



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	Basic fee EUR	Service number	Additional/hourly fee EUR	
Weights					
1 mg - 500 mg					
OIML class F1			1111	70.00	x number of pieces
OIML class E2			1121	98.00	x number of pieces
OIML class E1			1131	145.00	x number of pieces
OIML class M1			1141	47.00	x number of pieces
1 g - 5 kg					
OIML class F1			1151	58.00	x number of pieces
OIML class E2			1161	82.00	x number of pieces
OIML class E1			1171	120.00	x number of pieces
OIML class M1			1181	39.00	x number of pieces
10 kg - 20 kg					
OIML class F1			1211	86.00	x number of pieces
OIML class E2			1221	131.00	x number of pieces
OIML class E1			1231	197.00	x number of pieces
OIML class M1			1241	62.00	x number of pieces
Weight used in pressure balances (ring weights)					
Accuracy class 10 ppm			1411	41.00	x number of pieces
Accuracy class 5 ppm			1421	58.00	x number of pieces
Weights, basic charge	1480	198.00			
Density of weights					
Density of weights, 1 g - 2 kg	1510	198.00	1511	64.00	x number of pieces
Density standards, basic charge	1550	198.00	1551	141.00	x working hours (h)
Hydrometers, 4 meas. points	1600	335.00			
Density of liquids at a single temperature	1620	475.00	1621	184.00	x number of extra temperature points
Pyknometer etc.	1640	184.00	1641	141.00	x working hours (h)
Densitometers, 3 meas. points	1650	2 027.00	1651	626.00	x number of extra measurement points
Gas flow					
Calibration using nitrogen, 5 ml/min ... 100 l/min					
Using primary method: 5 meas. points	1660	1 214.00	1661	170.00	x number of extra measurement points
Using an LFE-system: 5 meas. points	1680	935.00	1681	116.00	x number of extra measurement points
Pressure					
Pressure balance calibration					
(price per measuring range)	4310	1 327.00			
Barometer calibrations, 950–1050 hPa (6 measurement points)					
Uncertainty > 6 Pa	4400	434.00	4401	73.00	x number of extra measurement points
Uncertainty < 6 Pa	4410	572.00	4411	96.00	x number of extra measurement points
Pressure gauge calibration					
(price per measuring range includes 6 measurement points)	4440	572.00	4441	96.00	x number of extra measurement points
Pressure gauge calibration <15 kPa					
(price per measuring range includes 6 measurement points)	4460	761.00	4461	127.00	x number of extra measurement points
Vacuum gauge calibrations					
(price per measuring range includes 6 measurement points)	4500	572.00	4501	58.00	x number of extra measurement points
Spinning rotor gauge calibrations	4520	1 227.00			
Leak testing using helium	4550	case-specific			
Dynamic pressure measurements, 20 MPa ... 500 MPa		case-specific			
Other pressure calibrations	4590	190.00	4591	141.00	x working hours (h)
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	1 225.00			
Hg (-38 °C)	2120	617.00			
Ga (29 °C)	2130	617.00			
In (156 °C)	2140	617.00			
Sn (232 °C)	2150	617.00			
Zn (419 °C)	2160	617.00			
Al (660 °C)	2170	934.00			
Ag (962 °C)	2172	934.00			
Triple point of water	2176	1 524.00			
Thermocouples at 4 fixed points, eg. Cu, Ag, Al and Zn	2180	1 498.00			
Annealing thermocouple wires	2190	434.00			

Service	Service number	Basic fee EUR	Service number	Additional/ hourly fee EUR	
Calibration by comparison					
Resistance thermometers, -80 °C ... 500 °C	2210	184.00	2211	134.00	x measured point
Liquid-in-glass thermometers, -80 °C ... 300 °C	2220	224.00	2221	159.00	x measured point
Digital thermometers	2230	184.00	2231	134.00	x measured point
Thermocouples, < 1600 °C	2240	224.00	2241	159.00	x measured point
Infrared thermometers, pyrometers	2250	184.00	2251	159.00	x measured point
Furnaces	2260	367.00	2261	159.00	x measured point
Calibration at the boiling point of nitrogen	2310	478.00			
Calibration by electrical simulation	2350	317.00			
Hygrometers					
Calibrations using humidity generators					
Dew-point temperature, -80 °C ... -61 °C	3100	722.00	3101	379.00	x measured point
Dew-point temperature, -60 °C ... +84 °C	3150	579.00	3151	190.00	x measured point
Relative humidity, 10 % ... 95 %, -20 °C ... +85 °C	3200	722.00	3201	290.00	x measured point
Humidity and temperature calibration in climate chamber	3500	335.00	3501	159.00	x measured point
Length					
Laser Radiations					
Stabilized laser of the mise en pratique					
532 nm			5111	134.00	x working hours (h)
543,5 nm			5121	134.00	x working hours (h)
633 nm	5130	801.00			
Other wavelength standards					
Fibre optic source	5140	148.00	5141	134.00	x working hours (h)
Optical spectrum analyzer	5142	148.00	5143	134.00	x working hours (h)
Linear dimensions					
Length instruments					
Laser interferometer					
Basic system	5210	148.00	5211	1 064.00	x number of pieces
Angle measurement option			5215	559.00	x number of pieces
Straightness measurement option			5219	559.00	x number of pieces
Air sensor			5223	559.00	x number of pieces
Adjustment of air sensor			5227	134.00	x working hours (h)
Wave length calibration	5230	801.00			
EDM instrument					
0 - 30 m	5234	148.00	5235	273.00	x number of pieces
1-D measuring machine					
0 - 500 mm	5238	148.00	5239	666.00	x number of pieces
501 - 1000 mm	5240	148.00	5241	832.00	x number of pieces
1001 - 3000 mm	5242	148.00	5243	1 223.00	x number of pieces
Additional scale of same machine	5244	148.00	5245	294.00	x number of pieces
Scale compensation			5247	134.00	x working hours (h)
Height measuring instrument	5248	148.00	5249	1 224.00	x number of pieces
1-D displacement					
Piezo etc.	5252	148.00	5253	144.00	x number of pieces
1-D sensor					
Inductive sensor					
Measuring range < 10 mm	5256	148.00	5257	152.00	x number of pieces
Measuring range 10 mm - 25 mm	5258	148.00	5259	302.00	x number of pieces
Measuring range > 25 mm	5260	148.00	5261	367.00	x number of pieces
Additional range			5271	83.00	x number of pieces
Reduced uncertainty ($u < 0,3 \mu\text{m}$)			5263	908.00	x number of pieces
Gauge block comparator	5264	148.00	5265	832.00	x number of pieces
Dial-indicator tester	5268	148.00	5269	379.00	x number of pieces
End standards					
Gauge blocks					
0,5 - 100 mm	5272	148.00	5273	24.00	x number of pieces
> 100 ... 1000 mm	5276	148.00	5277	108.00	x number of pieces
Special gauge block	5280	148.00	5281	62.00	x number of pieces
Gauge block, interferometrical calibration					
0 - 100 mm	5284	148.00	5285	83.00	x number of pieces
101 - 200 mm	5286	148.00	5287	135.00	x number of pieces
201 - 400 mm	5288	148.00	5289	241.00	x number of pieces
401 - 1000 mm	5290	148.00	5291	379.00	x number of pieces
Gauge block set M88	5320	148.00	5321	4 602.00	x number of pieces
Gauge block set M112	5322	148.00	5323	5 722.00	x number of pieces
Gauge block set M122	5324	148.00	5325	6 184.00	x number of pieces

Service	Service number	Basic fee EUR	Service number	Additional/ hourly fee EUR	
Thermal expansivity determination	5292	148.00	5293	241.00	x number of pieces
Air gap standard	5294	148.00	5295	311.00	x number of pieces
Sheet gauge, thickness	5296	148.00	5297	83.00	x number of pieces
Sheet gauge, diameter	5298	148.00	5299	99.00	x number of pieces
Length bar (long gauge block)	5310	148.00	5311	476.00	x number of pieces
Micrometer setting rod					
0 - 100 mm	5314	148.00	5315	52.00	x number of pieces
101 - 500 mm	5316	148.00	5317	129.00	x number of pieces
> 500 mm	5318	148.00	5319	184.00	x number of pieces
Step gauge, normal accuracy (0.3 µm/m)					
0 - 250 mm	5030	148.00	5031	768.00	x number of pieces
251 - 350 mm	5032	148.00	5033	972.00	x number of pieces
351 - 500 mm	5034	148.00	5035	1 178.00	x number of pieces
501 - 700 mm	5036	148.00	5037	1 364.00	x number of pieces
701 - 1100 mm	5038	148.00	5039	1 549.00	
1101 - 1600 mm	5040	148.00	5041	1 882.00	
1601 - 2020 mm	5042	148.00	5043	2 051.00	
Step gauge, better accuracy (0.15 µm/m)					
0 - 250 mm	5044	148.00	5045	1 134.00	
251 - 350 mm	5046	148.00	5047	1 421.00	
351 - 500 mm	5048	148.00	5049	1 642.00	
501 - 700 mm	5050	148.00	5051	1 969.00	
701 - 1100 mm	5052	148.00	5053	2 229.00	
1101 - 1600 mm	5054	148.00	5055	2 694.00	
1601 - 2020 mm	5056	148.00	5057	2 931.00	
Gap gauge	5334	148.00	5335	102.00	x number of pieces
Geeler (thickness) gauge	5338	148.00	5339	24.00	x number of pieces
Line standards					
Precision line scale, stage micrometer					
Max 50 lines					
0 - 100 mm	5342	148.00	5343	273.00	x number of pieces
101-500 mm	5344	148.00	5345	409.00	x number of pieces
501 - 1000 mm	5346	148.00	5347	547.00	x number of pieces
Additional scale at same substrate					
0 - 100 mm			5349	136.00	x number of pieces
101-500 mm			5351	273.00	x number of pieces
501 - 1000 mm			5353	409.00	x number of pieces
Reduced uncertainty, $u < 200$ nm			5177	case-specific	
2D scale	5354	148.00	5355	302.00	x number of pieces
1-D and 2-D gratings and other microscope calibration standards, see Microscope calibration standards below					
Tape, wire					
0 - 30 (60, 90, ...) m	5356	148.00	5357	183.00	x number of 30 m (beginnings)
Tape measure	5362	148.00	5363	91.00	x number of pieces
Plumb tape					
0 - 30 (60, 90, ...) m	5358	148.00	5359	227.00	x number of 30 m (beginnings)
Electronic plumb tape	5372	148.00	5373	273.00	x number of pieces
Circometer	5360	148.00	5361	273.00	x number of pieces
Machinist scale					
0 - 1 m	5364	148.00	5365	273.00	x number of pieces
>1 - 2 m	5366	148.00	5367	341.00	x number of pieces
>2 - 3 m	5368	148.00	5369	409.00	x number of pieces
>3 - 5 m	5370	148.00	5371	547.00	x number of pieces
Additional scale			5377	136.00	x number of pieces
Diameter standards					
External cylinder (plug, piston)	5380	148.00	5381	113.00	x number of pieces
Reduced uncertainty, $u < 500$ nm on diameter			5383	228.00	x number of pieces
Micrometer setting ring	5386	148.00	5387	66.00	x number of pieces
External cylinder (tapered)	5384	148.00	5385	228.00	x number of pieces
Internal cylinder (ring)	5388	148.00	5389	113.00	x number of pieces
Reduced uncertainty $u < 500$ nm on diameter			5379	228.00	x number of pieces
Internal cylinder (tapered)	5390	148.00	5391	228.00	x number of pieces
Sphere (ball); diameter	5394	148.00	5395	247.00	x number of pieces
Roundness			5399	335.00	x number of pieces
Reduced uncertainty $u < 300$ nm on diameter			5397	345.00	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	148.00	5411	612.00	x number of pieces
Index table	5414	148.00	5415	663.00	x number of pieces
Rotary table, rotary encoder scale	5418	148.00	5419	663.00	x number of pieces
Reduced uncertainty, u<0,2"			5421	1 224.00	x number of pieces
Small-angle Generators					
Sine (bar, table)	5422	148.00	5423	508.00	x number of pieces
Angle instruments					
Autocollimator	5426	148.00	5427	508.00	x number of pieces
Reduced uncertainty u<0,02"			5429	1 114.00	x number of pieces
Electronic level (frame type)	5430	148.00	5431	1 020.00	x number of pieces
Electronic level	5434	148.00	5435	328.00	x number of pieces
Clinometers	5438	148.00	5439	328.00	x number of pieces
Sprit (bubble) level	5442	148.00	5443	205.00	x number of pieces
Sprit (bubble) level (frame type)	5446	148.00	5447	816.00	x number of pieces
Theodolite (see Form/ Tachymeter/ Angular scales)					
Optical level	5454	148.00	5455	508.00	x number of pieces
(bevel) protractor	5458	148.00	5459	347.00	x number of pieces
Squareness tester	5462	148.00	5463	794.00	x number of pieces
Angle artifacts					
Angle block	5464	148.00	5465	113.00	x number of pieces
90° square					
Knife edge square	5470	148.00	5471	113.00	x number of pieces
Steel square	5474	148.00	5475	508.00	x number of pieces
Granite square	5478	148.00	5479	771.00	x number of pieces
Frame square	5480	148.00	5481	1 543.00	x number of pieces
Cylinder square	5482	148.00	5483	666.00	x number of pieces
Cone (taper) gauge	5486	148.00	5487	265.00	x number of pieces
Angle Prisms					
Optical square (pent prism)	5494	148.00	5495	347.00	x number of pieces
Retro reflector	5496	148.00	5497	113.00	x number of pieces
Form					
Shaft alignment instrument	5510	148.00	5511	957.00	x number of pieces
Flatness standards					
Optical flat < 150 mm	5514	148.00	5515	135.00	x number of pieces
Optical flat (paralel, wedge)	5518	148.00	5519	83.00	x number of pieces
Surface plate (granite)					
Surface plate < 1000 mm	5522	148.00	5523	693.00	x number of pieces
Surface plate > 1000 mm	5526	148.00	5527	832.00	x number of pieces
Flatness standard for SPMs	5528	148.00	5529	302.00	x number of pieces
Roundness standards					
External cylinder	5530	148.00	5531	181.00	x number of pieces
External cylinder (inch)	5534	148.00	5535	424.00	x number of pieces
Internal cylinder	5538	148.00	5539	181.00	x number of pieces
Sphere (hemisphere)	5542	148.00	5543	274.00	x number of pieces
Magnification standard	5546	148.00	5547	205.00	x number of pieces
Straightness Standards					
Straight edge	5550	148.00	5551	210.00	x number of pieces
Cylindrical straightness standards (granite)					
0 - 1000 mm	5564	148.00	5565	640.00	x number of pieces
> 1000 mm	5568	148.00	5569	748.00	x number of pieces
(steel)					
0 - 1000 mm	5572	148.00	5573	241.00	x number of pieces
> 1000 mm	5576	148.00	5577	508.00	x number of pieces
Cylindricity Standards					
External cylinder	5580	148.00	5581	228.00	x number of pieces
Internal cylinder	5584	148.00	5585	228.00	x number of pieces
Complex Geometry					
Surface Texture Standards					
(Groove) depth (step height) standard	5610	148.00	5611	135.00	x number of pieces
Tip-condition standard	5614	148.00	5615	134.00	x working hours (h)
Spacing standard	5618	148.00	5619	134.00	x working hours (h)
Roughness standard	5624	148.00	5625	186.00	x number of pieces
Profile coordinate standard	5626	148.00	5627	134.00	x working hours (h)

Service	Service number	Basic fee EUR	Service number	Additional/ hourly fee EUR	
Screw Standards					
Setting standard for thread micrometer	5632	148.00	5633	209.00	x number of pieces
Thread plug, plain	5636	148.00	5637	224.00	x number of pieces
Thread plug, tapered	5640	148.00	5641	294.00	x number of pieces
Thread ring, plain	5644	148.00	5645	237.00	x number of pieces
Thread ring, tapered	5648	148.00	5649	317.00	x number of pieces
2-D, 3-D Instruments					
Surface roughness measuring machine	5652	148.00	5653	402.00	x number of pieces
Additional tip			5655	216.00	x number of pieces
Measuring projector	5656	148.00	5657	832.00	x number of pieces
Measuring microscope	5660	148.00	5661	832.00	x number of pieces
Coordinate measuring machine					
length scale	5690	148.00	5691	134.00	x working hours (h)
Straightness <1000 mm	5696	148.00	5697	134.00	x working hours (h)
Coordinate measuring machine, inspection 10360-2	5698	148.00	5699	1 768.00	x number of pieces
Tachymeter					
Length scale	5704	148.00	5705	273.00	x number of pieces
Angular scales; (also theodolite)	5706	148.00	5707	1 092.00	x number of pieces
Motion (translation, angle) stage	5670	148.00	5671	210.00	x number of pieces
Roundness measuring machine	5674	148.00	5675	693.00	x number of pieces
Cylindricity measuring machine	5676	148.00	5677	832.00	x number of pieces
Form-measuring machine	5678	148.00	5679	832.00	x number of pieces
Hardness					
Hardness indenter	5688	148.00	5689	188.00	x number of pieces
Microscope calibration standards					
1-D grating, SPM calibration standard (diffraction measurement) Pitch	5150	148.00	5151	301.00	x number of pieces
2-D grating, SPM calibration standard (diffraction measurement) Pitch, x&y	5152	148.00	5153	452.00	x number of pieces
Orthogonality (to the same grating)			5155	152.00	x number of pieces
1-D grating, SPM calibration standard (AFM measurement) Pitch	5180	148.00	5181	410.00	x number of pieces
Step height by AFM			5183	152.00	x number of pieces
2-D grating, SPM calibration standard Pitch, x&y	5190	148.00	5191	549.00	x number of pieces
Orthogonality (to the same grating)			5193	152.00	x number of pieces
Step height by AFM			5195	198.00	x number of pieces
Flatness (to the same grating)			5197	152.00	x number of pieces
Step height standard for SPMs Step height	5612	148.00	5613	410.00	x number of pieces
Flatness standard for SPMs	5528	148.00	5529	302.00	x number of pieces
Other microscope standards see line scales above					
Various dimensional					
Hand instruments					
External micrometer					
0 - 50 mm	5710	148.00	5711	130.00	x number of pieces
51 - 500 mm	5714	148.00	5715	159.00	x number of pieces
501 - 3000 mm	5718	148.00	5719	559.00	x number of pieces
Micrometer head	5724	148.00	5725	210.00	x number of pieces
Depth micrometer	5728	148.00	5729	135.00	x number of pieces
Depth micrometer setting device	5730	148.00	5731	792.00	x number of pieces
Caliper					
0 - 150 mm	5734	148.00	5735	130.00	x number of pieces
151 - 500 mm	5738	148.00	5739	205.00	x number of pieces
> 500 mm	5742	148.00	5743	318.00	x number of pieces
Depth gauge	5746	148.00	5747	130.00	x number of pieces
Internal two-point (bore) micrometer					
Basic equipment	5750	148.00	5751	135.00	x number of pieces
Extra part(s)	5754	148.00	5755	83.00	x number of pieces
Internal three-point micrometer	5760	148.00	5761	272.00	x number of pieces
Dial gauge, dial test indicator					
0 - 10 mm	5762	148.00	5763	91.00	x number of pieces
10 - 25 mm	5764	148.00	5765	111.00	x number of pieces
> 25 mm	5768	148.00	5769	122.00	x number of pieces
Diameter gauge	5766	148.00	5767	83.00	x number of pieces
Thickness gauge	5770	148.00	5771	130.00	x number of pieces
Tachometer, contact type	5772	148.00	5773	136.00	x number of pieces
Melt viscosity instrument nozzle	5774	148.00	5775	412.00	x number of pieces

Service	Service number	Basic fee EUR	Service number	Additional/ hourly fee EUR	
Measuring services					
Surface roughness measurements	5810	148.00	5811	134.00	x working hours (h)
Flatness measurements					
interferometric	5814	148.00	5815	91.00	x number of pieces
mechanical	5818	148.00	5819	134.00	x working hours (h)
Machine tool measurements					
-Position accuracy measurements	5822	148.00	5823	210.00	x number of axes
According to VDI/GDO-3441 or to ISO 230/2					
-Positioning during adjustment	5826	148.00	5827	134.00	x working hours (h)
-Geometrical measurements	5830	148.00	5831	134.00	x working hours (h)
-Test piece measurements	5834	148.00	5835	134.00	x working hours (h)
-Angular deviations of movement	5840		5841	83.00	x number of axes
Roundness measurements	5844	148.00	5845	91.00	x number of pieces
Cylindricity measurements	5848	148.00	5849	120.00	x number of pieces
Form measurements	5852	148.00	5853	135.00	x number of pieces
Atomic force microscopic measurements	5854	148.00	5855	134.00	x working hours (h)
Electronic force microscopy measurements			5851	134.00	x working hours (h)
3-D measurements with CMM					
contact probe (Legex)	5856	148.00	5857	134.00	x machine/working hours (h)
optical probe (Quick Vision)	5858	148.00	5859	134.00	x machine/working hours (h)
Orifice plate	5862	148.00	5863	368.00	x number of pieces
Other measuring services	5860	148.00	5861	134.00	x working hours (h)
Other service					
Identification marks	5910	24.00			
Ultrasound cleaning	5920	52.00			
Burr removing	5930	24.00			
Evaluation of measuring results	5940	24.00			
Expert service	5990	case-specific			
Time and Frequency					
df/f, dT/T, uncertainty < 0.001 ppm	0720	749.00			
Rubium and cesium oscillators, GPS timing receivers, etc.					
df/f, dT/T, uncertainty 0.001-1 ppm	0722	598.00			
TCXO etc.					
df/f, dT/T, uncertainty over 1 ppm	0724	375.00			
Tachometers, stroboscopes, electronic watches, etc.					
Point frequency adjustment			0731	190.00	x measured point
NTP service	0780	43.00			monthly fee
Expert services	0590	case-specific			
Electricity					
DC voltage					
DC voltage standards, single voltage level	0500	975.00	0501	333.00	x additional voltage
DV current					
Basic fee includes one measuring range					
10 fA – 100 nA	0520	558.00	0521	102.00	x measuring range
100 µA – 1 A	0522	321.00	0523	43.00	x measuring range
see also multimeters and calibrators					
1 A – 20 A	0524	375.00	0525	75.00	x measuring range
20 A – 600 A	0526	536.00	0527	97.00	x measuring range
Resistance					
DC calibrations					
10 mohm - 1 Mohm (< 150 mA, < 100 mW, <100 V)	0530	634.00			
0,1 mohm - 1 ohm (150 mA - 100 A, < 100 W)	0570	844.00			
1 Mohm - 100 Mohm (< 100 V)	0540	705.00			
1 Mohm - 100 Tohm (< 1 kV, < 10 mW)	0550	783.00			
Power dependence of resistance standards			0551	102.00	x additional voltage / current
Temperature dependence of resistance standards 20...25 °C			0561	151.00	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	746.00	0617	68.00	x additional range/burden (with 5 measure
Current transformers over 2500 A	0618	1 047.00	0619	68.00	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	661.00			
50 kV - 200 kV	0412	993.00			
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	661.00			
40 kV - 100 kV	0422	829.00			
100 kV - 200 kV	0424	1 159.00			
200 kV - 500 kV	0426	case-specific			outside official CMC range
AC linearity test	0428	333.00			in connection with system calibration
High voltage probe (ac or dc / ac and dc)					
ac or dc	0430	661.00			
ac and dc	0432	829.00			
Voltage transformer					
1 kV - 40 kV	0434	661.00			
40 kV - 100 kV	0436	829.00			
100 kV - 200 kV	0438	1 077.00			
Capacitance and inductance					
Capacitance					
High voltage capacitance and tand	0440	651.00			
Inductance					
Inductance and losses	0442	651.00			
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	661.00			
10 kV - 200 kV	0452	case-specific			
200 kV - 400 kV	0454	case-specific			
Step response measurement	0456	333.00			in connection with system calibration
Linearity test	0458	333.00			in connection with system calibration
SI measuring system					
1 kV - 200 kV	0460	case-specific			
Step response measurement	0462	333.00			
Linearity test	0464	333.00			in connection with system calibration
Impulse calibration					
Digital recorder	0470	496.00	0471	23.00	x measured point
Impulse calibrator	0474	898.00	0475	47.00	x measured point
Step response measurement	0472	82.00	0473	16.00	x measured point
PD-calibrator, 5 measurement points	0480	661.00	0481	22.00	x additional point
Surge-tester calibration	0482	1 408.00			
Impulse current	0484	661.00			
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	2 789.00			
Calibration at specific points	0630	727.00	0631	49.00	x measured point
Calibrator, basic calibration	0636	1 937.00			
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	1 284.00			
Mid-level devices, e.g. Keysight 34450A	0652	750.00			
Basic devices, e.g. Fluke 79			0653	375.00	

Service	Service number	Basic fee EUR	Service number	Additional/ hourly fee EUR	
Amplifiers					
Transconductance amplifiers					
Examples of calibrated devices: Datron 4600, Fluke 5220 A					
Basic calibration at about 30 measurement points	0660	1 508.00			
Calibration at specific points	0670	727.00	0671	152.00	x measured point
Voltage amplifiers					
Examples of calibrated devices: Fluke 5205 A					
Basic calibration at about 20 measurement points	0680	1 104.00			
Calibration at specific points	0690	634.00	0691	126.00	x measured point
Electric power					
Basic fees include ca. 20 measurement points					
Electric power, 1-phase unc. 0,005%-0,05%	0700	1 588.00			
Electric power, 1-phase unc. 0,05%-0,5%	0710	868.00			
Electric power, 1-phase unc. over 0,5%	0712	579.00			
Electric power, 3-phase unc. 0,01%-0,05%	0714	case-specific			
Electric power, 3-phase unc. 0,05%-0,5%	0716	868.00			
Electric power, 3-phase unc. over 0,5%	0718	579.00			
Electric power, additional measuring points			0719	141.00	x working hours (h)
Capacitance standards					
Basic calibration	0740	651.00			
Inductance standards					
Basic calibration	0770	651.00			
High frequencies					
Cal. factor of RF & MW power sensor	0750	1 427.00	0751	17.00	x additional point
10 MHz - 18 GHz, 1 mW, 25 points, reflection coefficients					
Reference supply of a power sensor	0754	475.00			
Attenuation	0756	952.00	0757	17.00	x additional point
10 MHz - 6 GHz, 0 - 80 dB, 6 GHz - 18 GHz, 0 - 60 dB, 40 points, reflection coefficients					
Other services in electricity					
Adjustment of measuring devices	0760	286.00	0761	141.00	x working hours (h)
Expert services	0790	case-specific			
Measurement services, working time (h)			0795	141.00	x working hours (h)
Acoustics					
Sound calibrators: single frequency calibrators	0800	269.00	0801	126.00	x additional point
Sound calibrators, e.g. B&K 4226	0810	1 243.00	0811	126.00	x additional point
Microphones LS1P or LS2P					
Reciprocity calibration, 31,5 Hz - 10 (20) kHz, including 26 frequencies or more	0820	2 030.00	0821	126.00	x additional point
Comparison method, 31,5 Hz - 16 kHz, including 11 frequencies, for LS2P only	0830	968.00	0831	126.00	x additional point
Accelerometers, 10 Hz - 10 kHz	0840	492.00	0841	24.00	x additional point
Sensitivity and phase, including 31 frequencies					
Accelerometers, 0,4 Hz - 160 Hz	0842	492.00	0843	24.00	x additional point
Sensitivity and phase, including 27 frequencies					
Portable vibration loggers	0846	868.00	0847	24.00	x additional point
Portable vibration calibrators, e.g. PCB 394C06	0848	399.00	0849	126.00	x additional point
Other vibration measurement devices	0850	case-specific			
Vibration measurement of constructions	0860	case-specific			
Expert services	0890	case-specific			
High Capacity Weight *					
High capacity weight M1-M2, 20 kg - 500 kg			6211	444.00	x number of pieces
High capacity weight M1-M2, 50 kg - 2000 kg			6215	889.00	x number of pieces
Force *					
Calibrations according to standard					
EN ISO 376 calibration one direction					
0,1 - 1,1 MN			6311	1 255.00	x number of pieces
10 - 100 kN			6313	1 067.00	x number of pieces
1 - 10 kN			6315	776.00	x number of pieces
0,1 - 1 kN			6317	649.00	x number of pieces
< 0,1 kN			6319	649.00	x number of pieces

Service	Service number	Basic fee EUR	Service number	Additional/ hourly fee EUR	
EN ISO 376 calibration two directions					
0,1 - 1,1 MN			6325	2 355.00	x number of pieces
10 - 100 kN			6327	1 992.00	x number of pieces
1 - 10 kN			6329	1 413.00	x number of pieces
0,1 - 1 kN			6331	1 156.00	x number of pieces
< 0,1 kN			6333	1 156.00	x number of pieces
Applied calibration EN ISO 376, 2 posit. 1-direction					
0,1 - 1,1 MN			6341	735.00	x number of pieces
10 - 100 kN			6343	529.00	x number of pieces
1 - 10 kN			6345	452.00	x number of pieces
0,1 - 1 kN			6347	452.00	x number of pieces
< 0,1 kN			6349	452.00	x number of pieces
Applied calibration EN ISO 376, 2 posit. 2-direction					
0,1 - 1,1 MN			6461	1 315.00	x number of pieces
10 - 100 kN			6463	944.00	x number of pieces
1 - 10 kN			6465	804.00	x number of pieces
0,1 - 1 kN			6467	804.00	x number of pieces
< 0,1 kN			6469	804.00	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	707.00	x number of pieces
Calibr. of weighing instrument in FSM m = 1,2 t - 11 t			6613	620.00	x number of pieces
Calibr. of weighing instrument in FSM m = ≤ 1,1 t			6615	509.00	x number of pieces
Axle load weighing instrument 6 t or 10 t			6625	620.00	x number of pieces
Special devices					
Calibr. of adhesiotester with ref. force transduce			6633	371.00	x number of pieces
Calibr. of adhesiotester in Force Standard Machine			6635	445.00	x number of pieces
Torque *					
Torque wrenches					
Wrench, fixed adjustment, 1 direction					
Wrench, fixed point, 1-dir. M ≤ 500 Nm/piece			6651	116.00	x number of pieces
Add. charge for second direction, M ≤ 500 Nm/piece			6655	64.00	x number of pieces
Wrench, fixed point, 1-dir. M > 500 Nm/piece			6657	176.00	x number of pieces
Additional charge for second direction, M > 500 Nm/p			6661	99.00	x number of pieces
Calibration according to ISO 6789, one direction					
Cal. of wrench, ISO 6789, 1-dir, M ≤ 500 Nm/piece			6681	135.00	x number of pieces
Add charge for second direction, M ≤ 500 Nm/piece			6685	91.00	x number of pieces
Cal. of wrench, ISO 6789, 1-dir, M > 500 Nm/piece			6687	202.00	x number of pieces
Add charge for second direction, M ≤ 500 Nm/piece (lot > 2)			6691	134.00	x number of pieces
Additional charge for electrical tools/piece			6693	27.00	x number of pieces
Charge for measurement points more than 3			6695	60.00	x number of pieces
Tools with actuator					
One measuring point					
Tools with actuator, one meas. point, M < 500 Nm			6711	376.00	x number of pieces
Tools with actuator, one meas. point, 500 Nm ≤ M ≤ 2 kNm			6713	414.00	x number of pieces
Tools with actuator, one measured point, M > 2 kNm			6715	474.00	x
Additional points					number of pieces
Charge for additional points M < 500 Nm			6721	51.00	x number of pieces
Charge for additional points 500 Nm ≤ M ≤ 2 kNm			6723	67.00	x number of pieces
Charge for additional points M > 2 kNm			6725	84.00	x number of pieces

Service	Service number	Basic fee EUR	Service number	Additional/ hourly fee EUR	
Torque wrench calibration devices					
Devices with torque transducers					
M < 500 Nm, one direction			6751	457.00	x number of pieces
M < 500 Nm, two directions			6753	737.00	x number of pieces
500 Nm ≤ M ≤ 2 kNm, one direction			6755	536.00	x number of pieces
500 Nm ≤ M ≤ 2 kNm, two directions			6757	859.00	x number of pieces
M > 2 kNm, one direction			6759	959.00	x number of pieces
M > 2 kNm, two directions			6761	1 399.00	x number of pieces
Cal. of tool torque tester with rider beam			6781	731.00	x number of pieces
Torque transducer calibration					
According to EURAMET cg-14 (EA-10/14)					
Torq.transd., M ≤ 100 Nm 1-direction			6851	532.00	x number of pieces
Torq.transd., M ≤ 100 Nm 2-directions			6853	850.00	x number of pieces
Torq.transd., M < 500 Nm 1-direction			6861	634.00	x number of pieces
Torq.transd., M < 500 Nm 2-directions			6863	1 022.00	x number of pieces
Torq.transd., 500 Nm ≤ M ≤ 2 kNm 1-direction			6865	780.00	x number of pieces
Torq.transd., 500 Nm ≤ M ≤ 2 kNm 2-directions			6867	1 181.00	x number of pieces
Torq.transd., 2 kNm < M ≤ 10 kNm 1-direction			6871	869.00	x number of pieces
Torq.transd., 2 kNm < M ≤ 10 kNm 2-directions			6873	1 268.00	x number of pieces
Torq.transd., M > 10 kNm 1-direction			6875	959.00	x number of pieces
Torq.transd., M > 10 kNm 2-directions			6877	1 399.00	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	1 444.00	x number of pieces
Liquid flow meter calibration, reference standard D500, 100 < DN ≤ 500			6831	2 168.00	x number of pieces
Liquid flow meter calibration, national standard D200, 10 < DN ≤ 200			6821	2 650.00	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	494.00			x number of pieces
Spare parts of measurement devices	6970	case-specific			
Other basis of charge					
Shipment costs within Finland (not insured)					
m < 7,5 kg			7561	19.00	
7,5 kg < m < 15 kg			7563	22.00	
15 kg < m < 30 kg			7565	39.00	
30 kg < m < 70 kg			7567	61.00	
Large package surcharge (in addition to shipment costs)			7569	43.00	
- 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	
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	2 566.00			
Calibration instructions, no. pc.			5961	152.00	x number of pieces
S. Saxholm, M. Rantanen, Measurement of pressure, 38 pp. (in Finnish)	5980	case-specific			

Service	Service number	Basic fee EUR	Service number	Additional/ hourly fee EUR	
Other services					
Certificates and document copies			7401	69.00	x working hours (h)
Publications			7501	27.00	x number of pieces
Travel costs	7600	case-specific			
Kilometer allowance	7622	case-specific			
Daily allowance	7624	case-specific			
Travelling time	7626	134.00			
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

Telephone, e-mail

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 sent 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.