

engineering manual

Environmental Control



Guardian II

Floor Mounted Precision A/C's 6-20 Tons

- 6 to 20 Tons Dual Circuit DX & Chilled Water
- Perfect for Computer Rooms, Telecom & Other Precision Environmentally Controlled Spaces
- 100% Front Access Available in Both Upflow & Downflow Air Pattern Configurations
- DX Air, Water & Glycol Cooled plus Chilled Water and Free-Cooling Economizer Systems



Excellence In Ceiling Mounted AC and Environmental Control Systems

800.625.7545 www.Skil-air.com

EPG-G2 16a

Guardian-II™ Skil-aire™ Built to Last With Design Features That Assure Superior Performance and Dependability in Any Application.



Upflow & Downflow Configurations
 Featuring 100% Front Access & Modular For Rigging Purpose

Advanced Microprocessor Controls: (Full BMS Communications via BacNet, ModBus ... !)



MicroSkil-200 Series
 (Optional Display Shown)

Precision Environmental Control:

- Steam Humidifier (standard)
- Electric (Standard), Hot Water or Steam Reheat
- High Efficient Air Filtration



Reliability Built-In:

- Scroll Compressors
- Modular Motor Controllers with Circuit Breaker Protection

Head Pressure Control:

- Air Cooled - Choose from -17.8°C (0°F), -28.9°C (-20°F) and -34.4°C (-30°F) Low Ambient Options
- Water/Glycol Cooled - 2 and 3-way standard and high pressure regulating valve options



High Static Belt-Drive Blowers:

- Ducted Systems Available with Up to 2.0" E.S.P.



Capacity Modulation:

- Hot Gas Bypass

Select Accessories:

- Plenum Discharge Boxes
- Floor Stands
- ECX - Water/Glycol Economizers
- Condensate Pumps
- Non-Fused Disconnects
- Firestats
- Smoke Detectors
- Remote Water Detectors
- Glycol Drycoolers & Pump Packages
- and more ...!



Performance Data

Nominal Tons Model Size	6.0 Tons 072	8.0 Tons 096	10.0 Tons 120	15.0 Tons 180	20.0 Tons 240
DX - AIR COOLED @ 35°C (95°F) Entering Condenser Air					
26.7°C (80°F) DB, 50% RH					
Total / Sensible KW (MBH)	25.2 / 22.7 (86.0 / 77.4)	32.0 / 27.7 (109.2 / 94.6)	40.6 / 34.6 (138.4 / 118.2)	61.3 / 51.8 (209.2 / 176.8)	78.7 / 60.5 (268.6 / 206.6)
23.9°C (75°F) DB, 50% RH					
Total / Sensible KW (MBH)	23.2 / 22.3 (86.0 / 77.4)	29.4 / 27.5 (109.2 / 94.6)	37.2 / 34.3 (138.4 / 118.2)	56.1 / 51.1 (209.2 / 176.8)	72.0 / 59.6 (268.6 / 206.6)
22.2°C (72°F) DB, 50% RH					
Total / Sensible KW (MBH)	22.2 / 21.7 (75.6 / 74.0)	28.1 / 26.9 (95.8 / 91.8)	35.5 / 33.6 (121.2 / 114.8)	53.3 / 50.0 (182.0 / 170.6)	69.1 / 59.3 (235.8 / 202.2)
DX - WATER COOLED @ 29.4°C (85°F) Entering Condenser Water					
26.7°C (80°F) DB, 50% RH					
Total / Sensible KW (MBH)	26.9 / 23.1 (91.8 / 78.8)	34.1 / 28.4 (116.2 / 96.8)	43.3 / 35.6 (147.8 / 121.6)	65.8 / 53.5 (224.6 / 182.6)	83.6 / 62.7 (285.4 / 213.8)
23.9°C (75°F) DB, 50% RH					
Total / Sensible KW (MBH)	24.8 / 23.0 (84.6 / 78.4)	31.3 / 28.2 (106.8 / 96.2)	39.8 / 35.3 (135.8 / 120.4)	60.4 / 52.6 (206.0 / 179.4)	76.8 / 61.8 (262.0 / 210.8)
22.2°C (72°F) DB, 50% RH					
Total / Sensible KW (MBH)	23.7 / 22.5 (80.8 / 76.8)	29.9 / 27.5 (102.0 / 94.0)	38.0 / 34.6 (129.6 / 118.2)	57.5 / 51.5 (196.2 / 175.6)	73.3 / 60.5 (250.0 / 206.6)
DX - GLYCOL COOLED @ 43.3°C (110°F), 40% Entering Ethylene Glycol					
26.7°C (80°F) DB, 50% RH					
Total / Sensible KW (MBH)	24.0 / 22.3 (82.0 / 76.0)	30.6 / 27.3 (104.4 / 93.2)	38.6 / 34.1 (131.6 / 116.2)	58.7 / 50.7 (200.2 / 173.0)	75.0 / 59.1 (256.0 / 201.8)
23.9°C (75°F) DB, 50% RH					
Total / Sensible KW (MBH)	22.1 / 21.7 (75.4 / 74.0)	28.1 / 27.0 (96.0 / 92.0)	35.3 / 33.6 (120.6 / 114.8)	53.6 / 49.9 (182.8 / 170.2)	69.2 / 58.8 (236.0 / 200.8)
22.2°C (72°F) DB, 50% RH					
Total / Sensible KW (MBH)	21.3 / 20.6 (72.6 / 70.4)	26.8 / 26.3 (91.4 / 89.6)	33.6 / 32.8 (114.8 / 112.0)	50.9 / 48.7 (173.8 / 166.2)	65.8 / 57.6 (224.6 / 196.4)

COMMON FEATURES

Evaporator Airflow - Belt Drive Centrifugal						
Discharge	L/S (CFM)	1,698.8 (3,600)	2,076.4 (4,400)	2,642.6 (5,600)	4,152.7 (8,800)	4,530.2 (9,600)
E.S.P.	IN WG	0.5	0.5	0.5	0.5	0.5
Fan Motor (Qty.)	HP (NO)	3/4 (2)	1 (2)	1-1/2 (2)	3 (2)	3 (2)
Fan Dia (Qty.)	CM (IN) (NO)	30.5 X 22.9 (12 X 9) (2)	30.5 X 22.9 (12 X 9) (2)	30.5 X 22.9 (12 X 9) (2)	30.5 X 30.5 (12 X 12) (2)	30.5 X 30.5 (12 X 12) (2)
Evaporator Coil - Aluminum Fin, Copper Tube						
Rows	NO	4	4	4	4	4
Face Area	M ² (FT ²)	1.2 (12.6)	1.2 (12.6)	1.2 (12.6)	1.8 (19.4)	1.8 (19.4)
Face Velocity	MPM (FPM)	87.8 (288)	107.3 (352)	136.6 (448)	138.1 (453)	150.9 (495)
Air Filtration - @ 30% Dust Spot						
Nominal Size	CM (NO) (IN)	63.5 x 73.7 x 10.2 (2) (25 x 29 x 4)	63.5 x 73.7 x 10.2 (2) (25 x 29 x 4)	63.5 x 73.7 x 10.2 (2) (25 x 29 x 4)	94.0 x 83.8 x 10.2 (2) (37 x 33 x 4)	94.0 x 83.8 x 10.2 (2) (37 x 33 x 4)
Compressor - Heat Pump Duty Scroll						
Qty., HP	(NO) HP	(2) 3.5	(2) 4.0	(2) 5.0	(2) 8.0	(2) 10.0
Electric Reheat / Heat - includes evaporator motor heat						
Capacity	MBH	37.7	55.8	58.1	82.1	82.1
	KW	10	1.5	20	20	2.0
Stages	NO	2	2	2	2	2
Steam Canister Humidifier						
Steam Canister	LBS/HR	15	15	15	15	15
Connection Sizes						
Condensate Drain	(NO) FPT CM (IN)	(2) 1.9 (3/4)	(2) 1.9 (3/4)	(2) 1.9 (3/4)	(2) 1.9 (3/4)	(2) 1.9 (3/4)
Humidifier Inlet	FLARE CM (IN)	0.6 (1/4)	0.6 (1/4)	0.6 (1/4)	0.6 (1/4)	0.6 (1/4)

Condenser Data

Nominal Tons	6.0	8.0	10.0	15.0	20.0
Evap Model Size	072	096	120	180	240

DX - AIR COOLED CONDENSER DATA

Outdoor, Remote Propeller Fan Condenser - (FAC models)						
35°C (95°F) Ambient Model		FAC-010	FAC-012	FAC-015	FAC-025	FAC-031
Discharge	L/S (CFM)	3,492.1 (7,400)	3,303.3 (7,000)	7,408.8 (15,700)	10,853.7 (23,000)	10,334.6 (21,900)
	IN ESP	0.0	0.0	0.0	0.0	0.0
Fan Motor	(NO) HP	(2) 1/2	(2) 1/2	(2) 1	(2) 1 1/2	(4) 1/2
Fan Type		Propeller	Propeller	Propeller	Propeller	Propeller
Outdoor, Remote Air Cooled Condensing Unit - (FU models)						
Discharge	L/S (NO)	1,368.5 (2) (2,900)	1,415.7 (2) (3,000)	1,415.7 (2) (3,000)	2,925.8 (2) (6,200)	3,539.3 (2) (7,500)
	IN ESP	0.0	0.0	0.0	0.0	0.0
Fan Motor	(NO) HP	(2) 1/6	(2) 1/3	(2) 1/3	(2) 3/4	(2) 1
Fan Type		Propeller	Propeller	Propeller	Propeller	Propeller

DX - WATER COOLED CONDENSER DATA

Water Cooled Condenser Data - (UW2 & DW2 models)						
Total Heat of Rej.	KW (MBH)	30.5 (104.0)	39.1 (133.3)	47.5 (162.2)	71.7 (244.6)	92.8 (316.8)
Flow @ 29.4°C (85°F) EWT	LPM (GPM)	78.7 (20.8)	101.1 (26.7)	122.6 (32.4)	184.7 (48.8)	240.0 (63.4)
Water Press. Drop	kPa (FT WG)	35.6 (11.9)	76.2 (25.5)	85.2 (28.5)	53.8 (18)	81.6 (27.3)
Water Reg. Valve		2-Way, 150 psig - factory installed				

DX - GLYCOL COOLED CONDENSER DATA

Glycol Cooled Condenser Data - @ 40% Ethylene Glycol (UG2 & DG2 models)						
Total Heat of Rej.	KW (MBH)	29.5 (100.6)	38.1 (130)	46 (156.8)	68.9 (235)	90.9 (310.2)
Flow @ 43.3°C (110°F) EWT	LPM (GPM)	84.0 (22.2)	109.0 (28.8)	131.0 (34.6)	196.8 (52)	259.7 (68.6)
Glycol Press. Drop	kPa (FT WG)	38.3 (12.8)	78.3 (26.2)	91.5 (30.6)	59.2 (19.8)	91.8 (30.7)
Glycol Reg. Valve		2-Way, 150 psig - factory installed				

Connection Sizes

Nominal Tons	6.0	8.0	10.0	15.0	20.0
Model Size	072	096	120	180	240

DX - AIR COOLED REFRIGERANT () CONNECTION DATA

DX Split Air Cooled Evaporator - (UA2 & DA2 models, with compressor in evap)						
Liquid Line Inlet	(NO) OD CM (IN)	(2) 1.3 (1/2)	(2) 1.3 (1/2)	(2) 1.3 (1/2)	(2) 2.2 (7/8)	(2) 2.2 (7/8)
Hot Gas Line Outlet	(NO) OD CM (IN)	(2) 2.2 (7/8)	(2) 2.2 (7/8)	(1) 2.2 (7/8)	(2) 2.2 (7/8)	(2) 2.9 (1 1/8)
Outdoor, Remote Propeller Fan Air Cooled Condensers - (FAC models)						
Hot Gas Line Inlet	(NO) OD CM (IN)	(2) 2.9 (1 1/8)	(2) 2.9 (1 1/8)	(2) 2.9 (1 1/8)	(2) 3.5 (1 3/8)	(2) 3.5 (1 3/8)
Liquid Line Outlet	(NO) OD CM (IN)	(2) 2.2 (7/8)	(2) 2.2 (7/8)	(2) 2.2 (7/8)	(2) 2.9 (1 1/8)	(2) 2.9 (1 1/8)
Outdoor, Remote Propeller Fan Air Cooled Condensing Units - (FU models)						
Suction Line Inlet	OD CM (IN)	(2) 1.9 (3/4)	(2) 2.2 (7/8)	(2) 2.2 (7/8)	(2) 2.9 (1 1/8)	(2) 2.9 (1 1/8)
Liquid Line Outlet	OD CM (IN)	(2) 0.8 (5/16)	(2) 1 (3/8)	(2) 1 (3/8)	(2) 1.6 (5/8)	(2) 1.6 (5/8)

DX - WATER COOLED CONDENSER CONNECTION DATA

Water Cooled Condenser Data - (UW2 & DW2 models)						
Water IN/OUT	(NO) OD CM (IN)	(2) 2.2 (7/8)	(2) 2.9 (1 1/8)	(2) 2.9 (1 1/8)	(2) 3.5 (1 3/8)	(2) 3.5 (1 3/8)

DX - GLYCOL COOLED CONDENSER CONNECTION DATA

Glycol Cooled Condenser Data - @ 40% Ethylene Glycol (UG2 & DG2 models)						
Glycol IN/OUT	(NO) OD CM (IN)	(2) 2.2 (7/8)	(2) 2.9 (1 1/8)	(2) 2.9 (1 1/8)	(2) 3.5 (1 3/8)	(2) 3.5 (1 3/8)

Approximate Ship Weights kg. (lbs.)

MODEL	APPROX. WT (LBS)
UA2 & DA2-072	521.6 (1,150)
UA2 & DA2-096	544.3 (1,200)
UA2 & DA2-120	544.3 (1,200)
UA2 & DA2-180	725.8 (1,600)
UA2 & DA2-240	734.8 (1,620)
FAC-010	149.7 (330)
FAC-012	161.0 (355)
FAC-015	290.3 (640)
FAC-016	294.8 (650)
FAC-020	315.3 (695)
FAC-025	313.0 (690)
FAC-031	344.7 (760)
FAC-036	381.0 (840)
UW2 & DW2-072	544.3 (1,200)
UW2 & DW2-096	567.0 (1,250)
UW2 & DW2-120	567.0 (1,250)
UW2 & DW2-180	771.1 (1,700)
UW2 & DW2-240	780.2 (1,720)
UG2 & DG2-072	544.3 (1,200)
UG2 & DG2-096	567.0 (1,250)
UG2 & DG2-120	567.0 (1,250)
UG2 & DG2-180	771.1 (1,700)
UG2 & DG2-240	780.2 (1,720)
FU-036 H-1/H-3	97.1/89.8 (214/198)
FU-048 H-1/H-3	89.8/93.9 (198/207)
FU-060	109.8 (242)
FU-096	142.9 (315)
FU-120	151.5 (334)

ECX Coil Performance Data

Nominal Tons Model Size		6.0 Tons 072	8.0 Tons 096	10.0 Tons 120	15.0 Tons 180	20.0 Tons 240
ECX COOLING CAPACITY: (UA2 & DA2-_-ECX DX Air Cooled w/ ECX 7.2°C (45°F) EWT, 0% Glycol)						
26.7°C (80°F) DB, 50% RH						
Total / Sensible	KW (MBH)	36.8 / 26.4 (125.4 / 90.0)	43.2 / 31.4 (147.4 / 107.0)	53.2 / 38.9 (181.4 / 132.6)	66.9 / 49.9 (228.2 / 170.2)	75.4 / 57.3 (257.4 / 195.6)
Flow Rate / PD	LPM / kPa (GPM / FT WG)	95.4 / 5.1 (25.2 / 1.7)	112.0 / 6.6 (29.6 / 2.2)	143.8 / 10.5 (38.0 / 3.5)	174.1 / 13.2 (46.0 / 4.4)	196.8 / 16.4 (52.0 / 5.5)
23.9°C (75°F) DB, 50% RH						
Total / Sensible	KW (MBH)	24.3 / 22.2 (82.8 / 75.8)	29.0 / 26.6 (98.8 / 90.9)	38.6 / 34.3 (131.8 / 117)	46.2 / 43.3 (157.8 / 147.8)	52.5 / 50.1 (179.0 / 170.8)
Flow Rate / PD	LPM / kPa (GPM / FT WG)	62.8 / 2.4 (16.6 / 0.8)	75.0 / 3.3 (19.8 / 1.1)	113.6 / 6.9 (30.0 / 2.3)	121.1 / 6.9 (32.0 / 2.3)	136.3 / 8.7 (36.0 / 2.9)
22.2°C (72°F) DB, 50% RH						
Total / Sensible	KW (MBH)	19.6 / 19.6 (67.0 / 67.0)	22.9 / 22.9 (78.0 / 78.0)	31.1 / 31.1 (106.0 / 106.0)	37.5 / 37.5 (128.0 / 128.0)	43.3 / 43.3 (147.8 / 147.8)
Flow Rate / PD	LPM / kPa (GPM / FT WG)	53.0 / 1.8 (14.0 / 0.6)	59.1 / 2.1 (15.6 / 0.7)	90.8 / 4.5 (24.0 / 1.5)	98.4 / 4.8 (26.0 / 1.6)	113.6 / 6.3 (30.0 / 2.1)
ECX COOLING CAPACITY: (UW2 & DW2-_-ECX DX Water Cooled w/ ECX 7.2°C (45°F) EWT, 0% Glycol)						
26.7°C (80°F) DB, 50% RH						
Total / Sensible	KW (MBH)	34.0 / 25.3 (116.0 / 86.4)	41.3 / 30.6 (140.9 / 104.5)	49.6 / 37.5 (169.4 / 127.8)	68.3 / 50.5 (233.0 / 172.2)	80.8 / 59.4 (275.8 / 202.8)
23.9°C (75°F) DB, 50% RH						
Total / Sensible	KW (MBH)	27.1 / 23.4 (92.6 / 80.0)	32.9 / 28.3 (112.3 / 96.4)	39.7 / 34.7 (135.4 / 118.4)	54.0 / 46.5 (184.4 / 158.6)	63.8 / 54.6 (217.6 / 186.4)
22.2°C (72°F) DB, 50% RH						
Total / Sensible	KW (MBH)	23.6 / 22.0 (80.4 / 75.0)	28.6 / 26.6 (97.5 / 90.6)	34.6 / 32.7 (118.0 / 111.6)	46.8 / 43.7 (159.6 / 149.0)	55.2 / 51.3 (188.2 / 175.0)
Flow Rate	LPM (GPM)	78.7 (20.8)	101.1 (26.7)	122.6 (32.4)	184.7 (48.8)	240.0 (63.4)
Press Drop, ECX Coil	kPa (FT WG)	3.6 (1.2)	5.7 (1.9)	7.8 (2.6)	14.6 (4.9)	23.0 (7.7)
ECX COOLING CAPACITY: (UG2 & DG2-_-ECX DX Glycol Cooled w/ ECX 7.2°C (45°F) EGT, 40% EG)						
26.7°C (80°F) DB, 50% RH						
Total / Sensible	KW (MBH)	24.7 / 21.8 (84.4 / 74.4)	28.7 / 25.8 (97.8 / 88.2)	32.8 / 31.2 (112.0 / 106.4)	49.2 / 43.2 (167.8 / 147.4)	62.4 / 52.4 (212.8 / 178.8)
23.9°C (75°F) DB, 50% RH						
Total / Sensible	KW (MBH)	20.5 / 20.5 (70.0 / 70.0)	23.9 / 23.9 (81.5 / 81.5)	27.7 / 27.7 (94.4 / 94.4)	40.6 / 40.6 (138.4 / 138.4)	50.9 / 49.5 (173.8 / 168.8)
22.2°C (72°F) DB, 50% RH						
Total / Sensible	KW (MBH)	18.3 / 18.3 (62.6 / 62.6)	21.5 / 21.5 (73.2 / 73.2)	24.9 / 24.9 (85.0 / 85.0)	36.2 / 36.2 (123.6 / 123.6)	45.3 / 45.3 (154.4 / 154.4)
Flow Rate	LPM (GPM)	84.0 (22.2)	109.0 (28.8)	131.0 (34.6)	196.8 (52)	259.7 (68.6)
Press Drop, ECX Coil	kPa (FT WG)	5.1 (1.7)	9.0 (3)	12.0 (4)	22.4 (7.5)	37.4 (12.5)

COMMON FEATURES

Evaporator Airflow - Belt Drive Centrifugal						
Discharge	L/S (CFM)	1,698.8 (3,600)	2,076.4 (4,400)	2,642.6 (5,600)	4,152.7 (8,800)	4,530.2 (9,600)
E.S.P.	IN WG	0.5	0.5	0.5	0.5	0.5
Fan Motor	HP (NO)	1 (2)	1-1/2 (2)	2 (2)	3 (2)	5 (2)
Fan Dia (Qty.)	CM (IN) (NO)	30.5 X 22.9 (12 X 9) (2)	30.5 X 22.9 (12 X 9) (2)	30.5 X 22.9 (12 X 9) (2)	30.5 X 30.5 (12 X 12) (2)	30.5 X 30.5 (12 X 12) (2)
ECX Coil - Aluminum Fin, Copper Tube						
Rows	NO	4	4	4	3	3
Face Area	M ² (FT ²)	1.2 (12.6)	1.2 (12.6)	1.2 (12.6)	1.8 (19.4)	1.8 (19.4)
Face Velocity	MPM (FPM)	87.2 (286)	135.3 (444)	135.3 (444)	125.6 (412)	150.9 (495)
Connection Sizes						
Water/Glycol IN/OUT	(NO) CM (IN) OD	(2) 2.9 (1 1/8)	(2) 2.9 (1 1/8)	(2) 2.9 (1 1/8)	(2) 3.5 (1 3/8)	(2) 3.5 (1 3/8)
Approximate Unit Weights						
U/DA1-()-ECX	KG (LBS)	612.4 (1,350)	635.0 (1,400)	635.0 (1,400)	816.5 (1,800)	825.6 (1,820)
U/DW1-()-ECX	KG (LBS)	635.0 (1,400)	657.7 (1,450)	657.7 (1,450)	861.8 (1,900)	870.9 (1,920)
U/DG1-()-ECX	KG (LBS)	635.0 (1,400)	657.7 (1,450)	657.7 (1,450)	861.8 (1,900)	870.9 (1,920)

Chilled Water System Performance Data

Nominal Tons Model Size	6.0 Tons 072	8.0 Tons 096	10.0 Tons 120	15.0 Tons 180	20.0 Tons 240
Chilled Water Systems @ 7.2°C (45°F) Entering Water					
26.7°C (80°F) DB, 50% RH					
Total/Sensible KW (MBH)	36.8 / 26.4 (125.4 / 90.0)	43.2 / 31.4 (147.4 / 107.0)	53.2 / 38.9 (181.4 / 132.6)	66.9 / 49.9 (228.2 / 170.2)	75.4 / 57.3 (257.4 / 195.6)
Flow Rate/PD LPM / kPa (GPM / FT WG)	95.4 / 5.1 (25.2 / 1.7)	112.0 / 6.6 (29.6 / 2.2)	143.8 / 10.5 (38.0 / 3.5)	174.1 / 13.2 (46.0 / 4.4)	196.8 / 16.4 (52.0 / 5.5)
23.9°C (75°F) DB, 50% RH					
Total/Sensible KW (MBH)	24.3 / 22.2 (82.8 / 75.8)	29.0 / 26.6 (98.8 / 90.9)	38.6 / 34.3 (131.8 / 117)	46.2 / 43.3 (157.8 / 147.8)	52.5 / 50.1 (179.0 / 170.8)
Flow Rate/PD LPM / kPa (GPM / FT WG)	62.8 / 2.4 (16.6 / 0.8)	75.0 / 3.3 (19.8 / 1.1)	113.6 / 6.9 (30.0 / 2.3)	121.1 / 6.9 (32.0 / 2.3)	136.3 / 8.7 (36.0 / 2.9)
22.2°C (72°F) DB, 50% RH					
Total/Sensible KW (MBH)	19.6 / 19.6 (67.0 / 67.0)	22.9 / 22.9 (78.0 / 78.0)	31.1 / 31.1 (106.0 / 106.0)	37.5 / 37.5 (128.0 / 128.0)	43.3 / 43.3 (147.8 / 147.8)
Flow Rate/PD LPM / kPa (GPM / FT WG)	53.0 / 1.8 (14.0 / 0.6)	59.1 / 2.1 (15.6 / 0.7)	90.8 / 4.5 (24.0 / 1.5)	98.4 / 4.78 (26.0 / 1.6)	113.6 / 6.3 (30.0 / 2.1)

COMMON FEATURES

Evaporator Airflow - Belt Drive Centrifugal						
Discharge	L/S (CFM)	1,698.8 (3,600)	2,076.4 (4,400)	2,642.6 (5,600)	4,152.7 (8,800)	4,530.2 (9,600)
E.S.P.	IN WG	0.5	0.5	0.5	0.5	0.5
Fan Motor	HP	1 (2)	1-1/2 (2)	2 (2)	3 (2)	5 (2)
Fan Dia (Qty.)	CM (IN) (NO)	30.5 X 22.9 (12 X 9) (2)	30.5 X 22.9 (12 X 9) (2)	30.5 X 22.9 (12 X 9) (2)	30.5 X 30.5 (12 X 12) (2)	30.5 X 30.5 (12 X 12) (2)
Evaporator Coil / Valve - Aluminum Fin, Copper Tube						
Rows	NO	4	4	4	3	3
Face Area	M ² (FT ²)	1.2 (12.6)	1.2 (12.6)	1.2 (12.6)	1.8 (19.4)	1.8 (19.4)
Face Velocity	MPM (FPM)	87.2 (286)	135.3 (444)	135.3 (444)	125.6 (412)	150.9 (495)
Standard Valve		2-Way, 300 psig rate (3-Way Optional)				
Air Filtration - @ 30% Dust Spot						
Nominal Size	(NO) IN	(2) 25 x 29 x 4	(2) 25 x 29 x 4	(2) 25 x 29 x 4	(2) 37 x 33 x 4	(2) 37 x 33 x 4
Electric Reheat / Heat - includes evaporator motor heat						
Capacity	MBH	37.7	55.8	58.1	82.1	82.1
	KW	11.0	16.3	17.0	24.0	24.0
Stages	NO	2	2	2	2	2
Steam Canister Humidifier						
Steam Canister	LBS/HR	15	15	15	15	15
Connection Sizes						
Chilled Water In/Out	(NO) MPT CM (IN)	(2) 2.9 (1-1/8)	(2) 2.9 (1-1/8)	(2) 2.9 (1-1/8)	(2) 4.1 (1-5/8)	(2) 4.1 (1-5/8)
Condensate Drain	(NO) OD CM (IN)	(2) 1.9 (3/4)	(2) 1.9 (3/4)	(2) 1.9 (3/4)	(2) 1.9 (3/4)	(2) 1.9 (3/4)
Humidifier Inlet	FLARE CM (IN)	0.6 (1/4)	0.6 (1/4)	0.6 (1/4)	0.6 (1/4)	0.6 (1/4)
Approximate Unit Weights						
U/DC1-()	KG (LBS)	408.2 (900)	408.2 (900)	408.2 (900)	544.3 (1,200)	544.3 (1,200)

Split Air Cooled Evaporator & Water/Glycol Self-Contained

(FLA = Full Load Amps / MCA = Min Circuit Amps / MFS = Min Fuse Size) * see notes 1-2 page9

REHEAT	None, Hot Water or Steam Reheat (No electric Reheat)		None, Hot Water or Steam Reheat (No electric Reheat)		Electric Reheat		Electric Reheat	
HUMIDIFICATION	None		Steam Canister Humidifier		None		Steam Canister Humidifier	
DX - AIR COOLED SPLIT EVAPORATOR & WATER / GLYCOL SELF-CONTAINED								
Power Supply	208/3/60	460/3/60	208/3/60	460/3/60	208/3/60	460/3/60	208/3/60	460/3/60
U/DA2, W2 & G2-072								
FLA	17.9	9.2	32.1	15.6	45.7	21.8	48.5	22.5
MCA	32.2	16.3	46.4	22.7	55.5	26.3	60.6	28.1
MFS	40	20	50	25	60	30	70	30
U/DA2, W2 & G2-096								
FLA	40.1	18.3	54.3	24.7	65.4	30.0	65.4	30.0
MCA	44.2	20.1	58.4	26.5	79.9	36.5	79.9	36.5
MFS	60	25	70	30	80	40	80	40
U/DA2, W2 & G2-120								
FLA	29.6	14.7	43.8	21.1	71.3	33.6	71.3	33.6
MCA	55.5	27.2	69.7	33.6	86.9	40.8	86.9	40.8
MFS	70	35	90	40	90	45	90	45
U/DA2, W2 & G2-180								
FLA	71.3	33.9	85.5	40.3	99.5	46.4	99.5	46.4
MCA	78.2	37.1	92.4	43.5	120.3	55.8	120.3	55.8
MFS	100	45	100	50	125	60	125	60
U/DA2, W2 & G2-240								
FLA	79.9	38.3	94.1	44.7	103.8	48.6	103.8	48.6
MCA	87.8	42.0	102.0	48.4	125.7	58.6	125.7	58.6
MFS	100	50	125	60	50	60	150	60

ECX - Water/Glycol-Side Economizer Cooling Systems

REHEAT	None, Hot Water or Steam Reheat (No electric Reheat)		None, Hot Water or Steam Reheat (No electric Reheat)		Electric Reheat		Electric Reheat	
HUMIDIFICATION	None		Steam Canister Humidifier		None		Steam Canister Humidifier	
DX - AIR COOLED SPLIT EVAPORATOR & WATER / GLYCOL SELF-CONTAINED with ECX Economizer Cooling Option								
Power Supply	208/3/60	460/3/60	208/3/60	460/3/60	208/3/60	460/3/60	208/3/60	460/3/60
U/DA2, W2 & G2-072-ECX								
FLA	18.7	9.6	32.9	16.0	46.5	22.2	49.3	22.9
MCA	33.0	16.7	47.2	23.1	56.3	26.7	61.6	28.6
MFS	40	20	50	25	60	30	70	30
U/DA2, W2 & G2-096-ECX								
FLA	41.7	19.1	55.9	25.5	67.0	30.8	67.0	30.8
MCA	45.8	20.9	60.0	27.3	81.5	37.3	81.5	37.5
MFS	60	25	70	30	90	40	90	40
U/DA2, W2 & G2-120-ECX								
FLA	32.4	16.1	46.6	22.5	74.1	35.0	74.1	35.0
MCA	58.3	28.6	72.5	35.0	89.7	42.2	89.7	42.2
MFS	70	35	90	45	100	45	100	45
U/DA2, W2 & G2-180-ECX								
FLA	71.3	33.9	85.5	40.3	99.5	46.4	99.5	46.4
MCA	78.2	37.1	92.4	43.5	120.3	55.8	120.3	55.8
MFS	100	45	100	50	125	60	125	60
U/DA2, W2 & G2-240-ECX								
FLA	90.3	43.5	104.5	49.9	114.2	53.8	114.2	53.8
MCA	98.2	47.2	112.4	53.6	136.1	63.8	136.1	63.8
MFS	125	60	125	60	150	70	150	70

Split DX & Chilled Water Air Handling Units

(FLA = Full Load Amps / MCA = Min Circuit Amps / MFS = Min Fuse Size) * see notes 1-2 below

REHEAT	None, Hot Water or Steam Reheat (No Electric Reheat)		None, Hot Water or Steam Reheat (No Electric Reheat)		Electric Reheat		Electric Reheat	
HUMIDIFICATION	None		Steam Canister Humidifier		None		Steam Canister Humidifier	
SPLIT DX & CHILLED WATER AIR HANDLING UNITS								
Power Supply	208/3/60	460/3/60	208/3/60	460/3/60	208/3/60	460/3/60	208/3/60	460/3/60
U/DB2 & C2-072								
FLA	6.5	3.5	20.7	9.9	34.3	16.1	48.5	22.5
MCA	8.1	4.4	25.9	12.4	42.9	20.1	60.6	28.1
MFS	15	15	30	15	45	25	70	30
U/DB2 & C2-096								
FLA	7.3	3.9	21.5	10.3	49.0	22.8	63.2	29.2
MCA	9.1	4.9	26.9	12.9	61.3	28.5	79.0	36.5
MFS	15	15	30	15	70	30	80	40
U/DB2 & C2-120								
FLA	8.9	4.7	23.1	11.1	50.6	23.6	64.8	30.0
MCA	11.1	5.9	28.9	13.9	63.3	29.5	81.0	37.5
MFS	15	15	30	15	70	30	90	40
U/DB2 & C2-180								
FLA	16.5	8.5	30.7	14.9	72.1	33.7	86.3	40.1
MCA	20.6	10.6	38.4	18.6	90.2	42.1	107.9	50.1
MFS	35	15	50	20	100	45	125	60
U/DB2 & C2-240								
FLA	16.5	8.5	30.7	14.9	72.1	33.7	86.3	40.1
MCA	20.6	10.6	38.4	18.6	90.2	42.1	107.9	50.1
MFS	35	15	50	20	100	45	125	60

Remote Air Cooled Condensers & Condensing Units

FAC - Outdoor Propeller Fan Air Cooled Remote Condensers									
Power Supply	208/1/60	277/1/60	208/3/60	460/3/60	Power Supply	208/1/60	277/1/60	208/3/60	460/3/60
FAC-010					FAC-020				
FLA	5.0	3.8	4.0	2.0	FLA	9.8	7.4	8.0	4.0
MCA	6.3	4.7	5.0	2.5	MCA	12.3	9.2	10.0	5.0
MFS	15	15	15	15	MFS	20	15	15	15
FAC-012					FAC-025				
FLA	5.0	3.8	4.0	2.0	FLA	N/A	N/A	13.0	6.6
MCA	6.3	4.7	5.0	2.5	MCA			16.3	8.3
MFS	15	15	15	15	MFS			25	15
FAC-015					FAC-031				
FLA	9.8	7.4	8.0	4.0	FLA	N/A	N/A	13.0	6.6
MCA	12.3	9.2	10.0	5.0	MCA			16.3	8.3
MFS	20	15	15	15	MFS			25	15
FAC-016					FAC-036				
FLA	9.8	7.4	8.0	4.0	FLA	N/A	N/A	13.0	6.6
MCA	12.3	9.2	10.0	5.0	MCA			16.3	8.3
MFS	20	15	15	15	MFS			25	15

FU - Outdoor Propeller Fan Air Cooled Remote Condensing Units			
Power Supply	230/3/60	460/3/60	
036 / FU (Qty two for UB2/DB2-072 Split)			
FLA	10.5	Consult Factory	
MCA	12.7		
MFS	20		
048 / FU (Qty two for UB2/DB2-096 Split)			
FLA	14.0	6.6	
MCA	17.2	8.0	
MFS	20	15	
060 / FU (Qty two for UB2/DB2-120 Split)			
FLA	18.4	7.3	
MCA	22.7	8.0	
MFS	40	15	
096 / FU (Qty two for UB2/DB2-192 Split)			
FLA	31.2	15.6	
MCA	37.6	18.7	
MFS	60	30	
120 / FU (Qty two for UB2/DB2-240 Split)			
FLA	56.7	18.3	
MCA	43.2	22.1	
MFS	70	30	

*** Notes:**

- 1) The above unit electrical data is reflective of the standard performance data and standard options as shown on pages 4 thru 7.
- 2) Due to a policy of continuous improvement, Skil-aire reserves the right to change specifications without notice. Always consult equipment name plate for exact electrical requirements.
- 3) 277V available via field installed step-down transformer.

1.0 GENERAL

1.1 SUMMARY

These specifications describe requirements for an air conditioning system. The system shall be designed to maintain precision temperature and humidity conditions within the specified room. The manufacturer shall design and furnish all equipment to be fully compatible with the heat dissipation requirements of the site.

The system shall be manufactured by Skil-aire in Baltimore, Maryland U.S.A. The system shall be approved and labeled by Underwriters Laboratories, Inc. (UL). The system shall be New York City MEA and Chicago Code Approved.

1.2 DESIGN REQUIREMENTS

The precision environmental control system shall be a Skil-aire factory assembled Guardian-II™ model vertical floor mounted system. The system shall be specifically designed for indoor installation, unless specified otherwise.

The system shall have a total cooling capacity of _____ BTUH and a sensible cooling capacity of _____ BTUH based on an entering air temperature of _____ °F DB and _____ °F WB. The unit shall be supplied with _____ volt, _____ phase, _____ Hz electrical service. The system model number shall be _____.

2.0 PRODUCTS

2.1 STANDARD FEATURES / ALL SYSTEMS

2.1.1 CABINET

The cabinet and access panels shall be fabricated from sturdy heavy gauge galvanized steel. The cabinet and panels shall be painted for corrosion protection and decor matching. The panels shall be lined with 2 lb. density thermal/acoustical insulation for whisper quiet operation. The system shall be designed for front only access with hinged and removable front access door. Removable side panels with quarter-turn fasteners shall be provided for additional ease of installation, service and maintenance on the system.

2.1.2 BLOWER ASSEMBLIES

Blowers shall be belt driven double-inlet, dynamically balanced with multiple forward curved blades mounted on a solid steel keyed shaft. A heavy-duty V-belt fan drive (sized for 200% of motor nameplate horsepower) with adjustable cast iron pulleys keyed and secured to the blower shaft shall be provided for adjusting fan speed to system requirements.

2.1.3 MOTOR ASSEMBLIES

All fan motors shall be permanently mounted, 1750 or

3450 RPM, with overload protection. Motors shall have permanently lubricated ball bearings and be resiliently mounted to an adjustable motor frame. Motor pulleys shall be cast iron, keyed, with variable pitch design to allow for field adjustment of specific airflow and static requirements.

2.1.4 EVAPORATOR AIR PATTERNS

Up-Flow: (Front Free Return)

The system shall be configured for up-flow air pattern with front free evaporator return air and top evaporator air discharge.

Note: Upflow Systems are available with Top Evaporator Air Discharge connections or Plenum Discharge Boxes (2 or 3-way).

Up-Flow: (Ducted Rear Return)

The system shall be configured for up-flow air pattern with ducted rear evaporator return air connections and top evaporator air discharge. Ducted rear return systems require left or right side filter service access.

Note: Upflow Systems are available with Top Evaporator Air Discharge Connections or Plenum Discharge Boxes (2 or 3-way).

Down-Flow:

The system shall be configured for down-flow air pattern with top free (or ducted) evaporator return air and bottom evaporator air discharge through the raised floor. (Note: Down flow systems require the Adjustable Floor Stand Option.)

2.1.5 FILTERS

The system shall be provided with 4" extended surface pleated disposable type filters rated for 30% average dust-spot efficiency.

2.1.6 ELECTRICAL CIRCUITS

The system shall be provided with a factory installed main electrical enclosure per NEC code requirements. A low voltage transformer with integral protection shall be provided to supply 24 VAC to the control circuit. The fan motor(s), compressor and electric heater (if applicable) shall each have their own contactor. A float switch shall be provided in the evaporator section to sense a clogged condensate drain and shall shut the unit down to prevent water damage.

2.1.7 MAIN POWER NON-FUSED DISCONNECT

The indoor evaporator section shall be provided with a factory installed thru-the-door non-locking main power non-fused disconnect sized for the options installed.

2.1.8 MicroSkil-200™ Advanced Microprocessor

The system shall be provided with a MicroSkil-200™ advanced microprocessor based temperature and humidity controller with alarms.

Select Features/Benefits:

- 4x20 Character Liquid Crystal Alpha-numerical Display

- User Configurable
- Run-Time Hours
- Current Unit Mode Status
- Alarm Status
- Digital & Analog Inputs /Outputs
- Temperature Anticipation
- Remote Stop / Start Contact
- Summary Alarm Contact
- Automatic or Manual (selectable)
Restart After Power Loss
- Sequential Load After Restart
- Recovery Delay
- Compressor Short Cycle Timers
- Cold Start Time Delay
- Security Password Access
- Self-Diagnostics
- Service Mode

Unit Status Display

The control system shall display current unit functions and room status (if applicable):

- Current Dry Bulb Temp Set Point
- Current Relative Humidity Set Point
- System ON/OFF
- Cooling
- Heating
- Humidifying
- Dehumidifying
- Reheating
- Actual Room DB Temperature
- Actual Room Relative Humidity

Alarm Conditions:

Alarm conditions activate an audible and visual indicator plus close a summary alarm dry contact connection. The control system shall alert to the following alarm conditions (if applicable):

- High Temperature
- Low Temperature
- High Humidity
- Low Humidity
- High Head Press
- Loss of Air Flow
- Loss of Power
- Dirty Filter
- Smoke Detection
- Firestat
- Leak Detection
- Sensor Failure
- Summary Failure
- Glycol Pump Failure

Digital & Analog Control Inputs / Outputs:

The control system shall be capable of both digital (ON/OFF) and analog (proportional integral, PI) input and output control.

Select Options:

- Multi-Unit Sequencing(Optional)
- BMS Communications(Optional)

RS 485 Serial Connection: (Optional)

An RS 485 Serial Port Connection shall be provided for remote communications to BSM and/or Modem.

2.2 DIRECT EXPANSION SYSTEM COMPONENTS

2.2.1 EVAPORATOR COIL

The evaporator coil shall be quality construction of seam- less drawn rifled copper tube, mechanically bonded to tempered aluminum fins with galvanized coil end plates. The coil shall have ____ sq. ft. face area, ____ rows deep. The coil shall be factory pressure tested and the refrigeration system sealed prior to shipment. A stainless steel drain pan shall be provided to cover the entire coil area.

2.2.2 SCROLL COMPRESSORS

Each compressor shall be the heat pump duty scroll. Each compressor shall be mounted on vibration isolators. Each compressor shall be complete with reversible positive oil pump, charging and service ports, internal spring isolation, and discharge gas vibration eliminator.

2.2.3 REFRIGERATION CIRCUIT

Each refrigeration circuit shall be pre-piped with type “L” refrigerant copper tubing. Each refrigeration circuit shall include, but not be limited to: expansion valve with external equalizer and rapid bleed-through capacity. Features shall include filter dryer, sight glass, pressure fittings and high pressure/low pressure safety cutouts.

2.3 CHILLED WATER SYSTEMS

2.3.1 CHILLED WATER AIR HANDLERS (Models U/DC2-V)

The system shall be a chilled water air handling unit. The chilled water coil shall be of quality construction of seam- less drawn rifled copper tube, mechanically bonded to tempered aluminum fins with galvanized coil end plates. The coil shall be factory pressure tested. The coil shall have ____ sq. ft. face area, ____ rows deep. A stainless steel drain pan shall be provided to cover the entire coil area. The coil shall be controlled by a factory installed 2-way chilled water control valve. The coil shall be designed to distribute water into the entire coil face area. The coil shall be supplied with ____ °F entering water temperature with a ____ °F temperature rise. The coil shall require ____ GPM of chilled water and the pressure drop shall not exceed ____ Ft. w.g.

2.4 STANDARD FEATURES - INDIVIDUAL SYSTEMS

2.4.1 AIR COOLED SYSTEMS

2.4.1.1 DX - SPLIT EVAPORATOR WITH REMOTE OUTDOOR PROPELLER FAN AIR COOLED CONDENSER (Models U/DA2 / FAC)

The system shall be a split system with indoor vertical floor mounted evaporator unit and remote outdoor

propeller fan condenser. The indoor evaporator section shall include, but not be limited to: evaporator coil, stainless steel condensate drain pan, adjustable belt-driven blower, blower motor, thermal expansion valve with external equalizer, heat pump duty compressors, refrigerant service valves, refrigerant sight glass / moisture indicator, filter drier, 24 volt terminal connection and 4" filters. The remote propeller fan condenser shall include, but not be limited to: condenser coil rated for 35°C (95°F) ambient, low rpm direct driven propeller fans and low ambient controls. The evaporator and condenser sections shall ship with a dry-nitrogen holding charge ready for field refrigerant (R407c or R410A) charging.

2.4.2 WATER COOLED SYSTEMS

2.4.2.1 WATER COOLED, SELF-CONTAINED (U/DW2-V models)

The system shall be self-contained vertical floor mounted air conditioner with integral factory installed water cooled condensing unit. Water cooled systems shall have coaxial, counter flow liquid condensers with adjustable 2-way water regulating valves per circuit to maintain head pressure with condenser water flow. The unit shall require ____ GPM of ____ °F water and have a maximum pressure drop of ____ Ft. w.g.

2.4.3 GLYCOL COOLED SYSTEMS

2.4.3.1 GLYCOL COOLED, SELF-CONTAINED (U/DG2-V models)

The system shall be self-contained vertical floor mounted air conditioner with integral factory installed glycol cooled condensing unit. Glycol cooled systems shall have coaxial, counter flow liquid condensers with adjustable 2-way glycol regulating valves to maintain head pressure with condenser glycol flow. The unit shall require ____ GPM of ____ °F glycol and have a maximum pressure drop of ____ Ft.w.g.

2.4.3.2 DRY COOLER & SIMPLEX PUMP PACKAGE (FCPP models)

The drycooler shall be complete with field mounted expansion tank and aquastat to control fan motor operation. The coil shall have seamless copper tubes bonded to aluminum fins for high transfer efficiency. The motor(s) shall have permanently lubricated bearings with inherent overload protection on 1 Phase motors and three coil overloads on 3 Phase motors.

The pump package shall include controls to operate the drycooler and the pump. The pump package shall be enclosed in a weatherproof housing. The pump shall be rated for ____ GPM at ____ Ft. of head, and operate on ____ volt, ____ PH, 60 Hz.

2.5 OPTIONS

2.5.1 AIR COOLED CONDENSER - LOW AMBIENT CONTROL

2.5.1.1 -17.8°C (0°F) AMBIENT - FAN CYCLING

Condenser fan cycling controls shall be factory installed to allow for low ambient condenser operation to -17.8°C (0°F) minimum air temperature.

2.5.1.2 -28.9°C (-20°F) VARIABLE SPEED FAN

Variable speed head pressure controls shall be factory installed to allow for low ambient condenser operation to a -28.9°C (-20°F) minimum air temperature. Compressor crankcase heater and cold start time delay relay shall also be factory installed with -28.9°C (-20°F) low ambient control option.

2.5.1.3 -34.4°C (-30°F) FLOODED CONDENSER

A flooded condenser system shall be provided to allow for low ambient condenser operation to -34.4°C (-30°F). The flooded system shall include a factory installed liquid refrigerant receivers and head pressure control valves. Compressor crankcase heaters and cold start time delay relays shall also be factory installed with -34.4°C (-30°F) low ambient control option.

2.5.2 WATER / GLYCOL COOLED - HEAD PRESSURE CONTROL VALVES

2.5.2.1 3-WAY WATER / GLYCOL HEAD PRESSURE CONTROL VALVES

Each refrigerant circuit's head pressure shall be controlled by a factory provided 3-way water/glycol regulating valve rated for 150 psig w.w.p.

2.5.2.2 350 PSI HIGH PRESSURE - WATER/GLYCOL HEAD PRESSURE CONTROL VALVES

Each refrigerant circuit's head pressure shall be controlled by a factory provided high pressure rated ____ (2 or 3) -way water/glycol regulating valve rated for 350 psig w.w.p.

2.5.3 STEAM GENERATING HUMIDIFIER (Standard)

The humidification system shall be an electrode canister type, complete with fill valve, drain valve, adjustable humidity output, and automatic flush cycle. Humidification shall be in the coil bypass to provide maximum humidification efficiency. The humidifier shall be producing ____ lbs/hr.

2.5.4 REHEAT OPTIONS

2.5.4.1 ELECTRIC REHEAT (Standard)

The electric reheat shall be a factory installed low watt

density finned-tubular nickel plated element heater with overheat safety controls. The electric reheat shall have a capacity of _____ BTUH and a KW rating of _____ KW

2.5.4.2 STEAM REHEAT

The steam reheat coil shall have copper tubes and aluminum fins with capacity of _____ BTUH with _____ Ft. w.g. steam. The system shall be factory pre-piped with a 2-way steam control valve.

2.5.4.3 HOT WATER REHEAT

The hot water reheat coil shall have copper tubes and aluminum fins with a capacity of _____ BTUH when supplied with _____ °F entering water temperature, _____ GPM at _____ Ft. w.g. The system shall be factory pre-piped with a 2-way hot water control valve.

2.5.5 PLENUM DISCHARGE BOX - UPFLOW UNITS

A (2-way, 3-way or ducted) plenum discharge box shall be provided for field installation to the top of the upflow unit. The plenum box shall be 18.5 inches high, insulated and painted to match the color of the unit.

2.5.6 FLOOR STAND

A _____ inch high floor stand shall be factory provided for field installation. The floor stand shall have adjustable legs with vibration isolation.

2.5.6.1 Turning Vanes - DOWNFLOW UNITS

Turning vanes shall be factory provided with the floor stand to direct the discharge air either to the front or rear of the unit.

2.5.7 CONDENSATE PUMP

A condensate pump shall be factory installed. The condensate pump shall have the capacity of _____ GPH at _____ Ft. of head. The condensate pump shall be complete with integral float switch, pump and motor assembly, check valve and reservoir.

2.5.8 HOT GAS BYPASS

(DX Systems)

The refrigerant circuit shall be provided with a hot gas bypass system for evaporator freeze-protection and capacity modulation during low load conditions.

2.5.9 VARIABLE AIR VOLUME (VAV) OPTION KIT

The system shall be designed for evaporator supply air control for application with a variable air volume (VAV) system. The shall incorporate Skil-aire's VAV Option Kit which shall include, but not be limited to:

- Variable Frequency Drive - factory installed
- Static Pressure Sensor / Transducer - field installed
- MicroSkil-200, Advanced Microprocessor Controller w/ Supply Air Control Algorithm
- Circuit 1: Modulating (0-10 Vdc) Hot Gas Bypass
- Circuit 2: Standard Hot Gas Bypass

2.5.10 FIRESTAT

A firestat shall be factory installed within the evaporator return air stream to immediately shut down the environmental control system when activated.

2.5.11 SMOKE DETECTOR

A smoke detector shall be factory installed within the evaporator return air stream to immediately shut down the environmental control system when activated.

2.5.12 REMOTE WATER-LEAK DETECTOR

A remote water-leak detector shall be factory provided for field installation. The remote water-leak detector shall be wired to shut down all A/C unit water producing functions upon sensing a water leak.

2.5.13 ECX - ECONOMIZER / FREE-COOLING CYCLE (Models U/DA2, W2 & G2-V_-ECX)

The system shall be provided with an auxiliary Skil-aire™ ECX economizer cooling coil with a factory mounted 3-way control valve. The ECX coil shall be capable of providing rated sensible capacity without compressor operation when entering water/glycol fluid temperatures are 7.2°C (45°F) or below.

2.5.14 COMPRESSOR SOUND JACKETS

(Not Available with Crankcase Heater)

Acoustical compressor sound jackets shall be factory installed. The sound jacket shall be designed for ease of compressor maintenance via a snap closure system.

2.5.15 4 YEAR EXTENDED (5 YR TOTAL) COMPRESSOR WARRANTY (PART ONLY)

The A/C unit shall be provided with a 4 year extended (5 year total) A/C unit manufacturer's limited compressor warranty. The warranty shall be for compressor part only and shall not include labor, transportation or parts other than the compressor.

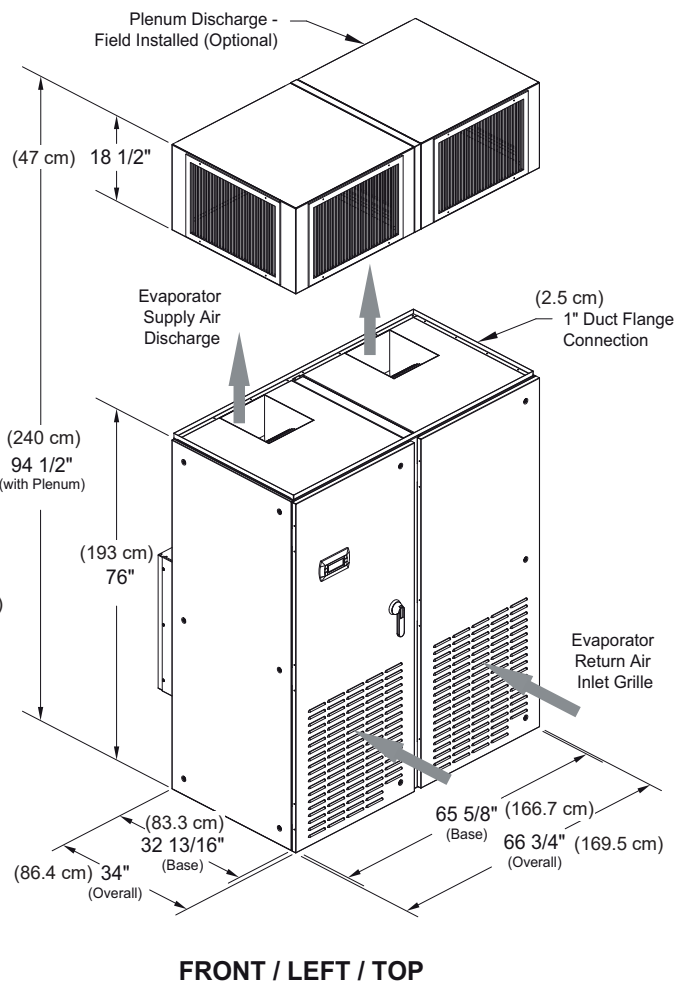
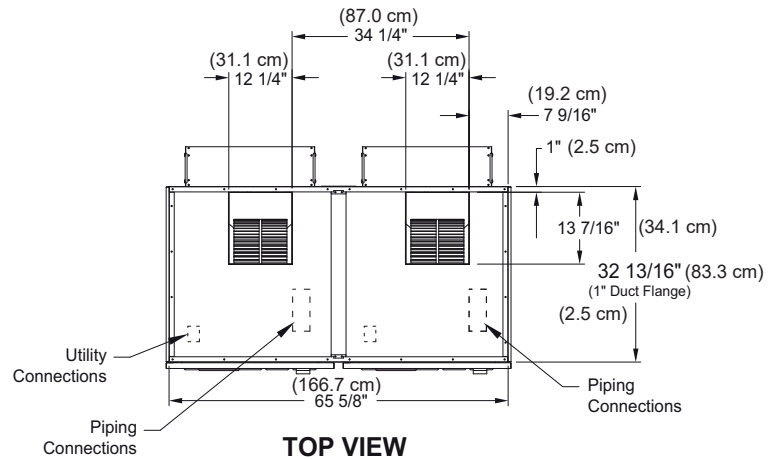
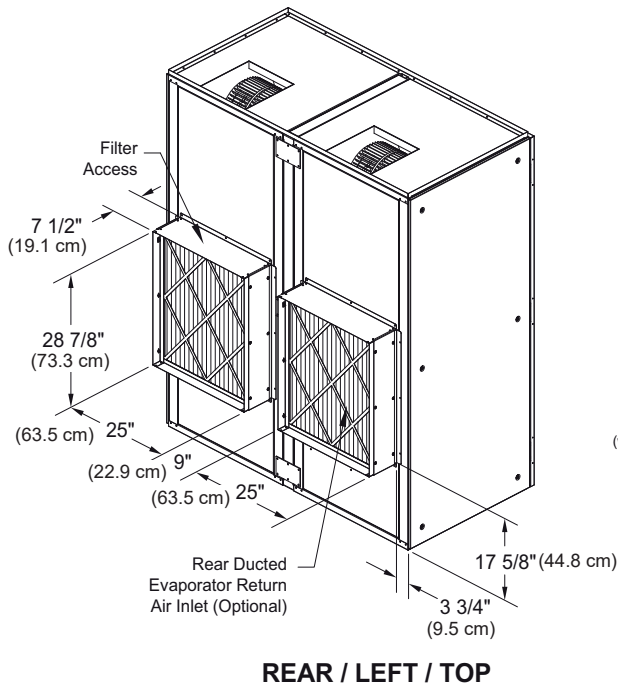
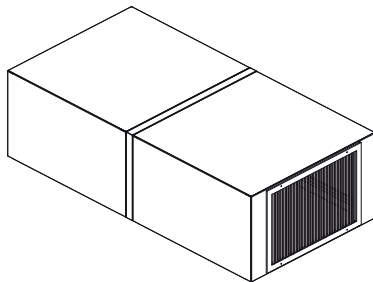
UPFLOW - 6 , 8 & 10 Ton

(UA2, UB2, UW2, UG2 & UC2-072, 096 & 120-V)

Front only service Access:

Guardian-II systems require only front access for all routinely maintained components through the hinged (removable) front access door. Side panels are also removable as a standard if additional access is desired.

Modular for Rigging Purposes!

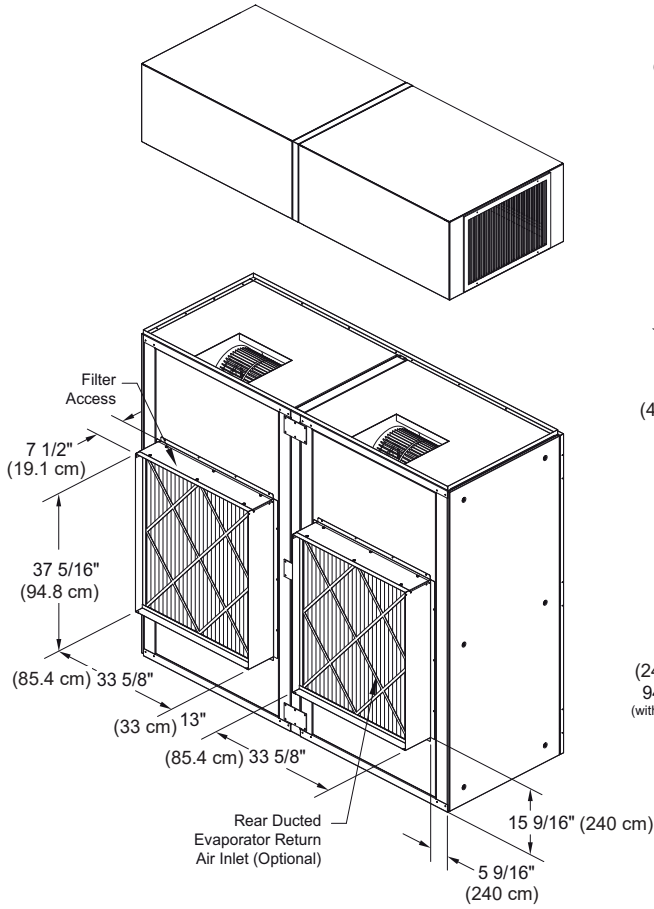


UPFLOW - 15 & 20 Ton (UA2, UB2, UW2, UG2 & UC2-180 & 240-V)

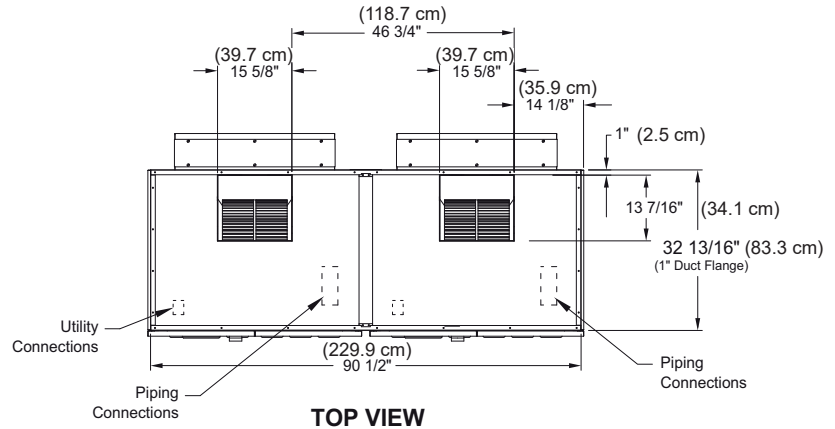
Front only service Access:

Guardian-II systems require only front access for all routinely maintained components through the hinged (removable) front access door. Side panels are also removable as a standard if additional access is desired.

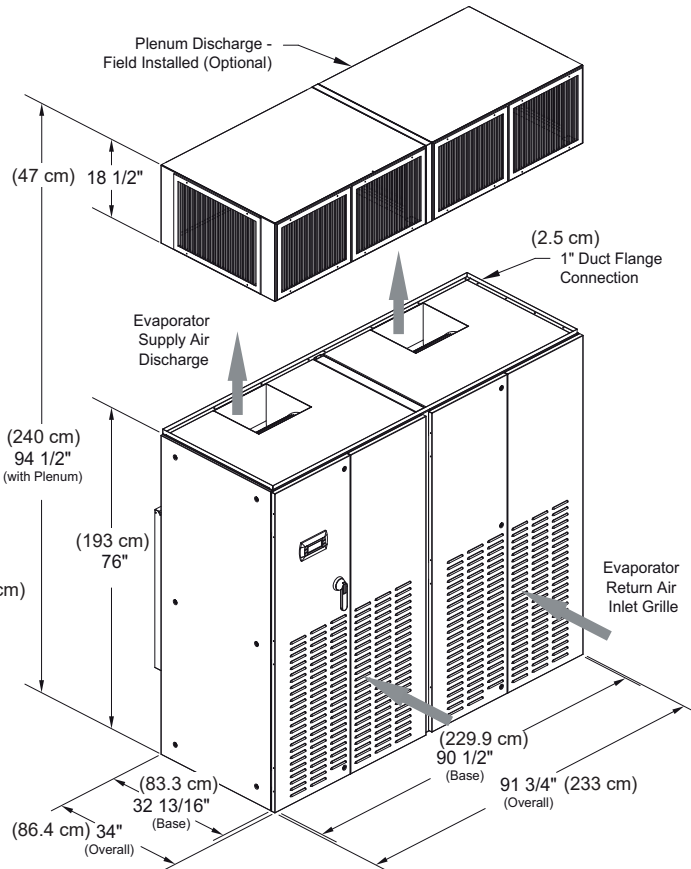
Modular for Rigging Purposes!



REAR / LEFT / TOP



TOP VIEW



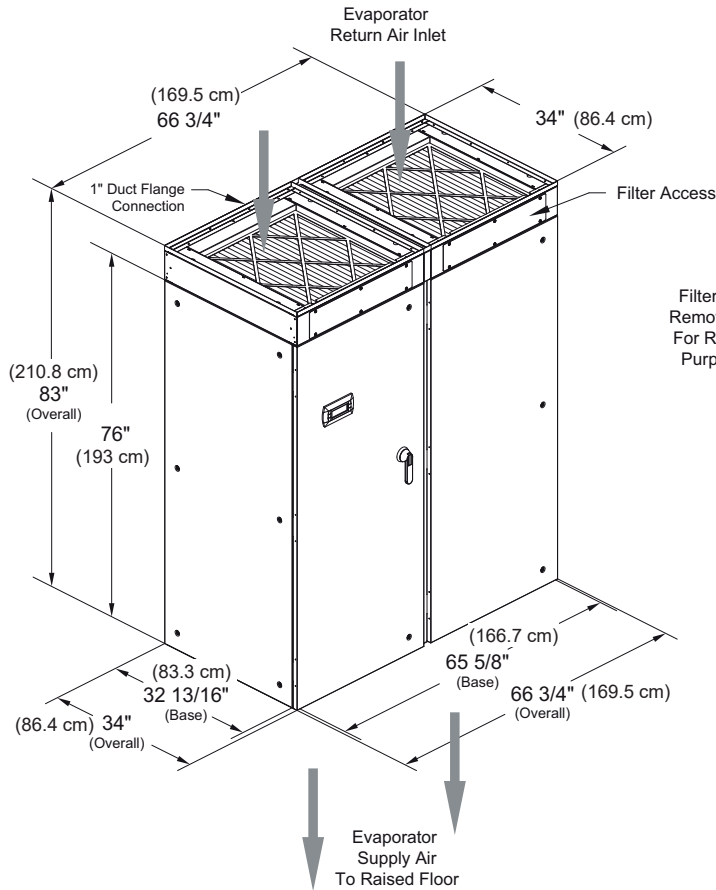
FRONT / LEFT / TOP

DOWN-FLOW: 6 , 8 & 10 Ton

(DA2, DB2, DW2, DG2 & DC2-072, 096 & 120-V)

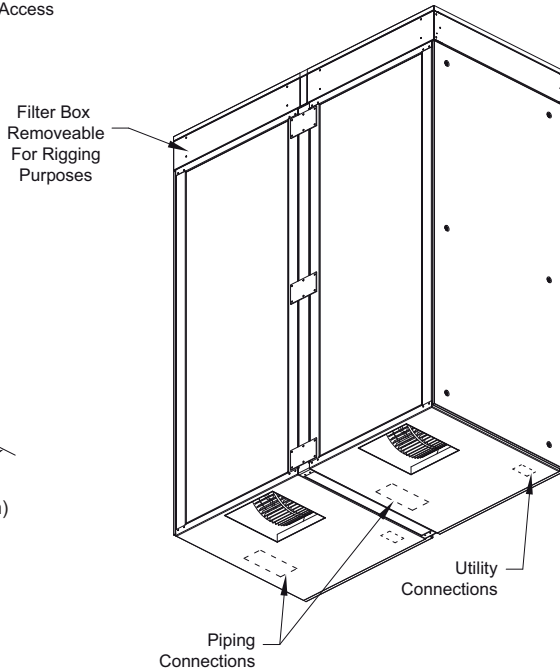
Front only service Access:

Guardian-II systems require only front access for all routinely maintained components through the hinged (removable) front access door. Side panels are also removable as a standard if additional access is desired.

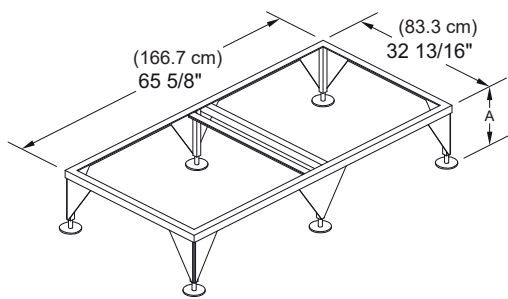


FRONT / LEFT / TOP

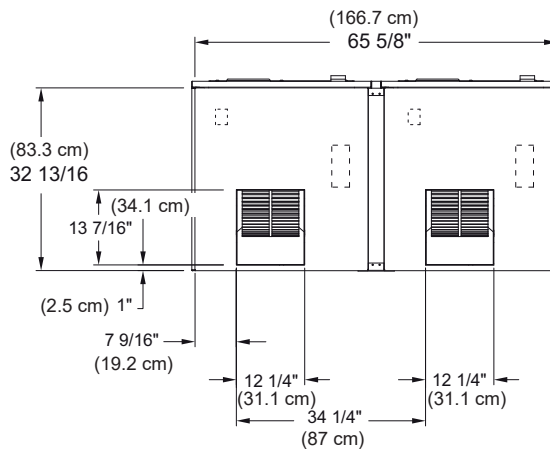
Modular for Rigging Purposes!



REAR / LEFT / BOTTOM



FLOOR STAND (OPTIONAL)

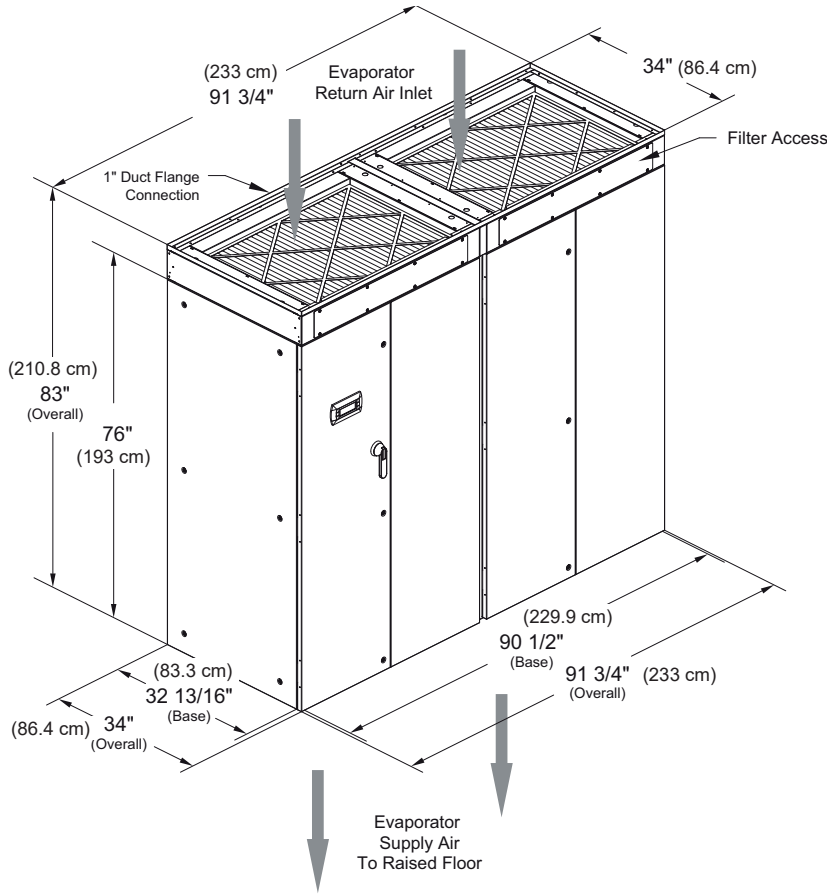


BOTTOM VIEW

Floor Stand Model	Nominal Height "A"
FSA2-12	30.5 cm (22.9-35.6 cm) (12.0" (9"-14" Adj.))
FSA2-18	45.7 cm (38.1-50.8 cm) (18.0" (15"-20" Adj.))
FSA2-24	61.0 cm (53.3-66.0 cm) (24.0" (21"-26" Adj.))

Note: Turning Vanes, Seismic Rated and Custom Height Floor Stands are optionally available.

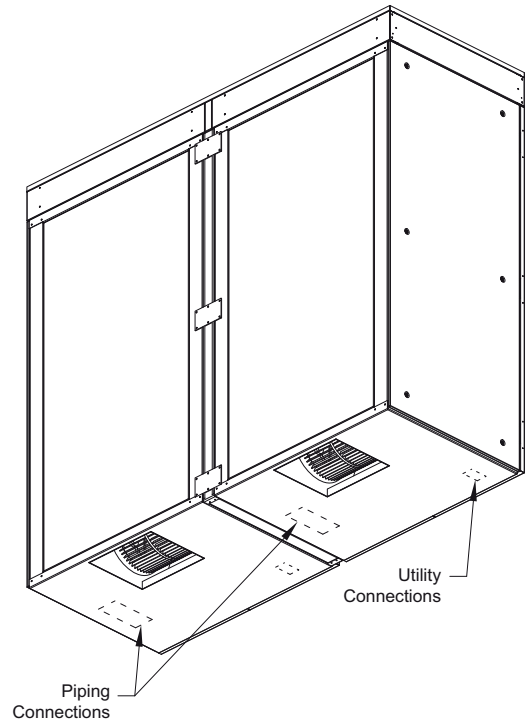
DOWN-FLOW: 15 & 20 Ton (DA2, DB2, DW2, DG2 & DC2-180 & 240-V_)



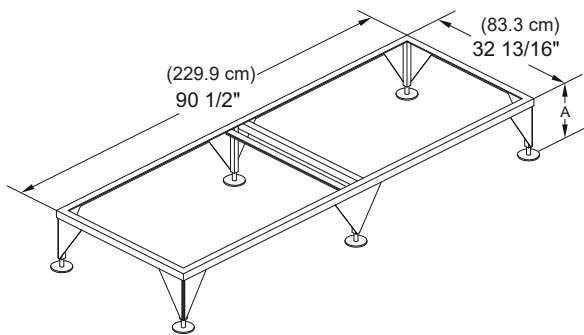
FRONT / LEFT / TOP

Front only service Access:
Guardian-II systems require only front access for all routinely maintained components through the hinged (removable) front access door. Side panels are also removable as a standard if additional access is desired.

Modular for Rigging Purposes!

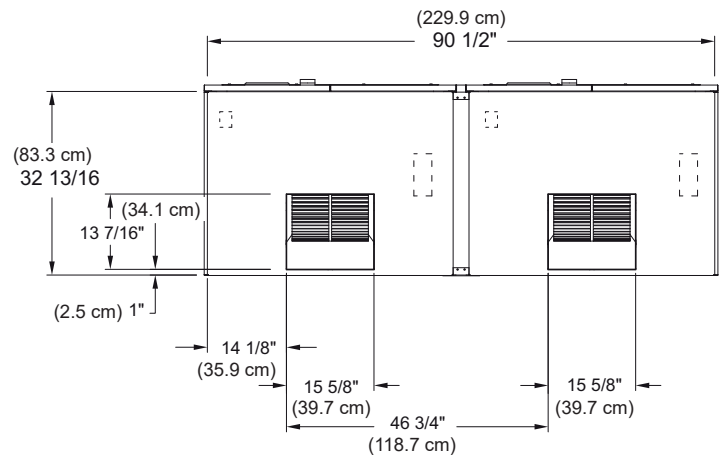


REAR / LEFT / BOTTOM



**FLOOR STAND
(OPTIONAL)**

Floor Stand Model	Nominal Height "A"
FSA2-12	30.5 cm (22.9-35.6 cm) (12.0" (9"-14" Adj.))
FSA2-18	45.7 cm (38.1-50.8 cm) (18.0" (15"-20" Adj.))
FSA2-24	61.0 cm (53.3-66.0 cm) (24.0" (21"-26" Adj.))

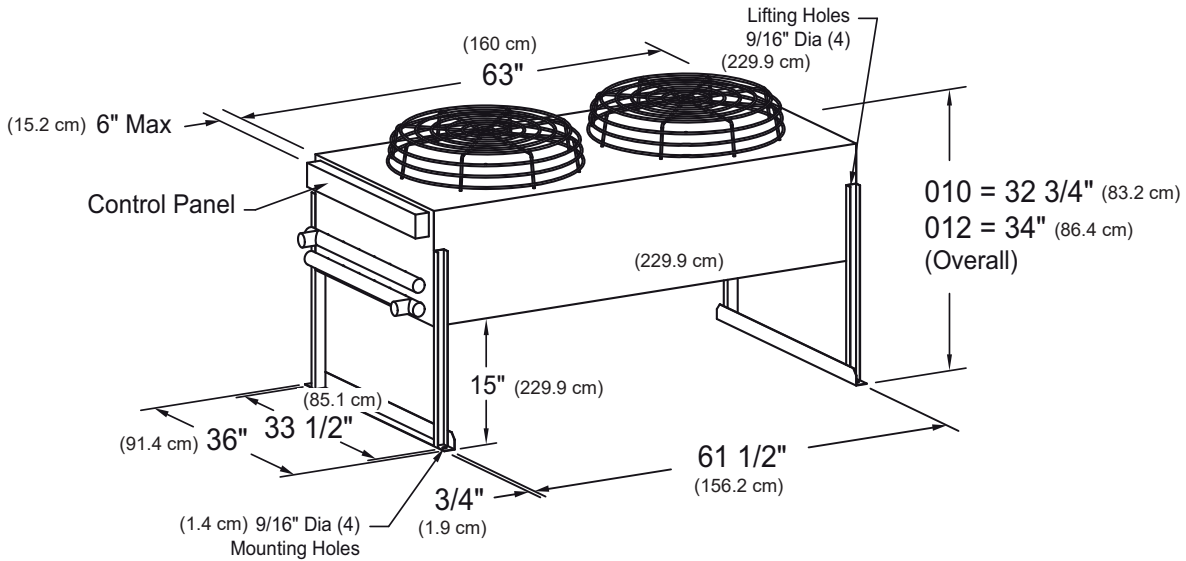


BOTTOM VIEW

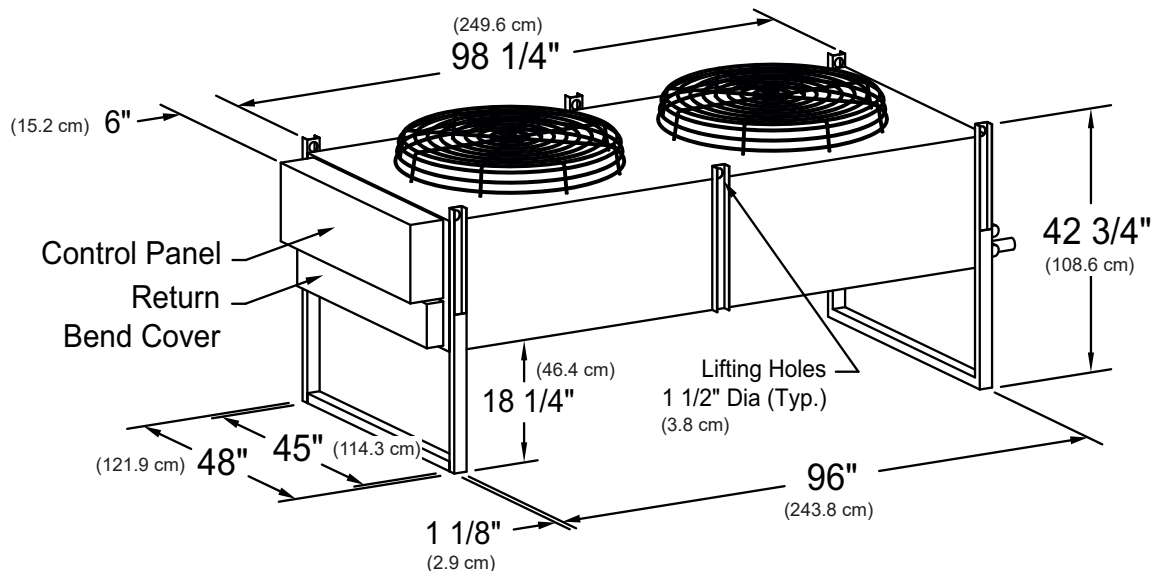
Note: Turning Vanes, Seismic Rated and Custom Height Floor Stands are optionally available.

**Remote Outdoor Propeller Fan
Air Cooled Condensers**

FAC-010 & 012

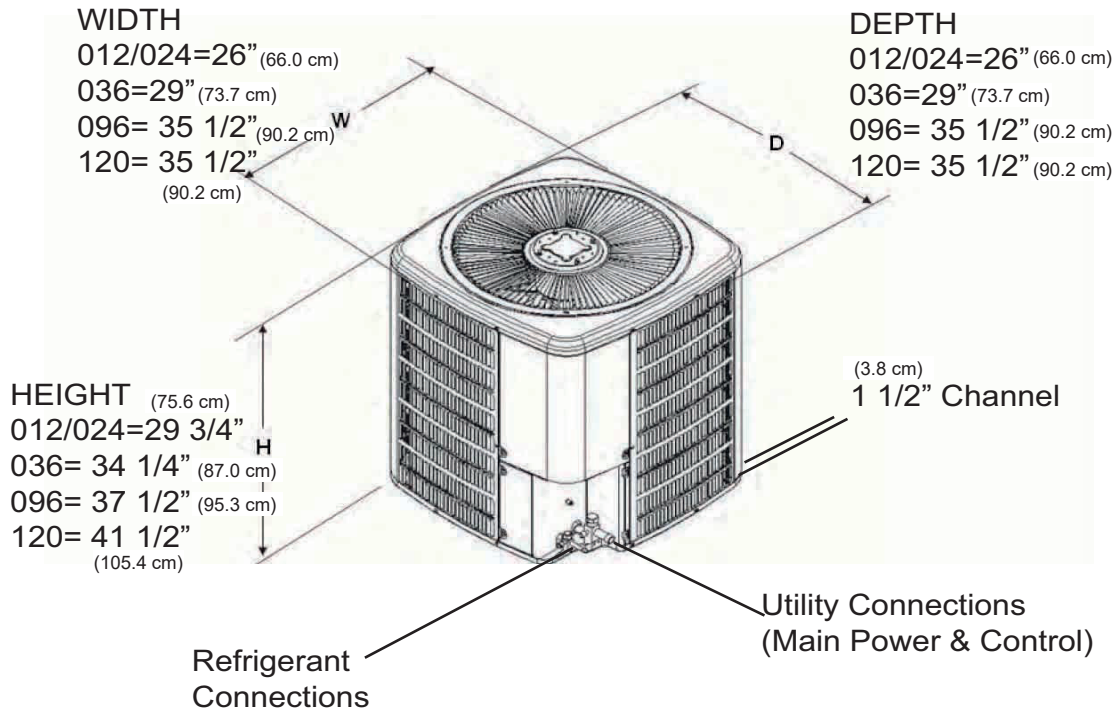


FAC-015, 016, 20, 25, 31 & 036



036/120-FU

(Remote Propeller Fan,
Outdoor Air Cooled Condensing Units)



Glycol Drycoolers & Pump Packages

(For U/DG2-072/240 Glycol Cooled Systems)

Refer to Skil-aire Glycol Pump Package & Drycooler Engineering Manual for Detailed Technical Information.

