



Product Catalog

Quantum Climate Changer Model CLCP_ME

0.5 - 31 m³/s
(1000 - 65000 CFM)





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Introduction

The Foundation Grows Deeper With The Introduction Of The All New The Quantum CLCP 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 Aluminum-pentapost frames and doubled skin panels.

This was superseded with the industry leading CLCP.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

The CLCP, 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.

3 CLCP Family lines are available to help you design the right product for your application

- 25mm CLCP 25
- 50mm CLCP 50
- 50mm CLCP XP

Check with your local Trane Sales engineer to decide which best meets your needs.

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? Electronics plants? 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.



From Standard Commercial AHUs to Customized Flexibility

Trane CLCP 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.
- Unit Sound data in Accordance to Eurovent Standard

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 compliance coil performance
- Unit casings designed for :
 - comfort and process applications up to 8 inches w.g. of total static pressure (2000Pa)
- Unit air leakage Class up to L1 in accordance to Eurovent standard EN1886
- Unit Casing Strength Class D1 in accordance to Eurovent standard EN1886
- Unit thermal performance up to Class TB1 in accordance to EN1886



CLCP_ME Features and Benefits

Low Leak Construction

Unique casing design allows the casing to meet Casing Air Leakage Standard, L1 (- 400 PA) Refer to the Result Summary Chart for details.

Excellent Condensate Management

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

Environmental Friendly Materials

High-grade aluminum 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 aluminum channels for structural rigidity and lightness. The frame shall be a full thermal break design (CLCP XP).

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. The PU Foam used is CFC free.

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

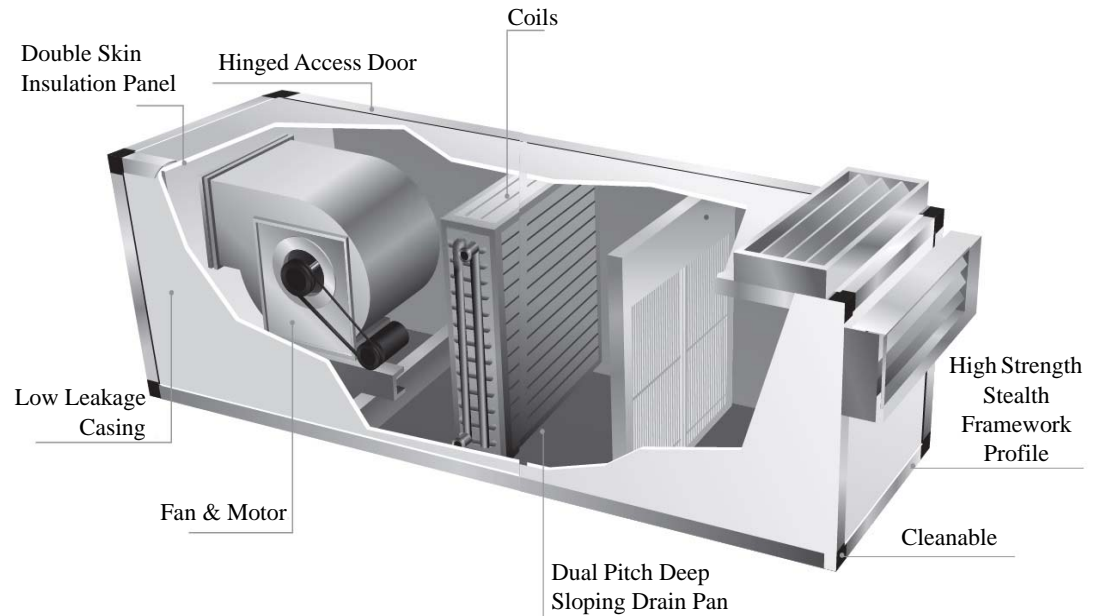
Addresses the needs of electronics, healthcare, life-sciences and pharmaceuticals.

Sturdy Unit Construction

The CLCP XP and CLCP 50mm, flexibility is contributed by the structural integrity pentapost and panel construction. The casing strength is designed to meet Eurovent Standard EN 1886; 2006, Class D1.



CLCP_ME Features and Benefits



Optimized Coils

Flexibility characterizes the CLCP 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 to 12 rows, ½ inch OD hot water coils.
- 4 and 6 rows, ½ inch OD refrigerant coils. (multiple circuiting options)
- Infinitely variable fin spacing (IVS).
- Stainless steel coil casing (option). Copper fins.
- Coated aluminum fin for corrosion resistance.
- Header drain and vent connections.

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 CLCP 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.

TEST RESULTS AS PER EN1886				
APPLICATION	Classification	CLCP 25mm	CLCP 50mm	CLCP XP 50mm
Casing Thermal Transmittance	TT Class	T3	T2	T2
Casing Thermal Bridging	TBF	TB3	TB3	TB1
Casing Strength	CS Class	D1(M)	D1(M)	D1(M)
Casing Leakage @ -400 Pa	CAL Class	L2 (M)	L1 (M)	L1 (M)
Casing Leakage @ +700 Pa	CAL Class	L3 (M)	>L3 (M)	L1 (M)
Filter Frame Bypass	FBL Class	F9 (M)	F9 (M)	F9 (M)
		Highest In Class		



TOPSS Selection

TOPSS (Trane Official Product Selection System) provides for a single interface for calculating and selecting over 40 different Trane products worldwide, including CLCP Air Handler, heating, cooling and refrigerant coils performance.

You enter a set of conditions and desired performances criteria into TOPSS and the program will determine product configurations that meet or exceed those required parameter.

After performing the calculations, TOPSS provides an interface for reviewing, printing, graphing, selecting, exporting schedules to Microsoft Excel™, Word™, Adobe Reader™ documents or even e-mailing your equipment selections to your Trane sales engineer.





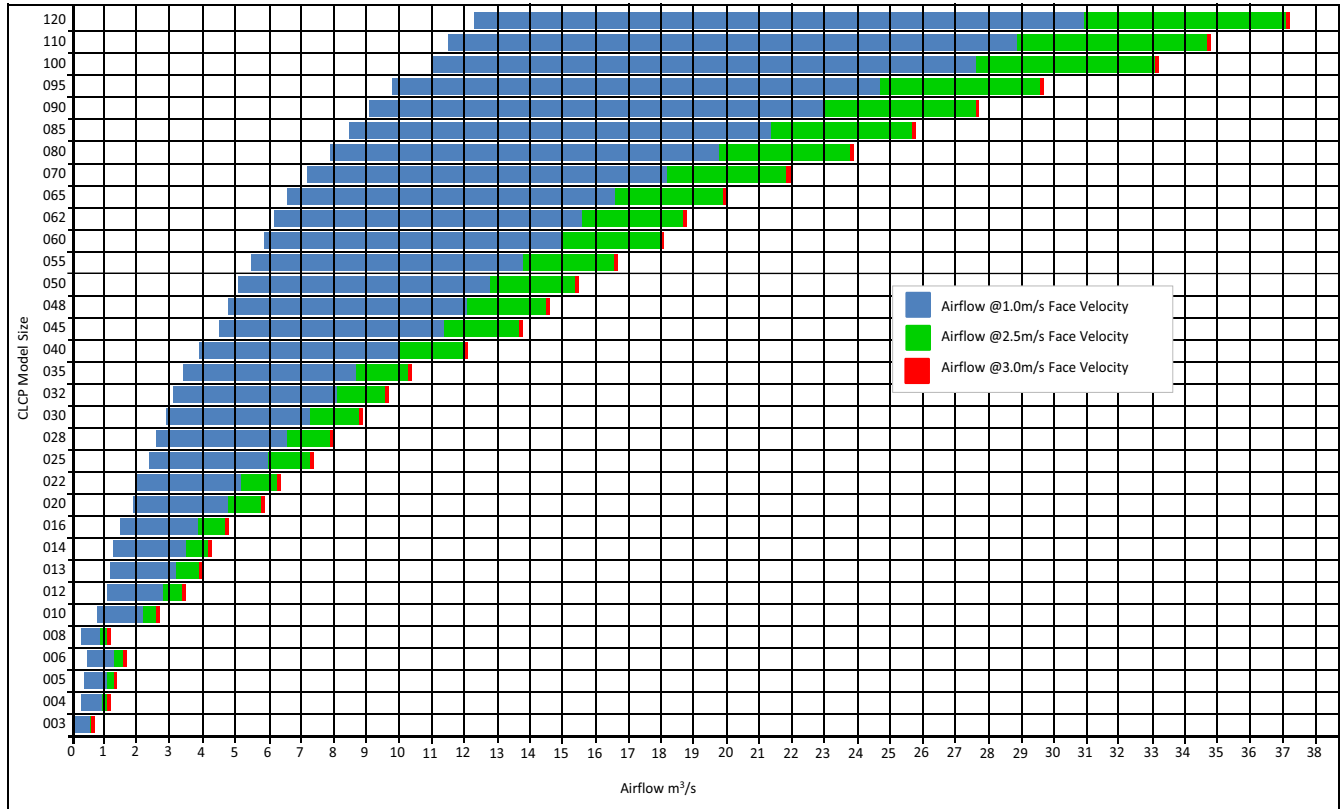
CLCP ME Quick Select Chart

CLCP Model Size	Module Size	Airflow @1.0m/s Face Velocity	Airflow @2.5m/s Face Velocity	Airflow @3m/s Face Velocity	Total Cooling Capacity	External Static Pressure	Dimension [Fan+Coil+Filter+Mixing Box]			Estimated Unit Weight	Water Flow rate	Motor Installed Power
							Width	Height	Length			
		m3/s	m3/s	m3/s	kW	Pa	mm	mm	mm	kg	L/s	kW
003	0404	0.26	0.66	0.79	6.7	500	748	868	1988	252	0.29	1.1
03A	0504	0.36	0.89	1.07	9.2	500	903	868	1988	228	0.40	2.2
004	0604	0.45	1.13	1.35	12.6	500	1058	868	1988	316	0.54	2.2
005	0704	0.54	1.36	1.63	20.2	500	1213	868	1988	354	0.88	3
006	0804	0.64	1.59	1.91	27.2	500	1368	868	1988	405	1.18	3
007	0904	0.73	1.83	2.19	34.0	500	1523	868	1988	452	1.48	4
008	1004	0.82	2.06	2.47	40.5	500	1678	868	1988	510	1.75	5.5
009	1104	0.92	2.29	2.75	46.8	500	1833	868	1988	535	2.03	5.5
010	0806	0.94	2.35	2.82	40.6	500	1368	1178	2143	548	1.76	5.5
011	0906	1.08	2.69	3.23	50.5	500	1523	1178	2143	570	2.19	5.5
012	1006	1.21	3.04	3.64	60.3	500	1678	1178	2143	630	2.61	7.5
013	1106	1.35	3.38	4.06	69.7	500	1833	1178	2143	705	3.02	7.5
014	1206	1.49	3.73	4.47	79.0	500	1988	1178	2143	718	3.42	7.5
015	1107	1.59	3.98	4.77	82.2	500	1833	1333	2143	730	3.56	7.5
016	1008	1.65	4.11	4.94	82.0	500	1678	1488	2143	760	3.55	7.5
018	1108	1.83	4.58	5.50	94.8	500	1833	1488	2608	860	4.11	11
020	1208	2.02	5.05	6.06	107.5	500	1988	1488	2298	933	4.66	11
022	1209	2.29	5.71	6.86	121.8	500	1988	1643	2298	974	5.28	11
025	1210	2.55	6.38	7.65	136.2	500	1988	1798	2608	1146	5.90	11
028	1310	2.79	6.98	8.37	152.3	500	2143	1798	2608	1240	6.60	11
030	1212	2.92	7.31	8.77	155.0	500	1988	2108	2763	897	6.71	15
032	1312	3.20	7.99	9.59	173.0	500	2143	2108	2763	1407	7.49	15
035	1412	3.42	8.54	10.25	187.5	500	2298	2108	2763	1462	8.12	15
038	1512	3.68	9.20	11.04	205.0	500	2453	2108	2763	1645	8.89	18.5
040	1612	3.95	9.87	11.84	223.0	500	2608	2108	2918	1710	9.66	18.5
042	1712	4.21	10.53	12.64	242.3	500	2763	2108	2918	1815	10.53	18.5
045	1812	4.48	11.20	13.44	258.6	500	2918	2108	2918	1910	11.20	22
048	1912	4.75	11.86	14.24	276.5	500	3073	2108	2918	1961	12.00	22
050	2012	5.01	12.53	15.04	294.5	500	3228	2108	3073	2134	12.75	22
055	2013	5.47	13.67	16.40	321.5	500	3228	2263	3073	2293	13.95	30
060	2014	5.92	14.81	17.77	349.0	500	3228	2418	3228	2456	15.12	30
062	2114	6.24	15.59	18.71	370.0	500	3383	2418	3228	2511	16.04	30
065	2214	6.55	16.38	19.66	391.5	500	3538	2418	3383	2716	16.96	30
070	2412	7.18	17.95	21.54	434.0	500	3848	2418	3538	2926	18.81	30
080	2614	7.81	19.53	23.43	427.6	500	4158	2418	3538	3188	18.53	37
085	2814	8.44	21.10	25.32	469.6	500	4468	2418	3693	3388	20.35	37
090	3014	9.07	22.67	27.21	511.5	500	4778	2418	3693	3572	22.17	45
095	3214	9.70	24.24	29.09	553.8	500	5088	2418	3693	3692	24.00	45
100	3216	11.04	27.60	33.12	632.0	500	5088	2733	4313	4346	27.40	45
110	3217	11.64	29.09	34.91	666.5	500	5088	2888	4468	4354	28.88	45
120	3218	12.23	30.58	36.70	701.0	500	5088	3043	4468	4590	30.40	55

Notes:

1. Nominal Cooling Capacities are based on EDB 26.7C / EWB 19.4C and EWT 6.7C / LWT 12.2C.
2. Unit dimensions and weight includes a BC fan (arrangement 1), 4R 144FPF coil [models 003 - 120] section, bag 15" & 2" prefilter plus mixing box sections for a 50mm CLCP platform with Standard Fan option.
3. The data above, with the exception of weight and dimension are applicable to the CLCP XP-TB1 and 25mm CLCP platform.
4. 25mm CLCP models are limited to CLCP 003 to CLCP 050.
5. For Module definition, the 1st 2 digits signify the units width, and the 2nd 2 digits signify the units height. Module size does not include frame, base or protrusion dimensions.

Graph





General Data

Casing

Casing Type

- Extruded frame of engineering grade aluminum gives the CLCP excellent rigidity.
- Casing Strength is designed to meet European standard EN 1886:2006, D1
- Specialized casing construction available for L1, L2,L3 type leakage classification ratings.
- Panels are of double wall construction injected with foam insulation to provide a rigid sturdy and easily cleaned enclosure. All 50mm panels are fully thermal break. PU Foam is CFC free.
- The CLCP 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 exists, 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 25mm or 50mm nominal thickness. This double wall construction keeps the insulation out of the air stream and contributes towards improved indoor air quality. The panels are also easily cleanable. CLCP XP panels shall be internally rivetted to allow L1 casing leakage certification.

The insulating material is a two component closed cell, rigid polyurethane foam. Insulating Materials Specification: Thermal conductivity 'K' Factor = 0.02 W/mK. Polyurethane foam used is CFC Free.

Panel Thickness:

Overall average panel nominal thickness shall be either 25mm or 50mm. (CLCP 25/50, CLCP XP).

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

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

	Key Product CLCP 25mm	Differentiation CLCP 50mm	Chart CLCP XP
Casing Thickness	25 25mm	50 50mm	XP 50mm
Panel Installation	wedge lock	wedge lock	Wedge lock + internal rivet
Range	003 - 050	030 - 120	003 - 120
Frame Construction	Single Extruded Aluminum Pentapost Frame Internally insulated PE @ Fan Selection		Thermal Break Aluminum Frame Not Required
Breakpoint	Frame to Frame Aluminum Breakpoint Connection		TB1 Aluminum Frames with Integrated Thermal breaks

The variations allow for product positioning into the right application.

For example: IAQ, Acoustic, Energy, Thermally sensitive job, would be best suited with the CLCP XP.

Fan

Types Of Fans

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

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

- Forward curved blade (FC)
- Backward curved blade (BC)
- Airfoil blade (AF)
- Direct Drive plenum fan (single inlet)
- Fan casing are constructed of galvanized steel with a series of punched holes 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 to the ISO 1940 and AMCA 204 G2.5 standards
- Fan shafts are carbon steel (C45) grade and machined to tolerances Grade G6 standard.

Optional

- Standby fans

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



Stacked Fan Section

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 Item	Coils Range of Standard Rating Conditions		
	Cooling Coils		Heating Coil
	Refrigerant	Cold Water (CHW)	Hot Water (HW)
Face Velocity; FPM (m/s)	200 ~ 800 (1.0 ~ 4.0)	200 ~ 800 (1.0 ~ 4.0)	200 ~ 1,500 (1.0 ~ 8.0)
EDB; °F (°C)	65 ~ 100 (18 ~ 38)	65 ~ 100 (18 ~ 38)	0.0 ~ 100 (-18 ~ 38)
EWB; °F (°C)	60 ~ 85 (16 ~ 29)	60 ~ 85 (16 ~ 29)	-
EWT; °F (°C)	-	35 ~ 65 (1.7 ~ 18)	120 ~ 250 (49 ~ 121)
Water Velocity (Inside Tube); Ft/s (m/s)	-	1.0 ~ 8.0 (0.3 ~ 2.4)	0.5 ~ 8.0 (0.1 ~ 2.4)
Saturated Suction Temperature; °F (°C)	30 ~ 55 (-1.1 ~ 12.8)	-	-
Suction Superheat; F° (C°)	8.0 (4.44)	-	-

* Coils operating range condition and performance shall be rated in accordance with AHRI 410 standard requirement.



General Data

CLCP Coil Types Availability

Chilled & Hot Water and Refrigerant Coil

Coil Type	Description	Coil Rows	End Header's Connection	Header's Material Options	Fin Material Options / Fin Per Foot Number	Tube Size & Material	Max. Standard Operation Limits (Tube Side)							
							Working Pressure	Temperature						
							Psig (kPa)	° F (° C)						
WL	General Purpose Chilled Water Single-Row Serpentine (Full Circuiting)	2, 3, 4, 5, 6, 8, 10, 12	Same Side	Copper c/w Brass Adapter_Threaded End (BSPT)	Aluminium 120 - 168_Heating & Cooling	1/2 " OD Copper	250 PSIG (1724 kPa)	220° F (104° C)						
	General Purpose Hot Water Coil Single-Row Serpentine (Full Circuiting)	2, 4, 6, 8, 10, 12	Same Side		Copper 110 - 168_Heating & Cooling									
WLQ	General Purpose Hot Water Coil	1	Same Side	Copper c/w Brass Adapter_Threaded End (BSPT)	Aluminium 120 - 168_Heating	1/2 " OD Copper			250 PSIG (1724 kPa)	220° F (104° C)				
	Quarter-Row Serpentine (Quarter Circuiting)				Copper 110 - 168_Heating									
WLH	General Purpose Hot Water Coil Half-Row Serpentine (Half Circuiting)	1	Same Side	Copper c/w Brass Adapter_Threaded End (BSPT)	Aluminium 120 - 168_Heating Copper 110 - 168_Heating	1/2 " OD Copper					250 PSIG (1724 kPa)	220° F (104° C)		
WLH	General Purpose Chilled & Hot Water Coil Half-Row Serpentine (Half Circuiting) (Available on CLCP 003 thru 028 Only)	2, 3, 4	Same Side	Copper c/w Brass Adapter_Threaded End (BSPT)	Aluminium 120 - 168_Heating & Cooling Copper 110 - 168_Heating & Cooling	1/2 " OD Copper								
LL	Drainable Chilled Water Coil Double-Row Serpentine (Double Full Circuiting)	4, 6, 8, 10, 12	Same Side	Copper c/w Brass Adapter_Threaded End	Aluminium 120 - 168_Cooling Copper 110 - 168_Cooling	1/2 " OD Copper							250 PSIG (1724 kPa)	220° F (104° C)
FD	Refrigerant DX Cooling Coil Only R22, R407C, R410A	4, 6	Same Side	Copper, Plain End	Aluminium 120 - 168_Cooling Copper 110 - 168_Cooling	1/2 " OD Copper								

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

CLCP Coil Dimensional Data Sheet

Chilled & Hot Water Coil

Model Unit Size	Coil Face Area		Actual Fin Height		Finned Length		Coil Section Arrangement Types	Header Connection Size					
	Ft ²	M ²	in	mm	in	mm		HW	CHW	CHW / HW	CHW	CHW / HW	CHW
								WLH: 1 R WLQ: 1 R	WLH: 2,3,4 R	WL: 2 R	3WL: 3 R 5WL: 5 R	WL: 4,6,8,10,12 R	LL: 4,6,8,10,12 R
003 (0404)	2.84	0.26	23.75	603.25	17.2	437	SINGLE	1.5" BSPT	1.5" BSPT	1.5" BSPT	1.5" BSPT	1.5" BSPT	2.5" BSPT
03A (0504)	3.84	0.36	23.75	603.25	23.3	592	SINGLE						
004 (0604)	4.85	0.45	23.75	603.25	29.4	747	SINGLE						
005 (0704)	5.86	0.54	23.75	603.25	35.5	902	SINGLE						
006 (0804)	6.86	0.64	23.75	603.25	41.6	1057	SINGLE						
007 (0904)	7.87	0.73	23.75	603.25	47.7	1212	SINGLE						
008 (1004)	8.87	0.82	23.75	603.25	53.8	1367	SINGLE						
009 (1104)	9.88	0.92	23.75	603.25	59.9	1521	SINGLE						
010 (0806)	10.11	0.94	35.00	889.00	41.6	1057	SINGLE						
011 (0906)	11.59	1.08	35.00	889.00	47.7	1212	SINGLE						
012 (1006)	13.08	1.21	35.00	889.00	53.8	1367	SINGLE						
013 (1106)	14.56	1.35	35.00	889.00	59.9	1521	SINGLE						
014 (1206)	16.04	1.49	35.00	889.00	66.0	1676	SINGLE						
015 (1107)	17.13	1.59	41.25	1047.75	59.8	1519	SINGLE						
016 (1008)	17.71	1.65	47.50	1206.50	53.7	1364	SINGLE						
018 (1108)	19.73	1.83	47.50	1206.50	59.8	1519	SINGLE						
020 (1208)	21.74	2.02	47.50	1206.50	65.9	1674	SINGLE						
022 (1209)	24.60	2.29	53.75	1365.25	65.9	1674	SINGLE						
025 (1210)	27.46	2.55	60.00	1524.00	65.9	1674	SINGLE						
028 (1310)	30.04	2.79	60.00	1524.00	72.1	1831	SINGLE						
030 (1212)	31.46	2.92	33.75 35.00	857.25 889.00	65.9	1674	DUAL STACK						
032 (1312)	34.42	3.20	33.75 35.00	857.25 889.00	72.1	1831	DUAL STACK						
035 (1412)	36.76	3.42	33.75 35.00	857.25 889.00	77.0	1956	DUAL STACK						
038 (1512)	39.63	3.68	33.75 35.00	857.25 889.00	83.0	2108	DUAL STACK						
040 (1612)	42.49	3.95	33.75 35.00	857.25 889.00	89.0	2261	DUAL STACK						
042 (1712)	45.36	4.21	33.75 35.00	857.25 889.00	95.0	2413	DUAL STACK						
045 (1812)	48.22	4.48	33.75 35.00	857.25 889.00	101.0	2565	DUAL STACK						
048 (1912)	51.09	4.75	33.75 35.00	857.25 889.00	107.0	2718	DUAL STACK						
050 (2012)	53.95	5.01	33.75 35.00	857.25 889.00	113.0	2870	DUAL STACK						
055 (2013)	58.85	5.47	37.50 37.50	952.50 952.50	113.0	2870	DUAL STACK						
060 (2014)	63.76	5.92	40.00 41.25	1016.00 1047.75	113.0	2870	DUAL STACK						
062 (2114)	67.14	6.24	40.00 41.25	1016.00 1047.75	119.0	3023	DUAL STACK						
065 (2214)	70.53	6.55	40.00 41.25	1016.00 1047.75	125.0	3175	DUAL STACK						
070 (2414)	77.30	7.18	40.00 41.25	1016.00 1047.75	137.0	3480	DUAL STACK						
080 (2614)	84.07	7.81	40.00 41.25	1016.00 1047.75	149.0	3785	DUAL STACK						
085 (2814)	90.84	8.44	40.00 41.25	1016.00 1047.75	161.0	4089	DUAL STACK						
090 (3014)	97.61	9.07	40.00 41.25	1016.00 1047.75	173.0	4394	DUAL STACK						
095 (3214)	104.38	9.70	40.00 41.25	1016.00 1047.75	185.0	4699	DUAL STACK						
100 (3216)	118.84	11.04	46.25 46.25	1174.75 1174.75	185.0	4699	DUAL STACK						
110 (3217)	125.26	11.64	46.25 51.25	1174.75 1301.75	185.0	4699	DUAL STACK						
120 (3218)	131.68	12.23	51.25 51.25	1301.75 1301.75	185.0	4699	DUAL STACK						



General Data

CLCP Coil Dimensional Data Sheet

Refrigerant DX Coil: STANDARD Circuiting Type

MODEL Unit Size	STANDARD Circuiting Type							Distributor Unit Qty	Tube Ckts Qty	Tube Ckts Qty	Connection Piping Size Ø				Suction OD
	Coil Face Area		Actual Fin Height		Coil Face Length		Number of Rows				Liquid OD				
	ft ²	m ²	in	mm	in	mm					1/4" Dist.Tube		3/16" Dist.Tube		
											Half Circuit	Quarter Circuit	Half Circuit	Quarter Circuit	
003 (0404)	2.84	0.26	23.75	603	17.2	437	4 / 6	1	9	4	1-1/8"	1-1/8"	7/8"	7/8"	1-5/8"
03A (0504)	3.84	0.36	23.75	603	23.3	592	4 / 6	1	9	4					
004 (0604)	4.85	0.45	23.75	603	29.4	747	4 / 6	1	9	4					
005 (0704)	5.86	0.54	23.75	603	35.5	902	4 / 6	1	9	4					
006 (0804)	6.86	0.64	23.75	603	41.6	1057	4 / 6	1	9	4					
007 (0904)	7.87	0.73	23.75	603	47.7	1212	4 / 6	1	9	4					
008 (1004)	8.87	0.82	23.75	603	53.8	1367	4 / 6	1	9	4					
009 (1104)	9.88	0.92	23.75	603	59.9	1521	4 / 6	1	9	4					
010 (0806)	10.11	0.94	35.00	889	41.6	1057	4 / 6	1	13	6					
011 (0906)	11.59	1.08	35.00	889	47.7	1212	4 / 6	1	13	6					
012 (1006)	13.08	1.21	35.00	889	53.8	1367	4 / 6	1	13	6					
013 (1106)	14.56	1.35	35.00	889	59.9	1521	4 / 6	1	13	6					
014 (1206)	16.04	1.49	35.00	889	66.0	1676	4 / 6	1	13	6					
015 (1107)	17.13	1.59	41.25	1048	59.8	1519									
016 (1008)	17.71	1.65	47.50	1207	53.7	1364									
018 (1108)	19.73	1.83	47.50	1207	59.8	1519									
020 (1208)	21.74	2.02	47.50	1207	65.9	1674									
022 (1209)	24.60	2.29	53.75	1365	65.9	1674									
025 (1210)	27.46	2.55	60.00	1524	65.9	1674									
028 (1310)	30.04	2.79	60.00	1524	72.1	1831									
030 (1212)-TOP	31.46	2.92	33.75	857	65.9	1674	4 / 6	1	13	6	1-3/8"	1-1/8"	1-1/8"	7/8"	1-5/8"
-BOT			35.00	889											
032 (1312)-TOP	34.42	3.20	33.75	857	72.1	1831	4 / 6	1	13	6					
-BOT			35.00	889											
035 (1412)-TOP	36.76	3.42	33.75	857	77.0	1956	4 / 6	1	13	6					
-BOT			35.00	889											
038 (1512)-TOP	39.63	3.68	33.75	857	83.0	2108	4 / 6	1	13	6					
-BOT			35.00	889											
040 (1612)-TOP	42.49	3.95	33.75	857	89.0	2261	4 / 6	1	13	6					
-BOT			35.00	889											
042 (1712)-TOP	45.36	4.21	33.75	857	95.0	2413	4 / 6	1	13	6					
-BOT			35.00	889											
045 (1812)-TOP	48.22	4.48	33.75	857	101.0	2565	4 / 6	1	13	6					
-BOT			35.00	889											
048 (1912)-TOP	51.09	4.75	33.75	857	107.0	2718	4 / 6	1	13	6					
-BOT			35.00	889											
050 (2012)-TOP	53.95	5.01	33.75	857	113.0	2870	4 / 6	1	13	6					
-BOT			35.00	889											

* 1 number equal to 1 unit of distributor and TXV on indoor evaporator DX coils circuiting number for connection with each number outdoor condensing units circuiting.



General Data

CLCP Coil Dimensional Data Sheet

Refrigerant DX Coil: INTERWINED Circuiting Type

MODEL Unit Size	INTERWINED Circuiting Type							Distributor Unit Qty	Tube Ckts Qty	Tube Ckts Qty	Connection Piping Size Ø				
	Coil Face Area		Actual Fin Height		Coil Face Length		Number of Rows				Liquid OD				
	ft ²	m ²	in	mm	in	mm					1/4" Dist.Tube		3/16" Dist.Tube		Suction OD
							Full Circuit	Half Circuit	Full Circuit	Half Circuit					
003 (0404)	2.84	0.26	23.75	603	17.2	437	4 / 6	1 / 1	9 / 9	4 / 5					
03A (0504)	3.84	0.36	23.75	603	23.3	592	4 / 6	1 / 1	9 / 9	4 / 5					
004 (0604)	4.85	0.45	23.75	603	29.4	747	4 / 6	1 / 1	9 / 9	4 / 5					
005 (0704)	5.86	0.54	23.75	603	35.5	902	4 / 6	1 / 1	9 / 9	4 / 5					
006 (0804)	6.86	0.64	23.75	603	41.6	1057	4 / 6	1 / 1	9 / 9	4 / 5	1-1/8"	1-1/8"	7/8"	7/8"	
007 (0904)	7.87	0.73	23.75	603	47.7	1212	4 / 6	1 / 1	9 / 9	4 / 5					
008 (1004)	8.87	0.82	23.75	603	53.8	1367	4 / 6	1 / 1	9 / 9	4 / 5					
009 (1104)	9.88	0.92	23.75	603	59.9	1521	4 / 6	1 / 1	9 / 9	4 / 5					
010 (0806)	10.11	0.94	35.00	889	41.6	1057	4 / 6	1 / 1	13 / 13	6 / 7					
011 (0906)	11.59	1.08	35.00	889	47.7	1212	4 / 6	1 / 1	13 / 13	6 / 7					
012 (1006)	13.08	1.21	35.00	889	53.8	1367	4 / 6	1 / 1	13 / 13	6 / 7	1-3/8"	1-1/8"	1-1/8"	7/8"	1-5/8"
013 (1106)	14.56	1.35	35.00	889	59.9	1521	4 / 6	1 / 1	13 / 13	6 / 7					
014 (1206)	16.04	1.49	35.00	889	66.0	1676	4 / 6	1 / 1	13 / 13	6 / 7					
015 (1107)	17.13	1.59	41.25	1048	59.8	1519	4 / 6	1 / 1 / 1 / 1	8 / 8 / 8 / 8	4 / 4 / 4 / 4					
016 (1008)	17.71	1.65	47.50	1207	53.7	1364	4 / 6	1 / 1 / 1 / 1	9 / 9 / 9 / 10	4 / 4 / 4 / 6					
018 (1108)	19.73	1.83	47.50	1207	59.8	1519	4 / 6	1 / 1 / 1 / 1	9 / 9 / 9 / 10	4 / 4 / 4 / 6					
020 (1208)	21.74	2.02	47.50	1207	65.9	1674	4 / 6	1 / 1 / 1 / 1	9 / 9 / 9 / 10	4 / 4 / 4 / 6	1-1/8"	1-1/8"	7/8"	7/8"	
022 (1209)	24.60	2.29	53.75	1365	65.9	1674	4 / 6	1 / 1 / 1 / 1	10 / 10 / 11 / 11	5 / 5 / 5 / 6					
025 (1210)	27.46	2.55	60.00	1524	65.9	1674	4 / 6	1 / 1 / 1 / 1	11 / 12 / 12 / 12	5 / 6 / 6 / 6					
028 (1310)	30.04	2.79	60.00	1524	72.1	1831	4 / 6	1 / 1 / 1 / 1	11 / 12 / 12 / 12	5 / 6 / 6 / 6					
030 (1212)-TOP	31.46	2.92	33.75	857	65.9	1674	4 / 6	1 / 1	13 / 13	6 / 7					
-BOT			35.00	889				1 / 1	13 / 14	6 / 7					
032 (1312)-TOP	34.42	3.20	33.75	857	72.1	1831	4 / 6	1 / 1	13 / 13	6 / 7					
-BOT			35.00	889				1 / 1	13 / 14	6 / 7					
035 (1412)-TOP	36.76	3.42	33.75	857	77.0	1956	4 / 6	1 / 1	13 / 13	6 / 7					
-BOT			35.00	889				1 / 1	13 / 14	6 / 7					
038 (1512)-TOP	39.63	3.68	33.75	857	83.0	2108	4 / 6	1 / 1	13 / 13	6 / 7					
-BOT			35.00	889				1 / 1	13 / 14	6 / 7					
040 (1612)-TOP	42.49	3.95	33.75	857	89.0	2261	4 / 6	1 / 1	13 / 13	6 / 7					
-BOT			35.00	889				1 / 1	13 / 14	6 / 7					
042 (1712)-TOP	45.36	4.21	33.75	857	95.0	2413	4 / 6	1 / 1	13 / 13	6 / 7					
-BOT			35.00	889				1 / 1	13 / 14	6 / 7					
045 (1812)-TOP	48.22	4.48	33.75	857	101.0	2565	4 / 6	1 / 1	13 / 13	6 / 7					
-BOT			35.00	889				1 / 1	13 / 14	6 / 7					
048 (1912)-TOP	51.09	4.75	33.75	857	107.0	2718	4 / 6	1 / 1	13 / 13	6 / 7					
-BOT			35.00	889				1 / 1	13 / 14	6 / 7					
050 (2012)-TOP	53.95	5.01	33.75	857	113.0	2870	4 / 6	1 / 1	13 / 13	6 / 7					
-BOT			35.00	889				1 / 1	13 / 14	6 / 7					
055 (2013)-TOP	58.85	5.47	37.50	953	113.0	2870	4 / 6	1 / 1 / 1 / 1	7 / 7 / 7 / 8	3 / 4 / 3 / 4					
-BOT			37.50	953				1 / 1 / 1 / 1	7 / 7 / 7 / 8	3 / 4 / 3 / 4					
060 (2014)-TOP	63.76	5.92	40	1016	113.0	2870	4 / 6	1 / 1 / 1 / 1	7 / 8 / 8 / 8	3 / 4 / 4 / 4					
-BOT			41.25	1048				1 / 1 / 1 / 1	8 / 8 / 8 / 8	4 / 4 / 4 / 4					
062 (2114)-TOP	67.14	6.24	40	1016	119.0	3023	4 / 6	1 / 1 / 1 / 1	7 / 8 / 8 / 8	3 / 4 / 4 / 4					
-BOT			41.25	1048				1 / 1 / 1 / 1	8 / 8 / 8 / 8	4 / 4 / 4 / 4					
065 (2214)-TOP	70.53	6.55	40	1016	125.0	3175	4 / 6	1 / 1 / 1 / 1	7 / 8 / 8 / 8	3 / 4 / 4 / 4					
-BOT			41.25	1048				1 / 1 / 1 / 1	8 / 8 / 8 / 8	4 / 4 / 4 / 4					
070 (2414)-TOP	77.30	7.18	40	1016	137.0	3480	4 / 6	1 / 1 / 1 / 1	7 / 8 / 8 / 8	3 / 4 / 4 / 4					
-BOT			41.25	1048				1 / 1 / 1 / 1	8 / 8 / 8 / 8	4 / 4 / 4 / 4					
080 (2614)-TOP	84.07	7.81	40	1016	149.0	3785	4 / 6	1 / 1 / 1 / 1	7 / 8 / 8 / 8	3 / 4 / 4 / 4					
-BOT			41.25	1048				1 / 1 / 1 / 1	8 / 8 / 8 / 8	4 / 4 / 4 / 4					
085 (2814)-TOP	90.84	8.44	40	1016	161.0	4089	4 / 6	1 / 1 / 1 / 1	7 / 8 / 8 / 8	3 / 4 / 4 / 4					
-BOT			41.25	1048				1 / 1 / 1 / 1	8 / 8 / 8 / 8	4 / 4 / 4 / 4					
090 (3014)-TOP	97.61	9.07	40	1016	173.0	4394	4 / 6	1 / 1 / 1 / 1	7 / 8 / 8 / 8	3 / 4 / 4 / 4					
-BOT			41.25	1048				1 / 1 / 1 / 1	8 / 8 / 8 / 8	4 / 4 / 4 / 4					
095 (3214)-TOP	104.38	9.70	40	1016	185.0	4699	4 / 6	1 / 1 / 1 / 1	7 / 8 / 8 / 8	3 / 4 / 4 / 4					
-BOT			41.25	1048				1 / 1 / 1 / 1	8 / 8 / 8 / 8	4 / 4 / 4 / 4					

* 1 number equal to 1 unit of distributor and TXV on indoor evaporator DX coils circuiting number for connection with each number outdoor condensing units circuiting.

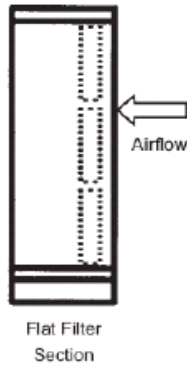
Filters

General

CLCP air handling unit offers wide range of filters to meet are 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 filters
- c. Hepa filters

Flat Filter



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 airflow and high dust holding capacity. The media can be cleaned.

- In warm water (30⁰ - 40⁰C) 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, non-woven, 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%.

Throwaway Filter - Product Information	
Normal Sizes (inch)	: 12 x 24 20 x 24, 24 x 24
Filter Depth (mm)	: 50
Average Arrestance	: 90 - 92%



Flexible and Varied Filter Offering for IAQ and process filtration



High Efficiency Filter Section

a. Bag Filter

The filter is an extended surface non supported 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.

Bag Filter - Product Information	
Normal Sizes (inch)	: 12 x 24 20 x 24, 24 x 24
Filter Depth (mm)	: 15 in, 21 in
Average Efficiency	: 80 - 85% 90 - 95%



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.

Unit may be shipped fully assembled or disassembled to the minimum module size in accordance with shipping or job site requirements. Units shall have break point if manufacturer found appropriate for easy handling and transportation. Break points shall have full independent frames, for rigid frame to frame connections.

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 Eurovent Standard EN 1886: 2006, 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 (CLCP XP)

The casing panel shall be attached to the frame through 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 engineered to meet Eurovent air leakage requirement, (50mm models) per table

The casing shall be able to with stand up to 8 inches of total static pressure. Closed-cell foam gasketing shall be provided where modules are joined, for CLCP 25/50mm models. TB1 Thermal Break Breakpoints shall be used for CLCP XP AHUs.

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

The whole unit shall be mounted on a galvanized sheet steel base frame for 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 whether resistant polyester powder painted 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 either 25mm or 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 AHU 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. PU foam, panels shall be flush mounted, leaving no exposed 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 bitumastic 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 or latched.



Mechanical Specifications

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 mounting location shall be flexible and upon customer's requirement.

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. External light switches shall be IP55

Fan Module

The fan assembly shall be checked and dynamically balanced to ISO 1940 or equivalent. Fan shaft shall be properly sized and protectively coated. Fan wheels shall be keyed to fan shaft 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 for both side of fan shall be an option. FC, BC, AF fans of varied diameters and bearing construction shall be available for varied application choices.

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 bearing 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 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

Non Overloading, Fan shall be double-width, double-inlet, manufacturer. Fan shall be backward curve (BC) as required for stable operation, high static pressure and optimum energy efficiency. Fan shall be equipped with bearing 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 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

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

Plug Fans Modules

Direct Drive Plug Fans shall be available. Fans shall be available in various diameters to meet desired airflow, static, efficiency and noise criteria.

Fan Isolation

Fan connection shall be from unit casing by a flexible canvas duct mounted at the 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 isolated. The isolation system shall be designed to take higher isolation efficiency than 1" spring isolator.

Drive

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, anti static and avoiding electric discharges. The pulley and shaft assembly shall be using taper-lock bush with Allen set screws for easy and quick assemble and dis-assemble process. Drive shall be selected at 1.5 service factor.

Drives shall be constant speed with fixed pitch sheaves.

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. IE1, IE2, IE3 efficiency classes shall be available.

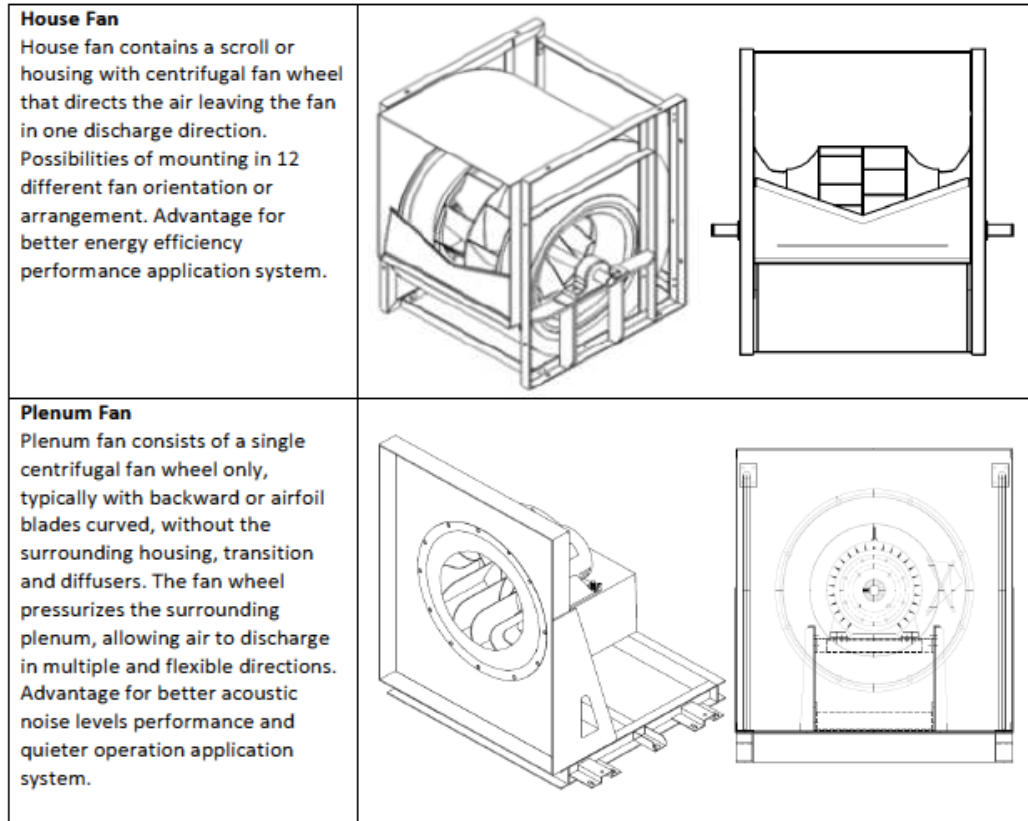
Motor Options

- a) 380-415 Volt/3 pH/50 Hz (Standard)
- b) 380 Volt/3 pH/60 Hz
- c) 400 Volt/3 pH/60 Hz
- d) 460 Volt/3 pH/60 Hz

All 60 Hz Motors are available only in IE3 Efficiency ratings to meet with SASO Standards and Regulations of Kingdom of Saudi Arabia

Fan Series

The fan type shall be provided as required for stable operation and optimum energy efficiency. The fan wheel shall be statically and dynamically balanced tested at the factory as a complete fan section assembly (fan wheel, motor, drive and pulley & belts). Fan wheels shall be keyed to the shaft to prevent slipping. The fan shaft to prevent slipping, the fan shafts shall be solid carbon steel with anti-rusty protection painted. The fan section shall be provided with an access door on the drive side of the fan for services. All fans series are suitable for supply, return and exhaust application in commercial, industrial process and any HVAC systems requirement as shown in Figure 1.

Figure 1


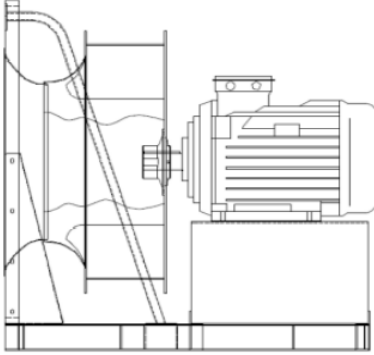
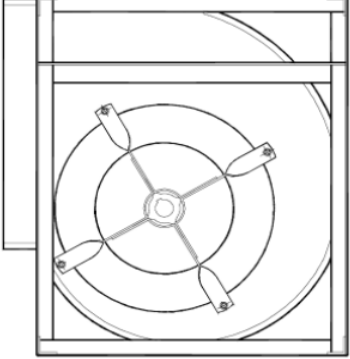
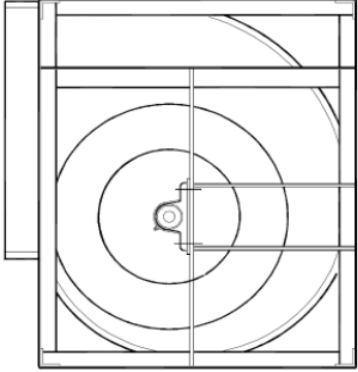
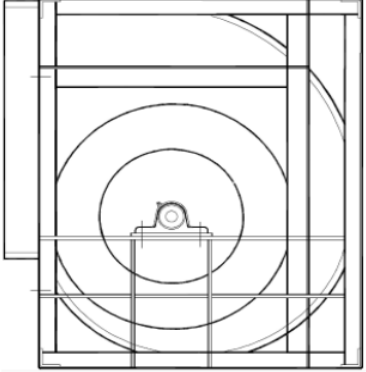
FC,BC AF House Fan Series - Double Inlet Double Width (DIDW) Centrifugal Fans

The house fan shall be a double inlet double width (DIDW), multiple blade impeller of forward curved (FC), backward curved (BC) and backward inclined airfoil (AF) centrifugals types. The fan shall be equipped with self-aligning, antifriction bearings with an L-50 life of 200,000 hours as calculated as per ANSI/ABMA Standard 9. Fan performance shall be certified as complying with AMCA Standard 210. The house fan shall be standard belt driven and direct driven upon request only. The house fan series available in few structure frame types as shown in Figure 2.

BC & AF Plenum Fan Series - Single Inlet Single Width (SISW) Centrifugal Fans

The plenum fan shall be a single inlet single width (SISW), multiple blade impeller centrifugals fan. The fan blades shall be backward curved (BC) or inclined airfoil (AF) upon request only. Plenum fan with direct driven compulsory need a field provided VFD motor starter. Generally designed with motor and drive contained in the discharge plenum area. The plenum fan shall be standard direct driven only. The plenum fan series available in few structure frame types as shown in Figure 2.

Figure 2

Plenum Fan Type R / P / Q	House Fan Type C / R
 <p data-bbox="363 907 879 1099">There are 3 types of BNB series plenum fan frame like R for regular from light to medium duty application, P for higher static pressure ratio and Q for higher air volume ratio from medium to heavy duty application.</p>	 <p data-bbox="911 907 1426 1037">This type has a house frame on both side of the fans which gives better strength and rigidity. For light to medium duty application.</p>
House Fan Type T / K	House Fan Type X / K1 & K2 / Z
 <p data-bbox="363 1615 871 1771">This type has a welded cast iron house frame giving increased stiffines and rigidity required for medium to heavy duty application and higher operating performance.</p>	 <p data-bbox="911 1615 1422 1771">This structure is similar to type 'T' / K but utilizes enchanced specification bearings to support higher dynamic load necessary for extra heavy duty application and increased to higher performance.</p>



Mechanical Specifications

House Fan Size Option Table

Model	Optimized Fan	Std Fan	Over Size Fan
CLCP 003 (0404)	FC/BC 180	FC/BC 200	FC/BC 225
CLCP 03A (0504)	FC/BC 180	FC/BC 200	FC/BC 225
CLCP 004 (0604)	FC/BC 200	FC/BC 225	FC/BC 250
CLCP 005 (0704)	FC/BC 225	FC/BC 250	FC/BC/AF 280
CLCP 006 (0804)	FC/BC 225	FC/BC 250	FC/BC/AF 280
CLCP 007 (0904)	FC/BC 225	FC/BC 250	FC/BC/AF 280
CLCP 008 (1004)	FC/BC 250	FC/BC/AF 280	FC/BC/AF 315
CLCP 009 (1104)	FC/BC 250	FC/BC/AF 280	FC/BC/AF 315
CLCP 010 (0806)	FC/BC/AF 280	FC/BC/AF 315	FC/BC/AF 335
CLCP 011 (0906)	FC/BC/AF 280	FC/BC/AF 315	FC/BC/AF 335
CLCP 012 (1006)	FC/BC/AF 315	FC/BC/AF 335	FC/BC/AF 400
CLCP 013 (1106)	FC/BC/AF 315	FC/BC/AF 335	FC/BC/AF 400
CLCP 014 (1206)	FC/BC/AF 335	FC/BC/AF 400	FC/BC/AF 450
CLCP 015 (1107)	FC/BC/AF 335	FC/BC/AF 400	FC/BC/AF 450
CLCP 016 (1008)	FC/BC/AF 400	FC/BC/AF 450	FC/BC/AF 500
CLCP 018 (1108)	FC/BC/AF 400	FC/BC/AF 450	FC/BC/AF 500
CLCP 020 (1208)	FC/BC/AF 450	FC/BC/AF 500	FC/BC/AF 560
CLCP 022 (1209)	FC/BC/AF 450	FC/BC/AF 500	FC/BC/AF 560
CLCP 025 (1210)	FC/BC/AF 500	FC/BC/AF 560	FC/BC/AF 630
CLCP 028 (1310)	FC/BC/AF 500	FC/BC/AF 560	FC/BC/AF 630
CLCP 030 (1212)	FC/BC/AF 500	FC/BC/AF 560	FC/BC/AF 630
CLCP 032 (1312)	FC/BC/AF 500	FC/BC/AF 560	FC/BC/AF 630
CLCP 035 (1412)	FC/BC/AF 560	FC/BC/AF 630	FC/BC/AF 710
CLCP 038 (1512)	FC/BC/AF 560	FC/BC/AF 630	FC/BC/AF 710
CLCP 040 (1612)	FC/BC/AF 630	FC/BC/AF 710	FC/BC/AF 800
CLCP 042 (1712)	FC/BC/AF 630	FC/BC/AF 710	FC/BC/AF 800
CLCP 045 (1812)	FC/BC/AF 630	FC/BC/AF 710	FC/BC/AF 800
CLCP 048 (1912)	FC/BC/AF 630	FC/BC/AF 710	FC/BC/AF 800
CLCP 050 (2012)	FC/BC/AF 710	FC/BC/AF 800	FC/BC/AF 900
CLCP 055 (2013)	FC/BC/AF 710	FC/BC/AF 800	FC/BC/AF 900
CLCP 060 (2014)	FC/BC/AF 710	FC/BC/AF 800	FC/BC/AF 900
CLCP 062 (2114)	FC/BC/AF 710	FC/BC/AF 800	FC/BC/AF 900
CLCP 065 (2214)	FC/BC/AF 800	FC/BC/AF 900	FC/BC/AF 1000
CLCP 070 (2414)	FC/BC/AF 800	FC/BC/AF 900	FC/BC/AF 1000
CLCP 080 (2614)	FC/BC/AF 900	FC/BC/AF 1000	
CLCP 085 (2814)	FC/BC/AF 900	FC/BC/AF 1000	
CLCP 090 (3014)	FC/BC/AF 900	FC/BC/AF 1000	
CLCP 095 (3214)	FC/BC/AF 900	FC/BC/AF 1000	
CLCP 100 (3216)	FC/BC/AF 1000	FC/BC/AF 1120	
CLCP 110 (3217)	FC/BC/AF 1120	FC/BC/AF 1250	
CLCP 120 (3218)	FC/BC/AF 1120	FC/BC/AF 1250	

Plenum Fan Size Option Table

MODEL Unit Size	Optimized Fan 2	Optimized Fan 1	Std Fan	Over Size Fan 1	Over Size Fan 2	
010 (0806)	-	BNB 315	BNB 355	BNB 400	-	
011 (0906)	-				-	
012 (1006)	-				-	
013 (1106)	-	BNB 355	BNB 400	-	-	
014 (1206)	-			-		
015 (1107)	-			-		
016 (1008)	-	BNB 450	BNB 500	BNB 560	-	
018 (1108)	-				-	
020 (1208)	-	BNB 500	BNB 560	BNB 630	-	
022 (1209)	BNB 500	BNB 560	BNB 630	BNB 710	-	
025 (1210)	-	BNB 630	BNB 710	BNB 800	-	
028 (1310)	-				-	
030 (1212)	-				-	
032 (1312)	-				-	
035 (1412)	BNB 710	BNB 800	BNB 900	BNB 1000	-	
038 (1512)					-	
040 (1612)	-				-	
042 (1712)	-				-	
045 (1812)	-				-	
048 (1912)	-				-	
050 (2012)	-				-	
055 (2013)	-				-	BNB 1120
060 (2014)	BNB 800	BNB 900	BNB 1000	BNB 1120	BNB 1250	
062 (2114)						-
065 (2214)	-					-
070 (2414)	-					-
080 (2614)	-					-
085 (2814)	-					-
090 (3014)	-					-
095 (3214)	-	BNB 1000	BNB 1120	BNB 1250	-	
100 (3216)	BNB 1000	BNB 1120	BNB 1250	BNB 1400	-	
110 (3217)					-	
120 (3218)					-	



Mechanical Specifications

Coil Module

Coils 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 1/2 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 are installed 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 air stream 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 water flow is counter to direction of unit airflow. Coils shall be tested to 375 psig. Fin spacing density shall be optimized to meet heat transfer requirements through a variable fin spacing density coil and tabulators.

Copper Pipe with BSPT External Threaded Brass adapter 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 equalizing vertical distributors sized according to the capacities of the coils. TXVs shall be optional for internal installation. R410a and R407c Refrigerant types shall be available.

Filter Modules

Filter sections shall have filter racks, an access door for filter removal and block-offs as required to prevent air by pass around filters. Modules shall be supplied with 2-inch angled or high capacity, 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 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 ASHREA 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.

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 80 percent when tested in accordance with ASHRAE 52-1-1992 atmospheric dust spot method.

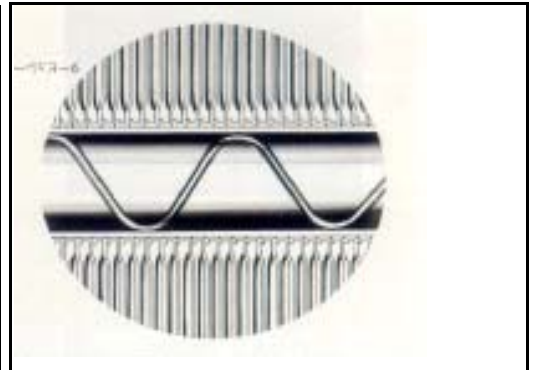
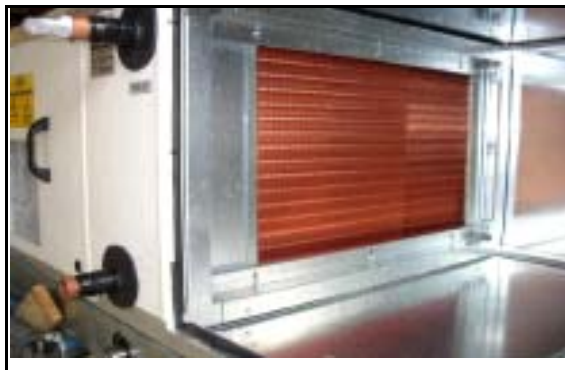
Access

With the exception of final filters, all filter access shall be from the back to minimize casing air leakage, accessible through hinged doors. Side access filters through latched doors are available where section lengths need reduction.

Mechanical Specifications Graphic Appendix



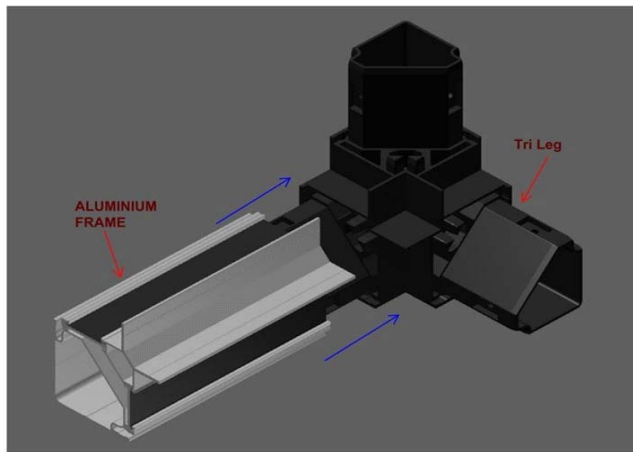
Aluminum Airfoil Damper Options



Varied Coil Types and Material



Coil Types



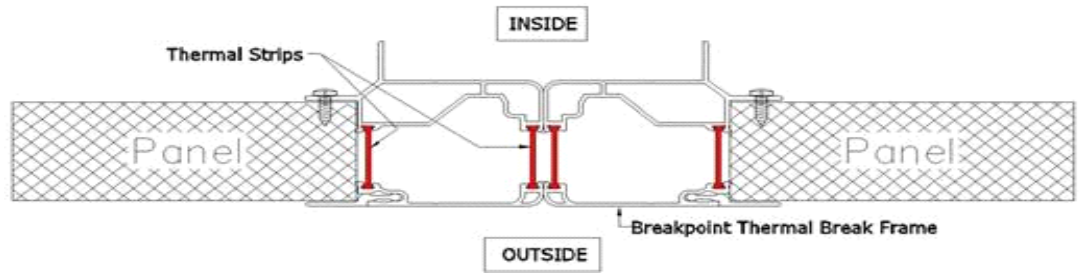
3 Legs Corner TB1 Profile Assembly



3 Legs Corner Units Casing Frame



TB1 Frame Profile Cross Section



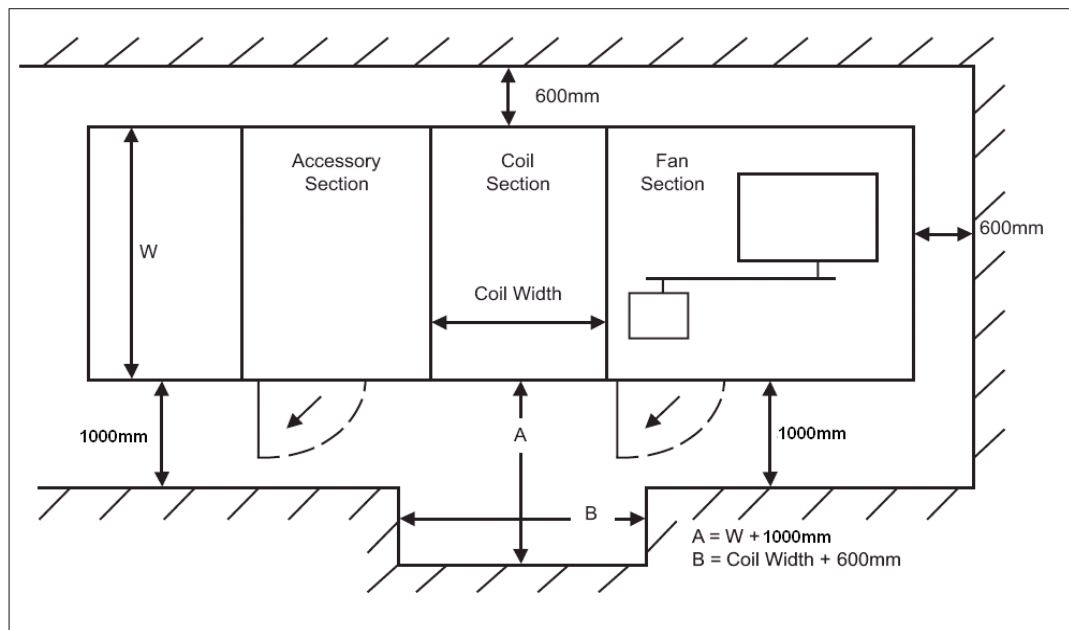
**TRANE Patented™® TB1 Breakpoints Joint
Frame Profile Cross Section**

Installation Consideration

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:

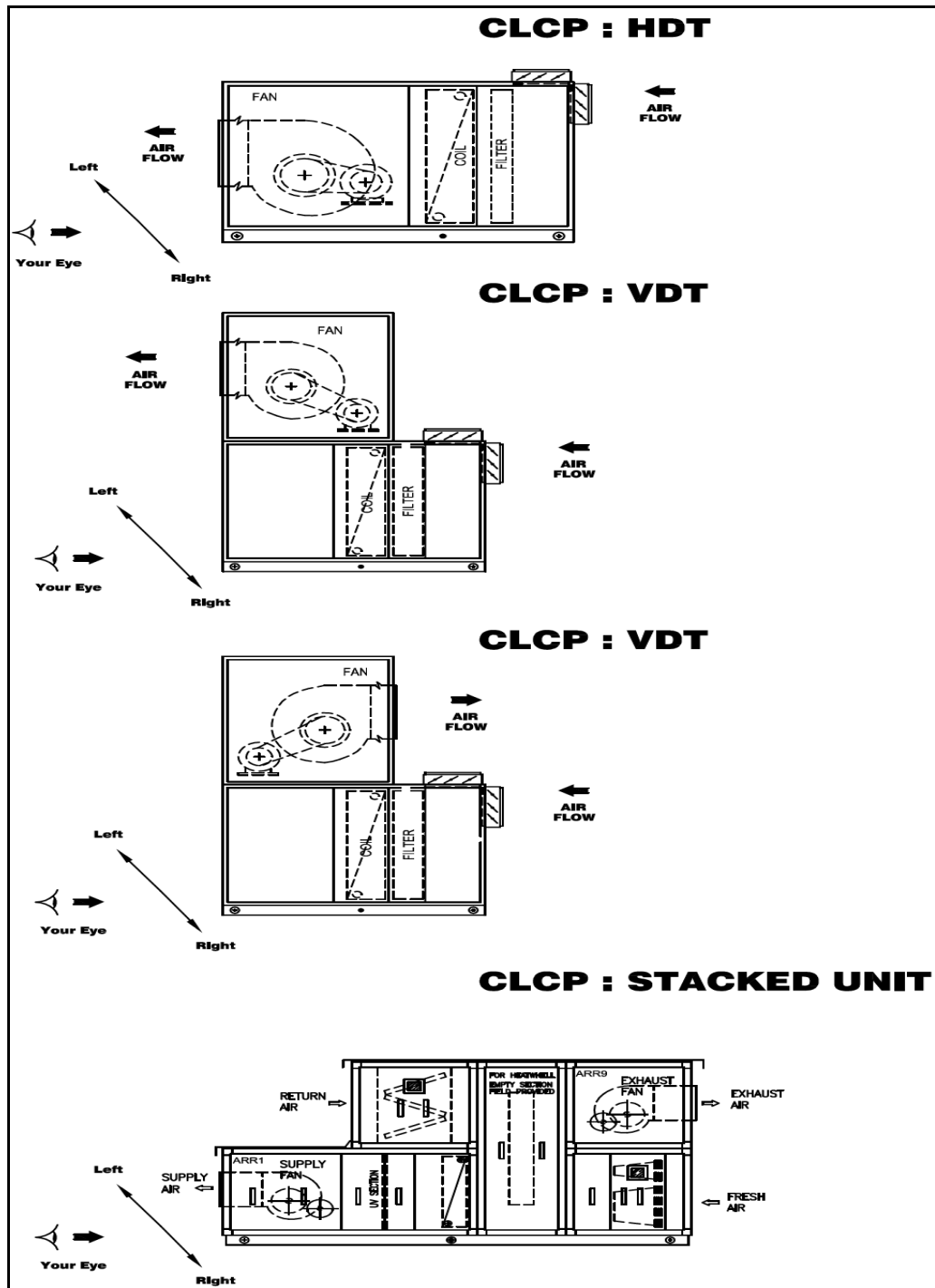
1. Ensure that the site can support the total weight of the unit.
2. Allow sufficient space for service access. The below figure give the recommended space allowances for filters, coil removal, fan shaft removal and motor started maintenance. As unit configurations will vary, refer to unit submittals 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 piping 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.



Access Side Clearances

Define Unit Handling Left Or Right

Unit handling, LEFT (LH) or RIGHT (RH) for coil connectors, drain, door location & etc. is expressed when facing the airflow through the coil.



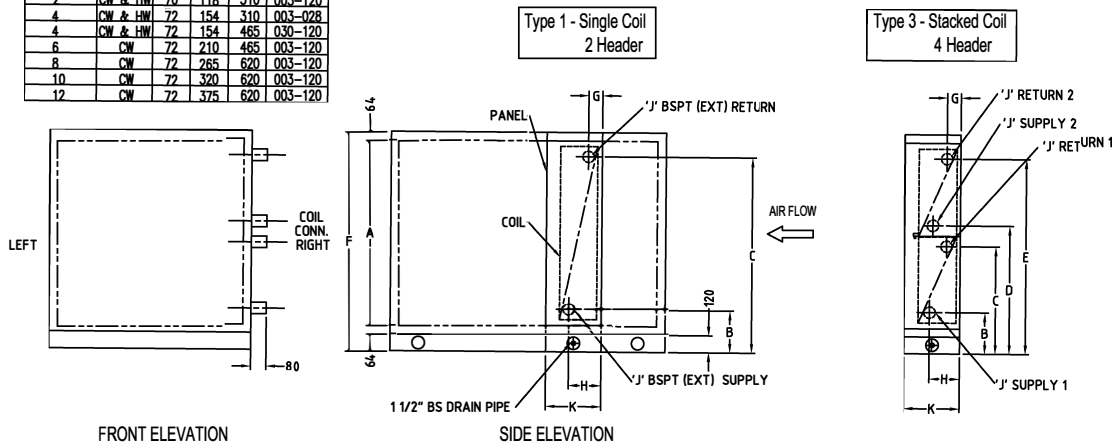
Coil Connection Dimension

25MM CASING CONSTRUCTION

Horizontal / Vertical draw through - Chilled and Hot water coil connection Dimension

NOTE :
1. ALL DIMENSION IN MM.

COIL ROW	TYPE	G	H	K	MODEL
1	LHW	72	120	310	003-120
2	CW & LHW	70	118	310	003-120
4	CW & LHW	72	154	310	003-028
4	CW & LHW	72	154	465	030-120
6	CW	72	210	465	003-120
8	CW	72	265	620	003-120
10	CW	72	320	620	003-120
12	CW	72	375	620	003-120



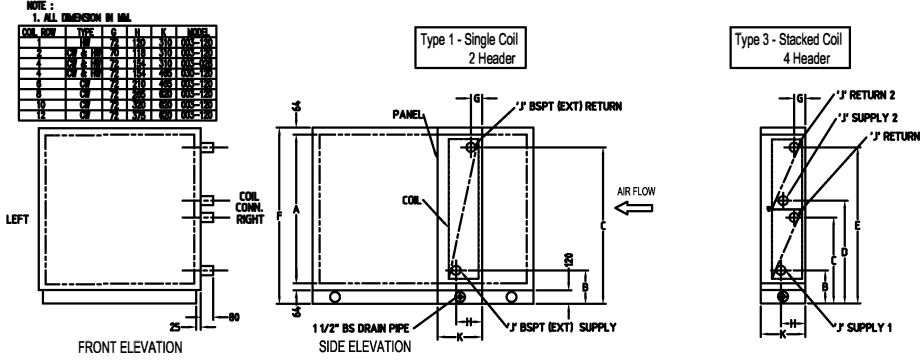
MODEL	TYPE	A	B	C	D	E	F	COPPER NON THREADED HEADER DIAMETER (OD)						
								(1 ROW)		(2 & 3 ROW)		(4, 5, 6, 8, 10 & 12 ROW)		
								WL COIL	WL & DL COIL	WL COIL	LL COIL	DL COIL		
003	1	620	240	702	--	--	818	J'	J'	J'	J'	J'		
03A	1	620	240	702	--	--	818	41	41	41	67	41		
004	1	620	240	702	--	--	818	41	41	41	67	41		
005	1	620	240	702	--	--	818	41	41	41	67	41		
006	1	620	240	702	--	--	818	41	41	41	67	41		
007	1	620	240	702	--	--	818	41	41	41	67	41		
008	1	620	240	702	--	--	818	41	41	41	67	41		
009	1	620	240	702	--	--	818	41	41	41	67	41		
010	1	930	240	1040	--	--	1128	41	54	54	67	54		
011	1	930	240	1040	--	--	1128	41	54	54	67	54		
012	1	930	240	1040	--	--	1128	41	54	54	67	54		
013	1	930	240	1040	--	--	1128	41	54	54	67	54		
014	1	930	240	1040	--	--	1128	41	54	54	67	54		
015	1	1085	240	1040	--	--	1283	41	54	54	67	54		
016	1	1240	240	1324	--	--	1438	41	54	67	67	67		
018	1	1240	240	1324	--	--	1438	41	54	67	67	67		
020	1	1240	240	1324	--	--	1438	41	54	67	67	67		
022	1	1395	240	1445	--	--	1593	41	54	67	67	67		
025	1	1550	240	1610	--	--	1748	41	54	67	67	67		
028	1	1550	240	1610	--	--	1748	41	54	67	67	67		
030	3	1860	240	1040	1145	1915	2058	41	54	54	67	54		
032	3	1860	240	1040	1145	1915	2058	41	54	54	67	54		
035	3	1860	240	1040	1145	1915	2058	41	54	54	67	54		
038	3	1860	240	1040	1145	1915	2058	41	54	54	67	54		
040	3	1860	240	1040	1145	1915	2058	41	54	54	67	54		
042	3	1860	240	1040	1145	1915	2058	41	54	54	67	54		
045	3	1860	240	1040	1145	1915	2058	41	54	54	67	54		
048	3	1860	240	1040	1145	1915	2058	41	54	54	67	54		
050	3	1860	240	1040	1145	1915	2058	41	54	54	67	54		

Installation Consideration

Coil Connection Dimension

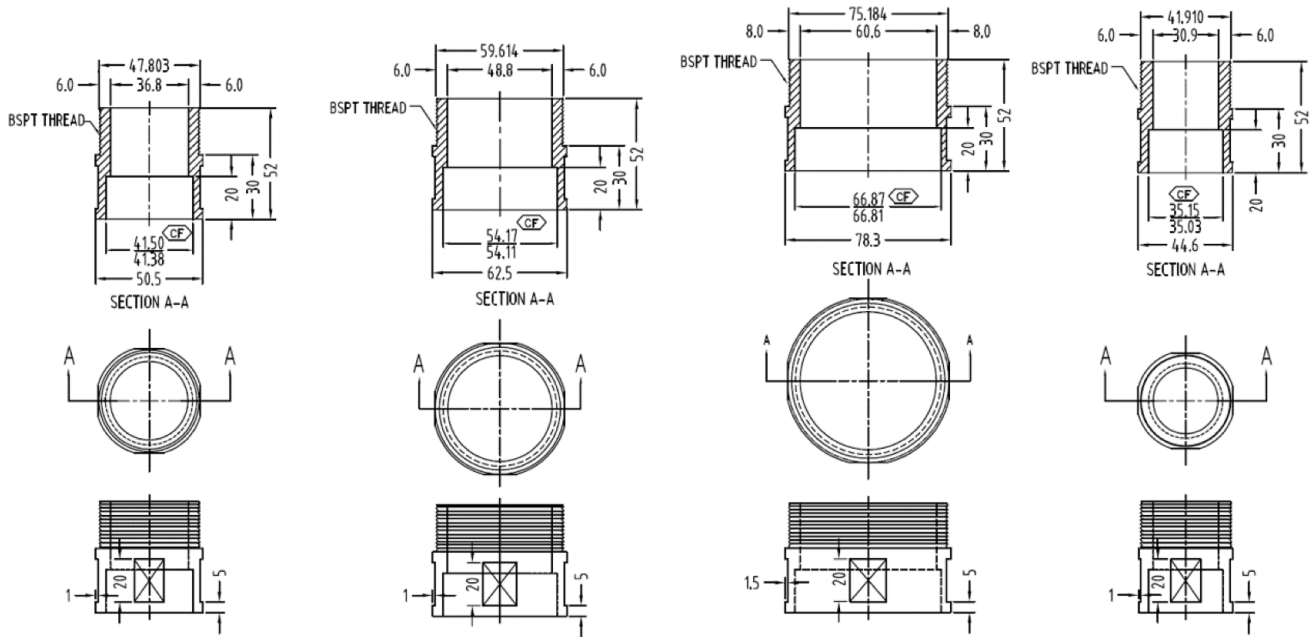
50MM CASING CONSTRUCTION

Horizontal / Vertical draw through - Chilled and Hot water coil connection Dimension



MODEL	TYPE	A	B	C	D	E	F	COPPER NON THREADED HEADER DIAMETER (OD)					
								(1 ROW)		(2 & 3 ROW)		(4, 5, 6, 8, 10 & 12 ROW)	
								WL. COIL	WL. & DL. COIL	WL. COIL	LL. COIL	DL. COIL	DL. COIL
003	1	620	265	727	—	—	868	41	41	41	67	41	
03A	1	620	265	727	—	—	868	41	41	41	67	41	
004	1	620	265	727	—	—	868	41	41	41	67	41	
005	1	620	265	727	—	—	868	41	41	41	67	41	
006	1	620	265	727	—	—	868	41	41	41	67	41	
007	1	620	265	727	—	—	868	41	41	41	67	41	
008	1	620	265	727	—	—	868	41	41	41	67	41	
009	1	620	265	727	—	—	868	41	41	41	67	41	
010	1	620	265	727	—	—	868	41	41	41	67	41	
011	1	930	265	1065	—	—	1178	41	54	54	67	54	
012	1	930	265	1065	—	—	1178	41	54	54	67	54	
013	1	930	265	1065	—	—	1178	41	54	54	67	54	
014	1	930	265	1065	—	—	1178	41	54	54	67	54	
015	1	930	265	1065	—	—	1178	41	54	54	67	54	
016	1	1240	265	1349	—	—	1488	41	54	67	67	67	
018	1	1240	265	1349	—	—	1488	41	54	67	67	67	
020	1	1240	265	1349	—	—	1488	41	54	67	67	67	
022	1	1395	265	1470	—	—	1643	41	54	67	67	67	
025	1	1550	265	1635	—	—	1798	41	54	67	67	67	
028	1	1550	265	1635	—	—	1798	41	54	67	67	67	
030	3	1860	265	1065	1170	1940	2108	41	54	54	67	54	
032	3	1860	265	1065	1170	1940	2108	41	54	54	67	54	
035	3	1860	265	1065	1170	1940	2108	41	54	54	67	54	
038	3	1860	265	1065	1170	1940	2108	41	54	54	67	54	
040	3	1860	265	1065	1170	1940	2108	41	54	54	67	54	
042	3	1860	265	1065	1170	1940	2108	41	54	54	67	54	
045	3	1860	265	1065	1170	1940	2108	41	54	54	67	54	
048	3	1860	265	1065	1170	1940	2108	41	54	54	67	54	
050	3	1860	265	1065	1170	1940	2108	41	54	54	67	54	
055	3	2015	265	1120	1226	2081	2263	41	54	67	67	67	
060	3	2170	265	1265	1370	2290	2418	41	54	67	67	67	
062	3	2170	265	1265	1370	2290	2418	41	54	67	67	67	
065	3	2170	265	1265	1370	2290	2418	41	54	67	67	67	
070	3	2170	265	1265	1370	2290	2418	41	54	67	67	67	
080	3	2170	265	1265	1370	2290	2418	41	54	67	67	67	
085	3	2170	265	1265	1370	2290	2418	41	54	67	67	67	
090	3	2170	265	1265	1370	2290	2418	41	54	67	67	67	
095	3	2170	265	1265	1370	2290	2418	41	54	67	67	67	
100	3	2480	270	1348	1454	2532	2733	41	54	67	67	67	
110	3	2635	270	1475	1581	2659	2888	41	54	67	67	67	
120	3	2790	270	1475	1581	2786	3043	41	54	67	67	67	






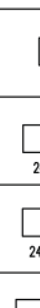

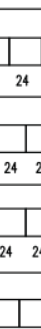

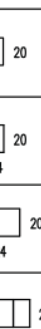



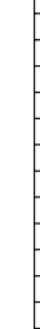

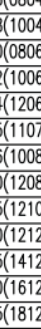









Coil Connection Brass Adaptor (For Cu. Header)



Appendix :

Filter Dimension (Nominal) and Arrangement




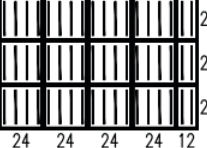

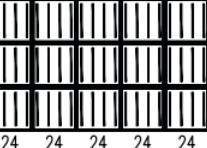



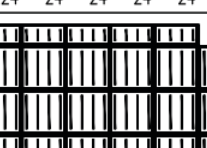







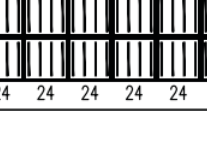




High Capacity Angle Filter

MODEL	DIMENSION	FILTER ARRANGEMENT	MODEL	DIMENSION	FILTER ARRANGEMENT
003 03A	2 ROWS - 24" X 20"		070	9 ROWS - 144" X 20"	
004 005	2 ROWS - 36" X 20"		080	9 ROWS - 156" X 20"	
006 007	2 ROWS - 48" X 20"		085	9 ROWS - 168" X 20"	
008 009	2 ROWS - 60" X 20"		090	9 ROWS - 180" X 20"	
010 011	4 ROWS - 48" X 20"		095	9 ROWS - 192" X 20"	
012 013 015	4 ROWS - 60" X 20"		100	10 ROWS - 192" X 20"	
014	4 ROWS - 72" X 20"		110	11 ROWS - 192" X 20"	
016 018	5 ROWS - 60" X 20"		120	12 ROWS - 192" X 20"	
020 022	5 ROWS - 72" X 20"				
025 028	7 ROWS - 72" X 20"				
030 032	8 ROWS - 72" X 20"				
035 038	8 ROWS - 72" X 20"				
040 042	8 ROWS - 96" X 20"				
045 048	8 ROWS - 108" X 20"				
050 055	8 ROWS - 120" X 20"				
060 062	9 ROWS - 120" X 20"				
065	9 ROWS - 132" X 20"				

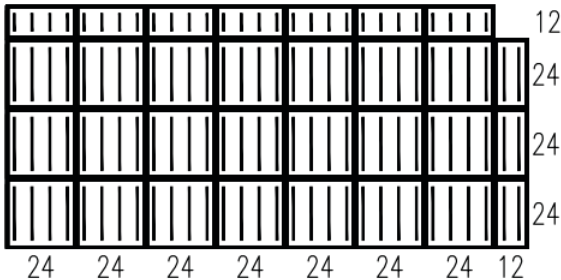
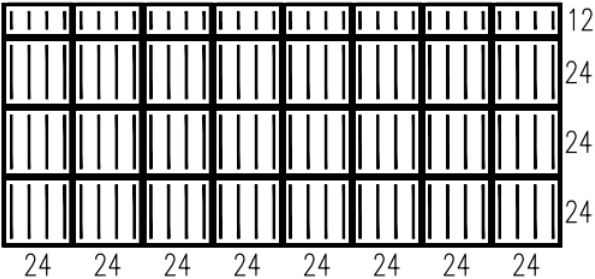
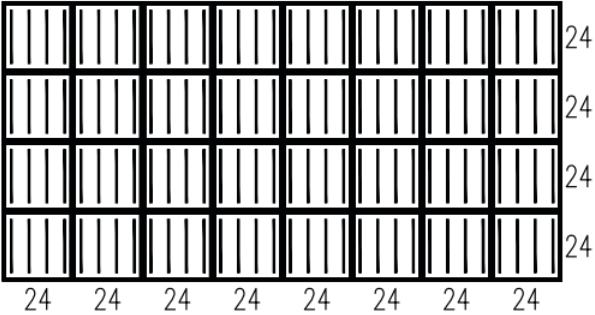
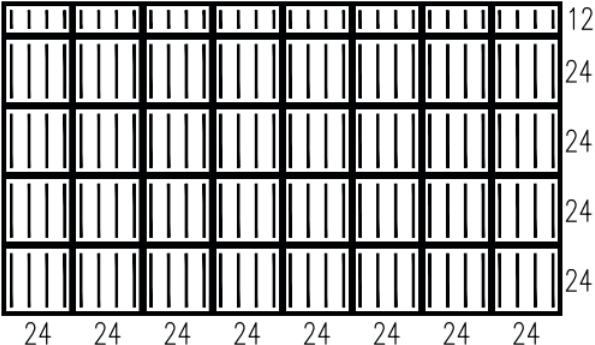
Model	Filter Size	
	24" X 20"	12" X 20"
	QTY	QTY
003(0404) / 03A(0504)	2	0
004(0604) / 005(0704)	2	2
006(0804) / 007(0904)	4	0
008(1004) / 009(1104)	4	2
010(0806) / 011(0906)	8	0
012(1006) / 013(1106)	8	4
014(1206)	12	0
015(1107)	8	4
016(1008) / 018(1108)	10	5
020(1208) / 022(1209)	15	0
025(1210) / 028(1310)	21	0
030(1212) / 032(1312)	24	0
035(1412) / 038(1512)	24	8
040(1612) / 042(1712)	32	0
045(1812) / 048(1912)	32	8
050(2012) / 055(2013)	40	0
060(2014) / 062(2114)	45	0
065(2214)	45	9
070(2414)	54	0
080(2614)	54	9
085(2814)	63	0
090(3014)	63	9
095(3214)	72	0
100(3216)	80	0
110(3217)	88	0
120(3218)	96	0

Filter Dimension (Nominal) and Arrangement

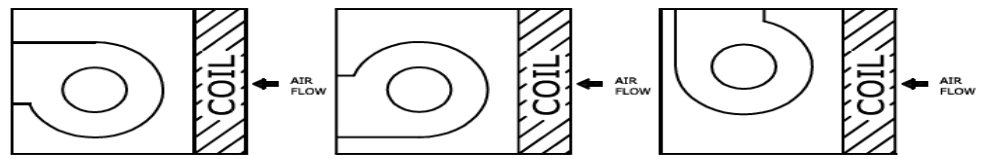
Flat Filter. Bag Filter

FILTER PLAN				
(NOMINAL SIZES IN INCHES)	MODEL	W X H = QTY.	(NOMINAL SIZES IN INCHES)	MODEL W X H = QTY.
	003(0404) 03A(0504)	24 X 20 = 1		040(1612) 042(1712) 24 X 24 = 12
	004(0604) 005(0704)	12 X 20 = 1 24 X 20 = 1		045(1812) 048(1912) 12 X 24 = 3 24 X 24 = 12
	006(0804) 007(0904)	24 X 20 = 2		050(2012) 055(2013) 24 X 24 = 15
	008(1004) 009(1104)	12 X 20 = 1 24 X 20 = 2		060(2014) 062(2114) 24 X 12 = 5 24 X 24 = 15
	010(0806) 011(0906)	24 X 12 = 2 24 X 20 = 2		065(2214) 24 X 12 = 5 24 X 24 = 15 12 X 24 = 3
	012(1006) 013(1106)	24 X 12 = 2 24 X 20 = 2 12 X 20 = 1		070(2414) 24 X 12 = 6 24 X 24 = 18
	014(1206)	24 X 12 = 3 24 X 20 = 3		080(2614) 24 X 12 = 6 24 X 24 = 18 12 X 24 = 3
	015(1107)	12 X 20 = 2 24 X 20 = 4		085(2814) 24 X 12 = 7 24 X 24 = 21
	016(1008) 018(1108)	12 X 24 = 2 24 X 24 = 4		
	020(1208) 022(1209)	24 X 24 = 6		
	025(1210) 028(1310)	24 X 12 = 3 24 X 24 = 6		
	030(1212) 032(1312)	24 X 24 = 9		
	035(1412) 038(1512)	12 X 24 = 3 24 X 24 = 9		

Appendix :
Filter Dimension (Nominal) and Arrangement
Flat Filter. Bag Filter

FILTER PLAN	
(NOMINAL SIZES IN INCHES)	MODEL W X H = QTY.
	<p><i>090(3014)</i></p> <p>$24 \times 12 = 7$ $24 \times 24 = 21$ $12 \times 24 = 3$</p>
	<p><i>095(3214)</i></p> <p>$24 \times 12 = 8$ $24 \times 24 = 24$</p>
	<p><i>100(3216)</i> <i>110(3217)</i></p> <p>$24 \times 24 = 32$</p>
	<p><i>120(3218)</i></p> <p>$24 \times 12 = 8$ $24 \times 24 = 32$</p>

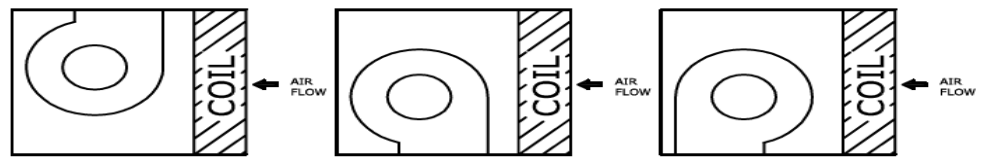
Fan Discharge Arrangement



1 FRONT - TOP

2 FRONT - BOTTOM

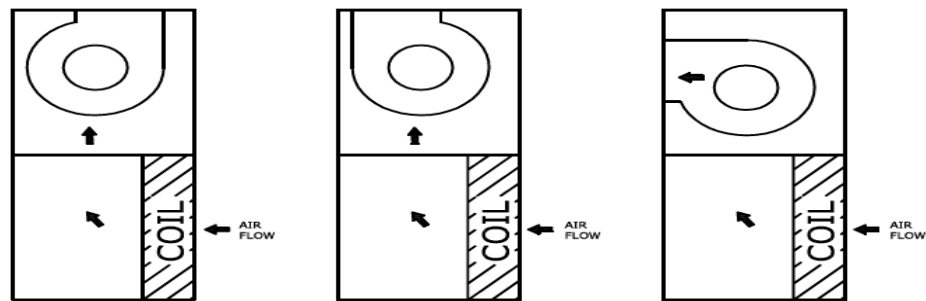
3 TOP - FRONT



4 TOP - BACK

11 BOTTOM - BACK

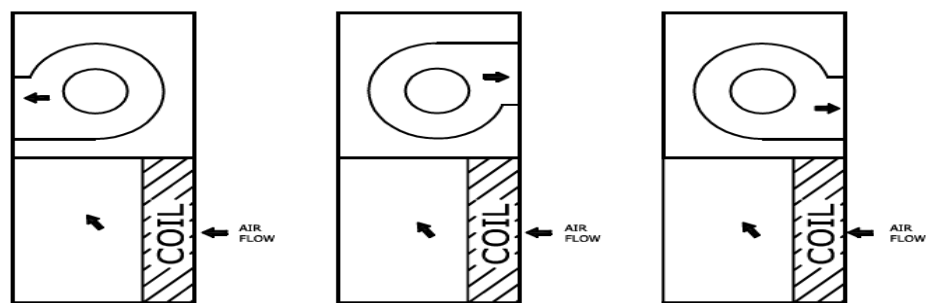
12 BOTTOM - FRONT



5 TOP - BACK

6 TOP - FRONT

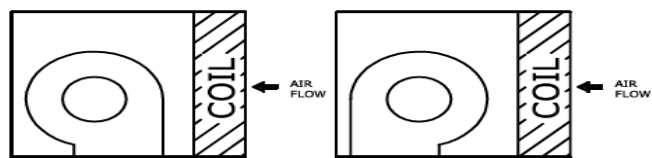
7 FRONT - TOP



8 FRONT - BOTTOM

9 BACK - TOP

10 BACK - BOTOM



11 BOTTOM - BACK

12 BOTTOM - FRONT



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