



ISO/TC 197  
Hydrogen technologies

Email of secretary: [jim.ferrero@bnq.gc.ca](mailto:jim.ferrero@bnq.gc.ca)  
Secretariat: SCC (Canada)

**ISO CD 19880-3 Compiled Comments Ballot 2015-05**

Document type: Summary of voting

Date of document: 2015-11-18

Expected action: INFO

Background: Here are the compiled comments that were submitted with the CD 19880-3 Ballot (see N 722 for the ballot results).

Committee URL: <http://isotc.iso.org/livelink/livelink/open/tc197>

Template for comments and secretariat observations

Date:2015-05-22	Document:	Project:
-----------------	-----------	----------

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
FR01 001		0		GE	<p>The french Committee fully appreciates the work already done by WG19 and WG20 in order to achieve the 2 Committee Drafts:</p> <p>ISO/CD 19880-2 Gaseous hydrogen -- Fueling stations -- Part 2: Dispensers</p> <p>ISO/CD 19880-3 Gaseous hydrogen -- Fueling stations -- Part 3: Valves.</p> <p>Nevertheless, the consultations for circulation of this draft as a DIS seem a little premature.</p> <p>There are still some technical pending issues and we would appreciate to have an additional period of time for reviewing the content and listing the detailed technical comments.</p> <p>Furthermore, it would be recommended to check in detail the consistency of these CDs with the content of expected TR 19880-1 on fueling station, before circulation as a DIS.</p> <p>We propose to postpone or reopen these consultations after the next face to face meetings of WG19 and WG20, planned in June 2015</p>		

1 **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

## Template for comments and secretariat observations

Date:2015-05-22	Document:	Project:
-----------------	-----------	----------

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
JP10 002		Content (Line 15)		ed	Change the format of the document to that of ISO (insert Foreword and Copyright Notice, etc.).	Change the format of the document to that of ISO (insert Foreword and Copyright Notice, etc.)	
US 1 003		0		General	The US is very supportive of this work. We recognize this is an important document, and is integral to the development of a cohesive series of documents to facilitate gaseous hydrogen refuelling. We have identified a number of technical issues, described below, which we are confident can be resolved within the working group during preparation of a DIS. We would like to ensure this document goes through the DIS stage, and is not accelerated directly to the FDIS stage. We believe the working group convenor and members also desire working through the DIS stage to help ensure the best possible International Standard results.	Work through technical issues in preparation of a DIS, without skipping a development stage.	
US 2 004		various		General	Valve types described are not consistent with industry standards. • Valves are either self-actuated or externally actuated. Self-actuated valve assemblies include gravity (swing checks), spring (poppet check), or thermal actuation. Examples of these types of valves include, but are not limited to; check valves, regulators, thermostats. Externally actuated valve assemblies consist of a valve and an actuator. Often the actuator is not manufactured by the valve maker. The actuator may be as simple as a handle or more complicated like an electric motorized actuator. How the actuator and valve are combined defines the assembly. For example, a spring return poppet or diaphragm valve with an electro-magnetic coil as an actuator is commonly referred to as a solenoid. It is externally actuated by the supply of electric power to	Consider use of industry terms described, or a table to cross-reference terms to avoid confusion. Alternatively, include list of types of applicable valves with the definitions in Section 3.	

<sup>1</sup> **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

<sup>2</sup> **Type of comment:** **ge** = general **te** = technical **ed** = editorial

Template for comments and secretariat observations

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
					<p>the coil.</p> <p>A ball valve with a handle is commonly referred to as a quarter turn hand valve.</p> <p>Inconsistency in terms used in this document with industry practice may create confusion.</p> <p>A distinction between valves and valve assemblies must be made to appropriately apply this standard.</p> <p>Requirements for relief valves can be found in ISO 15649.</p> <pre> graph TD     VA[Valve assemblies] --&gt; SA[Self-actuating]     VA --&gt; EA[Externally actuated]     SA --&gt; C[Check]     SA --&gt; FL[Flow Limiting]     SA --&gt; PR[Pressure Regulating]     SA --&gt; SR[Safety Relief]     SA --&gt; TR[Temperature Regulating]     EA --&gt; A[Actuator]     EA --&gt; V[Valve]             </pre>		
US 6 005		0			Additional comments on ISO/CD 19880-3 will be forthcoming from U.S. TAG.		
US 3 006		1		technical	Low pressure valves are already covered under other standards. 1MPa is a class 125 valve. This covers all metallic valves. Consider whether the intent is for this standard to focus on hardware	Focus on high-pressure valves which are not already covered under existing standards.	

1 MB = Member body / NC = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 Type of comment: ge = general te = technical ed = editorial

# Template for comments and secretariat observations

Date:2015-05-22

Document:

Project:

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
					rated for pressures greater than class 2500 as defined in ASME B16.5. For A240 Gr 316L ~29 MPa for the anticipated temperature range of a fueling station. The other, lower pressure, valves do not seem relevant to this document.		
CA 007		1 Scope		Ed	Scope speaks of “ <i>breakaway valve</i> ” and “ <i>relief valve</i> ”, while the Definitions in Clause 3 term these as “ <i>hose breakaway device</i> ” and “ <i>pressure safety-relief valve (PSV)</i> ”, respectively.	Need consistent use of terminology throughout document	
JP4 008		1 Scope	breakaway valve	ed	Chang to “hose breakaway valve” to match the definition in Terms and Definitions.	hose breakaway valve	
JP8 009		1 Scope	1	ed	Reorder the valve names to follow the alphabet.	<ul style="list-style-type: none"> <li>- automatic valve</li> <li>- check valve</li> <li>- excess flow valve</li> <li>- flow control valve</li> <li>- hose breakaway valve</li> <li>- manual valve</li> <li>- pressure safety valve</li> </ul>	
US 4 050		2		technical	<p>Many industry standards are not listed as normative references. Consider adding the following:</p> <p>API 598 - Valve Inspection and Testing</p> <p>API 622 - Qualification of packing for FE</p>	<p>Add applicable references. Use existing industry standards where possible in lieu of defining new testing requirements.</p> <p>At a minimum, include the non-ISO and non-EN documents in the bibliography of this draft.</p>	

1 **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

Template for comments and secretariat observations

Date:2015-05-22	Document:	Project:
-----------------	-----------	----------

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
					Service with acceptance at 100 PPMv max API 624 - Type testing of valve for FE service with acceptance of 100 PPMv max ASME B16.34 - Valves—Flanged, Threaded, and Welding End AWWA C510 - Double Check Valve Backflow Prevention Assembly EN 15714 - Industrial valves EN 60534 - Valves – parts 1, 2, 3, 4, 5, 6, and 8 FCI 70-2- Control Valve Seat Leakage ISA 75.19.01 - Hydrostatic Testing of Control Valves ISA 75.02.01 - Control Valve Capacity Test Procedures ISO 5208 - Industrial valves — Pressure testing of metallic valves ISO 15649: - Petroleum and natural gas industries -- Piping ISO 15848 - Industrial valves -- Measurement, test and qualification procedures for fugitive emissions MSS SP-61 - Pressure Testing of Steel Valves UL 1468 - Direct Acting Pressure Reducing and Pressure Restricting Valves UL 1477 - Strength of Body and Hydraulic Pressure Loss Testing of Backflow Special Check Valves		
JP1 051		3.2	Note 1	ge	Unify the units to IS.	703 kg/m <sup>2</sup> 68.9 kPa	
US 5 052		3.2		technical	3.2 Cv values. Further description is needed.	Extract for SAE J2600 the ISO/IEC and the North American references defining the testing for this.	

1 MB = Member body / NC = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 Type of comment: ge = general te = technical ed = editorial

## Template for comments and secretariat observations

Date:2015-05-22

Document:

Project:

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
JP1 053		3.3 dispenser	NOTE	ed	Insert a note to match 3.7 in 19880-1.	NOTE: As an example, the dispenser may include a dispenser cabinet, gas flow meter, a fuelling hose and fuelling nozzle attachments	
JP2 054		3.4 maximum allowable working pressure (MAWP)	3.4	ed	Match 3.27 in 19880-1.	maximum pressure that a component may experience in service, including upset conditions, independent of temperature, before initiation mitigation options, typically the basis for the set point of the pressure relief device protecting the vessel or piping system,. NOTE: The maximum allowable working pressure may also be defined as the design pressure, the maximum allowable operating pressure, the maximum permissible working pressure, or the maximum allowable pressure for the rating of pressure vessels and equipment manufactured in accordance with national pressure vessel codes.	
JP3 055		3.6 nominal working pressure (NWP)	3.6	ed	Match 3.30 in 19880-1.	pressure for which the dispenser is intended to be operated for a given gas temperature of 15 °C. NOTE: This defines a full vehicle tank gas density of either 35MPa or 70MPa at 15°C.	
JP5 056		3.7.7 pressure safety-relief valve (PSV)	3,7.7	ed	Match 3.37 in 19880-1.	pressure safety valve (PSV) pressure activated valve that opens at a specified set point to protect a system from burst and re-closes when the pressure falls below the set point	
CA 057		5.2.1 Test pressure	Last sentence	Te	The last sentence of the statement; " <i>Valves shall be capable of withstanding without rupture the test pressure of 4 times the maximum allowable working pressure (MAWP). When a country has its own regulation, the test pressure should follow the regulation</i> ", allows countries to use their own	Delete the last sentence	

1 **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

## Template for comments and secretariat observations

Date:2015-05-22

Document:

Project:

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
					national code in preference to the ISO standard. This should not be stated, because it implies ISO agrees with whatever regulation may be in place in the country of use. And this is not the case. ISO should only specify technical requirements that we know result in a safe application. In addition, countries always reserve the right to impose national requirements over ISO requirements, thus it is not necessary to make this statement. Otherwise, one may as well make this statement after every test requirement in the ISO standard.		
JP2 058		5.2.2		ed	Correct the description of time.	The pressure shall be applied for <del>one</del> 1 minute without rupturing the valve.	
CA 059		5.3 Leakage			There should be a time requirement associated with this test, such as "bubble-free <i>after 1 minute under pressure</i> ". The temperature tests under 5.3.2 and 5.3.3 require the sample to be held at temperature for 1 hour, but it is not clear how long the leak test itself must be performed.	Consider specifying some leak test duration.	
JP3 060		5.3.1		ed	Correct the description of leakage quantity.	The device shall either be bubble-free or have a leakage rate of less than 20 $\text{Ncm}^3$ (normal) /h of hydrogen gas using the following test method.	
JP4 061		5.3.2		ed	Correct the description of time.	The valve under test and the test gas (hydrogen or helium) shall be maintained at the required test temperature for <del>one</del> 1 hour prior to and during the test.	
JP5 062		5.3.2		ed	Use acronyms.	The test pressure shall be 100% of the <del>maximum allowable working pressure</del> MAWP. A flow measuring device capable of indicating the allowable leak rate, shall be used.	
JP6		5.3.3		ed		The valve under test and the test gas	

1 **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

## Template for comments and secretariat observations

Date:2015-05-22

Document:

Project:

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
063					Correct the description of time.	(hydrogen or helium) shall be maintained at the required test temperature for <del>one</del> 1 hour prior to and during the test.	
JP7 064		5.5	e)	ed	Correct the description of multipliers.	Conduct procedure d) <del>four</del> 4 times, rotating the valve 90° around the horizontal axis between each test. Between procedures, open and close (if applicable) the valve <del>three</del> 3 times with the bending moment removed.	
JP8 065		5.6.1		ed	Correct the description of cycles.	A valve shall withstand <del>402,000</del> 102 000 hydrogen gas pressure cycles without damage or leakage. The replacement of valve seals shall be acceptable at intervals of <del>16,000</del> 16 000 cycles.	
JP9 066		5.6.2		ed	Correct the description of time and use acronyms.	Cycling shall be between less than 5% of the <del>maximum allowable working pressure</del> MAWP and the <del>maximum allowable working pressure</del> MAWP ± 5% within a period of not less than 6 sec ( <del>10 cycles/min</del> ).	
JP10 067		5.7.2	b)	ed	Use acronyms.	a) Apply hydrogen at the <del>maximum allowable working pressure</del> MAWP for minimum of 70 h at room temperature.	
JP11 068		5.7.2	c)	ed	Correct the description of time.	Following this period, rapidly (but not less than 30 sec) reduce the test pressure to atmospheric pressure.	
JP12 069		6.1.4		ed	Correct the description of time and use acronyms.	The valve under test and the test gas shall be maintained at the required test temperature for <del>one</del> 1 hour prior to and during the test. The test pressure shall be 100 % and 10 % of the <del>maximum allowable working pressure</del> MAWP.	
JP13 070		6.1.7		ed	Correct the description of cycles.	A valve shall withstand <del>402,000</del> 102 000 hydrogen gas pressure cycles without damage or leakage. The replacement of valve seals	

1 **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

## Template for comments and secretariat observations

Date:2015-05-22

Document:

Project:

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
						shall be acceptable at intervals of <del>16,000</del> 16 000 cycles.	
JP14 071		6.1.7		ed	Use acronyms.	Apply <del>maximum allowable working pressure</del> MAWP with the outlet closed.	
JP15 072		6.1.7		ed	Use acronyms. Unify the description of ratios. Correct the description of time.	Cycling shall be between less than 5 % of the <del>maximum allowable working pressure</del> MAWP and the <del>maximum allowable working pressure</del> MAWP $\pm$ 5 percent % within a period of not less than 6 seconds ( <del>10 cycles/min</del> ).	
JP16 073		7.2.9		ed	Use acronyms. Unify the description of ratios.	The inlet of the valve shall be connected to a system capable of supplying clean test gas at <del>the maximum allowable working pressure</del> MAWP through a tube or pipe the size of which is equal to or greater than the valve inlet connection. During the test, the supply pressure shall not fall below 80 percent % of the <del>maximum allowable working pressure</del> MAWP.	
CA 074		8.1 Classification		Ed	The first sentence; " <i>Automatic valves are pneumatically actuated valves and electrically actuated valves</i> " belongs under the definition of Actuated valves.	Move under definition for Actuated valve	
CA 075		8.1 Clasification		Ed	Spelling	Classification	
JP17 078		8.3.7		ed	Correct the description of cycles.	A Class A valve shall withstand <del>102,000</del> 102 000 hydrogen gas pressure cycles without damage or leakage. The replacement of valve seals shall be acceptable at intervals of <del>16,000</del> 16 000 cycles.	
JP18 079		8.3.7		ed	Use acronyms.	With the valve closed, <del>the maximum allowable working pressure</del> (MAWP) is applied to the inlet.	

1 **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

Template for comments and secretariat observations

Date:2015-05-22	Document:	Project:
-----------------	-----------	----------

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
JP19 080		8.3.7		ed	Use acronyms. Unify the description of ratios. Correct the description of time.	Cycling shall be between less than 5 % of the <del>maximum allowable working pressure MAWP</del> and the <del>maximum allowable working pressure MAWP</del> $\pm 5$ percent % within a period of not less than 6 sec <del>(10 cyc/min)</del> .	
JP20 081		8.3.9		ed	Use acronyms.	A valve shall function properly when gas at <del>the maximum allowable working pressure MAWP</del> and the maximum flow rate is passing through it.	
JP21 082		8.3.9		ed	Use acronyms.	The inlet of the valve under test shall be connected to a system capable of supplying clean test gas at <del>the maximum allowable working pressure MAWP</del> at -40 °C and 85 °C	
JP22 083		8.3.9		ed	Correct the description of time.	The valve shall be maintained at the required test temperature for <del>one 1 hour</del> prior to and during the test.	
JP23 084		8.3.9		ed	Correct the description of leakage quantity.	The leak rate shall be less than 20 <del>sec/hr</del> cm <sup>3</sup> /h (at 15 °C) for hydrogen or 15 <del>sec/hr</del> cm <sup>3</sup> /h (at 15 °C) for helium.	
JP24 076		8.3.10		ed	Unify the description of ratios.	For those valves which have ports open to atmosphere or external moving parts, this test shall be conducted at 90 <del>percent</del> % relative humidity (ambient conditions).	
JP25 077		8.3.10		ed	Correct the description of multipliers. Correct the description of cycles.	This test shall be repeated <del>ten</del> 10 times. Then the test procedure shall be repeated for additional <del>ten</del> 10 cycles, except that the hold period shall be increased to 15 min.	
JP6 085		9 Pressure relief valves (PRV)	9	ed	Change to “hose breakaway valve” in accordance with 3.7.7.	9 Pressure safety valves (PSV)	

1 MB = Member body / NC = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 Type of comment: ge = general te = technical ed = editorial

## Template for comments and secretariat observations

Date:2015-05-22

Document:

Project:

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
JP7 086		9 Pressure safety valve (PSV)	9	ed	Change PRV to PSV in the entire document in accordance with the above change.	Line 687, Line691, Line 697m Line 712, Line721	
JP26 087		9.1.3		ed	Use acronyms.	Test the PRV at -40 °C, 20 °C and 85 °C at <del>maximum allowable working pressure</del> MAWP.	
JP27 088		9.1.6		ed	Correct the description of cycles.	The PRV shall withstand <del>400,000</del> 100 000 cycles of hydrogen gas pressure cycle at the maximum allowable pressure. The replacement of valve seals shall be acceptable at intervals of <del>46,000</del> 16 000 cycles.	
JP28 089		9.1.6		ed	Use acronyms.	This test shall be conducted with the ports of the valve subjected to the valve manufacturer's specified <del>maximum allowable working pressure</del> MAWP or atmospheric pressure,	
JP29 090		9.1.6		ed	Correct the description of cycles.	The valve shall be safely secured and actuated so as to produce approximately 10 cycles <del>per</del> /min.	
JP30 010		10.2.11		ed	Wrong references.	Following the pressure impulse test, conduct an operation test according to 10.3 2.7.	
CA 011		12 Breakaway devices		Ed	The title name "breakaway devices" is inconsistent with the definition term of " <i>hose breakaway device</i> "		
JP31 012		12.1		ed	Correct the description of resistances.	The electrical resistance between the extreme ends of a hose breakaway device shall not exceed 10 <del>ohms</del> Ω.	

1 **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

## Template for comments and secretariat observations

Date:2015-05-22

Document:

Project:

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
JP32 013		12.1		ed	Use acronyms.	The resistance shall be measured at atmospheric pressure and while being exposed to an internal pressure equal to the manufacturer's specified <del>maximum allowable working pressure</del> MAWP.	
JP33 018		12.2.2		ed	Correct the description of multipliers. Use acronyms.	Devices shall be capable of withstanding a test pressure equal to <del>three</del> 3 times the <del>maximum allowable working pressure</del> MAWP without rupture.	
JP34 019		12.2.2		ed	Correct the description of multipliers. Use acronyms.	With the device open and its outlet sealed, the pressure shall be slowly increased to <del>three</del> 3 times the <del>maximum allowable working pressure</del> (MAWP).	
JP35 020		12.2.2		ed	Correct the description of multipliers. Use acronyms.	If the coupled device uncouples during pressurization it is not considered a failure as long as the pressure has exceeded <del>4.5</del> 1,5 times the <del>maximum allowable working pressure</del> MAWP at the time of uncoupling.	
JP36 021		12.2.2		ed	Correct the description of multipliers.	If the coupled device leaks during pressurization it is not considered a failure as long as the pressure has exceeded <del>4.5</del> 1,5 times the design pressure at the time leakage occurs.	
JP37 022		12.2.2		ed	Correct the description of multipliers. Use acronyms.  Correct the description of time.	The test pressure shall be slowly increased to <del>four</del> 4 times the <del>maximum allowable working pressure</del> MAWP. The test pressure shall be held for <del>five</del> 5 min without rupture.	
JP38 023		12.2.3		ed	Correct the description of leakage quantity.	A breakaway device shall not leak more than 10 Ncm <sup>3</sup> (normal) when tested using hydrogen or equivalent test medium in accordance with the following test method.	
JP39 024		12.2.3		ed	Correct the description of time.	The devices shall be conditioned and maintained at the required test temperature for	

1 **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

## Template for comments and secretariat observations

Date:2015-05-22

Document:

Project:

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
						not less than <del>two</del> 2 hours per /25.4 mm of maximum diameter of the breakaway device prior to test and during the test.	
JP40 025		12.2.3		ed	Unify the description of ratios. Use acronyms.	The inlet of the device under test shall be connected to a system capable of supplying clean test gas at 100 percent % of the manufacturer's specified <del>maximum allowable working pressure</del> (MAWP) and to a flow measuring device or means capable of indicating the allowable leak rate.	
JP41 026		12.2.3		ed	Unify the description of ratios. Use acronyms.	With the device in the normal assembled configuration, and with its outlet plugged, test gas shall be slowly admitted and maintained at 100 percent % of the specified <del>maximum allowable working pressure</del> (MAWP).	
JP42 027		12.2.3		ed	Correct the description of leakage quantity.  Correct the description of time.	The leakage rate under any test condition shall not exceed 10 Ncm <sup>3</sup> (normal) /hr-using hydrogen as the test medium.	
JP43 028		12.2.6.1		ed	Correct the description of cycles.	A device shall withstand <del>402,000</del> 102 000 cycles of hydrogen gas pressure without separation or leakage.	
JP44 029		12.2.6.1		ed	Correct the description of frequencies.  Unify the description of ratios.	The pressure pulses shall be applied at a uniform cycle rate of <del>0.5</del> 0,5 Hz to <del>4.0</del> 1,0 Hz. The pressure shall rise to test pressure within 15 % of the start of each cycle, maintain test pressure until 50 % ± 5 % of the impulse cycle, then drop to 0 MPa for 10 % of the cycle, and maintain 0 MPa to 10 MPa for the remainder of the cycle.	
JP45 030		12.2.6.1		ed	Wrong references.	The device shall not separate during this test and upon completion of the 102 000 cycles the device shall comply with clause 12.2.3 (at room temperature only), and 12.2.2	

1 **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

## Template for comments and secretariat observations

Date:2015-05-22

Document:

Project:

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
						Hydrostatic strength and 12.2.5 7 Separation test.	
JP46 031		12.2.6.2		ed	Correct the description of time.	The pressure pulses shall be applied by means of a quick opening solenoid valve or similar at a rate not to exceed 1 cycle/see. The maximum pressure shall be held for 5 ± 1 see and then reduced to 0 MPa for 5 ± 0.5 see.	
JP47 032		12.2.6.2		ed	Correct the description of cycles.	Upon completion of the <del>102,000</del> 102 000 cycles the device shall comply with clause 12.2.3 (at room temperature only), and 12.2.2 Hydrostatic strength and 12.2.7 Separation test.	
JP48 033		12.2.7		ed	Wrong references.  Correct the description of time.  Correct the description of lengths.	When tested in accordance with the following method, the device shall separate upon application of a maximum pull force of <del>667</del> 1 000 N but not less than <del>222</del> 220 N when the device is installed as specified by the manufacturer. Upon separation under the pressurized condition, the flow of gas from the inlet component shall cease, and the flow of gas from the outlet component shall either (1) cease within 1 see or (2) bleed down the attached hose through a maximum <del>4.5</del> 1,5 mm orifice.	
JP49 034		12.2.7		ed	Correct the sentence.	The device being tested shall be installed as specified by the manufacturer in a simulated dispenser / for each hose assembly.	
JP50 035		12.2.7		ed	Correct the sentence.	The sample shall be tested for a total of 20 times, 5 times at each of the listed temperature / for each pressure combinations.	
JP51 036		12.2.7		ed	Correct the sentence.	Two "one time use" samples shall be tested at each of the listed temperature / for each pressure combinations.	

1 **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

## Template for comments and secretariat observations

Date:2015-05-22

Document:

Project:

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
JP52 037		12.2.7		ed	Correct the description of time.	The device being tested shall be maintained at the required test temperature for at least <del>two</del> 2 hours per 25.4 mm of maximum diameter of the breakaway device prior to the test and shall remain conditioned throughout the test.	
JP53 038		12.2.7		ed	Wrong references.	A direct tensile force shall be applied beginning at a force less than <del>222</del> 220 N and increasing until the device separates.	
JP54 039		12.2.8		ed	Correct the description of lengths.	A hose breakaway device shall be capable of withstanding the impact of 20 Nm per <del>25.4</del> 25,4 mm of tubing nominal diameter (based on connector size) without separating, leaking, cracking or breaking.	
JP55 040		12.2.8		ed	Correct the description of time. Correct the description of lengths.	This test shall be conducted with a breakaway device conditioned at - 40 °C for <del>two</del> 2 hours per <del>25.4</del> 25,4 mm of maximum diameter of the breakaway device.	
JP56 041		12.2.8		ed	Correct the description of lengths.	The device shall be supported by securing it to an appropriate nipple or coupling mounted on a rigid surface so that the free length of the nipple or coupling is not greater than <del>25.4</del> 25,4 mm.	
JP57 042		12.2.8		ed	Correct the description of lengths.	The test device shall be arranged so that the center of impact shall be <del>6.5</del> 6,5 mm from the extreme outlet end.	
JP58 043		12.2.8		ed	Correct the description of angles.	The device shall then be struck four successive times at right angles to the longitudinal center line of the outlet gas pathway, with the device being turned 90 <del>degrees</del> ° between each impact.	
JP59 044		12.2.8		ed	Wrong references.	Upon completion of the above procedure, the device shall comply with 12.2.3 Leakage and	

1 **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial

## Template for comments and secretariat observations

Date:2015-05-22

Document:

Project:

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
						12.2.5 7 Separation test.	
JP60 045		12.2.9		ed	Correct the description of lengths.	An inline hose breakaway device shall be capable of withstanding being dropped from <del>4.8</del> 1,8 m without separating, leaking, cracking or breaking.	
JP61 046		12.2.9		ed	Correct the description of lengths. Correct the description of time. Correct the description of multipliers. Use acronyms.	The connected device shall be attached to a fueling hose of <del>4.5</del> 4,5 m in length, conditioned at - 40°C for <del>two</del> 2 hours per <del>25.4</del> 25,4 mm of maximum diameter of the breakaway device and then dropped from a height of <del>4.8</del> 1,8 m onto a concrete floor as shown in Figure 2. The device shall be dropped <del>five</del> 5 times, then pressurized to the <del>maximum allowable working pressure</del> MAWP and subjected to five additional drops.	
JP62 047		12.2.9		ed	Correct the description of multipliers.	However, the device shall be dropped <del>ten</del> 10 times without any pressure applied if the outlet of the breakaway is not capable of being pressurized.	
CA 048		12.2.9 Drop test (applicable to inline devices)		Ed	There needs to be a definition of exactly what "inline" means, as this term is not used or explained anywhere else in the draft standard. Wouldn't all parts in a pressure system be "inline"?	Define "inline"	
JP63 014		12.2.10		ed	Correct the description of torque.	Using a torque up to <del>20.5</del> 20,5 Nm a hose breakaway device shall withstand 50 000 cycles of twisting due to torque rotation. This test does not apply to devices not capable of rotation at <del>20.5</del> 20,5 Nm.	
JP65 015		12.2.10		ed	Correct the description of angles. Correct the sentence.	The outlet shall be plugged and attached to an apparatus capable of rotating the device through 180 <del>degrees</del> ° at a maximum of 10 cycles <del>per</del> /min. A cycle shall consist of rotating the movable portions of the device 180 <del>degrees</del> ° and then back to their original	

<sup>1</sup> MB = Member body / NC = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

<sup>2</sup> Type of comment: ge = general te = technical ed = editorial

## Template for comments and secretariat observations

Date:2015-05-22

Document:

Project:

MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
						position.	
JP66 016		12.2.10		ed	Wrong references.	Following cycling, the device shall comply with 12.2.3 Leakage and 12.2.5 7 Separation test.	
JP67 017		12.2.10		ed	Correct the description of angles.	If the device is intended for connecting directly to a rigid assembly such as the dispenser, a pull force of 89 N at 45 degrees ° shall be applied during rotation.	
JP64 049		15.2.10		ed	Use acronyms.	Rotation shall be checked at 0 MPa and at the manufacturer's specified maximum allowable working pressure. Devices that can be rotated under both pressure conditions shall have half of the required cycles conducted at 0 MPa and half of the required cycles at the manufacturer's specified <del>maximum allowable working pressure</del> MAWP(applied by suitable means with clean dry tests gas).	
JP9 091		Contents (Line 15)		ed	Reorder the valve provisions to follow the sequence corrected in the above comment (see MB 8).	Reorder the valve names.	

1 **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

2 **Type of comment:** **ge** = general **te** = technical **ed** = editorial