

Type: Hermetic piston compressors

Producer: Maneurop

Series: MTZ

Model: MTZ18

Technical data

Cylinder count:	1
Displacement [m ³ /h]:	5,26
Cylinder capacity [cm ³]:	30,2
RPM [min ⁻¹]:	2900
Weight [kg]:	21
Oil charge [dm ³]:	1
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 ³]:	3
Refrigerant:	R134a, 404A/R507, R407C
Sound power [dB]:	73
Sound power with acoustic hood [dB]:	65

Connections

	<u>milimeters</u>	<u>inches</u>
Suction Rotolock valve connection:		1"
Discharge Rotolock valve connection:		1"
Suction connection with supplied sleeve:		1/2"
Discharge connection with supplied sleeve:		3/8"

Approvals

CCC	-
CE	+
UL	+

R134a

Cooling capacity [W]

t_c \ t_e	-15	-10	-5	0	5	10	15	20
35	1 017	1 455	1 982	2 611	3 351	4 212	5 205	6 340
40	881	1 292	1 788	2 378	3 073	3 883	4 819	5 891
45	762	1 144	1 603	2 151	2 797	3 551	4 426	5 430
50	662	1 009	1 428	1 929	2 522	3 218	4 027	4 959
55	581	891	1 265	1 716	2 252	2 884	3 623	4 480
60	-	789	1 116	1 511	1 986	2 551	3 216	3 993
65	-	-	-	1 316	1 726	2 219	2 807	3 500
70	-	-	-	-	-	1 891	2 397	3 001
75	-	-	-	-	-	-	1 988	2 500

Power input [W]

t_c \ t_e	-15	-10	-5	0	5	10	15	20
35	582	643	695	736	763	773	762	728
40	601	668	729	780	818	841	845	827
45	613	688	758	820	870	907	927	926
50	617	701	781	855	919	971	1 008	1 026
55	613	706	798	885	964	1 032	1 086	1 124
60	-	703	807	908	1 003	1 088	1 162	1 219
65	-	-	-	924	1 036	1 140	1 233	1 312
70	-	-	-	-	-	1 185	1 299	1 401
75	-	-	-	-	-	-	1 359	1 485

Current [A]

t_c \ t_e	-15	-10	-5	0	5	10	15	20
35	1.87	1.90	1.94	1.97	2.00	2.04	2.08	2.12
40	1.88	1.91	1.95	1.99	2.04	2.09	2.14	2.19
45	1.88	1.92	1.97	2.02	2.08	2.14	2.20	2.27
50	1.88	1.93	1.99	2.05	2.12	2.19	2.27	2.36
55	1.88	1.94	2.01	2.08	2.16	2.25	2.34	2.44
60	-	1.94	2.02	2.11	2.20	2.30	2.41	2.53
65	-	-	-	2.13	2.24	2.36	2.49	2.63
70	-	-	-	-	-	2.42	2.56	2.72
75	-	-	-	-	-	-	2.64	2.82

Mass flow [kg/s]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15	20
35	22.71	31.80	42.44	54.79	69.01	85.25	103.68	124.46
40	20.50	29.48	39.96	52.09	66.05	81.97	100.02	120.37
45	18.59	27.33	37.52	49.31	62.86	78.33	95.87	115.65
50	17.01	25.39	35.15	46.46	59.48	74.36	91.27	110.36
55	15.81	23.68	32.89	43.60	55.95	70.12	86.26	104.53
60	-	22.27	30.79	40.76	52.32	65.64	80.88	98.20
65	-	-	-	37.98	48.62	60.97	75.18	91.40
70	-	-	-	-	-	56.14	69.18	84.19
75	-	-	-	-	-	-	62.94	76.61

C.O.P. [W/W]

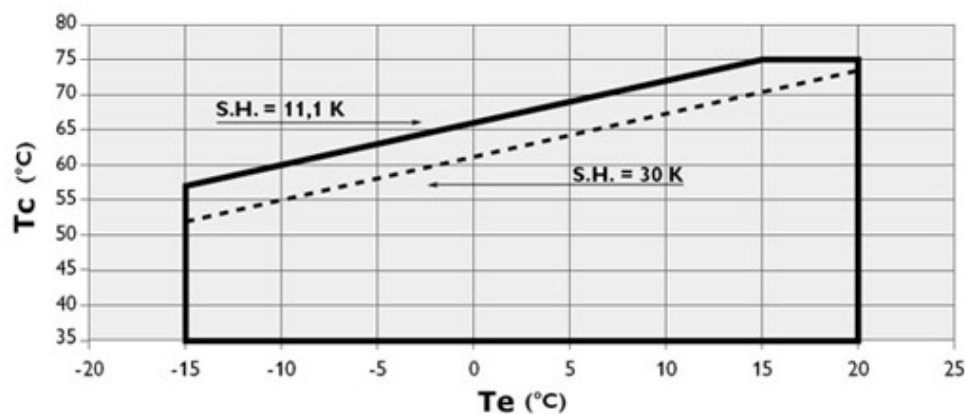
$t_c \setminus t_e$	-15	-10	-5	0	5	10	15	20
35	1.75	2.26	2.85	3.55	4.39	5.45	6.83	8.71
40	1.47	1.93	2.45	3.05	3.76	4.62	5.71	7.12
45	1.24	1.66	2.12	2.62	3.21	3.92	4.78	5.86
50	1.07	1.44	1.83	2.26	2.74	3.31	4.00	4.84
55	0.95	1.26	1.59	1.94	2.34	2.79	3.34	3.99
60	-	1.12	1.38	1.66	1.98	2.34	2.77	3.27
65	-	-	-	1.42	1.67	1.95	2.28	2.67
70	-	-	-	-	-	1.60	1.85	2.14
75	-	-	-	-	-	-	1.46	1.68

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

t_c - Condensing temperature [°C]

t_e - Evaporating temperature [°C]

Application range



R404A/R507

Cooling capacity [W]

t_c \ t_e	-30	-25	-20	-15	-10	-5	0	5	10
30	642	996	1 448	2 012	2 700	3 524	4 496	5 630	6 937
35	553	876	1 288	1 801	2 429	3 182	4 074	5 118	6 324
40	468	761	1 133	1 597	2 164	2 847	3 659	4 613	5 720
45	389	652	984	1 397	1 905	2 519	3 251	4 115	5 122
50	313	546	839	1 203	1 651	2 195	2 848	3 623	4 531
55	-	444	698	1 012	1 401	1 877	2 451	3 136	3 945
60	-	345	559	825	1 156	1 562	2 058	2 654	3 365

Power input [W]

t_c \ t_e	-30	-25	-20	-15	-10	-5	0	5	10
30	702	823	931	1 024	1 102	1 163	1 205	1 228	1 229
35	695	824	942	1 046	1 137	1 212	1 271	1 311	1 331
40	690	826	953	1 068	1 171	1 260	1 334	1 392	1 431
45	687	830	965	1 090	1 205	1 308	1 397	1 471	1 529
50	686	836	979	1 114	1 240	1 355	1 459	1 549	1 625
55	-	844	995	1 139	1 276	1 404	1 522	1 628	1 720
60	-	856	1 014	1 167	1 314	1 454	1 585	1 706	1 816

Current [A]

t_c \ t_e	-30	-25	-20	-15	-10	-5	0	5	10
30	2.03	2.20	2.36	2.50	2.62	2.73	2.81	2.87	2.91
35	2.07	2.24	2.39	2.53	2.65	2.75	2.84	2.91	2.95
40	2.12	2.28	2.43	2.56	2.69	2.80	2.89	2.97	3.03
45	2.16	2.31	2.46	2.60	2.73	2.85	2.96	3.05	3.13
50	2.18	2.34	2.49	2.64	2.79	2.92	3.04	3.16	3.26
55	-	2.35	2.51	2.68	2.84	2.99	3.14	3.28	3.41
60	-	2.34	2.52	2.70	2.88	3.06	3.23	3.40	3.56

Mass flow [kg/s]

$t_c \setminus t_e$	-30	-25	-20	-15	-10	-5	0	5	10
30	20.20	30.67	43.43	58.73	76.85	98.03	122.55	150.67	182.65
35	18.70	28.94	41.37	56.25	73.83	94.39	118.19	145.50	176.56
40	17.18	27.17	39.25	53.68	70.73	90.65	113.71	140.18	170.31
45	15.63	25.36	37.07	51.04	67.52	86.78	109.08	134.70	163.88
50	14.04	23.48	34.81	48.29	64.19	82.77	104.30	129.04	157.25
55	-	21.52	32.45	45.43	60.73	78.62	99.35	123.20	150.42
60	-	19.48	29.98	42.45	57.13	74.30	94.22	117.15	143.37

C.O.P. [W/W]

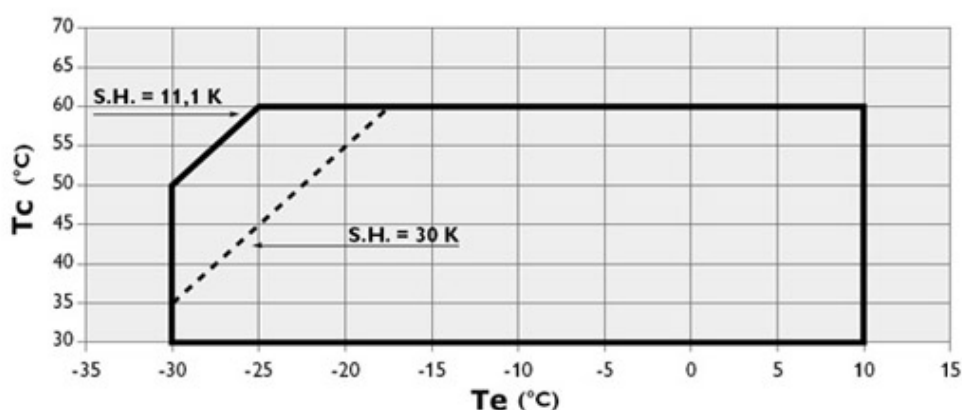
$t_c \setminus t_e$	-30	-25	-20	-15	-10	-5	0	5	10
30	0.91	1.21	1.56	1.96	2.45	3.03	3.73	4.59	5.64
35	0.79	1.06	1.37	1.72	2.14	2.63	3.21	3.90	4.75
40	0.68	0.92	1.19	1.49	1.85	2.26	2.74	3.31	4.00
45	0.57	0.79	1.02	1.28	1.58	1.93	2.33	2.80	3.35
50	0.46	0.65	0.86	1.08	1.33	1.62	1.95	2.34	2.79
55	-	0.53	0.70	0.89	1.10	1.34	1.61	1.93	2.29
60	-	0.40	0.55	0.71	0.88	1.07	1.30	1.56	1.85

Operating conditions: suction superheat: 10 K, subcooling: 0 K

t_c - Condensing temperature [°C]

t_e - Evaporating temperature [°C]

Application range



R407C

Cooling capacity [W]

t_c \ t_e	-15	-10	-5	0	5	10	15
35	1 445	2 054	2 784	3 651	4 668	5 848	7 207
40	1 255	1 824	2 503	3 306	4 249	5 344	6 607
45	1 076	1 606	2 235	2 978	3 848	4 861	6 029
50	-	1 399	1 981	2 665	3 466	4 397	5 474
55	-	-	1 739	2 367	3 100	3 953	4 939
60	-	-	-	2 082	2 750	3 526	4 424
65	-	-	-	1 811	2 415	3 116	3 929

Power input [W]

t_c \ t_e	-15	-10	-5	0	5	10	15
35	794	878	948	1 005	1 050	1 084	1 109
40	812	912	996	1 066	1 123	1 167	1 201
45	820	938	1 040	1 125	1 197	1 255	1 301
50	-	957	1 078	1 182	1 271	1 345	1 406
55	-	-	1 110	1 235	1 344	1 437	1 516
60	-	-	-	1 284	1 415	1 530	1 629
65	-	-	-	1 326	1 484	1 623	1 745

Current [A]

t_c \ t_e	-15	-10	-5	0	5	10	15
35	2.31	2.36	2.41	2.45	2.50	2.53	2.56
40	2.32	2.39	2.45	2.51	2.57	2.62	2.66
45	2.31	2.41	2.49	2.57	2.65	2.71	2.76
50	-	2.42	2.53	2.64	2.73	2.82	2.89
55	-	-	2.56	2.70	2.82	2.93	3.02
60	-	-	-	2.76	2.91	3.05	3.17
65	-	-	-	2.81	3.00	3.17	3.32

Mass flow [kg/s]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
35	31.32	43.83	58.46	75.43	94.99	117.38	142.82
40	28.63	40.89	55.16	71.67	90.66	112.36	137.01
45	25.93	37.97	51.91	67.98	86.41	107.45	131.32
50	-	35.07	48.70	64.35	82.25	102.65	125.78
55	-	-	45.53	60.78	78.18	97.96	120.36
60	-	-	-	57.29	74.20	93.39	115.09
65	-	-	-	53.87	70.32	88.94	109.95

C.O.P. [W/W]

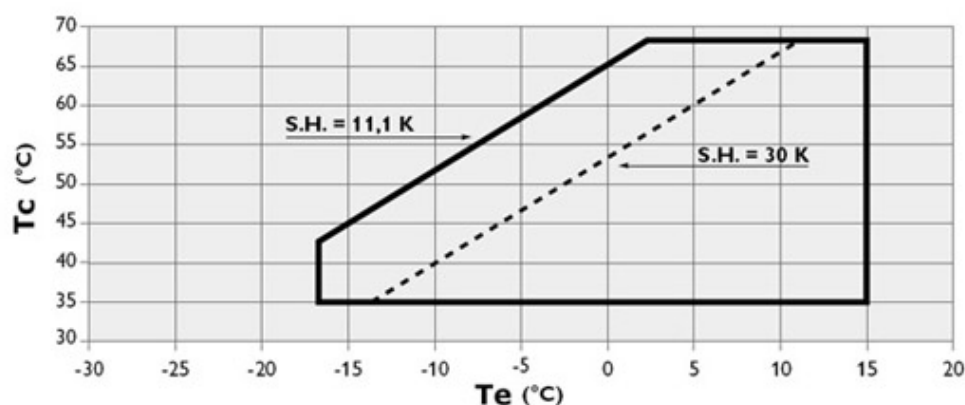
$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
35	1.82	2.34	2.94	3.63	4.45	5.39	6.50
40	1.55	2.00	2.51	3.10	3.78	4.58	5.50
45	1.31	1.71	2.15	2.65	3.22	3.87	4.64
50	-	1.46	1.84	2.25	2.73	3.27	3.89
55	-	-	1.57	1.92	2.31	2.75	3.26
60	-	-	-	1.62	1.94	2.30	2.72
65	-	-	-	1.37	1.63	1.92	2.25

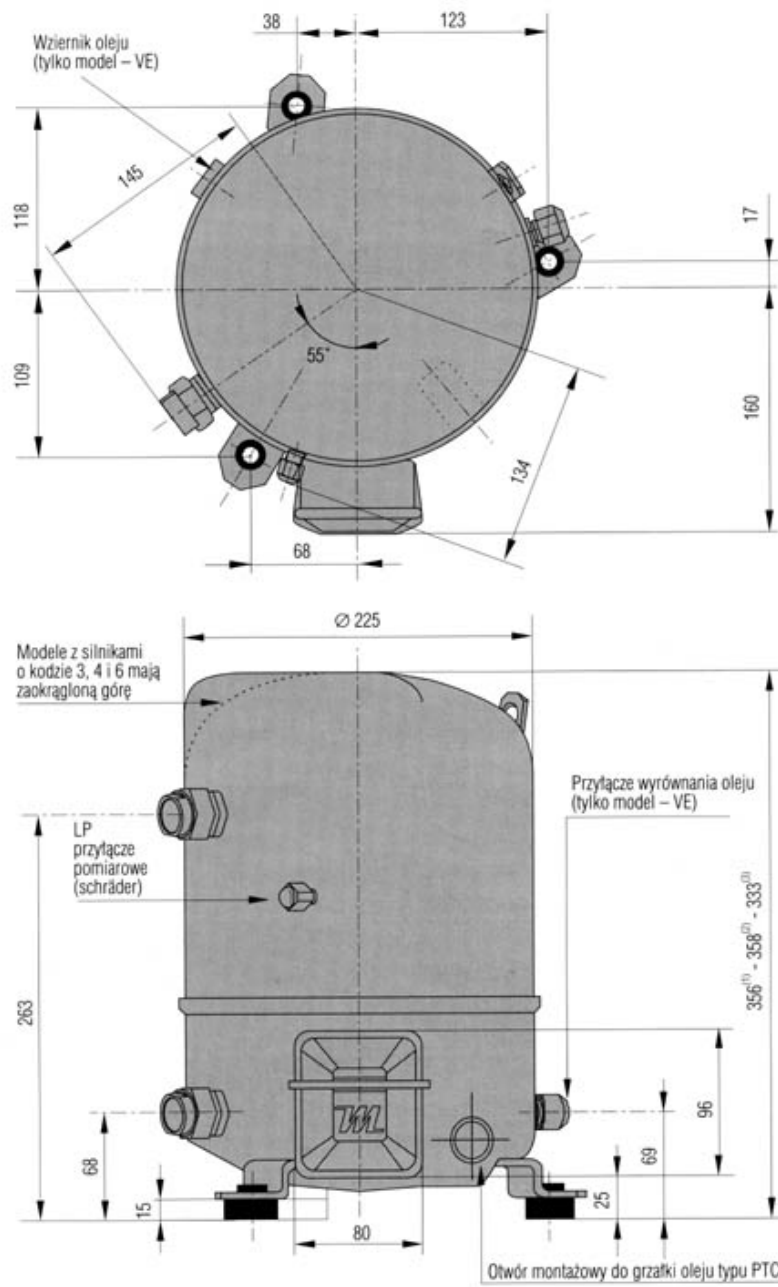
Operating conditions: suction superheat: 10 K, subcooling: 0 K

t_c - Condensing temperature [°C]

t_e - Evaporating temperature [°C]

Application range





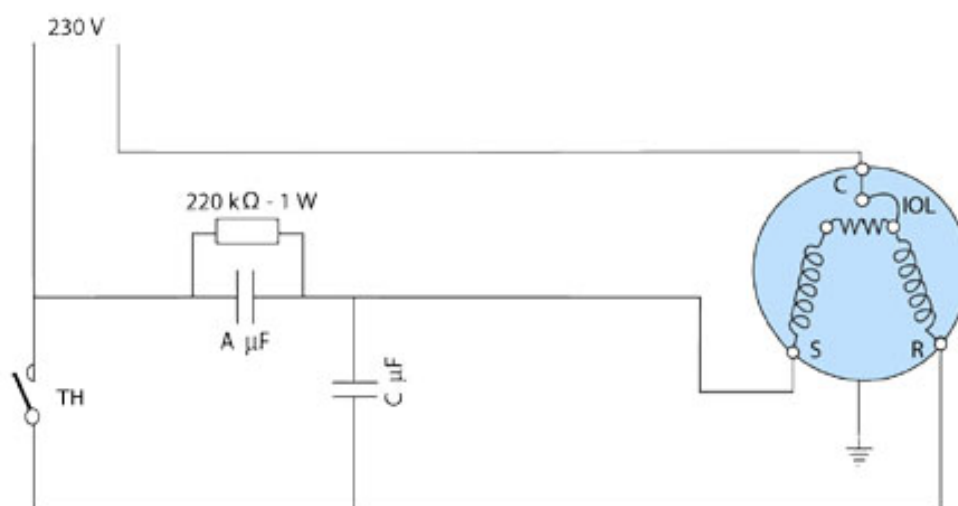


Single phase power supply

Electrical data

Motor voltage code:	1	5
Starting current [A]:	51	40
Maximum Continuous Current (MCC) [A]:	13	10
Winding resistance (between phases) (run/start) [Ω]:	1,36/4,82	1,8/4,7
Main condenser (A) (PSC/CSR) [μF]:		20
Main condenser (C) (PSC/CSR) [μF]:		10
Starting condenser (B) (CSR) [μF]:		100
Starting relay (CSR):		3ARR3J4A4

PSC starting with additional winding



IOL: inner motor protection (klixon)

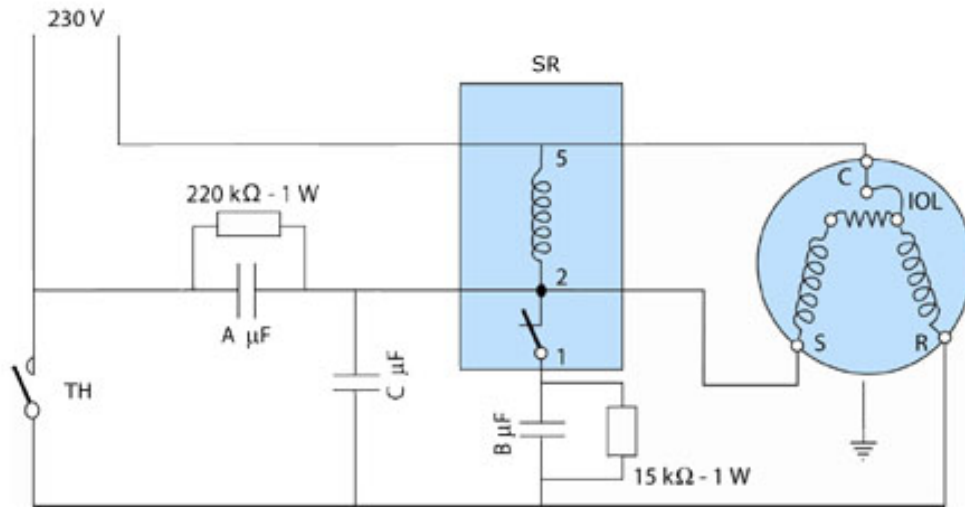
A, C: main condensers

C: starting condenser / S: common

TH: thermostat

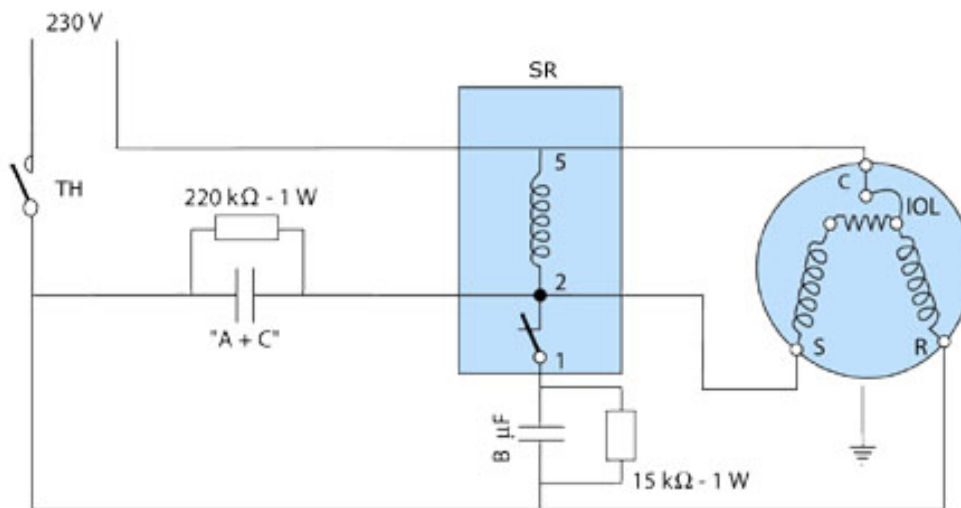
SR: movement transmitter

CSR starting with additional winding



- IOL: inner motor protection (klixon)
- A, C: main condensers
- B: starting condenser
- C: common / S: additional starting winding
- TH: thermostat
- SR: movement transmitter

CSR starting without additional winding



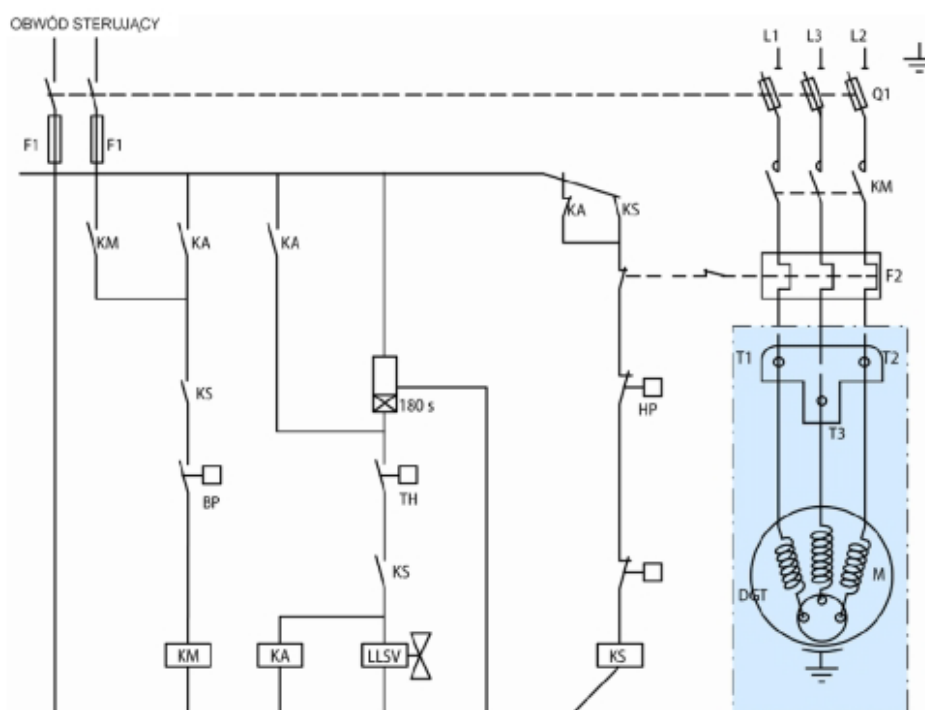
- IOL: inner motor protection (klixon)
- A, C: main condensers
- B: starting condenser
- C: common / S: additional starting winding
- TH: thermostat
- SR: movement transmitter
- condensers A and C are replaced by one condenser of capacity A + C

Three-phase power supply

Electrical data

Motor voltage code:	3	4	6	7	9
Starting current [A]:	38	20	30		
Maximum Continuous	9	5	30		
Current (MCC) [A]:					
Winding resistance	2,49	10,24	3,38		
(between phases) [Ω]:					

Connection diagram for systems without refrigerant suction



TH: Termostat

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

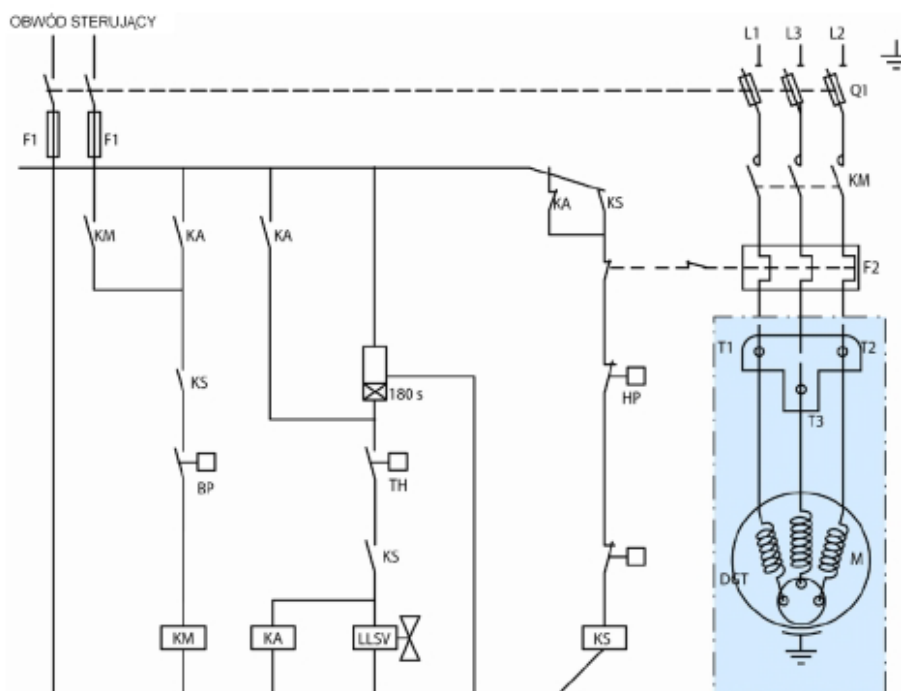
F2: External overload protection

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 55W, 230V
- ▶ Rotolock valves
 - suction: Rotolock valve connection 1", connection with supplied sleeve 1/2"
 - discharge: Rotolock valve connection 1", connection with supplied sleeve 3/8"
- ▶ soft-start kit - electronic softstart MCI 15C
- ▶ acoustic hood - acoustic shield of Danfoss catalogue number 7755001