

General Fan Information

The construction of SFC fans is composed of an electric motor and fan blade by composite material. Particular attention has been given to the design of the fan blades and the motor combinations considering the operation conditions.

1.1.1 Motors

All motors are equipped with generous sized ball bearings and filled with special lubricant. This guarantees a save and smooth operation in environments with high humidity and under additional temperature differences.

The motors are available in variable protection classes:

IP 44= protection against splash water (Fig.1.1.1) and

IP 66= dust and water tight according to DIN EN 40050.

Winding insulation class for all motors is class F. Electrical dimensioning is conducted according to the regulations of rotating electrical machines DIN EN 60034-1 – Part 1: Rating and performance.



1.1.2 Rotor / Fan blades

Particular attention has been given to the design of a construction for each application. The design of SFC rotors / fan blades comprises of both complete moulded and assembled construction. With this solution we are able to offer high performance and price advantages with larger quantities. In addition the assembled type offers design flexibility. Short delivery times are possible due to standardization of components.

Materials for rotors / fan blades

The rotors type SF01 (Fig. 1.1.2) are made by injection moulded acrylonitrile styrene with 20% fibreglass reinforced (AS with 20% GF).

For the other types Nylon with added fibreglass is used, percentage depends on application. For special applications (e.g. low temperature) other special materials are used.



Fig. 1.1.2: Rotor, type SF01 – 300,
material: AS with 20%GF

1.1.5 Switching and controlled operation

The fans are designed and certified for operation S1. The motors are speed controllable by electronic controller like also transformer. For more accurate information and also for the application in connection with frequency converter and switching operation you can find in our technical information "SFC fan sets - switching operation and speed control".

1.1.6 Protection device

All motors are equipped with thermal contacts. The thermal contacts protect the motor against overloading. The contacts are to be connected and supervised. The connection diagrams of the motors are represented in the illustrations with the individual products.

If motors in special cases are operated with additional motor overload switch, this is to adjust to the working current. Also the tolerances and the temperatures and/or air density are absolutely to be considered during operation.

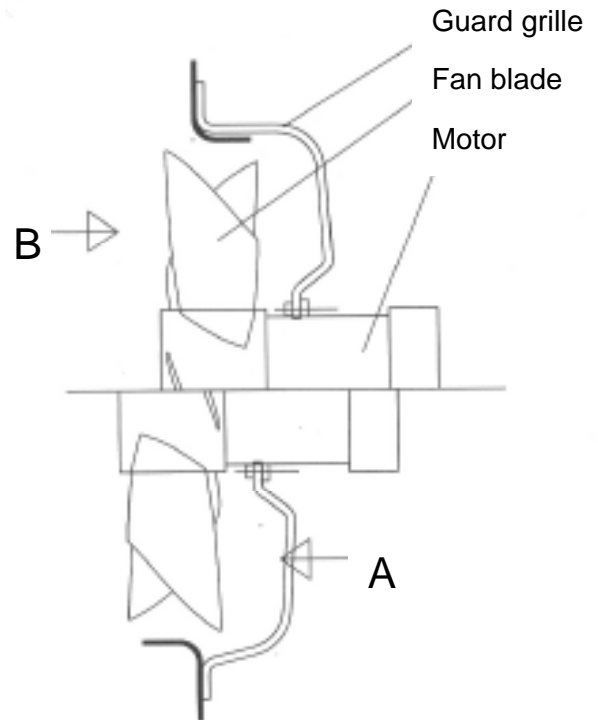
Changing the Direction of Air Flow

The direction of air flow can be altered to induced or forced draft by reversing the fan blade and changing the wiring connections.

Definition of air flow direction

The diagram shows the air flow direction A (over motor sucking) and B (over motor blowing).

Air flow direction A = Forced Draft = Clockwise
 Air flow direction B = Induced Draft = Counter Clockwise
 (In each case viewed from the fan blade)



How to change the air flow direction

Fan Blade

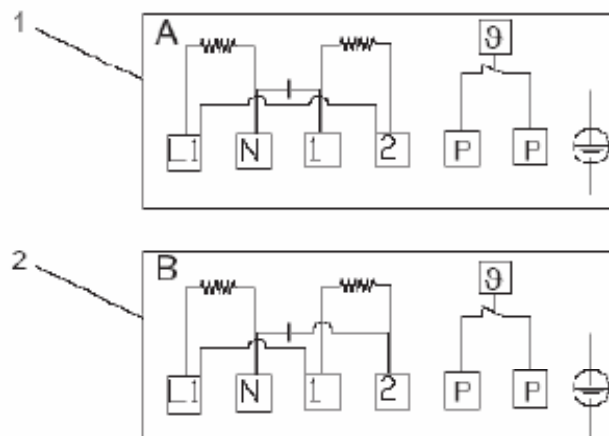
1. Remove the Phillips head screw holding the fan blade on motor shaft
2. Remove centre fan blade cover by inserting a small screw driver in the slot
3. Note the fan blade description "A" or "B" is moulded into centre of fan blade
4. Remove the fan blade from the motor shaft
5. Flip the fan blade and reinsert onto motor shaft
6. Insert the centre fan blade cover
7. Refit the Phillips head screw and tighten

Wiring Connection

1. Remove electrical junction box cover
2. Identify jumper wire between L1 – 1 for A direction and L1 – 2 for B direction
3. Change jumper wire too achieve desired fan rotation direction
4. Check all connections are tight
5. Refit electrical junction box cover

Connection diagrams

Fig. 1.2.2 shows the connection diagrams for the single-phase motors used with the series 01. For air flow direction A the motor shaft rotation is clockwise, for air flow direction B counter-clockwise.



1A - Direction of rotation: Clock wise (air flow direction A)
 2B - Direction of rotation: Counter-clock wise (air flow direction B)

Fig. 1.2.2: Connection diagrams single-phase motors