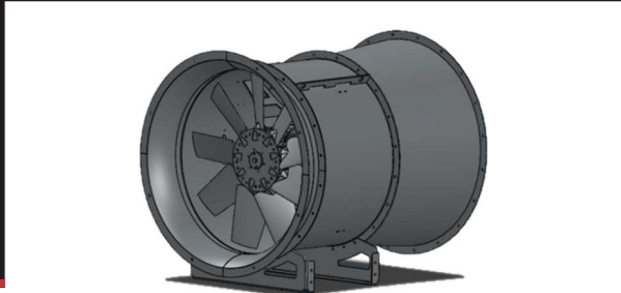


# SEF(R)

## AXIAL SMOKE EXHAUST FAN CLASS F400



### Description:

Temperature class F400 axial smoke exhaust reversible fan for smoke and heat extraction, smoke exhaust compensation and domestic ventilation systems.

### Intended Use

SEF(R) smoke exhaust fans are intended for creating reliable and efficient ventilation systems for large-volume rooms, at the same time thereby ensuring a high level of safety, as well as the extraction of smoke and hot gases in the event of a fire. They greatly facilitate the evacuation from the zones engulfed in fire as well as firefighting action. Additionally, they secure buildings and equipment against high temperatures and prevent the spread of fire to other rooms that have not yet had in fire them.

Systems using smoke exhaust fans are mostly installed in closed car parks and garages, as well as in buildings where a smoke extraction system has been provided. They have three functions:

- **Smoke and heat extraction** – this is accomplished during a fire. In this case, the smoke exhaust fans should remove smoke and heat from the protected space. The operation of smoke exhaust fans limits the spread of smoke, thus ensuring an access path for firefighters.
- **Compensation** – this is accomplished during a fire. In this case, the fans work in the reverse direction, pumping the air into the zone occupied by people in order to purge and displace smoke to the so-called collection points.
- **Domestic ventilation (optional)** – this is accomplished during the normal operation of the system in continuous mode and it ensures the removal of pollutants. The domestic function is mostly accomplished at considerably lower efficiency. Therefore, the fans are adjusted for operation with an inverter and they are normally equipped with PTC sensors.

### Classification

SEF(R) fan fire resistance class:

**F400** – fire resistance rating up to 400 °C for 120 minutes

The fan meets the requirements of:

- **PN-EN 12101-3:2015** Smoke and Heat Control Systems. Part 3: Specification for powered smoke and heat control ventilators (fans).

Performance characteristics have been tested in accordance with:

- **PN-EN ISO 5801-2017** Fans. Performance testing using standardised airways.
- **PN-EN ISO 13350:2015** Fans. Performance testing of jet fans.

### Dimensions

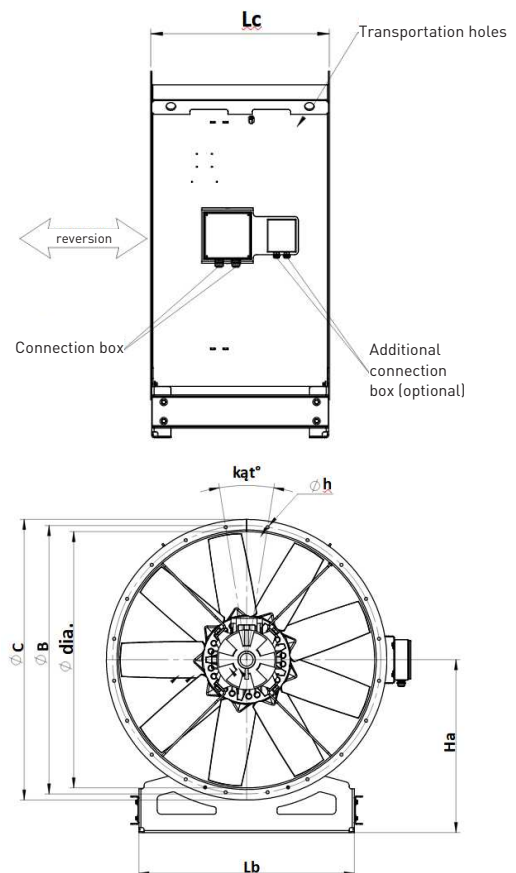


Figure 1. SEF(R) fan dimensions

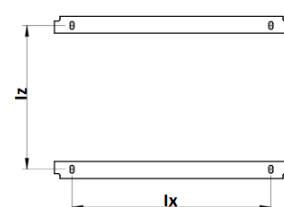


Figure 2. SEF(R) fan mounting feet dimensions



Reversibility, i.e. efficiency for the second direction of rotation of SEF(R) fans is 100%.

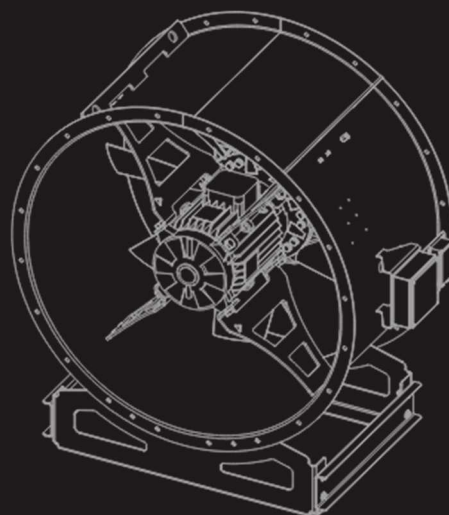


Table 1. SEF(R) fan illustrative dimensions

Model	DN [mm]	øB [mm]	øC [mm]	Øh [mm]	α [°]	Lc [mm]	Ha [mm]	Lb [mm]	lx [mm]	lz [mm]	m [kg]
SEF(R) 63 – 11 kW	630	690	730	12	30	700	425	530	450	639	184
SEF(R) 63 – 15 kW	630	690	730	12	30	700	425	530	450	639	196
SEF(R) 63 – 18.5 kW	630	690	730	12	30	700	425	530	450	639	214
SEF(R) 71 – 11 kW	710	770	810	12	22.5	700	475	630	530	612	216
SEF(R) 71 – 15 kW	710	770	810	12	22.5	700	475	630	530	612	228
SEF(R) 71 – 18.5 kW	710	770	810	12	22.5	700	475	630	530	612	246
SEF(R) 71 – 22 kW	710	770	810	12	22.5	700	475	630	530	612	255
SEF(R) 71 – 27 kW	710	770	810	12	22.5	700	475	630	530	612	255
SEF(R) 71 – 30 kW	710	770	810	12	22.5	800	475	630	530	710	400
SEF(R) 100 – 11 kW	1000	1070	1120	15	22.5	750	670	900	750	672	278
SEF(R) 100 – 15 kW	1000	1070	1120	15	22.5	750	670	900	750	672	296
SEF(R) 100 – 18.5 kW	1000	1070	1120	15	22.5	750	670	900	750	672	310
SEF(R) 100 – 22 kW	1000	1070	1120	15	22.5	750	670	900	750	672	361
SEF(R) 100 – 27 kW	1000	1070	1120	15	22.5	750	670	900	750	672	361
SEF(R) 100 – 30 kW	1000	1070	1120	15	22.5	850	670	900	750	770	483
SEF(R) 100 – 37 kW	1000	1070	1120	15	22.5	850	670	900	750	770	514
SEF(R) 112 – 11 kW	1120	1190	1240	15	18	750	750	950	800	670	323
SEF(R) 112 – 15 kW	1120	1190	1240	15	18	750	750	950	800	670	341
SEF(R) 112 – 18.5 kW	1120	1190	1240	15	18	750	750	950	800	670	356
SEF(R) 112 – 22 kW	1120	1190	1240	15	18	750	750	950	800	670	406
SEF(R) 112 – 27 kW	1120	1190	1240	15	18	750	750	950	800	670	406
SEF(R) 112 – 30 kW	1120	1190	1240	15	18	850	750	950	800	768	542
SEF(R) 112 – 37 kW	1120	1190	1240	15	18	850	750	950	800	768	573
SEF(R) 112 – 45 kW	1120	1190	1240	15	18	950	750	950	800	866	729
SEF(R) 125 – 18.5 kW	1250	1320	1370	15	18	750	850	1060	900	652	396
SEF(R) 125 – 22 kW	1250	1320	1370	15	18	750	850	1060	900	652	447
SEF(R) 125 – 27 kW	1250	1320	1370	15	18	750	850	1060	900	652	447
SEF(R) 125 – 30 kW	1250	1320	1370	15	18	900	850	1060	900	800	589
SEF(R) 125 – 37 kW	1250	1320	1370	15	18	900	850	1060	900	802	584
SEF(R) 125 – 45 kW	1250	1320	1370	15	18	1000	850	1060	900	900	756
SEF(R) 125 – 55 kW	1250	1320	1370	15	18	1000	850	1060	900	898	803
SEF(R) 140 – 27 kW	1400	1470	1520	15	18	900	950	1180	1000	806	788
SEF(R) 140 – 30 kW	1400	1470	1520	15	18	1000	950	1180	1000	906	817
SEF(R) 140 – 37 kW	1400	1470	1520	15	18	1000	950	1180	1000	906	831
SEF(R) 140 – 45 kW	1400	1470	1520	15	18	1000	950	1180	1000	904	936
SEF(R) 140 – 55 kW	1400	1470	1520	15	18	1000	950	1180	1000	904	1016

## Description

SEF(R) smoke exhaust fans are manufactured in the 100% reversible version only – with a diameter range  $d = 630 \text{ mm} - 1400 \text{ mm}$ . They can act as dual-function devices (intended both for domestic and firefighting applications). The fan is designed and adjusted for continuous operation under conditions at the place of installation and is characterised by a high resistance to mechanical, corrosive, thermal and humidity impacts to which it will be exposed to during operation. SEF(R) is certified for use during fires at a maximum temperature of  $400 \text{ }^\circ\text{C}$  for 2 hours. All materials, parts and associated components are consistent with CEI standards. SEF(R) fans are intended both for duct ventilation systems and jet ventilation systems in road tunnels.

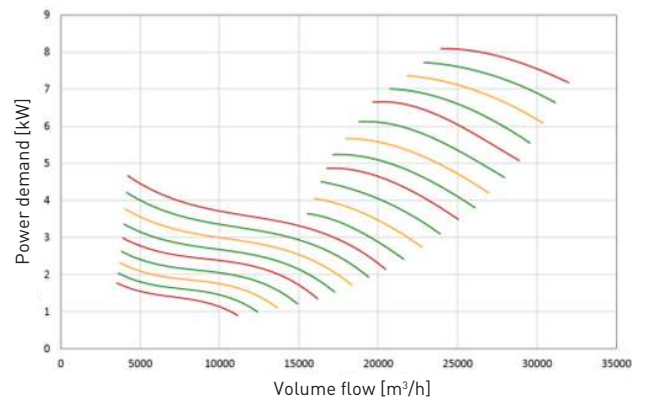
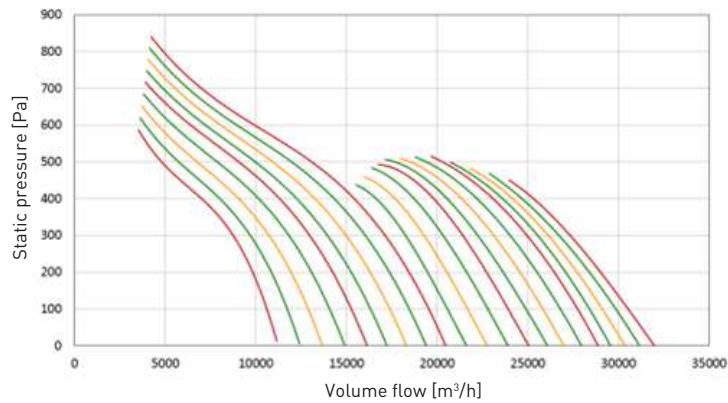
## Design

SEF(R) fans have housings made of galvanised steel with two screwed mounting feet. The housing is designed in such a way as to ensure the high rigidity of the system. The rotor crown is made of stainless steel and the blades are made of high-strength aluminium alloy. The angles of the blades can be altered when the fan is off with the consent of the manufacturer. The blades are checked for material defects to guarantee the reliability of operation. A connection box is mounted to the fan housing, which enables fast and problem-free on-site installation. Heavy-duty three-phase  $400 \text{ V} / 50 \text{ Hz}$  motors made by Nidec, painted in accordance with C4 corrosion class, are used for the fans. The motors are made in accordance with IP55 ingress protection rating, hold H insulation class and use the IC418 cooling method.

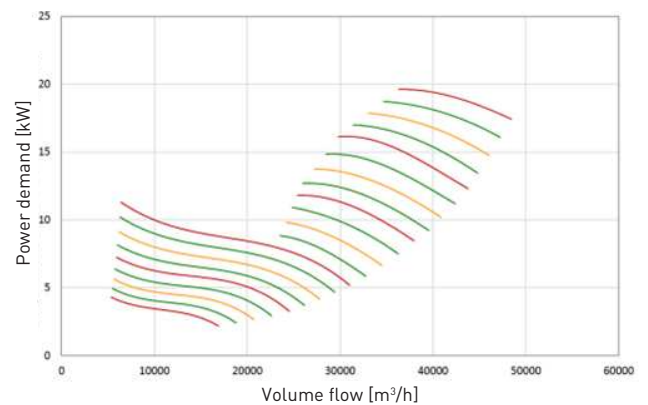
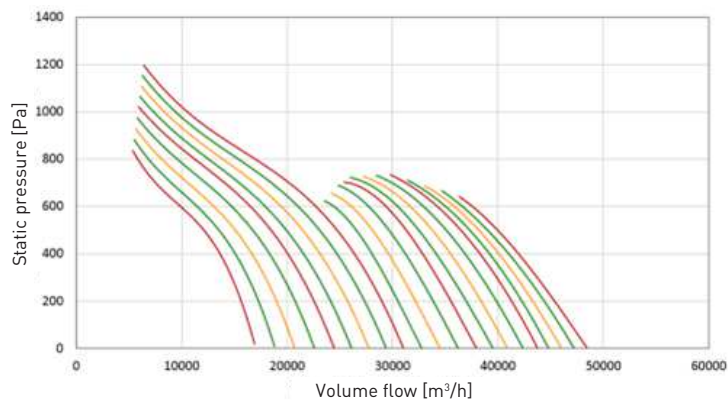
The fans can operate with standard accessories (fully certified and attached), such as mounting feet, anti-vibration mounts, elastic connection pipes, intake nozzles, protection mesh, diffusers and attenuators.

## Technical Data

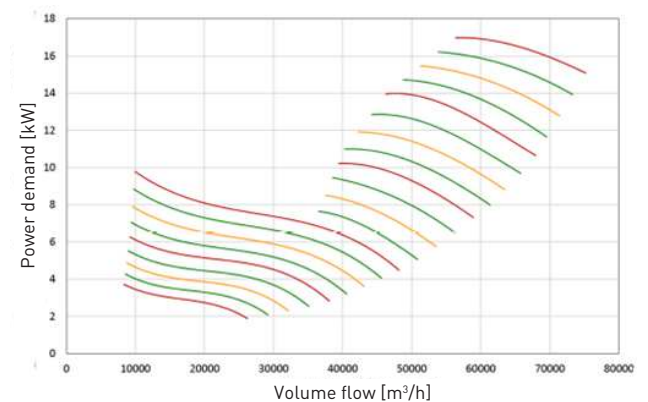
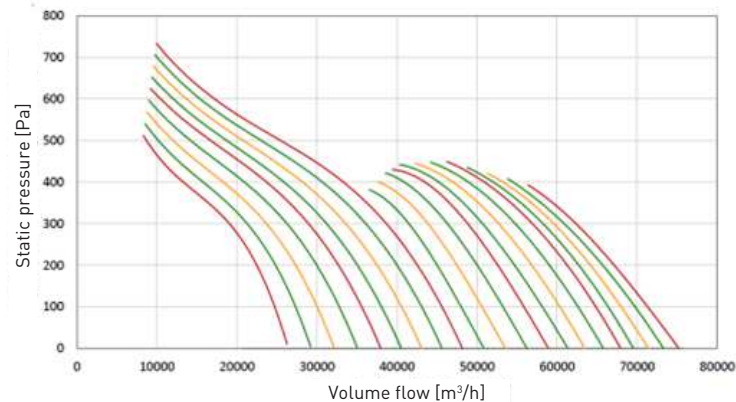
### SEF(R) 63 (3000 rpm)



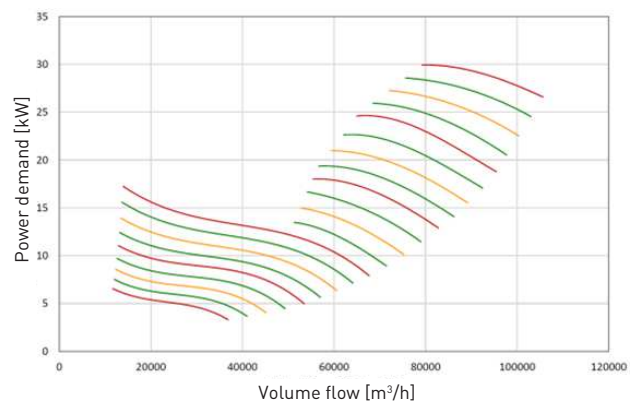
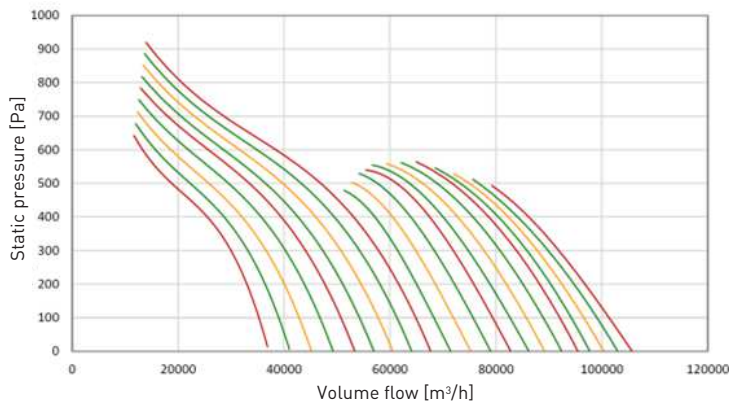
### SEF(R) 71 (3000 rpm)



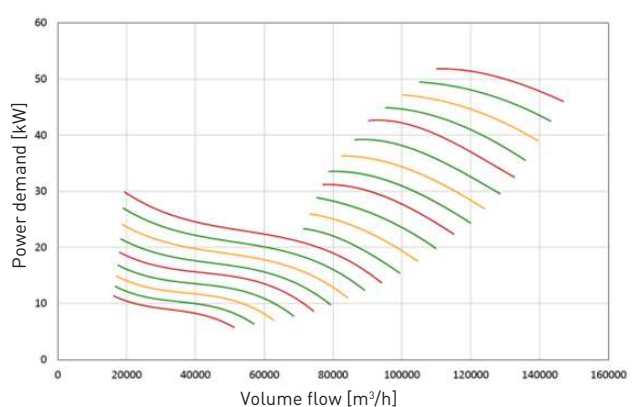
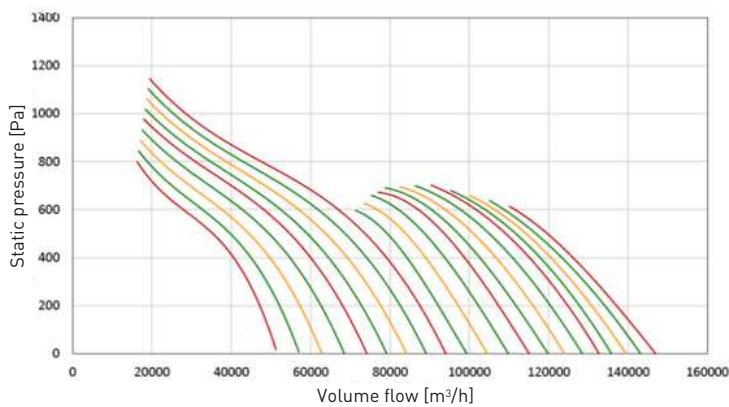
### SEF(R) 100 (1500 rpm)



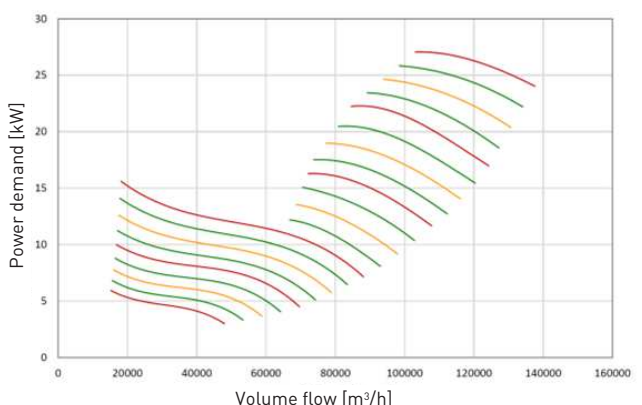
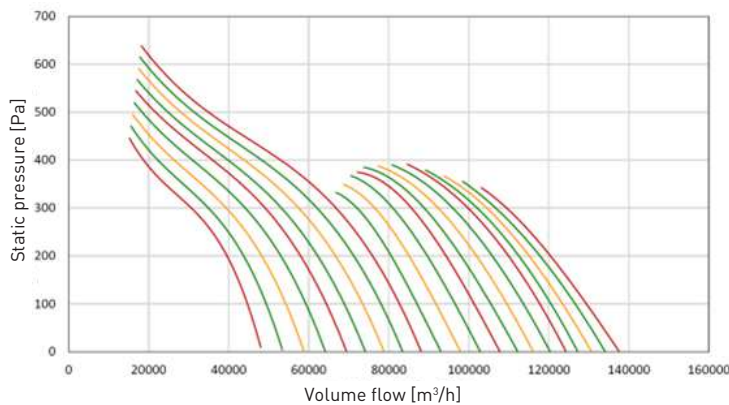
### SEF(R) 112 (1500 rpm)



### SEF(R) 125 (1500 rpm)



### SEF(R) 140 (1000 rpm)



## Advantages

- Effective smoke extraction and ventilation due to 100% reversibility
- Low operating costs due to the high efficiency within the full application range (~80% at the optimum energy efficiency point)
- Certified accessories
- Horizontal and vertical installation
- The possibility of working in domestic applications
- PTC sensor as standard
- Short reaction time to a fire alarm signal
- High efficiency of smoke extraction within a short time
- Easy installation of the system due to the appropriate construction of the fan and the connection box mounted on the housing
- Easy system adjustment due to the possibility of using an inverter; operation at 60 Hz possible as well
- The possibility of operating with a diffuser at the outlet, which results in the significant increase in the static effectiveness of operation, the limitation of the output speed and a decrease in power consumption
- Operation at 50 Hz or 60 Hz
- The possibility of achieving very high performance for small units because SEF(R)63 and SEF(R)71 fans are certified for a rotational speed of 3000 rpm
- Very high resistance to corrosion due to the fact that the static parts of the fan are galvanised, stainless steel rotor with aluminium blades and the motor is painted in accordance with C4 class requirements