



SHELL - N - TUBE



PENGUIN

Cryogenic Treatment Chambers and Dewars

Shell - N - Tube's range of wide neck multi-layer insulated vacuum jacketed Dewar ideal for a variety of cryogenic applications and uses which need direct access to stored cryo fluid like Liquid Nitrogen.

Applications

- Shrink fitting of pins, shafts or tubes to prevent material damage as experienced with press fitting.
- Deep cryogenic treatment of planetary gears, axle shafts, bearings, cutting tools etc. for increased wear resistance
- De - flashing of rubber and gaskets
- Cold testing for space components

- Valve testing
- Use as a Cryogenic Refrigerator
- Batch freezing of foods
- Super conductivity Research.
- Fault current Limiter.

Benefits

- Can achieve colder temperatures upto -196°C as compared to mechanical refrigerators that can achieve only upto -40°C .
- No moving parts ensures zero maintenance as compared to mechanical refrigerators that need regular servicing, refrigerant top-up and parts replacement.
- Superior multilayer vacuum insulation prevents product loss upto 1/10th as compared to PUF insulation.
- Sealed static vacuum ensures long term vacuum stability compared to PUF insulation which requires regular replacement.
- Custom design ensures right fit for product and minimizes liquid losses.

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Specifications

- All GTAW welded SS 304 construction.
- Multilayer vacuum insulation.
- Mass spectrometer leak tested up to 10^{-8} mbar-l/s to ensure no vacuum loss.



Options

- Configuration can be square or cylindrical based on requirement
- Automation including
 - Automated filling
 - Temperature monitoring and control
 - Level monitoring and control
 - Controlled temperature ramp downs
 - Data logging
 - Alarm annunciations
- Stainless Steel rack for load mounting
- Super insulated lid for further reduction in product loss



Projects

- 3 x 3,000 litres cryostats for high temperature super conducting fault current limiters.
- 7m x 2m x 2.5m rectangular liquid nitrogen cryostat with a volume of 35,000 litres for cryogenic treatment of steel rolls.
- Automated temperature controlled cryostat for sub-zero treatment of tool tips.
- 3,000 litres liquid hydrogen cryostat for calibration of hydrogen level sensors.
- 100 litres Liquid Helium recondensing cryostat with top mounted cold head.

