



The **cold** cryogenic liquid pump!

Customized cryosystems

Cryostats (metal, glass/carbon fiber reinforced resin)

Cooling and liquefaction systems

Cryogenic actuators, sensors and pumps

Energy storing systems (H₂, CH₄, ...)

LNG technology

Sensor calibration

Customized electronics

Individual software and visualization

Engineering, calculation and simulation

Heat to Power

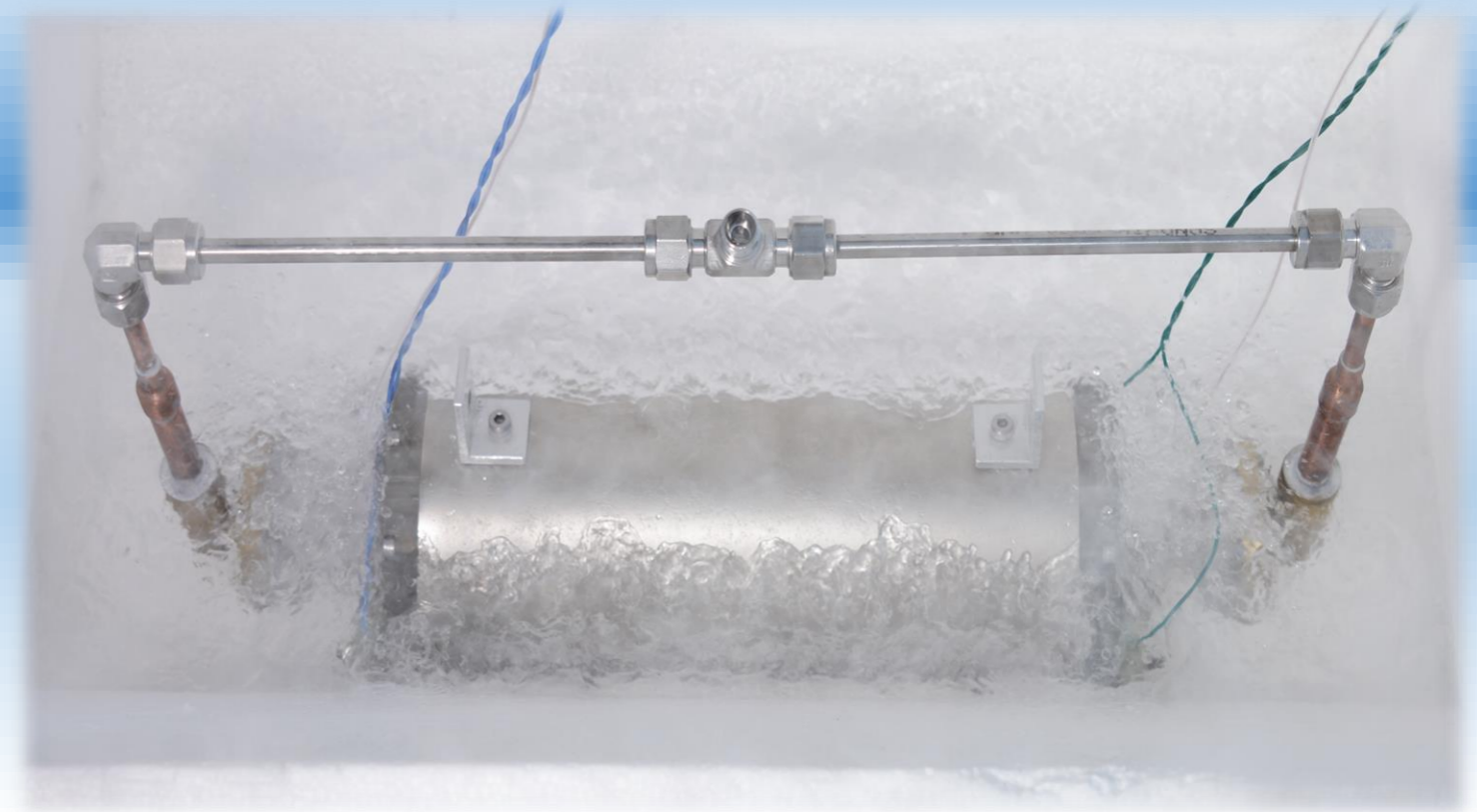
Thermal cycle and material tests (λ , α , c , P , ...)

Cryobiology – Life Sciences

Contact

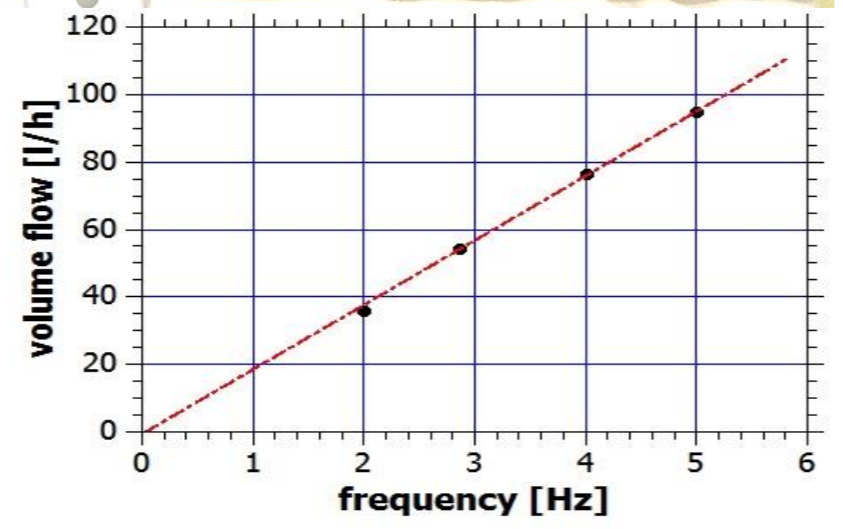
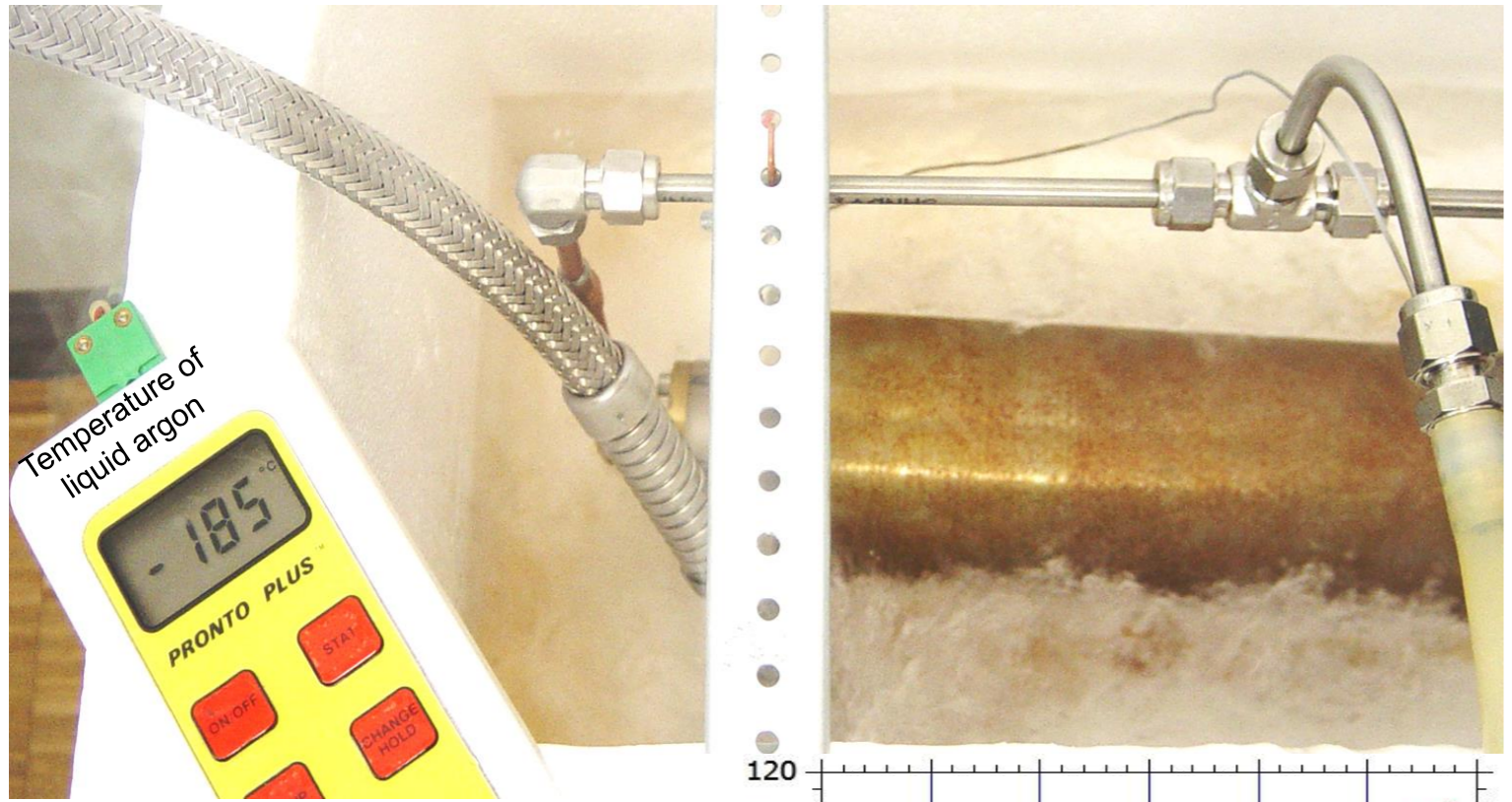
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Certificate in accordance
 with the requirements of the
 Pressure Equipment Directive
 DGRL 97/23/EG, Modul A1
 for cryostats
 Ident-No. CE 0525



**Cryogenic liquid
 piston pumps
 with
 cold linear drive**

Cryogenic liquid piston pumps – with cold linear drive



Design example cold linear drive

Length with valves	570 mm
Diameter	122 mm
Stroke	50 mm
Force	500 N
Frequency	5 Hz
Mechanical power	250 W



Pump for cryogenic liquids with fully immersed linear electric drive

General features

- No mechanical link to 300 K
- No problems with thermal expansion
- No mechanical feedthrough means no leakage problems
- Only electrical power supply needed
- Electro dynamic linear motor
- Double acting piston pump
- Temperature range 4 K to 300 K
- Cryogenic media e.g. LHe, LH₂, LN₂, LAr, LNG ...
- Volume flow up to 1000 liters per hour (depending on design)
- Pressure range up to a few hundred bar (depending on design)

Applications

- Circulation pump for HTS power lines
- Pumps for liquefiers
- Laboratory filling station pumps
- Cryogenic fuel pumps
- Injection pumps, pump injector systems
- Electric direct valve drive
- Actuator in cryogenic environments
- Servo drive at low temperatures
- Drive for cryogenic valves