

SIBE SWED-FOG® type LFU-RCQ5310 proportional control unit

A proportional control unit is available for very accurate humidity control, such as for in-duct humidification or for other sensitive environments. This unit, together with a humidity sensor, can provide humidity control accuracy down to $\pm 1\%$. Ready-made connection to a maximum sensor is provided in the control unit. As standard, the proportional control unit includes provision for communication with the monitoring system for the building via an interface connection. The LFU-RCQ5310 proportional control unit can handle all common control signals. A dehumidification output is also available for controlling climate rooms, etc., and this control is also proportional to the requirements.

The proportional control unit is available in two versions, i.e. as an integrated unit in which both the control unit and the proportional unit are incorporated into the same casing, and as a separate proportional control unit for supplementing an earlier on/off system in which the control unit is already included.



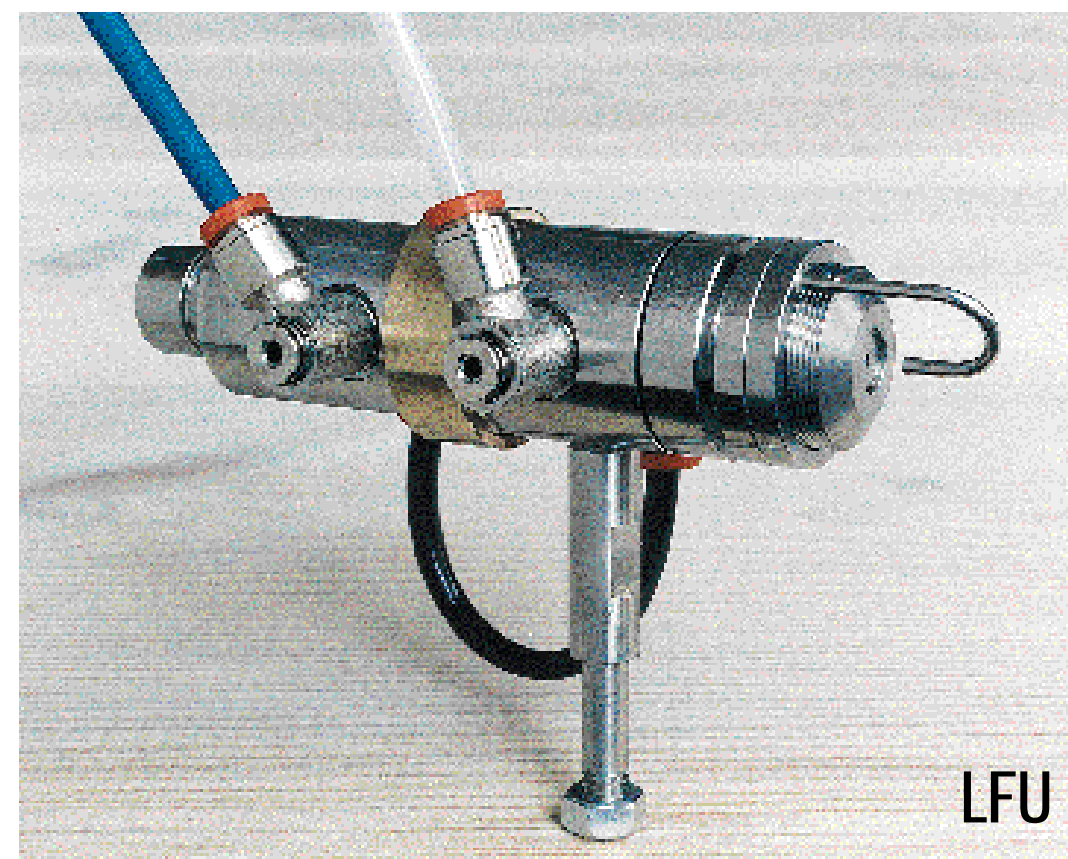
LFU-R control unit



LFU-RCQ5310
proportional control unit

COMMON SENSE WITH SIBE AIR

SIBE SWED-FOG® Nozzle system



Benefits

- Swedish quality product
- Stainless steel nozzles
- Very fine aerosol mist
- Short delivery times
- Low energy consumption
- No bacterial growth
- Minimal maintenance needs
- High flexibility
- Allows for very high air humidification rates
- Cost effective
- Two-year manufacturer's guarantee

Applications

- Process and materials humidification
- Binding of dust
- Humidification in electrostatic painting
- Paint booths
- Refrigerated rooms, and cheese, fruit and vegetable stores
- Plastics industry
- Greenhouses and refrigerated rooms
- Elimination of static electrical charges
- Evaporative cooling of warm premises
- In-duct humidification

Manufacturer:

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Distributor:

The SIBE SWED-FOG® type LFU nozzle humidification system is an ultrasonic system that delivers a very fine aerosol mist and is mainly used in humidification and evaporative cooling in duct systems, or is incorporated directly into an air handling unit, since the very fine aerosol mist leads to an absorption distance which is very short compared to other spray humidification system.

The SIBE SWED-FOG® LFU system is also very well suited for direct product humidification in applications such as paper webs, products on conveyor belts for electrostatic painting, for dust suppression in rolling mills, and in refrigerated rooms/greenhouses in which a high and uniform relative humidity is important.

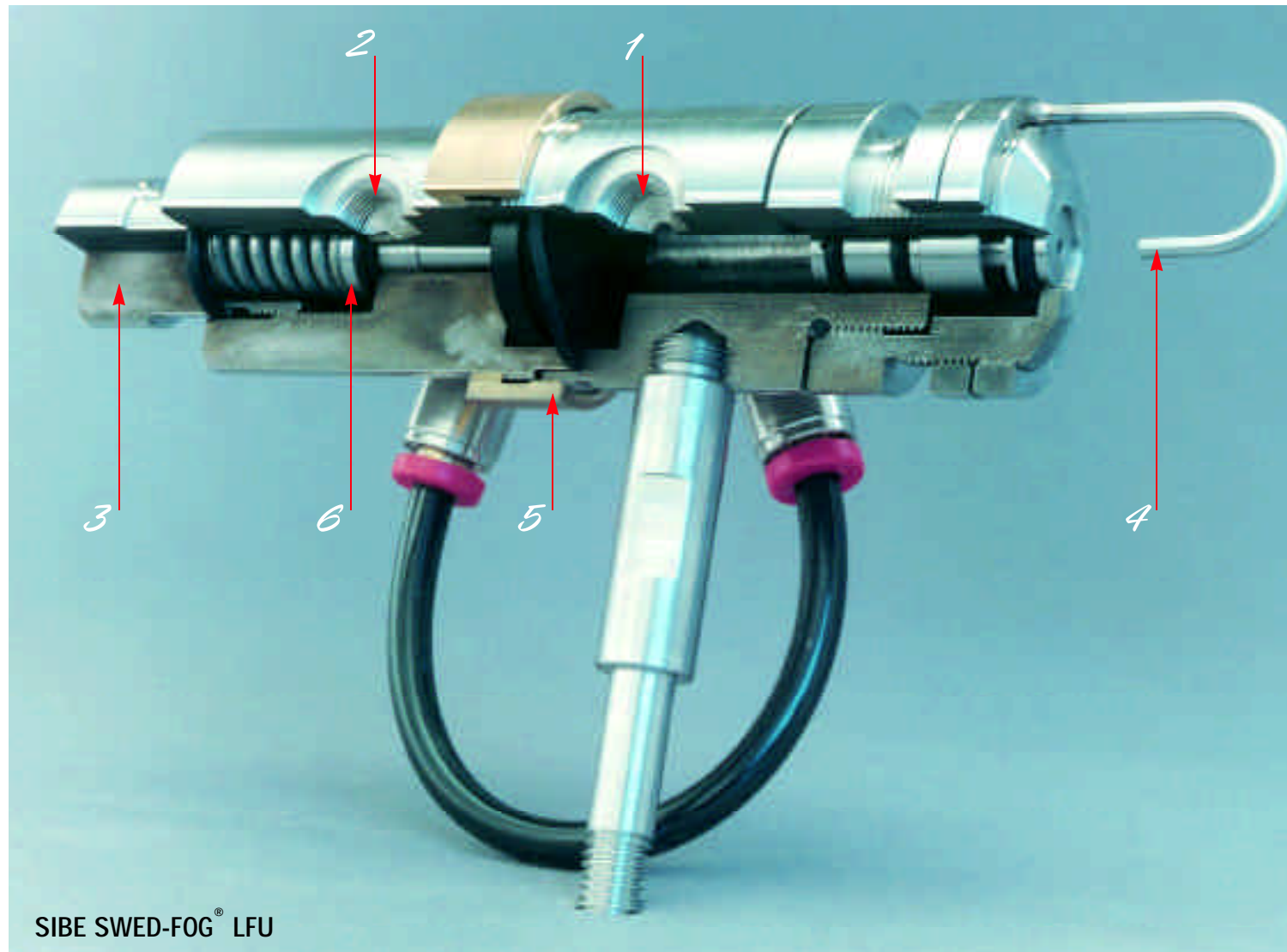
The SIBE SWED-FOG® type LFU system is also very well suited for use in industrial operations in which static electrical charges are inadmissible. The problem of static electrical charges is dramatically reduced if the ambient relative humidity is higher than 45%.

The SIBE SWED-FOG® type LFU nozzle humidification system consists of the LFU-R control unit which, together with a pilot-controlled valve arrangement (C), controls 1 - 10 type LFU nozzles. If additional nozzles are needed, the number of valves is increased. Single-stage or two-stage hygrostats are provided for controlling and monitoring the relative humidity. These are available in electronic or digital versions. If very accurate control is essential, a microprocessor-based proportional control system is available as an option. This is equipped as standard with interface connections for control via the central monitoring system for the building.

Operation

Compressed air is connected by plastic hose to the nipple (1). The water supply is connected to the nipple (2). Both nipples are of push-in type. The water pressure must be at least 3.5 bar. If the water pressure is lower, the system must be supplemented with a booster pump. The compressed air supply pressure must be at least 7 bar.

The required compressed air pressure can be set by means of the reducing valve on the LFU-R control unit (A) and can be read on the pressure gauge (B). The control unit incorporates a reducing valve with pressure



SIBE SWED-FOG® LFU

gauge which can be used for setting the water pressure to any value between 1.5 and 3.5 bar. The adjusting screw (3) at the rear of the nozzle is used for adjusting the opening pressure. Turn the screw clockwise to increase the opening pressure and anti-clockwise to decrease the pressure. Adjust the discharge jet pattern by adjusting the resonator cup (4). Turn clockwise for a shorter and wider jet, and anti-clockwise for a longer and narrower jet. The throw is between 0.5 and 3.5 metres.

By exerting pressure on a diaphragm (5) built into the nozzle unit, the compressed air opens the spring-loaded valve seat (6), which admits water. The water flows in a separate passage through the nozzle body to the nozzle cap in which the compressed air discharges the water. This already finely dispersed aerosol mist impinges on the resonator tip at high velocity, which creates a force field of ultrasound. The ultrasound field atomizes the aerosol mist further, which results in a droplet size of approximately 1µm. The built-in diaphragm and the spring-loaded valve seat supply the correct water quantity through the nozzle pressure range on the air side. From the preset opening pressure, the nozzle capacity is controlled within a pressure differential of around 1.5 bar on the air side.

The compressed air must be of breathing quality, and free from condensate and oil. A particulate air filter (D) and a particulate water filter (E) are provided as an extra precaution. Particle filtration should be of at least 5µm quality.

Materials

The SIBE SWED-FOG® type LFU humidification nozzle is made entirely of stainless steel, which makes it insensitive to the quality of the water. All connections are made of plastic material which has the same chemical resistance as stainless steel against aggressive water, for instance. The nozzle is turned in state-of-the-art CNC machine tools. All of the equipment is individually tested at the factory and is ready for installation.

Technical specification:

Capacity per nozzle:	1.0 - 12 kg/h
Air consumption:	50 - 125 l/min
Droplet size:	approx. 1µm
Sound level:	45 - 65 dB(A)
Electrical connection:	230 V/10 A

