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AIR-COOLED CHILLERS

SEMI-HERMETIC

PACKAGED & SPLIT-SYSTEMS



R407C

1 to 108
Nominal Tons

EPA COMPLIANT

Call: (888) 289-7299

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Along with a complete line of standard products that Drake Refrigeration, Inc. offers, we also have the ability to custom build units to each customers particular needs.

Please contact the factory or your Drake representative for a special application.

Due to manufacturers's policy of continuous product improvement, the manufacturer reserves the right to make changes without notice. Drawings in this booklet are representations of the equipment shown. Contact the factory for specific unit drawings.

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NOMENCLATURE

Example: P AC L 301 S 6 - T3 - S

<u>P</u>	P = Packaged ES = Evaporator Section
<u>AC</u>	AC = Air-Cooled Condenser
<u>L</u>	L = Low Temp. Model Blank = Standard Unit
<u>301</u>	Nominal HP Ex. 301 = 30HP 010 = 1HP etc.
<u>S</u>	S = Single Circuit Unit D = Dual Circuit Unit M = Three Circuit Unit
<u>6</u>	1 = R134a 3= R407C 6 = R404A, R507
<u>T3</u>	Electrical Requirement S2 = 208/230-1-60 S6 = 220-1-50 T3 = 208/230-3-60 T7 = 200/208-3-50 S4 = 460-1-60 T9 = 380-3-50 T4 = 460-3-60 T5 = 575-3-60
<u>S</u>	Compressor Type S = Semi-Hermetic

Low ambient, or lower leaving water temperatures, can require the recirculation of glycol solutions or other fluid blends.

These solutions can effect unit capacities. Please consult the factory on these or other special applications for proper sizing.





Consult factory on sizing chillers with glycol or any fluid other than water.

AIR-COOLED SELECTION PROCEDURES

To properly select an air-cooled packaged chiller, the following information must be known:

1. The required cooling capacity, BTUH.
2. Delta T of entering and leaving fluid temperatures.
3. Fluid factor (ex. water = 500).
4. GPM of process fluid to be circulated.
5. Design ambient air temperature.

If you know any three of the items 1 through 4 above, you can calculate the fourth by using the formulas below.

For 100% water:

Cooling capacity (in BTUH) = GPM x Delta T x 500

$$\text{GPM} = \frac{\text{Capacity (in BTUH)}}{\text{Delta T} \times 500}$$

$$\text{Delta T} = \frac{\text{Capacity (in BTUH)}}{\text{GPM} \times 500}$$

Sample selection:

Select an air-cooled, packaged chiller to cool 58 GPM of 100% water from 54°F to 44°F. Design ambient air temperature 95°F.

Find:

Air-cooled chiller model.

Solution:

1. Chilled fluid Delta T = 54°F - 44°F = 10°F
2. Capacity (in BTUH) = 58 GPM x 10°F Delta T x 500 = 290,000 BTUH
3. From the PAC chiller capacity tables, it can be determined that the PAC301S has the capacity to meet the requirements.

100S - 351S SEMI-HERMETIC CHILLERS

Capacity Table

MODEL	COMPRESSOR	LWT °F	80			90			95			100			105		
			TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
100S	3DB3R12M	42.0	10.9	9.5	11.2	10.3	10.3	9.9	10.1	10.7	9.4	9.8	11.1	8.8	9.5	11.5	8.3
		44.0	11.3	9.6	11.5	10.7	10.4	10.2	10.4	10.8	9.6	10.2	11.2	9.0	9.8	11.7	8.5
		45.0	11.5	9.6	11.7	11.0	10.5	10.3	10.7	10.9	9.7	10.3	11.3	9.2	10.1	11.8	8.6
		50.0	12.4	9.9	12.3	11.8	10.8	10.9	11.5	11.3	10.2	11.2	11.7	9.6	10.9	12.2	9.1
120S	3DF3R15M	42.0	12.4	11.7	10.7	11.8	12.6	9.5	11.5	13.1	9.0	11.1	13.6	8.4	10.8	14.1	7.9
		44.0	12.9	11.8	11.0	12.3	12.8	9.7	11.9	13.3	9.2	11.5	13.9	8.6	11.3	14.4	8.1
		45.0	13.1	11.9	11.1	12.4	12.9	9.9	12.1	13.4	9.3	11.8	14.0	8.7	11.5	14.5	8.2
		50.0	14.3	12.4	11.7	13.5	13.4	10.4	13.2	13.9	9.8	12.8	14.5	9.2	12.4	15.0	8.7
150S	3DS3R17M	42.0	12.9	13.1	10.7	12.2	14.1	9.4	11.8	14.6	8.8	11.4	15.2	8.2	11.1	15.7	7.8
		44.0	13.3	13.3	10.9	12.7	14.3	9.5	12.3	14.9	8.9	11.8	15.4	8.4	11.4	15.9	7.9
		45.0	13.6	13.4	11.5	12.8	14.4	9.7	12.4	15.0	9.0	12.0	15.5	8.5	11.6	16.1	8.0
		50.0	14.7	13.8	11.5	13.8	14.9	10.1	13.4	15.5	9.5	12.9	16.1	8.8	12.5	16.7	8.3
200S	4DA3R18M	42.0	14.8	13.6	11.8	13.8	14.6	10.3	13.4	15.0	9.8	12.9	15.5	9.2	12.5	15.9	8.6
		44.0	15.3	13.8	12.0	14.4	14.8	10.6	13.9	15.3	10.0	13.5	15.8	9.3	13.0	16.3	8.8
		45.0	15.6	13.9	12.2	14.7	14.9	10.7	14.3	15.4	10.1	13.8	15.9	9.4	13.3	16.4	8.9
		50.0	17.2	14.4	13.9	16.2	15.6	11.3	15.6	16.3	10.6	15.1	16.1	10.0	14.6	17.1	9.4
220S	4DB3R20M	42.0	17.0	15.8	11.8	16.0	17.0	10.3	15.5	17.6	9.7	15.0	18.1	9.2	14.4	18.6	8.6
		44.0	17.6	16.1	12.0	16.5	17.3	10.6	16.0	17.9	9.9	15.5	18.5	9.3	14.9	19.0	8.7
		45.0	17.9	16.2	12.2	16.9	17.4	10.7	16.3	18.1	10.0	15.8	18.6	9.4	15.3	19.2	8.8
		50.0	19.7	16.9	12.8	18.6	18.3	11.3	17.9	18.9	10.6	17.3	19.5	9.9	16.8	20.1	9.3
250S	4DH3R22M	42.0	19.1	16.9	12.0	18.0	18.2	10.6	17.4	18.8	10.0	16.8	19.5	9.3	9.7	20.1	8.8
		44.0	19.9	17.2	12.4	18.8	18.6	10.9	18.2	19.2	10.2	17.6	19.9	9.5	17.0	20.5	9.0
		45.0	20.3	17.3	12.5	19.1	18.7	11.0	18.6	19.3	10.3	17.9	20.0	9.6	17.3	20.6	9.1
		50.0	22.3	17.9	13.3	21.0	19.4	11.6	20.4	20.1	11.0	19.7	20.9	10.2	19.1	21.6	9.6
301S	6DB3R32M	42.0	26.6	26.0	11.3	25.0	27.9	10.0	24.3	28.8	9.4	23.4	29.6	8.8	22.6	30.6	8.3
		44.0	27.6	26.5	11.5	26.0	28.4	10.2	25.2	29.3	9.6	24.3	30.2	9.0	23.5	31.2	8.4
		45.0	28.2	26.8	11.7	26.6	28.7	10.3	25.8	29.6	9.7	24.9	30.6	9.1	24.1	31.5	8.5
		50.0	30.8	28.0	12.2	29.0	30.0	10.8	28.0	31.0	10.1	27.1	32.0	9.5	26.2	33.0	8.9
351S	6B4709PH	42.0	27.5	28.5	10.4	25.8	30.4	9.3	25.1	31.4	8.8	24.2	32.4	8.2	23.3	33.3	7.7
		44.0	28.6	29.0	10.7	27.1	31.0	9.5	26.3	32.0	9.0	25.3	33.1	8.4	24.4	34.0	7.9
		45.0	29.3	29.3	10.9	27.6	31.3	9.7	26.8	32.3	9.1	25.8	33.4	8.5	25.0	34.4	8.0
		50.0	32.3	30.4	11.6	30.4	32.6	10.3	29.4	33.7	9.6	28.3	34.8	9.0	27.5	35.9	8.5

- Capacities on this chart are based on refrigerant R407C. Low ambient or lower leaving water temperatures can require the use of a glycol solution or other fluid blends. These solutions affect unit capacities. Please consult the factory on these or other special fluids.
- KW input is for compressor(s) only.
- EER = Energy Efficiency Ratio (BTU/watt-hour). Power inputs include compressor(s), condenser fan motor(s) and control power.



MODEL	COMPRESSOR	LWT °F	80			90			95			100			105		
			TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
400S	6B5406PH	42.0	30.4	33.8	9.9	28.5	35.8	8.9	27.6	36.9	8.3	26.7	37.7	7.9	25.8	38.6	7.4
		44.0	31.7	34.5	10.2	29.8	36.6	9.1	28.8	37.6	8.5	27.8	38.5	8.1	26.8	39.4	7.6
		45.0	32.5	34.8	10.3	30.4	36.9	9.2	29.3	38.0	8.6	28.4	38.9	8.2	27.5	39.8	7.7
		50.0	35.7	36.4	10.9	33.3	38.6	9.7	32.3	39.8	9.1	31.3	40.7	8.6	30.1	41.7	8.1
500S	6B6462PH	42.0	37.8	40.2	10.2	35.8	42.8	9.1	34.8	44.3	8.6	33.5	45.7	8.0	32.5	47.1	7.6
		44.0	39.4	40.8	10.4	37.3	43.6	9.3	36.1	45.0	8.8	35.0	46.5	8.2	33.8	48.0	7.7
		45.0	40.2	41.3	10.6	38.1	44.0	9.4	36.8	45.5	8.9	35.8	46.9	8.4	34.5	48.4	7.8
		50.0	44.3	43.0	11.2	41.8	45.9	10.0	40.8	47.5	9.4	39.3	49.0	8.9	38.3	50.7	8.3
600S	8DS3R67M	42.0	46.8	51.1	10.1	43.8	54.1	9.0	42.5	55.3	8.5	40.8	56.6	8.0	39.4	57.7	7.6
		44.0	48.6	52.3	10.3	45.6	55.3	9.1	44.2	56.6	8.7	42.5	57.9	8.2	41.1	59.0	7.7
		45.0	50.3	52.8	10.4	46.5	55.9	9.2	45.0	57.1	8.8	43.3	58.5	8.3	41.9	59.7	7.8
		50.0	54.2	55.5	10.8	50.8	58.7	9.7	49.2	60.1	9.2	47.5	61.5	8.7	45.9	62.7	8.2
700S	8C9400PH	42.0	55.8	61.6	9.8	52.5	65.1	8.8	50.8	67.0	8.4	49.3	68.6	7.9	47.5	70.5	7.5
		44.0	57.5	63.1	9.9	54.6	66.5	9.0	52.9	68.5	8.5	51.3	70.0	8.1	49.2	71.9	7.6
		45.0	58.8	63.9	10.1	55.8	67.2	9.1	54.2	69.1	8.6	52.5	71.8	8.2	50.4	72.6	7.7
		50.0	63.8	67.8	10.5	61.0	70.6	9.6	59.3	72.7	9.1	57.5	74.6	8.6	55.8	76.5	8.1
150D	3DA3R10M	42.0	15.9	17.7	10.2	15.3	18.9	9.0	14.8	19.5	8.5	14.3	20.2	7.9	13.8	20.8	7.5
		44.0	16.9	17.9	10.4	15.8	19.2	9.2	15.3	19.8	8.7	14.8	20.5	8.1	14.3	21.1	7.6
		45.0	17.2	18.0	10.6	16.2	19.3	9.3	15.7	20.0	8.8	15.1	20.7	8.2	14.6	21.3	7.7
		50.0	18.6	18.5	11.2	17.3	19.8	9.8	16.9	20.6	9.2	16.3	21.4	8.5	15.7	22.1	8.0
200D	3DB3R12M	42.0	19.3	19.5	10.3	18.1	21.0	9.1	17.6	21.8	8.5	17.0	22.5	8.0	16.4	23.2	7.5
		44.0	19.8	19.7	10.5	18.7	21.3	9.3	18.1	22.1	8.7	17.5	22.9	8.1	17.0	23.6	7.7
		45.0	20.3	19.9	10.6	19.0	21.5	9.4	18.5	22.3	8.8	17.8	23.1	8.2	17.3	23.9	7.8
		50.0	21.8	20.5	11.2	20.6	22.3	9.8	19.9	23.2	9.2	19.3	24.0	8.6	18.7	24.9	8.1
240D	3DF3R15M	42.0	23.0	23.1	10.0	21.6	25.0	8.8	20.9	25.9	8.3	20.2	26.8	7.7	19.5	27.7	7.3
		44.0	23.8	23.5	10.2	22.3	25.5	9.0	21.7	26.4	8.5	20.8	27.4	7.9	20.2	28.3	7.4
		45.0	24.3	23.7	10.4	22.8	25.7	9.1	22.1	26.6	8.6	21.3	27.6	8.0	20.5	28.5	7.5
		50.0	26.3	24.6	10.9	24.8	26.7	9.6	23.9	27.7	9.0	23.1	28.8	8.4	22.3	29.9	7.8
300D	3DS3R17M	42.0	25.9	26.3	10.1	24.5	28.4	9.0	23.8	29.4	8.5	23.0	30.4	7.9	22.3	31.4	7.5
		44.0	26.8	26.6	10.4	25.3	28.8	9.2	24.6	29.8	8.6	23.8	30.9	8.1	22.9	32.0	7.6
		45.0	27.2	26.8	10.5	25.7	28.9	9.3	25.0	30.0	8.7	24.1	31.1	8.2	23.3	32.2	7.7
		50.0	29.8	27.7	11.0	27.8	30.0	9.7	26.8	31.2	9.1	26.0	32.4	8.5	25.0	33.6	7.9
400D	4DA3R18M	42.0	29.3	27.0	11.7	27.4	29.1	10.3	26.7	29.9	9.7	25.7	30.8	9.1	24.8	31.7	8.6
		44.0	30.6	27.5	12.0	28.7	29.6	10.6	27.8	30.5	10.0	26.8	31.5	9.3	25.9	32.4	8.6
		45.0	31.2	27.7	12.2	29.2	29.9	10.7	28.3	30.9	10.1	27.4	31.8	9.4	26.5	32.8	8.9
		50.0	34.3	28.9	12.9	32.2	31.2	11.3	31.3	32.3	10.6	30.2	33.4	10.0	29.2	34.4	9.4

- Capacities on this chart are based on refrigerant R407C. Low ambient or lower leaving water temperatures can require the use of a glycol solution or other fluid blends. These solutions affect unit capacities. Please consult the factory on these or other special fluids.
- KW input is for compressor(s) only.
- EER = Energy Efficiency Ratio (BTU/watt-hour). Power inputs include compressor(s), condenser fan motor(s) and control power.

440D - 1400D SEMI-HERMETIC CHILLERS

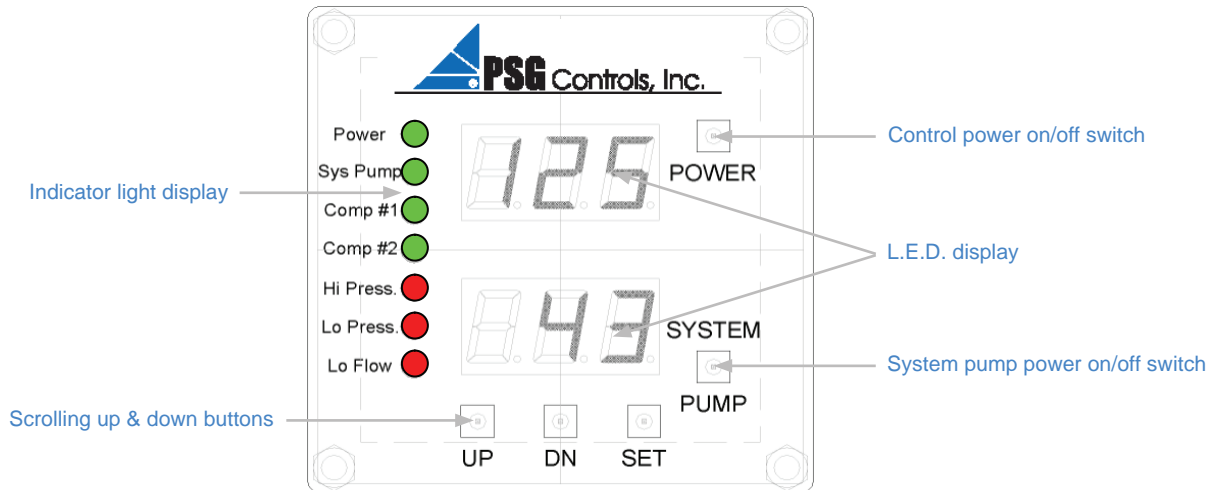
Capacity Table

MODEL	COMPRESSOR	LWT °F	80			90			95			100			105		
			TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER	TONS	KW	EER
440D	4DB3R20M	42.0	34.0	31.7	11.7	32.0	34.1	10.3	30.8	35.2	9.7	29.9	36.3	9.1	28.8	37.3	8.6
		44.0	35.3	32.1	12.0	33.2	34.6	10.6	32.0	35.8	9.9	30.9	36.9	9.3	29.9	38.0	8.8
		45.0	35.8	32.4	12.2	33.8	35.0	10.7	32.7	36.2	10.0	31.7	37.2	9.4	30.7	38.4	8.9
		50.0	39.5	33.7	12.8	37.1	36.4	11.3	35.8	37.8	10.5	34.7	39.0	9.9	33.5	40.3	9.3
500D	4DH3R22M	42.0	38.2	33.7	12.0	35.9	36.4	10.6	34.9	37.3	9.9	33.6	39.0	9.3	32.5	40.2	8.7
		44.0	39.8	34.3	12.3	37.4	37.0	10.8	36.3	38.3	10.2	34.9	39.6	9.5	34.0	40.9	9.0
		45.0	40.7	34.5	12.5	38.3	37.4	11.0	37.2	38.8	10.3	35.8	40.1	9.6	34.8	41.4	9.1
		50.0	44.6	35.8	13.3	41.8	38.8	11.6	40.8	40.3	11.0	39.2	41.8	10.2	38.2	43.2	9.6
601D	6DB3R32M	42.0	54.5	51.8	11.6	51.2	55.5	10.2	49.5	57.4	9.6	47.8	59.3	9.0	46.1	61.0	8.4
		44.0	56.3	52.8	11.8	52.8	56.5	10.4	51.1	58.4	9.8	49.2	60.2	9.1	47.5	62.0	8.6
		45.0	57.5	53.4	11.9	54.1	57.1	10.5	52.3	59.0	9.9	51.3	60.9	9.2	48.7	62.8	8.7
		50.0	62.8	55.9	12.5	59.0	59.8	11.0	56.8	61.9	10.3	54.9	63.8	9.7	52.9	65.8	9.1
701D	6D4709PH	42.0	55.9	57.2	10.6	52.5	61.0	9.4	50.8	63.0	8.8	49.1	64.9	8.3	47.4	66.7	7.8
		44.0	58.3	58.2	10.9	54.7	62.1	9.6	52.7	64.0	9.0	50.9	66.0	8.5	49.2	68.2	8.0
		45.0	59.3	58.7	11.0	55.8	62.7	9.7	54.2	64.7	9.2	52.1	67.0	8.6	50.4	68.8	8.1
		50.0	65.0	61.5	11.7	61.3	65.5	10.3	59.3	67.7	9.7	57.4	70.0	9.1	55.4	72.1	8.5
800D	6B5406PH	42.0	62.5	66.7	10.3	58.8	70.9	9.2	56.8	73.0	8.7	54.9	74.9	8.1	52.5	76.7	7.6
		44.0	65.2	68.0	10.6	61.3	72.2	9.4	59.2	74.2	8.8	56.9	76.3	8.3	54.8	78.3	7.8
		45.0	66.5	68.5	10.7	62.5	72.7	9.5	60.2	75.0	8.9	58.3	77.0	8.4	55.9	79.0	7.9
		50.0	72.9	71.6	11.3	68.8	76.0	10.1	66.3	78.5	9.5	64.2	80.1	8.9	61.9	82.7	8.4
1000D	6B6462PH	42.0	75.0	82.5	9.6	70.8	88.0	8.6	68.8	90.5	8.1	66.7	93.5	7.7	64.3	96.0	7.2
		44.0	78.3	84.0	9.8	73.8	89.5	8.8	71.7	92.0	8.3	69.4	95.0	7.8	67.3	98.0	7.4
		45.0	80.0	85.0	9.9	74.3	90.5	8.9	73.3	93.0	8.4	70.8	96.0	7.9	68.5	99.0	7.5
		50.0	87.5	89.0	10.5	82.7	95.0	9.4	80.4	98.0	8.8	77.7	101.0	8.3	75.4	104.0	7.8
1200D	8DS3R67M	42.0	91.7	104.0	9.2	85.8	109.0	8.3	83.3	111.0	7.9	80.0	113.5	7.5	77.1	115.5	7.1
		44.0	95.0	107.0	9.4	89.6	112.0	8.5	86.7	113.8	8.0	84.1	116.2	7.6	80.4	118.3	7.2
		45.0	96.7	108.0	9.5	90.8	113.5	8.6	88.3	116.0	8.1	85.0	117.7	7.7	82.3	119.8	7.3
		50.0	105.8	113.5	9.9	100.0	120.0	8.9	96.7	122.0	8.5	94.2	124.9	8.1	90.8	127.0	7.7
1400D	8C9400PH	42.0	111.7	124.0	9.4	104.2	131.0	8.4	101.7	134.0	8.0	98.3	137.5	7.5	95.0	141.0	7.1
		44.0	114.2	126.0	9.6	106.7	133.0	8.6	105.8	137.0	8.2	102.5	140.0	7.7	99.2	143.5	7.3
		45.0	115.0	128.0	9.8	107.9	135.0	8.7	108.3	139.0	8.3	105.0	142.0	7.8	93.3	146.0	7.4
		50.0	129.2	134.0	10.2	122.5	142.0	9.2	118.3	146.0	8.7	114.2	149.5	8.2	110.8	153.5	7.8

- Capacities on this chart are based on refrigerant R407C. Low ambient or lower leaving water temperatures can require the use of a glycol solution or other fluid blends. These solutions affect unit capacities. Please consult the factory on these or other special fluids.
- KW input is for compressor(s) only.
- EER = Energy Efficiency Ratio (BTU/watt-hour). Power inputs include compressor(s), condenser fan motor(s) and control power.



MICROPROCESSOR FEATURES



Standard Features

- Control operates to a +/- 1°F accuracy
- Powered from the chiller 24 volt control circuit. No high voltage interference.
- 1 or 2 compressor control capability
- Operates and displays in °F and °C
- Controls chiller on inlet or outlet temperature
- Scroll through set up and review mode
- 30-second compressor time delay to prevent short cycling and nuisance faults
- 60-second hot gas solenoid delay to prevent false hot gas feeding during compressor start up
- Lock out relay shuts down the chiller when control fault settings activate
- Automatic compressor lead lag on dual circuit chillers
- Weather resistant for outdoor use
- Basic chiller functionality for ease of set up and operation
- Factory configured for job site operation
- Factory default function code to reset the controller to the initial factory settings
- Two L.E.D. display windows
 - a) Inlet and outlet temperature during chiller operation
 - b) Displays refrigerant high and low pressure in review mode
 - 1) No cap tubes to break causing a loss of refrigerant and down time
 - 2) No refrigerant recovery to change out the pressure transducer
- Indicator lights
 - a) Chiller control power on/off switch with green indicator
 - b) System pump on/off switch with green indicator
 - c) Compressor run indicator lights
 - d) High and low refrigerant pressure red fault indicator
 - e) Low fluid flow red indicator
- Display flashes all chiller safety faults
 - a) High fluid temperature outlet alarm
Display only - does not shut the chiller down
 - b) Low fluid temperature outlet alarm
Shuts down the chiller and requires manual reset
 - c) High refrigerant pressure
Shuts down the chiller and requires manual reset
 - d) Low refrigerant pressure
Shuts down the chiller and requires manual reset
 - e) Low water flow through evaporator
Shuts down the chiller and automatically resets when flow is restored
- Monitors and logs compressor run hours

Standard Features *(all models)*

- **Microprocessor controller** (see page 8 for details)
- **24V control transformer**
- **Refrigerant suction accumulator**
- **(1-12HP) 316 STAINLESS STEEL**, copper brazed plate evaporator with 1/2" insulation and secured in a steel bracket
- **(15-120HP) Shell and tube chiller barrel**
- **Water flow switch**
- **Condenser fan and control circuit fusing**
- Semi-hermetic compressor with crankcase heater
- **Compressor vibration eliminators & spring isolator kit**
- Compressor oil safety control
- Compressor and condenser motor contactors
- **Fan cycle control (+40°F)**
- Rust resistant, high CFM, aluminum condenser fan blade
- Condenser(s): copper tube/aluminum fin
- **Condenser clean out ports**
- Liquid line drier, sightglass, solenoid, TEV
- Replaceable core liquid line drier (15 to 120HP)
- **Removable/hinged access panels**
- Galvanized steel sheet metal cabinet and base frame
- 1/2" insulation on all water and refrigerant suction lines
- **Complete refrigerant charge from factory**
- **Computerized factory run test under load conditions**



PAC500D Models *(shown)*

Available Options *(all models)*

- **ChillerGuard® Internet Interface Device**
- Compressor cylinder unloading 7.5HP and up
- Compressor fusing
- Fused disconnect
- Non-fused disconnect
- Flooded condenser with receiver/head pressure control (-20°F)
- Flooded condenser with heated receiver/head pressure control (-20°F)
- Factory installed evaporator heat tape freeze protection thermostatically controlled
- Special piping for de-ionized and reverse osmosis water systems
- Shell and tube chiller barrel (1 to 12HP)
- Fused, **STAINLESS STEEL** system process pump
- Pump isolation ball valve
- Dual system process pump with manual or auto changeover
- Water flow meter
- Phase monitor
- "Gold" finned condenser coil *(coastal protection)*
- "Copper" finned condenser coil *(coastal protection)*
- Heresite-coated condenser coil *(coastal protection)*
- 4 year extended compressor warranty
- **Hot gas by-pass capacity control with solenoid valve and time delay relay**
- **Factory-assisted start-up**



PAC150S Models *(shown)*

MODEL	NOMINAL BTUH	LENGTH IN.	WIDTH IN.	HEIGHT IN.	FLUID CONN.	COMPRESSOR			RLA EA	LRA EA	FAN MOTOR		MCA	M.O.P.	WT. LBS.
						QTY	HP	MODEL			QTY	FLA EA.			
100S3-T3-S	128,400	85	34	40	1.25" FPT	1	10	3DB3R12M	43.6	215	2	3.3	60	100	1000
100S3-T4-S									20.0	106		1.6	30	45	
100S3-T5-S									16.5	84		1.72	25	40	
120S3-T3-S	145,200				1.5" FPT	1	12	3DF3R15M	48.1	275	2	3.3	70	110	1200
120S3-T4-S									23.6	138		1.6	30	50	
150S3-T3-S	148,800	145	44	54.5	2" MPT	1	15	3DS3R17M	59.6	275	2	2.3	80	125	1600
150S3-T4-S									29.0	138		1.2	40	60	
150S3-T5-S									23.6	110		0.9	35	50	
200S3-T3-S	171,600	183	44	54.5	2" MPT	1	20	4DA3R18M	66.6	308	2	2.3	90	150	1700
200S3-T4-S									33.3	154		1.2	45	80	
200S3-T5-S									24.7	135		0.9	35	50	
220S3-T3-S	195,600	183	44	54.5	2" MPT	1	22	4DB3R20M	65.6	374	2	2.3	90	150	1700
220S3-T4-S									32.8	187		1.2	45	70	
220S3-T5-S									26.5	135		0.9	35	60	
250S3-T3-S	223,200	143	84	54.5	2.5" MPT	1	25	4DH3R22M	82.1	428	3	2.3	110	175	1900
250S3-T4-S									41.1	214		1.2	60	90	
250S3-T5-S									34.4	172		0.9	50	80	
301S3-T3-S	309,600	143	84	54.5	2.5" MPT	1	30	6DB3R32M	105.0	565	3	2.3	150	225	2050
301S3-T4-S									52.5	283		1.2	70	110	
301S3-T5-S									40.0	230		0.9	60	90	
351S3-T3-S	321,600	143	84	54.5	2.5" MPT	1	35	6B4709PH	117.1	550	4	2.3	175	250	2400
351S3-T4-S									58.6	275		1.2	80	125	
351S3-T5-S									46.4	220		0.9	70	100	
400S3-T3-S	352,000	183	84	54.5	2.5" MPT	1	40	6B5406PH	157.1	700	4	2.3	225	350	2900
400S3-T4-S									78.6	350		1.2	110	175	
400S3-T5-S									62.9	280		0.9	90	125	
500S3-T3-S	441,600	183	84	54.5	3" MPT	1	50	6B6462PH	160.0	950	6	2.3	200	350	3100
500S3-T4-S									80.0	425		1.2	100	175	
500S3-T5-S									63.6	340		0.9	90	125	
600S3-T3-S	540,000	183	84	54.5	3" MPT	1	60	8DS3R67M	224.3	1070	6	2.3	300	500	4900
600S3-T4-S									112.1	535		1.2	150	250	
600S3-T5-S									80.0	405		0.9	110	175	
700S3-T3-S	650,400	183	84	54.5	3" MPT	1	70	8C9400PH	228.6	1288	8	2.3	350	500	5200
700S3-T4-S									114.3	590		1.2	175	250	
700S3-T5-S									91.4	472		0.9	125	200	

PAC SEMI-HERMETIC - DUAL CIRCUIT

R407C Packaged, Air-Cooled Chillers

Dimensional and Electrical Specifications

MODEL	NOMINAL BTUH	LENGTH IN.	WIDTH IN.	HEIGHT IN.	FLUID CONN.	COMPRESSOR			RLA EA	LRA EA	FAN MOTOR		MCA	M.O.P.	WT. LBS.
						QTY	HP	MODEL			QTY	FLA EA.			
150D3-T3-S	188,400	145	44	54.5	2.5" MPT	2	7.5	3DA3R10M	41.0	215	2	2.3	100	125	1800
150D3-T4-S									20.0	106		1.2	50	60	
150D3-T5-S									16.4	84		0.9	25	35	
200D3-T3-S	222,000	145	44	54.5	2.5" MPT	2	10	3DB3R12M	43.6	215	2	2.3	110	125	2100
200D3-T4-S									20.0	106		1.2	50	60	
200D3-T5-S									16.5	84		0.9	25	35	
240D3-T3-S	265,200	183	44	54.5	2.5" MPT	2	12	3DF3R15M	48.1	275	3	2.3	125	150	2250
240D3-T4-S									23.6	138		1.2	60	80	
300D3-T3-S									59.6	275		2.3	150	200	
300D3-T4-S	300,000	183	44	54.5	2.5" MPT	2	15	3DS3R17M	29.0	138	3	1.2	70	90	2600
300D3-T5-S									23.6	110		0.9	35	50	
400D3-T3-S									66.6	308		2.3	175	225	
400D3-T4-S	339,600	143	84	54.5	3" MPT	2	20	4DA3R18M	33.3	154	4	1.2	80	110	3100
400D3-T5-S									24.7	135		0.9	35	50	
440D3-T3-S									65.6	374		2.3	175	200	
440D3-T4-S	392,400	143	84	54.5	3" MPT	2	22	4DB3R20M	32.8	187	4	1.2	80	110	2900
440D3-T5-S									26.5	135		0.9	40	60	
500D3-T3-S									82.1	428		2.3	200	250	
500D3-T4-S	446,400	183	84	54.5	3" MPT	2	25	4DH3R22M	41.1	214	6	1.2	100	125	2900
500D3-T5-S									34.4	172		0.9	50	80	
601D3-T3-S									105.0	565		2.3	250	350	
601D3-T4-S	627,600	183	84	54.5	3" MPT	2	30	6DB3R32M	52.5	283	6	1.2	150	175	5500
601D3-T5-S									40.0	230		0.9	60	90	
701D3-T3-S									117.0	550		2.3	300	400	
701D3-T4-S	650,400	223	89	56.5	4" V	2	35	6B4709PH	58.6	275	8	1.2	150	200	5700
701D3-T5-S									46.4	220		0.9	125	150	
800D3-T3-S									157.1	700		2.3	400	500	
800D3-T4-S	720,000	223	89	56.5	4" V	2	40	6B5406PH	78.6	350	8	1.2	175	250	5800
800D3-T5-S									62.9	280		0.9	150	200	
1000D3-T3-S									160.0	950		6.6	400	550	
1000D3-T4-S	879,600	228	89	56.5	5" V	2	50	6B6462PH	80.0	425	6	3.1	200	250	6400
1000D3-T5-S									63.6	340		2.5	150	200	
1200D3-T3-S									224.3	1070		6.6	600	700	
1200D3-T4-S	1,060,000	283	89	56.5	5" V	2	60	8DS3R67M	112.1	535	8	3.1	300	350	6500
1200D3-T5-S									80.0	405		2.5	200	250	
1400D3-T3-S									228.6	1288		6.6	600	800	
1400D3-T4-S	1,295,000	338	89	56.5	5" V	2	70	8C9400PH	114.3	590	10	3.1	300	400	8500
1400D3-T5-S									91.4	472		2.5	250	300	



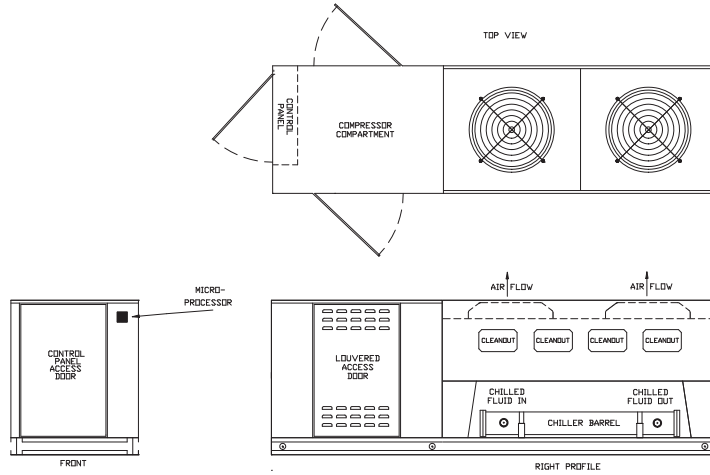
MODEL	NOMINAL BTUH	L IN.	W IN.	H IN.	FLUID CONN.	REFRIG. CONN.		COMPRESSOR			RLA EA	LRA EA	FAN MOTOR		MCA	M.O.P.	WT. LBS.	CONDENSER SELECTION
						DISCH.	LIQUID	QTY	HP	MODEL			QTY	FLA EA.				
100S3-T3-S	128,400	65	42	1.25" FPT	1 1/8"	5/8"	1	10	3DB3R12M	43.6	215	2	3.3	60	100	800	CS120S	
100S3-T4-S										20.0	106		1.6	30	45			
100S3-T5-S										16.5	84		1.72	25	40			
120S3-T3-S	145,200	65	42	1.25" FPT	1 1/8"	5/8"	1	12	3DF3R15M	48.1	275	2	3.3	70	110	825	CS120S	
120S3-T4-S										23.6	138		1.6	30	50			
150S3-T3-S	148,800	65	42	1.25" FPT	1 1/8"	5/8"	1	15	3DS3R17M	59.6	275	2	2.3	80	125	850	DCM016	
150S3-T4-S										29.0	138		1.2	40	60			
150S3-T5-S										23.6	110		0.9	35	50			
200S3-T3-S	171,600	65	42	2" MPT	1 1/8"	5/8"	1	20	4DA3R18M	66.6	308	2	2.3	90	150	950	DCM020	
200S3-T4-S										33.3	154		1.2	45	80			
200S3-T5-S										24.7	135		0.9	35	50			
220S3-T3-S	195,600	65	42	2" MPT	1 3/8"	7/8"	1	22	4DB3R20M	65.6	374	2	2.3	90	150	1000	DCM024	
220S3-T4-S										32.8	187		1.2	45	70			
220S3-T5-S										26.5	135		0.9	35	60			
250S3-T3-S	223,200	65	42	2" MPT	1 3/8"	7/8"	1	25	4DH3R22M	82.1	428	3	2.3	110	175	1000	DCM030	
250S3-T4-S										41.1	214		1.2	60	90			
250S3-T5-S										34.4	172		0.9	50	80			
301S3-T3-S	309,600	65	42	2.5" MPT	1 3/8"	7/8"	1	30	6DB3R32M	105.0	565	3	2.3	150	225	1100	DCM035	
301S3-T4-S										52.5	283		1.2	70	110			
301S3-T5-S										40.0	230		0.9	60	90			
351S3-T3-S	321,600	65	42	2.5" MPT	1 5/8"	7/8"	1	35	6B4709PH	117.1	550	4	2.3	175	250	1300	DCM040	
351S3-T4-S										58.6	275		1.2	80	125			
351S3-T5-S										46.4	220		0.9	70	100			
400S3-T3-S	352,000	65	42	2.5" MPT	1 5/8"	7/8"	1	40	6B5406PH	157.1	700	4	2.3	225	350	1400	DCM040	
400S3-T4-S										78.6	350		1.2	110	175			
400S3-T5-S										62.9	280		0.9	90	125			
500S3-T3-S	441,600	65	42	3" MPT	1 1/8"	7/8"	1	50	6B6462PH	160.0	950	6	2.3	200	350	1600	DCM060	
500S3-T4-S										80.0	425		1.2	100	175			
500S3-T5-S										63.6	340		0.9	90	125			
600S3-T3-S	540,000	65	42	3" MPT	1 1/8"	7/8"	1	60	8DS3R67M	224.3	1070	6	2.3	300	500	1700	DCM060	
600S3-T4-S										112.1	535		1.2	150	250			
600S3-T5-S										80.0	405		0.9	110	175			
700S3-T3-S	650,400	65	42	3" MPT	2 1/8"	7/8"	1	70	8C9400PH	228.6	1288	8	2.3	350	500	1950	DCM082	
700S3-T4-S										114.3	590		1.2	175	250			
700S3-T5-S										91.4	472		0.9	125	200			

1. See Bulletin D50-DCM-PDI-1 for condenser section specifications.
2. See Installation Instruction Manual Refrigerant Chart for additional refrigerant charge needed for extended pipe length.

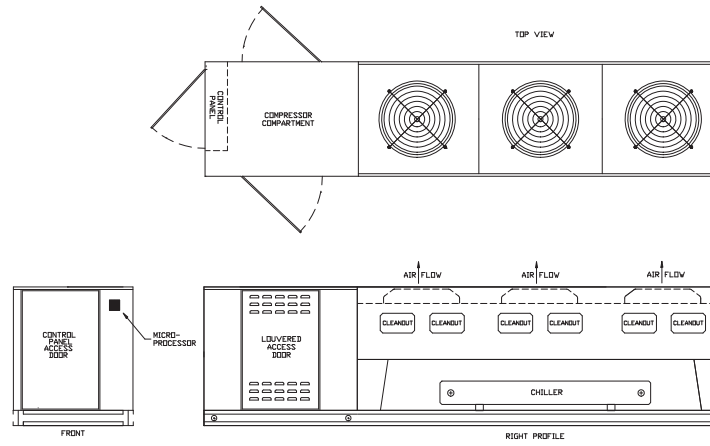
MODEL	NOMINAL BTUH	L IN.	W IN.	H IN.	FLUID CONN.	REFRIG. CONN.		COMPRESSOR			RLA EA	LRA EA	FAN MOTOR		MCA	M.O.P.	WT. LBS.	CONDENSER SELECTION					
						DISCH.	LIQUID	QTY	HP	MODEL			QTY	FLA EA.									
150D3-T3-S	188,400	85	34	42	2.5" MPT	7/8"	5/8"	7.5	3DA3R10M	2	41.0	215	2	2.3	100	125	1100	DCM020					
150D3-T4-S																			20.0	106	1.2	50	60
150D3-T5-S																			16.4	84	0.9	25	35
200D3-T3-S	222,000	85	34	42	2.5" MPT	1 1/8"	5/8"	10	3DB3R12M	2	43.6	215	2	2.3	110	125	1200	DCM024					
200D3-T4-S																			20.0	106	1.2	50	60
200D3-T5-S																			16.5	84	0.9	25	35
240D3-T3-S	265,200	85	34	60	2.5" MPT	1 1/8"	5/8"	12	3DF3R15M	3	48.1	275	3	2.3	125	150	1300	DCM030					
240D3-T4-S																			23.6	138	1.2	60	80
300D3-T3-S																			59.6	275	2.3	150	200
300D3-T4-S	300,000	85	34	60	2.5" MPT	1 1/8"	5/8"	15	3DS3R17M	3	29.0	138	3	1.2	70	90	1500	DCM035					
300D3-T5-S																			23.6	110	0.9	35	50
400D3-T3-S																			66.6	308	2.3	175	225
400D3-T4-S	339,600	85	34	60	2.5" MPT	1 3/8"	7/8"	20	4DA3R18M	4	33.3	154	4	1.2	80	110	1650	DCM040					
400D3-T5-S																			24.7	135	0.9	35	50
440D3-T3-S																			65.6	374	2.3	175	200
440D3-T4-S	392,400	85	34	60	3" MPT	1 3/8"	7/8"	22	4DB3R20M	4	32.8	187	4	1.2	80	110	1700	DCM047					
440D3-T5-S																			26.5	135	0.9	40	60
500D3-T3-S																			82.1	428	2.3	200	250
500D3-T4-S	446,400	85	34	60	3" MPT	1 3/8"	7/8"	25	4DH3R22M	6	41.1	214	6	1.2	100	125	1800	DCM060					
500D3-T5-S																			34.4	172	0.9	50	80
601D3-T3-S																			105.0	565	2.3	250	350
601D3-T4-S	627,600	85	34	60	3" MPT	1 3/8"	7/8"	30	6DB3R32M	6	52.5	283	6	1.2	150	175	1900	DCM070					
601D3-T5-S																			40.0	230	0.9	60	90
701D3-T3-S																			117.0	550	2.3	300	400
701D3-T4-S	650,400	85	34	60	3" MPT	1 5/8"	7/8"	35	6B4709PH	8	58.6	275	8	1.2	150	200	2000	DCM082					
701D3-T5-S																			46.4	220	0.9	125	150
800D3-T3-S																			157.1	700	2.3	400	500
800D3-T4-S	720,000	85	34	60	4" V	1 5/8"	7/8"	40	6B5406PH	8	78.6	350	8	1.2	175	250	2400	DCM095					
800D3-T5-S																			62.9	280	0.9	150	200
1000D3-T3-S																			160.0	950	6.6	400	550
1000D3-T4-S	879,600	85	34	60	4" V	1 1/8"	7/8"	50	6B6462PH	6	80.0	425	6	3.1	200	250	2800	DCL-112					
1000D3-T5-S																			63.6	340	2.5	150	200
1200D3-T3-S																			224.3	1070	6.6	600	700
1200D3-T4-S	1,060,000	85	34	66	5" V	2 1/8"	7/8"	60	8DS3R67M	8	112.1	535	8	3.1	300	350	3000	DCL-137					
1200D3-T5-S																			80.0	405	2.5	200	250
1400D3-T3-S																			228.6	1288	6.6	600	800
1400D3-T4-S	1,295,000	85	34	66	5" V	2 1/8"	7/8"	70	8C9400PH	10	114.3	590	10	3.1	300	400	3200	DCL-167					
1400D3-T5-S																			91.4	472	2.5	250	300

1. See Bulletin D50-DCL-PDI for condenser section specifications.
2. For ES1000D and 1200D models, use D050-DVC-PDI-28 for condenser specifications.
3. See Installation Instruction Manual Refrigerant Chart for additional refrigerant charge needed for extended pipe length.

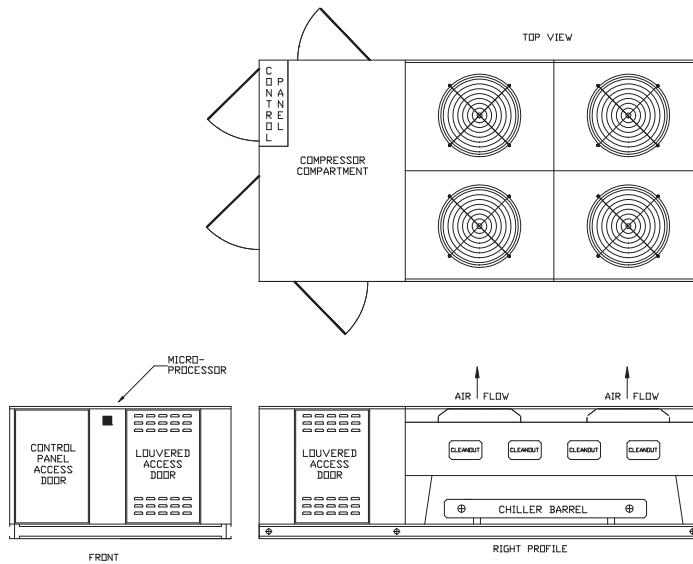




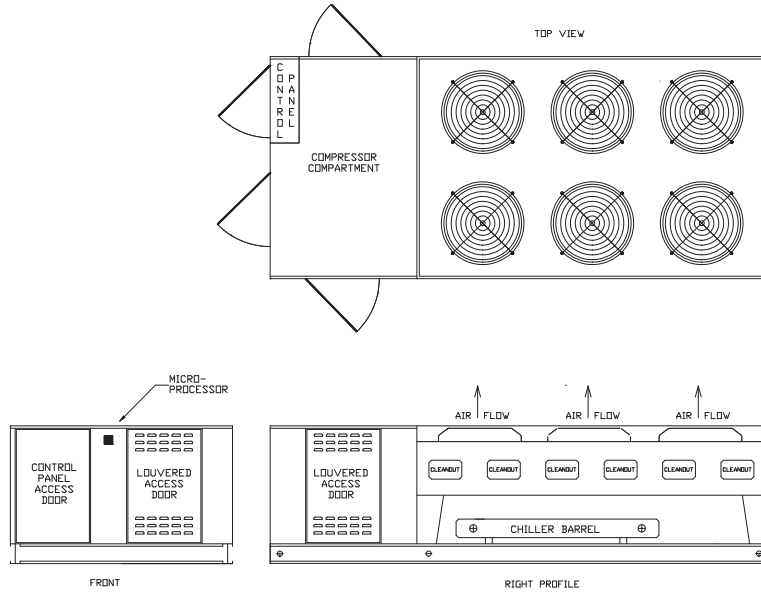
PAC150S, 200S, 220S, 150D & 200D SEMI-HERMETIC



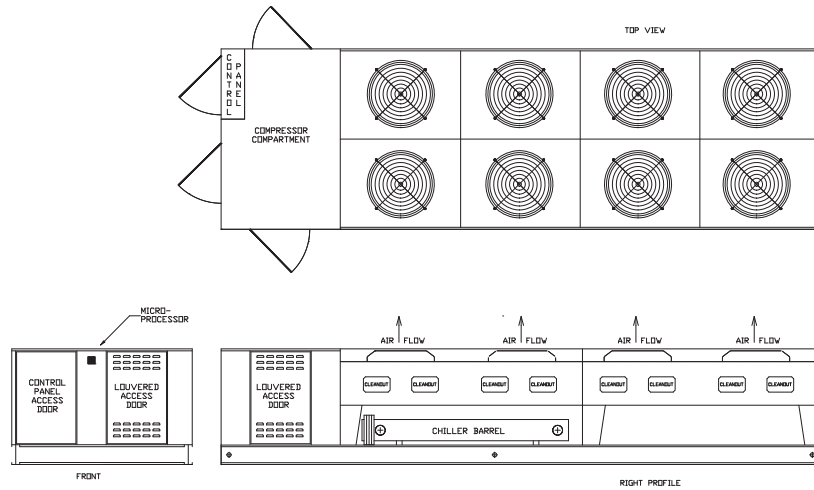
PAC250S, 301S, 240D & 300D SEMI-HERMETIC



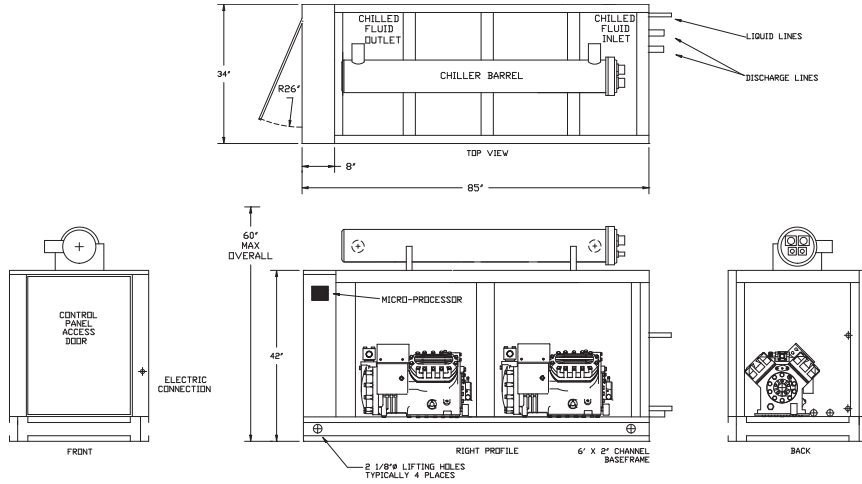
PAC351S, 400S, 400D & 400D SEMI-HERMETIC



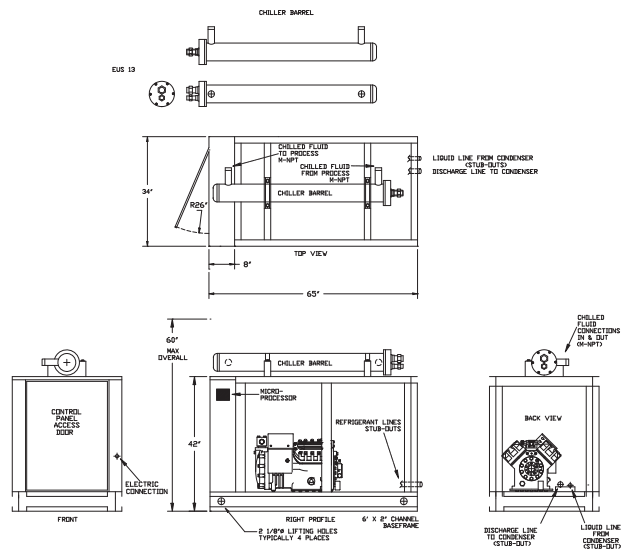
PAC500S, 600S, 700S, 500D 601D & 1000D SEMI-HERMETIC



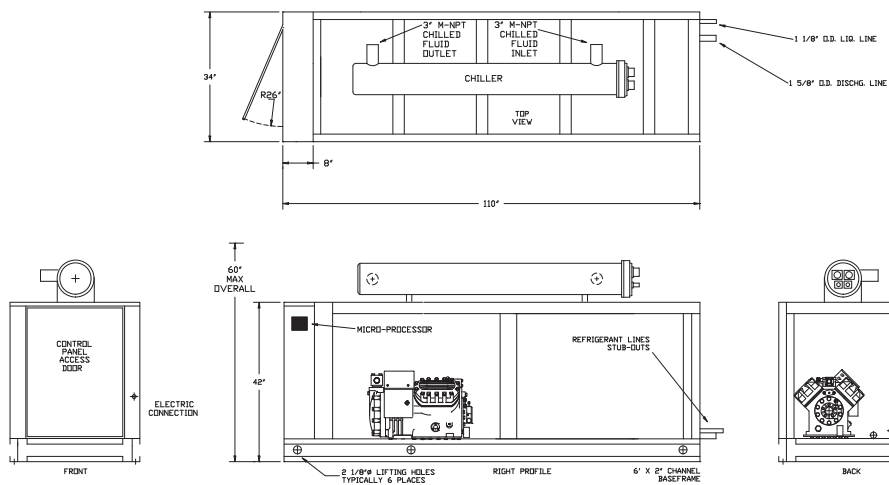
PAC701D, 800D & 1200D SEMI-HERMETIC



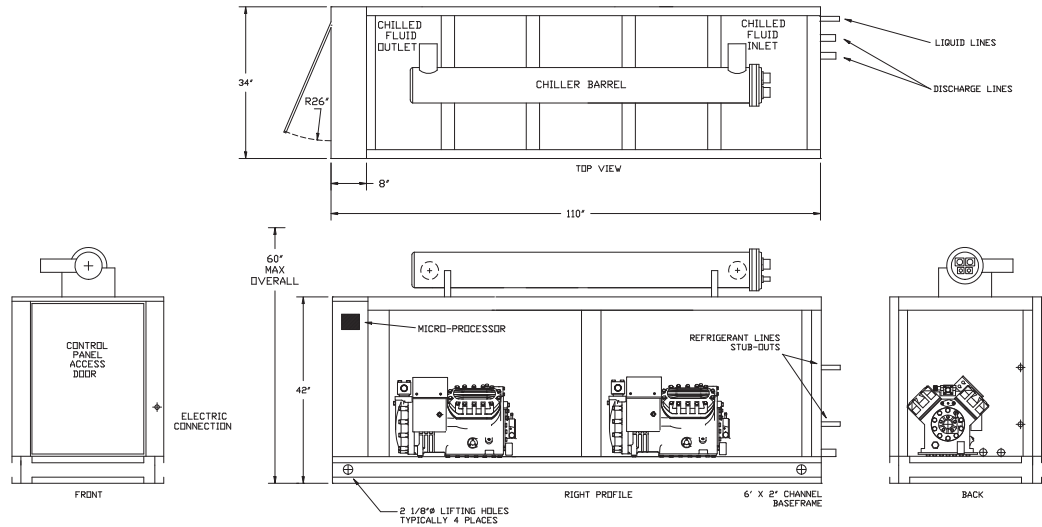
ES150D, 200D, 240D, 300D, 400D, 440D & 500D SEMI-HERMETIC



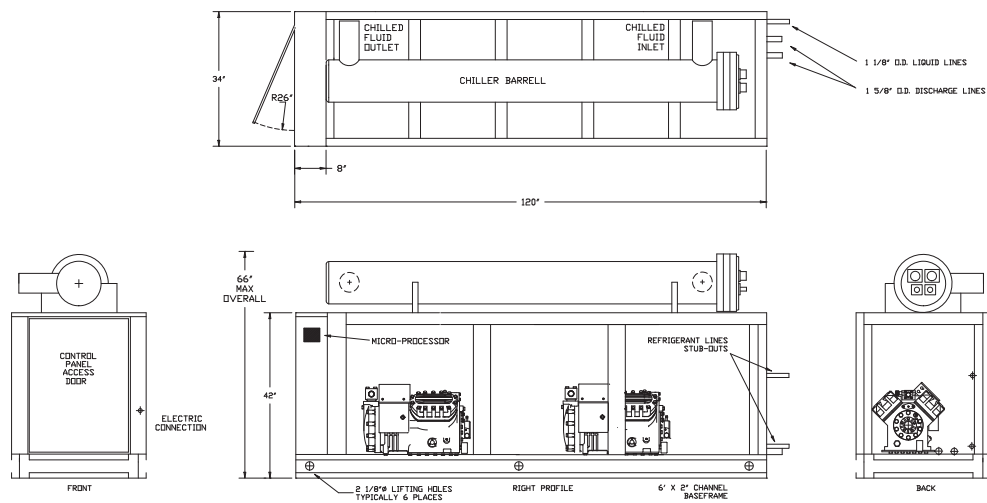
ES150S, 200S, 220S, 250S & 301S SEMI-HERMETIC



ES500S & 600S SEMI-HERMETIC



ES601D, 701D & 800D SEMI-HERMETIC



ES1000D & 1200D SEMI-HERMETIC

TANK SECTION

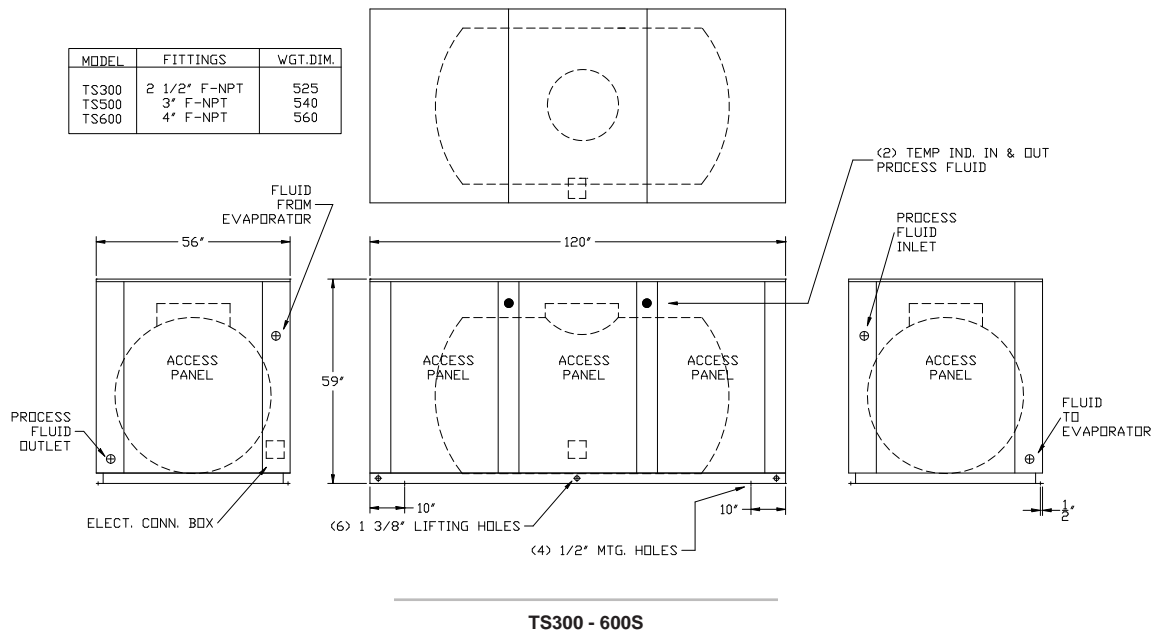
MODEL	LENGTH IN.	WIDTH IN.	HEIGHT IN.	WATER CONN.	TANK CAPACITY	RECIRCULATION PUMP	FLA 230/3Ø	FLA 460/3Ø	WT. LBS.
TS200S	120	56	59	1 1/2" FPT	200 GALLONS	2HP	6.4	3.2	500
TS300S				2" FPT	300 GALLONS				
TS500S				3" FPT	500 GALLONS	3HP	9.4	4.5	540
TS600S				4" FPT	600 GALLONS				560

Standard Features

- Open, vented **polyethylene** storage tank
- 1/2" tank and fluid piping insulation
- Copper fluid piping
- Tank vent and drain connections
- Fused evaporator fluid re-circulating **STAINLESS STEEL** pump
- Fluid pump discharge ball valve and cleanable "Y" strainer
- Control box with pump terminal block
- Painted, galvanized steel sheet metal cabinet
- 24 volt L.E.D. process fluid thermometers

Available Options

- **STAINLESS STEEL** (welded) tank
- Water flow meter
- Fused, **STAINLESS STEEL** process pump
- Tank fluid sight glass
- Tank liquid level indicator with dry contacts
- Special piping for de-ionized and reverse osmosis water systems
- **STAINLESS STEEL** sheet metal cabinet
- 1" tank and piping insulation
- Seal-tight electrical connections
- Low flow by-pass loop



GLYCOL FACTOR TABLES

PROPYLENE GLYCOL CAPACITY CORRECTION FACTOR TABLE

PERCENT PROPYLENE GLYCOL BY WEIGHT	15%	20%	25%	30%	35%	40%	50%
FREEZING POINT IN °F	24	18	15	9	5	-5	-30
CAPACITY FACTOR MULTIPLIER*	0.992	0.986	0.972	0.960	0.950	0.928	0.878
PRESSURE DROP MULTIPLIER	1.04	1.08	1.13	1.21	1.26	1.47	2.79

ETHYLENE GLYCOL CAPACITY CORRECTION FACTOR TABLE

PERCENT ETHYLENE GLYCOL BY WEIGHT	10%	15%	20%	25%	30%	35%	40%
FREEZING POINT IN °F	25	21	17	11	5	0	-10
CAPACITY FACTOR MULTIPLIER*	0.98	0.96	0.95	0.93	0.92	0.91	0.89
PRESSURE DROP MULTIPLIER	1.08	1.11	1.16	1.21	1.27	1.32	1.38

* At standard ARI 590 conditions: 54°F entering fluid temperature, 44°F leaving fluid temperature, 95°F ambient temperature, 0.0005 fouling.





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