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Contents

Page

Foreword

This Japanese Industrial Standard has been revised by the Minister of Health, Labour and Welfare and the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law.

Consequently **JIS B 8265**:2016 is replaced with this Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, applications for a patent after opening to the public or utility model rights. The relevant Ministers and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public or utility model rights.

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Construction of pressure vessel — General principles

1 Scope

1.1 Applicable pressure vessels

This Japanese Industrial Standard applies to the construction of pressure vessels with the design pressure of less than 30 MPa. Pressure vessels herein refer to the vessels which retain the pressure, contain fluids which generate the pressure, or those which retain the external pressure. Pressure vessels given in **a**) to **f**) below are excluded.

This Standard and **JIS B 8267** differ in the specifications of allowable stress of materials, impact test, etc.

NOTE : The pressure, unless otherwise specified, means the gauge pressure.

a) Those specified in other Japanese Industrial Standards [1)]

b) Those made of non-metallic materials

c) Those used for atomic energy

d) Those of riveted or soldered structure

e) Those exposed to direct fire

f) Those with special structures [2)] or for special applications [3)]

Notes [1)] Examples of Japanese Industrial Standards are shown below.

JIS B 8267 *Construction of pressure vessel*

JIS B 8266 *Alternative standard for construction of pressure vessels*

JIS B 8201 *Stationary steel boilers — Construction*

JIS B 8240 *Construction of pressure vessels for refrigeration*

JIS B 8241 *Seamless steel gas cylinders*

JIS B 8248-1 *Cylindrical layered pressure vessels — Part 1 : General standards*

JIS B 8248-2 *Cylindrical layered pressure vessels — Part 2 : Alternative standards*

JIS B 8501 *Welded steel tanks for oil storage*

[2)] Such as those with complicated shapes, flat-bottom cylindrical tanks for low temperature and tanks with membrane structure.

[3)] Pressure retaining parts of rotating or reciprocating machines such as oil hydraulic machines, water hydraulic machines, pumps, compressors, turbines, internal combustion engines, water pressure cylinders or pneumatic pressure cylinders.

1.2 Scope of pressure vessels

1.2.1 The scope of pressure vessels shall include the main body of pressure vessles [shells, heads and nozzle stubs (nozzles) directly connected to them], and the pressure retaining parts given in **a**) to **c**) below.

a) In the case of the tubes bonded to shells, heads or nozzle stubs (directly connected to them) of pressure vessels, the pressure retaining parts shall be from the bonded joints (welded joint, screw joint or bolted flanged tube joint) up to the parts given in **1**) to **3**) below.

   1) In the case of the welded joint, up to the groove face of the circumferential joint of the tube nearest to the welded joint (excluding the circumferential joint)

   2) In the case of the screw joint (including the tube joint with inside screw), up to the threaded portion of the tube side of screw joint

   3) In the case of the bolted flanged tube joint, up to the flange face of the tube side of the bolted flanged tube joint (including bolts and nuts)

b) In the case of the direct welding of non-pressure member onto the pressure retaining part, up to the welded joint

c) Up to the cover plate such as a manhole and a hand-hole which retain the pressure (including the bonded joint)

1.2.2 Valves may be included in the scope of pressure vessels.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. For standards indicated below, only the editions of the indicated year shall be applied and any revisions (including amendments) made thereafter shall not be applied.

JIS B 0190 : 2010 *Glossary of terms used in construction of pressure vessels*

JIS B 2220 : 2012 *Steel pipe flanges*

JIS B 2239 : 2013 *Cast iron pipe flanges*

JIS B 2240 : 2006 *Copper alloy pipe flanges*

JIS B 2241 : 2006 *Aluminium alloy pipe flanges*

JIS B 2290 : 1998 *Vacuum technology — Flange dimensions*

JIS B 8210 : 2017 *Safety devices for protection against excessive pressure — Safety valves*

JIS B 8226-1 : 2011 *Bursting disc safety devices — Part 1 : General*

JIS B 8226-2 : 2011 *Bursting disc safety devices — Part 2 : Combination with safety valve*

JIS B 8226-3 : 2011 *Bursting disc safety devices — Part 3 : Application, selection*

and installation

JIS B 8266 : 2006 *Alternative standard for construction of pressure vessels*

JIS B 8267 : 2015 *Construction of pressure vessel*

JIS B 8274 : 2008 *Flat tubesheet for pressure vessels*

JIS B 8285 : 2010 *Welding procedure qualification test for pressure vessels*

JIS G 0404 : 2014 *Steel and steel products — General technical delivery requirements*

JIS G 0581 : 1999 *Methods of radiographic examination for steel castings*

JIS G 0582 : 2015 *Automated ultrasonic examination of steel pipes and tubes*

JIS G 0801 : 2008 *Ultrasonic testing of steel plates for pressure vessels*

JIS G 3101 : 2015 *Rolled steels for general structure*

JIS G 3103 : 2012 *Carbon steel and molybdenum alloy steel plates for boilers and pressure vessels*

JIS G 3106 : 2015 *Rolled steels for welded structure*

JIS G 3114 : 2016 *Hot-rolled atmospheric corrosion resisting steels for welded structure*

JIS G 3115 : 2016 *Steel plates for pressure vessels for intermediate temperature service*

JIS G 3116 : 2013 *Steel sheet, plates and strip for gas cylinders*

JIS G 3118 : 2010 *Carbon steel plates for pressure vessels for intermediate and moderate temperature services*

JIS G 3119 : 2013 *Manganese-molybdenum and manganese-molybdenum-nickel alloy steel plates for boilers and pressure vessels*

JIS G 3120 : 2014 *Manganese-molybdenum and manganese-molybdenum-nickel alloy steel plates quenched and tempered for pressure vessels*

JIS G 3126 : 2015 *Carbon steel plates for pressure vessels for low temperature service*

JIS G 3127 : 2013 *Nickel steel plates for pressure vessels for low temperature services*

JIS G 3131 : 2011 *Hot-rolled mild steel plates, sheet and strip*

JIS G 3201 : 2008 *Carbon steel forgings for general use*

JIS G 3202 : 2008 *Carbon steel forgings for pressure vessels*

JIS G 3203 : 2008 *Alloy steel forgings for pressure vessels for high-temperature service*

JIS G 3204 : 2008 *Quenched and tempered alloy steel forgings for pressure vessels*

JIS G 3205 : 2008 *Carbon and alloy steel forgings for pressure vessels for low-temperature service*

JIS G 3206 : 2008 *High strength chromium-molybdenum alloy steel forgings for pressure vessels under high-temperature service*

JIS G 3214 : 2009 *Stainless steel forgings for pressure vessels*

JIS G 3452 : 2016 *Carbon steel pipes for ordinary piping*

JIS G 3454 : 2012 *Carbon steel tubes for pressure service*

JIS G 3455 : 2016 *Carbon steel pipes for high pressure service*

JIS G 3456 : 2016 *Carbon steel pipes for high temperature service*

JIS G 3457 : 2016 *Arc welded carbon steel pipes*

JIS G 3458 : 2013 *Alloy steel pipes*

JIS G 3459 : 2016 *Stainless steel pipes*

JIS G 3460 : 2013 *Steel tubes for low temperature service*

JIS G 3461 : 2012 *Carbon steel boiler and heat exchanger tubes*

JIS G 3462 : 2016 *Alloy steel tubes for boiler and heat exchanger*

JIS G 3463 : 2012 *Stainless steel boiler and heat exchanger tubes*

JIS G 3464 : 2013 *Steel heat exchanger tubes for low temperature service*

JIS G 3467 : 2013 *Steel tubes for fired heater*

JIS G 3468 : 2016 *Large diameter welded stainless steel pipes*

JIS G 3601 : 2012 *Stainless-clad steels*

JIS G 3602 : 2012 *Nickel and nickel alloy clad steels*

JIS G 3603 : 2012 *Titanium clad steels*

JIS G 3604 : 2012 *Copper and copper alloy clad steels*

JIS G 4051 : 2016 *Carbon steels for machine structural use*

JIS G 4053 : 2016 *Low-alloyed steels for machine structural use*

JIS G 4107 : 2010 *Alloy steel bolting materials for high temperature service*

JIS G 4108 : 2010 *Alloy steel bars for special application bolting materials*

JIS G 4109 : 2013 *Chromium-molybdenum alloy steel plates for boilers and pressure vessels*

JIS G 4110 : 2015 *High strength chromium-molybdenum and chromium-molybdenum-vanadium alloy steel plates for pressure vessels under high-temperature service*

JIS G 4303 : 2012 *Stainless steel bars*

JIS G 4304 : 2015 *Hot-rolled stainless steel plate, sheet and strip*

JIS G 4305 : 2015 *Cold-rolled stainless steel plate, sheet and strip*

JIS G 4311 : 2011 *Heat-resisting steel bars and wire rods*

JIS G 4312 : 2011 *Heat-resisting steel plate, sheet and strip*

JIS G 4901 : 2008 *Corrosion-resisting and heat-resisting superalloy bars*

JIS G 4902 : 1991 *Corrosion-resisting and heat-resisting superalloy plates and sheets*

JIS G 4903 : 2008 *Seamless nickel-chromium-iron alloy pipes*

JIS G 4904 : 2008 *Seamless nickel-chromium-iron alloy heat exchanger tubes*

JIS G 5101 : 1991 *Carbon steel castings*

JIS G 5102 : 1991 *Steel castings for welded structure*

JIS G 5111 : 1991 *High tensile strength carbon steel castings and low alloy steel castings for structural purposes*

JIS G 5121 : 2003 *Corrosion-resistant cast steels for general applications*

JIS G 5122 : 2003 *Heat-resistant cast steels and alloys for general applications*

JIS G 5131 : 2008 *High manganese steel castings*

JIS G 5151 : 1991 *Steel castings for high temperature and high pressure service*

JIS G 5152 : 1991 *Steel castings for low temperature and high pressure service*

JIS G 5201 : 1991 *Centrifugally cast steel pipes for welded structure*

JIS G 5202 : 1991 *Centrifugally cast steel pipes for high temperature and high pressure service*

JIS G 5526 : 2014 *Ductile iron pipes*

JIS G 5527 : 2014 *Ductile iron fittings*

JIS H 3100 : 2012 *Copper and copper alloy sheets, plates and strips*

JIS H 3250 : 2015 *Copper and copper alloy rods and bars*

JIS H 3300 : 2012 *Copper and copper alloy seamless pipes and tubes*

JIS H 3320 : 2006 *Copper and copper alloy welded pipes and tubes*

JIS H 4000 : 2017 *Aluminium and aluminium alloy sheets, strips and plates*

JIS H 4040 : 2015 *Aluminium and aluminium alloy bars and wires*

JIS H 4080 : 2015 *Aluminium and aluminium alloy extruded tubes and cold-drawn tubes*

JIS H 4090 : 2006 *Aluminium and aluminium alloy welded pipes and tubes*

JIS H 4100 : 2015 *Aluminium and aluminium alloy extruded profiles*

JIS H 4140 : 1988 *Aluminium and aluminium alloy forgings*

JIS H 4301 : 2009 *Lead sheets and plates and hard lead sheets and plates*

JIS H 4311 : 2006 *Lead and lead alloy tubes for common industries*

JIS H 4551 : 2000 *Nickel and nickel alloy plate, sheet and strip*

JIS H 4553 : 1999 *Nickel and nickel alloy bars*

JIS H 4600 : 2012 *Titanium and titanium alloys — Sheets, plates and strips*

JIS H 4630 : 2012 *Titanium and titanium alloys — Seamless pipes*

JIS H 4631 : 2012 *Titanium and titanium alloys — Tubes for heat exchangers*

JIS H 4635 : 2012 *Titanium and titanium alloys — Welded pipes*

JIS H 4650 : 2016 *Titanium and titanium alloys — Bars*

JIS H 5120 : 2016 *Copper and copper alloy castings*

JIS H 5121 : 2016 *Copper alloy continuous castings*

JIS H 5202 : 2010 *Aluminium alloy castings*

JIS H 5302 : 2006 *Aluminium alloy die castings*

JIS Z 2242 : 2005 *Method for Charpy pendulum impact test of metallic materials*

JIS Z 2305 : 2013 *Non-destructive testing — Qualification and certification of NDT personnel*

JIS Z 2320-1 : 2007 *Non-destructive testing — Magnetic particle testing — Part 1 : General principles*

JIS Z 2320-2 : 2007 *Non-destructive testing — Magnetic particle testing — Part 2 : Detection media*

JIS Z 2320-3 : 2007 *Non-destructive testing — Magnetic particle testing — Part 3 : Equipment*

JIS Z 2343-1 : 2001 *Non-destructive testing — Penetrant testing — Part 1 : General principles — Method for liquid penetrant testing and classification of the penetrant indication*

JIS Z 3060 : 2015 *Method for ultrasonic testing for welds of ferritic steel*

JIS Z 3080 : 1995 *Methods of ultrasonic angle beam examination for butt welds of aluminium plates*

JIS Z 3081 : 1994 *Methods of ultrasonic angle beam examination for welds of aluminium pipes and tubes*

JIS Z 3082 : 1995 *Methods of ultrasonic examination for T type welds of aluminium plates*

JIS Z 3104 : 1995 *Methods of radiographic examination for welded joints in steel*

JIS Z 3105 : 2003 *Methods of radiographic examination for welded joints in aluminium*