

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

Contract title: Supply of Equipment Necessary for Improving of Conformity Assessment (CA) Services in the Republic of Serbia

1 /14

LOT 8: EQUIPMENT FOR DETERMINATION OF PHYSICAL AND RESISTANCE TO FIRE PROPERTIES OF ELECTRICAL INSULATORS AND ELECTRICAL PRODUCTS IN HAZARDOUS LOCATIONS

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Columns 1-2 should be completed by the Contracting Authority

Columns 3-4 should be completed by the tenderer

Column 5 is reserved for the evaluation committee

Annex III - the Contractor's technical offer

The tenderers are requested to complete the template on the next pages:

- Column 2 is completed by the Contracting Authority shows the required specifications (not to be modified by the tenderer);
- Column 3 is to be filled in by the tenderer and must detail what is offered (for example the words “compliant” or “yes” are not sufficient);
- Column 4 allows the tenderer to make comments on its proposed supply and to make eventual references to the documentation.

The eventual documentation supplied should clearly indicate (highlight, mark) the models offered and the options included, if any, so that the evaluators can see the exact configuration. Offers that do not permit to identify precisely the models and the specifications may be rejected by the evaluation committee.

The offer must be clear enough to allow the evaluators to make an easy comparison between the requested specifications and the offered specifications.

Unless otherwise specified, the requirements in these Technical Specifications are presented as a minimum standard which the offered goods must meet.

Unless otherwise stated, the following requirements shall also apply:

A - Documentation

Upon delivery of the goods a technical documentation for equipment (such as instruction manual for the use, maintenance, calibration, etc.), in English shall be provided, unless otherwise stipulated by Serbian technical regulations. If available, an additional manual in the Serbian language would be welcomed.

B - Compliance to safety rules and regulations

When submitting a tender, the tenderer must state expressly that all of the proposed equipment meet the safety requirements of the applicable rules and regulations in force in the Republic of Serbia. Upon delivery, the tendered equipment shall include proof of compliance.

C - Certificate of calibration

The Contractor shall deliver the equipment with the certificates of calibration for the equipment contributing to the uncertainty of the final test result for which they are intended to be used. The certificates of calibration should be issued by an accredited calibration laboratory, unless otherwise specified.

D - Installation

The Contractor shall install the equipment in the premises of the user and demonstrate after the installation of the equipment that it is capable of performing the functions required of it.

E - Training

When applicable, the Contractor shall provide on-the-job training to ensure the correct operation and maintenance of the equipment, at the time of installation, with additional training, to be provided by the Contractor within the following 6-month period. Tenderer shall submit training programme. The length of the training shall be adequate to the technical characteristics and maintenance requirements of the equipment supplied and shall allow the final user to properly handle the instrument(s). The training material must be provided on minimum 1 (one) electronic media and in minimum 1 (one) hard copy per trainee. The training should be in Serbian language (or interpretation must be provided by the supplier). The performance of the equipment against the required technical specifications shall be verified as part of the training.

F - Warranty

The Contractor shall provide a warranty for the equipment supplied in line with the Special Conditions. This warranty shall remain valid for one year after provisional acceptance.

G - Commercial Warranty

Commercial warranty must remain valid for two years (after the end of one year standard warranty) in accordance with the conditions laid down in Article 32 of the Special and General Conditions. Tenderer must provide a detailed description of the organisation of the proposed service.

LOT 8: EQUIPMENT FOR DETERMINATION OF PHYSICAL AND RESISTANCE TO FIRE PROPERTIES OF ELECTRICAL INSULATORS AND ELECTRICAL PRODUCTS IN HAZARDOUS LOCATIONS

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
1	EXPLOSION RESISTANT TEST CHAMBER (Volume: 1000 to 2000 L – Pressure up to 50 bar in static pressure) QUANTITY: 1			
	Manufacturers name:			
	Product model:			
	<p>The equipment is able to perform tests according to the following standard: EN 60079-1:2007 Edition 7.</p> <p>Intended use: Indoor explosive chamber to be used for testing electrical equipment intended to be used in explosive atmosphere, according to the above-mentioned standard and EU Directive 97/23/EC.</p> <p>The equipment shall also meet the minimum following requirements:</p> <ul style="list-style-type: none"> - Quick and safe closing and opening system for operating and controlling the door. - Equipped with all adequate passages for filling the chamber with gas mixtures, for operating the test and measuring explosive parameters as required in the standard (static pressure prior to 			

	<p>ignition, dynamic explosive pressure and temperature)</p> <ul style="list-style-type: none"> - The gas analysis instruments (measure of the concentration of flammable mixture inside the chamber and testing instruments as well as the pressure gas bottles including delivery lines (with valves, pressure reducing boards, etc.) <u>are not to be procured by the contractor.</u> - The equipment should be provided with a filtration system to put the gas out after explosion, the gas being extracted by a vacuum pump to be procured by the contractor. <p>Power supply: 220-230 V - 50 Hz.</p> <p>The following additional requirements apply:</p>				
	A – Documentation				
	B - Compliance to safety rules and regulations				
	C - Certificate of calibration				
	D – Installation				
	E – Training	Number of persons to be trained: 2			
		Duration: minimum 3 (three) working days			
	F – Warranty				
	G - Commercial Warranty				
2	PIEZOELECTRIC PRESSURE TRANSDUCERS AND AMPLIFIERS FOR PRESSURE EXPLOSION MEASUREMENTS AND RECORDINGS				
	Manufacturers name:				
	Product model:				
	One item composed of two parts:				

	PART 1: PIEZOELECTRIC PRESSURE TRANSDUCERS QUANTITY: 5 The equipment is able to perform tests according to the following standard: EN 60079-1:2007 Edition 7. Intended use: Measurement of pressure of explosions when using the above mentioned test chamber and standard (see Item 1 of lot 8). The transducers shall also meet the minimum following requirements: - Able to measure dynamic explosive pressures from 0 to 250 bar - Be compensated in temperature - Be individually equipped with connecting nipples. The following additional requirements apply:			
	A – Documentation			
	B - Compliance to safety rules and regulations			
	C - Certificate of calibration			
	F – Warranty			
	G - Commercial Warranty			
	PART 2: CHARGE AMPLIFIER FOR PIEZOELECTRIC PRESSURE TRANSDUCERS QUANTITY: 1 charge amplifier of 5 channels or 5 charge amplifiers of 1 channel each.			

	<p>The equipment is able to perform tests according to the following standard: EN 60079-1:2007 Edition 7.</p> <p>The charge amplifier shall be complying with the above mentioned piezoelectric pressure transducers, (see PART 1) and shall have the minimum following characteristics:</p> <ul style="list-style-type: none"> - Adjustable measuring range from ± 10 to ± 999000 pC - Adjustable sensor sensitivity from $\pm 0,01$ to ± 9990 pC/Mechanical unit - Wide frequency range from 0 to 200 Hz - Linearity $< \pm 0,05\%$ full scale - Drift at 25°C $< \pm 0,1$ pC/s - Automatic zero correction - Adjustable low-pass filter and time constant - Display for setting sensor sensitivity, the signal output of the data acquisition unit - Interface to connect to other instrument (IEE-488 or RS-232C). <p>Power supply: 220-230 V – 50 Hz.</p> <p>The following additional requirements apply:</p>				
	A – Documentation				
	B - Compliance to safety rules and regulations				
	C - Certificate of calibration				
	E- Training	Number of persons to be trained: 2			
		Duration: minimum 1 (one) working day			
	F – Warranty				
	G - Commercial Warranty				
3	EXTENSOMETER FOR INSULATING AND SHEATHING MATERIALS OF ELECTRICAL AND OPTIC CABLES				

	QUANTITY: 1			
	Manufacturers name:			
	Product model:			
	<p>The equipment is able to perform tests according to the following standards: EN 60811-100:2012, EN 60811-201:2012, EN 60811-202:2012, EN 60811-203:2012, EN 60811-501:2012.</p> <p>Intended use: Equipment for determining the mechanical properties of insulating and sheathing materials of electrical and optical cables according to the above-mentioned standards.</p> <p>The equipment shall also meet the minimum following requirements:</p> <ul style="list-style-type: none"> - Optical extensometer with measurement system and electronics of control to be compatible with ZWICK™ testing machine Model: 1445.100 dossier: AB 45 386/1445 - Stand-alone equipment including measurement head with digital camera, software for image acquisition and analysis, accessories case with adjustable jigs and markings - Length measurement of specimen from 5 to 500 mm - Field of view: 500 mm - Resolution: 2.5 µm - Test speed ≤ 1000 mm /min - Measurement rate: ≤ 166 Hz - Accuracy: grade 1 (EN ISO 9513 for FOV ≤ 200 mm – True for field of view > 200 mm), the 			

	smallest measurement value in accuracy grade 1 being FOV/1000. Power supply: 220-230 V - 50 Hz. The following additional requirements apply:				
	A – Documentation				
	B - Compliance to safety rules and regulations				
	C - Certificate of calibration				
	D – Installation				
	E – Training	Number of persons to be trained:2			
		Duration: minimum 1 (one) working day			
	F – Warranty				
	G - Commercial Warranty				
4	OZONE GENERATOR				
	QUANTITY: 1				
	Manufacturers name:				
	Product model:				
	The equipment is able to perform tests according to the following standards: EN 60811-2-1: 2001 Ed 2.0, EN 50396:2005 A1:2011 Intended use: Evaluation of resistance to ozone of insulating and sheathing material of electrical cables according to the above-mentioned standards. The equipment shall also meet the following minimum requirements: - Ozone (O ³) produced from ambient air - Production rate: ≤ 10 g of O ³ / h				

	- Equipped with a control unit (analyser) allowing to operate at different concentrations in the testing chamber, the concentration being controlled on the gas leaving the contact vessel (pressure of one atmosphere and flow rate of 1m ³ /h). - To be connected to cooling water. Power supply: 220-230 V - 50 Hz. The following additional requirements apply:				
	A – Documentation				
	B - Compliance to safety rules and regulations				
	C - Certificate of calibration				
	D – Installation				
	E – Training	Number of persons to be trained: 2			
		Duration: minimum 1 (one) working day			
	F – Warranty				
	G - Commercial Warranty				
5	SIWEK 20 L CHAMBER				
	QUANTITY: 1				
	Manufacturers name:				
	Product model:				
	The equipment is able to perform tests according to the following standards: EN 14034-1:2004+A1:2011, EN 14034-2:2006+A1:2011, EN 14034-3: 2006+A1:2011 Intended use: Explosion vessel allowing the determination of the explosion characteristics of				

	dust clouds, according to the above-mentioned standards.				
	The equipment shall also meet the following minimum requirements: - Be supplied with an ignition source, manometers and pressure sensors (2 pieces for the pressure sensors) - Be supplied with all accessories and parts specified in the standards to realise the tests.				
	Power supply: 220-230 V - 50 Hz.				
	The following additional requirements apply:				
	A – Documentation				
	B - Compliance to safety rules and regulations				
	E – Training				
	Number of persons to be trained: 2				
	Duration: minimum 3 (three) working days				
F– Warranty					
G - Commercial Warranty					
6	EQUIPMENT FOR TESTING RESISTANCE TO FIRE OF ELECTRIC CABLES WITH AND WITHOUT MECHANICAL SHOCKS				
	QUANTITY: 1				
	Manufacturers name:				
	Product model:				
	The equipment is able to perform tests according to the following standards: IEC 60331-1:2009, IEC 60331-11/1999+A1:2009, IEC 60331-21:1999,				

	IEC 60331-23:1999, IEC 60331-25:1999.				
	Intended use: Equipment for testing resistance to fire of electric cables with and without mechanical shocks according to the requirements of the above-mentioned standards.				
	The equipment shall be supplied with:				
	- Sample supporting system, complete with rods, supports and plates according to the requirements of the standards mentioned above				
	- Source of heat (burner with fuel or gas and flow meter, and air input flow rate control system)				
	- Test ladder				
	- Shock-producing device				
	- Test wall with thermocouples				
	- All accessories and parts specified in the standards to realize the tests.				
	Power supply: 220-230 V - 50 Hz.				
	The following additional requirements apply:				
	A – Documentation				
	B - Compliance to safety rules and regulations				
	C - Certificate of calibration				
	D – Installation				
	E – Training	Number of persons to be trained: 2			
		Duration: minimum 1 (one) working day			
	F – Warranty				
7	G - Commercial Warranty				
	CHAMBER FOR TESTING FLAME SPREAD ON VERTICALLY-MOUNTED BUNCHED WIRES AND CABLES				

	QUANTITY: 1				
	Manufacturers name:				
	Product model:				
	<p>The equipment is able to perform tests according to the following standard: EN 60332-3-10:2000+A1:2008 Clauses 5 and 6.</p> <p>Intended use: Assessment of vertical flame spread of vertically mounted bunched wires and cables, electrical or optical.</p> <p>The equipment shall be supplied with:</p> <ul style="list-style-type: none"> - Test chamber - Air supply - Ignition source - Ladders - Effluent cleaning attachment - All accessories and parts specified in the standards to realize the tests. <p>Power supply: 220-230 V - 50 Hz.</p> <p>The following additional requirements apply:</p>				
	A – Documentation				
	B - Compliance to safety rules and regulations				
	C - Certificate of calibration				
	D – Installation				
	E – Training	Number of persons to be trained: 2			
		Duration: minimum 1 (one) working day			
	F – Warranty				
	G - Commercial Warranty				

8	CHAMBER FOR MEASUREMENT OF SMOKE DENSITY				
	QUANTITY: 1				
	Manufacturers name:				
	Product model:				
	<p>The equipment is able to perform tests according to the following standard: EN 61034-1:2005+A1:2013, Clauses 4, 5, 6, 7 and 10.</p> <p>Intended use: Equipment for measurement of smoke density of cables burning under conditions defined in the above-mentioned standard.</p> <p>The equipment is able to perform tests according to the standard EN 61034-1:2005+A1:2013:</p> <ul style="list-style-type: none"> - Test chamber according to clause 4 - Photometric system according to clause 5 - Fire source according to clause 6 - Table type fan according to clause 7 - Qualification test of the complete system according to clause 10 <p>Power supply: 220-230 V - 50 Hz.</p> <p>The following additional requirements apply:</p>				
	A – Documentation				
	B - Compliance to safety rules and regulations				
	C - Certificate of calibration				
	D – Installation				
	E – Training	Number of persons to be trained: 2			
		Duration: minimum 1 (one) working day			
	F – Warranty				

	G - Commercial Warranty			
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