

Date : 24.03.2026

Questions about the European Public procurement tender procedure and/or the European Public procurement tender documents can be asked until no later than the closing date of the 'Closing date for submission of questions by Tenderers' as mentioned in the tendering schedule shown in Section 2.1.

No.	Section nr. / subject	Questions Tenderer	Answers TNO
1	Requirement 8.1.4	Requirement 8.1.4 - P-T means Pressure and Temperature? Do you require to do tests at 140 Mpa and 200°C? if not which maximum pressure you need to generate above 150°C	Yes, P-T means Pressure and Temperature and yes we do require to do tests at 140 Mpa and 200°C.
2	Requirement 8.1.6	Requirement 8.1.6 - please provide the specimen stiffness (min/max)	Specimen stiffness ( $K = E \cdot A/L$ ) for our standard 25.4 mm diameter $\times$ 50.8 mm length geometry ranges from approximately 24 kN/mm (minimum — HPHT-degraded class G cement, $E \approx 1$ GPa) to approximately 1900 kN/mm (maximum — peridotite, $E \approx 190$ GPa). Failure (UCS and triaxial strength) tests will not be performed on materials with $E > \sim 80$ GPa; testing will be limited to elastic regime measurements and sub-failure protocols. For reference, our standard strain rate target is $10^{-5}$ s $^{-1}$ , which corresponds to a displacement rate of about 0.50 $\mu$ m/s for our standard specimens — well within the specified range of 0.1 $\mu$ m/s to 0.1 mm/s. The full specified range corresponds to strain rates of $2 \times 10^{-6}$ s $^{-1}$ to $2 \times 10^{-3}$ s $^{-1}$ , which covers all our intended test protocols from slow creep weak material to rapid brittle loading of stiff rocks.
3	Requirement 8.1.7	Requirement 8.1.7 - how many axial and how many radial measurement points you need?	We need at least 1 axial and 1 radial measurement point.
4	Requirement 8.1.9	Requirement 8.1.9 - you required ultrasonic measurement system + 6 acoustic emission sensors? Please provide exact details about the UT system please provide exact details about the required positions of the 6 acoustic emission sensors	We do not require ultrasonic measurement system or acoustic emission system. We require that there is enough electrical feedthroughs to accommodate an ultrasonic measurement system (at least 2 for top and bottom transducers) and at least 6 acoustic emissions sensors (to be placed laterally). The requirement is about the feedthroughs not the UT or AE systems.
5	Requirement 8.1.15	Requirement 8.1.15 - How the frame stiffness is to be documented? please provide details of acceptance of documentation	<b>Manufacturer's Declared Value:</b> - Frame stiffness in kN/mm or MN/mm, measured between the crosshead and the actuator platen (or between platens), at the rated load capacity. - Must be stated for the full load train (frame + load cell + platens + any adapters), not just the frame column alone. <b>Calibration / Verification Method:</b> how frame stiffness is measured. Accepted methods include: - Dead weight / hydraulic loading against a calibrated steel reference specimen of known stiffness (back-calculation) - Strain-gauged reference block (direct measurement of deformation under load) - Compliance correction curve supplied with the apparatus, relating apparent to true displacement at different load levels.
6	Preference 8.2.1 c	Preference 8.2.1 c - which pore pressure fluids must be considered for the corrosion resistance?	Most conditions can be simulated by water but it is always a nice option to have more possibilities, so TNO considers at least Water, but Formation brine, CO <sub>2</sub> (liquid), CO <sub>2</sub> -saturated formation Brine, Alkaline brine, H <sub>2</sub> -saturated water, H <sub>2</sub> -saturated formation brine would be nice.
7	Preference 8.2.2	Preference 8.2.2 - between 15 mm to 87 mm diameter with a height ratio of 2:1?	Nowhere is written: "between 15 mm to 87 mm diameter with a height ratio of 2:1". Preference 8.2.2 is about having the capability to test samples of 1.5" (= inches) or 38.1 mm diameter and a length to diameter ratio of at least 2:1.