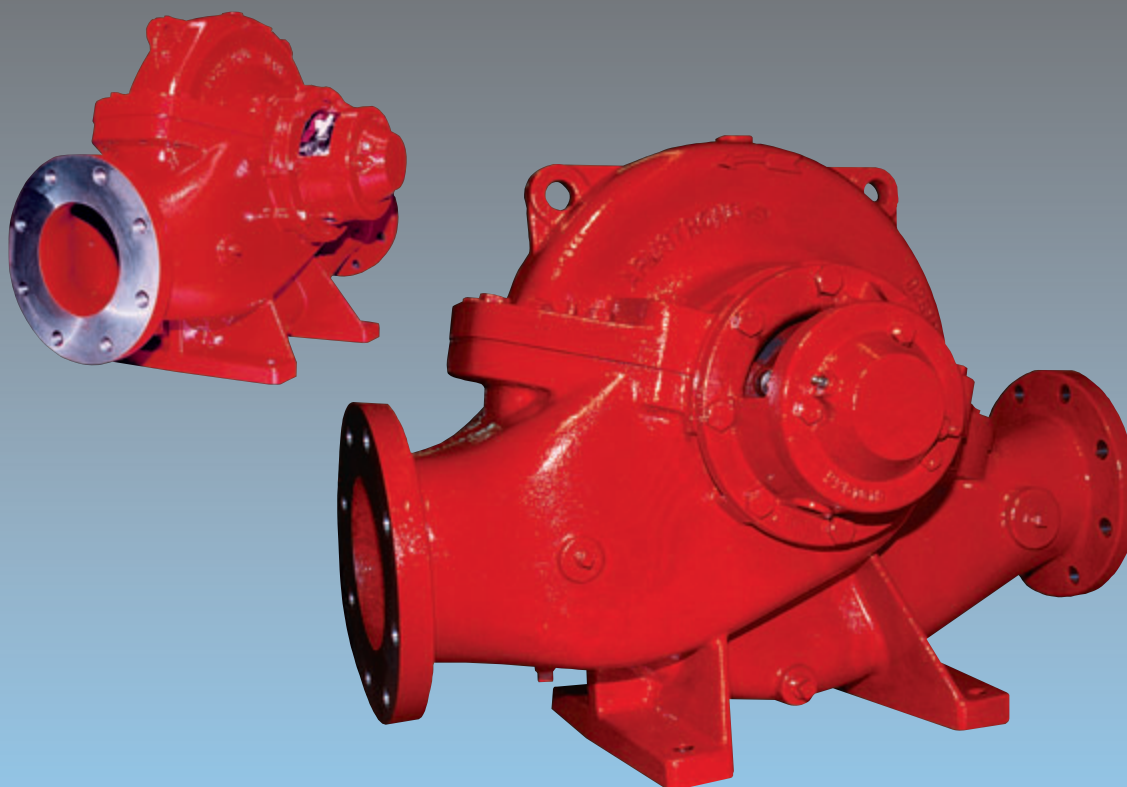


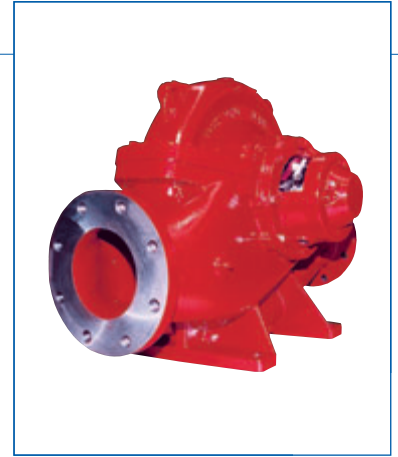
ARMSTRONG
HOLDEN BROOKE PULLEN



HSC FIRE PUMPS & PACKAGED Systems

FILE NO:	11-1
DATE:	December 2004
SUPERSEDES:	K13.110
DATE:	April 1998

Horizontal split case HSC fire pumps



Armstrong Holden Brooke Pullen takes you back to the future with the Series 4600 Horizontal Split Case (HSC) Pump for HVAC and industrial applications.

► Introduction

The Series 4600F, drawing on over 100 years of pump design expertise and leadership, is the state of the art in Horizontal Split Case pumps. It meets or exceeds the requirements of NFPA and testing laboratories involved in fire protection such as UL, ULC, and FM.

The family of pumps capitalise on the “Tilted Parting” concept to minimize turbulence at the eye of the impeller by its straight laminar approach, thus maximizing efficiency.

This also results in the lowest profile and minimum floor space of any HSC pump on the market today. The family was designed with commonality of parts, low installation cost, and ease of maintenance objectives.

The pumps compact sizes are ideally suited for space saving packages and retrofit applications.

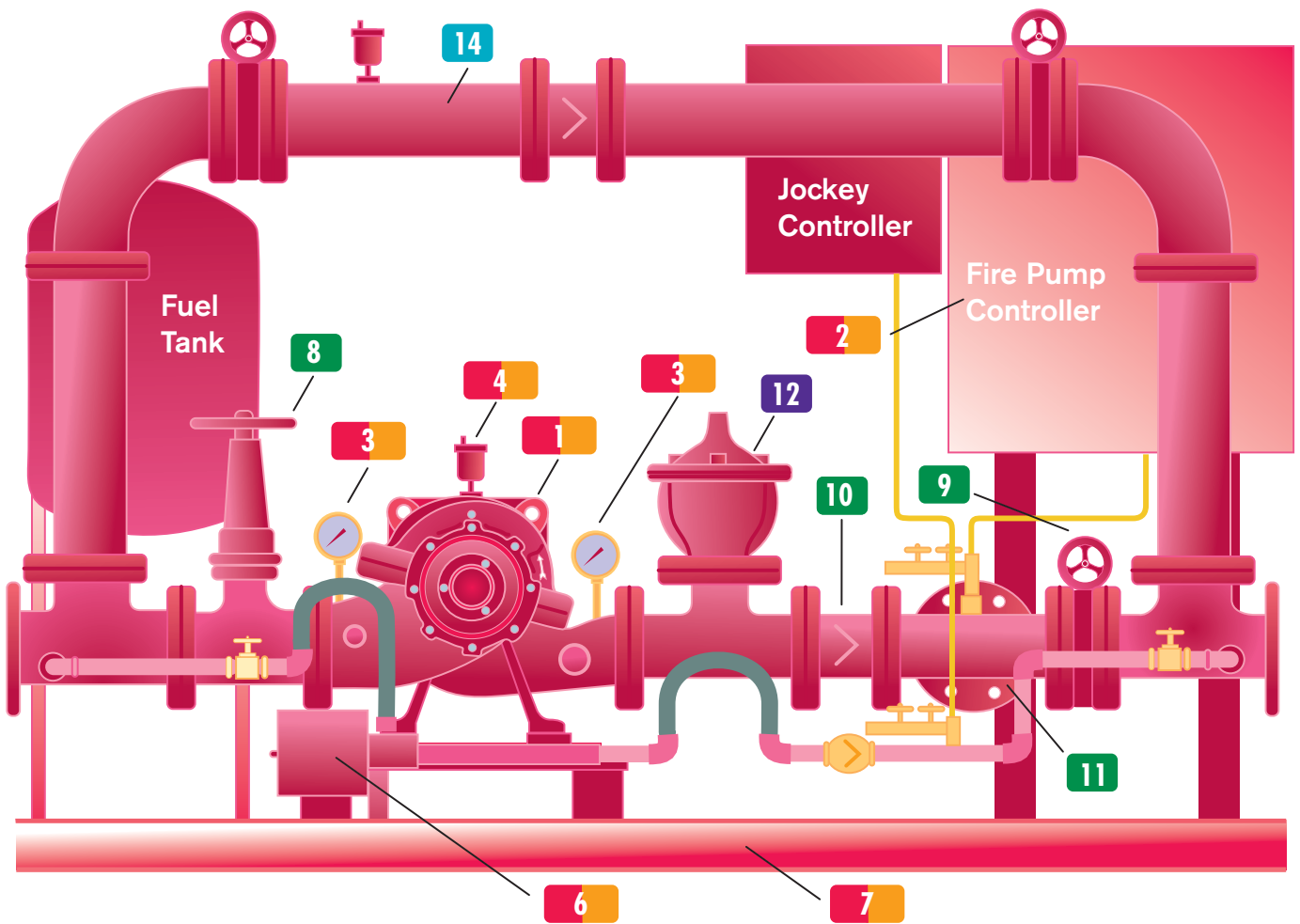
With years of experience in package assembly for the fire protection industry, Armstrong can supply fire pump systems with all necessary accessories assembled and ready for site installation.

GUARANTEED ADVANTAGES

- Installation time reduced
- Simplifies piping design
- Single source unit responsibility
- A complete package that will meet NFPA-20 requirements



Horizontal fire systems



► Fire Pump - Electric Driven

1. Pump/motor
2. Fire pump controller
3. Suction and discharge gauges
4. Air release valve
5. Casing relief valve (not shown)
6. Jockey pump
7. Common base

► Fire Pump - Diesel Engine Driven

1. Pump/engine assembled with
 - cooling system
 - fuel system
 - battery system
 - exhaust system
2. Fire pump controller
3. Suction and discharge gauges
4. Air release valve
6. Jockey pump
7. Common base

► Accessories - Additional (Electric or Diesel)

8. Suction OS&Y gate valve
9. Discharge butterfly valve
10. Silent check valve
11. Test tee

► Accessories - Special for Diesel

12. Main relief valve
13. Enclosed cone (not shown)

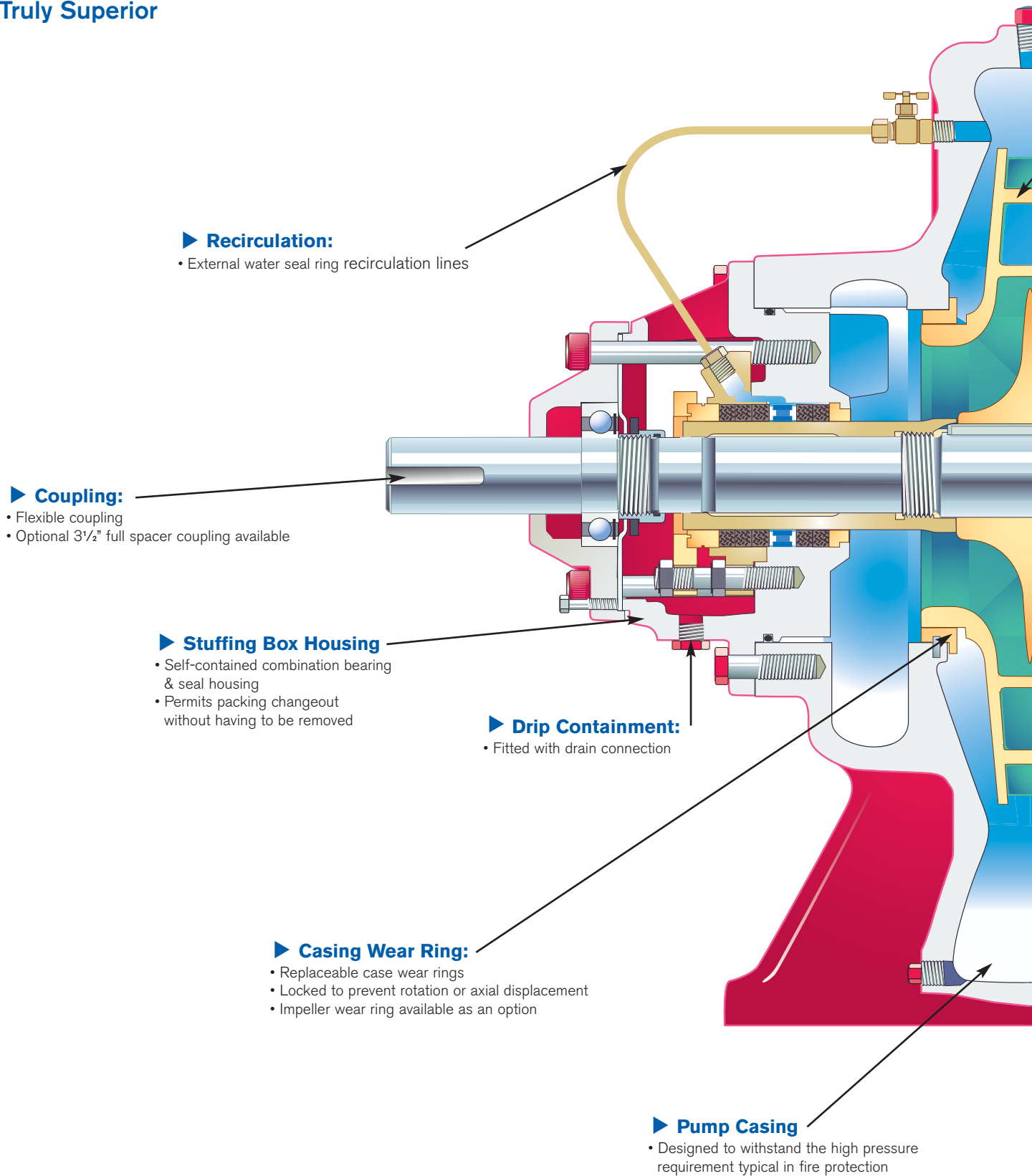
► Special Mounting Features

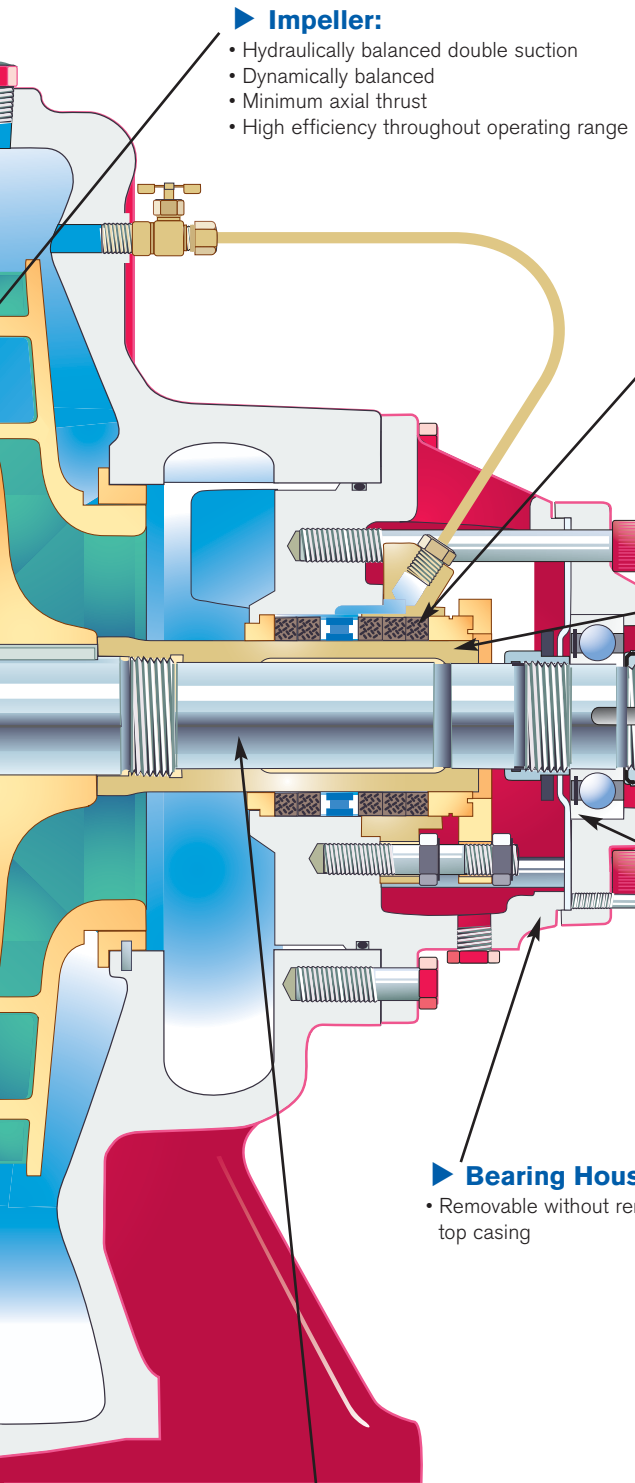
14. By-pass line
 - city by-pass with check valve
 - flow meter by-pass (not shown)

► Key

- ■ Features common to Electric and Diesel
- Accessories - (Electric or Diesel)
- Accessories - Special for Diesel
- Special Mounting Features

▶ **4600F Series
Horizontal Split Case HSC Fire Pump -
Truly Superior**





► **Impeller:**

- Hydraulically balanced double suction
- Dynamically balanced
- Minimum axial thrust
- High efficiency throughout operating range

► **Shaft Sealing with Packing:**

- Three-piece split gland standard
- Packing replaceable without disturbing wetted parts
- Stuffing box extension designed for easy access

► **Shaft Sleeves**

- Replaceable bronze sleeves
- Protects shaft throughout stuffing box

► **Bearings:**

- Easy removal with bearing nut
- Sealed, permanently greased bearings for extended life
- Low friction loss bearing
- Maintenance free

► **Bearing Housing:**

- Removable without removing top casing

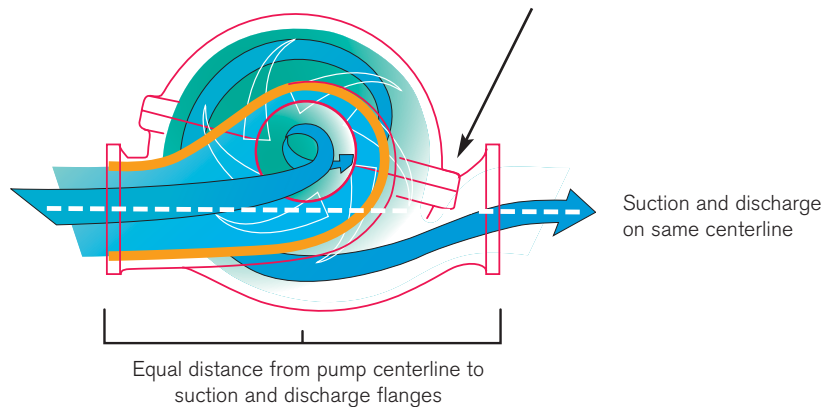
► **Tilted Parting Design Casing:**

- Permits laminar approach to eye of impeller
- Lower NPSH required
- Lower pump profile
- Minimum pump footprint
- Removable rotating element without disturbing piping
- Low foot-mounted casing to reduce vibrations

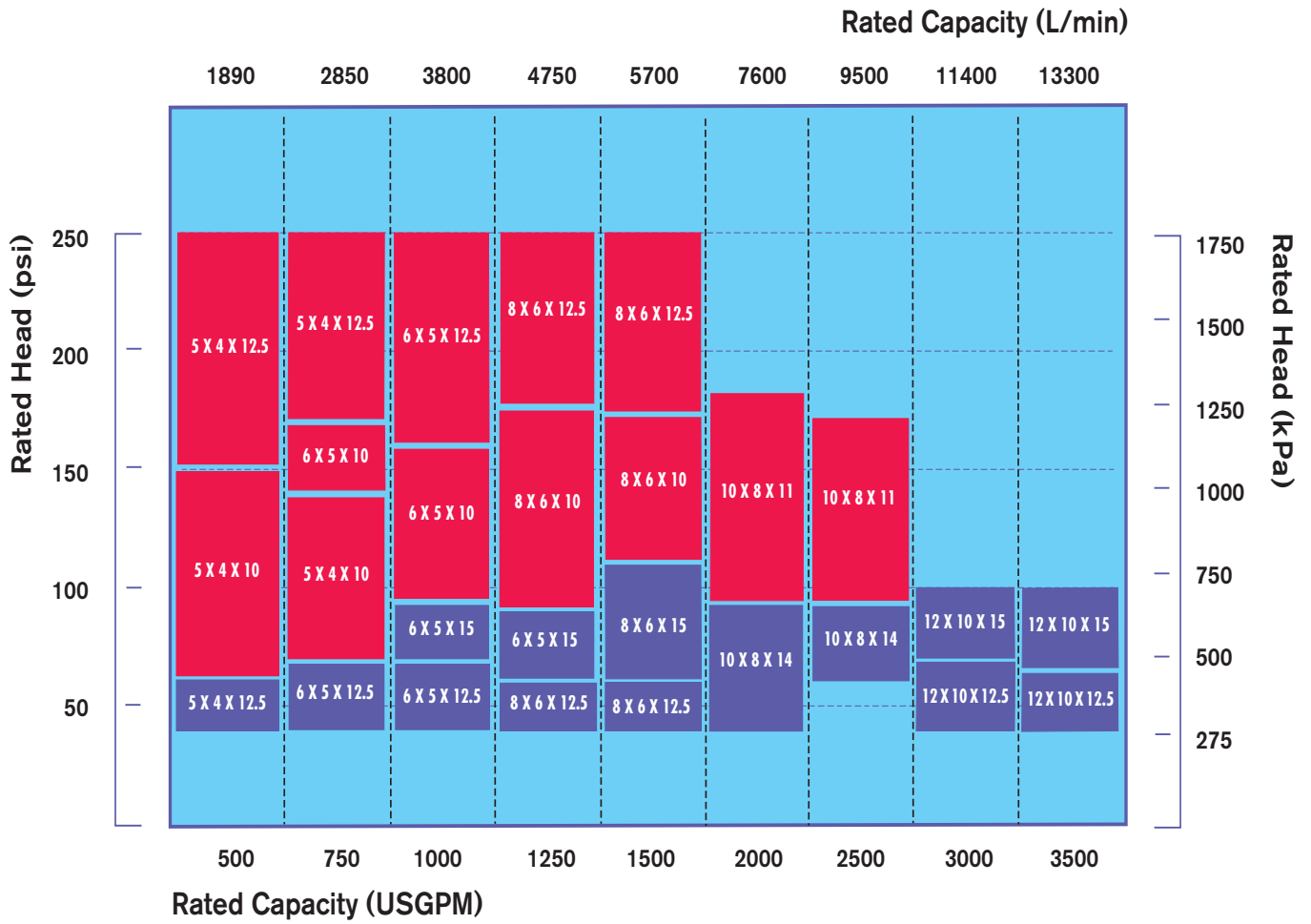
► **Shaft:**

- Minimum deflection for long bearing life
- Minimum vibrations
- Identical shaft and parts for left and right hand drives

► **15° Angle Casing**



► Fire pump coverage chart
Electrical 60 Hz

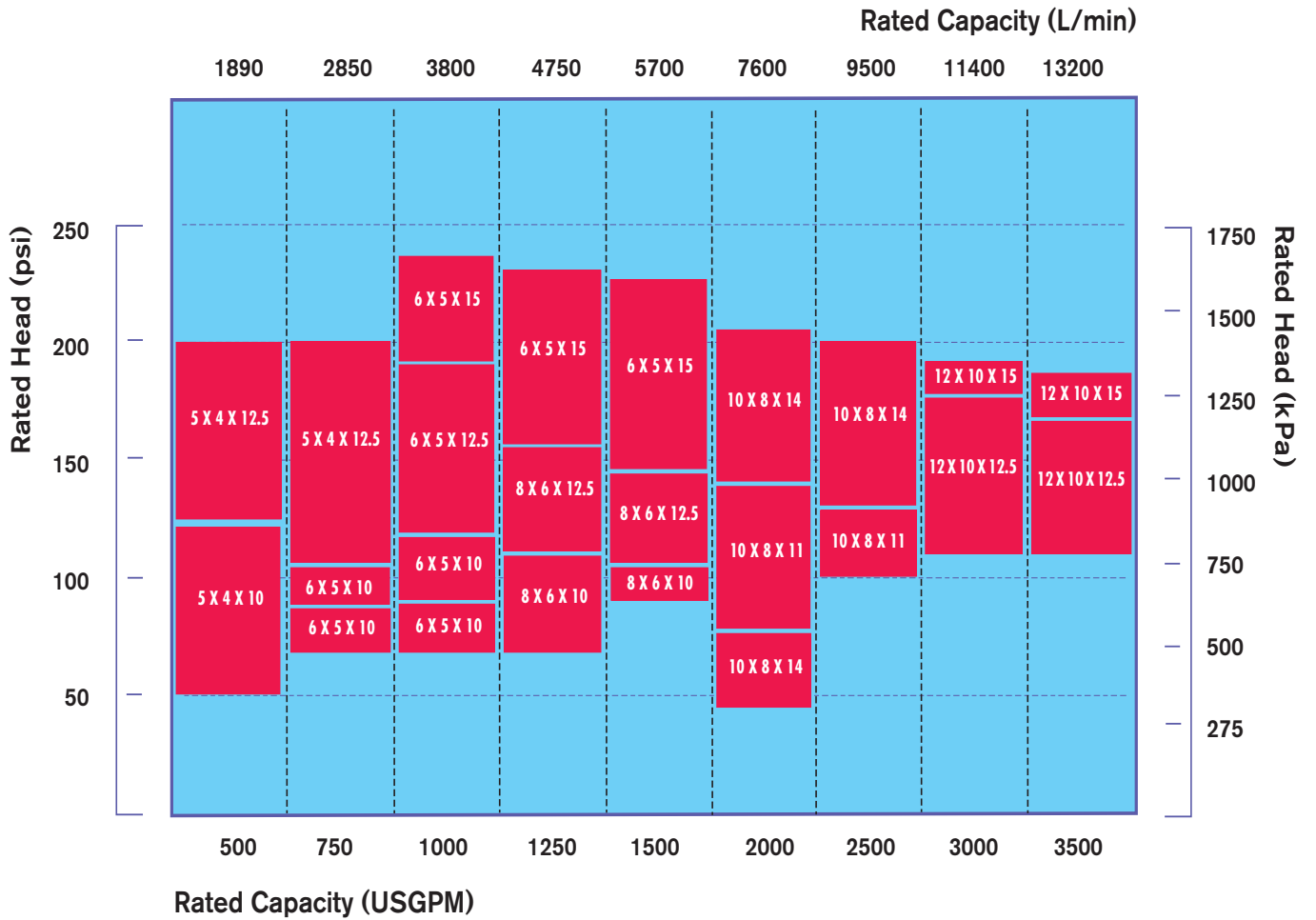


► Key

- 1750 rpm
- 3550 rpm

► Note: Higher ranges may be available for diesel driven applications

► Fire pump coverage chart
Electrical 50 Hz



► Key
 2900 rpm

► Note: Higher ranges may be available for diesel driven applications

Typical Specifications

Supply and install as indicated on plans one (1) fire pump system consisting of:

▶ 1. Pump

One Armstrong Darling , 4600F Series, Size _____ double suction horizontal split case fire pump listed by Underwriters Laboratories of Canada (ULC), Underwriters Laboratories Inc. (UL) and approved by Factory Mutual (FM) having a capacity of _____ USGPM for a pressure boost of _____ PSIG. Suction pressure _____ PSIG. Pump casing shall be of cast iron, axially split with a 15° angle that will minimize NPSH requirements and dimensions. Lower half shall contain suction and discharge nozzles. Suction and discharge connections shall be on the same elevation. Top half and rotating element shall be removable without disturbing the piping. Casing shall be fitted with replaceable bronze wearing rings. Impeller shall be bronze, double suction, enclosed type fully balanced and keyed to an alloy steel shaft. Shaft shall to be fitted with replaceable bronze sleeves. Shaft shall be mounted in two dust tight deep grooves, sealed, and permanently greased ball bearings. Bearings shall be mounted in cartridge type housing so that they shall be replaceable without opening pump casing. Bearings shall be easily removable by rotating bearing removal nut. No special tools or bearing puller are to be necessary. Each stuffing box shall be fitted with a three piece bronze gland. Stuffing box shall be fitted with a stuffing box extension to facilitate the packing rings removal. Packing rings shall be removable without disturbing wetted parts or the pump bearings. Water seal rings made from non-corroding material shall be piped to pump volute.

▶ 2. Electric Motor

The fire pump shall be directly coupled through flexible coupling to a horizontal electric motor with a maximum HP of _____ at _____ RPM, _____ VOLT , _____ PHASE _____ CYCLE. Motor shall be open drip proof, standard efficiency with 1.15 service factor.

▶ 3. Minimum Fittings

The pump shall be supplied with the following accessories:

- One (1) combination suction gauge 3-1/2" dial type with 1/4" cock and lever handle.
- One (1) air release valve.
- One (1) discharge gauge, 3-1/2" dial type, with 1/4" cock and lever handle.
- One (1) casing pressure relief valve.

▶ 4. Other Accessories

Pump shall be fitted with one (1) eccentric suction reducer and one (1) concentric discharge increaser (by mechanical contractor) to fit NFPA20 recommended piping sizes.

One (1) outside test header shall be supplied with one (1) set of _____ x 2 1/2" hose valves with caps and chains.

▶ 5. Fire Pump Controller

The fire pump controller shall be specifically approved for fire pump service by ULC, UL or FM. The controller shall be of the combined manual and automatic stop, _____ starting method, Model _____ as manufactured by _____. All equipment shall be enclosed in approved drip proof enclosure. The control equipment shall be completely assembled, wired and tested at point of manufacture prior to shipment.

Circuit breaker shall have an interrupting capacity of _____ kAmps or a withstand rating of _____ kAmps RMS. Water pressure switch shall be suitable for _____ PSI working pressure.

▶ 5a. Fire Pump Controller and Automatic Transfer Switch Combination

The automatic transfer switch controller combination shall be approved by UL, ULC or FM, Model _____. The automatic transfer switch and the pump controller shall each be mounted in separate enclosure, mechanically attached to form one unit and provide for protected interlock wiring. The automatic transfer switch shall be capable of automatic power transfer from normal to alternate _____ (generator / second utility) emergency power source in case of normal supply failure and automatically re-transfer after restoration of normal power conditions.

▶ 6. Jockey Pump

The jockey pump shall be manufactured by _____ Model No. _____ for a capacity of _____ USGPM and a pressure boost of _____ PSIG. The jockey pump shall be driven by an open drip proof electric motor of _____ HP _____ RPM _____ VOLT _____ PHASE _____ CYCLE.

▶ 7. Jockey Pump Controller

The jockey pump shall be controlled by an automatic jockey pump controller model _____ with full voltage starter.

▶ 8. Mounting and Testing

The pump shall be suitable for a maximum working pressure of _____. Pump shall be hydrostatically tested at twice the maximum working pressure for at least 5 minutes. The pump shall be performance tested at rated speed. The pump shall furnish not less than 150% of rated capacity at a pressure not less than 65% of rated head. The shut-off total head of the pump should not exceed 140% of total rated head. A certified test curve, indicating the flow, head, power and efficiency shall be supplied.

The fire pump and electric motor shall be base mounted and aligned at the pump manufacturer's factory. Final alignment shall be made after installation on site.

Please refer to Armstrong Holden Brooke Pullen Fire Pump Catalogue for Diesel Driven Typical Specifications.

Our policy is one of continuous improvement and we reserve the right to alter our dimensions and specifications without notice

Experience Building...

Export Sales

Peartree Road, Stanway
Colchester, Essex
United Kingdom, CO3 0LP
T +44 (0)1206 579491
F +44 (0)1206 760532
E export@armlink.com

UK HVAC Sales North

Wenlock Way
Manchester
United Kingdom, M12 5JL
T +44 (0) 1612 232223
F +44 (0) 1612 209660
E salesuk@armlink.com

UK HVAC Sales South/Service

21-23 Ormside Way
Holmethorpe Industrial Estate
Redhill, Surrey, RH1 2NT
T +44 (0) 1737 378100
F +44 (0) 1737 378140
E salesuk@armlink.com

