DEFINING | WHAT'S NEXT

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BULLETIN: DIPTRONIC VEHICLE TANK STATIC MEASURING SYSTEM NEW NMI CERTIFICATE P9/2/7

There is a new NMI Certificate P9/2/7 for the DIPTRONIC Vehicle Tank Static Measuring System that applies to newly built tankers commencing 14 June 2023. Please use this NMI certificate number on new system and component data plates as appropriate.

This NMI Certificate P9/2/7 is available for download on the NMI website:
https://www.industry.gov.au/national-measurement-institute/pattern-approval/certificates-approval/liquip-international-model-diptronic-100agb-vehicle-tank-static-measuring-system

Please refer to this certificate for the Test Procedure details used in the verification process.

On page 2 is an example of a compartment verification table that may be used in conjunction with the other certification requirements.

If you require further details, please feel free to contact us on +61 2 9725 9000 or at sales@liquip.com, and mention this bulletin.

EXAMPLE OF A COMPARTMENT VERIFICATION TABLE

The measuring system shall be verified at an appropriate number of volume levels across the full measuring range of the level sensor that ensure for any combination of liquid levels in the compartment, the deliveries to or from the compartment greater than the Minimum Measured Quantity (Vmin) are within the Maximum Permissible Error (MPE) for that delivery.

Minimum Measured Quantity (Vmin): Example 500L
Vmin is calculated from the smallest sensitivity "Litres/mm" generally at the widest part of the compartment. Verification may reveal that the sensitivity is different to that initially calculated at the widest part of the compartment, e.g. if 6L were found to exceed both absolute and relative error. To reflect the correct sensitivity in this case, the Vmin would need to increase to 600L, such that the minimum specified volume deviation (Emin) becomes 6L. More sensitive compartments with larger Vmin have larger absolute errors in measurement.

Maximum Permissible Error (MPE):

1. For transferred volumes equal to Vmin and up to 2 x Vmin, the minimum specified volume deviation: E_{min} = 2 x 0.5% x Vmin = 5L
2. For transferred volumes greater than 2 x Vmin, maximum permissible error: 0.5%

No. of measurements	Compartment contents before measurement (L)	**DFV** (as total delivery, L)	**Master Meter** (as total delivery, L)	**Error of total measurement**		**DFV** (as separate deliveries, L)	**Master Meter** (as separate deliveries, L)	**Error of separate delivery measurement**		**DFV** (as sum of two separate delivery measurements, L)	**Master Meter** (as sum of two separate delivery measurements, L)	**Error of sum of two separate delivery measurements**	
				Absolute (L)	Relative (%)			Absolute (L)	Relative (%)			Absolute (L)	Relative (%)
1	4250	232	230	**-2**	**-0.87**	232	230	-2	-0.87				
2	4018	638	638	0	0.00	406	408	2	0.49	638	638	0	0.00
3	3612	1040	1041	1	0.10	402	403	1	0.25	808	811	3	0.37
4	3210	1248	1251	3	0.24	208	210	2	0.95	610	613	3	0.49
5	3002	2249	2249	0	0.00	1001	998	-3	-0.30	1209	1208	-1	-0.08
6	2001	3252	3249	-3	-0.09	1003	1000	-3	-0.30	2004	1998	**-6**	**-0.30**
7	999	3611	3610	-1	-0.03	359	361	2	0.55	1362	1361	-1	-0.07
8	639	3825	3825	0	0.00	214	215	1	0.47	573	576	3	0.52
9	425	4049	4050	1	0.02	224	225	1	0.44	438	440	2	0.45
				Check: values shall be ≤ 5L **OR** ≤0.5%				Check: values shall be ≤ 5L **OR** ≤0.5%				Check: values shall be ≤ 5L **OR** ≤0.5%	

Notes: The relative error determined for measurement No. 1 (error for total measurement) exceeds the maximum permissible error, but the absolute error is within the minimum specified volume deviation, $E_{min,}$ and is therefore a pass.

The absolute error determined for measurements No. 6 (error from sum of two separate delivery measurements) exceeds the minimum specified volume deviation, $E_{min,}$ but the relative error is within the maximum permissible error and is therefore a pass.