

CATALOGUE · HEAT EXCHANGE EQUIPMENT

Shell-and-tube heat exchangers and condensers

Miscella heating, hexane vapour condensation, heat recovery and oil cooling for oil and extraction plants.

up to 20 %

BOILER STEAM SAVINGS*

5

TYPICAL DUTIES

Ex

EXPLOSIVE MEDIA

About the equipment

The shell-and-tube heat exchanger is one of the most widespread types of heat exchange equipment thanks to its simple design, reliability and ability to work at high pressures and temperatures. The D.ENERGY engineering office designs and manufactures shell-and-tube heat exchangers and condensers for aggressive and explosive media in oil plants.

Units are made to order: **the diameter, length and number of heat exchange tubes are calculated for the customer's actual heat-carrier parameters**, so there is no fixed size range.

Construction

- **Shell:** a cylindrical body in which one of the heat carriers flows (shell side).
- **Tube bundle:** a set of parallel tubes for the second heat carrier.
- **Tube sheets:** hold the tubes and separate the tube and shell sides.
- **Baffles** direct the flow in a zigzag, increase turbulence and support the bundle, reducing vibration.
- **Heads (chambers)** distribute and collect the flow; the number of passes defines fluid velocity and compactness.

The most effective arrangement is counter-current: the largest temperature difference along the whole unit and maximum heat transfer for the same surface area.

Applications

1**Miscella heating**

Miscella from the extractor is heated with steam or hot condensate before hexane evaporation: precise, even heating affects distillation efficiency.

2**Hexane vapour condensation**

A water-cooled condenser returns solvent vapour to liquid for reuse: the key unit of solvent recovery.

3**Heat recovery**

Hot vapour or secondary steam gives its heat to fresh miscella or another stream before final cooling, lowering steam use for the whole process.

4**Oil cooling**

Finished oil after refining or deodorization is cooled with water to a safe temperature before bottling or storage.

5

Plant heat supply

As part of a boiler house, the units prepare hot water or steam of the required parameters for all plant sections.

D.ENERGY engineering standards

- **Thermal-hydraulic calculation** for the actual heat-carrier parameters (miscella, hexane vapour, cooling water, condensate).
- **Reliable tube-sheet joints:** automated expanding and welding of bundles made of stainless and carbon steels, keeping circuits tight even under water hammer.
- **Easy cleaning and service:** removable distribution chambers allow quick cleaning of the tube side during planned plant stops; the bundle can be pulled out, cleaned or replaced.

* Properly selected heat exchangers together with counter-current crisper coolers close the plant heat balance and cut boiler steam consumption by up to 20 %.

Data required for sizing

To size and quote a unit, please send:

Parameter	What to provide
Duty	miscella heating / vapour condensation / heat recovery / oil cooling / heat supply
Heat carriers	composition and name of hot and cold streams (miscella, hexane vapour, water, steam, condensate)
Flow rates	amount of each heat carrier (kg/h or m ³ /h)
Temperatures	inlet and outlet for both streams
Pressure	working pressure on tube and shell sides, allowable pressure drop
Materials	stainless or carbon steel, medium resistance requirements
Installation	location, dimensional limits, horizontal or vertical
Safety	hazardous area class, design requirements (Ex)

Important

There is no fixed size range for these units: every heat exchanger is designed for its duty. Final parameters are defined by calculation and agreed with D.ENERGY engineers.

Contact us

Ukraine, Mykolaiv, 9B Oleha Bondarenka St.

PHONE

+38 067 995 10 96

E-MAIL

sales@denenergy.com.ua

HOURS

Mon–Fri: 09:00–18:00

This material is for information only. Final configuration and parameters are defined by the technical specification and agreed with D.ENERGY engineers. Data as of 08.10.2026.