

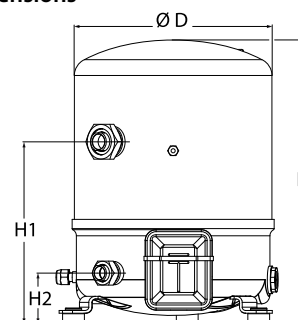
Datasheets

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

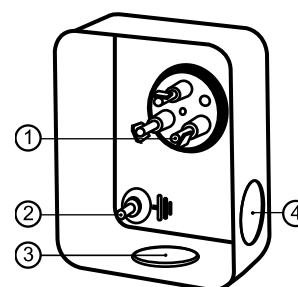


**General Characteristics**

Model number (on compressor nameplate)		<b>MT80HP4AVE</b>
Code number for Singlepack*		MT80-4VI
Code number for Industrial pack**		MT80-4VM
Drawing number		8502012g
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		2
Swept volume		135.78 cm <sup>3</sup> /rev
Displacement @ Nominal speed		23.6 m <sup>3</sup> /h @ 2900 rpm - 28.5 m <sup>3</sup> /h @ 3500 rpm
Net weight		40 kg
Oil charge		1.8 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		5 kg
Approved refrigerants		R22, R417A-160PZ

**Dimensions**


D=288 mm  
H=413 mm  
H1=265 mm  
H2=74 mm  
H3=- mm

**Terminal box**


IP55 (with cable gland)

- 1: Spade connectors 1/4"
- 2: Earth M4-12
- 3: Knock-out Ø 21 mm (0.83")
- 4: Hole Ø 21 mm (0.83")

**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	1.9 Ω
Maximum Continuous Current (MCC)	18 A
Locked Rotor Amps (LRA)	80 A
Motor protection	Internal overload protector

**Recommended Installation torques**

Oil sight glass	50 Nm
Power connections / Earth connection	2 Nm / 2 Nm
Mounting bolts	15 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

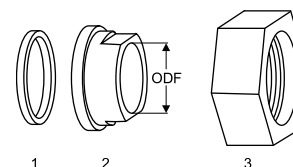
\*\*Industrial pack: 6 Unboxed compressors on pallet (order per multiples of 6)

**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.**

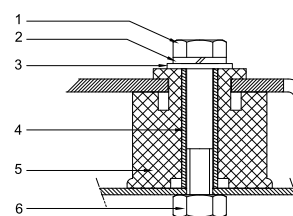
Mineral oil, 160P, 2 litre can	7754001
Mineral oil, 160P, 5 litre can	7754002

**Crankcase heaters**

**Code no.**

PTC heater 27W, CE mark, UL	120Z0459
Belt type crankcase heater, 65 W, 230 V, CE mark, UL	7773107
Belt type crankcase heater, 65 W, 400 V, CE mark, UL	7773117
Belt type crankcase heater, 65 W, 460 V, CE mark, UL	120Z0466

**Mounting kit**



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

**Miscellaneous accessories**

**Code no.**

Electronic soft start kit, MCI 15 C	7705006
Acoustic hood for 2 cylinder compressor	120Z0472
Oil equalisation nut	8153127

**Spare parts**

**Code no.**

Mounting kit for 1 and 2 cylinder compressor, including 3 grommets, 3 bolts	8156001
Oil sight glass with gaskets (black & white)	8156019
Gasket for oil sight glass (black chloroprene)	8156145
Service kit for terminal box 80 x 96 mm, including 1 cover, 1 clamp	8156134

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**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

**Cooling capacity in W**

30	5 461	7 514	9 952	12 815	16 146	19 986	24 378	29 362	34 980
35	4 962	6 943	9 284	12 026	15 211	18 880	23 075	27 839	33 212
40	4 451	6 353	8 590	11 204	14 235	17 727	21 720	26 256	31 377
45	3 936	5 753	7 880	10 358	13 230	16 537	20 320	24 622	29 484
50	-	5 151	7 161	9 498	12 203	15 319	18 886	22 947	27 544
55	-	-	6 444	8 632	11 164	14 082	17 426	21 240	25 564
60	-	-	-	7 771	10 123	12 836	15 951	19 510	23 555
65	-	-	-	-	9 088	11 589	14 468	17 766	21 525

**Power input in W**

30	3 102	3 486	3 833	4 148	4 434	4 693	4 931	5 149	5 351
35	3 198	3 635	4 032	4 392	4 718	5 014	5 284	5 531	5 757
40	3 276	3 775	4 230	4 644	5 020	5 362	5 674	5 958	6 218
45	3 320	3 891	4 414	4 891	5 327	5 724	6 087	6 418	6 721
50	-	3 972	4 571	5 121	5 626	6 087	6 510	6 897	7 252
55	-	-	4 688	5 321	5 903	6 438	6 931	7 383	7 799
60	-	-	-	5 476	6 146	6 764	7 336	7 863	8 350
65	-	-	-	-	6 342	7 052	7 712	8 323	8 890

**Current consumption in A**

30	7.44	7.83	8.22	8.60	8.96	9.29	9.57	9.78	9.93
35	7.56	8.01	8.46	8.90	9.32	9.69	10.02	10.28	10.46
40	7.65	8.18	8.70	9.21	9.70	10.14	10.53	10.85	11.09
45	7.68	8.31	8.92	9.52	10.09	10.62	11.09	11.49	11.81
50	-	8.38	9.10	9.81	10.49	11.11	11.68	12.18	12.58
55	-	-	9.23	10.06	10.86	11.60	12.29	12.89	13.41
60	-	-	-	10.26	11.19	12.07	12.89	13.62	14.27
65	-	-	-	-	11.47	12.50	13.47	14.35	15.14

**Mass flow in kg/h**

30	119	162	211	268	334	408	492	587	692
35	112	155	205	261	326	400	483	577	682
40	105	148	197	254	318	391	473	565	669
45	97	140	189	245	308	380	461	552	654
50	-	131	180	235	297	368	448	538	638
55	-	-	170	224	286	355	434	521	619
60	-	-	-	213	273	341	418	504	600
65	-	-	-	-	260	326	401	485	579

**Coefficient of performance (C.O.P.)**

30	1.76	2.16	2.60	3.09	3.64	4.26	4.94	5.70	6.54
35	1.55	1.91	2.30	2.74	3.22	3.77	4.37	5.03	5.77
40	1.36	1.68	2.03	2.41	2.84	3.31	3.83	4.41	5.05
45	1.19	1.48	1.79	2.12	2.48	2.89	3.34	3.84	4.39
50	-	1.30	1.57	1.85	2.17	2.52	2.90	3.33	3.80
55	-	-	1.37	1.62	1.89	2.19	2.51	2.88	3.28
60	-	-	-	1.42	1.65	1.90	2.17	2.48	2.82
65	-	-	-	-	1.43	1.64	1.88	2.13	2.42

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

Cooling capacity	18 886	W
Power input	6 510	W
Current consumption	11.68	A
Mass flow	448	kg/h
C.O.P.	2.90	

**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	76	dB(A)
With acoustic hood	70	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	5 800	7 974	10 552	13 578	17 095	21 146	25 775	31 025	36 938
35	5 289	7 394	9 878	12 785	16 158	20 040	24 476	29 507	35 178
40	4 763	6 792	9 175	11 956	15 178	18 885	23 120	27 927	33 349
45	4 231	6 178	8 453	11 101	14 165	17 689	21 718	26 293	31 460
50	-	5 561	7 722	10 230	13 129	16 464	20 279	24 616	29 521
55	-	-	6 990	9 351	12 080	15 219	18 813	22 906	27 542
60	-	-	-	8 476	11 026	13 963	17 331	21 173	25 535
65	-	-	-	-	9 980	12 708	15 843	19 429	23 510

**Power input in W**

30	3 102	3 486	3 833	4 148	4 434	4 693	4 931	5 149	5 351
35	3 198	3 635	4 032	4 392	4 718	5 014	5 284	5 531	5 757
40	3 276	3 775	4 230	4 644	5 020	5 362	5 674	5 958	6 218
45	3 320	3 891	4 414	4 891	5 327	5 724	6 087	6 418	6 721
50	-	3 972	4 571	5 121	5 626	6 087	6 510	6 897	7 252
55	-	-	4 688	5 321	5 903	6 438	6 931	7 383	7 799
60	-	-	-	5 476	6 146	6 764	7 336	7 863	8 350
65	-	-	-	-	6 342	7 052	7 712	8 323	8 890

**Current consumption in A**

30	7.44	7.83	8.22	8.60	8.96	9.29	9.57	9.78	9.93
35	7.56	8.01	8.46	8.90	9.32	9.69	10.02	10.28	10.46
40	7.65	8.18	8.70	9.21	9.70	10.14	10.53	10.85	11.09
45	7.68	8.31	8.92	9.52	10.09	10.62	11.09	11.49	11.81
50	-	8.38	9.10	9.81	10.49	11.11	11.68	12.18	12.58
55	-	-	9.23	10.06	10.86	11.60	12.29	12.89	13.41
60	-	-	-	10.26	11.19	12.07	12.89	13.62	14.27
65	-	-	-	-	11.47	12.50	13.47	14.35	15.14

**Mass flow in kg/h**

30	118	161	210	267	332	406	489	583	688
35	112	154	204	260	325	398	481	574	678
40	105	147	196	252	316	389	471	562	665
45	97	139	188	243	307	378	459	549	650
50	-	131	179	234	296	366	446	535	634
55	-	-	169	223	284	353	431	518	616
60	-	-	-	212	272	339	416	501	596
65	-	-	-	-	258	324	399	482	575

**Coefficient of performance (C.O.P.)**

30	1.87	2.29	2.75	3.27	3.86	4.51	5.23	6.03	6.90
35	1.65	2.03	2.45	2.91	3.42	4.00	4.63	5.34	6.11
40	1.45	1.80	2.17	2.57	3.02	3.52	4.07	4.69	5.36
45	1.27	1.59	1.92	2.27	2.66	3.09	3.57	4.10	4.68
50	-	1.40	1.69	2.00	2.33	2.70	3.11	3.57	4.07
55	-	-	1.49	1.76	2.05	2.36	2.71	3.10	3.53
60	-	-	-	1.55	1.79	2.06	2.36	2.69	3.06
65	-	-	-	-	1.57	1.80	2.05	2.33	2.64

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

Cooling capacity	20 740	W
Power input	7 081	W
Current consumption	12.48	A
Mass flow	470	kg/h
C.O.P.	2.93	

**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	76	dB(A)
With acoustic hood	70	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

**Cooling capacity in W**

30	6 635	8 944	11 726	15 038	18 936	23 478	28 722	34 723	41 541
35	6 122	8 344	11 010	14 177	17 901	22 240	27 251	32 990	39 515
40	5 588	7 718	10 263	13 280	16 825	20 955	25 727	31 199	37 426
45	5 040	7 073	9 491	12 353	15 713	19 629	24 158	29 355	35 279
50	-	6 414	8 701	11 402	14 572	18 269	22 548	27 466	33 080
55	-	-	7 898	10 433	13 408	16 879	20 903	25 537	30 836
60	-	-	-	9 452	12 226	15 466	19 230	23 572	28 549
65	-	-	-	-	11 032	14 036	17 532	21 576	26 224

**Power input in W**

30	3 651	4 088	4 507	4 914	5 312	5 705	6 097	6 492	6 893
35	3 790	4 278	4 745	5 195	5 631	6 059	6 480	6 901	7 324
40	3 899	4 450	4 975	5 479	5 966	6 439	6 902	7 360	7 816
45	3 966	4 591	5 186	5 756	6 303	6 834	7 350	7 856	8 357
50	-	4 688	5 364	6 011	6 632	7 230	7 811	8 378	8 934
55	-	-	5 498	6 233	6 938	7 617	8 273	8 911	9 535
60	-	-	-	6 410	7 210	7 980	8 724	9 445	10 148
65	-	-	-	-	7 436	8 309	9 151	9 966	10 759

**Current consumption in A**

30	6.88	7.24	7.63	8.05	8.48	8.90	9.30	9.67	9.99
35	7.03	7.45	7.90	8.38	8.88	9.36	9.83	10.26	10.64
40	7.13	7.62	8.15	8.71	9.27	9.83	10.37	10.88	11.34
45	7.18	7.76	8.37	9.01	9.66	10.30	10.93	11.52	12.06
50	-	7.84	8.55	9.29	10.03	10.77	11.49	12.18	12.82
55	-	-	8.70	9.54	10.39	11.23	12.06	12.85	13.60
60	-	-	-	9.75	10.72	11.68	12.62	13.54	14.40
65	-	-	-	-	11.02	12.11	13.18	14.22	15.21

**Mass flow in kg/h**

30	144	192	249	315	391	479	580	694	822
35	139	186	243	308	384	471	571	684	811
40	132	180	236	301	376	462	560	672	798
45	125	172	227	292	366	451	548	659	783
50	-	164	218	282	355	439	535	644	766
55	-	-	208	271	343	426	520	627	747
60	-	-	-	259	330	411	504	609	727
65	-	-	-	-	315	395	486	589	705

**Coefficient of performance (C.O.P.)**

30	1.82	2.19	2.60	3.06	3.56	4.12	4.71	5.35	6.03
35	1.62	1.95	2.32	2.73	3.18	3.67	4.21	4.78	5.40
40	1.43	1.73	2.06	2.42	2.82	3.25	3.73	4.24	4.79
45	1.27	1.54	1.83	2.15	2.49	2.87	3.29	3.74	4.22
50	-	1.37	1.62	1.90	2.20	2.53	2.89	3.28	3.70
55	-	-	1.44	1.67	1.93	2.22	2.53	2.87	3.23
60	-	-	-	1.47	1.70	1.94	2.20	2.50	2.81
65	-	-	-	-	1.48	1.69	1.92	2.16	2.44

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

Cooling capacity	22 548	W
Power input	7 811	W
Current consumption	11.49	A
Mass flow	535	kg/h
C.O.P.	2.89	

**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	79	dB(A)
With acoustic hood	73	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

**Cooling capacity in W**

30	7 047	9 492	12 434	15 934	20 049	24 841	30 368	36 690	43 866
35	6 525	8 886	11 715	15 072	19 016	23 607	28 904	34 967	41 855
40	5 980	8 252	10 962	14 172	17 939	22 324	27 386	33 184	39 778
45	5 419	7 596	10 183	13 239	16 824	20 998	25 819	31 348	37 643
50	-	6 924	9 382	12 280	15 678	19 635	24 211	29 464	35 456
55	-	-	8 567	11 301	14 507	18 242	22 567	27 540	33 222
60	-	-	-	10 310	13 317	16 825	20 893	25 582	30 949
65	-	-	-	-	12 115	15 391	19 198	23 595	28 643

**Power input in W**

30	3 651	4 088	4 507	4 914	5 312	5 705	6 097	6 492	6 893
35	3 790	4 278	4 745	5 195	5 631	6 059	6 480	6 901	7 324
40	3 899	4 450	4 975	5 479	5 966	6 439	6 902	7 360	7 816
45	3 966	4 591	5 186	5 756	6 303	6 834	7 350	7 856	8 357
50	-	4 688	5 364	6 011	6 632	7 230	7 811	8 378	8 934
55	-	-	5 498	6 233	6 938	7 617	8 273	8 911	9 535
60	-	-	-	6 410	7 210	7 980	8 724	9 445	10 148
65	-	-	-	-	7 436	8 309	9 151	9 966	10 759

**Current consumption in A**

30	6.88	7.24	7.63	8.05	8.48	8.90	9.30	9.67	9.99
35	7.03	7.45	7.90	8.38	8.88	9.36	9.83	10.26	10.64
40	7.13	7.62	8.15	8.71	9.27	9.83	10.37	10.88	11.34
45	7.18	7.76	8.37	9.01	9.66	10.30	10.93	11.52	12.06
50	-	7.84	8.55	9.29	10.03	10.77	11.49	12.18	12.82
55	-	-	8.70	9.54	10.39	11.23	12.06	12.85	13.60
60	-	-	-	9.75	10.72	11.68	12.62	13.54	14.40
65	-	-	-	-	11.02	12.11	13.18	14.22	15.21

**Mass flow in kg/h**

30	144	191	248	313	389	477	577	690	818
35	138	185	241	307	382	469	568	680	806
40	131	179	234	299	374	460	557	668	793
45	124	171	226	290	364	449	545	655	778
50	-	163	217	280	353	437	532	640	761
55	-	-	207	270	341	424	517	623	743
60	-	-	-	258	328	409	501	605	723
65	-	-	-	-	314	393	483	586	701

**Coefficient of performance (C.O.P.)**

30	1.93	2.32	2.76	3.24	3.77	4.35	4.98	5.65	6.36
35	1.72	2.08	2.47	2.90	3.38	3.90	4.46	5.07	5.71
40	1.53	1.85	2.20	2.59	3.01	3.47	3.97	4.51	5.09
45	1.37	1.65	1.96	2.30	2.67	3.07	3.51	3.99	4.50
50	-	1.48	1.75	2.04	2.36	2.72	3.10	3.52	3.97
55	-	-	1.56	1.81	2.09	2.39	2.73	3.09	3.48
60	-	-	-	1.61	1.85	2.11	2.39	2.71	3.05
65	-	-	-	-	1.63	1.85	2.10	2.37	2.66

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

Cooling capacity	24 885	W
Power input	8 497	W
Current consumption	12.34	A
Mass flow	564	kg/h
C.O.P.	2.93	

**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	79	dB(A)
With acoustic hood	73	dB(A)

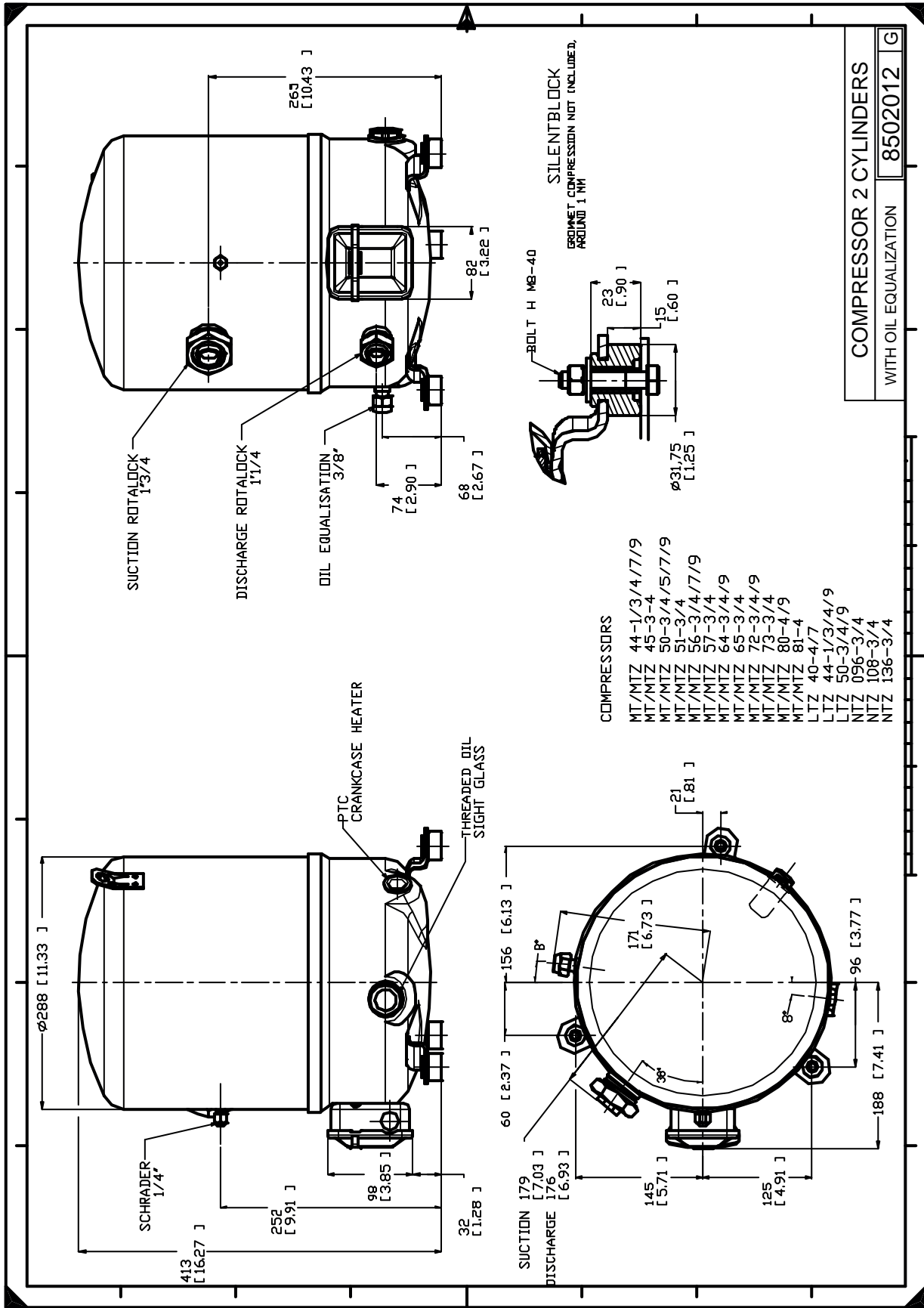
to: Evaporating temperature at dew point

tc: Condensing temperature at dew point

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

Tolerance according EN12900

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