Jacoby Tarbox Model TLA Tank Mixing Eductors

3 Web Body-Nozzle Provides Maximum Spacing for Superior Suction Flow
Superior Performance comes from a Superior Design - Up to 5 to 1 Entrainment. We have No-Equal!
Now Available with Edathon coating, the strongest of all the fluoropolymers!

Tank Eductors are designed for "in-tank"applications. The TLA operates on the principle of flow dynamics pressurized fluid is accelerated through the nozzle to become a high velocity stream that entrains tank contents and intimately mixes with them. This combined stream exits the TLA at a high velocity creating a flow field capable of causing additional agitation and mixing the tank contents.

The tank eductor's motive fluid may come from two sources. The tank liquid may be recirculated through the eductor via an external pump or a secondary fluid may be introduced into the tank. Gases, as well as liquids, are used as the secondary fluid. Aeration and gas dispersion for chemical reactions are- common uses of gas motive systems. Liquids are typically additives to be mixed with or to dilute the tank contents. TLA's are often used in heating applications where the motive fluid is generally steam.

Tank Eductor (TLA) Features:

- Computer optimized flow paths enable the Jacoby-Tarbox eductor TLA to maintain a high "pick-up ratio" (the ratio of fluid entrained to the motive fluid) while maximizing the hydraulic efficiency (the ratio of hydraulic power at the outlet of the TLA to the hydraulic power at the inlet) to generate an optimum flow field from the greatest flow amplification.
- No moving parts in the eductor, minimizing maintenance expenses.
- Optimum flow field enables more activity within the tank than competitive units without changing pumps.
- Compact design and ease of mounting keeps the TLA from interfering with other tank equipment.
- "In-tank" mounting eliminates need for costly, complex mounting structures above tanks.
- The TLA can be used in a wide variety of open vessels or closed tanks.
- Eliminates stratification and promotes a homogenous tank with relation to pH, temperature, solids or gas dispersion, and distribution of chemicals.
- Produces a unique agitation not available with other types of mixers, as the TLA can generate a directed flow field within the fluid being mixed including viscous fluids, slurries, and suspensions.
- Easily mixes liquids of differing specific gravities and is excellent for scrubbing applications where a lower specific gravity fluid is driven into the higher one.
- Flow amplification due to high "pick-up ratio" and hydraulic efficiency permits the use of smaller pumps, which translates to reduced costs of mixing or agitation.
- Reduces investment cost because existing transfer pumps can be utilized for more than one purpose.

Get Superior Protection with our Optional Edathon Coating

- Excellent Corrosion Resistance
- Excellent Abrasion Resistance
- 300° F Continuous Service
- Good Non-Stick Characteristics
- Excellent Dielectric Insulation
- Radiation Resistant

This coating is applied via electrostatic powder spray or fluidized powder bed. In addition to possessing the high chemical and temperature resistance which all fluoropolymers are noted for, Edathon's strengths, radiation resistance, wear resistance, and creep resistance are significantly greater than those of other fluoropolymers such as PTFE, FEP, or PFA. Details about our Edathon Coating

Calculating Turnover Rates

When turnover rates are used to calculate mixing, it is important to consider the viscosity of the fluid and the amounts of solids present, the size and weight of the shapes of tanks which limit the free flow of the mixing solids to maintain suspension, the viscosity or odd flow field within the tank, and suspensions that separate easily and demand constant mixing. In most cases, the TLA will usually provide a homogenous mixture of the vessel in one to three turnovers.

When operated with pressure drops between 10 and 60 PSI, the TLA will entrain at least 4 times as much tank liquid as the motive liquid used. For pressure drops over 60 PSI, the amount of fluid entrained by the TLA remains almost constant. **Up to 5 to 1 Entrainment**.

To calculate the required turnover time for the tank with pressure drops between 10 and 60 PSI, divide the tank volume by the result of the number of eductors times the outlet flow (GPM).

Determining Effective Flow Fields for Mixing In Tanks

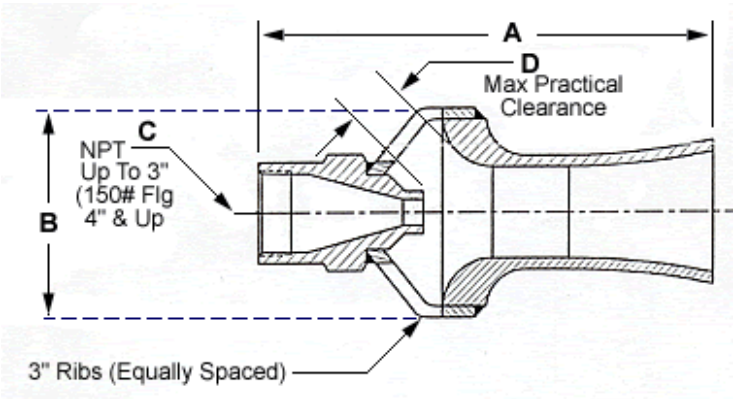
To properly size a TLA eductor for mixing a tank, the effective length of the flow field must be determined. The amount of power put into the tank varies based on the mass flow rate of the motivating fluid in the eductor and the pressure of the fluid as it enters the system.

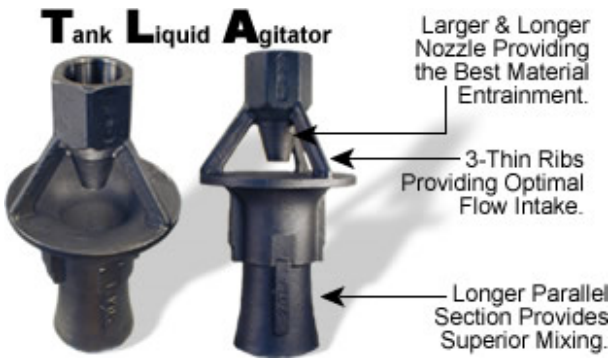
For vessels mixed at an angle, the distance the eductor is actually seeing must be calculated. For example, if the eductor is angled upward, the distance is the hypotenuse of the triangle made up of the length and the height of the tank.

Refer to the "Max Length" listed in the chart below for determining the normal effective plume length of the TLA eductor. At this length, the minimum velocity centerline within the flow field is normally one foot per second. Beyond this length, the lower velocities may have limited effect on the tank contents.

Size IPS		Pressure Difference, PSI											
		10	20	30	40	50	60	70	80	90	100	120	140
	Motive Flow (GPM)	7.1	10.0	12.3	14.2	15.8	17.4	18.7	20.1	21.3	22.4	24.6	26.5
3/8" mnpt	Outlet Flow (GPM)	35	50	61	71	79	87	88	90	91	92	94	96
	Max. Plume Length	4	8	12	16	22	29	36	43	50	58	72	86
3/4" mnpt	Motive Flow (GPM)	15.4	21.8	26.7	30.8	34.5	37.8	40.8	43.6	46.3	48.8	53.4	57.7
	Outlet Flow (GPM)	77	109	134	154	172	189	192	195	197	200	204	209
	Max. Plume Length	5	11	17	24	33	42	53	64	74	85	106	127
	Motive Flow (GPM)	30.8	43.6	53.4	61.6	68.9	75.5	81.5	87.2	92.5	97.5	107	115
1-1/2" fnpt	Outlet Flow (GPM)	154	218	267	306	345	378	384	389	395	400	409	417
	Max. Plume Length	7.5	16	24	34	46	60	75	90	105	120	150	180
2" fnpt	Motive Flow (GPM)	61.6	87.2	107	123	138	151	163	174	185	195	214	231
	Outlet Flow (GPM)	308	436	534	616	689	755	767	778	789	799	818	835
	Max. Plume Length	11	23	34	48	65	85	106	12	148	170	212	255
	Motive Flow (GPM)	142	201	246	283	317	347	375	401	426	449	491	531
3" fnpt	Outlet Flow (GPM)	708	1,003	1,228	1,417	1,585	1,737	1,764	1,790	1,815	1,836	1,880	1,920
	Max. Plume Length	16	34	51	73	99	129	161	193	225	257	322	386
4" flg	Motive Flow (GPM)	246	349	427	493	551	604	652	698	740	780	856	920
	Outlet Flow (GPM)	1232	1744	2136	2448	2760	3024	3072	3112	3160	3200	3272	3336
	Max. Plume Length	22	41	60	95	132	164	196	228	260	295	360	424
6" flg	Motive Flow (GPM)	493	698	854	986	1102	1208	1304	1395	1480	1560	1712	1840
	Outlet Flow (GPM)	2464	3488	4272	4896	5520	6048	6144	6224	6320	6400	6544	6672
8" flg	Motive Flow (GPM)	986	1395	1709	1971	2205	2416	2608	2790	2960	3120	3424	3680
	Outlet Flow (GPM)	4928	6976	8544	9792	11040	12096	12384	12448	12640	12800	13088	13344
10" flg	Motive Flow (GPM)	1971	2790	3418	3942	4410	4832	5216	5581	5920	6240	6848	7360
	Outlet Flow (GPM)	9856	13952	17088	19584	22080	24192	24576	24896	25344	25600	26176	26688

**** Pressure is in PSI and Plume Length shown in Feet**





Size	Dimension A		Dimension B		Dimension C		Dimension D	
	IN	(mm)	IN	(mm)	IPS	(mm)	IN	(mm)
3/8"	5.00	(127)	2.50	(64)	3/8 MNPT	(10)	.50	(12)
3/4"	7.25	(184)	3.69	(94)	3/4 MNPT	(20)	.81	(20)
1-1/2"	10.88	(276)	5.50	(140)	1-1/2 FNPT	(40)	1.12	(28)
2"	14.50	(368)	7.69	(195)	2 FNPT	(50)	1.62	(41)
3"	22.00	(559)	11.75	(298)	3 FNPT	(80)	2.50	(63)
4"	25.00	(635)	12.00	(305)	4 FNPT	(100)	3.00	(76)
6"	35.00	(889)	25.00	(635)	6 FNPT	(150)	4.50	(114)
8"	**Contact Us for Units Over 8"**							

Specifications & Connections:
Standard materials TLA's are cast or fabricated in: bronze, 316 stainless and carbon steel. Cast units range from IPS 3/4 to 2. Larger sizes and other materials are fabricated. Consult the factory for details.

Standard body connection for 3/8" and 3/4" units is male NPT and for 1-1/2" through 3", female NPT. Over 4" is flanged. Optional connections include female/male NPT, butt weld, socket weld, VictualicTm, sil-braze, and flanged.

Standard Materials:

- Carbon Steel
- 316SS
- Bronze
- PVC
- PPL
- PVDF