

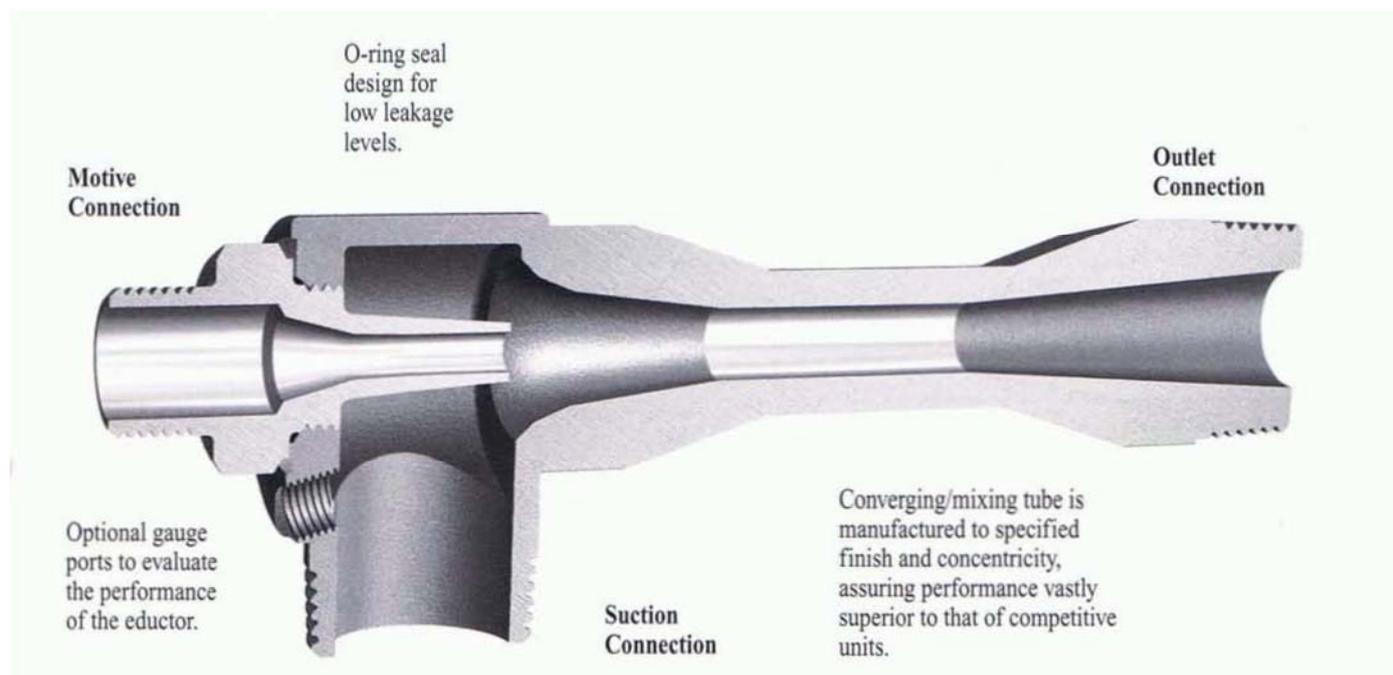
LEARN ABOUT EDUCTORS

Eductors provide a simple, cost-effective way to pump, mix or heat a wide range of liquids, gases and solids in the petrochemical, process, and power industries.

Eductors are also known as jet pumps, ejectors and venturi pumps. Eductors have a myriad of uses – they can pump liquids, heat, mix and blend either in-line or in-tank. Eductors can evacuate gases, create a vacuum, boost suction pressures, mix granular solids with liquids and move granular solids with compressed air. Eductors can operate with a wide variety of motive liquids and gases.



Eductors use the kinetic energy of one liquid to cause another fluid to flow. Eductors consist of a converging nozzle, a body and a diffuser. The converging nozzle converts the pressure energy of the motive liquid to velocity energy. This high velocity liquid flow then entrains the suction liquid. In the body complete mixing of the motive and suction fluids occurs. The mixed fluid is then converted back to an intermediate pressure after passing through the diffuser.



Eductors offer many advantages over electric pumps. They have no moving parts which can be subject to leakage, wear and tear. Eductors are generally small in relation to the work they do, and they are low in cost. They are easy to install and require few adjustments. They are easy to inspect and clean, and never require lubrication. In addition, they are ideally suited for use in hazardous locations, without the need for explosion proofing as may be required with electrical equipment. Cebeco's range of eductors comply with ASME/ANSI B16.5 standards.

Tank Liquid Agitators (TLA's) are eductors specifically designed for tank applications. They are mounted inside open vessels or closed tanks. "In-tank" mounting eliminates the need for costly mounting structures above tanks, while investment costs are minimized by using existing transfer pumps. TLA's operate 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.



Typical applications for eductors are:

Liquid Motive Pumping Liquid:

- Draining sumps.
- Pumping in areas where an electric pump would present an explosion hazard.
- Boosting the NPSH (Net Positive Suction Head) of a pump.
- Pulling an acid or base into a water stream for dilution purposes.

Steam Motive Pumping Liquid:

- For draining sumps, where electrical lines are not available.
- For drawing water from ponds and warming it as it is being supplied to processes.
- For heating process fluids in-line.
- For cooking slurries in-line.
- For heating reactor jackets.

Liquid Motive Pumping Gases:

- To aerate a liquid to reduce the BOD (Basic Oxygen Demand) of the fluid.
- To exhaust vapors or gas from a room.
- To evacuate a vessel.
- To scrub fumes from a gas.
- To inject air, ozone, chlorine or other gas into a process liquid.
- To create vacuums.



Steam or Gas Motive Pumping Gases:

- To lower the boiling point of a vessel saving heating costs.
- To produce a vacuum for filtration processes.
- To prime pumps and vessels.
- To prime siphon lines.

Mixing:

- To provide agitation of a vessel.
- To control shear during agitation.

We supply Jerguson Jacoby Tarbox Eductors, which are equivalent to Penberthy Jet Pumps. Below is a comparison table of both brands:

Penberthy Jet Pumps	Jerguson Jacoby Tarbox Eductors
LL	SL
LM	ML
LH	HL
GL	SG
GH	HG
HLM	MLH
ELL	MLE
RJ	ULJ
CTE	TLA
TME	TLM

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Eductor Model Selector Guide

SUCTION	MOTIVE		
	LIQUID	STEAM	GAS
LIQUID	Pump from Tank Pump from Sump Dilute in Line Transport Liquid	Pump from Tank Pump from Sump Heat Liquid Prime Pumps Evacuate Liquid Lines	Apply Spray
	SL, ML, HL	SG, HG, TLA	Custom Units
STEAM	Heating in Line Condensing Steam Sterilize Degrease	Thermocompressor	Exhaust Vessels
	ML, HL, MLH, MLE, ULJ, ULH	Various	SG, HG, ML
GAS	Evacuate Vessels Aerate Liquids Prime Pumps	Evacuate Vessels Prime Pumps	Evacuate Vessels Prime Pumps
	ML, MLE	SG, HG	SG, HG, ML
SOLIDS	Forming Slurries Dilute Mix	Transport Solids	Pneumatic Transport
	ML, ULJ	SG, HG	ULJ, SL, ML, SG

To pump liquids and wet solids

MODEL	SL	ML	HL	SG	HG
Motive fluid	Liquids	Liquids	Liquids	Steam	Steam
Motive pressure (kPag)	100 - 1400	100 - 1400	100 - 1400	200 - 1000	150 - 1000
Suction Fluid	Liquids & wet solids				
Maximum Suction Lift (m)	8	8	8	6	6
Pressure Recovery %	10-15%	30-35%	40-50%	15-20%	30-35%

To pump gases and dry solids

MODEL	ML	MLE	SG	HG
Motive fluid	Liquids	Liquids	Steam, Air	Steam, Air
Motive pressure (kPag)	150 - 1400	150 - 1400	150 - 1000	70 - 700
Suction Fluid	Liquids & dry solids			
Maximum Vacuum (kPa A)	15	15	30	30
Discharge Pressure	100	100	80	240

To heat liquids

MODEL	MLE	ML	TLA
Heating Process	In-Line	In-Line	In-Tank
Steam Pressure Range (kPag)	Vac - 350	Vac - 700	70 - 1000
Max Temp Rise (Deg C)	100	110	70

To agitate tank liquids

MODEL	TLA
Motive fluid	Liquids, Steam, Air
Motive pressure (kPag)	150 - 1000
Suction Fluid	Liquids
Viscosity Range (cP)	1 - 2000