

07/2018

Mod: ICE400ISA

Production code: MUSTER 350A



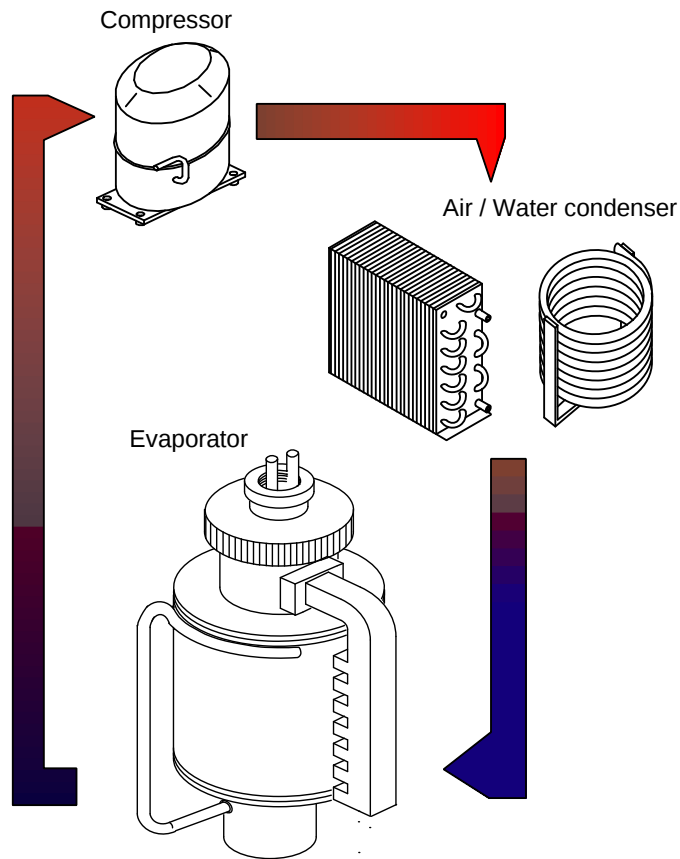
Diamond
catering equipment

FLAT FLAKED-ICE MAKERS

Latest update: 01/12/2008

MUSTER Line

The following diagram shows the main concepts regarding the flat flaked-ice makers operation.



Each ice maker uses the properties of compression and expansion of the liquefiable gases: each change of bodies state is achieved by producing or absorbing heat.

The **compressor** sucks up the gases, generated by the evaporation, and compresses them, increasing their temperature and pressure.

A **condenser**, made up of a series of tubes (refrigerated by cold water or ventilated air), carries away the heat comprised in the gases from the compressor and helps, in this way, the gas liquefaction.

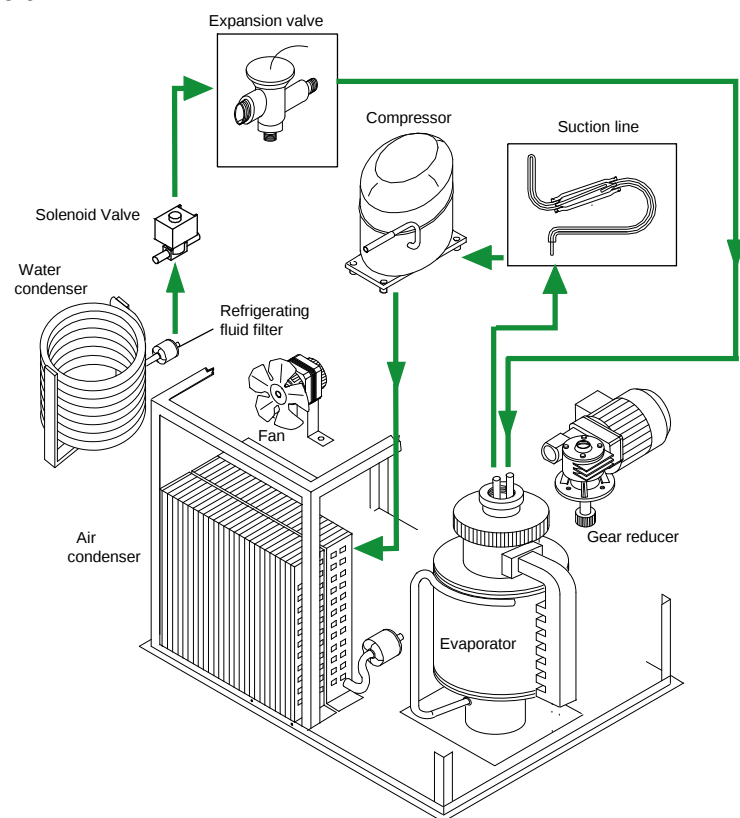
The refrigerating fluid, in its liquid state, circulates in the **evaporator** that allows the optimal heat exchange with the outside water, taking away calories and producing therefore ice by freezing the water sprayed on the evaporator.

All the ice makers belonging to the Muster family, are not provided with an internal bin, so they have to be installed on an external bin.

Refrigerating Circuit

This appliance's operation is linear: when started the ice maker begins the production of flat flaked ice and keeps on until stopped.

The following diagram shows the components of the refrigerating circuit:



The cooling circuit is formed by all the components that allow the compression and the expansion of the refrigerating fluid (and the ice production).

Compressor

Receives the gases from the evaporator by the suction line and compresses them, increasing their pressure and temperature.

Condenser (air/water)

If 'Water', it is made by a series of tubes, refrigerated by cold water.

If 'Air', it is made by a radiator, that exchanges heat with the out-room, and is refrigerated by ventilated air, coming from a fan run by an electric motor.

Both of them carry away the heat comprised in the gases from the compressor, helping in this way the gas liquefaction.

Refrigerating fluid filter

The refrigerating fluid filter stops the impurities and the moisture of the circuit.

Solenoid Valve (M350 M600 M1500 M2000)

It stops the refrigerating fluid in liquid status when the ice maker is turned off.

Expansion valve

The expansion valve regulates the amount of refrigerating fluid in liquid state according to necessity. Flowing through the filter and the expansion valve the (refrigerating) fluid arrives to the evaporator in liquid state.

Evaporator

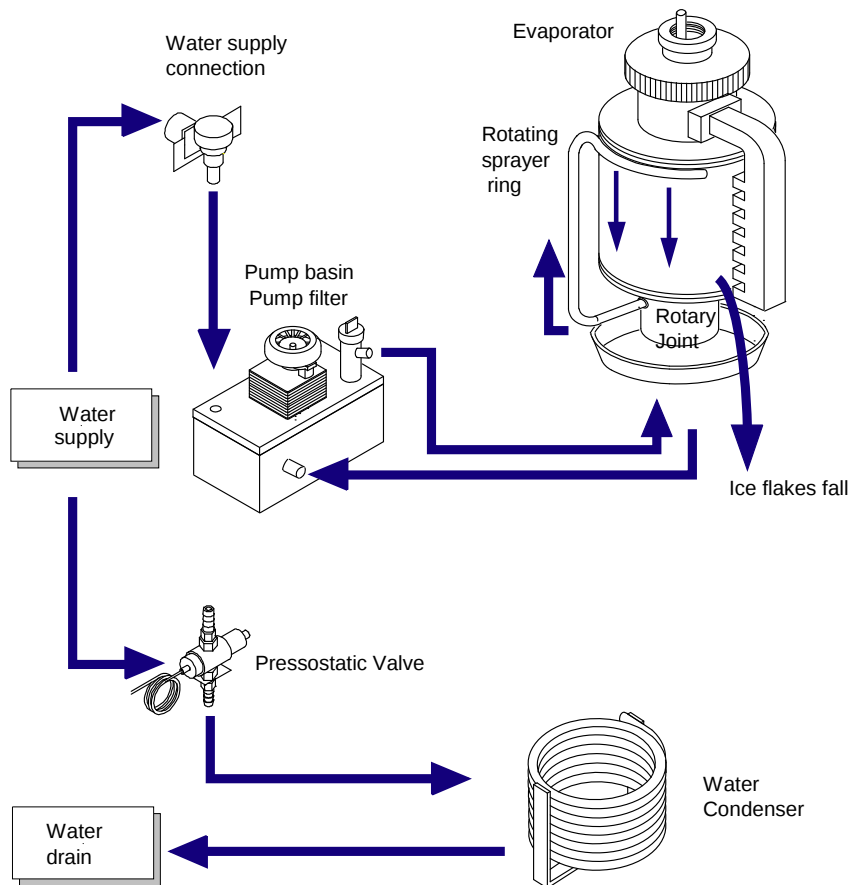
Allows an optimal heat exchange with the water flowing on its surface, freezing the water and therefore producing ice. A rotating scraper, operated by a gear reducer, detaches the ice from the evaporator surface.

Suction line

Leads the refrigerating fluid from the evaporator to the compressor. The exceeding refrigerating fluid in liquid state that might be present in the circuit is kept by a boiler, in order to avoid damages to the compressor.

Hydraulic circuit

The following diagram shows the components of the hydraulic circuit:



Water supply connection

Allows the water to flow in the pump basin and then to feed the evaporator.

Pump Basin and Pump Filter

The basin contains the water coming from the water supply connection. A floating valve controls the water level in the basin. The pump supplies water to the rotating sprayer ring of the evaporator.

Rotating Sprayer Ring

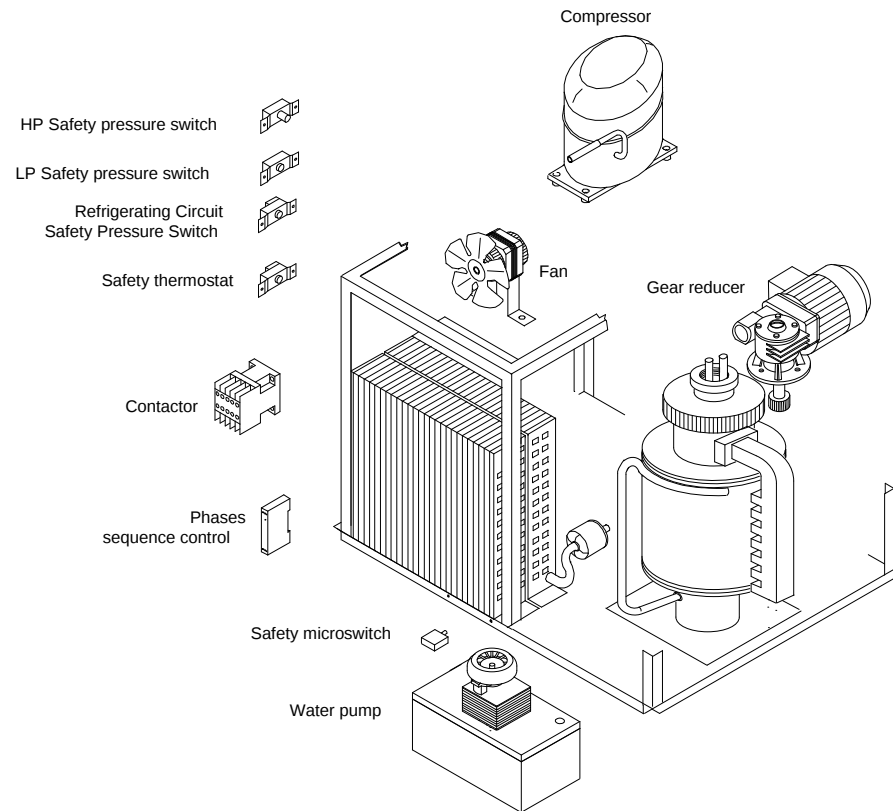
Receives the water from the pump through the rotary joint and, by means of its holes, sprays it on the evaporator surface. The water that doesn't freeze in contact with the evaporator surface, falls in the basin below and start the cycle again.

Pressostatic Valve (water and mixed condensed models)

Supplies the water condenser. It controls and keeps constant the condensation pressure changing the water flow through the condenser.

Electric Circuit

The following diagram shows the components of the electrical circuit:



Contactor – It supplies compressor, gear reducer, pump, cut-off liquid refrigerant solenoid valve and condenser fan (air cooled models). It works only when all the safety devices contacts are closed (there are no faults in the equipment).

Safety devices

Phases Sequence Control (M 2000 model) – It doesn't allow the ice maker to start if the connection to the power supply mains is made with different phases sequence than the projected one.

Safety Microswitch – It stops the ice maker if the evaporator chamber is full of ice. The machine automatically restarts when the evaporator chamber is clear of excess ice.

HP Safety Pressure Switch – It stops the ice maker in the event of abnormal increase of the condensation pressure. It has manual reset.

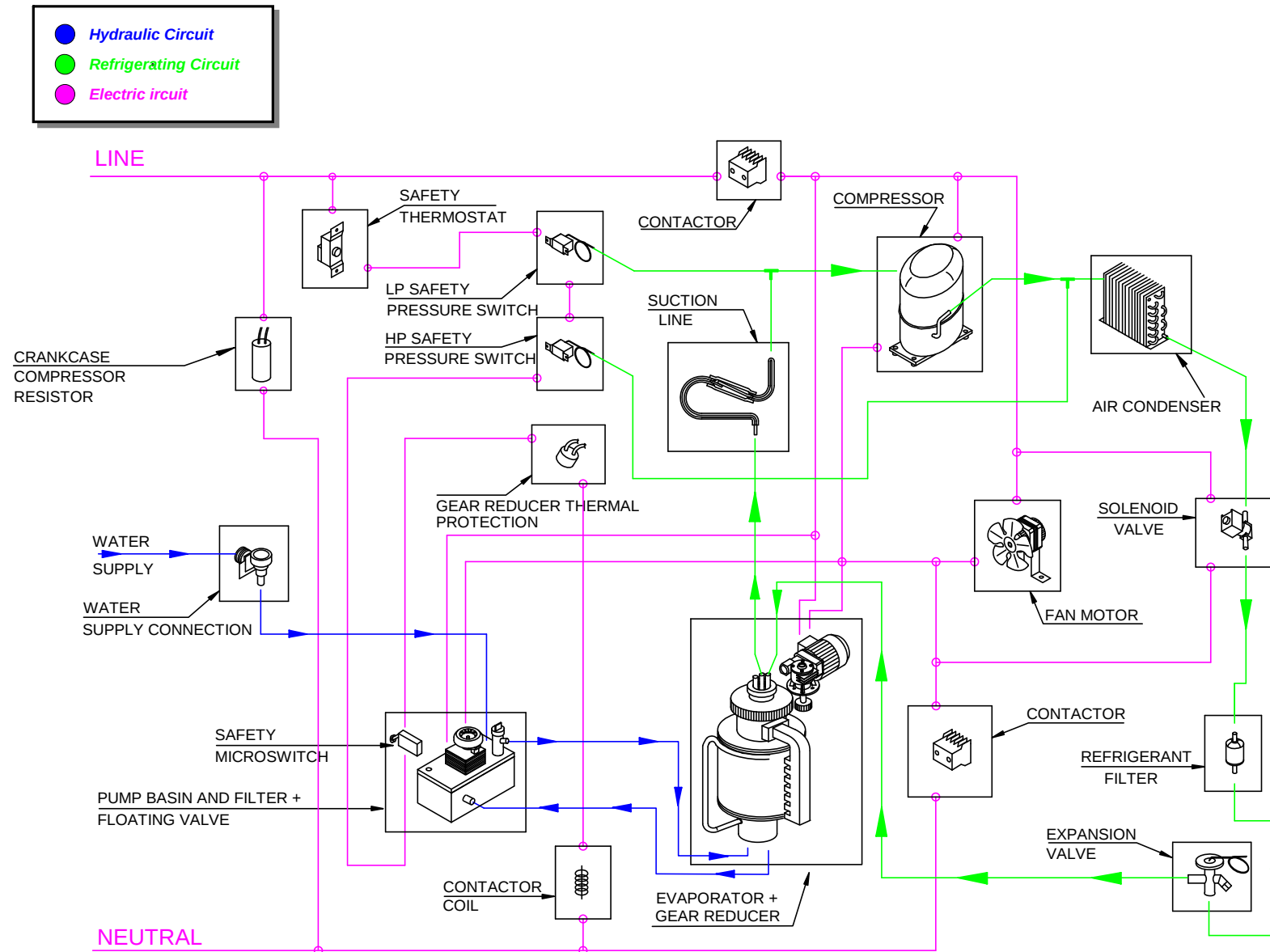
LP Safety Pressure Switch – It stops the ice maker, when a drop of evaporation temperature and pressure are detected. The abnormal operating condition may be due to: water lack in the pump basin, scraper or pump fault, etc.

Refrigerating Circuit Safety Pressure Switch (M800) – Doesn't allow the ice maker start up if the room temperature is too high. It has manual reset.

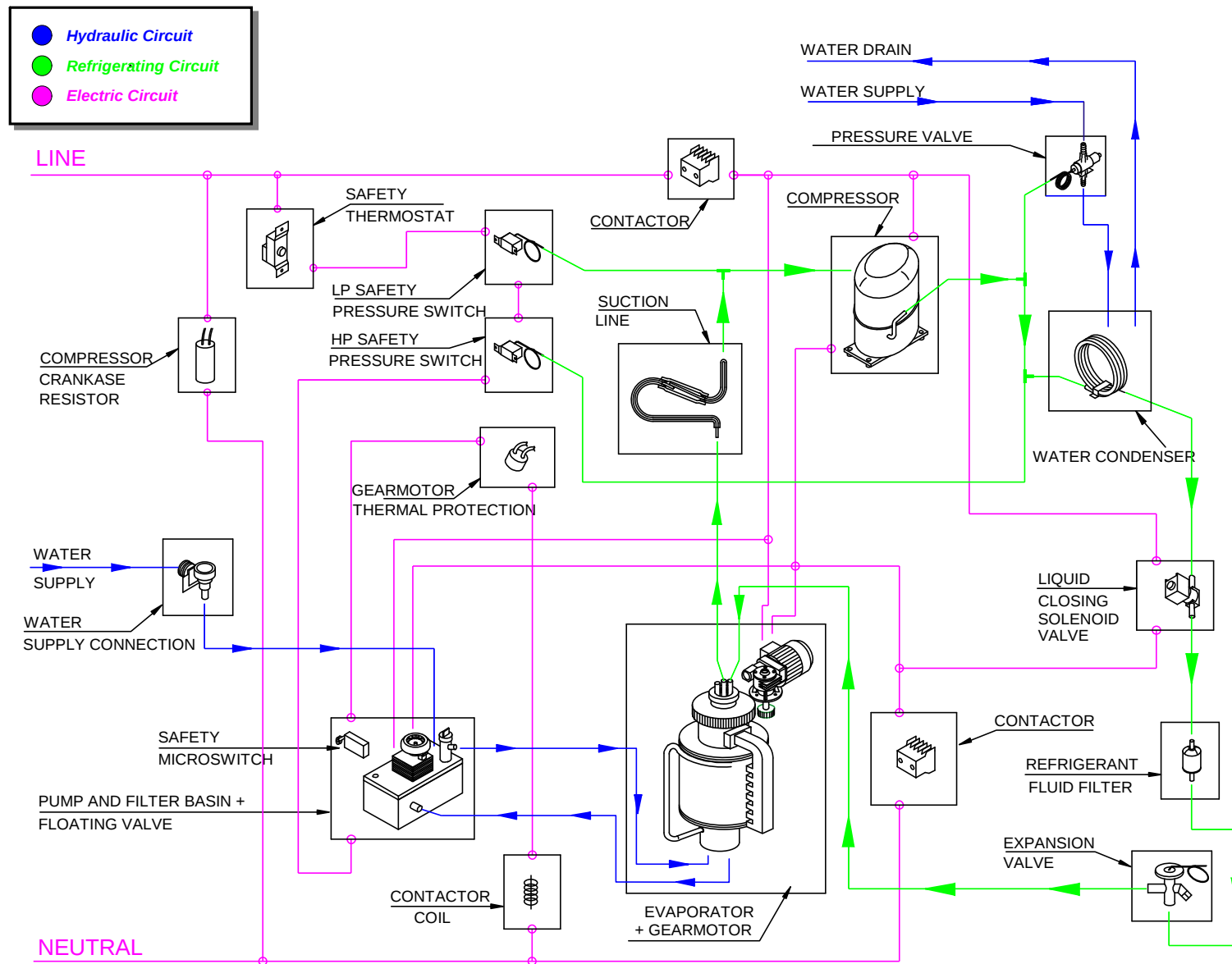
Safety Thermostat – It stops the ice maker when the ice reaches the evaporator and the thermostat bulb. The ice maker will start again when the ice level in the container decreases.

Gear Reducer Thermal Protection – If the motor temperature rises in an abnormal way, the internal protection of the gear reducer motor stops the ice maker. When the temperature decreases, the ice maker will start again.

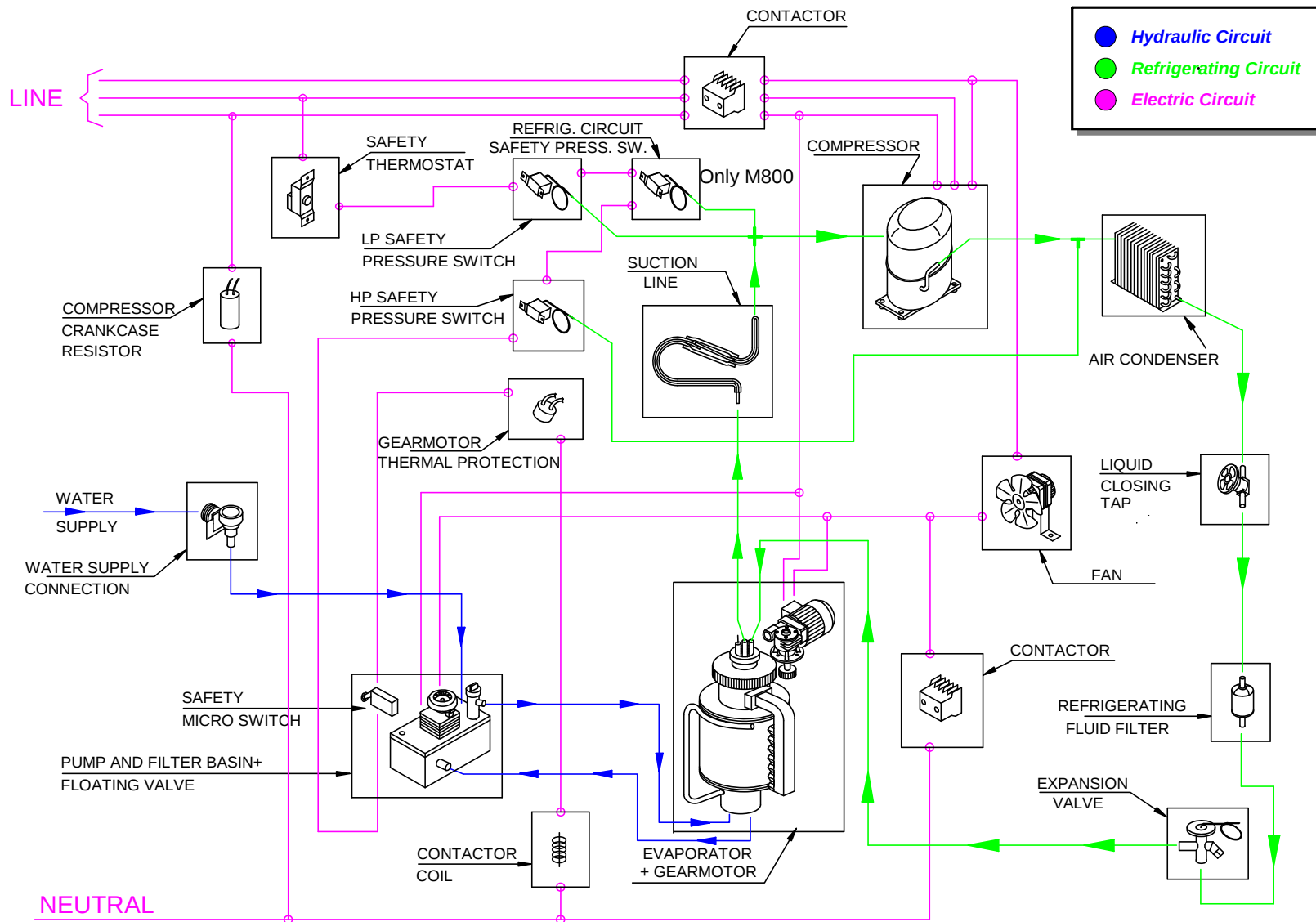
Working Scheme M350 Air Version



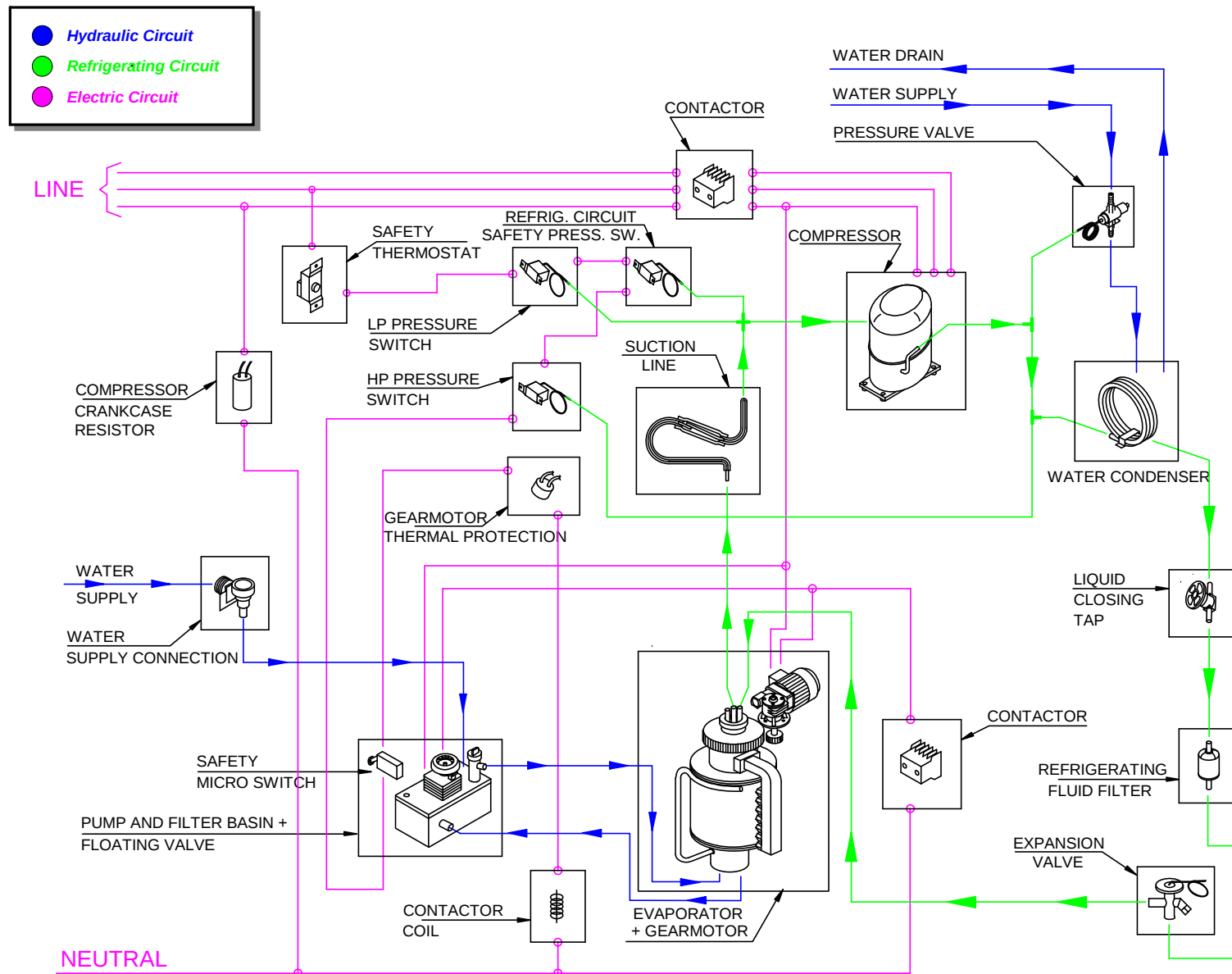
Working Scheme M350 Water Version



Working Scheme M600-800-1500 Air Version



Working Scheme M800 Water Version



Working Scheme M2000 Air Version

