


Standards, Regulations and Guidelines typically used in Mechanical Sealing Industry								05.08.2020	
Standard I.D.	Revision	Edition	Standard Title	Description	Type	Jurisdiction	Applicable Region(s)	Standard Status	Status & Comment
EN 809	2012	3	Pumps and pump units for liquids - Common safety requirements	This European Standard establishes the technical safety requirements for constructing, assembling, erecting, operating and servicing a liquid pump or pump unit.	Industry	Europe	Europe	Active	
EN 12756	2001	3	Mechanical seals - Principal dimensions, designation and material codes	Describes the principle dimensions for the internal installation of single and multiple mechanical seals with (rotating) spring units into the pump sealing cavity according to ISO 3069 as minimum cavity dimensions as typical for centrifugal pumps in accordance with EN 22858 and EN 733. It also gives the seal designations and material codes to be used.	Industry	Europe	Europe	Active	
ISO 2858	1975	2	End-suction centrifugal pumps (rating 16 bar) — Designation, nominal duty point and dimensions	This International Standard specifies the principal dimensions and nominal duty point of end-suction centrifugal pumps having a maximum operating rating of 16 bar.	Industry	World wide	World wide	Active	Reviewed and confirmed in 2017
ISO 3069	2000	1	End-suction centrifugal pumps — Dimensions of cavities for mechanical seals and for soft packing	This International Standard specifies the dimensions of the seal cavity for step-balanced mechanical seals, mechanical seals suitable for straight shafts, and for soft packing, to be used with horizontal end-suction centrifugal pumps, including those conforming to ISO 2858.	Industry	World wide	World wide	Active	Reviewed and confirmed in 2018
ISO 3601-1	2012	5	Fluid power systems — O-rings — Part 1: Inside diameters, cross-sections, tolerances and designation codes	ISO 3601-1:2008 specifies the inside diameters, cross-sections, tolerances and designation codes for O-rings used in fluid power systems for general industrial and aerospace applications.	Industry	World wide	World wide	Active	Amended 2019
ISO 3601-2	2016	2	Fluid power systems — O-rings — Part 2: Housing dimensions for general applications	This part of ISO 3601 specifies the housing (gland) dimensions for class A O-rings for general industrial applications conforming to ISO 3601-1, as well as housing dimensions for class B O-rings used on selected metric-dimensioned hardware, e.g. fluid power cylinder bores and piston rods.	Industry	World wide	World wide	Active	
ISO 5199	2002	2	Technical specifications for centrifugal pumps — Class II	This International Standard specifies the requirements for Class II centrifugal pumps of single-stage, multistage, horizontal or vertical construction, with any drive and any installation for general application.	Industry	World wide	World wide	Active	Reviewed and confirmed in 2018

ISO 13709	2009	2	Centrifugal pumps for petroleum, petrochemical and natural gas industries	This standard specifies requirements for centrifugal pumps, including pumps running in reverse as hydraulic power recovery turbines, for use in petroleum, petrochemical and gas industry process services.	Industry	World wide	World wide	Active	Under review
ISO 15156-1	2015	3	Petroleum and natural gas industries — Materials for use in H ₂ S-containing environments in oil and gas production — Part 1: General principles for selection of cracking-resistant materials	This part of ISO 15156 describes general principles and gives requirements and recommendations for the selection and qualification of metallic materials for service in equipment used in oil and gas production and in natural-gas sweetening plants in H ₂ S-containing environments, where the failure of such equipment can pose a risk to the health and safety of the public and personnel or to the environment.	Industry	World wide	World wide	Active	
ISO 15156-2	2015	3	Petroleum and natural gas industries — Materials for use in H ₂ S-containing environments in oil and gas production — Part 2: Cracking-resistant carbon and low-alloy steels, and the use of cast irons	ISO 15156-2:2015 gives requirements and recommendations for the selection and qualification of carbon and low-alloy steels for service in equipment used in oil and natural gas production and natural gas treatment plants in H ₂ S-containing environments. It addresses the resistance of these steels to damage that can be caused by sulfide stress-cracking (SSC) and the related phenomena of stress-oriented hydrogen-induced cracking (SOHIC) and soft-zone cracking (SZC).	Industry	World wide	World wide	Active	
ISO 15156-3	2015	3	Petroleum and natural gas industries — Materials for use in H ₂ S-containing environments in oil and gas production — Part 3: Cracking-resistant CRAs (corrosion-resistant alloys) and other alloys	ISO 15156-3:2015 gives requirements and recommendations for the selection and qualification of CRAs (corrosion-resistant alloys) and other alloys for service in equipment used in oil and natural gas production and natural gas treatment plants in H ₂ S-containing environments.	Industry	World wide	World wide	Active	
ISO 21049	2004	1	Pumps — Shaft sealing systems for centrifugal and rotary pumps	This International Standard specifies requirements and gives recommendations for sealing systems for centrifugal and rotary pumps used in the petroleum, natural gas and chemical industries.	Industry	World wide	World wide	Active	Reviewed and confirmed in 2018
ISO 80079-36	2016	1	Explosive atmospheres — Part 36: Non-electrical equipment for explosive atmospheres — Basic method and requirements	ISO 80079-36:2016 specifies the basic method and requirements for design, construction, testing and marking of non-electrical Ex equipment, Ex Components, protective systems, devices and assemblies of these products that have their own potential ignition sources and are intended for use in explosive atmospheres.	Industry	World wide	world wide	Active	

ISO 80079-37	2016	1	Explosive atmospheres — Part 37: Non-electrical equipment for explosive atmospheres — Non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k"	ISO 80079-37:2016 specifies the requirements for the design and construction of non-electrical equipment, intended for use in explosive atmospheres, protected by the types of protection constructional safety "c", control of ignition source "b" and liquid immersion "k".	Industry	World wide	World wide	Active	
API 610	2010	11	Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries	This International Standard specifies requirements for centrifugal pumps, including pumps running in reverse as hydraulic power recovery turbines, for use in petroleum, petrochemical and gas industry process services.	Industry	USA	Primarily U.S. and petrochemical industries	Active	
API 682	2014	4	Pumps-Shaft Sealing Systems for Centrifugal and Rotary Pumps	This standard specifies requirements and gives recommendations for sealing systems for centrifugal and rotary pumps used in the petroleum, natural gas, and chemical industries.	Industry	USA	Primarily U.S. and petrochemical industries	Active	Work on 5th edition ongoing
API 692	2018	1	Dry Gas Sealing Systems for Axial, Centrifugal, and Rotary Screw Compressors and Expanders	This standard covers the minimum dry gas sealing system requirements in association with axial, centrifugal, and rotary screw compressors and expanders for use in the petroleum, chemical, and gas industry services as described in API 617 and API 619.	Industry	USA	Primarily U.S. and petrochemical industries	Active	
ASTM F1511	2018	13	Standard Specification for Mechanical Seals for Shipboard Pump Applications	This specification covers mechanical end-face seals for centrifugal and positive displacement pumps for shipboard use. Mechanical seals shall be classified by type, grade, and class.	Industry	USA	USA and International	Active	
ASME B73.1	2012		Specification for Horizontal End Suction Centrifugal Pumps for Chemical Process	This Standard is a design and specification standard that covers metallic and solid polymer centrifugal pumps of horizontal, end suction single stage, centerline discharge design.	Industry	USA	USA and International	Active	

ASME B73.2	2016		Specification for Vertical In-Line Centrifugal Pumps for Chemical Process	This Standard is a design and specification standard that covers metallic centrifugal pumps of vertical shaft single-stage design with suction and discharge nozzles in-line.	Industry	USA	USA and International	Active	
ASME Section VIII Div 1	2019		Boiler and Pressure Vessel Code	This standard provides requirements applicable to the design, fabrication, inspection, testing, and certification of pressure vessels operating at either internal or external pressures exceeding 15 psig. Such vessels may be fired or unfired.	Industry	USA	USA and International	Active	
ASME BPE	2019	1	Bioprocessing Equipment	This ASME Standard provides the requirements applicable to the design of equipment used in the bioprocessing, pharmaceutical and personal-care products industries, as well as other applications with relatively high levels of hygienic requirements. It covers materials, design, fabrication, inspections, testing and certification.	Industry	USA	USA and International	Active	
ANSI-3-A-00-01	2018		3-A Sanitary Standard for General Requirements	This 3-A Sanitary Standard defines the general requirements for sanitary (hygienic) equipment intended for processing milk, milk products, foods, food ingredients, beverages, or other edible materials.	Industry	USA	USA and International	Active	
NACE MR0175	2015	3	Petroleum and natural gas industries - Materials for use in H2S-containing environments in oil and gas production	NACE MR0175/ISO 15156 gives requirements and recommendations for the selection and qualification of carbon and low-alloy steels, corrosion-resistant alloys, and other alloys for service in equipment used in oil and natural gas production and natural gas treatment plants in H2S-containing environments, whose failure could pose a risk to the health and safety of the public and personnel or to the equipment itself.	Industry	USA	USA and International	Active	Identical to ISO 15156-1:2015, ISO 15156-2:2015, ISO 15156-3:2015
DIN 28138 T1	2006	3	Rotating mechanical seals for agitator shafts - Part 1: Carbon or stainless steel - Operating data, assembly dimensions	This standard defines operating parameters and dimensions for carbon or stainless steel mechanical seals used in agitators.	Industry	Germany	Germany and Europe	Active	

DIN 28138 T2	2006	3	Rotating mechanical seals for agitator shafts - Part 2: Glass-lined agitator shafts; operating data, assembly dimensions	This standard defines operating parameters and dimensions for mechanical seals used with glass-lined agitator shafts.	Industry	Germany	Germany and Europe	Active	
DIN 28138 T3	2006	3	Rotating mechanical seals for agitator shafts - Part 3: Connections for barriers fluids, cooling, control and mounting and designation system for rotating mechanical seals	This standard defines connections, controls and mounting procedures for mechanical seals in agitators.	Industry	Germany	Germany and Europe	Active	
DIN 28141	2011		Connecting flanges for vessels and process apparatus of non-alloy and stainless steel	This standard defines mounting flange dimensions for agitators.	Industry	Germany	Germany and Europe	Active	
DIN 28154	1983		Shaft end for carbon and stainless steel agitators, for rotating mechanical seals; dimensions	This standard defines shaft end dimensions for carbon and stainless steel agitators.	Industry	Germany	Germany and Europe	Active	
DIN 28159	2006		Shaft end for externally coupled glass lined steel agitators - Dimensions	This standard defines shaft end dimensions for glass lined steel agitators.	Industry	Germany	Germany and Europe	Active	
DIN 28161	2006		Requirements on agitator drives - Agitator speed and direction, bearing application running accuracy, dis-mounting space for shaft seal	This standard defines limit rotational speeds, pressures and temperatures, direction of rotation, bearing, running accuracy and the mounting space for mechanical seals.	Industry	Germany	Germany and Europe	Active	
DIN 28162 T1	1983		Agitator gear stools for agitator drives with a rotating mechanical seal	This standard defines gear stools for agitators using mechanical seals.	Industry	Germany	Germany and Europe	Active	
EIGA Doc. 33/18	2018		Cleaning of Equipment for Oxygen Service	This standard provides guidelines for the cleaning of equipment used in the production, distribution and storage of oxygen.	Industry	Europe	Europe	Active	
CGA G-4.1	2018		Cleaning Equipment for Oxygen Service	This standard provides guidelines for the cleaning of equipment used in the production, distribution and storage of oxygen.	Industry	USA	USA and International	Active	
ASTM G93/ G93M	2019		Standard Guide for Cleanliness Levels and Cleaning Methods for Materials and Equipment Used in Oxygen-Enriched Environments	The purpose of this guide is to furnish qualified technical personnel with pertinent information for the selection of cleaning methods for cleaning materials and equipment to be used in oxygen-enriched environments.	Industry	USA	USA and International	Active	

EHEDG Doc 2	2007	3	A method for assessing the in-place cleanability of food processing equipment	The method is intended as a screening test for hygienic equipment design and is not indicative of the performance of industrial cleaning processes (which depend on the type of soil).	Industry	Europe	Europe	Active	
EHEDG Doc 8	2018	3	Hygienic Design Principles	This document describes the principles for hygienic design of equipment and factories intended for food manufacturing.	Industry	Europe	Europe	Active	
EHEDG Doc 10	2007	2	Hygienic design of closed equipment for the processing of liquid food	Using the general criteria for the hygienic design of equipment identified in Doc 8, this paper illustrates the application of these criteria in the construction and fabrication of closed process equipment.	Industry	Europe	Europe	Active	
EHEDG Doc 23	2009	2	Production and use of food-grade lubricants, Part 1 and 2	Part 1 of this guideline covers the hazards that may occur when using food grade lubricants and describes the actions and activities required to eliminate them or to reduce their impact or occurrence to an acceptable level. Part 2 of this guideline lays down the general requirements and recommendations for the hygienic manufacturing and supply of food-safe lubricants.	Industry	Europe	Europe	Active	
EHEDG Doc 25	2002	1	Design of mechanical seals for hygienic and aseptic applications	This guideline compares the design aspects of different mechanical seals with respect to ease of cleaning, microbial impermeability, sterilisability or pasteurisability.	Industry	Europe	Europe	Active	
EHEDG Doc 32	2005	1	Materials of construction for equipment in contact with food	This guideline aims to offer a practical 'handbook' for those responsible for the specification, design and manufacture of food processing equipment.	Industry	Europe	Europe	Active	
VDI 2440			Emission Control Mineral Oil Refineries	VDI 2440 is a German guideline created by experts from industry, universities and public bodies for emission control in mineral oil refineries. The sources of gaseous emissions are stated and the relevant best available technologies (BAT) for emission reduction are described. Also specific leakage rates for the emissions from valves and flanges are defined as well as the specific testing methods. These leakage rates have been implemented into the German emission directive "TA-Luft"	National	Germany	Germany and Europe	Active	
BAM				German approval for articles to be used in oxygen applications	National	Germany	Germany and Europe	Active	

2014/68/EU	2016		Pressure Equipment Directive	The Pressure Equipment Directive (PED) applies to the design, manufacture and conformity assessment of stationary pressure equipment with a maximum allowable pressure greater than 0,5 bar.	National	Europe	Europe	Active	
2006/42/EC	2006		Machinery Directive	The directive promotes the free movement of machinery within the single market and guarantees a high level of protection for EU workers and citizens.	National	Europe	Europe	Active	
EC 1935/2004	2004		Food safety — safe packaging	Covers materials and articles intended to come into contact with food	National	Europe	Europe	Active	
ACS				French Drinking Water Approval	National	France	France	Active	A E.U. working group is working on alignment of all individual water approvals in the E.U.
WRAS				U.K. Drinking Water Approval		U.K.	UK	Active	
KTW				German Drinking Water Approval	National	Germany	Germany	Active	A E.U. working group is working on alignment of all individual water approvals in the E.U.
DVGW				German Approval for use of articles in Water and Gas applications	National	Germany	Germany	Active	
KIWA				Netherlands Drinking Water Approval	National	Netherlands	Netherlands	Active	A E.U. working group is working on alignment of all individual water approvals in the E.U.
FDA			Food safety	Food safety approvals	National	USA	USA and International	Active	