

# POLYCOLD® PGC-152 GAS CHILLER

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Polycold® Gas Chillers use Polycold®'s auto-cascade refrigerant cycle with a mixed gas refrigerant, to provide ultra-low temperatures without the cost, risk or inconvenience of liquid nitrogen. Now you can cool your dry gas to temperatures between  $-90^{\circ}\text{ C}$  and  $-125^{\circ}\text{ C}$  without sacrificing high flow rates.

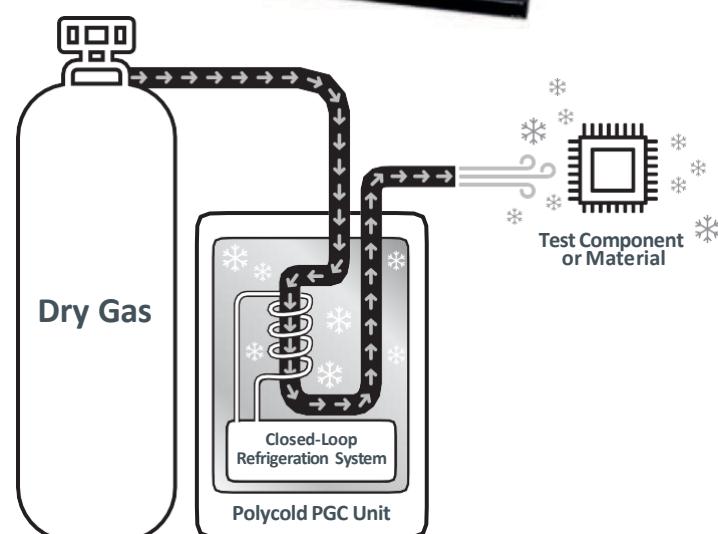
The PGC-152 is CE marked and meets Semi S2 requirements. Polycold's proprietary and patented refrigerant mixtures are fully compliant with current European environmental regulations. The Polycold® PGC Gas Chillers are the most cost-effective systems available to cool a gas stream in this low temperature range.

## Applications include:

Thermal Testing of Electronics, Cooling of Wafer Chucks in Semiconductor Process Tools, Cold Gas Venting of Vacuum Chambers, Rheology, Low Temperature Characterization of Materials, etc.

- Cools Compressed Dry Gas
- $-90^{\circ}$  to  $-125^{\circ}\text{ C}$  ( $-130^{\circ}$  to  $-193^{\circ}\text{ F}$ ,  $183^{\circ}$  to  $148^{\circ}\text{ K}$ )
- Continuous Cooling
- Heat Removal to 810 Watts

Polycold® Gas Chillers cool dry gases (such as nitrogen, argon or air) from ambient to cryogenic temperature without precooling. The Gas Chiller is a closed-loop refrigeration system which cools a gas stream using a refrigerant to gas tube-in-tube heat exchanger. The gas stream is non-recirculating.



## Features and Benefits

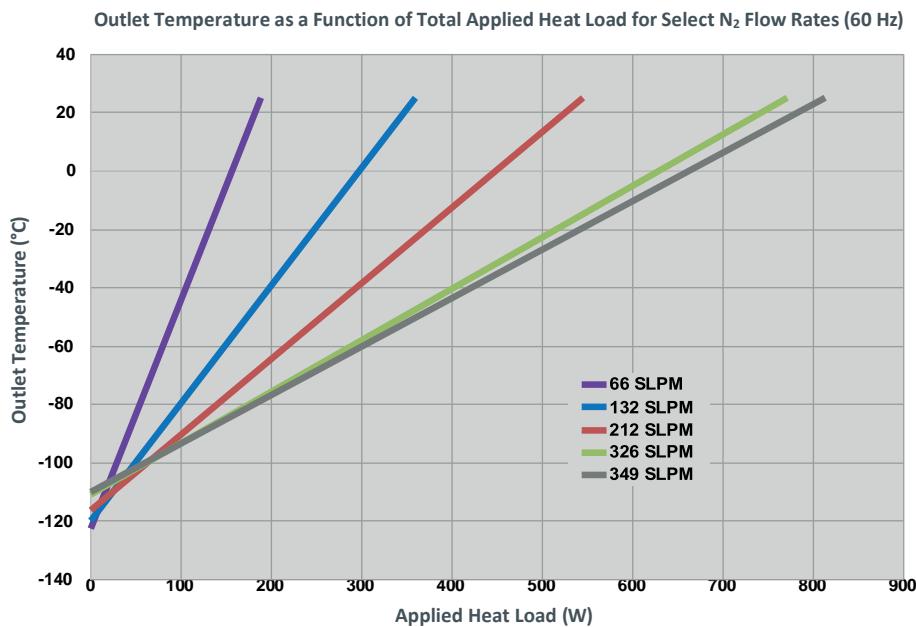
- Free standing, compact size
- Rated for continuous operation
- Air-cooled or water-cooled models
- Uses a single compressor for reliable performance
- 50 or 60 Hz operation, single phase
- CE marked, Semi S2 compliant
- Refrigerant gases are US EPA—SNAP approved
- CFC-Free and HCFC Free refrigerants meet European Union laws
- Patented refrigerant gases
- Flow control solenoid and flow sensor

## Polycold® PGC-152 Gas Chiller Specifications

Typical Performance Specifications					Physical Data																															
Maximum Gas Heat Load (Watts @ 25 C inlet)			810		PGC Unit Dimensions:																															
Temperature Range C (F)			−90° C to −125° C (−130° F to −193° F)		Width, mm (in.)	508 (20)																														
Maximum Flow Rate (SCFH)			750		Depth, mm (in.)	457 (18)																														
Time to Pre-Cool Heat Exchanger Prior to Initial Use			20 min.		Height, mm (in.)	889 (35)																														
Typical Gas Flow Conditions:					Weight, kg (lb.)	108 (240)																														
					Gas Inlet/Outlet Tubing Diameter, mm (in.)	9.5 (3/8)																														
					Max. Angle of Inclination (for moving, etc.)	45 degrees																														
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>N<sub>2</sub> Flow Rate (SCFH)</th><th>N<sub>2</sub> Flow Rate (SLPM)</th><th>Inlet Pressure (PSIG)</th><th>Outlet Pressure (PSIG)</th><th>Pressure Drop (PSI)</th></tr> </thead> <tbody> <tr><td>140</td><td>66</td><td>5</td><td>3</td><td>2</td></tr> <tr><td>280</td><td>132</td><td>23</td><td>18</td><td>5</td></tr> <tr><td>450</td><td>212</td><td>45</td><td>36</td><td>9</td></tr> <tr><td>690</td><td>326</td><td>75</td><td>65</td><td>10</td></tr> <tr><td>740</td><td>349</td><td>80</td><td>68</td><td>12</td></tr> </tbody> </table>							N <sub>2</sub> Flow Rate (SCFH)	N <sub>2</sub> Flow Rate (SLPM)	Inlet Pressure (PSIG)	Outlet Pressure (PSIG)	Pressure Drop (PSI)	140	66	5	3	2	280	132	23	18	5	450	212	45	36	9	690	326	75	65	10	740	349	80	68	12
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<b>Utilities</b> Gas Source (Customer's Dry Gas) e.g. Air, Nitrogen, Argon, etc.																																				
Required Gas Source Dewpoint (for extended run times) Maximum Gas Source Temperature Maximum Temperature Air Inlet to Condenser Remote Reading Thermocouple on Gas Outlet																																				
Colder than −80 C 30 C 32 C Type T																																				
Voltage Range: At 50 Hertz At 60 Hertz																																				
180-216 187-253																																				
Rated Load Amps																																				
12.5																																				

Specifications are subject to change without notice.

## Polycold® PGC-152 Gas Chiller Performance



The outlet temperature of the PGC-152 is based upon the external heat load as well as the flow rate of nitrogen through the unit. Both the flow rate and the applied heat load can be varied to obtain the desired outlet temperature for the process.



**EZZI VISION**

**Vacuum and Thin Film Technology**

**CONTACT US**

T: 1800 GO EZZI  
E: sales@ezzivision.com.au  
W: ezzivision.com.au

**VIC:** 13/62 Ramset Drive, Chirnside Park,  
VIC 3116, Australia

**NSW:** Unit 1, 80 O'Riordan St, Alexandria,  
NSW 2015, Australia

**WA:** Unit 11, 24 Baile Road, Canning Vale,  
WA 6155 Australia

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Edwards Ltd, registered in England and Wales No. 6124750, registered office: Innovation Drive, Burgess Hill, West Sussex, RH15 9TW, UK.

**GLOBAL CONTACTS**

**EMEA**

UK	+44 (0) 1444 253 000 (local rate) 0845 921 2223
Belgium	+32 2 300 0730
France	+33 1 4121 1256
Germany	0800 000 1456
Italy	+ 39 02 48 4471
Israel	+ 972 8 681 0633

**ASIA PACIFIC**

China	+86 400 111 9618
India	+91 20 4075 2222
Japan	+81 47 458 8836
Korea	+82 31 716 7070
Singapore	+65 6546 8408
Taiwan	+886 3758 1000

**AMERICAS**

USA	+1 800 848 9800
Brazil	+55 11 3952 5000