

Split Case Fire Pump Systems

MODEL 411/421/431/441



MODEL 413

Built Per
N.F.P.A. 20

ap AURORA®
Pentair Water

Types of Pumps

HORIZONTAL split case pumps are the most common type of Fire Pump. These pumps are specially tested for fire-service applications where reliability of performance is of vital importance. They are characterized by easy access to all working parts, rugged construction, liberal water passages, and efficient operation. They are specified when the source of water is located above the surface of the ground and will provide a positive suction pressure to the pump at any performance point. There are several capacity ratings of Aurora approved Fire Pumps available ranging from a minimum of 250 GPM. Single stage or multi-stage pumps are available dependent upon discharge pressure requirements.

AURORA COMPLIES WITH PERFORMANCE REQUIREMENTS FOR FIRE PUMP SERVICE WITH ITS STANDARD PRODUCTION PUMPS.

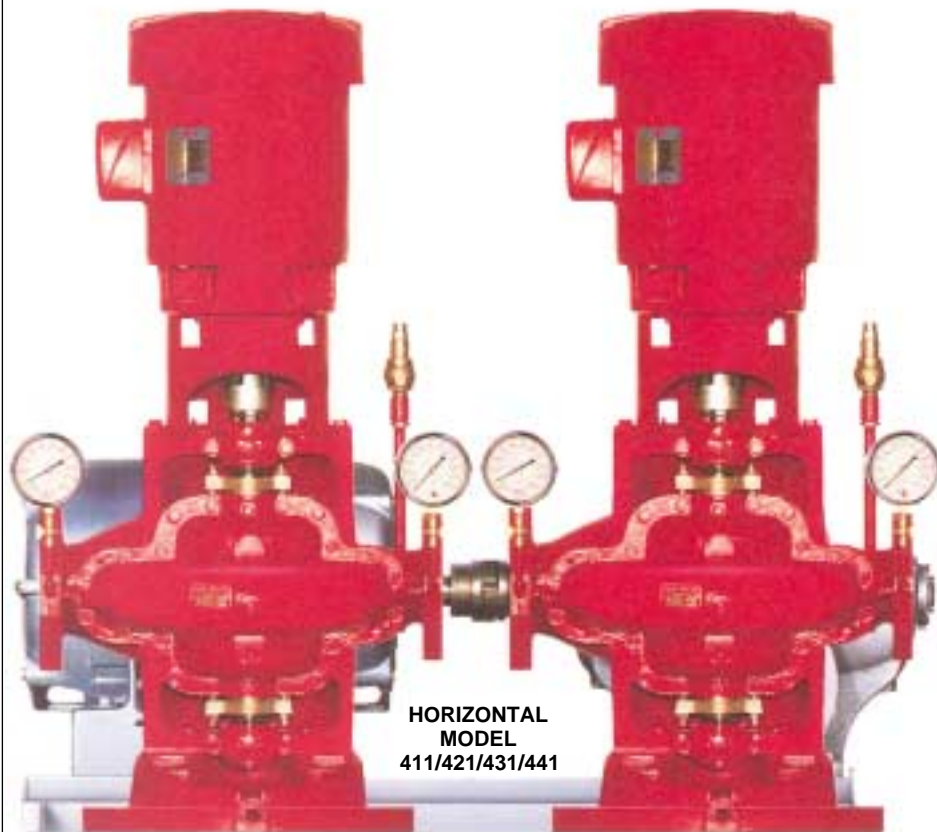
Therefore, to the Fire Pump user this feature means:

1. Lower initial cost.
2. Quicker delivery from stock.
3. Parts interchangeability with Aurora pumps specified elsewhere in your building reduces spare parts inventory and simplifies maintenance.

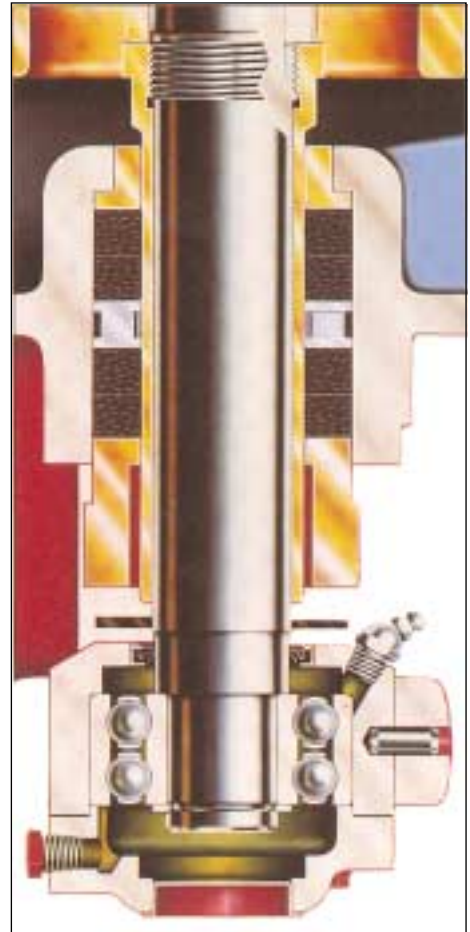
Aurora Pump offers the only true line of VERTICAL SPLIT CASE Double Suction type pumps approved and listed for fire service. Vertical Fire Pumps provide distinct advantages over horizontal pump constructions.

1. Less floor space required.
2. Inline piping arrangement allows piping in any direction in most cases.
3. Elevated motor protects against potential flooding if the pump station is in a low area.
4. Components are register fitted to prevent misalignment.

VERTICAL MODELS 413



HORIZONTAL
MODEL
411/421/431/441

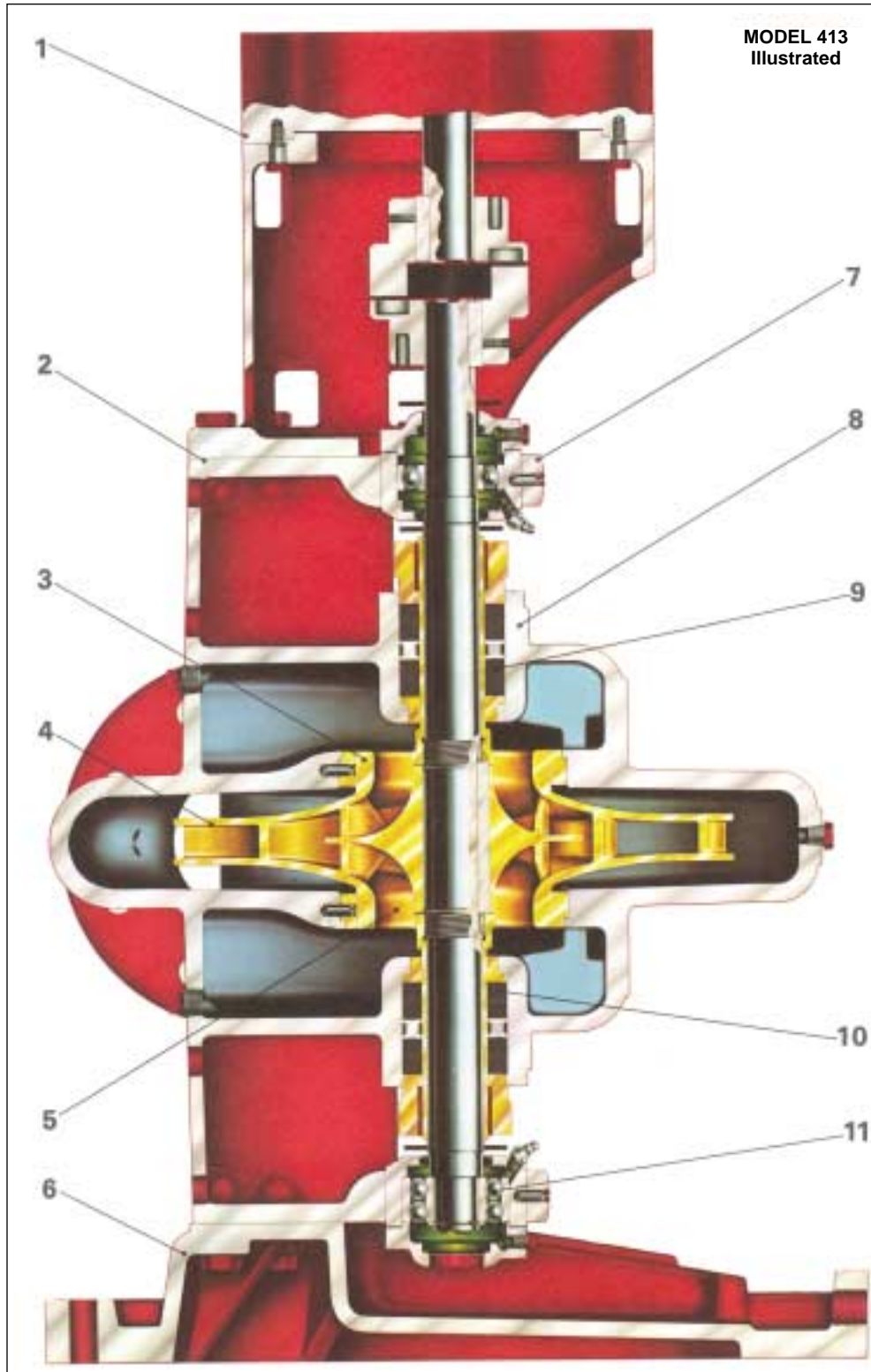


Vertical Split Case Pump Features

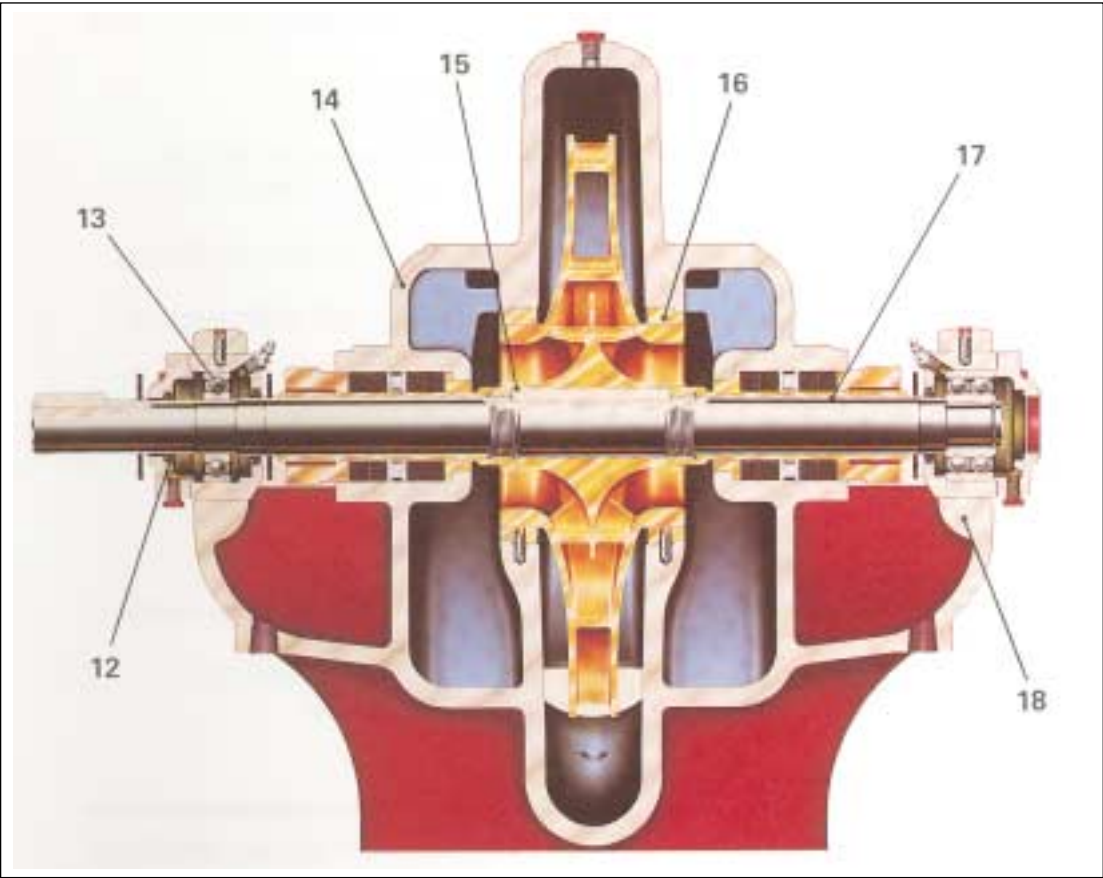
1 COMPUTER-MACHINED major components with 360 degree registered fits to assure concentricity of parts.
2 INTEGRAL BEARING ARMS eliminate bearing misalignment and simplify maintenance.

3 VACUUM CAST ENCLOSED impeller design provides high efficiency and performance on most sizes.
4 DYNAMICALLY BALANCED IMPELLER is keyed to the shaft and secured by adjustable shaft sleeves.

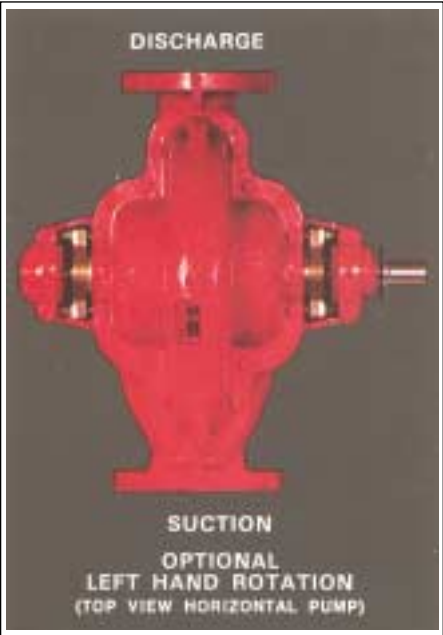
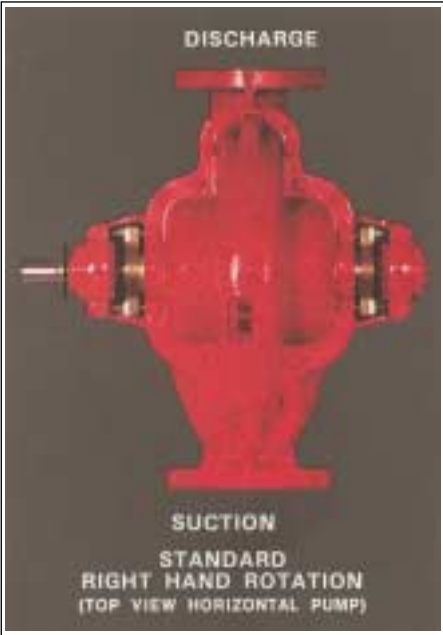
5 DOUBLE SUCTION IMPELLER balances hydraulic thrust loads.
6 CAST IRON DRIP RIM BASE directs condensation and any stuffing box leakage to drain.
7 SHORT BEARING SPAN holds shaft deflection to .002" at face of stuffing box at maximum load.
8 INTERNAL WATER SEAL PASSAGES between volute and stuffing box cannot be damaged.
9 INTERWOVEN, GRAPHITE IMPREGNATED T.F.E. diagonally cut packing rings seal the pump shaft.
10 STUFFING BOXES are extra deep for proper sealing. Split packing glands simplify packing maintenance.
11 DOUBLE ROW THRUST BALL BEARING.
12 GREASE SEALS and non-sparking Neoprene rotating slingers protect both bearings during pump operation and washdown.
13 BEARINGS selected for 50,000 hour minimum life at maximum load. Average bearing life 5 x minimum.
14 SPLIT CASE DESIGN simplifies disassembly. The suction and discharge piping and shaft alignment is not disturbed.
15 O-RING SEALED SHAFT SLEEVES prevent corrosion of the shaft. This eliminates the need for stainless steel shafts.
16 CASE WEARING RINGS and throttle bushings protect the casing from wear and are easily and inexpensively replaced.
17 BRONZE SHAFT SLEEVE prevents shaft wear, is slip fit over the shaft, keylocked, and extends the entire length of the seal box.
18 CERTIFIED PERFORMANCE TEST with POSITIVE SUCTION PRESSURE is provided for each Fire Pump for customer approval. Pumps are also hydrostatically tested per N.F.P.A. 20 at no less than 250 P.S.I.



Horizontal Split Case Pump Features



MODEL 411/421/431/441 ILLUSTRATED



Fire Pump Feature Selector

STANDARD

Bronze fitted pump construction
Bronze shaft sleeves
Bronze case wearing rings
Dynamically balanced impellers
Stainless steel impeller key
Carbon steel shaft
Corrosion-resistant lantern rings*
Bronze stuffing box bushings
Bronze glands
Interwoven graphite-impregnated T.F.E. packing rings
Cast integral bearing arms
Regreasible ball bearings
Double row thrust bearing (outboard side)
Upper casing lifting lugs
Water slingers and grease seals
Hydrostatic and Certified Performance test**
Coupling guard on 411/421/431 models
Suction and discharge gauges with shut-off cocks
Automatic air release valve
Casing relief valve (electric driven units only)

OPTIONAL

Ductile iron casings (available in selected 411 & 421 sizes)
Right or left hand rotation
Impeller wearing rings
Double row ball bearings on inboard side
External by-pass line from casing to stuffing boxes
Formed steel drip-lip base (horizontal electric driven units only)
15' Suction lift test to verify performance at 150% of rated flow
N.P.S.H. test

* Furnished when suction pressure is below 40 PSI

** Test is performed with POSITIVE SUCTION PRESSURE

Fire Pump Accessories

Various accessories are required for any fire pump installation. Specific needs vary depending upon the requirements of local insurance authorities as well as the individual installation. The current edition of the National Fire Protection Association (NFPA) pamphlet No. 20 specifies many of the accessories required.

Aurora Pump can provide approved Fire Pumps and a complete line of approved Fire Pump accessories.

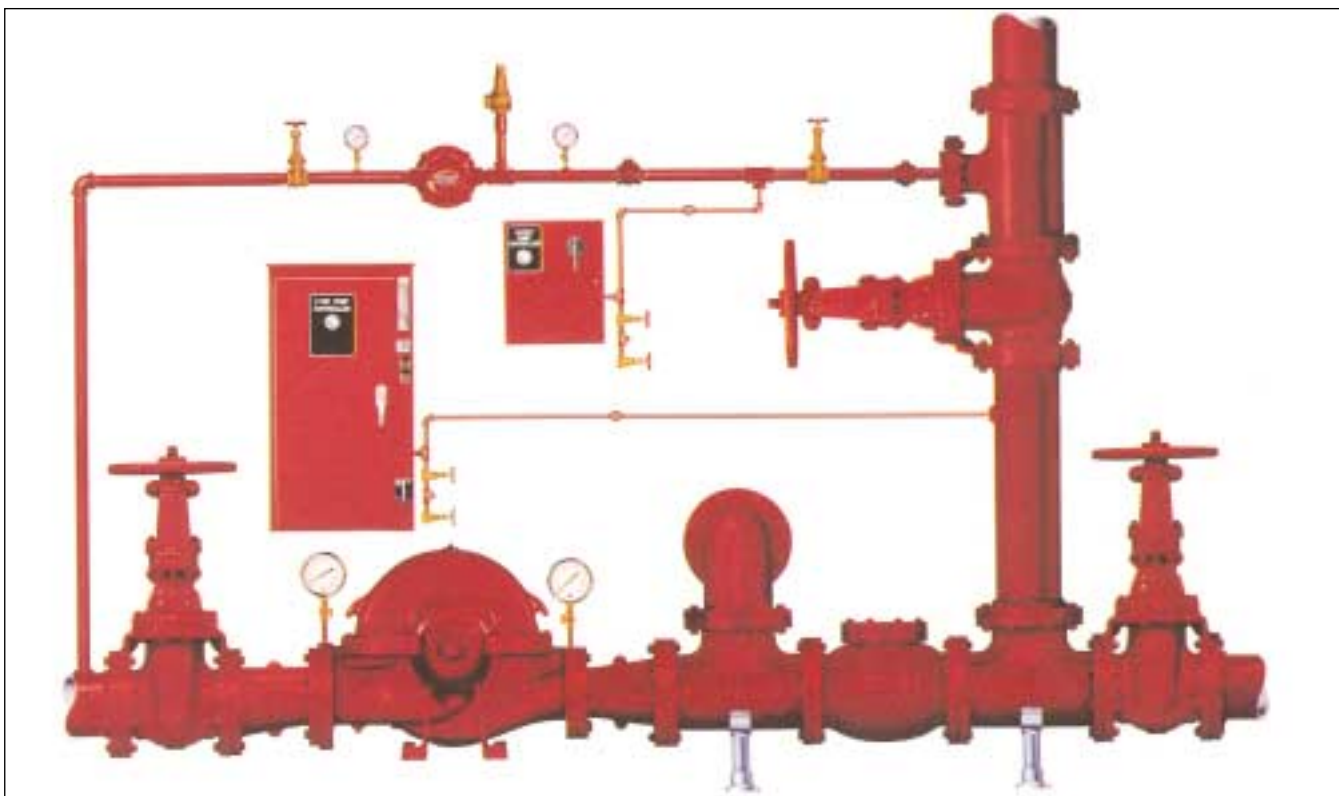
Available accessories include: hose valves, hose valve header, main relief valve, waste cone, concentric tapered discharge increaser, eccentric tapered suction reducer and splash shields.



Jockey Pump Introduction

Occasionally in a Fire Pump system, water leakage will occur at flanged or threaded pipe connections, valve stems, stuffing boxes, etc. This normal loss of water will lower the system pressure gradually until the main Fire Pump is required to start. To minimize wear on the Fire Pump resulting from unnecessary operation, a Jockey Pump is recommended for the system. In a Jockey Pump system a small pump, motor, and controller/pressure switch unit is installed in the piping system. The Jockey Pump pressure switch is set for approximately five P.S.I.G. greater than the pressure switch for the main Fire Pump Controller. When

the water pressure drops below the pre-set level, the pressure switch energizes a starter which activates the Jockey Pump. Correct water pressure is therefore maintained at all times. An optional minimum run timer will prevent the Jockey Pump from being started too frequently. This timer will insure operation for a minimum of 3 minutes. If a fire should start, the pressure will continue to drop and the main Fire Pump will start. Automatic controllers also include a "Hand-Off Automatic" selector switch for manual operation. Fusible 3-pole disconnect switch, magnetic motor contactor and thermal overload relays with external reset are standard.



NOTE: Aurora Pump reserves the right to make revisions to its products and their specifications, and to this bulletin and related information without notice.

— Your Authorized Local Distributor —



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Pentair Water

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