Hyperchill Plus-E

Industrial Process Chillers for Laser Cooling

R513A low gwp

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 (±0,5°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 temperatue 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).

Parker

ENGINEERING YOUR SUCCESS.

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 (CO_2) 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 and 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 throught 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 (±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.
- **Antifeeze 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	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_2O	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_2O	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

1) At water in/out temperature 20/15°C, glycol 0%, either 25°C ambient temperature 25°C.

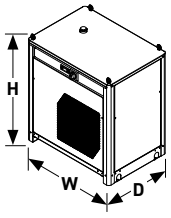
2) Value calculated in accordance with the European regulation (EU) 2016/2281 wiith regards to Ecodesign requirements for high temperature process chillers.

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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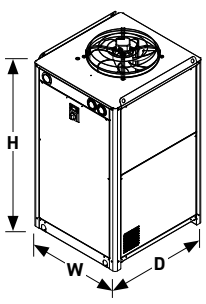

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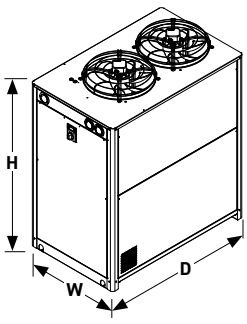

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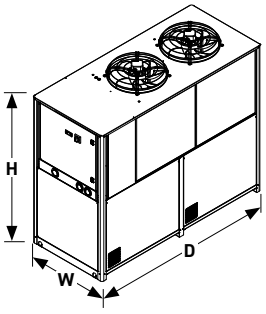

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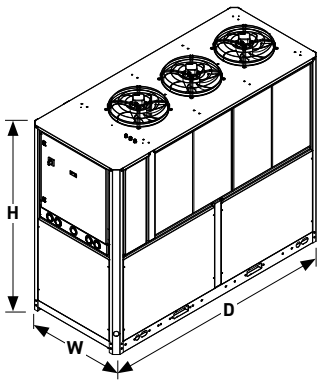

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