PRELIMINARY REPORT OF VOTING ON **ISO/DIS 17268** *Gaseous hydrogen land vehicle refuelling connection devices*	
Closing date of voting **2010-06-25**	**ISO/TC 197 N 481**
Secretariat *SCC/BNQ*	

A report shall be returned to ISO/CS no later than 3 months after the closing date of voting on the DIS, whether or not comments have been reviewed and/or a new text has been prepared.

☒ **Preliminary report**

(submitted in those cases where comments are still to be considered and/or a decision has not yet been taken, or where it is decided that the nature of comments indicates a need for further consultation and/or reversion to a previous project development stage). To be followed by a 'Final report'. Any preliminary report is for ISO/CS for information, and is not circulated to member bodies)

☐ **Final report**

(submitted either immediately, when all comments have been reviewed and a decision can be taken, or following a 'Preliminary report'. The final report is circulated by ISO/CS to member bodies, and is distributed with any associated DIS or FDIS text)

1 Result of the voting

The above-mentioned document was circulated to member bodies with a request that the ISO Central Secretariat be informed whether or not member bodies were in favour of registration of the DIS as a Final Draft International Standard or for publication in the case of unanimous approval.

The vote closed on the date indicated above. The replies listed in annex A have been received.

2 Comments received

3 Observations of the secretariat See annex B

4 Decision of the Chairman

Preliminary report (no annexes required)

☒ The comments are under review and/or a decision on further procedure has not yet been taken

☐ The project is to revert to the Preparatory Stage (a new working draft will be developed)

☐ The project is to revert to the Committee Stage (a new committee draft will be developed)

Final report

☐ Having received 100% approval from the member bodies voting, the DIS is approved for direct publication without change other than editorial (no FDIS vote)
(*Option not applicable to projects progressing under the Vienna Agreement*)

☐ A revised text is to be submitted to ISO/CS for the approval procedure (FDIS vote)

☐ A revised text is to be submitted to ISO/CS for a further enquiry (DIS) vote

Remarks (e.g. observations on how comments were reviewed, date by which a decision is to be taken, date when a text is expected)

Please find attached the results of voting and comments received on ISO/DIS 17268. The comments received will be returned to ISO/TC 197 WG 5 for consideration in preparation of a second DIS. The next steps will be decided by the Chair after consultation with the convener.

Enclosures

☒ **Annex A - Voting results on DIS**

☒ **Annex B - Compilation of comments**

Signature of the Secretary	Signature of the Chairman
Date 2010-08-20	Date 2010-08-20

Voting results on ISO/DIS 17268 *Gaseous hydrogen land vehicle refuelling connection devices*

P-Members voting: 9 in favour out of 14 = 64 % (requirement >= 66.66%)

(P-Members having abstained are not counted in this vote.)

Member bodies voting: 5 negative votes out of 16 = 31 % (requirement <= 25%)

Disapproved

Votes by members

Country	Member	Status	Approval	Disapproval	Abstention
Argentina	IRAM	P-Member			X
Australia	SA	O-Member			X
Austria	ASI	O-Member			X
Brazil	ABNT	P-Member			X
Canada	SCC	Secretariat			X *
China	SAC	P-Member			X
Congo, The Democratic Republic of the	OCC				X
Denmark	DS	P-Member			X
Egypt	EOS	P-Member	X		
Finland	SFS	O-Member	X		
France	AFNOR	P-Member	X		
Germany	DIN	P-Member		X *	
India	BIS	P-Member	X		
Italy	UNI	P-Member			X *
Japan	JISC	P-Member	X *		
Korea, Republic of	KATS	P-Member	X		
Netherlands	NEN	P-Member	X		
Norway	SN	P-Member		X *	
Pakistan	PSQCA		X		
Russian Federation	GOST R	P-Member	X		
Spain	AENOR	P-Member		X *	
Sweden	SIS	P-Member		X *	
Switzerland	SNV	P-Member	X		
United Kingdom	BSI	P-Member	X		
USA	ANSI	P-Member		X *	
P-Member TOTALS Total of P-Members voting: 14			9	5	6
TOTALS			11	5	9

(*) A comment file was submitted with this vote

Compilation of comments on ISO/DIS 17268 *Gaseous hydrogen land vehicle refuelling connection devices*	Date:2010-08-20	**ISO/TC 197 N 481 Annex B**

1	2	(3)	4	5	(6)	(7)
MB[1]	**Clause No./ Subclause No./ Annex** (e.g. 3.1)	**Paragraph/ Figure/ Table/ Note** (e.g. Table 1)	**Type of comment**[2]	Comment (justification for change) by the MB	Proposed change by the MB	**Secretariat observations** on each comment submitted
CA 197			ge	Canada votes “Abstain” for the reason that it was not possible to reach consensus among the key players in this area within the CAC, namely Powertech Labs (PTL) represented by ISO/TC 197/WG5 convener Livio Gambone and General Motors Canada (GMC) represented by Dick Kauling: • PTL and WG5 position for “YES” vote articulated by Livio Gambone is quoted below; • GMC position for “NO” vote articulated by Dick Kauling follows after that. • Finally, GMC response to PTL (Livio Gambone) comments is attached for completeness. Under these circumstances either “YES” or “NO” vote would not be a responsible position since it would negate either side’s valid arguments.	Canada cares about the future of this standard. We believe, as was stressed during the discussion with the involved parties, that the only course of action leading to a win-win solution is to continue the dialog with open and thorough review of available test data and lessons learned with full and timely participation of all key players. Without such open dialogue and participation the standard has little chance of seeing successful completion.	
CA GMC			ge	This ISO draft is not in line with existing published documents like SAE for 70 MPa receptacles. The design of the receptacle specified in this ISO draft is different from the currently used design for H2 receptacles in all European and North American Field Test Programs for 70 MPa Hydrogen Vehicles. The good experience made with the receptacles in the field should not become obsolete by specifying a less practicable and less durable design in this ISO draft. Current suggestion in ISO DIS 17268 (ISO TC197) has got several disadvantages against SAE version which are **safety critical** and related to **customer satisfaction:** 70 MPa seal need to be a lifetime part. This is not possible with seal on nozzle side. Seal on nozzle side requires service. Experience shows that you can’t rely on station service. Consequence was, that leakage **(safety critical)** due to lack of seal service will occur, station out of service **(customer dissatisfaction). Vehicle side shall take the responsibility for this!**	GM Canada position: Reject this ISO DIS 17268, WG meetings should take place to solve the issues and propose a 2 nd DIS for ISO 17268	

1	2	(3)	4	5	(6)	(7)
MB[1]	**Clause No./ Subclause No./ Annex** (e.g. 3.1)	**Paragraph/ Figure/ Table/ Note** (e.g. Table 1)	**Type of comment**[2]	Comment (justification for change) by the MB	Proposed change by the MB	**Secretariat observations** on each comment submitted
				Also seal on nozzle side requires smaller diameter = > higher pressure drop => 3 min full fill requirement can't be met. Additional seal cost on vehicle side is negligible on high volume because seal on Nozzle side requires much better surface quality on receptacle bore.		
CA PTL			te	Following are the key technical reasons (for voting "YES") identified at our last working group meeting (Vancouver, Sep 10/11, 2009): 1. Seal-on-receptacle design per SAE J2799 is more prescriptive than seal-on-nozzle design, i.e. there is more design flexibility if manufacturers are allowed to create innovative nozzle designs. 2. Seal-on-nozzle design is safer from an FMEA perspective, i.e. fueling station maintenance will include a check of the nozzle sealing surfaces. There have been numerous documented cases of missing O-ring seals on CNG NGV1 style receptacles (these are seal-on-receptacle designs). 3. Seal-on-nozzle designs will meet the maximum flow rate requirement specified in SAE J2601 with acceptable pressure drop.	PTL position: support DIS.	
CA PTL			Ge	Other supportive but non-technical reasons: 1. The receptacle portion of SAE TIR J2799 has effectively expired. 2. Three out of four manufacturers (Nitto Kohki, Weh and Staubli) of 70 MPa fueling connectors offer designs that meet these requirements. 3. The low number of 70 MPa vehicles and 70 MPa fueling stations in service today results in minimum disruption to the industry as a result of the change. You should also be aware that the Japanese vehicle OEMs were represented at this meeting by JARI and individual		

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				members were present from Nissan and GM (Mike Steele via telephone). No data was supplied by any of the vehicle OEMs suggesting that one 70 MPa profile was superior to the other. The SAE J2600 document does not currently specify a 70 MPa design. In addition I'm sure you're aware that its progress has been stunted by a recent lack of participation (and numerous meeting cancellations). I have since spoken with some folks at Daimler, and their original belief was that WG5 had in fact sided with the Nitto design – clearly this is not the case as the smooth bore sealing surface on the receptacle allows for existing Nitto and Weh design solutions. Daimler would now also like to provide data to WG 5 in favour of the seal-on-receptacle concept. The problem is this... why weren't any of these issues brought up at any of my numerous meetings, including one held at Daimler Nabern!		
CA GMC	Response to PTL (Livio Gambone) comments		Te and ge	See GM responses to Livio Gambone Comments at the end of the table		
DE			ge	This ISO draft is not in line with existing published documents like SAE for 70 MPa receptacles. The design of the receptacle specified in this ISO draft is different from the currently used design for H2 receptacles in all European and North American Field Test Programs for 70 MPa Hydrogen Vehicles. The good experience made with the receptacles in the field should not become obsolete by specifying a less practicable and less durable design in this ISO draft. Current suggestion in ISO DIS 17268 (ISO TC197) has got several disadvantages against SAE version which are **safety critical** and related to **customer satisfaction:** 70 MPa seal need to be a lifetime part. This is not possible with seal on nozzle side. Seal on nozzle side requires	Reject this ISO DIS 17268, WG meetings should take place to solve the issues and propose a 2 nd DIS for ISO 17268	

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				service. Experience shows that you can't rely on station service. Consequence was, that leakage **(safety critical)** due to lack of seal service will occur, station out of service **(customer dissatisfaction). Vehicle side shall take the responsibility for this!** Also seal on nozzle side requires smaller diameter = > higher pressure drop => 3 min full fill requirement can't be met. Additional seal cost on vehicle side is negligible on high volume because seal on Nozzle side requires much better surface quality on receptacle bore. German car manufacturers tried to obtain a nozzle/receptacle in order to design their hydrogen vehicles respectively. However, the only manufacturer currently offering this kind of design, was very reluctant to provide their hardware for evaluation, which made it impossible to test the proposed design!		
ES			ge	This ISO draft is not in line with existing published documents like SAE for 70 MPa receptacles. The design of the receptacle specified in this ISO draft is different from the currently used design for H2 receptacles in all European and North American Field Test Programs for 70 MPa Hydrogen Vehicles. The good experience made with the receptacles in the field should not become obsolete by specifying a less practicable and less durable design in this ISO draft. Current suggestion in ISO DIS 17268 (ISO TC197) has got several disadvantages against SAE version which are **safety critical** and related to **customer satisfaction:** 70 MPa seal need to be a lifetime part. This is not possible with seal on nozzle side. Seal on nozzle side requires service. Experience shows that you can't rely on station service. Consequence was, that leakage **(safety critical)** due to lack of seal service will occur, station out of service **(customer dissatisfaction). Vehicle side shall take the responsibility for this.**	Reject this ISO DIS 17268, WG meetings should take place to solve the issues and propose a 2 nd DIS for ISO 17268	

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				Also seal on nozzle side requires smaller diameter = > higher pressure drop => 3 min full fill requirement can't be met. Additional seal cost on vehicle side is negligible on high volume because seal on Nozzle side requires much better surface quality on receptacle bore.		
IT			ge	Abstention due to lack of national expertise		
NO			ge	This ISO draft needs to be harmonized with the EU hydrogen regulation EU 406/2010 (EC 79/2009) as well as with other recognized standards internationally.	Reject the proposed ISO/DIS 17268.	
US 1			Ge	There is insufficient in-field validation of this configuration to justify DIS approval and publication as it is different from most 70 MPa designs being used in current demonstrations.		
SE	-	Fig.1, Note b	ed	Clearer wording	Change "…in the provided space." to "…in the space provided."	
SE	1	2nd para	ed	Grammatical correction	Delete "and " between 25MPa and 35MPa and replace with a comma: "…11MPa, 25MPa, 35MPa and 70MPa…"	
SE	1	3rd para	ge	A key issue addressed with by this standard is to prevent refuelling of GHLVs by dispenser stations with NWP greater than that of the GHLV fuel system. It is proposed that this is emphasised more in this paragraph.	Insert "only" between "allow" and "GHLVs": "….this International Standard will only allow GHLVs to be…	
SE	1	3rd para	ge	Clause 4.2 refers to the key situations that this standard attempts to avoid, so this clause should be consistent in referring to these situations. Suggest that avoiding fuelling with other compressed gases (or other types of fuel for that matter) is included.	Proposed changes as follows: "Nozzles and receptacles that meet the requirements of this International Standard will only allow GHLVs to be fuelled by dispenser stations dispensing hydrogen with nominal working pressures equal to or lower than the vehicle fuel system working pressure.	
SE	3.9	Note	ed	Grammatical correction	Change "of" to "or": "…fuelling inlet or a gas filling port…"	

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SE	3.10	-	ed	Clearer wording	Replace “for “with “at” and delete original “at”: “pressure at which the product is intended to be operated for a given gas temperature of 15^0C”	
SE	4.2	-	ed	Clearer structure	Add a colon after “will” and adopt numbered bullets to maintain consistency in the document, e.g. with para 10.9.1.3	
SE	4.3	2nd sent.	ed	Clearer wording	Replace “as will provide” with “providing”	
SE	4.4	-	ed	Clearer structure	Add a colon after “shall be” and adopt numbered bullets to maintain consistency in the document, e.g. with Cl. 10.9.1.3	
SE	4.5	1st sent.	ge	Should a definition (3.11) be referred to as it suggests that it is a requirement rather than a definition? Should new clauses be included, either 4.x, or 5.x and 7.x referring to the working pressure?	Change reference to 3.11 to either 4.x, or 5.x and 7.x (the final version should be amended to suit): “Nozzles and receptacles shall be manufactured for one of the nominal working pressures and flow rates specified in 1 as specified by the manufacturer.”	
CA GMC	4.7	Figure 1	te	The length until the coding ring starts from the front at the H70 receptacle is 40mm. Including a width of at least 5mm of the coding ring there is a minimum length of the receptacle of 45mm.	It shall be considered to enlarge the insertion depth of the receptacle in the envelope from 41mm to at least 45mm may be 50mm (TBD)	
DE	4.7	Figure 1	TE	The length until the coding ring starts from the front at the H70 receptacle is 40mm. Including a width of at least 5mm of the coding ring there is a minimum length of the receptacle of 45mm.	It shall be considered to enlarge the insertion depth of the receptacle in the envelope from 41mm to at least 45mm may be 50mm (TBD)	
ES	4.7	Figure 1	te	The length until the coding ring starts from the front at the H70 receptacle is 40mm. Including a width of at least 5mm of the coding ring there is a minimum length of the receptacle of 45mm.	It shall be considered to enlarge the insertion depth of the receptacle in the envelope from 41mm to at least 45mm may be 50mm (TBD)	
DE	4.7	Figure 1	TE	The basic design of the coding system was obviously not clear enough. It must be clear that the coding ring and it width of more than 5mm is very important.	It shall be considered to equalize the refuelling envelope.	

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SE	5.1	5.1	te	The requirements should be made consistent with the goals stated in 4.2.	Add “Nozzles shall be designed so that they will not couple with gaseous fuelled vehicles other than GHLV.”	
DE	5.2 & 7.1		TE	Maintenance: O-ring on vehicle side has been designed to be lifetime part (15000 refueling events). If o-ring is located on station side, it has to be replaced regularly (o-ring cannot withstand 100000 cycles) – experience shows that station operators are not always perfectly reliable in this respect -> Safety concern!	Stay with seal on receptacle side (as described in SAE J2799)	
SE	5.3	2nd sent.	ed	Clearer wording	Replace “so that they shall” with “to”.	
JP	6	Figure 2, 3, 4, and 6	te	There is no step to prevent ball mark on gripping part.	Add step on gripping part. Same design with H70 and H35HF should be appropriate.	
CA GMC	6	Figure 2	te	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system!!!	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	
DE	6	Figure 2	TE	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system!!!	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	
ES	6	Figure 2	te	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system.	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	
CA GMC	6	Figure 3	te	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system!!!	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	

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DE	6	Figure 3	TE	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system!!!	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	
ES	6	Figure 3	te	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system.	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	
CA GMC	6	Figure 4	te	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system!!!	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	
DE	6	Figure 4	TE	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system!!!	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	
ES	6	Figure 4	te	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system.	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	
CA GMC	6	Figure 5	te	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system!!!	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	
JP	6	Figure 5	ed	There is no dimension of O-ring groove in DETAIL "D".	Add appropriate O-ring groove dimension in DETAIL "D" as same as Figure 2 to 4.	
DE	6	Figure 5	TE	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system!!!	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	

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ES	6	Figure 5	te	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system.	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	
CA GMC	6	Figure 5	te	The diameter of the stop ring is missing. This diameter is the difference between the standard H35 (Ø30mm) and the H35HF (Ø27,5mm). By having these different diameters we can assure that no light vehicle can be refuelled on a high flow station which is the purpose of the HF.	Add diameter 27,5mm on the stop ring	
DE	6	Figure 5	TE	The diameter of the stop ring is missing. This diameter is the difference between the standard H35 (Ø30mm) and the H35HF (Ø27,5mm). By having these different diameters we can assure that no light vehicle can be refuelled on a high flow station which is the purpose of the HF.	Add diameter 27,5mm on the stop ring	
ES	6	Figure 5	te	The diameter of the stop ring is missing. This diameter is the difference between the standard H35 (Ø30mm) and the H35HF (Ø27,5mm). By having these different diameters we can assure that no light vehicle can be refuelled on a high flow station which is the purpose of the HF.	Add diameter 27,5mm on the stop ring	
CA GMC	6	Figure 6	te	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system!!!	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	
DE	6	Figure 6	TE	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system!!!	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	
ES	6	Figure 6	te	The stop ring is a vital part of the coding system. Therefore it must be used for coding / identification purpose of the pressure range. This is a safety related issue of the system.	Nozzle Side: The nozzle shall extend at least 5mm beyond the stop ring.	

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CA GMC	6	Figure 6	te	The internal diameter of 7mm does not allow an increase of the flow if needed. Disadvantage of a seal on nozzle side is i.e. that if the nozzle seal is broken no car can be refuelled. But if the seal is on the receptacle side just one car can not be refuelled. Another disadvantage can be that a standard o-ring as it has to be used with this small diameter of 7mm can not withstand the at least 100000 cycles of operation out of subclause 10.9	a) increase the diameter to 8mm (max) b) follow the SAE TIR J2799 profile (nearly all existing systems show this design): preferred	
DE	6	Figure 6	TE	The internal diameter of 7mm does not allow an increase of the flow if needed. Disadvantage of a seal on nozzle side is i.e. that if the nozzle seal is broken no car can be refuelled. But if the seal is on the receptacle side just one car can not be refuelled. Another disadvantage can be that a standard o-ring as it has to be used with this small diameter of 7mm can not withstand the at least 100000 cycles of operation out of subclause 10.9	a) increase the diameter to 8mm (max) b) follow the SAE TIR J2799 profile (nearly all existing systems show this design): preferred	
ES	6	Figure 6	te	The internal diameter of 7mm does not allow an increase of the flow if needed. Disadvantage of a seal on nozzle side is i.e. that if the nozzle seal is broken no car can be refuelled. But if the seal is on the receptacle side just one car can not be refuelled. Another disadvantage can be that a standard o-ring as it has to be used with this small diameter of 7mm can not withstand the at least 100000 cycles of operation out of subclause 10.9	a) increase the diameter to 8mm (max) b) follow the SAE TIR J2799 profile (nearly all existing systems show this design): preferred	
DE	6	Figure 6	TE	Seal options on nozzle side: Face seal: Dirt on receptacle bore ground causes seal damage and leakage. Radial seal: Lance diameter smaller (doesn't meet assumptions in J2601)	Stay with seal on receptacle side (as described in SAE J2799)	

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SE	6	Fig.6	te	The 70 MPa receptacle geometry in this DIS is not harmonised with existing published standards for 70 MPa receptacles, i.e.. SAE TIR J2799 which is the basis of the geometry used in European and North American 70 MPa test programmes.	Harmonise with SAE TIR J2799 70MPa receptacle geometry.	
JP	7.1	1st Para	te	Cycle number on receptacles shall be defined in accordance with the filling number of container defined in International Standard. At this moment there is no IS of container therefore the cycle number of receptacle should be in accordance with ISO/TS15869, 11,250 cy per 15 years.	Change 15000 cycles to 11250 cycles	
SE	8	3rd para	ed	Clearer structure	Add a colon after “are adequate for” and adopt numbered bullets to maintain consistency in the document, e.g. with Cl. 10.9.1.3	
SE	8	3rd para	ed	Clearer wording	Add “permanently attached” between “in the part or a” and “plate.”	
SE	10.2.2	4th para	te	Following disconnection both the nozzle and receptacle should stop the flow of gas.	Add “and receptacles” between “…types of nozzles” and “shall stop…”	
SE	10.4.1	General, last sent.	ge	The final sentence is a repeat of the acceptance criteria in Cl.10.4.2.	Delete final sentence: “If there are no bubbles…”	
SE	10.8.1.2	-	te	Clarification of allowable leak rate	Add “of hydrogen.” To the end of the sentence.	
SE	10.8.1.3	b)	te	There may be a discrepancy in the conditioning temperature. Cl.5.8 requires that the nozzle operates at ambient temperatures of up to 50^0C, but with gas temperatures of up to 85^0C.	Check that the correct conditioning temperature has been specified, currently 85^0C.	
JP	10.9.1	Figure 7, 8, 9, 10, 11 and 12	te	Tight fit and Loose fit test fixtures are test jigs, therefore it no needs to change the outer diameter of stop ring. (Currently φ30.1 for tight fit test fixture and φ29.9 for tight loose test fixture are described) There is no step to prevent ball mark on gripping part.	1) Change outer diameter of stop ring to φ30 +0/-0.02. 2) Add step on gripping part. Same design with H70 should be appropriate. (Figure15, 16).	

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MB[1]	**Clause No./ Subclause No./ Annex** (e.g. 3.1)	**Paragraph/ Figure/ Table/ Note** (e.g. Table 1)	**Type of comment**[2]	Comment (justification for change) by the MB	Proposed change by the MB	**Secretariat observations** on each comment submitted
JP	10.9.1	Figure 18. 19 and 20	ed	Wear pattern test fixture test jig, therefore it no needs to change the outer diameter of stop ring. (Currently φ30.1 for tight fit test fixture and φ29.9 for tight loose test fixture are described)	Change outer diameter of stop ring to φ30 +0/-0.02. Same design with H70 should be appropriate. (Figure 22).	
SE	10.9.1.2	1st sent.	ed	-	Replace “10.9.4 and 10.8” with “10.8 and 10.9.4”.	
US 2	10.9.1.3		Ge	Some of the tests are not completely aligned including durability tests which may result in different levels of safety.	Align closer to requirements for durability tests and other test that are not harmonized.	
CA GMC	10.9.2		te	Exisiting and future regulations will contain a Ozone ageing test instead of an oxygen ageing test.	Consider if this should be changed into a Ozone Ageing test according ISO1431	
DE	10.9.2		TE	Exisiting and future regulations will contain a Ozone ageing test instead of an oxygen ageing test.	Consider if this should be changed into a Ozone Ageing test according ISO1431	
ES	10.9.2		te	Exisiting and future regulations will contain a Ozone ageing test instead of an oxygen ageing test.	Consider if this should be changed into a Ozone Ageing test according ISO1431	
SE	10.9.2	-	te	Most regulations or standards have an ozone aging or compatibility test in place of the oxygen aging test. Harmonisation would be preferable.	Consider an ozone aging or compatibility test in place of the oxygen aging test.	
SE	10.9.2.1	1st sent	ed	-	Replace “Oxygen Aging” with “oxygen aging”	
SE	10.9.3.1	-	te	The test temperature should be specified.	Specify the test temperature.	
DE	10.9.4		TE	The value for the electrical resistance in comparable standards (i.e. ISO14469 or SAE J2600) is very different.	It should be considered if the value mentioned here should be adjusted to the existing standards	
DE	10.10		TE	The value for the hydrostatic strength is set to 3 times maximum working pressure. Other standards mention a factor of four times maximum working pressure.	Consider if the factor should be set up to for times for H11, H25, H35 and H35 but the H70 should stay at 3 times.	
SE	10.11.4	1st sent	ed	Grammatical correction	Add “there” between “…coatings and” and “shall be no evidence…”, i.e. “…coatings and there shall be no evidence…”	

1	2	(3)	4	5	(6)	(7)
MB[1]	**Clause No./ Subclause No./ Annex** (e.g. 3.1)	**Paragraph/ Figure/ Table/ Note** (e.g. Table 1)	**Type of comment**[2]	Comment (justification for change) by the MB	Proposed change by the MB	**Secretariat observations** on each comment submitted
SE	10.13.1	1st para	ed	Clearer wording	Replace the paragraph with: "A tank or vessel shall be filled to a depth of 100 mm ± 5 mm with a solution/suspension of 5 percent by volume of salt and sand (ISO 12103-1 A4 – Coarse grade test dust, or the equivalent) dissolved/suspended in distilled water. The connection end of the nozzle and receptacle are to be dipped into the solution/suspension for one to five seconds and removed. The devices are to be dipped in a manner that the entire connection area is submerged without touching the bottom."	
DE	10.14		TE	The max temperature is set to 50°C. All other comparable standards say 85°C – which reflects the max. temperature of the system.	Should this be adjusted?	

ISO 17268 70 MPa Fueling Connector

GM responses to Livio Gambone Comments
June 1, 2010

Technical Rationale for 17268 Proposal

1. Seal-on-receptacle design per SAE J2799 is more prescriptive than seal-on-nozzle design, i.e. there is more design flexibility if manufacturers are allowed to create innovative nozzle designs.
   GM response:
   We could have defined just the nozzle shaft in SAE J2799 and allowed OEMs room for creativity on the receptacle side. However, design flexibility was not the objective. Where two systems interact, it's important to have a well-defined interface that's safe and reliable. Design flexibility should be protected for within each system (vehicle side and station side), but not at the interface.

2.
3. Seal-on-nozzle design is safer from an FMEA perspective, i.e. fueling station maintenance will include a check of the nozzle sealing surfaces. There have been numerous documented cases of missing O-ring seals on CNG NGV1 style receptacles (these are seal-on-receptacle designs).
   GM response:
   During seal concept development we were aware of the CNG issue with lost seals. Lessons learned from CNG were reflected in the 70 MPa design. The 70 MPa seal is fully cased in its groove and we have never lost a seal. This design has been tested successfully for 15000 cycles.

4. Seal-on-nozzle designs will meet the maximum flow rate requirement specified in SAE J2601 with acceptable pressure drop.
   GM response:
   An acceptable sealing design that meets flow requirements has not yet been demonstrated.

Technical Rationale for 17268 Proposal

1. The receptacle portion of SAE TIR J2799 has effectively expired.
   GM response:
   An administrative act should never drive a technical decision process.
   Also, we discussed this at SAE and determined that SAE documents do not really expire. There is a stated target date in the document for refresh of the content, but the document remains valid until such time as the content is actually refreshed, or until such time as it is superseded. In the case of J2799, the plan is to refresh the content and move the connector portion into J2600. Only at that time will J2799 be effectively expired.

2. Three out of four manufacturers (Nitto Kohki, Weh and Staubli) of 70 MPa fueling connectors offer designs that meet these requirements.
   GM response:
   Nitto is simply backing their own concept. We do not believe that Stäubli has been active recently in 70 MPa nozzle development, and we're not sure that they have experience or learnings to bring into the discussion. We believe that Weh is not strongly in favor of one design concept vs. the other – they seem capable of executing their nozzle in either case.

3. The low number of 70 MPa vehicles and 70 MPa fueling stations in service today results in minimum disruption to the industry as a result of the change.
   GM response:
   This low number (12,000 fills at GM and DAI together) at least demonstrated the stability of the current concept. Stations in Japan (Nitto nozzle experience) never fill beyond 70 MPa pressure, whereas stations in Germany and the US (SAE J2799 nozzle experience) fill up to 87.5 MPa. We've learned that this high-pressure realm is a critical area where experience is needed! Also, we've learned that -40°C is necessary for fast fill and is and manageable with the current system. This has not been proven by the Nitto concept. The Nitto concept is far behind the J2799 concept in terms of real-world validation.

4. You should also be aware that the Japanese vehicle OEMs were represented at this meeting by JARI and individual members were present from Nissan and GM (Mike Steele via telephone). No data was supplied by any of the vehicle OEMs suggesting that one 70 MPa profile was superior to the other.
   GM response:
   This discussion did not make it back to the GM team. We apologize if we did not coordinate well internally, but we assume that SAE is leading this discussion and ISO will harmonize. We were not expecting a change in sealing concept to emerge from the ISO WG.

5. The SAE J2600 document does not currently specify a 70 MPa design. In addition I'm sure you're aware that its progress has been stunted by a recent lack of participation (and numerous meeting cancellations).
   GM response:
   One reason for the lack of activity at SAE is that OEMs are satisfied with the current J2799 design and continuing to accumulate positive field experience. Lack of activity at SAE is rationale for harmonization rather than rationale for a change in sealing concept direction.

6. I have since spoken with some folks at Daimler, and their original belief was that WG5 had in fact sided with the Nitto design – clearly this is not the case as the smooth bore sealing surface on the receptacle allows for existing Nitto and Weh design solutions. Daimler would now also like to provide data to WG 5 in favour of the seal-on-receptacle concept. The problem is this... why weren't any of these issues brought up at any of my numerous meetings, including one held at Daimler Nabern!
   GM response:
   GM and Daimler have prepared a joint paper in support of the J2799 sealing concept (see attached document date May 17, 2010).