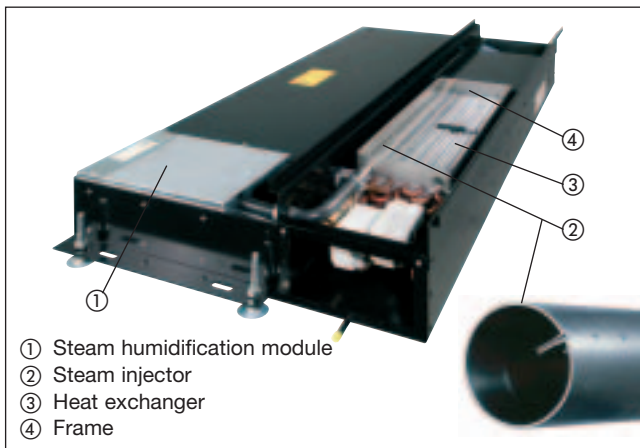


**Product information**  
**Steam humidification module type TDB**  
**for Decentralised ventilation units and**  
**Terminal units**  
**PI/FSL/14/EN/1**



FSL-U-ZUM decentralised under floor ventilation unit with TDB steam humidification module



① Steam humidification module  
 ② Steam injector  
 ③ Heat exchanger  
 ④ Frame

**Description**

The steam humidification module uses resistive heating technology and is exclusively suited to operation with demineralised water with a conductivity <math>< 20 \mu\text{S}/\text{cm}</math> and <math>< 1000 \text{ kbE}/\text{ml}</math>.

The pressure of the demineralised water is reduced to 1 bar by a pressure reducing valve in the unit. The water is then passed through the safety valve to the metering valve. Unless there is a requirement for humidification the metering valve remains closed.

In humidification operation, the evaporator heats up. As soon as the necessary temperature is reached, a volume of water corresponding to the request for humidity is supplied to the evaporator by timed opening and closing of the metering valve. This means that the water enters the evaporation chamber drop-by-drop and completely evaporates there. The steam is fed into the air flow through special nozzles in the steam injector and mixes in a very short distance so that there is no condensate formation, for instance, at the ventilation grilles. If too much water is sent to the evaporation chamber, its temperature drops and the metering valve reduces the water supply.

The water supply is metered to the evaporator where it immediately evaporates. This means that the steam humidification module does not need a water reservoir with level monitoring. If a fault causes more water to be supplied than is evaporated, the overflow system built into the unit closes the safety valve and the metering valve to prevent overflowing.

The condensate created in the steam injector is passed back to the evaporator chamber through the condensate hose and evaporated again. No separate condensate drain is necessary on the unit, nor is there any need for a complex condensate drainage system within the building. Draining the water supply lines, as is required in adiabatic systems, is also unnecessary in a steam humidification system. The module is protected against overflow and overheating by duplicated independent monitoring systems.

**Field of application**

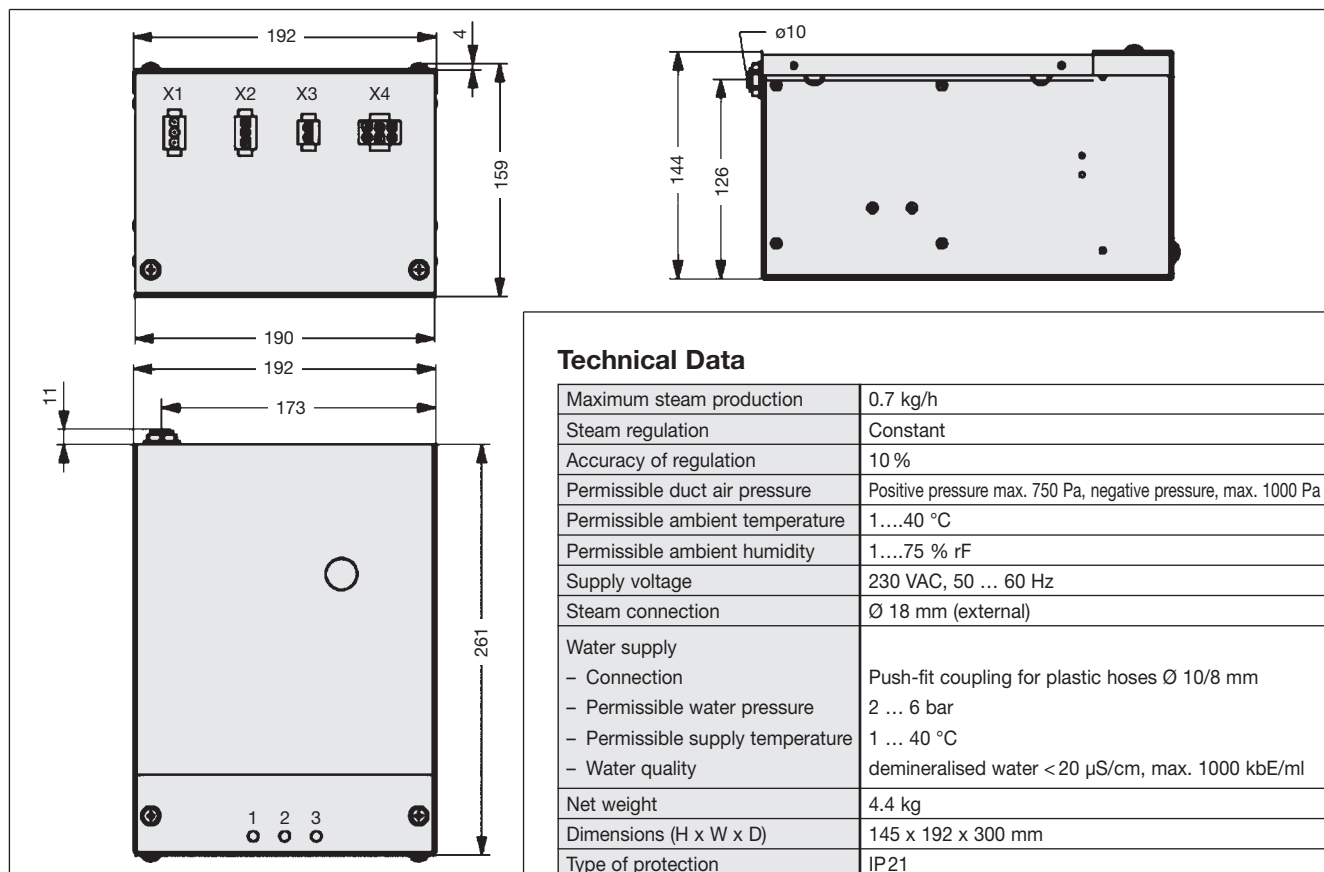
At low outside temperatures, low relative humidity below the threshold of comfort can occur in buildings without a central plant air conditioning system with humidification. This can be avoided by the use of TROX type TDB steam humidification modules which are designed for use in terminal units, air diffusers and decentralised FSL ventilation units. This system is particularly suited for buildings in which air humidification is only required in sensitive areas.

In air conditioning of buildings with decentralised ventilation units and where humidification technology is used in terminal units/diffusers of central plant air conditioning systems, the achievement of ideal standards of hygiene associated with humidification are of particular importance. It is necessary to ensure that no moist surfaces are created inside the ventilation units by the build-up of condensate as this might promote the growth of micro-organisms. The compact construction, especially of decentralised (FSL) ventilation units, makes significant demands on the technology. This is the basis for the development of the type TDB humidification module.

**Benefits of the system**

- Improvement of room comfort by increasing the humidity of the air in the room (in the absence of a central plant air conditioning system with humidification)
- Particularly advantageous in buildings with decentralised systems where only partial zones are to be humidified
- No condensate in the ventilation units or components
- Fully meets the hygiene requirements (VDI 6022)
- Water aerosols do not enter the atmosphere
- Simple to retrofit thanks to modular structure ("Plug and Play")
- Special nozzle technology to ensure the quickest humidification

## Dimensions



## Technical Data

Maximum steam production	0.7 kg/h
Steam regulation	Constant
Accuracy of regulation	10 %
Permissible duct air pressure	Positive pressure max. 750 Pa, negative pressure, max. 1000 Pa
Permissible ambient temperature	1...40 °C
Permissible ambient humidity	1...75 % rF
Supply voltage	230 VAC, 50 ... 60 Hz
Steam connection	Ø 18 mm (external)
Water supply	
- Connection	Push-fit coupling for plastic hoses Ø 10/8 mm
- Permissible water pressure	2 ... 6 bar
- Permissible supply temperature	1 ... 40 °C
- Water quality	demineralised water < 20 µS/cm, max. 1000 kbE/ml
Net weight	4.4 kg
Dimensions (H x W x D)	145 x 192 x 300 mm
Type of protection	IP21

- X1** Mains connection 230 VAC
- X2** Fault signal
- X3** Fan speed signal
- X4** Release/humidity regulator or hygrostat
- 1** Green LED – steam production
- 2** Yellow LED – unit status (steam request)\*
- 3** Red LED – fault\*

\* LED's flash at various frequencies, see MW/PI/FSL/14/D/1 for a detailed description of the LED display.

## Installation – Maintenance – Operation

The use of TDB modules built into TROX components and systems in the factory guarantees a minimum installation effort on site and the optimum match of the module to the air handling component.

Please note our Installation, Maintenance and Operating Instructions, MW /PI/FSL/14/EN/..., for installation on site, connection and maintenance operations.

## Specification text

Steam humidification module for decentralised room air humidification, optimised for use in decentralised ventilation units, terminal units and air diffusers, maximum steam production 0.7 kg/h, exceedingly rapid humidification thanks to special nozzle technology, complete evaporation of the humidification water introduced, water reservoir with level monitoring or condensate drain not required, meets hygiene requirements (VDI 6022) in full, duplicated independent monitoring against overflow and overheating, integral fault signal contact, operation, status and fault indicator on the unit, simple to retrofit thanks to "Plug & Play" design, may be controlled by hygrostat or humidity regulator.