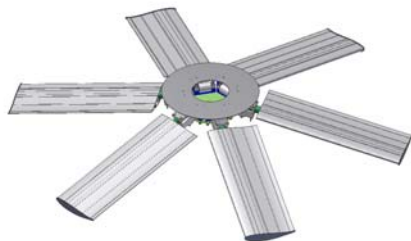


## SERIES “ELASTOFAN”

ILMED is proud to introduce the new series “Elastofan” model 36, specifically designed for aircoolers, process coolers, wet cooling towers, engine drive applications, radiators and other industrial applications.



### Introduction

The new series “elastofan” is characterized by the elastic-damped connection of the blades to the hub (resilient mounting system) : an elastomeric bushing provides the required elasticity and damping. The result is a light and very sturdy fan, 100% free from any resonance potential problem.



The blades utilize a new profile especially designed for low Reynolds Numbers applications, typical of fan blades operations. This profile provides not only higher lift without the need of a flap, but also higher efficiency in the whole range of the operating aerodynamic angle of attack. The

excellent aerodynamics of the profile is also beneficial for the noise emission.



### Resilient blade mounting : advantages

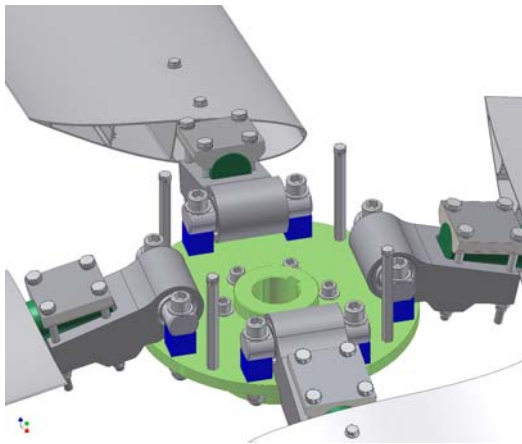
- Drastically reduces the blade bending moment in both the vertical and the horizontal plane.
- Drastically reduces the stresses in the blade and in the hub.
- Drastically reduces the vibration transmitted by the blades to the hub.
- Drastically reduces the effect of high-speed wind, severe wind gusts, and other extreme operating conditions.
- Reduces the mechanical noise transmitted by the structure through the blades to the air.
- Eliminates resonant frequencies. Variable frequency drives (VFD) can be operated in the full speed. Range, from 0% to 100% : there are no critical speeds to be avoided.
- The API Standard 661 requirement (resonant frequency of the fan not to be within 20% of the blade pass frequency) is always satisfied.
- The elastomer provides both mechanical and acoustic damping for smoother and quieter operation.

- The resilient mount is a fail-safe system: in case of failure of the elastomer the blade remains attached to the hub. The fan can work in this condition for a period of time sufficient for the anomaly to be detected and corrected.

## Fan components

### Hub

The hub assembly consists of a flanged hub boss bolted to the hub disk to which the fan blades are connected. The hub boss accommodates a split taper bushing (Browning or equivalent); can also be provided with cylindrical bore upon customer request. Both hub boss and disk are made of high quality carbon steel, preserved by cataphoresis. Different hub sizes are available depending on the number of blades and on the drive shaft diameter.

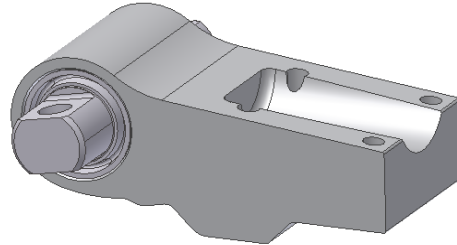


### Resilient blade mount

The resilient blade mount consists of :

- \_ an extruded aluminium clevis that accommodates the elastomeric bushing and incorporates the blade shaft attachment and the blade angle variation system.
- \_ an elastomeric bushing pressed into the housing of the clevis and provided with an extruded

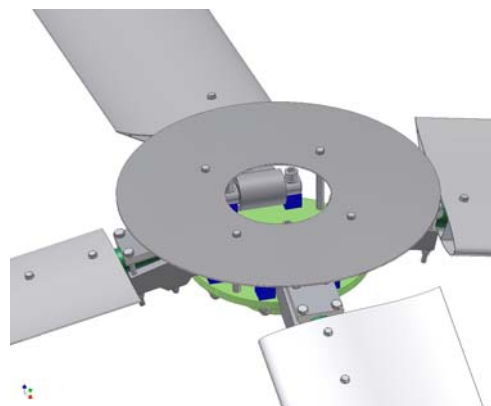
aluminum pivot. The pivot is connected to the hub disk through an aluminium extruded spacer.



The advanced elastomer chemical composition, the elastomer pre-compression and the oversizing of the elastomeric bushing guarantee the maximum strength and the longest fatigue life even at high temperature.

### Seal disk

A seal disk of proper diameter is provided to prevent back flow of air through the fan center to the benefit of the fan efficiency. The seal disk is made of steel and preserved by cataphoresis.



### Blade shaft

The blade shaft connects the resilient mount to the blade profile. It is located in the clevis housing and is bolted to the clevis through a pillow block; can be easily rotated to set the blade angle. It is provided with an innovative blade retention safety system. The blade shaft is made of high quality carbon steel and is preserved by cataphoresis.

### Blade profile

The blade profile, bolted to the blade shaft, is made of high strength extruded aluminum alloy.

Vertical spars stiffen the hollow profile and the result is a light and very stiff structure



The blade is provided with caps at both ends; the caps are made of plastic suitable to operate at high temperature. The tip caps can be offered either in standard configuration or in "winglet" configuration to allow better performance and efficiency and to reduce the noise emission by about 2 dB.

### Hardware

Standard : carbon steel, electro-galvanized

Optional : stainless steel

### Fan specification

Series	model	no. of blades	fan diameter
ELASTOFAN	36	3 to 10	5 to 18 ft

Maximum tip speed :

12000 to 14000 ft/min (61 to 71 m/sec)  
depending on fan diameter

Operating temperature

Standard -20 to +120 °C (-4 to +248°F)

Upon request -46 to +120 °C (-50 to +248°F)

Conservation of steel components : cataphoresis.

Manually adjustable blade angle at stand still

Blades are individually balanced to a master blade : they can be installed in any position on the hub and are interchangeable between fans of same diameter.

Both clockwise and counter clockwise configurations are available, in standard and reverse configurations. Fans can be operated either horizontally or vertically.