



39L Series

Central Station Air Handlers

Nominal: 2,000-20,000 CFM



World's No.1 Air Conditioning Expert

www.carrier.co.th

39L Series



Compact, fully-assembled air-handlers combine versatility with economical, dependable performance.

Features & benefits

Dependable performance

The 39L is built to last. Sturdy milled galvanized steel formed panels ensure durability under all climate conditions and operational wear. Double-skinned access doors increase construction stability and provide low-frequency sound attenuation. Durable double-walled drain pan protects insulation from damage and controls moisture.

Internally mounted motors and drives are contained in a moving air environment where only cool, filtered, dehumidified air circulates. The result is longer motor bearing and belt life with less servicing. In addition, factory-installed motors and drives are protected from shipping damage and vandalism. All factory-installed drives are aligned at the factory. And, factory-installed internally mounted motors and drives save installation time and expense.

Carrier precision balances all 39L fan wheels to limit vibration and eliminate abnormal stress on bearings and other vital unit components. Rugged bearings are selected at a minimum 200,000 hours average bearing life at maximum allowable operating conditions. Bearings are securely fastened to a solid steel fan shaft with a split collet and clamp locking device. Field-proven bearings and fan shaft assure that vibration is controlled within narrowly prescribed limits.

Units are designed to handle dehumidification operation at face velocities up to 550 fpm without moisture carryover.

Economical

Carrier's 39L air-handlers are designed to save your money. The units are shipped fully-assembled with a single fan wheel and a single straight shot to the ductwork.

The small footprint is easier to rig and ensures economical use of building space.

High efficiency fan minimizes air turbulence and avoids surging and unbalanced operation, cutting operating expenses.

Hinged access doors on most accessories facilitate service and maintenance, saving time and money.

Flexibility

Carrier offers a wide selection of coils for your 39L application. With the help of the Carrier Electronic Catalog you can mix-match combinations of coils to meet your application needs.

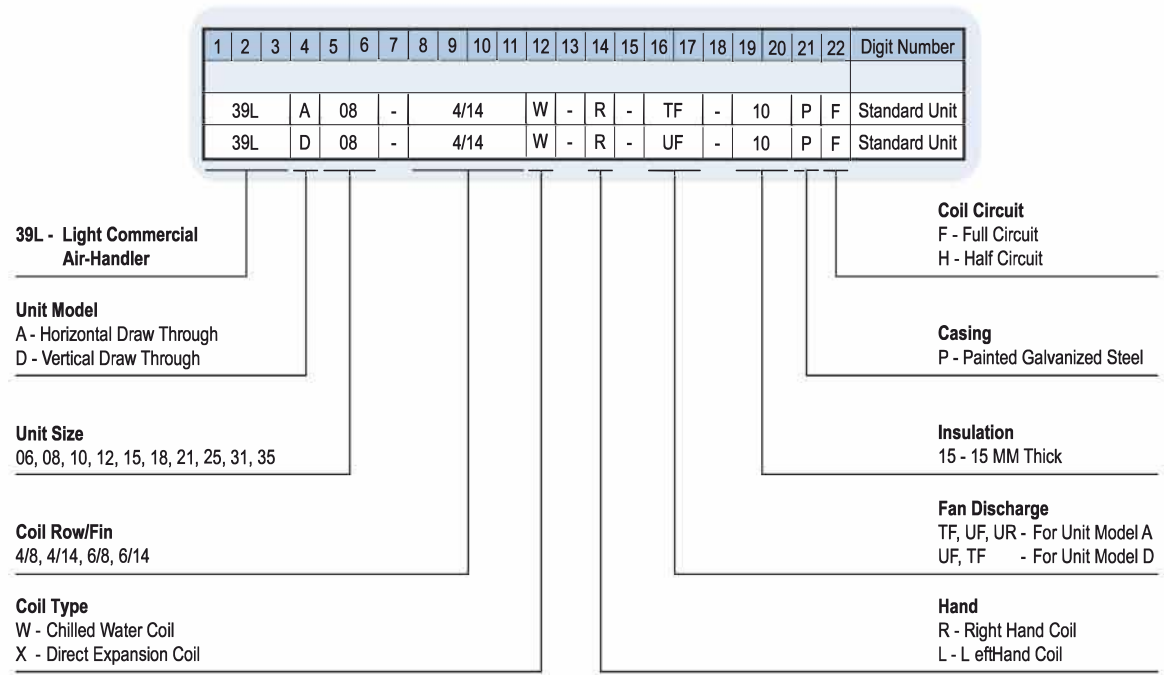
Chilled water coils

The coil headers are constructed from schedule 40 steel pipe and are precisely sized to minimize water pressure loss. The coils are manufactured of 1/2-in. OD copper tubes, aluminum or copper fins (either 8- or 14-fins per inch), and galvanized steel coil casings. They feature Carrier's exclusive Opti-Fin® design for most efficient heat transfer.

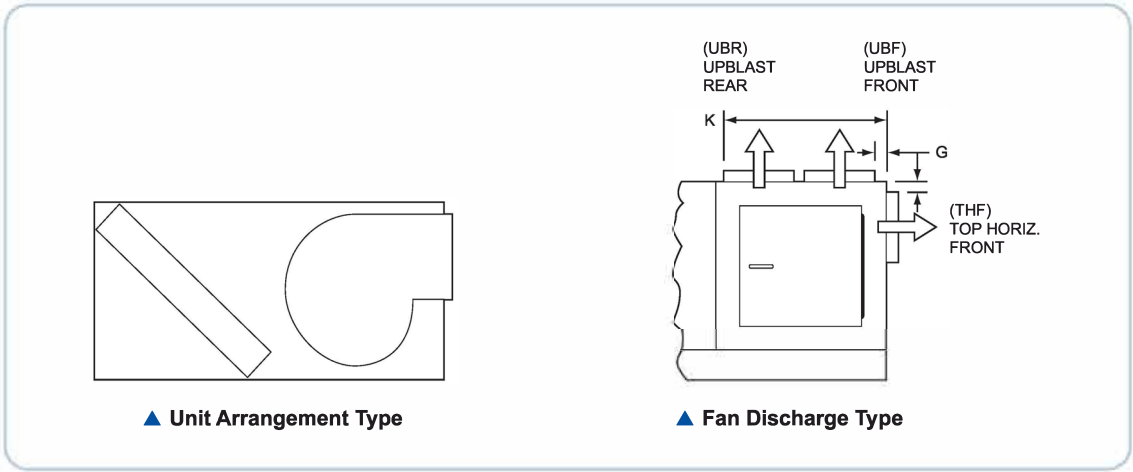
Direct-expansion coils

Carrier's direct expansion coils offer the advantage of design flexibility and total economy...plus optimization of coil performance. Coils are available in 4, 6 row with 8 or 14 fins (aluminum or copper) per inch on 1/2-in. OD copper tubes. Choose from 2 or more circuitings on each coil surface for maximum thermal performance with minimum refrigerant pressure drop. Liquid and suction connections are always on the same end, regardless of circuiting, and may be specified for either right-or left-hand connections.

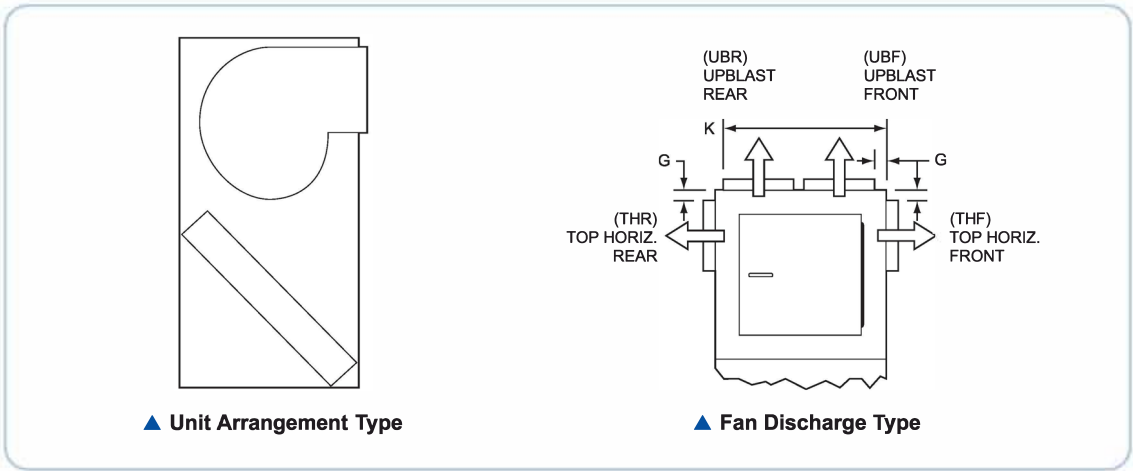
Model number nomenclature



39LA (Cooling)



39LD (Cooling)



Physical data (Chilled water coil)

Description			Light Commercial Air Handling Unit									
Model			39LA, 39LD									
			06	08	10	12	15	18	21	25	31	35
Chilled Water Coil	Nominal Performance* (1,000 Btu/h)		86.10	120.30	155.30	190.90	254.60	302.40	388.30	449.40	576.20	675.30
Face Area		sq. ft.	5.90	7.90	9.54	11.20	14.90	17.70	21.60	25**	30.9**	35.5**
Number of Tube/Face			20	24	24	24	32	38	38	22/22	22/24	24/24
Finned Tube Length			in.	34.00	37.90	45.80	53.70	53.70	65.50	65.50	77.30	85.20
Connections	Coil Connection	in. MPT	1 1/2	2 1/2								
	Drain Connection	in. MPT	1 1/2									
Fans	Nominal Capacity at 500 fpm	CFM	2,950	3,950	4,770	5,600	7,450	8,850	10,800	12,500	15,450	17,750
	Wheel Diameter	in.	12	12	15	15	18	18	18	20	25	25
	Fan Shaft Diameter	mm.	25	25	25	25	25	25	25	35	45	45
Field Supplied	Air Filters	No...Size (in.)	2...20x20x2	2...20x25x2	2...16x25x2	3...20x25x2	6...16x20x2	3...16x20x2	3...16x25x2	2...16x20x2	4...16x20x2	3...16x20x2
				1...20x25x2			3...20x20x2	3...20x25x2	2...16x25x2	4...16x25x2	9...16x25x2	
									2...20x20x2	1...20x20x2		
								2...20x25x2	1...20x25x2			
Motors	Motor Type		TEFC-Totally Enclosed Fan Cooled									
	Motor Horsepower		HP									
			Depends on Air Flow and Static Pressure									
	Nominal Motor Size	HP	2.0	2.0	3.0	3.0	5.0	7.5	10.0	15.0	15.0	20.0
	Motor Shaft Diameter	mm.	24.0	24.0	28.0	28.0	28.0	38.0	38.0	42.0	42.0	42.0
	Motor Full Load Amp	Amp	3.8	3.8	5.2	5.2	8.3	12.0	15.2	21.6	21.6	28.3
	Approximate Motor Weight	kgs	24.5	24.5	31.0	31.0	42.0	67.0	78.0	122.0	122.0	144.0
Electrical Supply		V/Ph/Hz	380/3/50									

* Nominal performance are based on 45°F entering water, 10°F rise and 80/67 DB/WB entering air temp, 4R/14°F cooling coil.

** 39LA and 39LD units have 2 coils.

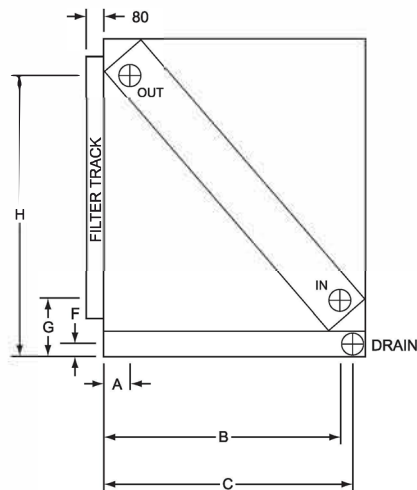
Note: For more details in Performance Data, supplied with computer selection, please contact your local area sales person.

Approximate unit weight

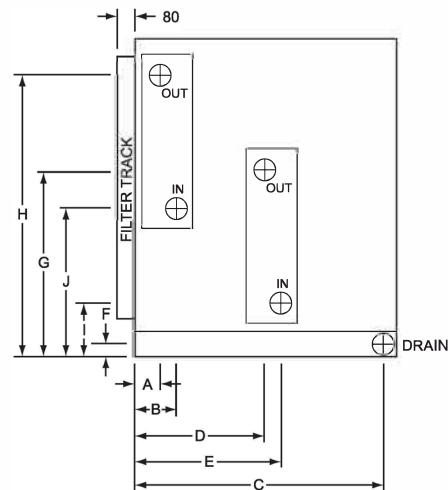
Model			39LA, 39LD									
			06	08	10	12	15	18	21	25	31	35
Unit Type - Less Coil and Motor	39LA Less Coil and Motor	kg	118	186	213	245	281	315	336	372	431	458
	39LD Less Coil and Motor	kg	146	214	245	282	323	362	386	428	495	526
Chilled Water Coil Weight Dry Coil*	4-row	kg	41	48	54	67	87	97	123	137	170	195
	6-row	kg	47	61	69	86	116	133	162	180	223	256
Chilled Water Coil Volume	4-row	litre	13.2	17.0	19.7	21.2	27.6	32.2	39.4	45.4	53.7	61.7
	6-row	litre	17.8	22.7	25.7	29.1	38.2	44.3	53.7	61.7	76.1	87.4
Approximate Motor Weight		HP	1.0	2.0	3.0	5.0	7.5	10.0	15.0	20.0	25.0	30.0
		kgs	14.0	24.5	31.0	42.0	67.0	78.0	122.0	144.0	185.0	182.0

* Coils are 1/2 in. OD 14 Aluminium fins per inch on copper tubes, coil weight excluded water weight.

Chilled water coil connection position and diameter



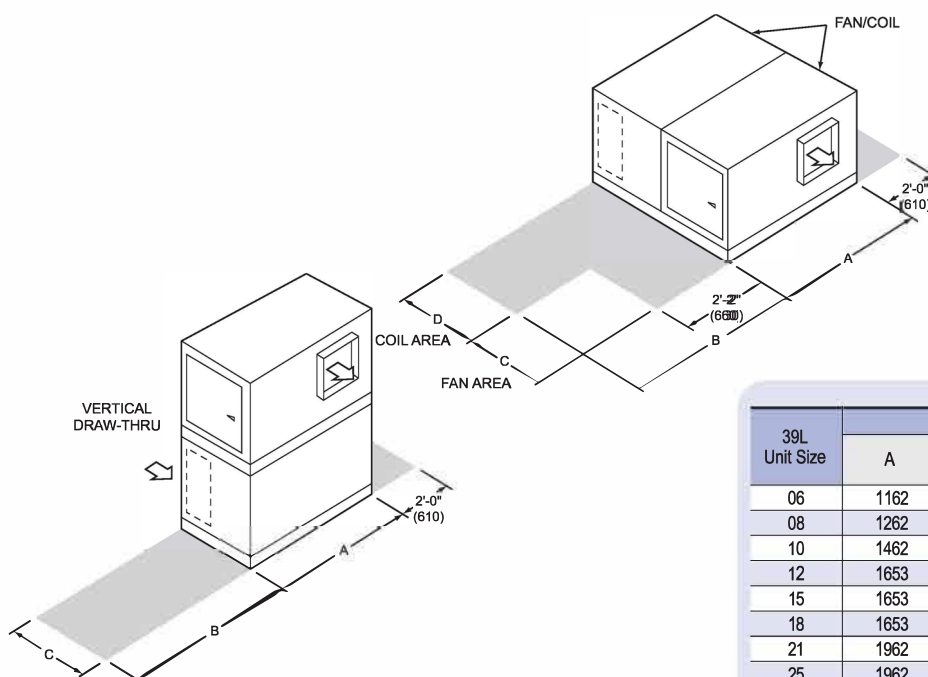
▲ 39LA, LD 06 to 21



▲ 39LA, LD 25 to 35

39L Unit Size	Dimensions (mm.)									
	A	B	C	D	E	F	G	H	I	J
06	100	510	560	-	-	37	230	550	-	-
08	100	610	645	-	-	37	235	645	-	-
10	100	610	645	-	-	37	235	645	-	-
12	100	610	645	-	-	37	235	645	-	-
15	100	785	840	-	-	37	235	815	-	-
18	100	915	945	-	-	37	235	955	-	-
21	100	915	945	-	-	37	235	955	-	-
25	100	160	640	525	615	37	815	1250	165	600
31	100	185	640	530	625	37	870	1250	165	600
35	100	185	640	535	625	37	870	1350	165	600

Service area



39L Unit Size	Dimensions (mm.)			
	A	B	C	D 39LA
06	1162	1159	640	600
08	1262	1259	740	700
10	1462	1459	740	700
12	1653	1659	740	700
15	1653	1659	940	900
18	1653	1659	1040	1000
21	1962	1959	1040	1000
25	1962	1959	1240	700
31	2262	2259	1240	700
35	2462	2459	1340	700

Fan performance

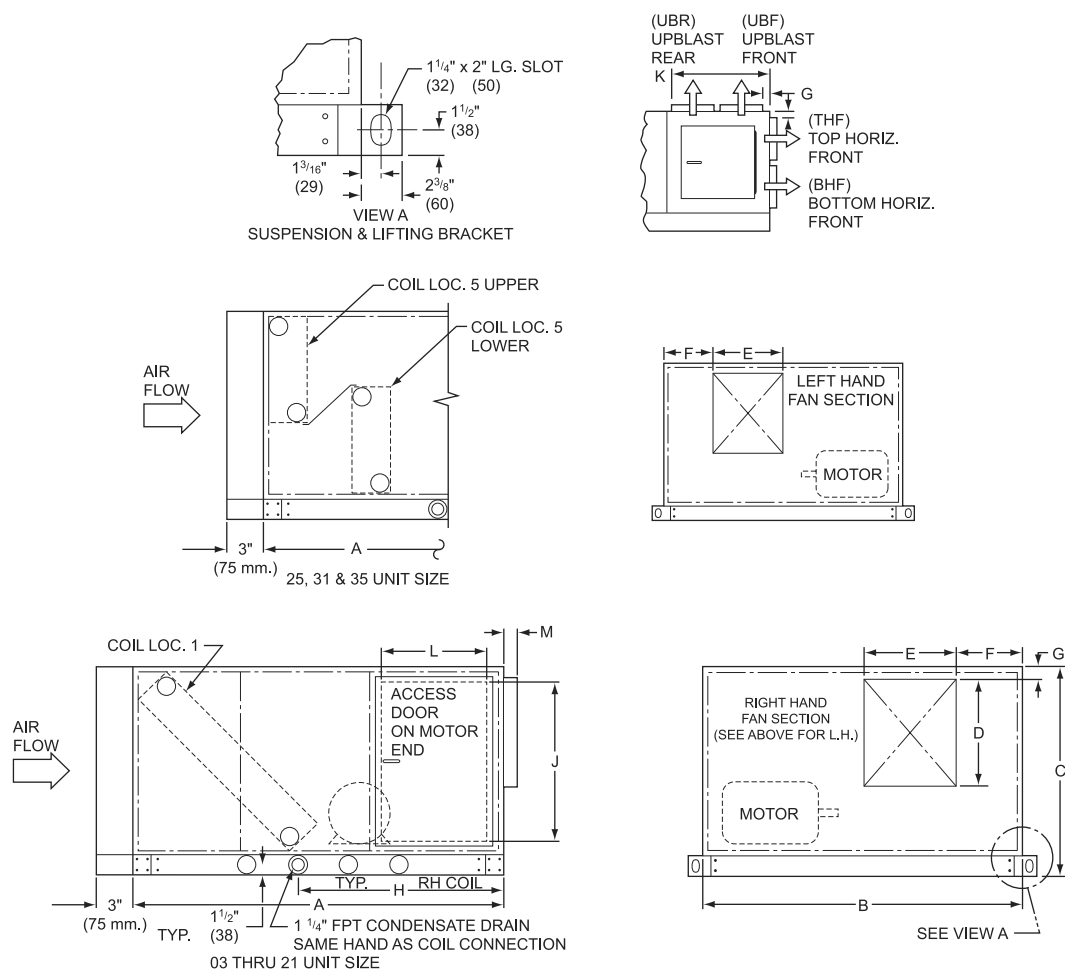
Model	Coil Area sq. ft.	Vel. FPM	CFM	Total Static Pressure (in. wg.)																													
				0.6			0.8			1.0			1.2			1.4			1.6			1.8			2.0			2.2			2.4		
				RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
06	5.90	350	2065	621	0.35	716	0.44	806	0.54	887	0.64	963	0.75	1035	0.87	1101	0.99	1163	1.11	1224	1.25	1281	1.38										
		400	2365	626	0.44	715	0.54	801	0.64	881	0.75	956	0.86	1026	0.98	1092	1.10	1154	1.23	1214	1.37	1272	1.50										
		450	2655	636	0.54	719	0.64	800	0.75	877	0.87	950	0.99	1019	1.11	1084	1.25	1146	1.38	1205	1.51	1263	1.66										
		500	2950	651	0.66	728	0.78	804	0.90	877	1.02	947	1.15	1014	1.27	1078	1.41	1139	1.55	1198	1.69	1254	1.85										
		550	3245	671	0.80	741	0.92	812	1.06	881	1.18	948	1.33	1013	1.46	1075	1.61	1134	1.74	1192	1.90	1247	2.05										
08	7.90	350	2765	641	0.58	722	0.68	801	0.80	877	0.92	948	1.05	1017	1.18	1082	1.31	1143	1.43	1202	1.58	1259	1.73										
		400	3160	665	0.76	737	0.87	809	1.01	880	1.14	947	1.27	1013	1.41	1076	1.54	1135	1.69	1193	1.84	1249	1.98										
		450	3555	695	0.98	760	1.11	825	1.25	890	1.38	953	1.53	1015	1.72	1075	1.84	1131	1.98	1188	2.14	1242	2.31										
		500	3950	731	1.23	789	1.38	848	1.53	907	1.69	966	1.84	1023	2.00	1079	2.16	1133	2.32	1187	2.49	1240	2.67										
		550	4345	771	1.55	823	1.70	877	1.86	931	2.04	984	2.20	1038	2.37	1090	2.55	1141	2.72	1192	2.90	1242	3.08										
10	9.54	350	3335	518	0.59	592	0.75	662	0.91	728	1.10	791	1.29	850	1.47	907	1.68	960	1.88	1012	2.08	1062	2.29										
		400	3816	529	0.74	597	0.90	662	1.07	725	1.27	785	1.47	842	1.68	896	1.89	948	2.10	998	2.33	1047	2.56										
		450	4293	544	0.92	607	1.09	668	1.27	727	1.47	783	1.68	838	1.90	890	2.13	940	2.36	989	2.59	1036	2.84										
		500	4770	563	1.14	621	1.31	678	1.50	733	1.72	786	1.93	838	2.16	888	2.40	936	2.64	983	2.88	1029	3.15										
		550	5247	584	1.41	638	1.58	691	1.78	743	2.00	794	2.23	843	2.45	890	2.71	936	2.95	981	3.22	1026	3.49										
12	11.20	350	3920	532	0.78	598	0.94	663	1.11	725	1.31	784	1.51	840	1.72	895	1.94	946	2.16	996	2.39	1045	2.61										
		400	4480	551	1.01	612	1.17	671	1.37	729	1.57	784	1.77	837	2.00	889	2.23	938	2.47	986	2.71	1033	2.95										
		450	5040	574	1.29	630	1.46	685	1.66	738	1.86	790	2.09	840	2.32	889	2.56	936	2.82	982	3.07	1027	3.34										
		500	5600	601	1.64	652	1.82	703	2.02	753	2.24	801	2.47	848	2.71	894	2.96	938	3.22	982	3.49	1025	3.77										
		550	6160	631	2.05	678	2.24	725	2.45	772	2.68	817	2.92	861	3.18	904	3.43	946	3.70	988	3.97	1029	4.26										
15	14.90	350	5215	447	0.90	508	1.11	567	1.35	622	1.60	674	1.84	723	2.10	769	2.37	894	3.20	954	2.92	1014	3.20										
		400	5960	459	1.13	514	1.35	569	1.61	622	1.88	671	2.14	719	2.43	764	2.71	888	3.61	948	3.30	1008	3.61										
		450	6705	475	1.39	525	1.65	576	1.92	625	2.21	672	2.49	718	2.80	762	3.10	883	4.06	944	3.73	1004	4.06										
		500	7450	494	1.72	541	2.00	587	2.29	632	2.59	677	2.90	720	3.22	762	3.55	880	4.56	941	4.21	1001	4.56										
		550	8195	517	2.10	559	2.40	602	2.71	644	3.03	685	3.36	726	3.70	766	4.05	879	5.12	942	4.76	1002	5.12										

Fan performance

Model	Coil Area sq. ft.	Vel. FPM	CFM	Total Static Pressure (in. wg.)																			
				0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4	
				RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
18	17.70	350	6195	463	1.21	517	1.45	571	1.70	622	1.97	671	2.25	718	2.53	763	2.83	805	3.12	847	3.43	886	3.74
		400	7080	484	1.55	533	1.82	581	2.10	628	2.39	674	2.69	718	3.00	761	3.32	802	3.63	842	3.97	881	4.30
		450	7965	510	1.98	553	2.27	597	2.57	640	2.88	682	3.22	724	3.55	764	3.89	803	4.22	841	4.58	879	4.95
		500	8850	538	2.49	577	2.80	617	3.14	656	3.47	695	3.82	734	4.18	772	4.54	808	4.91	844	5.28	880	5.67
		550	9735	569	3.10	605	3.45	641	3.79	677	4.16	713	4.53	748	4.91	784	5.29	990	5.15	852	6.09	886	6.50
21	21.60	350	7560	493	2.04	528	2.24	563	2.45	599	2.69	635	2.96	673	3.26	713	3.58	753	3.93	794	4.33	836	4.75
		400	8640	534	2.83	566	3.06	597	3.30	627	3.54	658	3.81	689	4.09	722	4.38	754	4.71	788	5.07	823	5.44
		450	9720	576	3.83	606	4.09	635	4.34	662	4.61	690	4.88	717	5.16	744	5.46	772	5.76	800	6.10	829	6.46
		500	10800	619	5.04	648	5.34	675	5.63	701	5.91	726	6.21	751	6.50	775	6.81	799	7.12	824	7.45	849	7.80
		550	11880	661	6.46	691	6.82	717	7.16	742	7.48	765	7.79	788	8.11	811	8.43	832	8.75	855	9.09	877	9.45
25	25.00	350	8750	432	2.05	469	2.32	506	2.61	544	2.92	581	3.26	619	3.61	657	3.99	694	4.38	731	4.81	768	5.25
		400	10000	463	2.79	496	3.08	529	3.40	562	3.73	594	4.06	627	4.42	660	4.81	692	5.20	725	5.62	758	6.06
		450	11250	495	3.69	526	4.03	556	4.38	586	4.73	615	5.09	644	5.47	673	5.84	701	6.25	730	6.68	760	7.10
		500	12500	527	4.77	558	5.17	586	5.56	614	5.94	640	6.33	667	6.73	693	7.13	718	7.55	744	7.98	770	8.42
		550	13750	560	6.05	590	6.51	618	6.96	644	7.39	669	7.80	693	8.23	717	8.66	740	9.09	764	9.54	788	10.00
31	30.90	350	10815	294	1.89	333	2.32	372	2.79	409	3.30	444	3.82	478	4.38	511	4.97	542	5.58	572	6.21	601	6.86
		400	12360	303	2.41	338	2.87	373	3.35	407	3.89	440	4.44	472	5.01	503	5.63	533	6.25	562	6.90	590	7.59
		450	13905	314	3.03	347	3.53	379	4.05	410	4.60	441	5.17	471	5.78	500	6.42	528	7.05	555	7.73	582	8.43
		500	15450	327	3.78	357	4.32	387	4.88	416	5.45	444	6.06	472	6.69	499	7.35	526	8.02	552	8.71	578	9.44
		550	16995	341	4.66	370	5.24	398	5.84	425	6.46	451	7.09	477	7.75	502	8.43	527	9.13	552	9.85	576	10.59
35	35.50	350	12425	303	2.43	339	2.88	374	3.38	407	3.91	440	4.46	472	5.05	503	5.65	533	6.29	562	6.94	590	7.61
		400	14200	316	3.16	349	3.66	380	4.20	411	4.75	441	5.34	471	5.94	499	6.58	527	7.23	554	7.91	581	8.62
		450	15975	332	4.06	361	4.61	390	5.19	419	5.78	446	6.39	474	7.04	500	7.69	526	8.36	552	9.08	577	9.81
		500	17750	349	5.13	376	5.75	403	6.37	430	7.01	455	7.67	480	8.84	505	9.03	529	9.73	553	10.47	576	11.22
		550	19525	366	6.41	393	7.08	418	7.76	443	8.45	466	9.14	490	9.87	513	10.59	535	11.33	557	12.09	580	12.88

Unit dimensions

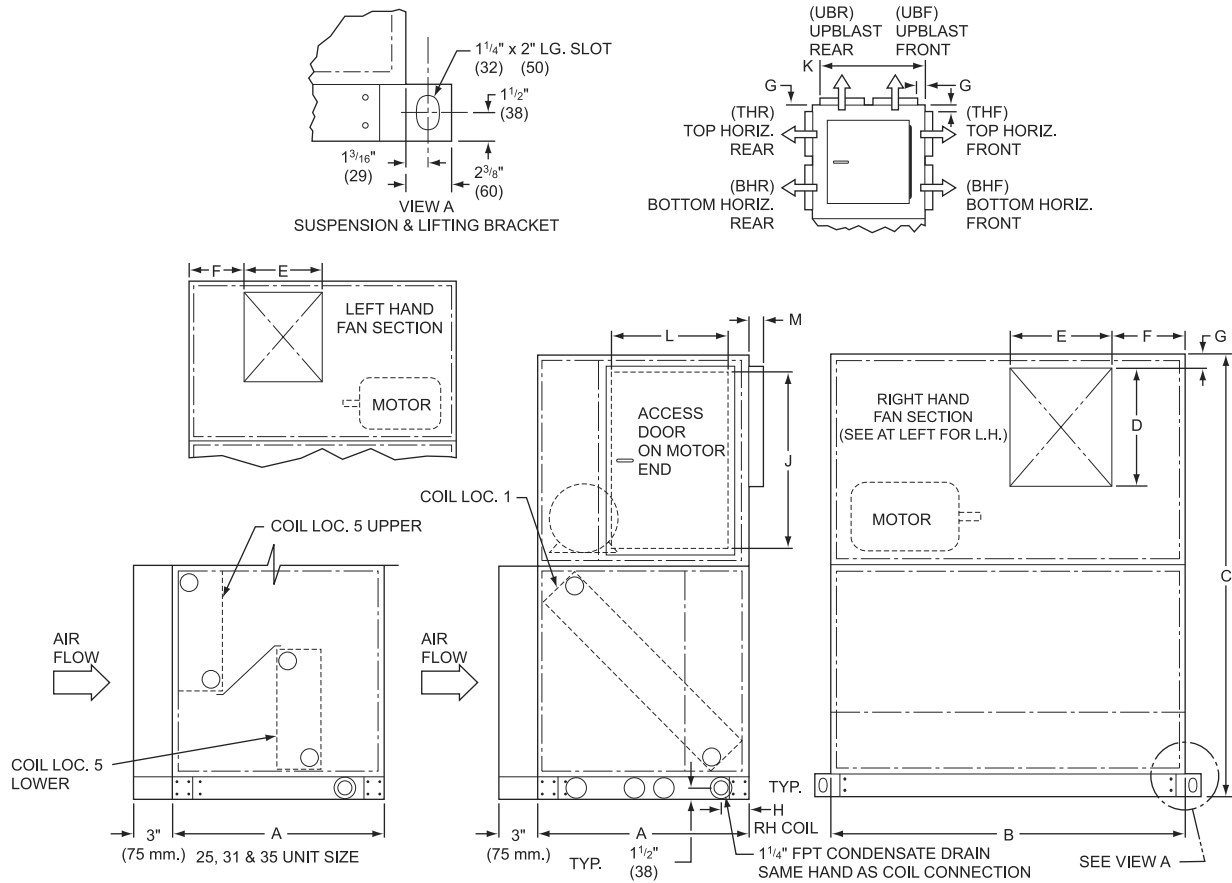
39LA



Unit 39LA	Dimensions (mm.)											
	A	B	C	D	E	F	G	H	J	K	L	M
06	1,240	1,160	715	344	395	260	60	697	560	580	445	35
08	1,440	1,260	815	344	395	273	87	800	655	653	443	35
10	1,440	1,460	815	405	470	302	59	800	649	680	654	50
12	1,440	1,660	815	405	470	353	60	800	655	680	443	50
15	1,840	1,660	1,015	483	559	300	89	1,000	860	851	445	60
18	2,040	1,660	1,115	513	559	312	95	1,107	960	921	445	60
21	2,040	1,960	1,115	565	565	508	120	1,107	960	920	445	60
25	1,940	1,960	1,315	640	640	450	184	1,100	1,154	1,050	444	50
31	1,940	2,240	1,415	800	800	520	45	1,100	1,252	1,290	444	60
35	2,040	2,440	1,415	805	800	670	40	1,100	1,252	1,295	444	60

Unit dimensions

39LD



Unit 39LD	Dimensions (mm.)											
	A	B	C	D	E	F	G	H	J	K	L	M
06	640	1,160	1,345	344	395	256	60	100	560	580	445	35
08	740	1,260	1,545	344	395	273	87	103	649	653	654	35
10	740	1,460	1,555	405	470	302	59	103	649	680	654	50
12	740	1,660	1,555	405	470	353	60	103	649	680	654	50
15	940	1,660	1,945	483	559	300	89	103	860	851	445	60
18	1,040	1,660	2,145	483	559	312	119	100	960	921	445	60
21	1,040	1,960	2,145	565	565	508	120	100	960	920	445	60
25	1,240	1,960	2,545	640	640	449	110	620	1,154	1,125	444	50
31	1,240	2,240	2,645	800	800	519	45	620	1,252	1,190	444	60
35	1,340	2,440	2,745	800	800	676	40	843	1,252	1,295	444	60

Physical data

Direct Expansion Coil Circuiting Data

Unit Size				39LA, 39LD													
				06			08			10			12		15		18
Circuiting Type				Qtr	Half	Full	Qtr	Half	Full	Qtr	Half	Full	Half	Full	Half	Full	
Face Area																	

Direct Expansion Coil Circuiting Data

Unit Size				39LA, 39LD																				
				21			25				31				35									
Circuiting Type				Half	Full	Double	Half	Full	Double	Half	Full	Double	Half	Full	Double	Half	Full	Double						
Face Area		sq. ft.	21.40			24.82				30.74				35.40										
Tube Face			38			22U-22L				22U-24L				24U-24L										
Tube Length		in.	65.5			65.5				77.3				85.2										
Number of Circuits			19	38	-	22	44	88	23	46	92	24	48											
			2	4*	-	U	L	U	L	U	L	U	L	U	L	U	L	U	L					
						2	2	2	2	4	4	2	2	2	2	4*	4*	2	2	2	2	4*	4*	
Number of Circuits/TXV			9-10	9-10	-	5-6	5-6	11	11	11	11	5-6	6	11	12	11	12	6	6	12	12	12	12	
Suction Connections Diam		in. OD	1 3/8	1 1/8	-	1 1/8	1 1/8	1 1/8	1 1/8	1 5/8	1 5/8	1 1/8	1 1/8	1 1/8	1 1/8	1 5/8	1 5/8	1 1/8	1 1/8	1 3/8	1 3/8	1 5/8	1 5/8	
Distributor Connections Diam		in. OD	1 1/8	1 1/8	-	7/8	7/8	1 1/8	1 1/8	1 3/8	1 3/8	7/8	7/8	7/8	7/8	1 3/8	1 1/8	7/8	7/8	7/8	7/8	1 1/8	1 1/8	
Circuit Equivalent Length			ft.	54	26	-	54	54	26	26	-	-	62	62	30	30	-	-	67	67	33	33	-	-
Distributor Tube Length		4-Row Face Split	in.	16	16 3/4	-	12	12	15	15	-	-	12	13	15	15	-	-	13	13	15	15	-	-
		4-Row Row Split	in.	28	16 3/4	-	21	21	23	23	-	-	21	18	23	23	-	-	18	18	23	23	-	-
Circuit Equivalent Length			ft.	81	40	-	-	-	40	40	-	-	-	-	46	46	-	-	-	-	50	50	-	-
Distributor Tube Length		6-Row Face Split	in.	16	18 1/2	-	-	-	15	15	-	-	-	-	15	15	-	-	-	-	15	15	-	-
		6-Row Row Split	in.	28	18 1/2	-	-	-	22	22	-	-	-	-	22	22	-	-	-	-	22	22	-	-

* May be field mainfolded for either face split or row split U - Upper L - Lower

Operating Charge - English

Unit Size 39LA, 39LD		06	08	10	12	15	18	21	25	31	35
Refrigerant		R-22 (lb)									
Rows	4	2-3	3-4	4-5	4-5	5-6	6-7	6-8	6-9	7-12	10-15
	6	2-4	5-6	5-6	6-8	8-10	9-11	11-13	11-16	14-20	17-26

Coil performance

Direct Expansion Coil Ratings

45°F Saturated Suction, 80°F DB, 67°F WB Entering Air

Unit Size	CFM	4 Row - 8 Fin				4 Row - 14 Fin				6 Row - 8 Fin				6 Row - 14 Fin			
		1,000 Btuh	Ldb (°F)	Lwb (°F)	Ckt	1,000 Btuh	Ldb (°F)	Lwb (°F)	Ckt	1,000 Btuh	Ldb (°F)	Lwb (°F)	Ckt	1,000 Btuh	Ldb (°F)	Lwb (°F)	Ckt
6	2,950	*	*	*	*	104.4	55.7	55.7	H	111.8	54.8	54.8	H	131.0	52.4	52.4	H
6	2,950	--	--	--	-	--	--	--	-	*	*	*	*	*	*	*	*
8	3,950	*	*	*	*	143.4	55.4	55.4	H	151.1	54.7	54.7	H	175.4	52.4	52.4	H
8	3,950	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10	4,770	143.4	57.6	57.6	H	177.4	55.1	55.1	H	181.4	54.8	54.8	H	206.6	52.8	52.8	H
10	4,770	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12	5,590	170.7	57.4	57.4	H	207.8	55.1	55.1	H	207.0	55.1	55.1	H	231.9	53.5	53.5	H
12	5,590	*	*	*	*	*	*	*	*	*	*	*	*	247.2	52.5	52.5	F
15	7,455	227.7	57.4	57.4	H	277.1	55.1	55.1	H	276.1	55.1	55.1	H	309.3	53.5	53.5	H
15	7,455	*	*	*	*	*	*	*	*	*	*	*	*	329.7	52.5	52.5	F
18	8,855	270.4	57.4	57.4	H	329.2	55.1	55.1	H	328.0	55.1	55.1	H	367.3	53.5	53.5	H
18	8,855	*	*	*	*	*	*	*	*	*	*	*	*	391.6	52.5	52.5	F
21	10,800	328.1	57.5	57.5	H	389.8	55.5	55.5	H	375.2	55.9	55.9	H	410.3	54.8	54.8	H
21	10,800	*	*	*	*	379.5	55.8	55.8	F	414.9	54.6	54.6	F	487.7	52.1	52.1	F
25	12,500	379.7	57.5	57.5	H	451.2	55.5	55.5	H	--	--	--	-	--	--	--	-
25	12,500	*	*	*	*	439.1	55.8	55.8	F	480.2	54.6	54.6	F	564.5	52.1	52.1	F
31	15,450	454.7	57.8	57.8	H	527.9	56.1	56.1	H	--	--	--	-	--	--	--	-
31	15,450	454.7	57.8	57.8	F	569.4	55.2	55.2	F	601.4	54.4	54.4	F	697.5	52.1	52.1	F
35	17,750	507.0	58.1	58.1	H	579.8	56.7	56.7	H	--	--	--	-	--	--	--	-
35	17,750	534.6	57.6	57.6	F	665.1	55.0	55.0	F	690.2	54.5	54.5	F	793.9	52.3	52.3	F

-- Not available.

* No available circuit within loading range.

Air friction data

Cooling Coil Air Friction (in. wg.)

Rows	Fins	Face Velocity (fpm)					
		300	400	500	550	600	700
4	8	<i>0.13</i>	<i>0.21</i>	<i>0.32</i>	<i>0.39</i>	<i>0.45</i>	<i>0.60</i>
		0.20	0.31	0.43	0.50	0.57	0.72
4	14	<i>0.20</i>	<i>0.33</i>	<i>0.49</i>	<i>0.57</i>	<i>0.67</i>	<i>0.87</i>
		0.27	0.43	0.60	0.70	0.80	1.02
6	8	<i>0.19</i>	<i>0.32</i>	<i>0.48</i>	<i>0.58</i>	<i>0.68</i>	<i>0.90</i>
		0.30	0.46	0.65	0.75	0.86	1.08
6	14	<i>0.30</i>	<i>0.50</i>	<i>0.73</i>	<i>0.86</i>	<i>1.00</i>	<i>1.31</i>
		0.40	0.64	0.91	1.05	1.21	1.53

Italic type indicates dry coil.

Filters Air Friction (in. wg.)

Filter Type		Velocity (fpm) Through Filter								
		250	300	350	400	450	500	550	600	650
Flat (2 in.)	Initial	0.03	0.04	0.05	0.07	0.09	0.10	0.13	0.15	0.18
	Final	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50

Notes:

1. Filters are field supplied.
2. Do not exceed filter manufacturer's velocity limits when selecting filters.
3. Filters having cardboard type frames are usually not suitable for use in high velocity (flat) sections.

Guide specifications

Central Station Air-Handling Unit HVAC Guide Specifications - Section 15860 Size Range: 2,000-20,000 Nominal CFM Carrier Model Number: 39L

Part 1 - General

1.01 SYSTEM DESCRIPTION

- A. Indoor central station air-handling unit designed to provide air to a conditioned space as required to meet specified performance requirements for ventilation, heating, cooling, filtration and distribution. Unit shall be assembled for draw-thru application and shall be arranged to discharge conditioned air horizontally or vertically as shown on the contract drawings.
- B. Unit with a direct-expansion cooling coil can be used in a refrigerant circuit in conjunction with Air-Cooled Condensing Units or Split-System Heat Pump Outdoor Units.

1.02 DELIVERY, STORAGE AND HANDLING

- A. Unit shall be stored and handled in accordance with the unit manufacturer's instructions.

Part 2 - Products

2.02 EQUIPMENT

A. General:

Factory assembled, single-piece central station air-handler. Unit may consist of a fan and coil section with a factory-installed chilled water or direct-expansion coil, preheat or reheat coil, heating coil section, filter section, mixing box or combination mixing box and access section as indicated on the equipment schedules.

B. Unit Cabinet:

1. Unit panels shall be constructed of milled galvanized steel. Casing panels shall be removable for easy access to the unit.
2. Hinged access doors shall be double wall with 1.5 lb. dual density fiberglass between galvanized steel panels.
3. Insulation for casing panels on unit shall be with 3/8 inch minimum thickness dual density closed cell foam insulation with a density of not less than nominal 2 lb. per cubic foot.
4. Insulation shall be secured to casing with waterproof adhesive.
5. Condensate drain pans shall have double wall construction with threaded drain connection.

C. Fan Section:

1. Fan sections shall be constructed of galvanized steel and have a formed channel base for integral mounting of fan, motor and casing panels. Fan scroll, wheel, shaft and bearings are to be rigidly secured to the unit base.
2. Each unit shall have one fan wheel and scroll only. Fans shall be double width, double inlet type, with forward-curved blades. Wheels shall be bonderized steel painted with baked enamel, or galvanized steel.
3. Fan wheels shall be keyed to the shaft and shall be designed for continuous operation at the maximum rated fan speed and motor horsepower. Fan wheels and shafts shall be selected to operate at least 25% below the first critical speed, and shall be statically and dynamically balanced as an assembly.

4. Fan shafts shall be solid steel, turned, ground and polished.
5. Fan bearings shall be self-aligning pillow block type selected for an average life of 200,000 hours at design operation conditions;
6. Fan motor shall be mounted within the fan section casing on side rails having 2 adjusting screws. Motor shall be TEFC sized and electrical characteristics as shown on the equipment schedule.
7. Fan drive shall be designed for a 1.3 service factor. Belt drive shall be variable or fixed-pitch type.

D. Coil Sections:

1. All water and refrigerant coils shall be factory tested for leakage at 400 psig air pressure with coils submerged in water. After testing, direct-expansion coils shall be dehydrated and charged with dry air.
2. Chilled water coils shall be aluminum plate fins with belled collars and bonded to 1/2-in. minimum OD copper tubes by mechanical expansion. Coils shall have galvanized steel casings and steel headers with threaded connections. Working pressure shall be 300 psig at 200 °F. Coils shall be drainable and have nontrapping circuits. No turbulence promoting devices will be permitted inside the tubes. Headers shall have drain and vent connections.
3. Direct-expansion coils shall be aluminum plate fins with belled collars and bonded to 1/2-in. OD copper tubes by mechanical expansion. Coils shall be provided with pressure-type brass distributors with solder-type connections and shall have a minimum of 2 distributors. Coils for full face active or face split operation shall have intertwined circuits for equal loading on each circuit. Suction and discharge connections shall be on the same end. After testing, coils shall be dehydrated and charged with dry air.

E. Filter Sections:

1. Each filter section shall be designed and constructed to house the specific type of filter specified on the equipment schedule.
2. Flat filter sections shall accept filters of standard sizes. Sections shall include side access slide rails and hinged access door. Flat filter section to be arranged with minimum depth in direction of airflow.
3. Angle filter sections shall accept 2-in. filters arranged in horizontal V formation. Double walled hinged access doors shall be provided.

F. Special Features:

Certain standard features are not applicable when the features designated by * are specified. For assistance in amending the specifications, your local Carrier Sales Office should be contacted.

1. Unit Cabinet:

- a. Air-dry paint finish on exterior of unit.
- b. Stainless steel liner in drain pan.

2. Fan Section:

- a. High-efficiency motor.
- b. TEFC motor for variable speed drive.

3. Coil Section:

- a. Chilled water coil with copper plate fins.
- b. Direct expansion coil with copper plate fins.
- c. Hot water (U-bend) coil with copper plate fins.
- d. Steam distributing coil with copper fins.

บริษัท แคลเรียร์ (ประเทศไทย) จำกัด

1858/63-74 ชั้น 14, 15

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YOUR CARRIER MAN :



39G Series

Air Handling Units

Nominal: 900-43,000 CFM



World's No.1 Air Conditioning Expert

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Table of contents

Introduction	3
Identification	4
Quick Selection Chart	5
Unit Configuration	6-7
Casing	8-9
A. General	
B. Frames	
C. Panels	
D. Insulation	
E. Base Unit Casing Weight	
Fan	10-18
A. General	
B. Description	
C. Recommendations	
D. Fan Length	
E. Fan Discharge Outlet Dimension	
F. Fan Shaft Diameter	
G. Fan Housing Dimension & Weight	
H. Fan Motor Weight	
I. Fan Size and RPM Limitation/BkW Limitation	
Coils	19-25
A. General	
B. Chilled Water Coils	
C. Hot Water Coil	
D. Direct Expansion Coil	
E. Condensate Drain Pan	
F. Coil Weight	
G. Connection Outline	
Mixing Box	26
A. General	
Filter	27-28
A. General	
B. High Velocity Filter	
C. Bag Filter	
D. Friction Pressure Drop	

39G Series

Introduction

The purpose of this catalogue is to help consulting engineers in the preliminary selection of CARRIER AIR HANDLING UNITS. However, if required, your local CARRIER office will assist to provide a computerised selection to confirm or complete your preliminary selection.

This catalogue consists of:

- A description of the various component parts available to be combined in the order best suited to your requirements.
- Technical data sheets, dimensions, weights, specifications, charts, etc.



QUALITY

The quality and reliability of any system depends on the quality of the components parts. Equipment schedules and specifications are based on **Carrier 39G GALAXY**. Therefore, in line with other CARRIER products, our 39G Series Air Handlers are manufactured in conformity with CARRIER's Quality concept which brought in items subjected to rigorous inspection.

FLEXIBLE MODULAR CONSTRUCTION

This adaptable unit design which is based upon a wide range of standard panel sizes, frequently enables CARRIER to offer several configurations of unit height and width, so that the aesthetic or practical dictates of confined plant room space or rooftop silhouettes can be easily met.

Major items of unit such as fans, coils, filters, etc. can be arranged in the sequence dictated by the job requirements, and separated by access sections where necessary, giving complete flexibility of design.

RIGIDITY

Extruded aluminium internal posts within the extruded aluminium frame increase the structural rigidity and provide a fixing point for an air-tight sealing strip.

The panels shall be constructed such that they shall be of two layers of steel sheet with injected insitu CFC-Free Polyurethane insulation with thermal conductivity factor of 0.019 W/mK and density of 40kg/m³ in between to ensure effective thermal and acoustic insulation.

WIDE RANGE OF SIZES

There are 22 standard units sizes available, each, in most cases, has a choice of 2 fan type, covering 22 CFM breaks ranging from 900 to 43,000 Nominal CFM.

FLEXIBILITY IN PANEL CONSTRUCTION

Units are offered with double wall construction sheet metal with 26 Gauge Colorbond® XMA (ABR) as Outer casing and 26 Gauge Galvanized Steel as Inner Casing for 25mm.

VIBRATION ISOLATION

Centrifugal fan motor packages are mounted on common bases with 1" deflection spring or 0.5" deflection rubber as standard vibration isolators and flexible discharge connections ensuring that all moving parts are independently isolated from the casing structure.

AESTHETICS

The standard construction features external panels surface attractively finished with Colorbond® XMA (ABR) and the units are delivered with heat-shrink plastic covering which keep the panels in good condition.

ACCESSIBILITY AND MAINTENANCE

The easily removable panels and quick release access doors offer complete accessibility to fans, coils, filters and dampers. Additional access sections can be provided between coils and filters if required.

All basic component parts are standard and interchangeable. Filters are commercially available standard items conforming to international standards and sizes.

INDIVIDUALISED PRODUCT LINE

All 22 model sizes are available as 'Customised' adapted exactly to meet specific job requirements. For example: Non-standard coil material, CCN, ANC, attenuators, etc.....

39G Identification & dimension

A. General

The 39G line of Carrier Air Handling Unit is based on a MODULAR System.

The number of modules in height and in width determine the cross-section available for air flow and encodes the unit size.

The unit length is determined by the number and size of the component parts required.

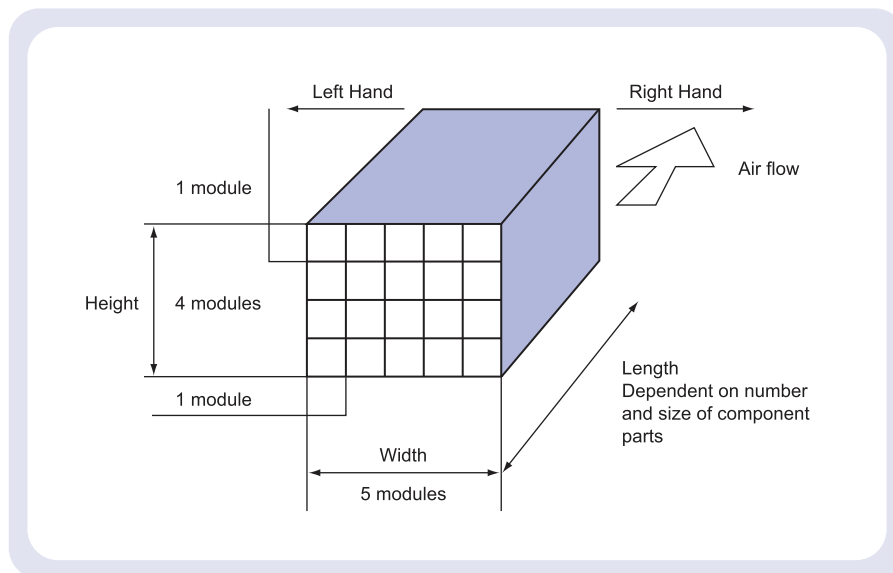
The side for service (connections and access) is defined as right hand or left hand in the direction of air flow.

Each module has a constant value of 100mm. To determine external dimensions, the following formula applies:

$$\begin{array}{lcl} \text{External Dimensions} & = & (n \times 100 + m) \text{ mm} \\ \text{where } n & = & \text{number of module} \\ m & = & 110\text{mm for 25mm casing} \end{array}$$

Example 2: 39G0713 for 25mm casing

$$\begin{array}{lcl} \text{External Height Dimension} & = & 07 \times 100 + 110 = 810\text{mm} \\ \text{External Width Dimension} & = & 13 \times 100 + 110 = 1410\text{mm} \end{array}$$



Remark: Must add base frame (100 mm.) to external height dimension to get the overall height of unit.

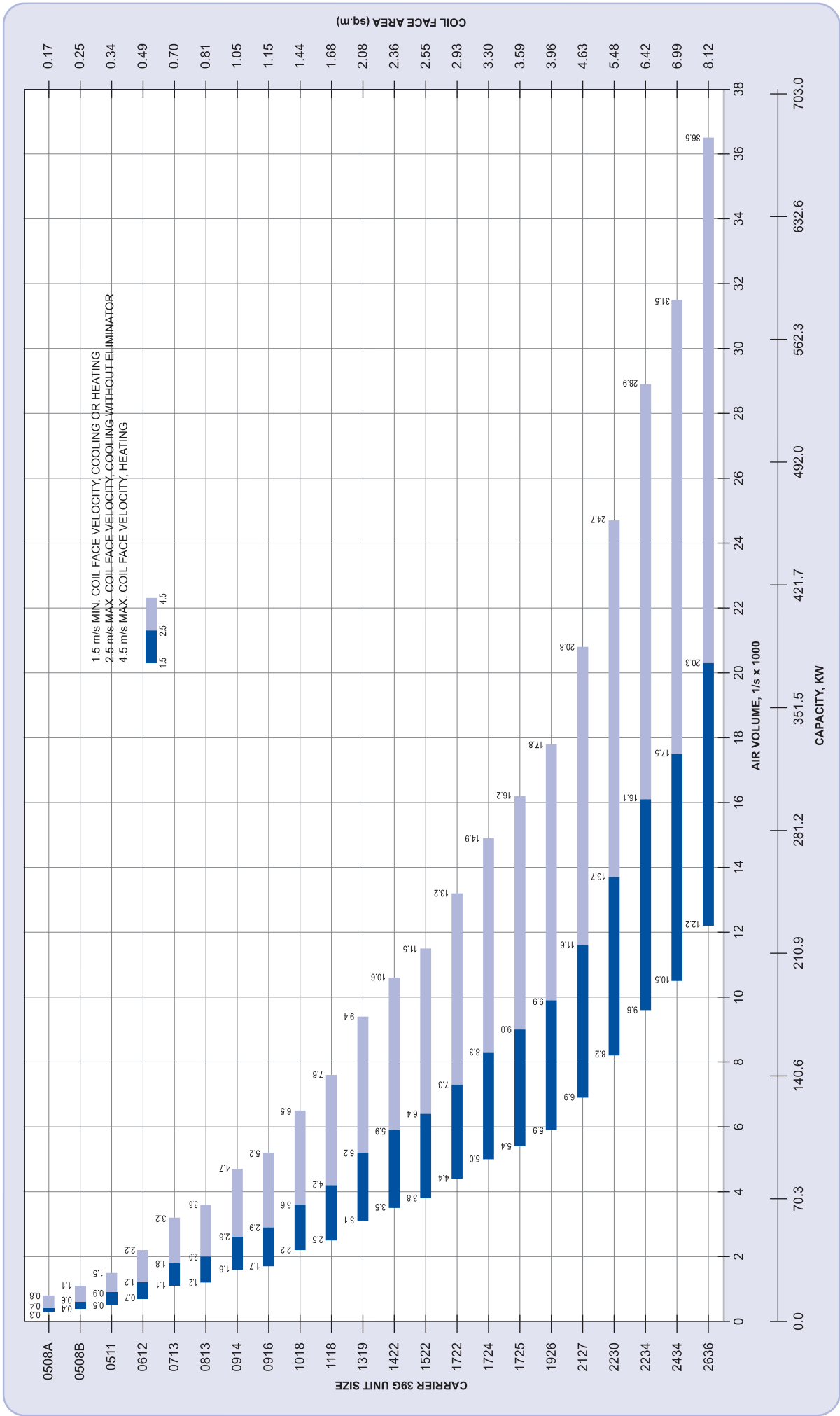
B. Shipping Dimension

To estimate the skid/closed crate dimensions of a complete module section or unit for shipment purpose.

1. Section (or Unit) without MXB: ADD

- i. 400mm (skid only or inclusive crate) to its module width.
- ii. 200mm (skid only) or 277mm (inclusive crate) to its module length.
- iii. 100mm (skid only) or 278mm (inclusive crate) to its module height.

Quick selection chart



Note: For Chilled Water application between 2.5 & 3.15 m/sec. face velocity, the use of Drift Eliminator is necessary.

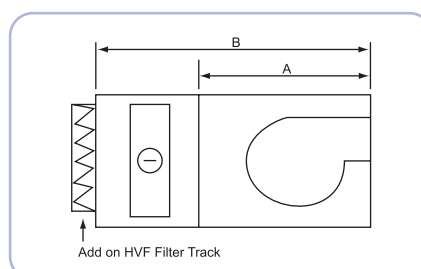
Unit configuration

Table 1 Unit Configuration (Horizontal Application)

STD 2/2A

Unit Size	Fan Size	Range of Motor HP	Unit Length (mm)		Unit Height (mm)	Unit Width (mm)	No. of Section Shipped	Add on HVF Filter Track (mm)		
			A	B						
			25 mm	25 mm		25 mm			25 mm	
0508A	FC - 160	1~1.5	555	1110	710	910	1	100		
	FC - 180	1.5~2								
0508B	FC - 180	1.5~2	555	1110	710	910	1	100		
0511	FC - 200	1.5~3	655	1210	710	1210	1	100		
0612	FC - 225	2~4	655	1210	810	1310	1	100		
	BC - 225	3~5								
0713	FC - 280	3~5	755	1310	910	1410	1	100		
	BC - 280	4~7.5								
0813	FC - 315	4~5	855	1410	1010	1410	1	100		
	BC - 315	5~7.5								
0914	FC - 355	4~7.5	955	1510	1110	1510	1	100		
	BC - 355	5~10								
0916	FC - 355	4~7.5	955	1510	1110	1710	1	100		
	BC - 355	7.5~15								
1018	FC - 400	5~10	1055	1610	1210	1910	1	100		
	FC - 450	7.5~10								
	BC - 400	7.5~15								
	BC - 450	10~15								
1118	FC - 450	7.5~15	1055	1610	1310	1910	1	100		
	BC - 450	10~15								
1319	FC - 450	7.5~15	1055	1610	1510	2010	1	100		
	BC - 450	10~15								
	FC - 500	10~20	1155	1710						
	BC - 500	15~20								
1422	FC - 500	10~15	1155	1710	1610	2310	1	100		
	BC - 500	10~15								
	FC - 560	15~20	1255	1810						
	BC - 560	15~20								
1522	FC - 560	15~20	1310	1920	1710	2310	2	100		
	BC - 560	15~20								
	FC - 630	15~25	1510	2120						
	BC - 630	20~25								
1722	FC - 630	15~20	1510	2120	1910	2310	2	100		
	BC - 630	15~25								
	FC - 710	20~25	1610	2220						
	BC - 710	20~30								
1724	FC - 630	15~25	1510	2120	1910	2510	2	100		
	BC - 630	15~25								
	FC - 710	20~30	1610	2220						
	BC - 710	20~30								
1725	FC - 630	15~25	1510	2120	1910	2610	2	100		
	BC - 630	15~25								
	FC - 710	20~30	1610	2220						
	BC - 710	25~40								
1926	FC - 710	15~25	1610	2220	2110	2710	2	100		
	BC - 710	20~30								
	FC - 800	25~40	1810	2420						
	BC - 800	25~40								
2127	FC - 710	15~25	1610	2220	2310	2810	2	100		
	BC - 710	20~30								
	FC - 800	25~40	1810	2420						
	BC - 800	30~50								
2230	FC - 800	20~30	1810	2420	2410	3110	2	100		
	BC - 800	20~30								
	FC - 900	30~50	2010	2620						
	BC - 900	40~50								
2234	FC - 800	20~40	1810	2420	2410	3510	2	100		
	BC - 800	20~40								
	FC - 900	30~60	2010	2620						
	BC - 900	40~60								
2434	FC - 900	25~40	2010	2620	2610	3510	2	100		
	BC - 900	25~40								
	FC - 1000	40~60	2110	2720						
	BC - 1000	40~60								
2636	FC - 900	25~50	2010	2620	2810	3710	2	100		
	BC - 900	25~50								
	FC - 1000	40~75	2110	2720						
	BC - 1000	40~75								

Remark : Unit height included base frame (100 mm.)



▲ Figure 1

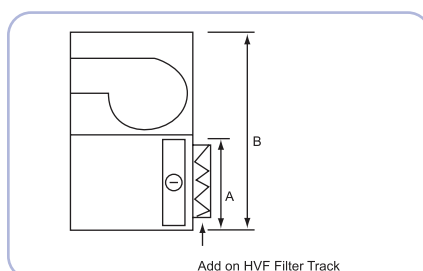
Unit configuration

Table 2 Unit Configuration (Vertical Application)

STD 2/2A

Unit Size	Fan Size	Range of Motor HP	Unit Height (mm)		Unit Length (mm)	Unit Width (mm)	No. of Section Shipped	Add on HVF Filter Track (mm)
			A	B				
			25 mm	25 mm	25 mm	25 mm		
0508A	FC - 160	1~1.5	710	1320	610	910	1	100
	FC - 180	1.5~2						
0508B	FC - 180	1.5~2	710	1320	610	910	1	100
0511	FC - 200	1.5~3	710	1320	710	1210	1	100
0612	FC - 225	2~4	810	1520	710	1310	1	100
	BC - 225	3~5						
0713	FC - 280	3~5	910	1720	810	1410	1	100
	BC - 280	4~7.5						
0813	FC - 315	4~5	1010	1920	910	1410	1	100
	BC - 315	5~7.5						
0914	FC - 355	4~7.5	1110	2120	1010	1510	1	100
	BC - 355	5~10						
0916	FC - 355	4~7.5	1110	2120	1010	1710	1	100
	BC - 355	7.5~15						
1018	FC - 400	5~10	1210	2320	1110	1910	1	100
	FC - 450	7.5~10						
	BC - 400	7.5~15						
	BC - 450	10~15						
1118	FC - 450	7.5~15	1310	2520	1110	1910	2	100
	BC - 450	10~15						
1319	FC - 450	7.5~15	1510	2720	1110	2010	2	100
	BC - 450	10~15			1210			
	FC - 500	10~20						
	BC - 500	15~20						
1422	FC - 500	10~15	1610	3120	1210	2310	2	100
	BC - 500	10~15			1310			
	FC - 560	15~20						
	BC - 560	15~20						
1522	FC - 560	15~20	1710	3320	1310	2310	2	100
	BC - 560	15~20			1510			
	FC - 630	15~25						
	BC - 630	20~25						
1722	FC - 630	15~20	1910	3620	1510	2310	2	100
	BC - 630	15~25			1610			
	FC - 710	20~25						
	BC - 710	20~30						
1724	FC - 630	15~25	1910	3920	1510	2510	2	100
	BC - 630	15~25			1610			
	FC - 710	20~30						
	BC - 710	20~30						
1725	FC - 630	15~25	1910	3920	1510	2610	2	100
	BC - 630	15~25			1610			
	FC - 710	20~30						
	BC - 710	25~40						
1926	FC - 710	15~25	2110	3920	1610	2710	2	100
	BC - 710	20~30			1810			
	FC - 800	25~40						
	BC - 800	25~40						
2127	FC - 710	15~25	2310	4320	1610	2810	2	100
	BC - 710	20~30			1810			
	FC - 800	25~40						
	BC - 800	30~50						
2230	FC - 800	20~30	2410	4520	1810	3110	2	100
	BC - 800	20~30			2010			
	FC - 900	30~50						
	BC - 900	40~50						
2234	FC - 800	20~40	2410	4520	1810	3510	2	100
	BC - 800	20~40			2010			
	FC - 900	30~60						
	BC - 900	40~60						
2434	FC - 900	25~40	2610	4720	2010	3510	2	100
	BC - 900	25~40			2110			
	FC - 1000	40~60						
	BC - 1000	40~60						
2636	FC - 900	25~50	2810	5120	2010	3710	2	100
	BC - 900	25~50			2110			
	FC - 1000	40~75						
	BC - 1000	40~75						

Remark : Unit height included base frame (100 mm.)



▲ Figure 2

A. General

The casing of 39G units is formed by:

- extruded aluminium perimeter frame, inner post and intermediate post.
- removable and fixed panels
- internal insulation

All external panels are Colorbond® XMA (ABR) steel.

B. Frames

The frame is made up of 4 components (Figure 3)

1. Extruded aluminium frame
2. Composite corner piece
3. Extruded Internal post
4. Extruded Intermediate post

1. Extruded Aluminium Frame

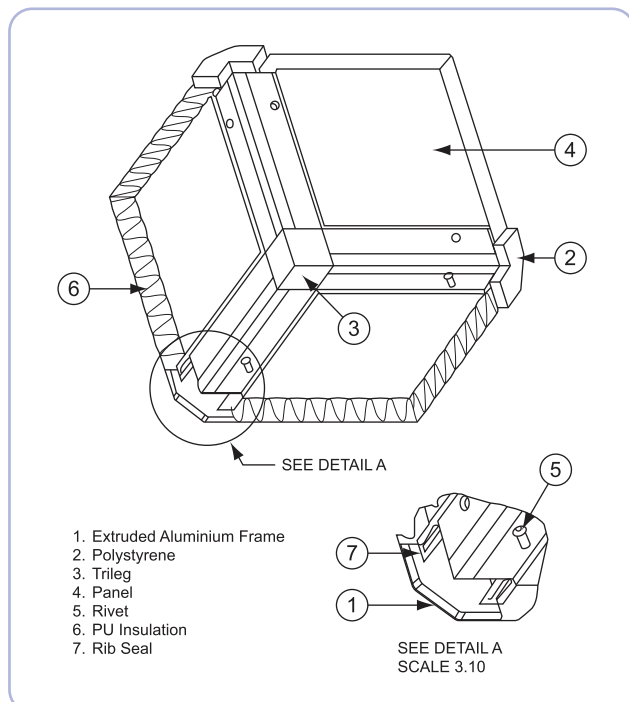
Forms the overall shape of the section and receives the panels. The extruded aluminium frame is manufactured from extrusion process using aluminium (Grade 6063 - T5) with mill finish 1.5mm thickness.

2. Composite Material Corner Piece (Trilegs)

The composite corner piece is composed of Nylon 66 + 33% GF (25mm casing) and Nylon 6 + 30% GF (50mm casing) with fine finish surface and it is grey in color confirming to RAL 7042.

3. Extruded Inner Post

Extruded aluminium inner post within the extruded aluminium frame increase the structural rigidity and provide a fixing point for an air-tight sealing strip.



▲ Figure 3 Cross Section of Panels, Rib-Seal and Others

C. Panels

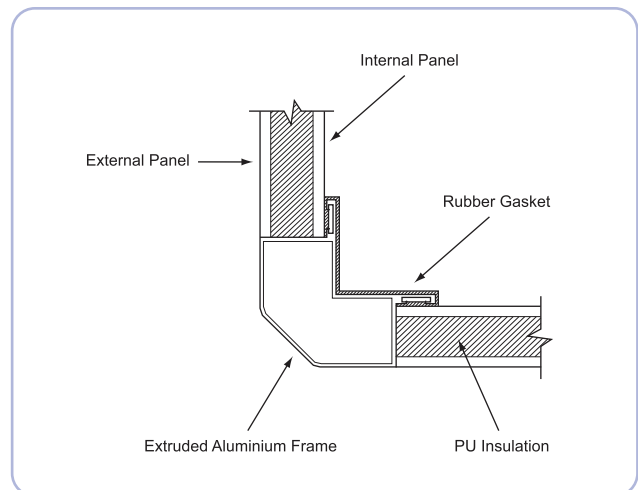
1. Fixed Panels

Forms the insulated enclosure of the casing and giving it rigidity and air-tightness, they consist of:

- external sheet metal
- insulation
- internal protective cover

The Colorbond® XMA (ABR) steel sheet with 26 Gauge thickness and the galvanized steel inner casing (26 Gauge) form double wall construction with PU insulation between the inner and the outer panel. Rivets are used to affix panel to AHU framework.

Optional : Wrap-around gasket (Figure 4) to replace rob-seal for enhancement of insulation on the aluminium frames to prevent condensation start on aluminium frames which should be suitable to units with ducted return application. It has shown that with wrap-around gasket on frames, it will on condensation at high humidity ambient.



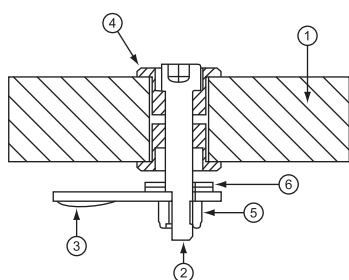
▲ Figure 4 Cross Section of Panel and Framework

2. Removable / Access Panel

Are constructed of the same material as the fixed panels.

The access panel shall be low leak construction with a hex socket compression type latch assembly and large & non-conductive handles for easy removal of the access panel. (Figure 5 for Cross Section of Latch Assy.)

The removable / access panel shall be double skinned construction and internally insulated with injected insitu CFC-Free Polyurethane insulation. The access panel mating surface perimeter shall be lined with Rib-Seals.



Explanation

1. Panel
2. Screw, Socket Head Cap (PREMACHINE)
3. Pawl
4. Spacer
5. Nut, Hex HD M8 (Nylon Lock)
6. Washer

▲ Figure 5 Cross Section of Latch Assy

3. COLORBOND® XMA (ABR) prepainted steel

Panels made from BHP COLORBOND® XMA (ABR) steel provide excellent corrosion resistance and are suitable for outdoor durability. The substrate, ZINCALUME® zinc/aluminium alloy-coated steel complies with AS1397-1993 and the paint coating complies with AS/NZS 2728-1997.

Below are the specifications of COLORBOND® XMA (ABR) steel.

Pretreatment - Corrosion resistant proprietary conversion coating.

Primer Coat - Universal corrosion inhibitive primer. Nominal thickness 5µm top side.

Finish Coat - Custom formulated system. Nominal thickness 20µm top side in white color.

D. Insulation

The panels are frames and thermally insulated. The panels shall be constructed such that they shall comprise of two layers of steel sheet with injected insitu CFC-Free polyurethane insulation with thermal conductivity factor of 0.019 w/mK and density of 40 kg/m³ in between.

E. Base Unit Casing Weight

Table below shows the base unit casing weight (approximation) for 25mm casing.

Table 3 Base Unit Casing Weight

Unit Size	MXB	Fan	Coil	HVF	BF	LVF	ACC
	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm
0508A	51	25	25	10	34	35	30
0508B	51	25	25	10	34	35	30
0511	66	30	30	12	42	42	36
0612	70	40	33	13	46	54	40
0713	82	50	35	14	50	62	42
0813	94	60	37	15	54	64	44
0914	100	72	40	16	60	73	48
0916	110	78	43	17	65	78	52
1018	118	95	48	19	73	94	58
1118	120	100	50	20	75	98	60
1319	122	115	52	21	78	108	62
1422	131	151	56	22	82	117	65
1522	140	169	58	25	85	123	67
1722	147	183	60	27	91	139	71
1724	155	189	63	29	96	147	75
1725	167	201	66	31	100	159	77
1926	172	224	68	33	107	168	82
2127	185	260	72	35	114	180	87
2230	195	308	76	37	119	208	90
2234	215	342	80	39	126	222	95
2434	225	363	84	41	131	230	98
2636	240	419	89	43	139	245	104

Note: Weight in kg

A. General

1. Fan Laws

For a given distribution system and specific air weight, the following laws in relation to volume, pressure and fan power applied dependent upon fan speed.

- The volume (V) changes as the fan speed (n) changes

$$V_2 = V_1 \frac{n_2}{n_1}$$

- The pressure (p) changes with the square of the speed (n)

$$P_2 = P_1 \left(\frac{n_2}{n_1} \right)^2$$

- The absorbed power (Pw) changes with the cube of the speed (n)

$$PW_2 = PW_1 \left(\frac{n_2}{n_1} \right)^3$$

- As the specific weight of the air changes, the air quantities remain constant.
- The pressure and the absorbed power change with the specific weight.

$$P_2 = P_1 \frac{\gamma_2}{\gamma_1} \quad \text{and} \quad PW_2 = PW_1 \frac{\gamma_2}{\gamma_1}$$

2. Reference Values

The fan curves refer to a specific weight of 1.2 kg/m³ at a temperature of 20°C at atmospheric pressure of 101.3 kPa (760mm Hg) and a relative humidity of 50%.

B. Description

1. Type of Fans

39G air handling units are supplied with double inlet, double width (DIDW) centrifugal blowers of either:

- i) Forward curved (FC)
- ii) Backward curved (BC)

2. Construction

- a) Fan casings are constructed of galvanized steel with a series of punched holes or nutserts allowing the fixing of accessories such as frames or support legs thus providing a variety of discharge positions.
- b) The impeller is galvanized finished for forward curved fan and epoxy painted for backward curved and securely fixed to the shaft. (bored & keywayed) Backward curved fan has lower energy consumption due to its high performance impeller with welded true aerofoil blades inclined obliquely to the shaft axis. All fan impellers are statically and dynamically balanced to the operating fan speed as shown in the equipment schedule in accordance with ISO 1940 Part 1. Quality level G2.5.
- c) Shafts are trued in accordance with DIN 748. Toleranz class g₆
- d) Deep groove ball bearings are supplied for smaller fan size. Self aligning Single row ball bearings mounted with a cast iron housing (real plumber block bearing) for size 400-1000. All bearings are pre-lubricated from the factory. Higher life expectancy bearings are available as option.

C. Recommendations

The air to be handled in the unit must be clean, and non-corrosive.

Each air handling unit can have a choice of several fan type with best efficiency and lowest sound level should be selected for a specific installation.

D. Fan Length

Table 4 Fan Length

Unit Size	Fan Size	Range of Motor HP	Discharge Type	Fan Length in Module		Vertical Unit Height in Module
0508 A	FC - 160	1~1.5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	5		10
	FC - 180	1.5~2				
0508 B	FC - 180	1.5~2	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	5		10
0511	FC - 200	1.5~3	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	6		10
0612	FC - 225	2~4	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	6		12
	BC - 225	3~5				
0713	FC - 280	3~5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	7		14
	BC - 280	4~7.5				
0813	FC - 315	4~5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	8		16
	BC - 315	5~7.5				
0914	FC - 355	4~7.5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	9		18
	BC - 355	5~10				
0916	FC - 355	4~7.5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	9		18
	BC - 355	7.5~15				
1018	FC - 400	5~10	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	10		20
	FC - 450	7.5~10				
	BC - 400	7.5~15				
	BC - 450	10~15				
1118	FC - 450	7.5~15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	10		22
	BC - 450	10~15				
1319	FC - 450	7.5~15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	450	10	24
	BC - 450	10~15		500	11	
	FC - 500	10~20				
	BC - 500	15~20				
1422	BC - 500	10~15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	500	11	28
	FC - 560	10~15		560	12	
	BC - 560	15~20				
	FC - 560	15~20				
1522	BC - 560	10~20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560	12	30
	FC - 630	15~20		630	14	
	BC - 630	15~25				
	FC - 630	20~25				
1722	FC - 630	15~20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	630	14	33
	BC - 630	15~25		710	15	
	FC - 710	20~25				
	BC - 710	20~30				
1724	FC - 630	15~25	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	630	14	33
	BC - 630	15~25		710	15	
	FC - 710	20~30				
	BC - 710	20~30				
1725	FC - 630	15~25	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	630	14	34
	BC - 630	15~25		710	15	
	FC - 710	20~30				
	BC - 710	25~40				
1926	FC - 710	15~25	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	710	15	36
	BC - 710	20~30		800	17	
	FC - 800	25~40				
	BC - 800	25~40				
2127	FC - 710	15~25	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	710	15	40
	BC - 710	20~30		800	17	
	FC - 800	25~40				
	BC - 800	30~50				
2230	FC - 800	20~30	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	800	17	42
	BC - 800	20~30		900	19	
	FC - 900	30~50				
	BC - 900	40~50				
2234	FC - 800	20~40	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	800	17	42
	BC - 800	20~40		900	19	
	FC - 900	30~60				
	BC - 900	40~60				
2434	FC - 900	25~40	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	900	19	44
	BC - 900	25~40		1000	20	
	FC - 1000	40~60				
	BC - 1000	40~60				
2636	FC - 900	25~50	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	900	19	48
	BC - 900	25~50		1000	20	
	FC - 1000	40~75				
	BC - 1000	40~75				

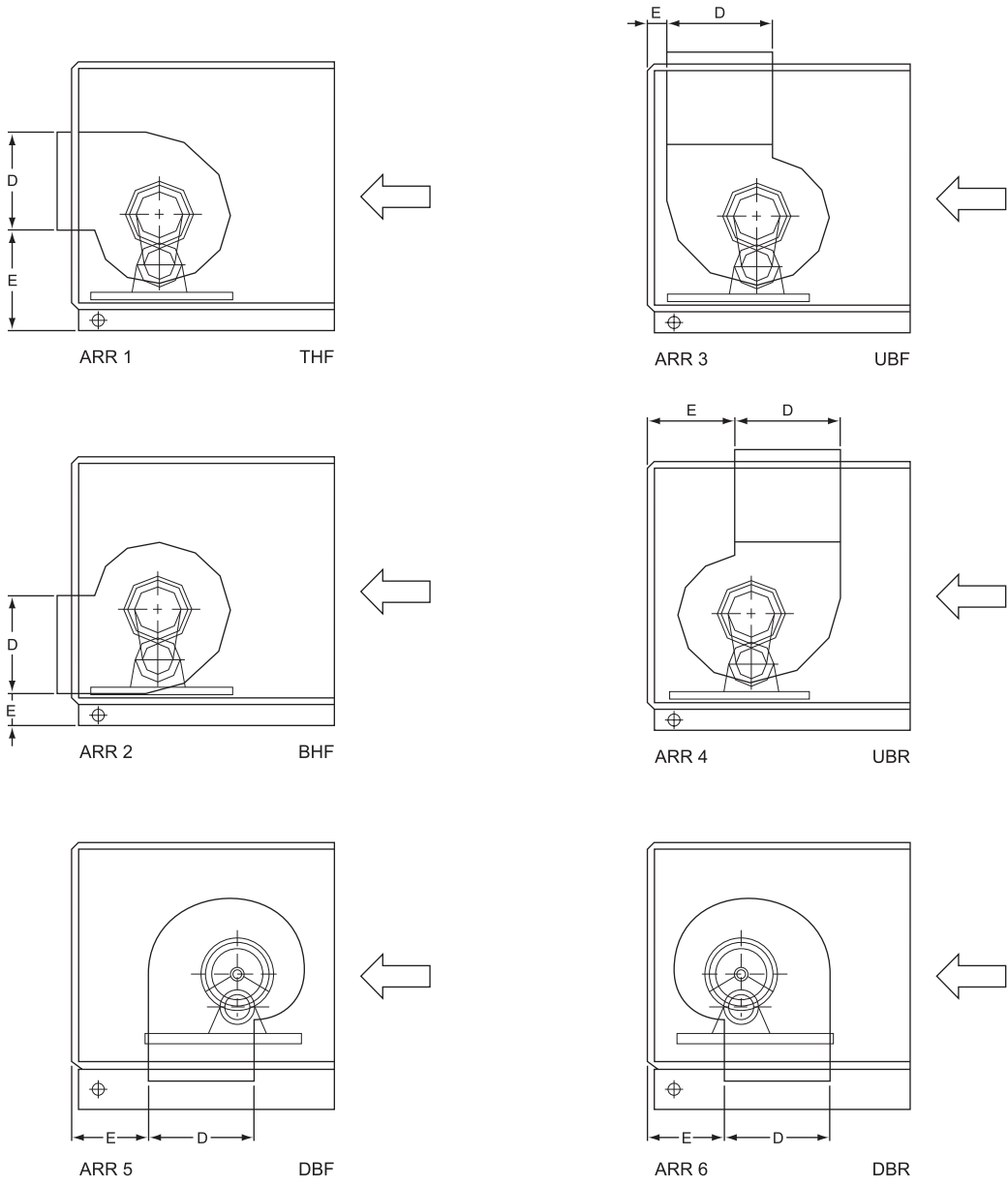
Note: BHR and THR is only a valid option for vertical units.
 DBF and DBR is only a valid option for horizontal units.
 FC Forward curved
 BC Backward curved

E. Fan Discharge Outlet Dimension

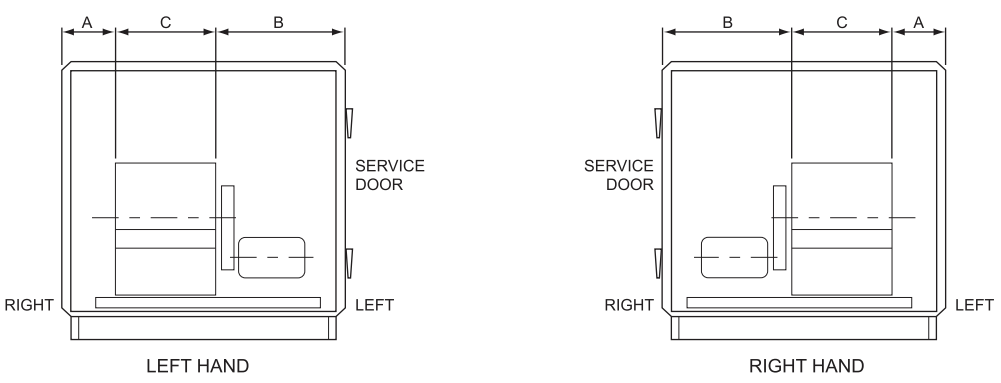
Table 5 Fan Discharge Outlet Dimensions (mm) - Horizontal Unit

Unit Size	Fan Size	A 25 mm	B 25 mm	C 25 mm	D 25 mm	E Dimension (mm)					
						ARR. 1 25 mm	ARR. 2 25 mm	ARR. 3 / ARR. 5 25 mm	ARR. 4 / ARR. 6 25 mm		
0508 A	FC - 160	255	450	205	205	441	328	159	247		
	FC - 180	205	476	229	229	426	328	137	240		
0508 B	FC - 180	205	476	229	229	426	328	137	240		
	FC - 200	404	550	256	256	433	328	170	280		
0612	FC - 225 / BC - 225	442	580	288	288	447	328	148	272		
0713	FC - 280 / BC - 280	419	630	361	361	476	328	146	299		
	FC - 315 / BC - 315	376	630	404	404	494	328	166	337		
0813	FC - 355 / BC - 355	407	650	453	453	519	328	178	374		
0914	FC - 355 / BC - 355	482	775	453	453	519	328	178	374		
1018	FC - 400 / BC - 400	628	775	507	507	548	328	187	412		
	FC - 450 / BC - 450	566	775	569	569	577	328	142	396		
1118	FC - 450 / BC - 450	566	775	569	569	577	328	142	396		
1319	FC - 450 / BC - 450	610	831	569	569	577	328	142	396		
	FC - 500 / BC - 500	610	831	569	569	598	328	146	421		
1422	FC - 500 / BC - 500	602	1070	638	638	598	328	146	421		
	FC - 560 / BC - 560	496	1099	715	715	636	334	140	449		
1522	FC - 560 / BC - 560	496	1099	715	715	636	334	140	449		
	FC - 630 / BC - 630	463	1046	801	801	678	334	177	528		
1722	FC - 630 / BC - 630	463	1046	801	801	678	334	177	528		
	FC - 710 / BC - 710	509	903	898	898	724	334	154	551		
1724	FC - 630 / BC - 630	663	1046	801	801	678	334	177	528		
	FC - 710 / BC - 710	709	903	898	898	724	334	154	551		
1725	FC - 630 / BC - 630	678	1131	801	801	678	334	177	528		
	FC - 710 / BC - 710	809	903	898	898	724	334	154	551		
1926	FC - 710 / BC - 710	681	1131	898	898	724	334	154	551		
	FC - 800 / BC - 800	572	1131	1007	1007	808	360	171	626		
2127	FC - 710 / BC - 710	781	1131	898	898	724	334	154	551		
	FC - 800 / BC - 800	672	1131	1007	1007	808	360	171	626		
2230	FC - 800 / BC - 800	951	1152	1007	1007	808	360	171	626		
	FC - 900 / BC - 900	828	1152	1130	1130	864	360	181	692		
2234	FC - 800 / BC - 800	1251	1251	1007	1007	808	360	171	626		
	FC - 900 / BC - 900	1129	1251	1130	1130	864	360	181	692		
2434	FC - 900 / BC - 900	1158	1222	1130	1130	864	360	181	692		
	FC - 1000 / BC - 1000	1158	1290	1267	1267	888	360	150	685		
2636	FC - 900 / BC - 900	1290	1290	1130	1130	864	360	181	692		
	FC - 1000 / BC - 1000	1153	1290	1267	1267	888	360	150	685		

Side elevation



Front elevation

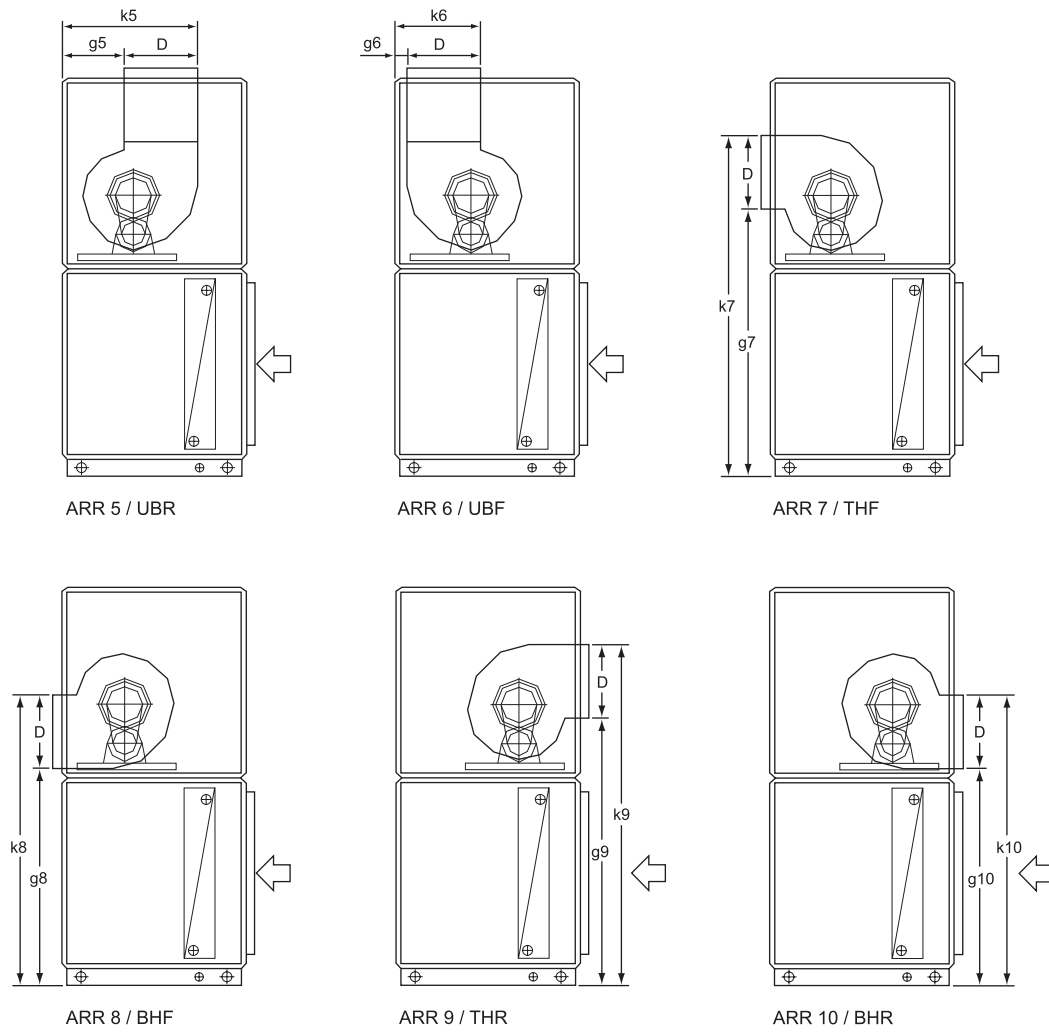


▲ Figure 6 Horizontal Fan Arrangements

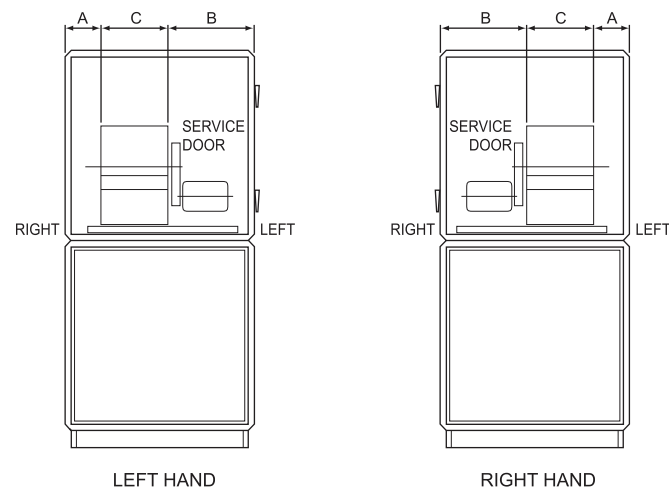
Table 6 Fan Discharge Outlet Dimensions (mm) - Vertical Unit

Unit Size	Fan Size	All Arrangements																E Dimension																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
		A				B				C				D				ARR. 5				ARR. 6				ARR. 7				ARR. 8				ARR. 9				ARR. 10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
		25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm

Side elevation



Front elevation



▲ Figure 7 Vertical Fan Arrangements

F. Fan Shaft Diameter

Table 7 Forward Curved, Backward Curved Fan Shaft Diameter

Fan Size	Diameter (mm) Drive / Blower Side (tolerances)
FC	
FC - 160	20 g ₆
FC - 180	20 g ₆
FC - 200	20 g ₆
FC - 225	20 g ₆
FC - 280	25 g ₆
FC - 315	25 g ₆
FC - 355	30 g ₆
FC - 400	30 g ₆
FC - 450	35 g ₆
FC - 500	35 g ₆
FC - 560	40 g ₆
FC - 630	40 g ₆
FC - 710	50 g ₆
FC - 800	55 g ₆
FC - 900	60 g ₆
FC - 1000	60 g ₆
BC	
BC - 225	20 g ₆
BC - 280	25 g ₆
BC - 315	25 g ₆
BC - 355	30 g ₆
BC - 400	30 g ₆
BC - 450	35 g ₆
BC - 500	35 g ₆
BC - 560	40 g ₆
BC - 630	40 g ₆
BC - 710	50 g ₆
BC - 800	55 g ₆
BC - 900	60 g ₆
BC - 1000	60 g ₆

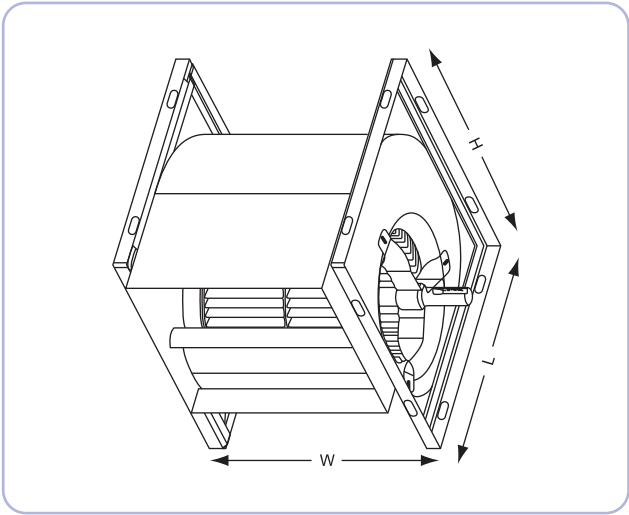
G. Fan Housing Dimension and Weight

Table below shows full details of 39G fan housing dimension and weight.

Table 8 Fan Housing Assembly Dimension and Weight

Fan Size	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
Forward Curved				
FC - 160	269	257	315	7
FC - 180	323	268	336	8
FC - 200	343	306	370	10
FC - 225	382	338	415	12
FC - 280	466	420	518	20
FC - 315	518	464	578	24
FC - 355	578	532	654	32
FC - 400	650	586	736	41
FC - 450	726	648	827	51
FC - 500	800	718	918	74
FC - 560	892	814	1030	93
FC - 630	998	900	1157	104
FC - 710	1120	998	1302	192
FC - 800	1254	1100	1468	240
FC - 900	1408	1230	1648	293
FC - 1000	1540	1366	1810	340
Backward Curved				
BC - 225	366	350	433	15
BC - 280	466	420	518	24
BC - 315	518	464	578	28
BC - 355	578	532	654	41
BC - 400	650	586	736	49
BC - 450	726	648	827	65
BC - 500	800	718	918	83
BC - 560	892	814	1030	110
BC - 630	998	900	1157	141
BC - 710	1120	998	1302	251
BC - 800	1254	1106	1468	299
BC - 900	1408	1230	1648	368
BC - 1000	1540	1366	1810	474

Note : Width does not include both end of shaft.



▲ Figure 8

H. Fan Motor Weight

Table below shows the approximate fan motor weight.

Table 9 Fan Motor Weight

Motor HP	Motor kW	Approx. Weight (kg)	Frame Number
1	0.75	17	D80
1.5	1.1	25	D90S
2	1.5	26	D90L
3 & 4	2.2/3.0	35	D100L
5 & 5 1/2	3.7/4.4	47	D112M
7.5	5.5	68	D132S
10	7.5	79	D132M
15	11	122	D160M
20	15	144	D160L
25	18.5	189	D180M
30	22	203	D180L
40	30	290	D200L
50	37	320	D225SC
60	45	355	D225MC
75	55	381	D250SA

- Note :**
- Motor weights based on 4 - pole 380/30/50Hz induction type TEFC motor foot mounted.
 - Motor shall be of Δ , Y or D.O.L wiring.
 - Standard motor shall be per IEE standard IP54 enclosure with Class F insulation and Class B Temperature rise complying with BS2757.
 - Maximum ambient temperature 40° C.
 - For derivation of motor kW from fan BkW use:
 $\text{Motor kW} = \text{Fan BkW} \times A$, where $A = 1.20$ if $\text{BkW} < 10 \text{ kW}$
 $A = 1.15$ if $\text{BkW} > 10 \text{ kW}$
 - Please refer to your nearest Carrier Representatives for special motor voltages or application.

I. Fan Size and RPM Limitation/BkW Limitation

Table 10 Fan Size and RPM Limitation/BkW Limitation

Fan Type	Fan Size	Maximum RPM	Maximum Absorbed Power kw
Forward Curved	FC - 160	4200	2
	FC - 180	4000	2
	FC - 200	3200	2
	FC - 225	2900	3
	FC - 280	2400	4
	FC - 315	2100	5.5
	FC - 355	1800	5.5
	FC - 400	1600	7.5
	FC - 450	1400	7.5
	FC - 500	1200	11
	FC - 560	1100	11
	FC - 630	900	15
	FC - 710	850	22
	FC - 800	750	22
	FC - 900	650	30
	FC - 1000	600	37
Backward Curved	BC - 225	6640	4
	BC - 280	4000	4
	BC - 315	3500	5
	BC - 355	3000	7.5
	BC - 400	2700	7.5
	BC - 450	2300	11
	BC - 500	2100	11
	BC - 560	1800	15
	BC - 630	1500	15
	BC - 710	1500	18.5
	BC - 800	1300	22
	BC - 900	1200	30
	BC - 1000	1050	37

Remark : A selection is valid provided it first reaches and not exceed either max. limits (RPM of BkW).

Coils

A. General

- The coils shall be of cartridge type, mounted over the condensate drain pan (for cooling coil).
- All chilled water, direct expansion coils and hot water coils are factory tested at 150 psig.
- Coils performance are designed in accordance to ARI Standard 410.
- Slide-in and slide-out coil on it's tracks enable easy coil removal for complete cleaning and ensure of dry unit interior.

- Provide coil moisture eliminators Option when the coil face velocity exceeds 2.5m/s.
- All coils shall have counter flow arrangement.

B. Chilled Water Coils

Chilled Water Coils shall be aluminium / copper plate fins with belled collars and bonded to 12.7mm OD copper tubes by mechanical expansion. Fins shall be of the "Dual Sinewave" form. Coil shall have galvanised steel casing and steel headers with male threaded connections.

Table 11 Optimized Circuit for 39G Chilled Water Coil

Model	CFM	Row	Quarter	Half	Full	Double
0508A	900	4, 5, 6, 7	•			
		8		•		
0508B	1300	4, 5	•			
		6, 7, 8		•		
0511	1800	4, 5, 6, 7, 8*		•		
0612	2600	4, 5, 6, 7		•		
		8			•	
0713	3700	4, 5		•		
		6, 7, 8			•	
0813	4300	4, 5		•		
		6*, 7, 8			•	
0914	5550	4, 5		•		
		6, 7, 8			•	
0916	6100	4, 5		•		
		6, 7, 8			•	
1018	7600	4, 5, 6, 7, 8			•	
1118	8900	4, 5, 6, 7, 8			•	
1319	11000	4, 5, 6, 7, 8			•	
1422	12500	4, 5, 6, 7			•	
		8				•
1522	13500	4, 5, 6, 7			•	
		8				•
1722	15500	4, 5, 6, 7			•	
		8				•
1724	17500	4, 5, 6			•	
		7, 8				•
1725	19000	4, 5			•	
		6, 7, 8				•
1926	21000	4, 5			•	
		6, 7, 8				•
2127	24500	4, 5			•	
		6, 7, 8				•
2230	29000	4, 5			•	
		6, 7, 8				•
2234	34000	4			•	
		5, 6, 7, 8				•
2434	37000	4			•	
		5, 6, 7, 8				•
2636	43000	4			•	
		5, 6, 7, 8				•

Note: * For model 0511, 8 rows 12 & 14 FPI, the optimized circuiting is FULL.
For model 0813, 6 row 8 FPI, the optimized circuiting is HALF.

Working pressure shall be 2060 kPag at 93°C. Coils shall be drainable and have non air trapping circuits. No turbulence promoting devices will be permitted inside the tubes. Headers shall have drain and vent connections.

Chilled Water Coils offerings shall be as follows:

- i) No. of rows: 4, 5, 6, 7 and 8
- ii) Optimized coil circuiting
- iii) 8, 10, 12 and 14 FPI
- iv) 0.016" tube thickness available
- v) 1/2" tube diameter standard
- vi) Aluminium (standard) or copper (option) fins available

C. Hot Water Coil

Hot water coils shall be constructed similar to the chilled water coil except that the maximum working pressure shall be 1200 kPag at 205°C.

Hot Water Coils offerings shall be as follows:

- i) 1 and 2 rows
- ii) Optimized coil circuiting
- iii) 8, 10, 12 and 14 FPI
- iv) 0.016" tube thickness available
- v) 1/2" tube diameter standard
- vi) Aluminium (standard) or copper (option) fins available

Table 12 Optimized Circuit for 39G Hot Water Coil

Model	CFM	Row	Quarter	Half	Full	Connection Size
0508A	900	1	•			1 1/2" BSP
		2	•	•		1 1/2" BSP
0508B	1300	1	•			1 1/2" BSP
		2	•	•		1 1/2" BSP
0511	1800	1	•			1 1/2" BSP
		2	•	•		1 1/2" BSP
0612	2600	1	•			1 1/2" BSP
		2	•	•		1 1/2" BSP
0713	3700	1, 2		•		1 1/2" BSP
0813	4300	1, 2		•		1 1/2" BSP
0914	5550	1, 2		•		1 1/2" BSP
0916	6100	1, 2		•		1 1/2" BSP
1018	7600	1	•			1 1/2" BSP
		2	•	•		1 1/2" BSP
1118	8900	1		•		1 1/2" BSP
		2		•	•	1 1/2" BSP
1319	11000	1		•		1 1/2" BSP
		2		•	•	1 1/2" BSP
1422	12500	1		•		1 1/2" BSP
		2		•	•	1 1/2" BSP
1522	13500	1		•		1 1/2" BSP
		2		•	•	1 1/2" BSP
1722	15500	1		•		1 1/2" BSP
		2		•	•	1 1/2" BSP
1724	17500	1		•		1 1/2" BSP
		2		•	•	1 1/2" BSP
1725	19000	1		•		1 1/2" BSP
		2		•	•	1 1/2" BSP
1926	21000	1		•		1 1/2" BSP
		2		•	•	1 1/2" BSP
2127	24500	1		•		1 1/2" BSP
		2		•	•	1 1/2" BSP
2230	29000	1		•		1 1/2" BSP
		2		•	•	1 1/2" BSP
2234	34000	1		•		1 1/2" BSP
		2		•	•	1 1/2" BSP
2434	37000	1		•		1 1/2" BSP
		2		•	•	1 1/2" BSP
2636	43000	1		•		1 1/2" BSP
		2		•	•	1 1/2" BSP

D. Direct Expansion Coil

Direct Expansion Coil shall have aluminium/copper fins with belled collars and bonded 12.7mm OD copper tubes by mechanical expansion. Fins shall be of the "Dual Sinewave" form. Coils shall be provided with brass distributors with sweat type connections. Coils shall have full face active area with intertwined circuits for equal loading on each circuit. Suction and metering valve connection shall be on the same end. After leak testing, coil shall be charged with dry air.

Direct Expansion offerings shall be as follows:

- i) 4 and 6 rows
- ii) Optimized coil circuiting (Both row and face split)
- iii) 8, 10, 12 and 14 FPI
- iv) 0.016" tube thickness available
- v) 1/2" tube diameter standard
- vi) Aluminium (standard) or copper (option) fins available

E. Condensate Drain Pan

The condensate drain pan shall be powder painted galvanized steel and furnished with one female threaded pipe connection of 43mm OD. The condensate drain pan shall be constructed in sloped type with bottom drain outlet to ensure complete drainage and meet ASHRAE 62-89. The drain pan width covers the coil total length ensuring optimum condensate collecting on both the return bends and header side. Slider is welded at drain pan for easier coil removal.

F. Coil Weight

The weight of the coil section is tabulated in Table 14.

G. Connection Outline

The coils connection position and diameter are shown in Tables 19 to 20.

Table 13 Optimized Circuit for 39G Direct Expansion Coil

Model	Row	Half	Full	Suction Pipe Diameter	Liquid Diameter
0508A	4, 6	•		7/8"	7/8"
0508B	4, 6	•		7/8"	7/8"
0511	4, 6	•		7/8"	7/8"
0612	4, 6	•		1 3/8"	1 1/8"
0713	4, 6		•	1 3/8"	1 1/8"
0813	4, 6		•	1 3/8"	1 1/8"
0914	4, 6		•	1 3/8"	1 1/8"
0916	4, 6		•	1 5/8"	1 1/8"
1018	4, 6		•	1 5/8"	1 1/8"
1118	4, 6		•	1 5/8"	1 1/8"
1319	4, 6		•	1 5/8"	1 1/8"
1422	4, 6		•	1 5/8"	1 1/8"
1522	4, 6		•	1 5/8"	1 1/8"
1722	4, 6		•	2"	1 3/8"
1724	4, 6		•	2"	1 3/8"
1725	4, 6		•	2 1/8"	1 3/8"
1926	4, 6		•	2 1/8"	1 3/8"
2127	4, 6		•	1 5/8" and 2"	1 1/8" and 1 3/8"
2230	4, 6		•	1 5/8" and 2 1/8"	1 1/8" and 1 3/8"
2234	4, 6		•	1 5/8" and 2 1/8"	1 1/8" and 1 3/8"
2434	4, 6		•	1 5/8" and 2 1/2"	1 1/8" and 1 3/8"
2636	4, 6		•	2" and 2 1/2"	1 1/8" and 1 3/8"

Table 14 Coil Weight

Type of Coil		Hot Water						Chilled Water												Direct Expansion					
No. of Row	Fins/Inch	1		2		4		5		6		7		8		4		6							
		8	10	12	14	8	10	12	14	8	10	12	14	8	10	12	14	8	10	12	14	8	10	12	14
Unit	Face Area (sq.m)	Estimated Dry Coil Weight (kg)																							
0508A	0.170	14	14	15	15	16	16	16	16	18	18	19	19	19	19	21	21	22	22	22	22	23	24	24	25
0508B	0.246	16	16	17	17	18	18	19	19	21	22	22	23	23	23	25	26	26	27	26	27	28	29	30	31
0511	0.340	19	19	19	19	21	21	22	22	25	26	27	28	28	29	30	31	32	33	32	34	35	36	38	39
0612	0.491	22	22	23	23	26	26	27	27	32	34	35	36	36	37	38	40	42	44	42	44	46	48	50	52
0713	0.699	27	27	28	28	31	31	32	34	41	42	44	45	45	47	49	51	50	52	55	57	60	63	66	69
0813	0.812	30	30	31	31	35	36	37	38	46	48	50	51	51	54	56	58	57	60	62	65	68	71	75	78
0914	1.048	41	42	42	43	48	49	51	52	55	58	60	62	62	65	68	71	77	80	83	87	91	95	100	104
0916	1.152	43	44	44	45	51	52	53	54	59	61	64	66	67	70	73	76	82	85	89	93	98	102	107	112
1018	1.436	48	49	49	50	58	59	61	62	77	80	83	86	86	90	94	98	96	101	105	110	115	121	128	134
1118	1.681	53	54	55	56	64	66	68	70	87	90	94	98	98	103	107	112	109	115	120	126	132	139	146	154
1319	2.078	61	62	64	65	75	77	80	82	103	107	112	116	117	122	128	134	130	137	144	151	144	152	160	168
1422	2.360	69	71	72	74	85	88	90	93	117	122	127	132	133	139	145	152	148	156	164	171	164	173	182	191
1522	2.550	75	77	78	80	92	95	98	101	126	131	137	142	144	150	157	164	159	168	177	185	177	186	196	206
1722	2.930	86	88	90	92	106	109	112	115	145	151	158	163	165	172	180	189	183	193	203	213	203	214	225	237
1724	3.300	97	99	107	103	119	123	126	130	164	170	178	184	186	194	203	213	207	218	229	240	229	242	254	267
1725	3.590	105	107	110	112	129	133	137	142	178	185	193	200	202	211	221	231	224	236	249	261	249	262	276	290
1926	3.960	116	119	121	124	143	147	152	156	196	204	214	221	223	233	244	256	248	261	275	288	275	290	305	320
2127	4.620	136	139	142	145	167	172	177	182	229	238	249	258	260	271	285	298	289	305	320	336	352	372	392	412
2230	5.470	161	164	167	171	198	204	210	216	271	282	295	306	308	321	337	353	342	361	379	398	416	440	464	487
2234	6.420	188	192	197	201	232	239	246	253	318	330	346	358	361	377	395	414	402	423	445	466	488	516	544	571
2434	6.990	205	209	214	218	252	260	265	276	346	360	376	390	393	410	430	450	437	461	484	508	531	561	592	622
2636	8.120	238	243	249	254	293	302	311	320	402	418	437	453	457	476	500	523	508	535	562	590	617	652	687	723

Note : 1. All coils are of 13mm OD copper tubes with aluminium plate fin construction.
2. To estimate the weight of water content (kg) use : Face area (sq.m) x no. of rows x 7.0 kg/sq.m
3. To estimate dry coil weight (kg) for copper plate fin construction, use the above data (kg) x 3.3

Table 15 Chilled Water Coil - Horizontal Draw Thru AHU - 25mm Casing

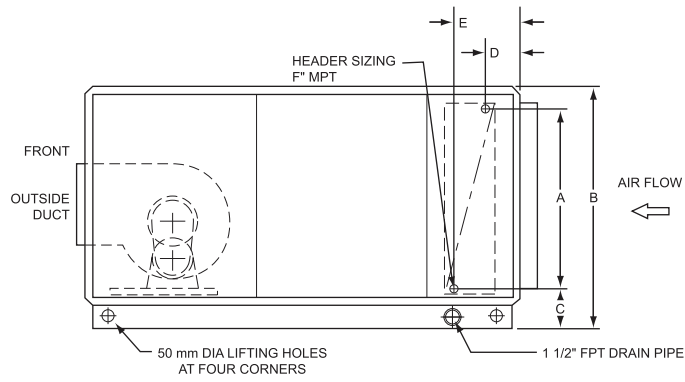
Unit size 39G	4 Row Coil						5 Row Coil						6 Row Coil						7 Row Coil						8 Row Coil					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
0508A	353	710	208	178	238	2"	353	710	208	178	257	2"	353	710	208	178	277	2"	353	710	208	178	297	2"	353	710	208	178	317	2"
0508B	353	710	208	178	238	2"	353	710	208	178	257	2"	353	710	208	178	277	2"	353	710	208	178	297	2"	353	710	208	178	317	2"
0511	353	710	208	178	238	2"	353	710	208	178	257	2"	353	710	208	178	277	2"	353	710	208	178	297	2"	353	710	208	178	317	2"
0612	480	810	208	178	238	2"	480	810	208	178	257	2"	480	810	208	178	277	2"	480	810	208	178	297	2"	480	810	208	178	317	2"
0713	544	910	208	178	238	2"	544	910	208	178	257	2"	544	910	208	178	277	2"	544	910	208	178	297	2"	544	910	208	178	317	2"
0813	671	1010	208	178	238	2"	671	1010	208	178	257	2"	671	1010	208	178	277	2"	671	1010	208	178	297	2"	671	1010	208	178	317	2"
0914	798	1110	208	178	238	2"	798	1110	208	178	257	2"	798	1110	208	178	277	2"	798	1110	208	178	297	2"	798	1110	208	178	317	2"
0916	798	1110	208	178	238	2"	798	1110	208	178	257	2"	798	1110	208	178	277	2"	798	1110	208	178	297	2"	798	1110	208	178	317	2"
1018	847	1210	215	178	238	2"	847	1210	215	178	257	2"	847	1210	215	178	277	2"	847	1210	215	178	297	2"	847	1210	215	178	317	2"
1118	974	1310	215	178	238	2"	974	1310	215	178	257	2"	974	1310	215	178	277	2"	974	1310	215	178	297	2"	974	1310	215	178	317	2"
1319	1164	1510	215	178	238	2"	1164	1510	215	178	257	2"	1164	1510	221	178	277	2 1/2"	1164	1510	221	178	297	2 1/2"	1164	1510	221	178	317	2 1/2"
1422	1179	1610	221	178	238	2 1/2"	1179	1610	221	178	257	2 1/2"	1179	1610	221	178	277	2 1/2"	1179	1610	221	178	297	2 1/2"	1179	1610	221	178	317	2 1/2"
1522	1278	1710	221	178	238	2 1/2"	1278	1710	221	178	257	2 1/2"	1278	1710	221	178	277	2 1/2"	1278	1710	221	178	297	2 1/2"	1278	1710	221	178	317	2 1/2"
1722	1456	1910	228	198	277	3"	1456	1910	228	198	297	3"	1456	1910	228	198	277	3"	1456	1910	228	198	297	3"	1456	1910	228	198	297	3"
1724	1456	1910	228	198	277	3"	1456	1910	228	198	297	3"	1456	1910	228	198	277	3"	1456	1910	228	198	297	3"	1456	1910	228	198	297	3"
1725	1456	1910	228	198	277	3"	1456	1910	228	198	297	3"	1456	1910	228	198	277	3"	1456	1910	228	198	297	3"	1456	1910	228	198	297	3"
1926	1647	2110	228	198	277	3"	1647	2110	228	198	297	3"	1647	2110	228	198	297	3"	1647	2110	228	198	297	3"	1647	2110	228	198	297	3"
*2127	643	2310	228	178	277	2 1/2"	643	2310	228	178	297	2 1/2"	643	2310	228	178	277	2 1/2"	643	2310	228	178	297	2 1/2"	643	2310	228	178	297	2 1/2"
	1139					3"	1139					3"	1139					3"	1139					3"	1139					3"
*2230	770	2410	228	178	277	2 1/2"	770	2410	228	178	297	2 1/2"	770	2410	228	178	277	2 1/2"	770	2410	228	178	297	2 1/2"	770	2410	228	178	297	2 1/2"
	1139					3"	1139					3"	1139					3"	1139					3"	1139					3"
*2234	770	2410	228	178	277	2 1/2"	770	2410	228	178	297	2 1/2"	770	2410	228	178	277	2 1/2"	770	2410	228	178	297	2 1/2"	770	2410	228	178	297	2 1/2"
	1139					3"	1139					3"	1139					3"	1139					3"	1139					3"
*2434	643	2610	228	178	277	2 1/2"	643	2610	228	178	297	2 1/2"	643	2610	228	178	277	2 1/2"	643	2610	228	178	297	2 1/2"	643	2610	228	178	297	2 1/2"
	1456					3"	1456					3"	1456					3"	1456					3"	1456					3"
*2636	834	2810	228	178	277	2 1/2"	834	2810	228	178	297	2 1/2"	834	2810	228	178	277	2 1/2"	834	2810	228	178	297	2 1/2"	834	2810	228	178	297	2 1/2"
	1456					3"	1456					3"	1456					3"	1456					3"	1456					3"

Remarks : 1. Refer schematic drawing page no. 45 for specific dimension.
2. * AHU with 2 coil blocks.
3. Top dimension refer to the upper coil; bottom dimension refer to the lower coil (A & F dimension).

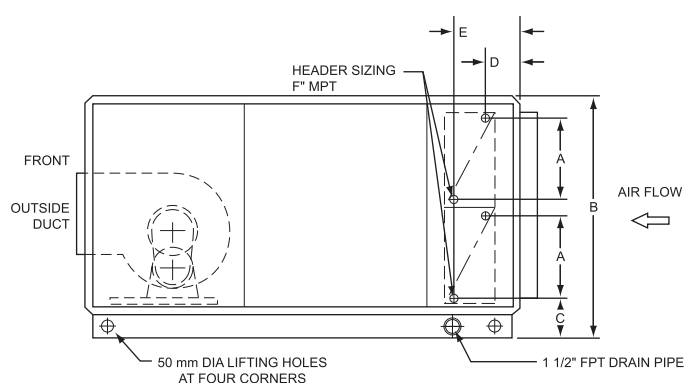
Table 16 Chilled Water Coil - Vertical Draw Thru AHU - 25mm Casing

Unit Size	4 Row Coil				5 Row Coil				6 Row Coil				7 Row Coil				8 Row Coil							
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
39G																								
0508A	353	710	208	178	238	2"	353	710	208	178	257	2"	353	710	208	178	277	2"	353	710	208	178	317	2"
0508B	353	710	208	178	238	2"	353	710	208	178	257	2"	353	710	208	178	277	2"	353	710	208	178	317	2"
0511	353	710	208	178	238	2"	353	710	208	178	257	2"	353	710	208	178	277	2"	353	710	208	178	317	2"
0612	480	810	208	178	238	2"	480	810	208	178	257	2"	480	810	208	178	277	2"	480	810	208	178	317	2"
0713	544	910	208	178	238	2"	544	910	208	178	257	2"	544	910	208	178	277	2"	544	910	208	178	317	2"
0813	671	1010	208	178	238	2"	671	1010	208	178	257	2"	671	1010	208	178	277	2"	671	1010	208	178	317	2"
0914	798	1110	208	178	238	2"	798	1110	208	178	257	2"	798	1110	215	178	277	2"	798	1110	215	178	317	2"
0916	798	1110	208	178	238	2"	798	1110	208	178	257	2"	798	1110	215	178	277	2"	798	1110	215	178	317	2"
1018	847	1210	215	178	238	2"	847	1210	215	178	257	2"	847	1210	215	178	277	2"	847	1210	215	178	317	2"
1118	974	1310	215	178	238	2"	974	1310	215	178	257	2"	974	1310	215	178	277	2"	974	1310	215	178	317	2"
1319	1164	1510	215	178	238	2 1/2"	1164	1510	215	178	257	2 1/2"	1164	1510	221	178	277	2 1/2"	1164	1510	221	178	317	2 1/2"
1422	1179	1610	221	178	238	2 1/2"	1179	1610	221	178	257	2 1/2"	1179	1610	221	178	277	2 1/2"	1179	1610	221	178	317	2 1/2"
1522	1278	1710	221	178	238	2 1/2"	1278	1710	221	178	257	2 1/2"	1278	1710	221	178	277	2 1/2"	1278	1710	221	178	317	2 1/2"
1722	1456	1910	228	198	277	3"	1456	1910	228	198	297	3"	1456	1910	228	198	277	3"	1456	1910	228	198	297	3"
1724	1456	1910	228	198	277	3"	1456	1910	228	198	297	3"	1456	1910	228	198	277	3"	1456	1910	228	198	297	3"
1725	1456	1910	228	198	277	3"	1456	1910	228	198	297	3"	1456	1910	228	198	277	3"	1456	1910	228	198	297	3"
1926	1647	2110	228	198	277	3"	1647	2110	228	198	297	3"	1647	2110	228	198	277	3"	1647	2110	228	198	297	3"
*2127	643	2310	228	178	277	2 1/2"	643	2310	228	178	297	2 1/2"	643	2310	228	178	277	2 1/2"	643	2310	228	178	297	2 1/2"
	1139					3"	1139					3"	1139					3"	1139					3"
*2230	770	2410	228	178	277	2 1/2"	770	2410	228	178	297	2 1/2"	770	2410	228	178	277	2 1/2"	770	2410	228	178	297	2 1/2"
	1139					3"	1139					3"	1139					3"	1139					3"
*2234	770	2410	228	178	277	2 1/2"	770	2410	228	178	297	2 1/2"	770	2410	228	178	277	2 1/2"	770	2410	228	178	297	2 1/2"
	1139					3"	1139					3"	1139					3"	1139					3"
*2434	643	2610	228	178	277	2 1/2"	643	2610	228	178	297	2 1/2"	643	2610	228	178	277	2 1/2"	643	2610	228	178	297	2 1/2"
	1456					3"	1456					3"	1456					3"	1456					3"
*2636	834	2810	228	178	277	2 1/2"	834	2810	228	178	297	2 1/2"	834	2810	228	178	277	2 1/2"	834	2810	228	178	297	2 1/2"
	1456					3"	1456					3"	1456					3"	1456					3"

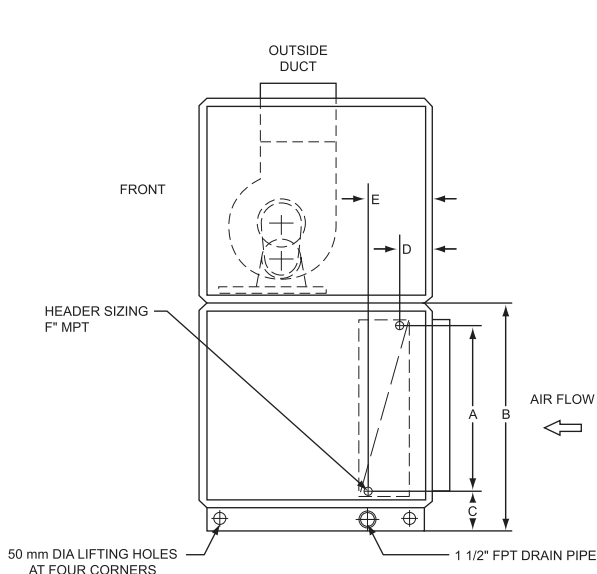
Remarks : 1. Refer schematic drawing page no. 45 for specific dimension.
2. * AHU with 2 coil blocks.
3. Top dimension refer to the upper coil; bottom dimension refer to the lower coil (A & F dimension).



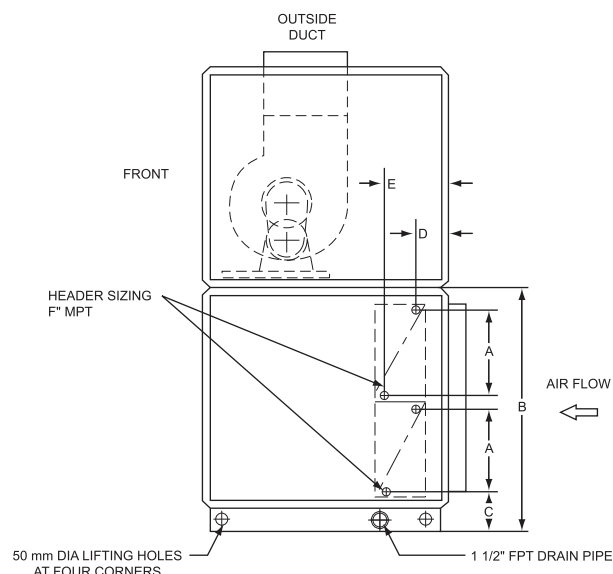
Unit Size: 0508A - 1926



Unit Size: 2127 - 2636



Unit Size: 0508A - 1926



Unit Size: 2127 - 2636

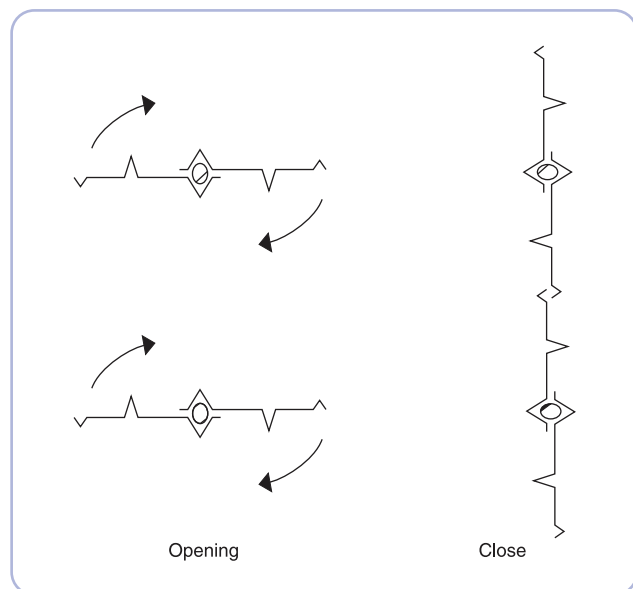
▲ Figure 9 Connection Outline

Mixing Box

A. General

Mixing box shall have parallel blades, interconnected opposing action between outdoor air and return air dampers. Dampers blades shall be brake formed for stiffness and shall be spot welded to a 13mm O.D. steel rods rotating in nylon bushings press-seated in rigid damper frames. Damper shall be fabricated from 1.2mm (18 gauge) thick galvanized steel sheet and the damper frame of 1.2mm (18 gauge) thick with a finishing of oven cured polyester based powder paint.

Dampers shall be sectionalized to limit blade length to not more than 1526mm in order to prevent excessive blade warping and ensure tight closure. Outdoor air and return air dampers shall be of the same area (Figure 10 and Table 19).



▲ Figure 10 Outdoor air and return air dampers

Air leakage using damper area ration and a perimeter gap of 3mm between blade and frame results in leakage rate of approximately 3% as a complete system when either one damper assembly is completely closed.

The damper are located on the outside of mixing boxes and the standard damper location shall be top and rear.

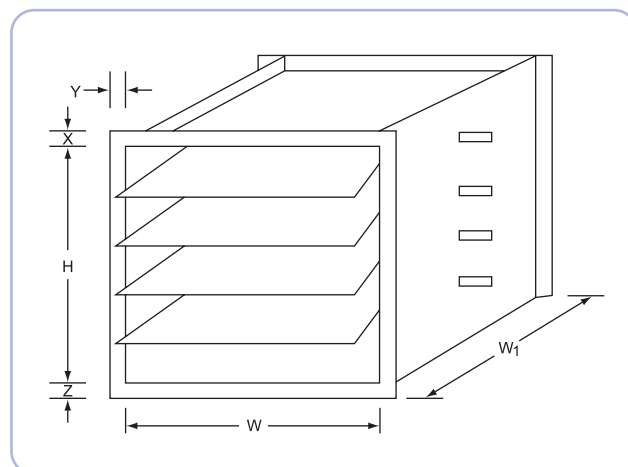
Interconnection between outdoor air and return air damper is made with push rods installed in the factory. The damper blades for each assembly shall be connected using linkages on one side of the damper frames ensuring its synchronous movement.

The damper frame is U-formed/flanged but not drilled which serves as a flange or duct work connection.

Table 19 Mixing Box Section in Module

Unit Size 39G	Module Length (M)	Opening	
		H	X W (mm)
0508A/B	6	480	X 726
0511	6	480	X 1026
0612	6	480	X 1126
0713	6	480	X 1226
0813	6	480	X 1226
0914	6	480	X 1326
0916	6	480	X 1526
1018	6	480	X 1726
1118	6	480	X 1726
1319	6	480	X 1826
1422	9	795	X 2126
1522	9	795	X 2126
1722	9	795	X 2126
1724	9	795	X 2326
1725	9	795	X 2426
1926	13	1267	X 2526
2127	13	1267	X 2626
2230	13	1267	X 2926
2234	13	1267	X 3326
2434	13	1267	X 3326
2636	13	1267	X 3526

Note: 1. The above dimensions applicable for 39GA 25mm
 2. $W_1 = 200\text{mm}$ $Z = 82\text{mm}$ (0508A to 1319) or
 $X = 36\text{mm}$ (0508A to 1725) or 67mm (1422 to 1725) or
 15.2mm (1926 to 2636) 15.2mm (1926 to 2636)
 $Y = 36\text{mm}$



▲ Figure 11

Table 20 Mixing Box Dampers Friction Loss

Section	Velocity (m/s)					
	1.50	2.00	2.50	3.00	3.50	4.00
Mixing Box (Pa)	2.49	4.98	9.96	12.46	14.95	19.93

A. General

The types of filters offered in 39G are as follows:

- i) HVF - High velocity filters
- ii) BF - Bag filters

Each filter type selected shall include a 39G section with the appropriate tracks. The filter section shall be similar in construction as the other 39G sections. The tracks supplied shall be in accordance to the HVAC filter standard sizes and its gravimetric efficiency per ASHRAE 52-76.

B. High Velocity Filter (HVF)

Commonly known as pre-filter, the HVF is offered with a thickness of either 25mm or 50mm. The standard gravimetric efficiency shall be 85% with 70% optional and media are washable made of aluminium or synthetic fibre. The HVF can be installed to the 39G as follows:

- i) Front loading with track only (i.e. free return application)
- ii) Front loading/withdrawal filter track within 2 module length section. When require filter section which must be able to be accessible for filter loading/withdrawal by access door at return duct (i.e. duct return application) or access door at mixing box.

The frames and tracks are fabricated of 1.25mm (18 gauge) thick galvanized steel sheet.

C. Bag Filter (BF)

The bag filter is normally used as 2nd stage filtration media. The factory standard efficiency shall be 95% gravimetric efficiency. Media are disposable type. The bag filter media shall be synthetic fibre of 600mm bag length and 25mm thick aluminium frame.

As a standard, the BF section comprises of 6 module, by front loading/withdrawal method.

D. Friction Pressure Drop

Due to filter media resists to the air flow resulting in static loss, therefore refer to Table 23 on the respective static pressure loss against velocity (interpolation is permissible).

Table 17 Filter Pressure Drop (Pa)

Filter	Face Velocity (m/s)	1.5	2.0	2.5	3.0	3.5
HVF 2" thick 85% gravimetric		8.96	12.46	19.93	27.40	37.40
BF 600mm bag length 95% gravimetric		9.96	14.95	29.89	47.33	69.75

Note: Data shown is for clean filter, based on synthetic fibre material. The normal allowable pressure drop for dirty filter should not exceed 300Pa (1.2" W.G.).

Table 18 Filter Type, Dimension and Quantity for Each AHU Size

Filter Type	Model										
	0508A	0508B	0511	0612	0713	0813	0914	0916	1018	1118	1319
a) 2" HVF Washable											
(H245XW495) mm	1	1	-	-	-	-	-	-	-	-	-
(H495XW495) mm	1	1	2	-	-	-	-	-	-	-	-
(H295XW595) mm	-	-	-	3	-	-	2	3	3	3	-
(H595XW595) mm	-	-	-	-	2	2	2	2	3	3	6
b) Bag Filter											
(H245XW495) mm	-	-	-	-	-	-	-	-	-	-	-
(H495XW495) mm	-	-	-	-	-	-	-	-	-	-	-
(H295XW595) mm	-	-	-	3	-	-	2	3	3	3	-
(H595XW595) mm	-	-	-	-	2	2	2	2	3	3	6

Filter Type	Model										
	1422	1522	1722	1724	1725	1926	2127	2230	2234	2434	2636
a) 2" HVF Washable											
(H245XW495) mm	-	-	-	-	-	-	-	-	-	-	-
(H495XW495) mm	-	-	-	-	-	-	-	-	-	-	-
(H295XW595) mm	2	2	5	5	4	-	4	7	8	8	4
(H595XW595) mm	6	6	6	6	8	12	12	12	15	15	20
b) Bag Filter											
(H245XW495) mm	-	-	-	-	-	-	-	-	-	-	-
(H495XW495) mm	-	-	-	-	-	-	-	-	-	-	-
(H295XW595) mm	2	2	5	5	4	-	4	7	8	8	4
(H595XW595) mm	6	6	6	6	8	12	12	12	15	15	20

Remark : The bag filter media shall be synthetic fibre of 600 mm. bag length or less, in case of using bag length more than 600 mm.
Please consult your local CARRIER office to arrange for filter section to match with.

บริษัท แคนเรีย (ประเทศไทย) จำกัด

1858/63-74 ชั้น 14, 15

ถ.เทพรัตน กม. 4.5 แขวงบางนาใต้

เขตบางนา กรุงเทพฯ 10260

โทร. 0-2090-9999 แฟกซ์: 0-2751-4778

Carrier (Thailand) Ltd.

1858/63-74 , 14th, 15th Floor,

Debaratna Road, Km.4.5, Bangna Tai,

Bangna Bangkok 10260 Thailand

Tel. 0-2090-9999 Fax: 0-2751-4778

บริษัทฯ ขอสงวนสิทธิ์ที่จะเปลี่ยนแปลงรายละเอียดข้างต้น โดยไม่ต้องแจ้งให้ทราบล่วงหน้า
Carrier reserves the right to make changes in specifications without prior notice.



YOUR CARRIER MAN :



39GNS Series Air Handling Unit



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World's No.1 Air Conditioning Expert

Introduction

The purpose of this catalogue is to help consulting engineers in the preliminary selection of CARRIER AIR HANDLING UNITS. However, if required, your local CARRIER office will assist to provide a computerised selection to confirm or complete your preliminary selection.

This catalogue consists of:

- A description of the various component parts available to be combined in the order best suited to your requirements.
- Technical data sheets, dimensions, weights, specifications, charts, etc.

QUALITY

The quality and reliability of any system depends on the quality of the components parts. Equipment schedules and specifications are based on **Carrier 39CNE**.

Therefore, in line with other CARRIER products, our 39GNS Series Air Handlers are manufactured in conformity with CARRIER's Quality concept which brought in items subjected to rigorous inspection.

FLEXIBLE MODULAR CONSTRUCTION

This adaptable unit design which is based upon a wide range of standard panel sizes, frequently enables CARRIER to offer several configurations of unit height and width, so that the aesthetic or practical dictates of confined plant room space or rooftop silhouettes can be easily met.

Major items of unit such as fans, coils, filters, etc. can be arranged in the sequence dictated by the job requirements, and separated by access sections where necessary, giving complete flexibility of design.

RIGIDITY

Extruded aluminium internal posts within the extruded aluminium frame increase the structural rigidity and provide a fixing point for an air-tight sealing strip.

The panels shall be constructed such that they shall be of two layers of steel sheet with injected insitu CFC-Free Polyurethane insulation with thermal conductivity factor of 0.019 W.mK and density of 40kg.m³ in between to ensure effective thermal and acoustic insulation.

WIDE RANGE OF SIZES

There are 43 standard units' sizes available, each, in most cases, has a choice of 2 fan type, covering ranging from 800 to 43,000 Nominal CFM.

WIDE RANGE OF COILS OFFERING

Chiller water coil - 1, 2, 3, 4, 5, 6, 7, 8, 10 rows with 8, 10, 12, 14 fin per inch.

Hot Water Coil - 1, 2, 3, 4, 5, 6, 7, 8, 10 rows with 8, 10, 12, 14 fin per inch.

Optimized coil circuiting.

3/8" and 1/2" tube diameter standard.

Aluminum fins (standard) or option as Pre coated (Blue Fin), Copper fin, Hydrophobic coated.

Remark : Coils performance are designed in accordance to ARI Standard 410.

FLEXIBILITY IN PANEL CONSTRUCTION

Units are offered with double wall construction sheet metal with 26 Gauge Colorbond ® XMA (ABR) as Outer casing and 26 Gauge Galvanized Steel as Inner Casing for 25 mm. and 50 mm.

VIBRATION ISOLATION

Centrifugal fan motor packages are mounted on common bases with 1 deflection spring or 0.5 deflection rubber follow factory standard vibration isolators and flexible discharge connections ensuring that all moving parts are independently isolated from the casing structure.

AESTHETICS

The standard construction features external panels surface attractively finished with Colorbond® XMA (ABR) and the units are delivered with plastic covering which keep the panels in good condition.

ACCESSIBILITY AND MAINTENANCE

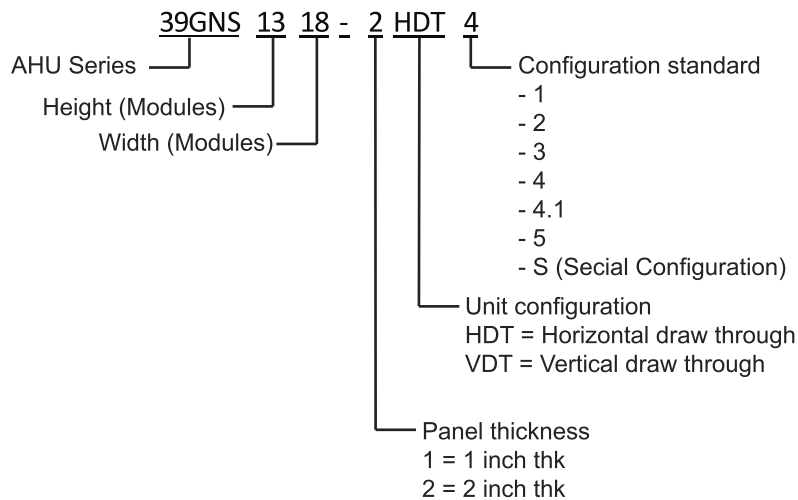
The easily removable panels and quick release access doors offer complete accessibility to fans, coils, filters and dampers. Additional access sections can be provided between coils and filters if required.

All basic component parts are standard and interchangeable. Filters are commercially available standard items conforming to international standards and sizes.

INDIVIDUALISED PRODUCT LINE

All 43 model sizes are available as 'Customised' adapted exactly to meet specific job requirements. For example: Non-standard coil material stainless drainpan / stainless casing / low leak damper / Hepa filter and etc.

MODEL NUMBER NOMENCLATURE



39GNS Identification & dimension

General

The 39GNS line of Carrier Air Handling Unit is based on a MODULAR System

The number of modules in height and in width determine the cross-section available for air flow and encodes the unit size.

The unit length is determined by the number and size of the component parts required.

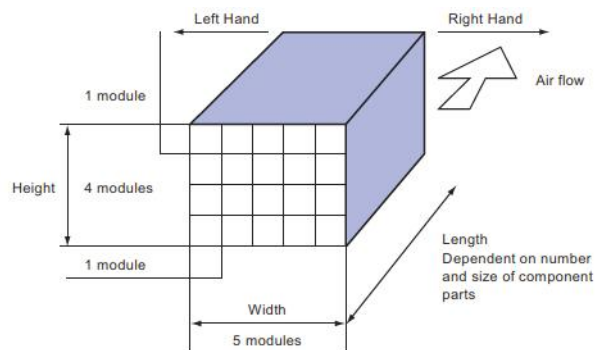
The side for service (connections and access) is defined as right hand or left hand in the direction of air flow.

Each module has a constant value of 100mm. To determine external dimensions, the following formula applies:

External Dimensions	= $(N \times 100 + M)$ mm
Where N	= number of module
M	= 60 mm for 25 mm casing
M	= 110 mm for 50 mm casing

Example 1: 39GNS0711 for 50mm casing

External Height Dimension	= $07 \times 100 + 110 = 810$ mm
External Width Dimension	= $11 \times 100 + 110 = 1,210$ mm



Remark: Must add base frame (100 mm.) to external height dimension to get the overall height of unit
Overall dimension excluded damper, pipe connection, discharge flange.

Quick Selection 39GNS

39GNS	Coil Tube Diameter	COIL FACE		AIR VOLUME										Dimensions (mm)									
		ARER		2 m/s		2 m/s (L/s*1000)		2.5 m/s		2.5 m/s (L/s*1000)		3 m/s		3 m/s (L/s*1000)		3.5 m/s		3.5 m/s (L/s*1000)		25 mm Thickness		50 mm Thickness	
		(sq.m)	(sq.ft)	CMH	CFM		CMH	CFM		CMH	CFM		CMH	CFM		CMH	CFM		H	W	H	W	
SIZE	(in)	0.257	2.77	1.549	912	0.43	1.945	1.145	0.54	2.341	1.378	0.65	2.737	1.611	0.76	760	860	810	910				
0608	3/8"	0.265	2.85	1.909	1,124	0.53	2.377	1.399	0.66	2.882	1.696	0.8	3.350	1.972	0.93								
0609	1/2"	0.303	3.26	2.161	1,272	0.6	2.718	1.600	0.76	3.278	1.929	0.91	3.818	2.247	1.06	760	960	810	1010				
	3/8"	0.311	3.35	2.233	1,314	0.62	2.809	1.654	0.78	3.350	1.972	0.93	3.926	2.311	1.09								
0610	1/2"	0.347	3.73	2.485	1,463	0.69	3.118	1.835	0.87	3.746	2.205	1.04	4.358	2.565	1.21	760	1060	810	1110				
	3/8"	0.357	3.84	2.557	1,505	0.71	3.206	1.887	0.89	3.854	2.268	1.07	4.502	2.650	1.25								
0711	1/2"	0.447	4.81	3.206	1,887	0.89	4.018	2.365	1.12	4.827	2.841	1.34	5.619	3.307	1.56	860	1160	910	1210				
	3/8"	0.447	4.81	3.206	1,887	0.89	4.018	2.365	1.12	4.827	2.841	1.34	5.619	3.307	1.56								
0712	1/2"	0.498	5.36	3.602	2,120	1	4.466	2.629	1.24	5.367	3.159	1.49	6.267	3.689	1.74	860	1260	910	1310				
	3/8"	0.498	5.36	3.602	2,120	1	4.466	2.629	1.24	5.367	3.159	1.49	6.267	3.689	1.74								
0811	1/2"	0.558	6.01	4.034	2,374	1.12	5.021	2.955	1.4	6.051	3.562	1.68	7.060	4.155	1.96	960	1160	1010	1210				
	3/8"	0.536	5.77	3.854	2,268	1.07	4.827	2,841	1.34	5,799	3,413	1.61	6,772	3,986	1.88								
0813	1/2"	0.686	7.38	4.935	2,904	1.37	6.167	3.630	1.71	7.420	4.367	2.06	8.645	5.088	2.4	960	1360	1010	1410				
	3/8"	0.658	7.08	4.754	2,798	1.32	5.943	3.498	1.65	7.132	4.198	1.98	8.284	4.876	2.3								
0912	1/2"	0.685	7.37	4.935	2,904	1.37	6.159	3.625	1.71	7.384	4.346	2.05	8.645	5.088	2.4	1,060	1,260	1,110	1,310				
	3/8"	0.697	7.50	5.007	2,947	1.39	6.267	3.689	1.74	7.528	4.431	2.09	8.789	5.173	2.44								
0913	1/2"	0.754	8.12	5.439	3,201	1.51	6.796	4.000	1.79	8.140	4.791	2.26	9.509	5.597	2.64	1,060	1,360	1,110	1,410				
	3/8"	0.768	8.27	5.547	3,265	1.54	6.916	4.070	1.92	8.284	4.876	2.3	9.689	5.703	2.69								
0914	1/2"	0.825	8.88	5.943	3.498	1.65	7.420	4.367	2.06	8.897	5.236	2.47	10.373	6.106	2.88	1,060	1,460	1,110	1,510				
	3/8"	0.839	9.03	6.051	3.562	1.68	7.564	4.452	2.1	9.077	5.342	2.52	10.590	6.233	2.94								
1015	1/2"	1.057	11.38	7.600	4,473	2.11	9.509	5.597	2.64	11.418	6.720	3.17	13.327	7.844	3.7	1,160	1,560	1,210	1,610				
	3/8"	1.041	11.20	7.492	4,410	2.08	9.365	5.512	2.6	11.238	6.614	3.12	13.111	7.717	3.64								
1016	1/2"	1.139	12.26	8.212	4.834	2.28	10.265	6.042	2.85	12.318	7.250	3.42	14.372	8.459	3.99	1,160	1,660	1,210	1,710				
	3/8"	1.121	12.07	8.068	4.749	2.24	10.085	5.936	2.8	12.102	7.123	3.36	14.155	8.332	3.93								
1117	1/2"	1.372	14.77	9.869	5.809	2.74	12.354	7.272	3.43	14.804	8.713	4.11	17.289	10.176	4.8	1,260	1,760	1,310	1,810				
	3/8"	1.317	14.18	9.473	5.576	2.63	11.850	6.975	3.29	14.227	8.374	3.95	16.605	9.773	4.61								
1317	1/2"	1.646	17.72	11.850	6.975	3.29	14.804	8.713	4.11	17.793	10.473	4.94	20.747	12.211	5.76	1,460	1,760	1,510	1,810				
	3/8"	1.609	17.32	11.598	6.826	3.22	14.480	8.522	4.02	17.397	10.240	4.83	20.279	11.936	5.63								
1318	1/2"	1.760	18.94	12.679	7.462	3.52	15.848	9.328	4.4	19.018	11.194	5.28	22.188	13.059	6.16	1,460	1,860	1,510	1,910				
	3/8"	1.721	18.52	12.390	7.293	3.44	15.488	9.116	4.3	18.586	10.939	5.16	21.683	12.762	6.02								
1320	1/2"	1.989	21.41	14.335	8.438	3.98	17.901	10.536	4.97	21.503	12.656	5.97	25.069	14.755	6.96	1,460	2,060	1,510	2,110				
	3/8"	1.944	20.93	14.011	8.247	3.89	17.505	10.303	4.86	20.999	12.360	5.83	24.529	14.437	6.81								
1322	1/2"	2.219	23.88	15.956	9.392	4.43	19.954	11.745	5.54	23.953	14.098	6.65	27.951	16.451	7.76	1,460	2,260	1,510	2,310				
	3/8"	2.168	23.34	15.632	9.201	4.34	19.522	11.490	5.42	23.412	13.780	6.5	27.338	16.091	7.59								
1418	1/2"	1.857	19.99	13.399	7.886	3.72	16.749	9.858	4.65	20.098	11.830	5.58	23.448	13.801	6.51	1,560	1,860	1,610	1,910				
1420	1/2"	2.100	22.60	15.128	8.904	4.2	18.910	11.130	5.25	22.692	13.356	6.3	26.474	15.582	7.35	1,560	2,060	1,610	2,110				
1421	1/2"	2.219	23.88	15.992	9.413	4.44	19.990	11.766	5.55	23.989	14.119	6.66	27.987	16.472	7.77	1,560	2,160	1,610	2,210				
1422	1/2"	2.341	25.20	16.857	9.922	4.68	21.071	12.402	5.85	25.285	14.882	7.02	29.499	17.363	8.19	1,560	2,260	1,610	2,310				
1518	1/2"	2.052	22.09	14.768	8.692	4.1	18.478	10.876	5.13	22.152	13.038	6.15	25.861	15.222	7.18	1,660	1,860	1,710	1,910				
1521	1/2"	2.453	26.40	17.649	10.388	4.9	22.080	12.996	6.13	26.474	15.582	7.35	30.904	18.190	8.58	1,660	2,160	1,710	2,210				

Quick Selection 39GNS

39GNS	Coil Tube Diameter	COIL FACE		AIR VOLUME												Dimensions (mm)			
		ARER		2 m/s		2 m/s (L/s*1000)	2.5 m/s		2.5 m/s (L/s*1000)	3 m/s		3 m/s (L/s*1000)	3.5 m/s		3.5 m/s (L/s*1000)	25 mm Thickness		50 mm Thickness	
		(sq.m)	(sq.ft)	CMH	CFM		CMH	CFM		CMH	CFM		CMH	CFM		H	W	H	W
SIZE	(in)	2.587	27.85	18,658	10,982	5.18	23,276	13,700	6.48	27,987	16,472	7.77	32,669	19,228	9.07	1,660	2,260	1,710	2,310
1522	1/2"	2.855	30.73	20,531	12,084	5.7	25,681	15,116	7.13	30,796	18,126	8.55	35,947	21,158	9.98	1,660	2,460	1,710	2,510
1524	1/2"	2.988	32.16	21,539	12,678	5.98	26,844	15,800	7.48	32,309	19,016	8.97	37,712	22,196	10.47	1,660	2,560	1,710	2,610
1525	1/2"	2.569	27.65	18,514	10,897	5.14	23,160	13,632	6.43	27,770	16,345	7.71	32,417	19,080	9	1,760	2,160	1,810	2,210
1621	1/2"	2.711	29.18	19,522	11,490	5.42	24,421	14,374	6.78	29,283	17,236	8.13	34,182	20,119	9.49	1,760	2,260	1,810	2,310
1622	1/2"	2.991	32.20	21,539	12,678	5.98	26,942	15,858	7.48	32,309	19,016	8.97	37,712	22,196	10.47	1,760	2,460	1,810	2,510
1624	1/2"	3.130	33.69	22,548	13,271	6.26	28,203	16,600	7.83	33,822	19,907	9.39	39,477	23,235	10.96	1,760	2,560	1,810	2,610
1625	1/2"	3.081	33.16	22,188	13,059	6.16	28,798	16,950	7.7	33,281	19,589	9.24	38,828	22,854	10.78	1,960	2,260	2,010	2,310
1822	1/2"	3.399	36.59	24,493	14,416	6.8	31,771	18,700	8.5	36,739	21,624	10.2	42,862	25,228	11.9	1,960	2,460	2,010	2,510
1824	1/2"	3.566	38.28	25,645	15,094	7.12	33,215	19,550	8.9	38,468	22,642	10.68	44,879	26,415	12.46	1,960	2,560	2,010	2,610
1825	1/2"	3.984	42.88	28,707	16,896	7.97	35,875	21,115	9.96	43,042	25,334	11.95	50,210	29,553	13.94	2,160	2,560	2,210	2,610
2025	1/2"	4.126	44.41	29,716	17,490	8.25	38,397	22,600	10.31	44,555	26,224	12.37	52,011	30,613	14.44	2,260	2,560	2,310	2,610
2125	1/2"	4.605	49.57	33,173	19,525	9.21	41,494	24,422	11.52	49,778	29,298	13.82	58,062	34,174	16.12	2,360	2,660	2,410	2,710
2226	1/2"	5.395	58.07	38,864	22,875	10.79	48,553	28,578	13.48	58,278	34,302	16.18	68,003	40,026	18.88	2,360	3,060	2,410	3,110
2230	1/2"	6.180	66.52	44,519	26,203	12.36	55,649	32,754	15.45	66,779	39,305	18.54	77,909	45,856	21.63	2,360	3,460	2,410	3,510
2234	1/2"	5.569	59.94	40,125	23,617	11.14	50,970	30,000	13.92	60,151	35,404	16.7	70,201	41,319	19.49	2,460	3,060	2,510	3,110
2330	1/2"	6.380	68.67	45,960	27,051	12.76	57,766	34,000	15.95	68,940	40,577	19.14	80,430	47,340	22.33	2,460	3,460	2,510	3,510
2334	1/2"	6.778	72.96	48,841	28,747	13.56	61,052	35,934	16.95	73,262	43,121	20.34	85,473	50,308	23.73	2,560	3,460	2,610	3,510
2434	1/2"	7.376	79.40	53,128	31,270	14.75	66,419	39,093	18.44	79,710	46,916	22.13	93,001	54,738	25.82	2,760	3,460	2,810	3,510
2634	1/2"	7.848	84.47	56,513	33,263	15.69	70,669	41,594	19.62	84,788	49,905	23.54	98,944	58,236	27.47	2,760	3,660	2,810	3,710

- For cooling application of face velocity more than 2.54 m/s , drift eliminators is recommended to avoid moisture carry over under normal operating condition.

- Horizontal Unit

- Height of unit (H) included unit case 100 mm.

Unit Configuration Horizontal

39GNS Horizontal Configuration 1

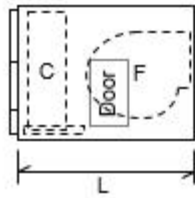


Fig.1A

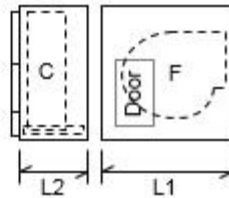


Fig.1B

- Unit configuration 1 consist of Fan + Coil + Filter Track
- Coil section length 6 modules
- Filter track for pre-filter 2"thk. Only (front loading).
- Height of unit (H) included unit base 100 mm.

39GNS Horizontal Configuration 2

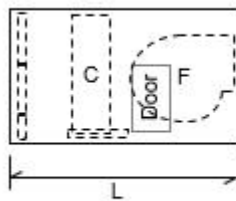


Fig.2A

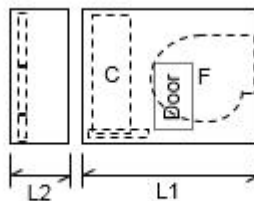


Fig.2B

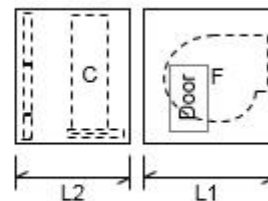


Fig.2C

- Unit configuration 2 consist of Fan + Coil + Filter section with track
- Coil section length 6 modules
- Filter section with track (front loading) length 6 modules.
- Height of unit (H) included unit base 100 mm.

Unit Configuration Horizontal

39GNS Horizontal Configuration 3

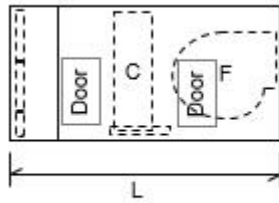


Fig.3A

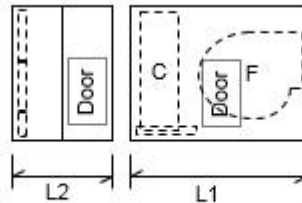


Fig.3B

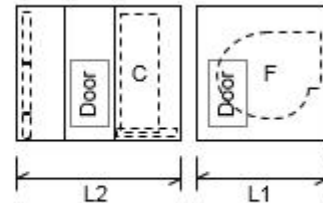


Fig.3C

- Unit configuration 3 consist of Fan + Coil + Access section + Filter section with track
- Coil section length 6 modules
- Access section length 5 modules
- Filter section length 6 modules
- Height of unit (H) included unit base 100 mm.

39GNS Horizontal Configuration 4

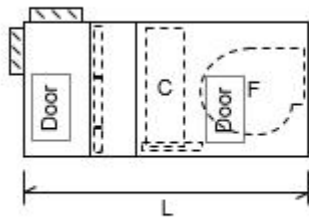


Fig.4A

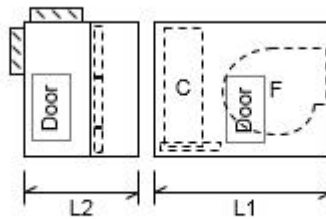


Fig.4B

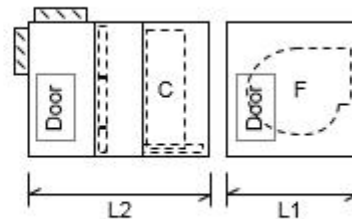


Fig.4C

- Unit configuration 4 consist of Fan + Coil + Filter section with track + Mixing Box with damper.
- Coil section length 6 modules
- Mixing section length 5-9 modules.
- Filter section length 6 modules
- Height of unit (H) included unit base 100 mm.

Unit Configuration Horizontal

39GNS Horizontal Configuration 4.1

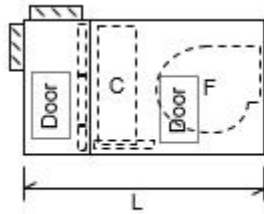


Fig.4.1A

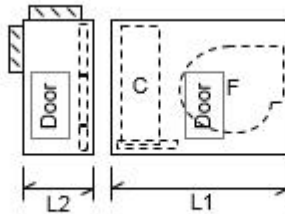


Fig.4.1B

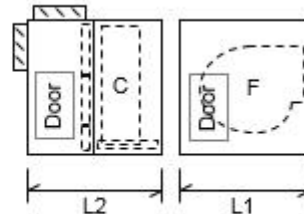


Fig.4.1C

- Unit configuration 4.1 consist of Fan + Coil + Filter track + Mixing Box with damper
- Coil section length 6 modules.
- Mixing section length 5-9 modules.
- Filter track for pre-filter 2"thk. only (front loading).
- Height of unit (H) included unit base 100 mm.

39GNS Horizontal Configuration 5

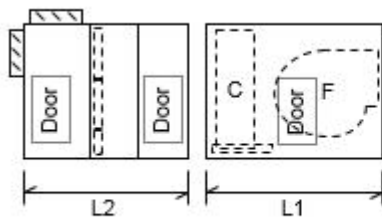


Fig.5A

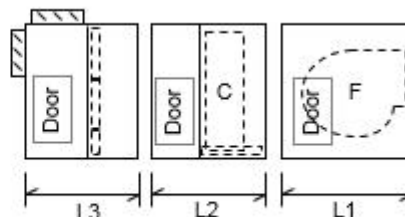


Fig.5B

- Unit configuration 5 consist of Fan + Coil + Access section + Filter section with track + Mixing Box
- Coil section length 6 modules
- Access section length 5 modules
- Mixing section length 5-9 modules.
- Filter section length 6 modules
- Height of unit (H) included unit base 100 mm.

39GNS - MODULES LENGTH (HDT)

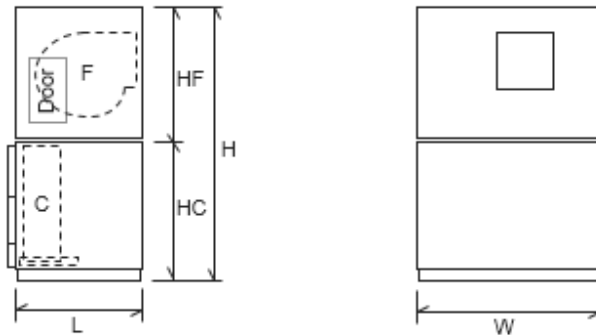
39GS	Fan	HDT - 1 Fan+ Coil	HDT - 2 Fan+Coil +Filter	HDT - 3 Fan+Coil+ Acc. +Filter	HDT - 4.1 Fan+Coil +MXB	HDT - 4 Fan+Coil+ Filter+ MXB	HDT - 5 Fan+Coil+Acc +Fil.+ MXB
0608	180	(6+6)	(6+6+6)	(6+6+5+6)	(6+6+5)	(6+6+6+5)	(6+6) - (5+6+5)
	180	(6+6)	(6+6+6)	(6+6+5+6)	(6+6+5)	(6+6+6+5)	(6+6) - (5+6+5)
0609	200	(7+6)	(7+6+6)	(7+6+5+6)	(7+6+5)	(7+6+6+5)	(7+6) - (5+6+5)
	180	(6+6)	(6+6+6)	(6+6+5+6)	(6+6+5)	(6+6+6+5)	(6+6) - (5+6+5)
0610	200	(7+6)	(7+6+6)	(7+6+5+6)	(7+6+5)	(7+6+6+5)	(7+6) - (5+6+5)
	200, 225	(7+6)	(7+6+6)	(7+6+5+6)	(7+6+5)	(7+6+6+5)	(7+6) - (5+6+5)
0712	225, 250	(7+6)	(7+6+6)	(7+6+5+6)	(7+6+5)	(7+6+6+5)	(7+6) - (5+6+5)
0811	225, 250	(7+6)	(7+6+6)	(7+6+5+6)	(7+6+5)	(7+6+6+5)	(7+6) - (5+6+5)
0813	280, 315	(8+6)	(8+6+6)	(8+6+5+6)	(8+6+5)	(8+6+6+5)	(8+6) - (5+6+5)
0912	250	(7+6)	(7+6+6)	(7+6) - (5+6)	(7+6+5)	(7+6) - (6+5)	(7+6) - (5+6+5)
	280	(8+6)	(8+6+6)	(8+6) - (5+6)	(8+6+5)	(8+6) - (6+5)	(8+6) - (5+6+5)
0913	280, 315	(8+6)	(8+6+6)	(8+6) - (5+6)	(8+6+5)	(8+6) - (6+5)	(8+6) - (5+6+5)
	315	(8+6)	(8+6+6)	(8+6) - (5+6)	(8+6+5)	(8+6) - (6+5)	(8+6) - (5+6+5)
0914	355	(9+6)	(9+6+6)	(9+6) - (5+6)	(9+6+5)	(9+6) - (6+5)	(9+6) - (5+6+5)
	355	(9+6)	(9+6+6)	(9+6) - (5+6)	(9+6+5)	(9+6) - (6+5)	(9+6) - (5+6+5)
1015	400	(10+6)	(10+6+6)	(10+6) - (5+6)	(10+6+5)	(10+6) - (6+5)	(10+6) - (5+6+5)
	355	(9+6)	(9+6+6)	(9+6) - (5+6)	(9+6+5)	(9+6) - (6+5)	(9+6) - (5+6+5)
1016	400	(10+6)	(10+6+6)	(10+6) - (5+6)	(10+6+5)	(10+6) - (6+5)	(10+6) - (5+6+5)
	400	(10+6)	(10+6+6)	(10+6) - (5+6)	(10+6+5)	(10+6) - (6+5)	(10+6) - (5+6+5)
1117	450	(11+6)	(11+6+6)	(11+6) - (5+6)	(11+6+5)	(11+6) - (6+5)	(11+6) - (5+6+5)
	400	(10+6)	(10+6+6)	(10+6) - (5+6)	(10+6+5)	(10+6) - (6+5)	(10+6) - (5+6+5)
1317	450	(11+6)	(11+6+6)	(11+6) - (5+6)	(11+6+5)	(11+6) - (6+5)	(11+6) - (5+6+5)
	400	(10+6)	(10+6+6)	(10+6) - (5+6)	(10+6+5)	(10+6) - (6+5)	(10+6) - (5+6+5)
1318	450	(11+6)	(11+6+6)	(11+6) - (5+6)	(11+6+5)	(11+6) - (6+5)	(11+6) - (5+6+5)
	450, 500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
1320	450, 500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
1518	450, 500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
	500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
1420	560	(13+6)	(13+6) - (6)	(13+6) - (5+6)	(13+6+6)	(13+6) - (6+6)	(13+6) - (5+6+6)
1322	500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
	560	(13+6)	(13+6) - (6)	(13+6) - (5+6)	(13+6+6)	(13+6) - (6+6)	(13+6) - (5+6+6)
1421	500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
	560	(13+6)	(13+6) - (6)	(13+6) - (5+6)	(13+6+6)	(13+6) - (6+6)	(13+6) - (5+6+6)
1422	500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
	560	(13+6)	(13+6) - (6)	(13+6) - (5+6)	(13+6+6)	(13+6) - (6+6)	(13+6) - (5+6+6)
1521	500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
	560	(13+6)	(13+6) - (6)	(13+6) - (5+6)	(13+6+6)	(13+6) - (6+6)	(13+6) - (5+6+6)

39GNS - MODULES LENGTH (HDT)

[illegible]

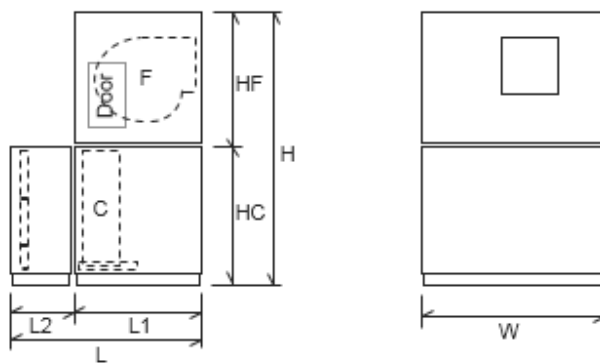
Unit Configuration Vertical

39GNS Vertical-Configuration 1



- Unit configuration 1 consist of Fan+Coil+Filter Track
- Filter rack for pre-filter 2" thk.Only (frontloading).
- Height of unit (H) included unit base 100 mm.
- 39GNS larger than size 1625, are not available for VDT units.

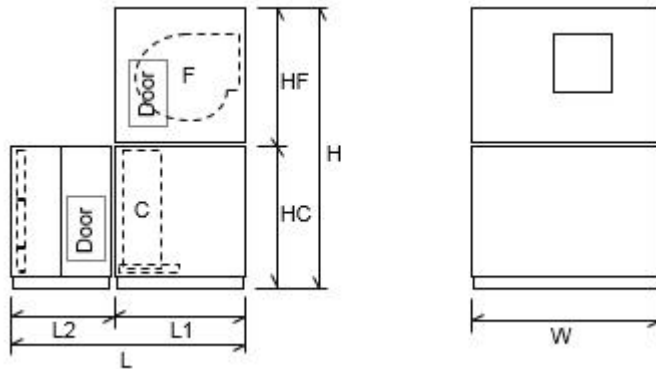
39GNS Vertical-Configuration 2



- Unit configuration 2 consist of Fan+Coil+Filter section with track.
- Coil section length 6 modules.
- Filter section with rack (front loading) length 6 modules.
- Height of unit (H) included unit base 100 mm.
- 39GNS larger than size 1625, are not available for VDT units.

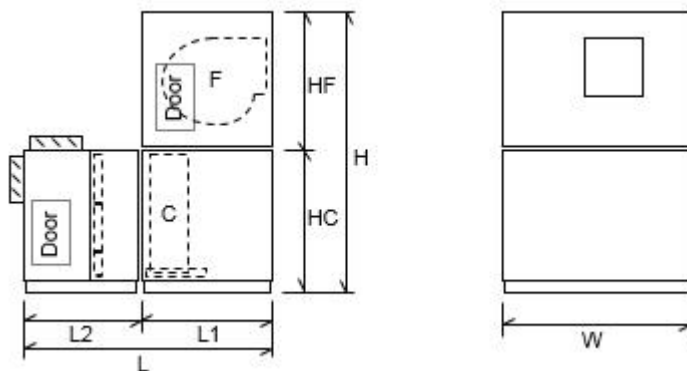
Unit Configuration Vertical

39GNS Vertical-Configuration 3



- Unit configuration 3 consist of Fan + Coil + Access Section+ Filter Section with track
- Access section length 5 modules
- Filter section length 6 modules
- Height of unit (H) included unit base 100 mm .
- 39GNS larger than size 1625, are not available for VDT units .

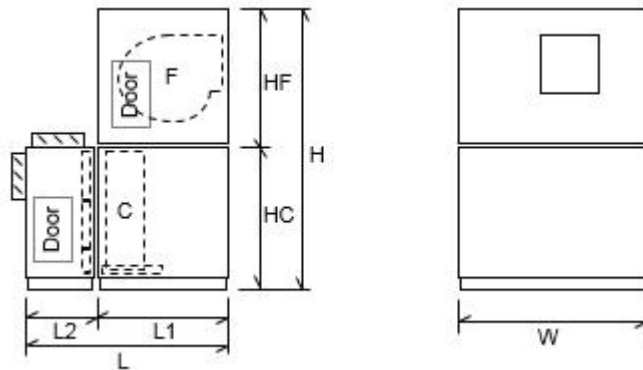
39GNS Vertical-Configuration 4



- Unit configuration 4 consist of Fan + Coil + Filter section with track + Mixing Box
- Filter section length 6 modules
- Height of unit (H) included unit base 100 mm .
- 39GNS larger than size 1625, are not available for VDT units .

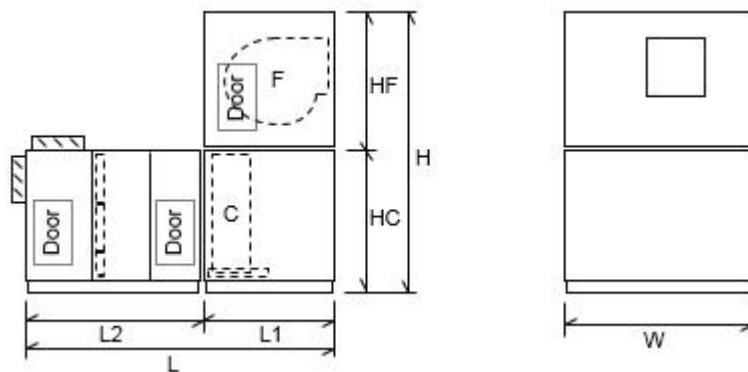
Unit Configuration Vertical

39GNS Vertical-Configuration 4.1



- Unit configuration 4.1 consist of Fan + Coil + Filter track + Mixing Box
- Filter track for pre -filter 2 "thk .Only (front loading) .
- Height of unit (H) included unit base 100 mm .
- 39GNS larger than size 1625, are not available for VDT units .

39GNS Vertical-Configuration 5



- Unit configuration 5 consist of Fan + Coil + Access section+ Filter section with track + Mixing Box
- Access section length 5 modules
- Filter section length 6 modules
- Height of unit (H) included unit base 100 mm .
- 39GNS larger than size 1625, are not available for VDT units .

*Vertical unit, factory will pre -join fan section and coil section for 39GNS1117 and below .

39GNS - MODULES LENGTH (VDT)

39GNS	Fan	Height (modules)		Unit Length (modules)						
		Fan	Coil	VDT - 1 (Fan+Coil)	VDT - 2 (Fan+Coil) - (Filter)	VDT - 3 (Fan+Coil) - (Acc.+Filter)	VDT - 4.1 (Fan+Coil) - (MXB)	VDT - 4 (Fan+Coil) - (Filter+MXB)	VDT - 5 (Fan+Coil) - (Acc+Fill+MXB)	
0608	180	6	6	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)	
	180	6	6	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)	
	200	6	6	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)	
0610	180	6	6	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)	
	200	6	6	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)	
	200, 225	7	7	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)	
0712	225, 250	7	7	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)	
	225, 250	8	8	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)	
	280, 315	8	8	(9)	(9) - (6)	(9) - (5+6)	(9) - (5)	(9) - (6+5)	(9) - (5+6+5)	
0813	250	9	9	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)	
	280	9	9	(9)	(9) - (6)	(9) - (5+6)	(9) - (5)	(9) - (6+5)	(9) - (5+6+5)	
	280, 315	9	9	(9)	(9) - (6)	(9) - (5+6)	(9) - (5)	(9) - (6+5)	(9) - (5+6+5)	
0914	315	9	9	(9)	(9) - (6)	(9) - (5+6)	(9) - (5)	(9) - (6+5)	(9) - (5+6+5)	
	355	9	9	(9)	(9) - (6)	(9) - (5+6)	(9) - (5)	(9) - (6+5)	(9) - (5+6+5)	
	355	9	10	(9)	(9) - (6)	(9) - (5+6)	(9) - (5)	(9) - (6+5)	(9) - (5+6+5)	
1015	400	10	10	(10)	(10) - (6)	(10) - (5+6)	(10) - (5)	(10) - (6+5)	(10) - (5+6+5)	
	355	9	10	(9)	(9) - (6)	(9) - (5+6)	(9) - (5)	(9) - (6+5)	(9) - (5+6+5)	
	400	10	10	(10)	(10) - (6)	(10) - (5+6)	(10) - (5)	(10) - (6+5)	(10) - (5+6+5)	
1117	400	10	11	(10)	(10) - (6)	(10) - (5+6)	(10) - (5)	(10) - (6+5)	(10) - (5+6+5)	
	450	11	11	(11)	(11) - (6)	(11) - (5+6)	(11) - (5)	(11) - (6+5)	(11) - (5+6+5)	
	400	10	13	(10)	(10) - (6)	(10) - (5+6)	(10) - (5)	(10) - (6+5)	(10) - (5+6+5)	
1317	450	11	13	(11)	(11) - (6)	(11) - (5+6)	(11) - (5)	(11) - (6+5)	(11) - (5+6+5)	
	450	11	13	(11)	(11) - (6)	(11) - (5+6)	(11) - (5)	(11) - (6+5)	(11) - (5+6+5)	
	400	10	13	(10)	(10) - (6)	(10) - (5+6)	(10) - (5)	(10) - (6+5)	(10) - (5+6+5)	
1318	450	11	13	(11)	(11) - (6)	(11) - (5+6)	(11) - (5)	(11) - (6+5)	(11) - (5+6+5)	
	450	11	14	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
	500	12	14	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
1418	500	12	14	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
	450	11	13	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
	500	12	13	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
1320	500	12	13	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
	450	11	15	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
	500	12	15	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
1518	450	11	15	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
	500	12	15	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
	500	12	14	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
1420	560	13	14	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
	500	12	13	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
	560	13	13	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
1322	560	13	13	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
	500	12	14	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
	560	13	14	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
1421	500	12	14	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
	560	13	14	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
	500	12	14	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
1422	560	13	14	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
	500	12	15	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)	
	560	13	15	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
1521	560	13	15	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
	560	13	15	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
	630	15	15	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)	
1522	560	13	15	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
	630	15	15	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)	
	560	13	15	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
1524	630	15	15	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)	
	560	13	15	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
	560	13	15	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
1621	630	15	15	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)	
	560	13	16	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
	630	15	15	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)	
1622	560	13	16	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
	630	15	16	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)	
	560	13	16	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
1624	630	15	16	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)	
	560	13	16	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
	630	15	16	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)	
1625	560	13	16	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)	
	630	15	16	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)	
	630	15	16	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)	

Casing

General

The casing of 39GNS units is formed by:

- extruded aluminium perimeter frame, inner post and intermediate post.
- removable and fixed panels
- internal insulation

All external panels are Colorbond® XMA (ABR) steel.

Frames

The frame is made up of 4 components (Figure 3)

1. Extruded aluminium frame
2. Composite corner piece
3. Extruded Internal post
4. Extruded Intermediate post

1.Extruded Aluminium Frame

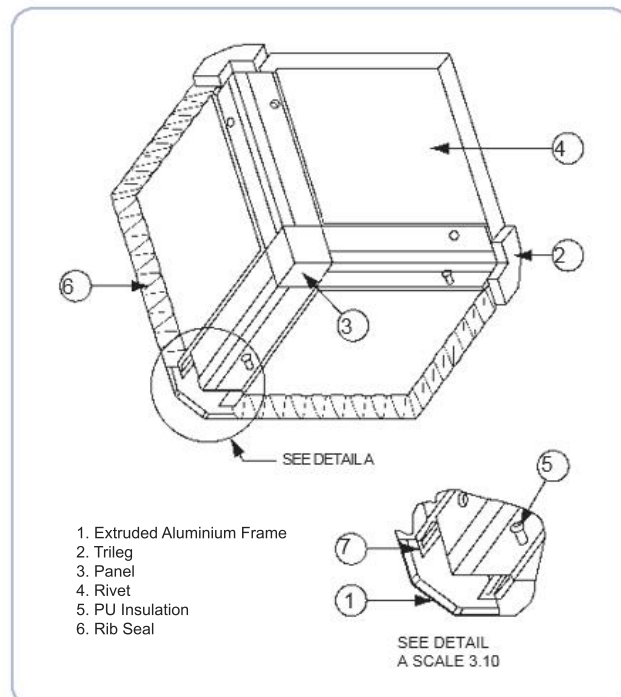
Forms the overall shape of the section and receives the panels. The extruded aluminium frame is manufactured from extrusion process using aluminium Grade 6063 -T5) with mill finish 1.5 mm thickness

2. Composite Material Corner Piece Trilegs

The composite corner piece is composed of Nylon 66 +33%GF (25mm casing) and Nylon 6 +30 %GF (50 mm casing) with fine finish surface and it is black in color.

3. Extruded Inner Post

Extruded aluminium inner post within the extruded aluminium frame increase the structural rigidity and provide a fixing point for an air- tight sealing strip.



▲ Figure 3 Cross Section of Panels, Rib-Seal and Others

Panels

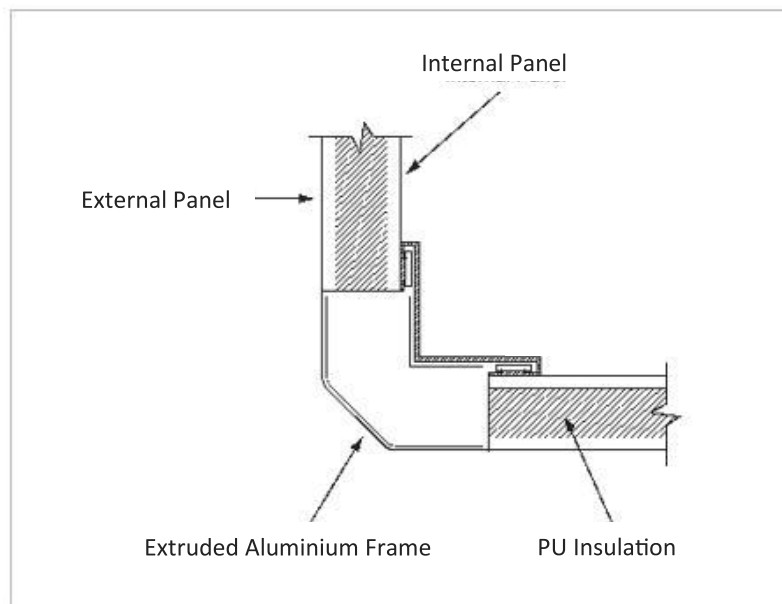
1.Fixed Panels

Forms the insulated enclosure of the casing and giving it rigidity and air- tightness, they consist of :

- external sheet metal
- insulation
- internal protective cover

The Colorbond ®XMA (ABR) steel sheet with 26 Gauge thickness and the galvanized steel inner casing (26 Gauge) form double wall construction with PU insulation between the inner and the outer panel. Rivets are used to a fixed panel to AHU framework.

Optional : Wrap-around gasket (Figure 4) to replace rob -seal for enhancement of insulation on the aluminium frames to prevent condensation start on aluminium frames which should be suitable to units with ducted return application. It has shown that with wrap - around gasket on frames, it will on condensation at high humidity ambient.



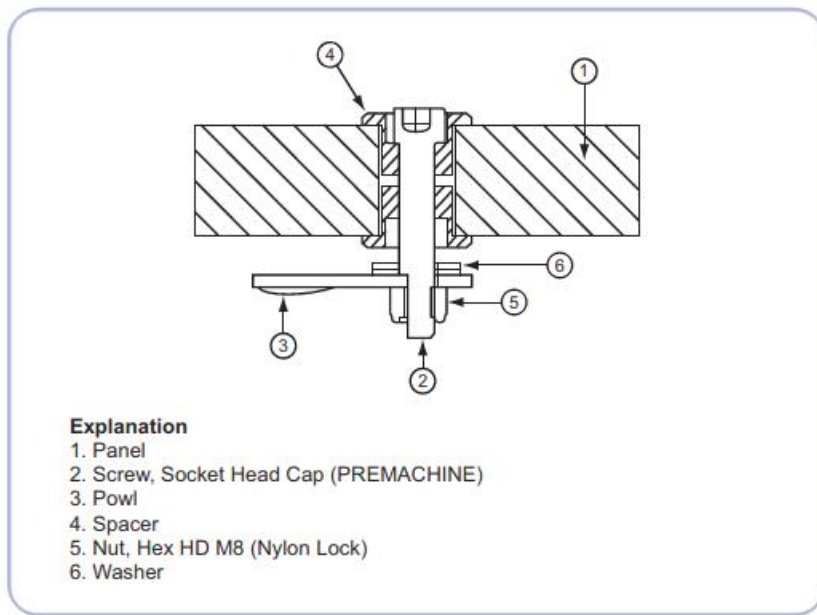
▲ Figure 4 Cross Section of Panel and Framework

2. Removable Access Panel

Are constructed of the same material as the fixed panels.

The access panel shall be low leak construction with a hex socket compression type latch assembly and large & non - conductive handles for easy removal of the access panel . (Figure 5 for Cross Section of Latch Assy.)

The removable /access panel shall be double skinned construction and internally insulated with injected insitu CFC-Free Polyurethane insulation.The access panel mating surface perimeter shall be lined with Rib-Seals.



▲ Figure 5 Cross Section of Latch Assy

3.COLORBOND ® XMA (ABR) prepainted steel.

Panels made from BHP COLORBOND ®XMA (ABR) steel provide excellent corrosion resistance and are beware outdoor durability. The substrate, ZINCALUME® zinc/aluminium alloy -coated steel complies with AS1397-1993 and the paint coating complies with AS/NZS 2728-1997.

Below are the specifications of COLORBOND ® XMA (ABR) steel.

Pretreatment -Corrosion resistant proprietary conversion coating.

Primer Coat -Universal corrosion inhibitive primer.Nominal thickness 5 µm top side.

Finish Coat -Custom formulated system.Nominal thickness 20µm top side in white color.

Insulation

The panels are frames and thermally insulated.The panels shall be constructed such that they shall comprise of two layers of steel sheet with injected insitu CFC-Free polyurethane insulation with thermal conductivity factor of 0.019 w/mK and density at least 40 kg/m³ in between.

BASE UNIT CASING WEIGHT

Table below shows the base unit casing weight for 50 mm. NTB casing

Unit Size	Fan	39GNS - 50 mm. Panel (kg.)						
		Fan		Coil		Filter	Acc.	MXB
		(HDT)	(VDT)	(HDT)	(VDT)			
0608	180	60	63	46	56	42	29	44
0609	180,200	71	68	49	59	43	30	47
0610	180,200	75	71	52	63	44	32	50
0711	200,225	84	82	57	70	50	35	56
0712	225, 250	93	91	60	74	53	36	59
0811	225, 250	94	94	58	73	54	36	59
0813	280, 315	110	107	64	84	57	39	67
0912	250, 280	110	109	64	85	61	40	66
0913	280, 315	117	115	67	89	62	41	70
0914	315, 355	126	118	69	92	65	43	73
1015	355, 400	158	142	73	103	71	46	81
1016	355, 400	162	152	76	107	72	47	86
1117	400, 450	187	174	82	121	81	51	94
1317	400, 450	201	179	85	131	86	54	102
1318	400, 450	207	184	88	135	90	56	105
1418	450, 500	232	209	93	143	96	57	119
1320	450, 500	237	215	97	146	96	60	125
1518	450, 500	240	212	94	147	100	58	123
1420	500, 560	258	230	99	163	97	60	128
1322	500, 560	260	236	102	166	102	62	133
1421	500, 560	264	236	101	167	104	62	132
1422	500, 560	270	241	105	173	106	64	137
1521	500, 560	272	239	102	172	108	63	136
1522	560, 630	293	271	106	183	111	65	142
1524	560, 630	305	283	111	192	119	68	150
1525	560, 630	319	291	116	199	121	71	157
1621	560, 630	300	273	105	184	111	65	141
1622	560, 630	307	279	109	190	113	66	146
1624	560, 630	319	290	114	199	121	69	154
1625	560, 630	330	296	119	206	124	72	161
1822	560, 630	328	--	112	--	122	69	154
1824	630, 710	352	--	120	--	131	71	162
1825	630, 710	364	--	125	--	134	75	170
2025	630, 710	388	--	134	--	140	77	213
2125	710, 800	456	--	137	--	145	78	217
2226	710, 800	476	--	140	--	154	81	228
2230	800, 900	559	--	153	--	173	89	251
2330	800, 900	573	--	158	--	179	90	257
2234	800, 900	599	--	168	--	188	97	276
2334	800, 900	614	--	174	--	194	98	282
2434	900, 1000	644	--	172	--	200	99	287
2634	900, 1000	675	--	177	--	205	102	299
2636	900, 1000	693	--	183	--	217	105	312

39GNS - CHILLED WATER COIL WEIGHT

Unit Size	No. of rows		Chilled Water Coil																							
			3 rows				4 rows				5 rows				6 rows				7 rows				8 rows			
	FPI	Face Area (sq.ft.)	8	10	12	14	8	10	12	14	8	10	12	14	8	10	12	14	8	10	12	14	8	10	12	14
			Dry Coil Weight (kg.)																							
0608	2.77		19	19	20	21	22	22	23	24	25	25	26	27	27	28	29	31	32	34	35	36	37	38	39	40
0609	3.26		21	21	22	23	24	25	25	27	27	28	29	31	30	31	32	34	35	36	38	39	40	42	44	47
0610	3.73		23	23	24	25	26	27	28	29	30	31	32	34	34	35	36	38	39	40	43	44	45	47	49	52
0711	4.81		27	28	29	30	32	33	34	36	37	38	39	42	41	43	44	47	48	50	53	54	55	57	60	64
0712	5.36		29	30	31	33	35	35	37	39	40	41	42	45	45	46	48	51	52	54	58	59	61	64	67	72
0811	6.01		33	34	35	36	39	40	41	43	45	46	48	51	50	52	54	58	61	65	68	71	73	76	79	85
0813	7.38		38	39	40	42	45	46	48	51	52	54	56	59	59	61	63	68	69	71	76	77	79	82	85	93
0912	7.37		38	39	40	43	45	46	48	51	52	54	56	60	59	61	64	68	69	72	77	78	80	83	86	93
0913	8.12		41	42	43	45	49	50	52	55	56	58	60	64	64	66	69	74	72	75	78	83	80	83	86	93
0914	8.88		43	45	46	49	52	53	55	59	60	62	65	69	69	71	74	79	78	80	84	90	86	89	93	100
1015	11.38		53	55	57	60	64	66	68	73	75	77	80	86	86	89	93	99	97	100	104	112	108	112	117	125
1016	12.26		56	58	60	63	68	70	73	77	80	82	86	92	91	95	98	106	107	111	120	115	119	124	134	161
1117	14.77		68	70	72	77	82	84	88	93	96	99	103	110	110	114	119	127	124	129	134	144	138	144	150	161
1317	17.72		80	82	85	90	97	100	104	110	114	117	122	131	130	135	141	151	147	153	159	171	164	171	178	192
1318	18.94		84	86	89	95	102	105	109	116	120	124	129	138	138	143	149	160	156	162	169	182	174	181	189	203
1418	19.99		88	91	94	100	107	110	115	123	126	130	136	145	145	150	157	168	164	170	178	191	183	190	199	214
1420	21.41		92	94	98	104	112	116	120	128	132	137	142	153	152	158	165	172	185	180	187	195	201	209	218	236
1518	22.09		96	99	103	109	117	121	126	134	138	143	149	160	159	165	172	185	182	189	197	212	203	211	221	238
1420	22.60		96	99	103	109	118	122	126	135	139	144	150	161	160	166	174	187	182	189	197	212	203	211	221	238
1322	23.88		100	103	106	113	122	126	131	141	145	150	156	168	167	173	181	195	190	197	206	222	212	220	230	249
1421	23.88		100	104	107	114	123	127	132	141	146	151	157	169	168	175	182	196	191	198	207	223	213	222	232	250
1422	25.20		105	108	112	119	128	133	138	148	152	158	164	177	176	182	190	205	200	207	217	234	224	232	243	262
1521	26.40		113	116	120	128	138	142	148	158	163	168	175	188	187	194	203	218	213	221	230	248	237	247	258	278
1522	27.85		117	121	125	133	143	148	154	165	170	176	183	196	196	203	212	228	222	231	241	260	249	258	270	292
1524	30.73		126	130	135	144	155	160	167	179	184	191	199	213	213	221	231	248	242	251	262	283	271	281	294	318
1525	32.16		131	135	140	149	161	167	173	186	191	198	207	222	221	230	240	258	252	261	273	295	282	293	307	331
1621	27.65		--	--	--	--	144	149	154	165	170	176	183	197	196	203	212	228	222	231	241	260	248	258	270	291
1622	29.18		--	--	--	--	150	155	161	172	177	184	191	205	205	213	222	239	232	241	252	272	260	270	283	305
1624	32.20		--	--	--	--	162	168	174	187	192	199	208	223	223	231	241	260	253	263	275	296	283	294	308	333
1625	33.69		--	--	--	--	168	174	181	194	200	207	216	232	231	240	251	270	263	273	286	308	295	306	321	346
1822	33.16		--	--	--	--	169	175	182	194	200	207	216	232	231	240	250	270	262	273	285	307	294	305	319	345
1824	36.59		--	--	--	--	182	189	196	210	217	225	234	252	251	261	272	293	286	297	310	335	320	333	348	376
1825	38.28		--	--	--	--	189	196	204	218	225	233	244	262	261	271	283	305	297	309	323	349	333	346	363	392
2025	42.88		--	--	--	--	219	227	236	252	260	269	280	301	300	311	325	349	340	353	369	398	380	395	413	446
2125	44.41		--	--	--	--	226	234	243	260	268	278	289	311	310	321	335	361	351	365	381	411	393	408	427	461
2226	49.57		--	--	--	--	253	262	272	291	300	311	324	348	347	359	375	404	393	408	426	460	440	457	478	516
2230	58.07		--	--	--	--	289	299	311	333	343	356	371	399	398	413	431	464	452	469	491	530	506	526	551	595
2330	59.94		--	--	--	--	297	308	320	343	353	366	382	411	409	425	444	478	465	483	505	546	521	542	567	613
2234	66.52		--	--	--	--	325	336	350	375	387	401	418	450	449	466	487	525	511	531	555	600	573	596	624	674
2334	68.67		--	--	--	--	334	346	360	386	398	413	431	463	462	480	501	541	526	547	572	618	590	614	643	695
2434	72.96		--	--	--	--	353	365	380	408	421	436	455	490	489	507	530	572	557	579	606	654	625	650	680	736
2634	79.40		--	--	--	--	380	394	411	441	454	472	492	530	529	549	574	619	603	626	656	709	677	704	737	798
2636	84.47		--	--	--	--	401	416	433	466	480	498	520	560	558	580	607	655	637	663	694	750	716	745	780	845

Note : - All coils are 12.7 mm.O.D copper tubes with aluminum plated fin construction
- To estimate the weight of water content (kg) use : Face area (sq.ft.) x no of rows x 0.65 kg/sq.ft.
- To estimate dry coil weight (kg) for copper plate fin construction, use the above data (kg) x 3.3

Fan

1. Fan Laws

For a given distribution system and specific air weight, the following laws in relation to volume, pressure and fan power applied dependent upon fan speed.

- The volume (V) changes as the fan speed (n) changes

$$V_2 = V_1 \frac{n_2}{n_1}$$

- The pressure (p) changes with the square of the speed (n)

$$P_2 = P_1 \left(\frac{n_2}{n_1} \right)^2$$

- The absorbed power (Pw) changes with the cube of the speed (n)

$$PW_2 = PW_1 \left(\frac{n_2}{n_1} \right)^3$$

- As the specific weight of the air changes, the air quantities remain constant.
- The pressure and the absorbed power change with the specific weight.

$$P_2 = P_1 \frac{y_2}{y_1} \quad \text{and} \quad PW_2 = PW_1 \frac{y_2}{y_1}$$

2. Reference Values

The fan curves refer to a specific weight of 1.2 kgf/m³ at a temperature of 20°C at atmospheric pressure of 1013 kPa (760mm Hg) and a relative humidity of 50%.

Description

1.Type of Fans

39GNS air handling units are supplied with double inlet, double width (DIDW) centrifugal blowers of either : and other type for optional

- I) Forward curved (FC) Centrifugal DIDW forward curved.
- II) Backward curved (BC) Centrifugal DIDW backward curved.
- III) Backward curved (BC) Centrifugal SISW forward curved (optional).
- IV) Backward curved (BC) Centrifugal SISW backward curved (optional).
- V) Backward curved (BC) Plug fan (optional).
- VI) Backward curved (BC) EC fan (optional).

2.Construction

- a) Fan casings are constructed of galvanized steel with a series of punched holes or nutserts allowing the fixing of accessories such as frames or support legs thus providing a variety of discharge positions .
- b) The impeller is galvanized finished for forward curved fan and epoxy painted for backward curved and securely fixed to the shaft. (bored & keywayed) Backward curved fan has lower energy consumption due to its high performance impeller with welded true aerofoil blades inclined obliquely to the shaft axis. All fan impellers are statically and dynamically balanced to the operating fan speed as shown in the equipment schedule in accordance with ISO 1940 Part 1. Quality level G 2 .5.
- c) Shafts are trued in accordance with DIN 748. Toleranz class g6
- d) Deep groove ball bearings are supplied for smaller fan size. Self aligning Single row ball bearings mounted with a cast iron housing (real plummer block bearing) for size 400-1000. All bearings are pre -lubricated from the factory. Higher life expectancy bearings are available as option.

Recommendations

The air to be handled in the unit must be clean, and noncorrosive.

Each air handling unit can have a choice of several fan type with best efficiency and lowest sound level should be selected for a specific installation .

Fan Length

39GNS UNIT SIZE	Fan Size	FC (Frame)*		BC (Frame)**		Range of Motor HP	Discharge Type	Fan Size	Fan Length (Modules)		Vertical Unit Height in Module
		C	T	C	T				HDT	VDT	
0608	180	●				1.5 - 2	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	180	6	8	6
0609	180, 200	●				1.5 - 3	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	180 200	6 7	8 8	6
0610	180, 200	●				1.5 - 3	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	180 200	5 7	8 8	6
0711	200, 225	●	●	●		1.5 - 5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	200 225	7 7	8 8	7
0712	225, 250	●	●	●	●	2 - 5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	225 250	7 7	8 8	7
0811	225, 250	●	●	●	●	2 - 5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	225 250	7 7	8 8	8
0813	280, 315	●	●	●	●	3 - 7.5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	280 315	8 8	9 9	8
0912	250, 280	●	●	●	●	2 - 7.5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	250 280	7 8	8 9	9
0913	280, 315	●	●	●	●	3 - 7.5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	280 315	8 8	9 9	9
0914	315, 355	●	●	●	●	4 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	315 355	8 9	9 9	9
1015	355, 400	●	●	●	●	4 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	355 400	9 10	9 10	9
1016	355, 400	●	●	●	●	4 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	355 400	9 10	9 10	9
1117	400, 450	●	●	●	●	5 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	400 450	10 11	10 11	10
1317	400, 450	●	●	●	●	5 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	400 450	10 11	10 11	10
1318	400, 450	●	●	●	●	5 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	400 450	10 11	10 11	10
1320	450, 500	●	●	●	●	7.5 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	450 500	11 11	11 11	11
1322	500, 560	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	500 560	11 13	11 13	12
1418	450, 500	●	●	●	●	7.5 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	450 500	11 11	11 11	11
1420	500, 560	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	500 560	11 13	11 13	12
1421	500, 560	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	500 560	11 13	11 13	12
1422	500, 560	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	500 560	11 13	11 13	12
1518	450, 500	●	●	●	●	7.5 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	450 500	11 11	11 11	11
1521	500, 560	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	500 560	11 13	11 13	12
1522	560, 630	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560 630	13 14	13 14	13 15

Fan Length

39GNS UNIT SIZE	Fan Size	FC (Frame)*		BC (Frame)**		Range of Motor HP	Discharge Type	Fan Size	Fan Length (Modules)		Vertical Unit Height in Module
		C	T	C	T				HDT	VDT	
1524	560, 630	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560 630	13 14	13 14	13 15
1525	560, 630	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560 630	13 14	13 14	13 15
1621	560, 630	●	●	●	●	10 - 25	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560 630	13 14	13 14	13 15
1622	560, 630	●	●	●	●	10 - 25	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560 630	13 14	13 14	13 15
1624	560, 630	●	●	●	●	10 - 25	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560 630	13 14	13 14	13 15
1625	560, 630	●	●	●	●	10 - 25	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560 630	13 14	13 14	13 15
1822	560, 630	●	●	●	●	10 - 25	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560 630	13 14	-	-
1824	630, 710	●	●	●	●	15 - 30	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	630 710	14 15	-	-
1825	630, 710	●	●	●	●	15 - 30	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	630 710	14 15	-	-
2025	630, 710	●	●	●	●	15 - 30	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	630 710	14 15	-	-
2125	710, 800	●	●	●	●	20 - 40	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	710 800	15 17	-	-
2226	710, 800	●	●	●	●	20 - 40	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	710 800	15 17	-	-
2230	800, 900		●		●	25 - 50	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	800 900	17 19	-	-
2234	800, 900		●		●	25 - 60	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	800 900	17 19	-	-
2330	800, 900		●		●	25 - 60	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	800 900	17 19	-	-
2334	800, 900		●		●	25 - 60	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	800 900	17 19	-	-
2434	900, 1000		●		●	25 - 60	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	900 1000	19 20	-	-
2634	900, 1000		●		●	25 - 75	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	900 1000	19 20	-	-
2636	900, 1000		●		●	25 - 75	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	900 1000	19 20	-	-

Remark :
FC : Forward curved
BC : Backward curved
BHR and THR is only a valid option for vertical units.
DBF and DBR is only a valid option for horizontal units.
For discharge type DBF, DBR (for HDT), fan length must be longer approx. 2 modules
Limited fan size for DBF, DBR up to fan size 450 only.

Forward Curved , Backward Curved Fan Shaft Diameter

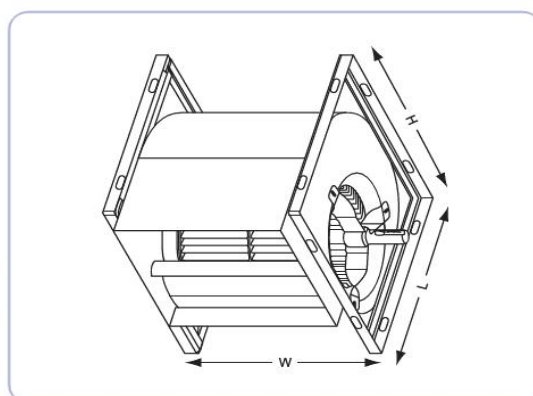
Fan Size	Diameter (mm) Drive / Blower Side (tolerances)
FC	
FC - 180	20 g6
FC - 200	20 g6
FC - 225	20 g6
FC - 250	20 g6
FC - 280	25 g6
FC - 315	25 g6
FC - 355	30 g6
FC - 400	30 g6
FC - 450	35 g6
FC - 500	35 g6
FC - 560	40 g6
FC - 630	40 g6
FC - 710	50 g6
FC - 800	55 g6
FC - 900	60 g6
FC - 1000	60 g6
BC	
BC - 225	20 g6
BC - 250	20 g6
BC - 280	25 g6
BC - 315	25 g6
BC - 355	30 g6
BC - 400	30 g6
BC - 450	35 g6
BC - 500	35 g6
BC - 560	40 g6
BC - 630	40 g6
BC - 710	50 g6
BC - 800	55 g6
BC - 900	60 g6
BC - 1000	60 g6

Fan Housing Dimension and Weight

Table below shows full details of 39GNS fan housing dimension and weight.

Fan Size	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
Forward Curved				
FC - 180	323	268	336	8
FC - 200	343	306	370	10
FC - 225	382	338	415	12
FC - 250	418	372	460	17
FC - 280	466	420	518	20
FC - 315	518	464	578	24
FC - 355	578	532	654	32
FC - 400	650	586	736	41
FC - 450	726	648	827	51
FC - 500	800	718	918	74
FC - 560	892	814	1030	93
FC - 630	998	900	1157	104
FC - 710	1120	998	1302	192
FC - 800	1254	1100	1468	240
FC - 900	1408	1230	1648	293
FC - 1000	1540	1366	1810	340
Backward Curved				
BC - 225	366	350	433	15
BC - 250	418	372	460	19
BC - 280	466	420	518	24
BC - 315	518	464	578	28
BC - 355	578	532	654	41
BC - 400	650	586	736	49
BC - 450	726	648	827	65
BC - 500	800	718	918	83
BC - 560	892	814	1030	110
BC - 630	998	900	1157	141
BC - 710	1120	998	1302	251
BC - 800	1254	1106	1468	299
BC - 900	1408	1230	1648	368
BC - 1000	1540	1366	1810	474

Note : Width does not include both end of shaft.



Fan Motor Weight

Table below shows the approximate fan motor weight.

Motor HP	Motor kW	Approx. Weight (kg)	Frame Number
1	0.75	17	D80
1.5	1.1	25	D90S
2	1.5	26	D90L
3 & 4	2.2/3.0	35	D100L
5 & 5 1/2	3.7/4.4	47	D112M
7.5	5.5	68	D132S
10	7.5	79	D132M
15	11	122	D160M
20	15	144	D160L
25	18.5	189	D180M
30	22	203	D180L
40	30	290	D200L
50	37	320	D225SC
60	45	355	D225MC
75	55	381	D250SA

Note : • Motor weights based on 4 - pole 380/3Ø/50Hz induction type TEFC motor foot mounted.

• Motor shall be of , Y or D.O.L wiring.

• Standard motor shall be per IEE standard IP55 enclosure with Class F, IE2 (high efficiency) insulation and Class B Temperature rise complying with BS2757.

• Maximum ambient temperature 45°C.

• For derivation of motor kW from fan BkW use:

Motor kW = Fan BkW x A, where A = 1.20 if BkW < 10 kW

A = 1.15 if BkW > 10 kW

• Please refer to your nearest Carrier Representatives for special motor voltages or application.

Fan Size and RPM Limitation/BkW Limitation

Fan Type	Fan Size	Maximum RPM	Maximum Absorbed Power kw
Forward Curved	FC - 180	4000	2
	FC - 200	3200	2
	FC - 225	2900	3
	FC - 250	2700	3
	FC - 280	2400	4
	FC - 315	2100	5.5
	FC - 355	1800	5.5
	FC - 400	1600	7.5
	FC - 450	1400	7.5
	FC - 500	1200	11
	FC - 560	1100	11
	FC - 630	900	15
	FC - 710	850	22
	FC - 800	750	22
	FC - 900	650	30
	FC - 1000	600	37
Backward Curved	BC - 225	6640	4
	BC - 250	4000	4
	BC - 280	4000	4
	BC - 315	3500	5
	BC - 355	3000	7.5
	BC - 400	2700	7.5
	BC - 450	2300	11
	BC - 500	2100	11
	BC - 560	1800	15
	BC - 630	1500	15
	BC - 710	1500	18.5
	BC - 800	1300	22
	BC - 900	1200	30
	BC - 1000	1050	37

Remark : A selection is valid provided it first reaches and not exceed either max. limits (RPM of BkW).

: Above data base or

- FC 180 - 70 Type C
- FC 800 - 1,000 Type T
- BC225 - 710 Type C
- BC800 - 1,000 Type T

Filter

General

The types of filters offered in 39GNS are as follows

- i) HVF - High velocity filters iii) HEPA Filter
- ii) BF - Bag filters

Each filter type selected shall include a 39GNS section with the appropriate tracks. The filter section shall be similar in construction as the other 39GNS sections. The tracks supplied shall be in accordance to the HVAC filter standard sizes and its gravimetric efficiency per ASHRAE 52-76.

High Velocity Filter (HVF)

Commonly known as pre-filter, the HVF is offered with a thickness of either 25mm or 50mm. The standard gravimetric efficiency shall be 85% with 70% optional and media are washable made of aluminum or synthetic fiber. The HVF can be installed to the 39GNS as follows

- i) Front loading with track only (i.e. free return application)
- ii) Front loading/withdrawal filter track within 2 module length section. When require filter section which must be able to accessible for filter loading/withdrawal by access door at return duct (i.e. duct return application) or access door at mixing box.

The frames and tracks are fabricated of 1.25 mm (18 gauge) thick galvanized steel sheet.

Bag Filter (BF)

The bag filter is normally used as 2nd stage filtration media. The factory standard efficiency shall be 95% gravimetric efficiency. Media are disposable type. The bag filter media shall be synthetic fiber of 300-600 mm. bag length and 25 mm. thick aluminum frame.

As a standard, the BF section comprises of 6 module, by front loading/withdrawal method.

Friction Pressure Drop

Due to filter media resists to the air flow resulting in static loss, therefore refer to Table 23 on the respective static pressure loss against velocity (interpolation is permissible).

Filter Pressure Drop (Pa)

Filter Face Velocity (m/s)	1.5	2.0	2.5	3.0	3.5
HVF 2" thick 85% gravimetric	8.96	12.46	19.93	27.40	37.40
BF 600mm bag length 95% gravimetric	9.96	14.95	29.89	47.33	69.75

Note: Data shown is for clean filter, based on synthetic fiber material. The normal allowable pressure drop for dirty filter should not exceed 300Pa (1.2" WG).

High efficiency particulate air

HEPA is a type of pleated mechanical air filter. It is an acronym for "high efficiency particulate air [filter]" (as officially defined by the U.S. Dept. of Energy). This type of air filter can theoretically remove at least 99.97% of dust, pollen, mold, bacteria, and any airborne particles with a size of 0.3 microns (μm). The diameter specification of 0.3 microns responds to the worst case; the most penetrating particle size (MPPS). Particles that are larger or smaller are trapped with even higher efficiency. Using the worst case particle size results in the worst case efficiency rating (i.e. 99.97% or better for all particle sizes).

All air cleaners require periodic cleaning and filter replacement to function properly. Follow manufacturer's recommendations on maintenance and replacement.

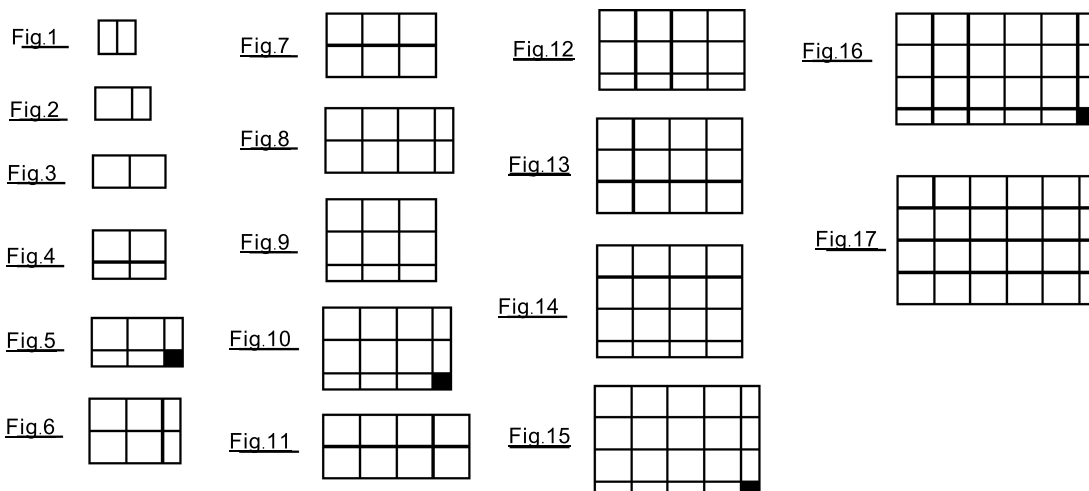
Minimum Efficiency Reporting Values, or MERVs, report a filter's ability to capture larger particles between 0.3 and 10 microns (μm).

- This value is helpful in comparing the performance of different filters
- The rating is derived from a test method developed by the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) [see www.ashrae.org].
- The higher the MERV rating the better the filter is at trapping specific types of particles.

MERV Rating	Average Particle Size Efficiency in Microns
1-4	3.0 - 10.0 less than 20%
6	3.0 - 10.0 49.9%
8	3.0 - 10.0 84.9%
10	1.0 - 3.0 50% - 64.9%, 3.0 - 10.0 85% or greater
12	1.0 - 3.0 80% - 89.9%, 3.0 - 10.0 90% or greater
14	0.3 - 1.0 75% - 84%, 1.0 - 3.0 90% or greater
16	0.3 - 1.0 75% or greater

39GNS : SIZE & QUANTITY OF FILTER

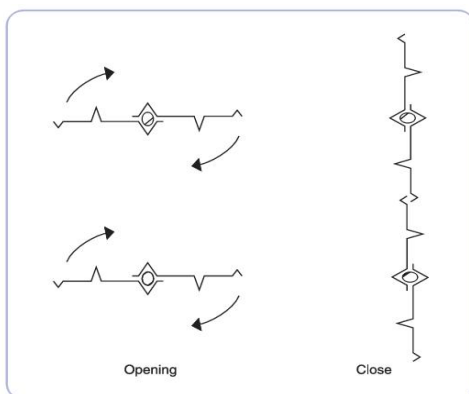
No.	39G	No. of Filter Usage				Fig
		20-x20-x2- (495 X 495)	10-x20-x2- (238 X 495)	24-x24-x2- (595 X 595)	12-x24-x2- (289 X 595)	
1	0608	-	2	-	-	Fig. 1
2	0609	1	1	-	-	Fig. 2
3	0610	1	1	-	-	
4	0711	-	-	1	1	Fig. 2
5	0712	-	-	1	1	
6	0811	-	-	1	1	
7	0813	-	-	2	-	Fig. 3
8	0912	-	-	1	1	Fig. 2
9	0913	-	-	2	-	Fig. 2
10	0914	-	-	2	-	
11	1015	-	-	2	2	Fig. 4
12	1016	-	-	2	3	Fig. 5
13	1117	-	-	2	3	
14	1317	-	-	4	2	Fig. 6
15	1318	-	-	4	2	
16	1320	-	-	6	-	Fig. 7
17	1418	-	-	4	2	Fig. 6
18	1518	-	-	4	2	
19	1420	-	-	6	-	Fig. 7
20	1322	-	-	6	2	Fig. 8
21	1421	-	-	6	-	Fig. 7
22	1422	-	-	6	2	Fig. 8
23	1521	-	-	6	-	Fig. 7
24	1621	-	-	6	3	Fig. 9
25	1522	-	-	6	2	Fig. 8
26	1622	-	-	6	5	Fig. 10
27	1524	-	-	6	2	Fig. 8
28	1525	-	-	8	-	Fig. 11
29	1624	-	-	6	5	Fig. 10
30	1625	-	-	8	4	Fig. 12
31	1822	-	-	6	5	Fig. 10
32	1824	-	-	6	5	
33	1825	-	-	8	4	Fig. 12
34	2025	-	-	12	-	Fig. 13
35	2125	-	-	12	-	
36	2226	-	-	12	4	Fig. 14
37	2230	-	-	12	7	Fig. 15
38	2330	-	-	12	7	
39	2234	-	-	15	8	Fig. 16
40	2334	-	-	15	8	
41	2434	-	-	15	8	
42	2634	-	-	20	4	Fig. 17
43	2636	-	-	20	4	



Mixing Box

Mixing box shall have volum damper as optional interconnected opposing action between outdoor air and return air dampers. Dampers blades shall be brake formed for stiffness and shall be spot welded to a 13mm O.D.steel rods rotating in nylon bushings press-seated in rigid damper frames.Damper shall be fabricated from 1.2mm (18 gauge)thick galvanized steel sheet and the damper frame of 1.2 mm (18 gauge)

Dampers shall be sectionalized to limit blade length to not more than 1526 mm in order to prevent excessive blade warping and ensure tight closure.Outdoor air and return air dampers shall be of the same area



Air leakage using damper area ration and a perimeter gap of 3 mm between blade and frame results in leakage rate of approximately 3% as a complete system when either one damper assembly is completely closed.

The damper are located on the outside of mixing boxes and the standard damper location shall be top and rear. Interconnection between outdoor air and return air damper is made with push rods installed in the factory. The damper blades for each assembly shall be connected using linkages on one side of the damper frames ensuring its synchrno us movement.

The damper frame is U-formed /flanged but not drilled which serves as a flange or duct work connection. Low leakage demper is avialable as option.

Mixing Box Section in Module

Unit Size 39 GNS	Horizontal Module Length (M)	Vertical Module Length (M)
0608-1318	5 M	5 M
1418-1625	6 M	6 M
1822-1825	6 M	-
2025-2636	9 M	-

Mixing Box Dampers Friction Loss

Section	Velocity(m/s)					
	1.50	2.00	2.50	3.00	3.50	4.00
Mixing Box(Pa)	2.49	4.98	9.96	12.46	14.95	19.93

Accessories (Optional)

UV Lamps

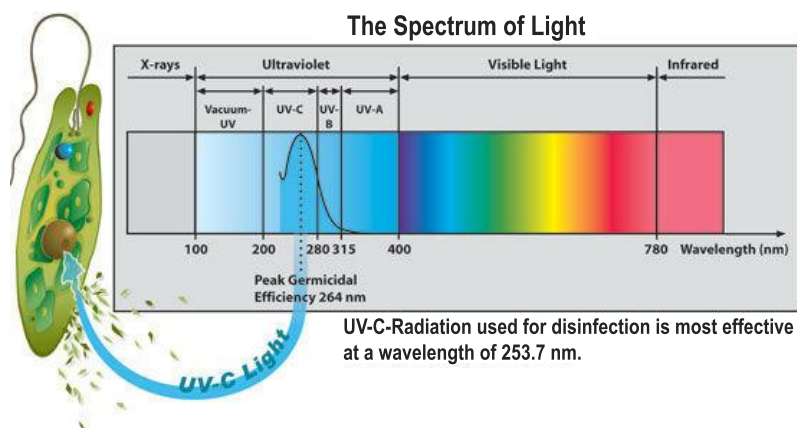
In response to the current coronavirus epidemic situation, sterilization option using UltraViolet (UV) is available for FCU products.

UV light for kill germs in a wide range of wavelengths between 200 to 400 (nm) which is highly effective in killing bacteria and reduces the formation of viruses by breaking down the molecular bonds that hold their DNA and RNA together.

UV-C at this wavelength, is the wavelength that DNA can absorb well can be punched and disabled their growth. By destroying their DNA sequence When doing this, the virus will lose their ability to reproduce.



UV-C rays are not found in nature because these rays cannot pass through the ozone layer to the earth's surface. The use of this type of radiation to destroy the infection requires a source of radiation. Including mercury lamps.



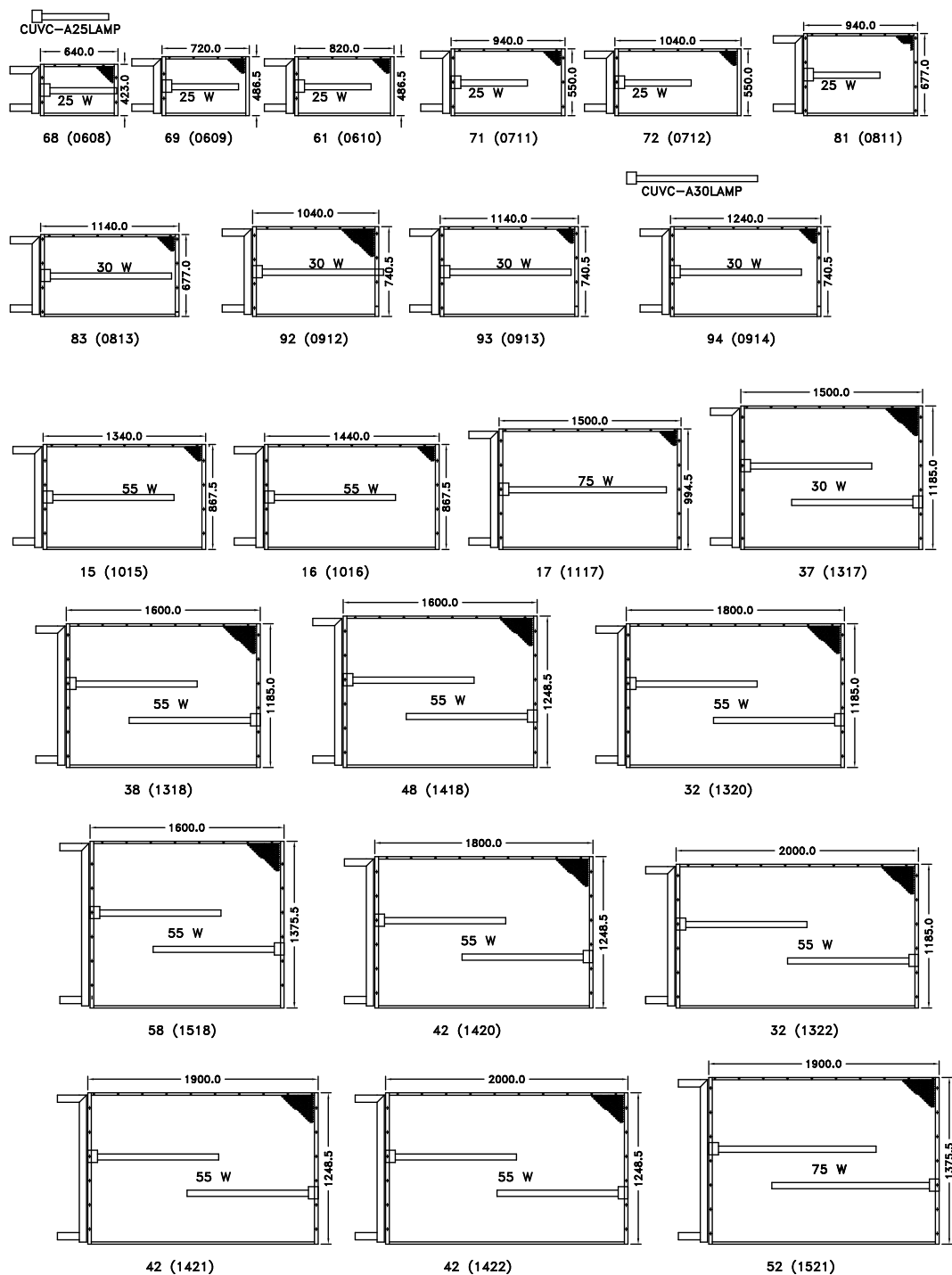
Advantages of UV-C lamp

- 253.7nm UV-C lamp, no generate ozone.
- High-energy UV-C, effective life is up to 8000 hours.
- Stainless steel reflector enhances the radiation intensity and avoids direct exposure to the human body.
- Plug-in products for easy installation.
- External control box, 220VAC standard power supply, simple wiring.
- Able to kill bacteria in the air and prevent the virus from spreading through the host bacteria

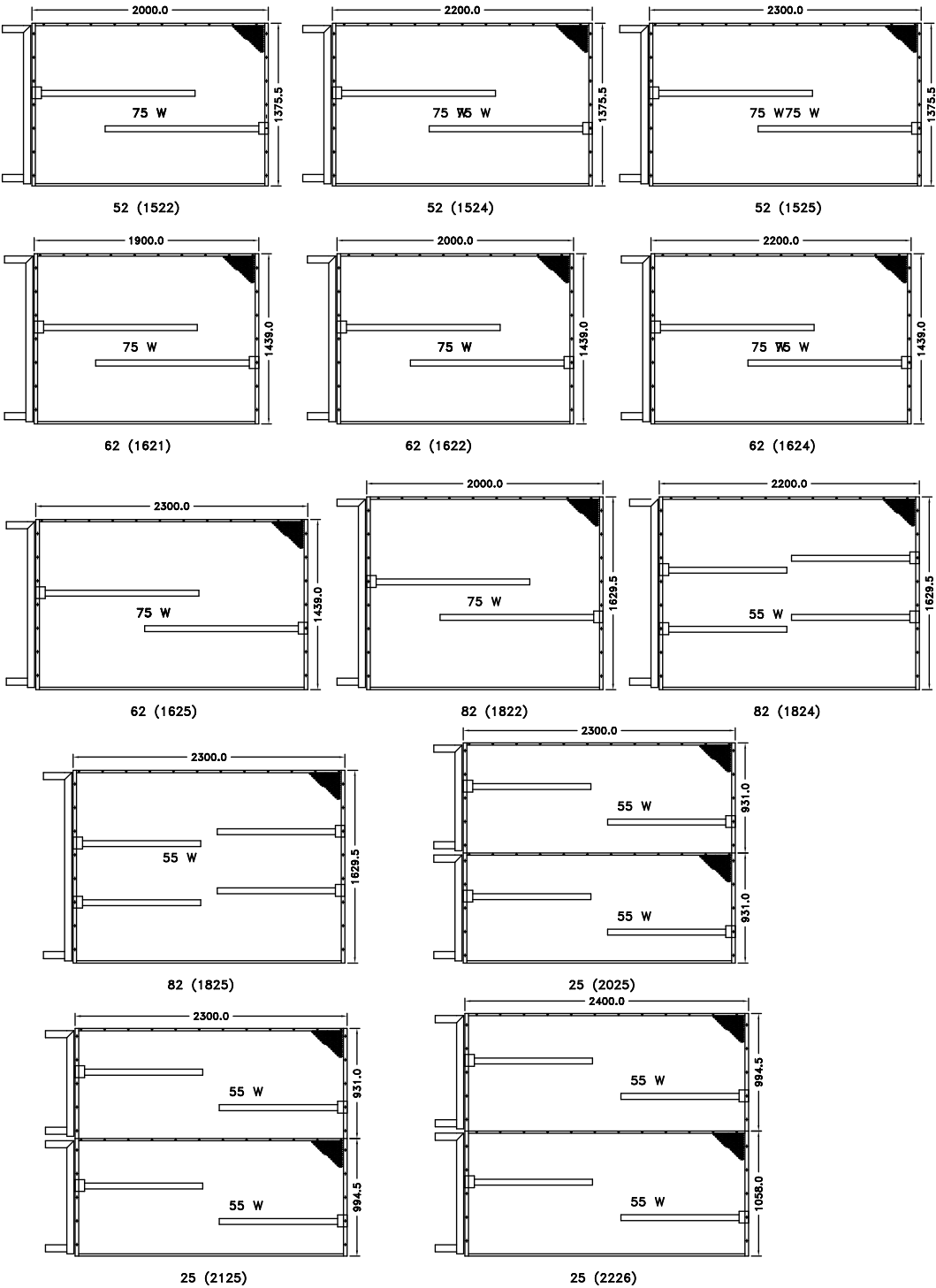
39GNS COIL (Cu. tube dia. 1/2" , Aluminium Fin) , CW Coil UVC Lamp length (mm.)

NO.	Coil 39GNS	Tubes / Row (1/2")	Fin Hight mm.	Fin Width mm.	Coil Face sq.ft.	Air Volume CFM	UVC Lamp	Q'ty	ความยาวหลอด mm.
1	0608	14	444.5	580.0	2.77	1,247	CUVC-A25LAMP	1	550
2	0609	14	444.5	680.0	3.26	1,466	CUVC-A25LAMP	1	550
3	0610	14	444.5	780.0	3.73	1,679	CUVC-A25LAMP	1	550
4	0711	16	508.0	880.0	4.81	2,163	CUVC-A25LAMP	1	550
5	0712	16	508.0	980.0	5.36	2,413	CUVC-A25LAMP	1	550
6	0811	20	635.0	880.0	6.01	2,703	CUVC-A25LAMP	1	550
7	0813	20	635.0	1,080.0	7.38	3,320	CUVC-A30LAMP	1	1,000
8	0912	22	698.5	980.0	7.37	3,317	CUVC-A30LAMP	1	1,000
9	0913	22	698.5	1,080.0	8.12	3,652	CUVC-A30LAMP	1	1,000
10	0914	22	698.5	1,180.0	8.88	3,996	CUVC-A30LAMP	1	1,000
11	1015	26	825.5	1,280.0	11.38	5,119	CUVC-A55LAMP	1	1,000
12	1016	26	825.5	1,380.0	12.26	5,515	CUVC-A55LAMP	1	1,000
13	1117	30	952.5	1,440.0	14.77	6,645	CUVC-A75LAMP	1	1,300
14	1317	36	1,143.0	1,440.0	17.72	7,973	CUVC-A30LAMP	2	1,000
15	1318	36	1,143.0	1,540.0	18.94	8,522	CUVC-A55LAMP	2	1,000
16	1418	38	1,206.5	1,540.0	19.99	8,995	CUVC-A55LAMP	2	1,000
17	1320	36	1,143.0	1,740.0	21.41	9,633	CUVC-A55LAMP	2	1,000
18	1518	42	1,333.5	1,540.0	22.09	9,942	CUVC-A55LAMP	2	1,000
19	1420	38	1,206.5	1,740.0	22.60	10,168	CUVC-A55LAMP	2	1,000
20	1322	36	1,143.0	1,940.0	23.88	10,744	CUVC-A55LAMP	2	1,000
21	1421	38	1,206.5	1,840.0	23.88	10,747	CUVC-A55LAMP	2	1,000
22	1422	38	1,206.5	1,940.0	25.20	11,341	CUVC-A55LAMP	2	1,000
23	1521	42	1,333.5	1,840.0	26.40	11,878	CUVC-A75LAMP	2	1,300
24	1522	42	1,333.5	1,940.0	27.85	12,534	CUVC-A75LAMP	2	1,300
25	1524	42	1,333.5	2,140.0	30.73	13,830	CUVC-A75LAMP	2	1,300
26	1525	42	1,333.5	2,240.0	32.16	14,470	CUVC-A75LAMP	2	1,300
27	1621	44	1,397.0	1,840.0	27.65	12,444	CUVC-A75LAMP	2	1,300
28	1622	44	1,397.0	1,940.0	29.18	13,131	CUVC-A75LAMP	2	1,300
29	1624	44	1,397.0	2,140.0	32.20	14,489	CUVC-A75LAMP	2	1,300
30	1625	44	1,397.0	2,240.0	33.69	15,159	CUVC-A75LAMP	2	1,300
31	1822	50	1,587.5	1,940.0	33.16	14,922	CUVC-A75LAMP	2	1,300
32	1824	50	1,587.5	2,140.0	36.59	16,465	CUVC-A55LAMP	4	1,000
33	1825	50	1,587.5	2,240.0	38.28	17,227	CUVC-A55LAMP	4	1,000
34	2025	28	889.0	2,240.0	42.88	19,294	CUVC-A55LAMP	4	1,000
		28	889.0	2,240.0					
35	2125	28	889.0	2,240.0	44.41	19,983	CUVC-A55LAMP	4	1,000
		30	952.5	2,240.0					
36	2226	30	952.5	2,340.0	49.57	22,305	CUVC-A55LAMP	4	1,000
		32	1,016.0	2,340.0					
37	2230	30	952.5	2,740.0	58.07	26,132	CUVC-A75LAMP	4	1,300
		32	1,016.0	2,740.0					
38	2330	32	1,016.0	2,740.0	59.94	26,975	CUVC-A75LAMP	4	1,300
		32	1,016.0	2,740.0					
39	2234	30	952.5	3,140.0	66.52	29,934	CUVC-A55LAMP	6	1,000
		32	1,016.0	3,140.0					
40	2334	32	1,016.0	3,140.0	68.67	30,900	CUVC-A55LAMP	6	1,000
		32	1,016.0	3,140.0					
41	2434	34	1,079.5	3,140.0	72.96	32,831	CUVC-A55LAMP	6	1,000
		34	1,079.5	3,140.0					
42	2634	36	1,143.0	3,140.0	79.40	35,728	CUVC-A55LAMP	6	1,000
		38	1,206.5	3,140.0					
43	2636	36	1,143.0	3,340.0	84.47	38,012	CUVC-A75LAMP	6	1,300
		38	1,206.5	3,340.0					

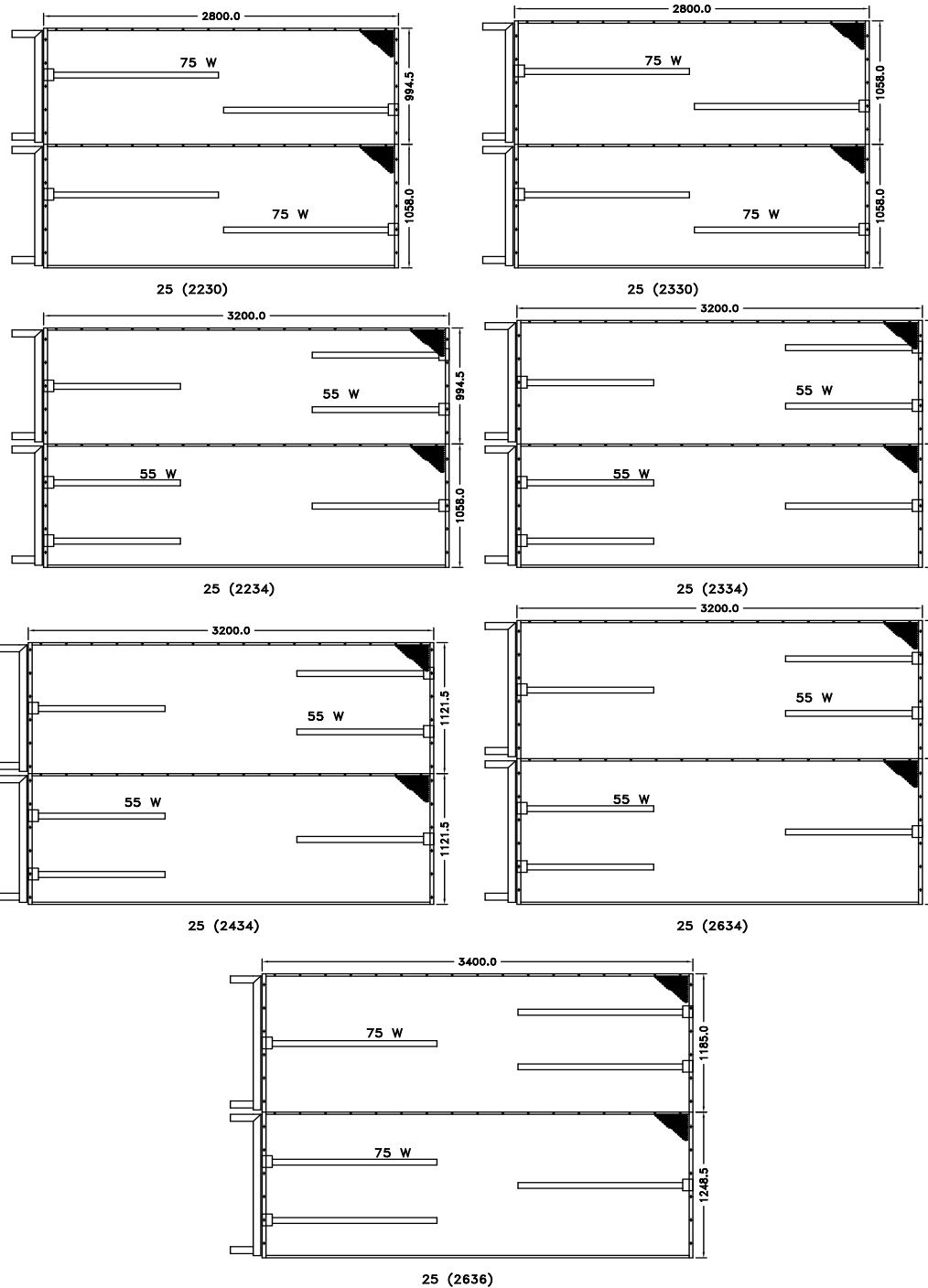
UV Lamp 39GNS Series



UV Lamp 39GNS Series



UV Lamp 39GNS Series



บริษัท แคนเรียร์ (ประเทศไทย) จำกัด

1858/63-74 ชั้น 14, 15

ถ.เทพรัตน กม. 4.5 แขวงบางนาใต้

เขตบางนา กรุงเทพฯ 10260

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Tel. 0-2090-9999 Fax: 0-2751-4778



YOUR CARRIER MAN :

บริษัทฯ ขอสงวนสิทธิ์ที่จะเปลี่ยนแปลงรายละเอียดข้างต้น โดยไม่ต้องแจ้งให้ทราบล่วงหน้า
Carrier reserves the right to make changes in specifications without prior notice.

39GNS_06_2020



39GS Series Air Handling Unit



www.carrier.co.th

World's NO.1 Air Conditioning Expert

Introduction

The purpose of this catalogue is to help consulting engineers in the preliminary selection of CARRIER AIR HANDLING UNITS. However, if required, your local CARRIER office will assist to provide a computerised selection to confirm or complete your preliminary selection.

This catalogue consists of:

- A description of the various component parts available to be combined in the order best suited to your requirements.
- Technical data sheets, dimensions, weights, specifications, charts, etc.

QUALITY

The quality and reliability of any system depends on the quality of the components parts. Equipment schedules and specifications are based on **Carrier 39CNE**.

Therefore, in line with other CARRIER products, our 39GS Series Air Handlers are manufactured in conformity with CARRIER's Quality concept which brought in items subjected to rigorous inspection.

FLEXIBLE MODULAR CONSTRUCTION

This adaptable unit design which is based upon a wide range of standard panel sizes, frequently enables CARRIER to offer several configurations of unit height and width, so that the aesthetic or practical dictates of confined plant room space or rooftop silhouettes can be easily met.

Major items of unit such as fans, coils, filters, etc. can be arranged in the sequence dictated by the job requirements, and separated by access sections where necessary, giving complete flexibility of design.

RIGIDITY

Extruded aluminium internal posts within the extruded aluminium frame increase the structural rigidity and provide a fixing point for an air-tight sealing strip.

The panels shall be constructed such that they shall be of two layers of steel sheet with injected insitu CFC-Free Polyurethane insulation with thermal conductivity factor of 0.019 W.mK and density of 40kg.m³ in between to ensure effective thermal and acoustic insulation.

WIDE RANGE OF SIZES

There are 43 standard units: sizes available, each, in most cases, has a choice of 2 fan type, covering ranging from 800 to 43,000 Nominal CFM.

WIDE RANGE OF COILS OFFERING

Chiller water coil - 1, 2, 3, 4, 5, 6, 7, 8, 10 rows with 8, 10, 12, 14 fin per inch.

Hot Water Coil - 1, 2, 3, 4, 5, 6, 7, 8, 10 rows with 8, 10, 12, 14 fin per inch.

Optimized coil circuiting.

3/8" and 1/2" tube diameter standard.

Aluminum fins (standard) or option as Pre coated (Blue Fin), Copper fin, Hydrophobic coated.

VIBRATION ISOLATION

Centrifugal fan motor packages are mounted on common bases with 1 deflection spring or 0.5 deflection rubber follow factory standard vibration isolators and flexible discharge connections ensuring that all moving parts are independently isolated from the casing structure.

AESTHETICS

The standard construction features external panels surface attractively finished with Colorbond® XMA (ABR) and the units are delivered with plastic covering which keep the panels in good condition.

ACCESSIBILITY AND MAINTENANCE

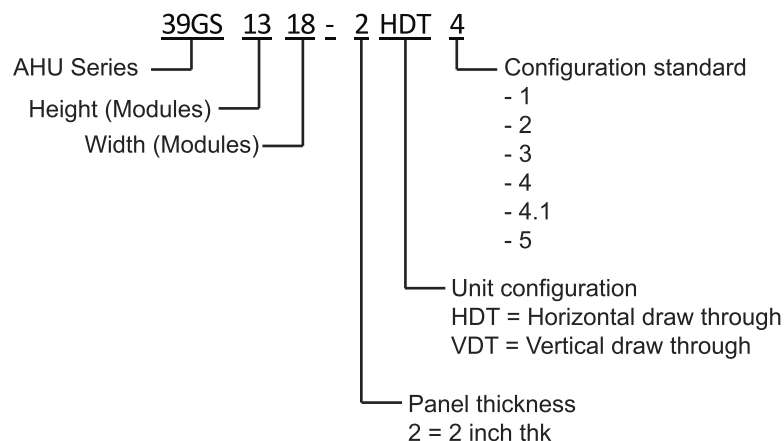
The easily removable panels and quick release access doors offer complete accessibility to fans, coils, filters and dampers. Additional access sections can be provided between coils and filters if required.

All basic component parts are standard and interchangeable. Filters are commercially available standard items conforming to international standards and sizes.

INDIVIDUALISED PRODUCT LINE

All 43 model sizes are available as 'Customised' adapted exactly to meet specific job requirements. For example: Non-standard coil material stainless drainpan / stainless casing / low leak damper / Hepa filter and etc.

MODEL NUMBER NOMENCLATURE



AHRI 1350 CERTIFIED RATINGS

Casing Deflection Rating Class - CD4

Casing Air Leakage Rating Class - CL2

Casing Thermal Transmittance Rating Class (with and without leakage) - CT2 / CT2

Casing Thermal Bridging Rating Class - CB2



Certified in accordance with the AHRI Central Station Air-handling Unit Casing Certification Program, which is based on AHRI Standard 1350. Certified units may be found in the AHRI Directory at www.ahridirectory.org

39GS Identification & dimension

General

The 39GS line of Carrier Air Handling Unit is based on a MODULAR System.

The number of modules in height and in width determine the cross-section available for air flow and encodes the unit size.

The unit length is determined by the number and size of the component parts required.

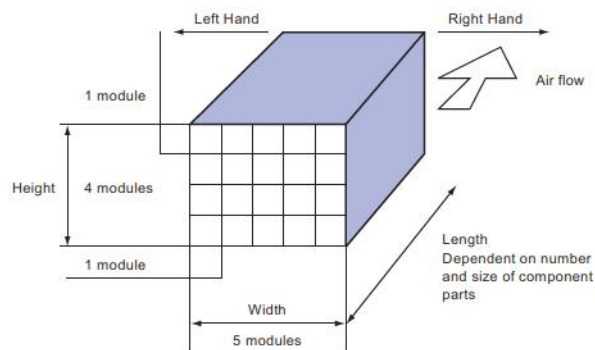
The side for service (connections and access) is defined as right hand or left hand in the direction of air flow.

Each module has a constant value of 100mm. To determine external dimensions, the following formula applies:

$$\begin{array}{ll}\text{External Dimensions} & = (N \times 100 + M) \text{ mm} \\ \text{Where N} & = \text{number of module} \\ M & = 110\text{mm for } 50\text{mm casing}\end{array}$$

Example 2: 39GS0711 for 50mm casing

$$\begin{array}{ll}\text{External Height Dimension} & = 07 \times 100 + 110 = 810 \text{ mm} \\ \text{External Width Dimension} & = 11 \times 100 + 110 = 1,210 \text{ mm}\end{array}$$



Remark : Must add base frame (100 mm.) to external height dimension to get the overall height of unit
Overal dimension excluded damper, pipe connection, discharge flange.

Quick Selection 39GS

39GS	Coil Tube Diameter	COIL FACE AREA		AIR VOLUME										Dimensions (mm)	
				2 m/s		2 m/s (L/s*1000)		2.5 m/s		2.5 m/s (L/s*1000)		3 m/s		3 m/s (L/s*1000)	
SIZE	(in)	(sq.m)	(sq.ft)	CMH	CFM	CMH	CFM	CMH	CFM	CMH	CFM	CMH	CFM	3.5 m/s (L/s*1000)	50 mm Thickness
0608	1/2"	0.257	2.77	1.549	912	1.549	1.145	1.945	1.145	0.54	2.341	1.378	1.611	0.76	910
	3/8"	0.265	2.85	1.909	1,124	2.377	1.399	2.377	1.399	0.66	2.882	1.696	1.972	0.93	
	1/2"	0.303	3.26	2.161	1,272	2.718	1.600	2.718	1.600	0.76	3.278	1.929	2.247	1.06	
0609	3/8"	0.311	3.35	2.233	1,314	2.809	1.654	2.809	1.654	0.78	3.350	1.972	2.311	1.09	1010
	1/2"	0.347	3.73	2.485	1,463	3.118	1.835	3.118	1.835	0.87	3.746	2.205	2.565	1.21	
	3/8"	0.357	3.84	2.557	1,505	3.206	1.887	3.206	1.887	0.89	3.854	2.268	2.650	1.25	
0711	1/2"	0.447	4.81	3.206	1,887	4.018	2.365	4.018	2.365	1.12	4.827	2.841	3.307	1.56	1210
	3/8"	0.447	4.81	3.206	1,887	4.018	2.365	4.018	2.365	1.12	4.827	2.841	3.307	1.56	
	1/2"	0.498	5.36	3.602	2,120	4.466	2.629	4.466	2.629	1.24	5.367	3.159	3.689	1.74	
0712	3/8"	0.498	5.36	3.602	2,120	4.466	2.629	4.466	2.629	1.24	5.367	3.159	3.689	1.74	1310
	1/2"	0.558	6.01	4.034	2,374	5.021	2.955	5.021	2.955	1.4	6.051	3.562	4.155	1.96	
	3/8"	0.536	5.77	3.854	2,268	4.827	2.841	4.827	2.841	1.34	5.799	3.413	3.986	1.88	
0813	1/2"	0.686	7.38	4.935	2,904	6.167	3.630	6.167	3.630	1.71	7.420	4.367	5.088	2.4	1410
	3/8"	0.658	7.08	4.754	2,798	5.943	3.498	5.943	3.498	1.65	7.132	4.198	4.876	2.3	
	1/2"	0.685	7.37	4.935	2,904	6.159	3.625	6.159	3.625	1.71	7.384	4.346	5.088	2.4	
0912	3/8"	0.697	7.50	5.007	2,947	6.267	3.689	6.267	3.689	1.74	7.528	4.431	5.173	2.44	1,310
	1/2"	0.754	8.12	5.439	3,201	6.796	4.000	6.796	4.000	1.89	8.140	4.791	5.597	2.64	
	3/8"	0.768	8.27	5.547	3,265	6.916	4,070	6.916	4,070	1.92	8.284	4.876	5.703	2.69	
0913	1/2"	0.825	8.88	5.943	3,498	7.420	4,367	7.420	4,367	2.06	8.977	5.236	6.106	2.88	1,510
	3/8"	0.839	9.03	6.051	3,562	7.564	4,452	7.564	4,452	2.1	9.077	5.342	6.233	2.94	
	1/2"	1.057	11.38	7.600	4,473	9.509	5,597	9.509	5,597	2.64	11,418	6,720	7,844	3.7	
1015	3/8"	1.041	11.20	7.492	4,410	9.365	5,512	9.365	5,512	2.6	11,238	6,614	7,717	3.64	1,610
	1/2"	1.139	12.26	8.212	4,834	10,265	6,042	10,265	6,042	2.85	12,318	7,250	8,459	3.99	
	3/8"	1.121	12.07	8.068	4,749	10,085	5,936	10,085	5,936	2.8	12,102	7,123	8,332	3.93	
1117	1/2"	1.372	14.77	9.869	5,809	12,354	7,272	12,354	7,272	3.43	14,804	8,713	10,176	4.8	1,810
	3/8"	1.317	14.18	9.473	5,576	11,850	6,975	11,850	6,975	3.29	14,227	8,374	9,773	4.61	
	1/2"	1.646	17.72	11,850	6,975	14,804	8,713	14,804	8,713	4.11	17,793	10,473	12,211	5.76	
1317	3/8"	1.609	17.32	11,598	6,826	14,480	8,522	14,480	8,522	4.02	17,397	10,240	11,936	5.63	1,810
	1/2"	1.760	18.94	12,679	7,462	15,848	9,328	15,848	9,328	4.4	19,018	11,194	13,059	6.16	
	3/8"	1.721	18.52	12,390	7,293	15,488	9,116	15,488	9,116	4.3	18,586	10,939	12,762	6.02	
1320	1/2"	1.989	21.41	14,335	8,438	17,901	10,536	17,901	10,536	4.97	21,503	12,656	14,755	6.96	2,110
	3/8"	1.944	20.93	14,011	8,247	17,505	10,303	17,505	10,303	4.86	20,999	12,360	14,437	6.81	
	1/2"	2.219	23.88	15,956	9,392	19,954	11,745	19,954	11,745	5.54	23,953	14,098	16,451	7.76	
1322	3/8"	2.168	23.34	15,632	9,201	19,522	11,490	19,522	11,490	5.42	23,412	13,780	16,091	7.59	2,310
	1/2"	1.857	19.99	13,399	7,886	16,749	9,858	16,749	9,858	4.65	20,098	11,830	13,801	6.51	
	1/2"	2.100	22.60	15,128	8,904	18,910	11,130	18,910	11,130	5.25	22,692	13,356	15,582	7.35	
1421	1/2"	2.219	23.88	15,992	9,413	19,990	11,766	19,990	11,766	5.55	23,989	14,119	16,472	7.77	2,210
	1/2"	2.341	25.20	16,857	9,922	21,071	12,402	21,071	12,402	5.85	25,285	14,882	17,363	8.19	
	1/2"	2.052	22.09	14,768	8,692	18,478	10,876	18,478	10,876	5.13	22,152	13,038	15,222	7.18	
1518	1/2"	2.453	26.40	17,649	10,388	22,080	12,996	22,080	12,996	6.13	26,474	15,582	18,190	8.58	2,210
	1/2"	2.453	26.40	17,649	10,388	22,080	12,996	22,080	12,996	6.13	26,474	15,582	18,190	8.58	
	1/2"	2.453	26.40	17,649	10,388	22,080	12,996	22,080	12,996	6.13	26,474	15,582	18,190	8.58	

Quick Selection 39GS

39GS	Coil Tube Diameter	COIL FACE AREA		AIR VOLUME												Dimensions (mm)	
				2 m/s		2.5 m/s		3 m/s		3 m/s		3.5 m/s					
				CMH	CFM	CMH	CFM	CMH	CFM	CMH	CFM	CMH	CFM	CMH	CFM	50 mm	Thickness
SIZE	(in)	(sq.m)	(sq.ft)													H	W
1522	1/2"	2.587	27.85	18,658	10,982	5.18	23,276	13,700	6.48	27,987	16,472	7.77	32,669	19,228	9.07	1,710	2,310
1524	1/2"	2.855	30.73	20,531	12,084	5.7	25,681	15,116	7.13	30,796	18,126	8.55	35,947	21,158	9.98	1,710	2,510
1525	1/2"	2.988	32.16	21,539	12,678	5.98	26,844	15,800	7.48	32,309	19,016	8.97	37,712	22,196	10.47	1,710	2,610
1621	1/2"	2.569	27.65	18,514	10,897	5.14	23,160	13,632	6.43	27,770	16,345	7.71	32,417	19,080	9	1,810	2,210
1622	1/2"	2.711	29.18	19,522	11,490	5.42	24,421	14,374	6.78	29,283	17,236	8.13	34,182	20,119	9.49	1,810	2,310
1624	1/2"	2.991	32.20	21,539	12,678	5.98	26,942	15,858	7.48	32,309	19,016	8.97	37,712	22,196	10.47	1,810	2,510
1625	1/2"	3.130	33.69	22,548	13,271	6.26	28,203	16,600	7.83	33,822	19,907	9.39	39,477	23,235	10.96	1,810	2,610
1822	1/2"	3.081	33.16	22,188	13,059	6.16	28,798	16,950	7.7	33,281	19,589	9.24	38,828	22,854	10.78	2,010	2,310
1824	1/2"	3.399	36.59	24,493	14,416	6.8	31,771	18,700	8.5	36,739	21,624	10.2	42,862	25,228	11.9	2,010	2,510
1825	1/2"	3.556	38.28	25,645	15,094	7.12	33,215	19,550	8.9	38,468	22,642	10.68	44,879	26,415	12.46	2,010	2,610
2025	1/2"	3.984	42.88	28,707	16,896	7.97	35,875	21,115	9.96	43,042	25,334	11.95	50,210	29,553	13.94	2,210	2,610
2125	1/2"	4.126	44.41	29,716	17,490	8.25	38,397	22,600	10.31	44,555	26,224	12.37	52,011	30,613	14.44	2,310	2,610
2226	1/2"	4.605	49.57	33,173	19,525	9.21	41,494	24,422	11.52	49,778	29,298	13.82	58,062	34,174	16.12	2,410	2,710
2230	1/2"	5.395	58.07	38,864	22,875	10.79	48,553	28,578	13.48	58,278	34,302	16.18	68,003	40,026	18.88	2,410	3,110
2234	1/2"	6.180	66.52	44,519	26,203	12.36	55,649	32,754	15.45	66,779	39,305	18.54	77,909	45,856	21.63	2,410	3,510
2330	1/2"	5.569	59.94	40,125	23,617	11.14	50,970	30,000	13.92	60,151	35,404	16.7	70,201	41,319	19.49	2,510	3,110
2334	1/2"	6.380	68.67	45,960	27,051	12.76	57,766	34,000	15.95	68,940	40,577	19.14	80,430	47,340	22.33	2,510	3,510
2434	1/2"	6.778	72.96	48,841	28,747	13.56	61,052	35,934	16.95	73,262	43,121	20.34	85,473	50,308	23.73	2,610	3,510
2634	1/2"	7.376	79.40	53,128	31,270	14.75	66,419	39,093	18.44	79,710	46,916	22.13	93,001	54,738	25.82	2,810	3,510
2636	1/2"	7.848	84.47	56,513	33,263	15.69	70,669	41,594	19.62	84,788	49,905	23.54	98,944	58,236	27.47	2,810	3,710

- For cooling application of face velocity more than 2.54 m/s , drift eliminators is recommended to avoid moisture carry over under normal operating condition.

- Horizontal Unit

- Height of unit (H) included unit dase 100 mm.

Unit Configuration Horizontal

39GS Horizontal-Configuration 1

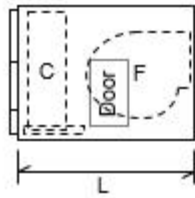


Fig.1A

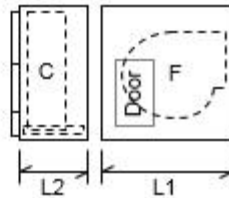


Fig.1B

- Unit configuration 1 consist of Fan + Coil + Filter Track
- Coil section length 6 modules
- Filter track for pre-filter 2"thk. Only (front loading).
- Height of unit (H) included unit base 100 mm.

39GS Horizontal-Configuration 2

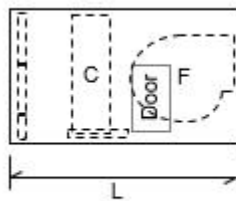


Fig.2A

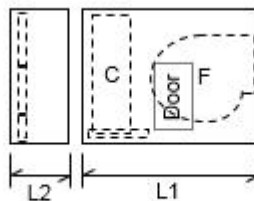


Fig.2B

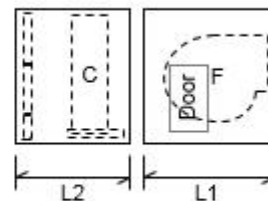


Fig.2C

- Unit configuration 2 consist of Fan + Coil + Filter section with track
- Coil section length 6 modules
- Filter section with track (front loading) length 6 modules.
- Height of unit (H) included unit base 100 mm.

Unit Configuration Horizontal

39GS Horizontal - Configuration 3

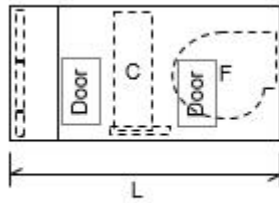


Fig.3A

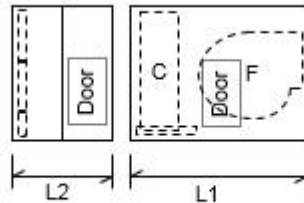


Fig.3B

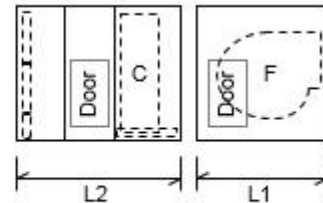


Fig.3C

- Unit configuration 3 consist of Fan + Coil + Access section + Filter section with track
- Coil section length 6 modules
- Access section length 5 modules
- Filter section length 6 modules
- Height of unit (H) included unit base 100 mm.

39GS Horizontal - Configuration 4

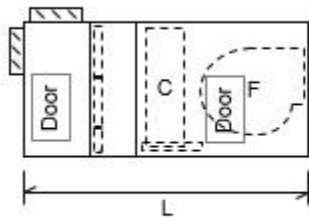


Fig.4A

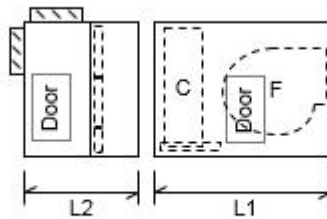


Fig.4B

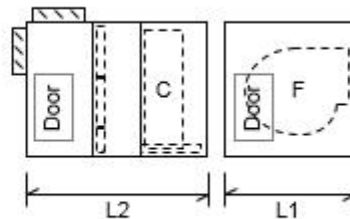


Fig.4C

- Unit configuration 4 consist of Fan + Coil + Filter section with track + Mixing Box with damper.
- Coil section length 6 modules
- Mixing section length 5-9 modules.
- Filter section length 6 modules
- Height of unit (H) included unit base 100 mm.

Unit Configuration Horizontal

39GS Horizontal-Configuration 4.1

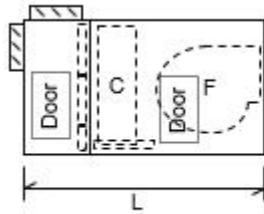


Fig.4.1A

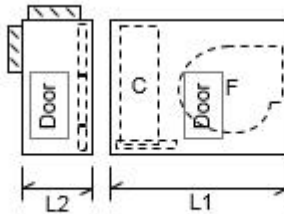


Fig.4.1B

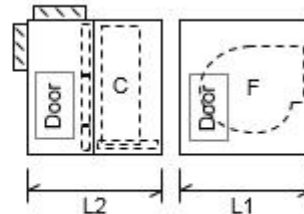


Fig.4.1C

- Unit configuration 4.1 consist of Fan + Coil + Filter track + Mixing Box with damper
- Coil section length 6 modules.
- Mixing section length 5-9 modules.
- Filter track for pre-filter 2"thk. only (front loading).
- Height of unit (H) included unit base 100 mm.

39GS Horizontal-Configuration 5

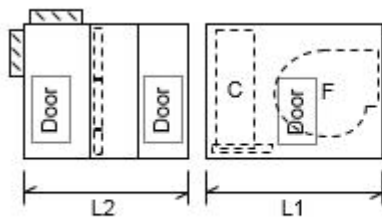


Fig.5A

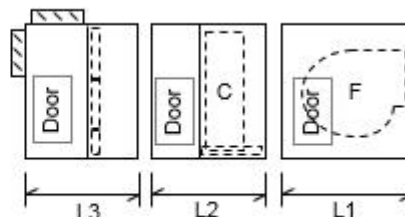


Fig.5B

- Unit configuration 5 consist of Fan + Coil + Access section + Filter section with track + Mixing Box
- Coil section length 6 modules
- Access section length 5 modules
- Mixing section length 5-9 modules.
- Filter section length 6 modules
- Height of unit (H) included unit base 100 mm.

39GS - MODULES LENGTH (HDT)

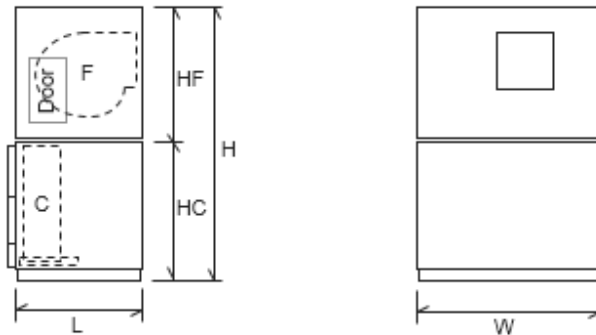
39GS	Fan	HDT - 1 Fan+ Coil	HDT - 2 Fan+Coil +Filter	HDT - 3 Fan+Coil+ Acc.+Filter	HDT - 4.1 Fan+Coil +MXB	HDT - 4 Fan+Coil+ Filter+ MXB	HDT - 5 Fan+Coil+Acc +Fil.+ MXB
0608	180	(6+6)	(6+6+6)	(6+6+5+6)	(6+6+5)	(6+6+6+5)	(6+6) - (5+6+5)
	180	(6+6)	(6+6+6)	(6+6+5+6)	(6+6+5)	(6+6+6+5)	(6+6) - (5+6+5)
0609	200	(7+6)	(7+6+6)	(7+6+5+6)	(7+6+5)	(7+6+6+5)	(7+6) - (5+6+5)
	180	(6+6)	(6+6+6)	(6+6+5+6)	(6+6+5)	(6+6+6+5)	(6+6) - (5+6+5)
0610	200	(7+6)	(7+6+6)	(7+6+5+6)	(7+6+5)	(7+6+6+5)	(7+6) - (5+6+5)
	200, 225	(7+6)	(7+6+6)	(7+6+5+6)	(7+6+5)	(7+6+6+5)	(7+6) - (5+6+5)
0711	225, 250	(7+6)	(7+6+6)	(7+6+5+6)	(7+6+5)	(7+6+6+5)	(7+6) - (5+6+5)
	225, 250	(7+6)	(7+6+6)	(7+6+5+6)	(7+6+5)	(7+6+6+5)	(7+6) - (5+6+5)
0811	225, 250	(7+6)	(7+6+6)	(7+6+5+6)	(7+6+5)	(7+6+6+5)	(7+6) - (5+6+5)
	280, 315	(8+6)	(8+6+6)	(8+6+5+6)	(8+6+5)	(8+6+6+5)	(8+6) - (5+6+5)
0813	250	(7+6)	(7+6+6)	(7+6) - (5+6)	(7+6+5)	(7+6) - (6+5)	(7+6) - (5+6+5)
	280	(8+6)	(8+6+6)	(8+6) - (5+6)	(8+6+5)	(8+6) - (6+5)	(8+6) - (5+6+5)
0912	280, 315	(8+6)	(8+6+6)	(8+6) - (5+6)	(8+6+5)	(8+6) - (6+5)	(8+6) - (5+6+5)
	315	(8+6)	(8+6+6)	(8+6) - (5+6)	(8+6+5)	(8+6) - (6+5)	(8+6) - (5+6+5)
0914	355	(9+6)	(9+6+6)	(9+6) - (5+6)	(9+6+5)	(9+6) - (6+5)	(9+6) - (5+6+5)
	355	(9+6)	(9+6+6)	(9+6) - (5+6)	(9+6+5)	(9+6) - (6+5)	(9+6) - (5+6+5)
1015	355	(9+6)	(9+6+6)	(9+6) - (5+6)	(9+6+5)	(9+6) - (6+5)	(9+6) - (5+6+5)
	400	(10+6)	(10+6+6)	(10+6) - (5+6)	(10+6+5)	(10+6) - (6+5)	(10+6) - (5+6+5)
1016	355	(9+6)	(9+6+6)	(9+6) - (5+6)	(9+6+5)	(9+6) - (6+5)	(9+6) - (5+6+5)
	400	(10+6)	(10+6+6)	(10+6) - (5+6)	(10+6+5)	(10+6) - (6+5)	(10+6) - (5+6+5)
1117	400	(10+6)	(10+6+6)	(10+6) - (5+6)	(10+6+5)	(10+6) - (6+5)	(10+6) - (5+6+5)
	450	(11+6)	(11+6+6)	(11+6) - (5+6)	(11+6+5)	(11+6) - (6+5)	(11+6) - (5+6+5)
1317	400	(10+6)	(10+6+6)	(10+6) - (5+6)	(10+6+5)	(10+6) - (6+5)	(10+6) - (5+6+5)
	450	(11+6)	(11+6+6)	(11+6) - (5+6)	(11+6+5)	(11+6) - (6+5)	(11+6) - (5+6+5)
1318	400	(10+6)	(10+6+6)	(10+6) - (5+6)	(10+6+5)	(10+6) - (6+5)	(10+6) - (5+6+5)
	450	(11+6)	(11+6+6)	(11+6) - (5+6)	(11+6+5)	(11+6) - (6+5)	(11+6) - (5+6+5)
1418	450, 500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
	450, 500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
1518	450, 500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
	500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
1420	560	(13+6)	(13+6) - (6)	(13+6) - (5+6)	(13+6+6)	(13+6) - (6+6)	(13+6) - (5+6+6)
	560	(13+6)	(13+6) - (6)	(13+6) - (5+6)	(13+6+6)	(13+6) - (6+6)	(13+6) - (5+6+6)
1322	500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
	560	(13+6)	(13+6) - (6)	(13+6) - (5+6)	(13+6+6)	(13+6) - (6+6)	(13+6) - (5+6+6)
1421	500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
	560	(13+6)	(13+6) - (6)	(13+6) - (5+6)	(13+6+6)	(13+6) - (6+6)	(13+6) - (5+6+6)
1422	500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
	560	(13+6)	(13+6) - (6)	(13+6) - (5+6)	(13+6+6)	(13+6) - (6+6)	(13+6) - (5+6+6)
1521	500	(11+6)	(11+6) - (6)	(11+6) - (5+6)	(11+6+6)	(11+6) - (6+6)	(11+6) - (5+6+6)
	560	(13+6)	(13+6) - (6)	(13+6) - (5+6)	(13+6+6)	(13+6) - (6+6)	(13+6) - (5+6+6)

39GS - MODULES LENGTH (HDT)

[illegible]

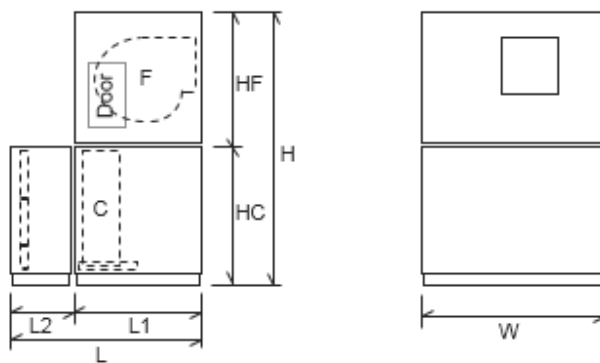
Unit Configuration Vertical

39GS Vertical-Configuration 1



- Unit configuration 1 consist of Fan+Coil+Filter Track
- Filter rack for pre-filter 2" thk.Only (frontloading).
- Height of unit (H) included unit base 100 mm.
- 39GS larger than size 1625, are not available for VDT units.

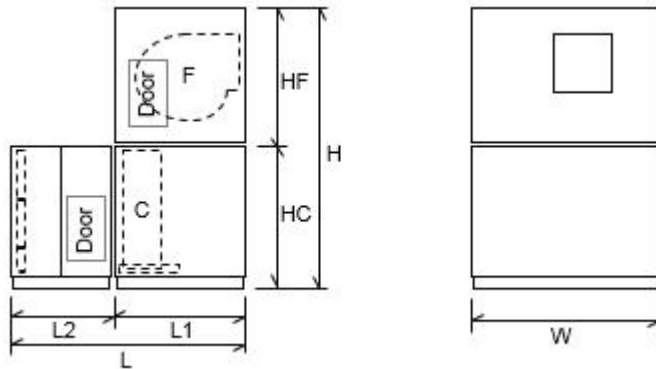
39GS Vertical-Configuration 2



- Unit configuration 2 consist of Fan+Coil+Filter section with track.
- Coil section length 6 modules.
- Filter section with rack (front loading) length 6 modules.
- Height of unit (H) included unit base 100 mm.
- 39GS larger than size 1625, are not available for VDT units.

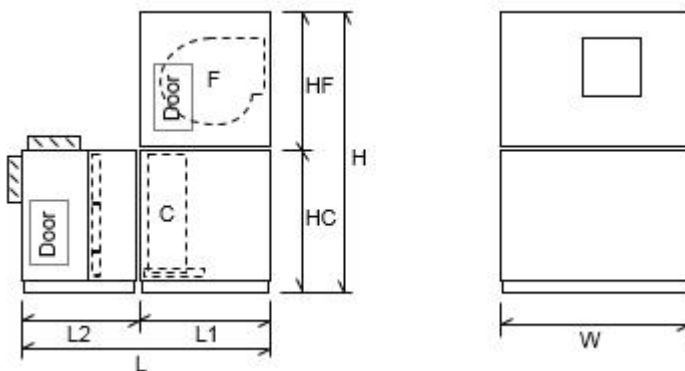
Unit Configuration Vertical

39GS Vertical - Configuration 3



- Unit configuration 3 consist of Fan + Coil + Access Section+ Filter Section with track
- Access section length 5 modules
- Filter section length 6 modules
- Height of unit (H) included unit base 100 mm .
- 39GS larger than size 1625, are not available for VDT units .

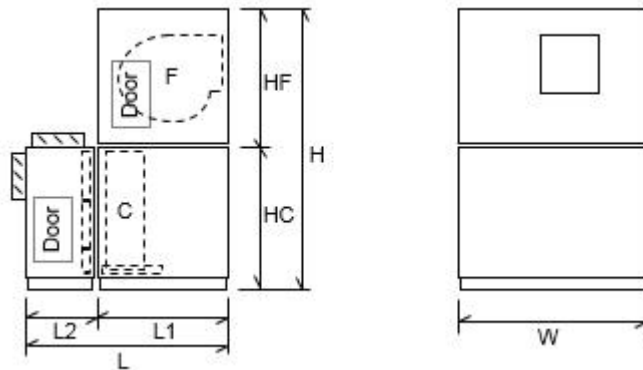
39GS Vertical - Configuration 4



- Unit configuration 4 consist of Fan + Coil + Filter section with track + Mixing Box
- Filter section length 6 modules
- Height of unit (H) included unit base 100 mm .
- 39GS larger than size 1625, are not available for VDT units .

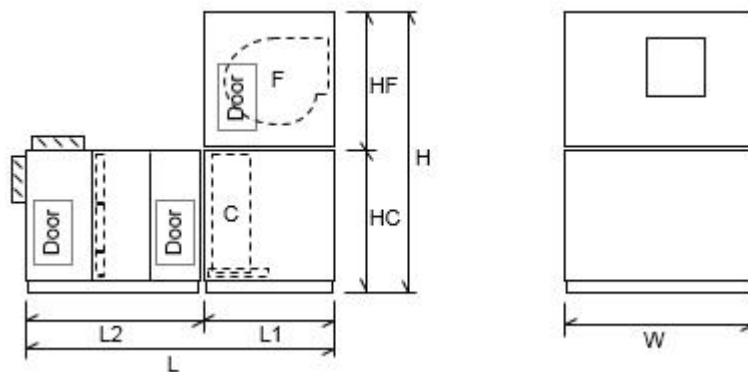
Unit Configuration Vertical

39GNS Vertical-Configuration 4.1



- Unit configuration 4.1 consist of Fan + Coil + Filter track + Mixing Box
- Filter track for pre -filter 2 "thk .Only (front loading) .
- Height of unit (H) included unit base 100 mm .
- 39GNS larger than size 1625, are not available for VDT units .

39GNS Vertical-Configuration 5



- Unit configuration 5 consist of Fan + Coil + Access section+ Filter section with track + Mixing Box
- Access section length 5 modules
- Filter section length 6 modules
- Height of unit (H) included unit base 100 mm .
- 39GNS larger than size 1625, are not available for VDT units .

*Vertical unit, factory will pre -join fan section and coil section for 39GNS1117 and below .

39GS - MODULES LENGTH (VDT)

39GS	Fan	Height (modules)		Unit Length (modules)					
		Fan	Coil	VDT - 1 (Fan+Coil)	VDT - 2 (Fan+Coil) - (Filter)	VDT - 3 (Fan+Coil) - (Acc.+Filter)	VDT - 4.1 (Fan+Coil) - (MXB)	VDT - 4 (Fan+Coil) - (Filter+MXB)	VDT - 5 (Fan+Coil) - (Acc+Fil.+MXB)
0608	180	6	6	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)
	180	6	6	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)
	200	6	6	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)
0610	180	6	6	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)
	200	6	6	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)
	200, 225	7	7	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)
0711	200, 225	7	7	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)
0712	225, 250	7	7	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)
0811	225, 250	8	8	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)
	280, 315	8	8	(9)	(9) - (6)	(9) - (5+6)	(9) - (5)	(9) - (6+5)	(9) - (5+6+5)
	250	9	9	(8)	(8) - (6)	(8) - (5+6)	(8) - (5)	(8) - (6+5)	(8) - (5+6+5)
0912	280	9	9	(9)	(9) - (6)	(9) - (5+6)	(9) - (5)	(9) - (6+5)	(9) - (5+6+5)
	280, 315	9	9	(9)	(9) - (6)	(9) - (5+6)	(9) - (5)	(9) - (6+5)	(9) - (5+6+5)
	315	9	9	(9)	(9) - (6)	(9) - (5+6)	(9) - (5)	(9) - (6+5)	(9) - (5+6+5)
0914	355	9	9	(9)	(9) - (6)	(9) - (5+6)	(9) - (5)	(9) - (6+5)	(9) - (5+6+5)
	355	9	10	(9)	(9) - (6)	(9) - (5+6)	(9) - (5)	(9) - (6+5)	(9) - (5+6+5)
	400	10	10	(10)	(10) - (6)	(10) - (5+6)	(10) - (5)	(10) - (6+5)	(10) - (5+6+5)
1016	355	9	10	(9)	(9) - (6)	(9) - (5+6)	(9) - (5)	(9) - (6+5)	(9) - (5+6+5)
	400	10	10	(10)	(10) - (6)	(10) - (5+6)	(10) - (5)	(10) - (6+5)	(10) - (5+6+5)
	400	10	11	(10)	(10) - (6)	(10) - (5+6)	(10) - (5)	(10) - (6+5)	(10) - (5+6+5)
1117	450	11	11	(11)	(11) - (6)	(11) - (5+6)	(11) - (5)	(11) - (6+5)	(11) - (5+6+5)
	400	10	13	(10)	(10) - (6)	(10) - (5+6)	(10) - (5)	(10) - (6+5)	(10) - (5+6+5)
	450	11	13	(11)	(11) - (6)	(11) - (5+6)	(11) - (5)	(11) - (6+5)	(11) - (5+6+5)
1317	450	11	13	(11)	(11) - (6)	(11) - (5+6)	(11) - (5)	(11) - (6+5)	(11) - (5+6+5)
	400	10	13	(10)	(10) - (6)	(10) - (5+6)	(10) - (5)	(10) - (6+5)	(10) - (5+6+5)
	450	11	13	(11)	(11) - (6)	(11) - (5+6)	(11) - (5)	(11) - (6+5)	(11) - (5+6+5)
1418	450	11	14	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)
	500	12	14	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)
	450	11	13	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)
1320	500	12	13	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)
	450	11	15	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)
	500	12	15	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)
1518	500	12	15	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)
	500	12	14	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)
	560	13	14	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
1420	560	13	14	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
	500	12	13	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)
	560	13	13	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
1322	560	13	13	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
	500	12	14	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)
	560	13	14	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
1421	560	13	14	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
	500	12	14	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)
	560	13	14	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
1422	500	12	14	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)
	560	13	14	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
	500	12	15	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)
1521	560	13	15	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
	500	12	15	(11)	(11) - (6)	(11) - (5+6)	(11) - (6)	(11) - (6+6)	(11) - (5+6+6)
	560	13	15	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
1522	560	13	15	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
	630	15	15	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)
	560	13	15	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
1524	630	15	15	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)
	630	15	15	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)
	560	13	15	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
1525	630	15	15	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)
	560	13	16	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
	630	15	16	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)
1621	560	13	16	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
	630	15	16	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)
	560	13	16	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
1622	630	15	16	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)
	630	15	16	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)
	560	13	16	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
1624	630	15	16	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)
	560	13	16	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
	630	15	16	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)
1625	560	13	16	(13)	(13) - (6)	(13) - (5+6)	(13) - (6)	(13) - (6+6)	(13) - (5+6+6)
	630	15	16	(14)	(14) - (6)	(14) - (5+6)	(14) - (6)	(14) - (6+6)	(14) - (5+6+6)

Casing

General

The casing of 39GS units is formed by:

- extruded aluminium perimeter frame, inner post and intermediate post.
- removable and fixed panels
- internal insulation

All external panels are Colorbond® XMA (ABR) steel.

Frames

The frame is made up of 4 components (Figure 3)

1. Extruded aluminium frame
2. Composite corner piece
3. Extruded Internal post
4. Extruded Intermediate post

1.Extruded Aluminium Frame

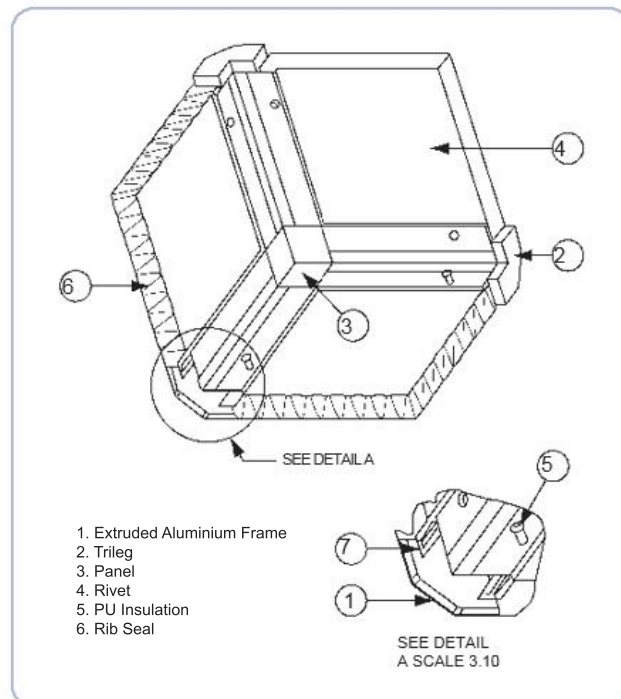
Forms the overall shape of the section and receives the panels. The extruded aluminium frame is manufactured from extrusion process using aluminium Grade 6063 -T5) with mill finish 1.5 mm thickness

2. Composite Material Corner Piece Trilegs

The composite corner piece is composed of Nylon 66 +33%GF (25mm casing) and Nylon 6 +30 %GF (50 mm casing) with fine finish surface and it is black in color.

3. Extruded Inner Post

Extruded aluminium inner post within the extruded aluminium frame increase the structural rigidity and provide a fixing point for an air- tight sealing strip.



▲ Figure 3 Cross Section of Panels, Rib-Seal and Others

Panels

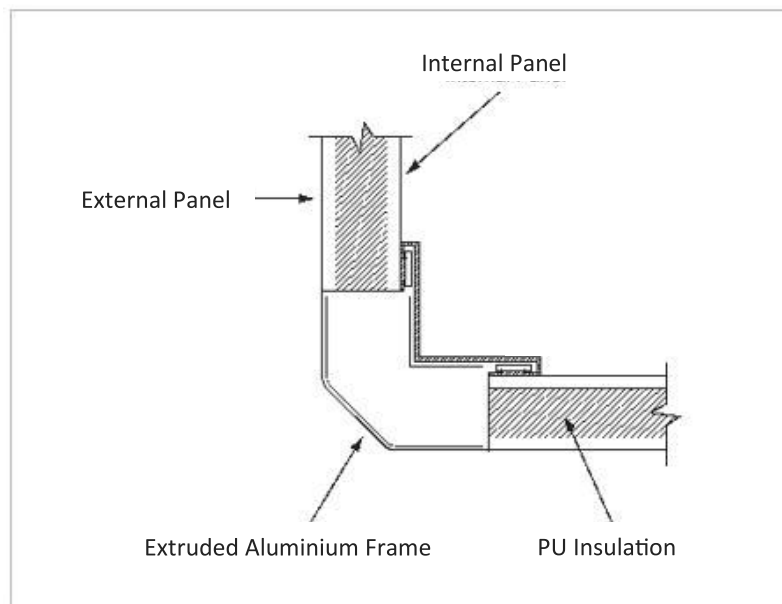
1.Fixed Panels

Forms the insulated enclosure of the casing and giving it rigidity and air- tightness, they consist of :

- external sheet metal
- insulation
- internal protective cover

The Colorbond ®XMA (ABR) steel sheet with 26 Gauge thickness and the galvanized steel inner casing (26 Gauge) form double wall construction with PU insulation between the inner and the outer panel. Rivets are used to a fixed panel to AHU framework.

Optional : Wrap-around gasket (Figure 4) to replace rob -seal for enhancement of insulation on the aluminium frames to prevent condensation start on aluminium frames which should be suitable to units with ducted return application. It has shown that with wrap - around gasket on frames, it will on condensation at high humidity ambient.



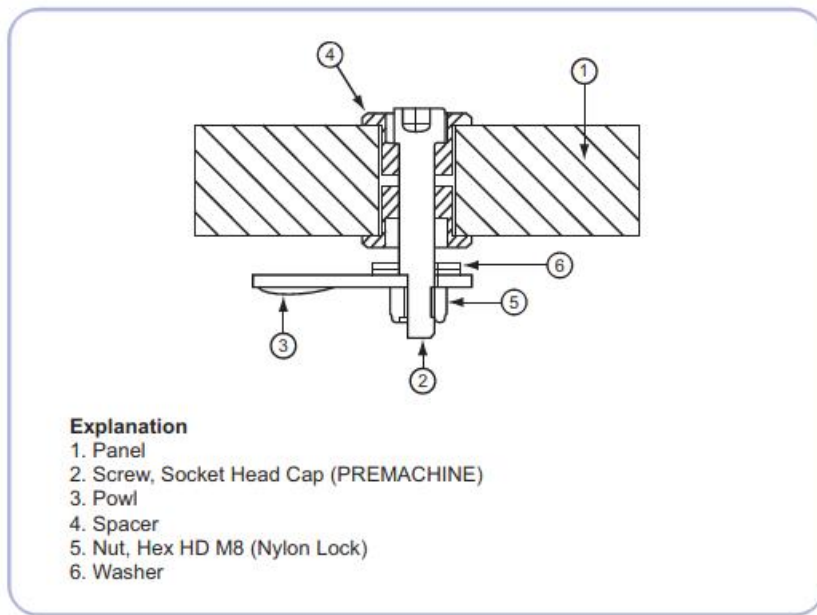
▲ Figure 4 Cross Section of Panel and Framework

2. Removable Access Panel

Are constructed of the same material as the fixed panels.

The access panel shall be low leak construction with a hex socket compression type latch assembly and large & non - conductive handles for easy removal of the access panel . (Figure 5 for Cross Section of Latch Assy.)

The removable /access panel shall be double skinned construction and internally insulated with injected insitu CFC-Free Polyurethane insulation.The access panel mating surface perimeter shall be lined with Rib-Seals.



▲ Figure 5 Cross Section of Latch Assy

3.COLORBOND ® XMA (ABR) prepainted steel.

Panels made from BHP COLORBOND ®XMA (ABR) steel provide excellent corrosion resistance and are beware outdoor durability. The substrate, ZINCALUME® zinc/aluminium alloy -coated steel complies with AS1397-1993 and the paint coating complies with AS/NZS 2728-1997.

Below are the specifications of COLORBOND ® XMA (ABR) steel.

Pretreatment -Corrosion resistant proprietary conversion coating.

Primer Coat -Universal corrosion inhibitive primer.Nominal thickness 5 µm top side.

Finish Coat -Custom formulated system.Nominal thickness 20µm top side in white color.

Insulation

The panels are frames and thermally insulated.The panels shall be constructed such that they shall comprise of two layers of steel sheet with injected insitu CFC-Free polyurethane insulation with thermal conductivity factor of 0.019 w/mK and density at least 40 kg/m³ in between.

BASE UNIT CASING WEIGHT

Table below shows the base unit casing weight for 50 mm. NTB casing

Unit Size	Fan	39GS - 50 mm. Panel (kg.)						
		Fan		Coil		Filter	Acc.	MXB
		(HDT)	(VDT)	(HDT)	(VDT)			
0608	180	60	63	46	56	42	29	44
0609	180,200	71	68	49	59	43	30	47
0610	180,200	75	71	52	63	44	32	50
0711	200,225	84	82	57	70	50	35	56
0712	225, 250	93	91	60	74	53	36	59
0811	225, 250	94	94	58	73	54	36	59
0813	280, 315	110	107	64	84	57	39	67
0912	250, 280	110	109	64	85	61	40	66
0913	280, 315	117	115	67	89	62	41	70
0914	315, 355	126	118	69	92	65	43	73
1015	355, 400	158	142	73	103	71	46	81
1016	355, 400	162	152	76	107	72	47	86
1117	400, 450	187	174	82	121	81	51	94
1317	400, 450	201	179	85	131	86	54	102
1318	400, 450	207	184	88	135	90	56	105
1418	450, 500	232	209	93	143	96	57	119
1320	450, 500	237	215	97	146	96	60	125
1518	450, 500	240	212	94	147	100	58	123
1420	500, 560	258	230	99	163	97	60	128
1322	500, 560	260	236	102	166	102	62	133
1421	500, 560	264	236	101	167	104	62	132
1422	500, 560	270	241	105	173	106	64	137
1521	500, 560	272	239	102	172	108	63	136
1522	560, 630	293	271	106	183	111	65	142
1524	560, 630	305	283	111	192	119	68	150
1525	560, 630	319	291	116	199	121	71	157
1621	560, 630	300	273	105	184	111	65	141
1622	560, 630	307	279	109	190	113	66	146
1624	560, 630	319	290	114	199	121	69	154
1625	560, 630	330	296	119	206	124	72	161
1822	560, 630	328	--	112	--	122	69	154
1824	630, 710	352	--	120	--	131	71	162
1825	630, 710	364	--	125	--	134	75	170
2025	630, 710	388	--	134	--	140	77	213
2125	710, 800	456	--	137	--	145	78	217
2226	710, 800	476	--	140	--	154	81	228
2230	800, 900	559	--	153	--	173	89	251
2330	800, 900	573	--	158	--	179	90	257
2234	800, 900	599	--	168	--	188	97	276
2334	800, 900	614	--	174	--	194	98	282
2434	900, 1000	644	--	172	--	200	99	287
2634	900, 1000	675	--	177	--	205	102	299
2636	900, 1000	693	--	183	--	217	105	312

39GS - CHILLED WATER COIL WEIGHT

Unit Size	No. of rows		Chilled Water Coil																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
			3 rows				4 rows				5 rows				6 rows				7 rows				8 rows																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	FPI		Face Area (sq.ft.)		8	10	12	14	8	10	12	14	8	10	12	14	8	10	12	14	8	10	12	14	8	10	12	14																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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0608		2.77	19	20	21	22	23	24	25	26	27	28	29	31	30	31	32	34	33	34	35	36	37	38	39	40	42	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000

Fan

1. Fan Laws

For a given distribution system and specific air weight, the following laws in relation to volume, pressure and fan power applied dependent upon fan speed.

- The volume (V) changes as the fan speed (n) changes

$$V_2 = V_1 \frac{n_2}{n_1}$$

- The pressure (p) changes with the square of the speed (n)

$$P_2 = P_1 \left(\frac{n_2}{n_1} \right)^2$$

- The absorbed power (Pw) changes with the cube of the speed (n)

$$PW_2 = PW_1 \left(\frac{n_2}{n_1} \right)^3$$

- As the specific weight of the air changes, the air quantities remain constant.
- The pressure and the absorbed power change with the specific weight.

$$P_2 = P_1 \frac{y_2}{y_1} \quad \text{and} \quad PW_2 = PW_1 \frac{y_2}{y_1}$$

2. Reference Values

The fan curves refer to a specific weight of 1.2 kgf/m³ at a temperature of 20°C at atmospheric pressure of 1013 kPa (760mm Hg) and a relative humidity of 50%.

Description

1.Type of Fans

39G air handling units are supplied with double inlet, double width (DIDW) centrifugal blowers of either : and other type for optional

- I) Forward curved (FC) Centrifugal DIDW forward curved.
- II) Backward curved (BC) Centrifugal DIDW backward curved.
- III) Backward curved (BC) Centrifugal SISW forward curved (optional).
- IV) Backward curved (BC) Centrifugal SISW backward curved (optional).
- V) Backward curved (BC) Plug fan (optional).
- VI) Backward curved (BC) EC fan (optional).

2.Construction

- a) Fan casings are constructed of galvanized steel with a series of punched holes or nutserts allowing the fixing of accessories such as frames or support legs thus providing a variety of discharge positions .
- b) The impeller is galvanized finished for forward curved fan and epoxy painted for backward curved and securely fixed to the shaft. (bored & keywayed) Backward curved fan has lower energy consumption due to its high performance impeller with welded true aerofoil blades inclined obliquely to the shaft axis. All fan impellers are statically and dynamically balanced to the operating fan speed as shown in the equipment schedule in accordance with ISO 1940 Part 1. Quality level G 2 .5.
- c) Shafts are trued in accordance with DIN 748. Toleranz class g6
- d) Deep groove ball bearings are supplied for smaller fan size. Self aligning Single row ball bearings mounted with a cast iron housing (real plummer block bearing) for size 400-1000. All bearings are pre -lubricated from the factory. Higher life expectancy bearings are available as option.

Recommendations

The air to be handled in the unit must be clean, and noncorrosive.

Each air handling unit can have a choice of several fan type with best efficiency and lowest sound level should be selected for a specific installation .

Fan Length

39GS UNIT SIZE	Fan Size	FC (Frame)*		BC (Frame)**		Range of Motor HP	Discharge Type	Fan Size	Fan Length (Modules)		Vertical Unit Height in Module
		C	T	C	T				HDT	VDT	
0608	180	●				1.5 - 2	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	180	6	8	6
0609	180, 200	●				1.5 - 3	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	180 200	6 7	8 8	6
0610	180, 200	●				1.5 - 3	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	180 200	5 7	8 8	6
0711	200, 225	●	●	●		1.5 - 5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	200 225	7 7	8 8	7
0712	225, 250	●	●	●	●	2 - 5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	225 250	7 7	8 8	7
0811	225, 250	●	●	●	●	2 - 5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	225 250	7 7	8 8	8
0813	280, 315	●	●	●	●	3 - 7.5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	280 315	8 8	9 9	8
0912	250, 280	●	●	●	●	2 - 7.5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	250 280	7 8	8 9	9
0913	280, 315	●	●	●	●	3 - 7.5	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	280 315	8 8	9 9	9
0914	315, 355	●	●	●	●	4 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	315 355	8 9	9 9	9
1015	355, 400	●	●	●	●	4 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	355 400	9 10	9 10	9
1016	355, 400	●	●	●	●	4 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	355 400	9 10	9 10	9
1117	400, 450	●	●	●	●	5 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	400 450	10 11	10 11	10
1317	400, 450	●	●	●	●	5 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	400 450	10 11	10 11	10
1318	400, 450	●	●	●	●	5 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	400 450	10 11	10 11	10
1320	450, 500	●	●	●	●	7.5 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	450 500	11 11	11 11	11
1322	500, 560	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	500 560	11 13	11 13	12
1418	450, 500	●	●	●	●	7.5 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	450 500	11 11	11 11	11
1420	500, 560	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	500 560	11 13	11 13	12
1421	500, 560	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	500 560	11 13	11 13	12
1422	500, 560	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	500 560	11 13	11 13	12
1518	450, 500	●	●	●	●	7.5 - 15	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	450 500	11 11	11 11	11
1521	500, 560	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	500 560	11 13	11 13	12
1522	560, 630	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560 630	13 14	13 14	13 15

Fan Length

39GS UNIT SIZE	Fan Size	FC (Frame)*		BC (Frame)**		Range of Motor HP	Discharge Type	Fan Size	Fan Length (Modules)		Vertical Unit Height in Module
		C	T	C	T				HDT	VDT	
1524	560, 630	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560	13	13	13
								630	14	14	15
1525	560, 630	●	●	●	●	10 - 20	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560	13	13	13
								630	14	14	15
1621	560, 630	●	●	●	●	10 - 25	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560	13	13	13
								630	14	14	15
1622	560, 630	●	●	●	●	10 - 25	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560	13	13	13
								630	14	14	15
1624	560, 630	●	●	●	●	10 - 25	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560	13	13	13
								630	14	14	15
1625	560, 630	●	●	●	●	10 - 25	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560	13	13	13
								630	14	14	15
1822	560, 630	●	●	●	●	10 - 25	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	560	13	-	-
								630	14	-	-
1824	630, 710	●	●	●	●	15 - 30	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	630	14	-	-
								710	15	-	-
1825	630, 710	●	●	●	●	15 - 30	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	630	14	-	-
								710	15	-	-
2025	630, 710	●	●	●	●	15 - 30	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	630	14	-	-
								710	15	-	-
2125	710, 800	●	●	●	●	20 - 40	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	710	15	-	-
								800	17	-	-
2226	710, 800	●	●	●	●	20 - 40	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	710	15	-	-
								800	17	-	-
2230	800, 900		●		●	25 - 50	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	800	17	-	-
								900	19	-	-
2234	800, 900		●		●	25 - 60	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	800	17	-	-
								900	19	-	-
2330	800, 900		●		●	25 - 60	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	800	17	-	-
								900	19	-	-
2334	800, 900		●		●	25 - 60	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	800	17	-	-
								900	19	-	-
2434	900, 1000		●		●	25 - 60	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	900	19	-	-
								1000	20	-	-
2634	900, 1000		●		●	25 - 75	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	900	19	-	-
								1000	20	-	-
2636	900, 1000		●		●	25 - 75	UBF, UBR, THF, BHF, THR, BHR, DBR, DBF	900	19	-	-
								1000	20	-	-

Remark :

FC : Forward curved

BC : Backward curved

BHR and THR is only a valid option for vertical units.

DBF and DBR is only a valid option for horizontal units.

For discharge type DBF, DBR (for HDT), fan length must be longer approx. 2 modules

Limited fan size for DBF, DBR up to fan size 450 only.

Forward Curved , Backward Curved Fan Shaft Diameter

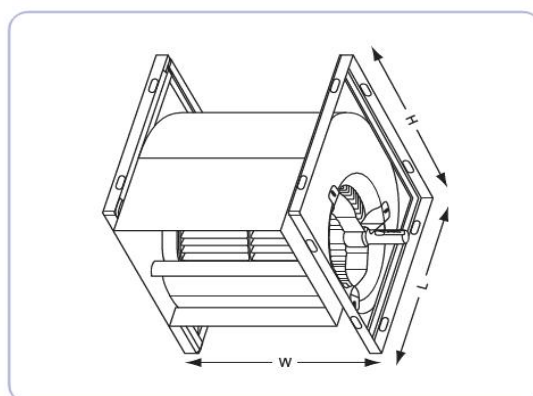
Fan Size	Diameter (mm) Drive / Blower Side (tolerances)
FC	
FC - 180	20 g6
FC - 200	20 g6
FC - 225	20 g6
FC - 250	20 g6
FC - 280	25 g6
FC - 315	25 g6
FC - 355	30 g6
FC - 400	30 g6
FC - 450	35 g6
FC - 500	35 g6
FC - 560	40 g6
FC - 630	40 g6
FC - 710	50 g6
FC - 800	55 g6
FC - 900	60 g6
FC - 1000	60 g6
BC	
BC - 225	20 g6
BC - 250	20 g6
BC - 280	25 g6
BC - 315	25 g6
BC - 355	30 g6
BC - 400	30 g6
BC - 450	35 g6
BC - 500	35 g6
BC - 560	40 g6
BC - 630	40 g6
BC - 710	50 g6
BC - 800	55 g6
BC - 900	60 g6
BC - 1000	60 g6

Fan Housing Dimension and Weight

Table below shows full details of 39GS fan housing dimension and weight.

Fan Size	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
Forward Curved				
FC - 180	323	268	336	8
FC - 200	343	306	370	10
FC - 225	382	338	415	12
FC - 250	418	372	460	17
FC - 280	466	420	518	20
FC - 315	518	464	578	24
FC - 355	578	532	654	32
FC - 400	650	586	736	41
FC - 450	726	648	827	51
FC - 500	800	718	918	74
FC - 560	892	814	1030	93
FC - 630	998	900	1157	104
FC - 710	1120	998	1302	192
FC - 800	1254	1100	1468	240
FC - 900	1408	1230	1648	293
FC - 1000	1540	1366	1810	340
Backward Curved				
BC - 225	366	350	433	15
BC - 250	418	372	460	19
BC - 280	466	420	518	24
BC - 315	518	464	578	28
BC - 355	578	532	654	41
BC - 400	650	586	736	49
BC - 450	726	648	827	65
BC - 500	800	718	918	83
BC - 560	892	814	1030	110
BC - 630	998	900	1157	141
BC - 710	1120	998	1302	251
BC - 800	1254	1106	1468	299
BC - 900	1408	1230	1648	368
BC - 1000	1540	1366	1810	474

Note : Width does not include both end of shaft.



Fan Motor Weight

Table below shows the approximate fan motor weight.

Motor HP	Motor kW	Approx. Weight (kg)	Frame Number
1	0.75	17	D80
1.5	1.1	25	D90S
2	1.5	26	D90L
3 & 4	2.2/3.0	35	D100L
5 & 5 1/2	3.7/4.4	47	D112M
7.5	5.5	68	D132S
10	7.5	79	D132M
15	11	122	D160M
20	15	144	D160L
25	18.5	189	D180M
30	22	203	D180L
40	30	290	D200L
50	37	320	D225SC
60	45	355	D225MC
75	55	381	D250SA

Note : • Motor weights based on 4 - pole 380/3Ø/50Hz induction type TEFC motor foot mounted.

• Motor shall be of , Y or D.O.L wiring.

• Standard motor shall be per IEE standard IP55 enclosure with Class F, IE 2 (High efficiency) insulation and Class B Temperature rise complying with BS2757.

• Maximum ambient temperature 45°C.

• For derivation of motor kW from fan BkW use:

Motor kW = Fan BkW x A, where A = 1.20 if BkW < 10 kW

A = 1.15 if BkW > 10 kW

• Please refer to your nearest Carrier Representatives for special motor voltages or application.

Fan Size and RPM Limitation/BkW Limitation

Fan Type	Fan Size	Maximum RPM	Maximum Absorbed Power kw
Forward Curved	FC - 180	4000	2
	FC - 200	3200	2
	FC - 225	2900	3
	FC - 250	2700	3
	FC - 280	2400	4
	FC - 315	2100	5.5
	FC - 355	1800	5.5
	FC - 400	1600	7.5
	FC - 450	1400	7.5
	FC - 500	1200	11
	FC - 560	1100	11
	FC - 630	900	15
	FC - 710	850	22
	FC - 800	750	22
	FC - 900	650	30
	FC - 1000	600	37
Backward Curved	BC - 225	6640	4
	BC - 250	4000	4
	BC - 280	4000	4
	BC - 315	3500	5
	BC - 355	3000	7.5
	BC - 400	2700	7.5
	BC - 450	2300	11
	BC - 500	2100	11
	BC - 560	1800	15
	BC - 630	1500	15
	BC - 710	1500	18.5
	BC - 800	1300	22
	BC - 900	1200	30
	BC - 1000	1050	37

Remark : A selection is valid provided it first reaches and not exceed either max. limits (RPM of BkW).

: Above data base or

- FC 180 - 70 Type C
- FC 800 - 1,000 Type T
- BC225 - 710 Type C
- BC800 - 1,000 Type T

Filter

General

The types of filters offered in 39GNS are as follows

- i) HVF - High velocity filters iii) HEPA Filter
- ii) BF - Bag filters

Each filter type selected shall include a 39GNS section with the appropriate tracks. The filter section shall be similar in construction as the other 39GNS sections. The tracks supplied shall be in accordance to the HVAC filter standard sizes and its gravimetric efficiency per ASHRAE 52-76.

High Velocity Filter (HVF)

Commonly known as pre-filter, the HVF is offered with a thickness of either 25mm or 50mm. The standard gravimetric efficiency shall be 85% with 70% optional and media are washable made of aluminum or synthetic fiber. The HVF can be installed to the 39GNS as follows

- i) Front loading with track only (i.e. free return application)
- ii) Front loading/withdrawal filter track within 2 module length section. When require filter section which must be able to access for filter loading/withdrawal by access door at return duct (i.e. duct return application) or access door at mixing box.

The frames and tracks are fabricated of 1.25 mm (18 gauge) thick galvanized steel sheet.

Bag Filter (BF)

The bag filter is normally used as 2nd stage filtration media. The factory standard efficiency shall be 95% gravimetric efficiency. Media are disposable type. The bag filter media shall be synthetic fiber of 300-600 mm. bag length and 25 mm. thick aluminum frame.

As a standard, the BF section comprises of 6 module, by front loading/withdrawal method.

Friction Pressure Drop

Due to filter media resists to the air flow resulting in static loss, therefore refer to Table 23 on the respective static pressure loss against velocity (interpolation is permissible).

Filter Pressure Drop (Pa)

Filter Face Velocity (m/s)	1.5	2.0	2.5	3.0	3.5
HVF 2" thick 85% gravimetric	8.96	12.46	19.93	27.40	37.40
BF 600mm bag length 95% gravimetric	9.96	14.95	29.89	47.33	69.75

Note: Data shown is for clean filter, based on synthetic fiber material. The normal allowable pressure drop for dirty filter should not exceed 300Pa (1.2" WG).

High efficiency particulate air

HEPA is a type of pleated mechanical air filter. It is an acronym for "high efficiency particulate air [filter]" (as officially defined by the U.S. Dept. of Energy). This type of air filter can theoretically remove at least 99.97% of dust, pollen, mold, bacteria, and any airborne particles with a size of 0.3 microns (μm). The diameter specification of 0.3 microns responds to the worst case; the most penetrating particle size (MPPS). Particles that are larger or smaller are trapped with even higher efficiency. Using the worst case particle size results in the worst case efficiency rating (i.e. 99.97% or better for all particle sizes).

All air cleaners require periodic cleaning and filter replacement to function properly. Follow manufacturer's recommendations on maintenance and replacement.

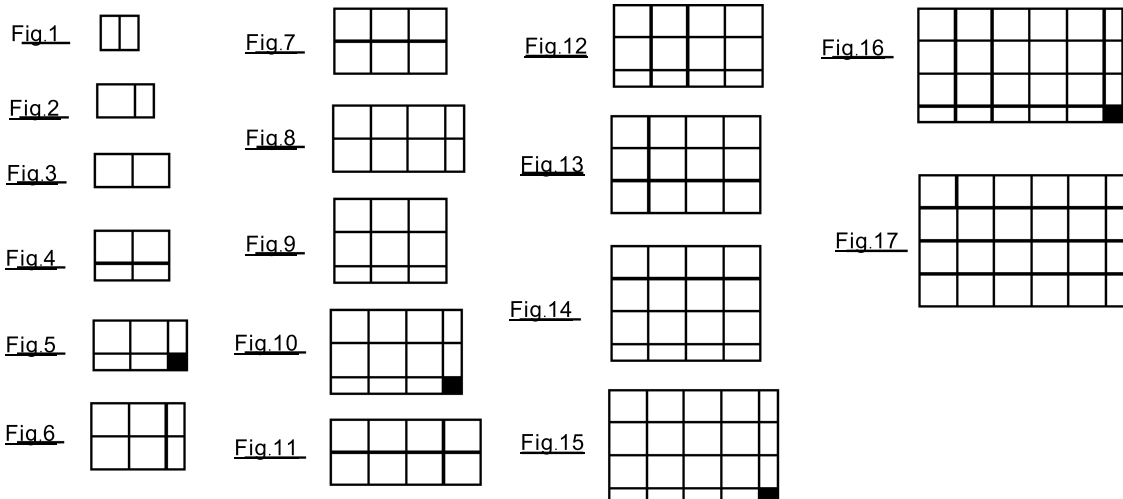
Minimum Efficiency Reporting Values, or MERVs, report a filter's ability to capture larger particles between 0.3 and 10 microns (μm).

- This value is helpful in comparing the performance of different filters
- The rating is derived from a test method developed by the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) [see www.ashrae.org].
- The higher the MERV rating the better the filter is at trapping specific types of particles.

MERV Rating	Average Particle Size Efficiency in Microns
1-4	3.0 - 10.0 less than 20%
6	3.0 - 10.0 49.9%
8	3.0 - 10.0 84.9%
10	1.0 - 3.0 50% - 64.9%, 3.0 - 10.0 85% or greater
12	1.0 - 3.0 80% - 89.9%, 3.0 - 10.0 90% or greater
14	0.3 - 1.0 75% - 84%, 1.0 - 3.0 90% or greater
16	0.3 - 1.0 75% or greater

39GS : SIZE & QUANTITY OF FILTER

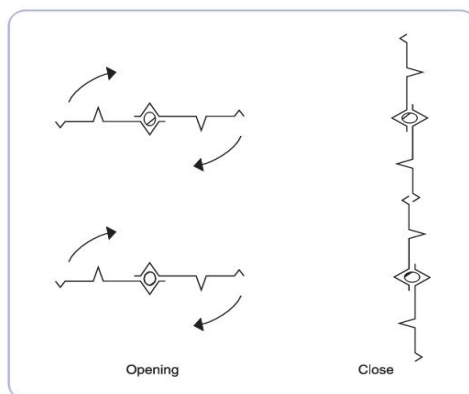
No.	39GS	No. of Filter Usage				Fig.
		20"x20"x2" (495 X 495)	10"x20"x2" (238 X 495)	24"x24"x2" (595 X 595)	12"x24"x2" (289 X 595)	
1	0608	-	2	-	-	Fig. 1
2	0609	1	1	-	-	Fig. 2
3	0610	1	1	-	-	
4	0711	-	-	1	1	Fig. 2
5	0712	-	-	1	1	
6	0811	-	-	1	1	
7	0813	-	-	2	-	Fig. 3
8	0912	-	-	1	1	Fig. 2
9	0913	-	-	2	-	Fig. 2
10	0914	-	-	2	-	
11	1015	-	-	2	2	Fig. 4
12	1016	-	-	2	3	Fig. 5
13	1117	-	-	2	3	
14	1317	-	-	4	2	Fig. 6
15	1318	-	-	4	2	
16	1320	-	-	6	-	Fig. 7
17	1418	-	-	4	2	Fig. 6
18	1518	-	-	4	2	
19	1420	-	-	6	-	Fig. 7
20	1322	-	-	6	2	Fig. 8
21	1421	-	-	6	-	Fig. 7
22	1422	-	-	6	2	Fig. 8
23	1521	-	-	6	-	Fig. 7
24	1621	-	-	6	3	Fig. 9
25	1522	-	-	6	2	Fig. 8
26	1622	-	-	6	5	Fig. 10
27	1524	-	-	6	2	Fig. 8
28	1525	-	-	8	-	Fig. 11
29	1624	-	-	6	5	Fig. 10
30	1625	-	-	8	4	Fig. 12
31	1822	-	-	6	5	Fig. 10
32	1824	-	-	6	5	
33	1825	-	-	8	4	Fig. 12
34	2025	-	-	12	-	Fig. 13
35	2125	-	-	12	-	
36	2226	-	-	12	4	Fig. 14
37	2230	-	-	12	7	Fig. 15
38	2330	-	-	12	7	
39	2234	-	-	15	8	Fig. 16
40	2334	-	-	15	8	
41	2434	-	-	15	8	
42	2634	-	-	20	4	Fig. 17
43	2636	-	-	20	4	



Mixing Box

Mixing box shall have volum damper as optional interconnected opposing action between outdoor air and return air dampers. Dampers blades shall be brake formed for stiffness and shall be spot welded to a 13mm O.D. steel rods rotating in nylon bushings press-seated in rigid damper frames. Damper shall be fabricated from 1.2mm (18 gauge) thick galvanized steel sheet and the damper frame of 1.2 mm (18 gauge)

Dampers shall be sectionalized to limit blade length to not more than 1526 mm in order to prevent excessive blade warping and ensure tight closure. Outdoor air and return air dampers shall be of the same area



Air leakage using damper area ratio and a perimeter gap of 3 mm between blade and frame results in leakage rate of approximately 3% as a complete system when either one damper assembly is completely closed.

The damper are located on the outside of mixing boxes and the standard damper location shall be top and rear. Interconnection between outdoor air and return air damper is made with push rods installed in the factory. The damper blades for each assembly shall be connected using linkages on one side of the damper frames ensuring its synchronous movement.

The damper frame is U-formed /flanged but not drilled which serves as a flange or duct work connection. Low leakage damper is available as option.

Mixing Box Section in Module

Unit Size 39 GNS	Horizontal Module Length (M)	Vertical Module Length (M)
0608-1318	5 M	5 M
1418-1625	6 M	6 M
1822-1825	6 M	-
2025-2636	9 M	-

Mixing Box Dampers Friction Loss

Section	Velocity(m/s)					
	1.50	2.00	2.50	3.00	3.50	4.00
Mixing Box(Pa)	2.49	4.98	9.96	12.46	14.95	19.93

Accessories (Optional)

UV Lamps

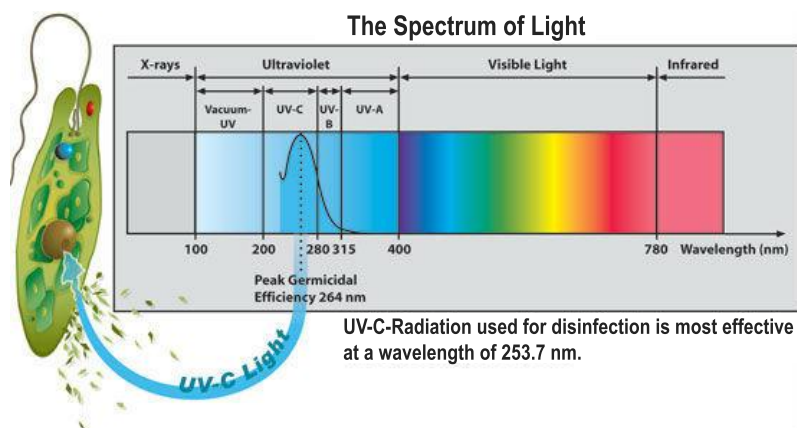
In response to the current coronavirus epidemic situation, sterilization option using UltraViolet (UV) is available for FCU products.

UV light for kill germs in a wide range of wavelengths between 200 to 400 (nm) which is highly effective in killing bacteria and reduces the formation of viruses by breaking down the molecular bonds that hold their DNA and RNA together.

UV-C at this wavelength, is the wavelength that DNA can absorb well can be punched and disabled their growth. By destroying their DNA sequence When doing this, the virus will lose their ability to reproduce.



UV-C rays are not found in nature because these rays cannot pass through the ozone layer to the earth's surface. The use of this type of radiation to destroy the infection requires a source of radiation. Including mercury lamps.



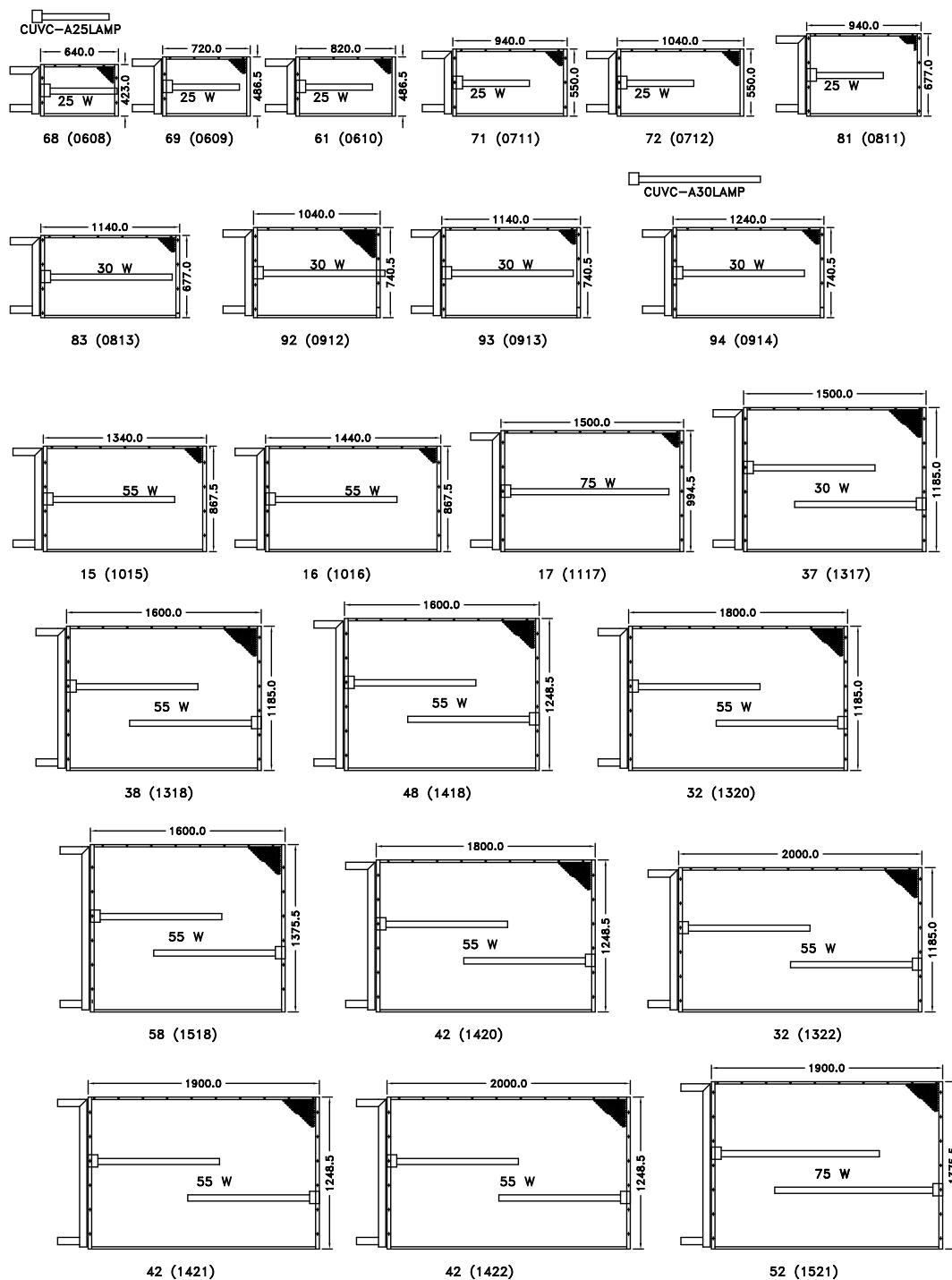
Advantages of UV-C lamp

- 253.7nm UV-C lamp, no generate ozone.
- High-energy UV-C, effective life is up to 8000 hours.
- Stainless steel reflector enhances the radiation intensity and avoids direct exposure to the human body.
- Plug-in products for easy installation.
- External control box, 220VAC standard power supply, simple wiring.
- Able to kill bacteria in the air and prevent the virus from spreading through the host bacteria

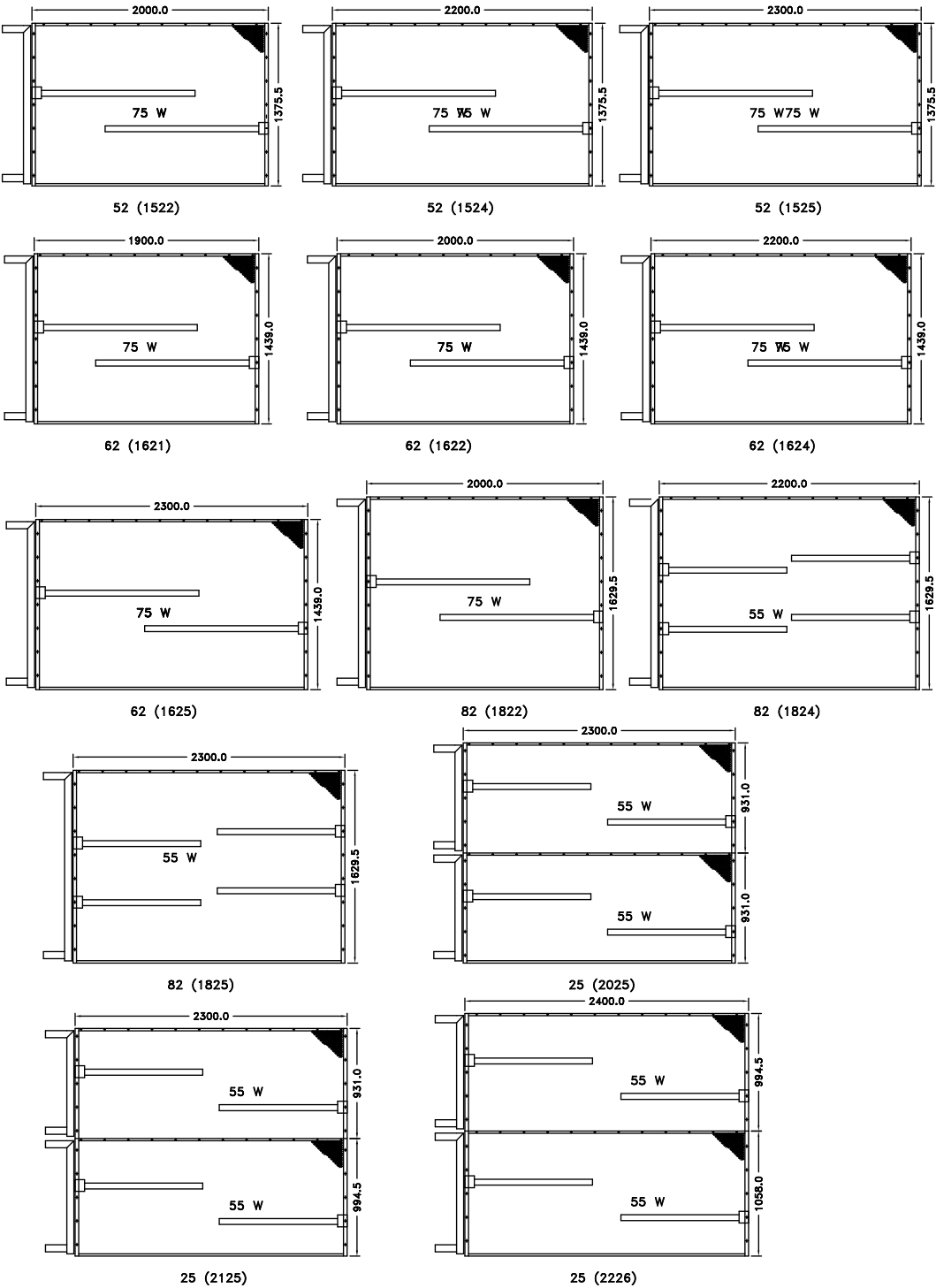
39GS COIL (Cu. tube dia. 1/2" , Aluminium Fin) , CW Coil

NO.	Coil 39GS	Tubes / Row (1/2")	Fin Hight mm.	Fin Width mm.	Coil Face sq.ft.	Air Volume CFM	UVC Lamp	Q'ty	UVC lamp length (mm.)
1	0608	14	444.5	580.0	2.77	1,247	CUVC-A25LAMP	1	550
2	0609	14	444.5	680.0	3.26	1,466	CUVC-A25LAMP	1	550
3	0610	14	444.5	780.0	3.73	1,679	CUVC-A25LAMP	1	550
4	0711	16	508.0	880.0	4.81	2,163	CUVC-A25LAMP	1	550
5	0712	16	508.0	980.0	5.36	2,413	CUVC-A25LAMP	1	550
6	0811	20	635.0	880.0	6.01	2,703	CUVC-A25LAMP	1	550
7	0813	20	635.0	1,080.0	7.38	3,320	CUVC-A30LAMP	1	1,000
8	0912	22	698.5	980.0	7.37	3,317	CUVC-A30LAMP	1	1,000
9	0913	22	698.5	1,080.0	8.12	3,652	CUVC-A30LAMP	1	1,000
10	0914	22	698.5	1,180.0	8.88	3,996	CUVC-A30LAMP	1	1,000
11	1015	26	825.5	1,280.0	11.38	5,119	CUVC-A55LAMP	1	1,000
12	1016	26	825.5	1,380.0	12.26	5,515	CUVC-A55LAMP	1	1,000
13	1117	30	952.5	1,440.0	14.77	6,645	CUVC-A30LAMP	1	1,300
14	1317	36	1,143.0	1,440.0	17.72	7,973	CUVC-A30LAMP	2	1,000
15	1318	36	1,143.0	1,540.0	18.94	8,522	CUVC-A55LAMP	2	1,000
16	1418	38	1,206.5	1,540.0	19.99	8,995	CUVC-A55LAMP	2	1,000
17	1320	36	1,143.0	1,740.0	21.41	9,633	CUVC-A55LAMP	2	1,000
18	1518	42	1,333.5	1,540.0	22.09	9,942	CUVC-A55LAMP	2	1,000
19	1420	38	1,206.5	1,740.0	22.60	10,168	CUVC-A55LAMP	2	1,000
20	1322	36	1,143.0	1,940.0	23.88	10,744	CUVC-A55LAMP	2	1,000
21	1421	38	1,206.5	1,840.0	23.88	10,747	CUVC-A55LAMP	2	1,000
22	1422	38	1,206.5	1,940.0	25.20	11,341	CUVC-A55LAMP	2	1,000
23	1521	42	1,333.5	1,840.0	26.40	11,878	CUVC-A75LAMP	2	1,300
24	1522	42	1,333.5	1,940.0	27.85	12,534	CUVC-A75LAMP	2	1,300
25	1524	42	1,333.5	2,140.0	30.73	13,830	CUVC-A75LAMP	2	1,300
26	1525	42	1,333.5	2,240.0	32.16	14,470	CUVC-A75LAMP	2	1,300
27	1621	44	1,397.0	1,840.0	27.65	12,444	CUVC-A75LAMP	2	1,300
28	1622	44	1,397.0	1,940.0	29.18	13,131	CUVC-A75LAMP	2	1,300
29	1624	44	1,397.0	2,140.0	32.20	14,489	CUVC-A75LAMP	2	1,300
30	1625	44	1,397.0	2,240.0	33.69	15,159	CUVC-A75LAMP	2	1,300
31	1822	50	1,587.5	1,940.0	33.16	14,922	CUVC-A75LAMP	2	1,300
32	1824	50	1,587.5	2,140.0	36.59	16,465	CUVC-A55LAMP	4	1,000
33	1825	50	1,587.5	2,240.0	38.28	17,227	CUVC-A55LAMP	4	1,000
34	2025	28	889.0	2,240.0	42.88	19,294	CUVC-A55LAMP	4	1,000
		28	889.0	2,240.0					
35	2125	28	889.0	2,240.0	44.41	19,983	CUVC-A55LAMP	4	1,000
		30	952.5	2,240.0					
36	2226	30	952.5	2,340.0	49.57	22,305	CUVC-A55LAMP	4	1,000
		32	1,016.0	2,340.0					
37	2230	30	952.5	2,740.0	58.07	26,132	CUVC-A75LAMP	4	1,300
		32	1,016.0	2,740.0					
38	2330	32	1,016.0	2,740.0	59.94	26,975	CUVC-A75LAMP	4	1,300
		32	1,016.0	2,740.0					
39	2234	30	952.5	3,140.0	66.52	29,934	CUVC-A55LAMP	6	1,000
		32	1,016.0	3,140.0					
40	2334	32	1,016.0	3,140.0	68.67	30,900	CUVC-A55LAMP	6	1,000
		32	1,016.0	3,140.0					
41	2434	34	1,079.5	3,140.0	72.96	32,831	CUVC-A55LAMP	6	1,000
		34	1,079.5	3,140.0					
42	2634	36	1,143.0	3,140.0	79.40	35,728	CUVC-A55LAMP	6	1,000
		38	1,206.5	3,140.0					
43	2636	36	1,143.0	3,340.0	84.47	38,012	CUVC-A75LAMP	6	1,300
		38	1,206.5	3,340.0					

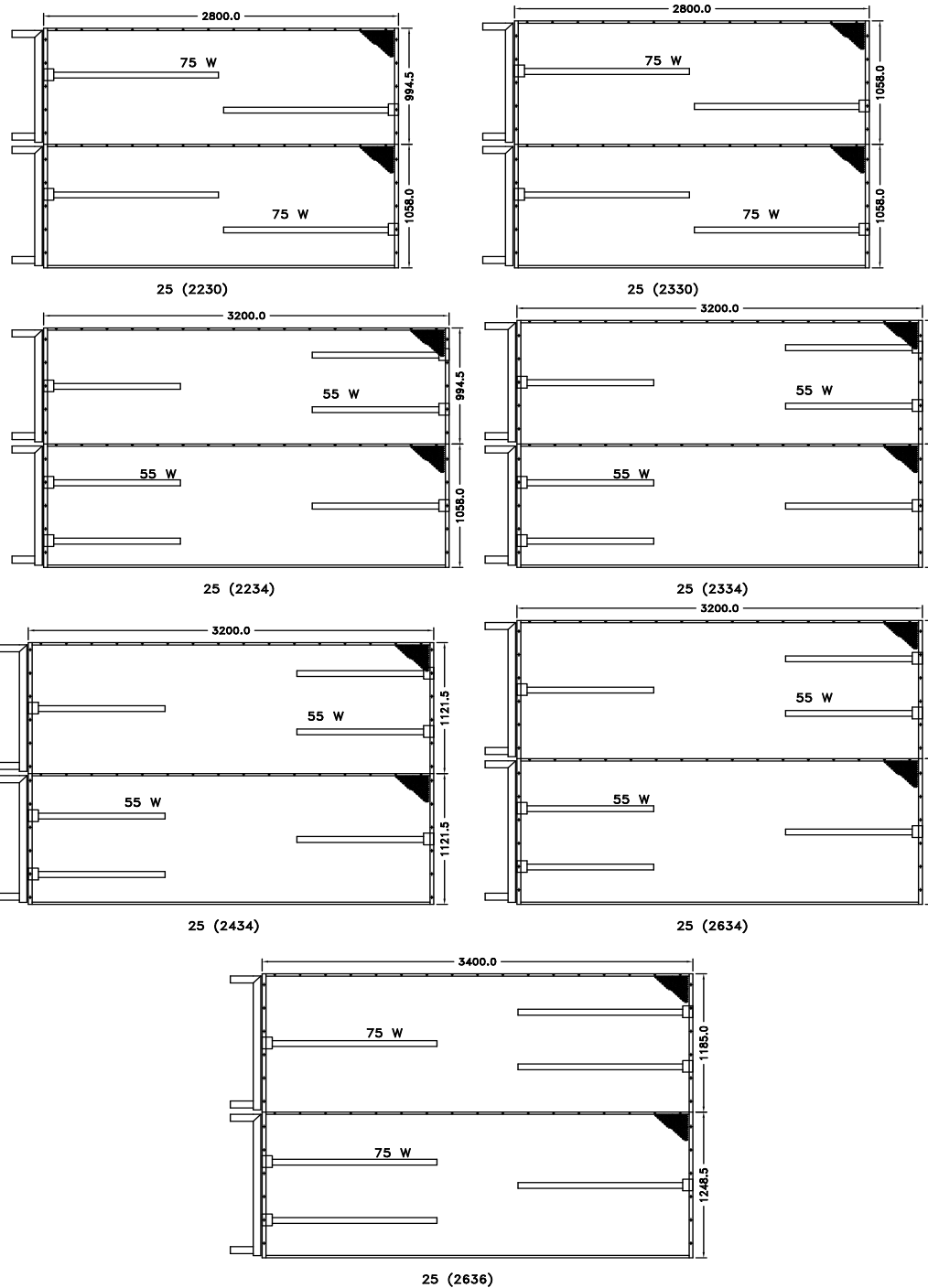
UV Lamp 39GS Series



UV Lamp 39GS Series



UV Lamp 39GS Series



บริษัท แคนเรียร์ (ประเทศไทย) จำกัด

1858/63-74 ชั้น 14, 15

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