

Additional Information

Query:

1. Density and viscosity of the fluid used in different types of mass flow meter
2. Flow Rate (unit)
3. Pressure
4. Temperature
5. Line Size

Flow meters	Type-1	Type-2	Type-3	Type-4	Type-5	Type-6	Type-7
Fluid	Water	Water	GN2	GN2	Kerosene	Liquid Nitrogen/GHe	GHe
Density	~998 kg/m ³	~998 kg/m ³	~143.68 kg/m ³	~143.68 kg/m ³	~810 kg/m ³	~806.11 Kg/m ³ (LN2) 0.062 Kg/m ³ (GHe)	~0.062 Kg/m ³
Viscosity	~854 micro Pa-s	854 micro Pa-s	~43.68 micro Pa-s	~43.68 micro Pa-s	~1398 micro Pa-s	~162.9 μPa-s (LN2) ~0.19 μPa-s (GHe)	~0.19 μPa-s
Flow rates(g/s)	Available in the tender document.						
Pressure							
Temperature							
Line Size							

Query:

- The area classification to be considered for Transmitters
 - For Type 6, one flow meter requirement for 2 services - i.e. Liquid Nitrogen & GHe, we are getting pressure drop and accuracies as below:
 - A) When we select a meter suitable for Liquid Nitrogen with required accuracy of 0.05%, but the same meter while using GHe, the pressure drop is coming to 12.92 bar

B) When we select a meter of next size than what is mentioned in point A above, the pressure drops are well within the limit, but the accuracy of Liquid Nitrogen is as per attached sizing calculations, slightly higher than required 0.05%.

Reply:

1. class IIA
2. Accuracy requirement of 0.05% should be met.

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Reply:

Flow meters	Type-1	Type-2	Type-3	Type-4	Type-5	Type-6	Type-7
Fluid	Already provided in the tender document						
Density	~998 kg/m ³	~998 kg/m ³	~143.68 kg/m ³	~143.68 kg/m ³	~810 kg/m ³	~806.3 kg/m ³ (LN2)	~14.8 kg/m ³
Viscosity	~854 micro Pa-s	~854 micro Pa-s	~43.68 micro Pa-s	~43.68 micro Pa-s	~1398 micro Pa-s	~160 micro Pa-s (LN2)	~2.6 micro Pa-s
Flow rates(g/s)	Already provided in the tender document						
Pressure							
Temperature							
Line Size							