

Type: Semi-hermetic twin screw compressors

Producer: Frascold

Series: R-TSH

Model: R-TSH8-70 210 Y

Technical data

Nominal motor power [kW/HP]:	52 / 70
Displacement [m ³ /h]:	210
Capacity control [%]:	100 - 50
RPM [min ⁻¹]:	2960
Weight net [kg]:	298
Weight gross [kg]:	328

Electrical data

	<u>PWS</u>
Power supply [V/~/Hz]:	400/3/50
Locked rotor current [A]:	283
Locked rotor current (D.O.L. - $\Delta\Delta$) [A]:	464
Max. operating current [A]:	126
Max. power input [kW]:	76

Connections

	<u>milimeters</u>	<u>inches</u>
Suction line:	80	3 1/8
Discharge line:	54	2 1/8

R22

Cooling capacity [W]

$t_c \setminus t_e$	12.5	10	5	0	-5	-10	-15	-20
30	-	261 650	221 110	185 510	154 440	127 400	103 990	83 820
40	255 040	234 770	197 870	165 490	137 260	112 710	91 480	73 210
50	226 610	208 240	174 820	145 530	120 010	97 850	78 710	62 270
55	214 350	196 780	164 820	136 830	112 470	91 330	73 080	57 420

Power input [kW]

$t_c \setminus t_e$	12.5	10	5	0	-5	-10	-15	-20
30	-	40.27	39.85	38.68	37.16	35.40	33.74	32.46
40	50.43	50.34	49.30	47.50	45.30	42.77	40.22	37.87
50	59.82	58.95	56.69	54.07	51.47	48.99	47.03	46.16
55	70.52	68.90	65.36	61.83	58.62	55.86	54.07	54.17

Current [A]

$t_c \setminus t_e$	12.5	10	5	0	-5	-10	-15	-20
30	-	70.40	69.80	68.10	65.90	63.40	61.00	59.10
40	85.30	85.20	83.70	81.00	77.70	74.10	70.30	66.90
50	99.20	97.90	94.60	90.70	86.90	83.20	80.30	79.00
55	115.60	112.90	107.50	102.20	97.40	93.30	90.70	90.90

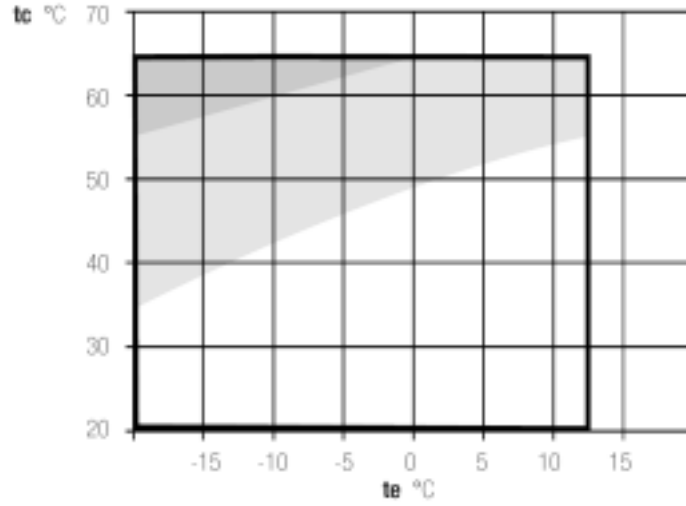
Mass flow [kg/h]

$t_c \setminus t_e$	12.5	10	5	0	-5	-10	-15	-20
30	-	5 213	4 453	3 779	3 185	2 661	2 201	1 799
40	5 444	5 039	4 297	3 639	3 058	2 546	2 096	1 703
50	5 263	4 866	4 138	3 491	2 921	2 418	1 975	1 589
55	5 220	4 823	4 094	3 448	2 877	2 373	1 931	1 543

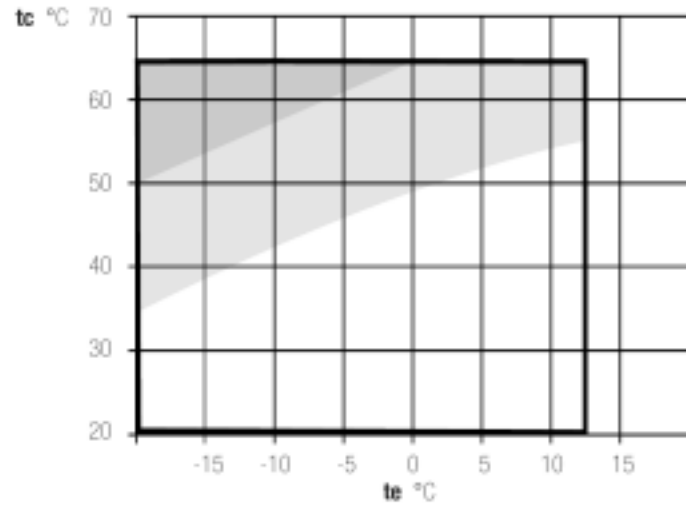
Operating conditions: suction gas overheating 10K, 0K subcooling

Application limits

Full load operation



Capacity control



- With oil cooler
- With liquid injection and oil cooler

t_c - Condensing temperature [°C]

t_e - Evaporating temperature [°C]

R134a

Cooling capacity [W]

$t_c \setminus t_e$	20	15	10	5	0	-5	-10
30	-	-	-	-	120 050	97 550	78 460
40	-	190 780	158 430	130 510	106 530	86 080	68 780
50	202 290	168 400	139 090	113 850	92 220	73 820	58 310
55	174 800	144 420	118 210	95 710	76 490	60 200	46 520

Power input [kW]

$t_c \setminus t_e$	20	15	10	5	0	-5	-10
30	-	-	-	-	24.10	23.18	22.23
40	-	32.08	31.19	30.05	28.85	27.79	27.06
50	39.15	38.42	37.25	35.93	34.65	33.66	33.24
55	47.42	46.46	45.15	43.74	42.44	41.49	41.22

Current [A]

$t_c \setminus t_e$	20	15	10	5	0	-5	-10
30	-	-	-	-	46.30	45.10	43.90
40	-	58.40	56.90	55.00	53.10	51.50	50.40
50	68.80	67.70	66.10	64.20	62.30	60.90	60.30
55	80.90	79.50	77.50	75.50	73.60	72.20	71.80

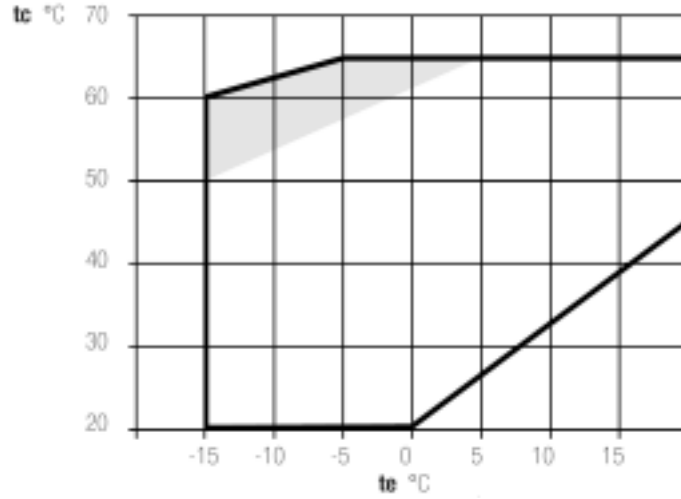
Mass flow [kg/h]

$t_c \setminus t_e$	20	15	10	5	0	-5	-10
30	-	-	-	-	2 607	2 159	1 770
40	-	4 286	3 627	3 047	2 539	2 096	1 710
50	4 925	4 183	3 528	2 951	2 446	2 005	1 621
55	4 771	4 032	3 378	2 804	2 299	1 859	1 476

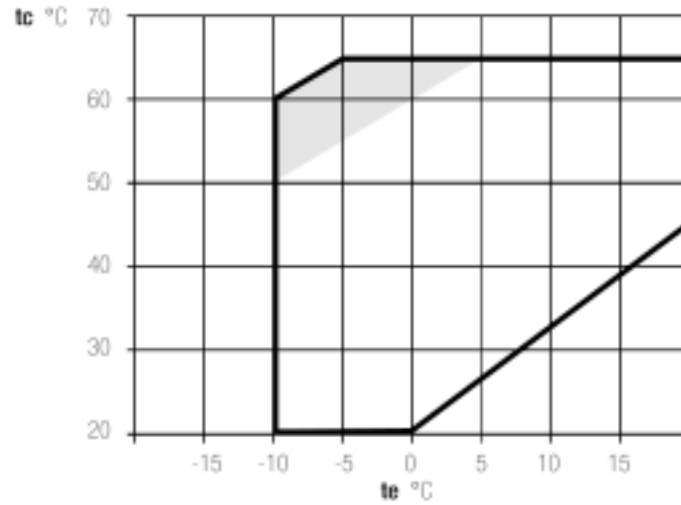
Operating conditions: suction gas overheating 10K, 0K subcooling

Application limits

Full load operation



Capacity control



- With oil cooler
- With liquid injection and oil cooler

t_c - Condensing temperature [°C]

t_e - Evaporating temperature [°C]

R404A/R507

Cooling capacity [W]

$t_c \setminus t_e$	7.5	5	0	-5	-10	-15	-20
30	257 480	235 480	196 480	162 750	134 300	109 440	88 400
40	218 720	199 450	165 340	135 900	111 150	89 600	71 450
50	176 500	160 040	130 980	106 020	85 110	67 040	51 930
55	157 110	142 090	115 610	92 920	73 990	57 700	44 140

Power input [kW]

$t_c \setminus t_e$	7.5	5	0	-5	-10	-15	-20
30	36.69	37.72	39.09	39.51	39.40	38.66	37.61
40	51.14	51.06	50.42	49.08	47.52	45.61	43.74
50	64.72	63.65	61.25	58.36	55.49	52.47	49.78
55	72.68	71.06	67.71	64.14	60.82	57.52	54.82

Current [A]

$t_c \setminus t_e$	7.5	5	0	-5	-10	-15	-20
30	65.30	66.70	68.70	69.30	69.10	38.10	66.60
40	86.40	86.30	85.30	83.30	81.00	78.20	75.50
50	106.50	104.90	101.30	97.10	92.80	88.30	84.40
55	119.10	116.50	111.00	105.70	100.70	95.80	91.80

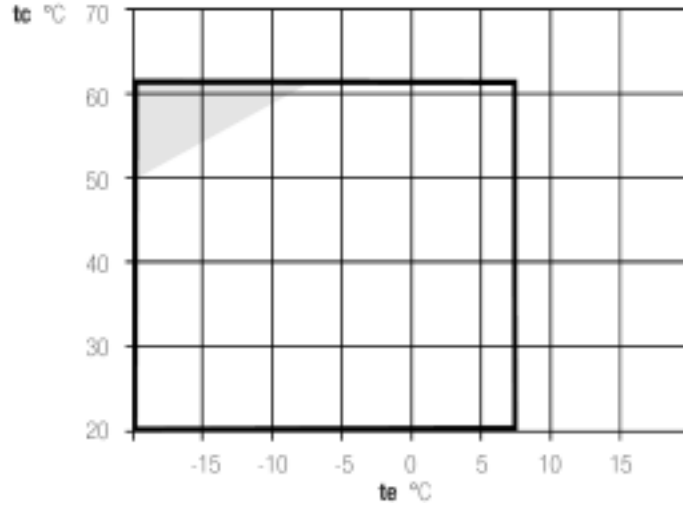
Mass flow [kg/h]

$t_c \setminus t_e$	7.5	5	0	-5	-10	-15	-20
30	6 721	6 210	5 294	4 485	3 791	3 167	2 626
40	6 485	5 983	5 082	4 287	3 604	2 990	2 456
50	6 182	5 683	4 788	3 997	3 316	2 704	2 172
55	6 104	5 605	4 710	3 919	3 237	2 625	2 092

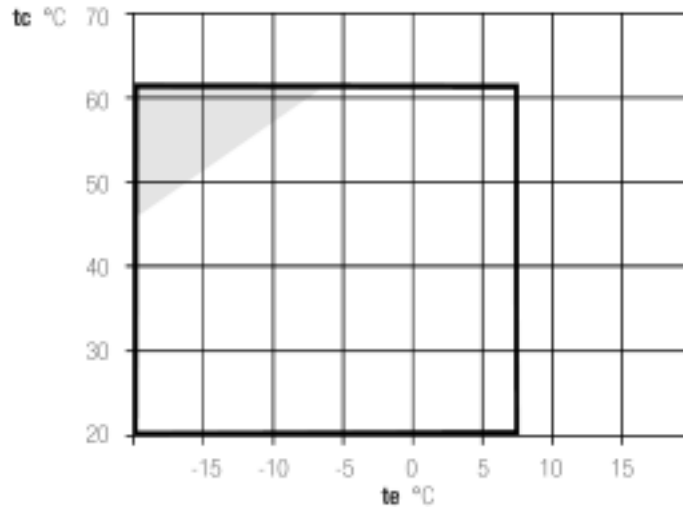
Operating conditions: suction gas overheating 10K, 0K subcooling

Application limits

Full load operation



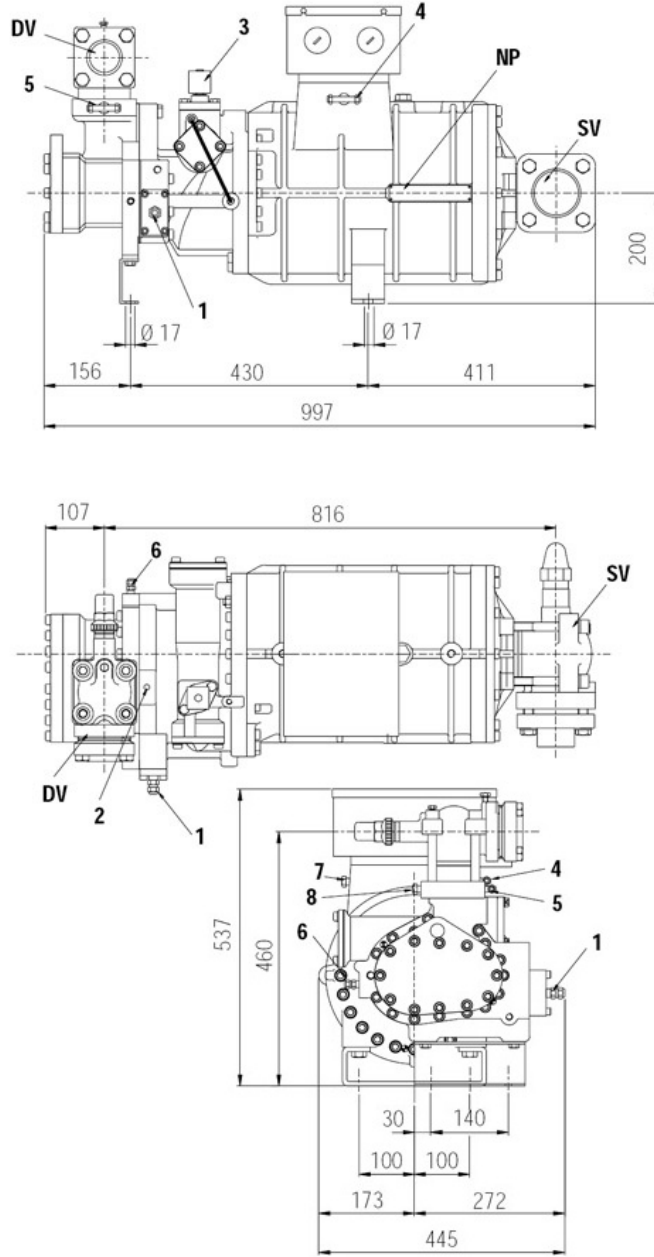
Capacity control



- With oil cooler
- With liquid injection and oil cooler

t_c - Condensing temperature [°C]

t_e - Evaporating temperature [°C]



- | | | | |
|-----|----------------------------------|-----|-----------------------------------|
| 1: | connection of oil return valve | 2: | max. discharge temperature sensor |
| 3: | capacity control valve | 4: | low pressure plug |
| 5: | high pressure plug | 6: | liquid injection/economizer conn. |
| 7: | plug for low pressure connection | 8: | plug for high pressure connection |
| DV: | discharge valve | NP: | name plate |
| SV: | suction valve | | |

