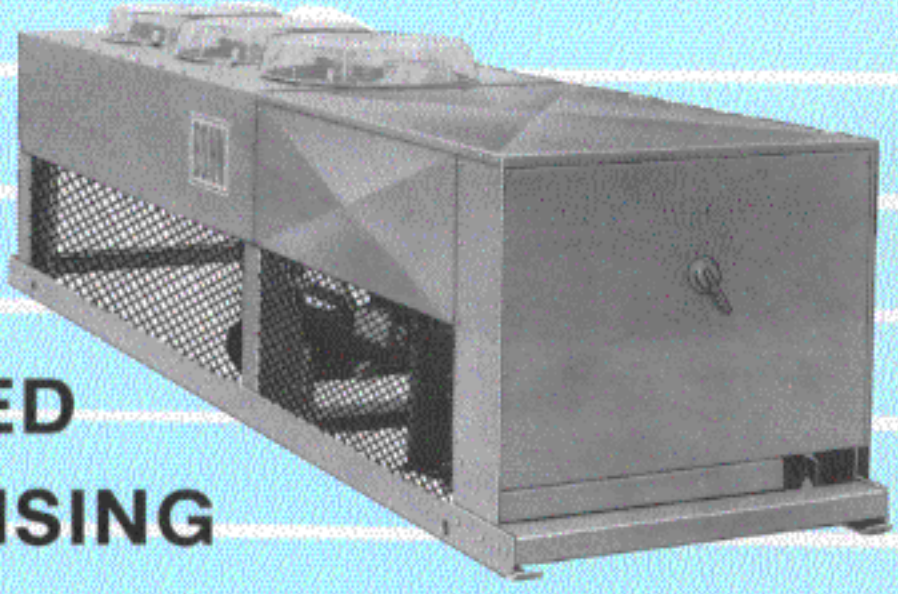
GOLDEN STAR®



AIR COOLED CONDENSING UNITS

BOHN

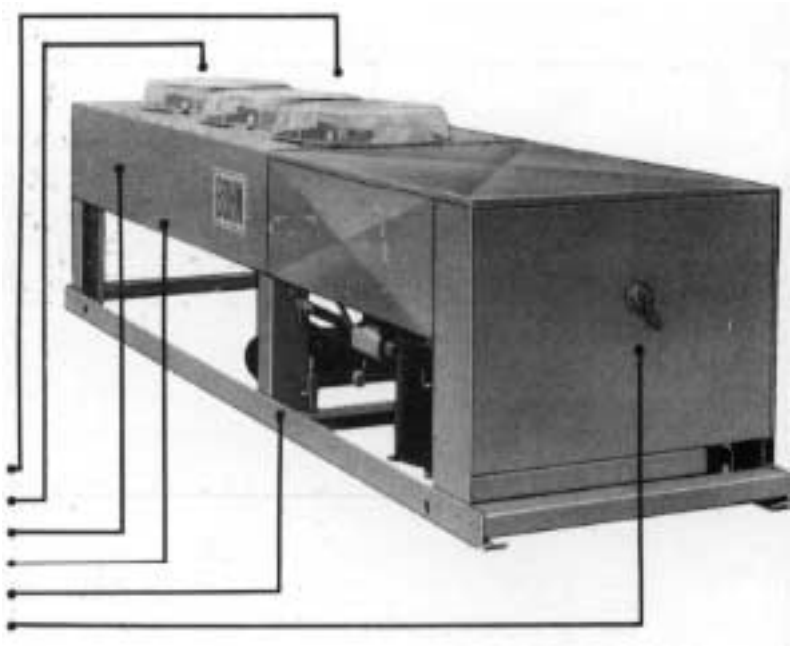
RCD 18 THRU 45 RD NOMINAL TONS

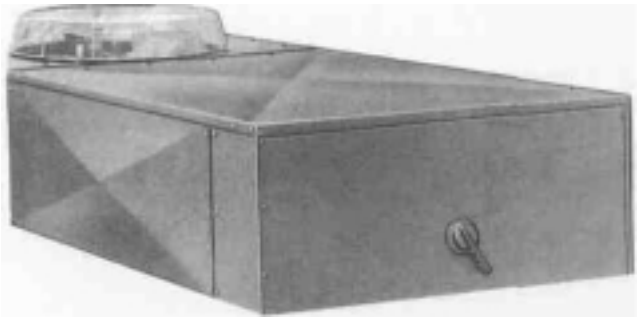
MODELS RCD 18 THRU 45RD

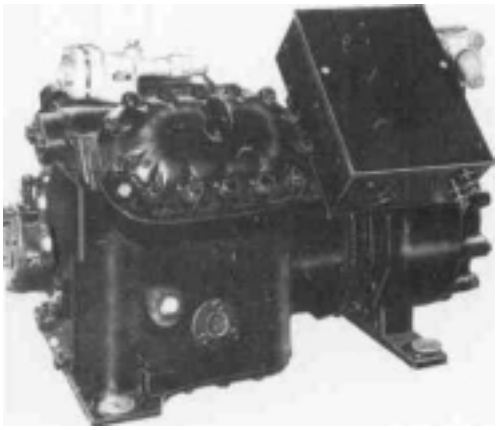
NOMENCLATURE

RC D 45 — R D

- S = SINGLE COMPRESSOR
- D = DUAL COMPRESSOR
- RECIPROCATING COMPRESSORS
- NOMINAL CAPACITY
- DIRECT DRIVE FANS
- REMOTE CONDENSING UNITS







CASING — Bohn condensing units are designed for 20 year life starting with a cabinet offering unsurpassed corrosion protection. The heavy guage galvanized steel with painted construction are far superior to painted steel construction especially since every punch, break or scratch exposes raw steel to the atmosphere.

The casing panels are mounted on a galvanized steel frame with a painted, structured steel base. This rugged construction stands up to any application.

Condenser fans are provided with aluminum baffles to prevent air bypass through non-operating fans.

DUAL COMPRESSORS — Dual compressor units are available in 3 sizes (25, 35 and 45 tons) for critical applications requiring standby capacity. These units also offer more accurate capacity control (4 steps) than any single compressor arrangement. Each compressor is provided with an independent refrigerant circuit.

ACCESSIBLE HERMETIC COMPRESSORS — Rugged compressors, specifically designed for air cooled condensing unit application, are field serviceable for ease of maintenance and long life. These are the most advanced and efficient reciprocating compressors in the industry; the Copeland DISCUS valve compressors. These heavy-duty, industrial quality, semi-hermetic compressors are designed for Refrigerant 22 and high loading associated with air cooled applications.

Serviceable compressors offer reduced maintenance costs because if problems develop with components such as oil pumps, unloaders and pistons, they can be serviced in the field without replacing the compressor. Both suction and discharge service valves are provided to allow isolation of the compressor from the refrigerant circuit.

OPTIONAL FLEXIBILITY — The RCD condensing units offer unsurpassed flexibility including the following, factory installed options:

1) Receivers
2) Fused disconnect
3) Compressor spring isolators
4) Low ambient to -20° F.

STANDARD UNIT SPECIFICATIONS

CONDENSER

Casing — Heavy duty, corrosion resistant steel panels are provided. Each fan section is separated by full width and length baffles to prevent air by-pass and to provide additional casing reinforcement.

Condenser Coil 3/8" O.D. copper tubes completely covered with plate type, die formed aluminum fins having self-spacing collars mechanically bonded to the tubes. Coil is divided into two independent circuits on 2 compressor models.

Sub-Cooling Coil — A separate sub-cooling coil integral with the main condenser coil is provided for each refrigerant circuit.

Condenser Fans — Individually driven, multiple propeller type fans are statically and dynamically balanced and operate at low tip speeds for minimum noise and vibration. Each fan orifice is die formed eliminating fan panel vibration, and reducing air outlet noise.

Direct drive fans are constructed of heavy gauge aluminum blades securely riveted to zinc plate steel center hubs.

Condenser Fan Motors-All fan motors are heavy duty with inherent thermal protection providing built-in protection against burnouts and single phasing.

All models have direct drive, 6 pole motors with permanently lubricated ball bearings. Motors are single phase.

Fan Guards — Constructed of heavy gauge, close meshed steel wire with corrosion protection.

COMPRESSORS

Accessible hermetic motor-compressors are employed. The compressor and hermetic induction motor are specifically engineered and matched for optimum performance. The compressor is designed for Refrigerant-22 and the high loading associated with air cooled applications. Oil pump, unloaders and cylinder heads are readily accessible for replacement. Suction and discharge service valves are provided.

Motor — Hermetic, induction type, refrigerant gas cooled with inherent thermal protection. Finned motor housing dissipates heat; keeps motor heat out of the crankcase. Motor terminal box is located above the crankcase oil level.

Safety Protection — Internal relief valve to relieve discharge to suction at high compression ratios as required by ASA-69.1 safety code requirements. Internal compressor motor overload protection is provided.

FAN CYCLING LOW AMBIENT CONTROL

Fans are cycled in response to saturated condensing pressure to maintain head pressure to +30º F. ambient.

CONTROL CENTER

A fully enclosed and weatherproofed control panel with access door. Dual compartments separate safety and operating controls from power controls.

1) Main power terminal block.
2) Terminals for 115V control circuit power.
3) Compressor contactor(s).
4) Manual reset high pressure control.
5) Low pressure control.
6) Manual reset oil safety control.
7) Crankcase heater.
6) Manual pumpdown switch.
9) Fan cycling (pressure).
10) Remote alarm terminals.
11) Remote pumpdown terminals.
12) Staggered start (dual compressors only).
13) Lead-lag switch (dual compressors only).

CAPACITY CONTROL

Units are equipped with the following capacity control steps as standard:

RCD 18, 24, 26	RS	100, 50, 0%
R C D 34,44	RS	100, 67, 0%
RCD 25, 35, 45	RD	100, 75, 50, 25, 0%

Each compressor includes a factory installed, suction pressure sensing unloader.

ELECTRICAL CHARACTERISTICS

Standard electrical characteristics are:

60 Hertz: 208-230-460-575/3/60
50 Hertz: 200-220-380-400-500/3/50
Standard control circuit is 115/1/50-60

REFRIGERANT PIPING

Individual refrigerant circuits include:

Liquid Line — furnished with manual shut-off valves and charging connections.

Suction Line — furnished with suction strainers.

Discharge Line -formed of pre-bent tubing or elbow fittings with long radius bends to eliminate vibration and minimize pressure drop. A hot gas bypass "T" (capped) and pressure relief valve are included.

ASSEMBLY

Units are assembled as a single package on one base as follows:

Heavy gauge mounting frame, supported by multiple heavy gauge galvanized steel legs and two structural steel skids with corrosion resistant finish.

Units are factory wired, leak tested, evacuated and are shipped with a holding charge.

OPTIONAL ACCESSORIES

HOT GAS BYPASS CONTROL (NO LEAD LAG)
Provides components for the RCD unit to allow hot gas bypass line to be field piped to inlet of evaporator coil. Permits system operation down to 10% of full load. Hot gas bypass is provided on the first refrigerant circuit only. A discharge line "T" (capped for shipment) is factory installed and the modulating valve and solenoid ship loose.

PRESSURE GAUGES
Two inch suction and discharge pressure gauges are provided for each refrigerant circuit and two inch oil pressure gauge is provided for each compressor. Each gauge is furnished with its own shut-off valve. Factory installation includes mounting and piping to the compressors.

HEATED RECEIVER LOW AMBIENT CONTROL TO 0º F.
Utilizes heated and insulated oversized receivers in conjunction with standard fan cycling controls to assure compressor motor start in ambient temperature down to 0º F. Each heated receiver is equipped with a spring loaded relief valve, pressure control, thermostat and check valve.

LIMITIZER LOW AMBIENT CONTROL TO -20º F.
Utilizes refrigerant pressure activated modulating valves in conjunction with standard fan cycling controls to assure unit operation and compressor start down to -20º F.

FUSED DISCONNECT AND INTERLOCK
A fused disconnect is factory installed in the control panel with a "through the door" handle. Entrance to the control panel is prevented unless power is shut off. Power can be restored when the access door is open.

REFRIGERANT PIPING PACKAGE
The following refrigeration components are offered for field mounting.

1) Suction line filter
2) Liquid line sight glass
3) Liquid line solenoid
4) Liquid line filler drier (replaceable core)

FIVE MINUTE LOCKOUT TIMER
A five minute, solid state timer delays compressor restart for five minutes after a compressor shutdown.

PART WINDING START (NA on sizes 25 and 35)
For applications where current inrush is limited. Provides two steps starting for each compressor motor.

INDICATING LIGHTS
Indicating lights are factory mounted on the unit exterior to indicate compressor failure, whether the compressor is on or off, and whether power is provided to the controls.

COMPRESSOR HOUR METERS
Compressor run time meters are factory installed to facilitate maintenance.

CIRCUIT BREAKERS (COMPRESSORS)
Companion trip, ambient calibrated circuit breakers with built-in three leg overload protection provides additional compressor protection.

PHASE LOSS MONITOR
Protects against phase loss (single phasing), phase reversal (improper phase sequence), and low voltage. Field adjustable for low voltage set point.

CONTROL CIRCUIT TRANSFORMER
A factory mounted and wired control circuit transformer is furnished eliminating the need for running a separate 115 volt power line for the unit control circuit. An optional transformer reduces line voltage to the 115 volts required.

RECEIVER
A factory installed receiver is offered for applications involving longer refrigerant runs. This allows full pumpdown for service and guarantees proper liquid feed to the expansion valve.

VIBRATION ELIMINATORS
The following arrangements are offered.

1) Rubber or spring isolators for the entire unit (field installed).
2) Factory installed compressor spring isolators (1" deflection) and flexible refrigerant connectors.

CAPACITY DATA
Single Compressor Units

MODEL	Suction Temp. ºF.	AMBIENT AIR TEMPERATURE º F.													
		85		90		95		100		105		110		115	
		MBH	KW	MBH	KW	MBH	KW	MBH	KW	MBH	KW	MBH	KW	MBH	KW
RCD 18 RS	35	213	15.4	206	16.1	199	16.8	193	17.2	187	17.9	181	18.6	176	19.3
	40	232	16.1	225	16.8	218	17.5	211	17.9	205	18.7	199	19.4	193	20.1
	45	253	16.8	245	17.5	237	18.2	229	18.6	221	19.5	214	20.2	207	20.9
	50	273	17.4	265	18.2	258	18.9	250	19.3	242	20.3	234	21.0	226	21.9
RCD 24 RS	35	262	21.5	254	22.3	243	23.0	236	23.7	228	24.3	222	25.1	214	25.6
	40	288	22.8	279	23.6	268	24.3	259	25.1	251	25.7	243	26.7	234	26.9
	45	313	24.0	303	24.9	292	25.6	282	26.5	273	27.2	264	28.3	254	28.5
	50	338	25.1	328	26.2	317	26.9	305	27.9	295	28.8	285	29.9	276	30.3
RCD 28 RS	35	295	25.5	286	26.2	277	26.9	268	27.8	260	28.4	252	29.0	243	29.8
	40	322	26.6	313	27.5	303	28.3	294	29.2	285	29.8	275	30.5	265	31.3
	45	350	28.0	340	28.8	329	29.7	319	30.5	309	31.2	298	31.9	289	32.8
	50	377	29.2	366	30.0	355	31.1	344	31.8	333	32.5	321	33.3	313	34.2
RCD 34 RS	35	382	32.8	370	33.6	358	34.5	347	35.6	336	36.4	325	37.2	316	38.2
	40	417	34.2	405	35.0	392	36.0	380	37.2	368	38.0	356	39.0	345	40.2
	45	453	35.5	439	36.4	431	37.5	413	38.8	400	39.6	387	40.7	376	42.3
	50	490	36.7	473	37.8	458	38.9	446	40.3	431	41.2	418	42.4	406	43.5
RCD 44 RS	35	442	39.7	428	41.2	413	41.9	400	43.3	386	44.4	372	45.6	358	46.9
	40	479	41.8	467	43.5	451	44.5	436	45.8	420	47.1	406	48.5	388	49.4
	45	519	43.7	507	45.8	489	47.1	472	48.4	454	49.8	439	51.4	421	52.3
	50	561	46.0	544	48.0	526	49.6	508	51.0	488	52.5	472	54.3	454	55.6

Dual Compressor Units

MODEL	Suction Temp. º F.	AMBIENT AIR TEMPERATURE º F.													
		85		90		95		100		105		110		115	
		MBH	KW	MBH	KW	MBH	KW	MBH	KW	MBH	KW	MBH	KW	MBH	KW
RCD 25 RD capacity split 50/50 between circuits	35	237	16.6	229	17.1	222	17.7	215	18.4	208	19.2	201	19.8	194	20.6
	40	260	17.2	253	17.8	245	18.5	238	19.2	230	20.0	222	20.6	213	21.4
	45	284	17.7	277	18.5	268	19.2	260	20.0	251	20.8	243	21.4	233	22.0
	50	309	18.3	300	19.2	290	19.9	282	20.8	273	21.6	264	22.3	253	22.8
RCD 35 RD Capacity split 50/50 between circuits	35	364	28.4	354	29.3	342	30.4	330	31.4	319	32.3	309	33.2	297	34.3
	40	396	29.6	385	30.6	373	31.8	360	32.8	347	33.7	336	34,6	322	35.7
	45	428	30.8	416	31.9	403	33.2	389	34.2	375	35.1	363	36.0	348	36.9
	50	461	32.0	447	33.2	433	34.6	418	35.6	402	36.5	389	37.4	373	38.7
RCD 45 RD capacity split 45/55 between circuits	35	461	39.5	447	40.8	432	42.1	416	43.3	401	44.2	385	45.3	372	46.5
	40	503	41.6	490	43.4	474	44.8	457	46.1	440	47.2	424	48.4	407	49.6
	45	549	44.2	533	46.0	516	47.4	498	48.9	478	50.2	462	51.5	443	52.6
	50	594	47.0	576	48.5	557	50.1	538	51.8	517	53.2	500	54.7	478	56.0

Ratings are based on 0º suction line loss. A 2º suction line loss corresponds to an approximate *3½%* loss in system capacity. For 50 hz applications utilize the following correction factors:

Capacity — multiply MBH by .85
Electrical draw — multiply KW by .83

PHYSICAL DATA

Model RCD Nominal Capacity Tons	Single Compressor					Dual Compressor		
	18 RS	24 RS	28 RS	34 RS	44 RS	25 RD	35 RD	45 RD
Quantity and Horsepower Circ. #1	(1) 20	(1) 25	(1) 30	(1) 35	(1) 40	(1) 7½	(1) 15	(1) 25
Quantity and Horsepower Circ. #2						(1) 7½	(1) 15	(1) 20
Oil Charge (oz.)	120	120	136	144	220	128/128	128/128	120/120
Crankcase Heater Watts (115v)	100	100	100	100	200	65/65	65/65	100/100
Face Area (Sq. Ft.)	24.2	24.2	24.2	32.2	32.2	12.1/12.1	16.1/16.1	16.9/15.3
Rows Deep	2	2	3	3	4	3	3	4
Fans No. and Dia. (in.)	(3) 24	(3) 24	(3) 24	(4) 24	(4) 24	(3) 24	(4) 24	(4) 24
Motors No. and H.P.	(3) ¾	(3) ¾	(3) ¾	(4) ¾	(4) ¾	(3) ¾	(4) ¾	(4) ¾
RPM (motor)	1100	1100	1100	1100	1100	1100	1100	1100

Operating Weights (Standard) Unit Weight	1420	1450	1560	1720	1790	1800	2070	2150
Refrigerant Charge (1) Circ. #1/Circ. #2	15	15	19	23	28	12/12	14/14	18/16
Pumpdown Capacity Circ. #1/Circ. #2	26	26	36	46	59	21/21	26/26	34/30

Operating eights (Receiver) unit Weight	1476	1506	1616	1776	1877	1912	2182	2270
Refrigerant Charge (1) Circ. #1/Circ. #2	21	21	25	29	40	18/18	20/20	25/23
Pumpdown Capacity Circ. #1/Circ. #2	50	50	50	50	97	50/50	50/50	51/47

Operating Weights (Limitizer) Unit Weight	1506	1536	1666	1850	1977	2012	2310	2420
Refrigerant Charge (1) Circ. #1/Circ. #2	31	31	44	53	68	26/26	30/30	41/39
Pumpdown Capacity Circ. #1/Circ. #2	50	50	97	97	132	50/50	50/50	98/94

NOTE:
(1) Shipped with holding charge.

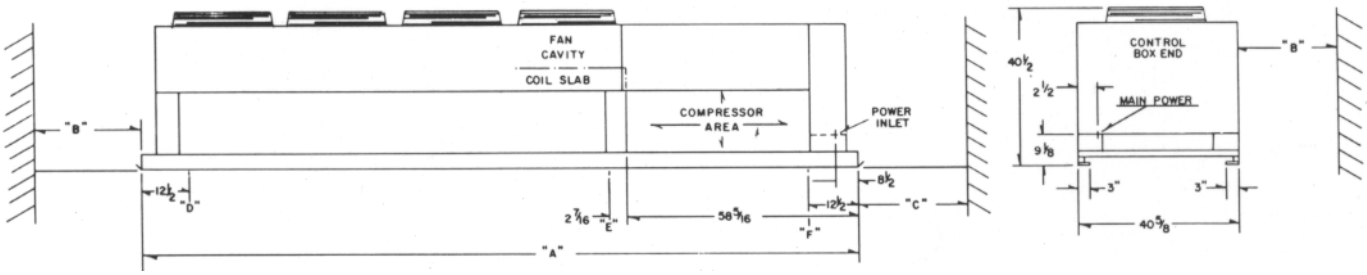
ELECTRICAL DATA

Model No.	Voltage	Type Start	Compressors				Fan Motors				Min. Circuit Ampacity	Recommended		Max. Fuse Size
			#1		#2									
			RLA	LRA	RLA	LRA	KW Total	No.	FLA Total	LRA Total		Wire Size	Fuse Size	
18 RS	208/230	A/L	62.8	308			3.3	3	8.8	20.2	87.3	3	125	150
	208/230	PW	62.8	188			3.3	3	8.8	20.2	87.3	3	125	150
	460	A/L	31.4	154			3.3	3	4.4	10.1	43.7	8	60	70
	460	PW	28.8	84			3.3	3	4.4	10.1	40.4	8	60	60
	575	A/L	25.6	135			3.3	3	4.4	10.1	35.5	8	50	60
	575	PW	25.6	81			3.3	3	4.4	10.1	35.5	8	50	60
24 RS	208/230	A/L	76.9	428			3.3	3	8.8	20.2	104.9	2	150	175
	208/230	PW	76.9	250			3.3	3	8.8	20.2	104.9	2	150	175
	460	A/L	38.5	214			3.3	3	4.4	10.1	52.5	6	80	90
	460	PW	41,6	117			3.3	3	4.4	10.1	56.4	6	80	90
	575	A/L	30.8	172			3.3	3	4.4	10.1	42.0	8	60	70
	575	PW	30.8	103			3.3	3	4.4	10.1	42.0	8	60	70
28 RS	208/230	A/L	105.8	470			3.3	3	8.8	20.2	141.1	1/0	200	225
	208/230	PW	105.8	292			3.3	3	8.8	20.2	141.1	1/0	200	225
	460	A/L	52.9	235			3.3	3	4.4	10.1	70.5	4	100	110
	460	PW	52.9	141			3.3	3	4.4	10.1	70.5	4	100	110
	575	A/L	38.5	200			3.3	3	4.4	10.1	51.6	6	80	90
	575	PW	38.5	130			3.3	3	4.4	10.1	51.6	6	80	90
34 RS	208/230	A/L	112.2	565			4.4	4	13.5	27	153.8	2/0	225	250
	208/230	PW	112.2	340			4.4	4	13.5	27	153.8	2/0	225	250
	460	A/L	56.1	283			4.4	4	6.8	13.6	76.9	4	110	125
	460	PW	60.6	156			4.4	4	6.8	13.6	82.6	4	125	125
	575	A/L	44.9	230			4.4	4	6.8	13.6	61.5	6	90	100
	575	PW	44.9	138			4.4	4	6.8	13.6	61.5	6	90	100
44 RS	200	A/L	152.6	660			4.4	4	13.5	27	204.3	4/0	300	350
	200	PW	152.6	400			4.4	4	13.5	27	204.3	4/0	300	350
	230	A/L	126.9	594			4.4	4	13.5	27	172.1	2/0	250	250
	230	PW	126.9	340			4.4	4	13.5	27	172.1	2/0	250	250
	460	A/L	63.5	297			4.4	4	6.8	13.6	86.2	3	125	125
	460	PW	62.2	170			4.4	4	6.8	13.6	84.6	4	125	125
	575	A/L	51.3	235			4.4	4	6.8	13.6	69.5	4	100	110
	575	PW	51.3	135			4.4	4	6.8	13.6	69.5	4	100	110
25 RD	208/230	A/L	36.8	215	36.8	215	3.3	3	8.8	20.2	91.6	3	125	125
	460	A/L	16.0	106	16.0	106	3.3	3	4.4	10.1	40.4	8	50	50
	575	A/L	14.7	84	14.7	84	3.3	3	4.4	10.1	36.6	8	45	50
35 RD	208/230	A/L	53.5	275	53.5	275	4.4	4	13.5	27	133.9	1/0	175	175
	460	A/L	26.0	138	26.0	138	4.4	4	6.8	13.6	65.3	4	80	90
	575	A/L	21.2	110	21.2	110	4.4	4	6.8	13.6	53.1	6	70	70
45 RD	208/230	A/L	76.9	428	62.8	308	4.4	4	13.5	27	172.4	2/0	225	225
	208/230	PW	76.9	250	62.8	188	4.4	4	13.5	27	172.4	2/0	225	225
	460	A/L	38.5	214	31.4	154	4.4	4	6.8	13.6	86.3	3	110	110
	460	PW	41.6	117	28.8	84	4.4	4	6.8	13.6	87.6	3	110	125
	575	A/L	30.8	172	25.6	135	4.4	4	6.8	13.6	69.5	4	90	100
	575	PW	30.8	103	25.6	81	4.4	4	6.8	13.6	69.5	4	90	100

NOTES:

1. A/L: Across the Line. PW: Part Winding.
2. Rated Load Amps comply with compressor motors continuous current rating and N.E.C. Article 440-52,b,2.
3. Locked rotor amps for PW start are for the first winding for one second. Compressor motors are sequence started with a 15 second time delay between starts.
4. Minimum circuit ampacity is per N.E.C. Section 430-24.
5. Wire size based on copper conductors with 75º C. insulation per N.E.C. Table #310-16.
6. Use time delay (dual element) fuses only based on N.E.C. Section 440-22. On units involving a combination of high ambient and low voltage the maximum fuse size should be used rather than the recommended fuse size.

DIMENSIONAL DATA



SINGLE COMPRESSORS

Model	A	B	C	# Fans	Connection Sizes		Point Loading/Isolator Location		
					Liquid	Suction	D	E	F
18 RS	152½	24	40	3	7/8"	1 5/8"	165	265	280
24 RS	152½	24	40	3	7/8"	2 1/8"	165	270	290
28 RS	152½	24	40	3	7/8"	2 1/8"	180	290	310
34 RS	181½	30	40	4	7/8"	2 1/8"	210	330	320
44 RS	181½	30	40	4	7/8"	2 1/8"	210	340	345

DUAL COMPRESSORS

Model	A	B	C	# Fans	Connection Sizes		Point Loading/Isolator Location		
					Liquid	Suction	D	E	F
25 RD	152½	24	40	3	5/8'' - 5/8"	1 3/8"-1 3/8"	185	365	350
35 RD	181½	30	40	4	5/8'' - 5/8"	1 5/8"-1 5/8"	225	430	380
45 RD	181½	30	40	4	7/8'' - 7/8"	2 1/8" - 1 5/8"	225	450	400

B & C are unit clearance dimensions to 50% open fence with maximum height of 40½"
Point loading is for units less receivers and Limitizer.

Goldenstar / BOHN reserves the right to change any product specifications without notice

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