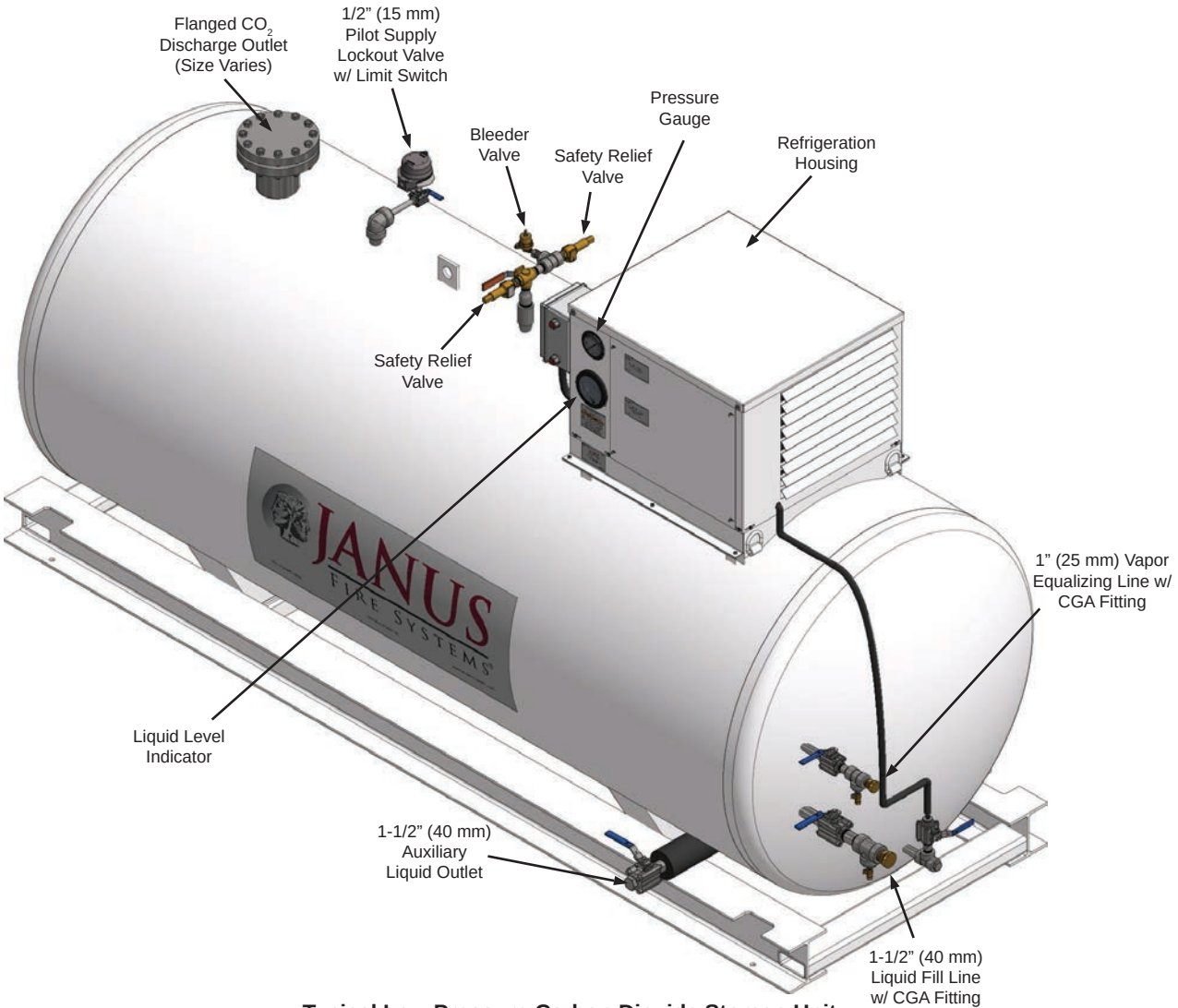
# $LPCO_2$ System

## Refrigerated Storage Units

Janus Fire Systems® Low Pressure Carbon Dioxide Refrigerated Storage Units are specifically designed to store the carbon dioxide agent supply utilized in the Janus Fire Systems® Low Pressure Carbon Dioxide Fire Extinguishing System. Each storage unit consists of an insulated pressure vessel, outer shell, integrated refrigeration unit, ASME safety relief and bleeder valve(s), and liquid level and pressure gauges. Each unit has appropriately sized piping outlets for filling, discharge of $CO_2$, and connection of the extinguishing system vapor supply. Janus Fire Systems® Low Pressure Carbon Dioxide Refrigerated Storage Units have capacities that range from 1.25 to 45 tons.

## FEATURES

The pressure vessel is built in accordance with Section VIII, Division 1 of the ASME Code for Unfired Pressure Vessels. A 4 in (102 mm) layer of polyurethane acts as insulation between the vessel and the painted steel (10-gauge) outer housing.



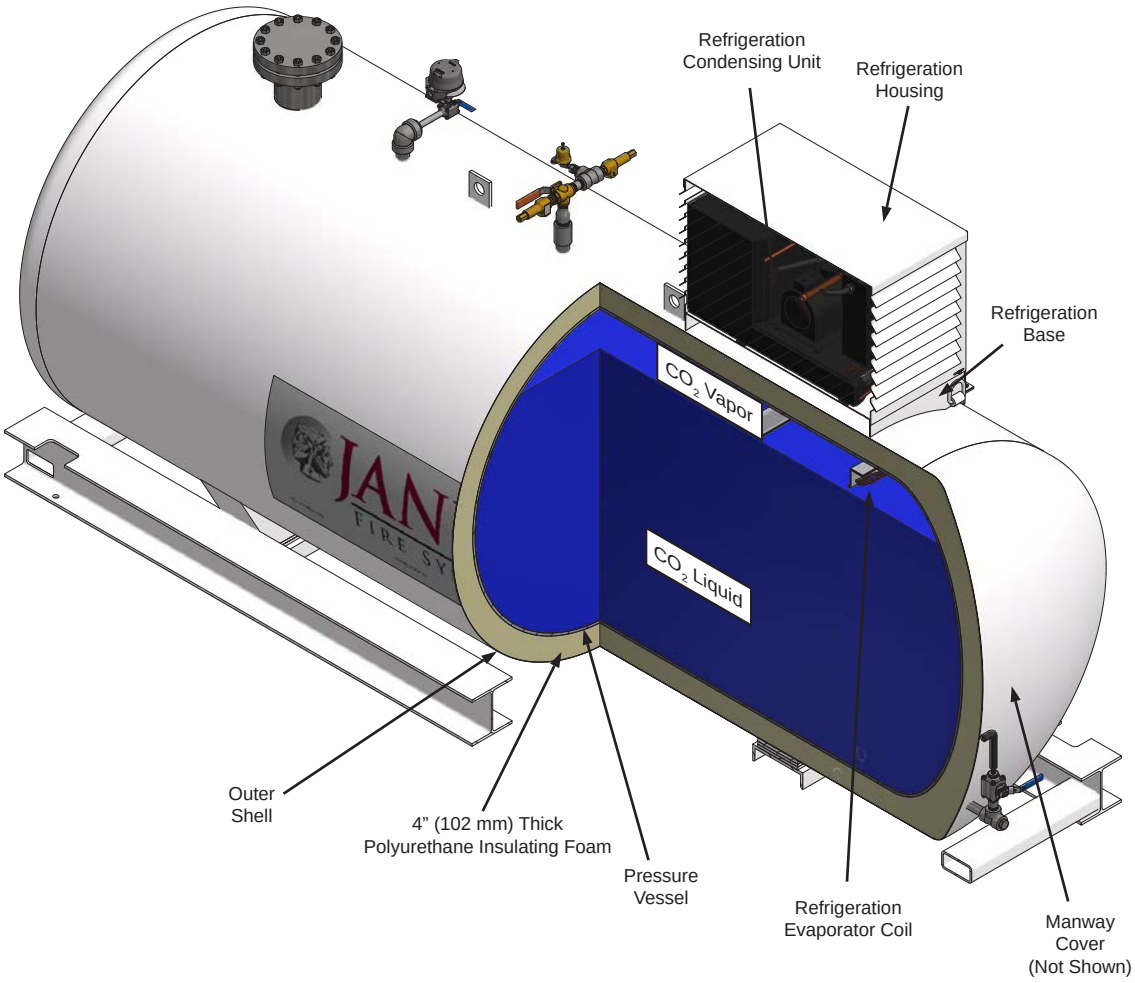

**Typical Low Pressure Carbon Dioxide Storage Unit**

The vessel has an integrated refrigeration system that utilizes CFC-free R-404A refrigerant. A pressure switch monitors the internal pressure of the vessel and controls the refrigeration compressor. The optimal internal pressure is 300 psi (20.7 bar). The refrigeration coils are located in the pressure vessel vapor space to provide the required cooling of the $CO_2$ vapor. When the $CO_2$ pressure within the vessel reaches approximately 310 psi (21.4 bar), the pressure switch closes starting the compressor. It continues running, cooling the $CO_2$ until pressure within the vessel drops to approximately 290 psi (20.0 bar) at which point the pressure switch opens and the compressor stops operating. An optional external tank heater is available to maintain $CO_2$ pressure in severe low temperatures and is recommended where temperatures are below -10°F (-23.3°C) for seven (7) consecutive days.

Each storage unit is fitted with pressure and liquid level gauges. In the event of power failure, a bleeder valve set at 341 psi (23.5 bar) allows a small amount of vaporous $CO_2$ to bleed out of the vapor space providing natural cooling of the liquid $CO_2$ within the vessel. An ASME VIII approved safety valve provides emergency pressure relief should the bleeder valve be unable to maintain the $CO_2$ pressure and is set to open at 357 psi (24.6 bar).

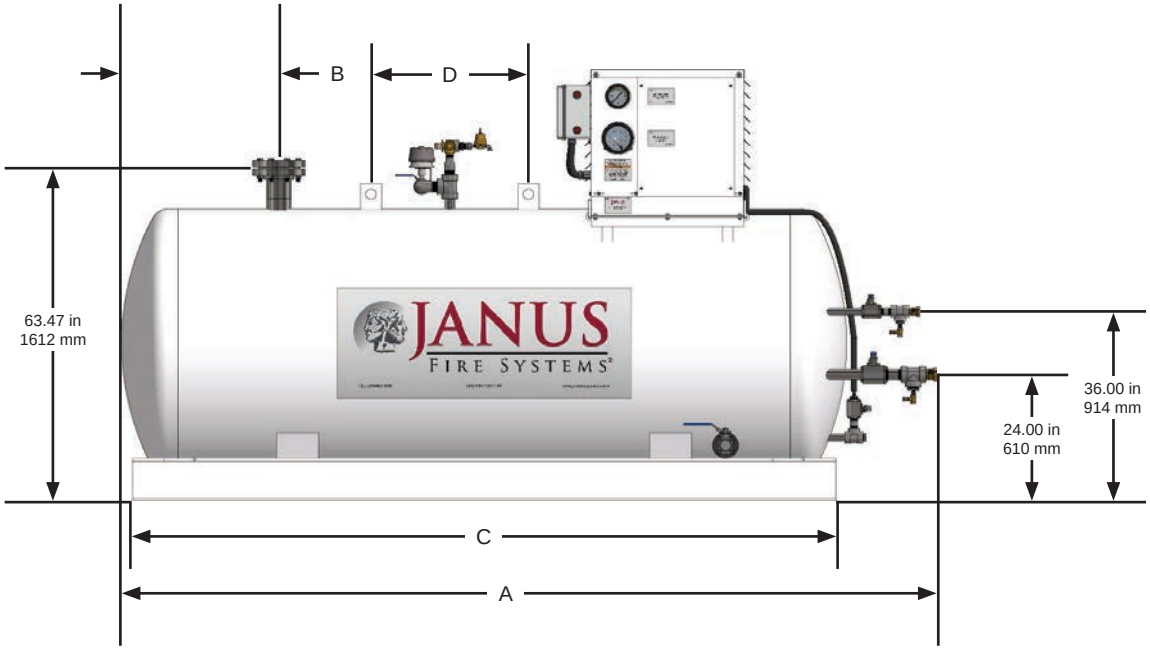
The standard voltage for 42” storage units is 120V, 1 phase, 60 Hz, while the 54” and 78” storage units are 460V, 3 phase, 60 Hz. Alternative voltage refrigeration systems are available.

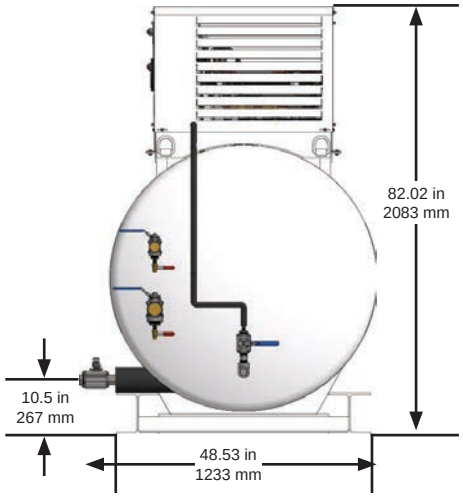
Optional dual refrigeration units are available. Each refrigeration unit for this option is designed to operate as a standalone system with individual refrigeration compressors, controls, and coils. The refrigeration controls operate both refrigeration units independently to enable the units to cycle separately. The refrigeration system has a separate pressure control switch set at approximately 325 psi (22.4 bar) rise to operate both units simultaneously should a high ambient condition require additional cooling capacity.

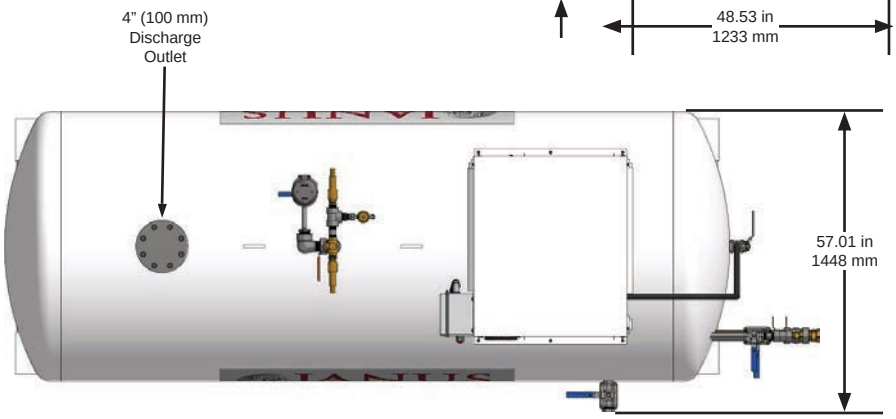



**Typical Low Pressure Carbon Dioxide Storage Unit Interior View**

# 42” $LPCO_2$ Storage Unit



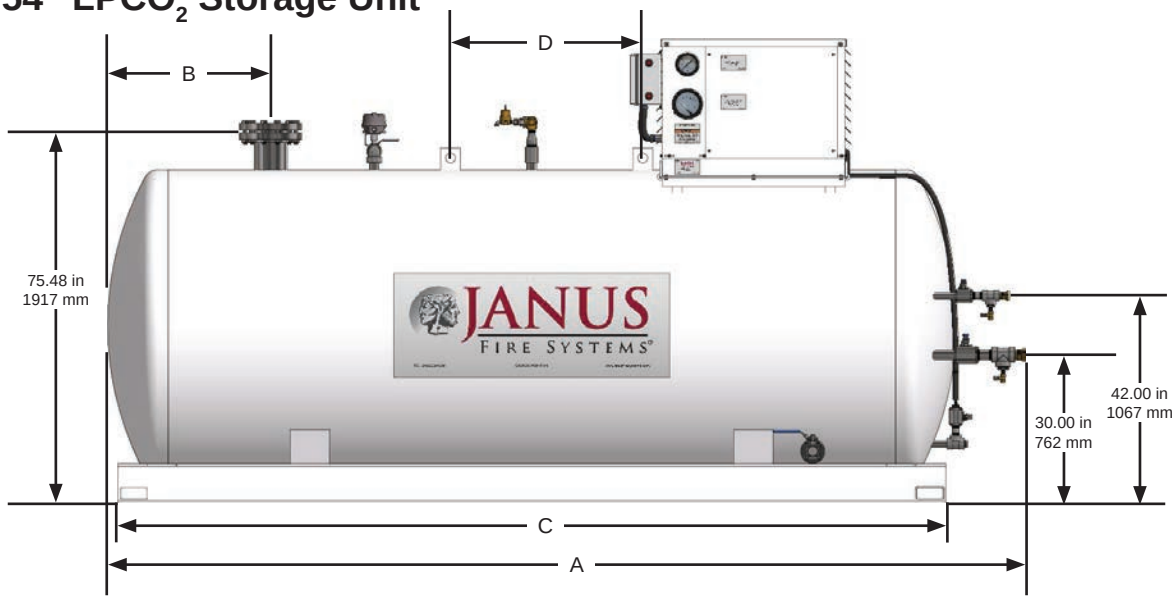



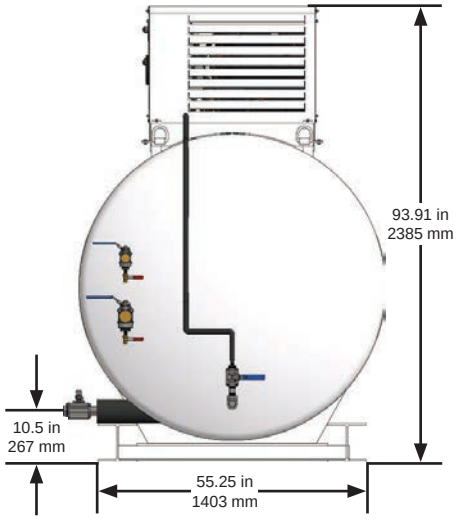



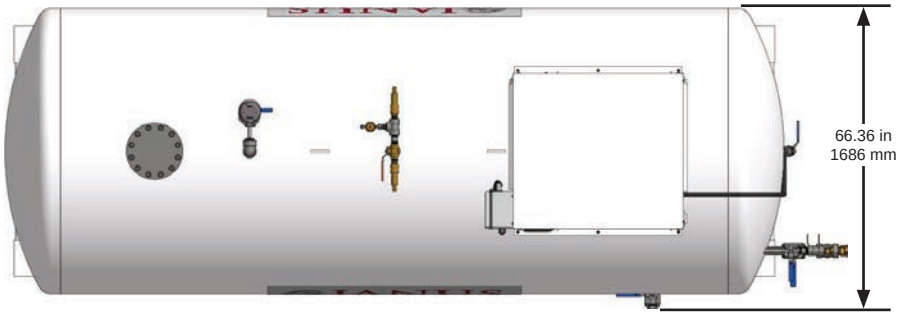

| Nominal Tank Capacity | P/N | Dimensions | | | | | | | | | | Empty Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | | B | | C | | D | | E | | | |
| | | in | mm | in | mm | in | mm | in | mm | in | mm | lb | kg |
| 1.25 ton | 19354 | 107.53 | 2731 | 22.06 | 560 | 86.25 | 2191 | N/A[1] | N/A[1] | 4000 | 1814 | 3025 | 1372 |
| 2.75 ton | 19355 | 155.28 | 3944 | 30.00 | 762 | 134.00 | 3404 | 30.00 | 762 | 5300 | 2404 | 4950 | 2245 |

[1] 1.25-Ton Storage Unit only contains one lifting lug.

# 54” $LPCO_2$ Storage Unit



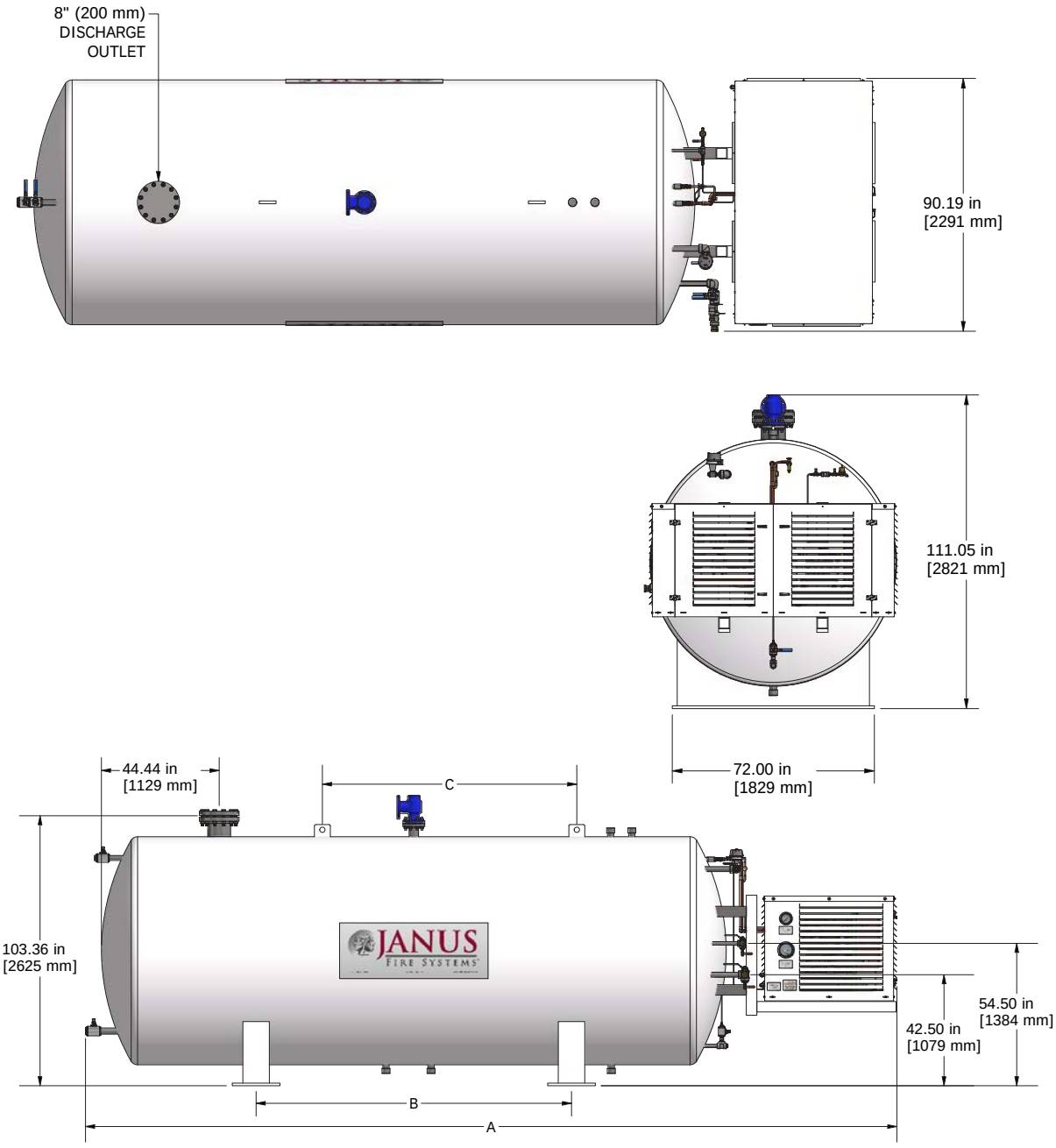




| Nominal Tank Capacity | P/N | Dimensions | | | | | | | | Empty Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | | B | | C | | D | | | |
| | | in | mm | in | mm | in | mm | in | mm | lb | kg |
| 4 ton | 19356 | 139.1 | 3533 | 35.5 | 903 | 130.0 | 3302 | N/A[1] | N/A[1] | 7250 | 3289 |
| 6 ton | 19357 | 186.1 | 4728 | 33.0 | 839 | 168.0 | 4267 | 39.0 | 991 | 9150 | 4150 |
| 8 ton | 19358 | 238.1 | 6048 | 33.0 | 839 | 220.0 | 5588 | 72.0 | 1829 | 10850 | 4921 |
| 10 ton | 19359 | 290.1 | 7369 | 33.0 | 839 | 272.0 | 6909 | 116.5 | 2959 | 12950 | 5874 |
| 12 ton | 19360 | 342.1 | 8690 | 33.0 | 839 | 324.0 | 8230 | 150.5 | 3823 | 14850 | 6736 |

[1] 4-Ton Lifting Lugs located on end of base. Contact Janus Fire System for further information.

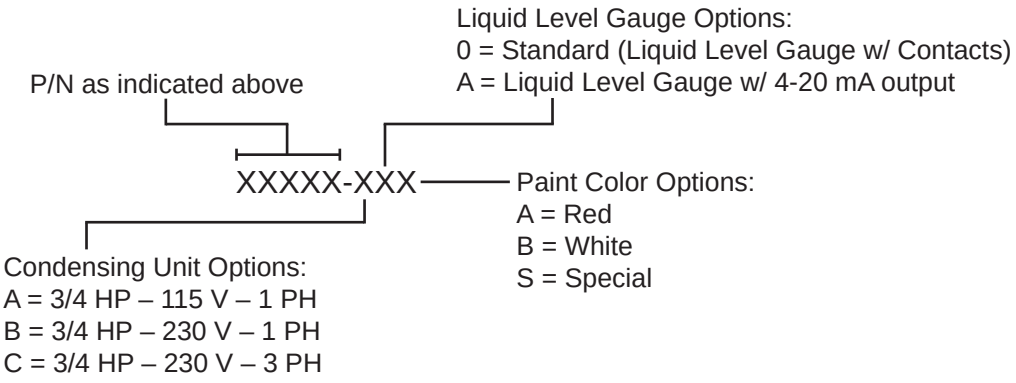
# 78” $LPCO_2$ Storage Unit




| Nominal Tank Capacity | Dimensions | | | | | | Empty Weight | |
|---|---|---|---|---|---|---|---|---|
| | A | | B | | C | | | |
| | in | mm | in | mm | in | mm | lb | kg |
| 13 ton | 258.13 | 6556 | 73.0 | 1854 | 84.5 | 2146 | 14565 | 6606 |
| 17 ton | 306.13 | 7776 | 119.0 | 3023 | 96.0 | 2438 | 17186 | 7795 |
| 24 ton | 399.12 | 10138 | 212.0 | 5385 | 128.0 | 3251 | 22012 | 9984 |
| 31 ton | 483.13 | 12271 | 288.0 | 7315 | 180.0 | 4572 | 26448 | 11996 |
| 38 ton | 574.27 | 14586 | 377.0 | 9576 | 240.0 | 6096 | 31149 | 14128 |
| 45 ton | 663.27 | 16847 | 466.0 | 11836 | 240.0 | 6096 | 35850 | 16259 |

| Ordering Information (42” Low Pressure Carbon Dioxide Storage Units) | | |
|---|---|---|
| **P/N** | **Tank Size** | **Description (see below for options)** |
| **19354** | **1.25 ton** | **Storage Unit, LPCO2, 42”** |
| **19355** | **2.75 ton** | **Storage Unit, LPCO2, 42”** |

**Ordering Instructions**: Specify the $LPCO_2$ Storage Unit P/N followed by a dash and the appropriate three digit option code as illustrated below.

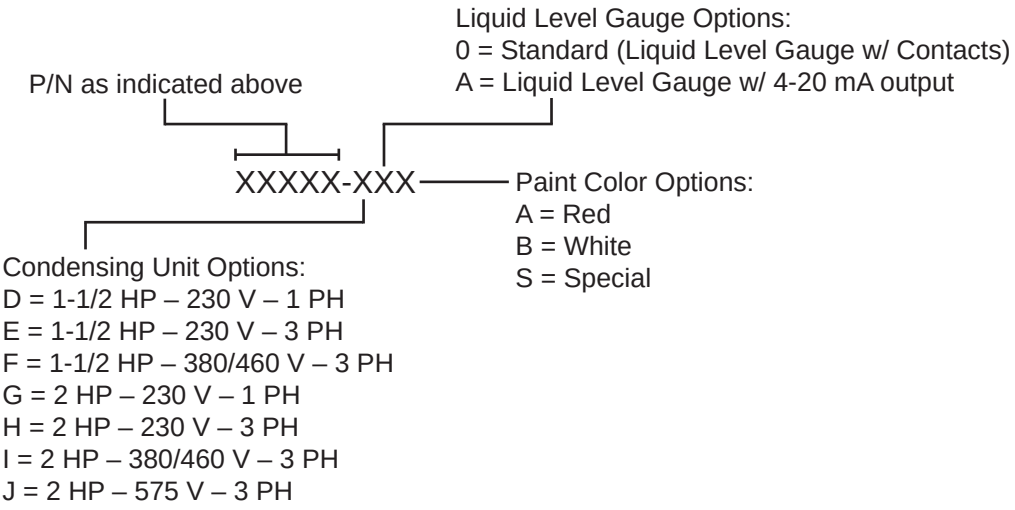



Note:
All condensing units operate at both 50Hz and 60Hz. However, operating at 50Hz reduces the refrigeration capacity to 83%

**Examples:**
19354-C0B – Storage Unit, LPCO2, 42”, 1.25 ton, 230 V, 3 PH, 3/4 HP, Standard LLG, White
19355-AAB – Storage Unit, LPCO2, 42”, 2.75 ton, 115 V, 1 PH, 3/4 HP, LLG w/ 4-20 mA output, White

| Ordering Information (54” Low Pressure Carbon Dioxide Storage Units) | | |
|---|---|---|
| **P/N** | **Tank Size** | **Description (see below for options)** |
| **19356** | **4 ton** | **Storage Unit, LPCO2, 54”** |
| **19357** | **6 ton** | **Storage Unit, LPCO2, 54”** |
| **19358** | **8 ton** | **Storage Unit, LPCO2, 54”** |
| **19359** | **10 ton** | **Storage Unit, LPCO2, 54”** |
| **19360** | **12 ton** | **Storage Unit, LPCO2, 54"** |

**Ordering Instructions**: Specify the $LPCO_2$ Storage Unit P/N followed by a dash and the appropriate three digit option code as illustrated below.

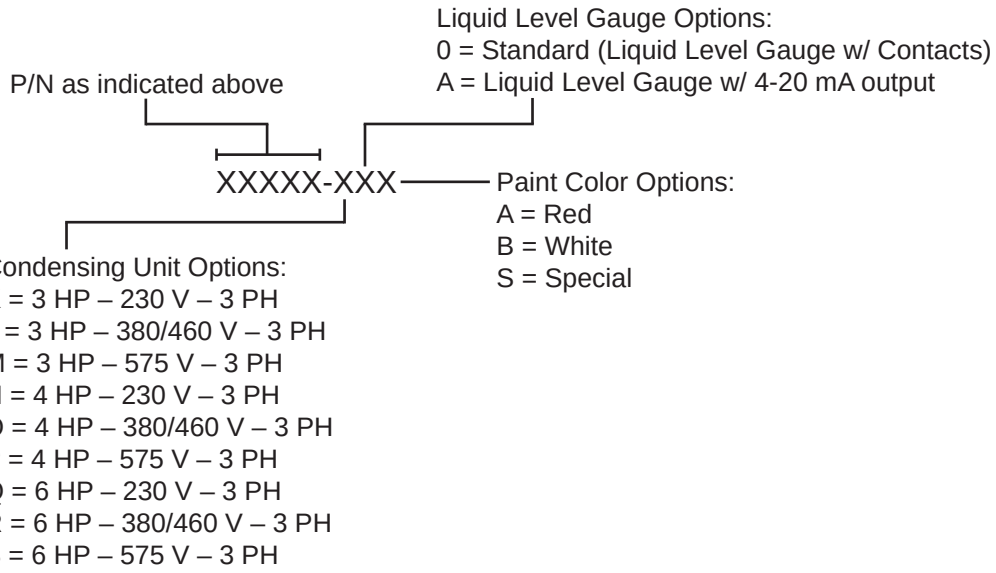



Notes:
2 Horse Power Condensing Units are standard for 4,6, 8, 10, and 12-Ton Storage Units.
All condensing units operate at both 50Hz and 60Hz. However, operating at 50Hz reduces the refrigeration capacity to 83%

**Examples:**
19357-G0B – Storage Unit, LPCO2, 54”, 6 ton, 230 V, 1 PH, 2 HP, Standard LLG, White
19358-JAB – Storage Unit, LPCO2, 54”, 8 ton, 575 V, 3 PH, 2 HP, LLG w/ 4-20 mA output, White

| Ordering Information (78” Low Pressure Carbon Dioxide Storage Units) | | |
|---|---|---|
| **P/N** | **Tank Size** | **Description (see below for options)** |
| **97492** | **13 ton** | **Storage Unit, LPCO2, 78”** |
| **19361** | **17 ton** | **Storage Unit, LPCO2, 78”** |
| **19362** | **24 ton** | **Storage Unit, LPCO2, 78”** |
| **19363** | **31 ton** | **Storage Unit, LPCO2, 78”** |
| **19364** | **38 ton** | **Storage Unit, LPCO2, 78”** |
| **19365** | **45 ton** | **Storage Unit, LPCO2, 78”** |

**Ordering Instructions**: Specify the $LPCO_2$ Storage Unit P/N followed by a dash and the appropriate three digit option code as illustrated below.




Notes:
3 Horse Power Condensing Units are standard for 13, 17, and 24-Ton Storage Units.
6 Horse Power Condensing Units are standard for 31 and 38-Ton Storage Units.
All condensing units operate at both 50Hz and 60Hz. However, operating at 50Hz reduces the refrigeration capacity to 83%

**Examples:**
19361-K0B – Storage Unit, LPCO2, 78”, 17 ton, 230 V, 3 PH, 3 HP, Standard LLG, White
19364-SAB – Storage Unit, LPCO2, 78”, 38 ton, 575 V, 3 PH, 6 HP, LLG w/ 4-20 mA output, White



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