

TERM OF REFERENCE (TOR) JASA



No. PR: SBU/PR-26/INV/0524

1. TUJUAN PENGADAAN

Untuk memenuhi kebutuhan penunjang operasional Bidang Inspeksi Teknik terkait layanan jasa QA/QC untuk Fasilitas Industri, Minyak & Gas, Pertambangan dan Pembangkit Listrik untuk client Pertamina Hulu Kalimantan Timur serta client Pertamina EP Zona 10 sehingga pekerjaan dapat diselesaikan dengan baik. Maka, peralatan ini masuk ke budget pengadaan peralatan investasi Tahun 2026.

Kebutuhan pengadaan untuk kegiatan portofolio Aset dan Energi Baru & Terbarukan

☐ Kebutuhan Rutin: ☒ Kebutuhan Poyek di Pertamina EP Zona 10

☐ Barang: ☒ Barang:

☐ Expend	☐ Expend
☐ Inventory	☐ Inventory
☐ Non Fixed Asset	☐ Non Fixed Asset
☐ Investasi:	☒ Investasi:
☐ Penambahan	☒ Penambahan
☐ Penggantian :	☐ Penggantian,
No. Inventaris : ...	No. Inventaris : ...
Alasan ...	Alasan ...

2. SPESIFIKASI TEKNIS, JUMLAH DAN PERKIRAAN HARGA **)

Nama barang	PORTABLE UT THICKNESS DAKOTA CMX-1
Type	CMX-1 Portable Ultrasonic Thickness Gauge
Merk	Dakota Ultrasonics CMX-1
Persyaratan tambahan	

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	Model CMX1-DL	
	Display Mode	
	Material thickness digits display	■
	B-Scan cross sectional display	■
	Combined B-Scan and digits display	■
	Coating Thickness Display	■
	Scan Bar Display	■
	Measurement Range	PE: 0.63 - 1219.2mm (0.025 - 48") PETP: 0.63 - 1219.2mm (0.025 - 48") EE: 2.54 - 152.4mm (0.100 - 6.0") EEV: 1.27 - 25.4mm (0.050 - 1.0") CT: 0.01 - 2.54mm (0.0005 - 0.100") PECT: 0.63 - 1219.2mm (0.025 - 48") PECT: 0.01 - 2.54mm (0.001 - 0.100")
	Measurement Rate	
	Manual	8 readings per second
	Scan Mode	250 readings per second
	Scan bar display	10 readings per second
	Measurement Resolution	0.01mm (0.001")
	Velocity Calibration Range	309.88 - 18,542m/s (0.0122 - 0.7300in/μs)
	Additional Features	
	High Speed Scan Mode	
	Differential Mode	
	Limit alarm mode	
	B-Scan Display Speed	15 readings per second
	Flaw Mode	
	Calibration Setups	
	Gates	
	Damping	

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	Pulser Type Dual square wave pulsers Pulse repetition frequency up to 250Hz Gain Manual or automatic gain control (AGC) with 110dB range (limited) Timing Precision temperature controlled crystal oscillator (TCXO) timing with single shot 100MHz 8bit ultra-low power digitizer Memory and Data Logging • 4GB internal memory • Sequential and grid logging • Alpha numeric batch identification • OBSTRUCT indicates inaccessible locations • Bitmap graphic capture and capture viewer
Jumlah	1 unit

Nama barang	ELCOMETER 456
Type	Elcometer 456 Coating Thickness Gauge
Merk	Elcometer 456
Persyaratan tambahan	

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Product Features	☒ Standard ☐ Optional		
	Model B	Model S	Model T
Fast, accurate reading rate; 70+ readings per minute	■	■	■
Repeatable & reproducible measurements	■	■	■
Easy to use menu structure; in 30+ languages	■	■	■
Tough, impact, waterproof & dust resistant; equivalent to IP64	■	■	■
Bright colour screen; with permanent backlight	■	■	■
Scratch & solvent resistant display; 2.4" (6cm) TFT	■	■	■
Large positive feedback buttons	■	■	■
USB power supply; via PC	■	■	■
Test certificate	■	■	■
2 year gauge warranty ¹	■	■	■
Automatic rotating display; 0°, 90°, 180° & 270°	■	■	■
Ambient light sensor; with adjustable auto brightness	■	■	■
Emergency Light	■	■	■
Tap awake from sleep	■	■	■
Gauge software updates ² ; via ElcoMaster [®] software	■	■	■
Data Output	■	■	■
USB; to computer	■	■	■
Bluetooth [®] ; to computer, Android™ & iOS [®] devices		■	■
On Screen Statistics	■	■	■
Number of readings; $\bar{n}$ Mean (average); s , Standard deviation; σ Highest reading; Hi, Lowest reading; Lo, Coefficient of variation; CV%, Elcometer index value ⁴ , EIV	■	■	■
Nominal dry film thickness; NDFT		■	■
IMO PSPC; %>NDFT, %>90 <NDFT, 90:10 pass/fail		■	■
High & low limits; definable audible & visual alarms		■	■
Number of readings above high limit;		■	■
Number of readings below low limit;		■	■
Live reading trend graph; in Batch Mode		■	■
ElcoMaster [®] software & USB cable	□	■	■
Replaceable screen protectors	□	■	■
Protective case	■	■	■
Plastic transit case	□	□	■
Separate models; with automatic probe recognition	■	■	■
Probe type; Ferrous (F), Non-Ferrous (N), Dual (FNF)	F, N, FNF	F, N, FNF	F, N, FNF
Measurement Range	0-31mm (0-1,220mils)	0-31mm (0-1,220mils)	0-31mm (0-1,220mils)
On screen calibration instructions; in 30+ languages	■	■	■
Multiple calibration methods	■	■	■
Factory; resets to the factory calibration	■	■	■

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	<table><tr><td>2-point; for smooth and rough surfaces</td><td>■</td><td>■</td><td>■</td></tr><tr><td>1-point; zero calibration</td><td>■</td><td>■</td><td>■</td></tr><tr><td>Zero offset; for calibration according to ISO19840</td><td>■</td><td>■</td><td>■</td></tr><tr><td>Predefined calibration & measurement methods</td><td></td><td>■</td><td>■</td></tr><tr><td>ISO, SSPC PA2, Swedish, Australian</td><td></td><td>■</td><td>■</td></tr><tr><td>Automatic calibration; for rapid calibration</td><td></td><td>■</td><td>■</td></tr><tr><td>Calibration memory type; gauge (g) or gauge & batch (gb)</td><td>g</td><td>gb</td><td>gb</td></tr><tr><td>Number of batches; with unique calibrations</td><td></td><td>1</td><td>2,500</td></tr><tr><td>Calibration memories: 3 programmable memories</td><td></td><td></td><td>■</td></tr><tr><td>Measurement outside calibration warning</td><td></td><td></td><td>■</td></tr><tr><td>Calibration lock; with optional PIN Code Unlock</td><td>■</td><td>■</td><td>■</td></tr><tr><td>Delete last reading</td><td>■</td><td>■</td><td>■</td></tr><tr><td>Gauge memory; number of readings</td><td>Last 5</td><td>1,500</td><td>150,000</td></tr><tr><td>Individual batch calibrations; sent to PC via ElcoMaster® software</td><td></td><td>■</td><td>■</td></tr><tr><td>Limits; user definable audible & visual pass/fail warnings</td><td></td><td>■</td><td>■</td></tr><tr><td>Gauge (g) or gauge & batch specific (gb) limits</td><td></td><td>g</td><td>gb</td></tr><tr><td>Date & time stamp</td><td></td><td>■</td><td>■</td></tr><tr><td>Review, clear & delete batches</td><td></td><td>■</td><td>■</td></tr><tr><td>Batch types; normal, counted average, IMO PSPC</td><td></td><td>■</td><td>■</td></tr><tr><td>Navsea Mode</td><td></td><td></td><td>■</td></tr><tr><td>Batch review graph</td><td></td><td></td><td>■</td></tr><tr><td>Copy batches and calibration settings</td><td></td><td></td><td>■</td></tr><tr><td>Alpha-numeric batch names; user definable on the gauge</td><td></td><td></td><td>■</td></tr><tr><td>Scan & Auto Repeat Modes; with Scan Probe connected</td><td></td><td></td><td>■</td></tr><tr><td>Fixed Batch Size Mode; with batch linking</td><td></td><td></td><td>■</td></tr></table>	2-point; for smooth and rough surfaces	■	■	■	1-point; zero calibration	■	■	■	Zero offset; for calibration according to ISO19840	■	■	■	Predefined calibration & measurement methods		■	■	ISO, SSPC PA2, Swedish, Australian		■	■	Automatic calibration; for rapid calibration		■	■	Calibration memory type; gauge (g) or gauge & batch (gb)	g	gb	gb	Number of batches; with unique calibrations		1	2,500	Calibration memories: 3 programmable memories			■	Measurement outside calibration warning			■	Calibration lock; with optional PIN Code Unlock	■	■	■	Delete last reading	■	■	■	Gauge memory; number of readings	Last 5	1,500	150,000	Individual batch calibrations; sent to PC via ElcoMaster® software		■	■	Limits; user definable audible & visual pass/fail warnings		■	■	Gauge (g) or gauge & batch specific (gb) limits		g	gb	Date & time stamp		■	■	Review, clear & delete batches		■	■	Batch types; normal, counted average, IMO PSPC		■	■	Navsea Mode			■	Batch review graph			■	Copy batches and calibration settings			■	Alpha-numeric batch names; user definable on the gauge			■	Scan & Auto Repeat Modes; with Scan Probe connected			■	Fixed Batch Size Mode; with batch linking			■
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Jumlah	2 unit																																																																																																				

Nama barang	UCI HARDNESS TEST NOVOTEST
Type	T-U2
Merk	UCI Hardness Tester NOVOTEST T-U2

Persyaratan tambahan	 UCI Hardness Tester NOVOTEST T-U2 This is the most affordable UCI hardness tester, ideal for small, thin-walled, or complex-shaped products, unlike Leeb method models. With over 10 years of proven reliability, it offers the best price-quality ratio in the global market. Spesifikasi Teknis UCI Hardness Tester Portable NOVOTEST T-U2 <table><tr><td>Rentang Pengukuran</td><td></td></tr><tr><td>Rockwell, HRC</td><td>20 – 70</td></tr><tr><td>Brinell, HB</td><td>90 – 450</td></tr><tr><td>Vickers, HV</td><td>230 – 940</td></tr><tr><td rowspan="3">Akurasi Pengukuran</td><td>HV+ / – 3%;</td></tr><tr><td>HRC+ / – 1,5%;</td></tr><tr><td>HB+ / – 3%;</td></tr><tr><td>Standards</td><td>ASTM A1038, ASTM E140</td></tr><tr><td rowspan="2">Materials</td><td>UCI probe – pre-calibrated for steel.</td></tr><tr><td>Additional custom scales and materials for calibration.</td></tr><tr><td>Suhu operasional</td><td>-20° C sampai 40° C</td></tr><tr><td>Dimensi alat</td><td>122*65*23 mm</td></tr><tr><td>Sumber daya</td><td>Dua buah baterai AA</td></tr><tr><td>Daya tahan baterai</td><td>Tidak kurang dari 20 jam</td></tr></table>	Rentang Pengukuran		Rockwell, HRC	20 – 70	Brinell, HB	90 – 450	Vickers, HV	230 – 940	Akurasi Pengukuran	HV+ / – 3%;	HRC+ / – 1,5%;	HB+ / – 3%;	Standards	ASTM A1038, ASTM E140	Materials	UCI probe – pre-calibrated for steel.	Additional custom scales and materials for calibration.	Suhu operasional	-20° C sampai 40° C	Dimensi alat	122*65*23 mm	Sumber daya	Dua buah baterai AA	Daya tahan baterai	Tidak kurang dari 20 jam
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Sumber daya	Dua buah baterai AA																									
Daya tahan baterai	Tidak kurang dari 20 jam																									
Jumlah	1 unit																									

Nama barang	FLUKE 77 MULTIMETER
Type	77-IV
Merk	Fluke 77 IV Series Digital Multimeter

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Persyaratan tambahan	Ikhtisar Produk: Fluke 77 IV Series Digital Multimeter Pengukur serba guna untuk servis lapangan atau perbaikan di bengkel. Multimeter digital Fluke 77-IV memiliki fitur yang diperlukan untuk memperbaiki sebagian besar masalah listrik dan elektronik. Pengukur ini mudah digunakan dan memiliki peningkatan yang signifikan pada Fluke 70 Series dengan fungsi pengukuran yang lebih banyak, kepatuhan terhadap standar keselamatan, dan tampilan yang jauh lebih besar dan lebih mudah untuk dilihat. Alat tersebut mengukur: • Rentang pengukuran 1.000 V yang luas • Pengukuran AC tanggapan rata-rata • Akurasi sebesar 0,3% • Kontinuitas 10 Amp (20A untuk 30 detik) • Frekuensi dan kapasitansi • Resistansi dan kontinuitas
Jumlah	1 unit
Nama barang	SURFACE PROFILE GAUGE + SURFACE COMPARATOR
Type	Elcometer 224 + Elcometer 125 Surface Comparators
Merk	Elcometer 224 Digital Surface Profile Gauge + Elcometer 125 Surface Comparators
Persyaratan tambahan	

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	Model B	Model T
Persyaratan tambahan	Fast, accurate reading rate; 50+ readings per minute ¹	■ ■
	Repeatable & reproducible measurements	■ ■
	Easy to use menu structure; in 30+ languages	■ ■
	Tough, impact, waterproof & dust resistant; equivalent to IP64	■ ■
	Bright colour screen; with permanent backlight	■ ■
	Scratch and solvent resistant display; 2.4" (6cm) TFT	■ ■
	Large positive feedback buttons	■ ■
	Flat & convex surfaces ²	■ ■
	USB power supply; via PC	■ ■
	Test certificate	■ ■
	2 year gauge warranty ³	■ ■
	Automatic rotating display; 0°, 90°, 180° & 270°	■ ■
	Ambient light sensor; with adjustable auto brightness	■ ■
	Emergency Light Mode	■ ■
	Gauge software updates ⁴ ; via ElcoMaster [®] software	■ ■
	Data Output	
	USB; to computer	■
	Bluetooth [®] ; to computer, Android [™] & iOS [®] devices	■ ■
	On screen statistics	
	Number of readings, $\bar{x}$; Mean (average), s ; Standard deviation, σ ; Highest reading, H_i ; Lowest reading, L_o ; Coefficient of variation, CV%	■ ■
	High & low limits; definable audible & visual alarms	■
	Number above high limit;	■
	Number below low limit;	■
	ElcoMaster [®] software & USB cable	■
	Date and time stamp for each reading	■
	Replaceable screen protectors	■ ■
	Protective case	■ ■
	Plastic transit case	□ ■
	On screen calibration instructions; in 30+ languages	■ ■
	Measurement Range	0-500 μ m (0-20mils) 0-500 μ m (0-20mils)
	Number of batches	2,500
	Gauge memory; number of readings	Last 5 150,000
	Delete last reading ⁶	■ ■
	Limits; user definable audible & visual pass/fail warnings	■
	Gauge (g) or gauge & batch specific (gb) limits	gb
	Batch types; normal, counted average	■
	Review, clear & delete batches	■
	Copy batches and calibration settings	■
	Alpha-numeric batch names; user definable on the gauge	■
	Fixed Batch Size Mode; with batch linking	■
	Trend graph; last 20 readings	■
	Review batch graph	■
Jumlah	1 unit	

3. BATASAN WAKTU/ JADWAL PENGADAAN

Pemenuhan pengadaan/pekerjaan diterima tanggal 29 Juli 2026

Alokasi pemenuhan Pengadaan untuk Fungsi/Bidang/Bagian : Bidang Inspeksi Teknik

PIC pengajuan/proses Pengadaan: Akhmad Hidayat

4. SYARAT-SYARAT UMUM BAGI PENYEDIA EKSTERNAL ***)

4.1 Keagenan

Penyedia Eksternal merupakan distributor/dealer/agen yang ditunjuk resmi oleh pabrik atau pemegang hak cipta untuk pemasaran di Indonesia yang dibuktikan dengan surat resmi penunjukan dari distributor tunggal.

4.2 Pengalaman Implementasi

Penyedia Eksternal berpengalaman dalam instalasi dan implementasi dengan melampirkan referensi-referensi dari perusahaan lain yang menggunakan alat tersebut.

4.3 Pelayanan Purna Jual/ Maintenance

Penyedia Eksternal harus memberikan garansi selama duabelas (12) bulan sejak dibuatnya Berita Acara Uji Coba.

Yang dimaksud dengan garansi adalah:

- Garansi suku cadang selama duabelas (12) bulan dan service selama duabelas (12) bulan
- Tersedianya suku cadang;
- Tersedianya teknisi yang berpengalaman dan tercatat sebagai pegawai tetap, untuk perbaikan alat dan sanggup datang segera jika diperlukan;
- Selama masa garansi bila perbaikan-perbaikan dilakukan diluar SUCOFINDO dalam jangka waktu yang cukup lama, maka pemasok berkewajiban untuk meminjamkan peralatan pengganti, supaya operasional SUCOFINDO tidak terganggu;
- Penyedia Eksternal bersedia memberikan jaminan retensi sebesar 5% dengan jangka waktu minimal 3 Bulan setelah dilakukannya pemenuhan barang.

4.4 Untuk pengadaan yang memerlukan ketentuan khusus:

- Penyedia Eksternal harus memberikan jaminan asuransi. ~~Ya/Tidak~~ (coret yang tidak perlu);
- Penyedia Eksternal harus melengkapi persyaratan K3L : YA

4.5 Pemberian Training

- Cara menset-up alat.
- Maintenance dan trouble shooting.
- Penyelenggaraan training tidak disubkontrakkan kepada pihak ketiga.

4.6 Uji Coba

- Penyedia Eksternal wajib melakukan uji coba barang/alat yang dipasok di SUCOFINDO untuk membuktikan bahwa barang/alat yang dipasok dapat bekerja dan dioperasikan dengan baik sesuai dengan spesifikasi teknis.
- Hasil uji coba harus disahkan oleh Unsur Pemakai/Teknis.

4.7 Persyaratan PDN / TKDN

Penyedia eksternal tidak wajib melampirkan sertifikat TKDN dengan nilai TKDN ≥ 0 %.