

# Builder's Reference Polaris Water Features

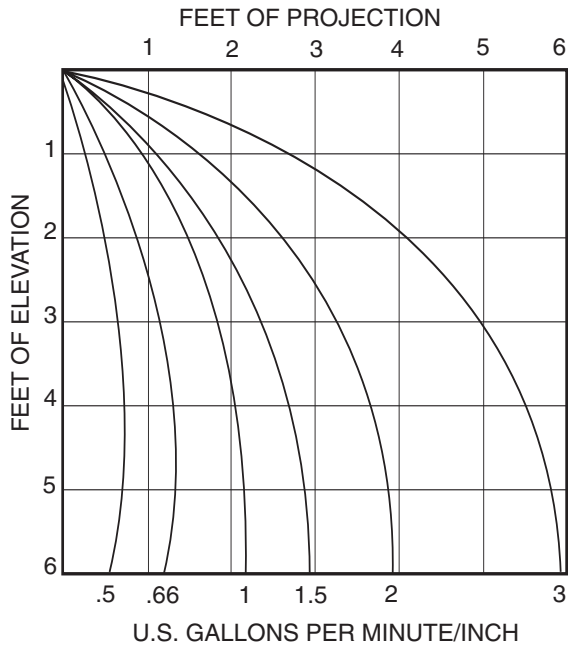
## Waterfalls

### Flow Requirements

<b>STANDARD SIZE POWERFALL, METAL POWERFALLS, FIBERFALL</b>					
SIZE IN FEET	SIZE OF UNIT	GPM REQUIRED	MINIMUM PUMP	MINIMUM FALL FEED	MINIMUM PUMP SUCTION
1	12"	12 GPM	1/2 HP	1.5" Pipe	1.5" Pipe
1.5	18"	18 GPM	1/2 HP	1.5" Pipe	1.5" Pipe
2	24"	24 GPM	1/2 HP	1.5" Pipe	1.5" Pipe
3	36"	36 GPM	3/4 HP	1.5" Pipe	1.5" Pipe
4	48"	48 GPM	3/4 HP	1.5" Pipe	1.5" Pipe
5	60"	60 GPM	1 HP	1.5" Pipe	1.5" Pipe
6	72"	72 GPM	1.5 HP	2" Pipe	2" Pipe
7	84"	84 GPM	1.5 HP	2" Pipe	2" Pipe
8	96"	96 GPM	2 HP	2" Pipe	2" Pipe
<b>CUSTOM SIZE POWERFALL</b>					
9	108"	108 GPM	3 HP	2.5" Pipe	2.5" Pipe
10	120"	120 GPM	3 HP	2.5" Pipe	2.5" Pipe
11	132"	132 GPM	3 HP	2.5" Pipe	2.5" Pipe
12	144"	144 GPM	2.5 HP(2)	3" Pipe	3" Pipe
13	156"	156 GPM	2.5 HP(2)	3" Pipe	3" Pipe
14	168"	168 GPM	2.5 HP(2)	3" Pipe	3" Pipe
15	180"	180 GPM	2.5 HP(2)	3" Pipe	3" Pipe
16	192"	192 GPM	2 HP(2)	3" Pipe	4" Pipe
17	1204"	204 GPM	2 HP(2)	3" Pipe	4" Pipe
18	216"	216 GPM	3 HP(2)	3" Pipe	4" Pipe
19	228"	228 GPM	3 HP(2)	4" Pipe	4" Pipe
20	240"	240 GPM	3 HP(2)	4" Pipe	4" Pipe

<b>STANDARD SIZE POWERSTREAMS</b>								
1 ROW			2 ROW			3 ROW		
SIZE IN FEET	SIZE OF UNIT	GPM REQUIRED	SIZE IN FEET	SIZE OF UNIT	GPM REQUIRED	SIZE IN FEET	SIZE OF UNIT	GPM REQUIRE
1	12"	4 GPM	1	12"	8 GPM	1	12"	12 GPM
1.5	24"	6 GPM	1.5	24"	12 GPM	1.5	24"	18 GPM
2	24"	8 GPM	2	24"	16 GPM	2	24"	24 GPM
3	36"	12 GPM	3	36"	24 GPM	3	36"	36 GPM
4	48"	16 GPM	4	48"	32 GPM	4	48"	48 GPM
5	60"	20 GPM	5	60"	40 GPM	5	60"	60 GPM
6	72"	24 GPM	6	72"	48 GPM	6	72"	72 GPM
7	84"	28 GPM	7	84"	56 GPM	7	84"	84 GPM
8	96"	32 GPM	8	96"	64 GPM	8	96"	96 GPM

**Approximate Sheet Projection For A PowerFall  
with a 1/8" Thick Sheet of Water**



**Flow Requirements for Up-Deflector Falls**

All up deflectors come with a 2" water inlet. Maximum flow for 2" pipe is 100 GPM. So, maximum size fall with a 36" projection is FFWS-36.



**FLOW RATE IN GALLONS PER FOOT FOR UP DEFLECTORS**

GAL/FT	PROJECTION UP	PROJECTION OUT
12 GAL.	4"	12"
18 GAL.	8"	22"
24 GAL.	12"	31"
30 GAL.	15"	36"

## Pumps and Pipes

Typical Pump Performance At 50' of Head		
1/2 HP	=	26 GPM
3/4 HP	=	58 GPM
1 HP	=	68 GPM
1-1/2HP	=	93 GPM
2 HP	=	106 GPM
3 HP	=	140 GPM


Suction (SUC) and Discharge (DIS) Water Flow Chart for PVC		
Pipe Size	Max SUC Flow*	Max DIS Flow**
1-1/2"	48 GPM	60 GPM
2"	80 GPM	100 GPM
2-1/2"	112 GPM	140 GPM
3"	180 GPM	225 GPM
4"	312 GPM	390 GPM
6"	700 GPM	900 GPM
8"	1248 GPM	1560 GPM

\* Based on 8' per second velocity. \*\* Based on 10' per second velocity.


POWERFALL UNIT SIZE										
LENGTH OF PLUMBING RUN	12"	18"	24"	36"	48"	60"	72"	84"	96"	
	50'					48 GPM 3/4 HP			96 GPM 2 HP	
	100'		18 GPM 1/2 HP		36 GPM 3/4 HP	1-1/2" SUC 1-1/2" DIS	60 GPM 1 HP	72 GPM 1-1/2 HP	84 GPM 1-1/2 HP	2-1/2" SUC 2" DIS
	150'	12 GPM 1/2 HP	1-1/2" SUC 1-1/2" DIS	24 GPM 3/4 HP	1-1/2" SUC 1-1/2" DIS		2" SUC 1-1/2" DIS	2" SUC 2" DIS	2-1/2" SUC 2" DIS	
	200'	1-1/2" SUC 1-1/2" DIS		1-1/2" SUC 1-1/2" DIS						
	250'					48 GPM 3/4 HP				96 GPM 2 HP
	300'		18 GPM 3/4 HP		36 GPM 3/4 HP	2" SUC 1-1/2" DIS	60 GPM 1-1/2 HP	72 GPM 1-1/2 HP	84 GPM 2 HP	3" SUC 2-1/2" DIS
	350'		1-1/2" SUC 1-1/2" DIS		2" SUC 1-1/2" DIS		2-1/2" SUC 2" DIS	2-1/2" SUC 2" DIS	2-1/2" SUC 2" DIS	

## Radius Cut Requirements


		PowerFall Length								
		12"	18"	24"	36"	48"	60"	72"	84"	96"
Radius Size	1'									
	1.5'									
	2'									
	2.5'									
	3'									
	3.5'									
	4'									
	4.5'									
	5'									
	5.5'									
	6'									
	6.5'									
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13'										




6" Nozzle




9" Nozzle



12" Nozzle



Custom Nozzle



Not available

## Polaris Designer Sconces

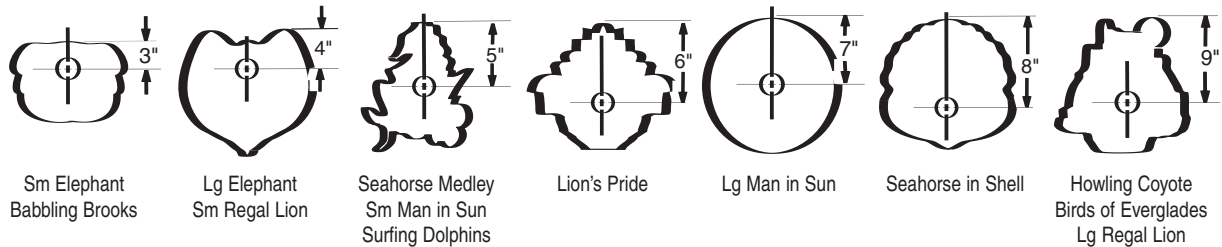
### Flow Requirements

All Polaris sconces require 3 GPM flow for proper operation, except the Surfing Dolphins sconce which requires 8 GPM. Use 3/4" (ID) or 1" (OD) PVC piping for sconce feed lines.

### Positioning Requirements

Determine the positioning by the port location of the individual sconce.

#### Port Locations



## Polaris MiniJets

### Flow Requirements

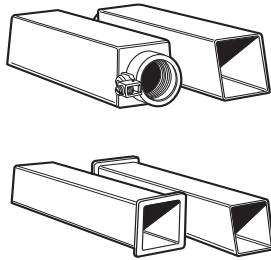
The flow requirement for maximum performance is 4.4 GPM per jet. Pipe size requirements depend on the number of jets being installed.

	3.3'	6.6'	9.8'	13.1'
Height of Jet Spray	3.3'	6.6'	9.8'	13.1'
Feet of Head	3.9'	7.9'	11.9'	16.0'
GPM	2.1	3.0	3.7	4.4

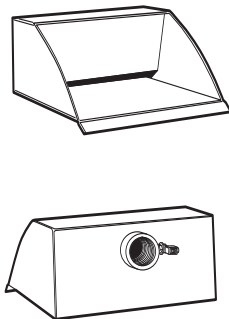
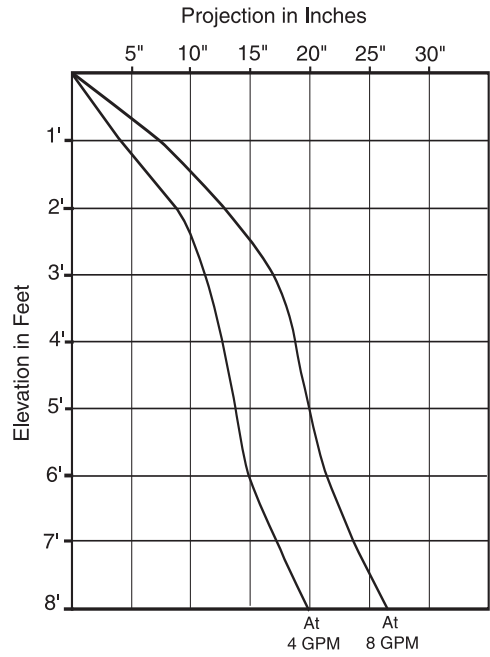
Max. MiniJets	Return Pipe Size	Suction Pipe Size
8	1-1/2"	1-1/2"
12	2"	2"
16	2-1/2"	2-1/2"
26	3"	3"

# Polaris PC Spillways and Scuppers 101

## Flow and Performance



**Polaris PC Spillways**  
Estimated distance of throw.



**Polaris Scuppers**  
Estimated distance of throw.

