

Standards, Regulations and Guidelines typically used in Packings Industry									21.09.2020	 European Sealing Association e.V.
Standard I.D.	Revision	Edition	Standard Title	Description	Type	Jurisdiction	Applicable Region(s)	Standard Status	Status & Comment	
EN 16752	2015	1	Specification for a Test Procedure for Packings for Rotary Applications	Test procedure for pump packing	Industry	Europe	Europe	Active		
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 15848-1	2015	3	Classification system and qualification procedures for type testing of valves	This standard gives testing procedures that classify the performance of fully assembled valves as dependent on the varying valve designs in sealing fugitive emissions.	Industry	World wide	World wide	Active		
ISO 15848-2	2015	3	Production acceptance test of valves	The aim of this standard is to establish standard practice for the evaluation of production valves whose design has been successfully type-tested according to ISO 15848-1.	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	
BS 4371	1991	2	Specification for fibrous gland packings	This standard includes description, materials, lubricants, size, mass, packaging and marking of nine types of fibrous gland packings.	Industry	UK and Europe	UK	Active	Obsolete information	
NTA 8399	2013		Air quality - Guidelines for detection of diffuse VOC emissions with optical gas imaging	NTA 8399 gives guidelines for the uniform use of the infrared camera with the intent that individual monitoring can be used for the reduction of VOS-emissions.	Industry	Netherlands and Europe	Netherlands	Inactive		
API 589	1998		Fire Test for Evaluation of Valve Stem Packing	Covers the requirements for testing valve stem packing and evaluating its performance when exposed to specifically defined fire conditions.	Industry	USA	Primarily U.S. and petrochemical industries	Active	Obsolete	
API 598	2016	10	Valve Inspection and Testing	This standard covers inspection, examination, supplementary examinations, and pressure test requirements for resilient-seated, nonmetallic-seated (e.g. ceramic), and metal-to-metal-seated valves of the gate, globe, plug, ball, check, and butterfly types.	Industry	USA	Primarily U.S. and petrochemical industries	Active		
API 599	2020	8	Metal Plug Valves - Flanged, Threaded, and Welding Ends	Covers steel, nickel base and other alloy plug valves with flanged or butt-welding ends and ductile iron plug valves with flanged ends in sizes NPS 1/2 through NPS 36 and threaded or socket-welding ends for sizes NPS 1/2 through NPS 2.	Industry	USA	USA and International	Active		

API 600	2015	13	Steel Gate Valves - Flanged and Butt-welding Ends, Bolted Bonnets	This standard specifies the requirements for a heavy-duty series of bolted bonnet steel gate valves for petroleum refinery and related applications where corrosion, erosion, and other service conditions would indicate a need for full port openings, heavy wall sections, and large stem diameters.	Industry	USA	USA and International	Active	
API 602	2015	10	Gate, Globe, and Check Valves for Sizes DN 100 (NPS 4) and Smaller for the Petroleum and Natural Gas Industries	This standard specifies the requirements for a series of compact gate, globe and check valves for petroleum and natural gas industry applications.	Industry	USA	USA and International	Active	
API 603	2018	9	Corrosion-resistant, Bolted Bonnet Gate Valves - Flanged and Butt-welding Ends	This standard specifies the requirements for corrosion-resistant bolted bonnet gate valves meeting the requirements of ASME B16.34, Standard Class, for valves having flanged or butt-weld ends in sizes NPS ½ through 24, corresponding to nominal pipe sizes in ASME B36.10M, and Classes 150, 300, and 600.	Industry	USA	USA and International	Active	
API 607	2016	7	Fire Test for Quarter-turn Valves and Valves Equipped with Nonmetallic Seats	Describes fire type-testing requirements and a fire type-test method for confirming the pressure-containing capability of a valve under pressure during and after the fire test.	Industry	USA	USA and International	Active	
API 608	2020	6	Metal Ball Valves - Flanged, Threaded, and Welding Ends	Specifies the requirements for metal ball valves suitable for petroleum, petrochemical, and industrial applications that have butt-welding or flanged ends for NPS 1/2 through NPS 24 and threaded or socket-welding ends for NPS 1/4 through NPS 2, corresponding to the nominal pipe sizes in ASME B36.10M.	Industry	USA	USA and International	Active	
API 609	2016	8	Butterfly Valves: Double-flanged, Lug- and Wafer-type	This standard covers design, materials, face-to-face dimensions, pressure-temperature ratings, and examination, inspection and test requirements for gray iron, ductile iron, bronze, steel, nickel-based alloy, or special alloy butterfly valves.	Industry	USA	USA and International	Active	
API RP 621	2018	4	Reconditioning of Metallic Gate, Globe, and Check Valves	This recommended practice (RP) provides guidelines for reconditioning heavy wall (API 600 and API 594 type) carbon steel, ferritic alloy (up to 9 % Cr), stainless steel, and nickel alloy gate, globe, and check valves for ASME pressure classes 150, 300, 400, 600, 900, 1500, and 2500.	Industry	USA	USA and International	Active	
API 622	2018	3	Type Testing of Process Valve Packing for Fugitive Emissions	This standard specifies the requirements for comparative testing of valve stem packing for process applications where fugitive emissions are a consideration. Packing(s) shall be suitable for use at service temperatures -29°C to 538°C (-20°F to 1000°F).	Industry	USA	USA and International	Active	

API 623	2013	1	Steel Globe Valves-Flanged and Butt-welding Ends, Bolted Bonnets	This API standard specifies the requirements for a heavy-duty series of bolted bonnet steel globe valves for petroleum refinery and related applications where corrosion, erosion and other service conditions would indicate a need for heavy wall sections and large stem diameters.	Industry	USA	USA and International	Active	
API 624	2014	1	Type Testing of Rising Stem Valves Equipped with Graphite Packing for Fugitive Emissions	This standard specifies the requirements and acceptance criteria (100 ppmv) for fugitive emission type testing of rising and rising-rotating stem valves equipped with packing previously tested in accordance with API 622.	Industry	USA	USA and International	Active	
ASME B73.1	2020		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	
ASTM F2087	2019	13	Standard Specification for Packing, Fiberglass, Braided, Rope, and Wick	This specification covers the general requirements and testing procedures for wick (Type I), rope (Type II), and braided (Type III) fiberglass packing used for boiler, furnace, and other high-temperature equipment seals.	Industry	USA	USA and International	Active	
ASTM F2168	2019	13	Standard Specification for Packing Material, Graphitic, Corrugated Ribbon or Textured Tape, and Die-Formed Ring	This specification covers various types, classes, and grades of flexible graphite material in which valve media temperatures are limited to a maximum temperature.	Industry	USA	USA and International	Active	
ASTM F2191	2020	13	Standard Specification for Packing Material, Graphitic or Carbon Braided Yarn	This specification covers staple or continuous filament carbon/graphite yarn valve stem compression packing, suitable for use as end-rings on packing systems for valves.	Industry	USA	USA and International	Active	
ISA-SP-93	1993		Standard Method for the Evaluation of External Leakage of Manual and Automated On-Off Valves	This standard specifies a list of requirements for the method of testing fugitive emissions from valves and seals.	Industry	USA	USA and International	Active	
MSS SP-120	2017		Flexible Graphite Packing System for Rising Stem Steel Valves	This Standard Practice is applicable to valves that use flexible graphite packing stem sealing to achieve reduced or low emissions.	Industry	USA	USA and International	Active	
MSS SP-121	2006		Qualification Testing Methods for Stem Packing for Rising Stem Steel Valves	This Standard Practice provides procedures and guidelines for testing and evaluation of valve stem packing materials and material combinations.	Industry	USA	USA and International	Inactive	Withdrawn
ANSI/FCI 91-1	2010		Standard for Qualification of Control Valve Stem Seals	FCI 91-1-2010 shall apply to rotary and linear motion control valves. Bellows, diaphragms and tubular stem seals are not covered by this standard.	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	
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	