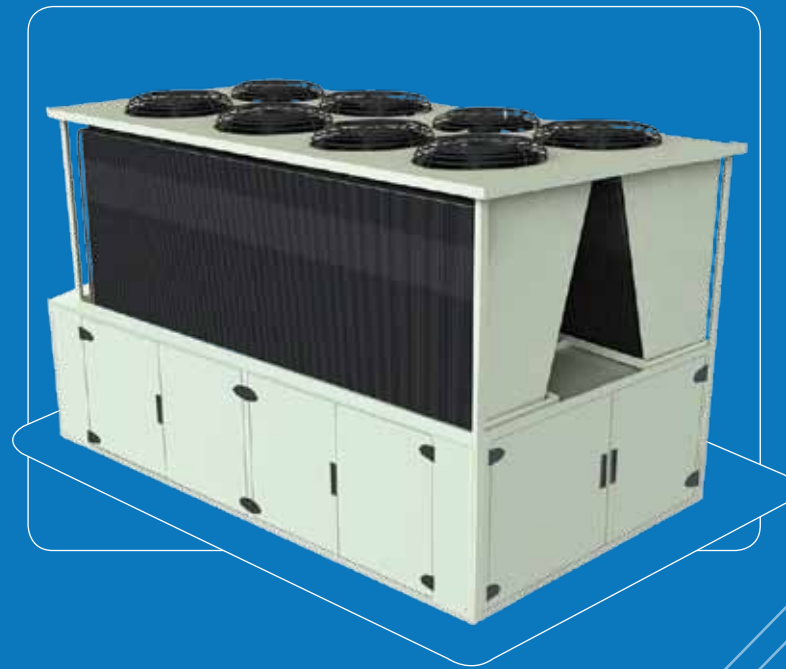


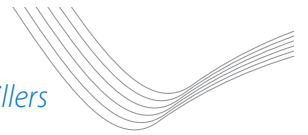


COMMERCIAL REFRIGERATION
AIR CONDITIONING AND HEATING SYSTEMS



M.K.M.ac
Air-Cooled Water Chillers
R-134A Series HC





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The new chillers series of Mkm CHDX HC R-134A are designed to meet the demand of high capacity air cooled high efficiency chillers.

All chillers are designed to stand in hard and rough condition of outdoor weather.

CHDX HC Series air-cooled chillers are highly efficient utilizing Screw compressors, high heat transfer shell & tube evaporators, and high low noise flow condenser fans.

The Chiller use friendly and intelligent control system to ensure trouble-free operation of the equipment.

All HC series systems are equipped with top quality controlled microprocessor and electronic expansion valve that can deliver precise flow of refrigerant to the evaporator in all time.

The microprocessor assures accurate temperature control and the equipment operating in precise and reliable way.

► FEATURES

Structure type

Series HC consists of galvanized lightweight Steel with double coatings epoxy painting.

Compressors

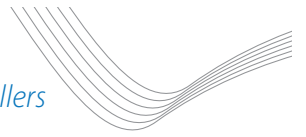
Screw high C.O.P
 Low noise operation
 Complete motor protection
 External vibration absorbers
 Full electronic control
 Oil level indicator
 Oil level switch
 Temperature and windings phase sequence switch

Axial Fans

External rotor low noise type axial fans equipped with three phase direct drive VSD and provided with a protective outlet grille.

Evaporator

Evaporator built with high efficiency shell & tube type heat exchanger with copper tubing With a U type formation.



Condenser

Constructed of seamless 3/8" (5/8" option) copper tubes, corrugated edge aluminum fins, and galvanized steel or stainless steel frames by demand. Tubes are mechanically expanded into die-formed fin collars, providing a uniform mechanical bond that assures maximum heat transfer efficiency.

Refrigerant System

High-quality, carefully selected components ensure reliable and efficient system operation.

The system includes:

- Electronic expansion valve
- Refrigerant charge indicator
- All the necessary pressure protections
- All the necessary electrical protections
- All the necessary flow protections

Electrical Panel

Electric panel consist of:

Electric panel consist of:

- Compressor contactor,
- Compressor protection breaker,
- Fan motor contactor or vsd,
- Fan protection breaker,
- Phase sequence relay

Reliable microprocessor temperature control unit with full function display which dramatically reducing maintenance and operating cost thanks to its microprocessor intelligent system

Hydraulic Kit and Circuit pump [as an option]

Hydraulic kit including single or double pumps,

Expansion tank and storage tank by demand

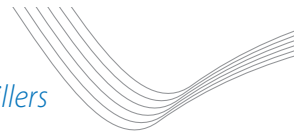
Hydraulic circuit built with plastic or steel pipe complete with water connection flange type hydraulic connectors in two directions easy for connections from both sides of the units.

For special applications, please contact our Engineering Department, or Sales Manager.

Series		CHDX HC			
Model		CH090	CH120	CH150	CH180
Cooling	kW	311	427	529	636
	kBTU/Hr	1062	1458	1807	2172
Condenser					
Coil					
Copper Tubes ⁽²⁾		3/8"	3/8"	3/8"	3/8"
Rows Deep ⁽³⁾		3	3	4	4
Fins ⁽⁴⁾	FPI	12	12	12	12
	SQ.M.	17.2	24.4	26.4	32.8
Total Face-Area	SQ.FT.	183.6	262.4	283.6	354.4
No. of Coils		4	4	4	4
Fans					
Normal Air Flow (Total)	m ³ /h	170000	224400	221000	261830
	CFM	100000	132000	130000	154020
Diameter	mm	800	800	800	800
Motor	kW	1.9	1.9	1.9	1.9
Quantity		8	10	10	12
Compresor					
Refrigerant		R-134A			
Type		Screw			
Quantity		2	2	2	2
Power consupction	kW	51.8	71.8	88.5	105.7
No. Cooling Circuits		2	2	2	2
Evaporator					
Type		Shell & Tube			
Chilled Water Temp.	°C	7	7	7	7
	°F	44.6	44.6	44.6	44.6
Nominal Water Flow	m ³ /h	53	73	91	109
	GPM	235	323	401	482
Pressure Drop	mH ₂ O	31	23	40	23
No. of Circuits		2	2	2	2
Fouling Factor	m ² *°K/W	0.000086	0.000086	0.000086	0.000086
	ft ² *Hr*°F/BTU	0.0005	0.0005	0.0005	0.0005
Dimensions					
Length	cm	435	535	575	635
Width	cm	240	240	240	240
Height	cm	230	245	250	275
Weight	kg	3700	4800	5300	6400

▲ Notes:

1. Capacities are according to: Outdoor Air temp. DB=35°C WB=25°C Water Temperature Rise is 5°C
2. Copper Tubes 5/8" to Condenser Coil is Optional
3. Different Rows Deep of Condenser Coil is Optional
4. 10 Fins per inch of Condenser Coil is Optional
5. Unit are Available for High Ambient Temperature to 45°C with Different Condenser Configuration
6. Preliminary Data, Subject to Change without Notice



► Electrical Data for Basic model (without Pump)

Model		CH090	CH120	CH150	CH180
Power Input	kW	119	163	196	234



Performance

Refrigerant		R-134A
Cooling capacity	kW	311
	kBTU/Hr	1062
Power consumption	kW	104
Operating current	A	184
C.O.P		3

Notes:

1. Nominal cooling capacity based on outdoor air temp. DB=35°C WB=24°C
2. Water Temperature Rise is 5°C
3. Power supply 400v, 3ph, 50hz

Technical Data

Compressor	type	Screw
	Quantity	2
No. Cooling Circuits		2
Capacity Control ^{(2) (3)}	%	0-25-50-75-100
Evaporator ⁽¹⁾		
Type		Shell & Tube
Quantity		1
No. of Circuits		2
Pressure Drop	kPa	31
Condenser Coil		
Quantity		4
Rows Deep		3
Fins ⁽⁴⁾	FPI	12
Each Face Area	m ²	4.3
	ft ²	45.9
Axial fan		
Diameter	mm	800
Quantity		8
Air flow	m ³ /hr	21250
	cfm	12500
Motor	kW	1.9
	RPM	920

Dimensions

Length	cm	435
Width	cm	240
Height	cm	230
Weight	kg	3700
Water Connection ⁽¹⁾	inch	4

Note:

1. Connect Pipe can be Ordered from the Right or Left Side

Notes:

1. Fouling Factor 0.0005 ft²*Hr*°F/BTU (0.000086 m²*°K/W)
2. Capacity Control for each Compressor
3. Staples Capacity Control
4. 10 Fins per inch of Condenser Coil is Optional

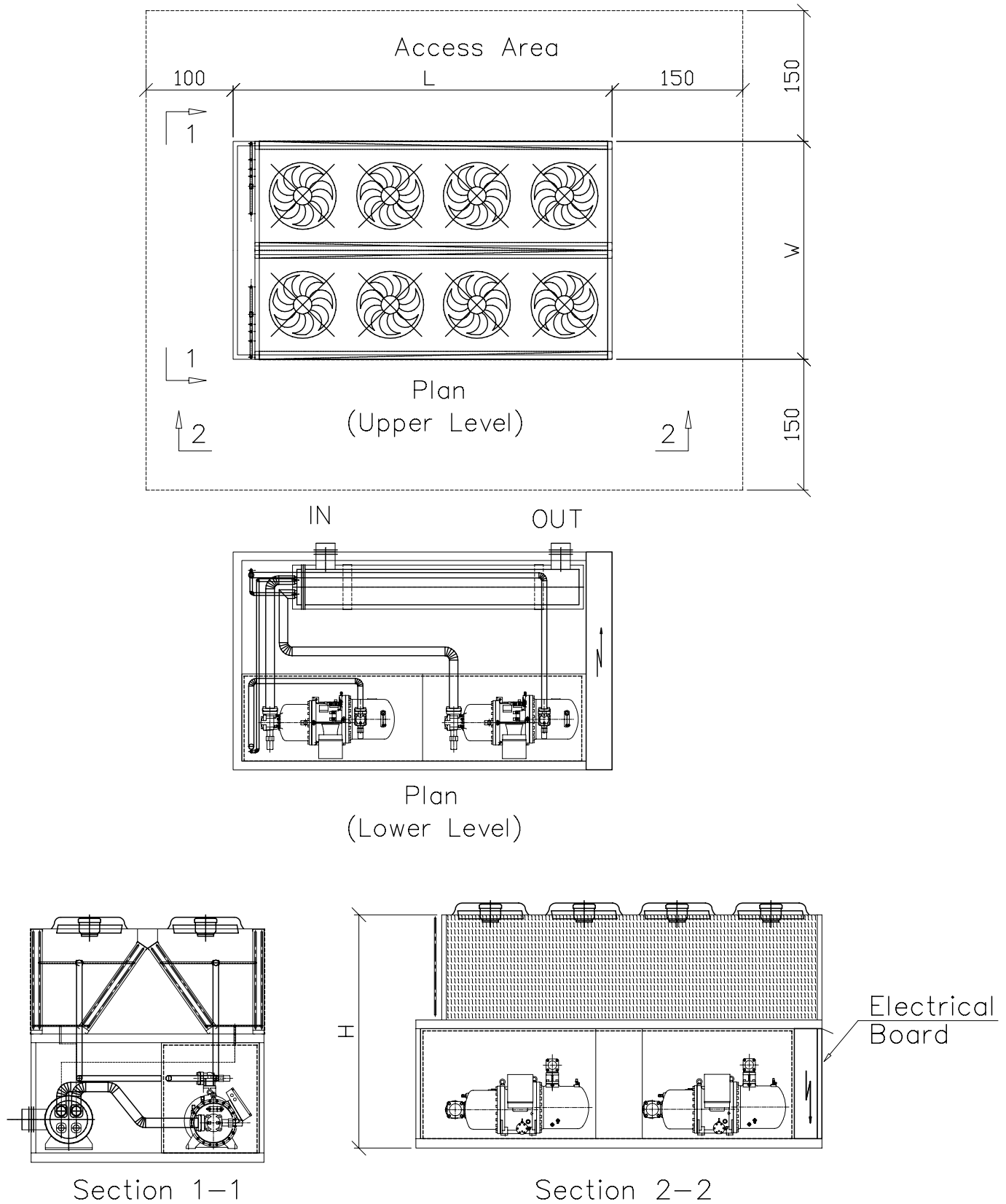
Cooling Capacity - (Capacities are According to A.R.I. Standard)

Refrigerant		R-134A					
Leaving Chilled	CWS , °C	5	6	7	8	9	10
Water Temperature	CWS , °F	41	42.8	44.6	46.4	48.2	50
Outside Air Temp °C (°F)							
30 (86)	CC	307	320	327	340	354	368
	G	232	242	248	257	268	279
	KW	96	97	97	98	99	99
35 (95)	CC	292	305	311	324	338	352
	G	221	231	235	245	256	267
	KW	102	103	104	104	105	106
40 (104)	CC	272	284	290	302	315	329
	G	206	215	220	229	238	249
	KW	112	113	113	114	115	116

CC-Cooling Capacity, kBTU/Hr
G-Nominal Water Flow, gpm
KW-Compressor Power Input, kW

▲ Note: 1. Nominal Water Flow Based on Water Temperature Rise is 5°C

► Model : CH-090



Performance		
Refrigerant		R-134A
Cooling capacity	kW	427
	kBTU/Hr	1458
Power consumption	kW	144
Operating current	A	251
C.O.P		3

◀ Notes:

1. Nominal cooling capacity based on outdoor air temp. DB=35°C WB=24°C
2. Water Temperature Rise is 5°C
3. Power supply 400v, 3ph, 50hz

Technical Data		
Compressor	type	Screw
	Quantity	2
No. Cooling Circuits		2
Capacity Control ^{(2) (3)}	%	0-25-50-75-100
Evaporator ⁽¹⁾		
Type		Shell & Tube
Quantity		1
No. of Circuits		2
Pressure Drop	kPa	23
Condenser Coil		
Quantity		4
Rows Deep		3
Fins ⁽⁴⁾	FPI	12
Each Face Area	m ²	6.1
	ft ²	65.6
Axial fan		
Diameter	mm	800
Quantity		10
Air flow	m ³ /hr	22440
	cfm	13200
Motor	kW	1.9
	RPM	920

Dimensions		
Length	cm	535
Width	cm	240
Height	cm	245
Weight	kg	4800
Water Connection ⁽¹⁾	inch	6

▲ Note:

1. Connect Pipe can be Ordered from the Right or Left Side

◀ Notes:

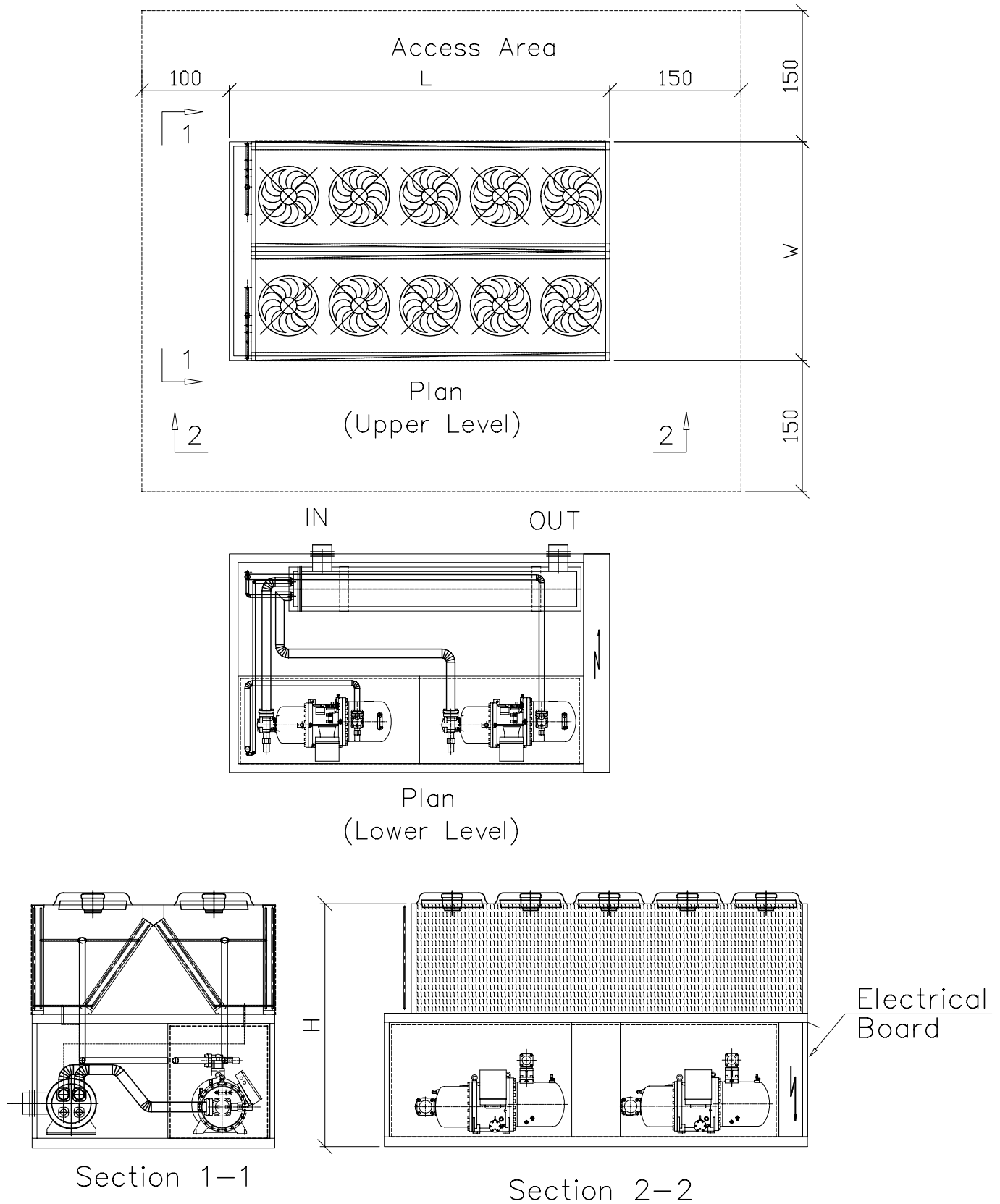
1. Fouling Factor 0.0005 ft²*Hr*°F/BTU (0.000086 m²*°K/W)
2. Capacity Control for each Compressor
3. Staples Capacity Control
4. 10 Fins per inch of Condenser Coil is Optional

Cooling Capacity - (Capacities are According to A.R.I. Standard)							
Refrigerant		R-134A					
Leaving Chilled	CWS , °C	5	6	7	8	9	10
Water Temperature	CWS , °F	41	42.8	44.6	46.4	48.2	50
Outside Air Temp °C (°F)							
30 (86)	CC	421	439	448	466	485	505
	G	319	332	339	353	367	382
	KW	133	134	135	136	137	138
35 (95)	CC	401	418	427	445	463	482
	G	304	316	323	337	351	365
	KW	142	143	144	145	146	147
40 (104)	CC	373	389	398	415	432	451
	G	282	295	301	314	327	341
	KW	156	157	157	159	160	161

CC-Cooling Capacity, kBTU/Hr
G-Nominal Water Flow, gpm
KW-Compressor Power Input, kW

▲ Note: 1. Nominal Water Flow Based on Water Temperature Rise is 5°C

► Model : CH-120



Performance		
Refrigerant		R-134A
Cooling capacity	kW	529
	kBTU/Hr	1807
Power consumption	kW	177
Operating current	A	307
C.O.P		3

Notes:

1. Nominal cooling capacity based on outdoor air temp. DB=35°C WB=24°C
2. Water Temperature Rise is 5°C
3. Power supply 400v, 3ph, 50hz

Technical Data		
Compressor	type	Screw
	Quantity	2
No. Cooling Circuits		2
Capacity Control ^{(2) (3)}	%	0-25-50-75-100
Evaporator ⁽¹⁾		
Type		Shell & Tube
Quantity		1
No. of Circuits		2
Pressure Drop	kPa	40
Condenser Coil		
Quantity		4
Rows Deep		4
Fins ⁽⁴⁾	FPI	12
Each Face Area	m ²	6.6
	ft ²	70.9
Axial fan		
Diameter	mm	800
Quantity		10
Air flow	m ³ /hr	22100
	cfm	13000
Motor	kW	1.9
	RPM	920

Dimensions		
Length	cm	575
Width	cm	240
Height	cm	250
Weight	kg	5300
Water Connection ⁽¹⁾	inch	6

Note:

1. Connect Pipe can be Ordered from the Right or Left Side

Notes:

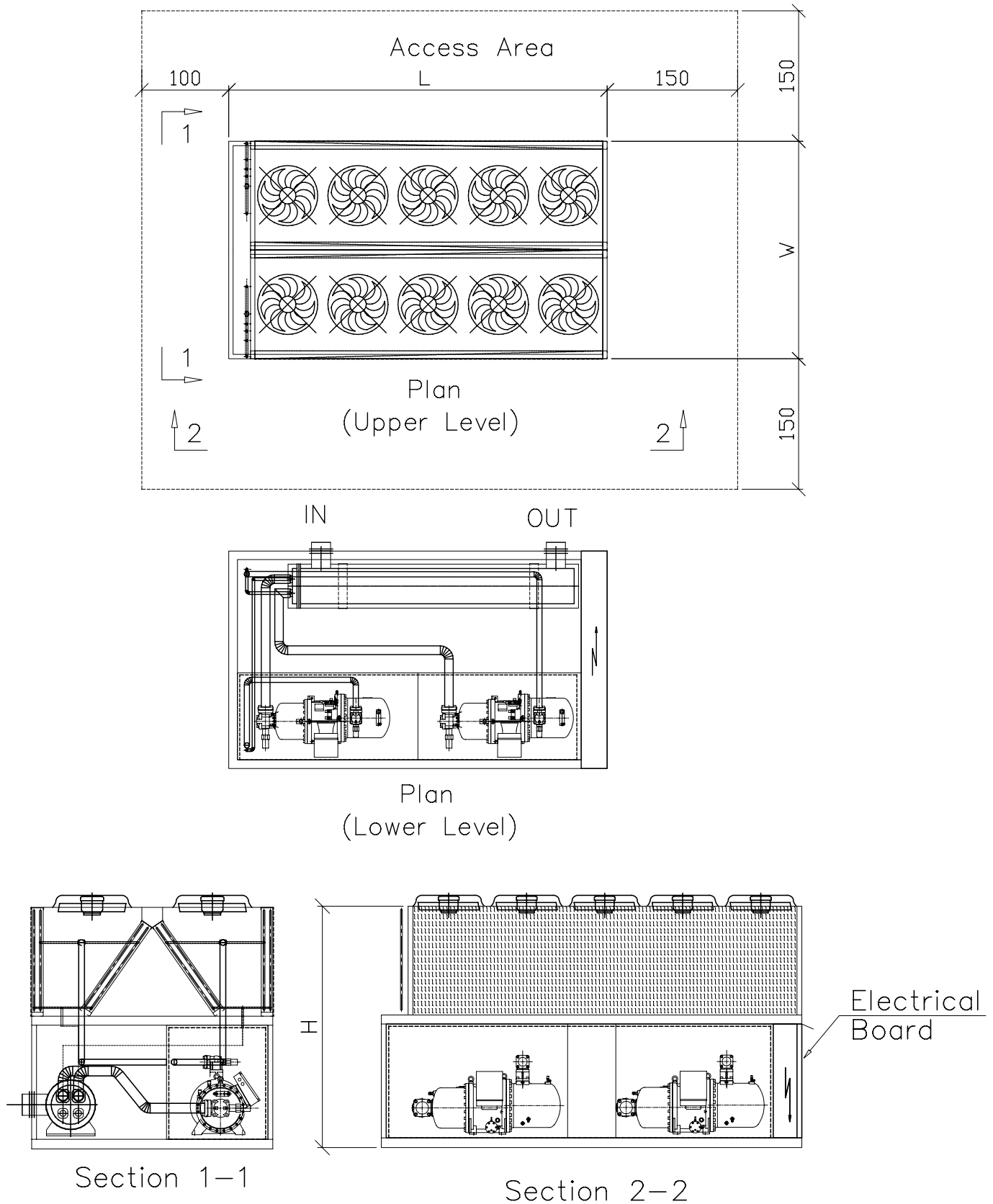
1. Fouling Factor 0.0005 ft²*Hr*°F/BTU (0.000086 m²*°K/W)
2. Capacity Control for each Compressor
3. Staples Capacity Control
4. 10 Fins per inch of Condenser Coil is Optional

Cooling Capacity - (Capacities are According to A.R.I. Standard)							
Refrigerant		R-134A					
Leaving Chilled	CWS , °C	5	6	7	8	9	10
Water Temperature	CWS , °F	41	42.8	44.6	46.4	48.2	50
Outside Air Temp °C (°F)							
30 (86)	CC	522	544	555	578	602	626
	G	395	412	420	438	456	474
	KW	164	165	166	167	168	170
35 (95)	CC	497	518	529	551	574	598
	G	376	392	401	417	435	453
	KW	175	176	177	178	180	181
40 (104)	CC	462	482	493	514	536	559
	G	350	365	373	389	406	423
	KW	192	193	194	195	197	198

CC-Cooling Capacity, kBTU/Hr
G-Nominal Water Flow, gpm
KW-Compressor Power Input, kW

▲ Note: 1. Nominal Water Flow Based on Water Temperature Rise is 5°C

► Model : CH-150



Performance		
Refrigerant		R-134A
Cooling capacity	kW	636
	kBTU/Hr	2172
Power consumption	kW	211
Operating current	A	367
C.O.P		3

Notes:

1. Nominal cooling capacity based on outdoor air temp. DB=35°C WB=24°C
2. Water Temperature Rise is 5°C
3. Power supply 400v, 3ph, 50hz

Technical Data		
Compressor	type	Screw
	Quantity	2
No. Cooling Circuits		2
Capacity Control ^{(2) (3)}	%	0-25-50-75-100
Evaporator ⁽¹⁾		
Type		Shell & Tube
Quantity		1
No. of Circuits		2
Pressure Drop	kPa	23
Condenser Coil		
Quantity		4
Rows Deep		4
Fins ⁽⁴⁾	FPI	12
Each Face Area	m ²	8.2
	ft ²	88.6
Axial fan		
Diameter	mm	800
Quantity		12
Air flow	m ³ /hr	21820
	cfm	12835
Motor	kW	1.9
	RPM	920

Dimensions		
Length	cm	635
Width	cm	240
Height	cm	275
Weight	kg	6400
Water Connection ⁽¹⁾	inch	6

Note:

1. Connect Pipe can be Ordered from the Right or Left Side

Notes:

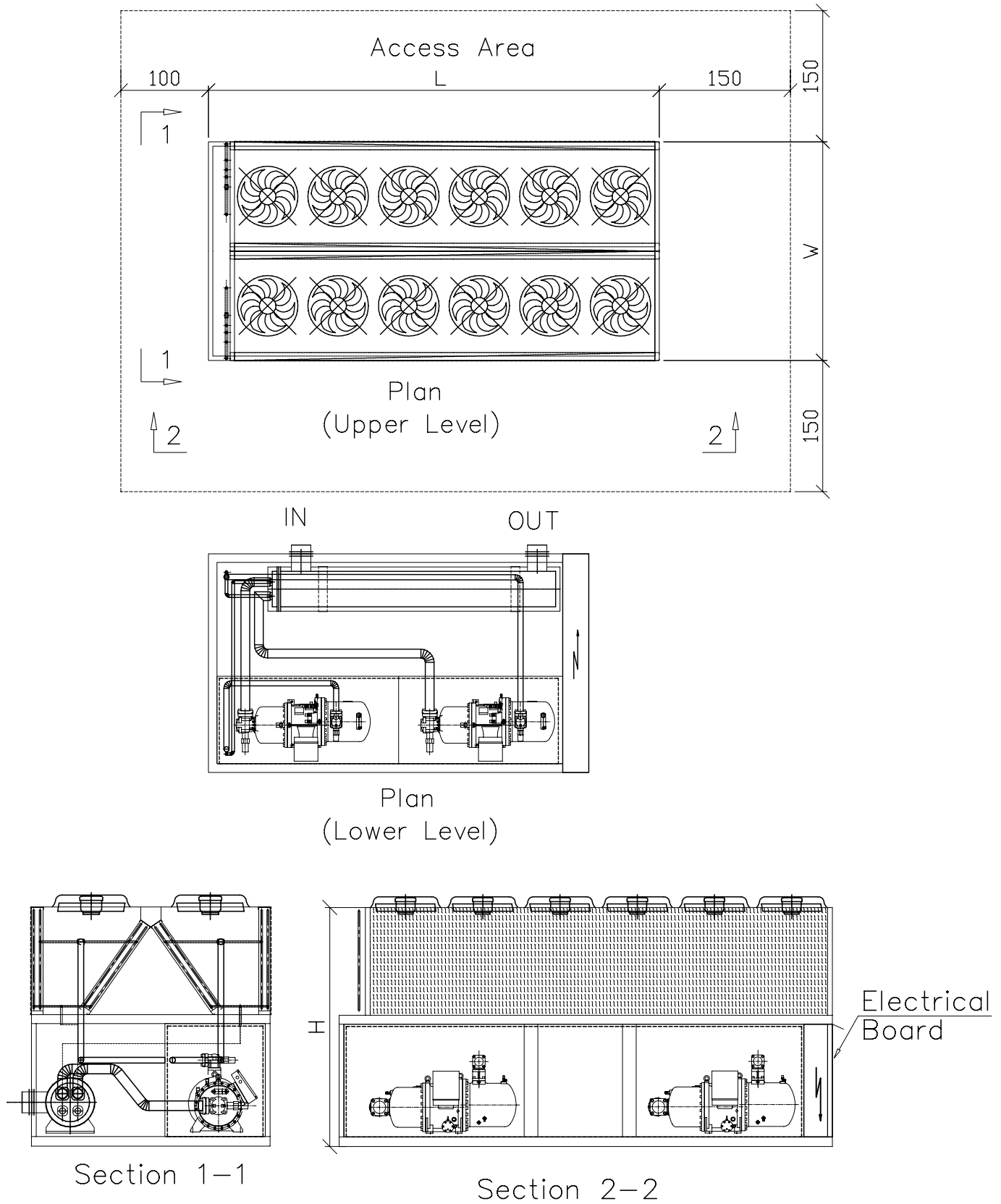
1. Fouling Factor 0.0005 ft²*Hr*°F/BTU (0.000086 m²*°K/W)
2. Capacity Control for each Compressor
3. Staples Capacity Control
4. 10 Fins per inch of Condenser Coil is Optional

Cooling Capacity - (Capacities are According to A.R.I. Standard)							
Refrigerant		R-134A					
Leaving Chilled	CWS , °C	5	6	7	8	9	10
Water Temperature	CWS , °F	41	42.8	44.6	46.4	48.2	50
Outside Air Temp °C (°F)							
30 (86)	CC	627	653	667	695	723	752
	G	475	494	505	526	547	569
	KW	196	197	198	200	201	209
35 (95)	CC	597	623	636	663	690	718
	G	452	472	482	502	522	544
	KW	209	210	211	213	215	216
40 (104)	CC	555	580	592	618	644	671
	G	420	439	448	468	488	508
	KW	229	231	232	233	235	237

CC-Cooling Capacity, kBTU/Hr
G-Nominal Water Flow, gpm
KW-Compressor Power Input, kW

▲ Note: 1. Nominal Water Flow Based on Water Temperature Rise is 5°C

► Model : CH-180





MKM

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