



# **i-FH INDUSTRIAL FREE HEATING RANGE SAVING 40% ON ENERGY COSTS**

Chiller & Water to Water Heat Pump Application

PROCESS TEMPERATURE CONTROL SPECIALISTS.  
SALES. HIRE. SERVICE.

**INTRODUCING  
ICS COOL ENERGY'S i-FH  
(INDUSTRIAL FREE HEATING)**

ICS Cool Energy, as proud members of the Carbon Trust, are always pleased to present innovative ways for our customers to save energy, lower their carbon footprint and also reduce their own costs.

There is energy that is free in most industrial buildings as a result of heat produced by chillers used for cooling manufacturing processes and facilities.

This heat can be recovered, harnessed and used to heat other industrial processes.

ICS Cool Energy's i-FH (industrial free heating) solutions can be used to achieve this.

By making it a priority to claim this existing energy and repurposing it in a smart and innovative system design using the latest technologies, everyone wins, especially the environment.

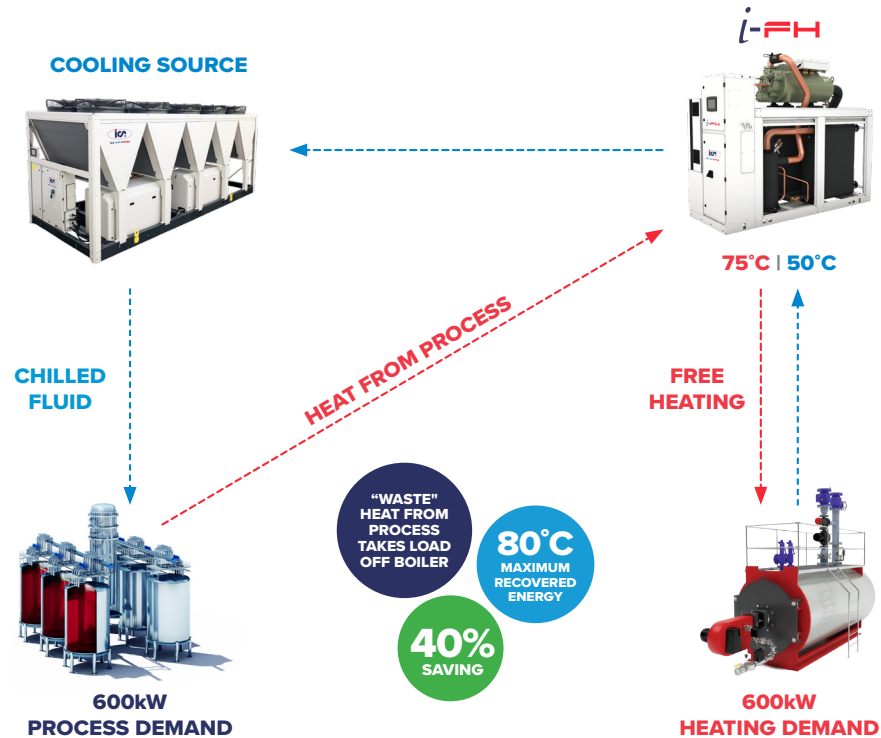
The broad range of energy-efficient ICS Cool Energy heating solutions cover any need, whether it is:

- Heating or cooling (heat pumps)
- Heating while cooling (chillers with heat recovery)
- Heating while cooling or heating (heat pumps with heat recovery)
- Any combination above (multi-pipe units)

- As a member of the Carbon Trust we help businesses reduce carbon
- Transitioning to a carbon free world
- Help companies measure and analyse their resource efficiency & environmental impact

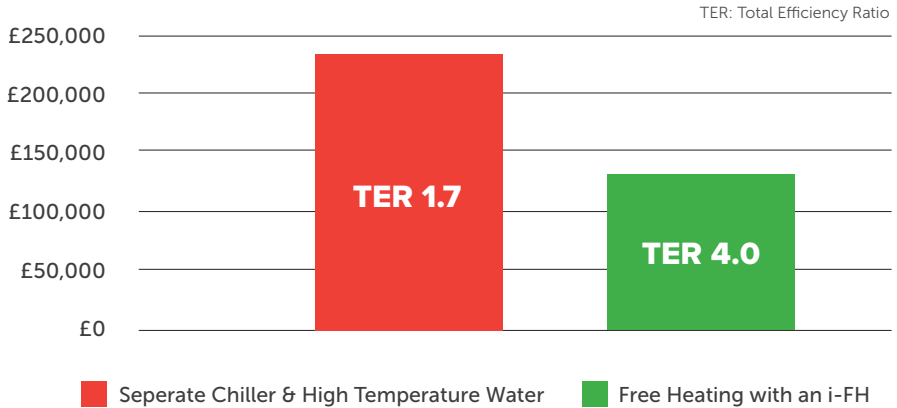


**WHAT IS FREE HEATING?**



**ANNUAL ENERGY COSTS EXAMPLE**

16 hours x 365 days 600kW chiller with 75 degree water needed & 600kW heating demand



## i-FH FEATURES & BENEFITS



### 1 ADAPTIVE FREQUENCY DRIVE

- Industry leading Seasonal Efficiency
  - Energy bill reduced
- Eliminates inrush current
  - No oversizing of electrical components
  - Decrease cost of installation

### 2 COMPRESSOR

- Direct drive, low speed screw design
  - Excellent load matching
  - Unequaled long lasting reliability

### 3 HEAT EXCHANGERS

- Single circuit brazed plates
  - Heat exchangers
  - Maximum efficiency

### 4 CONTROLS

- Fastest controls of the industry
- Safe VPF
- No nuisance trips (Adaptive Control)
- Temperature control within 0.3°C
  - Efficient, reliable and accurate operation

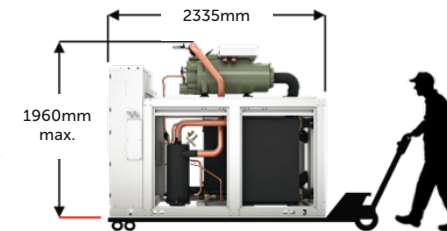
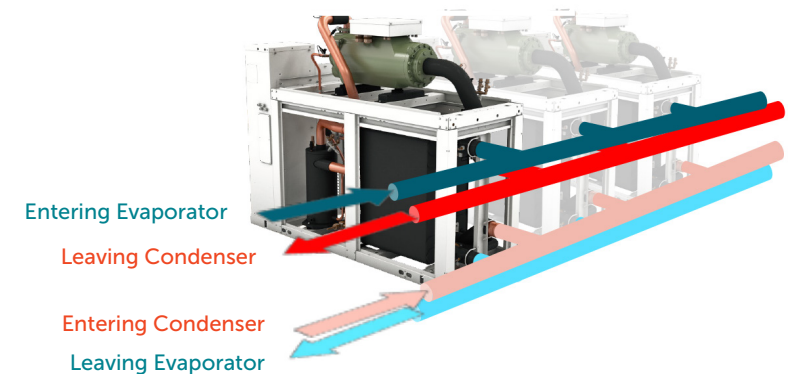
### 5 COMPACT DESIGN

- 920 mm width only
  - Fits standard doors and elevators
  - Can be easily moved

### 6 ACOUSTICALLY INSULATED PANELS (OPTIONAL)

- Reduce sound emissions by up to 9 dB(A)

- Compact Design – Optimized for restricted spaces
- Modular and scalable for evolving needs
- Easily maneuverable with a standard pallet truck
- Operational effectiveness
- Intuitive & user friendly interface
- Extensively tested incl. acoustics and vibration
- CE Compliance



Pallet truck moveable



Fits through doors & lifts

## THE FUTURE OF F-GAS

The fluorinated refrigerants phase-down, as defined in the new EU F-Gas Regulation, is a step-by-step approach where the quantities of HFCs expressed in CO<sub>2</sub> equivalent that are placed on the market are gradually reduced. As a result of the phase-down, HFC consumption will be reduced by 79% by 2030.

This is an unprecedented reduction and means that industry and users need to make, over time, the transition to refrigerants with a lower global warming potential.



### New R1234ze

Ozone depletion potential = 0

Low global warming potential (GWP<1)

### WHAT IS GWP?

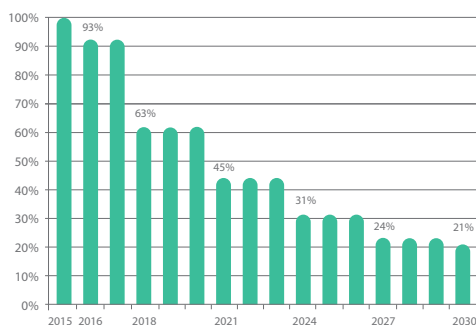
GWP is the global warming impact relative to the impact of the same quantity of carbon dioxide over a 100 year period.

### WHAT IS ODP?

Ozone depletion potential of a chemical is the amount of degradation to the ozone layer it can cause.

ICS Cool Energy, recognized as a leading innovator in the HVAC industry, introduces this new, next generation, lower GWP refrigerant in Sintesis and other products to be front running in the marketplace and to support your strong sustainability objectives.

### HFC CONSUMPTION



Baseline value (100%) is the annual average of total quantity of CO<sub>2</sub> equivalents placed on the EU market from 2009 to 2012.

Refrigerant	Global Warming Potential (GWP)
R410A	1924
R407C	1774
R134a	1300
R513a	572
R1233zd	1
R1234ze	<1

## INTRODUCING THE ICS COOL ENERGY FLEX

Would you like to benefit from energy savings without the need for capital investment?

FLEX is our "Fixed Long-Term Exchange" program



Our monthly FLEX package provides you with additional running cost reductions versus your existing plant running costs.

### KEY FEATURES AND BENEFITS:

- Fixed, hard-piped install to your process
- Long-term solution
- Energy savings
- Options to exchange & upgrade the equipment as technology improves
- No requirement for capital investment
- Bespoke product for the application
- Monthly or quarterly rental payments
- A minimum 5 year contract
- Fully inclusive cost incorporating warranty repairs for the contract duration
- Maintenance package included & provision of legislative compliance
- Annual cooling circuit fluid analysis
- Mechanical & electrical interconnection
- Chart to show predicted energy savings in line with normal energy costs, after initial install costs

		i-FH 050 G	i-FH 060 G	i-FH 070 G	i-FH 090 G	i-FH 100 G	i-FH 110 G
<b>Acoustics</b>							
Sound	dB(A)	93	93	98	98	98	94
<b>Dimensions &amp; Weights</b>							
Length (3)	(mm)	2240	2240	2240	2240	2240	2240
Width (3)	(mm)	900	900	900	900	900	900
Height (3)	(mm)	1940	1940	1960	1960	1960	1960
Shipping Weight (3)	(kg)	1610	1675	1900	1985	1985	1985
<b>High Temperature Heating</b>							
Net Heating Capacity (1)	(kW)	182	221	255	308	366	420
Net COP (1)		3.74	3.78	3.92	3.90	3.80	3.68
SCOP (2)		4.82	4.91	5.08	5.09	5.09	5.11
Space Heating Efficiency	%	185	188	195	196	196	196
η <sub>s,h</sub> (2)		185	188	195	196	196	196

(1) at 10/7°C Entering/Leaving evaporator and 47/55°C Entering/Leaving condenser

(2) η<sub>s,h</sub> / SCOP as defined in Directive 2009/125/EC of the European Parliament and of the Council with regard to Ecodesign requirements for space heaters with 400 kW maximum rated capacity - COMMISSION REGULATION (EU) N° 813/2013/EU of 2 August 2013

(3) For Base version without panels

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to speak to one of our experienced and  
qualified engineers about free heating  
for your business.

**[WWW.ICSCOOLENERGY.COM](http://WWW.ICSCOOLENERGY.COM)**

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