Pauon tahvieh

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CHILLER

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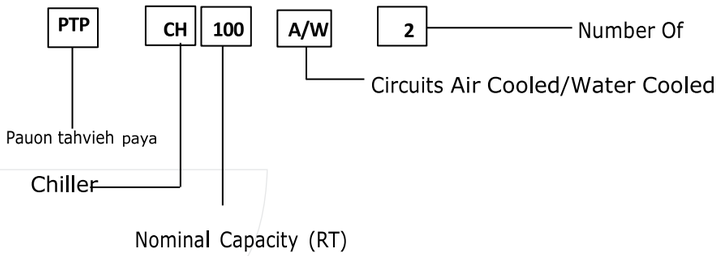
Introduction

Pauon tahvieh liquid chillers are designed for applications which require high performance, cost reduction and capability to operate in all conditions. These chillers are manufactured up to 320 RT in the integrated type and in higher capacities in the separate type. Although both air cooled and water cooled water chiller are available. Pauon tahvieh systems have proven their value in many different situations, from industrial applications to commercial spaces and from hotels to department stores. The attention paid at the design stage to the combination of compressor and electronics management, have enabled us to achieve extraordinary results in terms of both efficiency and durability. This combination enables pauon tahvieh to produce various water-cooling solutions, designed specifically to use R-134a, 407C and R-22 refrigerants.

Nomenclature



Main Component Features

1. Structure

Structure specifically is designed for outdoor installation. Basement and frame in galvanized shaped sheet steel with a suitable thickness. All parts have electro-static paint coating to assure all weather resistance. The evaporator and the suction piping are appropriately insulated to prevent condensation. Unit is provided with lifting holes.

2. Compressor

There are several widely used compressors from great and reputable vendors for AN CH series. All compressors are provided with motor winding temperature protection, discharge temperature protection, phase reversal protection, phase failure protection and oil level protection.

Hermetic scroll compressor (10 to 120 USTR) complete with motor over-temperature and over-current devices and protection against excessive gas discharge temperature. Fitted on rubber antivibration mounts and complete with oil charge. In scroll compressors, the refrigerant gas is compressed between the faces of two interlocking scrolls, one of which orbits while the other remains stationary.

Screw Compressors (٥0 to 420 USRT) are directly flanged on a three stage oil separator with low oil carry over and pressure drop eliminator to ensure minimal refrigerant dilution in the oil and maintain high oil viscosity. Oil sight glass, oil drain valve, oil heater, discharge check valve, discharge stop valve are available as standard.

Reciprocating Compressors (١0 to 280 USTR) are positive displacement type compressors as are scrolls and screws. In a reciprocating compressor, the refrigerant vapor is compressed by movement of the piston in a cylinder. With multiple cylinders, cylinders are selectively loaded or unloaded, based on set pressures (reflecting the temperatures);. Unloading implies that the suction valve is kept open so that the vapor, taken in during the suction stroke, returns back through the suction valves itself during the discharge stroke. Reciprocating compressors cannot tolerate liquid slugging, which can happen when the evaporator load is less and the superheat controlled expansion valve is unable to regulate the flow of refrigerant correctly, resulting in excess liquid refrigerant entering the evaporator and getting sucked into the compressor. Liquid slugging can cause serious damage to the compressor.

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3. Fan

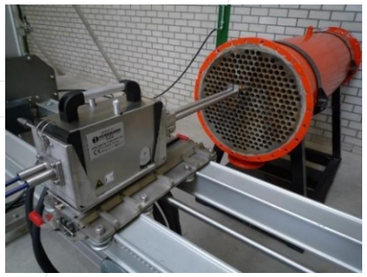
Low speed, axial-flow fans installed with accident-prevention protective grille; directly coupled motor with built-in thermal cut-out and IP 54/55 protection degree; aerodynamic housing and wing profile blades increase efficiency and decrease noise level.

4. Condensers

Air Cooled Condenser coils are manufactured from copper tubes mechanically bonded to aluminum fins to ensure optimum heat transfer. All coils are pressure tested at factory at 420 psig.
Condenser fin materials should be matched with site conditions to inhibit coil corrosion and ensure extended equipment life.
Water Cooled condensers are shell and cleanable , through-tube type. The unit has independent condensers, one per circuit. Each condenser has a carbon steel and seamless, integrally finned high efficiency copper tubes, roll expanded into heavy carbon steel tube sheets. Water sides are removable and include vent and drain plugs. Condensers become complete with liquid shut-off valve, spring loaded relief valve.

5. Evaporator

All extremely efficient with low refrigerant charge and very stable operating performance due to excellent refrigerant distribution, thermally insulated by vapor-proof closed cell.
Evaporator shell is made of carbon steel, Tubes are made of copper based on TEMA standard.
The refrigerants passed through the expansion device that passed into tubes and evaporates to generate a cooling effect.



6. Refrigerant circuit

Each refrigerant circuit is completely independent and complete with all control and regulation devices such as: stop valves, gauges, solenoid stop valves, filter driers, liquid sight glass and expansion valves. Refrigerant circuits perform a pump down when the compressor stops.

7. Power And Control Panel

PLC Controller is an advanced numeric control system; programmable for weekly, daily and hourly schedules in which enhances the air-cooled and water-cooled chillers by providing the very latest chiller control technology that combines intelligence with great operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors and adjusting chiller parameter .Leaving or entering cooler water temperature controls chiller on/off and continuously control compressor capacity to match required load and It is possible to controls condenser fan speed using inverter.
Chiller PLC system can be integrated with building management system (BMS).

8. Permanent Working Chillers

Permanent working chillers are designed and manufactured for industrial four-season applications.

• Air Cooled – Scroll-R134a- One Circuit

Table1-Technical Data Scroll Compressor-R134a								
Models			PTP CH 12-A-1	PTP CH 13-A-1	PTP CH 15-A-1	PTP CH 20-A-1	PTP CH 25-A-1	PTP CH 30-A-1
Nominal Cooling Capacity	RT		12	13	15	20	25	30
Compressor	Type		Scroll					
	Quantity		1	1	1	1	1	1
Refrigerant	Type		R134a					
Oil Charge	Lit		3.4	3.4	3.9	4.7	6.8	6.8
Condenser	Type		Air Cooled - Copper Tubes, Aluminum Fins					
	Total Coil Face Area	Ft^2	28.4	28.4	28.4	28.4	49.7	49.7
	Row/FPI		2/12	2/10	2/10	2/10	2/10	2/10
	Maximum Heat Rejection	MBH	79.8	92.4	123.2	155	178.1	242.3
Condenser Fan	Type & Speed		Axial, low-noise / 900 RPM					
	Quantity		1	1	1	1	2	2
Refrigerant Charge	R134a		13.2	14.3	16.5	22	27.5	33
Evaporator	Type		Shell & Tube					
Electrical Data	Current(A)		17.97	20.9	25.64	29.4	38.78	46.51
	Locked Rotor Current (A)		118	140	174	225	272	310
	Power Input(kW)		10.2	11.5	13.8	15.5	21.6	25.3
Weight	kg		800	800	950	1200	1250	1600

Table2-Performance Data Scroll Compressor-R134a Water Leaving Temperature 45ºF (7.2ºC) COP Range: 2.2 - 4																
Model	Condensing Temperature															
	113ºF (45ºC)				122ºF(50ºC)				131ºF(55ºC)				140ºF(60ºC)			
	Actual Cooling Capacity	Evaporator		Power Input (kW)	Actual Cooling Capacity	Evaporator		Power Input (Kw)	Actual Cooling Capacity	Evaporator		Power Input (kW)	Actual Cooling Capacity	Evaporator		Power Input (kW)
	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GP)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GP)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GP)	Pressure Drop (Ft.W.g)	kW
PTP CH 12-A1	6.06	14.54	2	5.62	5.66	13.58	2.1	6.31	5.13	12.31	2.2	7.05	4.78	11.46	2.3	7.8
PTP CH 13-A-1	6.51	15.63	2.2	6.2	5.97	14.33	2.3	6.85	5.64	13.55	2.4	7.63	5.1	12.25	2.5	8.57
PTP CH 15-A-1	7.76	18.63	3	7.51	7.28	17.47	3.1	8.33	6.74	16.17	3.2	9.26	6.11	14.67	3.3	10.3
PTP CH 20-A-1	9.98	23.95	1.7	9.98	9.38	22.52	1.8	11.1	8.81	21.16	1.9	12.3	8.22	19.72	2	13.6
PTP CH 25-A-1	12.34	29.62	2.3	14.45	11.63	27.91	2.4	13.8	10.92	26.21	2.5	15.35	10.21	24.5	2.6	17.1
PTP CH 30-A-1	15.61	37.47	3.2	15.3	14.76	35.42	3.3	16.9	13.85	33.23	3.4	18.7	12.97	31.12	3.5	20.7

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• Air Cooled – Scroll-R134a- Two Circuit

Table 3-Technical Data Scroll Compressor-R134												
Models			PTP CH 20-A-2	PTP CH 24-A-2	PTP CH 26-A-2	PTP CH 30-A-2	PTP CH 40-A-2	PTP CH 50-A-2	PTP CH 60-A-2	PTP CH 80-A-2	PTP CH 100-A-2	PTP CH 120-A-2
Nominal Coolig Capaciy	RT		20	24	26	30	40	50	60	80	100	120
Compressr	Type		Scroll									
	Quantity		2	2	2	2	2	2	2	4	4	4
Refrigerant	Type		R134a									
Oil Charge	Lit		6.8	6.8	6.8	7.8	9.4	13.6	12.6	18.8	25.2	27.2
Condenser	Type		Air Cooled - Copper Tubes, Aluminum Fins									
	Total Coil Face Area	Ft^2	56.81	56.81	56.81	56.81	56.81	99.42	99.42	99.42	149.13	149.13
	Row / FPI		2/10	2/10	2/10	3/10	4/10	2/10	3/10	4/12	3/10	4/12
	Maximum Heat Rejection	MBH	160	185	200.6	246.4	309.8	356.3	484.6	619.7	712.6	846.4
Condenser Fan	Type & Speed		Axial, low-noise / 900 RPM									
	Quantity		2	2	2	2	2	4	4	4	6	6
Refrigerant Charge	R134a		20.2	26.4	28.6	33	44	55	66	88	110	132
Evaporator	Type		Shell & Tube									
Electerial Data	Current(A)		35.04	35.94	41.8	51.28	58.8	77.56	93.02	117.6	147.72	178.64
	Locked Rotor Current (A)		236	236	280	348	450	544	620	900	1088	1240
	Power Input(kW)		19.9	20.3	23.1	27.5	31.1	43.3	50.6	62.1	79.7	94.3
Weight	kg		1200	1200	1600	2000	2050	2500	1350	3100	3400	3650

Table 4-Performance Data Scroll Compressor-R134a Water Leaving Temperature 45ºF (7.2ºC) COP Range: 2.2 - 4																
Model	Condensing Temperature															
	113ºF (45ºC)				122ºF(50ºC)				131ºF(55ºC)				140ºF(60ºC)			
	Actual Cooling Capacity	Evaporator		Power Input (kW)	Actual Cooling Capacity	Evaporator		Power Input (kW)	Actual Cooling Capacity	Evaporator		Power Input (kW)	Actual Cooling Capacity	Evaporator		Power Input (kW)
	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GP)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GP)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GPM)	Pressure Drop (Ft.W.g)	kW
PTP CH 20-A-2	10.35	24.84	3.6	10.12	9.67	23.2	3.8	11.2	8.96	21.5	4	12.36	8.25	19.79	4.2	13.64
PTP CH 24-A-2	12.11	29.07	4	11.24	11.32	27.16	4.2	12.62	10.26	24.62	4.4	14.1	9.5	22.93	4.6	15.6
PTP CH 26-A-2	13.02	31.26	4.4	12.4	11.94	28.66	4.6	13.7	11.29	27.09	4.8	15.26	10.21	24.5	5	17.14
PTP CH 30-A-2	15.53	37.26	6	15.02	14.56	34.94	6.2	16.66	13.48	32.35	6.4	18.52	12.23	29.34	6.6	20.6
PTP CH 40-A-2	19.96	47.91	3.4	19.96	18.77	45.04	3.6	22.2	17.63	42.31	3.8	24.6	16.44	39.44	4	27.3
PTP CH 50-A-2	24.68	59.23	4.6	28.9	23.26	55.82	4.8	27.6	21.84	52.41	5	30.7	20.42	49	5.2	34.2
PTP CH 60-A-2	31.22	74.93	6.4	30.6	29.52	70.84	6.6	33.8	27.7	66.47	6.8	37.4	25.93	62.24	7	41.4
PTP CH 80-A-2	39.92	95.81	12	39.92	37.53	90.08	12.4	44.4	35.26	86.42	12.8	49.2	32.87	78.89	13.2	54.6
PTP CH 100-A-2	49.36	118.47	6.8	57.8	46.52	111.65	7.2	55.2	43.68	104.82	7.6	61.4	40.83	98	8	68.4
PTP CH 120-A-2	62.44	149.86	9.2	61.2	59.03	141.67	9.6	67.6	55.39	132.94	10	74.8	51.86	124.47	10.4	82.8

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• Air Cooled-Scroll-R22- One Circuit

Table 5-Technical Data
Scroll Compressor-R22

Models			PTP CH 12-A-1	PTP CH 13-A-1	PTP CH 15-A-1	PTP CH 20-A-1	PTP CH 25-A-1	PTP CH 30-A-1
Nominal Cooling Capacity	RT		12	13	15	20	25	30
Compressor	Type		Scroll					
	Quantity		1	1	1	1	1	1
Refrigerant	Type		R22					
Oil Charge	Lit		3.4	3.4	3.9	4.7	6.8	6.8
Condenser	Type		Air Cooled - Copper Tubes, Aluminum Fins					
	Total Coil Face Area	Ft^2	28.4	28.4	49.7	49.7	49.7	49.7
	Row / FPI		3/12	3/12	2/10	3/10	3/12	2/10
	Maximum Heat Rejection	MBH	138.4	150.8	189.4	234.1	290.6	359.7
Condenser Fan	Type & Speed		Axial, low-noise / 900 RPM					
	Quantity		1	1	2	2	2	4
Refrigerant Charge	R22		13.2	14.3	16.5	22	17.5	33
Evaporator	Type		Shell & Tube					
Electrical Data	Current(A)		21.41	24.03	33.12	37.14	45.56	45.46
	Locke Rotor Current(A)		118	140	174	225	272	310
	Power Input(kW)		10	11.3	17.2	19.1	23.1	26.5
Weight	kg		800	800	950	1200	1250	1600

Table 6-Performance
Data Scroll
Compressor-R22
Water Leaving Temperature 45ºF (7.2ºC)
COP Range: 2.2 - 4

Model	Condensing Temperature											
	113ºF (45ºC)				122ºF(50ºC)				131ºF(55ºC)			
	Actual Cooling Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input
	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GPM)	Pressure Drop (Ft.W.g)	kW
PTP CH 12-A-1	9.16	21.97	2.3	8.16	8.62	20.68	2.5	9.1	8.05	19.31	2.6	10.15
PTP CH 13-A-1	9,9	23.57	2.5	9.2	9.27	22.25	2.7	10.15	8.59	20.61	2.8	11.3
PTP CH 15-A-1	11,72	28.12	3.3	11.1	11	26.41	3.5	12.35	10.18	24.43	3.6	13.7
PTP CH 20-A-1	15.27	36.65	2	14.5	14.5	34.8	2.2	16.05	13.65	32.76	2.3	17.85
PTP CH 25-A-1	18.97	45.52	2.8	17.9	17.9	42.99	3	19.95	16.78	40.26	3.1	22.2
PTP CH 30-A-1	23.57	56.57	3.7	21.9	22.41	53.78	3.9	24.2	21.13	50.7	4	26.8

• Air Cooled-Scroll-R22 - Two Circuits

Table 7-Technical Data
Scroll Compressor-R22

Models			PTP CH 16-A-2	PTP CH 18-A-2	PTP CH 20-A-2	PTP CH 24-A-2	PTP CH 26-A-2	PTP CH 30-A-2	PTP CH 40-A-2	PTP CH 50-A-2	PTP CH 60-A-2	PTP CH 80-A-2	PTP CH 100-A-2	PTP CH 120-A-2
Nominal Cooling Capacity	RT		16	18	20	24	26	30	40	50	60	80	100	120
Compressor	Type		Scroll											
	Quantity		2	2	2	2	2	2	2	2	2	4	4	4
Refrigerant	Type		R22											
Oil Charge	Lit		5.4	6.8	6.8	6.8	6.8	7.8	9.4	13.6	12.6	18.8	27.2	27.2
Condenser	Type		Air Cooled - Copper Tubes, Aluminum Fins											
	Total Coil face Area	Ft^2	56.81	56.81	56.81	56.81	56.81	99.42	99.42	99.42	149.13	149.13	198.84	248.56
	Row/FPI		2/10	2/10	3/10	3/12	3/12	2/10	3/10	3/12	3/10	4/12	3/12	3/12
	Maximum Heat Rejection	MBH	182.2	206.2	242.5	276.8	301.7	378.8	468.2	581.2	719.45	936.5	1162.4	1438.9
Condenser Fan	Type & Speed		Axial, low-noise / 900 RPM											
	Quantity		2	2	2	2	2	4	4	4	6	6	8	10
Refrigerant Charge	R22		17.6	19.8	20.2	26.4	28.6	33	44	55	66	88	110	132
Evaporator	Type		Shell & Tube											
Electrical Data	Current(A)		32.66	35.06	39.12	42.82	48.06	66.24	74.28	91.12	113.5	117.6	147.72	178.64
	Locked Rotor Current(A)		190	222	236	236	280	348	450	544	620	900	1088	1240
	Power Input(kW)		17	18.2	20.1	21.8	24.3	36.2	40	47.9	61.9	62.1	79.7	94.3
Weight	kg		1150	1150	1200	1200	1600	2000	2050	2500	2850	3200	3500	3850

Table 8-Performance
Data Scroll
Compressor-R22
Water Leaving Temperature 45ºF (7.2ºC)
COP Range: 2.2 - 4

Model	Condensing Temperature											
	113ºF (45ºC)				122ºF(50ºC)				131ºF(55ºC)			
	Actual Cooling Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input
	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW
PTP CH 16-A-2	12	28.8	3.8	10.96	11.29	27.09	4.2	12.22	10.52	25.25	4.4	13.66
PTP CH 18-A-2	13.59	32.62	4	12.2	12.85	30.85	4.4	13.58	12.11	29.07	4.6	15.18
PTP CH 20-A-2	15.98	38.35	4.2	14.46	15.13	36.31	4.6	16.18	14.27	34.26	4.8	18.14
PTP CH 24-A-2	18.31	43.95	4.6	16.32	17.23	41.36	5	18.2	16.09	38.63	5.2	20.3
PTP CH 26-A-2	19.79	47.5	5	18.4	18.54	44.49	5.4	20.3	17.17	41.22	5.6	22.6
PTP CH 30-A-2	23.43	56.23	6.6	22.2	22.01	52.82	7	24.7	20.36	48.86	7.2	27.4
PTP CH 40-A-2	30.54	73.29	4	29	29	69.61	4.4	32.1	27.3	65.51	4.6	35.7
PTP CH 50-A-2	37.93	91.04	5.6	35.8	35.83	85.99	6	39.9	33.55	80.53	6.2	44.4
PTP CH 60-A-2	47.14	113.15	7.4	43.8	44.81	107.55	7.8	48.4	42.25	101.41	8	53.6
PTP CH 80-A-2	61.08	146.59	8	58	58.01	139.22	8.8	64.2	54.59	131.03	9.2	71.4
PTP CH 100-A-2	75.86	182.07	11.2	71.6	71.65	171.97	12	79.8	67.11	161.05	12.4	88.8
PTP CH 120-A-2	94.29	226.29	14.8	87.6	89.63	215.1	15.6	96.8	84.51	202.82	16	107.2

• Air Cooled-Reciprocating-R134a - One Circuit

Table 9-Technical Data
Reciprocating Compressor - R134a

Models			PTP CH 15-A-1	PTP CH 20-A-1	PTP CH 25-A-1	PTP CH 30-A-1	PTP CH 35-A-1	PTP CH 40-A-1	PTP CH 50-A-1
Nominal Cooling Capacity	RT		15	20	25	30	35	40	50
Compressor	Type		Reciprocating						
	Quantity		1	1	1	1	1	1	1
Refrigerant	Type		R134a						
Oil Charge	Lit		2.6	2.6	4.5	4.5	4.75	4.75	4.75
Condenser	Type		Air Cooled - Copper Tubes, Aluminum Fins						
	Total Coil Face Area	Ft^2	28.41	28.41	28.41	49.71	49.71	49.71	49.71
	ROW/FPI		2/12	3/10	4/12	2/12	3/12	4/10	2/10
	Maximum Heat Rejection	MBH	110.6	132	176.3	205.4	259.6	302.9	360
Condenser	Type & Speed		Axial, low-noise / 900 RPM						
	Fan		1	1	1	2	2	2	2
Refrigerant Charge	R134a		16.5	22	27.5	33	38.5	44	55
Evaporator	Type		Shell & Tube						
Electrical Data	Current(A)		47	47	47	56.4	56.4	66.4	88
	Locked Rotor Current(A)		81	97	125	141	165	219	226
	Power Input(kW)		24	24	24	32	32	38	50
Weight	kg		560	600	620	730	840	1000	1100

Table 10-Performance Data
Reciprocating Compressor-R134a
Water Leaving Temperature 45ºF (7.2ºC)
COP Range: 2.1 - 3.6

Model	Condensing Temperature															
	113ºF (45ºC)				122ºF(50ºC)				131ºF(55ºC)				140ºF(60ºC)			
	Actual Cooling Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input
	RT	Water flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GPM)	Pressure Drop (Ft.W.g)	kW
PTP CH 15-A-1	7.06	16.93	2.7	7	6.47	15.52	2.8	7.37	5.91	14.18	2.9	7.67	5.33	12.8	2.3	7.92
PTP CH 20-A-1	8.43	20.23	3.5	8.36	7.76	18.61	3.7	8.83	7.11	17.07	3.9	9.24	6.47	15.52	32	9.58
PTP CH 25-A-1	11.28	27.08	4.3	10.94	10.44	25.07	4.5	11.59	9.6	23.05	4.6	12.19	8.76	21.03	3.7	12.72
PTP CH 30-A-1	13.16	31.58	14.3	12.77	12.18	29.23	12	13.49	11.23	26.95	9.5	14.14	10.25	24.6	8.3	14.74
PTP CH 35-A-1	16.58	39.78	14.3	16.34	15.34	36.83	16.8	17.31	14.08	33.8	22	18.15	12.82	30.78	25.5	18.88
PTP CH 40-A-1	19.21	46.1	14.3	19.49	17.86	42.87	21.7	20.7	16.52	39.65	34.5	21.7	15.12	36.29	42.4	22.7
PTP CH 50-A-1	22.76	54.63	10.3	23.3	21.06	50.53	9.2	24.5	19.32	46.37	9	25.6	17.58	42.2	9.4	26.5

• Air Cooled-Reciprocating-R134a - Two Circuit

Table 11-Technical Data
Reciprocating Compressor - R134a

Models			PTP CH 20-A-2	PTP CH 30-A-2	PTP CH 40-A-2	PTP CH 50-A-2	PTP CH 60-A-2	PTP CH 70-A-2	PTP CH 80-A-2	PTP CH 100-A-2
Nominal Cooling Capacity	RT		20	30	40	50	60	70	80	100
Compressor	Type		Reciprocating							
	Quantity		2	2	2	2	2	2	2	2
Refrigerant	Type		R134a							
Oil Charge	Lit		5.2	5.2	5.2	9	9	9.5	9.5	9.5
Condenser	Type		Air Cooled - Copper Tubes, Aluminum Fins							
	Total Coil Face Area	Ft^2	56.81	56.81	56.81	56.81	99.42	99.42	99.42	149.3
	Row/FPI		2/10	2/12	3/10	4/12	2/12	3/12	4/10	3/10
	Maximum Heat Rejection	MBH	160.2	221.2	264	352.6	410.9	519.3	605.8	720.1
Condenser Fan	Type		Axial, low-noise / 900 Rpm							
	Quantity		2	2	2	2	4	4	4	6
Refrigerant Charge	R134a		22	33	44	55	66	77	88	110
Evaporator	Type		Shell & Tube							
Electrical Data	Current(A)		47	56.4	66.4	88	102.4	128	147.8	192.4
	Locked Rotor Current(A)		148	162	194	250	282	330	438	452
	Power Input(kW)		24	32	38	50	56	72	84	102
Weight	kg		700	780	1050	1090	1150	1634	1775	1850

Table 12-Performance Data
Reciprocating Compressor-R134a
Water Leaving Temperature 45ºF (7.2ºC)
COP Range: 2.1 - 3.6

Model	Condensing Temperature															
	113ºF (45ºC)				122ºF(50ºC)				131ºF(55ºC)				140ºF(60ºC)			
	Actual Cooling Capacity	Evaporator		Power Input (kW)	Actual Cooling Capacity	Evaporator		Power Input (kW)	Actual Cooling Capacity	Evaporator		Power Input (kW)	Actual Cooling Capacity	Evaporator		Power Input (kW)
	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GPM)	Pressure Drop (Ft.W.g)	kW
PTP CH 20-A-2	10.2	24.51	3.5	10.12	9.39	22.54	3.7	10.64	8.57	18.64	32	11.08	7.77	18.64	32	11.46
PTP CH 30-A-2	14.11	33.87	14.3	14				14.74	11.82	28.36	9.5	15.34	10.67	25.6	8.3	15.84
PTP CH 40-A-2	16.86	40.45	14.3	55.4	15.51	37.23	21.7	17.66	14.22	34.14	46.2	18.48	12.94	31.05	42.4	19.6
PTP CH 50-A-2	22.57	54.16	10.3	21.88	20.89	50.13	9.2	23.18	19.21	46.1	9	24.38	17.53	42.07	9.4	25.44
PTP CH 60-A-2	26.32	63.17	31.8	25.54	24.36	58.46	27.2	26.98	22.46	53.89	22.9	28.28	20.5	49.19	21	29.48
PTP CH 70-A-2	33.15	79.56	11.4	32.68	30.69	73.65	9.6	34.62	28.17	67.6	7.7	36.3	25.37	60.88	6.9	37.76
PTP CH 80-A-2	38.42	92.2	20.6	38.98	35.73	85.75	17.7	41.4	33.04	79.3	14.9	43.4	30.24	72.58	13.7	45.4
PTP CH 100-A-2	45.53	109.27	32.4	46.6	42.03	100.87	27.7	49	38.64	92.74	23.3	51.2	35.17	84.4	21.4	53

• Air Cooled -Reciprocating– R22 - One Circuit

Table 13-Technical Data
Reciprocating Compressor - R22

Models			PTP CH 15-A-1	PTP CH 20-A-1	PTP CH 25-A-1	PTP CH 30-A-1	PTP CH 35-A-1	PTP CH 40-A-1	PTP CH 50-A-1
Nominal Cooling Capacity	RT		15	20	25	30	35	40	50
Compressor	Type		Reciprocating						
	Quantity		1	1	1	1	1	1	1
Refrigerant	Type		R22						
Oil Charge	Lit		2.6	2.6	4.5	4.5	4.75	4.75	4.75
Condenser	Type		Air Cooled - Copper Tubes, Aluminum Fins						
	Total Coil Face Area	Ft^2	28.42	49.73	49.73	49.73	99.46	99.46	99.46
	Row/FPI		4/12	2/12	3/12	4/12	2/12	3/10	3/12
	Maximum Heat Rejection	MBH	176.6	207.2	275.9	319.1	414.6	475.4	572.69
Condenser Fan	Type		Air Cooled - Copper Tubes, Aluminum Fins						
	Quantity		1	2	2	2	4	4	4
Refrigerant Charge	R22		16.5	22	27.5	33	38.5	44	55
Evaporator	Type		Shell & Tube						
Electerical Data	Current(A)		28.2	33.2	44	51.2	64.4	73.9	96.2
	Locked Rotor Current(A)		81	97	125	141	165	219	226
	Power Input(kW)		16	19	25	28	36	42	51
Weight	kg		560	600	620	730	840	1000	1100

Table 14-Performance Data
Reciprocating Compressor-R22a
Water Leaving Temperature 45ºF (7.2ºC)
Cop Range: 2.8 - 3.6

Model	Condensing Temperature											
	113ºF (45ºC)				122ºF(50ºC)				131ºF(55ºC)			
	Actual Cooling Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input
	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GPM)	Pressure Drop (Ft.W.g)	kW
PTP CH 15-A-1	11.28	27.08	2.7	11.03	10.56	25.33	2.8	11.75	9.86	23.65	2.9	12.41
PTP CH 20-A-1	13.27	31.85	3.5	12.9	12.46	29.9	3.7	13.77	11.62	27.89	3.9	14.59
PTP CH 25-A-1	17.64	42.34	4.3	17.28	16.58	39.78	4.5	18.49	15.51	37.23	4.6	19.65
PTP CH 30-A-1	20.44	49.06	14.3	19.87	19.24	46.17	12	21.3	18	43.21	9.5	22.7
PTP CH 35-A-1	26.49	63.57	14.3	26.1	24.86	59.67	16.8	28	23.27	55.84	22	29.8
PTP CH 40-A-1	30.41	72.98	14.3	29.8	28.56	68.54	21.7	31.9	26.71	64.11	34.5	33.9
PTP CH 50-A-1	36.57	87.76	10.3	36.2	34.38	82.52	9.2	38.7	32.2	77.28	9	41.2

• Air Cooled -Reciprocating– R22 - Two Circuits

Table15-Technical Data
Reciprocating Compressor - R22

Models			PTP CH 20-A-2	PTP CH 30-A-2	PTP CH 40-A-2	PTP CH 50-A-2	PTP CH 60-A-2	PTP CH 70-A-2	PTP CH 80-A-2	PTP CH 100-A-2
Nominal Cooling Capacity	RT		20	30	40	50	60	70	80	100
Compressor	Type		Reciprocating							
	Quantity		2	2	2	2	2	2	2	2
Refrigerant	Type		R22							
Oil Charge	Lit		5.2	5.2	5.2	9	9	9.5	9.5	9.5
Condenser	Type		Air Cooled - Copper Tubes, Aluminum Fins							
	Total Coil Face Area	Ft^2	56.81	56.81	99.42	99.42	99.42	149.13	149.13	198.84
	Row/FPI		2	2	4	4	4	6	6	8
	Maximum Heat Rejection	MBH	254.6	253.2	414.5	551.8	638.2	829.3	950.8	1145.3
Condenser Fan	Type		Axial, low-noise / 900 RPM							
	Quantity		2	2	4	4	4	6	6	8
Refrigerant Charge	R22		22	33	44	55	66	77	88	110
Evaporator	Type		Shell & Tube							
Electerical Data	Current(A)		39.8	56.4	66.4	88	102.4	128	147.8	192.4
	Locked Rotor Current(A)		118	162	194	250	282	330	438	452
	Power Input(kW)		24	32	38	50	56	72	84	102
Weight	kg		700	780	1050	1090	1150	1634	1775	1850

Table 16-Performance Data

Reciprocating Compressor-R22
Water Leaving Temperature 45ºF (7.2ºC)
COP: 2.8 - 3.6

Model	Condensing Temperature											
	113ºF (45ºC)				122ºF(50ºC)				131ºF(55ºC)			
	Actual Coolin Capacity	Evaporator		Power Input	Actual Coolin Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input
	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow (GPM)	Pressure Drop (Ft.W.g)	kW
PTP CH 20-A-2	16.3	39.11	3.5	15.78	15.29	36.69	3.7	16.8	14.22	34.14	3.9	17.78
PTP CH 30-A-2	22.57	54.16	14.3	22.06	21.11	50.67	12	23.5	19.71	47.31	9.5	24.82
PTP CH 40-A-2	26.54	63.71	14.3	25.8	24.92	59.81	21.7	27.54	23.24	55.78	34.5	29.18
PTP CH 50-A-2	35.28	84.67	10.3	34.56	33.15	79.56	9.2	36.98	31.02	74.46	9	39.3
PTP CH 60-A-2	40.88	98.11	31.8	39.74	38.47	92.33	27.2	42.6	36.01	86.42	22.9	45.4
PTP CH 70-A-2	52.98	127.14	11.4	52.2	49.73	119.35	9.6	56	46.54	111.69	7.7	59.6
PTP CH 80-A-2	60.82	145.96	20.6	59.6	57.12	137.09	17.7	63.8	53.42	128.22	14.9	67.8
PTP CH100-A-2	73.14	175.53	32.4	72.4	68.77	165.04	27.7	77.4	64.4	154.56	23.3	82.4

• Air Cooled-Screw - R22

Table 17-Technical Data
Screw Compressor-R22

Models			PTP CH 50-A-1	PTP CH 60-A-1	PTP CH 70-A-1	PTP CH 80-A-1	PTP CH 90-A-1	PTP CH 100-A-2	PTP CH 120-A-2	PTP CH 140-A-2	PTP CH 160-A-2	PTP CH 180-A-2	PTP CH 200-A-2	PTP CH 220 A-2	PTP CH 250-A-2	PTP CH 280-A-2	PTP CH 320-A-2
Nominal Cooling Capacity	RT		50	60	70	80	90	100	120	140	160	180	200	220	250	280	320
Compressor	Type		Screw														
	Quantity		1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
Refrigerant	Type		R22														
Oil Charge	Lit		9.5	9.5	15	15	15	30	30	30	30	30	30	44	44	44	38
Condenser	Type		Air Cooled - Copper Tubes, Aluminum Fins														
	Total Coil Face Area	Ft^2	99.42	99.42	149.13	149.13	149.13	149.13	198.84	248.56	248.56	298.27	347.6	397.69	397.69	497.11	546.82
	Row/FPI		3/10	4/10	3/10	3/12	4/12	4/12	4/10	3/12	4/12	4/12	4/12	4/12	4/12	4/12	4/12
	Maximum Heat Rejection	MBH	488.7	611.9	716.7	825.9	986.3	977.4	1223.8	1433.4	1651.8	1972.69	2191.12	2498.2	2675.76	3208.19	3549.48
Condenser Fan	Type & Speed		Axial, low-noise / 900 Rpm														
	Quantity		4	4	6	6	6	6	8	10	10	12	14	16	16	20	22
Refrigerant Charge	R22	kg	55	66	77	88	99	110	132	154	176	198	220	242	275	308	352
Evaporator	Type		Shell & Tube														
Electrical Data	Current(A)		82.4	97.6	120.2	132.1	146.6	157.4	195.2	233	256.8	293.2	337.4	385.8	414	490	529.4
	Locked Rotor Current(A)		218	269	290	350	423	438	538	580	700	846	958	1040	1224	1330	1458
	Power Input(kW)		58.8	71.8	88.2	98.2	106.2	114.2	143.6	173	193	212.4	227.8	251.2	291.2	334	357.4
Weight	kg		2000	2150	3000	3150	3350	3650	4200	5500	5800	6400	6700	7850	8450	9800	10350

Table 18-Performance
Data Screw
Compressor-R22
Water Leaving Temperature 45ºF (7.2ºC)
COP Range: 2.4 - 3.8

Model	Condensing Temperature											
	113ºF (45ºC)				122ºF(50ºC)				131ºF(55ºC)			
	Actual Coolin Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input
	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW
PTP CH 50-A-1	31.62	75.89	9.1	33	29.69	71.25	8.9	36.3	28.52	68.45	8.7	38.5
PTP CH 60-A-1	39.67	95.2	12.4	40.9	37.28	89.47	12.2	45	35.8	85.92	12	47.8
PTP CH70-A-1	46.21	110.89	17.5	49.3	42.79	102.71	17.3	54.2	40.6	97.45	17.1	57.4
PTP CH80-A-1	53.51	128.43	7.3	55.6	49.39	118.54	7.1	60.8	46.75	112.19	6.9	64.2
PTP CH 90-A-1	64.55	154.91	9.3	64	60.28	144.67	9.1	70.2	57.15	137.17	8.9	74.3
PTP CH 100-A-2	63.24	151.77	10.5	66	59.37	142.49	10.2	72.6	57.04	136.9	10	77
PTP CH 120-A-2	79.33	190.4	12.6	81.8	74.56	178.93	12.3	90	71.6	171.84	12.1	95.6
PTP CH140-A-2	92.41	221.79	15.8	98.6	85.59	205.41	15.4	108.4	81.21	194.9	15.2	114.8
PTP CH160-A-2	107.03	256.87	18.4	111.2	98.78	237.08	18	121.6	93.49	224.38	17.8	128.4
PTP CH 180-A-2	129.09	309.82	6.6	128	120.56	289.35	6.2	140.4	114.31	274.34	6	148.6
PTP CH 200-A-2	142.17	341.21	8.1	146.4	133.07	319.38	7.7	160.8	126.82	304.36	7.5	170.6
PTP CH 220-A-2	162.08	388.98	11.7	167	151.27	363.05	11.2	183.2	144.45	346.67	11	194.6
PTP CH 250-A-2	175.16	420.38	10	174.6	162.08	388.98	9.5	193	154.11	369.88	9.3	205.6
PTP CH 280-A-2	208.14	499.54	13.8	213.8	193.92	465.42	13.4	232.6	208.14	499.54	13	213.8
PTP CH 320-A-2	232.59	558.23	16.4	227.8	217.24	521.37	15.9	249	207	499.54	15.5	263

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• Air Cooled-Screw-R134a

Table 19-Technical Data
Screw Compressor - R134a

Models			PTP CH 50-A-1	PTP CH 60-A-1	PTP CH 70-A-1	PTP CH 80-A-1	PTP CH 90-A-1	PTP CH 100-A-2	PTP CH 120-A-2	PTP CH 140-A-2	PTP CH 160-A-2	PTP CH 180-A-2	PTP CH 200-A-2	PTP CH 220-A-2	PTP CH 250-A-2	PTP CH 280-A-2	PTP CH 320-A-2	PTP CH 420-A-2
Nominal Cooling Capacity	RT		50	60	70	80	90	100	120	140	160	180	200	220	250	280	320	420
Compressor	Type		Screw															
	Quantity		1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
Refrigerant	Type		Screw															
Oil Charge	Lit		15	15	15	30	22	30	30	30	30	44	44	44	44	44	60	60
Condenser	Type		Air Cooled - Copper Tubes, Aluminum Fins															
	Total Coil Face Area	Ft^2	99.42	99.42	99.42	149.13	149.13	150.52	200.69	198.84	248.56	298.27	248.56	347.98	347.98	397.69	497.11	497.11
	Row/FPI		3/10	3/12	4/12	3/12	4/10	4/12	3/12	4/12	4/12	4/10	4/10	4/10	4/12	4/12	4/12	4/12
	Maximum Heat Rejection	MBH	4720	553.58	634.8	774.74	887.37	949.4	1107.16	1116	1549.48	1774.7	1474.4	2081.9	2293.5	3078.49	3092	3078
Condenser Fan	Type		Axial, low-noise/900 Rpm															
	Quantity		4	4	4	6	6	6	8	8	10	12	10	14	14	16	20	22
Refrigerant Charge	R134a	kg	55	66	77	88	99	110	132	154	176	198	220	242	275	308	352	352
Evaporator	Type		Shell & Tube															
Electerical Data	Current(A)		86	96.5	107	129.3	148.2	164.6	193	214	251	296.4	277.6	346	384.6	435.8	500	562
	Locked Rotor Current(A)		206	267	290	394	439	412	534	580	788	878	1032	1040	1224	1330	872	881
	Power Input(kW)		58.8	71.8	84.4	98.2	106.2	114.2	143.6	169.6	193	212.2	241	243	263.8	289.2	344	431
Weight	kg		2000	2100	2550	3200	3300	3600	3950	4550	6000	6350	5400	7100	7300	7800	10000	10000

Table 20-Performance
Data Screw
Compressor-R134
Water Leaving Temperature 45ºF (7.2ºC)
COP Range: 2 - 3.7

Model	Condensing Temperature															
	113ºF (45ºC)				122ºF(50ºC)				131ºF(55ºC)				140ºF(60ºC)			
	Actual Cooling Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input	Actual Cooling Capacity	Evaporator		Power Input
	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW	RT	Water Flow Rate (GPM)	Pressure Drop (Ft.W.g)	kW
PTP CH 50-A-1	30.51	73.22	8.2	30.1	28.15	67.56	7.9	33.2	25.7	61.69	7.7	36.8	23.2	55.69	7.5	40.8
PTP CH 60-A-1	35.94	86.26	8.6	34.7	33.18	79.64	8.3	38.3	30.34	72.82	8.1	42.4	27.41	65.79	7.9	47
PTP CH 70-A-1	41.32	99.16	12.5	39.4	38.16	91.58	12.2	43.5	34.89	83.73	12	42.7	31.56	75.75	11.8	53.4
PTP CH 80-A-1	50.36	120.86	8.7	48	47	112.81	8.4	53	43.53	104.48	8.2	58.9	39.95	95.88	8	65.8
PTP CH 90-A-1	58.01	139.22	12.2	54.7	54.17	130	11.9	60.4	50.19	120.45	11.7	67.2	46.06	110.55	11.5	75
PTP CH 100-A-2	48.11	115.47	10.6	60.2	56.3	135.12	15.8	66.4	51.41	123.38	15.4	73.6	46.41	111.37	15	81.6
PTP CH 120-A-2	71.88	172.52	17.2	69.4	66.37	159.28	16.6	76.6	60.68	145.63	16.2	84.4	54.82	131.57	15.8	94
PTP CH 140-A-2	82.63	198.31	25	78.8	76.32	183.16	24.4	87	69.78	167.47	24	85.4	63.12	151.5	23.6	106.8
PTP CH160-A-2	100.71	241.72	17.4	96	94	225.61	16.8	106	87.07	208.96	16.4	117.8	79.9	191.76	16	131.6
PTP CH 180-A-2	116.01	278.43	24.4	109.4	108.34	260.01	23.8	120.8	100.37	240.9	23.4	134.4	92.13	221.11	23	150
PTP CH 200-A-2	96.22	230.93	21.2	91.2	89.8	215.51	20.6	100.6	83.03	199.27	20.2	111.2	76.03	182.48	19.8	122.8
PTP CH 220-A-2	136.49	327.57	26.6	124.2	126.82	304.36	26	137.4	116.58	279.8	25.6	152.6	106.74	256.18	25	170.4
PTP CH 250-A-2	150.7	361.69	19.8	139.6	140.47	337.12	19.2	154.4	129.66	311.19	18.8	171.6	118.86	285.25	18.2	191.4
PTP CH 280-A-2	171.74	412.19	22.6	159	159.8	383.52	22	175.8	147.86	354.86	21.6	195.4	135.35	324.84	21	218
PTP CH 320-A-2	203.59	488.62	27.8	186.6	189.37	454.5	27.2	206.2	174.02	417.65	26.6	228	158.66	380.79	26	252
PTP CH 420-A-2	201.88	484.52	22.4	185.6	188.24	451.77	21.8	204.8	173.45	416.28	21.2	226.4	158.66	380.79	20.6	250.2

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- **Air Cooled Chillers Dimensions** (Based on The Quantity of Fans)

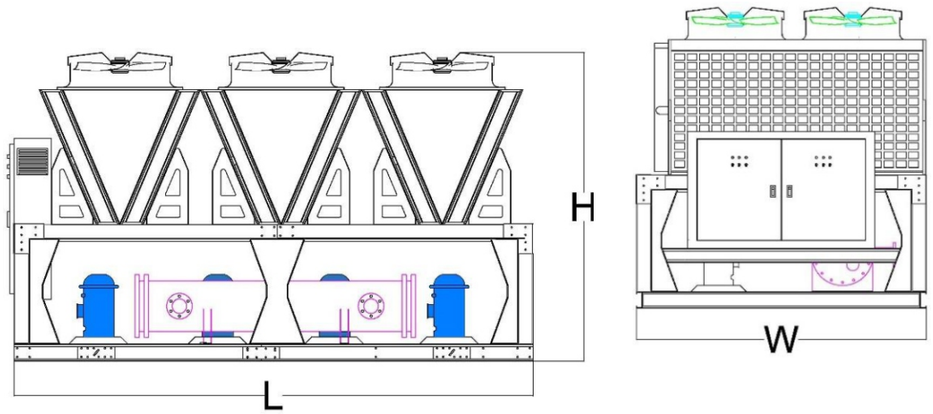

Table 21

Quantity Of Fan	2	4	6	8	10	12	14	16	18	20	22	24	26
W	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400
L	1450	2630	3800	4960	6130	7300	8450	9620	10780	11950	13110	14280	15250
H	2500	2500	2500	2500	2500	2500	2500	2550	2550	2550	2550	2550	2550

Note:
Fan Size (Diameter): 800 mm
Dimensions are in mm

- **Water Cooled – Scroll Compress**

Table 22

Technical Data
Scroll Compressor

Model	Nominal Cooling Capacity	Compressor		Number Of Circuits	Oil Charge	Refrigerant	Refrigerant Charge	Condenser		Evaporator	Weight
	RT	Type	Quantity		Lit		kg	Type	Quantity	Type	kg
PTP CH 12-W-1	12	Scroll	1	1	3.4	R134a , R407C , R22	12	Shell & Tube	1	Shell & Tube	450
PTP CH 13-W-1	13		1	1	3.4		13		1		450
PTP CH 15-W-1	15		1	1	3.9		15		1		500
PTP CH 20-W-1	20		1	1	4.7		20		1		750
PTP CH 25-W-1	25		1	1	6.8		25		1		750
PTP CH 30-W-1	30		1	1	6.3		30		1		800
PTP CH 10-W-2	10		2	2	3.4		10		2		600
PTP CH 12-W-2	12		2	2	3.6		12		2		600
PTP CH 14-W-2	14		2	2	3.6		14		2		600
PTP CH 16-W-2	16		2	2	5.4		16		2		650
PTP CH 18-W-2	18		2	2	6.8		18		2		650
PTP CH 20-W-2	20		2	2	6.8		20		2		650
PTP CH 24-W-2	24		2	2	6.8		24		2		650
PTP CH 26-W-2	26		2	2	6.8		26		2		700
PTP CH 30-W-2	30		2	2	7.8		30		2		800
PTP CH 40-W-2	40		2	2	9.4		40		2		950
PTP CH 50-W-2	50		2	2	13.6		50		2		950
PTP CH 60-W-2	60		2	2	12.6		60		2		1100
PTP CH 80-W-2	80		2	2	18.8		80		2		1400
PTP CH 100-W-2	100		2	2	27.2		100		2		1650
PTP CH 120-W-2	120		2	2	25.2		120		2		1700

Table 23-Performance
Data Scroll
Compressor-R22
Leaving Chilled Water Temperature: 45ºF(7.2ºC)
COP Range: 4.6 - 5.5

Model	Condenser Entering/Leaving Temperatures are 86/95ºF(30/35ºC)						Condenser Entering/Leaving Temperatures are 91.4/100.4ºF(33/38ºC)					
	Actual Capacity		Chilled Water		Condenser Water		Actual Capacity		Chilled Water		Condenser Water	
	RT	kW	GPM	P.D Ft of Water	GPM	P.D Ft of Water	RT	kW	GPM	P.D Ft of Water	GPM	P.D Ft of Water
PTP CH 12-W-1	9.64	33.9	23.13	1.2	28.92	1.3	9.35	32.9	22.45	1.1	28.06	1.3
PTP CH 13-W-1	10.44	36.7	25.05	1.3	31.31	1.4	10.12	35.6	24.29	1.2	30.37	1.4
PTP CH 15-W-1	12.37	43.5	29.69	2	37.11	2.1	11.97	42.1	28.73	1.9	35.91	2.1
PTP CH 20-W-1	16.01	56.3	38.42	2.7	48.03	2.8	15.24	53.6	36.58	2.6	45.72	2.8
PTP CH 25-W-1	19.96	70.2	47.91	3.9	59.88	4.1	19.36	68.1	46.47	3.7	58.09	4.1
PTP CH 30-W-1	24.65	86.7	59.17	6.4	73.96	6.6	24	84.4	57.6	6.2	72	6.6
PTP CH 10-W-2	7.88	27.7	18.9	1	23.63	1.1	7.62	26.8	18.29	0.8	22.86	1.1
PTP CH 12-W-2	9.58	33.7	23	1.1	28.75	1.2	9.3	32.7	22.32	0.9	27.89	1.2
PTP CH 14-W-2	10.78	37.9	25.86	1.4	32.33	1.5	10.46	36.8	25.11	1.2	31.39	1.5
PTP CH 16-W-2	12.62	44.4	30.3	1.9	37.87	2	12.23.	43	29.34	1.7	36.68	2
PTP CH 18-W-2	14.27	50.2	34.26	2.4	42.82	2.5	13.88	48.8	33.3	2.2	41.63	2.5
PTP CH 20-W-2	16.78	59	40.26	2.9	50.33	3	16.32	57.4	39.17	2.7	48.96	3
PTP CH 24-W-2	19.28	67.8	46.27	3.7	57.84	3.8	18.71	65.8	44.9	3.5	56.13	3.8
PTP CH 26-W-2	20.87	73.4	50.09	4.1	62.61	4.1	20.25	71.2	48.59	3.9	60.74	4.1
PTP CH 30-W-2	24.74	87	59.37	6.4	74.21	6.2	23.94	84.2	57.46	6.1	71.83	6.2
PTP CH 40-W-2	32.02	112.6	76.84	10.6	96.05	10.4	30.48	107.2	73.16	10.3	91.45	10.4
PTP CH 50-W-2	39.92	140.4	95.81	13.1	119.77	12.8	38.73	136.2	92.95	12.8	116.18	12.8
PTP CH 60-W-2	49.31	173.4	118.33	18.6	147.92	18.5	48	168.8	115.19	18.3	143.99	18.5
PTP CH 80-W-4	64.03	225.2	153.68	18.9	192.1	19	60.96	214.4	146.31	18.6	182.89	18.7
PTP CH 100-W-4	79.84	280.8	191.63	19.1	239.53	19.2	77.46	272.4	185.89	18.8	232.37	18.9
PTP CH 120-W-4	98.61	346.8	236.67	20.1	295.83	20.2	95.99	337.6	230.39	19.8	287.98	19.9

Table 24-Performance
Data Scroll
Compressor-R134
Leaving Chilled Water Temperature: 45ºF (7.2ºC)
COP Range: 4.4 - 5.44

Model	Condenser Entering/Leaving Temperatures are 86/95ºF(30/35ºC)						Condenser Entering/Leaving Temperatures are 91.4/100.4ºF(33/38ºC)					
	Actual Capacity		Chilled Water		Condenser Water		Actual Capacity		Chilled Water		Condenser Water	
	RT	kW	GPM	P.D Ft of Water	GPM	P.D Ft of Water	RT	kW	GPM	P.D Ft of Water	GPM	P.D Ft of Water
PTP CH 20-W-1	10.55	37.1	25.32	2.6	31.65	2.7	10.21	35.9	24.5	2.4	30.62	2.6
PTP CH 25-W-1	13.02	45.8	31.26	3.9	39.07	4	12.62	44.4	30.3	3.7	37.87	3.9
PTP CH 30-W-1	16.44	57.8	39.44	6.4	49.31	6.5	15.95	56.1	38.28	6.2	47.86	6.4
PTP CH 10-W-2	5.27	18.52	12.64	1	15.8	1.1	5.1	17.92	12.23	0.8	15.29	1
PTP CH 12-W-2	6.31	22.2	15.15	1	18.94	1.2	6.08	21.4	14.6	0.8	18.25	1.1
PTP CH 14-W-2	7.02	24.7	16.86	1.3	21.07	1.5	6.8	23.9	16.31	1.1	20.39	1.4
PTP CH 16-W-2	8.39	29.5	20.13	1.8	25.16	1.9	8.1	28.5	19.45	1.6	24.31	1.8
PTP CH 18-W-2	9.41	33.1	22.59	2.1	28.24	2.3	9.1	32	21.84	1.9	27.3	2.2
PTP CH 20-W-2	11.03	38.8	26.48	2.6	33.1	2.7	10.63	37.4	25.52	2.4	31.9	2.6
PTP CH 24-W-2	12.8	45	30.71	3.4	38.39	3.5	12.4	43.6	29.75	3.2	37.19	3.4
PTP CH 26-W-2	13.76	48.4	33.03	3.8	41.29	3.9	13.31	46.8	31.94	3.6	39.92	3.8
PTP CH 30-W-2	16.38	57.6	39.31	6.1	49.13	6.2	15.87	55.8	38.08	5.9	47.6	6.1
PTP CH 40-W-2	21.1	74.2	50.64	10.3	63.3	10.4	20.42	71.8	49	10.1	61.25	10.3
PTP CH 50-W-2	26.05	91.6	62.51	12.8	78.14	12.9	25.25	88.8	60.6	12.6	75.75	12.8
PTP CH 60-W-2	32.87	115.6	78.89	18.3	98.61	18.4	31.9	112.2	76.57	18.1	95.71	18.3
PTP CH 80-W-4	42.2	148.4	101.27	19.3	126.59	20	40.83	143.6	98	19.1	122.5	19.8
PTP CH 100-W-4	52.09	183.2	125.02	19.5	156.28	20.2	50.5	177.6	121.2	19.3	151.5	20
PTP CH 120-W-4	65.74	231.2	157.78	20.5	197.22	21.2	63.81	224.4	153.14	20.3	191.42	21

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• Water Cooled Screw Compressor

Table 25 a-Technical Data
Screw Compressor

Models		PTP CH 50-W-1	PTP CH 60-W-1	PTP CH 70-W-1	PTP CH 80-W-1	PTP CH 90-W-1	PTP CH 100-W-2	PTP CH 120-W-2	PTP CH 140-W-2	PTP CH 160-W-2	PTP CH 180-W-2	PTP CH 200-W-2	PTP CH 220-W-2	PTP CH 250-W-2
Nominal Cooling Capacity	RT	50	60	70	80	90	100	120	140	160	180	200	220	250
Compressor	Type	Screw												
	Quantity	1	1	1	1	1	2	2	2	2	2	2	2	2
Refrigerant		R134a , R407C , R22												
Condenser	Type	Shell & Tube												
	Quantity	1	1	1	1	1	2	2	2	2	2	2	2	2
Evaporator	Type	Shell & Tube												
Weight	kg	1150	1250	1950	2000	2100	2500	2650	3500	3600	3700	3850	5000	5300

Table 25 b-Technical Data
Screw Compressor

Models		PTP CH 280-W-2	PTP CH 320-W-2	PTP CH 360-W-2	PTP CH 420-W-2	PTP CH 480-W-2
Nominal Cooling Capacity	RT	280	320	360	420	480
Compressor	Type	Screw				
	Quantity	2	2	2	2	2
Refrigerant		R134a , R407C , R22				
Condenser	Type	Shell & Tube				
	Quantity	2	2	2	2	2
Evaporator	Type	Shell & Tube				
Weight	kg	5850	6100	6750	3950	7350

Table 26-Performance
Data Screw
Compressor-R22
Leaving Chilled Water Temperature: 45ºF (7.2ºC)
COP Range: 4 - 4.7

Model	Condenser Entering/Leaving Temperatures are 86/95ºF(30/35ºC)						Condenser Entering/Leaving Temperatures are 91.4/100.4ºF(33/38ºC)					
	Actual Capacity		Chilled Water		Condenser Water		Actual Capacity		Chilled Water		Condenser Water	
	RT	kW	GPM	P.D Ft of Water	GPM	P.D Ft of Water	RT	kW	GPM	P.D Ft of Water	GPM	P.D Ft of Water
PTP CH 50-W-1	33.55	118	80.53	8.7	100.66	10.2	32.39	113.9	77.73	8.5	97.16	9.9
PTP CH 60-W-1	42.08	148	101	11.7	126.25	13.2	40.63	142.9	97.52	11.5	121.9	12.9
PTP CH 70-W-1	49.33	173.5	118.4	16.2	148	17.7	47.49	167	113.97	16	142.46	17.4
PTP CH 80-W-1	57.44	202	137.85	6.7	172.31	8.2	55.08	193.7	132.19	6.5	165.23	7.9
PTP CH 90-W-1	68.81	242	165.15	8.7	206.43	10.2	66.25	233	159.01	8.5	198.76	9.9
PTP CH 100-W-2	67.11	236	161.05	9.4	201.32	12	64.77	227.8	155.46	9.2	194.32	11.7
PTP CH 120-W-2	84.17	296	202	11.6	252.5	14.1	81.27	285.8	195.04	11.5	243.8	13.8
PTP CH 140-W-2	98.67	347	236.8	14.7	296	17.3	94.97	334	227.93	14.7	284.91	16.9
PTP CH 160-W-2	114.88	404	275.7	17.4	344.63	19.9	110.16	387.4	264.37	17.3	330.47	19.5
PTP CH 180-W-2	137.62	484	330.3	6.2	412.87	8.7	132.5	466	318.01	6.1	397.51	9.7
PTP CH 200-W-2	151.27	532	363.05	7.4	453.81	10	146.15	514	350.77	7.2	438.46	11.8
PTP CH 220-W-2	164.35	578	394.44	7.4	493.05	9.8	158.1	556	379.43	7.2	474.29	9.2
PTP CH 250-W-2	187.1	658	449.04	9	561.3	11.7	179.71	632	431.29	8.8	539.12	11.2
PTP CH 280-W-2	220.65	776	529.56	12.7	661.96	15.4	213.26	750	511.82	12.5	639.78	14.9
PTP CH 320-W-2	246.81	868	592.35	15.7	740.43	18.4	238.28	838	571.87	15.5	714.84	17.9

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Table 27-Performance
Data Screw
Compressor-R134
Leaving Chilled Water Temperature: 40ºF (7.2ºC)
COP Range: 4.5 - 5

Model	Condenser Entering/Leaving Temperatures are 86/95ºF(30/35ºC)						Condenser Entering/Leaving Temperatures are 91.4/100.4ºF(33/38ºC)					
	Actual Capacity		Chilled Water		Condenser Water		Actual Capacity		Chilled Water		Condenser Water	
	RT	kW	GPM	P.D Ft Of Water	GPM	P.D Ft Of Water	RT	kW	GPM	P.D Ft Of Water	GPM	P.D Ft Of Water
PTP CH 50-W-1	32.76	217	78.62	7.9	98.27	8.3	31.42	110.5	75.41	7.6	94.26	8.1
PTP CH 60-W-1	38.59	135.7	92.61	8.3	115.76	8.7	37.02	130.2	88.85	8	111.07	8.5
PTP CH 70-W-1	44.33	155.9	106.39	11.9	132.99	12.4	42.54	149.6	149.6	11.6	127.61	12.1
PTP CH 80-W-1	53.57	188.4	128.57	8.5	160.71	9	51.64	181.6	123.93	8.2	154.91	8.7
PTP CH 90-W-1	61.7	217	148.09	11.7	185.11	12.2	59.43	209	142.63	11.4	178.28	11.9
PTP CH 100-W-2	65.51	230.4	157.23	15.8	196.54	16.1	62.84	221	150.82	15.4	188.52	15.8
PTP CH 120-W-2	77.17	271.4	185.21	16.6	231.51	16.8	74.04	260.4	177.7	16.2	222.13	16.5
PTP CH 140-W-2	88.66	311.8	212.78	23.8	265.98	24	85.08	299.2	204.18	23.4	255.23	23.7
PTP CH 160-W-2	107.14	376.8	257.14	16.8	321.42	17.2	103.27	363.2	247.86	16.4	309.82	16.9
PTP CH 180-W-2	123.41	434	296.17	23.2	370.22	23.6	118.86	418	285.25	22.8	356.57	23.3
PTP CH 220-W-2	145.58	512	394.44	26.3	436.75	26.7	140.47	494	337.12	25.8	421.4	26.3
PTP CH 250-W-2	160.94	566	386.25	19.1	482.82	19.5	154.68	544	371.24	18.6	464.05	19.1
PTP CH 280-W-2	183.12	644	439.48	21.9	549.35	22.3	176.29	620	423.11	21.5	525.88	21.9
PTP CH 320-W-2	217.81	766	522.74	26.3	653.42	26.7	209.28	736	502.27	25.9	627.83	26.3

- **Water Cooled – Reciprocating Compressor – One Circuit**

Table 28-Technical Data
Reciprocating Compressor

Models		PTP CH 15-W-1	PTP CH 20-W-1	PTP CH 25-W-1	PTP CH 30-W-1	PTP CH 35-W-1	PTP CH 40-W-1	PTP CH 50-W-1
Nominal Cooling Capacity	RT	15	20	25	30	35	40	50
Compressor	Type	Reciprocating						
	Quantity	1	1	1	1	1	1	1
Refrigerant		R134a , R407C , R22						
Oil Charge		2.6	2.6	4.5	4.5	4.75	4.75	4.75
Condenser	Type	Shell & Tube						
	Quantity	1	1	1	1	1	1	1
Evaporator	Type	Shell & Tube						
Weight	kg	760	800	860	950	1150	1300	1350

- **Water Cooled – Reciprocating Compressor – Two Circuit**

Table 29-Technical Data Reciprocating Compressor

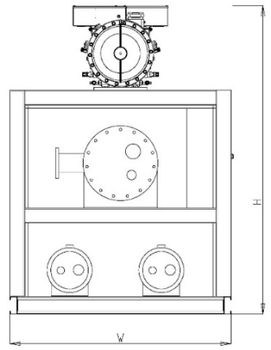
Models		PTP CH 20-W-2	PTP CH 30-W-2	PTP CH 40-W-2	PTP CH 50-W-2	PTP CH 60-W-2	PTP CH 70-W-2	PTP CH 80-W-2	PTP CH 100-W-2
Nominal Cooling Capacity	RT	20	30	40	50	60	70	80	100
Compressor	Type	Reciprocating							
	Quantity	2	2	2	2	2	2	2	2
Refrigerant	type	R134a , R407C , R22							
Oil Charge	lit	2.6	2.6	2.6	4.5	4.5	4.75	4.75	4.75
Condenser	Type	Shell & Tube							
	Quantity	2	2	2	2	2	2	2	2
Evaporator	Type	Shell & Tube							
Weight	kg	850	1000	1350	1350	1820	1930	2020	2200

Performance Data

Reciprocating Compressor-R22
Leaving Chilled Water Tempreture: 45ºF
(7.2ºC) COP Range: 4.4 - 4.9

Model	Condenser Entering/Leaving Tempreture 30/35ºC						Condenser Entering/Leaving Tempreture 33/38ºC					
	Actual Capacity		Chilled Water		Condenser Water		Actual Capacity		Chilled Water		Condenser Water	
	RT	kW	GPM	P.D Ft Of Water	GPM	P.D Ft Of Water	RT	kW	GPM	P.D Ft Of Water	GPM	P.D Ft Of Water
PTP CH 15-W-1	12.2	42.9	29.28	3.4	36.6	8.1	11.77	41.4	28.26	3.1	35.32	7.8
PTP CH 20-W-1	14.33	50.4	34.4	4.6	43	8.4	13.82	48.6	33.17	4.2	41.47	8
PTP CH 25-W-1	19.03	66.9	45.67	5.4	57.08	14.4	18.37	64.6	44.1	5	55.12	13.7
PTP CH 30-W-1	22.01	77.4	52.38	8.3	66.04	8.2	21.27	74.8	51.06	7.6	63.82	7.8
PTP CH 35-W-1	28.53	100.3	68.46	7.8	85.58	9.7	27.56	96.9	66.14	6.9	82.68	8.7
PTP CH 40-W-1	32.76	115.2	78.63	6.9	98.29	10.1	31.63	111.2	75.9	6.6	94.88	9.9
PTP CH 50-W-1	39.36	138.4	94.47	8.4	118.09	12.6	38.03	133.7	91.26	6.1	114.08	10.1
PTP CH 20-W-2	17.63	62	42.32	11.3	52.9	7.6	17.01	59.8	40.82	9.9	51.02	7.6
PTP CH 30-W-2	24.4	85.8	58.57	10.4	73.21	8.1	23.55	82.2	56.52	9.7	70.65	7.9
PTP CH 40-W-2	28.67	100.8	68.81	8.9	86.01	8.4	27.65	97.2	66.35	8.2	82.94	8.1
PTP CH 50-W-2	38.05	133.8	91.33	13.9	114.16	14.6	36.75	129.2	88.19	13	110.24	13.8
PTP CH 60-W-2	44.03	154.8	105.67	12.8	132.08	8.2	42.55	149.6	102.12	11.9	127.65	7.8
PTP CH 70-W-2	57.05	200.6	136.93	12.8	171.16	9.8	55.12	193.8	132.29	11.7	165.36	9.4
PTP CH 80-W-2	65.53	230.4	157.27	12.2	196.59	10.1	63.25	222.4	151.81	11.7	189.76	9.9
PTP CH 100-W-2	78.73	276.8	188.94	11.9	236.18	9.9	76.05	267.4	182.53	11.5	228.16	10.2

- **Water Cooled Chillers Dimensions**



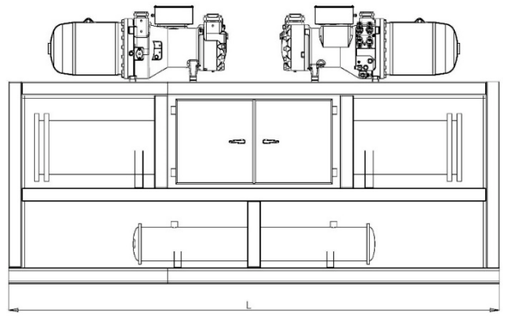


Table 31				
Model	H	W	L	Eva.Water side connections
PTP CH 10-W	1700`	700	2200	11/2
PTP CH 15-W	1800	700	2200	11/2
PTP CH 20-W	2000	800	2200	21/2
PTP CH 25-W	2000	800	2200	21/2
PTP CH 30-W	2000	800	2200	21/2
PTP CH 40-W	2000	800	2800	3
PTP CH 50-W	2100	800	2800	3
PTP CH 60-W	2200	800	2800	3
PTP CH 70-W	2200	800	2800	3
PTP CH 80-W	2200	800	2800	4
PTP CH 100-W	2200	1200	3800	4
PTP CH 120-W	2300	1200	3800	4
PTP CH 140-W	2300	1200	3800	4
PTP CH 160-W	2300	1200	3800	5
PTP CH 180-W	2400	1500	3800	5
PTP CH 200-W	2400	1500	3800	5
PTP CH 220-W	2400	1500	3800	5
PTP CH 250-W	2400	1500	4800	5
PTP CH 280-W	2500	1500	4800	6
PTP CH 320-W	2500	1500	4800	6
PTP CH 480-W	2500	1500	4800	6
PTP CH 560-W	2500	1500	4800	8
Note: Dimensions are in mm				

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