

Type: Semi-hermetic twin screw compressors

Producer: Frascold

Series: R-TSH

Model: R-TSH8-90 270 Y

Technical data

Nominal motor power [kW/HP]:	66,5 / 90
Displacement [m ³ /h]:	270
Capacity control [%]:	100 - 75 - 50
RPM [min ⁻¹]:	2960
Weight net [kg]:	325
Weight gross [kg]:	358

Electrical data

	<u>PWS</u>
Power supply [V/~/Hz]:	400/3/50
Locked rotor current [A]:	398
Locked rotor current (D.O.L. - $\Delta\Delta$) [A]:	653
Max. operating current [A]:	170
Max. power input [kW]:	104

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	-	337 410	285 130	239 230	199 160	164 300	134 100	108 100
40	330 170	303 870	255 980	213 980	177 340	145 490	117 940	94 240
50	292 930	269 170	225 930	188 030	155 010	126 350	101 580	80 310
55	277 050	254 320	212 980	176 770	145 240	117 890	94 280	74 020

Power input [kW]

$t_c \setminus t_e$	12.5	10	5	0	-5	-10	-15	-20
30	-	57.60	55.30	52.52	49.68	46.85	44.46	42.93
40	68.94	67.89	65.10	61.85	58.62	55.54	53.11	52.01
50	82.66	81.18	77.58	73.60	69.78	66.29	63.74	62.94
55	97.49	94.93	89.51	84.23	79.58	75.74	73.54	74.48

Current [A]

$t_c \setminus t_e$	12.5	10	5	0	-5	-10	-15	-20
30	-	99.10	95.80	91.80	87.90	84.00	80.80	78.80
40	115.90	114.30	110.10	105.30	100.50	96.10	92.70	91.10
50	136.70	134.40	128.90	122.80	117.10	111.90	108.10	106.90
55	160.10	155.90	147.30	139.10	131.90	126.10	122.80	124.20

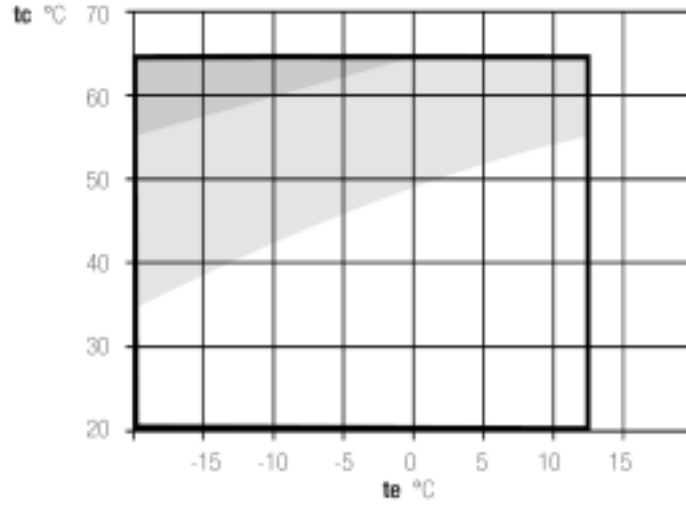
Mass flow [kg/h]

$t_c \setminus t_e$	12.5	10	5	0	-5	-10	-15	-20
30	-	6 722	5 743	4 874	4 107	3 432	2 838	2 320
40	7 047	6 522	5 560	4 705	3 951	3 286	2 703	2 192
50	6 803	6 290	5 348	4 511	3 773	3 122	2 549	2 049
55	6 746	6 233	5 290	4 454	3 715	3 063	2 491	1 990

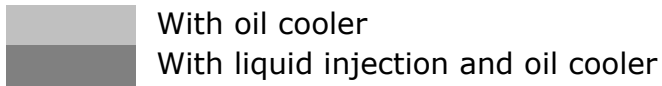
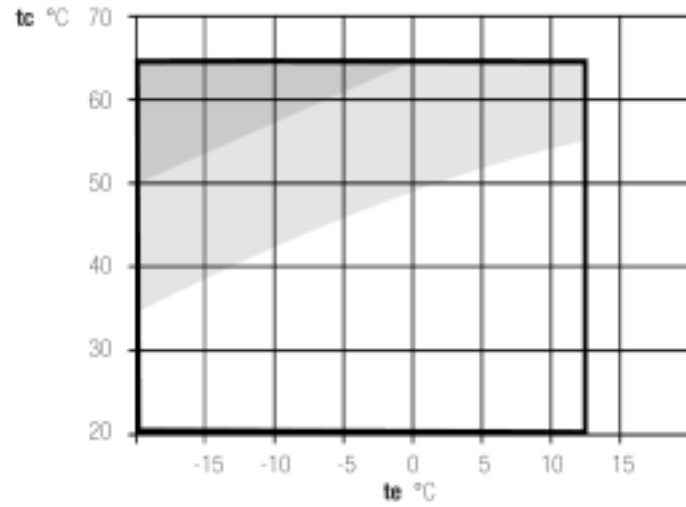
Operating conditions: suction gas overheating 10K, 0K subcooling

Application limits

Full load operation



Capacity control



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	-	-	-	-	154 970	125 910	101 260
40	-	246 020	204 330	168 350	137 450	111 110	88 820
50	260 710	217 060	179 320	146 820	118 960	85 280	75 300
55	225 290	186 150	152 400	123 420	98 660	77 680	60 060

Power input [kW]

$t_c \setminus t_e$	20	15	10	5	0	-5	-10
30	-	-	-	-	32.55	31.22	29.86
40	-	42.90	41.68	40.14	38.52	37.13	36.25
50	52.66	51.71	50.16	48.40	46.71	45.40	44.88
55	63.77	62.63	60.99	59.21	57.55	56.30	55.87

Current [A]

$t_c \setminus t_e$	20	15	10	5	0	-5	-10
30	-	-	-	-	64.20	62.40	60.70
40	-	78.80	77.20	75.20	72.70	70.60	69.30
50	92.00	90.70	88.60	86.10	83.80	82.10	81.40
55	108.10	106.40	104.00	101.40	99.00	97.20	96.60

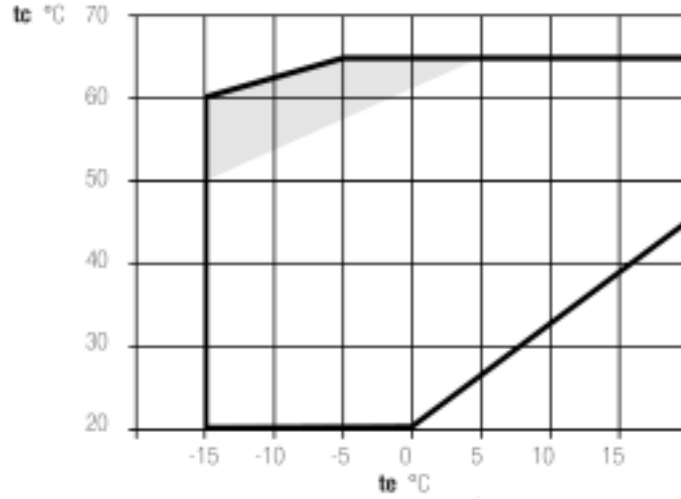
Mass flow [kg/h]

$t_c \setminus t_e$	20	15	10	5	0	-5	-10
30	-	-	-	-	3 365	2 787	2 285
40	-	5 527	4 678	3 931	3 276	2 705	2 209
50	6 347	5 392	4 548	3 806	3 155	2 587	2 094
55	6 149	5 197	4 356	3 615	2 966	2 399	1 905

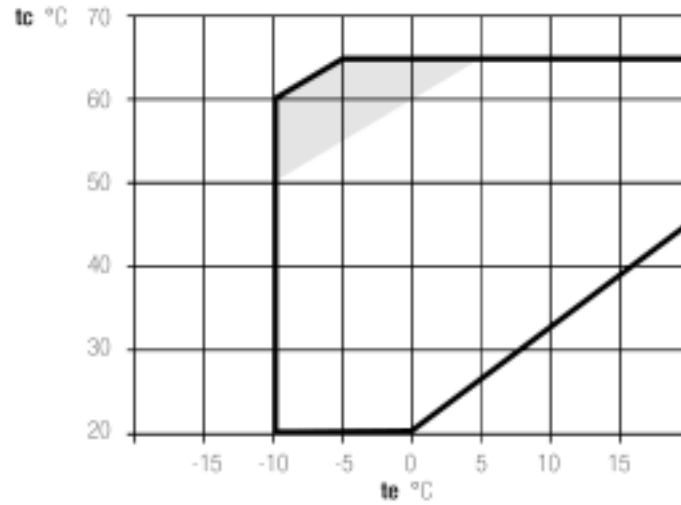
Operating conditions: suction gas overheating 10K, 0K subcooling

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	332 140	303 760	253 470	209 950	173 260	141 190	114 060
40	282 240	257 360	213 340	175 350	143 400	115 590	92 150
50	227 770	206 520	169 010	136 790	109 800	86 490	66 990
55	202 740	183 340	149 170	119 890	95 450	74 430	56 930

Power input [kW]

$t_c \setminus t_e$	7.5	5	0	-5	-10	-15	-20
30	49.76	51.21	53.16	53.81	53.68	52.66	51.13
40	69.48	69.29	68.25	66.29	64.06	61.39	58.80
50	87.90	86.37	82.94	78.88	74.90	70.75	67.13
55	98.91	96.61	91.92	86.89	82.24	77.72	74.10

Current [A]

$t_c \setminus t_e$	7.5	5	0	-5	-10	-15	-20
30	88.00	90.00	92.70	93.60	93.50	92.00	89.90
40	116.70	116.40	114.90	111.90	108.60	104.60	100.80
50	144.80	142.40	137.10	130.90	124.80	118.60	113.20
55	162.40	158.60	151.10	143.20	136.00	129.10	123.60

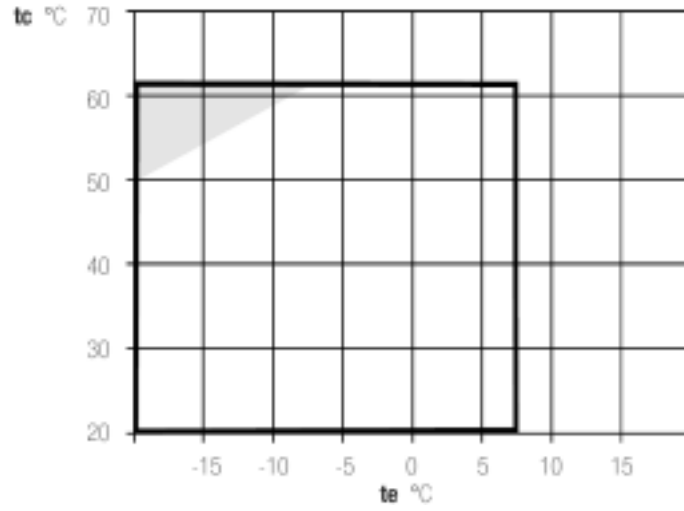
Mass flow [kg/h]

$t_c \setminus t_e$	7.5	5	0	-5	-10	-15	-20
30	8 669	8 010	6 829	5 786	4 891	4 086	3 388
40	8 369	7 720	6 558	5 531	4 649	3 857	3 168
50	7 977	7 333	6 178	5 157	4 278	3 488	2 801
55	7 877	7 233	6 077	5 056	4 176	3 386	2 699

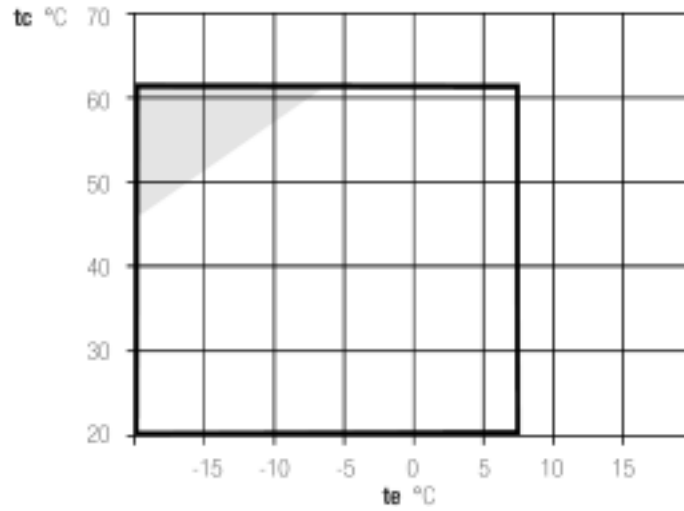
Operating conditions: suction gas overheating 10K, 0K subcooling

Application limits

Full load operation



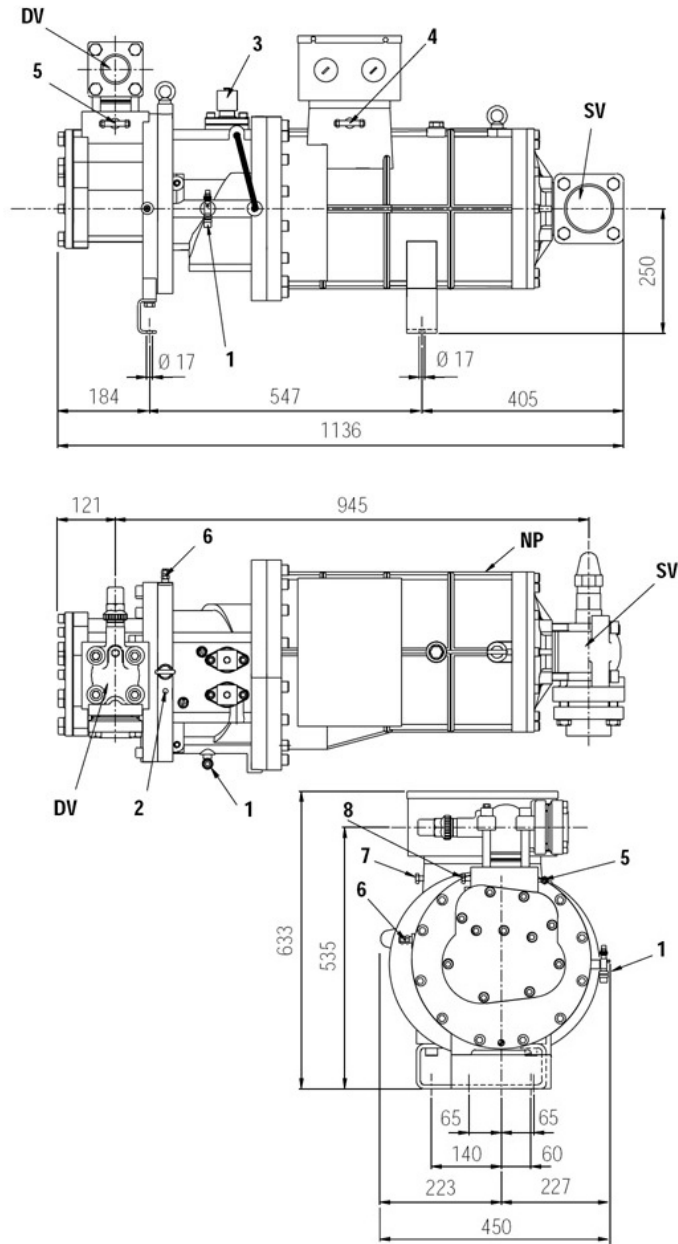
Capacity control



- 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
- 3: capacity control valve
- 5: high pressure plug
- 7: plug for low pressure connection
- DV: discharge valve
- SV: suction valve

- 2: max. discharge temperature sensor
- 4: low pressure plug
- 6: liquid injection/economizer conn.
- 8: plug for high pressure connection
- NP: name plate

