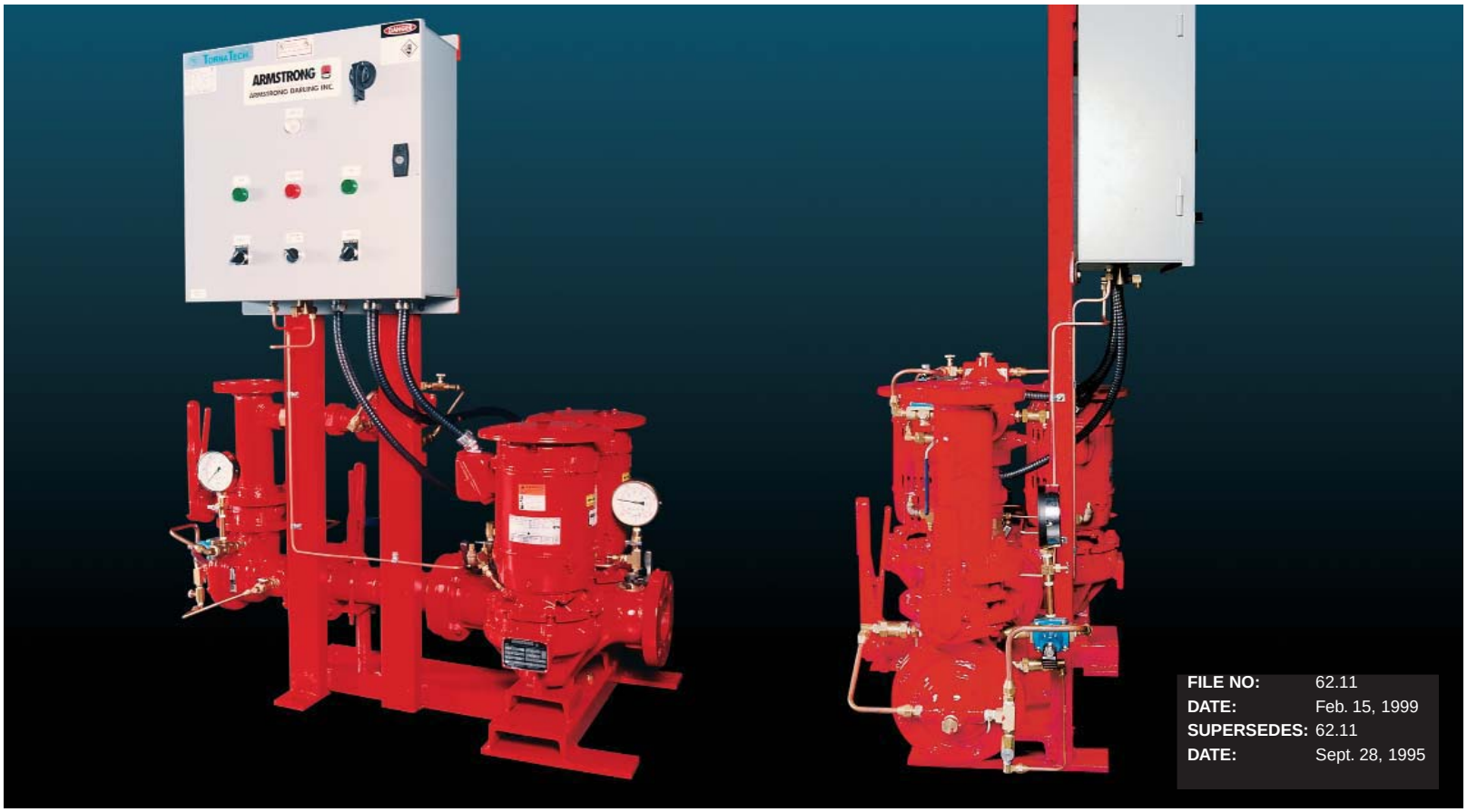
ARMSTRONG

DualPak Series 6900



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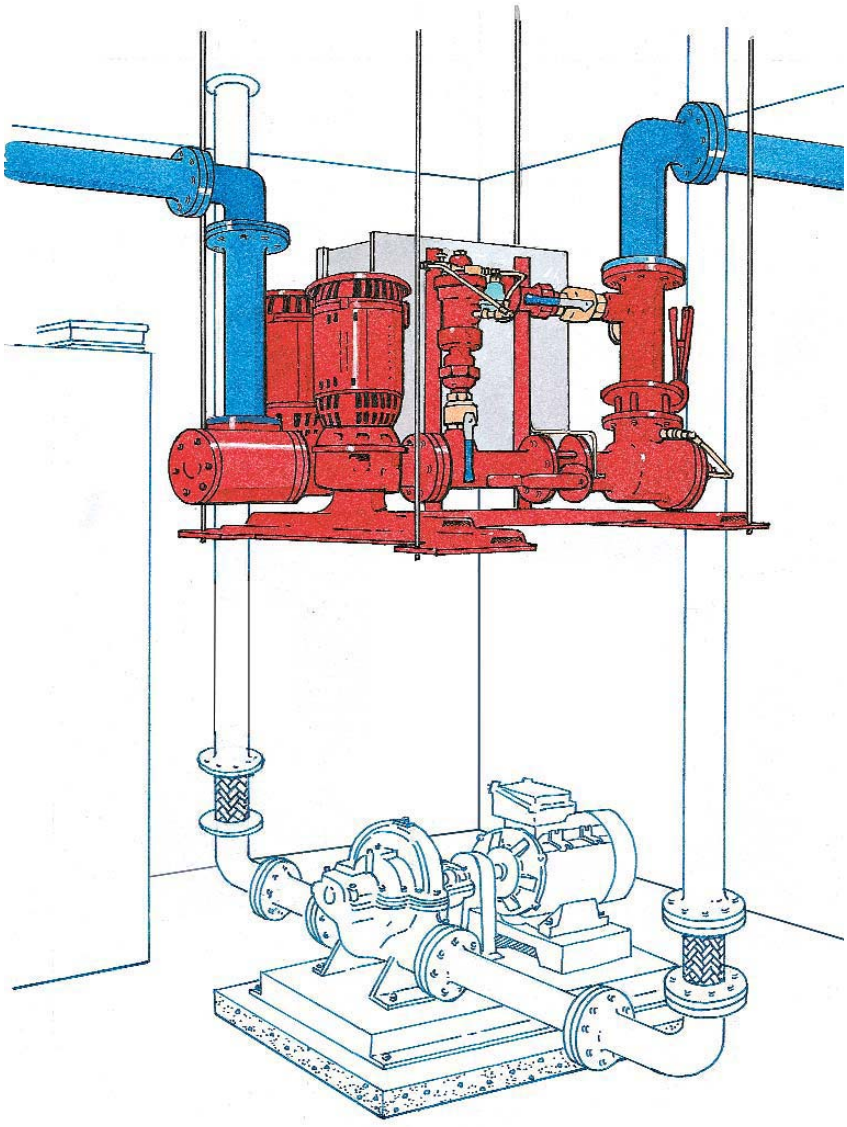
DualPak 6900 Series Booster System

DUALPAK 6900



Armstrong proudly presents the Series 6900 ***DualPak*** *Booster. Offering the highest GPM per square foot of floorspace, Armstrong's* ***DualPak*** *is the most compact duplex domestic water booster system available today!*

FEATURES

- Fits through a standard 30" doorway.
- Less than half the footprint of conventional horizontal systems.
- Lightweight design allows for ceiling suspension of unit.
- Armstrong "single source" responsibility.
- Factory fabricated, tested and calibrated.

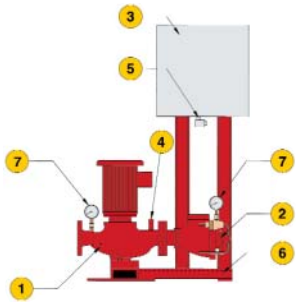
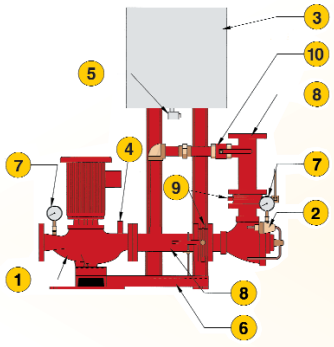
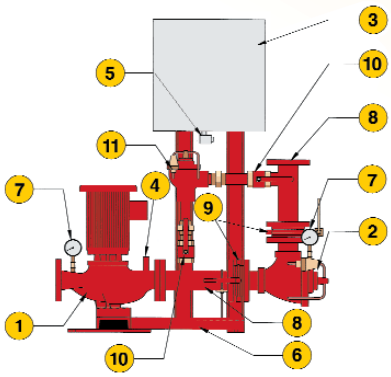
WHAT IS THE *DUALPAK* 6900 SERIES BOOSTER?

- The ***DualPak*** is a space saving system which is ideally suited for retrofit applications, new construction, and projects with minimal available floor space.
- Designed for popular "Mid-Rise" construction projects, the ***DualPak*** incorporates the model 4382 ***dualArm*** in only two sizes of pumps to cover flow ranges from 100 – 350 GPM, and pressure ranges between 20 and 100 PSI.
- The ***DualPak*** is available in 3 different configurations, offering the flexibility required to meet users' needs.
- The unique design of the ***dualArm*** pump incorporates a check valve and individual pump isolation valves. Pump manifolding is eliminated, reducing the overall weight of the system and allowing the ***DualPak*** to be suspended from the ceiling, if required.

WHY USE THE *DUALPAK*?

- In an age where mechanical room space is at a premium and continues to shrink, Armstrong pumping innovations offer the space saving solutions required.
- The selection process is simple and quick. Armstrong takes the guesswork out of your design.
- All systems are factory tested at simulated jobsite conditions prior to shipment from the factory, avoiding any potential on-site problems.
- Systems are backed by Armstrong's extensive representative and service dealer network.

DUALPAK SERIES 6900

SERIES CONFIGURATION	BOOSTER MODEL PUMP SIZE	BOOSTER COMPONENTS
DualPak 6900 ECONO SERIES 	**6901 – 3x3x6** **6902 – 3x3x8**	1 – ***dualArm*** PUMP 2 – MAIN PRV 3 – DUAL PUMP CONTROLLER 4 – TEMPERATURE PROBE 5 – SOLENOID VALVE 6 – BASE & PANEL SUPPORT 7 – GAUGES
DualPak 6900 EDITION SERIES 	**6911 – 3x3x6** **6912 – 3x3x8**	1 – ***dualArm*** PUMP 2 – MAIN PRV 3 – DUAL PUMP CONTROLLER 4 – TEMPERATURE PROBE 5 – SOLENOID VALVE 6 – BASE & PANEL SUPPORT 7 – GAUGES 8 – BY-PASS SPOOL 9 – ISOLATION BUTTERFLY VALVES 10 – BY-PASS ISOLATION BALL VALVE
DualPak 6900 ULTRA SERIES 	**6921 – 3x3x6** **6922 – 3x3x8**	1 – ***dualArm*** PUMP 2 – MAIN PRV 3 – DUAL PUMP CONTROLLER 4 – TEMPERATURE PROBE 5 – SOLENOID VALVE 6 – BASE & PANEL SUPPORT 7 – GAUGES 8 – BY-PASS SPOOL 9 – ISOLATION BUTTERFLY VALVES 10 – BY-PASS ISOLATION BALL VALVE 11 – 1.5” BY-PASS PILOT OPERATED PRV

Model Designation

69 1 2–100–10–50

- ***DualPak*** SERIES DESIGNATION
- ***DualPak*** CONFIGURATION (0)–econo (1)–edition (2)–ultra
- PUMP SIZE (1) 3x3x6 OR (2) 3x3x8
- SYSTEM CAPACITY (GPM)
- MOTOR (HP)
- PUMP BOOST PRESSURE (PSI)

Typical Applications

- Hotels, Large Motels, Resorts
- Condominiums, Apartments
- Schools and Small Office Buildings
- Retirement Homes & Hospitals

DualPak Sizing & Selection Sheet

Project: _____

Step 1: Pressure Calculation

This calculation will determine pump pressure required. A negative value in step F indicates that a booster pump is not required.

	Feet	PSI
A. STATIC HEAD (BUILDING HEIGHT) PSI = Feet x 0.431		
B. FRICTION HEAD (FRICTION LOSS) (Estimated at 10% of static head)		
C. HIGHEST OUTLET PRESSURE REQUIRED (Average estimated value = 40 PSI)		
D. SYSTEM REQUIRED PRESSURE (A + B + C)		
E. MINIMUM SUCTION PRESSURE **(SUBTRACT)**		
F. SYSTEM BOOST PRESSURE (D – E)		
G. PRV LOSSES (Estimate 5 Psi)		
H. PUMP BOOST PRESSURE (F+G)		

Step 2: Building Water Requirement

This calculation will determine the total water requirement based on fixtures in the building.

FIXTURE	FIXTURE UNIT	QTY OF FIXTURES	TOTAL UNITS
BATHROOM GROUP–F.V.	8		
BATHROOM GROUP–F.T.	8		
BATHTUB	4		
WATER CLOSET F.V.	7		
WATER CLOSET F.T.	5		
URINAL	5		
LAVATORY	2		
KITCHEN SINK	2		
SERVICE SINK	3		
CLOTHES WASHER	4		
DISHWASHER (Domestic)	2		
HOSE BIB (1/2” PIPE)	3		
DRINKING FOUNTAIN	1		
SHOWER	2		
		TOTAL FIXTURE UNITS	

F.V. = FLUSH VALVE

F.T. = FLUSH TANKS

Step 3: System Capacity Calculation

To obtain the total water requirement convert total fixture units calculated to corresponding GPM.

WATER DEMAND TABLE		
FIXTURE UNITS	FLUSH TANKS DEMAND–GPM	FLUSH VALVES DEMAND–GPM
100	44	68
200	65	91
300	85	110
400	105	125
500	125	140
750	170	175
1000	210	218
1250	240	240
1500	270	270
1750	300	300
2000	325	325
2500	380	380

Step 4: Continuous Services

Services which are a continuous load on domestic water services (ie: cooling, laundry, irrigation) have to be added separately to the total fixture load previously calculated.

SERVICE	GPM
1. REGULAR BUILDING SERVICES (Value obtained from Step 3)	
2. EXTRA SERVICES	
3. BOOSTER SYSTEM TOTAL CAPACITY (1 + 2)	

Step 5. Pump Selection

Select pump and motor horsepower from ***DualPak*** selection table based on the pressure calculation from Step 1 and the capacity calculation from Step 4.

Step 6. Model Configuration

Based on customer needs and application, select either an Econo, Edition or Ultra configuration. (See details inside brochure)

Step 7. DualPak Model Selection

69 __ __–_____–_____–_____

(SEE MODEL NUMBER DESIGNATION)

DualPak 6900 Selection Table

50% – 50% Equal Capacity Split

	BOOST PRESSURE PSI/FT									
TOTAL	*20*	*30*	*40*	*50*	*60*	*70*	*80*	*90*	*100*	*PSI*
FLOW	*46,2*	*69,3*	*92*	*115*	*140*	*162*	*185*	*208*	*231*	*FT*
100	*3x3x8–1.5	*3x3x8–3	3x3x6–5	3x3x6–5	3x3x6–7.5	3x3x6–7.5	3x3x8–10	3x3x8–10	3x3x8–15	
150	*3x3x8–2	*3x3x8–3	3x3x6–5	3x3x6–5	3x3x6–7.5	3x3x6–7.5	3x3x8–10	3x3x8–15	3x3x8–15	
200	*3x3x8–2	3x3x6–5	3x3x6–5	3x3x6–7.5	3x3x6–7.5	3x3x8–10	3x3x8–10	3x3x8–15	3x3x8–15	
250	*3x3x8–3	3x3x6–5	3x3x6–7.5	3x3x6–7.5	3x3x6–7.5	3x3x8–10	3x3x8–15	3x3x8–15	3x3x8–15	
300	*3x3x8–3	3x3x6–5	3x3x6–7.5	3x3x6–7.5	3x3x6–10	3x3x8–15	3x3x8–15	3x3x8–15	3x3x8–20	
350	*3x3x8–5	3x3x6–7.5	3x3x6–7.5	3x3x6–10	3x3x6–10	3x3x8–15	3x3x8–15	3x3x8–20	3x3x8–20	

*Selections marked with an asterisk are 1800 rpm, Standard selection is 3600 rpm

Boost pressures do not include drop across PRV's. (Add Approximately 5 psi)

DualPak Standard Components

PUMPS: Armstrong Series 4382 close coupled Vertical In-Line twin pumps in a single casing. Pumps include individual seal flush lines, suction and discharge pump isolation valves, and discharge check valve.

DUAL PUMP CONTROL PANEL: Pump Control Panel is UL or CSA labeled industrial control panel. Control Panel enclosure is Nema 1 rated, complete with main disconnect, fuseless motor protectors with thermal and shortcircuit protection. Control panel includes internal circuit breakers to enable individual pump motor isolation. Control panel includes current sensing relays with on delay timers and minimum run timers to eliminate unnecessary pump cycling. Current relay cut-in and cut-out setpoints are factory set and can be field adjusted if necessary. Control panel is complete with power on light, pump running light and low suction pressure alarm light. A lead pump alternator, designed to ensure the equal running life of pumps, is included as a standard feature.

PRESSURE REDUCING VALVES: Pressure reducing valves supplied are of the highest quality available on the market today. Valve bodies are fused epoxy coated inside and out, with stainless steel cover bolts to ensure long lasting protection against corrosion and mineral attack. Critical internal valve components, such as valve seat and stem, are made of stainless steel to provide long and reliable service.

ISOLATION VALVES: When supplied shall be lug type, lever operated, for sizes over 2" and shall be bronze full port isolation ball valves for all smaller sizes.

ACCESSORIES: Every ***DualPak*** booster is complete with suction and discharge pressure gauges with 4" dial. Pumps are complete with high temperature protection circuit to protect pumps from overheating. This circuit consists of pump mounted temperature probe and panel mounted solenoid valve for purging of water to drain.

OPTIONS: Systems are available with drawdown tank for adjacent mounting, or remote mounting, to allow pumps to shutdown during periods of no-demand. System is available with other control and fabrication options. Contact your local representative for more details.

Typical Specifications

1.0 General

Furnish and install, as shown on the plans and specifications, an Armstrong Series 6900 ***DualPak*** duplex booster. System design based on a total system capacity of:_____GPM with a pump boost pressure of: _____PSI and a minimum suction pressure of: _____PSI.

1.1 Pumps

The pumps shall be Armstrong Series 4382 close coupled type Vertical In-Line centrifugal pumping unit. The cast casing with equal size suction and discharge flanges, having separate tapped flush line and pressure gauge connections, shall incorporate two radially split, single stage centrifugal rotating assemblies. Each pump shall have a cast bronze dynamically balanced impeller, bronze shaft sleeve and inside type single spring mechanical seal. Each pump shall be complete with all factory furnished flush and vent line.

Each driving motor shall be an industry standard vertical solid shaft, squirrel cage induction type, built to Nema standards (Premium efficiency motors may be specified). The motor shall be _____HP with dripproof enclosure and be suitable for _____Volts _____Phase, 60 Hz _____RPM.

Each port shall be fitted with a stainless steel isolation valve that allow the units to operate in parallel or standby mode, yet may be used to isolate one pumping unit for servicing or pump removal, with the other pump still operating.

1.2 Assembly

All ***DualPak*** assemblies shall include pump high temperature protection including a pump casing mounted temperature probe and panel mounted solenoid valve for purging of water to drain. Every system shall include 4” dial suction and discharge gauges mounted on system inlet and outlet.

ECONO SERIES: Includes pilot operated epoxy coated main pressure reducing valve, bolted to pump discharge and mounted on common base. Pump shall be wired to dual pump controller with waterproof sealtight conduit.

EDITION SERIES: Includes pilot operated epoxy coated main pressure reducing valve with isolation lug type butterfly valves. By-pass spools with 1.5” by-pass line and isolation ball valve to provide water in case of servicing of main PRV. All the above are bolted to pump discharge and mounted on common base. Pump shall be wired to dual pump controller with waterproof sealtight conduit.

ULTRA SERIES: Includes pilot operated epoxy coated main pressure reducing valve with isolation lug type butterfly valves. By-pass spools with 1.5” pilot operated PRV and isolation ball valve to provide water and maintain constant pressure in case of servicing of main PRV. All the above are bolted to pump discharge and mounted on common base. Pump shall be wired to dual pump controller with waterproof sealtight conduit.

1.4 Control Panel

The control panel shall be of the current sensing relay sequencing type. (Pressure sequencing or flow sequencing is not acceptable). The complete panel assembly shall be UL508 labeled or CSA approved. The control panel enclosure shall be Nema 1 and include door interlocked main disconnect and magnetic motor starters with fuseless motor starters. Motor protectors shall include short circuit and overload protection. (Fused protection is not acceptable). Control panel shall include internal circuit breakers for isolation of pump motors in case of servicing. The following alarm features shall be included: power on light, low suction pressure protection and pilot light, pump running light and individual pump Hand-Off-Auto switches. Control panel shall include automatic alternation of lead pump.

1.5 Testing

Unit to be factory tested for hydraulic performance and calibrated to job site conditions. No on-site adjustments will be required. Unit to be ready to accept incoming power connection and supply piping.

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