

# Lightstream Scroll

## ULTRACOMPACT

COMPACT AIR-COOLED CHILLERS WITH SCROLL COMPRESSORS

- ▶ COMPACT & LIGHTWEIGHT DESIGN
- ▶ MICROCHANNEL CONDENSING COILS
- ▶ ALUMINIUM FRAME AND PANELING



# 50-285kW

AVAILABLE IN 5 FRAME SIZES, TOTAL 18 MODELS WITH A WIDE SELECTION OF OPTIONS AND ACCESSORIES

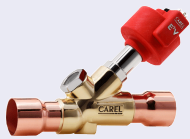


# Cooling workhorse

LIGHTSTREAM SCROLL ULTRACOMPACT AIR-COOLED CHILLER FAMILY PROVIDES CAPACITY-MATCHED COOLING, PRECISE THERMAL PARAMETERS, AND WATERFLOW. THESE CHILLERS FEATURE COMPACT DESIGN, LIGHTWEIGHT ALL-ALUMINIUM ENCLOSURE AND DELIVER BEST-IN-CLASS EFFICIENCY THANK COMPREHENSIVE ENGINEERING AND FIRST-GRADE COMPONENTS.



**25%** energy savings through the use of EEV



The electronic expansion valve (EEV) reduces the need for high head pressure when running at part load and lower ambient conditions.

EEV is controlled by a driver which regulates its opening according to the performance levels required by the system and guarantees the minimal overheating under all operating conditions.

The benefits at a glance:

- ▶ COMPACT ALL-ALUMINIUM ENCLOSURE
- ▶ ESEER UP TO 4.22
- ▶ INTELLIGENT HEAD PRESSURE CONTROL
- ▶ WATER TEMPERATURES OF UP TO -12°C
- ▶ LOW CONDENSING TEMPERATURES
- ▶ HEAT RECOVERY OPTIONS

ESEER OF UP TO

**4.22**



## Scroll compressors

Proven performance and reliability

The combination of an energy efficient motor and an optimized scroll wrap for refrigeration applications delivers high efficiency in Lightstream's fixed-speed compressors.

Reliability is built into this compressor range, from the compliant scroll design and the engineered bearings to the simplified design. The thermal fault protection also contributes to excellent reliability.

The customers of Lightstream UltraCompact systems with fixed-speed compressors can benefit from proven reliability, low sound levels, low vibration and low operating and maintenance costs.

# Leading fan technology

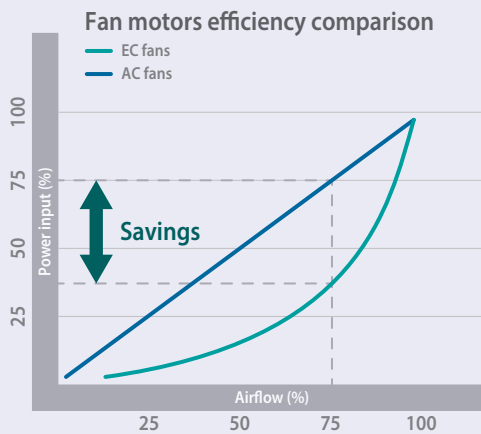


## Optimum air flow for partial load efficiency

New generation fan system used in UltraCompact's design not only reduces power consumption by up to 30% while easily managing the extraordinary high volume flows – it also works at much reduced operating noise.

The smart fan system includes the unique fans with bionic wing concept, the most advanced EC motor technology, and multifunctional air diffusers, resulting in an extra economic efficiency for the customers.

EC motor technology does not provide savings only during full-load operation - it is exactly when operating under partial load that EC motors lose much less of their efficiency.



THE CLASSIC, TIME-APPROVED DESIGN AND BUILT-IN RELIABILITY OF ULTRACOMPACT MAKE THIS MACHINE A BIG LEAGUE PLAYER IN THE FIELD OF PROCESS COOLING, AIR CONDITIONING, AND REFRIGERATION APPLICATIONS

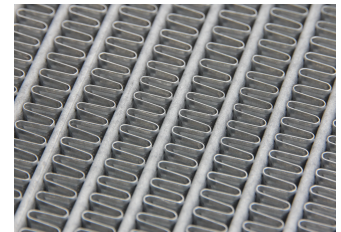


# Microchannel condensers

## Enhanced heat transfer and low condensing temperature

Microchannel condensers used in Lightstream Scroll design give a number of advantages, including higher heat transfer rate, low airside pressure drops, and closer approach temperatures. The end result is up to 40% higher energy efficiency in comparison to traditional fin/tube heat exchanger design.

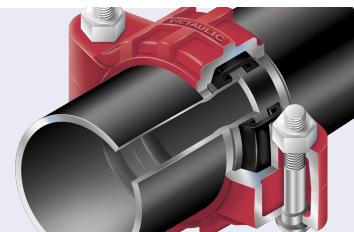
Smaller coil face, thin design, up to 50% less weight, and less refrigerant charge translate to lower system cost. Microchannel condensers used in Lightstream Scroll chillers are true HVAC coils developed and optimized especially for refrigeration applications and enable remarkable low condensing temperatures.



High-performance louvered fins

## Grooved connections

We use grooved end connections because of their rigidity, flexibility, noise and vibration attenuation, and easy of installation and maintenance. The groove is made by cold forming or machining a groove into the end of a pipe. A gasket encompassed by the coupling housing is wrapped around the two grooved pipe ends, and the key sections of the coupling housing engage the grooves. The bolts and nuts are tightened with a socket wrench or impact wrench.



# Evaporators



## Brazed plate heat exchangers

Brazing the stainless steel plates together eliminate the need for gaskets and thick frame plates, which makes the heat exchanger compact. The brazing material seals and holds the plates together at the contact points ensuring optimal heat transfer efficiency and pressure resistance. Using advanced design technologies and extensive verification guarantees the highest performance and longest possible service lifetime.

## Circulation pumps

UltraCompact chillers can be equipped with high-quality single-stage single or twin pumps in inline design. The pumps feature reduced life cycle costs, optimized efficiency, and high standard of corrosion protection thanks to cathophoretic coating.

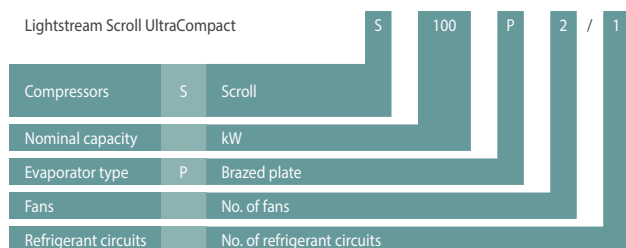


# Package, options and accessories

Description					
<b>General</b>					
Anti-vibration mounts	<input type="checkbox"/>	MCHE electrocoat	<input type="checkbox"/>	Low noise design (grades 1-4)	<input type="checkbox"/>
Anti-vibration springs	<input type="checkbox"/>	MCHE thermoguard	<input type="checkbox"/>	-6°C brine kit	<input type="checkbox"/>
Partial heat recovery system	<input type="checkbox"/>	MCHE mesh guard	<input type="checkbox"/>	-12°C brine kit	<input type="checkbox"/>
Total heat recovery system	<input type="checkbox"/>	Water tank	<input type="checkbox"/>	Aluminium frame and paneling	<input checked="" type="checkbox"/>
<b>Waterside</b>					
Pumping group (single/twin inline pumps)	<input type="checkbox"/>	Pump(s) antifreeze heater	<input type="checkbox"/>	Flowmeter	<input type="checkbox"/>
<b>Refrigerant side</b>					
Electronic expansion valves	<input type="checkbox"/>	Service valve (compressor suction)	<input type="checkbox"/>	Safety valves on high/low pressure sides	<input type="checkbox"/>
Service valve (compressor discharge)	<input type="checkbox"/>	Pressure indication on high/low pressure sides	<input type="checkbox"/>	Thermal insulation	<input checked="" type="checkbox"/>
<b>Airside</b>					
AC fans	<input checked="" type="checkbox"/>	EC fans	<input type="checkbox"/>	High-efficient fan diffusers	<input type="checkbox"/>
<b>Electric and controls</b>					
Electric panel heater	<input type="checkbox"/>	BMS connectivity	<input checked="" type="checkbox"/>	Touch screen HMI	<input type="checkbox"/>
Compressor power factor capacitor	<input type="checkbox"/>	SNMP connectivity	<input type="checkbox"/>	Remote monitoring software	<input type="checkbox"/>
Soft-start system	<input type="checkbox"/>	Energy monitoring	<input type="checkbox"/>	Pumping group control system	<input type="checkbox"/>

- Standard feature
- Optional feature

## Frame sizes and model identification



Frame size		F1	F2	F3	F4	F5
Length	mm	1925	2505	2945	3995	4795
Width	mm	1195	1195	1195	1195	1795
Height	mm	1625	1625	1950	1950	1950

## Advanced control software



The control hub of UltraCompact chillers is a sophisticated controller and advanced software developed for efficient operation of scroll-based chillers. It manages and optimizes the chiller's performance, giving the complete control over the system for plant operator.

For the efficient operation of multiple units on a single chilled water plant, the sequencing software permits interlinked operation of the complete system, thus providing optimal temperature control and minimal energy consumption.

# Technical Specs

Lightstream Scroll UltraCompact		S50 P4/1	S50 P4/2	S75 P6/1	S75 P6/2	S100 P2/1	S100 P2/2	S125 P2/1	S125 P2/2	S150 P2/1
Cooling capacity <sup>1</sup>	kW	51.2	51.2	76.2	76.2	103.5	103.5	124.0	124.0	140.0
Frame size		F1	F1	F2	F2	F3	F3	F3	F3	F3
EER	kW/kW	2.78	2.78	2.78	2.78	2.90	2.86	2.75	2.79	2.64
ESEER		4.17	3.55	4.03	3.51	4.03	3.56	3.84	3.48	3.80
Net weight	kg	525	525	665	665	875	875	915	915	925
Compressors		Scroll								
Quantity		2	2	2	2	2	2	2	2	2
Power input	kW	17.4	17.4	26.0	26.0	32.8	32.8	40.7	40.7	48.0
Absorbed current	A	32.3	32.2	49.6	49.6	59.6	59.6	70.8	70.8	82.4
Capacity steps		2	2	2	2	2	2	2	2	2
Fans		AC-type axial								
Quantity		4	4	6	6	2	2	2	2	2
Airflow	m <sup>3</sup> /h	15200	15200	22800	22800	34000	34000	42400	42400	42400
Power input	kW	0.56	0.56	0.84	0.84	2.20	2.20	3.20	3.20	3.20
Absorbed current	A	2.5	2.5	3.7	3.7	4.5	4.5	7.8	7.8	7.8
Evaporator		Brazen plate								
Water flow rate	m <sup>3</sup> /h	8.8	8.8	13.1	13.1	17.5	17.5	21.4	21.4	23.8
Max flow rate	m <sup>3</sup> /h	16.7	16.7	24.8	24.8	32.4	32.4	40.6	40.6	45.5
Water volume	l	3.8	3.6	5.0	4.8	5.0	5.5	8.0	8.8	9.0
Refrigerant circuits		R410a								
Quantity		1	2	1	2	1	2	1	2	1
Charge	kg	5.2	5.2	7.8	8.4	10.5	11.5	12.3	12.3	12.4

(1) Coolant: Water 100%; Coolant temperatures: 7/12°C; Ambient temperature: 35°C

Lightstream Scroll UltraCompact		S150 P2/2	S175 P3/1	S175 P3/2	S200 P3/1	S200 P3/2	S200 P4/2	S225 P4/2	S250 P4/2	S275 P4/2
Cooling capacity <sup>1</sup>	kW	140.0	164.0	164.0	200.0	200.0	210.0	230.0	250.0	285.0
Frame size		F3	F4	F4	F4	F4	F5	F5	F5	F5
EER	kW/kW	2.64	2.92	2.92	2.69	2.69	2.98	2.91	2.80	2.72
ESEER		3.32	3.96	3.61	3.82	3.39	4.22	4.21	4.14	4.19
Net weight	kg	925	995	1025	1055	1075	1695	1875	1950	2025
Compressors		Scroll								
Quantity		2	2	2	2	2	4	4	4	4
Power input	kW	48.0	50.0	50.0	68.5	68.2	62.8	71.0	81.5	96.8
Absorbed current	A	82.4	86.8	86.8	116.0	116.0	115.0	125.0	142.0	165.8
Capacity steps		2	2	2	2	2	4	4	4	4
Fans		AC-type axial								
Quantity		2	3	3	3	3	4	4	4	4
Airflow	m <sup>3</sup> /h	42400	63500	63500	63500	63500	84800	84800	84800	84800
Power input	kW	3.20	4.70	4.70	4.70	4.70	6.32	6.32	6.32	6.32
Absorbed current	A	7.8	11.7	11.7	11.7	11.7	15.6	15.6	15.6	15.6
Evaporator		Brazen plate								
Water flow rate	m <sup>3</sup> /h	23.8	28.0	28.0	34.2	34.2	36.0	39.4	42.8	48.8
Max flow rate	m <sup>3</sup> /h	45.5	53.8	53.8	65.7	65.7	50.5	55.0	60.0	68.5
Water volume	l	8.8	11.0	8.6	14.0	11.8	11.8	13.3	15.1	22.8
Refrigerant circuits		R410a								
Quantity		1	2	1	2	2	2	2	2	2
Charge	kg	12.6	12.0	13.7	21.3	24.3	19.3	19.6	20.0	20.0

(1) Coolant: Water 100%; Coolant temperatures: 7/12°C; Ambient temperature: 35°C

MODELS  
**18**  
AVAILABLE



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