

**Tank Mixing System  
With  
Liquid Jet Mixing Nozzles**



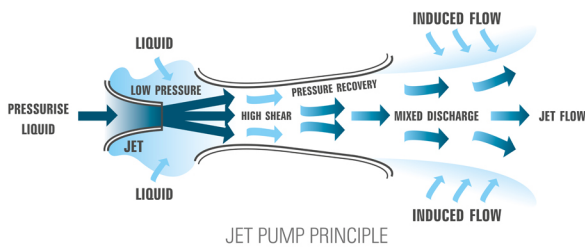
**AZAR ENERGY  
TABRIZ**



**One of the main components of tank mixing systems is Azar Energy Co. liquid jet mixing nozzles, which can be applied for continuous and discontinuous mixing purposes. They can be used as a replacement for mechanical agitators and in many cases they outperform mixing results.**

### What are the Principles?

In jet mixing, a part of the fluid existing in the tank moves with high velocity into the tank by use of a pump and through nozzles. The jet fluid circulates in the surrounding fluid and makes a rotational pattern, which causes mixing inside the tank. Jet mixers have more advantages compared with impellers. They are installed easier and jet mixing leaves less dead zones in the tanks than mixers.



### Advantageous

- o Simple, safe and reliable operation
- o Quickly and easily put into operation
- o No moving parts
- o Longer service life
- o least maintenance cost
- o very low (or) hardly any wear

### Applications

- o Dissolving powder/solids in liquids.
- o Tank liquid mixing & heating using steam.
- o Mixing solids in liquid.
- o Aerating the tank liquid.
- o keep solid particles in liquid suspension.
- o Dispersing gas into liquid.
- o Mixing of liquids in the neutralization basin.

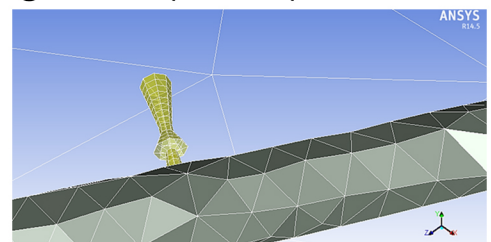
### Design Codes and Standards

- o ASME Sec. VIII
- o ASME B.31.1
- o ASME B.31.3

### Properties of a tank mixing system for Naphtha

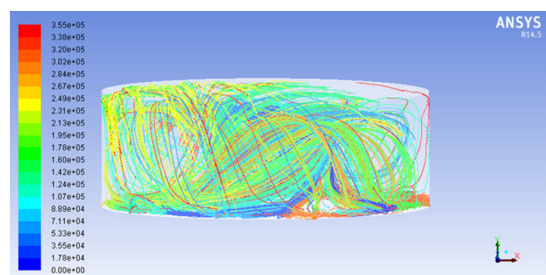
The images in the first page give a good impression of a complete tank mixing system in a storage tank for Naphtha. 6 mixing nozzles made of stainless steel are installed nearly horizontally whereas 6 mixing nozzles are installed nearly vertically in an even-odd arrangement. The tank volume is 16000 m<sup>3</sup> with a filling height of 13.5m and a diameter of 40m.

- o Cylindrical Storage Tank
- o V=16000 m<sup>3</sup>
- o H=13.5 m, D=40 m
- o 12 mixing nozzles (Size: 2")



### Alignment of a mixing system in a cylindrical storage tank for Naphtha

The result of the design is a sketch for the customer, which contains our offer, so that the mixing system will be installed in the tank in an optimum way. In order to evaluate critical cases, Azar Energy uses CFD simulation.





## About Us

Azar Energy Co. is a manufacturer of Oil, gas, refining and petrochemical equipment. The company specializes in the design as well at manufacturing, production and installation thanks to its experienced end professional personnel and modern machinery.

With 30 years in the business and hundreds of completed projects, we have grown to become a national leader in the oil industry.

Our aim is to produce high quality products complying with the international standards and feasible price along with continuous improvement in quality of the products to achieve customer satisfaction.



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