



# Lyra

2-PIPE HEAT PUMPS - R32 - FGI



# Two-pipe inverter air-water heat pumps

Lyra heat pump units are ideal for use with radiant panel heating systems or low temperature applications such as suitably sized fan-coil, thermal ventilation and AHUs for maximum delivery temperatures of 60°C.

All versions are equipped with extremely silent EC axial fans and Twin Rotary inverter compressors that allow the complete power management of each single component. The compressor, fan and circulators are continuously regulated by a control unit programmed with an internally developed control logic.

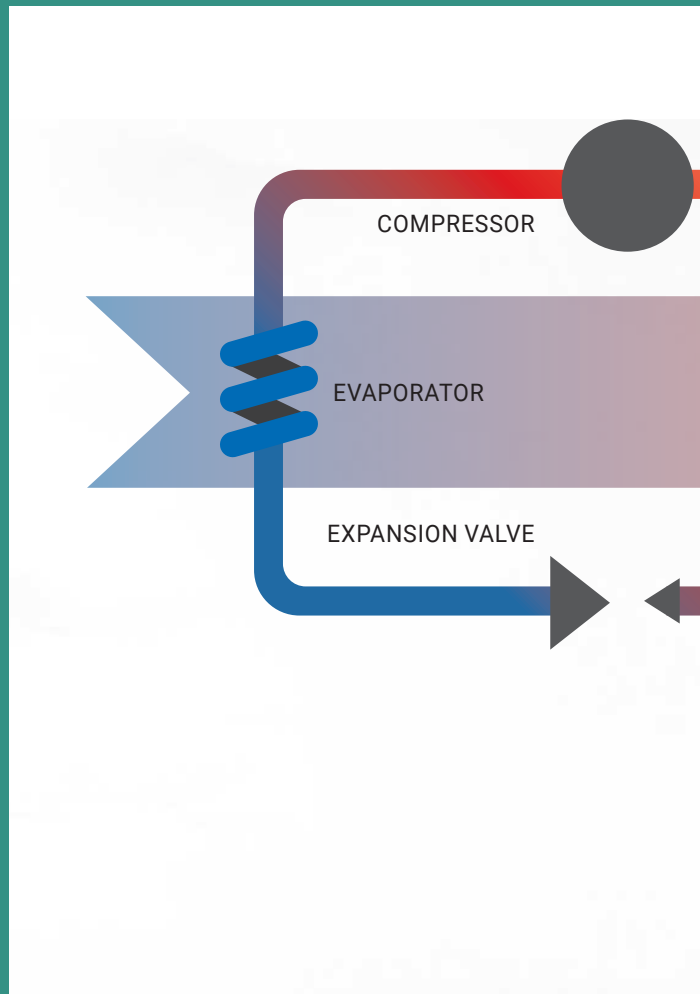
It has been designed to be intuitive immediately usable; this allows the unit to be inserted into a large number of system configurations.

The system switches between the various operating modes (within a season) automatically by reading the temperature probes and the programmed set points.

Switching times and logics are designed to ensure maximum system efficiency and reliability.

The configuration with domestic hot water production with a diverter valve must be associated with a suitably sized boiler in which to store the high temperature water.

The upper part of the boiler must be fitted with a thermowell in which to insert the hot water probe, through which the unit controller monitors whether hot water has to be produced.



## Technical specifications

Compact air-water inverter heat pump for outdoor installation with an EC brushless axial fan and a BLDC Twin Rotary Inverter compressor. It has a cutting-edge design, with an oven cured RAL 7016 powder coated structure. The structure is self-supporting with removable panels to make inspection and maintenance easier.

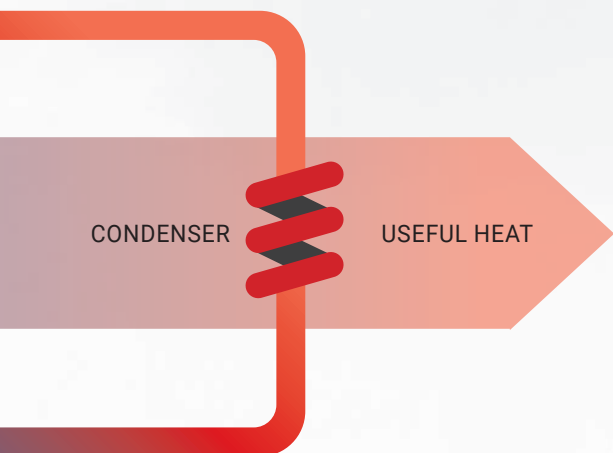
The heat source is the outside air down to a minimum of -20°C. Low noise is guaranteed by an intelligent control system that regulates the speed of the compressor and fan according to actual requirements. In addition, the use of anti-vibration mountings for the compressor and multi-layer noise insulation on the casing reduces noise to a minimum.

The control logic allows:

- Fan and compressor regulation for special installation environments
- Electronically Controlled delivery temperature regulation via heating or cooling curves

## Operation

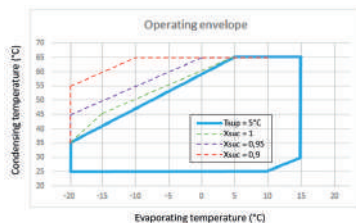
Heat pumps absorb heat from an outdoor environment to transfer it to an indoor environment, in order to heat it. Reverse cycle heat pumps allow the indoor rooms to be cooled during the summer.



# Two-pipe inverter air-water heat pumps

## Refrigeration circuit

The refrigerant gas used is R32. Cooling circuit with very high efficiency twin rotary inverter compressor. Pressure transducers and safety pressure switch. Stainless steel plate desuperheating exchanger and plate heat exchanger for evaporation / condensation. Copper-aluminium finned pack evaporator with special hydrophilic treated finning. Reverse cycle defrost system.



## FGI

Innovative flash gas injection (FGI) system that allows you to extend the operating range of the heat pump and reduce the compressor discharge temperatures.

## Heat exchangers

The source side heat exchangers are made of copper pipes and aluminium fins coated with hydrophilic paint that encourages water run-off. The user side braze-welded stainless steel plate exchanger allows the amount of refrigerant gas to be reduced to the minimum and maximise the efficiency due to the large heat exchange surface.

## Fan

The brushless EC axial fan has been designed to reduce noise to a minimum and to maximise efficiency. The speed of rotation is continuously regulated by the control unit.

## Control and protection

Carel electronic control with integrated inverter compressor control, pump and fan modulation. Climate logic management. Standard ModBUS communication protocol. The unit is equipped with a series of alarms designed to protect it from faults. These are managed entirely by the control unit that makes them available and accessible. It is also possible to access the controller via the control unit if you need to make any adjustments.

## Remote PGD display (optional)

The control unit is based on Carel hardware and is combined with a highly intuitive remote controller that can be used to adjust all the operating parameters, set points and usage settings. The controller allows direct connection to the heating system, both without a storage tank, or more commonly, by a two or four point connection to the same. The storage tank is charged at a set point for DHW and with a heating or cooling curve for heating / cooling circuit.

## "Twin Rotary Inverter" technology

### Power adjustment

The "Twin Rotary Inverter" technology is able to regulate power to meet the actual requirements. This regulation is also used on the fan and circulators to achieve maximum efficiency.

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2-PIPE HEAT PUMPS - R32 - FGI



# Lyra 2T Monobloc



COP 5.18 (\*)



MODULATION 1: 9



DHW 55°C



HEATING WATER



OPERATING RANGE -22°C / +45°C



ENERGY EFFICIENCY CLASS  
A+++

(refers to 8 kW version)

Available power outputs: 6, 8, 12, 14 kW

(\*) Under Nominal conditions

## Lyra 2T Monobloc

Available in 6 kW, 8 kW, 12 kW, 14 kW versions.

Two-pipe heat pump with system-side heat exchanger, able to produce hot or cold water to meet the building's heating or cooling requirements, depending on the season, and DHW.

## Advantages

- Electronic expansion valve (suitable for all operating situations)
- Units with modular power output, thanks to inverter technology
- Climate control included with outdoor temperature sensor
- Larger heat-exchange surface

## Where can it be installed?

- Suitable for new buildings with high levels of energy efficiency
- Suitable for cold climates such as mountain areas and high T production up to 60°
- Ideal where no mains GAS supply is available
- Suitable for applications with radiant systems, fan coils, thermal ventilation and AHUs

**110%**

**SUPER BONUS**  
("trainante",  
i.e. primary  
improvements)

**65%**

**ECO BONUS**

**50%**

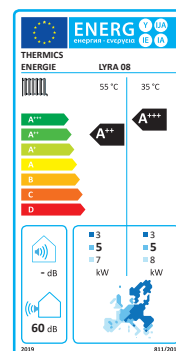
**BONUS CASA  
(HOME BONUS)**

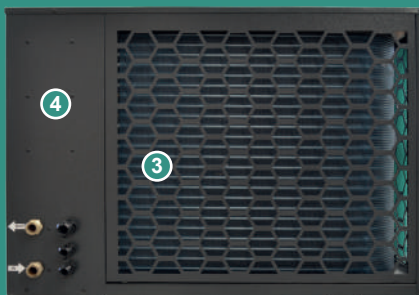
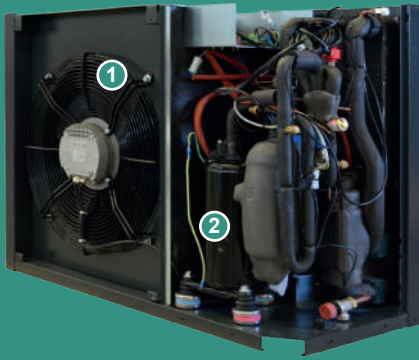


**CONTO TERMICO**

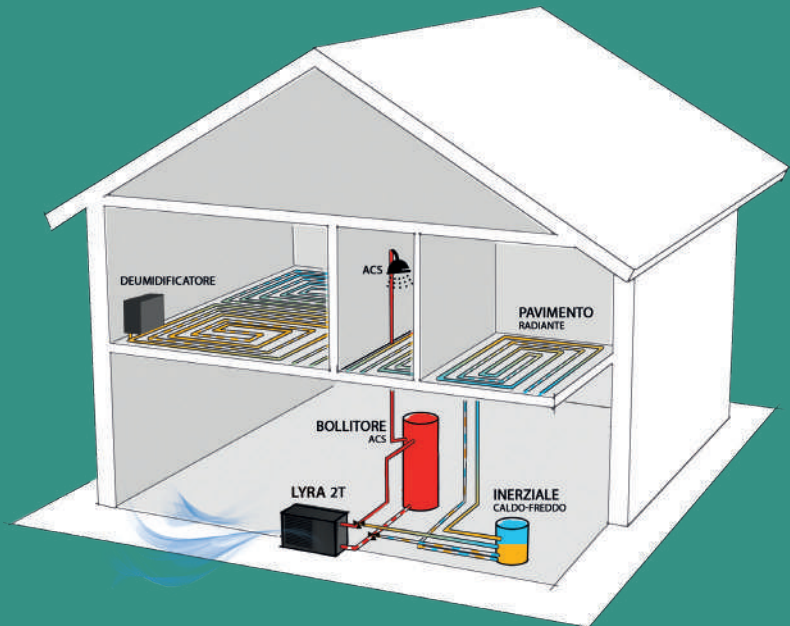
## Tax deduction

All versions of Lyra Monobloc 2T are energy class A+++/A++ and therefore benefit from tax deductions in accordance with applicable legislation.





1. EC fan
2. Twin Rotary Compressor
3. Finned pack with hydrophilic treatment
4. Heat exchanger with larger rows, large heat-exchange surface



## Summer operation

The summer operating modes are:

### 1. Chiller mode

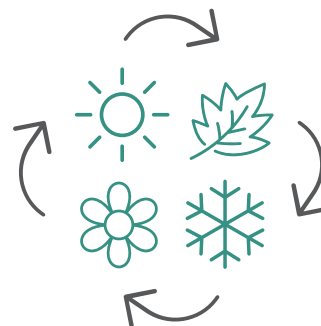
The unit produces only chilled water for the system.

### 2. Boiler mode for the production of domestic hot water

If there is no cold load and on request by the domestic hot water probe, the unit heats the water in the domestic hot water storage tank using the finned pack coil as an evaporator. The use of warm outside air as a heat source guarantees extremely high COP levels.

## Automatic seasonal regulation

The system switches automatically between the various operating modes according to a priority logic for the production of domestic hot water.



## Winter operation

The winter operating modes are:

### 1. Heat pump mode for heating

The unit produces hot water at the system side heat exchanger for heating.

### 2. Heat pump mode for the production of domestic hot water

High temperature hot water is produced at the heat exchanger connected to the domestic hot water storage tank.

# Technical specifications

Lyra 2T	Unit	6	8	12M	12T	14M	14T
<b>Cooling A35/W7</b>							
Cooling capacity Min. / Nom. / Max.	kW	2.37 / 3.68 / 5.03	3.97 / 5.47 / 7.33	5.16 / 7.09 / 9.50	5.16 / 7.09 / 9.50	5.16 / 7.90 / 10.80	5.16 / 7.90 / 10.80
Power input	kW	1.24	1.66	2.48	2.48	2.77	2.77
Power E.E.R	W/W	2.96	3.3	2.85	2.85	2.85	2.85
Water flow rate	m3/h	0.6	0.94	1.22	1.22	1.36	1.36
Useful head	mca	6.2	5.9	5	5	6.6	6.6
<b>Cooling A35/W18</b>							
Cooling capacity Min. / Nom. / Max.	kW	3.11 / 4.98 / 7.03	5.35 / 7.63 / 10.59	6.95 / 9.89 / 13.71	6.95 / 9.89 / 13.71	6.95 / 11.01 / 15.55	6.95 / 11.01 / 15.55
Power input	kW	1.24	1.66	2.48	2.48	2.77	2.77
Power E.E.R	W/W	4	4.58	3.97	3.97	3.95	3.95
Water flow rate	m3/h	0.86	1.31	1.7	1.7	1.89	1.89
Useful head	mca	6	4.9	3.5	3.5	6.1	6.1
<b>Heating A7/W35</b>							
Heat output Min. / Nom. / Max.	kW	2.72/ 4.33 / 5.81	4.50 / 6.41 / 8.97	6.00 / 8.51 / 11.58	6.00 / 8.51 / 11.58	6.00 / 9.47 / 13.41	6.00 / 9.47 / 13.41
Power input	kW	0.93	1.24	1.87	1.87	2.09	2.09
C.O.P.	W/W	4.64	5.18	4.54	4.54	4.53	4.53
Water flow rate	m3/h	1	1.54	1.99	1.99	2.31	2.31
Useful head	mca	5.7	4.5	3.3	3.3	5.5	5.5
<b>Heating A7/W45</b>							
Heat output Min. / Nom. / Max.	kW	2.59 / 4.14 / 5.58	4.21 / 6.02 / 8.47	5.67 / 8.04 / 10.99	5.67 / 8.04 / 10.99	5.67 / 8.96 / 12.80	5.67 / 8.96 / 12.80
Power input	kW	1.13	1.51	2.29	2.29	2.56	2.56
C.O.P.	W/W	3.67	3.97	3.51	3.51	3.5	3.5
Water flow rate	m3/h	0.71	1.03	1.38	1.38	1.54	1.54
Useful head	mca	6	5.7	4.8	4.8	6.5	6.5
<b>ERP</b>							
Energy efficiency Water 35°C / 55°C	Class	A+++/A++	A+++/A++	A+++/A++		A+++/A++	
<b>Energy Efficiency</b>							
SCOP 35°C / 55°C	W/W	4.48 / 3.55	5.06 / 3.71	4.48 / 3.48	4.48 / 3.48	4.40 / 3.41	4.40 / 3.41
<b>Compressor</b>							










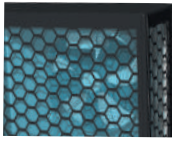

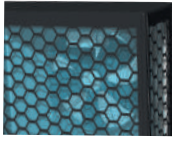




Lyra 2T	Unit	6	8	12M	12T	14M	14T
Type		Twin Rotary					
Number of compressors		1	1	1	1	1	1
Refrigerating circuits		1	1	1	1	1	1
Refrigerant							
Type		R32					
Coolant load	Kg	1.08	1.08	2,3	2,3	2,3	2,3
Outdoor fan							
Type		EC brushless					
Number		1	1	2	2	2	2
Air flow rate	m3/h	3579	3579	6781	6781	6781	6781
Useful head	Pa	20	20	52	52	52	52
Power input	kW	0.05	0.05	0.08	0.08	0.08	0.08
Internal exchanger							
Internal exchanger type		With braze-welded plates					
Number of internal exchangers		1	1	1	1	1	1
Water volume	L	0.7	0.7	1.06	1.06	1.06	1.06
Hydraulic circuit							
Maximum water side pressure	bar	3	3	3	3	3	3
Water connections	inch	1"	1"	1"	1"	1"	1"
Maximum circulator power	kW	0.06	0.06	0.06	0.06	0.06	0.06
Useful head	mca	5.70	4.50	3.30	3.30	5.50	5.50
Noise emissions							
(1) Sound power	dB(A)	43	45	48	48	50	50
(2) Sound power	dB(A)	58	60	62	62	64	64
Sound pressure at 5 m	dB(A)	33	35	37	37	39	39
Sound pressure at 10 m	dB(A)	27	29	31	31	33	33
Electrical data							
Supply	V/Ph/Hz	230-1-50			400-3-50	230-1-50	400-3-50
Maximum power input	kW	2.3	3.1	4.59	4.59	5.67	5.67
Maximum absorbed current	A	11.31	15.09	22.32	8.6	27.69	10.66
Dimensions							
L x H x P	mm	1000 x 735 x 443	1000 x 735 x 443	1000 x 1336 x 443	1000 x 1336 x 443	1000 x 1336 x 443	1000 x 1336 x 443
Machine data							
Weight	Kg	78	80	134	136	136	138

(1) Sound power level according to EN 12102

(2) Maximum sound power level

Operating conditions according to EN 14511				
A7/W35	User circuit: radiant system	°C	30/35	In-Out
	Outdoor circuit: outside air 7°C with 85% R.H.	°C	7°C 85%	In-Out
A7/W45	User circuit: radiant system	°C	40/45	In-Out
	Outdoor circuit: outside air 7°C with 85% R.H.	°C	7°C 85%	In-Out
A35/18	User circuit: radiant system	°C	23/18	In-Out
	Outdoor circuit: outside air 35°C 50% U.R.	°C	35°C 50%	In-Out
A35/W7	User circuit: radiant system	°C	12/7	In-Out
	Outdoor circuit: outside air 35°C 50% U.R.	°C	35°C 50%	In-Out

# Accessories

Product	Description	Code	Product	Description	Code
	Heating cable - 3m - 60W - AUTOMATIC HEAT PUMP MANAGEMENT	6TTS00008		Magnetic dirt separator 90° 1" - COMPACT	8TMU00205
	FLOOR MOUNTING KIT LYRA - 6/14	8TKS01010		Magnetic dirt separator - 1 1/4" - inline - MAGNUM	8TMU00210
	Y-strainer brass DN25	8TCM00120		Rear Grille 2 (AA3) - RAL7016	6TLMR2010.R00.02
	Wireless Modbus thermostat for Heat Pump.	8TSDT0110		Rear Grille (SNT.B) - RAL7016	6TLMR2102.R00.02
	Wall-mounted 4.3" TFT display - Wi-Fi - TH - Modbus - EASYTOUCH	8TEU00019		Power supply 12V 60W	8TEU00025
	Anti-vibration hose for Heat Pump - ANTIV.A/CF TR/X - 1"FF mm 200	8TFL00110		Solar thermostatic mixing valve - anti-scald 3/4" M	8TKR00033



Product	Description	Code
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Easy box - Electrical panel for cascaded heat pump control, up to 8 machines

8TEUQ0010

Product	Description	Code
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HP1 - System expansion module

8TCR03055.01



Antifreeze valve 1"

8TCIV0110



Belden RS485 cable

4TQEB0300



Diverter valve kit + DHW probe - DN25

8TSI02015

# Notes

A series of horizontal lines for taking notes.









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