

# DFM A/S Price list 2021

Valid from January 01, 2021

All prices are excl. VAT



**DFM**

Danish National Metrology Institute

Item No.	Accre- dited	Description	Unit	Sales price [Euro]	Sales price [DKK]
<b>Electical voltage (DC) and resistance calibration</b>					
K02.001	YES	Calibration of a voltage reference standard (Zener)	Pcs	2 510,00	18 700,00
K02.099	Contact DFM	Electrical measurement/calibration, secondary, acc. to quotation	Pcs		
K02.999	Contact DFM	Electrical measurement/calibration according to quotation	Pcs		
<b>Thermometry</b>					
K02.101	YES	Thermometric calibration, contact, per temp. point, -90 - 600°C	Pcs	67,00	500,00
K02.105	YES	Thermometric calibration, contact, per temp. point, < -90 °C	Pcs	81,00	600,00
K02.106	YES	Thermometric calibration, contact, per temp. point, > 600 °C	Pcs	81,00	600,00
K02.102	YES	Thermometric calibration, contact, subseq. instrument, same temp.	Pcs	13,00	100,00
K02.103		Thermometric calibration, contact, certificate incl. temp. point 0 °C	Pcs	123,00	920,00
K02.104		Thermometric calibration, contact, subseq. certificate, same temp.	Pcs	27,00	200,00
K02.199	Contact DFM	Thermometric calibration, contact, acc. to quotation	Pcs		
K02.201	YES	Thermometric calibration, contactless (IR), per temp. point	Pcs	67,00	500,00
K02.202	YES	Thermometric calibration, contactless (IR), subseq. instrument, same temp.	Pcs	34,00	250,00
K02.204	YES	Thermometric calibration, contactless (IR), calibrator, per temp. point	Pcs	94,00	700,00
K02.203		Thermometric calibration, contactless (IR), certificate	Pcs	123,00	920,00
K02.205	YES	Thermometric calibration, contactless (IR), thermal imager	Pcs		
K02.299	Contact DFM	Thermometric calibration, contactless (IR), acc. to quotation	Pcs		
<b>Pressure</b>					
K02.301	YES	Pressure calibration, one pressure point	Pcs	20,00	150,00
K02.303		Pressure calibration, certificate incl. 0-point	Pcs	123,00	920,00
K02.305	YES	Basic pressure calibration, certificate, 5-points, one up, one down	Pcs	286,00	2 130,00
K02.306	YES	Full pressure calibration, certificate, 5-points, three up, one down	Pcs	413,00	3 080,00
K02.399	Contact DFM	Pressure calibration, acc. to quotation	Pcs		
<b>Characterisation of Electrolytic Conductivity solution</b>					
K03.001	YES	Characterisation of solution at 24°C-26°C	Pcs	762,00	5 680,00
K03.002	YES	Subsequent measurement of same solution at 24°C-26°C	Pcs	519,00	3 870,00
K03.003	NO	Characterisation of solution at 24°C-26°C without certificate	Pcs	643,00	4 790,00
K03.004	YES	Characterisation of solution 15°C-35°C	Pcs	962,00	7 165,00
K03.005	NO	Characterisation of solution 10°C-60°C	Pcs	988,00	7 365,00
K03.006	YES	Subsequent measurement of same solution at 15°C-35°C	Pcs	646,00	4 810,00
K03.099	Contact DFM	Characterisation of solution according to quotation	Pcs		
<b>Calibration of conductivity cell constant and conductivity</b>					
K03.101	YES	Calibration of conductivity sensor cell constant or conductivity measurement system, first measurement point	Pcs	426,00	3 175,00
K03.103	YES	Calibration of conductivity sensor cell constant or conductivity measurement system, subsequent measurement point, same session	Pcs	300,00	2 235,00

K03.199	Contact DFM	Calibration of conductivity sensor cell constant or conductivity measurement system according to quotation	Pcs		
<b>Calibration of reference electrode</b>					
K03.201	YES	Determination of electrochemical reference electrode potential	Pcs	966,00	7 195,00
<b>Characterisation of pH-buffer</b>					
K03.301	YES	Characterisation of secondary pH-buffer at 25°C	Pcs	527,00	3 730,00
K03.302	YES	Subsequent measurement of secondary pH-buffer at 25°C	Pcs	440,00	3 080,00
K03.303	NO	Characterisation of secondary pH-buffer at 25°C, without certificate	Pcs	395,00	2 750,00
K03.304	NO	Subsequent measurement of secondary pH-buffer at 25°C, without certificate	Pcs	301,00	2 120,00
K03.305	YES	Characterisation of secondary pH-buffer, one temperature between 15 - 37 °C	Pcs		
K03.399	Contact DFM	Secondary pH calibration, according to quotation	Pcs		
<b>Calibration of pH-electrode and -meter</b>					
K03.401	YES	Calibration of pH-electrode or pH-measurement system, 3 points	Pcs	353,00	2 370,00
K03.402	YES	Calibration of subsequent pH-electrode or pH-measurement system, same points		193,00	1 240,00
K03.403	YES	Calibration of pH-electrode or pH-measurement system, subsequent point	Pcs	79,00	430,00
K03.404	YES	Calibration of pH-meter, 4 points	Pcs	293,00	1 880,00
K03.405	YES	Calibration of pH-meter, 8 points	Pcs	387,00	2 480,00
K03.406	YES	Calibration of pH-meter, 16 points	Pcs	480,00	3 080,00
K03.407	YES	Calibration of pH-meter, extra point	Pcs	34,00	150,00
K03.408	YES	Calibration of pH-simulator/-calibrator, 3 points	Pcs	299,00	2 030,00
K03.409	YES	Calibration of pH-simulator/-calibrator, extra point	Pcs	76,00	470,00
<b>Coulometry</b>					
K03.599	YES	Measurement of the amount of H + in an aqueous acid solution by coulometric titration	Pcs		
<b>Interferometric gauge block calibration length calibration</b>					
K04.001	YES	Gauge block calibration, first gauge block (1 block)	Pcs	288,00	2 190,00
K04.002	YES	Gauge block calibration, following 8 blocks (2-9) in the same set, per block	Pcs	82,00	620,00
K04.003	YES	Gauge block calibration, each following gauge block (10 - ) in the same set	Pcs	43,00	325,00
K04.004	YES	Gauge block calibration, M10 standard set	Pcs	988,00	7 510,00
K04.005	YES	Gauge block calibration, M122 standard set	Pcs	5 803,00	44 105,00
K04.101	NO	Distance sensor / actuator calibration, 10 points, relative resolution, size over 5µm	Pcs	682,00	5 180,00
K04.102	NO	Distance sensor / actuator calibration, 10 points, relative resolution, size under 5µm	Pcs	1 084,00	8 240,00
K04.103	NO	Distance sensor / actuator calibration, 15 points, relative resolution, size over 5µm	Pcs	950,00	7 220,00
K04.104	NO	Distance sensor / actuator calibration, 15 points, relative resolution, size under 5µm	Pcs	1 353,00	10 280,00
K04.999	Contact DFM	Gauge block calibration according to quotation	Pcs		

**Optical radiometry calibration**

K05.001	YES	Detector / power meter calibration at one power level and wavelength, visible light	Pcs	780,00	5 875,00
K05.002	YES	Detector / power meter calibration per subsequent power level or wavelength, visible light	Pcs	487,00	3 665,00
K05.020	YES	Power meter / detector calibration at one power level and wavelength, NIR, 0.7 %	Pcs	624,00	4 695,00
K05.021	YES	Power meter / detector calibration per following power level or wavelength, NIR, 0.7 %	Pcs	390,00	2 935,00
K05.022	YES	Power meter or detector calibration at one power level and wavelength, NIR, 1.5 %	Pcs	390,00	2 935,00
K05.023	YES	Power meter or detector calibration, per subsequent power level or wavelength, NIR, 1.5 %	Pcs	262,00	1 975,00
K05.024	YES	High-power detector / power meter calibration at one power level and wavelength, NIR	Pcs	660,00	4 965,00
K05.040	Contact DFM	Spectral calibration of power meter / detector at 800 - 1650 nm, prices from	Pcs	1 463,00	11 010,00
K05.041	YES	Linearity of detector / power meter, -40 dBm to -5 dBm	Pcs	584,00	4 400,00
K05.042	YES	Linearity of detector / power meter, -60 dBm to -40 dBm	Pcs	117,00	885,00
K05.043	YES	Linearity of detector / power meter, -5 dBm to +10 dBm	Pcs	117,00	885,00
K05.044	YES	Linearity of detector / power meter, -5 dBm to +23 dBm	Pcs	195,00	1 470,00
K05.060	YES	Calibration of fibre optical attenuator, one wavelength	Pcs	438,00	3 300,00
K05.070	NO	Homogeneity of detectors	Pcs	548,00	4 120,00
K05.071	NO	Calibration of laser beam profilers	Pcs	752,00	5 655,00
K05.072	NO	Laser classification, per wave length	Pcs	606,00	4 560,00
K05.080	YES	Calibration of optical spectrum analyzer or laser wavelength, one range	Pcs	580,00	4 365,00
K05.081	YES	Calibration of optical spectrum analyzer or laser wavelength, two ranges	Pcs	741,00	5 575,00
K05.082	YES	Calibration of wavelength meter / laser wavelength	Pcs	758,00	5 705,00
K05.100	YES	OTDR distance scale calibration, SM, at one wavelength	Pcs	490,00	2 880,00
K05.101	YES	OTDR distance scale calibration, SM, per subsequent measurement or wavelength	Pcs	185,00	930,00
K05.201	NO	Relative intensity noise (RIN), 1st meas., per source	Pcs	509,00	3 835,00
K05.099	Contact DFM	Power meter/detector calibration visible light acc. to quotation	Pcs		
K05.999	Contact DFM	Radiometric calibration according to quotation	Pcs		

**Calibration of mass**

K06.001	YES	Calibration of weights, per pcs., when 3 weights or more	Pcs	134,00	995,00
K06.003	YES	Calibration of 1 or 2 weights	Pcs	362,00	2 695,00
K06.999	Contact DFM	Calibration of weights according to quotation	Pcs		

**Calibration and measurement on the micro- and nanometre scale**

K07.001	YES	AFM calibration of two-dimensional grating, first grating	Pcs	699,00	5 205,00
K07.002	YES	Subsequent gratings, each	Pcs	539,00	4 015,00
K07.003	YES	Calibration of step height with AFM	Pcs	667,00	4 970,00
K07.101	NO	Roughness measurement, image and raw data measuring on one spot, first time image and first time sample	Pcs	445,00	3 315,00
K07.102	NO	Roughness measurement, image and raw data, further samples, first image, same order	Pcs	214,00	1 595,00
K07.103	NO	Roughness measurement, image raw data. Same sample, further images	Pcs	148,00	1 105,00
K07.104	NO	Roughness analysis including report. Measurement on one spot, first image	Pcs	790,00	5 890,00
K07.105	NO	Roughness analysis including report, same session, further samples, first image	Pcs	346,00	2 575,00
K07.106	NO	Roughness analysis including report. Same sample, further images	Pcs	230,00	1 715,00
K07.107	NO	Long range scan 500 µm x 500 µm x 6 µm incl. report	Pcs	1 572,00	11 715,00
K07.120	NO	Calibration of optical graticule (dot size normal, 8 dots*) 1 µm - 50 µm, *for a different number of dots, contact DFM for a quotation	Pcs	1 572,00	11 715,00

K07.140	NO	Measurement of local surface potential (Kelvin Probe Microscopy)	Pcs	440,00	3 275,00
K07.141	NO	Measurement of local surface potential (Kelvin Probe Microscopy), including report	Pcs	786,00	5 860,00
<b>Calibration and measurement on the micro- and nanometre scale, surface investigations</b>					
K07.201	NO	Surface investigations in liquid environment, image and raw data. Measuring on one spot in liquid cell, first image	Pcs	609,00	4 535,00
K07.202	NO	Surface investigations in liquid environment, image and raw data. Same session, further samples, first image	Pcs	297,00	2 210,00
K07.203	NO	Surface investigations in liquid environment, image and raw data. Same sample, further images	Pcs	181,00	1 350,00
K07.204	NO	Surface investigations in liquid environment including report. Measuring on one spot, first image	Pcs	955,00	7 115,00
K07.205	NO	Surface investigations in liquid environment including report. Same session, further samples, first image	Pcs	445,00	3 315,00
K07.206	NO	Surface investigations in liquid environment including report. Same sample, further images	Pcs	263,00	1 960,00
K07.210	NO	AFM measurement of adhesion, acc. to quotation			
K07.211	NO	AFM measurement of structural surface stability, acc. to quotation			
K07.301	NO	Use of AFM facility (for experienced users), excl. consultancy, first day	Pcs	346,00	2 575,00
K07.302	NO	Use of AFM facility (for experienced users), excl. consultancy, following days in succession, per day	Pcs	181,00	1 350,00
K07.303	NO	Surface investigations by/with a DFM scientist (incl. reporting), time registered pr. started 1/2 hour. Price pr. hour	Hour	227,00	1 695,00
K07.999	Contact DFM	Surface measurement, according to quotation	Pcs		
<b>Calibration and measurement on the micro- and nanometre scale, interference- and confocal microscopy</b>					
K07.304	Contact DFM	Confocal and interference microscope measurements, according to quotation	Pcs		
K07.305	NO	Geometrical characterization of silicon line gratings (line width (CD), height and sidewall angle), according to quotation	Pcs		
K07.306	NO	Roughness measurements with confocal/interference microscope, first site, measurement and sample	Pcs	334,00	2 485,00
K07.307	NO	Roughness measurements with confocal/interference-microscope, following site or measurement, same session	Pcs	136,00	1 015,00
K07.308	YES	Calibration of step height with confocal/interference microscope, first site, measurement and sample	Pcs	526,00	3 920,00
K07.309	YES	Calibration of step height with confocal/interference microscope, following site or measurement, same session	Pcs	448,00	3 335,00
K07.310	YES	Lateral calibration of two-dimensional grating with confocal/interference microscope, first site, measurement and sample	Pcs	550,00	4 100,00
K07.311	YES	Lateral calibration of two-dimensional grating with confocal/interference microscope, following site or measurement, same session	Pcs	425,00	3 165,00
<b>Calibration and measurement on the micro- and nanometre scale, other services</b>					
K07.399	NA	Special tips for AFM, according to quotation	Pcs		
K07.405	NO	Ellipsometric measurement of film thickness/optical constants (single point)	Pcs	393,00	2 930,00
K07.406	NO	Ellipsometric measurement of film thickness/optical constants (Multiple points) according to quotation	Pcs		
K07.501	NO	Replication of surfaces using polymer imprints, according to quotation	Pcs		
K07.600	NO	Profilometric measurement, height, according to quotation	Pcs		
K07.601	NO	Profilometric measurement, form/lateral, according to quotation	Pcs		
K07.602	NO	Profilometric measurement, roughness, according to quotation	Pcs		

K07.700	NO	Interferometric calibration of films and sheets, acc. to quotation	Pcs		
K07.998	Contact DFM	Measurement of Young's Modulus, according to quotation	Pcs		
K07.999	Contact DFM	Surface measurement, according to quotation	Pcs		

#### Acoustic calibration services

K08.001	YES	Microphone, pressure, reciprocity, LS1	Pcs	1 474,00	10 980,00
K08.002	YES	Microphone, pressure, reciprocity, LS2	Pcs	1 474,00	10 980,00
K08.003	YES	Microphone, free-field, reciprocity, LS1	Pcs	2 480,00	18 475,00
K08.004	YES	Microphone, free-field, reciprocity, LS2	Pcs	2 952,00	21 995,00
K08.005	YES	Microphone, free-field comparison (LS1, LS2, WS1 or WS2)	Pcs	705,00	5 250,00
K08.006	YES	Microphone, free-field comparison (as K08.005, basic service)	Pcs	392,00	2 920,00
K08.007	YES	As K08.006, following microphone, same order/session	Pcs	327,00	2 435,00
K08.008	YES	Microphone, pressure comparison (LS1, LS2, WS1 or WS2)	Pcs	705,00	5 250,00
K08.009	YES	Microphone, pressure comparison (as K08.008, basic service)	Pcs	459,00	3 420,00
K08.010	YES	Microphone, HF-calibration, free-field reciprocity WS3	Pcs	2 952,00	21 995,00
K08.011	YES	Microphone, HF-calibration, free-field comparison WS3	Pcs	823,00	6 130,00
K08.012	YES	Microphone, HF-calibration (as K08.011, basic service)	Pcs	564,00	4 200,00
K08.201	YES	Actuator response (LS1, LS2, WS1 or WS2)	Pcs	259,00	1 930,00
K08.202	YES	Actuator response, (LS1, LS2, WS1 or WS2), basic service	Pcs	164,00	1 220,00
K08.203	YES	Actuator response, HF to 100 kHz	Pcs	360,00	2 680,00
K08.204	YES	Actuator response, HF to 100 kHz, basic service	Pcs	255,00	1 900,00
K08.205	YES	Pistonphone calibration	Pcs	413,00	3 080,00
K08.206	YES	Calibration of sound calibrator (one frequency)	Pcs	373,00	2 780,00
K08.207	YES	Calibration of sound calibrator (one frequency), basic service	Pcs	282,00	2 100,00
K08.301	YES	Ear simulator, calibration re. IEC 60318-1, IEC 60318-4	Pcs	748,00	5 570,00
K08.101	NO	Additional testing, microphone, noise floor, acc. to quotation	Pcs		
K08.102	NO	Additional testing, microphone, membrane inspection, acc. to quotation	Pcs		
K08.103	NO	Additional testing, microphone, temperature coeff., acc. to quotation	Pcs		
K08.104	NO	Additional testing, microphone, static pressure coeff., acc. to quotation	Pcs		
K08.105	NO	Additional testing, microphone, DC leakage test, acc. to quotation	Pcs		
K08.999	Contact DFM	Acoustic measurement / calibration according to quotation	Pcs		

#### Calibration of particle counters

K09.001	YES	Calibration of counting efficiency (CE), one particle counter, at one particle size	Pcs	392,00	2 920,00
K09.002	YES	Additional particle sizes in the calibration of CE, price per additional size, same measurement session	Pcs	244,00	1 820,00
K09.003	NO	Additional ISO 21501-4 tests according to data sheet, price per counter	Pcs	129,00	960,00
K09.006	YES	Additional Size Setting and Size Resolution, per new size	Pcs	209,00	1 560,00
K09.007	YES	Additional Size Setting and Size Resolution, per CE size	Pcs	105,00	780,00
K09.105	YES	Reference particles (100 nm - 5 µm diameter) calibrated by AFM, liquid suspension	Pcs	399,00	2 970,00
K09.106	YES	Reference particles (100 nm - 5 µm diameter) calibrated by AFM, powder	Pcs	424,00	3 160,00
K09.201	YES	Calibration of particle counter, 2 particle sizes, Counting Efficiency (CE), Size Setting (SSE) and Size Resolution (SR)	Pcs	846,00	6 300,00
K09.202	YES	Additional particle size, same measurement session, CE, SSE and SR	Pcs	349,00	2 600,00
K09.999	Contact DFM	Particle measurements according to quotation	Pcs		

**Roughness and coordinate metrology**

K11.001	YES	Calibration, roughness meter; Parameter calibration (1st ampl. step)	Pcs	720,00	5 365,00
K11.002	YES	Calibration, roughness meter; Amplification (1st ampl. step)	Pcs	640,00	4 770,00
K11.003	YES	Calibration, roughness meter; Total calibration (1st ampl. step)	Pcs	800,00	5 960,00
K11.004	YES	Calibration, roughness meter; Each subsequent ampl. step	Pcs	240,00	1 785,00
K11.005	YES	Adjust. after K11.001, and subsequent param. cal. (one step)	Pcs	430,00	3 205,00
K11.100	YES	Calibration, roughness artefact; ISO Type C	Pcs	560,00	4 170,00
K11.101	YES	Calibration, roughness artefact; ISO A1 (wide grooves, flat bottoms), 2 grooves	Pcs	560,00	4 170,00
K11.102	YES	Calibration, roughness artefact; ISO A2 (wide grooves, rounded bottoms), 6 grooves	Pcs	1 840,00	13 710,00
K11.103	YES	Calibration, roughness artefact; ISO B2 (grooves with single shape)	Pcs	560,00	4 170,00
K11.108	YES	Calibration, roughness artefact; ISO D (irregular profile, one direction)	Pcs	720,00	5 365,00
K11.201	YES	Calibration, hole-plate artefacts, test report, one position	Pcs	582,00	4 335,00
K11.202	YES	Calibration, hole-plate artefacts, acc. to DKD guidelines	Pcs	1 738,00	12 950,00
K11.999	Contact DFM	Tactile roughness test, according to quotation	Pcs		

**Certified reference solutions for electrolytic conductivity**

R03.001	YES	Reference solution, 0.5 litre KCl in H <sub>2</sub> O, 0.01 S/m	Pcs	496,00	3 695,00
R03.002	YES	Reference solution, 0.5 litre KCl in H <sub>2</sub> O, 0.1 S/m	Pcs	496,00	3 695,00
R03.003	YES	Reference solution, 0.5 litre KCl in H <sub>2</sub> O, 1.0 S/m	Pcs	496,00	3 695,00
R03.004	YES	Reference solution, 0.5 litre KCl in H <sub>2</sub> O, 10 S/m	Pcs	496,00	3 695,00
R03.999	Contact DFM	Reference solution, batch made on demand, acc. to quotation	Pcs		

**pH reference solutions**

R03.101	YES	Primary pH buffer 'Phthalate' (pH = 4.005), per batch	Pcs	5 187,00	38 645,00
R03.102	YES	Primary pH buffer '1:1 phosphate' (pH = 6.865), per batch	Pcs	5 187,00	38 645,00
R03.103	YES	Primary pH buffer '1:3.5 phosphate' (pH = 7.413), per batch	Pcs	5 187,00	38 645,00
R03.104	YES	Primary pH buffer 'Borate' (pH = 9.180), per batch	Pcs	5 187,00	38 645,00
R03.105	YES	Primary pH buffer 'Carbonate' (pH = 10.012), per batch	Pcs	5 187,00	38 645,00
R03.106	YES	Secondary pH buffer '1:4 phosphate' (pH = 7.38), per batch	Pcs	5 187,00	38 645,00

**Stabilized lasers**

P01.003		StabiAaser 1542, acetylene-stabilized laser	Pcs	42 800,00	319 480,00
P01.004		Option: 771 nm module	Pcs	17 490,00	130 220,00

**DFM Software**

S01.003	NA	DFM Calibration Datasheet 2000 for MS Excel, acc. to quotation	Pcs		
S08.002	NA	Acoustics software MP.EXE, version 4, acc. to quotation	Pcs		
S08.003	NA	Upgrade to MP.EXE, version 4, acc. to quotation	Pcs		

**Consultancy services**

YDE1	NA	Consultancy, Senior Scientist (hourly rate)	Hour	201,00	1 500,00
YDE2	NA	Consultancy, Scientist (hourly rate)	Hour	167,00	1 250,00
YDE3	NA	Consultancy, Technician (hourly rate)	Hour	134,00	1 000,00

The pricing is valid from the date above until new prices are issued. All pricing is EXW DFM, Hørsholm (Incoterms 2010), and is excl. VAT.