



Quantum Climate Changer QUANTUM XP Product Catalogue

**0.5 - 31 m³/s
(1000 - 65000 CFM)**





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Introduction

THE FOUNDATION GROWS DEEPER,
THE QUANTUM XP ... LEADING THE
WAY TO HIGH PERFORMANCE
BUILDING CLIMATE CONTROL

TECHNOLOGICAL LEADERSHIP

Trane's pioneering leadership in making building work better for life has seen many milestones in recent years. In 1989, Trane revolutionized the HVAC industry with the development of the Modular Climate Changer™ Air Handler.

Using a "building block" approach to air handler design, Trane dramatically increased the flexibility of cataloged air handlers and systems.

The Quantum Climate Changer followed in 1992 with introduction of Aluminium-pentapost frames and double skin panels.

This was superseded with the industry leading Performances certified CLCP Euro. As customer demand for even greater flexibility, performance and customization grows, Trane continues this innovative legacy.

The Quantum XP, today marks the next milestone of performance which takes the Quantum line into performance driven applications.

Trane global engineering is renowned for reliable, high quality, environmentally responsible designs. Critical performance applications require confidence in your flexible air-handling system. Trane experts provide testing, tools, and data to give precise and predictable performance. Trane engineered solutions tailored to your specific performance requirements include:

- Energy recovery
- Dehumidification
- Energy efficiency
- Demanding high static applications
- Meeting stringent IAQ standards.

SHARED KNOWLEDGE

Trane custom application and design engineers work directly with you and Trane sales team help you create a safe, comfortable and efficient indoor environment for new and existing buildings, or develop stringently controlled conditions for process applications. It's almost like having your own custom design team.

THE FIRST STEP

Designing for a hospital? An Electronics plant? Pharmaceutical facility? A university R&D Lab? Trane has experts experienced in these vertical markets and others to help you design and deliver the greatest value.

For a successful flexible air-handling Project, in these critical process environments, involve your local Trane sales team early - communication is key.

Your Trane team includes factory application and design engineers with the expertise and systems knowledge to help you specify the optimal HVAC package for your new or existing building.

CUSTOMIZED FLEXIBILITY

The Quantum XP Air Handlers offers flexibility and performances demanded by process sensitive operations in the healthcare, electronics life-sciences and pharmaceutical markets. Whether your specific need is in specialized ventilation monitoring capabilities, a unique footprint, a high performance thermal and leakage casing, engineered dehumidification, Trane engineers will work closely with you to understand and meet your specifications, schedule, and budget.

With Trane custom air handlers you can "fine-tune" your performance to exactly meet your specifications. Trane can make recommendations on component selection based on pre-tested performance data gathered in our labs, positioning you to make a more informed decision.

Though you are not limited to components Trane has pre tested, Trane validated performance is available for many options, including:

- Trane coils with:
 - A unique, high-efficient fin design, optimizing the coil to the nearest fin-per-foot
 - One of the highest moisture carryover limits in the industry
- Fans with precise vibration, balancing and performance standards.
- Traq airflow monitoring stations (outdoor air)
- Trane energy recovery wheels
- Unit sound data per partial ARI 260 covering, discharge, inlet and inlet + casing.
- Trane CDQ (Cool, Dry, Quiet) desiccant dehumidification
 - Breaks the dew-point barrier using standard equipment
 - Uses less energy than comparable systems

NO SURPRISES

Data that we have gathered through years of testing in our research and development labs enables us to more accurately predict your specific unit performance. This data, used to engineer your custom air handler design, includes:

- ARI Standard 410 coil performance
- Unit casings designed for:
 - comfort and process applications up to 10 inches w.g. of static pressure
- Unit air leakage rates that comply to Eurovent Class L1 [highest in it's class], further improves IAQ.
- Eurovent Class D1 strength compliance. [Highest in it's class]
- Unit thermal performance comply to Eurovent TB1. [Highest in it's class]
- Unit acoustical performance

In addition to testing our designs in the laboratory, factory performance testing is also available for complete peace of mind. From running fans, to pressure testing our coils, to operating the controls, we provide you performance data in which you can be confident. You have enough to manage with your project.

You don't need any last minute surprises with your Quantum XP Air Handler.

The Quantum XP... Built For Performance.



QUANTUM XP

Model Nomenclature

EG: **CLCP XP 00304 04AMKAT 0560J3F 1FA028D38X 12002DNXWR12144YWR12144YWR12144XB**

DIGIT	DESCRIPTION										
1,2,3	CLC = Climate Changer										
4	P = Development sequence										
5,6	XP = X'tra Performance										
7,8	X, X = Future Use										
9,10,11	Casing size	003	008	014	025	040	060	080	095	120	
		004	010	016	030	045	065	085	100		
		006	012	020	035	050	070	090	110		
12,13,14,15	Casing parametric dimension										
	Std parametric (case size), Non standard to key in the parametric dimension										
	0404 (003) 1004 (008) 1206 (014) 1210 (025) 1612 (040) 2014 (060) 2614 (080) 3214 (095) 3218 (120)										
	0604 (004) 0806 (010) 1008 (016) 1212 (030) 1812 (045) 2214 (065) 2814 (085) 3216 (100)										
	0804 (006) 1006 (012) 1208 (020) 1412 (035) 2012 (050) 2414 (070) 3014 (090) 3217 (110)										
16	Insulation										
	C = 50mm PU Insulation										
17	Country of Origin										
	C = China M = Malaysia										
18,19,20	Fan Model	FDA	ADA	BDB	BNA	ANA	SSS = Special	XXX = None			
21,22,23,24	Fan Size	Q200	0280	0400	0560	0800	1120	XXXX = None			
		Q225	0315	0450	0630	0900	1250				
		Q250	0355	0500	0710	1000	1400				
25	Fan / Bearing Type										
	A = S C = S2 E = SM G = TM I = TX K = S2M M = T2M X = None										
	B = C D = C2 F = CM H = XM J = XX L = C2M N = X2M										
26	Fan Arrangement										
	1 = ARR 1 3 = ARR 3 5 = ARR 5 7 = ARR 7 9 = ARR 9 B = ARR11 X = None										
	2 = ARR 2 4 = ARR 4 6 = ARR 6 8 = ARR 8 A = ARR 10 C = ARR 12 S = Special										
27,28	Motor Frame, KW & Pole										
	XX = None H1 = D100L, 3.0KW, 4P P1 = D180L, 22.0KW, 4P A2 = D63, 0.18KW, 2P I2 = D112M, 3.7KW, 2P										
	A1 = D63, 0.18KW, 4P I1 = D112M, 3.7KW, 4P Q1 = D200L, 30.0KW, 4P B2 = D71, 0.37KW, 2P J2 = D112M, 4.0KW, 2P										
	B1 = D71, 0.37KW, 4P J1 = D112M, 4.0KW, 4P R1 = D225SC, 37.0KW, 4P C2 = D71, 0.55KW, 2P K2 = D132S, 5.5KW, 2P										
	C1 = D80, 0.55KW, 4P K1 = D132S, 5.5KW, 4P T1 = D225MC, 45.0KW, 4P D2 = D80, 0.75KW, 2P L2 = D132S, 7.5KW, 2P										
	D1 = D80, 0.75KW, 4P L1 = D132M, 7.5KW, 4P U1 = D250SC, 55.0KW, 4P E2 = D80.1.1KW, 2P SS = Special										
	E1 = D90S, 1.1KW, 4P M1 = D160M, 11.0KW, 4P V1 = D250MC, 75.0KW, 4P F2 = D90S, 1.5KW, 2P										
	F1 = D90L, 1.5KW, 4P N1 = D160L, 15.0KW, 4P W1 = D280SC, 90.0KW, 4P G2 = D90L, 2.2KW, 2P										
	G1 = D100L, 2.2KW, 4P O1 = D180M, 18.5KW, 4P Y1 = D280MC, 110.0KW, 4P H2 = D100L, 3.0KW, 2P										
29	Electrical rating of motor : Volt/Phase/Hz.										
	X = None E = 200V/ 3 Ph/ 50 Hz G = 380V/ 3 Ph/ 60 Hz J = 460V/ 3 Ph/ 60 Hz S = Special										
	D = 380-415V/ 3 Ph/ 50 Hz F = 230V/ 3 Ph/ 60 Hz H = 440V/ 3 Ph/ 60 Hz K = 480V/ 3Ph/ 60 Hz										
30	Fan Pulley Size										
31,32,33	Fan shaft diameter										
34	Motor Pulley Size										
35,36	Motor shaft diameter										
37	Belt type										
	X = None A = SPA B = SPB C = SPC Z = SPZ										
38,39,40,41	Belt length										
42	Grooves										
	1 = 1Groove 2 = 2Groove 3 = 3Groove 4 = 4Groove 5 = 5Groove X = None										
43	Pre-Filter Media										
	A = 2" Pleated 30% B = 2" Washable 20% C = 2" Aluminum D = 4" Pleated 30% S = Special										
	X = None										
44	Filter Media # 1										
45	Filter Media # 2										
	A = 2" Pleated 30% F = Hepa 99.99% K = 4" Cartridge 85% P = 12" Cartridge 65% U = Biocell										
	B = 2" Washable 20% G = 15" Bag 60 - 65% L = 4" Cartridge 95% Q = 12" Cartridge 85% V = PTFE										
	C = 2" Aluminum H = 15" Bag 85% M = 21" Bag 60 - 65% R = 12" Cartridge 95% X = None										
	D = 4" Pleated 30% I = 15" Bag 95% N = 21" Bag 85% S = Carbon										
	E = Hepa 99.97% J = 4" Cartridge 65% O = 21" Bag 95% T = Special Media										
46	Coil # 1, Type										
	X = None; W = WL(1/2"Tube); L = LL(1/2"Tube); D = DL(1/2"Tube); F = FD (1/2" Tube); A = A (1/2" Tube); B = AA, (1/2" Tube); S = Special										
	P = WL(5/8"Tube); Q = LL(5/8"Tube); R = DL(5/8"Tube); S = FD(5/8"Tube); T = A(5/8"Tube); U = AA(5/8"Tube);										
47	Coil # 1, Connection										
	L = LH, R = RH, X = None										
48,49	Coil # 1, Row										
	XX = without coil., 01 = 1row 2 = 2rows, 04 = 4rows, 06 = 6rows, 08 = 8rows, 10 = 10rows, 12 = 12rows										
50,51,52	Coil # 1, Fin Series (FPF)										
	XXX = without coil, 100 - 168 Fins per Foot SSS = Special										
53	Coil # 1, Turbulator										
	X = No Y = Yes										
54	Coil # 2, Type										
	X = None; W = WL(1/2"Tube); L = LL(1/2"Tube); D = DL(1/2"Tube); F = FD (1/2" Tube); A = A (1/2" Tube); B = AA, (1/2" Tube); S = Special										
	P = WL(5/8"Tube); Q = LL(5/8"Tube); R = DL(5/8"Tube); S = FD(5/8"Tube); T = A(5/8"Tube); U = AA(5/8"Tube);										
55	Coil # 2, Connection										
	L = LH, R = RH, X = None										
56,57	Coil # 2, Row										
	XX = without coil., 01 = 1row 2 = 2rows, 04 = 4rows, 06 = 6rows, 08 = 8rows, 10 = 10rows, 12 = 12rows										
58,59,60	Coil # 2, Fin Series (FPF)										
	XXX = without coil, 100 - 168 Fins per Foot SSS = Special										
61	Coil # 2, Turbulator										
	X = No Y = Yes										
62	Coil # 3, Type										
	X = None; W = WL(1/2"Tube); L = LL(1/2"Tube); D = DL(1/2"Tube); F = FD (1/2" Tube); A = A (1/2" Tube); B = AA, (1/2" Tube); S = Special										
	P = WL(5/8"Tube); Q = LL(5/8"Tube); R = DL(5/8"Tube); S = FD(5/8"Tube); T = A(5/8"Tube); U = AA(5/8"Tube);										
63	Coil # 3, Connection										
	L = LH, R = RH, X = None										
64, 65	Coil # 3, Row										
	XX = without coil., 01 = 1row 2 = 2rows, 04 = 4rows, 06 = 6rows, 08 = 8rows, 10 = 10rows, 12 = 12rows										
66,67,68	Coil # 3, Fin Series (FPF)										
	XXX = without coil, 100 - 168 Fins per Foot SSS = Special										
69	Coil # 3, Turbulator										
	X = No Y = Yes										
70	Service digit										
	A = present Model Nomenclature Revision, First Issue Oct 09										



QUANTUM XP

Features and Benefits

Ultra Low Leak Construction

Unique casing design with panel attached to the frame through an external locking mechanism represented by a wedge (stopper) and frame, exerting pressure evenly onto the panel and the seal attached to the frame, and hence a better air tight cabinet construction. The casing is designed to meet Eurovent Casing Air Leakage Standard, L1 refer to Guide Specification.

Excellent Condensate Management

Dual pitched sloping drain pan allows for total condensate removal. A unique IAQ feature developed to prevent stagnant water in air handling units.

Environmental Friendly Materials

High-grade aluminium frame is non-corrosive and is easily clean-able. All these features will further enhance indoor air quality.

Design for Routine Cleaning

Double wall panel construction allows for easy cleaning and disinfecting of the interior surfaces. Panel and frame design allows for easy removal of side panels for maximum access to internal areas. Interior is mostly of a flushed, clean construction.

High Grade Aluminum Frame

Frame is constructed of extruded aluminium channels for structural rigidity and lightness. The frame shall be a full thermal break design.

Injected Polyurethane Foam Panels.

All panels are injected with high efficiency polyurethane foam insulation. Foamed panels provide superior thermal resistance properties, and have excellent acoustic and vibration absorption characteristics. In addition, polyurethane foam does not absorb moisture and will not promote fungus growth.

High Efficiency Performance

Patented Delta-Flo slit fin heat transfer technology gives maximum cooling and dehumidification. Trane engineered fan systems provide maximum airflow while minimizing vibration, acoustic levels and power consumption.

Suitable for High Performance

Application

Addresses the needs of electronics, healthcare, life-sciences and pharmaceuticals.

Sturdy Unit Construction

The Quantum XP flexibility is contributed by the structural integrity pentapost and panel construction. The casing strength is designed to meet European Standard EN 1886; 2006, Class D1.

Optimized Coils

Flexibility characterizes the Quantum Climate Changer's broad coil offering. The variety of types, sizes, arrangements and materials enables you to select a coil optimized for the application pressure drop and capacity requirements. Options include;

- 2 to 12 rows, ½ inch OD chilled water coils and two separate cooling coil in series to meet high capacity requirement.
- 1 and 2 rows, ½ inch OD hot water coils.
- 4 and 6 rows, ½ inch OD refrigerant coils.
- 1 row ½ inch OD, distributing type steam coils.
- Infinitely variable fin spacing (IVS).
- Stainless steel coil casing (option). Copper fins.
- Coated aluminum fin for corrosion resistance.
- Header drain and vent connections.
- Fully drain able coils at header 5/8 inch coil.

Performance Assurance and Commitment to Quality

Trane combines comprehensive performance certifications with thorough laboratory testing and manufacturing methods. Together these elements help to ensure that each Quantum XP operates predictably and reliably throughout the life of the unit. All fans are tested as per ANSI/AMCA 210, ANSI/ASHRAE Standard 51 - Laboratory Method of Testing Fans Rating and AMCA 300 "Reverberant Room Method for Sound Testing of Fans."

All coil capacities, pressure drops and selection procedures are rated in accordance to ARI Standard 410. All coils are leak and proof tested to minimum 375 psig.

Quantum XP is manufactured in a facility that is certified to MS ISO9001.



Quick Select 50mm Casing Construction - QUANTUM XP

Quick Selection Procedure

- Step 1: Determine what is the design airflow (m³/s) or total cooling capacity (KW)
 Step 2: Use the table below to determine the unit size by picking the closest airflow or total cooling capacity.
 Step 3: The unit width and height are the same for all selections. Unit length in Table A is based on basic fan + coil + flat filter sections only.
 For other combinations. Use Table B : Standard Section Length to determine the overall unit length.
 Step 4: Determine the nominal units details (unit weight, coil water pressure drop, water flow rate and motor installed power) using Table A

Table A: Quick Select

Model Size	Coil Face Area	Airflow At 2.5m/s Face Velocity	Total Cooling Capacity	External Static Pressure	Unit Dimension (mm) (Fan + Coil + Pre & Bag + MB)			Unit Weight	Water Pressure Drop	Water Flow Rate	Motor Installed Power
	m ²	m ³ /s	k w	Pa	Width	Height	Length	Kg	kPa	L / s	k w
003	0.23	0.6	8.64	500	780	900	2950	290	0.5	0.37	1.10
004	0.40	1.0	21.51	500	1090	900	2950	354	3.6	0.93	2.20
006	0.56	1.5	37.13	500	1400	900	2950	435	11.5	1.61	3.70
008	0.73	1.9	50.35	500	1710	900	2950	495	22.8	2.18	3.70
010	0.89	2.3	58.03	500	1400	1210	3105	553	10.6	2.51	5.50
012	1.15	3.0	80.40	500	1710	1210	3105	621	21.9	3.48	5.50
014	1.42	3.6	100.53	500	2020	1210	3105	704	36.9	4.36	7.50
016	1.58	4.1	110.44	500	1710	1520	3105	734	21.1	4.79	7.50
020	1.94	5.0	139.68	500	2020	1520	3260	891	36.4	6.05	11.0
025	2.41	6.2	173.71	500	2020	1830	3415	1045	42.8	7.53	11.0
030	2.88	7.4	206.18	500	2020	2140	3415	1204	40.4	8.94	15.0
035	3.42	8.7	248.79	500	2330	2140	3575	1465	62.9	10.78	15.0
040	3.95	10.1	291.13	500	2640	2140	3730	1771	80.5	12.62	18.5
045	4.48	11.5	312.01	500	2950	2140	3730	1924	25.1	13.52	22.0
050	5.01	12.9	356.42	500	3260	2140	3885	2102	34.2	15.45	22.0
060	5.92	15.2	421.31	500	3260	2450	4040	1079	36.9	18.26	30.0
065	6.55	16.8	472.83	500	3570	2450	4195	2670	48.2	20.49	30.0
070	7.18	18.4	524.44	500	3880	2450	4665	3055	61.4	22.73	30.0
080	7.81	20.0	576.11	500	4190	2450	4665	3417	76.6	24.97	37.0
085	8.44	21.6	586.93	500	4500	2450	4820	3575	83.0	25.43	37.0
090	9.07	23.2	679.63	500	4810	2450	4820	3838	113.5	29.45	45.0
095	9.70	24.9	733.61	500	5120	2450	4820	3991	136.1	31.79	45.0
*100	11.04	28.4	837.56	500	5120	2760	5285	4656	141.6	36.30	55.0
*110	11.64	30.2	889.04	500	5120	2915	5440	4991	151.0	38.53	55.0
*120	12.23	32.0	940.50	500	5120	3070	5231	5231	149.9	40.76	55.0

Note:

- 1: Nominal cooling capacities are based on EDB 26.7 C / EWB 19.4C and EWT 6.7 C / LWT 12.2C
 2: Unit dimension and weight includes Backward curved fan section (arrangement 1 and 2). 6 row 144fpf coil (1/2 inch cu tube) section and pre & Bag and mixing section (with media)

Fan Section, L1 (arrangement 1 and 2, motor installed power as per Table A)

Model Size	Motor kW	L1	Model Size	Motor kW	L1	Model Size	Motor kW	L1	Model Size	Motor kW	L1	
003	0.18 ~ 3	775	012 / 014	1.1 ~ 7.5	930	025 / 030	2.2 ~ 7.5	1085	050 / 060	5.5 ~ 22	1550	
004	0.37 ~ 3	775			11 ~ 15		1085			11 ~ 15	1240	
006	0.55 ~ 7.5	775	016	1.5 ~ 7.5	930			18.5 ~ 30	1550	065 / 070	7.5 ~ 22	1550
008	0.75 ~ 7.5	775			11 ~ 18.5	1395	035	4 ~ 22	1240			30 ~ 45
010	1.1 ~ 7.5	930	020	2.2 ~ 7.5	930			30 ~ 45	1550	080 ~ 095	7.5 ~ 75	1860
		11		1085		11 ~ 18.5	1085	040 / 045	4 ~ 22		1395	
							30 ~ 45		1550		110 / 120	15 ~ 75

Mixing Section, L2

Model Size	L2
003 ~ 065	775mm
070 ~ 080	930mm
085 ~ 120	1085mm

Coil Section, L3

Model Size	Coil Row	L3
003 ~ 120	2, 4 and 6 row	620mm
003 ~ 120	8, 10 and 12 row	775mm

Note:

- 1: Total unit length shall be calculated based on total sum of the individual section lengths added together.
 2: Add 160mm to overall unit length for end frame for all models.
 3: Fan Section lengths are indicative only as the length varies according to the fan arrangement and motor KW range
 4: Add another 155m section for unit with fan and coil sections only.

General Data

Casing

Casing Type

- The extruded frame of engineering grade aluminium provides the Quantum XP with excellent rigidity.
- Casing Strength is designed to meet European standard EN 1886:1998, D1.
- The panel is attached to the frame through an external locking mechanism represented by a wedge (stopper) and frame exerting pressure evenly onto the seal and the seal attached to the frame, and hence a better air tight cabinet construction. This unique design requires no welding during assembly of the framework sections.
- The panel are of double wall construction and injected with foam insulation to provide a rigid sturdy and easily cleaned enclosure.

- The Quantum XP is designed to suit the technical requirement of each application. Design is specially suitable for healthcare, electronics, life-sciences and pharmaceuticals where condensation concerns exist, IAQ requirements abound and where cleanable-flush interiors are needed.

Panel

The panels are manufactured by injection of polyurethane foam insulation between two metal skins to produce a rigid and totally enclosed panel of 50mm nominal thickness. This double wall construction keeps the insulation out of the air airstream and contributes towards improved indoor air quality. The panels are also easily cleanable. The insulating material is a two com-

ponent closed cell, rigid polyurethane foam. A mechanical cam locking mechanism, between panels with the added reinforcement of internal rivets allows air tightness compliance to Eurovent Class L1.

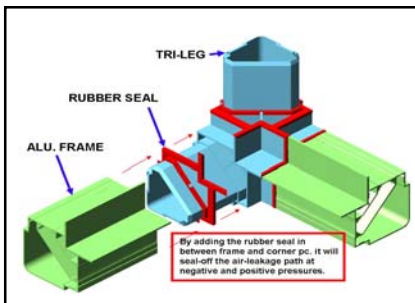
Insulating Material Specification: Thermal conductivity 'K' Factor = 0.02 W/mK.

Panel Thickness:

Overall average panel nominal thickness shall be 50mm.

The exterior and inner wall's panel coating comes with a variety of choice

- Standard offering: galvanized prepainted exterior wall and galvanized steel sheet on inner wall.
- Option: galvanized prepainted steel sheet on exterior and inner - wall.



3 Leg Corner



3 Leg Corner Unit



Stealth

General Data Fans and Drives

Fan

Types of Fans

Quantum XP Air Handling units are designed to provide accurate performance in order to meet the sophisticated building air conditioning requirement.

Quantum XP Air Handling units are supplied with double inlet, double width (DIDW) centrifugal blowers.

- Forward curved blade (FC)
- Backward curved blade (BC)
- Airfoil blade (AF)
- Direct/belt Drive plenum fan

Type of Fans

- Fan casing are constructed of galvanized steel with a series of punchedholes or nutserts allowing the fixing of accessories such as frames or support structure thus providing a variety of discharge positions
- The impeller (blade) is galvanized steel finish for FC and painted steel for BC and securely fixed to the solid straight shaft.
- All fan impellers are statically and dynamically balanced by the ISO 1940 and AMCA 204/3-G2.5 quality.
- Fan shaft are carbon steel (C45) grade and machined to tolerances ISO 286-2 Grade G6 standard.

Vibration Isolator

Two types of isolator are:

- 1" Deflection spring
- 2" Deflection spring
- The isolators selected shall have a minimum 80% isolation efficiency.



Standby Systems



Standby Motor



Direct Drive Fan



Starters

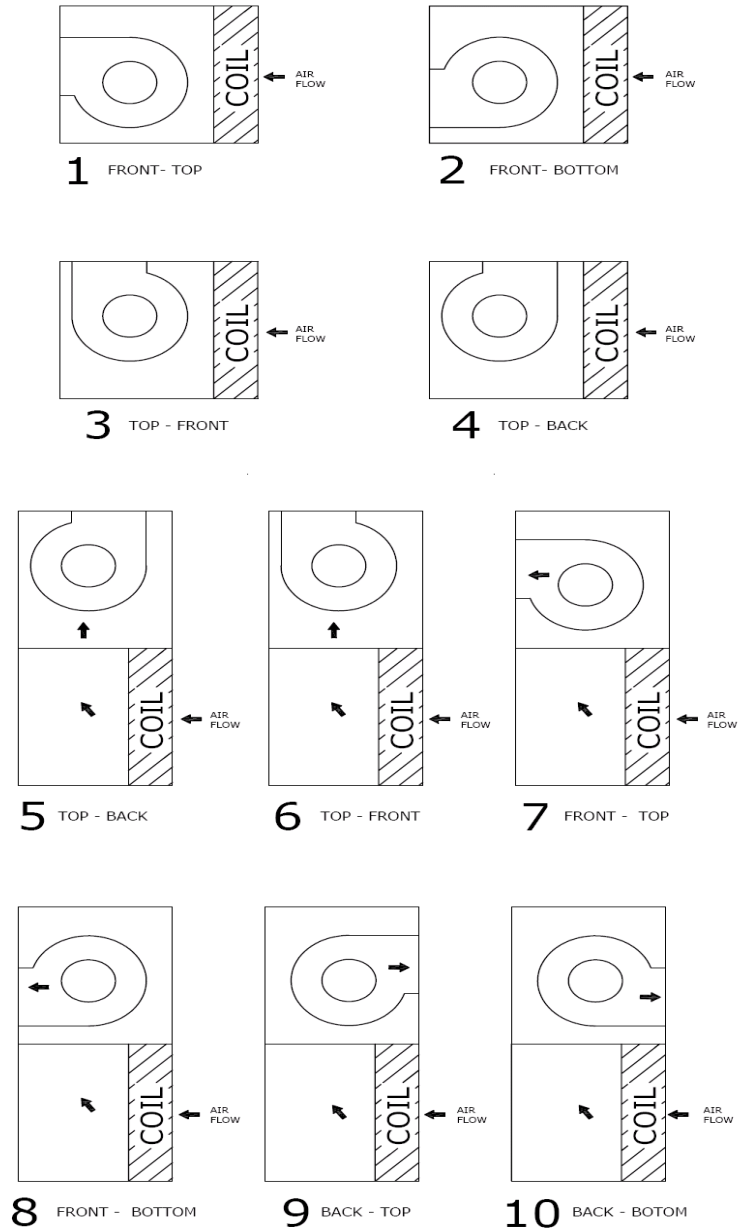
General Data

Fan and Drives

Fan Size and Diameter

Model Size	Fan Size	Fan Size Diameter (mm)
003	FC 200	200
	BC 200	200
004	FC 225	225
	BC 225	225
006	FC 250	250
	BC 250	250
008	FC 280	280
	BC 280	280
010	FC 315	315
	BC 315	315
012	FC 400	400
	BC 400	400
014	FC 400	400
	BC 400	400
016	FC 450	450
	BC 450	450
020	FC 500	500
	BC 500	500
025	FC 560	560
	BC 560	560
030	FC 630	630
	BC 630	630
035	FC 710	710
	BC 710	710
040	FC 710	710
	BC 710	710
045	FC 800	800
	BC 800	800
050	FC 800	800
	BC 800	800
060	FC 900	900
	BC 900	900
065	FC 900	900
	BC 900	900
070	FC 1000	1000
	BC 1000	1000
080	FC 1000	1000
	BC 1000	1000
085	FC 1000	1000
	BC 1000	1000
090	FC 1000	1000
	BC 1000	1000
095	FC 1000	1000
	BC 1000	1000
100	FC 1120	1120
	BC 1120	1120
110	BC 1250	1250
120	BC 1250	1250

Fan Discharge Arrangements



General Data Fans and Drives

Fan Series

FC & BC Series - Double Inlet Forward Curved and Backward Curved Centrifugal Fans.

The FC and BC series is DIDW centrifugal fans with forward curved and backward curved impeller. The fans are suitable for supply or extract applications in commercial, process and HVAC systems. The FC and BC series is available in type S, C, T or X as shown in Fig 1.

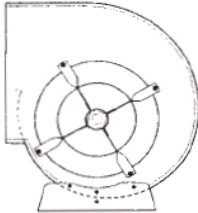
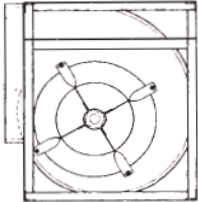
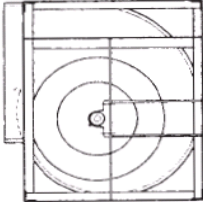
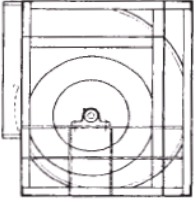
Type S	Type C
 <p data-bbox="639 770 1027 848">This type are supplied with mounting feet and can be mounted in three different fan orientation.</p>	 <p data-bbox="1066 770 1453 875">This type has a frame on both side of the fans which gives better strength and rigidity. Possibilities of mounting in four different fan orientations.</p>
Type T	Type X
 <p data-bbox="639 1256 1027 1361">This type has a welded frame giving increased stiffness and rigidity required for higher operating performance.</p>	 <p data-bbox="1066 1256 1453 1384">This structure is similar to type 'T' but utilizes enhanced specification bearings to support higher dynamic load necessary for the increased performance.</p>

Fig 1



General Data Coils

Coils

General

- The cooling coil shall be mounted over the dual pitched slopping drain pan to ensure water condensate flowing.
- Coil performances are designed in accordance to ARI Standard 410.
- All coils shall be counter flow design.
- The Delta Flo coils design that shall have the following criteria as above.

Description	Refrigerant (F-D)	Chilled Water	Hot Water
Face Velocity; FPM (m/s)	200 ~ 800 (1.0 ~ 4.1)	200 ~ 800 (1.0 ~ 4.1)	200 ~ 1500 (1.0 ~ 457)
EDB; °F (°C)	65 ~ 100 (18 ~ 38)	65 ~ 100 (18 ~ 38)	0 ~ 100 (18 ~ 38)
EWB; °F (°C)	60 ~ 85 (15 ~ 29)	60 ~ 85 (15 ~ 29)	-
EWT; °F (°C)	-	35 ~ 65 (2 ~ 38)	120 ~ 250 (49 ~ 121)
Water Velocity; Ft/s (m/s)	-	1 ~ 8 (0.31 ~ 2.4)	0.5 ~ 8 (0.15 ~ 24)
Salurated Suction Temperature; °F (°C)	34 ~ 55 (11 ~ 12.8)	-	-
Minimum Superheat; °F (°C)	6 (14)	-	-

Availability

Water, Refrigerant and Steam Coil

Coil Tube	Description	Rows	End Connection	Header Material	Fins Per Foot	Tube Material	Max. Standard Operation Pressure (Tube Side)			
							Pressure		Temp	
							Psig	kPa	°F	°C
WL	General Purpose Single Row Serpentine Water Coil	2,4,6,8 10 & 12	Same Side	Steel Or Copper	Aluminum 100 - 168 Htg 100 - 168 Clg Copper 120 - 168	½" OD Copper	250	1724	220	104
DL	Drainable Double-Row Serpentine Water Coil	2,4,6,8 10 & 12	Same Side	Steel Or Copper	Aluminum 100 -168 Htg copper 100 - 168 Clg Copper 120 - 168 Htg 120 - 168 Clg	½" OD Copper	250	1724	220	104
LL	Drainable Double-Row Serpentine Water Coil	4,6,8 10 & 12	Same Side	Steel Or Copper	Aluminum 100 - 168 Clg Copper 120 - 168 Clg	½" OD Copper	250	1724	220	104
FD	Refrigerant Cooling Coil	4,6	Same Side	Copper	Aluminum 100 - 168 Clg Copper 120 - 168 Clg	½" OD Copper	250	1724	220	104
A or AA	Steam Coil	1	Opposite Side	Steel	Aluminum 100 - 168	½" OD Copper	250	1724	220	104

1. All coil length are available in 1 inch increments.
2. All fin spacing are available in 1 fin per foot increments
3. Turbulators are available for type WL and LL coils. This option is useful when water velocities are low (less than 4 ft/ sec) to obtain maximum tube side heat transfer. The use of turbulators is equivalent to doubling the water velocity though the tubes.
4. All water coils can be used in cooling and heating applications.
5. Circuiting options for type FD coils are: Standard (Single Distributor), and Intertwined circuiting



General Data Coils

Chilled and Hot Water Coil

Dimensions

Model Size	Coil Face Area		Actual Fin Height		Finned Length	
	Ft ²	M ²	in	mm	in	mm
003	2.5	0.24	21	533	17	432
004	4.3	0.40	21	533	29	737
006	6.1	0.57	21	533	41	1041
008	7.9	0.73	21	533	53	1346
010	9.7	0.90	34	864	41	1041
012	12.5	1.16	34	864	53	1346
014	15.3	1.42	34	864	65	1651
016	17.1	1.59	46	1175	53	1346
020	21.0	1.95	46	1175	65	1651
025	26.0	2.40	58	1473	65	1651
030	31.5	2.93	70	1778	65	1651
035	37.3	3.47	70	1778	77	1956
040	43.2	4.02	70	1778	89	2261
045	49.0	4.56	70	1778	101	2565
050	54.8	5.10	70	1778	113	2870
060	64.0	5.95	40	1016	113	2870
			41	1041	113	2870
065	70.8	6.58	40	1016	125	3175
			41	1041	125	3175
070	77.6	7.21	40	1016	137	3480
			41	1041	137	3480
080	84.4	7.85	40	1016	149	3785
			41	1041	149	3785
085	91.1	8.48	40	1016	161	4089
			41	1041	161	4089
090	97.9	9.11	40	1016	173	4394
			41	1041	173	4394
095	104.5	9.78	40	1016	185	4699
			41	1041	185	4699
100	118.84	11.04	46	1175	185	4699
			46	1175	185	4699
110	125.26	11.64	46	1175	185	4699
			51	1302	185	4699
120	131.68	12.23	51	1302	185	4699
			51	1302	185	4699



General Data Coils

Steam Coil Dimension (1/2" Delta Flo: Type A and AA Circuiting)

Dimensions

Model Size	Coil Face Area		Actual Fin Height		Finned Length	
	Ft ²	M ²	in	mm	in	mm
003	2.1	0.2	20	508	15	381
004	2.4	0.23	20	508	17	432
006	5.4	0.5	20	508	39	991
008	7.1	0.66	20	508	51	1295
010	8.8	0.82	32.5	826	39	991
012	11.5	1.07	32.5	826	51	1295
014	14.2	1.32	32.5	826	63	1600
016	14.2	1.32	20	508	51	1295
			20	508	51	1295
020	17.6	1.64	20	508	63	1600
			20	508	63	1600
025	23.0	2.14	32.5	826	63	1600
			20	508	63	1600
030	28.4	2.64	32.5	826	63	1600
			32.5	826	63	1600
035	33.8	3.14	32.5	826	75	1905
			32.5	826	75	1905
040	39.2	3.65	32.5	826	87	2210
			32.5	826	87	2210
045	44.6	4.15	32.5	826	99	2515
			32.5	826	99	2515
050	50.2	4.66	32.5	826	111	2819
			32.5	826	111	2819
060	57.8	5.38	20	508	111	2819
			20	508	111	2819
			35	889	111	2819
065	64.1	5.96	20	508	123	3124
			20	508	123	3124
			35	889	123	3124
070	70.4	6.55	20	508	135	3429
			20	508	135	3429
			35	889	135	3429
080	78.5	7.11	20	508	147	3734
			20	508	147	3734
			35	889	147	3734
085	82.8	7.7	20	508	159	4039
			20	508	159	4039
			35	889	159	4039
090	89.2	8.30	20	508	171	4343
			20	508	171	4343
			35	889	171	4343
095	95.3	8.86	20	508	183	4648
			20	508	183	4648
			35	889	183	4648
100	111.2	10.33	20	508	183	4648
			32.5	826	183	4648
			35	889	183	4648
110	111.2	10.33	20	508	183	4648
			32.5	826	183	4648
			35	889	183	4648
120	127.1	11.81	32.5	826	183	4648
			32.5	826	183	4648
			35	889	183	4648



General Data Coils

Refrigerant Coil Circuits (1/2" Standard Refrigerant Coil Circuiting)

Dimensions

Model Size	Coil Face Area		Actual Fin Height		Finned Length		No of Dist	Fin Height	Piping Ø		
									Liquid		Suction
	Ft ²	M ²	in	mm	in	mm			1/4"	3/16"	O.D
003	2.5	0.23	21	533	17	432	1	-	28.6	22.2	41.2
004	4.3	0.40	21	533	29	737	1	-	28.6	22.2	41.2
006	6.1	0.56	21	533	41	1041	1	-	28.6	22.2	41.2
008	7.9	0.73	21	533	53	1346	1	-	28.6	22.2	41.2
010	9.7	0.90	34	864	41	1041	1	-	35	28.6	41.2
012	12.5	1.16	34	864	53	1346	1	-	35	28.6	41.2
014	15.3	1.42	34	864	65	1651	1	-	35	28.6	41.2
016	-	-	-	-	-	-	-	-	-	-	-
020	-	-	-	-	-	-	-	-	-	-	-
025	-	-	-	-	-	-	-	-	-	-	-
030	31.5	2.93	70	1778	65	1651	2	70	35	28.6	41.2
035	37.3	3.47	70	1778	77	1956	2	70	35	28.6	41.2
040	43.2	4.02	70	1778	89	2261	2	70	35	28.6	41.2
045	49	4.56	70	1778	101	2565	2	70	35	28.6	41.2
050	54.8	5.10	70	1778	113	2870	2	70	35	28.6	41.2
060	-	-	-	-	-	-	-	-	-	-	-
065	-	-	-	-	-	-	-	-	-	-	-
070	-	-	-	-	-	-	-	-	-	-	-
080	-	-	-	-	-	-	-	-	-	-	-
085	-	-	-	-	-	-	-	-	-	-	-
090	-	-	-	-	-	-	-	-	-	-	-
095	-	-	-	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-
120	-	-	-	-	-	-	-	-	-	-	-



General Data Coils

Refrigerant Coil Circuits (1/2" Interwined Refrigerant Coil Circuiting)

Dimensions

Model Size	Coil Face Area		Actual Fin Height		Finned Length		No of Distt	Piping Ø		
								Liquid		Suction
	Ft ²	M ²	in	mm	in	mm		1/4"	3/16"	O.D
003	2.5	0.23	21	533	17	432	1/1	28.6	22.2	41
004	4.3	0.40	21	533	29	737	1/1	28.6	22.2	41
006	6.1	0.56	21	533	41	1041	1/1	28.6	22.2	41
008	7.9	0.73	21	533	53	1346	1/1	28.6	22.2	41
010	9.7	0.90	34	864	41	1041	1/1	35	28.6	41
012	12.5	1.16	34	864	53	1346	1/1	35	28.6	41
014	15.3	1.42	34	864	65	1651	1/1	35	28.6	41
016	17.1	1.59	46	1168	53	1346	1/1/1/1	28.6	22.2	41
020	21.0	1.95	46	1168	65	1651	1/1/1/1	28.6	22.2	41
025	26.0	2.42	58	1473	65	1651	1/1/1/1	35	28.6	41
030	31.5	2.93	70	1778	65	1651	1/1/1/1	35	28.6	41
035	37.3	3.47	70	1778	77	1956	1/1/1/1	35	28.6	41
040	43.2	4.02	70	1778	89	2261	1/1/1/1	35	28.6	41
045	49.0	4.56	70	1778	101	2565	1/1/1/1	35	28.6	41
050	54.8	5.10	70	1778	113	2870	1/1/1/1	35	28.6	41
060	64.0	5.93	40	1016	113	2870	1/1/1/1	28.6	22.2	41
			41	1041	113	2870	1/1/1/1			
065	70.8	6.56	40	1016	125	3157	1/1/1/1	28.6	22.2	41
			41	1041	125	3157	1/1/1/1			
070	77.6	7.19	40	1016	137	3480	1/1/1/1	28.6	22.2	41
			41	1041	137	3480	1/1/1/1			
080	84.4	7.82	40	1016	149	3785	1/1/1/1	28.6	22.2	41
			41	1041	149	3785	1/1/1/1			
085	91.1	8.45	40	1016	161	4089	1/1/1/1	28.6	22.2	41
			41	1041	161	4089	1/1/1/1			
090	97.9	9.08	40	1016	173	4394	1/1/1/1	28.6	22.2	41
			41	1041	173	4394	1/1/1/1			
095	104.5	9.78	40	1016	185	4699	1/1/1/1	28.6	22.2	41
			41	1041	185	4699	1/1/1/1			

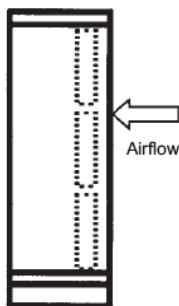
General Data Filters

General

Quantum XP air handling unit offers wide range of filters to meet air filtration requirement in various types of commercial and industrial air conditioning applications. Filter type offered are:

- (a) Washable and throwaway type flat filters
- (b) Bag and cartridge type filters
- (c) Hepa filters
- (d) Carbon or gas filters, etc.

Flat Filter



Flat Filter
Section

a) Washable Filter

The filter media consist of selected synthetic fibers. An exclusive bonding technology provides the media with high numbers of fibers per square meter for a given weight. Its characteristics are relatively low resistance to air flow and a high dust holding capacity. The media can be cleaned.

- in warm water (30° - 40°C) with addition of a household detergent if necessary. Drying should be done on a flat surface.
- by blowing with compressed air in the opposite direction of filter airflow.

Washable Filter - Product Information

Normal Sizes (inch)	: 12 x 24
	: 20 x 24, 24 x 24
Filter Depth (mm)	: 50
Average Arrestance	: 80 - 85%

b) Throwaway Filter

Unique "pleat" design assures total usage of the filter media, maximum dust holding capacity and extended service life. Its greater dust holding capacity not only extends replacement intervals, but considerably lengthens the service life of any other secondary filters in the systems.

The media used is a lofted, high performance, nonwoven, reinforced cotton and synthetic fabric. Filter media shall be of high density glass mirco fibers laminated to all glass woven mesh backing. The filter media shall have an average arrestance of 90 - 92%. The filter is categorized as a 30% efficiency filter.

Throwaway Filter - Product Information

Normal Sizes (inch)	: 12 x 24
	: 20 x 24, 24 x 24
Filter Depth (mm)	: 50
Average Arrestance	: 90 - 92%
Average Efficiency	: 25 - 30%



Flexible and Varied Filter Offering for IAQ and process filtration.



General Data

Filters

High Efficiency Filter Section

a. Bag Filter

The filter is an extended surface nonsupported pocket filter which offers high efficiency, low resistance, compactness and unusual dust-holding capacity. When placed in ventilating system, the pockets of the filtering media inflate for maximum efficiency and dust holding capacity.

Filter efficiency is determined by the size and quality of fibers per square inch in each efficiency category. The media is manufactured to rigid specifications that assure an extremely large amount of dirt-catching surface area to catch microscopic contaminants.

The exclusive pocket design allows every channel to fully inflate while maintaining the amount of space between pockets. Clean air can freely exit from front to back. Some manufacturer's design permit adjacent pockets to touch when inflated which significantly reduces dust holding capacity.

Each filter pocket is attached to a support frame that fits into a U-channel header. Each pocket support frame is then mechanically fastened to the adjacent frame forming a rigid construction. The positive locking arrangement forms an air tight seal and also virtually eliminates the possibility of pocket separation from the header as resistance increase.

b. Cartridge Filter

Bag Filter - Product Information	
Normal Sizes (inch)	: 12 x 24 20 x 24, 24 x 24
Filter Depth (mm)	: 381
Average Efficiency	: 60 - 65% 80 - 85% 90 - 95%

The filters are ideally suited to variable volume systems. Being totally rigid, performance is not affected by changes in air velocity or fan shut-down, and their configuration is not altered by accumulation of dirt. High loft glass fiber media is laminated to which provides positive support, optimizes dust holding capacity, and precludes fiber emission, as compared to flat glass media.

All double wall fiber board contour stabilizers, diagonal support provide rigidity, durability, consistent integrity and performance reliability throughout the filter's life.

The lofted media and exclusive radial pleats provide a high dust holding capacity, extending the life of the filter. The filter will operate at air volumes considerably below rates velocity and capacity. Initial resistance is reduced, performance is improved and service life is extended.

Cartridge Filter - Product Information

Normal Sizes (inch)	: 12 x 24 20 x 24, 24 x 24
Filter Depth (mm)	: 100
Average Efficiency	: 60 - 65% 80 - 85% 90 - 95%

General Data Filters

Filter Quantity and Sizes (Nominal)




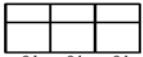
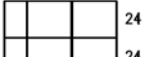
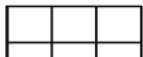
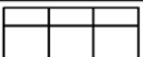
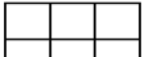
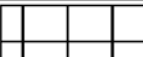
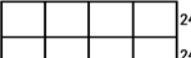

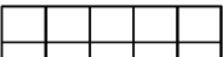
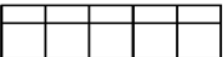
a. Flat, Bag and Cartridge Filters

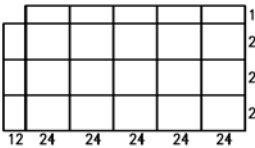
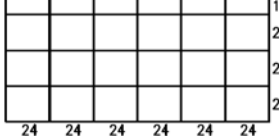
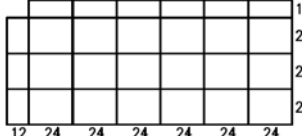
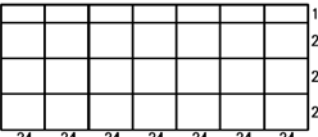
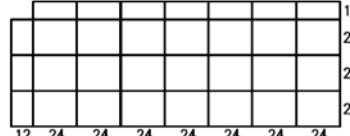
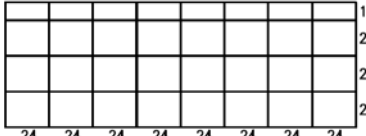

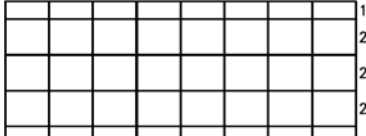
Model Size	Filter Face Area Sq. Ft.	Filter Sizes (inch)		
		12 X 24	20 X 24	24 X 24
003	3.3	-	1	-
004	3.3	-	1	-
006	6.7	-	2	-
008	6.7	-	2	-
010	10.7	2	2	-
012	10.7	2	2	-
014	16.0	3	3	-
016	20.0	2	-	4
020	24.0	-	-	6
025	30.0	3	-	6
030	36.0	-	-	9
035	42.0	3	-	9
040	48.0	-	-	12
045	54.0	3	-	12
050	60.0	-	-	15
060	70.0	5	-	15
065	76.0	8	-	15
070	84.0	6	-	18
080	90.0	9	-	18
085	98.0	7	-	21
090	104.0	10	-	21
095	112.0	8	-	24
100	128.0	-	-	32
110	128.0	-	-	32
120	144.0	8	-	32

General Data Filters

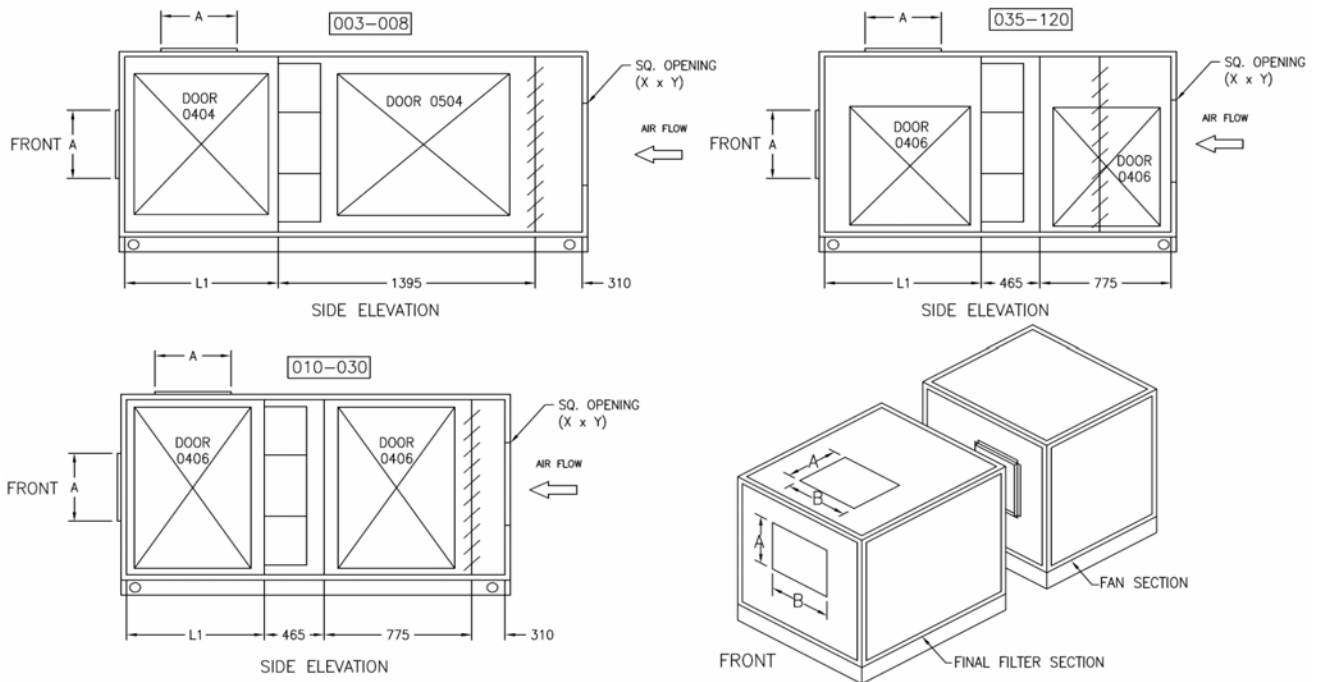
Filter Dimension (Nominal) and Arrangement

Flat Filter, Bag Filter & Cartridge Filter

MODEL	ARRANGEMENT	(Nominal Sizes in inches)
003 004		24 20
006 008		24 24 20
010 012		12 20 24 24
014		12 20 24 24 24
016		24 24 12 24 24
020		24 24 24 24 24
025		12 24 24 24 24 24
030		24 24 24 24 24 24
035		24 24 24 12 24 24 24
040		24 24 24 24 24 24 24
045		24 24 24 12 24 24 24 24
050		24 24 24 24 24 24 24 24
060		12 24 24 24 24 24 24 24 24

MODEL	ARRANGEMENT	(Nominal Sizes in inches)
065		12 24 24 24 12 24 24 24 24 24
070		12 24 24 24 24 24 24 24 24 24
080		12 24 24 24 12 24 24 24 24 24 24
085		12 24 24 24 24 24 24 24 24 24
090		12 24 24 24 12 24 24 24 24 24 24 24
095		12 24 24 24 24 24 24 24 24 24 24 24
100 110		24 24 24 24 24 24 24 24 24 24 24 24
120		12 24 24 24 24 24 24 24 24 24 24 24

General Data Filters




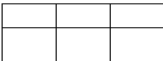
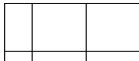
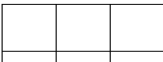



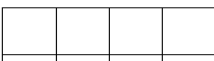
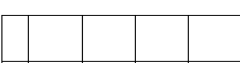


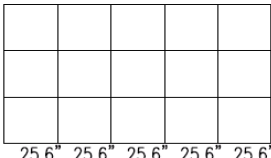
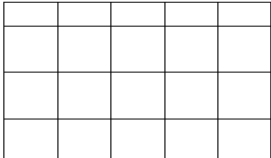
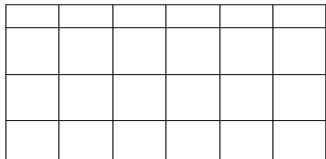
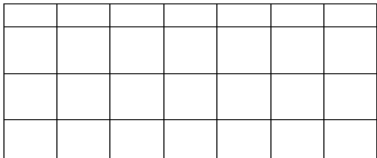
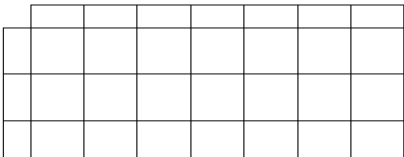
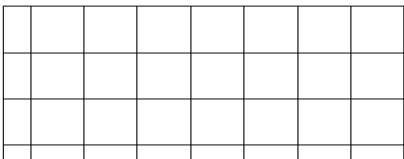
XP	Final Filter (HEPA) Casing Size	50mm CASING DIMENSION			OUTLET OPENING	Discharge Plenum Section
		W	H	L		
Std. Model	(X 155 parametric)				B X A	L1
003 (0404)	0605	1090	1055	2640	465 X 310	775
004 (0604)	0605	1090	1055	2640	465 X 310	775
006 (0804)	0905	1555	1055	2640	465 X 310	775
008 (1004)	0905	1555	1055	2640	620 X 310	775
010 (0806)	0907	1555	1365	2485	620 X 310	775
012 (1006)	0907	1555	1365	2485	620 X 310	775
014 (1206)	1307	2175	1365	2485	775 X 310	775
016 (1008)	1109	1865	1675	2485	775 X 465	775
020 (1208)	1309	2175	1675	2485	775 X 465	775
025 (1210)	1311	2175	1985	2485	930 X 465	775
030 (1212)	1313	2175	2295	2485	930 X 620	775
035 (1412)	1513	2485	2295	2330	930 X 775	930
040 (1612)	1713	2795	2295	2330	1085 X 775	930
045 (1812)	2013	3260	2295	2330	1240 X 775	930
050 (2012)	2213	3570	2295	2330	1240 X 775	930
060 (2014)	2215	3570	2605	2330	1705 X 775	930
065 (2214)	2215	3570	2605	2330	1860 X 775	930
070 (2414)	2615	4190	2605	2330	2015 X 775	930
080 (2614)	2615	4190	2605	2330	2170 X 775	930
085 (2814)	3015	4810	2605	2330	2170 X 775	930
090 (3014)	3015	4810	2605	2485	2325 X 930	1085
095 (3214)	3215	5120	2605	2485	2480 X 930	1085
100 (3216)	3217	5120	2915	2485	2480 X 930	1085
110 (3217)	3217	5120	2915	2485	2480 X 930	1085
120 (3218)	3218	5120	3070	2485	2480 X 930	1085

General Data Filters

Filter Dimension (Nominal) and Arrangement

Final Filter

MODEL	ARRANGEMENT	(NOMINAL SIZES IN INCHES)
003 & 004		25.6"
006 & 008		25.6" 25.6"
010 & 012		13.6" 25.6"
014		13.6" 25.6"
016		25.6" 25.6"
020		25.6" 25.6"
025		13.6" 25.6" 25.6"
030		25.6" 25.6" 25.6"
035		25.6" 25.6" 25.6"
040		25.6" 25.6" 25.6"
045		25.6" 25.6" 25.6"

MODEL	ARRANGEMENT	(NOMINAL SIZES IN INCHES)
050		25.6" 25.6" 25.6"
060 & 065		13.6" 25.6" 25.6"
070 & 080		13.6" 25.6" 25.6"
085 & 090		13.6" 25.6" 25.6"
095		13.6" 25.6" 25.6"
100, 110 & 120		25.6" 25.6" 25.6"



General Data

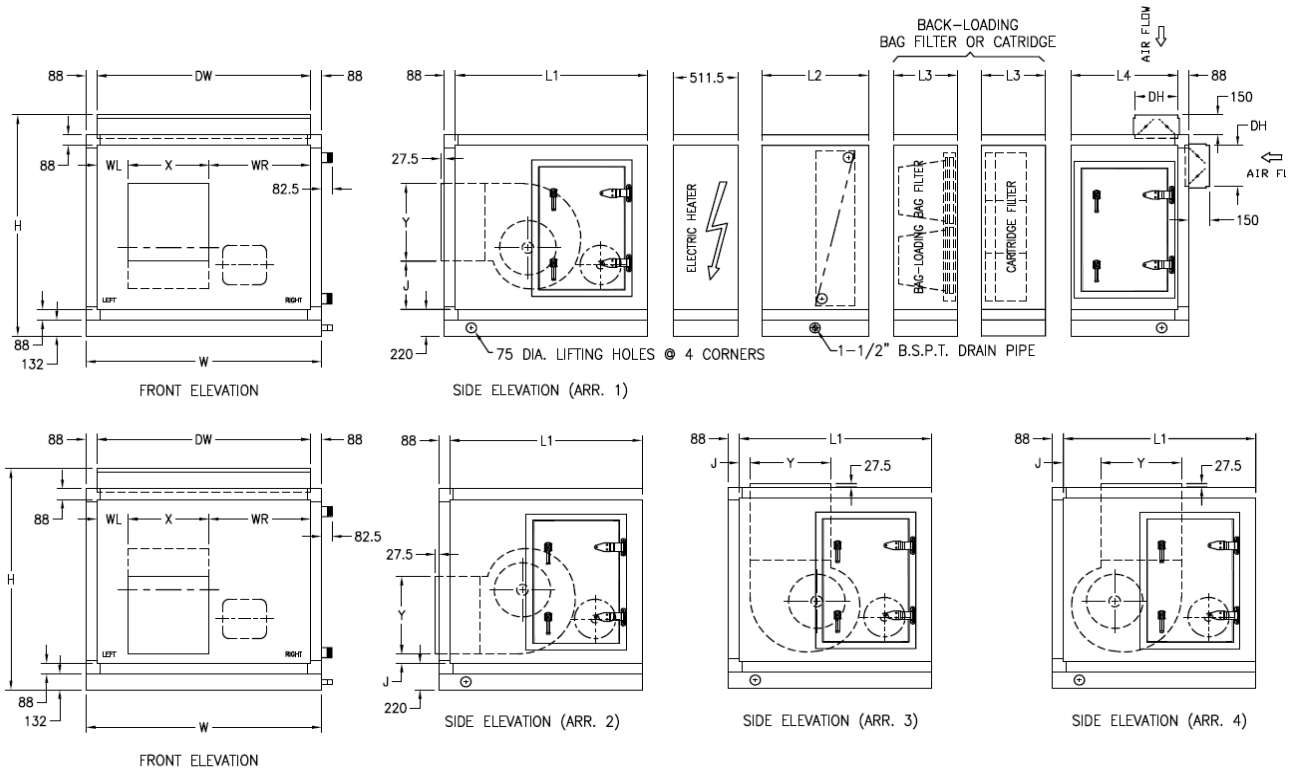
Air Pressure Drop

Damper Torque (Inch-lbs) at 1" Air pressure drop across the damper

Dimensions

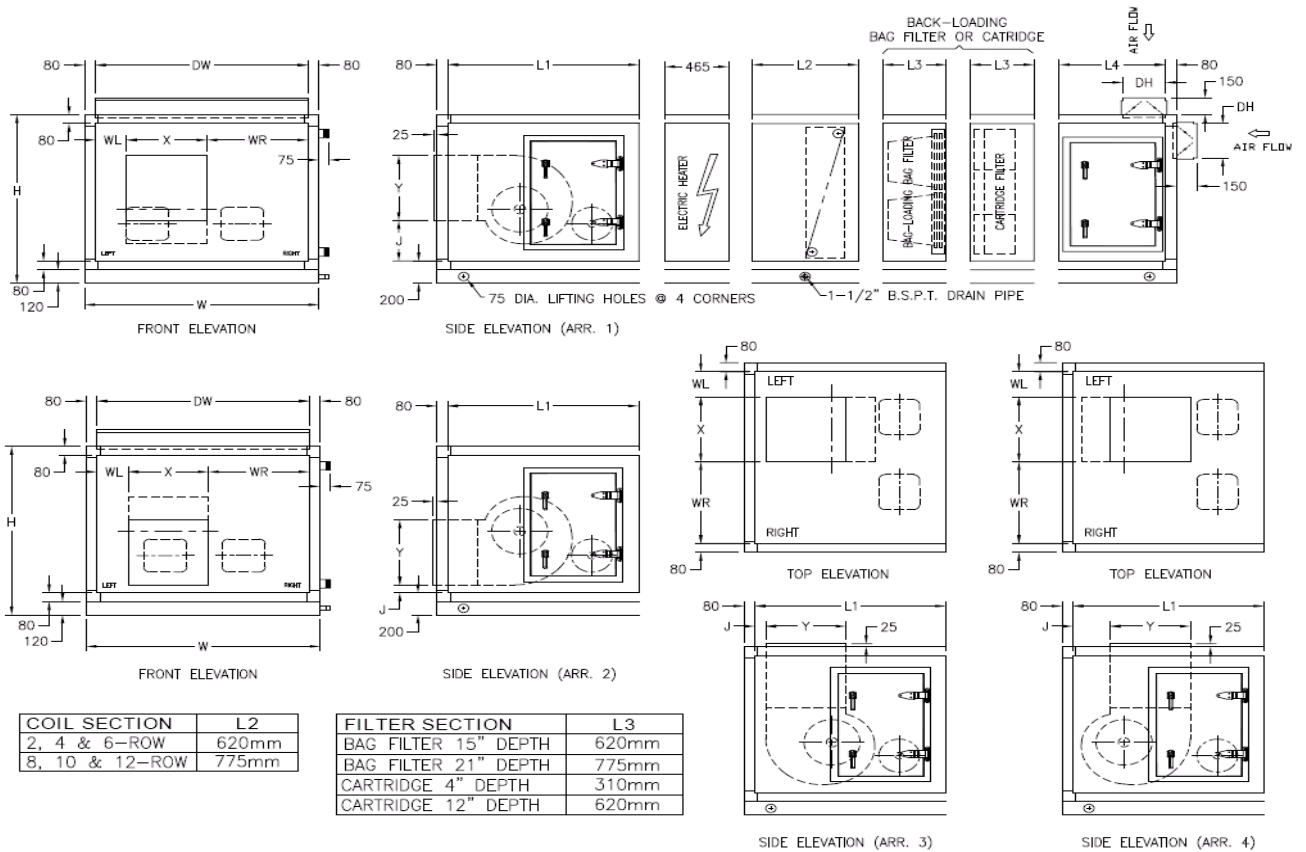
Model Size	Intake Damper or Mixing Box (per damper) (Inch-lbs)	Face Damper (Inch-lbs)	External Face & Bypass (Inch-lbs)
003	7	8	12
004	10	13	20
006	13	18	27
008	16	23	34
010	19	29	38
012	24	37	48
014	28	45	59
016	28	52	70
020	28	63	85
025	28	80	111
030	38	98	129
035	44	115	152
040	50	132	174
045	56	150	197
050	56	167	220
060	84	197	265
065	84	197	265
070	98	197	265
080	98	197	265
085	112	197	265
090	112	197	265
095	112	197	265
100	112	197	265
110	112	197	265
120	112	197	265

Dimensional Data HDT (Single Motor) Unit Dimensions



MODEL	FAN	MOTOR KW	FAN ARRANGEMENT				FAN SECTION		MOTOR ACCESS				X	Y	MIXING SECTION		CASING		DAMPER	
			J				L1		RH		LH				L4	H	W	DW	DH	
			ARR 1	ARR 2	ARR 3	ARR 4	ARR 1,2	ARR 3,4	WL	WR	WL	WR								
003(0404)	F/BDB 200	0.18 - 3	221	115	100	185	775	775	170	170	170	170	274	274	775	900	780	620	310	
004(0604)	F/BDB 225	0.37 - 3	236	115	99	217	775	775	155	468	468	155	307	307	775	900	1090	930	310	
006(0804)	F/BDB 250	0.55 - 7.5	246	116	97	227	775	930	199	702	702	199	340	340	775	900	1400	1240	310	
008(1004)	F/BDB 280	0.75 - 7.5	194	46	98	247	775	930	336	837	837	336	378	378	775	900	1710	1550	310	
010(0806)	F/BDB 315	1.1 - 7.5	283	115	96	264	930	930	161	657	657	161	422	422	775	1210	1400	1240	310	
		1085					1240	409	409	409	409									
012(1006)	F/BDB 400	1.1 - 7.5	337	116	97	318	930	1085	209	817	817	209	524	524	775	1210	1710	1550	310	
		1085					1240													
014(1206)	F/BDB 400	1.5 - 7.5	337	116	97	318	930	1085	349	987	987	349	524	524	775	1210	2020	1860	310	
		1085					1240													
016(1008)	F/BDB 450	1.5 - 7.5	365	117	99	345	930	1240	227	738	738	227	586	586	775	1520	1710	1550	310	
		1395					1550													
020(1208)	F/BDB 500	2.2 - 7.5	387	117	100	368	930	1240	266	938	938	266	656	656	775	1520	2020	1860	310	
		1085					1395													
025(1210)	F/BDB 560	2.2 - 7.5	446	145	100	401	1085	1395	276	851	851	276	732	732	775	1830	2020	1860	465	
		1240					1550													
030(1212)	F/BDB 560	18.5 - 30	446	145	100	401	1550	1705	276	851	851	276	732	732	775	2140	2020	1860	465	
		1085					1395													
035(1412)	F/BDB 630	4 - 22	540	196	100	443	1240	1395	294	1058	1058	294	818	818	775	2140	2330	2170	465	
		1550					1705													
040(1612)	F/BDB 710	4 - 22	589	198	100	489	1395	1550	406	1158	1158	406	916	916	775	2140	2640	2480	620	
		1550					1705													
045(1812)	F/BDB 710	4 - 22	589	198	100	489	1395	1550	561	1313	1313	561	916	916	775	2140	2950	2790	620	
		1550					1705													
050(2012)	F/BDB 800	5.5 - 22	648	201	100	547	1550	1705	602	1474	1474	602	1024	1024	775	2140	3260	2790	620	
		1705					1860													
060(2014)	F/BDB 800	7.5 - 22	648	201	100	547	1550	1705	602	1474	1474	602	1024	1024	775	2450	3260	2790	775	
		1705					1860													
065(2214)	F/BDB 900	7.5 - 22	702	198	100	604	1550	1860	671	1591	1591	671	1148	1148	775	2450	3570	2790	775	
		1860					2015													
070(2414)	F/BDB 900	7.5 - 22	702	198	100	604	1550	1860	826	1746	1746	826	1148	1148	775	2450	3880	2790	930	
		1860					2015													
080(2614)	F/BDB 1000	7.5 - 75	732	207	102	627	1860	2015	831	1914	1914	831	1284	1284	930	2450	4190	2790	930	
085(2814)	F/BDB 1000	7.5 - 75	732	207	102	627	1860	2015	986	2069	2069	986	1284	1284	1085	2450	4500	2790	1085	
090(3014)	F/BDB 1000	11 - 75	732	207	102	627	1860	2015	1141	2224	2224	1141	1284	1284	1085	2450	4810	2790	1085	
095(3214)	F/BDB 1000	11 - 75	732	207	102	627	1860	2015	1296	2379	2379	1296	1284	1284	1085	2450	5120	2790	1085	
100(3216)	F/BDB 1120	15-150	816	213	152	745	2170	2635	1295	2225	2225	1295	1440	1440	1085	2760	5120	2790	1085	
110(3217)	F/BDB 1250	15-150	990	248	152	895	2325	2790	1244	2174	2174	1244	1542	1542	1085	2915	5120	2790	1085	
120(3218)	F/BDB 1250	15-150	990	248	152	895	2325	2790	1244	2174	2174	1244	1542	1542	1085	3070	5120	2790	1085	

Dimensional Data HDT (Dual Motor) Unit Dimensions



MODEL	FAN	MOTOR KW	FAN ARRANGEMENT				FAN SECTION		MOTOR ACCESS				X	Y	MIXING SECTION L4	CASING			DAMPER DH	FAN LOCATION
			J				L1		RH		LH					H	W	DW		
			ARR 1	ARR 2	ARR 3	ARR 4	ARR 1,2	ARR 3,4	WL	WR	WL	WR								
003(0404)	F/BDB 200	0.18 - 3	221	115	100	185	1240	1240	170	170	170	170	274	274	775	900	780	620	310	CENTER
004(0604)	F/BDB 225	0.37 - 3	236	115	99	217	930	930	155	468	468	155	307	307	775	900	1090	930	310	OFFSET
006(0804)	F/BDB 250	0.55 - 7.5	246	116	97	227	930	930	199	702	702	199	340	340	775	900	1400	1240	310	OFFSET
008(1004)	F/BDB 280	0.75 - 7.5	194	46	98	247	930	1085	336	837	837	336	378	378	775	900	1710	1550	310	OFFSET
010(0806)	F/BDB 315	1.1 - 7.5	283	115	96	264	1085	1085	161	657	657	161	422	422	775	1210	1400	1240	310	OFFSET
012(1006)	F/BDB 400	1.1 - 15	337	116	97	318	1240	1395	209	817	817	209	524	524	775	1210	1710	1550	310	OFFSET
014(1206)	F/BDB 400	1.5 - 15	337	116	97	318	1240	1395	349	987	987	349	524	524	775	1210	2020	1860	310	OFFSET
016(1008)	F/BDB 450	1.5 - 7.5 11 - 18.5	365	117	99	345	1240 1860	1395 2015	227	738	738	227	586	586	775	1520	1710	1550	310	OFFSET
020(1208)	F/BDB 500	2.2 - 18.5	387	117	100	368	1395	1550	266	938	938	266	656	656	775	1520	2020	1860	310	OFFSET
025(1210)	F/BDB 560	2.2 - 15 18.5 - 22	446	145	100	401	1550 2170	1705 2480	276	851	851	276	732	732	775	1830	2020	1860	465	OFFSET
030(1212)	F/BDB 560	2.2 - 15 18.5 - 30	446	145	100	401	1550 2170	1705 2480	276	851	851	276	732	732	775	2140	2020	1860	465	OFFSET
035(1412)	F/BDB 630	4 - 22 30 - 45	540	196	100	443	1550 2170	1860 2015	294	1058	1058	294	818	818	775	2140	2330	2170	465	OFFSET
040(1612)	F/BDB 710	4 - 22 30 - 45	589	198	100	489	1705 1860	2015 2170	406	1158	1158	406	916	916	775	2140	2640	2480	620	OFFSET
045(1812)	F/BDB 710	4 - 22 30 - 45	589	198	100	489	1705 1860	2015 2170	561	1313	1313	561	916	916	775	2140	2950	2790	620	OFFSET
050(2012)	F/BDB 800	5.5 - 22 30 - 45	648	201	100	547	2015 2325	2325 2635	602	1474	1474	602	1024	1024	775	2140	3260	2790	620	OFFSET
060(2014)	F/BDB 800	7.5 - 22 30 - 45	648	201	100	547	2015 2325	2325 2635	602	1474	1474	602	1024	1024	775	2450	3260	2790	775	OFFSET
065(2214)	F/BDB 900	7.5 - 75	702	198	100	604	1860	2015	1131	1131	1131	1131	1148	1148	775	2450	3570	2790	775	CENTER
070(2414)	F/BDB 900	7.5 - 75	702	198	100	604	1860	2015	1286	1286	1286	1286	1148	1148	930	2450	3880	2790	930	CENTER
080(2614)	F/BDB 1000	5.5 - 75	732	207	102	627	1860	2015	1373	1373	1373	1373	1284	1284	930	2450	4190	2790	930	CENTER
085(2814)	F/BDB 1000	7.5 - 75	732	207	102	627	1860	2015	1528	1528	1528	1528	1284	1284	1085	2450	4500	2790	1085	CENTER
090(3014)	F/BDB 1000	11 - 75	732	207	102	627	1860	2015	1683	1683	1683	1683	1284	1284	1085	2450	4810	2790	1085	CENTER
095(3214)	F/BDB 1000	11 - 75	732	207	102	627	1860	2015	1838	1838	1838	1838	1284	1284	1085	2450	5120	2790	1085	CENTER
100(3215)	F/BDB 1120	15 - 150	816	213	152	745	2170	2635	1760	1760	1760	1760	1440	1440	1085	2760	5120	2790	1085	CENTER
110(3216)	F/BDB 1250	15 - 150	990	248	152	895	2325	2790	1709	1709	1709	1709	1542	1542	1085	2915	5120	2790	1085	CENTER
120(3218)	F/BDB 1250	15 - 150	990	248	152	895	2325	2790	1709	1709	1709	1709	1542	1542	1085	3070	5120	2790	1085	CENTER



Dimensional Data HDT Unit Weight (kg)

Fan and Coil sections (without motor weight)

Model Size	Fan Section Weight		Coil Section Weight						
	Fan Arrangement		Coil Row						
	Front-Top and Front-Bottom	Top-Front and Top-Back	1	2	4	6	8	10	12
003	88	88	126	130	138	146	170	178	186
004	107	107	156	163	175	187	222	234	247
006	132	144	186	194	211	227	272	289	305
008	154	166	215	226	246	267	322	343	364
010	193	206	217	234	263	293	350	380	411
012	246	261	245	267	306	347	418	459	500
014	264	280	268	296	345	396	480	531	582
016	301	317	302	330	386	437	530	581	633
020	322	356	339	373	440	502	610	673	735
025	447	467	375	418	502	582	709	789	868
030	467	489	428	482	592	694	848	950	1052
035	556	580	472	534	663	783	961	1081	1201
040	632	656	517	590	735	873	1077	1215	1353
045	654	679	569	653	817	976	1208	1366	1525
050	759	788	615	709	892	1069	1326	1503	1680
060	785	815	678	789	1012	1225	1524	1738	1951
065	952	986	746	873	1125	1368	1705	1948	2192
070	978	1014	795	933	1207	1472	1838	2103	2369
080	1113	1148	842	992	1287	1574	1970	2257	2545
085	1139	1175	905	1070	1392	1708	2140	2456	2771
090	1165	1202	953	1128	1471	1809	2271	2608	2945
095	1191	1540	1000	1186	1552	1910	2401	2761	3118
100	1650	1745	1213	1450	1915	2370	2981	3437	3893
110	2054	2151	1250	1507	2014	2511	3162	3659	4155
120	2092	2193	1293	1571	2111	2642	3328	3859	4389

1: Coil weight is the operating weight



Dimensional Data HDT Unit Weight (kg)

Fan + Coil + Filter Sections (without motor weight)

Model Size	Fan Section Weight		Coil Section Weight							Filter Section Length .L3		
	Fan Arrangement		Coil Row							2" Flat Filter	2" Flat Filter + 15" Bag Filter	2" Flat Filter + 4" Cartridge Filter
	Front-Top and Front-Bottom	Top-Front and Top-Back	1	2	4	6	8	10	12			
003	88	88	126	130	138	146	170	178	186	9	38	21
004	107	107	156	163	175	187	222	234	247	10	42	23
006	132	144	186	194	211	227	272	289	305	12	50	29
008	154	166	215	226	246	267	322	343	364	14	54	32
010	193	206	217	234	263	293	350	380	411	15	57	36
012	246	261	245	267	306	347	418	459	500	16	62	38
014	264	280	268	296	345	396	480	531	582	18	70	46
016	301	317	302	330	386	437	530	581	633	19	72	50
020	322	356	339	373	440	502	610	673	735	21	79	56
025	447	467	375	418	502	582	709	789	868	24	88	65
030	467	489	428	482	592	694	848	950	1052	27	97	73
035	556	580	472	534	663	783	961	1081	1201	29	106	82
040	632	656	517	590	735	873	1077	1215	1353	32	114	90
045	654	679	569	653	817	976	1208	1366	1525	35	123	99
050	759	788	615	709	892	1069	1326	1503	1680	37	132	107
060	785	815	678	789	1012	1225	1524	1738	1951	41	144	120
065	952	986	746	873	1125	1368	1705	1948	2192	44	152	128
070	978	1014	795	933	1207	1472	1838	2103	2369	47	162	139
080	1113	1148	842	992	1287	1574	1970	2257	3545	50	171	147
085	1139	1175	905	1070	1392	1708	2140	2456	2771	53	181	158
090	1165	1202	953	1128	1471	1809	2271	2608	2945	56	190	166
095	1191	1540	1000	1186	1552	1910	2401	2761	3118	59	200	177
100	1650	1745	1213	1450	1915	2370	2981	3437	3893	63	213	194
110	2054	2151	1250	1507	2014	2511	3162	2659	4155	64	215	195
120	2092	2193	1293	1571	2111	2642	3328	3859	4389	69	231	214

- 1: Coil weight is the operating weight
- 2: Filter section weight includes filter media



Dimensional Data HDT Unit Weight (kg)

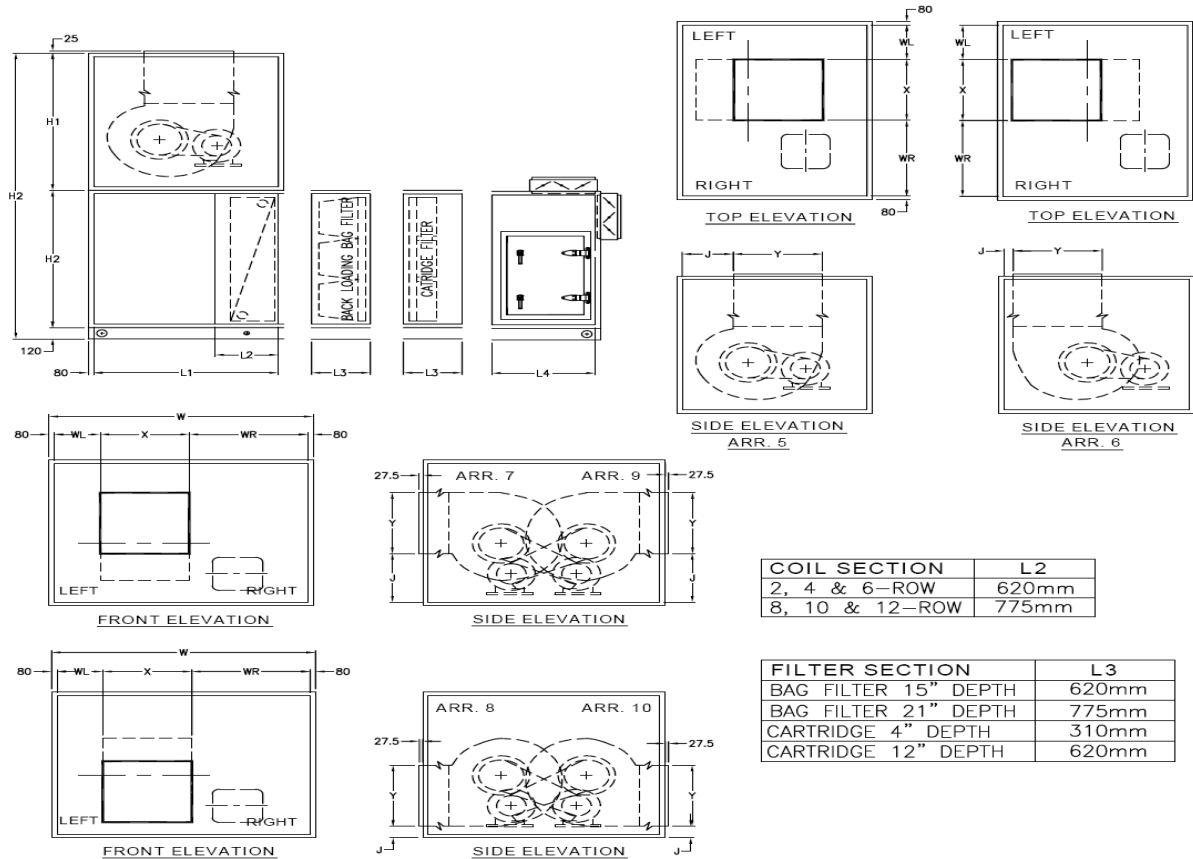
Fan + Coil + Filter and Mixing Sections (without motor weight)

Model Size	Fan Section Weight		Coil Section Weight							Filter Section (kg)			Mixing Box / Rear or Top Inlet Section Weight (kg)
	Fan Arrangement		Coil Row							2" Flat Filter	2" Flat Filter + 15" Bag Filter	2" Flat Filter + 4" Cartridge Filter	
	Front-Top and Front-Bottom	Top-Front and Top-Back	1	2	4	6	8	10	12				
003	88	88	126	130	138	146	170	178	186	9	38	21	55
004	107	107	156	163	175	187	222	234	247	10	42	23	65
006	132	144	186	194	211	227	272	289	305	12	50	29	75
008	154	166	215	226	246	267	322	343	364	14	54	32	85
010	193	206	217	234	263	293	350	380	411	15	57	36	81
012	246	261	245	267	306	347	418	459	500	16	62	38	91
014	264	280	268	296	345	396	480	531	582	18	70	46	103
016	301	317	302	330	386	437	530	581	633	19	72	50	97
020	322	356	339	373	440	502	610	673	735	21	79	56	109
025	447	467	375	418	502	582	709	789	868	24	88	65	123
030	467	489	428	482	592	694	848	950	1052	27	97	73	129
035	556	580	472	534	663	783	961	1081	1201	29	106	82	146
040	632	656	517	590	735	873	1077	1215	1353	32	114	90	174
045	654	679	569	653	817	976	1208	1366	1525	35	123	99	188
050	759	788	615	709	892	1069	1326	1503	1680	37	132	107	193
060	785	815	678	789	1012	1225	1524	1738	1951	41	144	120	213
065	952	986	746	873	1125	1368	1705	1948	2192	44	152	128	219
070	978	1014	795	933	1207	1472	1838	2103	2369	47	162	139	264
080	1113	1148	842	992	1287	1574	1970	2257	3545	50	171	147	271
085	1139	1175	905	1070	1392	1708	2140	2456	2771	53	181	158	320
090	1165	1202	953	1128	1471	1809	2271	2608	2945	56	190	166	328
095	1191	1540	1000	1186	1552	1910	2401	2761	3118	59	200	177	336
100	1650	1745	1213	1450	1915	2370	2981	3437	3893	63	213	194	340
110	2054	2151	1250	1507	2014	2511	3162	2659	4155	64	215	195	345
120	2092	2193	1293	1571	2111	2642	3328	3859	4389	69	231	214	353

- 1: Coil weight is the operating weight
- 2: Filter section weight includes filter media

General Data

VDT - Unit Dimensions



MODEL	FAN	MOTOR KW	FAN ARR				FAN SECTION		MOTOR ACCESS				X	Y	MIXING SECTION	CASING			
			J				L1		RH		LH					L4	H	W	H1
			ARR 7,9	ARR 8,10	ARR 6	ARR 5	ARR 5,6	ARR 7,8,9,10	WL	WR	WL	WR							
003(0404)	F/BDB 200	0.18 - 3	221	115	100	185	930	930	175	175	175	175	270	270	775	1680	780	780	780
004(0604)	F/BDB 225	0.37 - 3	236	115	99	217	930	930	155	468	468	155	307	307	775	1680	1090	780	780
006(0804)	F/BDB 250	0.55 - 7.5	246	116	97	227	930	930	199	702	702	199	340	340	775	1680	1400	780	780
008(1004)	F/BDB 280	0.75 - 7.5	194	46	98	247	1085	1085	336	837	837	336	378	378	775	1680	1710	780	780
010(0806)	F/BDB 315	1.1 - 7.5	283	115	96	264	1085	1085	161	657	657	161	422	422	775	2300	1400	1090	1090
		11 - 15					1240	1085	409	409	409	409							
012(1006)	F/BDB 400	1.1 - 15	337	116	97	318	1240	1085	209	817	817	209	524	524	775	2300	1710	1090	1090
014(1206)	F/BDB 400	1.5 - 15	337	116	97	318	1240	1085	349	987	987	349	524	524	775	2300	2020	1090	1090
016(1008)	F/BDB 450	1.5 - 7.5	365	117	99	345	1240	1085	227	738	738	227	586	586	775	2920	1710	1400	1400
		11 - 18.5					1550	1395											
020(1208)	F/BDB 500	2.2 - 18.5	387	117	100	368	1395	1240	266	938	938	266	656	656	775	2920	2020	1400	1400
025(1210)	F/BDB 560	2.2 - 15	446	145	100	401	1550	1395	276	851	851	276	732	732	775	3540	2020	1710	1710
		18.5 - 30					1860	1550											
030(1212)	F/BDB 560	3 - 15	446	145	100	401	1550	1395	276	851	851	276	732	732	775	4160	2020	2020	2020
		18.5 - 30					1860	1550											
035(1412)	F/BDB 630	4 - 22	540	196	100	443	1550	1395	294	1058	1058	294	818	818	775	4160	2330	2020	2020
		30 - 45					1860	1705											
040(1612)	F/BDB 710	4 - 22	589	198	100	489	1705	1550	406	1158	1158	406	916	916	775	4160	2640	2020	2020
		30 - 45					1860	1705											
045(1812)	F/BDB 710	4 - 22	589	198	100	489	1705	1550	561	1313	1313	561	916	916	775	4160	2950	2020	2020
		30 - 45					1860	1705											



Dimensional Data VDT Unit Weight (kg)

Fan and Coil sections (without motor weight)

Model Size	Fan Section Weight		Coil Section Weight						
	Fan Arrangement		Coil Row						
	Front-Top and Front-Bottom	Top-Front and Top-Back	1	2	4	6	8	10	12
003	103	103	153	158	165	173	189	197	205
004	132	132	190	197	209	221	246	258	271
006	162	174	227	236	252	268	302	319	335
008	190	202	262	273	293	314	357	378	399
010	229	242	289	306	335	365	410	440	471
012	288	302	327	349	388	429	486	527	568
014	313	329	361	389	438	489	558	609	660
016	350	366	424	452	508	559	637	688	740
020	378	412	442	476	543	605	698	761	823
025	510	531	541	584	668	748	858	938	1017
030	540	561	610	664	774	876	1012	1114	1216
035	638	662	669	733	860	980	1139	1259	1379
040	722	746	731	804	949	1087	1270	1408	1546
045	755	780	800	884	1048	1207	1417	1575	1734

1: Coil weight is the operating weight



Dimensional Data VDT Unit Weight (kg)

Fan + Coil + Filter Sections (without motor weight)

Model Size	Fan Section Weight		Coil Section Weight							Filter Section Length .L3		
	Fan Arrangement		Coil Row							2" Flat Filter	2" Flat Filter + 15" Bag Filter	2" Flat Filter + 4" Cartridge Filter
	Front-Top and Front-Bottom	Top-Front and Top-Back	1	2	4	6	8	10	12			
003	103	103	153	158	165	173	189	197	205	9	38	21
004	132	132	190	197	209	221	246	258	271	10	42	23
006	162	174	227	236	252	268	302	319	335	12	50	29
008	190	202	262	273	293	314	357	378	399	14	54	32
010	229	242	289	306	335	365	410	440	471	15	57	36
012	288	302	327	349	388	429	486	527	568	16	62	38
014	313	329	361	389	438	489	558	609	660	18	70	46
016	350	366	424	452	508	559	637	688	740	19	72	50
020	378	412	442	476	543	605	698	761	823	21	79	56
025	510	531	541	584	668	748	858	938	1017	24	88	65
030	540	561	610	664	774	876	1012	1114	1216	27	97	73
035	638	662	669	733	860	980	1139	1259	1379	29	106	82
040	722	746	731	804	949	1087	1270	1408	1546	32	114	90
045	755	780	800	884	1048	1207	1417	1575	1734	35	123	99

- 1: Coil weight is the operating weight
- 2: Filter section weight includes filter media



Dimensional Data VDT Unit Weight (kg)

Fan + Coil + Filter and Mixing Sections (without motor weight)

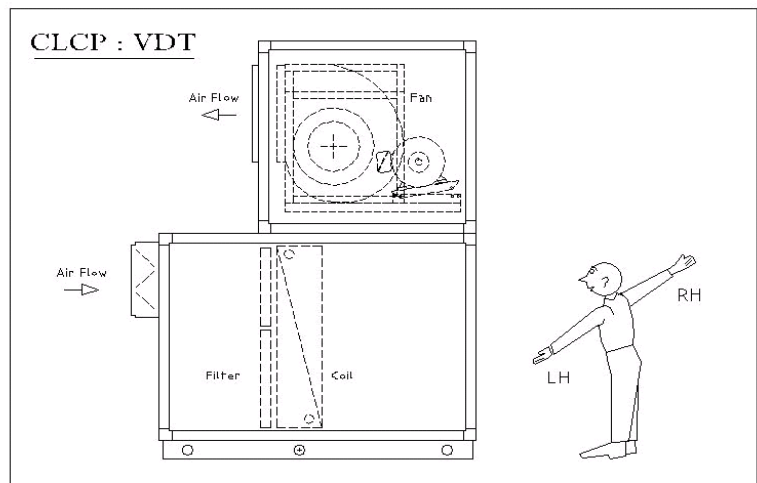
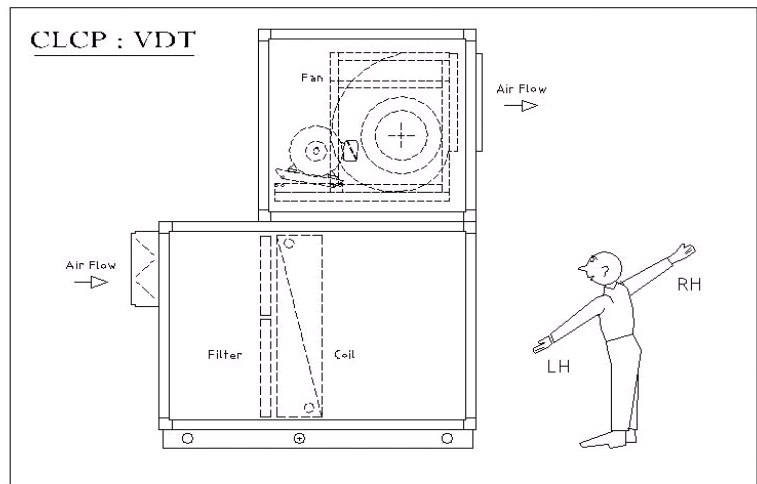
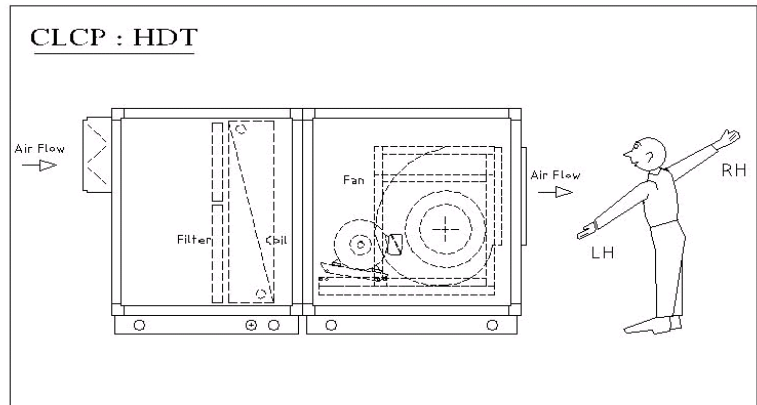
Model Size	Fan Section Weight		Coil Section Weight							Filter Section (kg)			Mixing Box / Rear or Top Inlet Section Weight (kg)
	Fan Arrangement		Coil Row							2" Flat Filter	2" Flat Filter + 15" Bag Filter	2" Flat Filter + 4" Cartridge Filter	
	Front-Top and Front-Bottom	Top-Front and Top-Back	1	2	4	6	8	10	12				
003	103	103	153	158	165	173	189	197	205	9	38	21	55
004	132	132	190	197	209	221	246	258	271	10	42	23	65
006	162	174	227	236	252	268	302	319	335	12	50	29	75
008	190	202	262	273	293	314	357	378	399	14	54	32	85
010	229	242	289	306	335	365	410	440	471	15	57	36	81
012	288	302	327	349	388	429	486	527	568	16	62	38	91
014	313	329	361	389	438	489	558	609	660	18	70	46	103
016	350	366	424	452	508	559	637	688	740	19	72	50	97
020	378	412	442	476	543	605	698	761	823	21	79	56	109
025	510	531	541	584	668	748	858	938	1017	24	88	65	123
030	540	561	610	664	774	876	1012	1114	1216	27	97	73	129
035	638	662	669	733	860	980	1139	1259	1379	29	106	82	146
040	722	746	731	804	949	1087	1270	1408	1546	32	114	90	174
045	755	780	800	884	1048	1207	1417	1575	1734	35	123	99	188

- 1: Coil weight is the operating weight
- 2: Filter section weight includes filter media

Installation Consideration

Define Unit Handling Left or Right

Unit handling, LEFT or Right for coil connectors, drain, door location & etc. Is expressed when facing the airflow through the coil.



Installation Consideration And Service Clearance

The purpose of this section is to provide the Quantum XP site installation consideration. Refer to Installation, Operation and Maintenance manual for detailed installation information. When selecting and preparing the unit site, follow these guidelines:

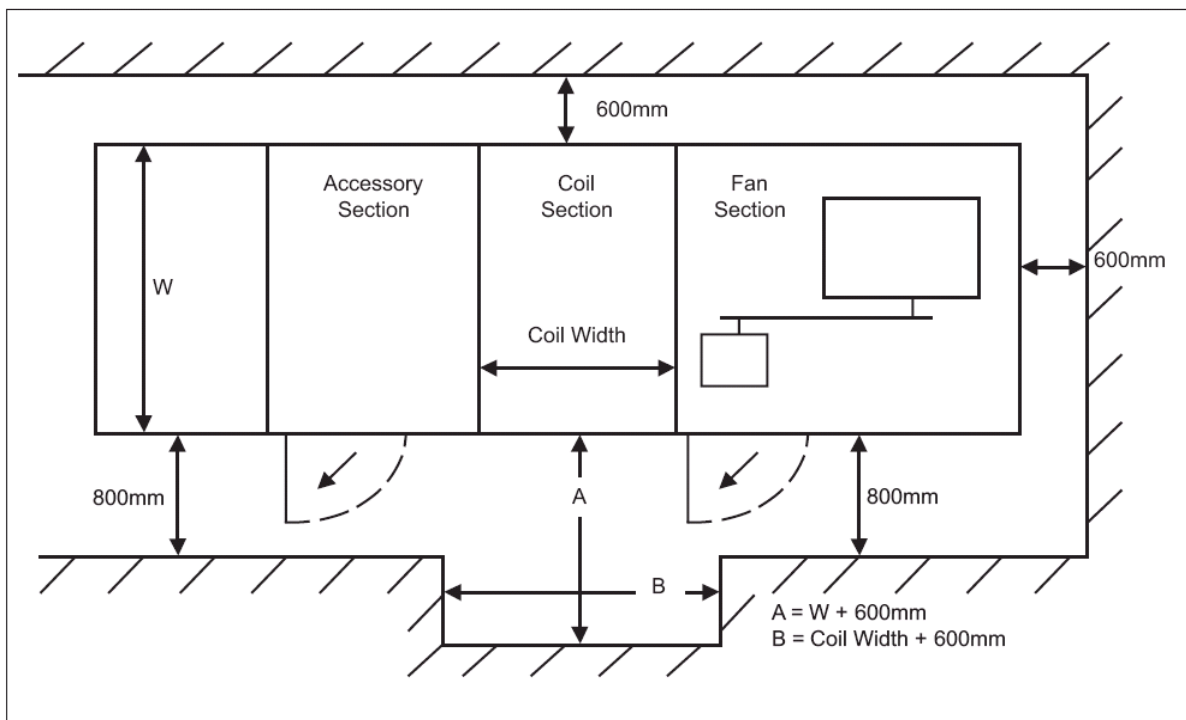
1. Ensure that the site can support the total weight of the unit.
2. Allow sufficient space for service access. The below figure give the recommended space allowances for filters, coil removal, fan shaft removal and motor starter maintenance. As unit configurations will vary, refer to unit submittals for specific location of access doors, accessories, motor starter, etc.
3. Confirm that the foundation of the

mounting platform is large enough to include the unit dimensions plus services access. Refer to unit submittals for specific dimension. Certain unit maybe suspended from the ceiling. The recommended method for ceiling suspending air handler is with structural channels that run the full length of the unit. The factory shall provide the support with an external support at the base. Do not suspend air handler from the top of the unit. Serious safety risks exist if the unit is not suspended in the proper manner.

4. The floor or foundation must be level for proper coil drainage and condensate flow.
5. Allow the proper height for coil pip-

ing and condensate drain requirements. It may be necessary to elevate the unit when piping the condensate drain. Insufficient height could inhibit condensate drainage and result in flooding the unit or equipment room.

6. Provide adequate lighting for maintenance personnel to perform maintenance duties.
7. Provide permanent power outlets in close proximity of the unit for installation and maintenance.

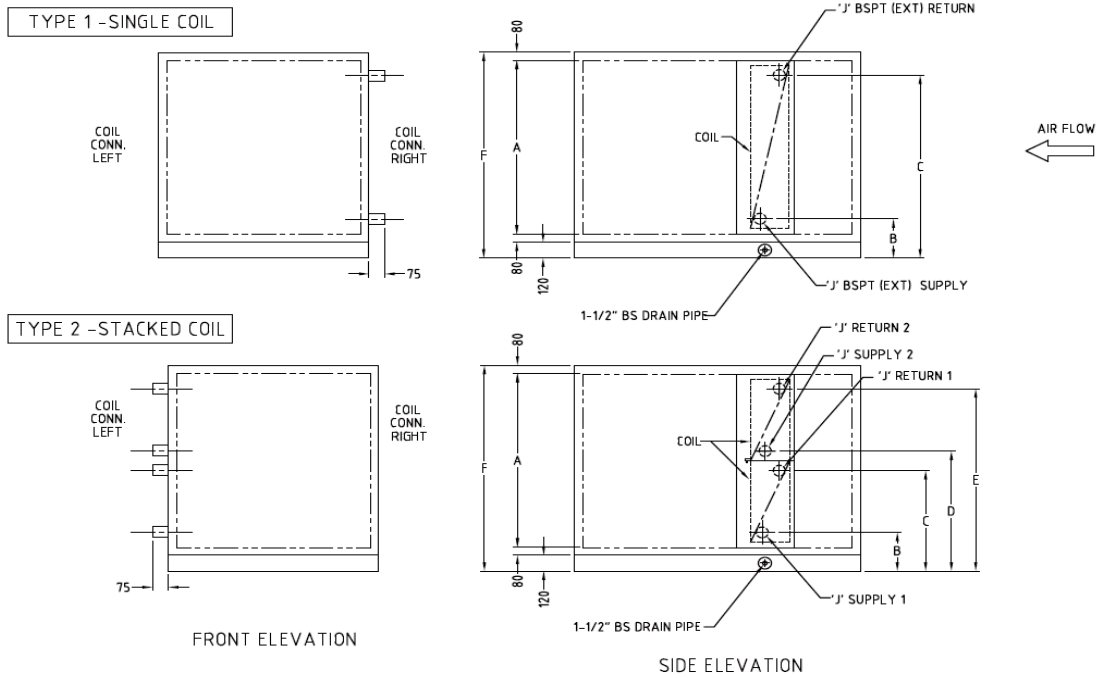


Access Side Clearances

Installation Consideration Coil Connection Dimension

Casing Construction

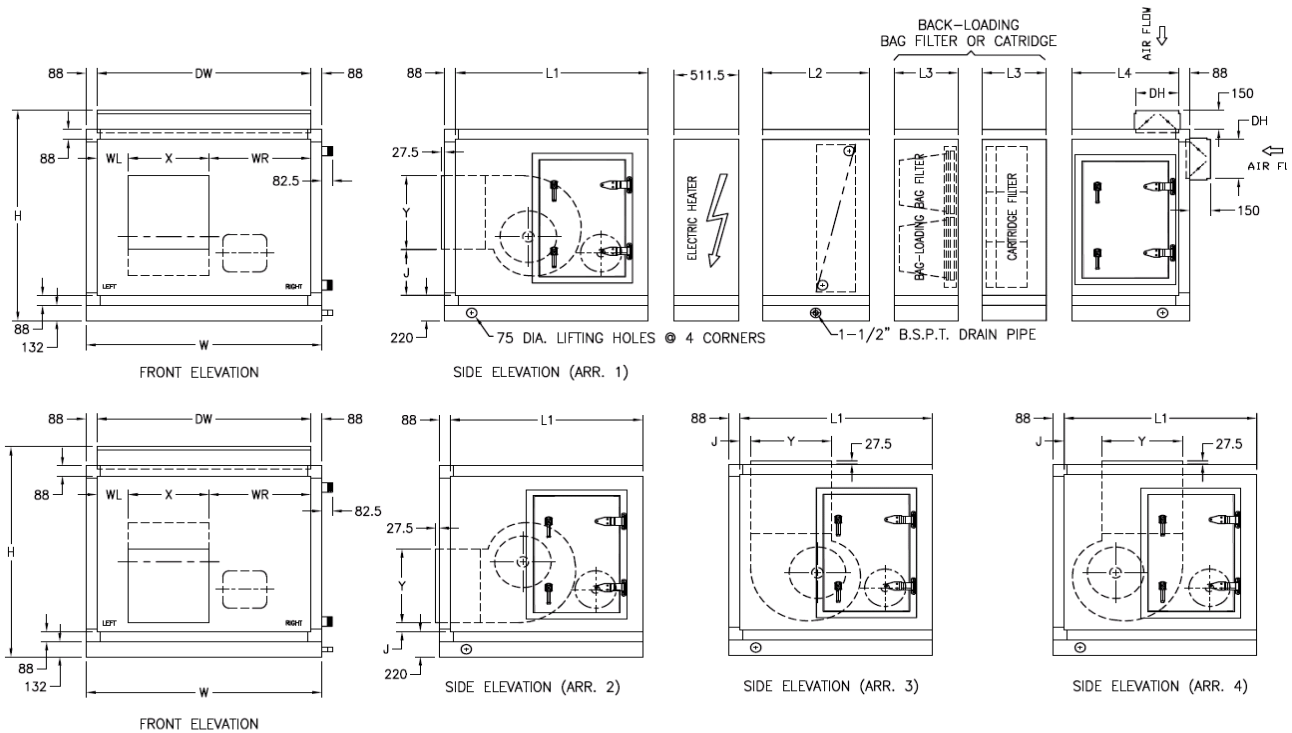
Horizontal / Vertical Draw Through - Chilled And Hot Water Coil Connection Dimension



MODEL	TYPE	A	B	C	D	E	F	STEEL PIPE EXTERNAL THREADED CONNECTION DIAMETER (ID)				COPPER NON THREADED HEADER DIAMETER (OD)				
								(2 ROW)		(4, 6, 8, 10 & 12 ROW)		(1 ROW)	(2 ROW)		(4, 6, 8, 10 & 12 ROW)	
								WL & DL COIL	WL COIL	LL COIL	DL COIL	WL COIL	WL & DL COIL	WL COIL	LL COIL	DL COIL
003	1	620	275	745	—	—	900	40	40	65	40	41	41	41	67	41
004	1	620	275	745	—	—	900	40	40	65	40	41	41	41	67	41
006	1	620	275	745	—	—	900	40	40	65	40	41	41	41	67	41
008	1	620	275	745	—	—	900	40	40	65	40	41	41	41	67	41
010	1	930	275	1055	—	—	1210	50	50	65	50	41	54	54	67	54
012	1	930	275	1055	—	—	1210	50	50	65	50	41	54	54	67	54
014	1	930	275	1055	—	—	1210	50	50	65	50	41	54	54	67	54
016	1	1240	280	1360	—	—	1520	50	65	65	65	41	54	67	67	67
020	1	1240	280	1360	—	—	1520	50	65	65	65	41	54	67	67	67
025	1	1550	295	1655	—	—	1830	50	65	65	65	41	54	67	67	67
030	2	1860	285	1095	1200	1975	2140	50	50	65	50	41	54	54	67	54
035	2	1860	285	1095	1200	1975	2140	50	50	65	50	41	54	54	67	54
040	2	1860	285	1095	1200	1975	2140	50	50	65	50	41	54	54	67	54
045	2	1860	285	1095	1200	1975	2140	50	50	65	50	41	54	54	67	54
050	2	1860	285	1095	1200	1975	2140	50	50	65	50	41	54	54	67	54
060	2	2170	290	1240	1360	2280	2450	50	65	65	65	41	54	67	67	67
065	2	2170	290	1240	1360	2280	2450	50	65	65	65	41	54	67	67	67
070	2	2170	290	1240	1360	2280	2450	50	65	65	65	41	54	67	67	67
080	2	2170	290	1240	1360	2280	2450	50	65	65	65	41	54	67	67	67
085	2	2170	290	1240	1360	2280	2450	50	65	65	65	41	54	67	67	67
090	2	2170	290	1240	1360	2280	2450	50	65	65	65	41	54	67	67	67
095	2	2170	290	1240	1360	2280	2450	50	65	65	65	41	54	67	67	67
100	2	2480	300	1380	1500	2580	2760	50	65	65	65	41	54	67	67	67
110	2	2635	315	1520	1640	2720	2915	50	65	65	65	41	54	67	67	67
120	2	2790	330	1535	1655	2860	3070	50	65	65	65	41	54	67	67	67



Installation Consideration Fan Outlet Dimensions HDT

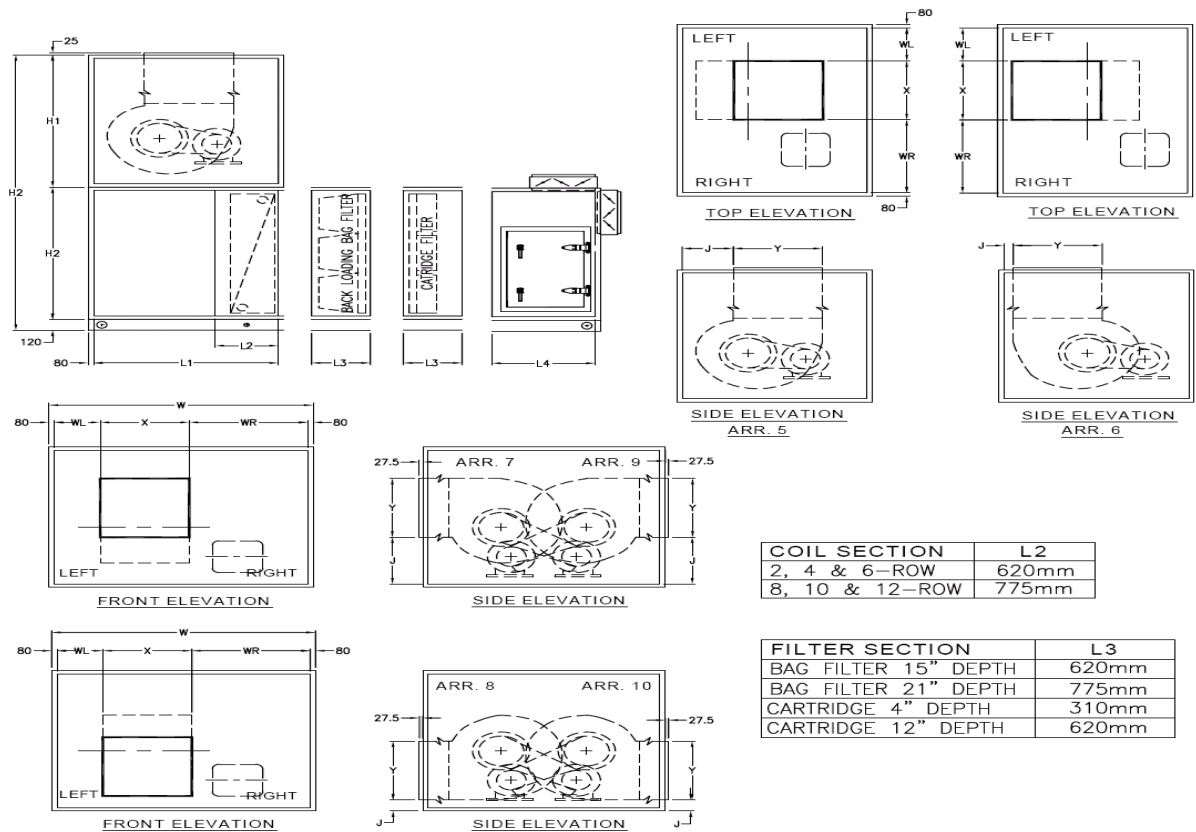


MODEL	FAN	MOTOR KW	FAN ARRANGEMENT				FAN SECTION		MOTOR ACCESS				X	Y	MIXING SECTION	CASING		DAMPER	
			J				L1	RH		LH		L4				H	W	DW	DH
			ARR 1	ARR 2	ARR 3	ARR 4	ARR 1,2	ARR 3,4	WL	WR	WL	WR				L4	H	W	DW
003(0404)	F/BDB 200	0.18 - 3	221	115	100	185	775	775	170	170	170	170	274	274	775	900	780	620	310
004(0604)	F/BDB 225	0.37 - 3	236	115	99	217	775	775	155	468	468	155	307	307	775	900	1090	930	310
006(0804)	F/BDB 250	0.55 - 7.5	246	116	97	227	775	930	199	702	702	199	340	340	775	900	1400	1240	310
008(1004)	F/BDB 280	0.75 - 7.5	194	46	98	247	775	930	336	837	837	336	378	378	775	900	1710	1550	310
010(0806)	F/BDB 315	1.1 - 7.5	283	115	96	264	930	930	161	657	657	161	422	422	775	1210	1400	1240	310
	11	1085					1240	409	409	409	409								
012(1006)	F/BDB 400	1.1 - 7.5	337	116	97	318	930	1085	209	817	817	209	524	524	775	1210	1710	1550	310
	11 - 15	1085					1240												
014(1206)	F/BDB 400	1.5 - 7.5	337	116	97	318	930	1085	349	987	987	349	524	524	775	1210	2020	1860	310
	11 - 15	1085					1240												
016(1008)	F/BDB 450	1.5 - 7.5	365	117	99	345	930	1240	227	738	738	227	586	586	775	1520	1710	1550	310
	11 - 18.5	1395					1550												
020(1208)	F/BDB 500	2.2 - 7.5	387	117	100	368	930	1240	266	938	938	266	656	656	775	1520	2020	1860	310
	11 - 18.5	1085					1395												
025(1210)	F/BDB 560	2.2 - 7.5	446	145	100	401	1085	1395	276	851	851	276	732	732	775	1830	2020	1860	465
	11 - 15	1240					1550												
030(1212)	F/BDB 560	18.5 - 30	446	145	100	401	1550	1705	276	851	851	276	732	732	775	2140	2020	1860	465
	2.2 - 7.5	1085					1395												
035(1412)	F/BDB 630	4 - 22	540	196	100	443	1240	1395	294	1058	1058	294	818	818	775	2140	2330	2170	465
	30 - 45	1550					1705												
040(1612)	F/BDB 710	4 - 22	589	198	100	489	1395	1550	406	1158	1158	406	916	916	775	2140	2640	2480	620
	30 - 45	1550					1705												
045(1812)	F/BDB 710	4 - 22	589	198	100	489	1395	1550	561	1313	1313	561	916	916	775	2140	2950	2790	620
	30 - 45	1550					1705												
050(2012)	F/BDB 800	5.5 - 22	648	201	100	547	1550	1705	602	1474	1474	602	1024	1024	775	2140	3260	2790	620
	30 - 45	1705					1860												
060(2014)	F/BDB 800	7.5 - 22	648	201	100	547	1550	1705	602	1474	1474	602	1024	1024	775	2450	3260	2790	775
	30 - 45	1705					1860												
065(2214)	F/BDB 900	7.5 - 22	702	198	100	604	1550	1860	671	1591	1591	671	1148	1148	775	2450	3570	2790	775
	30 - 75	1860					2015												
070(2414)	F/BDB 900	7.5 - 22	702	198	100	604	1550	1860	826	1746	1746	826	1148	1148	930	2450	3880	2790	930
	30 - 75	1860					2015												
080(2614)	F/BDB 1000	7.5 - 75	732	207	102	627	1860	2015	831	1914	1914	831	1284	1284	930	2450	4190	2790	930
085(2814)	F/BDB 1000	7.5 - 75	732	207	102	627	1860	2015	986	2069	2069	986	1284	1284	1085	2450	4500	2790	1085
090(3014)	F/BDB 1000	11 - 75	732	207	102	627	1860	2015	1141	2224	2224	1141	1284	1284	1085	2450	4810	2790	1085
095(3214)	F/BDB 1000	11 - 75	732	207	102	627	1860	2015	1296	2379	2379	1296	1284	1284	1085	2450	5120	2790	1085
100(3216)	F/BDB 1120	15-150	816	213	152	745	2170	2635	1295	2225	2225	1295	1440	1440	1085	2760	5120	2790	1085
110(3217)	F/BDB 1250	15-150	990	248	152	895	2325	2790	1244	2174	2174	1244	1542	1542	1085	2915	5120	2790	1085
120(3218)	F/BDB 1250	15-150	990	248	152	895	2325	2790	1244	2174	2174	1244	1542	1542	1085	3070	5120	2790	1085

Installation Consideration

Fan Outlet Dimensions

VDT



MODEL	FAN	MOTOR KW	FAN ARR				FAN SECTION		MOTOR ACCESS				X	Y	MIXING SECTION	CASING			
			J		L1		RH		LH		L4	H				W	H1	H2	
			ARR 7,9	ARR 8,10	ARR 6	ARR 5	ARR 5,6	ARR 7,8,9,10	WL	WR					WL				WR
003(0404)	F/BDB 200	0.18 - 3	221	115	100	185	930	930	175	175	175	175	270	270	775	1680	780	780	780
004(0604)	F/BDB 225	0.37 - 3	236	115	99	217	930	930	155	468	468	155	307	307	775	1680	1090	780	780
006(0804)	F/BDB 250	0.55 - 7.5	246	116	97	227	930	930	199	702	702	199	340	340	775	1680	1400	780	780
008(1004)	F/BDB 280	0.75 - 7.5	194	46	98	247	1085	1085	336	837	837	336	378	378	775	1680	1710	780	780
010(0806)	F/BDB 315	1.1 - 7.5	283	115	96	264	1085	1085	161	657	657	161	422	422	775	2300	1400	1090	1090
		11 - 15					1240	1085	409	409	409	409							
012(1006)	F/BDB 400	1.1 - 15	337	116	97	318	1240	1085	209	817	817	209	524	524	775	2300	1710	1090	1090
014(1206)	F/BDB 400	1.5 - 15	337	116	97	318	1240	1085	349	987	987	349	524	524	775	2300	2020	1090	1090
016(1008)	F/BDB 450	1.5 - 7.5	365	117	99	345	1240	1085	227	738	738	227	586	586	775	2920	1710	1400	1400
		11 - 18.5					1550	1395											
020(1208)	F/BDB 500	2.2 - 18.5	387	117	100	368	1395	1240	266	938	938	266	656	656	775	2920	2020	1400	1400
025(1210)	F/BDB 560	2.2 - 15	446	145	100	401	1550	1395	276	851	851	276	732	732	775	3540	2020	1710	1710
		18.5 - 30					1860	1550											
030(1212)	F/BDB 560	3 - 15	446	145	100	401	1550	1395	276	851	851	276	732	732	775	4160	2020	2020	2020
		18.5 - 30					1860	1550											
035(1412)	F/BDB 630	4 - 22	540	196	100	443	1550	1395	294	1058	1058	294	818	818	775	4160	2330	2020	2020
		30 - 45					1860	1705											
040(1612)	F/BDB 710	4 - 22	589	198	100	489	1705	1550	406	1158	1158	406	916	916	775	4160	2640	2020	2020
		30 - 45					1860	1705											
045(1812)	F/BDB 710	4 - 22	589	198	100	489	1705	1550	561	1313	1313	561	916	916	775	4160	2950	2020	2020
		30 - 45					1860	1705											



Mechanical Specifications

General

The units must be rigged and lifted in strict accordance with the installation. Operation and Maintenance manual. The units are to be installed in strict accordance with the specifications.

Units may be shipped fully assembled or disassembled to the minimum module size in accordance with shipping or jobsite requirements. Units shall have break point if manufacturer found appropriate for easy handling and transportation. Break points shall have full independent external thermal break frames.

Unit Construction

The casing shall have a perimeter thermal break frame with a modular system based on standardized double wall panels. Removal of side panels must not effect the structural integrity of the unit. Casing strength shall be designed to meet European Standard EN 1886: 1998, Class D1

The framework shall be made from non-corrosive recyclable extruded aluminum channels fitted together non-metal corner pieces. A thermal break construction is mandatory.

The casing panel shall be attached to the frame through a self-locking mechanism represented by a wedge and frame, exerting pressure evenly onto the panel and seal attached to the frame, and hence a better air tight cabinet construction. The casing shall be designed to meet Eurovent air leakage requirement, Class C.

The casing shall be able to with stand up to 10 inches of total static pressure.

Closed-cell foam gasketing shall be provided where modules where modules are joined.

The floor panels shall have double wall construction to allow maintenance personnel access without damage to the insulation.

The whole unit shall be mounted on a galvanized sheet steel base frame for ease of shipment and handling. The minimum height of the floor-mounting base shall be 120mm and designed to ensure air circulation and avoid entrapment of moisture below the unit. The base frame is to be used in lieu of concrete plinths or other additional bases that are used on site. However for high static pressure application additional concrete plinths or other additional bases is required at site to raise the AHU for drain pan's U-trap.

Double-Wall Panel

The outer panel wall shall be painted with Colorbend paint that and shall allow for easy cleaning. The inner wall shall be galvanized steel. The paint shall be ultra violet resistant, weather resistant for outdoor application, offering excellent weather resistance properties.

The panels shall be 50mm thick double wall type with injected polyurethane foam insulation for a rigid non-vibration construction. The panel insulation shall not absorb moisture and must be not resistant. The insulation material shall be totally enclosed in the panel to avoid any possibility of insulation being exposed to air stream. The panel insulation shall have a heat transfer "K" value of 0.02 w/mK. Exposed Insulation system shall meet UL 94, standard for safety and flameability of plastic material for parts in devices and appliances. The panels shall be flush mounted, leaving no ex-

posed gaps between panels and frame, to minimize potential air leaks.

Drain Pans

Coil, moisture eliminator and humidifier shall be provided with an insulated, galvanized or stainless steel (option), dual pitch sloping drain pan to allow for proper condensate removal. The galvanized drain pan shall be painted with a mastic compound (bitumen) for corrosion protection.

Access and Inspection Doors

Access doors shall be constructed with a double-wall panel that compresses evenly a durable seal onto a rigid frame. The seal around the full perimeter of the access door's frame shall be used to prevent air leakage. The doors shall be hinged and able to be lifted off or removed totally for easy access.

View Window

A view window shall be made of 5mm thick transparent Plexiglas's type on inner and outer wall panel with a rubber grommet seal and fitted on double wall panel. The size shall be 150 x 150mm The mounting location shall be flexible and upon customer's requirement. Special window size shall be an option.

Mechanical Specifications

Service Light

A factory-mounted, weather-resistant (enclosed and gasketed), vapor-tight, light fixture shall be provided. fixture shall be equipped with plastic switch box, single phase wiring, PL lamp comes with ballast and reflector.

Fan Module

The fan assembly shall be checked and dynamically balanced to ISO 1940 on equivalent. Fan shaft shall be properly size and protectively coated. Fan wheels shall be keyed to fan shaft to prevent slipping. Fan shafts shall be solid and designed so that fan shaft does not pass through its first critical speed as the unit comes up to its rated rpm. Fan modules shall be provided with an access door. Access side for both side of fan shall be an option.

FC Fan Modules

Fan shall be double-width, double-inlet, and multi-blade type as produced by the unit manufacturer. Fan shall be forward curved (FC) as required for stable operation, low noise and optimum energy efficiency. Fan shall be equipped with bearings with an L-50 life (average life) of up to 200,000 hours. The multi blade shall be made of galvanized steel and the solid shaft shall be made of carbon steel: C45, machined and polished to tolerance of standard ISO 286-2-Grade G6. Protective coat of anti rusting shall be applied to all bare surfaces of shafts at the factory. The fans shall be licensed to bear the AMCA Air and Sound Certified Ratings seal. The test standard used shall be ANSI/AMCA 210. ANSI/ASHRAE Standard 51 "Laboratory Method of Testing Fans for Rating" and AMCA 300 "Reverberant Room method for Sound Testing of fans".

BC Fan Modules

Fan shall be double-width, double-inlet, and multiblade type as produced by the unit manufacturer. Fan shall be backward curve (BC) as required for stable operation, high static pressure and optimum energy efficiency. Fan shall be equipped with bearings with an L-50 life (average life) of up to 200,000 hours. The multiple blades shall be made of treated steel with paint for corrosion resistant. The solid shaft shall be made of carbon steel: C45, machined and polished to tolerance of standard ISO 286-2-Grade G6. Protective coat of anti rusting shall be applied to all bare surfaces of shafts at the factory. The fans shall be licensed to bear the AMCA Air and Sound Certified Ratings seal. The test standard used shall be ANSI/AMCA 210, ANSI/ASHRAE Standard 51 "Laboratory Method of Testing Fans for Rating" and AMCA 300 "Reverberant Room Method for Sound Testing of Fans".

AF Fan Modules

Shall be customized upon request. The fan shall be double-width, double-inlet, multiple blade type as produced by the unit manufacturer. Fan shall be backward inclined airfoil (AF).

Fan Modulation

- a) Inlet Guide Vanes (Option)
For variable air volume applications, airflow of BC fan type fans shall be modulated by inlet guide vanes. Actuator shall be provided as an option.
- b) Variable Frequency Drive (Option)
For variable air volume applications, airflow shall be modulated by a variable frequency drive controlling fan speed.

Fan Isolation

Fan connection shall be isolated from unit casing by a flexible canvas duct mounted at fan discharge outlet.

- a) One-Inch Spring Isolators (Option)
Fan and motor assembly shall be internally isolated from the unit casing with 1-inch deflection spring isolators, furnished and installed by the unit manufacturer.
- b) Two-inch Spring Isolators (Option)
Fan and motor assembly shall be internally isolated from the unit casing. The isolation system shall be designed to take higher isolation efficiency than 1"spring isolator.

Drives

The drive assembly shall consist of V-belt taper-lock pulley and electric motor. The V-belt type shall be SPZ, SPA, SPB or SPC grades, oil and heat resistant, antistatic and avoiding electric discharges. The pulley and shaft assembly shall be using taperlock bush with Allen set screws for easy and quick assemble and dis-assemble process. Drive shall be selected at 1.5 service factor.

- a) Fixed Pitch
Drives shall be constant speed with fixed pitch sheaves.

Mechanical Specifications

Motors

Motor shall be mounted integral to an isolated fan assembly furnished by the unit manufacturer. Motor shall be mounted inside the unit casing on a sliding base to permit adjustment of drive belt tension.

Standard motor shall be horizontal foot mounting, induction motor squirrel cage, totally enclosed fan-cooled with IP55 protection with class F insulation and suitable for operation at ambient temperature of 40 degree C.

Motor Options

- a) 380-415 Volt /3 pH /50 Hz (Standard)
- b) 200 Volt /3 pH/ 50 Hz
- c) 200 Volt /3 pH/ 60 Hz
- d) 230 Volt /3 pH/ 60 Hz
- e) 380 Volt /3 pH/ 60 Hz
- f) 440 Volt /3 pH/ 60 Hz
- g) 460 Volt /3 pH/ 60 Hz
- h) High Efficiency Motors
- i) Premium Efficiency Motor
- j) Customer Selected Motor Sources
- k) Explosion Proof Motor
- l) Dual Speed Motor

Fan Module Option

Belt guard unit shall be provided with a painted metal sheet belt guard.

Coil Module

Coil shall be installed such that unit casing enclose headers and return bends. Coil shall be designed to maximize the utilization of the available unit cross-section area. Coil connections shall be clearly labeled on outside of units. Coil shall be cartridge type mounted on steel channel for easy removability. Coils shall have aluminum fins and seamless copper tubes. Coated aluminum (for corrosion protection used near the sea) and copper fins shall be an option. The fins shall be sine-wave design with slits for better heat transfer efficiency and moisture carry-over limit performance. Fins shall have collars drawn, belled and firmly bonded to tubes by mechanical expansion of the tubes. Capacities, pressure drops and selection procedure shall be designed in accordance with ARI Standard 410. The copper tube shall be 0.5 inch OD. Coil casing shall be 1.5mm thick galvanized steel (standard) or stainless steel (option) or with formed end supports and top and bottom channels. Coil casing shall be a series of drain holes at the bottom channels to insure condensate drainage.

If stacked coil in the unit, intermediate drainpan shall be installed between coils to drain condensate to the main drain pans without flooding the lower coils or passing condensate through the airstream of the lower coil. The coil working pressure at site shall not exceed the leak test value on each coil type given below.

Water Coils

Supply and return headers shall be clearly labeled on the outside of the unit to ensure that direction of coil wa-

ter flow is counter to direction of unit airflow. Coils shall be tested to 375 psig.

The headers shall be constructed of round steel pipe with BSPT external threaded. All headers shall be fitted with air venting and water draining plug.

Header connection option

Unthreaded copper header connection
Copper header with BSPT external threaded brass adaptor for quick job site connection.

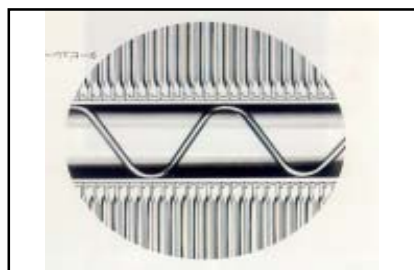
Steel header with steel flanges for quick job site connection.

Refrigerant Cooling Coils

Suction and liquid line connections plate fins and seamless copper tubes shall be clearly labeled on the outside of the unit. Coils shall be leak tested to 450 psig (17 Bar) air pressure under water. After testing, insides of coils are to be dried; all connections are to be sealed and coils shall be shipped with a charge of dry nitrogen. Suction headers shall be constructed of cooper tubing. Suction connections shall penetrate unit casings to allow for external connections to refrigerant lines. Coils shall have equqlizing vertical distributors sized according to the capacities of the coils.

Steam Heating Coils

Steam coils shall be pitched in the unit for proper drainage of steam condensate from coils. Coils shall be leak tested to 375 psig air pressure under water. Steam header and condensate header connections are to be constructed of round steel. Steam header connection shall be located opposite with condensate header.



Varied Coil Types and Material

Mechanical Specifications

Filter Modules

Filter sections shall have filter racks, an access door for filter removal and block-offs as required to prevent air bypass around filters. Modules shall be supplied with 2-inch or 4-inch angled or high capacity, cartridge, bag and final filters. Filter shall be sized so as not to exceed scheduled face velocities.

Pleated Filter Media (Throwaway)

Filters shall be 2-inch or 4-inch thick non-woven fabric, treated with adhesive and continuously laminated to a supported steel wire grid. Filters shall have a rated average dust spot efficiency of not less than 25 to 30 percent when tested in accordance with ASHRAE 52-1-1992 atmospheric dust spot method. Filter access shall be accessed from either right or left hand side as standard. Back access shall be an option.

Washable or Permanent Filters

Filters shall be 2-inch synthetic fibers capable of operating up to 600 fpm face velocity. Filter media shall be layers of cleanable wire maze. Filter frame shall be constructed of galvanized steel. Filter access shall be accessed from either right or left hand side as standard. Back access shall be an option.

Hi-Capacity Filters

Filter shall be 2-inch throwaway as standard. Option for pleated media and washable. The filter shall be fixed in angular (Zig-zag) form for higher duct holding capacity. Filter frame shall be constructed of galvanized steel. Filter accessed from either right or left hand side a standard.

Cartridge Filters

Filter shall be constructed by pleating a continuous sheet of fine-fiber glass media into closely spaced pleats with safe-edged separators. This filter shall be sealed into a fiber boards frame as-

sembled in a rigid manner to prevent air leakage. All cartridge filters shall be furnished with a 2-inch prefilter to provide extended cartridge life. Filters shall have a rated average dust spot efficiency of not less than 60 percent when tested in accordance with ASHRAE 52-1-1992 atmospheric dust spot method Manufacturer shall supply back access filter rack support and holding clips that capable of holding cartridge filters and prefilters.

Bag Filters

Filters shall be synthetic fiber media with spun backing to keep synthetic fibers from eroding downstream. Stitching method shall permit bag to retain pleat shape and air pocket when in operation without the use of wire basket support. Filters shall have a rated average dust spot efficiency of not less than 60 percent when tested in accordance with ASHRAE 52-1-1992 atmospheric dust spot method.

Factory-Mounted Direct Digital Control (DDC)

Factory-mounted DDC systems shall be engineered mounted, wired and tested by the air handling unit manufacturer to reduce installed costs, save time, and improve reliability. Each control system shall be fully functional in a standalone mode or can be tied to a building automation system with a simple pair of wires.

Direct Digital Controller

A dedicated programmable direct digital controller with the appropriate point capabilities shall be unit mounted on each air-handling unit. A screen and keypad shall be provided to facilitate local monitoring, trouble shooting and changing of set points.

Factory-Mounted Control Options

a) Mixing Box Damper Actuators Actua-

tors shall be mounted with the outside air damper linked normally closed and the return air damper linked normally open

- b) Face/bypass Damper Actuators indicated on the order and control drawings.
- c) Inlet Guide Vane Actuators Actuators shall be mounted with the IGVs linked normally closed.
- d) Averaging Temperature Sensors Averaging (Thermistor type) sensor shall be serpentine with capillary clips across the unit as engineered by the air handling unit manufacturer.
- e) Low-Limit Switches A manual reset low limit switch shall be installed as an option.
- f) Airflow Switches A differential pressure switch piped to both sides of the filter shall indicate filter status.
- g) Dirty Filter Switches A differential pressure switch piped to both sides of the filter shall indicate filter status.
- h) Dirty Filter Switches A differential pressure switch pipe to the discharge and suction sides of the fan shall indicate fan status.
- i) Customer Interface Relays 5 amp DPDT relays shall be provided as required for each binary output of the controller for customer interface to; supply, return and exhaust fan motor starters; relief dampers; pumps; condensing units; etc.
- j) Electronic end devices

Mechanical Specifications

Field-Mounted Control Options

Control Valves

Control valves can be provided by the air handling unit manufacturer and field piped by the piping contractor. Power and signal wiring shall be by a simple quick connect.

Space Temperature Sensors

Thermister type sensors shall be provided as required for field wiring.

Outside Air Sensors

Thermister type sensors shall be provided as required for field wiring. All factory-mounted controls shall be covered by the air handling manufacturer's standard warranty.



The manufacturer has a policy of continuous product improvement, and reserves the right to alter any details of the products at any time without notice



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Literature Order Number CLCP - PRC001-EN (November 2009)

File Number

Supersedes New

Stocking Location Malaysia

Trane has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice.