



I-TEC™ I30H-I60H 2-Stage Compressor High Efficiency Air Source Heat Pumps

Cooling Capacities: 20,600 to 55,000 Btuh Heating Capacities: 20,200 to 54,500 Btuh

The Bard I-TEC™ Indoor Heat Pump system is designed for classrooms and other similar applications demanding high efficiency and the lowest possible sound levels that are practical and achievable, and also accommodates the over-the-window sill requirement for many replacement projects on older school buildings. The I-TEC™ Series meets that challenge with many innovative design features resulting in a highly refined appearance while at the same time improving on the very important maintenance and serviceability features needed by the facilities maintenance and service staffs.

I-TEC™ Standard Features

- Double wall construction, 20-ga. exterior skin, no visible fasteners
- No fiberglass insulation
- Hinged, lockable, removable doors
- Removable sides and modularized construction for transporting through standard doors or in elevators
- Suitable for any floor installations
- Can be installed in left or right corners with no modifications
- Non-corrosive drainpans with no standing water
- 2-Stage scroll compressors with discharge muffler, double floating isolation mounting system, and sound muffling cover
- R-410A Green Refrigerant
- Heating and cooling thermostatic expansion valves
- Extra large full width control panel for easy access to all controls
- Circuit Breakers on 230V models, and Toggle Disconnect on 460V
- Evaporator coils constructed with hydrophilic fin stock with the following advantages:
 - Acrylic coating
 - Wettable surface with low contact angle – no bead-up condensate, lower wet-coil air-side pressure drop, improved draining & lower re-entrainment of moisture back into the air stream in continuous blower operating modes
 - Antimicrobial properties provide microbial resistance to fungicidal growth
 - Resistant to Mold and Mildew, ASTM D2373 – no growth
 - Seals fin surface against aluminum oxide formation
- 24VAC 75VA control transformer with circuit breaker
- 24VAC low-voltage terminal strip for thermostat or DDC control
- ECM indoor and outdoor motors
- Modulating outdoor fan motor and low ambient control
- Modulating indoor fan motor for constant CFM in different operating modes up to 0.50" ESP
- High and Low Pressure switches with lockout circuit
- Electronic heat pump control board with diagnostics
- Liquid line filter/drier
- Readily accessible service ports with huff-preventative caps located behind locking hinged doors
- Pleated 2" MERV 8 filter
- Designed for over-the-window sill wall penetration and has 3" vertical adjustment for wall sleeve attachment
- Units designed to be flush to a smooth interior wall and not require trim kits by use of adjustable wall sleeves; Trim Kits available where required
- Low sound levels are achieved by numerous system design innovations including special acoustical insulation



- Installation flexibility. Can be installed in corner applications with one side against a wall.
- Overflow detection system monitors indoor and out coil drain pans and shuts down compressor to prevent condensate overflow.
- Freezestat on indoor coil safeguards against indoor coil freeze up by shutting down the compressor.

I-TEC™ Optional Features & Accessories

Two Ventilation Options:

Both ERV and CRV have ECM motors, filter system, and positive shut-off.

Energy Recovery Ventilator (ERV) is designed for both modulating or fixed supply and exhaust airflow operation depending upon environmental controls used, and has positive shutoff on intake and exhaust sides when unoccupied.

- Modulating mode requires CO₂ controller, has intake rate that is higher than exhaust, and has optional minimum CFM to address building IAQ requirements. The system modulates to maintain selected maximum CO₂ level.
- Fixed mode can be used with thermostat or DDC that has a dedicated Occupied output that is ON during Occupied and OFF during Unoccupied. Intake and exhaust rates can be independently adjusted.

Commercial Room Ventilator (CRV) is a fan powered ventilation package to manage intake & exhaust air at fixed rates but without energy recovery capability.

- The rates are: 300-375-450-525, are independently selectable, and has positive shutoff on intake and exhaust sides when unoccupied.
- Requires control system that has a dedicated ventilation control output to be ON during Occupied and OFF during Unoccupied. CO₂ controller with ON/OFF output relay can be used.

- Factory setting is 375 CFM balanced to meet pressurization requirements of ASHRAE.

Accessories:

- Outdoor louver grilles: Clear, Medium Bronze, Dark Bronze
- Telescoping Wall Sleeves
- Wall Sleeve Ranges (wall thickness):
 - 5.5" to 8.5", 8" to 13.5", 13" to 23.5"
- 3" and 6" Riser Platforms available if required
- Electric heat packages factory installed within the basic unit cabinet
- Accessories for Duct-Free and Ducted installations

Other Options:

- Dehumidification (hot gas reheat) models
- Low Ampacity Models available
- Hot water coil packages, both Duct-Free and Ducted versions available.

Specifications - 2½ through 3½ Ton

MODELS	I30H1-A	I30H1-B	I30H1-C	I36H1-A	I36H1-B	I36H1-C	I42H1-A	I42H1-B	I42H1-C
ELECTRICAL RATING--60 HZ	230/208 - 1	230/208 - 3	460 - 3	230/208 - 1	230/208 - 3	460 - 3	230/208 - 1	230/208 - 3	460 - 3
Operating Voltage Range	197-253		414-506	197-253		414-506	197-253		414-506
COMPRESSOR									
Volts	230/208-1	230/208-3	460-3	230/208-1	230/208-3	460-3	230/208-1	230/208-3	460-3
Rated Load Amps (230/208)	10.0/11.5	7.4/8.4	4.2	11.1/13	8.5/9.9	4.9	13.8/15.6	11.0/12.4	5.5
Branch Circuit Selection Current	13.1	8.7	4.3	15.3	11.7	5.8	18.0	14.2	6.3
Locked Rotor Amps	73	58	28	83	73	38	96	88	44
ENERGY RECOVERY VENTILATOR									
Volts	230/208-60-1			230/208-60-1			230/208-60-1		
Full Load Amps (3-motors)	2.2			2.2			2.2		
FAN MOTOR – ECM									
Horsepower	1/3			1/3			1/3		
Volts	230/208-60-1			230/208-60-1			230/208-60-1		
Full Load Amps	1.7			2.6			2.6		
+ CFM	1950			2300			2300		
BLOWER MOTOR – ECM									
Horsepower	1/3			1/2			1/2		
Volts	230/208-60-1			230/208-60-1			230/208-60-1		
Full Load Amps	1.9			2.5			2.5		

+ CFM @ rating points, will modulate based upon O.D. ambient.

Specifications - 4 and 5 Ton

MODELS	I48H1-A	I48H1-B	I48H1-C	I60H1-A	I60H1-B	I60H1-C
ELECTRICAL RATING--60 HZ	230/208 - 1	230/208 - 3	460 - 3	230/208 - 1	230/208 - 3	460 - 3
Operating Voltage Range	197-253		414-506	197-253		414-506
COMPRESSOR						
Volts	230/208-1	230/208-3	460-3	230/208-1	230/208-3	460-3
Rated Load Amps (230/208)	15.6/17.5	10.4/11.6	5.4	22/23.4	13.4/14.3	6.3
Branch Circuit Selection Current	19.9	11.6	6.4	27.2	16.6	7.2
Locked Rotor Amps	104.0	83.1	41	152.9	110.0	52.0
ENERGY RECOVERY VENTILATOR						
Volts	230/208-60-1			230/208-60-1		
Full Load Amps (3-motors)	2.2			2.2		
FAN MOTOR – ECM						
Horsepower	1/2			1/2		
Volts	230/208-60-1			230/208-60-1		
Full Load Amps	3.2			3.2		
+ CFM	2600			2600		
BLOWER MOTOR – ECM						
Horsepower	1/2			3/4		
Volts	230/208-60-1			230/208-60-1		
Full Load Amps	3.2			4.4		

+ CFM @ rating points, will modulate based upon O.D. ambient.

- Complies with efficiency requirements of ASHRAE/IESNA 90.1-2010.
- Certified to ARI Standard 390-2003 for SPVU (Single Package Vertical Units).
- Intertek ETL Listed to Standard for Safety Heating and Cooling Equipment ANSI/UL 1995/CSA 22.2 No. 236-05, Third Edition.
- Commercial Product - Not intended for Residential application.



Capacity and Efficiency Ratings, Full Load Operation

MODELS	I30H1	I36H1	I42H1	I48H1	I60H1
Cooling BTUH, Full Load Capacity, 95-80/67	27,800	35,600	42,000	47,000	55,000
EER ^①	11.7	12.3	12.1	12.0	10.8
Rated CFM	900	1150	1300	1500	1700
IPLV (Integrated Full & Part Load) ^② 80-80/67	15.4	16.5	16.1	16.1	14.4
Heating BTUH, Full Load Capacity 47/43-70	27,000	33,000	39,000	45,000	54,500
COP ^③	3.7	3.9	3.95	3.85	3.6
Rated CFM	900	1150	1300	1500	1700
Heating BTUH, Full Load Capacity 17/15-70	17,000	19,500	25,000	29,000	34,600
COP ^③	2.55	2.6	2.75	2.70	2.65
Rated CFM	900	1150	1300	1500	1700

Capacity and Efficiency Ratings, Part Load Operation

MODELS	I30H1	I36H1	I42H1	I48H1	I60H1
Cooling BTUH, Part Load Capacity, 95-80/67	20,600	25,000	29,500	32,500	37,000
EER ^①	11.8	12.7	12.3	12.0	11.0
Rated CFM	650	850	950	1050	1200
Heating BTUH, Part Load Capacity 47/43-70	20,200	23,000	27,000	30,500	36,500
COP ^③	3.5	3.6	3.6	3.6	3.4
Rated CFM	650	850	950	1050	1200
Heating BTUH, Part Load Capacity 17/15-70	11,800	13,500	16,000	19,000	21,500
COP ^③	2.15	2.2	2.25	2.2	2.25
Rated CFM	650	900	950	1050	1200

① EER = Energy Efficiency Ratio - BTU/WATT efficiency

② IPLV = Integrated Part Load Value - BTU/WATT efficiency (combines full and part load performance)

③ COP = Coefficient of Performance - BTU/WATT efficiency

Indoor Blower Performance

Model	Rated ESP.	Max. ESP	^② Continuous CFM	Rated 2nd Stage CFM	Rated 1st Stage CFM	^③ 5-9 KW CFM	^④ 13.5-18 KW CFM
I30H1	0.15	0.50	500	900	650	700	1400
I36H1	0.15	0.50	600	1150	850	700	1400
I42H1	0.20	0.50	650	1300	950	700	1400
I48H1	0.20	0.50	725	1500	1050	700	1400
I60H1	0.20	0.50	850	1700	1200	700	1400

① Motor will deliver consistent CFM through voltage supply range with no deterioration.

② Continous fan CFM is the total air being circulated during continuous fan mode.

③ Will operate @ rated Full Load Airflow when operating with Heat Pump.

④ Will occur automatically with a call for "W3" or "Emergency Heat" signal from thermostat (Heat Pump Operation is terminated @ this condition).

Unit Weights

MODELS	NO VENT	CRV	ERV	MODELS	NO VENT	CRV	ERV
I30H1-A	816	908	943	I30H1DA	830	920	955
I30H1-B	816	908	943	I30H1DB	830	920	955
I30H1-C	851	943	978	I30H1DC	865	955	990
I36H1-A	846	938	973	I36H1DA	858	950	985
I36H1-B	846	938	973	I36H1DB	858	950	985
I36H1-C	881	973	1008	I36H1DC	893	985	1020
I42H1-A	896	988	1023	I42H1DA	908	1000	1035
I42H1-B	896	988	1023	I42H1DB	908	1000	1035
I42H1-C	931	1023	1058	I42H1DC	943	1035	1070
I48H1-A	884	976	1011	I48H1DA	930	1022	1057
I48H1-B	884	976	1011	I48H1DB	930	1022	1057
I48H1-C	919	1011	1046	I48H1DC	965	1057	1092
I60H1-A	931	1023	1058	I60H1DA	943	1035	1070
I60H1-B	931	1023	1058	I60H1DB	943	1035	1070
I60H1-C	966	1058	1093	I60H1DC	978	1070	1105

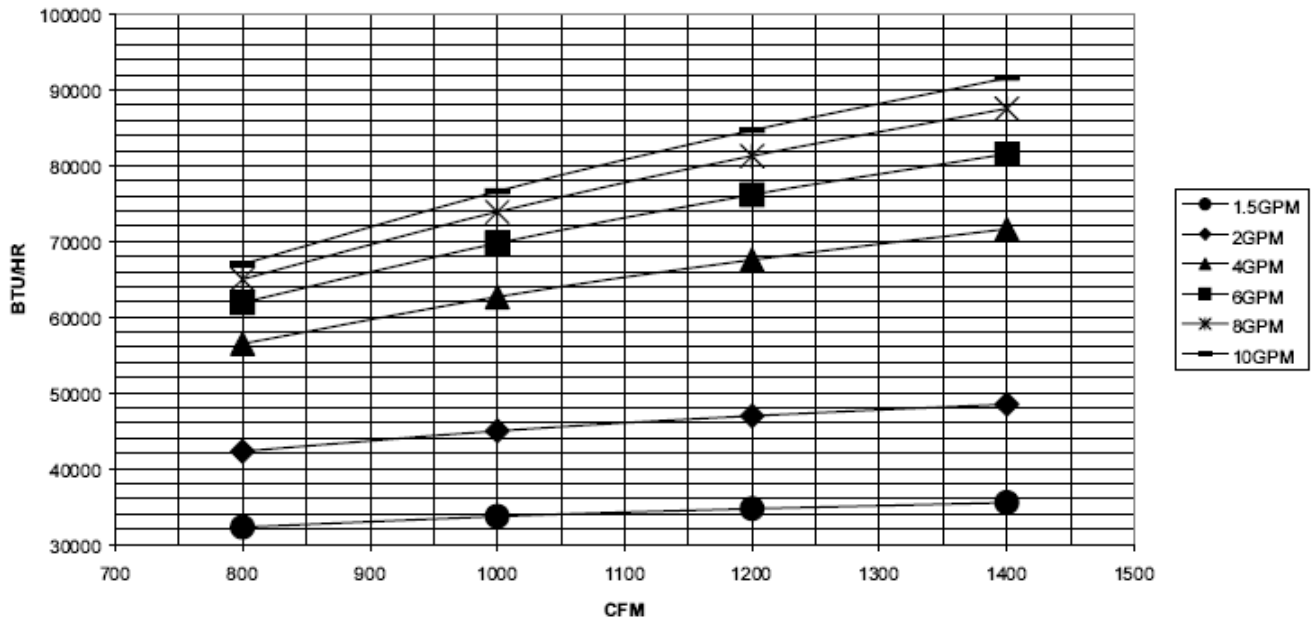
Deduct 65# from all values for installed weight.

Factory Built-in Electric Heat Table

Model	Voltage	Phase	KW		Amps		BTUH	
			240	208	240	208	240	208
-A04	240/208	1	4	3	16.7	14.4	13,652	10,239
-A05	240/208	1	5.00	3.75	20.8	18.0	17,065	12,799
-A10	240/208	1	10.00	7.50	41.7	36.1	34,130	25,598
-A15	240/208	1	15.00	11.25	62.5	54.1	51,195	38,396
-A20	240/208	1	20.00	15.00	83.3	72.1	68,260	51,195
-B06	240/208	3	6.00	4.50	14.4	12.5	20,478	15,359
-B09	240/208	3	9.00	6.75	21.7	18.7	30,717	23,038
-B12	240/208	3	12.00	9.00	28.9	25.0	40,956	30,717
-B15	240/208	3	15.00	11.25	36.1	31.2	51,195	38,396
-B18	240/208	3	18.00	13.50	43.3	37.5	61,434	46,076
-C06	480	3	6.00	4.50	7.2	5.9	20,478	15,359
-C09	480	3	9.00	6.75	10.8	10.4	30,717	23,038
-C12	480	3	12.00	9.00	14.4	13.9	40,956	30,717
-C15	480	3	15.00	11.25	18.0	17.3	51,195	38,396
-C18	480	3	18.00	13.50	21.7	20.8	61,434	46,076

NOTE: Not all KW's available in all models. See Minimum Circuit Ampacity and Maximum Overcurrent Protection table on following page.

Optional Hot Water Coil Performance - Heating Capacity @ 180°F Water and 70°F Return Air



Hot Water Coil Correction Factors

Entering Air Temp (F)	Entering Water Temperature (F)										
	100	110	120	130	140	150	160	170	180	190	200
50	0.455	0.545	0.636	0.727	0.818	0.909	1.000	1.091	1.182	1.273	1.364
55	0.409	0.500	0.591	0.682	0.773	0.864	0.955	1.045	1.136	1.227	1.318
60	0.363	0.455	0.545	0.636	0.727	0.818	0.909	1.000	1.091	1.182	1.273
65	0.318	0.409	0.500	0.591	0.682	0.773	0.864	0.955	1.045	1.136	1.227
70	0.272	0.363	0.455	0.545	0.636	0.727	0.818	0.909	1.000	1.091	1.182
75	0.227	0.318	0.409	0.500	0.591	0.682	0.773	0.864	0.955	1.045	1.136
80	0.182	0.272	0.363	0.455	0.545	0.636	0.727	0.818	0.909	1.000	1.091

Minimum Circuit Ampacity & Maximum Overcurrent Protection – Std. & Dehum.

MODEL	Rated Volts, Hertz & Phase	Single Circuit					Multiple Circuit							
		No. Field Power Circuits	Minimum Circuit Ampacity	Maximum External Fuse or Ckt. Brkr.	Field Power Wire Size	Ground Wire	Minimum Circuit Ampacity		Maximum External Fuse or Ckt. Breaker		Field Power Wire Size		Ground Wire Size	
							Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B
I30H1-A0Z A05 A10	230/208-1	1 1 1 or 2	22 48 74	35 50 80	8 8 4	10 10 8	48	30	50	30	8	10	10	10
I30H1-B0Z B06 B09	230/208-3	1 1 1	17 35 44	25 35 45	10 8 8	10 10 10								
I30H1-C0Z C06 C09	460-3	1 1 1	9 18 22	10 20 25	14 12 10	14 12 10								
I36H1-A0Z A05 A10 ① A15	230/208-1	1 1 1 or 2 1 or 2	26 52 78 84	40 60 80 90	8 6 4 4	10 10 8 8	26 26	52 52	40 40	60 60	8 8	6 6	10 10	10 10
I36H1-B0Z B06 B09 ① B15	230/208-3	1 1 1 1	22 40 49 51	30 45 50 60	10 8 8 6	10 10 10 10								
I36H1-C0Z C06 C09 ① C15	460-3	1 1 1 1	11 20 24 28	15 20 25 30	14 12 10 10	14 12 10 10								
I42H1-A0Z A05 A10 ① A15	230/208-1	1 1 1 or 2 1 or 2	30 56 82 82	45 60 90 90	8 6 4 4	10 10 8 8	56 56	26 52	45 45	60 60	8 8	6 6	10 10	10 10
I42H1-B0Z B06 B09 ① B15	230/208-3	1 1 1 1	25 43 52 52	35 50 60 60	8 8 6 6	10 10 10 10								
I42H1-C0Z C06 C09 ① C15	460-3	1 1 1 1	12 21 26 28	15 25 30 30	14 10 10 10	14 10 10 10								
I48H1-A0Z A04 A05 A10 ① A15 ① A20	230/208-1	1 1 1 or 2 1 or 2 1 or 2 1 or 2	34 54 59 85 85 110	50 60 70 90 90 110	8 6 6 3 3 2	10 10 8 8 8 6	35 35 35 59	26 52 52	45 45 45 60	30 60 60 60	8 8 8 6	10 6 6 6	10 10 10 10	10 10 10 10
I48H1-B0Z B06 B09 ① B15 ① B18	230/208-3	1 1 1 1 1	26 44 53 53 53	35 50 60 60 60	8 8 6 6 6	10 10 10 10 10								
I48H1-C0Z C06 C09 ① C15 ① C18	230/208-1	1 1 1 1 1	15 25 29 29 29	20 30 30 30 30	12 10 10 10 10	12 10 10 10 10								
I60H1-A0Z A05 A10 ① A15 ① A20	230/208-1	1 1 or 2 1 or 2 1 or 2 1 or 2	44 70 96 96 112	60 80 100 100 120	8 4 3 3 2	10 8 8 8 6	44 44 44 60	26 52 52	60 60 60 60	30 60 60 60	8 8 8 6	10 6 6 6	10 10 10 10	10 10 10 10
I60H1-B0Z B06 B09 ① B15 ① B18	230/208-3	1 1 1 1 1 or 2	31 49 58 58 63	45 60 60 60 70	8 8 6 6 6	10 10 10 10 8	31	54	45	60	8	6	10	10
I60H1-C0Z C06 C09 ① C15 ① C18	460-3	1 1 1 1 1	15 25 29 29 29	20 30 30 30 30	12 10 10 10 10	12 10 10 10 10								

These "Minimum Circuit Ampacity" values are to be used for sizing the field power conductors. Refer to the National Electric Code (latest revision), Article 310 for power conductor sizing.

Caution: When more than one field power conductor circuit is run through one conduit, the conductors must be derated. Pay special attention to note 8 of table 310 regarding Ampacity Adjustment Factors when more than three (3) current carrying conductors are in a raceway.

Maximum size of the time delay fuse or HVAC type circuit breaker for protection of field wiring conductors.

Based on 75°C copper wire. All wiring must conform to the National Electrical Code and all local codes.

Maximum KW that can operate with the heat pump is 10KW for 1-Phase and 9KW for 3-Phase.

① Represents Electric Heat only. Electric Control Circuit will lock-out Heat Pump Operation.

Cooling Full Load Application Data ①

Model	D.B. / W.B. ②	COOLING CAPACITY	60°F	65°F	70°F	75°F	80°F	85°F	90°F	95°F	100°F	105°F	110°F	115°F	120°F	125°F
130H1	75/62	Total Cooling	30,764	30,056	29,349	28,641	27,934	27,226	26,519	25,812	24,976	24,140	23,305	22,469	21,633	20,798
		Sensible Cooling	23,517	23,129	22,741	22,352	21,964	21,575	21,187	20,799	20,596	20,393	20,191	19,988	19,785	19,583
	80/67	Total Cooling	33,488	32,675	31,863	31,050	30,200	29,388	28,613	27,800	26,900	26,000	25,100	24,200	23,300	22,400
		Sensible Cooling	23,981	23,488	22,994	22,500	22,000	21,506	21,019	20,525	20,325	20,125	19,925	19,725	19,525	19,325
	85/72	Total Cooling	35,990	35,372	34,754	34,136	33,518	32,900	32,282	31,664	30,639	29,614	28,589	27,564	26,539	25,514
		Sensible Cooling	23,806	23,272	22,738	22,204	21,671	21,137	20,603	20,069	19,873	19,678	19,482	19,287	19,091	18,896
136H1	75/62	Total Cooling	39,013	38,161	37,310	36,459	35,608	34,756	33,905	33,054	31,800	30,547	29,293	28,040	26,787	25,533
		Sensible Cooling	30,182	29,782	29,383	28,983	28,584	28,184	27,785	27,385	26,853	26,321	25,789	25,257	24,725	24,193
	80/67	Total Cooling	42,469	41,488	40,506	39,525	38,500	37,519	36,581	35,600	34,250	32,900	31,550	30,200	28,850	27,500
		Sensible Cooling	30,788	30,250	29,713	29,175	28,600	28,063	27,563	27,025	26,500	25,975	25,450	24,925	24,400	23,875
	85/72	Total Cooling	45,632	44,906	44,180	43,454	42,727	42,001	41,275	40,548	39,011	37,473	35,935	34,398	32,860	31,323
		Sensible Cooling	30,567	29,975	29,384	28,792	28,200	27,608	27,016	26,424	25,911	25,398	24,884	24,371	23,858	23,344
142H1	75/62	Total Cooling	46,865	45,740	44,616	43,492	42,368	41,244	40,120	38,996	38,006	37,015	36,025	35,035	34,045	33,054
		Sensible Cooling	35,042	34,686	34,331	33,975	33,620	33,264	32,909	32,553	32,198	31,843	31,488	31,133	30,778	30,423
	80/67	Total Cooling	51,013	49,725	48,438	47,150	44,500	43,213	43,288	42,000	40,933	39,867	38,800	37,734	36,667	35,601
		Sensible Cooling	35,756	35,238	34,719	34,200	32,675	32,156	32,644	32,125	31,775	31,424	31,074	30,723	30,373	30,022
	85/72	Total Cooling	54,835	53,836	52,836	51,836	50,837	49,837	48,838	47,838	46,623	45,408	44,194	42,979	41,764	40,549
		Sensible Cooling	35,505	34,921	34,336	33,751	33,166	32,581	31,996	31,411	31,068	30,726	30,383	30,040	29,698	29,355
148H1	75/62	Total Cooling	51,843	50,512	49,180	47,849	46,517	45,185	43,854	42,522	40,910	39,299	37,687	36,076	34,464	32,852
		Sensible Cooling	39,521	38,811	38,101	37,391	36,681	35,971	35,261	34,551	33,856	33,161	32,466	31,771	31,076	30,381
	80/67	Total Cooling	56,913	55,497	54,081	52,664	51,000	49,584	48,416	47,000	45,219	43,437	41,656	39,875	38,093	36,312
		Sensible Cooling	38,814	38,219	37,624	37,029	35,950	35,355	35,245	34,650	33,953	33,256	32,559	31,862	31,165	30,467
	85/72	Total Cooling	56,446	54,927	53,408	51,889	50,369	48,850	47,331	45,811	44,075	42,339	40,603	38,866	37,130	35,394
		Sensible Cooling	38,516	37,839	37,161	36,484	35,806	35,129	34,451	33,774	33,094	32,415	31,735	31,056	30,376	29,697
160H1	75/62	Total Cooling	60,384	58,866	57,348	55,831	54,313	52,795	51,278	49,760	48,044	46,329	44,613	42,898	41,182	39,467
		Sensible Cooling	45,149	44,379	43,609	42,840	42,070	41,301	40,531	39,762	39,025	38,287	37,550	36,813	36,076	35,339
	80/67	Total Cooling	66,288	64,675	63,063	61,450	59,838	58,225	56,613	55,000	53,104	51,208	49,312	47,415	45,519	43,623
		Sensible Cooling	44,338	43,700	43,063	42,425	41,788	41,150	40,513	39,875	39,136	38,397	37,657	36,918	36,179	35,440
	85/72	Total Cooling	72,026	70,201	68,375	66,550	64,724	62,899	61,073	59,248	57,205	55,163	53,120	51,077	49,035	46,992
		Sensible Cooling	44,000	43,267	42,533	41,800	41,067	40,333	39,600	38,867	38,146	37,426	36,705	35,985	35,264	34,544

Cooling Part Load Application Data ①

Model	D.B. / W.B. ②	COOLING CAPACITY	60°F	65°F	70°F	75°F	80°F	85°F	90°F	95°F	100°F	105°F	110°F	115°F	120°F	125°F
130H1	75/62	Total Cooling	24,111	23,363	22,615	21,868	21,120	20,372	19,625	18,877	18,212	17,548	16,884	16,219	15,555	14,891
		Sensible Cooling	18,256	17,908	17,561	17,214	16,866	16,519	16,172	15,825	15,526	15,227	14,929	14,630	14,332	14,033
	80/67	Total Cooling	26,025	25,250	24,475	23,700	22,800	22,025	21,375	20,600	19,875	19,150	18,425	17,700	16,975	16,250
		Sensible Cooling	18,000	17,700	17,400	17,100	16,675	16,375	16,200	15,900	15,600	15,300	15,000	14,700	14,400	14,100
	85/72	Total Cooling	27,267	26,729	26,190	25,652	25,113	24,575	24,037	23,498	22,671	21,844	21,017	20,190	19,363	18,536
		Sensible Cooling	17,242	17,056	16,869	16,683	16,497	16,310	16,124	15,938	15,637	15,336	15,036	14,735	14,434	14,133
136H1	75/62	Total Cooling	29,645	28,683	27,720	26,758	25,796	24,833	23,871	22,909	22,233	21,557	20,881	20,206	19,530	18,854
		Sensible Cooling	23,790	23,242	22,694	22,146	21,599	21,051	20,503	19,955	19,743	19,532	19,321	19,109	18,898	18,686
	80/67	Total Cooling	32,000	31,000	30,000	29,000	27,600	26,600	26,000	25,000	24,263	23,525	22,788	22,050	21,313	20,575
		Sensible Cooling	23,463	22,975	22,488	22,000	21,175	20,688	20,538	20,050	19,838	19,625	19,413	19,200	18,988	18,775
	85/72	Total Cooling	33,542	32,824	32,106	31,388	30,670	29,953	29,235	28,517	27,676	26,835	25,993	25,152	24,311	23,470
		Sensible Cooling	22,488	22,146	21,805	21,463	21,122	20,780	20,439	20,098	19,885	19,672	19,459	19,246	19,033	18,819
142H1	75/62	Total Cooling	30,064	29,631	29,198	28,765	28,332	27,899	27,465	27,032	26,091	25,150	24,209	23,268	22,327	21,386
		Sensible Cooling	25,169	24,766	24,362	23,958	23,555	23,151	22,747	22,344	22,055	21,767	21,479	21,191	20,903	20,615
	80/67	Total Cooling	32,431	32,013	31,594	31,175	32,000	31,581	29,919	29,500	28,473	27,446	26,419	25,392	24,365	23,338
		Sensible Cooling	24,813	24,475	24,138	23,800	23,600	23,263	22,788	22,450	22,160	21,871	21,581	21,292	21,002	20,713
	85/72	Total Cooling	33,811	33,788	33,765	33,742	33,719	33,696	33,673	33,650	32,479	31,307	30,136	28,964	27,793	26,622
		Sensible Cooling	23,757	23,578	23,399	23,220	23,040	22,861	22,682	22,503	22,213	21,923	21,633	21,342	21,052	20,762
148H1	75/62	Total Cooling	20,861	22,082	23,302	24,523	25,743	26,964	28,184	29,405	28,404	27,403	26,402	25,401	24,400	23,399
		Sensible Cooling	15,333	16,546	17,758	18,971	20,183	21,395	22,608	23,820	23,516	23,212	22,908	22,604	22,300	21,997
	80/67	Total Cooling	23,094	24,438	25,781	27,125	36,000	37,344	31,156	32,500	31,394	30,288	29,181	28,075	26,969	25,863
		Sensible Cooling	15,144	16,388	17,631	18,875	25,250	26,494	22,606	23,850	23,546	23,241	22,937	22,633	22,329	22,024
	85/72	Total Cooling	20,108	22,342	24,576	26,810	29,044	31,278	33,512	35,745	34,529	33,312	32,095	30,879	29,662	28,445
		Sensible Cooling	14,970	16,199	17,427	18,656	19,884	21,113	22,341	23,570	23,269	22,968	22,667	22,367	22,066	21,765
160H1	75/62	Total Cooling	42,805	41,472	40,139	38,807	37,474	36,142	34,809	33,476	32,487	31,497	30,508	29,518	28,528	27,539
		Sensible Cooling	31,549	30,890	30,232	29,574	28,916	28,258	27,599	26,941	26,585	26,230	25,874	25,518	25,162	24,806
	80/67	Total Cooling	47,369	45,888	44,406	42,925	41,000	39,519	38,481	37,000	35,906	34,813	33,719	32,625	31,531	30,438
		Sensible Cooling	31,263	30,650	30,038	29,425	28,500	27,888	27,588	26,975	26,619	26,263	25,906	25,550	25,194	24,838
	85/72	Total Cooling	51,941	50,334	48,728	47,121	45,515	43,908	42,301	40,695	39,492	38,289	37,086	35,883	34,680	33,477
		Sensible Cooling	30,902	30,296	29,690	29,083	28,477	27,870	27,264	26,658	26,306	25,954	25,602	25,250	24,897	24,545

① Below 50°F, unit requires a factory or field installed low ambient control.

② Return air temp. °F Rated CFM.

Heating Full Load Application Data

Model	Indoor		0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°F	
I30H1	① 70°F	BTUH	10,663	12,525	14,388	16,250	18,113	19,975	21,838	23,700	25,000	26,300	28,060	29,820	31,580	
		WATTS	1879	1906	1927	1943	1956	1967	1976	1984	1984	2046	2105	2182	2254	2323
		COP	1.66	1.93	2.19	2.45	2.71	2.98	3.24	3.5	3.58	3.66	3.77	3.88	3.98	
I36H1		BTUH	12,819	14,788	16,756	18,725	20,694	22,663	24,631	26,600	29,400	32,200	34,200	36,200	38,200	
		WATTS	1804	1939	2056	2160	2252	2334	2408	2474	2461	2451	2511	2568	2621	
		COP	2.08	2.24	2.39	2.54	2.69	2.85	3.00	3.15	3.50	3.85	3.99	4.13	4.27	
I42H1		BTUH	21,138	22,275	23,413	24,550	25,688	26,825	27,963	29,100	33,650	38,200	40,200	42,200	44,200	
		WATTS	2664	2664	2664	2664	2664	2664	2664	2664	2777	2870	2923	2972	3019	
		COP	2.33	2.45	2.58	2.70	2.83	2.95	3.08	3.2	3.55	3.90	4.03	4.16	4.29	
I48H1		BTUH	19,806	22,513	25,219	27,925	30,631	33,338	36,044	38,750	41,263	43,775	46,820	49,865	52,910	
		WATTS	2433	2660	2870	3064	3246	3415	3574	3723	3535	3384	3489	3586	3677	
		COP	2.39	2.48	2.58	2.67	2.77	2.86	2.96	3.05	3.42	3.79	3.93	4.07	4.22	
I60H1		BTUH	30,469	31,688	32,906	34,125	35,344	36,563	37,781	39,000	46,050	53,100	56,600	60,100	63,600	
		WATTS	4012	3951	3896	3846	3800	3759	3721	3686	4058	4383	4506	4622	4730	
		COP	2.23	2.35	2.48	2.6	2.73	2.85	2.98	3.1	3.33	3.55	3.68	3.81	3.94	

① 70°F DB indoor return air at rated CFM includes defrost operation below 45°.

Heating Part Load Application Data

Model	Indoor		0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°F
I30H1	① 70°F	BTUH	6,550	8,100	9,650	11,200	12,750	14,300	15,850	17,400	18,500	19,600	21,120	22,640	24,160
		WATTS	1520	1556	1582	1601	1615	1627	1637	1645	1660	1674	1717	1756	1791
		COP	1.26	1.53	1.79	2.05	2.31	2.58	2.84	3.10	3.27	3.43	3.60	3.78	3.95
I36H1		BTUH	8,981	10,313	11,644	12,975	14,306	15,638	16,969	18,300	20,300	22,300	24,060	25,820	27,580
		WATTS	1600	1669	1727	1776	1819	1855	1887	1915	1891	1872	1869	1866	1864
		COP	1.65	1.81	1.98	2.14	2.31	2.47	2.64	2.80	3.15	3.49	3.77	4.05	4.34
I42H1		BTUH	10,169	11,888	13,606	15,325	17,044	18,763	20,481	22,200	24,275	26,350	28,110	29,870	31,630
		WATTS	1985	2022	2051	2074	2093	2108	2121	2133	2172	2206	2190	2177	2165
		COP	1.50	1.72	1.94	2.17	2.39	2.61	2.83	3.05	3.28	3.5	3.76	4.02	4.28
I48H1		BTUH	12,588	14,475	16,363	18,250	20,138	22,025	23,913	25,800	27,700	29,600	32,050	34,500	36,950
		WATTS	2323	2389	2443	2487	2524	2556	2583	2607	2524	2,457	2518	2572	2621
		COP	1.59	1.78	1.96	2.15	2.34	2.53	2.71	2.9	3.22	3.53	3.73	3.93	4.13
I60H1		BTUH	12,613	15,225	17,838	20,450	23,063	25,675	28,288	30,900	33,138	35,375	38,170	40,965	43,760
		WATTS	2133	2367	2565	2736	2885	3015	3131	3233	3147	3076	3201	3317	3426
		COP	1.73	1.89	2.04	2.19	2.34	2.50	2.65	2.80	3.09	3.37	3.49	3.62	3.74

① 70°F DB indoor return air at rated CFM includes defrost operation below 45°.

Performance and Application Data – Energy Recovery Vent Option "R"

SUMMER COOLING PERFORMANCE (INDOOR DESIGN CONDITIONS 75°DB/62°WB)

Ambient O.D.	VENTILATION RATE 450 CFM 65% EFFICIENCY							VENTILATION RATE 375 CFM 66% EFFICIENCY						VENTILATION RATE 300 CFM 67% EFFICIENCY						
	DB/WB	F	VLT	VLS	VLL	HRT	HRS	HRL	VLT	VLS	VLL	HRT	HRS	HRL	VLT	VLS	VLL	HRT	HRS	HRL
105	75		21465	14580	6884	13952	9477	4475	17887	12150	5737	11805	8018	3786	14310	9720	4590	9587	6512	3075
	70		14580	14580	0	9477	9477	0	12150	12150	0	8018	8018	0	9720	9720	0	6512	6512	0
	65		14580	14580	0	9477	9477	0	12150	12150	0	8018	8018	0	9720	9720	0	6512	6512	0
100	80		31590	12150	19440	20533	7897	12635	26325	10125	16200	17374	6682	10692	21060	8100	12960	14110	5427	8683
	75		21465	12150	9314	13952	7897	6054	17887	10125	7762	11805	6682	5123	14310	8100	6210	9587	5427	4160
	70		12352	12150	202	8029	7897	131	10293	10125	168	6793	6682	111	8235	8100	135	5517	5427	90
	65		12150	12150	0	7897	7897	0	10125	10125	0	6682	6682	0	8100	8100	0	5427	5427	0
	60		12150	12150	0	7897	7897	0	10125	10125	0	6682	6682	0	8100	8100	0	5427	5427	0
95	80		31590	9720	21870	20533	6318	14215	26325	8100	18225	17374	5345	12028	21060	6480	14580	14110	4341	9768
	75		21465	9720	11744	13952	6318	7634	17887	8100	9787	11805	5345	6459	14310	6480	7830	9587	4341	5246
	70		12352	9720	2632	8029	6318	1711	10293	8100	2193	6793	5345	1447	8235	6480	1755	5517	4341	1175
	65		9720	9720	0	6318	6318	0	8100	8100	0	5345	5345	0	6480	6480	0	4341	4341	0
	60		9720	9720	0	6318	6318	0	8100	8100	0	5345	5345	0	6480	6480	0	4341	4341	0
90	80		31590	7290	24300	20533	4738	15794	26325	6075	20250	17374	4009	13365	21060	4860	16200	14110	3256	10854
	75		21465	7290	14175	13952	4738	9213	17887	6075	11812	11805	4009	7796	14310	4860	9450	9587	3256	6331
	70		12352	7290	5062	8029	4738	3290	10293	6075	4218	6793	4009	2784	8235	4860	3375	5517	3256	2261
	65		7290	7290	0	4738	4738	0	6075	6075	0	4009	4009	0	4860	4860	0	3256	3256	0
	60		7290	7290	0	4738	4738	0	6075	6075	0	4009	4009	0	4860	4860	0	3256	3256	0
85	80		31590	4860	26730	20533	3159	17374	26325	4050	22275	17374	2672	14701	21060	3240	17820	14110	2170	11939
	75		21465	4860	16605	13952	3159	10793	17887	4050	13837	11805	2672	9132	14310	3240	11070	9587	2170	7416
	70		12352	4860	7492	8029	3159	4870	10293	4050	6243	6793	2672	4120	8235	3240	4995	5517	2170	3346
	65		4860	4860	0	3159	3159	0	4050	4050	0	2672	2672	0	3240	3240	0	2170	2170	0
	60		4860	4860	0	3159	3159	0	4050	4050	0	2672	2672	0	3240	3240	0	2170	2170	0
80	75		21465	2430	19035	13952	1579	12372	17887	2025	15862	11805	1336	10469	14310	1620	12690	9587	1085	8502
	70		12352	2430	9922	8029	1579	6449	10293	2025	8268	6793	1336	5457	8235	1620	6615	5517	1085	4432
	65		4252	2430	1822	2764	1579	1184	3543	2025	1518	2338	1336	1002	2835	1620	1215	1899	1085	814
	60		2430	2430	0	1579	1579	0	2025	2025	0	1336	1336	0	1620	1620	0	1085	1085	0
75	70		12352	0	12352	8029	0	8029	10293	0	10293	6793	0	6793	8235	0	8235	5517	0	5517
	65		4252	0	4252	2764	0	2764	3543	0	3543	2338	0	2338	2835	0	2835	1899	0	1899
	60		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

WINTER HEATING PERFORMANCE (INDOOR DESIGN CONDITIONS 70°F DB)

Ambient O.D.	VENTILATION RATE					
	450 CFM 80% EFFICIENCY		375 CFM 81% EFFICIENCY		300 CFM 82% EFFICIENCY	
DB/°F	WVL	WHR	WVL	WHR	WVL	WHR
65	2430	1944	2025	1640	1620	1328
60	4860	3888	4050	3280	3240	2656
55	7290	5832	6075	4920	4860	3985
50	9720	7776	8100	6561	6480	5313
45	12150	9720	10125	8201	8100	6642
40	14580	11664	12150	9841	9720	7970
35	17010	13608	14175	11481	11340	9298
30	19440	15552	16200	13122	12960	10627
25	21870	17496	18225	14762	14580	11955
20	24300	19440	20250	16402	16200	13284
15	26730	21384	22275	18042	17820	14612

LEGEND:

VLT = Ventilation Load - Total
VLS = Ventilation Load - Sensible
VLL = Ventilation Load - Latent
HRT = Heat Recovery - Total
HRS = Heat Recovery - Sensible
HRL = Heat Recovery - Latent
WVL = Winter Ventilation Load
WHR = Winter Heat Recovery

NOTE: Sensible performance only is shown for winter application.

I-TEC™ Accessory Model Numbers

Wall Sleeves

Model #:	Description:
IWS-A	Wall Sleeve adjustable 5.5 to 8.5" total depth of wall system
IWS-B	Wall Sleeve adjustable 8.0 to 13.5" total depth of wall system
IWS-C	Wall Sleeve adjustable 13.0 to 23.5" total depth of wall system

Outdoor Louver Grilles

Model #:	Description:
ILG-10	Clear anodized aluminum
ILG-20	Medium bronze anodized aluminum
ILG-30	Dark bronze anodized aluminum

Duct-Free Plenum Boxes

Model #:	Description:
IPBDF12-X	12" high with front and side 4-way deflection grilles, beige paint
IPBDF12-1	12" high with front and side 4-way deflection grilles, white paint
IPBDF12-4	12" high with front and side 4-way deflection grilles, gray paint
IPBDF8-X	8" high with front and side 4-way deflection grilles, beige paint
IPBDF8-1	8" high with front and side 4-way deflection grilles, white paint
IPBDF8-4	8" high with front and side 4-way deflection grilles, gray paint

Duct-Free Plenum Boxes with Hot Water Coil

Model #:	Description:
IPBDF12HW-X	12" high with front and side 4-way deflection grilles, beige paint, w/hot water coil
IPBDF12HW-1	12" high with front and side 4-way deflection grilles, white paint, w/hot water coil
IPBDF12HW-4	12" high with front and side 4-way deflection grilles, gray paint, w/hot water coil

NOTE: No water control valves included. Field-Installed.

Hot Water Coil with Duct Connection

Model #:	Description:
IHWC	Hot water coil assembly, mounts on top of I-TEC unit, 10" x 30" duct flange

NOTE: No water control valves included. Field-Installed.

NOTE: Order appropriate Cabinet Extension (Model ICX28-*) to enclose hot water coil assembly, valves, piping and ductwork.

Cabinet Extensions

Model #:	Description:
ICX28-X	28" extension for ceilings up to 10'2", beige paint
ICX28-1	28" extension for ceilings up to 10'2", white paint
ICX28-4	28" extension for ceilings up to 10'2", gray paint

NOTE 1: Use of Riser Platforms will increase maximum ceiling height by riser height.

NOTE 2: Cabinet Extensions can be used with ducted systems to enclose ductwork or piping, and can also be used with Duct-Free Plenum Boxes to enclose to ceiling if desired. Extensions can be trimmed to height as needed.

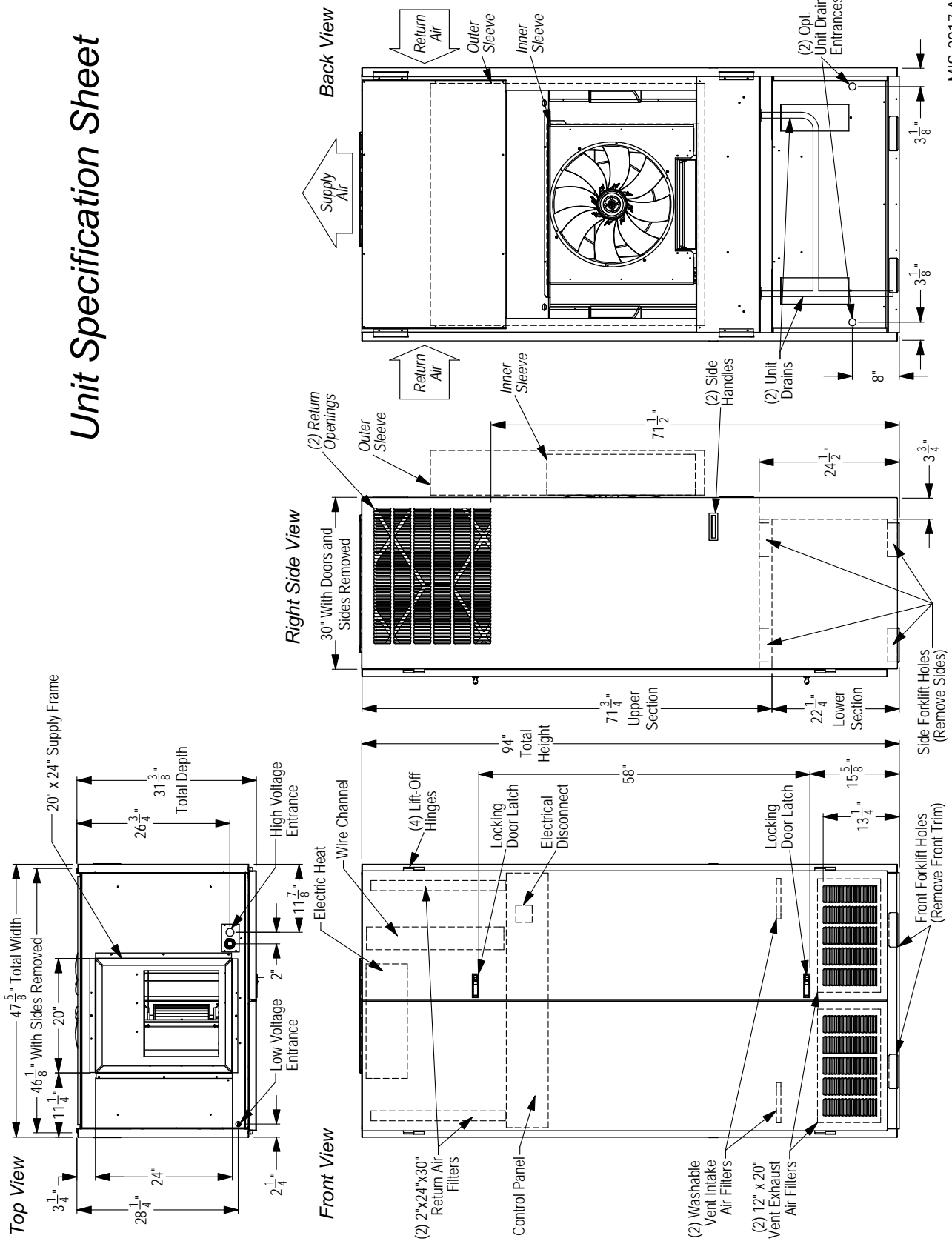
Riser Platforms

Model #:	Description:
IRP-3-X	Riser platform 3" with trim kit, beige paint
IRP-3-1	Riser platform 3" with trim kit, white paint
IRP-3-4	Riser platform 3" with trim kit, gray paint
IRP-6-X	Riser platform 6" with trim kit, beige paint
IRP-6-1	Riser platform 6" with trim kit, white paint
IRP-6-4	Riser platform 6" with trim kit, gray paint

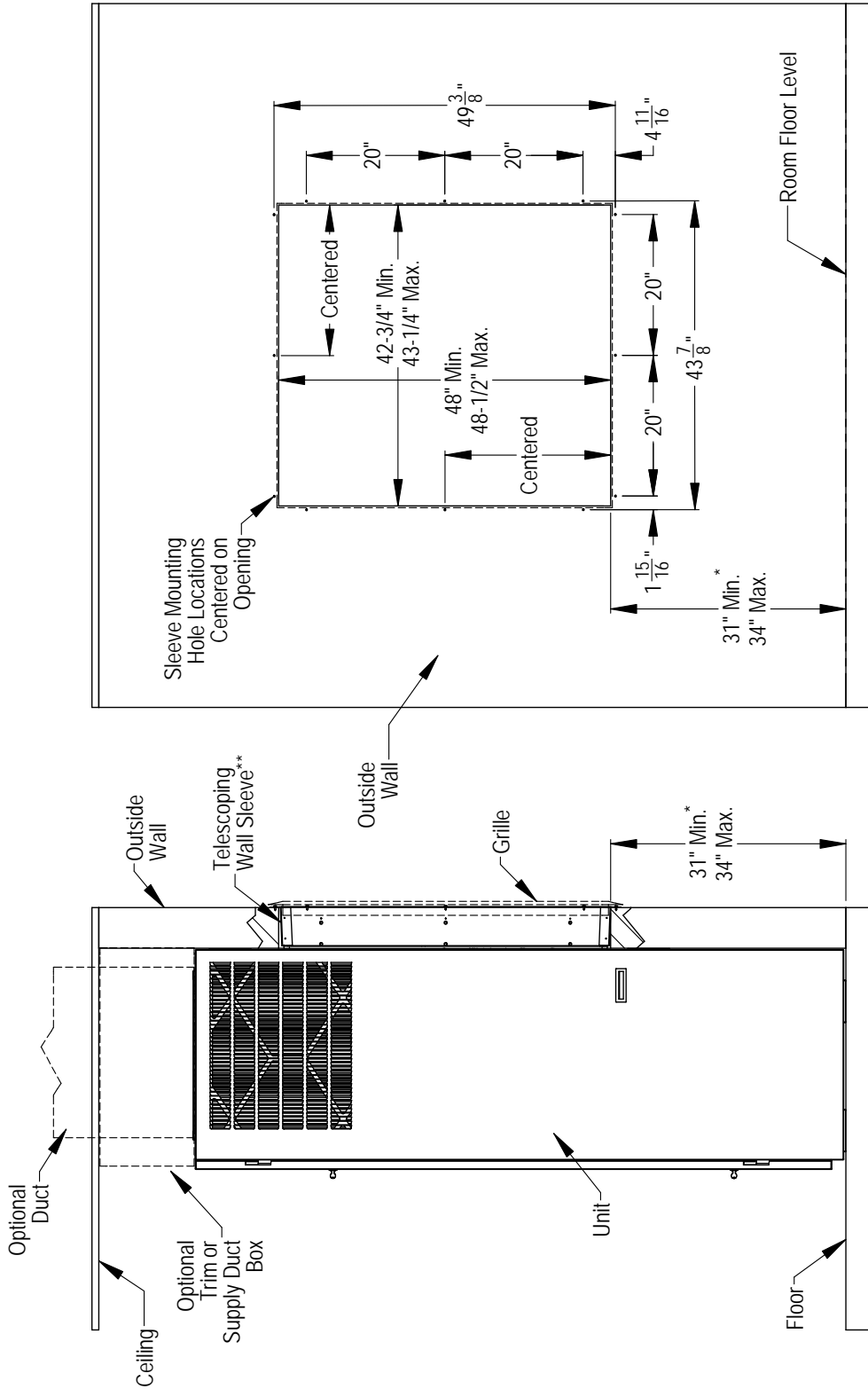
NOTE: Use of Riser Platforms will increase maximum ceiling height by riser height.

Unit Specification Sheet

MIS-2917 A



Wall Section View

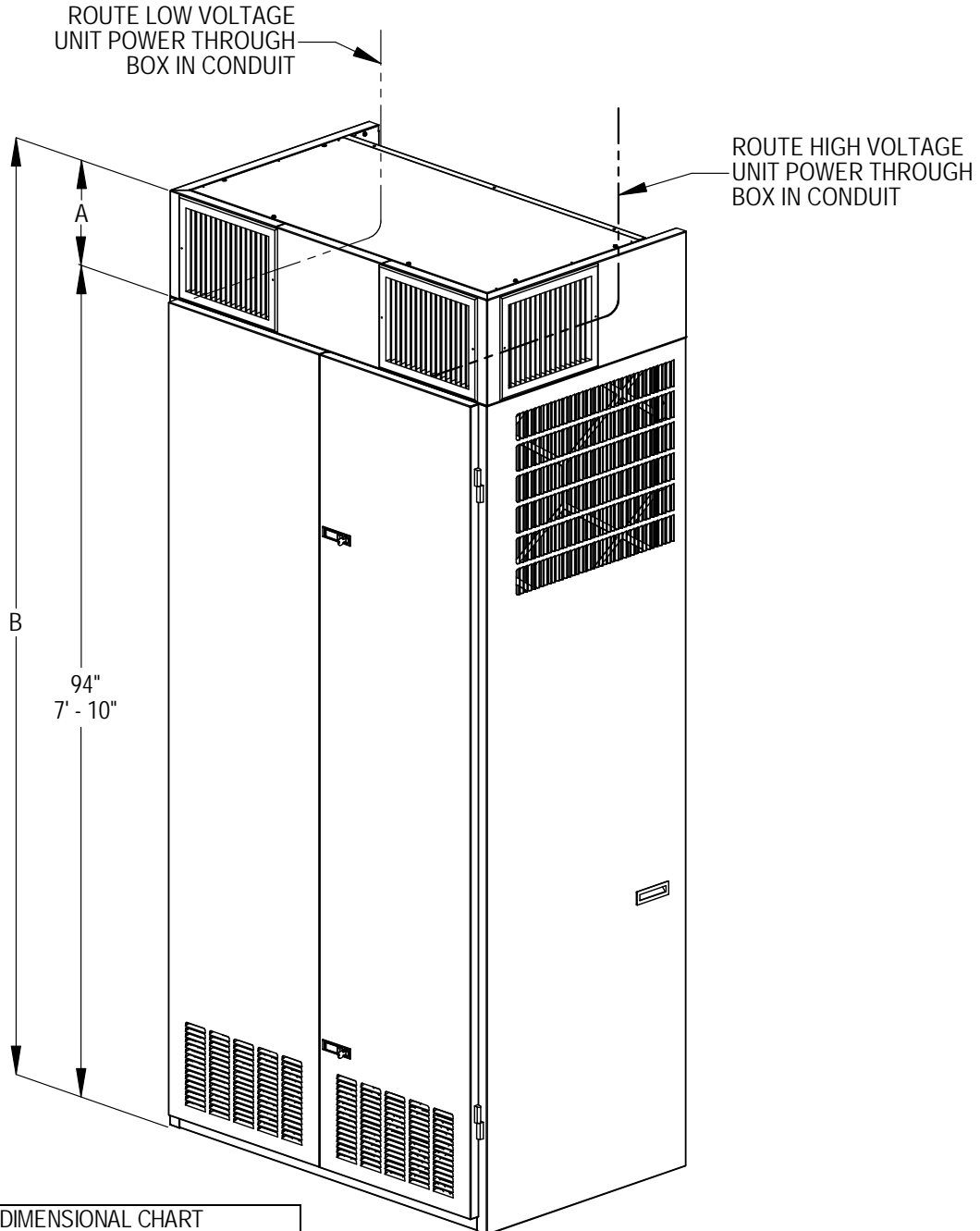


Front (Wall Only) View

Right Side View

* Higher Sill Heights Achievable With Base Kit.
 ** Separate telescoping sleeves available for different wall thicknesses.

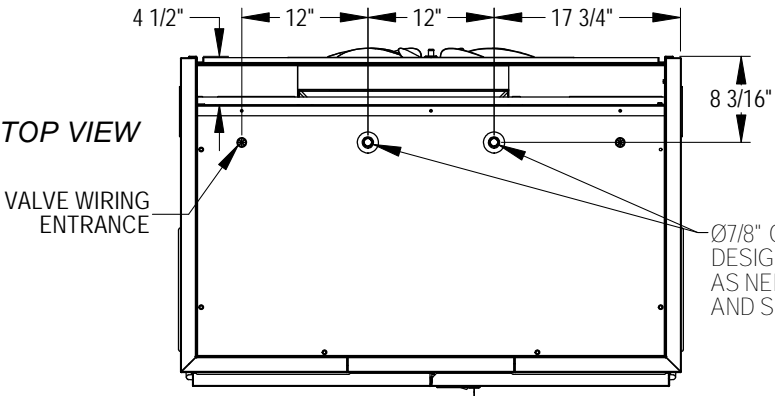
IPBDF8 AND IPBDF12 DUCT-FREE PLENUM BOX DIMENSIONS



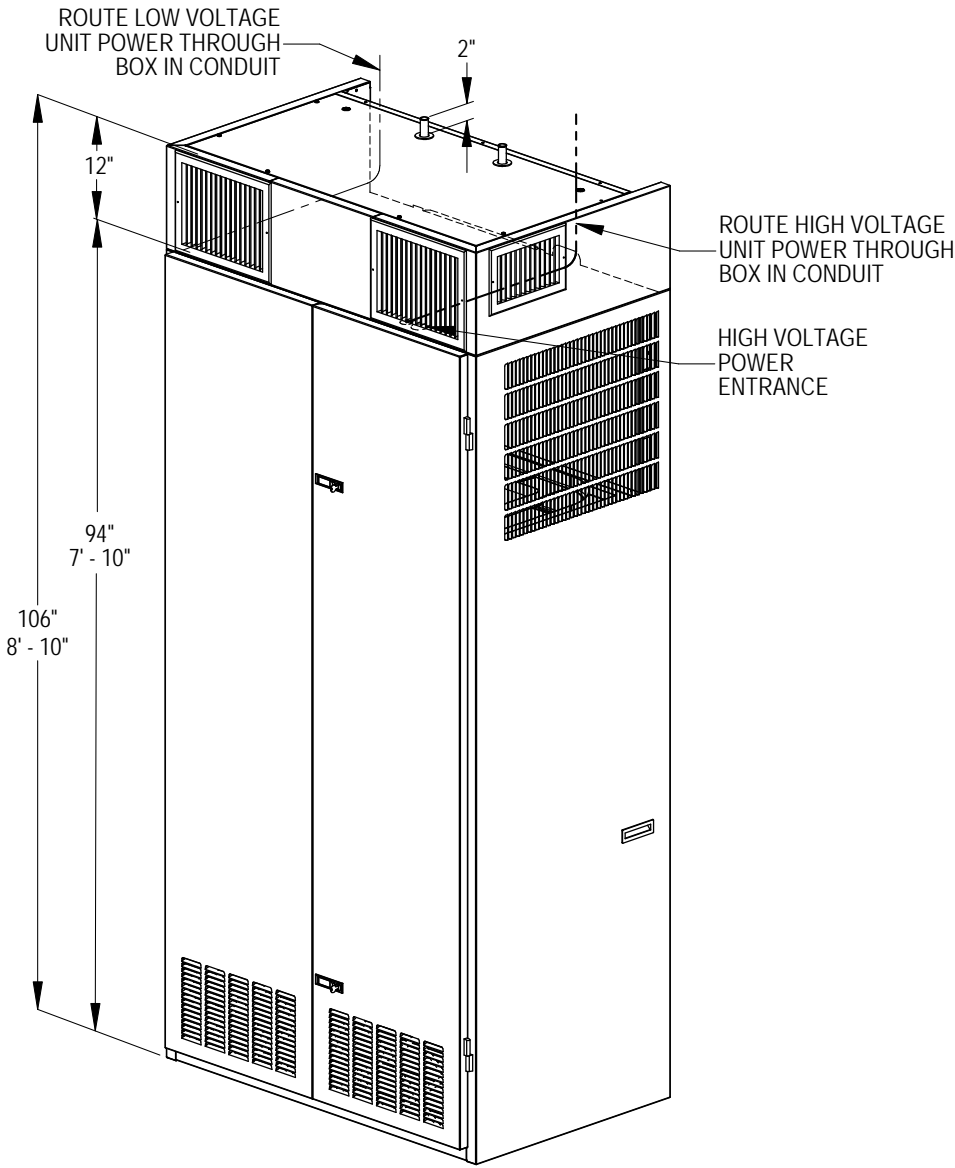
DIMENSIONAL CHART		
MODEL NO.	DIM. A	DIM. B
IPBDF8	8"	102" (8'-6")
IPBDF12	12"	106" (8'-10")

MIS-3057

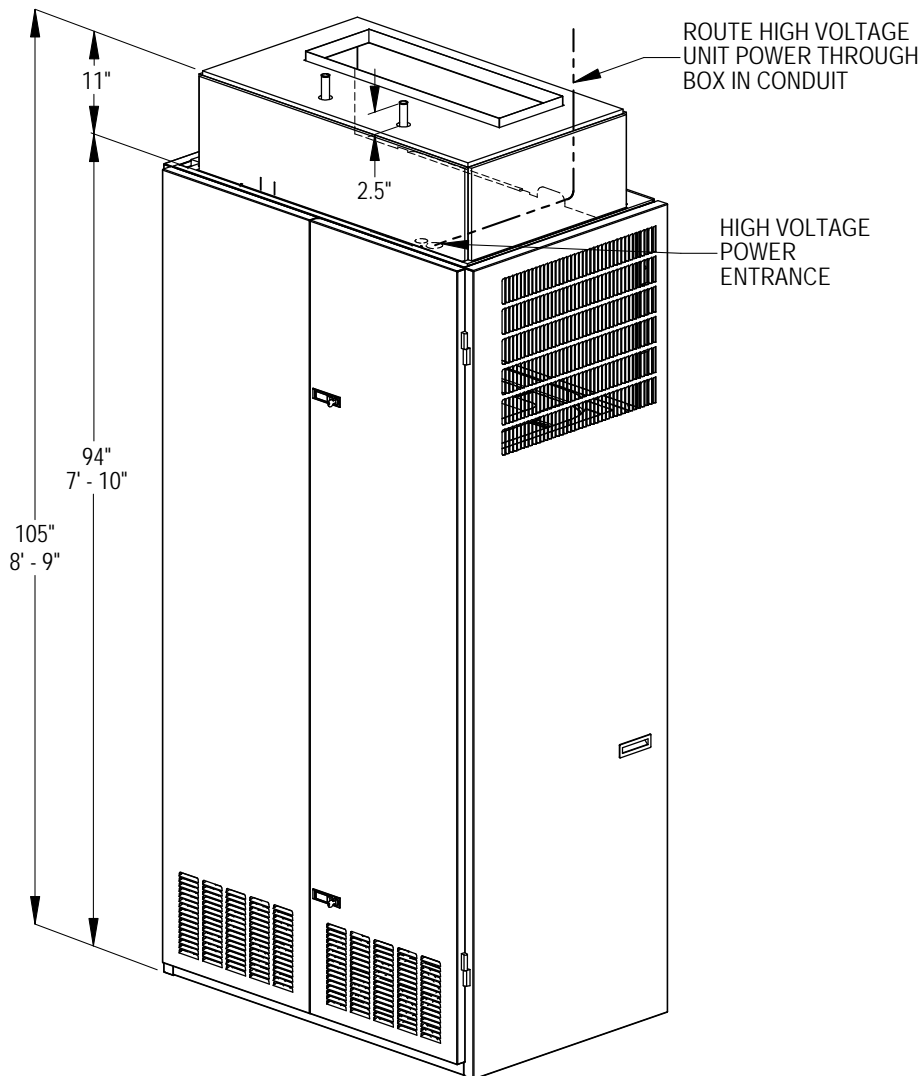
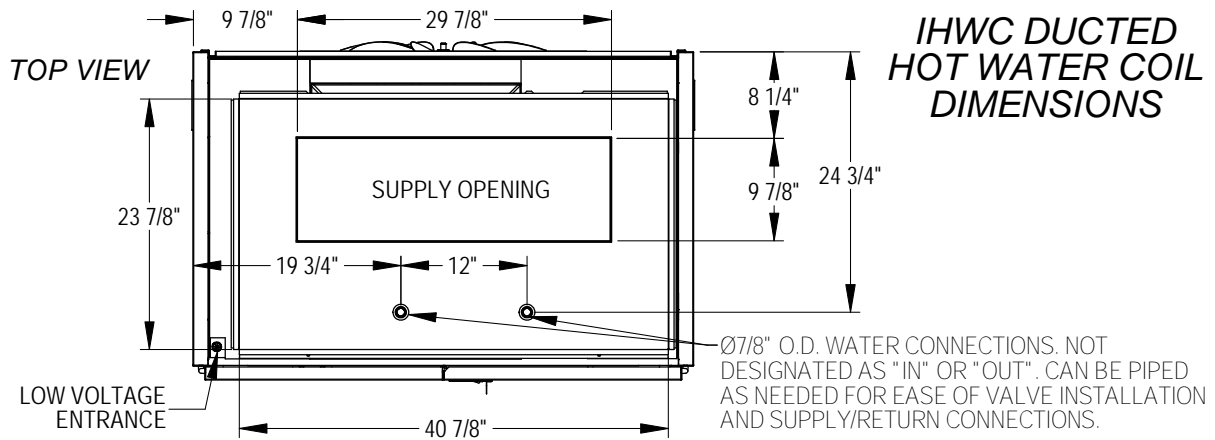
**IPBDF12HW
DUCT-FREE
HOT WATER COIL
DIMENSIONS**



Ø7/8" O.D. WATER CONNECTIONS. NOT DESIGNATED AS "IN" OR "OUT". CAN BE PIPED AS NEEDED FOR EASE OF VALVE INSTALLATION AND SUPPLY/RETURN CONNECTIONS.



MIS-3059



MIS-3058

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I-TEC™ 2-Stage Air Source Heat Pumps Model Number Nomenclature

I 36 H 1 D A 0Z R H 4 X X 2

Model Series

Nominal Capacity:

- 30 = 30,000 BTUH
- 36 = 36,000
- 42 = 42,000
- 48 = 48,000
- 60 = 60,000

System Type:

H = Heat Pump

Revision Level:

(-) = Standard (Non-Dehum)

D = Dehumidification

Electrical Rating:

- A = 230/208, 60-1
- B = 230/208, 60-3
- C = 460-60-3

Electric Heat:

- 0Z = No heat w/ breaker
- 04 = 4KW 1-Phase
- 05 = 5KW 1-Phase
- 06 = 6KW 3-Phase
- 09 = 9KW 3-Phase
- 10 = 10KW 1-Phase
- 15 = 15KW 1 & 3-Phase
- 18 = 18KW 3-Phase
- 20 = 20KW 1-Phase

Controls:

- X = 24v terminal block Only w/o CompleteStat
- 1 = CompleteStat THO (Temp, Humidity and Occupancy)
- 2 = CompleteStat THO w/CO2
- 3 = CompleteStat THO w/ Ethernet
- 4 = CompleteStat THO w/CO2 and Ethernet

Note: CompleteStat must be field installed and wired.
All units have 24V terminal block. See Selection Guide.

Coil Treatment:

- X = Std. Hydrophilic Fin Evap. & Uncoated Alum. Cond. Coil
- 1 = Phenolic Coated ID coil
- 2 = Phenolic Coated OD coil
- 3 = Phenolic Coated ID and OD coil

X = Reserved

Color:

- X = Beige, Painted Steel
- 1 = White, Painted Steel
- 4 = Gray, Painted Steel

Filter:

- P = 2 inch pleated MERV 8
- M = 2 inch pleated MERV 11
- N = 2 inch pleated MERV 13

Vent Option:

- B = Blank Off Plate
- M = Multi-Speed CRV
- R = ERV

CompleteStat Selection Guide						
Vent Type	Type of Vent Control	BACnet ① Communication	Ethernet ② Connection	Control Code	Description	CompleteStat Part Number
None	N/A	Yes	No	1	CompleteStat THO (Temp, Humidity & Occupancy)	CS9B-THO
	N/A	Yes	Yes	3	CompleteStat THO w/Ethernet	CS9BE-THO
CRV	On/Off	Yes	No	1	CompleteStat THO (Temp, Humidity & Occupancy)	CS9B-THO
	Demand ③	Yes	No	2	CompleteStat THO w/CO2	CS9B-THOC
	On/Off	Yes	Yes	3	CompleteStat THO w/Ethernet	CS9BE-THO
	Demand ③	Yes	Yes	4	CompleteStat THO w/CO2 & Ethernet	CS9BE-THOC
ERV	On/Off	Yes	No	1	CompleteStat THO (Temp, Humidity & Occupancy)	CS9B-THO
	Demand ③	Yes	No	2	CompleteStat THO w/CO2	CS9B-THOC
	On/Off	Yes	Yes	3	CompleteStat THO w/Ethernet	CS9BE-THO
	Demand ③	Yes	Yes	4	CompleteStat THO w/CO2 & Ethernet	CS9BE-THOC

① BACnet is standard - all versions, shielded twisted pair.

② These models also have CAT 5 port for ease of networking in addition to twisted pair terminals.

③ Demand control for ventilation is ON/OFF based on CO2 set-point.

If modulating mode for ERV is required, use – THO controller plus 8403-067 CO2 controller with modulating output.



Bard Manufacturing Company, Inc.
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www.bardhvac.com

Due to our continuous product improvement policy,
all specifications subject to change without notice.

Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

Form No.
S3451
March, 2012

Supersedes: S3451-212