

DUNHAM-BUSH

**BIG-4 COMPRESSOR,
COMPRESSOR-RECEIVER
AND CONDENSING UNITS**

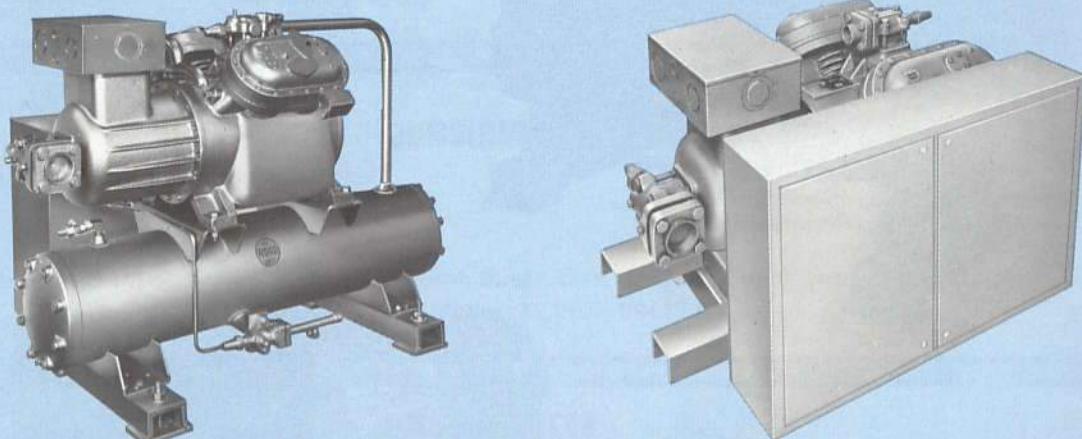
**15 HP THRU 50 HP
50Hz AND 60Hz**

INTRODUCTION

Dunham-Bush compressor, compressor-receiver and condensing units offer the most advanced design and performance features on the market. Condensing units are available with water cooled condensers or pre-matched with remote air cooled condensers. The compressor-receiver and compressor units can be matched with a variety of condensers.

The principle advantage of these quality products include maximum flexibility and a complete package shipped from the factory. The simplicity of design and packaging permits low installation cost and minimum space requirements.

Semi-Hermetic or Direct Drive Compressors suitable for use with refrigerants R-12, R-22 and R-502 are available for all refrigeration or comfort conditioning applications. All components of these units are pre-matched to provide optimum efficiency, ease of service and long system life.



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REFERENCES

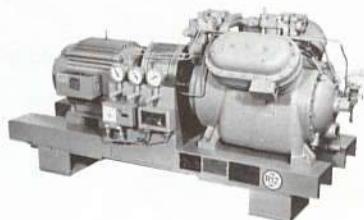
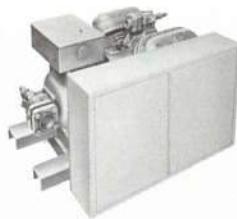
A long, trouble-free life for Big-4 compressors and units can be insured if they are properly applied, installed and maintained. Please consult the latest revision of the following forms for further information.

CATALOG

	FORM NO.
BIG-4 INSTALLATION AND OPERATING INSTRUCTIONS	4155
BIG-4 PARTS SELECTION LIST	4056
COMPRESSOR INSTALLATION AND CLEANING INSTRUCTIONS	4232
COMPRESSOR PIPING MANUAL	4120.1
CSTC WATER COOLED CONDENSERS	8044
LSBC AIR COOLED CONDENSERS	7011

UNIT FEATURES

SEMI-HERMETIC 'E' TYPE COMPRESSOR UNITS - Include semi-hermetic compressors on sturdy U channel base, crankcase heater and a mounted NEMA 1 control panel which includes starter, oil failure switch, high pressure and low pressure controls. Required starter panels must be ordered as an accessory. Gauges and lights are optional. This unit is to be used with a remote condenser.

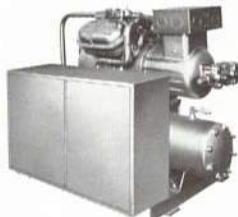


DIRECT DRIVE 'E' TYPE COMPRESSOR UNITS - Include direct drive compressor on sturdy U channel base, crankcase heater, coupling guard, oil failure switch, high pressure and low pressure controls. Gauges, motor, coupling and unmounted starter are optional. This unit is to be used with a remote condenser.

SEMI-HERMETIC AND DIRECT DRIVE COMPRESSOR 'E' TYPE UNITS WITH MATCHED LSBC AIR COOLED CONDENSER - System includes an 'E' unit matched to a specific 'LSBC' for a wide range of ambient conditions. LSBC's incorporate Wave-Fin® coil with staggered tubes. Various head pressure control options include flooding which permits operation down to -20°F ambient.

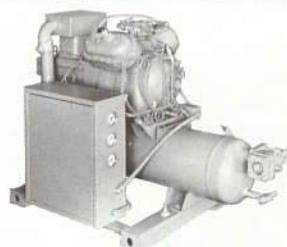
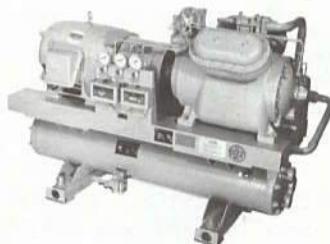


'LSBC'
CONDENSER



SEMI-HERMETIC 'W' TYPE WATER COOLED CONDENSING UNITS - Include semi-hermetic compressor with crankcase heater on a mounted cleanable water cooled ASME coded condenser with relief and King valves; mounted NEMA 1 control panel which includes starter, oil failure switch, high and low pressure controls. Required starter panels must be ordered as an accessory. Gauges and lights are optional.

DIRECT DRIVE 'W' TYPE WATER COOLED CONDENSING UNITS - Include direct drive compressor mounted on cleanable water cooled ASME coded condenser, crankcase heater, coupling guard, high pressure, low pressure and oil failure controls. Motor, coupling, gauges and unmounted starter are optional.

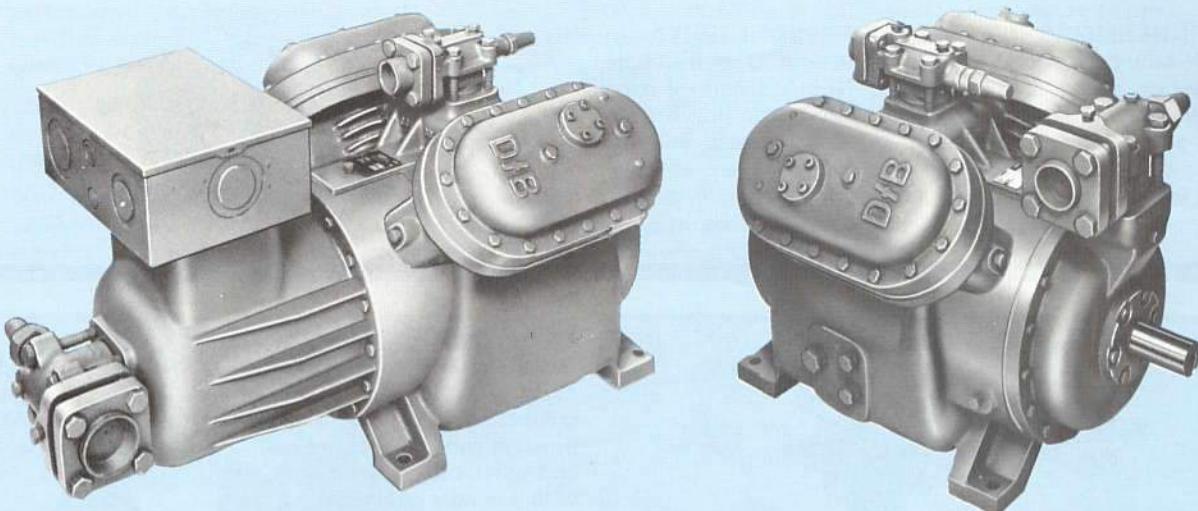


SEMI-HERMETIC 'R' TYPE COMPRESSOR - RECEIVER UNITS - Include semi-hermetic compressor with crankcase heater mounted on an ASME coded receiver; mounted NEMA 1 control panel which includes starter, oil failure switch, high pressure and low pressure controls. Receiver includes inlet, outlet and relief valves. Required starter panels must be ordered as an accessory. Gauges and lights are optional. This unit is to be used with a remote condenser.

DIRECT DRIVE 'R' TYPE COMPRESSOR - RECEIVER UNITS - Include direct drive compressor mounted on an ASME coded receiver, coupling guard, oil failure switch,

crankcase heater, high pressure and low pressure controls. Receiver includes inlet, outlet and relief valves. Motor, coupling, gauges and unmounted starter are optional. For use with remote condenser.

COMPRESSOR FEATURES



GENERAL . . . The criteria for design of the Big-4 compressor was performance, reliability, economy and low maintenance cost. Both the open and hermetic types meet these goals. These compressors have a range of displacements which extends from 3321 CFH to 6660 CFH and are suitable for use with refrigerants R-12, R-22 and R-502. They can operate at saturated suction temperatures from -40°F to +55°F.

SEMI HERMETIC AND DIRECT DRIVE . . . Compressors include crankcase heaters, oil pump and an internal pressure relief valve. Low temperature models also include a discharge temperature thermostat and an oil cooler with a desuperheating TX valve.

In addition to the above the semi-hermetic compressor also includes an across-the-line or part-wind motor and built in thermal protection. Starters must be ordered with the compressor.

HEAVY DUTY CONSTRUCTION . . . High grade, high density, non-porous cast iron with internal ribs for rigidity. Cylinders are bored and honed to a high micro finish, insuring resistance to wear and providing an excellent sealing surface. The cylinders are integrally cast and externally finned to insure rapid heat dissipation.

Oversize shaft and bearings . . . High strength nodular-iron crankshaft. Hi-lead bronze bearings for high allowable load and temperature factors. Unusually large connecting rod bearing area with super-finished bearing surfaces.

Efficient valve service . . . Flapper type valves combined with very low clearance volume assure high volumetric efficiency.

CRANKCASE HEATER . . . A cartridge type heater is provided in a cast-in well to prevent migration of refrigerant into the crankcase prior to start-up and during off cycles.

MODERN ALUMINUM RUNNING GEAR . . . Lightweight aluminum heavy duty rods and pistons. Pistons have three rings. Aluminum running gear combined with extremely heavy dynamically balanced shaft assures smooth, vibration-free operation.

FORCE-FEED LUBRICATION . . . Automatic reversing type pump with relief valve and large oil pick-up strainer provides ample lubrication to all bearing surfaces through the rifle-drilled shaft.

SUCTION FILTER . . . A suction gas filter is built into the compressor and is located in the gas stream between the suction shut-off valve and the crankcase. It is designed to filter out completely all foreign and abrasive elements with a minimum pressure drop.

PRESSURE RELIEF VALVE . . . Located internally, it is used as a safety valve to vent discharge gas at pressures higher than the preset pressure of the valve into the suction cavity.

CAPACITY CONTROL . . . Multi-step cylinder unloading capacity control, standard on all high temperature R22 compressors, provides, 100, 75 and 50% capacity on 4 cylinder models and 100, 66 and 33% capacity on 3 cylinder models. Capacity control is available as an option on commercial temperature models. It is not available on low temperature models.

FINNED MOTOR HOUSING . . . Unique finned motor housing used on semi-hermetic compressors, provides for optimum motor heat dissipation.

HERMETIC MOTOR . . . All hermetic motors are accessible and designed and built with latest high temperature insulation systems and are bonded with an epoxy dip.

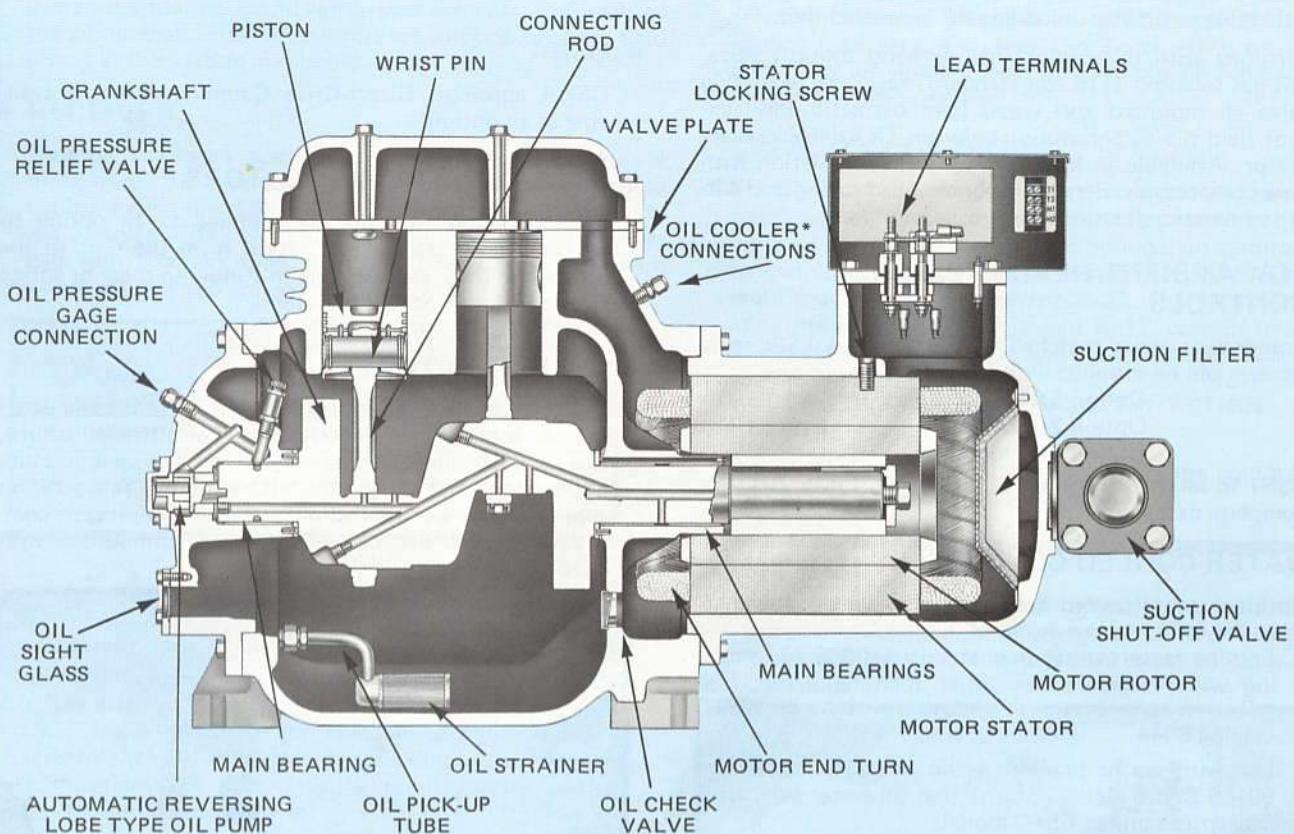
These motors are equipped with the most advanced solid state motor protection system incorporating sensors in each phase of the winding. The terminal box is located at the top of the housing above the crankcase oil level.

SHAFT SEAL . . . Direct drive compressors have proven oil cooled rotary shaft seals.

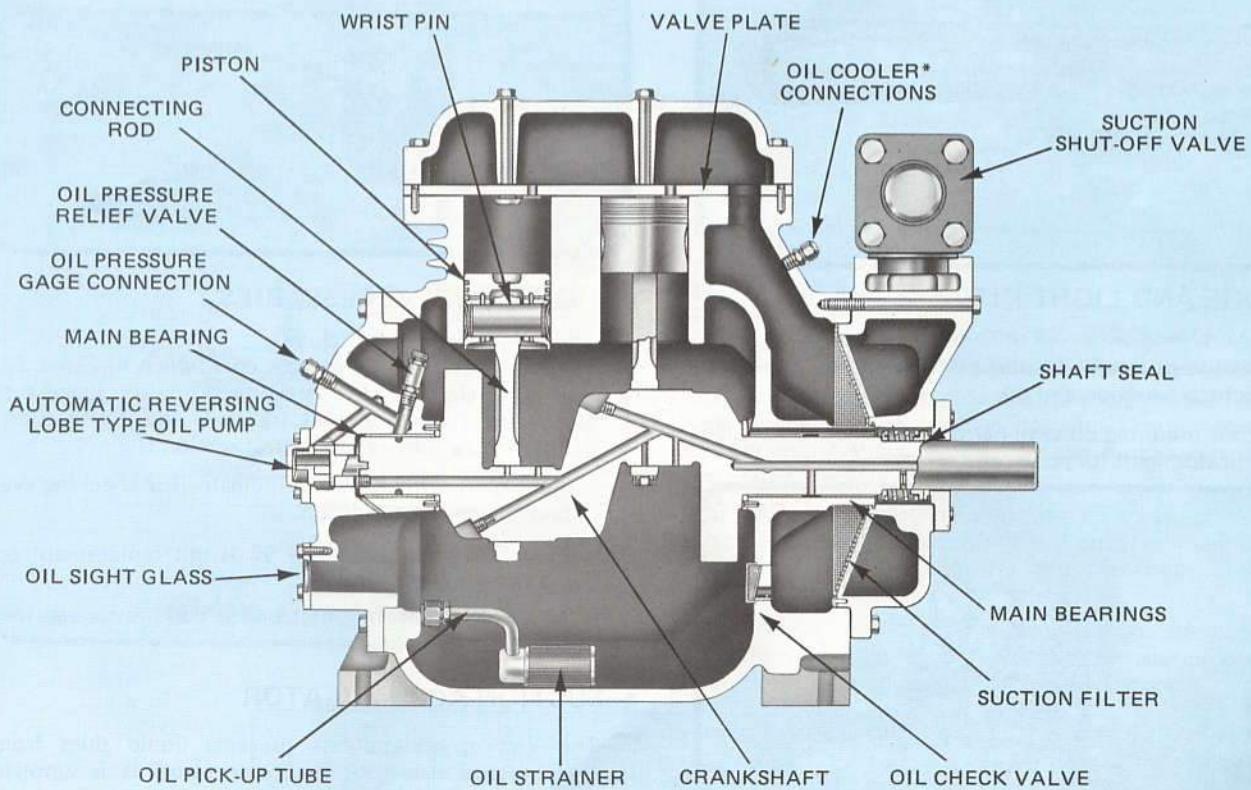
DISCHARGE TEMPERATURE THERMOSTAT . . . Prevents compressor operation when the discharge temperature reaches a preset maximum safe operational level. Supplied as standard on low temperature compressors, optional on commercial and high temperature compressors.

LOW TEMPERATURE FEATURES . . . Oil cooler, located inside the crankcase, is supplied as standard equipment on all low temperature machines. To prevent oil temperature from exceeding safe levels, a properly sized expansion valve meters refrigerant liquid to the oil cooler.

HERMETIC



DIRECT DRIVE



NOTE: * 'L' Models only or when applicable

OPTIONS AND ACCESSORIES

• HOT GAS BYPASS

Hot gas bypass permits capacity reduction down to approximately 25%. It may be used to supplement cylinder unloading or on non-unloading 'N' type machines.

All units with this option include hand shut-off valve, hot gas solenoid (115 volt standard) valve and regulating valve all mounted and wired (semi-hermetic only) except field piping connection between TX valve and evaporator. Available in kit form for field installation with bare compressors. Request recommended piping and wiring schematic, if desired when ordering.

• LOW AMBIENT HEAD PRESSURE CONTROLS

Compressor units matched with air cooled LSBC condensers can be supplied with the following options.

Option 1: Fan cycling

Option 2: Dampers

Option 3: Flooding

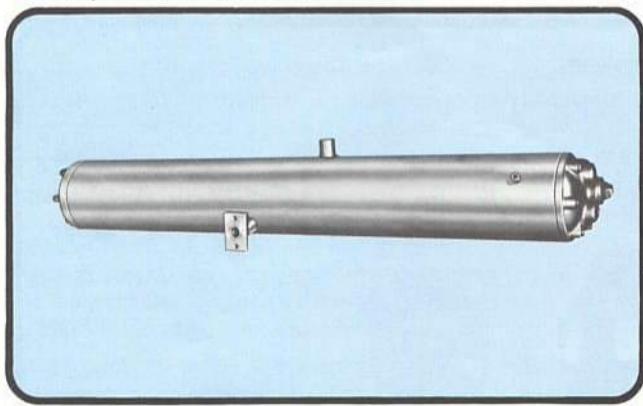
Refer to latest revision of LSBC catalog Form 7011 for complete details.

• WATER COOLED CONDENSERS

Optional water cooled condensers can be purchased to meet the following needs:

Fouling factors other than standard .0005 and entering water temperatures other than tabulated: Use selection procedure in latest revision of CSTC catalog 8044.

Use with sea or brackish water. MCSTC models are 90-10 Cupro-nickel construction on water side, with capacities same as CSTC models.

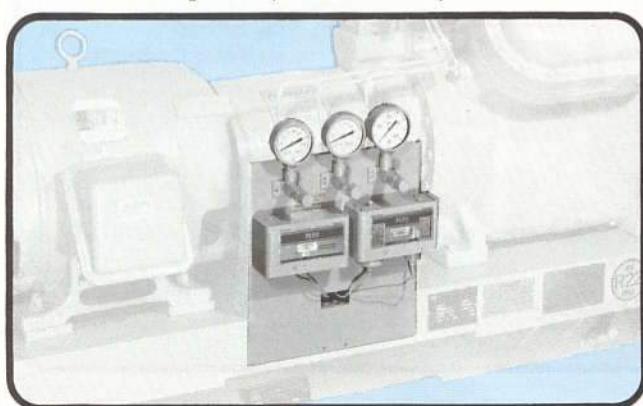


• GAUGE AND LIGHT KITS

Gauge kit mounted on all units includes:

Pressure gauges (with shut-off valve and snubbers) for discharge, suction and oil.

Light kit mounted on semi-hermetic units only includes:
Indicator lights for power and safety controls.



• CONTROL CIRCUIT TRANSFORMER

Optional control circuit transformers are mounted and wired on units with panels for 115 volt controls.

• OSHA

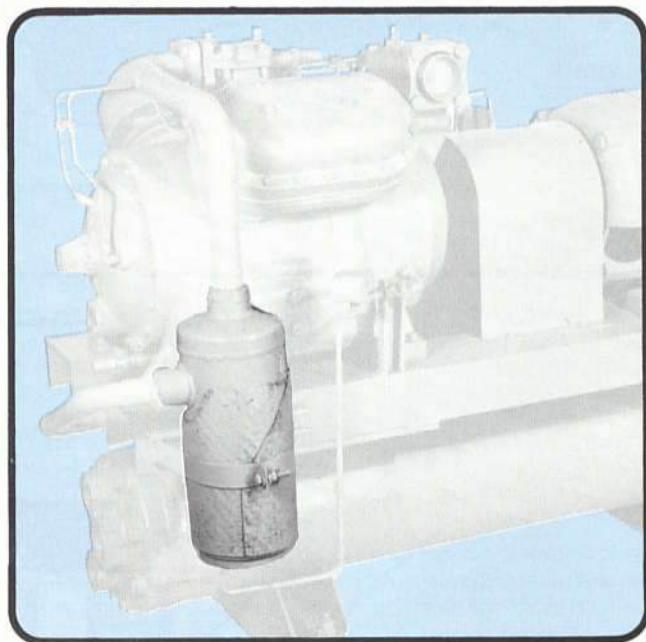
OSHA approved Direct-Drive Coupling Guard is available as an option.

• BASE VIBRATION ISOLATORS

Base vibration isolators are supplied as an option to reduce transmission of vibration from the unit to the structure. They are available in rubber-in-shear or spring type and are shipped unmunted.

• OIL SEPARATOR

Oil separator with oil return solenoid (115 volt standard) insures complete oil separation and positive oil return, and is particularly recommended on low temperature applications and in systems with extensive refrigeration piping. It can be supplied mounted on compressor, compressor-receiver and condensing units; unmunted with bare compressors.



• LIQUID LINE ACCESSORIES

Liquid line accessories include:

Filter drier with replaceable core which has large filtering surface for low pressure drops and keeps system dry and free of acid, moisture and sludge. (Consult factory for 3-Valve bypass version.)

Sight glass with moisture indicator for checking system charge and condition.

Liquid line shut-off valve to permit replacement of the filter drier.

These accessories are mounted on the compressor-receiver and condensing units.

• SUCTION ACCUMULATOR

The suction accumulator prevents liquid slugs from reaching and damaging the compressor. It is supplied unmunted. Consult factory for heated and insulated accumulators for use with hot gas defrost or in low ambient areas.

OPTIONS AND ACCESSORIES (CONTINUED)

• HEAT EXCHANGERS

Heat exchangers improve system performance by subcooling the liquid, and by superheating refrigerant vapor also guarantees that no liquid refrigerant can enter and damage the compressor. Heat exchangers are shipped loose for field piping in the suction and liquid lines.

• RECEIVERS

Optional receivers are available for compressor-receiver units only. All receivers are designed and constructed to conform with the ASME Code for vessels of 400 psig working pressure. They are supplied mounted and come equipped with a coded relief valve and inlet and outlet service valves. Models and storage capacities are:

MODEL RECEIVER	PUMPDOWN CAP. LBS. 80% FULL	
	R-12	R-22 & R-502
R860	106	92
R1060	165	144
R1260	225	196

Capacity control is standard equipment on all high temperature R22 compressors, (optional on commercial temperature models) both semi-hermetic and direct drive. Two steps to 33% capacity are supplied on 3 cylinder models and two steps to 50% capacity are supplied on 4 cylinder models. These machines are available without unloading. Use suffix 'N' to designate no unloading. Low temperature machines are not available with capacity control. (Refer to Unit Nomenclature)

High pressure gas on top of the unloader piston loads the cylinder. (Solenoid is energized opening the high pressure port and closure plate is down against the valve plate closing unloading ports, see Figure 1).

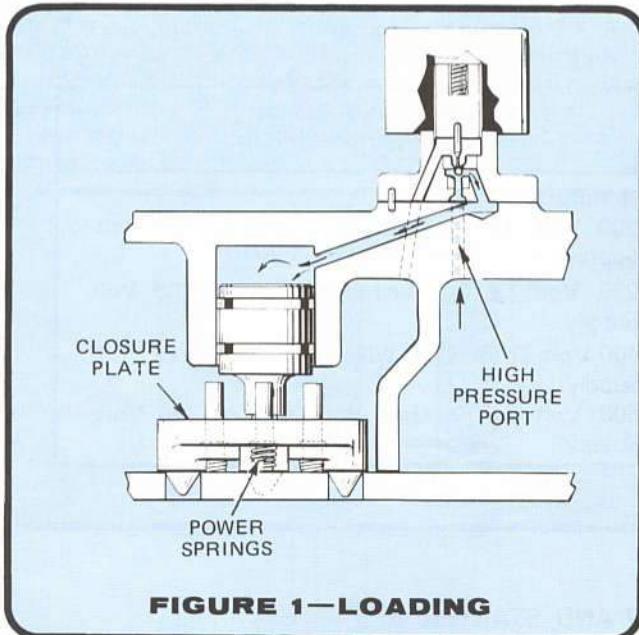


FIGURE 1—LOADING

• CONDENSER WATER REGULATING VALVES

Condenser water regulating valve - W Units - maintains constant discharge pressures as water temperatures and cooling load vary. Two-way and 3-way valves are available. They are shipped loose for field piping. See page 40 for size and pressure drop.

• CAPACITY CONTROL

Electric cylinder unloading. For description and capacity steps see below. This type of unloading is not available on low temperature machines, is optional on commercial temperature machines and is standard on high temperature models using refrigerant R-22. For high temperature machines using refrigerant R-12, consult factory. Thermostat or pressurestat step controls are available.

• UNDER VOLTAGE AND PHASE PROTECTION RELAYS

Optional relays are available to protect the compressor from under voltage and single phasing.

CAPACITY CONTROL

Suction pressure gas to top of unloader piston unloads the cylinder. (Solenoid is de-energized closing high pressure port and closure plate is raised clear of unloading ports, see Figure 2).

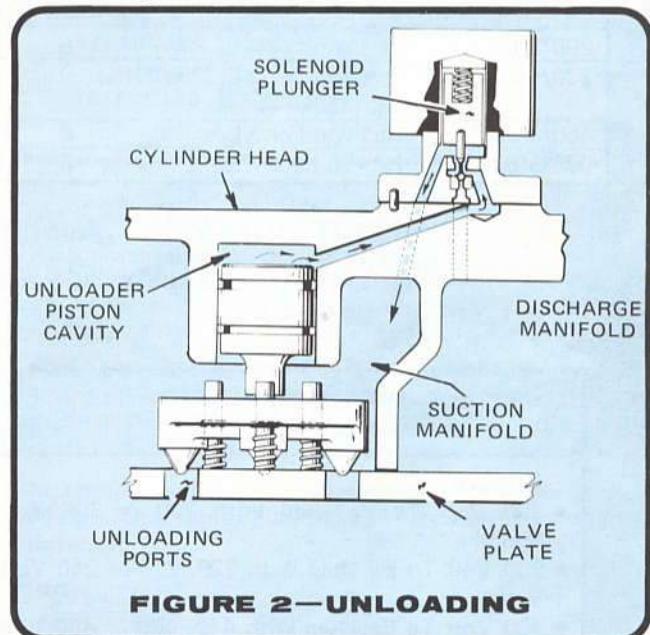


FIGURE 2—UNLOADING

At start up the solenoids are de-energized and cylinders are unloaded long enough to allow compressor motor to get up to speed. Normal torque motors can therefore be used on direct drive machines.

Optional thermostats or pressurestats are used to control steps of capacity reduction. The 3 and 4 cylinder compressors have two solenoids for the two steps of capacity reduction.

Controls are not factory set for specific operating conditions and must be adjusted at the time of installation of the unit in order to properly program unloading steps.

No. of Cyl.	No. of Controlled Cyl.	Steps of Control	Capacity Steps, Percent of Full Capacity				
			100	75	66.7	50	33.3
			Number of Active Cylinders				
3	2	2	3	—	2	—	1
4	2	2	4	3	—	2	—

ELECTRICAL CHARACTERISTICS

SEE PAGES 43 THRU 46 FOR TYPICAL WIRING DIAGRAMS

MOTOR PROTECTION - Semi-hermetic - Starters with ambient compensated quick trip overload relays are supplied with all compressors. In addition, thermal sensors which respond to changes in temperature are located in the motor windings. If abnormal temperatures should occur from either locked rotor or severe operating conditions, the thermal sensors will take the motor off the line before the motor temperature exceeds the safe limit. Refer to page 7 for additional data.

MOTOR PROTECTION - Direct Drive - Starters with over-load protection must be provided for both across-the-line or part wind motors which drive an open compressor. They are available as an option and are selected in accordance with the National Electric Code.

OPERATING PROTECTION . . . Compressors and units are furnished with oil pressure failure, high and low pressure

controls. Discharge temperature control is standard on low temperature and optional on commercial and high temperature compressors.

CRANKCASE HEATER - Heaters are supplied for both hermetic and direct drive compressors and are rated for 115 volts. An auxiliary contact is supplied in the hermetic starter panel and when optional starters are ordered for direct-drive compressors or units an auxiliary contact is included. This contact is used to de-energize the heater during compressor operation. See applicable wiring diagram for heater connections.

CAPACITY CONTROL . . . Unloader is operated by pilot solenoid. Control of unloading can be accomplished by temperature switch or pressure switch wired as shown in typical wiring diagram.

STANDARD SEMI-HERMETIC MOTOR ELECTRICAL CHARACTERISTICS

— 60HZ CHARACTERISTICS —

Nominal* Voltage	Type of Starting	No. of Leads
200/3/60	Part Wind or XL.	6
230/460/3/60	Part Wind or XL. (230V) XL (460V)	9
460/3/60	Part Wind or XL.	6
575/3/60	Part Wind or XL.	6

— 50HZ CHARACTERISTICS —

Nominal* Voltage	Type of Starting	No. of Leads
200/400/3/50	Part Wind or XL. (200V) XL Start (400V)	9
220/3/50	Part Wind or XL (25–50HP)	6
400/3/50	Part Wind or XL.	6
500/3/50	Part Wind or XL.	6

***VOLTAGE TOLERANCE . . . Semi-Hermetic** - The allowable tolerance in operating voltage at the compressor terminals is $\pm 15\%$ of the rated nominal* nameplate voltage, except for 200 volts which is +15% and -10%. Maximum allowable voltage unbalance shall not exceed 2%.

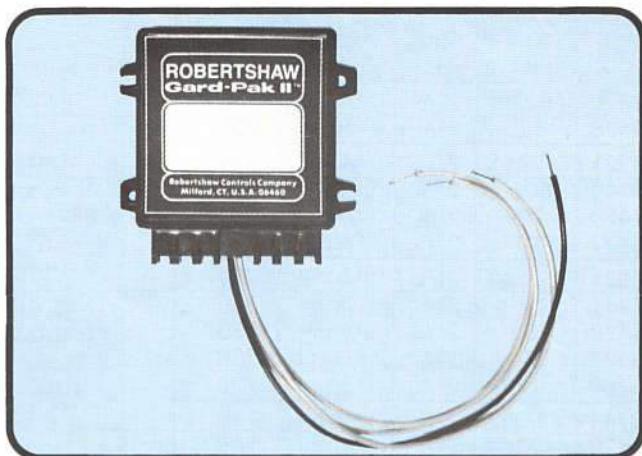
Application of Standard Voltage Motors (60Hz):	Application of Standard Voltage Motors (50Hz):
<p>Nominal:</p> <ul style="list-style-type: none">● 200 Volt To Be Used With 200 or 208 Volt Supply.● 230 Volt To Be Used With 220, 230 or 240 Volt Supply.● 460 Volt To Be Used With 440, 460 or 480 Volt Supply.● 575 Volt To Be Used With 550, 575 or 600 Volt Supply.	<p>Nominal:</p> <ul style="list-style-type: none">● 200 Volt To Be Used With 200 or 208 Volt Supply.● 220 Volt To Be Used With 220 or 230 Volt Supply.● 400 Volt To Be Used With 380, 400 or 415 Volt Supply.● 500 Volt To Be Used With 460 or 480 Volt Supply.

DIRECT DRIVE MOTOR AND STARTER ELECTRICAL CHARACTERISTICS

Any type or voltage of motor and starting equipment as required can be furnished. Odd frame size, voltage or frequency requirements are to be referred to the factory for special pricing and delivery.

SOLID STATE SEMI-HERMETIC MOTOR PROTECTION

CONTROL MODULE

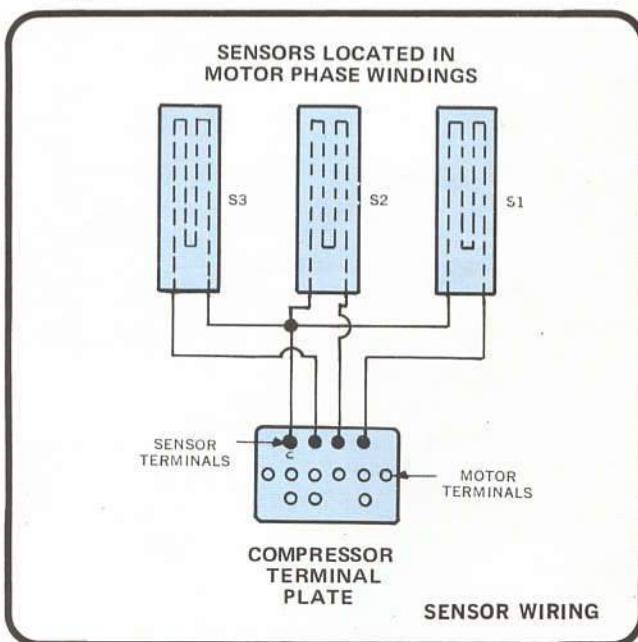


The motor winding temperature protector used on Dunham-Bush Big 4 hermetic compressors is the most advanced used in the refrigeration and air conditioning industry. It offers the following advantages:

1. **Three Phase Protection** - With a sensor embedded in each phase winding.
2. **Sensor Accuracy** - Sensors are wired directly to the control module without the inaccuracy that results from additional components in sensor circuits.
3. **Control Module Location** - Mounted and wired in compressor terminal box at factory to minimize field wiring.
4. **Automatic Reset** - Allows the compressor to cycle, preventing total loss of refrigeration during crucial load periods.
5. **Integral Power Transformer** - For greater compactness and accuracy of the system.

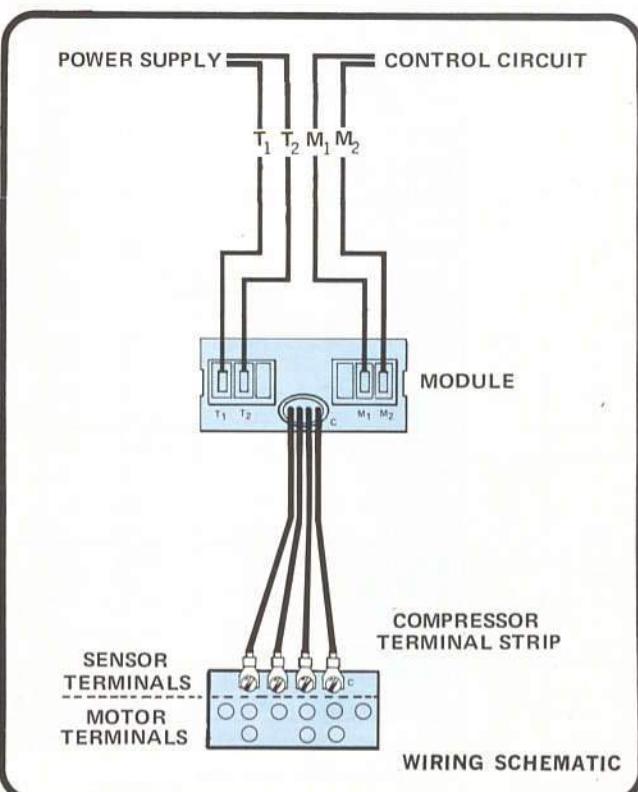
INSTALLATION:

On D-B compressors, the sensors are embedded in the motor end-turns and their leads are wired to terminal posts on the compressor terminal plate. The control module is mounted in the compressor terminal box and is factory wired to the sensor terminal posts; if desired it may be mounted remotely in any position.



FIELD SERVICING

Warning - The control module is sealed at the factory and its warranty is void if it is opened. Do not attempt to service the module in the field.



Four field wiring connections must be made by the customer and they are:

1. **T1 and T2 - Module power connection** - To energize module connect these terminals to a power source of proper voltage, check voltage markings on module.
2. **M1 and M2 - Control circuit device** - The compressor control circuit is to be connected to these terminals which are wired to a 2.5 amp 120V or 1.56 amp 208/240V relay which completes the control circuit in the module.

The control module supplied with the compressor is rated at 120 volts; optional 208/240 volt modules can be supplied on request.

OPERATION

The solid state motor protection consists of two major components: sensor elements and a control module.

1. **Sensors** - Three fine wire sensing elements, that are encapsulated in a plastic film, are embedded in the motor windings. When the motor temperature increases the resistance of these sensors increases. This increased resistance is sensed by the control module.
2. **Module** - The control module contains a modified solid state bridge circuit interlocked to a relay. With the module energized and the sensors at a safe temperature the relay is closed; when the temperature of the motor increases beyond a safe limit the increase in sensor resistance is sensed by the module and the relay opens, which de-energizes the control circuit shutting off the compressor. As the motor cools the process is reversed and the relay will close when the motor reaches a safe operating temperature.

SEMI-HERMETIC COMPRESSOR SPECIFICATIONS

Comp. Model	Nominal HP	Displacement**			*Refrig. R-	Valve Size In Inches		Approx. Shp. Wt. Lbs.
		No. Cyl. Bore/Stroke Letter Code	CFM	CFH		Suct. ODS	Disch. ODS	
155LFN††	15	3A	55.3	3321	502	2 ¹ /8	1 ³ /8	720
157CN ††	15	4A	73.8	4428	12	2 ⁵ /8	1 ³ /8	720
205CFN††	20	3A	55.3	3321	22	2 ¹ /8	1 ³ /8	724
216LFN††	20	4E	62.1	3744	502	2 ¹ /8	1 ³ /8	724
207HN ††	20	4A	73.8	4428	12	2 ⁵ /8	1 ³ /8	724
208CN ††	20	4B	85.4	5127	12	2 ⁵ /8	1 ⁵ /8	724
255HF/N	25	3A	55.3	3321	22/502	2 ¹ /8	1 ³ /8	730
266CFN	25	4E	62.1	3744	22	2 ¹ /8	1 ³ /8	730
257LFN	25	4A	73.8	4428	502	2 ¹ /8	1 ³ /8	730
258HN	25	4B	85.4	5127	12	2 ⁵ /8	1 ⁵ /8	730
259CN	25	4C	96.0	5760	12	2 ⁵ /8	1 ⁵ /8	730
316HF/N	30	4E	62.1	3744	22/502	2 ¹ /8	1 ³ /8	740
307CFN	30	4A	73.8	4428	22	2 ⁵ /8	1 ³ /8	740
308LFN	30	4B	85.4	5127	502	2 ⁵ /8	1 ³ /8	740
309HN	30	4C	96.0	5760	12	2 ⁵ /8	1 ⁵ /8	740
311CN	30	4D	111.0	6660	12	2 ⁵ /8	1 ⁵ /8	740
357HF/N	35	4A	73.8	4428	22/502	2 ⁵ /8	1 ³ /8	745
358CFN	35	4B	85.4	5127	22	2 ⁵ /8	1 ⁵ /8	745
359LFN	35	4C	96.0	5760	502	2 ⁵ /8	1 ⁵ /8	745
361HN	35	4D	111.0	6660	12	2 ⁵ /8	1 ⁵ /8	745
408HF/N	40	4B	85.4	5127	22/502	2 ⁵ /8	1 ⁵ /8	750
409CFN	40	4C	96.0	5760	22	2 ⁵ /8	1 ⁵ /8	750
411LFN	40	4D	111.0	6660	502	2 ⁵ /8	1 ⁵ /8	750
509HF/N	50	4C	96.0	5760	22/502	2 ⁵ /8	1 ⁵ /8	800
511CFN	50	4D	111.0	6660	22	2 ⁵ /8	1 ⁵ /8	800
511HF/N†	50	4D	111.0	6660	22/502	2 ⁵ /8	1 ⁵ /8	800

NOTE: All compressors have a crankcase oil capacity of 9 quarts.

† For use on 50 Hertz only.

†† Not available in voltage of 220-3-50.

* HFN Models may be used with R-502 in commercial temp. range. Consult factory for capacities.

** Displacements are for 60 Hz. only (1750 RPM). For 50 Hz. displacement multiply by 5/6.

Displacement code interpretation

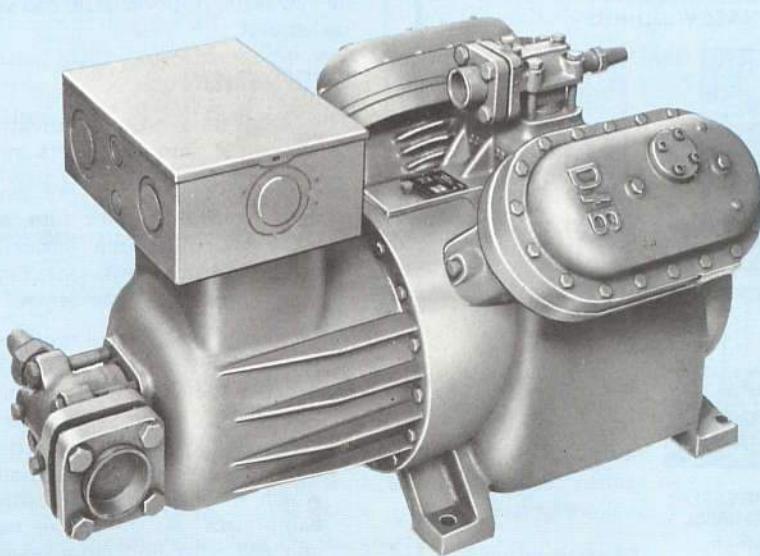
Example 4B

4 = Number of Cylinders

B = Bore/Stroke (Letter Code)

3¹/₈" x 2³/₄"

BORE/STROKE LETTER CODE	A	B	C	D	E
BORE	3 ¹ / ₈	3 ¹ / ₈	3 ⁹ / ₁₆	3 ⁹ / ₁₆	3 ¹ / ₈
STROKE	2 ³ / ₈	2 ³ / ₄	2 ³ / ₈	2 ³ / ₄	2



DIRECT-DRIVE COMPRESSOR SPECIFICATIONS

Comp. Model	Displacement**			Refrig.* R-	Valve Size In Inches		Approx. Shp. Wt. Lbs.	Water Cooled HP-Required			Air Cooled HP-Required		
	No. Cyl. Bore/Stroke Letter Code	CFM	CFH		Suct. ODS	Disch. ODS		R-12	R-22 or R502	DLFN Models R-502	R-12	R-22 or R502	DLFN Models R-502
155DLFN	3A	55.3	3321	502	2 ¹ / ₈	1 ³ / ₈	590	-	20	20	-	20	20
157DCN	4A	73.8	4428	12	2 ⁵ / ₈	1 ³ / ₈	590	20	-	-	25	-	-
205DCFN	3A	55.3	3321	22	2 ¹ / ₈	1 ³ / ₈	590	-	25	-	-	25	-
216DLFN	4E	62.1	3744	502	2 ¹ / ₈	1 ³ / ₈	590	-	25	25	-	25	25
207DHN	4A	73.8	4428	12	2 ⁵ / ₈	1 ³ / ₈	600	25	-	-	25	-	-
208DCN	4B	85.4	5127	12	2 ⁵ / ₈	1 ⁵ / ₈	600	25	-	-	25	-	-
255DHF/N	3A	55.3	3321	22/502	2 ¹ / ₈	1 ³ / ₈	590	-	25	-	-	30	-
266DCFN	4E	62.1	3744	22	2 ¹ / ₈	1 ³ / ₈	590	-	25	-	-	30	-
257DLFN	4A	73.8	4428	502	2 ¹ / ₈	1 ³ / ₈	600	-	30	30	-	30	30
258DHN	4B	85.4	5127	12	2 ⁵ / ₈	1 ⁵ / ₈	600	25	-	-	30	-	-
259DCN	4C	96.0	5760	12	2 ⁵ / ₈	1 ⁵ / ₈	600	25	-	-	30	-	-
316DHF/N	4E	62.1	3744	22/502	2 ¹ / ₈	1 ³ / ₈	590	-	30	-	-	40	-
307DCFN	4A	73.8	4428	22	2 ⁵ / ₈	1 ³ / ₈	600	-	30	-	-	40	-
308DLFN	4B	85.4	5127	502	2 ⁵ / ₈	1 ³ / ₈	600	-	40	40	-	40	40
309DHN	4C	96.0	5760	12	2 ⁵ / ₈	1 ⁵ / ₈	600	30	-	-	40	-	-
311DCN	4D	111.0	6660	12	2 ⁵ / ₈	1 ⁵ / ₈	600	30	-	-	40	-	-
357DHF/N	4A	73.8	4428	22/502	2 ⁵ / ₈	1 ³ / ₈	600	-	40	-	-	50	-
358DCFN	4B	85.4	5127	22	2 ⁵ / ₈	1 ⁵ / ₈	600	-	40	-	-	50	-
359DLFN	4C	96.0	5760	502	2 ⁵ / ₈	1 ⁵ / ₈	600	-	-	40	-	-	40
361DHN	4D	111.0	6660	12	2 ⁵ / ₈	1 ⁵ / ₈	600	40	-	-	40	-	-
408DHF/N	4B	85.4	5127	22/502	2 ⁵ / ₈	1 ⁵ / ₈	600	-	40	-	-	50	-
409DCFN	4C	96.0	5760	22	2 ⁵ / ₈	1 ⁵ / ₈	600	-	40	-	-	50	-
411DLFN	4D	111.0	6660	502	2 ⁵ / ₈	1 ⁵ / ₈	600	-	50	50	-	50	50
509DHF/N	4C	96.0	5760	22/502	2 ⁵ / ₈	1 ⁵ / ₈	600	-	50	-	-	50	-
511DCFN	4D	111.0	6660	22	2 ⁵ / ₈	1 ⁵ / ₈	600	-	50	-	-	50	-
511DHF/N	4D	111.0	6660	22/502	2 ⁵ / ₈	1 ⁵ / ₈	600	-	50	-	-	60	-

NOTE: All compressors have a crankcase oil capacity of 9 quarts.

*HFN Models may be used with R-502 in commercial temp. range. Consult factory for capacities.

** Displacements are for 60 Hz. only (1750 RPM). For 50 Hz. displacement multiply by $\frac{5}{6}$.

Displacement code interpretation

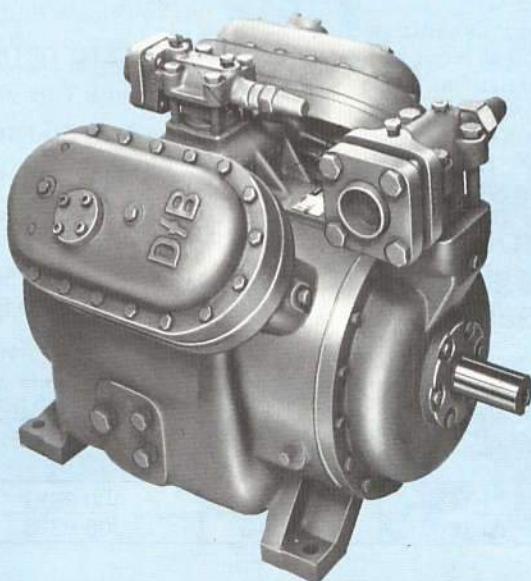
Example 4B

4 = Number of Cylinders

B = Bore/Stroke (Letter Code)

3¹/₈" x 2³/₄"

BORE/STROKE LETTER CODE	A	B	C	D	E
BORE	3 ¹ / ₈	3 ¹ / ₈	3 ⁹ / ₁₆	3 ⁹ / ₁₆	3 ¹ / ₈
STROKE	2 ³ / ₈	2 ³ / ₄	2 ³ / ₈	2 ³ / ₄	2

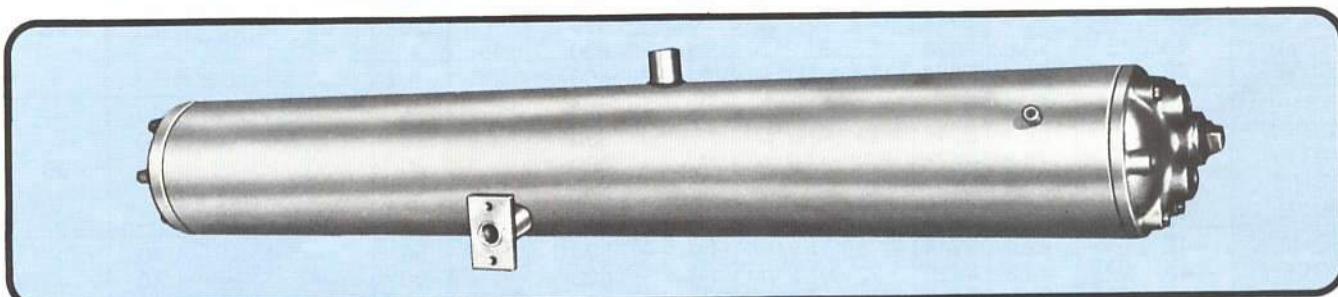


'CSTC' WATER COOLED CONDENSER FEATURES

(For 'W' Type Condensing Units)

The Dunham-Bush CSTC Cleanable Shell and Tube Condenser is a compact, heavy-duty, highly efficient water cooled refrigerant condenser.

These condensers are designed for use with city water, tower water, or sea water (marine models). Both water heads are removable to provide easy access to the straight-thru, smooth-wall tubes for cleaning purposes. It is designed and circuited to provide subcooled refrigerant and has pumpdown capacity indicated below.



PUMPDOWN CAP. LBS. 80% FULL			PUMPDOWN CAP. LBS. 80% FULL		
MODEL CSTC OR MCSTC	R-12	R-22 & R-502	MODEL CSTC OR MCSTC	R-12	R-22 & R-502
548	31	28	1260	214	193
848	92	83	1454	226	204
1048	122	110	1460	250	225
1060	151	136	1648	237	214
1248	171	154	1660	296	267

- Seamless steel shell with flush tube sheets.
- 3/8" tubes are expanded into aluminum fin in banks of five. Each bank is secured with brackets which are welded to the shell.
- Electronic control is used to roll all tubes into heavy fixed tube sheets.
- Designed and circuited to provide sub-cooled refrigerant.
- Relief Valve and Refrigerant Out Valve standard with 'W' units.
- 2-Pass (Tower) and 4-Pass (City) water connections. (14" and larger available only as 2-Pass)

- Smooth wall water tubes are easily cleaned.
- All condensers are constructed in accordance with ASME Code.
- Models CSTC 848 and larger are ASME Certified refrigerant side and carry the ASME stamp.
- Hot gas distributor plate gives equal gas distribution and protects tubes from direct gas impingement.
- Options include water regulating valve and dual relief valves.
- Consult CSTC Form 8044 to select CSTC's with fouling factors other than standard .0005.

'CSTC' STANDARD MODELS

- Copper Water Tubes
- Steel Tube Sheets
- Removable Cast Iron Heads
- Designed for use with Refrigerants R-12, R-22 and R-502.

'MCSTC' OPTIONAL MARINE MODELS

- Cupro-Nickel Tubes
- Cupro-Nickel Clad Steel Tube Sheets
- Removable Bronze Heads
- Designed for use with Refrigerants R-12, R-22 and R-502.
- Special condensers are available to meet USCG or Navy Approval - Consult Factory.

MODEL CSTC OR MCSTC	DESIGN WORKING PRESSURE	
	WATER SIDE	REFRIGERANT SIDE
548 THRU 1460	125 PSIG	400 PSIG
1648 THRU 1660	125 PSIG	300 PSIG

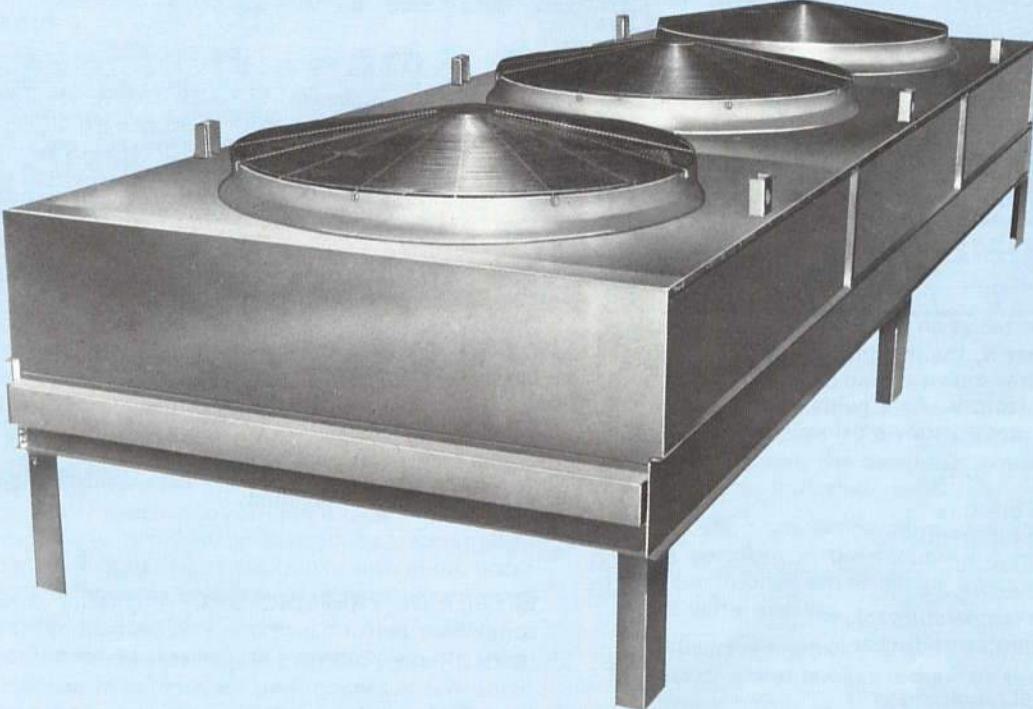
'LSBC' AIR COOLED CONDENSER FEATURES

(For 'E' Type Compressor & 'R' Type Compressor-Receiver Units)

Dunham-Bush LSBC-Low Silhouette air cooled condensers have been specifically selected to match the system operating characteristics over a wide range of ambient conditions. Belt drive models are utilized for heat rejection greater than 200,000 BTUH. See latest revision of Catalog 7011 for greater details. Direct drive fan models are matched to units where heat rejection is less than 200,000 BTUH.

LSBC air cooled condensers offer advancements in both design and performance. The principle advantages are those of lower silhouette, factory installed options, heavy gauge construction, optimum heat transfer surface and reduced sound levels. Units are available with both direct and belt drive fans and can be used on low, commercial and high temperature applications for refrigeration or air conditioning.

This new low silhouette design provides for ease of installation and service. All components of these units have been prematched and tested to provide for long system life.



- **CASING** - All casings are constructed of aluminum or galvanized sheet steel. All external steel casing parts have special coating for added protection.

- **CONDENSER COIL** - Dunham-Bush Wave Fin® and 'W' Fin type coils assure maximum efficiency of heat transfer between the circulating refrigerant and air. Coils are suitable for R-22, R-502 and R-12.

- **FANS**

Direct Drive - Fans are aluminum with cadmium plated spiders.

Belt Drive - Large diameter fans, having low tip speeds are zinc coated steel with gold iridite finish.

- **FAN GUARDS**

Direct Drive - All fans are covered by a single flat grille for a streamline appearance.

Belt Drive - Domed type grilles are used for maximum rigidity.

- **MOTORS**

Direct Drive - Motors have splashproof enclosures and permanently lubricated ball bearings.

Belt Drive - Motors for belt driven fans are open drip-proof type. Motors are mounted on adjustable bases for ease of maintaining belt tension. Each fan is driven by its own motor for additional reliability.

- **ELECTRICAL PANEL** - All motors are factory wired to a terminal strip in a rainproof panel.

- **SERVICEABILITY** - All units provide ease of inspection, preventive maintenance and service.

- **INSTALLATION**

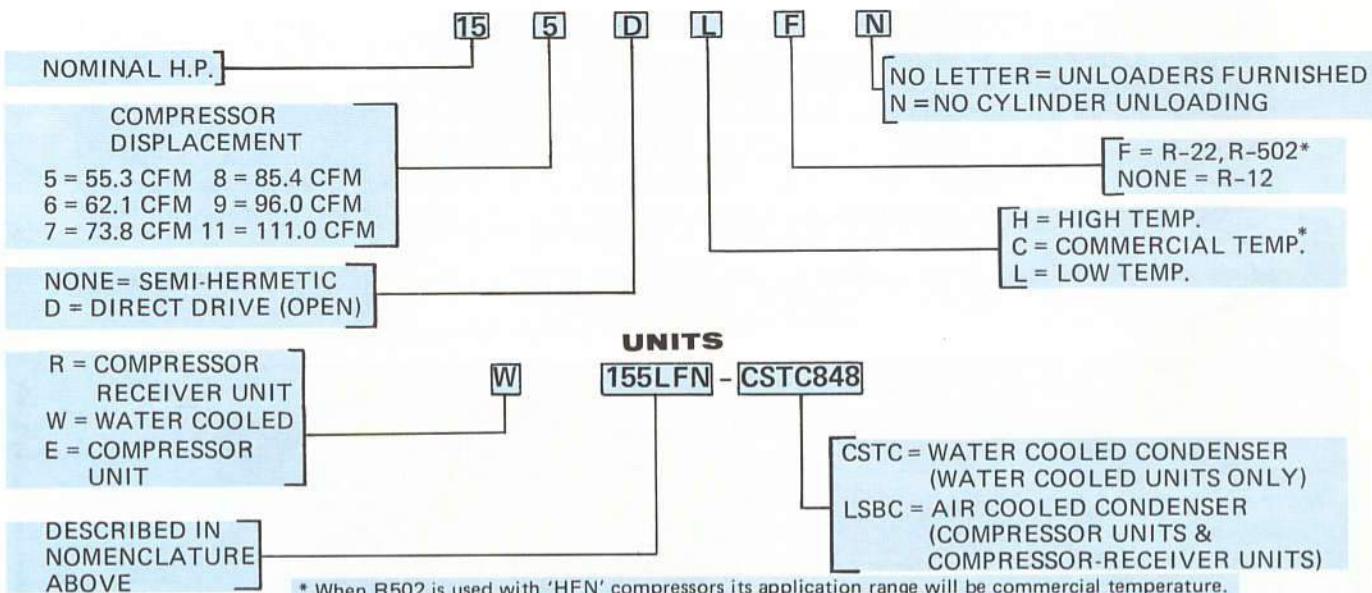
Rigging time, and cost are reduced to a minimum.

- **OPTIONS**

A control panel is optional on all LSBC models.

NOMENCLATURE

COMPRESSORS



COMPRESSOR RATING AND APPLICATION DATA

RATINGS

Ratings shown in the tables on the following pages must not be extrapolated. That is, the maximum and minimum pressures and temperatures shown should not be exceeded without consulting the factory. As a guide, the minimum and maximum temperatures are shown below.

Pressure limits are as follows:

Maximum discharge pressure	360 PSIG
Maximum operating differential.....	300 PSID
Maximum suction pressure	95 PSIG
Minimum suction pressure.....	0 PSIG
Maximum discharge temperature taken one foot from compressor discharge shut-off valve	270°F
Minimum differential required to operate unloaders.....	75 PSID

50 HERTZ APPLICATIONS

Ratings are based upon 60 Hz. (1750 RPM) operation. Multiply capacity, Kw and HP by .833 for 50 Hz. (1450 RPM) operation. NOTE: Models 155LFN, 157CN, 205CFN, 216LFN, 207HN and 208CN are not available in 220-3-50 volts.

DIRECT DRIVE AND SEMI HERMETIC BIG 4 COMPRESSOR APPLICATION LIMITS

COMPRESSOR OPERATING RANGE	COMPRESSOR MODEL SUFFIXES	REFRIG.	RANGE SATURATED SUCTION TEMPERATURE SST, °F	MAXIMUM SATURATED DISCHARGE TEMPERATURE SDT, °F
HIGH	HN	R12	0 thru 55	145
	HF	R22	20 thru 55	145
	HFN	R22	0 thru 55	145
COMMERCIAL	HFN**	R502	-5 thru 30	145
	CN	R12	-5 thru 30	135
	CFN	R22	0 thru 25	145
LOW	LFN	R502	-40 thru 0	135

NOTE: Short period pulldown or pumpdown conditions may exceed above limits.

** Consult factory for R-502 commercial temperature capacities (using HFN compressors).

DIRECT DRIVE AND SEMI HERMETIC BIG 4 COMPRESSOR RATING BASIS

COMPRESSOR MODEL SUFFIX	REFRIG.	DEGREES OF LIQUID SUBCOOLING LEAVING CONDENSER °F	DEGREES OF SUPERHEAT IN SUCTION GAS AT COMPRESSOR °F	RETURN GAS TEMP. AT COMPRESSOR °F
HN CN	R12 R12	0 0	- -	65 65
HF - HFN- CFN	R22 R22	10 10	25 25	- -
HFN** LFN	R502** R502	0 0	- -	65 65

Compressor ratings listed in this catalog are based upon the above refrigerant liquid and vapor temperatures.

**Consult factory for R-502 commercial temperature capacities (using HFN compressors).

CORRECTION FACTORS FOR OTHER THAN RATED CONDITIONS

R-12 REFRIGERANT

TABLE 1

°F SUBCOOLING	MULT.
0*	1.000
1	1.006
5	1.030
10	1.050
15	1.070
20	1.090
25	1.110
30	1.130

TABLE 2

RETURN GAS TEMP. °F	MULT.	RETURN GAS TEMP. °F	MULT.
0	.94	45	.9815
5	.9445	50	.986
10	.9490	55	.9905
15	.9435	60	.995
20	.958	65*	1.0
25	.9625	70	1.005
30	.967	75	1.0095
35	.972	80	1.014
40	.977		

R-22 REFRIGERANT

TABLE 3

°F SUBCOOLING	MULT.
0	.95
1	.955
5	.975
10*	1.00
15	1.025
20	1.05
25	1.075
30	1.10

SUPERHEAT MULT.

Suction gas superheat for refrigerant R-22 has a negligible effect on capacity in the 0°F thru 30°F superheat range. Superheats exceeding 30°F may have an adverse effect on discharge temperatures. Superheat at the published capacity rating point is 25°F.

TABLE 4

°F SUBCOOLING	MULT.
0*	1.000
1	1.007
5	1.035
10	1.07
15	1.10
20	1.13
25	1.16
30	1.18

TABLE 5

RETURN GAS TEMP. °F	MULT.	RETURN GAS TEMP. °F	MULT.
-35	.80	30	.93
-30	.81	40	.95
-20	.83	50	.97
-10	.85	60	.99
0	.87	65*	1.0
10	.89	70	1.01
20	.91	80	1.03

*Published rating point.

SUBCOOLING FACTORS

• SUBCOOLING - R12 & R502:

Since the rating basis is 0° subcooling, any subcooling in the system will have the effect of increasing compressor capacity. Apply subcooling correction factors to increase compressor capacity only when subcooling is accomplished by a medium external to the system such as air, water or separate refrigeration system, i.e., a subcooling coil on the condenser or a D-X subcooler.

When an interchanger (superheater/subcooler) is used, the increase in compressor performance is accounted for by use of return gas multipliers as detailed below in "Return Gas Temperature - R12 & R502" paragraph.

• SUBCOOLING - R22:

Since the rating basis is 10° subcooling, any less subcooling will have the effect of decreasing compressor capacity. Apply subcooling correction factors to decrease compressor capacity.

Any subcooling greater than 10° will have the effect of increasing compressor capacity provided subcooling is accomplished by a medium external to the system such as air, water or separate refrigeration system, i.e., a subcooling coil on the condenser or a D-X subcooler. Apply subcooling correction factor to increase compressor capacity.

When an interchanger (superheater/subcooler) is used, the effect on compressor capacity is negligible as indicated in "Return Gas Temperature - R22" paragraph.

RETURN GAS TEMPERATURES/ SUPERHEAT FACTORS

(Superheat = Return gas temperature entering the compressor minus saturated suction temperature).

• RETURN GAS TEMPERATURE - R12 & R502:

If the temperature of the suction gas is less than the 65° rating point, it is necessary to reduce the compressor rating by factor indicated.

If the temperature of the suction gas is greater than the 65° rating point, the compressor rating can be increased by the factor indicated.

The suction gas temperature used to determine factors must be taken in the suction line just before it leaves the conditioned space, at the point where it can do no more useful cooling.

When evaporators are located *within* the conditioned space, useful cooling is done by the suction line when heat is picked up in (and helps to cool) the conditioned space. This heat further superheats the suction gas leaving the evaporator coil. Any superheat picked up *outside* of the conditioned space in the suction line (non-useful cooling) must be added to the evaporator load to select the compressor or condensing unit.

If a heat interchanger (superheater/subcooler) in the system contributes additional superheat, the return gas temperature factor will be further increased and compressor capacity increased. It is by this means that compressor capacity improvement from an interchanger can be calculated.

Note: Do not calculate compressor capacity increase from an interchanger by using subcooling multipliers. This would result in a capacity increase greater than actually realized from an interchanger.

• RETURN GAS TEMPERATURE - R22

There are no correction factors to adjust R22 compressors from the rating basis of 25° superheat for reasons given in the factor table.

Heat interchangers are not generally used in R22 systems because of the need to avoid high superheat temperatures. If, however, an interchanger is used the compressor capacity is not enhanced and neither subcooling nor superheat factors can be used to improve performance.

'CSTC' AND 'LSBC' CONDENSER SELECTION BASIS

CONDENSER SELECTION BASIS FOR UNITS PRE-MATCHED TO 'CSTC' WATER COOLED CONDENSERS AND 'LSBC' REMOTE AIR-COOLED CONDENSERS.

'CSTC' and 'LSBC' condensers are sized at the saturated suction temperature (SST) indicated in the tables, and constitute "most economical" selection. They are not sized for frequent pulldowns or constant operation at high SST's.

For pulldown applications select units with 'CSTC' or 'LSBC' sized at maximum 55° SST for high temperatures, maximum 25° SST for commercial temperatures, and maximum 0° SST for low temperatures or at the maximum SST anticipated during operation. Do not exceed these limits without consulting factory Application Engineering.

'CSTC' condensers in the ratings are selected based upon nominal 10° water temperature rise and 20° difference between saturated discharge temperature (SDT) and water entering temperature i.e. 85° entering water temperature, 95° leaving water temperature, 105° SDT. The standard water side fouling factor used is .0005. For other water temperature rises, determine Total Heat of Rejection using factors given below, and select condenser from CSTC catalog 8044.

'LSBC' condensers in the ratings are selected based upon 15° to 20° temperature difference between ambient air temperature and SDT for commercial and high temperature units; and 10° to 15° difference for low temperature units.

COMPRESSOR HEAT OF REJECTION FACTORS

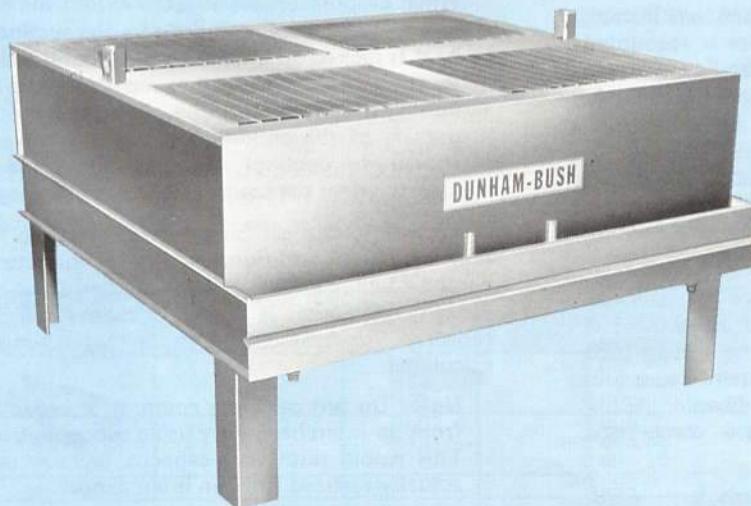
TABLE 1 - OPEN COMPRESSOR FACTORS

Saturated Suction Temperature - °F	Saturated Discharge Temperature - °F					
	95	105	115	125	135	145
-40	1.56	1.58	1.65			
-30	1.50	1.54	1.60			
-20	1.45	1.49	1.54	1.60		
-10	1.40	1.44	1.49	1.54	1.68	
0	1.35	1.39	1.43	1.48	1.53	
10	1.30	1.34	1.38	1.43	1.48	
20	1.26	1.29	1.33	1.37	1.43	1.49
30	1.21	1.25	1.28	1.32	1.38	1.44
40	1.18	1.20	1.23	1.28	1.88	1.39
50	1.13	1.16	1.18	1.23	1.29	1.34

TABLE 2 - SEMI HERMETIC COMPRESSOR FACTORS

Saturated Suction Temperature - °F	Saturated Discharge Temperature - °F					
	95	105	115	125	135	145
-40	1.64	1.67	1.74			
-30	1.58	1.62	1.68			
-20	1.52	1.56	1.62	1.68		
-10	1.47	1.51	1.56	1.62		
0	1.42	1.46	1.50	1.55	1.60	
10	1.36	1.41	1.45	1.50	1.55	
20	1.32	1.35	1.40	1.44	1.50	1.56
30	1.29	1.31	1.34	1.39	1.45	1.51
40	1.24	1.26	1.29	1.34	1.40	1.46
50	1.19	1.21	1.24	1.29	1.35	1.41

Refer to page 12 for operating limits. Consideration should be given to pull down conditions as this may significantly affect condenser selection.



SELECTION PROCEDURE

SELECTION PROCEDURE BIG-4 SEMI-HERMETIC COMPRESSOR

SAMPLE SELECTION #1

Given: Cooling capacity required 244,000 BTU/HR.
Evaporating temperature 42°F
Saturated suction temperature 40°F
(SST allowing 2°F line loss for pressure penalty)
Saturated Discharge Temperature (SDT) 105°F
Refrigerant R-12

Select: E207HN (semi-hermetic compressor from page 19). Capacity at standard rating conditions of 0° subcooling and 65° return gas. 247,000 BTU/HR.
Power consumption 21.5 kW

SAMPLE SELECTION #2 (at other than standard rated subcooling and return gas temperature)

Given: Same as sample selection #1 except adjust compressor capacity for 20° subcooling and 75° return gas (Note that superheat is equal to 75° RG minus 30° SST or 35°).

Determine Adjusted Capacity:
20° subcooling factor for R-12 = 1.090 and 75° return gas factor for R-12 = 1.0095 from Table 2 on page 13.

Adjust capacity:

$$247,000 \text{ BTU/HR.} \times 1.090 \times 1.0095 = 271,790 \text{ BTU/HR.}$$

Power Consumption unchanged = 21.5 kW

Determine total heat of rejection (THR) to condenser for Sample Selection #1 or #2:

Factor from Table 2, page 14 equals 1.26
THR = 247,000 BTU/HR. x 1.26
= 311,200 BTUH/HR.

Use THR to select remote condenser or cooling tower.

SELECTION PROCEDURE OF MATCHED SEMI-HERMETIC COMPRESSOR UNITS AND AIR COOLED CONDENSERS

Tabulated on pages 25 through 27 are compressor and compressor-receiver units matched to the "most economical" LSBC remote air cooled condenser. For each temperature range (high, commercial and low) several condensers have been selected for each compressor i.e. compressor unit E359LFN has condensers ranging from LSBC-161B to LSBC 183D for saturated suction temperatures ranging from -40°F to 0°F.

SAMPLE SELECTION #1

Given: Cooling capacity required 46,000 BTU/HR.
Evaporative temperature -36°F
Saturated suction temperature -40°F
(SST allowing 4°F line loss for pressure penalty).
Maximum ambient air temperature 95°F
Refrigerant R-502

Select: E257LFN with LSBC 183D from page 26
Capacity 47,000 BTU/HR.
Power consumption 10.2 kW

SAMPLE SELECTION #2

Given: Same as sample selection #1 except pulldown from 0° SST at regular intervals. (As in batch cooling application. Use of crankcase pressure regulator recommended if pulldown starts above 0° SST.)

Select: E257LFN with LSBC-241B sized for 0° SST maximum.

SELECTION PROCEDURE SEMI-HERMETIC WATER-COOLED CONDENSING UNITS

Tabulated on pages 20 through 24 are water-cooled condensing unit ratings utilizing the "most economical"** CSTD water-cooled condensers. For each temperature range, several condensers have been selected for each compressor i.e. condensing unit W357HF with 357HF compressor has condensers ranging from CSTD-1048 to CSTD-1260 for saturated suction temperatures ranging from 20°F to 55°F.

SAMPLE SELECTION #1

Given: Cooling capacity required 310,000 BTU/HR.
Evaporating temperature 37°F
Saturated suction temperature 35°F
(SST allowing 2°F line loss for pressure penalty)
Saturated discharge temperature (SDT) 105°F
Condenser inlet water temperature (Tower water) 85°F
Condenser fouling factor .0005
Refrigerant R-22

Select: W316HF with CSTD-1060 from page 20
Capacity 315,000 BTU/HR.
Power consumption 25.8 kW
Condenser water flow 80 GPM
Condenser water pressure drop 6.4 PSI
from CSTD 1060 curve
No. 9 on page 39.

SAMPLE SELECTION #2

Given: Same as sample selection #1 except pulldown from 50° SST at regular intervals (as in a batch cooling application)

Select: W357HF with CSTD-1454 sized for 50° SST maximum.
Condenser water flow 111 GPM
Condenser water pressure drop from CSTD 1454 curve 2.8 PSI
No. 14 on page 39.

SELECTION PROCEDURE BIG-4 DIRECT DRIVE COMPRESSOR

SAMPLE SELECTION

Given: Cooling capacity required 84,000 BTU/HR.
Evaporating temperature -7°F
Saturated suction temperature -10°F
(SST allowing 3°F line loss for pressure penalty)
Saturated discharge temperature (SDT) 115°F
Refrigerant R-502

Select: 155DLFN from page 30
Capacity 87,000 BTU/HR.
Brake Horsepower 17.2 HP
Use Motor 20 HP
Determine total heat of rejection (THR) factor from table 1, page 14 equals 1.49
THR = 87,000 BTU/HR. x 1.49
= 129,600 BTU/HR.
Use THR to select condenser

* Refer to page 14 for description of "most economical" condenser selection.

R22
SEMI-HERMETIC COMPRESSOR CAPACITY DATA R-22
HIGH TEMPERATURE
255HF AND 255HFN**316HF AND 316HFN**

SST RANGE	SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
		95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
		MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW
HFN	0°	122	15.0	115	15.3	95	15.8	85	16.0	73	16.3	142	17.5	128	17.8	115	18.0	100	18.3	87	18.8
	5°	137	15.8	125	16.3	112	16.8	98	17.3	87	17.8	160	18.5	147	19.0	133	19.5	118	20.0	103	20.5
	10°	155	16.8	142	17.3	128	18.0	114	18.3	104	18.8	188	19.8	167	20.3	158	20.8	137	21.5	123	22.3
	15°	175	17.5	160	18.3	148	18.8	132	20.0	120	20.5	210	20.8	190	21.3	175	22.3	160	23.0	145	23.8
	20°	200	18.5	187	19.3	167	20.3	152	21.3	137	22.0	238	21.8	218	22.5	203	23.3	185	24.5	168	25.5
	25°	225	19.3	208	20.3	193	21.5	175	22.5	160	23.5	270	22.8	248	23.8	230	24.8	212	26.0	193	27.8
	30°	253	20.0	235	21.3	218	22.5	200	23.8	188	24.8	305	23.8	280	24.8	262	26.0	240	27.8	220	28.8
	35°	285	21.0	265	22.3	247	23.5	227	25.0	208	26.0	340	24.5	315	25.8	293	27.3	270	28.8	248	30.3
	40°	320	21.8	298	23.0	277	24.5	255	26.0	228	27.3	378	25.3	350	26.8	325	28.3	300	30.0	275	31.8
	45°	357	22.5	333	24.0	310	25.5	285	27.3	262	28.5	418	26.0	388	27.5	360	29.3	333	31.3	305	33.0
HF	50°	395	23.3	368	24.8	342	26.3	315	28.3	290	29.8	458	26.8	428	28.5	393	30.3	365	32.3	335	34.3
	55°	435	24.0	405	25.5	375	27.3	348	29.3	320	31.0	500	27.5	465	29.3	430	31.3	400	33.3	365	35.3

357HF AND 357HFN**408HF AND 408HFN**

SST RANGE	SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
		95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
		MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW
HFN	0°	165	20.2	148	20.5	135	20.9	120	21.2	108	21.5	190	22.8	175	23.3	160	24.3	145	24.5	135	25.0
	5°	187	21.5	170	22.0	155	22.5	137	23.0	123	23.5	215	24.8	195	25.3	185	26.0	170	26.3	155	27.5
	10°	215	22.8	195	23.5	178	24.0	159	24.7	141	25.5	245	26.3	225	26.8	205	27.8	195	28.8	175	29.8
	15°	240	24.0	220	24.5	200	25.4	180	26.5	160	27.3	280	27.5	255	28.3	235	29.5	220	30.8	200	31.8
	20°	270	25.0	249	26.0	225	27.0	205	28.0	185	29.0	313	29.0	290	29.8	270	31.2	250	32.8	225	34.0
	25°	305	26.0	280	27.5	255	28.5	235	30.0	210	31.0	355	30.3	330	31.8	305	33.0	285	34.5	260	36.3
	30°	345	27.3	320	28.5	290	30.0	265	31.5	240	32.7	400	31.5	375	32.8	350	34.8	320	36.5	295	38.8
	35°	390	28.8	360	29.8	330	31.5	303	33.0	272	34.5	450	32.8	425	34.3	390	36.3	365	38.3	330	40.3
	40°	438	29.3	408	31.8	373	32.8	343	34.5	308	36.3	505	33.8	475	35.5	440	37.8	405	40.0	370	42.3
	45°	490	30.3	453	32.0	420	34.0	384	36.0	345	37.8	565	35.0	525	37.0	485	39.3	450	41.8	415	44.0
HF	50°	543	31.3	505	33.0	468	35.0	428	37.3	385	39.3	625	36.0	580	38.3	540	40.8	495	43.3	455	45.8
	55°	600	32.0	560	34.0	517	36.3	475	38.5	425	41.0	690	37.0	637	39.5	590	42.0	543	44.8	500	47.5

509HF AND 509HFN**511HF* AND 511HFN***

SST RANGE	SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
		95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
		MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW
HFN	0°	210	26.3	195	26.8	175	27.0	165	27.3	145	27.8	240	29.7	220	30.1	205	30.5	185	31.2	170	32.0
	5°	245	27.8	220	28.5	200	29.0	183	29.8	163	30.5	282	31.5	260	32.5	240	33.2	218	34.0	197	35.0
	10°	280	29.5	255	30.3	230	31.0	205	32.3	185	33.0	325	33.5	300	34.5	275	35.8	250	37.0	225	38.0
	15°	318	31.0	288	32.0	260	33.0	233	34.5	210	35.8	370	35.5	342	37.0	315	38.5	285	39.7	260	41.0
	20°	358	32.5	328	33.8	295	35.0	263	36.8	235	38.3	415	37.5	385	39.0	355	41.0	325	42.5	295	44.0
	25°	400	34.0	365	35.3	335	37.0	300	38.8	265	40.8	465	38.7	430	40.5	395	43.0	365	45.0	330	46.8
	30°	450	35.3	413	37.0	378	38.8	340	41.0	303	43.0	517	40.5	480	42.5	445	45.0	415	47.5	380	50.0
	35°	503	36.8	460	38.5	422	40.8	385	43.3	345	45.5	575	42.0	540	44.5	500	47.5	465	50.0	430	52.5
	40°	565	37.8	520	40.0	478	42.3	435	45.0	393	47.5	640	43.5	600	46.0	560	49.0	525	52.0	480	55.0
	45°	630	39.0	580	41.5	535	44.0	490	47.0	440	49.3	720	44.5	675	47.5	630	51.0	585	54.5	590	57.5
HF	50°	705	40.3	650	42.8	595	45.8	545	48.5	495	51.0	805	45.5	755	48.5	700	52.5	650	56.5	600	60.0
	55°	780	41.3	720	44.0	660	47.3	605	50.3	550	52.8	900	46.5	840	49.5	775	53.5	715	58.0	660	62.0

SST = SATURATED SUCTION TEMPERATURE, °F.

*Models 511HF and 511HFN are available for 50 Hz. applications only. Multiply capacity and kW by .833.

SEMI-HERMETIC COMPRESSOR CAPACITY DATA R-22
COMMERCIAL TEMPERATURE

R22

205 CFN

266 CFN

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW
0°	122	15.0	115	15.3	95	15.8	85	16.0	73	16.3	142	17.5	128	17.8	115	18.0	100	18.3	87	18.8
5°	137	15.8	125	16.3	112	16.8	98	17.3	87	17.8	160	18.5	147	19.0	133	19.5	118	20.0	103	20.5
10°	155	16.8	142	17.3	128	18.0	114	18.3	104	18.8	188	19.8	167	20.3	158	20.8	137	21.5	123	22.3
15°	175	17.5	160	18.3	148	18.8	132	20.0	120	20.5	210	20.8	190	21.3	175	22.3	160	23.0	145	23.8
20°	200	18.5	187	19.3	167	20.3	152	21.3	137	22.0	238	21.8	218	22.5	203	23.3	185	24.5	168	25.5
25°	225	19.3	208	20.3	193	21.5	175	22.5	160	23.5	270	22.8	248	23.8	230	24.8	212	26.0	193	27.3

SST = SATURATED SUCTION TEMPERATURE, °F.

307 CFN

358 CFN

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW
0°	165	20.2	148	20.5	135	20.9	120	21.2	108	21.5	190	22.8	175	23.3	160	24.3	145	24.5	135	25.0
5°	187	21.5	170	22.0	155	22.5	137	23.0	123	23.5	215	24.8	195	25.3	185	26.0	170	26.3	155	27.5
10°	215	22.8	195	23.5	178	24.0	159	24.7	141	25.5	245	26.3	225	26.8	205	27.8	195	28.8	175	29.8
15°	240	24.0	220	24.5	200	25.4	180	26.5	160	27.3	280	27.5	255	28.3	235	29.5	220	30.8	200	31.8
20°	270	25.0	249	26.0	225	27.0	205	28.0	185	29.0	313	29.0	290	29.8	270	31.3	250	32.3	225	34.0
25°	305	26.0	280	27.5	255	28.5	235	30.0	210	31.0	355	30.3	330	31.8	305	33.0	285	34.5	260	36.3

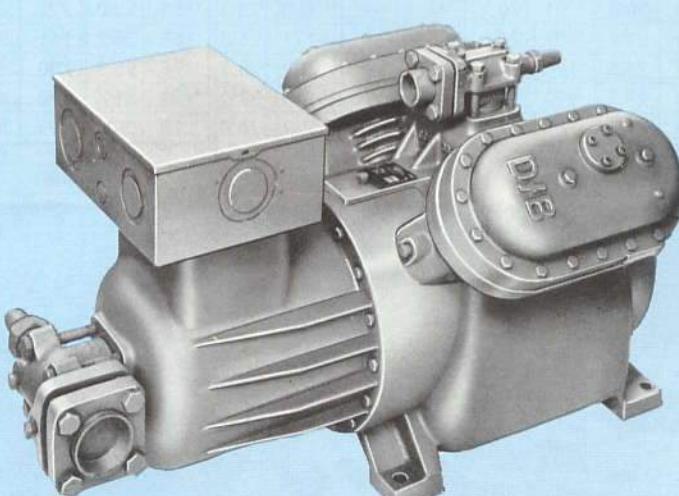
SST = SATURATED SUCTION TEMPERATURE, °F.

409 CFN

511 CFN

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW
0°	210	26.3	195	26.8	175	27.0	165	27.3	145	27.8	240	29.7	220	30.1	205	30.5	185	31.2	170	32.0
5°	245	27.8	220	28.5	200	29.0	183	29.8	163	30.5	282	31.5	260	32.5	240	33.2	218	34.0	197	35.0
10°	280	29.5	255	30.3	230	31.0	205	32.3	185	33.0	325	33.5	300	34.5	275	35.8	250	37.0	225	38.0
15°	318	31.0	288	32.0	260	33.0	233	34.5	210	35.8	370	35.5	342	37.0	315	38.5	285	39.7	260	41.0
20°	358	32.5	328	33.8	295	35.0	263	36.8	235	38.3	415	37.5	385	39.0	355	41.0	325	42.5	295	44.0
25°	400	34.0	365	35.3	335	37.0	300	38.8	265	40.8	465	38.7	430	40.5	395	43.0	365	45.0	330	46.8

SST = SATURATED SUCTION TEMPERATURE, °F.



R502
SEMI-HERMETIC COMPRESSOR CAPACITY DATA R-502
LOW TEMPERATURE
155LFN**216LFN**

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW
-40°	41	8.0	36	7.5	30	7.0	—	—	—	—	45	9.4	39	8.7	32	8.0	—	—	—	—
-35°	48	8.5	41	8.1	35	7.7	—	—	—	—	54	9.8	45	9.3	38	8.7	—	—	—	—
-30°	56	9.2	49	9.0	42	8.7	37	8.4	—	—	63	10.4	53	10.1	45	9.9	40	—	—	—
-25°	65	10.1	58	10.0	50	9.9	45	9.7	—	—	73	11.3	63	11.2	54	11.1	49	11.0	—	—
-20°	75	11.2	68	11.2	60	11.2	54	11.2	—	—	84	12.4	73	12.5	64	12.6	58	12.7	—	—
-15°	87	12.4	79	12.5	71	12.6	64	12.8	—	—	96	13.8	84	14.0	75	14.2	68	14.5	—	—
-10°	100	13.7	92	14.0	84	14.3	76	14.7	—	—	109	15.3	96	15.7	87	16.1	79	16.5	—	—
-5°	114	15.2	105	15.6	96	16.0	88	16.6	—	—	121	17.0	109	17.6	99	18.0	91	18.6	—	—
0°	129	16.8	120	17.3	110	17.9	102	18.5	—	—	134	18.9	122	19.6	112	20.2	103	20.8	—	—

SST = SATURATED SUCTION TEMPERATURE, °F.

257LFN**308LFN**

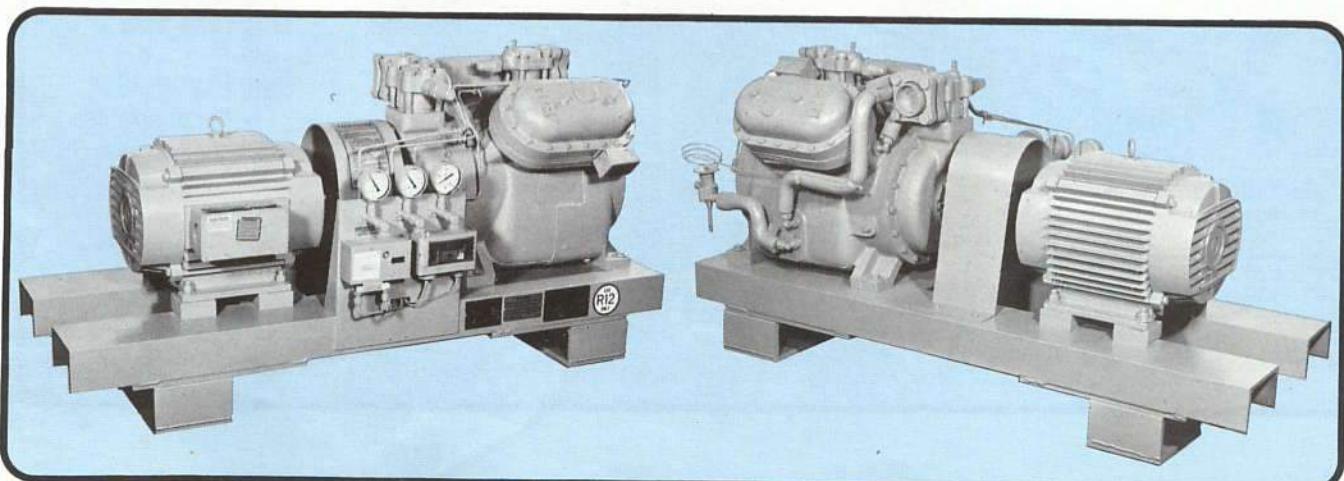
SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW
-40°	54	10.8	46	10.1	38	9.6	—	—	—	—	60	12.5	49	11.8	42	10.9	—	—	—	—
-35°	63	11.6	55	11.2	46	10.8	—	—	—	—	72	13.3	61	12.8	53	12.1	—	—	—	—
-30°	73	12.6	64	12.4	56	12.2	48	11.8	—	—	85	14.4	74	14.0	65	13.6	55	12.8	—	—
-25°	85	13.9	75	13.8	67	13.7	58	13.6	—	—	100	15.6	87	9.5	78	15.3	67	15.1	—	—
-20°	97	15.3	88	15.4	79	15.5	70	15.6	—	—	115	17.3	102	17.3	92	17.4	80	17.4	—	—
-15°	111	16.9	101	17.1	92	17.4	82	17.6	—	—	131	19.2	117	19.5	106	19.7	93	19.9	—	—
-10°	126	18.6	115	19.0	106	19.4	96	19.8	—	—	148	21.3	133	21.8	121	22.2	108	22.6	—	—
-5°	141	20.4	130	21.0	121	21.5	111	22.0	—	—	165	23.7	149	24.3	136	24.9	122	25.5	—	—
0°	158	22.3	146	23.1	136	23.7	126	24.3	—	—	183	26.1	166	26.9	152	27.7	137	28.6	—	—

SST = SATURATED SUCTION TEMPERATURE, °F.

359LFN**411LFN**

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW
-40°	66	14.0	56	13.0	47	12.4	—	—	—	—	78	16.8	65	14.8	52	13.5	—	—	—	—
-35°	79	14.9	70	14.3	60	13.8	—	—	—	—	94	17.8	81	16.0	70	15.3	—	—	—	—
-30°	95	16.4	84	15.9	73	15.5	62	15.0	—	—	111	19.0	98	17.5	87	17.0	76	17.0	—	—
-25°	111	17.8	99	17.8	88	17.5	76	17.5	—	—	130	20.8	116	20.5	104	20.3	93	20.0	—	—
-20°	129	19.9	116	20.0	104	20.0	91	20.1	—	—	150	23.0	135	23.0	122	23.0	110	23.0	—	—
-15°	147	22.1	133	22.5	120	22.8	107	23.0	—	—	171	25.3	155	25.8	141	26.0	128	26.3	—	—
-10°	165	24.5	151	25.0	137	25.5	123	26.1	—	—	192	28.3	176	28.8	160	29.3	146	29.8	—	—
-5°	184	27.0	169	27.8	155	28.5	139	29.3	—	—	215	31.0	197	31.8	180	32.8	164	33.5	—	—
0°	204	29.5	187	30.5	172	31.5	156	32.5	—	—	237	34.0	219	35.3	199	36.5	182	37.5	—	—

SST = SATURATED SUCTION TEMPERATURE, °F.



SEMI-HERMETIC COMPRESSOR CAPACITY DATA R-12
HIGH TEMPERATURE

R12

207HN

258HN

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW
0°	102	11.8	94	12.3	85	13.3	77	13.8	70	14.8	115	13.5	107	14.5	97	15.3	87	16.3	80	17.0
5°	115	13.0	107	13.8	97	14.5	90	15.3	80	16.3	133	15.3	120	16.0	113	16.8	103	17.8	93	18.8
10°	130	14.3	120	15.0	110	16.0	103	16.8	93	17.8	147	16.3	137	17.3	127	18.3	117	19.3	107	20.5
15°	145	15.5	135	16.3	125	17.3	115	17.8	105	19.3	167	17.5	155	18.0	145	19.8	133	20.8	123	22.0
20°	165	16.3	153	17.5	143	18.5	130	19.5	120	20.5	190	18.5	178	19.8	165	21.0	153	22.3	140	23.8
25°	185	17.8	173	18.5	160	19.8	147	20.8	135	21.8	213	19.5	200	21.0	187	22.3	175	23.8	163	25.3
30°	210	18.8	197	19.8	183	21.0	167	22.0	153	23.3	240	20.5	225	22.0	213	23.3	200	25.0	185	26.5
35°	235	19.5	223	20.7	205	22.0	190	23.3	173	24.5	270	21.3	253	23.0	237	24.5	225	26.0	210	27.8
40°	263	20.3	247	21.5	230	23.0	213	24.3	195	25.8	300	21.8	283	23.8	267	25.3	253	27.3	235	29.0
45°	293	20.8	275	22.3	255	23.8	236	25.3	217	26.8	335	22.3	315	24.3	297	26.3	282	27.5	267	30.3
50°	323	21.3	303	22.8	280	24.5	263	26.0	240	27.8	373	22.5	350	24.8	330	26.8	313	28.3	290	31.0
55°	355	21.5	330	28.0	310	25.3	287	26.8	265	28.3	410	22.8	385	25.0	365	27.3	343	29.3	320	31.8

SST = SATURATED SUCTION TEMPERATURE, °F.

309HN

361HN

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW
0°	130	14.3	120	15.5	110	16.8	100	18.0	90	19.0	150	16.8	140	18.0	130	19.5	117	20.5	107	21.8
5°	147	16.0	137	17.3	125	17.8	115	19.8	105	21.0	173	18.5	160	20.0	150	21.5	137	22.5	125	23.8
10°	167	17.5	155	19.0	143	20.3	133	21.8	120	23.0	193	20.0	180	21.8	170	23.3	157	24.8	145	26.0
15°	187	19.3	175	20.8	163	22.0	150	23.5	137	24.8	217	21.8	205	23.3	193	25.3	177	26.5	165	28.0
20°	213	20.8	197	22.3	183	23.8	170	25.3	155	26.8	247	23.0	233	24.8	217	26.8	203	28.8	187	29.8
25°	240	22.0	225	23.8	207	25.3	193	26.8	175	28.5	277	24.3	263	26.3	245	28.3	227	29.8	210	31.5
30°	270	23.3	255	25.0	237	26.8	217	28.3	197	30.3	313	25.5	295	27.3	275	29.3	255	31.3	235	33.0
35°	305	24.5	287	26.3	267	28.3	243	29.8	223	31.8	350	26.3	333	28.3	310	30.8	287	32.5	265	34.3
40°	340	25.5	320	27.5	300	29.3	275	31.3	255	33.3	393	27.0	370	29.0	345	31.5	320	33.8	297	35.3
45°	380	26.3	357	28.3	333	30.3	306	32.3	283	34.5	437	27.5	413	29.5	385	32.0	358	34.0	330	36.3
50°	420	26.8	393	29.0	368	31.3	340	33.3	315	35.3	487	27.8	455	29.8	425	32.3	395	34.3	365	36.5
55°	460	27.3	433	29.3	405	31.8	375	34.0	347	36.5	533	27.8	500	29.8	467	32.3	435	34.5	400	36.8

SST = SATURATED SUCTION TEMPERATURE, °F.

COMMERCIAL TEMPERATURE

157CN

208CN

SST	SDT - SATURATED DISCHARGE TEMP. °F										SDT - SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW
-5°	90	10.3	83	11.0	74	11.5	68	12.5	60	13.3	100	12.8	93	13.3	87	13.8	77	14.5	67	15.5
0°	102	11.8	94	12.3	85	13.3	77	13.8	70	14.8	115	13.5	107	14.5	97	15.3	87	16.3	80	17.0
5°	115	13.0	107	13.8	97	14.5	90	15.3	80	16.3	133	15.3	120	16.0	113	16.8	103	17.8	93	18.8
10°	130	14.3	120	15.0	110	16.0	103	16.8	93	17.8	147	16.3	137	17.3	127	18.3	117	19.3	107	20.5
15°	145	15.5	135	16.3	125	17.3	115	17.8	105	19.3	167	17.5	155	18.0	145	19.8	133	20.8	123	22.0
20°	165	16.3	153	17.5	143	18.5	130	19.5	120	20.5	190	18.5	178	19.8	165	21.0	153	22.3	140	23.8
25°	185	17.8	173	18.5	160	19.8	147	20.8	135	21.8	213	19.5	200	21.0	187	22.3	175	23.8	163	25.3
30°	210	18.8	197	19.8	183	21.0	167	22.0	153	23.3	240	20.5	225	22.0	213	23.3	200	25.0	185	26.5

SST = SATURATED SUCTION TEMPERATURE, °F.

259CN

311CN

SST	SDT - SATURATED DISCHARGE TEMP. °F										SDT - SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBH	kW
-5°	115	12.5	105	13.8	95	14.8	87	16.3	78	17.0	130	15.0	120	16.3	110	17.3	100	18.3	87	19.3

R22

**SEMI-HERMETIC CONDENSING UNIT CAPACITY DATA
WITH 'CSTC' WATER COOLED CONDENSER
R-22 COMMERCIAL AND HIGH TEMPERATURE**

W205CFN, W255HF AND W255HFN

R22 COND. UNIT	SST	95°SDT				105°SDT				115°SDT				125°SDT				135°SDT			
		MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM
W255HFN	0°	122	15.0	1048	32	115	15.3	848	35	95	15.8	848	32	85	16.0	848	28	73	16.3	848	24
W255HFN	5°	137	15.8	1048	36	125	16.3	1048	32	112	16.8	848	37	98	17.3	848	38	87	17.8	848	28
W255HFN	10°	155	16.8	1048	42	142	17.3	1048	37	128	18.0	1048	37	114	18.3	1048	31	104	18.8	848	35
W255HFN	15°	175	17.5	1048	47	160	18.3	1048	43	148	18.8	1048	40	132	20.0	1048	36	120	20.5	1048	32
W255HFN	20°	200	18.5	1048	55	187	19.3	1048	51	167	20.3	1048	46	152	21.3	1048	42	137	22.0	1048	39
W255HFN	25°	225	19.3	1048	63	208	20.3	1048	58	193	21.5	1048	55	175	22.5	1048	51	160	23.5	1048	47
W255HFN	30°	253	20.0	1048	76	235	21.3	1048	69	218	22.5	1048	63	200	23.8	1048	57	188	24.8	1048	53
W255HFN	35°	285	21.0	1060	66	265	22.3	1060	60	247	23.5	1048	74	227	25.0	1048	67	208	26.0	1048	62
W255HFN	40°	320	21.8	1060	78	298	23.0	1060	71	277	24.5	1060	66	255	26.0	1060	60	228	27.3	1048	74
W255HFN	45°	357	22.5	1248	88	333	24.0	1248	80	310	25.5	1060	76	285	27.3	1060	69	262	28.5	1060	64
W255HFN	50°	395	23.3	1248	100	368	24.8	1248	93	342	26.3	1248	85	315	28.3	1060	80	290	29.8	1060	76
W255HFN	55°	435	24.0	1260	90	405	25.5	1248	108	375	27.3	1248	97	348	29.3	1248	90	320	31.0	1248	85

W266CFN, W316HF AND W316HFN

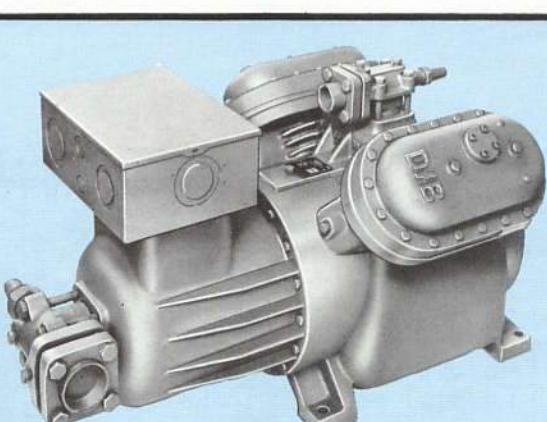
R22 COND. UNIT	SST	95°SDT				105°SDT				115°SDT				125°SDT				135°SDT			
		MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM
W316HFN	0°	142	17.5	1048	36	128	17.8	1048	33	115	18.0	848	37	100	18.3	848	33	87	18.8	848	28
W316HFN	5°	160	18.5	1048	42	147	19.0	1048	38	133	19.5	1048	35	118	20.0	1048	32	103	20.5	848	36
W316HFN	10°	188	19.8	1048	49	167	20.3	1048	45	158	20.8	1048	42	137	21.5	1048	38	123	22.3	1048	35
W316HFN	15°	210	20.8	1048	58	190	21.3	1048	53	175	22.3	1048	50	160	23.0	1048	46	145	23.8	1048	42
W316HFN	20°	238	21.8	1048	68	218	22.5	1048	64	208	23.3	1048	58	185	24.5	1048	54	168	25.5	1048	50
W316HFN	25°	270	22.8	1060	62	248	23.8	1048	75	230	24.8	1048	70	212	26.0	1048	62	193	27.3	1048	58
W316HFN	30°	305	23.8	1060	74	280	24.8	1060	67	262	26.0	1060	62	240	27.3	1048	76	220	28.8	1048	69
W316HFN	35°	340	24.5	1248	84	315	25.8	1060	80	293	27.3	1060	73	270	28.8	1060	67	248	30.3	1060	62
W316HFN	40°	378	25.3	1248	98	350	26.8	1060	90	325	28.3	1248	83	300	30.0	1060	79	275	31.8	1060	73
W316HFN	45°	418	26.0	1248	113	388	27.5	1248	108	360	29.3	1248	96	333	31.3	1248	88	305	33.0	1248	82
W316HFN	50°	458	26.8	1260	97	428	28.5	1248	120	393	30.3	1248	111	365	32.3	1248	100	335	34.3	1248	94
W316HFN	55°	500	27.5	1260	110	465	29.3	1260	102	430	31.3	1260	94	400	33.3	1248	115	365	35.3	1248	104

W307CFN, W357HF AND W357HFN

R22 COND. UNIT	SST	95°SDT				105°SDT				115°SDT				125°SDT				135°SDT			
		MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM
W357HFN	0°	165	20.2	1048	45	148	20.5	1048	42	135	20.9	1048	38	120	21.2	1048	34	108	21.5	1048	31
W357HFN	5°	187	21.5	1048	53	170	22.0	1048	48	155	22.5	1048	44	137	23.0	1048	40	123	23.5	1048	36
W357HFN	10°	215	22.8	1048	61	195	23.5	1048	56	178	24.0	1048	51	159	24.7	1048	46	141	25.5	1048	42
W357HFN	15°	240	24.0	1048	73	220	24.5	1048	65	200	25.4	1048	59	180	26.5	1048	54	160	27.3	1048	49
W357HFN	20°	270	25.0	1060	65	249	26.0	1048	78	225	27.0	1048	71	205	28.0	1048	63	185	29.0	1048	58
W357HFN	25°	305	26.0	1060	79	280	27.5	1060	70	255	28.5	1060	63	235	30.0	1048	76	210	31.0	1048	70
W357HFN	30°	345	27.3	1248	91	320	28.5	1248	82	290	30.0	1060	76	265	31.5	1060	68	240	32.7	1060	62
W357HFN	35°	390	28.8	1248	111	360	29.8	1248	97	330	31.5	1248	88	303	33.0	1248	80	272	34.5	1060	74
W357HFN	40°	438	29.3	1260	97	408	31.8	1260	88	373	32.8	1248	105	343	34.5	1248	94	308	36.3	1248	86
W357HFN	45°	490	30.3	1260	113	453	32.0	1260	103	420	34.0	1260	93	384	36.0	1248	111	345	37.8	1248	102
W357HFN	50°	543	31.3	1454	120	505	33.0	1454	111	468	35.0	1260	110	428	37.3	1260	96	385	39.3	1260	90
W357HFN	55°	600	32.0	1454	138	560	34.0	1454	127	517	36.3	1454	116	475	38.5	1260	113	425	41.0	1260	103

SST = SATURATED SUCTION TEMPERATURE, °F.

SDT = SATURATED DISCHARGE TEMPERATURE, °F.



**SEMI-HERMETIC CONDENSING UNIT CAPACITY DATA
WITH 'CSTC' WATER COOLED CONDENSER
R-22 COMMERCIAL AND HIGH TEMPERATURE**

R22

W358CFN, W408HF AND W408HFN

R22 COND. UNIT	SST	95°SDT				105°SDT				115°SDT				125°SDT				135°SDT			
		MBH	kW	CSTC*	GPM	MBH	kW	CSTC-	GPM												
	0°	190	22.8	1048	55	175	23.3	1048	51	160	24.3	1048	49	145	24.5	1048	45	135	25.0	1048	41
	5°	215	24.8	1048	63	195	25.3	1048	59	185	26.0	1048	55	170	26.3	1048	51	155	27.5	1048	47
	10°	245	26.3	1048	76	225	26.8	1048	71	205	27.8	1048	65	195	28.8	1048	60	175	29.8	1048	55
	15°	280	27.5	1060	69	255	28.3	1060	63	235	29.5	1048	78	220	30.8	1048	71	200	31.8	1048	65
	20°	313	29.0	1248	81	290	29.8	1060	77	270	31.3	1060	70	250	32.8	1060	65	225	34.0	1048	79
	25°	355	30.3	1248	98	330	31.8	1248	90	305	33.0	1248	82	285	34.5	1060	78	260	36.3	1060	72
	30°	400	31.5	1260	86	375	32.8	1248	106	350	34.8	1248	97	320	36.5	1248	90	295	38.8	1248	83
	35°	450	32.8	1260	105	425	34.3	1260	95	390	36.3	1260	86	365	38.3	1248	108	330	40.3	1248	100
	40°	505	33.8	1454	112	475	35.5	1260	111	440	37.8	1260	101	405	40.0	1260	95	370	42.3	1260	86
	45°	565	35.0	1454	128	525	37.0	1454	118	485	39.3	1260	120	450	41.8	1260	108	415	44.0	1260	101
	50°	625	36.0	1454	148	580	38.3	1454	135	540	40.8	1454	122	495	43.4	1454	115	455	45.8	1260	115
	55°	690	37.0	1454	170	637	39.5	1454	155	590	42.0	1454	142	543	44.8	1454	128	500	47.5	1454	120

W409CFN, W509HF AND W509HFN

R22 COND. UNIT	SST	95°SDT				105°SDT				115°SDT				125°SDT				135°SDT			
		MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM
	0°	210	26.3	1048	65	195	26.8	1048	58	175	27.0	1048	54	165	27.3	1048	49	145	27.8	1048	44
	5°	245	27.8	1048	80	220	28.5	1048	72	200	29.0	1048	65	183	29.8	1048	58	163	30.5	1048	51
	10°	280	29.5	1060	72	255	30.3	1060	65	230	31.0	1048	78	205	32.3	1048	69	185	33.0	1048	60
	15°	318	31.0	1248	84	288	32.0	1060	76	260	33.0	1060	70	233	34.5	1060	62	210	35.8	1048	72
	20°	358	32.5	1248	100	328	33.8	1248	90	295	35.0	1248	80	263	36.8	1060	73	235	38.3	1060	64
	25°	400	34.0	1260	91	365	35.3	1248	107	335	37.0	1248	95	300	38.8	1248	84	265	40.8	1060	77
	30°	450	35.3	1260	106	413	37.0	1260	95	378	38.8	1260	86	340	41.0	1248	101	303	43.0	1248	90
	35°	503	36.8	1454	116	460	38.5	1260	113	422	40.8	1260	101	385	43.3	1260	92	345	45.5	1248	109
	40°	565	37.8	1454	135	520	40.0	1454	123	478	42.3	1454	113	435	45.0	1260	109	393	47.5	1260	98
	45°	630	39.0	1454	158	580	41.5	1454	144	535	44.0	1454	129	490	47.0	1454	118	440	49.3	1260	118
	50°	705	40.3	1460	153	650	42.8	1454	170	595	45.8	1454	150	545	48.5	1454	137	495	51.0	1454	126
	55°	780	41.3	1460	180	720	44.0	1460	167	660	47.3	1454	174	605	50.3	1454	160	550	52.8	1454	144

W511CFN, W511HF AND W511HFN

R22 COND. UNIT	SST	95°SDT				105°SDT				115°SDT				125°SDT				135°SDT			
		MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM
	0°	240	29.7	1060	62	220	30.1	1048	74	205	30.5	1048	68	185	31.2	1048	62	170	32.0	1048	57
	5°	282	31.5	1060	75	260	32.5	1060	68	240	33.2	1060	62	218	34.0	1048	74	197	35.0	1048	70
	10°	325	33.5	1248	90	300	34.5	1248	81	275	35.8	1060	76	250	37.0	1060	68	225	38.0	1060	65
	15°	370	35.5	1248	109	342	37.0	1248	99	315	38.5	1248	90	285	39.7	1248	81	260	41.0	1060	78
	20°	415	37.5	1260	100	385	39.0	1248	90	355	41.0	1248	109	325	42.5	1248	99	295	44.0	1248	92
	25°	465	38.7	1260	117	430	40.5	1260	107	395	43.0	1260	97	365	45.0	1260	90	330	46.8	1248	111
	30°																				
	35°																				
	40°																				
	45°																				
	50°																				
	55°																				

NOTE: FOR 50 HERTZ APPLICATION ONLY
CONSULT FACTORY FOR RATINGS

SST = Saturated Suction Temperature °F
SDT = Saturated Discharge Temperature °F



R502

**SEMI-HERMETIC CONDENSING UNIT CAPACITY DATA
WITH 'CSTC' WATER COOLED CONDENSER
R-502 LOW TEMPERATURE**

W155LFN

R502 COND. UNIT	SST	95°SDT				105°SDT				115°SDT				125°SDT			
		MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM
W155LFN	-40°	41	8.0	548	13	36	7.5	548	11	30	7.0	548	8	—	—	—	—
	-35°	48	8.5	548	18	41	8.1	548	14	35	7.7	548	11	—	—	—	—
	-30°	56	9.2	848	14	49	9.0	548	18	42	8.7	548	14	32	8.4	548	12
	-25°	65	10.1	848	16	58	10.0	848	15	50	9.9	548	19	45	9.7	548	17
	-20°	75	11.2	848	21	68	11.2	848	19	60	11.2	848	17	54	11.2	848	15
	-15°	87	12.4	848	26	79	12.5	848	23	71	12.6	848	21	64	12.8	848	19
	-10°	100	13.7	848	31	92	14.0	848	28	84	14.3	848	25	76	14.7	848	23
	-5°	114	15.2	848	36	105	15.6	848	33	96	16.0	848	31	88	16.6	848	28
	0°	129	16.8	1048	34	120	17.3	848	41	110	17.9	848	37	102	18.5	848	34

W216LFN

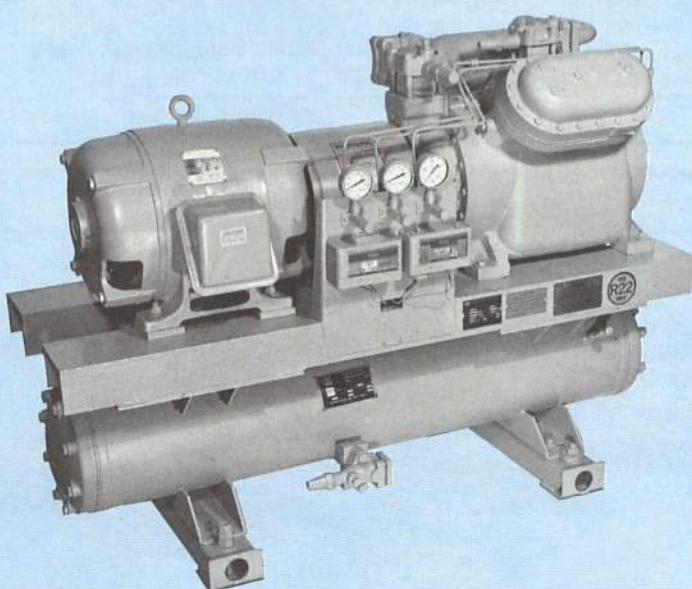
R502 COND. UNIT	SST	95°SDT				105°SDT				115°SDT				125°SDT			
		MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM
W216LFN	-40°	45	9.4	548	16	39	8.7	548	13	32	8.0	548	9	—	—	—	—
	-35°	54	9.8	848	14	45	9.3	548	17	32	8.7	548	13	—	—	—	—
	-30°	63	10.4	848	18	53	10.1	848	14	45	9.9	548	17	40	9.5	548	14
	-25°	73	11.3	848	21	63	11.2	848	18	54	11.1	848	15	49	11.0	548	19
	-20°	84	12.4	848	25	73	12.5	848	21	64	12.6	848	18	58	12.7	848	16
	-15°	96	13.8	848	29	84	14.0	848	25	75	14.2	848	23	68	14.5	848	20
	-10°	109	15.3	848	34	96	15.7	848	30	87	16.1	848	27	79	16.5	848	24
	-5°	121	17.0	1048	31	109	17.6	848	36	99	18.0	848	32	91	18.6	848	29
	0°	134	18.9	1048	35	122	19.6	1048	32	112	20.2	848	38	103	20.8	848	34

W257LFN

R502 COND. UNIT	SST	95°SDT				105°SDT				115°SDT				125°SDT			
		MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM
W257LFN	-40°	54	10.8	848	15	46	10.1	548	17	38	9.6	548	13	—	—	—	—
	-35°	63	11.6	848	18	55	11.2	848	15	46	10.8	548	18	—	—	—	—
	-30°	73	12.6	848	21	64	12.4	848	18	56	12.2	848	16	48	11.8	848	19
	-25°	85	13.9	848	26	75	13.8	848	22	67	13.7	848	20	58	13.6	848	17
	-20°	97	15.3	848	31	88	15.4	848	27	79	15.5	848	25	70	15.6	848	22
	-15°	111	16.9	848	37	101	17.1	848	32	92	17.4	848	30	82	17.6	848	27
	-10°	126	18.6	1048	33	115	19.0	1048	31	106	19.4	848	37	96	19.8	848	33
	-5°	141	20.4	1048	37	130	21.0	1048	36	121	21.5	1048	33	111	22.0	1048	31
	0°	158	22.3	1048	43	146	23.1	1048	41	136	23.7	1048	38	126	24.3	1048	36

SST = SATURATED SUCTION TEMPERATURE, °F.

SDT = SATURATED DISCHARGE TEMPERATURE, °F.



**SEMI-HERMETIC CONDENSING UNIT CAPACITY DATA
WITH 'CSTC' WATER COOLED CONDENSER
R-502 LOW TEMPERATURE**

W308LFN

R502 COND. UNIT	SST	95°SDT				105°SDT				115°SDT				125°SDT			
		MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM
W308LFN	-40°	60	12.5	848	17	49	11.8	848	13	42	10.9	848	11	—	—	—	—
	-35°	72	13.3	848	22	61	12.8	848	18	53	12.1	848	15	—	—	—	—
	-30°	85	14.4	848	27	74	14.0	848	23	65	13.6	848	20	55	12.8	848	17
	-25°	100	15.6	1048	33	87	15.5	848	28	78	15.3	848	25	67	15.1	848	20
	-20°	115	17.3	1048	32	102	17.3	848	35	92	17.4	848	32	80	17.4	848	25
	-15°	131	19.2	1048	36	117	19.5	1048	32	106	19.7	848	39	93	19.9	848	32
	-10°	148	21.3	1048	41	133	21.8	1048	37	121	22.2	1048	35	108	22.6	848	39
	-5°	165	23.7	1048	47	149	24.3	1048	42	136	24.9	1048	40	122	25.5	1048	35
	0°	183	26.1	1048	53	166	26.9	1048	47	152	27.7	1048	45	137	28.6	1048	40

W359LFN

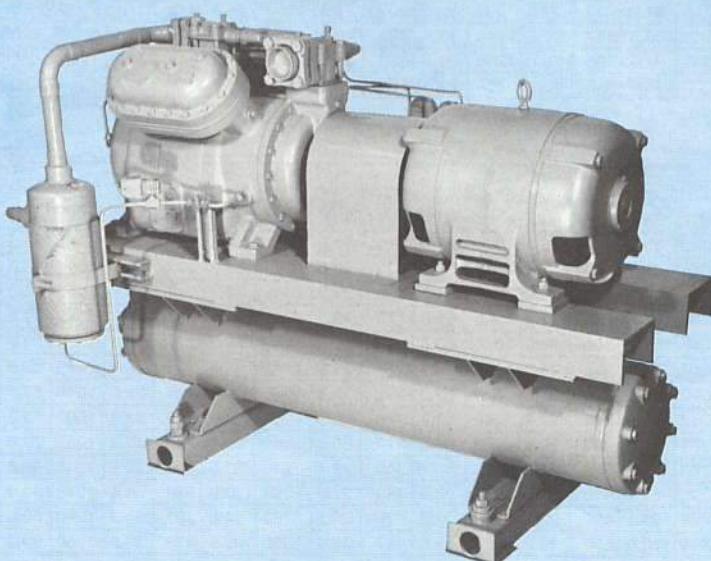
R502 COND. UNIT	SST	95°SDT				105°SDT				115°SDT				125°SDT			
		MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM
W359LFN	-40°	66	14.0	848	19	56	13.0	848	16	47	12.4	848	14	—	—	—	—
	-35°	79	14.9	848	25	70	14.3	848	21	60	13.8	848	18	—	—	—	—
	-30°	95	16.4	848	31	84	15.9	848	27	73	15.5	848	24	62	15.0	848	20
	-25°	111	17.8	1048	31	99	17.8	848	34	88	17.5	848	30	76	17.5	848	26
	-20°	129	19.9	1048	36	116	20.0	1048	32	104	20.0	848	38	91	20.1	848	32
	-15°	147	22.1	1048	41	133	22.5	1048	38	120	22.8	1048	35	107	23.0	1048	31
	-10°	165	24.5	1048	47	151	25.0	1048	46	137	25.5	1048	40	123	26.1	1048	37
	-5°	184	27.0	1048	54	169	27.8	1048	50	155	28.5	1048	46	139	29.3	1048	43
	0°	204	29.5	1048	58	187	30.5	1048	57	172	31.5	1048	52	156	32.5	1048	48

W411LFN

R502 COND. UNIT	SST	95°SDT				105°SDT				115°SDT				125°SDT			
		MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM	MBH	kW	CSTC-	GPM
W411LFN	-40°	78	16.8	848	25	65	14.8	848	20	52	13.5	848	16	—	—	—	—
	-35°	94	17.8	848	34	81	16.0	848	26	70	15.3	848	23	—	—	—	—
	-30°	111	19.0	1048	32	97	17.5	848	34	87	17.0	848	30	76	17.0	848	26
	-25°	130	20.8	1048	37	116	20.5	1048	33	104	20.3	1048	30	93	20.0	848	34
	-20°	150	23.0	1048	44	135	23.0	1048	40	122	23.0	1048	36	110	23.0	1048	33
	-15°	171	25.3	1048	51	155	25.8	1048	47	141	26.0	1048	43	128	26.3	1048	40
	-10°	192	28.3	1048	59	176	28.8	1048	54	160	29.3	1048	50	146	29.8	1048	46
	-5°	215	31.0	1048	68	197	31.8	1048	62	180	32.8	1048	57	164	33.5	1048	53
	0°	237	34.0	1048	79	219	35.3	1048	72	199	36.5	1048	65	182	37.5	1048	60

SST = SATURATED SUCTION TEMPERATURE, °F.

SDT = SATURATED DISCHARGE TEMPERATURE, °F.



R12

**SEMI-HERMETIC CONDENSING UNIT CAPACITY DATA
WITH 'CSTC' WATER COOLED CONDENSER
R-12 COMMERCIAL AND HIGH TEMPERATURE**

W157CN, W207HN

R-12 COND. UNIT	SST	95°F SDT				105°F SDT				115°F SDT				125°F SDT				135°F SDT			
		MBH	kW	CSTC	GPM	MBH	kW	CSTC	GPM	MBH	kW	CSTC	GPM	MBH	kW	CSTC	GPM	MBH	kW	CSTC	GPM
W207HN ↓ W157CN ↓	- 5°	90	10.3	848	26.0	83	11.0	848	23.0	74	11.5	848	22.0	68	11.3	848	19.0	60	13.3	848	18.0
	0°	102	11.8	848	30.0	94	12.3	848	27.0	85	13.3	848	24.0	77	13.8	848	23.0	70	14.8	848	20.0
	5°	115	13.0	848	35.0	107	13.8	848	32.0	97	14.5	848	30.0	90	15.3	848	26.0	80	16.3	848	24.0
	10°	130	14.3	1048	32.0	120	15.0	1048	37.0	110	16.0	1048	35.0	103	16.0	1048	32.0	93	17.8	848	30.0
	15°	145	15.5	1048	36.0	135	16.3	1048	34.0	125	17.3	1048	32.0	115	17.8	848	37.0	105	19.3	848	35.0
	20°	165	16.3	1048	41.0	153	13.5	1048	38.0	143	18.5	1048	36.0	130	19.5	1048	34.0	120	20.5	1048	32.0
	25°	185	17.8	1048	47.0	173	18.5	1048	45.0	160	19.8	1048	42.0	147	20.8	1048	40.0	135	21.8	1048	36.0
	30°	210	18.8	1048	54.0	197	19.8	1048	51.0	183	21.0	1048	49.0	167	22.0	1048	45.0	153	23.3	1048	42.0
	35°	235	19.5	1048	65.7	223	20.7	1048	63.5	205	22.0	1048	61.4	190	23.3	1048	57.6	173	24.5	1048	54.0
	40°	264	20.2	1060	66.2	249	21.5	1048	70.0	230	22.9	1048	68.2	213	24.3	1048	64.0	195	25.7	1048	60.0
	45°	293	20.8	1060	66.7	275	22.3	1060	63.0	255	23.8	1048	79.0	236	25.3	1048	73.2	217	26.8	1048	68.2
	50°	324	21.2	1248	76.6	303	25.2	1248	75.0	283	24.6	1060	68.0	262	26.1	1060	63.0	241	27.6	1060	58.7
	55°	355	21.5	1248	86.5	330	28.0	1248	86.0	310	25.3	1060	77.0	287	26.8	1060	71.2	265	28.3	1060	66.0

W208CN, W258HN

R-12 COND. UNIT	SST	95°F SDT				105°F SDT				115°F SDT				125°F SDT				135°F SDT			
		MBH	kW	CSTC	GPM	MBH	kW	CSTC	GPM	MBH	kW	CSTC	GPM	MBH	kW	CSTC	GPM	MBH	kW	CSTC	GPM
W258HN ↓ W208CN ↓	- 5°	100	12.3	848	31.0	93	13.3	848	28.0	87	13.8	848	25.0	77	14.5	848	23.0	67	15.5	848	20.0
	0°	115	13.5	848	37.0	107	14.5	848	33.0	97	16.3	848	30.0	87	17.0	848	27.0	80	15.3	848	25.0
	5°	133	15.3	1048	33.0	120	16.0	1048	31.0	113	16.8	848	36.0	103	17.8	848	33.0	93	18.8	848	30.0
	10°	147	16.3	1048	38.0	137	17.3	1048	36.0	127	18.3	1048	34.0	117	19.3	1048	31.0	107	20.5	848	37.0
	15°	167	17.5	1048	44.0	155	18.0	1048	41.0	145	19.8	1048	39.0	133	20.8	1048	37.0	123	22.0	1048	34.0
	20°	190	18.5	1048	51.0	178	19.8	1048	47.0	165	21.0	1048	45.0	153	22.3	1048	42.0	140	23.8	1048	40.0
	25°	213	19.5	1048	58.0	200	21.0	1048	55.0	187	22.3	1048	52.0	175	23.8	1048	47.0	163	25.3	1048	46.0
	30°	240	20.5	1048	67.0	225	22.0	1048	63.0	213	23.3	1048	61.0	200	25.0	1048	57.0	185	26.5	1048	54.0
	35°	270	21.3	1060	60.6	253	23.0	1048	73.1	237	24.5	1048	72.3	225	26.0	1048	69.6	210	27.8	1048	67.0
	40°	303	21.8	1248	71.0	284	23.7	1060	75.6	267	25.4	1060	73.2	254	26.8	1060	70.1	239	29.1	1060	67.8
	45°	335	22.3	1248	81.0	315	24.3	1060	78.0	297	26.3	1060	74.1	282	27.5	1060	70.5	267	30.3	1060	68.5
	50°	373	22.6	1248	93.8	350	24.7	1248	89.9	331	26.8	1248	85.3	313	28.4	1248	81.0	294	31.1	1248	77.4
	55°	410	22.8	1248	107.3	385	25.0	1248	101.7	365	27.3	1248	96.5	343	29.3	1248	91.4	320	31.8	1248	86.3

W259CN, W309HN

R-12 COND. UNIT	SST	95°F SDT				105°F SDT				115°F SDT				125°F SDT				135°F SDT			
		MBH	kW	CSTC	GPM	MBH	kW	CSTC	GPM	MBH	kW	CSTC	GPM	MBH	kW	CSTC	GPM	MBH	kW	CSTC	GPM
W309HN ↓ W259CN ↓	- 5°	115	12.5	1048	31.0	105	13.8	848	36.0	95	14.8	848	32.0	87	16.3	848	28.0	78	17.0	848	27.0
	0°	130	14.3	1048	34.0	120	15.5	1048	32.0	110	16.8	848	37.0	100	18.0	848	34.0	90	19.0	848	31.0
	5°	147	16.0	1048	38.0	137	17.3	1048	36.0	125	17.8	1048	34.0	115	19.8	1048	32.0	105	21.0	848	36.0
	10°	167	17.5	1048	44.0	155	19.0	1048	41.0	143	20.3	1048	39.0	133	21.8	1048	36.0	120	23.0	1048	33.0
	15°	187	19.3	1048	51.0	175	20.8	1048	48.0	163	22.0	1048	45.0	150	23.5	1048	42.0	137	24.8	1048	39.0
	20°	213	20.8	1048	59.0	197	22.3	1048	55.0	183	23.8	1048	52.0	170	25.3	1048	49.0	155	26.8	1048	46.0
	25°	240	22.0	1048	70.0	225	23.8	1048	65.0	207	25.3	1048	60.0	193	26.8	1048	57.0	175	28.5	1048	53.0
	30°	270	23.3	1060	62.0	255	25.0	1048	77.0	237	26.8	1048	71.0	217	28.3	1048	65.0	197	30.3	1048	62.0
	35°	305	24.5	1060	74.5	287	26.3	1060	71.0	267	28.3	1060	66.5	243	29.8	1060	61.2	223	31.8	1048	77.0
	40°	343	25.4	1248	87.0	322	27.3	1060	80.6	300	29.3	1060	78.0	275	31.1	1060	75.5	253	33.2	1060	73.0
	45°	380	26.3	1248	100.5	357	28.3	1248	94.8	333	30.3	1248	89.0	306	32.3	1248	82.8	283	34.5	1060	79.0
	50°	420	26.8	1260	86.5	395	28.8	1260	82.5	369	31.1	1260	78.0	341	33.2	1248	95.9	315	35.5	1248	90.3
	55°	460	27.3	1260	99.5	433	29.3	1260	93.9	405	31.8	1260	88.0	375	34.0	1248	109.0	347	36.5	1248	101.5

W311CN, W361HN

R-12 COND. UNIT	SST	95°F SDT				105°F SDT				115°F SDT				125°F SDT				135°F SDT			

**SEMI-HERMETIC COMPRESSOR
OR COMPRESSOR-RECEIVER UNIT CAPACITY DATA**

**WITH REMOTE 'LSBC' AIR COOLED CONDENSER
R-22 COMMERCIAL AND HIGH TEMPERATURE**

'E' UNITS 'R' UNITS †	SST	AMBIENT TEMP. °F											
		85°			95°			105°			115°		
		MBH	kW	LSBC	MBH	kW	LSBC	MBH	kW	LSBC	MBH	kW	LSBC
255HFN	0°	107	15.0	202D	102	16.0	202D	88	16.5	202D	76	16.5	202D
	10°	137	17.5	222D	126	18.0	202D	109	19.0	202D	102	19.5	202D
	20°	185	19.0	261D	170	19.7	261D	146	21.3	222D	133	22.0	222D
	25°	207	20.2	261D	193	21.0	261D	170	22.5	261D	157	22.2	261D
	30°	229	21.5	241B	215	22.0	241B	194	23.5	261D	180	24.5	261D
	40°	302	22.5	242B	268	24.5	241B	248	26.5	241B	229	27.5	241B
	50°	370	25.0	242B	331	26.5	242B	312	28.0	242B	288	29.5	242B
	0°	132	18.0	222D	118	18.5	222D	97	19.0	202D	83	19.5	183D
	10°	166	20.0	181B	155	21.0	222D	132	21.5	222D	118	22.5	202D
	20°	215	22.5	181B	194	23.5	181B	180	24.5	181B	166	25.5	181B
316HFN	25°	244	23.5	181B	224	24.5	181B	207	26.0	181B	193	27.0	181B
	30°	272	24.5	182B	253	26.0	182B	234	27.5	182B	220	28.5	182B
	40°	341	26.5	242B	317	28.5	242B	284	30.0	182B	268	31.5	182B
	50°	414	28.5	161B	385	30.5	161B	356	32.5	161B	322	34.0	161B
	0°	150	20.6	222D	137	20.9	222D	125	21.2	222D	113	21.5	222D
	10°	200	23.1	181B	184	23.8	181B	166	24.6	181B	150	25.2	181B
	20°	252	25.8	182B	237	26.7	182B	217	27.7	182B	189	28.8	181B
	25°	280	27.5	182B	262	28.0	182B	242	29.5	182B	225	30.5	182B
	30°	323	28.2	242B	303	29.7	242B	268	31.3	182B	250	32.4	182B
	40°	407	30.9	161B	377	32.5	161B	347	34.3	161B	321	36.0	161B
357HFN	50°	506	32.8	221B	472	34.8	221B	443	36.5	221B	405	38.7	221B
	0°	182	23.7	181B	168	24.2	181B	152	24.6	181B	142	25.1	181B
	10°	234	26.8	182B	217	27.4	182B	193	28.5	181B	178	29.4	181B
	20°	295	29.7	182B	275	30.9	182B	258	32.0	182B	237	33.5	182B
	25°	340	31.0	161B	320	32.5	161B	290	34.0	161B	275	35.5	161B
	30°	376	32.7	161B	352	34.4	161B	326	36.2	161B	300	38.0	161B
	40°	477	35.6	221B	446	37.6	221B	412	39.8	221B	380	42.2	221B
	50°	587	38.0	282B	550	40.2	282B	514	42.4	282B	475	44.8	282B
	0°	193	26.6	181B	180	27.0	181B	166	27.4	181B	150	27.8	181B
	10°	258	30.1	182B	239	31.0	182B	217	31.7	182B	195	32.7	182B
408HFN	20°	338	33.1	161B	312	34.4	161B	282	36.0	161B	240	38.0	182B
	25°	370	35.0	161B	345	36.5	161B	325	38.0	161B	288	39.8	161B
	30°	430	36.0	221B	375	39.0	161B	347	40.6	161B	318	42.1	161B
	40°	540	39.0	282B	482	42.0	221B	440	44.7	221B	410	46.7	221B
	50°	694	43.0	282B	656	45.0	282B	610	48.0	282B	558	50.6	282B
	0°	231	30.0	182B	212	30.5	182B	197	31.0	182B	178	31.6	182B
	10°	312	34.2	161B	287	35.3	161B	263	36.3	161B	231	37.8	182B
	20°	382	38.8	161B	354	40.5	161B	328	42.1	161B	306	43.6	161B
	25°	436	40.5	221B	409	42.3	221B	380	44.2	221B	350	46.0	221B
	30°	NOTE: FOR 50 HERTZ APPLICATIONS ONLY CONSULT FACTORY FOR RATINGS											
509HFN	40°												
	50°												
	0°												
	10°												
	20°												
511HFN	25°												
	30°												
	40°												
	50°												

SST = Saturated Suction Temperature, °F

† E = Compressor Units

R = Compressor-Receiver Units

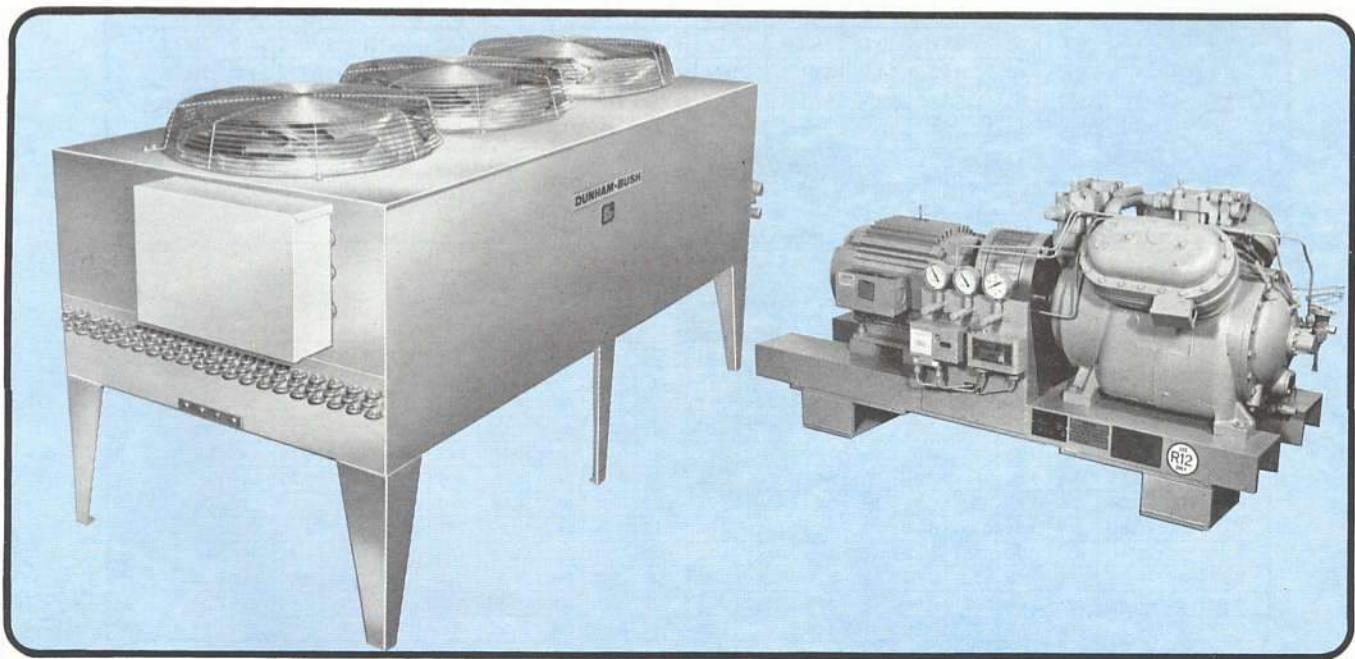
R502

**SEMI-HERMETIC COMPRESSOR
OR COMPRESSOR-RECEIVER UNIT CAPACITY DATA
WITH REMOTE 'LSBC' AIR COOLED CONDENSER
R-502 LOW TEMPERATURE**

'E' UNITS 'R' UNITS †	SST	AMBIENT TEMP. °F											
		85°			95°			105°			115°		
		MBH	kW	LSBC	MBH	kW	LSBC	MBH	kW	LSBC	MBH	kW	LSBC
155LFN	-40°	42	8.1	142D	36	7.4	142D	31	6.7	142D	26	6.0	142D
	-30°	55	9.1	183D	49	8.9	183D	41	8.7	142D	36	8.5	142D
	-20°	73	11.2	183D	67	11.2	183D	60	11.2	183D	54	11.2	183D
	-10°	99	13.6	261D	92	13.9	261D	84	14.2	261D	77	14.5	261D
	0°	126	17.0	261D	116	17.5	261D	107	18.0	261D	99	18.5	261D
216LFN	-40°	43	9.3	142D	37	8.6	142D	32	7.9	142D	27	7.2	142D
	-30°	61	10.4	183D	53	10.0	183D	43	9.4	142D	37	9.0	142D
	-20°	78	12.6	183D	70	12.6	183D	63	12.6	183D	55	12.6	183D
	-10°	106	16.0	261D	95	16.3	261D	86	16.6	261D	79	16.9	261D
	0°	127	20.0	261D	117	20.6	261D	108	21.2	261D	109	21.8	261D
257LFN	-40°	53	10.8	183D	47	10.2	183D	38	9.6	142D	32	9.0	142D
	-30°	70	12.4	183D	63	12.2	183D	55	12.0	183D	48	11.8	183D
	-20°	97	15.2	261D	88	15.3	261D	79	15.4	261D	71	15.6	261D
	-10°	122	16.4	261D	113	17.6	261D	104	18.8	261D	95	20.0	261D
	0°	156	22.6	241B	144	23.2	241B	134	23.8	241B	125	24.4	241B
308LFN	-40°	57	12.5	183D	50	11.8	183D	43	11.0	183D	37	10.3	183D
	-30°	84	14.7	261D	70	14.2	183D	62	13.8	183D	53	13.3	183D
	-20°	111	17.5	261D	98	17.6	261D	89	17.7	261D	79	17.8	261D
	-10°	144	21.6	241B	131	22.1	241B	118	22.6	241B	108	23.0	241B
	0°	175	26.3	241B	159	27.0	241B	146	27.8	241B	134	28.6	241B
359LFN	-40°	63	13.4	183D	55	12.8	183D	47	12.3	183D	39	11.8	183D
	-30°	93	16.2	261D	82	15.8	261D	73	15.4	261D	58	15.0	183D
	-20°	127	19.8	182B	116	20.0	182B	100	20.2	261D	88	20.4	261D
	-10°	160	24.6	182B	148	25.1	182B	135	25.6	182B	122	26.2	182B
	0°	203	29.9	161B	186	30.8	161B	170	31.8	161B	156	32.8	161B
411LFN	-40°	78	16.7	261D	60	15.6	183D	51	14.5	183D	45	13.4	183D
	-30°	112	19.1	182B	96	18.5	261D	85	17.9	261D	76	17.3	261D
	-20°	147	23.1	182B	132	23.1	182B	119	23.1	182B	109	23.1	182B
	-10°	190	28.2	161B	174	28.7	161B	160	29.2	161B	147	29.6	161B
	0°	229	34.5	161B	212	35.5	161B	194	36.5	161B	178	37.5	161B

SST = Saturated Suction Temperature, °F.

† E = Compressor Units
R = Compressor-Receiver Units



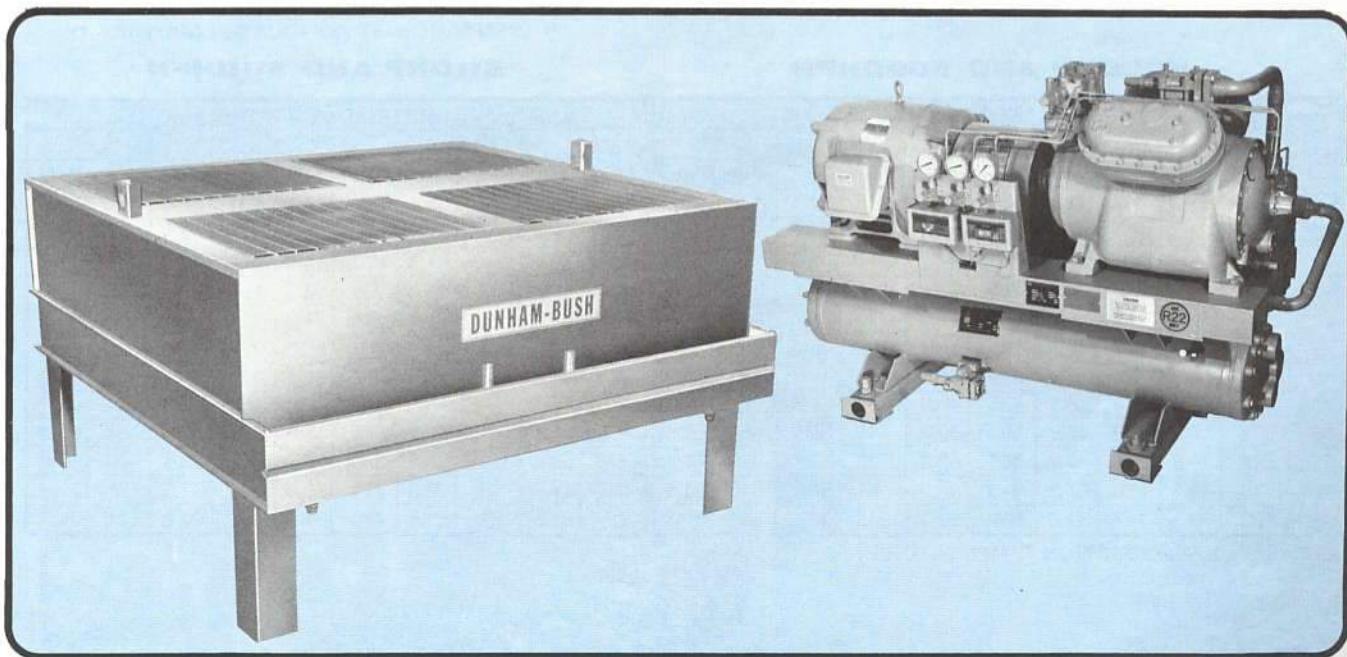
**SEMI-HERMETIC COMPRESSOR
OR COMPRESSOR-RECEIVER UNIT CAPACITY DATA
WITH REMOTE 'LSBC' AIR COOLED CONDENSER
R-12 COMMERCIAL AND HIGH TEMPERATURE**

R12

'E' UNITS 'R' UNITS †	SST	AMBIENT TEMPERATURE °F												
		85°		95°		105°		115°		MBH		kW		LSBC
157CN, 207HN														
0	95	12.5	202D	85	13.0	202D	76	14.0	183D	70	15.0	183D		
10	120	15.0	202D	110	16.0	202D	100	17.0	202D	95	18.0	183D		
20	155	17.5	261D	145	18.5	261D	130	19.5	261D	120	20.5	261D		
25	175	18.5	261D	162	19.2	261D	153	20.7	261D	141	21.3	261D		
30	188	20.6	261D	174	21.8	261D	159	22.8	261D	145	24.4	261D		
40	240	22.3	181B	222	23.7	181B	204	25.0	181B	183	26.5	261D		
50	293	24.9	182B	272	25.4	241B	251	26.9	241B	229	28.3	181B		
208CN, 258HN														
0	104	14.5	202D	95	15.5	202D	90	16.5	202D	80	17.0	202D		
10	140	17.5	261D	130	18.5	261D	115	19.5	202D	60	20.5	202D		
20	175	20.0	261D	166	21.0	261D	150	22.5	261D	140	23.5	261D		
25	200	21.0	241B	190	21.8	241B	182	23.0	241B	170	24.4	241B		
30	215	23.2	181B	202	24.5	181B	189	25.9	181B	176	27.8	261D		
40	276	24.6	241B	260	26.1	241B	246	27.9	241B	229	30.1	241B		
50	341	25.8	242B	322	27.6	242B	303	29.8	182B	283	32.1	182B		
259CN, 309HN														
0	120	15.5	261D	110	17.0	222D	100	18.5	222D	90	19.0	222D		
10	155	19.0	261D	144	20.5	261D	130	22.0	261D	120	23.0	222D		
20	199	22.0	241B	185	23.5	241B	170	25.0	241B	155	27.0	261D		
25	225	23.6	241B	211	25.0	241B	193	26.7	241B	175	28.4	241B		
30	243	26.3	241B	223	28.0	241B	203	29.5	181B	186	31.1	181B		
40	311	28.3	242B	287	30.2	182B	264	32.1	182B	240	34.0	182B		
50	382	30.0	242B	355	32.1	242B	328	34.4	242B	299	36.5	242B		
311CN, 361HN														
0	140	18.0	222D	130	19.5	222D	120	20.5	222D	106	21.5	222D		
10	180	21.5	181B	170	23.5	181B	160	24.5	181B	145	26.0	181B		
20	230	24.5	182B	215	26.5	181B	200	27.5	181B	185	30.0	181B		
25	261	26.0	182B	250	27.5	182B	230	29.4	182B	215	31.0	182B		
30	283	23.0	182B	262	31.1	182B	242	32.5	241B	227	33.9	241B		
40	360	30.2	242B	335	32.4	242B	310	34.3	242B	283	36.2	182B		
50	441	31.0	161B	411	33.2	161B	381	35.5	161B	347	37.4	242B		

SST = Saturated Suction Temperature, °F.

† E = Compressor Units
R = Compressor-Receiver Units



R22
DIRECT DRIVE COMPRESSOR CAPACITY DATA
R-22 HIGH TEMPERATURE
255DHF AND 255DHFN**316DHF AND 316DHFN**

SST RANGE	SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
		95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
		MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP
HFN	0°	125	18.0	118	18.3	98	18.9	88	19.2	75	19.5	146	21.0	132	21.3	118	21.6	103	21.9	90	22.5
	5°	141	18.9	129	19.5	115	20.1	101	20.7	90	21.3	165	22.2	151	22.8	137	23.4	122	24.0	106	24.6
	10°	160	20.1	146	20.7	132	21.6	117	21.9	107	22.5	194	23.7	172	24.3	163	24.9	141	25.8	127	26.7
	15°	180	21.1	165	21.9	152	22.5	136	24.0	124	24.6	216	24.9	196	25.5	180	26.7	165	27.6	149	28.5
	20°	206	22.2	193	23.1	172	24.3	157	25.5	141	26.4	245	26.1	225	27.0	209	27.9	191	29.4	173	30.6
	25°	232	23.1	214	24.3	199	25.8	180	27.0	165	28.2	278	27.3	255	28.5	237	29.7	218	31.2	199	32.7
	30°	261	24.0	242	25.5	225	27.0	206	28.5	194	29.7	314	28.5	288	29.7	269	31.2	247	32.7	227	34.5
	35°	294	25.2	273	26.7	254	28.2	234	30.0	214	31.2	350	29.4	324	30.9	302	32.7	278	34.5	255	36.3
	40°	330	26.1	307	27.6	285	29.4	263	31.2	235	32.7	389	30.3	361	32.1	335	33.9	309	36.0	283	38.1
	45°	368	27.0	343	28.8	319	30.6	294	32.7	270	34.2	431	31.2	400	33.0	371	35.1	343	37.5	314	39.6
HF	50°	407	27.9	379	29.7	352	31.5	324	33.9	299	35.7	472	32.1	441	34.2	405	36.3	376	38.7	345	41.1
	55°	448	28.8	417	30.6	386	32.7	358	35.1	330	37.2	515	33.0	479	35.1	443	37.5	412	39.9	376	42.3

SST = SATURATED SUCTION TEMPERATURE, °F.

357DHF AND 357DHFN**408DHF AND 408DHFN**

SST RANGE	SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
		95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
		MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP
HF	0°	170	24.2	152	24.6	139	25.1	124	25.4	111	25.8	196	27.3	180	27.9	165	29.1	149	29.4	139	30.0
	5°	193	25.8	175	26.4	160	27.0	141	27.4	127	28.2	221	29.7	201	30.3	191	31.2	175	31.5	160	33.0
	10°	221	27.4	201	28.2	183	28.8	164	29.6	145	30.6	252	31.5	232	32.1	211	33.3	201	34.5	180	35.7
	15°	247	28.8	227	29.4	206	30.5	185	31.8	165	32.8	288	33.0	263	33.9	242	35.4	227	36.9	206	38.1
	20°	278	30.0	256	31.2	232	32.4	211	33.6	191	34.8	322	34.8	299	35.7	278	37.5	258	39.3	232	40.8
	25°	314	31.2	288	33.0	263	34.2	242	36.0	216	37.2	366	36.3	340	38.1	314	39.6	294	41.4	268	43.5
	30°	355	32.8	330	34.2	299	36.0	273	37.8	247	39.2	412	37.8	386	39.3	361	41.7	330	43.8	304	46.5
	35°	402	34.5	371	35.7	340	37.8	312	39.6	280	41.4	464	39.3	438	41.1	402	43.5	376	45.9	340	48.3
	40°	451	35.1	420	38.1	384	39.3	353	41.4	317	43.5	520	40.5	489	42.6	453	45.3	417	48.0	381	50.7
	45°	505	36.3	467	38.4	433	40.8	396	43.2	355	45.3	582	42.0	541	44.4	500	47.1	464	50.1	427	52.8
HFN	50°	559	37.5	520	39.6	482	42.0	441	44.7	397	47.1	644	43.2	597	45.9	556	48.9	510	51.9	469	54.9
	55°	618	38.4	577	40.8	533	43.5	489	46.2	438	49.2	711	44.4	656	47.4	608	50.4	559	53.7	515	57.0

SST = SATURATED SUCTION TEMPERATURE, °F.

509DHF AND 509DHFN**511DHF AND 511DHFN**

SST RANGE	SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
		95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
		MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP
HF	0°	216	31.5	201	32.1	180	32.4	170	32.7	149	33.3	247	35.6	227	36.1	211	36.6	191	37.4	175	38.4
	5°	252	33.3	227	34.2	206	34.8	188	35.7	168	36.6	290	37.8	268	39.0	247	39.8	225	40.8	203	42.0
	10°	288	35.4	263	36.3	237	37.2	211	38.7	191	39.6	335	40.2	309	41.4	283	43.0	258	44.4	232	45.6
	15°	328	37.2	297	38.4	268	39.6	240	41.4	216	42.9	381	42.6	352	44.4	324	46.2	294	47.6	268	49.2
	20°	369	39.0	338	40.5	304	42.0	271	44.1	242	45.9	427	45.0	397	46.8	366	49.2	335	51.0	304	52.3
	25°	412	40.8	376	42.3	345	44.4	309	46.5	273	48.9	479	46.4	443	48.6	407	51.6	376	54.0	340	56.2
	30°	464	42.3	425	44.4	389	46.5	350	49.2	312	51.6	534	48.6	496	51.1	458	54.2	425	57.1	391	59.8
	35°	518	44.1	474	46.2	435	48.9	397	51.9	355	54.6	592	50.4	556	53.3	517	56.9	481	60.0	443	63.0
	40°	582	45.3	536	48.0	492	50.7	448	54.0	405	57.0	659	52.1	620	55.2	600	59.0	541	62.8	496	66.1
	45°	649	46.8	597	49.8	551	52.8	505	56.4	453	59.1	740	53.4	695	56.9	649	61.2	603	65.3	507	69.0
HFN	50°	726	48.3	670	51.3	613	54.9	561	58.2	510	61.2	830	54.7	779	58.3	721	63.0	700	67.6	559	72.0
	55°	803	49.5	742	52.8	680	56.7	635	60.3	567	63.3	927	55.6	865	59.4	798	64.3	736	69.6	616	74.4

SST = SATURATED SUCTION TEMPERATURE, °F.

DIRECT DRIVE COMPRESSOR CAPACITY DATA
R-22 COMMERCIAL TEMPERATURE

R22

205DCFN

266DCFN

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP
0°	126	18.0	118	18.3	98	18.9	88	19.2	75	19.5	146	21.0	132	21.3	118	21.6	103	21.9	90	22.5
5°	141	18.9	129	19.5	115	20.1	101	20.7	90	21.3	165	22.2	151	22.8	137	23.4	122	24.0	106	24.6
10°	160	20.1	146	20.7	132	21.6	117	21.9	107	22.5	194	23.7	172	24.3	163	24.9	141	25.8	127	26.7
15°	180	21.0	165	21.9	152	22.5	136	24.0	124	24.6	216	24.9	196	25.5	180	26.7	165	27.6	149	28.5
20°	206	22.2	193	23.1	172	24.3	157	25.5	141	26.4	245	26.1	225	27.0	209	27.9	191	29.4	173	30.6
25°	232	23.1	214	24.3	199	25.8	180	27.0	165	28.2	278	27.3	255	28.5	237	29.7	218	31.2	199	32.7

SST = SATURATED SUCTION TEMPERATURE, °F.

307DCFN

358DCFN

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP
0°	170	24.2	152	24.6	139	25.1	124	25.4	111	25.8	196	27.3	180	27.9	165	29.1	149	29.4	139	30.0
5°	193	25.8	175	26.4	160	27.0	141	27.6	127	28.2	221	29.7	201	30.3	191	31.2	175	31.5	160	33.0
10°	221	27.4	201	28.2	183	28.8	164	29.6	145	30.6	252	31.5	232	32.1	211	33.3	201	34.5	180	35.7
15°	247	28.8	227	29.4	206	30.5	185	31.8	165	32.8	237	33.0	263	33.9	242	35.4	227	36.9	206	38.1
20°	278	30.0	256	31.2	232	32.4	211	33.6	191	34.8	322	34.8	299	35.7	278	37.5	258	39.3	232	40.8
25°	314	31.2	288	33.0	263	34.2	242	36.0	216	37.2	366	36.3	340	38.1	314	39.6	294	41.4	268	43.5

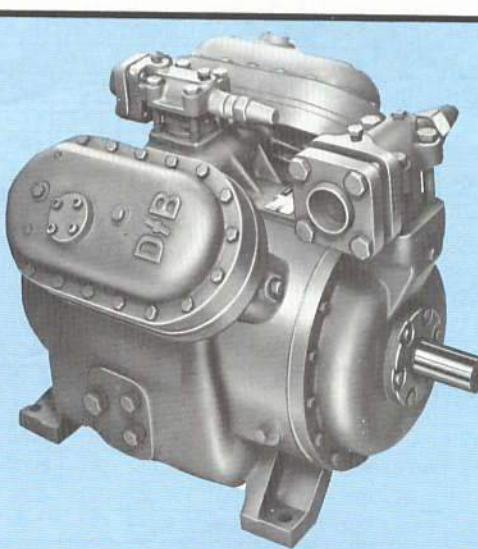
SST = SATURATED SUCTION TEMPERATURE, °F.

409DCFN

511DCFN

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°1		135°		95°		105°		115°		125°		135°	
	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP
0°	216	31.5	201	32.1	180	32.4	170	32.7	149	33.3	247	35.6	227	36.1	211	36.6	191	37.4	175	38.4
5°	252	33.3	227	34.2	206	34.8	188	35.7	168	36.6	290	37.8	268	39.0	247	39.8	225	40.8	203	42.0
10°	288	35.4	263	36.3	237	37.2	211	38.7	191	39.6	335	40.2	309	41.4	283	43.0	258	44.4	232	45.6
15°	328	37.2	297	38.4	268	39.6	240	41.4	216	42.9	381	42.6	352	44.4	324	46.2	294	47.6	268	49.2
20°	369	39.0	338	40.5	304	42.0	271	44.1	242	45.9	427	45.0	397	46.8	366	49.2	335	51.0	304	52.3
25°	412	40.8	376	42.3	345	44.4	309	46.5	273	48.9	479	46.4	443	48.6	407	51.6	376	54.0	340	56.2

SST = SATURATED SUCTION TEMPERATURE, °F.



R502
DIRECT DRIVE COMPRESSOR CAPACITY DATA
R-502 LOW TEMPERATURE
155DLFN**216DLFN**

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP
-40°	42	9.6	37	9.0	31	8.4	—	—	—	—	46	11.3	40	10.4	33	9.6	—	—	—	—
-35°	49	10.2	42	9.7	36	9.2	—	—	—	—	56	11.8	46	11.2	39	10.4	—	—	—	—
-30°	58	11.0	50	10.8	43	10.4	38	10.1	—	—	65	12.5	55	12.1	46	11.9	41	11.2	—	—
-25°	67	12.1	60	12.0	52	11.9	46	11.6	—	—	75	13.6	65	13.4	56	13.3	50	13.2	—	—
-20°	77	13.4	70	13.4	62	13.4	56	13.4	—	—	87	14.5	75	15.0	66	15.1	60	15.2	—	—
-15°	90	14.9	81	15.0	73	15.1	66	15.4	—	—	99	16.6	87	16.8	77	17.0	70	17.4	—	—
-10°	103	16.4	95	16.8	87	17.2	78	17.6	—	—	112	18.4	99	18.8	90	19.3	81	19.8	—	—
-5°	117	18.2	108	18.7	100	19.2	91	19.9	—	—	125	20.4	112	21.1	102	21.6	94	22.3	—	—
0°	133	20.2	124	20.8	113	21.5	105	22.2	—	—	138	22.7	126	23.6	115	24.2	106	25.0	—	—

SST = SATURATED SUCTION TEMPERATURE, °F.

257DLFN**308DLFN**

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP
-40°	56	13.0	47	12.1	39	11.5	—	—	—	—	62	15.0	50	14.2	43	13.1	—	—	—	—
-35°	65	13.9	57	13.4	47	13.0	—	—	—	—	74	16.0	63	15.4	55	14.5	—	—	—	—
-30°	75	15.1	66	14.9	58	14.6	49	14.2	—	—	88	17.3	76	16.8	67	16.3	57	15.5	—	—
-25°	88	16.7	77	16.6	69	16.4	60	16.3	—	—	103	18.7	90	18.6	80	18.4	69	18.1	—	—
-20°	100	18.4	91	18.5	81	18.6	72	18.7	—	—	118	20.8	105	20.8	95	20.9	82	20.9	—	—
-15°	114	20.3	104	20.5	95	20.9	84	21.1	—	—	135	23.0	120	23.4	109	23.6	96	23.9	—	—
-10°	130	22.3	118	22.8	109	23.3	99	23.8	—	—	152	25.6	137	26.2	125	26.6	111	27.1	—	—
-5°	145	24.5	134	25.2	125	25.8	114	26.4	—	—	170	28.4	153	29.2	140	29.9	126	30.6	—	—
0°	163	26.8	150	27.7	140	28.4	130	29.2	—	—	188	31.3	171	32.3	157	33.2	141	34.3	—	—

SST = SATURATED SUCTION TEMPERATURE, °F.

359DLFN**411DLFN**

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP
-40°	68	16.8	58	15.6	48	14.9	—	—	—	—	80	20.1	67	17.7	54	16.2	—	—	—	—
-35°	81	17.9	72	17.1	62	16.5	—	—	—	—	97	21.3	83	19.2	72	18.3	—	—	—	—
-30°	98	19.7	87	19.1	75	18.6	64	18.0	—	—	114	22.8	101	21.0	90	20.4	78	21.0	—	—
-25°	114	21.3	102	21.3	91	21.0	78	21.0	—	—	134	24.9	119	24.6	107	24.3	96	24.0	—	—
-20°	133	23.9	119	24.0	107	24.0	94	24.1	—	—	155	27.6	139	27.6	126	27.6	113	27.6	—	—
-15°	151	26.5	137	27.0	124	27.3	110	27.6	—	—	176	30.3	160	30.9	145	31.2	132	31.5	—	—
-10°	170	29.4	156	30.0	141	30.6	127	31.3	—	—	198	33.9	181	34.5	165	35.1	150	35.7	—	—
-5°	190	32.4	174	33.3	160	34.2	143	35.1	—	—	221	37.2	203	38.1	185	39.3	169	40.2	—	—
0°	210	35.4	193	36.6	177	37.8	161	39.0	—	—	244	40.8	226	42.3	204	43.8	187	45.0	—	—

SST = SATURATED SUCTION TEMPERATURE, °F.

DIRECT DRIVE COMPRESSOR CAPACITY DATA
R-12 HIGH TEMPERATURE

R12

207DHN

258DHN

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP
0°	106	14.1	97	14.7	88	15.9	79	16.5	72	17.7	118	16.2	110	17.4	100	18.3	90	19.5	82	20.4
5°	118	15.6	110	16.5	100	17.4	92	18.3	82	19.5	137	18.3	124	19.2	116	20.1	106	21.3	96	22.5
10°	134	17.1	124	18.0	113	19.2	107	20.1	96	21.3	151	19.5	141	20.7	131	21.9	121	23.1	110	24.6
15°	149	18.6	139	19.5	129	20.7	118	21.3	108	23.1	172	21.0	160	21.6	149	23.7	137	24.9	127	26.4
20°	170	19.5	158	21.0	147	22.2	134	23.4	123	24.6	196	22.2	183	23.7	170	25.3	158	26.7	144	28.8
25°	191	21.3	178	22.2	164	23.7	151	24.9	139	26.1	219	23.4	206	25.2	193	26.7	180	28.5	168	30.3
30°	216	22.5	203	23.7	188	25.2	172	26.4	158	27.9	247	24.6	232	26.4	219	27.9	206	30.0	191	31.8
35°	242	23.4	230	24.9	211	26.4	195	27.9	178	28.8	278	25.5	261	27.6	244	29.4	232	31.2	216	33.3
40°	271	24.3	254	25.8	236	27.6	219	29.1	201	30.9	309	26.1	291	28.5	275	30.3	261	32.7	242	34.8
45°	302	24.9	283	26.7	263	28.5	243	30.3	224	32.1	345	26.7	324	29.1	306	31.5	290	33.0	275	36.3
50°	333	25.5	312	27.3	288	29.4	271	31.2	247	33.3	384	27.0	360	29.7	340	31.9	322	33.9	299	37.2
55°	366	25.8	340	33.6	319	30.3	296	32.1	273	33.9	422	27.3	367	30.0	376	32.7	353	35.1	330	38.1

309DHN

361DHN

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP
0°	134	17.1	124	18.6	113	20.1	103	21.6	93	22.8	155	20.1	144	21.6	134	23.4	121	24.6	110	26.1
5°	151	19.2	141	20.7	129	21.3	118	23.7	108	25.2	178	22.2	165	24.0	155	25.8	147	27.0	129	28.5
10°	172	21.0	160	22.8	147	24.3	137	26.1	124	27.6	199	24.0	185	26.1	175	27.9	162	29.7	149	31.2
15°	193	23.1	180	24.9	168	26.4	155	28.2	141	29.7	224	26.1	211	27.9	199	30.3	182	31.8	170	33.6
20°	219	24.9	203	26.7	188	28.5	175	30.3	160	32.1	254	27.6	240	29.7	224	32.1	209	34.5	193	35.7
25°	247	26.4	232	28.5	213	30.3	199	32.1	180	34.2	285	29.1	271	31.5	252	33.9	234	35.7	216	37.8
30°	278	27.9	263	30.0	244	32.1	224	33.9	203	36.3	322	30.6	304	32.7	283	35.1	263	37.5	242	39.6
35°	314	29.4	296	31.5	275	33.9	250	35.7	230	38.1	361	31.5	343	33.9	319	36.9	296	39.0	273	41.1
40°	350	30.6	330	33.0	309	35.1	283	37.5	263	39.9	405	32.4	381	34.8	355	37.8	330	40.5	306	42.3
45°	391	31.5	368	33.9	343	36.3	315	38.7	291	41.4	450	33.0	425	35.4	397	38.4	369	40.8	340	43.5
50°	433	32.1	405	34.8	379	37.5	350	39.9	324	42.3	502	33.3	469	35.7	438	38.7	407	41.1	376	43.8
55°	474	32.7	446	35.1	417	38.1	386	40.8	357	43.8	549	33.3	515	35.7	481	38.7	448	41.4	412	44.1

R-12 COMMERCIAL TEMPERATURE

157DCN

208DCN

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP
-5°	93	12.3	85	13.2	76	13.8	70	15.0	62	15.9	103	15.3	96	15.9	89	16.5	79	17.4	69	18.6
0°	105	14.1	97	14.7	88	15.9	79	16.5	72	17.7	118	16.2	110	17.4	100	18.3	90	19.5	82	20.4
5°	118	15.6	110	16.5	100	17.4	93	18.3	82	19.5	137	18.3	124	19.2	116	20.1	106	21.3	96	22.5
10°	134	17.1	124	18.0	113	19.2	106	20.1	96	21.3	151	19.5	141	20.7	131	21.9	121	23.1	110	24.6
15°	149	18.6	139	19.5	129	20.7	118	21.3	108	23.1	172	21.0	160	21.6	149	23.7	137	24.9	127	26.4
20°	170	19.5	158	21.0	147	22.2	134	23.4	124	24.6	196	22.2	183	23.7	170	25.2	158	26.7	144	28.5
25°	191	21.3	178	22.2	165	23.7	151	24.9	139	26.1	219	23.4	206	25.2	193	26.7	180	28.5	165	30.3
30°	216	22.5	203	23.7	188	25.2	172	26.4	158	27.9	247	24.6	232	26.4	219	27.9	206	30.0	191	31.8

259DCN

311DCN

SST	SDT = SATURATED DISCHARGE TEMP. °F										SDT = SATURATED DISCHARGE TEMP. °F									
	95°		105°		115°		125°		135°		95°		105°		115°		125°		135°	
	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP	MBH	HP
-5°	118	15.0	108	16.5	98	17.7	90	19.5	80	20.4	134	18.0	124	19.5	113	20.7	103	21.9	90	23.1
0°	134	17.1	124	18.6	113	20.1	103	21.6	93	22.8	155	2								

R22

**DIRECT DRIVE CONDENSING UNIT CAPACITY DATA
WITH 'CSTC' WATER COOLED CONDENSER
R-22 COMMERCIAL AND HIGH TEMPERATURE**

W205DCFN, W255DHF AND W255DHFN

R-22 COND. UNIT	SST	95° SDT				105° SDT				115° SDT				125° SDT				135° SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
W255DHFN	0	125	18.0	1048	33	118	18.3	848	36	98	18.9	848	33	88	19.2	848	29	75	19.5	848	25
W255DHF	5	141	18.9	1048	37	129	19.5	1048	33	115	20.1	848	38	101	20.7	848	39	90	21.3	848	29
W255DHF	10	160	20.1	1048	43	146	20.7	1048	38	132	21.6	1048	38	117	21.9	1048	32	107	22.5	848	36
W255DHF	15	180	21.1	1048	48	165	21.9	1048	44	152	22.5	1048	41	136	24.0	1048	37	124	24.6	1048	33
W255DHF	20	206	22.2	1048	57	193	23.1	1048	53	172	24.3	1048	47	157	25.5	1048	43	141	26.4	1048	40
W255DHF	25	232	23.1	1048	65	214	24.3	1048	60	199	25.8	1048	57	180	27.0	1048	53	165	28.2	1048	48
W255DHF	30	261	24.0	1048	78	242	25.5	1048	71	225	27.0	1048	65	206	28.5	1048	59	194	29.7	1048	55
W255DHF	35	294	25.2	1060	69	273	26.7	1060	62	254	28.2	1048	76	234	30.0	1048	69	214	31.2	1048	64
W255DHF	40	330	26.1	1060	80	307	27.6	1060	73	285	29.4	1060	68	263	31.2	1060	62	235	32.7	1048	76
W255DHF	45	368	27.0	1248	91	343	28.8	1248	82	319	30.6	1060	78	294	32.7	1060	71	270	34.2	1060	66
W255DHF	50	407	27.9	1248	103	379	29.7	1248	96	352	31.5	1248	88	324	33.9	1060	82	299	35.7	1060	78
W255DHF	55	448	28.8	1260	93	417	30.6	1248	111	386	32.7	1248	100	358	35.1	1248	93	330	37.2	1248	88

W266DCFN, W316DHF AND W316DHFN

R-22 COND. UNIT	SST	95° SDT				105° SDT				115° SDT				125° SDT				135° SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
W316DHF N	0	146	21.0	1048	37	132	21.3	1048	34	118	21.6	848	38	103	21.9	848	34	90	22.5	848	34
W316DHF	5	165	22.2	1048	43	151	22.8	1048	39	137	23.4	1048	36	122	24.0	1048	33	106	24.6	848	33
W316DHF	10	194	23.7	1048	50	172	24.3	1048	46	163	24.9	1048	43	141	25.8	1048	39	127	26.7	1048	39
W316DHF	15	216	24.9	1048	60	196	25.5	1048	55	180	26.7	1048	51	165	27.5	1048	47	149	28.5	1048	47
W316DHF	20	245	26.1	1048	70	225	27.0	1048	66	209	27.9	1048	52	191	29.4	1048	56	173	30.6	1048	56
W316DHF	25	278	27.3	1060	64	255	28.5	1048	77	237	29.7	1048	72	218	31.2	1048	64	199	32.7	1048	64
W316DHF	30	314	28.5	1060	76	288	29.7	1060	69	269	31.2	1060	64	247	32.7	1048	78	227	34.5	1048	78
W316DHF	35	350	29.4	1248	87	324	30.9	1060	82	302	32.7	1060	75	278	34.5	1060	69	255	36.3	1060	69
W316DHF	40	389	30.3	1248	101	361	32.1	1060	93	335	33.9	1248	85	309	36.0	1060	81	283	38.1	1060	81
W316DHF	45	431	31.2	1248	116	400	33.0	1248	111	371	35.1	1248	99	343	37.5	1248	91	314	39.6	1248	91
W316DHF	50	472	32.1	1260	100	441	34.2	1248	124	405	36.3	1248	114	376	38.7	1248	103	345	41.1	1248	103
W316DHF	55	515	33.0	1260	113	479	35.1	1260	105	443	37.5	1260	97	412	39.9	1248	118	376	42.3	1248	118

W307DCFN, W357DHF AND W357DHFN

R-22 COND. UNIT	SST	95° SDT				105° SDT				115° SDT				125° SDT				135° SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
W357DHF N	0	170	24.2	1048	46	152	24.6	1048	43	139	25.1	1048	39	124	25.4	1048	35	111	25.8	1048	32
W357DHF	5	193	25.8	1048	55	175	26.4	1048	49	160	27.0	1048	45	141	27.4	1048	41	127	28.2	1048	37
W357DHF	10	221	27.4	1048	63	201	28.2	1048	58	183	28.8	1048	52	164	29.6	1048	47	145	30.6	1048	43
W357DHF	15	247	28.8	1048	75	227	29.4	1048	67	206	30.5	1048	61	185	31.8	1048	56	165	32.8	1048	50
W357DHF	20	278	30.0	1060	67	256	31.2	1048	80	232	32.4	1048	73	211	33.6	1048	65	191	34.8	1048	60
W357DHF	25	314	31.2	1060	81	288	33.0	1060	72	263	34.2	1060	65	242	36.0	1048	78	216	37.2	1048	72
W357DHF	30	355	32.8	1248	94	330	34.2	1248	84	299	36.0	1060	78	273	37.8	1060	70	247	39.2	1060	64
W357DHF	35	402	34.5	1248	114	371	35.7	1248	100	340	37.8	1248	91	312	39.6	1248	82	280	41.4	1060	76
W357DHF	40	451	35.1	1260	100	420	38.1	1260	91	384	39.3	1248	108	353	41.4	1248	97	317	43.5	1248	89
W357DHF	45	505	36.3	1260	116	467	38.4	1260	106	433	40.8	1260	96	396	43.2	1248	114	355	45.3	1248	105
W357DHF	50	559	37.5	1454	124	520	39.6	1454	114	482	42.0	1260	113	441	44.7	1260	99	397	47.1	1260	93
W357DHF	55	618	38.4	1454	142	577	40.8	1454	131	533	43.5	1454	119	489	46.2	1260	116	438	49.2	1260	106

SST = SATURATED SUCTION TEMPERATURE, °F
SDT = SATURATED DISCHARGE TEMPERATURE, °F

**DIRECT DRIVE CONDENSING UNIT CAPACITY DATA
WITH 'CSTC' WATER COOLED CONDENSER
R-22 COMMERCIAL AND HIGH TEMPERATURE**

W358DCFN, W408DHF AND W408DHFN

R-22 COND. UNIT	SST	95° SDT				105° SDT				115° SDT				125° SDT				135° SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
W408DHFN W358DCFN W408DHF	0	196	27.3	1048	57	180	27.9	1048	52	165	29.1	1048	50	149	29.4	1048	46	139	30.0	1048	42
	5	221	29.7	1048	65	201	30.3	1048	61	191	31.2	1048	57	175	31.5	1048	52	160	33.0	1048	49
	10	252	31.5	1048	78	232	32.1	1048	73	211	33.3	1048	67	201	34.5	1048	62	180	35.7	1048	57
	15	288	33.0	1060	71	263	33.9	1060	65	242	35.4	1048	80	227	36.9	1048	73	206	38.1	1048	67
	20	322	34.8	1248	83	299	35.7	1060	79	278	37.5	1060	72	258	39.3	1060	67	232	40.8	1048	81
	25	366	36.3	1248	101	340	38.1	1248	93	314	39.6	1248	84	294	41.4	1060	80	268	43.5	1060	74
	30	412	37.8	1260	89	386	39.3	1248	109	361	41.7	1248	100	330	43.8	1248	93	304	46.5	1248	85
	35	464	39.3	1260	108	438	41.1	1260	98	402	43.5	1260	89	376	45.9	1248	111	340	48.3	1248	103
	40	520	40.5	1454	115	489	42.6	1260	114	453	45.3	1260	104	417	48.0	1260	98	381	50.7	1260	89
	45	582	42.0	1454	132	541	44.4	1454	122	500	47.1	1260	124	464	50.1	1260	111	427	52.8	1260	104
	50	644	43.2	1454	152	597	45.9	1454	139	556	48.9	1454	126	510	51.9	1454	118	469	54.9	1260	118
	55	711	44.4	1454	175	656	47.4	1454	160	608	50.4	1454	146	559	53.7	1454	132	515	57.0	1454	124

W409DCFN, W509DHF AND W509DHFN

R-22 COND. UNIT	SST	95° SDT				105° SDT				115° SDT				125° SDT				135° SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
W509DHFN W509DCFN W509DHF	0	216	31.5	1048	67	201	32.1	1048	60	180	32.4	1048	56	170	32.7	1048	50	149	33.3	1048	45
	5	252	33.3	1048	82	227	34.2	1048	74	206	34.8	1048	67	188	35.7	1048	60	168	36.6	1048	52
	10	288	35.4	1060	74	263	36.3	1060	67	237	37.2	1048	80	211	38.7	1048	71	191	39.6	1048	62
	15	328	37.2	1248	87	297	38.4	1060	78	268	39.6	1060	72	240	41.4	1060	64	216	42.9	1048	74
	20	369	39.0	1248	103	338	40.5	1248	93	304	42.0	1248	82	271	44.1	1060	75	242	45.9	1060	66
	25	412	40.8	1260	94	376	42.3	1248	110	345	44.4	1248	98	309	46.5	1248	87	273	48.9	1060	79
	30	464	42.3	1260	109	425	44.4	1260	98	389	46.5	1260	89	350	49.2	1248	104	312	51.6	1248	93
	35	518	44.1	1454	119	474	46.2	1260	116	435	48.9	1260	104	397	51.9	1260	95	355	54.6	1248	111
	40	582	45.3	1454	139	536	48.0	1454	127	492	50.7	1454	119	448	54.0	1260	111	405	57.0	1260	101
	45	649	46.8	1454	163	597	49.8	1454	148	551	52.8	1454	133	505	56.4	1454	122	453	59.1	1260	122
	50	726	48.3	1460	158	670	51.3	1454	175	613	54.9	1454	154	561	58.2	1454	141	510	61.2	1454	130
	55	803	49.5	1460	185	742	52.8	1460	172	680	56.7	1454	179	635	60.3	1454	165	567	63.3	1454	148

W511DCFN, W511DHF AND W511DHFN

R-22 COND. UNIT	SST	95° SDT				105° SDT				115° SDT				125° SDT				135° SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
W511DHFN W511DCFN W511DHF	0	247	35.6	1060	64	227	36.1	1048	76	211	36.6	1048	70	191	37.4	1048	64	175	38.4	1048	59
	5	290	37.8	1060	77	268	39.0	1060	70	247	39.8	1060	64	225	40.8	1048	76	203	42.0	1048	72
	10	335	40.2	1248	93	309	41.4	1248	83	283	43.0	1060	78	258	44.4	1060	70	232	45.6	1060	67
	15	381	42.6	1248	112	352	44.4	1248	102	324	46.2	1248	93	294	47.6	1248	83	268	49.2	1060	80
	20	427	45.0	1260	103	397	46.8	1248	93	366	49.2	1248	112	335	51.0	1248	102	304	52.3	1248	95
	25	479	46.4	1260	121	443	48.6	1260	110	407	51.6	1260	100	376	54.0	1260	93	340	56.2	1248	114
	30	534	48.6	1454	128	496	51.1	1454	118	458	54.2	1260	118	425	57.1	1260	108	391	59.8	1260	102
	35	592	50.4	1454	148	556	53.3	1454	138	517	56.9	1454	127	481	60.0	1454	118	443	63.0	1260	123
	40	659	52.1	1454	175	620	55.2	1454	161	600	59.0	1454	148	541	62.8	1454	138	496	66.1	1454	130
	45	740	53.4	1460	175	695	56.9	1460	161	649	61.2	1454	175	603	65.3	1454	161	507	69.0	1454	151
	50	830	54.7	1648	185	779	58.3	1648	177	721	63.0	1460	173	700	67.6	1460	161	559	72.0	1454	175
	55	927	55.6	1648	206	865	59.4	1648	201	798	64.3	1648	187	736	69.6	1648	177	616	74.4	1460	170

SST = SATURATED SUCTION TEMPERATURE, °F
SDT = SATURATED DISCHARGE TEMPERATURE, °F

**DIRECT-DRIVE CONDENSING UNIT CAPACITY DATA
WITH 'CSTC' WATER COOLED CONDENSER
R-502 LOW TEMPERATURE**

W155DLFN

R502 COND. UNIT	SST	95° SDT				105° SDT				115° SDT				125° SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
W155DLFN	-40	42	9.6	548	13	37	9.0	548	11	31	8.4	548	8	-	-	-	-
	-35	49	10.2	548	19	42	9.7	548	14	36	9.2	548	11	-	-	-	-
	-30	58	11.0	848	14	50	10.8	548	19	43	10.4	548	14	38	10.1	548	12
	-25	67	12.1	848	16	60	12.0	848	15	52	11.9	548	20	46	11.6	548	18
	-20	77	13.4	848	22	70	13.4	848	20	62	13.4	848	18	56	13.4	848	15
	-15	90	14.9	848	27	81	15.0	848	24	73	15.1	848	22	66	15.4	848	20
	-10	103	16.4	848	32	95	16.8	848	29	87	17.2	848	26	78	17.6	848	24
	-5	117	18.2	848	37	108	18.7	848	34	100	19.2	848	32	91	19.9	848	29
	0	133	20.2	1048	35	124	20.8	848	42	113	21.5	848	38	105	22.2	848	35

W216DLFN

R502 COND. UNIT	SST	95° SDT				105° SDT				115° SDT				125° SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
W216DLFN	-40	46	11.3	548	16	40	10.4	548	13	33	9.6	548	9	-	-	-	-
	-35	56	11.8	848	14	46	11.2	548	18	39	10.4	548	13	-	-	-	-
	-30	65	12.5	848	19	55	12.1	848	14	46	11.9	548	17	41	11.2	548	14
	-25	75	13.6	848	22	65	13.4	848	19	56	13.3	848	15	50	13.2	548	20
	-20	87	14.5	848	26	75	15.0	848	22	66	15.1	848	19	60	15.2	848	16
	-15	99	16.6	848	30	87	16.8	848	26	77	17.0	848	24	70	17.4	848	21
	-10	112	18.4	848	35	99	18.8	848	31	90	19.3	848	28	81	19.8	848	25
	-5	125	20.4	1048	32	112	21.1	848	36	102	21.6	848	33	94	22.3	848	30
	0	138	22.7	1048	36	126	23.6	1048	33	115	24.2	848	39	106	25.0	848	35

W257DLFN

R502 COND. UNIT	SST	95° SDT				105° SDT				115° SDT				125° SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
W257DLFN	-40	56	13.0	848	15	47	12.1	548	18	39	11.5	548	13	-	-	-	-
	-35	65	13.9	848	19	57	13.4	848	15	47	13.0	548	19	-	-	-	-
	-30	75	15.1	848	22	66	14.9	848	19	58	14.6	848	16	49	14.2	848	20
	-25	88	16.7	848	27	77	16.6	848	23	69	16.4	848	21	60	16.3	848	18
	-20	100	18.4	848	32	91	18.5	848	28	81	18.6	848	26	72	18.7	848	23
	-15	114	20.3	848	38	104	20.5	848	33	95	20.9	848	31	84	21.1	848	28
	-10	130	22.3	1048	34	118	22.8	1048	32	109	23.3	848	38	99	23.8	848	34
	-5	145	24.5	1048	38	134	25.2	1048	37	125	25.8	1048	34	114	26.4	1048	32
	0	163	26.8	1048	44	150	27.7	1048	42	140	28.4	1048	39	130	29.2	1048	37

SST = SATURATED SUCTION TEMPERATURE, °F.

SDT = SATURATED DISCHARGE TEMPERATURE, °F.

**DIRECT DRIVE CONDENSING UNIT CAPACITY DATA
WITH 'CSTC' WATER COOLED CONDENSER**

R-502 LOW TEMPERATURE

W308DLFN

R502 COND. UNIT	SST	95° SDT				105° SDT				115° SDT				125° SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
W308DLFN	-40	62	15.0	848	18	50	14.2	848	13	43	13.1	848	11	-	-	-	-
	-35	74	16.0	848	23	63	15.4	848	19	55	14.5	848	15	-	-	-	-
	-30	88	17.3	848	28	76	16.8	848	24	67	16.3	848	21	57	15.5	848	18
	-25	103	18.7	1048	34	90	18.6	848	29	80	18.4	848	26	69	18.1	848	21
	-20	118	20.8	1048	33	105	20.8	848	36	95	20.9	848	33	82	20.9	848	26
	-15	135	23.0	1048	37	120	23.4	1048	33	109	23.6	848	40	96	23.9	848	33
	-10	152	25.6	1048	42	137	26.2	1048	38	125	26.6	1048	36	111	27.1	848	40
	-5	170	28.4	1048	48	153	29.2	1048	43	140	29.9	1048	.41	126	30.6	1048	36
	0	188	31.3	1048	55	171	32.3	1048	48	157	33.2	1048	46	141	34.3	1048	41

W359DLFN

R502 COND. UNIT	SST	95° SDT				105° SDT				115° SDT				125° SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
W359DLFN	-40	68	16.8	848	20	58	15.6	848	16	48	14.9	848	14	-	-	-	-
	-35	81	17.9	848	26	72	17.1	848	22	62	16.5	848	19	-	-	-	-
	-30	98	19.7	848	32	87	19.1	848	28	75	18.6	848	25	64	18.0	848	21
	-25	114	21.3	1048	32	102	21.3	848	35	91	21.0	848	31	78	21.0	848	27
	-20	133	23.9	1048	37	119	24.0	1048	33	107	24.0	848	39	94	24.1	848	33
	-15	151	26.5	1048	42	137	27.0	1048	39	124	27.3	1048	36	110	27.6	1048	32
	-10	170	29.4	1048	48	156	30.0	1048	47	141	30.6	1048	41	127	31.3	1048	38
	-5	190	32.4	1048	56	174	33.3	1048	51	160	34.2	1048	47	143	35.1	1048	44
	0	210	35.4	1048	60	193	36.6	1048	59	177	37.8	1048	54	161	39.0	1048	49

W411DLFN

R502 COND. UNIT	SST	95° SDT				105° SDT				115° SDT				125° SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
W411DLFN	-40	80	20.1	848	26	67	17.7	848	21	54	16.2	848	16	-	-	-	-
	-35	97	21.3	848	35	83	19.2	848	27	72	18.3	848	24	-	-	-	-
	-30	114	22.8	1048	33	101	21.0	848	35	90	20.4	848	31	78	21.0	848	27
	-25	134	24.9	1048	38	119	24.6	1048	34	107	24.3	1048	31	96	24.0	848	35
	-20	155	27.6	1048	45	139	27.6	1048	41	126	27.6	1048	37	113	27.6	1048	34
	-15	176	30.3	1048	52	160	30.9	1048	48	145	31.2	1048	44	132	31.5	1048	41
	-10	198	33.9	1048	61	181	34.5	1048	56	165	35.1	1048	51	150	35.7	1048	47
	-5	221	37.2	1048	70	203	38.1	1048	64	185	39.3	1048	59	169	40.2	1048	55
	0	244	40.8	1048	81	226	42.3	1048	74	204	43.8	1048	67	187	45.0	1048	62

SST = SATURATED SUCTION TEMPERATURE, °F.
SDT = SATURATED DISCHARGE TEMPERATURE, °F.

R12

**DIRECT DRIVE CONDENSING UNIT CAPACITY DATA
WITH 'CSTC' WATER COOLED CONDENSER
R-12 COMMERCIAL AND HIGH TEMPERATURE**

R-12 COND. UNIT	SST	95°F SDT				105°F SDT				115°F SDT				125°F SDT				135°F SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
	-5	93	12.3	848	27.0	85	13.2	848	24.0	76	13.8	848	23.0	70	15.0	848	20.0	62	15.9	848	19.0
	0	105	14.1	848	31.0	97	14.7	848	28.0	88	15.9	848	25.0	79	16.5	848	24.0	72	17.7	848	21.0
	5	118	15.6	848	36.0	110	16.5	848	33.0	100	17.4	848	31.0	93	18.3	848	27.0	82	19.5	848	25.0
	10	134	17.1	1048	33.0	124	18.0	1048	38.0	113	19.2	848	36.0	106	20.1	848	33.0	96	21.3	848	31.0
	15	149	18.6	1048	37.0	139	19.5	1048	35.0	129	20.7	1048	33.0	118	21.3	848	38.0	108	23.1	848	36.0
	20	170	19.5	1048	42.0	158	21.0	1048	39.0	147	22.2	1048	37.0	134	23.4	1048	35.0	124	24.6	1048	33.0
	25	191	21.3	1048	48.0	178	22.2	1048	46.0	165	23.7	1048	43.0	151	24.9	1048	41.0	139	26.1	1048	37.0
	30	216	22.5	1048	56.0	203	23.7	1048	52.0	188	25.2	1048	50.0	172	26.4	1048	46.0	158	27.9	1048	43.0
	35	242	23.4	1048	65.5	230	24.9	1048	62.0	211	26.4	1048	58.5	195	27.9	1048	54.5	178	28.8	1048	52.1
	40	272	24.2	1060	66.3	257	25.8	1048	68.0	237	27.5	1048	67.5	219	29.1	1048	63.0	201	30.5	1048	61.1
	45	302	24.9	1060	67.0	283	26.7	1060	63.0	263	28.5	1048	78.8	243	30.3	1048	72.0	224	32.1	1048	62.0
	50	334	25.4	1248	77.3	312	30.2	1248	74.5	291	29.4	1060	67.5	270	31.2	1060	62.5	249	33.0	1060	63.5
	55	366	25.8	1248	87.5	340	33.6	1248	85.4	319	30.3	1060	77.4	29.6	32.1	1060	71.0	273	33.9	1060	65.0

W157DCN, W207DHN

R-12 COND. UNIT	SST	95°F SDT				105°F SDT				115°F SDT				125°F SDT				135°F SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
	-5	103	15.3	848	32.0	96	15.9	848	29.0	89	16.5	848	26.0	79	17.4	848	24.0	69	18.6	848	21.0
	0	118	16.2	848	38.0	110	17.4	848	34.0	100	18.3	848	31.0	90	19.5	848	28.0	82	20.4	848	26.0
	5	137	18.3	1048	34.0	124	19.2	1048	32.0	116	20.1	848	37.0	106	21.3	848	34.0	96	22.5	848	31.0
	10	151	19.5	1048	39.0	141	20.7	1048	37.0	131	21.9	1048	35.0	121	23.1	1048	32.0	110	24.6	848	38.0
	15	172	21.0	1048	45.0	160	21.6	1048	42.0	149	23.7	1048	40.0	137	24.9	1048	38.0	127	26.4	1048	35.0
	20	196	22.2	1048	52.0	183	23.7	1048	48.0	170	25.2	1048	46.0	158	26.7	1048	42.0	144	28.5	1048	41.0
	25	219	23.4	1048	60.0	206	25.2	1048	57.0	193	26.7	1048	54.0	180	28.5	1048	48.0	165	30.3	1048	47.0
	30	247	24.6	1048	69.0	232	26.4	1048	65.0	219	27.9	1048	63.0	206	30.0	1048	59.0	191	31.8	1048	56.0
	35	278	25.5	1060	60.5	261	27.6	1048	76.3	244	29.4	1048	72.0	232	31.2	1048	68.5	216	33.3	1048	80.0
	40	312	26.1	1248	71.0	293	28.4	1060	76.9	275	30.5	1060	72.9	261	32.1	1060	69.3	246	34.8	1060	58.5
	45	345	26.7	1248	81.5	324	29.1	1060	77.5	306	31.5	1060	73.8	290	33.0	1060	70.0	275	36.3	1060	67.8
	50	384	27.0	1248	95.3	346	29.6	1248	84.3	341	32.1	1248	85.4	322	34.1	1248	80.3	303	37.2	1248	77.2
	55	422	27.3	1248	109.0	367	30.0	1248	91.0	376	32.7	1248	97.0	353	35.1	1248	90.5	330	38.1	1248	86.0

W208DCN, W258DHN

R-12 COND. UNIT	SST	95°F SDT				105°F SDT				115°F SDT				125°F SDT				135°F SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
	-5	118	15.0	1048	32.0	108	16.5	848	37.0	98	17.7	848	33.0	90	19.5	848	29.0	80	20.4	848	28.0
	0	134	17.1	1048	35.0	124	18.6	1048	33.0	113	20.1	848	38.0	103	21.6	848	35.0	930	22.8	848	32.0
	5	151	19.2	1048	39.0	141	20.7	1048	37.0	129	21.3	1048	35.0	118	23.7	1048	33.0	108	25.2	848	37.0
	10	172	21.0	1048	45.0	160	22.8	1048	42.0	147	24.3	1048	40.0	137	26.1	1048	37.0	124	27.6	1048	40.0
	15	193	23.1	1048	52.0	180	24.9	1048	49.0	168	26.4	1048	46.0	155	28.2	1048	43.0	141	29.7	1048	47.0
	20	219	24.9	1048	61.0	203	26.7	1048	57.0	188	28.5	1048	54.0	175	30.3	1048	50.0	160	32.1	1048	57.0
	25	247	26.4	1048	72.0	232	28.5	1048	67.0	213	30.3	1048	62.0	199	32.1	1048	59.0	180	34.2	1048	64.0
	30	278	27.9	1060	64.0	263	30.0	1048	79.0	244	32.1	1048	73.0	224	33.9	1048	67.0	203	36.3	1048	64.0
	35	298	25.5	1060	75.0	296	31.5	1060	70.2	275	33.9	1060	66.0	250	35.7	1060	60.0	230	38.1	1048	74.5
	40	353	30.5	1248	87.5	332	32.7	1060	78.5	309	35.1	1060	74.6	283	37.2	1060	70.2	261	39.8	1060	66.0
	45	391	31.5	1248	101.0	368	33.9	1248	95.0	343	36.3	1248	89.0	315	38.7	1248	81.0	291	41.4	1060	72.0
	50	433	32.1	1260	88.0	407	34.5	1260	83.0	380	37.2	1260	78.0	351	39.8	1248	94.9	324	42.6	1248	88.0
	55	474	32.7	1260	100.0	446	35.1	1260	94.0	417	38.1	1260	87.2	386	40.8	1248	108.8	357	43.8	1248	100.0

W259DCN, W361DHN

R-12 COND. UNIT	SST	95°F SDT				105°F SDT				115°F SDT				125°F SDT				135°F SDT			
		MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM	MBH	HP	CSTC	GPM
	-5	134	18.0	1048	36.0	124	19.5	1048	34.0	113	20.7	848	41.0	103	21.9	848	36.0	90	23.1	848	33.0
	0	155	20.1	1048</td																	

**DIRECT DRIVE COMPRESSOR
OR COMPRESSOR-RECEIVER UNIT CAPACITY DATA
WITH REMOTE 'LSBC' AIR COOLED CONDENSER
R-22 COMMERCIAL AND HIGH TEMPERATURE**

R22

'E' UNITS + 'R' UNITS	SST	AMBIENT TEMP. °F											
		85°			95°			105°			115°		
		MBH	HP	LSBC	MBH	HP	LSBC	MBH	HP	LSBC	MBH	HP	LSBC
↓ 511DHF↑	↓ 509DCFN↑	↓ 409DCFN↑	↓ 509DHF↑	↓ 408DHF↑	↓ 357DHF↑	↓ 316DHF↑	↓ 266DCFN↑	↓ 316DHF↑	↓ 255DHF↑	↓ 205DCFN↑	↓ 255DHF↑	↓ 205DCFN↑	↓ 255DHF↑
0	110	18.0	202D	105	19.2	202D	91	19.8	202D	78	19.8	202D	
10	141	21.0	222D	130	21.6	202D	112	22.8	202D	105	23.4	202D	
20	191	22.8	261D	175	23.6	261D	150	25.6	222D	137	26.4	222D	
25	213	24.2	261D	199	25.2	261D	175	27.0	261D	162	26.6	261D	
30	236	25.8	241B	231	26.4	241B	200	28.2	261D	185	29.4	261D	
40	311	27.0	242B	276	29.4	241B	255	31.8	241B	236	32.9	241B	
50	381	30.0	242B	341	31.8	242B	321	33.6	242B	297	35.4	242B	
↓ 511DHF↑	↓ 509DCFN↑	↓ 409DCFN↑	↓ 509DHF↑	↓ 408DHF↑	↓ 357DHF↑	↓ 316DHF↑	↓ 266DCFN↑	↓ 316DHF↑	↓ 255DHF↑	↓ 205DCFN↑	↓ 255DHF↑	↓ 205DCFN↑	↓ 255DHF↑
0	136	21.6	222D	122	22.2	222D	100	22.8	202D	85	23.4	183D	
10	171	24.0	181B	160	25.2	222D	136	25.8	222D	122	27.0	202D	
20	221	27.0	181B	200	28.2	181B	185	29.4	181B	171	30.6	181B	
25	251	28.2	181B	231	29.4	181B	213	31.2	181B	199	32.4	181B	
30	280	29.4	182B	261	31.2	182B	241	33.0	182B	227	34.2	182B	
40	351	31.8	242B	327	34.2	242B	293	36.0	182B	276	37.8	182B	
50	426	34.2	161B	397	36.6	161B	367	39.0	161B	332	40.8	161B	
↓ 511DHF↑	↓ 509DCFN↑	↓ 409DCFN↑	↓ 509DHF↑	↓ 408DHF↑	↓ 357DHF↑	↓ 316DHF↑	↓ 266DCFN↑	↓ 316DHF↑	↓ 255DHF↑	↓ 205DCFN↑	↓ 255DHF↑	↓ 205DCFN↑	↓ 255DHF↑
0	154	24.7	222D	141	25.1	222D	129	25.4	222D	116	25.8	222D	
10	206	27.7	181B	189	28.6	181B	171	29.5	181B	154	30.2	181B	
20	260	31.0	182B	244	32.0	182B	224	33.2	182B	195	34.6	181B	
25	288	33.0	182B	270	33.6	182B	249	35.4	182B	232	36.6	182B	
30	333	33.8	242B	312	35.6	242B	274	37.6	182B	257	38.9	182B	
40	419	37.1	161B	388	39.0	161B	357	41.2	161B	331	43.2	161B	
50	521	39.4	221B	486	41.8	221B	456	43.8	221B	417	46.4	221B	
↓ 511DHF↑	↓ 509DCFN↑	↓ 409DCFN↑	↓ 509DHF↑	↓ 408DHF↑	↓ 357DHF↑	↓ 316DHF↑	↓ 266DCFN↑	↓ 316DHF↑	↓ 255DHF↑	↓ 205DCFN↑	↓ 255DHF↑	↓ 205DCFN↑	↓ 255DHF↑
0	187	28.4	181B	173	29.0	181B	157	29.5	181B	146	30.1	181B	
10	241	32.2	182B	224	32.9	182B	199	34.2	181B	183	35.3	181B	
20	304	35.6	182B	283	37.1	182B	266	38.4	182B	244	40.2	182B	
25	350	37.2	161B	330	39.0	161B	299	40.8	161B	283	42.6	161B	
30	387	39.2	161B	363	41.3	161B	336	43.4	161B	309	45.6	161B	
40	491	42.7	221B	459	45.1	221B	424	47.8	221B	391	50.6	221B	
50	605	45.6	282B	566	48.2	282B	529	50.0	282B	489	53.8	282B	
↓ 511DHF↑	↓ 509DCFN↑	↓ 409DCFN↑	↓ 509DHF↑	↓ 408DHF↑	↓ 357DHF↑	↓ 316DHF↑	↓ 266DCFN↑	↓ 316DHF↑	↓ 255DHF↑	↓ 205DCFN↑	↓ 255DHF↑	↓ 205DCFN↑	↓ 255DHF↑
0	199	31.9	181B	185	32.4	181B	171	32.9	181B	154	33.4	181B	
10	266	36.1	182B	246	37.2	182B	224	38.0	182B	201	39.2	182B	
20	348	39.7	161B	321	41.3	161B	290	43.2	161B	247	45.6	182B	
25	381	42.0	161B	355	43.8	161B	335	45.6	161B	297	47.8	161B	
30	443	43.2	221B	386	46.8	161B	357	48.7	161B	328	50.5	161B	
40	556	46.8	282B	496	50.4	221B	453	53.6	221B	422	56.0	221B	
50	715	51.6	282B	676	54.0	282B	628	57.6	282B	575	60.7	282B	
↓ 511DHF↑	↓ 509DCFN↑	↓ 409DCFN↑	↓ 509DHF↑	↓ 408DHF↑	↓ 357DHF↑	↓ 316DHF↑	↓ 266DCFN↑	↓ 316DHF↑	↓ 255DHF↑	↓ 205DCFN↑	↓ 255DHF↑	↓ 205DCFN↑	↓ 255DHF↑
0	238	36.0	182B	218	36.6	182B	203	37.2	182B	183	37.9	182B	
10	321	41.0	161B	296	42.4	161B	271	43.5	161B	238	45.4	182B	
20	393	46.6	161B	365	48.6	161B	338	50.5	161B	315	52.3	161B	
25	449	48.6	221B	421	50.8	221B	391	53.0	221B	360	55.2	221B	
30	496	51.1	221B	460	54.0	221B	437	56.4	221B	405	58.8	221B	
40	626	54.6	282B	591	58.4	282B	552	61.4	282B	515	64.9	282B	
50	775	57.4	361B	742	61.6	361B	686	65.9	361B	637	70.2	361B	

SST = Saturated Suction Temperature, °F.

† E = Compressor Units

R = Compressor-Receiver Units

R502

**DIRECT DRIVE COMPRESSOR
OR COMPRESSOR-RECEIVER UNIT CAPACITY DATA
WITH REMOTE 'LSBC' AIR COOLED CONDENSER
R-502 LOW TEMPERATURE**

'E' UNITS + 'R' UNITS	SST	AMBIENT TEMP. °F												
		85°			95°			105°			115°			
		MBH	HP	LSBC	MBH	HP	LSBC	MBH	HP	LSBC	MBH	HP	LSBC	
		-40	43	9.7	142D	37	8.9	142D	32	8.0	142D	27	7.2	142D
		-30	57	10.9	183D	50	10.7	183D	42	10.4	142D	37	10.2	142D
		-20	75	13.4	183D	69	13.4	183D	62	13.4	183D	56	13.4	183D
		-10	102	16.3	261D	95	16.7	261D	88	17.0	261D	79	17.4	261D
		0	130	20.4	261D	119	21.0	261D	110	21.6	261D	102	22.2	261D
		-40	44	11.1	142D	38	10.3	142D	33	9.5	142D	28	8.6	142D
		-30	63	12.5	183D	57	12.0	183D	44	11.3	142D	38	10.8	142D
		-20	80	15.1	183D	72	15.1	183D	65	15.1	183D	57	15.1	183D
		-10	109	19.2	261D	98	19.6	261D	89	19.9	261D	81	20.3	261D
		0	131	24.0	261D	121	24.7	261D	112	25.4	261D	112	26.2	261D
		-40	55	13.0	183D	48	12.2	183D	39	11.5	142D	33	10.8	142D
		-30	72	14.9	183D	65	14.6	183D	57	14.4	183D	49	14.2	183D
		-20	100	18.2	261D	91	18.4	261D	81	18.5	261D	73	18.7	261D
		-10	126	19.7	261D	116	21.1	261D	107	22.6	261D	98	24.0	261D
		0	161	27.1	241B	148	27.8	241B	138	28.6	241B	129	29.3	241B
		-40	59	15.0	183D	51	14.2	183D	34	13.2	183D	38	12.4	183D
		-30	87	17.6	261D	72	17.0	183D	64	16.6	183D	55	16.0	183D
		-20	114	21.0	261D	101	21.1	261D	92	21.2	261D	81	21.4	261D
		-10	148	25.9	241B	135	26.5	241B	122	27.1	241B	111	27.6	241B
		0	180	31.6	241B	164	32.4	241B	150	33.4	241B	138	34.3	241B
		-40	65	16.1	183D	57	15.4	183D	48	14.8	183D	40	14.2	183D
		-30	96	19.4	261D	84	19.0	261D	75	18.5	261D	60	18.0	183D
		-20	131	23.8	182B	119	24.0	182B	103	24.2	261D	91	24.5	261D
		-10	165	29.5	182B	152	30.1	182B	139	30.7	182B	126	31.4	182B
		0	209	35.9	161B	192	37.0	161B	175	38.2	161B	161	39.4	161B
		-40	80	20.0	261D	62	18.7	183D	52	17.4	183D	46	16.1	183D
		-30	115	22.9	182B	99	22.2	261D	88	21.5	261D	78	20.8	261D
		-20	151	27.7	182B	136	27.7	182B	123	27.7	182B	112	27.7	182B
		-10	196	33.8	161B	179	34.4	161B	165	35.0	161B	151	35.5	161B
		0	236	41.4	161B	218	42.6	161B	200	43.8	161B	183	45.0	161B

SST = Saturated Suction Temperature, °F.

† E = Compressor Units

R = Compressor-Receiver Units

R12**R-12 COMMERCIAL AND HIGH TEMPERATURE**

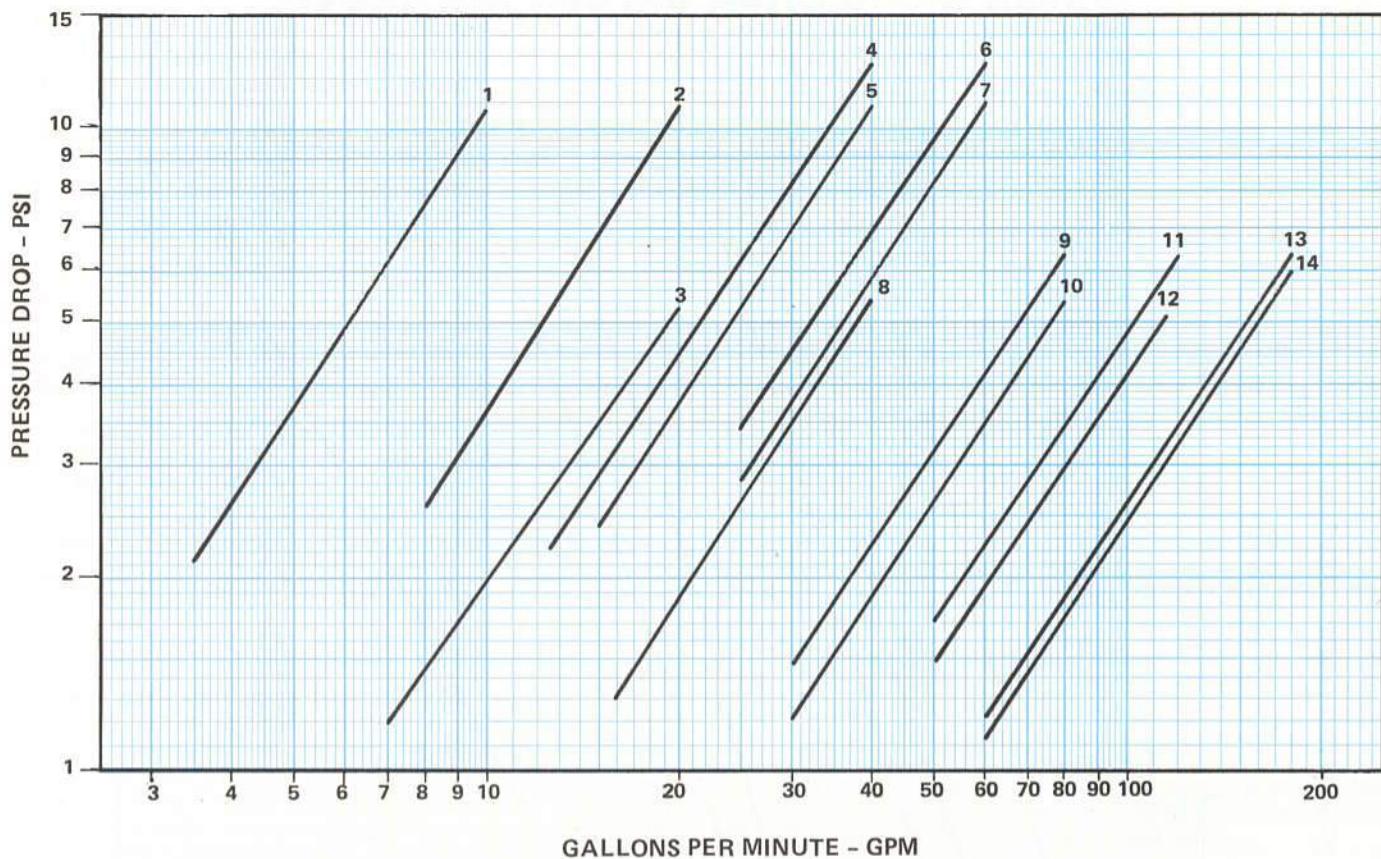
'E' UNITS + 'R' UNITS	SST	AMBIENT TEMPERATURE °F												
		85°			95°			105°			115°			
		MBH	kW	LSBC	MBH	kW	LSBC	MBH	kW	LSBC	MBH	kW	LSBC	
		0	98	15.0	202D	88	15.6	202D	78	16.8	183D	72	18.0	183D
		10	124	18.0	202D	113	19.2	202D	103	20.4	202D	98	21.6	183D
		20	160	21.0	261D	149	22.2	261D	134	23.4	261D	124	24.6	261D
		25	180	22.2	261D	167	23.0	261D	158	24.8	261D	145	25.6	261D
		30	194	24.8	261D	178	26.1	261D	163	27.0	261D	155	27.2	261D
		40	247	26.7	181B	228	28.3	181B	210	29.8	181B	201	30.5	181B
		50	301	29.8	182B	280	30.3	241B	259	32.1	241B	249	33.0	241B
		0	107	17.4	202D	98	18.6	202D	93	19.8	202D	82	20.4	202D
		10	144	21.0	261D	134	22.2	261D	118	23.4	202D	109	24.6	202D
		20	180	24.0	261D	171	25.2	261D	154	27.0	261D	144	28.2	261D
		25	206	25.2	241D	196	26.2	241B	187	27.6	241D	175	29.3	241D
		30	221	27.6	181B	208	29.3	181B	195	31.1	181B	186	31.8	261D
		40	284	29.4	241B	268	31.3	241B	253	33.5	241B	246	34.8	241B
		50	343	30.9	242B	331	33.1	242B	312	35.7	182B	303	37.2	182B
		0	124	18.6	261D	113	20.4	222D	103	22.2	222D	93	22.8	222D
		10	160	22.8	261D	148	24.6	261D	134	26.4	261D	124	27.6	222D
		20	205	26.4	241B	191	28.5	241B	175	30.0	241B	160	32.4	261D
		25	232	28.3	241B	217	30.0	241B	199	32.0	241B	180	34.1	241B
		30	251	31.5	241B	229	33.5	241B	209	35.3	181B	199	36.5	181B
		40	321	33.9	242B	296	36.2	182B	272	38.5	182B	261	39.8	241B
		50	394	35.9	161B	365	38.5	242B	337	41.2	242B	324	42.6	242B
		0	144	21.6	222D	134	23.4	222D	124	24.6	222D	109	25.8	222D
		10	185	25.8	181B	175	28.2	181B	165	29.4	181B	149	31.2	181B
		20	237	29.4	182B	221	31.8	181B	206	33.0	181B	191	36.0	181B
		25	269	31.2	182B	257	33.0	182B	237	35.3	182B	221	37.2	182B
		30	291	34.7	182B	270	37.2	182B	250	39.1	241B	239	39.9	241B
		40	371	36.2	242B	345	38.8	242B	320	41.2	242B	307	42.3	242B
		50	450	37.5	161B	424	39.9	161B	392	42.5	161B	376	43.8	242B

SST = Saturated Suction Temperature, °F.

† E = Compressor Units

R = Compressor-Receiver Units

PRESSURE DROP CURVES—‘CSTC’ WATER COOLED CONDENSER

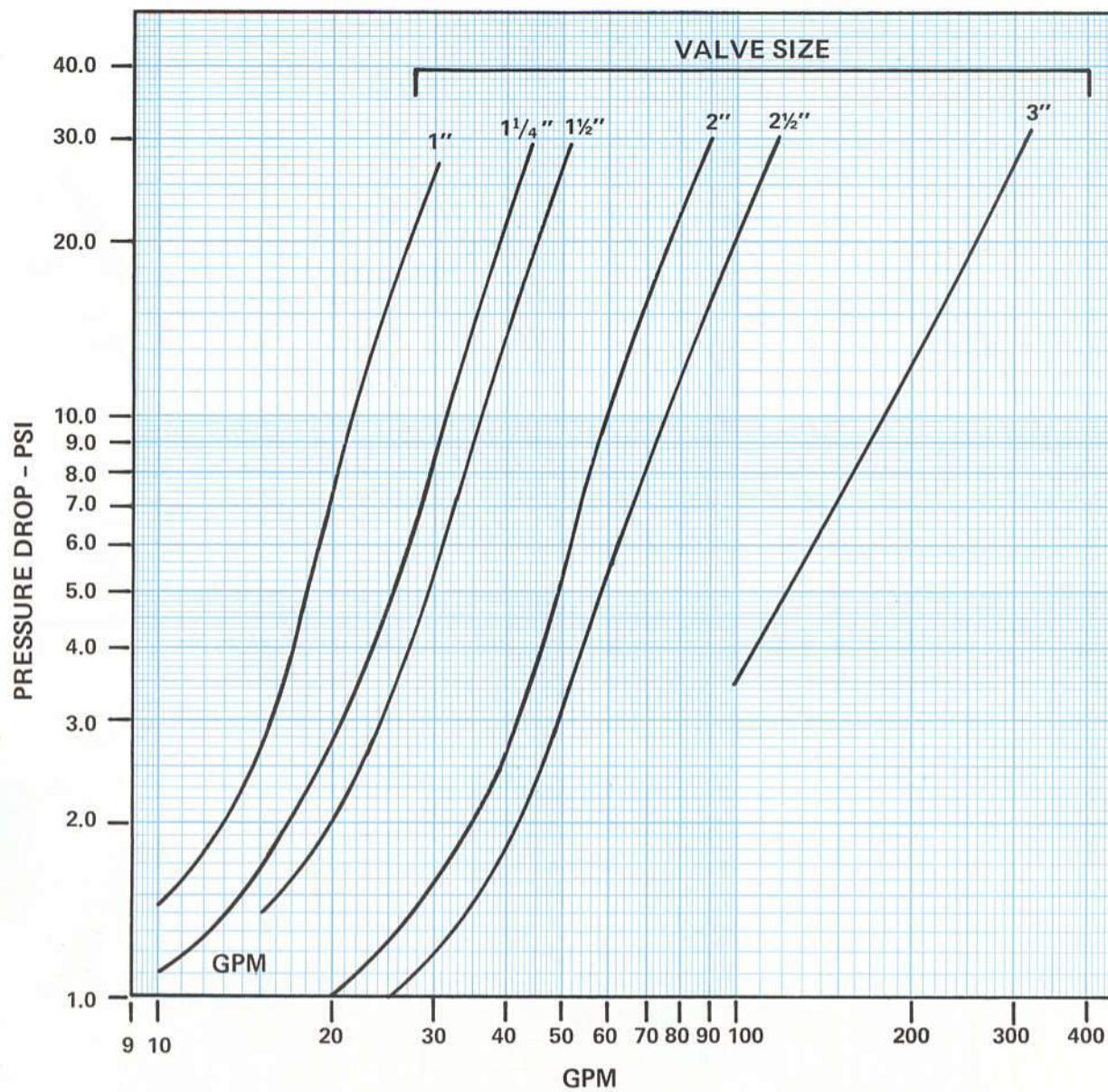


CURVE NO.

CSTC	CURVE NO.	
	2 PASS	4 PASS
548	3	1
848	8	2
1048	10	5
1060	9	4
1248	12	7
1260	11	6
1454	14	-
1460	13	-



PRESSURE DROP CURVES
WATER REGULATING VALVES (OPTIONAL)



CONDENSER WATER REGULATING VALVES		
CSTC MODEL	CITY WATER 4-PASS CSTC VALVE SIZE	TOWER WATER 2-PASS CSTC VALVE SIZE
548	1"	1"**
848	1"	1 1/4"**
1048	1 1/4"	2"
1060	1 1/4"	2"
1248	2"	2 1/2"**
1260	2"**	3"**
1454	-	3"
1460	-	3"
1648	-	3"*
1660	-	3"**

*Reducer fitting required to adapt Valve to CSTC connection.

CONTROLS AND FUNCTIONS

Semi-hermetic compressor, compressor-receiver and condensing units are furnished with control boxes which contain starters, high pressure, low pressure and oil failure controls, a control switch and interconnecting wiring. These devices are mounted on the back panel of the control box, which is made of a laminated aluminum fiber to dampen transmitted machinery vibration and reduce "nuisance trip-outs" of controls. Operating thermostats, ambient thermostats, flow switches, safety cycle timers, etc., may be purchased as optional items.

The starters used to control the compressor, compressor-receiver or condensing units are either two step part-wind or across-the-line and are furnished with ambient temperature compensated quick trip overload relays on all power legs.

The standard control circuit voltage is 115V and a separate power source is required. Transformers and other control voltages may be supplied as an option.

Direct drive compressor, compressor-receiver and condensing units are furnished with high pressure, low pressure and oil failure controls. All other controls and a control box may be purchased as an option.

Listed below are the functions of typical controls which appear in the wiring schematics on the following pages. Not all devices can be mounted within the control box; some devices will be mounted on or near the equipment they protect or control.

Wiring throughout the unit and control box shall be in compliance with the National Electric Code (NEC).

NOTE: Control settings are factory set if the unit operating conditions are specified when placing the order. Fine field tuning may be necessary.

TYPICAL CONTROLS USED IN CONJUNCTION WITH WIRING SCHEMATICS ON PAGES 43THRU 46.

OPERATING DEVICES

CCH Crankcase Heater - Energizes whenever the compressor is not operating. They must operate for a period of 24 hours prior to initial or seasonal start-up. The crankcase heaters must be energized for a minimum of 2 hours after repair of the unit. More time should be allowed depending upon the ambient temperature at the compressor and duration of shut-down.

OT Operating Thermostat - Senses the temperature of the medium being cooled and controls it through the operation of the liquid line solenoid. On air conditioning applications it also unloads the compressor. Pressurestats may be used in place of thermostats to control operation of the system.

PS Pressurestat - Senses compressor discharge pressure and is used to control the unloader solenoids.

M Motor Starters - When activated they provide a path for power to the compressor, fan motors and pump motors.

US Unloader Solenoids - When energized, they allow the compressor to load; when de-energized the compressor will unload.

LLS Liquid Line Solenoid - When energized it allows liquid refrigerant to flow to the evaporator.

S On/Off Switch - Manually energizes the compressor circuit.

LP Low Pressure Switch - Senses suction pressure. As pressure rises completes a circuit allowing the compressor to start. A decrease in pressure will cause the compressor to shut down.

DT Defrost Timer - Cycles the refrigeration and defrost circuits to provide the most efficient cooling. Provides fail-safe circuit for defrost circuit if terminating thermostat fails.

TT Terminating Thermostat - Terminates the defrost circuit when the evaporator reaches the preset temperature. Delays activation of fans after defrost termination because of the built in differential.

1CR Interlock Relay - Interlocks the compressor with the defrost heaters to prevent the heaters from being energized when the compressor is operating.

2CR Interface Relay - Interfaces the compressor with the evaporator. If the compressor fails to operate because a safety device opened, the liquid line solenoid and defrost heater will not operate.

SAFETY DEVICES

OL Overload Relays (Starters) - Designed to open the control circuit if there is an overload in the power circuit to the motors. These are the manual reset type.

MWP Motor Winding Protector - Heat sensors embedded in the motor winding open the control circuit to the compressor if there is any undue rise in temperature. It is an automatic reset unit.

HP High Pressure Switch - Will open the control circuit to the compressor if the discharge pressure rises above its preset limits (manual reset type).

COF Compressor Oil Failure Switch - Has a "built-in" time delay and if the pressure differential between the low side and high side of the oil pump fails to attain or sustain a predetermined pressure for a period of 90 seconds the compressor will shut down. (Manual reset type)

DTT Discharge Temperature Thermostat - Senses temperature at the compressor head. If heat at compressor head rises beyond the preset temperature it will open the compressor control circuit, shutting down the compressor. They are used on all low temperature compressors and are available as an option for commercial applications.

CONTROLS AND FUNCTIONS (CONTINUED)

The first two schematics in the catalog are for air conditioning applications and are found on pages 43 and 44. the other two schematics found on pages 45 and 46 are for refrigeration applications. These schematics are typical of units which can be used in conjunction with air cooled condensers, water cooled condensers, chillers and direct expansion evaporators.

The wiring schematics on the next four pages are typical systems and should not be construed as the only methods of wiring these systems. The wiring schematic which accompanies the unit indicates how the unit is wired.

All of the schematics illustrate the wiring required to provide a continuous pumpdown of the unit which will protect the compressor from liquid slugging. The liquid line solenoid is wired to close when the operating thermostat is satisfied or if the compressor fails to operate when a safety control opens. The schematic on page 45 illustrates the wiring required when using an electric defrost timer. An interface relay, 2CR, is recommended to permit the pumpdown feature described. An interlock relay, 1CR, is recommended to prevent both compressor and defrost heaters from operating at the same time. NOTE: When these units are installed in a system with a chiller a thermostat is required to shutdown the compressor and prevent the chiller from freezing. In addition a delay type low pressure switch is recommended to avoid low pressure nuisance triouts on start-up.

OPERATING SEQUENCE

AIR CONDITIONING

The air conditioning systems as described above, are very similar in operation as noted in the following description.

At initial start-up, assume that the system has had power supplied to it for a minimum of 24 hours, all safeties are made, systems with chillers have water flowing through them, those with water cooled condensers have water available upon demand and the operating thermostat is calling for cooling.

Closing the control switch 1S will complete a circuit which will result in the following action:

The liquid line solenoid (LLS) will open, causing liquid refrigerant flow to the chiller or evaporator, where it is expanded. An increase in pressure will be sensed in the suction line and the low pressure switch will close, completing a circuit to the compressor starter. The compressor will start and the unloader solenoids will close, allowing the compressor to load completely and its refrigerant system to function. An auxiliary contact, 1 MAUX, is furnished to interlock the condensing system.

As the water circulating through the chiller or the area being cooled reaches the desired temperature, the operating thermostat will sense it and shut down the unit in the following manner:

As switch #3 of the operating thermostat opens, it will cause the unloader solenoid, US2, to open dropping the capacity of the compressor to 75%. Opening switch #2 will open unloader solenoid US1, and the compressor capacity will decrease to 50%. When switch #1 of the operating thermostat opens the liquid line solenoid, LLS, will close, allowing the compressor to pump down and go off. The cycle is reversed when the unit calls for cooling.

REFRIGERATION

Units used for refrigeration purposes are wired differently than those used for air conditioning. The operating sequence of the typical schematic found on page 45 is as follows:

At initial start-up assume that the refrigeration and defrost circuits have had power supplied to it for a minimum of 24 hours, all safeties are made, systems with water cooled condensers have water available upon demand and the system is calling for cooling. The defrost timer is wired to operate continuously.

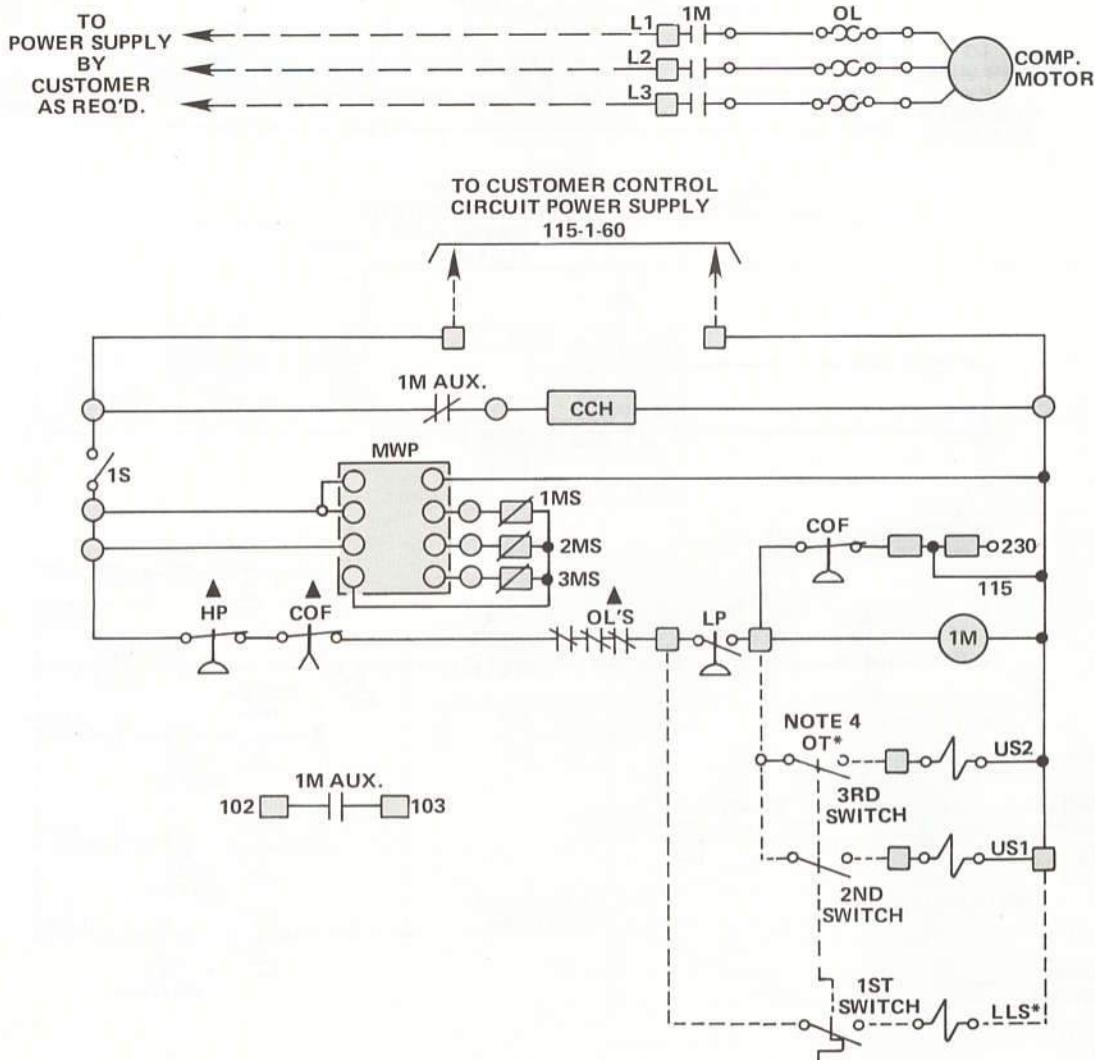
As switch 1S is thrown, a circuit will be completed to the interface relay 2CR, its contacts close completing a circuit which will open the liquid line solenoid (LLS) permitting liquid refrigerant flow to the evaporator where it is expanded. An increase in pressure will be sensed in the suction line, the low pressure switch will close and the compressor will operate.

The evaporator section will cycle around the defrost clock with the liquid line solenoid opening and closing on command from the room thermostat. The compressor will cycle around the low pressure switch.

When the system goes into defrost the liquid line solenoid will close and as the compressor is cycled off, the defrost heaters will be energized. When the compressor is energized the defrost heater will be de-energized through interlock relay, 1CR, and will remain off until pump-down is completed.

If at any time any of the safety controls should open it will result in a complete shutdown of the refrigeration cycle, the defrost heaters will become inoperative but the defrost timer will continue to function.

**TYPICAL ELECTRICAL SCHEMATIC
FOR AIR CONDITIONING APPLICATION
USING A SEMI-HERMETIC COMPRESSOR**



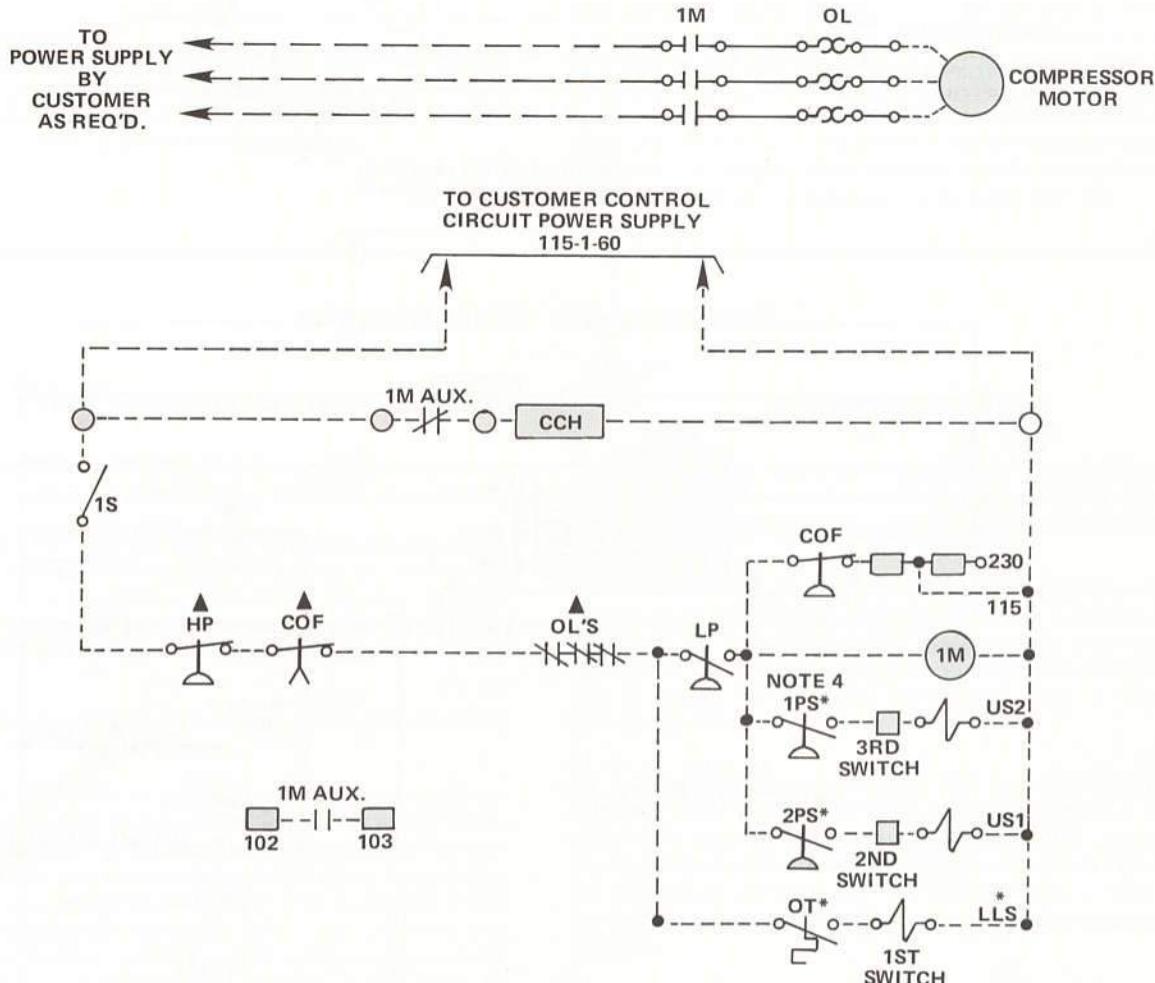
LEGEND:

M	MOTOR STARTER
▲OL	OVERLOADS
CCH	CRANKCASE HEATER
MWP	MOTOR WINDING PROTECTOR
MS	MOTOR SENSOR
▲HP	HIGH PRESSURE SWITCH
▲COF	COMPRESSOR OIL FAIL. SWITCH
LP	LOW PRESSURE SWITCH
*OT	OPERATING THERMOSTAT
US	UNLOADING SOLENOID
*LLS	LIQUID LINE SOLENOID
▲	MANUAL RESET
*	FIELD SUPPLIED
MAUX	MOTOR STARTER AUX. CONTACT

NOTES:

1. Terminals 102 & 103 to interlock with condenser control circuit.
2. Schematic shows typical compressor wiring with across-the-line start.
3. Dotted lines indicate customer wiring.
4. Pressurestats wired as shown on the schematic on page 44 may be used in place of a Three-Step Thermostat.

**TYPICAL ELECTRICAL SCHEMATIC
FOR AIR CONDITIONING APPLICATION
USING A DIRECT DRIVE COMPRESSOR UNIT**



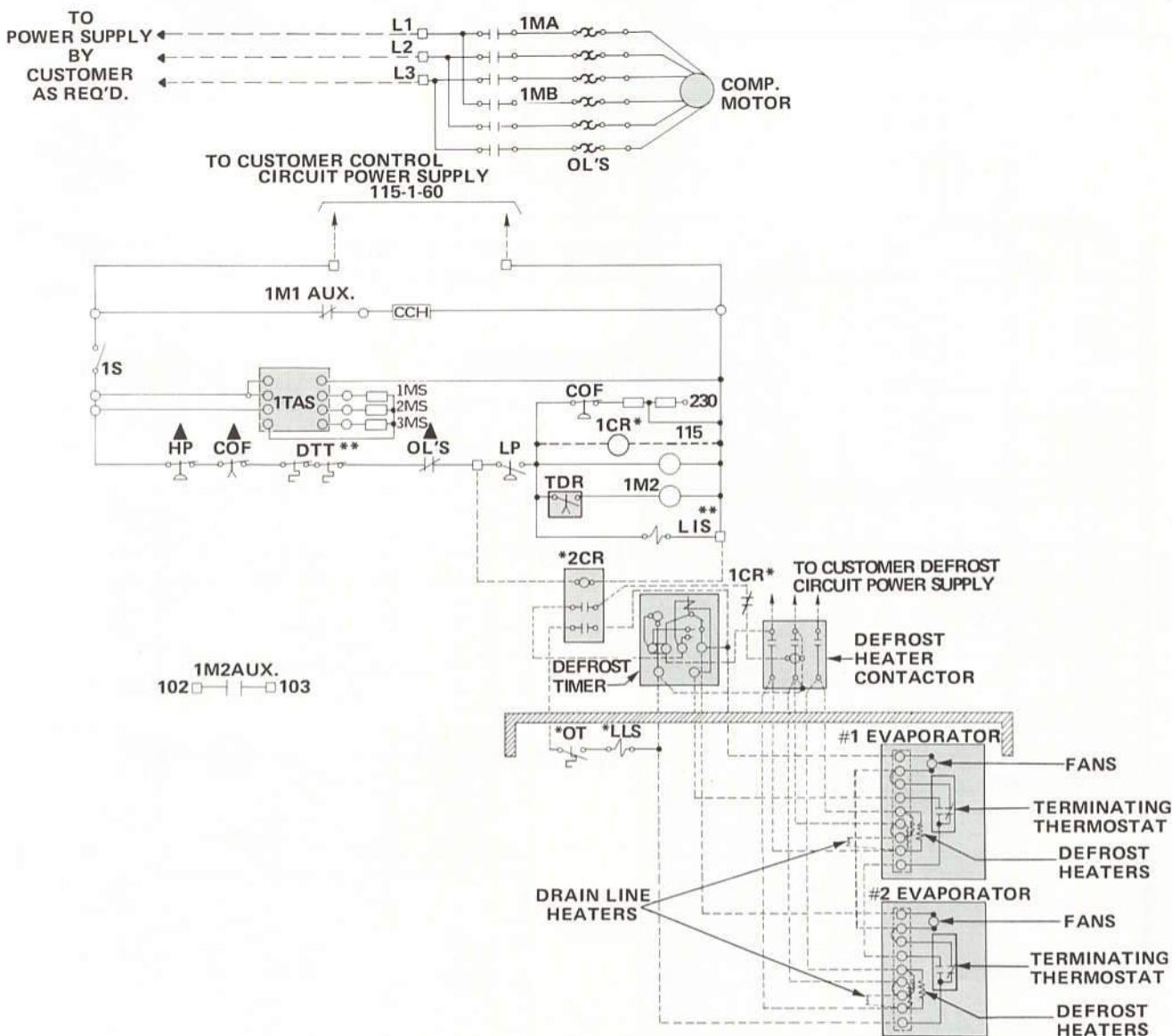
LEGEND:

M	MOTOR STARTER
MAUX	MOTOR STARTER AUX. CONTACT
CCH	CRANKCASE HEATER
1S	CONTROL CIRCUIT SWITCH
▲ HP	HIGH PRESSURE SWITCH
▲ COF	COMPRESSOR OIL FAIL SWITCH
▲ OL	OVERLOAD RELAYS
LP	LOW PRESSURE SWITCH
*PS	PRESSURE STAT
*OT	OPERATING THERMOSTAT
US	UNLOADING SOLENOID
*LLS	LIQUID LINE SOLENOID
▲	MANUAL RESET
*	FIELD SUPPLIED

NOTES:

1. Terminals 102 & 103 to interlock with condenser control circuit.
2. Schematic shows typical compressor wiring with across-the-line start.
3. Dotted lines indicate customer wiring.
4. A single three-step thermostat wired as shown on the schematic on page 43 may be used in place of the pressurestats and thermostat.

**TYPICAL ELECTRICAL SCHEMATIC
FOR REFRIGERATION APPLICATION
USING A SEMI-HERMETIC COMPRESSOR †**



†THIS SCHEMATIC CAN ALSO APPLY TO UNITS WITH DIRECT DRIVE COMPRESSORS BY
ELIMINATING THE MOTOR WINDING PROTECTOR (MWP— AND MOTOR SENSORS (MS))

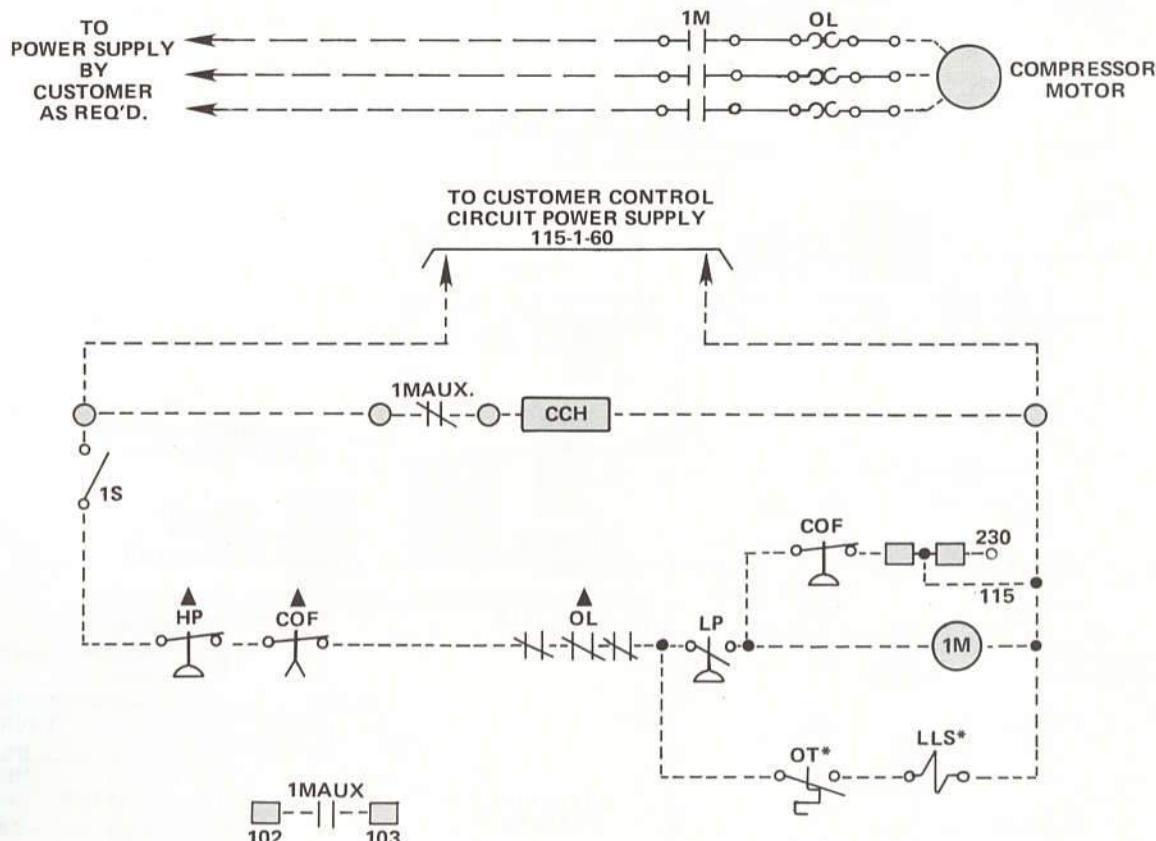
LEGEND:

M	MOTOR STARTER
MAUX	MOTOR STARTER AUX. CONTACT
CCH	CRANKCASE HEATER
1S	CONTROL CIRCUIT SWITCH
1TAS	MOTOR PROTECTION RELAY
▲HP	HIGH PRESSURE SWITCH
▲COF	COMPRESSOR OIL FAILURE
▲OL	MOTOR OVERLOAD RELAYS
**DTT	DISCHARGE TEMPERATURE THERMOSTAT
LP	LOW PRESSURE SWITCH
TDR	PART-WIND TIME DELAY RELAY
**LIS	Liquid INJECTION SOLENOID
*OT	OPERATING THERMOSTAT
*LLS	Liquid LINE SOLENOID
*1CR	INTERLOCK RELAY
*2CR	INTERFACE RELAY
▲	MANUAL RESET
*	FIELD SUPPLIED
**	LOW TEMPERATURE COMPRESSOR ONLY

NOTES:

1. Terminals 102 & 103 to interlock with condenser control circuit.
2. Schematic shows typical compressor wiring with across-the-line start.
3. Dotted lines indicate customer wiring.

**TYPICAL ELECTRICAL SCHEMATIC
FOR REFRIGERATION APPLICATION
USING A DIRECT DRIVE COMPRESSOR UNIT**



LEGEND:

M	MOTOR STARTER
▲COF	COMPRESSOR OIL FAILURE SWITCH
▲HP	HIGH PRESSURE SWITCH
▲OL	MOTOR OVERLOAD RELAYS
LP	LOW PRESSURE SWITCH
1S	CONTROL CIRCUIT SWITCH
*OT	OPERATING THERMOSTAT
*LLS	LIQUID LINE SOLENOID
CCH	CRANKCASE HEATER
▲	MANUAL RESET
*	FIELD SUPPLIED
MAUX	MOTOR STARTER AUX. CONTACT

NOTES:

1. Terminals 102 & 103 to interlock with condenser control circuit.
2. Schematic shows typical compressor wiring with across-the-line start.
3. Dotted lines indicate customer wiring.

SEMI-HERMETIC COMPRESSORS
ELECTRICAL DATA—60 and 50 HERTZ
AIR COOLED

VOLTAGE	UNIT MODEL NO.	†NPA			SIZE BRANCH CIRCUIT FUSE/CB	
		RATED LOAD AMPS RLA	†LRA			
			XL	STEP PW		
R-22 200-3-60	205CFN	84	363	220	105	150/150
	255HF	97	422	272	122	150/175
	266CFN	85	422	272	107	150/150
	316HF	113	506	326	142	175/200
	307CFN	98	506	326	123	150/200
	357HF	127	550	354	159	200/225
	358CFN	120	550	354	150	200/225
	408HF	153	660	418	192	250/300
	409CFN	135	660	418	169	225/250
	509HF	172	717	460	215	300/350
	511CFN	169	717	460	212	300/300
R-502 200-3-60	155LFN	65	332	204	82	100/125
	216LFN	81	363	220	102	125/150
	257LFN	91	422	272	114	150/175
	308LFN	109	506	326	137	175/200
	359LFN	129	550	354	162	200/250
	411LFN	148	660	418	185	225/300
R-12 200-3-60	157CN	69	332	204	87	110/125
	207HN	84	363	220	105	150/150
	208CN	86	363	220	108	150/175
	258HN	99	422	272	124	150/200
	259CN	98	422	272	123	150/200
	309HN	129	506	326	162	200/250
R-22 200-3-50 or 230-3-60	311CN	117	506	326	147	200/225
	361HN	127	550	354	159	200/225
	205CFN	73	316	191	92	110/150
	255HF	84	367	236	105	150/150
	266CFN	74	367	236	93	125/150
	316HF	98	440	283	123	150/200
R-22 200-3-50 or 230-3-60	307CFN	85	440	283	107	150/150
	357HF	111	478	307	139	175/200
	358CFN	104	478	307	130	175/200
	408HF	133	574	370	167	200/250
	409CFN	117	574	370	147	200/225
	509HF	150	623	402	188	225/300
R-502 200-3-50 or 230-3-60	511CFN	147	623	402	184	225/300
	511HF*	176	623	402	220	300/350
	155LFN	56	288	177	70	90/100
	216LFN	70	316	191	88	110/125
	257LFN	79	367	236	99	125/150
	308LFN	95	440	283	119	150/175
R-12 200-3-50 or 230-3-60	359LFN	112	478	307	140	175/200
	411LFN	129	574	370	162	200/250
	157CN	60	288	177	75	90/110
	207HN	73	316	191	92	110/150
	208CN	75	316	191	94	125/150
	258HN	86	367	236	108	150/175
R-22 220-3-50	259CN	85	367	236	107	150/150
	309HN	112	440	283	140	175/200
	311CN	102	440	283	128	175/200
	361HN	110	478	307	138	175/200
	255HF	76	335	215	95	125/150
	266CFN	67	335	215	84	110/125
R-22 220-3-50	316HF	89	400	258	112	150/175
	307CFN	78	400	258	98	125/150
	357HF	102	436	282	128	175/200
	358CFN	95	436	282	119	150/175
	408HF	122	418	269	153	200/225
	409CFN	107	418	269	134	175/200
R-502 220-3-50	509HF	136	567	293	170	225/250
	511CFN	136	567	293	170	225/250
	511HF*	160	567	293	200	250/300

VOLTAGE	UNIT MODEL NO.	†NPA			SIZE BRANCH CIRCUIT FUSE/CB	
		RATED LOAD AMPS RLA	†LRA			
			XL	1ST STEP PW		
R-502 220-3-50	257LFN	73	335	215	92	110/150
	308LFN	87	400	258	109	150/175
	359LFN	102	436	282	128	175/200
	411LFN	118	418	269	148	200/225
	258HN	78	335	215	98	125/150
	259CN	78	335	215	98	125/150
	309HN	102	400	258	128	175/200
	311CN	93	400	258	117	150/175
	361HN	100	436	282	125	150/200
	205CFN	37	158	95	47	60/70
R-12 220-3-50	255HF	42	184	118	53	70/80
	266CFN	37	184	118	47	60/70
	316HF	49	220	142	62	80/90
	307CFN	43	220	142	54	70/80
	357HF	56	239	155	70	90/100
	358CFN	52	239	155	65	80/100
	408HF	67	287	185	84	110/125
	409CFN	59	287	185	74	90/110
	509HF	75	312	201	94	125/150
	511CFN	74	312	201	93	125/150
R-22 400-3-50 or 460-3-60	511HF*	88	312	201	110	150/175
	155LFN	28	144	89	35	45/50
	216LFN	33	158	95	42	50/60
	257LFN	40	184	118	50	60/70
	308LFN	48	220	142	60	80/90
	359LFN	56	239	155	70	90/100
	411LFN	65	287	185	82	100/125
	157CN	30	144	89	38	45/60
	207HN	37	158	95	47	60/70
	208CN	38	158	95	48	60/70
R-12 400-3-50 or 460-3-60	258HN	43	184	118	54	70/80
	259CN	43	184	118	54	70/80
	309HN	56	220	142	70	90/100
	311CN	51	220	142	64	80/90
	361HN	55	239	155	69	90/100
	205CFN	29	126	76	37	45/60
	255HF	34	155	95	43	60/60
	266CFN	30	155	95	38	45/60
	316HF	39	176	114	49	60/70
	307CFN	34	176	114	43	60/60
R-22 500-3-50 or 575-3-60	357HF	44	191	123	55	70/80
	358CFN	42	191	123	53	70/80
	408HF	53	230	148	67	80/100
	409CFN	47	230	148	59	80/90
	509HF	60	249	161	75	90/110
	511CFN	59	249	161	74	90/110
	511HF*	70	249	161	88	110/125
	155LFN	22.6	115	71	29	35/45
	216LFN	28	126	76	35	45/50
	257LFN	32	155	95	40	50/60
R-12 500-3-50 or 575-3-60	308LFN	38	176	114	48	60/70
	359LFN	45	191	123	57	70/80
	411LFN	51	230	148	64	80/90
	157CN	24	115	71	30	40/45
	207HN	29	126	76	37	45/60
	208CN	30	126	76	38	45/60
	258HN	34	155	95	43	60/60
	259CN	34	155	95	43	60/60
	309HN	45	176	114	57	70/80
	311CN	40	176	114	50	60/70
	361HN	44	191	123	55	70/80

NOTES: † NAP = NAMEPLATE AMPS

LRA = LOCKED ROTOR AMPS

* 511HF or 511HFN for use on 50 Hertz only.

1. HFN Models have same electrical characteristics as HF models.

2. Rated load amps are based upon saturated suction and discharge temperatures (°F) as follows:

MODELS	AIR COOLED
HN and HF	50° SST/145° SDT
CN and CFN	25° SST/135° SDT
LN and LFN	0° SST/135° SDT

SEMI-HERMETIC COMPRESSORS
ELECTRICAL DATA—60 and 50 HERTZ
WATER COOLED

VOLTAGE	UNIT MODEL NO.	†NPA		MINIMUM CIRCUIT AMPACITY	BRANCH CIRCUIT PROTEC- TION FUSE/CB
		RATED LOAD AMPS RLA	†LRA XL		
R-22 200-3-60	205CFN	81	363	220	102
	255HF	84	422	272	105
	266CFN	83	422	272	104
	316HF	104	506	326	130
	307CFN	92	506	326	115
	357HF	114	550	354	143
	358CFN	108	550	354	135
	408HF	137	660	418	172
	409CFN	126	660	418	158
	509HF	150	717	460	188
R-502 200-3-60	511CFN	155	717	460	194
	155LFN	57	332	204	72
	216LFN	75	363	220	94
	257LFN	78	422	272	98
	308LFN	90	506	326	113
	359LFN	100	550	354	125
	411LFN	128	660	418	160
	157CN	65	332	204	82
	207HN	78	363	220	98
	208CN	83	363	220	104
R-12 200-3-60	258HN	84	422	272	105
	259CN	85	422	272	107
	309HN	98	506	326	123
	311CN	94	506	326	118
	361HN	112	550	354	140
	205CFN	70	316	191	88
	255HF	75	367	236	94
	266CFN	72	367	236	90
	316HF	90	440	283	113
	307CFN	80	440	283	100
R-22 200-3-50 or 230-3-60	357HF	99	478	307	124
	358CFN	94	478	307	118
	408HF	119	574	370	149
	409CFN	110	574	370	138
	509HF	131	623	402	164
	511CFN	135	623	402	169
	511HF*	153	623	402	192
	155LFN	50	288	177	63
	216LFN	65	316	191	83
	257LFN	68	367	236	85
R-502 200-3-50 or 230-3-60	308LFN	78	440	283	98
	359LFN	87	478	307	109
	411LFN	112	574	370	140
	157CN	56	288	177	70
	207HN	68	316	191	85
	208CN	73	316	191	92
	258HN	75	367	236	94
	259CN	74	367	236	93
	309HN	85	440	283	107
	311CN	82	440	283	103
R-12 200-3-50 or 230-3-60	361HN	97	478	307	122
	255HF	69	335	21	87
	266CFN	65	335	215	82
	316HF	82	400	258	103
	307CFN	73	400	258	92
	357HF	91	436	282	114
	358CFN	85	436	282	107
	408HF	109	418	269	137
	409CFN	100	418	269	125
	509HF	120	567	293	150
R-22 220-3-50	511CFN	124	567	293	155
	511HF*	140	567	293	175
	255HF	69	335	21	110/125
	266CFN	65	335	215	100/125
	316HF	82	400	258	125/150
	307CFN	73	400	258	110/150
	357HF	91	436	282	150/175
	358CFN	85	436	282	150/150
	408HF	109	418	269	175/200
	409CFN	100	418	269	150/200
R-12 220-3-50 or 575-3-60	509HF	120	567	293	200/225
	511CFN	124	567	293	200/225
	511HF*	140	567	293	225/250
	155LFN	50	288	177	80/90
	216LFN	65	316	191	100/125
	257LFN	68	367	236	110/125
	308LFN	78	440	283	125/150
	359LFN	87	478	307	150/175
	411LFN	112	574	370	175/200
	157CN	56	288	177	90/100
R-12 400-3-50 or 460-3-60	207HN	68	316	191	110/125
	208CN	73	316	191	110/150
	258HN	75	367	236	125/150
	259CN	74	367	236	125/150
	309HN	85	440	283	150/150
	311CN	82	440	283	150/150
	361HN	97	478	307	150/175
	408HF	120	567	293	150/200
	409CFN	124	567	293	150/200
	509HF	140	567	293	175/250
R-22 500-3-50 or 575-3-60	511CFN	124	567	293	175/250
	511HF*	140	567	293	225/250
	155LFN	50	288	177	35/50
	216LFN	65	316	191	45/60
	257LFN	68	367	236	45/60
	308LFN	78	440	283	50/60
	359LFN	87	478	307	48/60
	408HF	109	418	269	60/90
	409CFN	110	418	269	70/80
	509HF	120	567	293	80/100
R-12 500-3-50 or 575-3-60	511CFN	124	567	293	90/100
	511HF*	140	567	293	100/110
	155LFN	50	288	177	30/35
	216LFN	65	316	191	40/50
	257LFN	68	367	236	45/50
	308LFN	78	440	283	50/60
	359LFN	87	478	307	48/60
	408HF	109	418	269	60/70
	409CFN	110	418	269	70/80
	509HF	120	567	293	80/100
R-12 575-3-60	511CFN	124	567	293	90/100
	511HF*	140	567	293	100/110
	155LFN	50	288	177	25/35
	216LFN	65	316	191	33/40
	257LFN	68	367	236	35/45
	308LFN	78	440	283	39/50
	359LFN	87	478	307	39/50
	408HF	109	418	269	56/70
	409CFN	110	418	269	56/70
	509HF	120	567	293	60/80
R-12 575-3-60	511CFN	124	567	293	25/35
	511HF*	140	567	293	34/45
	155LFN	50	288	177	34/45
	216LFN	65	316	191	45/60
	257LFN	68	367	236	45/60
	308LFN	78	440	283	45/60
	359LFN	87	478	307	45/60
	408HF	109	418	269	60/60
	409CFN	110	418	269	60/60
	509HF	120	567	293	60/60

NOTES: † NPA = NAMEPLATE AMPS

LRA = LOCKED ROTOR AMPS

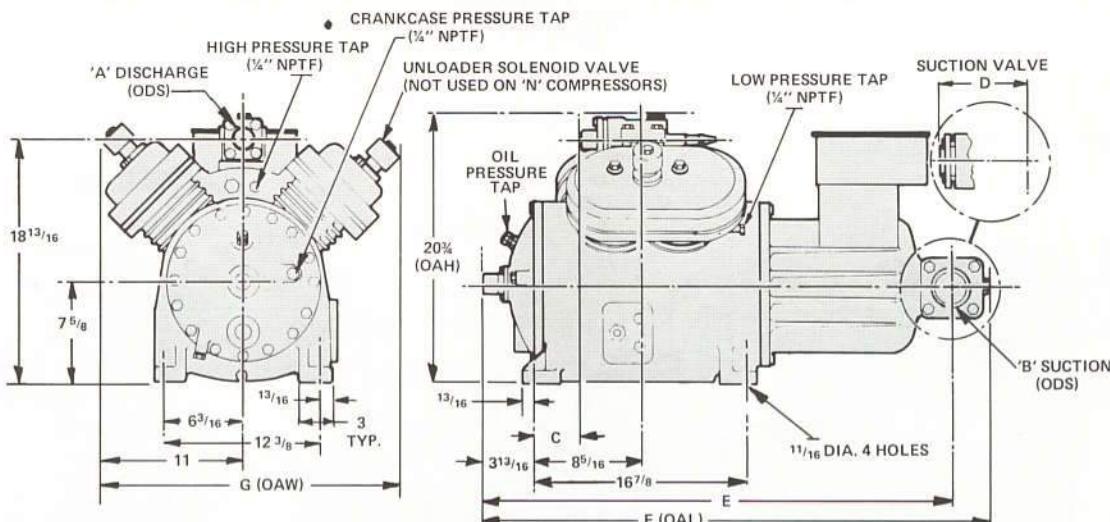
* 511HF or 511HFN for use on 50 Hertz only.

1 HFN Models have same electrical characteristics as HF models.

2 Rated load amps are based upon saturated suction and discharge temperatures (°F) as follows:

MODELS	WATER COOLED
HN and HF	50° SST/115° SDT
CN and CFN	25° SST/115° SDT
LN and LFN	0° SST/115° SDT

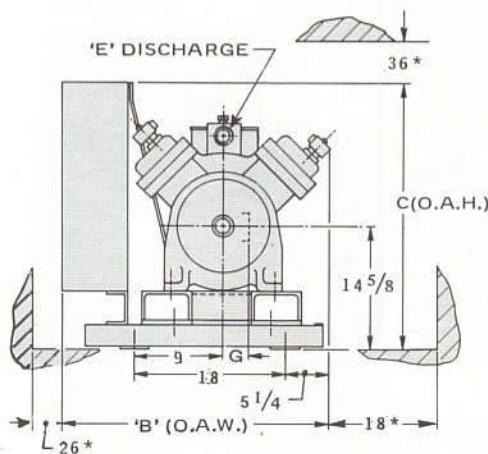
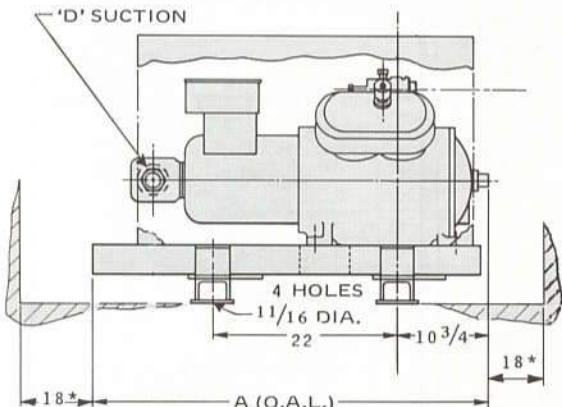
DIMENSIONAL DATA—SEMI-HERMETIC COMPRESSORS



NOTE: ALL DIMENSIONS ARE APPROXIMATE. CONSULT FACTORY FOR CERTIFIED DRAWINGS.

DIMENSIONS	157CN, 207HN 307CFN, 357HFN, 308LFN	208CN, 258HN, 358CFN, 408HFN 259CN, 309HN 359LFN, 409CFN, 311CN, 361HN, 411LFN	155LFN, 205CFN 255HFN, 216LFN 266CFN, 316HFN 257LFN	509HFN 511CFN 511HFN	255HF 316HF	357HF	408HF	509HF 511HF
A	1 3/8	1 5/8	1 3/8	1 5/8	1 3/8	1 3/8	1 5/8	1 5/8
B	2 5/8	2 5/8	2 1/8	2 5/8	2 1/8	2 5/8	2 5/8	2 5/8
C	3 7/8	3 3/4	3 7/8	3 3/4	3 7/8	3 3/4	3 3/4	3 3/4
D	4 15/16	4 15/16	5 1/16	4 15/16	5 1/16	4 15/16	4 15/16	4 15/16
E	32 5/8	32 5/8	32 5/8	34 5/16	32 5/8	32 5/8	32 5/8	34 5/16
F	39 1/8	39 1/8	39 1/8	40 3/4	39 1/8	39 1/8	39 1/8	40 3/4
G	22	22	22	22	24 1/2	24 1/2	24 1/2	24 1/2

DIMENSIONAL DATA—SEMI-HERMETIC COMPRESSOR UNITS † 'E' TYPE



MODEL	DIMENSIONS			CONNECTIONS		SHIPPING WEIGHT LBS.
	O.A.L. A	O.A.W. B	O.A.H. C	SUCTION O.D.S. A	DISCHARGE O.D.S. B	
R-22 HIGH TEMPERATURE						
E255HF	47 1/4	35	30 3/4	2 1/8	1 3/8	1070
E316HF	47 1/4	35	30 3/4	2 1/8	1 3/8	1080
E357HF	47 1/4	35	30 3/4	2 5/8	1 3/8	1090
E408HF	47 1/4	35	30 3/4	2 5/8	1 5/8	1090
E509HF	47 1/4	35	30 3/4	2 5/8	1 5/8	1110
E511HF ‡	47 1/4	35	30 3/4	2 5/8	1 5/8	1110
R-12 HIGH TEMPERATURE						
E207HN	47 1/4	35	30 3/4	2 5/8	1 3/8	1060
E258HN	47 1/4	35	30 3/4	2 5/8	1 5/8	1070
E309HN	47 1/4	35	30 3/4	2 5/8	1 5/8	1080
E361HN	47 1/4	35	30 3/4	2 5/8	1 5/8	1090
R-22 COMMERCIAL TEMPERATURE						
E205CFN	47 1/4	35	30 3/4	2 1/8	1 3/8	1060
E266CFN	47 1/4	35	30 3/4	2 1/8	1 3/8	1070
E307CFN	47 1/4	35	30 3/4	2 5/8	1 3/8	1080
E358CFN	47 1/4	35	30 3/4	2 5/8	1 5/8	1090
E409CFN	47 1/4	35	30 3/4	2 5/8	1 5/8	1090
E511CFN	47 1/4	35	30 3/4	2 5/8	1 5/8	1110
R-12 COMMERCIAL TEMPERATURE						
E157CN	47 1/4	35	30 3/4	2 5/8	1 3/8	1060
E208CN	47 1/4	35	30 3/4	2 5/8	1 5/8	1060
E259CN	47 1/4	35	30 3/4	2 5/8	1 5/8	1070
E311CN	47 1/4	35	30 3/4	2 5/8	1 5/8	1080
R-502 LOW TEMPERATURE						
E155LFN	47 1/4	35	30 3/4	2 1/8	1 3/8	1060
E216LFN	47 1/4	35	30 3/4	2 1/8	1 3/8	1070
E257LFN	47 1/4	35	30 3/4	2 1/8	1 3/8	1080
E308LFN	47 1/4	35	30 3/4	2 5/8	1 7/8	1080
E359LFN	47 1/4	35	30 3/4	2 5/8	1 5/8	1090
E411LFN	47 1/4	35	30 3/4	2 5/8	1 5/8	1090

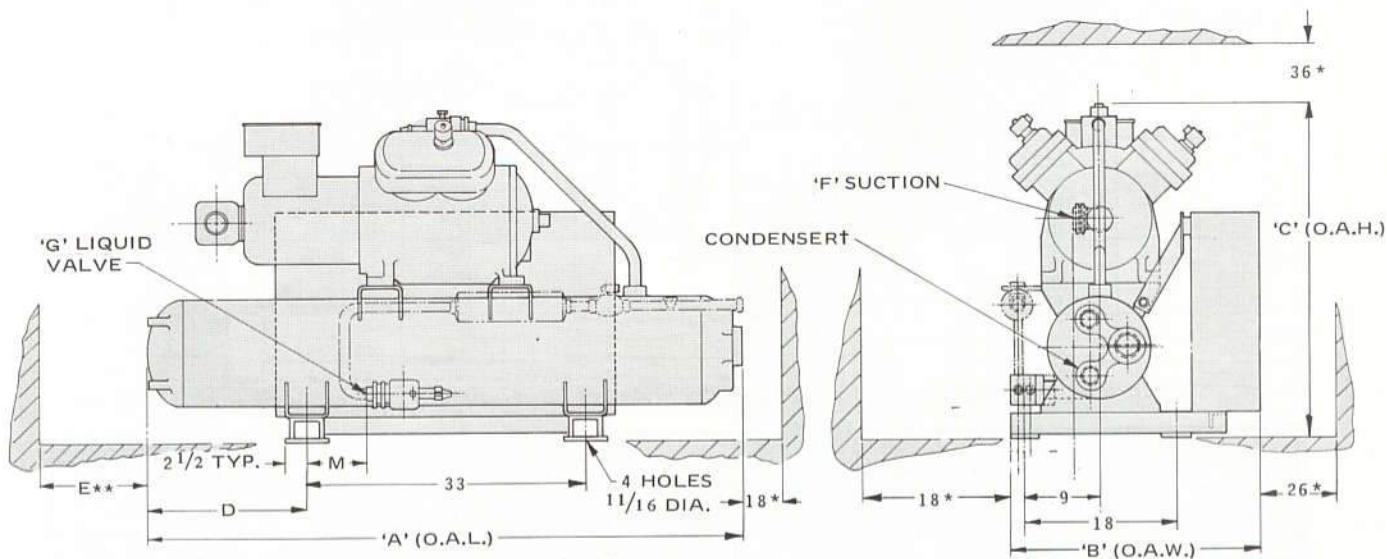
NOTE: ALL DIMENSIONS ARE IN INCHES AND ARE APPROXIMATE.

* MINIMUM REQUIRED CLEARANCE.

† DIMENSIONS SHOWN ARE SUITABLE FOR 'N' MODELS ALSO.

‡ AVAILABLE IN 50 HZ. ONLY

DIMENSIONAL DATA—SEMI-HERMETIC CONDENSING UNITS ††
'W' TYPE



NOTE: ALL DIMENSIONS ARE IN INCHES AND ARE APPROXIMATE. CONSULT FACTORY FOR CERTIFIED DRAWINGS.

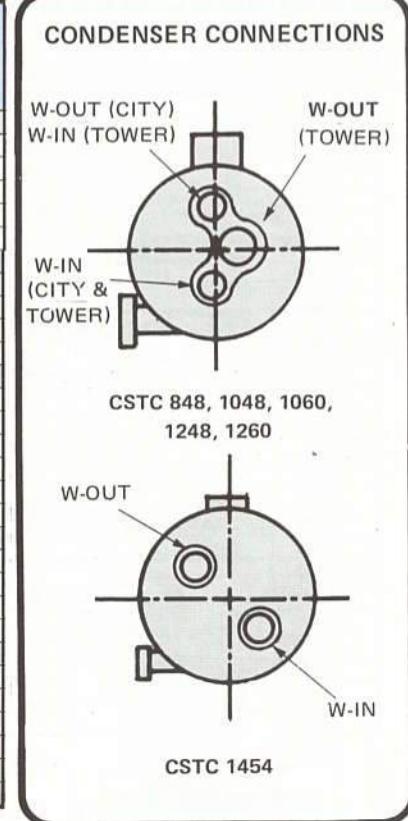
*MINIMUM REQUIRED CLEARANCE.

**MINIMUM REQUIRED CLEARANCE FOR MECHANICAL CLEANING OF CONDENSER TUBES (EITHER END)

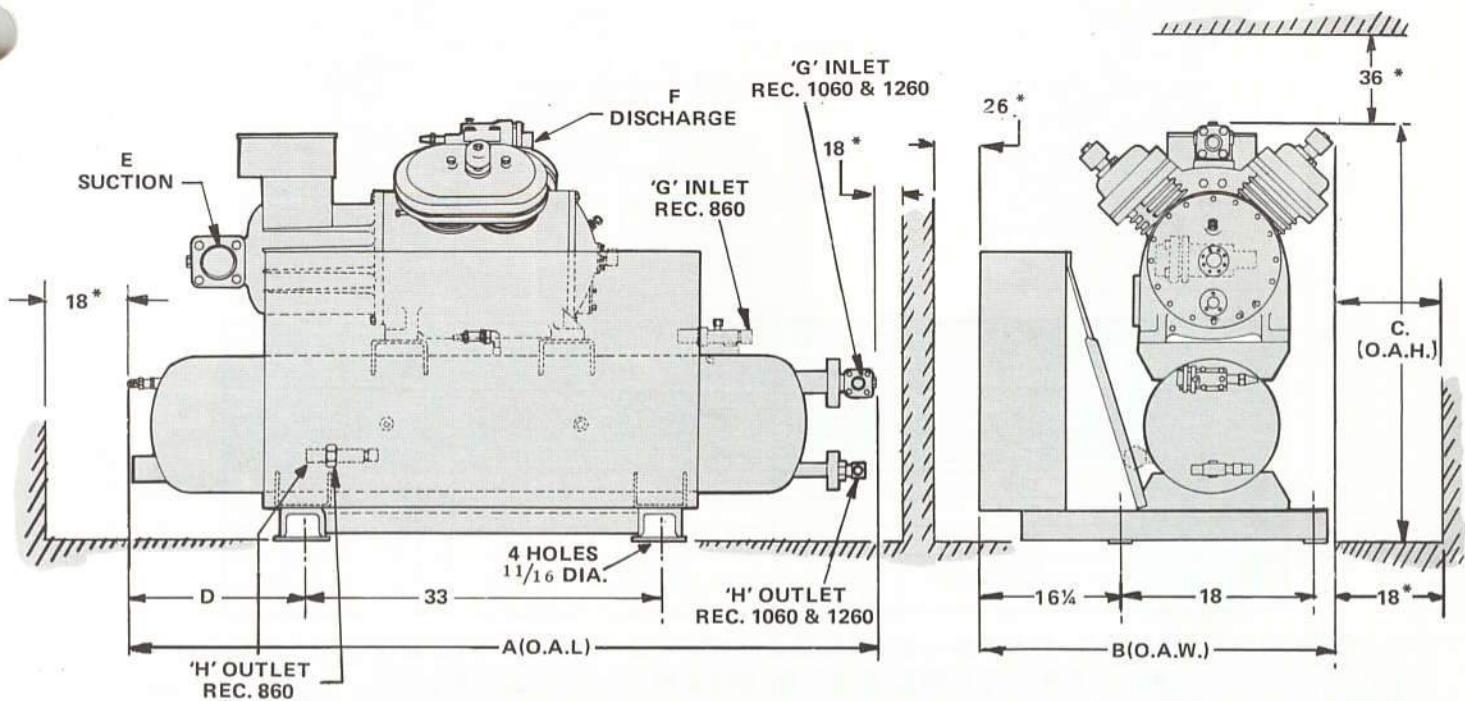
†FOR CONDENSER WATER CONNECTIONS REFER TO LATEST REVISION OF FORM NO. 8044.

††DIMENSIONS SHOWN ARE SUITABLE FOR 'N' MODELS ALSO.

MODEL	DIMENSIONS					CONNECTIONS					CONDEN- SER CSTC	SHIPPING WEIGHT LBS.		
	O.A.L. A	O.A.W. B	O.A.H. C	D	E	REFRIGERANT		WATER						
						SUCTION O.D.S. F	LIQUID O.D.S. G	W-IN F.P.T. H	W-OUT F.P.T. J	TOWER F.P.T. K				
R-22	HIGH TEMPERATURE										R-22			
W255HF	70 ¹ / ₈	36	37 ¹ / ₂	18	80	2 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1060	1480		
W316HF	70 ¹ / ₈	36	37 ¹ / ₂	18	80	2 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1060	1490		
W357HF	70 ¹ / ₈	36	39 ¹ / ₂	18 ¹ / ₂	80	2 ³ / ₈	1 ¹ / ₈	2	2	2 ¹ / ₄	1260	1600		
W408HF	70 ¹ / ₈	36	39 ¹ / ₂	18 ¹ / ₂	80	2 ³ / ₈	1 ³ / ₈	2	2	2 ¹ / ₄	1260	1600		
W509HF	66	36	40 ³ / ₄	16 ¹ / ₈	74	2 ³ / ₈	1 ³ / ₈	3	3	—	1454	1800		
R-12	HIGH TEMPERATURE										R-12			
W207HN	58 ¹ / ₈	36	37 ¹ / ₂	12	68	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1410		
W258HN	70 ¹ / ₈	36	37 ¹ / ₂	18	80	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1060	1476		
W309HN	70 ¹ / ₈	36	37 ¹ / ₂	18	80	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1060	1476		
W361HN	58 ¹ / ₈	36	37 ¹ / ₂	12 ¹ / ₂	68	2 ⁵ / ₈	1 ³ / ₈	1 ¹ / ₂	1 ¹ / ₂	2	1248	1570		
R-22	COMMERCIAL TEMPERATURE										R-22			
W205CFN	58 ¹ / ₈	36	37 ¹ / ₂	12	68	2 ¹ / ₈	7/8	1 ¹ / ₄	1 ¹ / ₄	2	1048	1420		
W266CFN	58 ¹ / ₈	36	37 ¹ / ₂	12	68	2 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1430		
W307CFN	58 ¹ / ₈	36	37 ¹ / ₂	12	68	2 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1440		
W358CFN	70 ¹ / ₈	36	37 ¹ / ₂	18	80	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1060	1500		
W409CFN	58 ¹ / ₈	36	39 ¹ / ₂	12 ¹ / ₂	68	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₂	1 ¹ / ₂	2	1248	1590		
W511CFN	58 ¹ / ₈	36	39 ¹ / ₂	12 ¹ / ₂	68	2 ⁵ / ₈	1 ³ / ₈	1 ¹ / ₂	1 ¹ / ₂	2	1248	1590		
R-12	COMMERCIAL TEMPERATURE										R-12			
W157CN	58 ¹ / ₈	36	37 ¹ / ₂	12	68	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1410		
W208CN	58 ¹ / ₈	36	37 ¹ / ₂	12	68	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1410		
W259CN	58 ¹ / ₈	36	37 ¹ / ₂	12	68	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1420		
W311CN	58 ¹ / ₈	36	37 ¹ / ₂	12	68	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1430		
R-502	LOW TEMPERATURE										R-502			
W155LFN	57 ¹ / ₈	36	35 ³ / ₈	11 ¹ / ₂	68	2 ¹ / ₈	7/8	1	1	1 ¹ / ₂	848	1270		
W216LFN	58 ¹ / ₈	36	37 ¹ / ₂	12	68	2 ¹ / ₈	7/8	1 ¹ / ₄	1 ¹ / ₄	2	1048	1430		
W257LFN	58 ¹ / ₈	36	37 ¹ / ₂	12	68	2 ¹ / ₈	7/8	1 ¹ / ₄	1 ¹ / ₄	2	1048	1440		
W308LFN	58 ¹ / ₈	36	37 ¹ / ₂	12	68	2 ⁵ / ₈	7/8	1 ¹ / ₄	1 ¹ / ₄	2	1048	1440		
W359LFN	58 ¹ / ₈	36	37 ¹ / ₂	12	68	2 ⁵ / ₈	7/8	1 ¹ / ₄	1 ¹ / ₄	2	1048	1440		
W411LFN	58 ¹ / ₈	36	37 ¹ / ₂	12	68	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1440		



DIMENSIONAL DATA
HERMETIC COMPRESSOR - RECEIVER UNITS
'R' TYPE



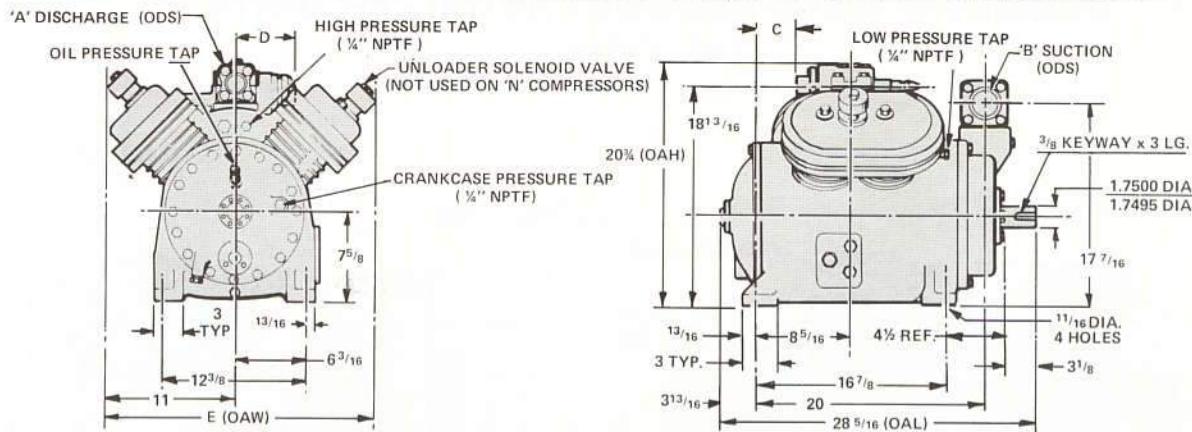
MODEL	DIMENSIONS				CONNECTIONS				RECEIVER R	SHIPPING WEIGHT LBS.
	O.A.L. A	O.A.W. B	O.A.H. C	D	SUCTION O.D.S. E	DISCHARGE O.D.S. F	INLET O.D.S. G	OUTLET O.D.S. H		
R-22										R-22
R255HF	70	36 ¹ / ₂	37 ¹ / ₂	17	2 ¹ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1670
R316HF	70	36 ¹ / ₂	37 ¹ / ₂	17	2 ¹ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1680
R357HF	70	36 ¹ / ₂	37 ¹ / ₂	17	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1690
R408HF	71 ³ / ₄	36 ¹ / ₂	39 ¹ / ₂	18 ³ / ₄	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1260	1760
R509DHF	71 ³ / ₄	36 ¹ / ₂	39 ¹ / ₂	18 ³ / ₄	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1260	1770
R511HF Δ	71 ³ / ₄	36 ¹ / ₂	39 ¹ / ₂	18 ³ / ₄	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1260	1780
R-12										R-12
R207HN	60	36 ¹ / ₂	36 ³ / ₄	13 ¹ / ₂	2 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	7/ ₈	860	1545
R258HN	70	36 ¹ / ₂	37 ¹ / ₂	17	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1670
R309HN	70	36 ¹ / ₂	37 ¹ / ₂	17	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1680
R361HN	70	36 ¹ / ₂	37 ¹ / ₂	17	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1690
R-22										R-22
COMMERCIAL TEMPERATURE										
R205CFN	60	36 ¹ / ₂	36 ³ / ₄	13 ¹ / ₂	2 ¹ / ₈	1 ³ / ₈	1 ¹ / ₈	7/ ₈	860	1535
R266CFN	70	36 ¹ / ₂	37 ¹ / ₂	17	2 ¹ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1670
R307CFN	70	36 ¹ / ₂	37 ¹ / ₂	17	2 ⁵ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1675
R358CFN	70	36 ¹ / ₂	37 ¹ / ₂	17	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1680
R409CFN	71 ³ / ₄	36 ¹ / ₂	39 ¹ / ₂	18 ³ / ₄	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1260	1750
R511CFN	71 ³ / ₄	36 ¹ / ₂	39 ¹ / ₂	18 ³ / ₄	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1260	1760
R-12										R-12
COMMERCIAL TEMPERATURE										
R157CN	60	36 ¹ / ₂	36 ³ / ₄	13 ¹ / ₂	2 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	7/ ₈	860	1520
R208CN	60	36 ¹ / ₂	36 ³ / ₄	13 ¹ / ₂	2 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	7/ ₈	860	1545
R259CN	60	36 ¹ / ₂	36 ³ / ₄	13 ¹ / ₂	2 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	7/ ₈	860	1550
R311CN	70	36 ¹ / ₂	37 ¹ / ₂	17	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1580
R-502										R-502
LOW TEMPERATURE										
R155LFN	60	36 ¹ / ₂	36 ³ / ₄	13 ¹ / ₂	2 ¹ / ₈	1 ³ / ₈	1 ¹ / ₈	7/ ₈	860	1530
R216LFN	60	36 ¹ / ₂	36 ³ / ₄	13 ¹ / ₂	2 ¹ / ₈	1 ³ / ₈	1 ¹ / ₈	7/ ₈	860	1540
R257LFN	70	36 ¹ / ₂	37 ¹ / ₂	17	2 ¹ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1690
R308LFN	70	36 ¹ / ₂	37 ¹ / ₂	17	2 ⁵ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1700
R359LFN	71 ³ / ₄	36 ¹ / ₂	39 ¹ / ₂	18 ³ / ₄	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1260	1760
R411LFN	71 ³ / ₄	36 ¹ / ₂	39 ¹ / ₂	18 ³ / ₄	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1260	1770

*Minimum Required Clearance

Δ Available in 50 Hz. Only

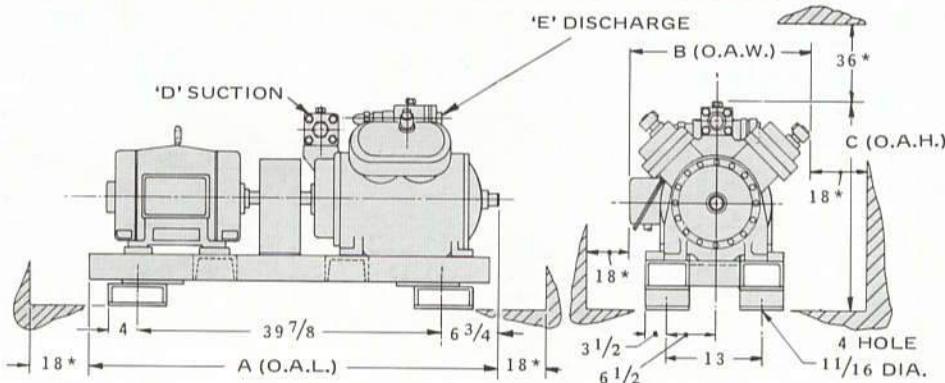
ALL DIMENSIONS ARE IN INCHES AND ARE APPROXIMATE-CONSULT FACTORY FOR CERTIFIED DRAWINGS.

DIMENSIONAL DATA—DIRECT DRIVE COMPRESSORS



DIMENSIONS	155DLFN, 205DCFN 255DHFN, 216DLFN 266DCFN, 257DLFN	157DCN 207DHN 307DCFN 308DLFN 357DHFN	208DCN, 258DHN, 358DCFN, 408DHFN 259DCN, 309DHN 359DLFN, 409DCFN, 509DHFN, 311DCN 361DHN, 411DLFN 511DCFN, 511DHFN	255DHF 316DHF	357DHF	408DHF 509DHF 511DHF
A (O.D.S.)	1 3/8	1 3/8	1 5/8	1 3/8	1 3/8	1 5/8
B (O.D.S.)	2 1/8	2 5/8	2 5/8	2 1/8	2 5/8	2 5/8
C	3 7/8	3 7/8	3 3/4	3 7/8	3 7/8	3 3/4
D	5 1/16	4 15/16	4 15/16	5 1/16	4 15/16	4 15/16
E	22	22	22	24 1/2	24 1/2	24 1/2

DIMENSIONAL DATA—DIRECT DRIVE COMPRESSOR UNITS † (‘E’ TYPE LESS STARTER PANEL)



MODEL	DIMENSIONS			CONNECTIONS		SHIPPING WEIGHT LESS MOTOR LBS.
	O.A.L. A	O.A.W. B	O.A.H. C	SUCTION O.D.S. A	DISCHARGE O.D.S. B	
R-22						R-22
E255DHF	5 7/8	24 1/8	29 1/8	2 1/8	1 3/8	1315
E316DHF	5 7/8	27 1/4	30 1/8	2 1/8	1 3/8	1390
E357DHF	5 7/8	27 1/4	30 1/8	2 5/8	1 3/8	1450
E408DHF	5 8 1/8	27 1/4	30 1/8	2 5/8	1 5/8	1450
E509DHF	5 8 1/8	29 1/8	30 1/8	2 5/8	1 5/8	1470
E511DHF	5 8 1/8	27 1/4	30 1/8	2 5/8	1 5/8	1470
R-12						R-12
E207DHN	5 7/8	22 1/8	29 1/8	2 5/8	1 3/8	1450
E258DHN	5 7/8	22 1/8	29 1/8	2 5/8	1 5/8	1470
E309DHN	5 7/8	24 3/4	30 1/8	2 5/8	1 5/8	1470
E361DHN	5 7/8	24 3/4	30 1/8	2 5/8	1 5/8	1470

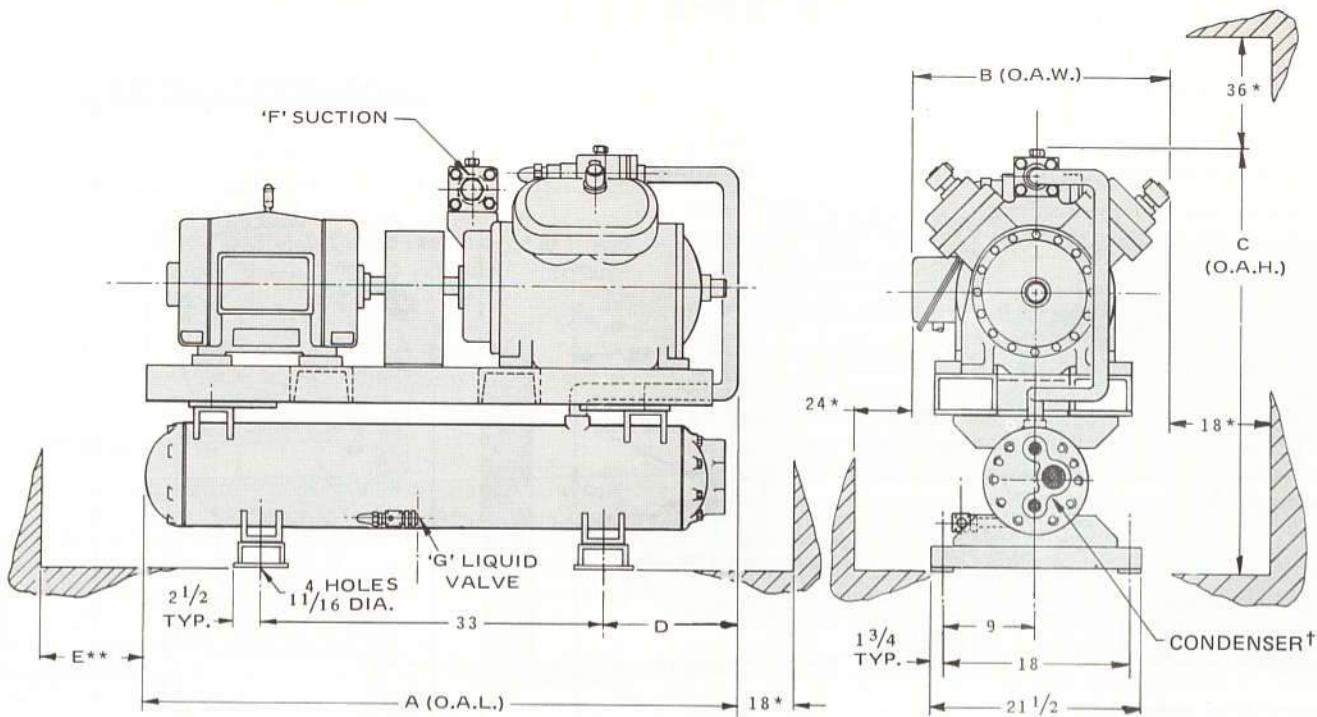
MODEL	DIMENSIONS			CONNECTIONS		SHIPPING WEIGHT LESS MOTOR LBS.
	O.A.L. A	O.A.W. B	O.A.H. C	SUCTION O.D.S. A	DISCHARGE O.D.S. B	
R-22						R-22
E205DCFN	5 7/8	22 1/8	28 3/4	2 1/8	1 3/8	1290
E266DCFN	5 7/8	22 1/8	29 1/8	2 1/8	1 3/8	1315
E307DCFN	5 7/8	22 1/8	29 1/8	2 5/8	1 3/8	1400
E358DCFN	5 7/8	24 3/4	30 1/8	2 5/8	1 5/8	1450
E409DCFN	5 7/8	24 3/4	30 1/8	2 5/8	1 5/8	1470
E511DCFN	5 8 1/8	24 3/4	30 1/8	2 5/8	1 5/8	1470
R-12						R-12
E157DCN	5 7/8	22 1/8	28 3/4	2 5/8	1 3/8	1400
E208DCN	5 7/8	22 1/8	28 3/4	2 5/8	1 5/8	1450
E259DCN	5 7/8	22 1/8	29 1/8	2 5/8	1 5/8	1470
E311DCN	5 7/8	22 1/8	29 1/8	2 5/8	1 5/8	1470
R-502						R-502
E155DLFN	5 7/8	20 5/8	28 3/4	2 1/8	1 3/8	1290
E216DLFN	5 7/8	22 1/8	28 3/4	2 1/8	1 3/8	1295
E257DLFN	5 7/8	22 1/8	29 1/8	2 1/8	1 3/8	1325
E308DLFN	5 7/8	22 1/8	29 1/8	2 5/8	1 5/8	1450
E359DLFN	5 7/8	24 3/4	30 1/8	2 5/8	1 5/8	1450
E411DLFN	5 7/8	24 3/4	30 1/8	2 5/8	1 5/8	1450

NOTE: ALL DIMENSIONS ARE IN INCHES AND ARE APPROXIMATE; CONSULT FACTORY FOR CERTIFIED DRAWINGS

*MINIMUM REQUIRED CLEARANCE

† DIMENSIONS SHOWN ARE SUITABLE FOR ‘N’ MODELS ALSO.

DIMENSIONAL DATA - DIRECT DRIVE CONDENSING UNITS ††
(‘W’ TYPE LESS STARTER PANEL)



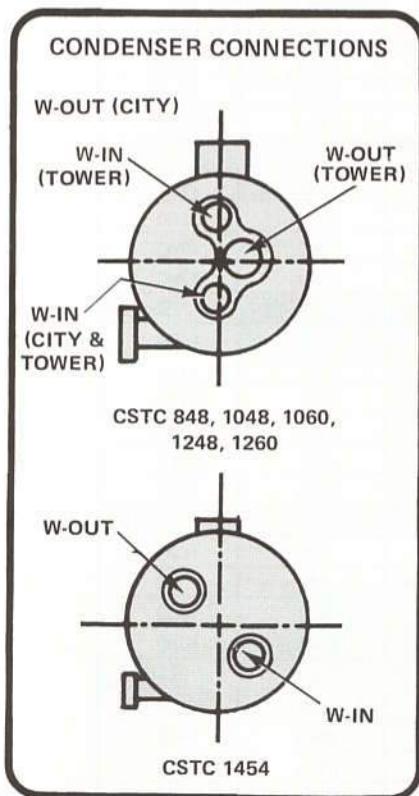
NOTE: ALL DIMENSIONS ARE IN INCHES AND ARE APPROXIMATE. CONSULT FACTORY FOR CERTIFIED DRAWINGS.

*MINIMUM REQUIRED CLEARANCE

**MINIMUM REQUIRED CLEARANCE FOR MECHANICAL CLEANING OF CONDENSER TUBES (EITHER END)

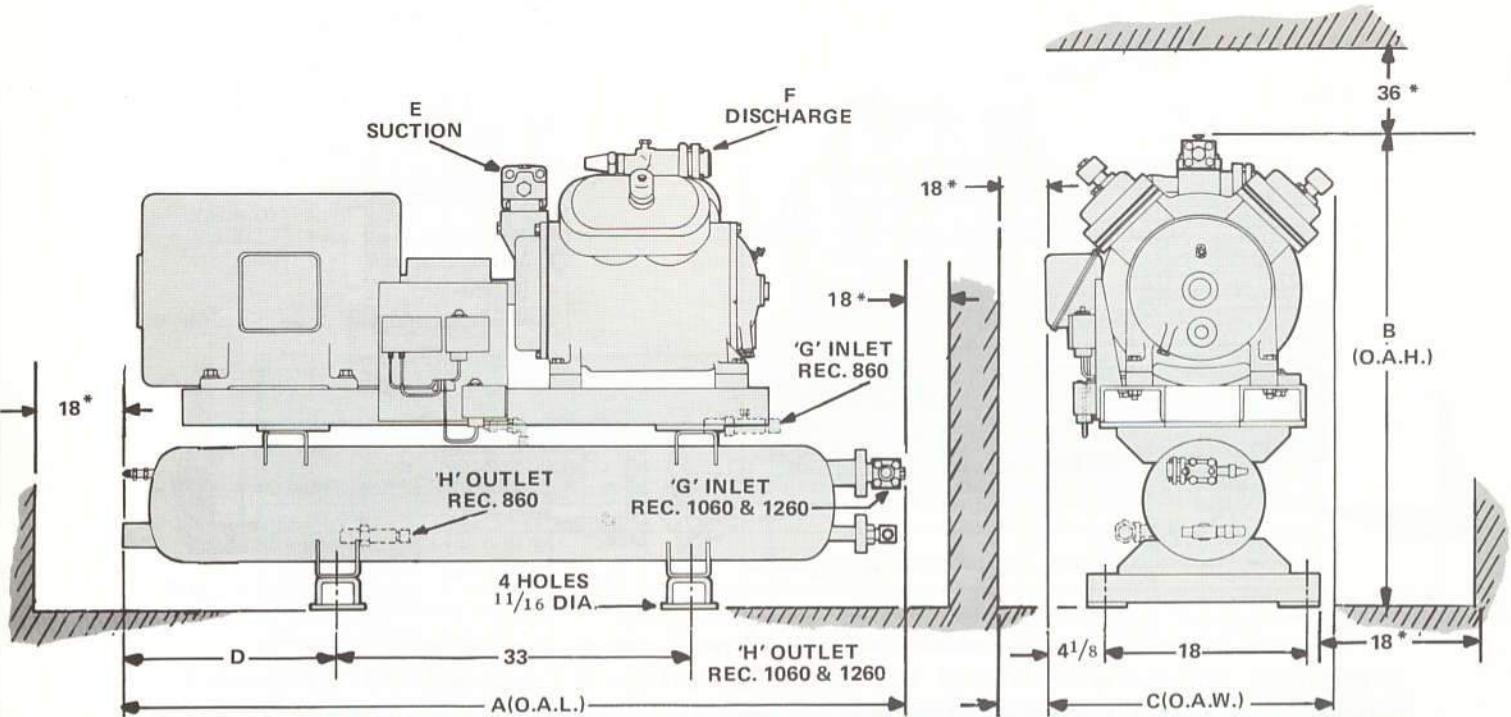
† FOR CONDENSER WATER CONNECTIONS REFER TO LATEST REVISION OF FORM NO. 8044.

†† DIMENSIONS SHOWN ARE SUITABLE FOR ‘N’ MODELS ALSO.



MODEL	DIMENSIONS					CONNECTIONS						CONDEN- SER- CSTC	SHIPPING WEIGHT LESS MOTOR LBS.
						REFRIGERANT		WATER					
	O.A.L. A	O.A.W. B	O.A.H. C	D	E	SUCTION O.D.S. F	LIQUID O.D.S. G	W-IN F.P.T. H	W-OUT F.P.T. J	TOWER F.P.T. K			
R-22													
W255DHF	70 ¹ / ₁₆	24 ⁵ / ₈	41 ¹ / ₂	14 ³ / ₄	80	2 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	2	1060	1560	
W316DHF	70 ¹ / ₁₆	24 ⁵ / ₈	41 ¹ / ₂	14 ³ / ₄	80	2 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	2	1060	1720	
W357DHF	70 ¹ / ₁₆	27 ¹ / ₈	43 ⁷ / ₈	15 ¹ / ₄	80	2 ⁵ / ₈	1 ¹ / ₈	2	2	2 ¹ / ₂	1260	1880	
W408DHF	70 ¹ / ₁₆	27 ¹ / ₈	43 ⁷ / ₈	15 ¹ / ₄	80	2 ⁵ / ₈	1 ¹ / ₈	2	2	2 ¹ / ₂	1260	1890	
W509DHF	66	27 ¹ / ₁₆	45 ¹ / ₈	15 ¹ / ₄	74	2 ⁵ / ₈	1 ¹ / ₈	3	3	-	1454	1940	
W511DHF	66	27 ¹ / ₁₆	45 ¹ / ₈	15 ¹ / ₄	74	2 ⁵ / ₈	1 ¹ / ₈	3	3	-	1454	1940	
R-12													
W207DHN	60 ¹ / ₄	22 ¹ / ₈	41 ¹ / ₂	14 ³ / ₄	68	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1770	
W258DHN	70 ¹ / ₁₆	22 ¹ / ₈	41 ¹ / ₂	17 ¹ / ₄	80	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1060	1820	
W309DHN	70 ¹ / ₁₆	22 ¹ / ₈	41 ¹ / ₂	17 ¹ / ₄	80	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1060	1930	
W361DHN	61 ⁵ / ₈	24 ¹¹ / ₁₆	43 ⁷ / ₈	17 ¹ / ₄	68	2 ⁵ / ₈	1 ¹ / ₈	1 ¹ / ₂	1 ¹ / ₂	2	1248	2000	
R-22													
W205DCFN	60 ¹ / ₄	22 ¹ / ₈	41 ¹ / ₂	14 ³ / ₄	68	2 ¹ / ₈	7 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1770	
W266DCFN	60 ¹ / ₄	22 ¹ / ₈	41 ¹ / ₂	14 ³ / ₄	68	2 ¹ / ₈	11 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1810	
W307DCFN	60 ¹ / ₄	22 ¹ / ₈	41 ¹ / ₂	14 ³ / ₄	68	2 ⁵ / ₈	11 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1820	
W358DCFN	70 ¹ / ₁₆	24 ¹¹ / ₁₆	41 ⁷ / ₈	15 ¹ / ₄	68	2 ⁵ / ₈	11 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1060	1900	
W409DCFN	61 ⁵ / ₈	24 ¹¹ / ₁₆	43 ⁷ / ₈	15 ¹ / ₄	68	2 ⁵ / ₈	11 ¹ / ₈	1 ¹ / ₂	1 ¹ / ₂	2	1248	2030	
W511DCFN	63 ⁵ / ₈	24 ¹¹ / ₁₆	43 ⁷ / ₈	15 ¹ / ₄	68	2 ⁵ / ₈	11 ¹ / ₈	1 ¹ / ₂	1 ¹ / ₂	2	1248	2080	
R-12													
W157DCN	60 ¹ / ₄	20 ⁵ / ₈	41 ¹ / ₂	14 ³ / ₄	58	2 ¹ / ₈	11 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1700	
W208DCN	60 ¹ / ₄	22 ¹ / ₈	41 ¹ / ₂	15 ¹ / ₄	68	2 ⁵ / ₈	11 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1770	
W259DCN	60 ¹ / ₄	22 ¹ / ₈	41 ¹ / ₂	15 ¹ / ₄	68	2 ⁵ / ₈	11 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1770	
W311DCN	60 ¹ / ₄	22 ¹ / ₈	41 ¹ / ₂	15 ¹ / ₄	68	2 ⁵ / ₈	11 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1880	
R-502													
W155DLFN	59 ⁷ / ₈	20 ⁵ / ₈	39 ³ / ₈	14 ³ / ₄	68	2 ¹ / ₈	7 ¹ / ₈	1	1	1 ¹ / ₂	858	1700	
W216DLFN	60 ¹ / ₄	22 ¹ / ₈	41 ¹ / ₂	14 ³ / ₄	68	2 ¹ / ₈	7 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	1860	
W257DLFN	60 ¹ / ₄	22 ¹ / ₈	41 ¹ / ₂	14 ³ / ₄	68	2 ¹ / ₈	7 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	2040	
W308DLFN	60 ¹ / ₄	22 ¹ / ₈	41 ¹ / ₂	14 ³ / ₄	68	2 ⁵ / ₈	7 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	2040	
W359DLFN	61 ⁵ / ₈	22 ¹ / ₈	41 ⁷ / ₈	15 ¹ / ₄	68	2 ⁵ / ₈	7 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	2240	
W411DLFN	60 ¹ / ₄	24 ¹¹ / ₁₆	41 ⁷ / ₈	15 ¹ / ₄	68	2 ⁵ / ₈	11 ¹ / ₈	1 ¹ / ₄	1 ¹ / ₄	2	1048	2240	

DIMENSIONAL DATA
DIRECT DRIVE COMPRESSOR-RECEIVER UNITS
'R' TYPE



MODEL	DIMENSIONS				CONNECTIONS				RECEIVER R	SHIPPING WEIGHT LESS MOTOR LBS.
	O.A.L. A	O.A.W. B	O.A.H. C	D	SUCTION O.D.S. E	DISCHARGE O.D.S. F	INLET O.D.S. G	OUTLET O.D.S. H		
R-22										R-22
R255DHF	70	24 ⁵ / ₈	41 ³ / ₈	17	2 ¹ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1635
R316DHF	70	27 ¹ / ₄	41 ³ / ₄	17	2 ¹ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1715
R357DHF	70	27 ¹ / ₄	41 ³ / ₄	17	2 ⁵ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1770
R408DHF	71 ³ / ₄	27 ¹ / ₄	41 ³ / ₄	18 ³ / ₄	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1260	1830
R509DHF	71 ³ / ₄	29 ¹ / ₈	41 ³ / ₄	18 ³ / ₄	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1260	1850
R511DHF	71 ³ / ₄	27 ¹ / ₄	41 ³ / ₄	18 ³ / ₄	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1260	1850
R-12										R-12
R207DHN	62	22 ¹ / ₈	39 ¹ / ₄	15 ¹ / ₂	2 ⁵ / ₈	1 ³ / ₈	1 ¹ / ₈	7/ ₈	860	1640
R258DHN	70	22 ¹ / ₈	41 ³ / ₈	17	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1660
R309DHN	70	24 ³ / ₄	41 ³ / ₄	17	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1790
R361DHN	70	24 ³ / ₄	41 ³ / ₄	17	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1790
R-22										R-22
R205DCFN	62	22 ¹ / ₈	39 ¹ / ₄	15 ¹ / ₂	2 ¹ / ₈	1 ³ / ₈	1 ¹ / ₈	7/ ₈	860	1480
R266DCFN	70	22 ¹ / ₈	41 ³ / ₈	17	2 ¹ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1635
R307DCFN	70	22 ¹ / ₈	41 ³ / ₄	17	2 ⁵ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1720
R358DCFN	70	24 ³ / ₄	41 ³ / ₄	17	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1770
R409DCFN	71 ³ / ₄	24 ³ / ₄	43 ⁵ / ₈	18 ³ / ₄	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1260	1850
R511DCFN	71 ³ / ₄	24 ³ / ₄	43 ³ / ₈	18 ³ / ₄	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1260	1850
R-12										R-12
R157DCN	62	22 ¹ / ₈	39 ¹ / ₄	15 ¹ / ₂	2 ⁵ / ₈	1 ³ / ₈	1 ¹ / ₈	7/ ₈	860	1590
R208DCN	62	22 ¹ / ₈	39 ¹ / ₄	15 ¹ / ₂	2 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	7/ ₈	860	1640
R259DCN	62	22 ¹ / ₈	39 ¹ / ₄	15 ¹ / ₂	2 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	7/ ₈	860	1660
R311DCN	70	22 ¹ / ₈	41 ³ / ₄	17	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1790
R-502										R-502
R155DLFN	62	20 ⁵ / ₈	39 ¹ / ₄	15 ¹ / ₂	2 ¹ / ₈	1 ³ / ₈	1 ¹ / ₈	7/ ₈	860	1480
R216DLFN	62	22 ¹ / ₈	39 ¹ / ₄	15 ¹ / ₂	2 ¹ / ₈	1 ³ / ₈	1 ¹ / ₈	1 ¹ / ₈	860	1485
R257DLFN	70	22 ¹ / ₈	41 ³ / ₈	17	2 ¹ / ₈	1 ³ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1645
R308DLFN	70	22 ¹ / ₈	41 ³ / ₄	17	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1060	1720
R359DLFN	71 ³ / ₄	24 ³ / ₄	41 ³ / ₄	18 ³ / ₄	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1260	1830
R411DLFN	71 ³ / ₄	24 ³ / ₄	41 ³ / ₄	18 ³ / ₄	2 ⁵ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	1 ¹ / ₈	1260	1830

* Minimum Required Clearance

ALL DIMENSIONS ARE IN INCHES AND ARE APPROXIMATE-CONSULT FACTORY FOR CERTIFIED DRAWINGS.

GUIDE SPECIFICATIONS

GENERAL

The contractor shall furnish and install, where shown on the plans, Dunham-Bush compressor, compressor-receiver and/or condensing unit(s) Model _____, with options and accessories indicated in the equipment schedule. All units shall be electrically tested and shipped with a holding charge. The unit(s) shall be suitable for operation on _____ volts, _____ phase _____ Hertz and shall have a capacity of _____ MBH at a saturated suction temperature of _____°F and _____°F ambient or _____°F saturated discharge temperature when operating with refrigerant R_____. The water cooled condenser (on 'W' type models) shall be supplied with _____ GPM of condenser water at _____°F. Power input requirements shall not exceed _____ kW or _____ BHP at design conditions.

COMPRESSORS

Big 4 compressors shall be of the reciprocating type and shall include suction and discharge valves, an internal suction filter, a forced feed lubrication system with an automatically reversing lobe type oil pump, crankcase heaters, high pressure, low pressure and oil failure controls and shall be equipped with _____ steps of capacity control (standard on high temperature with refrigerant R-22, optional on commercial temperature). Models operating in the low temperature range shall also be equipped with discharge temperature thermostats, and oil coolers with thermo-expansion valve.

The accessible semi-hermetic compressor in addition to the above shall have a suction gas cooled four pole motor. The motor insulation shall be protected by an internal solid state motor protector and quick-trip ambient temperature compensated overload relays.

COMPRESSOR, COMPRESSOR-RECEIVER AND CONDENSING UNITS

Semi-Hermetic compressor, compressor-receiver and condensing units shall be furnished with control boxes which contain starters, high pressure, low pressure and oil failure controls, a control switch and interconnecting wiring.

Direct Drive compressor, compressor-receiver, and condensing units shall be furnished with high pressure, low pressure and oil failure controls.

AIR COOLED CONDENSER(S) - Shall be Dunham-Bush model _____, suitable for ambient temperatures up to _____ degrees F, and a minimum ambient temperature of _____°F. It shall be of the low silhouette design, arranged for vertical air discharge. Each condenser shall consist of a casing, copper condenser coil with aluminum Wave-Fin®, direct (or belt) drive fan motor(s), fan guard(s), and mounting legs. For additional specifications consult latest revision of Form 7011.

WATER-COOLED CONDENSERS - Shall be of the cleanable tube type designed, constructed and stamped in accordance with ASME Code for unfired pressure vessels and shall include a safety relief valve and refrigerant outlet valve. For additional specifications consult latest revision of Form 8044.

RECEIVER - Shall be welded steel; designed, constructed, tested and stamped in accordance with ASME Code for unfired pressure vessels; shall include inlet and outlet valve, and pressure relief valve to conform to ANSI/ASHRAE 15-1978 Safety Code. The storage capacity shall be _____ lbs., minimum when 80% full with R_____.

OPTIONS AND ACCESSORIES - COMPRESSORS AND UNITS

- Oil Separators With Oil Return Solenoid
- Water Valves (Unmounted)
- Mufflers
- Non-Standard Condensers
- Liquid Line Assemblies (Unmounted on 'E' Units)
- OSHA Coupling Guard (Direct Drive Only)

- Hot Gas Bypass Capacity Control
- Suction Accumulators (Unmounted)
- Heat Exchangers (Suction-To-Liquid)(Unmounted)
- Gauge Kits & Light Kits
- Under-Voltage & Phase Protection
- Base Vibration Isolators (Unmounted)

OPTIONS AND ACCESSORIES - AIR COOLED CONDENSER (LSBC)

- Low Ambient Controls
- Control Center Including Starter
- Low Ambient T'Stat

ASSOCIATION & CODE APPROVALS

UL RECOGNIZED	UL LISTED	CSA CERTIFIED	ASME APPROVED & STAMPED	OSHA APPROVED	SPECIAL LOCAL & STATE CODES*
Big 4 Semi-Hermetic Compressors	Big 4 Direct-Drive Compressors	Big 4 Semi-Hermetic E, R & W Units**	CSTC Water-Cooled Condensers	Big 4 Direct-Drive Coupling Guard (Optional)	Optional
		Big 4 Direct-Drive E, R & W Units**	Receivers Larger than 6" Diameter		

* Local codes such as Detroit, New York City, Los Angeles, Chicago, Portland, Oregon, etc. States codes such as Calif., Washington, Mass., etc.

**CSA approval on standard models only.

All D-B equipment manufactured to NEC standards.
Relief valves conform to ANSI/ASHRAE 15-1978.

DUNHAM-BUSH

AIR CONDITIONING, REFRIGERATION, HEATING PRODUCTS AND ACCESSORIES

MAIN OFFICES

175 SOUTH STREET WEST HARTFORD, CONNECTICUT 06110

FACTORIES

WEST HARTFORD DIVISION
179 South Street
West Hartford, Connecticut
06110

HARRISONBURG DIVISION
101 Burgess Road
Harrisonburg, Virginia
22801

MARSHALLTOWN DIVISION
811 East Main Street
Marshalltown, Iowa
50158

RIVERSIDE DIVISION
1850 Massachusetts Ave.
Riverside, California
92507

SUBSIDIARIES

DUNHAM-BUSH of Canada Limited
140 Wendell Avenue
Weston, Ontario

DUNHAM-BUSH, LTD.
Fitzherbert Road, Farlington
Portsmouth, Hampshire, England

DUNHAM-BUSH INTERNATIONAL: 175 South Street, West Hartford, Connecticut 06110, U.S.A.
CABLE: DUNBUSH or TELEX: 994469

SALES OFFICES

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Hartford	Louisville	MONTANA	Cincinnati	TENNESSEE	WEST VIRGINIA
Bloomfield		Billings	Cleveland	Memphis	Barboursville
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Jacksonville	Shreveport	Lewiston	Delaware		Milwaukee
Miami	MAINE	Omaha	Toledo		
Orlando					

DUNHAM-BUSH, INC. • Harrisonburg, Virginia 22801, U.S.A.