



## Heating modes

We offer three heating solutions:

- Electrical
- With heating medium
- Infrared radiation.

The first two processes are based on the principle of *contact heating*. This means that the heat is conducted from the heat medium through contact areas to the product.

With the **electrical** version, tubular heaters are fed in coils through the hollow shelves (sandwich construction).

With the version using **heat medium** you have three possibilities:

- Warm water
- Thermal oil
- Steam.

If you wish to heat using a heat medium, we equip the drying oven with pressure-tight, hollow shelves. The *difference* from the electrical version is that the heat transfer medium flows through channels and then fills the entire cavity of the shelf.

A **separate thermostat** controls the temperature of the heat medium. The heated medium is pumped in a cycle through the individual shelves.

With the **steam** heating version a special valve is responsible for controlling the amount of steam. This control operates without auxiliary power so that it is possible to use this type of control in an *explosion-proof* room.

With steam it is possible to heat in two different ways, the temperature of the steam being important:

- When  $T < 100\text{ °C}$  the steam is routed into a heat exchanger where the heat energy of the steam is transferred to the water. The heated water is pumped through the shelves.
- When  $T > 100\text{ °C}$  the steam is fed into the distribution system for the shelves.

## Vacuum Pump

A standard feature of our vacuum drying ovens are the oil-sealed, slide vane rotary vacuum pumps.

## Condenser

The condenser enables large amounts of humidity to be recovered which is particularly important when using hazardous solvents.

An additional advantage: condensation accelerates drying.

## Use with potentially explosive products and in hazardous locations

Our vacuum drying ovens are explosion-protected when:

- The fluid of your product being dried is *easily inflammable*
- The vacuum drying oven is to be installed in an area where there is *risk of explosion*.

## Options/Accessories

- Use of special materials for all components that come into contact with evaporating fluids (e.g. Inconel, Hasteloy)
- Design in accordance with GMP/FDA. Qualification documents are issued as verification of our tests
- In order to avoid condensation in the drying oven, the door and walls can be heated
- Pneumatically-controlled doors for the automatic loading of the drying oven
- Designed for high-vacuum processes
- Special dimensions
- Special vacuum pumps
- Software for the easy management (controlling, monitoring and documentation) of upto 32 drying ovens
- Digital pressure display
- Pressure control in conjunction with a solenoid valve in the suction line
- Temperature sensor for product being dried
- Nitrogen supply for quick extraction of released vapour
- For aggressive solvents: door seals of viton or with FEP cover
- External housing with surrounding frame for installation in wall



We reserve the right to make any technical alterations