Afonica

Ambients for Engine Testing

Enclosure's Air Extraction Fans

Inside a test room there is an engine, usually and in most cases, an endothermic engine whose efficiency is approximately 0.3. This means that of the calorific value of the fuel supplied to the engine during its operation:

- A third is converted into mechanical energy aimed at the movement of the vehicle
- One third is converted into waste heat by the vehicle's cooling system
- One third is converted into waste heat with the exhaust gases

Of the third contained in the exhaust gases:

- Half is dissipated inside the room by radiation from the incandescent surfaces of the mufflers
- Half is expelled with the exhaust gases

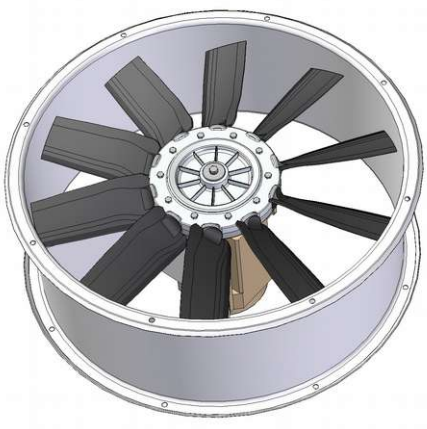
Analysing the case of a dynamometer, in which the complete vehicle is placed, all the calorific value of the burnt fuel, except for the part expelled with the exhaust gases (therefore equivalent to one sixth of the total) and in the hypothesis of dynamometric brakes air-cooled eddy currents, remains in the rehearsal room in the form of heat.

Assuming therefore that we have a vehicle under test that develops (only) 147 kW at the wheel (200 hp), considering the fractions set out above, 408 kW (555 "thermal horsepower"!) are generated (and must be disposed of) in the test room.

...domestic stoves, wood-burning or pellet-burning, develop between 6 and 12 kW depending on the size!

Maintaining the environmental conditions inside an engine test room is essential both for the safety of the operators and for carrying out the measurements deriving from the tests.

Afonica, thanks to its fifteen years of experience, today makes available a range of fans (which are the same ones that carry out the air exchange in the test rooms of our design and production) capable of fulfilling the arduous task of keeping the conditions inside the test rooms, thus guaranteeing safety, correct operation, correct measurements, repeatability of the tests.



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Ambients for Engine Testing

Air Extractions Fans

Devices designed to generate a high flow rate of air to exchange the air in the room aimed at the evacuation of the heat generated by the vehicle operating on the test bench, so as to maintain the correct climate inside the room and to allow the performance to be carried out in safety of power tests.

Available in various versions to satisfy every need.

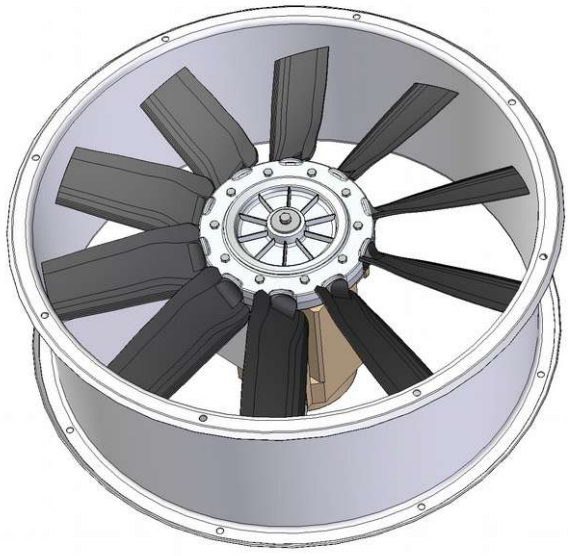

Fig. 1:Axial fan Mod. VS

Characteristics

- Axial fans with 4 or 5.5 kW three-phase motor (3phase)
- Other models, powers, flow rates, dimensions for particular situations or needs on request
- Supplied with short case (Fig. 1)
- Available suction protection net
- Ad hoc silencers available
- Standard colour: RAL 7038

#	Code	Description	Power	Voltage	Phases	Flow rate	Price
1	VF700-40	Axial fan D710 mm	4	400	3	Max 25.000*	
2	VF800-55	Axial fan D800 mm	5,5	400	3	Max 35.000*	
3	Inlet protection net						
4	NOTES: Power in kW, Voltage in Vac, Flow rate in m^3/h, Prices EXW and VAT excluded.						
5	* Indicative values: the flow rate of a fan is defined as a function of the load losses of the volumes that the air it moves must pass through.						

Available on our website is a table for defining the air flow as a function of the volume of the room and the level of performance required.