MUELLER®
WATER-COOLED
PACKAGED CHILLERS

MUELLER®

REFRIGERATION PRODUCTS

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RESIDENTIAL A/C CHILLER, 2- THRU 15-TON, SINGLE-PHASE, 208-230 VOLTS

- 2- thru 5-ton single circuit
- 6- thru 10-ton dual circuit
- 15-ton three circuit

EXAMPLE: P WC T _ 30 S 2 - T3 - H A

P — **P** = Packaged

WC — **WC** = Water-Cooled Condenser

T — **T** = Tank Model

B — **B** = Brewery Model **L** = Low Temperature Model **Blank** = Standard Unit

30 — **Nominal Capacity MBtuh** (Example: 12 = 12,000 Btuh, etc.)

S — **S** = Single-Circuit Unit **D** = Dual-Circuit Unit **M** = Three-Circuit Unit

2 — **1** = R-134a **2** = R-22 **6** = R-404A, R-507

T3 — **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

H — **Compressor Type:** **H** = Hermetic **S** = Semi-Hermetic **Z** = Scroll

A — **Generation Series = Non-Significant**

Note:

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.

WATER-COOLED CHILLER SELECTION PROCEDURE

To properly select a water-cooled packaged chiller, the following information must be known:

- The required cooling capacity, Btuh.
- Entering and leaving process fluid temperatures.
- GPM of process fluid to be circulated.
- Design ambient air temperature.

If you know any two of the items 1 through 3 above, you can calculate the third by using the formulas below:

For 100% Water:

Cooling Capacity (in Btuh) = GPM x Delta T x 500

$$\text{GPM} = \frac{\text{Capacity (in Btuh)}}{\text{Delta T x 500}}$$

$$\text{Delta T} = \frac{\text{Capacity (in Btuh)}}{\text{GPM x 500}}$$

Sample Selection:

Select a water-cooled packaged chiller to cool 7 GPM of 100% water from 54°F to 44°F.
Design condenser entering water temperature is 85°F, leaving condenser water temperature is 95°F.

Find:

Water-cooled chiller model

Solution:

1. Chilled fluid Delta T = 54°F - 44°F = 10°F
2. Capacity (in Btuh) = 7 GPM x 10°F Delta T x 500 = 32,500 Btuh
3. From the PWC chiller capacity tables, it can be determined that the PWC36S has the capacity to meet the requirements.

Water-Cooled Chiller Capacities

Mueller Model	LWT °F	105°F Condensing	Mueller Model	LWT °F	105°F Condensing	Mueller Model	LWT °F	105°F Condensing
12S	42	14,200	18S	42	18,700	24S	42	21,500
	44	15,100		44	19,800		44	22,600
	45	15,600		45	20,400		45	23,200
	50	17,600		50	23,200		50	26,000
	55	19,900		55	26,400		55	29,100
	60	22,300		60	29,700		60	32,300
30S	42	32,000	36S	42	38,000	48S	42	52,300
	44	33,800		44	40,000		44	54,800
	45	34,800		45	45,000		45	56,000
	50	39,000		50	46,500		50	62,000
	55	44,000		55	52,000		55	68,800
	60	48,900		60	58,000		60	76,000
60S	42	57,500	72D	42	77,000	90S	42	101,000
	44	60,000		44	81,000		44	106,000
	45	61,500		45	83,000		45	108,000
	50	68,200		50	93,000		50	122,000
	55	76,000		55	105,000		55	136,000
	60	84,200		60	117,000		60	152,000
96D	42	106,000	120S	42	136,000	120D	42	115,000
	44	111,000		44	143,000		44	121,000
	45	113,000		45	147,000		45	124,000
	50	125,000		50	163,000		50	137,000
	55	140,000		55	182,000		55	154,000
	60	154,000		60	200,000		60	171,000
180D	42	200,000	180M	42	172,500	240D	42	278,000
	44	211,000		44	180,000		44	291,000
	45	217,000		45	184,500		45	299,000
	50	243,000		50	204,500		50	330,000
	55	271,000		55	228,000		55	369,000
	60	302,000		60	252,000		60	405,000

Note:

Capacities on this chart are based on refrigerant 22. Low ambient or lower leaving water temperatures can require the use of glycol solution or other fluid blends. These solutions affect unit capacities. Please consult the factory on these or other special fluids for proper unit selections.

STANDARD FEATURES

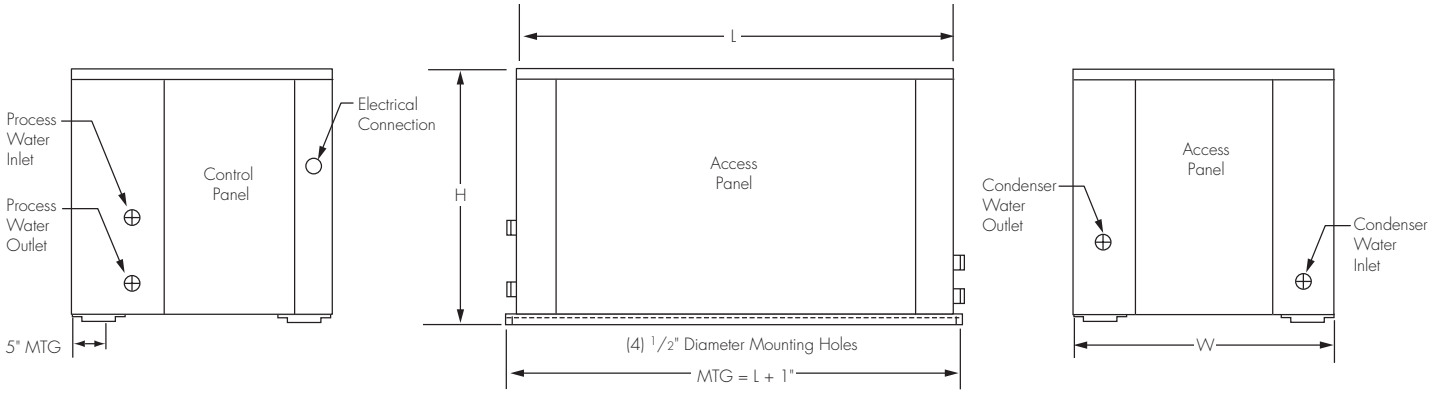
- Stainless steel brazed-plate evaporator with 1/2" insulation and secured in a steel bracket
- Hermetic compressor with crankcase heater
- Condenser(s): coaxial steel/copper tub
- Suction accumulator
- Water flow switch
- Hot gas bypass capacity control
- On/off switch for control circuit operation
- 24V control transformer
- Return fluid sensing thermostat
- High pressure refrigerant control
- Low pressure refrigerant control with time delay
- Manual compressor lead lag switch on dual-circuit units
- LED 24v thermometers on water inlet/outlet
- Compressor motor contactor
- Compressor and control circuit fusing
- Compressor and hot gas valve time delays
- “Hard start kit” (single-phase units only)
- Painted galvanized sheet metal cabinet
- 1/2" insulation on all water and refrigerant lines
- Liquid line drier, sight glass, solenoid, TEV
- Full refrigerant charge from factory

AVAILABLE OPTIONS

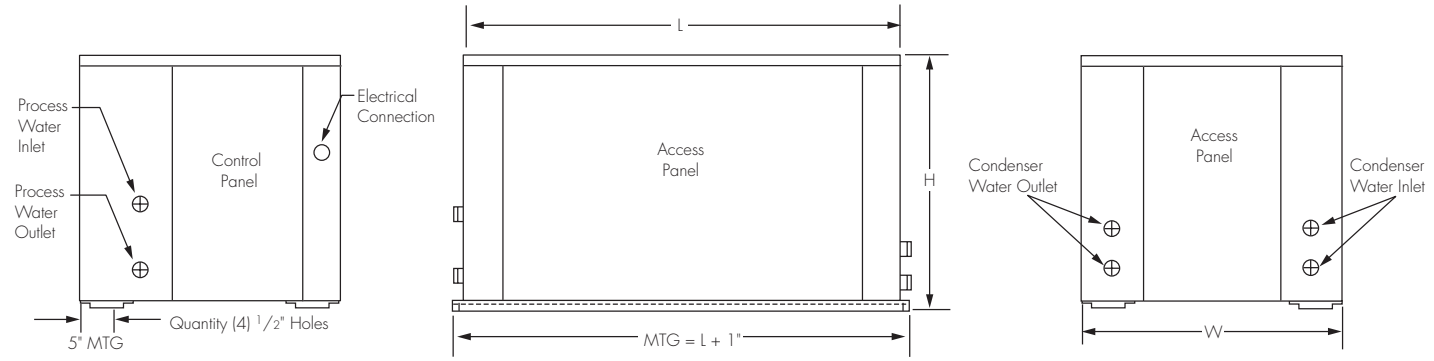
- Low water flow indicator with dry contacts
- Compressor run indicator
- Power on indicator
- Fault indicator with dry contacts
- High temp indicator with dry contacts
- Casters (factory mounted)
- Water temp freeze thermostat
- Fused disconnect
- Condenser water regulating valve(s)
- Factory installed heat tape freeze protection, thermostatically controlled
- Special piping for deionized and reverse osmosis water systems
- Phase monitor
- “Gold” finned condenser coil (coastal protection)
- Semi-hermetic compressor
- Shell-and-tube chiller barrel
- Tank low liquid level indicator with dry contacts
- Electronic water flow meter
- Refrigerant suction/discharge gauge set
- Fused stainless steel system process pump
- Storage tank sight glass

PWC Dimensional Specifications

PMC Model	Length (in)	Width (in)	Height (in)	Compressor Quantity	Compressor HP	Process Water Conn.	Condenser Water Conn.	Weight (lbs)
PWC12S	44	28	36	1	1	3/4" FPT	3/4" FPT	185
PWC18S	44	28	36	1	1 1/2	3/4" FPT	3/4" FPT	210
PWC24S	44	28	36	1	2	1" FPT	1" FPT	225
PWC30S	44	28	36	1	2 1/2	1" FPT	1" FPT	235
PWC36S	44	28	36	1	3	1" FPT	1" FPT	315
PWC48S	44	28	36	1	4	1" FPT	1" FPT	350
PWC60S	44	28	36	1	5	1" FPT	1" FPT	425
PWC90S	56	36	36	1	9	1 1/4" FPT	1 1/4" FPT	695
PWC120S	56	36	36	1	12	1 1/4" FPT	1 1/4" FPT	1,095



PMC Model	Length (in)	Width (in)	Height (in)	Compressor Quantity	Compressor HP	Process Water Conn.	Condenser Water Conn.	Weight (lbs)
PWC72D	56	36	36	2	3	1 1/4" FPT	1" FPT	665
PWC96D	56	36	36	2	4	1 1/4" FPT	1" FPT	875
PWC120D	56	36	36	2	5	1 1/4" FPT	1 1/4" FPT	1,136
PWC180D	56	36	36	2	9	1 1/2" FPT	1 1/4" FPT	1,510
PWC240D	65	36	36	2	12	1 1/2" FPT	1 1/4" FPT	1,600



PWC Electrical Specifications

PMC Model	Nominal BTUH	Evaporator Water GPM	Evaporator Water Psi Drop	Condenser Water GPM	Compressor	RLA Ea.	LRA Ea.	MCA	Max Fuse
12S-S2	15,100	3.02	3.8	3.4	AW5516	7.2	43	9.0	15
18S-S2	19,800	3.96	4.2	4.6	AW5522	10.2	60	12.8	20
18S-T3	19,800	3.96	4.2	4.6	AW5522	6.1	50	7.6	15
18S-T4	19,800	3.96	4.2	4.6	AW5522	3.0	25	3.8	15
24S-S2	22,600	4.52	2.8	5.9	AW5528	12.8	73	16.0	25
24S-T3	22,600	4.52	2.8	5.9	AW5528	8.4	71	10.5	15
24S-T4	22,600	4.52	2.8	5.9	AW5528	4.1	36	5.1	15
30S-S2	33,800	6.76	6.2	7.5	AV5535	15.8	86	19.8	35
30S-T3	33,800	6.76	6.2	7.5	AV5535	9.7	65.1	12.1	20
30S-T4	33,800	6.76	6.2	7.5	AV5535	4.8	32.8	6.0	15
36S-S2	40,000	8	5.3	9	AV5542	17.1	107.4	21.4	35
36S-T3	40,000	8	5.3	9	AV5542	12.0	74	15.0	25
36S-T4	40,000	8	5.3	9	AV5542	6.0	37	7.5	15
48S-S2	54,800	10.96	5.6	12.2	AV5558	24.8	141	31.0	50
48S-T3	54,800	10.96	5.6	12.2	AV5558	15.7	110	19.6	35
48S-T4	54,800	10.96	5.6	12.2	AV5558	7.8	55	9.8	15
60S-S2	60,000	12	6.7	13.8	CRN0500	34.3	142	42.9	70
60S-T3	60,000	12	6.7	13.8	CRN0500	21.4	130	26.8	45
60S-T4	60,000	12	6.7	13.8	CRN0500	9.6	65	12.0	20
90S-T3	106,000	21.2	7.6	22.7	BRG0900	38.5	193	48.1	80
90S-T4	106,000	21.2	7.6	22.7	BRG0900	19.3	96.5	24.1	40
120S-T3	143,000	28.6	7.7	31.7	BRK1200	42	267	52.5	90
120S-T4	143,000	28.6	7.7	31.7	BRK1200	27.6	135	34.5	60
72D-S2	81,000	16.2	8.9	17.9	AV5542	17.1	107.4	38.5	70
72D-T3	81,000	16.2	8.9	17.9	AV5542	12.0	74	27.0	50
72D-T4	81,000	16.2	8.9	17.9	AV5542	6.0	37	13.5	25
96D-S2	111,000	22.2	8.3	24.4	AV5558	24.8	141	55.8	110
96D-T3	111,000	22.2	8.3	24.4	AV5558	15.7	110	35.3	70
96D-T4	111,000	22.2	8.3	24.4	AV5558	7.8	55	17.6	35
120D-S2	121,000	24.2	6.9	27.5	CRN0500	34.3	142	77.2	150
120D-T3	121,000	24.2	6.9	27.5	CRN0500	21.4	130	48.8	90
120D-T4	121,000	24.2	6.9	27.5	CRN0500	9.6	65	21.6	40
180D-T3	211,000	42.2	7.3	45.5	BRG0900	38.5	193	86.6	150
180D-T4	211,000	42.2	7.3	45.5	BRG0900	19.3	96.5	43.4	80
180M-S2	180,000	36	6.7	41.3	CRN0500	34.3	142	111.5	225
180M-T3	180,000	36	6.7	41.3	CRN0500	21.4	130	69.5	125
180M-T4	180,000	36	6.7	41.3	CRN0500	9.6	65	31.2	70
240D-T3	291,000	58.2	7.5	63.38	BRK1200	42	267	94.5	175
240D-T4	291,000	58.2	7.5	63.38	BRK1200	27.6	135	62.1	110

Published nominal capacities based on 54°F entering water, 44°F leaving water, 105°F condensing.

STANDARD FEATURES

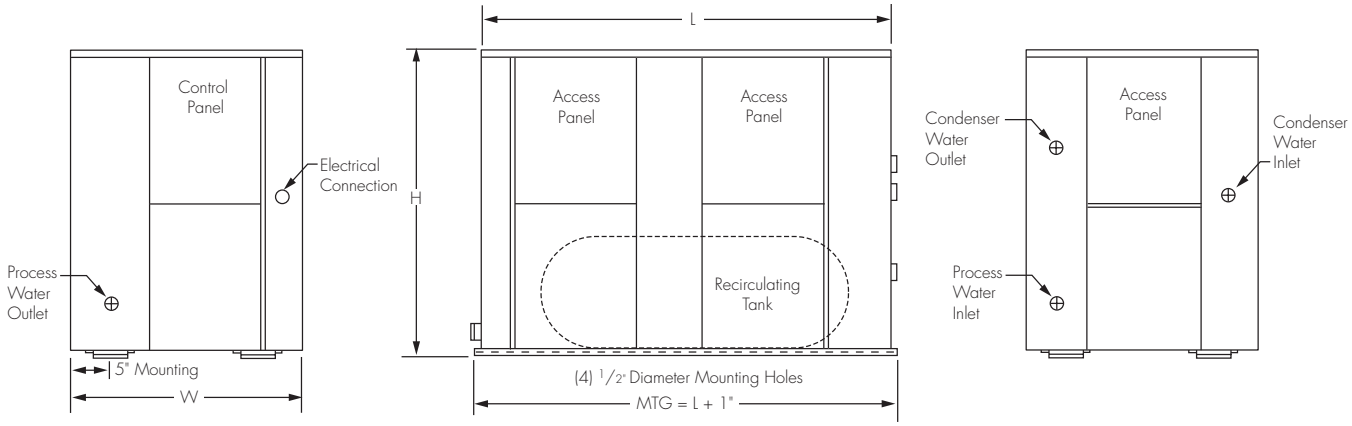
- Stainless steel brazed-plate evaporator with 1/2" insulation and secured in a steel bracket
- Hermetic compressor with crankcase heater
- Condenser(s): coaxial steel/copper tube
- Suction accumulator
- Water flow switch
- On/Off switch for control circuit operation
- Manual compressor lead lag switch on dual-circuit units
- 24V control transformer
- Return fluid sensing thermostat
- High pressure refrigerant control
- Low pressure refrigerant control with time delay
- LED 24v thermometers on water inlet/outlet
- Compressor motor contactor
- Compressor and control circuit fusing
- Compressor and hot gas valve time delays
- “Hard start kit” (single-phase units only)
- Painted galvanized sheet metal cabinet
- 1/2" insulation on all water and refrigerant lines
- Stainless steel storage tank with 1/2" insulation
- Fused stainless steel re-circulation pump for tank operation with ball valve and cleanable strainer
- Tank pressure relief valve, vent and drain connections
- Liquid line drier, sightglass, solenoid, TEV
- Full refrigerant charge from factory

AVAILABLE OPTIONS

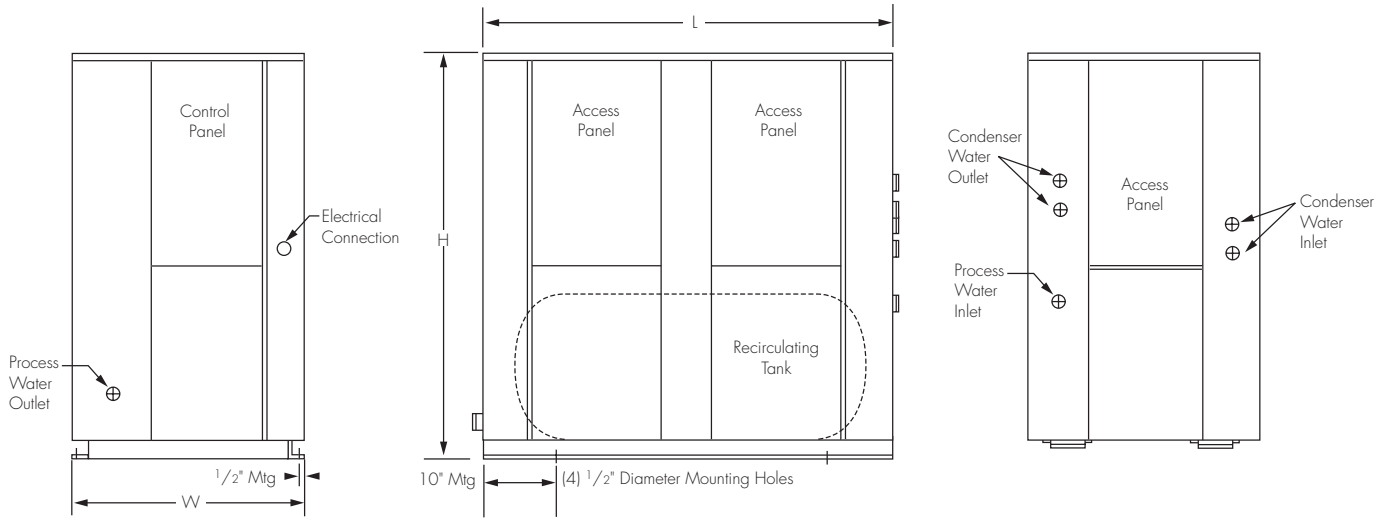
- Low water flow indicator with dry contacts
- Compressor run indicator
- Power on indicator
- Fault indicator with dry contacts
- High temp indicator with dry contacts
- Casters (factory mounted)
- Water temp freeze thermostat
- Fused disconnect
- Condenser water regulating valve(s)
- Factory installed heat tape freeze protection, thermostatically controlled
- Special piping for de-ionized and reverse osmosis water systems
- Phase monitor
- “Gold” finned condenser coil (coastal protection)
- Semi-hermetic compressor
- Shell-and-tube chiller barrel
- Tank low liquid level indicator with dry contacts
- Electronic water flow meter
- Refrigerant suction/discharge gauge set
- Fused stainless steel system process pump
- Storage tank sight glass

PWCT Dimensional Specifications

PMC Model	Length (in)	Width (in)	Height (in)	Compressor Quantity	Compressor HP	Process Water Conn.	Condenser Water Conn.	Tank Capacity (gal)	Weight (lbs)
PWCT12S	36	36	46	1	1	3/4" FPT	3/4" FPT	30	500
PWCT18S	36	36	46	1	1 1/2	3/4" FPT	3/4" FPT	30	505
PWCT24S	56	36	46	1	2	1" FPT	1" FPT	30	525
PWCT30S	56	36	46	1	2 1/2	1" FPT	1" FPT	30	545
PWCT36S	56	36	62	1	3	1" FPT	1" FPT	60	676
PWCT48S	56	36	62	1	4	1" FPT	1" FPT	60	840
PWCT60S	56	36	62	1	5	1" FPT	1" FPT	60	860
PWCT90S	75	36	72	1	9	1 1/4" FPT	1 1/4" FPT	90	975
PWCT120S	75	36	72	1	12	1 1/4" FPT	1 1/4" FPT	90	1,200



PMC Model	Length (in)	Width (in)	Height (in)	Compressor Quantity	Compressor HP	Process Water Conn.	Condenser Water Conn.	Tank Capacity (gal)	Weight (lbs)
PPWCT72D	75	36	72	2	3	1 1/4" FPT	3/4" FPT	90	665
PWCT96D	75	36	72	2	4	1 1/4" FPT	3/4" FPT	90	875
PWCT120D	75	36	72	2	5	1 1/4" FPT	1" FPT	90	1,136
PWCT180D	85	36	72	2	9	1 1/2" FPT	1" FPT	135	1,500
PWCT240D	85	36	72	2	12	1 1/2" FPT	1 1/4" FPT	135	1,600



PMC Model	Nominal BTUH	Evaporator Water GPM	Evaporator Water Psi Drop	Condenser Water GPM	Compressor	RLA Ea.	LRA Ea.	Pump RLA	MCA	Max Fuse
12S-S2	15,100	3.02	3.8	3.4	AW5516	7.2	43	3.4	12.4	20
18S-S2	19,800	3.96	4.2	4.6	AW5522	10.2	60	3.4	16.2	30
18S-T3	19,800	3.96	4.2	4.6	AW5522	6.1	50	3.4	11.0	20
18S-T4	19,800	3.96	4.2	4.6	AW5522	3.0	25	0.9	4.7	15
24S-S2	22,600	4.52	2.8	5.9	AW5528	12.8	73	3.4	19.4	35
24S-T3	22,600	4.52	2.8	5.9	AW5528	8.4	71	3.4	13.9	25
24S-T4	22,600	4.52	2.8	5.9	AW5528	4.1	36	0.9	6.0	15
30S-S2	33,800	6.76	6.2	7.5	AV5535	15.8	86	3.4	23.2	40
30S-T3	33,800	6.76	6.2	7.5	AV5535	9.7	65.1	3.4	15.5	25
30S-T4	33,800	6.76	6.2	7.5	AV5535	4.8	32.8	0.9	6.9	15
36S-S2	40,000	8	5.3	9	AV5542	17.1	107.4	3.4	24.8	45
36S-T3	40,000	8	5.3	9	AV5542	12.0	74	3.4	18.4	30
36S-T4	40,000	8	5.3	9	AV5542	6.0	37	0.9	8.4	15
48S-S2	54,800	10.96	5.6	12.2	AV5558	24.8	141	3.4	34.4	60
48S-T3	54,800	10.96	5.6	12.2	AV5558	15.7	110	3.4	23.0	40
48S-T4	54,800	10.96	5.6	12.2	AV5558	7.8	55	0.9	10.7	15
60S-S2	60,000	12	6.7	13.8	CRN0500	34.3	142	3.4	46.3	80
60S-T3	60,000	12	6.7	13.8	CRN0500	21.4	130	3.4	30.2	50
60S-T4	60,000	12	6.7	13.8	CRN0500	9.6	65	0.9	12.9	20
90S-T3	106,000	21.2	7.6	22.7	BRG0900	38.5	193	3.4	51.5	90
90S-T4	106,000	21.2	7.6	22.7	BRG0900	19.3	96.5	0.9	25.0	45
120S-T3	143,000	28.6	7.7	31.7	BRK1200	42	267	3.4	55.9	100
120S-T4	143,000	28.6	7.7	31.7	BRK1200	27.6	135	0.9	35.4	60
72D-S2	81,000	16.2	8.9	17.9	AV5542	17.1	107.4	3.4	41.9	80
72D-T3	81,000	16.2	8.9	17.9	AV5542	12.0	74	3.4	30.4	60
72D-T4	81,000	16.2	8.9	17.9	AV5542	6.0	37	0.9	14.4	25
96D-S2	111,000	22.2	8.3	24.4	AV5558	24.8	141	3.4	59.2	110
96D-T3	111,000	22.2	8.3	24.4	AV5558	15.7	110	3.4	38.7	70
96D-T4	111,000	22.2	8.3	24.4	AV5558	7.8	55	0.9	18.5	35
120D-S2	121,000	24.2	6.9	27.5	CRN0500	34.3	142	3.4	80.6	80
120D-T3	121,000	24.2	6.9	27.5	CRN0500	21.4	130	3.4	51.5	150
120D-T4	121,000	24.2	6.9	27.5	CRN0500	9.6	65	0.9	22.5	100
180D-T3	211,000	42.2	7.3	45.5	BRG0900	38.5	193	3.4	90.0	45
180D-T4	211,000	42.2	7.3	45.5	BRG0900	19.3	96.5	0.9	44.3	80
180M-S2	180,000	36	6.7	41.3	CRN0500	34.3	142	3.4	114.9	225
180M-T3	180,000	36	6.7	41.3	CRN0500	21.4	130	3.4	72.9	150
180M-T4	180,000	36	6.7	41.3	CRN0500	9.6	65	0.9	31.2	70
240D-T3	291,000	58.2	7.5	63.38	BRK1200	42	267	3.4	97.9	175
240D-T4	291,000	58.2	7.5	63.38	BRK1200	27.6	135	0.9	63.0	125

Published nominal capacities based on 54°F entering water, 44°F leaving water, 105°F condensing.

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°F	18°F	15°F	9°F	5°F	-5°F	-30°F
Capacity Factor Multiplier*	0.922	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	15%	20%	25%	30%	35%	40%	50%
Freezing Point In °F	25°F	21°F	17°F	11°F	5°F	0°F	-10°F
Capacity Factor Multiplier*	0.98	.96	.95	.93	.92	.91	.89
Pressure Drop Multiplier	1.08	1.11	1.16	1.21	1.27	1.32	1.38

Note:
**At standard ARI-590 conditions: 54°F entering fluid temperature, 44°F leaving fluid temperature, 95°F ambient temperature, .0005 fouling.*

Notes

MUELLER® WATER-COOLED SEMI-HERMETIC CHILLERS

Along with the complete line of standard products that Paul Mueller Company offers, we have the ability to custom build units to each customers' particular needs. Please contact the Refrigeration Products Department at 1-800-MUELLER or your local representative for your special application.

MUELLER HAS COOL PRODUCTS FOR ALL YOUR REFRIGERATION NEEDS!

- Falling Film Chillers
- Tankless Falling Film Chillers
- Quad-Plate Chillers
- Bakery Chillers
- Condensing Units
- Semi-Welded Evaporators
- Brazed-Plate Heat Exchangers
- Fre-Heater®
- Model "QPX" Heat Exchangers

MUELLER®

P.O. Box 828 • Springfield, Missouri 65801-0828, U.S.A.
Phone: (417) 831-3000 • 1-800-MUELLER • Fax: 1-800-436-2466
www.muel.com • E-mail: refrigeration@muel.com

Due to the manufacturer'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.