

DAkks CALIBRATION SERVICE (DKD)



KERN KERN & Sohn GmbH
 Akkreditiert durch die / accredited by the
Deutsche Akkreditierungsstelle GmbH
 as Calibration Laboratory in / as calibration laboratory in the
Deutschen Kalibrierdienst **DAkkS**

Kalibrierschein
 Calibration certificate

Gegenstand
 Object: Gewichtssatz, 1 mg - 1 kg
 Kit of weights, 1 mg - 1 kg

Hersteller
 Manufacturer: KERN & Sohn GmbH
 Ziegels 1
 D-72336 Balingen
 Germany
 313-052

Typ
 Type: G123456789

Fabrikat/Seiten-Nr.
 Serial number: Modernmann GmbH

Auftraggeber
 Customer:

Auftragsnummer
 Order No.: 2014-123456789

Anzahl der Seiten des Kalibrierscheines
 Number of pages of the certificate: 3

Datum der Kalibrierung
 Date of calibration: 07.05.2014 - 22.05.2014

Dieser Kalibrierschein dokumentiert die Rückführung auf nationale Normale zur Bestimmung der Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI).
 This certificate documents the traceability to national standards, which have been determined according to the International System of Units (SI).
 The DAkkS is a signatory to the mutual recognition agreement for accreditation (EA) and is a member of the European Cooperation in Accreditation (EAC) and of the International Laboratory Accreditation Cooperation (ILAC).
 For the calibration, the user is obliged to provide the object to be calibrated at appropriate intervals.

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Datum
 Date: 27.05.2014

Unterschrift
 Signature: [Signature]

Druckort
 Place of printing: Balingen

KERN & Sohn GmbH, Ziegels 1, D-72336 Balingen, Germany
 Phone: +49-7433-99330; Fax: +49-7433-9933-149



PROFESSIONAL MEASURING

2016

KERN Pictograms

 Internal adjusting: Quick setting up of the balance's accuracy with internal adjusting weight (motordriven).	 Piece counting: Reference quantities selectable. Display can be switched from piece to weight.	 Suspended weighing: Load support with hook on the underside of the balance.
 Adjusting program CAL: For quick setting up of the balance's accuracy. External adjusting weight required.	 Recipe level A: Separate memory for the weight of the tare container and the recipe ingredients (net total).	 Battery operation: Ready for battery operation. The battery type is specified for each device.
 Memory: Balance memory capacity, e.g. for article data, weighing data, tare weights, PLU etc.	 Recipe level B: Internal memory for complete recipes with name and target value of the recipe ingredients. User guidance through display.	 Rechargeable battery pack: Rechargeable set.
 Alibi memory: Electronic archiving of weighing results, complying with the 2009/23/EC standard. For details see page 214	 Recipe level C: Internal memory for complete recipes with name and target value of the recipe ingredients. User guidance through display, adjustment of recipe when dosages are exceeded, multiplier function, barcode.	 Universal mains adapter: with universal input and optional input socket adapters for A) EU, GB B) EU, GB, CH, USA C) EU, GB, CH, USA, AUS
 Data interface RS-232: To connect the balance to a printer, PC or network.		 Mains adapter: 230V/50Hz in standard version for EU. On request GB, USA or AUS version available.
 RS-485 data interface: To connect the balance to a printer, PC or other peripherals. High tolerance against electromagnetic disturbance.	 Totalising level A: The weights of similar items can be added together and the total can be printed out.	 Power supply: Integrated in balance. 230V/50Hz standard EU. More standards e.g. GB, USA or AUS on request.
 USB data interface: To connect the balance to a printer, PC or other peripherals.	 Totalising level C: Internal memory for complete recipes with name and target value of the recipe ingredients. User guidance through display, adjustment of recipe when dosages are exceeded, multiplier function, barcode recognition.	 Weighing principle: Strain gauges Electrical resistor on an elastic deforming body.
 Bluetooth* data interface: To transfer data from the balance to a printer, PC or other peripherals.		 Weighing principle: Tuning fork A resonating body is electromagnetically excited, causing it to oscillate.
 WLAN data interface: To transfer data from the balance to a printer, PC or other peripherals.	 Percentage determination: Determining the deviation in % from the target value (100 %).	 Weighing principle: Electromagnetic force compensation Coil inside a permanent magnet. For the most accurate weighings.
 Control outputs (optocoupler, digital I/O): To connect relays, signal lamps, valves, etc.	 Weighing units: Can be switched to e.g. nonmetric units at the touch of a key. See balance model. Please refer to KERN's website for more details.	 Weighing principle: Single cell technology Advanced version of the force compensation principle with the highest level of precision.
 Interface for second balance: For direct connection of a second balance.	 Weighing with tolerance range: Upper and lower limiting values can be programmed individually for e.g. dosing, sorting and portioning	 Verification possible: The time required for verification is specified in the pictogram.
 Network interface: For connecting the scale to an Ethernet network. With KERN products you can use a universal RS-232/LAN converter. See page 180	 Hold function: (Animal weighing program) When the weighing conditions are unstable, a stable weight is calculated as an average value.	 DAKkS calibration possible (DKD): The time required for DAKkS calibration is shown in days in the pictogram.
 Wireless data transfer: between the weighing unit and the evaluation unit using an integrated radio module.	 Protection against dust and water splashes IPxx: The type of protection is shown in the pictogram. For details see the glossary. See page 72.	 Package shipment: The time required for internal shipping preparations is shown in days in the pictogram.
 GLP/ISO log: The balance displays the weight, date and time, regardless of a printer connection.	 ATEX explosion protection: Suitable for use in hazardous industrial environments, in which there is explosion danger. The ATEX marking is specified for each device.	 Pallet shipment: The time required for internal shipping preparations is shown in days in the pictogram.
 GLP/ISO log: With weight, date and time. Only with KERN printers, see "Accessories", see page 177.	 Stainless steel: The balance is protected against corrosion.	 Warranty: The warranty period is shown in the pictogram.

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KERN – measuring technology and testing services from a single source



Balances & Test service catalogue

Provides a complete overview of the KERN line of balances, test weights, and services, services such as verification, calibration, etc.



Medical scales catalogue

Complete line of medical scales, from infant scales to patient scales, chair scales and adiposity scales, as well as hand grip dynamometers, chemist's balances, and veterinary scales.



Microscopes & refractometers catalogue

Extensive range in the area of optical instruments, such as, for example, biological microscopes, stereo microscopes, metallurgical microscopes, polarisation microscopes as well as analogue and digital refractometers.



SAUTER measuring equipment catalogue

Test instruments for industry and commerce, such as force, coating thickness, material thickness and calibration service.



KERN DAKkS calibration service brochure

Detailed information on topics pertaining to the calibration and verification of balances, test weights, and force measuring devices.



KERN flyer Special offers

Compact overview of our bestselling products – just the balances/measuring instruments/microscopes your customers need! Can be customised to suit your requirements.



The gnome guide

Travel report from KERN, the famous scientific gnome, who travelled all over the world, in order to illustrate the physical law of gravitational force. Ideal for use in school education – please request, it's free of charge.



170 years of KERN

Interesting and readable overview of the history of the origins of Southern German balance manufacturing, as well as the company history, which stretches right back to 1770 – please request, it's free of charge.

Your advantages

1

Quick Delivery

Items in stock are sent the same day if orders are placed before 1:00 pm (valid for parcel service delivery within the EC).

2

Price performance ratio

KERN scales are always an inexpensive alternative. They are durable, uncomplicated and easy to place into operation.

3

Direct dispatch

of ordered goods to your customer is available, with personalised delivery note if desired (please ask), invoice will be issued to you (third party business).

4

3 years warranty

Items under € 400,- : 2 years

5

No stock-keeping necessary.

KERN does the warehousing for you.

6

Sale or return

within 14 days of purchase.

The Deutsche Akkreditierungsstelle GmbH (DAkkS) (German accreditation body)

The Deutsche Akkreditierungsstelle GmbH (DAkkS), successor of the German Calibration Service (DKD), is responsible for measuring “correctly” in accordance with legally binding international standards. It is part of DAkkS = Deutsche Akkreditierungsstelle (German accreditation authority) which was founded in Germany. The basis is the European range of standards DIN EN ISO/IEC 17000 for conformity assessment, in particular the accreditation standard 17025, which governs the organisation of a calibration laboratory, as well as basic metrological technical requirements.

Only an accredited calibration laboratory can issue a DAkkS calibration (DKD) certificate. This defines not only the measuring method as well as the measuring result, but also gives information on tracing the test medium to national standards and the relevant uncertainty of measurement.

- ➔ **You are certified to ...**
ISO 9001, QS 9000, GLP, GMP, TS16949
- ➔ **You need ...**
to control your measuring equipment
- ➔ **Our solution ...**
DAkkS calibration certificate (DKD); (traceability, measuring uncertainty, internationally recognised)

KERN – Precision is our business

The KERN calibration laboratory for electronic balances and weights has been DKD accredited since 1994 and today it is one of the most modern and best-equipped DAkkS calibration laboratories for balances, test weights and force measurement in Europe.

Thanks to the high level of automation, we can carry out DAkkS calibration (DKD) of balances, test weights and force-measuring devices 24 hours a day, 7 days a week.

Do you have any further requests or questions on this matter? We would be pleased to help you or visit us on the web at www.kern-lab.com

Range of services:

- DAkkS calibration (DKD) of balances with a maximum load of up to 50.000 kg
- DAkkS calibration (DKD) of weights in the range of 1 mg – 2.500 kg. Calibrations can be carried out in the following classes: E1, E2, F1, F2, M1, M2, M3
- Database supported management of checking equipment and reminding service

- In combination with periodic recalibration we can offer you a wide range of further services:
 - Reconditioning of weights, e.g. cast weights (sand blasting, painting, adjustment etc.)
 - Collection service with special transport packaging, even for heavy weights
 - Volume determination for weights of accuracy class E1
 - Measuring of sensitivity (magnetic characteristics)
- Calibration of force-measuring devices
- DAkkS calibration certificates in the following languages DE, GB, FR, IT, ES, NL

DAkkS calibration (DKD)

Why? DAkkS calibration (DKD) is always necessary when checking equipment (balance or test weight) is to be used in a QM process (e.g. to ISO 9000ff, GS 9000, TS 16949, VDA 6.1, FDA, GLP, GMP, GMP etc.)

What? Any checking equipment in proper condition can be DAkkS calibrated (DKD)

How? Determination of accuracy throughout the world by a laboratory which is accredited to DIN EN ISO 17025. Traceability to internationally recognised standards. The DAkkS calibration (DKD) certificate confirms both the measurement characteristics of the checking equipment and the general requirements for the control of checking equipment.

Where? Internationally recognised – this is monitored by ILAC (International Laboratory Accreditation Cooperation) and e.g. DAkkS (German calibration service) in Germany

When? Operator control the use of checking equipment and periodic recalibration time intervals themselves



Martin Goltz
Product specialist Calibration service

Tel. +49 [0] 7433 9933- 151
Fax +49 [0] 7433 9933- 172
goltz@kern-sohn.com

Calibration service for balances (DAkKS calibration)

KERN KERN & Sohn GmbH
Älteste europäische Feinwaagen und Gewichtefabrik seit 1844
Oldest European Manufacturer of Precision Balances since 1844

akkreditiert durch die / accredited by the
Deutsche Akkreditierungsstelle GmbH
als Kalibrierlaboratorium im / as calibration laboratory in
Deutschen Kalibrierdienst DKG

Kalibrierschein
Calibration Certificate

Kalibrierzeichen
Calibration mark

Gegenstand
Object

Präzisionswaage
Precision Balance

Hersteller
Manufacturer

Typ
Type

Fabrikate/Serien-Nr.
Serial number

Dieser Kalibrierschein dokumentiert die Rückführung auf nationale Normale zur Darstellung der Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI). Die DAkKS ist Unterzeichner der multilateralen Übereinkommen der European co-operation for Accreditation (EA) und der International Laboratory Accreditation Cooperation (ILAC) zur gegenseitigen Anerkennung der Kalibrierscheine. Für die Einhaltung einer angemessenen Erst- und Wiederholkalibrierung ist

Messergebnisse / Measurement results

1. Wiederholbarkeit / Repeatability

Messung Measuring	Prüflast Load	Waagenanzeige Indication
No. 1	500 g	499,999 g
No. 2	500 g	499,999 g
No. 3	500 g	500,000 g
No. 4	500 g	500,000 g
No. 5	500 g	500,000 g

Standardabweichung: s = 0,0006 g
Standard deviation:

2. Richtigkeit / Linearity

Prüflast Load	Waagenanzeige Indication
100 g	100,000 g
200 g	200,000 g
300 g	300,001 g
500 g	500,000 g
600 g	600,001 g

3. Außermittige Belastung / Eccentricity

Position Position	Prüflast Load	Waagenanzeige Indication
No. 1	500 g	500,000 g
No. 2	500 g	499,999 g
No. 3	500 g	500,001 g
No. 4	500 g	500,001 g
No. 5	500 g	500,001 g

Messunsicherheit U / Measuring uncertainty U

Last Load	Abweichung Error	Erweiterungs- faktor k Coverage factor	Unsicherheit Uncertainty	relative Unsicherheit Rel. uncertainty
100 g	0,000 g	2,38	0,0016 g	0,00154 %
200 g	0,000 g	2,32	0,0016 g	0,00078 %
300 g	0,001 g	2,24	0,0017 g	0,00053 %
500 g	0,000 g	2,12	0,0018 g	0,00036 %
600 g	0,001 g	2,06	0,0020 g	0,00032 %

Darstellung im Diagramm / Representation as chart:

Verwendungsgenauigkeit G / Usage accuracy G

Diagramm der Verwendungsgenauigkeit / Graph of usage accuracy:

$G = 0,0013 \text{ g} + 8,72 \cdot 10^{-6} \cdot m_w$

rel. Meßunsicherheit

Mindesteinwaage / Minimum weight of sample

DAkKS calibration certificate for balances (extract)

- Official document
- Item to be calibrated
- Traceability, see page 216
- Identification/Applicant
- Metrological component
- Measuring uncertainty, see page 215
- Usage accuracy, see page 216
- Minimum weight of sample (additional price)

The advantages of using the KERN in-house calibration

You send your balance to us.

Recommendable with new equipment and for balances which can be transported economically, as the travel costs for on-site calibration are then not applied. On request, we can also provide a pick-up and collection service with our parcel service.

The advantages of using the KERN on-site calibration

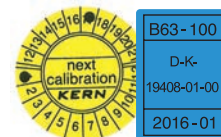
We visit you.

In Germany, KERN has access to a comprehensive network of employees at the KERN DAkKS calibration laboratory, who can carry out on-site calibration of scales up to 50 t.

The calibration service is **independent of the brand**.

Preliminary maintenance work by agreement.

Prices for on-site calibration on request.



Recalibration

- The recalibration schedule depends on the frequency of use, the conditions of use and the safety requirements.
- We would recommend that you recalibrate your balances every 6 months if they are used intensively, and every 12 months with normal use.

Initial calibration and recalibration of balance at the KERN factory	KERN	Price excl. of VAT ex works €
Weighing range		
Analytical balances		
[Max] ≤ 5 kg	963-101	138,-
[Max] > 5 kg	963-102	176,-
Precision balances/Industrial scales		
[Max] ≤ 5 kg	963-127	72,-
[Max] > 5 kg – 50 kg	963-128	88,-
[Max] > 50 kg – 350 kg	963-129	105,-
[Max] > 350 kg – 1500 kg	963-130	165,-
[Max] > 1500 kg – 2900 kg ¹⁾	963-131	220,-
[Max] > 2900 kg – 6000 kg ¹⁾	963-132	440,-
[Max] > 6000 kg – 12000 kg ¹⁾	963-133	500,-
Hanging scales/Crane scales		
[Max] ≤ 5 kg	963-127H	72,-
[Max] > 5 kg – 50 kg	963-128H	88,-
[Max] > 50 kg – 350 kg	963-129H	105,-
[Max] > 350 kg – 1500 kg	963-130H	165,-
[Max] > 1500 kg – 2900 kg	963-131H	250,-
[Max] > 2900 kg – 6000 kg	963-132H	500,-
[Max] > 6000 kg – 12000 kg ³⁾	963-133H	700,-
[Max] > 12000 kg – 31000 kg ⁴⁾ (recalibration only)	963-134HR	830,-
[Max] > 31000 kg – 50000 kg ⁴⁾ (recalibration only)	963-135HR	830,-
Preparation for recalibration (cleaning, adjustment, function test)	969-003R	20,-
Additional services		
Minimum weight of sample (for details see internet)	969-103	10,-
DAkKS Express service with delivery time 48 hours (only on initial purchase, details see p. 188)	962-116	50,-/ scale
Express shipping: Express supplement for guaranteed delivery on the next working day (if ready for shipment before 12:00 noon)	in GER only	40,-/ parcel

¹⁾ Floor scales & axle load scales only (Price per weighing panel). Please ask for further details.

²⁾ On request

³⁾ Processing time 4 working days

⁴⁾ Processing time 15 working days

Recalibration price of test weights (DAkkS calibration)

Class acc. OIML R111-2004 →	E1 with volume determination		E1 without volume determination		E2		F1/F2 * F2 only		M1/M2/M3	
Nominal value ↓	KERN	Price € excl. of VAT ex works	KERN	Price € excl. of VAT ex works	KERN	Price € excl. of VAT ex works	KERN	Price € excl. of VAT ex works	KERN	Price € excl. of VAT ex works
1 mg	-	-	962-251R	52,-	962-351R	26,-	962-451R	18,-	962-651R	15,-
2 mg	-	-	962-252R	52,-	962-352R	26,-	962-452R	18,-	962-652R	15,-
5 mg	-	-	962-253R	52,-	962-353R	26,-	962-453R	18,-	962-653R	15,-
10 mg	-	-	962-254R	52,-	962-354R	26,-	962-454R	18,-	962-654R	15,-
20 mg	-	-	962-255R	52,-	962-355R	26,-	962-455R	18,-	962-655R	15,-
50 mg	-	-	962-256R	52,-	962-356R	26,-	962-456R	18,-	962-656R	15,-
100 mg	-	-	962-257R	52,-	962-357R	26,-	962-457R	18,-	962-657R	15,-
200 mg	-	-	962-258R	52,-	962-358R	26,-	962-458R	18,-	962-658R	15,-
500 mg	-	-	962-259R	52,-	962-359R	26,-	962-459R	18,-	962-659R	15,-
1 g	963-231	193,-	962-231R	52,-	962-331R	26,-	962-431R	18,-	962-631R	15,-
2 g	963-232	193,-	962-232R	52,-	962-332R	26,-	962-432R	18,-	962-632R	15,-
5 g	963-233	193,-	962-233R	52,-	962-333R	26,-	962-433R	18,-	962-633R	15,-
10 g	963-234	193,-	962-234R	52,-	962-334R	26,-	962-434R	18,-	962-634R	15,-
20 g	963-235	193,-	962-235R	52,-	962-335R	26,-	962-435R	18,-	962-635R	15,-
50 g	963-236	193,-	962-236R	52,-	962-336R	26,-	962-436R	18,-	962-636R	15,-
100 g	963-237	193,-	962-237R	52,-	962-337R	33,-	962-437R	20,-	962-637R	16,-
200 g	963-238	193,-	962-238R	52,-	962-338R	33,-	962-438R	20,-	962-638R	16,-
500 g	963-239	193,-	962-239R	52,-	962-339R	33,-	962-439R	20,-	962-639R	16,-
1 kg	963-241	193,-	962-241R	52,-	962-341R	33,-	962-441R	20,-	962-641R	16,-
2 kg	963-242	465,-	962-242R	64,-	962-342R	41,-	962-442R	25,-	962-642R	17,-
5 kg	963-243	465,-	962-243R	64,-	962-343R	41,-	962-443R	25,-	962-643R	17,-
10 kg	963-244	465,-	962-244R	64,-	962-344R	41,-	962-444R	25,-	962-644R	17,-
20 kg	963-245	1160,-	962-245R	590,-	962-345R	52,-	962-445R	28,-	962-645R	22,-
50 kg	963-246	1360,-	962-246R	660,-	962-346R	64,-	962-446R	39,-	962-646R	24,-
100 kg	-	-	-	-	-	-	962-591R*	116,-	962-691R	63,-
200 kg	-	-	-	-	-	-	962-592R*	116,-	962-692R	63,-
500 kg	-	-	-	-	-	-	962-593R*	116,-	962-693R	63,-
1000 kg	-	-	-	-	-	-	-	-	962-694R	136,-
2000 kg	-	-	-	-	-	-	-	-	962-695R	250,-
1 mg – 500 mg	-	-	962-250R	350,-	962-350R	190,-	962-450R	100,-	962-650R	63,-
1 mg – 50 g	963-201	1070,-	962-201R	560,-	962-301R	315,-	962-401R	167,-	962-601R	106,-
1 mg – 100 g	963-202	1170,-	962-202R	580,-	962-302R	340,-	962-402R	178,-	962-602R	112,-
1 mg – 200 g	963-203	1350,-	962-203R	630,-	962-303R	385,-	962-403R	199,-	962-603R	125,-
1 mg – 500 g	963-204	1440,-	962-204R	660,-	962-304R	410,-	962-404R	210,-	962-604R	131,-
1 mg – 1 kg	963-205	1530,-	962-205R	700,-	962-305R	435,-	962-405R	220,-	962-605R	137,-
1 mg – 2 kg	963-206	2000,-	962-206R	750,-	962-306R	495,-	962-406R	250,-	962-606R	152,-
1 mg – 5 kg	963-207	2450,-	962-207R	770,-	962-307R	530,-	962-407R	265,-	962-607R	160,-
1 mg – 10 kg	963-208	2900,-	962-208R	800,-	962-308R	560,-	962-408R	285,-	962-608R	167,-
1 g – 50 g	963-215	770,-	962-215R	245,-	962-315R	127,-	962-415R	67,-	962-615R	42,-
1 g – 100 g	963-216	860,-	962-216R	270,-	962-316R	150,-	962-416R	77,-	962-616R	49,-
1 g – 200 g	963-217	1040,-	962-217R	320,-	962-317R	196,-	962-417R	98,-	962-617R	61,-
1 g – 500 g	963-218	1130,-	962-218R	350,-	962-318R	220,-	962-418R	109,-	962-618R	68,-
1 g – 1 kg	963-219	1230,-	962-219R	375,-	962-319R	245,-	962-419R	119,-	962-619R	74,-
1 g – 2 kg	963-220	1780,-	962-220R	425,-	962-320R	305,-	962-420R	151,-	962-620R	89,-
1 g – 5 kg	963-221	2230,-	962-221R	450,-	962-321R	340,-	962-421R	166,-	962-621R	96,-
1 g – 10 kg	963-222	2690,-	962-222R	485,-	962-322R	370,-	962-422R	182,-	962-622R	104,-

Additional costs for preparation, overhaul and adjustment before the calibration	KERN	Price € excl. of VAT ex works
Preparation of weights (e.g. cleaning, etc.)		
Single weight	969-001R	3,-
Weight set	969-002R	16,-
Subsequent services are carried out after confirmation		
Continued overhaul of weights (e.g. wet-cleaning, markings, repair, special packaging, adjustment E1 (DAkkS only), E2 ...)	969-005R	T & M basis
Adjustment, per weight only available for weights with adjustment chamber (F1 – M3)	969-010R	12,-
Second calibration after adjustment or substitution, per weight		
Class E1	969-210R	40,-
Class E1 incl. volume determination	969-211R	80,-
Class E2	969-310R	14,-
Class F1/F2	969-410R	14,-
Class M1 – M3	969-610R	14,-
Testing of magnetic properties according to OIML R111-2004, per weight	972-000	12,-
Calibration of NON-OIML test weights, additional price per weight	-	8,-

KERN DAkkS Express Service	
DAkkS standard service Class E2 – M3	4 working days
DAkkS standard service Class E1, 1 mg – 500 mg, and recalibration 1 g – 10 kg with a known volume	10 working days
Class E1, 1 g – 2 kg, incl. volume determination (new weights)	15 working days
Class E1, ≥ 2 kg, incl. volume determination (new weights)	15 working days
 DAkkS Express service in 48 hours except for class E1	
- Urgent order is received at KERN by 12:00 noon at the latest - Ready for shipping at KERN within two working days, at 12:00 noon - Return by standard parcel service or express shipping (Costs and processing time on request) - Additional cost for DAkkS Express Service, for each KERN test weight KERN 962-115 € 20,- - For Express shipping, see page 209	

Verification prices for test weights

Class acc. → OIML R111-2004	E2 with verification certificate		F1/F2 with verification certificate		M1 with verification certificate	
Nominal value ↓	KERN	Price excl. of VAT ex works €	KERN	Price excl. of VAT ex works €	KERN	Price excl. of VAT ex works €
1 mg	952-351	40,-	952-451	35,-	952-651	24,-
2 mg	952-352	40,-	952-452	35,-	952-652	24,-
5 mg	952-353	40,-	952-453	35,-	952-653	24,-
10 mg	952-354	40,-	952-454	35,-	952-654	24,-
20 mg	952-355	40,-	952-455	35,-	952-655	24,-
50 mg	952-356	40,-	952-456	35,-	952-656	24,-
100 mg	952-357	40,-	952-457	35,-	952-657	24,-
200 mg	952-358	40,-	952-458	35,-	952-658	24,-
500 mg	952-359	40,-	952-459	35,-	952-659	24,-
1 g	952-331	40,-	952-431	35,-	952-631	24,-
2 g	952-332	40,-	952-432	35,-	952-632	24,-
5 g	952-333	40,-	952-433	35,-	952-633	24,-
10 g	952-334	40,-	952-434	35,-	952-634	24,-
20 g	952-335	40,-	952-435	35,-	952-635	24,-
50 g	952-336	40,-	952-436	35,-	952-636	24,-
100 g	952-337	45,-	952-437	35,-	952-637	24,-
200 g	952-338	45,-	952-438	36,-	952-638	24,-
500 g	952-339	45,-	952-439	36,-	952-639	24,-
1 kg	952-341	45,-	952-441	36,-	952-641	24,-
2 kg	952-342	51,-	952-442	40,-	952-642	25,-
5 kg	952-343	51,-	952-443	40,-	952-643	25,-
10 kg	952-344	51,-	952-444	40,-	952-644	32,-
20 kg	952-345	59,-	952-445	42,-	952-645	36,-
50 kg	952-346	67,-	952-446	50,-	952-646	37,-
1 mg – 500 mg	952-350	200,-	952-450	105,-	952-650	66,-
1 mg – 50 g	952-301	330,-	952-401	175,-	952-601	111,-
1 mg – 100 g	952-302	360,-	952-402	187,-	952-602	117,-
1 mg – 200 g	952-303	405,-	952-403	210,-	952-603	131,-
1 mg – 500 g	952-304	430,-	952-404	220,-	952-604	137,-
1 mg – 1 kg	952-305	455,-	952-405	230,-	952-605	144,-
1 mg – 2 kg	952-306	520,-	952-406	260,-	952-606	159,-
1 mg – 5 kg	952-307	560,-	952-407	280,-	952-607	168,-
1 mg – 10 kg	952-308	590,-	952-408	300,-	952-608	175,-
1 g – 50 g	952-315	133,-	952-415	76,-	952-615	50,-
1 g – 100 g	952-316	157,-	952-416	81,-	952-616	54,-
1 g – 200 g	952-317	205,-	952-417	103,-	952-617	64,-
1 g – 500 g	952-318	235,-	952-418	114,-	952-618	71,-
1 g – 1 kg	952-319	255,-	952-419	125,-	952-619	78,-
1 g – 2 kg	952-320	320,-	952-420	158,-	952-620	93,-
1 g – 5 kg	952-321	355,-	952-421	174,-	952-621	101,-
1 g – 10 kg	952-322	390,-	952-422	191,-	952-622	109,-

KERN verification delivery time	
Standard verification service Class E2 – M1	6 working days

Additional costs for preparation, overhaul and adjustment before the verification	KERN	Price excl. of VAT ex works €
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Preparation of weights (e.g. cleaning, etc.)		
Single weight	969-008R	3,-
Weight set	969-009R	16,-

Subsequent services are carried out after confirmation		
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Continued overhaul of weights (e.g. wet-cleaning, markings, repair, special packaging, adjustment E2 ...)	969-005R	T & M basis
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Adjustment, per weight only available for weights with adjustment chamber (F1/F2 – M1)	969-010R	12,-
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Verification after adjustment or substitution, per weight		
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Class E2	969-310R	14,-
Class F1/F2	969-410R	14,-
Class M1	969-610R	14,-

Verification prices for electronic balances (electronic crane scales, see page 213)

Checking equipment	Initial verification KERN	Price excl. of VAT ex works €	Subsequent verification KERN	Price excl. of VAT ex works €
Electronic balances, class I, [Max] ≤ 5 kg ¹⁾	965-201	110,-	950-101R	180,-
Electronic balances, class I, [Max] > 5 kg ¹⁾	965-202	110,-	950-102R	230,-
Electronic balances, class II, [Max] ≤ 5 kg ¹⁾	965-216	66,-	950-116R	90,-
Electronic balances, class II, [Max] > 5 kg – 50 kg ¹⁾	965-217	77,-	950-117R	110,-
Electronic balances, class II, [Max] > 50 kg – 350 kg ¹⁾	965-218	110,-	950-118R	170,-
Electronic balances, class III-IV, [Max] ≤ 5 kg ¹⁾	965-227	55,-	950-127R	86,-
Electronic balances, class III-IV, [Max] > 5 kg – 50 kg ¹⁾	965-228	55,-	950-128R	86,-
Electronic balances, class III-IV, [Max] > 50 kg – 350 kg ¹⁾	965-229	93,-	950-129R	138,-
Electronic balances, class III-IV, [Max] > 350 kg – 1500 kg ¹⁾	965-230	132,-	950-130R	200,-
Electronic balances, class III-IV, [Max] > 1500 kg – 2900 kg ¹⁾	965-231	220,-	950-131R	280,-
Electronic balances, class III-IV, [Max] > 2900 kg – 6000 kg ¹⁾	965-232	320,-	950-132R	430,-

¹⁾ processing time 4 working days, ²⁾ processing time 15 working days

Verification prices for electronic crane scales

Checking equipment	Initial verification KERN	Price excl. of VAT ex works €	Subsequent verification KERN	Price excl. of VAT ex works €
Electronic crane scales, class III-IV, [Max] > 50 kg – 350 kg ¹⁾	950-129H	105,-	950-129HR	150,-
Electronic crane scales, class III-IV, [Max] > 350 kg – 1500 kg ¹⁾	950-130H	200,-	950-130HR	250,-
Electronic crane scales, class III-IV, [Max] > 1500 kg – 2900 kg ¹⁾	950-131H	270,-	950-131HR	360,-
Electronic crane scales, class III-IV, [Max] > 2900 kg – 6000 kg ¹⁾	950-132H	500,-	950-132HR	550,-
Electronic crane scales, class III-IV, [Max] > 6000 kg – 12000 kg ¹⁾	950-133H	700,-	950-133HR	870,-
Electronic crane scales, class III-IV, [Max] > 12000 kg – 31000 kg ²⁾	–	–	950-134HR	1060,-
Electronic crane scales, class III-IV, [Max] > 31000 kg – 50000 kg ²⁾	–	–	950-135HR	1060,-

¹⁾ processing time 4 working days, ²⁾ processing time 15 working days

Factory calibration certificates (ISO calibration)

Mechanical hanging scales, prices for initial calibration and recalibration

Checking equipment	Initial calibration KERN	Recalibration KERN	Price excl. of VAT ex works €
Mechanical hanging scales (spring scales) [Max] ≤ 5 kg	961-100	961-100R	72,-
Mechanical hanging scales [Max] > 5 kg – 50 kg	961-101	961-101R	88,-
Mechanical hanging scales [Max] > 50 kg – 350 kg	961-102	961-102R	105,-
Mechanical hanging scales [Max] > 350 kg – 1500 kg	961-103	961-103R	165,-
Mechanical hanging scales [Max] > 1500 kg – 3000 kg	961-104	961-104R	220,-
Mechanical hanging scales [Max] > 3000 kg – 6000 kg	961-105	961-105R	440,-
Mechanical hanging scales [Max] > 6000 kg – 12000 kg	961-106	961-106R	500,-

Force gauges, tensile force, prices for initial calibration and recalibration

Checking equipment	Initial calibration Tensile force KERN	Recalibration Tensile force KERN	Price excl. of VAT ex works €
Force gauges [Max] 300 N, 400 N, 500 N (DAkkS Calibration)	963-161	963-161R	250,-
Force gauges [Max] ≤ 500 N	961-161	961-161R	135,-
Force gauges [Max] > 500 N – 2 kN	961-162	961-162R	165,-
Force gauges [Max] > 2 kN – 10 kN	961-163	961-163R	225,-
Force gauges [Max] > 10 kN – 20 kN	961-164	961-164R	350,-
Force gauges [Max] > 20 kN – 50 kN	961-165	961-165R	520,-
Force gauges [Max] > 50 kN – 120 kN	961-166	961-166R	940,-

Force gauges, compression force, prices for initial calibration and recalibration

Checking equipment	Initial calibration Compression force KERN	Recalibration Compression force KERN	Price excl. of VAT ex works €
Force gauges [Max] > 50 N – 500 N	961-261	961-261R	135,-
Force gauges [Max] > 500 N – 2 kN	961-262	961-262R	165,-
Force gauges [Max] > 2 kN – 5 kN	961-263	961-263R	225,-

Force gauges, tensile and compression force, prices for initial calibration and recalibration

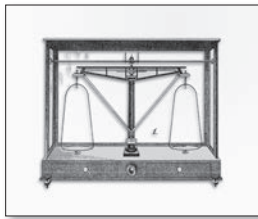
Checking equipment	Initial calibration Tensile force/ Compression force KERN	Recalibration Tensile force/ Compression force KERN	Price excl. of VAT ex works €
Force gauges [Max] > 50 N – 500 N	961-361	961-361R	245,-
Force gauges [Max] > 500 N – 2 kN	961-362	961-362R	300,-
Force gauges [Max] > 2 kN – 5 kN	961-363	961-363R	405,-

Measuring instruments, prices for initial calibration and recalibration

Checking equipment	Initial calibration KERN	Recalibration KERN	Price excl. of VAT ex works €
Hardness testing devices in accordance with Leeb tests (Type D)	961-131	961-131R	120,-
Coating thickness gauges 0 µm – 2000 µm (Ferro or NonFerro)	961-110	961-110R	120,-
Coating thickness gauges 0 µm – 2000 µm (Ferro and NonFerro)	961-112	961-112R	170,-
Ultrasonic material thickness testing devices 25 mm – 300 mm	961-113	961-113R	120,-

Tradition and innovation for more than 170 years

An independent family business, KERN since already 7 generations is synonymous with quality and reliability in customer service.



► 1844

KERN is founded – precision balances are produced



► 1863

A proud Gottlieb Kern with his staff



► 1880

Pharmaceutical balance with Aesculap



► 1923

Inflation – KERN wages are paid with self printed currency



► 1980

The electronic balance ousts mechanical devices



► 1994

Accredited DKD laboratory (ISO 17025)



► 2000

New premises in Balingen



► 2002

Existing QM system certification in accordance with DIN EN ISO 9001:2000 standards



► 2007

Approval for the manufacture of medical products (DIN EN 13485 and 93/42/EEC)



► 2008

Authorisation for initial verification by the manufacturer (2009/23/EC)



► 2009

Approval for the manufacture and sale of height rods (DIN EN 13485 and 93/42/EEC)



► 2012

Verification point for non-automatic balances and test weights.

New customer portal www.kern-sohn.com goes live



► 2014

Expansion of the product range to include optical instruments (microscopes and refractometers)



► 2015

Inauguration of Ziegelei 2.0 with computer-controlled high-bay warehouse



Our Tip

Come to see the Museum of scale and weight ...



How a scale learned to weigh! Come and experience KERN history in the Zollernschloss at Balingen ...

www.balingen.de
→ "Kultur"

KERN – Tradition and Innovation for over 170 years

An independent family business, KERN since already 7 generations is synonymous with quality and reliability in customer service.

fast

- 24 hours delivery service – ordered today, on its way tomorrow
- Sales & service hotline available from 8:00 am to 6:00 pm

reliable

- 3 years warranty for balances over € 400,-
- Precision in weighing technology for more than 170 years

competent

- DAkkS accreditation DIN EN ISO/IEC 17025
- Certified QM system DIN EN ISO 9001:2008
- Authorisation for initial verification by the manufacturer 2009/23/EC
- Medical certifications DIN EN ISO 13485 and 93/42/EEC

versatile

- One-stop shopping: from pocket balances through to floor scales – everything from one supplier
- Find the product you want at lightning speed with the “Balance Quick-Finder” at www.kern-sohn.com



Order hotline

+49 [0] 7433 9933-0



Online-Shop

www.kern-sohn.com



Our team of consultants will assist you

from Monday to Friday
from 8:00 am to 6:00 pm



Service hotline

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E-mail order

info@kern-sohn.com



Calibration hotline

+49 [0] 7433 9933-196



Fax Order

+49 [0] 7433 9933-146



www.kern-sohn.com

For product specification sheets, user manuals, useful information, technical glossary pictures and much more as well as a smart search engine for test weights and balances

KERN & SOHN GmbH

Balances, Test weights, DAkkS Calibration laboratory

Ziegelei 1

72336 Balingen

Germany

Tel. +49 [0] 7433 9933-0

Fax +49 [0] 7433 9933-149

info@kern-sohn.com

www.kern-sohn.com

