

 TORUS	· Owner METER TUBES MR-110 / MR-120	Document No.	MEA-DS-010
		Revision / Date	A · September 29, 2026
		Issue purpose	Issued for Review
MEASUREMENT · METER TUBES MR-110 / MR-120			
Item	Requirement		
Coating and insulation	External three-coat system; 2 in mineral wool with aluminium jacket and removable flange covers (MEA-CAL-001 Section 7.9)		
Supports	Clamp-type saddles S1 to S5 per MEA-DWG-001; no welded attachments		

THERMOWELLS

Thermowell geometry and the wake-frequency check are developed in  MEA-CAL-004. The standard 1.00 / 0.75 in tapered stem does not pass in the meter tube and shall not be supplied.

Table 1-4: Thermowells

Tag	Location	A / B / bore (in)	U (in)	$f_s/f_{n,c}$ at C5	Service
TW-111	DS spool, 3.0D (28.69 in), 12 o'clock	1.25 / 0.875 / 0.26	8.84	0.271	TT-111
TW-112	DS spool, 4.0D (38.25 in), 12 o'clock	1.25 / 0.875 / 0.26	8.84	0.271	Test well
TW-121	Run 2, as TW-111	1.25 / 0.875 / 0.26	8.84	0.271	TT-121
TW-122	Run 2, as TW-112	1.25 / 0.875 / 0.26	8.84	0.271	Test well

Note 1: All four thermowells are 1-1/2 in Class 600 RF flanged, with the flange face 5.0 in above the pipe OD. Material is 316 SS bar stock, tip thickness 0.25 in, bore for a 1/4 in RTD with a flat internal bottom for sensor contact. TW-112 and TW-122 are supplied with a threaded plug and chain.

PRESSURE AND TEMPERATURE INSTRUMENTS

Table 1-5: Pressure and Temperature Instruments

Item	Requirement
TT-111 / TT-121	4-wire Pt100, Class A, 1/4 in spring-loaded, Callendar-Van Dusen constants, head-mounted HART transmitter, 0 to 150 °F
PT-111 / PT-121	Absolute pressure, 0 to 1,500 psia calibrated span, ±0.025 % of span, on the meter body tap with a 2-valve manifold

OPEN ITEMS

Table 1-6: Open Items

HOLD	Item	Responsible party
H-15	Meter length, thermowell calculation and weights (estimated weights are in the measurement material take-off)	Vendor