

Sanhua TXV – Different refrigerants compatibility

Technical Bulletin – 211012

Scope of this document is to inform about the potential compatibility between different refrigerants of Sanhua TXV valves with adjustable SH.

Almost all the systems operating with old generation HFC refrigerants (e.g. R404A, R407C..) can be retrofitted with low GWP refrigerants or blends (see table 1); in this case, the size of the components, the diameter of the pipelines and nominal cooling capacity of the system remain almost unvaried.

Original HFC	New Refrigerant (low GWP)	Compatibility Level
R404A	R452A	Good
R407C	R448A/R449A	Good
R134a	R513A	Good

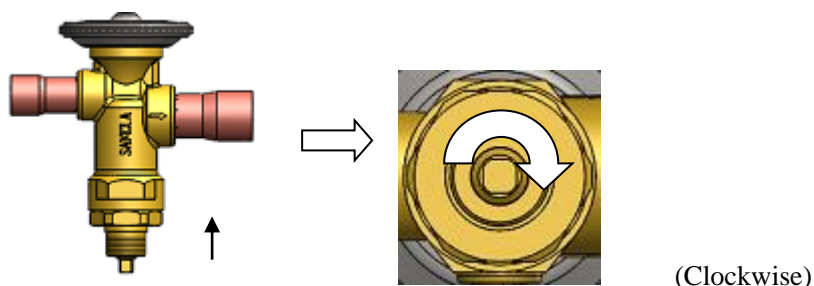
Table 1

Thermostatic Expansion Valves originally developed for HFC can be maintained also in case of systems operating with new refrigerants with similar performance even if the static super-heat value is different. These TXV valves can be adopted also in case of new installation. For that reason, it is necessary to adjust the SH value acting on the screw present on the valve. To properly set-up the TXV for usage with new refrigerants, please refer to the table 2 to know the screw rotation direction and the number of turns:

Refrigerants	Series	SH Rotation Direction	SH regulation screw turns [*]
R404A ↔ R452A	RFKH 03E	Clockwise	≈ 1/4 turn
R404A ↔ R452A	RFGB 03E	Clockwise	≈ 3/4 turn
R404A ↔ R452A	(RFG)D10-03E	Clockwise	≈ 2/5 turn
R404A ↔ R452A	(RFG)D20-03E	Clockwise	≈ 1 1/2 turn
R407C ↔ R448A	RFKH 02E	Anti-Clockwise	≈ 2/5 turn
R407C ↔ R448A	RFGB 02E	Anti-Clockwise	≈ 7/10 turn
R407C ↔ R448A	(RFG)D10-02E	Anti-Clockwise	≈ 1 turn
R407C ↔ R448A	(RFG)D20-02E	Anti-Clockwise	≈ 2 3/10 turn
R407C ↔ R449A	RFKH 02E	Anti-Clockwise	≈ 2/5 turn
R407C ↔ R449A	RFGB 02E	Anti-Clockwise	≈ 7/10 turn
R407C ↔ R449A	(RFG)D10-02E	Anti-Clockwise	≈ 1 turn
R407C ↔ R449A	(RFG)D20-02E	Anti-Clockwise	≈ 2 3/10 turn
R134a ↔ R513A	RFKH 04E	Anti-Clockwise	≈ 3/10 turn
R134a ↔ R513A	RFGB 04E	Anti-Clockwise	≈ 3/4 turn
R134a ↔ R513A	(RFG)D10-04E	Anti-Clockwise	≈ 3/5 turn
R134a ↔ R513A	(RFG)D20-04E	Anti-Clockwise	≈ 1 1/5 turn

^{*}The above products are further adjusted based on the “Initial static superheat of factory setting”

Table 2



Special case:

Sanhua always suggest installing the TXV series especially designed for the specific refrigerant used in the system. However, it is admitted in special cases the use of a TXV designed for new refrigerant generation (low GWP refrigerant) in combination with old HFC refrigerants (e.g. R404A or R407C). The correct behavior of the TXV is possible only manually adjusting the TXV Static super-heat value following the indication of the Table 3:

Refrigerants	Series	SH Rotation Direction	SH regulation screw turns [*]
R452A ↔ R404A	RFKH 11E	Anti-Clockwise	≈ 1/4 turn
R452A ↔ R404A	RFGB 11E	Anti-Clockwise	≈ 3/4 turn
R448A ↔ R407C	RFKH 08E	Clockwise	≈ 2/5 turn
R448A ↔ R407C	RFGB 08E	Clockwise	≈ 7/10 turn
R449A ↔ R407C	RFKH 08E	Clockwise	≈ 2/5 turn
R449A ↔ R407C	RFGB 08E	Clockwise	≈ 7/10 turn
R513A ↔ R134a	RFKH 14E	Clockwise	≈ 3/10 turn
R513A ↔ R134a	RFGB 14E	Clockwise	≈ 3/4 turn
R290 ↔ R407C	RFGB 06E	Anti-Clockwise	≈ 3/4 turn
[*] The above products are further adjusted based on the “Initial static superheat of factory setting”			

Table 3

Issued by	Role	Date	Signature
Mr. Changqing Liu	Technology minister	2021.10.12	