



GULF STREAM SELECTION GUIDE INSTRUCTIONS

To properly select the correct horsepower Gulf Stream for a multiple nozzle application, it is necessary to list the essential information and then calculate the total head pressure (**PSI**) and flow (**GPM**) required. Then by using the **Pump Performance Curve Chart** you can select the proper horsepower and number of Gulf Stream units required for your application.

Note:

For a single nozzle and center pool application it is not necessary to calculate the total head pressure or flow. The selection of a nozzle and horsepower will provide the maximum height and diameter as stated in the brochure. Adjusting the flow control valve provided with the Gulf Stream will reduce the height and diameter of the spray pattern.

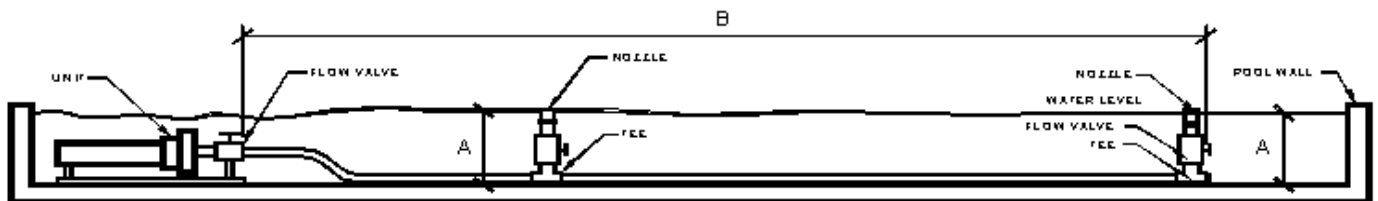
FOR CALCULATION OF TOTAL HEAD (PSI) AND FLOW (GPM) (*use attached work sheet*)

1. Select the nozzle for the desired spray pattern. (see brochure)
2. Choose the desired height and diameter of the nozzle selected. (See nozzle performance chart)
3. Record the nozzle flow (gpm)
4. Add the flow of each nozzle to be used to get the total flow through the nozzles.
5. Record the head pressure (psi) of the nozzle selected for the height and diameter desired. If more than one nozzle is to be used only enter one nozzle head pressure number. **Do Not** add together.

If more than one type or style of nozzle is used record the highest nozzle pressure only.

This completes the calculation for the required flow and pressure needed to meet the performance of the display desired. To complete the total head pressure required you must now calculate for the pressure loss from the length size pipe used, as well as the number of fittings and flow valves used in the installation. (see example drawing below)

Diagram (1A)



Note: Use a minimum 2-1/2" flexible tubing for supply runs. This eliminates the need of elbows and reduces the pressure loss as found in pipe and fittings. A larger size is preferred. To complete the calculations you will need the **Pressure Loss Values for Pipe and Fittings** located on the work sheet.

6. Multiply **Rise (A)** by number of nozzles used, and then add the total length of **Length (B)**, and multiple by pressure loss of the pipe size selected. (see Diagram (1A) above)
7. Add the total number of Tee's, then multiple by the pressure loss of the size pipe selected.
8. Add the total number of flow valves, then multiple by the pressure loss of the size pipe selected.
9. Add all the totals of the pressure losses, this will provide you with the total head (psi)
10. With the calculation of the FLOW (gpm) and total HEAD (psi) refer to the Gulf Stream Pump chart. On the chart locate the FLOW required and the required HEAD. Where these two lines intersect will indicate the required horsepower to meet your display requirements.



THE WATER'S EDGE

GULF STREAM SELECTION GUIDE WORK SHEET

Nozzle Selection

- (1) Type of nozzle(s) _____ Number of nozzle(s) _____ (2) Spray height(s) _____ ft.
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- (1) Type of nozzle(s) _____ Number of nozzle(s) _____ (2) Spray height(s) _____ ft.
- (3) Nozzle Flow (gpm) add the flow of each nozzle ____ + ____ + ____ + ____ (4) **Record here** _____
& below @ **Total Flow (gpm)**

Total Head Pressure Loss Calculation (SEE CHART BELOW)

- (5) Nozzle Pressure (psi) _____
(If more than one type of nozzle is used record the highest pressure) _____) _____
Choose a flex tube or pipe size. (Use a larger diameter flex tube or pipe for longer runs to avoid disappointing performance) Begin with a minimum diameter 2.5" flex tube or pipe. Larger is preferred. _____

(6) **See Diagram (1A)**

(A) Rise _____ + (B) Length _____ = Total _____ x's pipe losses _____ (in psi) == _____

(7) Total of Tee's _____ x's _____ (pressure loss psi) _____

(8) Total flow valves _____ x's _____ (pressure loss psi) _____

(9) **Total Head Pressure (psi)** _____ **Record here** _____
& below @ **Total Head Pressure**

(10) **Pump Selection:** In the **Pump Performance Curve Chart** locate the required **Flow (gpm)** and the **TOTAL HEAD PRESSURE (psi)**. The point where Flow & Pressure intersect will determine the horsepower Gulf Stream unit required. If the two lines intersect **beyond** the Gulf Stream pump curve the next higher horsepower unit must be used. If the lines intersect beyond the highest horsepower curve shown, two or more Gulf Streams will be required.

Total Flow (gpm) _____

Total Head Pressure (psi) _____

Pressure Loss Values For Flex Tubing, PVC Pipe & Fittings

Size (ID)	Pipe per ft. (psi)	Tee's (psi)	Gate Valves (psi)	Elbows (psi)
2-1/2"	.08	3.0	.06	3.0
3"	.05	4.0	.07	3.5
4"	.02	6.0	.10	4.5



NOZZLE PERFORMANCE DATA SHEET, 230-VOLTS, 1-PH

NOVA NOZZLE									
Spray Ht. (ft.)	5	10	15	20	25	30	35		
Spray Dia. (ft.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Flow (GPM)	50	70	80	115	125	145	180		
Nozzle Head (psi)	1	8	10	12	16	19	24		
Load Amps	5.2	5.5	5.9	7.7	11.3	8.6	20.4		
SKYWARD NOZZLE									
Spray Ht. (ft.)	10	15	20	25	30	35	40	45	50
Spray Dia. (ft.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flow (GPM)	30	35	37	40	45	50	55	60	65
Nozzle Head (psi)	4	6	10	12	16	24	29	35	39
Load Amps	4.9	5	5.1	5.2	5.3	5.5	7	12.9	16
GALAXY NOZZLE									
Spray Ht. (ft.)	10	15	20	25	30	35	40		
Spray Dia. (ft.)	25	30	40	40	50	50	60		
Flow (GPM)	55	70	90	100	115	120	145		
Nozzle Head (psi.)	4	6	9	12	15	19	28		
Load Amps	5.3	5.7	6.8	7.3	10.8	12.4	19.8		
DIANA NOZZLE									
Spray Ht. (ft.)	5	10	15	20	25	30			
Spray Dia. (ft.)	5	10	15	20	25	30			
Flow (GPM)	50	70	85	115	130	190			
Nozzle Head (psi.)	1	7	8	12	15	24			
Load Amps	5.6	6.1	7.5	11.8	13.4	21.6			
NORTHSTAR NOZZLE									
Spray Ht. (ft.)	5	10	15	20	25	30	35		
Spray Dia. (ft.)	10	30	35	40	45	50	50		
Flow (GPM)	60	95	130	140	145	200	210		
Nozzle Head (psi.)	2	6	9	11	12	20	25		
Load Amps	5.4	6.3	8.4	12.2	21.5	22.5	23.5		
SOLACE NOZZLE									
Spray Ht. (ft.)	5	10	15	20	25				
Spray Dia. (ft.)	10	15	20	25	30				
Flow (GPM)	60	90	130	145	210				
Nozzle Head (psi.)	2	8	11	13	20				
Load Amps	12.5	8.6	12.2	14.2	23.7				



Test Date: 8/5/04

Test Equipment
Marsh McBirney water current meter
Model 201D USG Liquid filled pressure gauge 0-60 psi

PSI = pressure per square inch
Discharge = gallons per minute

Head-Feet = pressure measured in feet

GULF STREAM PERFORMANCE CURVE

