



Diffuser with **JET+ profiles**
Rotorex technology
 fan motor assembly
 Large air stream to
 efficiently **prevent stratification**
 Energy **savings** of up to **30%**



USE

Stratification is a phenomenon that causes hot air to rise to the top of a building.

Because the occupied space (or setpoint zone) is at the bottom of the building (up to 2.5 metres), the temperature setpoint on the air heaters is therefore very difficult to achieve. This results in:

- A long building warm-up time,
- Extended operating cycles,
- High energy consumption.

CIAT "ANTI-STRATIFICATION" solutions:

- Use of the CIAT **TPL** destratifier to help mix the air in the building.
- Use of the CIAT **HELIOTHERME 4000** air heater equipped with a JET+ technology diffuser to provide a high rate of induction between the primary air (room) and the supply air (better mixing).

- Connection to the CIAT BOX MONO Eco+ or BOX MONO HEE electronic control unit for proportional control of the air supply speed and the water supply to the HELIOTHERME 4000 coils.

This control system enables the boiler kW consumption to be kept at the minimum level necessary, unlike all-or-nothing operation ("peak" operating cycles).



DETERMINATION AND SELECTION EXAMPLE

S = Supply (released at the top of the building)

TR = Temperature under roof

TW = Temperature setpoint in the work area

$$\text{Calculated flow rate for destratifiers} = \frac{S}{0.3 \times (TR - TW)}$$

Selection example:

Supply under building roof = S = 45,000 kcal (52,200 Watts)

Temperature under roof = TR = 30°C

Temperature setpoint in the work area = TW = 16°C

$$\text{Calculated flow rate for destratifiers} = \frac{45\,000}{0.3 \times (30 - 16)} = 10\,714 \text{ m}^3/\text{h}$$

So: 2 x TPL 4500 at HS or 1 x TPL 4630 at HS.

RANGE AND CONSTRUCTION

Available in 4 sizes covering a flow rate range from 3,000 to 11,500 m³/h, these TPL destratifiers are equipped with:

High-efficiency fan motor assembly

Silent fan motor assembly with streamlined impeller providing the best compromise between air handling efficiency and acoustic comfort.

The ROTOREX design, with its electrical coils inserted into the fan hub, guarantees perfectly cooling of the motor to ensure it runs with optimum efficiency.

Three versions are available :

- **THREE-PHASE** 2 speeds (LS/HS switch accessory)
- **SINGLE-PHASE** 1 variable speed (5-speed autotransformer accessory).



HEE fan motor assembly

Fan motor assembly equipped with a powerful HEE EC (electronically commutated) motor. These EC motors (single-phase 230 V drive) will be gradually controlled by the 0-10 V signal, to ensure acoustic comfort and airflow efficiency and to optimise consumption of electricity.



Casing

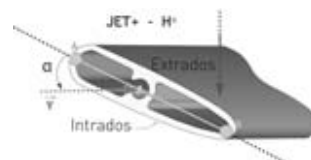
Robust and elegant, the casing of the TPL 4000 is made from precoated off-white (RAL7035) galvanised steel.

Diffuser

Single deflector diffuser equipped with JET+ profiles

What is JET+ technology?

This is a CIAT innovation based on Bernoulli's principle of fluid dynamics and on the NACA0012-type aeroplane wing profile.



The advantages of this profile technology include:

- Laminar air flows for better acoustic comfort (zero turbulence at the diffuser outlet).
- The resulting aerodynamics, related to the curve of the airfoil, increase the velocity of air streams (pressure drop along the lower surface of the blade) and thereby increase the reach of the air streams and the induction rate.

AIR FLOW AND ACOUSTIC PERFORMANCE

TPL	400		450		500		630	
THREE-PHASE motor (3-phase 400V coupling)	HS △	LS ★	HS △	LS ★	HS △	LS ★	HS △	LS ★
SINGLE-PHASE motor	Direct	-	Direct	-	Direct	-	Direct	-
Flow rate m³/h	4400	3000	6000	4100	8000	5500	11500	8800
Air stream m	15	8	14	9	16	10	19	14
Sound pressure dB(A)	51	43	54	46	57	47	55	50

Specifications determined using the following information:

Air stream: * with JET+ diffuser for a residual speed of 0.1 m/s

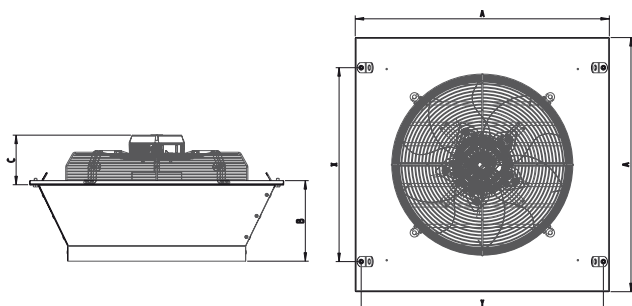
Sound pressure: * measured 8 metres from unit, directivity 2, attenuation of 26 dB

ELECTRICAL CHARACTERISTICS OF MOTORS

Standard motor	TPL	No. of poles	Rotation speed	Nom. current	Abs. pressure	IP	Thermal cut-out	Class	Operating temp.
THREE-PHASE 230/400 V 50/60 Hz	4400	4/6 P	HS - △ 1404	0,5 A	260 W	54	Yes 6.3 A 165°C	B	-40°C / +70°C
			LS - ★ 1176	0,3 A	170 W				
	4450		HS - △ 1385	1,13 A	550 W				
			LS - ★ 1040	0,64 A	380 W				
	4500		HS - △ 1391	1,51 A	770 W				
			LS - ★ 1176	0,9 A	520 W				
	4630	6/8 P	HS - △ 870	1,3 A	590 W				
			LS - ★ 750	0,63 A	250 W				
SINGLE-PHASE 230 V 50/60 Hz	4400	4 P	Direct 1400	1,3 A	300 W				
	4450		Direct 1380	2,01 A	480 W				
	4500		Direct 1403	2,78 A	630 W				
	4630	6 P	Direct 913	2,6 A	580 W				
HEE motor	TPL		Rotation speed	Nom. current	Abs. pressure	IP	Protection	Class	Operating temp.
SINGLE-PHASE 230 V 50/60 Hz	4400		1760	2,2	500	54	Electronic	B	-25°C/+60°C
	4450		1500	2,2	500				
	4500		1440	3,25	740				
	4630		1020	3,2	730				

* 3-PH 400V: LS/HS by ★ / △ coupling /3-PH 230V: LS by △ coupling

DIMENSIONS










TPL	A	B	C		X	Y	Weight (kg)
			STD	HEE			
4400	586	183	143	151	370	552	17
4450	666	212	143	151	470	632	22
4500	747	225	143	166	570	712	25
4630	907	273	143	151	705	872	33

CODES

TPL		4400	4450	4500	4630
SINGLE-PHASE	Code	7209198	7209201	7209202	7209203
THREE-PHASE	Code	7209204	7209205	7209206	7209207

ELECTRICAL AND CONTROL ACCESSORIES

ELECTRICAL & USER SAFETY				Code
	■ Padlockable proximity switch Available in a 1 or 2-speed version. Must be placed at least 2 metres from any rotating machinery (French standard IT 246, Art. 4-7-3, and EC requirements)			0596142
				0596147
	■ Circuit breaker unit	SINGLE-PHASE	TPL 4400	7252527
			TPL 4450 & 4630	7252528
			TPL 4500	7252529
		THREE-PHASE	TPL 4400	7252526
			TPL 4450 to 4630	7252527
			TPL 4500	7252528
THERMOSTATS				Code
	■ IP 30 room thermostat (RTR-E 6721) Breaking capacity 4A	SINGLE-PHASE		5201027
	■ IP 54 industrial thermostat 7133335: 1 stage 7133336: 2 stages	THREE-PHASE		7113335
				7113336
VENTILATION SPEED SELECTION				Code
	■ LS/HS switch For 3-phase motor. Two speeds and off.	THREE-PHASE		7169961
	■ Autotransformer with selector (3.5A) Adjusts the voltage on single-phase motors with one variable speed to achieve up to five supply air speeds	SINGLE-PHASE		7166982
CONTROL				Code
	■ Eco+ SINGLE-PHASE BOX - Eco+ THREE-PHASE BOX - HEE SINGLE-PHASE BOX Get all the benefits of the CIAT Eco+ SINGLE-PHASE BOX, Eco+ THREE-PHASE BOX and HEE SINGLE-PHASE BOX for CIAT air heater and destratifier systems. These "PLUG & PLAY" control systems guarantee easy installation as well as optimal and responsible management at lower cost.			See H4000



This document is non-contractual. As part of its policy of continual product improvement, CIAT reserves the right to make any technical modification it feels appropriate without prior notification.

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