



# FLO KING FLODUCTOR™ AGITATION

## For Pipe Sparging Systems



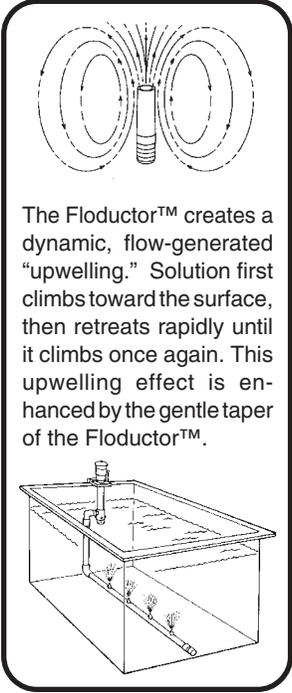
**FLO KING** systems agitate aggressively—even without the aid of spargers. However, where piping is desired to agitate a more selective area of the tank or to agitate from the bottom up, for example, Floductors™ are just the answer!

Floductor™ nozzles provide performance comparable to that of eductors, but take up a fraction of the tank space and cost about 80% less. Also, when used in a filtration application, all solution expelled from the Floductor™ is filtered. That is not the case with an eductor, which circulates a high percentage of unfiltered solution. Three sizes are offered:

■ **FD3 Floductor™:** Length, 1-7/8" (48 mm); Hole Size, 0.25" diameter (6.5 mm), 0.049 sq in (0.32 sq cm); Installation, Use 7/16" pilot drill (11.2 mm) for 1/4-18 pipe tap

■ **FD5 Floductor™:** Length, 1-7/8" (48 mm); Hole Size, 0.375" diameter (9.6 mm), 0.110 sq in (0.72 sq cm); Installation, Use 37/64" pilot drill (14.7 mm) for 3/8-18 pipe tap

■ **FD7 Floductor™:** Length, 2-3/4" (70 mm); Hole Size, 0.54" diameter (13.7 mm), 0.229 sq in (1.48 sq cm); Installation, Use 23/32" pilot drill (18.3 mm) for 1/2-14 pipe tap



The Floductor™ creates a dynamic, flow-generated "upwelling." Solution first climbs toward the surface, then retreats rapidly until it climbs once again. This upwelling effect is enhanced by the gentle taper of the Floductor™.

**Sizing Guidelines.** The selection of a **FLO KING** pump to use with Floductors™ depends on tank volume, type of solution, degree of agitation desired and other factors. For example, some solutions and processes neither require nor respond well to aggressive agitation, whereas others thrive on it. The type and number of Floductors™ can be selected once the pump model has been chosen. For optimum performance, the total size of the Floductor™ openings should be approximately equal to the hole size of the pump discharge port. Guidelines are presented below:

Pump	For tank sizes, gallons (liters)*	Pump discharge port diameter, inch (cm)	Recommended pipe diameter,** inch (cm)	Discharge port, sq in. (sq cm)	Optimum number of Floductors™***
BX1200	Up to 300 (1100)	3/4 (1.9)	1 (2.5)	0.44 (2.84)	9 FD3 or 4 FD5
BXL2500 & BX3000	100-1000 (380-3785)	1 (2.5)	1-1/2 (3.8)	0.785 (5)	16 FD3, 8 FD5 or 4 FD7
BX5000 & BXL5000	400-2000 (1500-7500)	1 (2.5)	1-1/2 (3.8)	0.785 (5)	16 FD3, 8 FD5 or 4 FD7
SP12K	1000+ (4000+)	1-1/2 (3.8)	2 (5)	1.77 (11.4)	36 FD3, 16 FD5 or 8 FD7

\*These are guidelines only. Actual operating experiences vary widely.

\*\*Use of smaller-diameter pipe will reduce agitation significantly. Use reducer fitting to connect pipe to pump discharge port.

\*\*\*Use of substantially more or fewer Floductors™ than recommended will not provide optimum agitation.

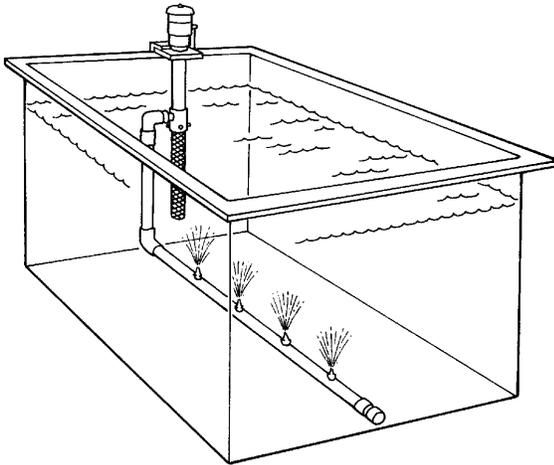
**Some Examples.** The following examples provide guidance on the kind of Floductor™ agitation (mild, moderate or aggressive) that can be expected in tank sizes of 200, 400 and 950 gallons (750, 1500 and 3600 liters). These values are subjective, of course, and the final choice depends on your individual tank requirements. Note: If necessary, agitation can be *decreased* with our easy-to-use Adjustable Flow Restrictor (see Bulletin 32). Or, to *increase* the agitation in large tanks, more than one pump can be used.

Pump	Flow rate, gallons/hour (liters/hour)	200-gallon (750-L) tank 3' x 3' x 3' deep (0.9 x 0.9 x 0.9 m)	400-gallon (1500-L) tank 3' x 4' x 4' deep (0.9 x 1.2 x 1.2 m)	950-gallon (3600-L) tank 4' x 8' x 4' deep (1.2 x 2.4 x 1.2 m)
BX1200	1200 (4500)	Mild	Very mild	Not recommended
BXL2500	2500 (9500)	Aggressive	Moderate	Mild
BX3000	3000 (11,000)	Aggressive	Moderate	Mild
BX5000	5000 (19,000)	Extremely aggressive	Aggressive	Moderate
BXL5000	5000 (19,000)	Extremely aggressive	Aggressive	Moderate
SP12K	12,000 (45,000)	Not recommended	Not recommended	Extremely aggressive

## EXAMPLES OF FLO KING FLODUCTOR™ TECHNOLOGY

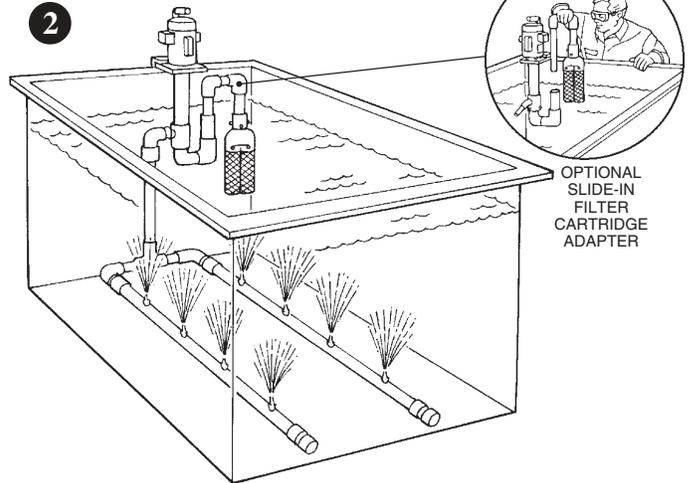
FLO KING systems agitate aggressively—even without the aid of piping or Floductors™. However, where piping is desired to agitate a more selective area of the tank or to agitate from the bottom up, for example, Floductor™ nozzles are frequently specified. Use a pump and Floductors™ exclusively to agitate or to filter too. Our Slide-In Filter Cartridge Adapter (see Bulletin 19) enables easy removal of filter cartridges!

1



FLO KING BX1200 system with single pipe and Floductors™. Pump can be pivoted at threaded 90° elbow and leaned back to change filters. Floductors™ are inexpensive, take up little tank space, and are easily installed with hand drill and tap.

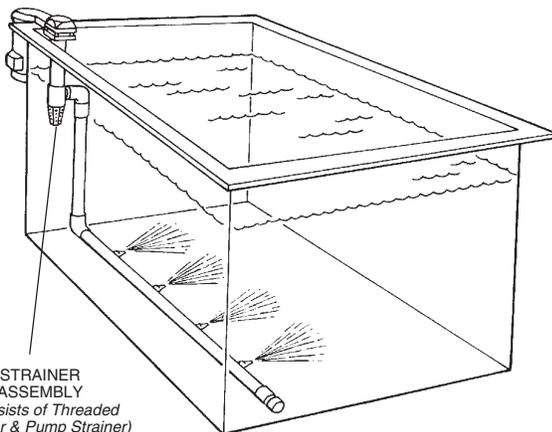
2



OPTIONAL  
SLIDE-IN  
FILTER  
CARTRIDGE  
ADAPTER

Where required, two pipes of same length can be used without reducing agitation. Optional Slide-in Filter Cartridge Adapter (SIFCA) enables filter changes without moving pump from tank and without disturbing sparger pipe.

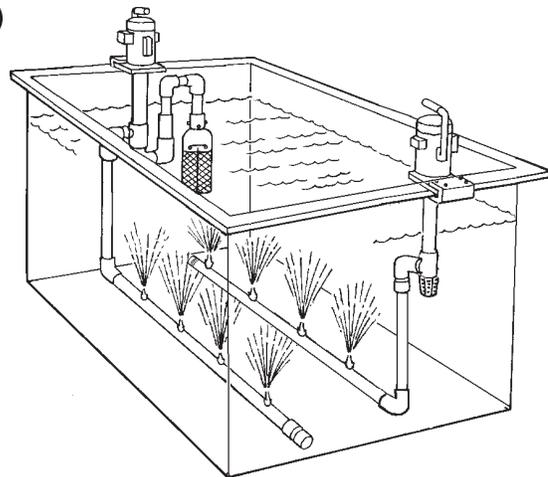
3



STRAINER  
ASSEMBLY  
(Consists of Threaded  
Adapter & Pump Strainer)

Example shows BXL2500 with over-the-side motor and single pipe positioned near tank wall to provide side-to-side motion. Important: Strainer assembly must be used to prevent foreign objects from being sucked up into and damaging impeller when any FLO KING pump is used without filter cartridge (for agitation only).

4



For very aggressive agitation or for large tanks, two pumps can be employed. As a rule when using the BX1200 with piping, use a 3/4-to-1" reducer fitting on the pump discharge port and 1"-diameter vertical and horizontal pipe. For the 2500, 3000, and 5000-series models, use a 1-to-1-1/2" reducer fitting on the discharge port and 1-1/2"-diameter pipe. For the SP12K, use a 1-1/2-to-2" reducer fitting and 2"-diameter pipe.