P. LEMMENS
AIR MOVEMENT
Company

NATURE CREATES AIR,
WE MAKE THE BEST USE OF IT.

series
DD

TACtech™

very **HIGH EFFICIENCY**,
INTELLIGENT centrifugal fans

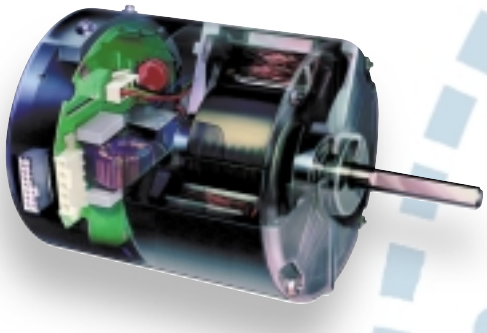
"VERY INTELLIGENT AND CENTRIFU

TAC technology TECHNOLOGY

TAC stands for Total Airflow Control Technology. It is based on the construction of airflow models that can be materialized using the latest motor developments like the electronically commutated motor. PLC has applied this technology to the airflow control technology, and has come out with the standard DDTAC fan series, and with the know-how to develop 'tailor made' special applications for our customers.

The experience gathered by PLC in this field since 1993 applied to air moving technology, makes us the leader in the application of this technology on the European market.

DS



The motor

The motor's principle lies on the control of its working point, the motor is able to communicate reliable data which can then be used to calculate its working point, and its very high efficiency. It is a DC permanent magnet motor, but is AC powered. The motor is equipped with an electronic module controlling the rotor commutation, calculating its working point, and communicating it to the outside. The possibilities are numerous…

Intelligent fan, efficient fan

The electronically commutated motor is able to communicate instant accurate information on the motor's working point. Using these information, we have built airflow models allowing instantaneous calculation of the fan's actual working point. The result of these developments is available in the product line.

The motor's conversion from electrical energy into mechanical energy is very efficient whatever the rotation speed. It will range from 60 to 85% for a rotation speed between 300 rpm and 1800 rpm (see illustration on next page).

What's new?

With TAC technology everything is new, but mainly the idea to combine top state of the art technologies in each domain: high motor efficiency (DC technology), the computational technology (calculate a working point without sensors), the control technology (without frequency controllers, electronic commutation,…), network technology, and the idea to bring all these developments together to make one standard product.

Applications

The characteristics of the fan make it an important step forward in a lot of different fields where forced controlled airflow is an issue. On top of that the energy saving it can generate can justify in itself the decision to switch over from traditional AC/triac or frequency controller technology to TAC technology, the rest is then just extra.

Our customers apply the fan in applications as different as gas or fuel fired furnaces, air handling units, heat pumps, laminar airflow cabinets, mechanical ventilation units (with and without heat recovery),…

DF

P. LEMMENS
AIR MOVEMENT

VERY HIGHLY EFFICIENT GAL FAN”

DD

Standard range and specific developments

We defined a range of standard fans using the TAC technology, with airflows ranging from 90 to 5700 m³/h. The standard range exists in two different control versions (TACd, TACn). These products aim for the small batches and the distribution market, and provide the customer with all the TAC features: high efficiency, digital or analogical communication, constant airflow, alarms on pressure, on motor failure, etc…

Another one of our missions is to develop airflow control systems to meet our customer’s specific requirements.

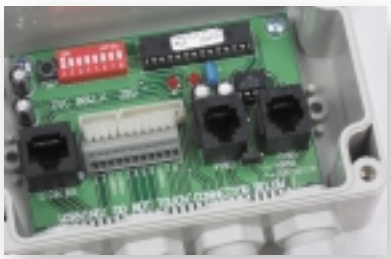
Our engineers have at their disposal a complete laboratory containing two fully automated airflow chambers, one anechoic acoustic chamber with all the required measuring devices. This mission aims for OEM integrators.

WHAT ADVANTAGES for each intervening party?

- For the designer: Integrating top state of the art technology, thus designing a top state of the art product. Satisfied customers. All of the underneath.
- For the installer: Strongly reduced installation time. Low cost (weak current) airflow control components. More margins to be more competitive.
- For the maintenance contractor: Simple, easy and quick diagnostics. Accurate, foreseeable interventions that can be planned. Tele-maintenance via modem. More margins to be more competitive.
- For the OEM: A more competitive product, with lots of extra sales arguments. Less regulation costs, with more long-term quality. Possibility to individualize the production process (each fan can be programmed). Special features,…
- For the paying end user: Substantial energy savings on the electrical bill, lower investments at equivalent functions, lower functioning costs, plus all of the advantages stated above.

The ‘d’ control, for simplicity

The ‘d’ control is as simple as it gets. The user chooses one airflow out of a series of available airflows by setting dipswitches. The fan will then deliver this airflow independently from the network’s pressure drop. The user will take advantage of the TAC’s low energy consumption and will see his energy bill drop dramatically. This control also allows to be configured in multi-airflows, and to detect and warn of certain events (static pressure rise or drop, motor failure, motor incompatibility…)

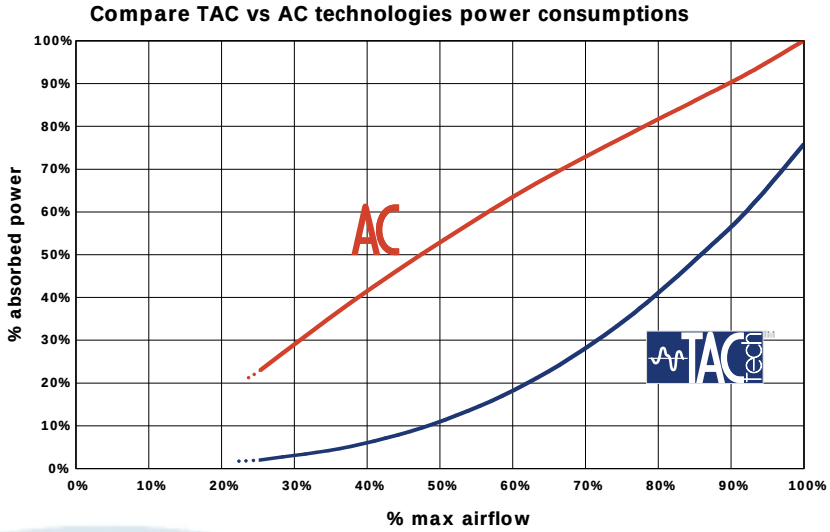


The ‘n’ control, all the power of control of a network and digital control

The ‘n’ control enables a fan to be connected to a PC via an RS485 interface and specifically developed PC software. The standard software (EOLe2) enables the user to know exactly what each fan is doing – actual airflow, static pressure, rotation speed, absorbed watts etc… – but also to change the instructions given to each fan. The system also allows to work by modem and thus to control the fans at a distance. We are also ready to discuss with people interested in integrating this feature in their own software. The possibilities are endless…

Company

+ Efficiency
= - consumption
= - heat loss
= - cooling load
= + ecological



ECONOMICAL = ECOLOGICAL

The product is specifically developed for energy savings. To illustrate this see the energy consumption comparison above. On top of the direct energy saving, there is an indirect saving: less electrical consumption means less heat loss and thus less cooling load. Less cooling load means air conditioning savings in power consumption and in investments (smaller units). TAC technology represents a real outbreak of the industry's search for better, more eco-responsible products, and concern for the global warming threat brought forward at the Kyoto and Johanesburg conferences.

Standard range

ID	Code Name	Airflow range (m^3/h)	Pressure range (Pa)
720054	DD 9-7 TH TAC2 1/2	100-2000	480-120
720055	DD 9-9 TAC2 1/2	100-2900	620-160
720056	DD 10-10 TAC2 3/4	100-3800	840-220
720057	DD 11-11 TAC2 1/1	100-4400	860-160
720058	DP 6-6 TAC2 1/2	100-2200	380-130
720059	DP 9-7 TH TAC2 1/1	100-3600	460-210
720060	DP 9-9 TAC2 1/1	100-5700	700-140
720071	DS 10-4 TH TAC2 1/3	100-1000	450-150
720061	DS 10-4 TAC2 1/2	100-1500	620-100
720062	DS 11-4 TAC2 1/2	100-1900	730-180
720063	DS 12-5 TAC2 3/4	100-2600	1000-210
720077	DF 280 P TAC2 1/3	100-1400	360-100
720078	DF 280 P TAC2 1/2	100-1700	550-150
720081	DF 315 P TAC2 1/2	100-2000	650-150
720082	DF 315 P TAC2 3/4	100-2500	700-150

P. LEMMENS AIR MOVEMENT Company

P. Lemmens Company sa - 102 chaussée de Tirlemont - B 5030 Gembloux
Tel.: +32 (0)81 62 52 52 Fax: +32 (0)81 62 52 53
www.lemmens.com