

Cleanfix®

Reversible fans for radiator cleaning

Clean Radiators save fuel...

...by Cleaning and automatic Adjustment



*** APPROVED BY: ***
Claas, CNH, DaimlerChrysler, Deutz,
Fendt, Krone, Manitou and many others!
Thousands in operation world wide!



Awarded with the
Agritechnica DLG Gold Medal.
US-Patent No.: US 6, 190, 126 B1

A Product of Hägele GmbH
Made in Germany



The Cleanfix reversible fan, cleans all clogged radiators and screens.



The problem:

Increased fuel consumption.

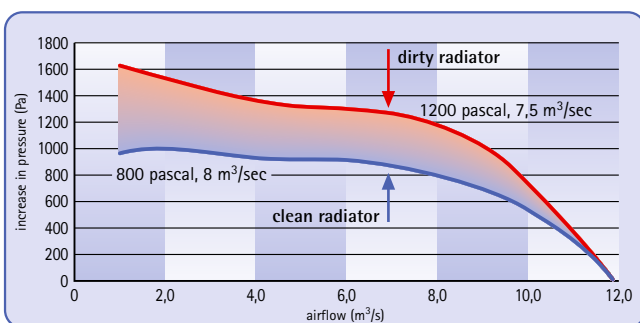
**The cause:
dirty radiators and air-intake screens.**

Modern machines demand enhanced cooling due to increased requirements concerning emissions and the desire for greater operator comfort. This requires a higher airflow, which leads to higher dust and dirt accumulation that clog radiators and air-intake screens.

To compensate for the extra airflow requirements, usually the fan's rotation speed is increased. However this causes a large increase in fuel consumption.

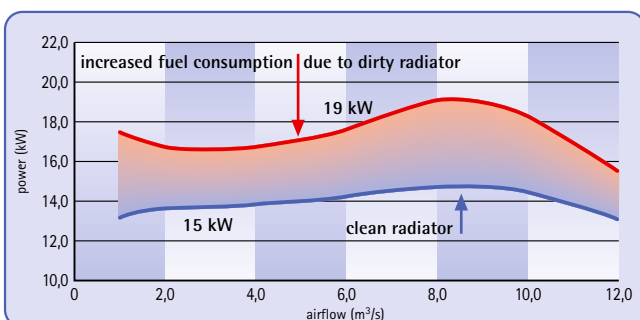
Result:

- Overheating of the Engine, Transmission and Hydraulics.
- Reduced Performance of Air-conditioning.
- More maintenance; Repair - Cleaning - Downtime.
- Higher fuel consumption.
- Higher fuel consumption caused by a higher number of cycles of the viscous coupling or by an increase of the number of revs of the Hydraulic motor.



Less airflow is created when the radiator is clogged, forcing the fan to pull harder to match the needed airflow.

This leads to: ▼



The standard fan installed with a dirty radiator uses 4-kW more to produce the same airflow of the clean radiator.

The price for clogged radiators in Tractors

In this example we've calculated € 50,- per hour for cleaning (including downtime).

	60 days	90 days	180 days
0,25 hours per day	€ 750,-	€ 1 125,-	€ 2 250,-
0,50 hours per day	€ 1 500,-	€ 2 250,-	€ 4 500,-
1,00 hours per day	€ 3 000,-	€ 4 500,-	€ 9 000,-
2,00 hours per day	€ 6 000,-	€ 9 000,-	€ 18 000,-

Plus the additional fuel savings with a clean radiator. 4 kW additional fuel savings over 500 operating hours per year (see graph), (fuel consumption 1 liter/hour at 4 kW × 1,1 €/liter):

additional savings in 500 hours = 500 liters **550,00 €**

plus costs for cleaning (see above chart) + 750,00 €

Total additional savings per year: 1300,00 €



The solution:

The patented Cleanfix system cleans the air-intake screens and the dirty radiators and, due to the automatic cleaning program, can give fuel savings of up to 6% (research University Nürtingen Germany).

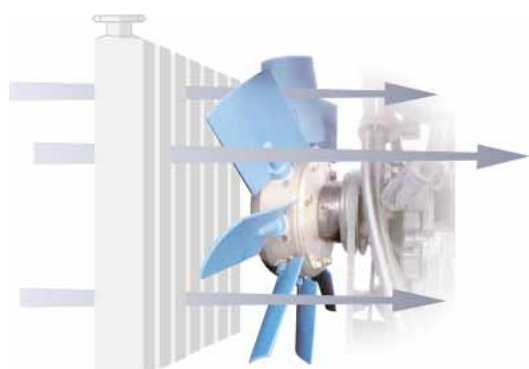
- Cleanfix positions its blades in a way that the profile is always aligned in the air-flow direction.
- **This is the only way to blow effectively** through several radiators and to clean intake screens.
- Overheating of the engine, the gear box and the entire hydraulic system is prevented. Work interruptions and downtimes can be reduced drastically.

It's also possible to switchover with full engine revs.

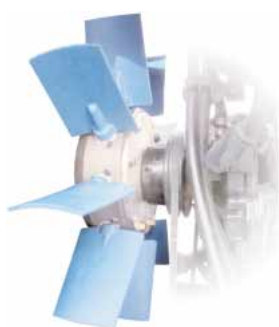
What is the difference between Cleanfix and other systems? What makes the Cleanfix idea so successful?

If you change the direction of a standard ventilator (hydraulically operated), the blades can never provide enough pressure to blow out the radiator and/or the screens. This is because the profile is not correct. The blade profiles are always in the right position to create the maximum airflow.

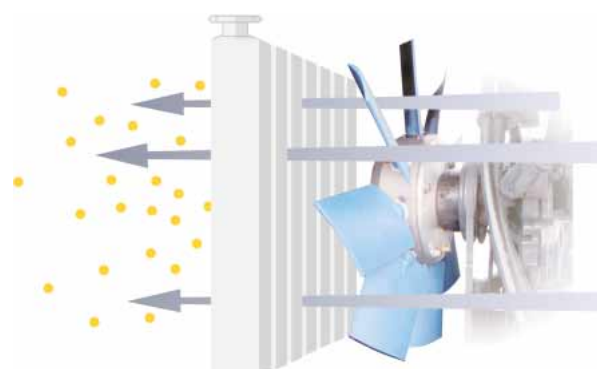
You don't eat soup with your spoon upside down.



Sucking



Turning



Blowing



Simple retrofitting with adapter flange



This is how the Cleanfix fan functions:

All blades move together through the integrated air cylinder and eccentric linkage housed within the central fan hub. Blades rotate on their individual axis for optimal cooling and cleaning performance. A spring set guarantees the blades to return to the standard position. This system guarantees maximum reliability. A small 12V/24V air-compressor is sufficient for the functionality of the Cleanfix fan. An electronic timer can be added to fully automate the system.

Simple retrofitting with adapter flange

- Some of the major manufacturers offer the Cleanfix fan as a standard or as a factory option. But we offer a DIA kit for nearly all the different models and ranges. Please contact us. Various individual options available.

Cleanfix®-Mounting kit.

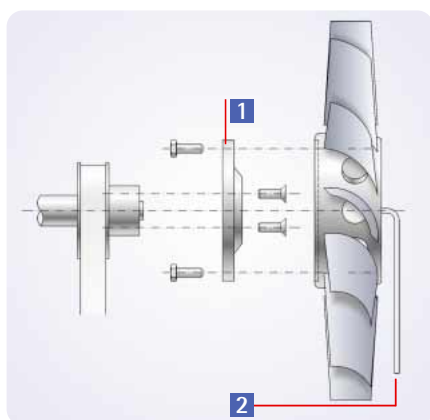
The kit contains: Cleanfix®-Ventilator, Compressor (optional), Valve and all fittings..

The installation can be handled by any workshop. Please ask at your local Dealer.

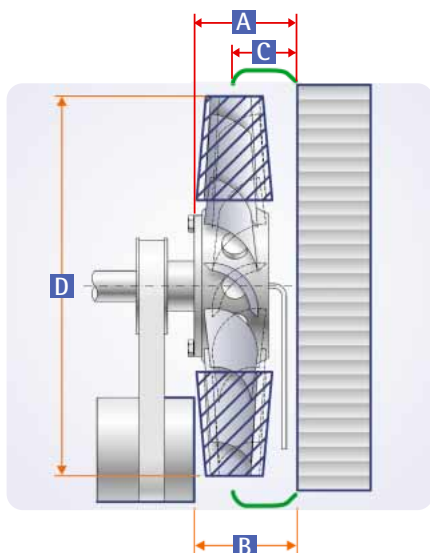


Mounting kit now with Autoclean for automatic filter cleaning.



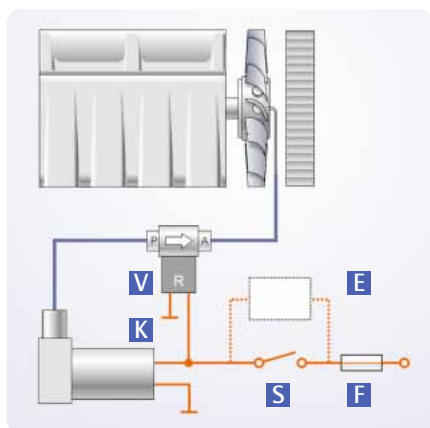


- 1** Adapter Flange available for your Machine
- 2** Air Hose



- A** Distance between Flange surface (Pulley, Water pump etc.) and Radiator at least 100 mm, (85 mm on request).
- B** Look for other components that could interfere with rotation: Dynamo, Compressor, V-Belt Pulley (also in the crosswise position)
 $B = A + 20 \text{ mm}$, smaller on request.
- C** Depth of the Radiator shroud.
- D** Diameter of the original Fan (Please mention by ordering.)

Available from 380 mm up to 1160 mm. Special Flanges on request.



- E** Electronic Control (optional)
- F** Fuse
- K** 12 V or 24 V Compressor
- S** Push button
- V** Solenoid Valve

Technical changes are always possible.



Cleanfix MC –

precise fan control and clean radiators save money



Simple, genius: **Cleanfix MC** with automatic adjustment of the fan blades pitch – without any electronics!



Cleanfix MC has three adjustment systems.

- By air-pressure, for blowing settings (1)
- The wax elements for the Thermo regulation (2)
- Elastomers in the thermo-elements for rotation-speed dependent regulation (3)

This is how the regulation functions

The thermo-elements are filled with a certain kind of wax as used in heating and coolant thermostats.

Within a defined temperature range, the wax expands strongly, which causes the piston to move.

The piston presses against the blades – and their pitch is changed from flat to steep.

- Since all blades are connected through the internal linkage it is ensured that all blades will move together at the same time, even in the case of (theoretical) failure of a single thermo-element.

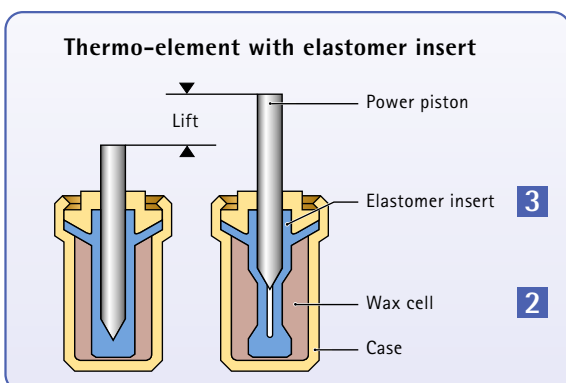
This principle makes the system absolutely reliable!



- At a high rotation speed, the aerodynamic force on the blades gets stronger and causes their pitch to become flatter.
- This automatically results in maximum radiator performance near the highest machine torque range.

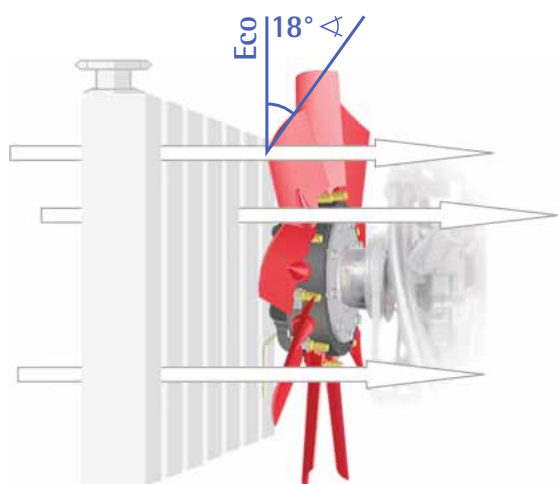
Cleanfix MC is available in two versions:

- The High-Tec version in composite.
- The Aluminum Heavy-Duty version for bigger Machines

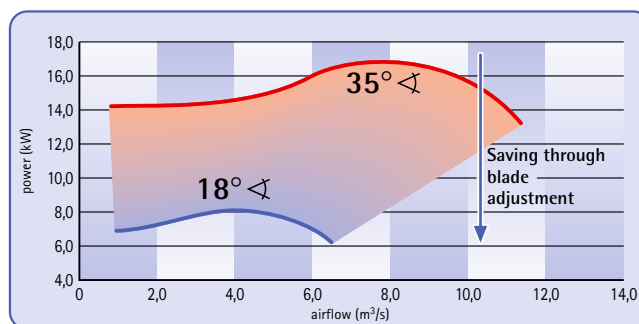


Thermo elements - tried and tested technology

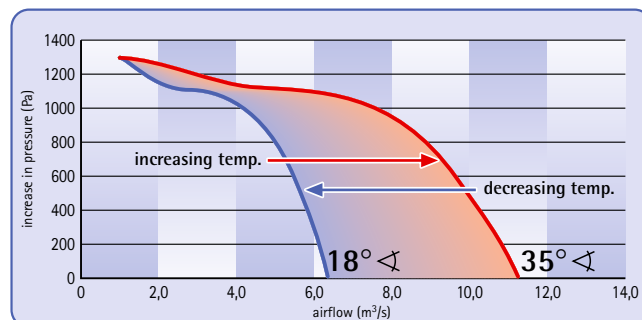
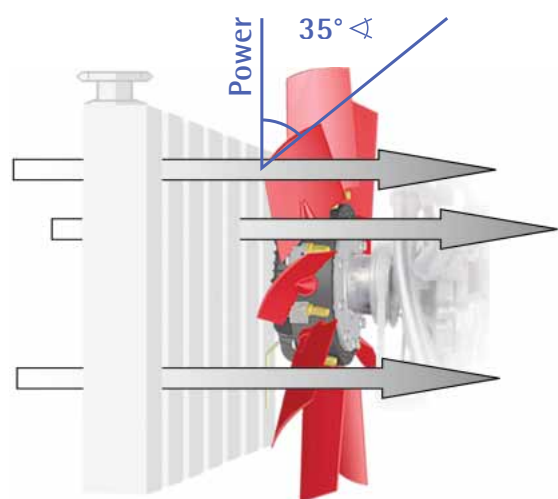
Higher performance – lower fuel consumption!



Cleanfix MC with automatic adjustment of the fan blades' pitch.

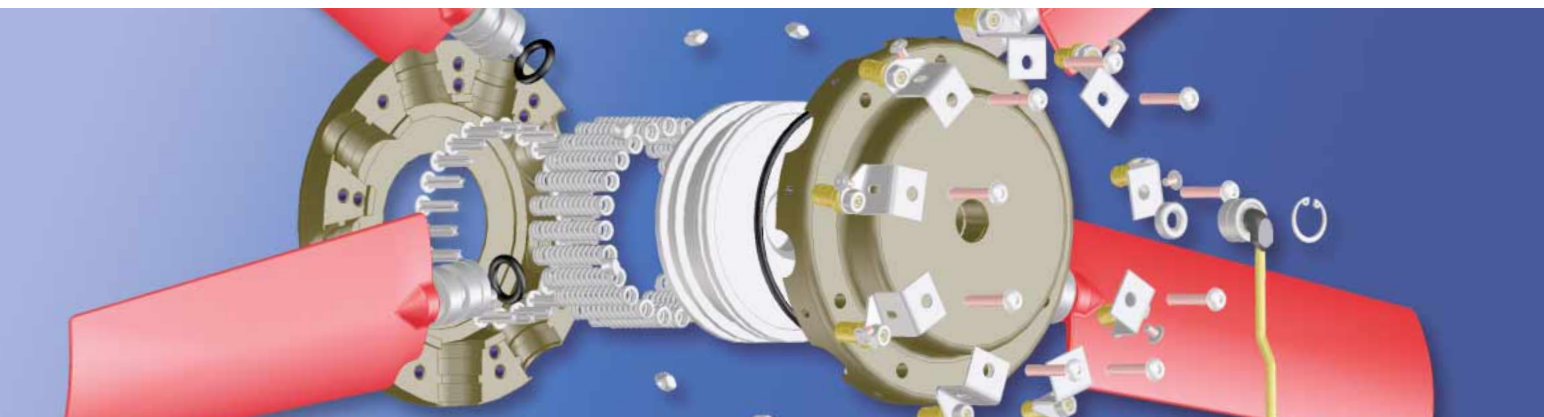


Air-flow and Power consumption at different blade angles.



Cleanfix MC saves up to 60 % of the fan's power consumption.

Use your engine power where you really need it!

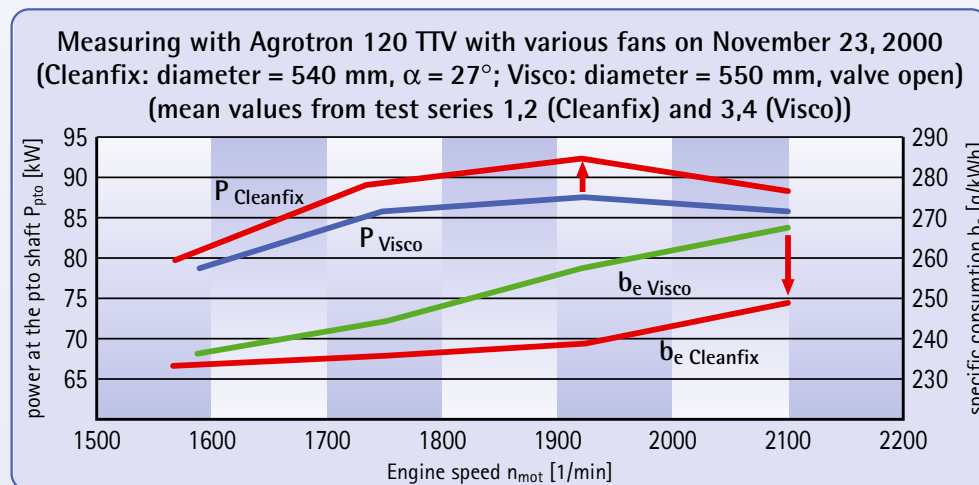


Cleanfix test



Test results of the Fachhochschule (University of Applied Sciences) in Nuertingen, Germany):

Comparison between a ring fan (visco coupling) and Cleanfix MC



By means of a Cleanfix installation optimized with regard to rotation so **5 kW increase in performance** at the pto shaft could be achieved.

At the same time, a 6 per cent fuel reduction could be achieved.



We convinced DaimlerChrysler!

Cleanfix®

Cleanfix® - Reversible fans for radiator cleaning

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