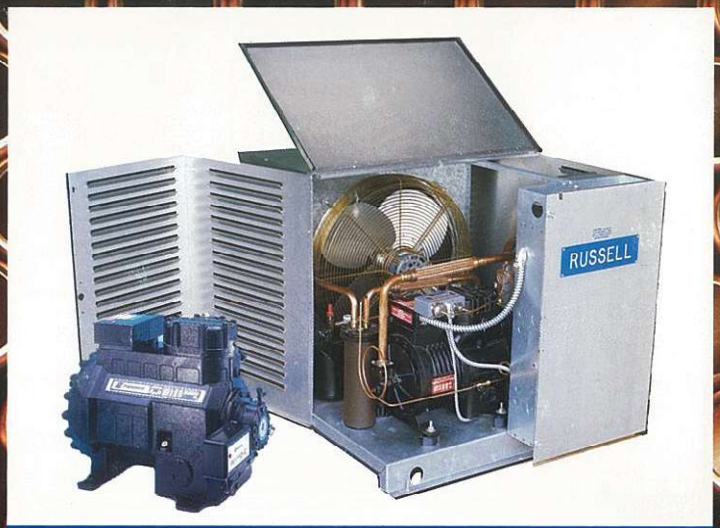
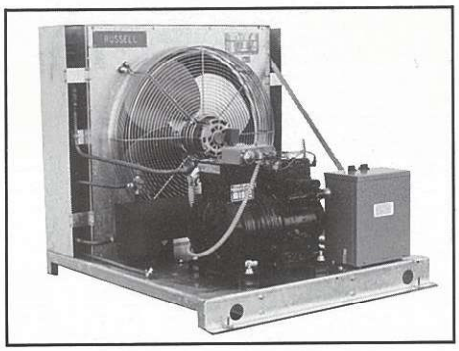
Russell

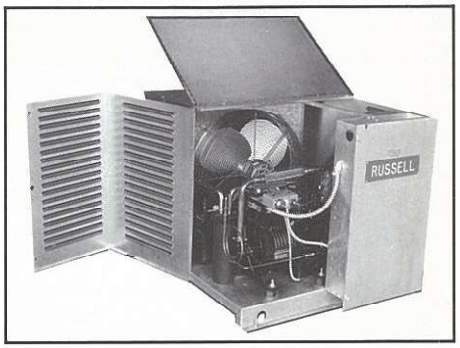
DCU



3 through 22 H.P. Discus™ Condensing Unit

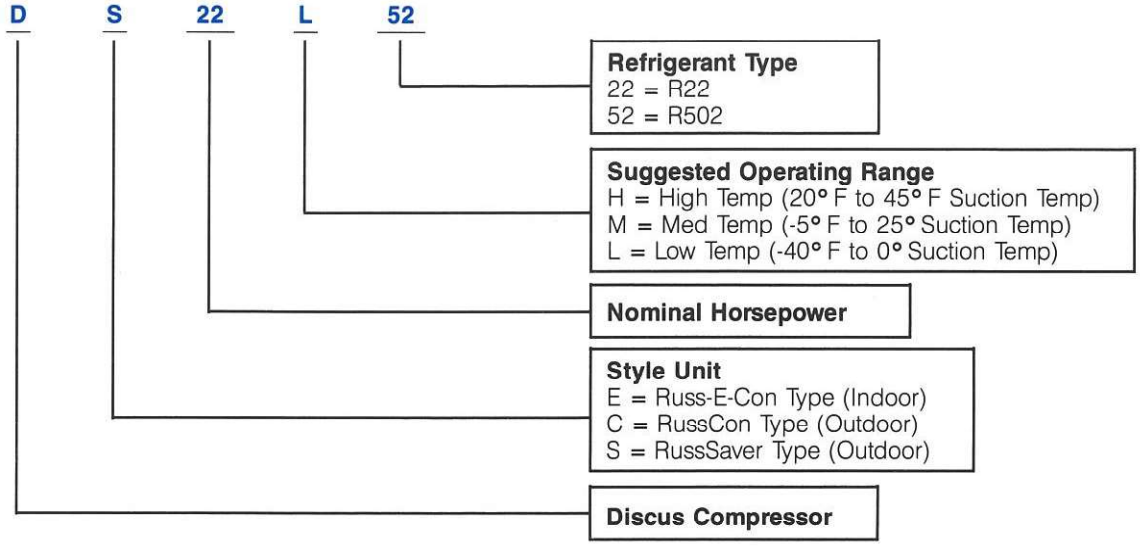
Bulletin No. 530.3 April 1991





Standard and Optional Features		Model		
		DE	DC	DS
Compressor:	Discus Compressor — accessible semi-hermetic	STD	STD	STD
	Crankcase Heater	OPTION	STD	STD
	Additional 4 Year Compressor Warranty	OPTION	OPTION	OPTION
Electrical Components:	Oil Failure Control — as required	STD	STD	STD
	High-Low Pressure Control — manual/automatic	STD	STD	STD
	Compressor Contactor	STD	STD	STD
	Control Circuit Fuses — standard 230/1	STD	STD	STD
	Power Terminal Block	OPTION	STD	STD
	Fused Disconnect — field installed	OPTION	OPTION	OPTION
Condenser:	Copper Tubes With Aluminum Fins	STD	STD	STD
	Subcooling Circuit	STD	STD	STD
	Fan Motor — PSC, overload protection	STD	STD	STD
	Fan Blade — individually balanced	STD	STD	STD
	Fan Guard — split for easy motor access, UL	STD	STD	STD
Piping Components:	Suction Line Filter	OPTION	STD	STD
	Suction Line Accumulator	OPTION	OPTION	OPTION
	Suction Line Vibration Absorber	OPTION	STD	STD
	Liquid Line Filter/Drier	OPTION	STD	STD
	Sight Glass/Moisture Indicator	OPTION	STD	STD
	Liquid Line Solenoid Valve — field installed	OPTION	OPTION	OPTION
	Discharge Line Vibration Absorber	STD	STD	STD
	Oil Separator	OPTION	OPTION	OPTION
Receiver:	Inlet And Outlet Isolation Valves	STD	STD	STD
	Fusible Plug	STD	STD	STD
	Relief Valve — in lieu of fusible plug	OPTION	OPTION	OPTION
	Heated And Insulated Receiver — not UL listed	OPTION	OPTION	OPTION
Housing:	All-Weather Housing — with hinged access	N/A	STD	STD
	Control Panel — with hinged door	OPTION	STD	STD
	Raised Galvanized Steel Base	STD	STD	STD
Low Ambient Controls:	Russ-Saver — All ambient energy saver	N/A	N/A	STD
	Pressure Fan Cycle — not available on 3L52, 5L52 & 6L52	OPTION	OPTION	STD
	Flooded Type	OPTION	OPTION	N/A
Defrost Provisions:	Air Defrost Time Clock	OPTION	OPTION	OPTION
	Electric Defrost with heater contactors, timer, block-out relay	OPTION	OPTION	OPTION
	Hot Gas Defrost with HG solenoids, timer, accumulator, oil separator & CPR valve	OPTION	OPTION	OPTION
Testing:	UL Listed — All models	STD	STD	STD
	Leak Detection, Dielectric & Run Test	STD	STD	STD
	Dry Nitrogen Holding Charge	STD	STD	STD

Model Number Nomenclature



BTUH Capacities

80° Ambient

Model No. DE/DC/DS	Refr Type	Suction Temperature (°F)						
		+45	+40	+35	+25	+20	+10	0
5M52	R-502	85400	78600	72200	60100	54500	44400	35500
5H22	R-22	85400	77700	70400	57200	51200	40400	—
7M52	R-502	—	—	—	84400	76500	62200	50000
7H22	R-22	116000	105700	96000	78500	70600	56500	—
8M52	R-502	143100	131700	120800	100800	91700	74900	60200
8H22	R-22	145000	132300	120400	98900	89200	71800	—
10M52	R-502	170400	156800	143900	120100	109200	89200	71800
10H22	R-22	168900	154400	140800	116200	105200	85600	—
15M52	R-502	222000	204800	188500	158200	144300	118800	96200
15H22	R-22	224400	205300	187300	154500	139700	112700	—

Model No. DE/DC/DS	Refr Type	Suction Temperature (°F)						
		0	-10	-15	-20	-25	-30	-40
3L52	R-502	33900	26900	23800	20800	18200	15700	11400
5L52	R-502	46600	37600	33500	29700	26200	22900	17200
6L52	R-502	56000	44700	39600	34900	30600	26700	20000
8L52	R-502	69900	55800	49600	43800	38600	33700	25400
9L52	R-502	81200	65200	58100	51500	45500	40000	30300
10L52	R-502	89600	71900	64000	56600	49800	43600	32900
15L52	R-502	120800	96800	86100	76200	67100	58800	44300
22L52	R-502	142700	116700	104900	94000	83800	74500	58100

BTUH Capacities

90° Ambient

Model No. DE/DC/DS	Refr Type	Suction Temperature (°F)						
		+45	+40	+35	+25	+20	+10	0
5M52	R-502	78500	72300	66400	55400	50300	40900	32700
5H22	R-22	79700	72600	65900	53600	47900	37800	—
7M52	R-502	—	—	—	79000	71500	58100	46600
7H22	R-22	109300	99700	90600	74200	66800	53600	—
8M52	R-502	131900	121500	111500	93200	84700	69300	55700
8H22	R-22	136000	124200	113000	92800	83700	67200	—
10M52	R-502	157000	144500	132700	110900	100800	82500	66300
10H22	R-22	158600	144900	132200	109200	98800	80200	—
15M52	R-502	204500	188800	173900	146200	133400	109900	89000
15H22	R-22	210300	192600	175800	145200	131300	105800	—

Model No. DE/DC/DS	Refr Type	Suction Temperature (°F)						
		0	-10	-15	-20	-25	-30	-40
3L52	R-502	31400	24900	22000	19300	16800	14500	10500
5L52	R-502	43200	34900	31100	27600	24300	21200	15800
6L52	R-502	51900	41300	36500	32100	28100	24300	17800
8L52	R-502	65200	52000	46100	40700	35700	31200	23200
9L52	R-502	75400	60500	53800	47700	42000	36800	27800
10L52	R-502	83300	66800	59300	52400	46000	40200	30000
15L52	R-502	111900	89500	79500	70300	61700	53900	40300
22L52	R-502	132400	108300	97300	87000	77500	68800	53300

95° Ambient

Model No. DE/DC/DS	Refr Type	Suction Temperature (°F)						
		+45	+40	+35	+25	+20	+10	0
5M52	R-502	75100	69200	63600	53000	48100	39200	31300
5H22	R-22	76900	70100	63600	51700	46300	36400	—
7M52	R-502	—	—	—	76200	69000	56000	44900
7H22	R-22	105800	96500	87800	71900	64800	52100	—
8M52	R-502	126400	116400	107000	89400	81400	66600	53400
8H22	R-22	131600	120100	109400	89800	80900	64900	—
10M52	R-502	150400	138500	127200	106300	96700	79200	63600
10H22	R-22	153400	140200	127900	105600	95500	77500	—
15M52	R-502	195900	180900	166700	140300	128000	105500	85500
15H22	R-22	203300	186300	170200	140700	127200	102600	—

Model No. DE/DC/DS	Refr Type	Suction Temperature (°F)						
		0	-10	-15	-20	-25	-30	-40
3L52	R-502	30100	23900	21100	18500	16100	13900	10100
5L52	R-502	41400	33500	29800	26400	23300	20300	15100
6L52	R-502	49800	39500	34900	30700	26700	23100	16900
8L52	R-502	62800	50100	44300	39100	34300	29900	22200
9L52	R-502	72500	58100	51700	45800	40300	35300	26600
10L52	R-502	80100	64200	57000	50300	44200	38500	28700
15L52	R-502	107300	85800	76100	67200	58900	51400	38300
22L52	R-502	127100	103900	93300	83500	74300	65800	50900

BTUH Capacities

100° Ambient

Model No. DE/DC/DS	Refr Type	Suction Temperature (°F)						
		+45	+40	+35	+25	+20	+10	0
5M52	R-502	71700	66100	60700	50700	46000	37500	29900
5H22	R-22	74100	67500	61300	49900	44700	35100	—
7M52	R-502	—	—	—	73400	66400	53900	43100
7H22	R-22	102200	93300	84900	69600	62800	50500	—
8M52	R-502	120900	111500	102500	85800	78100	63900	51300
8H22	R-22	127100	116100	105700	86800	78200	62600	—
10M52	R-502	143900	132600	121800	101900	92700	75900	61000
10H22	R-22	148100	135500	123600	102000	92300	74800	—
15M52	R-502	187300	173100	159600	134400	122800	101300	82100
15H22	R-22	196600	180200	164700	136300	123300	99400	—

Model No. DE/DC/DS	Refr Type	Suction Temperature (°F)						
		0	-10	-15	-20	-25	-30	-40
3L52	R-502	28800	22900	20200	17700	15400	13300	9700
5L52	R-502	39500	32000	28500	25300	22200	19400	14400
6L52	R-502	47600	37800	33300	29200	25400	21900	15800
8L52	R-502	60500	48100	42600	37500	32900	28600	21100
9L52	R-502	69500	55800	49600	43800	38500	33700	25300
10L52	R-502	76900	61600	54600	48200	42300	36800	27300
15L52	R-502	102500	82000	72700	64100	56100	48800	36300
22L52	R-502	121600	99400	89200	79700	70900	62800	48300

110° Ambient

Model No. DE/DC/DS	Refr Type	Suction Temperature (°F)						
		+45	+40	+35	+25	+20	+10	0
5M52	R-502	64900	59900	55100	46100	41900	34100	27100
5H22	R-22	68500	62500	56800	46300	41500	32500	—
7M52	R-502	—	—	—	67500	61100	49500	39600
7H22	R-22	94700	86500	78800	64900	58600	47400	—
8M52	R-502	110200	101700	93600	78600	71700	58800	47200
8H22	R-22	118300	108100	98500	80800	72800	58100	—
10M52	R-502	131000	120900	111200	93300	85000	69700	55900
10H22	R-22	137600	125900	115000	94900	85800	69300	—
15M52	R-502	170300	157700	145600	123000	112500	93000	75400
15H22	R-22	183300	168300	154100	127900	115700	93300	—

Model No. DE/DC/DS	Refr Type	Suction Temperature (°F)						
		0	-10	-15	-20	-25	-30	-40
3L52	R-502	26000	20700	18200	16000	13900	12000	8700
5L52	R-502	35700	28900	25700	22800	20000	17400	12800
6L52	R-502	43300	34200	30100	26300	22700	19400	13700
8L52	R-502	55700	44200	39100	34300	30000	26000	19000
9L52	R-502	63700	51000	45300	40000	35100	30600	22700
10L52	R-502	70500	56400	50000	44000	38500	33400	24500
15L52	R-502	92800	74000	65500	57600	50300	43600	32000
22L52	R-502	110100	90000	80700	72000	63900	56400	43000

Electrical Specifications

Model No DE/DC/DS	Compressor Model	230/3/60 Compressor RLA	230/3/60 Compressor LRA	230/3/60 Cond FLA	Total Unit AMPS*	460/3/60 Compressor RLA	460/3/60 Compressor LRA	460/3/60 Cond FLA	Total Unit AMPS*
3L52	2DF-0300	16.8	102.0	3.2	21.0	8.1	52.0	2.1	10.7
5H22	2DD-0500	22.3	120.0	4.2	27.5	10.5	60.0	2.1	13.1
5M52	2DD-0500	22.3	120.0	4.2	27.5	10.5	60.0	2.1	13.1
5L52	2DA-0600	28.8	161.0	3.2	33.0	10.2	60.0	2.1	12.8
6L52	3DA-0600	26.5	150.0	4.2	30.7	12.0	77.0	2.1	14.6
7H22	2DA-0750	32.0	169.0	6.4	39.4	14.1	85.0	4.2	18.8
7M52	2DA-0750	32.0	169.0	6.4	39.4	14.1	85.0	4.2	18.8
8H22	3DA-0750	41.0	215.0	6.4	48.4	20.0	106.0	4.2	24.7
8M52	3DA-0750	41.0	215.0	6.4	48.4	20.0	106.0	4.2	24.7
8L52	3DB-0750	31.5	161.0	6.4	38.9	16.1	83.0	4.2	20.8
9L52	3DF-0900	39.0	215.0	6.4	46.4	16.9	106.0	4.2	21.6
10H22	3DB-1000	43.6	215.0	8.4	53.0	20.0	106.0	4.2	24.7
10M52	3DB-1000	43.6	215.0	8.4	53.0	20.0	106.0	4.4	24.7
10L52	3DS-1000	42.0	215.0	6.4	49.4	18.6	106.0	4.2	23.3
15H22	3DS-1500	59.6	275.0	8.4	69.0	29.0	138.0	4.2	33.7
15M52	3DS-1500	59.6	275.0	8.4	69.0	29.0	138.0	4.2	33.7
15L52	4DL-1500	60.0	278.0	8.4	69.4	30.0	139.0	4.2	34.7
22L52	4DT-2200	71.4	374.0	8.4	80.8	35.7	187.0	4.2	40.4

*Includes control circuit. Does not include evaporator fans.

Russ-Saver™ and Discus™... A Combination That Works For You!

As energy costs continue to escalate, it becomes more and more important to consider operating costs when purchasing equipment. For several years Russell has offered the RussSaver system as an energy saving package to reduce the high energy consumption of conventional systems. Combined with the Copeland Discus compressor, Russell is now able to supply refrigeration systems with even higher efficiencies, reducing operating costs by as much as 35% over conventional systems!

RussSaver™: Conventional refrigeration systems are designed to operate under summer conditions. As the outside ambient temperature drops, the condensing temperature is artificially maintained at high levels to prevent erratic operation of the expansion valve. However, the RussSaver system, with the use of a specially designed expansion valve, allows the condensing temperature to decrease as the ambient temperature falls. This results in a lower discharge pressure, allowing the compressor to pump against less resistance, using less energy to pump more refrigerant. The compressor then operates under less strain, resulting in longer compressor life. The RussSaver is also supplied with a sub-cooling circuit that further cools the liquid refrigerant before it is fed to the expansion valve. This liquid sub-cooling improves the capacity of the refrigeration system without any additional energy consumption.

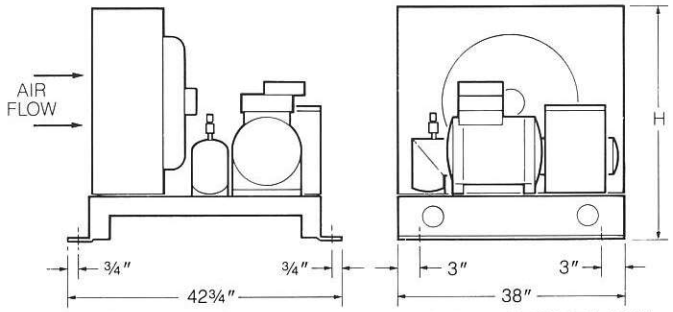
There are many advantages to using the RussSaver system.

1. Energy efficiency is dramatically increased.
2. Average compressor life is expanded.
3. No additional refrigerant charge is required for winter operation allowing maintenance-free service.
4. Instant start-up even under extreme low outdoor ambient conditions.
5. Factory engineered, matched systems are provided with all necessary components for easy installation.

Discus™ Compressor: The Copeland Discus compressor utilizes a special valve plate design that reduces the amount of refrigerant gas left in the cylinder at the end of each piston stroke. This minimizes the amount of re-expansion of the gas remaining in the cylinder, allowing the piston to draw in more refrigerant on the next cycle. High efficiency motors are carefully matched to the requirement to optimize energy usage. Along with many other design improvements, the Discus compressor offers greater capacity, reduced operating cost and uncompromising reliability.

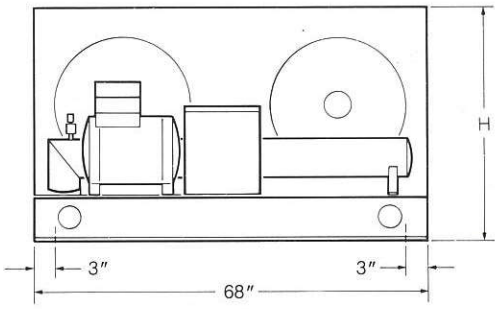
Physical Data

Model No. DE/DC/DS	No. of Fans	H Dim.	DE Ship Wt.	DC/DS Ship Wt.	Liquid ODS	Suction ODS	Receiver Cap @ 90%
3L52	1	37-1/4	460	710	1/2	1-1/8	33.1
5H22	1	37-1/4	580	850	5/8	1-1/8	32.0
5M52	1	37-1/4	580	850	5/8	1-1/8	33.1
5L52	1	37-1/4	525	805	1/2	1-3/8	33.1
6L52	1	37-1/4	540	840	1/2	1-3/8	33.1
7H22	2	37-1/4	740	1100	5/8	1-3/8	60.2
7M52	2	37-1/4	740	1100	5/8	1-3/8	62.4
8H22	2	37-1/4	760	1130	5/8	1-3/8	60.2
8M52	2	37-1/4	760	1130	5/8	1-3/8	62.4
8L52	2	37-1/4	760	1130	1/2	1-3/8	62.4
9L52	2	37-1/4	850	1275	5/8	1-5/8	62.4
10H22	2	37-1/4	900	1330	7/8	1-3/8	60.2
10M52	2	37-1/4	900	1330	7/8	1-3/8	62.4
10L52	2	37-1/4	850	1275	5/8	1-5/8	62.4
15H22	2	44-3/4	920	1350	7/8	1-5/8	60.2
15M52	2	44-3/4	920	1350	7/8	1-5/8	62.4
15L52	2	37-1/4	880	1310	5/8	1-5/8	62.4
22L52	2	44-3/4	980	1420	7/8	2-1/8	62.4

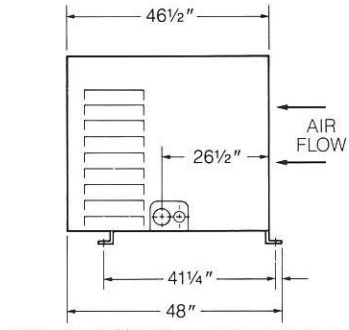


MODEL DE — SIDE VIEW

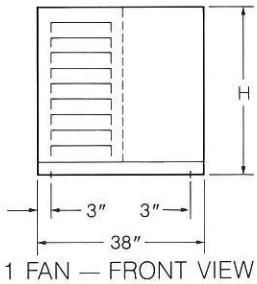
1 FAN — FRONT VIEW



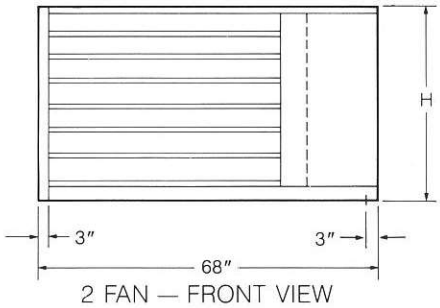
2 FAN — FRONT VIEW



MODEL DC/DS — SIDE VIEW



1 FAN — FRONT VIEW



2 FAN — FRONT VIEW

Brea, California — Corporate Offices and Manufacturing Facility

Yuma, Arizona — Manufacturing Facility

Russell

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