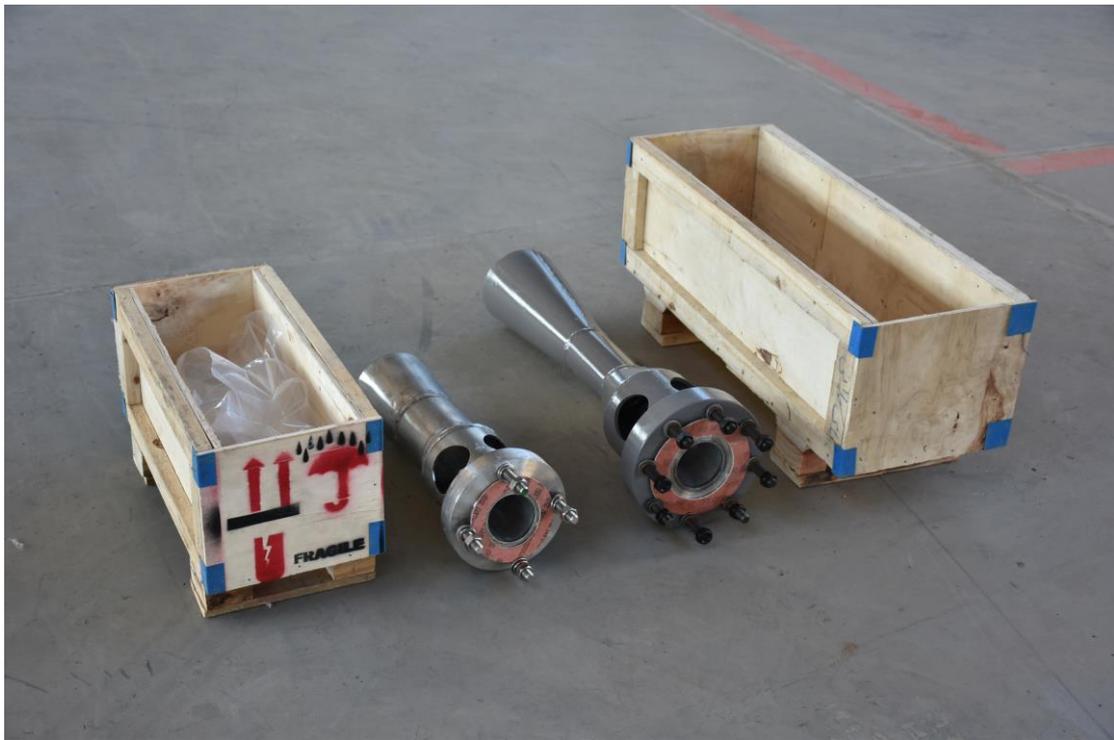


Liquid jet mixers

Liquid jet mixers are jet pumps similar to the water jet pumps used to mix and circulate liquids. The jet mixer has lateral slots, where the surrounding medium is sucked in. Due to the high turbulence in the diffuser the result is an intimate mixing of the motive and suction fluid. The liquid mixture emerging from the jet mixer spreads out in conical form and entrains more liquid from its surroundings.



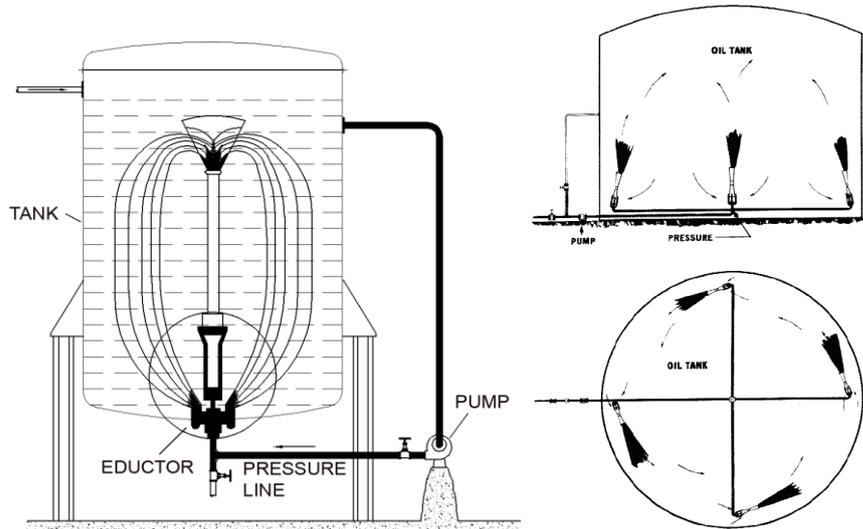
Advantages

- Simple and reliable
- Corrosion and erosion resistant
- Automatic control
- Easy to install
- Low cost
- Maintenance free
- Very low wear because there are no movable parts
- Wide range of materials such as steel, stainless steel, cast iron, bronze, Teflon and graphite

Applications

Mixing and circulating of fluids in storage tanks, vessels or basins

The following figures show how to install mixers in small and large tanks. These ejectors are usually installed in the deepest part of the tank. In addition, the height of the liquid above them should always be at least one to two meters.



Standard sizes

These ejectors are made of stainless steel, cast iron, bronze and Teflon based on the type of application. The material of the nozzle is usually made of bronze or stainless steel.

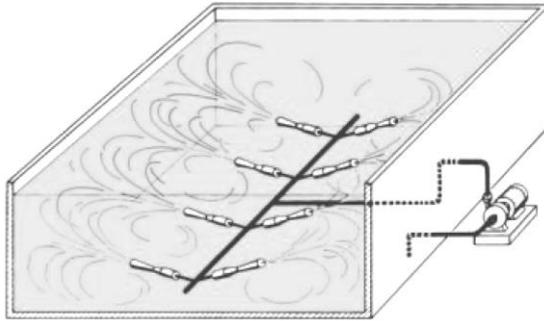
size (inch)	Connection	
	Dish	motive
1/2	1	1/2
3/4	1 ^{1/2}	3/4
1	2	1
1 ^{1/2}	3	1 ^{1/2}
2	4	2
3	6	3
4	-	4
6	-	6

Range of Operation

- The viscosity of the circulation fluid must not be too high. Otherwise a sufficient mixing effect cannot be guaranteed. As a rule, jet mixers can be used in all cases where the liquid to be mixed can still be supplied by a centrifugal pump.
- The driving medium has to be free of bigger particles, to avoid the clogging of the driving nozzle.

Installation Requirements

- Several mixers in a vessel yield a better mixture and homogeneity. The approximate number of mixers necessary may be found from the following rule of thumb:
 - High tanks: 100 - 400 m³/per mixer
 - Low profile tanks and basins: 30 - 100 m³/per mixer
- The mixers should be more than 1.5 m below the liquid level in case of tendency to foam.
- To obtain good operation even with low liquid level, jet mixers should be installed at the deepest possible point.
- For establishing the number of mixers required, the following criteria is taken into account:
 - Geometry and size of vessel or tank
 - Type of liquid to be mixed
 - Mixing time
 - Maximum and minimum liquid levels



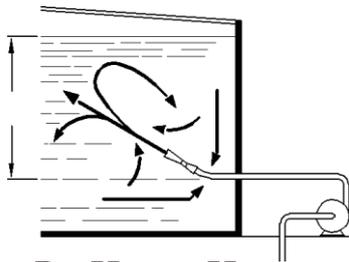
How to choose

The selection of the mixer ejector is based on the following parameters:

1-The effective pressure of the driving fluid

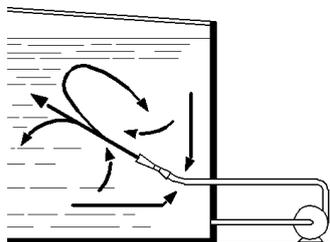
2- Stimulating fluid flow rate

a) The source of the driving liquid is outside the tank.



$$\Delta P = H_{\text{pump}} - H_{\text{static}}$$

b) The source of the driving liquid is inside the tank.



$$\Delta P = H_{\text{pump}}$$

- In the diagram below, the total flow rate of the mixture for the size 1 (inch) ejector is shown in terms of the pressure and flow rate of the driving liquid.

