

Benefits

The smoke-extraction motors operate as so-called "Dual-function motors":

- Normal operation (no instance of fire): Incoming/outgoing air flow
- Fault operation (in case of fire):
 - Removal of smoke from escape and access routes
 - Supporting fire fighting by creating a smoke-free zone
 - Protecting devices and equipment
 - Reducing the heat stress of components during a fire
 - Reducing secondary damage due to thermal byproducts and hot gases.

Admissible normal operating temperature:

-20 °C ... 40 °C as standard

The smoke-extraction motors offer the user a number of advantages:

- The assignment of standard outputs is unchanged – this means that a larger construction size is not required for smoke-extraction motors
- IE2 and IE3 efficiency grades comply with the European EUP Directive
- Smoke-extraction motors are generally equipped with located bearings at the drive-end (DE) of the motor
- A fire event plate is screwed onto the motor
- Freely protruding cables are included in the scope of supply
- Radial-flow and axial-flow fan drive are possible
 - Self-ventilated 1PC1300 and 1PC1301 series motors with a metal fan impeller can be used as radial-flow fan drives
 - Forced-air cooled 1PC1300 and 1PC1301 series motors can be implemented as axial flow fan drives (in each case Article No. with **-Z** and order code **F90**) taking into account the required volumetric flow for motor cooling. In this case the driven fan performs the ventilation.

Application

The smoke-extraction motors are designed for use in automatic smoke and heat extraction units to EN 12101-3. Typical application examples include:

- Tunnels
- Single and multi-storey shopping centers
- Industrial buildings and warehouses
- Building complexes and atriums
- Theaters
- Indoor car parks
- Staircases

Technical specifications

Standards and regulations

In addition to the relevant standards and regulations, EN 12101-3 applies for non-portable fire-fighting systems:

Systems for controlling smoke and heat flows, part 3, specifications for smoke and heat extraction units.

Voltage and frequency

Rated voltages according to IEC 60038

- 230 VΔ 50 Hz
- 400 VΔ 50 Hz and 400 VY 50 Hz
- 500 VΔ 50 Hz and 500 VY 50 Hz
- 690 VY 50 Hz

Non-standard voltages (voltage codes **9** in position 12 of Article No., **0** in position 13 of Article No. and order code **M1Y**) as well as 60 Hz on request for 4 to 6-pole machines. Converter operation is permissible up to a line voltage of $U_{\text{rated}} \leq 460 \text{ V}$ (see section "Insulation system").

Measures must be implemented in the plant by the system supplier for switchover to line operation in the event of a fire.

Reduction factor k_{HT} for different installation altitudes and/or coolant temperatures

Reduction factor k_{HT}		Ambient temperature in °C					
Installation altitude above sea level	m						
		< 30 °C	30 ... 40 °C	45 °C	50 °C	55 °C	60 °C
1000		1.07	1.00	0.96	0.92	0.87	0.82
1500		1.04	0.97	0.93	0.89	0.84	0.79
2000		1.00	0.94	0.9	0.86	0.82	0.77
2500		0.96	0.90	0.86	0.83	0.78	0.74
3000		0.92	0.86	0.82	0.79	0.75	0.70
3500		0.88	0.82	0.79	0.75	0.71	0.67
4000		0.82	0.77	0.74	0.71	0.67	0.63

Coolant temperature and installation altitude are rounded to 5 °C and 500 m respectively

The following rating plates are available for the smoke-extraction motors:

- Rating plate
For the listed rated voltages with 50 Hz output data including information on bearing types and optional regreasing data
- Fire event plate
Complete with number and year of issue of the European standard, temperature/time class and minimum duration of function.

All plates are resistant to corrosion. A second set of plates is included with the motor, loose.

Rated output, duty type, number of poles

The rated output applies for continuous duty (normal duty) according to IEC 60034-1, for a frequency of 50 Hz, ambient temperatures up to 40 °C and installation altitudes up to 1000 m above sea level.

Derating is necessary at higher ambient temperatures and installation altitudes (reduction factor k_{HT}), see table below.