

# Model: MTZ72

## Data

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**Type:** Hermetic piston compressors  
**Producer:** Danfoss-Maneurop  
**Series:** MTZ

## Model: MTZ72

### Technical data

Cylinder count:	2
Displacement [m <sup>3</sup> /h]:	21,04
Cylinder capacity [cm <sup>3</sup> ]:	120,9
RPM [min <sup>-1</sup> ]:	2900
Weight [kg]:	40
Oil charge [dm <sup>3</sup> ]:	2
Oil type:	160PZ
Crankcase heater type:	PTC 35 W
Maximum system test pressure low side / high side:	25 / 30
Maximum number of starts without softstart [1/h]:	12
Refrigerant charge limit [dm <sup>3</sup> ]:	5
Refrigerant:	R134a, 404A/R507, R407C
Sound power [dB]:	79
Sound power with accoustic hood [dB]:	72

### Connections

	<u>inches</u>
Suction Rotolock valve connection:	1 3/4"
Discharge Rotolock valve connection:	1 1/4"
Suction connection with supplied sleeve:	7/8"
Discharge connection with supplied sleeve:	3/4"

### Approvals

CCC	-
CE	+
UL	+

# Model: MTZ72

## Capacity

R134a

### Cooling capacity [W]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15	20
35	5 037	6 776	8 876	11 383	14 342	17 797	21 794	26 378
40	4 518	6 188	8 202	10 606	13 445	16 764	20 608	25 022
45	3 999	5 589	7 507	9 797	12 506	15 678	19 358	23 591
50	3 489	4 988	6 798	8 964	11 531	14 544	18 049	22 090
55	2 994	4 390	6 081	8 112	10 527	13 371	16 690	20 528
60	-	3 804	5 366	7 249	9 501	12 165	15 287	18 912
65	-	-	-	6 383	8 461	10 934	13 848	17 248
70	-	-	-	-	-	9 684	12 379	15 543
75	-	-	-	-	-	-	10 888	13 806

### Power input [W]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15	20
35	2 266	2 530	2 771	2 982	3 152	3 272	3 332	3 324
40	2 329	2 623	2 903	3 160	3 383	3 564	3 693	3 761
45	2 338	2 668	2 992	3 299	3 580	3 827	4 029	4 178
50	2 288	2 659	3 030	3 393	3 737	4 055	4 335	4 570
55	2 171	2 588	3 012	3 436	3 848	4 241	4 605	4 930
60	-	2 450	2 932	3 421	3 907	4 380	4 832	5 253
65	-	-	-	3 343	3 906	4 465	5 010	5 531
70	-	-	-	-	-	4 490	5 133	5 759
75	-	-	-	-	-	-	5 194	5 931

### Current [A]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15	20
35	5.15	5.43	5.70	5.95	6.19	6.41	6.60	6.75
40	5.21	5.51	5.82	6.12	6.42	6.69	6.95	7.18
45	5.23	5.57	5.92	6.28	6.63	6.97	7.30	7.61
50	5.23	5.61	6.00	6.41	6.83	7.24	7.64	8.04
55	5.18	5.61	6.06	6.53	7.01	7.50	7.98	8.47
60	-	5.58	6.08	6.62	7.17	7.74	8.32	8.90
65	-	-	-	6.69	7.32	7.97	8.64	9.32
70	-	-	-	-	-	8.18	8.95	9.73
75	-	-	-	-	-	-	9.25	10.14

# Model: MTZ72

## Capacity

### Mass flow [kg/s]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15	20
35	112.48	148.21	190.20	239.14	295.70	360.56	434.42	517.96
40	105.09	141.02	183.16	232.20	288.80	353.66	427.47	510.89
45	97.59	133.52	175.60	224.52	280.96	345.61	419.15	502.25
50	89.81	125.52	167.33	215.93	272.00	336.23	409.29	491.87
55	81.55	116.84	158.17	206.24	261.73	325.33	397.70	479.55
60	-	107.29	147.94	195.28	249.98	312.73	384.21	465.11
65	-	-	-	182.85	236.55	298.24	368.63	448.37
70	-	-	-	-	-	281.70	350.77	429.15
75	-	-	-	-	-	-	330.46	407.27

### C.O.P. [W/W]

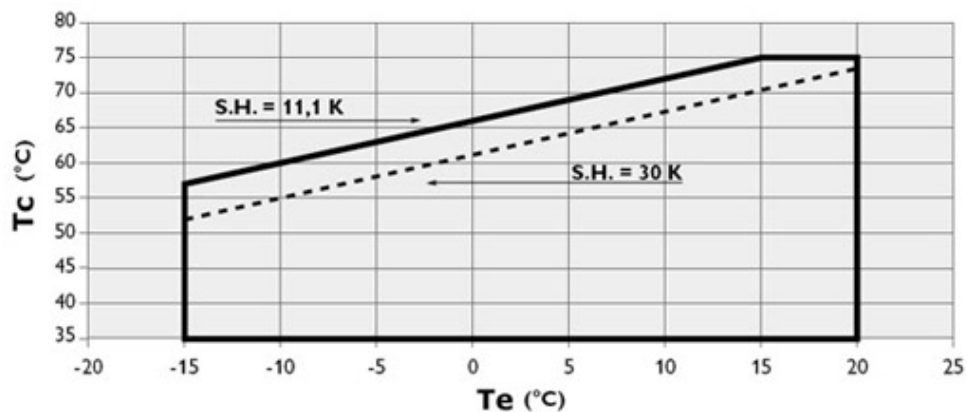
$t_c \setminus t_e$	-15	-10	-5	0	5	10	15	20
35	2.22	2.68	3.20	3.82	4.55	5.44	6.54	7.94
40	1.94	2.36	2.83	3.36	3.97	4.70	5.58	6.65
45	1.71	2.09	2.51	2.97	3.49	4.10	4.80	5.65
50	1.53	1.88	2.24	2.64	3.09	3.59	4.16	4.83
55	1.38	1.70	2.02	2.36	2.74	3.15	3.62	4.16
60	-	1.55	1.83	2.12	2.43	2.78	3.16	3.60
65	-	-	-	1.91	2.17	2.45	2.76	3.12
70	-	-	-	-	-	2.16	2.41	2.70
75	-	-	-	-	-	-	2.10	2.33

Operating conditions: suction superheat: 11.1 K, subcooling: 8.3 K

$t_c$  - Condensing temperature [°C]

$t_e$  - Evaporating temperature [°C]

### Application range



# Model: MTZ72

## Capacity

R404A/R507

### Cooling capacity [W]

$t_c \setminus t_e$	-30	-25	-20	-15	-10	-5	0	5	10
30	5 097	6 728	8 744	11 192	14 120	17 575	21 604	26 256	31 578
35	4 254	5 834	7 766	10 097	12 875	16 147	19 960	24 362	29 401
40	3 518	5 025	6 851	9 042	11 646	14 711	18 285	22 414	27 147
45	2 890	4 301	5 997	8 025	10 433	13 269	16 580	20 414	24 817
50	2 371	3 662	5 205	7 047	9 236	11 820	14 845	18 360	22 412
55	-	3 108	4 475	6 108	8 056	10 364	13 081	16 254	19 930
60	-	2 639	3 808	5 209	6 891	8 901	11 286	14 094	17 373

### Power input [W]

$t_c \setminus t_e$	-30	-25	-20	-15	-10	-5	0	5	10
30	2 886	3 311	3 729	4 127	4 495	4 818	5 086	5 286	5 406
35	2 957	3 394	3 830	4 255	4 656	5 020	5 337	5 593	5 777
40	3 011	3 464	3 925	4 381	4 820	5 232	5 602	5 920	6 172
45	3 046	3 520	4 010	4 503	4 986	5 449	5 879	6 263	6 590
50	3 058	3 559	4 084	4 618	5 151	5 671	6 165	6 621	7 027
55	-	3 580	4 144	4 726	5 314	5 895	6 459	6 992	7 483
60	-	3 580	4 188	4 823	5 471	6 120	6 758	7 374	7 955

### Current [A]

$t_c \setminus t_e$	-30	-25	-20	-15	-10	-5	0	5	10
30	5.78	6.33	6.88	7.39	7.87	8.29	8.64	8.91	9.08
35	5.91	6.48	7.05	7.61	8.14	8.62	9.04	9.40	9.66
40	6.00	6.59	7.20	7.80	8.39	8.94	9.45	9.90	10.26
45	6.04	6.67	7.32	7.98	8.64	9.27	9.87	10.41	10.89
50	6.04	6.71	7.42	8.14	8.87	9.59	10.29	10.94	11.54
55	-	6.72	7.49	8.29	9.10	9.91	10.71	11.48	12.21
60	-	6.70	7.54	8.41	9.31	10.23	11.15	12.04	12.91

# Model: MTZ72

## Capacity

### Mass flow [kg/s]

$t_c \setminus t_e$	-30	-25	-20	-15	-10	-5	0	5	10
30	141.34	184.83	235.67	294.76	362.99	441.24	530.41	631.37	745.02
35	126.34	170.92	222.71	282.60	351.48	430.24	519.76	620.95	734.67
40	113.30	158.33	210.43	270.49	339.39	418.03	507.29	608.06	721.23
45	102.39	147.25	199.03	258.63	326.93	404.82	493.18	592.91	704.90
50	93.82	137.87	188.71	247.21	314.28	390.78	477.62	575.69	685.86
55	-	130.39	179.65	236.43	301.63	376.13	460.81	556.57	664.30
60	-	124.99	172.05	226.48	289.18	361.04	442.94	535.77	640.42

### C.O.P. [W/W]

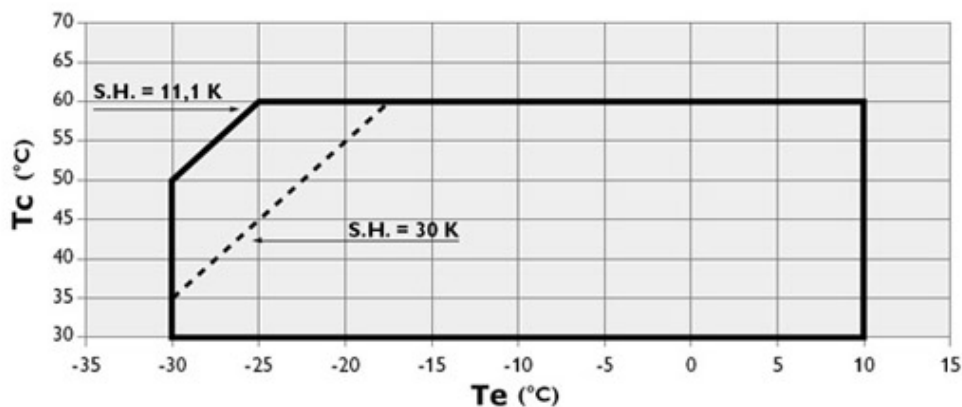
$t_c \setminus t_e$	-30	-25	-20	-15	-10	-5	0	5	10
30	1.77	2.03	2.34	2.71	3.14	3.65	4.25	4.97	5.84
35	1.44	1.72	2.03	2.37	2.77	3.22	3.74	4.36	5.09
40	1.17	1.45	1.75	2.06	2.42	2.81	3.26	3.79	4.40
45	0.95	1.22	1.50	1.78	2.09	2.44	2.82	3.26	3.77
50	0.78	1.03	1.27	1.53	1.79	2.08	2.41	2.77	3.19
55	-	0.87	1.08	1.29	1.52	1.76	2.03	2.32	2.66
60	-	0.74	0.91	1.08	1.26	1.45	1.67	1.91	2.18

Operating conditions: suction superheat: 11.1 K, subcooling: 8.3 K

$t_c$  - Condensing temperature [°C]

$t_e$  - Evaporating temperature [°C]

### Application range



# Model: MTZ72

## Capacity

R407C

### Cooling capacity [W]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
35	7 332	9 847	12 842	16 368	20 473	25 209	30 625
40	6 575	8 972	11 820	15 169	19 069	23 570	28 721
45	5 853	8 112	10 793	13 946	17 620	21 865	26 731
50	-	7 279	9 773	12 709	16 137	20 107	24 668
55	-	-	8 772	11 471	14 632	18 307	22 543
60	-	-	-	10 243	13 118	16 477	20 368
65	-	-	-	9 038	11 607	14 629	18 155

### Power input [W]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
35	3 161	3 608	4 029	4 412	4 744	5 013	5 205
40	3 239	3 716	4 176	4 606	4 992	5 323	5 585
45	3 299	3 813	4 317	4 799	5 245	5 643	5 980
50	-	3 898	4 452	4 990	5 501	5 972	6 390
55	-	-	4 579	5 180	5 761	6 310	6 814
60	-	-	-	5 366	6 023	6 656	7 250
65	-	-	-	5 550	6 288	7 009	7 700

### Current [A]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
35	6.74	7.28	7.80	8.30	8.76	9.18	9.53
40	6.84	7.42	8.00	8.56	9.10	9.61	10.07
45	6.91	7.54	8.18	8.82	9.45	10.05	10.62
50	-	7.65	8.36	9.09	9.81	10.51	11.20
55	-	-	8.53	9.35	10.17	10.99	11.80
60	-	-	-	9.61	10.54	11.48	12.42
65	-	-	-	9.87	10.92	11.99	13.07

# Model: MTZ72

## Capacity

### Mass flow [kg/s]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
35	145.72	192.08	246.01	308.26	379.60	460.78	552.57
40	136.56	183.01	236.86	298.86	369.79	450.39	541.43
45	127.75	173.82	227.12	288.41	358.45	438.00	527.82
50	-	164.74	217.02	277.12	345.80	423.82	511.95
55	-	-	206.78	265.21	332.06	408.09	494.05
60	-	-	-	252.92	317.46	391.02	474.35
65	-	-	-	240.46	302.23	372.84	453.06

### C.O.P. [W/W]

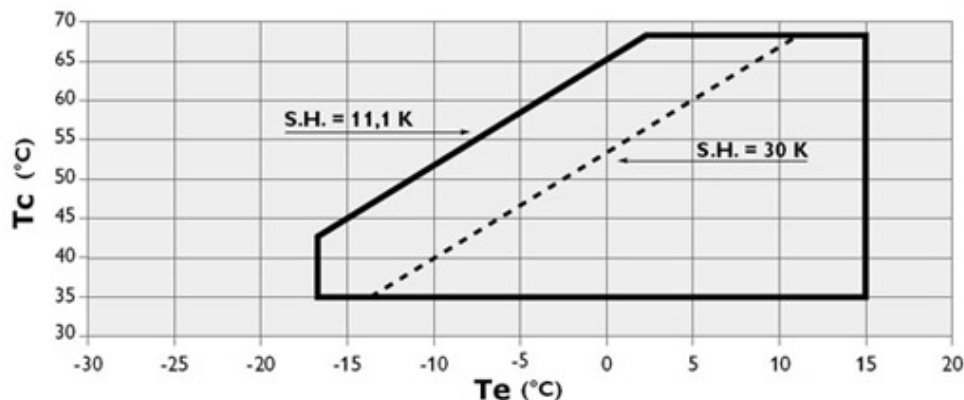
$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
35	2.32	2.73	3.19	3.71	4.32	5.03	5.88
40	2.03	2.41	2.83	3.29	3.82	4.43	5.14
45	1.77	2.13	2.50	2.91	3.36	3.87	4.47
50	-	1.87	2.20	2.55	2.93	3.37	3.86
55	-	-	1.92	2.21	2.54	2.90	3.31
60	-	-	-	1.91	2.18	2.48	2.81
65	-	-	-	1.63	1.85	2.09	2.36

Operating conditions: suction superheat: 11.1 K, subcooling: 8.3 K

$t_c$  - Condensing temperature [°C]

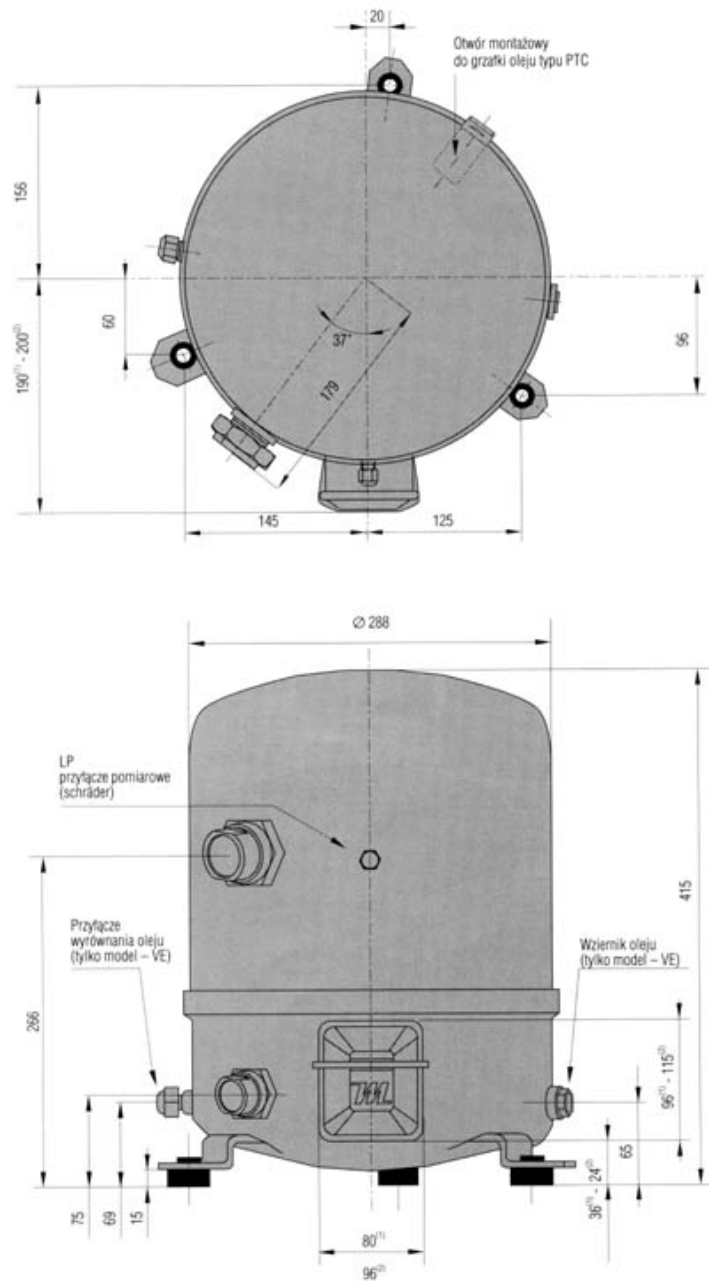
$t_e$  - Evaporating temperature [°C]

### Application range



# Model: MTZ72

## Dimensions





# Model: MTZ72

Image

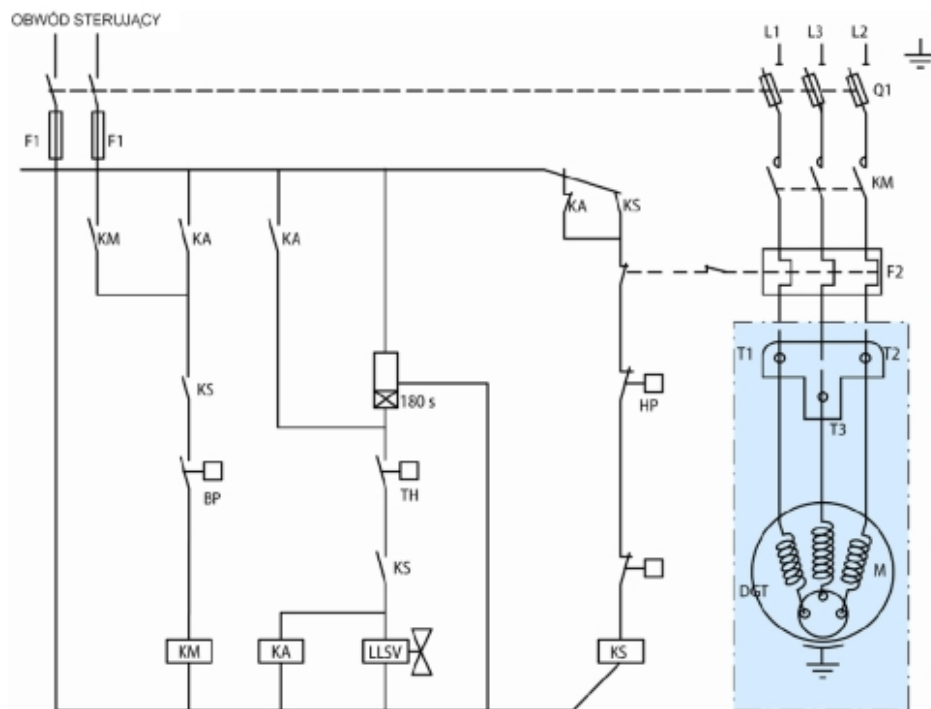


## Three-phase power supply

### Electrical data

Motor voltage code:	3	4	6	7	9
Starting current [A]:	135	80	143		100
Maximum Continuous Current (MCC) [A]:	31	15,5	143		18,5
Winding resistance (between phases) [ $\Omega$ ]:	0,55	1,9	0,56		1,32

### Connection diagram for systems without refrigerant suction



TH: Thermostat

180 s: Optional short cycle timer (3min) 5 pts

KA: Control relay

LLSV: Liquid Solenoid valve

KM: Compressor contactor

KS: Safety lock out relay

BP: Low pressure switch

HP: High pressure switch

Q1: Fused disconnect

F1: Fuses

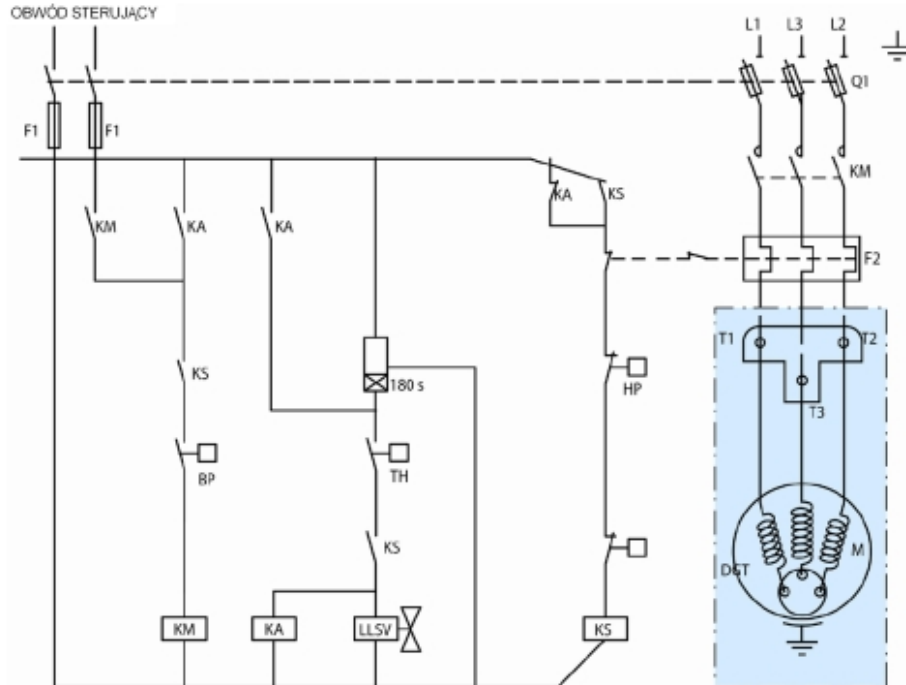
F2: External overload protection

M: Compressor's engine

thM: Motor safety thermostat

DGT: Discharge gas thermostat

### Connection diagram for systems with refrigerant suction



TH: Thermostat

180 s: Optional short cycle timer (3min) 5 pts

KA: Control relay

LLSV: Liquid Solenoid valve

KM: Compressor contactor

KS: Safety lock out relay

BP: Low pressure switch

HP: High pressure switch

Q1: Fused disconnect

F1: Fuses

F2: External overload protection

M: Compressor's engine

thM: Motor safety thermostat

DGT: Discharge gas thermostat

### **Equipment**

- ▶ crankcase heater - PTC 35 W
- ▶ belt type heater - crankcase heater 65W, 230V
- ▶ Rotolock valves
  - suction: Rotolock valve connection 1 3/4", connection with supplied sleeve 7/8"
  - discharge: Rotolock valve connection 1 1/4", connection with supplied sleeve 3/4"
- ▶ soft-start kit - electronic softstart MCI 15C
- ▶ acoustic hood - acoustic shield of Danfoss catalogue number 7755002