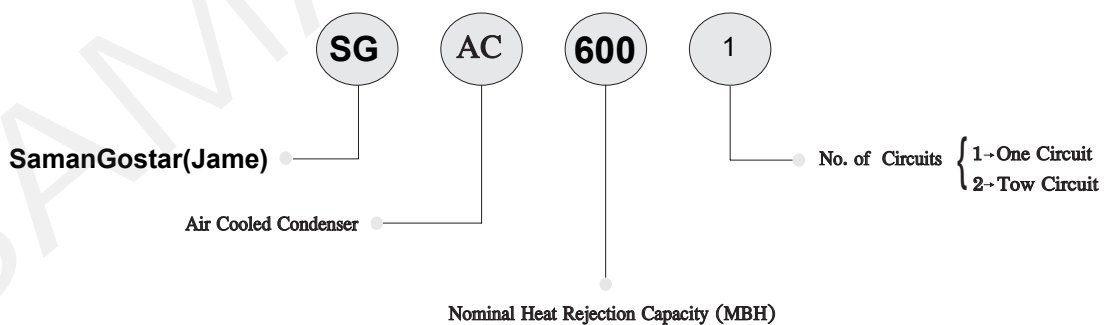




CONTENTS

FEATURES.....	2
SELECTION PROCEDURES.....	3,4
ADJUSTMENT FACTOR TABLES.....	4
TOTAL HEAT REJECTION TABLES.....	5-7
ENGINEERING DATA, ELECTRICAL DATA.....	8
DIMENSIONS.....	9
PIPING RECOMMENDATIONS, REFRIGERANT LINE SIZE.....	10
UNIT INSTALLATION LOCATION.....	11
UNIT FOUNDATION.....	12

NOMENCLATURE





FEATURES

GENERAL:

SamanGostarAir Cooled Condensers are offered in 13 models with heat rejection cap. range of 20 to 2346 MBH, designed to accommodate a wide range of application in the A/C industr

CASING:

Suitable heavy gauge galvanized steel sheets are used in the manufacture of casing panels and mounting legs formed from heavy gauge steel sheets offer maximum rigidity.

COILS:

Condenser coils consist of seamless copper tubes mechanically expanded into die formed aluminium or copper fins with 10 to 14 FPI spacing. Coils are available in single and multi-circuits.

FANS:

Directly Driven axial fans, deliver the required air flow rate at minimum sound levels. All fans are equipped with fan guard for maximum protection. Fan operation sequencing is performed based on the liquid refrigerant s pressure leaving the condenser.

MOTORS:

Totally enclosed air cooled (air over body) electric motors equipped with permanently lubricated bearings, an IP-55 protection, winding insulation class of (F) plus therm protection and B rise construction are mounted in vertical position. The motors are suitable for operation.

ELECTRICAL PANEL:

Consists of a drip proof enclosing all electric components such as contactors, over load protections and ...

TESTING:

Condenser coils are leak tested at 450 psig after production and the entire condenser unit is tested at 350 psig working pressure after



SELECTION PROCEDURE

HELPFUL HINTS:

- Maximum allowable condensing temperature forR,22 & R407c: 135 F
- Maximum allowable condensing temperature forR134a: 140 F
- Optimum condensing temperature forR,22 & R407c: 120 F
- Optimum condensing temperature forR134a: 130 F
- TD: Condensing temperature-ambient dry bulb temperature
- THR= [System cooling capacity] + [Compressor motor power input x 3413]

EXAMPLE 1:

GIVEN:

- Refrigerant:R22
- System cooling capacity:210000 Btu/hr
- Condensing temperature:120 F
- Ambient air temperature:100 F
- Compressor power input:18.2 KW
- Design altitude:2000 Ft
- Coil Fin Per Inch:.....14 FPI
- Fin Material:Aluminum

SELECT MATCHING AIR COOLED CONDENSER

-Determine Total Heat Rejection:

$$T.H.R = 210000 + (18.2 \times 3413) = \dots\dots\dots 272117 \text{ Btu/hr}$$

-From table 2 for altitude adjustment factor (@2000 FT) $A_{fA} = 1.05$

$$\text{adjusted T.H.R} = (1.05)(272117) = \dots\dots\dots 285723 \text{ Btu/hr}$$

-T.D. (Design temperature difference) = (120-100) = 20 F

-From table (3A) and T.D. of 20 F, SGAC-225-1 with plate fins offers 315000 Btu/hr which satisfies the above required T.H.R.





EXAMPEL 2:

GIVEN

- Refrigerant:R407c
- System Total Heat rejection (THR):350000 Btu/hr
- Condensing temperature:120 F
- Ambient air temperature:100 F
- DesugnAlitude:.....4000Ft
- Coil Fin per Inch:10 FPI
- Fin Material:Copper

-TD: Cond Temp - Ambient Temp = 120-100=20 F

-Total Heat Rejection Requirement= Correction Factor(Table2)/Correction Factor(Table1)
= 350000*1.1/0.85= 452941 Btu/hr= 452.941 MBH

From Table (4B) and T.D. of 20 F, SGAC-375 offers.

Coil Fin Per Inch Correction Factor

Table 1

No. of FPI	Correction Factor
10	0.85
12	0.93
14	1

Altitude Adjustment Factor(AF_A)

Table2

Altitude FT.	Adjustment Factor
0	1.00
1000	1.03
2000	1.05
3000	1.07
4000	1.10
5000	1.12
6000	1.15



TOTAL HEAT REJECTION

TOTAL HEAT REJECTION FOR R-22[MBH]

Model	Aluminum FIN				
	TD[°F]				
	10	15	20	25	30
SGAC-040	21	33	45	58	71
SGAC-075	43	67	94	121	150
SGAC-110	75	120	170	223	277
SGAC-150	90	145	203	263	325
SGAC-225-1	140	225	315	407	502
SGAC-225-2	128	204	284	370	458
SGAC-300	171	272	378	492	608
SGAC-375	222	356	496	644	798
SGAC-450	272	436	612	792	978
SGAC-600	356	568	794	1032	1276
SGAC-750	466	746	1044	1350	1664
SGAC-900	572	918	1282	1656	2038
SGAC-1150	664	1052	1458	1876	2302

Model	Copper FIN				
	TD[°F]				
	10	15	20	25	30
SGAC-040	21	33	45	58	72
SGAC-075	43	68	95	123	153
SGAC-110	76	123	174	227	283
SGAC-150	92	148	207	269	333
SGAC-225-1	144	230	322	417	514
SGAC-225-2	132	208	290	378	468
SGAC-300	174	276	386	502	622
SGAC-375	228	364	508	660	816
SGAC-450	280	446	626	812	1002
SGAC-600	362	580	814	1056	1308
SGAC-750	476	764	1068	1384	1706
SGAC-900	586	940	1312	1696	2088
SGAC-1150	674	1072	1486	1912	2346

Note: MBH=1000 Btu/hr

Above given values are based on sea level altitude and 14 Fins Per Inch coils. For different altitude and coil FPI(10 or 12), multiply THR value by the appropriate correction factor in table 2 and divide by correction factor in table 1.



TOTAL HEAT REJECTION

TOTAL HEAT REJECTION FOR R-407C[MBH]

Aluminum FIN Table4A

Model	TD[°F]				
	10	15	20	25	30
SGAC-040	20	31	43	56	69
SGAC-075	47	65	91	119	147
SGAC-110	72	116	165	217	272
SGAC-150	88	141	199	259	320
SGAC-225-1	137	220	310	402	497
SGAC-225-2	124	198	276	360	448
SGAC-300	164	262	368	480	596
SGAC-375	216	346	486	632	784
SGAC-450	264	426	600	780	966
SGAC-600	344	552	778	1012	1256
SGAC-750	452	730	1024	1332	1646
SGAC-900	556	900	1262	1636	2018
SGAC-1150	676	1078	1498	1922	2354

Copper FIN Table4B

Model	TD[°F]				
	10	15	20	25	30
SGAC-040	20	32	44	57	70
SGAC-075	41	66	92	120	150
SGAC-110	73	118	168	222	278
SGAC-150	89	144	202	263	326
SGAC-225-1	139	224	315	409	506
SGAC-225-2	126	200	282	366	456
SGAC-300	166	266	374	488	606
SGAC-375	218	350	494	644	798
SGAC-450	268	434	610	794	984
SGAC-600	348	562	790	1030	1280
SGAC-750	458	742	1042	1356	1676
SGAC-900	566	916	1284	1666	2056
SGAC-1150	656	1046	1458	1882	2314

Note: MBH=1000 Btu/hr

Above given values are based on sea level altitude and 14 Fins Per Inch coils. For different altitude and coil FPI(10 or 12), multiply THR value by the appropriate correction factor in table 2 and divide by correction factor in table 1.



TOTAL HEAT REJECTION

TOTAL HEAT REJECTION FOR R-134a[MBH]

Aluminum FIN Table5A

Model	TD[°F]				
	10	15	20	25	30
SGAC-040	23	35	47	60	74
SGAC-075	46	71	97	124	152
SGAC-110	81	126	174	224	277
SGAC-150	95	148	204	262	327
SGAC-225-1	146	228	314	403	494
SGAC-225-2	138	214	294	376	237
SGAC-300	186	290	400	512	628
SGAC-375	236	368	504	648	794
SGAC-450	284	440	616	788	968
SGAC-600	376	586	804	1032	1268
SGAC-750	484	758	1044	1340	1642
SGAC-900	590	924	1272	1634	2002
SGAC-1150	684	1064	1458	1862	2276

Copper FIN Table5B

Model	TD[°F]				
	10	15	20	25	30
SGAC-040	23	36	49	62	76
SGAC-075	47	73	100	128	157
SGAC-110	84	131	181	234	288
SGAC-150	98	153	210	270	332
SGAC-225-1	150	235	325	417	511
SGAC-225-2	142	220	304	388	476
SGAC-300	188	294	402	516	632
SGAC-375	244	378	520	668	820
SGAC-450	296	460	636	816	1002
SGAC-600	388	604	832	1068	1310
SGAC-750	500	782	1078	1384	1698
SGAC-900	598	936	1290	1656	2030
SGAC-1150	702	1092	1496	1912	2338

Note: MBH=1000 Btu/hr

Above given values are based on sea level altitude and 14 Fins Per Inch coils. For different altitude and coil FPI(10 or 12), multiply THR value by the appropriate correction factor in table 2 and divide by correction factor in table 1.



ENGINEERING DATA

Table 6

Model	Propeller Fan				Coil		Refrigerant		No. of Circuits	Unit Weight Kg
	No.	Diam.Inch	RPM	Total CFM	Rows Deep	Total Face Area Sq.Ft.	Charge Kg	Pump down Capacity Kg		
SGAC-040	1	20	950	3400	3	7	3	9	1	150
SGAC-075	1	26	950	7200	3	12	5	15	1	230
SGAC-110	2	26	950	14400	3	18	7	22	1	300
SGAC-150	2	26	950	14400	3	24	9	32	1	380
SGAC-225-1	3	26	950	21600	3	36	13	47	1	540
SGAC-225-2	4	26	950	28800	3	36	13	47	2	560
SGAC-300	4	26	950	28800	3	48	18	61	1,2	800
SGAC-375	5	26	950	36000	3	60	22	73	1,2	1030
SGAC-450	6	26	950	43200	3	72	27	93	1,2	1190
SGAC-600	8	26	950	57600	3	96	35	123	1,2	1680
SGAC-750	10	26	950	72000	3	121	44	152	1,2	2000
SGAC-900	12	26	950	86400	3	144	53	187	1,2	2350
SGAC-1150	12	26	950	84000	4	144	70	245	1,2	2690

Note: System total operating charge= chiller or packaged unit operating charge + aircooled condenser operating charge+ refrigerant lines operating charge (table 8)

Weight of refrigerant in copper lines Kg per 100 Ft.

ELECTRICAL DATA

Table 7

Model	Motor			System			
	No.	Rated HP Output	Rated Load AMPS	Rated KW Input	Total Load AMPS	Starting Current AMPS	Wire Size
SGAC-040	1	3/4	1.8	0.55	1.8	6.0	4x1
SGAC-075	1	1	2.25	1.08	2.25	7.42	4x1
SGAC-110	2	1	2.25	2.16	4.5	14.85	4x1.5
SGAC-150	2	1	2.25	2.16	4.5	14.85	4x1.5
SGAC-225-1	3	1	2.25	3.24	6.75	22.27	4x1.5
SGAC-225-2	4	1	2.25	4.32	9	29.7	4x 2.5
SGAC-300	4	1	2.25	4.32	9	29.7	4x 2.5
SGAC-375	5	1	2.25	5.4	11.25	37.12	4x 2.5
SGAC-450	6	1	2.25	6.48	13.5	44.55	4x4
SGAC-600	8	1	2.25	8.64	18	59.4	4x6
SGAC-750	10	1	2.25	10.8	22.5	74.25	4 x10
SGAC-900	12	1	2.25	12.96	27	89.1	4 x10
SGAC-1150	12	1	2.25	12.96	27	89.1	4 x10

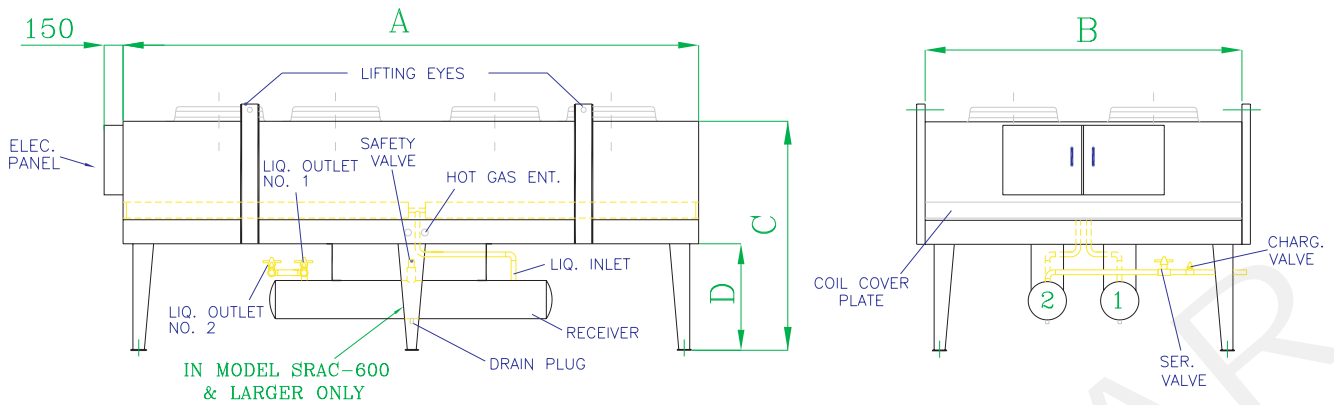
Table 8

Line Size O.D. (In.)	Liquid @100°F	Hot Gas @120°F
3/8	1.75	0.10
1/2	3.24	0.17
5/8	5.24	0.28
7/8	10.90	0.57
1 1/8	18.55	0.97
1 3/8	28.23	1.48
1 5/8	40.00	2.10
2 1/8	69.55	3.65
2 5/8	107.27	5.64
3 1/8	152.73	8.05
3 5/8	207.27	10.91
4 1/8	269.10	14.14

Note: Recommended wire sizes are applicable for distances up 50 meters and maximum ambient temperature of 50 °C.



...Air Cooled Condenser



DIMENSIONS

Table 9

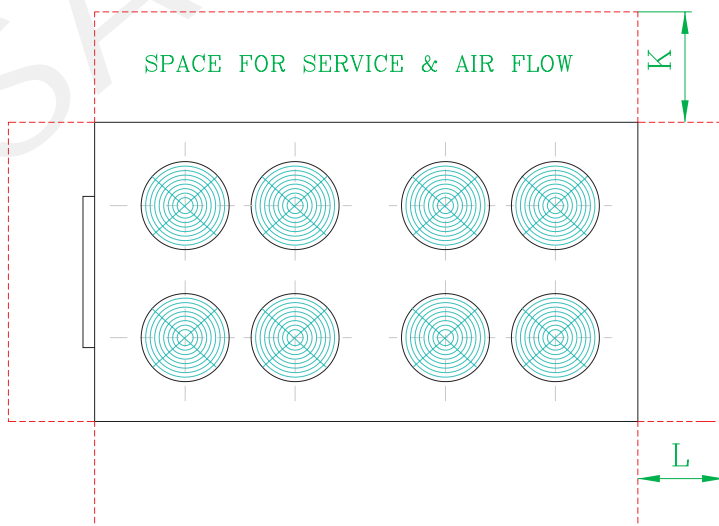
Model	A	B	C	D
SGAC-040	900	830	1260	580
SGAC-075	1300	980	1260	580
SGAC-110	1500	1205	1260	580
SGAC-150	1960	1205	1260	580
SGAC-225-1	2960	1205	1260	580
SGAC-225-2	1960	2415	1260	580
SGAC-300	1960	2415	1260	580
SGAC-375	2500	2415	1260	580
SGAC-450	2960	2415	1260	580
SGAC-600	4250	2415	1260	580
SGAC-750	5250	2415	1260	580
SGAC-900	6250	2415	1260	580
SGAC-1150	6250	2415	1290	580

Notes:

- 1- All dimensions in mm.
- 2- Given (K)&(L) values are the minimum allowable.

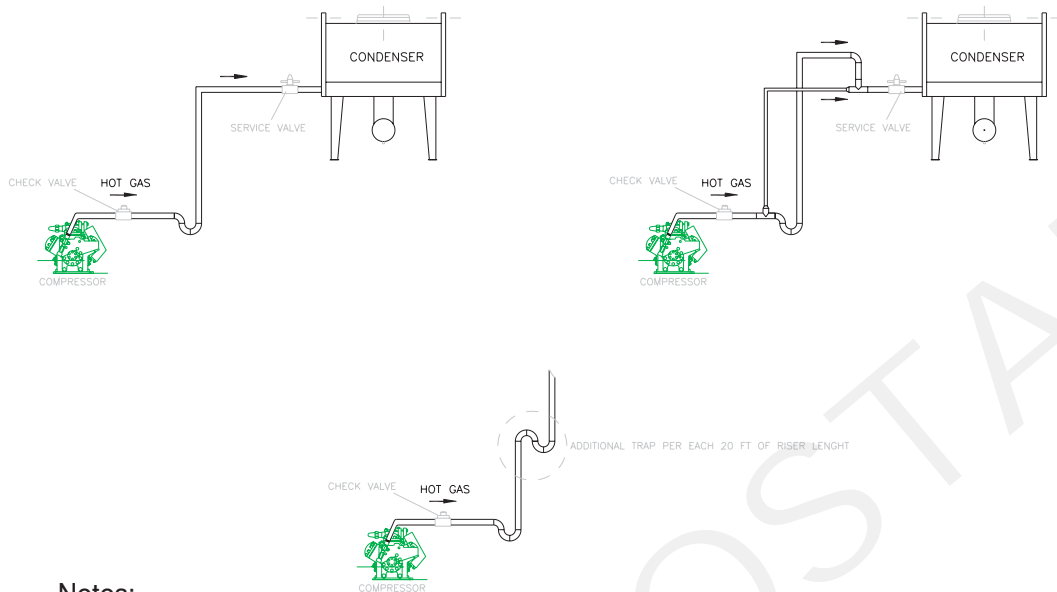
Table 10

Model	K	L
SGAC-040	1100	1000
SGAC-075	1300	1000
SGAC-110	1500	1000
SGAC-150	1500	1200
SGAC-225-1	1500	1200
SGAC-225-2	1500	1200
SGAC-300	1500	1200
SGAC-375	1500	1200
SGAC-450	1500	1200
SGAC-600	1500	1200
SGAC-750	1500	1200
SGAC-900	1500	1200
SGAC-1150	1500	1200





PIPING RECOMMENDATIONS



Notes:

- 1- All horizontal piping segments must be sloped 1/2 In. per each 10 Ft. of length in the direction of flow
- 2- For proper oil return back to compressor. Install air cooled condenser a minimum of (1m) above the compressor.

RECOMMENDED REFRIGERANT LINE SIZES O.D.(Inch)

Table11

Evaporator Cooling Capacity Btu/hr	Inlet Discharge Line Equivalent Length Ft.				Outlet Liquid Line Equivalent Length Ft.			
	50	100	150	200	50	100	150	200
18000	5/8	5/8	5/8	7/8	3/8	3/8	1/2	1/2
24000	5/8	7/8	7/8	7/8	3/8	1/2	1/2	1/2
36000	7/8	7/8	7/8	7/8	1/2	1/2	1/2	1/2
48000	7/8	7/8	7/8	1 1/8	1/2	5/8	5/8	5/8
60000	7/8	1 1/8	1 1/8	1 1/8	1/2	5/8	5/8	5/8
75000	7/8	1 1/8	1 1/8	1 1/8	1/2	5/8	5/8	5/8
100000	1 1/8	1 3/8	1 3/8	1 3/8	5/8	7/8	7/8	7/8
150000	1 1/8	1 3/8	1 3/8	1 3/8	7/8	7/8	7/8	7/8
200000	1 3/8	1 5/8	1 5/8	1 5/8	7/8	7/8	1 1/8	1 1/8
300000	1 3/8	1 5/8	1 5/8	2 1/8	1 1/8	1 1/8	1 1/8	1 1/8
400000	1 5/8	2 1/8	2 1/8	2 1/8	1 1/8	1 1/8	1 3/8	1 3/8
500000	2 1/8	2 1/8	2 1/8	2 1/8	1 1/8	1 3/8	1 3/8	1 3/8
600000	2 1/8	2 1/8	2 1/8	2 5/8	1 3/8	1 3/8	1 3/8	1 5/8
750000	2 1/8	2 5/8	2 5/8	2 5/8	1 5/8	1 5/8	1 5/8	1 5/8

Notes:

- 1- Table values are applicable for condensing temperatures of 80 to 135 °F
- 2- Given sizes are nominal and may be modified with design condition and the physical characteristics compressors used.



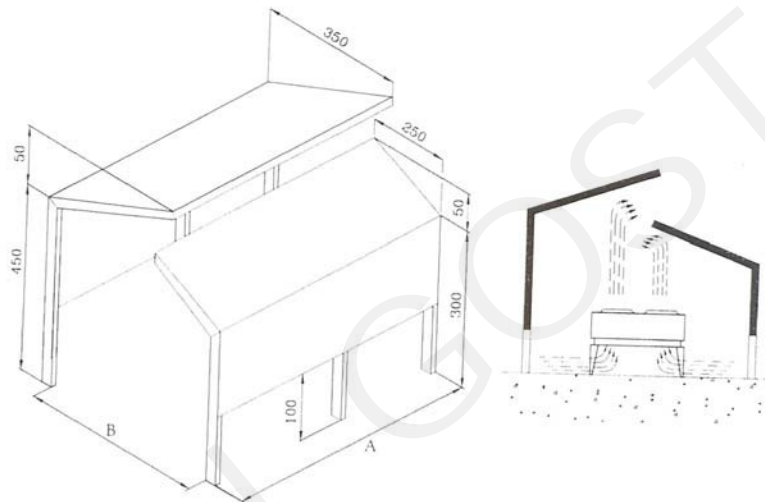
SCHEMATIC DRAWING OF SUGGESTED SHELTER

The following points must be observed:

1-The unit is to be installed where adequate amount of fresh air is available for circulation over the unit and the least amount of direct sun exposure and air obstructions are present where necessary a shelter shall be constructed.

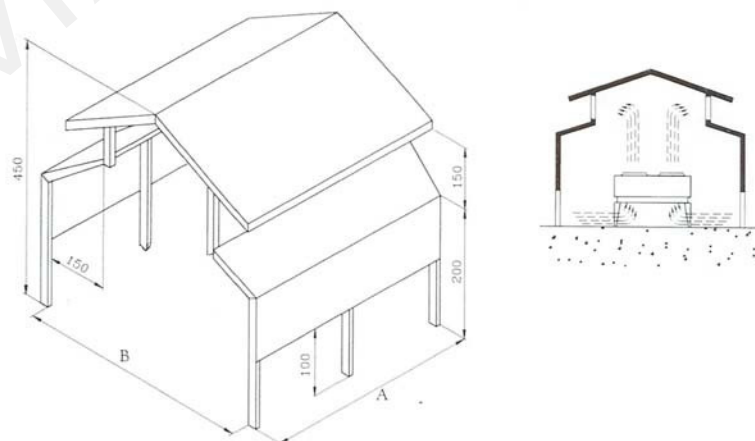
2-Sufficient free space must be considered for air intake and air discharge of each installed unit.

3- Adequate space for servicing must also be available.(see page 9)



Model	40	75	110	150	225-1	225-2	300	375	450	600	750	900	1150
A	170	200	250	300	400	300	300	350	400	500	600	700	700
B	200	250	300	300	300	550	550	550	550	550	550	550	550

Note:All dimensions in cm.



Model	40	75	110	150	225-1	225-2	300	375	450	600	750	900	1150
A	170	200	250	300	400	300	300	350	400	500	600	700	700
B	200	250	300	300	300	550	550	550	550	550	550	550	550

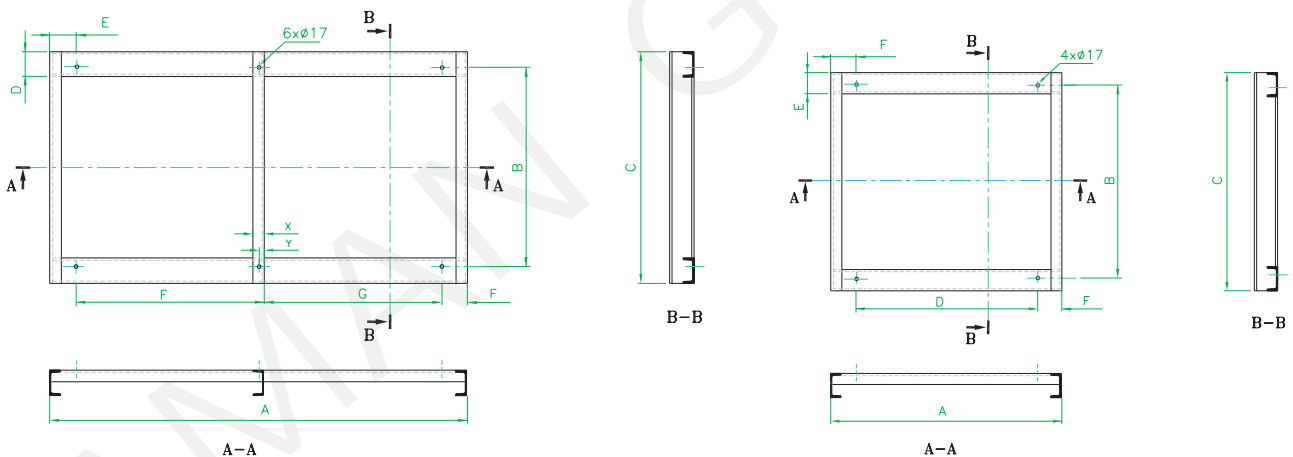
Note:All dimensions in cm.



UNIT FOUNDATION

- 1-Each unit must be installed completely level by itself and with respect to other connecting unit when installed on the ground asuitable concrete pad is mandatory in order to account for possible unit settling there by damaging related piping.
- 2-For roof installation sufficient structural strength of building is required rubber vibration dampers are recommended beneath the feet to prevent possible vibration transmission to the building structure.
- 3-Considering the installation locations conditions concrete foundation or metal frame support is available upon request.

STEEL FRAME FOUNDATION



Model	A	B	C	D	E	F	G	X	Y
SGAC-600	4260	2216	2310	120	100	2055	2005	50	25
SGAC-750	5260	2216	2320	140	100	2558	2502	57	28
SGAC-900	6260	2216	2320	140	100	3058	3002	57	28
SGAC-1150	6260	2216	2320	140	100	3058	3002	57	28

Note:All dimensions in mm.

Model	A	B	C	D	E	F
SGAC-040	910	680	780	750	100	80
SGAC-075	1310	830	930	1150	100	80
SGAC-110	1510	1060	2460	1350	100	80
SGAC-150	1940	1010	1110	1770	100	85
SGAC-225-1	2960	1010	1110	2770	100	85
SGAC-225-2	2960	1010	1110	2770	100	85
SGAC-300	1940	2216	2316	1770	100	85
SGAC-375	2480	2216	2316	2310	100	85
SGAC-450	2970	2216	2336	2770	120	100