



## MxFlo: the mixed flow fan for high pressure and efficiency

The Multi-Wing MxFlo is designed to provide high pressures and high efficiency in the demanding conditions engine manufacturers face using orifice plates and large tip clearances, and it fits perfectly with a viscous clutch. Built to solve the stringent emission requirements from Tier 4 in the U.S. and Stage III B Standards for Nonroad Engines in Europe, the MxFlo delivers its peak performance under the most challenging conditions.

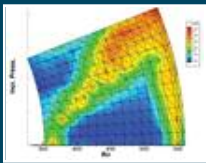
The MxFlo has a proprietary design that combines strategic features from Multi-Wing's long line of blade design advances, all rooted in an innovative new hub. With a narrow axial depth the MxFlo was built for the limited installation space available in engine compartments filled with cooling packages and other obstructions. And its combined axial and radial airflow cools the engine while reducing turbulence and increasing efficiency.

## The Mixed Flow option for engine cooling

Multi-Wing's axial fans continue to solve the spectrum of engine cooling challenges that contemporary emissions standards require. Those solutions often require the fan to generate higher pressure which can have an adverse effect on efficiency. Built for off-highway applications, the MxFlo fan is designed to deliver peak efficiency at higher pressure, and uses a combination of axial and radial airflow to cool the engine.

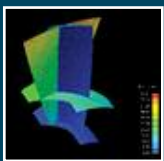
## The innovation behind the MxFlo

Multi-Wing's R&D process delivers impressive performance in a mixed flow fan



Multi-Wing's long-term investment in new technologies has pushed our Research

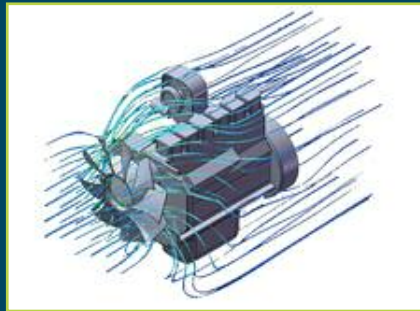
and Development team beyond conventional fan designs, allowing them to engineer advanced blade profiles that target specific air-moving challenges like the demand for higher pressure in a high efficiency blade profile.



Using Computational Fluid Dynamics and other innovative technologies, we can study the

performance of specific sections of a fan blade, and then optimize that performance for the targeted design criteria.

We use Flow Diagnostics to determine key variables including mean velocity, turbulence intensity, and the effect of contraction ratio in the working section of the fan blade.



This wealth of performance data and geometric requirements allow Multi-Wing's Research & Development team to design an exact scale model of a fan blade from a 3D file using our in-house Rapid Prototyping Machine.

Each model goes through exhaustive wind tunnel analyses at our global R&D facility, which are complemented by a battery of evaluations including spin burst tests and rigorous field tests using strain gauge stress measurements.



Multi-Wing innovation is driven by our customer partnerships and is supported by our unsurpassed experience and aerodynamic research and development. Tier 4 presented a layered air-moving challenge for our customers using off-highway diesel engines, and Multi-Wing responded with the MxFlo.





## Technical Specifications

### Dimensions

Diameter Range	550-735mm (21.5-29")
Available Pitch Angles	22°, 26°, 30°, 33°, 37° & 40°
Axial Depth	90-134mm (3.5-5.28")

### Design Features

- Mounting: Designed for flange mounting. Fits MAHLE clutches, which are available through Multi-Wing.
- Adjustable pitch settings from 22° to 40° as listed.

### Materials

- The hub is available in new, long-fiber glass-reinforced polyamide (PAGLF), built to handle the most challenging performance requirements.
- The fan blades are available in glass-reinforced polyamide (PAG).
- Temperature range: -40 C to +120 C

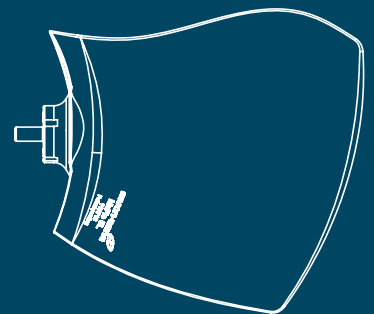
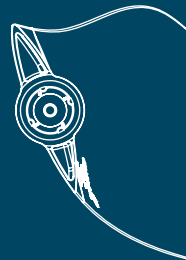
Depth at 40°  
134mm



Depth at 22°  
90mm



Hub Depth:  
90mm



We reserve the right to change materials of manufacture. The values for the mechanical properties are mean values and can be subject to variations due to the use of different suppliers.



## Quality assured

Our high quality standards have been cultivated through strategic partnerships in our value chain, and we control all processes from innovation to production and distribution. We earned ISO 9001: 2008 certification and comply with the document-handling elements of ISO/TS 16949. Around the corner and around the world, Multi-Wing delivers results you can trust.

## Frequently Asked Questions

### Why is Multi-Wing introducing a mixed flow fan?

With generations of axial fan experience in the off-highway market, engine manufacturers called on us to apply that expertise in creating a new solution for Tier 4's strict heat rejection requirements. That solution is the MxFlo: a mixed-flow fan that provides the flexibility of our modular axial fans, with the performance of a centrifugal fan, all without the limits of a traditional fixed-diameter, mixed-flow fan.

### What kind of performance does the MxFlo provide?

The MxFlo was engineered to provide the ideal airflow pattern around engines, cooling them by using a combination of axial and radial airflow. The heavy-duty hub and hybrid blade design combine to generate up to 50 percent more static pressure than standard axial fans. And the MxFlo generates peak efficiency - more than 50 percent - at those higher pressure levels. Just as important in the off-highway markets, the MxFlo was designed to perform in orifice plates with large tip clearances.

### Is the MxFlo a modular product?

Absolutely. The crucial design difference between the MxFlo and many existing mixed-flow fans is that it offers the versatility of the modular fan that Multi-Wing is known for. The MxFlo has adjustable pitch settings and a diameter range of 550 to 735 millimeters.

### Can I use a clutch with the MxFlo?

Yes. The MxFlo was designed to fit MAHLE clutches.

### Is the MxFlo a narrow profile fan?

The MxFlo was developed for the tight installation spaces in Tier 4 engine compartments, and it has an axial depth of 90 to 134 millimeters.

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