

# ARMSTRONG

## product bulletin

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*Booster Selection Bulletin*

**SYSTEM SIZING CRITERIA**

**STEP A - TOTAL PUMPING HEAD**

Total pumping head in a booster system is made up of five components (shown on figure 4) as follows:

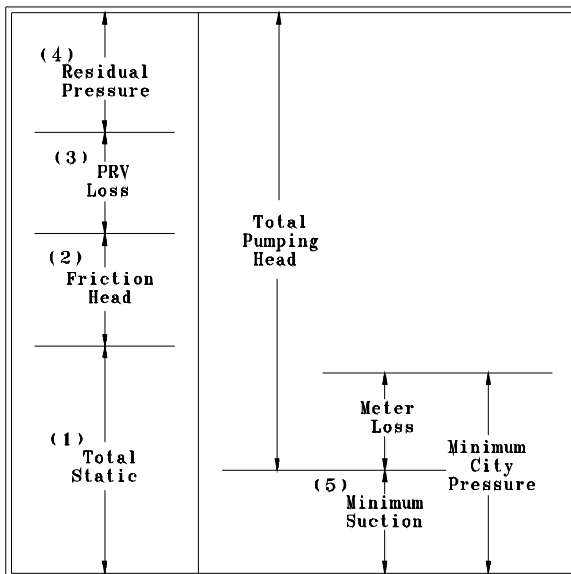
- 1) *Total Static Height* - i.e. The vertical distance in feet from the street main to the highest fixture. This can be obtained from the building plans but will normally be approximately ten times the number of floors, allowing 10 ft. between floors.
- 2) *Friction Head* - i.e. The friction loss in feet through all pipes and fittings on the suction and discharge. This component can be accurately calculated by reference to pipe friction data. More simply, the friction loss in a typical booster system will amount to approximately 10% of the building static height.
- 3) *PRV Loss*. An average pressure drop of 5 psi should be used to ensure good water velocities through the pressure reducing valve the head loss should be limited to a maximum of 10 psi, or approximately 20 ft.
- 4) *Residual Pressure* - i.e. The pressure required at the highest fixture, pressure in feet. This will depend on the type of fixture, but a fairly typical figure is 40 psi.
- 5) *Minimum Suction Pressure* - i.e. This is the minimum pressure at the building side of the meter, expressed in feet -i.e. The minimum city pressure minus the pressure drop through the meter. If the meter loss is not readily available, allow approximately 10 psi.

Total Pumping Head = (1) + (2) + (3) + (4) - (5)

The head calculation for a typical booster system is shown below:

(1) Total Static Height	300 ft.
(2) Friction Head (10% of Static)	30 ft.
(3) PRV Loss (5 PSI)	12 ft.
(4) Residual Pressure (40 psi)	<u>92 ft.</u>
	(1) + (2) + (3) + (4)
	434 ft.
(5) Minimum Suction Pressure (60 psi)	<u>138 ft.</u>
	Total Pumping Head 298 ft.

**Figure 4. TOTAL PUMPING HEAD REPRESENTATION**



**STEP B - TOTAL PUMPING CAPACITY**

The estimation of total pumping capacity of a booster system must take into consideration such factors as the size of the building and the living habits of its occupants. These factors, particularly the human element, cannot be covered by engineering formulas, and it becomes necessary to rely on operating data and records compiled over the years by various users, manufacturers and trade associations.

In the days of roof tanks and hydro-pneumatic systems, an accurate estimation of water demand was not too important, since the booster pumps merely operated when required to maintain the pre-determined levels in the storage tank. Such is not the case with "tankless" systems, however, since the rate of pumping exactly matches the rate of water usage in the building. This has resulted in a more critical appraisal of the methods used to determine water demand, and it is generally agreed that most of the existing data is much too conservative.

The "Fixture Unit" method is the one most commonly employed, and this is the basis of water demand data published by ASPE, ASHRAE and also by many pump manufacturers.

Each different type of fixture is given a demand weight in fixture units and total demand is obtained by calculating the total number of fixture units in a building and converting that number to a total GPM by referring table 2 which shows the relationship of GPM to total fixture units.

**Special Services** - It must be emphasized that the capacity charts show fixture demand only. Special requirements such as air-conditioning apparatus, commercial laundries, process equipment, blueprint machines, swimming pools, hose connections, etc. must be estimated separately and added to the fixture demand to obtain total demand.

**Existing Buildings** - If the booster system is being installed in an existing building there is a possibility that the water requirements may have been determined by a meter. In such a case, the total pumping capacity should be three (3) times the average metered demand to allow for peak periods.

**Occupancy** - Capacity ratings are based on the assumption that an equal number of men and women are to be accommodated. Where the occupancy is predominantly female, increase the total pumping capacity by 15%.

**Laundries** - In the case of hotels and hospitals, where a laundry is operated in connection with the building, increase the total pumping capacity by 10% *only* when scheduled for operation at low water demand periods.

## Booster Selection Bulletin

WATER SUPPLY FIXTURE UNITS - WSFU				
TYPE OF FIXTURES	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Individual Dwelling Units</p> <p>Serving Three or more Dwelling Units</p> <p>Other than Dwelling Units</p> <p>Heavy Use Assembly</p> </div> </div>			
Bathroom Group, 1.6 GPF Gravity Tank Water Closet	5.0	3.5		
Bathroom Group, 1.6 GPF Pressure-Tank Water Closet	5.0	3.5		
Bathroom Group, 3.5 GPF Gravity Tank Water Closet	6.0	5.0		
Bathroom Group, 1.6 GPF Flushometer Valve	6.0	4.0		
Bathroom Group, 3.5 GPF Flushometer Valve	8.0	6.0		
Kitchen Group (Sink and Dishwasher)	2.0	1.5		
Laundry Group (Sink and Clothes Washer)	5.0	3.0		
<b>INDIVIDUAL FIXTURES</b>				
Bathtub or Combination Bath/Shower	4.0	3.5		
Bidet	1.0	0.5		
Clothes Washer, domestic	4.0	2.5	4.0	
Dishwasher, domestic	1.5	1.0	1.5	
Drinking Fountain or Watercooler			0.5	0.75
Hose Bibb (1/2" Supply Pipe)	2.5	2.5	2.5	
Hose Bibb, each additional (1/2" Supply Pipe)	1.0	1.0	1.0	
Kitchen Sink, domestic	1.5	1.0	1.5	
Laundry Sink	2.0	1.0	2.0	
Lavatory	1.0	0.5	1.0	1.0
Service Sink or Mop Basin			3.0	
Shower	2.0	2.0	2.0	
Shower, continous use			5.0	
Urinal, 1.0 GPF			4.0	5.0
Urinal, greater than 1.0 GPF			5.0	6.0
Water Closet 1.6 GPF Gravity Tank	2.5	2.5	2.5	4.0
Water Closet 1.6 GPF Pressure Tank	2.5	2.5	2.5	3.5
Water Closet 1.6 GPF Flushometer Valve	5.0	5.0	5.0	8.0
Water Closet 3.5 GPF Gravity Tank	3.0	3.0	5.5	7.0
Water Closet 3.5 GPF Flushometer Valve	7.0	7.0	8.0	10.0
Whirlpool Bath or Combination Bath/Shower	4.0	4.0		

1995 Change to the National Standard Plumbing Code adopted at NSPC Public Hearing - August 1994

**Table 2 FIXTURE UNIT TABLE**

**NOTES:**

1. A Bathroom Group for the purposes of this table consists of not more than one water closet, up to two lavatories, and either one bathtub or one shower.
2. "Other than Dwelling Units" applies to business, commercial, industrial and assembly occupancies other than those defined under "Heavy use Assembly" Included are the public areas in hotels, motels and multi-dwelling buildings.
3. "Heavy use Assembly" applies to toilet facilities in occupancies which place heavy but intermittent, time based demands on the water supply system, such as; schools, stadiums, race courses, transportation terminals, theaters and similar occupancies.
4. For fixtures or supply conditions likely to impose a continuous flow demand, determine the required flow in gallons per minute (GPM) and add it separately to the demand (GPM) for the distribution system or portion thereof.

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
3000	435	435
4000	525	525
5000	600	600
6000	650	650
7000	700	700
8000	730	730
9000	760	760
10000	790	790

**TABLE 3. TOTAL FIXTURE UNITS to GPM**

### PUMP SIZING

After the total head and maximum demand have been determined, it is necessary to establish the number of pumps and pump sizing required to obtain the best overall pumping arrangement. In this respect, it should be noted that while the whole system has to be capable of handling maximum demand, the average demand will be considerably less. For example, in apartment buildings and office buildings it will be found that for approximately 75% of the time the actual demand will be 30% or less of peak demand. This consideration makes it economical to resort to split pumping, with the lead pump (or pumps) sized for low demand requirements.

#### **Recommended Capacity Splits**

a) **Two -Pump 33% /67%**

This energy saving arrangement due to the smaller lead pump finds application in residential and office buildings up the a maximum demand of approximately 300 GPM.

b) **Two-Pump 50% / 50%**

This arrangement is also used in small buildings. Note that it provides 50% standby in the event of failure of any one pump and also permits alternation to equalize wear.

c) **Three-Pump 33% / 33% /33%**

Minimum standby capacity is 66%, and the three pumps are alternated to share the demand load and provide equal wear.

d) **Three-Pump 20% / 40% / 40%**

Smaller lead pump provides energy savings during long periods of low demand. The two equal lag pumps allow for alternation and minimum standby capacity of 60% if any one pump fails.

## BOOSTER SIZING & SELECTION

**PROJECT:**

### STEP A - PUMPING HEAD CALCULATION

	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)		
<b>D. SYSTEM REQUIRED PRESSURE (A + B + C)</b>		
E. MINIMUM SUCTION PRESSURE (SUBTRACT)		
<b>F. SYSTEM BOOST PRESSURE (D - E)</b>		
G. PRV LOSSES (Estimated at 5 PSI)		
<b>H. PUMP HEAD REQUIRED (F + G)</b>		

### STEP B - PUMPING CAPACITY

FIXTURE FLOW UNITS  
(USE FIXTURE UNIT VALUES FROM TABLE 2)

FIXTURE	FIXTURE UNIT	QTY OF FIXTURES	TOTAL UNITS
BATHROOM GROUP			
BATHTUB			
WATER CLOSET			
URINAL			
LAVATORY			
KITCHEN SINK			
SERVICE SINK			
CLOTHES WASHER			
DISHWASHER			
HOSE BIB (1/2" PIPE)			
DRINKING FOUNTAIN			
SHOWER			

Conversion Of Fixture Units To Gpm  
(SEE TABLE 3 FOR CONVERSION VALUES)

SERVICE	TOTAL FIXTURE UNITS	GPM
1. REGULAR BUILDING SERVICES		
2. EXTRA SERVICES		
<b>3. TOTAL CAPACITY (1 +2)</b>		

### STEP C - CAPACITY SPLIT

(See recommendations on pump sizing)

SYSTEM TYPE	SPLIT		
	%	%	%
DUPLEX			
TRIPLEX			
	P1	P2	P3
	GPM	GPM	GPM
<b>PUMP CAPACITY</b> (TOTAL CAPACITY x % SPLIT)			

6 _____
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### STEP D - BOOSTER PUMP SELECTION

- Record the value of the Pumping Head required (Step A) and the Pumping Capacity obtained (Step B).
- Based on the capacity split chosen, i.e.:  
Duplex: 33%-67%, Triplex: 20%-40%-40%  
or  
Duplex: 50%-50%, Triplex: 33%-33%-33%  
Choose the selection tables accordingly.
- Select the pumps according to the system capacity determined and the pump boost pressure calculated. Tables are available for Vertical In-Line pumps or End suction Pumps. Series 6500 & 6600 are end suction, Series 6700 are Vertical In-Line. Choose the pumps that best fit your requirements (i.e.: HP, arrangement, pump type)

**Example:** Required Pumping Head: 50 PSI  
Required System Capacity: 100 GPM  
System Capacity Split: Duplex - 33%-67%

From the 6500 & 6600 table the selection is:  
P1 : 1.5x1x6 - 5 HP, P2: 3x1.5x6 - 7.5 HP  
(this selection can be used for capacities up to 150 gpm)

From the 6700 table the selection is:  
P1: 1.5x1.5x6 - 5 HP, P2: 2x2x6 - 7.5 HP  
(this selection can be used for capacities up to 150 gpm)

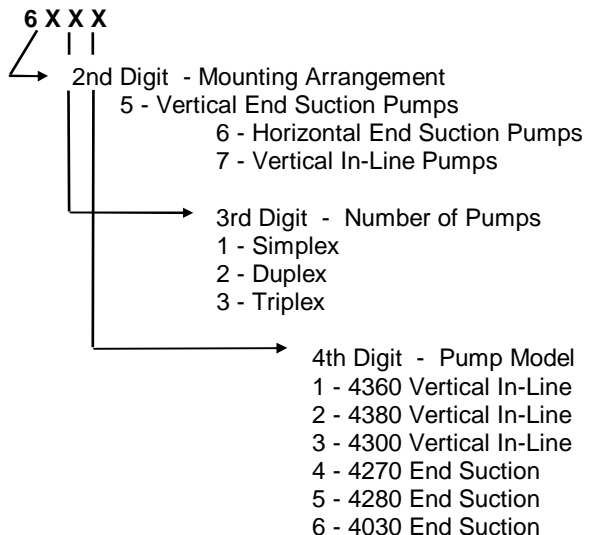
Both units have the same nominal horsepower rating, decision will be based on pump type or Booster piping arrangement layout and footprint..

	MODEL	PUMP SIZE	HP
<b>P1</b>			
<b>P2</b>			
<b>P3</b>			

### STEP E - BOOSTER MODEL DESIGNATION

Having chosen the desired model series 6500, 6600 or 6700 and knowing the system type is either simplex duplex or triplex the complete system model designation can be given.

#### HYDROPAC 6000 MODEL DESIGNATION



Booster Selection Bulletin

**HYDROPAK SERIES 6500 & 6600**

**4280 and 4030 END SUCTION PUMP SELECTION TABLE**

**DUPLEX: 33% - 67% CAPACITY SPLIT  
TRIPLEX: 20%-40%-40% CAPACITY SPLIT**

SYSTEM TYPE		SYSTEM CAPACITY (GPM)					
DUPLEX: P1 + P2		75	150	225	300	375	450
TRIPLEX: P1 + P2 + P3		125	250	375	500	625	750
		INDIVIDUAL PUMP CAPACITY - GPM					
PUMP CAPACITY:	P1	25	50	75	100	125	150
	P2 or P3	50	100	150	200	250	300
B O O S T  P R E S S U R E	25	1.5X1X8*-2 1.5X1X8*-2	1.5X1X8*-2 3X2.5X8*3	1.5X1X6-3 3X1.5X6-5	3X1.5X6-3 3X2X6-5	3X1.5X6-3 3X2.5X6-5	3X1.5X6-5 3X2.5X6-7,5
	30	1.5X1X6-2 1.5X1X6-3	1.5X1X6-3 3X1.5X6-3	1.5X1X6-3 3X1.5X6-5	3X1.5X6-3 3X2X6-5	3X1.5X6-5 3X2.5X6-7,5	3X1.5X6-5 3X2.5X6-7,5
	35	1.5X1X6-2 1.5X1X6-3	1.5X1X6-3 3X1.5X6-5	1.5X1X6-3 3X1.5X6-5	3X1.5X6-5 3X2.5X6-7,5	3X1.5X6-5 3X2.5X6-7,5	3X1.5X6-5 3X2.5X6-7,5
	40	1.5X1X6-3 1.5X1X6-3	1.5X1X6-3 3X1.5X6-5	1.5X1X6-5 3X1.5X6-7,5	3X1.5X6-5 3X2.5X6-7,5	3X1.5X6-7,5 3X2.5X6-7,5	3X1.5X6-7,5 3X1.5X6-10
	45	1.5X1X6-3 1.5X1X6-5	1.5X1X6-5 3X1.5X6-7,5	1.5X1X6-5 3X1.5X6-7,5	3X1.5X6-7,5 3X2.5X6-7,5	3X1.5X6-7,5 3X1.5X6-10	3X1.5X6-7,5 3X1.5X6-10
	50	1.5X1X6-5 1.5X1X6-5	1.5X1X6-5 3X1.5X6-7,5	1.5X1X6-5 3X1.5X6-7,5	3X1.5X6-7,5 3X1.5X6-10	3X1.5X6-7,5 3X1.5X6-10	3X1.5X6-7,5 3X1.5X6-15
	55	1.5X1X6-5 1.5X1X6-5	1.5X1X6-5 3X1.5X6-7,5	1.5X1X8-7,5 3X1.5X6-10	3X1.5X6-7,5 3X2.5X6-10	3X1.5X6-7,5 3X2.5X6-15	3X1.5X6-10 3X2.5X8-15
	60	1.5X1X6-5 1.5X1X6-5	1.5X1X6-5 3X1.5X6-10	3X1.5X6-7,5 3X1.5X6-10	3X1.5X6-7,5 3X2.5X8-15	3X1.5X6-7,5 3X2.5X8-15	3X1.5X6-10 3X2.5X8-15
	65	1.5X1X6-5 1.5X1X8-7,5	1.5X1X8-7,5 3X1.5X6-10	1.5X1X8-7,5 3X1.5X8-10	3X1.5X6-10 3X1.5X8-15	3X1.5X6-10 3X2.5X8-15	3X1.5X8-10 3X2.5X8-20
	70	1.5X1X8-7,5 1.5X1X8-7,5	1.5X1X8-7,5 1.5X1X8-10	1.5X1X8-10 3X1.5X8-15	1.5X1X8-10 3X1.5X8-15	1.5X1X8-10 3X2.5X8-15	3X1.5X8-15 3X2.5X8-20
P S I G	75	1.5X1X8-7,5 1.5X1X8-7,5	1.5X1X8-7,5 1.5X1X8-10	1.5X1X8-10 3X1.5X8-15	1.5X1X8-10 3X1.5X8-15	1.5X1X8-10 3X1.5X8-15	3X1.5X8-15 3X2.5X8-20
	80	1.5X1X8-7,5 1.5X1X8-7,5	1.5X1X8-7,5 1.5X1X8-10	1.5X1X8-10 3X1.5X8-15	1.5X1X8-10 3X1.5X8-15	1.5X1X8-15 3X1.5X8-20	3X1.5X8-15 3X2.5X8-20
	85	1.5X1X8-7,5 1.5X1X8-7,5	1.5X1X8-7,5 1.5X1X8-15	1.5X1X8-10 3X1.5X8-15	1.5X1X8-15 3X1.5X8-20	1.5X1X8-15 3X1.5X8-20	3X1.5X8-15 3X2.5X8-25
	90	1.5X1X8-7,5 1.5X1X8-7,5	1.5X1X8-7,5 1.5X1X8-15	1.5X1X8-15 3X1.5X8-15	1.5X1X8-15 3X1.5X8-20	1.5X1X8-15 3X1.5X8-20	3X1.5X8-15 3X2.5X8-25
	95	1.5X1X8-7,5 1.5X1X8-7,5	1.5X1X8-10 1.5X1X8-15	1.5X1X8-15 3X1.5X8-15	1.5X1X8-15 3X1.5X8-20	1.5X1X8-15 3X1.5X8-25	3X1.5X8-15 3X2.5X8-25
	100	1.5X1X8-7,5 1.5X1X8-15	1.5X1X8-10 1.5X1X8-15	1.5X1X8-15 3X1.5X8-15	1.5X1X8-15 3X1.5X8-20	1.5X1X8-15 3X1.5X8-25	3X1.5X8-15 3X2.5X8-25

\* SELECTIONS MARKED WITH ASTERIX ARE 1800 RPM SELECTIONS OTHERS ARE 3600 RPM  
6500 SERIES SELECTIONS ARE LIMITED TO 20 HP MOTORS

DUPLEX BOOSTER MODEL: 6525 with series 4280 vertically mounted pumps

TRIPLEX BOOSTER MODEL: 6535 with series 4280 vertically mounted pumps

DUPLEX BOOSTER MODEL: 6625 with series 4280 OR 6626 with series 4030 horizontal pumps

TRIPLEX BOOSTER MODEL: 6635 with series 4280 OR 6636 with series 4030 horizontal pumps

**EXAMPLE: DUPLEX 300 USGPM AT 65 PSI**  
P1-100 USGPM AT 65 PSI-PUMP 3X1.5X6 - 10 HP  
P2-200 USGPM AT 65 PSI-PUMP 3X1.5X8 - 15HP

## Booster Selection Bulletin

**DUPLEX: 50%-50% CAPACITY SPLIT**  
**TRIPLEX: 33% - 33% - 33% CAPACITY SPLIT**

CAPACITY - USGPM -			BOOST PRESSURE - PSIG -							
SIMPLEX	DUPLEX	TRIPLEX	25	30	35	40	45	50	55	60
25	50	75	1.5X1X8*-2	1.5X1X6-2	1.5X1X6-2	1.5X1X6-3	1.5X1X6-3	1.5X1X6-5	1.5X1X6-5	1.5X1X6-5
50	100	150	1.5X1X8*-2	1.5X1X6-3	1.5X1X6-3	1.5X1X6-3	1.5X1X6-5	1.5X1X6-5	1.5X1X6-5	1.5X1X8-7.5
75	150	225	3X1.5X8*-3	3X1.5X6-3	3X1.5X6-3	3X1.5X6-5	3X1.5X6-5	3X1.5X6-7.5	3X1.5X6-7.5	3X1.5X6-7.5
100	200	300	3X1.5X8*-3	3X1.5X6-3	3X1.5X6-5	3X1.5X6-5	3X1.5X6-7.5	3X1.5X6-7.5	3X1.5X6-7.5	3X1.5X6-7.5
125	250	375	3X1.5X6-3	3X1.5X6-5	3X1.5X6-5	3X1.5X6-5	3X1.5X6-7.5	3X1.5X6-7.5	3X1.5X6-7.5	3X1.5X6-7.5
150	300	450	3X1.5X6-5	3X1.5X6-5	3X1.5X6-5	3X1.5X6-7.5	3X1.5X6-7.5	3X1.5X6-7.5	3X1.5X6-7.5	3X1.5X6-10
175	350	525	3X2X6-5	3X2X6-5	3X2.5X6-5	3X1.5X6-7.5	3X1.5X6-7.5	3X1.5X6-10	3X1.5X6-10	3X1.5X6-10
200	400	600	3x2x6-5	3x2x6-5	3x2.5x6-7.5	3x2.5x6-7.5	3x2.5x6-7.5	3x2.5x6-10	3x2.5x6-10	3X1.5X8-15
225	450	675	3x2.5x6-5	3x2.5x6-5	3x2.5x6-5	3x2.5x6-7.5	3x2.5x6-7.5	3x2.5x6-10	3x2.5x6-10	3X1.5X8-15
250	500	750	3x2.5x6-5	3x2.5x6-7.5	3x2.5x6-7.5	3x2.5x6-7.5	3x2.5x6-10	3x2.5x6-10	3x2.5x6-15	3X1.5X8-15
275	550	825	3x2.5x6-7.5	3x2.5x6-7.5	3x2.5x6-7.5	3x2.5x6-7.5	3x2.5x6-10	3x2.5x6-10	3x2.5x6-15	3X2.5X8-15
300	600	900	3x2.5x6-7.5	3x2.5x6-7.5	3x2.5x6-7.5	3x2.5x6-10	3x2.5x6--10	3x2.5x6-15	3x2.5x8-15	3x2.5x8-15
325	650	975	3x2.5x6-7.5	3x2.5x6-7.5	3x2.5x6-7.5	3x2.5x6-10	3x2.5x6-10	3x2.5x6-15	3x2.5x8-15	3X2.5X8-20

CAPACITY - USGPM -			BOOST PRESSURE - PSIG -							
SIMPLEX	DUPLEX	TRIPLEX	65	70	75	80	85	90	95	100
25	50	75	1.5X1X8-7.5	1.5X1X8-7.5	1.5X1X8-7.5	1.5X1X8-7.5	1.5X1X8-7.5	1.5X1X8-7.5	1.5X1X8-7.5	1.5X1X8-7.5
50	100	150	1.5X1X8-7.5	1.5X1X8-7.5	1.5X1X8-7.5	1.5X1X8-7.5	1.5X1X8-7.5	1.5X1X8-7.5	1.5X1X8-10	1.5X1X8-10
75	150	225	1.5X1X8-7.5	1.5X1X8-10	1.5X1X8-10	1.5X1X8-10	1.5X1X8-10	1.5X1X8-15	1.5X1X8-15	1.5X1X8-15
100	200	300	3X1.5X6-10	1.5X1X8-10	1.5X1X8-10	1.5X1X8-10	1.5X1X8-15	1.5X1X8-15	1.5X1X8-15	1.5X1X8-15
125	250	375	3X1.5X6-10	1.5X1X8-10	1.5X1X8-15	1.5X1X8-15	1.5X1X8-15	1.5X1X8-15	1.5X1X8-15	1.5X1X8-15
150	300	450	3X1.5X8-15	3X1.5X8-15	3X1.5X8-15	3X1.5X8-15	3X1.5X8-15	3X1.5X8-15	3X1.5X8-15	3X1.5X8-20
175	350	525	3X1.5X8-15	3X1.5X8-15	3X1.5X8-15	3X1.5X8-15	3X1.5X8-15	3X1.5X8-15	3X1.5X8-15	3X1.5X8-20
200	400	600	3X1.5X8-15	3X1.5X8-15	3X1.5X8-15	3X1.5X8-15	3X1.5X8-15	3X1.5X8-20	3X1.5X8-20	3X1.5X8-20
225	450	675	3X1.5X8-15	3X1.5X8-15	3X1.5X8-15	3X1.5X8-20	3X1.5X8-20	3X1.5X8-20	3X1.5X8-20	3X1.5X8-25
250	500	750	3X2.5X8-15	3X2.5X8-15	3X1.5X8-20	3X1.5X8-20	3X1.5X8-20	3X1.5X8-20	3X1.5X8-25	3X1.5X8-25
275	550	825	3X2.5X8-20	3X1.5X8-20	3X1.5X8-20	3X1.5X8-20	3X1.5X8-25	3X1.5X8-25	3X1.5X8-25	3X1.5X8-25
300	600	900	3X2.5X8-20	3X2.5X8-20	3X2.5X8-20	3X2.5X8-20	3X2.5X8-25	3X2.5X8-25	3X2.5X8-25	3X2.5X8-25
325	650	975	3X2.5X8-20	3X2.5X8-20	3X2.5X8-20	3X2.5X8-25	3X2.5X8-25	3X2.5X8-25	3X2.5X8-30	3X2.5X8-30

\* SELECTIONS MARKED WITH ASTERIX ARE 1800 RPM SELECTIONS OTHERS ARE 3600 RPM  
 6500 SERIES SELECTIONS ARE LIMITED TO 20 HP MOTORS

DUPLEX BOOSTER MODEL: 6525 with series 4280 vertically mounted pumps  
 TRIPLEX BOOSTER MODEL: 6535 with series 4280 vertically mounted pumps

DUPLEX BOOSTER MODEL: 6625 with series 4280 OR 6626 with series 4030 horizontal pumps  
 TRIPLEX BOOSTER MODEL: 6635 with series 4280 OR 6636 with series 4030 horizontal pumps

EXAMPLE: DUPLEX 300 USGPM AT 65 PSI  
 P1-150 USGPM AT 65 PSI- PUMP 3X1.5X8 -15 HP  
 P2-150 USGPM AT 65 PSI- PUMP 3X1.5X8 -15 HP

Booster Selection Bulletin

## HYDROPAK SERIES 6700

### 4380 & 4300 VERTICAL IN-LINE PUMP SELECTION TABLE

**DUPLEX: 33% - 67% CAPACITY SPLIT**  
**TRIPLEX: 20% - 40% - 40% CAPACITY SPLIT**

SYSTEM TYPE		SYSTEM CAPACITY (GPM)					
DUPLEX: P1 + P2		75	150	225	300	375	450
TRIPLEX: P1 + P2 + P3		125	250	375	500	625	750
		INDIVIDUAL PUMP CAPACITY - GPM					
PUMP CAPACITY:	P1	25	50	75	100	125	150
	P2 or P3	50	100	150	200	250	300
B O O S T  P R E S S U R E  P S I G	25	1.5X1.5X8*-1 1.5X1.5X8*-2	1.5X1.5X8*-2 2X2X8*-3	2X2X8*-3 2X2X8*-5	2X2X6-3 3X3X6-5	2X2X6-5 3X3X6-5	2X2X6-5 3X3X6-7,5
	30	1.5X1.5X6-2 1.5X1.5X6-3	1.5X1.5X6-3 2X2X6-5	2X2X6-5 2X2X6-5	2X2X6-5 3X3X6-5	2X2X6-5 3X3X6-7.5	2X2X6-5 3X3X6-7.5
	35	1.5X1.5X6-3 1.5X1.5X6-3	1.5X1.5X6-3 2X2X6-5	2X2X6-5 2X2X6-7.5	2X2X6-5 3X3X6-7.5	2X2X6-5 3X3X6-7.5	2X2X6-7.5 3X3X6-10
	40	1.5X1.5X6-3 1.5X1.5X6-3	1.5X1.5X6-3 2X2X6-5	2X2X6-5 2X2X6-7.5	2X2X6-5 3X3X6-7.5	2X2X6-7.5 3X3X6-7.5	2X2X6-7.5 3X3X6-10
	45	1.5X1.5X6-3 1.5X1.5X6-5	1.5X1.5X6-5 2X2X6-7.5	2X2X6-5 2X2X6-7.5	2X2X6-7.5 3X3X6-7.5	2X2X6-7.5 3X3X6-10	2X2X6-7.5 3X3X6-15
	50	1.5X1.5X6-3 1.5X1.5X6-5	1.5X1.5X6-5 2X2X6-7.5	2X2X6-5 2X2X6-7,5	2X2X6-7.5 3X3X6-10	2X2X6-7.5 3X3X6-10	2X2X6-7,5 3X3X8-15
	55	1.5X1.5X6-5 1.5X1.5X6-5	1.5X1.5X6-5 2X2X6-7.5	2X2X6-7.5 2X2X6-10	2X2X6-7.5 3X3X6-10	2X2X6-7.5 2X2X8-15	2X2X6-10 3X3X8-15
	60	1.5X1.5X6-5 1.5X1.5X6-7.5	1.5X1.5X6-7.5 2X2X6-10	2X2X6-7.5 2X2X6-10	2X2X6-7.5 2X2X8-15	2X2X6-7.5 2X2X8-15	2X2X6-10 3X3X8-20
	65	1.5X1.5X6-5 1.5X1.5X8-7.5	1.5X1.5X8-7.5 2X2X6-7,5	1.5X1.5X8-7,5 2X2X8-10	2X2X6-7,5 2X2X8-15	2X2X6-10 2X2X8-20	2X2X8-10 3X3X8-20
	70	1.5X1.5X8-5 1.5X1.5X8-7.5	1.5X1.5X8-7.5 1.5X1.5X8-10	1.5X1.5X8-7,5 2X2X8-15	1.5X1.5X8-10 2X2X8-15	2X2X8-15 2X2X8-20	2X2X8-15 3X3X8-20
	75	1.5X1.5X8-5 1.5X1.5X8-7.5	1.5X1.5X8-7,5 1.5X1.5X8-10	1.5X1.5X8-7,5 2X2X8-15	1.5X1.5X8-10 2X2X8-15	2X2X8-15 2X2X8-20	2X2X8-15 3X3X8-20
	80	1.5X1.5X8-5 1.5X1.5X8-7.5	1.5X1.5X8-7,5 1.5X1.5X8-10	1.5X1.5X8-10 2X2X8-15	1.5X1.5X8-10 2X2X8-15	2X2X8-15 2X2X8-20	2X2X8-15 2X2X8-25
	85	1.5X1.5X8-7,5 1.5X1.5X8-7.5	1.5X1.5X8-7,5 1.5X1.5X8-10	1.5X1.5X8-10 2X2X8-15	1.5X1.5X8-10 2X2X8-20	2X2X8-15 2X2X8-25	2X2X8-15 2X2X8-25
	90	1.5X1.5X8-7,5 1.5X1.5X8-7.5	1.5X1.5X8-7,5 1.5X1.5X8-15	1.5X1.5X8-10 2X2X8-15	1.5X1.5X8-10 2X2X8-20	2X2X8-15 2X2X8-25	2X2X8-15 2X2X8-25
	95	1.5X1.5X8-7,5 1.5X1.5X8-7.5	1.5X1.5X8-7,5 1.5X1.5X8-15	1.5X1.5X8-10 2X2X8-15	1.5X1.5X8-15 2X2X8-20	2X2X8-15 2X2X8-25	2X2X8-15 2X2X8-25
	100	1.5X1.5X8-7,5 1.5X1.5X8-10	1.5X1.5X8-10 2X2X8-15	1.5X1.5X8-10 2X2X8-15	2X2X8-15 2X2X8-20	2X2X8-15 2X2X8-25	2X2X8-20 3X3X8-30

\* SELECTIONS MARKED WITH ASTERIX ARE 1800 RPM SELECTIONS OTHERS ARE 3600 RPM

DUPLEX BOOSTER MODEL: 6722 with series 4380 OR 6723 with series 4300

TRIPLEX BOOSTER MODEL: 6732 with series 4380 OR 6733 with series 4300

EXAMPLE: **DUPLEX 300 USGPM AT 65 PSI**  
P1-100 USGPM AT 65 PSI-PUMP 2X2X6 - 7.5 HP  
P2-200 USGPM AT 65 PSI-PUMP 2X2X8 - 15HP

## Booster Selection Bulletin

### HYDROPAK SERIES 6700

4380/4300 VERTICAL IN-LINE PUMP SELECTION TABLE

DUPLEX: 50% - 50% CAPACITY SPLIT

TRIPLEX: 33% - 33% -33% CAPACITY SPLIT

CAPACITY - USGPM -			BOOST PRESSURE - PSIG -							
SIMPLEX	DUPLEX	TRIPLEX	25	30	35	40	45	50	55	60
25	50	75	1.5X1.5X8*-1	1.5X1.5X6-2	1.5X1.5X6-3	1.5X1.5X6-3	1.5X1.5X6-3	1.5X1.5X6-3	1.5X1.5X6-5	1.5X1.5X6-5
50	100	150	1.5X1.5X8*-2	1.5X1.5X6-3	1.5X1.5X6-3	1.5X1.5X6-3	1.5X1.5X6-5	1.5X1.5X6-5	1.5X1.5X6-5	1.5X1.5X6-7.5
75	150	225	2X2X8*-3	2X2X6-5	2X2X6-5	2X2X6-5	2X2X6-5	2X2X6-5	2X2X6-7.5	2X2X6-7.5
100	200	300	2X2X6-3	2X2X6-5	2X2X6-5	2X2X6-5	2X2X6-7.5	2X2X6-7.5	2X2X6-7.5	2X2X6-7.5
125	250	375	2X2X6-5	2X2X6-5	2X2X6-5	2X2X6-7.5	2X2X6-7.5	2X2X6-7.5	2X2X6-10	2X2X6-10
150	300	450	2X2X6-5	2X2X6-5	2X2X6-7.5	2X2X6-7.5	2X2X6-7.5	2X2X6-7.5	2X2X6-10	2X2X6-10
175	350	525	3X3X6-5	3X3X6-5	3X3X6-5	3X3X6-7.5	3X3X6-7.5	3X3X6-10	3X3X6-10	2X2X8-15
200	400	600	3x3x6-5	3x3x6-5	3x3x6-7.5	3x3x6-7.5	3x3x6-7.5	3x3x6-10	3x3x6-10	2x2x8-15
225	450	675	3x3x6-5	3x3x6-5	3x3x6-7.5	3x3x6-7.5	3x3x6-10	3x3x6-10	3x3x6-15	2x2x8-15
250	500	750	3x3x6-5	3x3x6-7.5	3x3x6-7.5	3x3x6-7.5	3x3x6-10	3x3x6-10	2x2x8-15	2x2x8-15
275	550	825	3x3x6-7.5	3x3x6-7.5	3x3x6-7.5	3x3x6-10	3x3x6-10	3x3x8-15	3x3x8-15	3x3x8-20
300	600	900	3x3x6-7.5	3x3x6-7.5	3x3x6-10	3x3x6-10	3x3x6-15	3x3x8-15	3x3x8-15	3x3x8-20
325	650	975	3x3x6-7.5	3x3x6-7.5	3x3x6-10	3x3x6-10	3x3x6-15	3x3x8-15	3x3x8-15	3x3x8-20

SYSTEM CAPACITY - USGPM -			BOOST PRESSURE - PSIG -							
SIMPLEX	DUPLEX	TRIPLEX	65	70	75	80	85	90	95	100
25	50	75	1.5X1.5X6-5	1.5X1.5X8-5	1.5X1.5X8-5	1.5X1.5X8-5	1.5X1.5X8-7.5	1.5X1.5X8-7.5	1.5X1.5X8-7.5	1.5X1.5X8-7.5
50	100	150	1.5X1.5X8-7.5	1.5X1.5X8-7.5	1.5X1.5X8-7.5	1.5X1.5X8-7.5	1.5X1.5X8-7.5	1.5X1.5X8-7.5	1.5X1.5X8-7.5	1.5X1.5X8-10
75	150	225	1.5X1.5X8-7.5	1.5X1.5X8-7.5	1.5X1.5X8-7.5	1.5X1.5X8-7.5	1.5X1.5X8-10	1.5X1.5X8-10	1.5X1.5X8-10	1.5X1.5X8-10
100	200	300	2X2X6-7.5	1.5X1.5X8-10	1.5X1.5X8-10	1.5X1.5X8-15	1.5X1.5X8-15	1.5X1.5X8-15	1.5X1.5X8-15	2X2X8-15
125	250	375	2X2X6-10	2X2X8-15	2X2X8-15	2X2X8-15	2X2X8-15	2X2X8-15	2X2X8-15	2X2X8-15
150	300	450	2X2X8-10	2X2X8-15	2X2X8-15	2X2X8-15	2X2X8-15	2X2X8-15	2X2X8-15	2X2X8-20
175	350	525	2X2X8-15	2X2X8-15	2X2X8-15	2X2X8-15	2X2X8-20	2X2X8-20	2X2X8-20	2X2X8-20
200	400	600	2X2X8-15	2X2X8-15	2X2X8-15	2X2X8-15	2X2X8-20	2X2X8-20	2X2X8-20	2X2X8-20
225	450	675	2X2X8-15	2X2X8-20	2X2X8-20	2X2X8-20	2X2X8-20	2X2X8-25	2X2X8-25	2X2X8-25
250	500	750	2X2X8-20	2X2X8-20	2X2X8-20	2X2X8-20	2X2X8-25	2X2X8-25	2X2X8-25	2X2X8-25
275	550	825	2X2X8-20	2X2X8-20	2X2X8-20	2X2X8-25	2X2X8-25	2X2X8-25	2X2X8-25	2X2X8-30
300	600	900	3X3X8-20	3X3X8-20	3X3X8-20	2X2X8-25	2X2X8-25	2X2X8-25	2X2X8-30	2X2X8-30
325	650	975	3X3X8-20	3X3X8-25	3X3X8-25	2X2X8-25	2X2X8-25	3X3X8-30	2X2X8-30	3X3X8-30

\* SELECTIONS MARKED WITH ASTERISK ARE 1800 RPM SELECTIONS OTHERS ARE 3600 RPM

DUPLEX BOOSTER MODEL: 6722 with series 4380 OR 6723 with series 4300 pumps

TRIPLEX BOOSTER MODEL: 6732 with series 4380 OR 6733 with series 4300 pumps

**EXAMPLE: DUPLEX 300 USGPM AT 65 PSI**

P1-150 USGPM AT 65 PSI- PUMP 2X2X8 -10 HP

P2-150 USGPM AT 65 PSI- PUMP 2X2X8 -10 HP

**EXAMPLE: DUPLEX 300 USGPM AT 65 PSI**

P1-100 USGPM AT 65 PSI-PUMP 2X2X6 - 7.5 HP

P2-200 USGPM AT 65 PSI-PUMP 2X2X8 - 15HP

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