

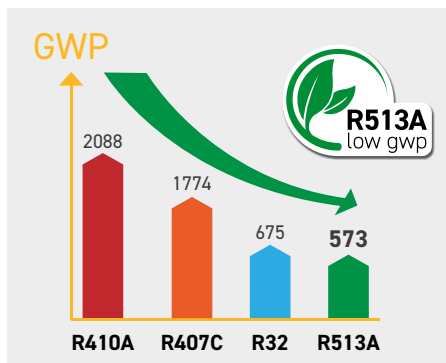
Hyperchill Plus-E

Green Industrial Water Chillers
for Precision Cooling



The new Hyperchill Plus-E range is a Green and Eco-Friendly solution, meeting the requirements laid out by the European F-Gas regulation (EU 517/2014), requiring the use of environmentally friendly low GWP refrigerants.

Most low GWP refrigerants belong to flammable safety classes, A2, A2L and A3. The use of the A1 Class (ISO817), R513A refrigerant by Hyperchill Plus-E, really sets it apart.



R513A being a non-flammable refrigerant, allows for Hyperchill Plus-E to be installed indoor or outdoor and conforms with standard building codes:

- No safety risk
- No need for flammable risk assessment
- No extra costs for installation



SAFETY CLASS



Non-flammable



Extremely compact and easy to use, Hyperchill Plus-E is designed for safe and reliable operation in the most varied working conditions, providing a precise and accurate control of the process fluid temperature. The availability of a wide range of accessories and options makes Hyperchill Plus-E a very flexible solution that fits the needs of all industrial applications.

Due to a non-ferrous hydraulic circuit, Hyperchill Plus-E ensures stable working conditions with maximum quality and cleanliness of the cooling fluid (water, water-glycol mixture, low viscosity fluids), improving the efficiency and productivity of the process and greatly reducing maintenance costs and plant downtime.

Each individual Hyperchill Plus-E unit is extensively tested to guarantee efficient operation and reliability in all working conditions.

Process Cooling Applications

- Coating Systems
- Chemical & Pharmaceutical Processes
- Plastics Processing
- Thermoform Machines
- Plasma Coating
- Medical Imaging Systems
- Food & Beverage Industry
- Injection Moulding
- Machine Tools
- Electroplating Baths
- Biogas & Natural Gas Treatment
- Compressed Air Treatment
- Laser Technology
- Extruders
- Surface Processing
- Welding Engineering
- Blow Mould Machines
- Flexographic Printing Systems
- Hydrogen
- CO2 Liquification

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Features and Benefits

Customer Benefits

- The use of **Low GWP R513A** refrigerant, which is **non-flammable (Safety Class A1)**, allows for indoor and outdoor installation without any additional safety risk and cost.
- Thanks to its compact design, Hyperchill Plus-E provides a space saving and easy to install solution.
- **Condenser filters**, in addition to refrigeration and hydraulic circuit safety devices, prevent system downtime, protecting the investment.
- **High performance components**, as well as an oversized condenser and evaporator, ensure reliable operation. Even in extreme ambient conditions, Hyperchill Plus-E operates up to an ambient temperature of **48°C**.
- The **non-ferrous hydraulic circuit** maintains the quality of the coolant ensuring stable working conditions, improving productivity and decreasing maintenance costs.

Product Features

Complete solution, easy to install and manage

- **Non ferrous hydraulic circuit:** non-ferrous water tank (stainless steel from ICEP005-E), stainless steel plate evaporator, non-ferrous pump with bypass prevent water from becoming corrosive
- **Pump and tank installed inside the chiller** provides a compact and easy to install solution; without pump and/or without tank solution available.
- **Electronic controllers with proprietary software** provide access to all the parameters of the units and allow special management for any specific need, with possibility for remote monitoring and 'master/slave' functioning.
- **Completely configurable** with many options and kits to fit the needs of industrial applications.
- **Condenser filters** reduce dirt, thereby preventing system downtime.
- As standard installed **differential pressure switch** that makes sure that the systems shuts down in the case that the circuit runs dry. Therefore the investment is protected.
- **Designed with eyebolts** (till ICEP015E) for easy handling.
- **IP54 standard** from ICEP008E for outdoor installations.



- **Independent condensing section** enables routine and special maintenance to be performed without stopping the system.
- Unit structure and design guarantee **full internal access** for easy maintenance.
- Models from ICEP022E designed with **fan step control** in order to work in low ambient temperatures down to **-10°C**.
- **All models equipped with MODBUS RTU interface**, ensuring a system monitoring (optional MODBUS TCP/IP).
- **Water and refrigerant manometers** permit full control of the working conditions.
- **Water pump: (standard 3bar) different head-pressures** available to meet the requirements of specific applications.
- **Visual level Indicator:** designed for open circuit versions.

High reliability and Low energy consumption

- **Large built-in water tank** that provides a large thermal mass / storage capacity thus reducing the number of refrigerant compressor stop/starts and short cycling thereby increasing the compressor and chiller lifetime and reducing the energy consumption.
- **Maximum ambient temperature up to 48°C** on standard units, **Tropicalization and Low Ambient options** ensure reliable operation in extreme ambient conditions.
- **Oversized condensers and evaporators** guarantee high performing heat exchange increasing COP energy efficiency.
- **PID software developed and tested** to give the highest temperature consistency even at variable loads.
- Use of **compliant scroll compressors** (from ICEP008E) designed specifically for high efficiency and long life in industrial applications.
- **Low ambient speed-control** (optional) on fan-motor ensures constant performances at different temperatures, long lifetime of the fans and a reduction in absorbed power when ambient temperature is low.

Technical Data

Model ICEP-E		003E	005E	008E	011E	015E	022E	027E	034E	041E	055E	065E	080E	100E	120E
Cooling capacity ¹	kW	2,9	4,9	7,8	11,1	15,0	21,9	26,6	33,1	40,2	56,3	65	78,3	103,7	120,6
Total absorbed power ¹	kW	1,2	1,6	1,6	2,3	3,6	5,0	5,7	6,7	8,3	12,8	15,3	18,5	24,2	29,8
EER ¹		2,38	3,16	4,79	4,78	4,10	4,40	4,64	4,95	4,82	4,55	4,25	4,25	4,10	4,04
SEPR HT ²		NA	5,00	5,34	5,40	5,01	5,50	5,20	5,60	5,33	5,06	5,10	5,20	5,10	5,02
Power Supply	V/ph/Hz	230/1/50			400/3/50										
Protection index		IP33			IP54										
Refrigerant		R513A													

Compressor

Type		piston				hermetic scroll									
Compressors / circuit		1/1					2/1					2/2			
Max.abs.power (1 compressor)	kW	1,1	1,5	2,5	3,5	5,4	6,5	8,7	10,8	11,3	10,8	11,3	13,1	17,9	22,1

Axial fans

Quantity	no.	1					2					3			
Max.abs.power (1 fan)	kW	0,34	0,34	0,23	0,23	0,46	0,46	0,46	0,77	0,77	0,77	0,77	0,77	0,77	0,77
Air flow	m³/h	1258	1258	3325	3325	5028	7823	10865	17337	17057	17057	17110	26832	26082	26082

Pump P30

Max.abs.power	kW	0,4	0,4	0,9	0,9	1,0	1,3	1,3	2,2	2,2	2,2	2,2	3,3	3,3	3,3
Water flow (nom./ max) ¹	m³/h	0,5/1,9	0,8/1,9	1,3/4,5	1,9/4,5	2,6/5,4	3,8/9,6	4,6/9,6	5,7/18	6,9/18	9,7/18	11,2/18	13,6/31,2	17,8/31,2	20,7/31,2
Head pressure (nom./max) ¹	m H ₂ O	30/5	24/5	32/21,5	28,6/21,5	29/23	28/17,1	26,9/17,1	30/23,1	28,5/23,1	27,6/23,1	27/23,1	27,9/19	26,7/19	25,7/19

Weights and Dimensions

Width	mm	755	755	756	756	756	756	756	856	856	856	856	1050	1050	1050
Depth	mm	535	535	806	806	806	1206	1206	1956	1956	1956	1956	2500	2500	2500
Height	mm	801	801	1430	1430	1430	1430	1430	1680	1680	1680	1680	2012	2012	2012
Connections in/out	in	¾"	¾"	¾"	¾"	¾"	1"	1"	1½"	1½"	1½"	1½"	2"	2"	2"
Tank capacity	l	15	22,5	65	65	65	100	100	200	200	200	200	400	400	400
Weight (axial) ³	kg	80	91	165	175	180	235	250	485	510	580	595	875	1010	1030

Noise level

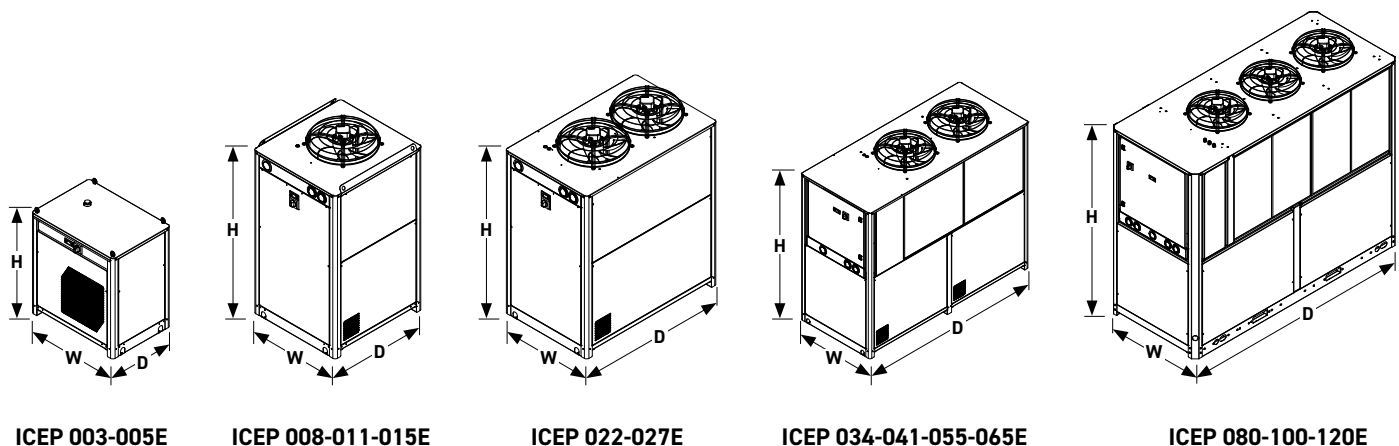
Sound pressure (axial) ⁴	dB(A)	52	52	50	50	51	52	52	53	54	55	55	58	59	59
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1) At water in/out temperature 20/15°C, glycol 0%, either 25°C ambient temperature (air-cooled models).

2) Value calculated in accordance with the European regulation (EU) 2016/2281 with regards to Ecodesign requirements for high temperature process chillers.

3) Includes refrigerant charge and pallet (version without options and accessories).

4) Sound pressure: average value obtained in free field on a reflective surface at a distance of 10 m from the condensate side of the machine and at a height of 1.6 m from the unit support base. Values with tolerance ± 2 dB. The sound levels refer to operation of the unit under full load in nominal conditions.



Product Specification

Options and Standard Features

✓ = Option ● = Standard Feature

	ICEP-003E	ICEP-005E	ICEP-008E	ICEP-011E	ICEP-015E	ICEP-022E	ICEP-027E	ICEP-034E	ICEP-041E	ICEP-055E	ICEP-065E	ICEP-080E	ICEP-100E	ICEP-120E
Differential Pressure Switch	●	●	●	●	●	●	●	●	●	●	●	●	●	●
MODBUS RTU	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Eyebolts	●	●	●	●	●									
Non ferrous hydraulic circuit with water tank and 3 bar pump	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Differential dynamic set point			●	●	●	●	●	●	●	●	●	●	●	●
Low Ambient -10°C with fan step control						●	●	●	●	●	●	●	●	●
Low ambient -10°C with fan speed control			✓	✓	✓									
Low ambient -20°C with fan speed control, crankcase heater and electrical panel heater			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
No Tank	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
No Tank & No Pump	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
No Pump	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P50 (5 bar pump)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P15 (1,5 bar pump)			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dual pump P30 (3 bar pump)								✓	✓	✓	✓	✓	✓	✓
Dual pump P50 (5 bar pump)													on request	
Harting Plug for signals	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		on request	
Close Control (+/- 0,5°C)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		on request	
Low Water -10°C			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Antifreeze Heating			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BioEnergy & Aggressive ambient protection			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tropicalization (ambient temperature >48°C)													on request	

Versions

Open Circuit	✓	✓	Available with ambient manual fill kit fitted											
Closed Circuit		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Air Cooled with Axial Fans	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Air Cooled with High Head Pressure Fan								✓	✓	✓	✓	✓	✓	✓
Water Cooled						✓	✓	✓	✓	✓	✓	✓	✓	✓

Accessories

- Water fill kits:** non-ferrous pressurized, automatic or ambient manual kits, for water filling in any installation.
- Remote control kits:** base version for remote ON/OFF and general alarm monitoring. Advanced version for complete remote unit monitoring and ‘master/slave. functioning.
- Wheels (ICEP003E - ICEP015E):** for ease of transport.
- Manual External By-Pass:** Non-ferrous, externally manually adjustable allowing the correct flow through the system to be set.
- Control panel cover:** from ICEP008E, can be supplied already installed or loose.
- MODBUS TCP/IP.**

As the manufacturer of process chillers delivering water at a design temperature of 15°C, Parker Hannifin Manufacturing s.r.l., Gas Separation and Filtration Division EMEA, declares that Parker chillers are exempt from Ecodesign EU regulation 2016/2281.



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Hyperchill

Industrial Process Chillers for Precision Cooling



Extremely compact and easy to use, Hyperchill ensures an accurate control of water temperature. Each model is designed for safe and reliable operation in the most varied working conditions, thanks to the modern technical solutions used and the availability of a wide range of accessories and options. Each individual Hyperchill unit is extensively tested to guarantee efficient operation and reliability in all working conditions.



Product Features:

Complete solution, easy to install and manage

- Hydraulic circuit: water tank, immersed evaporator, pump with bypass provide a compact and easy to install solution.
- Electronic controllers with proprietary software provide access to all the parameters of the units and allow special management for any specific need.
- Available with remote monitoring.
- Completely configurable with many options and kits to fit many industrial applications needs.
- Condenser filters.
- Independent condensing plenum.
- Full access and easy service design.

High reliability and back-up eliminate downtime

- Large water tanks allow minimum compressor cycling and precise temperature control.
- Double independent fridge circuits.
- 2 compressors from ICE076 and 4 compressors from ICE150 with automatic rotation.
- Double stand-by water pumps available.
- Maximum ambient temperature up to 45°C.

Lowest energy consumption in the market

- Oversized condensers and evaporators.
- Use of compliant scroll compressors.

Process cooling applications:

- | | | |
|-----------------------|-------------------------------|----------------------------|
| • Laser Technology | • Coating Systems | • Food & Beverage Industry |
| • Extruders | • Chemical and Pharmaceutical | • Injection Moulding |
| • Surface Processing | • Plastics Processing | • Cutting Machine Tools |
| • Welding Engineering | • Thermoform Machines | • Electroplating Baths |
| • Blow Mould Machines | • Plasma Coating | • Bioenergy |
| • Printing Systems | • Medical Imaging | • Compressed Air |



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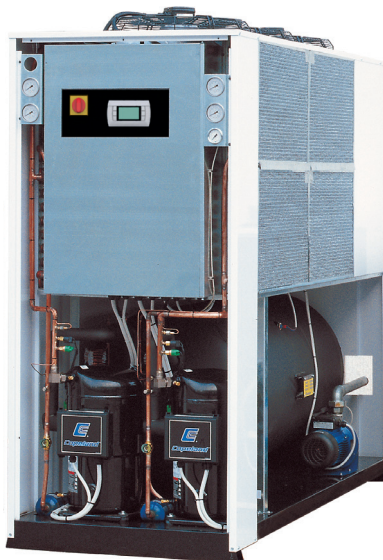
Water and refrigerant manometers: permit full control of the working conditions.

Microprocessors: permit full control of the unit parameters. Proprietary software allows a wide range of programming and remote monitoring options.

Compliant scroll compressors: with less moving parts and compliant technology provide excellent efficiency, high reliability, and very low noise levels.

Air cooled with axial fans: suitable for outdoor installation, no need for protection.

Water pump (standard 3bar): different head-pressures available to meet the requirements of specific applications. Configurable as a twin-system for 100% back-up.



Mesh filters: condenser protection from dirt and contamination, reduces maintenance costs and the risk of downtime.

Evaporator: located inside the water tank - reduces the overall dimensions, increases the efficiency and improves temperature control.

Water by-pass: protects the pump and supplies constant flow to the evaporator avoiding alarms and freezing.

Water tank: generously dimensioned to guarantee high reliability and improved temperature control.

Versions:

- **Air cooled** with high head pressure fans available on request (ICE076-116).
- **Water cooled** (ICE076-230 alternative to the air cooled versions): Shell&tube condensers with pressostatic valves.
- **Low ambient** temperature additional condensing control for continuous operation in cold ambients (negative temperature). Available for air cooled, axial fan units.

- **Low water** temperature for negative water temperature control, down to -10°C. (Low ambient temperature option recommended).
- **Precision control** (ICE076-ICE230): for precise water temperature control ($\pm 0,5^{\circ}\text{C}$)

- **Non ferrous** stainless steel tank, pump, and hydraulic components.
- **Bioenergy:** epoxy coating on all exposed copper as protection against aggressive environments.
- **Special and multiple pumps:** higher (P50-5bar) or lower (P15-1,5bar) head pressure available to suit different hydraulic circuits. Double stand-by pump for high reliability.
- **Antifreeze** heating avoids freezing when the unit is switched off and glycol is not used.



Options:

- **Remote control kits:** base version for remote ON/OFF and general alarm monitoring. Advanced version for complete remote unit management.
- **MODBUS RTU** kit available on request.



- **Water fill kits:** pressurized, automatic or ambient manual kits, for water filling in any installation.



Technical data

Model ICE		076	090	116	150	183	230	310	360
Cooling capacity ¹	kW	76.0	90.2	115.5	149.2	182.3	228	309	360
Compressor abs. power ¹	kW	15.4	20.3	24.9	30.8	40.1	51.4	65	82
SEPR HT ³		5.39	5.04	5.08	5.35	5.04	5.02	5.51	5.73
Power supply	V/ph/Hz	400/3/50 no neutral							
Protection index		54							
Refrigerant		R407C							

Compressors

Type		Hermetic scroll							
Compressors/circuits		2/2				4/2			
Max abs. power - 1 comp.	kW	11.1	13.7	16.8	11.1	13.7	16.8	23.3	28.7

Axial fans

Quantity	n°	3			2		3	4	
Max abs. Power - 1 fan	kW	0.78	0.78	0.78	2	2	2	2	2
Air flow	m³/h	25500	25000	26400	47000	46000	66000	88000	88000

Water cooled version

Condenser water flow	m³/h	11.1	11.5	16.6	19.2	31.0	33.0	N.A.	
Condensers connections	in	1¼"	1¼"	1¼"	1¼"	1¼"	1½"		

Pump P30

Max abs.power	kW	2.5	2.7	2.7	4.5	4.5	4.5	8.4	8.4
Water flow (nom/max) ¹	m³/h	13/31	15/27	20/27	25/50	30/50	39/50	53/90	62/90
Head pressure (nom/min) ¹	m H ₂ O	23/13	28/16	25/16	34/20	32/20	26/20	26/19	23/19

Dimensions and weight

Width	mm	898	898	898	1287	1287	1287	1500	1500
Depth	mm	2200	2200	2200	3000	3000	3260	4200	4200
Height	mm	1984	1984	1984	2298	2298	2298	2240	2240
Connections in/out	in	2"	2"	2"	2½"	2½"	2½"	4"	4"
Tank capacity	l	500	500	500	1000	1000	1000	400	400
Weight (axial)	kg	800	900	1000	1500	1800	2100	2900	3100
Weight (centrif.)	kg	950	1050	1150	1700	2000	2300	N.A.	
Weight (water cooled)	kg	800	900	1000	1500	1800	2100		

Noise level

Sound pressure (axial) ²	dB(A)	58	58	58	62	62	64	65	65
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1) at water in/out temperature = 20/15 °C, glycol 0 %, either 25 °C ambient temperature (air-cooled models) or 25 °C condenser water inlet temperature with 35°C condensing temperature (water-cooled models).

2) referred to axial fan version in free field conditions at a distance of 10m from unit, measured on condenser side, 1m from ground.

3) Value calculated in accordance with the European regulation (EU) 2016/2281 with regards to Ecodesign requirements for high temperature process chillers;

As the manufacturer of process chillers delivering water at a design temperature of 15 °C, Parker Hannifin Manufacturing s.r.l., Gas Separation and Filtration Division EMEA, declares that Parker chillers are exempt from Ecodesign EU regulation 2016/2281.

Correction factors

A) Ambient temp. (air-cooled models) correction factor (f1)	°C	5	10	15	20	25	30	35	40	45
		1.05	1.05	1.05	1.05	1	0.95	0.89	0.83	0.77
B) Water outlet temperature correction factor (f2)	°C	5	10	15	20	25	30	35	40	45
		0.72	0.86	1	1	1	1	1	1	1
C) Glycol correction factor (f3)	%	0	10	20	30	40	50			
		1	0.99	0.98	0.97	0.96	0.94			
D) Condenser water inlet temp. (water-cooled models) correction factor (f4)	°C	20	25	30	35	40				
		1.05	1	0.95	0.9	0.85				

To obtain the required cooling capacity multiply the value at nominal conditions by the above correction factors

(i.e. cooling capacity = Pxf1xf2xf3xf4, where P is the cooling capacity at conditions (1)).

Hyperchill, in its standard configuration, can operate up to ambient temperatures of max 45 °C and min. 5 °C and water temperatures of max 30 °C inlet and min. 0 °C outlet. The above correction factors are approximative: for a precise selection always refer to the software selection program.

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Hyperchill MAXI

High Performance Air Cooled Chiller



Hyperchill MAXI process chillers are designed to work in large industrial applications. Compact in footprint, reliable and very efficient, with low noise levels. The choice of high quality components, accurate construction, and strict testing procedures, guarantee the best reliability and no downtimes to industrial users. Easy installation and simplified maintenance, with low energy consumption are the main features that make Hyperchill MAXI suitable for many industrial applications.



Process cooling applications:

- Extruders
- Welding Engineering
- Plastics Processing
- Injection Moulding
- Surface Processing
- Blow Moulding Machines
- Thermoform Machines
- Cutting Machine Tools
- Food & Beverage Industry
- Coating Systems
- Chemical and Pharmaceutical
- Electroplating Baths

Product Features:

Complete solution, easy to install and manage

- Advanced electronic boards with proprietary software, various programmable options, easy interface and remote control
- Flanged water connections for quick installation
- Protection grills
- Full access design for ease of maintenance

High reliability and redundancy guarantee no downtimes

- Double independent fridge circuits
- 2 screw compressors with:
 - oil filters and level control,
 - crankcase heaters and liquid injection
 - shut-off valves
- Maximum working ambient temperature up to 45 °C
- Shell&tube evaporators with antifreeze protection and flow control
- Reverse phase protection

Lowest energy consumption in the market

- Oversized condensers and evaporators
- High efficiency screw compressors
- Electronic expansion valves and fans speed regulation with phase control

- Air cooled with axial fans and step control, suitable for outdoor installation.
- R407C optimized shell&tube heat exchangers, with two independent fridge circuits, completely insulated, featuring anti-freeze and water flow protection.
- Flanged water connections.
- Semi-hermetic screw compressors with stepless control, equipped with high efficiency oil filter and level control. Fitted as std. with shut off valves and vibration-damping mounts.
- Std. options: part winding soft start, crankcase heaters and liquid injection for oil cooling.
- Microprocessors allow complete control of the unit parameters, with wide range of programming options and remote monitoring available.
- Water and refrigerant manometers permit easy control of the working parameters.



Options:

- **Single and double pumps** with different available head pressures.
- **Remote control kit** for complete remote unit management.
- **Connectivity option** for continuous monitoring and management via wireless connection.

Benefits:

- Increases productivity and reduces production costs
- Optimizes industrial applications
- Adaptable to industrial customer needs
- Accepts wide range of water temperatures and fluctuating water flows

Technical data

Model ICE		460	550	650	760
Cooling capacity ¹	kW	457,9	544,8	650,7	757,5
Compressor abs. Power ¹	kW	98,5	110,3	139,8	157,8
C.O.P. ¹		4,6	4,9	4,7	4,8
Water flow ¹	m ³ /h	78,8	93,7	111,9	130,3
Water pressure drops ¹	kPa	33,8	44,8	42,2	56,3
Cooling capacity ²	kW	323,2	382,9	463,4	539,4
Compressor abs. Power ²	kW	100,1	110,8	141,5	163,4
C.O.P. ²		3,2	3,5	3,3	3,3
Water flow ²	m ³ /h	56,9	67,6	81	93,7
Water pressure drops ²	kPa	18,5	24,1	23,3	30,6
Power supply	V/ph/Hz	400/3/50 no neutral			
Protection in ex		54			
Refrigerant		R407C			

Compressors

Type		semiermetic screw			
Compressors/circuits		2/2			
Max abs. power (1 comp.)	kW	71	81,3	98,1	118,1

Axial fans

Quantity	n°	6	8	8	10
Max abs. Power - 1 fan	kW	2,1	2,1	2,1	2,1
Total air flow	m ³ /h	109.000	144.000	144.000	195.000

Dimensions and weight

Width	mm	2.255	2.255	2.255	2.255
Depth	mm	4.000	5.100	5.100	6.200
Height	mm	2.400	2.400	2.400	2.400
Connections in/out	in	4	4	6	6
Weight	kg	3.240	3.850	4.000	4.800

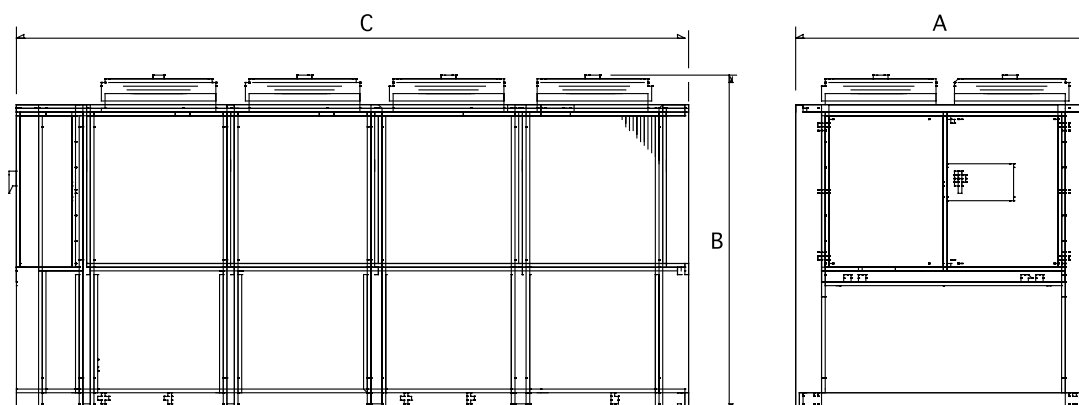
Noise level

Sound pressure (axial) ³	dB(A)	73	74	74	75
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1) at water inlet/outlet temperature = 20/15°C, glycol 0%, ambient temperature 25°C.

2) at water inlet/outlet temperature= 12/7°C, glycol 0%, ambient temperature 35°C.

3) measured in free field conditions at a distance of 10m from unit, on condenser side, 1m from ground.



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Hyperchill Plus-E

Industrial Process Chillers
for Laser Cooling



Precision chilled water with non-ferrous hydraulic circuit

Hyperchill Plus-E is a Green and Eco-Friendly solution, meeting the requirements laid out by the European F-Gas regulation (EU 517/2014), requiring the use of environmentally friendly low GWP refrigerants.

It is designed to meet the needs of many applications requiring stable working conditions with maximum quality and cleanliness of the process fluid.

Laser marking, cutting and welding are typical industrial processes where the characteristics of Hyperchill Plus-E are vital to obtain the desired product quality and to optimize the production process. Furthermore, the use of the non-flammable A1 safety class (ISO817) R513A refrigerant allows indoor and outdoor installation in line with standard building codes without any extra costs and any safety risk.



Benefits

High consistency

- Non ferrous hydraulic circuit. Stainless steel tank, evaporator, and water pump maintain the quality of the coolant.
- Very precise outlet water temperature control with hot gas valves ($\pm 0,5^{\circ}\text{C}$).
- PID software developed and tested to give the highest temperature consistency even at variable loads.
- High pressure pumps supply constant water flow and pressure to the system.

High reliability

- Maximum working ambient temperature up to 48°C , prevents downtime even under extremely harsh conditions.

Perfect solution, easy to install and manage

- Hydraulic circuit: storage and filling tank, with evaporator and pump provide a compact solution, easy to use and install.
- Electronic controllers with proprietary software provide access to all the vital parameters of the unit and allow special management for specific needs, with remote monitoring available.
- Condensers filters.
- Independent condensing plenum.
- Full access and easy service design

Low power consumption

- Very low power consumption thanks to oversized condensers and evaporators, and use of compliant scroll compressors (from ICEP008E onwards).



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Hyperchill Plus-E for Laser Cooling

Customer Benefits

The performance of high-powered lasers depends on effective cooling. High-powered lasers generate a significant amount of heat that must be removed from the laser system to avoid overheating critical components. Carbon dioxide (CO₂) lasers, excimer lasers, ion lasers, solid-state lasers, and dye lasers all use liquid cooling to remove excess heat.

Laser liquid cooling can help accomplish three goals: maintaining a precise laser wavelength and higher output efficiency, achieving desired beam quality, and reducing thermal stress on a laser system.

Product Features

- **Microprocessors:** allow complete control of the unit parameters. Proprietary software allows a wide range of programming and remote monitoring options
- **Compliant scroll compressors:** (from ICEP008-E onwards) with less moving parts and compliant technology provide excellent efficiency, high reliability, and very low noise levels.
- **Water and refrigerant manometers** permit easy control of the working conditions.
- **Stainless steel plate evaporators,** compact and efficient, external to the tank.
- **Mesh filters:** (from ICEP0080-E onwards) condenser protection from dirt and contamination, reduces maintenance costs and the risk of downtime.
- **Water pump:** available with different head pressures to fit the end user application, can be also configured as twin system for redundancy.
- **MODBUS RTU** interface fitted on all models; optional MODBUS TCP/IP available.
- **Stainless steel water tank:** generously dimensioned guarantee high reliability and improved temperature control.
- **Differential pressure switch:** protects pump and evaporator in case of flow shut down.

Kits

- **Water bypass:** externally adjustable allowing the correct flow through the system to be set.
- **Water fill kits:** pressurized, automatic or ambient manual kits, for water filling in any installation.



- **Wheels** (up to ICEP015-E): for easy of transport.
- **Remote control kits:** base version for remote ON/OFF and general alarm monitoring or advanced version for complete unit management via remote monitoring.



Versions

- **Low ambient temperature** (from ICEP008-E onwards): additional condensing control for continuous operation in cold ambients (negative temperature). Available for air cooled versions with axial fans.
- **Precision control:** when very precise water temperature is required ($\pm 0,5$ °C).
- **Special and multiple pumps:** higher (P50-5bar) or lower (P15-1,5bar) head pressure available to suit different hydraulic circuits. Double standby pump for higher reliability.
- **Antifreeze heating** (from ICEP008-E onwards): avoids freezing when the unit is switched off. Can also be used as a heater to warm up the system.

Technical Data

Model ICEP		003E	005E	008E	011E	015E	022E	027E	034E	041E	055E	065E	080E	100E	120E
Cooling capacity ¹	kW	2,9	4,9	7,8	11,1	15,0	21,9	26,6	33,1	40,2	56,3	65	78,3	103,7	120,6
Total absorbed power ¹	kW	1,2	1,6	1,6	2,3	3,6	5,0	5,7	6,7	8,3	12,8	15,3	18,5	24,2	29,8
SEPR HT ²		NA	5,00	5,34	5,40	5,01	5,50	5,20	5,60	5,33	5,06	5,10	5,20	5,10	5,02
Cooling capacity ³	kW	3,0	5,0	8,0	11,2	15,1	22,1	27,4	34,3	41,8	57,3	66,0	79,8	105,5	121,0
Total absorbed Power ³	kW	1,4	1,84	2,0	2,9	4,5	6,1	6,9	8,0	10,1	15,8	18,8	22,7	29,5	36,8
Protection index		IP33		IP54											
Refrigerant		R513A													

Compressor

Type		piston				hermetic scroll									
Compressors / circuit						1/1				2/1		2/2			
Max.abs.power (1 compressor)	kW	1,1	1,5	2,5	3,5	5,4	6,5	8,7	10,8	11,3	10,8	11,3	13,1	17,9	22,1

Axial fans

Quantity	no.	1				2				3			
Max.abs.power (1 fan)	kW	0,34	0,34	0,23	0,23	0,46	0,46	0,46	0,77	0,77	0,77	0,77	0,77
Air flow	m³/h	1258	1258	3325	3325	5028	7823	10865	17337	17057	17057	17110	26832

Pump P30

Max.abs.power	kW	0,4	0,4	0,9	0,9	1,0	1,3	1,3	2,2	2,2	2,2	2,2	3,3	3,3	3,3
Water flow (nom./ max) ¹	m³/h	0,5/1,9	0,8/1,9	1,3/4,5	1,9/4,5	2,6/5,4	3,8/9,6	4,6/9,6	5,7/18	6,9/18	9,7/18	11,2/18	13,6/31,2	17,8/31,2	20,7/31,2
Head pressure (nom./max) ¹	m H ₂ O	30/5	24/5	32/21,5	28,6/21,5	29/23	28/17,1	26,9/17,1	30/23,1	28,5/23,1	27,6/23,1	27/23,1	27,9/19	26,7/19	25,7/19

Pump P50

Max.abs.power	kW	0,6	0,6	1,8	1,8	1,8	1,8	2,6	3,4	3,4	3,4	3,8	4,0	4,0	4,0
Water flow (nom./ max) ¹	m³/h	0,5/2,7	0,8/2,7	1,3/4,8	1,9/4,8	2,6/4	3,8/4,8	4,6/9	5,7/12,6	6,9/12,6	9,7/12,6	11,2/12,6	13,6/26	17,8/26	20,7/26
Head pressure (nom./max) ¹	m H ₂ O	53/8	46/8	51/36,5	50/36,5	47,5/36,5	42/36,5	55/44	50/39,5	49/39,5	45/39,5	51/49	43/30,1	39/30,1	38/30,1

Weights and Dimensions

Width	mm	755	755	756	756	756	756	756	856	856	856	856	1050	1050	1050
Depth	mm	535	535	806	806	806	1206	1206	1956	1956	1956	1956	2500	2500	2500
Height	mm	801	801	1430	1430	1430	1430	1430	1680	1680	1680	1680	2012	2012	2012
Connections in/out	in	¾"	¾"	¾"	¾"	¾"	1"	1"	1½"	1½"	1½"	1½"	2"	2"	2"
Tank capacity	l	15	22,5	65	65	65	100	100	200	200	200	200	400	400	400
Weight (axial) ³	kg	80	91	165	175	180	235	250	485	510	580	595	875	1010	1030

Noise level

Sound pressure (axial) ⁵	dB(A)	52	52	50	50	51	52	52	53	54	55	55	58	59	59
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1) At water in/out temperature 20/15°C, glycol 0%, either 25°C ambient temperature 25°C.

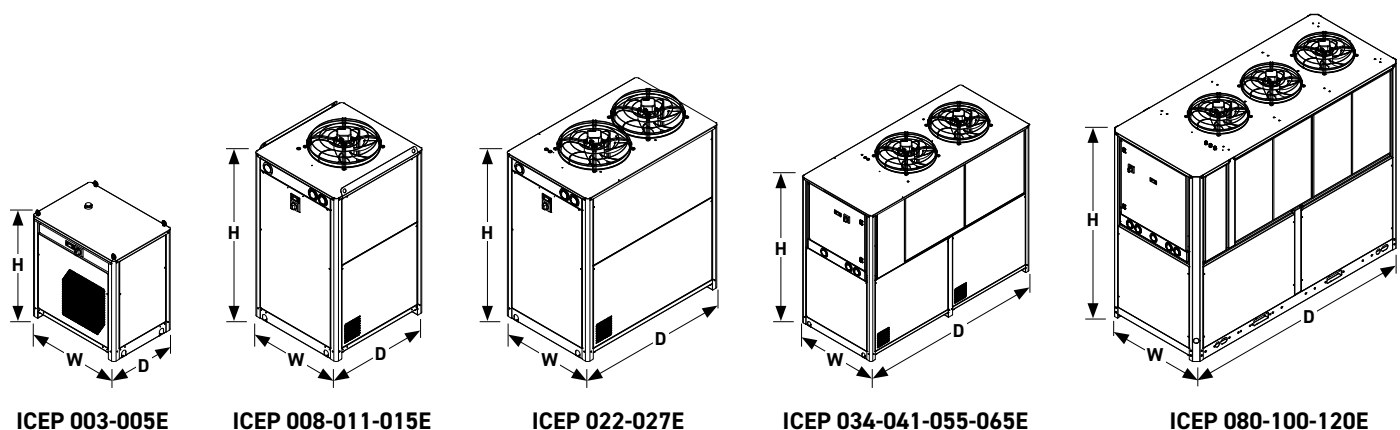
2) Value calculated in accordance with the European regulation (EU) 2016/2281 with regards to Ecodesign requirements for high temperature process chillers.

3) At water in/out temperature 25/20°C, glycol 0%, either 25°C ambient temperature 35°C.

4) Includes refrigerant charge and pallet (version without options and accessories).

5) Sound pressure: average value obtained in free field on a reflective surface at a distance of 10 m from the condensate side of the machine and at a height of 1.6 m from the unit support base. Values with tolerance ± 2 dB. The sound levels refer to operation of the unit under full load in nominal conditions.

As the manufacturer of process chillers delivering water at a design temperature of 15°C, Parker Hannifin Manufacturing s.r.l., Gas Separation and Filtration Division EMEA, declares that Parker chillers are exempt from Ecodesign EU regulation 2016/2281.





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Hyperchill BioEnergy

Water Chillers for Biogas and Biomethane Gas Cooling Applications



Bioenergy is renewable energy stored in organic materials such as plant matter and animal waste, known as biomass. The wide variety of biomass fuel sources include agricultural residue, pulp/paper mill residue, urban wood waste, forest residue, energy crops, landfills and animal waste. Anaerobic digestion is the process that occurs when bacteria decompose organic materials in the absence of oxygen to generate biogas.

Biogas is primarily composed of methane and carbon dioxide with smaller amounts of hydrogen sulphide and ammonia. Trace amounts of other gases like hydrogen, nitrogen or carbon monoxide are also present in the biogas. Usually the mixed gas is saturated with water-vapour and may contain dirt particles. For biogas as a fuel, most of the impurities have to be removed, as they can cause contamination, deposits and damage to equipment. In particular, biogas needs to be dried by cooling it to temperatures close to 5°C, using water-cooled heat exchangers fed by water chillers. Hyperchill BioEnergy is a key component in this biogas treatment process.

Extremely compact and easy to use, Hyperchill BioEnergy ensures an accurate control of the water temperature. It has been specifically designed for Biogas applications and provides safe and reliable operation in the harshest of environments, typically found in Anaerobic Digesters and landfill Biogas production areas.



Benefits

- Special protective treatment of condensers and copper piping to ensure reliable operation in the most aggressive of ambient atmospheres at biogas plants and landfill sites.
- Pump and tank installed inside the chiller provides a compact and easy to install solution.
- Precise water temperature control with high working limits and low running costs.
- Non-ferrous hydraulic circuit on ICEP-E range enhances the reliable operations maintaining the quality of the coolant ensuring stable working conditions.
- Large built-in water tank that provides a large thermal mass/storage capacity thus reducing the number of refrigerant compressor stop/starts and short cycling and thereby increasing the compressor and chiller lifetime.
- Designed to provide cooling water where low temperature water is required as standard (air conditioning units do not normally need to provide water at less than 10°C).
- Use of compliant scroll compressors designed specifically for high efficiency and long life in industrial applications.
- Use of Safety Class A1 non flammable refrigerant in compliance with F-Gas Regulation.
- Low ambient speed-control on fan-motor ensures constant performances at different temperatures, long lifetime of the fans and a reduction in absorbed power when ambient temperature is low.
- Maximum working ambient temperature up to 48°C for ICEP-E models, up to 45°C for ICE models, prevents downtime even under extremely harsh conditions.



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Hyperchill BioEnergy

The performance of biogas as a fuel depends on effective cooling and treatment.

Saturated biogas contains water and impurities that need to be removed to avoid damage to equipment and to reach more efficient combustion, whilst maintaining the desired dew point.

Product Features

- **Water and refrigerant manometers** permit full control of the working conditions.
- **Microprocessors:** allow complete control of the unit parameters. Proprietary software provide a wide range of programming and remote monitoring options.
- **Compliant scroll compressors:** with less moving parts and compliant technology, they provide excellent efficiency, high reliability, and very low noise levels.
- **Air cooled with axial fans:** suitable for outdoor installation.
- **Water pump (std 1,5 bar):** available with different head pressures to suit the end-users application. Configurable as a twin-system, for 100% redundancy.
- **Mesh filters:** condenser protection against dirt and contamination, reduces maintenance costs and the risk of downtime.



- **Evaporator:** located inside the water tank from ICE150 - reduces the overall dimension of the unit, increases the efficiency and improves temperature control.
- **Water by-pass:** protects the pump and supplies constant flow to the evaporator, avoiding alarms and freezing.
- **Water tank:** stainless steel up to ICEP120E generously dimensioned to guarantee high reliability and improved temperature-control.
- Models from ICEP022E to ICEP120E are designed with **fan control** to work as standard in low ambient temperatures down to -10°C.
- **Maximum ambient temperature** 48°C up to ICEP120E, 45°C from ICE150.
- **MODBUS RTU** interface fitted on ICEP-E models; optional for ICE models

Options and Accessories

- **Special and multiple-pumps:** higher head pressure available to suit different hydraulic circuits. Double stand-by pump for greater reliability.
- **Antifreeze heating:** avoids freezing when the unit is switched off. Can also be used as a heater to warm up the system.
- **Water fill-kits:** pressurized, automatic or ambient manual kits, for water filling in any installation.
- **Remote control kits:** base version for remote ON/OFF and general alarm monitoring. Advanced version for complete remote unit management.
- **Wheels (up to ICEP015E BioEnergy):** for ease of transport.
- **Control panel cover:** for additional display protection from aggressive ambient.



Technical Data

Model		ICEP-E												ICE				
		008E	011E	015E	022E	027E	034E	041E	055E	065E	080E	100E	120E	150	183	230	310	360
Cooling capacity ¹	kW	7,8	11,1	15,0	21,9	26,6	33,1	40,2	56,3	65	78,3	103,7	120,6	149,2	182,3	228	305,1	359,7
Total abs. power ¹	kW	1,6	2,3	3,6	5,0	5,7	6,7	8,3	12,8	15,3	18,5	24,2	29,8	38,8	48,1	61,7	71,17	87,9
SEPR HT ²		4,79	4,78	4,10	4,40	4,64	4,95	4,82	4,55	4,25	4,25	4,10	4,04	5,35	5,04	5,02	5,51	5,73
Cooling capacity ³	kW	4,5	6,5	8,8	12,7	14,9	18,2	22,6	32,0	36,9	44,8	60,4	72,1	85,3	104,2	130,2	180,5	205,7
Tota abs. power ³	kW	1,6	2,4	3,7	5,0	6,0	7,3	9,0	13,7	16,0	19,3	24,7	29,0	32,5	41,4	55,1	63,4	83,2
Power Supply	V/ph/Hz	400/3/50												400/3/50				
Protection index		IP54												IP54				
Refrigerant		R513A												R407C				

Compressor

Type		hermetic scroll										hermetic scroll						
Compressors/ circuit		1/1					2/1			2/2		4/2						
Max.abs.power (1 compressor)	kW	2,5	3,5	5,4	6,5	8,7	10,8	11,3	10,8	11,3	13,1	17,9	22,1	11,1	13,7	16,8	23,3	28,7

Axial fans

Quantity	no.	1			2						3			2		3	4	
Max.abs. power (1 fan)	kW	0,23	0,23	0,46	0,46	0,46	0,77	0,77	0,77	0,77	0,77	0,77	0,77	2	2	2	2	2
Air flow	m³/h	3325	3325	5028	7823	10865	17337	17057	17057	17110	26832	26082	26082	47000	46000	66000	88000	88000

Pump P15

Type		Centrifugal										Centrifugal						
Max.abs.power	kW	0,7	0,7	0,7	0,7	0,9	0,9	0,9	1,0	1,0	1,4	1,4	1,4	1,5	1,5	2,2	On Request	
Water flow (nom./ max) ¹	m³/h	1,3/ 5,4	1,9/ 5,4	2,6/ 5,4	3,8/ 5,4	4,6/ 10,8	5,7/ 10,8	6,9/ 10,8	9,7/ 18	11,2/ 18	13,6/ 24,3	17,8/ 24,3	20,7/ 24,3	25/ 44	30/ 44	39/ 48		
Head pressure (nom./max) ¹	m H ₂ O	20/ 15	19/ 15	18,8/ 15	17/ 15	19/ 12,5	17,8/ 12,5	16/ 12,5	15,7/ 10,4	15/ 10,4	14,7/ 9,2	13/ 9,2	11,5/ 9,2	12/ 6	10/ 6	14/ 8		

Weights and Dimensions

Width	mm	756	756	756	756	756	856	856	856	856	1050	1050	1050	1287	1287	1287	1500	1500
Depth	mm	806	806	806	1206	1206	1956	1956	1956	1956	2500	2500	2500	3000	3000	3260	4200	4200
Height	mm	1430	1430	1430	1430	1430	1680	1680	1680	1680	2012	2012	2012	2298	2298	2298	2240	2240
Connections in/out	in	¾"	¾"	¾"	1"	1"	1½"	1½"	1½"	1½"	2"	2"	2"	2½"	2½"	2½"	4"	4"
Tank capacity	l	65	65	65	100	100	200	200	200	200	400	400	400	1000	1000	1000	400	400
Weight (axial) ⁴	kg	165	175	180	235	250	485	510	580	595	875	1010	1030	1500	1800	2100	2900	2900

Noise level

Sound pressure (axial) ⁵	dB(A)	50	50	51	52	52	53	54	55	55	58	59	59	62	62	64	65	65
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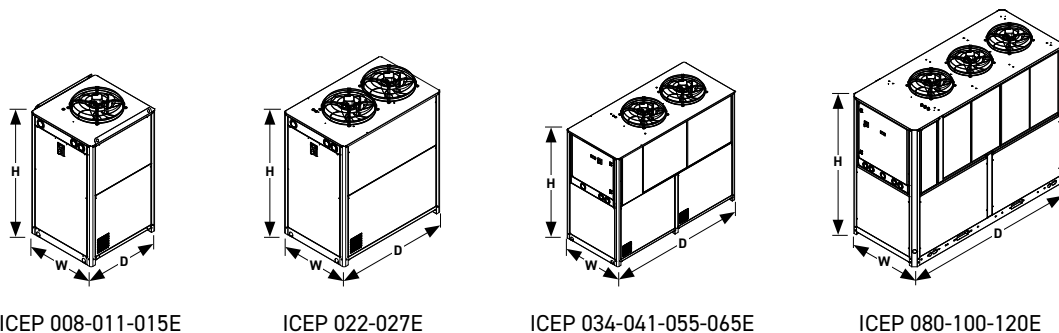
1) At water in/out temperature 20/15°C, glycol 0%, either 25°C ambient temperature.

2) Value calculated in accordance with the European regulation (EU) 2016/2281 with regards to Ecodesign requirements for high temperature process chillers

3) At water in/out temperature 5/1°C, glycol 10%, ambient temperature 35°C.

4) Includes refrigerant charge and pallet (version without options and accessories).

5) Sound pressure: average value obtained in free field on a reflective surface at a distance of 10 m from the condensate side of the machine and at a height of 1.6 m from the unit support base. Values with tolerance ± 2 dB. The sound levels refer to operation of the unit under full load in nominal conditions.



ICEP 008-011-015E

ICEP 022-027E

ICEP 034-041-055-065E

ICEP 080-100-120E

As the manufacturer of process chillers delivering water at a design temperature of 15°C, Parker Hannifin Manufacturing s.r.l., Gas Separation and Filtration Division EMEA, declares that Parker chillers are exempt from Ecodesign EU regulation 2016/2281.



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