**Intended use**

The SCF type jet fans are intended to create a reliable and effective ventilation systems of large volume premises, while ensuring a high level of safety and smoke and hot gases removal in case of fire. The systems using jet fans are most often installed in tunnels, indoor car parks and garages. These systems have two functions:

**Ventilation function**

This function is carried out during normal operation of the system. The purpose of the system is to remove the harmful contaminants (such as aldehydes, oxides, etc.) which can occur in a garage. Appropriate location of the jet fans ensures air flow throughout the whole space, which eliminates the forming of so called „blind spots”, which could accumulate contamination.

**Smoke control function**

This function is carried out during the fire. In this situation, the purpose of the jet fans is to pump smoke and heat to the exhaust points, which allow their rapid removal from the protected space. The jet fan ventilation system while operating, restrains spreading of smoke and provides an access way for a fire brigade. After putting out the fire, the installation provides rapid purification of the space from smoke and fire gases. An additional advantage of this solution is reducing the temperature of smoke, which results in protecting the construction against the effects of excessive heat.

The best operational results of the SCF jet fans are achieved by automated systems, in which ventilation performance is adjusted on the basis of the instantaneous level of pollutants. Appropriately selected automation also allows to control the jet fans after occurrence of the fire alarm. The systems configured in this way allow to optimize energy consumption and reduce operating costs.

The correct operation of the jet fan ventilation system should be verified at the stage of design using CFD simulations.

**Advantages**

SCF type jet fans are basic component of the ductless ventilation systems. Use of them allows to achieve effective ventilation and high effectiveness of smoke exhaust. Depending on the degree of sophistication of automation a number of significant advantages in comparison to conventional duct ventilation i.e.:

- effective ventilation (air exchange not only within the ventilation grilles but in the whole volume of the space),
- short response time to the fire alarm signal,
- high effectiveness of smoke exhaust in the whole volume of the space, achieved in a short time,
- easy installation,
- easy adjustment of the system,
- shortening the time of design and installation of the system,
- lowering the costs of system implementation (no ductwork and components of its equipment),
- lowering the operating costs (lowering the fans power consumption, adjusting the number of cycles to the actual demand),
- increasing the volume of the duct-free space (obtaining the free space under the ceiling, which is usually used to conduct the ductwork - the possibility of reducing the space height)
- improving the appearance of the space.

**Fulfils the requirements of the standards**


**Performance parameters tested in accordance with the standard:**

PN-EN ISO 13350 Industrial fans – Performance testing of jet fans

**Technical description**

The SCF type jet fans are manufactured only in reversible variant in three sizes: 315, 355, 400. All fans are bifunctional (intended to operate as day-to-day function as well as smoke control function).

The fans are certified in accordance with PN-EN 12101-3: 2010 standard. On this basis it can be distinguished:

- fan intended for ventilating and smoke control. This fan has temperature class $F_{300\text{°C}, 60\text{ min}}$, which means it is capable to work at the temperature of 300°C for 60 minutes. Additionally the fan was successfully tested to work at the temperature of 300°C for 120 minutes.
- fan intended for ventilating and smoke control. This fan has temperature class $F_{400\text{°C}, 120\text{ min}}$, which means it is capable to work at the temperature of 400°C for 120 minutes.
SMOKE AND FIRE ZONE

Fulfils the requirements of the standards: PN-EN 12101-3:2004

Construction of the device

The casing of SCF type jet fan is made of galvanized steel, with two mounting brackets screwed to it. The impeller is welded from alloy steel. Installation box is mounted on the fan casing. Two-speed, three-phase 400V/50Hz motor, with protection class IP55 and insulation class H, is applied in the fan.

In the standard application, the 800 mm long, T type silencers are installed at the inlet and outlet of all SCF type jet fans. The casing of the silencers has elliptical shape in order to minimize the distance between the fan and the ceiling.

Normally, there are S type safety nets mounted at the ends of the silencers. The D type deflectors can be provided as the additional equipment. Deflector is used to direct the air jet in order to avoid the obstacles e.g. ceiling joists. Additionally deflectors can be used to prevent the Coandă effect (the tendency of a air jet to be attracted to a nearby surface) by appropriate directing the air jet.

Technical data

<table>
<thead>
<tr>
<th>Fan type</th>
<th>SCF 300</th>
<th>SCF 400</th>
</tr>
</thead>
<tbody>
<tr>
<td>diameter [mm]</td>
<td>315</td>
<td>355</td>
</tr>
<tr>
<td>thrust [t²]</td>
<td>5/21</td>
<td>10/38</td>
</tr>
<tr>
<td>performance [m³/h]</td>
<td>2140/4240</td>
<td>3200/6300</td>
</tr>
<tr>
<td>motor power [kW]</td>
<td>0,25/1,1</td>
<td>0,37/1,5</td>
</tr>
<tr>
<td>nom. current [A]</td>
<td>1,19/3,45</td>
<td>1,54/4,63</td>
</tr>
<tr>
<td>velocity [m/s]</td>
<td>1390/2810</td>
<td>1420/2845</td>
</tr>
</tbody>
</table>
SCF – jet fan

While ordering please provide information according to the following method:

SCF<T> - <D> - <M> - <P> <RAL>

Where:

T temperature resistance:
- 300 - temperature class F30060 and non classified 300°/120 min
- 400 - temperature class F400120

D nominal diameter, mm

M ending elements
- SS - jet fan with two safety nets on the silencers
- DD - jet fan with two deflectors on the silencers
- SD - jet fan with safety net and one deflector on the silencers

P finishing:
- SO - galvanized steel
- SL - painted steel

RAL according to the RAL color standard (for SL finishing)

Order example: SCF300 - 355 - DD – SL9010