



Technical Bulletin (TB-0052-02)

2 Stage Sub-cooler Kits

Version 2, August 2019

Summary of Desuperheating / Sub-cooler Kits for 2 Stage compressors

Desuperheating:

Bitzer 2 stage compressors are delivered with a Desuperheating kit. The kit consists of several components including liquid line filter drier, sight-glass, liquid line solenoid, external equalizing line, female flare for connection of the expansion valve to the inter-stage manifold, and an access tee. A properly sized expansion valve must be specified as a separate item, but is included with the compressor. See Table 1 for valve selection.

Desuperheating kit: (Included in compressor)

Compressor Model	Kit W/No Sub Cooler
S4T-5.2	360716-01
S4N-8.2	360716-01
S4G-12.2	360716-02
S6J-16.2	360716-03
S6H-20.2	360716-03
S6G-25.2	360716-03
S6F-30.2	360716-03



360716-01



360716-02



360716-03

**These 3 kits are similar with the exception of the TX Valve external equalization tube. The tube is different lengths and turned in different directions depending on the compressor body series.

Customer must specify solenoid coil voltage.

115v Part # 884-0202-01

230v Part # 884-0203-03

Sub cooler / Economizer:

Use of a sub-cooler in addition to the desuperheating kit will increase the capacity and efficiency of the 2 stage compressor.

If use of a sub cooler is required, the proper sized braze plate, expansion valve, and nozzle can be made from the charts below.

Expansion valve selection:

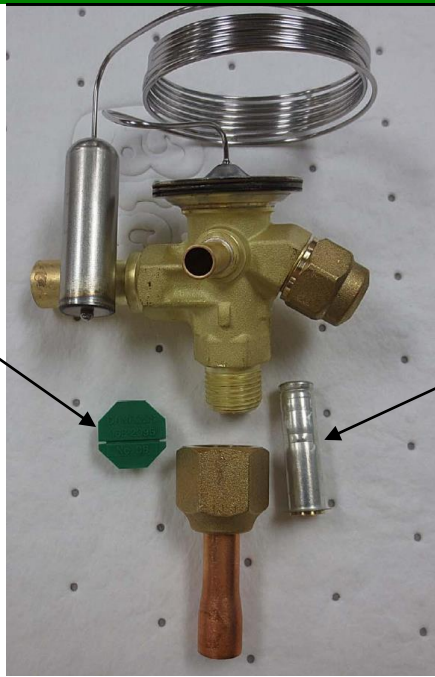
Table 1: With Subcooler

Compressor	R404A/R507A Above -60°F		R404A/R507A Below -60°F		R407F/R448A/R449A All		R22 All	
	Orifice	Valve p/n	Orifice	Valve p/n	Orifice	Valve p/n	Orifice	Valve p/n
S4T-5.2	1	361404-02	1	361404-02	1	361404-02	1	361404-02
S4N-8.2	3	361404-04	1	361404-02	2	361404-03	2	361404-03
S4G-12.2	3	361404-04	2	361404-03	3	361404-04	3	361404-04
S6J-16.2	4	361404-05	3	361404-04	3	361404-04	3	361404-04
S6J-20.2	5	361404-06	3	361404-04	4	361404-05	5	361404-06
S6G-25.2	5	361404-06	3	361404-04	4	361404-05	5	361404-06
S6F-30.2	6	361404-07	3	361404-04	5	361404-06	5	361404-06

Table 2: Without Subcooler

Compressor	R404A/R507A All		R407F/R448A/R449 All		R22 All	
	Orifice	Valve p/n	Orifice	Valve p/n	Orifice	Valve p/n
S4T-5.2	0	361404-01	0	361404-01	1	361404-02
S4N-8.2	1	361404-02	1	361404-02	1	361404-02
S4G-12.2	1	361404-02	1	361404-02	2	361404-03
S6J-16.2	2	361404-03	2	361404-03	2	361404-03
S6J-20.2	2	361404-03	2	361404-03	2	361404-03
S6G-25.2	3	361404-04	3	361404-04	3	361404-04
S6F-30.2	3	361404-04	3	361404-04	3	361404-04

The orifice is supplied with a color coded tag. Tag is usually placed on the super-heat capillary tube.

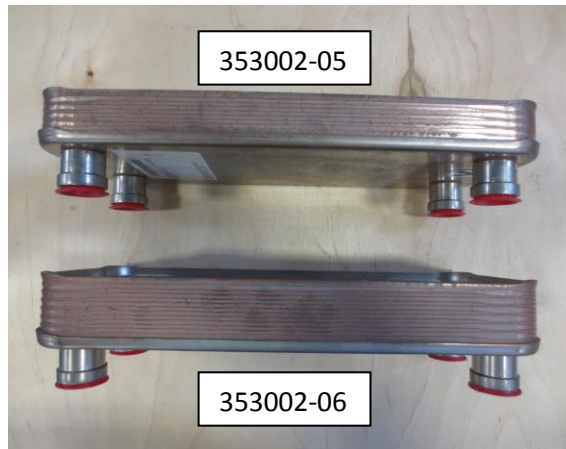


The Orifice selected from chart above is inserted in liquid inlet of TX Valve

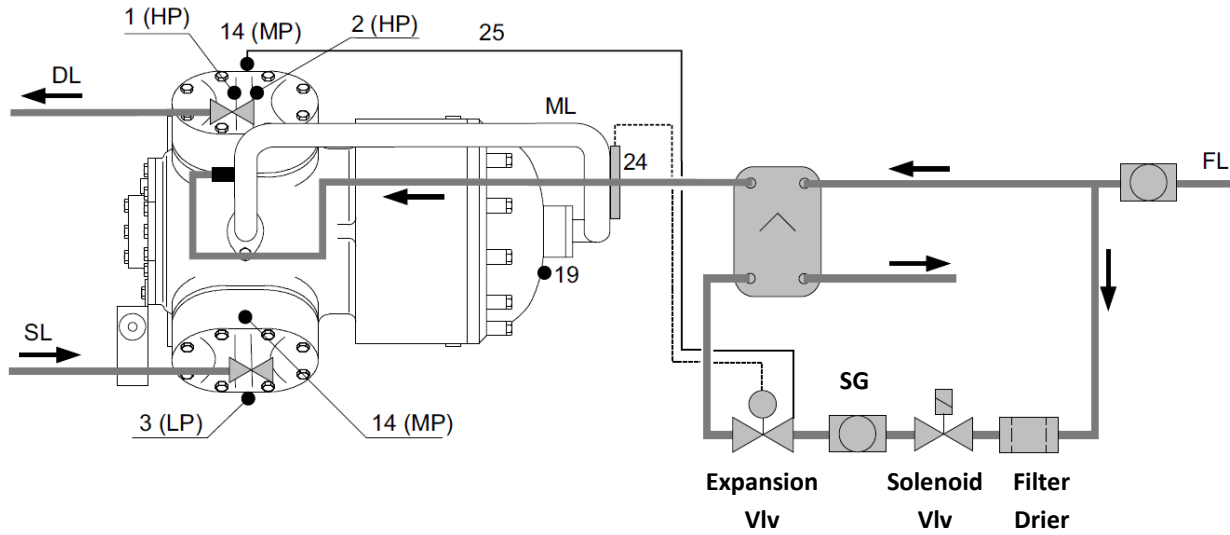
Braze Plate Heat exchanger:

The braze plate heat exchanger is part of the sub-cooler / economizer components. It is sized according to the capacity requirements of each compressor.

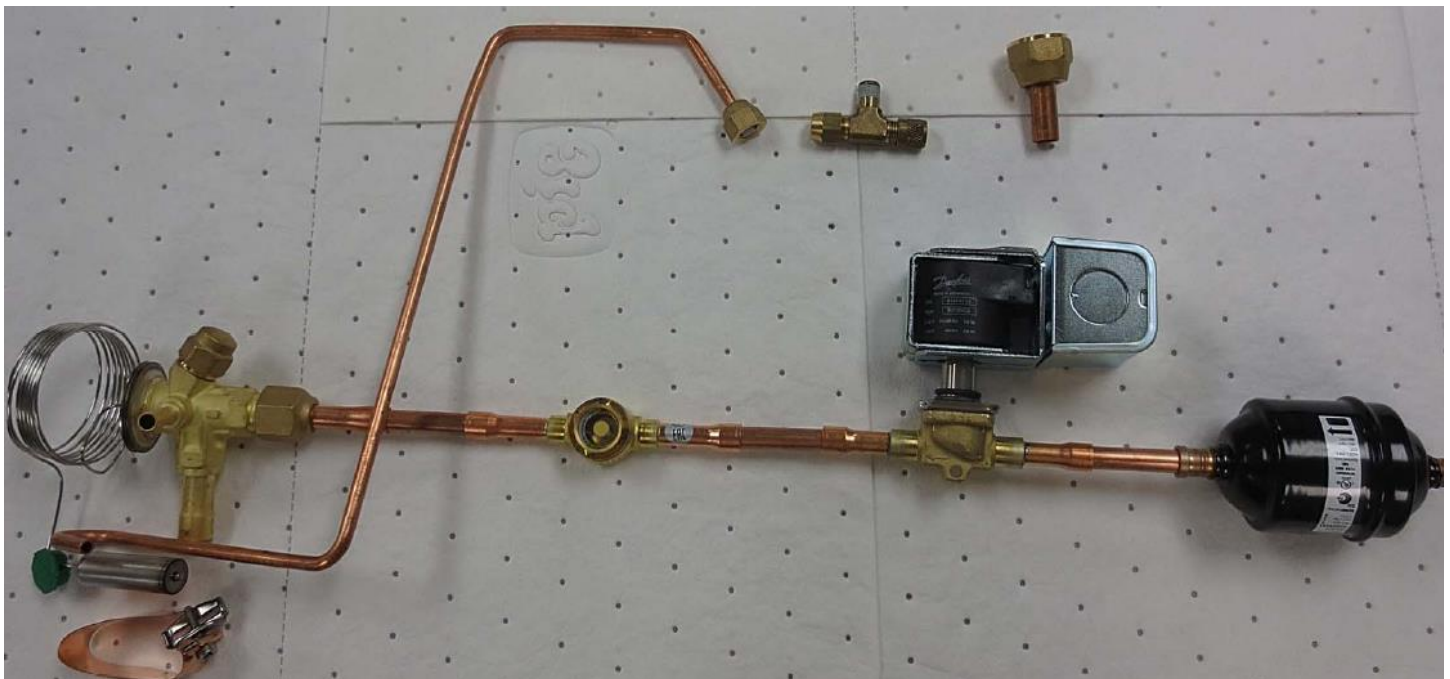
COMPRESSOR	BRAZE PLATE #
S4T-5.2	353002-05
S4N-8.2	353002-05
S4G-12.2	353002-05
S6J-16.2	353002-06
S6H-20.2	353002-06
S6G-25.2	353002-06
S6F-30.2	353002-06



Example of S4T-5.2 / S4N-8.2 Shown



Desuperheating kit assembled w/ expansion valve

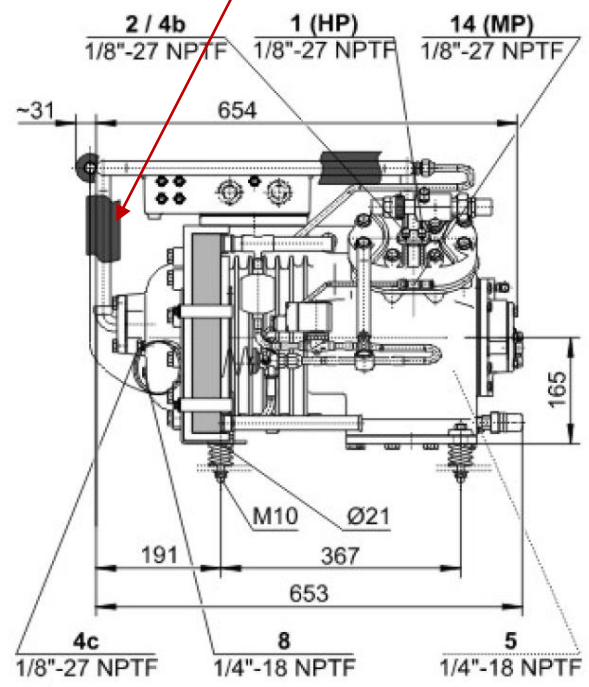
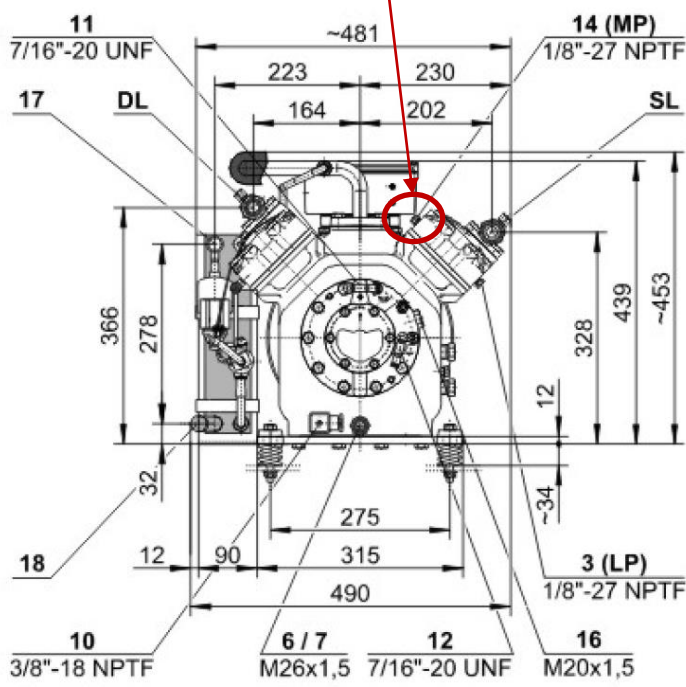


Individual parts (shown) included in desuperheating kit:



Install Tee in kit on port 14 and install the external equalizing tube from expansion valve

Insert superheat bulb on expansion valve in the sleeve on the inter-stage manifold



Note:

The location of the superheat sensing bulb on the interstage manifold tube is important for proper control of the return gas temperature over the motor.

See document **kb-150** for superheat settings.

The external equalizing line from the expansion valve should be connected to port #14 as shown above.

External equalized valves are used because of pressure drop thru the braze plate exchanger.

Port 14 is the approved access for the tube provided.