# **ARMSTRONG**





HSC Fire Pumps & Packaged Systems

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# Series 4600F - Truly Superior

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 & FM.

The family of pumps capitalize on the "Tilted Parting" concept to minimize turbulence at the eye

of the impeller by its straight laminar approach, thus maximizing efficiency. 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.





#### Recirculation

· External Water Seal Recirculation Lines

#### Coupling

• UL Listed close-coupled coupling

#### Stuffing Box Housing

- · Self contained Combination Bearing & Seal Housing
- Permits packing change-out without having to be removed

#### Orip Containment

· Fitted with drain connection

## **6** Casing Wear Ring

- · Replaceable Case Wear Rings
- · Locked to prevent rotation or axial displacement
- · Impeller Wear Ring available as an option

#### Pump Casing

 Designed to withstand the high pressure requirement typical in fire protection

#### Margeller 1

- · 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

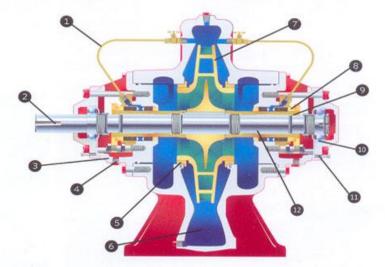
- · Easy removal with bearing nut
- · Sealed, permanently greased bearings
- Low Friction Lost Bearing
- · Maintenance free

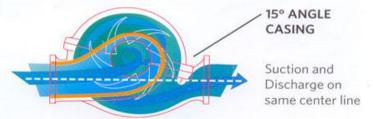
#### Bearing Housing

· Removable without removing top casing

#### Shaft

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





#### Tilted Parting Design Casing

- · Permits laminar approach to eye of Impeller
- · Lower NPSH required
- · Lower pump profile
- · Minimum pump footprint
- · Removeable rotating element without disturbing piping
- · Low foot-mounted Casing to reduce vibrations

# HSC Fire Pumps & Packaged Systems

# **Horizontal Fire Systems**

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

#### **GUARANTEED ADVANTAGES**

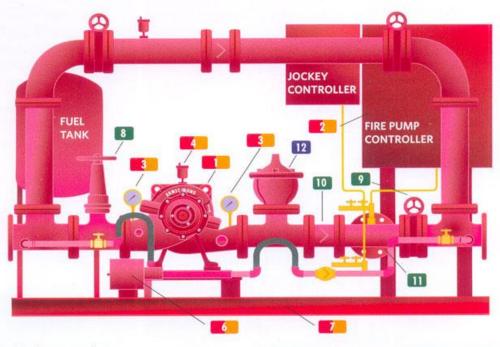
- Simplifies piping design
- · Single source unit responsibility
- · A complete package that will meet NFPA-20 requirements

#### FIRE PUMP - ELECTRIC DRIVEN

- 1. Pump/motor
- 2. Fire pump controller (with optional transfer switch)
- 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



Features common to electric and diesel

Accessories - special for diesel or VFD

Accessories - (electric or diesel)

7. Common base

#### ACCESSORIES - ADDITIONAL (ELECTRIC OR DIESEL)

- 8. Suction os &y gate valve
- 9. Discharge butterfly valve
- 10. Check valve
- 11. Test tee

### ACCESSORIES - SPECIAL FOR DIESEL OR VFD

- 13. Enclosed cone (not shown)

# 12. Main relief valve

# Fire Pump Coverage Chart

#### Electrical 50 Hz



# **Typical Specifications**

# Horizontal Fire Pump - Electric Motor Driven\*

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

#### 1. FIRE PUMP

One Armstron	g, Series 4600F, Size	double suc-
tion horizontal	split case fire pump listed by [Un-	derwriters Laboratorie
Inc. (UL)] and/o	or [approved by Factory Mutual (F	м)] having a capac-
ity of	L/MIN(USgpm) for a pro	essure boost of
	kPa(PSIG). Suction pressure	kPa(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 recirculation lines made from non-corroding material shall be piped to pump volute.

#### 2. ELECTRIC MOTOR

		through flexible c um kW(HP) of	
 RPM,	VOLT ,	PHASE	CYCLE.
nall be ul Listed		ervice, open drip p	proof, standard

#### 3. MINIMUM FITTINGS

The pump shall be supplied with the following accessories:

- One (1) combination suction gauge 3½" dial type with ¼" cock and lever handle.
- One (1) discharge gauge, 3½" dial type, with ¾" cock and lever handle.
- · One (1) air release valve.
- 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, as required (by mechanical contractor) to fit NFPA 20 recommended piping sizes.

One (1) outside test header shall be supplied with one (1) set of  $\_\_\_x$  2½" hose valves with caps and chains.

#### 5. FIRE PUMP CONTROLLER

The fire pump controller shall be specific service by [UL] and/or [FM]. The controller	
manual and automatic stop,	starting method, Model
as manufactured by	All equipment shall
be enclosed in an approved drip proof er shall be completely assembled, wired an prior to shipment.	
Circuit breaker shall have an interrupting or a withstand rating of k	
Water pressure switch shall be suitable working pressure.	forkPa(PSIG)

#### 5A. FIRE PUMP CONTROLLER AND AUTOMATIC TRANSFER SWITCH COMBINATION

The automatic transfer switch control by [UL] and/or [FM], Model	
The automatic	
controller shall each be mounted in s attached to form one unit and provid	eparate enclosures, mechanically
The automatic transfer switch shall b	pe capable of automatic power trans-
fer from normal to alternate	
utility] emergency power source in c	

#### 6. JOCKEY PUMP

The jockey pump shall be manufactured by			Model		
	for a capac	ity of	L/MIN (USgp	m) and a	
pressure boo	st of	kPa(PSIG). The	e jockey pump	shall be	
driven by an	[open drip proof	] [totally enclosed	fan cooled] e	lectric	
motor of	kW(HP)	RPM	VOLT	PHASE	
CYC	LE.				

#### 7. JOCKEY PUMP CONTROLLER

The jockey pump shall be controlled by an automatic jockey pump controller model\_\_\_\_\_ as manufactured by \_\_\_\_\_with full voltage starter.

#### 8. MOUNTING AND TESTING

The fire pump shall be suitable for a maximum working pressure of \_\_\_\_\_\_. The fire pump shall be hydrostatically tested at twice the maximum working pressure for at least 5 minutes. The fire pump shall be performance tested at rated speed. The fire 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 fire pump should not exceed 140% of total rated head. A certified test curve, indicating the flow, head, power and efficiency shall be supplied for the field acceptance test. 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

<sup>\*</sup> Please refer to Armstrong Fire Pump Catalogue for Diesel Driven Typical Specifications.

