Tank Jet Mixers

A Tank Jet Mixer is a mass momentum exchange device that uses pressurised liquid energy to entrain, mix and pump a secondary fluid. Transvac designs and manufactures a comprehensive range of Tank Jet Mixers and complete Tank Jet Mixing systems for the process industries.

Carbon Steel Tank Jet Mixer

Hygienic Stainless Steel Tank Jet Mixer

Polypropylene Tank Jet Mixer

Stainless Steel Tank Jet Mixer

Applications

- Neutralisation
- Solids Suspension
- Sludge Mixing
- Blending
- Flash Mixing
- Heat Transfer
- Anoxic Tank Mixing
- Balance Tank Mixing
- Chemical Mixing
- Lime Mixing

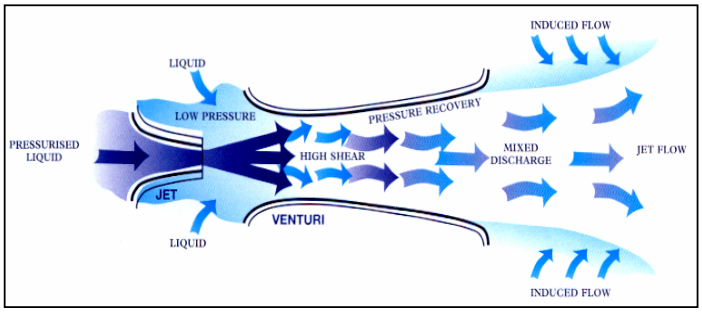
Advantages

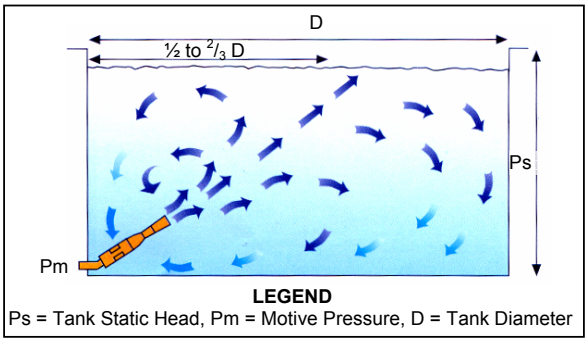
Whether the application is for mixing food products or trade effluent, Transvac Tank Jet Mixers offer a simple and reliable method of blending / mixing liquids and keeping solids in suspension.

- No maintenance
- Simple & Robust
- No moving parts
- No support bridges or bottom bearings
- Materials to suit the process liquor
- Even distribution of mixing
- Operation at varying levels
- No baffles required, no vortexing
- Operates at low levels
- Controllable performance

Principle Of Operation

In operation, pressurised liquid is discharged through the jet nozzle into the suction chamber. The change from pressure energy to kinetic energy (velocity) creates an area of low pressure that entrains liquid from within the process vessel via the open suction ports. The motive and suction liquid streams combine and mix within the diffuser throat.





LEGEND
Ps = Tank Static Head, Pm = Motive Pressure, D = Tank Diameter

As the resulting mixture passes through the diverging cone its velocity is partially reduced to regain sufficient pressure to overcome the static head of liquid within the process tank. At the discharge a high energy; turbulent jet is emitted entraining and absorbing surrounding liquid at its boundary, thus creating additional currents and turbulence to ensure complete mixing of the process tank contents.

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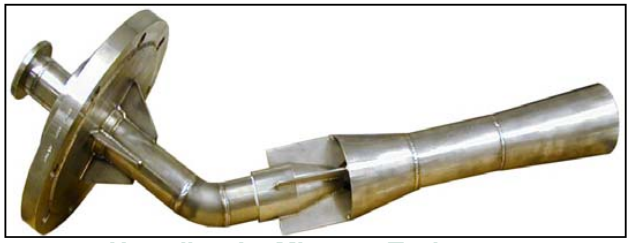
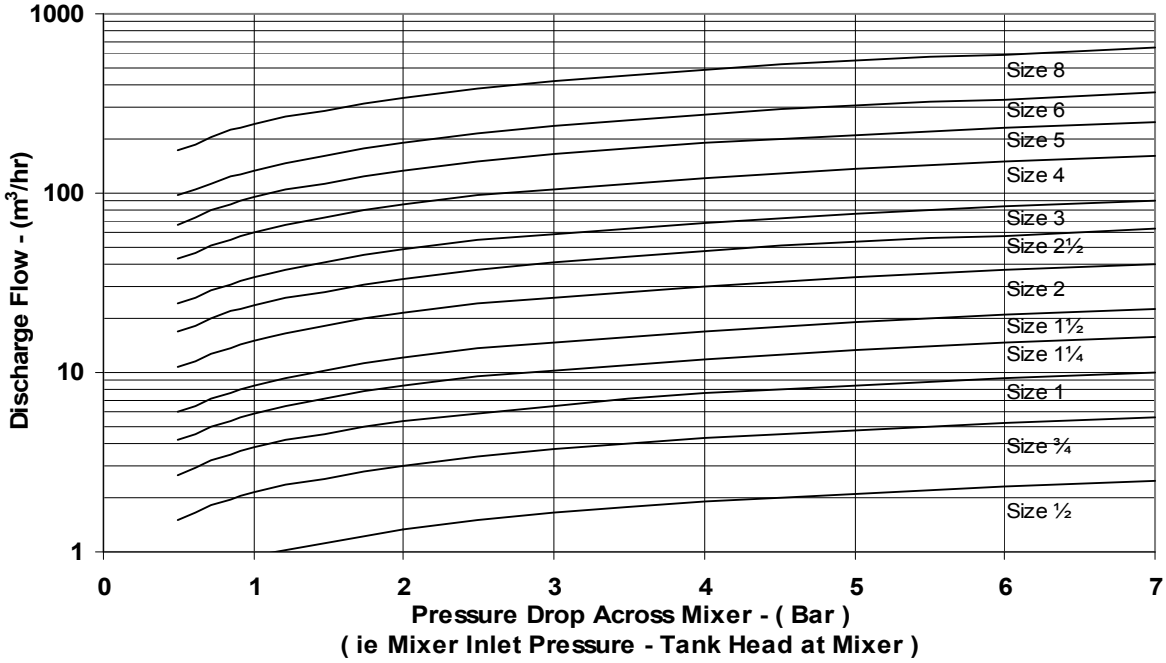
Tank Jet Mixers

Jet Mixing System in Effluent Balance



Hastelloy Jet Mixer on Tank support

Sizing Chart



A Transvac Tank Jet Mixer can normally be employed on any application in which the process liquid is capable of being handled by a centrifugal pump. Factors considered in selection include tank volume, viscosity, specific gravity, size and percentage of solids as well as tank geometry.

For every one part motive flow, a Tank Jet Mixer entrains 3 parts suction flow and discharges 4 parts flow into the tank. Thus the time to rotate the entire contents is simply V ÷ (4Qm), where V is the tank working volume and Qm is the motive liquid flow (when operating at pump differential pressures between 1 and 6 bar).
In general a single Tank Jet Mixer can effectively mix 100 to 400 m^3 capacity deep tanks and 5 to 100 m^3 capacity shallow tanks. For every 1 bar pressure drop across the jet mixer turbulence will be experienced for up to 5 metres from the Tank Jet Mixer discharge port within the mixing tank. The standard operating characteristics outlined above apply to Newtonian liquids.

Construction

Standard materials of construction include, stainless and carbon steel, PVCu, PP, PTFE, PVDF, hastelloy and titanium. Other materials are also available.

Connections included flanged, female screwed or quick-release hygienic.

All Transvac's design and manufacturing processes are quality assured and certified to BS EN ISO 9001:2000 and units are CE marked where applicable. Transvac is also fully accredited to module H of the PED.

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