

NAPAF - NAPBC

**HIGH PERFORMANCE AIRFOIL NAPAF AND
BACKWARD CURVED NAPBC PLENUM FANS**



comefri

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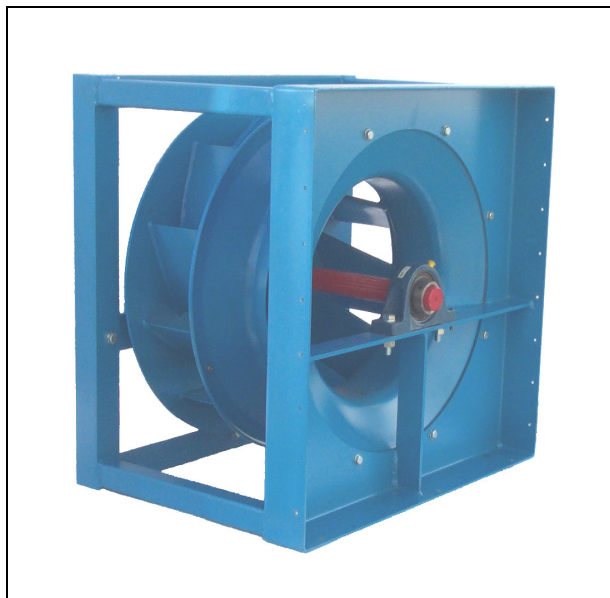


fig.1



fig.2

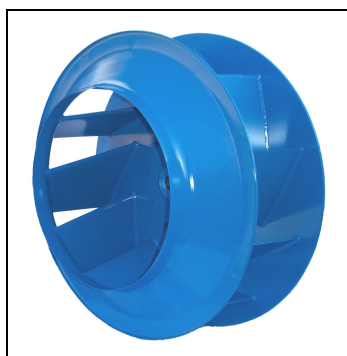


fig.3



fig.4

1. General description

The high performance Plenum Fan NAP has been designed to handle clean air. It is able to achieve optimum aerodynamic performance with smooth air flow through the impeller, when not fitted within a conventional fan housing.

2. Technical details

2.1. Structure

NAP Plenum Fans are manufactured in heavy gauge welded steel, reinforced with steel stiffeners and painted with an anticorrosive paint.

From sizes 10 to 28, the structure is provided with a removable backframe that permits the wheel to be removed from the back of the fan (see fig.1 and fig.2 for details).

From sizes 32 to 55, plenum fans are completely welded and the wheel can be removed from the top (see fig.5 and fig.6).

The inlet cone is constructed in galvanized sheet steel or in black steel and painted, bolted onto the plenum and designed for optimal airflow through the impeller.

2.2. Impeller

Plenum fans are available with a high performance airfoil wheel, NAPAF, or with high performance backward curved wheel, NAPBC.

NAPAF: The airfoil impeller is manufactured with backward curved airfoil shaped blades, which are continuously welded into position and painted finish (fig.3). The high performance Airfoil blade design is matched with the unique rotating diffuser where the air is slowed down and a static pressure regain takes place. The consequence is a very wide operational working field with high efficiencies and low noise emissions. Airfoil wheels are available in wheel diameters from 12 to 55.

APBC: Backward curved wheel has single-thickness flat type blades. The use of the rotating diffuser is guaranty of high efficiency and low noise. Wheel diameters 10 and 11 (fig.4).

All impellers are statically and dynamically balanced to a grade of $Q=2,5$ in accordance with DIN ISO 1940-1 and ANSI S2.19 - 1989.

The hub bore is precision machined and incorporates a keyway and locking screw.



fig.5



fig.6



fig.7



fig.8

2.3. Shaft

All shafts are designed with a high safety factor, and with the critical speed well in excess of the maximum fan speed. Made with hardened steel, which is precision ground and polished, and incorporates keyways for the wheel hub and sheaves.

All shafts are painted for added protection prior to shipping.

2.4. Bearings

On the drive side from size 10 T2 to 28 T2, from 12 T3 to 22 T3 and from 32 T1 to 40 T1, the bearing is self-aligning single row deep groove ball type in pillow block cast iron housings (fig.7). The drive side bearing of 25 T3 and 28 T3 and from 32 T2 to 55 T2 is a double row roller bearing in a pillow block split cast iron housings (fig.8).

For all plenum sizes the nondrive bearing is self-aligning single row deep groove ball type in pillow block cast iron housings (fig.7).

All bearings have been selected to guarantee a minimum L50 life time of 200,000 hours (as per AFBMA standards). Bearing ratings are to be based on the fan's maximum operating speed and horsepower.

These bearings are installed with a re-lubrication fitting.

Operating temperatures range from -4 °F to + 176 °F (-20 °C to + 80 °C) for all plenums.

COMEFRI reserves the right to make any dimensional design changes which are part of their improvement programme. Necessary corrections are updated on our AEOLUS PLUS selection program.

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