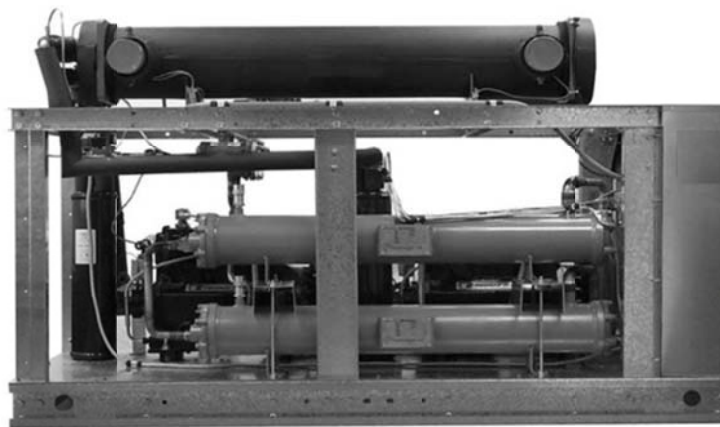


Water Cooled
Semi – Hermetic Single Circuit



Water Cooled
Semi – Hermetic Dual Circuit

Water Cooled Selection Procedure

To properly select a water 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

If you know any three of the items 1 through 4 above you can calculate the forth by using the formula below,

For 100% water:

$$\text{Cooling capacity (in BTUH)} = \text{GPM} \times \text{Delta T} \times 500$$

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

Sample selection:

Select a water cooled packaged chiller to cool 100 GPM of 100% water from 54°F to 44°F
Design condenser water temperature 105°F

Find:

- A) Water Cooled chiller model

Solution:

- A)
1. Chilled fluid Delta T = 54°F – 44°F = 10°F
 2. Capacity (in BTUH) = 100 GPM x 10°F Delta T x 500 = 500,000 BTUH
 3. Delta T = $\frac{\text{Capacity (in BTUH)}}{\text{GPM} \times 500}$

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



Nomenclature

Example: PK WCC B 601 D 2 T3 SH

PK PK = Packaged E = Evaporator C = Condenser

WCC Water Cooled Condenser

B L = Low Temp Model B = Standard Unit

601 Nominal HP Ex 601 = 60 HP, 010 = 1 HP

D S = Single Circuit Unit D= Dual Circuit Unit

2 1 = R134a 2 = R22 3 = R404a, R507

T3 Electrical Requirement

T1 = 208/230-3-60 S1 = 208/230-1-60

T2 = 460-3-60 S2 = 460-1-60

T3 = 575-3-60 S3 = 220-1-50

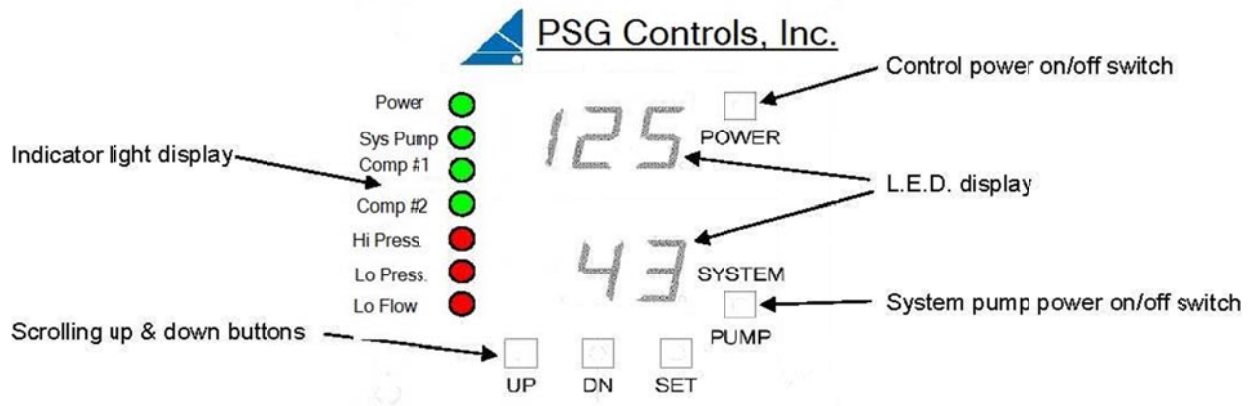
T4 = 200/208-3-50

T5 = 380-3-50

SH Compressor Type SH = Semi Hermetic



Microprocessor Standard Features



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 or °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 short cycling 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
- Two L.E.D. display windows
 - a) Inlet & 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 faults
 - a) Safety faults
 - High fluid temperature outlet alarm – (display only – does not shut down chiller)
 - Low fluid temperature outlet arm – (shuts down the chiller and requires manual reset)
 - High refrigerant pressure– (shuts down the chiller and requires manual reset)
 - Low refrigerant pressure– (shuts down the chiller and requires manual reset)
 - Low water flow through evaporator– (shuts down the chiller and automatically resets when flow is restored)
- Monitors and logs compressor run hours



Semi-Hermetic Packaged Water Cooled Condenser Capacities

Capacities on this chart are based on R-22. Lowering leaving water temperatures can require the use of glycol solution or there fluid blends. These solutions affect unit capacities.

DeltaPro Model #	LWT °F	105° Cond Temp			DeltaPro Model #	LWT °F	105° Cond Temp			DeltaPro Model #	LWT °F	105° Cond Temp		
		Tons	KW	EER			Tons	KW	EER			Tons	KW	EER
010S	42	1.1	1.2	11.3	020S	42	1.6	1.7	11.4	030S	42	2.4	2.6	11.2
	44	1.1	1.2	11.8		44	1.7	1.7	11.8		44	2.5	2.6	11.7
	45	1.2	1.2	12.0		45	1.7	1.7	12.0		45	2.6	2.6	11.9
	50	1.3	1.2	13.2		50	1.9	1.8	13.1		50	2.8	2.6	12.9
031S	42	2.8	3.4	9.9	040S	42	3.9	4.3	11.0	050S	42	4.8	4.0	14.63
	44	2.9	3.4	10.3		44	4.2	4.4	11.4		44	5.0	4.0	14.8
	45	3.0	3.5	10.4		45	4.3	4.4	11.6		45	5.1	4.0	15.1
	50	3.3	3.6	11.2		50	4.8	4.5	12.7		50	5.7	4.2	16.7
051S	42	5.5	4.7	14.2	075S	42	9.4	8.1	14.0	100S	42	11.0	9.5	14.0
	44	5.8	4.7	14.8		44	9.8	8.1	14.5		44	11.5	9.5	14.5
	45	6.0	4.7	15.2		45	10.0	8.1	14.8		45	11.8	9.5	14.8
	50	6.6	4.8	16.6		50	11.1	8.2	16.2		50	12.9	9.6	16.2
120S	42	12.3	11.7	12.7	150S	42	15.2	13.1	13.9	200S	42	17.1	14.0	14.6
	44	12.9	11.8	13.0		44	15.8	13.2	14.4		44	17.9	14.2	15.1
	45	13.2	11.9	13.3		45	16.0	13.2	14.6		45	18.3	14.2	15.4
	50	14.4	12.1	14.3		50	17.5	13.4	15.7		50	20.0	14.5	16.7
220S	42	19.2	16.5	13.9	250S	42	21.3	18.2	13.9	301S	42	28.6	24.4	14.0
	44	20.0	16.6	14.4		44	22.1	18.4	14.4		44	29.6	24.5	14.5
	45	20.4	16.7	14.7		45	22.5	18.4	14.6		45	30.3	24.6	14.7
	50	22.2	16.9	15.8		50	24.5	18.7	15.8		50	33.0	25.0	15.8
351S	42	33.7	29.4	13.7	400S	42	37.1	32.7	13.6	500S	42	44.2	40.4	13.1
	44	34.9	29.6	14.1		44	38.3	32.8	14.0		44	45.6	40.7	13.4
	45	35.7	29.8	14.3		45	39.2	33.1	14.3		45	46.7	40.9	13.7
	50	38.6	30.3	15.2		50	42.5	33.6	15.2		50	50.0	41.5	14.4
600S	42	52.5	50.8	12.3	150D	42	19.0	16.2	14.1	200D	42	22.2	18.9	14.1
	44	54.2	51.2	12.7		44	19.7	16.3	14.6		44	23.1	19.0	14.6
	45	55.4	51.5	12.9		45	20.1	16.3	14.8		45	23.6	19.1	14.8
	50	59.6	52.4	13.7		50	21.9	16.5	16.0		50	25.7	19.3	16.0
240D	42	25.4	23.6	12.8	300D	42	30.0	26.1	13.8	400D	42	34.5	28.2	14.7
	44	26.3	23.8	13.3		44	31.3	26.3	14.2		44	35.7	28.3	15.1
	45	26.9	23.9	13.5		45	31.9	26.4	14.5		45	36.7	28.5	15.5
	50	29.6	24.4	14.5		50	34.8	26.7	15.7		50	39.7	28.9	16.5
440D	42	39.8	33.2	14.3	500D	42	43.1	36.5	14.2	601D	42	57.3	48.7	14.1
	44	41.0	33.4	14.7		44	44.5	36.8	14.5		44	59.0	49.0	14.4
	45	42.1	33.5	15.1		45	45.5	36.9	14.8		45	60.2	49.2	14.7
	50	45.4	33.9	16.2		50	49.0	37.4	15.7		50	64.8	49.9	15.6
701D	42	65.9	58.6	13.4	800D	42	73.6	65.2	13.5	1000D	42	88.8	80.8	13.2
	44	68.4	59.1	13.8		44	76.6	65.7	13.9		44	92.3	81.5	13.5
	45	69.8	59.4	14.1		45	77.8	66.0	14.2		45	94.2	81.9	13.8
	50	75.8	60.6	15.0		50	84.8	67.3	15.2		50	102.9	83.6	14.8
1200D	42	97.5	100.9	12.2										
	44	106.3	102.0	12.5										
	45	108.3	102.5	12.7										
	50	117.5	104.4	13.5										



Glycol Factor Tables

PROPYLENE GLYCOL CAPACITY CORRECTION FACTOR TABLE							
% 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							
% 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

Due to manufacturer's product improvement, the manufacturer reserves the right to make changes without notice. Contact your representative for further information.

