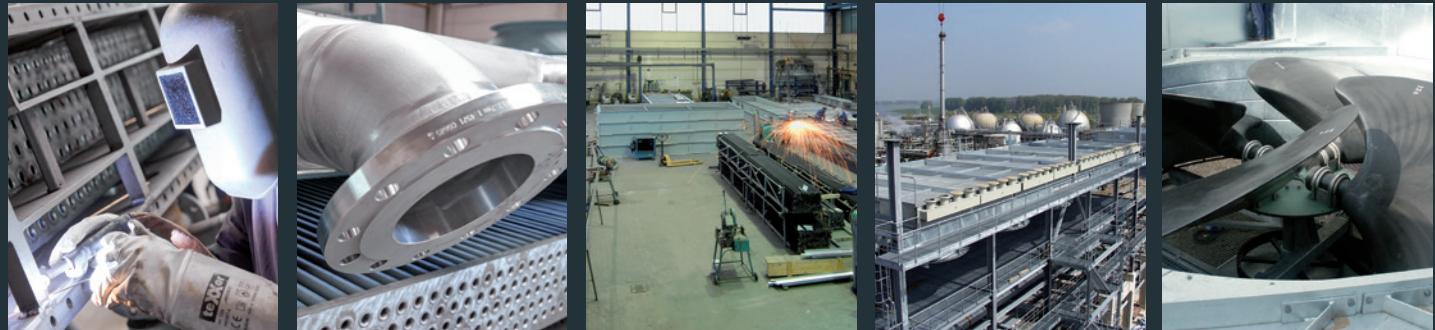




ALZ GmbH



..... **air cooled systems and air heaters**

Air Cooled Heat Exchangers

ALZ GmbH: Your experts for Air-Cooled Heat Exchangers and Air Cooled Systems

Since its founding in 1990, the ALZ GmbH has established itself as a medium-sized company in the field of design and manufacturing of air-cooled heat exchangers and air cooling systems. With over 30 years of experience in the industry, we are proud to develop innovative solutions that meet our customers' requirements for efficiency, quality and sustainability.

Our expertise extends to the design and manufacturing of air-cooled heat exchangers and air cooling systems in various configurations, with plain and also with finned tubes. We rely on state-of-the-art technologies and high-quality materials to deliver products of the highest quality to our customers. To better meet our customers requirements and increase our flexibility, we established the ALZ Blechbearbeitung GmbH as our subsidiary in May 2018 to manufacture individual components for pressure vessels and steel construction in-house.

Due to the high-quality requirements for the final product, our subsidiary has qualified as a welding company and obtained the necessary approvals and certifications.



What sets us apart?

Quality made in Germany

■ **Extensive Experience:**

With over three decades of experience, we know how to overcome challenges and meet customer demands.

■ **Customized Solutions:**

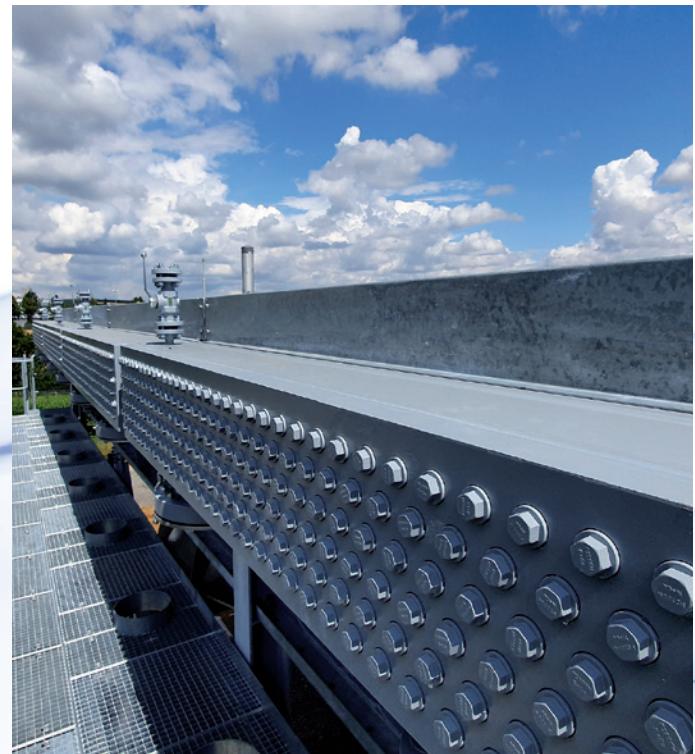
We understand that every application is unique. Therefore we provide customized solutions that are specifically designed to meet your requirements.

■ **Reliable Support:**

Our dedicated team is available at all times to provide technical support and guidance.

■ Our quality management system, certified according to **DIN EN ISO 9001**, ensures the maintenance of high quality at all times.

■ Our **highly qualified staff**, supported by flat hierarchies and efficient internal communication, ensure a smooth and timely execution of your project.



What you can expect from us:



- Heat exchanger bundles with headers as welded bonnets, removable cover covers, or plug headers
- Horizontal, vertical, or inclined installation (in A-frame or V-frame installation or sloped construction)
- Axial fans in induced or forced arrangement
- Steel structure with platforms and ladders
- Auxiliary and supplementary equipment, such as control cabinets and water injection through fans
- Assembly and commissioning support

Air-Cooled Heat Exchangers

Air cooling is gaining importance due to continuously increasing costs for cooling water. It is an efficient method of cooling process streams when cooling water is not available.

Rely on the extensive expertise of our engineering departments for thermodynamic design, structural calculations, and the design of complete air cooling systems in accordance with national, international and customer-specific standards.

We solve the tasks assigned to us for all engineering areas using modern software applications.

All ALZ air cooler bundles and heat exchangers are manufactured at our facility in Dorsten. This ensures that our manufacturing quality and progress are always traceable for our customers.



Concept



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- 1 Louver
- 2 Heat Exchanger Bundle
- 3 Preheating Coil
- 4 Air Distribution Chamber
- 5 Fan
- 6 Vibrationsensor / Vibrationsswitch
- 8 Ladder with safety cage
- 9 Maintenance platform with grating
- 10 Substructure / Steel Structure

Air Cooled Heat Exchangers consist of the heat exchange bundles for process cooling, the fans for the cooling air and the support structure.

In addition, we offer preheating coils, louvers and maintenance platforms with access ladders as optional equipment.

Ihr strategischer Partner
beim C-Teile-Management
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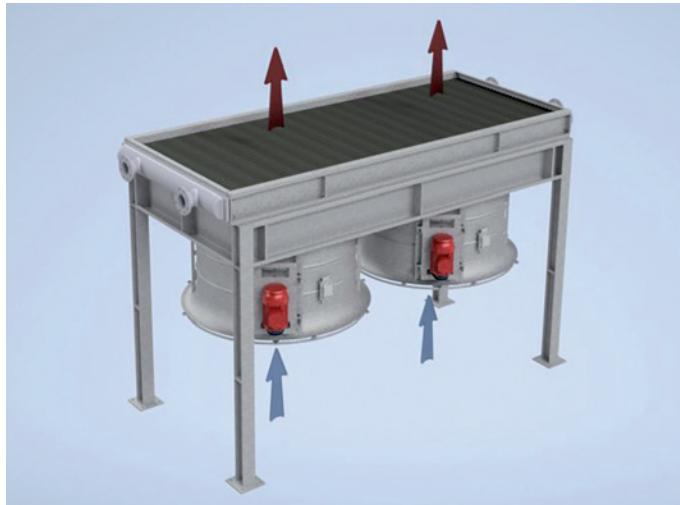


Configurations

Systems with Air Cooled Heat Exchangers can be manufactured in horizontal, vertical, or inclined configurations. The fans can be arranged in forced or induced mode.

The choice of configuration depends on the requirements of the cooling process, environmental conditions and available space.

Horizontal configuration with forced fans



The most common design of air coolers is the horizontal configuration with forced fans beneath the heat exchange bundles. This arrangement provides easy access to the fan drives for maintenance purposes.

Horizontal configuration with induced fans



The induced arrangement of fans, positioned above the heat exchanger bundles, ensures a very uniform flow over the heat transfer surface. The shading of the heat exchange bundles provides protection against intense sun radiation.



Verbindungselemente & Drehteile

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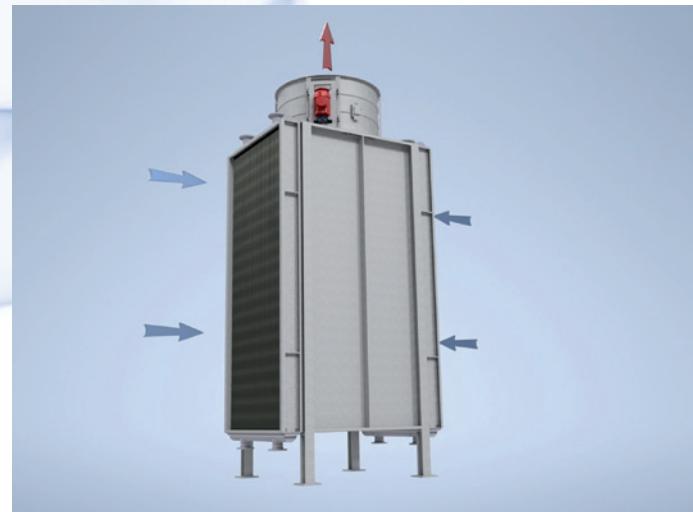
Configurations

A-Frame



In cases of limited space, systems can be installed in an A-frame roof configuration. The fans are positioned in a forced arrangement.

Vertical configuration



Vertical configuration systems are used in situations with limited space. In a vertical airflow arrangement, the fans are positioned in induced mode. Especially in smaller systems the fans can be arranged with horizontal airflow (forced or induced).



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Wir fräsen, bohren und drehen entsprechende Materialien nach Kundenzeichnung. Das Rohmaterial wird größtenteils durch unsere Kunden beigestellt, jedoch bieten wir auch die Möglichkeit der Materialbeschaffung durch uns an. Auf einer Produktionsfläche von rund 900 m² fertigen wir Einzelteile bis hin zu Mittel- und Großserien im Klein- und Großteilbereich.

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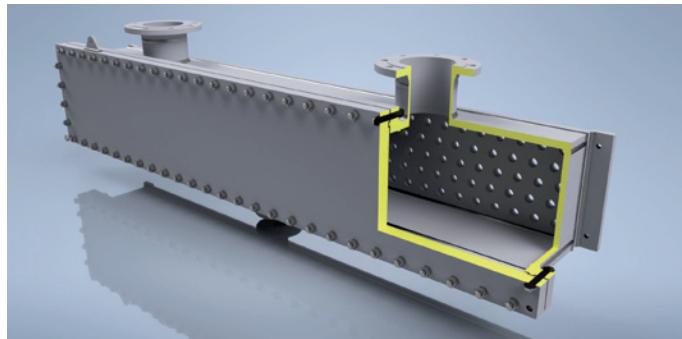
Header Configurations

Under considering of the process requirements, ALZ air cooler bundles can be equipped with various distribution and collection headers.

The main criteria are the maximum allowable operating pressure and the accessibility of the tube-to-tube sheet connection.

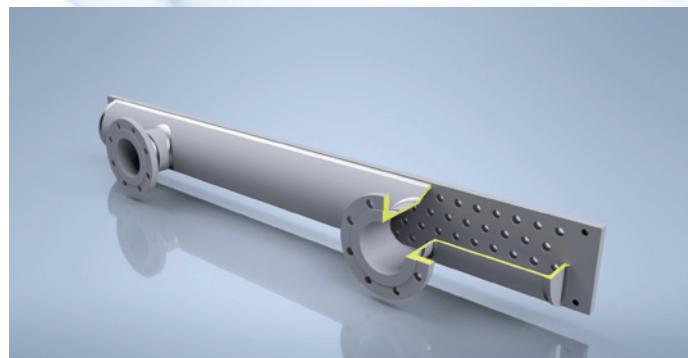
In addition to the shown header configurations ALZ air cooler bundles can also be supplied in other configurations to meet specific process requirements, such as tube headers, elbows and coil arrangements.

Removable Coverplates



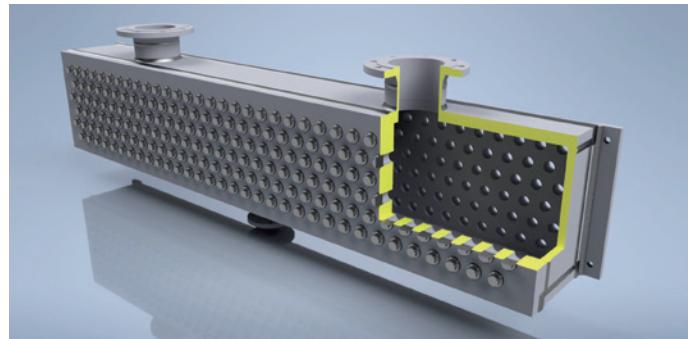
The header frame and the tube sheet form a rectangular box chamber. The coverplate is bolted to the header frame. This allows the removal of the cover for inspection and cleaning purposes. Nozzles can be positioned in the headerframe or the coverplate. The maximum design pressure is limited to approximately 50 bar. Configurations with higher pressures can be implemented as special constructions.

Welded Bonnet Header

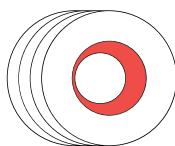


In this configuration a half-shell is permanently welded to the tube sheet. Connection nozzles are located in the bonnet. This design is suitable for applications where it is not necessary to have access to the tubes and the tube-to-tube sheet connection. The maximum design pressure is approximately 100 bar.

Plug-Header



This design is a fully welded box header. For inspection and cleaning purposes a threaded closure plug is provided opposite each heat exchanger tube. This header type will be used for high-pressure applications up to approximately 250 bar.



AIRCO-FIN

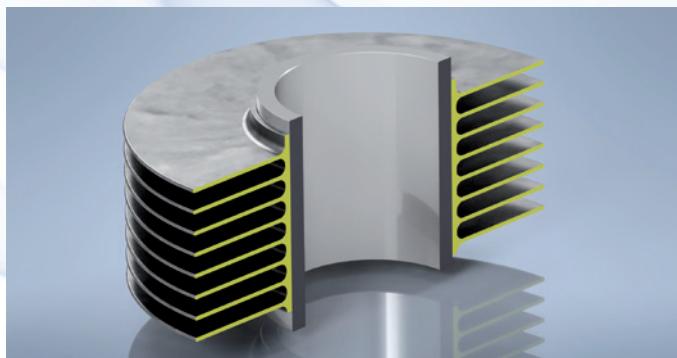
Production and supply of finned tubes and aluminium louvres

Extruded | Embedded (G) | Wrap on (L)
Double L / overlap (LL) | Knurled wrap on (KL)
Knurled overlap (KLM)



Types of finned tubes

B-Fin (extruded)



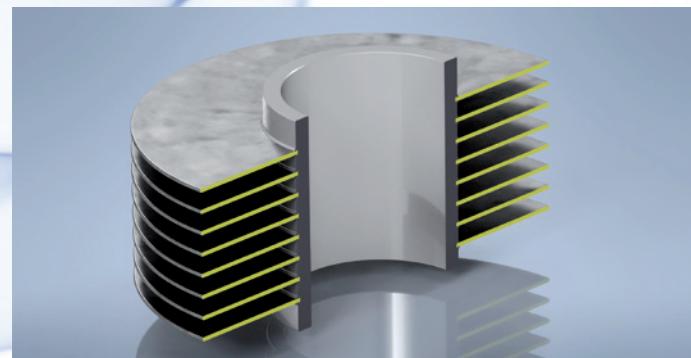
Tubes with extruded aluminum fins are characterized by high mechanical and thermal stability. The fin is extruded from a thick, plain aluminum tube that is solid onto the core tube. That creates a strong bond between the core tube and the fin with excellent heat conduction properties.

Fin Material: aluminium

Core Tube Material: any metallic material

Maximum Operating Temperature: 300 °C

G-Fin (embedded)



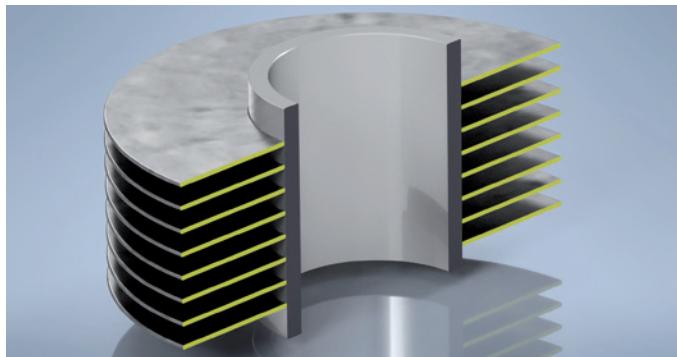
These are spiral finned tubes with excellent heat transfer properties and high thermal endurance. The mechanical strength varies with the choice of fin material. During manufacturing the fin is spirally wound under tension in a pre-formed groove in the tube and tightly bonded to it by rolling.

Fin Material: aluminum, carbon steel (bright or galvanized)

Core Tube Material: carbon Steel, easily machinable stainless steels

Maximum Operating Temperature: up to 400 °C

I-Fin (wound on)



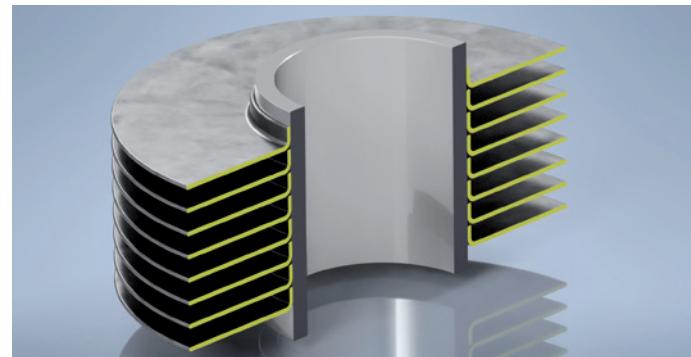
These spiral finned tubes will be manufactured by winding the fin tightly under tension directly onto the tube. Depending on environmental conditions, a galvanized fin strip is used, or the tubes are fully galvanized by hot dip galvanizing after finning.

Fin Material: carbon steel

Core Tube Material: any metallic material

Maximum Oper. Temperature: 250-300 °C
(depending on configuration)

L-Fin (wound on)



In areas with moderate mechanical and thermal demands, tubes with L-fin fins are used. During manufacturing, an aluminum fin strip is pre-formed into an L-shape and tightly wound under tension onto the core tube.

Fin Material: aluminum

Core Tube Material: any metallic material

Maximum Operating Temperature: 200 °C

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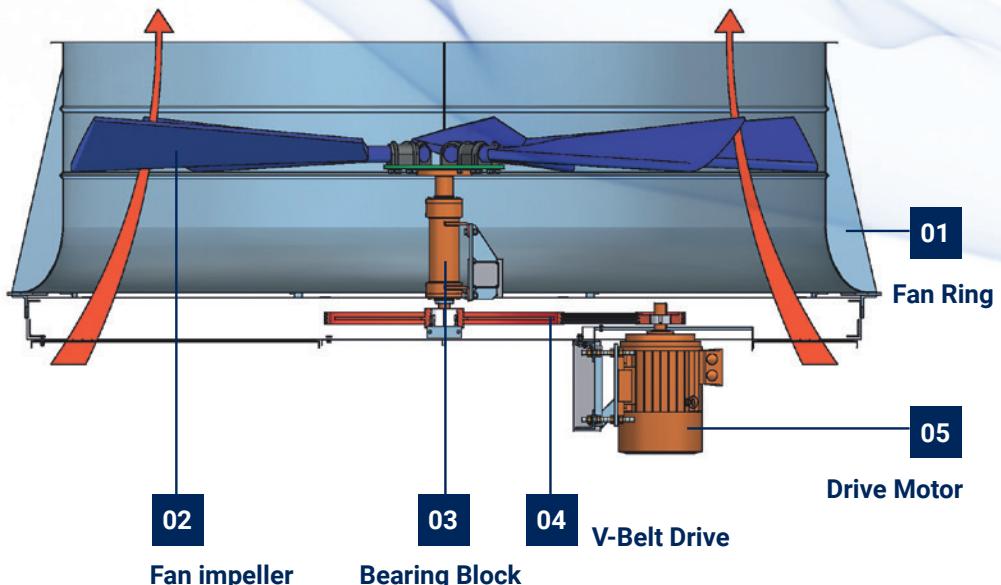
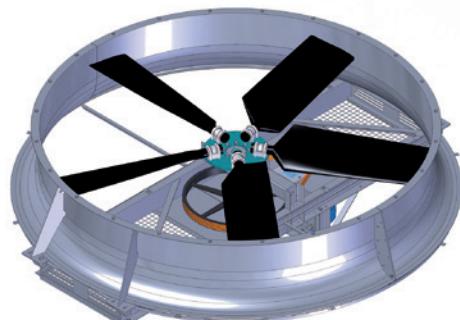


IHR ROHRSPEZIALIST
ERFAHREN & INNOVATIV

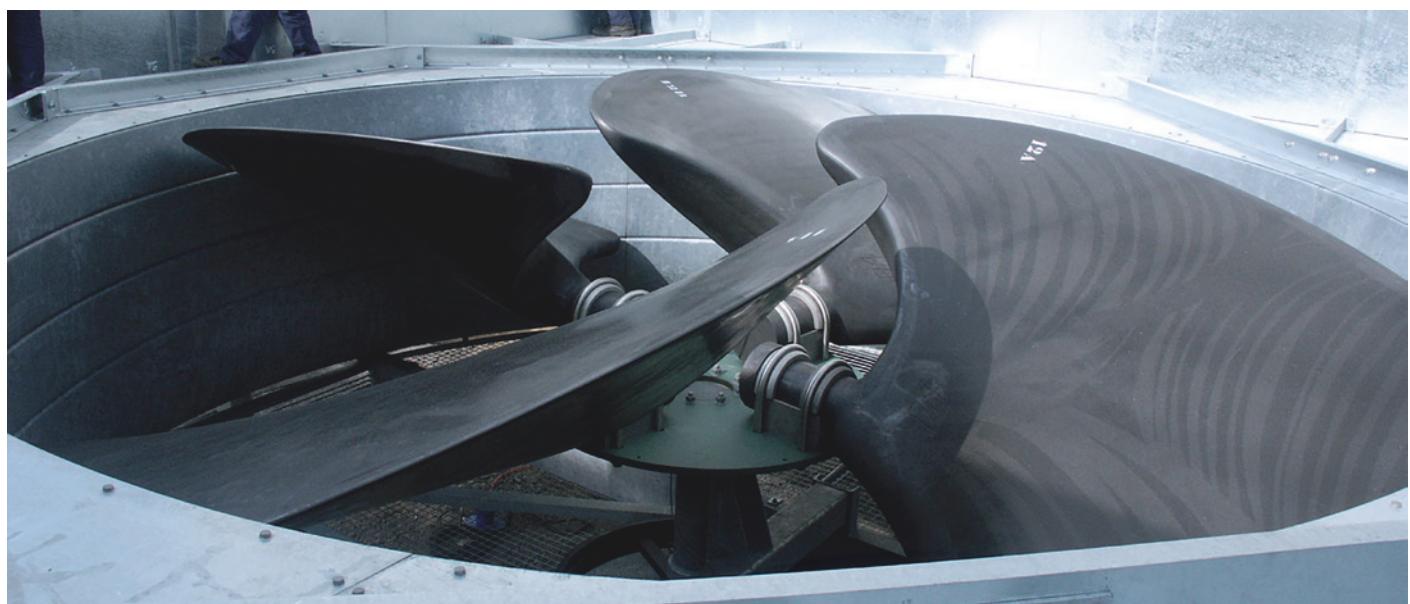
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Fans



In air cooling systems axial fans are used to supply the ambience air required for the cooling process. The design of the fans is based on the specific operating conditions resulting from the design of the heat exchanger bundles. The required air volume, static pressure loss and the customer's individually specified requirements for noise emissions are the main criteria for choosing a fan type.



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Principle

The fans consist of the impeller, the impeller ring, and the drive unit. Depending on the requirements, different blade profiles made of aluminum or glass fiber-reinforced plastic are used for the impellers.

The impeller rings are made of steel. We use a design with an elliptical-shaped inlet, which minimizes turbulence at the air intake, thereby increasing efficiency and reducing the required drive power. Galvanization ensures corrosion protection. Alternatively, painting or a combination of galvanization and painting is possible.



Drive

The drive unit consists of the bearing block for the impeller, the V-belt drive, and the drive motor. All used components are precisely matched to each other.

The consideration of special customer requirements is always possible. For small diameters fans a direct drive is commonly used. In this case the fan impeller is directly mounted to the drive motor.

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We looking forward to work with you and
develope solutions that meet your requirements.



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