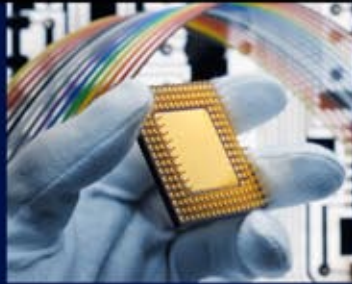




HUMIDIFICATION  
THE STEAM HUMIDIFIER WITH  
SCALE MANAGEMENT.  
LOW MAINTENANCE. RELIABILITY.  
AND SUPERIOR CONTROL ACCURACY

## DEFENSOR Mk5





### Why Defensor Mk5?

#### **Flexible.**

The resistive heating elements of the Defensor Mk5 generates – with demineralize or normal drinking water – between 5 and 80 kg/h steam.

#### **Genial.**

The patented, unique scale management guarantees long durability and short maintenance times.

#### **Approved.**

The Defensor Mk5 convinces users, planners and installers in all world and belongs since many years to the leading steam humidifiers.

#### **Completely hygienic steam**

A major advantage for planners and users: the Mk5 provides maximum safety in hospitals, clean rooms, food production and everywhere where an hygienic environment is of the utmost priority.

#### **Patented scale management**

Scale is collected in the spacious scale collector tank. This means: Long operation periods and very short maintenance interruptions.

#### **High-quality materials**

The stainless steel cylinder, level unit and heating elements are practically indestructible. The Mk5 is therefore still providing loyal service long after the accounts department has written it off.

#### **Control accuracy of up to $\pm 1\%$**

Logic and technology complement each other perfectly. The Mk5 is easy to install, safe to use and the required humidity can be simply set at the touch of a button: 48%, 72% or 97% – the Mk5 regulates linear and very precise.

#### **Building management integration**

The Defensor Mk5 is the perfect partner. It can be selectively operated with Modbus Standard, BACnet or LonWorks protocols, accepts all common control signal levels and indicates operating status and malfunctions. This saves time and enhances reliability.

Key benefits

# Defensor Mk5

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Patented scale management

Separated minerals fall automatically into the tank. Two bayonet connectors on the tank facilitate removal and emptying. This reduces the maintenance interval to a minimum and guarantees longer operation cycles.

Defensor Mk5

**Defensor**



**Steam cylinder with level monitoring**

The steam cylinder is a stainless steel design, easy to clean and practically indestructible. Mk5 users can take operational reliability for granted, thanks to the combination of the resistance principle, electronic water level monitoring and the cylinder. Normal drinking- and DI water can be processed.



**Descaling pump**

The descaling pump is located directly above the collector tank. It de-scales clear water, with the deposits remaining in the collector tank. This means that the pump and waste water lines are kept free, a feature that makes the Defensor Mk5 one of the most popular steam humidifiers.



**Electronic control**

The Mk5 can be controlled at the touch of a button: simply select a steam output between 0 and 100% to suit your application. The innovative control enables the achievement of a high degree of precision and ensures that ambient conditions remain constant – the best basis for high productivity and wellbeing in your company.



The perfect supplementary additions

Two variants, two models:  
The choice is yours...

**OptiSorp:** the steam distribution system for short humidifying distances. A non-corrosive, turnkey unit ideal for uniform, precise steam distribution. OptiSorp can handle humidifying distances up to four times shorter than normal steam distributor pipes.

**Defensor FAN:** the blower unit for direct humidifying of room air.

**Sensor/Controller range:** optimise your humidifying system with a range of individually-suitable sensors and controllers. For ON/OFF operation or continuous control.

**e-LINKS:** Building management integration with LON or BACnet.

The **Mk5 Visual** is the all-rounder for application areas with a control accuracy of up to  $\pm 2\%$  for 0 to 100% steam output.

The **Mk5 Process** can be controlled with up to  $\pm 1\%$  accuracy, making it ideal for applications in laboratories and clean rooms.

# DEFENSOR Mk5

## Characteristics

|  | Standard | Optional |
|--|----------|----------|
| Display  | ●        |          |
| Keep warm feature                                      | ●        |          |
| Internal PI humidity controller                        | ●        |          |
| Self-diagnosis system                                  | ●        |          |
| Maintenance counter                                    | ●        |          |
| Precision 5-stage water level control                  | ●        |          |
| Variable steam production 0...100%                     | ●        |          |
| Pressure compensation set up to 10'000 Pa              |          | ●        |
| Remote indication board                                |          | ●        |
| RS 485 interface with Modbus protocol                  |          | ●        |
| e-LINKS Building Management System, BACnet or LonWorks |          | ●        |

## Technical Data

| Model                                   |      | 5   | 8   | 10   | 16   | 20               | 24   | 30   | 40   | 50   | 60   | 80   |
|---|------|---|-----|------|------|------------------|------|------|------|------|------|------|
| 400VAC/3, 50..60Hz                      | kg/h | 5.0   | 8.0 | 10.0 | 16.0 | 20.0             | 24.0 | 30.0 | 40.0 | 50.0 | 60.0 | 80.0 |
|   | kW   | 3.8   | 6.0 | 7.5  | 12.0 | 14.9             | 18.1 | 22.3 | 30.0 | 37.2 | 44.6 | 60.0 |
| 415VAC/3, 50..60Hz                      | kg/h | 5.1   | 8.4 | 10.3 | 16.7 | 20.6             | 25.1 | 30.6 | 41.5 | 51.2 | 61.2 | 83.0 |
|   | kW   | 4.0   | 6.5 | 8.0  | 13.0 | 16.0             | 19.5 | 24.0 | 32.3 | 40.0 | 48.0 | 64.6 |
| 220VAC/3, 50..60Hz                      | kg/h | 4.6   | 7.3 | 9.0  | 14.6 | 18.0             | 21.9 | 27.0 | 36.2 | 45.0 | 54.0 | 72.4 |
|   | kW   | 3.4   | 5.5 | 6.7  | 10.9 | 13.5             | 16.4 | 20.2 | 27.2 | 33.7 | 40.4 | 54.4 |
| 200VAC/3, 50..60Hz                      | kg/h | 3.9   | 5.8 | 7.1  | 11.6 | 14.3             | 17.4 | 21.5 | 28.8 | 35.8 | 43.0 | 57.6 |
|   | kW   | 3.0   | 4.5 | 5.5  | 9.0  | 11.1             | 13.5 | 16.7 | 22.4 | 27.8 | 33.4 | 44.8 |
| 240VAC/1, 50..60Hz                      | kg/h | 5.1   | 8.7 | 10.3 |      |                  |      |      |      |      |      |      |
|   | kW   | 4.0   | 6.5 | 8.0  |      |                  |      |      |      |      |      |      |
| 230VAC/1, 50..60Hz                      | kg/h | 5.1   | 8.0 | 10.0 |      |                  |      |      |      |      |      |      |
|   | kW   | 4.0   | 6.0 | 7.4  |      |                  |      |      |      |      |      |      |
| Operating weight empty (per unit)       |      | 36  | 36  | 37   | 38   | 41               | 43   | 43   | 44   | 84   | 86   | 88   |
| Operating weight filled (per unit)      |      | 51  | 51  | 52   | 53   | 71               | 73   | 73   | 74   | 144  | 146  | 148  |
| Number of units                         |      | 1   | 1   | 1    | 1    | 1                | 1    | 1    | 1    | 2    | 2    | 2    |
| Dimensions (W x H x D) in mm (per unit) |      | 500 x 1087 x 437  |     |      |      | 594 x 1087 x 392 |      |      |      |      |      |      |
| Control voltage                         |      | 230VAC/1, 50..60Hz  |     |      |      |                  |      |      |      |      |      |      |
| Control signal                          |      | on/off, 0..1VDC, 0..5VDC, 0..10VDC, 1..5VDC, 2..10VDC, 0..20VDC, 0..20mA, 4..20mA, 140Ohm..10kOhm |     |      |      |                  |      |      |      |      |      |      |
| Admissible duct air pressure            | Pa   | -1000 ... 1500  |     |      |      |                  |      |      |      |      |      |      |
| Water quality                           |      | untreated drinking water, softened or fully demineralized water                                   |     |      |      |                  |      |      |      |      |      |      |
| Protection                              |      | IP 21   |     |      |      |                  |      |      |      |      |      |      |
| Conformity                              |      | SEV,VDE   |     |      |      |                  |      |      |      |      |      |      |

Solutions for Indoor Climate

HEATING  
VENTILATION  
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HUMIDIFICATION  
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