

GOLDEN STAR[®]

**THE SAUDI FACTORY FOR
AIR CONDITIONING EQUIPMENT**



HIGH EFFICIENCY - H SERIES

AIR COOLED CONDENSING UNITS

HERMETIC RECIPROCATING / SCROLL COMPRESSOR

12 THRU 30 TON

(50-60 Hz)

DESCRIPTION/APPLICATION

This High Efficiency Condensing Unit is ruggedly design for outdoor ground level or roof top installation. This series is highly recommended whenever energy conservation is the main design factor. This condensing unit has a SEER's as high as 9.0 and are available in nominal cooling capacity from 151,100 to 366,800 Btuh. All the unit is design for hermetic compressor and high efficiency aluminum fin condenser coil, and ideally suited for residential and light commercial applications. Each condensing units is completely factory assembled, wired, tested and shipped with an operating charge of refrigerant 22.

The wide range of condensing unit and evaporator blower or coil sizes available permits system to be matched closely to specific air conditioning load requirements. The flexibility of component selection can result in great savings in both initial and operating cost.

CABINET CONSTRUCTION

The High Efficiency Series Unit is house in a weather resistant cabinet fabricated from die-formed, galvanized steel panels. The cabinet features side intake, top air discharge. A separate compartment protects the internally wired controls. The cabinet base provides a sturdy foundation and simplified installation of the unit on a concrete slab or floor.

COMPRESSOR

A Hermetically Sealed Reciprocating/Scroll Compressor is used for all models. The compressor motor is equipped with inherent overheat/overload protection in the windings. Compressors are arranged in two independent refrigerant circuits.

CONDENSER COIL

Aluminum fins are bonded to a copper tube to achieve the highest heat transfer efficiency of the condenser coil. Since the number of joints are reduced due to U form condenser coil, (compared to a plate fin coil with return bends), the possibility of refrigerant loss is also reduce. A weather resistant vinyl-coated wrap-around inlet grille protects the condenser coil.

CONDENSER FAN AND MOTOR

An aluminum propeller fan moves condenser air through the coil. The multi-blade fan is directly coupled to the motor drive.

CONTROL

Pre-wired controls include the compressor and fan motor contactor, fan motor capacitor and compressor motor capacitor. The control circuit is designed for **24** volt operation.

REFRIGERANT CIRCUIT

The unit suction and discharge refrigerant lines terminate in compressor fittings. Liquid and suction isolation valves are provided, thereby allowing the refrigerant charge to be stored in the condensing unit and isolating the interconnecting tubing and low side. Schraeder valves are provided for pressure gauge connections.

STANDARD FEATURES

- * Quiet Operating Top Discharge
- * Copper Tube & Aluminum Fin Construction
- * Brass Suction & Liquid Line Shut Off Valves
- * Sweat Connections
- * Air over Permanently Lubricated Condenser Motor
- * Isolated Compressor Compartment
- * Hi-Efficiency Performance
- * Hermetically Sealed Compressor
- * Dual refrigerant circuit.

OPTIONAL

- * Solid State Fan Speed Control (low ambient)
- * Electronic Programmable Thermostat
- * 5 min. Integral Lockout Timer
- * HP/LP Cut-outs
- * Crankcase Heater
- * Condenser Coil with Copper Fins or Protective Coated
- * Hot gas bypass for capacity control
- * Solid state compressor protection module
- * Compressor circuit breakers
- * Hail Guard protection for condenser coil.

ELECTRICAL DATA, 3PH, 50 HZ.

MODEL	VOLTS	COMPRESSOR (1)				CONDENSER FAN			WIRE AMPACITY	MAXIMUM OVERCURRENT PROTECTION
		QTY	HP	RLA	LRA	QTY	HP	FLA(Each)		
RCD-12H	200/240	2	6.0	18.3	158	2	3/4	3.0	47.2	60
	380/420	2	6.0	9.2	79	2	3/4	1.9/1.5	24.5	30
RCD-15H	200/240	2	7.5	30.1	183	2	3/4	3.0	73.7	100
	380/420	2	7.5	15.8	91.1	2	3/4	1.9/1.5	39.35	50
RCD-16H	200/240	2	7.5	30.1	183	2	1	4.0	75.7	100
	380/420	2	7.5	15.8	91.1	2	1	2.4/2.0	40.4	50
RCD-18H	200/240	2	9.0	30.1	183	2	1	4.0	75.7	100
	380/420	2	9.0	15.8	91.1	2	1	2.4/2.0	40.3	50
RCD-22H	200/240	2	10.0	38.5	193	2	1 1/2	6.7	100.0	125
	380/420	2	10.0	19.3	96.5	2	1 1/2	4.8/3.3	53.0	75
RCD-25H	200/240	2	12.0	42.1	207	4	3/4	3.0	106.7	125
	380/420	2	12.0	21.1	104	4	3/4	1.9/1.5	55.0	75
RCD-30H	200/240	4	7.5	30.1	183	4	3/4	3.0	139.9	175
	380/420	4	7.5	15.8	91.1	4	3/4	1.9/1.5	74.7	100

HP Horse Power (Nominal) LRA Locked Rotor Amps Voltage Range, 200/240 - Min. 180V, Max. 264V
 RLA Rated Load Amps FLA Full Load Amps 380/420 - Min. 342V, Max. 462V

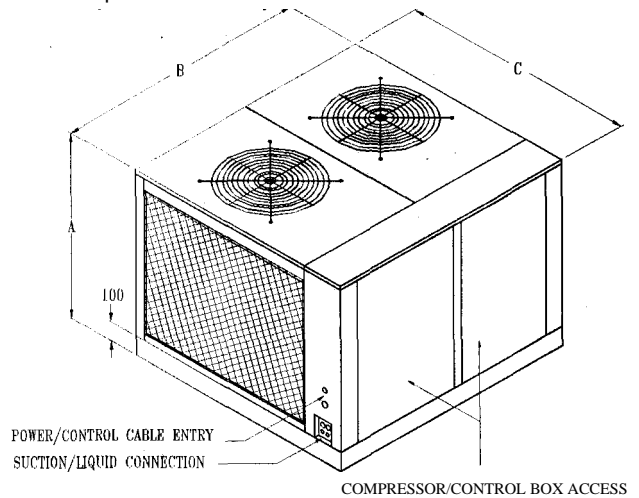
Note : 1. Consult Factory for scroll compressor data.
 2. Suffix 'S' denotes the model for Scroll Compressor.

ELECTRICAL DATA, 3 PH, 60HZ

MODEL	VOLTS	COMPRESSOR (2)				COND.FAN			WIRE AMPACITY	MAXIMUM OVERCURRENT PROTECTION
		QTY	HP	RLA(EACH)	RLA (EACH)	QTY	HP	FLA (EACH)		
RCD-12H	208/230	2	6	18.3	158	2	3/4	3.2	47.5	60
	380/460	2	6	9.2	79	2	3/4	2.0/1.6	24.7	30
RCD-15H	208/230	2	7.5	30.1	183	2	3/4	3.2	74.1	100
	380/460	2	7.5	15.8	91.1	2	3/4	2.0/1.6	39.6	50
RCD-16H	208/230	2	7.5	30.1	183	2	1	4.2	76	100
	380/460	2	7.5	15.8	91.1	2	1	2.5/2.1	41	50
RCD-18H	208/230	2	9.0	30.1	183	2	1	4.2	76	100
	380/460	2	9.0	15.8	91.1	2	1	2.5/2.1	41	50
RCD-22H	208/230	2	10.0	38.5	193	2	1 1/2	7	101	125
	380/460	2	10.0	19.3	96.5	2	1 1/2	5.0/3.5	54	75
RCD-25H	208/230	2	12.0	42.1	207	4	3/4	3.2	108	130
	380/460	2	12.0	21.1	104	4	3/4	2.0/1.6	56	75
RCD-30H	208/230	4	7.5	30.1	183	4	3/4	3.2	141	175
	380/460	4	7.5	15.8	91.1	4	3/4	2.0/1.6	75	100

Voltage : 208/230 -Min.187 V.,Max.253V. Note: 1. RCD-12/30,380V/3Ph/60Hz Application Consult Factory.
 Range 380 -Min. 342 V., Max. 462V. 2. Consult Factory for scroll compressor data.
 460 - Min. 414 V., Max. 506 V.

MODEL	A	B	C	LIQUID (In)	SUCTION (In)	TYPE
RCD-12H	1089	1800	1370	2x1/2	2x7/8	SWEAT
RCD-15H	1089	1800	1500	2x1/2	2x1 1/8	"
RCD-16H	1089	1800	1500	2x1/2	2x1 1/8	"
RCD-18H	1190	1800	1625	2x5/8	2x1 1/8	"
RCD-22H	1190	1800	1625	2x5/8	2x1 1/8	"
RCD-25H	1190	1800	2077	2x5/8	2x1 3/8	"
RCD-30H	1190	1800	2077	2x7/8	2x1 3/8	"



Note: Dimensions are in mm.

PHYSICAL DATA

MODEL	RCD	12H	15H	16H	18H	22H	25H	30H
Compressor (Reciprocating hermetic) (1)	HP @ cir. 1	6	7.5	7.5	9	10	12	2x 7.5
	HP @ cir. 2	6	7.5	7.5	9	10	12	2x 7.5
	Crank case htr (watts)	40	70	70	70	70	70	70
	Oil charge (oz)	65	106	106	106	106	106	65
Condenser coil	Tube dia	3/8" Enhanced						
	Rows	2	2	2	2	2	2	3
	Fins/inch	12	15	15	14	14	12	12
	Total area (ft ²)	20	22.5	22.5	27.8	27.8	37.8	37.8
Condenser fan & motor (2)	Qty	2	2	2	2	2	4	4
	Fan dia	24	24	26	26	26	24	24
	Motor hp	3/4	3/4	1	1	1 1/2	3/4	3/4
	Rpm	1075	1075	1140	1140	1140	1075	1075
Refrigerant charge R-22(3)	Lbs/cir.	13	16	16	18	21	26	35
Operating weight	Kg	449	514	537	575	594	674	762

NOTE: 1. Oil charge/crank case heater per compressor. Consult Factory for scroll compressor data.
 2. Condenser fan direct driven, aluminum blade.
 3. Refrigerant charge for normal operating condition. Units supplied with holding charge.

CONDENSING UNIT CAPACITIES, 50 HZ.

MODEL RCD	TEMPERATURE AIR ENTERING CONDENSER (°F)															
	SST °F	85			95			105			115			120		
		CAP.	SCT	KW	CAP.	SCT	KW	CAP.	SCT	KW	CAP.	SCT	KW	CAP.	SCT	KW
RCD-12H	30	103.7	110	8.70	96.0	120	9.24	88.1	130	9.73	80.0	140	10.15	76.0	145	10.33
	35	114.9	111	9.00	106.7	121	9.61	98.3	131	10.17	89.7	141	10.67	85.4	146	10.89
	40	126.6	112	9.26	117.9	122	9.94	109.0	132	10.58	99.9	142	11.15	95.3	147	11.41
	45	138.8	113	9.48	129.7	123	10.23	120.2	133	10.95	110.0	143	11.60	105.6	148	11.91
	50	151.5	114	9.65	141.8	124	10.48	131.9	134	11.28	116.6	144	12.17	116.5	149	12.37
RCD-15H	30	112.6	110	10.78	100.4	120	11.18	88.8	130	11.50	77.8	140	11.72	72.5	145	11.77
	35	128.8	111	11.39	115.5	121	11.89	102.7	131	12.30	90.6	141	12.62	84.6	146	12.73
	40	144.8	112	12.02	130.0	122	12.62	116.5	132	13.12	103.1	142	13.64	96.5	147	13.71
	45	162.4	113	12.60	146.8	123	13.31	131.8	133	13.92	117.2	143	14.45	110.0	148	14.68
	50	180.8	114	13.14	164.1	124	13.97	148.0	134	14.72	132.16	144	15.37	124.3	149	15.66
RCD-16H	30	122.4	110	11.86	109.2	120	12.32	96.6	130	12.66	84.6	140	12.90	78.8	145	12.96
	35	140.5	111	12.53	125.7	121	13.09	111.7	131	13.54	98.4	141	13.89	91.9	146	14.01
	40	158.2	112	13.23	141.9	122	13.89	126.6	132	14.45	111.9	142	14.91	104.8	147	15.09
	45	176.4	113	13.88	160.0	123	14.65	143.3	133	15.34	127.3	143	15.93	119.5	148	16.18
	50	196.4	114	14.47	178.0	124	15.39	160.6	134	16.21	143.7	144	16.91	135.1	149	17.23
RCD-18H	30	138.4	110	13.70	123.6	120	14.20	109.4	130	14.60	95.8	140	14.88	89.3	145	14.94
	35	158.4	111	14.47	142.2	121	15.10	126.4	131	15.62	111.4	141	16.01	104.2	146	16.15
	40	178.2	112	15.27	160.5	122	16.03	143.2	132	16.66	126.8	142	17.18	118.8	147	17.40
	45	200.0	113	15.98	180.6	123	16.90	162.1	133	17.69	144.1	143	18.35	135.3	148	18.64
	50	222.0	114	16.68	201.9	124	17.74	181.9	134	18.68	162.5	144	19.49	152.9	149	19.86
RCD-22H	30	159.2	110	15.90	142.0	120	16.50	125.6	130	16.96	110.0	140	17.28	102.5	145	17.35
	35	181.7	111	16.79	163.3	121	17.53	145.3	131	18.14	128.0	141	18.61	119.6	146	18.77
	40	204.0	112	17.72	184.4	122	18.60	164.7	132	19.36	145.7	142	19.98	136.5	147	20.24
	45	229.4	113	18.58	207.5	123	19.59	186.3	133	20.50	165.5	143	21.38	155.4	148	21.68
	50	255.2	114	19.40	232.4	124	20.60	209.0	134	21.68	186.8	144	22.72	175.8	149	23.12
RCD-25H	30	200.0	110	20.20	181.6	120	21.20	164.0	130	22.00	146.8	140	22.80	138.5	145	23.00
	35	224.9	111	21.31	204.9	121	22.40	186.0	131	23.39	167.0	141	24.27	157.8	146	24.62
	40	249.6	112	22.44	228.0	122	23.64	207.8	132	24.80	186.9	142	25.80	176.8	147	26.30
	45	275.4	113	23.42	253.4	123	24.82	231.4	133	26.16	209.2	143	27.36	198.0	148	27.96
	50	304.4	114	24.56	280.4	124	26.04	256.4	134	27.56	232.4	144	28.88	220.4	149	29.48
RCD-30H	30	225.2	110	21.56	200.8	120	22.36	177.6	130	23.00	155.6	140	23.44	145.0	145	23.54
	35	257.6	111	22.78	231.0	121	23.78	205.4	131	24.60	181.2	141	25.24	169.2	146	25.46
	40	289.6	112	24.04	260.0	122	25.24	233.0	132	26.24	206.2	142	27.08	193.0	147	27.42
	45	324.8	113	25.20	293.6	123	26.62	263.6	133	27.84	234.4	143	28.90	220.0	148	29.36
	50	361.6	114	26.28	328.2	124	27.94	296.0	134	29.44	264.32	144	30.74	248.6	149	31.32

CAP - Capacity(1000Btuh)

KW - Compressor Motor Power Input

SCT - Saturated Condensing Temperature

SST - Saturated suction temperature shown

corresponding to the Pressure at the compressor.

Actual suction temperature is higher due to superheat.

Note: 1. Interpolation is permissible. Do not extrapolate.

2. Capacities based on hermetic compressor. Also can be consider for Scroll applications. Consult Factory for certified Performance.

CONDENSING UNIT CAPACITIES, 60 HZ.

MODEL RCD	SST	TEMPERATURE AIR ENTERING CONDENSER (°F)														
		85			95			105			115			120		
	°F	CAP	SCT	KW	CAP	SCT	KW	CAP	SCT.	KW	CAP	SCT	KW	CAP	SCT	KW
RCD-12H	30	118.4	110	10.14	108.4	120	10.62	98.4	130	11.00	87.9	140	11.25	82.3	145	11.29
	38	132.1	111	10.58	121.8	121	11.16	111.1	131	11.66	100.0	141	12.02	94.1	146	12.13
	40	146.7	112	10.96	135.9	122	11.67	124.8	132	12.29	113.0	142	12.77	106.8	147	12.95
	45	162.2	113	11.30	151.1	123	12.13	139.3	133	12.88	127.0	143	13.49	120.5	148	13.74
	50	178.5	114	11.57	166.9	124	12.54	154.8	134	13.42	141.8	144	14.17	135.1	149	14.50
RCD-15H	30	143.4	110	14.10	129.0	120	14.66	114.4	130	15.04	100.0	140	15.18	93.0	145	15.10
	35	162.2	111	14.83	146.6	121	15.51	130.1	131	16.01	115.5	141	16.28	108.0	146	16.29
	40	180.0	112	15.60	164.0	122	16.39	147.2	132	17.01	130.8	142	17.42	122.8	147	17.52
	45	202.2	113	16.37	183.4	123	17.26	165.4	133	17.99	147.7	143	18.50	139.0	148	18.68
	50	224.0	114	17.15	204.1	124	18.14	184.7	134	18.97	165.7	144	19.62	156.4	149	19.87
RCD-16H	30	153.4	110	15.20	137.8	120	15.82	122.4	130	16.20	106.8	140	16.34	99.4	145	16.27
	35	173.2	111	15.99	156.8	121	16.72	140.8	131	17.25	130.7	141	17.53	118.7	146	17.56
	40	191.5	112	16.81	175.5	122	17.66	157.4	132	18.33	139.9	142	18.76	131.1	147	18.88
	45	216.0	113	17.64	196.1	123	18.59	176.9	133	19.39	158.0	143	19.94	148.8	148	20.12
	50	239.2	114	18.48	218.0	124	19.57	197.6	134	20.52	177.2	144	21.16	167.2	149	21.36
RCD-18H	30	171.1	110	17.00	154.4	120	17.66	137.0	130	18.12	119.6	140	18.28	111.3	145	18.19
	35	194.0	111	17.88	175.3	121	18.69	156.8	131	19.29	138.3	141	19.64	129.3	146	19.64
	40	216.0	112	18.80	196.0	122	19.76	176.4	132	20.52	156.7	142	21.04	147.1	147	21.14
	45	241.4	113	19.74	219.4	123	20.84	197.7	133	21.64	177.0	143	22.32	166.7	148	22.52
	50	268.4	114	20.68	244.4	124	21.80	221.2	134	22.80	198.8	144	23.64	187.3	149	23.94
RCD-22H	30	193.4	110	20.00	174.0	120	20.80	154.2	130	21.40	134.8	140	21.60	125.4	145	21.50
	35	218.6	111	21.10	197.1	121	22.08	176.9	131	22.84	155.7	141	23.20	145.6	146	23.20
	40	243.6	112	22.24	221.6	122	23.40	199.3	132	24.32	176.4	142	24.80	165.6	147	24.94
	45	272.2	113	23.36	246.8	123	24.56	222.8	133	25.64	199.1	143	26.38	187.6	148	26.68
	50	301.6	114	24.44	275.6	124	25.88	249.6	134	27.00	223.6	144	27.92	210.6	149	28.32
RCD-25H	30	240.0	110	25.40	220.0	120	26.40	202.0	130	27.20	182.20	140	28.00	172.9	145	28.40
	35	264.8	111	26.71	246.0	121	27.80	225.9	131	28.80	205.0	141	29.79	194.9	146	30.24
	40	295.2	112	28.04	271.6	122	29.24	249.6	132	30.44	227.6	142	31.60	216.6	147	32.10
	45	324.8	113	29.42	300.8	123	30.76	276.8	133	32.02	252.8	143	33.36	240.8	148	33.96
	50	355.6	114	30.96	329.6	124	32.36	303.6	134	33.76	277.6	144	35.08	264.6	149	35.68
RCD-30H	30	286.8	110	28.20	258.0	120	29.32	228.8	130	30.08	200.0	140	30.36	186.0	145	30.20
	35	324.4	111	29.66	293.2	121	31.02	260.2	131	32.02	231.0	141	32.56	216.0	146	32.58
	40	360.0	112	31.20	328.0	122	32.78	294.4	132	34.02	276.0	142	34.84	245.6	147	35.04
	45	404.4	113	32.74	366.8	123	34.52	330.8	133	35.98	295.4	143	37.00	278.0	148	37.36
	50	448.0	114	34.30	408.2	124	36.28	369.4	134	37.94	331.4	144	39.24	312.8	149	39.74

CAP - Capacity(1000 Btuh)

KW - Compressor Motor Power Input

SCT - Saturated Condensing Temperature

SST - Saturated Suction Temperature shown corresponding to the pressure at the Compressor. Actual suction temperature is higher due to superheat.

Note: 1. Interpolation is permissible. Do not extrapolate.

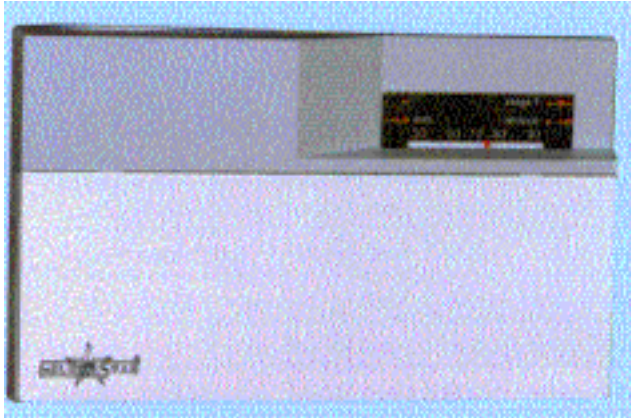
2. Capacities based on hermetic compressor. Also can be consider for Scroll applications. Consult Factory for certified Performance.

COMBINATION RATING INDEX (60 Hz)

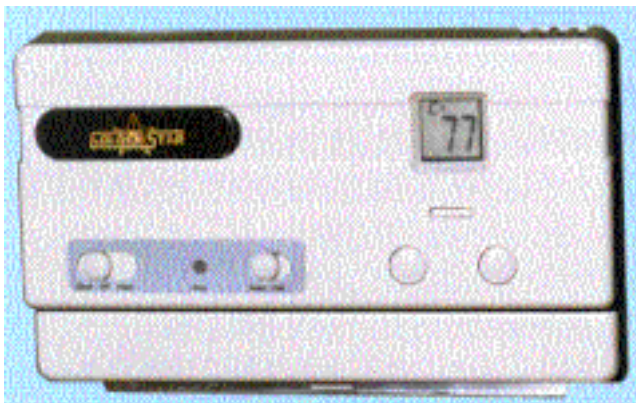
MODEL	NOMINAL CAPACITY (TONS)	EVAPORATOR			
		MODEL	COIL ROWS DEEP (l inch)	TOTAL BTUH	SENSIBLE BTUH
RCD-12H	12.6	GD-12/AT-6000	4	147,123	107,615
RCD-15H	15.3	GD-16/AT-6000	4	179,981	131,353
RCD-16H	16.3	GD-16/AT-6000	4	191,116	139,952
RCD-18H	18.3	GD-16/AT-8000	4	212,229	157,057
RCD-22H	20.6	GD-20/AT-8000	4	239,495	176,162
RCD-25H	25.0	GD-24/AT-12000	4	293,264	215,206
RCD-30H	30.6	GD-30/AT-18000	4	354,092	261,802

For 50Hz. application, multiply capacity by 0.85

THERMOSTAT



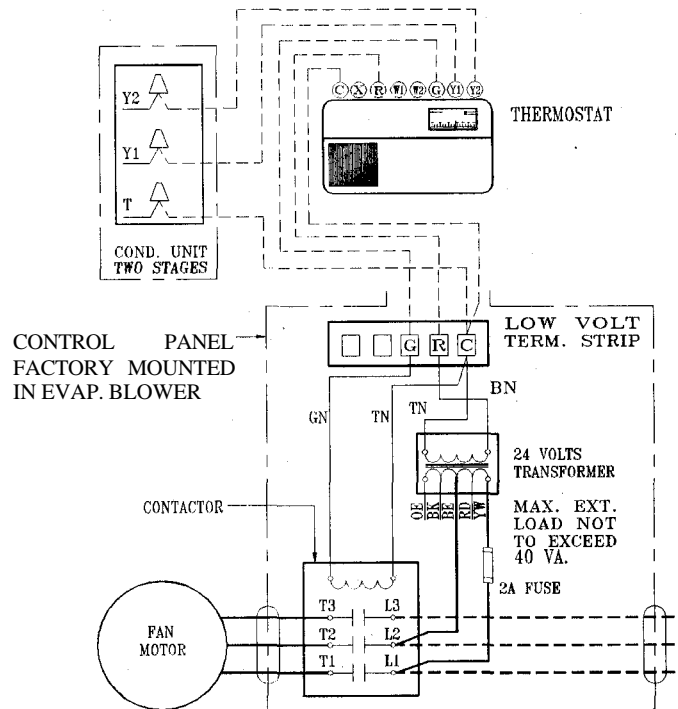
Standard - 2 stage cooling 2 stage heating



DIGITAL PROGRAMMABLE

2 Stage cooling, 2 stage heating

**FIELD WIRING DIAGRAM
RCD 7.5 TO 10**

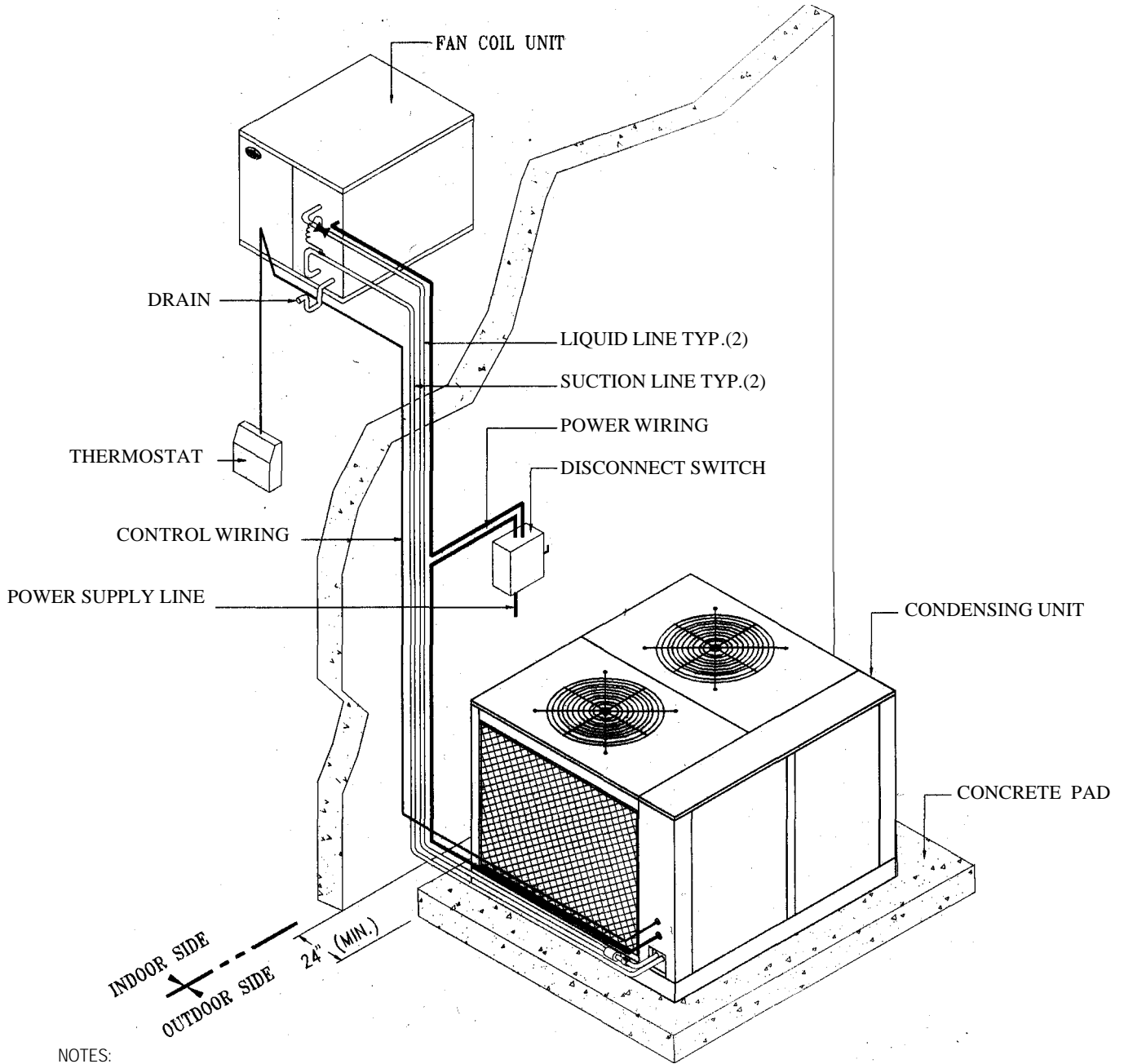


NOTE:
1. IF EVAPORATOR UNITS SUPPLIED WITH INTEGRAL ELECTRIC HEATER, REFER TO WIRING DIAGRAM ATTACHED TO THE EVAPORATOR UNITS.

FIELD WIRING
NEC CLASS 2 _____
NEC CLASS 1 _____

FACTORY WIRING
LOW VOLTAGE _____
LINE VOLTAGE _____

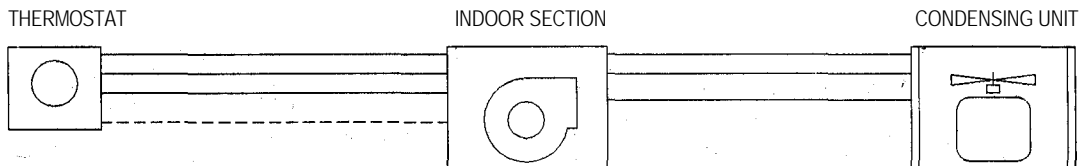
TYPICAL PIPING AND WIRING



NOTES:

1. Unit placement depend on space requirement for service and airflow.
2. Illustration shown is a general guide only and is not intended for or include all details for any specific installation.

3. Control relay which starts and stops condensing unit must be powered externally. Typical system control wiring shown uses indoor section 50 VA control circuit (24 V) transformer as power source



- Wiring necessary for cooling without heating.
- - - - - Add to cooling wiring for cooling with one stage heating. (2 Add wire for two stage heating)