UniChiller (Rev. 4) Specifications, 60 Hz

The UniChiller is a self-contained and pre-charged air-to-water heat pump or chiller designed for residential and light commercial applications.

BENEFITS

- ✓ Simple installation. Requires only two pipe connections and electrical power.
- ✓ No refrigerant charging is necessary for installation; a qualified refrigerant technician is only needed for servicing.
- ✓ Ideal for zoning. The UniChiller maintains water temperature independently from the terminal units or air handlers. Unlike an air-conditioner or heat pump, partial loading will not create potential freeze-up conditions.
- ✓ Quiet operation, less than 66dB(A)
- ✓ Remote location. Water piping allows the unit to be located far from the building; limited only by pipe size and pumping power.
- ✓ Available with or without a high head pump.
- ✓ Uses R-407C ozone friendly refrigerant.
- ✓ Multiple UniChillers may be banked together to increase capacity and provide redundancy for increased reliability.

Model Number

UCHR 036 4 - 1 C 2 S
① ② ③ ④ ⑤ ⑥ ⑦

① **Product type**
UCH: Air-to-water chiller
(air cooled liquid chiller)
UCHR: Air-to-water Heat pump
(reverse-cycle chiller)

② **Size**
036: 3-ton unit
060: 5-ton unit

③ **Revision Code**

④ **Electrical**
1: 1 ph - 60 Hz - 208/230V
2: 3 ph - 60 Hz - 208-230V
3: 3 ph - 60 Hz - 460V *
***** 3P+N (4-wire)

⑤ **Refrigerant Options**
C: R-407C

⑥ **Pump Options**
0: no pump
2: high head pump

⑦ **Options**
(blank): none
S: soft-start included
M:marine coated coil

PRODUCT FEATURES

Control board features:
- ☆ Onboard electronic demand defrost control (heat pump version only)
- ☆ Easy to follow troubleshooting using circuit board test points.
- ☆ Plug connections for all devices
- ☆ Onboard flow-switch startup bypass timer
- ☆ Compressor 5-minute off cycle delay
- ☆ Onboard selector switch for 208 or 230V operation
- ☆ Low ambient control (cooling operation)
- ☆ Defrost pressure switch (heat pump version only)

Safety Devices
- ☆ High pressure limit switch
- ☆ Low pressure limit / low charge switch
- ☆ Flow switch cutoff

Optional devices (heat pump version only)
- ☆ Cold weather bottom pan heater
- ☆ Mild weather head pressure control

OPERATING RANGE

Operating Mode	Cooling	Heating	Heating (low ambient)
Outside Temperature, °F (°C)	20* to 105 (-7 to 40)	35 to 70 (2 to 21)	25 to 40 (-4 to 4)
Water Temperature, °F (°C)	38 to 60 (3 to 16)	60 to 115 (16 to 46)	60 to 90 (16 to 32)

* Use a low ambient kit (A01091-G01) when operated below 65ºF (18ºC) in cooling mode.

CAUTION. Operating outside these conditions, could damage the unit and void the warranty.

CERTIFICATIONS

UniChillers are safety certified to ANSI/U.L.1995, CAN/CSA C22.2 No. 236-05 and MEA (Materials and Equipment Acceptance Division, City of New York). The MEA number is 361-04-E.

DIMENSIONS

Figure 1 shows the overall dimensions of the Unichillers. All sizes and models have the same dimensions.

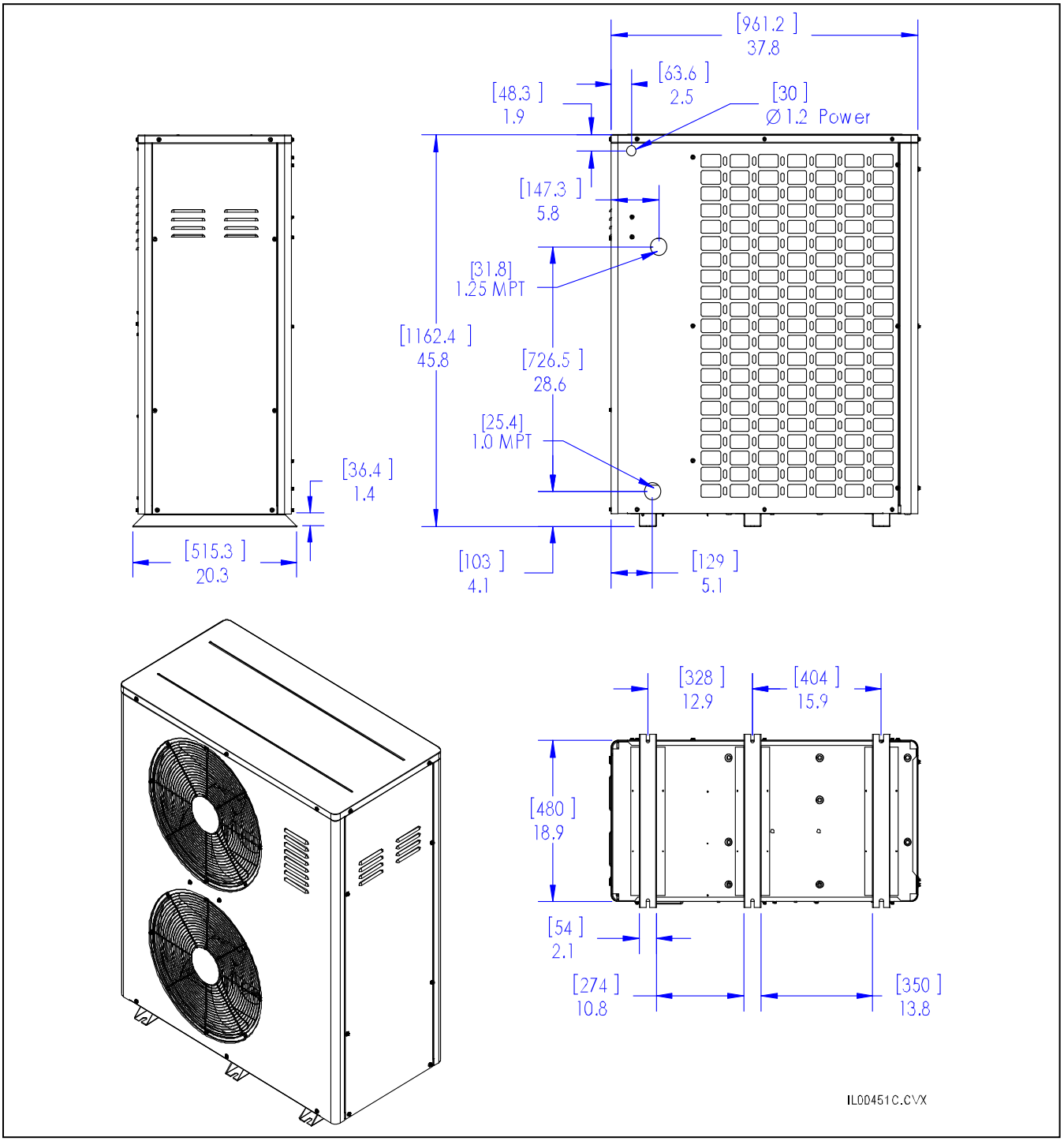

Figure 1: Chiller Dimensions, in [mm]

TECHNICAL SPECIFICATIONS

R-407c

Model Number		UCH0364-, UCHR0364-			UCH0604-, UCHR0604-		
		1C	2C	3C	1C	2C	3C
Nominal Capacity, Btu/h [kW]		36,000 [10.6]			60,000 [17.6]		
Electrical Data	**Power Supply**	208/230V - 1ϕ - 60Hz	208-230V - 3ϕ - 60Hz	460V - 3ϕ+N - 60Hz	208-230V - 1ϕ - 60Hz	208-230V - 3ϕ - 60Hz	460V - 3ϕ+N - 60Hz
	RLA	15.4	12.4	5.8	28.8	18.6	8.2
	Minimum Circuit Ampacity (MCA)	27.8	21.0	13.1	41.5	28.7	16.1
	Max Fuse/Circuit Breaker	45	30	15	70	45	20
	Start up amps @230V	104	88	44	148	137	62
	Start up amps with soft start kit	57	N/A	N/A	48	N/A	N/A
	Acceptable circuit breaker sizes	35 thru 45	25 thru 30	15	50 thru 70	35 thru 45	20
Refrigerant charge, lb [kg]		5 [2.3]			8 [3.6]		
Sound Level*, dBA		66					

Pump	Part Number	A00623-005	A00623-007	A00623-005	A00623-007
	Type	Stainless Steel Pump and Housing			
	RPM	3450			
	Power Supply	208-230V/1ϕ/60Hz	277/1ϕ/60Hz	208-230V/1ϕ/60Hz	277/1ϕ/60Hz
	HP [W]	3/4 [560]			
	LRA	15	13	15	13
	FLA	3.7	3.4	3.7	3.4
	Design Flow Rate, gpm [L/s]	7.2 [0.5]		12 [0.8]	
	Internal pressure drop, ft water [kPa]	13.1 [39.3]		13.6 [40.7]	
	External head pressure, ft water [kPa]	51.7 [154.4]		47.3 [141.3]	
	Max. Flow Rate, gpm [L/s]	20 [0.8]		20 [0.8]	
Compressor	Type	Scroll			
	Quantity	1			
Fan Motor	RPM	860			
	HP [W]	0.1 [75]			
	Quantity	2			
Propeller Fan	Type	Swept-Wing Design Axial Fan			
	Size, in [mm]	18 [457]			
	Quantity	2			
Volume (water), gal [L]		0.77 [2.91]		1.0 [3.79]	
Min. Expansion Tank Vol.*,** gal [L]		1.0 [3.8]			
Dimensions L x D x H, in [mm]		37.5 x 18.9 x 45.8 [953 x 454 x 1162]			
Connection Sizes	Inlet, in [mm]	1 ¼ inch MPT [31.8]			
	Outlet, in [mm]	1 inch MPT [25.4]			
Approximate Shipping Weight, lb [kg]		310 [141]		340 [154]	

* Sound measurement taken 3 ft [1 m] from the front of the unit.
** Evaporator pressure drop is included.
*** Not included, field installed.

PERFORMANCE (R-407c, 60Hz, no pump)

UCHR0364-1C0 (208-230V/60Hz/1P, R407c, no pump)

COOLING PERFORMANCE*							HEATING PERFORMANCE**					
Outside Temperature		Capacity		Power Input	EER		Outside Temperature		Capacity		Power Input	COP
°F	°C	Btu/hr	[kW]	W	Btuh/W	W/W	°F	°C	Btu/hr	[kW]	W	W/W
82	27.8	34800	10.2	3540	8.2	2.4	10	-12.2	24200	7.1	3630	2.0
95	35.0	32300	9.5	4070	6.7	1.9	17	-8.3	25600	7.5	3630	2.1
100	37.8	31300	9.2	4300	6.2	1.8	33	0.6	29400	8.6	3630	2.4
105	40.6	30200	8.8	4550	5.6	1.6	47	8.3	34000	10.0	3630	2.7
110	43.3	29000	8.5	4810	5.1	1.5	55	12.8	37300	10.9	3630	3.0
115	46.1	27800	8.1	5100	4.7	1.4	65	18.3	42700	12.5	3620	3.5

UCHR0364-2C0 (208-230/60Hz/3P, R407c, no pump)

COOLING PERFORMANCE*							HEATING PERFORMANCE**					
Outside Temperature		Capacity		Power Input	EER		Outside Temperature		Capacity		Power Input	COP
°F	°C	Btu/hr	[kW]	W	Btuh/W	W/W	°F	°C	Btu/hr	[kW]	W	W/W
82	27.8	34500	10.1	3450	10	2.9	10	-12.2	24400	7.2	3510	2.0
95	35.0	32100	9.4	3960	8.1	2.4	17	-8.3	25600	7.5	3520	2.1
100	37.8	31200	9.1	4170	7.5	2.2	33	0.6	29100	8.5	3540	2.4
105	40.6	30200	8.8	4400	6.9	2.0	47	8.3	33500	9.8	3550	2.8
110	43.3	29200	8.6	4640	6.3	1.8	55	12.8	36900	10.8	3550	3.0
115	46.1	28200	8.3	4900	5.8	1.7	65	18.3	42200	12.4	3540	3.5

UCHR0364-3C0 (460V/60Hz/3P+N, R407c, no pump)

COOLING PERFORMANCE*							HEATING PERFORMANCE**					
Outside Temperature		Capacity		Power Input	EER		Outside Temperature		Capacity		Power Input	COP
°F	°C	Btu/hr	[kW]	W	Btuh/W	W/W	°F	°C	Btu/hr	[kW]	W	W/W
82	27.8	34500	10.1	3450	10.0	2.9	10	-12.2	24400	7.2	3510	2.0
95	35.0	32100	9.4	3960	8.1	2.4	17	-8.3	25600	7.5	3520	2.1
100	37.8	31200	9.1	4170	7.5	2.2	33	0.6	29100	8.5	3540	2.4
105	40.6	30200	8.8	4400	6.9	2.0	47	8.3	33500	9.8	3550	2.8
110	43.3	29200	8.6	4640	6.3	1.8	55	12.8	36900	10.8	3550	3.0
115	46.1	28200	8.3	4900	5.8	1.7	65	18.3	42200	12.4	3540	3.5

UCHR0604-3C0 (460V/60Hz/3P+N, R407c, no pump)

COOLING PERFORMANCE*							HEATING PERFORMANCE**					
Outside Temperature		Capacity		Power Input	EER		Outside Temperature		Capacity		Power Input	COP
°F	°C	Btu/hr	[kW]	W	Btuh/W	W/W	°F	°C	Btu/hr	[kW]	W	W/W
82	27.8	49800	14.6	5380	9.3	2.7	10	-12.2	29200	8.6	6050	1.4
95	35.0	45400	13.3	6230	7.3	2.1	17	-8.3	32100	9.4	6020	1.6
100	37.8	43500	12.7	6600	6.6	1.9	33	0.6	39900	11.7	5960	2.0
105	40.6	41400	12.1	7000	5.9	1.7	47	8.3	48500	14.2	5930	2.4
110	43.3	39300	11.5	7420	5.3	1.6	55	12.8	54400	15.9	5910	2.7
115	46.1	37000	10.8	7880	4.7	1.4	65	18.3	63100	18.5	5900	3.1

UCHR0604-1C0 (208-230V/60Hz/1P, R407c, no pump)

COOLING PERFORMANCE*							HEATING PERFORMANCE**					
Outside Temperature		Capacity		Power Input	EER		Outside Temperature		Capacity		Power Input	COP
°F	[°C]	Btu/hr	[kW]	W	Btuh/W	W/W	°F	[°C]	Btu/hr	[kW]	W	W/W
82	27.8	52400	15.4	4780	11	3.2	10	-12.2	29200	8.6	5460	1.6
95	35.0	48100	14.1	5650	8.5	2.5	17	-8.3	31900	9.3	5430	1.7
100	37.8	46300	13.6	6030	7.7	2.3	33	0.6	39200	11.5	5370	2.1
105	40.6	44300	13.0	6440	6.9	2.0	47	8.3	47400	13.9	5330	2.6
110	43.3	42200	12.4	6870	6.1	1.8	55	12.8	53100	15.6	5310	2.9
115	46.1	40000	11.7	7350	5.4	1.6	65	18.3	61400	18.0	5290	3.4

UCHR0604-2C0 (208-230V/60Hz/3P, R407c, no pump)

COOLING PERFORMANCE*							HEATING PERFORMANCE**					
Outside Temperature		Capacity		Power Input	EER		Outside Temperature		Capacity		Power Input	COP
°F	[°C]	Btu/hr	[kW]	W	Btuh/W	W/W	°F	[°C]	Btu/hr	[kW]	W	W/W
82	27.8	52400	15.4	4780	11	3.2	10	-12.2	29200	8.6	5460	1.6
95	35.0	48100	14.1	5650	8.5	2.5	17	-8.3	31900	9.3	5430	1.7
100	37.8	46300	13.6	6030	7.7	2.3	33	0.6	39200	11.5	5370	2.1
105	40.6	44300	13.0	6440	6.9	2.0	47	8.3	47400	13.9	5330	2.6
110	43.3	42200	12.4	6870	6.1	1.8	55	12.8	53100	15.6	5310	2.9
115	46.1	40000	11.7	7350	5.4	1.6	65	18.3	61400	18.0	5290	3.4

* Based on compressor data at 44ºF [6.7 ºC] leaving water temperature and minimum required flow rate.

** Based on compressor data at 115ºF [46.1 ºC] leaving water temperature and minimum required flow rate.

PERFORMANCE (R-407c, 60 Hz, with high head pump)

UCHR0364-1C2 (208-230V/60Hz/1P, R407c)

COOLING PERFORMANCE*							HEATING PERFORMANCE**					
Outside Temperature		Capacity		Power Input	EER		Outside Temperature		Capacity		Power Input	COP
°F	°C	Btu/hr	[kW]	W	Btuh/W	W/W	°F	°C	Btu/hr	[kW]	W	W/W
82	27.8	33100	9.7	4050	8.2	2.4	10	-12.2	26000	7.6	4150	1.8
95	35.0	30600	9.0	4580	6.7	2.0	17	-8.3	27300	8.0	4150	1.9
100	37.8	29500	8.6	4810	6.1	1.8	33	0.6	31100	9.1	4150	2.2
105	40.6	28400	8.3	5060	5.6	1.6	47	8.3	35700	10.5	4140	2.5
110	43.3	27300	8.0	5320	5.1	1.5	55	12.8	39100	11.5	4140	2.8
115	46.1	26100	7.7	5610	4.7	1.4	65	18.3	44400	13.0	4130	3.1

UCHR0364-2C2 (208-230V/60Hz/3P, R407c)

COOLING PERFORMANCE*							HEATING PERFORMANCE**					
Outside Temperature		Capacity		Power Input	EER		Outside Temperature		Capacity		Power Input	COP
°F	°C	Btu/hr	[kW]	W	Btuh/W	W/W	°F	°C	Btu/hr	[kW]	W	W/W
82	27.8	32800	9.6	3960	8.3	2.4	10	-12.2	26200	7.7	4020	1.9
95	35.0	30400	8.9	4470	6.8	2.0	17	-8.3	27400	8.0	4030	2.0
100	37.8	29400	8.6	4680	6.3	1.8	33	0.6	30900	9.1	4050	2.2
105	40.6	28500	8.4	4910	5.8	1.7	47	8.3	35300	10.3	4060	2.5
110	43.3	27500	8.1	5150	5.3	1.6	55	12.8	38600	11.3	4060	2.8
115	46.1	26500	7.8	5410	4.9	1.4	65	18.3	44000	21.9	4050	3.2

UCHR0364-3C2 (460V/60Hz/3P+N, R407c)

COOLING PERFORMANCE*							HEATING PERFORMANCE**					
Outside Temperature		Capacity		Power Input	EER		Outside Temperature		Capacity		Power Input	COP
°F	°C	Btu/hr	[kW]	W	Btuh/W	W/W	°F	°C	Btu/hr	[kW]	W	W/W
82	27.8	32600	9.6	4000	8.2	2.4	10	-12.2	26300	7.7	4070	1.9
95	35.0	30200	8.9	4510	6.7	2.0	17	-8.3	27500	8.1	4080	2.0
100	37.8	29300	8.6	4730	6.2	1.8	33	0.6	31000	9.1	4090	2.2
105	40.6	28300	8.3	4950	5.7	1.7	47	8.3	35400	10.4	4100	2.5
110	43.3	27300	8.0	5200	5.3	1.5	55	12.8	38800	11.4	4100	2.8
115	46.1	26300	7.7	5450	4.8	1.4	65	18.3	44100	12.9	4100	3.2

UCHR0604-1C2 (208-230V/60Hz/1P, R407c)

COOLING PERFORMANCE*							HEATING PERFORMANCE**					
Outside Temperature		Capacity		Power Input	EER		Outside Temperature		Capacity		Power Input	COP
°F	°C	Btu/hr	[kW]	W	Btuh/W	W/W	°F	°C	Btu/hr	[kW]	W	W/W
82	27.8	50400	14.8	5360	9.4	2.8	10	-12.2	31200	9.1	6040	1.5
95	35.0	46100	13.5	6220	7.4	2.2	17	-8.3	33900	9.9	6010	1.7
100	37.8	44300	13.0	6600	6.7	2.0	33	0.6	41200	12.1	5950	2.0
105	40.6	40200	11.8	7010	5.7	1.7	47	8.3	49400	14.5	5900	2.5
110	43.3	38000	11.1	7450	5.1	1.5	55	12.8	55000	16.1	5880	2.7
115	46.1	31200	9.1	7920	3.9	1.2	65	18.3	63400	18.6	5870	3.2

UCHR0604-2C2 (208-230V/60Hz/3P, R407c)

COOLING PERFORMANCE*							HEATING PERFORMANCE**					
Outside Temperature		Capacity		Power Input	EER		Outside Temperature		Capacity		Power Input	COP
°F	°C	Btu/hr	[kW]	W	Btuh/W	W/W	°F	°C	Btu/hr	[kW]	W	W/W
82	27.8	50400	14.8	5360	9.4	2.8	10	-12.2	31200	9.1	6040	1.5
95	35.0	46100	13.5	6220	7.4	2.2	17	-8.3	33900	9.9	6010	1.7
100	37.8	44300	13.0	6600	6.7	2.0	33	0.6	41200	12.1	5950	2.0
105	40.6	40200	11.8	7010	5.7	1.7	47	8.3	49400	14.5	5900	2.5
110	43.3	38000	11.1	7450	5.1	1.5	55	12.8	55000	16.1	5880	2.7
115	46.1	31200	9.1	7920	3.9	1.2	65	18.3	63400	18.6	5870	3.2

UCHR0604-3C2 (460V/60Hz/3P+N, R407c)

COOLING PERFORMANCE*							HEATING PERFORMANCE**					
Outside Temperature		Capacity		Power Input	EER		Outside Temperature		Capacity		Power Input	COP
°F	°C	Btu/hr	[kW]	W	Btuh/W	W/W	°F	°C	Btu/hr	[kW]	W	W/W
82	27.8	49900	14.6	5380	9.3	2.7	10	-12.2	29200	8.6	6050	1.4
95	35.0	45400	13.3	6230	7.3	2.1	17	-8.3	32100	9.4	6020	1.6
100	37.8	43500	12.7	6600	6.6	1.9	33	0.6	39900	11.7	5960	2.0
105	40.6	41500	12.2	7000	5.9	1.7	47	8.3	48500	14.2	5930	2.4
110	43.3	39300	11.5	7430	5.3	1.5	55	12.8	54400	15.9	5910	2.7
115	46.1	37000	10.8	7880	4.7	1.4	65	18.3	63100	18.5	5900	3.1

* Based on compressor data at 44ºF [6.7 ºC] leaving water temperature and minimum required flow rate.

** Based on compressor data at 115ºF [46.1 ºC] leaving water temperature and minimum required flow rate.

PUMP AND PRESSURE DROP DATA