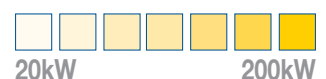




Ecolean™ Air to Water Liquid Chiller and Heat Pump

Energy efficiency acoustic performance



Ecolean™ Air to Water Liquid Chiller and Heat Pump Product Overview



The Ecolean™ delivers energy efficiency at full and partial load by the use of R410A multi scroll compressors and specific algorithms designed to reduce energy costs.

R410A, unequalled performance with reduced carbon footprint

The Ecolean™ is equipped with high performance cooling systems that protect the environment by the use of R410A multi scroll* compressors and an optimised heat exchange area.

- Reduced power input for improved COP
- Increased isentropic efficiency of the compressors
- Greater power efficiency than other HFC fluids
- Zero potential for destruction of the Ozone layer
- Very low refrigerant charge to limit environmental impact



Multi scroll* high performance compressors for optimum, long lasting efficiency

- Increased efficiency when operating at partial load.
- Increased relative heat exchange area while reducing power
- Intelligent defrost algorithm as standard (Dynamic™ defrost)



*Multi scroll from 47 kW to 200 kW.
Single scroll 25 to 43 kW.

Intelligent control that continuously optimises power consumption

With the 7 day time programming periods, Climatic™ control manages power consumption according to the use of the premises: automatic switching to occupation mode, unoccupied or frost-free, automatic water set point offset according to the outside air temperature.

Depending on the size of the installation, Climatic™ regulation can control from one to eight units in master/slave operation and provide communication with the technical department in the building or Lennox Adalink™ monitoring.

Depending on the desired communication protocol, the Ecolean™ can be fitted with a communication card

- ModBUS®
- LonWorks®
- BacNET®
- Adalink™



“eComfort™ eco-efficiency contribution by Lennox”



Ecolean™ Air to Water Liquid Chiller and Heat Pump Product Overview



One of the principle features of the Ecolean™ unit is an adjustable sound level for night and day to comply with the surrounding acoustic requirements.

Owlet™ fans and acoustic attenuation of compressor noise



“Owlet fan with profiled blades provides unequalled performance!”

The Ecolean™ is designed to achieve one of the lowest noise levels on the market. The principal technological innovations are the new fan blades and scroll compressor operation. Usage of Owlet™ fans, together with acoustic insulation of the compressor housings, Ecolean™ has achieved acoustic performance that ensures compliance in the toughest environment.

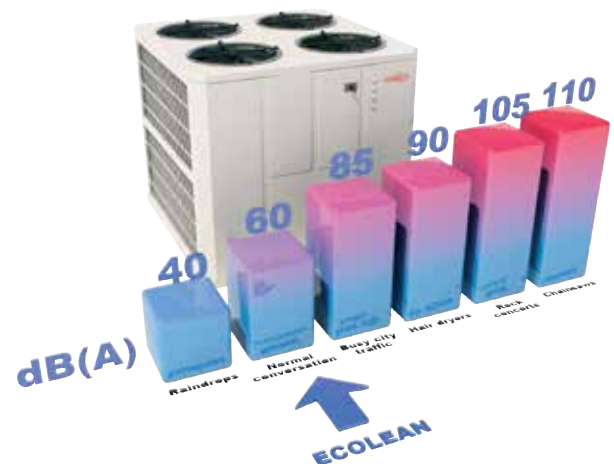
The Ecolean™ is also designed to suit many varied applications and locations. For those locations that require ducting to be fitted to the condenser fans, there is a range of units designed with high static capacity fans specifically for these types of locations.

Low and super low noise versions (LN & SLN)

The Ecolean™ range includes two basic models: the standard (S) version mainly for outdoor installation and the high static pressure version (F) is mainly for indoor installations with an internal ducted installation.

Each standard Ecolean model is available in 3 main versions to match every customer need.

- **Standard version (S):**
This version features a standard efficiency unit with 2 speed fans.
- **Low noise version (LN):**
This version features quiet performance with an average reduction of -7 dB(A) obtained by the use of low speed fans and an insulated compressors.
- **Super low noise version (SLN):**
This is a very low noise version with an average reduction of -10 dB(A) owing to low speed fans and compressors insulated in a high performance acoustic housing.



*European market study carried out in February 2011

Ecolean™ Air to Water Liquid Chiller and Heat Pump Product Overview



Pump energy consumption



“eDrive™: 70 % reduction of the annual pumping consumption”



The cost of pumping power represents more than 20% of the total energy cost

In a water system, the pump is one of the main energy consumption items. The energy cost of pumping can represent more than 20% of the total energy cost of a chiller. eDrive™ variable speed pump technology is part of the responses made by Lennox to save energy while exploring the possibilities of reducing installation costs.

The power consumption of the pump varies with the cube of the pump speed.

20% flow reduction = Power consumption reduced by 50%

40% flow reduction = Power consumption reduced by 80%

eDrive™ automatically controls energy costs

- At full load owing to electronic adjustment of the pump curve. Elimination of power losses caused by the manual water flow control valve.
- At partial load by automatically reducing the pump speed when operating at reduced chiller load.
- During shutdown periods of the cooler owing to operation of the pump at minimum speed.
- On starting owing to the speed controller which reduces the starting current pump.



Ecolean™ Air to Water Liquid Chiller and Heat Pump Product Overview



Lennox designed the Ecolean™ with a compact hydraulic module (Version HY). The machine also includes all the necessary hydraulic components: single pump (optional twin pumps), expansion tank, etc.



“Integrated pump, buffer tank with or without immersion heater in one of the most compact machines on the market!”

Ecolean™ with buffer tank (version HN)

A version with an additional buffer tank is available to increase the water volume of the system so as to avoid short cycles of the unit or for applications where maintenance of a precise water temperature is required. This tank also contributes to avoiding the effects of the heat pump defrost cycle, with heat from the tank being used for the heating circuit. As an option, immersion heaters can provide reduced power of the heat pump with a low ambient temperature.

The eDrive™ variable water flow reduces installation costs

Up to now, two types of hydraulic system were possible for liquid chillers: a “direct” constant flow circuit or a “decoupled” primary-secondary circuit with constant primary. The Ecolean™ fitted with optional eDrive™ now offers a 3rd possible choice: variable primary flow. A “direct” variable primary flow circuit is particularly beneficial in comparison with a “decoupled” primary-secondary circuit since the secondary pump and the costs incurred can be eliminated (pump, electrical power supply, hydraulic connections).

In addition, the flow control valve is eliminated since the pump is electronically adjusted to the actual requirements of the plant. These factors can considerably reduce the initial cost of installation. In comparison with a “direct” constant flow circuit, the “direct” variable primary flow circuit permits the use of 2-way instead of 3-way valves on the terminal units and thus contributes to reducing the cost of installation.

“Lennox eDrive™ variable primary water flow!”



Lennox variable speed pump



Lennox speed controller



Lennox control Algorithms
Constant delta P mode: terminal units with 2-way valves.

Optional eDrive™
Variable Primary Water Flow by Lennox.

Ecolean™

Air to Water Liquid Chiller and Heat Pump

Technical Information



Ecolean™		251	291	351	431	472	552	672	812	1003	1103	1203	1303	1403	1604	1804	2104
Cooling capacity ⁽¹⁾	kW	22	26	32	38	44	51	63	75	88	102	112	126	139	149	174	199
EER		2.9	2.8	2.8	2.8	2.7	2.8	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.7	2.9	2.8
Heating capacity ⁽²⁾	kW	24	28	34	38	48	55	68	76	95	108	118	130	143	159	180	205
COP		3.0	3.0	3.0	2.9	3.0	2.9	3.0	2.9	3.0	3.0	3.0	2.9	2.9	3.0	2.9	2.8
Length	mm	1195				1960				2250							
Width	mm	980				1195				1420				2300			
Height	mm	1616				2155				2250							
Operating Weight EAC	kg	238	246	263	292	470	482	518	562	640	809	938	990	1019	1328	1683	1703
Operating Weight EAR	kg	243	251	271	300	480	492	534	578	663	831	964	1016	1045	1347	1703	1723

Nominal conditions: (1) water 12/7°C, air 35°C
 (2) water 40/45°C, air 7°C

Equipment	EAC (Cooling only)	EAR (Heat pump)
Scroll compressors, brazed plate heat exchanger, copper/aluminium condenser coil with epoxy coat, two-speed fans, R410A refrigerant, main switch, Climatic control, customer display, water filter protection grilles and all-season airflow controller.		Standard
Hydraulic module with single pump and expansion tank		HY Version
Hydraulic module with single pump, expansion tank and buffer tank		HN Version
Low speed fans and acoustic compressor jacket		LN Version
Low speed fans and high performance acoustic compressor housing		SLN version
e-Drive™ variable primary water flow	Option	Option
Twin pump	Option	Option
Electric water tank heaters	-	Option
Partial heat recovery	Option	Option
Acoustic compressor jacket (standard version only)	Option	Option
Evaporator anti-freeze heater	Option	Option
Low temperature operation down to -10°C (Glycol application)	Option	-
Cooling down to -15°C outside air temperature	Option	-
Anti-corrosion coil treatment	Option	Option
Electronic expansion valves	Option	Option
Electronic starter/Phase Controller	Option	Option
Remote display/Modbus/Bacnet/ Lonworks/Adalink™	Option	Option
Anti-vibration mounts	Option	Option





Australia Head Office

Heatcraft Australia Pty Ltd
286 Horsley Road, Milperra NSW 2214
Locked Bag 6501, Regents Park NSW 2143
(+61) 2 9774 7155

New Zealand Head Office

Heatcraft New Zealand Pty Ltd
12 George Bourke Drive, Mt Wellington
PO Box 12371 Penrose, Auckland
(+64) 9 276 4888

Heatcraft Store Locations

Australia

NSW METROPOLITAN

Alexandria 02 9667 4711
Unit 106, 35 Doody Street, Alexandria NSW 2015
Artarmon 02 9906 7674
2/22 Waltham Street, Artarmon NSW 2064
Brookvale 02 9939 5153
8A/42-46 Wattle Road, Brookvale NSW 2100
Castle Hill 02 8850 3055
Unit 1/8 Gladstone Road, Castle Hill NSW 2154
Chippendale 02 9318 2266
77 Myrtle Street, Chippendale NSW 2008
Narellan 02 4648 1533
3/14-16 Exchange Parade, Narellan NSW 2567
Padstow 02 9709 4822
36 Gibson Avenue, Padstow NSW 2211
Penrith 02 4722 3366
Unit 1/18 Abel Street, South Penrith NSW 2750
Prospect 02 9896 2700
4/1 Stoddart Road, Prospect NSW 2148
Rockdale 02 9567 7011
440 West Botany Street, Rockdale NSW 2216
Silverwater 02 8737 7400
1/106 Beaconsfield Street, Silverwater NSW 2128

NSW REGIONAL

Albury 02 6040 0143
2/23A Catherine Crescent, Lavington NSW 2641
Canberra 02 6239 1570
6/19 Tennant Street, Fyshwick ACT 2609
Coffs Harbour 02 6651 3390
Unit 5, 84-90 Industrial Drive,
North Boambee, NSW 2450
Lismore 02 6622 2272
2/36 Wyrallah Road, Lismore NSW 2480
Newcastle 02 4956 2722
14 Kings Road, New Lambton NSW 2305
Orange 02 6362 8849
2-3/243 McLachlan Street, Orange NSW 2800
Port Macquarie 02 6581 4040
Unit 1/50 Jindalee Road,
Port Macquarie NSW 2444
Tamworth 02 6765 2566
1 Avro Street, Tamworth NSW 2340
Tuggerah 02 4353 3218
Unit 4/22 Reliance Drive, Tuggerah NSW 2259
Wagga Wagga 02 6921 1259
4b Norton Street, Wagga Wagga NSW 2650
Wollongong 02 4229 1313
4/103-107 Auburn Street, Wollongong NSW 2500

QLD METRO, GOLD COAST & SUNSHINE COAST

Albion 07 3256 2120
7 Hudson Road, Albion QLD 4010
Brendale 07 3881 0070
Unit 118/193 South Pine Road, Brendale QLD 4500
Burleigh Heads 07 5593 6027
1/22 Hutchinson Street, Burleigh Heads QLD 4220
Geebung 07 3865 1399
1/452 Bilsen Road, Geebung QLD 4034
Gold Coast 07 5591 8188
3/16 Pinter Drive, Southport Qld 4215
Maroochydore 07 5479 4599
10A Kelly Court, Maroochydore QLD 4558
Moorooka 07 3848 0641
Unit 11/115 Muriel Avenue, Moorooka QLD 4105
Morningside 07 3902 9400
373 Thynne Road, Morningside QLD 4170
Underwood 07 3808 0300
Unit 3/74 Perrin Drive, Underwood QLD 4119

QLD REGIONAL

Bundaberg (A) 07 4151 2044
73 Thabeban Street, Bundaberg QLD 4670
Cairns 07 4035 4300
88-90 Buchan Street, Cairns QLD 4870
Mackay 07 4957 7772
4/21 Victoria Street, Mackay QLD 4740
Rockhampton 07 4922 9066
147 Kent Street, Rockhampton QLD 4700
Toowoomba 07 4639 7900
Unit 3, 2 Prescott Street, Toowoomba QLD 4350
Townsville 07 4775 1800
25 Keane Street, Currajong QLD 4812

WA

Belmont 08 9478 5033
2/130 Francisco Street, Belmont WA 6104
O'Connor 08 9331 8055
Unit 2, 14A Hines Road, O'Connor WA 6163
Osborne Park 08 9244 5033
19 Howe Street, Osborne Park WA 6017

TAS

Hobart (JV) 03 6272 0055
2 Linear Court, Derwent Park TAS 7009
Launceston (JV) 03 6334 6969
2/225 Wellington Street, Launceston TAS 7250

VIC METROPOLITAN

Bayswater 03 9720 1906
Unit 21/49, Corporate Boulevard,
Bayswater VIC 3153
Burwood 03 9808 0244
Unit 12, 125 Highbury Road, Burwood VIC 3125
Dandenong 03 9799 5900
3/294 South Gippsland Highway,
Dandenong South VIC 3175
Moorabbin 03 9532 2284
24 Kilpa Road, Moorabbin VIC 3189
Preston 03 9480 0321
18 Ovando Street, Preston VIC 3072
Truganina 03 8353 2140
29-31 Jessica Way, Truganina, VIC 3029
Tullamarine 03 9330 4222
17 Barrie Road, Tullamarine VIC 3043
West Melbourne 03 9328 3044
60-80 Adderley Street,
West Melbourne VIC 3003

VIC REGIONAL

Geelong 03 5248 4533
7 Roxanne Place, Newcomb VIC 3219
Mildura (A) 03 5021 1855
337 Ettivanda Avenue, Mildura VIC 3500
Shepparton (A) 03 5821 3669
15 Campbell Street, Shepparton VIC 3630
Traralgon 03 5174 6403
Unit 4, 13 Standing Drive, Traralgon VIC 3844

SA

Adelaide 08 8354 0100
19-21 James Congdon Drive, Mile End SA 5031
Lonsdale 08 8326 4726
Unit 2/41-47 O'Sullivan Beach Road,
Lonsdale SA 5160
Mt. Gambier (A) 08 8723 0922
5 Scott Court, Mt Gambier SA 5290
Port Lincoln (A) 08 8683 0707
1 Thomas Court, Port Lincoln SA 5606
Wingfield 08 8260 2255
Unit 1, 209 Cormack Road, Wingfield SA 5013

NT

Alice Springs (A) 08 8953 4277
1/8 Fogarty Street, Alice Springs NT 0870
Darwin 08 8984 3840
68 Raphael Road, Winnellie NT 0820
Scan to download a digital version of this brochure

A = Agent JV = Joint Venture

New Zealand

NORTH ISLAND

Auckland (Penrose) 09 525 7859
487 Great South Road, Penrose 1061
Auckland (Ponsonby) 09 361 6070
24a Williamson Avenue, Ponsonby 1021
Hamilton 07 847 7142
12 Devon Road, Frankton 3204
Hastings 06 873 3398
508 Warren Street, Mayfair 4122

Lower Hutt 04 566 4760

Unit 3, 419 Hutt Road, Lower Hutt 5010
Palmerston North 06 355 5449
589G Tremaine Avenue,
Palmerston North 4410
Tauranga (A) 07 571 1442
177 Eleventh Ave, Tauranga 3110

SOUTH ISLAND

Christchurch 03 374 5888
116 Carlyle Street, Sydenham 8023
Dunedin 03 470 1074
8 Bombay Street, Dunedin 9016



Scan to download a digital version of this brochure

australia
13 23 50
heatcraft.com.au

new zealand
0800 653 330
heatcraft.co.nz

© & ™ – Registered Trade Mark and Trade Mark of Heatcraft Australia Pty Limited

© Copyright 2014 Heatcraft Australia Pty Limited

Heatcraft Australia continually strive to improve products and processes. We reserve the right to modify product features without notice. Information is correct at time of printing.

KIRBY ECOLEAN_0414