PROFILTR

INDUSTRIAL AIR HANDLING

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Introduction

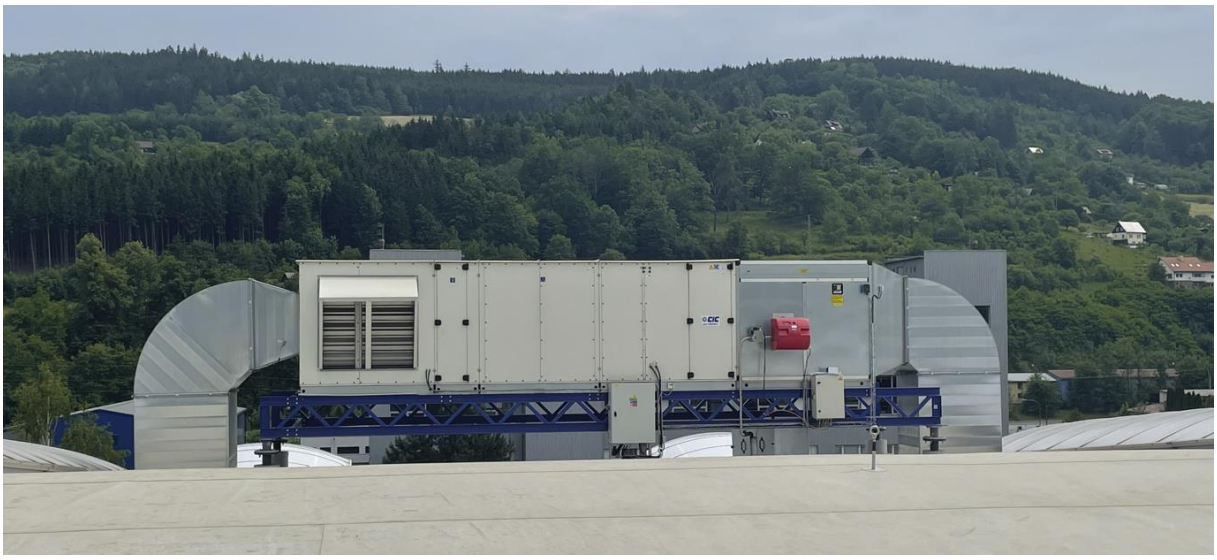
Industrial air handling units play a key role in modern industrial environments. They ensure the supply of fresh air to workplaces, provide ventilation, and replace the air extracted from technological sources of pollution, thereby maintaining a balanced air exchange. These units also allow for heating — either gas or electric — and, thanks to heat recovery blocks, contribute significantly to energy savings.

In addition, they can provide air cooling, dehumidification, or, conversely, increase and maintain the desired humidity levels.
Our company specializes in the development, manufacturing, and installation of such systems, with a strong focus on the specific needs of various industrial sectors, including heavy industry such as foundries and steelworks.

The offered technical solutions are the result of many years of experience and continuous innovative development. Our portfolio includes a wide range of applications — from systems for heavy industry to solutions for warehouses or commercial premises.

The equipment is typically delivered including control systems that can be fully customized to meet the specific requirements of the customer. Remote access is standard, allowing full control via PC or mobile devices, including operational monitoring and energy consumption tracking.

For residential buildings, we design units in compliance with the requirements of the so-called Ecodesign directive.



Unit Configuration

Air handling units can be installed in both outdoor and indoor environments.

Supply Units

Air handling units are used to supply fresh air into production halls as a replacement for the air that is extracted from technological sources of pollution. In cases where the extracted air cannot be returned to the workplace — even after filtration — due to hygiene requirements, it is replaced with fresh supply air. In most cases, these units are equipped only with a supply fan.

Exhaust and Supply Units

They extract air from the halls and replace it with fresh air – hall ventilation. The units are equipped with both a supply and exhaust fan.

Configuration Options

Both variants, both supply units and units designed for ventilation, can be configured as follows:

- Air filtration, using filter stages from G3 to H12
- Heat recovery, transferring heat or cold from the exhaust air to the incoming air
- Air heating, gas or electric
- Air cooling
- Humidity control

Operating Modes

- Supply of air and its treatment.
- Circulation of air and its treatment.
- Ventilation, exhaust and supply of air, including treatment.

Unit Performance

Units can be designed from the lowest capacities, almost from 1,000 m^3/h to 100,000 m^3/h. For higher performance parameters, the units can be assembled modularly or the hall spaces can be efficiently divided into individual sections.

Air Ducting

Air ducting is designed with consideration for the layout of production halls, the arrangement of workstations, machines, and equipment. In these cases, emphasis is placed on the even distribution of air across the entire cross-section of the production halls — either through a central solution or a local solution, focused on specific areas such as those with higher worker occupancy. In any case, the air supplied to the workplace is always designed to meet all hygienic standards.

The air ducting is equipped with distribution elements that allow for full regulation. The ducts are manufactured in round or rectangular shapes, class I, from galvanized sheet metal, with thicknesses ranging from 0.66 mm to 1.2 mm. Ducting in outdoor areas is thermally insulated, and it is also possible to thermally insulate internal duct networks upon request.

Power Switchboards and Control Systems

Power switchboards are equipped with frequency converters for controlling the fan performance.

The control system allows for:

- Weekly and yearly operation scheduling of the unit. It is possible to program holidays, public holidays, downtimes, etc. Programs can be periodically repeated or transferred to the next period.
- Different operating modes can be selected in the programs, with varying performance, temperature, and other requirements.

- The following values are monitored:
  - Temperature of exhaust/supply air (in the air ducts at the inlets and outlets)
  - Heat recovery efficiency, measuring temperature in both directions before and after the heat exchanger
  - Temperature measurement at workstations
  - Outdoor temperature measurement
  - Humidity measurement
  - Performance parameters, volume of exhaust/supply air
  - Monitoring of energy consumption
  - Monitoring of filter pressure losses
  - Operating hours
  - Service intervals and others

Application Examples:

Industry air handling unit with a capacity of 5 000 m³/h, gas burner.

Industry air handling unit with a capacity of 10 000 m³/h, gas burner.

Industry air handling unit with a capacity of 15 000 m³/h, gas burner.

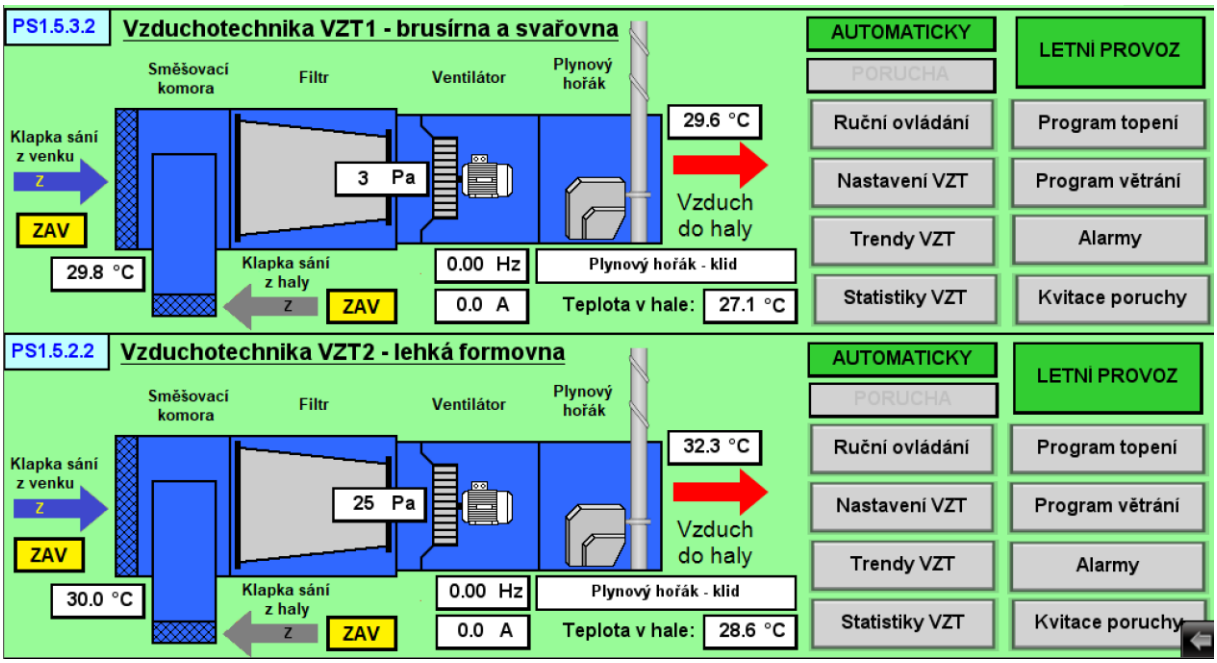
Industry air handling unit with a capacity of 30 000 m³/h, gas burner.

Industry air handling unit with a capacity of 40 000 m³/h, gas burner.

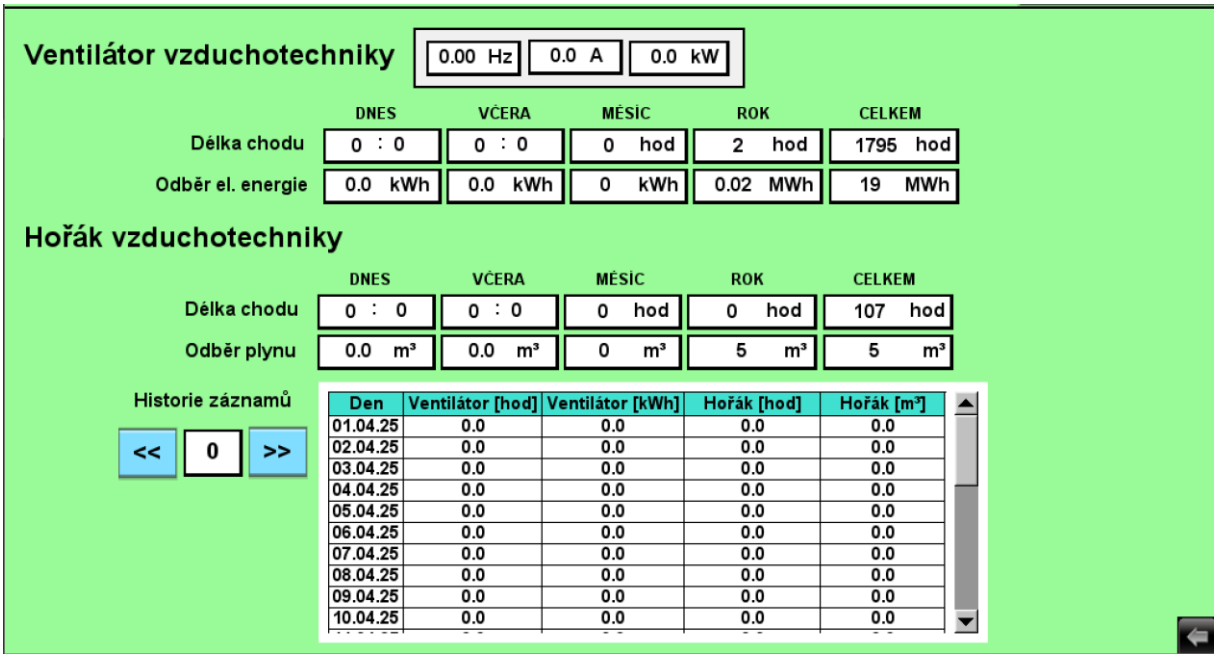
Industry air handling unit unit with a capacity of 24 000 m³/h, electric heating.

In the cooler, compressor.

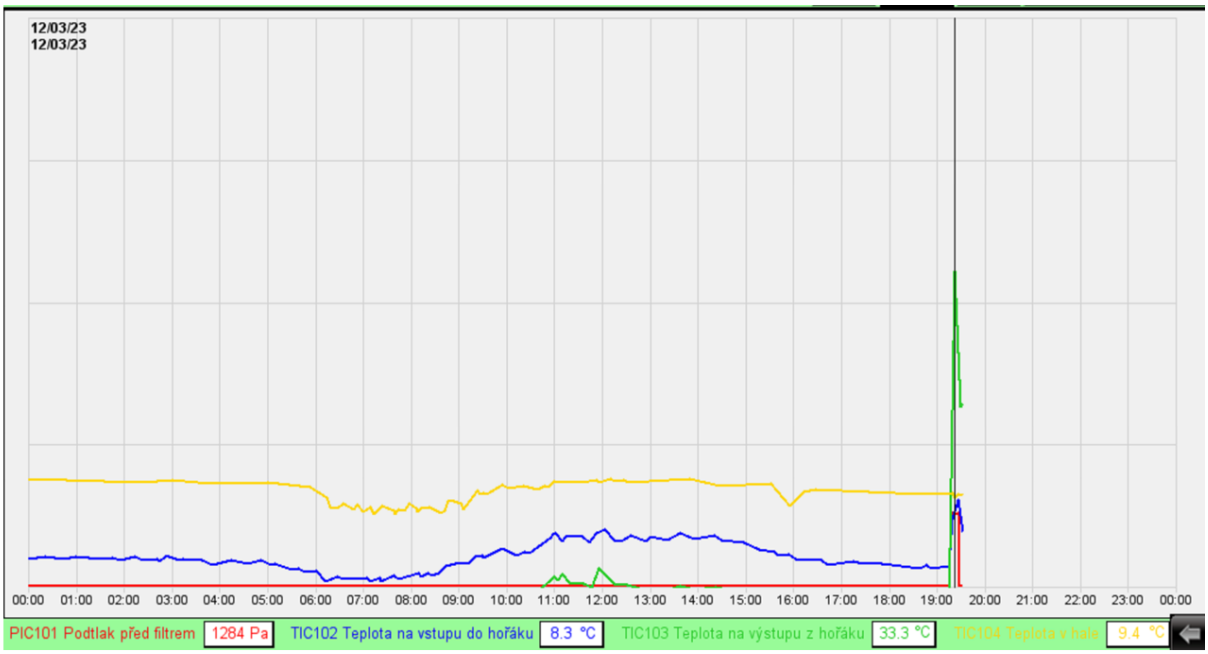
Control System



Statistical Data



Trends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PIC101 Podtlak před filtrem 1284 Pa
TIC102 Teplota na vstupu do hořáku 8.3 °C
TIC103 Teplota na výstupu z hořáku 33.3 °C
TIC104 Teplota v hale 9.4 °C