



Vacuum Insulated

Non-vacuum Insulated

PORTABLE

Cryogenic Transfer Pump

Cryogenic Transfer Pump is designed to enable safe, efficient and contamination-free transfer of cryogenic fluids between containers. It provides smooth and rapid liquid at a stable transfer pressure. Optional vacuum insulation minimizes heat ingress, reducing boil-off and preserving cryogen purity during transfer. Compact and portable, the pump is ideal for laboratories, R&D facilities, and other cryogenic applications.

How it Works

CSM Portable Cryogenic Transfer Pump (PCP) is immersed directly into the liquid nitrogen source. When activated, the impeller-driven centrifugal mechanism draws the liquid smoothly and transfers it to the receiving container with minimum turbulence, ensuring efficient and controlled flow.

Going beyond standard cryogenic pumps, the PCP is guarded against impurities, protecting the pump and maintaining consistent performance. Sealless and lube-free design guarantees contamination-free transfer. The ultra-flexible hoses can handle vertical lifts up to 2 meters. Its variable-speed motor allows precise control of the transfer rate, while the safety cutout feature prevents motor overload and damage.

Vacuum-insulated option is available to minimize heat leak and cryogen losses. This prevents water condensation and frost formation along the transfer line, and protects operators from cold burn safety hazards.

Typical Applications

- Cryogenic liquid transfer from an open storage vessel to another
- Bio-storage facilities - for emptying and refilling of liquid nitrogen of cryopreservation tank

Features and Benefits

- **Smooth & Controlled Transfer:** Ensures cryogenic liquid moves with minimal turbulence for stable and efficient flow
- **Contamination-free Transfer:** Sealless, lube-free design guarantees pure, uncontaminated transfer
- **Reliable Long-Term Performance:** Guarded against impurities to protect the pump and maintain consistent operation
- **Minimum Heat Ingress & Liquid Loss:** Optional vacuum-insulated pump tube and transfer hoses minimize boil-off and prevent contamination from condensation or ice
- **Flow Control & Safety:** Variable-speed motor with safety cutout adjusts transfer rates while protecting the pump from overload
- **Flexibility:** Ultra-flexible hoses enable easy routing and connection in compact spaces
- **Lightweight, Compact & Portable:** Easy to move, store and operate, ideal for limited-space laboratories or production lines
- **Quite Operation:** Low-noise (max. 70 dB) design suitable for sensitive lab and R&D environments

Portable Cryo Pump comes with CSM renowned customer service, from conceptual design to implementation, and are backed by a 1-year Vacuum (if applicable) & Defect Warranty.

Portable Cryogenic Transfer Pump

Model		PCP.1000	PCP.1000V
Transfer Rate		Max. 13.21 GPM (50 LPM)	
Transfer Head		Max. 2.3 psi or W.C. 6.56 ft (2 m)	
Transfer Mode		Variable-speed	
Transfer Medium	Temperature Range	-320.8 °F (-196 °C) to 194 °F (90 °C)	
	Viscosity	Max. 0.16 cP (0.16 mPa·s)	
	Density	Max. 50.5 lb/ft ³ (808 kg/m ³)	
Inlet / Outlet Size		1/2" (12.70 mm ODT)	
Immersion Depth	Inlet	33.0" (840 mm)	
	Outlet	15.7" (400 mm)	
Transfer Hose Connection		BSPP 1" Male	C5 Female
Transfer Hose Max. Length		Singe Line Length 11.5 ft (3.50 m)	Singe Line Length 19.7 ft (6.00 m)
Transfer Hose Min. Bending Radius	Flexible	5.9" (151 mm)	10" (254 mm)
	Static	3.9" (100 mm)	8" (203 mm)
Process Insulation		-	MLI and Static Vacuum
Material Construction	Impeller & Bearing	ETFE / PTFE	
	Drive Shaft	SS 304 / 1.4571	
	Transfer Line		
Weight	Drive Motor + Pump Tube	8.8 lbs (4 kg)	13.2 lbs (6 kg)
	Transfer Hose	0.54 lbs/ft (0.8 kg/m)	0.8 lb/ft (1.2 kg/m)
Motor		Class II Double Insulated & IP 24	
Standard Testing		Dimensional Check Functional Test He Leak Test at 1.0 x 10 ⁻⁹ cc/s	
Optional		Pneumatic pressure test, Vacuum retention testing, LN2 cold shock, Pre-material certs., X-ray, CFOS cleaning	

