

# VTCX415U-MD5C

## VARIABLE SPEED COMPRESSOR

### 250V / 83-150Hz / R-290



#### GENERAL DATA

Compressor Model	VTCX415U-MD5C
Compressor Drawing - Universal Mounting Brackets	DCVTC052
Dual Voltage Inverter	030F0207
115-127V Inverter (TAL™) <sup>1</sup>	030F0216
220-240V Inverter (TAL™) <sup>1</sup>	030F0217
85-260V Inverter with Power Factor Corrector (PFC) (TAL™) <sup>1</sup>	030F0218
Inverter Drawing <sup>2</sup>	DGMX0086, DGMX0093
Wiring Diagram <sup>3</sup>	DEMXX0056, DEMXX0061

<sup>1</sup> Usage with 030F0216, 030F0217, 030F0218 approved under UL 60335-2-34 with Annex AA.  
<sup>2</sup> For 030F0207 inverter model see Drawing DGMX0086. For 030F0216, 030F0217 and 030F0218 models see DGMX0093.  
<sup>3</sup> For 030F0207 inverter model see Wiring Diagram DEMXX0056. For 030F0216, 030F0217 and 030F0218 models see DEMXX0061.

#### APPLICATION DATA

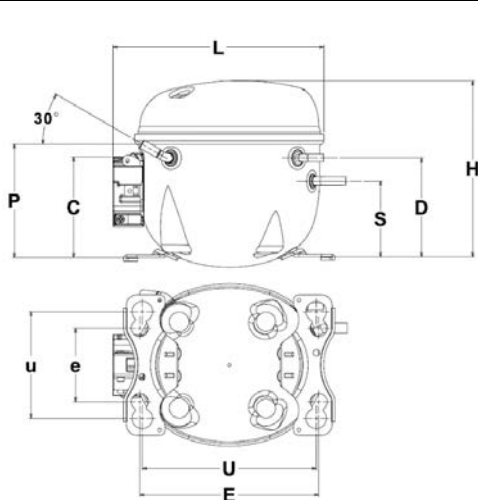
Application (Commercial Reference)	L/MBP (1/4 – 1/2 hp)
Speed Range	2500 – 4500 rpm
Cooling Capacity Range <sup>4</sup>	1093 – 1826 BTU/h
Maximum Efficiency <sup>4</sup>	6.07 BTU/Wh
Refrigerant	R-290
Evaporating Temperature Range	-35°C to -5°C (-31°F to +23°F)
Speed Range	2500 – 4500 rpm
Starting Torque	High Starting Torque (HST)
Cooling System	Fan Cooling (3 m/s)
Expansion Device	Expansion Valve / Capillary Tube

<sup>4</sup> Data for ASHRAE32 condition.

#### DESIGN INFORMATION

Displacement	7.84 cm <sup>3</sup> (0.48 in <sup>3</sup> )
Oil Type / Quantity	POE 10 cSt / 170 ml
Compressor Weight	7.45 kg
Motor Technology	PMSM

#### COMPRESSOR DIMENSIONS<sup>5</sup>



Dimension	mm	in
L	200	7.88
H	167	6.59
C	95.6	3.76
P	108	4.25
D	94	3.70
S	72	2.84
E	170	6.69
e	70	2.76
U	165	6.50
u	101.6	4.00

**Process tube**  
 I.D.: 6.50±0.50mm – Depth: 16.0±1.0mm – Copper

**Discharge tube**  
 I.D.: 4.97±0.50mm – Depth: 16.0±1.0mm – Copper

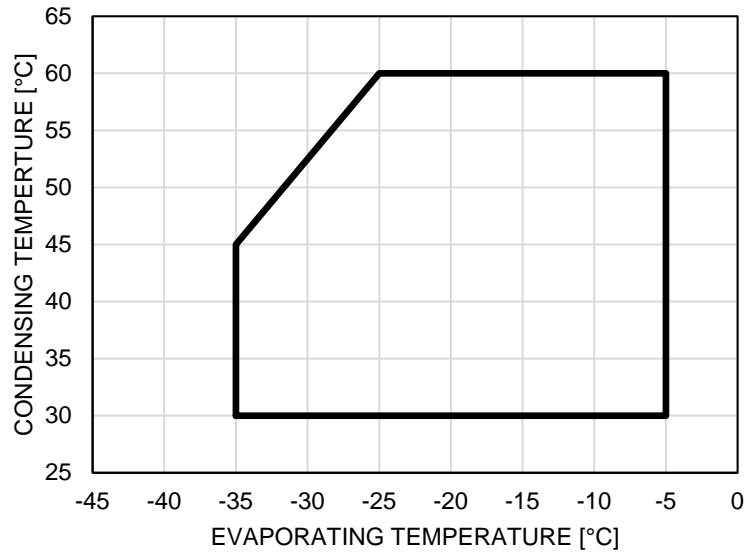
**Suction tube**  
 I.D.: 6.50±0.50mm – Depth: 16.0±1.0mm – Copper

<sup>5</sup> Drawing only for reference. Other options may be available. Universal mounting brackets.



**THE VARIABLE SPEED COMPRESSOR CAN NOT BE CONNECTED DIRECTLY TO THE MAINS.  
 THE COMPRESSOR MUST BE USED WITH THE APPROPRIATE TECUMSEH VARIABLE SPEED INVERTER.**

## COMPRESSOR OPERATING ENVELOPE



## COMPRESSOR PERFORMANCE

### ASHRAE32 <sup>(1)(2)</sup> - 220V / 60Hz (030F0207 / 030F0217 CONTROLLER)

RPM	COND. TEMP.		EVAP. TEMP.		COOLING CAPACITY		POWER	CURRENT	EFFICIENCY	
	°C	(°F)	°C	(°F)	BTU/h	(W)	W	A	EER	(COP)
2500	54.4	(130)	-23.3	(-10)	1093	(320)	187.5	1.64	5.83	(1.71)
3000	54.4	(130)	-23.3	(-10)	1343	(393)	221.2	1.91	6.07	(1.78)
3600	54.4	(130)	-23.3	(-10)	1495	(438)	248.3	2.12	6.02	(1.76)
4000	54.4	(130)	-23.3	(-10)	1597	(467)	267.9	2.27	5.96	(1.75)
4500	54.4	(130)	-23.3	(-10)	1826	(535)	305.1	2.58	5.98	(1.75)
2500	54.4	(130)	-6.7	(20)	2210	(647)	263.4	2.23	8.39	(2.46)
3000	54.4	(130)	-6.7	(20)	2689	(787)	312.1	2.58	8.61	(2.52)
3600	54.4	(130)	-6.7	(20)	3126	(915)	360.5	2.91	8.67	(2.54)
4000	54.4	(130)	-6.7	(20)	3424	(1003)	396.4	3.16	8.64	(2.53)
4500	54.4	(130)	-6.7	(20)	3908	(1144)	456.3	3.59	8.56	(2.51)

(1) Test condition with Ambient: 32.2°C (90°F); Return Gas: 32.2°C (90°F); Liquid: 32.2°C (90°F).  
 (2) Tolerance for cooling capacity, input current and input power are ±5%. Tolerance for efficiency is ±7%.

### EN12900 <sup>(1)(2)</sup> - 220V / 50Hz (030F0207 / 030F0217 CONTROLLER)

RPM	COND. TEMP.		EVAP. TEMP.		COOLING CAPACITY		POWER	CURRENT	EFFICIENCY	
	°C	(°F)	°C	(°F)	BTU/h	(W)	W	A	EER	(COP)
2500	40	(104)	-35	(-31)	587	(172)	121.6	1.13	4.82	(1.41)
3000	40	(104)	-35	(-31)	752	(220)	151.0	1.35	4.98	(1.46)
3600	40	(104)	-35	(-31)	844	(247)	170.6	1.52	4.95	(1.45)
4000	40	(104)	-35	(-31)	889	(260)	182.4	1.62	4.87	(1.43)
4500	40	(104)	-35	(-31)	982	(287)	205.2	1.78	4.78	(1.40)
2500	45	(113)	-10	(14)	1710	(501)	222.4	1.97	7.69	(2.25)
3000	45	(113)	-10	(14)	2093	(613)	266.4	2.25	7.86	(2.30)
3600	45	(113)	-10	(14)	2472	(724)	313.0	2.59	7.90	(2.31)
4000	45	(113)	-10	(14)	2724	(798)	348.6	2.87	7.81	(2.29)
4500	45	(113)	-10	(14)	3093	(906)	407.4	3.30	7.59	(2.22)

(1) Test condition with Ambient: 32°C (90°F); Return Gas: 20°C (68°F); Subcooling: 0 K.  
 (2) Tolerance for cooling capacity, input current and input power are ±5%. Tolerance for efficiency is ±7%.

## COMPRESSOR PERFORMANCE

### ASHRAE32 <sup>(1)(2)</sup> - 220V / 60Hz (030F0218 CONTROLLER)

RPM	COND. TEMP.		EVAP. TEMP.		COOLING CAPACITY		POWER	CURRENT	EFFICIENCY	
	°C	(°F)	°C	(°F)	BTU/h	(W)	W	A	EER	(COP)
2500	54.4	(130)	-23.3	(-10)	1093	(320)	193.7	0.89	5.64	(1.65)
3000	54.4	(130)	-23.3	(-10)	1343	(393)	228.4	1.04	5.88	(1.72)
3600	54.4	(130)	-23.3	(-10)	1495	(438)	256.2	1.17	5.83	(1.71)
4000	54.4	(130)	-23.3	(-10)	1597	(467)	276.6	1.27	5.77	(1.69)
4500	54.4	(130)	-23.3	(-10)	1826	(535)	315.5	1.46	5.79	(1.69)
2500	54.4	(130)	-6.7	(20)	2210	(647)	272.1	1.24	8.12	(2.38)
3000	54.4	(130)	-6.7	(20)	2689	(787)	322.7	1.46	8.33	(2.44)
3600	54.4	(130)	-6.7	(20)	3126	(915)	373.6	1.69	8.37	(2.45)
4000	54.4	(130)	-6.7	(20)	3424	(1003)	411.7	1.86	8.32	(2.44)
4500	54.4	(130)	-6.7	(20)	3908	(1144)	475.4	2.16	8.22	(2.41)

(1) Test condition with Ambient: 32.2°C (90°F); Return Gas: 32.2°C (90°F); Liquid: 32.2°C (90°F).

(2) Tolerance for cooling capacity, input current and input power are ±5%. Tolerance for efficiency is ±7%.

### EN12900 <sup>(1)(2)</sup> - 220V / 50Hz (030F0218 CONTROLLER)

RPM	COND. TEMP.		EVAP. TEMP.		COOLING CAPACITY		POWER	CURRENT	EFFICIENCY	
	°C	(°F)	°C	(°F)	BTU/h	(W)	W	A	EER	(COP)
2500	40	(104)	-35	(-31)	587	(172)	126.1	0.59	4.66	(1.36)
3000	40	(104)	-35	(-31)	752	(220)	156.3	0.72	4.81	(1.41)
3600	40	(104)	-35	(-31)	844	(247)	176.2	0.81	4.79	(1.40)
4000	40	(104)	-35	(-31)	889	(260)	188.3	0.87	4.72	(1.38)
4500	40	(104)	-35	(-31)	982	(287)	211.7	0.96	4.64	(1.36)
<b>2500</b>	45	(113)	-10	(14)	1710	(501)	229.5	1.07	7.45	(2.18)
<b>3000</b>	45	(113)	-10	(14)	2093	(613)	275.1	1.25	7.61	(2.23)
<b>3600</b>	45	(113)	-10	(14)	2472	(724)	323.8	1.48	7.63	(2.24)
<b>4000</b>	45	(113)	-10	(14)	2724	(798)	361.3	1.66	7.54	(2.21)
<b>4500</b>	45	(113)	-10	(14)	3093	(906)	423.5	1.96	7.30	(2.14)

(1) Test condition with Ambient: 32°C (90°F); Return Gas: 20°C (68°F); Subcooling: 0 K.

(2) Tolerance for cooling capacity, input current and input power are ±5%. Tolerance for efficiency is ±7%.

### APPLICATION CONDITION 1 <sup>(1)(2)</sup> - 220V / 60Hz (030F0218 CONTROLLER)

RPM	COND. TEMP.		EVAP. TEMP.		COOLING CAPACITY		POWER	CURRENT	EFFICIENCY	
	°C	(°F)	°C	(°F)	BTU/h	(W)	W	A	EER	(COP)
<b>2500</b>	35	(95)	-25	(-13)	1151	(337)	162.8	0.76	7.07	(2.07)
<b>3000</b>	35	(95)	-25	(-13)	1424	(417)	197.2	0.91	7.22	(2.11)
<b>3600</b>	35	(95)	-25	(-13)	1593	(466)	222.8	1.01	7.15	(2.09)
<b>4000</b>	35	(95)	-25	(-13)	1699	(498)	240.5	1.08	7.07	(2.07)
<b>4500</b>	35	(95)	-25	(-13)	1928	(564)	274.7	1.22	7.02	(2.05)

(1) Test condition with Return Gas: 32.2°C (90°F); Liquid: 32.2°C (90°F).

(2) Tolerance for cooling capacity, input current and input power are ±5%. Tolerance for efficiency is ±7%.

### APPLICATION CONDITION 2 <sup>(1)(2)</sup> - 220V / 50Hz (030F0218 CONTROLLER)

RPM	COND. TEMP.		EVAP. TEMP.		COOLING CAPACITY		POWER	CURRENT	EFFICIENCY	
	°C	(°F)	°C	(°F)	BTU/h	(W)	W	A	EER	(COP)
<b>2500</b>	45	(113)	-10	(14)	1747	(511)	218.7	1.02	7.99	(2.34)
<b>3000</b>	45	(113)	-10	(14)	2138	(626)	262.1	1.19	8.16	(2.39)
<b>3600</b>	45	(113)	-10	(14)	2524	(739)	308.5	1.41	8.18	(2.40)
<b>4000</b>	45	(113)	-10	(14)	2782	(815)	344.3	1.58	8.08	(2.37)
<b>4500</b>	45	(113)	-10	(14)	3159	(925)	403.6	1.87	7.83	(2.29)

(1) Test condition with Return Gas: 32°C (90°F); Subcooling: 0 K.

(2) Tolerance for cooling capacity, input current and input power are ±5%. Tolerance for efficiency is ±7%.

**ASHRAE32 PERFORMANCE CURVE COEFFICIENTS – 030F0207 / 030F0216 / 030F0217**

COEFFICIENT	COOLING CAPACITY	POWER	CURRENT	MASS FLOW
C <sub>n</sub>	BTU/h	W	A	lb/h
C <sub>1</sub>	-1.890941464394E+03	6.702432104349E+02	7.773063499597E+00	-1.214960159198E+01
C <sub>2</sub>	6.186031821780E+00	4.647371814190E-01	3.778856494577E-03	4.083531674775E-02
C <sub>3</sub>	-1.526249708528E-03	-1.488188168336E-04	-1.216047667274E-06	-1.002124010352E-05
C <sub>4</sub>	1.506352805997E-07	1.621711212886E-08	1.374461494113E-10	9.884731678575E-10
C <sub>5</sub>	9.485975817405E+01	1.206439661607E+01	7.998159076669E-02	6.209804183891E-01
C <sub>6</sub>	1.567381169117E+00	8.446080970176E-02	-4.292068555846E-04	1.095278912532E-02
C <sub>7</sub>	1.416362141157E-02	1.041046187696E-03	8.237579816553E-06	1.088247648211E-04
C <sub>8</sub>	-2.149505169671E+02	-7.612263042596E+01	-7.649387773508E-01	-1.427308683065E+00
C <sub>9</sub>	4.197720036944E+00	1.576150141242E+00	1.611067989188E-02	2.796737542599E-02
C <sub>10</sub>	-2.860812538547E-02	-1.065326603084E-02	-1.120453126416E-04	-1.907209736486E-04
C <sub>11</sub>	8.863017339138E-04	2.195469599542E-04	1.729797757921E-06	5.599220511243E-06
C <sub>12</sub>	-6.236643527971E-08	-1.318457958328E-08	-2.391876012908E-10	-4.050719336015E-10
C <sub>13</sub>	4.169345314738E-06	6.149308125837E-07	-4.302239099333E-09	2.431324391370E-08
C <sub>14</sub>	-4.436076518122E-06	-1.056936802968E-06	-2.665195475340E-09	-2.866116968932E-08
C <sub>15</sub>	2.906876590714E-03	-7.966093260961E-03	-8.248422213342E-05	3.769682715671E-05
C <sub>16</sub>	9.302431756169E-03	4.519546787094E-03	3.572021840936E-05	5.886072971606E-05
C <sub>17</sub>	-1.899513932411E+00	-2.896945016983E-01	-6.041327442290E-04	-1.192148404516E-02
C <sub>18</sub>	4.429460208079E-06	1.032019973255E-06	1.439220498724E-08	2.889617836232E-08
C <sub>19</sub>	3.138334438686E-04	-7.290385435885E-06	2.520606432444E-07	2.362916982713E-06
C <sub>20</sub>	-8.324106212244E-07	-2.172655169905E-07	-3.130023040456E-09	-5.348272745268E-09
C <sub>21</sub>	-8.460370150942E-05	-2.791264816704E-05	-1.481750484811E-07	-5.550343833427E-07
C <sub>22</sub>	-2.147019091564E-02	-1.734197694054E-03	1.477371528414E-05	-1.341129159101E-04
C <sub>23</sub>	5.522425717572E-03	1.713848647569E-03	-7.905278775588E-06	3.386580996789E-05

**PERFORMANCE CURVE EQUATION**
**INPUTS**

$$\begin{aligned}
 Y = & C_1 + C_2 X_1 + C_3 X_1^2 + C_4 X_1^3 + C_5 X_2 + C_6 X_2^2 + C_7 X_2^3 + C_8 X_3 + C_9 X_3^2 + C_{10} X_3^3 + C_{11} X_1 X_2 X_3 + \\
 & C_{12} X_1^2 X_2 X_3 + C_{13} X_1 X_2^2 X_3 + C_{14} X_1 X_2 X_3^2 + C_{15} X_1 X_2 + C_{16} X_1 X_3 + C_{17} X_2 X_3 + C_{18} X_1^2 X_2 + \\
 & C_{19} X_1 X_2^2 + C_{20} X_1^2 X_3 + C_{21} X_1 X_3^2 + C_{22} X_2^2 X_3 + C_{23} X_2 X_3^2
 \end{aligned}$$

$X_1 =$  Motor speed (rpm)  
 $X_2 =$  Evaporating temperature (°C)  
 $X_3 =$  Condensing temperature (°C)

**EN12900 PERFORMANCE CURVE COEFFICIENTS – 030F0207 / 030F0216 / 030F0217**

COEFFICIENT	COOLING CAPACITY	POWER	CURRENT	MASS FLOW
C <sub>n</sub>	BTU/h	W	A	lb/h
C <sub>1</sub>	-2.828255693078E+03	1.020864501759E+03	1.517110499414E+01	-9.061471220106E+00
C <sub>2</sub>	4.076195959431E+00	3.749673519724E-01	1.689782981359E-03	2.211933448126E-02
C <sub>3</sub>	-7.757849621602E-04	-1.170486044270E-04	-4.976303753158E-07	-4.481796052370E-06
C <sub>4</sub>	8.067768233663E-08	1.377666500261E-08	7.248422931568E-11	4.876916262129E-10
C <sub>5</sub>	4.141427407786E+01	1.198341677710E+01	7.429160635729E-02	5.016197112855E-01
C <sub>6</sub>	4.283392975388E-01	1.431189972967E-01	6.487633041011E-04	7.243531376519E-03
C <sub>7</sub>	3.246395726758E-03	1.947940588436E-03	2.522477623979E-05	6.396231700413E-05
C <sub>8</sub>	-1.231612397172E+01	-9.047572315973E+01	-1.052701492903E+00	-4.540066500485E-01
C <sub>9</sub>	2.190451725037E-01	1.898790937335E+00	2.260742769548E-02	7.872468863070E-03
C <sub>10</sub>	-3.749104777808E-03	-1.313093566132E-02	-1.589467656558E-04	-6.774664725809E-05
C <sub>11</sub>	3.777438593886E-04	1.856716470776E-04	1.055058550498E-06	7.011042933991E-06
C <sub>12</sub>	-8.750736959653E-08	-1.525376701452E-08	-2.368810998474E-10	-6.886855606614E-10
C <sub>13</sub>	-1.739406804355E-06	6.254749038221E-07	-4.795240143601E-09	2.538656342311E-08
C <sub>14</sub>	-1.901624832268E-06	-5.323507801802E-07	4.057250485665E-09	-2.276862758402E-08
C <sub>15</sub>	1.860316872035E-02	-7.911621170820E-03	-7.065866855882E-05	-6.762664348514E-07
C <sub>16</sub>	-3.283931881015E-03	3.461095368721E-03	1.371108042392E-05	9.570333046582E-05
C <sub>17</sub>	-6.056869504391E-01	-1.920532761433E-01	7.211736092358E-04	-9.056238604444E-03
C <sub>18</sub>	5.192365234826E-06	1.208020668064E-06	1.515895104623E-08	4.032885392484E-08
C <sub>19</sub>	5.274114406841E-04	-5.703553775825E-06	2.882366798091E-07	2.664605679618E-06
C <sub>20</sub>	-1.505511174479E-06	-2.768022758452E-07	-2.650914962073E-09	-1.369360203078E-08
C <sub>21</sub>	-8.588531713372E-06	-1.176829972049E-05	5.011773392127E-08	-3.552541511520E-07
C <sub>22</sub>	-1.198461256917E-02	-1.915563077124E-03	1.331390218422E-05	-1.296463003713E-04
C <sub>23</sub>	-6.942908129531E-03	3.847639842434E-04	-2.119116060761E-05	-2.885700440913E-05

**PERFORMANCE CURVE EQUATION**
**INPUTS**

$$Y = C_1 + C_2 X_1 + C_3 X_1^2 + C_4 X_1^3 + C_5 X_2 + C_6 X_2^2 + C_7 X_2^3 + C_8 X_3 + C_9 X_3^2 + C_{10} X_3^3 + C_{11} X_1 X_2 X_3 + C_{12} X_1^2 X_2 X_3 + C_{13} X_1 X_2^2 X_3 + C_{14} X_1 X_2 X_3^2 + C_{15} X_1 X_2 + C_{16} X_1 X_3 + C_{17} X_2 X_3 + C_{18} X_1^2 X_2 + C_{19} X_1 X_2^2 + C_{20} X_1^2 X_3 + C_{21} X_1 X_3^2 + C_{22} X_2^2 X_3 + C_{23} X_2 X_3^2$$

 X<sub>1</sub> = Motor speed (rpm)

 X<sub>2</sub> = Evaporating temperature (°C)

 X<sub>3</sub> = Condensing temperature (°C)

## ASHRAE32 PERFORMANCE CURVE COEFFICIENTS – 030F0218

COEFFICIENT	COOLING CAPACITY	POWER	CURRENT	MASS FLOW
C <sub>n</sub>	BTU/h	W	A	lb/h
C <sub>1</sub>	-1.890941464394E+03	7.168070385233E+02	5.367542193941E+00	-1.214960159198E+01
C <sub>2</sub>	6.186031821780E+00	4.753482177293E-01	2.138182903757E-03	4.083531674775E-02
C <sub>3</sub>	-1.526249708528E-03	-1.544841910504E-04	-7.546268612412E-07	-1.002124010352E-05
C <sub>4</sub>	1.506352805997E-07	1.689781916868E-08	8.673202800469E-11	9.884731678575E-10
C <sub>5</sub>	9.485975817405E+01	1.289433784131E+01	5.686646511640E-02	6.209804183891E-01
C <sub>6</sub>	1.567381169117E+00	8.651613138212E-02	-3.580754240193E-04	1.095278912532E-02
C <sub>7</sub>	1.416362141157E-02	1.100755992728E-03	4.910311503157E-06	1.088247648211E-04
C <sub>8</sub>	-2.149505169671E+02	-7.979799472680E+01	-5.006537010559E-01	-1.427308683065E+00
C <sub>9</sub>	4.197720036944E+00	1.645687985965E+00	1.033892079525E-02	2.796737542599E-02
C <sub>10</sub>	-2.860812538547E-02	-1.109228616898E-02	-7.078866269667E-05	-1.907209736486E-04
C <sub>11</sub>	8.863017339138E-04	2.334748274855E-04	1.220271231464E-06	5.599220511243E-06
C <sub>12</sub>	-6.236643527971E-08	-1.341747388701E-08	-1.383988875349E-10	-4.050719336015E-10
C <sub>13</sub>	4.169345314738E-06	6.789222001084E-07	-2.063828266393E-09	2.431324391370E-08
C <sub>14</sub>	-4.436076518122E-06	-1.138718212390E-06	-3.178218437126E-09	-2.866116968932E-08
C <sub>15</sub>	2.906876590714E-03	-8.480621377089E-03	-5.559179617576E-05	3.769682715671E-05
C <sub>16</sub>	9.302431756169E-03	4.855310717915E-03	2.751061230732E-05	5.886072971606E-05
C <sub>17</sub>	-1.899513932411E+00	-3.152622766647E-01	-7.584526676965E-04	-1.192148404516E-02
C <sub>18</sub>	4.429460208079E-06	1.085521617868E-06	9.068606099779E-09	2.889617836232E-08
C <sub>19</sub>	3.138334438686E-04	-7.416334818219E-06	1.701211761115E-07	2.362916982713E-06
C <sub>20</sub>	-8.324106212244E-07	-2.185500089273E-07	-1.743031117458E-09	-5.348272745268E-09
C <sub>21</sub>	-8.460370150942E-05	-3.043338260955E-05	-1.434216808059E-07	-5.550343833427E-07
C <sub>22</sub>	-2.147019091564E-02	-1.838473303967E-03	9.412707253378E-06	-1.341129159101E-04
C <sub>23</sub>	5.522425717572E-03	1.899121817701E-03	-7.474831358323E-07	3.386580996789E-05

### PERFORMANCE CURVE EQUATION

### INPUTS

$$Y = C_1 + C_2 X_1 + C_3 X_1^2 + C_4 X_1^3 + C_5 X_2 + C_6 X_2^2 + C_7 X_2^3 + C_8 X_3 + C_9 X_3^2 + C_{10} X_3^3 + C_{11} X_1 X_2 X_3 + C_{12} X_1^2 X_2 X_3 + C_{13} X_1 X_2^2 X_3 + C_{14} X_1 X_2 X_3^2 + C_{15} X_1 X_2 + C_{16} X_1 X_3 + C_{17} X_2 X_3 + C_{18} X_1^2 X_2 + C_{19} X_1 X_2^2 + C_{20} X_1^2 X_3 + C_{21} X_1 X_3^2 + C_{22} X_2^2 X_3 + C_{23} X_2 X_3^2$$

X<sub>1</sub> = Motor speed (rpm)

X<sub>2</sub> = Evaporating temperature (°C)

X<sub>3</sub> = Condensing temperature (°C)

## EN12900 PERFORMANCE CURVE COEFFICIENTS – 030F0218

COEFFICIENT	COOLING CAPACITY	POWER	CURRENT	MASS FLOW
C <sub>n</sub>	BTU/h	W	A	lb/h
C <sub>1</sub>	-2.828255693078E+03	1.079993181847E+03	9.895274808980E+00	-9.061471220106E+00
C <sub>2</sub>	4.076195959431E+00	3.843691793172E-01	1.0113941954466E-03	2.211933448126E-02
C <sub>3</sub>	-7.757849621602E-04	-1.220149311298E-04	-3.423552402821E-07	-4.481796052370E-06
C <sub>4</sub>	8.067768233663E-08	1.441911899702E-08	4.947271180295E-11	4.876916262129E-10
C <sub>5</sub>	4.141427407786E+01	1.276717791334E+01	4.772481839973E-02	5.016197112855E-01
C <sub>6</sub>	4.283392975388E-01	1.477389141372E-01	2.931833275160E-04	7.243531376519E-03
C <sub>7</sub>	3.246395726758E-03	2.049257654809E-03	1.582801314297E-05	6.396231700413E-05
C <sub>8</sub>	-1.231612397172E+01	-9.478860518569E+01	-6.868329515364E-01	-4.540066500485E-01
C <sub>9</sub>	2.190451725037E-01	1.983676432304E+00	1.463281271128E-02	7.872468863070E-03
C <sub>10</sub>	-3.749104777808E-03	-1.369211136013E-02	-1.021449474628E-04	-6.774664725809E-05
C <sub>11</sub>	3.777438593886E-04	1.973485151900E-04	7.104152971449E-07	7.011042933991E-06
C <sub>12</sub>	-8.750736959653E-08	-1.549731134281E-08	-1.326086961014E-10	-6.886855606614E-10
C <sub>13</sub>	-1.739406804355E-06	6.984795176154E-07	-2.286214073384E-09	2.538656342311E-08
C <sub>14</sub>	-1.901624832268E-06	-5.825014767757E-07	1.781203824410E-09	-2.276862758402E-08
C <sub>15</sub>	1.860316872035E-02	-8.421013753036E-03	-4.683497660629E-05	-6.762664348514E-07
C <sub>16</sub>	-3.283931881015E-03	3.717333104134E-03	1.075214766377E-05	9.570333046582E-05
C <sub>17</sub>	-6.056869504391E-01	-2.110319649364E-01	3.321353810861E-04	-9.056238604444E-03
C <sub>18</sub>	5.192365234826E-06	1.270842344691E-06	9.619605321327E-09	4.032885392484E-08
C <sub>19</sub>	5.274114406841E-04	-5.857191408672E-06	1.984010739330E-07	2.664605679618E-06
C <sub>20</sub>	-1.505511174479E-06	-2.776543835673E-07	-1.242070567034E-09	-1.369360203078E-08
C <sub>21</sub>	-8.588531713372E-06	-1.333699848693E-05	1.657874778432E-09	-3.552541511520E-07
C <sub>22</sub>	-1.198461256917E-02	-2.040747269200E-03	8.923752283163E-06	-1.296463003713E-04
C <sub>23</sub>	-6.942908129531E-03	4.856845025643E-04	-1.129048150084E-05	-2.885700440913E-05

### PERFORMANCE CURVE EQUATION

### INPUTS

$$\begin{aligned}
 Y = & C_1 + C_2 X_1 + C_3 X_1^2 + C_4 X_1^3 + C_5 X_2 + C_6 X_2^2 + C_7 X_2^3 + C_8 X_3 + C_9 X_3^2 + C_{10} X_3^3 + C_{11} X_1 X_2 X_3 + \\
 & C_{12} X_1^2 X_2 X_3 + C_{13} X_1 X_2^2 X_3 + C_{14} X_1 X_2 X_3^2 + C_{15} X_1 X_2 + C_{16} X_1 X_3 + C_{17} X_2 X_3 + C_{18} X_1^2 X_2 + \\
 & C_{19} X_1 X_2^2 + C_{20} X_1^2 X_3 + C_{21} X_1 X_3^2 + C_{22} X_2^2 X_3 + C_{23} X_2 X_3^2
 \end{aligned}$$

$X_1 =$  Motor speed (rpm)  
 $X_2 =$  Evaporating temperature (°C)  
 $X_3 =$  Condensing temperature (°C)

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