

marstair

CO₂+HOTGAS Evaporators



4-PIPE CO₂ CASSETTE EVAPORATORS
WITH CO₂ HOT GAS HEATING CIRCUIT

AN INNOVATIVE RANGE OF
CASSETTES FITTED WITH A CO₂
EVAPORATOR COOLING CIRCUIT
AND AN CO₂ HOT GAS HEATING
CIRCUIT SPECIFICALLY DESIGNED
FOR COMFORT COOLING

CO₂ evaporator circuit max working pressure = 60 BAR

CO₂ Hot gas heating circuit max working pressure = 120 BAR

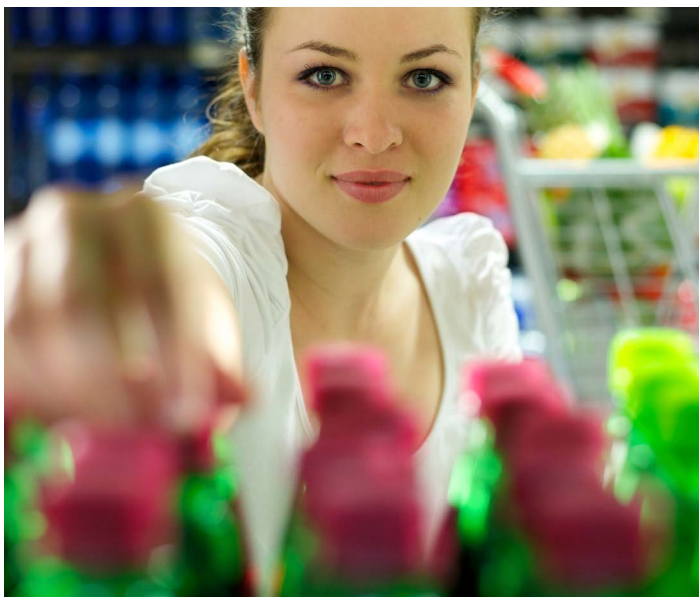


These simple to install and quiet evaporators offer the ability to deliver comfort cooling and heating at the higher pressures required for CO₂ refrigerant. The hot gas heating circuit is for recycling the waste heat produced from the CO₂ pack. This allows all your refrigeration and air conditioning needs to be supplied through the one CO₂ pack, creating a more efficient system and eradicating the need for separate split systems for space cooling and heating.

Units are available with a range of cooling duties from 2.9 to 8.2kW for comfort cooling and a range of heating duties. The lightweight, one-piece, removable chassis allows total access to all mechanical and electrical connections. The units deliver long air throws and low sound levels

APPLICATIONS

- CO₂ only for low temperature food preparation areas
- CO₂ only for cooling only comfort cooling
- Hotgas only for heating using recovered heat from the CO₂ pack
- Combined CO₂ and Hotgas for comfort cooling and heating



For further information please contact our Technical Department on **01484 405666** or email us at sales@marstair.com

Specification

- Cooling Circuit -
Coils tested to 90barg
Maximum operating pressure = 60barg
- Heating Circuit -
Coils tested to 140barg
Maximum operating pressure = 120barg
- Units supplied with coil thermostat for passive defrosting
- Electric heating of up to 4kW available
- Units fitted with 0.5m lift condensate pump
- 4 way discharge cassette
- Low sound levels
- Long Air throws
- Removable 1 piece lightweight chassis
- Integral easy to clean chassis
- Easy access filters
- All services accessible from 1 corner
- Provision for fresh air inlet or branch duct outlet
- AC and EC fan options available

Technical Information

Performance Figures Cooling

CC 600 - 1 row

| FAN SPEED | Air On °C | Humidity 75% RH | Evaporating Temperature °C | | | | | | | | | | | |
|-----------|-----------|-----------------|----------------------------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| | | | -2.5 | | 0 | | 2.5 | | 5 | | 7 | | 7.5 | |
| | | | Total | Sens | Total | Sens | Total | Sens | Total | Sens | Total | Sens | Total | Sens |
| Low | 5 | 75 | 0.86 | 0.66 | 0.33 | 0.33 | - | - | - | - | - | - | - | - |
| | 10 | 75 | 1.7 | 1.1 | 1.3 | 0.9 | 0.86 | 0.66 | - | - | - | - | - | - |
| | 15 | 75 | 2.7 | 1.6 | 2.3 | 1.4 | 1.8 | 1.1 | 1.4 | 0.9 | 0.5 | 0.5 | 0.5 | 0.5 |
| | 20 | 50 | 3.1 | 2.1 | 2.7 | 1.9 | 2.2 | 1.6 | 1.8 | 1.4 | 1.2 | 1.2 | 1.2 | 1.2 |
| | 23 | 50 | 3.7 | 2.3 | 3.3 | 2.1 | 2.9 | 1.9 | 2.4 | 1.7 | 2 | 1.5 | 1.8 | 1.4 |
| Medium | 5 | 75 | 0.94 | 0.73 | 0.51 | 0.51 | - | - | - | - | - | - | - | - |
| | 10 | 75 | 1.8 | 1.2 | 1.4 | 1 | 0.94 | 0.73 | - | - | - | - | - | - |
| | 15 | 75 | 2.9 | 1.7 | 2.5 | 1.5 | 2 | 1.2 | 1.5 | 1 | 1 | 0.7 | 0.5 | 0.5 |
| | 20 | 50 | 3.4 | 2.3 | 3 | 2.1 | 2.5 | 1.8 | 2 | 1.6 | 1.2 | 1.2 | 1.2 | 1.2 |
| | 23 | 50 | 4.1 | 2.6 | 3.7 | 2.3 | 3.1 | 2.1 | 2.7 | 1.8 | 2.2 | 1.6 | 2 | 1.6 |
| High | 5 | 75 | 1 | 0.8 | 0.57 | 0.57 | - | - | - | - | - | - | - | - |
| | 10 | 75 | 2 | 1.3 | 1.6 | 1.1 | 1 | 0.8 | - | - | - | - | - | - |
| | 15 | 75 | 3.2 | 1.9 | 2.8 | 1.6 | 2.2 | 1.3 | 1.7 | 1.1 | 1.2 | 0.8 | 1 | 0.8 |
| | 20 | 50 | 3.8 | 2.5 | 3.3 | 2.3 | 2.7 | 2 | 2.2 | 1.7 | 1.5 | 1.5 | 1.5 | 1.5 |
| | 23 | 50 | 4.5 | 2.8 | 4 | 2.6 | 3.4 | 2.3 | 2.9 | 2 | 2.4 | 1.8 | 2.2 | 1.7 |

CC 875 - 1 row

| FAN SPEED | Air On °C | Humidity 75% RH | Evaporating Temperature °C | | | | | | | | | | | |
|-----------|-----------|-----------------|----------------------------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| | | | -2.5 | | 0 | | 2.5 | | 5 | | 7 | | 7.5 | |
| | | | Total | Sens | Total | Sens | Total | Sens | Total | Sens | Total | Sens | Total | Sens |
| Low | 5 | 75 | 1.2 | 0.9 | 0.8 | 0.8 | - | - | - | - | - | - | - | - |
| | 10 | 75 | 2.2 | 1.4 | 1.8 | 1.2 | 1.2 | 0.9 | 0.7 | 0.7 | - | - | - | - |
| | 15 | 75 | 3.9 | 2.3 | 3.3 | 2.0 | 2.5 | 1.6 | 1.8 | 1.2 | 0.6 | 0.6 | - | - |
| | 20 | 50 | 4.5 | 3.0 | 3.9 | 2.7 | 3.1 | 2.2 | 2.2 | 1.8 | 1.5 | 1.5 | - | - |
| | 23 | 50 | 5.4 | 3.3 | 4.7 | 3.0 | 4.1 | 2.7 | 3.0 | 2.1 | 2.5 | 1.9 | 2.2 | 1.8 |
| Medium | 5 | 75 | 1.5 | 1.2 | 1.0 | 1.0 | - | - | - | - | - | - | - | - |
| | 10 | 75 | 2.5 | 1.7 | 1.8 | 1.3 | 1.4 | 1.2 | 0.8 | 0.8 | - | - | - | - |
| | 15 | 75 | 4.5 | 2.6 | 3.7 | 2.2 | 2.9 | 1.8 | 2.1 | 1.4 | 1.4 | 1.0 | - | - |
| | 20 | 50 | 5.3 | 3.6 | 4.5 | 3.2 | 3.7 | 2.6 | 2.8 | 2.2 | 1.7 | 1.7 | - | - |
| | 23 | 50 | 6.4 | 4.0 | 5.6 | 3.5 | 4.5 | 3.1 | 3.7 | 2.5 | 3.0 | 2.2 | 2.8 | 2.2 |
| High | 5 | 75 | 1.6 | 1.3 | 1.1 | 1.1 | - | - | - | - | - | - | - | - |
| | 10 | 75 | 2.9 | 1.8 | 2.3 | 1.6 | 1.6 | 1.3 | 1.0 | 1.0 | - | - | - | - |
| | 15 | 75 | 4.9 | 2.9 | 4.3 | 2.5 | 3.2 | 1.9 | 2.4 | 1.5 | 1.7 | 1.2 | - | - |
| | 20 | 50 | 5.9 | 3.9 | 5.1 | 3.5 | 4.0 | 2.9 | 3.0 | 2.4 | 2.1 | 2.1 | - | - |
| | 23 | 50 | 7.0 | 4.3 | 6.2 | 4.0 | 5.0 | 3.4 | 4.0 | 2.8 | 3.3 | 2.5 | 3.0 | 2.4 |

CC 875 - 2 row

| FAN SPEED | Air On °C | Humidity 75% RH | Evaporating Temperature °C | | | | | | | | | | | |
|-----------|-----------|-----------------|----------------------------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| | | | -2.5 | | 0 | | 2.5 | | 5 | | 7 | | 7.5 | |
| | | | Total | Sens | Total | Sens | Total | Sens | Total | Sens | Total | Sens | Total | Sens |
| Low | 5 | 75 | 2.1 | 1.6 | 1.4 | 1.4 | - | - | - | - | - | - | - | - |
| | 10 | 75 | 3.8 | 2.5 | 3.1 | 2.1 | 2.1 | 1.6 | 1.2 | 1.2 | - | - | - | - |
| | 15 | 75 | 6.8 | 4 | 5.7 | 3.5 | 4.4 | 2.7 | 3.1 | 2 | 1.1 | 1.1 | - | - |
| | 20 | 50 | 7.8 | 5.3 | 6.7 | 4.7 | 5.4 | 3.9 | 3.9 | 3.1 | 2.6 | 2.6 | - | - |
| | 23 | 50 | 9.4 | 5.8 | 8.2 | 5.2 | 7.1 | 4.7 | 5.3 | 3.7 | 4.3 | 3.3 | 3.9 | 3.1 |
| Medium | 5 | 75 | 2.6 | 2 | 1.7 | 1.7 | - | - | - | - | - | - | - | - |
| | 10 | 75 | 4.4 | 3 | 3.2 | 2.3 | 2.5 | 2 | 1.4 | 1.4 | - | - | - | - |
| | 15 | 75 | 7.8 | 4.6 | 6.5 | 3.9 | 5.1 | 3.1 | 3.6 | 2.4 | 2.4 | 1.7 | - | - |
| | 20 | 50 | 9.2 | 6.2 | 7.8 | 5.5 | 6.4 | 4.6 | 4.8 | 3.8 | 2.9 | 2.9 | - | - |
| | 23 | 50 | 11.1 | 7 | 9.7 | 6 | 7.9 | 5.4 | 6.5 | 4.3 | 5.3 | 3.8 | 4.8 | 3.8 |
| High | 5 | 75 | 2.8 | 2.2 | 1.9 | 1.9 | - | - | - | - | - | - | - | - |
| | 10 | 75 | 5 | 3.2 | 4 | 2.7 | 2.8 | 2.2 | 1.8 | 1.8 | - | - | - | - |
| | 15 | 75 | 8.6 | 5.1 | 7.5 | 4.3 | 5.6 | 3.3 | 4.1 | 2.6 | 2.9 | 2 | - | - |
| | 20 | 50 | 10.2 | 6.7 | 8.8 | 6.1 | 6.9 | 5.1 | 5.3 | 4.1 | 3.6 | 3.6 | - | - |
| | 23 | 50 | 12.1 | 7.5 | 10.7 | 7 | 8.7 | 5.9 | 7 | 4.8 | 5.8 | 4.3 | 5.3 | 4.1 |

CC 875 - 4 row

| FAN SPEED | Air On °C | Humidity 75% RH | Evaporating Temperature °C | | | | | | | | | | | |
|-----------|-----------|-----------------|----------------------------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| | | | -2.5 | | 0 | | 2.5 | | 5 | | 7 | | 7.5 | |
| | | | Total | Sens | Total | Sens | Total | Sens | Total | Sens | Total | Sens | Total | Sens |
| Low | 5 | 75 | 2.5 | 1.9 | 1.6 | 1.6 | - | - | - | - | - | - | - | - |
| | 10 | 75 | 4.5 | 2.9 | 3.6 | 2.5 | 2.5 | 1.9 | 1.4 | - | - | - | - | - |
| | 15 | 75 | 8.0 | 4.7 | 6.7 | 4.1 | 5.2 | 3.2 | 3.6 | 2.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| | 20 | 50 | 9.2 | 6.2 | 7.9 | 5.5 | 6.4 | 4.6 | 4.6 | 3.6 | 3.1 | 3.1 | 3.1 | 3.1 |
| | 23 | 50 | 11.0 | 6.8 | 9.6 | 6.1 | 8.4 | 5.5 | 6.2 | 4.4 | 5.1 | 3.9 | 4.6 | 3.6 |
| Medium | 5 | 75 | 3.0 | 2.3 | 2.0 | 2.0 | - | - | - | - | - | - | - | - |
| | 10 | 75 | 5.2 | 3.5 | 3.8 | 2.7 | 2.9 | 2.3 | 1.6 | - | - | - | - | - |
| | 15 | 75 | 9.2 | 5.4 | 7.7 | 4.6 | 6.0 | 3.6 | 4.2 | 2.8 | 2.8 | 2.0 | 1.4 | 1.4 |
| | 20 | 50 | 10.8 | 7.3 | 9.2 | 6.5 | 7.5 | 5.4 | 5.6 | 4.5 | 3.4 | 3.4 | 3.4 | 3.4 |
| | 23 | 50 | 13.0 | 8.2 | 11.4 | 7.1 | 9.3 | 6.3 | 7.6 | 5.0 | 6.2 | 4.5 | 5.6 | 4.5 |
| High | 5 | 75 | 3.3 | 2.6 | 2.2 | 2.2 | - | - | - | - | - | - | - | - |
| | 10 | 75 | 5.9 | 3.8 | 4.7 | 3.2 | 3.3 | 2.6 | 2.1 | - | - | - | - | - |
| | 15 | 75 | 10.1 | 6.0 | 8.8 | 5.0 | 6.6 | 3.9 | 4.8 | 3.1 | 3.4 | 2.3 | 2.8 | 2.3 |
| | 20 | 50 | 12.0 | 7.9 | 10.4 | 7.2 | 8.1 | 6.0 | 6.2 | 4.8 | 4.2 | 4.2 | 4.2 | 4.2 |
| | 23 | 50 | 14.2 | 8.8 | 12.6 | 8.2 | 10.2 | 6.9 | 8.2 | 5.6 | 6.8 | 5.1 | 6.2 | 4.8 |

Performance Figures Heating

| Fan Speed | CC 875 - Coil Rows | | | | CC 600 - Coil Rows |
|-----------|--------------------|------|------|------|--------------------|
| | 1 | 2 | 3 | 4 | 1 |
| Low | 2.0 | 5.0 | 6.5 | 7.5 | 1.8 |
| Medium | 3.0 | 7.5 | 9.8 | 11.3 | 2.2 |
| High | 4.0 | 10.0 | 13.0 | 15.0 | 2.7 |

Maximun coil rows available for 600 - 2 rows ie. 1 row of cooling + 1 row of heating
 Maximun coil rows available for 875 - 4 rows ie. 2 row of cooling + 2 row of heating

Airflows

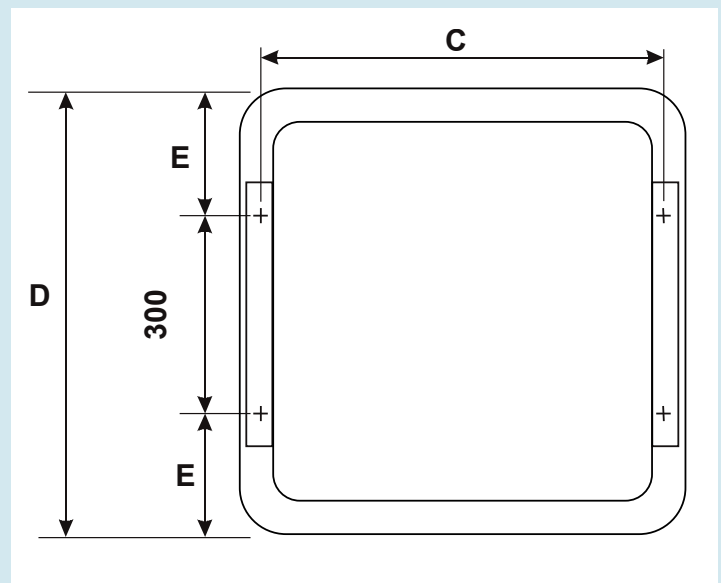
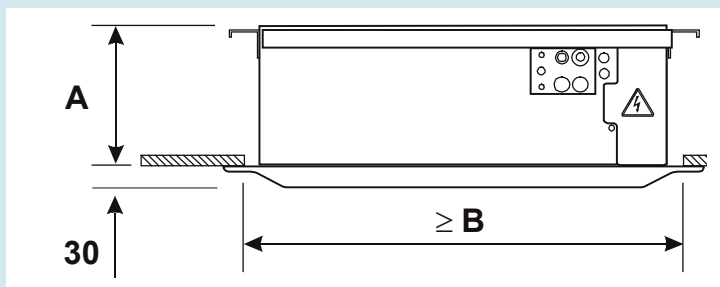
| RANGE | LOW SPEED | MEDIUM SPEED | HIGH SPEED |
|-----------------------------|-----------|--------------|------------|
| 600 (ALL) M ³ /S | | | |
| 1 ROW | 0.173 | 0.209 | 0.256 |
| 2 ROW | 0.173 | 0.209 | 0.256 |
| 875 (ALL) M ³ /S | | | |
| 2 ROW | 0.37 | 0.45 | 0.54 |
| 3 ROW | 0.36 | 0.45 | 0.53 |
| 4 ROW | 0.35 | 0.43 | 0.50 |

Sound Power & Sound Pressure (Speed 1 = Lowest, Speed 5 = Highest)

| | | SOUND POWER LEVELS | | | | | | | | SOUND PRESSURE LEVELS | |
|-----|-------|--------------------|------|------|------|------|------|------|----|-----------------------|----|
| | | FREQUENCY Hz | | | | | | | | dBA | NC |
| | | 125 | 250 | 500 | 1K | 2K | 4K | dBA | | | |
| 600 | 1 ROW | 3 | 61.6 | 57.8 | 55.6 | 53.8 | 48.5 | 44.4 | 58 | 37 | 31 |
| | | 4 | 62.9 | 60.1 | 57.6 | 56.3 | 51.3 | 46.8 | 61 | 40 | 34 |
| | | 5 | 67.0 | 65.6 | 62.9 | 61.3 | 57.6 | 53.0 | 66 | 45 | 39 |
| | 2 ROW | 3 | 61.9 | 59.0 | 56.2 | 54.2 | 48.9 | 44.2 | 59 | 38 | 32 |
| | | 4 | 63.1 | 62.0 | 58.3 | 56.6 | 51.6 | 46.7 | 61 | 40 | 34 |
| | | 5 | 68.0 | 67.3 | 63.5 | 61.9 | 57.5 | 52.8 | 67 | 46 | 40 |
| 800 | 2 ROW | 2 | 59.1 | 58.7 | 56.0 | 57.0 | 49.5 | 39.2 | 60 | 42 | 38 |
| | | 3 | 63.4 | 62.4 | 59.3 | 59.5 | 54.2 | 45.6 | 63 | 45 | 40 |
| | | 4 | 66.1 | 65.5 | 62.9 | 62.5 | 57.8 | 50.8 | 66 | 48 | 43 |
| | 3 ROW | 2 | 63.1 | 60.5 | 57.8 | 58.4 | 50.6 | 40.3 | 61 | 43 | 38 |
| | | 3 | 66.3 | 63.7 | 60.8 | 60.8 | 55.2 | 46.4 | 64 | 46 | 40 |
| | | 4 | 68.8 | 67.1 | 64.5 | 63.9 | 59.1 | 52.6 | 68 | 50 | 43 |
| | 4 ROW | 2 | 67.1 | 62.3 | 59.5 | 59.7 | 51.7 | 41.4 | 63 | 45 | 40 |
| | | 3 | 69.2 | 64.9 | 62.2 | 62.0 | 56.2 | 47.1 | 65 | 47 | 43 |
| | | 4 | 71.5 | 68.6 | 66.1 | 65.2 | 60.3 | 54.4 | 69 | 51 | 46 |

Sound Power Levels are obtained in conformance with BS4196:Part 5: 1981. Values are shown in dB with a standard reference of 1pW.
 Sound Pressure Levels are dB relative to 2x10⁻⁵N/m and are calculated from results measured in anechoic conditions.
 Values relate to a position of 3m away from the centre line of the unit, 1m down.

Unit Dimensions & Weight (Unpacked with fascia fitted)



| DIMENSIONS AND WEIGHTS | | | | | |
|------------------------|--------|-------|--------|-------|-------|
| MODEL | CC 600 | | CC 875 | | |
| | 1 ROW | 2 ROW | 2 ROW | 3 ROW | 4 ROW |
| DIM 'A' (mm) | 306 | 306 | 314 | 314 | 314 |
| DIM 'B' (mm) | 580 | 580 | 900 | 900 | 900 |
| DIM 'C' (mm) | 610 | 610 | 913 | 913 | 913 |
| DIM 'D' (mm) | 675 | 675 | 966 | 966 | 966 |
| DIM 'E' (mm) | 187.5 | 187.5 | 333 | 333 | 333 |
| WEIGHT (kg) | 21 | 23 | 36 | 40 | 44 |



TEV Ltd, Marstair Division, Armytage Road, Brighouse, West Yorkshire, HD6 1QF, England.

Tel: **+44 (0) 1484 405666** Fax: +44 (0) 870 606 4850 E: sales@marstair.com

www.marstair.com

A division of TEV Limited

Part No: 06617721-01

For full design information, reference should be made to the technical manual.
 We reserve the right to alter designs and specifications at any time without notification.
 To view our Terms and Conditions visit www.tevlimited.com/terms.html

Process/Material Cooling • Close Control • Refrigeration