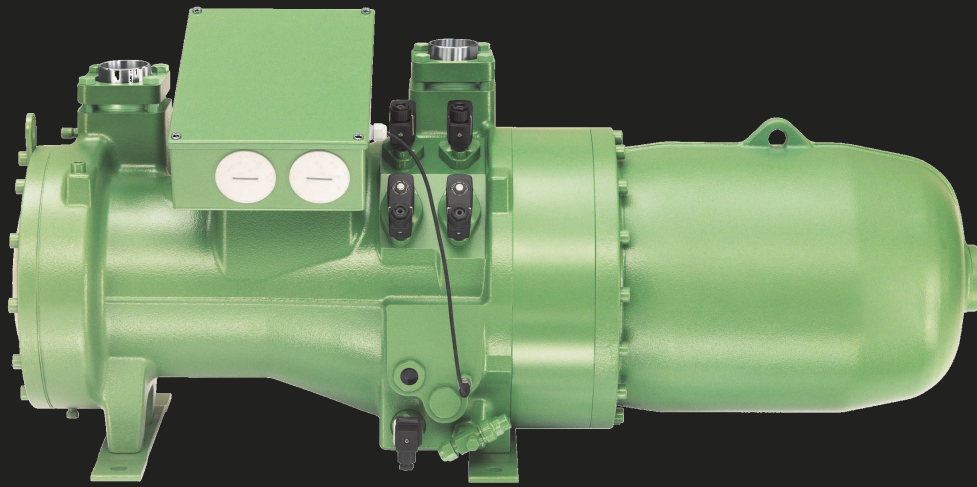




# BITZER OIL DRAINING GUIDELINES

## For CSH Series Screw Compressors



## Oil Draining and Re-charging Procedures for CSH/CSW Compressors

BITZER CSH/CSW screw compressors generally do not require an oil change during the life cycle of the compressor. If the system was correctly assembled, and proper maintenance and system operation have been maintained through-out the compressor's life cycle, the compressor should not require an oil change.

BITZER US recommends an annual oil analysis be performed as part of an annual maintenance program. An acid test should be performed after motor damage occurs. If the results from either of these tests indicate that the oil should be changed, the technician should follow the procedure described below to change the oil in CSH/CSW screw compressors.

### **Safety Practices**

- Safety glasses should be worn when draining oil and when charging compressors with nitrogen and/or dry air.
- When using nitrogen, extreme caution must be used due to the nature of high pressures.
- Caution must be exercised when working around the compressors.
- If the compressor is new, the compressor will have a dry air or nitrogen holding charge. Caution should be exercised when removing plugs and/or caps.

Screw compressor oils can absorb a large amount of moisture when left open for long periods of time. Chemical reactions are possible with humidity and oxygen in the air. Do not re-use any oil that has been drained from the compressor.

### **Recommended Tools and Materials Required:**

- ✓ Oil drain pan and/or waste container
- ✓ Adjustable wrenches
- ✓ M6 combination wrench
- ✓ 7/16" open end wrench
- ✓ Refrigeration service wrench
- ✓ Vacuum pump
- ✓ Nitrogen and/or dry air

## Oil Draining and Re-charging Procedure

Follow proper compressor shutdown, pump down procedures and/or refrigerant removal guidelines. To assist in the oil draining process, a small positive charge will aid in draining of the used oil.

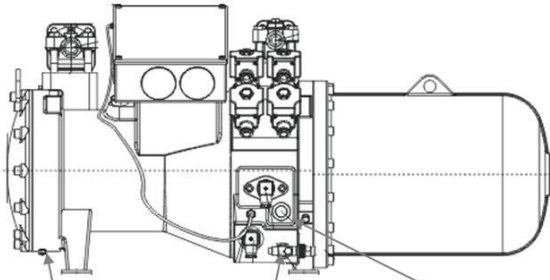
1. Locate the oil service valve and motor housing drain plug as per the following compressor diagrams in Figure 1.
2. If dry air and/or nitrogen are available, low pressure may be used to assist in the draining of the oil by hooking up a charging hose to the schrader valve installed on the suction side of the compressor.
3. Remove cap and slowly open the drain valve a few turns. Use caution as the compressor will have a positive holding charge.
4. Once the oil has been drained from the oil drain valve, close valve.
5. Locate the 1/8" pipe plug under the motor housing.
6. Remove the pipe plug and drain the oil from this area. Use caution as this area will have a positive charge. After the oil has been drained, inspect, clean and re-apply teflon tape or paste and torque to 102 inch-lbs.
7. Dispose of used oil per standard waste disposal practices.
8. Most BITZER screw compressors have an initial oil charge of between 2.6 to 8.8 gallons of oil, depending on model. When recharging, ensure that the amount charged is the amount equal to the amount drained providing the correct oil level in the sight glass was between half to full prior to draining.
9. For reference, Table 1 shows the correct oil charges for each frame size of BITZER CSH/CSW screw compressor.
10. Connect a charging hose to the oil drain valve and re-charge the compressor to the proper level with new oil. Note: To assist in recharging, the compressor may be placed on a vacuum on the suction side.
11. After recharging, close the drain valve and continue to evacuate the compressor per standard procedures. A standing vacuum of 400 microns is recommended.

<b>Table 1 - Screw Compressor Oil Charges</b>			
<b>CSH</b>	<b>Charge (gal)</b>	<b>CSW</b>	<b>Charge (gal)</b>
65	2.6	65	2.75
75	4.1	75	4.1
8553..8573	6.0	8573	6.0
8583..8593	5.2	8583..8593	5.2
9553..9593	8.2	9563..9593	8.2
95103	8.8	95103	8.8
95113	8.8	95113	8.8

<b>Screw Compressor Oil</b>			
<b>Refrigerant</b>	<b>Oil Type</b>	<b>Part number</b>	<b>U/M</b>
HFC	BSE170 / SOLEST 170	793-1170-34	1 gallon
		793-3170-34	5 gallon
R-22	B320SH / BVA 4214-320	793-3320-01	1 gallon
		793-3320-34	5 gallon
R134a (CSW only)	BSE170L	915118-06	1 liter
		915118-01	5 liter

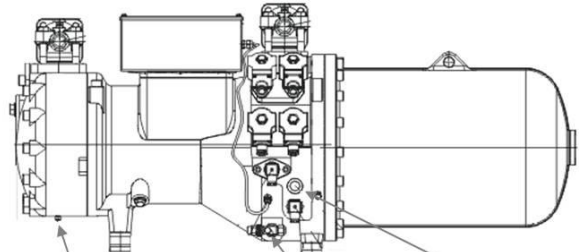
# Figure 1 – CSH1 Screw Compressors

CS65 Frame 1



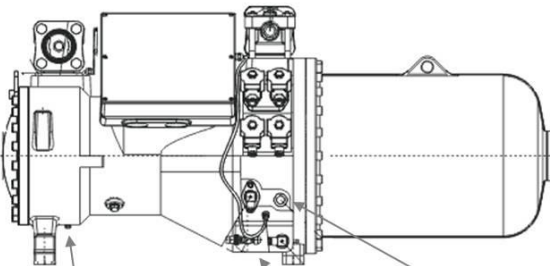
Motor Housing Drain Plug  
1/8" NPTF      Oil Service Valve  
5/8" UNF      Oil Sight Glass  
1-1/8" UNEF

CS75 Frame 2



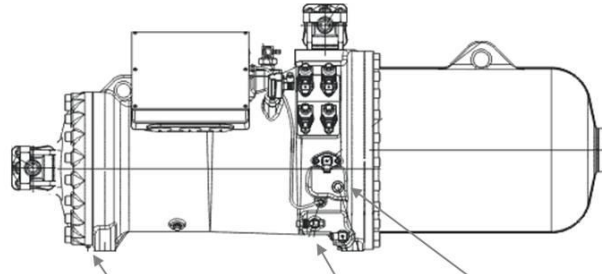
Motor Housing Drain Plug  
1/8" NPTF      Oil Service Valve  
5/8" UNF      Oil Sight Glass  
1-1/8" UNEF

CS85 Frame 3

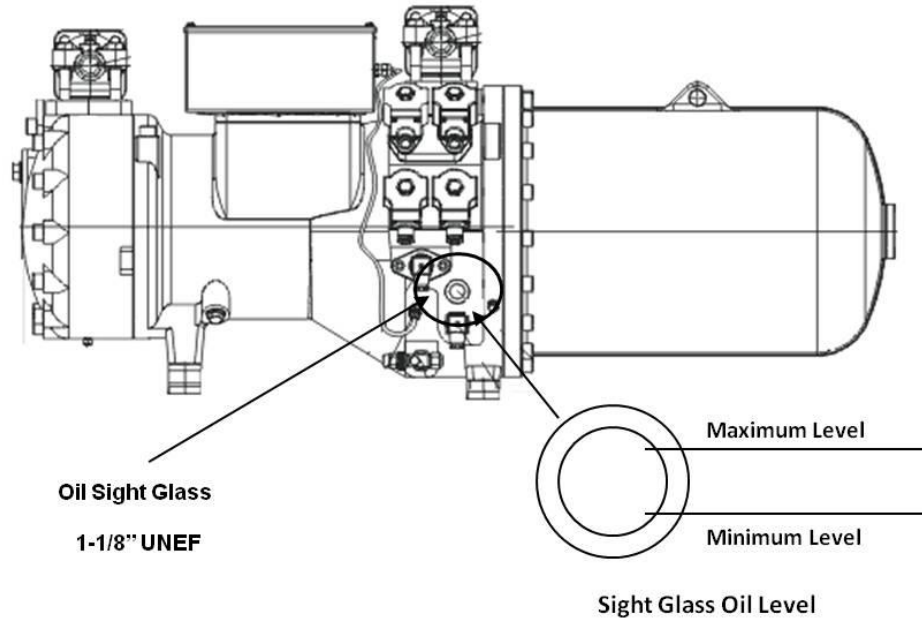


Motor Housing Drain Plug  
1/8" NPTF      Oil Service Valve  
5/8" UNF      Oil Sight Glass  
1-1/8" UNEF

CS95 Frame 4



Motor Housing Drain Plug  
1/8" NPTF      Oil Service Valve  
5/8" UNF      Oil Sight Glass  
1-1/8" UNEF



Oil Sight Glass  
1-1/8" UNEF

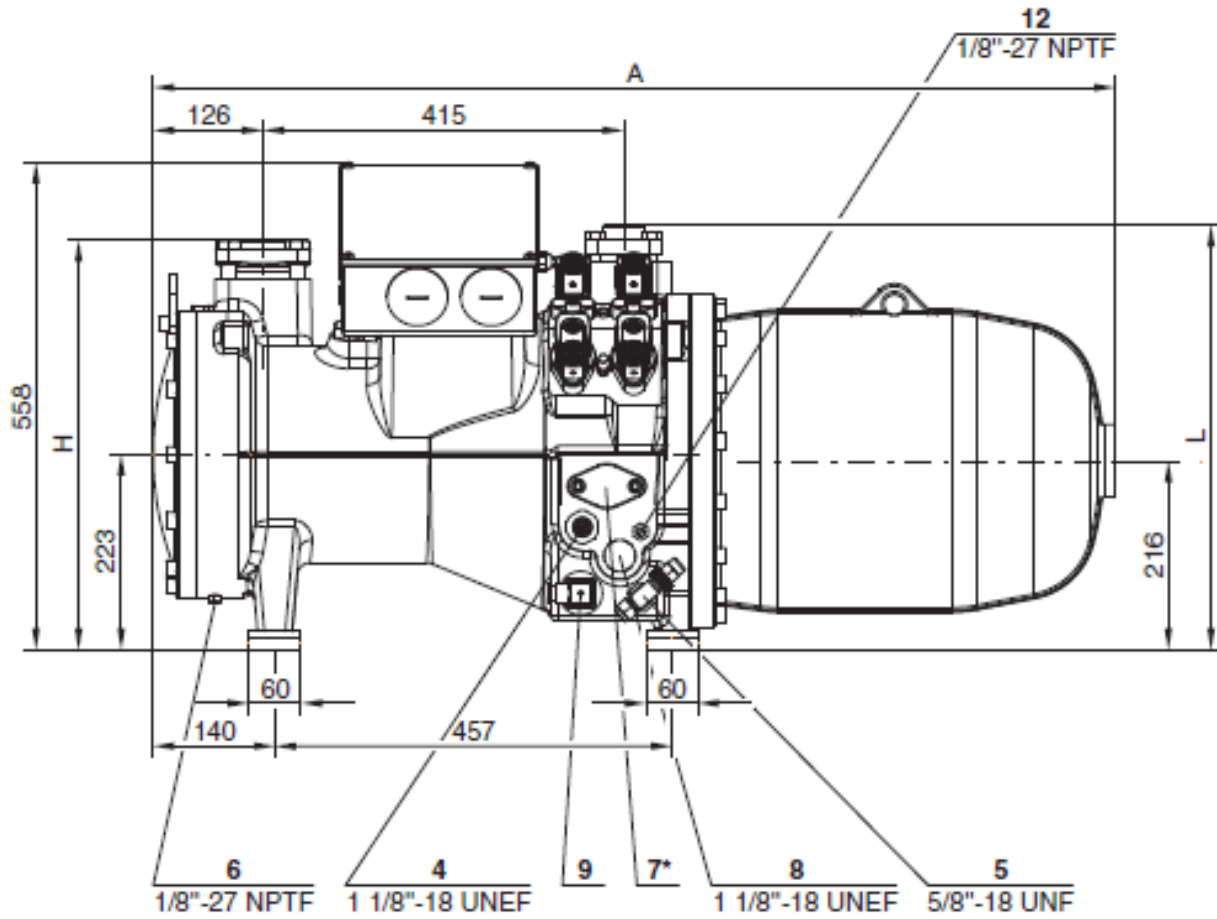
Maximum Level

Minimum Level

Sight Glass Oil Level

**Figure 2 – CSH3 Screw Compressors  
(CSH65 shown)**

**CSH65.3**





Notes





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