



Commercial Refrigeration Line

The new FMPS-P: FriconUSA Modular Parallel System, Premium series, air cooled condenser, are the result of many years of research to provide practical, fast, high quality, efficient solutions and reliable technology for the commercial refrigeration industry.

The most common applications are centralized refrigeration for small and medium-sized supermarkets, cold rooms, blast coolers or freezers, continuous rapid cooling tunnels, block or flake ice making machines, thermal ice storage, etc.

Our exclusive "patented pending" Modular Parallel System (MPS) design permits forming a parallel system "Rack" with Variable Refrigerant Flow (VRF) by simply joining units (1 Master and up to 13 Slaves) in order to create "loops" for one or two suction groups for any application.

By using Bitzer Ecoline Semi-Hermetic compressors with infinite variable capacity control "CRII" between 10% and 100% or the implementation of an external VFD (Variable Frequency Drive) or "Varispeed Compressor" on the first compressor, we convert this condensing unit into an incredible VRF (Variable Refrigerant Flow) system resulting in a greater adaptability to the thermal load demand and maximizes energy savings at partial load.

Our MPS system allows different "loops" to form at different evaporation temperatures depending on the application requirements, for example a supermarket typically requires circuits of +35°F, +20°F and +14°C SST for medium temperature display cases and coolers. In a conventional Rack these requirements are combined in a suction group at the lowest temperature adjusting each need with EPR valves. With our MPS you could have three suction groups at three different temperatures, minimizing the size of the compressors and increasing system efficiency.

Application Temperature:

- "H" High: +45°F (+7.2°C) to +10°F (-12.2°C) SST
- "M" Medium: +30°F (-1.1°C) to -20°F (-29°C) SST
- "L" Low: +5°F (-15°C) to -40°F (-40°C) SST



Optional



DESIGNED • ENGINEERED • ASSEMBLED
USA

UL US LISTED
508A

ECOFriendly
BY FRICONUSA

POWERED BY:

FMPS-P SERIES, A.1

MODULAR PARALLEL SYSTEM

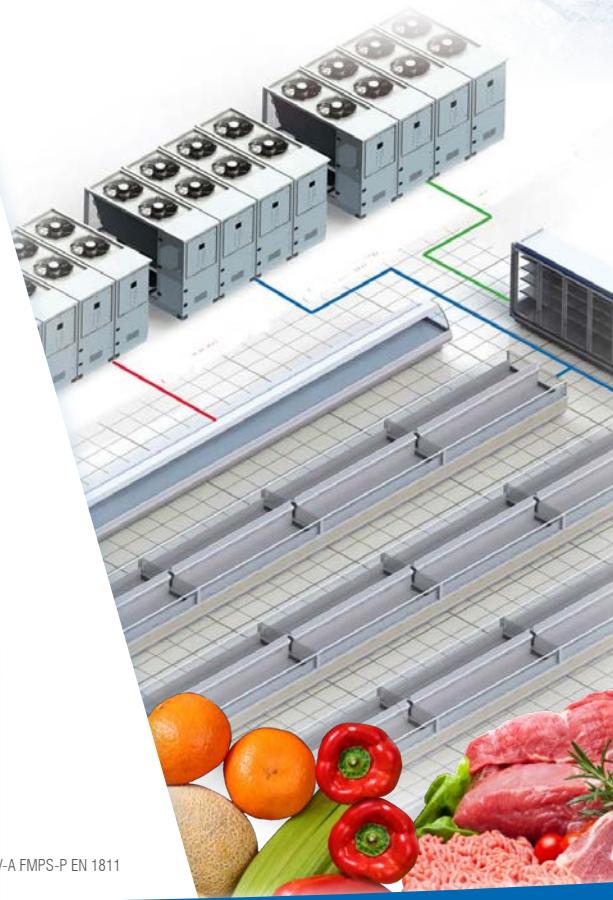
PREMIUM SERIES, AIR COOLED CONDENSER
SEMI-HERMETIC COMPRESSOR
9 -50 HP / 700 HP PER SET

PREMIUM
SERIES

FMPS™
FRICONUSA MODULAR PARALLEL SYSTEM



ENERGY \$AVER
UP TO 35%



STANDARD FEATURES & BENEFITS:

- Capable of forming a parallel system (rack) with Variable Refrigerant Flow (VRF) from 2 to 8 compressors with a capacity range from 18 HP to a maximum of 200 HP* to provide a quick, efficient and economical solution to our clients.

**Limited by the size of the liquid receiver built into the Master unit. For capacities higher than 200 HP, options for an external liquid receiver are available. Contact the manufacturer.*

- Permits the modular system capacity to expand (on a conventional rack the capacity is fixed).
- Fewer refrigerants required throughout the system.
- Bitzer Ecoline Semi-Hermetic compressor with spring mounted vibration insulation, crankcase heater and internal thermal protection.
- High efficiency semi-hermetic Bitzer Ecoline compressors with variable capacity control "CRII" between 10% and 100% on the Master unit.
- Step unloader(s) on each compressor (4 cylinders: 50-100%, 6 cylinders: 33-66-100%).
- Aluminum structure with galvanized steel reinforcement, high efficiency condenser with reinforced structure and aluminum micro-channel coils. Its low weight and size reduces the costs of transportation, installation and construction.
- Galvanized, powder coated, acoustically semi-insulated and weatherproof semi-enclosed compressor cabin.
- EcoFriendly; Air cooled micro-channel condenser coil with internal volume reduced requires between 40% and 60% less refrigerant charge and results in a significant reduction of the refrigerant charge necessary for normal or flooded operations.
- Wide range of SST (Saturated Suction Temperature)
- Quiet, high efficiency, external rotor motor, two speed, AC type axial fans for a better operation.
- EC type condenser fan for the Master Unit, AC type fan for Slave(s).
- Horizontal liquid receiver with inlet and outlet insulate valves, stainless steel relief valve at 450 PSI and electronic low liquid level indicator.
- Liquid sight glass and solenoid valve.
- Suction filter and liquid drier with replaceable core.
- Suction accumulator.
- Flexible joint on suction and discharge lines on the compressor.
- Electronic oil pressure switch.
- Oil management system installed in Master unit.
- Refrigerant: R-404a
- Factory pre-charged with nitrogen and electrical work tested.
- UL 508A listed built-in electrical control panel.
- Compressor and fan circuit breakers.
- Voltage and phase-loss monitor with protection module for each compressor.
- Control: 208-230V / 1PH / 60HZ
- Power supply voltage 460V / 3PH / 60HZ with single point power connection.
- Electronic Control System; compressor(s) and condenser fans operational management: alarms, measurement of pressure and temperature variables, 132x64 LCD backlit built-in display with 6-button keypad. Alarm management: 3 alarms for compressor(s) (overload, pressure and oil) and 1 overload alarm for condenser fans.
- Fixed high pressure compressor control.
- BMS (Building Management System): ModBus protocol for supervisor or HMI (Human Machine Interface).
- 2-year warranty.

STANDARD OPTIONS:

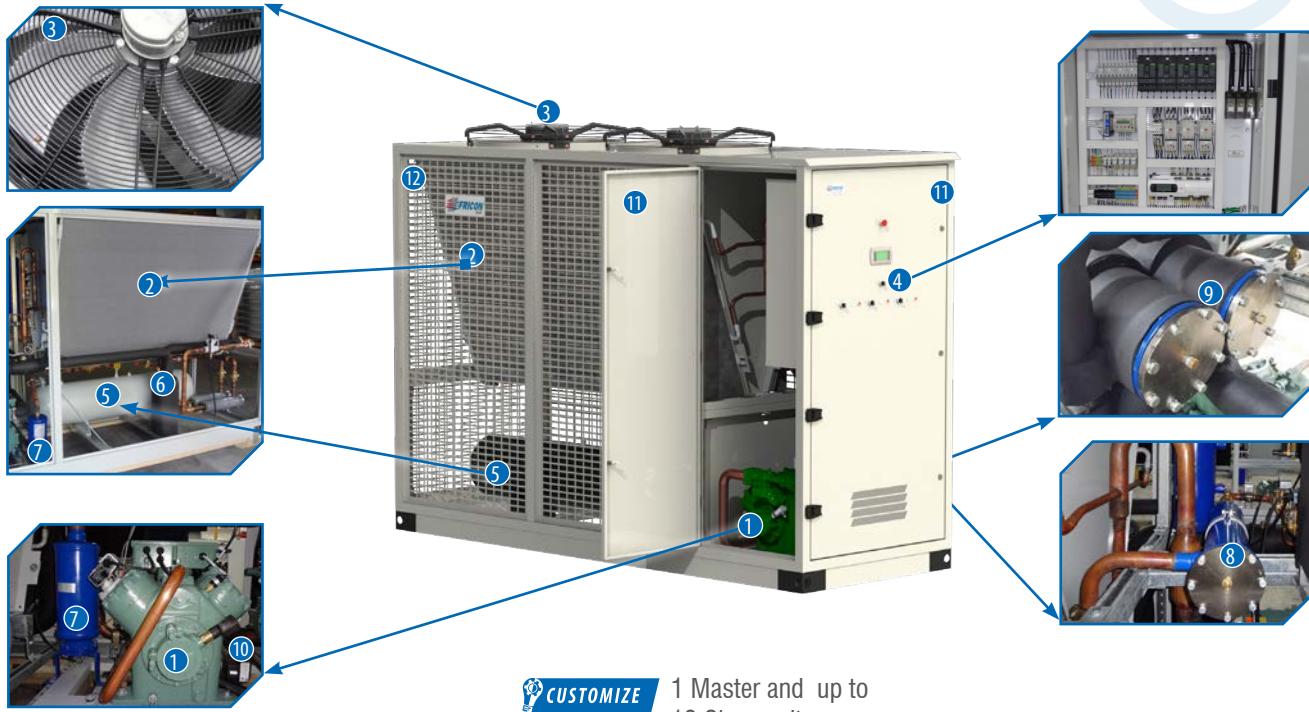
- Different compressor brand.
- Condenser coil with E-Coating for greater resistance to corrosion.
- Protective mesh for the condenser.
- EC type fans with variable speed (for 575V a VFD is used).
- Refrigerants: R-407a, R-448a, R-449a, R-507a
- Different power supply voltage.

ADDITIONAL OPTIONS:

- VRF (Variable Refrigerant Flow) package to maximize the efficiency and capacity adaptability to the demand:
 - VRF-I: CRII Unloader. Infinite capacity control on the Master Unit compressor (4 cylinders: 10≈100%, 6 cylinders: 33≈100%).
 - VRF-II: VFD (Variable Frequency Drive). Infinite capacity control on the first compressor (42~116%).
 - VRF-III: Bitzer Varispeed Compressor. Infinite capacity control on the first compressor (25~145%). Only available in some models.
- FECC (Fully Enclosed Compressor Cabin) package for better soundproofing:
 - FECC-I: Fully enclosed metal compressor cabin.
 - FECC-II: Same as FECC-I with internal convoluted acoustic foam panel lining.
- LAHPC (Low Ambient Head Pressure Control). Required for Ambient Temperature Operation below +40°F.
 - LAHPC-I: +110°F (+43.3°C) to 0°F (-18°C), Includes: Sporlan head pressure control valves ORI & ORD.
 - LAHPC-II: +110°F (+43.3°C) to -20°F (-28.9°C), Includes: same as LAHPC-I plus split condenser with variable speed fan on the first fan.
 - LAHPC-III*: +110°F (+43.3°C) to -35°F (-37.2°C). Includes: same as LAHPC-II plus insulated liquid receiver with electric heater, control panel with ventilated heating and compressor thermal insulation jacket.

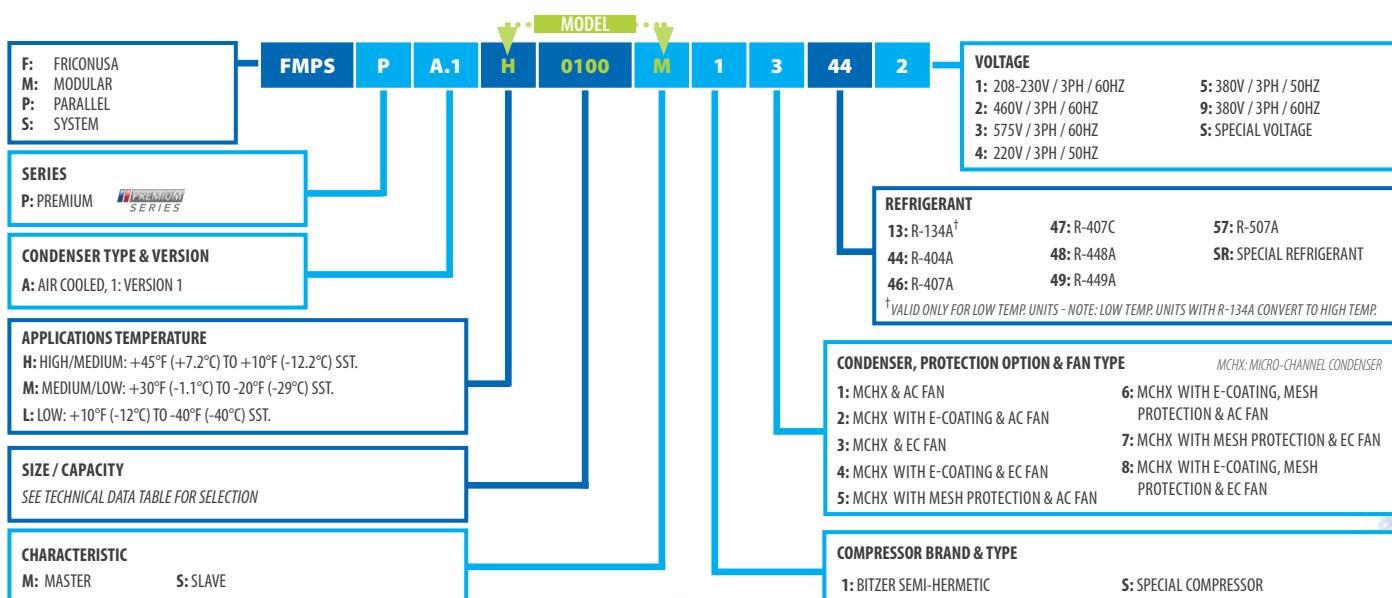
**Requires FECC-II (Fully Enclosed Compressor Cabin) package.*
- HAOP (High Ambient Operation Package) required for operation above +110°F:
 - HAOP-I: +125°F (+51.7°C) to +40°F (4.4°C), Includes: air exhaust duct to the condenser plenum for cooling of the control panel and filter for the air inlet.
- EMSP (External Mechanical Sub-Cooling Package):
 - EMSP-I: Includes: brazed plate sub-cooling heat exchanger, liquid and suction connection ball valve, liquid solenoid valve, sealed drier, sight glass and thermostatic expansion valve.
 - EMSP-II: same as EMSP-I except that in place of a thermostatic expansion valve is an electronic expansion valve drive and sensors.
- Suction accumulator with heat exchanger.
- MDS (Main Disconnect Switch).
- Electronic Control System:
 - BACnet Communication board.
 - Remote LCD display.
 - Local or remote touch screen display.
 - Energy Management Module.
- Extended 5-year warranty on the compressor (U.S. Only).

1. Compressor
2. Micro-channel condenser
3. Fans
4. Electrical control panel
5. Liquid receiver
6. Suction accumulator
7. Oil separator
8. Liquid drier(s)
9. Suction filters
10. Electronic oil regulator
11. Service doors
12. Mesh protection (optional)



1 Master and up to
13 Slave units

NOMENCLATURE



CAPACITY CORRECTION FACTORS

Ambient Temperature in °F	60	65	70	75	80	85	90	95	100	105	110	115	120	125
Capacity Factor R-404A & R-507A	1.32	1.28	1.23	1.19	1.15	1.10	1.05	1.00	0.95	0.90	0.85	0.81	0.76	0.72
Capacity Factor R-407A & R-407C	1.29	1.25	1.21	1.17	1.12	1.08	1.04	1.00	0.97	0.92	0.87	0.83	0.79	0.75

Some limitations on models with high SST.

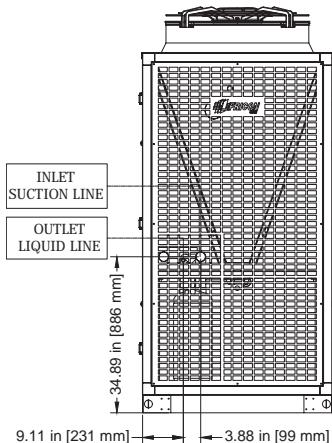
HAOP (High Ambient Operation Package) required for operation above +110°F

† Multiply capacity by .83 when used with 50 Hz power.

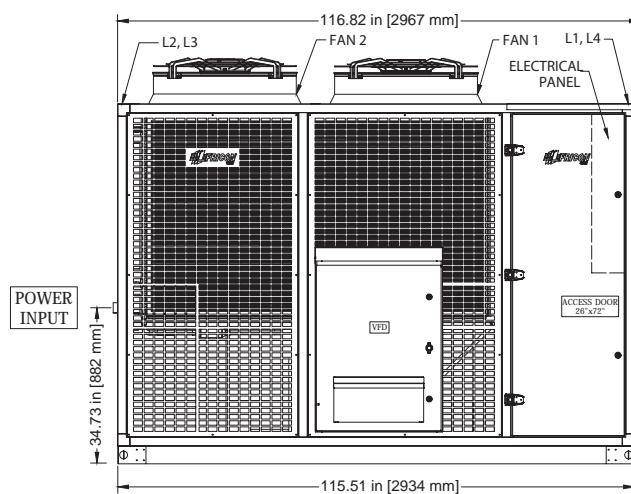
All capacities are calculated at 20°F return gas temperature and dew point values

DRAWINGS

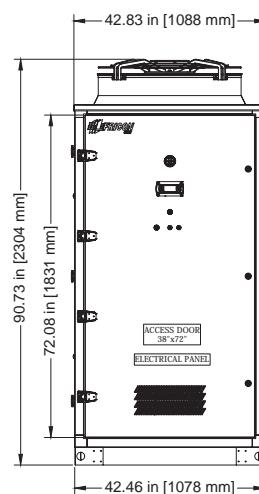
2 fans, 800mm



REAR VIEW

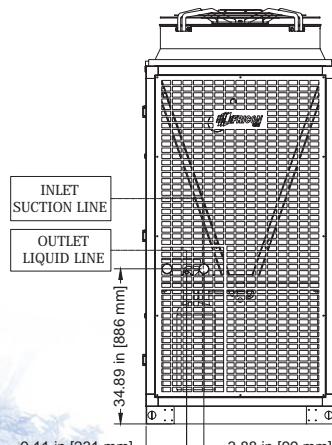


RIGHT SIDE VIEW

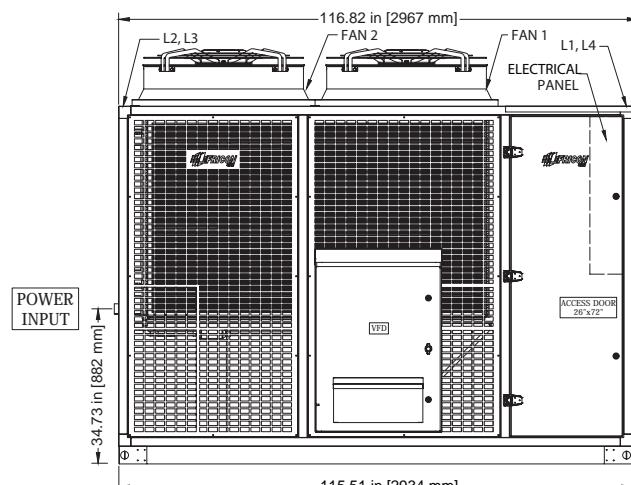


FRONT VIEW

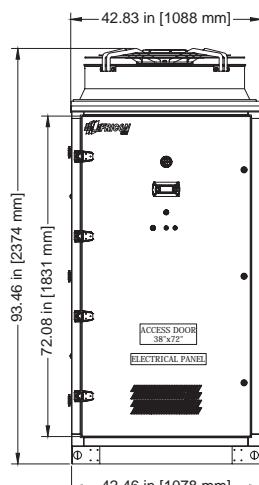
2 fans, 900mm



REAR VIEW

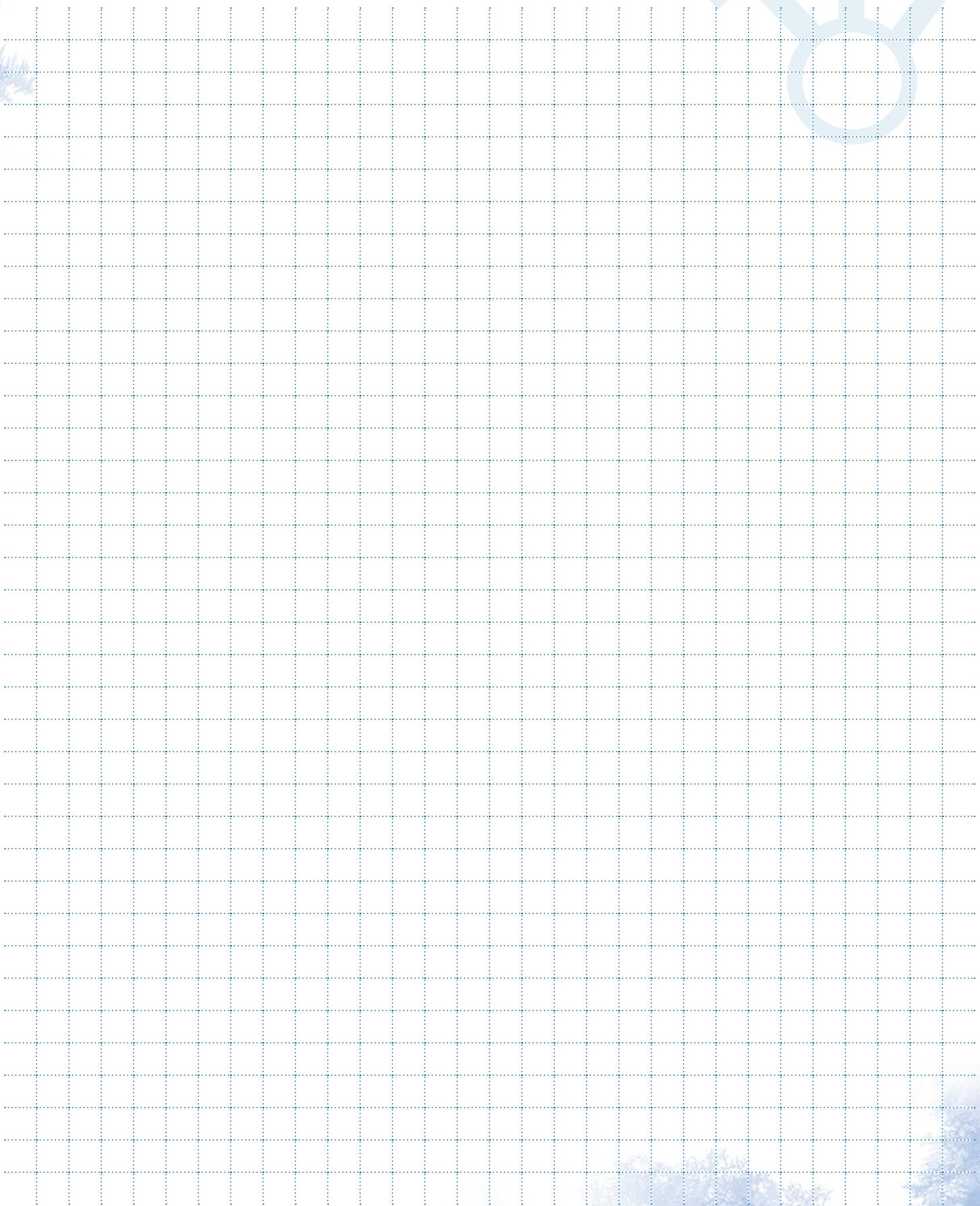


RIGHT SIDE VIEW



FRONT VIEW



NOTES

RELATED EQUIPMENT

FRICONUSA AIR COOLED CONDENSING UNITS

COMMERCIAL REFRIGERATION LINE

