

# clausius

## STRONG PROPANE 20 - 95



**Ground source heat pump, for heating, cooling and DHW production.**

The new range of **CLAUSIUS propane** heat pumps uses propane as a refrigerant, incorporates pressure and temperature sensors in the heating and brine circuits, and is ready for the addition of ultrasonic flow and energy meters. They are manufactured using the latest generation of Danfoss compressors, the new generation of Alfa Laval asymmetric heat exchangers that minimise the propane charge, electronic expansion valve and controller from Carel, additional Danfoss refrigeration components and the CLAUSIUS control system adapted for use in propane heat pumps. In addition all CLAUSIUS propane heat pumps incorporate all the safety measures required in accordance with the European Standards EN IEC 60335-2-40 and EN 378.

UniversidadeVigo



Bundesamt  
für Wirtschaft und  
Ausfuhrkontrolle



Netherlands Enterprise Agency



**WE MANUFACTURE WITH THE BEST COMPONENTS ON THE MARKET**



*Danfoss* **SIEMENS**

**MODELS**

H	Heating
HC	Heating and active cooling
H DS	Heating and desuperheater
HC DS	Heating, active and desuperheater

**TECHNICAL SPECIFICATIONS**

Applications	H 20-95	H 20-95 DS	HC 20-95	HC 20-95 DS
Heating and DHW	•	•	•	•
Active cooling			•	•
Hight temperature DHW with desuperheater		•		•

Optimal conditions	B0W35	B0W45	B0W55	B0W65	B5W35	B5W45	B5W55	B5W65
COP	4.8	3.7	2.9	2.3	5.8	4.4	3.3	2.7
Heating power	39.9	38.2	36.6	35.5	47.1	44.4	41.8	40.1

Maximum heating power	B0W35	B0W45	B0W55	B0W65	B5W35	B5W45	B5W55	B5W65
Heating power	88.8	86.5	82.3	68.5	4.3	3.6	94.2	77.7
COP	3.8	3.2	2.6	2.2	102.9	100	2.9	2.5
Cooling power	65.1	59.1	50.4	37.7	79	72.3	61.9	46.6

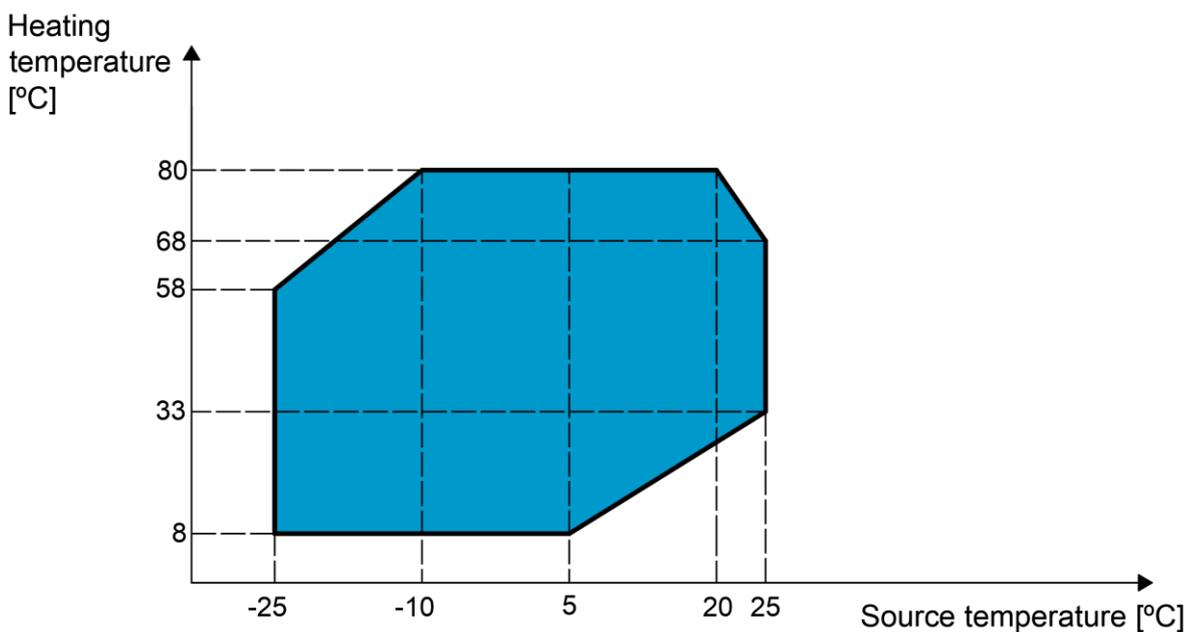
ACTIVE COOLING	W7/10 - B30/35	W15/18 - B30/35
Cooling power	94.1	127.9
EER	3.9	5.2

Performance	P design / SCOP 35 EN14825 with average climate control	95 / 5.1
	Energy label / $\eta_s$ with average climate control	A+++ / 204
	P design / SCOP 55 EN14825 with average climate control	95 / 4.2
	Energy label / $\eta_s$ with average climate control	A+++ / 164
Power supply	Type	400 V 3N/PE
	Electrical consumption Min. - Max.	4.0 – 31.0 kW
	Recommended external protection	63 A

Operating limits	Heating temperature range	25 °C / 70 °C			
	Brine temperature range	-15 °C / +20 °C			
	Minimum / maximum pressure refrigeration circuit	1,5 bar / 32 bar			
	Minimum / maximum pressure heating and cooling circuits	1,5 bar / 6 bar			
Refrigerant	Propane (R290) charge	2.9 kg			
	Type / Compressor oil charge by volume / mass	POE / 3.3 l / 3.75 kg			
Flow	Brine Min. / Max.	4800 / 23000 l/h			
	Heating Min. / Max.	3400 / 16400 l/h			
Pressure Drop	Maximum Brine / Heating	53 / 33 kPa			
Dimensions	Height x Width x Depth	1600 x 1000 x 600 mm			
Connections	Brine and heating	2"			
	Desuperheater	1 1/4"			
Weight		H: 264 kg	H PC: 273 kg	HC: 279 kg	HC PC: 287 kg
Sound level		52 dB			

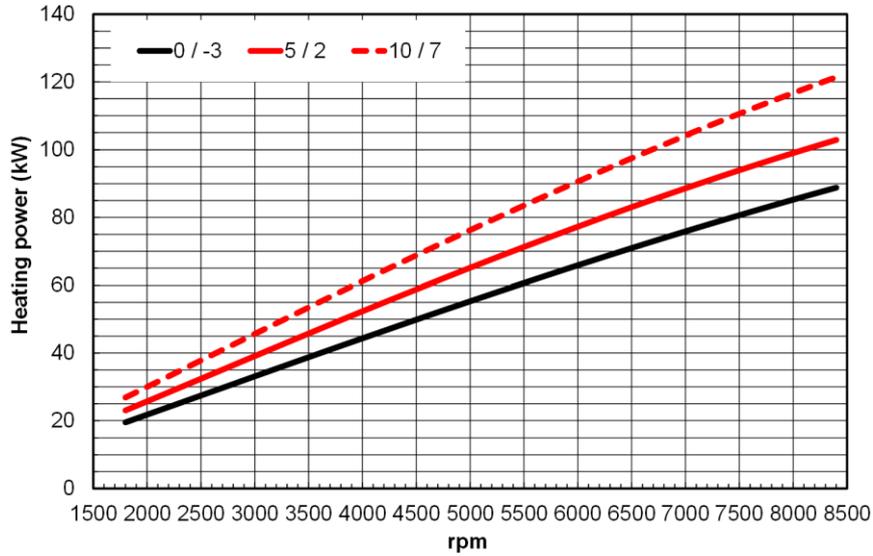
## OPERATING MAP

Heat pump operating map showing the heating flow temperature as a function of the brine temperature.

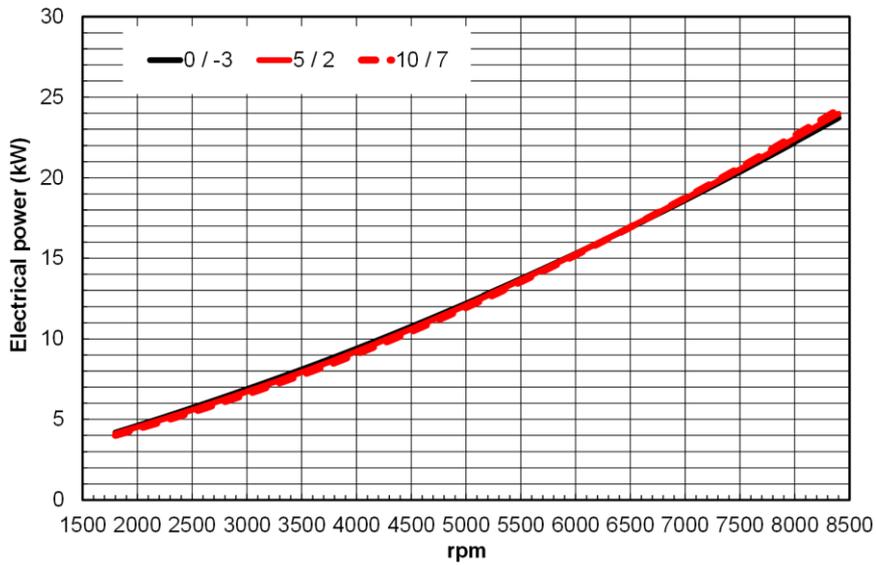


HEATING CHARACTERISTIC CURVES

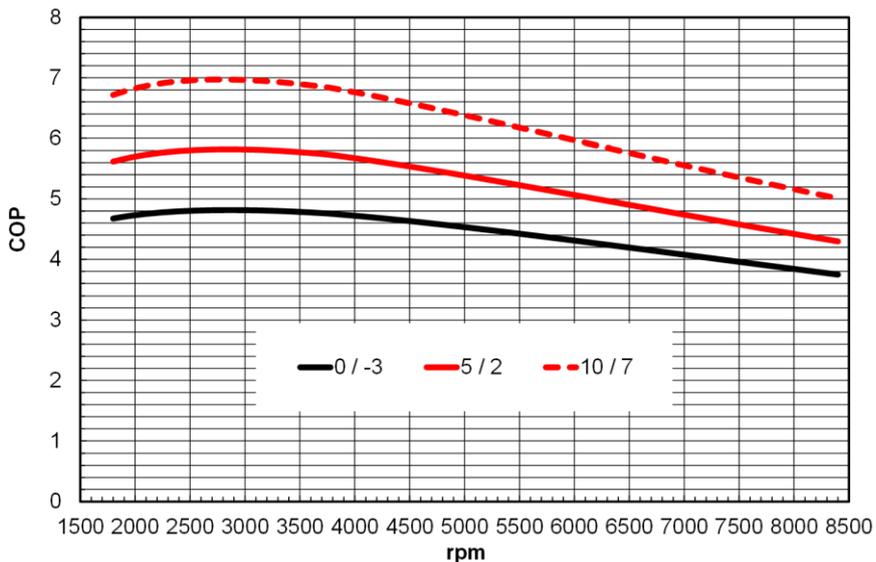
HEATING POWER, HEATING 30/35 °C, BRINE 0/-3 °C, 5/2 °C, 10/7 °C



ELECTRICAL POWER, HEATING 30/35 °C, BRINE 0/-3 °C, 5/2 °C, 10/7 °C

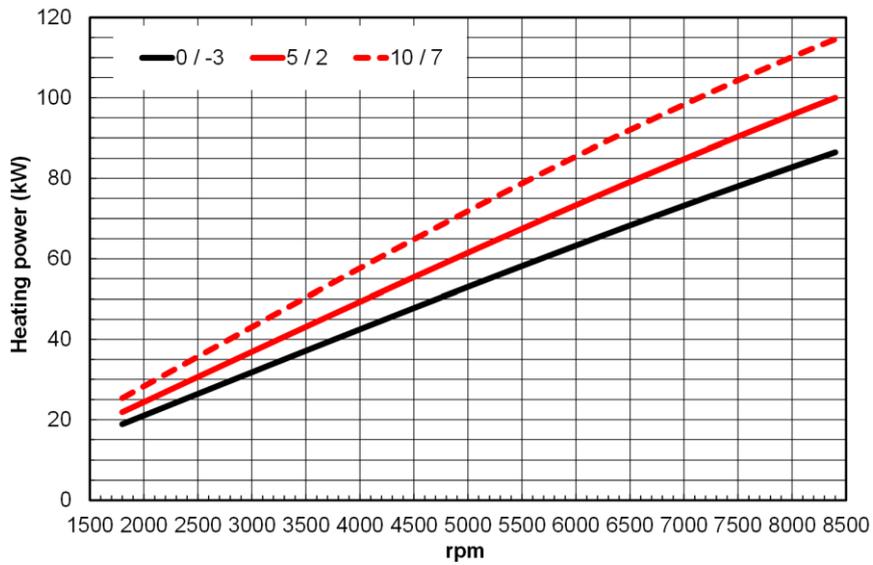


COP, HEATING 30/35 °C, BRINE 0/-3 °C, 5/2 °C, 10/7 °C

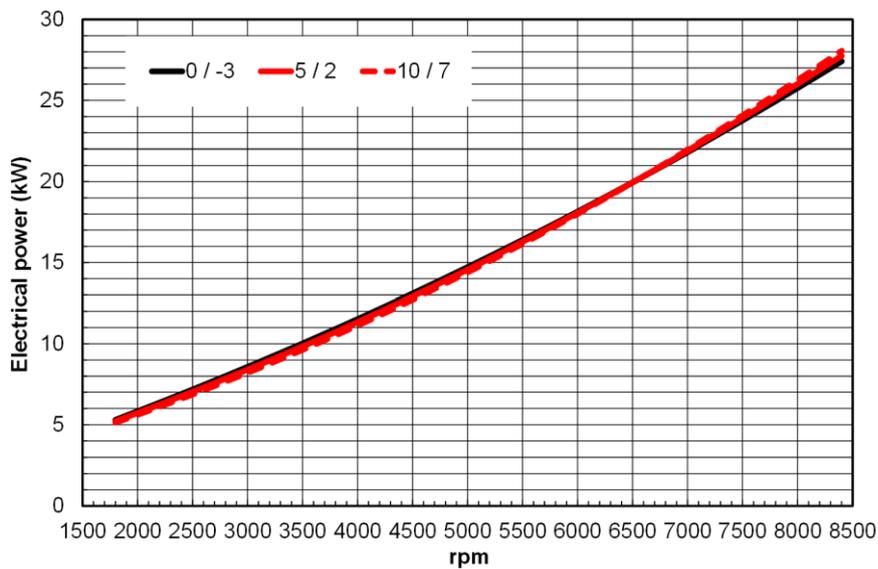


### HEATING CHARACTERISTIC CURVES

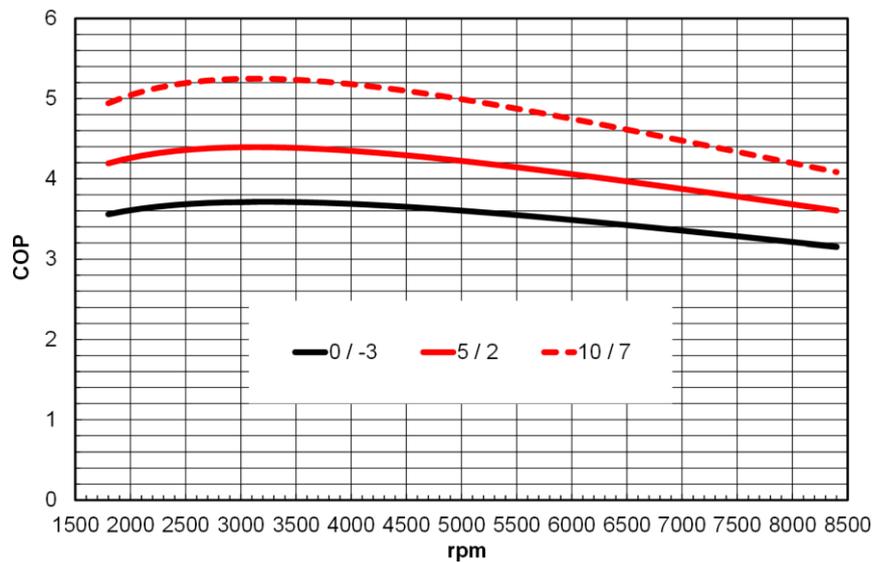
HEATING POWER, HEATING 40/45 °C, BRINE 0/-3 °C, 5/2 °C, 10/7 °C



ELECTRICAL POWER, HEATING 40/45 °C, BRINE 0/-3 °C, 5/2 °C, 10/7 °C

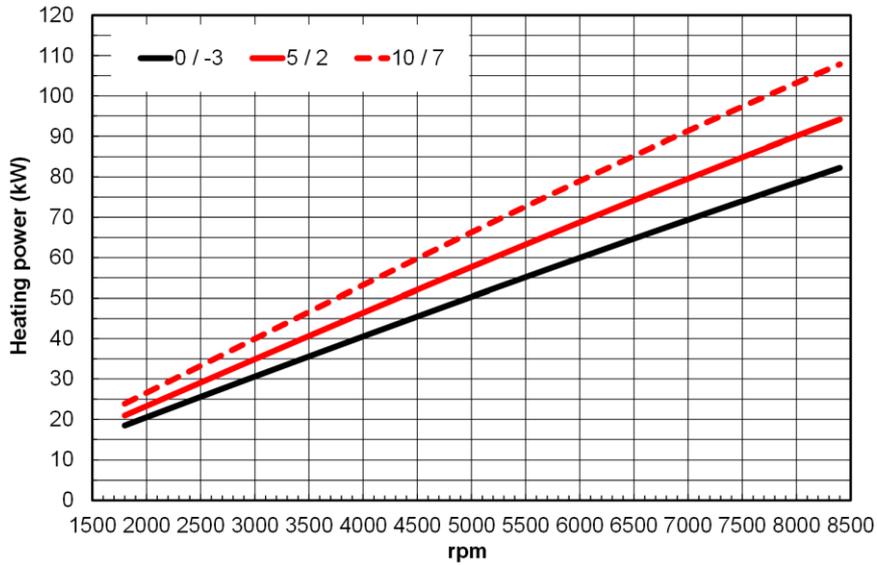


COP, HEATING 40/45 °C, BRINE 0/-3 °C, 5/2 °C, 10/7 °C

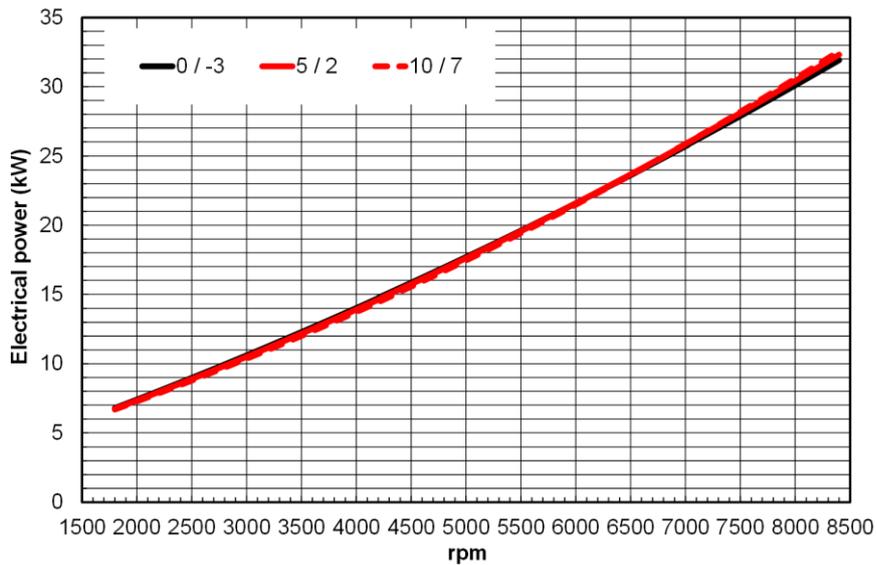


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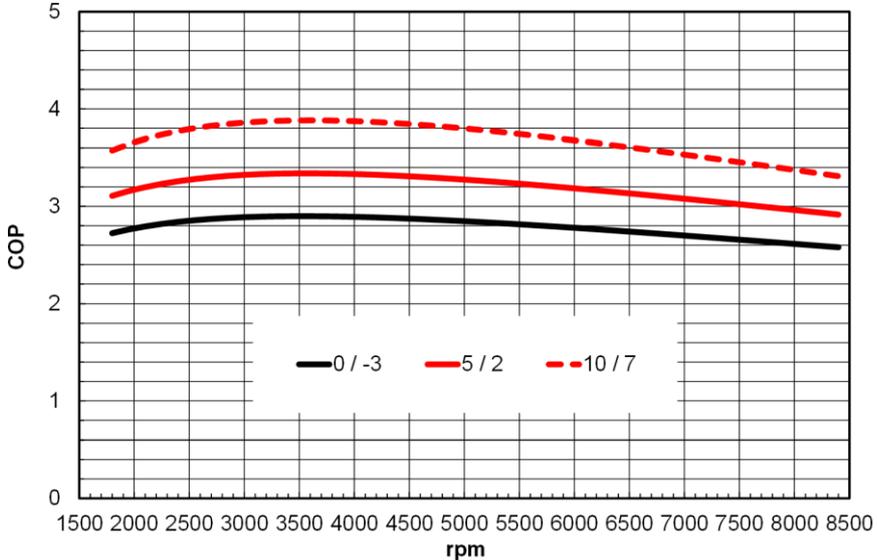
HEATING POWER, HEATING 50/55 °C, BRINE 0/-3 °C, 5/2 °C, 10/7 °C



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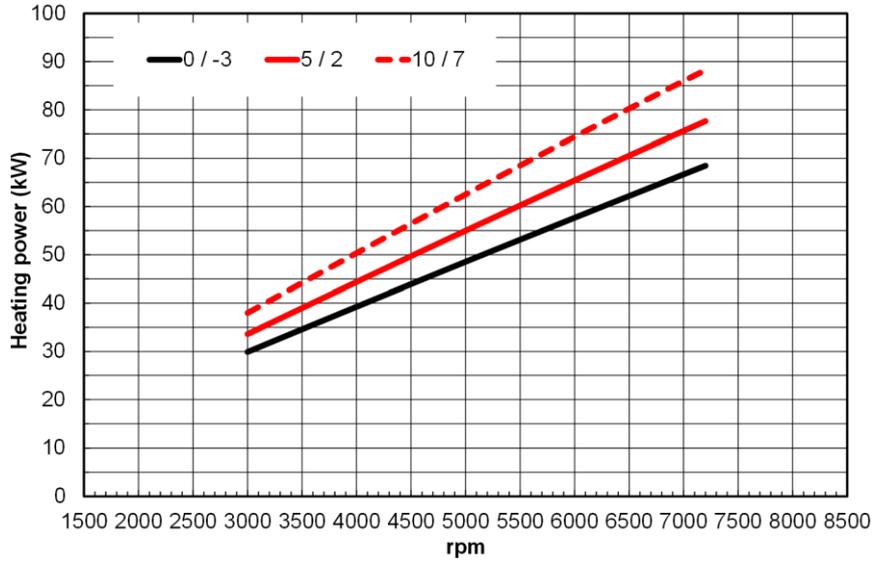


COP, HEATING 50/55 °C, BRINE 0/-3 °C, 5/2 °C, 10/7 °C

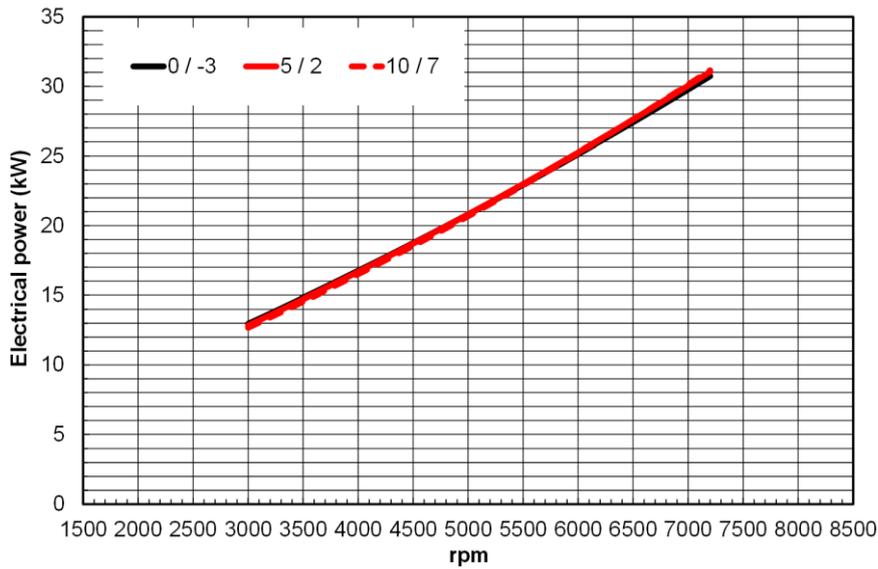


HEATING CHARACTERISTIC CURVES

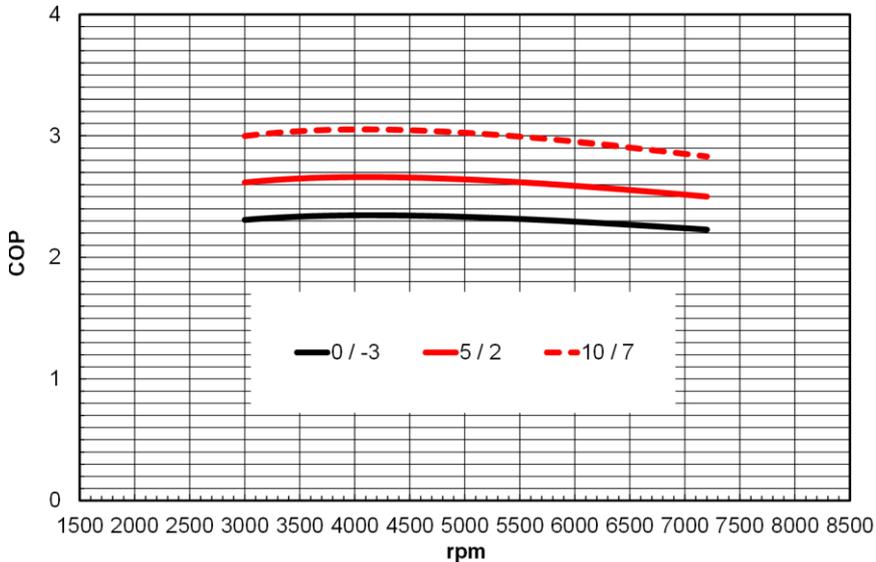
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ELECTRICAL POWER, HEATING 60/65 °C, BRINE 0/-3 °C, 5/2 °C, 10/7 °C

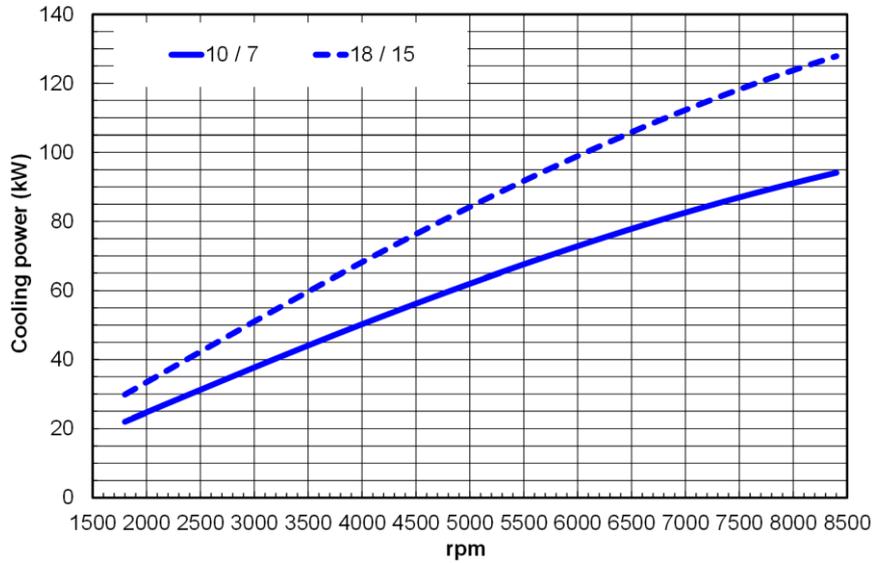


COP, HEATING 60/65 °C, BRINE 0/-3 °C, 5/2 °C, 10/7 °C

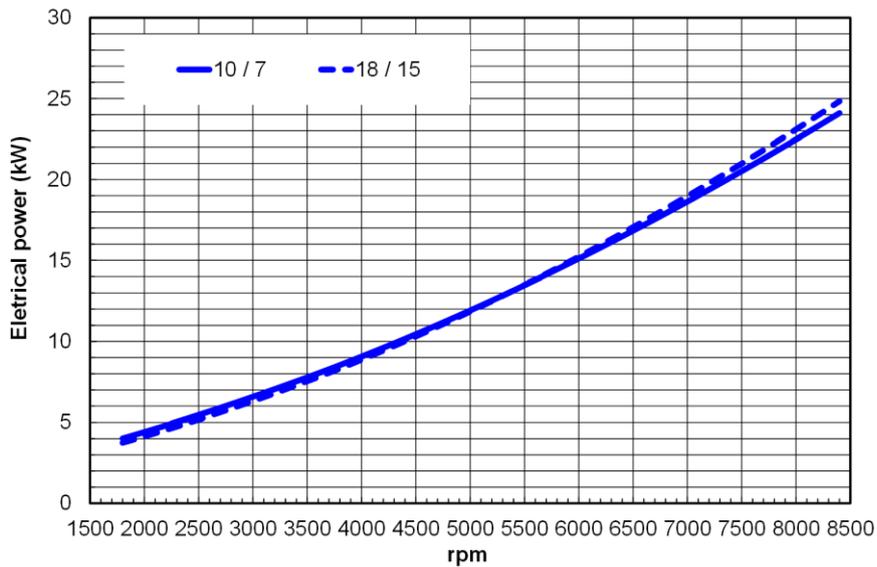


**COOLING CHARACTERISTIC CURVES**

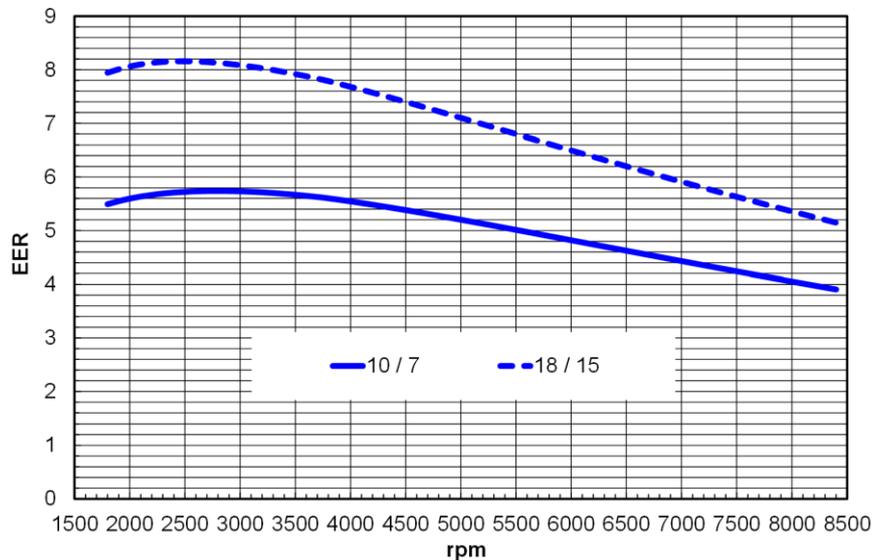
COOLING POWER, COOLING 10/7 °C, 18/15 °C, BRINE 35/30 °C



ELECTRICAL POWER, COOLING 10/7 °C, 18/15 °C, BRINE 35/30 °C

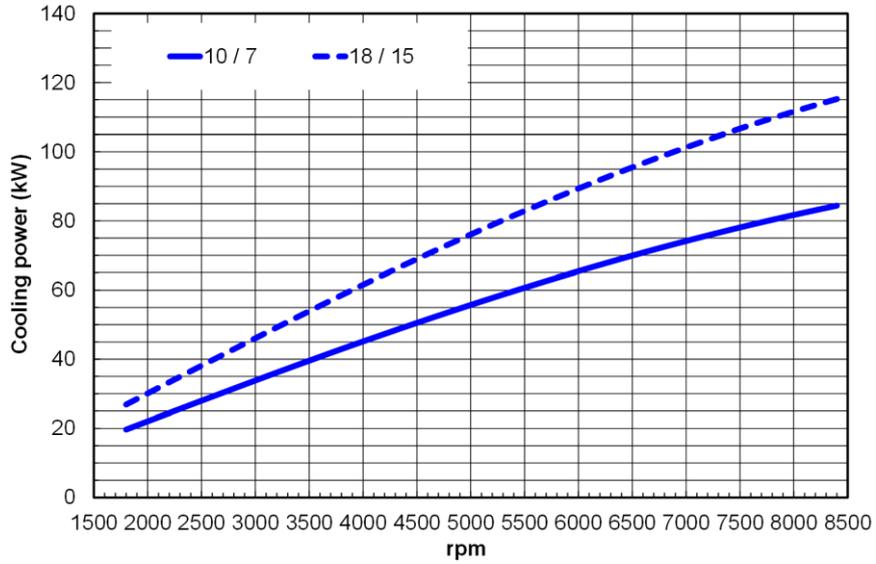


EER, COOLING 10/7 °C, 18/15 °C, BRINE 35/30 °C

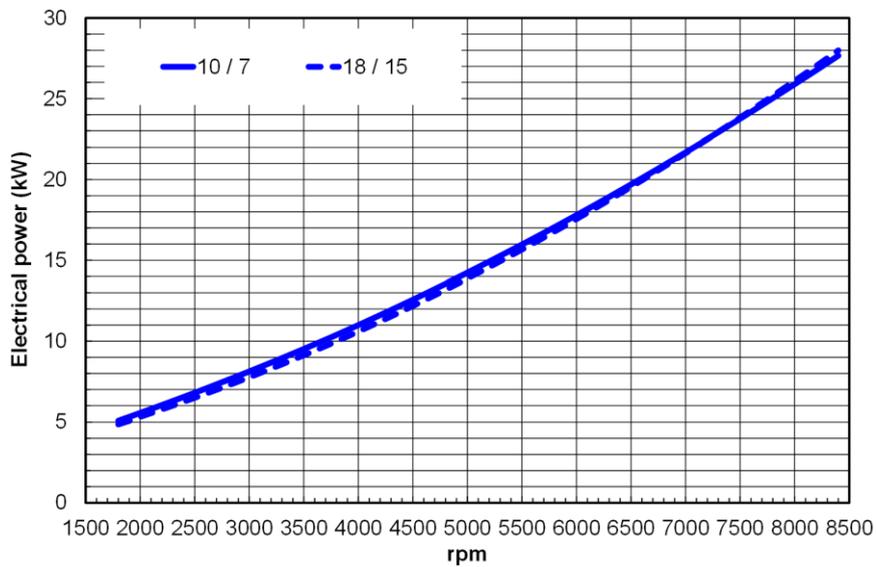


**COOLING CHARACTERISTIC CURVES**

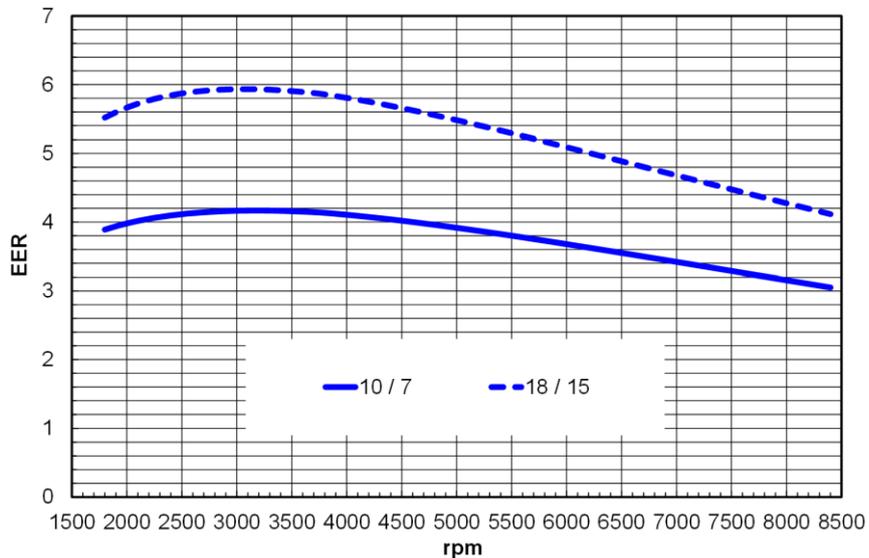
COOLING POWER, COOLING 10/7 °C, 18/15 °C, BRINE 45/40 °C



ELECTRICAL POWER, COOLING 10/7 °C, 18/15 °C, BRINE 45/40 °C

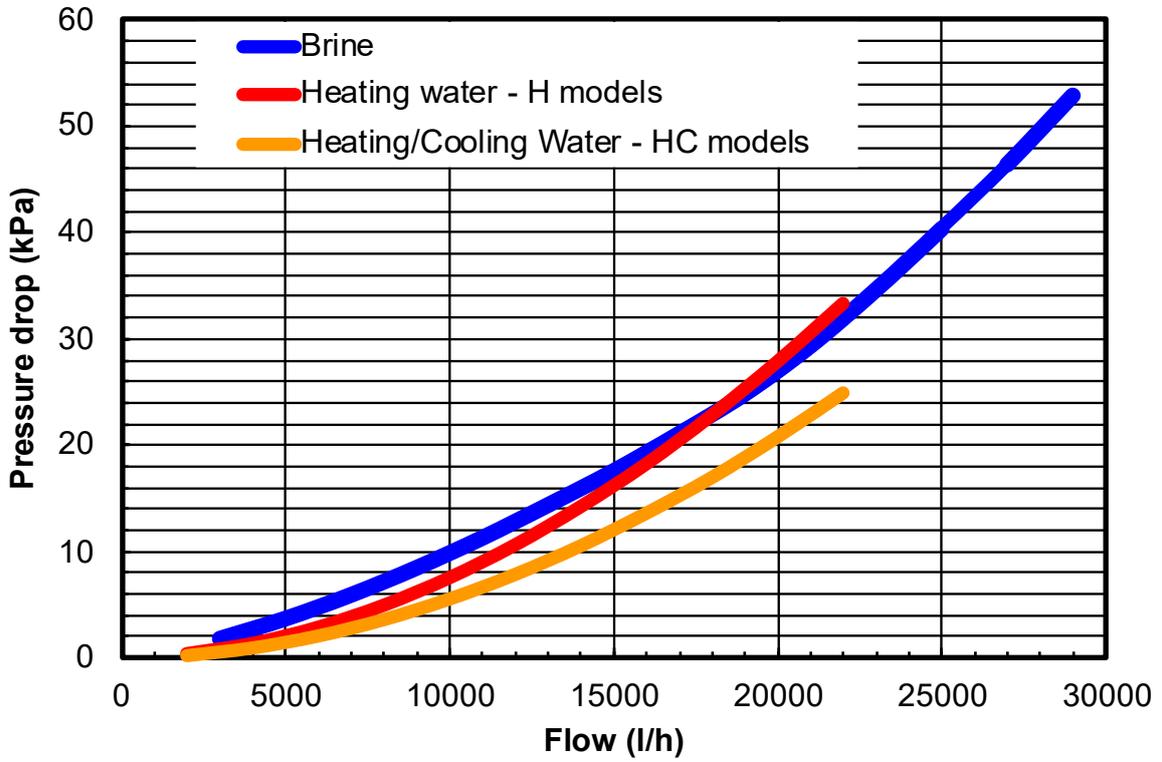


EER, COOLING 10/7 °C, 18/15 °C, BRINE 45/40 °C

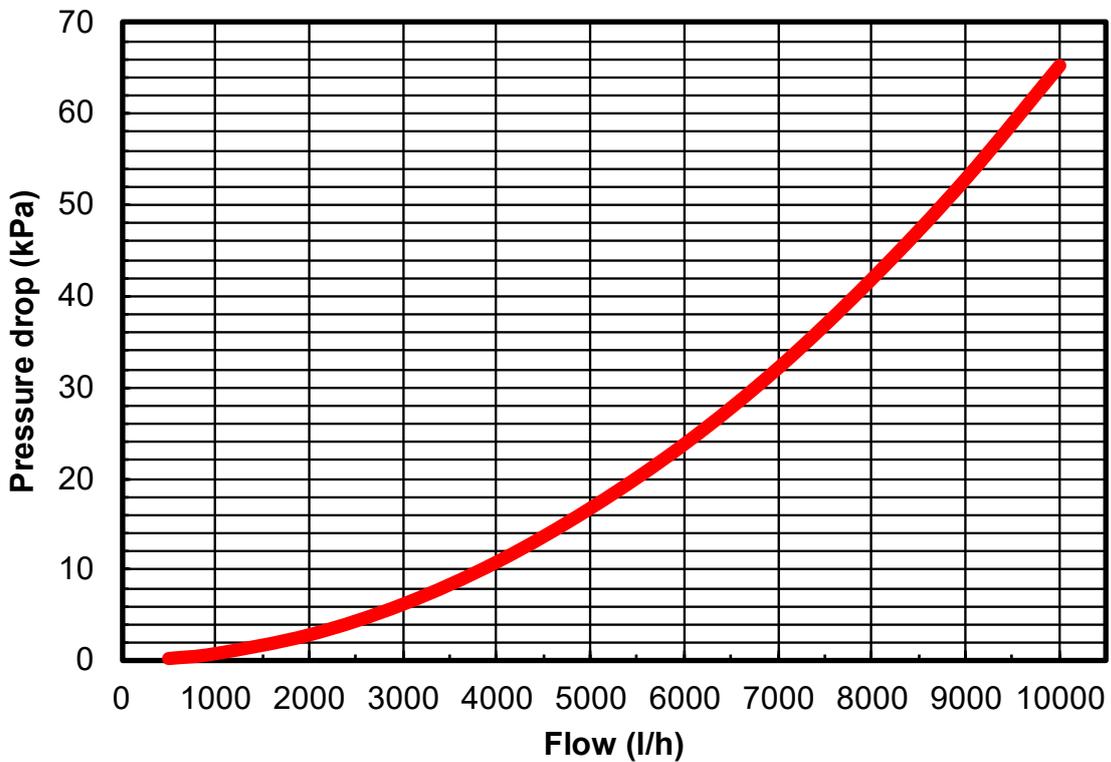


PRESSURE DROP

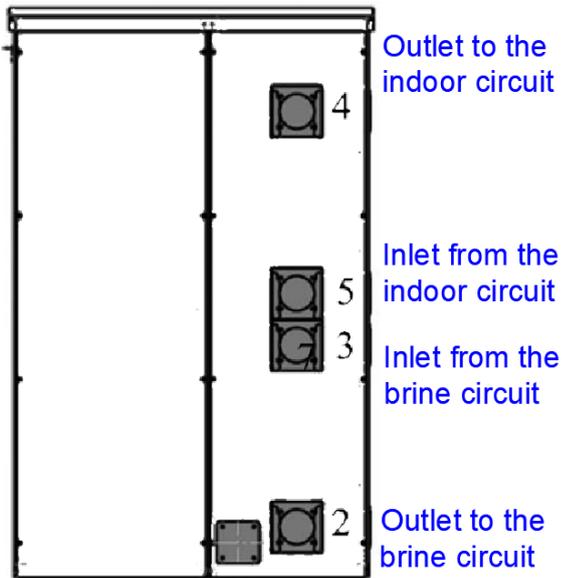
INTERNAL PRESSURE DROP



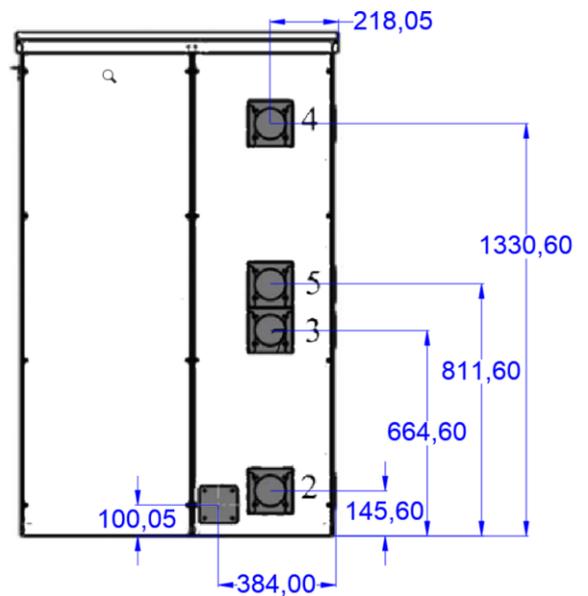
DESUPERHEATER PRESSURE DROP



HYDRAULIC PARAMETERS

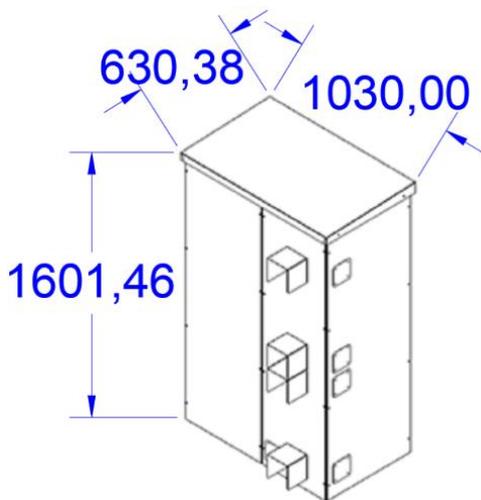


Heat pump hydraulic connections

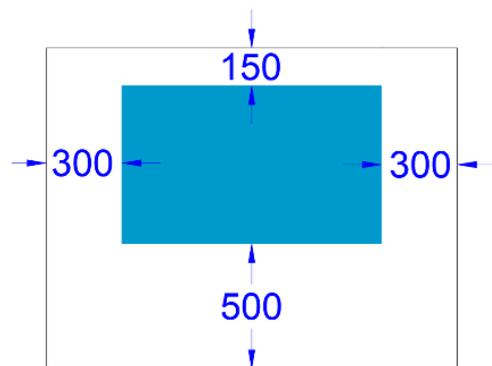


Position of hydraulic connections (mm)

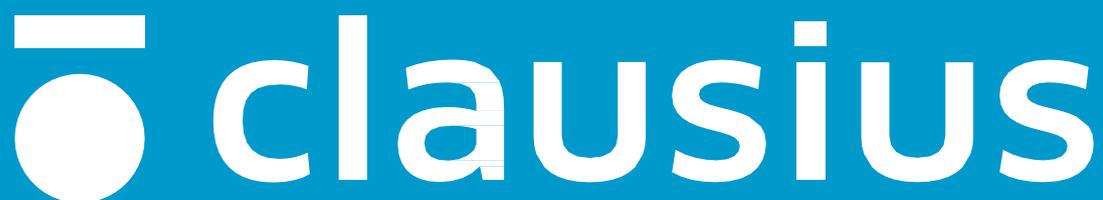
DIMENSIONS



Dimensions (mm)  
Clausius Strong 20-95



Minimum space required (mm)



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