



ISO/TC 197
Hydrogen technologies

Email of secretary: jim.ferrero@bnq.qc.ca
Secretariat: SCC (Canada)

ISO DIS 19880-3.2 Collated Comments Form 13 Annex B

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Background: These are the collated comments that were received and their resolutions from the second DIS ballot for 19880-3.

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

Template for comments and secretariat observations

Date:2017-06-13

Document:

Project:

MB/ NC ¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Observations of the secretariat
JP1 001				ge	Match the pressure terms of 19880-3 with those of 19880-1.		Agree. Inserted as 3.2
JP2 002				ge	Change the test pressure from "MAWP" to MOP (= 1.25 x HSL).		Not agree. See US03. CPR will be used. For 70H, 1.375 HSL. The manufacturer will determine the test pressure in accordance with the application.
003 NW			05.7.2	te	Bullet c) "Rapidly reducing test pressure" – the rate of pressure reduction should be quantified, e.g. by reference to ISO 23936-2 Appendix B		Agree in principle. Will review the recommended document for a possible reference. Reviewed it and concluded that 2 MPa per min is too slow. The intent is to reduce the pressure to ambient in seconds. Will add several seconds in parentheses.
004 NW			2	te	Normative reference: The safety level of a design standard is correlated with manufacturing-, testing- and installation requirements. Design standards for valves in general specifies factory acceptance test requirements, per manufactured valves, and some valve standards specifies performance tests (closing time, wear robustness, internal leak test, internal and external isolation requirement for exposed fire specification etc.), depending on application. It should be considered to include recommended / applicable valve design standards in the normative reference section, covering design, polymer seal qualification (ISO 23936-2, and fire safe testing.		Agree in principle. Please propose such standards for the next version, but such standards are to be listed in Bibliography unless referenced in the text.
US 03 005		03.04			Rather than using the term MAWP which is usually applied to a vessel or system, it would be preferable to harmonize with CD2 19880-1 and	Delete MAWP and replace with the following:	Agree. Please see the change made.

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-----------------	-----------	----------

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					use component pressure rating.	component pressure rating maximum allowable pressure at which it is permissible to operate a component as specified by the manufacturer at a specified temperature. Note 1: Components designed to the Maximum Allowable Pressure per the European PED represent the component ratings by the manufacturer that as indicated by the value of "PS". Note 2: Further guidance on dispenser pressure terminology is included ISO 19880-1.	Inserted in 3.2
US 04 006		04			General requirements do not address production quality and minimum test requirements.	Insert a new clause into Chapter 4: Production Quality The manufacturer shall establish production processes with quality control measures to ensure that production valve(s) meet requirements established in this document. As part of this requirement, a pressure (and leak) test to 150% of the component pressure rating shall be conducted.	Agree in principle. 1.5 water proof and 1.0 gas leak test as the standard, and 1.25 gas test as an option. Inserted as 4.4.
GB 007		04.01	Para 1	Ge	"This standard does not require existing valves designed under existing codes and regulations and field-proven to be retested." Surely it does if the other codes and regulations don't include the same tests? Otherwise they won't meet this standard?...	This doesn't offer anything useful to the document. Delete sentence unless there is a good reason for it, otherwise reword, a possibility could be: "This standard defines proof of design (type) tests for valves, designed and manufactured under existing standards, that are intended for use in hydrogen fuelling stations.	Agree in principle. Please see the changes made to 4.1.
GB 008		04.01	Para 1	Ge	A list of the appropriate design standards for the valves in question, where available, should be included. Based on the context of this document, this could be more appropriate as an informative list in a note.	List examples, e.g. ISO 4126: Safety devices for protection against excessive pressure, - Part 1: Safety valves - Part 9: Application and installation of safety devices excluding stand-alone bursting disc safety devices	Agree Please advise any other design or informative standards. Inserted in Bibliography.
GB		04.02	Para 1	Ge	"hydrogen fuel that is in compliance with ISO 14687-2."	Remove reference to ISO 14687, or include an informative reference.	Agree. Both ideas adopted. The reference moved to

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009					<p>Why preclude valves from other parts of the hydrogen fuelling station hydrogen system?</p> <p>The dispenser particulate filter should be downstream of all the valves in the system, with the exception of break-away couplings, so this means most of the valves in this document will not see this quality of hydrogen.</p>	<p>Alternatively, if the aim is to prevent contamination, make this clear, for example:</p> <p>“The quality of hydrogen fuel dispensed to vehicles is defined in ISO 14687. The design, manufacture and operation of valves constructed in accordance with this standard shall not introduce contamination to the hydrogen passing through / in contact with them.”</p>	<p>Bibliography and see the change.</p>
GB 010		04.03	Para 4	Ed	<p>This would be clearer as two sentences plus a formatted list.</p>	<p>Materials shall be sufficiently resistant to the chemical and physical action of the fluids that they contain and to environmental degradation.</p> <p>The material chemical and physical properties necessary for operational safety shall not be significantly affected within the scheduled lifetime of the equipment unless replacement is foreseen.</p> <p>When selecting materials and manufacturing methods, due account shall be taken of:</p> <ul style="list-style-type: none"> • the material's corrosion and wear resistance: • electrical conductivity: • impact strength: • aging resistance: • the effects of temperature variations: • the effects arising when materials are put together (for example, galvanic corrosion): • the effects of ultraviolet radiation: and • the degradation effects of hydrogen on the mechanical performance of a material. 	<p>Agree.</p> <p>Please see the change and the comment.</p>
GB 011		04.03	Para 4	Ge	<p>How does the user know the “scheduled lifetime”?</p>	<p>Add this to the instructions if it is an important safety consideration in the design.</p>	<p>Agree in principle.</p> <p>Resolved as a part of the following several comments.</p> <p>Now clause 13.</p>
GB 012		04.04	Para 1	Ge	<p>Define what you mean by a “proper installation”. This might need some guidance on what you are talking about.</p> <p>I believe this is the justification for why the list includes certain things, but is it saying that more is</p>	<p>Please clarify what is meant here, otherwise remove requirement.</p>	<p>Agree in principle. See the change. Now clause 13.</p>

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-----------------	-----------	----------

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					required?		
GB 013		04.04	Para 1	Ge	<p>Instructions would also be critical to the operator. Maybe specifying that these are transmitted to the installer by the assembler is not appropriate for the document?</p> <p>In general this paragraph, whilst meaning well, is too complicated, and possibly in excess of minimum requirements.</p>	Consider removal of most of this paragraph.	See above
GB 014		04.04	Para 1	Ed	Typo	Gaseous hydrogen fueling stations	Accept and done.
GB 015		04.04	Para 2	Ge	<p>Use of the term MAWP will cause confusion. This document describes discreet components, with a rated pressure under the specified temperature conditions that is specific to the component in question.</p> <p>MAWP (at least in WG24) is felt to describe something else – the maximum allowable pressure that a system can operate at in fault conditions, and typically what the pressure relief valve protecting this system would be set at.</p> <p>As such, the system in which the valve is used (which will have an MAWP which will vary depending on the part of the hydrogen fuelling station where the valve is being used – as examples, this could be a 5 bar pressure system where hydrogen is generated, a 481.25, or a 962.5 bar system for a dispenser, a 1000 bar storage system, or any other pressure).</p> <p>The point of this document is to give an indication for dispenser components what typical pressure should be used for rating, but enable valves to be built for other parts of the station and relate everything to a rated pressure.</p>	<p>Remove MAWP, and, where appropriate use term “rated pressure”</p> <p>(also for consistency “rated temperature” when talking about limits, not “operating temperature” limits”).</p> <p>Add text to explain that the pressure class is relevant only to components to be used in a dispenser, therefore only a recommendation for valves that might be used in a dispenser.</p> <p>Personally I think this must be in addition to a rated pressure to avoid confusion. Otherwise, how does the installer know what rated pressure is? There is no specific rated pressure for a pressure class, and there is much confusion about the recommended minimum rated pressure for the different pressure classes, hence the majority of dispenser components on the market currently not being rated to 137.5% the nominal working pressure of the vehicle, and restricting fuelling operations. (The dispenser system PRV cannot be set 10% above the MOP of 125% NWP)</p>	Agree. We decided to use component rated pressure.
GB		04.04	Para 2	Ed	Typo in:	Change to	Agree

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016					— names of parts that require periodic replacement and their frequency of replacement. Instructions shall also include, as appropriate;	— names of parts that require periodic replacement and their frequency of replacement. Instructions shall also include, as appropriate:	Now clause 13. Done.
GB 017		04.04	Para 2	Ge	Include flow direction under the second (as appropriate) list – sometimes this is critical	Add - flow direction	Agree. See the change in clause 13.
GB 018		04.04	Para 3	Ed	Error in: “In addition, for externally actuated valves, “fail-safe” (unpowered) position of valve shall be included,...“ “Fail safe” is incorrect – this implies risk assessment is carried out by the valve manufacturer of the use of the valve.	Change to: “In addition, for externally actuated valves, the unpowered (“Fail-open” or “fail-closed”) position of the valve shall be included....”	Agree and done.
GB 019		04.04	Para 3	Ed	Error in: “...and for electrically actuated valves, the area classification of actuator shall be included.” The valve doesn’t get an “area classification”. It gets an Ex marking, see “Marking” section of IEC 60079-0.	Consider changing to: “...and for electrically actuated valves, the relevant instructions for the valve shall be included in accordance with IEC 60079-0.”	Agree and done.
GB 020		04.04 & 4.5	All	ed	Typically these requirements would follow the testing section, and “marking” would precede “documentation” (see 6.3 of ISO/IEC Directives Part 2, Edition 6: 2011)	Move to end, and consider combining chapters 5-12 into one chapter with sub sections for the specific testing related to different types of valves. It might need general requirements to be added to add clarity to the testing section, such as: The manufacturer shall define a maximum pressure to which the valve can be used safely under controlled conditions, see Chap X (on instructions to the user), referred to as a “rated pressure”. Or this might be clear enough with rated pressure included in Chapter 3.	Agree in principle. Nick’s proposal done. In Chapter 4 Remove 4.5 (Marking) to a new chapter 13 Remove 4.4 (Component literature) to a new chapter 14

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							<p>Add a new 4.4 to say:</p> <p>4.4 Additional requirements for specific types of valves</p> <p>Where additional design requirements exist for specific types of valves, these are included in Chapter 6-12.</p> <p>In Chapter 5:</p> <p>Change title, and add new clause 5.1, as follows:</p> <p>5 Testing</p> <p>5.1 General</p> <p>General test requirements for all valves are outlined in clauses 5.2 – 5.8.</p> <p>Where additional test requirements exist for specific types of valves, these are included in</p>

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							Chapter 6-12. 5.2 Test conditions 5.2.1 Test sample Etc (with existing text, but all numbers one greater..)
GB 021		04.05.1	Para 1 & Note 1	Ge	This list seems incomplete. Whilst the note infers that other requirements are in the specific sections of the standard, these weren't obvious – are they missing?	Consider indicating critical information on the valve, for instance: - Rated pressure - Rated temperature range And where applicable - Flow direction - Serial number	Agree. Clause 13: please see the changes. It is better to use the ultimate strength rather than MAWP or rated pressure since the definition does not vary country to country.
GB 022		04.05.1	Para 2	Ge	Create new paragraph	After the list, add: "For electrically actuated valves, the Ex marking of the valve shall be included in accordance with IEC 60079-0."	Agree and done.
JP3 023		05.01.4		te	Temperature range of ±5degC is too broad. "- 40 degC (± 5 degC)" in the current draft means that -45 degC is the lowest test temperature range but -45 degC is lower than the pre-cooling temperature at commercial fuelling stations. This issue was discussed in WG5 Amsterdam international meeting in December 2016 and WG5 concluded to use the allowable temperature range for testing of (+0 – 3 degC). - 40 degC (+0 -3 degC) means from - 40 degC to - 37degC	The tests in these requirements shall be conducted at - 40 °C (± 5°C) (+0 -3°C) and at 85 °C (± 5°C) (+3 -0°C).	Agree because of WG5. Done.

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					It is better for WG20 to harmonize with WG5.		
GB 024		05.01.4	Para 1	Ge	Can the manufacturer define a narrower range of temperatures? Components not intended for use in a dispenser do not need a -40 deg C capability, nor is the 85 deg C a requirement in most places of a fuelling station.	Please clarify. It would be advisable to include a note either here, or in the general requirements section of Chap 4 to say that components designed for use in a dispenser should be rated for at least 138% of the relevant vehicle NWP, and for at least the temperature range of -40 to 85 deg C.	Agree in principle. Nick will propose a language
US 06 025		05.01.5			A permeation test is not specified anywhere in this document.	Combine item b with item a as the tests can be performed at the same time if hydrogen is used.	Agree. Permeation test is removed.
GB 026		05.02.2	Para 1	Ed	Confusion between the term MAWP and “rated pressure”, now clarified by WG24 for hydrogen stations.	Change the term MAWP to “rated pressure”	Agree.
GB 027		05.02.2	Para 1	Te	This standard differs greatly from ISO 10297 which is the seminal work on valves used as cylinder valves. There are very many differences including that this standard demands a very high number (102,000) operation cycles of the valve but with a very undemanding cycle. Users may find they get better valve designs developed by the industry if they adopt the cycle test from ISO 10297 which, while only 2000 in duration is carried out at 1.2X working pressure and, crucially, with a cycle that stresses the mechanism properly. The cycle in ISO 10297 has the maximum point of the cycle at 1.2x working pressure and the bottom of the cycle at atmospheric pressure. The bottom of the cycle is important as it encourages any elastomeric parts to de-gas and so possibly show signs of explosive decompression. However, unless I have read the new standard incorrectly, the most crucial difference is the cycle	Include cycle test as per ISO 10297 as option within text, or replace existing text as appropriate.	Disagree with the first 2 points due to the following reasons: 1. 1.2 WP x 2000 cycles may not be equivalent to 102000 at CPR. 2. Agree it is more demanding for elastomers but the equivalency as a whole is warranted. Agree to insert a proposed test for flow control valves, manual valves, and shutoff valves. Mr. O. Watanabe to provide a proposal. Please see the changes made.

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					itself. In 10297 the valve mechanism opens and closes the valve with the outlet sealed, so the mechanism is traversing under full pressure load. If the valve outlet is open when the valve is being opened i.e. venting, the cycle does not stress the operating mechanism by it having pressure on its downstream side during traverse.		
US 07 028		05.03			Both leakage and permeation can be determined by the test if the test gas is hydrogen.	<i>Retitle:</i> ... and Permeation Conduct the test with pure hydrogen for the purpose of design qualification. Add note: Leak test may be performed with any gas or liquid as defined by the manufacturer.	See US06
GB 029		05.03.3	Para 1	Te	It strikes me as the other side of the valve (from which the hydrogen is going out) would need to be connected to a vent line, leading to a safe place.... Consider this guidance, and clarify that the side specified is for connection to the source of hydrogen.	Include appropriate guidance and clarification	Agree. Please check the proposal!!!!
US 08 030		05.04			The test actually is more than an just an ultimate strength test! There are actually 2 levels built into the test – which is fine per typical pressure code requirements, but the title should reflect the expanded test purpose.	Add “proof pressure test and ...” to the title.	Agree. Insert a procedure to maintain 1.5xCRP for ten min and check for leakage. Inserted as 5.5.2. Please check.
US 09 031		05.04.1		te	If using a lower value than 4:1, then the country of approval should be on the label	In 4.5.1, add country of approval only limitations when applicable	Pending Glenn’s comment. New proposal is 2.4 and Glenn is not for it. Should stay at 4:1. 2.4 came from 19880-1. Done provisionally. Please check!!!
US 10 032		05.04.2	2		A typical proof pressure test at 1.5 X component rating typically also requires a visual inspection to confirm no distortion.	<i>Insert sentence in front of P2:</i> No visible distortion shall occur at or below 1.5 times the component rating.	Not agree. It is too risky to make any visual observations of a

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							component under pressure. Performance can be determined by a leak test. Even when a strain gauge is used, it is impossible to define a criteria for distortion because some deformation is inevitable as pressure is applied.
GB 033		05.04.2	Para 2	Te	This could be interpreted as a pass if 1.5x MAWP (should be "rated pressure" instead of MAWP) is reached when there is a leak, but the valve being tested doesn't then need to continue to 4x rated pressure	Change MAWP to "rated pressure" Consider if it is necessary to say "": If the valve leaks during pressurization <u>to the hydrostatic test pressure of 5.4.1</u> , it is not considered a failure as long as the pressure has exceeded 1.5 times the MAWP at the time leakage occurs <u>and the hydrostatic test pressure is subsequently achieved</u> .	Agree. The sentence inserted as well. Please check.
JP 034 12		06 7 8 9 10 11 12		te	Add a requirement of a pressure test at MDP with 10 cycles in order to harmonize with the GTR vessel standard. MDP = 1.5 x HSL This test assumes that a valve will have experienced MDP up to ten times in its life when the pressure safety valve starts to depressurize.		Agree. Insert a worst case fault pressure cycle test before 5.4 Hydrostatic strength test. Adjust the numbering. Use water or inert gas for pressure medium. To be done by Convener.
GB 035		06.04	Para 1	Te	It may be excessive, but a t-piece with a vent point would be required to enable venting of this system. Is it worth including as a note?	Include appropriate guidance	Not agree. It is so basic that inserting it wouldn't add anything to the document.
JP7 036		09.02.10	The last paragraph 最終段落	te	The disconnected valves of . . . Clause 9.2.10 refers to clause 5.3 in the current sentence but clause 9.2.3 is a better reference	The disconnected valves of "one time use" devices shall comply with 5.3 9.2.3 , . . .	Agree. Will unify references to be cited from the same clause if applicable. Done.

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					because both clause 9.2.3 and 9.2.10 are for hose breakaway devices. Then, there is a typo at this subject.		
JP8 037		09.02.11	The bottom line on P17 P17最下行他	ed	An under-bar at 180 deg in the current sentence must be a typographical error. Please remove the under-bar at 180 deg.	Change " °" with under-bar to " °".	Agree and done.
JP9 038		09.02.12	The first line 1行目	ed	(Current sentence) This test is applicable to the valves that are used where pre-cooled gas is carried. Clause 9.2.12 is a sentence for hose breakaway device.	This test is applicable to the valves hose breakaway devices that are used where pre-cooled gas is carried.	Agree, Change valves to hose breakaway devices. Done.
JP 039 10		09.02.13	---	ed	9.2.13 The valve shall comply with the leakage tests specified in 9.2.3. "9.2.13" must be a typographical error. This sentence is a part of clause 9.2.12.	9.2.13 The valves shall comply with the leakage tests specified in 9.2.3.	Agree. Done.
JP4 040		09.02.2	The 2nd line 2行目	te	(Current sentence) The valve shall comply with 9.2.3 and 9.2.4 upon completion of the 102 000 cycles. DIS has "at room temperature" after 9.2.3. Why delete "at room temperature" ? The valve shall comply with 9.2.3 at room temperature and 9.2.4 upon completion of the 102 000 cycles.	The valve shall comply with 9.2.3 at room temperature and 9.2.4 upon completion of the 102 000 cycles.	Not agree. Testing at the highest and lowest temperatures is sufficient. No need of room temperature.
GB 041		09.02.3	Para 2	Te	More a question for ISO 19880-1 – is there a preference for either designs? The CNG fuelling station document ISO 16923	Please provide feedback to WG24 if possible, but the text is probably ok as it is written flexibly.	Thank you. No change to the test for the time being.

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					specifies that they must be relieving. Do we need this for hydrogen, at least for certain types of nozzles, so that the nozzle can be removed in a drive-away event?		
JP6 042		09.02.3	The 3rd paragraph	te	<p>Temperature range of ± 5degC is too broad. "- 40 degC (± 5 degC)" in the current draft means that -45 degC is the lowest test temperature range but -45 degC is lower than the pre-cooling temperature at commercial fuelling stations.</p> <p>This issue was discussed in WG5 Amsterdam international meeting in December 2016 and WG5 concluded to use the allowable temperature range for testing of (+0 – 3 degC).</p> <p>- 40 degC (+0 -3 degC) means from - 40 degC to - 37degC</p> <p>It is better for WG20 to harmonize with WG5.</p>	The tests in these requirements shall be conducted at - 40 °C (± 5°C) (+0 -3°C) and at 85 °C (± 5°C) (+3 -0°C).	<p>Agree. In line with WG5 (nozzles), +0 to -3°C for the low end, and +3 to -0°C for the high end. This shall apply to all other tests. Chage:</p> <p>± 5°C \Rightarrow +0, -3°C (Low end) 、 +3, -0°C (High end) Done.</p>
JP5 043		09.02.3	The first paragraph 1段落	ed	<p>(Current sentence)</p> <p>A hose breakaway device shall not leak more than 10 cm3 (normal)/h when tested using hydrogen or hydrogen in accordance with the following test method.</p> <p>"or hydrogen" must be a typographical error.</p>	A hose breakaway device shall not leak more than 10 cm3 (normal)/h when tested using hydrogen or hydrogen in accordance with the following test method.	Agree. Done.
US 11 044		09.02.8			<p>During conduct of the break-away test, is pressure applied to both ends or just the supply side?</p> <p>Is there standardized requirement from the outlet end? The text indicates that the outlet end shall either meet the leakage requirement or control depressurization. Do we really want a controlled leakage for depressurization of the outlet side?</p>	Clarify requirements for shut-off and test methods.	<p>There are two types of breakaways: one with very little on the vehicle side and the other with some gas on the vehicle side.</p> <p>The orifice size came from HGV. No rationale is given in HGV. The amount of hydrogen is</p>

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							limited in the outlet end. See no need to define the depressurization for safety or test validity.
US 12 045		09.02.8			Could aging/weather effect ability to separate?	Consider.	No such knowledge. Periodic replacement of parts may be required. Please see changes made to the document.
GB 046		11		te	<p>In order to carry out the Hydrogen gas pressure cycle test the valve needs to be held closed to prevent operation during tests. Section 11.2 reads that the leakage tests should be done after the valve is adjusted to prevent opening. This would not give seat leakage rates representative of service conditions.</p> <p>Internal seat leakage should be carried out before any additional load is applied.</p> <p>The external leakage tests can then be done however, unless the valves are supplied with fully rated outlets, the test pressure for the inlet and outlet sections should be according to the respective pressure ratings.</p>	<p>Add new sub clause, and renumber remaining sub clauses</p> <p>11.2 PSV Leakage tests</p> <p>11.2.1 Internal leakage tests</p> <p>The internal leakage test is intended to test the pressure tightness of the valve seat and shall be carried out after adjustment of the valve set pressure. Tests shall comply with 5.3.3 using a test pressure of 90% of set pressure.</p> <p>11.2.2 External leakage tests</p> <p>External leakage tests shall comply with 5.3.2 The test pressure for the shell on the discharge side of the seat shall be 100% of the manufacturer's stated maximum back pressure for which the PSV is designed. The test pressure for the inlet to the seat shall be 100% MAWP. In order to prevent activation during testing of the portion of the valve from the inlet to the seat, a mechanical lift restrictor as recommended by the valve manufacturer shall be fitted. The mechanical lift restrictor should only be fitted after completion of tests on the discharge side of the valve seat.</p>	<p>Agree</p> <p>Renamed as Seat leakage test. Done.</p>
GB 047		11.02		te	<p>Hydrogen gas pressure cycle test</p> <p>"The set point of the PSV shall be set at a value higher than the MAWP, which is sufficient to prevent it from activation."</p> <p>Fitting a mechanical lift restrictor is a more positive</p>	<p>Replace first sentence with,</p> <p>To prevent the valve activating during test, the valve shall be fitted with a mechanical lift restrictor as recommended by the valve manufacturer.</p> <p>Reword second sentence</p>	<p>Agree in principle. The mechanical lift restrictor is something not fully known. The proposed language is modified as follows:</p>

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

Template for comments and secretariat observations

Date:2017-06-13

Document:

Project:

MB/ NC ¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment ²	Comments	Proposed change	Observations of the secretariat
					way of preventing valve operating during test.	Prior to conducting this test the valve shall be leak tested as per 11.2.	The test shall be conducted in such a way that the PSV would not activate to open under a test pressure of its component rating. Examples of such include: a high set point or the use of a mechanical lift restrictor. Done.
GB 048		11.03		ed	External leakage test	Reword first sentence, Test specified in 11.2.2 shall be conducted as stated.	Agree Please see GB046.
GB 049		11.04		te	Hydrostatic strength test Unless the valves are supplied with fully rated outlets, the test pressure for the inlet and outlet sections should be according to the respective pressure ratings.	Reword as Tests specified in 5.4 shall be conducted as stated If the PSV discharge pressure rating is lower than the valve inlet, the portion between the valve inlet and the seat shall be tested independently from the shell on the discharge side of the seat. The test pressure for the shell on the discharge side of the seat shall be 4 times the manufacturer's stated maximum back pressure for which the PSV is designed. In order to test of the portion of the valve from the inlet to the seat, a mechanical lift restrictor or suitable blanking device as recommended by the valve manufacturer shall be fitted. The test pressure for the inlet to the seat shall be 4 times MAWP.	Agree Please note 4 times is now changed to 2.4 times. (19880-1) Done.
GB 050		11.06		te	Bending moment test A PSV should only be installed in orientations specified by the manufacturer and should have defined inlet and outlet piping configurations. PSV's should also be installed with their inlet and outlet piping sufficiently supported so as to prevent any excessive external loads to be applied to the	Reword as Tests specified in 5.6 shall be conducted as stated with the following provisions for pressure safety valves. Valves shall be tested in the orientation as specified by the manufacturer and shall be mounted in line with recognised standards giving sufficient support	Agree Done.

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					valve body. Installation should be in accordance with recognised standards.	to inlet and outlet piping as to prevent excessive external loading to the valve body.	
JP 051 11		12.03.10	The first line	ed	"and hose breakaway devices" isn't necessary in this sentence because Clause 12.3.10 is for valves. The following is proposed: This test is applicable to the Class A valves that are used where pre-cooled gas is carried.	This test is applicable to the Class A valves and hose breakaway devices that are used where pre-cooled gas is carried.	Agree Done.
US 05 052		5-12		te	It should be demonstrated that the tests in this document can be passed before this standard goes any further	Perform lab tests to verify that valves exist that can meet this standard	Japanese manufacturers all agree with these tests.
GB 053		All	All	Ed	Spelling of "fueling" to be confirmed by ISO. ISO TC 197 is inconsistent with spelling, and this document does not use the spelling of previously published documents, where "fuelling" is used.	Ask ISO TC 197 to seek an answer for this from ISO, and clarify to all working groups.	Not agree TC197 has agreed to use 'fueling'.
GB 054		All,	All	Ge	To assist usability, it would be useful to see consistency in structure, and where applicable, content between this document and the nozzles and hoses documents also under preparation in ISO TC 197. (also others such as compressors and fittings to a lesser extent)	Discuss with WG5 and WG22 to see if a standardised format and approach can be generated. For instance, there is inconsistency as to whether these standards address routine testing or simply design verification. This makes it difficult to know if routine testing needs to be addressed in WG24 or not for the entire station. Also, does the manufacturer of hydrogen components need to indicate the lifetime? This is addressed inconsistently currently.	Agree with the structure (numbering). However, no component service life will be specified because valves are used indefinitely. That is a difference from containers or hoses. They are verified for pressure resistance, where the maximum stress is equal to or greater than the fatigue limit with the replacement requirement of parts specified by the manufacturer.
US 01 055		General			Rather than using the term MAWP which is usually applied to a vessel or system, it would be preferable to harmonize with CD2 19880-1 and use component pressure rating.	Delete the definition of MAWP and replace with "component pressure rating" as defined in 3.4 below. Replace "MAWP" with "component rating" in	Agree.

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						numerous clauses.	
US 02 056		Many		te	For valves that are used in cold gas service, there should be a test for cold gas in a warm component.	See ISO 17268 for sample of cold gas in warm component test.	<p>Agree</p> <p>Will insert: Any component to be installed downstream of the precool system shall be subject to a cold gas in warm valve test.</p> <p>Yuko: inserted in General. Please check</p>

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SELECTED (number of files): 4

PASSED TEST (number of files): 4

FAILED TEST (number of files): 0

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