

Date of last update: Aug-22

Ref: TI_Unit_CO2_Stream_05_EN_Rev00

Application Engineering Europe

COPELAND™ CO₂ REFRIGERATION UNITS PRESSURE RELIEF VALVE SERVICE KIT

This technical information provides instructions for the replacement of the pressure relief valve (PRV) on Copeland CO₂ refrigeration units. These instructions are valid only for Copeland CO₂ refrigeration units with M24x1.5 thread on the PRV's connected to the liquid receiver through the changeover valve. The PRV version with metric thread M24x1.5 cannot be used anymore and must be replaced by an adaptor M24x1.5 thread (male) to 1/2"-14 NPT (female) and a PRV with 1/2"-14 NPT port. The PRV on the high-pressure side is not affected by this change.

The service kit N°3293932 includes the components shown in the table below.

Components	Description	Quantity	Ident & Part number
Gasket-safety valve	Copper gasket	2	3175467 (020-1509-00)
Adaptor-M24X1.5-1/2NPT	Adaptor changeover valve to PRV	2	3293943 (034-0313-00)
Valve - Safety assm 90 bar	Pressure relief valve (PRV)	2	3288776 (510-0902-01)
User manual - PRV Kit	Instruction	1	3293954 (900-0009-00)

Table 1: BOM of PRV service kit

When replacing the PRV's, the instructions in this technical information must be carefully followed. Use the recommended torque at each step.

Only qualified and authorized HVAC or refrigeration personnel are permitted to conduct the changes described in this technical information. All appropriate safety measures must be considered.

Replacement of PRV 2:

- Close the changeover valve completely using the spindle (**Figures 1 & 18**).
- Remove the deflector from the PRV (**Figure 2**).
- Use 28-mm and 32-mm keys to remove the PRV (**Figure 3**).
- The torque must not be transferred to the changeover valve but must be held by the 32-mm key.



Figure 1

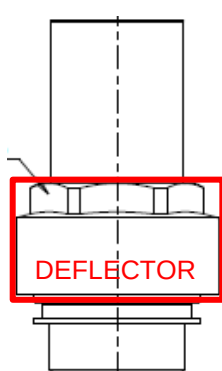


Figure 2



Figure 3

- Protect the opening of the changeover valve so that no debris fall into it (**Figure 4**).
- Clean debris/rust from the changeover valve, to place copper gasket (**Figure 5**).
- Remove hole protection (**Figure 6**).
- Clean and degrease the thread and copper sealing surface (**Figure 7**).



Figure 4



Figure 5



Figure 6

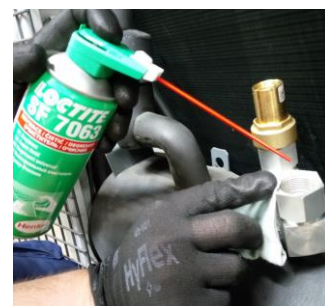


Figure 7

- Place copper gasket (**Figure 8**) and mount NPT adaptor; torque to 100 Nm using 32-mm and 30-mm keys (**Figure 9**).



Figure 8



Figure 9

- Apply teflon sealing tape (0.1x12 mm) to NPT PRV by 5 to 6 turns clockwise (**Figure 10**).
- Mount the PRV into the adaptor; torque to 40 Nm (**Figure 11**).



Figure 10



Figure 11

- Open the changeover valve (**Figure 12**), turn the spindle into middle position (**Figure 13**) and perform a bubble leak test (**Figure 14**) on the PRV.



Figure 12

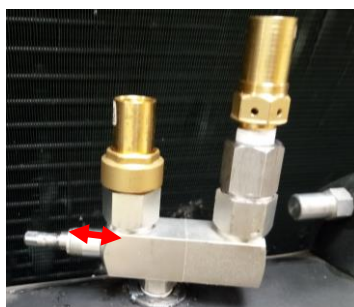


Figure 13



Figure 14

- Mount the deflector and tighten it manually to 1-5 Nm (**Figure 15**).
- Open the changeover valve completely using the spindle (**Figures 16 & 18**) and repeat the procedure for PRV 1.
- The changeover valve must be fully open during unit operation (spindle out, **Figure 16**).
- Mount the spindle cap and check the presence of the copper gasket (**Figure 17**).

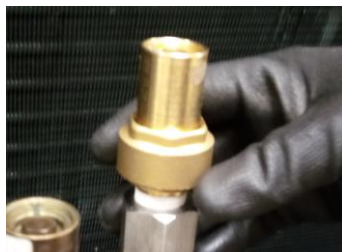


Figure 15

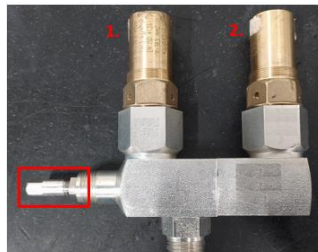
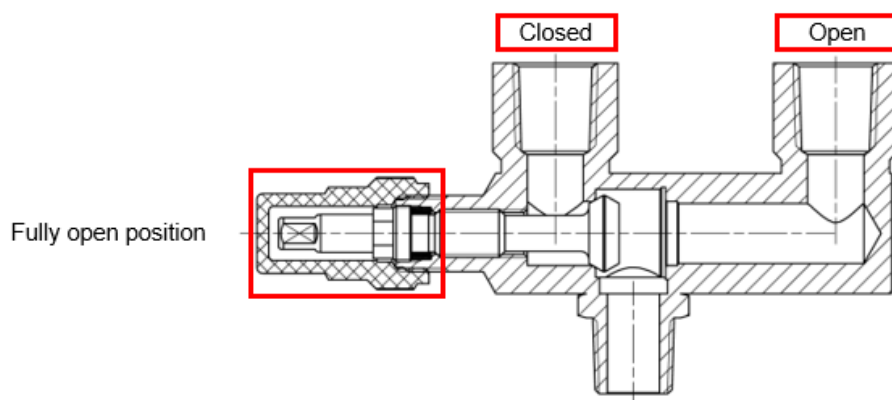


Figure 16



Figure 17

Spindle position "open"



Spindle position "closed"

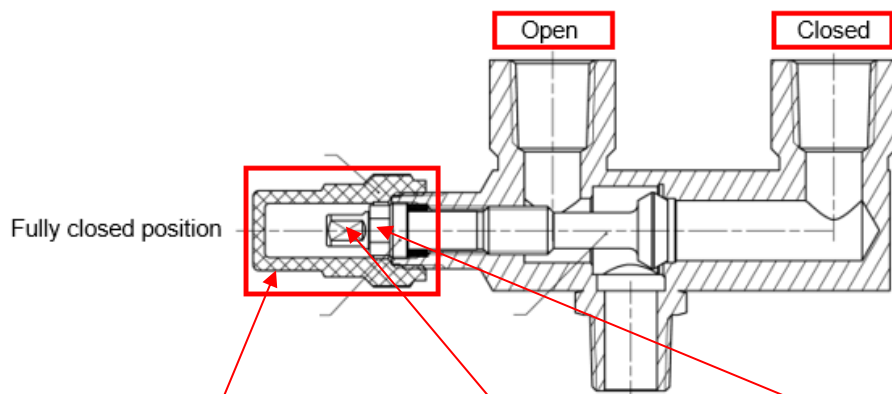


Figure 18

Spindle protective cap	Spindle "open" / "closed"	Seal gland
40 Nm	25 Nm	15 Nm

Table 2: Torques on the changeover valve in Nm

NOTE: For information on the maintenance and lifetime of the PRV, please refer to the unit application guidelines.

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