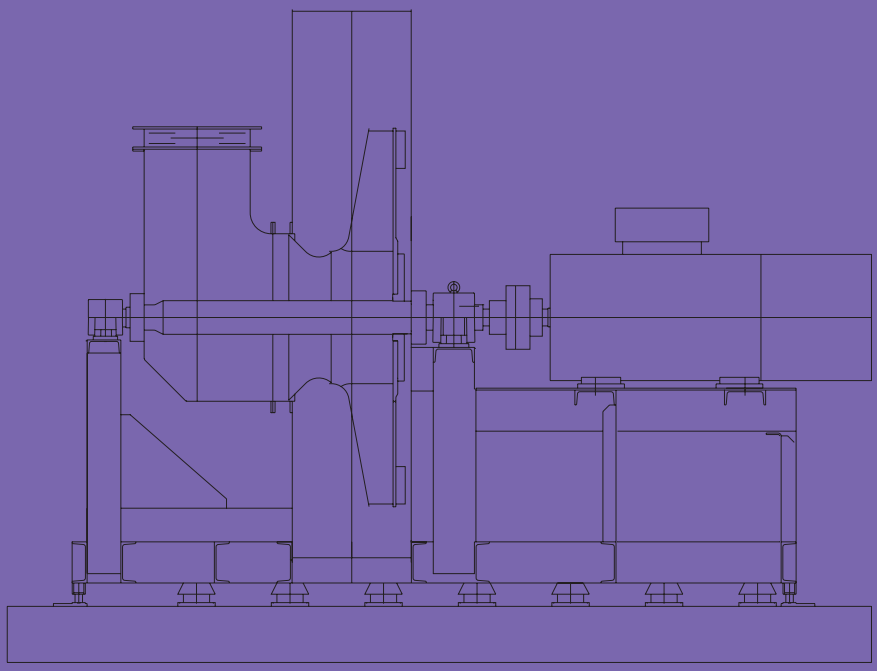
Heavy-duty industrial centrifugal fans

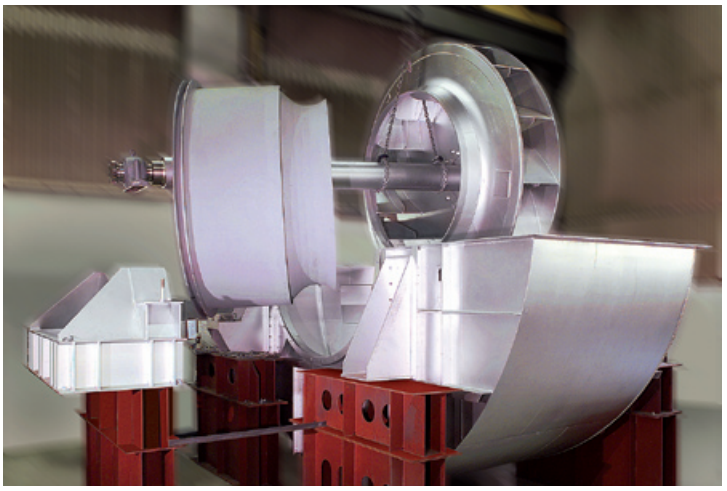


POLLRICH DLK®
FAN FACTORIES

- THE ONLY ONE - ufive - WORLDWIDE

Heavy-duty industrial centrifugal fans
Compact industrial centrifugal fans
Axial fans
Plug fans
Smoke extraction fans

For **any** application **- 1 Million** different centrifugal fan designs based on the **5** main fan components.



Fan components: inlet nozzle, impeller, shaft/bearings, bearing block/frame

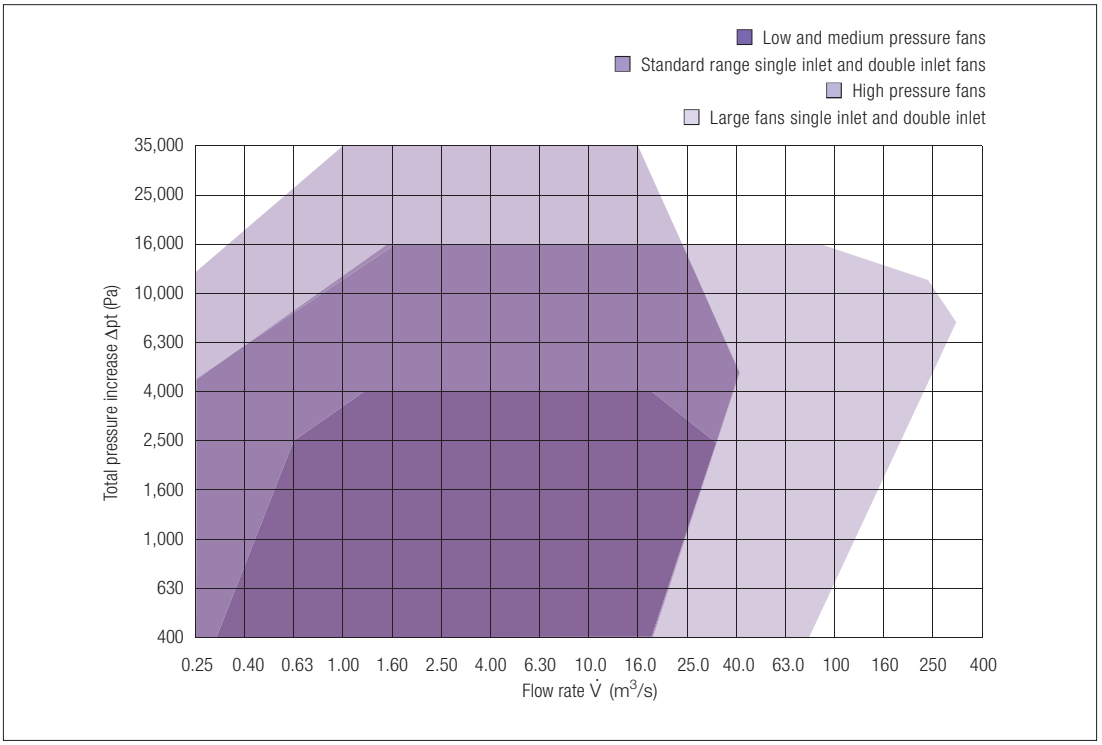
Our “Heavy Duty Industrial Centrifugal Fans” are designed by using a **modular configuration system** enabling us to provide precise individual configurations matching any required field of application or condition.

On the one hand, this design method ensures the required high level of quality for each product – according to the effective **ISO standards**. On the other hand, this enables us to produce “custom-made” individual solutions with short lead times and with firm, consistent performance data for any range of pressure and performance.

Optimal and cost efficient solutions for the requested operating conditions can be selected from and arranged with our configuration system. This system itemises, combines and configures the standardised, preassembled parts and component groups.

Benefits

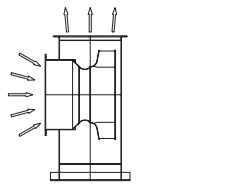
- Increased operational reliability and lifetime
- Heavy duty designs matching the respective performance limits
- Special engineering and realisation for parts under high load
- Supervised weldings made by certified specialists
- Favourable vibration and noise performance controlled by measuring and test equipment
- High efficiencies and reliable operating data for any type of duct connection.



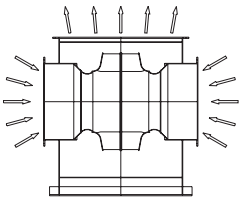
Field of application and performances

21 nominal impeller diameters from size 400 to 4.000 mm with **14** different diameter ratios – VR20 to VR80 – supply the options for the **2** inlet types with **8** blade profiles,

Application field for every blade profile (to the right) **considering the nature of the conveying medium.**



Single inlet



Double inlet

Inlet-types

1) For solid particulate matter contained by the conveying medium with extreme solid build-up tendency

2) For clean air conveying

3) For solid particulate matter contained by the conveying medium with solid build-up tendency

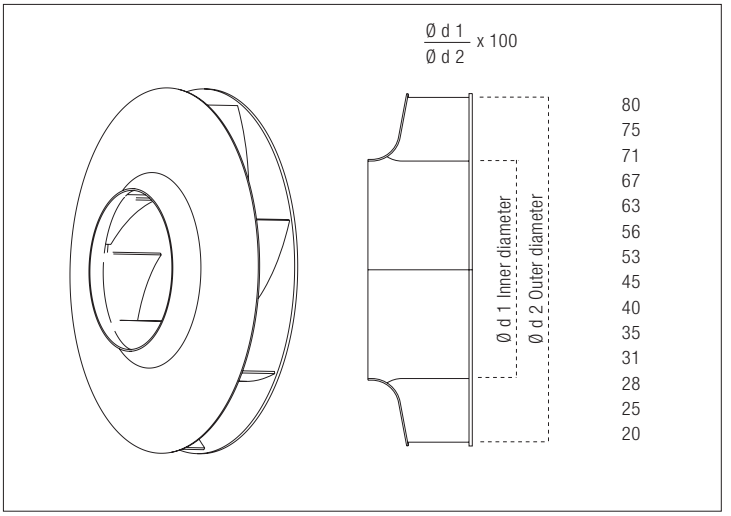
4) For clean or slightly dusty conveying medium

5) For solid particulate matter contained by the conveying medium with heavy solid build-up tendency

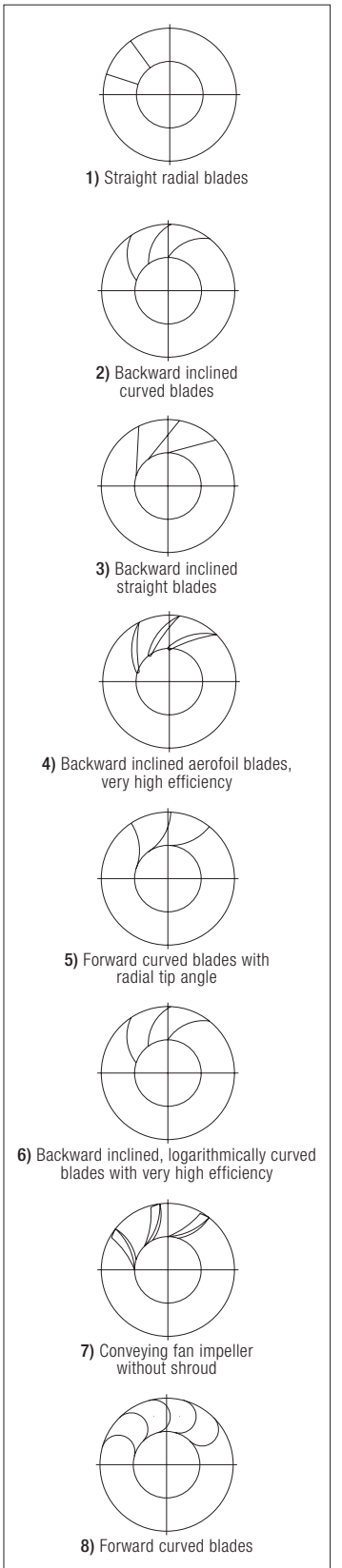
6) For clean or slightly dusty conveying medium, preferred if fitting with wear protection is required

7) For material as textile strips, wool flakes, wood chips and similar

8) Used for hot air circulation plug fans

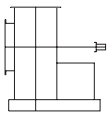
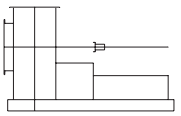


Nominal impeller diameter = impeller diameter d 2 in mm



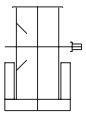
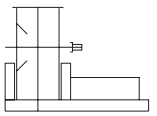
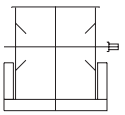
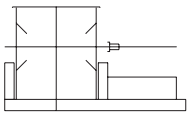
Blade profiles

6 installation options and **3** drive mechanisms.

- Bearing single sided
- Bearing single sided on the common frame

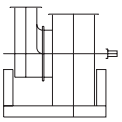
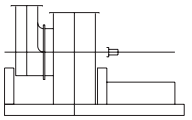
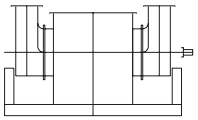
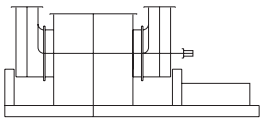
C

Impeller between the bearings, bearings on both sides of the casing

- Single inlet, one bearing at intake side, one bearing at drive side without additional support on frame
- Single inlet, one bearing at intake side, one bearing at drive side mounted on the common frame
- Double inlet, both bearings at the intake openings without additional support on frame
- Double inlet, both bearings at the intake openings, one bearing mounted on the common frame

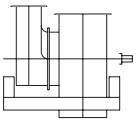
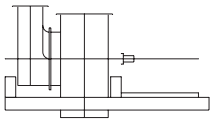
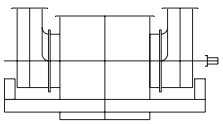
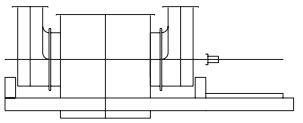
D

Impeller between the bearings, bearings on both sides of the casing

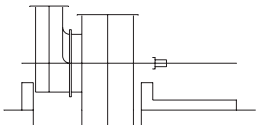
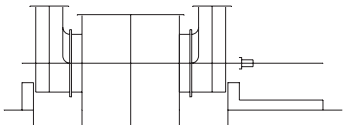
- Single inlet, one bearing with space at intake side, one bearing at drive side without additional support on frame
- Single inlet, one bearing with space at intake side, one bearing at drive on the common frame
- Double inlet, both bearings with space at the intake openings without additional support on frame
- Double inlet, both bearings with space at the intake openings, one bearing mounted on the common frame

E

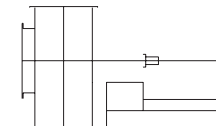
As “E” above
Casing and bearing support framed by and embedded in the common frame

F

As “F” above
Casing and bearing support prepared to be fitted on a common foundation

G

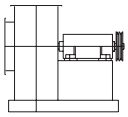
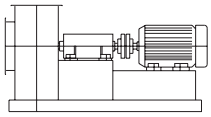
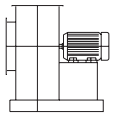


Impeller fitted to shaft end, single side bearing block, casing and bearing block on a foundation

- Bearing single sided prepared to be fitted on a common foundation
- Bearing single sided on the frame prepared to be fitted on a common foundation

H

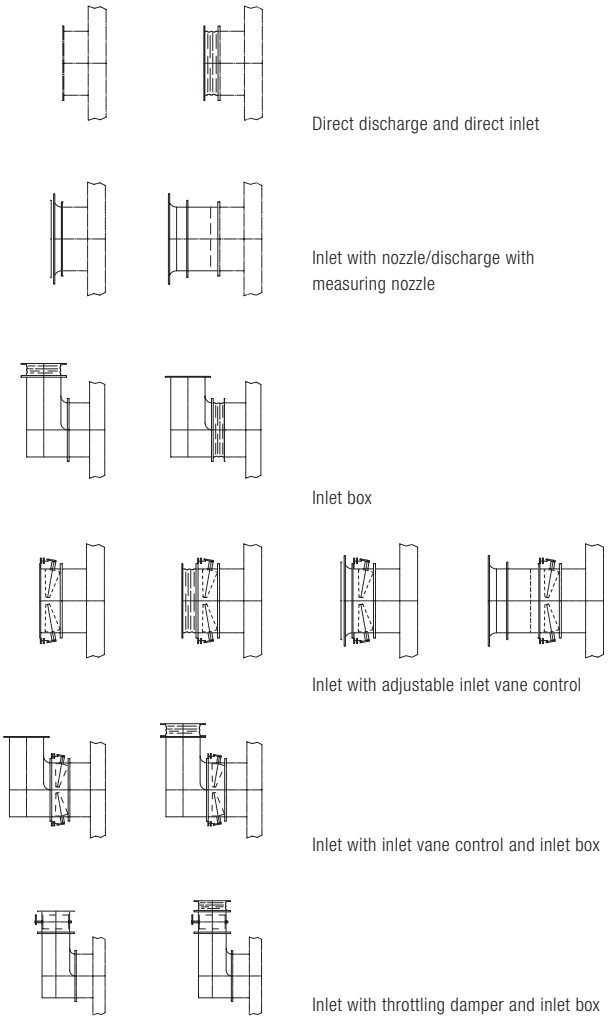
Installation options

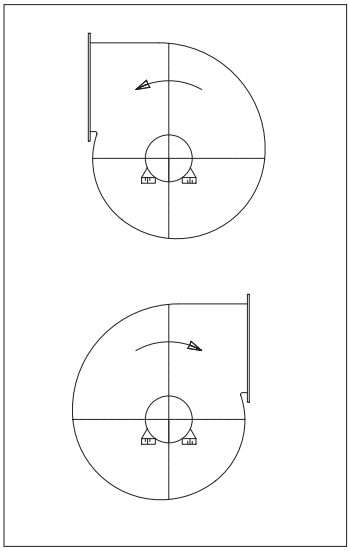
(left to right)
Belt drive,
Drive by coupling,
Direct drive

Drives

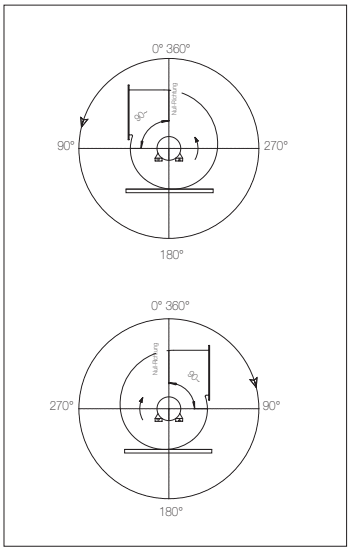
6 inlet and discharge connection options for **2** rotation directions and **any** casing position.



Inlet and discharge connection options



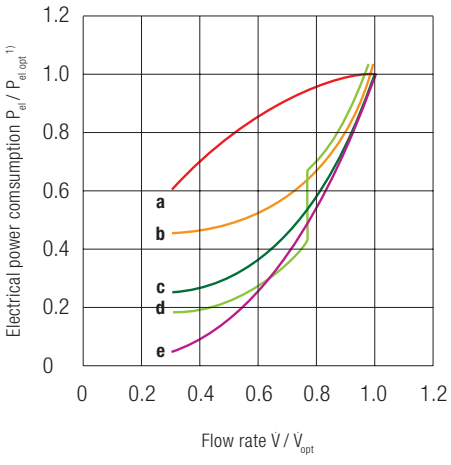
Rotation direction counter clockwise or clockwise



Casing position possible for any angle

[1] Reference

Refers to the required power input for a coupling driven three- phase asynchronous motor at constant speed.



Energy saving by power control

a) Control by throttling damper: Simple method but energy consuming.

b) Inlet vane control at constant speed: energy losses are reduced, suitable for flow rate reduction down to 60%.

c) Control by adjusting the blade angle: only applicable with axial fans.

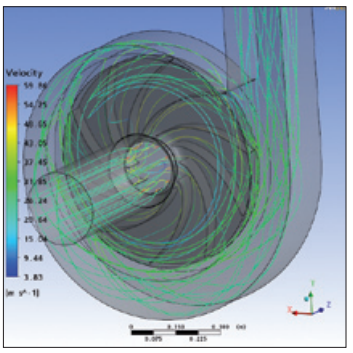
d) Combined inlet vane control and fan speed: The fan speed in is adjusted nearly without energy losses, e.g. by a pole changing motor or by two motors

Energy saving with control devices

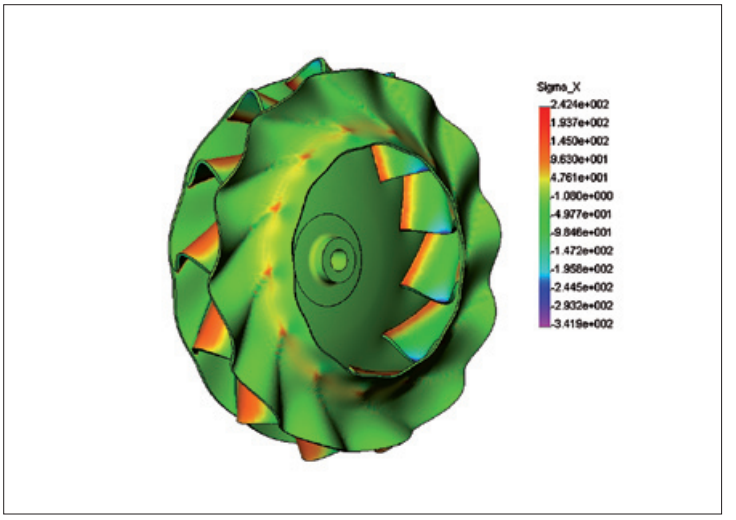
According to the **operation conditions**, we provide individual solutions for acoustic and thermal insulation, high temperature layouts, pressure and pressure shock resistance and protection against abrasion and corrosion.

We are constantly verifying and testing the aero dynamical and acoustical characteristics of fan components and elements in **our own laboratories** in order to provide the truly best solution available for any requirement.

New or further developments are pushed forward by using state of the art software solutions for the **numerical fluid simulation** and **stress analysis** in order to maintain the high quality standard and to further improve the process reliability on site.



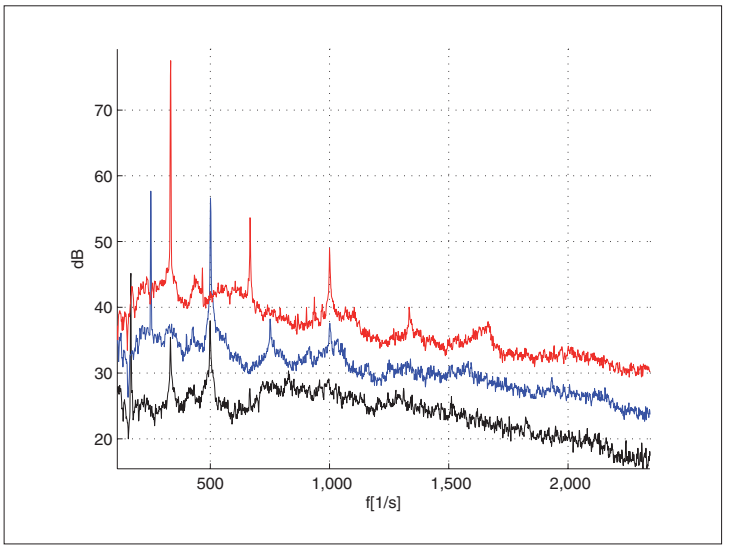
Fluid patterns



Stress analysis by FEM

with different nominal rpm. The intermediate flow rate values are adjusted by adjustable inlet vane control. This method is very advantageous especially for fans often operating at part load ranges below 75%.

e) Continuously variable speed control by AC motors, frequency converters or DC motors.



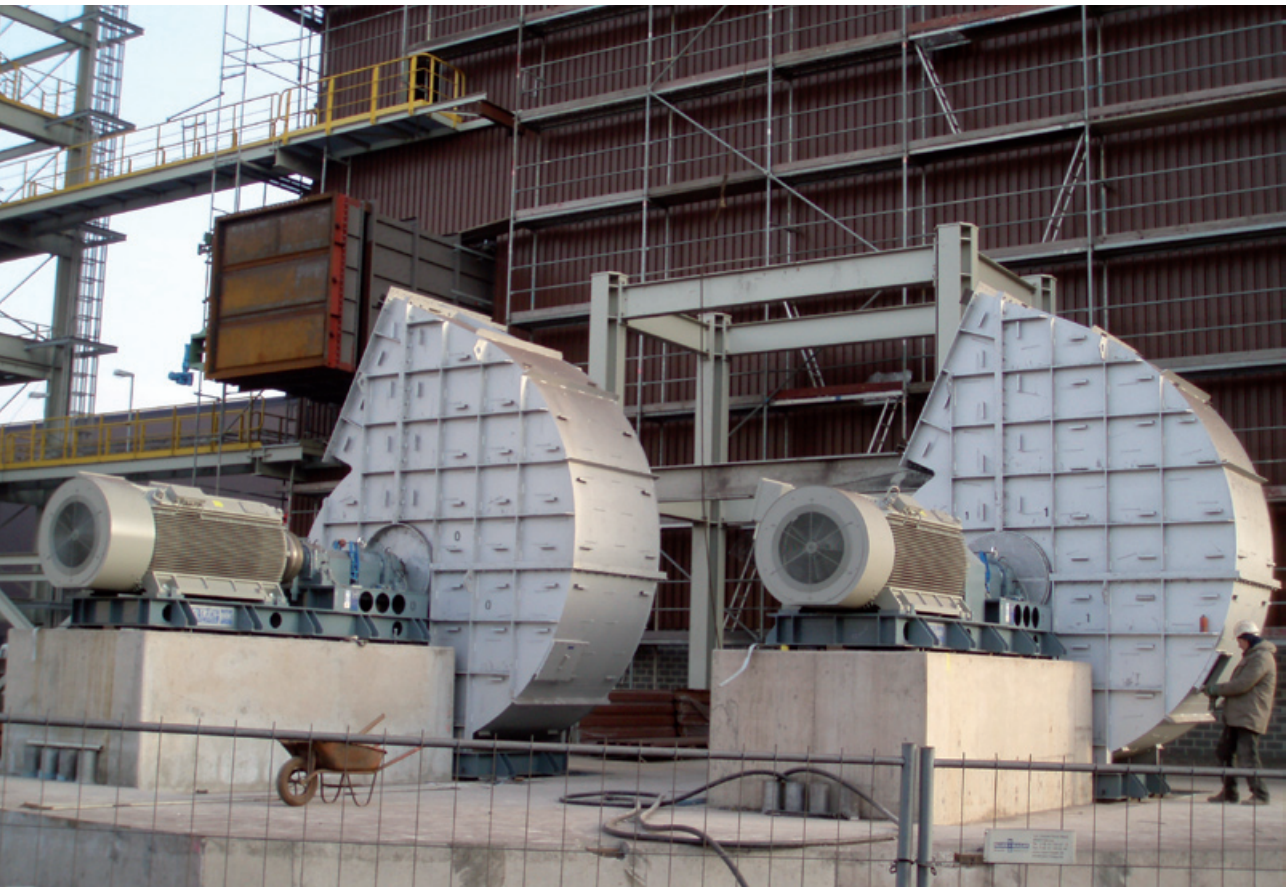
Comparison of different frequency spectra

References in the most diverse indus

Metallurgical plant
Dillingen/Saar

- Blast furnace
- Sintering plant
- Exhaust gas treatment

3 shift operation, year round
8,400 operating hours/year
Capacity 3.1 Mio t/year



2 Induced draught fans
VR 75 P10 CO UK 2240
Impeller Ø 2.3 m

Controlled by frequency converter
Flow rate 550,000 m³/h
Total pressure 50 mbar
Flue gas temperature 150°C
Fan speed 1,200 rpm
Motor rating 1,350 kW – 690 V

tries

Aluminium plant
Ikot Abasi, Nigeria

- Main exhaust gas fan of electric furnace

Capacity 197,000 t/year

4 Flue gas fans
Type VR 63 S10 CO RK 2500
Impeller - Ø 2.5m

Controlled by inlet vane control
powered by electrical actuators
Flow rate 515,000 m³/h
Total pressure 4,500 Pa
Gas temperature 180°C
Fan speed 1,000 rpm
Motor rating 680 kW – 11 kV

Cement production plant
Province of Yozgat, Turkey

Annual production
2.5 Mio t of cement
1.2 Mio t of concrete
2.4 Mio t conglomerates

Process fan
VR 53 P23 EO SK 3150
Impeller - Ø 2.5m

Controlled by frequency converter
Flow rate 460,000 m³/h
Total pressure 67 mbar
Flue gas temperature 400°C
Fan speed 1,000 rpm
Motor rating 1,200 kW – 690 V

Service days last 24 hours

The modern quality management methods of our after sales and customer support centre ensure you quality standard, reliability and efficiency. Since fans belong to a great extend to the process determining factors of your business, we offer our service and assistance to you regardless of your fan supplier anywhere in the world within the shortest possible time if assistance is requested.

24h SERVICE for fan units – worldwide.

Service-hotline:
fon +49(0)2161-968 184
fax +49(0)2161-968 307
service@pollrichdlk.com

Our service-team is available for you around-the-clock

- Technical advice
- Assembly
- Commissioning
- Performance tests
- Noise and vibration measurements
- Inspection
- Preventative maintenance
- Maintenance and repair
- Electronic balancing
- System optimisation

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