

Driven by  EC

# Fans with EC-motors



**Energy efficient and  
environmentally friendly**

# Energy efficient & environmentally friendly fans

The products in this leaflet are equipped with EC-motors. EC-technology is intelligent technology, using integral electronic control to ensure that the motor always runs at optimal load.

## What can EC achieve?

EC-fans are favoured for their economical use of energy and simplification of control. EC-fans are driven by energy-saving motors with electronic control (commutation unit) to keep them running in the optimal operating range.

According to their design principle, these are synchronous motors, which run without slip and therefore no slippage losses occur.

An excellent solution for demand responsive ventilation systems. Another pro-environmental aspect relevant to air supply and air conditioning equipment in particular is the noise level. Here too, the advantage is with the EC-motor, which runs silently in a controlled operating condition. EC-motors have a longer service life due to lower winding temperatures and lower wearout.

EC-motors with integrated electronic control can easily be varied in speed to match the airflow demand. For the same air volume, they consume distinctly less energy than AC fan drives. EC-motors have high energy-saving potential not only at full load, but especially at part-load, where the loss of efficiency is very much lower than with an asynchronous motor of equivalent output.

Energy efficient ventilation is about designing the system in a smart way, using the fan that has a high efficiency and adjust the ventilation rate to the actual need, instead of operating always at full capacity, while keeping a good indoor air quality.

Today Systemair probably has the widest range of EC fans on the ventilation market, and we are happy to now present a control system that will make it easy for the contractor, installer and end user to achieve Demand Control Ventilation (DCV).

The system contains a central control and a room controller that are connected with SELV.

## Advantages with EC motors:

- High efficiency throughout the entire control range
- Long service life with minor risk for overheating due to small heat losses in the motor
- Easy to control with 0-10V DC or PWM signal
- Low sound level throughout the entire control range
- All control and protection electronics are integrated in the motor, easy connection
- No power loss or increased sound level at start-up.

*The following is included when selecting an EC motor:*

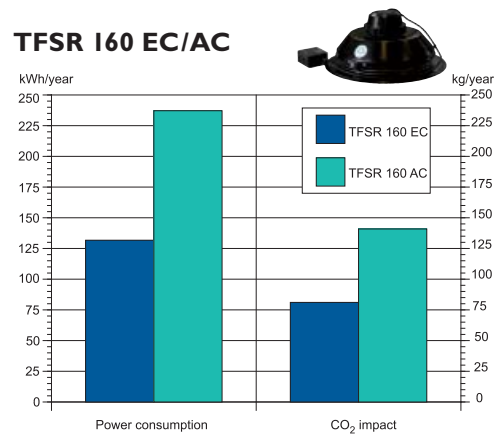
- Overheat protection
- Overload protection
- Protection against locked rotor
- Control electronics
- Softstart, starts slowly and gradually increases to full speed over a predefined time.



- Built in transformer
- 24V supply to dampers
- Built in humidity and temperature sensor in the room controller
- Ability to connect CO<sub>2</sub> sensor, presence sensor, humidity sensor etc.
- Possibility to create a week schedule.

Using energy efficient ducted fans with intelligent control, the system meets the ventilation requirements of both new building and refurbishment projects.

# Comparison with conventional technology



## Roof fans TFSR/TFSK EC



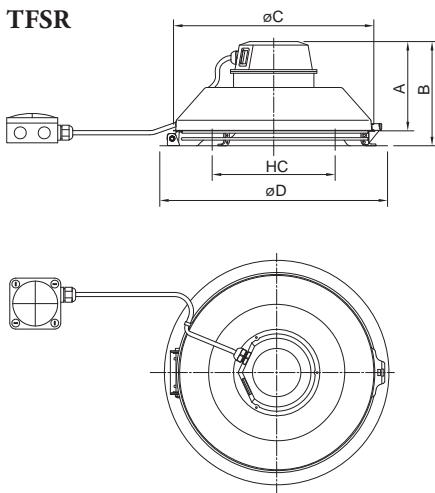
- High efficiency EC-motors
- 100 % speed controllable
- Speed regulator included
- Swing-out.

The TFSR EC and TFSK EC roof mounted fans are driven by EC motors and intended for use as extract fans in smaller premises such as self contained flats and apartments as well as storage areas, smaller work-rooms etc. EC-technology is intelligent technology, using integral electronic control to ensure that the motor always runs at optimal load and guarantees that the energy utilized effectively is many times higher for EC motors compared with AC motors.

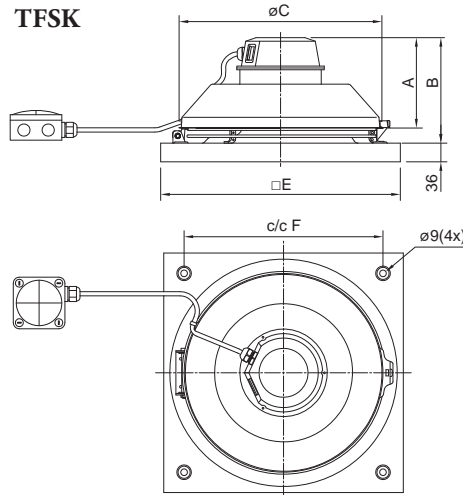
The fans are delivered with a pre-wired potentiometer(0-10V) that allows you to easily find the desired working point. The isolation switch is integrated and there are several alternative roof curbs available as accessories. The tilting mechanism simplifies cleaning and maintenance. To protect the motor from motor from overheating, the fans have integrated thermal contact with automatic reset.

TFSR EC comes with circular connection whilst the TFSK EC is provided with a square connection. The horizontal discharge creates smaller internal pressure losses and prevents accumulation of ice on the roof. The protection guard prevents unintentional contact with the impeller.

TFSR



TFSK



TFSR	A	B	øC	øD	HC
160 EC	147	172	334	380	205
200 EC	150	187	364	439	250

TFSK	A	B	øC	□E	c/c F
160 EC	147	172	334	421	330
200 EC	150	187	364	421	330

HC = Hole diameter for fixing, ø6x4

TFSR/TFSK	160 EC	200 EC
Voltage	V/50 Hz 230~	230~
Power	W 58.3	108
Current	A 0.256	0.466
Max air flow	m <sup>3</sup> /h 436	749
R.p.m.	2461	2537
Sound pressure level, 10 m	dB(A) 47.7	46.5
Weight	kg 3.3	4.2
Insulation class, motor	B	B
Enclosure class, motor	IP 44	44

