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VENTILAZIONE INDUSTRIALE

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ventilazione industriale

when
you need air...we blow it

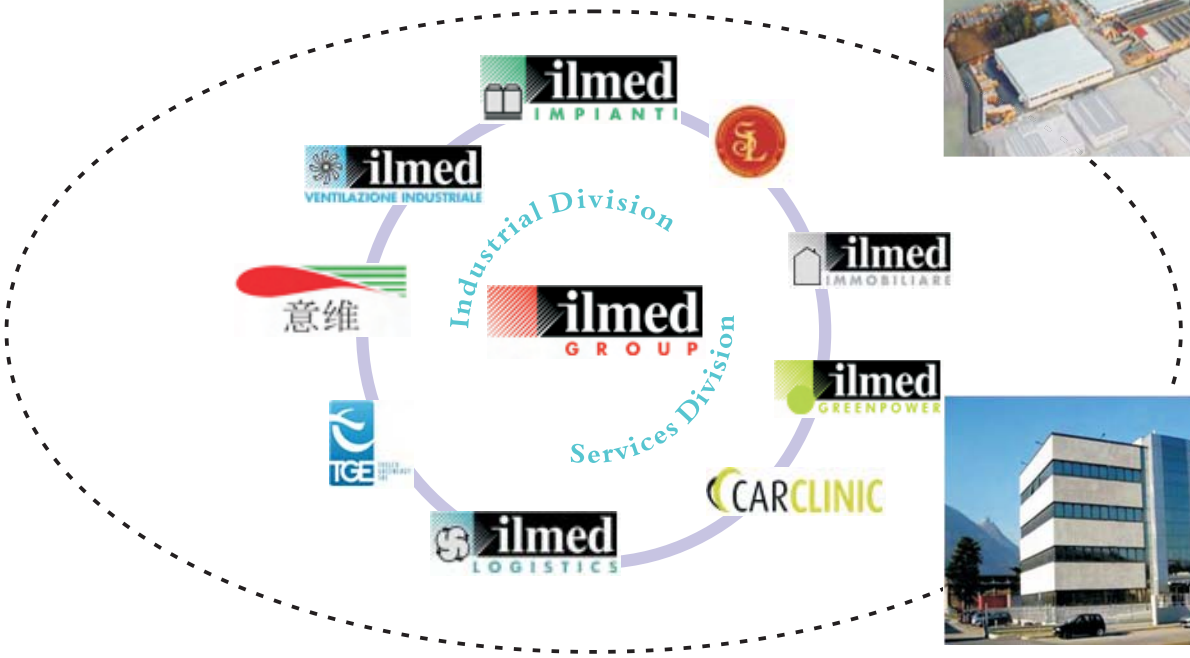
Ilmed Ventilazione Industriale S.r.l

I.V.I
Company Profile

Ilmed Ventilazione Industriale s.r.l. "I.V.I" in short is specialized in the design and manufacturing of high performance, high efficiency, low noise axial and centrifugal fans for industrial, civil and marine applications.

I.V.I is a company of ILMED Group, which has history of 90 years and has developed into the current scale by the effort of four generations entrepreneurs. The ilmed plants located exactly, 150 years ago, an illustrious scientist and businessman, Alfred Nobel, opened his Italian plant for the production of explosives. It is a strategic and ideal position from both logistic and industrial veiwpoints.

Current ILMED Group Structure



The first **I.V.I** fans were designed in the mid 70's by introducing the know–how and technology of the helicopter industry. The result was a big change and a drastic modernization of the industrial fans typology. A pneumatic system to control the blade pitch in operation was developed in the 80's and still continues to feature high–tech performance and quality. The 90's brought new profiles capable of increasing performance, reducing power consumption and noise emissions. Innovative products are currently being developed to satisfy the increasingly sophisticated demands of the international market.

Fan Competitive Advantages

The innovative features that characterize **I.V.I** fans give to customers very important competitive advantages:

1.Innovative airfoils: very recently new airfoils (third generation) with superior aerodynamic chracteristics have been introduced on **I.V.I** series. They provide higher performance combined with reduced power consumption and lower sound emission.

2.The blades are characterized by constant geometry and are not twisted. These features have been adopted to optimize the pressure recovery in the cooler's plenum in order to provide an extra power saving.

3.Fifteen profiles with difference chords, made by extruded aluminum or pultruded FRP, are available to allow the customer to freely choose the diameter of optimum fans for any applications.

4.The blades are master–balanced; they can be installed onto the hub in any sequence, without the need to balance the complete fan. The blades are interchangeable.

5.The blades of large fans are mounted on the hub with a small downward angle to relieve the stress in operation.

6.The blades pitch angle is adjustable at rest; the blade attachment to the hub allows an easy and quick individual adjustment of the blade angle.

7.The hubs are available in many different sizes, depending on the profile series, the fan diameter and the number of blades. The hub choice is optimized to guarantee maximum strength, absence of resonance, absence of reverse flow. The anti–corrosion protection of the hub and other steel parts is provided by cataphoresis, hot dip galvanization or epoxy paint depending on fan model or customer's specifications.

In few words: **I.V.I** fans are characterized by excellent performance, low power consumption, low noise, high fatigue strength, optimum corrosion resistance.

Profile	Blade Marerial	Diameter[mm]
Series 20	ALU	414 – 1800
Series 25	ALU	500 – 3660
Series 32	ALU	600 – 6200
Series 35	ALU	600 – 6200
Series 36	ALU	900 – 5500
Series 36 EL	ALU	900 – 5500
Series 42	ALU	1103 – 7320
Series 59	ALU	1010 – 11000
Series 75	ALU	4800 – 13000
Series 37	FRP	600 – 6200
Series 38	FRP	900 – 5500
Series 38 EL	FRP	900 – 5500
Series 55	FRP	4800 – 13000
Series 59	FRP	1010 – 11000
Series 90	FRP	4800 – 15000

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Blade–hub Connection

AP series: two types of rigid connections

A) "pillow blocks clamping": extruded aluminum pillow blocks clamp the blade shaft and are sandwiched between the steel lower disk and upper disk/ring of the hub. This configuration is mainly used in industrial cooling towers, air cooled heat exchangers and air cooled steam condensers.

B) "U–bolts clamping": the blade shafts lean on aluminum extruded housings and are clamped to the hub by two U–bolts. This configuration is mainly used in civil cooling towers.

EL series: resilient / damped connection

The blades are connected to the hub through an elastomeric bushing. The bushing's inner member is bolted to the hub, while the blade shaft is connected to the bushing's outer member through pillow blocks. The resilient connection allows the blade to oscillate in the vertical plane (like helicopter blades) to find its equilibrium position.

This innovative feature eliminates any resonance potential risk and drastically reduces the stress on both the blades and the hub to grant superior fan reliability. The elastomeric bushing also provides good mechanical damping that reduces vibrations and structure–borne noise for a smooth and silent operation.

The pitch angle is easily adjustable at rest.

EL series can be used in any application in the diameter range from 0.900 m to 5.486 m (18ft).

Products & Applications

I.V.I fans are successfully used in a wide range of applications: packaged and field–erected cooling towers, aircooled heat exchangers, aircooled steam condensers, radiators, civil and marine ventilation, tunnel/metro and other industrial applications.

1.Application in Cooling Towers

I.V.I impellers are suitable for both air–conditioning cooling towers and large industrial cooling towers. The blade geometry is particularly optimized to maximize the pressure recovery in the plenum of the cooling towers to reduce the absorbed power.

The fan selection software takes into account the characteristics typical of cooling towers that influence the fan aerodynamics, such as the position and the dimensions of the aerodynamic disturbances (structural beams), the geometry of the plenum, the transition from plenum to fan ring, the inlet shape, the diffuser (if any), ... etc.

The best surface protection is provided to steel components to prevent any potential corrosion problem even in the most adverse environment. Leading edge protection can be provided, on demand, on FRP blades to prevent potential leading edge erosion.

Civil CTs

Typical of civil air–conditioning CTs is the "hanging configuration" with belt transmission. The hubs have been especially designed for an easy and quick installation of individual blades. The fan diameters typically range from 1 m to 4.2 m. Series 20, 25, 32, 35, 36, 42, FRP 37, 38 are the most used for these applications.

Industrial CTs

Typical of industrial CTs is the "lay on configuration" with gear–box transmission.

The fan diameters typically range from 1 m to 15 m.

Series 59ALU, 75ALU, 59FRP, 55FRP, 90FRP are suitable for fans of very large diameters. In particular the new series 55FRP, 90FRP, that adopts the innovative "high lift – low Reynolds Number" profile, can be utilized for diameters up to 15 meters.

For smaller diameters, up to 5 meters, series 20, 25, 32, 35, 36, 42, 37FRP, 38FRP are the most used.

2.Application in Air Cooled Systems

Other typical applications of **I.V.I** fans are: air cooled heat exchangers and air cooled steam condensers[ACC]. The blade geometry is particularly optimized to maximize the pressure recovery in the plenum of the aircoolers/aircooled condensers to reduce the absorbed power.

Aircooled Heat Exchangers

In the most of the aircoolers (either forced or induced draft) the fan diameters range from 1 m to 6 m. Series 20, 25,32, 35, 36, 42, 59ALU, 37FRP, 38FRP are the most used for these applications.

The fan selection software takes into account the characteristics typical of aircoolers that influence the fan aerodynamics, such as the position and the dimension of the aerodynamic disturbances (structural beams, machinery, safety grid), the geometry of the plenum (normally parallepiped), the inlet shape, ... etc.

if required, the fans can be provided with a pneumatic system to control the blade pitch in operation (AV hub).

The fans can operate at temperatures from 50°C to +120°C.

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Aircooled Steam Condensers [ACC]

In the most fo the air – cooled condensers the fan diameters range from 6 m to 15 m: series 59ALU, 75ALU, 59FRP, 55FRP and 90FRP are the most used in these applications. In particular the new series 55FRP and 90FRP, that uses the innovative "high lift – low Reynolds Number" profile, can be utilized for diameters up to 15 meters.

Normally the fan is in "hanging configuration" and is driven through a gear–box.

I.V.I fan selection software takes into account the characteristics typical of aircooled condenders that influence the fan aerodynamics, such as the position and the dimension of the aerodynamic disturbances (structural beams – normally located downstream, safety grid, motor/gear–box basis), the plenum geometry ("A" shape), the inlet shape, ... etc.

When the noise is a real issue, **I.V.I** can supply a "high thickness single disk" hub that avoids the chance for the mechanical noise generated by the gear–box to be amplified by the air chamber between two hub disks.

3.Group Fans & Other Applications

Besides impellers, **I.V.I** can supply also complete fan units used for process coolers, aircooled heat exchangers, ventilation, radiators, ... etc.
CFF series (motor directly coupled)
TFF–01 series (belt transmission motor on bridge)
TFF–09 series (belt transmission motor on side bridge)
TFF–12 series (belt transmission motor on base bridge)
GFF series (coupled with gearbox)


CFF


TFF-01


TFF-09


TFF-12


GFF

Centrifugal fans




Marine fans and customzied fans

I.V.I fans are customized on the basis of customers' real requirements for other applications, such as tunnels, metro, factory ventilation, marine ventilation.

I.V.I marine duty fans are professionally designed to comply with international classification and norms. They are characterized by excellent performance, reliable operation, perfect balancing and low noise. I.V.I also provide every kind of accessories, such as circular or septum silencers, anti–vibration supports, flexible joints, ATEX electrical connections, ... etc.



Service

At **I.V.I** we are proud to be able to always guarantee a highly professional and quick service. There are two key factors to achieve this:

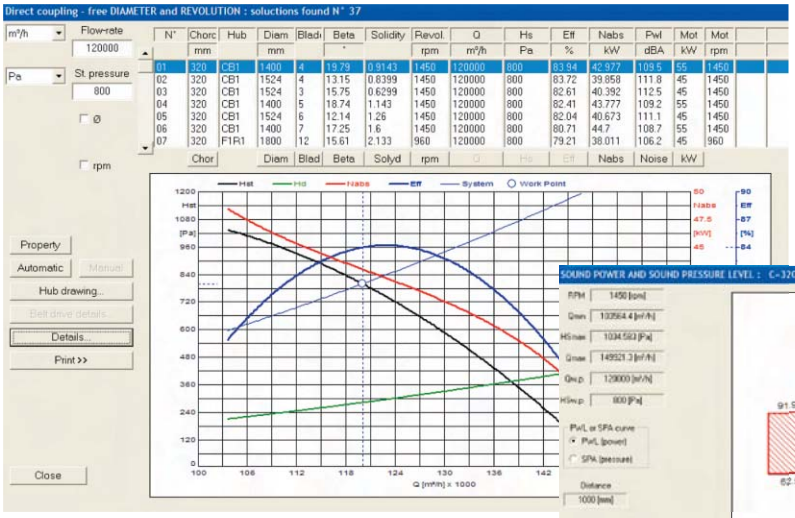
One is that we have the invaluable source of expert knowledge; the other is that we always pay a special attention to customer's needs.

For any projects in any location we are committed to make available our expertise and to provide the customers with our professional site services:

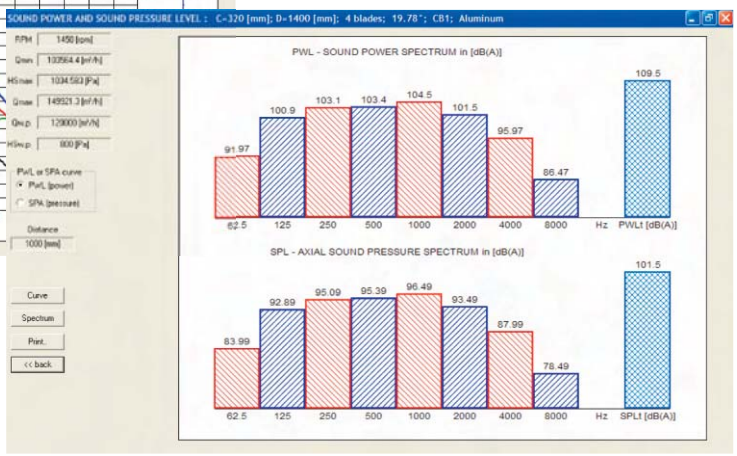
- Assembly check: blade pitch angle, tip clearance, bolts torque setting, ... etc.
- Performance test: rotation speed check, airflow, static pressure, absorbed power measurement, ... etc.
- On–site survey: vibration, noise, ... etc.
- On–site repair: blades
- Troubleshooting

R&D

I.V.I is committed to continuously invest in research and development with the aim of always improving not only our products but also the "marriage" with the different types of coolers and to satisfy the customer's needs. From this viewpoint, the customer's feedback is always very valuable to us.



Our advanced and user–friendly selection software is available for customers to make the fan selecton and performance calculation. It was developed entirely by **I.V.I**'s technical staff and provides a very accurate and reliable prediction of fan performance.



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