



# CRYOTIGER®





## System Description

The CRYOTIGER® Cooling System provides a cost effective means of continuously cooling and maintaining temperatures to as low as -203° Celsius (70 Kelvin) without the need for replenishing or replacing any gas or liquid. The entire closed cycle system consists of a cold end, compact and portable compressor, and two gas transfer lines.

Electricity is the only utility required for operation and this is needed only for the compressor (the cold end does not require electricity). The unit is CE mark approved and designed for maintenance free service. The CRYOTIGER system has a temperature range of -203° to 20° Celsius (70-293 Kelvin).

**Never Use Liquid Nitrogen for Cooling Again!**



## Compressor and Gas Lines

CRYOTIGER systems utilize a compressor whose design was based on the longevity and durability of a standard household refrigerator compressor. IGC Polycold has taken this technology to the next level and by using it with our patented gas blends, can provide you unparalleled reliability in continuous, economical, cryogenic cooling.

- Compact and portable; the compressor can be located up to 150 feet from the cold end by utilizing copper lines
- Air cooled, quiet operation (56 dBA)
- Self-sealing gas couplings allow for quick and easy gas line hook-ups
- Gas lines available in either copper or braided, flexible, stainless steel

### Compressor

Weight is 32.2 kg (71 lbs.)

All brazed joint construction for leak tight operation

Base down orientation required (level to within 10 degrees)

Power requirement is single phase, 50/60 Hz, 500 Watts nominal

External switch allows you to select 100, 120, 220, 240 Volt operation

### Gas Lines

#### Copper Gas Lines

Diameter = 8.0 mm (.3 inch) nominal

Lengths = any length up to 45.6 m (150 ft.)

Bend radius = 305 mm (12 in.) without a tube bender, or 15 mm (9/16 in.) with a tube bender

#### Braided Stainless Gas Lines

Diameter = 129 mm (.5 inch) nominal

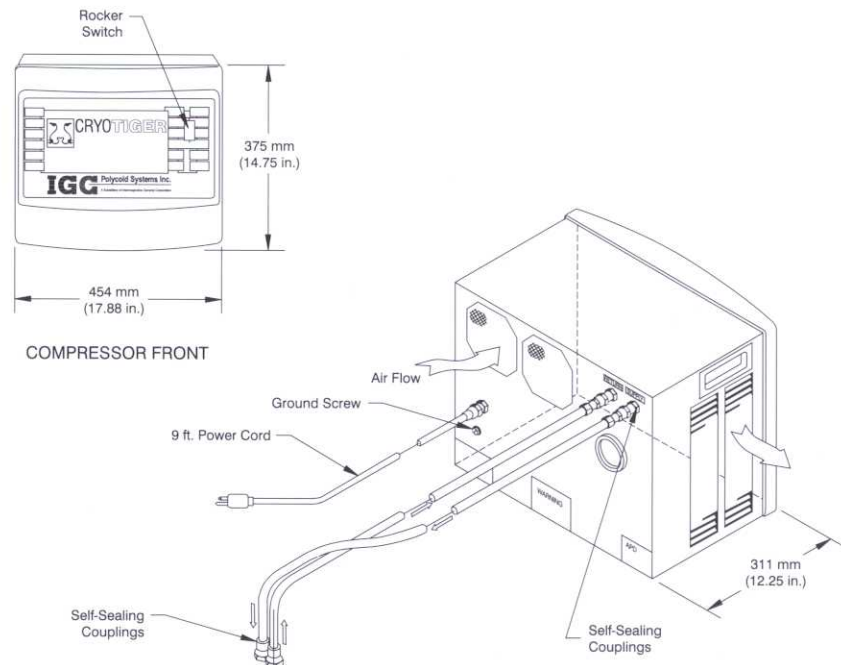
Lengths = 1.5, 3.1, 7.6, or 15.2 m (5, 10, 25, or 50 ft.)

Bend Radius = 76 mm (3 in.)

System charge pressure at ambient is between 205-280 psig depending on the type of gas line and their length

### Accessories

IGC Polycold provides a variety of accessories for your CRYOTIGER compressor and gas lines. A few of those are 90° and 180° adapters for gas lines, electrical line isolators, braided stainless gas lines with additional flexibility, and tee connectors. Please contact your local IGC Polycold representative for more information.





### Standard Cold End

CRYOTIGER systems are available with several options for the user to select. The standard cold end is the most economical choice while also providing the widest range of performance capabilities. This cold end can also be used with all our gas blends, which each provide unique cooling capacities within specific temperature ranges.

- Available either nickel plated or mylar wrapped
- Rugged, all metal, non-magnetic design
- No moving parts in the cold end minimizes maintenance or service requirements
- Can be used in any orientation and located up to 150 feet from the compressor by utilizing copper lines
- Low vibration



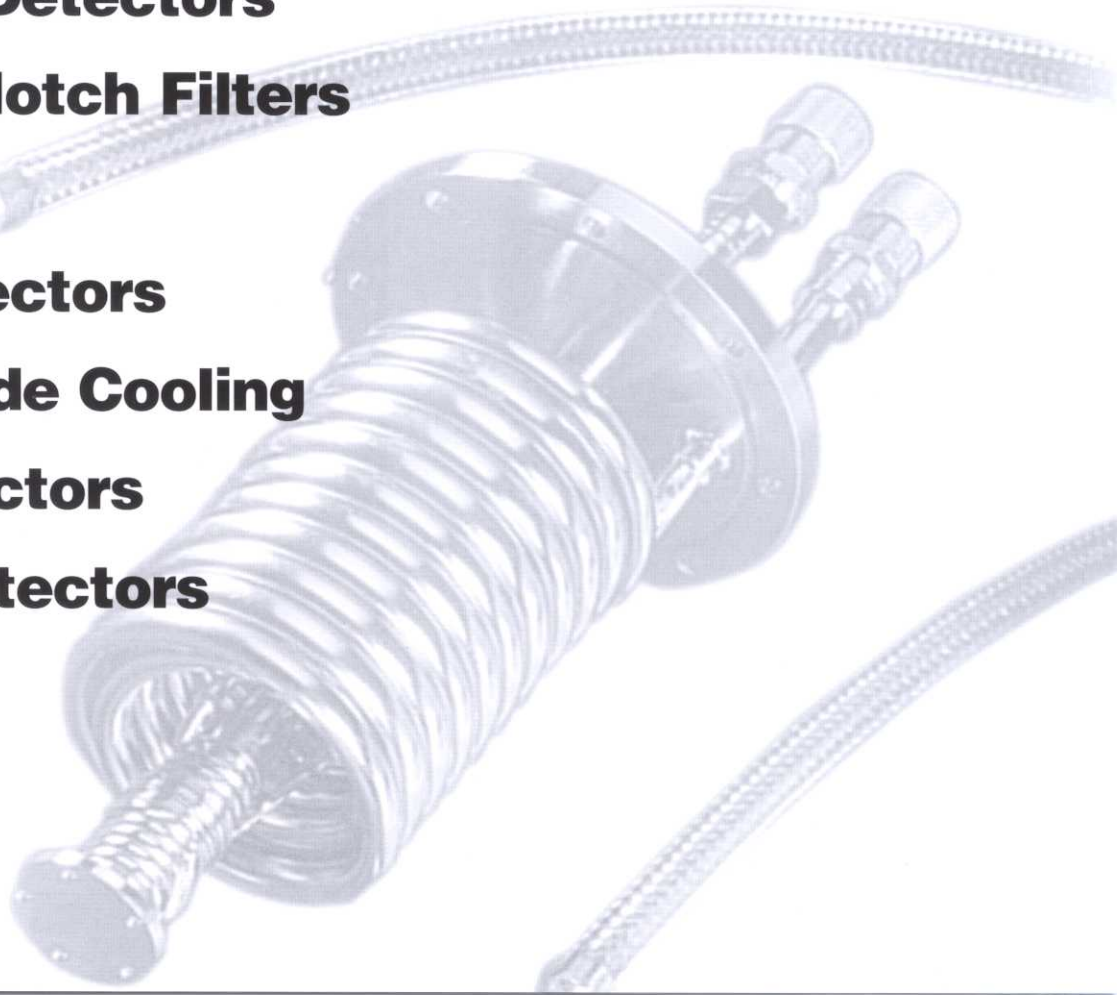
### High Performance Cold End

CRYOTIGER systems are available with several options and the high performance cold end is the perfect choice when more cooling power is required. A slightly larger cold end (as compared to our standard cold end) provides extra space for additional cooling coils. And these coils then allow the unit to achieve greater cooling capacities within specific temperature ranges.

- Available either nickel plated or mylar wrapped
- Rugged, all metal, non-magnetic design
- No moving parts in the cold end minimizes maintenance or service requirements
- Can be used in any orientation and located up to 150 feet from the compressor by utilizing copper lines
- Low vibration

## Cryotiger Applications

- **CCD and IR Detectors**
- **Cell Phone Notch Filters**
- **FTIR**
- **Gamma Detectors**
- **IR Laser Diode Cooling**
- **Raman Detectors**
- **SEM EDX Detectors**



## General Specifications:

Weight = 1.7 kg (3.7 lbs.)  
 Vacuum Insulation Requirement  $\leq 10^{-4}$  torr  
 Bakeable to 100°C  
 Weight Supported at the Cold Tip  $\leq 1.4$  kg (3.0 lbs.)

## Cooling Power/Temperatures:

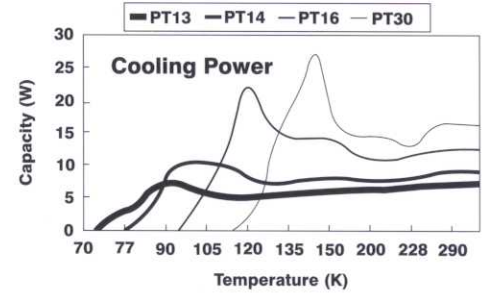
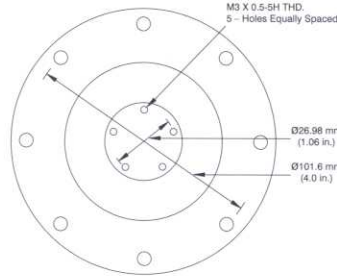
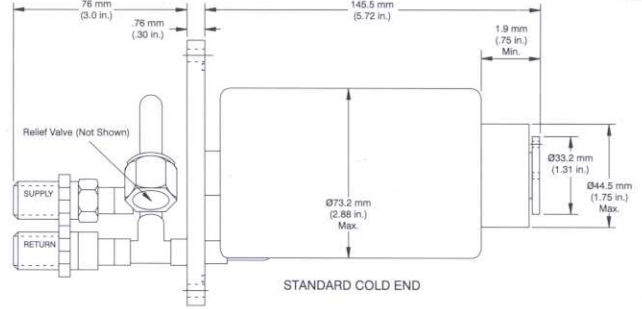
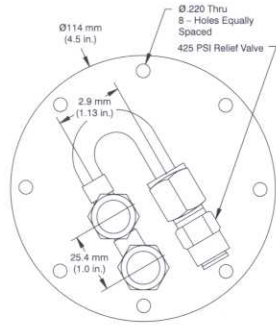
Cooldown Time of 30-45 Minutes to  
 100 K (PT13/PT14)  
 130 K (PT16/PT30)

Optimal Wattages/Temperatures of Each Gas Blend\*:

- PT13 = 3 watts @ -196°C (77 K)
- PT14 = 10 watts @ -179°C (94K)
- PT16 = 22 watts @ -154°C (120 K)
- PT30 = 27 watts @ -128° (145 K)

Temperature Stability (at 20°C with a steady load):  
 +/- 0.5 Kelvin. Performance with 10' gas lines.

\* 50Hz operation - derate by 17%



# High Performance Cold End

## General Specifications:

Weight = 1.8 kg (4.0 lbs.)  
 Vacuum Insulation Requirement  $\leq 10^{-4}$  torr  
 Bakeable to 100°C  
 Weight Supported at the Cold Tip  $\leq 1.4$  kg (3.0 lbs.)

## Cooling Power/Temperatures:

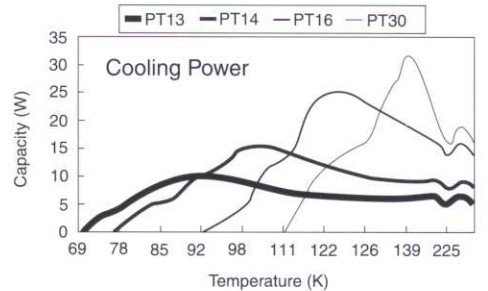
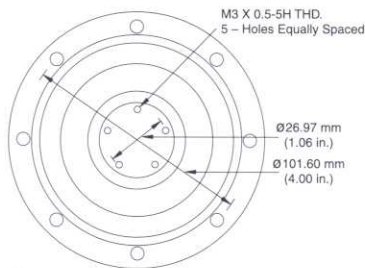
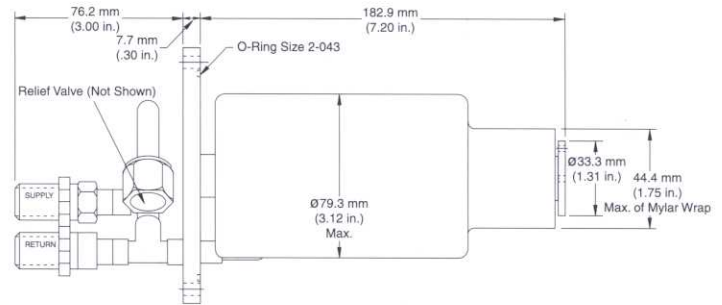
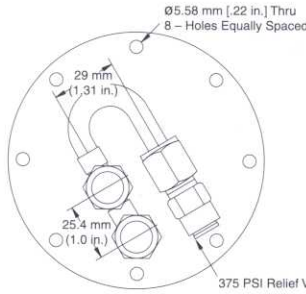
Cooldown Times:  
 50-75 minutes to 100 K (PT13/PT14)  
 25-40 minutes to 130 K (PT16/PT30)

Optimal Wattages/Temperatures of Each Gas Blend\*:

- PT13 = 3.5 watts @ -196°C (77 K)
- PT14 = 11.5 watts @ -179°C (94 K)
- PT16 = 24.5 watts @ -154°C (120 K)
- PT30 = 30.0 watts @ -128°C (145 K)

Temperature Stability (at 20°C with a steady load):  
 +/- 0.5 Kelvin. Performance with 10' gas lines.

\* 50Hz operation - derate by 17%



## Polycold Headquarters

IGC Polycold Systems Inc.  
 3800 Lakeville Hwy.  
 Petaluma, CA 94954  
 Phone: 707-769-7000  
 FAX: 707-769-1380  
 E-mail: sales@polycold.com

Call toll-free within the U.S.A.  
 Sales 888 4-POLYCOLD

## World Wide Web

Visit our website  
[www.polycold.com](http://www.polycold.com)

Polycold® is a registered trademark of  
 IGC Polycold Systems Inc.

IGC Polycold Systems Inc. is a wholly  
 owned subsidiary of Intermagnetics  
 General Corporation  
 450 Old Niskayuna Road P.O. Box 461  
 Latham, NY 12110-0461  
 Phone: 518-782-1122  
 Fax: 518-783-2601

© IGC Polycold Systems Inc. 3/02  
 Printed in U.S.A.

All dimensions shown are typical.  
 All specifications are subject to change  
 without notice.