

### COMPRESSOR DEFINITION

|                           |                 |
|---------------------------|-----------------|
| Designation               | NT 2160U        |
| Nominal Voltage/Frequency | 220-240 V 50 Hz |
| Engineering Number        | 842AA04         |

### A - APPLICATION / LIMIT WORKING CONDITIONS

|                                    |                                   |                                   |           |
|------------------------------------|-----------------------------------|-----------------------------------|-----------|
| 1 Type                             | Hermetic reciprocating compressor |                                   |           |
| 2 Refrigerant                      | R-290                             |                                   |           |
| 3 Nominal voltage and frequency    | 220-240 / 50                      | [ V / Hz ]                        |           |
| 4 Application type                 | Low Back Pressure R290            |                                   |           |
| 4.1 Evaporating temperature range  | -40°C to -10°C                    | (-40°F to 14°F)                   |           |
| 5 Motor type                       | CSIR                              |                                   |           |
| 6 Starting torque                  | HST - Hight starting torque       |                                   |           |
| 7 Expansion device                 | Capillary tube or Expansion valve |                                   |           |
| 8 Compressor cooling               | Operating voltage range           |                                   |           |
|                                    |                                   | 50 Hz                             | 60 Hz     |
| 8.1 LBP (32°C Ambient temperature) | -                                 | -                                 | -         |
| 8.2 LBP (43°C Ambient temperature) | -                                 | -                                 | -         |
| 8.3 HBP (32°C Ambient temperature) | -                                 | -                                 | -         |
| 8.4 HBP (43°C Ambient temperature) | -                                 | -                                 | -         |
| 9 Maximum condensing temperature   |                                   |                                   |           |
| 9.1 Operating                      | 18.4                              | [kgf/cm <sup>2</sup> ] (262 psig) | / °C - °F |
| 9.2 Peak                           | 20.6                              | [kgf/cm <sup>2</sup> ] (293 psig) | / °C - °F |
| 10 Maximum winding temperature     | 130                               | [ °C ]                            |           |

### B - MECHANICAL DATA

|                               |               |                                  |
|-------------------------------|---------------|----------------------------------|
| 1 Commercial designation      | 3/4           | [hp]                             |
| 2 Displacement                | 17.39         | [cm <sup>3</sup> ] (1.061 cu.in) |
| 2.1 Bore [mm]                 | 34.120        |                                  |
| 2.2 Stroke [mm]               | 19.030        |                                  |
| 3 Lubricant charge            | 450           | [ml] (15.22 fl.oz.)              |
| 3.1 Lubricants approved       |               |                                  |
| 3.2 Lubricants type/viscosity | ESTER / ISO22 |                                  |
| 4 Weight (with oil charge)    | 17.2          | [kg] (37.92 lb.)                 |
| 5 Nitrogen charge             | -             | [kgf/cm <sup>2</sup> ]           |

### C - ELETRICAL DATA

|  |                                    |                                    |
|--|------------------------------------|------------------------------------|
| 1 Nominal Voltage/Frequency/Number of Phases | 220-240 V 50 Hz 1 ~ (Single phase) |                                    |
| 2 Starting device type                       | Current Relay                      |                                    |
| 2.1 Starting device                          | MTRPH-55                           |                                    |
| 3 Start capacitor                            | 64-77(330)                         | [μF(VAC minimum)]                  |
| 4 Run capacitor                              | -                                  | [μF(VAC minimum)]                  |
| 5 Motor protection                           | T0819/G6                           |                                    |
| 6 Start winding resistance                   | 13.80                              | [Ω at 25°C (77°F)] +/- 8%          |
| 7 Run winding resistance                     | 2.70                               | [Ω at 25°C (77°F)] +/- 8%          |
| 8 LRA - Locked rotor amperage (50 Hz)        | 21.00                              | [A] - Measured according to UL 984 |
| 9 FLA - Full load amperage L/MBP (50 Hz)     | -                                  | [A] - Measured according to UL 984 |
| 10 FLA - Full Load Amperage HBP (50 Hz)      | -                                  | [A] - Measured according to UL 984 |
| 11 Approval boards certification             | VDE                                |                                    |

### D - PERFORMANCE - CHECK POINT DATA

|                               |          |     |                                |                                  |  |                           |  |       |
|-------------------------------|----------|-----|--------------------------------|----------------------------------|--|---------------------------|--|-------|
| TEST CONDITIONS:<br>@220V50Hz |          |     | ASHRAELBP32<br>Fan             |                                  | Evaporating temperature<br>(Condensing temperature |                           | -23.3°C (-9.94°F)<br>54.4°C (129.92°F) |       |
| Cooling capacity<br>+/- 5%    |          |     | Power<br>consumption<br>+/- 5% | Current<br>consumption<br>+/- 5% | Gas flow<br>rate<br>+/- 5%                         | EFFICIENCY RATE<br>+/- 7% |  |       |
| [Btu/h]                       | [kcal/h] | [W] | [W]                            | [A]                              | [kg/h]   | [Btu/Wh]                  | [kcal/Wh]                              | [W/W] |
| 2398                          | 604      | 703 | 518                            | 3.35                             | 7.14   | 4.63                      | 1.17                                   | 1.36  |

### E - PERFORMANCE - CURVES

|                               |       |                            |                 |      |                                       |                                  |                            |                           |           |       |
|-------------------------------|-------|----------------------------|-----------------|------|---------------------------------------|----------------------------------|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |       |                            | ASHRAE32<br>Fan |      | (Condensing temperature 35°C (+95°F)) |                                  |                            |                           |           |       |
| Evaporating<br>temperature    |       | Cooling capacity<br>+/- 5% |                 |      | Power<br>consumption<br>+/- 5%        | Current<br>consumption<br>+/- 5% | Gas flow<br>rate<br>+/- 5% | EFFICIENCY RATE<br>+/- 7% |           |       |
| °C                            | (°F)  | [Btu/h]                    | [kcal/h]        | [W]  | [W]                                   | [A]                              | [kg/h]                     | [Btu/Wh]                  | [kcal/Wh] | [W/W] |
| -40                           | (-40) | 1185                       | 299             | 347  | 308                                   | 2.72                             | 3.50                       | 3.82                      | 0.96      | 1.12  |
| -35                           | (-31) | 1537                       | 387             | 451  | 358                                   | 2.85                             | 4.55                       | 4.31                      | 1.09      | 1.26  |
| -30                           | (-22) | 1998                       | 504             | 586  | 406                                   | 2.99                             | 5.93                       | 4.93                      | 1.24      | 1.44  |
| -25                           | (-13) | 2567                       | 647             | 752  | 453                                   | 3.15                             | 7.64                       | 5.66                      | 1.43      | 1.66  |
| -20                           | (- 4) | 3244                       | 817             | 951  | 500                                   | 3.31                             | 9.68                       | 6.49                      | 1.63      | 1.90  |
| -15                           | (+ 5) | 4028                       | 1015            | 1180 | 545                                   | 3.48                             | 12.07                      | 7.38                      | 1.86      | 2.16  |
| -10                           | (+14) | 4919                       | 1240            | 1441 | 590                                   | 3.66                             | 14.80                      | 8.33                      | 2.10      | 2.44  |

|                               |       |                            |                 |      |  |                                  |                            |                           |           |       |
|-------------------------------|-------|----------------------------|-----------------|------|--|----------------------------------|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |       |                            | ASHRAE32<br>Fan |      | (Condensing temperature 45°C (+113°F)) |                                  |                            |                           |           |       |
| Evaporating<br>temperature    |       | Cooling capacity<br>+/- 5% |                 |      | Power<br>consumption<br>+/- 5%         | Current<br>consumption<br>+/- 5% | Gas flow<br>rate<br>+/- 5% | EFFICIENCY RATE<br>+/- 7% |           |       |
| °C                            | (°F)  | [Btu/h]                    | [kcal/h]        | [W]  | [W]                                    | [A]                              | [kg/h]                     | [Btu/Wh]                  | [kcal/Wh] | [W/W] |
| -40                           | (-40) | 1015                       | 256             | 297  | 309                                    | 2.74                             | 3.00                       | 3.29                      | 0.83      | 0.96  |
| -35                           | (-31) | 1376                       | 347             | 403  | 366                                    | 2.89                             | 4.07                       | 3.77                      | 0.95      | 1.10  |
| -30                           | (-22) | 1832                       | 462             | 537  | 422                                    | 3.05                             | 5.43                       | 4.34                      | 1.09      | 1.27  |
| -25                           | (-13) | 2381                       | 600             | 698  | 478                                    | 3.24                             | 7.08                       | 4.97                      | 1.25      | 1.46  |
| -20                           | (- 4) | 3025                       | 762             | 886  | 535                                    | 3.44                             | 9.02                       | 5.65                      | 1.42      | 1.65  |
| -15                           | (+ 5) | 3762                       | 948             | 1102 | 592                                    | 3.66                             | 11.27                      | 6.35                      | 1.60      | 1.86  |
| -10                           | (+14) | 4592                       | 1157            | 1346 | 651                                    | 3.89                             | 13.81                      | 7.07                      | 1.78      | 2.07  |

|                               |       |                            |                 |      |  |                                  |                            |                           |           |       |
|-------------------------------|-------|----------------------------|-----------------|------|--|----------------------------------|----------------------------|---------------------------|-----------|-------|
| TEST CONDITIONS:<br>@220V50Hz |       |                            | ASHRAE32<br>Fan |      | (Condensing temperature 55°C (+131°F)) |                                  |                            |                           |           |       |
| Evaporating<br>temperature    |       | Cooling capacity<br>+/- 5% |                 |      | Power<br>consumption<br>+/- 5%         | Current<br>consumption<br>+/- 5% | Gas flow<br>rate<br>+/- 5% | EFFICIENCY RATE<br>+/- 7% |           |       |
| °C                            | (°F)  | [Btu/h]                    | [kcal/h]        | [W]  | [W]                                    | [A]                              | [kg/h]                     | [Btu/Wh]                  | [kcal/Wh] | [W/W] |
| -40                           | (-40) | 844                        | 213             | 247  | 303                                    | 2.72                             | 2.49                       | 2.79                      | 0.70      | 0.82  |
| -35                           | (-31) | 1208                       | 304             | 354  | 367                                    | 2.89                             | 3.57                       | 3.28                      | 0.83      | 0.96  |
| -30                           | (-22) | 1653                       | 417             | 484  | 432                                    | 3.09                             | 4.90                       | 3.82                      | 0.96      | 1.12  |
| -25                           | (-13) | 2179                       | 549             | 638  | 499                                    | 3.31                             | 6.48                       | 4.37                      | 1.10      | 1.28  |
| -20                           | (- 4) | 2784                       | 702             | 816  | 567                                    | 3.56                             | 8.30                       | 4.92                      | 1.24      | 1.44  |
| -15                           | (+ 5) | 3469                       | 874             | 1017 | 638                                    | 3.83                             | 10.39                      | 5.45                      | 1.37      | 1.60  |
| -10                           | (+14) | 4234                       | 1067            | 1241 | 710                                    | 4.13                             | 12.74                      | 5.94                      | 1.50      | 1.74  |

### F - EXTERNAL CHARACTERISTICS

|                         |                  |      |                          |
|-------------------------|------------------|------|--------------------------|
| 1 Base plate            | Universal        |      |                          |
| 2 Tray holder           | No               |      |                          |
| 3 Connectors            |                  |      |                          |
| 3.1 SUCTION             | 9.6 +0.07/+0.00  | [mm] | (0.378" +0.003"/+0.000") |
| 3.1.1 Material          | Copper           |      |                          |
| 3.1.2 Shape             | Vertical         |      |                          |
| 3.2 DISCHARGE           | 6.42 +0.08/+0.00 | [mm] | (0.253" +0.003"/+0.000") |
| 3.2.1 Material          | Copper           |      |                          |
| 3.2.2 Shape             | Vertical         |      |                          |
| 3.3 PROCESS             | 6.42 +0.08/+0.00 | [mm] | (0.253" +0.003"/+0.000") |
| 3.3.1 Material          | Copper           |      |                          |
| 3.3.2 Shape             | Vertical         |      |                          |
| 3.4 Oil cooler (Copper) | No               | [mm] |                          |
| 3.5 Connector sealing   | Rubber Plugs     |      |                          |