

POLYCOLD[®] PCC COMPACT COOLERS

EFFICIENT HEAT REMOVAL
FOR DEMANDING APPLICATIONS

edwardsvacuum.com

The Polycold[®] PCC is a compact, high-performance cooling system that brings efficiency and reliability to your applications. PCC delivers proven, dependable cooling and is designed to ensure repeatable performance and minimise maintenance costs. Its compact design and remote cold end give you a robust system with a small footprint. This low-vibration heat removal system is capable of maintaining temperatures as low as -203° C (70 Kelvin).

PCC Components

Cold End: The rugged, low-vibration PCC cold end can be used in any orientation, and located remotely from the compressor. Available nickel plated or Mylar wrapped. For PT blends, options include standard or high performance.

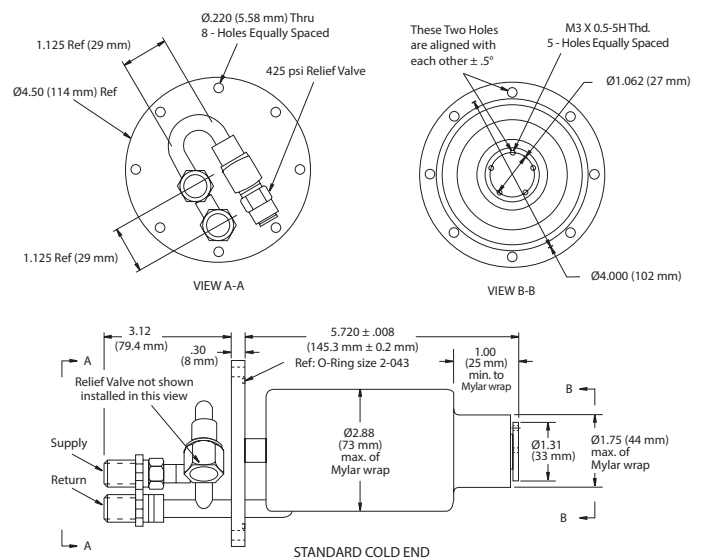
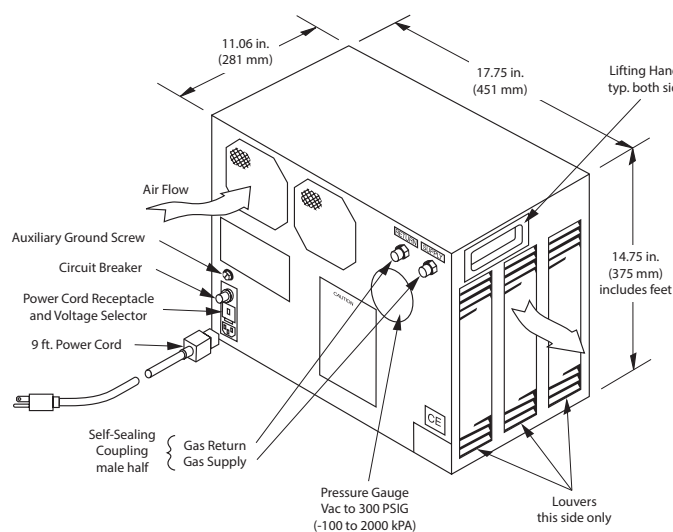
Compressor: The closed cycle PCC compressor uses patented gas blends and innovative oil management for quiet and reliable performance in a small footprint. Electricity is the only utility required for operation.

Gas Lines: Self-sealing couplings ensure quick and easy hook-up, and the compressor can be located up to 120 feet from the cold end. Refrigerant travels through the gas lines at room temperature.

Refrigerant Blends: Different patented mixed gas refrigerant blends tailor the temperature and cooling capacity for a wide variety of applications.



Polycold[®] PCC Compact Cooler Compressor, Gas Lines and Cold End



Features and Benefits

- Compact size, remote cold end and minimal connections make this a smart solution for most applications
- Low vibration
- Rapid cooldown
- Cooling to -203° C (70 K)
- Eliminates the need for liquid nitrogen

Compressor and Gas Lines

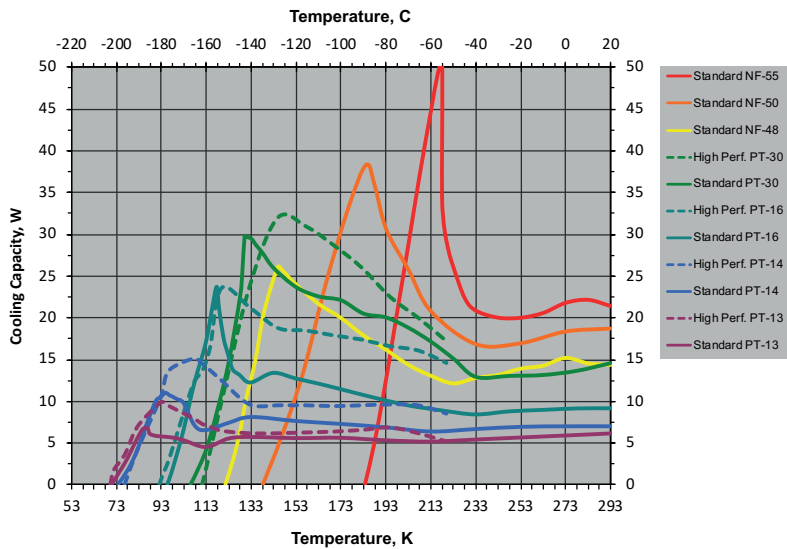
| Compressor | |
|--|---|
| Weight | 31.1 kg (68.5 lbs.) |
| Orientation | Base down required (level to within 10°) |
| Power requirement | Single phase, 50/60 Hz, 500 Watts nominal. External switch allows you to select 100, 120, 220, or 240 Volt operation. |
| Cooling | Air-cooled |
| Agency approvals | CE, NRTL, SEMI S2, SEMI F47 |
| Gas Lines | |
| Construction | Braided stainless steel |
| Diameter | 0.5 inch (12.9 mm) nominal |
| Lengths | 5, 10, 25, 50 or 75 ft. (1.5, 3.1, 7.6, 15.2 or 22.9 m) |
| Minimum static centerline bend radius | 4 in. (102 mm) |
| Maximum distance from cold end to compressor | 120 ft |

Accessories

Edwards provides a variety of accessories for the PCC system, including 90° adapters for gas lines, electrical line isolators and line-to-line connectors.

Performance

PCC Cooling Capacities at 60Hz



Standard Cold End Specifications

| | |
|----------------------------------|-------------------------|
| Weight | 1.5 kg (3.2 lbs.) |
| Vacuum insulation requirement | ≤ 10 ⁻⁴ torr |
| Weight supported at the cold tip | ≤ 1.4 kg (3.0 lbs) |
| Orientation | Any |

NF blends*

Cooldown Time (with no load):
 NF-55: -55°C (218 K) in 7 minutes
 NF-50: -89°C (184 K) in 11 minutes
 NF-48: -128°C (145 K) in 19 minutes

Maximum cooling capacity for each gas blend:
 NF-55: 50 Watts @ -55°C (218K)*
 NF-50: 38 Watts @ -89°C (184K)*
 NF-48: 26 Watts @ -128°C (145K)*

Temperature Stability:
 +/- 1.0 K. Performance with 10' Gas Lines.

*NF indicates non-flammable gas.

PT blends

Cooldown Time (with no load):
 PT-30: -144°C (129K) in 22 minutes
 PT-16: -156°C (117K) in 26 minutes
 PT-14: -177°C (96K) in 45 minutes
 PT-13: -187°C (86K) in 61 minutes

Maximum cooling capacity for each gas blend:
 PT-30: 29 Watts @ -144°C (129K)
 PT-16: 23 Watts @ -156°C (117K)
 PT-14: 10 Watts @ -177°C (96K)
 PT-13: 6 Watts @ -187°C (86K)

Temperature Stability:
 +/- 1.0 K. Performance with 10' Gas Lines.

Note: 50 Hz operation may derate cooling capacity.

High Performance Cold End Specifications

| | |
|----------------------------------|-------------------------|
| Weight | 1.8 kg (4.0 lbs.) |
| Vacuum insulation requirement | ≤ 10 ⁻⁴ torr |
| Weight supported at the cold tip | ≤ 1.4 kg (3.0 lbs) |
| Orientation | Any |

Cooldown Time (with no load):
 PT-30: -128°C (145K) in 19 minutes
 PT-16: -153°C (120K) in 25 minutes
 PT-14: -166°C (107K) in 35 minutes
 PT-13: -179°C (94K) in 54 minutes

Maximum cooling capacity for each gas blend:
 PT-30: 32 Watts @ -128 °C (145K)
 PT-16: 24 Watts @ -153°C (120K)
 PT-14: 15 Watts @ -166°C (107K)
 PT-13: 7 Watts @ -179°C (94K)

Temperature Stability:
 +/- 1.0 K. Performance with 10' Gas Lines.

Note: 50 Hz operation may derate cooling capacity.

GLOBAL CONTACTS

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