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**GACO SARL**

28, Rue Bencharif Madani

25000 BELLEVUE/CONSTANTINE - ALGERIE

Tel. : 031 92 54 56 / 031 93 22 23 - Fax : 031 92 13 45

Email : gacosarl@gmail.com / benkobbi\_fares@yahoo.fr

**Type: Hermetic piston compressors****Producer: Copeland****Series: ZR****Model: ZR19M3E-TWD****Technical data**

Nominal motor power [HP]:	15
Displacement [m <sup>3</sup> /h]:	42,8
Sound pressure level :	69
Gross/Net weight [kg]:	130/119
Oil charge [dm <sup>3</sup> ]:	4,1

**Electrical data**

Power supply [V/~/Hz]:	1 5/8"
Locked rotor current [A]:	1 1/8"
Max. operating current [A]:	1 3/4"
Winding resistance [ $\Omega$ ]:	321/349

**Connections**

	<u>milimeters</u>	<u>inches</u>
Suction Rotolock valve connection:		2 1/4"
Discharge Rotolock valve connection:		1 3/4"
Suction connection with supplied sleeve:		1 5/8"
Discharge connection with supplied sleeve:		1 1/8"

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R22

**Cooling capacity [kW]**

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10	15
<b>20</b>	22.91	27.23	32.42	38.61	45.92	54.46	-	-
<b>25</b>	21.09	25.47	30.65	36.74	43.87	52.15	61.70	-
<b>30</b>	19.43	23.87	29.03	35.01	41.95	49.96	59.16	69.67
<b>35</b>	17.90	22.38	27.50	33.37	40.12	47.85	56.69	66.76
<b>40</b>	16.43	20.96	26.03	31.78	38.32	45.76	54.23	63.84
<b>45</b>	-	19.54	24.57	30.18	36.50	43.65	51.74	60.89
<b>50</b>	-	-	23.05	28.52	34.62	41.46	49.16	57.85
<b>55</b>	-	-	-	26.76	32.63	39.15	46.46	54.66
<b>60</b>	-	-	-	-	30.47	36.67	43.57	51.29
<b>65</b>	-	-	-	-	28.10	33.97	40.46	47.68

**Power input [kW]**

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10	15
<b>20</b>	6.37	6.36	6.35	6.38	6.46	6.63	-	-
<b>25</b>	7.15	7.16	7.16	7.17	7.22	7.32	7.52	-
<b>30</b>	7.97	8.01	8.02	8.02	8.04	8.11	8.24	8.47
<b>35</b>	8.83	8.91	8.95	8.95	8.96	9.00	9.08	9.24
<b>40</b>	9.74	9.88	9.95	9.97	9.98	9.99	10.04	10.14
<b>45</b>	-	10.92	11.04	11.09	11.10	11.11	11.12	11.18
<b>50</b>	-	-	12.22	12.31	12.35	12.35	12.35	12.37
<b>55</b>	-	-	-	13.66	13.72	13.74	13.74	13.73
<b>60</b>	-	-	-	-	15.24	15.28	15.28	15.27
<b>65</b>	-	-	-	-	16.90	16.98	17.00	16.98

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**Current [A]**

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10	15
<b>20</b>	15.29	15.27	15.26	15.29	15.39	15.59	-	-
<b>25</b>	16.02	16.02	16.02	16.03	16.09	16.23	16.46	-
<b>30</b>	16.84	16.88	16.89	16.90	16.94	17.02	17.18	17.45
<b>35</b>	17.77	17.86	17.90	17.92	17.94	17.99	18.09	18.28
<b>40</b>	18.81	18.97	19.05	19.09	19.11	19.14	19.20	19.33
<b>45</b>	-	20.23	20.37	20.44	20.48	20.49	20.52	20.59
<b>50</b>	-	-	21.86	21.98	22.04	22.06	22.07	22.10
<b>55</b>	-	-	-	23.73	23.82	23.86	23.87	23.87
<b>60</b>	-	-	-	-	25.84	25.90	25.91	25.90
<b>65</b>	-	-	-	-	28.10	28.20	28.24	28.22

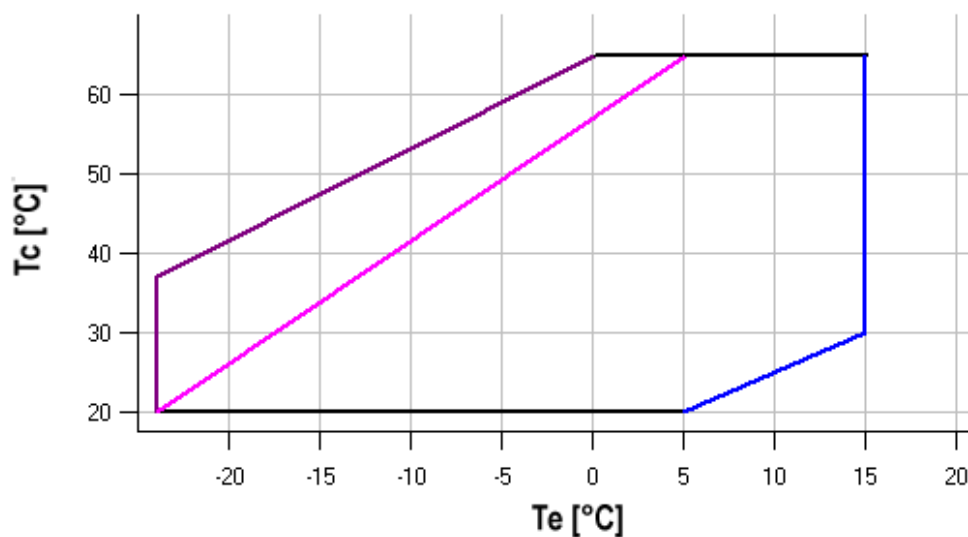
**Mass flow [kg/s]**

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10	15
<b>20</b>	458.46	538.29	633.03	744.81	875.77	1 028.04	-	-
<b>25</b>	435.94	520.36	618.53	732.59	864.68	1 016.94	1 191.50	-
<b>30</b>	416.62	505.59	607.15	723.46	856.64	1 008.84	1 182.19	1 378.84
<b>35</b>	399.37	492.85	597.77	716.28	850.52	1 002.61	1 174.71	1 368.95
<b>40</b>	383.05	481.00	589.24	709.92	845.16	997.12	1 167.93	1 359.73
<b>45</b>	-	468.91	580.43	703.23	839.46	991.24	1 160.71	1 350.03
<b>50</b>	-	-	570.21	695.10	832.25	983.81	1 151.92	1 338.71
<b>55</b>	-	-	-	684.37	822.42	973.73	1 140.42	1 324.65
<b>60</b>	-	-	-	-	808.83	959.83	1 125.08	1 306.71
<b>65</b>	-	-	-	-	790.34	941.01	1 104.76	1 283.75

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

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10	15
<b>20</b>	3.60	4.28	5.10	6.05	7.10	8.22	-	-
<b>25</b>	2.95	3.56	4.28	5.13	6.08	7.12	8.21	-
<b>30</b>	2.44	2.98	3.62	4.36	5.21	6.16	7.18	8.23
<b>35</b>	2.03	2.51	3.07	3.73	4.48	5.32	6.24	7.23
<b>40</b>	1.69	2.12	2.62	3.19	3.84	4.58	5.40	6.30
<b>45</b>	-	1.79	2.23	2.72	3.29	3.93	4.65	5.45
<b>50</b>	-	-	1.89	2.32	2.80	3.36	3.98	4.68
<b>55</b>	-	-	-	1.96	2.38	2.85	3.38	3.98
<b>60</b>	-	-	-	-	2.00	2.40	2.85	3.36
<b>65</b>	-	-	-	-	1.66	2.00	2.38	2.81

**Application range**



- Maximum evaporating temperature
- 25°C suction gas temperature
- 10K gas overheat

Operating conditions: 10K suction superheat, 0K subcooling

$t_c$  - Condensing temperature [°C]

$t_e$  - Evaporating temperature [°C]

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R134a

**Cooling capacity [kW]**

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
<b>30</b>	13.71	17.34	21.78	27.04	33.14	40.08	47.90
<b>35</b>	12.98	16.46	20.71	25.74	31.57	38.22	45.71
<b>40</b>	12.24	15.57	19.63	24.44	30.02	36.37	43.53
<b>45</b>	11.45	14.64	18.53	23.12	28.44	34.51	41.34
<b>50</b>	-	13.66	17.37	21.75	26.83	32.61	39.12
<b>55</b>	-	-	16.13	20.30	25.14	30.65	36.85
<b>60</b>	-	-	14.78	18.76	23.36	28.60	34.49
<b>65</b>	-	-	-	17.10	21.47	26.44	32.03
<b>70</b>	-	-	-	-	19.43	24.14	29.43

**Power input [kW]**

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
<b>30</b>	5.57	5.62	5.65	5.65	5.62	5.55	5.46
<b>35</b>	6.15	6.21	6.25	6.27	6.25	6.20	6.13
<b>40</b>	6.79	6.87	6.92	6.95	6.95	6.92	6.87
<b>45</b>	7.51	7.60	7.67	7.71	7.72	7.71	7.68
<b>50</b>	-	8.40	8.48	8.54	8.57	8.58	8.57
<b>55</b>	-	-	9.38	9.45	9.50	9.53	9.54
<b>60</b>	-	-	10.36	10.45	10.52	10.57	10.60
<b>65</b>	-	-	-	11.53	11.62	11.69	11.75
<b>70</b>	-	-	-	-	12.82	12.91	12.99

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**Current [A]**

<b>t<sub>c</sub> \ t<sub>e</sub></b>	<b>-15</b>	<b>-10</b>	<b>-5</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>15</b>
<b>30</b>	14.54	14.59	14.61	14.61	14.58	14.53	14.47
<b>35</b>	15.03	15.10	15.14	15.15	15.14	15.11	15.06
<b>40</b>	15.62	15.71	15.77	15.80	15.80	15.79	15.75
<b>45</b>	16.32	16.43	16.51	16.56	16.59	16.59	16.57
<b>50</b>	-	17.28	17.38	17.46	17.50	17.52	17.52
<b>55</b>	-	-	18.39	18.49	18.56	18.60	18.61
<b>60</b>	-	-	19.55	19.67	19.76	19.82	19.86
<b>65</b>	-	-	-	21.01	21.12	21.20	21.26
<b>70</b>	-	-	-	-	22.65	22.76	22.84

**Mass flow [kg/s]**

<b>t<sub>c</sub> \ t<sub>e</sub></b>	<b>-15</b>	<b>-10</b>	<b>-5</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>15</b>
<b>30</b>	316.97	393.05	483.87	589.09	708.38	841.41	987.85
<b>35</b>	315.48	391.54	482.15	586.98	705.71	837.99	983.50
<b>40</b>	313.34	389.71	480.45	585.22	703.71	835.57	980.48
<b>45</b>	309.83	386.83	478.02	583.07	701.65	833.42	978.06
<b>50</b>	-	382.15	474.12	579.78	698.78	830.79	975.49
<b>55</b>	-	-	468.02	574.61	694.36	826.94	972.03
<b>60</b>	-	-	458.97	566.82	687.65	821.13	966.94
<b>65</b>	-	-	-	555.66	677.90	812.61	959.47
<b>70</b>	-	-	-	-	664.38	800.65	948.88

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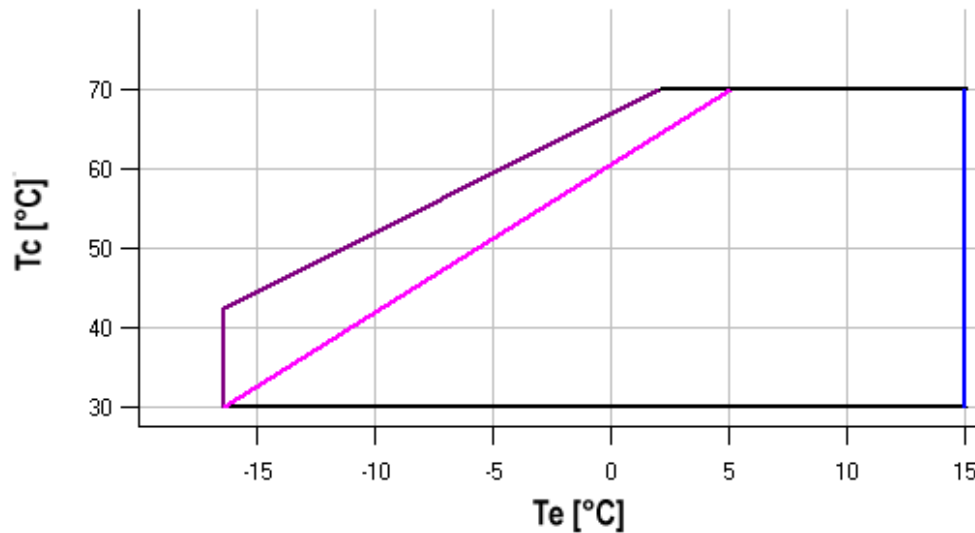
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**C.O.P. [W/W]**

$t_c \setminus t_e$	-15	-10	-5	0	5	10	15
30	2.46	3.08	3.85	4.79	5.90	7.22	8.78
35	2.11	2.65	3.31	4.11	5.05	6.16	7.46
40	1.80	2.27	2.84	3.52	4.32	5.25	6.34
45	1.53	1.93	2.42	3.00	3.68	4.47	5.38
50	-	1.63	2.05	2.55	3.13	3.80	4.57
55	-	-	1.72	2.15	2.65	3.22	3.86
60	-	-	1.43	1.80	2.22	2.71	3.25
65	-	-	-	1.48	1.85	2.26	2.73
70	-	-	-	-	1.52	1.87	2.27

**Application range**

- Maximum evaporating temperature
- 25°C suction gas temperature
- 10K gas overheat

Operating conditions: 10K suction superheat, 0K subcooling

 $t_c$  - Condensing temperature [°C] $t_e$  - Evaporating temperature [°C]

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**R407C****Cooling capacity [kW]**

<b>t<sub>c</sub> \ t<sub>e</sub></b>	<b>-20</b>	<b>-15</b>	<b>-10</b>	<b>-5</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>15</b>
<b>10</b>	21.70	26.86	32.99	40.22	-	-	-	-
<b>15</b>	20.69	25.70	31.65	38.64	46.81	-	-	-
<b>20</b>	19.66	24.52	30.27	37.03	44.91	54.03	-	-
<b>25</b>	18.62	23.31	28.85	35.37	42.96	51.75	61.86	-
<b>30</b>	17.55	22.07	27.40	33.66	40.96	49.41	59.14	70.26
<b>35</b>	16.47	20.81	25.91	31.90	38.90	47.00	56.34	67.03
<b>40</b>	15.36	19.51	24.38	30.10	36.78	44.53	53.47	63.72
<b>45</b>	-	18.17	22.81	28.25	34.60	41.99	50.52	60.32
<b>50</b>	-	-	21.19	26.34	32.36	39.37	47.49	56.83
<b>55</b>	-	-	-	24.37	30.05	36.68	44.38	53.26
<b>60</b>	-	-	-	-	27.68	33.92	41.19	49.59
<b>65</b>	-	-	-	-	-	31.08	37.91	45.83

**Power input [kW]**

<b>t<sub>c</sub> \ t<sub>e</sub></b>	<b>-20</b>	<b>-15</b>	<b>-10</b>	<b>-5</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>15</b>
<b>10</b>	5.13	5.24	5.58	6.26	-	-	-	-
<b>15</b>	5.68	5.68	5.84	6.27	7.06	-	-	-
<b>20</b>	6.33	6.28	6.31	6.53	7.05	7.96	-	-
<b>25</b>	7.06	7.00	6.96	7.03	7.32	7.94	8.98	-
<b>30</b>	7.85	7.84	7.77	7.74	7.86	8.24	8.96	10.15
<b>35</b>	8.68	8.77	8.72	8.65	8.66	8.84	9.31	10.15
<b>40</b>	9.52	9.77	9.81	9.74	9.68	9.73	9.98	10.55
<b>45</b>	-	10.82	10.99	10.99	10.92	10.88	10.98	11.31
<b>50</b>	-	-	12.27	12.38	12.35	12.28	12.27	12.43
<b>55</b>	-	-	-	13.89	13.95	13.90	13.84	13.87
<b>60</b>	-	-	-	-	15.71	15.73	15.67	15.63
<b>65</b>	-	-	-	-	-	17.75	17.74	17.68

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**Current [A]**

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10	15
<b>10</b>	13.09	13.03	12.91	12.71	-	-	-	-
<b>15</b>	13.84	13.82	13.75	13.62	13.41	-	-	-
<b>20</b>	14.58	14.59	14.57	14.50	14.35	14.11	-	-
<b>25</b>	15.35	15.39	15.41	15.38	15.29	15.12	14.84	-
<b>30</b>	16.20	16.26	16.31	16.32	16.28	16.16	15.95	15.63
<b>35</b>	17.18	17.25	17.32	17.36	17.36	17.30	17.15	16.89
<b>40</b>	18.34	18.42	18.50	18.56	18.59	18.57	18.47	18.28
<b>45</b>	-	19.80	19.88	19.96	20.01	20.02	19.97	19.83
<b>50</b>	-	-	21.52	21.60	21.67	21.71	21.69	21.59
<b>55</b>	-	-	-	23.54	23.62	23.67	23.68	23.62
<b>60</b>	-	-	-	-	25.90	25.96	25.98	25.95
<b>65</b>	-	-	-	-	-	28.62	28.66	28.64

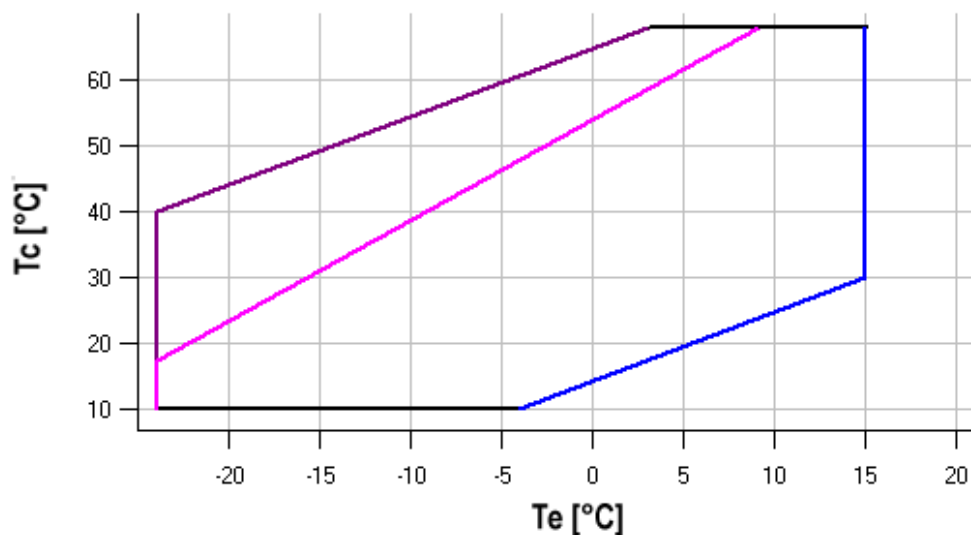
**Mass flow [kg/s]**

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10	15
<b>10</b>	385.13	472.96	574.23	690.85	-	-	-	-
<b>15</b>	383.00	470.67	571.80	688.30	822.10	-	-	-
<b>20</b>	379.84	467.40	568.43	684.85	818.58	971.53	-	-
<b>25</b>	375.68	463.16	564.13	680.52	814.22	967.17	1 141.28	-
<b>30</b>	370.55	457.99	558.95	675.33	809.05	962.04	1 136.20	1 333.45
<b>35</b>	364.46	451.91	552.89	669.31	803.10	956.16	1 130.41	1 327.77
<b>40</b>	357.45	444.94	545.99	662.49	796.38	949.55	1 123.94	1 321.45
<b>45</b>	-	437.12	538.27	654.90	788.92	942.25	1 116.82	1 314.52
<b>50</b>	-	-	529.76	646.55	780.75	934.28	1 109.06	1 307.00
<b>55</b>	-	-	-	637.47	771.90	925.67	1 100.70	1 298.92
<b>60</b>	-	-	-	-	762.38	916.43	1 091.76	1 290.29
<b>65</b>	-	-	-	-	-	906.60	1 082.27	1 281.15

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

$t_c \setminus t_e$	-20	-15	-10	-5	0	5	10	15
<b>10</b>	4.23	5.13	5.91	6.42	-	-	-	-
<b>15</b>	3.64	4.52	5.42	6.16	6.63	-	-	-
<b>20</b>	3.11	3.91	4.80	5.67	6.37	6.79	-	-
<b>25</b>	2.64	3.33	4.15	5.03	5.87	6.52	6.89	-
<b>30</b>	2.24	2.82	3.53	4.35	5.21	6.00	6.60	6.92
<b>35</b>	1.90	2.37	2.97	3.69	4.49	5.32	6.05	6.60
<b>40</b>	1.61	2.00	2.49	3.09	3.80	4.58	5.36	6.04
<b>45</b>	-	1.68	2.07	2.57	3.17	3.86	4.60	5.33
<b>50</b>	-	-	1.73	2.13	2.62	3.21	3.87	4.57
<b>55</b>	-	-	-	1.75	2.15	2.64	3.21	3.84
<b>60</b>	-	-	-	-	1.76	2.16	2.63	3.17
<b>65</b>	-	-	-	-	-	1.75	2.14	2.59

### Application range



- Maximum evaporating temperature
- 25°C suction gas temperature
- 10K gas overheat

Operating conditions: 10K suction superheat, 0K subcooling

$t_c$  - Condensing temperature [°C]

$t_e$  - Evaporating temperature [°C]

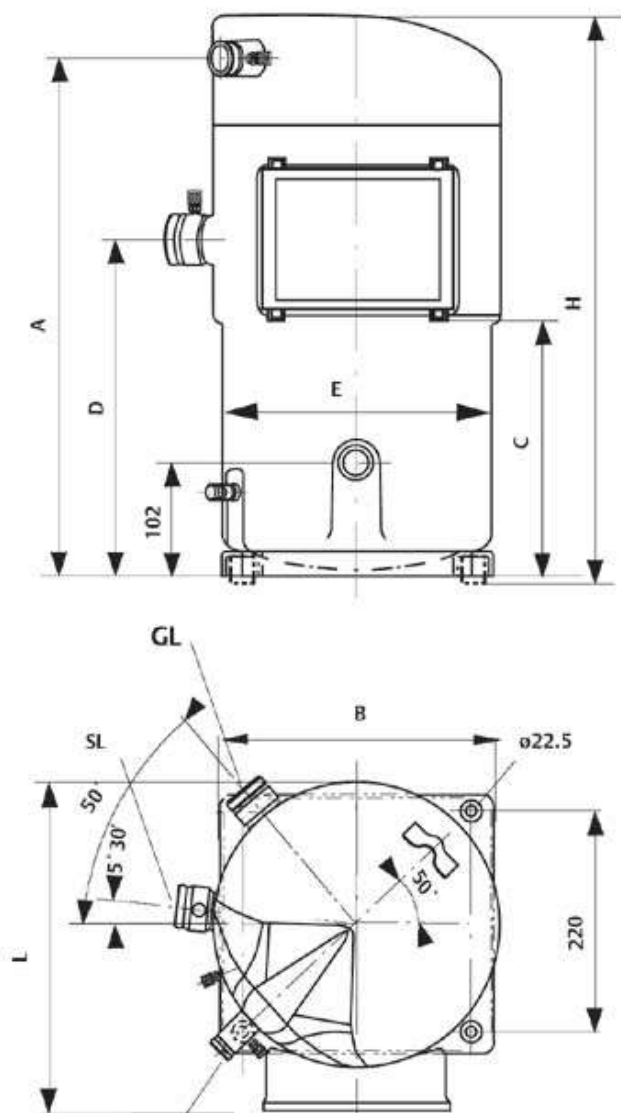
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A	546
B	268
C	224 mm
D	318 mm
E	283 mm
H	591 mm
L	360 mm

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