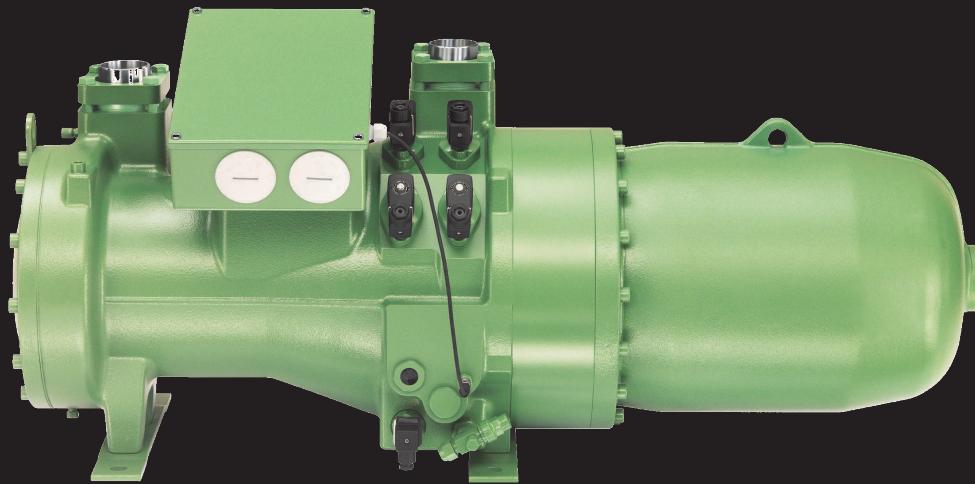




# COMPACT SCREW COMPRESSORS

## Conversion Guidelines - CSH.1 to CSH.3



TB-0038



## Conversion Guidelines – CSH.1 to CSH.3 Screw Compressors

### **Conversion guidelines for removing the original CSH.1 Screw Compressor and installing the CSH.3 Screw Compressor.**

The overall dimensions of the liquid injection and oil level control options of the CSH.1 Screw Compressors and the CSH.3 Screw Compressors are different, however all other connections, electrical components, and dimensions remain the same. The CSH.1 had one port for economizer and liquid injection. The CSH.3 has individual economizer and liquid injection ports. Some accessories and items require replacement and improvement when converting the CSH.1 to the new CSH.3 series.

#### **Economizer**

The connection locations remain the same between the two compressor models.

#### **Integral Nozzle and Fixed Orifice for Liquid Injection**

For CSH.1 and CSH.1-Y model compressors manufactured after August 2003, the integrated liquid injection nozzle provides an alternative to the thermostatic expansion Valve. This nozzle is tuned for optimum injection flow in relation to the demand.

The liquid injection nozzle and adaptor are mounted as a unit directly into the ECO port for the CSH.1 (see figure 1).

The liquid injection orifice is already installed via a separate fixed port for the CSH.3 (see figure 4 and 5).

#### **CSH.1 ECO with Liquid Injection Conversion**

If the original CSH.1 compressor used an economizer and liquid injection (see figure 2), these circuits used the “ECO” port. These circuits should now be separated and installed into the new individual ports on the CSH.3 compressor (see figure 3).

#### **CSH.1 Mechanical Oil Level Control and CSH.3 Mechanical Oil Level Control or Optical Oil Level Control Options**

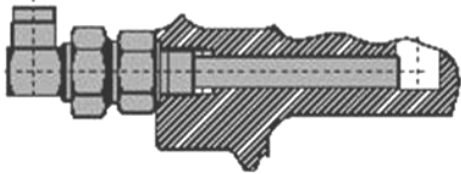
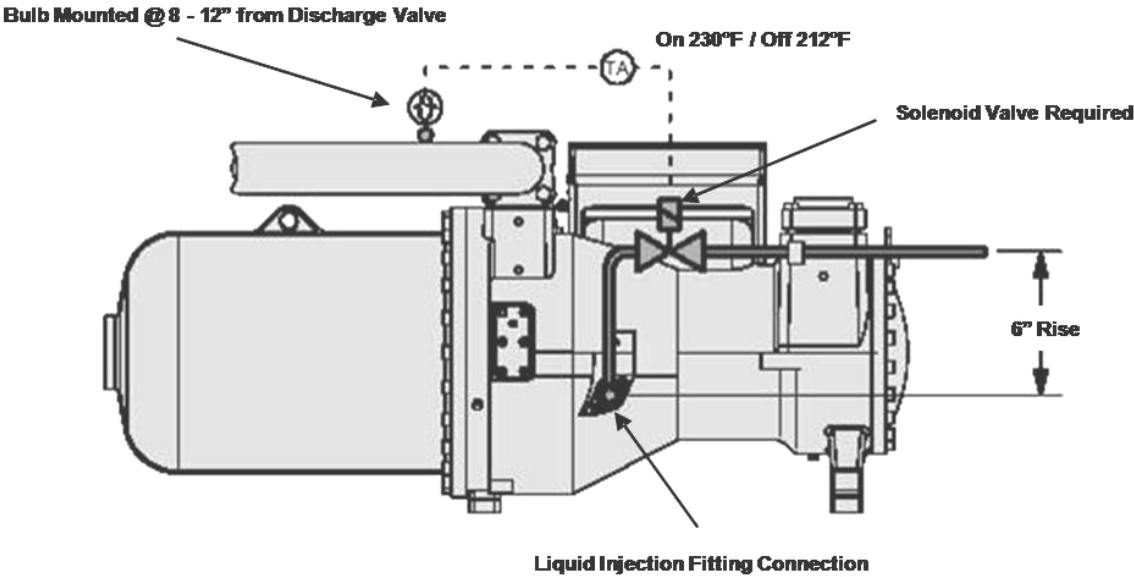
If the original CSH.1 screw compressor utilized the mechanical oil level control option, this can be re-used on the CSH.3 series compressor. The CSH.3 screw compressor has an additional connection for the optical oil level control. Note: both accessories should not be used together (see figure 6 and 7).

#### **Dimensional Drawings for each compressor can be found in the back of this publication**

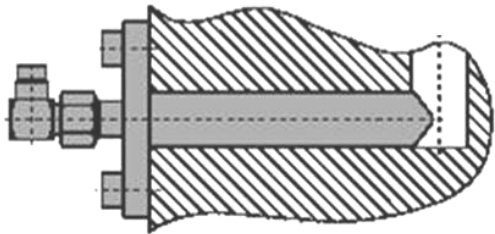
#### **Additional information can also be found in the following publications:**

Semi Hermetic Compact Screw Compressor Operating Instructions (SB-170-6)  
CSH.1 Application Guidelines (SH-170-3)  
CSH.3 Application Guidelines (SH-170-4)

**Liquid Injection Nozzle and Fitting – ECO Port (Figure 1)**  
**CSH.1 Series Compressors**

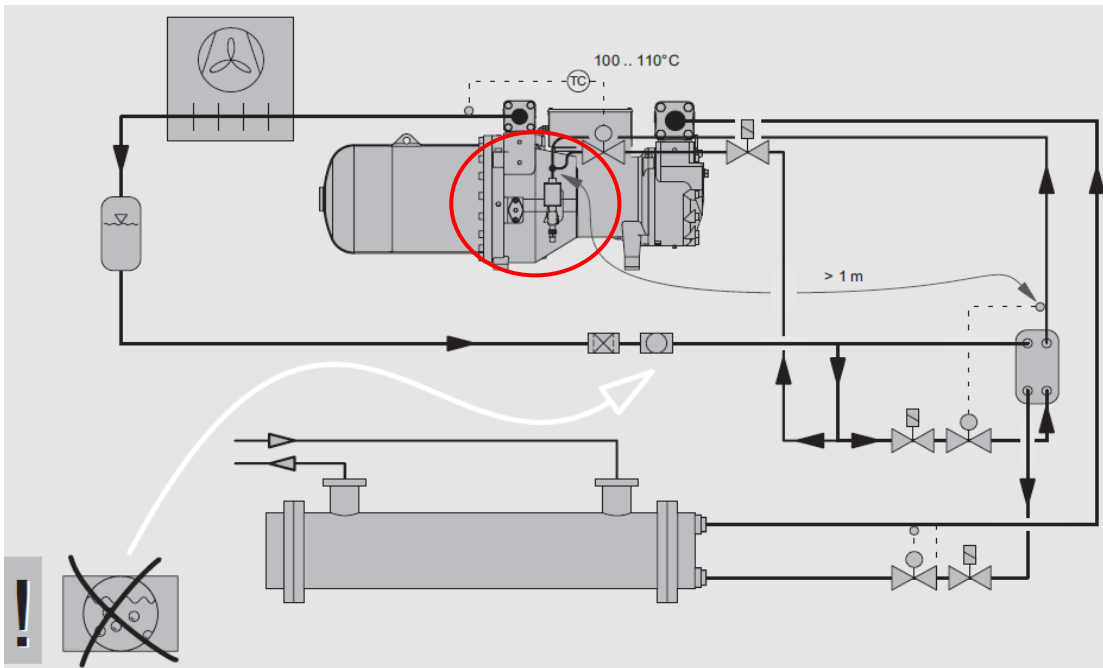


**CSH-Y 35,40,50,60,70**  
**CSH 50,60,70,80,90**

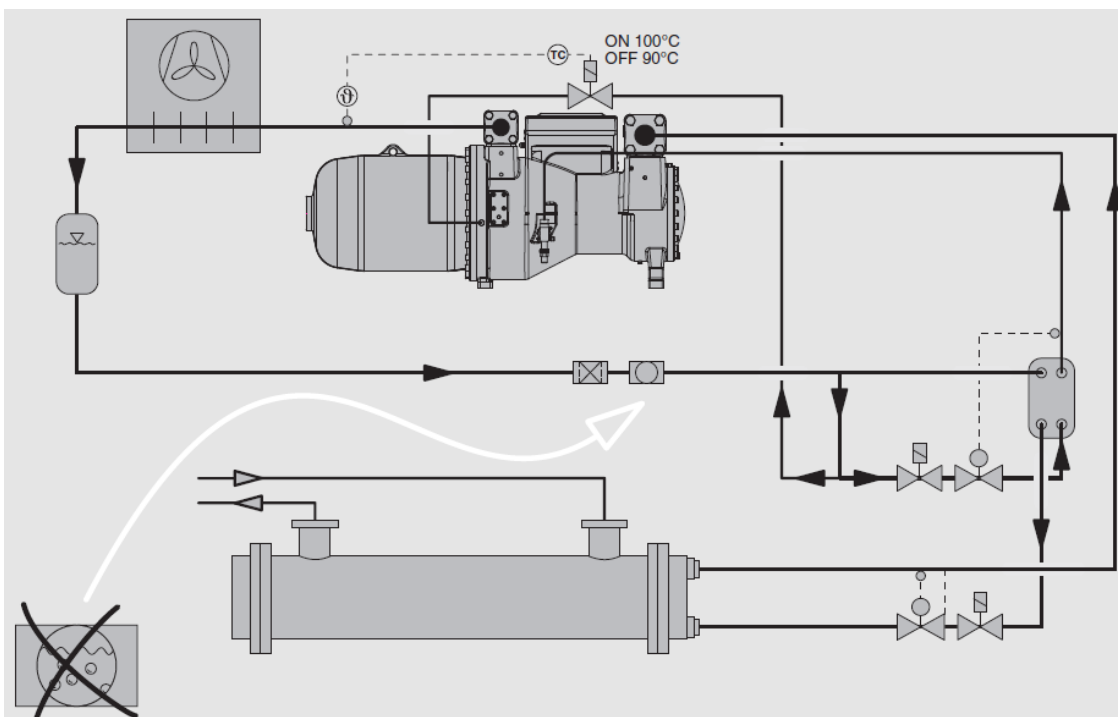


**CSH-Y 80,90,110,125,140,160,180,210,240**  
**CSH 110,125,140,180,210,240,280,300**

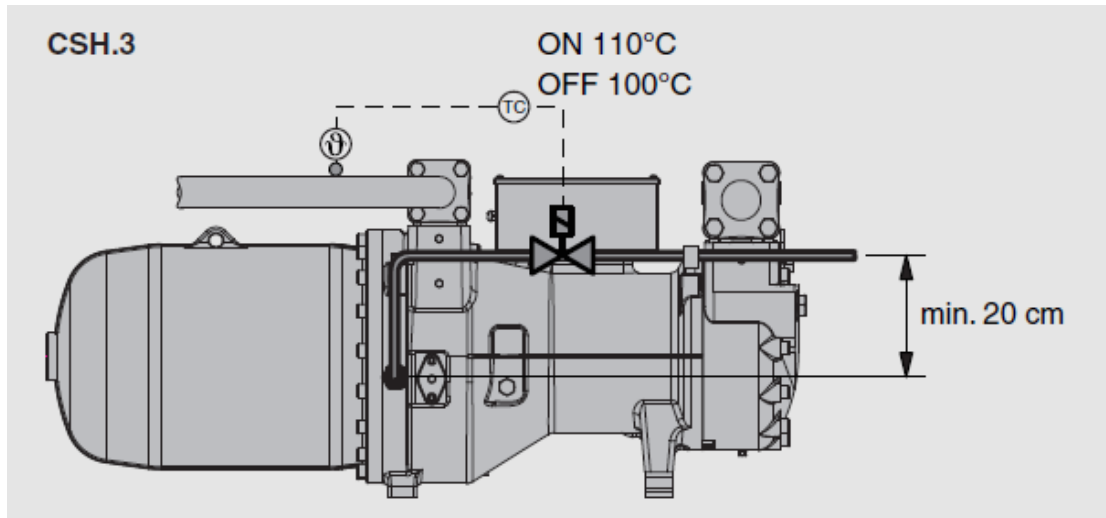
**ECO Operation with Liquid Injection – ECO Port (Figure 2)**  
**CSH.1 Series Compressors**



**ECO Operation and Liquid Injection (Figure 3)**  
**CSH.3 Series Compressors**



**Liquid Injection Nozzle and Fitting – Fixed L.I. Port (Figure 4)**  
**CSH.3 Series Compressors**



**Port for Liquid Injection**

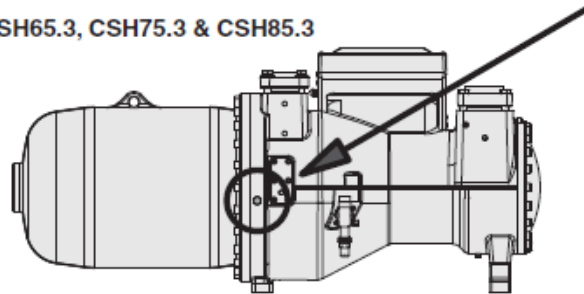


**Shut-off valve for Liquid Injection**

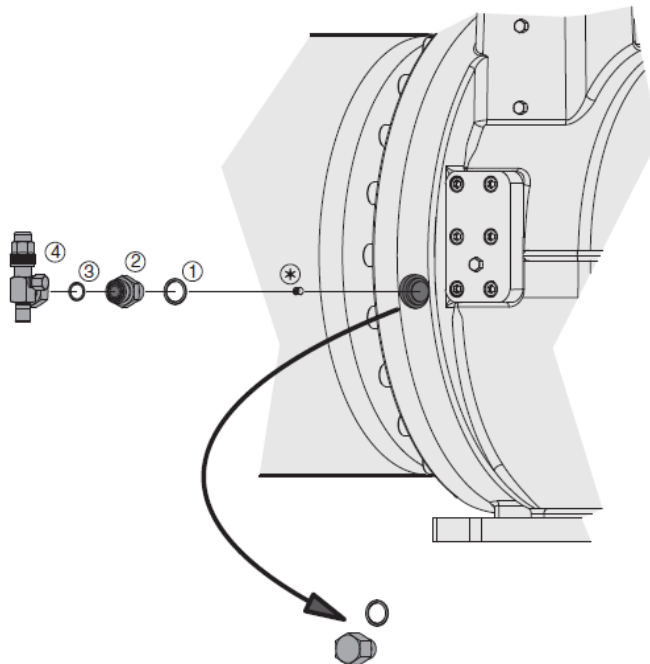
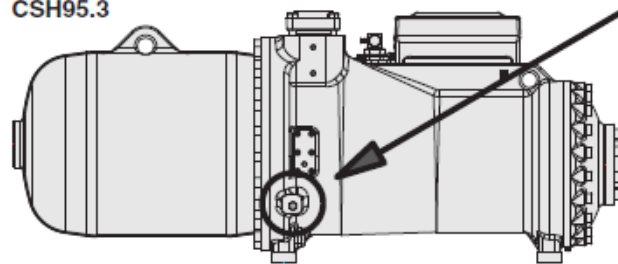
**New Liquid Injection Port with  
Fixed Integrated Injection Nozzle**

## Liquid Injection Nozzle and Fitting – Fixed L.I. Port (Figure 5) CSH.3 Series Compressors

CSH65.3, CSH75.3 & CSH85.3



CSH95.3



Bausatz-Nr. / Kit No.  
361332-10

- ① 382403-05
- ② 365210-25
- ③ 372200-02
- ④ 361321-10

CSH65.3 .. CSH85.3:  
Düse (\*) ist bereits im Gehäuse montiert.  
CSH95.3 hat keine solche Düse.

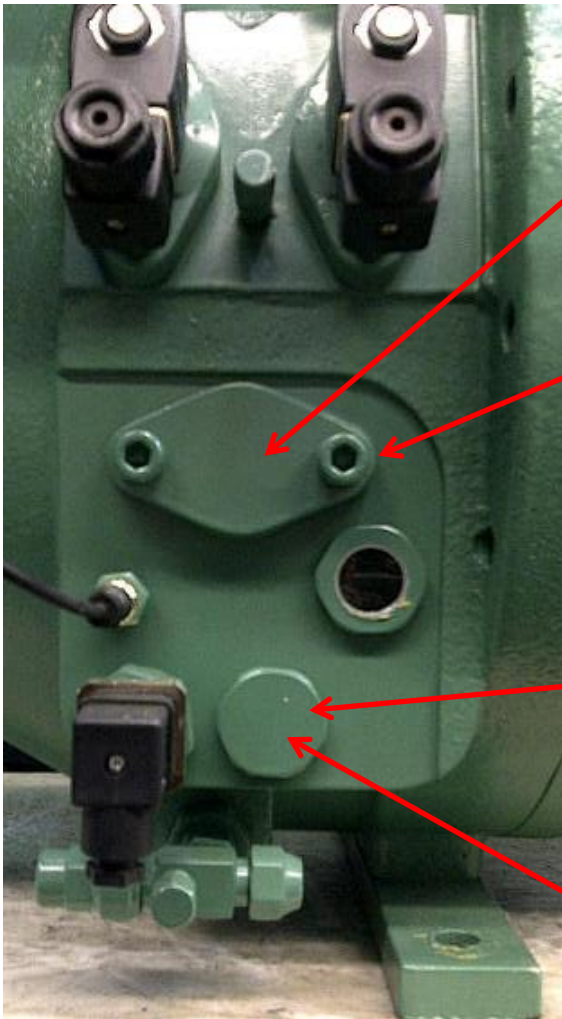
CSH65.3 .. CSH85.3:  
Nozzle (\*) is already fitted into housing.  
CSH95.3 has no nozzle.

**Mechanical Oil Level Control and Optical Oil Level Control (Figure 6)**  
**CSH.3 Series Compressors**

**Mechanical Oil Level Switch**



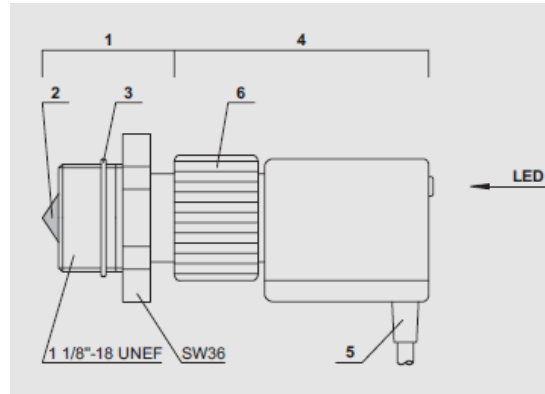
**Existing Option**  
**Mechanical Oil level switch**  
**Can be used on CSH.1 or CSH.3**



**New Option**  
**Optical Oil level switch**  
**OLC-S1**  
**Can only be used with CSH.3**

## Optical Oil Level Control (Figure 7) For CSH.3 Series Compressors

### Oil Level Monitoring Using OLC-S1



- 1 Prism unit
- 2 Glass cone
- 3 Gasket
- 4 Opto-electronic unit  
(360° revolving)
- 5 Connecting cable
- 6 Screwing cap

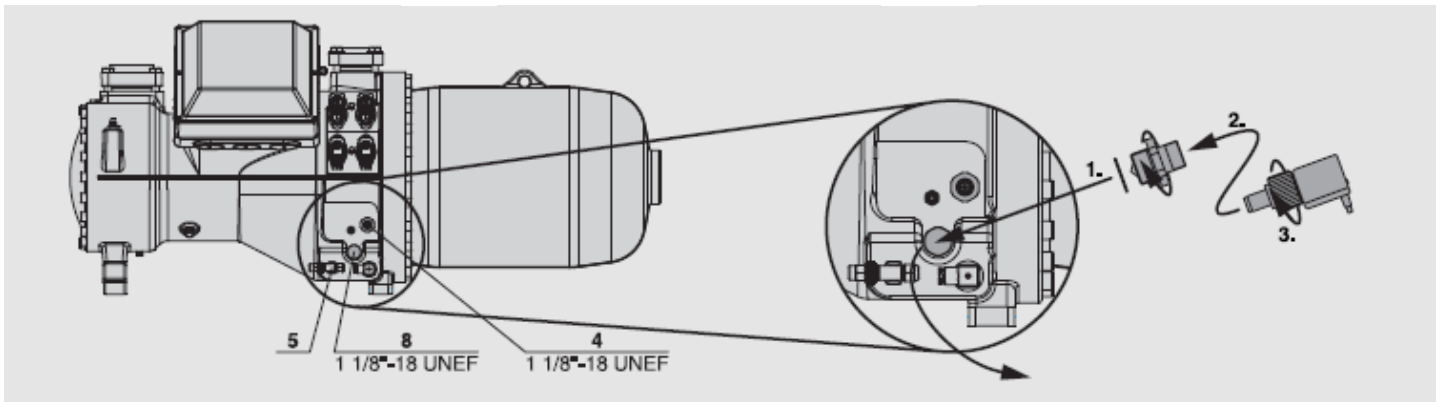
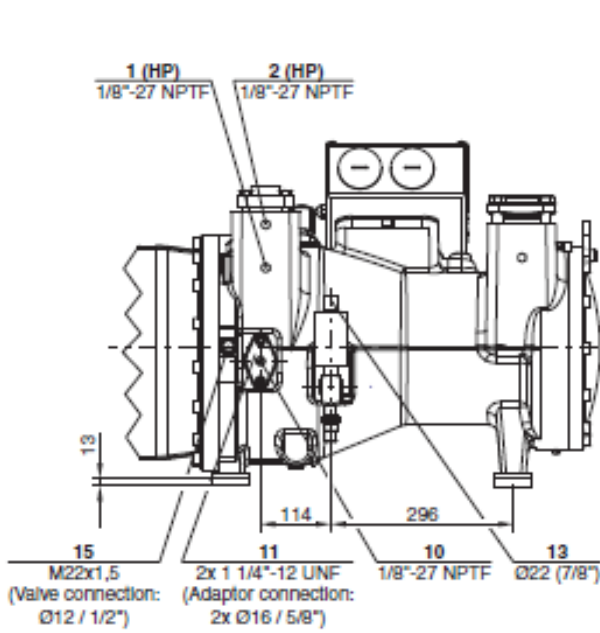


Fig. 2 Mounting positions:  
 8: minimum oil level  
 4: sight glass / maximum oil level  
 5: oil service valve

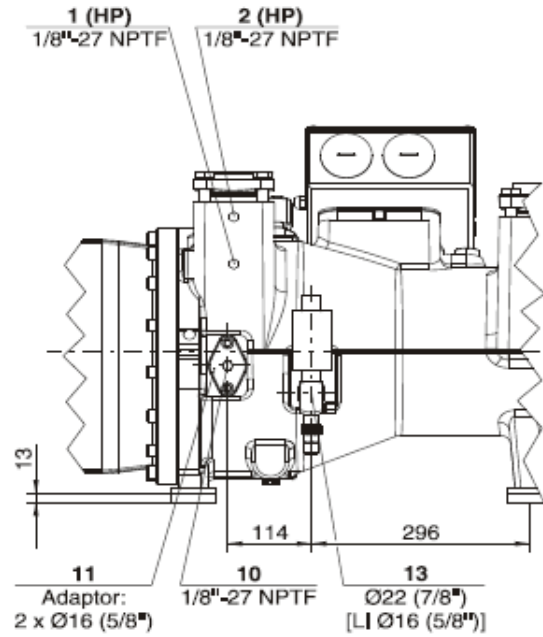
Part Number	Voltage	Thread
347962-01	230V	1-1/8"-18 UNEF
347962-02	115V	1-1/8"-18 UNEF
347962-03	24V AC/DC	1-1/8"-18 UNEF



**Unit Dimensions – CSH65 Compressors**  
 Please note – Dimensions are listed in millimeters

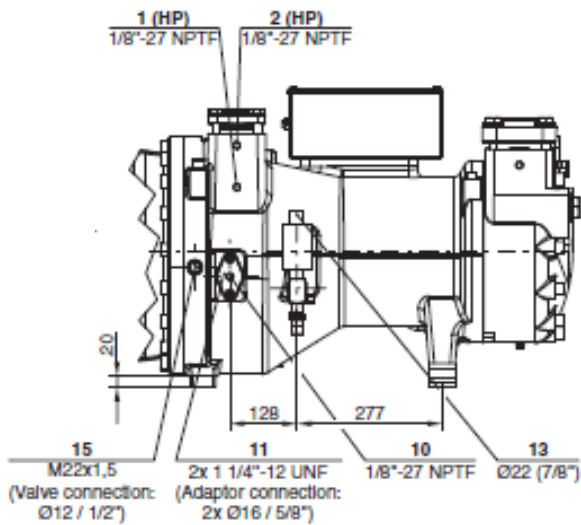


CSH.3

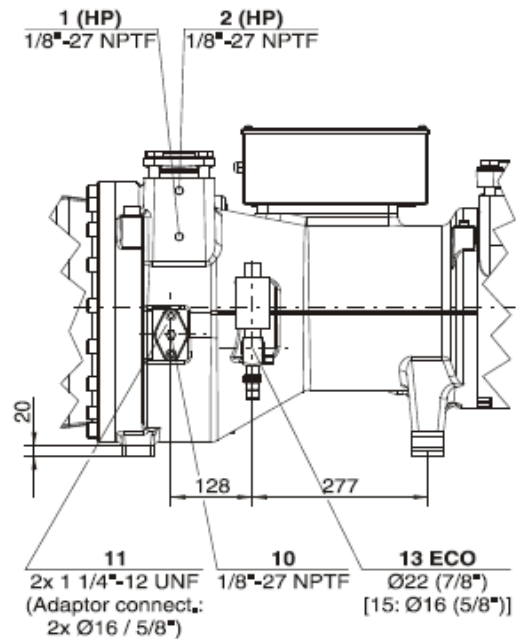


CSH.1

**Unit Dimensions – CSH75 Compressors**  
 Please note – Dimensions are listed in millimeters



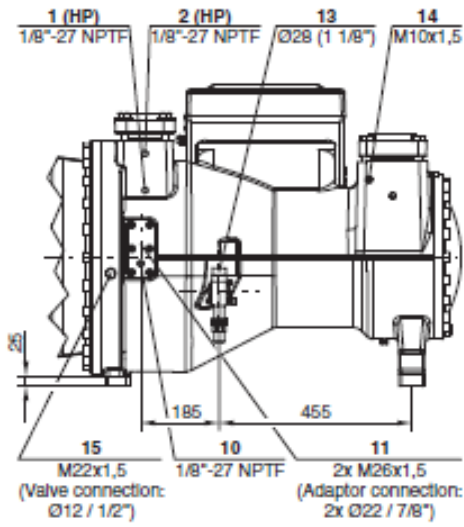
CSH.3



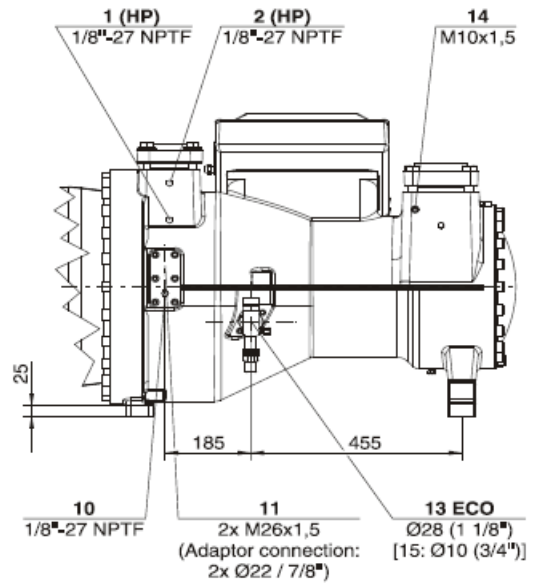
CSH.1

### Unit Dimensions – CSH85 Compressors

Please note – Dimensions are listed in millimeters



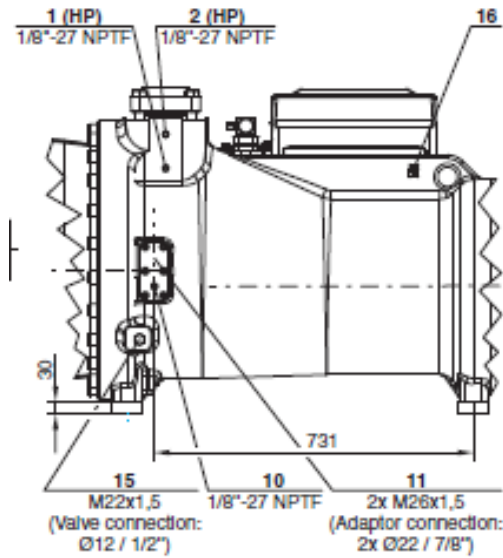
CSH.3



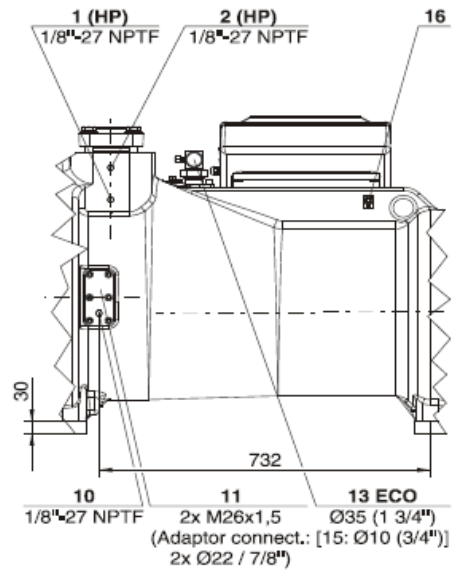
CSH.1

### Unit Dimensions – CSH95 Compressors

Please note – Dimensions are listed in millimeters




CSH.3



CSH.1

**Notes:**



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