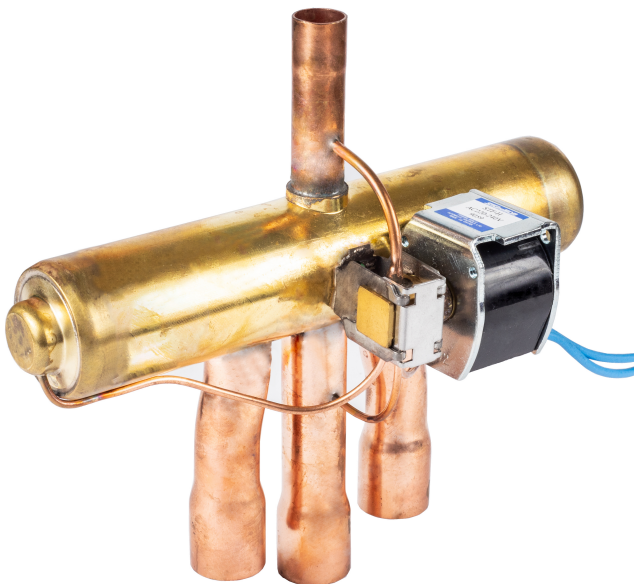


Data Sheet

4-Way Reversing valves
Type **STF** and **STF-H**

The 4-way valves are used in reversible applications such as heat pumps or reversible air conditioning units and chillers.

The 4-way valve allows an inversion of the refrigeration cycle, changing from cooling mode in summer to heating mode in winter.

Features

- Wide application range
 - complete capacity range
 - available for all common refrigerants including flammable refrigerants)
 - many different connection diameters and configurations
- High reliability
 - unique design
 - instantaneous changeover at minimum pressure differential
 - mechanism to prevent incomplete changeover
 - Minimized leakage
- CE approved

Application

The cycle inversion is initiated by a small solenoid pilot valve, which pilots the movement of a slider, which changes the direction of the refrigerant. The valve is connected to the discharge and suction pipes.

The pilot valve ensures a very reliable changeover from cooling to heating mode, the changeover happens instantaneously with a minimum pressure differential. The valve design also guarantees a minimum pressure drop and a very low risk of leakage.

Figure 1: HEATING CYCLE (Coil energized)

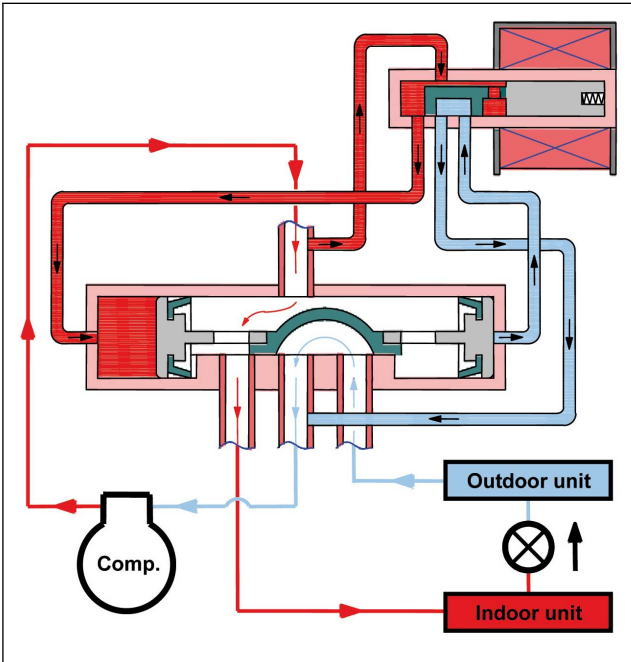
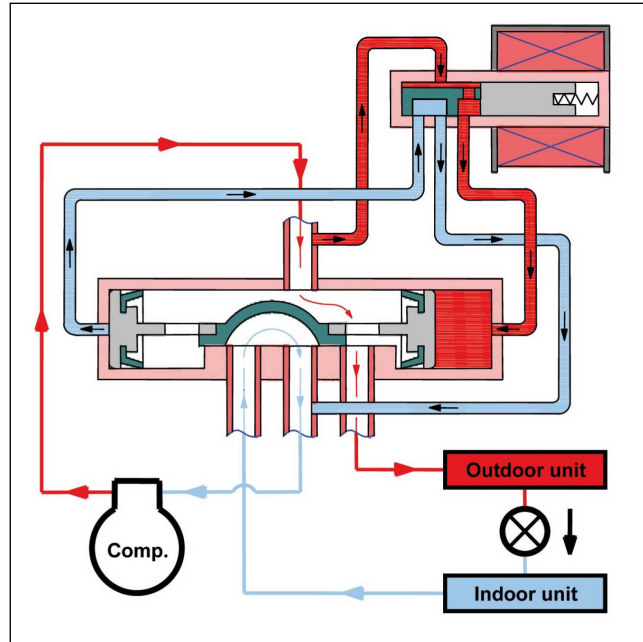


Figure 2: COOLING CYCLE (Coil not energized)



Product specification

Technical data

Table 1: Technical data

Parameter	STF and STF-H
Compatibility refrigerants	R22, R134a, R407A, R4070, R404A, R410A, R448A, R449A R32, R290, R454C, R454B, R452B (see safety note below)
Min. OPD	3 bar
Max. OPD	31 bar
Max. working pressure (PS/MWP)	45 bar Note! 49 bar for selected models. Please check Table 2: Ordering table for further information.
Refrigerant temperature range	-30 to 130 °C Note! 160 °C for selected models. Please check Table 2: Ordering table for further information.
Ambient temperature	-30 to 55 °C

NOTE:

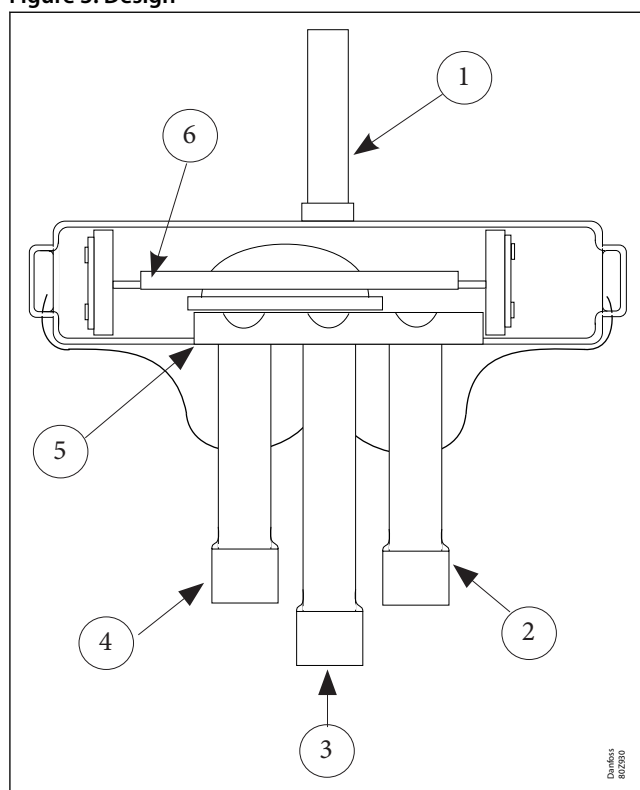
Special safety note for flammable refrigerants!

For countries where safety standards are not an indispensable part of the safety system Danfoss recommends the installer gets a third party approval of any system containing flammable refrigerant

Please refer to separate drawings of the STF and STF-H valves with special disclaimer regarding usage of flammable refrigerants. Please refer to separate document "Important Notice for usage of STF and STF-H valves with flammable refrigerants (No. S-FD001-1).

Design

Figure 3: Design



1	Discharge connection
2	Connection to evaporator/ condenser
3	Suction connection
4	Connection to condensor/ evaporator
5	Valve body
6	Slider

The valve is composed of three basic components:

- Pilot valve
- Main valve body, including valve slider
- Solenoid coil

4-Way Reversing valves, Type STF and STF-H

The 4-way valve slider is shifted by changes in differential pressure in the valve which is actuated by the pilot solenoid valve. The valve slider is specially designed to prevent incomplete changeover and movement with minimum pressure differential.

Dimension

Refer to separate drawings of models. - Contact danfoss for further information.

Ordering

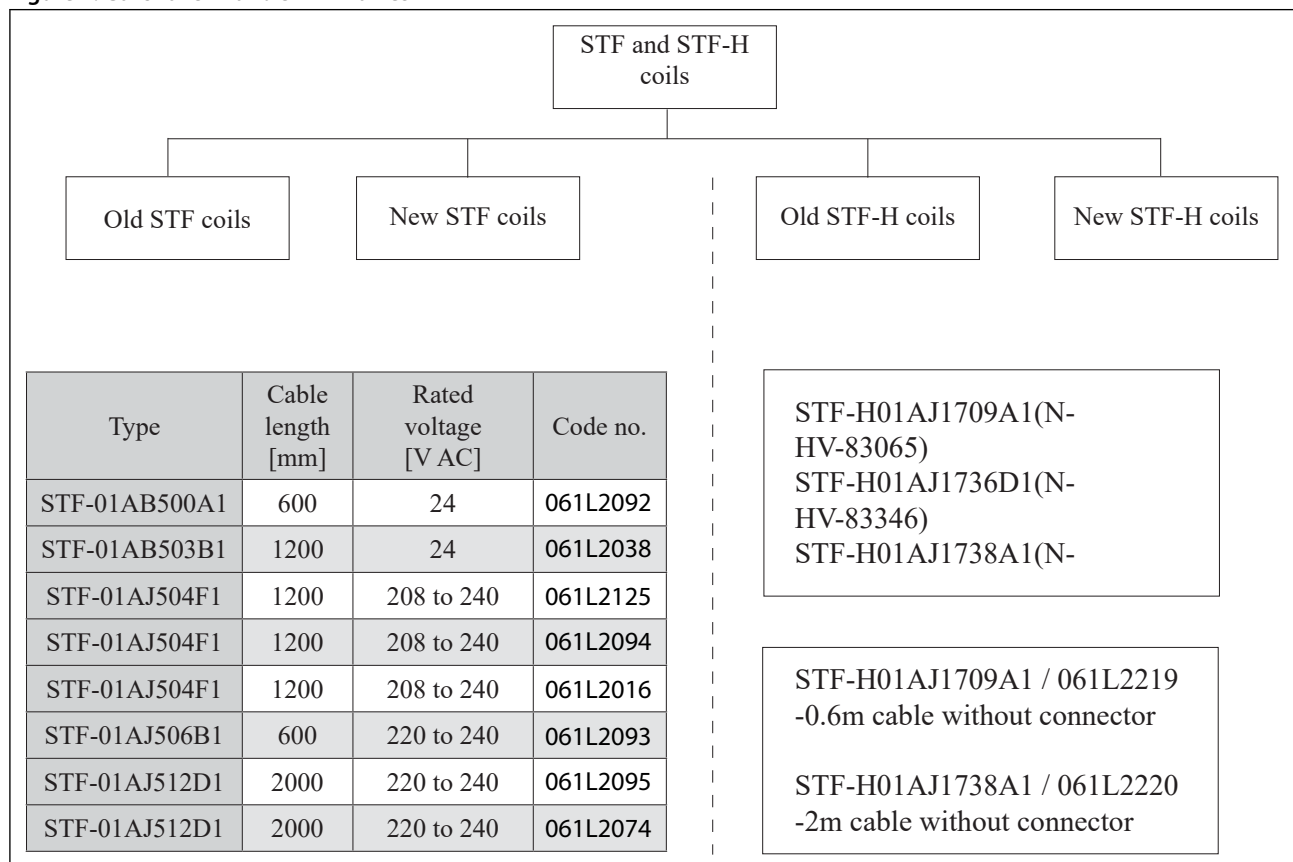
Table 2: Ordering

	Model	Packing format	Danfoss code	Capacity [kW]	Style	Discharge	Suction	Media temperature	MWP
				⁽¹⁾ R290/R410A		[in]	[in]	[°C]	[bar]
	STF-H0167	45	061L1348	4.8	A	5/16	3/8	130	45
	STF-H0267	32	061L1349	9.5	A	3/8	1/2	130	45
	STF-H0321	32	061L1350	9.5	E	1/2	5/8	130	45
	STF-H0351	32	061L1351	13.7	B	1/2	5/8	130	45
	STF-H0429	24	061L1352	18.2	F	1/2	3/4	130	45
	STF-H0651	24	061L1353	25.1	B	1/2	3/4	130	45
	STF-H0731	6	061L1354	31.2	F	3/4	7/8	130	45
	STF-H0951	6	061L1355	38.12	B	3/4	7/8	160	49
	STF-H0954	6	061L1356	38.12	F	7/8	11/8	160	49
	STF-2028G	1	061L1357	41.8	F	11/8	13/8	160	49
	STF-2525G	1	061L1358	63.2	G	11/8	13/8	160	49
	STF-3017G	1	061L1362	89.4	G	11/8	15/8	160	49
	STF-4017G	1	061L1359	125.5	G	15/8	15/8	160	49
	STF-5017G	1	061L1360	161.3	G	15/8	2 1/2	160	49
STF-6009G	1	061L1361	265.8	G	15/8	2 3/8	160	49	

⁽¹⁾ Capacity is indicated for 0.1bar suction pressure drop and condition 54.5 CCT, 7.2 CET and 5K SH

Coils for STF and STF-H valves

Figure 4: Coils for STF and STF-H valves



STF and STF-H coils - Model split:

4-Way Reversing valves, Type STF and STF-H

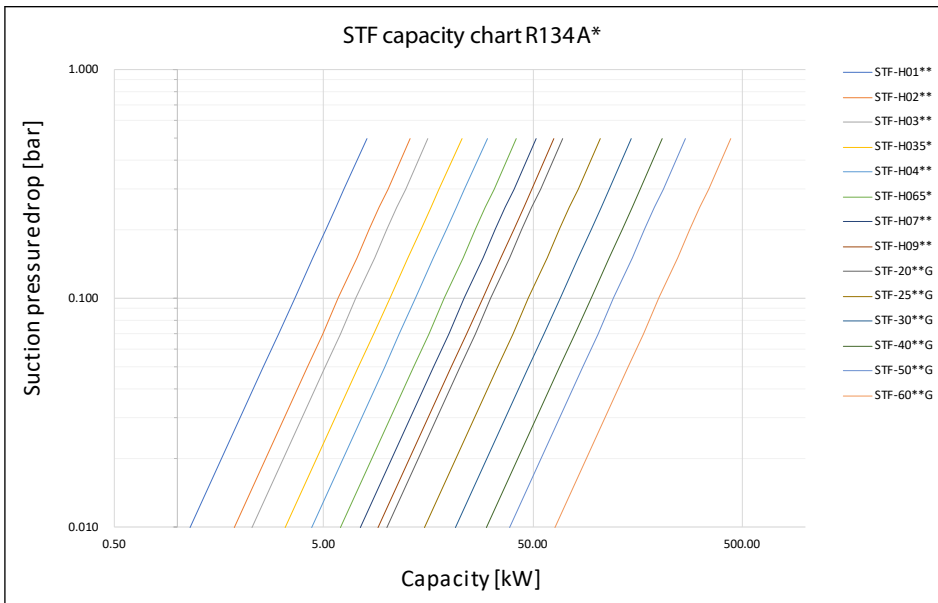
- The old and new STF models uses the same coils.
- The old and new STF-H Models uses the same coils.
- For STF-H models we currently only have 2 coil versions with Danfoss codes.

i NOTE:

Refer to drawings of specific models for detailed technical specifications and dimensions. Contact Danfoss for more information.

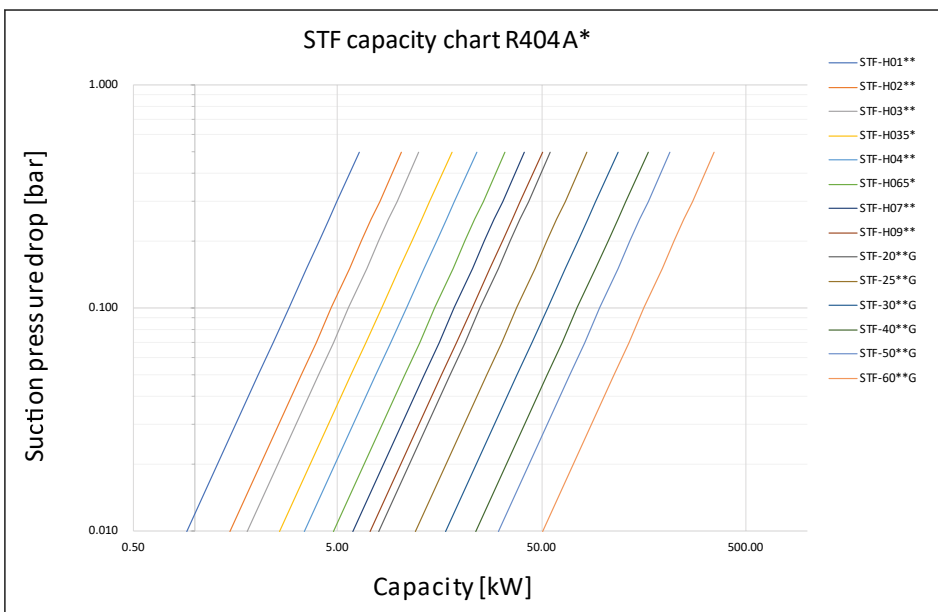
Capacity charts

Figure 5: STF capacity chart R134A



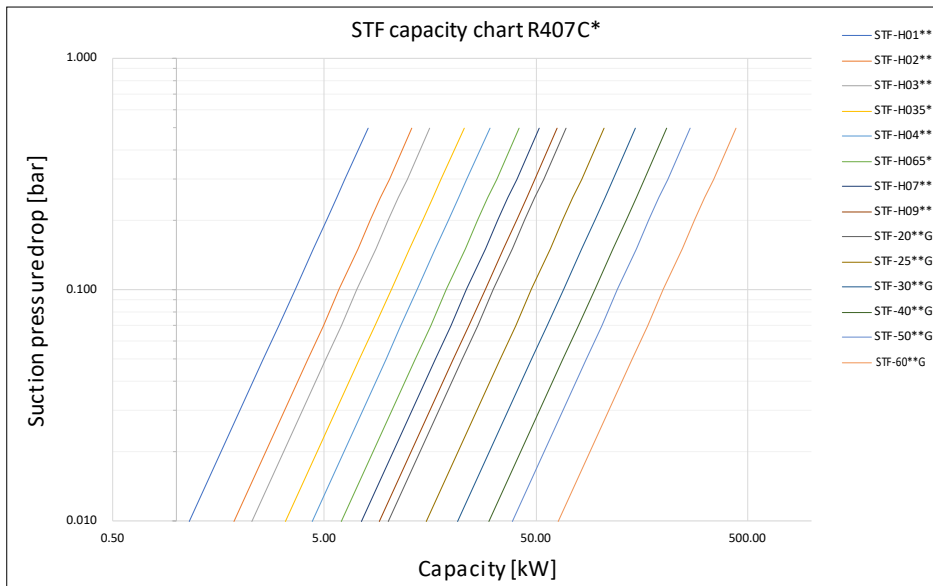
* Capacity calculated for CT 54.4 °C, ET 7.2 °C, SH 5K

Figure 6: STF capacity chart R404A



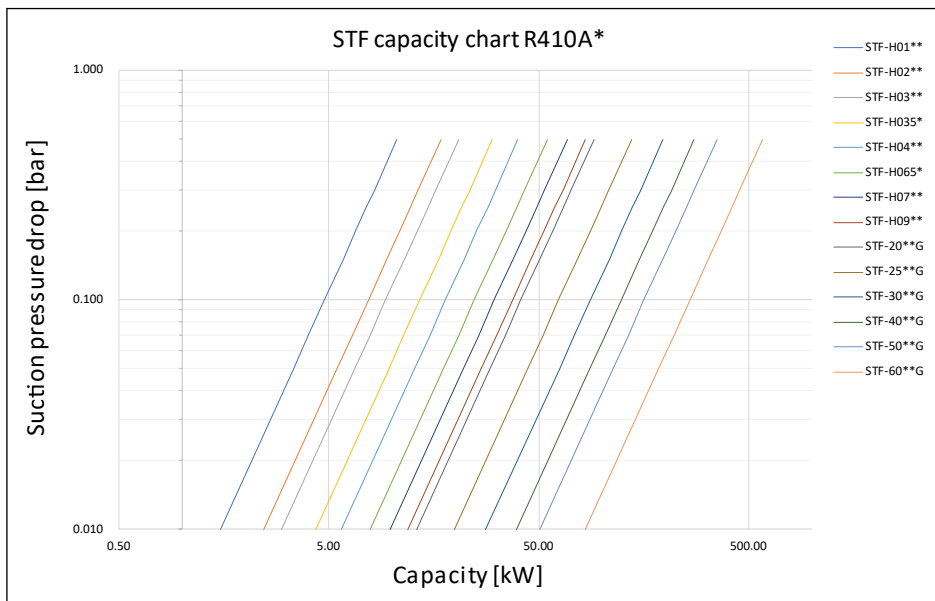
* Capacity calculated for CT 54.4 °C, ET 7.2 °C, SH 5K

Figure 7: STF capacity chart R407C



* Capacity calculated for CT 54.4 °C, ET 7.2 °C, SH 5K

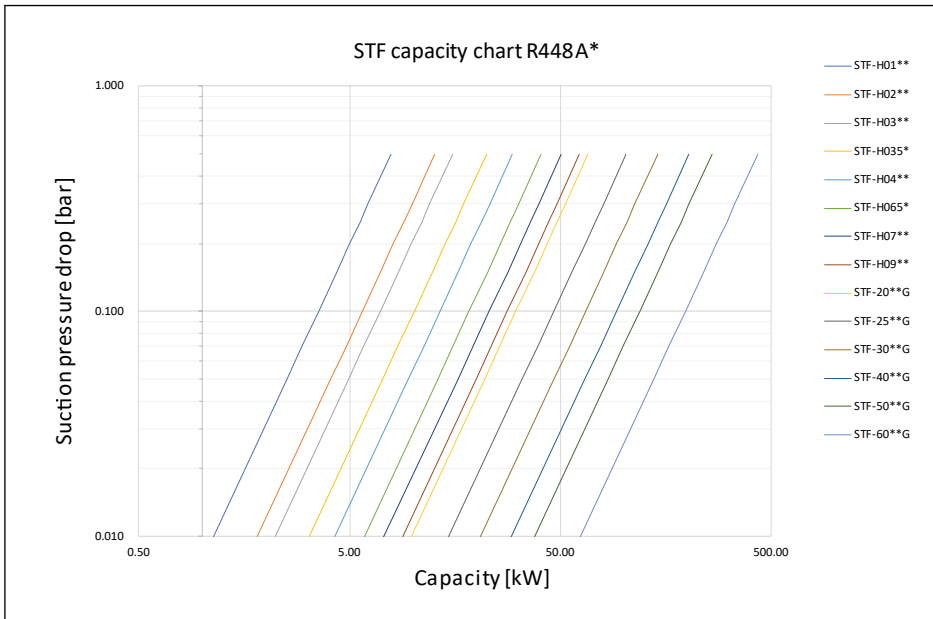
Figure 8: STF capacity chart R410A



* Capacity calculated for CT 54.4 °C, ET 7.2 °C, SH SK

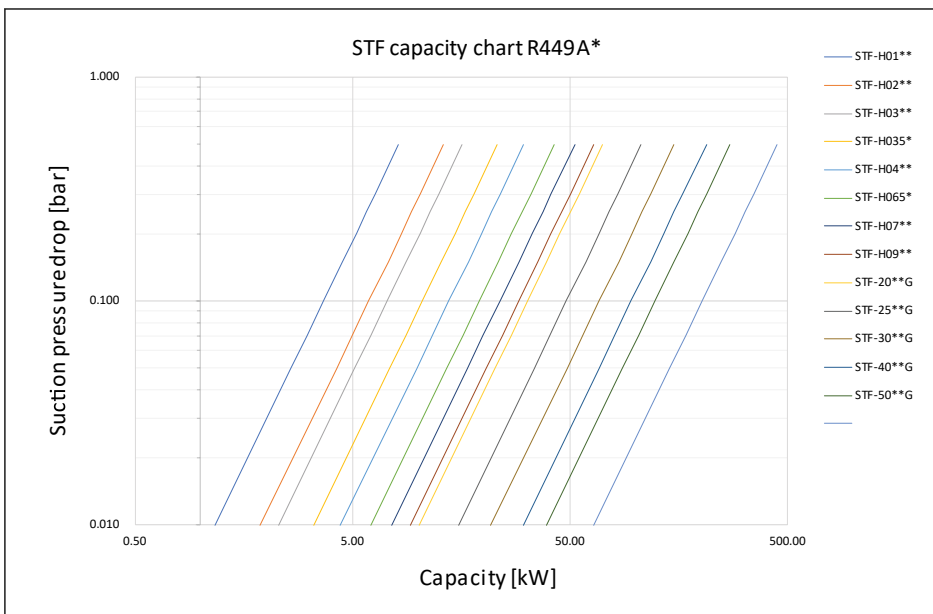
4-Way Reversing valves, Type STF and STF-H

Figure 9: STF capacity chart R448A



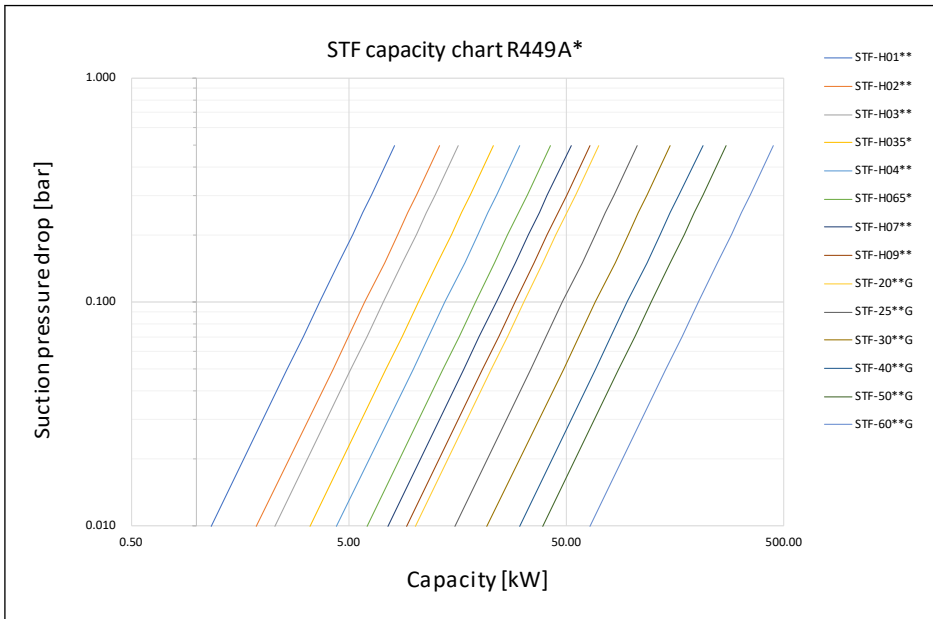
* Capacity calculated for CT 54.4 °C, ET 7.2 °C, SH SK

Figure 10: STF capacity chart R449A



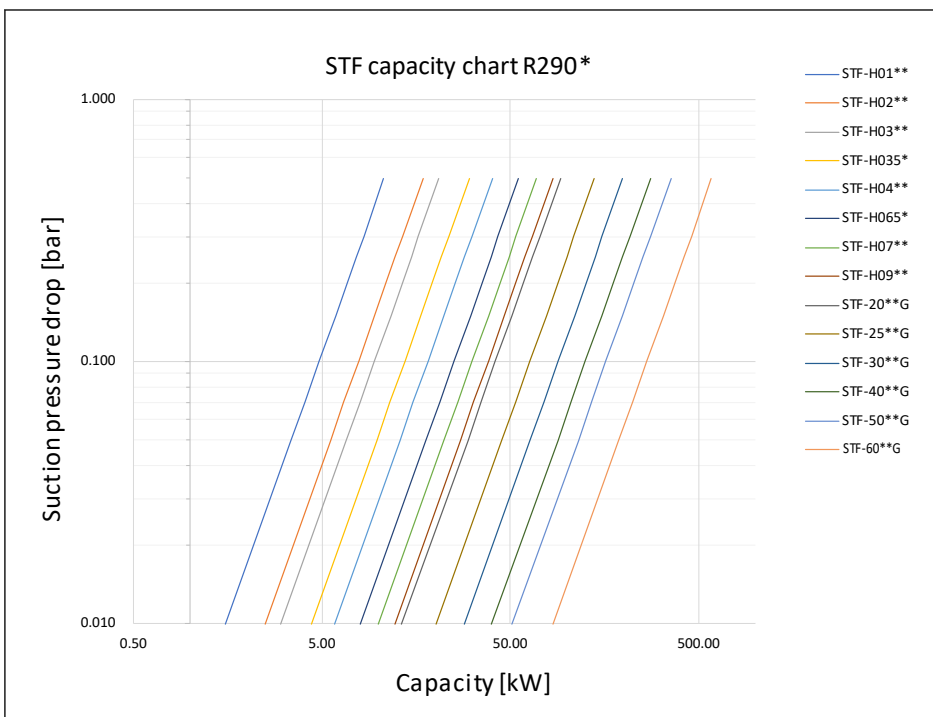
* Capacity calculated for CT 54.4 °C, ET 7.2 °C, SH SK

Figure 11: STF capacity chart R32



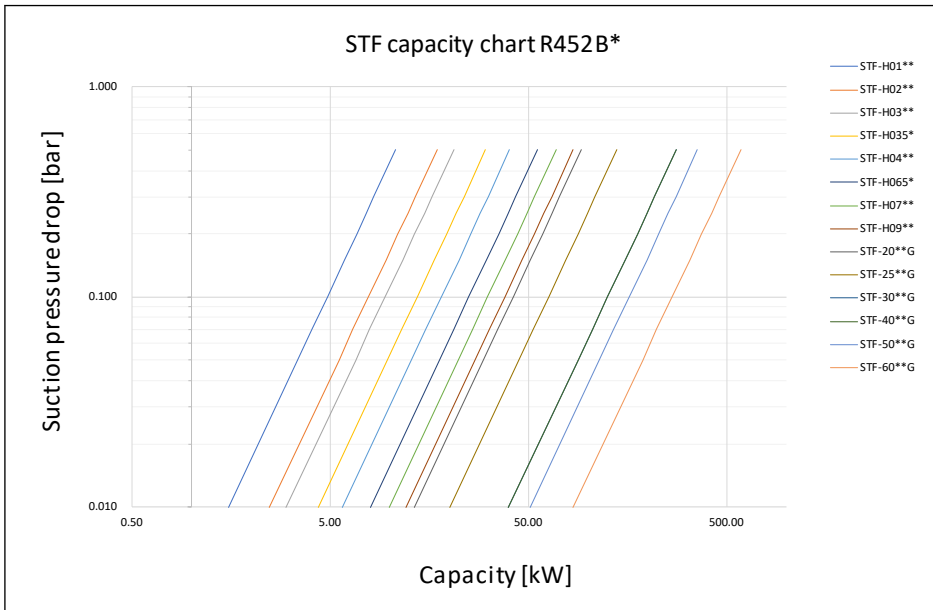
* Capacity calculated for CT 54.4 °C, ET 7.2 °C, SH SK

Figure 12: STF capacity chart R290



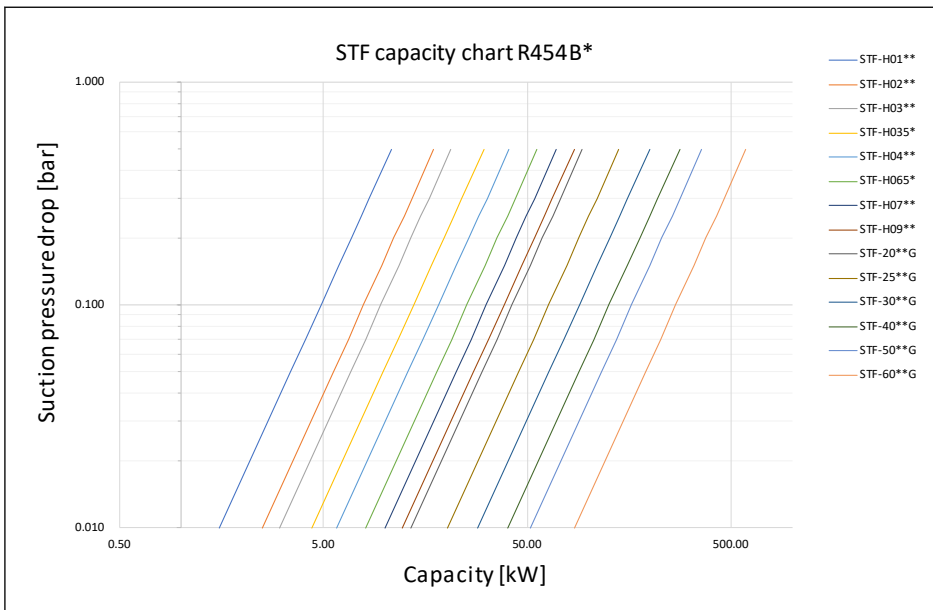
* Capacity calculated for CT 54.4 °C, ET 7.2 °C, SH SK

Figure 13: STF capacity chart R452B



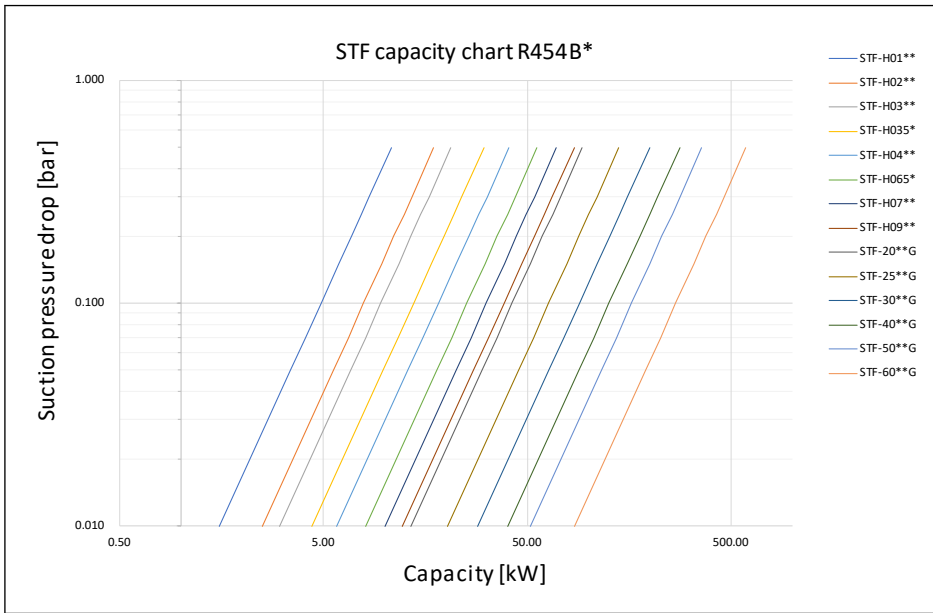
* Capacity calculated for CT 54.4 °C, ET 7.2 °C, SH SK

Figure 14: STF capacity chart R454B



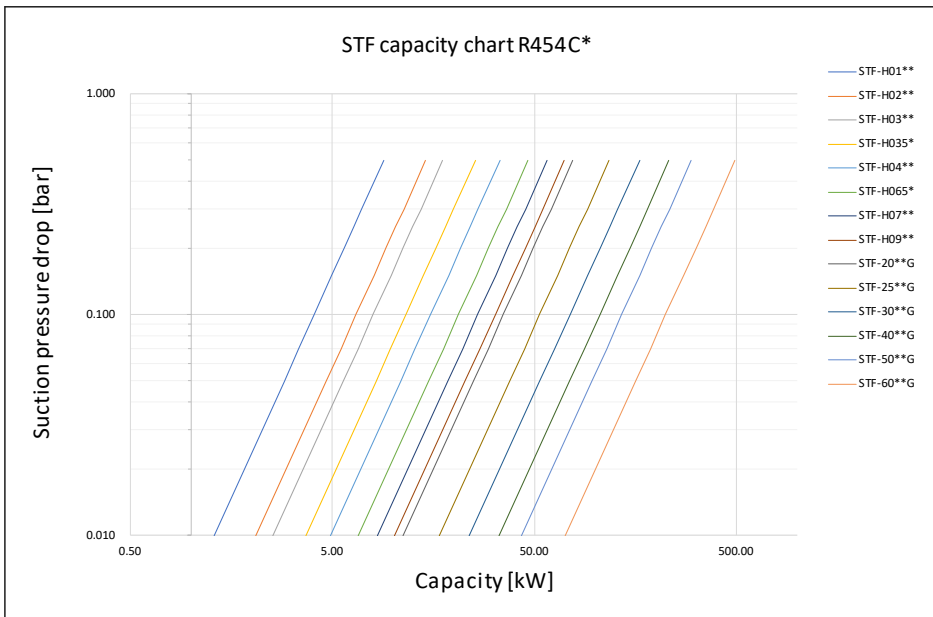
* Capacity calculated for CT 54.4 °C, ET 7.2 °C, SH SK

Figure 15: STF capacity chart R454B



* Capacity calculated for CT 54.4 °C, ET 7.2 °C, SH SK

Figure 16: STF capacity chart R454C



* Capacity calculated for CT 54.4 °C, ET 7.2 °C, SH SK

NOTE:

For capacity charts for other refrigerants, please contact Danfoss.

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