

# DEAERATION

## FOR WATER INJECTION

### Our Experience

Eta Process Plant designs, provides, and installs complete customised water injection packages with process guarantees for onshore and offshore applications. With over 40 years of experience globally, Eta maintains project management and quality assurance standards that are in compliance with the leading engineering, procurement, construction, oil and gas company requirements.

Eta's optimised process design tailors height, weight, and power consumption to the specific application and location, while minimising capital, operating, and overall lifetime costs.

Comprehensive project management includes procurement, shipping, installation, and commissioning services. Fully skid-mounted heavy-duty packaged equipment are available for marine and offshore service.

### Our Technologies

Eta offers the following deaeration media for onshore and offshore applications.

#### VACUUM DEAERATION

The vacuum deaeration process is based on the reduced solubility of oxygen in water at reduced pressure. By reducing the vessel pressure to nearly full vacuum, extremely low dissolved oxygen levels can be achieved.

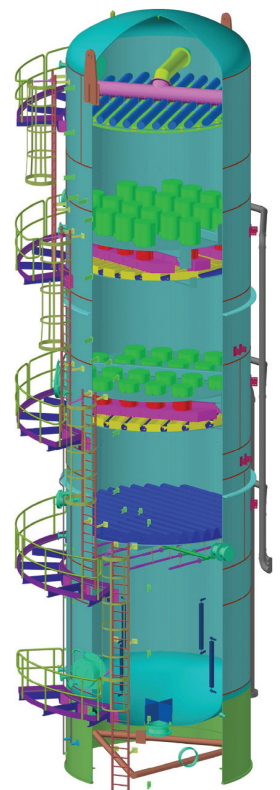
The diameter and height of the tower are minimised by efficient contact between the gas and liquid phases. Eta uses its proprietary BETA RING® No. 2 random packing, which is specifically designed for the very high liquid loads and low gas loads in vacuum deaeration processes. This random packing allows higher liquid loads to be used with confidence.

Multiple stages operating at progressively lower vacuum levels minimise the vapour extraction and increase vacuum pump efficiency. Water seals between each stage allow different pressures to be maintained. This design allows Eta to optimise every system, minimising size and weight to reduce operating and capital costs.

The vacuum is generated using liquid ring vacuum pumps and atmospheric air ejectors mounted as a single skid package. Two 100% vacuum pumps (duty/standby) are normally supplied with automated changeover to ensure continuous operation.

#### CONTROL SYSTEMS

Local or remote PLC-based control systems and motor controls can be provided for a complete turnkey package.



Three Stage  
Vacuum Deaerator

## Our Technologies

### GAS STRIP DEAERATION

The gas strip deaeration process uses an oxygen-free gas to remove dissolved oxygen from the liquid stream. The low oxygen concentration in the gas creates a driving force for mass transfer, which reduces the concentration of oxygen in the treated waters.

The water flows through a packed tower, countercurrent to the stripping gas, which is vented at the top of the column. Eta uses its own proprietary BETA RING® No. 2 random packing specifically designed for the very high liquid loads and low gas loads in deaeration processes, allowing higher liquid loads to be used with confidence.

Gas consumption is minimised through Eta's development of back-mixing factors that take into account the high liquid-to-gas ratios used in gas strip deaerator designs.

These systems have no moving parts and are extremely reliable, which helps achieve continuous operation.

### BENEFITS

Complete scope of supply including process guarantees:

- Customised design
- Optimised vessel size and mass
- Compact skid packages
- Design & supply of full PLC control systems and motor controls with user interface via HMI
- Reduced on-site time
- High efficiency removal
- Easy operation and low maintenance
- Ongoing support throughout the life of the equipment

### CONTINUOUS SUPPORT & SERVICE

Eta's engineers are closely involved in all aspects of your project starting with process evaluation, integration, optimisation, followed by detailed process and mechanical engineering, E&I, design through complete fabrication, assembly, inspection, testing, and commissioning, as well as post-commissioning operations service.

### REFERENCES

With over 400 deaerator packages installed across the globe, Eta has extensive reference lists available upon request.

#### Eta Process Plant

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