WE CARE FOR YOUR NEEDS.

# INDUCTION TYPE CENTRIFUGAL JET FAN

JCF-Series

## Jet Centrifugal Fan

CATALOGUE ID:
ETC-JCF-2024-ED00V0
August 2024

ENERGY TWIN CITY
A TWIN CITY FAN COMPANY

# Table of contents


Concept of Jet fans ..... 3

Advantages ..... 4

Construction Features ..... 5

Dimensional Details ..... 6

Performance Details ..... 6

CFD & Accessories ..... 7


# Concept of Jet fans

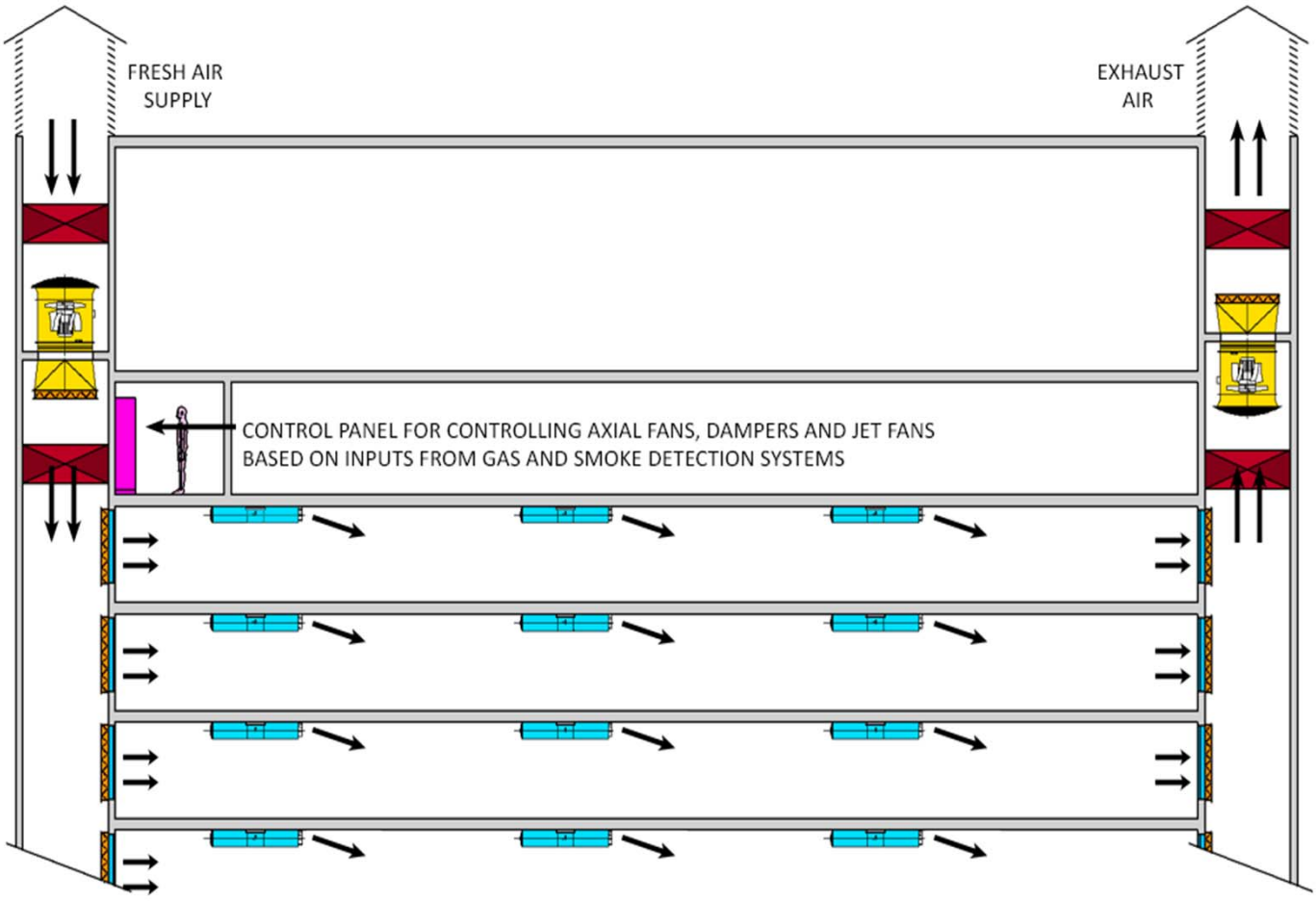
Over the past few years, jet fan technology has established itself as the new standard in car park ventilation in many countries all over the world.

Unlike the conventional ventilation concept based on ducted systems, the concept of jet ventilation (also known as impulse or induction ventilation) is based on a high-velocity stream of air injected by a series of free-blowing silenced axial fans or centrifugal fans.

Thus, jet fans effectively distribute and transport the air, on each car park level, from the supply to the exhaust points. The decisive design parameters being the air speed profile and the thrust generated by the fan.

# Advantages of Jet Ventilation system

- Simplified Design: Eliminates the need and expense of designing a duct system.
- Lower Construction Cost: Jet fans require less height against the ceiling than a ducted system. This means the required height of each level is less, reducing excavation and lowering overall construction cost.
- Flexible installation: positioning of the jet fans is very flexible and can easily be coordinated with other systems within the car park.
- Improved Operational Costs: Eliminating ductwork reduces the system static pressure and allows for smaller supply and exhaust fans to run using less power.
- Enhanced Safety: Jet fans are more efficient at removing noxious fumes and clearing smoke, allowing fire to remain visible and safely approached by fire-fighters.



# Product Features

## Construction:

ETC centrifugal Jet Fan Series are constructed to handle high temperature applications and shall be tested in accordance to EN12101-3 (300 °C-2 hours or 400 °C-2 hours) . JCF Series Jet Fans are characterized by the high thrust performance relative to their size, allowing for the ceiling height of the car park to be kept to a minimum without jeopardizing the thrust perfromance. JCF fans are offered with an integrated outlet nozzle to increase the outlet airflow velocity and control the angle of the airflow so the fan can operate in its optimum efficiency range. The nozzle is also fitted with an adjustable outlet deflector allowing for the adjustment of the horizontal airflow pattern on site. An inlet wire guard and ceiling mounting brackets are offered as standard features. The JCF centrifugal Jet Fans are available with nominal thrust ratings of 30, 50, 60, 80 and 100N.

## Casings:

Casing is made of high grade galvanized steel sheet. Optional coating can be provided upon request.

## Impellers:

ETC Impellers are made steel. The aerodynamical profile gurantees high efficiency and low noise.

## Motors

ETC uses 2-speed motor with IP55 protection. High temperature motors are supplied with Class "H" insulation. Low speed operation is usually sufficient for CO-ventilation under normal conditions. In the event of fire, a considerable power reserve is disposable by switching the fans to full speed. Mains supply is connected either through a terminal box or an optional disconnect switch in standard or high temperature execution.

## Mounting

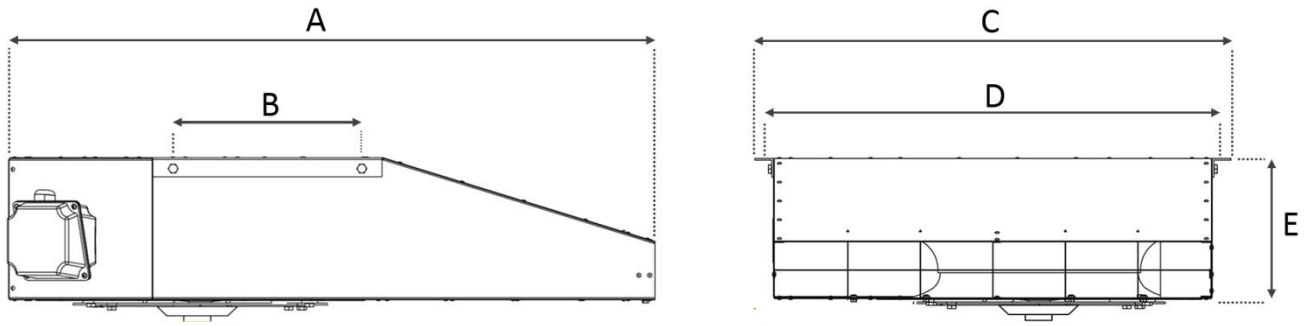
JET fans are designed for horizontal ceiling mounting and fixation by means of the supplied fixing brackets attached to the fan casing.

## Certified Ratings

"Energy Industrial Company LLC certifies that the model JCF-100 shown herein is licensed to bear the AMCA Seal. The rating shown are based on tests and procedures performed in accordance with AMCA publication 211 and AMCA publication 311 and comply with the requirements of the AMCA Certified Ratings Program" The AMCA Certified Ratings Seal applies to jet fan thrust Performance (AMCA standard 250)

**The AMCA certified ratings seal applies to jet fan thrust and sound performance for model JCF-100 only.**

# Dimensional and Performance Details




Note: All dimensions are in mm

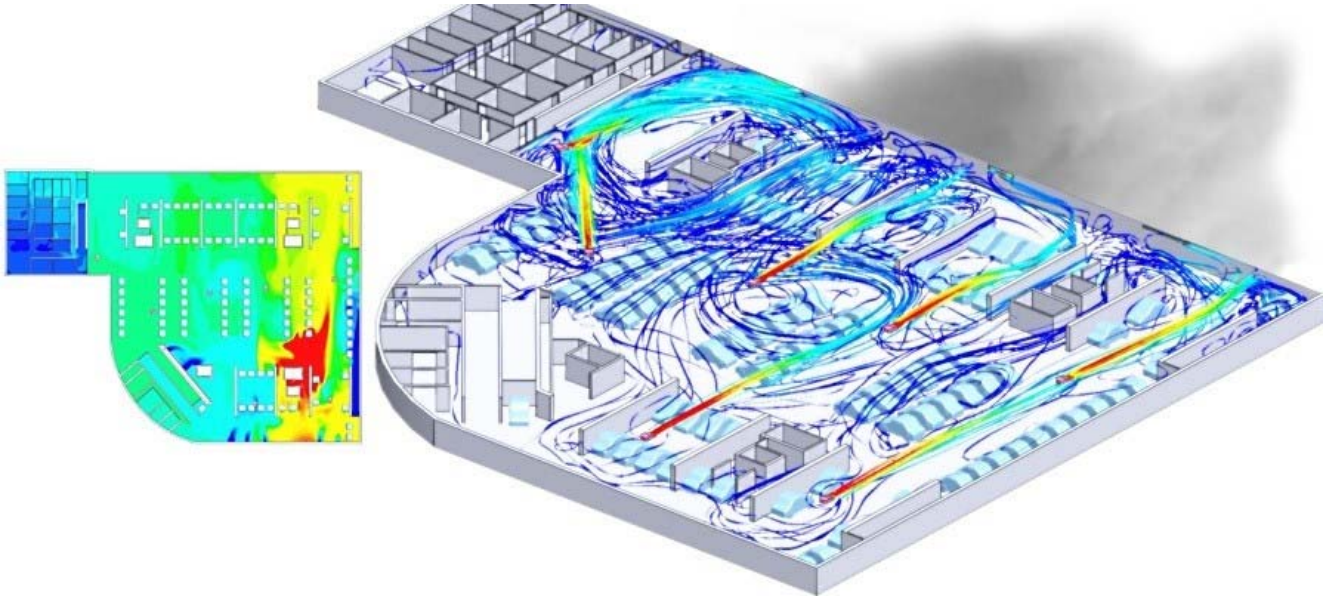
| Model | A | B | C | D | E |
|---|---|---|---|---|---|
| JCF-30 | 1,008 | 395 | 893 | 861 | 221 |
| JCF-50 | 1,135 | 395 | 893 | 861 | 260 |
| JCF-60 | 1,200 | 395 | 893 | 861 | 280 |
| JCF-80 | 1,336 | 450 | 993 | 961 | 291 |
| JCF-100 | 1,551 | 510 | 1,093 | 1,061 | 325 |

**Energy Twin City reserves the right to change the design, technical specifications and dimensions without prior notice.*

| Model | Motor Power | Fan RPM | | Volume Flow | Thrust | Sound Pressure | Weight |
|---|---|---|---|---|---|---|---|
| | KW | 50 Hz | 60 Hz | $m^3/s$ | N | dB(A) 3m/45° | kg |
| JCF-30 | 0.92/0.23 | 1440/720 | 1728/850 | 1.49/0.74 | 31/7.7 | 71/55 | 67 |
| JCF-50 | 1.38/0.35 | 1440/720 | 1728/850 | 1.86/0.93 | 48/12 | 73/57 | 78 |
| JCF-60 | 1.84/0.46 | 1440/720 | 1728/850 | 2.04/1.02 | 58/14.5 | 76/58 | 87 |
| JCF-80 | 2.53/0.63 | 1440/720 | 1728/850 | 2.50/1.25 | 80/20 | 75/57 | 110 |
| JCF-100* | 3.3/0.8 | 1440/720 | 1728/850 | 2.88/1.48 | 100/26 | 95/81* | 129 |

*JCF-100 has been tested in accordance to AMCA standards 250-12 & 300-14 for air and sound performance.
*Sound data for JCF-100 is measured in a hemispherical free field at 1.5m.
*FEI=1.0178/1.045

# CFD – Computational Fluid Dynamics



ETC offers numerical simulations using CFD- Computational Fluid Dynamics tools to facilitate pre-project work. These predicted results help in the analysis of the model(s) studied in order to understand its/their behaviour. Depending on the results, the models can be optimized to final satisfaction.

The CFD studies will bring you the following benefits:

- Provide decision support thanks to the rapidity of the results obtained
- Improve placements
- Work on complex models
- Optimize scenarios according to the criteria
- Reduce the budgets for prototyping

# Optional Accessories

Electrical isolator fitted to fan for security

# THE RECOGNIZED LEADER IN MANUFACTURING AND DISTRIBUTION OF HVAC AND INDUSTRIAL PRODUCTS IN THE MIDDLE EAST.

ENERGY TWIN CITY
A TWIN CITY FAN COMPANY


**MIDDLE EAST**
PO Box 24021, Sharjah Industrial Area
United Arab Emirates
Phone: 971.6534.3488 | Fax: 971.6534.3710
energyintl.com

**UNITED STATES**
5959 Trenton Lane, Minneapolis, MN 55442
Phone: 763.551.7600 | Fax: 763.551.7601
careers.tcf.com