FBS

TECHNICAL MANUAL

ROTARY SCREW COMPRESSORS

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ALPHABETICAL BY SUBJECT

NUMERICAL BY TABLE AND FIGURE NUMBER

MECHANICAL SPECIFICATIONS

SCREW COMPRESSOR PACKAGE

Unit is a packaged assembly with all components factory piped and tested. Unit includes either "SOC" oil cooling with automatic control valves or water cooled oil cooler with automatic water regulating valve, combination oil separator and sump with dual relief valves, oil sump heaters, initial oil charge, direct connected recirculating oil pump with motor, suction and discharge check valves, suction gas strainer, oil filter, control center and hydraulically operated capacity control factory piped with solenoid valves wired to control center. (Water regulating valve is shipped loose for field mounting in water line but the thermostat controlling the water regulating valve by sensing the oil temperature leaving the oil cooler, is mounted and wired into the control panel.)

COMPRESSOR

Housing

Housing is designed in compliance with the ANSI/ ASHRAE 15-78 code. Castings are a high grade, low porosity cast iron that is ribbed for structural stability and efficient heat dissipation. The complete compressor assembly is leak tested at 300 psig.

Rotors

The male and female rotors are precision ground steel. The male rotor has four lobes — the female rotor, six interlobe spaces. The male rotor is directly driven by the motor, and the journals are chrome plated.

Sleeve Bearings

Four main bearings which support the rotors are heavy duty, steel backed babbit, and are arranged for continuous forced feed lubrication.

Thrust Bearings

Rotor thrust bearings are oversized angular contact ball bearings fitted to give precise rotor location in the housing. A balance piston equalizes the thrust load of the rotors to minimize the loading on the thrust bearings and insures long bearing life.

Shaft Seal

The mechanical shaft seal consists of a carbon face in rotating contact with a tungsten carbide steel ring. Details of construction vary in different size units; however, the rotating member is mechanically locked to the shaft and the stationary member is securely gasketed in the compressor housing.

CAPACITY REDUCTION SYSTEM

The system consists of a cast iron slide valve, hydraulically actuated by lubricating oil to load and unload the compressor. The compressor has infinite steps of capacity reduction from 100% down to 10%. "Micro" adjusting needle valves in the oil lines that operate the unloader insure that the loading and unloading rate of the compressor can be adjusted to follow the load without hunting.

DRIVE

Compressor drive includes flexible type coupling with a spacer section that will permit seal replacement without moving the motor. A coupling guard designed to meet OSHA requirements is also furnished.

SUCTION STRAINER

The unit includes a fine mesh stainless steel screen sized for a maximum face velocity of 320 FPM. A special conical design provides protection against collapsing and has an "outside-in" flow pattern that has a self-cleaning effect each time the compressor stops.

CHECK VALVES

Suction and discharge check valves are standard. These are in line, wafer type with teflon seal. The suction check valve prevents compressor "back-spin" during shut down. The discharge check valve prevents refrigerant migration during "Off" period.

LUBRICATION SYSTEM

Oil Pump

Unit is direct connected electrically driven gear type, located below the oil separator to insure a positive suction head at all times and is operated independently of compressor to provide prelubrication at start-up.

Oil Filter

Filter is a replaceable 15 micron, extended area high efficiency multiple cartridge type. All of the oil supplied to the compressor is filtered. "Extended area" filters minimize the frequency at which filters must be changed. Isolating valves are provided for servicing.

Oil Pump Strainer

Unit has a 100 mesh stainless steel screen which has a total free area 10 times greater than the pump suction.

Oil Separator

Unit is an FES exclusive two-stage design with guarantee on oil usage. The first stage removes well over 99% of the oil circulated and acts as the reservoir for the oil pump. Two bulls-eyes are provided to determine oil level in first stage. The second stage is specifically designed to remove gas entrained oil mist particles that are less than one micron in diameter. The second stage is provided with an access port that will allow service on the separator and a bulls-eye to determine the oil level in the second stage. Thermostatically controlled electric heaters maintain the oil temperature during off cycle. The separator is ASME constructed, designed for 250 psig working pressure for ammonia and 300 psig for R-22, inspected and stamped, and is furnished with dual relief valve.

"SOC" Oil Temperature Control

A temperature actuated proportional expansion valve modulates flow of refrigerant to the compressor to maintain a constant discharge temperature from the compressor. A solenoid valve with strainer is mounted in the liquid line and wired into the control panel and

allows passage of refrigerant only when the compressor is operating. Application and performance of the FES "SOC" oil cooling system is described in FES Engineering Data Sheet Specification SC-6. "SOC" oil cooling is used with ammonia units.

Oil Cooler and Oil Temperature Control

Cooler is a cleanable shell and finned tube type with oil on the shell side and the coolant through 5/8" O.D. tubes. The water side of the oil cooler is designed at 150 psig working pressure, the oil side at 400 psig design working pressure. A temperature actuated, electrically powered proportional valve modulates flow of coolant through the cooler to maintain a constant oil temperature to the compressor. The oil thermostat is mounted and wired into the control panel.

Oil Pressure Regulator

A vee ported, plug type modulating valve designed to maintain a constant oil pressure differential under varying operating conditions is standard.

MICROPROCESSOR CONTROL CENTER

Microprocessor Control Unit is completely factory assembled, mounted, and wired on the screw compressor unit. It consists of NEMA 4 enclosure containing a microprocessor control unit; solid state input-output modules; terminal strip for external field wiring interlocks; transducer input terminal strip; DC power supply; 1200 watt oil sump heater relay; safety controls; operating controls; hour meter; data entry keypad; and alpha-numeric display.

Safety Controls are provided for:

- Low oil pressure
- Compressor unload
- Oil pump start
- Motor overload
- High discharge pressure
- High discharge temperature
- Low inlet oil temperature
- High oil filter pressure
- High oil pressure
- Low suction pressure
- Compressor shut-down
- Low oil separator temperature
- High oil separator temperature

Operating Controls include anti-recycle; post shut-down lube; load limit control for high discharge pressure or high motor current; load and unload capacity controls; start-up oil failure time delay; and time proportioning floating capacity controller with pressure input transducer. Operating buttons include stop/reset, remote start, local start, and capacity control (manual/unload-manual/load-hold-auto). An external capacity control button is also included.

Display and Data Entry — operating parameters and system status are displayed by means of a four-line by 16-character alpha-numeric display. Four principal display modes are provided as follows:

1. Operating display
2. Data examine display
3. Setpoint/limit examine and change display
4. First-out annunciation

Operating Display — shows suction pressure, discharge pressure, oil pressure slide valve position, local or remote start, status (stop, run, anti-recycle, reset, etc.) and capacity control status (load-unload-hold-auto-external).

Data Examine Display — By means of a "change display", oil temperature, discharge temperature, oil pressure at compressor inlet, discharge pressure, suction pressure, motor current, oil separator temperature, oil pressure filter inlet, and slide valve position is displayed.

Setpoint/Limit Examine and Change Display — For data entry, a "step/enter" key calls up the operating parameters in sequence. The current value is displayed. The current value is changed by keying in the new value and depressing the enter key.

First-Out Annunciation — Upon a failure or safety trip, a message describing the failure is displayed as a status message on the operating display format and the alarm output is turned on. If multiple failures occur, they are displayed in the order of occurrence.

Seven transducers monitor pressure and temperature conditions and provide an electrical signal to the microprocessor control unit. No refrigerant is piped into the panel. All wiring is run in metallic tubing and/or liquid tight flexible metal conduit and all tubing for refrigerant and oil is stainless steel. The control voltage is 115 volts.

CODES

The shells are designed, constructed, and tested in accordance with Section VIII of the ASME code. The oil side of the oil cooler is designed for 400 psig and hydrostatically tested at 375 psig. The oil separator is designed for 250 psig working pressure for ammonia and 300 psig for R-22. The entire unit is designed, constructed, and assembled in accordance with ANSI/ASHRAE 15-78 safety code.

ACCESSORIES AND MODIFICATIONS

Electro-Mechanical Control Center

Control Center is factory wired and piped to safety controls, operating controls and indicators.

The control center consists of two separate compartments. The electrical section is Nema 1, non-ventilated and gasketed. The refrigerant and oil pressure devices section is also Nema 1, but it is vented and isolated from the electrical compartment.

Each section has its own access door. The electrical access door is equipped with a disconnect switch which automatically breaks the electrical circuit when the door is opened. These features are provided to conform to the most rigid electrical codes.

Mechanical Specifications (Continued)

The safety controls consist of low pressure cutout, high pressure cutout, low differential oil pressure cutout, low oil temperature cutout, high discharge temperature cutout, combination ammeter and solid state load limiter control.

The operating controls consist of master control relay, oil failure time delay relay, anti-recycle delay relay, and compressor control relay, load and unload solenoid capacity controls, time proportioning floating suction pressure controller, pressure transducer, operating control and capacity control selector switches.

The indicators consist of pilot lights for control power, oil heaters, load, unload, compressor on, start-up delay, anti-recycle delay, oil temperature, discharge temperature, motor overload, high-low discharge pressure, oil failure and reset on safety trip. Indicators also include hour meter, ammeter, discharge gas thermometer, oil thermometer, suction, discharge and oil pressure gauges, and partial load indicator.

The control center includes complete factory control wiring with terminal strips for external field wiring interlocks. Standard control voltage is 115 volts. All wiring is run in metallic tubing and/or liquid tight flexible metal conduit. The entire control center is functionally tested at the factory.

Stop Valves

Suction and discharge stop valves can be shipped separately for field mounting. Hand wheel type is furnished for ammonia and seal cap type on halocarbon packages.

Compressor Motor

All motors must be furnished in accordance with FES Engineering Data Specification No. 60.35 for screw compressors.

Starters

Compressor and oil pump motor starters must be furnished in accordance with FES Engineering Data Specification No. 60.31 for screw compressors.

Dual Compressor

FES can furnish an exclusive arrangement of two single stage or booster-high stage screw compressors on one oil separator shell. On booster high stage dual arrangement a liquid cooler and booster by-pass valving can be furnished as optional items.

Dual Oil Filters

A single filter shell with multiple filter elements is furnished as standard. Dual oil filters using two filter shells are available as an optional accessory item. Field operating experience has shown that a properly valved single filter unit requires less than 30 minutes to change elements and obviates the need for dual filters.

Optional Oil Coolers

When oil coolers are used, shell and tube oil coolers for use with recirculated water are standard. Remotely located air cooled, closed circuit glycol or refrigerant cooled oil coolers are available.

FES ECONOMISER

ECONOMISER System connections are avialable on single stage units providing side load capacity for duties such as liquid refrigerant pre-cooling, water cooling and other types of loads.

Packaging

FES Screw Compressor Units can be packaged with other refrigerant system components making a completely contained refrigeration system.

Outdoor Use

Modifications are available which permit use of the screw compressor unit outdoors.

NEMA Alternates (Electromechanical Control Panel)

NEMA 12, NEMA 4, and N.E.C. Class I Group D Division II, and NEMA 7 electrical design units are available.

Multiple Unit Control

Automatic sequencing of multiple units is available.

Annunciator

Annunciator circuits for safety controls are available.

TABLE 1 — PHYSICAL DATA

Model	Shipping Weight**		Connections			Oil Charge Gals.		HP of Standard Oil Pump		*Compr. Inertia WR² lb-ft²	*Min. Cap. Torque Ft.-Lbs.	Compr. Displ. CFM
	Less Motor	With Motor Approx.	Suction	Discharge	"SOC" Valve Conns.	Units With Water Cooled Oil Coolers	"SOC" Cooled Units	High Stage	Booster			
65	4000	4800	4"	2"	½"	25	20	2	—	5.1	40.0	208
95	4100	5000	4"	3"	¾"	45	40	3	3	6.9	57.9	278
100	4100	5000	4"	3"	¾"	45	40	3	3	7.2	60.9	292
135	4300	5500	5"	3"	¾"	45	40	3	3	9.4	77.7	398
140	4300	5500	5"	3"	¾"	45	40	3	3	10.4	85.7	439
175	5000	6500	5"	3"	¾"	75	65	5	3	19.6	124	544
180	5000	6500	5"	3"	¾"	75	65	5	3	20.6	131	571
255	5200	6900	6"	4"	¾"	75	65	5	3	27.6	168	776
270	5400	7100	6"	4"	¾"	75	65	5	3	30.3	185	853
305	5400	8100	6"	4"	¾"	75	65	5	3	33.1	201	932
350	9400	12100	6"	4"	1"	142	130	7½	5	65.5	271	1061
385	9500	12200	6"	4"	1"	142	130	7½	5	68.5	283	1110
420	9700	13200	6"	4"	1"	148	130	7½	5	78.0	322	1264
500	10400	15000	8"	5"	1"	148	130	7½	5	87.9	341	1516
550	10800	15800	8"	5"	1"	148	130	7½	5	96.7	375	1668
575	11000	16000	8"	5"	1"	148	130	7½	5	96.8	398	1670
775	13500	18600	8"	5"	1¼"	170	150	10	7½	202	611	2236
1160	14000	20400	10"	6"	1¼"	196	176	10	7½	296	849	3337

NOTE: * Refer to Selection Guide, Page 8.
** Shipping weights are estimated and include stop valves, oil, spare set of filters, and skid.

TABLE 2 — OPERATING LIMITATIONS

Maximum High Pressure Cutout Setting, psig, Ammonia 225, . . . R-22 275
Maximum Design Discharge Pressure, psig, Ammonia 250, ... R-22 300
Maximum Operating Differential, psi 275
Maximum Suction Pressure, psig 100
Maximum Discharge Temperature °F 212
Maximum Oil Temperature °F 145
Maximum Design Saturated Discharge Temperature °F.
R-717 (Ammonia) 126
R-22 130
Minimum Ambient Temperature °F 40
Maximum Superheat °F.—Suction gas superheats above 40°F. — refer to York for design check.

TABLE 3 — MOTOR SIZES

Model	"D" Dimension		Minimum HP Motor Required[3]	Model	"D" Dimension		Minimum HP Motor Required[3]
	Max.[1]	Min.[2]			Max.[1]	Min.[2]	
65	11.0	8.0		305	12.5	8.0	75
95	11.0	8.0	25	350	14.5	9.0	100
100	11.0	8.0	25	385	14.5	9.0	100
135	11.0	8.0	25	420	14.5	9.0	100
140	11.0	8.0	30	500	14.5	9.0	125
175	12.5	8.0	40	550	14.5	9.0	125
180	12.5	8.0	40	575	14.5	9.0	125
255	12.5	8.0	50	775	17.0	12.5	200
270	12.5	8.0	60	1160	17.0	12.5	300

When applying motors for use with direct driven FES standard compressors the critical dimension is the motor "D" dimension, the distance in inches from the shaft centerline to the bottom of the feet.

[1] These maximum and minimum "D" dimensions are listed above.

Motors 450 HP and smaller are reviewed in terms of NEMA TS and US frames.

Base design and "D" dimensions above relating to motors 500 HP and larger are established by review of largest physical dimensions of a cross section of motor manufacturers.

[2] When use of a motor which is special is anticipated, particularly with respect to exceeding the "D" dimension for the model FES screw compressor selected, a non-standard package design is likely. Contact should be made with FES in York to determine the effect on cost and delivery.

[3] Minimum HP motors required for across-the-line type start, to accelerate to full speed. A larger motor may be required for other reasons.

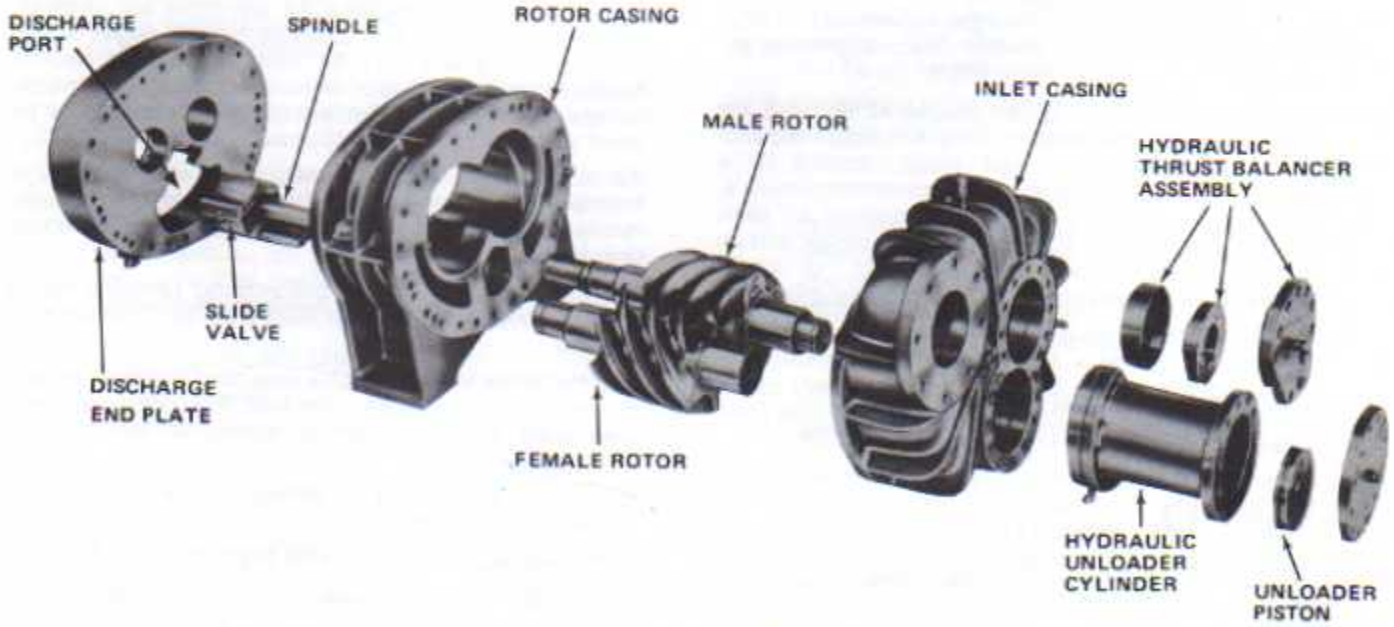


FIGURE 1—Compressor, Exploded View

SELECTION GUIDE

Guide to Selection — Rating Tables

Rating tables on FES Rotary Screw Packages, at 3550 R.P.M. are shown on Pages 13 through 50.

These ratings may be interpolated and extrapolated but must comply with design limitations shown on page 6.

All ratings must be adjusted in accordance with Selection Guide factors described below:

1. Ammonia Single Stage Rating Tables (Pages 13 thru 22) are based on use of "SOC" oil cooling with saturated suction gas temperatures and 10°F. liquid subcooling. Decrease compressor capacity one percent for each 5°F. increase in liquid temperature above this level. For every 5°F. suction gas superheat on ammonia compressors, the capacity should be reduced one percent.
2. Ammonia Booster Rating Tables (Pages 23 thru 31) are based on "SOC" oil cooling with saturated suction gas temperature and liquid cooled to a temperature corresponding to intermediate pressure. Decrease compressor capacity one percent for each 5°F. increase in suction superheat in piping and an additional one percent for each five degrees of liquid temperature above saturated discharge temperature.
3. Ammonia Single Stage and Booster Ratings (Pages 13 thru 31) must be corrected when a water cooled oil cooler is used instead of "SOC" oil cooling; decrease single stage capacity ratings three percent and brake horsepower two percent; decrease booster capacity ratings one percent and brake horsepower two percent.
4. R-22 Single Stage Rating Tables (Pages 32 thru 41) are based on water cooled oil cooling with saturated suction gas and 10°F. liquid subcooling. If liquid is at temperature corresponding to condensing pressure rather than sub-cooled 10°F., decrease T.R. capacities 5 percent. Suction gas superheat has little effect on compressor capacity unless superheat exceeds 40°F.
5. R-22 Booster Rating Tables (Pages 42 thru 50) are based on water cooled oil cooling with saturated suction gas temperature and liquid cooled to a temperature corresponding to intermediate pressure. Decrease compressor capacity 2.5 percent for each 10°F. increase in suction superheat in piping and an additional 1.6 percent for each 5°F. of liquid temperature above saturated discharge temperature.
6. Horsepower ratings are based on the most efficient internal volume ratio. Therefore, it is necessary that operating conditions be included with each screw compressor order. FES has followed this same practice on rotary booster compressors since 1950.
7. Referring to Table 6, Page 53, oil cooler heat rejection for ammonia booster units, and Table 8, Page 55, oil cooler heat rejection for R-22 booster units, you will note that zero or negative heat rejections are indicated for some operating conditions. However all such units will be furnished with a size "A" oil cooler. The reason is that under part load conditions, positive heat rejections can develope which would require an oil cooler. Accordingly it will be necessary to include the price of the oil cooler for all units.

Rating Tables show horsepower required by the motor when the screw compressor is operating fully loaded at any selected condition. A typical part load performance curve is given in Figure 15 for a single stage compressor. Actual part load performance varies appreciably with operating conditions and internal clearances in the compressor.

Motor and Starter Selection

Motors and starters should be selected in accordance with FES motor specifications No. 60.35 and starter specifications No. 60.31.

Compressor inertia and starting torque data are given in the table of Physical Data found on Page 6. The starting torque given is for a typical compressor running at 3550 R.P.M. with slide valve at minimum capacity position and operating with inlet pressure 0 psig and outlet pressure of 185 psig.

Typical torque — speed characteristics are given in Figure 13 for starting under single stage conditions cited above, and for typical booster conditions.

Selection Data Required —

1. Tons Refrigeration (T.R.).
2. Saturated suction temperature, and suction gas superheat.
3. Saturated discharge temperature.
4. Method of oil cooling to be used.
5. Water temperature to oil cooler, if water cooled oil cooler is used.
6. Electrical current characteristics.
7. Type of starting to be used.

High Stage Load Multiplier

High stage load multipliers for ammonia are given on pages 57, 58, and 59, and those for R-22 on pages 60 and 61. The multipliers may be used to size the second stage screw compressor after a selection of a screw booster compressor. These multipliers should not be used with any other type of booster compressor.

To obtain high stage capacity requirements, always multiply the booster capacity found in the booster rating tables by the appropriate multiplier and correction factor.

Multipliers are based on condensing temperature of 95°F. for Ammonia and for R-22 with 10°F. liquid subcooling.

The multiplier with precooler side load is based on use of a shell and coil type cooler with high pressure liquid pre-cooled to 10°F. above saturated intermediate temperature.

High stage multipliers for ammonia are given for the following applications:

1. No precooler side load. Use Figure 4, Page 57.
2. With precooler side load. Use Figure 5, Page 58.
3. "SOC" cooled booster on separate package discharging into an intercooler with both desuperheating and subcooling functions. Use Figure 6, Page 59.

Correction factors for ammonia are given for the following applications:

"SOC" cooled booster on separate package discharging directly into second stage. Use Table 9 in conjunction with Figure 4 and Table 10 in conjunction with Figure 5.

Water cooled booster on separate package discharge into an intercooler. Use Table 11 in conjunction with Figure 6.

High stage multipliers for R-22 are given for the following applications:

1. No precooler side load, water cooled oil cooler, booster compressor mounted on same package as high stage compressor. Use Figure 7, Page 60.
2. No precooler side load, water cooled oil cooler, booster compressor mounted on different package than high stage compressor. Use Figure 8, Page 60.
3. With precooler side load, water cooled oil cooler, booster compressor mounted on same package as high stage compressor. Use Figure 9, Page 61.
4. With precooler side load, water cooled oil cooler, booster compressor mounted on different package than high stage compressor and discharging into intercooler or high stage. Use Figure 10, Page 61.

ECONOMISER Rating Curves

Capacity and brake horsepower rating factors are given on pages 62 thru 63 for ammonia and R-22 applications utilizing the ECONOMISER feature. Compressors with this feature have an extra side suction port. This allows introduction of additional gas into the compressor at a pressure between suction and discharge with little or no reduction in the amount of gas taken into the main suction port.

Figures 11 and 12 show the applicable multipliers to be used when using the ECONOMISER arrangement to subcool the liquid refrigerant to the evaporator.

The multipliers are based on use of a shell and coil type subcooler with high pressure liquid cooled to within 10°F. saturated side port temperature.

ECONOMISER ratings are given for a fully loaded compressor. Operation at part load reduces the side port effectiveness. At 75% compressor capacity, the side suction port is open to the main suction port. Therefore, maximum benefit of the ECONOMISER feature is obtained when the compressor operates fully loaded.

SINGLE STAGE SELECTION

A. "SOC" Oil Cooling

1. Selection Data
   a. Refrigerant: ammonia
   b. Capacity: 420 T.R.
   c. Saturated suction temp.: 10°F.
   d. Suction superheat: 10°F.
   e. Liquid subcooling: None
   f. Condensing temperature: 95°F.
   g. Method of oil cooling: "SOC"
2. Select compressor. — Model 500 rating at plus 10°F. and 95°F. has capacity 448.9 T.R. and BHP 592.8. Correct capacity for superheat and subcooling according to **Selection Guide No. 1,** Page 8.
   448.9 x .98 x .98 = 431 T.R.
3. Select motor. — Model 500 at design conditions has BHP 592.8. Use a 600 HP motor. If design conditions can be exceeded under normal operation, recommend 1.15 service factor motor.
4. Determine total heat to be rejected (T.H.R.)
   430 x 12,000 = 5,180,000 BTU/Hr.
   600 HP x 2545 = 1,530,000 BTU/Hr.
   6,710,000 BTU/Hr.
5. "SOC" liquid requirements. Refer to FES Engineering Data Sheet Spec. SC-6.

B. Water Oil Cooling

1. Selection Data
   a. Refrigerant: ammonia
   b. Capacity: 420 T.R.
   c. Saturated suction temp.: 10°F.
   d. Suction superheat: 10°F.
   e. Liquid subcooling: None
   f. Condensing temperature: 95°F.
   g. Method of oil cooling: water cooled oil cooler
   h. Cooling water temp. to oil cooler: 85°F.
2. Select compressor. — Model 500 rating at plus 10°F. and 95°F. has capacity 448.9 T.R. and BHP 592.8. Correct capacity for superheat and subcooling according to **Selection Guide No. 1,** Page 8.
   448.9 x .98 x .98 = 431 T.R.

   Correct capacity and BHP according to Selection Guide No. 3, Page 8 for water cooling of oil.

   Capacity 431 x .97 = 419 T.R.
   Horsepower 592.8 x .98 = 580 BHP
3. Select motor. — Model 500 at design conditions has BHP 580. Use a 600 HP motor with 1.0 service factor or 1.15 service factor if design conditions can be exceeded under normal operation.
4. Determine total heat to be rejected (T.H.R.)
   419 T.R. x 12,000 = 5,030,000 BTU/Hr.
   600 HP x 2545 = 1,530,000 BTU/Hr.
   6,560,000 BTU/Hr.
5. Determine heat rejection to oil cooler (H.R.O.C.) by referring to Table 5, Page 52, for Model 500, for operating conditions of 10°F. suction and 95°F. condensing temperature.
   H.R.O.C. 10,460 BTU/Min.
   or 627,600 BTU/Hr.
6. Determine water required. Assume a 10°F. rise in water temperature across cooler.

$$G.P.M. = \frac{627{,}600}{10 \times 60 \times 8.34} = 126 \text{ G.P.M.}$$

7. Standard oil cooler selection. Referring to Table 4, Page 51, a "C" cooler is standard and 126 G.P.M. is required. The G.P.M. is within the minimum and maximum limits given for the "C" cooler.
8. Pressure drop in water circuit. Figure 3, Page 56 indicates a cooler pressure drop of 3.8 psi. Adding 5 psi for the water regulating valve pressure drop gives a total for the two of 8.8 psi.

BOOSTER SELECTION

A. "SOC" Oil Cooling

1. Selection data
   a. Refrigerant: ammonia
   b. Capacity: 140 T.R.
   c. Saturated suction temp.: —40 °F.
   d. Suction superheat: None
   e. Saturated intermediate temp.: + 15 °F.
   f. Liquid temp. to evap.: + 25 °F.
   g. Condensing temp.: 95 °F.
   h. Method of oil cooling: "SOC"
2. Select compressor. — Model 500B has capacity of 149.8 T.R. and BHP 163 at minus 40 °F. and + 15 °F. Correct capacity for subcooling only according to **Selection Guide No. 2,** page 8.
   149.8 x .98 = 146.5 T.R.
3. Select motor. — Use 200 HP motor with 1.0 service factor.
4. "SOC" liquid requirements. Refer to FES Engineering Data Sheet Spec. SC-6.

B. Water Oil Cooling

1. Selection Data
   a. Refrigerant: ammonia
   b. Capacity: 140 T.R.
   c. Saturated suction temp.: —40 °F.
   d. Suction superheat: None
   e. Saturated intermediate temp.: + 15 °F.
   f. Liquid temp. to evap.: + 25 °F.
   g. Condensing temp.: 95 °F.
   h. Method of oil cooling: water cooled oil cooler
   i. Cooling water temp. to oil cooler: 85 °F.
2. Select compressor. — Model 500B has capacity of 149.8 T.R. and BHP 163 at minus 40 °F. and + 15 °F. Correct capacity for sub-cooling only according to **Selection Guide No. 2,** Page 8.
   149.8 x .98 = 146.5 T.R.
   Correct capacity and BHP according to **Selection Guide No. 3,** Page 8 for water cooling of oil.
   Capacity 146.5 x .99 = 145.0 T.R.
   Horsepower 163 x .98 = 160 BHP
3. Select motor. — Use 200 HP motor with 1.0 service factor.
4. Determine total heat to be rejected (T.H.R.)

145 T.R. x 12,000	= 1,740,000 BTU/Hr.
200 HP x 2545	= 509,000 BTU/Hr.
	2,249,000 BTU/Hr.

5. Determine heat rejected to oil cooler (H.R.O.C.) at —40 °F. suction and + 15 °F. intermediate temperature by referring to Table 6, Page 53, for Model 500.
   H.R.O.C. 1,915 BTU/Min.
   or 114,900 BTU/Hr.
6. Determine water required. Assume a 10 °F. rise in water temperature across cooler.

$$\text{G.P.M.} = \frac{114{,}900}{10 \times 60 \times 8.34} = 23 \text{ G.P.M.}$$

7. Standard oil cooler selection. Referring to Table 4, Page 51, an "A" cooler is standard. The G.P.M. is within the minimum and maximum limits given for the "A" cooler.
8. Pressure drop in water circuit. Figure 3, Page 56, indicates a cooler pressure drop of 2.3 psi. Adding 5 psi for the water regulating valve pressure drop gives a total for the two of 7.3 psi.

TWO STAGE SELECTION — AMMONIA

A. High stage and Booster compressors mounted on same package. Exclusive FES two stage arrangement, "SOC" Oil Cooling

1. Selection data
   a. Refrigerant: ammonia
   b. Capacity: 140 T.R.
   c. Saturated suction temp.: —40 °F.
   d. Suction superheat: None
   e. Saturated intermediate temp.: + 15 °F.
   f. Liquid temp. to evap.: + 25 °F.
   g. Condensing temp.: 95 °F.
   h. Plant side load at intermediate suction pressure: none
   i. Means of cooling liquid refrigerant: accomplished independently.
   j. Liquid subcooling in condenser: 10 °F.
   k. Method of oil cooling: "SOC" applied to high stage compressor only.
2. A Model 500B booster was selected under Booster Selection example "A" for these design conditions. The rated or published capacity, 149.8 T.R. is used to select the high stage compressor. Reduce published capacity one percent and brake horsepower two percent. ("SOC" oil cooling not directly applied to booster compressor.) The corrected published capacity for "SOC" two stage arrangement becomes:
   149.8 T.R. x .99 = 148.3 T.R., and correcting for subcooling only according to **Selection Guide No. 2,** Page 8. 148.3 x .98 = 145 T.R.
   Rated BHP = 163 Corrected BHP 163 x .98 = 160
3. Determine higher stage load multiplier. The multiplier is selected from Figure 4, Page 57, since no precooling is handled by this package. For —40 °F. suction and + 15 °F. saturated intermediate temp. the value selected is 1.147. (If precooling is handled by the high stage compressor of the new system, the higher stage multiplier would be selected from Figure 5 instead of Figure 4.)
4. High Stage Selection Capacity
   a. Load from booster 149.8 booster T.R. x 1.147 = 172 H.S.T.R. (Note: always use rating table booster T.R.)
   b. Load from plant. None
   c. Selection capacity is the sum of a and b above or 172 T.R.
5. Select high stage compressor. Model 175 has a capacity of 176.2 T.R. and 219.7 BHP at + 15 °F. suction and 95 °F. condensing temperature.
6. Select motor. — Use 200 HP motor for booster and 250 HP motor for high stage each with 1.0 service factor.

7. Determine total heat to be rejected. T.H.R.

Plant Side Load	=	NONE
145 x 12,000	=	1,740,000 BTU/Hr.
200 HP x 2545	=	509,000 BTU/Hr.
250 HP x 2545	=	636,000 BTU/Hr.
		2,885,000 BTU/Hr.

8. "SOC" liquid requirements. Refer to FES Engineering Data Sheet Spec. SC-6.

B. High Stage and Booster Compressors mounted on same package. Exclusive FES two stage arrangement. Water cooled oil cooler.

1. Selection Data

   Same as Example A except oil is cooled with water cooled oil cooler with 85°F. water to the cooler.

2. Select booster compressor and motor. Same as Example A.

3. Determine higher stage load multiplier. Same as Example A.

4. High stage selection capacity.

   a. Load from booster.

      149.8 booster T.R. x 1.147 © 172 H.S.T.R.

      (Note: always use rating table booster T.R.)

   b. Load from plant. None

5. Select high stage compressor. Model 175 has a capacity of 176.2 T.R. and a BHP of 219.7 at +15°F. suction and 95°F. condensing temperature. Correct values per **Selection Guide No. 3,** Page 8. (176.2 x .97 = 171 T.R., 219.7 x .98 = 215.3 B.H.P.)

6. Select motor. Same as Example A.

7. Refer to factory for selection of water cooled oil cooler.

C. Booster and High Stage Compressors mounted on separate packages. Booster discharges into intercooler with both desuperheating and precooling functions. Both compressors "SOC" cooled.

1. Selection Data

   a. through g. same as **Booster Selection,** Example A, first column, Page 10.
   b. Plant side load at intermediate suction pressure: none
   c. Means of cooling liquid refrigerant: accomplished in intercooler.
   d. Liquid subcooling in condenser: 10°F.
   e. Method of oil cooling: "SOC"

2. Select booster compressor and motor. Same as Booster Selection Example A.

3. Determine higher stage load multiplier. The multiplier is selected from Figure 6 found on Page 59. For —40°F. suction and +15°F. saturated intermediate temp., the multiplier is 1.245. (If the booster is water cooled, multiply the above value by 0.945 from Table 11 found on Page 59.)

4. High Stage Selection Capacity

   a. Load from booster

      149.8 Booster T.R. x 1.245 = 186.5 T.R.

   b. Load from plant: none

   c. Selection capacity is the sum of a and b above or 186.5 T.R.

5. Select high stage compressor. Model 255 has a capacity of 251.9 T.R. and a BHP of 315.6 at +15°F. suction and 95°F. condensing temperature. (Model 180 has a capacity of 181.6 T.R. and 232 BHP. If this is a new addition to an existing system which has some excess capacity, the smaller compressor could probably be selected. Also, by a slight shift in intermediate pressure the Model 180 would suffice.)

6. Select motor. Use a 350 HP motor with 1.0 service factor for Model 255 or 250 HP with 1.15 service factor for Model 180 if design conditions can be exceeded under normal operation.

7. Determine total heat to be rejected. T.H.R.

Plant Side Load	=	NONE
146.5 T.R.x 12,000	=	1,755,000 BTU/Hr.
200 BHP x 2545	=	509,000 BTU/Hr.
350 BHP x 2545	=	890,750 BTU/Hr.
T.H.R.		3,154,750 BTU/Hr.

   Note: If excess capacity of high stage compressor is utilized to carry load from plant, add load beyond 149.8 T.R. to the above T.H.R.

8. "SOC" liquid requirements. Refer to FES Engineering Data Sheet Spec. SC-6.

TWO STAGE SELECTION — R-22

The method of selection is similar to that for various arrangements above, using ammonia. Refer to corresponding sources of information for R-22.

SINGLE STAGE WITH ECONOMISER SELECTION

A. Side Suction Port With Liquid Subcooler — Ammonia

1. Selection Data

   a. Refrigerant: ammonia
   b. Capacity: 140 T.R.
   c. Saturated suction temp.: —40°F.
   d. Suction superheat: None
   e. Condensing temp.: 95°F.
   f. Liquid subcooling in condenser: 10°F.
   g. Method of precooling liquid: ECONOMISER side suction connection.
   h. Method of oil cooling: "SOC"

2. Select compressor. — Model 550 rating at minus 40°F. and 95°F. is 117.5 T.R. and 461.1 BHP. Refer to ECONOMISER capacity and horsepower multipliers in Figure 11, Page 62 and adjust rating accordingly.

   Capacity 117.5 x 1.25 = 147 T.R.

   Horsepower 461.1 x 1.046 = 482 BHP

3. Select motor. — Model 550 at design conditions requires 482 BHP. Use 500 HP motor with 1.15 service factor if design conditions can be exceeded under normal operation.

4. "SOC" liquid requirement. Refer to FES Engineering Data Sheet Spec. SC-6.

B. Side Suction Port With Liquid Subcooler — R-22

1. Selection Data — Same as for example above except.
   a. Refrigerant: R-22
   h. Method of oil cooling: water
   i. Cooling water temp. to oil cooler: 85 °F.
2. Select compressor. — Model 500 rating at minus 40 °F. and 95 °F. is 125 T.R. and 455 B.H.P. Refer to ECONOMISER capacity and horsepower multipliers in Figure 12, Page 63 and adjust rating accordingly.
   Capacity 125 x 1.335 = 167 T.R.
   Horsepower 455 x 1.11 = 505 B.H.P.
3. Determine total heat to be rejected (T.H.R.)
   167 x 12,000 = 2,004,000 BTU/Hr.
   505 x 2545 = 1,285,225 BTU/Hr.
   3,289,225 BTU/Hr.
4. Determine heat rejected to the oil cooler. Refer to Table 7, Page 54 for H.R.O.C. of
   8044 BTU/Min. or
   482,640 BTU/Hr.
5. Determine water required. Assume a 10 °F. rise in water temp. across cooler.
   $$\text{G.P.M.} = \frac{482{,}640}{10 \times 60 \times 8.34} = 97 \text{ G.P.M.}$$
6. Standard oil cooler selection. Referring to oil cooler data, Table 4, Page 51, note that cooler "B" has maximum G.P.M. limitation of 102 G.P.M. Pressure drop of cooler "B" and water regulating valve is 6.3 plus 5 = 11.3 psi.

PRECOOLER SELECTION

A. Two Stage Package

1. Selection Data
   a. Refrigerant: ammonia
   b. Two stage package selected: Model 550B/175
   c. Saturated suction temp.: —40 °F
2. Select precooler to be mounted on two stage package, piped and insulated.
   a. Refer to Table 12, Page 65.
   b. Use the booster portion of the two stage package for entering table.
   c. For 550B booster compressor and —40 °F. saturated suction temperature, the indicated precooler is a Model D.

B. Single Stage Compressor With ECONOMISER

1. Selection
   a. Refrigerant: ammonia
   b. Compressor selected: Model 270
   c. Saturated suction temp.: —30 °F.
2. Select precooler to be mounted on the compressor package, piped and insulated.
   a. Refer to Table 13, Page 65.
   b. Using Model 270 compressor and —30 °F. saturated suction temperature, the indicated precooler selection is a Model B.
3. If the refrigerant is R-22 instead of ammonia, refer to Table 15, Page 66.

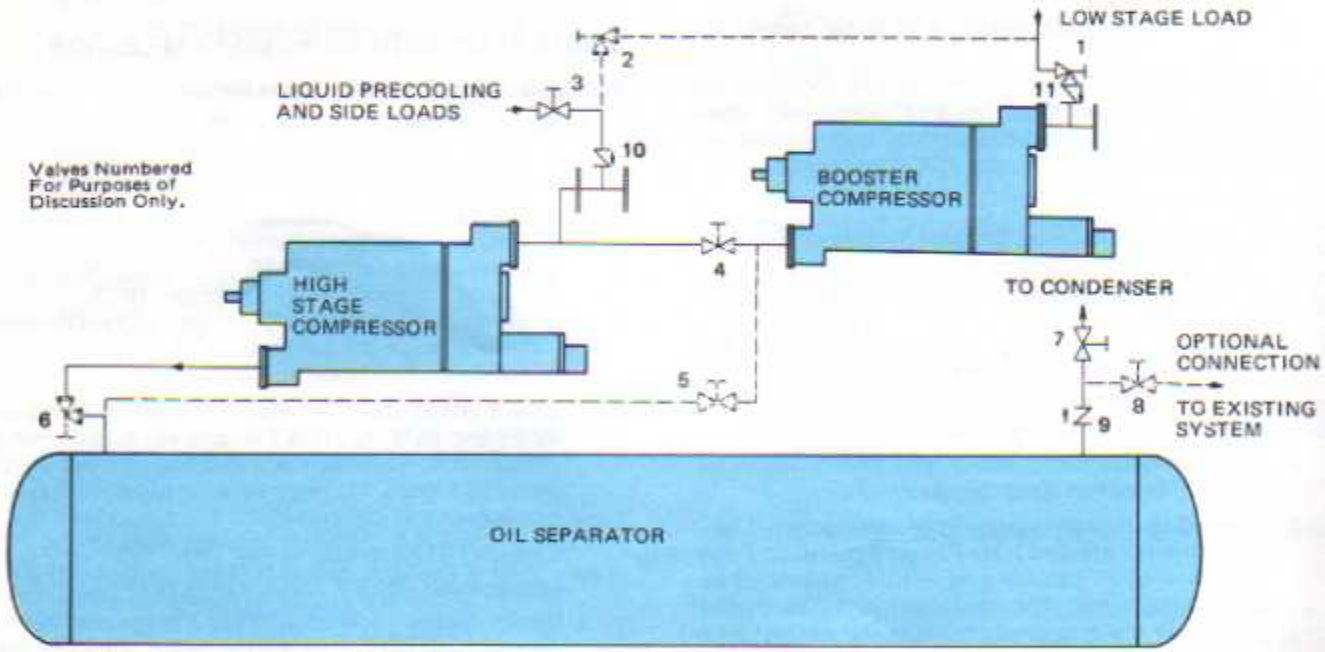


FIGURE 2 TWO STAGE FES ROTARY SCREW COMPRESSOR PACKAGE

OPTIONAL VALVING ARRANGEMENT, SHOWN DOTTED, PERMITS SINGLE STAGE OPERATION, EITHER COMPRESSOR.

Model 65

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	15.4	20.9	27.6	36.3	46.7	59.8	75.6	94.1	115.8
125.8	B.H.P.	50.7	53.3	55.4	58.1	61.1	62.8	63.2	63.7	64.2
85	T.R.	14.2	19.5	26.1	34.3	44.5	56.8	72.0	90.2	111.4
151.7	B.H.P.	56.2	59.2	63.2	66.8	70.1	73.7	74.9	75.4	76.0
95	T.R.	12.7	17.9	24.3	32.3	42.0	54.1	68.2	86.0	106.7
181.1	B.H.P.	61.7	65.2	69.7	75.0	79.7	83.6	87.4	88.0	88.6
105	T.R.	11.0	16.1	22.4	30.1	39.5	51.0	65.0	81.3	101.6
214.2	B.H.P.	67.3	71.1	76.2	82.1	88.7	94.2	98.9	101.4	102.1

*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction, and with liquid subcooling of 10° F.

Ratings include use of FES "SOC" oil cooling systems.

AMMONIA, SINGLE STAGE, 3550 R.P.M.

R-717
AMMONIA
SINGLE STAGE
MODELS
95
AND
100

Model 95

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	20.9	27.1	37.6	49.0	64.7	83.5	106.5	129.5	156.6
125.8	B.H.P.	61.5	66.6	72.2	76.0	78.8	81.8	81.8	81.8	80.7
85	T.R.	18.8	26.1	36.0	47.5	61.6	80.4	102.3	125.3	151.4
151.7	B.H.P.	68.9	72.9	79.5	86.3	90.6	96.6	97.6	98.1	97.6
95	T.R.	16.7	25.0	34.5	45.9	58.5	77.3	98.1	121.1	146.2
181.1	B.H.P.	76.3	79.1	86.7	94.5	102.4	108.3	112.4	114.5	114.5
105	T.R.	15.7	23.0	31.8	42.8	55.3	74.1	94.0	116.9	140.9
214.2	B.H.P.	83.7	88.0	94.9	102.7	111.6	121.6	126.7	133.9	133.9

Model 100

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	21.9	29.7	39.6	52.0	67.2	86.2	109.1	136.1	167.6
125.8	B.H.P.	67.0	71.7	76.4	80.9	85.9	89.0	89.0	89.0	88.9
85	T.R.	20.5	28.2	37.8	49.6	64.4	82.2	104.4	130.8	161.6
151.7	B.H.P.	73.6	78.6	85.2	91.7	97.1	103.0	105.3	106.1	106.9
95	T.R.	19.0	26.6	35.9	47.3	61.5	78.8	99.5	125.2	155.3
181.1	B.H.P.	80.7	85.9	92.9	101.2	109.2	115.4	122.4	124.0	125.5
105	T.R.	17.4	24.7	33.8	45.0	58.6	75.2	95.4	119.2	148.6
214.2	B.H.P.	88.2	93.6	100.9	109.7	119.7	128.8	136.2	142.6	145.0

*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction, and with liquid subcooling of 10°F.

Ratings include use of FES "SOC" oil cooling systems.

AMMONIA, SINGLE STAGE, 3550 R.P.M.

R-717
AMMONIA
SINGLE STAGE
MODELS
135
AND
140

Model 135

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75 125.8	T.R. B.H.P.	29.2 89.0	39.7 95.8	54.3 103.2	69.9 106.8	89.8 112.6	119.0 116.5	150.3 116.5	184.8 116.5	223.4 115.5
85 151.7	T.R. B.H.P.	27.1 98.6	37.6 105.1	51.7 113.5	67.3 122.7	86.7 129.5	114.8 136.9	145.1 139.0	179.0 140.0	216.1 139.5
95 181.1	T.R. B.H.P.	25.0 108.1	35.5 114.5	49.0 123.8	64.7 135.6	83.5 146.4	110.7 154.3	139.9 161.5	173.3 163.5	208.8 163.5
105 214.2	T.R. B.H.P.	23.0 118.7	33.4 126.0	45.4 135.2	60.6 146.9	79.3 160.3	105.4 173.2	134.7 182.4	167.0 192.1	201.5 191.1

Model 140

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75 125.8	T.R. B.H.P.	33.4 100.4	45.4 107.5	60.5 114.5	79.5 121.2	102.5 128.8	131.5 133.4	166.4 133.4	207.5 133.4	255.5 133.3
85 151.7	T.R. B.H.P.	31.4 110.4	43.1 117.9	57.7 127.8	75.8 137.5	98.4 145.5	125.5 154.4	159.3 157.9	199.5 159.0	246.4 160.2
95 181.1	T.R. B.H.P.	29.2 121.0	40.6 128.8	54.9 139.2	72.4 151.7	93.9 163.6	120.4 173.0	151.9 183.6	191.0 185.8	236.9 188.2
105 214.2	T.R. B.H.P.	26.7 132.2	37.9 140.3	51.8 151.3	68.8 164.4	89.6 179.5	114.9 193.1	145.7 204.1	181.9 213.7	226.7 217.3

*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction, and with liquid subcooling of 10°F.

Ratings include use of FES "SOC" oil cooling systems.

R-717
AMMONIA
SINGLE STAGE
MODELS
175
AND
180

Model 175

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	41.8	57.4	78.3	101.8	130.5	167.0	214.0	268.8	339.3
125.8	B.H.P.	121.9	130.1	139.3	148.9	158.7	163.5	166.1	168.6	168.6
85	T.R.	39.2	54.8	74.4	97.9	125.3	161.8	204.9	258.4	323.6
151.7	B.H.P.	135.2	143.1	153.5	166.9	180.5	191.6	195.5	196.7	196.7
95	T.R.	36.5	52.2	70.5	94.0	120.0	156.6	195.8	248.0	308.0
181.1	B.H.P.	148.4	156.2	167.7	184.9	202.2	214.6	224.8	224.8	224.8
105	T.R.	33.9	48.3	66.6	88.7	114.8	148.8	187.9	236.2	293.6
214.2	B.H.P.	165.6	171.8	181.9	199.0	218.9	237.6	252.9	263.2	263.2

Model 180

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	44.7	60.7	80.7	106.1	136.7	175.3	221.7	276.3	340.1
125.8	B.H.P.	130.7	140.0	149.1	157.8	167.7	173.7	173.7	173.6	173.6
85	T.R.	42.0	57.6	77.1	101.2	131.2	167.3	212.3	265.8	328.2
151.7	B.H.P.	143.7	153.4	166.4	179.0	189.5	201.0	205.6	207.1	208.6
95	T.R.	39.1	54.3	73.3	96.6	125.3	160.6	202.5	254.6	315.5
181.1	B.H.P.	157.5	167.7	181.3	197.5	213.1	225.3	239.0	241.9	245.0
105	T.R.	35.8	50.7	69.2	92.0	119.6	153.4	194.3	242.6	302.1
214.2	B.H.P.	172.1	182.7	197.0	214.1	233.7	251.4	265.8	278.2	282.9

*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction, and with liquid subcooling of 10°F.

Ratings include use of FES""SOC" oil cooling systems.

AMMONIA, SINGLE STAGE, 3550 R.P.M.

R- 717
AMMONIA
SINGLE STAGE
MODELS
255
AND
270

Model 255

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	60.0	83.5	109.6	144.9	185.3	237.5	305.4	386.3	485.5
125.8	B.H.P.	174.9	184.8	198.7	215.7	227.8	237.6	237.6	240.2	240.2
85	T.R.	56.1	78.3	105.7	139.0	179.4	229.7	293.6	369.3	462.0
151.7	B.H.P.	193.5	205.6	202.6	241.3	258.6	274.7	281.1	282.3	281.1
95	T.R.	52.2	73.0	101.8	133.1	173.6	221.9	281.9	352.4	438.5
181.1	B.H.P.	212.0	226.4	242.5	264.5	289.3	306.6	324.5	324.5	321.9
105	T.R.	48.3	69.2	95.3	126.6	165.1	210.1	266.2	334.1	418.9
214.2	B.H.P.	235.9	248.5	263.2	285.0	312.3	339.8	362.8	379.4	378.1

Model 270

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	68.6	92.9	123.2	161.4	207.8	266.1	336.2	418.7	515.1
125.8	B.H.P.	195.4	209.3	222.9	235.9	250.7	259.6	259.6	259.6	259.5
85	T.R.	64.7	88.5	118.0	154.4	199.8	254.3	322.3	403.0	497.3
151.7	B.H.P.	214.9	229.4	248.7	267.6	283.2	300.5	307.4	309.5	311.8
95	T.R.	60.4	83.6	112.4	147.8	191.1	244.3	307.7	386.3	478.4
181.1	B.H.P.	235.5	250.7	271.0	295.3	318.5	336.8	357.3	361.6	366.3
105	T.R.	55.5	78.2	106.3	140.9	182.9	233.7	295.5	368.5	458.5
214.2	B.H.P.	257.3	273.1	294.4	320.0	349.3	375.7	397.3	415.9	422.9

*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction, and with liquid subcooling of 10°F.

Ratings include use of FES "SOC" oil cooling systems.

R-717
AMMONIA
SINGLE STAGE
MODEL
305

Model 305

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	73.1	99.2	133.1	172.3	221.9	284.5	362.8	464.6	579.4
125.8	B.H.P.	210.9	218.6	237.4	251.6	271.4	281.1	283.6	286.2	286.2
85	T.R.	67.9	94.0	127.2	165.7	214.7	276.0	351.0	445.7	552.7
151.7	B.H.P.	232.7	244.6	264.5	291.4	309.8	332.2	336.0	337.3	337.3
95	T.R.	62.6	88.7	121.4	159.2	207.5	267.5	339.3	426.7	525.9
181.1	B.H.P.	254.4	270.7	291.5	318.4	348.2	370.5	388.4	388.4	388.4
105	T.R.	57.4	82.2	114.2	152.7	197.7	255.1	323.6	405.9	501.8
214.2	B.H.P.	279.6	296.7	318.6	346.6	382.7	407.5	435.6	453.5	454.8

*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction, and with liquid subcooling of 10°F.

Ratings include use of FES "SOC" oil cooling systems.

AMMONIA, SINGLE STAGE, 3550 R.P.M.

R-717
AMMONIA
SINGLE STAGE
MODELS
350
AND
385

Model 350

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	86.1	114.8	156.6	203.6	261.0	339.3	428.0	527.2	631.6
125.8	B.H.P.	238.5	255.0	273.5	295.3	307.2	311.7	311.7	311.7	309.2
85	T.R.	79.6	109.6	148.8	193.1	250.6	327.6	416.3	511.6	614.7
151.7	B.H.P.	265.0	279.8	299.3	329.9	348.2	370.5	378.1	379.4	378.1
95	T.R.	73.1	104.4	140.9	182.7	240.1	315.8	404.6	495.9	597.7
181.1	B.H.P.	291.5	304.5	325.1	356.9	389.1	413.9	444.6	447.1	447.1
105	T.R.	67.9	96.6	133.1	174.9	229.7	301.5	385.0	476.3	575.5
214.2	B.H.P.	320.7	338.3	361.2	391.5	427.5	456.1	488.0	517.4	518.7

Model 385

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	92.4	124.8	165.4	215.8	276.9	352.6	443.8	551.4	677.0
125.8	B.H.P.	254.7	272.8	290.6	307.5	326.8	338.4	338.4	338.3	338.3
85	T.R.	87.4	119.0	158.4	207.0	266.7	338.5	426.7	531.8	654.6
151.7	B.H.P.	280.1	299.0	324.2	348.8	369.2	391.7	400.6	403.5	406.4
95	T.R.	81.8	112.7	151.1	198.3	255.9	326.0	409.4	511.0	631.0
181.1	B.H.P.	307.0	326.7	353.2	384.9	415.2	438.9	465.7	471.4	477.4
105	T.R.	75.6	105.8	143.3	189.3	245.3	312.6	394.0	488.8	606.0
214.2	B.H.P.	335.4	356.0	383.8	417.1	455.4	489.8	517.9	542.1	551.2

*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction, and with liquid subcooling of 10° F.

Ratings include use of FES "SOC" oil cooling systems.

R-717
AMMONIA
SINGLE STAGE
MODELS
420
AND
500

Model 420

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	104.4	140.9	187.9	245.3	313.2	404.6	511.6	626.4	751.7
125.8	B.H.P.	283.6	301.9	327.7	351.7	368.6	370.5	370.5	370.5	370.5
85	T.R.	96.6	133.1	177.5	232.3	300.2	390.2	495.9	608.1	730.8
151.7	B.H.P.	315.4	333.1	357.3	390.3	416.0	442.0	449.7	451.0	451.0
95	T.R.	88.7	125.3	167.0	219.2	287.1	375.8	480.2	589.9	709.9
181.1	B.H.P.	347.2	364.4	387.0	421.1	463.4	493.1	528.9	531.4	531.4
105	T.R.	83.5	117.5	159.2	208.8	274.1	357.6	458.1	567.7	683.8
214.2	B.H.P.	382.9	403.4	430.9	464.7	506.9	545.5	580.0	617.0	620.9

Model 500

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	120.1	169.7	224.5	289.7	373.2	485.5	610.7	751.7	903.1
125.8	B.H.P.	341.9	361.7	392.2	421.1	445.4	447.1	447.1	444.6	444.6
85	T.R.	112.2	160.5	214.0	278.0	356.3	467.2	592.5	732.1	879.6
151.7	B.H.P.	379.0	398.2	429.6	471.1	500.5	531.4	541.7	541.7	541.7
95	T.R.	104.4	151.4	203.6	266.2	339.3	448.9	574.2	712.5	856.1
181.1	B.H.P.	416.1	434.6	467.0	510.9	555.5	592.8	636.2	638.8	638.8
105	T.R.	96.6	140.9	193.1	253.2	326.3	428.0	548.1	682.5	824.8
214.2	B.H.P.	457.1	484.1	517.3	559.7	610.6	656.6	698.8	741.0	746.1

*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction, and with liquid subcooling of 10°F.

Ratings include use of FES "SOC" oil cooling systems.

AMMONIA, SINGLE STAGE, 3550 R.P.M.

R-717
AMMONIA
SINGLE STAGE
MODELS
550
AND
575

Model 550

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	130.5	187.9	248.0	321.0	409.8	529.8	670.8	824.8	991.8
125.8	B.H.P.	376.3	398.2	428.3	462.2	486.4	490.6	490.6	490.6	490.6
85	T.R.	124.0	177.5	236.2	306.7	394.1	512.9	652.5	803.9	965.7
151.7	B.H.P.	418.7	438.5	469.6	513.5	547.8	585.1	595.3	595.3	595.3
95	T.R.	117.5	167.1	224.5	292.3	378.5	495.9	634.2	783.0	939.6
181.1	B.H.P.	461.1	478.9	510.8	554.6	609.3	649.0	700.1	700.1	700.1
105	T.R.	108.3	155.3	211.4	278.0	362.8	473.7	604.2	750.4	905.7
214.2	B.H.P.	506.2	530.9	567.6	612.3	670.7	720.5	766.5	813.8	818.9

Model 575

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	139.5	188.0	248.8	324.2	415.7	530.1	666.7	827.7	1015.8
125.8	B.H.P.	381.4	408.4	435.1	460.4	489.3	506.7	506.7	506.6	506.5
85	T.R.	132.1	179.5	238.4	311.2	400.7	508.1	641.3	798.8	982.7
151.7	B.H.P.	419.3	447.7	485.4	522.3	552.7	586.6	599.9	604.1	608.6
95	T.R.	123.9	170.2	227.7	298.4	384.6	489.5	614.4	767.9	947.6
181.1	B.H.P.	459.6	489.2	528.9	576.3	621.6	657.3	697.2	705.8	714.9
105	T.R.	114.9	160.0	216.2	285.1	368.9	469.7	591.6	735.1	910.6
214.2	B.H.P.	502.2	533.1	574.7	624.5	681.8	733.4	775.5	811.8	825.4

*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction, and with liquid subcooling of 10°F.

Ratings include use of FES "SOC" oil cooling systems.

AMMONIA, SINGLE STAGE, 3550 R.P.M.

R-717
AMMONIA
SINGLE STAGE
MODELS
775
AND
1160

Model 775

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	187.4	252.4	334.1	435.3	558.1	711.7	895.2	1111.4	1364.0
125.8	B.H.P.	512.1	548.4	584.2	618.2	657.0	680.4	680.3	680.2	680.1
85	T.R.	177.4	241.0	320.1	417.9	538.0	682.3	861.1	1072.5	1319.5
151.7	B.H.P.	563.1	601.1	651.7	701.3	742.2	787.6	805.5	811.2	817.2
95	T.R.	166.4	228.5	305.8	400.7	516.3	657.3	825.0	1031.1	1272.4
181.1	B.H.P.	617.2	656.9	710.2	773.8	834.7	882.5	936.2	947.8	959.9
105	T.R.	154.2	214.9	290.2	382.9	495.4	630.7	794.4	987.1	1222.7
214.2	B.H.P.	674.4	715.8	771.6	838.6	915.5	984.7	1041.3	1090.0	1108.3

Model 1160

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 *8.7	−30 *1.6	−20 3.6	−10 9.0	0 15.7	10 23.8	20 33.5	30 45.0	40 58.6
75	T.R.	279.6	376.7	498.6	649.5	832.8	1062.0	1335.8	1658.4	2035.2
125.8	B.H.P.	764.2	818.3	871.7	922.5	980.3	1015.3	1015.1	1015.0	1014.8
85	T.R.	264.8	359.6	477.7	623.6	802.7	1018.1	1284.9	1600.3	1968.8
151.7	B.H.P.	840.2	896.9	972.5	1046.5	1107.5	1175.2	1201.9	1210.4	1219.3
95	T.R.	248.3	341.0	456.3	597.9	770.5	980.8	1231.0	1538.6	1898.6
181.1	B.H.P.	920.9	980.2	1059.6	1154.7	1245.5	1316.8	1397.0	1414.2	1432.3
105	T.R.	230.1	320.6	433.1	571.3	739.2	941.0	1185.3	1472.8	1824.3
214.2	B.H.P.	1006.2	1068.0	1151.4	1251.2	1366.1	1469.3	1553.7	1626.4	1653.7

*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction, and with liquid subcooling of 10°F.

Ratings include use of FES "SOC" oil cooling systems.

AMMONIA, BOOSTER, 3550 R.P.M.

R-717
AMMONIA
BOOSTER
MODELS
95B
AND
100B

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1% for each 5° F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Ratings include use of FES "SOC" oil cooling systems.

Model 95B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	9.1	13.6	19.7	27.3			
9.0	B.H.P.	20.4	20.4	20.9	21.4			
0	T.R.	8.6	13.4	19.4	26.8	35.9		
15.7	B.H.P.	24.0	24.0	24.5	25.0	26.0		
+10	T.R.		13.1	19.2	26.3	35.4	46.5	
23.8	B.H.P.		27.5	28.1	28.6	29.6	30.6	
+20	T.R.			18.4	25.5	34.3	45.5	59.3
33.5	B.H.P.			31.6	32.1	32.9	33.7	34.7
+30	T.R.				24.7	33.3	44.4	58.1
45.0	B.H.P.				35.7	36.2	36.7	37.7

Model 100B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	9.8	14.5	20.7	28.5			
9.0	B.H.P.	21.0	21.5	21.9	22.5			
0	T.R.	9.5	14.2	20.2	27.8	37.5		
15.7	B.H.P.	24.8	25.3	25.8	26.3	26.9		
+10	T.R.		13.8	19.7	27.2	36.7	48.4	
23.8	B.H.P.		29.1	29.6	30.2	30.7	31.4	
+20	T.R.			19.2	26.6	35.8	47.4	61.5
33.5	B.H.P.			33.4	34.0	34.6	35.3	36.0
+30	T.R.				25.9	35.0	46.3	60.1
45.0	B.H.P.				37.8	38.4	39.1	39.8

AMMONIA, BOOSTER, 3550 R.P.M.

R-717 AMMONIA BOOSTER MODELS 135B AND 140B

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1% for each 5° F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Ratings include use of FES "SOC" oil cooling systems.

Model 135B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	13.1	20.2	28.8	39.4			
9.0	B.H.P.	28.6	29.1	29.6	30.6			
0	T.R.	12.6	19.4	27.8	38.4	51.5		
15.7	B.H.P.	33.9	34.4	34.9	35.7	36.5		
+10	T.R.		18.7	26.8	37.4	50.5	66.7	
23.8	B.H.P.		39.8	40.3	40.8	41.3	41.8	
+20	T.R.			26.3	36.4	49.2	64.9	82.3
33.5	B.H.P.			45.4	45.9	46.4	46.9	47.7
+30	T.R.				35.4	48.0	63.1	79.3
45.0	B.H.P.				51.0	51.5	52.0	52.5

Model 140B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	15.1	22.2	31.5	43.3			
9.0	B.H.P.	31.2	31.8	32.6	33.3			
0	T.R.	14.6	21.6	30.7	42.3	57.0		
15.7	B.H.P.	36.9	37.5	38.3	39.0	39.9		
+10	T.R.		21.1	30.0	41.4	55.8	73.6	
23.8	B.H.P.		43.2	43.9	44.7	45.6	46.6	
+20	T.R.			29.4	40.5	54.6	72.0	93.5
33.5	B.H.P.			49.6	50.4	51.3	52.3	53.4
+30	T.R.				39.5	53.3	70.4	91.4
45.0	B.H.P.				56.2	57.1	58.0	59.1

AMMONIA, BOOSTER, 3550 R.P.M.

R-717
AMMONIA
BOOSTER
MODELS
175B
AND
180B

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1% for each 5° F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Ratings include use of FES "SOC" oil cooling systems.

Model 175B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	19.2	28.3	40.4	55.6			
9.0	B.H.P.	38.8	39.8	40.3	40.8			
0	T.R.	18.2	27.3	38.9	54.0	72.2		
15.7	B.H.P.	46.4	46.9	47.2	47.9	49.0		
+10	T.R.		26.3	37.4	52.5	70.7	93.9	
23.8	B.H.P.		54.1	54.1	55.1	56.1	58.1	
+20	T.R.			36.9	51.5	69.2	91.4	119.7
33.5	B.H.P.			62.2	62.7	63.8	65.3	67.3
+30	T.R.				50.5	67.7	88.9	116.2
45.0	B.H.P.				70.4	71.4	72.4	73.4

Model 180B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	20.3	29.8	42.2	58.0			
9.0	B.H.P.	40.6	41.5	42.4	43.4			
0	T.R.	19.7	29.1	41.2	56.8	76.3		
15.7	B.H.P.	48.0	48.9	49.5	50.8	52.0		
+10	T.R.		28.4	40.3	55.5	74.7	98.5	
23.8	B.H.P.		56.3	57.2	58.3	59.4	60.7	
+20	T.R.			39.4	54.3	73.1	96.5	125.1
33.5	B.H.P.			64.6	65.7	66.9	68.1	69.5
+30	T.R.				53.0	71.4	94.3	122.4
45.0	B.H.P.				73.1	74.3	75.6	77.0

AMMONIA, BOOSTER, 3550 R.P.M.

R-717 AMMONIA BOOSTER MODELS 255B AND 270B

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1% for each 5°F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Ratings include use of FES "SOC" oil cooling systems.

Model 255B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	27.3	40.4	58.6	78.8			
9.0	B.H.P.	55.1	56.1	57.1	58.1			
0	T.R.	25.8	39.4	56.6	76.8	103.0		
15.7	B.H.P.	65.3	66.8	67.3	68.9	71.4		
+10	T.R.		38.4	54.5	74.7	101.0	133.3	
23.8	B.H.P.		77.5	77.5	79.6	81.6	81.6	
+20	T.R.			53.5	72.7	99.0	130.3	171.7
33.5	B.H.P.			87.7	89.8	91.8	92.8	96.4
+30	T.R.				70.7	97.0	127.3	165.6
45.0	B.H.P.				100.0	102.0	104.0	106.1

Model 270B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	30.6	45.0	63.6	87.3			
9.0	B.H.P.	60.8	62.0	63.4	64.9			
0	T.R.	29.8	43.9	62.1	85.5	114.8		
15.7	B.H.P.	71.8	73.0	74.4	76.0	77.7		
+10	T.R.		42.9	60.8	83.7	112.5	148.3	
23.8	B.H.P.		84.1	85.5	87.1	88.8	90.7	
+20	T.R.			59.4	81.9	110.1	145.2	188.3
33.5	B.H.P.			96.6	98.7	99.9	101.8	103.9
+30	T.R.				80.0	107.6	142.0	184.3
45.0	B.H.P.				109.3	111.1	113.0	115.0

AMMONIA, BOOSTER, 3550 R.P.M.

R-717
AMMONIA
BOOSTER
MODEL
305B

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1% for each 5° F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Ratings include use of FES "SOC" oil cooling systems.

Model 305B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	32.3	48.5	69.7	94.9			
9.0	B.H.P.	66.3	67.3	67.3	69.4			
0	T.R.	31.3	47.5	68.2	92.9	125.2		
15.7	B.H.P.	79.1	80.6	81.1	82.6	84.2		
+10	T.R.		46.5	66.7	90.9	123.2	161.6	
23.8	B.H.P.		93.8	94.9	95.9	96.9	98.9	
+20	T.R.			64.6	88.4	119.7	157.1	204.0
33.5	B.H.P.			107.1	108.1	109.7	111.7	114.2
+30	T.R.				85.9	116.2	152.5	198.0
45.0	B.H.P.				120.4	122.4	124.4	126.5

AMMONIA, BOOSTER, 3550 R.P.M.

R-717
AMMONIA
BOOSTER
MODELS
550B
AND
575B

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1% for each 5° F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Ratings include use of FES "SOC" oil cooling systems.

Model 550B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	60.6	90.9	126.3	171.7			
9.0	B.H.P.	118.3	119.3	122.4	125.5			
0	T.R.	58.6	87.9	123.7	169.2	225.7		
15.7	B.H.P.	139.2	140.8	143.8	146.4	149.9		
+10	T.R.		84.8	121.2	166.7	222.2	292.9	
23.8	B.H.P.		162.2	165.2	167.3	170.3	175.4	
+20	T.R.			118.2	162.1	217.2	285.8	372.7
33.5	B.H.P.			186.7	189.2	192.3	196.9	201.5
+30	T.R.				157.6	212.1	278.8	361.6
45.0	B.H.P.				211.1	214.2	218.3	222.4

Model 575B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	61.0	89.2	125.9	172.8			
9.0	B.H.P.	117.4	119.8	122.5	125.4			
0	T.R.	59.5	87.2	123.2	169.2	227.1		
15.7	B.H.P.	138.8	141.2	143.9	146.9	150.1		
+10	T.R.		85.4	120.7	165.8	222.6	293.2	
23.8	B.H.P.		162.5	165.3	168.3	171.6	175.3	
+20	T.R.			118.2	162.4	218.1	287.3	372.3
33.5	B.H.P.			186.7	189.8	193.1	196.8	200.7
+30	T.R.				158.8	213.4	281.2	364.5
45.0	B.H.P.				211.2	214.6	218.3	222.3

AMMONIA, BOOSTER, 3550 R.P.M.

R-717
AMMONIA
BOOSTER
MODELS
775B
AND
1160B

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1% for each 5° F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Ratings include use of FES "SOC" oil cooling systems.

Model 775B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	81.9	119.8	169.1	232.0			
9.0	B.H.P.	157.6	160.8	164.4	168.4			
0	T.R.	79.9	117.1	165.5	227.2	305.0		
15.7	B.H.P.	186.3	189.5	193.2	197.2	201.6		
+10	T.R.		114.7	162.1	222.7	298.9	393.7	
23.8	B.H.P.		218.3	221.9	226.0	230.5	235.3	
+20	T.R.			158.7	218.1	292.9	385.8	500.0
33.5	B.H.P.			250.7	254.8	259.3	264.2	269.6
+30	T.R.				213.3	286.5	377.6	489.5
45.0	B.H.P.				283.6	288.2	293.1	298.5

Model 1160B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	122.1	178.8	252.3	346.2			
9.0	B.H.P.	235.2	240.0	245.3	251.3			
0	T.R.	119.2	174.8	246.9	339.1	455.1		
15.7	B.H.P.	278.0	282.8	288.2	294.2	300.8		
+10	T.R.		171.1	241.9	332.2	446.0	587.5	
23.8	B.H.P.		325.7	331.2	337.2	343.9	351.1	
+20	T.R.			236.8	325.4	437.0	575.7	746.0
33.5	B.H.P.			374.1	380.2	386.9	394.3	402.2
+30	T.R.				318.2	427.6	563.5	730.4
45.0	B.H.P.				423.2	430.0	437.4	445.4

AMMONIA, BOOSTER, 3550 R.P.M.

R-717 AMMONIA BOOSTER MODELS 550B AND 575B

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1% for each 5° F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Ratings include use of FES "SOC" oil cooling systems.

Model 550B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	60.6	90.9	126.3	171.7			
9.0	B.H.P.	118.3	119.3	122.4	125.5			
0	T.R.	58.6	87.9	123.7	169.2	225.7		
15.7	B.H.P.	139.2	140.8	143.8	146.4	149.9		
+10	T.R.		84.8	121.2	166.7	222.2	292.9	
23.8	B.H.P.		162.2	165.2	167.3	170.3	175.4	
+20	T.R.			118.2	162.1	217.2	285.8	372.7
33.5	B.H.P.			186.7	189.2	192.3	196.9	201.5
+30	T.R.				157.6	212.1	278.8	361.6
45.0	B.H.P.				211.1	214.2	218.3	222.4

Model 575B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	61.0	89.2	125.9	172.8			
9.0	B.H.P.	117.4	119.8	122.5	125.4			
0	T.R.	59.5	87.2	123.2	169.2	227.1		
15.7	B.H.P.	138.8	141.2	143.9	146.9	150.1		
+10	T.R.		85.4	120.7	165.8	222.6	293.2	
23.8	B.H.P.		162.5	165.3	168.3	171.6	175.3	
+20	T.R.			118.2	162.4	218.1	287.3	372.3
33.5	B.H.P.			186.7	189.8	193.1	196.8	200.7
+30	T.R.				158.8	213.4	281.2	364.5
45.0	B.H.P.				211.2	214.6	218.3	222.3

AMMONIA, BOOSTER, 3550 R.P.M.

R-717
AMMONIA
BOOSTER
MODELS
775B
AND
1160B

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1% for each 5°F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Ratings include use of FES "SOC" oil cooling systems.

Model 775B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	81.9	119.8	169.1	232.0			
9.0	B.H.P.	157.6	160.8	164.4	168.4			
0	T.R.	79.9	117.1	165.5	227.2	305.0		
15.7	B.H.P.	186.3	189.5	193.2	197.2	201.6		
+10	T.R.		114.7	162.1	222.7	298.9	393.7	
23.8	B.H.P.		218.3	221.9	226.0	230.5	235.3	
+20	T.R.			158.7	218.1	292.9	385.8	500.0
33.5	B.H.P.			250.7	254.8	259.3	264.2	269.6
+30	T.R.				213.3	286.5	377.6	489.5
45.0	B.H.P.				283.6	288.2	293.1	298.5

Model 1160B

INTERMEDIATE PRESS. P.S.I.G. AND CORRESPONDING TEMP. °F		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		−70 *21.9	−60 *18.6	−50 *14.3	−40 *8.7	−30 *1.6	−20 3.6	−10 9.0
−10	T.R.	122.1	178.8	252.3	346.2			
9.0	B.H.P.	235.2	240.0	245.3	251.3			
0	T.R.	119.2	174.8	246.9	339.1	455.1		
15.7	B.H.P.	278.0	282.8	288.2	294.2	300.8		
+10	T.R.		171.1	241.9	332.2	446.0	587.5	
23.8	B.H.P.		325.7	331.2	337.2	343.9	351.1	
+20	T.R.			236.8	325.4	437.0	575.7	746.0
33.5	B.H.P.			374.1	380.2	386.9	394.3	402.2
+30	T.R.				318.2	427.6	563.5	730.4
45.0	B.H.P.				423.2	430.0	437.4	445.4

R-22
SINGLE STAGE
MODEL
65

Model 65

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 ` 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	15.2	20.3	26.4	34.1	43.3	54.3	67.7	83.3	101.5
155.7	B.H.P.	55.6	59.6	63.2	65.4	68.1	71.2	71.2	71.3	71.3
95	T.R.	13.7	18.5	24.4	31.5	40.3	50.8	63.3	78.3	95.8
181.8	B.H.P.	61.9	66.0	70.8	73.7	76.5	79.8	82.2	82.5	82.7
105	T.R.	12.0	16.7	22.3	28.8	37.3	47.2	59.0	73.0	89.8
210.8	B.H.P.	68.6	72.8	77.8	82.6	85.5	88.9	92.9	93.7	94.2
115	T.R.	10.3	14.7	20.0	26.5	34.0	43.6	54.8	67.5	83.6
242.7	B.H.P.	75.7	80.0	85.1	90.9	95.2	98.7	102.8	105.2	105.9

Refrigeration capacity based on a saturated suction and with liquid subcooling of 10°F.

Model 95

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	22.0	30.0	39.5	51.0	65.0	80.0	97.0	119.0	143.0
155.7	B.H.P.	70.0	76.0	83.0	88.0	94.5	102.0	90.0	90.0	89.0
95	T.R.	20.0	27.0	36.0	47.6	61.0	76.0	92.0	112.0	134.0
181.8	B.H.P.	78.0	83.5	90.0	96.5	102.5	109.0	106.0	106.0	104.0
105	T.R.	18.5	25.0	33.0	43.5	56.0	70.0	85.0	104.0	126.0
210.8	B.H.P.	84.0	90.0	97.0	105.0	112.0	118.5	123.0	123.0	122.0
115	T.R.	16.0	22.0	29.0	39.0	51.0	63.0	78.0	97.0	117.5
242.7	B.H.P.	89.5	95.0	102.5	112.0	120.0	128.0	136.0	140.0	138.0

Model 100

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	22.4	29.8	38.9	50.1	63.4	79.2	99.1	122.0	148.6
155.7	B.H.P.	75.2	81.0	86.7	91.4	96.5	102.6	103.3	103.3	103.4
95	T.R.	20.5	27.6	36.2	46.8	59.6	74.8	93.1	115.1	140.6
181.8	B.H.P.	85.3	91.4	98.5	103.3	108.8	115.0	119.6	120.0	120.5
105	T.R.	18.5	25.3	33.5	43.5	55.7	70.2	87.3	107.9	132.4
210.8	B.H.P.	96.0	102.4	110.0	116.2	121.9	128.4	135.7	136.9	137.8
115	T.R.	16.4	22.9	30.7	40.0	51.6	65.6	81.9	100.5	124.0
242.7	B.H.P.	107.4	114.2	122.1	130.1	136.0	142.8	150.3	154.1	155.4

Refrigeration capacity based on a saturated suction and with liquid subcooling of 10°F.

R-22
SINGLE STAGE
MODELS
135
AND
140

Model 135

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	31.5	42.5	56.5	73.5	93.0	115.0	140.0	170.0	204.0
155.7	B.H.P.	100.0	108.0	118.0	126.0	135.0	145.0	128.0	127.0	126.0
95	T.R.	28.0	38.5	52.0	68.0	87.0	108.0	131.0	158.0	191.0
181.8	B.H.P.	111.0	120.0	129.0	138.0	146.5	156.0	151.0	150.0	149.0
105	T.R.	26.0	35.0	47.0	61.5	79.5	100.0	122.0	149.0	180.0
210.8	B.H.P.	120.0	128.0	139.0	151.0	159.5	169.0	176.0	176.0	175.0
115	T.R.	22.0	31.0	42.0	56.0	72.0	91.0	111.0	136.0	166.0
242.7	B.H.P.	128.5	137.0	147.5	160.5	172.0	183.0	194.0	200.0	197.0

Model 140

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	34.8	46.1	59.9	76.9	97.3	121.3	151.7	186.5	227.0
155.7	B.H.P.	112.8	121.4	130.0	136.8	144.7	153.7	154.8	154.9	155.0
95	T.R.	32.0	42.8	55.9	72.1	91.6	114.7	142.6	176.1	215.0
181.8	B.H.P.	127.9	137.0	147.6	154.8	163.1	172.4	179.2	179.9	180.6
105	T.R.	29.0	39.3	51.8	67.0	85.7	107.9	134.0	165.3	202.7
210.8	B.H.P.	143.9	153.6	164.8	174.3	182.8	192.5	203.5	205.3	206.6
115	T.R.	25.6	35.7	47.6	61.8	79.7	100.8	125.8	154.2	189.9
242.7	B.H.P.	161.0	171.1	183.0	195.1	203.9	214.0	225.3	231.0	233.0

Refrigeration capacity based on a saturated suction and with liquid subcooling of 10° F.

Model 175

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	48.0	64.0	83.0	106.0	134.0	165.0	200.0	240.0	292.0
155.7	B.H.P.	136.0	148.0	162.0	172.0	182.0	192.0	180.0	182.0	184.0
95	T.R.	44.0	57.0	76.0	98.0	126.0	155.0	188.0	224.0	272.0
181.8	B.H.P.	156.0	168.0	181.0	194.0	205.0	216.0	208.0	210.0	212.0
105	T.R.	40.0	52.0	69.0	91.0	117.0	147.0	179.0	212.0	258.0
210.8	B.H.P.	170.0	182.0	197.0	214.0	225.0	238.0	242.0	242.0	244.0
115	T.R.	36.0	46.0	62.0	82.0	106.0	134.0	164.0	195.0	240.0
242.7	B.H.P.	187.0	198.0	212.0	229.0	245.0	258.0	272.0	272.0	272.0

Model 180

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	46.9	61.7	80.0	102.4	129.1	160.8	200.8	246.6	299.9
155.7	B.H.P.	146.9	158.1	169.2	178.1	188.4	200.2	201.6	201.7	201.8
95	T.R.	43.3	57.5	74.8	96.1	121.8	152.3	189.0	233.1	284.3
181.8	B.H.P.	166.5	178.4	192.2	201.6	212.3	224.5	233.3	234.2	235.1
105	T.R.	39.5	53.1	69.6	89.6	114.2	143.4	177.7	219.0	268.2
210.8	B.H.P.	187.4	199.9	214.6	226.9	238.0	250.7	264.9	267.2	269.0
115	T.R.	35.5	48.4	64.2	82.9	106.4	134.2	167.1	204.5	251.6
242.7	B.H.P.	209.7	222.8	238.3	254.0	265.5	278.6	293.4	300.8	303.3

Refrigeration capacity based on a saturated suction and with liquid subcooling of 10° F.

R-22
SINGLE STAGE
MODELS
255
AND
270

Model 255

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	69.0	90.0	118.0	151.0	190.0	235.0	285.0	340.0	415.0
155.7	B.H.P.	195.0	212.0	232.0	245.0	260.0	276.0	257.5	260.0	265.0
95	T.R.	64.0	83.0	108.0	138.0	176.0	220.0	268.0	320.0	392.5
181.8	B.H.P.	222.0	238.0	257.0	275.0	291.0	309.0	297.5	300.0	305.0
105	T.R.	56.0	75.0	100.0	130.0	167.0	209.0	255.0	302.5	370.0
210.8	B.H.P.	242.0	260.0	280.0	304.0	322.0	340.0	345.0	347.5	347.5
115	T.R.	51.0	68.0	90.0	118.0	152.0	191.0	235.0	281.3	345.0
242.7	B.H.P.	268.0	284.0	304.0	328.0	349.0	368.0	388.0	390.0	390.0

Model 270

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	71.5	93.9	121.5	155.4	195.8	243.7	304.0	373.3	453.8
155.7	B.H.P.	219.5	236.3	253.0	266.2	281.6	299.2	301.3	301.4	301.6
95	T.R.	66.1	87.6	113.7	146.0	184.8	230.8	286.3	352.9	430.3
181.8	B.H.P.	248.9	266.6	287.4	301.3	317.3	335.6	348.8	350.1	351.5
105	T.R.	60.5	81.0	105.9	136.2	173.4	217.5	269.4	331.8	406.1
210.8	B.H.P.	280.2	298.9	320.8	339.1	355.8	374.7	396.0	399.5	402.1
115	T.R.	54.5	74.0	97.8	126.1	161.6	203.8	253.4	310.0	381.1
242.7	B.H.P.	313.4	333.1	356.2	379.7	396.9	416.5	438.5	449.6	453.5

Refrigeration capacity based on a saturated suction and with liquid subcooling of 10° F.

Model 305

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	84.0	110.0	142.0	181.0	228.0	283.0	342.5	407.5	500.0
155.7	B.H.P.	233.8	253.8	276.3	293.8	312.5	332.5	310.0	312.5	315.0
95	T.R.	76.0	100.0	130.0	167.0	213.0	265.0	322.5	382.5	467.5
181.8	B.H.P.	267.5	285.0	307.5	330.0	350.0	370.0	357.5	360.0	365.0
105	T.R.	67.0	90.0	119.0	155.0	200.0	251.0	307.5	365.0	442.5
210.8	B.H.P.	290.0	312.5	336.3	362.5	385.0	407.5	415.0	415.0	417.5
115	T.R.	56.0	76.0	106.0	142.0	183.0	230.0	282.5	340.0	415.0
242.7	B.H.P.	317.5	340.0	366.3	397.5	420.0	442.5	465.0	467.5	467.5

Refrigeration capacity based on a saturated suction and with liquid subcooling of 10°F.

R-22
SINGLE STAGE
MODELS
350
AND
385

Model 350

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	94.0	125.0	164.0	211.0	265.0	325.0	390.0	475.0	570.0
155.7	B.H.P.	285.0	305.0	330.0	345.0	365.0	385.0	375.0	375.0	372.5
95	T.R.	86.0	116.0	153.0	197.0	249.0	307.0	370.0	450.0	545.0
181.8	B.H.P.	317.5	337.5	360.0	380.0	397.5	415.0	432.5	432.5	430.0
105	T.R.	82.0	109.0	143.0	185.0	233.0	286.0	342.0	425.0	515.0
210.8	B.H.P.	345.0	365.0	390.0	410.0	430.0	447.5	467.5	485.0	485.0
115	T.R.	73.0	99.0	131.0	170.0	216.0	267.0	321.0	400.0	490.0
242.7	B.H.P.	390.0	410.0	432.5	460.0	475.0	495.0	517.5	550.0	545.0

Model 385

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	94.5	123.8	160.6	205.0	258.0	320.8	399.8	490.6	596.0
155.7	B.H.P.	286.1	308.0	329.7	347.0	367.1	390.0	392.8	392.9	393.1
95	T.R.	87.5	115.6	150.2	192.8	243.7	304.0	376.7	464.0	565.4
181.8	B.H.P.	324.4	347.5	374.8	392.8	413.6	437.5	454.7	456.3	458.1
105	T.R.	80.1	107.0	139.7	180.2	229.0	286.7	354.8	436.5	533.9
210.8	B.H.P.	365.2	389.6	418.1	442.1	463.7	488.4	516.1	520.7	524.1
115	T.R.	72.4	98.0	129.2	167.1	213.7	268.9	334.0	409.8	501.3
242.7	B.H.P.	408.5	434.2	464.2	495.3	517.3	542.9	571.6	586.1	591.1

Refrigeration capacity based on a saturated suction and with liquid subcooling of 10° F.

R-22, SINGLE STAGE, 3550 R.P.M.

Model 420

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	110.0	147.5	195.0	252.5	317.5	387.5	460.0	562.5	685.0
155.7	B.H.P.	340.0	362.5	390.0	410.0	430.0	455.0	447.5	447.5	445.0
95	T.R.	102.5	137.5	181.3	235.0	295.0	366.3	440.0	535.0	655.0
181.8	B.H.P.	380.0	400.0	427.5	450.0	475.0	495.0	512.5	515.0	510.0
105	T.R.	97.5	130.0	170.0	220.0	275.0	340.0	407.5	500.0	615.0
210.8	B.H.P.	410.0	435.0	465.0	490.0	512.5	535.0	560.0	580.0	575.0
115	T.R.	87.5	117.5	155.0	202.5	256.3	318.8	382.5	470.0	580.0
242.7	B.H.P.	460.0	485.0	515.0	545.0	570.0	590.0	615.0	660.0	655.0

Model 500

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	135.0	180.0	235.0	300.0	380.0	465.0	555.0	672.5	820.0
155.7	B.H.P.	410.0	435.0	470.0	495.0	520.0	547.5	535.0	540.0	535.0
95	T.R.	125.0	165.0	217.5	280.0	355.0	437.5	527.5	637.5	777.5
181.8	B.H.P.	455.0	480.0	512.5	540.0	565.0	595.0	615.0	615.0	612.5
105	T.R.	115.0	155.0	205.0	265.0	332.5	410.0	490.0	597.5	735.0
210.8	B.H.P.	490.0	520.0	555.0	587.5	612.5	640.0	670.0	695.0	690.0
115	T.R.	105.0	140.0	187.5	242.5	310.0	380.0	460.0	565.0	697.5
242.7	B.H.P.	555.0	585.0	617.5	655.0	680.0	710.0	740.0	790.0	780.0

Refrigeration capacity based on a saturated suction and with liquid subcooling of 10° F.

R-22, SINGLE STAGE, 3550 R.P.M.

Model 550

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	147.5	197.5	260.0	335.0	420.0	510.0	610.0	745.0	890.0
155.7	B.H.P.	450.0	485.0	520.0	542.5	570.0	605.0	595.0	592.5	587.5
95	T.R.	140.0	185.0	242.5	312.5	390.0	477.5	575.0	710.0	850.0
181.8	B.H.P.	500.0	530.0	565.0	595.0	625.0	655.0	682.5	680.0	675.0
105	T.R.	130.0	172.5	225.0	290.0	365.0	450.0	537.5	667.5	807.5
210.8	B.H.P.	540.0	575.0	612.5	645.0	672.5	705.0	740.0	765.0	760.0
115	T.R.	115.0	155.0	205.0	270.0	340.0	420.0	505.0	630.0	762.5
242.7	B.H.P.	610.0	642.5	680.0	720.0	750.0	780.0	815.0	865.0	860.0

Model 575

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	143.3	187.4	243.8	310.7	390.5	485.0	603.9	740.6	899.3
155.7	B.H.P.	428.5	461.2	493.7	519.6	549.7	584.0	588.1	588.3	588.6
95	T.R.	132.9	175.2	228.4	292.6	369.2	460.0	569.4	700.8	853.5
181.8	B.H.P.	485.7	520.3	561.3	588.1	619.4	655.0	680.8	683.3	686.0
105	T.R.	121.9	162.4	211.7	273.8	347.2	434.2	536.6	659.7	806.2
210.8	B.H.P.	546.8	583.3	626.1	661.9	694.3	731.3	772.8	779.7	784.7
115	T.R.	110.4	149.0	196.0	254.3	324.4	409.6	505.5	617.3	757.5
242.7	B.H.P.	611.7	650.1	695.1	741.0	774.6	812.9	855.9	877.5	885.0

Refrigeration capacity based on a saturated suction and with liquid subcooling of 10° F.

R-22, SINGLE STAGE, 3550 R.P.M.

Model 775

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	192.4	251.7	327.4	417.1	524.3	651.2	810.9	994.4	1207.5
155.7	B.H.P.	575.3	619.2	663.0	697.7	738.1	784.2	789.7	790.0	790.4
95	T.R.	178.4	235.3	306.7	392.9	495.8	617.7	764.6	941.0	1146.0
181.8	B.H.P.	652.2	698.7	753.7	789.7	831.7	879.5	914.1	917.5	921.1
105	T.R.	163.7	218.0	284.2	367.6	466.2	583.0	720.6	885.8	1082.6
210.8	B.H.P.	734.2	783.3	840.7	888.8	932.3	982.0	1037.7	1046.9	1053.7
115	T.R.	148.3	200.0	263.1	341.5	435.6	547.3	678.8	828.9	1017.2
242.7	B.H.P.	821.3	873.0	933.4	995.0	1040.1	1091.5	1149.3	1178.3	1188.4

Model 1160

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG								
		−40 0.5	−30 4.9	−20 10.2	−10 16.5	0 24.0	10 32.8	20 43.0	30 54.9	40 68.5
85	T.R.	287.1	375.5	488.5	622.4	782.3	971.6	1209.9	1483.8	1801.7
155.7	B.H.P.	858.4	924.0	989.2	1041.0	1101.3	1170.1	1178.3	1178.8	1179.3
95	T.R.	266.2	351.1	457.7	586.2	739.7	921.7	1140.8	1404.1	1710.0
181.8	B.H.P.	973.2	1042.5	1124.5	1178.3	1240.9	1312.4	1364.0	1369.0	1374.0
105	T.R.	244.3	325.3	424.1	548.6	695.6	870.0	1075.2	1321.8	1615.3
210.8	B.H.P.	1095.5	1168.7	1254.4	1326.2	1391.1	1465.2	1548.4	1562.1	1572.3
115	T.R.	221.2	298.5	392.6	509.5	649.9	816.6	1012.9	1236.8	1517.7
242.7	B.H.P.	1225.5	1302.6	1392.7	1484.6	1551.9	1628.6	1714.8	1758.2	1773.2

Refrigeration capacity based on a saturated suction and with liquid subcooling of 10° F.

R-22, BOOSTER, 3550 R.P.M.

R-22
BOOSTER
MODELS
95B
AND
100B

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1.6% for each 5°F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Model 95B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10 16.5	T.R.	14.0	19.5	26.0	34.8			
	B.H.P.	23.8	24.0	25.0	26.0			
0 24.0	T.R.	13.5	18.9	25.3	33.9	43.5		
	B.H.P.	27.7	28.5	29.0	29.8	30.3		
+10 32.8	T.R.		18.3	24.5	33.0	42.5	54.0	
	B.H.P.		32.0	33.0	33.5	34.0	35.0	
+20 43.0	T.R.			23.5	31.8	41.3	52.5	65.8
	B.H.P.			37.0	37.7	38.0	39.0	39.8
+30 54.9	T.R.				30.5	40.0	51.0	64.0
	B.H.P.				41.8	42.0	43.0	43.5

Model 100B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10 16.5	T.R.	14.2	19.8	26.8	35.4			
	B.H.P.	25.1	25.5	25.9	26.4			
0 24.0	T.R.	13.7	19.1	25.9	24.3	44.7		
	B.H.P.	29.3	29.7	30.2	30.7	31.2		
+10 32.8	T.R.		18.5	25.1	33.3	43.3	55.4	
	B.H.P.		34.0	34.4	34.9	35.5	36.1	
+20 43.0	T.R.			24.2	32.2	41.9	53.7	67.8
	B.H.P.			38.7	39.2	39.8	40.4	41.0
+30 54.9	T.R.				31.0	40.4	51.9	65.6
	B.H.P.				43.4	44.0	44.6	45.3

R-22, BOOSTER, 3550 R.P.M.

NOTE:
***Inches of mercury below one standard atmosphere (29.92")**
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1.6% for each 5°F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Model 135B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	20.0	27.5	37.0	49.5			
16.5	B.H.P.	34.0	35.0	36.3	37.0			
0	T.R.	19.4	26.8	36.0	48.3	62.8		
24.0	B.H.P.	39.5	40.5	41.7	42.5	43.5		
+10	T.R.		26.0	35.0	47.0	61.0	77.0	
32.8	B.H.P.		46.0	47.0	48.0	49.0	50.0	
+20	T.R.			33.8	45.3	58.8	74.7	94.5
43.0	B.H.P.			53.0	53.5	54.5	55.5	56.5
+30	T.R.				43.5	56.5	72.3	91.5
54.9	B.H.P.				59.0	60.0	61.0	62.0

Model 140B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	21.7	30.1	40.7	53.8			
16.5	B.H.P.	37.6	38.2	38.9	39.6			
0	T.R.	20.9	29.2	39.5	52.2	67.9		
24.0	B.H.P.	44.0	44.6	45.2	46.0	46.8		
+10	T.R.		28.2	38.2	50.6	65.8	84.2	
32.8	B.H.P.		50.9	51.6	52.4	53.2	54.1	
+20	T.R.			37.0	49.0	63.7	81.6	103.0
43.0	B.H.P.			58.0	58.7	59.6	60.5	61.5
+30	T.R.				47.3	61.5	78.9	99.7
54.9	B.H.P.				65.1	66.0	66.9	67.9

R-22, BOOSTER, 3550 R.P.M.

R-22
BOOSTER
MODELS
175B
AND
180B

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1.6% for each 5°F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Model 175B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	27.5	38.0	52.0	69.0			
16.5	B.H.P.	46.0	47.0	48.0	49.0			
0	T.R.	27.0	37.0	50.0	66.5	86.8		
24.0	B.H.P.	53.5	54.5	55.5	56.5	57.8		
+10	T.R.		36.0	48.0	64.0	84.0	108.0	
32.8	B.H.P.		62.0	63.0	64.0	65.0	66.0	
+20	T.R.			47.0	62.0	81.0	104.2	131.5
43.0	B.H.P.			71.0	72.0	73.3	74.5	75.5
+30	T.R.				60.0	78.0	100.3	127.0
54.9	B.H.P.				80.0	81.5	83.0	84.0

Model 180B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	29.1	40.4	54.6	72.1			
16.5	B.H.P.	48.5	49.3	50.1	51.1			
0	T.R.	28.1	39.1	52.9	70.0	90.8		
24.0	B.H.P.	56.7	57.4	58.3	59.3	60.4		
+10	T.R.		37.8	51.2	67.8	88.1	112.7	
32.8	B.H.P.		65.6	66.5	67.5	68.6	69.8	
+20	T.R.			49.5	65.6	85.3	109.2	137.9
43.0	B.H.P.			74.7	75.7	76.8	78.0	79.3
+30	T.R.				63.3	82.4	105.5	133.4
54.9	B.H.P.				83.9	85.1	86.3	87.6

R-22, BOOSTER, 3550 R.P.M.

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1.6% for each 5°F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Model 255B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	39.0	54.0	73.0	98.0			
16.5	B.H.P.	66.0	67.5	68.5	70.0			
0	T.R.	38.0	52.5	71.0	95.0	124.5		
24.0	B.H.P.	77.0	78.3	80.0	81.0	82.3		
+10	T.R.		51.0	69.0	92.0	120.0	154.0	
32.8	B.H.P.		89.0	91.0	92.0	93.0	94.0	
+20	T.R.			67.8	89.0	115.3	148.8	188.3
43.0	B.H.P.			96.5	98.0	99.5	101.0	102.3
+30	T.R.				86.0	110.5	143.5	182.5
54.9	B.H.P.				104.0	106.0	107.5	109.0

Model 270B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	43.9	60.9	82.2	108.5			
16.5	B.H.P.	72.5	73.6	74.9	76.4			
0	T.R.	42.4	58.9	79.7	105.3	136.7		
24.0	B.H.P.	84.7	85.9	87.2	88.7	90.3		
+10	T.R.		57.1	77.2	102.1	132.6	169.6	
32.8	B.H.P.		98.1	99.5	100.9	102.6	104.3	
+20	T.R.			74.7	98.8	128.4	164.3	207.4
43.0	B.H.P.			111.7	113.2	114.9	116.6	118.6
+30	T.R.				95.4	124.1	158.9	200.7
54.9	B.H.P.				125.5	127.1	129.0	130.7

R-22, BOOSTER, 3550 R.P.M.

R-22
BOOSTER
MODEL
305B

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1.6% for each 5°F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Model 305B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	48.0	65.0	89.0	118.0			
16.5	B.H.P.	79.0	80.5	82.0	84.0			
0	T.R.	46.0	63.0	85.5	114.0	148.5		
24.0	B.H.P.	92.3	93.8	95.5	97.3	98.0		
+10	T.R.		61.0	82.0	110.0	144.0	186.0	
32.8	B.H.P.		107.0	109.0	110.5	112.0	114.0	
+20	T.R.			81.0	106.0	139.0	178.0	226.0
43.0	B.H.P.			123.0	124.0	125.5	127.5	129.5
+30	T.R.				103.0	134.0	172.0	218.0
54.9	B.H.P.				137.0	139.0	141.0	143.0

R-22, BOOSTER, 3550 R.P.M.

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1.6% for each 5°F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Model 350B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	56.0	76.0	104.0	136.0			
16.5	B.H.P.	88.0	90.0	92.0	94.0			
0	T.R.	54.0	74.0	100.5	131.5	171.5		
24.0	B.H.P.	103.5	106.0	108.0	110.0	112.0		
+10	T.R.		72.0	97.0	127.0	166.0	212.0	
32.8	B.H.P.		122.0	124.0	126.0	128.0	130.0	
+20	T.R.			94.5	123.5	160.0	204.5	258.5
43.0	B.H.P.			140.0	142.0	144.0	145.0	147.0
+30	T.R.				120.0	154.0	197.0	252.0
54.9	B.H.P.				156.0	158.0	160.0	162.0

Model 385B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	57.7	79.9	107.8	142.4			
16.5	B.H.P.	94.5	96.0	97.7	99.6			
0	T.R.	55.8	77.5	104.6	138.2	179.3		
24.0	B.H.P.	110.4	111.9	113.7	115.6	117.7		
+10	T.R.		75.1	101.4	134.0	174.0	222.4	
32.8	B.H.P.		127.9	129.6	131.6	133.7	136.0	
+20	T.R.			98.2	129.8	168.6	215.6	272.1
43.0	B.H.P.			145.6	147.6	149.7	152.0	154.6
+30	T.R.				125.4	162.9	208.5	263.3
54.9	B.H.P.				163.6	165.7	168.1	170.6

R-22, BOOSTER, 3550 R.P.M.

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1.6% for each 5°F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Model 350B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	56.0	76.0	104.0	136.0			
16.5	B.H.P.	88.0	90.0	92.0	94.0			
0	T.R.	54.0	74.0	100.5	131.5	171.5		
24.0	B.H.P.	103.5	106.0	108.0	110.0	112.0		
+10	T.R.		72.0	97.0	127.0	166.0	212.0	
32.8	B.H.P.		122.0	124.0	126.0	128.0	130.0	
+20	T.R.			94.5	123.5	160.0	204.5	258.5
43.0	B.H.P.			140.0	142.0	144.0	145.0	147.0
+30	T.R.				120.0	154.0	197.0	252.0
54.9	B.H.P.				156.0	158.0	160.0	162.0

Model 385B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	57.7	79.9	107.8	142.4			
16.5	B.H.P.	94.5	96.0	97.7	99.6			
0	T.R.	55.8	77.5	104.6	138.2	179.3		
24.0	B.H.P.	110.4	111.9	113.7	115.6	117.7		
+10	T.R.		75.1	101.4	134.0	174.0	222.4	
32.8	B.H.P.		127.9	129.6	131.6	133.7	136.0	
+20	T.R.			98.2	129.8	168.6	215.6	272.1
43.0	B.H.P.			145.6	147.6	149.7	152.0	154.6
+30	T.R.				125.4	162.9	208.5	263.3
54.9	B.H.P.				163.6	165.7	168.1	170.6

R-22, BOOSTER, 3550 R.P.M.

R-22
BOOSTER
MODEL
305B

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1.6% for each 5°F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Model 305B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10 16.5	T.R. B.H.P.	48.0 79.0	65.0 80.5	89.0 82.0	118.0 84.0			
0 24.0	T.R. B.H.P.	46.0 92.3	63.0 93.8	85.5 95.5	114.0 97.3	148.5 98.0		
+10 32.8	T.R. B.H.P.		61.0 107.0	82.0 109.0	110.0 110.5	144.0 112.0	186.0 114.0	
+20 43.0	T.R. B.H.P.			81.0 123.0	106.0 124.0	139.0 125.5	178.0 127.5	226.0 129.5
+30 54.9	T.R. B.H.P.				103.0 137.0	134.0 139.0	172.0 141.0	218.0 143.0

R-22, BOOSTER, 3550 R.P.M.

R-22
BOOSTER
MODELS
420B
AND
500B

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1.6% for each 5°F. ncrease in liquid temperature above this level. B.H.P. remains unchanged.

Model 420B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	66.0	92.0	123.0	162.0			
16.5	B.H.P.	106.0	108.0	110.0	112.0			
0	T.R.	64.5	89.0	119.0	156.5	203.5		
24.0	B.H.P.	124.5	126.5	128.5	131.0	133.0		
+10	T.R.		86.0	115.0	151.0	197.0	253.0	
32.8	B.H.P.		145.0	147.0	150.0	152.0	154.0	
+20	T.R.			112.5	146.5	190.0	244.0	311.0
43.0	B.H.P.			167.0	168.0	170.0	172.0	174.0
+30	T.R.				142.0	183.0	235.0	298.0
54.9	B.H.P.				186.0	188.0	190.0	193.0

Model 500B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	80.0	110.0	149.0	195.0			
16.5	B.H.P.	128.0	130.0	133.0	136.0			
0	T.R.	78.0	106.5	144.0	189.0	247.0		
24.0	B.H.P.	152.0	154.0	155.0	158.0	160.0		
+10	T.R.		103.0	139.0	183.0	238.0	304.0	
32.8	B.H.P.		174.0	177.0	180.0	182.0	186.0	
+20	T.R.			134.5	177.0	229.5	294.5	370.0
43.0	B.H.P.			198.5	201.5	204.0	207.0	210.5
+30	T.R.				171.0	221.0	284.0	361.0
54.9	B.H.P.				223.0	226.0	229.0	233.0

R-22, BOOSTER, 3550 R.P.M.

NOTE:
*Inches of mercury below one standard atmosphere (29.92")
Refrigeration capacity based on a saturated suction and refrigerant liquid cooled to a temperature corresponding with intermediate pressure. Decrease compressor capacity 1.6% for each 5°F. increase in liquid temperature above this level. B.H.P. remains unchanged.

Model 550B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	87.0	120.0	162.0	213.0			
16.5	B.H.P.	140.0	143.0	146.0	148.0			
0	T.R.	84.5	116.5	157.0	206.5	271.0		
24.0	B.H.P.	165.0	168.0	170.0	172.5	175.5		
+10	T.R.		113.0	152.0	200.0	262.0	333.0	
32.8	B.H.P.		191.0	194.0	197.0	200.0	204.0	
+20	T.R.			148.0	194.0	251.5	321.5	407.5
43.0	B.H.P.			218.0	222.0	224.0	227.0	230.5
+30	T.R.				188.0	241.0	310.0	396.0
54.9	B.H.P.				245.0	248.0	252.0	256.0

Model 575B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10	T.R.	87.1	120.6	162.6	214.6			
16.5	B.H.P.	141.4	143.7	146.3	149.1			
0	T.R.	84.4	117.0	157.8	208.4	270.3		
24.0	B.H.P.	165.3	167.6	170.2	173.0	176.2		
+10	T.R.		113.4	153.0	202.1	262.3	335.2	
32.8	B.H.P.		191.5	194.1	197.0	200.2	203.6	
+20	T.R.			148.2	195.8	254.2	325.0	410.0
43.0	B.H.P.			218.0	221.0	224.2	227.7	231.4
+30	T.R.				189.2	245.8	314.4	396.8
54.9	B.H.P.				244.9	248.2	251.7	255.5

R-22, BOOSTER, 3550 R.P.M.

R-22
BOOSTER
MODELS
775B
AND
1160B

Model 775B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10 16.5	T.R.	117.0	162.0	218.4	288.2			
	B.H.P.	189.9	193.0	196.4	200.2			
0 24.0	T.R.	113.3	157.0	211.9	279.8	362.9		
	B.H.P.	222.0	225.1	228.5	232.3	236.6		
+10 32.8	T.R.		152.3	205.5	271.4	352.2	450.1	
	B.H.P.		257.1	260.6	264.5	268.8	273.4	
+20 43.0	T.R.			199.0	263.0	341.3	436.3	550.5
	B.H.P.			292.8	296.7	301.0	305.7	310.7
+30 54.9	T.R.				254.1	330.0	422.1	532.8
	B.H.P.				328.9	333.2	338.0	343.1

Model 1160B

CONDENSING TEMP. °F AND CORRESPONDING PRESSURE PSIG		SUCTION TEMPERATURE °F AND CORRESPONDING PRESSURE PSIG						
		—70 *16.6	—60 *12.0	—50 *6.2	—40 0.5	—30 4.9	—20 10.2	—10 16.5
—10 16.5	T.R.	174.5	241.7	325.8	430.0			
	B.H.P.	283.4	287.9	293.0	298.7			
0 24.0	T.R.	169.1	234.3	316.1	417.5	541.5		
	B.H.P.	331.2	335.8	341.0	346.7	353.0		
+10 32.8	T.R.		227.2	306.6	405.0	525.5	671.6	
	B.H.P.		383.7	388.9	394.7	401.0	407.9	
+20 43.0	T.R.			296.9	392.4	509.3	651.1	821.4
	B.H.P.			436.8	442.7	449.1	456.1	463.7
+30 54.9	T.R.				379.1	492.4	629.9	795.0
	B.H.P.				490.7	497.2	504.3	511.9

TABLE 4

OIL COOLER DATA

COOLING WATER REQUIREMENTS AND PRESSURE DROP

SHORT FORM SELECTION
FOR SPECIFIC WATER TEMPERATURE AND OPERATING CONDITIONS

REFRIGERANT	R-717			R-22			R-717			R-22		
DUTY	H.S.			H.S.			BOOSTER			BOOSTER		
DISCHARGE TEMP *	95			105			20			20		
SUCTION*	10			10			—40			—50		
MODEL	COOLER	GPM	P.D.	COOLER	GPM	P.D.	COOLER	GPM	P.D.	COOLER	GPM	P.D.
95	A	30	9	A	16	7	A	16	7	A	16	7
100	A	32	9	A	17	7	A	16	7	A	16	7
135	A(SP)	41	7	A	19	7	A	16	7	A	16	7
140	A(SP)	45	8	A	22	7	A	16	7	A	16	7
175	A(SP)	52	8	A	22	7	A	16	7	A	16	7
180	A(SP)	55	9	A	32	9	A	16	7	A	16	7
255	B	70	9	A	29	9	A	16	7	A	16	7
270	B	73	9	A	35	10	A	17	7	A	17	7
305	B	80	10	A	32	9	A	19	7	A	16	7
350	B	93	11	A	37	11	A	21	7	A	16	7
385	B	98	12	A(SP)	46	8	A	21	7	A	16	7
420	C	110	8	A(SP)	45	8	A	24	8	A	16	7
500	C	125	9	A(SP)	48	8	A	27	8	A	16	7
550	C	133	9	A(SP)	52	8	A	29	10	A	16	7
575	C	135	10	A(SP)	59	9	A	29	10	A	16	7
775							A(SP)	41	7	A	16	7
1160							A(SP)	55	9	A	16	7

NOTE: The water quantities in G.P.M. in the table above are based on water entering the cooler at 85° F. and leaving at 95° F. The pressure drop, P.D. is in pounds per square inch, P.S.I. and it includes 5 P.S.I. for the water regulating valve. For entering water temperatures adjust the water quantities by applying the following factors: 85° F. entering water 1.0, 80° F. entering water 0.67, and 75° F. entering water 0.50, taking note of the limitations below:

LIMITATIONS	Cooler A	Cooler A (SP)	Cooler B	Cooler C
Max. G.P.M.	42	83	102	175
Min. G.P.M.	16	32	39	66

Maximum desirable water temperature off cooler, 95°F.
Oil cooler selection includes water side fouling factor of .001.
For operating conditions, other than those used in table above, use data on pages 52, 53, 54 or 55 of this brochure.

*Tp

AMMONIA, SINGLE STAGE, 3550 R.P.M.
OIL COOLER HEAT REJECTION BTU/MIN.
120 DEG. F. OIL OUT OF COOLER

TABLE 5

CT °F	ET °F	MODEL NUMBER																	
		65	95	100	135	140	175	180	255	270	305	350	385	420	500	550	575	775	1160
	−40	2206	2949	3060	4084	4504	5586	5770	7785	8301	9096	10634	10878	12552	14885	16284	15752	21672	31662
	−30	2195	2934	3068	4118	4494	5378	5701	7620	8153	8906	10445	10758	12327	14476	15649	15379	21342	30932
	−20	2218	2965	3112	4148	4502	5283	5715	7398	8092	8717	10245	10647	12141	14098	15295	15106	21196	30482
	−10	2263	3025	3172	4192	4556	5384	5748	7384	8022	8631	10309	10684	12147	14017	15101	14956	21140	30058
105	0	2316	3095	3265	4283	4608	5474	5792	7390	7968	8711	10270	10653	12061	13932	14933	14713	20957	29661
	10	2287	3057	3214	4196	4513	5401	5663	7251	7669	8236	9694	10283	11534	13106	14017	13975	20066	28308
	20	2180	2914	3144	3981	4320	5175	5352	6954	7172	7787	9173	9637	10813	12237	13005	12940	18833	26022
	30	2086	2788	2927	3785	3979	4763	4942	6343	6499	6989	8582	8858	10126	11281	11962	11678	16667	23274
	40	1852	2475	2600	3289	3251	4070	4273	5318	5573	5906	7464	7646	8826	9754	10317	9932	14848	19737
	−40	1960	2619	2670	3599	3946	4788	5012	6709	7225	7906	9275	9483	10917	12902	14094	13635	18747	27033
	−30	1868	2497	2683	3562	3907	4635	4956	6599	7067	7676	8877	9272	10468	12123	13168	13232	18295	26145
	−20	1912	2556	2733	3552	3955	4569	4927	6371	6940	7432	8577	9146	10172	11834	12684	12937	18029	25397
	−10	1948	2603	2774	3644	3928	4610	4935	6351	6867	7382	8667	9146	10130	11754	12501	12723	17764	24781
95	0	1975	2639	2777	3628	3897	4681	4847	6297	6631	7259	8494	8843	10003	11554	12278	12150	17142	23471
	10	1880	2513	2681	3406	3724	4354	4551	5862	6099	6690	7778	8150	9189	10460	11118	11066	15849	21352
	20	1720	2299	2533	3141	3479	4065	4301	5435	5691	6073	7219	7554	8495	9622	10243	10128	14576	19267
	30	1558	2082	2253	2781	3020	3356	3633	4511	4748	4975	6152	6368	7183	7960	8430	8397	12166	15768
	40	1344	1796	1912	2391	2570	2795	3126	3664	4012	4116	5143	5273	6025	6624	6978	6828	9996	12690
	−40	1655	2212	2335	3104	3397	4155	4340	5801	6244	6848	7940	8183	9332	11126	12132	11735	16180	23201
	−30	1614	2157	2316	3104	3324	4043	4296	5609	6076	6481	7617	7968	8953	10395	11268	11325	15708	22212
	−20	1627	2175	2343	3043	3334	3911	4254	4854	5939	6302	7309	7804	8662	10025	10752	11002	15291	21386
	−10	1645	2199	2297	3015	3276	3863	4055	5377	5734	6301	7267	7446	8491	9904	10507	10416	14663	20143
85	0	1555	2078	2213	2891	3085	3741	3856	5072	5270	5804	6741	6933	7937	9205	9736	9490	13435	18168
	10	1467	1961	2105	2617	2855	3476	3615	4700	4837	5393	6049	6358	7145	8155	8747	8570	12285	16272
	20	1239	1656	1813	2258	2464	2951	3081	3946	4078	4420	5078	5374	5951	6749	7155	7124	10201	13257
	30	1071	1432	1537	1890	2039	2388	2554	3171	3298	3486	4049	4244	4772	5279	5605	5575	8117	10247
	40	866	1158	1246	1636	1623	1816	1987	2348	2546	2614	3182	3299	3756	4122	4361	4212	6206	7648
	−40	1395	1865	2053	2681	2948	3537	3761	4935	5418	5813	6642	6991	7806	9393	10316	10062	13871	19886
	−30	1409	1883	1998	2643	2866	3445	3685	4641	5217	5366	6490	6754	7470	8699	9424	9567	13331	18798
	−20	1404	1876	1950	2574	2756	3240	3522	4503	4897	5150	6078	6343	7219	8360	8886	8919	12520	17410
	−10	1316	1759	1801	2370	2594	3076	3226	4266	4490	4758	5779	5810	6750	7865	8357	8029	11429	15641
75	0	1167	1560	1699	2196	2381	2860	2981	3894	4086	4434	5079	5251	6031	7013	7448	7187	10337	13899
	10	1013	1354	1529	1830	2060	2431	2542	3364	3404	3739	4046	4454	4744	5426	5815	5943	8651	11442
	20	786	1051	1200	1434	1606	1916	1970	2527	2587	2859	3021	3408	3533	4052	5748	4457	6518	8520
	30	618	826	921	1106	1208	1432	1455	1834	1864	1999	2179	2437	2551	2838	3050	3151	4591	5865
	40	432	577	642	771	831	903	980	1187	1226	1254	1470	1595	1770	1926	2066	2061	2943	3583

R-22, SINGLE STAGE, 3550 R.P.M.
OIL COOLER HEAT REJECTION BTU/MIN.
140 DEG. F. OIL OUT OF COOLER

TABLE 7

CT °F	ET °F	MODEL NUMBER																	
		65	95	100	135	140	175	180	255	270	305	350	385	420	500	550	575	775	1160
	−40	1833	2450	3014	3458	4306	4571	5551	6323	7474	7576	9403	10025	10988	12767	13838	14000	19755	28284
	−30	1728	2310	2848	3238	4005	4346	4984	5794	6769	6978	8533	9223	10003	11593	12394	12717	18216	25900
	−20	1679	2244	2721	3032	3773	4002	4764	5339	6221	6196	7647	8568	9055	10221	11049	11593	16852	23627
	−10	1604	2144	2574	2863	3527	3696	4422	4903	5728	5573	6894	7854	8102	9105	9575	10404	15297	21192
115	0	1452	1941	2309	2624	3080	3281	3789	4284	4876	4774	5833	6797	7042	7625	8207	8927	13140	18179
	10	1372	1834	2074	2377	2659	2860	3604	3736	4207	4113	5043	5875	5928	6624	6976	7517	11368	15426
	20	1250	1672	1836	2182	2366	2599	2908	3206	3631	3581	4513	5137	5287	5827	6187	6563	9892	13195
	30	1060	1417	1600	1882	2013	2169	2360	2711	3029	2894	3876	4203	4745	5084	5190	5282	8077	10645
	40	790	1057	1216	1381	1526	1582	1924	1969	2253	2114	2732	3157	3346	3528	3783	3900	6028	7791
	−40	1531	2047	2461	2857	3438	3658	4365	5066	5925	5844	7163	7902	8525	9850	10431	10930	15510	22140
	−30	1430	1912	2295	2641	3171	3423	3975	4610	5324	5272	6382	7149	7530	8589	9238	9779	14040	19828
	−20	1322	1767	2158	2432	2890	3127	3635	4048	4759	4631	5679	6493	6720	7471	8067	8768	12749	17662
	−10	1210	1618	1916	2227	2580	2802	3216	3635	4157	4056	4757	5704	5642	6276	6735	7456	10913	14993
105	0	1065	1424	1681	1895	2211	2322	2963	3028	3495	3353	3923	4761	4696	5107	5411	6137	9120	12276
	10	902	1205	1448	1594	1870	1883	2591	2443	2931	2673	3109	3838	3736	4036	4313	4904	7447	9878
	20	772	1032	1237	1336	1562	1454	1744	1851	2367	2026	2654	3188	3169	3408	3682	4016	6100	8045
	30	530	708	878	912	1096	1039	1235	1354	1600	1411	1876	2211	2101	2523	2555	2726	4125	5322
	40	314	420	586	551	702	589	794	711	955	791	1022	1280	1144	1269	1582	1567	2389	3019
	−40	1286	1719	1933	2389	2650	2928	3367	3877	4530	4526	5955	6074	7161	8044	8509	8332	11853	16750
	−30	1147	1533	1776	2125	2381	2683	2970	3465	4020	3917	5043	5292	5997	6810	7187	7225	10431	14511
	−20	1016	1358	1602	1825	2146	2294	2586	3031	3480	3378	4240	4734	5026	5680	5982	6268	9070	12440
	−10	854	1141	1342	1533	1787	1938	2163	2568	2837	2833	3367	3807	3912	4449	4630	4923	7234	9838
95	0	686	917	1116	1211	1415	1439	1944	1947	2181	2131	2501	2983	3019	3226	3507	3826	5619	7494
	10	530	708	868	955	1104	1096	1238	1452	1660	1567	1729	2186	2033	2305	2523	2770	4150	5416
	20	278	372	633	482	777	459	906	595	1094	655	1208	1441	1388	1547	1789	1791	2651	3439
	30	72	96	306	132	385	126	143	161	422	200	374	521	452	516	476	590	892	1145
	−40	974	1302	1464	1792	1995	2041	2601	2767	3341	3116	4430	4429	5364	6049	6580	6046	8581	11962
	−30	836	1118	1325	1529	1734	1704	2041	2372	2809	2593	3640	3744	4348	4796	5367	5087	7203	9955
85	−20	729	974	1128	1267	1435	1434	1834	1913	2320	2105	2908	3001	3361	3804	4078	3963	5743	7784
	−10	543	726	836	957	1094	1026	1289	1347	1663	1515	1959	2178	2264	2670	2644	2810	4105	5469
	0	392	525	619	686	758	624	921	850	1119	940	1229	1456	1317	1547	1559	1826	2658	3497
	10	280	375	391	462	476	276	453	402	613	437	630	795	669	744	866	949	1348	1805

R-22, BOOSTER, 3550 R.P.M.
OIL COOLER HEAT REJECTION BTU/MIN.
120 DEG. F. OIL OUT OF COOLER

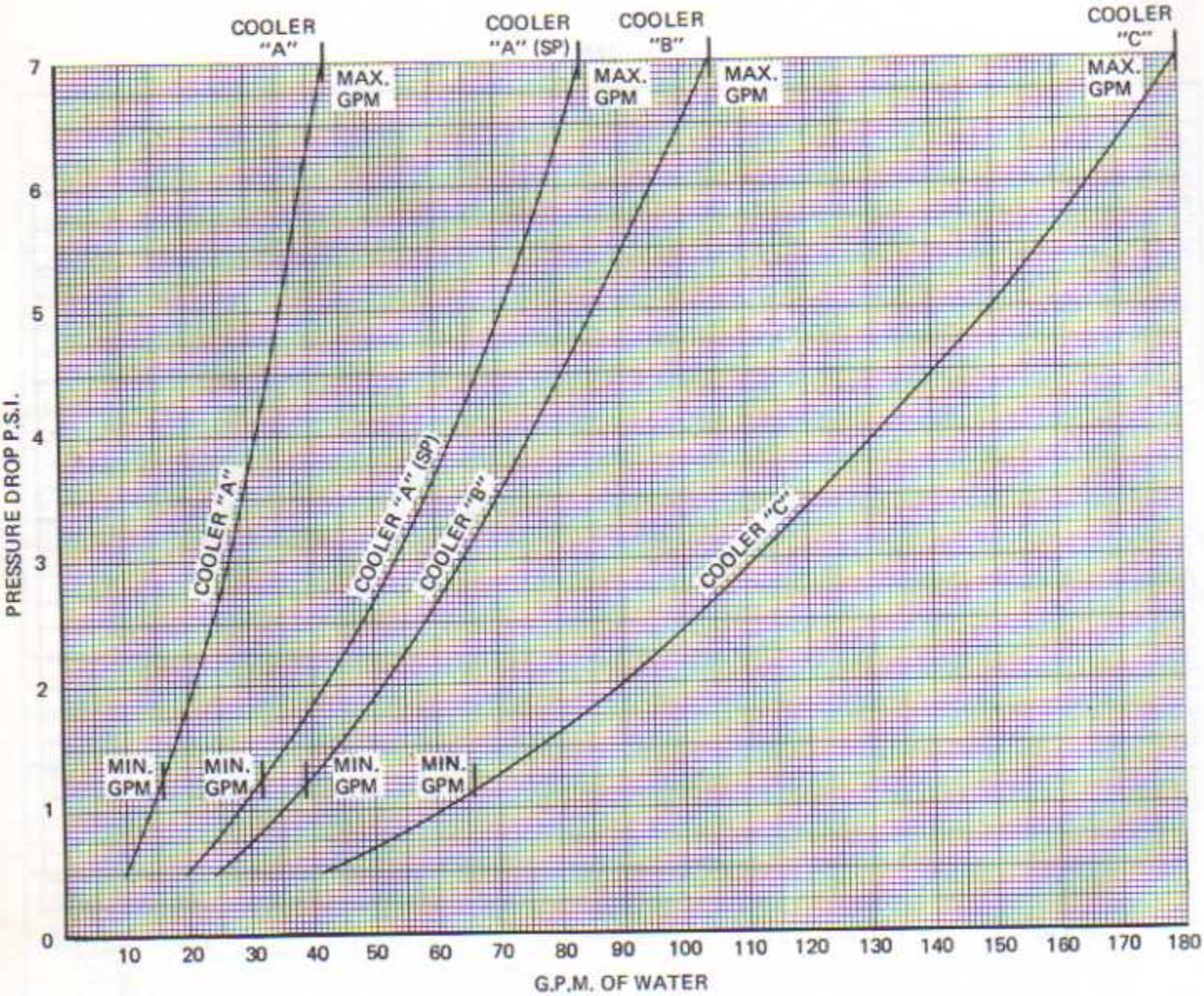
You will note that zero or negative heat rejections are indicated for some operating conditions below. However, all such units will be furnished with a size "A" oil cooler. The reason is that under part load conditions, positive heat rejections can develope which would require an oil cooler.

TABLE 8

CT °F	ET °F	MODEL NUMBER																
		95	100	135	140	175	180	255	270	305	350	385	420	500	550	575	775	1160
	−40	93	110	84	117	76	64	—	58	102	25	41	64	47	46	—	—	—
30	−30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	−20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	−10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	−50	180	206	234	251	294	250	139	310	382	363	377	420	442	458	451	614	828
	−40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
20	−30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	−20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	−10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	−60	224	285	317	373	391	424	556	556	655	662	706	736	849	910	907	1280	1689
	−50	10	29	5	15	—	—	—	—	—	—	—	—	—	—	—	—	—
10	−40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	−30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	−20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	−70	300	349	401	480	522	567	745	773	840	847	991	1010	1219	1306	1322	1851	2497
	−60	83	116	114	139	110	109	178	132	200	106	139	91	183	182	149	217	283
0	−50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	−40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	−30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	−70	140	178	192	231	237	245	350	323	339	263	403	378	424	477	517	723	981
-10	−60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	−50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	−40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

OIL COOLER DATA
WATER PRESSURE DROP

FIGURE 3



HIGH STAGE LOAD MULTIPLIER NO PRECOOLER SIDE LOAD AMMONIA

FIGURE 4

(Use this curve when, 1. Booster compressor is mounted on same package as high stage compressor — No precooler side load, or 2. Booster compressor is mounted on a different package than the high stage compressor — No precooler side load; water, brine, or air cooled oil cooler; booster discharges directly into suction of higher stage.)

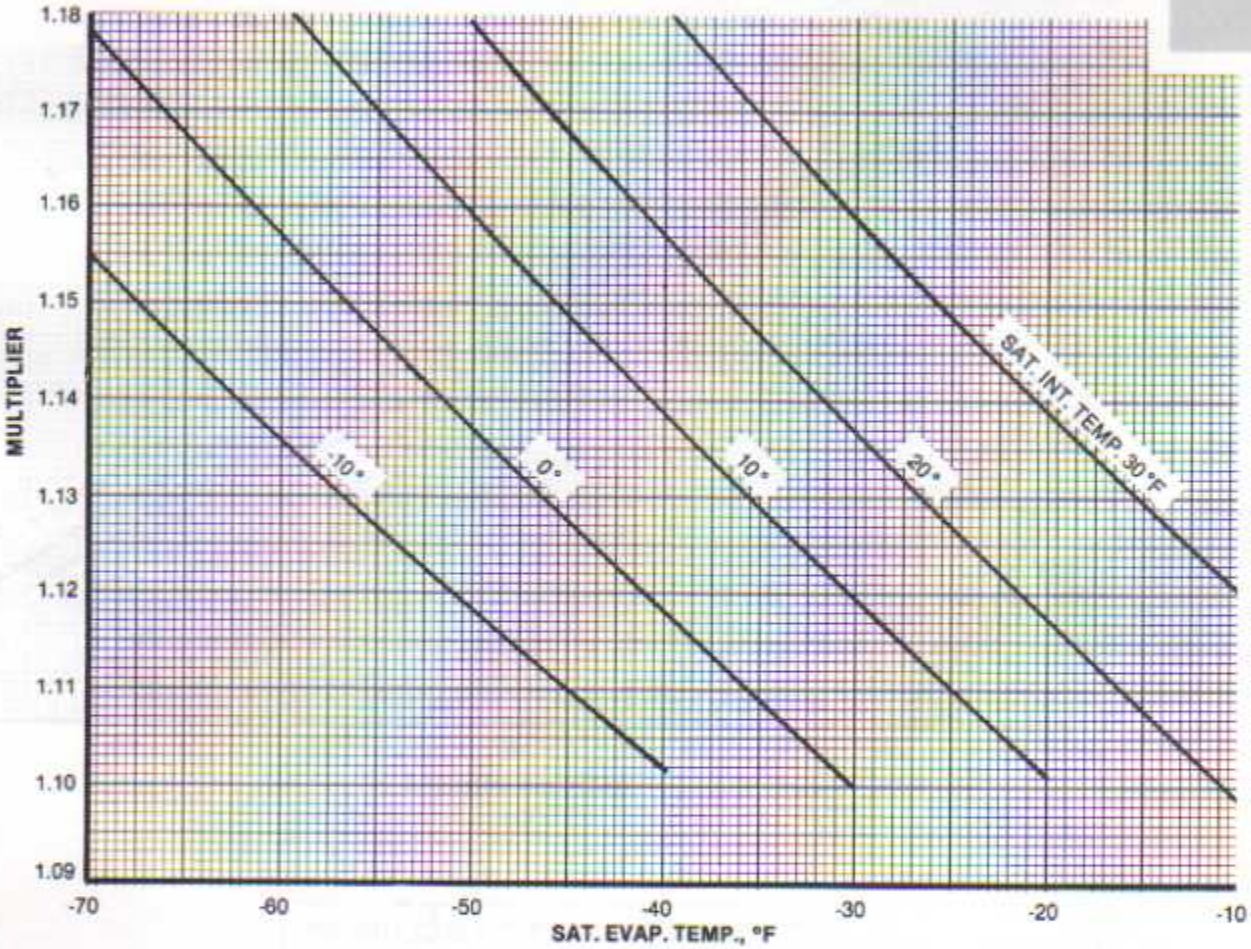


TABLE 9 — CORRECTION MULTIPLIER

SOC COOLED BOOSTER NO PRECOOLER SIDE LOAD

SAT. INT. TEMP. °F	SAT. EVAP. TEMP., °F						
	–70	–60	–50	–40	–30	–20	–10
–10	1.23	1.12	1.04	1.00			
0	1.31	1.18	1.08	1.02	1.00		
10		1.23	1.13	1.05	1.01	1.00	
20			1.16	1.09	1.03	1.00	
30				1.11	1.06	1.02	1.00

NOTE: Multiplier based on 95°F. condensing temperature. Increase multiplier 1.2% for each 5°F. increase in condensing temperature above this level.

HIGH STAGE LOAD MULTIPLIER WITH PRECOOLER SIDE LOAD AMMONIA

FIGURE 5

(Use this curve when, 1. Booster compressor is mounted on the same package as high stage compressor – with precooler side load, or 2. Booster compressor is mounted on a different package than high stage compressor – With precooler side load; water, brine, or air cooled oil cooler; booster discharges directly into suction of higher stage.)

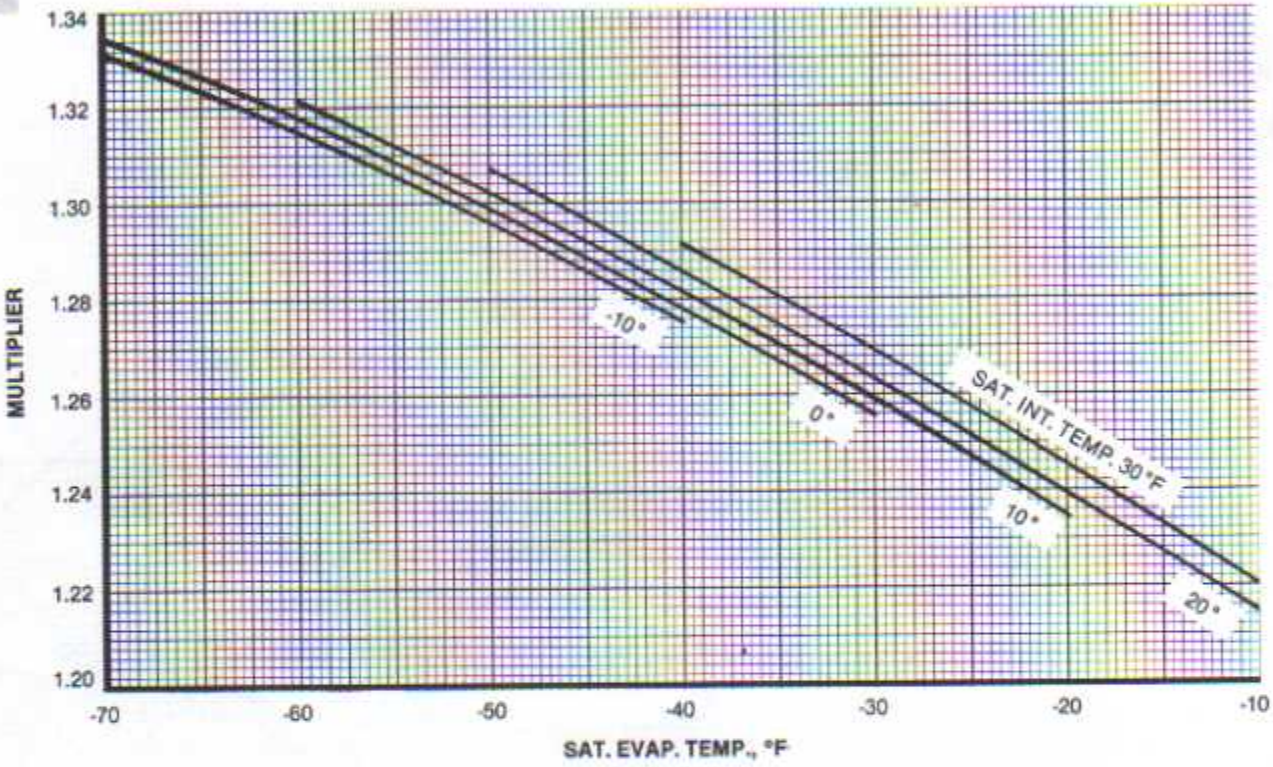


TABLE 10 — CORRECTION MULTIPLIER

SOC COOLED BOOSTER WITH PRECOOLER SIDE LOAD

SAT. INT. TEMP. °F	SAT. EVAP. TEMP., °F						
	–70	–60	–50	–40	–30	–20	–10
–10	1.20	1.10	1.03	1.00			
0	1.28	1.16	1.07	1.01	1.00		
10		1.20	1.10	1.05	1.01	1.00	
20			1.15	1.08	1.03	1.00	
30				1.10	1.05	1.01	1.00

NOTE: Multiplier based on 95°F. condensing temperature. Increase multipler 1.2% for each 5° F. increase in condensing temperature above this level.

HIGH STAGE LOAD MULTIPLIER SOC BOOSTER DISCHARGING INTO INTERCOOLER AMMONIA

(Use this curve when, 1. Booster compressor is mounted on a different package than the high stage compressor — Booster compressor discharges into intercooler; SOC oil cooling.)

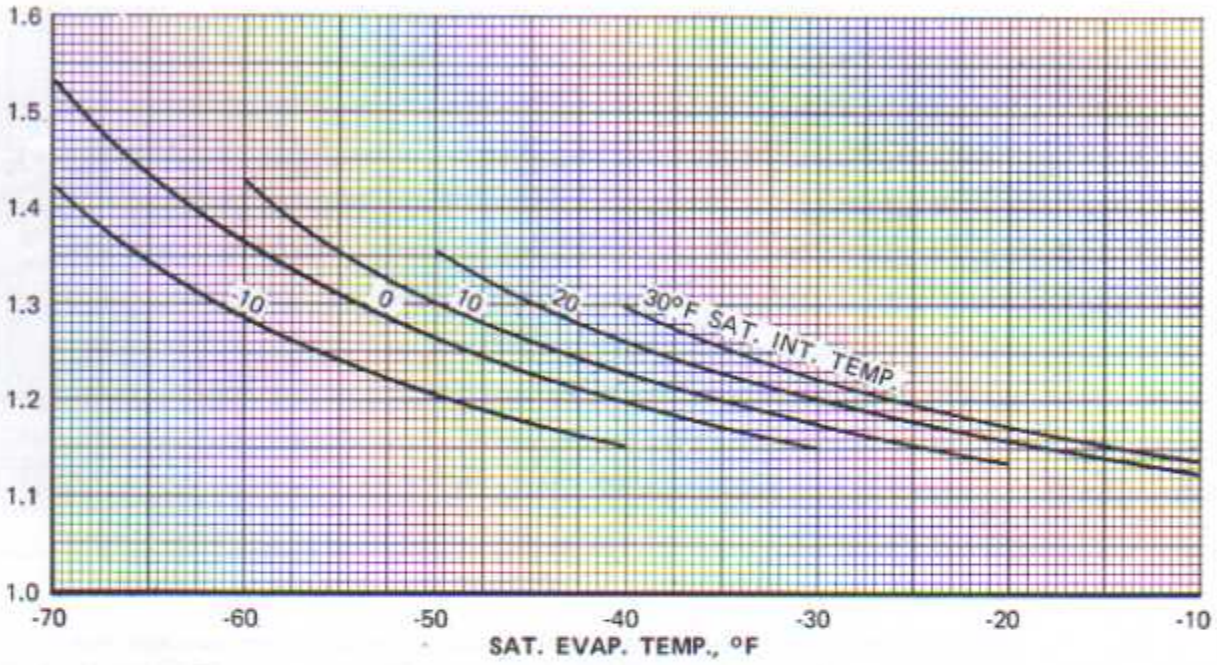


TABLE 11 — CORRECTION MULTIPLIER
WATER COOLED BOOSTER DISCHARGING INTO INTERCOOLER

SAT. INT. TEMP. °F	SAT. EVAP. TEMP., °F						
	–70	–60	–50	–40	–30	–20	–10
–10	0.84	0.91	0.97	1.00			
0	0.79	0.87	0.94	0.98	1.00		
10		0.83	0.91	0.96	1.00		
20			0.87	0.93	0.97	1.00	
30				0.91	0.95	0.99	1.00

NOTE: Multiplier based on 95°F. condensing temperature. Increase multiplier 1.2% for each 5°F. increase in condensing temperature above this level.

HIGH STAGE LOAD MULTIPLIER
NO PRECOOLER SIDE LOAD
R-22

FIGURE 7

(Use this curve when Booster compressor is mounted on same package as high stage compressor — No precooler side load; water, brine, or air cooled oil cooler; booster discharges directly into suction of higher stage. 140°F. oil out of cooler.)

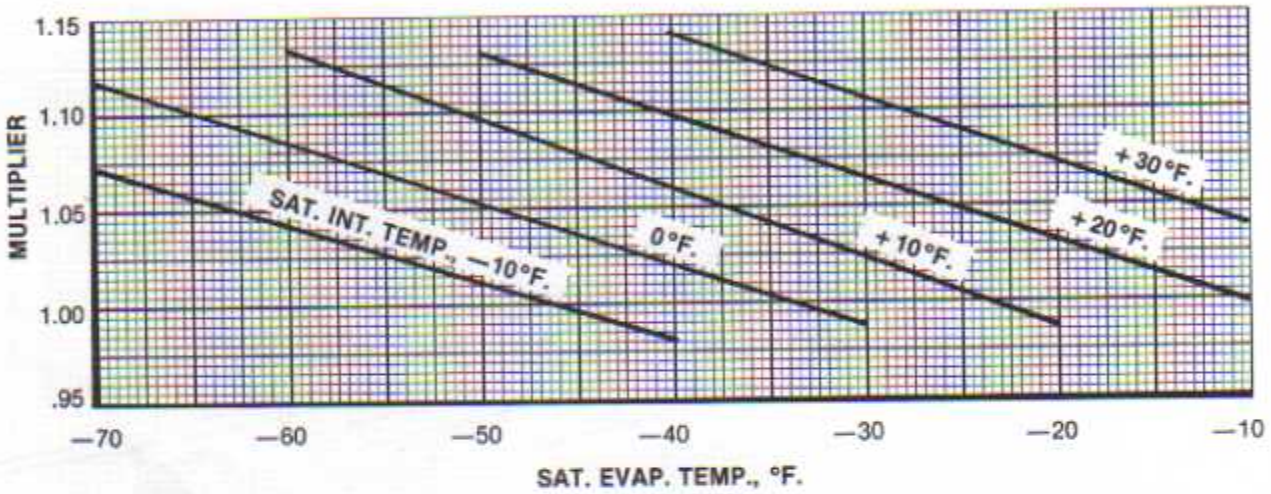
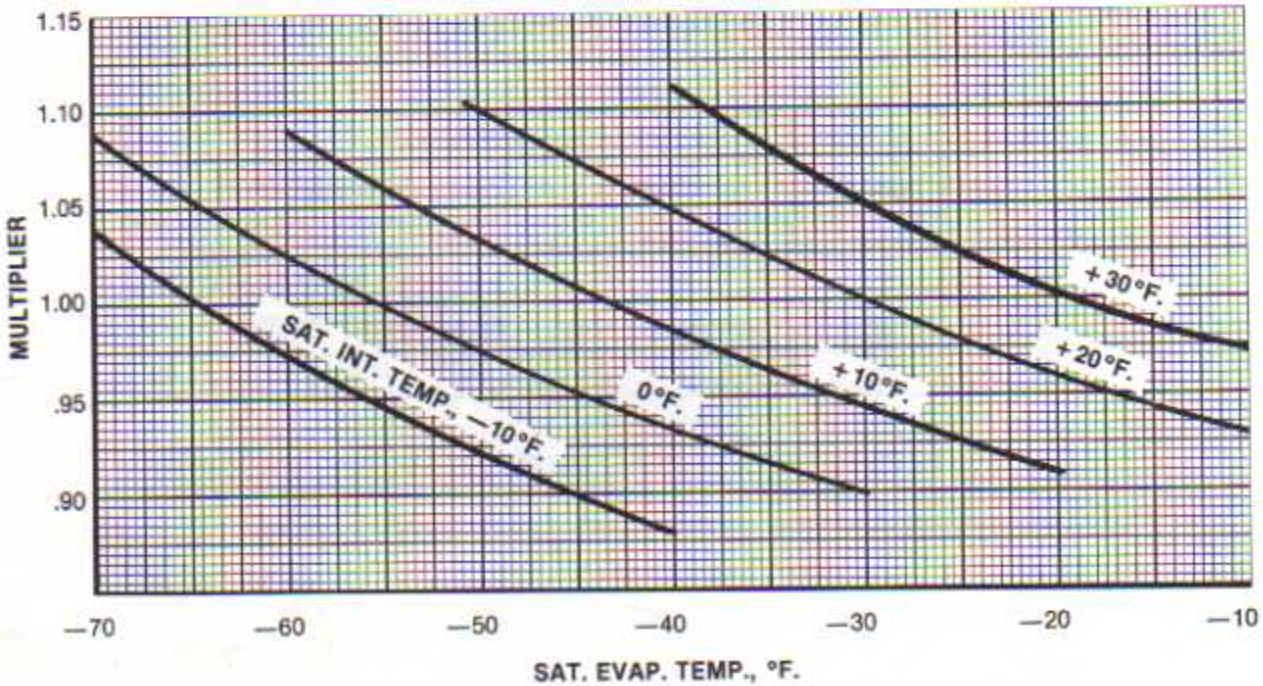


FIGURE 8

(Use this curve when Booster compressor is mounted on a different package than the high stage compressor — No precooler side load; water, brine, or air cooled oil cooler; booster package discharges directly into suction of higher stage. 120°F. oil out of cooler.)



HIGH STAGE LOAD MULTIPLER WITH PRECOOLER SIDE LOAD BOOSTER DISCHARGING INTO SUCTION OF HIGHER STAGE OR BOOSTER DISCHARGING INTO INTERCOOLER R-22

FIGURE 9

(Use this curve when Booster compressor is mounted on the same package as high stage compressor — With precooler side load; water, brine, or air cooled oil cooler; booster discharges directly into suction of higher stage. 140°F. oil out of cooler.)

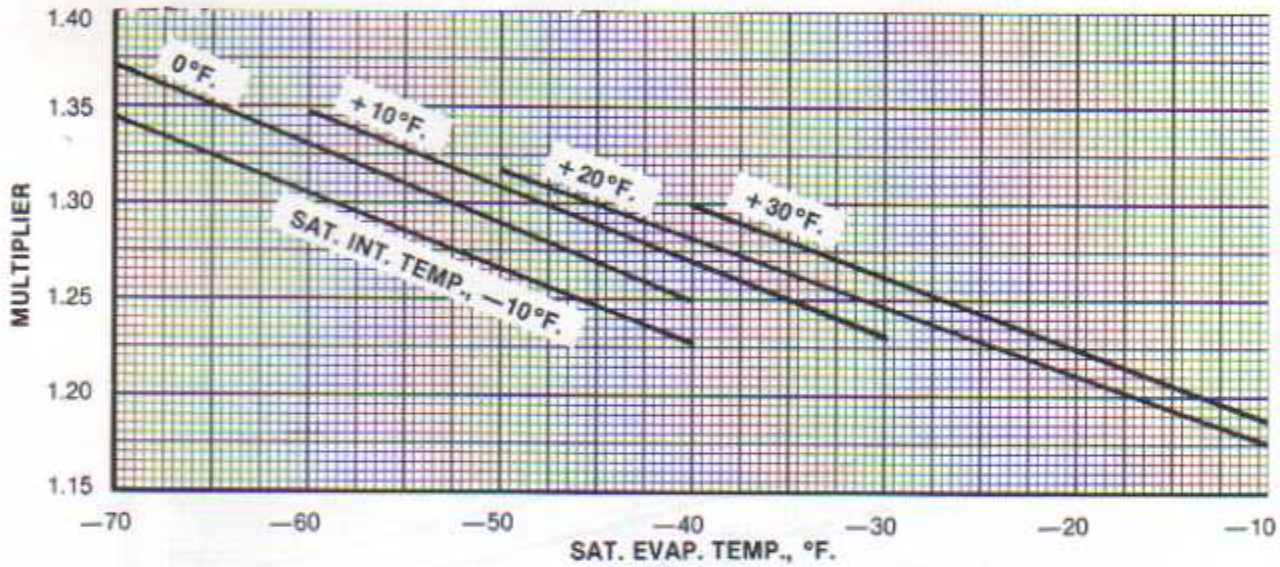
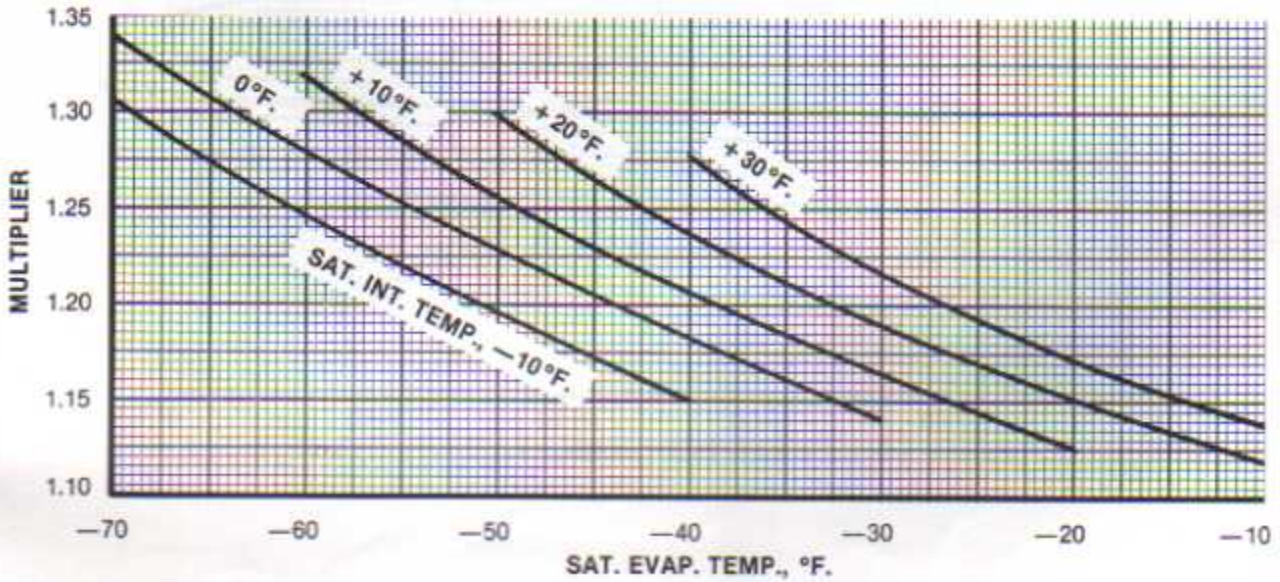


FIGURE 10

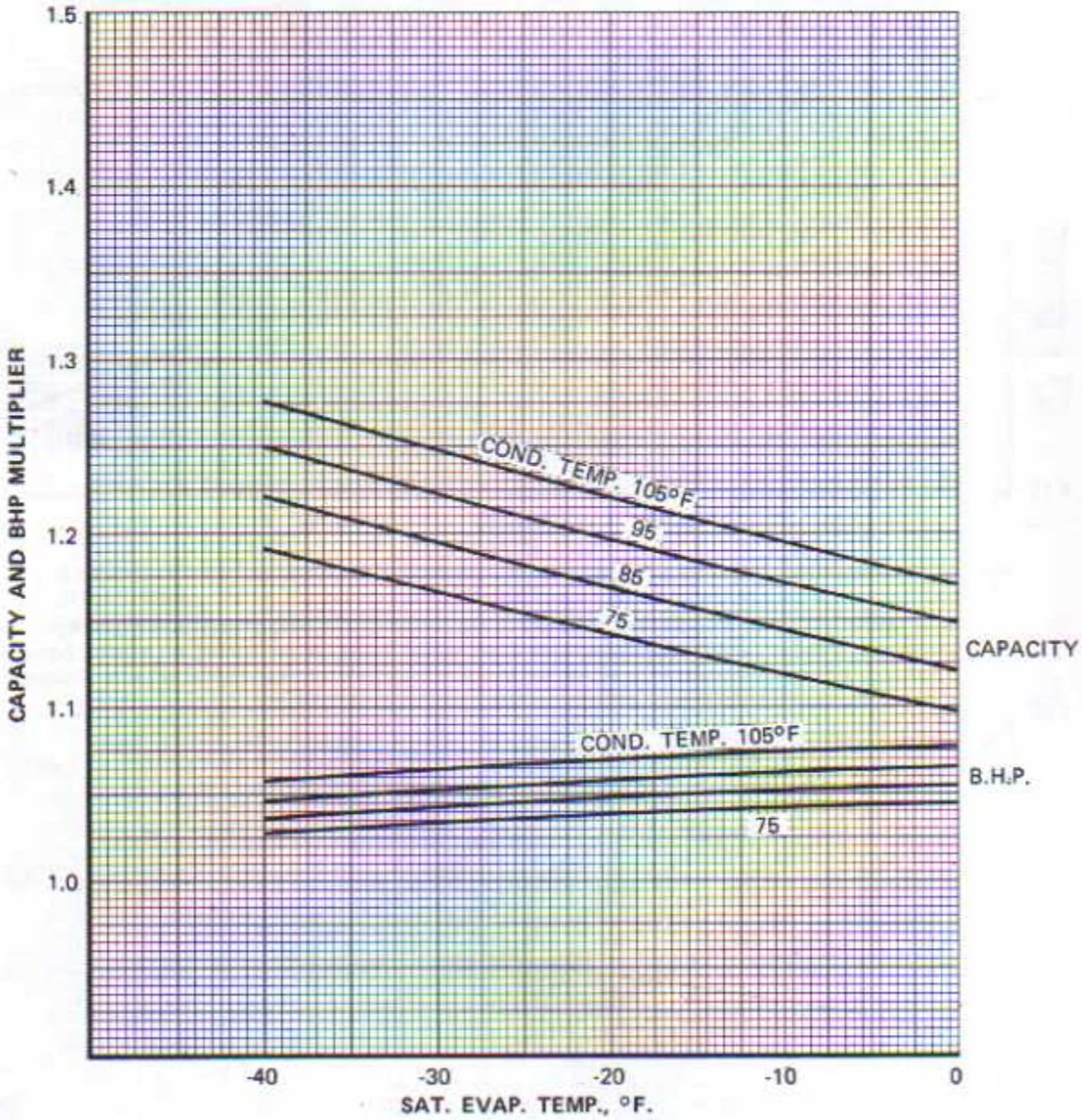
(Use this curve when Booster compressor is mounted on a different package than high stage compressor — With precooler side load; water, brine, or air cooled oil cooler; booster discharges directly into suction of higher stage or into intercooler. 120°F. oil out of cooler.)



CAPACITY AND BHP MULTIPLIER WITH "ECONOMISER" FOR AMMONIA

FIGURE 11

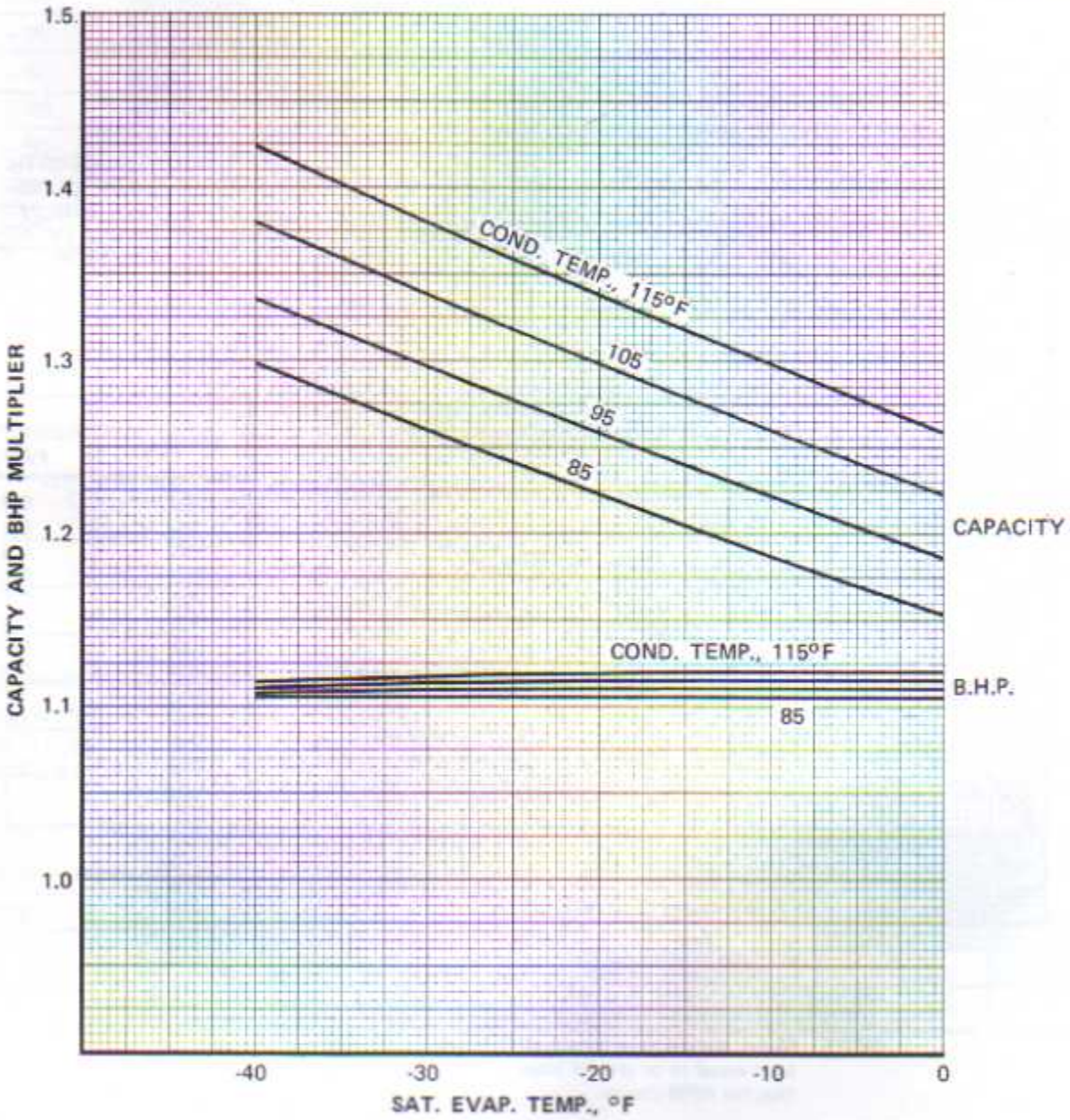
(The multipliers are based on use of a shell and coil type subcooler with high pressure liquid cooled to within 10°F. of saturated side port temperature.)



CAPACITY AND BHP MULTIPLIER WITH "ECONOMISER" FOR R-22

FIGURE 12

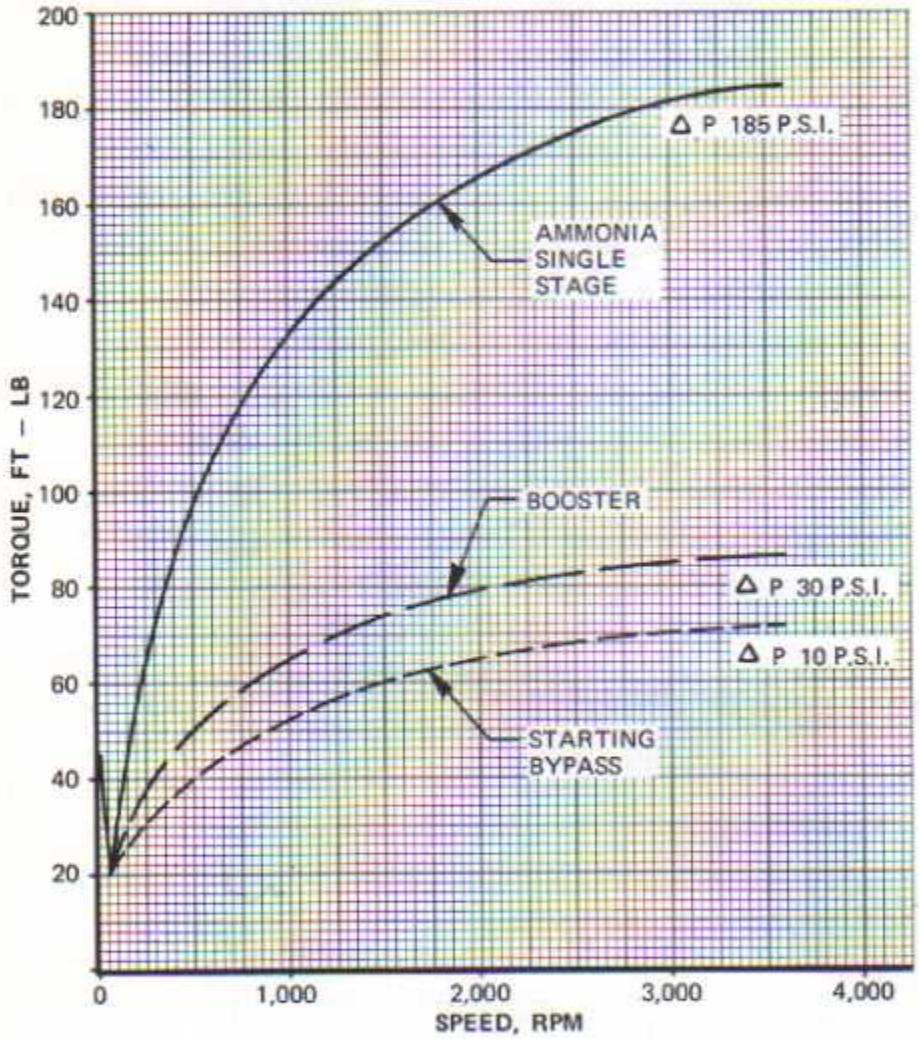
(The multipliers are based on use of a shell and coil type subcooler with high pressure liquid cooled to within 10°F. of saturated side port temperature.)



AMMONIA TORQUE vs. SPEED
Typical

AMMONIA TORQUE VS. SPEED

FIGURE 13



VALUES WITH SLIDE VALVE AT MINIMUM CAPACITY POSITION

MODEL	CORRECTION FACTOR
65	0.21
95	0.31
100	0.32
135	0.42
140	0.46
175	0.67
180	0.70
255	0.90
270	1.00
305	1.08
350	1.46
385	1.53
420	1.74
500	1.84
550	2.02
575	2.15
775	3.30
1160	4.59

NOTE: Motor should have torque at least equal to or greater than that for RPM shown.

Check with York office for specific application.

TWO STAGE PACKAGE PRECOOLER SELECTION

TABLE 12

SATURATED SUCTION TEMP. °F.	MODEL SCREW COMPRESSOR, AMMONIA BOOSTER																
	95	100	135	140	175	180	255	270	305	350	385	420	500	550	575	775	1160
–10	A		B		C		D			E		F			G		—
–20					B		C			D			E		F		—
–30							B			C		D			E	F	G
–40			A							B		C			D	E	F
–50												B			C	D	E
–60							A							B		C	D
–70															A	B	C

"ECONOMISER" PRECOOLER SELECTION

TABLE 13

SATURATED SUCTION TEMP. °F.	MODEL SCREW COMPRESSOR, AMMONIA																
	95	100	135	140	175	180	255	270	305	350	385	420	500	550	575	775	1160
0		A		B		C		D			E		F		G		—
–10						B	C			D							—
–20														E		F	G
–30		A				A		B		C		D			D	F	
–40										B			C			D	F

TWO STAGE PACKAGE PRECOOLER SELECTION

TABLE 14

SATURATED SUCTION TEMP. °F.	MODEL SCREW COMPRESSOR, R-22 BOOSTER																
	95	100	135	140	175	180	255	275	305	350	385	420	500	550	575	775	1160
−10	L		T		M		O		O		O	P		P	P	W	Y
−20																	
−30																	
−40	S		L		T		M		M		U		V		V	P	X
−50																	
−60	S		L		T		M		M		U		V		V	P	X
−70																	

"ECONOMISER" PRECOOLER SELECTION

TABLE 15

SATURATED SUCTION TEMP. °F.	MODEL SCREW COMPRESSOR, R-22																
	95	100	135	140	175	180	255	270	305	350	385	420	500	550	575	775	1160
0	L		M		N			O	P		P			Q		R	—
−10									P			P			Q		R
−20	L			M		N				O			P				
−30									O								Q
−40		L					M		N	N			O			P	

CAPACITY CONTROL SYSTEM

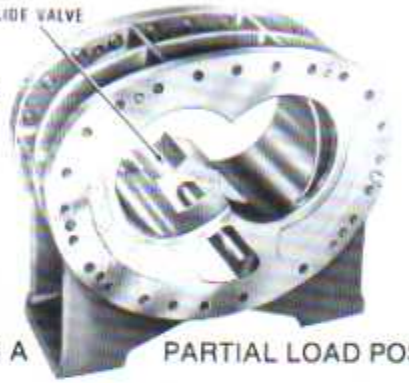
Slide valve design for capacity reduction is shown within the rotor housing in Figures 14A and 14B. Axial movement of this valve is programmed by pressure or temperature initiated hydraulic actuated control arrangement. When the compressor is fully loaded, the slide valve is in the closed position (Figure 14A) and the flow of all the gas through the rotor housing is as described above. Unloading starts when the slide valve is moved back away from the valve stop (Figure 14B). Movement of valve creates an opening in the bottom of the rotor housing through which suction gas can pass back from the rotor housing to the inlet port area before it has yet been compressed. Since no significant amount of work has been done on this return gas, there are no appreciable losses incurred. Reduced compressor capacity is obtained from the gas which is inside the inner part of the rotors and which is compressed in the ordinary manner. Capacity reduction down to 10% of full load is realized by progressive backward movement of the slide valve away from the valve stop. In principle, enlarging the opening in the rotor housing effectively reduces compressor displacement. This action permits infinite steps of compressor capacity reduction with reduction in brake horsepower as shown in Figure 15.

SLIDE VALVE

FIGURE 14A

VALVE IN FULL LOAD POSITION

FIGURE 14B



VALVE IN A PARTIAL LOAD POSITION

TYPICAL PART LOAD POWER INPUT RELATIONS R-22 AND R-717

FIGURE 15