

## ***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 - RE-LAUNCH**

**1/10**

**LOT 3 (former lot 10): EQUIPMENT FOR MASS, VOLUME AND FLOW CALIBRATIONS**

**Publication reference: EuropeAid/135592/IH/SUP/RS**

**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 3: EQUIPMENT FOR MASS, VOLUME AND FLOW CALIBRATIONS

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
1	<b>CORIOLIS MASS FLOW METER - MOBILE REFERENCE METER FOR USE IN CALIBRATING LPG METERS IN THE FIELD</b>			
	QUANTITY: 1			
	<b>Manufacturers name:</b>			
	<b>Product model:</b>			
	<p>Intended use: mobile reference meter for use in the calibration of LPG meters in the field.</p> <p>Compact mobile measuring system in container with a mass measuring instrument (Coriolis) for verification of LPG dispensers in the field with connectors and laptop.</p> <ul style="list-style-type: none"> <li>- Nominal flow range: (0-3400) kg/h.</li> <li>- Maximum flow rate: <math>\geq 6500</math> kg/h.</li> <li>- Minimum flow rate: <math>\leq 300</math> kg/h.</li> <li>- Zero stability: <math>\leq 0.2</math> kg/h.</li> <li>- Mass flow accuracy for liquid: <math>\pm 0,05</math> % of rate.</li> <li>- Mass, density and volume indicator.</li> <li>- Transmitter.</li> <li>- Mass flow repeatability for liquid: <math>\pm 0,025</math> % of rate.</li> </ul>			

	<ul style="list-style-type: none"> <li>- Minimum volume: 2 L.</li> <li>- Maximum pressure: <math>\leq 25</math> bar.</li> <li>- Nominal diameter ½ inch or ¾ inch NPT female fitting or connection, which is adaptable to NPT fittings.</li> <li>- Serial interface with computer.</li> <li>- Windows 7 compatible software for parameterization, reading and logging of data via serial interface.</li> <li>- Suitable laptop with installed software, ATEX certified, with a battery life in the field of at least 8 hours.</li> <li>- Temperature range ambient: from -25°C up to 50 °C.</li> <li>- Temperature range of the liquid: from -10°C up to 50 °C.</li> <li>- The Coriolis mass flow meter and associated instrumentation needs to be fitted into a transportable skid or box.</li> <li>- The mechanical design of the skid or box needs to ensure stable performance of the meter across different installations in the laboratory and in outdoor locations for field installation.</li> <li>- Measurement uncertainty 0,1%</li> <li>- Maximum pressure 15 bar.</li> </ul> <p>Hose for connection to LGP dispenser, 2x5m, maximum pressure 15 bar.</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	<b>MASS COMPARATOR</b> QUANTITY: 1			
	<b>Manufacturers name:</b>			
	<b>Product model:</b>			
	<p>Intended use: For calibration of standard capacity measures by gravimetric method in laboratory conditions.</p> <ul style="list-style-type: none"> <li>- Maximum Capacity: <math>\geq 1500</math> kg</li> <li>- Readability: <math>\leq 5</math> g</li> <li>- Repeatability: <math>\leq 6</math> g</li> <li>- Operating temperature range: (near 17 up to near 27) °C</li> <li>- Compatible indicating device</li> <li>- Data interfaces available for RS232</li> <li>- Compatible connection cable between the indicating device and the mass comparator</li> <li>- Single range</li> <li>- Construction made of stainless steel material</li> </ul> <p>The following additional requirements apply:</p>			
	A – Documentation			
	B - Compliance to safety rules and regulations			
	D - Installation			
	F – Warranty			
3	<b>ROBOTIC MASS COMPARATOR</b>  QUANTITY: 1			
	<b>Manufacturers name:</b>			
	<b>Product model:</b>			

	Intended use: Traceability in mass measurements				
	Specifications: -Maximum capacity (g) : $\geq 6$ -Readability ( $\mu\text{g}$ ): $\leq 0.1$ -Repeatability ( $\mu\text{g}$ ): $\leq 0.5$ -Electronic weighing range (g): $\geq 3$ -Weight handler: 3-axis robot -Weight magazin: $\geq 30$ - PC - PC Software for Control Mass Comparator and Measuring - Climate station for ambient conditions in accordance with OIML R111 for an E1 weights (with sensor for air temperature, moisture and pressure) - Draft shield  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 2 (two) working days			
	D – Installation				
4	F – Warranty				
	<b>WEIGHT SET, CLASS E2</b>				
	QUANTITY: 1				
	<b>Manufacturers name:</b>				

	<b>Product model:</b>			
	Intended use: calibration of weights  - Weight set from 1 mg to 500 g - Accuracy class E2  The following additional requirements apply:			
	A – Documentation			
	B - Compliance to safety rules and regulations			
	C - Certificate of calibration			
	F – Warranty			
	G - Commercial Warranty			
<b>5</b>	<b>WEIGHT SET, CLASS F1</b>  QUANTITY: 1			
	<b>Manufacturers name:</b>			
	<b>Product model:</b>			
	Intended use: calibration of weights  - Weight set from 1 mg to 10 kg. - Accuracy class F1  The following additional requirements apply:			
	A – Documentation			
	B - Compliance to safety rules and regulations			
	C - Certificate of calibration			
	F – Warranty			
	G - Commercial Warranty			
<b>6</b>	<b>DIGITAL PRECISION MEASURING AMPLIFIER</b>  QUANTITY: 1			

	<b>Manufacturers name:</b>			
	<b>Product model:</b>			
	<p>The equipment is able to perform measurements according to the following standards:</p> <p>ISO 7500-1:2004 + Cor 1:2008 Metallic materials Verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Verification and calibration of the force-measuring system</p> <p>ISO 376:2011 Metallic materials - Calibration of force-proving instruments used for the verification of uniaxial testing machines</p> <p>EN 12390-4:2000 Testing hardened concrete. Compressive strength. Specification for testing machines</p> <p>Intended use: amplification of metrological signals for calibration of force, pressure, torque</p> <p>Accuracy Class: 0.0005</p> <p>Number of Amplifiers 2 - two channels amplifying simultaneously</p> <p>Computer interface USB, Ethernet, RS232, RS232/485 or equivalent</p> <p>Transducers excitation voltage: 2.5, 5 And 10 V</p> <p>Carrier frequency 225 Hz</p> <p>Sampling rate per amplifier from 1.2 to 75 Hz</p> <p>Display resolution &gt;1.000.000 digit</p>			



	Linearity variation < 0.0005%			
	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			
7	F – Warranty			
	G - Commercial Warranty			
	<b>REFERENCE PRESSURE TRANSDUCER</b>			
	QUANTITY: 1			
	<b>Manufacturers name:</b>			
	<b>Product model:</b>			
	<p>Related guideline document: DAkkS- DKD-R 6-1 Kalibrierung von Druckmessgeräten, 1. Neuauflage 2010</p> <p>Intended use: calibration of pressure gauges</p> <p>Pressure type: absolute pressure</p> <p>Measuring range: 0 up to at least 500 bar</p> <p>Accuracy: class 0.1</p> <p>Nominal rate sensitivity: 2 mV/V</p> <p>Cable for connecting transducer to the amplifier of item 13 on this list.</p> <p>The following additional requirements apply:</p>			

	A – Documentation			
	B - Compliance to safety rules and regulations			
	C - Certificate of calibration			
	F – Warranty			
	G - Commercial Warranty			