

**Replacement of MSC-102 with MSC-110 (w/Vapor Injection)**

CHARACTERISTICS	102mm COMPRESSOR	110mm COMPRESSOR
<b>Height</b>	37½"	38"
<b>Diameter</b>	16½"	16½"
<b>Suction Service Valve</b>	1010 Kit # 053572A3 1012 Kit # 053572A3 1015 Kit # 053572A3	1111 Kit # 053572A9 1113 Kit # 053572A9 1117 Kit # 053572A1
<b>Suction Line Size</b>	1010 2 <sup>5</sup> / <sub>8</sub> " 1012 2 <sup>5</sup> / <sub>8</sub> " 1015 2 <sup>5</sup> / <sub>8</sub> "	1111 2 <sup>5</sup> / <sub>8</sub> " 1113 2 <sup>5</sup> / <sub>8</sub> " 1117 3 <sup>1</sup> / <sub>8</sub> "
<b>Suction Compressor Connection Size</b>	1010 2 <sup>5</sup> / <sub>8</sub> " 1012 2 <sup>5</sup> / <sub>8</sub> " 1015 2 <sup>5</sup> / <sub>8</sub> "	1111 3 <sup>1</sup> / <sub>8</sub> " 1113 3 <sup>1</sup> / <sub>8</sub> " 1117 3 <sup>1</sup> / <sub>8</sub> "
<b>Discharge Service Valve</b>	1010 Kit # 053572A4 1012 Kit # 053572A5 1015 Kit # 053572A3	1111 Kit # 053572A5 1113 Kit # 053572A3 1117 Kit # 053572A3
<b>Discharge Line Size</b>	1010 1 <sup>5</sup> / <sub>8</sub> " 1012 2 <sup>1</sup> / <sub>8</sub> " 1015 2 <sup>5</sup> / <sub>8</sub> "	1111 2 <sup>1</sup> / <sub>8</sub> " 1113 2 <sup>5</sup> / <sub>8</sub> " 1117 2 <sup>5</sup> / <sub>8</sub> "
<b>Discharge Compressor Connection Size</b>	1010 2 <sup>5</sup> / <sub>8</sub> " 1012 2 <sup>5</sup> / <sub>8</sub> " 1015 2 <sup>5</sup> / <sub>8</sub> "	1111 2 <sup>5</sup> / <sub>8</sub> " 1113 2 <sup>5</sup> / <sub>8</sub> " 1117 2 <sup>5</sup> / <sub>8</sub> "
<b>V.I. Port Size</b>	1 <sup>1</sup> / <sub>16</sub> " - 12 Straight thread o-ring boss	1 <sup>3</sup> / <sub>16</sub> " - 12 straight thread o-ring or <sup>7</sup> / <sub>8</sub> " ODS 2-Bolt flange
<b>L.I. Port Size</b>	1 <sup>3</sup> / <sub>16</sub> " - 12 Straight thread o-ring boss	<sup>7</sup> / <sub>8</sub> " - 14 Straight thread o-ring boss
<b>C1 Discharge Pressure Port</b>	<sup>7</sup> / <sub>8</sub> " - 14 Straight thread o-ring boss	1 <sup>1</sup> / <sub>16</sub> " - 12 Straight thread o-ring boss & <sup>1</sup> / <sub>4</sub> " NPTF
<b>Oil Sight Glass</b>	90° to left of terminal box	135° to right of terminal box
<b>Relief Valve Kit</b>	Part #054047A3	Part #054047A1
<b>Unloader</b>	Pad mounted w/separate solenoid valves	Solenoid valves integral part of unloader

The MSC-102mm "1010", "1012" and "1015" models have been discontinued and are being replaced by the MSC-110 compressor w/ vapor injection. The addition of Vapor Injection to the 110mm line has expanded its' operating range down to **0°F SST** for medium and commercial temperature applications. This allows more direct replacements of MSC-102mm compressors that utilize vapor injection and it expands the application range of the MSC-110.

### **PHYSICAL CHANGES**

- The oil sight glass has been moved and the discharge connection has been relocated from the top of the compressor to the side of the outer housing. The terminal box has also been redesigned. (See Drawing on page #4 or refer to EDS-Y-0204-0018 Rev. 3 or later).
- Existing 102mm compressor replacements will require some re-piping to accommodate the larger line sizes and locations.

### **LOCATIONS OF MAJOR CONNECTIONS**

See dimensional outline drawings on page 4 for differences in external features and connections. Take special note of the following:

- Suction and discharge line sizes.
- Orientation and locations of suction, discharge, liquid injection port and terminal box.
- Location of the vapor injection port on the MSC-110.
- No oil pressure port (C4) on the MSC-110.

### **ELECTRICAL**

Control wiring and contactor selections must be reviewed to accommodate the differences to the MSC-110.

- **Oil Level Sensor:** This has been changed from the internal float switch to the external oil level sensor. See EDS-Y-1100-0014 for complete description.
- **Oil Thermostat:** This feature has been eliminated from the MSC-110 and will need to be jumped-out in the control circuit.
- **Contactor Sizing:** The starting characteristics have changed with the new MSC-110 motors and contactor sizes should be checked. See EDS-Y-820-0002, 820-0007 and 820-0006 for contactor selection procedure.
- **Liquid Injection:** The liquid injection arrangement on the MSC-110 consists of a fixed orifice, a solenoid valve and thermostat that is applicable for all condensing temperatures greater than 115°F. See EDS-Y-0546-0004 for piping and control circuit schematics.
- **Motor Terminal Sizes:** The motor terminal posts have been changed from 1/4" to 3/8".

**OIL SEPARATION**

The MSC 110mm is designed to have oil carryover rates at approximately 3%. This may cause a problem in flooded evaporators where a Model #1015 compressor is being replaced by a 110mm. The oil return may not be sufficient to return enough oil to the compressor. In this case it may be necessary to add an external oil separator to improve oil separation to acceptable levels.

**DISPLACEMENTS**
**MSC-102**
**MSC-110**
**@60 Hz**

1010: 95.2 CFM	—
1012: 119 CFM	1111: 118 CFM
1015: 143 CFM	1113: 146 CFM
—	1117: 174 CFM

**Performance Data on R22 at 60 Hz with 10F subcooling**

Model	35° / 105°F				35° / 125°F			
	Capacity (tons)		Power (kW)		Capacity (tons)		Power (kW)	
	No Vapor	Vapor	No Vapor	Vapor	No Vapor	Vapor	No Vapor	Vapor
1010NHF	36.8	42.5	35.7	43.5	31.3	38.7	49.2	56.6
1012NHF	46.4	54.8	44.7	53.4	43.2	50.6	60.0	69.0
1015NHF	55.8	65.1	53.2	63.2	51.0	61.0	72.0	82.8
1111NHF	46.1	54.5	39.9	65.2	42.6	49.9	57.0	64.5
1113NHF	57.8	67.7	55.5	61.8	52.9	62.1	69.4	78.3
1117NHF	67.8	79.9	58.4	72.1	61.8	74.3	81.0	92.5

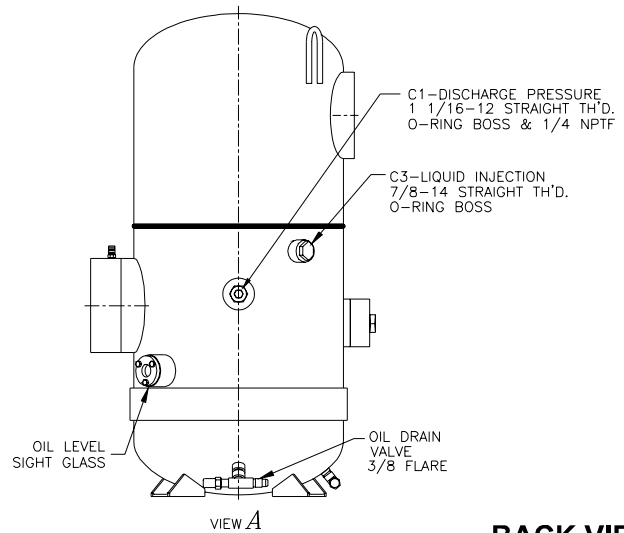
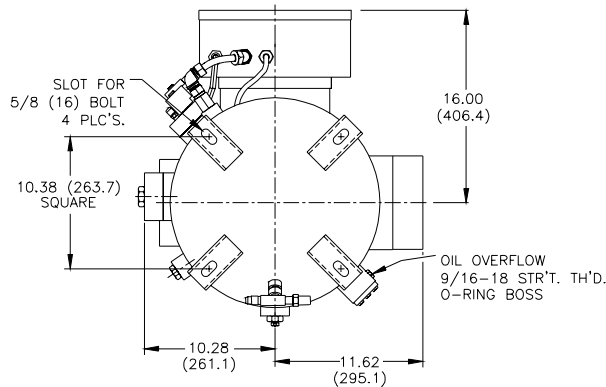
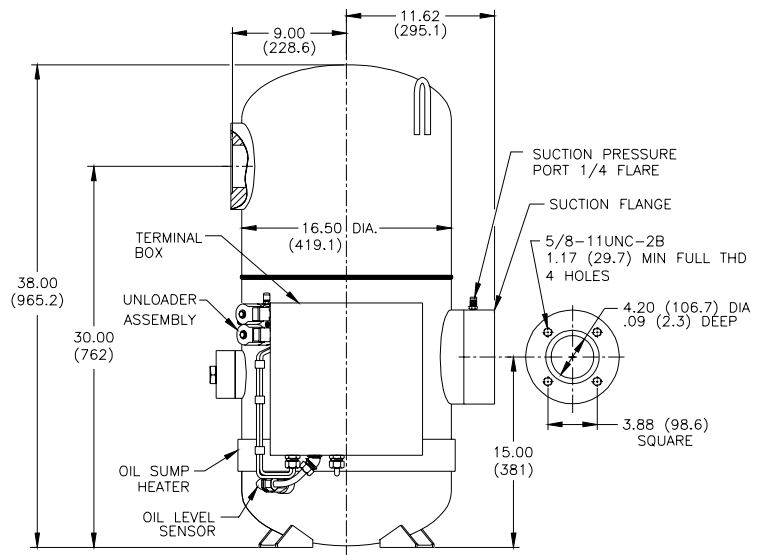
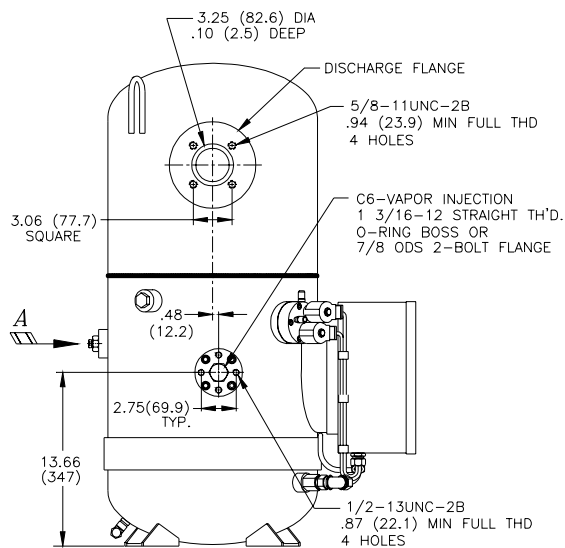
For confirmation of all selections, please consult Hartford Compressors Applications Engineering Dept.

**MSC 110 with Vapor Injection**

**Compressor Dimensions  
in inches (mm)**

**FRONT VIEW**

**SIDE VIEW**



**BACK VIEW**

**BOTTOM VIEW**