

Type: Hermetic scroll compressors

Producer: Danfoss-Maneurop

Series: MLZ

Model: MLZ021

Technical data

Displacement [m ³ /h]:	8
Swept volume [cm ³ /rev]:	46,2
RPM [min ⁻¹]:	2900
Power [HP]:	3
Sound power [dB]:	65
Sound power with accoustic hood [dB]:	57
Weight [kg]:	31
Oil charge [dm ³]:	1,1
Oil type:	PVE
Maximum system test pressure low side / high side:	25 / 41
Maximum number of starts without softstart [1/h]:	12
Refrigerant charge limit [dm ³]:	3,6
Refrigerant:	R404A - R507A - R134a

Connections

	<u>inches</u>
Suction connection with supplied sleeve:	3/4"
Discharge connection with supplied sleeve:	1/2"

Approvals

CCC	-
CE	+
UL	-

R134a

Cooling capacity [W]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
25	2 691	3 384	4 223	5 217	-	-	-
30	2 558	3 224	4 030	4 987	6 105	7 394	-
35	2 421	3 058	3 830	4 748	5 822	7 062	8 478
40	2 279	2 885	3 622	4 500	5 528	6 717	8 077
45	2 134	2 708	3 408	4 243	5 224	6 361	7 664
50	-	2 527	3 188	3 979	4 911	5 994	7 238
55	-	2 343	2 963	3 709	4 590	5 617	6 801
60	-	-	2 734	3 432	4 261	5 231	6 352
65	-	-	2 501	3 150	3 925	4 836	5 893
70	-	-	-	2 864	3 583	4 434	5 425

Power input [W]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
25	874	882	890	899	-	-	-
30	971	983	993	1 002	1 014	1 030	-
35	1 073	1 089	1 102	1 113	1 125	1 138	1 157
40	1 180	1 203	1 220	1 234	1 246	1 259	1 275
45	1 297	1 326	1 348	1 365	1 379	1 393	1 407
50	-	1 461	1 489	1 511	1 528	1 542	1 556
55	-	1 608	1 644	1 671	1 692	1 709	1 723
60	-	-	1 815	1 849	1 875	1 895	1 911
65	-	-	2 005	2 046	2 078	2 102	2 121
70	-	-	-	2 264	2 303	2 333	2 355

Current [A]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
25	1.68	1.70	1.71	1.73	-	-	-
30	1.87	1.89	1.91	1.93	1.95	1.98	-
35	2.06	2.10	2.12	2.14	2.16	2.19	2.23
40	2.27	2.32	2.35	2.37	2.40	2.42	2.45
45	2.50	2.55	2.59	2.63	2.65	2.68	2.71
50	-	2.81	2.87	2.91	2.94	2.97	2.99
55	-	3.10	3.16	3.22	3.26	3.29	3.32
60	-	-	3.49	3.56	3.61	3.65	3.68
65	-	-	3.86	3.94	4.00	4.05	4.08
70	-	-	-	4.36	4.43	4.49	4.53

Mass flow [kg/h]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
25	60.28	74.52	90.87	109.58	-	-	-
30	59.17	73.62	90.18	109.09	130.60	154.95	-
35	57.96	72.59	89.31	108.38	130.03	154.52	182.08
40	56.69	71.45	88.29	107.47	129.23	153.81	181.46
45	55.40	70.24	87.16	106.41	128.22	152.85	180.54
50	-	68.99	85.95	105.22	127.05	151.68	179.37
55	-	67.74	84.69	103.94	125.74	150.33	177.97
60	-	-	83.41	102.60	124.33	148.84	176.39
65	-	-	82.16	101.24	122.85	147.24	174.65
70	-	-	-	99.89	121.34	145.56	172.80

C.O.P. [W/W]

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
25	3.08	3.84	4.74	5.80	-	-	-
30	2.63	3.28	4.06	4.98	6.02	7.18	-
35	2.26	2.81	3.48	4.27	5.18	6.20	7.33
40	1.93	2.40	2.97	3.65	4.44	5.34	6.34
45	1.65	2.04	2.53	3.11	3.79	4.57	5.45
50	-	1.73	2.14	2.63	3.21	3.89	4.65
55	-	1.46	1.80	2.22	2.71	3.29	3.95
60	-	-	1.51	1.86	2.27	2.76	3.32
65	-	-	1.25	1.54	1.89	2.30	2.78
70	-	-	-	1.26	1.56	1.90	2.30

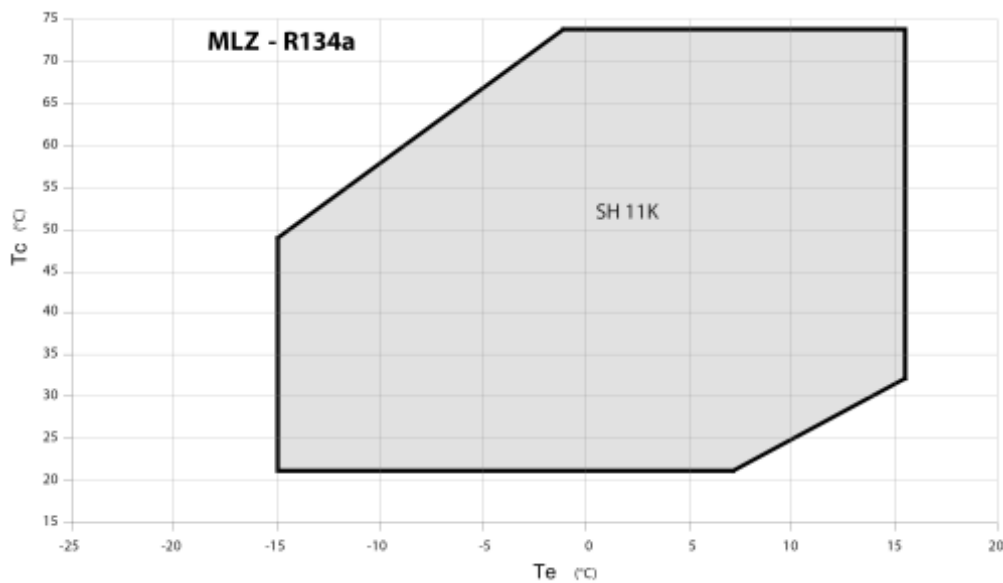
Operating conditions: return gas temperature: -0°C , superheating: 11.1K, subcooling: 0K

t_c - Condensing temperature [$^{\circ}\text{C}$]

t_e - Evaporating temperature [$^{\circ}\text{C}$]

3-phase motor

Application range



R404A/R507

Cooling capacity [W]

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10
10	4 871	5 961	7 243	-	-	-	-
15	4 670	5 709	6 928	8 346	-	-	-
20	4 457	5 445	6 599	7 940	9 490	-	-
25	4 231	5 167	6 255	7 517	8 976	10 652	-
30	3 991	4 873	5 894	7 077	8 443	10 013	11 810
35	3 735	4 561	5 515	6 617	7 889	9 352	11 029
40	3 461	4 232	5 116	6 136	7 313	8 668	10 224
45	3 167	3 881	4 696	5 632	6 713	7 960	9 393
50	-	3 509	4 252	5 105	6 088	7 224	8 534
55	-	3 113	3 784	4 551	5 436	6 461	7 647
60	-	-	3 289	3 970	4 755	5 668	6 728

Power input [W]

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10
10	1 019	1 016	1 033	-	-	-	-
15	1 146	1 144	1 157	1 187	-	-	-
20	1 283	1 283	1 294	1 317	1 352	-	-
25	1 435	1 437	1 446	1 463	1 487	1 517	-
30	1 604	1 609	1 617	1 628	1 642	1 658	1 676
35	1 793	1 802	1 810	1 816	1 820	1 822	1 822
40	2 006	2 020	2 028	2 030	2 025	2 014	1 996
45	2 246	2 266	2 274	2 272	2 260	2 236	2 202
50	-	2 542	2 552	2 548	2 528	2 492	2 442
55	-	2 853	2 865	2 858	2 832	2 785	2 719
60	-	-	3 217	3 208	3 175	3 119	3 038

Current [A]

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10
10	2.10	2.09	2.13	-	-	-	-
15	2.36	2.36	2.39	2.45	-	-	-
20	2.65	2.65	2.67	2.72	2.79	-	-
25	2.96	2.96	2.98	3.02	3.07	3.13	-
30	3.31	3.32	3.33	3.36	3.38	3.42	3.46
35	3.70	3.72	3.73	3.74	3.75	3.76	3.76
40	4.14	4.17	4.18	4.18	4.18	4.15	4.12
45	4.63	4.67	4.69	4.69	4.66	4.61	4.54
50	-	5.24	5.26	5.25	5.21	5.14	5.03
55	-	5.88	5.91	5.89	5.84	5.74	5.61
60	-	-	6.63	6.61	6.55	6.43	6.26

Mass flow [kg/h]

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10
10	98.27	122.41	150.26	-	-	-	-
15	99.26	123.16	150.87	183.05	-	-	-
20	99.69	123.33	150.85	182.96	220.33	-	-
25	99.58	122.93	150.26	182.25	219.60	262.98	-
30	98.97	122.00	149.10	180.96	218.26	261.69	311.92
35	97.88	120.57	147.42	179.11	216.34	259.78	310.13
40	96.33	118.66	145.23	176.74	213.87	257.30	307.72
45	94.37	116.30	142.57	173.86	210.87	254.27	304.75
50	-	113.53	139.47	170.52	207.37	250.71	301.22
55	-	110.36	135.95	166.73	203.41	246.66	297.17
60	-	-	132.04	162.53	199.01	242.15	292.63

C.O.P. [W/W]

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10
10	4.78	5.87	7.01	-	-	-	-
15	4.08	4.99	5.99	7.03	-	-	-
20	3.47	4.24	5.10	6.03	7.02	-	-
25	2.95	3.60	4.32	5.14	6.04	7.02	-
30	2.49	3.03	3.64	4.35	5.14	6.04	7.05
35	2.08	2.53	3.05	3.64	4.33	5.13	6.05
40	1.73	2.09	2.52	3.02	3.61	4.30	5.12
45	1.41	1.71	2.06	2.48	2.97	3.56	4.27
50	-	1.38	1.67	2.00	2.41	2.90	3.50
55	-	1.09	1.32	1.59	1.92	2.32	2.81
60	-	-	1.02	1.24	1.50	1.82	2.21

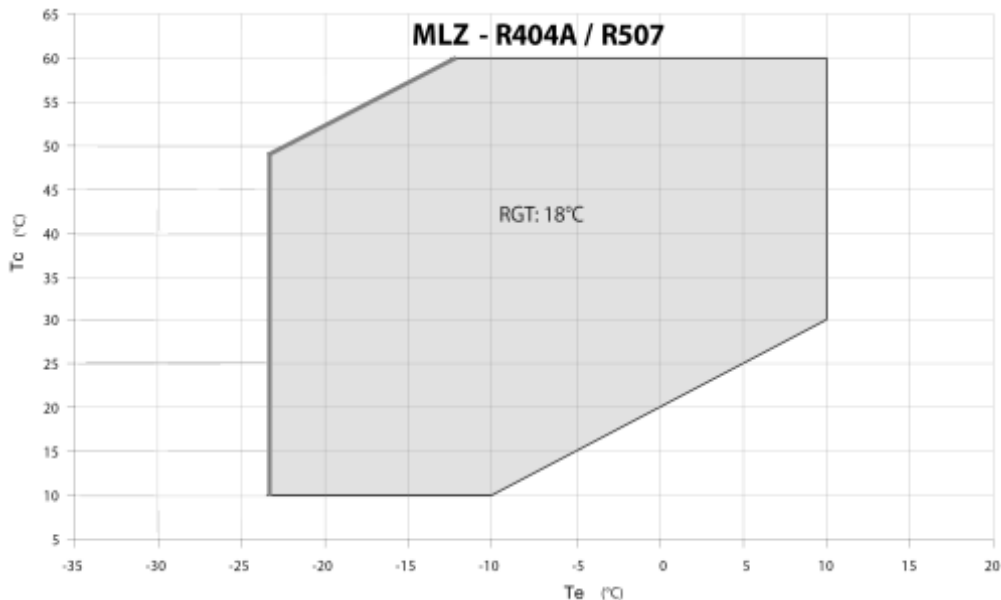
Operating conditions: return gas temperature: 18.33°C, superheating: -K, subcooling: 0K

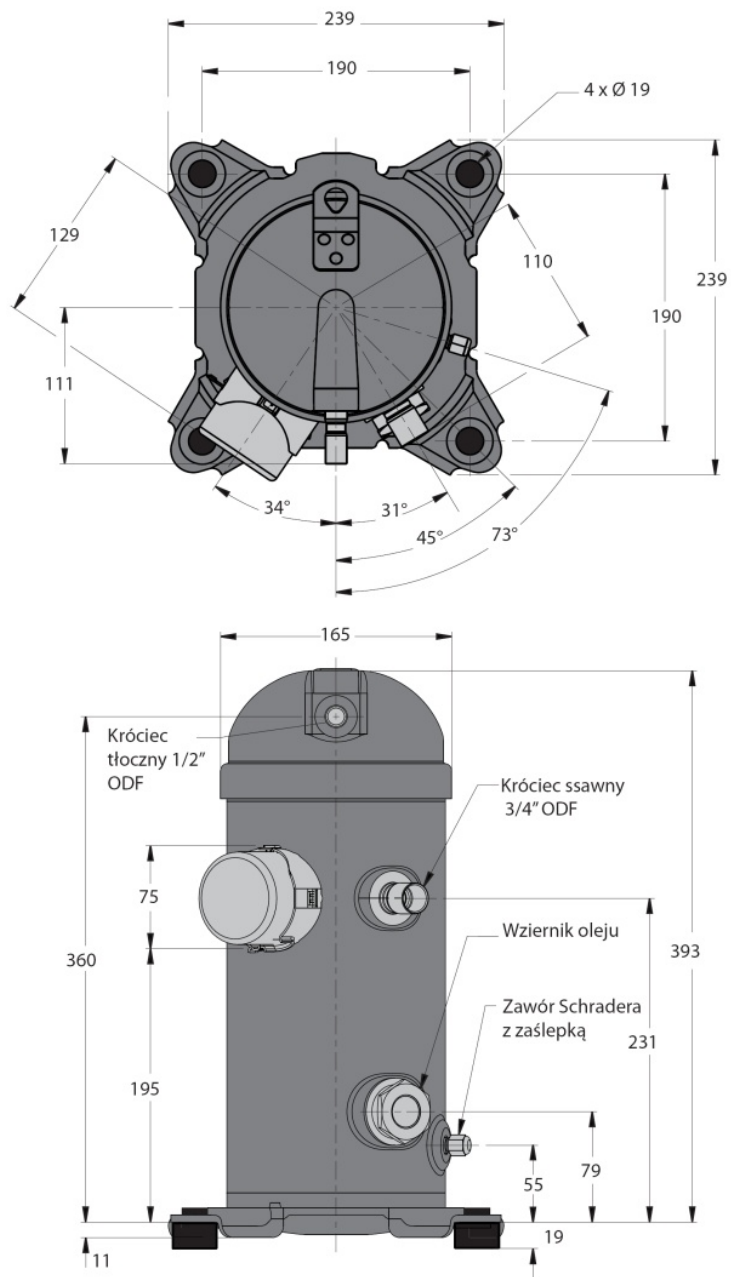
t_c - Condensing temperature [°C]

t_e - Evaporating temperature [°C]

3-phase motor

Application range





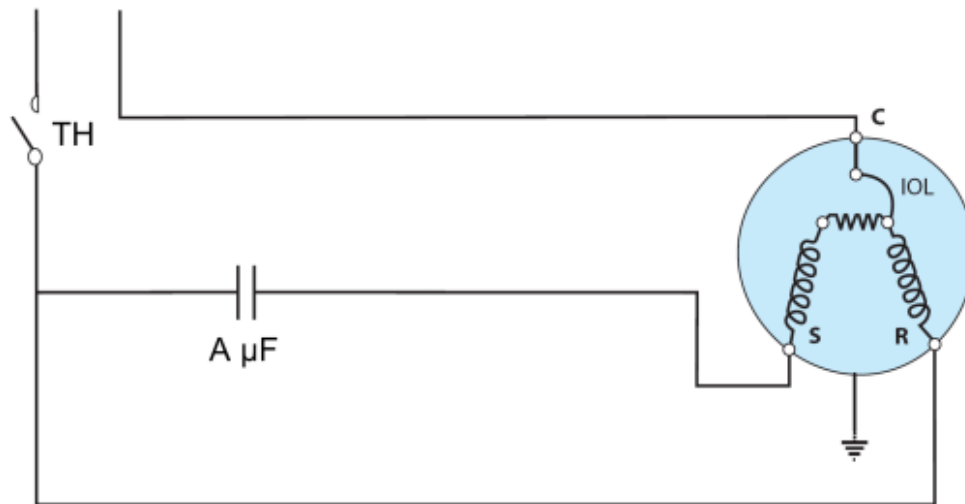


Single phase power supply

Electrical data

Motor voltage code:	5
Starting current [A]:	97
Maximum Continuous Current (MCC) [A]:	25
Winding resistance (between phases) (run/start) [Ω]:	0,69/1,51
Main condenser (A) (PSC/CSR) [μF]:	70
Starting condenser (B) (CSR) [μF]:	145-175
Starting relay (CSR):	RVA9CKL

PSC starting with additional winding



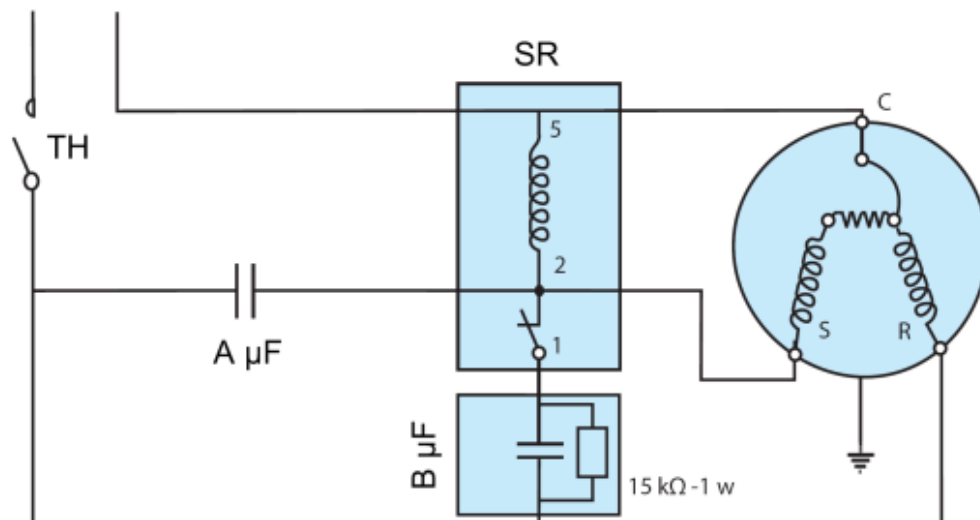
IOL: inner motor protection (klixon)

A: main condenser

C: common / S: additional starting winding

TH: Thermostat

CSR starting with additional winding



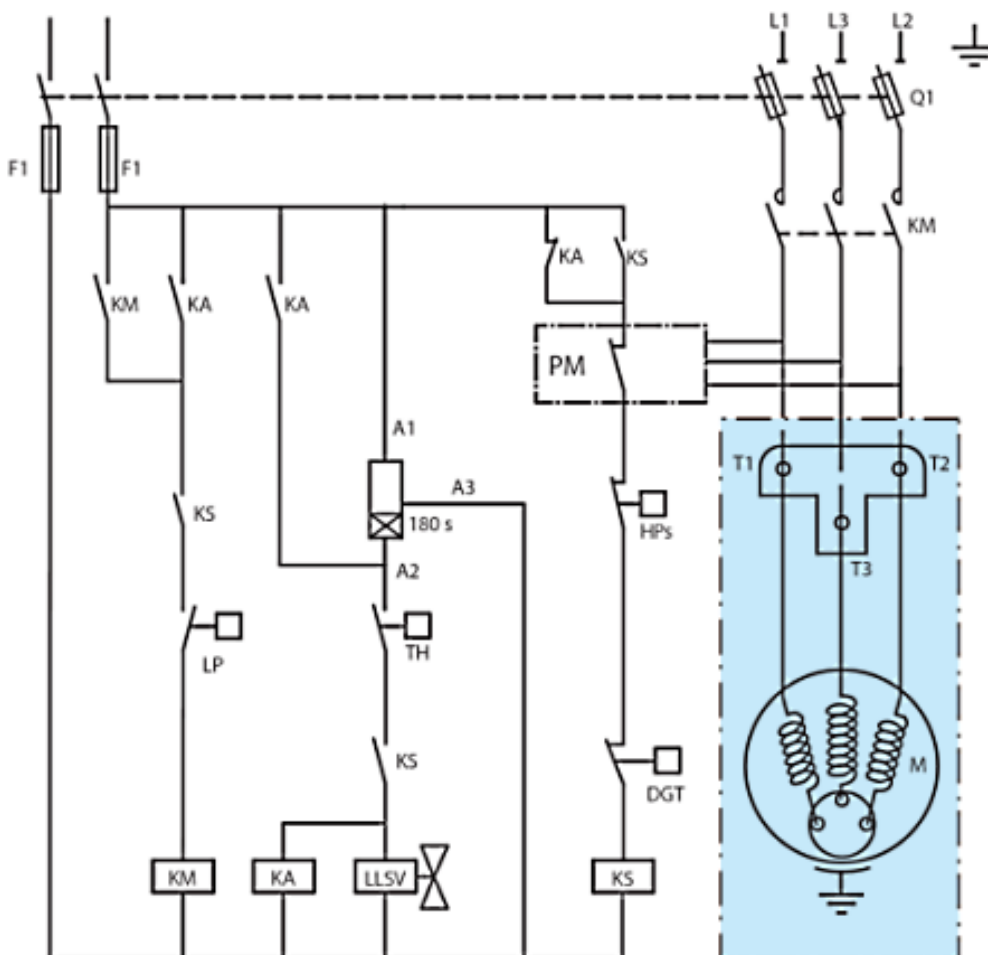
- IOL: inner motor protection (klixon)
- A: main condenser
- B: starting condenser
- C: common / S: additional starting winding
- TH: Thermostat
- SR: Starting relay (CSR)

Three-phase power supply

Electrical data

Motor voltage code:	4
Starting current [A]:	3,4
Maximum Continuous Current (MCC) [A]:	9,5
Winding resistance (between phases) [Ω]:	3,4
T1T3:	
Winding resistance (between phases) [Ω]:	4,7
T1T2:	
Winding resistance (between phases) [Ω]:	4,7
T2T3:	

Connection diagram for systems with refrigerant suction



TH:	Thermostat	180s:	Optional short cycle timer (3min) 5 pts
KA:	Control relay	KM:	Compressor contactor
KS:	Safety lock out relay	LP:	Low pressure switch
HP:	High pressure switch	Q1:	Fused disconnect
F1:	Fuses	M:	Compressor's engine



LLSV: Liquid Solenoid valve
DGT: Discharge gas thermostat

PM: Phase monitor

Equipment

- ▶ belt type heater - crankcase heater 65W, 230V
- ▶ valve
 - suction: connection with supplied sleeve 1 1/8"
 - discharge: connection with supplied sleeve 3/4"
- ▶ soft-start kit - electronic softstart MCI 25
- ▶ discharge thermostatic protection - discharge temperature protection accessory - Danfoss catalogue number 7750009