CSAHP
Evaporator Coil
Slab Coil – Cased – Horizontal
for Puron Advance™ (R-454B) Refrigerant

Carrier®
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Product Data

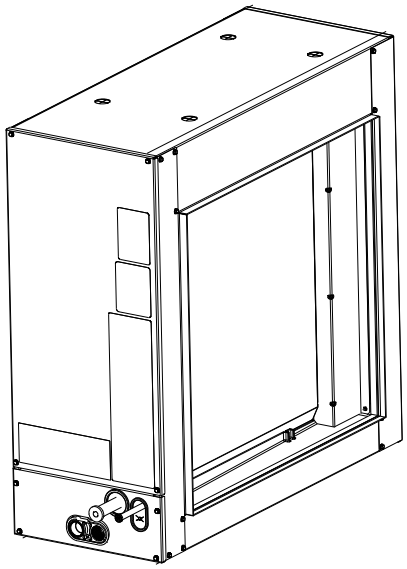

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Fig. 1 – CSAHP Coil

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Puron ADVANCE

AHRI CERTIFIED
Use of the AHRI CertifiedTM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.

ISO 9001:2000 QMI REGISTERED

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The CSAHP evaporator coils incorporate proven standards for reliable system operation and performance throughout the life of a quality Air Conditioner or Heat Pump system. Evaporator coils manufactured and installed as part of a total comfort system provide AHRI-rated performance ratings and are additionally listed with UL and c-UL. The coils are available for systems utilizing Puron Advance refrigerant. The CSAHP are cased slab coils that are housed in a durable, 22 gauge, pre-painted taupe metallic cabinet. The fully-insulated cabinet (foil faced with R-2.1 insulation properties) provides for quiet, efficient operation of the evaporator coil. The coils are available in sizes 024 through 060 (2-5 tons).

DESIGN FEATURES

Performance — Designed with performance in mind, these new slab coils offer low pressure drops to enhance system performance and airflow characteristics.

Thermostatic Expansion Valves (TXV) — All CSAHP coils have refrigerant-specific, factory-installed TXVs.

Durable Condensate Pans — The corrosion-resistant drain pan is designed in a new "fiberglass reinforced thermoset polyester" material (FRTP) that offers unsurpassed pan strength.

Refrigerant Connections — The coils are provided with industry proven sweat-connections for leak-free operation to maintain system reliability. All models come from the factory with enough length of straight tube to accommodate braze-less compression fittings.

Dissipation System — All models are shipped with a complete A2L (R-454B) dissipation system, which is required for installation.

Table 1 – Dissipation Parts List

Component	Location
Refrigerant Sensor	Factory Installed
Sensor Wire Harness	Factory Installed
Leak Dissipation Control Board	Parts Box
Dissipation Board Housing	Parts Box
Power Wire Harness	Parts Box

Burst Pressure — These coils meet or exceed burst pressure of 2100 psi which is at least three to five times the pressure they will see in actual application.

UV Knockouts — The cased coils also come with factory-installed UV knockouts for quick and easy installation of UV lights.

Serviceability — The coils are removable from the front of the unit without use of any tools, after the door is removed. The units are also designed with a single size screw. One tool required for all jobs.

Installation Flexibility — The CSAHP evaporator coils are cased slab coils that provide flexibility for a wide variety of field applications. The unique design is great for all those horizontal applications. It should be noted that this new design maintains the same duct size openings as previous units, so replacement of existing horizontal coils will be easy to convert.

NOTE: For cooling-only units, coil can be installed in either airflow direction. Heat pump applications require specific airflow direction to obtain performance.

Aluminum Coils — built with aluminum hairpins, designed to resist both general pitting corrosion and excessive indoor corrosion-Formicary Corrosion.

- **Limited Warranty —** Default 5-year parts limited warranty:
  - 10-year parts limited warranty with timely registration*. Equipment must be registered within 90 days of original installation, except in jurisdictions where warranty benefits cannot be conditioned on registration.
  - * Applies to original purchaser/homeowner and not available to subsequent owners, except in jurisdictions where laws dictate otherwise.

See Warranty certificate for complete details and restrictions.

Table 2 – Model Number Nomenclature

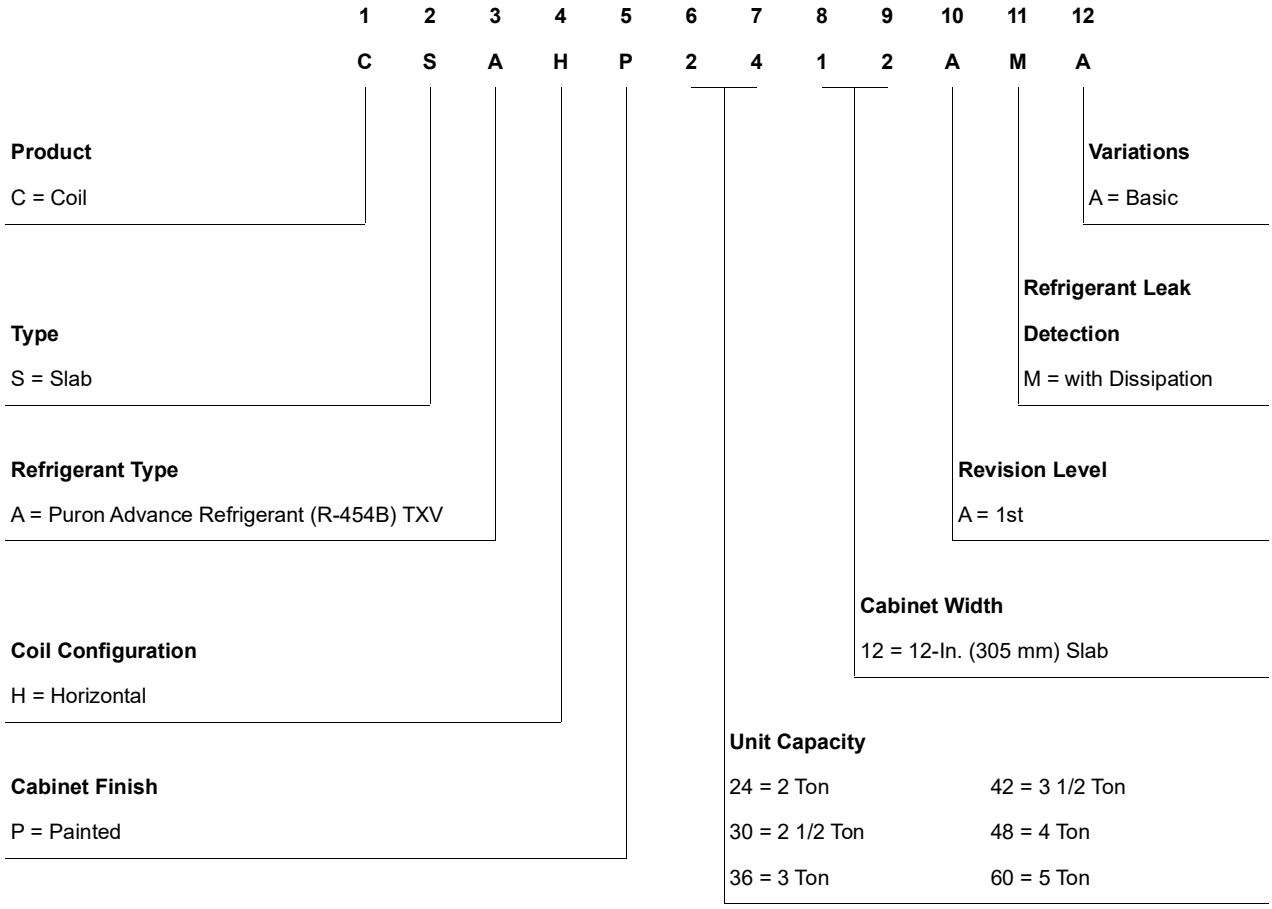

Table 3 – Accessories

Part Number	Description
KGADA0101ALL	Coil Adapter Kits - No Offset
KGADA0201ALL	Coil Adapter Kits - Single Offset
KGADA0301ALL	Coil Adapter Kits - Double Offset
ACAWHNDIS01A	Alternate Wire Harness / Relay Kit – Higher Airflow
ACAINTDIS10A	CNN / Communicating Plug (10-pack)

DIMENSIONS

UNIT	SERIES	A		B		C		D		E (Suction Line)		OPERATING WEIGHT		SHIPPING WEIGHT		SHIPPING HEIGHT		SHIPPING WIDTH		SHIPPING DEPTH	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	Lbs	Kgs	Lbs	Kgs	INCH	MM	INCH	MM	INCH	MM
CSAHP2412AMA	A	24 1/16	611.2	28 3/8	720.7	16 1/16	408.0	9 3/8	238.1	5/8	15.9	50.6	23.0	55.0	24.9	28.3	718.8	13.0	330.2	24.1	612.1
CSAHP3012AMA	A	24 1/16	611.2	28 3/8	720.7	16 1/16	408.0	9 3/8	238.1	3/4	19.1	50.5	22.9	56.0	25.4	28.3	718.8	13.0	330.2	24.1	612.1
CSAHP3612AMA	A	28 13/16	731.8	28 3/8	720.7	23 1/16	585.8	15 1/16	382.6	3/4	19.1	55.9	25.4	62.5	28.3	28.3	718.8	13.0	330.2	28.8	731.5
CSAHP4212AMA	A	28 13/16	731.8	28 3/8	720.7	23 1/16	585.8	15 1/16	382.6	7/8	22.2	56.3	25.5	64.0	29.0	28.3	718.8	13.0	330.2	28.8	731.5
CSAHP4812AMA	A	28 13/16	731.8	30 3/8	771.5	23 1/16	585.8	17 5/16	439.8	7/8	22.2	57.2	25.9	66.0	29.9	30.3	769.6	13.0	330.2	28.8	731.5
CSAHP6012AMA	A	38 15/16	989.0	30 3/8	771.5	33 13/16	858.8	24 13/16	630.2	7/8	22.2	71.5	32.4	82.5	37.4	30.3	769.6	13.0	330.2	38.9	988.1

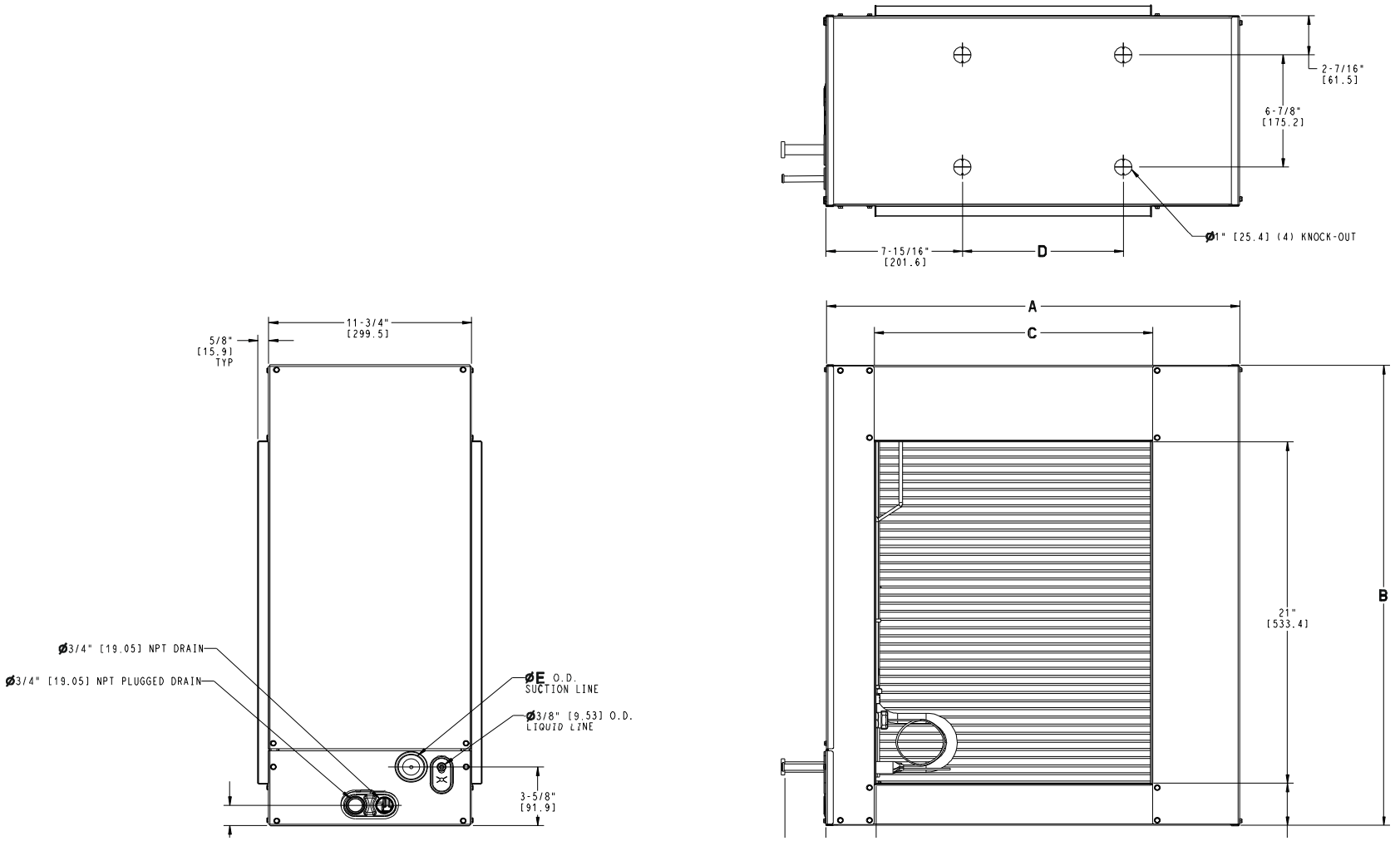

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Fig. 2 – CSAHP Coil

PERFORMANCE DATA

Table 4 – Cooling Capacities (MBH) – Puron Advance

INDOOR COIL AIR		SATURATED TEMPERATURE LEAVING EVAPORATOR (deg F)														
		35			40			45			50			55		
CFM	EWB	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF
SIZE 2412																
600	72	43.17	20.45	0.00	39.72	18.98	0.06	35.06	16.99	0.07	29.49	14.81	0.06	23.32	12.51	0.07
	67	35.37	21.49	0.05	31.60	19.67	0.07	26.66	17.54	0.07	21.20	15.29	0.07	15.54	12.96	0.09
	62	27.51	21.77	0.07	24.19	20.23	0.07	19.66	17.62	0.13	15.97	14.85	0.24	13.34	13.33	0.33
800	72	52.94	25.32	0.05	48.98	23.49	0.11	43.54	21.29	0.09	36.88	18.77	0.07	29.37	16.04	0.07
	67	43.94	27.12	0.06	39.35	24.99	0.07	33.37	22.44	0.07	26.51	19.64	0.08	19.34	16.48	0.12
	62	33.94	27.73	0.07	30.07	25.58	0.10	24.72	22.62	0.14	19.99	18.90	0.26	16.98	16.98	0.36
1000	72	60.33	29.02	0.09	56.56	27.38	0.11	50.58	25.03	0.10	43.11	22.32	0.08	34.69	19.30	0.08
	67	50.92	32.00	0.07	45.81	29.75	0.07	39.11	26.93	0.08	31.56	24.05	0.07	22.83	19.93	0.13
	62	39.34	32.89	0.09	35.34	30.55	0.13	29.42	27.14	0.17	24.01	23.94	0.28	18.26	18.26	0.45

INDOOR COIL AIR		SATURATED TEMPERATURE LEAVING EVAPORATOR (deg F)														
		35			40			45			50			55		
CFM	EWB	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF
SIZE 3012																
750	72	52.65	25.69	0.00	48.79	23.34	0.00	43.01	21.18	0.00	36.82	18.72	0.07	29.77	16.00	0.05
	67	43.88	27.02	0.07	39.11	24.71	0.05	33.57	22.21	0.04	27.08	19.44	0.03	19.79	16.52	0.03
	62	35.58	28.14	0.03	30.50	25.59	0.03	24.97	22.93	0.03	20.14	20.14	0.09	17.13	17.13	0.23
1000	72	62.74	30.09	0.00	57.03	27.88	0.00	50.82	25.46	0.12	43.85	22.70	0.09	35.46	19.61	0.07
	67	51.83	32.56	0.08	46.33	30.07	0.07	39.95	27.30	0.06	32.56	24.24	0.05	24.16	20.92	0.05
	62	42.34	34.67	0.05	36.64	31.91	0.05	30.48	28.97	0.05	25.45	24.86	0.17	21.66	21.65	0.27
1250	72	69.29	33.79	0.00	63.54	31.55	0.19	56.83	28.97	0.12	48.96	26.00	0.10	39.89	22.70	0.09
	67	57.94	37.26	0.10	51.91	34.63	0.09	44.88	31.68	0.08	36.71	28.40	0.07	27.73	24.86	0.08
	62	47.44	40.23	0.07	41.49	37.42	0.07	35.24	34.20	0.09	30.10	29.19	0.22	25.33	25.32	0.32

INDOOR COIL AIR		SATURATED TEMPERATURE LEAVING EVAPORATOR (deg F)														
		35			40			45			50			55		
CFM	EWB	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF
SIZE 3612																
900	72	63.73	30.32	0.00	59.32	28.27	0.00	52.91	25.58	0.09	45.08	22.49	0.07	35.50	18.94	0.06
	67	53.31	32.33	0.05	47.71	29.68	0.06	40.42	26.50	0.05	32.15	23.09	0.06	22.66	19.20	0.08
	62	40.10	31.94	0.07	35.17	29.77	0.06	29.06	26.40	0.10	23.48	21.85	0.24	19.63	19.63	0.32
1200	72	79.27	37.62	0.00	73.87	35.26	0.00	65.75	32.01	0.11	56.09	28.33	0.08	43.86	23.92	0.07
	67	65.80	40.48	0.07	59.05	37.44	0.07	50.12	33.62	0.06	39.41	29.32	0.06	28.84	24.89	0.09
	62	50.21	41.05	0.07	44.32	38.05	0.09	36.97	34.22	0.11	29.32	29.03	0.26	24.79	24.79	0.36
1500	72	89.01	42.71	0.16	83.64	40.43	0.15	74.81	36.99	0.11	63.15	32.71	0.09	50.46	28.22	0.08
	67	75.33	47.29	0.08	67.84	43.98	0.08	57.68	39.77	0.08	45.86	35.21	0.07	32.93	29.50	0.11
	62	57.60	48.47	0.09	51.50	45.12	0.11	43.62	40.70	0.15	35.56	33.71	0.29	30.22	30.22	0.38

Table 4 – Cooling Capacities (MBH) – Puron Advance (Continued)

INDOOR COIL AIR		SATURATED TEMPERATURE LEAVING EVAPORATOR (deg F)														
		35			40			45			50			55		
CFM	EWB	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF
SIZE 4212																
1050	72	75.08	36.75	0.00	69.21	33.23	0.00	60.99	29.92	0.00	51.86	26.27	0.07	41.50	22.30	0.05
	67	62.56	38.32	0.06	55.51	34.88	0.05	47.29	31.19	0.04	37.80	27.16	0.03	27.81	23.02	0.05
	62	50.53	39.77	0.03	43.06	36.00	0.03	35.08	32.11	0.04	28.20	28.20	0.09	24.00	23.99	0.24
1400	72	90.39	43.16	0.00	81.90	39.85	0.00	72.55	36.15	0.12	61.91	31.98	0.08	49.94	27.55	0.06
	67	74.53	46.46	0.08	66.25	42.68	0.07	56.76	38.56	0.06	45.69	33.99	0.05	33.68	29.20	0.06
	62	60.63	49.24	0.05	52.25	45.13	0.05	43.02	40.67	0.06	34.89	34.89	0.13	29.76	29.76	0.29
1750	72	100.83	48.84	0.00	91.77	45.26	0.20	81.62	41.32	0.12	69.88	36.89	0.10	56.46	32.05	0.08
	67	83.79	53.34	0.10	74.68	49.35	0.09	64.13	44.91	0.08	51.91	40.01	0.07	38.60	34.66	0.08
	62	68.25	57.33	0.07	59.41	53.03	0.07	50.02	48.10	0.09	42.49	40.97	0.23	33.00	32.98	0.37

INDOOR COIL AIR		SATURATED TEMPERATURE LEAVING EVAPORATOR (deg F)														
		35			40			45			50			55		
CFM	EWB	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF
SIZE 4812																
1200	72	87.91	40.81	0.00	81.27	37.88	0.00	71.80	34.05	0.12	60.19	29.71	0.09	47.45	25.15	0.09
	67	71.93	43.04	0.08	64.55	39.70	0.08	54.48	35.44	0.08	42.99	30.81	0.09	30.99	25.78	0.12
	62	54.82	43.20	0.10	48.32	40.12	0.10	39.61	35.11	0.16	31.76	29.39	0.27	26.80	26.80	0.36
1600	72	106.65	49.79	0.18	98.38	46.36	0.14	86.26	41.71	0.11	72.92	36.80	0.10	57.89	31.55	0.10
	67	88.05	53.72	0.09	78.43	49.52	0.09	66.47	44.56	0.09	52.42	39.07	0.09	38.05	32.59	0.15
	62	66.90	54.44	0.11	59.79	50.44	0.14	50.11	45.20	0.17	40.53	37.50	0.30	34.34	34.34	0.39
2000	72	119.36	56.50	0.14	110.99	53.04	0.14	97.98	48.28	0.12	82.99	42.90	0.11	66.17	37.11	0.11
	67	100.11	62.62	0.10	89.19	57.94	0.10	75.78	52.50	0.10	60.77	46.63	0.11	43.94	38.95	0.17
	62	77.22	64.15	0.14	69.59	59.97	0.16	59.08	53.65	0.21	48.64	48.20	0.32	41.41	41.41	0.41

INDOOR COIL AIR		SATURATED TEMPERATURE LEAVING EVAPORATOR (deg F)														
		35			40			45			50			55		
CFM	EWB	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF
SIZE 6012																
1500	72	107.69	51.72	0.00	98.60	47.00	0.00	86.78	42.46	0.16	73.88	37.29	0.08	58.83	31.61	0.06
	67	89.08	54.42	0.08	79.16	49.66	0.07	67.40	44.44	0.05	53.99	38.81	0.05	39.59	32.90	0.06
	62	72.04	56.69	0.04	61.63	51.55	0.04	50.03	45.92	0.05	39.94	39.94	0.12	33.92	33.92	0.27
2000	72	129.21	61.08	0.00	116.79	56.62	0.00	103.15	51.22	0.13	88.41	45.49	0.10	70.93	39.09	0.08
	67	106.46	66.17	0.10	94.55	60.78	0.08	80.91	54.91	0.07	65.28	48.54	0.07	47.97	41.65	0.07
	62	86.39	70.10	0.06	74.63	64.49	0.06	61.35	57.90	0.08	51.05	48.97	0.21	42.25	42.25	0.31
2500	72	143.87	69.35	0.00	130.95	64.31	0.20	116.22	58.63	0.14	99.33	52.31	0.12	80.27	45.45	0.10
	67	119.68	75.95	0.11	106.56	70.25	0.10	91.44	63.93	0.10	74.05	57.06	0.09	55.13	49.51	0.10
	62	97.45	81.73	0.08	84.87	75.62	0.09	71.18	68.14	0.12	60.46	57.69	0.26	51.14	51.13	0.34

CFM - Cubic Ft. per Minute
SHC - Gross Sensible Capacity 1000 Btuh
EWB - Entering Wet Bulb
BF - Bypass Factor
LWB - Leaving Wet Bulb
MBH - 1000 Btuh
TC - Gross Cooling Capacity 1000 Btuh

NOTES:

1. Contact manufacturer for cooling capacities at conditions other than shown in table.
2. Formulas:
   Leaving db = entering db - $\frac{\text{sensible heat cap}}{1.09 \times \text{CFM}}$.
   Leaving wb = wb corresponding to enthalpy of air leaving coil (hLWB)
   $h_{LWB} = h_{EWB} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{CFM}}$
   Where h_{EWB} = enthalpy of air entering coil
3. SHC is based on 80°F (27°C) db temperature of air entering the evaporator coil.
   Below 80°F (27°C) db, subtract (Correction Factor x CFM) from SHC.
   Above 80°F (27°C) db, add (Correction Factor x CFM) to SHC.
4. Direct interpolation is permissible. Do not extrapolate.
5. Fan motor heat has not been deducted.
6. All data points are based on 10°F (-12°C) superheat leaving coil and use of thermostatic expansion valve (TXV) device.
7. These coils can be used in any properly designed system using Puron Advance refrigerant.
8. Before using maximum cfm shown in table, check coil static pressure drop to ensure system blower can provide necessary static pressure needed for coil and duct systems.
9. Bypass Factor = 0 indicates no psychometric solution. Use bypass factor of next lower EWB for approximation.

BYPASS FACTOR	ENTERING AIR DRY BULB TEMPERATURE °F (°C)					
	79 (26)	78 (26)	77 (25)	76 (24)	75 (24)	Under 75 (24)
	81 (27)	82 (28)	83 (28)	84 (29)	84 (29)	Above 85 (29)
	Correction Factor					
0.10	0.98	1.96	2.94	3.92	4.91	Use formula shown below
0.20	0.87	1.74	2.62	3.49	4.36	
0.30	0.76	1.53	2.29	3.05	3.82	

Interpolation is permissible.
Correction Factor = 1.09 x (1 - BF) x (db - 80)

Table 5 – Coil Static Pressure Drop (in. w.c.) R-410A Refrigerant

UNIT SIZE	Standard CFM																		
	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
2412	**Dry**																		
	0.060	0.081	0.104	0.129	0.155	0.186	0.217												
	Wet																		
	0.069	0.096	0.129	0.162	0.198	0.237	0.278												
3012	**Dry**																		
	0.044	0.060	0.077	0.097	0.116	0.140	0.165	0.190	0.219										
	Wet																		
	0.050	0.071	0.093	0.116	0.144	0.172	0.203	0.235	0.269										
3612	**Dry**																		
	0.043	0.058	0.074	0.089	0.107	0.127	0.150	0.172	0.197	0.224	0.252								
	Wet																		
	0.048	0.066	0.086	0.104	0.128	0.154	0.182	0.212	0.245	0.280	0.317								
4212	**Dry**																		
			0.065	0.079	0.095	0.113	0.134	0.154	0.176	0.197	0.220	0.246	0.268						
	Wet																		
			0.076	0.094	0.114	0.137	0.163	0.189	0.215	0.245	0.273	0.303	0.332						
4812	**Dry**																		
			0.063	0.076	0.091	0.105	0.121	0.138	0.157	0.175	0.195	0.217	0.238	0.260	0.284				
	Wet																		
			0.080	0.101	0.123	0.149	0.175	0.206	0.215	0.231	0.261	0.291	0.325	0.361	0.394				
6012	**Dry**																		
					0.051	0.060	0.069	0.079	0.090	0.101	0.113	0.125	0.138	0.153	0.165	0.180	0.195	0.211	0.227
	Wet																		
					0.063	0.076	0.089	0.102	0.118	0.135	0.155	0.175	0.193	0.214	0.235	0.258	0.279	0.302	0.325

Edition Date: 03/24

Catalog No: CSAHP-01PD

Replaces: New