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calorex

DELTA

- Humidity Control
- Pool Hall Air Heating
- Pool Hall Air Cooling
- Pool Water Heating
- Fresh Air Ventilation
- Energy Recovery
- Air Quality Control

*Heat recovery, dehumidification and ventilation system
designed for all indoor pools*

THE DELTA SYSTEM

The indoor swimming pool is a great source of pleasure to its user and provides enjoyment and exercise throughout the year.

Whether the pool is privately owned and used by family and friends or part of a commercial venture in a club or hotel, the owners need to be sure that the pool hall structure is protected for the future. Furthermore owners need the reassurance that the many economy measures available are at their disposal to keep running costs to a minimum.

The Delta system provides the best combination, providing maximum comfort with the assurance of economy, efficiency and reliability. Furthermore, CO₂ emissions are kept to an absolute minimum.

Control of an indoor pool environment requires many different inter-related functions to ensure ideal conditions.

TOTAL CONTROL

The Delta system combines the following features all in one unit and offers other features besides.

- Humidity Control
- Pool Hall Air Heating
- Pool Hall Cooling
- Pool Water Heating
- Fresh Air Ventilation
- Energy Recovery
- Air Quality Control

When the humidity rises above the required level the Delta compressor together with the water circulating pump are switched on and the heat recovery dehumidification process starts.

The Latent and Sensible energy available in the moist air is recovered and returned to the pool water and air via the built-in heat exchangers. If the recovered energy is insufficient to meet the water and/or air heating load, then a signal will be sent to start the Low Pressure Hot Water (LPHW) Boiler which will deliver LPHW to the Delta. Inside the Delta, the LPHW is directed to its Pool Water Heat Exchanger and/ or Air Heater Battery, with the flow controlled by simple valves in each circuit.

Each Delta incorporates a fully integrated control system with relevant information clearly displayed on the control panel.

A time clock also allows automatic control of the air temperature set back facility. There is also a facility to link



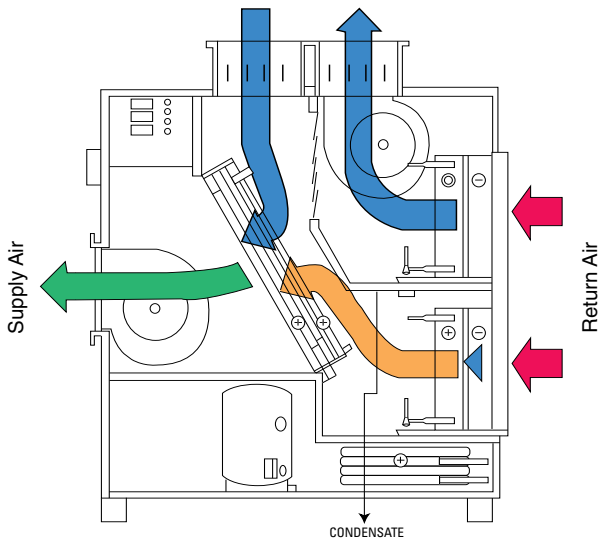
opening / closing of the pool cover to this control: an impressive design feature.

Should the humidity level continue to rise beyond the short term control of the heat pump dehumidifier, fresh air dampers are automatically opened and fresh air from outside is drawn in to 'sweep' out the excess humidity. All humid pool hall air extracted in this way is first passed through a dynamic heat exchanger where the latent and sensible energy is stripped away and redirected to the colder fresh incoming air. This is a very efficient method of providing ventilation because it removes more energy over a broader temperature band than more conventional heat recovery methods. Once control is re-established the dampers close down, retaining a measured intake of fresh air to ensure balanced pool hall conditions. The Calorex Delta thus offers the perfect balance between a 'refrigeration' and 'fresh air' system. With good design and maximum energy recovery the Delta system also assures low running costs - good news for any pool manager.

Many pool enclosures incorporate large areas of external glass which can result in high solar gains during the longer sunny periods. The larger Delta models (Delta 4 and above) are able to provide refrigerated cooling when the air temperature in the pool hall continues to rise beyond the set point. The surplus heat is temporarily exhausted to the outside atmosphere and replaced with an intake of cooler air, lowering the air temperature to provide an ideal comfort level.

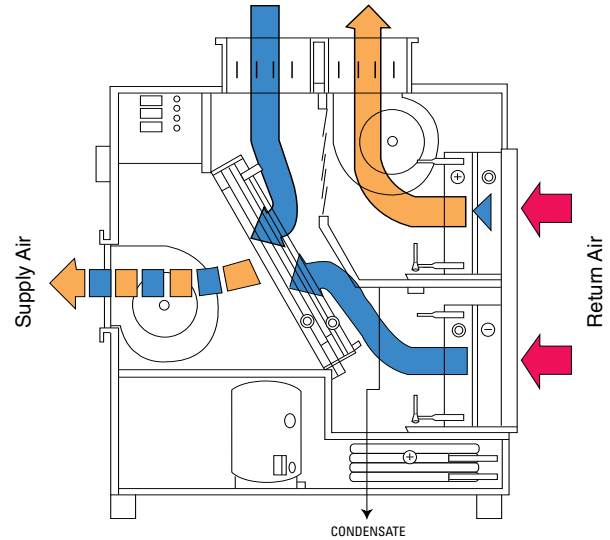
OPERATING MODES

Full Dehumidification & Heat Recovery



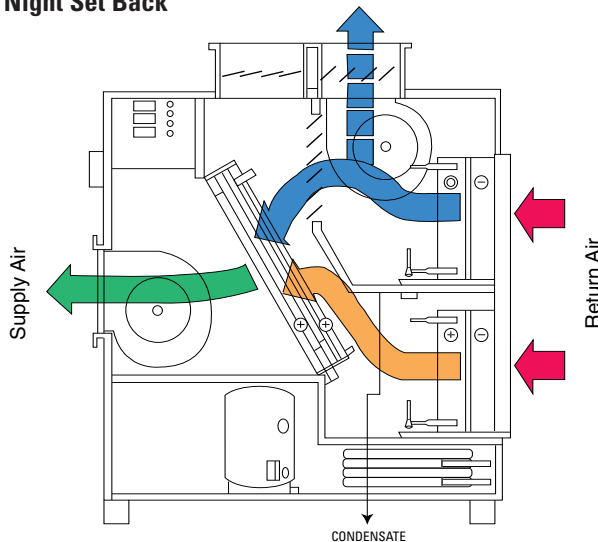
Delta system shown operating on maximum dehumidification. Dampers fully open. Full heat recovery to pool water and hall air. For lighter dehumidification (with full heat recovery), integral controls automatically select correct operating mode and damper positions; fresh air is regulated accordingly.

Air Conditioning







The arrangement above shows the Delta functioning in air conditioning mode. Delta model 4 and above all incorporate a true air conditioning facility as standard. This comes into operation automatically whenever the air temperature rises beyond the set point. Surplus warm air is then discharged via the exhaust duct whilst cooler air is introduced to the pool hall.

Night Set Back



Delta above shows operation in 'Set Back' mode. Air temperature set back is a standard feature on each Delta and is controlled by the units time clock. Pool hall air temperature is lowered during a chosen set back period for maximum economy; normally when pool is unoccupied. Dampers are automatically adjusted to balance air flows accordingly. Unoccupied set back / air heating can be linked to opening / closing of pool cover.

Key to colours

	Warm Dry Air
	Hot Dry Air
	Cool Dry Air
	Warm Humid Air

Note - Schematics show typical internal configuration for Delta 4 and above. Delta 1 & 2 differ slightly.

Deltas 1-12 offer a choice of three 'air-off' positions for the supply air. Each can be built with horizontal (end) outlet as shown; or alternatively, top (left) or bottom (left) as standard. 'Mirror-image' versions are available for Delta 4-12.

The larger Delta 14 & 16 model also offers many options including front or rear 'air off' positions.

CALOREX DELTA SPECIFICATIONS

	1	2	4	6	8	10	12	14	16
Pool Air Re-Circulation Fan Air Flow m ³ / hr	2500	2600	3000	4000	5000	6000	7000	10000	12000
Exhaust / Fresh Air Fan Air Flow m ³ / hr (Stepped Control)	120-1200	130-1300	150-1500	200-2000	250-2500	300-3000	350-3500	700-6700	850-8000
Heat To Air kW Via Heat Pump - (Mode A) Via Heat Pump - (Mode B) Via LPHW @ 80°C Maximum Available (Mode B + LPHW)	1.3 3.8 20 23.8	1.5 4.9 22 26.9	1.4 5.1 25 30.1	1.5 6.6 30 36.6	1.6 8 35 43	2 10 38 48	2.5 12.1 42 54.1	6 30 85 115	7 35 90 125
Heat To Pool Water kW Via Heat Pump - (Mode A) Via Heat Pump - (Mode B) Via LPHW @ 80°C Maximum Available (Mode A + LPHW)	4 1.7 10 14	5.5 2.2 10 15.5	5.8 2.3 10 15.8	8 3 15 23	10 3.7 15 25	12.5 4.6 30 42.5	15 5.5 30 45	36 12 65 101	43 14 65 108
Cooling Duty (Sensible) kW Cooling Duty (Total) kW * = Cooling in Mode A	-2* -3*	-2.5* -4*	-2.94 -4.2	-3.85 -5.5	-4.7 -6.7	-5.9 -8.4	-7.1 -10.1	-13 -23.3	-15 -28
Recommended Boiler Capacity kW @ 80°C	30	32	35	45	50	65	70	150	155
LPHW Connect 'n - Copper Stubs (mm)	28	28	28	28	28	35	35	■	■
Total Power Consumed (Nominal) kW	3.18	3.84	3.94	5.12	6.25	7.8	9.35	15	18
Fuse Capacity (Amps) Single Phase Three Phase	30 15	30 15	30 15	45 15	- 20	- 25	- 30	- 50	- 60
Weight - unpacked (kg)	300	310	350	360	370	410	460	954	1020

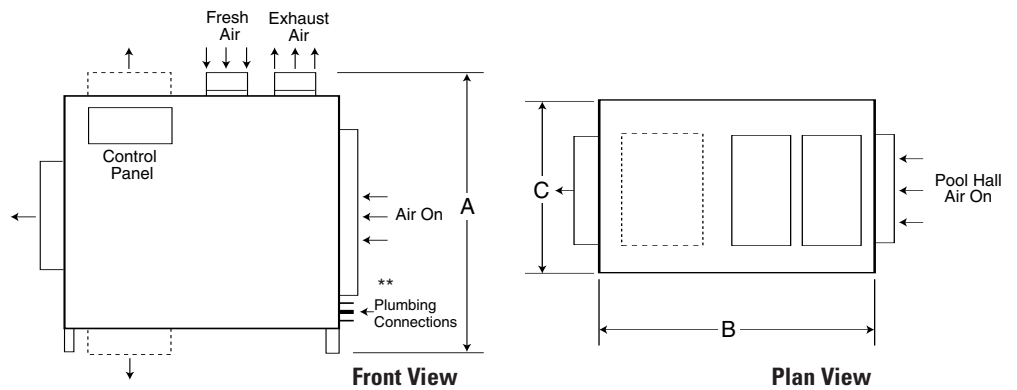
* Refrigerated air conditioning fitted to Delta 4 and above.

■ LPHW connection on Delta 14 & 16 is 1 1/2" BSP (male) thread

Model	1 & 2	4, 6, 8	10,12	14,16
Dim. mm				
A	1735	1910	1955	2220
B	1530	1620	1620	2638
C	655	705	855	1126

- Pool water connections on all models are 1 1/2" ABS stubs.
- 'Air Off' options: Top left, Bottom left or left hand end for standard Delta units 1-12 as shown opposite. Additional options apply for Delta 4-16; please enquire.
- Diagrams shown relate to Delta units 1-12. Details of the Delta 14 & 16 differ slightly.

** LPHW connections on Delta 14 & 16 are fitted on the top face (at the opposite end to the Air-On)



If you should require further technical information please do not hesitate to contact us.



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