

ISO 24490:2025-10 (E)

Cryogenic vessels - Centrifugal pumps for cryogenic service

Contents		Page
Foreword		iv
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Requirements for pumps	2
4.1	General	2
4.2	Materials	2
4.2.1	General	2
4.2.2	Mechanical properties at low temperature	2
4.2.3	Corrosion resistance	2
4.2.4	Oxygen and oxidizing fluids compatibility	3
4.2.5	Hydrogen compatibility	3
4.3	Design	3
4.3.1	Pressure-containing parts	3
4.3.2	Performance	3
4.3.3	Clearances	4
4.3.4	Prevention of rubbing	4
4.3.5	Fastenings	4
4.3.6	Warm bearings	4
4.3.7	Cold bearings	4
4.3.8	Bearing lubrication	4
4.3.9	Shaft seals	4
4.3.10	Purging	5
4.3.11	Prevention of particle contamination	5
4.3.12	Specific requirement for flammable cryogenic fluids	5
4.3.13	Protection against over-pressurization	5
4.3.14	Pump motors	5
5	Test procedures	6
5.1	Prototype testing	6
5.1.1	General	6
5.1.2	Design evaluation	6
5.1.3	Performance evaluation	6
5.1.4	Initial tests	6
5.1.5	Cryogenic tests	6
5.2	Production testing	7
5.2.1	General	7
5.2.2	Hydrostatic pressure test	7
5.2.3	Mechanical running and performance test	7
6	Cleanliness	7
7	Marking	8
8	Guidance on installation design	8
8.1	Pumps for cryogenic service	8
8.2	Additional guidance on installation design for pumps for oxygen service	9
Bibliography		10