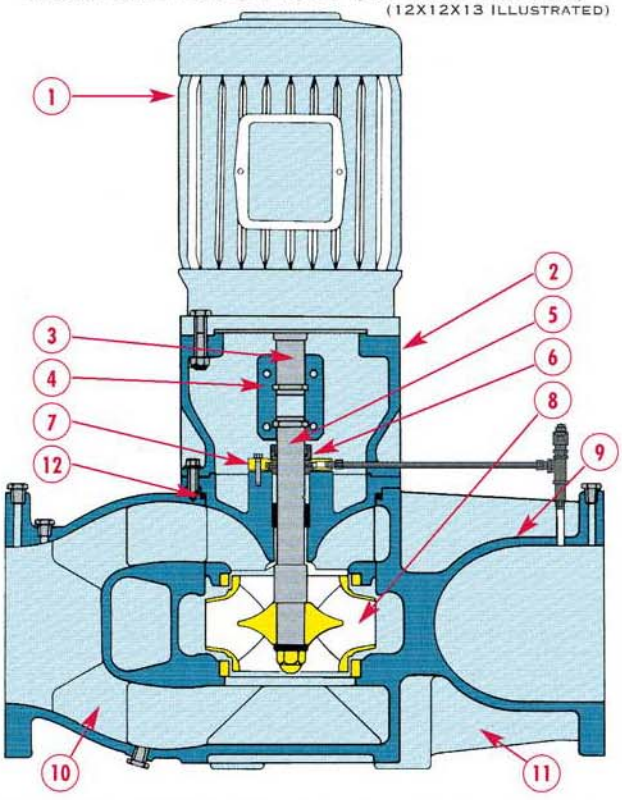
1. Industry standard motor designed for Vertical In-Line operation
2. Heavy cylindrical bracket with 360° register on each flange provides a rigid union of pump and motor
3. Motor shaft run-out limited to 0.001" (0.025 mm) T.I.R. (Total Indicator Reading)
4. Axially split, spacer type rigid coupling permits seal maintenance without disturbing pump or motor. Lightweight high tensile aluminum, precision bored and designed to reduce bearing load
5. Shaft deflection at mechanical seal limited to 0.002" (0.05 mm) T.I.R.
6. Mechanical seal, accessible and easily replaceable (Outside multi-spring balanced mechanical seal illustrated. See page 5 for mechanical seal options)
7. Gland plate with flush connection ensures liquid at seal faces and positive venting of seal chamber
8. Dynamically balanced impeller assures smooth vibration-free operation
9. Radially split volute with equal suction and discharge flange sizes. Separate drilled and tapped openings for gauge, flush and drain connections
10. Liberal inlet passageways and straightening vanes provide optimum suction performance and quiet operation
11. Ribs cast integral with volute. Machined surface to accept floor support when specified
12. Confined casing gasket to meet stringent industrial temperature and pressure applications
13. Coupling guard fully encloses access openings (Not shown)

First Canadian Place, Toronto, Ontario, 1975

SINGLE SUCTION



DOUBLE SUCTION (12" AND LARGER)
(12X12X13 ILLUSTRATED)



MATERIALS OF SERIES 4300 CONSTRUCTION

Series	ANSI Flange Rating psig	Construction	Volute	Gasket	Impeller	Capscrew	Washer	Acorn Nut	Adapter Cover	Adapter Bracket	Stuffing Box Cover	Motor Shaft	Pump Shaft	Coupling	Gland Plate
4300	125	BF	CI	F	BZ	S	SS-3	BR-2	CI	CI	CI	S	SS-6	AL	BR-2
		AI	CI	F	CI	S	SS-3	S	CI	CI	CI	S	SS-6	AL	SS-4
		AB	BZ	F	BZ	SS-5	SS-5	BR-2	BZ	CI	BZ	S	SS-6	AL	BR-2
	250	DI	DI	F	CI	S	SS-3	S	DI	DI	DI	S	SS-6	AL	SS-4
		DBF	DI	F	BZ	S	SS-3	BR-2	DI	DI	DI	S	SS-6	AL	BR-2

MATERIAL CONSTRUCTION CODE

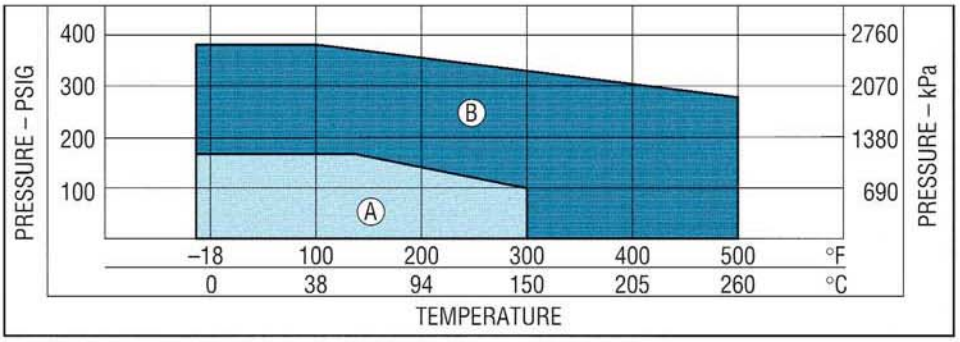
- AB – All Bronze
- AI – All Iron
- BF – Iron Body, Bronze Fitted
- DI – Ductile Iron
- DBF – Ductile Iron, Bronze Fitted

- AL – High Tensile Aluminum Bar
- BZ – Cast Bronze ASTM B584 grade C84400
- CI – Cast Iron ASTM A48 class 30
- DI – Cast Ductile Iron ASTM A536 grade 65-45-12
- F – Fiber
- N – Neoprene
- S – Steel
- BR-1 – Hard brass tubing ASTM B111

- BR-2 – Brass Bar ASTM B16
- SS-2 – Stainless Steel ASTM F593 Alloy group 2
- SS-3 – Stainless Steel ASTM A276 type 303
- SS-4 – Stainless Steel ASTM A276 type 304
- SS-5 – Stainless Steel ASTM A276 type 316
- SS-6 – Stainless Steel ASTM A276 type 416

Canary Wharf Tower Building, London, England, 1989

PRESSURE/TEMPERATURE CHART ②



LEGEND

Ⓐ

125 lb. Cast Iron / Cast Bronze

Ⓑ

250 lb. Ductile Iron

Note: ② Refer to File No: 43.50 for mechanical seal pressure/temperature limitations.

VERTICAL IN-LINE PUMP

SPLIT COUPLED The axially split, spacer type rigid coupling permits seal maintenance without disturbing the pump or motor connections. The mechanical seal is accessible and easily replaced. (Outside multi-spring balanced mechanical seal is illustrated)

1) Split coupling with outside seal. Axially split coupling shown with coupling guard removed. Coupling bolts are still in place. Rotating element of seal is seen below the coupling, above gland plate.

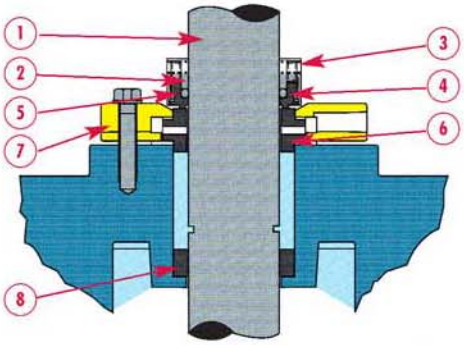
2) Remove the coupling bolts. The coupling halves (with drive and annular positioning keys) are taken from motor and pump shafts. Loosen set screws on seal rotating element and slide from pump shaft. (For inside seal see step (3))

3) Disconnect seal flush line and remove gland plate bolts. The gland plate and seal seat may then be taken out between the space in the shafts. With inside seal the complete seal is removed following the gland plate.

4) New seal may now be installed. Reverse the procedure: Install new seal, replace gland plate, replace coupling and restart pump. Rigid coupling retains factory alignment.

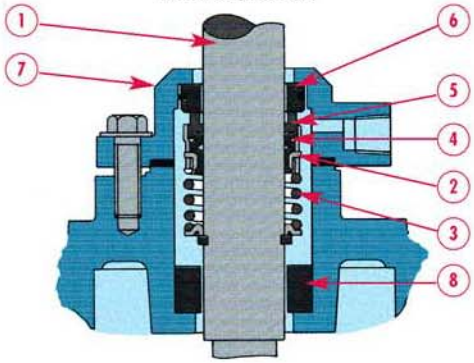
SEALING ARRANGEMENTS: Armstrong series 4300 split coupled Vertical In-Line pumps are available with two mechanical seal arrangements. Both can be removed easily and quickly for servicing without costly removal of the motor or pump from the piping. The high performance outside type mechanical seal combines the advantages of a multi-spring balanced seal with premium quality and is the easiest to remove. The inside type mechanical seal provides an economical alternative.

OUTSIDE BALANCED MECHANICAL SEAL ARRANGEMENT



1. Pump Shaft
2. Rotating Hardware
3. Spring(s)
4. Secondary Seal
5. Rotating Face
6. Stationary Seat
7. Gland Plate
8. Throttle Bushing

INSIDE UNBALANCED MECHANICAL SEAL ARRANGEMENT



TYPICAL SERIES 4300 SPECIFICATION:

1.0 PUMPS – VERTICAL IN-LINE, CENTRIFUGAL

1.1 Provide Armstrong Vertical In-Line pumps, single stage, single or double suction type, with pump characteristics which provide rising heads to shut off. Refer to pump schedule for pump flows, heads, motor speed, enclosure, efficiency and power requirements

1.2 Pumps shall be Series 4300 split coupled type, with rigid spacer type coupling

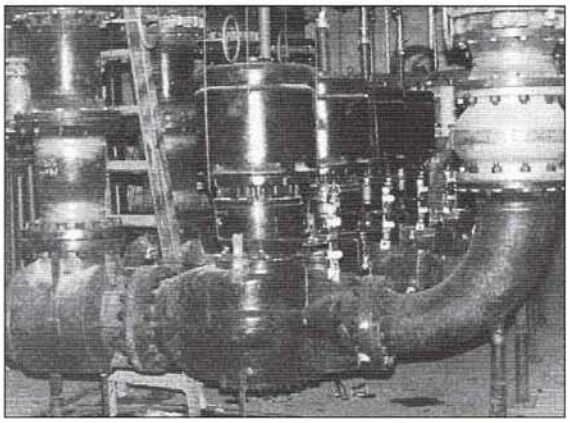
1.3 Pump Construction

.1 Pump Casing - Cast Iron for working pressure below 175 psig at 150°F (125 psig ANSI flange rating) and Ductile Iron for working pressures to 375 psig at 150°F (250 psig ANSI flange rating) Suction and discharge connections shall be flanged and the same size and shall be drilled and tapped for seal flush and gauge connections

.2 Impeller - Bronze, fully enclosed type. Dynamically balanced

.3 Shaft - Provide Stainless Steel pump shaft

.4 Coupling - Rigid spacer type of high tensile aluminum alloy Couplings shall be split to allow removal from pump and motor shafts, leaving space between the shafts sufficient to replace all mechanical seal components without disturbing the pump or motor



World Financial Center, New York City, 1985

.5 Mechanical Seals - Shall be Stainless Steel outside multi-spring balanced type with Viton secondary seal. Provide bronze gland plate with Stainless Steel hardware. Provide factory installed flush line with manual vent.

.6 All split coupled pumps shall be provided with a lower seal chamber throttle bushing

.7 Motor Horsepower - Shown on the schedule are minimum and have been sized for continuous operation without exceeding full load nameplate rating over the entire pump curve, exclusive of service factor

Seal flush line fittings, if required:

Supply in the flush line to the mechanical seal a 50 micron cartridge filter and sight flow indicator, to suit the working pressure encountered.

Filters shall be changed, by the installing contractor, after system is flushed and on a regular basis until turned over to the owner.

Alternately, for pumps with differential pressures exceeding 30 psig:

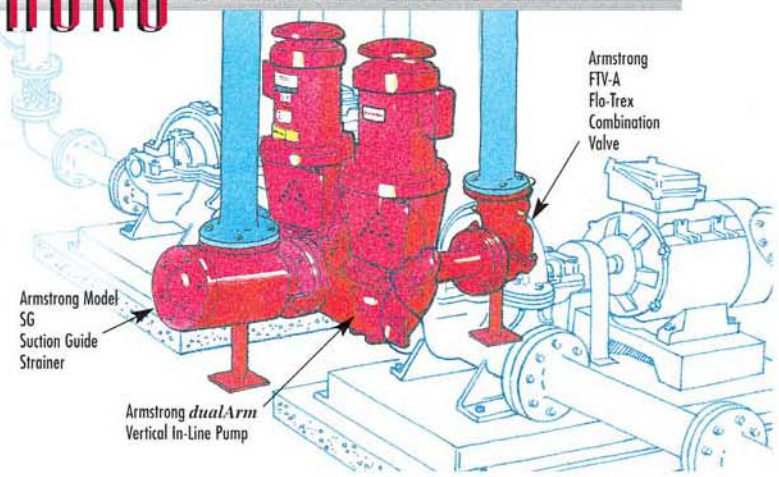
Supply in the flush line to the mechanical seal a cyclone type separator, with sight flow indicator.

OTHER ARMSTRONG PRODUCTS

FOR EVEN GREATER SPACE SAVING, EASE OF INSTALLATION AND FLEXIBILITY OF USE:

Specify Armstrong *dualArm* Vertical In-Line pump

- Two (2) Armstrong time proven Vertical In-Line pumps in one (1) casing
- Eliminates a complete set of piping and fittings
- Stand-by or two pump parallel operation with no loss of single pump efficiency
- Remove one pump for repair *while the second pump continues to operate*



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