



Series PS6, Vertical Floor-Mount Units

Technical Data– 60 Hz

Table of Contents

Table of Contents.....	2
Air-cooled System	3
Water-cooled System	5
Glycol-cooled System.....	7
Chilled-water System	9
Dual Air-Cooled &Chilled-water System	11
Dual Water-cooled &Chilled-water System	14
Dual Glycol-cooled & Chilled-water System.....	17
Glycol Free- cooling System.....	20
Guide Specifications	23
Appendix A: Dimensional Drawings.....	30

Air-cooled System

Model no. PS6AD_ _		02	03	04	05
Cooling Capacity - Rated at standard air volume, 95°F (35°C) ambient temperature					
75F°(24°C) DB, 50%rh					
Net Total	BTUH	27747	37262	44618	54853
Net Sensible	BTUH	25201	32824	39550	51859
THR	BTUH	36370	48286	59577	74803
75F° (24°C) DB, 45%rh					
Net Total	BTUH	27391	36850	44047	53893
Net Sensible	BTUH	27267	36811	44047	53836
THR	BTUH	35991	47781	58948	73716
72F° (22°C) DB, 50%rh					
Net Total	BTUH	26532	35594	42629	52006
Net Sensible	BTUH	24975	32444	39104	51625
THR	BTUH	35081	46519	57440	71697
72F ° (22°C) DB, 45%rh					
Net Total	BTUH	26199	35218	42097	51100
Net Sensible	BTUH	26088	35173	42097	51054
THR	BTUH	34727	46052	56854	70671
68F° (20°C) DB, 50%rh					
Net Total	BTUH	24942	33432	40052	48272
Net Sensible	BTUH	24837	32068	38661	48081
THR	BTUH	33395	44233	54676	67624
68F ° (20°C) DB, 45%rh					
Net Total	BTUH	24642	33104	39576	47452
Net Sensible	BTUH	24573	33049	39558	47452
THR	BTUH	33077	43818	54150	66693
Fan Section - EC Plenum Fan					
Standard Air Volume	CFM	1400	1900	2400	3000
External Static Pressure	in	0.3	0.3	0.3	0.3
Quantity of Fans		1	1	1	1
Net Total Fan Motor Power	kW	2.5	2.5	2.5	2.5
Absorbed Power	kW	0.21	0.37	0.64	1.17
Compressor - Refrigerant R407C					
Quantity of Compressors		1	1	1	1
Type		Scroll	Scroll	Scroll	Scroll
Evaporator Coil - Copper tube / aluminium fin - Stainless steel drain pan					
Face Area	ft²	7.5	7.5	7.5	7.5
Rows Deep		3	3	3	4
Fins per inch		13	13	13	13
Face Velocity	FPM	187	253	320	400
Refrigerant Charge	Lbs	4.8	4.8	4.8	6.1

Model no. PS6AD__		02	03	04	05
Reheat Section					
<i>Electric Reheat¹ - Single Stage, finned tubular type heater, SCR Controlled</i>					
Capacity	kW	6	6	6	6
Quantity of Heaters		3	3	3	3
<i>Hot Gas Reheat - 71.6°F (22°C) E.A.T., two stages</i>					
Heating Capacity	BTUH	15,903	17,569	18,930	20,404
<i>Hot Water Reheat - 180°F (82.2°C) E.W.T., 71.6°F (22°C) E.A.T. - 2-way modulating control valve, optional 3-way</i>					
Heating Capacity	BTUH	31,193	34,129	36,477	38,964
Water Flow Rate	GPM	2.0	2.0	2.0	2.0
Pressure Drop	ft-H ₂ O	0.61	0.62	0.62	0.63
<i>Steam Reheat - 227°F (108.3°C) saturated steam, 71.6°F (22°C) E.A.T. - 2-way modulating control valve</i>					
Heating Capacity	BTUH	53945	60834	69296	78176
Humidifier Section					
<i>Electrode Boiler Type¹</i>					
Capacity	lb/hr	10	10	10	10
Humidifier Power	kW	3.4	3.4	3.4	3.4
Filter Section - Pleated disposable type, 30%efficiency to ASHRAE 52-76					
<i>Downflow Models</i>					
Quantity of Filters		2 / 1	2 / 1	2 / 1	2 / 1
Nominal Size	LxWxD-in		20 x 24 x 2 / 12 x 24 x 2		
Piping Connection Size					
Liquid Line	- ODM -in	1/2	1/2	1/2	1/2
Hot Gas Line	- ODM -in	5/8	5/8	5/8	5/8
Humidifier Water	- ODM -in	1/4	1/4	1/4	1/4
Condensate Drain	- ODM -in	3/4	3/4	3/4	3/4
Physical Details - For units with standard options only; consult factory for special options and configuration					
Dimensions	in		37 (W) x 35-1/8 (D)x 76 (H)		
Approx. Weight	lbs	620	633	633	645
Matching Air-Cooled Condenser - Selected at 95°F Ambient					
Model		KS11-039-1	KS11-065-1	KS11-065-1	KS11-078-1
Width x Depth x Height	in	38 x 30 x 36	51 x 30 x 44	51 x 30 x 44	51 x 30 x 44
Weight	lbs	150	170	170	177

¹ Standard options

Water-cooled System

Model no. PS6WD_ _		02	03	04	05
Cooling Capacity - Rated at standard air volume					
75°F (24°C) DB, 50%rh					
Net Total	BTUH	30201	39371	48290	60354
Net Sensible	BTUH	25902	33550	40710	53049
THR	BTUH	37177	48925	60768	77416
75°F (24°C) DB, 45%rh					
Net Total	BTUH	29829	38857	47655	59205
Net Sensible	BTUH	28969	37448	45469	59205
THR	BTUH	36780	48403	60122	76220
72°F (22°C) DB, 50%rh					
Net Total	BTUH	28757	37488	45968	56945
Net Sensible	BTUH	25540	33057	40118	52334
THR	BTUH	35763	47040	58445	73948
72°F (22°C) DB, 45%rh					
Net Total	BTUH	28415	37017	45377	55964
Net Sensible	BTUH	28315	36990	45109	55964
THR	BTUH	35395	46562	57844	72878
68°F (20°C) DB, 50%rh					
Net Total	BTUH	26890	35070	42978	52570
Net Sensible	BTUH	25160	32518	39427	51636
THR	BTUH	33936	44624	55460	69498
68°F (20°C) DB, 45%rh					
Net Total	BTUH	26590	34653	42450	51626
Net Sensible	BTUH	26496	34616	42450	51626
THR	BTUH	33609	44200	54922	68507
Fan Section - EC Plenum Fan					
Standard Air Volume	CFM	1400	1900	2400	3000
External Static Pressure	in	0.3	0.3	0.3	0.3
Quantity of Fans		1	1	1	1
Net Total Fan Motor Power	kW	2.5	2.5	2.5	2.5
Absorbed Power	kW	0.21	0.37	0.64	1.17
Compressor - Refrigerant R407C					
Quantity of Compressors		1	1	1	1
Type		Scroll	Scroll	Scroll	Scroll
Evaporator Coil - Copper tube / aluminium fin - Stainless steel drain pan					
Face Area	ft ²	7.5	7.5	7.5	7.5
Rows Deep		3	3	3	4
Fins per inch		13	13	13	13
Face Velocity	FPM	187	253	320	400

Model no. PS6WD_ _		02	03	04	05
Reheat Section					
<i>Electric Reheat¹ - Single Stage, finned tubular type heater, SCR Controlled</i>					
Capacity	kW	6	6	6	6
Quantity of Heaters		3	3	3	3
<i>Hot Gas Reheat - 71.6°F (22°C) E.A.T., two stages</i>					
Heating Capacity	BTUH	15,903	17,569	18,930	20,404
<i>Hot Water Reheat - 180°F (82.2°C) E.W.T., 71.6°F (22°C) E.A.T. - 2-way modulating control valve, optional 3-way</i>					
Heating Capacity	BTUH	31,193	34,129	36,477	38,964
Water Flow Rate	GPM	2.0	2.0	2.0	2.0
Pressure Drop	ft-H ₂ O	0.61	0.62	0.62	0.63
<i>Steam Reheat - 227°F (108.3°C) saturated steam, 71.6°F (22°C) E.A.T. - 2-way modulating control valve</i>					
Heating Capacity	BTUH	53945	60834	69296	78176
Humidifier Section					
<i>Electrode Boiler Type¹</i>					
Capacity	lb/hr	10	10	10	10
Humidifier Power	kW	3.4	3.4	3.4	3.4
Filter Section - Pleated disposable type, 30%efficiency to ASHRAE 52-76					
<i>Downflow Models</i>					
Quantity of Filters		2 / 1	2 / 1	2 / 1	2 / 1
Nominal Size	LxWxD-in		20 x 24 x 2 / 12 x 24 x 2		
Condensing Water Requirement					
75°F EWT					
Flow Rate	GPM	6.5	8.1	10.6	13.6
Unit Pressure Drop	ft-H ₂ O	19.9	13.8	20.1	16.5
85°F EWT					
Flow Rate	GPM	5.6	6.8	9.5	12.1
Unit Pressure Drop	ft-H ₂ O	15.5	10.8	17.6	14.4
Water Regulating Valve - 2-way, head pressure controlled					
Size	in	1/2	3/4	3/4	1
Piping Connection Size					
Liquid Line	- ODM -in	1/2	1/2	1/2	1/2
Hot Gas Line	- ODM -in	5/8	5/8	5/8	5/8
Humidifier Water	- ODM -in	1/4	1/4	1/4	1/4
Condensate Drain	- ODM -in	3/4	3/4	3/4	3/4
Steam Condensate	- ODM -in	3/4	3/4	3/4	3/4
Condensing Water	- ODM -in	5/8	1-1/8	1-1/8	1-1/8
Physical Details - For units with standard options only; consult factory for special options and configuration					
Dimensions	in		37 (W) x 35-1/8 (D)x 76 (H)		
Approx. Weight	lbs	630	657	657	699

¹ Standard options

Glycol-cooled System

Model no. PS6GD_ _		02	03	04	05
Cooling Capacity - Rated at standard air volume					
75°F (24°C) DB, 50%rh					
Net Total	BTUH	27308	35662	43748	54037
Net Sensible	BTUH	25123	32439	39333	51888
THR	BTUH	36251	47861	59331	74419
75°F (24°C) DB, 45%rh					
Net Total	BTUH	26906	35094	43092	52920
Net Sensible	BTUH	26771	35024	43092	52817
THR	BTUH	35859	47349	58681	73255
72°F (22°C) DB, 50%rh					
Net Total	BTUH	25960	33901	41566	50841
Net Sensible	BTUH	24921	32114	38897	50568
THR	BTUH	34937	46117	57169	71177
72°F (22°C) DB, 45%rh					
Net Total	BTUH	25589	33374	40961	49810
Net Sensible	BTUH	25481	33305	40948	49769
THR	BTUH	34576	45646	56571	70097
68°F (20°C) DB, 50%rh					
Net Total	BTUH	24216	31660	38762	46704
Net Sensible	BTUH	24056	31576	38444	46451
THR	BTUH	33238	43893	54397	66975
68°F (20°C) DB, 45%rh					
Net Total	BTUH	23883	31160	38218	45793
Net Sensible	BTUH	23841	31123	38200	43451
THR	BTUH	32914	43458	53860	66010
Fan Section - EC Plenum Fan					
Standard Air Volume	CFM	1400	1900	2400	3000
External Static Pressure	in	0.3	0.3	0.3	0.3
Quantity of Fans		1	1	1	1
Net Total Fan Motor Power	kW	2.5	2.5	2.5	2.5
Absorbed Power	kW	0.21	0.373	0.643	1.167
Compressor - Refrigerant R407C					
Quantity of Compressors		1	1	1	1
Type		Scroll	Scroll	Scroll	Scroll
Evaporator Coil - Copper tube / aluminium fin - Stainless steel drain pan					
Face Area	ft ²	7.5	7.5	7.5	7.5
Rows Deep		3	3	3	4
Fins per inch		13	13	13	13
Face Velocity	FPM	187	253	320	400

Model no. PS6GD_ _		02	03	04	05
Reheat Section					
<i>Electric Reheat¹ - Single Stage, finned tubular type heater, SCR Controlled</i>					
Capacity	kW	6	6	6	6
Quantity of Heaters		3	3	3	3
<i>Hot Gas Reheat - 71.6°F (22°C) E.A.T., two stages</i>					
Heating Capacity	BTUH	15,903	17,569	18,930	20,404
<i>Hot Water Reheat - 180°F (82.2°C) E.W.T., 71.6°F (22°C) E.A.T. - 2-way modulating control valve, optional 3-way</i>					
Heating Capacity	BTUH	31,193	34,129	36,477	38,964
Water Flow Rate	GPM	2.0	2.0	2.0	2.0
Pressure Drop	ft-H ₂ O	0.61	0.62	0.62	0.63
<i>Steam Reheat - 227°F (108.3°C) saturated steam, 71.6°F (22°C) E.A.T. - 2-way modulating control valve</i>					
Heating Capacity	BTUH	53945	60834	69296	78176
Humidifier Section					
<i>Electrode Boiler Type¹</i>					
Capacity	lb/hr	10	10	10	10
Humidifier Power	kW	3.4	3.4	3.4	3.4
Filter Section - Pleated disposable type, 30%efficiency to ASHRAE 52-76					
<i>Downflow Models</i>					
Quantity of Filters		2 / 1	2 / 1	2 / 1	2 / 1
Nominal Size	LxWxD-in		20 x 24 x 2	12 x 24 x 2	
Glycol Solution Requirement - 40% ethylene glycol					
95°F EWT					
Flow Rate	GPM	5.7	10.1	11	16
Unit Pressure Drop	ft-H ₂ O	9.3	19.1	10.7	17.7
105°F EWT					
Flow Rate	GPM	5.1	8	9.4	12.2
Unit Pressure Drop	ft-H ₂ O	8.0	14.0	8.9	12.2
Glycol Solution Regulating Valve -2-way, head pressure controlled					
Size	in	3/4	3/4	1	1
Piping Connection Size					
Liquid Line	- ODM -in	1/2	1/2	1/2	1/2
Hot Gas Line	- ODM -in	5/8	5/8	5/8	5/8
Humidifier Water	- ODM -in	1/4	1/4	1/4	1/4
Glycol Solution	- ODM -in	1-5/8	1-5/8	1-5/8	1-5/8
Steam Condensate	- ODM -in	3/4	3/4	3/4	3/4
Condensate Drain	- ODM -in	3/4	3/4	3/4	3/4
Physical Details - For units with standard options only; consult factory for special options and configuration					
Dimensions	in		37 (W) x 35-1/8 (D)x	76 (H)	
Approx. Weight	lbs	650	677	677	723

¹Standard options

Chilled-Water System

Model no. PS6CD_ _		02	03	04	05
Cooling Capacity - Rated at standard air volume, 45°F (7.2°C) entering water & 10°F (5.6°C) temperature rise					
80°F (26°C) DB, 50%rh					
Net Total	BTUH	42231	53513	78137	90872
Net Sensible	BTUH	30207	38827	53914	63522
Flow Rate	GPM	9.0	11.5	16.8	19.9
Unit Pressure Drop	ft-H ₂ O	5.4	8.4	20.7	28.0
80°F (26°C) DB, 45%rh					
Net Total	BTUH	37815	48100	70174	82130
Net Sensible	BTUH	30802	39793	54873	65141
Flow Rate	GPM	8.1	10.3	15.2	18.0
Unit Pressure Drop	ft-H ₂ O	4.4	6.9	17.1	23.4
75°F (24°C) DB, 50%rh					
Net Total	BTUH	29177	37329	55606	64959
Net Sensible	BTUH	25275	32745	45433	53837
Flow Rate	GPM	6.3	8.1	12.1	14.4
Unit Pressure Drop	ft-H ₂ O	2.8	4.4	11.3	15.6
75°F (24°C) DB, 45%rh					
Net Total	BTUH	27079.4	34846.6	51122.6	59981.0
Net Sensible	BTUH	26482.6	34470.6	47243.7	56286.2
Flow Rate	GPM	6	8	11	13
Unit Pressure Drop	ft-H ₂ O	2.4	3.9	9.8	13.6
72°F (22°C) DB, 50%rh					
Net Total	BTUH	22868.2	29627.3	44462.5	51190.7
Net Sensible	BTUH	22684	29588	40889	47751
Flow Rate	GPM	5	6	10	12
Unit Pressure Drop	ft-H ₂ O	1.8	2.9	7.7	10.6
72°F (22°C) DB, 45%rh					
Net Total	BTUH	22193	28818	42217	49636
Net Sensible	BTUH	22193	28818	42217	49636
Flow Rate	GPM	4.8	6.3	9.3	11.2
Unit Pressure Drop	ft-H ₂ O	1.7	2.8	7.0	9.8

Fan Section -EC Plenum Fan

Standard Air Volume	CFM	1400	1900	2400	3000
External Static Pressure	in	0.3	0.3	0.3	0.3
Quantity of Fans		1	1	1	1
Net Total Fan Motor Power	kW	2.5	2.5	2.5	2.5
Absorbed Power	kW	0.21	0.37	0.64	1.17

Chilled-water Coil - Copper tube / aluminium fin - Stainless steel drain pan

Face Area	ft ²	7.5	7.5	7.5	7.5
Rows Deep		3	3	4	4
Fins per inch		13	13	13	13
Face Velocity	FPM	187	253	320	400

Model no. PS6CD_ _		02	03	04	05
Reheat Section					
<i>Electric Reheat¹ - Three stages, finned tubular type heater, SCR Controlled</i>					
Capacity	kW	6	6	6	6
Quantity of Heaters		3	3	3	3
<i>Hot Water Reheat – 180°F (82.2°C) E.W.T., 71.6°F (22°C) E.A.T. - 2-way modulating control valve, optional 3-way</i>					
Heating Capacity	BTUH	31,193	34,129	36,477	38,964
Water Flow Rate	GPM	2.0	2.0	2.0	2.0
Pressure Drop	ft-H ₂ O	0.61	0.62	0.62	0.63
<i>Steam Reheat - 227°F (108.3°C) saturated steam, 71.6°F (22°C) E.A.T. - 2-way modulating control valve</i>					
Heating Capacity	BTUH	53945	60834	69296	78176
Humidifier Section					
<i>Electrode Boiler Type¹</i>					
Capacity	lb/hr	10	10	10	10
Humidifier Power	kW	3.4	3.4	3.4	3.4
Filter Section - Pleated disposable type, 30%efficiency to ASHRAE 52-76					
<i>Downflow Models</i>					
Quantity of Filters		2 / 1	2 / 1	2 / 1	2 / 1
Nominal Size	LxWxD-in		20 x 24 x 2 / 12 x 24 x 2		
Chilled-water Valve - 2-Way modulating					
Valve Size	in	1	1	1	1
Piping Connection Size					
Chilled-water	- ODM -in	1-1/8	1-1/8	1-1/8	1-1/8
Hot Water	- ODM -in	7/8	7/8	7/8	7/8
Steam	- ODM -in	7/8	7/8	7/8	7/8
Steam Condensate	- ODM -in	3/4	3/4	3/4	3/4
Humidifier Water	- ODM -in	1/4	1/4	1/4	1/4
Condensate Drain	- ODM -in	3/4	3/4	3/4	3/4
Physical Details - For units with standard options only; consult factory for special options and configuration					
Dimensions	in		37 (W) x 35-1/8 (D)x 76 (H)		
Weight	lbs	567	567	632	632

¹ Standard options

Air Dual-cooling System

Model no. PS6DD_ _		02	03	04	05
Cooling Capacity - Rated at standard air volume, 95°F (35°C) ambient temperature					
75°F (24°C) DB, 50%rh					
Net Net Total	BTUH	27338	37105	44055	50965
Net Sensible	BTUH	24792	32667	38987	50551
THR	BTUH	36370	48286	59577	70462
75°F (24°C) DB, 45%rh					
Net Net Total	BTUH	27049	36648	43511	50200
Net Sensible	BTUH	26926	36610	43511	50069
THR	BTUH	35991	47781	58948	69554
72°F (22°C) DB, 50%rh					
Net Net Total	BTUH	26191	35454	42097	48627
Net Sensible	BTUH	24634	32304	38571	48218
THR	BTUH	35081	46519	57440	67893
72°F (22°C) DB, 45%rh					
Net Net Total	BTUH	25858	35037	41602	47937
Net Sensible	BTUH	25747	34992	41602	47937
THR	BTUH	34727	46052	56854	67044
68°F (20°C) DB, 50%rh					
Net Net Total	BTUH	24601	33306	39554	45561
Net Sensible	BTUH	24496	31942	38162	45219
THR	BTUH	33395	44233	54676	64550
68°F (20°C) DB, 45%rh					
Net Net Total	BTUH	24335	32940	39122	44969
Net Sensible	BTUH	24266	32885	39104	43208
THR	BTUH	33077	43818	54150	63793
Cooling Capacity - Chilled-water - Rated at standard air volume, 45°F entering water & 10°F water temperature rise					
75°F (24°C) DB, 50%rh					
Net Total	BTUH	28938	37206	55374	64409
Net Sensible	BTUH	25036	32622	45201	53288
Flow/Pressure Drop	GPM/ft-H ₂ O	6.3 / 2.8	8.1 / 4.4	12.1 / 11.3	14.4 / 15.6
75°F (24°C) DB, 45%rh					
Net Total	BTUH	26841	34724	50904	59472
Net Sensible	BTUH	26244	34348	47025	55778
Flow/Pressure Drop	GPM/ft-H ₂ O	5.8 / 2.4	7.6 / 3.9	11.2 / 9.8	13.4 / 13.6
72°F (22°C) DB, 50%rh					
Net Total	BTUH	22629	29498	44234	51436
Net Sensible	BTUH	22445	29458	40660	47997
Flow/Pressure Drop	GPM/ft-H ₂ O	4.9 / 1.8	6.5 / 2.9	9.8 / 7.7	11.7 / 10.6
72°F (22°C) DB, 45%rh					
Net Total	BTUH	21954	28705	41995	49110
Net Sensible	BTUH	21954	28705	41995	49110
Flow/Pressure Drop	GPM/ft-H ₂ O	4.8 / 1.7	6.3 / 2.8	9.3 / 7.0	11.2 / 9.8
68°F (20°C) DB, 50%rh					
Net Total	BTUH	15950	21276	32604	37955
Net Sensible	BTUH	15950	21276	32604	37955
Flow/Pressure Drop	GPM/ft-H ₂ O	3.5 / 1.0	4.7 / 1.7	7.3 / 4.6	8.9 / 6.4
68°F (20°C) DB, 45%rh					
Net Total	BTUH	15966	21317	32521	37914
Net Sensible	BTUH	15966	21317	32521	37914
Flow/Pressure Drop	GPM/ft-H ₂ O	3.5 / 1.0	4.7 / 1.7	7.3 / 4.5	8.8 / 6.4

Model no. PS6DD_ _		02	03	04	05
Fan Section - EC Plenum Fan					
Standard Air Volume	CFM	1400	1900	2400	3000
External Static Pressure	in	0.3	0.3	0.3	0.3
Quantity of Fans		1	1	1	1
Net Total Fan Motor Power	kW	2.5	2.5	2.5	2.5
Absorbed Power	kW	0.32	0.46	0.81	1.47
Compressor - Refrigerant R407C					
Quantity of Compressors		1	1	1	1
Type		Scroll	Scroll	Scroll	Scroll
Evaporator Coil - Copper tube / aluminium fin - Stainless steel drain pan					
Face Area	ft ²	7.5	7.5	7.5	7.5
Rows Deep (DX/Chilled Water)		3 / 3	3 / 3	3 / 4	4 / 4
Fins per inch		13	13	13	13
Face Velocity	FPM	187	253	320	400
Refrigerant Charge	Lbs	4.8	4.8	4.8	6.1
Reheat Section					
<i>Electric Reheat¹ - Single Stage, finned tubular type heater, SCR Controlled</i>					
Capacity	kW	6	6	6	6
Quantity of Heaters		3	3	3	3
Humidifier Section					
<i>Electrode Boiler Type¹</i>					
Capacity	lb/hr	10	10	10	10
Humidifier Power	kW	3.4	3.4	3.4	3.4
Filter Section - Pleated disposable type, 30%efficiency to ASHRAE 52-76					
<i>Downflow Models</i>					
Quantity of Filters		2 / 1	2 / 1	2 / 1	2 / 1
Nominal Size	LxWxD-in		20 x 24 x 2 / 12 x 24 x 2		

Model no. PS6DD__		02	03	04	05
Chilled-water Valve - 2-Way modulating					
Valve Size	in	1	1	1	1
Piping Connection Size					
Liquid Line	- ODM -in	1/2	1/2	1/2	1/2
Hot Gas Line	- ODM -in	5/8	5/8	5/8	5/8
Chilled Water	-ODM -in	1 1/8	1 1/8	1 1/8	1 1/8
Hot Water	- ODM -in	7/8	7/8	7/8	7/8
Steam	- MPT -in	7/8	7/8	7/8	7/8
Steam Condensate	- ODM -in	3/4	3/4	3/4	3/4
Humidifier Water	- ODM -in	1/4	1/4	1/4	1/4
Condensate Drain	- ODM -in	3/4	3/4	3/4	3/4
Physical Details - For units with standard options only; consult factory for special options and configuration					
Dimensions	in		37 (W) x 35-1/8 (D)x 76 (H)		
Approx. Weight	lbs	740	753	753	765
Matching Air-Cooled Condenser – Selected at 95°F Ambient					
Model		KS11-039-1	KS11-065-1	KS11-065-1	KS11-078-1
Width x Depth x Height in		38 x 30 x 36	51 x 30 x 44	51 x 30 x 44	51 x 30 x 44
Weight	lbs	150	170	170	177

¹ Standard options

Water Dual-cooling System

Model no. PS6HD_ _		02	03	04	05
Cooling Capacity – Direct Expansion - Rated at standard air volume					
75°F (24°C) DB, 50%rh					
Net Total	BTUH	29825	39084	47723	59316
Net Sensible	BTUH	25526	33263	40143	52012
THR	BTUH	37177	48925	60768	77416
75°F (24°C) DB, 45%rh					
Net Total	BTUH	29488	38584	47119	58219
Net Sensible	BTUH	28628	37175	44933	58219
THR	BTUH	36780	48403	60122	76220
72°F (22°C) DB, 50%rh					
Net Total	BTUH	28450	37290	45436	55965
Net Sensible	BTUH	25233	32859	39586	51355
THR	BTUH	35763	47040	58445	73948
72°F (22°C) DB, 45%rh					
Net Total	BTUH	28074	36832	44885	55056
Net Sensible	BTUH	27974	36805	44618	55056
THR	BTUH	35395	46562	57844	72878
68°F (20°C) DB, 50%rh					
Net Total	BTUH	26583	34892	42476	51652
Net Sensible	BTUH	24853	32341	38925	50718
THR	BTUH	33936	44624	55460	69498
68°F (20°C) DB, 45%rh					
Net Total	BTUH	26249	34485	42446	50790
Net Sensible	BTUH	26155	34448	42446	50790
THR	BTUH	33609	44200	54922	68507
Cooling Capacity - Chilled-water - Rated at standard air volume, 45°F entering water & 10°F water temperature rise					
75°F (24°C) DB, 50%rh					
Net Total	BTUH	28938	37206	55374	64409
Net Sensible	BTUH	25036	32622	45201	53288
Flow/Pressure Drop	GPM/ft-H ₂ O	6.3 / 2.8	8.1 / 4.4	12.1 / 11.3	14.4 / 15.6
75°F (24°C) DB, 45%rh					
Net Total	BTUH	26841	34724	50904	59472
Net Sensible	BTUH	26244	34348	47025	55778
Flow/Pressure Drop	GPM/ft-H ₂ O	5.8 / 2.4	7.6 / 3.9	11.2 / 9.8	13.4 / 13.6
72°F (22°C) DB, 50%rh					
Net Total	BTUH	22629	29498	44234	51436
Net Sensible	BTUH	22445	29458	40660	47997
Flow/Pressure Drop	GPM/ft-H ₂ O	4.9 / 1.8	6.5 / 2.9	9.8 / 7.7	11.7 / 10.6
72°F (22°C) DB, 45%rh					
Net Total	BTUH	21954	28705	41995	49110
Net Sensible	BTUH	21954	28705	41995	49110
Flow/Pressure Drop	GPM/ft-H ₂ O	4.8 / 1.7	6.3 / 2.8	9.3 / 7.0	11.2 / 9.8
68°F (20°C) DB, 50%rh					
Net Total	BTUH	15950	21276	32604	37955
Net Sensible	BTUH	15950	21276	32604	37955
Flow/Pressure Drop	GPM/ft-H ₂ O	3.5 / 1.0	4.7 / 1.7	7.3 / 4.6	8.9 / 6.4
68°F (20°C) DB, 45%rh					
Net Total	BTUH	15966	21317	32521	37914
Net Sensible	BTUH	15966	21317	32521	37914

Flow/Pressure Drop	GPM/ft-H ₂ O	3.5 / 1.0	4.7 / 1.7	7.3 / 4.5	8.8 / 6.4
Model no. PS6HD_ _		02	03	04	05
Fan Section - EC Plenum Fan					
Standard Air Volume	CFM	1400	1900	2400	3000
External Static Pressure in	in	0.3	0.3	0.3	0.3
Quantity of Fans		1	1	1	1
Net Total Fan Motor Power	kW	2.5	2.5	2.5	2.5
Absorbed Power	kW	0.32	0.46	0.81	1.47
Compressor - Refrigerant R407C					
Quantity of Compressors		1	1	1	1
Type		Scroll	Scroll	Scroll	Scroll
Evaporator Coil - Copper tube / aluminium fin - Stainless steel drain pan					
Face Area	ft ²	7.5	7.5	7.5	7.5
Rows Deep (DX/Chilled Water)		3 / 3	3 / 3	3 / 4	4 / 4
Fins per inch		13	13	13	13
Face Velocity	FPM	187	253	320	400
Reheat Section					
<i>Electric Reheat¹ - Single Stage, finned tubular type heater, SCR Controlled</i>					
Capacity	kW	6	6	6	6
Quantity of Heaters		3	3	3	3
Humidifier Section					
<i>Electrode Boiler Type¹</i>					
Capacity	lb/hr	10	10	10	10
Humidifier Power	kW	3.4	3.4	3.4	3.4
Filter Section - Pleated disposable type, 30%efficiency to ASHRAE 52-76					
<i>Downflow Models</i>					
Quantity of Filters		2 / 1	2 / 1	2 / 1	2 / 1
Nominal Size	LxWxD-in		20 x 24 x 2 / 12 x 24 x 2		

Model no. PS6HD__		02	03	04	05
Condensing Water Requirement					
75°F EWT					
Flow Rate	GPM	6.5	8.1	10.6	13.6
Unit Pressure Drop	ft-H ₂ O	19.9	13.8	20.1	16.5
85°F EWT					
Flow Rate	GPM	5.6	6.8	9.5	12.1 14.4
Unit Pressure Drop	ft-H ₂ O	15.5	10.8	17.6	
Water Regulating Valve - 2-way, head pressure controlled					
Size	in	1/2	3/4	3/4	1
Chilled-water Valve - 2-Way modulating					
Valve Size	in	1	1	1	1
Piping Connection Size					
Liquid Line	- ODM -in	1/2	1/2	1/2	1/2
Hot Gas Line	- ODM -in	5/8	5/8	5/8	5/8
Condensing Water	- ODM -in	1-1/8	1-1/8	1-3/8	1-3/8
Chilled Water	-ODM -in	1 1/8	1 1/8	1 5/8	1 5/8
Hot Water	- ODM -in	7/8	7/8	7/8	7/8
Steam	- ODM -in	7/8	7/8	7/8	7/8
Steam Condensate	- ODM -in	3/4	3/4	3/4	3/4
Humidifier Water	- ODM -in	1/4	1/4	1/4	1/4
Condensate Drain	- ODM -in	3/4	3/4	3/4	3/4
Physical Details - For units with standard options only; consult factory for special options and configuration					
Dimensions	in		37 (W) x 35-1/8 (D)x	76 (H)	
Approx. Weight	lbs	750	777	777	819

¹ Standard options

Glycol Dual-cooling System

Model no. PS6ED _ _		02	03	04	05
Cooling Capacity – Direct Expansion - Rated at standard air volume					
75°F (24°C) DB, 50%rh					
Net Total	BTUH	26898	35447	43167	53000
Net Sensible	BTUH	24713	32224	38753	50851
THR	BTUH	36251	47861	59331	74419
75°F (24°C) DB, 45%rh					
Net Total	BTUH	26565	34947	42553	51934
Net Sensible	BTUH	26430	34877	42553	51830
THR	BTUH	35859	47349	58681	73255
72°F (22°C) DB, 50%rh					
Net Total	BTUH	25618	33703	41020	49865
Net Sensible	BTUH	24579	31916	38351	49592
THR	BTUH	34937	46117	57169	71177
72°F (22°C) DB, 45%rh					
Net Total	BTUH	25248	33248	40466	48902
Net Sensible	BTUH	25140	33178	40453	48861
THR	BTUH	34576	45646	56571	70097
68°F (20°C) DB, 50%rh					
Net Total	BTUH	23875	31475	38247	45783
Net Sensible	BTUH	23715	31392	37929	45529
THR	BTUH	33238	43893	54397	66975
68°F (20°C) DB, 45%rh					
Net Total	BTUH	23576	31054	37764	44953
Net Sensible	BTUH	23534	31017	37746	42612
THR	BTUH	32914	43458	53860	66010
Cooling Capacity - Chilled-water - Rated at standard air volume, 45°F entering water & 10°F water temperature rise					
75°F (24°C) DB, 50%rh					
Net Total	BTUH	28938	37206	55374	64409
Net Sensible	BTUH	25036	32622	45201	53288
Flow/Pressure Drop	GPM/ft-H ₂ O	6.3 / 2.8	8.1 / 4.4	12.1 / 11.3	14.4 / 15.6
75°F (24°C) DB, 45%rh					
Net Total	BTUH	26841	34724	50904	59472
Net Sensible	BTUH	26244	34348	47025	55778
Flow/Pressure Drop	GPM/ft-H ₂ O	5.8 / 2.4	7.6 / 3.9	11.2 / 9.8	13.4 / 13.6
72°F (22°C) DB, 50%rh					
Net Total	BTUH	22629	29498	44234	51436
Net Sensible	BTUH	22445	29458	40660	47997
Flow/Pressure Drop	GPM/ft-H ₂ O	4.9 / 1.8	6.5 / 2.9	9.8 / 7.7	11.7 / 10.6
72°F (22°C) DB, 45%rh					
Net Total	BTUH	21954	28705	41995	49110
Net Sensible	BTUH	21954	28705	41995	49110
Flow/Pressure Drop	GPM/ft-H ₂ O	4.8 / 1.7	6.3 / 2.8	9.3 / 7.0	11.2 / 9.8
68°F (20°C) DB, 50%rh					
Net Total	BTUH	15950	21276	32604	37955
Net Sensible	BTUH	15950	21276	32604	37955
Flow/Pressure Drop	GPM/ft-H ₂ O	3.5 / 1.0	4.7 / 1.7	7.3 / 4.6	8.9 / 6.4
68°F (20°C) DB, 45%rh					
Net Total	BTUH	15966	21317	32521	37914

Net Sensible	BTUH	15966	21317	32521	37914
Flow/Pressure Drop	GPM/ft-H ₂ O	3.5 / 1.0	4.7 / 1.7	7.3 / 4.5	8.8 / 6.4
Model no. PS6ED_ _		02	03	04	05
Fan Section - EC Plenum Fan					
Standard Air Volume	CFM	1400	1900	2400	3000
External Static Pressure in	in	0.3	0.3	0.3	0.3
Quantity of Fans		1	1	1	1
Net Total Fan Motor Power	kW	2.5	2.5	2.5	2.5
Absorbed Power	kW	0.32	0.46	0.81	1.47
Compressor - Refrigerant R407C					
Quantity of Compressors		1	1	1	1
Type		Scroll	Scroll	Scroll	Scroll
Evaporator Coil - Copper tube / aluminium fin - Stainless steel drain pan					
Face Area	ft ²	7.5	7.5	7.5	7.5
Rows Deep (DX/Chilled Water)		3 / 3	3 / 3	3 / 4	4 / 4
Fins per inch		13	13	13	13
Face Velocity	FPM	187	253	320	400
Reheat Section					
<i>Electric Reheat¹ - Single Stage, finned tubular type heater, SCR Controlled</i>					
Capacity	kW	6	6	6	6
Quantity of Heaters		3	3	3	3
Humidifier Section					
<i>Electrode Boiler Type¹</i>					
Capacity	lb/hr	10	10	10	10
Humidifier Power	kW	3.4	3.4	3.4	3.4
Filter Section - Pleated disposable type, 30%efficiency to ASHRAE 52-76					
<i>Downflow Models</i>					
Quantity of Filters		2 / 1	2 / 1	2 / 1	2 / 1
Nominal Size	LxWxD-in		20 x 24 x 2 / 12 x 24 x 2		

Model no. PS6ED_ _		02	03	04	05
Glycol Solution Requirement - 40% ethylene glycol					
95°F EWT					
Flow Rate	GPM	5.7	10.1	11	16
Unit Pressure Drop	ft-H ₂ O	9.3	19.1	10.7	17.7
105°F EWT					
Flow Rate	GPM	5.1	8	9.4	12.2
Unit Pressure Drop	ft-H ₂ O	8.0	14.0	8.9	12.2
Glycol Solution Regulating Valve - 2-way, head pressure controlled					
Size	in.	3/4	3/4	1	1
Chilled-water Valve - 2-Way modulating					
Valve Size	in.	1	1	1	1
Piping Connection Size					
Liquid Line	- ODM -in	1/2	1/2	1/2	1/2
Hot Gas Line	- ODM -in	5/8	5/8	5/8	5/8
Glycol Solution	- ODM -in	1-5/8	1-5/8	1-5/8	1-5/8
Chilled Water	-ODM -in	1 1/8	1 1/8	1 1/8	1 1/8
Hot Water	- ODM -in	7/8	7/8	7/8	7/8
Steam	- ODM -in	7/8	7/8	7/8	7/8
Steam Condensate	- ODM -in	3/4	3/4	3/4	3/4
Humidifier Water	- ODM -in	1/4	1/4	1/4	1/4
Condensate Drain	- ODM -in	3/4	3/4	3/4	3/4
Physical Details - For units with standard options only; consult factory for special options and configuration					
Dimensions	in		37 (W) x 35-1/8 (D)x	76 (H)	
Approx. Weight	lbs	770	797	797	843

¹ Standard options

Glycol Free-cooling System

Model no. PS6FD _ _		02	03	04	05
Cooling Capacity – Direct Expansion - Rated at standard air volume					
75°F (24°C) DB, 50%rh					
Net Total	BTUH	26898	35447	43167	53000
Net Sensible	BTUH	24713	32224	38753	50851
THR	BTUH	36251	47861	59331	74419
75°F (24°C) DB, 45%rh					
Net Total	BTUH	26565	34947	42553	51934
Net Sensible	BTUH	26430	34877	42553	51830
THR	BTUH	35859	47349	58681	73255
72°F (22°C) DB, 50%rh					
Net Total	BTUH	25618	33703	41020	49865
Net Sensible	BTUH	24579	31916	38351	49592
THR	BTUH	34937	46117	57169	71177
72°F (22°C) DB, 45%rh					
Net Total	BTUH	25248	33248	40466	48902
Net Sensible	BTUH	25140	33178	40453	48861
THR	BTUH	34576	45646	56571	70097
68°F (20°C) DB, 50%rh					
Net Total	BTUH	23875	31475	38247	45783
Net Sensible	BTUH	23715	31392	37929	45529
THR	BTUH	33238	43893	54397	66975
68°F (20°C) DB, 45%rh					
Net Total	BTUH	23576	31054	37764	44953
Net Sensible	BTUH	23534	31017	37746	42612
THR	BTUH	32914	43458	53860	66010
Cooling Capacity – 100% Free-cooling - Rated at standard air volume, 45°F entering glycol					
75°F (24°C) DB, 50%rh					
Net Total	BTUH	24457	28781	51090	60273
Net Sensible	BTUH	23235	28781	43443	51584
75°F (24°C) DB, 45%rh					
Net Total	BTUH	23645	28351	46859	55634
Net Sensible	BTUH	23645	28351	45345	54183
72°F (22°C) DB, 50%rh					
Net Total	BTUH	20817	24790	39296	46989
Net Sensible	BTUH	20817	24790	38617	46164
72°F (22°C) DB, 45%rh					
Net Total	BTUH	20639	24779	38063	45632
Net Sensible	BTUH	20639	24779	38063	45632
68°F (20°C) DB, 50%rh					
Net Total	BTUH	16768	19951	27666	33256
Net Sensible	BTUH	16768	19951	27666	33256
68°F (20°C) DB, 45%rh					
Net Total	BTUH	16785	19979	27704	33357
Net Sensible	BTUH	16785	19979	27704	33357

Model no. PS6FD_ _		02	03	04	05
Fan Section - EC Plenum Fan					
Standard Air Volume	CFM	1400	1900	2400	3000
External Static Pressure	in	0.3	0.3	0.3	0.3
Quantity of Fans		1	1	1	1
Net Total Fan Motor Power	kW	2.5	2.5	2.5	2.5
Absorbed Power	kW	0.32	0.46	0.81	1.47
Compressor - Refrigerant R407C					
Quantity of Compressors		1	1	1	1
Type		Scroll	Scroll	Scroll	Scroll
Evaporator Coil - Copper tube / aluminium fin - Stainless steel drain pan					
Face Area	ft ²	7.5	7.5	7.5	7.5
Rows Deep (DX/Free Cooling)		3 / 3	3 / 3	3 / 4	4 / 4
Fins per inch		13	13	13	13
Face Velocity	FPM	187	253	320	400
Reheat Section					
<i>Electric Reheat¹ - Single Stage, finned tubular type heater, SCR Controlled</i>					
Capacity	kW	6	6	6	6
Quantity of Heaters		3	3	3	3
Humidifier Section					
<i>Electrode Boiler Type¹</i>					
Capacity	lb/hr	10	10	10	10
Humidifier Power	kW	3.4	3.4	3.4	3.4
Filter Section - Pleated disposable type, 30%efficiency to ASHRAE 52-76					
<i>Downflow Models</i>					
Quantity of Filters		2 / 1	2 / 1	2 / 1	2 / 1
Nominal Size	LxWxD-in		20 x 24 x 2 / 12 x 24 x 2		

Model no. PS6FD_ _		02	03	04	05
Glycol Solution Regulating Valve - 2-way, head pressure controlled					
Valve Size	in	3/4	3/4	1	1
Quantity of Valves		1	1	1	1
Glycol Solution Free-cooling Regulating Valve - 3-way modulating					
Valve Size	in	1	1	1	1
Quantity of Valves		1	1	1	1
Glycol Solution Requirement - 40% ethylene glycol at 7.2°C (45°F) entering temperature, 0°C (32°F) ambient temperature					
Flow Rate	GPM	8.6	10.2	18.1	21.9
Unit Pressure Drop	ft-H ₂ O	6.2	8.5	30.1	42.4
Piping Connection Size					
Liquid Line	- ODM -in	1/2	1/2	1/2	1/2
Hot Gas Line	- ODM -in	5/8	5/8	5/8	5/8
Glycol Solution	- ODM -in	1-5/8	1-5/8	1-5/8	1-5/8
Hot Water	- ODM -in	7/8	7/8	7/8	7/8
Steam	- ODM -in	7/8	7/8	7/8	7/8
Steam Condensate	- ODM -in	3/4	3/4	3/4	3/4
Humidifier Water	- ODM -in	1/4	1/4	1/4	1/4
Condensate Drain	- ODM -in	3/4	3/4	3/4	3/4
Physical Details - For units with standard options only; consult factory for special options and configuration					
Dimensions	in		37 (W) x 35-1/8 (D)x 76 (H)		
Approx. Weight	lbs	770	797	797	843

1 Standard options

Guide Specification – 60 Hz

1. General

1.1 The intelligent precision air-conditioning system shall be a **ClimateWorx PS6** model _____.

1.2 The unit shall be designed specifically for telecommunication, computer and critical equipment room environmental control with automatic monitoring and control of cooling, heating, humidifying, dehumidifying and air filtration functions.

1.3 The unit shall be self-contained, factory assembled and tested, arranged for (downflow) / (upflow) air delivery.

1.4 The system shall have a total cooling capacity of _____ kW(Btu/h) and a sensible cooling capacity of _____ kW(Btu/h) rated at an entering air temperature of _____°C (____°F) dry bulb and _____% relative humidity.

1.5 The system shall be designed to operate on a _____ V _____ ph _____ Hz electricity supply.

2. Mechanical Parts

2.1 Housing

2.1.1 The housing of the unit shall be constructed based on a frame and panel principle with removable panels for maximum service access.

2.1.2 The housing shall be a modular design, which allows multiple units to be installed side by side.

2.1.3 All components shall be accessible through the front panels (**Standard Units ONLY**).

2.1.4 Major components shall be located out of the air-path so as to avoid interrupting unit operation during routine service.

2.1.5 All panels shall be formed and welded from 18

gauge steel and insulated with 25mm (1") thick, 24kg/m³ (1.5 lb/ft³) density fiber-glass insulation.

2.1.6 Front panels shall be hinged and locked with ¼-turn captive fasteners to facilitate quick and easy access.

2.1.7 The entire unit shall be finished with epoxy powder paint to ensure proper surface adhesion. The panel colour shall be Canatal standard off-white. The frame is gray.

2.2 Evaporator Fan Assembly

2.2.1 The unit shall have a backwards inclined wheel with a integral EC motor to deliver _____ m³/h (cfm) of air at 75 Pa (0.3" w.g.) external static pressure.

2.2.2 The EC Fan shall be statically and dynamically balanced.

2.2.3 All parts of the fan shall be painted, galvanized or corrosion treated.

2.2.6 The speed of the fan shall be adjustable by means of a potentiometer or through the microprocessor controls.

2.2.7 Optional fan can be dropped into a raised floor with a minimum height of 18". Must specify at time of order. See floorstand options to accommodate this feature.

2.3 Filter

2.3.1 The filter chamber shall be an integral part of the system, located at the entrance of return air path and should be serviceable from the front of the unit.

2.3.2 The filters shall be standard capacity, 50mm (2") deep pleated type having a 25-30% efficiency, > 95% arrestance to ASHRAE 52.1 (**MERV 8**).

2.3.3 The filters shall be listed by Underwriters' Laboratories as class 2.

2.4 Heater

2.4.1 Electric resistance heaters shall be provided to offset the sensible cooling effect brought about during dehumidification mode.

2.4.2 The heating element shall have a total heating capacity of _____ kW(Btu/h).

2.4.3 The electric heaters shall be Silicon Controlled Rectifier (SCR) controlled, with an extruded aluminum heat sink to prevent room temperature gradient from exceeding 1.5°C (2.7°F) in 10 minutes.

2.4.4 The heating element shall be of low density, tubular finned construction with a non-corrosive metal sheath.

2.4.5 The heating element shall be electrically and thermally protected.

2.5 Humidifier

2.5.1 The humidifier shall be a self-contained electrode boiler type complete with water level control and auto-drain functions.

2.5.2 The humidifier shall have a steam generation capacity of _____ kg/h (lbs/h).

2.5.3 The humidifier shall be designed to operate on ordinary tap water and shall be equipped with automatic water supply and flushing system to reduce mineral precipitation.

2.5.4 The humidifier shall have an Auto-Adaptive control system to optimize water conductivity, control automatic drain/flush cycles, minimize energy waste and maximize cylinder life.

3. Refrigeration Parts- DX Systems

3.1 Refrigeration system

3.1.1 The refrigeration circuit shall be available for operation on non-ozone depleting R407C refrigerant.

3.1.2 The refrigeration circuit shall have the following components:

- **Thermal expansion valve with external equalizer**
- **Refrigerant distributor**
- **Liquid line pump-down solenoid valve**
- **Liquid line sight glass**
- **Access valve**
- **Liquid line filter-drier**
- **Liquid line shut-off valve**
- **Low pressure cut-out switch**
- **High pressure cut-out switch**

3.1.3 The refrigeration circuit shall be pre-piped and leak tested ready for field connection.

3.1.4 All refrigerant piping shall be of type L copper pipe.

3.1.5 All units shall be factory run tested to verify operation prior to shipping.

3.2 Compressor

3.2.1 The compressor shall be of the scroll type. Compressor casing shall have no gaskets or seals to eliminate the possibility of refrigerant or oil leakage into the facilities.

3.2.2 The compressor shall be equipped with the following items:

- **Suction rotolock valve**
- **Discharge rotolock valve**
- **Gauge ports**
- **Internal thermal overload**
- **Vibration isolators**

3.2.3 The compressor shall be located in a separate compartment apart from the air path so it can be serviceable without disturbing the operation of the unit.

3.2.4 Compressor positive start feature shall be provided to avoid compressor short cycling and low pressure lockout during winter start-up.

3.3 Direct Expansion Evaporator Coil

3.3.1 The coil shall be of 3/8" OD copper tubes expanded into aluminum fins.

3.3.2 The coil shall be split to allow for a rapid dehumidification cycle when required.

3.3.3 The coil shall have a face area _____ m² (ft²) and _____ rows deep in the direction of the airflow and have a maximum face velocity of _____ m/s (fpm).

3.3.4 A stainless steel corrosion free condensate drain pan shall be provided under the coil.

3.4 Air-Cooled Condenser (Air-Cooled System only)

3.4.1 The air-cooled condenser shall be low-profile and the cabinet will be constructed of heavy gauge galvanized steel.

3.4.2 The condenser shall be factory matched for _____ °C (°F) ambient.

3.4.3 The condenser shall be constructed of aluminum fins and copper tubes staggered in direction of airflow and arranged for vertical / horizontal air discharge.

3.4.4 The winter control system for the air cooled condenser shall be variable speed control / refrigerant head pressure control.

3.4.5 The winter control system shall utilize **ORI and ORD head pressure control (HPC) valves** to flood the condenser. This system shall include a receiver which is factory piped, heat traced, insulated and adequately sized to hold the charge of the condenser and the indoor unit.

3.4.6 The air cooled condenser shall be suitable for _____ V _____ ph _____ Hz power supply.

3.5 Water-Cooled Condenser Module (Water/Glycol-Cooled System)

3.5.1 The water-cooled condensers shall be unit mounted and piped.

3.5.2 Each condenser shall be completed with the following items:

- **Two-way pressure actuated water regulating valve (Three-way optional)**
- **Receiver**

3.5.3 The unit shall require _____ l/s (USgpm) of 29.4°C (85°F) condensing water and have a maximum pressure drop of _____ kPa (psi).

3.6 Glycol Cooler (Glycol-Cooled System only)

3.6.1 The glycol cooler shall be low-profile, constructed of heavy gauge galvanized steel.

3.6.2 The glycol cooler shall be factory matched for _____ °C (°F) ambient.

3.6.3 The cooler shall be constructed of copper tubes expanded into aluminum fins and pressure tested to 425 psi.

3.6.4 The fan motor shall be drip-proof with permanently lubricated ball bearings and inherent overload protection.

3.6.5 The cooler shall be suitable for _____ V _____ ph _____ Hz power supply.

4. Mechanical Parts - (Chilled-Water System)

4.1 Chilled-water valve

4.1.1 The chilled-water valve shall be a two-way modulating valve with pressure rating of _____ kPa

(psi) (Three way valve Optional).

4.1.2 The valve actuator shall be of an electric type with a totally enclosed dust and water proof enclosure.

4.1.3 The valve actuator shall have a manual operation facility and position indicator.

4.2 Cooling Coil

4.2.1 The coil shall be of 3/8" OD copper tubes expanded into aluminum fins.

4.2.2 The coil shall have a face area of _____ m² (ft²) and _____ rows deep in the direction of the airflow and have a maximum face velocity of _____ m/s (fpm).

4.2.3 A stainless steel corrosion free condensate drain pan shall be provided under the coil.

4.2.4 The coil shall require _____ l/s (USgpm) of 7.2°C (45°F) chilled-water and the pressure drop across the coil shall not exceed _____ kPa (psi).

5. Control System

5.1 System

5.1.1 The unit shall have a microprocessor based control system with automatic control and monitoring capability.

5.1.2 The control system shall use **Proportional + Integral + Derivative (PID) control algorithm** to maintain the temperature and humidity to a close tolerance of ±0.5°C (0.9°F) and 3%RH.

5.1.3 The control system shall have a fascia with 240x128 dot resolution touch screen graphical LCD display located on the front panel of the unit for the display and programming functions.

5.1.5 The control system shall display simultaneously the following information:

- **Room temperature in °C/°F**

- **Room humidity in %RH**
- **Unit no.**
- **On/Off mode indicator**
- **Operating status**
- **Active alarms**
- **Date & time**

5.1.6 System configuration and setting shall be stored in non-volatile memory and safeguarded in the event of power failure.

5.1.7 The system shall have at least three levels of programmable password access to prevent unauthorized changes of the system configuration and settings.

5.1.8 The system shall be capable of communicating with a Building Management System (BMS) via an RS485 serial link through a BMS Interface (Communications Bridge) for remote monitoring function.

5.1.9 The system shall have a manual disconnect switch of the locking type, which can be accessed outside of the unit while the door is closed. High voltage electrical components will not be accessible unless the switch is off.

5.2 Control Features

5.2.1 System set points and configuration shall be programmable only when access is gained by entering the correct password.

5.2.2 The following programmable control parameters shall be provided for fine tuning the system to suit the site conditions and requirements:

- **Temperature set point**
- **Temperature high limit**
- **Temperature low limit**
- **Cooling proportional band**
- **Heating proportional band**
- **Temperature dead band**
- **Temperature integral action time**
- **Humidity set point**
- **Humidity high limit**
- **Humidity low limit**
- **Humidifying proportional band**
- **Dehumidifying proportional band**

- Humidity dead band
- Humidity integral action time

5.2.3 The control system shall have the following programmable On/Off control mode options:

- **“Local” mode allows unit on/off control via the “I/O” key on the display**
- **“Remote” mode allows unit on/off control via a switch input**
- **“Timer” mode allows 4 event/day weekly automatic on/off control**

5.2.4 A “Standby unit enable” input shall be provided to force the unit to start irrespective of the current On/Off status and On/Off mode setting.

5.2.5 For energy saving and extended system life, a “Relax” feature shall be provided in the “Timer” On/Off mode to allow wider temperature and humidity tolerances when the room is not operational.

5.2.6 The system shall have programmable, manual, or automatic restart option. A programmable startup delay shall be provided for the automatic restart option which allows multiple units to restart progressively when power resumes after a power failure.

5.2.7 The accumulated runtime of the following components shall be logged for energy analysis and planned maintenance:

- **Fan**
- **Compressor**
- **Heaters**
- **Humidifier**

5.2.8 Components shall be scheduled to activate sequentially to minimize inrush current.

5.2.9 The system shall have a temperature and humidity graph which shows the main temperature and humidity variation in the latest 24 hours. The data for the graph shall be logged in 15 minutes interval.

5.3 Alarms

5.3.1 The control system shall have the following standard alarms:

- **High/Low temperature, 1 and 2**
- **High/Low humidity, 1 and 2**
- **High/Low voltage**
- **Filter dirty**
- **Fan overload**
- **Low airflow**
- **Compressor high pressure**
- **Compressor low pressure**
- **Heater overheat**
- **Boiler dirty**
- **Fire**
- **Flood**

5.3.2 All alarms shall have programmable reporting / response options which include:

- **Polling enable / disable**
- **Unit shutdown**
- **Activate standby unit**
- **Activate common alarm output**
- **Log alarm event**
- **4 warning sound selection**

5.3.3 Alarm messages, when programmed, shall comprise text description and occurrence time. Messages shall be ranked in the sequence of occurrence for fault analysis.

5.3.4 When a programmed alarm condition exists, the audible alarm shall sound and the common alarm output shall close until acknowledged. Active alarm record shall remain until the alarm condition is cleared.

5.3.5 A historical event log which maintain the latest 50 system events shall be provided. The text description and occurrence time of the following events shall be logged:

- **Power failure**
- **Power restore**
- **Unit start**
- **Unit stop**
- **Alarm raised**
- **Alarm acknowledged**
- **Alarm cleared**

5.4 Co-Work, Multiple Unit Configuration

5.4.1 The units shall have **built-in** master and slave inter-networking capability, **Co-Work**, which allows a combination of a maximum of 8 master and slave units to form a local area network without the need for external hardware.

5.4.2 To achieve the tightest control tolerance and minimize component on/off, the units shall have a built in control step expansion algorithm which uses a multi-step control scheme to coordinate the on/off of cooling, heating, humidifying and dehumidifying steps in multiple units.

5.4.3 The units shall have a sequential load activation control algorithm to minimize the inrush current when components among multiple units are activated at the same time.

5.4.4 The control of a slave unit shall not be limited to any particular master units. Any master unit can control any slave units. In case of a master unit failure or scheduled service, the remaining master units in the same network shall automatically take over the control.

5.4.5 The units shall have a duty sharing control algorithm that helps maintain the required number of duty units, balancing runtime by automatically coordinating units on/off and providing time based auto-changeover.

5.4.6 The units shall have a data synchronization feature. Operation data such as set points, time schedule, and alarm status shall be automatically synchronized among all the units under the same local area network.

5.4.7 To avoid hunting among multiple units, the units shall have a control value averaging algorithm that allows units to exchange sensor readings and control the room based on the common desired

average values. Units shall be capable of displaying the network average temperature and humidity or individual unit temperature and humidity.

6.0 Optional Accessories

6.1 Capacity Control

6.1.1 Capacity control shall consist of pressure regulated hot gas by pass valve. The valve shall be factory set to bypass below 58 psig suction pressure. A solenoid activated shut off valve shall be used for positive shut off.

6.1.2 Each compressor shall have hot gas by pass to preserve the lead/lag functionality.

6.2 Liquid Detection

6.2.1 Liquid detection shall consist if a single point liquid sensor. Sensor wires directly into the microprocessor and includes 10 feet of wire for field placement.

6.2.2 Liquid detection shall consist of liquid cable sensor. Cable wires directly into the microprocessor and includes 10 feet of wire to extend to the bottom of the unit and 15 feet of sensing cable shall be supplied with the unit for field placement.

6.3 Floor Stand

6.3.1 Floor stand shall be a welded steel frame with corrosion resistant finish from 8 to 24 inches (in 2 inch increments) in height. The stands shall have adjustable legs for leveling with ± 1.5 inch of adjustment. Drop in the floor features require a floorstand with OSHA guards. **Minimum height for dropping fans into the floor is 18 inches** For floor stands greater than 24 inches please consult factory.

6.4 Return Air Plenum

6.4.1 Factory plenum matches unit and is internally insulated.

6.5 Remote Supervisory Panel

6.5.1 ClimateWorx M52 remote monitoring and supervisory panel allows monitoring and control of up to **7 master and 1 slave units**. Panel is connected by way of communication cable.

6.6 Firestat

6.6.1 Factory mounted and wired firestat will shut the unit down in the event of high heat detection.

6.7 Smoke Detector

6.7.1 Smoke detector is factory mounted and wired

to shut unit down in the event of the presence of smoke.

6.8 Condensate Pump

6.8.1 Condensate pump shall remove condensate from evaporator and humidifier when a drain is not available nearby. Pump is shipped loose for field installation. Pump shall be capable of 180 GPH at 24 ft. of head.

Appendix A: Dimensional Drawings

Drawing Title	Drawing No.	Page No.
SERIES PS6 - Downflow Dimensional Detail	S6DDX600PS6	31



