



SUSTAINABLE COLD SOLUTIONS

# TRANSCRITICAL CO<sub>2</sub> CONDENSING UNITS



We know the art of achieving  
*a perfect temperature*

**BEIJER REF**



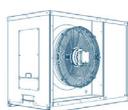
# Standard Accessories

- TOSHIBA BLDC COMPRESSORS
- CAREL CONTROLLER
- INVERTER MODULATION FOR CAPACITY CONTROL 25-100%
- INTEGRATED GAS COOLER WITH EC FAN
- DESIGN PRESSURE 130 BAR (HIGH PRESSURE SIDE) 80 BAR (LIQUID LINE) 80 BAR (SUCTION LINE)
- LIQUID RECEIVER 8 LITER ON MODELS 030 -045 MTDX AND N45 AND N67BTDX; 12 LITERS FOR MODELS 067-100 MTDX AND 067 -100 BTDX
- K65 CONNECTIONS

# Accessories on Request

- LOW NOISE FRAME (DAY OPERATION 33 DB(A) @10M; NIGHT OPERATION 30 DB(A))
- OIL MANAGEMENT (OIL SEPARATOR + RESERVOIR, OIL LEVEL CONTROL, OIL RETURN SOLENOID VALVE)
- WINTER KIT (SUGGESTED FOR AMBIENT TEMPERATURE <-20°C)
- EPOXY OR ELECTROFIN GAS COOLER CORROSION COIL PROTECTION.
- ADIABATIC KIT WATER SPRAY, INCLUDING CONTROLLER

# Check the Unit CO<sub>2</sub> Charge



**Cooling Capacity:**

MT from 0,6 kW up to 8,5 kW  
BT from 0,65 kW up to 7,9 kW

CUBO2 Smart is an high efficiency condensing unit (for CO2 transcritical application) equipped with BLDC variable speed compressor.

It is compact, easy to install and can directly communicate with the refrigerated units.

Thanks to these features it is a very efficient (even at partial load) without any compromise with the food conservation.

DOWNLOAD BROCHURE

CO<sub>2</sub> CHARGE CALCULATION  
V4.0



- 1\_ Enter our website [www.scmfrigo.com](http://www.scmfrigo.com)
- 2\_ Click on the 'Products' section at the top
- 3\_ Click within the product group 'CO<sub>2</sub> Condensing Units'.
- 4\_ Finally, click here!



English

user External

Air > CO<sub>2</sub> condensing units for medium temperature applications

| Configuration  | Selection | Verify |
|--|-----------|--------|
| <p><b>Serie</b></p> <p>Serie: <input type="text" value="Cubo2Smart"/></p> <p><b>Options</b></p> <p>Compressor brand: <input type="text" value="Toshiba BLDC"/></p>    |           |        |
| <p><b>Input data</b></p> <p><b>Selection</b></p> <p>Required Capacity: <input type="text" value="0,00"/> kW</p> <p>Tolerance: <input type="text" value="10,00"/> %</p> <p><b>Input</b></p> <p>Evaporation temperature: <input type="text" value="-5,00"/> °C</p> <p>Ambient temperature: <input type="text" value="35,00"/> °C</p> |           |        |

<https://cubo2calculation.scmfrigo.com/#/home>

AT THE FOLLOWING LINK YOU CAN CHECK THE UNIT CHARGE.  
*Ask our sales department for the password*

| T amb [°C]  |                                  | Evaporation Temperature[°C] |      |      |      |      |      |      |      |      |      |       |      |
|---|----------------------------------|-----------------------------|------|------|------|------|------|------|------|------|------|-------|------|
|   |                                  | -35                         |      | -30  |      | -25  |      | -20  |      |      |      |       |      |
|   |                                  | min                         | max  | min  | max  | min  | max  | min  | max  | min  | max  |       |      |
| UMT T N45 BTDX  | 40                               | 694                         | 1915 | 1,19 | 836  | 2299 | 1,38 | 975  | 2668 | 1,55 | 1148 | 3110  | 1,77 |
|   | 38                               | 709                         | 1933 | 1,22 | 857  | 2318 | 1,42 | 1002 | 2687 | 1,60 | 1181 | 3129  | 1,83 |
|   | 32                               | 761                         | 2004 | 1,38 | 926  | 2393 | 1,60 | 1090 | 2764 | 1,81 | 1288 | 3204  | 2,07 |
|   | 25                               | 815                         | 2084 | 1,57 | 995  | 2477 | 1,83 | 1174 | 2850 | 2,07 | 1389 | 3289  | 2,38 |
|   | 15                               | 867                         | 2163 | 1,81 | 1058 | 2561 | 2,10 | 1250 | 2935 | 2,39 | 1479 | 3373  | 2,76 |
|   | 5                                | 948                         | 2277 | 2,24 | 1155 | 2684 | 2,63 | 1368 | 3061 | 3,02 | 1615 | 3497  | 3,53 |
|   | Liquid receiver volume 8 liters  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Weight 176kg  |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Connections Liquid / suction 1/2"   |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Sound pressure day operation 40 dB(A)* - night operation 37 dB(A)*                          |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Minimum Energy Performance Standards 2,39 (according to Ecodesign Directive EN 2009/125/EC) |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Annual Energy Consumption 8767 kWh/year   |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| MRA/Pmax 230/1+N+PE/50  |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| UMT T N67 BTDX  | 40                               | 1125                        | 3058 | 1,28 | 1366 | 3645 | 1,47 | 1601 | 4192 | 1,63 | 1871 | 4807  | 1,82 |
|   | 38                               | 1140                        | 3074 | 1,32 | 1382 | 3668 | 1,51 | 1617 | 4221 | 1,69 | 1886 | 4843  | 1,89 |
|   | 32                               | 1196                        | 3146 | 1,47 | 1440 | 3759 | 1,70 | 1675 | 4333 | 1,91 | 1943 | 4976  | 2,15 |
|   | 25                               | 1253                        | 3234 | 1,68 | 1501 | 3865 | 1,95 | 1738 | 4457 | 2,20 | 2005 | 5117  | 2,49 |
|   | 15                               | 1308                        | 3326 | 1,93 | 1560 | 3971 | 2,25 | 1799 | 4578 | 2,55 | 2067 | 5254  | 2,91 |
|   | 5                                | 1385                        | 3458 | 2,41 | 1648 | 4126 | 2,85 | 1895 | 4755 | 3,27 | 2166 | 5455  | 3,79 |
|   | Liquid receiver volume 8 liters  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Weight 176kg  |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Connections Liquid / suction 1/2"   |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Sound pressure day operation 40 dB(A)* - night operation 37 dB(A)*                          |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Minimum Energy Performance Standards 2,39 (according to Ecodesign Directive EN 2009/125/EC) |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Annual Energy Consumption 13282 kWh/year  |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| MRA/Pmax 230/1+N+PE/50  |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| UMT T 067 BTDX  | 40                               | 950                         | 4380 | 0,88 | 1190 | 5320 | 1,07 | 1360 | 6030 | 1,15 | 1660 | 7210  | 1,41 |
|   | 38                               | 950                         | 4380 | 0,91 | 1190 | 5320 | 1,14 | 1360 | 6030 | 1,18 | 1660 | 7210  | 1,50 |
|   | 32                               | 950                         | 4380 | 1,09 | 1190 | 5320 | 1,20 | 1360 | 6030 | 1,37 | 1660 | 7210  | 1,57 |
|   | 25                               | 950                         | 4380 | 1,22 | 1190 | 5320 | 1,35 | 1360 | 6030 | 1,54 | 1660 | 7210  | 1,69 |
|   | 15                               | 950                         | 4380 | 1,70 | 1190 | 5320 | 1,90 | 1360 | 6030 | 2,15 | 1660 | 7210  | 2,37 |
|   | 5                                | 950                         | 4380 | 1,97 | 1190 | 5320 | 2,23 | 1360 | 6030 | 2,41 | 1660 | 7210  | 2,68 |
|   | Liquid receiver volume 12 liters |                             |      |      |      |      |      |      |      |      |      |       |      |
| Weight 195kg  |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Connections Liquid / suction 1/2"   |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Sound pressure day operation 41dB(A)* - night operation 38 dB(A)*                           |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Minimum Energy Performance Standards 2,39 (according to Ecodesign Directive EN 2009/125/EC) |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Annual Energy Consumption 19367 kWh/year  |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| MRA/Pmax 400/3+N+PE/50  |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| UMT T 100 BTDX  | 40                               | 1520                        | 6540 | 0,91 | 1890 | 7900 | 1,09 | 2140 | 8940 | 1,15 | 2600 | 10650 | 1,41 |
|   | 38                               | 1520                        | 6540 | 0,96 | 1890 | 7900 | 1,16 | 2140 | 8940 | 1,18 | 2600 | 10650 | 1,51 |
|   | 32                               | 1520                        | 6540 | 1,18 | 1890 | 7900 | 1,27 | 2140 | 8940 | 1,43 | 2600 | 10650 | 1,58 |
|   | 25                               | 1520                        | 6540 | 1,33 | 1890 | 7900 | 1,44 | 2140 | 8940 | 1,62 | 2600 | 10650 | 1,74 |
|   | 15                               | 1520                        | 6540 | 1,93 | 1890 | 7900 | 2,11 | 2140 | 8940 | 2,35 | 2600 | 10650 | 2,54 |
|   | 5                                | 1520                        | 6540 | 2,27 | 1890 | 7900 | 2,54 | 2140 | 8940 | 2,69 | 2600 | 10650 | 2,93 |
|   | Liquid receiver volume 12 liters |                             |      |      |      |      |      |      |      |      |      |       |      |
| Weight 195kg  |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Connections Liquid / suction 5/8"   |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Sound pressure day operation 42 dB(A)* - night operation 39 dB(A)*                          |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Minimum Energy Performance Standards 2,39 (according to Ecodesign Directive EN 2009/125/EC) |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| Annual Energy Consumption 28623 kWh/year  |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |
| MRA/Pmax 400/3+N+PE/50  |                                  |                             |      |      |      |      |      |      |      |      |      |       |      |

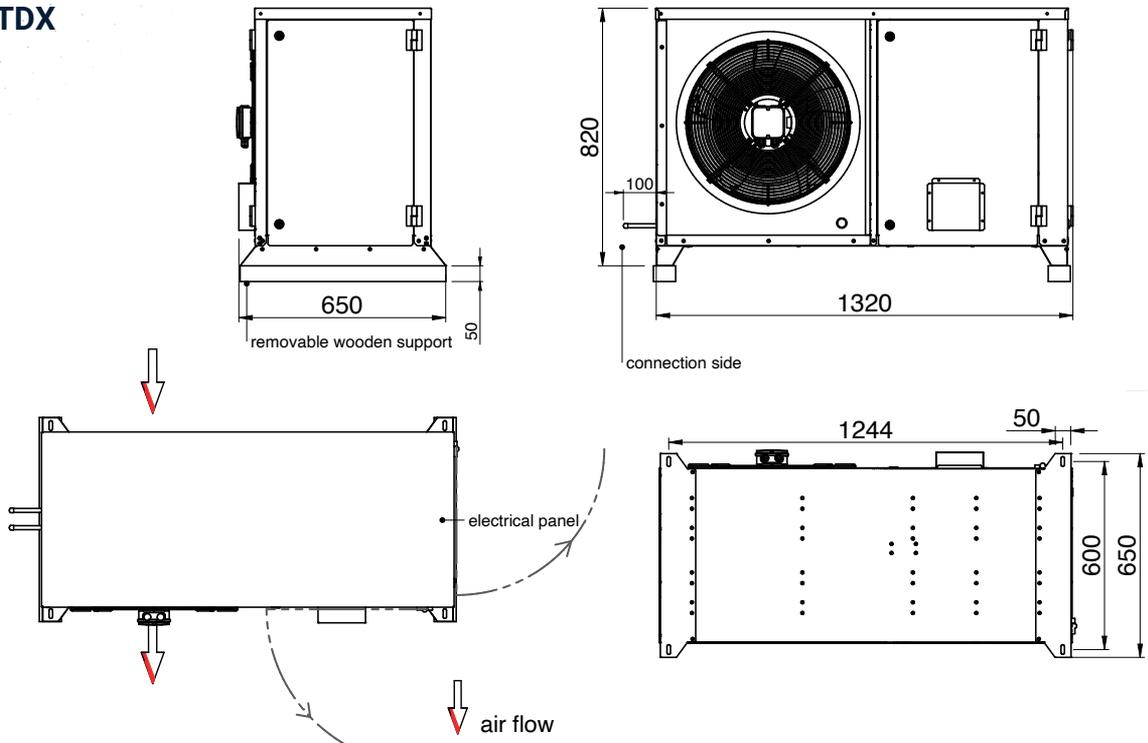
NOTE: Interstage SST variable from -5 °C to 0°C according to operating conditions  
 (\*based on free field area weed semi-spherical sound emission in 10m distance; tolerance ± 2 dB(A))

| T amb [°C]  | Evaporation Temperature[°C]      |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
|---|----------------------------------|------|--------------|------|------|--------------|------|------|--------------|------|------|--------------|------|------|--------------|------|
|   | -15                              |      | -10          |      | -5   |              | 0    |      | 5            |      |      |              |      |      |              |      |
|   | min                              | max  | min          | max  | min  | max          | min  | max  | min          | max  |      |              |      |      |              |      |
| UMT T 030 MTDX  | 40                               | 429  | <b>2140</b>  | 1,38 | 523  | <b>2507</b>  | 1,58 | 575  | <b>2759</b>  | 1,59 | 674  | <b>3143</b>  | 1,79 | 787  | <b>3541</b>  | 2,04 |
|   | 38                               | 440  | <b>2165</b>  | 1,44 | 526  | <b>2514</b>  | 1,59 | 622  | <b>2889</b>  | 1,80 | 727  | <b>3283</b>  | 2,04 | 850  | <b>3704</b>  | 2,31 |
|   | 32                               | 455  | <b>2181</b>  | 1,54 | 551  | <b>2548</b>  | 1,76 | 653  | <b>2939</b>  | 2,02 | 768  | <b>3362</b>  | 2,32 | 905  | <b>3826</b>  | 2,68 |
|   | 25                               | 506  | <b>2350</b>  | 1,81 | 613  | <b>2752</b>  | 2,09 | 728  | <b>3197</b>  | 2,43 | 852  | <b>3678</b>  | 2,83 | 988  | <b>4188</b>  | 3,33 |
|   | 15                               | 682  | <b>3033</b>  | 3,16 | 816  | <b>3577</b>  | 3,76 | 971  | <b>4185</b>  | 4,56 | 1153 | <b>4859</b>  | 5,64 | 1364 | <b>5598</b>  | 7,18 |
|   | 5                                | 814  | <b>3564</b>  | 4,63 | 973  | <b>4194</b>  | 5,70 | 1161 | <b>4899</b>  | 7,20 | 1270 | <b>5290</b>  | 7,25 | 1364 | <b>5598</b>  | 7,18 |
|   | Liquid receiver volume 8 liters  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Weight 165kg  |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Connections Liquid / suction 1/2"   |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Sound pressure day operation 40 dB(A)* - night operation 37 dB(A)*                          |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Minimum Energy Performance Standards 3,41 (according to Ecodesign Directive EN 2009/125/EC) |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Annual Energy Consumption 4590 kWh/year   |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| MRA/Pmax 230/1+N+PE/50  |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| UMT T 045 MTDX  | 40                               | 648  | <b>3233</b>  | 1,38 | 789  | <b>3785</b>  | 1,58 | 868  | <b>4165</b>  | 1,59 | 1018 | <b>4746</b>  | 1,79 | 1188 | <b>5346</b>  | 2,01 |
|   | 38                               | 665  | <b>3270</b>  | 1,46 | 794  | <b>3796</b>  | 1,59 | 939  | <b>4362</b>  | 1,80 | 1098 | <b>4957</b>  | 2,04 | 1283 | <b>5593</b>  | 2,31 |
|   | 32                               | 686  | <b>3293</b>  | 1,54 | 832  | <b>3847</b>  | 1,76 | 986  | <b>4437</b>  | 2,02 | 1160 | <b>5077</b>  | 2,32 | 1366 | <b>5778</b>  | 2,68 |
|   | 25                               | 755  | <b>3541</b>  | 1,81 | 915  | <b>4142</b>  | 2,09 | 1085 | <b>4809</b>  | 2,43 | 1270 | <b>5529</b>  | 2,83 | 1474 | <b>6293</b>  | 3,33 |
|   | 15                               | 1021 | <b>4571</b>  | 3,14 | 1221 | <b>5384</b>  | 3,76 | 1452 | <b>6295</b>  | 5,64 | 1722 | <b>7305</b>  | 5,64 | 2039 | <b>8412</b>  | 7,17 |
|   | 5                                | 1220 | <b>5370</b>  | 4,64 | 1457 | <b>6314</b>  | 5,71 | 1737 | <b>7369</b>  | 7,25 | 1899 | <b>7953</b>  | 7,25 | 2039 | <b>8412</b>  | 7,17 |
|   | Liquid receiver volume 8 liters  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Weight 165kg  |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Connections Liquid / suction 1/2"   |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Sound pressure day operation 40 dB(A)* - night operation 37 dB(A)*                          |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Minimum Energy Performance Standards 3,42 (according to Ecodesign Directive EN 2009/125/EC) |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Annual Energy Consumption 6922 kWh/year   |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| MRA/Pmax 230/1+N+PE/50  |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| UMT T 067 MTDX  | 40                               | 1038 | <b>4753</b>  | 1,40 | 930  | <b>5489</b>  | 1,57 | 1459 | <b>6296</b>  | 1,75 | 1380 | <b>7159</b>  | 1,96 | 1600 | <b>6790</b>  | 2,18 |
|   | 38                               | 1061 | <b>4755</b>  | 1,45 | 955  | <b>5504</b>  | 1,63 | 1485 | <b>6325</b>  | 1,83 | 1414 | <b>6856</b>  | 2,05 | 1681 | <b>7820</b>  | 2,29 |
|   | 32                               | 1094 | <b>4722</b>  | 1,57 | 1086 | <b>5508</b>  | 1,79 | 1320 | <b>6385</b>  | 2,04 | 1580 | <b>7328</b>  | 2,31 | 1866 | <b>8383</b>  | 2,51 |
|   | 25                               | 1001 | <b>4904</b>  | 1,69 | 1221 | <b>5790</b>  | 1,99 | 1470 | <b>6764</b>  | 2,34 | 1748 | <b>7820</b>  | 2,76 | 2053 | <b>8951</b>  | 3,34 |
|   | 15                               | 1479 | <b>6466</b>  | 3,02 | 1779 | <b>7638</b>  | 3,63 | 2121 | <b>8969</b>  | 4,40 | 2509 | <b>10470</b> | 4,25 | 2945 | <b>12149</b> | 6,88 |
|   | 5                                | 1825 | <b>7592</b>  | 4,44 | 2175 | <b>8943</b>  | 5,40 | 2356 | <b>10491</b> | 6,68 | 2777 | <b>11411</b> | 6,81 | 2945 | <b>12149</b> | 6,88 |
|   | Liquid receiver volume 12 liters |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Weight 165kg  |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Connections Liquid / suction 1/2"   |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Sound pressure day operation 41 dB(A)* - night operation 38 dB(A)*                          |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Minimum Energy Performance Standards 3,28 (according to Ecodesign Directive EN 2009/125/EC) |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Annual Energy Consumption 10324 kWh/year  |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| MRA/Pmax 230/1+N+PE/50  |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| UMT T 100 MTDX  | 40                               | 1549 | <b>7904</b>  | 1,56 | 1854 | <b>8193</b>  | 1,57 | 2028 | <b>9113</b>  | 1,57 | 2365 | <b>10366</b> | 1,75 | 2719 | <b>11672</b> | 1,94 |
|   | 38                               | 1583 | <b>7098</b>  | 1,45 | 1864 | <b>8202</b>  | 1,58 | 2188 | <b>9411</b>  | 1,77 | 2534 | <b>10704</b> | 1,98 | 2890 | <b>12034</b> | 2,18 |
|   | 32                               | 1550 | <b>7047</b>  | 1,53 | 1750 | <b>8325</b>  | 1,73 | 2273 | <b>9491</b>  | 1,97 | 2644 | <b>10866</b> | 2,25 | 3048 | <b>12314</b> | 2,52 |
|   | 25                               | 1597 | <b>7503</b>  | 1,76 | 1929 | <b>8812</b>  | 2,04 | 2324 | <b>10232</b> | 2,35 | 2744 | <b>11750</b> | 2,71 | 3182 | <b>13355</b> | 3,12 |
|   | 15                               | 2252 | <b>9791</b>  | 3,04 | 2725 | <b>11455</b> | 3,60 | 3250 | <b>13414</b> | 4,29 | 3824 | <b>15611</b> | 5,16 | 4443 | <b>18053</b> | 6,26 |
|   | 5                                | 2749 | <b>11392</b> | 4,44 | 3282 | <b>13421</b> | 5,36 | 3874 | <b>15738</b> | 6,57 | 4195 | <b>17042</b> | 6,48 | 4443 | <b>18053</b> | 6,26 |
|   | Liquid receiver volume 12 liters |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Weight 165kg  |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Connections Liquid / suction 5/8"   |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Sound pressure day operation 42 dB(A)* - night operation 39 dB(A)*                          |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Minimum Energy Performance Standards 3,27 (according to Ecodesign Directive EN 2009/125/EC) |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| Annual Energy Consumption 15634 kWh/year  |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |
| MRA/Pmax 400/3+N+PE/50  |                                  |      |              |      |      |              |      |      |              |      |      |              |      |      |              |      |

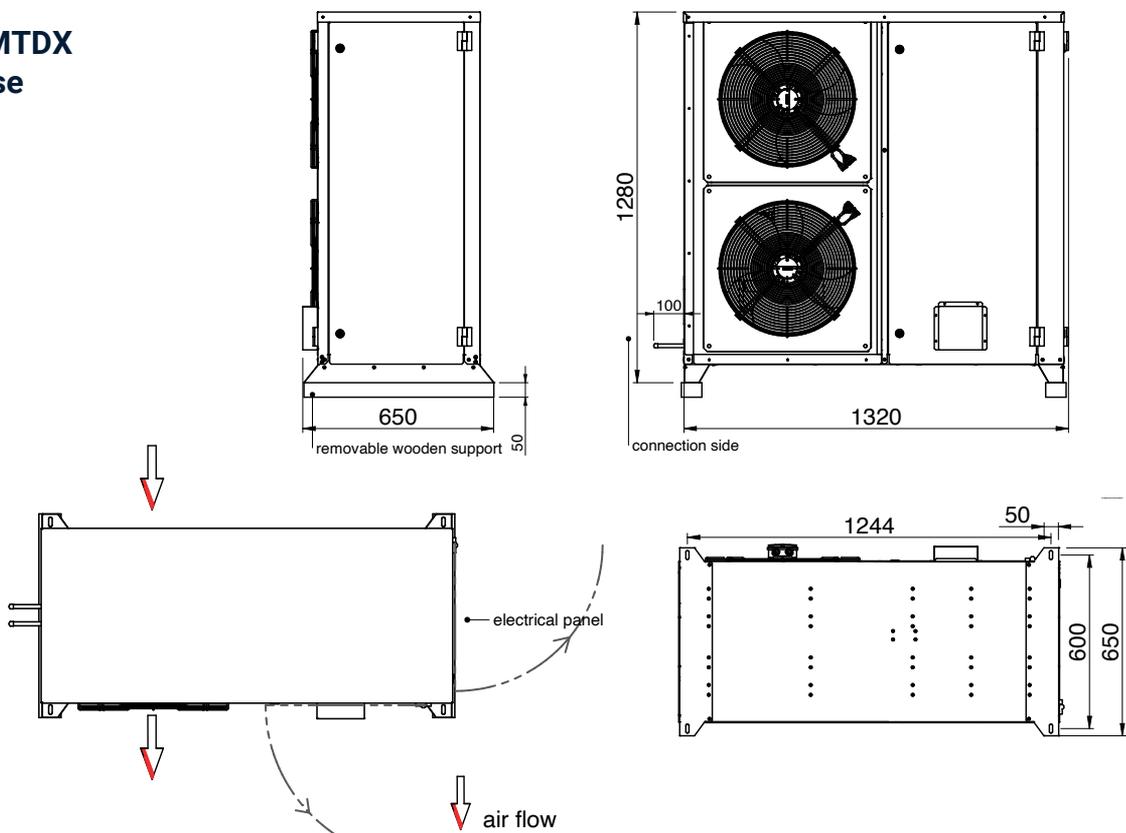
NOTE: Interstage SST variable from 0 °C to 5°C according to operating conditions  
 (\*based on free field area weed semi-spherical sound emission in 10m distance; tolerance ± 2 dB(A))

# Dimensional Data

## BTDX - MTDX Standard

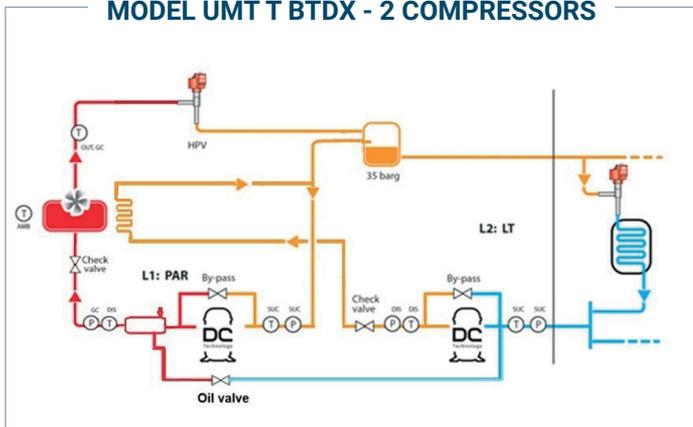


## BTDX - MTDX Low Noise

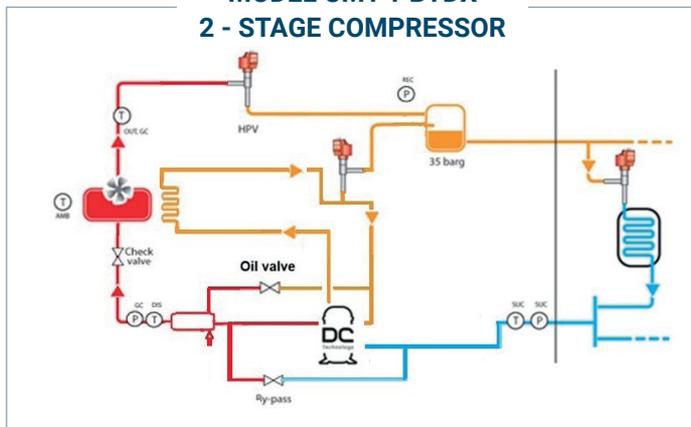


# Unit Configuration

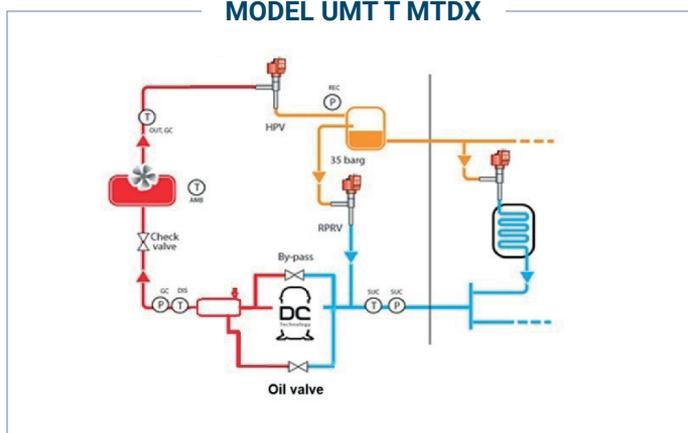
**MODEL UMT T BTDX - 2 COMPRESSORS**



**MODEL UMT T BTDX  
2 - STAGE COMPRESSOR**



**MODEL UMT T MTDX**



# Installation Design

**Multi-Split**



**Branch**



**Pipe Connections (Multi-Split or Branch)**

The connection between the Condensing Unit and more remote evaporators can be the same one used for Multi-Split or branch system.

The preferred one is the one is able to guarantee the highest gas velocity in the suction line (for a good oil return) with a low pressure drop.

For Multi-Split layout, the system requires a dedicated suction line for each evaporator that will be collected by a manifold installed close to the condensing unit.

Please refer to the example reported in the pictures.

- Liquid line must be properly sized to supply the farther evaporators (liquid velocity < 1 m/s is suggested).
- Suction line must be properly sized to have a good oil return with a low pressure drop (gas velocity min 5m/s).



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