UNI-SPRAY TANK MIXING EDUCTOR

Selection Guide

The educator used to mixing fluid in a Large tank using a Small pump capacity due to venturi action designed to enhance flow rate 5 time of inlet flow.

Step-1: Gathering Process Information

In order to sizing the educator, the following information must be collected from customers;

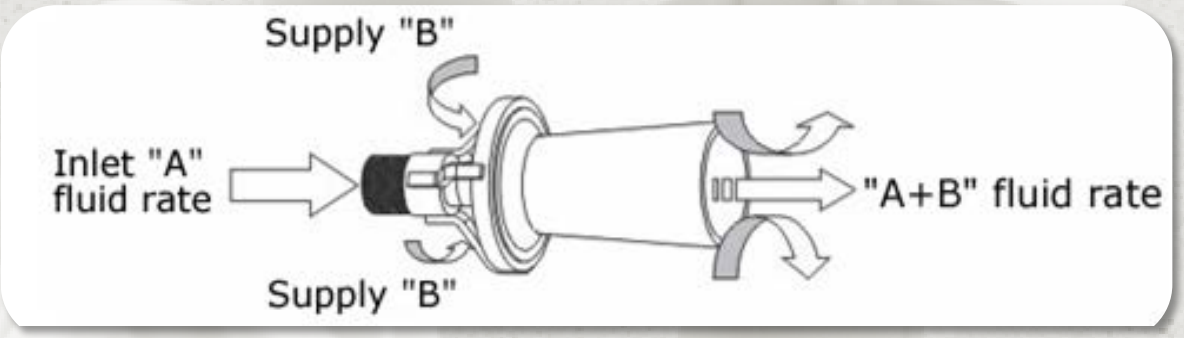
- Tank dimension (Width x Length x Height)
- Liquid depth
- Turnover rate (minutes)
- Liquid
- Piping connection

Step-2: Calculate require flow rate

Process flow rate can be calculated from Liquid volume and Turnover rate which is How many times per hour does the tank solution need to circulate through the educator and depends on process and characteristic of application.

	Turnover per hour	**Turnover rate x Liquid volume = Process flow rate (m^3/h)**
Plating and rinsing tanks	10-20 or 30 (some plating tank)	
Cleaning tanks	at least 10	
Heavily soiled tanks	up to 20	
Critical cleaning tanks	more than 20	

Educators flow rate (m^3/h) = Process flow rate ÷ 5



Step-3: Determine educator size and quantity

The educator size and number depend on flow rate and tank type.

Single educator: Cylindrical or any small tank

Multiple educators: Square, Rectangle, Elongated tank or any large tank

The use of multiple educators obtain the need flow rate is used in a large tank will provide more effective mixing than one centrally located educator and also prevent stagnation which is a common problem in square and rectangular tanks. Size and quantity can be chosen from the table below;

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Operating Liquid Flow - GPM									
	Pressure Differential - PSI								
SIZE	10	15	20	25	30	35	40	45	50
3/8"	7.5	9.3	10.7	11.9	13.1	14.1	15.1	16.0	18.9
1/2"	10.7	13.1	15.2	17.0	18.5	20.1	21.5	22.7	24.0
3/4"	14.1	17.3	20.0	22.4	24.5	26.5	28.3	30.0	31.6
1"	24.4	29.9	34.5	38.5	42.2	45.6	48.8	51.7	54.5
1-1/2"	35.1	43.0	49.7	55.6	61.0	65.8	70.3	74.6	78.6

Step-4: Selecting pump (pressure and flow rate)

The pump head can be calculated from the following equation;

Pump head pressure = $P_{ATM} + P_{Liquid\ height} + P_{Eductor\ drop} + P_{Piping\ losses} + P_{Static}$

P_{ATM} = 1 bar

$P_{Liquid\ height}$ = ρgh

Pump flow rate =Total educator flow rate

Step-5: Product figures