

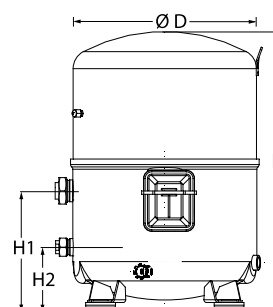
Datasheets

Danfoss Reciprocating compressors **MT / MTZ / NTZ**



General Characteristics

Model number (on compressor nameplate)		MT160HW4EVE
Code number for Singlepack*		MT160-4VI
Code number for Industrial pack**		MT160-4VM
Drawing number		8504011e
Suction and discharge connections		Rotolock
Suction connection		1-3/4" Rotolock
Discharge connection		1-1/4" Rotolock
Suction connection with supplied sleeve		1-1/8" ODF
Discharge connection with supplied sleeve		3/4" ODF
Oil sight glass		Threaded
Oil equalisation connection		3/8" flare SAE
Oil drain connection		None
LP gauge port		Schrader
IPR valve		30 bar / 8 bar
Cylinders	4	
Swept volume	271.55 cm ³ /rev	
Displacement @ Nominal speed	47.3 m ³ /h @ 2900 rpm - 57.0 m ³ /h @ 3500 rpm	
Net weight	67 kg	
Oil charge	3.9 litre, Mineral - 160P	
Maximum system test pressure Low Side / High side	25 bar(g) / 30 bar(g)	
Maximum differential test pressure	30 bar	
Maximum number of starts per hour	12	
Refrigerant charge limit	10 kg	
Approved refrigerants	R22, R417A-160PZ	

Dimensions


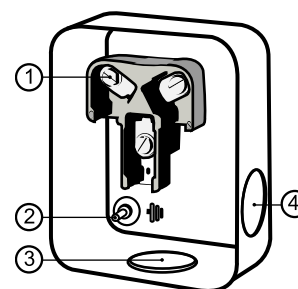
D=352 mm

H=540 mm

H1=233 mm

H2=125 mm

H3=- mm

Terminal box


IP54 (with cable gland)

1: Screw connectors 10-32 UNF x 9.5

2: Earth M4-12

3: Knock-out Ø 29 mm (1.14")

4: Knock-out Ø 25.5 mm (1.00")

Electrical Characteristics

Nominal voltage	380-400V/3/50Hz - 460V/3/60Hz
Voltage range	340-440 V @ 50Hz - 414-506 V @ 60Hz
Winding resistance (between phases) +/- 7% at 25°C	1.19 Ω
Maximum Continuous Current (MCC)	36 A
Locked Rotor Amps (LRA)	130 A
Motor protection	Internal overload protector

Recommended Installation torques

Oil sight glass	50 Nm
Power connections / Earth connection	3 Nm / 2 Nm
Mounting bolts	50 Nm

Parts shipped with compressor

Mounting kit with grommets, bolts, nuts, sleeves and washers
Suction & Discharge solder sleeves, rotolock nuts and gaskets (shipped with rotolock version only)
Initial oil charge
Installation instructions

Approvals : CE certified, UL certified (file SA6873), -

*Singlepack: Compressor in cardboard box

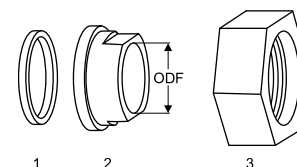
**Industrial pack: 6 Unboxed compressors on pallet (order per multiples of 6)

Rotolock accessories, suction side

Code no.

Solder sleeve, P02 (1-3/4" Rotolock, 1-1/8" ODF)	8153004
Angle adapter, C02 (1-3/4" Rotolock, 1-1/8" ODF)	8168005
Rotolock valve, V02 (1-3/4" Rotolock, 1-1/8" ODF)	8168028
Gasket, 1-3/4"	8156132

Gaskets, sleeves and nuts



- 1: Gasket
2: Solder sleeve
3: Rotolock nut

Rotolock accessories, discharge side

Code no.

Solder sleeve, P04 (1-1/4" Rotolock, 3/4" ODF)	8153008
Angle adapter, C04 (1-1/4" Rotolock, 3/4" ODF)	8168006
Rotolock valve, V04 (1-1/4" Rotolock, 3/4" ODF)	8168029
Gasket, 1-1/4"	8156131

Rotolock accessories, sets

Code no.

Angle adapter set, C02 (1-3/4"~1-1/8"), C04 (1-1/4"~3/4")	7703014
Valve set, V02 (1-3/4"~1-1/8"), V04 (1-1/4"~3/4")	7703009
Gasket set, 1", 1-1/4", 1-3/4", OSG gaskets black & white	8156009

Oil / lubricants

Code no.

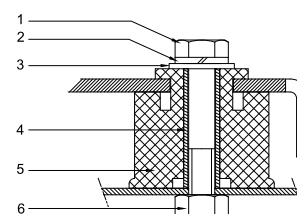
Mineral oil, 160P, 2 litre can	7754001
Mineral oil, 160P, 5 litre can	7754002

Crankcase heaters

Code no.

PTC heater 27W, CE mark, UL	120Z0459
Belt type crankcase heater, 75 W, 230 V, CE mark, UL	7773108
Belt type crankcase heater, 75 W, 400 V, CE mark, UL	7773118
Belt type crankcase heater, 75 W, 460 V, CE mark, UL	120Z0464

Mounting kit



- 1: Bolt (4x)
2: Lock washer (4x)
3: Flat washer (4x)
4: Sleeve (4x)
5: Grommet (4x)
6: Nut (4x)

Miscellaneous accessories

Code no.

Electronic soft start kit, MCI 25 C	7705007
Soft start kit with statoric resistors, prewired box, SCR03	7705001
Acoustic hood for 4 cylinder compressor	120Z0473
Oil equalisation nut	8153127

Spare parts

Code no.

Mounting kit for 4 cylinder compressor & MS, including 4 grommets, 4 bolts	8156007
Oil sight glass with gaskets (black & white)	8156019
Gasket for oil sight glass (black chloroprene)	8156145
Service kit for terminal box 96 x 115 mm, including 1 cover, 1 clamp	8156135
T block connector 52 x 57 mm	8173230

Performance data at 50 Hz, EN 12900 rating conditions
R22

Cond. temp. in °C (tc)	Evaporating temperature in °C (to)								
	-25	-20	-15	-10	-5	0	5	10	15

Cooling capacity in W

30	11 251	14 817	19 154	24 366	30 559	37 837	46 308	56 076	67 247
35	10 093	13 513	17 657	22 632	28 541	35 491	43 586	52 931	63 633
40	9 025	12 269	16 193	20 902	26 500	33 091	40 782	49 676	59 880
45	8 058	11 098	14 774	19 188	24 446	30 651	37 908	46 322	55 999
50	-	10 011	13 410	17 502	22 391	28 182	34 977	42 883	52 002
55	-	-	12 113	15 855	20 348	25 696	32 001	39 369	47 902
60	-	-	-	14 258	18 327	23 204	28 991	35 792	43 711
65	-	-	-	-	16 340	20 718	25 959	32 164	39 438

Power input in W

30	6 153	6 858	7 525	8 129	8 643	9 042	9 300	9 391	9 289
35	6 462	7 210	7 934	8 607	9 205	9 700	10 067	10 281	10 316
40	6 723	7 523	8 312	9 064	9 753	10 354	10 841	11 187	11 368
45	6 928	7 789	8 652	9 492	10 283	10 999	11 614	12 102	12 438
50	-	8 000	8 948	9 885	10 786	11 626	12 378	13 017	13 518
55	-	-	9 191	10 235	11 256	12 229	13 128	13 927	14 601
60	-	-	-	10 535	11 685	12 801	13 856	14 824	15 681
65	-	-	-	-	12 067	13 334	14 554	15 702	16 750

Current consumption in A

30	12.97	13.71	14.46	15.16	15.77	16.26	16.58	16.69	16.54
35	13.32	14.11	14.92	15.72	16.45	17.08	17.56	17.85	17.90
40	13.60	14.46	15.37	16.27	17.14	17.92	18.58	19.06	19.34
45	13.82	14.77	15.78	16.81	17.83	18.78	19.63	20.33	20.84
50	-	15.01	16.14	17.32	18.50	19.64	20.70	21.63	22.39
55	-	-	16.45	17.78	19.15	20.49	21.77	22.95	23.97
60	-	-	-	18.20	19.76	21.32	22.84	24.28	25.59
65	-	-	-	-	20.32	22.11	23.89	25.61	27.22

Mass flow in kg/h

30	246	321	409	512	633	774	935	1 120	1 331
35	229	303	391	494	614	754	914	1 098	1 308
40	213	286	373	474	593	731	890	1 072	1 279
45	199	270	355	454	571	706	863	1 042	1 246
50	-	256	338	434	547	679	832	1 008	1 208
55	-	-	321	413	523	650	799	970	1 165
60	-	-	-	392	497	619	762	928	1 118
65	-	-	-	-	470	586	723	882	1 066

Coefficient of performance (C.O.P.)

30	1.83	2.16	2.55	3.00	3.54	4.18	4.98	5.97	7.24
35	1.56	1.87	2.23	2.63	3.10	3.66	4.33	5.15	6.17
40	1.34	1.63	1.95	2.31	2.72	3.20	3.76	4.44	5.27
45	1.16	1.42	1.71	2.02	2.38	2.79	3.26	3.83	4.50
50	-	1.25	1.50	1.77	2.08	2.42	2.83	3.29	3.85
55	-	-	1.32	1.55	1.81	2.10	2.44	2.83	3.28
60	-	-	-	1.35	1.57	1.81	2.09	2.41	2.79
65	-	-	-	-	1.35	1.55	1.78	2.05	2.35

Nominal performance at to = 5 °C, tc = 50 °C

Cooling capacity	34 977	W
Power input	12 378	W
Current consumption	20.70	A
Mass flow	832	kg/h
C.O.P.	2.83	

Pressure switch settings

Maximum HP switch setting	27.9	bar(g)
Minimum LP switch setting	0.7	bar(g)
LP pump down setting	0.9	bar(g)

Sound power data

Sound power level	80	dB(A)
With acoustic hood	74	dB(A)

to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

Rating conditions : Superheat = 10 K , Subcooling = 0 K

Tolerance according EN12900

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Performance data at 50 Hz, ARI rating conditions
R22

Cond. temp. in °C (tc)	Evaporating temperature in °C (to)								
	-25	-20	-15	-10	-5	0	5	10	15

Cooling capacity in W

30	11 949	15 724	20 310	25 818	32 355	40 034	48 962	59 251	71 010
35	10 758	14 390	18 787	24 060	30 319	37 672	46 230	56 103	67 401
40	9 658	13 117	17 296	22 305	28 254	35 253	43 411	52 838	63 644
45	8 663	11 919	15 849	20 565	26 174	32 788	40 515	49 467	59 751
50	-	10 807	14 459	18 850	24 091	30 289	37 557	46 002	55 736
55	-	-	13 138	17 175	22 016	27 770	34 547	42 457	51 610
60	-	-	-	15 552	19 963	25 243	31 500	38 844	47 385
65	-	-	-	-	17 945	22 719	28 426	35 174	43 075

Power input in W

30	6 153	6 858	7 525	8 129	8 643	9 042	9 300	9 391	9 289
35	6 462	7 210	7 934	8 607	9 205	9 700	10 067	10 281	10 316
40	6 723	7 523	8 312	9 064	9 753	10 354	10 841	11 187	11 368
45	6 928	7 789	8 652	9 492	10 283	10 999	11 614	12 102	12 438
50	-	8 000	8 948	9 885	10 786	11 626	12 378	13 017	13 518
55	-	-	9 191	10 235	11 256	12 229	13 128	13 927	14 601
60	-	-	-	10 535	11 685	12 801	13 856	14 824	15 681
65	-	-	-	-	12 067	13 334	14 554	15 702	16 750

Current consumption in A

30	12.97	13.71	14.46	15.16	15.77	16.26	16.58	16.69	16.54
35	13.32	14.11	14.92	15.72	16.45	17.08	17.56	17.85	17.90
40	13.60	14.46	15.37	16.27	17.14	17.92	18.58	19.06	19.34
45	13.82	14.77	15.78	16.81	17.83	18.78	19.63	20.33	20.84
50	-	15.01	16.14	17.32	18.50	19.64	20.70	21.63	22.39
55	-	-	16.45	17.78	19.15	20.49	21.77	22.95	23.97
60	-	-	-	18.20	19.76	21.32	22.84	24.28	25.59
65	-	-	-	-	20.32	22.11	23.89	25.61	27.22

Mass flow in kg/h

30	245	319	407	510	630	769	930	1 114	1 323
35	227	301	389	491	611	750	909	1 092	1 300
40	212	285	371	472	590	727	885	1 066	1 272
45	198	269	353	452	568	703	858	1 036	1 239
50	-	255	336	432	544	676	828	1 002	1 201
55	-	-	319	411	520	647	794	964	1 158
60	-	-	-	390	494	616	758	923	1 111
65	-	-	-	-	467	583	719	877	1 060

Coefficient of performance (C.O.P.)

30	1.94	2.29	2.70	3.18	3.74	4.43	5.26	6.31	7.64
35	1.66	2.00	2.37	2.80	3.29	3.88	4.59	5.46	6.53
40	1.44	1.74	2.08	2.46	2.90	3.40	4.00	4.72	5.60
45	1.25	1.53	1.83	2.17	2.55	2.98	3.49	4.09	4.80
50	-	1.35	1.62	1.91	2.23	2.61	3.03	3.53	4.12
55	-	-	1.43	1.68	1.96	2.27	2.63	3.05	3.53
60	-	-	-	1.48	1.71	1.97	2.27	2.62	3.02
65	-	-	-	-	1.49	1.70	1.95	2.24	2.57

Nominal performance at to = 7.2 °C, tc = 54.4 °C

Cooling capacity	38 273	W
Power input	13 396	W
Current consumption	22.16	A
Mass flow	871	kg/h
C.O.P.	2.86	

Pressure switch settings

Maximum HP switch setting	27.9	bar(g)
Minimum LP switch setting	0.7	bar(g)
LP pump down setting	0.9	bar(g)

Sound power data

Sound power level	80	dB(A)
With acoustic hood	74	dB(A)

to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

Rating conditions : Superheat = 11.1 K , Subcooling = 8.3 K

Tolerance according EN12900

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Performance data at 60 Hz, EN 12900 rating conditions
R22

Cond. temp. in °C (tc)	Evaporating temperature in °C (to)								
	-25	-20	-15	-10	-5	0	5	10	15

Cooling capacity in W

30	13 501	17 781	22 985	29 239	36 670	45 405	55 569	67 291	80 696
35	12 112	16 215	21 189	27 158	34 250	42 589	52 303	63 517	76 360
40	10 830	14 723	19 432	25 082	31 799	39 709	48 938	59 611	71 856
45	9 669	13 318	17 728	23 026	29 335	36 781	45 490	55 587	67 199
50	-	12 013	16 092	21 002	26 870	33 818	41 973	51 459	62 403
55	-	-	14 535	19 026	24 418	30 835	38 401	47 242	57 483
60	-	-	-	17 110	21 993	27 845	34 790	42 951	52 453
65	-	-	-	-	19 608	24 862	31 151	38 597	47 326

Power input in W

30	7 383	8 230	9 031	9 755	10 372	10 851	11 160	11 269	11 146
35	7 755	8 653	9 521	10 329	11 045	11 640	12 081	12 338	12 379
40	8 068	9 028	9 974	10 877	11 704	12 425	13 009	13 425	13 642
45	8 313	9 346	10 383	11 391	12 340	13 198	13 936	14 522	14 925
50	-	9 600	10 737	11 862	12 943	13 951	14 854	15 621	16 221
55	-	-	11 029	12 282	13 507	14 675	15 754	16 713	17 521
60	-	-	-	12 642	14 022	15 361	16 627	17 789	18 817
65	-	-	-	-	14 481	16 001	17 465	18 842	20 100

Current consumption in A

30	12.97	13.71	14.46	15.16	15.77	16.26	16.58	16.69	16.54
35	13.32	14.11	14.92	15.72	16.45	17.08	17.56	17.85	17.90
40	13.60	14.46	15.37	16.27	17.14	17.92	18.58	19.06	19.34
45	13.82	14.77	15.78	16.81	17.83	18.78	19.63	20.33	20.84
50	-	15.01	16.14	17.32	18.50	19.64	20.70	21.63	22.39
55	-	-	16.45	17.78	19.15	20.49	21.77	22.95	23.97
60	-	-	-	18.20	19.76	21.32	22.84	24.28	25.59
65	-	-	-	-	20.32	22.11	23.89	25.61	27.22

Mass flow in kg/h

30	296	386	491	615	761	929	1 123	1 345	1 598
35	274	364	469	592	737	904	1 097	1 318	1 569
40	255	343	447	569	712	877	1 068	1 287	1 535
45	239	324	426	545	685	848	1 035	1 250	1 495
50	-	307	405	521	657	815	999	1 209	1 450
55	-	-	385	496	627	781	959	1 164	1 398
60	-	-	-	471	596	743	915	1 114	1 341
65	-	-	-	-	563	703	868	1 059	1 279

Coefficient of performance (C.O.P.)

30	1.83	2.16	2.55	3.00	3.54	4.18	4.98	5.97	7.24
35	1.56	1.87	2.23	2.63	3.10	3.66	4.33	5.15	6.17
40	1.34	1.63	1.95	2.31	2.72	3.20	3.76	4.44	5.27
45	1.16	1.42	1.71	2.02	2.38	2.79	3.26	3.83	4.50
50	-	1.25	1.50	1.77	2.08	2.42	2.83	3.29	3.85
55	-	-	1.32	1.55	1.81	2.10	2.44	2.83	3.28
60	-	-	-	1.35	1.57	1.81	2.09	2.41	2.79
65	-	-	-	-	1.35	1.55	1.78	2.05	2.35

Nominal performance at to = 5 °C, tc = 50 °C

Cooling capacity	41 973	W
Power input	14 854	W
Current consumption	20.70	A
Mass flow	999	kg/h
C.O.P.	2.83	

Pressure switch settings

Maximum HP switch setting	27.9	bar(g)
Minimum LP switch setting	0.7	bar(g)
LP pump down setting	0.9	bar(g)

Sound power data

Sound power level	83	dB(A)
With acoustic hood	77	dB(A)

to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

Rating conditions : Superheat = 10 K , Subcooling = 0 K

Tolerance according EN12900

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Performance data at 60 Hz, ARI rating conditions
R22

Cond. temp. in °C (tc)	Evaporating temperature in °C (to)								
	-25	-20	-15	-10	-5	0	5	10	15

Cooling capacity in W

30	14 339	18 869	24 373	30 981	38 826	48 040	58 755	71 101	85 212
35	12 910	17 268	22 545	28 873	36 383	45 207	55 477	67 324	80 881
40	11 590	15 741	20 756	26 766	33 905	42 303	52 093	63 405	76 373
45	10 396	14 303	19 019	24 677	31 409	39 345	48 618	59 360	71 702
50	-	12 968	17 351	22 620	28 909	36 347	45 068	55 203	66 883
55	-	-	15 766	20 610	26 419	33 324	41 457	50 949	61 932
60	-	-	-	18 662	23 956	30 291	37 800	46 613	56 862
65	-	-	-	-	21 533	27 263	34 111	42 209	51 690

Power input in W

30	7 383	8 230	9 031	9 755	10 372	10 851	11 160	11 269	11 146
35	7 755	8 653	9 521	10 329	11 045	11 640	12 081	12 338	12 379
40	8 068	9 028	9 974	10 877	11 704	12 425	13 009	13 425	13 642
45	8 313	9 346	10 383	11 391	12 340	13 198	13 936	14 522	14 925
50	-	9 600	10 737	11 862	12 943	13 951	14 854	15 621	16 221
55	-	-	11 029	12 282	13 507	14 675	15 754	16 713	17 521
60	-	-	-	12 642	14 022	15 361	16 627	17 789	18 817
65	-	-	-	-	14 481	16 001	17 465	18 842	20 100

Current consumption in A

30	12.97	13.71	14.46	15.16	15.77	16.26	16.58	16.69	16.54
35	13.32	14.11	14.92	15.72	16.45	17.08	17.56	17.85	17.90
40	13.60	14.46	15.37	16.27	17.14	17.92	18.58	19.06	19.34
45	13.82	14.77	15.78	16.81	17.83	18.78	19.63	20.33	20.84
50	-	15.01	16.14	17.32	18.50	19.64	20.70	21.63	22.39
55	-	-	16.45	17.78	19.15	20.49	21.77	22.95	23.97
60	-	-	-	18.20	19.76	21.32	22.84	24.28	25.59
65	-	-	-	-	20.32	22.11	23.89	25.61	27.22

Mass flow in kg/h

30	295	384	489	612	757	924	1 117	1 338	1 589
35	273	362	466	589	733	900	1 091	1 311	1 560
40	254	341	445	566	708	873	1 062	1 279	1 526
45	238	323	424	542	681	843	1 030	1 243	1 487
50	-	306	403	518	653	811	993	1 203	1 441
55	-	-	383	494	624	776	953	1 157	1 390
60	-	-	-	469	593	739	910	1 107	1 334
65	-	-	-	-	561	700	863	1 053	1 271

Coefficient of performance (C.O.P.)

30	1.94	2.29	2.70	3.18	3.74	4.43	5.26	6.31	7.64
35	1.66	2.00	2.37	2.80	3.29	3.88	4.59	5.46	6.53
40	1.44	1.74	2.08	2.46	2.90	3.40	4.00	4.72	5.60
45	1.25	1.53	1.83	2.17	2.55	2.98	3.49	4.09	4.80
50	-	1.35	1.62	1.91	2.23	2.61	3.03	3.53	4.12
55	-	-	1.43	1.68	1.96	2.27	2.63	3.05	3.53
60	-	-	-	1.48	1.71	1.97	2.27	2.62	3.02
65	-	-	-	-	1.49	1.70	1.95	2.24	2.57

Nominal performance at to = 7.2 °C, tc = 54.4 °C

Cooling capacity	45 928	W
Power input	16 075	W
Current consumption	22.16	A
Mass flow	1 045	kg/h
C.O.P.	2.86	

Pressure switch settings

Maximum HP switch setting	27.9	bar(g)
Minimum LP switch setting	0.7	bar(g)
LP pump down setting	0.9	bar(g)

Sound power data

Sound power level	83	dB(A)
With acoustic hood	77	dB(A)

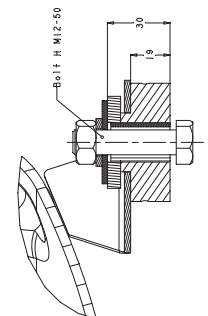
to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

Rating conditions : Superheat = 11.1 K , Subcooling = 8.3 K

Tolerance according EN12900

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Silent bloc
Grommet compression not included
around 1 mm.

compressors
MT/MTZ 144-3/4/6/7/9
MT/MTZ 160-3/4/6/7/9
MTZ 242-G/H

PTC
Crankcase heater