

Calibration and expert services

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Prices in this price list do not include VAT.

For information about addresses, delivery conditions and other conditions see the end of the price list.

Service	Service number	2023 Basic fee EUR	Service number	2023 Additional/ hourly fee EUR	
Weights					
1 mg - 500 mg					
OIML class F1			1111	78.00	x number of pieces
OIML class E2			1121	110.00	x number of pieces
OIML class E1			1131	163.00	x number of pieces
OIML class M1			1141	58.00	x number of pieces
1 g - 5 kg					
OIML class F1			1151	65.00	x number of pieces
OIML class E2			1161	92.00	x number of pieces
OIML class E1			1171	134.00	x number of pieces
OIML class M1			1181	50.00	x number of pieces
10 kg - 20 kg					
OIML class F1			1211	97.00	x number of pieces
OIML class E2			1221	147.00	x number of pieces
OIML class E1			1231	221.00	x number of pieces
OIML class M1			1241	69.00	x number of pieces
Weight used in pressure balances (ring weights)					
Accuracy class 10 ppm			1411	50.00	x number of pieces
Accuracy class 5 ppm			1421	67.00	x number of pieces
Weights, basic charge	1480	222.00			
Density of weights					
Density of weights, 1 g - 2 kg	1510	222.00	1511	72.00	x number of pieces
Density standards, basic charge	1550	222.00	1551	155.00	x working hours (h)
Hydrometers, 4 meas. points	1600	442.00			
Density of water sample at a single temperature	1620	534.00	1621	207.00	x number of extra temperature points
Gas flow					
Calibration using nitrogen, 5 ml/min ... 100 l/min					
Using primary method: 5 meas. points	1660	1 403.00	1661	197.00	x number of extra measurement points
Using an LFE-system: 5 meas. points	1680	1 080.00	1681	134.00	x number of extra measurement points
Pressure					
Pressure balance calibration					
(price per measuring range)	4310	1 532.00			
Barometer calibrations, 950–1050 hPa (6 measurement points)					
Uncertainty > 6 Pa	4400	487.00	4401	81.00	x number of extra measurement points
Uncertainty < 6 Pa	4410	661.00	4411	111.00	x number of extra measurement points
Pressure gauge calibration					
(price per measuring range includes 6 measurement points)	4440	661.00	4441	111.00	x number of extra measurement points
Pressure gauge calibration <15 kPa					
(price per measuring range includes 6 measurement points)	4460	854.00	4461	143.00	x number of extra measurement points
Vacuum gauge calibrations					
(price per measuring range includes 6 measurement points)	4500	641.00	4501	65.00	x number of extra measurement points
Spinning rotor gauge calibrations	4520	1 377.00			
Leak testing using helium	4550	case-specific			
Dynamic pressure measurements, 20 MPa ... 500 MPa	4552	case-specific			
Pressure calibrations with instrument adjustment: 1.5 x normal price					
(adjustment needs always to be agreed for each case)					
Expert services (mass, temperature, pressure, humidity, flow, density)	1990	case-specific			
Thermometers					
Fixed point calibrations					
Resistance thermometers ITS-90, -189 ...+962 °C					
Ar (-189 °C)	2110	1 483.00			
Hg (-38 °C)	2120	692.00			
Ga (29 °C)	2130	692.00			
Sn (232 °C)	2150	692.00			
Zn (419 °C)	2160	692.00			
Al (660 °C)	2170	1 048.00			
Ag (962 °C)	2172	1 219.00			
Triple point of water	2176	1 709.00			
Thermocouples at 4 fixed points, eg. Cu, Ag, Al and Zn	2180	1 681.00	2181	1 719.00	x if the 4 points include Ag
Annealing thermocouple wires	2190	487.00			

Service	Service number	Basic fee EUR	Service number	Additional/ hourly fee EUR	
Calibration by comparison					
Resistance thermometers in a liquid bath, -80 °C ... 280 °C	2210	207.00	2211	151.00	x measured point
Liquid-in-glass thermometers in a liquid bath, -80 °C ... 280 °C	2220	251.00	2221	178.00	x measured point
Digital thermometers	2230	207.00	2231	151.00	x measured point
Thermometers in oven, < 960 °C	2240	259.00	2241	184.00	x measured point
Furnaces	2260	405.00	2261	178.00	x measured point
Calibration at the boiling point of nitrogen	2310	579.00			
Calibration by electrical simulation	2350	355.00			
Hygrometers					
Calibrations using humidity generators					
Dew-point temperature, -80 °C ... -61 °C	3100	810.00	3101	426.00	x measured point
Dew-point temperature, -60 °C ... +84 °C	3150	650.00	3151	213.00	x measured point
Relative humidity, 10 % ... 95 %, -20 °C ... +85 °C	3200	810.00	3201	326.00	x measured point
Humidity and temperature calibration in climate chamber	3500	376.00	3501	178.00	x measured point
Length					
Laser Radiations					
Stabilized laser of the mise en pratique					
532 nm			5111	155.00	x working hours (h)
543,5 nm			5121	155.00	x working hours (h)
633 nm	5130	899.00			
Other wavelength standards					
Fibre optic source	5140	166.00	5141	155.00	x working hours (h)
Optical spectrum analyzer	5142	166.00	5143	155.00	x working hours (h)
Linear dimensions					
Length instruments					
Laser interferometer					
Basic system	5210	166.00	5211	1 194.00	x number of pieces
Angle measurement option			5215	627.00	x number of pieces
Straightness measurement option			5219	627.00	x number of pieces
Air sensor			5223	627.00	x number of pieces
Adjustment of air sensor			5227	155.00	x working hours (h)
Wave length calibration	5230	899.00			
EDM instrument					
0 - 30 m	5234	166.00	5235	306.00	x number of pieces
1-D measuring machine					
0 - 500 mm	5238	166.00	5239	747.00	x number of pieces
501 - 1000 mm	5240	166.00	5241	934.00	x number of pieces
1001 - 3000 mm	5242	166.00	5243	1 372.00	x number of pieces
Additional scale of same machine	5244	166.00	5245	330.00	x number of pieces
Scale compensation			5247	155.00	x working hours (h)
Height measuring instrument	5248	166.00	5249	1 373.00	x number of pieces
1-D displacement					
Piezo etc.	5252	166.00	5253	190.00	x number of pieces
1-D sensor					
Measuring range < 10 mm	5256	166.00	5257	184.00	x number of pieces
Measuring range 10 mm - 25 mm	5258	166.00	5259	365.00	x number of pieces
Measuring range > 25 mm	5260	166.00	5261	444.00	
Additional range			5271	94.00	x number of pieces
Reduced uncertainty ($u < 0,3 \mu\text{m}$)			5263	1 019.00	x number of pieces
Gauge block comparator	5264	166.00	5265	934.00	x number of pieces
Dial-indicator tester	5268	166.00	5269	426.00	x number of pieces
End standards					
Gauge blocks					
0,5 - 100 mm	5272	166.00	5273	28.00	x number of pieces
> 100 ... 1000 mm	5276	166.00	5277	121.00	x number of pieces
Special gauge block	5280	166.00	5281	69.00	x number of pieces
Gauge block, interferometrical calibration					
0 - 100 mm	5284	166.00	5285	94.00	x number of pieces
101 - 200 mm	5286	166.00	5287	178.00	x number of pieces
201 - 400 mm	5288	166.00	5289	292.00	x number of pieces
401 - 1000 mm	5290	166.00	5291	426.00	x number of pieces
Gauge block set M88	5320	166.00	5321	5 163.00	x number of pieces
Gauge block set M112	5322	166.00	5323	6 420.00	x number of pieces
Gauge block set M122	5324	166.00	5325	6 939.00	x number of pieces

Service	Service number	Basic fee EUR	Service number	Additional/hourly fee EUR	
Air gap standard	5294	166.00	5295	349.00	x number of pieces
Sheet gauge, thickness	5296	166.00	5297	94.00	x number of pieces
Sheet gauge, diameter	5298	166.00	5299	111.00	x number of pieces
Length bar (long gauge block)	5310	166.00	5311	535.00	x number of pieces
Micrometer setting rod					
0 - 100 mm	5314	166.00	5315	58.00	x number of pieces
101 - 500 mm	5316	166.00	5317	145.00	x number of pieces
> 500 mm	5318	166.00	5319	222.00	x number of pieces
Step gauge, normal accuracy (0.3 µm/m)					
0 - 250 mm	5030	166.00	5031	861.00	x number of pieces
251 - 350 mm	5032	166.00	5033	1 090.00	x number of pieces
351 - 500 mm	5034	166.00	5035	1 322.00	x number of pieces
501 - 700 mm	5036	166.00	5037	1 530.00	x number of pieces
701 - 1100 mm	5038	166.00	5039	1 738.00	
1101 - 1600 mm	5040	166.00	5041	2 112.00	
1601 - 2020 mm	5042	166.00	5043	2 301.00	
Step gauge, better accuracy (0.15 µm/m)					
0 - 250 mm	5044	166.00	5045	1 273.00	
251 - 350 mm	5046	166.00	5047	1 594.00	
351 - 500 mm	5048	166.00	5049	1 843.00	
501 - 700 mm	5050	166.00	5051	2 209.00	
701 - 1100 mm	5052	166.00	5053	2 501.00	
1101 - 1600 mm	5054	166.00	5055	3 023.00	
1601 - 2020 mm	5056	166.00	5057	3 289.00	
Gap gauge	5334	166.00	5335	114.00	x number of pieces
Feeler (thickness) gauge	5338	166.00	5339	32.00	x number of pieces
Line standards					
Precision line scale, stage micrometer					
Max 50 lines					
0 - 100 mm	5342	166.00	5343	330.00	x number of pieces
101-500 mm	5344	166.00	5345	459.00	x number of pieces
501 - 1000 mm	5346	166.00	5347	614.00	x number of pieces
Additional scale at same substrate					
0 - 100 mm			5349	165.00	x number of pieces
101-500 mm			5351	330.00	x number of pieces
501 - 1000 mm			5353	459.00	x number of pieces
Reduced uncertainty, $u < 200$ nm			5177	case-specific	
2D scale	5354	166.00	5355	398.00	x number of pieces
1-D and 2-D gratings and other microscope calibration standards, see Microscope calibration standards					
Tape, wire					
0 - 30 (60, 90, ...) m	5356	166.00	5357	206.00	x number of 30 m (beginnings)
Tape measure	5362	166.00	5363	102.00	x number of pieces
Plumb tape					
0 - 30 (60, 90, ...) m	5358	166.00	5359	255.00	x number of 30 m (beginnings)
Electronic plumb tape	5372	166.00	5373	306.00	x number of pieces
Circometer	5360	166.00	5361	306.00	x number of pieces
Machinist scale					
0 - 1 m	5364	166.00	5365	306.00	x number of pieces
>1 - 2 m	5366	166.00	5367	383.00	x number of pieces
>2 - 3 m	5368	166.00	5369	459.00	x number of pieces
>3 - 5 m	5370	166.00	5371	614.00	x number of pieces
Additional scale			5377	153.00	x number of pieces
Diameter standards					
External cylinder (plug, piston)					
Reduced uncertainty, $u < 500$ nm on diameter	5380	166.00	5381	136.00	x number of pieces
			5383	256.00	x number of pieces
Micrometer setting ring	5386	166.00	5387	74.00	x number of pieces
External cylinder (tapered)	5384	166.00	5385	256.00	x number of pieces
Internal cylinder (ring)	5388	166.00	5389	136.00	x number of pieces
Reduced uncertainty $u < 500$ nm on diameter			5379	256.00	x number of pieces
Internal cylinder (tapered)	5390	166.00	5391	256.00	x number of pieces
Sphere (ball); diameter	5394	166.00	5395	277.00	x number of pieces
Roundness			5399	376.00	x number of pieces
Reduced uncertainty $u < 300$ nm on diameter			5397	387.00	x number of pieces

Service	Service number	Basic fee EUR	Service number	Additional/hourly fee EUR	
Angle					
Angle by Circle Dividers					
Optical polygons (12 faces)	5410	166.00	5411	740.00	x number of pieces
Index table	5414	166.00	5415	802.00	x number of pieces
Rotary table, rotary encoder scale	5418	166.00	5419	802.00	x number of pieces
Reduced uncertainty, $u < 0,2''$			5421	1 373.00	x number of pieces
Small-angle Generators					
Sine (bar, table)	5422	166.00	5423	671.00	x number of pieces
Angle instruments					
Autocollimator	5426	166.00	5427	570.00	x number of pieces
Reduced uncertainty $u < 0,02''$			5429	1 250.00	x number of pieces
Electronic level (frame type)	5430	166.00	5431	1 144.00	x number of pieces
Electronic level	5434	166.00	5435	369.00	x number of pieces
Clinometers	5438	166.00	5439	369.00	x number of pieces
Sprit (bubble) level	5442	166.00	5443	230.00	x number of pieces
Sprit (bubble) level (frame type)	5446	166.00	5447	915.00	x number of pieces
Theodolite (see Form/ Tachymeter/ Angular scales)					
Optical level	5454	166.00	5455	570.00	x number of pieces
(bevel) protractor	5458	166.00	5459	389.00	x number of pieces
Squareness tester	5462	166.00	5463	891.00	x number of pieces
Angle artifacts					
Angle block	5464	166.00	5465	127.00	x number of pieces
90° square					
Knife edge square	5470	166.00	5471	136.00	x number of pieces
Steel square	5474	166.00	5475	570.00	x number of pieces
Granite square	5478	166.00	5479	865.00	x number of pieces
Frame square	5480	166.00	5481	1 731.00	x number of pieces
Cylinder square	5482	166.00	5483	747.00	x number of pieces
Cone (taper) gauge	5486	166.00	5487	583.00	x number of pieces
Angle Prisms	5490	166.00	5491	389.00	x number of pieces
Optical square (pent prism)	5494	166.00	5495	389.00	x number of pieces
Retro reflector	5496	166.00	5497	127.00	x number of pieces
Form					
Shaft alignment instrument	5510	166.00	5511	1 074.00	x number of pieces
Flatness standards					
Optical flat < 150 mm	5514	166.00	5515	152.00	x number of pieces
Optical flat (parallel, wedge)	5518	166.00	5519	94.00	x number of pieces
Surface plate (granite)					
Surface plate < 1000 mm	5522	166.00	5523	778.00	x number of pieces
Surface plate > 1000 mm	5526	166.00	5527	934.00	x number of pieces
Flatness standard for SPMs	5528	166.00	5529	339.00	x number of pieces
Roundness standards					
External cylinder	5530	166.00	5531	204.00	x number of pieces
External cylinder (arbor)	5534	166.00	5535	475.00	x number of pieces
Internal cylinder	5538	166.00	5539	204.00	x number of pieces
Sphere (hemisphere)	5542	166.00	5543	362.00	x number of pieces
Magnification standard	5546	166.00	5547	230.00	x number of pieces
Straightness Standards					
Straight edge	5550	166.00	5551	254.00	x number of pieces
Cylindrical straightness standards (granite)	5554	166.00	5555	389.00	x number of pieces
0 - 1000 mm	5564	166.00	5565	718.00	x number of pieces
> 1000 mm	5568	166.00	5569	839.00	x number of pieces
(steel)					
0 - 1000 mm	5572	166.00	5573	292.00	x number of pieces
> 1000 mm	5576	166.00	5577	570.00	x number of pieces
Cylindricity Standards					
External cylinder	5580	166.00	5581	256.00	x number of pieces
Internal cylinder	5584	166.00	5585	256.00	x number of pieces
Complex Geometry					
Surface Texture Standards					
(Groove) depth (step height) standard, e.g. ISO 5436-1 Type A	5610	166.00	5611	200.00	x number of grooves
Tip-condition standard	5614	166.00	5615	155.00	x working hours (h)
Spacing standard	5618	166.00	5619	155.00	x working hours (h)
Roughness standard	5624	166.00	5625	209.00	x number of pieces
Profile coordinate standard	5626	166.00	5627	155.00	x working hours (h)

Service	Service number	Basic fee EUR	Service number	Additional/ hourly fee EUR	
Screw Standards					
Setting standard for thread micrometer	5632	166.00	5633	276.00	x number of pieces
Thread plug, plain	5636	166.00	5637	296.00	x number of pieces
Thread plug, tapered	5640	166.00	5641	388.00	x number of pieces
Thread ring, plain	5644	166.00	5645	312.00	x number of pieces
Thread ring, tapered	5648	166.00	5649	418.00	x number of pieces
2-D, 3-D Instruments					
Surface roughness measuring machine	5652	166.00	5653	451.00	x number of pieces
Additional tip			5655	242.00	x number of pieces
Measuring projector	5656	166.00	5657	934.00	x number of pieces
Measuring microscope	5660	166.00	5661	934.00	x number of pieces
Coordinate measuring machine					
length scale	5690	166.00	5691	155.00	x working hours (h)
Straightness <1000 mm	5696	166.00	5697	155.00	x working hours (h)
Coordinate measuring machine, inspection 10360-2	5698	166.00	5699	1 983.00	x number of pieces
Tachymeter					
Length scale	5704	166.00	5705	306.00	x number of pieces
Angular scales; (also theodolite)	5706	166.00	5707	1 225.00	x number of pieces
Motion (translation, angle) stage	5670	166.00	5671	235.00	x number of pieces
Roundness measuring machine	5674	166.00	5675	778.00	x number of pieces
Cylindricity measuring machine	5676	166.00	5677	934.00	x number of pieces
Form-measuring machine	5678	166.00	5679	934.00	x number of pieces
Hardness					
Hardness indenter	5688	166.00	5689	211.00	x number of pieces
Microscope calibration standards					
1-D grating, SPM calibration standard (diffraction measurement) Pitch	5150	166.00	5151	338.00	x number of pieces
2-D grating, SPM calibration standard (diffraction measurement) Pitch, x&y	5152	166.00	5153	507.00	x number of pieces
Orthogonality (to the same grating)			5155	171.00	x number of pieces
1-D grating, SPM calibration standard (AFM measurement) Pitch	5180	166.00	5181	460.00	x number of pieces
Step height by AFM			5183	171.00	x number of pieces
2-D grating, SPM calibration standard Pitch, x&y	5190	166.00	5191	616.00	x number of pieces
Orthogonality (to the same grating)			5193	171.00	x number of pieces
Step height by AFM			5195	222.00	x number of pieces
Flatness (to the same grating)			5197	171.00	x number of pieces
Step height standard for SPMs					
Step height	5612	166.00	5613	460.00	x number of pieces
Flatness standard for SPMs	5528	166.00	5529	339.00	x number of pieces
Other microscope standards, see line scales above					
Various dimensional					
Hand instruments					
External micrometer					
0 - 50 mm	5710	166.00	5711	146.00	x number of pieces
51 - 500 mm	5714	166.00	5715	178.00	x number of pieces
501 - 3000 mm	5718	166.00	5719	738.00	x number of pieces
Micrometer head	5724	166.00	5725	235.00	x number of pieces
Depth micrometer	5728	166.00	5729	152.00	x number of pieces
Depth micrometer setting device	5730	166.00	5731	889.00	x number of pieces
Caliper					
0 - 150 mm	5734	166.00	5735	146.00	x number of pieces
151 - 500 mm	5738	166.00	5739	230.00	x number of pieces
> 500 mm	5742	166.00	5743	356.00	x number of pieces
Depth gauge	5746	166.00	5747	146.00	x number of pieces
Internal two-point (bore) micrometer					
Basic equipment	5750	166.00	5751	152.00	x number of pieces
Extra part(s)	5754	166.00	5755	94.00	x number of pieces
Internal three-point micrometer	5760	166.00	5761	359.00	x number of pieces
Dial gauge, dial test indicator					
0 - 10 mm	5762	166.00	5763	102.00	x number of pieces
10 - 25 mm	5764	166.00	5765	124.00	x number of pieces
> 25 mm	5768	166.00	5769	136.00	x number of pieces
Diameter gauge	5766	166.00	5767	94.00	x number of pieces
Thickness gauge	5770	166.00	5771	146.00	x number of pieces
Tachometer, contact type	5772	166.00	5773	153.00	x number of pieces
Melt viscosity instrument nozzle	5774	166.00	5775	462.00	x number of pieces

Service	Service number	Basic fee EUR	Service number	Additional/ hourly fee EUR	
Measuring services					
Surface roughness measurements	5810	166.00	5811	155.00	x working hours (h)
Flatness measurements					
interferometric	5814	166.00	5815	102.00	x number of pieces
mechanical	5818	166.00	5819	151.00	x working hours (h)
Machine tool measurements					
-Position accuracy measurments	5822	166.00	5823	235.00	x number of axes
According to VDI/GDO-3441 or to ISO 230/2					
-Positioning during adjustment	5826	166.00	5827	155.00	x working hours (h)
-Geometrical measurements	5830	166.00	5831	155.00	x working hours (h)
-Test piece measurements	5834	166.00	5835	155.00	x working hours (h)
-Angular deviations of movement	5840		5841		x number of axes
Roundness measurements	5844	166.00	5845	110.00	x number of pieces
Cylindricity measurements	5848	166.00	5849	134.00	x number of pieces
Form measurements	5852	166.00	5853	152.00	x number of pieces
Atomic force microscopic measurements	5854	166.00	5855	175.00	x working hours (h)
Electronic force microscopy measurements			5851	175.00	x working hours (h)
3-D measurements with CMM					
contact probe (Legex)	5856	166.00	5857	165.00	x machine/working hours (h)
optical probe (Quick Vision)	5858	166.00	5859	165.00	x machine/working hours (h)
XCT measurements for industrial artefacts	5864	case-specific			
Orifice plate	5862	166.00	5863	413.00	x number of pieces
Other measuring services	5860	166.00	5861	155.00	x working hours (h)
Other service					
Identification marks	5910	28.00			
Ultrasound cleaning	5920	58.00			
Burr removing	5930	28.00			
Evaluation of measuring results	5940	28.00			
Expert service	5990	case-specific			
Time and Frequency					
df/f, dT/T, uncertainty < 0.001 ppm	0720	840.00			
Rubium and cesium oscillators,					
GPS timing receivers, etc.					
df/f, dT/T, uncertainty 0.001-1 ppm	0722	671.00			
TCXO etc.					
df/f, dT/T, uncertainty over 1 ppm	0724	421.00			
Tachometers, stroboscopes,					
electronic watches, etc.					
Point frequency adjustment			0731	213.00	x measured point
NTP service	0780	48.00			monthly fee
Expert services	0590	case-specific			
Electricity					
DC voltage					
DC voltage standards, single voltage level	0500	1 095.00	0501	374.00	x additional voltage
DV current					
Basic fee includes one measuring range					
10 fA – 100 nA	0520	626.00	0521	114.00	x measuring range
100 µA – 1 A	0522	360.00	0523	48.00	x measuring range
see also multimeters and calibrators					
1 A – 20 A	0524	421.00	0525	85.00	x measuring range
20 A – 600 A	0526	602.00	0527	109.00	x measuring range
Resistance					
DC calibrations					
10 mohm - 1 Mohm (< 150 mA, < 100 mW, <100 V)	0530	712.00			
0,1 mohm - 1 ohm (150 mA - 100 A, < 100 W)	0570	947.00			
1 Mohm - 100 Mohm (< 100 V)	0540	791.00			
1 Mohm - 100 Tohm (< 1 kV, < 10 mW)	0550	879.00			
Power dependence of resistance standards			0551	114.00	x additional voltage / current
Temperature dependence of resistance standards 20...25 °C			0561	169.00	x additional temperature

Service	Service number	Basic fee EUR	Service number	Additional/ hourly fee EUR	
AC voltage					
Thermal converters, 45-60 Hz					
Uncertainty < 400 ppm					
Current transformers 0,1 A - 2500 A	0616	837.00	0617	76.00	x additional range/burden (with 5 measure
Current transformers over 2500 A	0618	1 175.00	0619	76.00	x additional range/burden (with 5 measure
Current transformers, uncertainty under 400 ppm	0602	case-specific			
High voltage					
DC voltage					
DC voltage measuring system					
1 kV - 50 kV	0410	741.00			
50 kV - 200 kV	0412	1 114.00			
200 kV - 1200 kV	0414	case-specific			outside official CMC range
DC linearity test	0416	case-specific			in connection with system calibration
AC voltage					
AC voltage measuring system					
1 kV - 40 kV	0420	741.00			
40 kV - 100 kV	0422	931.00			
100 kV - 200 kV	0424	1 300.00			
200 kV - 500 kV	0426	case-specific			outside official CMC range
AC linearity test	0428	374.00			in connection with system calibration
High voltage probe (ac or dc / ac and dc)					
ac or dc	0430	741.00			
ac and dc	0432	931.00			
Voltage transformer					
1 kV - 40 kV	0434	741.00			
40 kV - 100 kV	0436	931.00			
100 kV - 200 kV	0438	1 209.00			
Capacitance and inductance					
Capacitance					
High voltage capacitance and tand	0440	730.00			
Inductance					
Inductance and losses	0442	730.00			
Calibration of capacitance bridge	0444	case-specific			
High voltage on-site calibrations	0448	case-specific			
Pulse calibrations					
LI measuring system					
1 kV - 10 kV	0450	741.00			
10 kV - 200 kV	0452	case-specific			
200 kV - 400 kV	0454	case-specific			
Step response measurement	0456	374.00			in connection with system calibration
Linearity test	0458	374.00			in connection with system calibration
SI measuring system					
1 kV - 200 kV	0460	case-specific			
Step response measurement	0462	374.00			
Linearity test	0464	374.00			in connection with system calibration
Impulse calibration					
Digital recorder	0470	557.00	0471	25.00	x measured point
Impulse calibrator	0474	1 008.00	0475	53.00	x measured point
Step response measurement	0472	92.00	0473	18.00	x measured point
PD-calibrator, 5 measurement points	0480	741.00	0481	24.00	x additional point
Surge-tester calibration	0482	1 580.00			
Impulse current	0484	741.00			
ESD-tester calibration	0486	case-specific			
On-site pulse calibrations	0498	case-specific			
Calibrators					
Examples of calibrated devices: Fluke 5700 A, Fluke 5500 A					
Basic calibration at about 80 measurement points	0620	3 130.00	0621	1 045.00	oscilloscope calibrators, e.g. SC300, SC
Calibration at specific points	0630	816.00	0631	55.00	x measured point
Calibrator, basic calibration	0636	2 174.00			
Tester calibrators					
Examples of calibrated devices: Fluke 5320A, 5322A	0638	4 154.00			
Multimeters					
Fees include basic functions (DCV, ACV, DCI, ACI,R)					
Additional functions (temperature, capacitance, etc.)					
according to a separate offer					
Reference multimeters, e.g. Keysight 3458 A, Fluke 8508A					
basic calibration at about 80 measurement points	0640	1 441.00			

Service	Service number	Basic fee EUR	Service number	Additional/hourly fee EUR	
Mid-level devices, e.g. Keysight 34450A	0652	842.00			
Basic devices, e.g. Fluke 79	0654	421.00			
Insulation resistance meters					
up to 100 GOhm	0656	605.00			
up to 100 TOhm	0658	825.00			
Oscilloscopes					
Single channel	0662	935.00	0663	155.00	x additional channel
Laboratory power sources					
Single output	0664	523.00	0665	155.00	x additional output
Electronic loads					
Single channel	0666	776.00	0667	155.00	x additional channel
Amplifiers					
Transconductance amplifiers					
Examples of calibrated devices: Datron 4600, Fluke 5220 A					
Basic calibration at about 30 measurement points	0660	1 692.00			
Calibration at specific points	0670	816.00	0671	171.00	x measured point
Voltage amplifiers					
Examples of calibrated devices: Fluke 5205 A					
Basic calibration at about 20 measurement points	0680	1 239.00			
Calibration at specific points	0690	712.00	0691	142.00	x measured point
Electric power					
Basic fees include ca. 20 measurement points					
Electric power, 1-phase unc. 0,005%-0,05%	0700	1 782.00			
Electric power, 1-phase unc. 0,05%-0,5%	0710	974.00			
Electric power, 1-phase unc. over 0,5%	0712	650.00			
Electric power, 3-phase unc. 0,01%-0,05%	0714	case-specific			
Electric power, 3-phase unc. 0,05%-0,5%	0716	974.00			
Electric power, 3-phase unc. over 0,5%	0718	650.00			
Electric power, additional measuring points			0719	155.00	x working hours (h)
Capacitance standards					
Basic calibration	0740	730.00			
Inductance standards					
Basic calibration	0770	730.00			
High frequencies					
Cal. factor of RF & MW power sensor					
10 MHz - 18 GHz,	0750	1 602.00	0751	19.00	x additional point
1 mW, 25 points, reflection coefficients					
Reference supply of a power sensor	0754	534.00			
Attenuation					
10 MHz - 6 GHz, 0 - 80 dB,	0756	1 068.00	0757	19.00	x additional point
6 GHz - 18 GHz, 0 - 60 dB,					
40 points, reflection coefficients					
Other services in electricity					
Adjustment of measuring devices	0760	321.00	0761	155.00	x working hours (h)
Expert services	0790	case-specific			
Measurement services, working time (h)			0795	155.00	x working hours (h)
Acoustics					
Sound calibrators: single frequency calibrators	0800	301.00	0801	142.00	x additional point
Sound calibrators, e.g. B&K 4226	0810	1 395.00	0811	142.00	x additional point
Microphones LS1P or LS2P					
Reciprocity calibration, 31,5 Hz - 10 (20) kHz,					
including 26 frequencies or more	0820	2 278.00	0821	142.00	x additional point
Comparison method, 31,5 Hz - 16 kHz,					
including 11 frequencies, for LS2P only	0830	1 086.00	0831	142.00	x additional point
Accelerometers, 10 Hz - 10 kHz					
Sensitivity and phase, including 31 frequencies	0840	552.00	0841	28.00	x additional point
Accelerometers, 0,4 Hz -160 Hz					
Sensitivity and phase, including 27 frequencies	0842	552.00	0843	28.00	x additional point
Portable vibration loggers	0846	974.00	0847	28.00	x additional point
Portable vibration calibrators, e.g. PCB 394C06	0848	448.00	0849	142.00	x additional point
Other vibration measurement devices	0850	case-specific			
Vibration measurement of constructions	0860	case-specific			
Expert services	0890	case-specific			

Service	Service number	Basic fee EUR	Service number	Additional/hourly fee EUR	
High Capacity Weight *					
High capacity weight M1-M2, 20 kg - 500 kg			6211	499.00	x number of pieces
High capacity weight M1-M2, 50 kg - 2000 kg			6215	998.00	x number of pieces
Force *					
Calibrations according to standard					
EN ISO 376 calibration one direction					
0,1 - 1,1 MN			6311	1 408.00	x number of pieces
10 - 100 kN			6313	1 197.00	x number of pieces
1 - 10 kN			6315	871.00	x number of pieces
0,1 - 1 kN			6317	728.00	x number of pieces
< 0,1 kN			6319	728.00	x number of pieces
EN ISO 376 calibration two directions					
0,1 - 1,1 MN			6325	2 642.00	x number of pieces
10 - 100 kN			6327	2 235.00	x number of pieces
1 - 10 kN			6329	1 585.00	x number of pieces
0,1 - 1 kN			6331	1 297.00	x number of pieces
< 0,1 kN			6333	1 297.00	x number of pieces
Applied calibration EN ISO 376, 2 posit. 1-direction					
0,1 - 1,1 MN			6341	825.00	x number of pieces
10 - 100 kN			6343	594.00	x number of pieces
1 - 10 kN			6345	507.00	x number of pieces
0,1 - 1 kN			6347	507.00	x number of pieces
< 0,1 kN			6349	507.00	x number of pieces
Applied calibration EN ISO 376, 2 posit. 2-direction					
0,1 - 1,1 MN			6461	1 475.00	x number of pieces
10 - 100 kN			6463	1 059.00	x number of pieces
1 - 10 kN			6465	902.00	x number of pieces
0,1 - 1 kN			6467	902.00	x number of pieces
< 0,1 kN			6469	902.00	x number of pieces
Charge of standards/hour					
0,1-1,1 MN, FSTM no 4			6551	case-specific	x working hours (h)
10-100 kN, FSTM no 3			6553	case-specific	x working hours (h)
1-10 kN, FSTM no 2			6555	case-specific	x working hours (h)
0,1-1kN, FSTM no 1			6557	case-specific	x working hours (h)
< 0,1 kN, FSTM no 5			6559	case-specific	x working hours (h)
Scale calibration in the force standard (crane scales, aircraft scales and all types of scales which are similar to these, single point load)					
Calibr. of weighing instrument in FSM m > 11 t			6611	793.00	x number of pieces
Calibr. of weighing instrument in FSM m = 1,2 t - 11 t			6613	695.00	x number of pieces
Calibr. of weighing instrument in FSM m = ≤ 1,1 t			6615	571.00	x number of pieces
Axle load weighing instrument 6 t or 10 t			6625	695.00	x number of pieces
Special devices					
Calibr. of adhesiotester with ref. force transduce			6633	416.00	x number of pieces
Calibr. of adhesiotester in Force Standard Machine			6635	499.00	x number of pieces
Torque *					
Torque wrenches					
Wrench, fixed adjustment, 1 direction					
Wrench, fixed point, 1-dir. M ≤ 500 Nm/piece			6651	130.00	x number of pieces
Add. charge for second direction, M ≤ 500 Nm/piece			6655	72.00	x number of pieces
Wrench, fixed point, 1-dir. M > 500 Nm/piece			6657	198.00	x number of pieces
Additional charge for second direction, M > 500 Nm/p			6661	111.00	x number of pieces
Calibration according to ISO 6789, one direction					
Cal. of wrench, ISO 6789, 1-dir, M ≤ 500 Nm/piece			6681	152.00	x number of pieces
Add charge for second direction, M ≤ 500 Nm/piece			6685	102.00	x number of pieces
Cal. of wrench, ISO 6789, 1-dir, M > 500 Nm/piece			6687	227.00	x number of pieces
Add charge for second direction, M ≤ 500 Nm/piece (lot > 2)			6691	151.00	x number of pieces
Additional charge for electrical tools/piece			6693	31.00	x number of pieces
Charge for measurement points more than 3			6695	67.00	x number of pieces

Service	Service number	Basic fee EUR	Service number	Additional/hourly fee EUR	
Tools with actuator					
One measuring point					
Tools with actuator, one meas. point, M < 500 Nm			6711	422.00	x number of pieces
Tools with actuator, one meas. point, 500 Nm ≤ M ≤ 2 kNm			6713	464.00	x number of pieces
Tools with actuator, one measured point, M > 2 kNm			6715	531.00	x
Additional points					number of pieces
Charge for additional points M < 500 Nm			6721	57.00	x number of pieces
Charge for additional points 500 Nm ≤ M ≤ 2 kNm			6723	75.00	x number of pieces
Charge for additional points M > 2 kNm			6725	95.00	x number of pieces
Torque wrench calibration devices					
Devices with torque transducers					
M < 500 Nm, one direction			6751	513.00	x number of pieces
M < 500 Nm, two directions			6753	827.00	x number of pieces
500 Nm ≤ M ≤ 2 kNm, one direction			6755	602.00	x number of pieces
500 Nm ≤ M ≤ 2 kNm, two directions			6757	964.00	x number of pieces
M > 2 kNm, one direction			6759	1 076.00	x number of pieces
M > 2 kNm, two directions			6761	1 570.00	x number of pieces
Cal. of tool torque tester with rider beam			6781	821.00	x number of pieces
Torque transducer calibration					
According to EURAMET cg-14 (EA-10/14)					
Torq.transd., M ≤ 100 Nm 1-direction			6851	597.00	x number of pieces
Torq.transd., M ≤ 100 Nm 2-directions			6853	954.00	x number of pieces
Torq.transd., M < 500 Nm 1-direction			6861	712.00	x number of pieces
Torq.transd., M < 500 Nm 2-directions			6863	1 146.00	x number of pieces
Torq.transd., 500 Nm ≤ M ≤ 2 kNm 1-direction			6865	876.00	x number of pieces
Torq.transd., 500 Nm ≤ M ≤ 2 kNm 2-directions			6867	1 326.00	x number of pieces
Torq.transd., 2 kNm < M ≤ 10 kNm 1-direction			6871	975.00	x number of pieces
Torq.transd., 2 kNm < M ≤ 10 kNm 2-directions			6873	1 422.00	x number of pieces
Torq.transd., M > 10 kNm 1-direction			6875	1 076.00	x number of pieces
Torq.transd., M > 10 kNm 2-directions			6877	1 570.00	x number of pieces
If two measuring bridges are calibrated from the same transducer at the same time the price is multiplied by 1.25					
Liquid Flow*					
Liquid flow meter calibration, reference standard D100, 15 < DN ≤ 50			6841	1 620.00	x number of pieces
Liquid flow meter calibration, reference standard D500, 100 < DN ≤ 500			6831	2 432.00	x number of pieces
Liquid flow meter calibration, national standard D200, 10 < DN ≤ 200			6821	2 973.00	x number of pieces
Charge of liquid flow standards/hour					
Reference standard D100, 15 < DN ≤ 50			6879	case-specific	x working hours (h)
Reference standard D500, 100 < DN ≤ 500			6881	case-specific	x working hours (h)
Reference standard D200, 10 < DN ≤ 200			6883	case-specific	x working hours (h)
MIKES-Kajaani, other services*					
Expert service	6990	case-specific			
BN 100 comparison	6960	554.00			x number of pieces
Spare parts of measurement devices	6970	case-specific			
Other basis of charge (shipment)					
Shipment costs within Finland (not insured)					
m < 7,5 kg			7561	22.00	
7,5 kg < m < 15 kg			7563	25.00	
15 kg < m < 30 kg			7565	44.00	
30 kg < m < 70 kg			7567	68.00	
Large package surcharge (in addition to shipment costs)			7569	48.00	
- package's length plus girth [(2 x width) + (2 x height)] combined exceeds 330 cm, but does not exceed 419 cm					
Special shipment (package over maximum limits)			7571	case-specific	
- actual weight > 70 kg, or length exceeds 270 cm, or length plus girth [(2 x width) + (2 x height)] combined exceeds 419 cm					
Shipment cost according to an agreement			7551	case-specific	

Service	Service number	Basic fee EUR	Service number	Additional/ hourly fee EUR	
Expert services, guides					
Expert service for measurement problems	5950	case-specific			
RR-test for measurement process	5954	case-specific			
Expert service for setting up calibration system	5956	case-specific			
Calibration instruction CD for dimensional measuring instruments	5960	2 879.00			
Calibration instructions, no. pc.			5961	171.00	x number of pieces
S. Saxholm, M. Rantanen, Measurement of pressure, 38 pp. (in Finnish)	5980	case-specific			
Other services					
Certificates and document copies			7401	77.00	x working hours (h)
Publications			7501	31.00	x number of pieces
Travel costs	7600	case-specific			
Kilometer allowance	7622	case-specific			
Daily allowance	7624	case-specific			
Travelling time	7626	155.00			
Expert services	7690	case-specific			
Other services, metrology	7700	case-specific			
MIKES-AALTO, Metrology Research Institute, calibrations	7720	case-specific			
Meeting fee	7730	case-specific			
Other products (metrology)	7740	case-specific			
Rent of premises	7800	case-specific			

* performed in MIKES-Kajaani

ADDRESSES

Centre for metrology (Espoo, Otaniemi)

Post address:	Street and cargo address:
PL 1000	Tekniikantie 1
FI-02044 VTT	FI-02150 ESPOO
Finland	Finland

MIKES-Kajaani

Post address:	Street address:	Cargo address:
Tehdaskatu 15	Tehdaskatu 15	Sokajärventie 9
Puristamo 9P19	Puristamo 9D17	Puristamo 9D3
FI-87100 KAJAANI	FI-87100 KAJAANI	FI-87100 KAJAANI
Finland	Finland	Finland

Other contact informatic

Email: kalibroinnit@vtt.fi
Tel. Exchange: +358 20 722 111

TERMS OF CONTRACT AND DELIVERY

The calibration will be performed in accordance with the valid scope of competence. The device to be calibrated affects the achievable overall measurement uncertainty.

Terms of payment

Payment must be made within 21 days of the date of the invoice. The interest for late payment shall be determined in accordance with the Interest Act in force (633/1982).

Other terms

VTT has the right to use the assignment and customer names as references.

The assignment is subject to VTT's General Terms of Contract* (September 1, 2019), with the following exceptions:

- Section 7 of the VTT General Terms and Conditions does not apply to calibration assignments
- Failure of the measuring equipment shall be considered as Force Majeure and VTT shall be released from its obligations under the Agreement.

* the general terms of contract of the VTT Technical Research Centre of Finland: https://www.vttresearch.com/sites/default/files/files/vtt_general_terms.pdf

Unless otherwise agreed upon, a calibration or measurement always includes a calibration certificate or measurement report.

Field calibration costs are always case-specific.

The adjustment of the measurement instrument is not included in calibration; the adjustment of the instrument must be separately agreed.

Sales tax, VAT

Value added tax (VAT) and any other taxes and fees imposed by foreign authorities shall be added to the price, when applicable.

Urgency fee

If a calibration is performed urgently as per the client's request thereby bypassing other jobs in queue, the calibration fee may be charged in double.

Delivery

Before delivering the measurement instruments to MIKES the customer has to agree with MIKES about the calibration and its delivery time.

An accompanying letter must be send with the device/devices detailing the specifics of the requested calibration

i.e. the scales to be measured, measuring points etc. Contact information, invoicing and delivery addresses must be included.

The client must also include the preferred return method for the device. MIKES will return the devices sent for calibration

in the customer's packaging and will insure the shipment if specifically requested by the client.

MIKES is not responsible for any instrument damage during transportation or shipment.