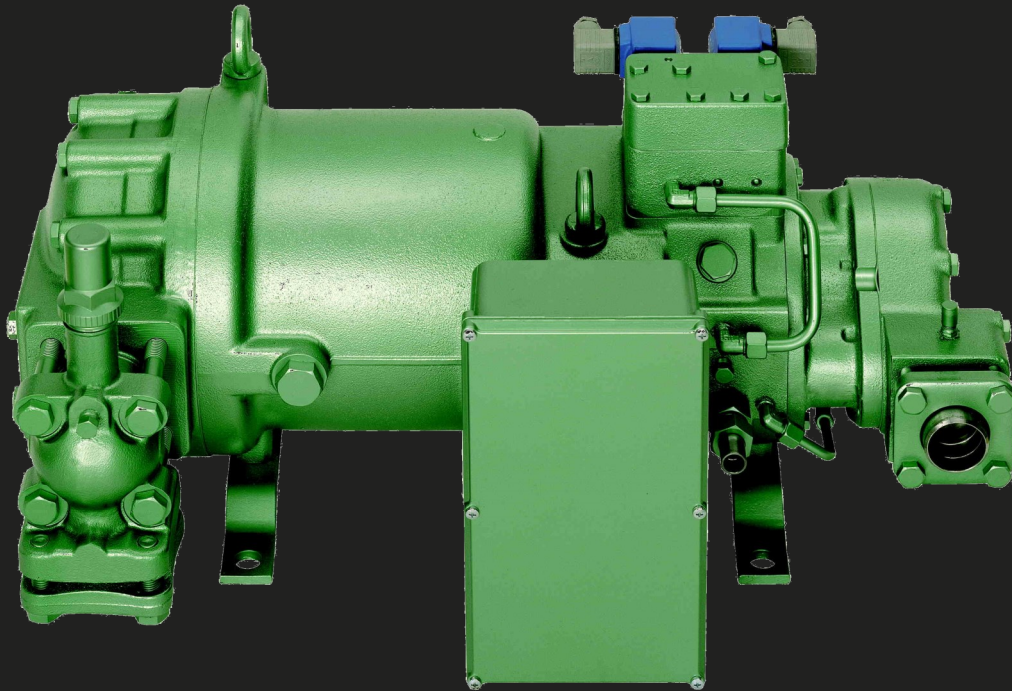




# BITZER Conversion Guidelines

For HS53.2 To HS53.3 Screw Compressors



TB-0019



## Conversion Guidelines – HS 53.2 to HS 53.3 Screw Compressors

**Conversion guidelines for removing the original single step capacity control HS53.2 screw compressor and installing the two step capacity control HS53.3 screw compressor.**

Although the overall dimensions, suction and discharge connection locations, capacity and electrical characteristics are the same between the two series, there are some additional items required to replace the original design compressor with the newer enhanced two step capacity control screw compressor. The ECO / liquid injection connection and the capacity control connections require modification.

### Economizer / Liquid Injection Connections – HS 53.2 Compressor

If the HS 53.2 compressor utilized the ECO/liquid injection connection, the original piping will have to be reconfigured once the HS 53.3 compressor is installed.

The connection for the HS 53.2's single step capacity control block is located on the end of the compressor and has a 1 ¼"-12 rotolock connection. If a valve was previously used, it can be removed and re-used if found to be in good working condition. The original piping to the ECO port may also be able to be re-used in some cases.

### Economizer / Liquid Injection Connection – HS 53.3 Compressor

The HS53.3 has a new location for the ECO port, located on the side of the compressor near the top of the body next to the terminal box. The port is labeled "ECO" on the HS 53.3.

This connection requires the use of an external fitting. The pipe plug should be removed from the side of the compressor and a M22 x 1 ¼" – 12 UNF fitting installed. Each fitting comes complete with the required M22 aluminum washer and one 1 ¼"-12 Teflon o-ring. After this fitting is installed, the original piping for this circuit can be modified for installation.

### Unloader/Loader Solenoid Coil Installation and Wiring

The next area of conversion requires the installation of the solenoid coils.

The HS 53.2 compressor has one step of capacity control. The HS 53.3 compressor offers two steps of capacity control. Depending on the system's control, the wiring of the HS 53.3's capacity control solenoids will differ from the wiring used on the HS 53.2.

If the systems control scheme cannot be modified to utilize the two step capacity control of the new compressor then the input on the ESC board for CR-2 should be jumpered to the C1 compressor input. By doing this you will ensure that the compressor can be loaded to full capacity. CR-1 can then be utilized in the same manner as the single step capacity control on the HS 53.2 compressor.

If the systems control scheme can be modified to utilize both steps of capacity control then de-energizing CR-1 will reduce the compressor capacity to approximately 75% and de-energizing CR-2 will reduce compressor capacity to approximately 50%. The existing coil can also be re-used if found to be in good condition, but the new screw compressor will require one additional coil.

## **Discharge Temperature Sensors: PTC100 / PT1000**

The HS 53.2 compressor utilizes the PTC100 discharge temperature sensor. The PTC100 is identified by the red cable. The HS 53.3 compressor also uses the PTC100 discharge temperature sensor. This version of the PTC100 comes installed with the compressor and is now a two piece unit that is black in color.

If the ESC200 electronic control module is not being replaced, then the PT1000 (white sensor) must be replaced with the PTC100 (black sensor).

If the ESC200 is being replaced by the ESC201, the PT1000 (white sensor) must be used to display the temperature reading on the board. The original PTC100 can be used with the ESC201, but the temperature will not be displayed. The compressor will only have high temperature protection.

### **Required Materials**

The chart below documents the existing parts and BITZER part numbers and the required parts necessary for a successful HS 53.2 to HS53.3 conversion.

HS53.2	
Part Number	Description
Existing Parts	
884-0202-01	115 Volt Unloader Coil (1)
347032-01	PTC100 Discharge Temperature Sensor (Red Cable)
N/A	1 1/4" x 7/8" Rotolock Valve
Obsolete	ESC200 Module

HS53.3	
Part Number	Description
Required Parts (Available as a kit - PN# 523-0005-00)	
884-0202-01	115 Volt Unloader Coil (1)
347032-01	PTC100 Discharge Temperature Sensor (Black Cable)
365210-02A	M26 x 1-1/4" - UNF ECO Fitting Kit
Optional Parts	
N / A	1 1/4" x 7/8" Rotolock Valve
ESC201	ESC201 Module
347024-01	PT1000 Discharge Temperature Sensor (White Cable)
365210-02	M26 x 1-1/4" - UNF ECO Fitting Only
382401-33	M26 Aluminum Washer
372200-03	1-1/4-12 Teflon O-Ring

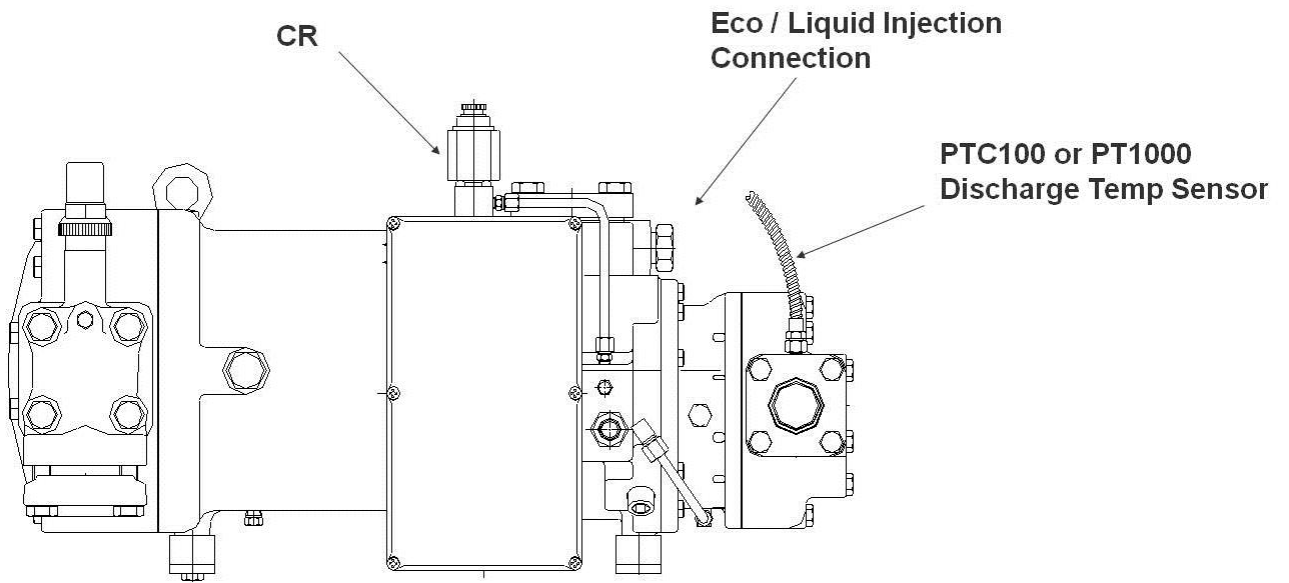
### **Additional Publications:**

For complete instructions and guidelines for changing out the electronic module, please refer to BITZER's [Conversion Guidelines - ESC200 Electronic Control Module to ESC201 Electronic Control Module.](#)

For a complete parts listing for BITZER HS Screw Compressors, please refer to spare parts listing SE-110-3.

**Location of ECO Valve Ports and Capacity Control Solenoids**

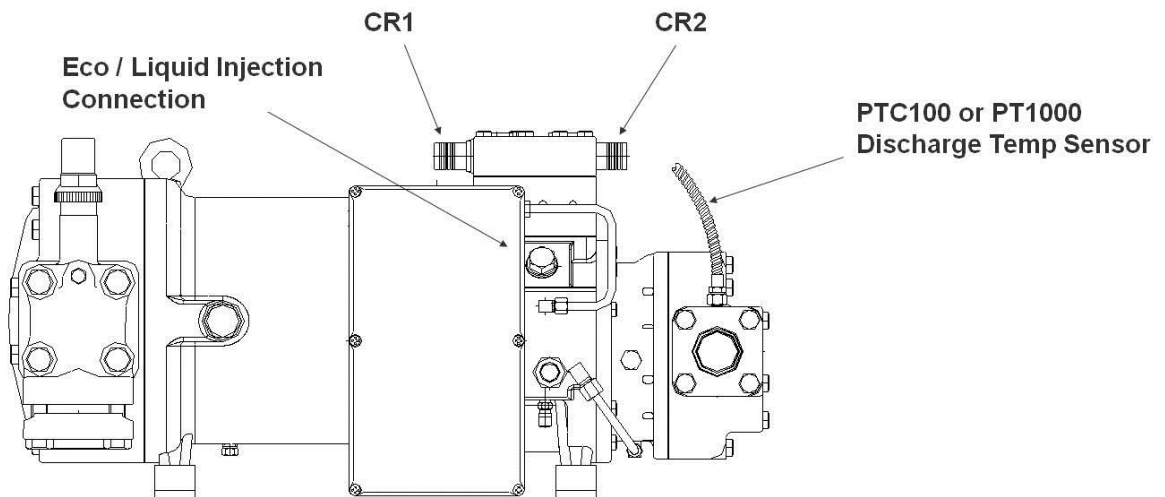
**HS 53.2 Compressors**



**HSN5342-20, 5352-25, 5362-30**

**HSK5342-30, 5352-35, 5362-40**

**HS 53.3 Compressors**



**HSN5343-20, 5353-25, 5363-30**

**HSK5343-30, 5353-35, 5363-40**



## Notes

