

Did you know?

Adjustment of static superheat when retrofitting to HFO and HFO blends for Thermo™-Expansion Valves

According to a recalculation of the valve power rating, EMERSON thermostatic PCF / HCF expansion valves can also be used for HFO and HFO blends by adjusting the static superheat. Different glides of temperature and saturation pressures require an adjustment, based on different operating conditions and refrigerants.

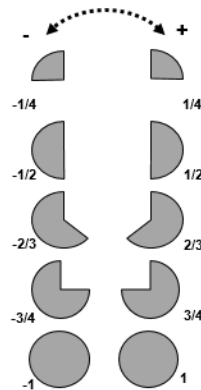
The table (on the right) shows the operating superheat adjustment of an EMERSON TI-Series valve following a retrofit from R404A to R449A.

Without readjustment, the valve operates with an insufficient superheat (red). The static superheat needs to be adjusted accordingly in the presence of different evaporating temperatures. The superheat should be equivalent to approx. 6K±1,5K (green).

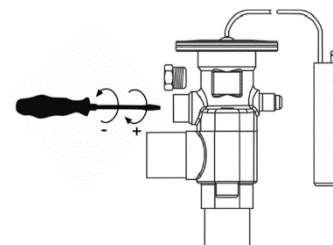
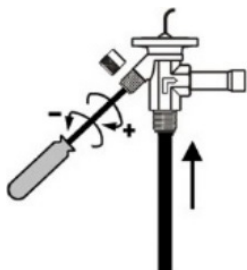
Standard SW charge for systems with R404A			
	Evaporating temperature		
	-30°C	-10°C	+5°C
Operating Superheat			
System with R404A	6K	6K	6K
After retrofit to R449A	0K	-0,7K	0,9K
Readjustment		after adjustment of static superheat	
+1 Turn	3K	1,5K	2,2K
+2 Turns	6,5K	3,6K	3,6K
+3 Turns	10K	5,5K	4,7K

Instructions on the readjustment of thermo expansion valves in the Emerson TI and T-Series model ranges are shown below.

Evaporation temperature	Valve body with standard charge		Retrofit to HFO / HFO blends				
	R134a TI...-MW...	R404A TI...-SW...	R450A	R513A	R1234ze	R448A R449A	R452A
	Readjustment - number of turns ("+" clockwise/ "-" anti-clockwise)						
-40°C	1/3	- 1/3	2/3	1/3	3/4		
-35°C	1/2	- 1/2	1	2			
-30°C	2/3	- 1/2	1	1 3/4	1		
-25°C	3/4	- 2/3	2/3	1 1/2			
-20°C	1	- 2/3	1/4	3	2/3		
-15°C	3/4	- 1	1 2/3	2 1/2			
-10°C	1/2	- 1	1 1/2	2 1/4	1/4		
-5°C	1/3	- 1 1/4	2 2/3	3 3/4			
0°C	2	- 1 1/3	2 1/2	3 1/4	1 3/4		
5°C	1 2/3	- 1,5	3 1/2	5	1 2/3		



Evaporation temperature	Power element with standard charge										
	R134a XB-1019-MW...		R404A XB-1019-SW...			R134a XC726-MW...			XC726-MW...		
	R450A	R513A	R1234ze	R448A/ R449A	R452A	R450A	R513A	R1234ze	R448A/ R449A	R452A	
Readjustment - number of turns ("+" clockwise/ "-" anti-clockwise)											
-40°C	1 1/2	-1 1/2	3	6 1/2	3	2	-2	3 1/2	8 1/2	4	
-35°C	2	-2	3 1/2	8	3 1/2	2 1/2	-2 1/2	5	10	4 1/2	
-30°C	2 1/2	-2	4 1/2	9	4	3	-3	6	12	5	
-25°C	3	-3	5 1/2	10 1/2	5	4	-3 1/2	7 1/2	13 1/2	6	
-20°C	4	-3	7	12	5 1/2	5	-4	9 1/2	15 1/2	7	
-15°C	4 1/2	-3 1/2	8 1/2	13 1/2	6	6	-5	11 1/2	18	8	
-10°C	5 1/2	-4	10	15	7	7 1/2	-5 1/2	13 1/2	20	9	
-5°C	6 1/2	-5	12 1/2	17	8	9	-6 1/2	16 1/2	-	10	
0°C	8	-5 1/2	15	19	8 1/2	10 1/2	-7	-	-	11 1/2	
5°C	9 1/2	-6	18	-	9 1/2	12 1/2	-8	-	-	12 1/2	



Note:

We recommend checking the result of the valve adjustment using appropriate measurement equipment.

In addition, when evaporators with different evaporation temperatures are used, the valve adjustment should be carried out at the lowest evaporation temperature.