



TEST WEIGHTS

Weights yesterday and today

For centuries now, weight pieces have been used in scales for weighing procedures. This original purpose has now almost disappeared. Today, weights are used almost exclusively for adjusting and testing = calibration of electronic balances. They are now named "test weights" as this is their contemporary purpose.

Adjustment or calibration?

► **Adjusting** a balance means that you are intervening in the weighing system, to make sure that the display is set to show the correct nominal value. With ► **calibration** on the other hand, there is no intervention, you are testing whether the display is correct and documenting any deviation.

Testing, the right way!

The internationally valid norm OIML R111:2004 classifies test weights hierarchically in accuracy classes, where E1 is the most accurate and M3 is the least accurate weight class. With KERN you get the whole test weight range in all OIML accuracy classes E1, E2, F1, F2, M1, M2, M3.

As the test weight only becomes an ► **ISO 9000ff**-compliant test instrument when its accuracy has been proven, we offer the appropriate ► **DAkkS Calibration certificate** or verification certificate (in connection with a box) for all KERN test weights. For further details see DAkkS Calibration Service.

KERN offers you the appropriate test weight package for your balance, consisting of the test weight, box and DAkkS-calibration certificate, as proof of its accuracy. The best prerequisite for a correct adjustment or checking of your scales.

► **See the Glossary**







Classes of accuracy of test weights E, F, M and their general relation to the types of balances.

The appropriate OIML tolerance class for the test weight is selected based on the scale's resolution. The key factor for this is the scale's increment count:

$$\text{Increment count [n]} = \frac{\text{Maximum capacity [Max]}}{\text{Division value [d]}}$$

- | | |
|----|--|
| E1 | Test weights for customers who require a high degree of accuracy for the most demanding applications.
For high-resolution balances with $d > 1,000,000$
Use recommended with DAkkS calibration certificate only. |
| E2 | Most accurate test weights for high resolution analytical balances of verification class I $\geq 100,000$ e |
| F1 | Test weights for analytical balances/precision balances for verification class I/II $\leq 100,000$ e |
| F2 | Test weights for precision balances of verification class II $\leq 30,000$ e |
| M1 | Test weights for industrial and commercial scales of verification class III $\leq 10,000$ e |

The appropriate test weight for your new KERN balance can also be found directly in the accessories of the balance in our webshop.

KERN DAkkS delivery times & shipping type	Total weight ≤ 30 kg (gross weight, incl. packaging)	Total weight > 30 kg (gross weight, incl. packaging)
DAkkS standard service Class E2 – M3	 4 DAYS	 4 DAYS
DAkkS standard service Class E1, 1 mg – 500 mg and recalibration 1 g – 10 kg with a known volume	 10 DAYS	 10 DAYS
Class E1, ≥ 1 g, incl. volume determination (new weights)	 15 DAYS	 15 DAYS
Special weights, Newton weights, heavy duty weights, weight carriers, containers for individual weight sets etc.	on request	

Just lean back – we have just the right test weight for your measuring device

KERN offers you a large range of OIML test weights, which you can use at any time to quickly and reliably check your measuring instrument. From milligram weights to tonne weights, from the classic OIML design to special weights which are specifically manufactured to your specifications, we can offer you just the right test weight, and naturally the weights have the relevant DAkkS calibration certificate or factory calibration certificate.

On the following pages you will see a selection of standard test weights for OIML error limit classes E1, E2, F1, F2, M1, M2, M3. We will be happy to manufacture special (large) weights, weight containers, Newton weights or weights with special weight values for you on request. Our test weights product specialist will be happy to give you expert, comprehensive advice.

Note: In our webshop you can conveniently select test weights for your scale that have been calculated and matched to your safety requirements and intended use – with or without calibration. We will be happy to determine the minimum sample quantity according to USP Chapter <41> and recommend a KERN Safety Set especially designed for your scale.



PREMIUM⁺ TEST WEIGHTS

Note: Our highly-accurate OIML test weights are also available as

PREMIUM⁺ test weights for that extra level of safety. Thanks to the most modern manufacturing technology, these test weights can also be adjusted within the specified error limit classes (= tolerances).

I.e. this means that these **PREMIUM⁺ test weights** have a significantly longer service life, thanks this guaranteed positive tolerance. This is of particular benefit with intensive use of the test weights.

For all the details on this **PREMIUM⁺ service** please look at the weight you want in our online shop

Marking – never lose track again!

With the large variety of test equipment used then it is essential that they are identified accurately. We can help you with this and mark your test weights according to your ideas by etching, with impact numbers or laser engraved. Whether it's letters, numbers, your logo, barcodes or something else – it's your choice.

Our product specialist "Test weights" will gladly help you with any questions about this service, prices, etc.



SAFELY LOOKED AFTER

KERN weight boxes made of polyoxymethylene (“POM”) – for the most demanding requirements in highly-sensitive environments such as laboratories and clean rooms

You can rely on the highest quality and safety when storing your KERN test weights for clean room areas. KERN weight boxes made of polyoxymethylene (“POM”) are secure and easy to clean and are essential aids in clean rooms, laboratories or production environments because they protect your test weights perfectly and this enables consistently accurate and reliable measurements.

The robust construction means that there are no edges or padding which could collect dirt. This means that the boxes are particularly easy to clean hygienically.

For test weights in weight classes from E1 to M1, KERN clean room boxes offer further advantages in addition to protection, in order to meet the highest requirements in terms of cleanliness and absence of contamination. They do not require maintenance and are resistant to a range of cleaning products, acids, alkalis, disinfectants and solvents. They can also be cleaned in thermo disinfectors without any problems. In addition, repeated disinfection and cleaning ensures that they meet the highest standards of the clean room environment.

Please note: Our clean room boxes are also available in an antistatic version on request – for additional safety in hazardous areas.



All the advantages of KERN clean room boxes at a glance:

- extremely stable and robust
- can be fully disinfected
- easy to clean
- without padding or edges which could collect dirt
- maintenance-free and long-lasting
- for maximum safety and measurement results

NEW



Convenient screw thread without edges which could trap dirt – KERN clean room boxes in detail

New from KERN: The practical test weight trolley KERN 313-112-400

The KERN transport case is your essential companion for a professional appearance. It offers you direct access at all times to your full set of weights, so that you can work quickly and efficiently. With this case, you can not only increase your productivity, but also leave a lasting impression on your customers. Suitable for all weights in classes E1 – M1, see *Test weights*

NEW



→ Do you have any special requirements?

High-quality weight boxes e.g. on request we can also manufacture boxes for rectangular weights or complete weight sets to suit your individual requirements. We will be happy to advise you.



Our KERN weight cases at a glance:



for individual weights
Plastic box



for individual weights
Aluminium protected box



for individual weights
Wooden box, lined / unlined



for individual weights
Polyoxymethylene boxes POM, unlined



for weight sets
Plastic case




for weight sets
Aluminium protected case




for weight sets
Wooden case, lined / unlined

It's your choice!

To protect your test weights we can offer you an appropriate weight case. Choose the right box for your needs. You have the choice between plastic, aluminium protected, wood or polyoxymethylene. The available weight cases are shown as a symbol in the test weight tables on the following pages. This way you have all the materials, versions, sizes and prices at a glance, listed in a concise way.



On request only:
for weight sets
Clean room boxes POM (polyoxymethylene), unlined



It's so easy to order your suitable test weight

1

2

3




4

According to your safety requirements or the specifications of your QM system, you select the test weight with the appropriate weight value and the required tolerance.

We offer many test weights in different designs, giving you complete freedom to decide which test weights you want to use for your application. It goes without saying that all our test weights comply with the OIML R111:2004 directive.

To protect your high-quality test equipment, we offer you cases in various designs.

A DAkkS calibration certificate – the auditor's favourite! With this certificate you provide the standard-compliant proof of all important values of your test equipment and are on the safe side when operating and testing your measuring equipment.

1		2				3				4			
Weight	Tol +/- mg	Individual weights, compact shape		Individual weights, knob shape		Plastic box		Aluminium protected box		Wooden box		DAkkS certificate	
		KERN	€	KERN	€	KERN 	€	KERN 	€	KERN 	€	KERN	€
1 g	0,03	316-01	41,-	317-01	59,-	317-020-400	4,80	317-010-600	14,-	317-010-100	30,-	962-331	33,-
2 g	0,04	316-02	41,-	317-02	60,-	317-020-400	4,80	317-020-600	17,-	317-020-100	30,-	962-332	33,-
5 g	0,05	316-03	43,-	317-03	63,-	317-030-400	4,80	317-030-600	15,-	317-030-100	32,-	962-333	33,-
10 g	0,06	316-04	44,-	317-04	67,-	317-040-400	4,80	317-040-600	15,-	317-040-100	32,-	962-334	33,-
20 g	0,08	316-05	47,-	317-05	76,-	317-050-400	4,80	317-050-600	15,-	317-050-100	32,-	962-335	33,-
50 g	0,10	316-06	53,-	317-06	80,-	317-060-400	4,80	317-060-600	15,-	317-060-100	32,-	962-336	33,-

1		2		3		4	
Weight		Knob shape in plastic case		Knob shape in aluminium protected case		Knob shape in wooden case	
		KERN		KERN		KERN	
		€		€		€	
1 mg - 500 mg		338-22	159,-	338-226	200,-	962-450	118,-
1 mg - 50 g		333-024	390,-	333-026	410,-	962-401	197,-
1 mg - 100 g		333-034	435,-	333-036	450,-	962-402	210,-
1 mg - 200 g		333-044	510,-	333-046	520,-	962-403	235,-
1 mg - 500 g		333-054	580,-	333-056	600,-	962-404	245,-
1 mg - 1 kg		333-064	730,-	333-066	750,-	962-405	255,-
1 mg - 2 kg		333-074	1030,-	333-076	1050,-	962-406	265,-

Selection of the appropriate test weight for your balance

A balance can never be more accurate than the test weight that is used to adjust it, it all depends on its tolerance. **The accuracy of the test weight should correspond to the readout [d] of the balance, or rather be more precise.**

Nominal test weight value is shown in adjust mode "CAL" in the balance display. Given a choice, the heaviest weight is the most suitable for accurate measurement.

Once accuracy and nominal test weight value are specified, the suitable test weight is selected according to the tolerances "Tol" of the individual accuracy classes E2 – M3, see column "Tol ± mg" at the respective weight.

Example:






Balance with weighing range [Max] 2000 g = 2 kg and readout [d] = 0,01 g = 10 mg

- The accuracy of the required test weight is determined by readout [d]: max. tolerance ± 10 mg.
- Displayed weight size on "CAL" mode: 1000 g or 2000 g. The required test weight has a 2 kg weight size.
- Suitable test weights with ± 10 mg tolerance and 2 kg weight size, can be found in accuracy class F1. KERN-No 326-12 or KERN-No 327-12.






























Exception: analytical balances (readout [d] ≤ 0,1 mg):

E1 test weights are recommended. Depending on the safety requirements, E2 test weights with a DAkkS calibration certificate will also be sufficient.

From finely turned to polished stainless steel – the right test weight for every situation

					
Test weight	→ Knob shape with lifting knob, polished stainless steel	Compact shape with carrying grip, polished stainless steel	Knob shape with lifting knob, polished stainless steel	ECO shape, polished stainless steel	Knob shape with lifting knob, finely turned stainless steel
Features	↓				
Conforms to OIML:R111	yes	yes	yes	yes	yes
Available classes	E1, E2	E2	F1	F1	F2, M1
Upper surface	polished	polished	polished	polished	finely turned
Material	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Adjusting cavity	no	no	yes	yes, from 50 g, readjustment can only be carried out by KERN	yes, from 20 g
Marking (Milligram weights, generally none)	none	none	Nominal value, etched	Nominal value, etched	F2: Class + nominal value, etched; M1: Class + nominal value, adopted
Verification possible	yes (E2)	no	yes	no	yes (M1)
Checking equipment for verification purposes	approved (E2)	approved	approved	approved	approved (M1)
Ideal as checking equipment in QM systems (e.g. ISO 9000 ff)	yes	yes	yes	yes	yes
Benefits	<ul style="list-style-type: none">• High-quality test weight for analytical and precision balances• Highly-refined surface• Ideal shape of the top for good grip	<ul style="list-style-type: none">• Affordable test weight for analytical and precision balances• Highly refined surface	<ul style="list-style-type: none">• Ideal, high-quality test weight for precision balances• No visible adjustment chamber• High long-term stability• Ideal shape of the top for good grip	<ul style="list-style-type: none">• Affordable test weight for analytical and precision balances• Highly refined surface• Optimum shape of the top for good grip	<ul style="list-style-type: none">• Ideal test weight for commercial and industrial scales• Ideal shape of the top for good grip

Composition table, valid for all KERN test weight sets from 1 mg

Individual weights per set																														
	1	2	2	5	10	20	20	50	100	200	200	500	1	2	2	5	10	20	20	50	100	200	200	500	1	2	2	5	10	
	mg												g												kg					
Test weight set																														
1 mg–500 mg	$\Sigma = 1,11 \text{ g}$																													
1 mg–50 g	$\Sigma = 111,11 \text{ g}$																													
1 mg–100 g	$\Sigma = 211,11 \text{ g}$																													
1 mg–200 g	$\Sigma = 611,11 \text{ g}$																													
1 mg–500 g	$\Sigma = 1.111,11 \text{ g}$																													
1 mg–1 kg	$\Sigma = 2.111,11 \text{ g}$																													
1 mg–2 kg	$\Sigma = 6.111,11 \text{ g}$																													
1 mg–5 kg	$\Sigma = 11.111,11 \text{ g}$																													
1 mg–10 kg	$\Sigma = 21.111,11 \text{ g}$																													

The key points from the OIML norm R111:2004

OIML (Organisation Internationale de Métrologie Légale) has established the exact metrological requirements for weights in verified applications in approx. 100 states all over the world.

The OIML guideline R111 (2004 Edition) for weights relates to sizes 1 mg – 5000 kg. Statements are made on the accuracy, materials, geometric shape, marking and storage of the weights.

Error limits for weights of classes E1 to M3

The error limit classes are in fixed hierarchical levels in the proportion of 1:3, where E1 is the most accurate and M3 is the least accurate weight class.

When testing weights with other weights, the correct test class is the next highest class.

Error limit classes (= tolerances)

The values given in the table below (tolerances $\pm \dots$ mg) are the respective permitted fabrication tolerances.

They are to be equal to the

► **measuring uncertainty** of the weight, if no

► **DAkkS calibration certificate** is available.

Conventional mass

The problem is the air buoyancy, which makes the weight appear lighter.

In order to avoid this “distortion” in daily use, all weights are adjusted to the unit specifications as given in R111, e.g. it is accepted that: material density of the weights is 8000 kg/m³, air density is 1.2 kg/m³ and measuring temperature is 20 °C.

KERN test weights:

Unless otherwise specified, they conform to OIML R111:2004 in every detail.

► **See the Glossary**

Nominal value **OIML R111:2004 Maximum permissible errors for weights = permissible tolerances “Tol \pm mg”**

↓	E1	E2	F1	F2	M1	M2	M3
1 mg	$\pm 0,003$ mg	$\pm 0,006$ mg	$\pm 0,020$ mg	$\pm 0,06$ mg	$\pm 0,20$ mg	-	-
2 mg	$\pm 0,003$ mg	$\pm 0,006$ mg	$\pm 0,020$ mg	$\pm 0,06$ mg	$\pm 0,20$ mg	-	-
5 mg	$\pm 0,003$ mg	$\pm 0,006$ mg	$\pm 0,020$ mg	$\pm 0,06$ mg	$\pm 0,20$ mg	-	-
10 mg	$\pm 0,003$ mg	$\pm 0,008$ mg	$\pm 0,025$ mg	$\pm 0,08$ mg	$\pm 0,25$ mg	-	-
20 mg	$\pm 0,003$ mg	$\pm 0,010$ mg	$\pm 0,03$ mg	$\pm 0,10$ mg	$\pm 0,3$ mg	-	-
50 mg	$\pm 0,004$ mg	$\pm 0,012$ mg	$\pm 0,04$ mg	$\pm 0,12$ mg	$\pm 0,4$ mg	-	-
100 mg	$\pm 0,005$ mg	$\pm 0,016$ mg	$\pm 0,05$ mg	$\pm 0,16$ mg	$\pm 0,5$ mg	$\pm 1,6$ mg	-
200 mg	$\pm 0,006$ mg	$\pm 0,020$ mg	$\pm 0,06$ mg	$\pm 0,20$ mg	$\pm 0,6$ mg	$\pm 2,0$ mg	-
500 mg	$\pm 0,008$ mg	$\pm 0,025$ mg	$\pm 0,08$ mg	$\pm 0,25$ mg	$\pm 0,8$ mg	$\pm 2,5$ mg	-
1 g	$\pm 0,010$ mg	$\pm 0,03$ mg	$\pm 0,10$ mg	$\pm 0,3$ mg	$\pm 1,0$ mg	$\pm 3,0$ mg	± 10 mg
2 g	$\pm 0,012$ mg	$\pm 0,04$ mg	$\pm 0,12$ mg	$\pm 0,4$ mg	$\pm 1,2$ mg	$\pm 4,0$ mg	± 12 mg
5 g	$\pm 0,016$ mg	$\pm 0,05$ mg	$\pm 0,16$ mg	$\pm 0,5$ mg	$\pm 1,6$ mg	$\pm 5,0$ mg	± 16 mg
10 g	$\pm 0,020$ mg	$\pm 0,06$ mg	$\pm 0,20$ mg	$\pm 0,6$ mg	$\pm 2,0$ mg	$\pm 6,0$ mg	± 20 mg
20 g	$\pm 0,025$ mg	$\pm 0,08$ mg	$\pm 0,25$ mg	$\pm 0,8$ mg	$\pm 2,5$ mg	$\pm 8,0$ mg	± 25 mg
50 g	$\pm 0,03$ mg	$\pm 0,10$ mg	$\pm 0,3$ mg	$\pm 1,0$ mg	$\pm 3,0$ mg	± 10 mg	± 30 mg
100 g	$\pm 0,05$ mg	$\pm 0,16$ mg	$\pm 0,5$ mg	$\pm 1,6$ mg	$\pm 5,0$ mg	± 16 mg	± 50 mg
200 g	$\pm 0,10$ mg	$\pm 0,3$ mg	$\pm 1,0$ mg	$\pm 3,0$ mg	± 10 mg	± 30 mg	± 100 mg
500 g	$\pm 0,25$ mg	$\pm 0,8$ mg	$\pm 2,5$ mg	$\pm 8,0$ mg	± 25 mg	± 80 mg	± 250 mg
1 kg	$\pm 0,5$ mg	$\pm 1,6$ mg	$\pm 5,0$ mg	± 16 mg	± 50 mg	± 160 mg	± 500 mg
2 kg	$\pm 1,0$ mg	$\pm 3,0$ mg	± 10 mg	± 30 mg	± 100 mg	± 300 mg	$\pm 1\,000$ mg
5 kg	$\pm 2,5$ mg	$\pm 8,0$ mg	± 25 mg	± 80 mg	± 250 mg	± 800 mg	$\pm 2\,500$ mg
10 kg	$\pm 5,0$ mg	± 16 mg	± 50 mg	± 160 mg	± 500 mg	$\pm 1\,600$ mg	$\pm 5\,000$ mg
20 kg	± 10 mg	± 30 mg	± 100 mg	± 300 mg	$\pm 1\,000$ mg	$\pm 3\,000$ mg	± 10 g
50 kg	± 25 mg	± 80 mg	± 250 mg	± 800 mg	$\pm 2\,500$ mg	$\pm 8\,000$ mg	± 25 g
100 kg	-	± 160 mg	± 500 mg	$\pm 1\,600$ mg	$\pm 5\,000$ mg	± 16 g	± 50 g
200 kg	-	± 300 mg	$\pm 1\,000$ mg	$\pm 3\,000$ mg	± 10 g	± 30 g	± 100 g
500 kg	-	± 800 mg	$\pm 2\,500$ mg	$\pm 8\,000$ mg	± 25 g	± 80 g	± 250 g
1 000 kg	-	$\pm 1\,600$ mg	$\pm 5\,000$ mg	± 16 g	± 50 g	± 160 g	± 500 g
2 000 kg	-	-	± 10 g	± 30 g	± 100 g	± 300 g	$\pm 1\,000$ g
5 000 kg	-	-	± 25 g	± 80 g	± 250 g	± 800 g	$\pm 2\,500$ g

TEST WEIGHTS AND BOXES

CLASSES M2 · M3



Individual weights/Weight sets,
knob shape, stainless steel



Individual weights/Weight sets,
knob shape, lacquered cast iron



Block weights,
lacquered cast iron



Plastic box, lined,
for individual weights



Aluminium protected box,
lined, for individual weights



Wooden box, not lined, for
individual weights ≤ 500 g,
⚠ not appropriate for
cast iron weights



Wooden box, not lined, for
individual weights ≥ 1 kg,
⚠ not appropriate for
cast iron weights



Aluminium protected case,
lined, for block weights



Aluminium protected case, lined, for weight
sets knob shape, finely turned stainless steel,
⚠ not appropriate for cast iron weights






Wooden case, for weight sets, knob shape,
finely turned stainless steel



Wooden block, for weight sets,
knob shape, lacquered cast iron


Class M2 · Individual weights, knob shape

Test weight material: finely turned stainless steel

Weight	Tol +/- mg	Individual weight, knob shape	Plastic box	Aluminium protected box	Wooden box	DAkkS certificate
		KERN	KERN 	KERN 	KERN 	KERN
1 g	3	357-01	347-030-400	317-010-600	337-010-200	962-631
2 g	4	357-02	347-030-400	317-020-600	337-020-200	962-632
5 g	5	357-03	347-030-400	317-030-600	337-030-200	962-633
10 g	6	357-04	347-050-400	317-040-600	337-040-200	962-634
20 g	8	357-05	347-050-400	317-050-600	337-050-200	962-635
50 g	10	357-06	347-070-400	317-060-600	337-060-200	962-636
100 g	16	357-07	347-070-400	317-070-600	337-070-200	962-637
200 g	30	357-08	347-080-400	317-080-600	337-080-200	962-638
500 g	80	357-09	347-090-400	317-090-600	337-090-200	962-639
1 kg	160	357-11	347-110-400	317-110-600	337-110-200	962-641
2 kg	300	357-12	347-120-400	317-120-600	337-120-200	962-642
5 kg	800	357-13	347-130-400	317-130-600	337-130-200	962-643
10 kg	1600	357-14	347-140-400	317-140-600	337-140-200	962-644



Class M2 · Block weights

Block weight material: lacquered cast iron, surface and edges machined or unmachined (ECO)

Weight	Tol +/- g	Block weight	ECO block weight	Aluminium protected box	DAkkS certificate
		KERN	KERN	KERN 	KERN
5 kg	0,8	356-86	356-76	346-060-600	962-643
10 kg	1,6	356-87	356-77	346-070-600	962-644
20 kg	3,0	356-88	356-78	346-080-600	962-645
50 kg	8,0	356-89	356-79	346-090-600	962-646




Class M2 · Weight sets, knob shape

Test weight material: finely turned stainless steel

Weight	Knob shape, in aluminium protected case	Knob shape, in wooden case	DAkkS certificate
	KERN 	KERN 	KERN
1 g – 50 g	354-026	354-02	962-615
1 g – 100 g	354-036	354-03	962-616
1 g – 200 g	354-046	354-04	962-617
1 g – 500 g	354-056	354-05	962-618
1 g – 1 kg	354-066	354-06	962-619
1 g – 2 kg	354-076	354-07	962-620
1 g – 5 kg	354-086	354-08	962-621
1 g – 10 kg	354-096	354-09	962-622

Class M3 · Individual weights, knob shape

Test weight material: finely turned stainless steel

Weight	Tol +/- mg	Individual weight, knob shape	Plastic box	Aluminium protected box	Wooden box	DAkkS certificate
		KERN	KERN 	KERN 	KERN 	KERN
1 g	10	367-01	347-030-400	317-010-600	337-010-200	962-631
2 g	12	367-02	347-030-400	317-020-600	337-020-200	962-632
5 g	16	367-03	347-030-400	317-030-600	337-030-200	962-633
10 g	20	367-04	347-050-400	317-040-600	337-040-200	962-634
20 g	25	367-05	347-050-400	317-050-600	337-050-200	962-635
50 g	30	367-06	347-070-400	317-060-600	337-060-200	962-636
100 g	50	367-07	347-070-400	317-070-600	337-070-200	962-637
200 g	100	367-08	347-080-400	317-080-600	337-080-200	962-638
500 g	250	367-09	347-090-400	317-090-600	337-090-200	962-639
1 kg	500	367-11	347-110-400	317-110-600	337-110-200	962-641
2 kg	1000	367-12	347-120-400	317-120-600	337-120-200	962-642

Class M3 · Individual weights, knob and cylindrical shape


Test weight material: lacquered cast iron

Weight	Tol +/- g	Individual weight, knob and cylindrical shape	DAkkS certificate
		KERN	KERN
100 g*	0,05	366-91	962-637
200 g*	0,10	366-92	962-638
500 g**	0,25	366-93	962-639
1 kg**	0,50	366-94	962-641
2 kg**	1,0	366-95	962-642
5 kg**	2,5	366-96	962-643
10 kg**	5,0	366-97	962-644



Class M3 · Block weights

Block weight material: lacquered cast iron, surface and edges machined or unmachined (ECO)

Weight	Tol +/- g	Block weight	ECO block weight	Aluminium protected box	DAkkS certificate
		KERN	KERN	KERN 	KERN
5 kg	2,5	366-86	366-76	346-060-600	962-643
10 kg	5,0	366-87	366-77	346-070-600	962-644
20 kg	10	366-88	366-78	346-080-600	962-645
50 kg	25	366-89	366-79	346-090-600	962-646

Class M3 · Weight sets, knob and cylindrical shape

Test weight material: ≤ 50 g stainless steel, ≥ 100 g lacquered cast iron

Weight Knob and cylindrical shape, DAkkS certificate
in wooden block

	KERN	KERN
1 g – 1 kg	362-96	962-619
1 g – 2 kg	362-97	962-620
1 g – 5 kg	362-98	962-621
1 g – 10 kg	362-99	962-622



Weight set
1 g – 10 kg

Tweezers, weight grips, gloves, dusting brush



Tweezers
to be able to safely grip small test weights

For class	For weight	Length	Version	KERN
E1 - M3	1 mg – 200 g	105 mm	1 Stainless steel with silicone-coated tips	315-243
E1 - M3	500 g – 2 kg	250 mm	1 Stainless steel with silicone-coated tips	315-245
E1 - M3	≤ 5 g	130 mm	2 Stainless steel, curved, high-quality plastic tips	315-246
E1 - M3	≤ 5 g	136 mm	3 Stainless steel, straight, high quality plastic tips	315-247
E1 - M3	≤ 200 g	225 mm	4 Stainless steel, straight, high-quality plastic tips, with a special shape for gripping weights of various shapes and sizes	315-248
F2 – M3	1 mg – 200 g	100 mm	5 Stainless steel	335-240
E1 – M3	1 mg – 200 g	100 mm	6 Plastic	315-242

Weight grip
plastic coated

For class	For knob shaped weights	KERN
E1 - M3	2 kg	315-273
E1 - M3	5 kg	315-274
E1 - M3	10 kg	315-275
E1 - M3	20 kg	315-276

! not appropriate for cast iron weights



Gloves
Cotton, 1 pair. Help to protect the test weights when being used daily, from grease from fingers, damp etc.
Suitable for test weights up to 2 kg.

KERN
317-280

Gloves
Leather/cotton, 1 pair. Help to protect the test weights when being used daily, from grease from fingers, damp etc.
Ideal for test weights from 2 kg.

KERN
317-290

Premium gloves
Nylon, 1 pair.
Particularly elastic, one size fits all, with special fingertip coating to ensure a safe grip. Helps to protect the test weights in everyday use from grease from fingers, damp etc.
Ideal for all test weights.

KERN
317-281



Dusting brush
to clean the weights

KERN
318-270



Bellows
for cleaning weights

KERN
318-271



Microfibre cloth
for cleaning weights

KERN
318-272

Boxes for individual weights



For weights ≤ 200 g, OIML class E1 - E2:
Box with lid

Box material: Plastic, lined, suitable for single weights, KERN No. 307, 316, 317, 327, 337, 347

Plastic box, lined

for single weights E1 - E2

For weights	KERN
1 - 500 mg (single)	347-009-400
1 - 2 g (single)	317-020-400
5 g	317-030-400
10 g	317-040-400
20 g	317-050-400
50 g	317-060-400
100 g	317-070-400
200 g	317-080-400
500 g	317-090-400
1 kg	317-110-400
2 kg	317-120-400
5 kg	317-130-400
10 kg	317-140-400



For weights ≥ 500 g, OIML class E1 - M3:
Box with screw cap

Box material: Plastic, not lined, suitable for single weights, KERN No. 307, 316, 317, 327, 337, 347

Plastic box, not lined

for single weights E1 - M3

For weights	KERN
1 - 500 mg (single)	347-009-400
1 g - 5 g (single)	347-030-400
10 g - 20 g (single)	347-050-400
50 g - 100 g (single)	347-070-400
200 g	347-080-400
500 g	347-090-400
1 kg	347-110-400
2 kg	347-120-400
5 kg	347-130-400
10 kg	347-140-400



For weights ≤ 500 g, OIML class E1 - F1
For weights ≥ 1 kg, OIML class E1 - F1

Box material: Wood, lined, suitable for single weights, KERN No. 307, 316, 317, 326, 327



For weights ≤ 500 g, OIML class F2 - M3
For weights ≥ 1 kg, OIML class F2 - M3

Box material: Wood, not lined, suitable for single weights, KERN No. 337, 347, 357, 367
■ not suitable for cast iron weights



For test weights ≥ 10 kg, OIML class F1 - M1

Box material: Wood, lined/not lined, suitable for single weights, KERN No. 327, 337, 347
■ not suitable for cast iron weights

Wooden box, lined

for single weights E1 - F1

For weights	KERN
-	-
1 g	317-010-100
2 g	317-020-100
5 g	317-030-100
10 g	317-040-100
20 g	317-050-100
50 g	317-060-100
100 g	317-070-100
200 g	317-080-100
500 g	317-090-100
1 kg	317-110-100
2 kg	317-120-100
5 kg	317-130-100
10 kg	317-140-100
20 kg	317-150-100
50 kg	317-160-100

Wooden box, not lined

for single weights F2 - M3

For weights	KERN
1 - 500 mg (single)	338-090-200
1 g	337-010-200
2 g	337-020-200
5 g	337-030-200
10 g	337-040-200
20 g	337-050-200
50 g	337-060-200
100 g	337-070-200
200 g	337-080-200
500 g	337-090-200
1 kg	337-110-200
2 kg	337-120-200
5 kg	337-130-200
10 kg	337-140-200
20 kg	337-150-200
50 kg	337-160-200

Wooden box, not lined

for test weights F1 - M1

For weights	KERN
5 kg	337-131-200
10 kg	337-141-200
20 kg	337-151-200
50 kg	337-161-200

Wooden box, lined

for test weights F1

For weights	KERN
5 kg	337-131-100
10 kg	337-141-100
20 kg	337-151-100
50 kg	337-161-100

Boxes for individual weights




For weights ≤ 5 kg, OIML class E1 – M3

Box material: Aluminium protected, lined, suitable for mg and single weights, KERN No. 307, 308, 316, 317, 318, 326, 327, 328, 337, 338, 347, 348, 357, 367

❗ not suitable for cast iron weights

Aluminium protected box, lined

for individual weights, knob and compact shape, class E1 – M3

For weights	KERN	
1 – 500 mg (single)	317-009-600	
1 g	317-010-600	
2 g	317-020-600	
5 g	317-030-600	
10 g	317-040-600	
20 g	317-050-600	
50 g	317-060-600	
100 g	317-070-600	
200 g	317-080-600	
500 g	317-090-600	
1 kg	317-110-600	
2 kg	317-120-600	
5 kg	317-130-600	




For weights ≤ 10 kg, OIML class E1 – M3

Box material: Aluminium protected, lined, suitable for single weights, KERN No. 307, 316, 317, 326, 327, 337, 347, 357, 367

❗ not suitable for cast iron weights

Aluminium protected box, lined

for individual weights, knob and compact shape, class E1 – M3

For weights	KERN	
10 kg	317-140-600	
20 kg	317-150-600	
50 kg	317-160-600	




For block weight ≥ 5 kg, OIML class F1 – M3

Box material: Aluminium protected, lined, suitable for block weights, KERN No. 326, 336, 346, 356, 366

Aluminium protected box, lined

for individual weights F1 – M3

For weights	KERN	
5 kg	346-060-600	
10 kg	346-070-600	
20 kg	346-080-600	
50 kg	346-090-600	

Clean room boxes



NEW




For weights ≤ 500 g, OIML class E1 – M1

For weights 1 g – 2 kg, OIML class E1 – M1

Box material: POM (Polyoxymethylen), not lined, suitable for single weights, KERN No. 307, 316, 317, 327, 337, 347

Polyoxymethylene boxes POM, unlined

for single weights E1 – M1

For weights	KERN	
1 – 500 mg (single)	317-009-700	
1 g	317-010-700	
2 g	317-020-700	
5 g	317-030-700	
10 g	317-040-700	
20 g	317-050-700	
50 g	317-060-700	
100 g	317-070-700	
200 g	317-080-700	
500 g	317-090-700	
1 kg	317-110-700	
2 kg	317-120-700	



NEW




For weights 10 kg – 20 kg, OIML class E1 – M1

*Box with handle

Box material: POM (Polyoxymethylen), not lined, suitable for single weights, KERN No. 307, 316, 317, 327, 337, 347

Polyoxymethylene boxes POM, unlined

for single weights E1 – M1

For weights	KERN	
5 kg*	317-130-700	
10 kg*	317-140-700	
20 kg*	317-150-700	

Carrying cases/boxes for individual weight sets

Individual weight sets:

You can create your own “tailor-made” individual weight sets yourself.

KERN will customise your own personal wooden box/plastic carrying case.
The largest individual weight which will fit is given in the table.

Sample order:


Your individual weight set (class F1):
1 × 50 g, 2 × 100 g, 1 × 500 g, 2 × 1 kg, 1 × 2 kg.

The correct individual box is **KERN No. 313-080-400** (plastic) or **KERN No. 315-070-100** (wood, lined)




Plastic case

for individual weight sets classes E1 – M3,
not appropriate for cast iron weights


Largest possible weight	KERN	
≤ 500 g	313-050-400	
≤ 5 kg	313-080-400	

Wooden case

lined, for individual weight sets classes E1 – F1
* with side handles

Largest possible weight	KERN	
≤ 200 g	315-040-100	
≤ 1 kg	315-060-100	
≤ 2 kg	315-070-100	
≤ 5 kg*	315-080-100	
≤ 10 kg*	315-090-100	

Wooden case not lined, for individual weight set
classes F2 – M3, not appropriate for cast iron weights *
with side handles

Largest possible weight	KERN	
≤ 200 g	335-040-200	
≤ 500 g	335-050-200	
≤ 1 kg	335-060-200	
≤ 2 kg	335-070-200	
≤ 5 kg*	335-080-200	
≤ 10 kg*	335-090-200	

Carrying cases for standard weight sets




Fig. shows
313-010-600

Aluminium protected case for safe storage and transportation under
harsh industrial conditions.


Plastic case for weight sets

with standard denomination classes E1 – M3,
not appropriate for cast iron weights

Largest possible weight	KERN	
≤ 500 g	313-052-400	
≤ 5 kg	313-082-400	

Aluminium protected case

for weight sets with standard denomination classes E1 – M2
*no handle **1 front handle ***2 side handles

For weights	For class	KERN	
1 mg - 500 mg	E1 - M1	313-010-600*	
1 mg - 50 g	E1 - M1	313-020-600*	
1 mg - 100 g	E1 - M1	313-030-600*	
1 mg - 200 g	E1 - M1	313-040-600*	
1 mg - 500 g	E1 - M1	313-050-600*	
1 mg - 1 kg	E1 - M1	313-060-600*	
1 mg - 2 kg	E1 - M1	313-070-600**	
1 mg - 5 kg	E1 - M1	313-080-600***	
1 mg - 10 kg	E1 - M1	313-090-600***	
1 g - 50 g	E1 - M2	314-020-600*	
1 g - 100 g	E1 - M2	314-030-600*	
1 g - 200 g	E1 - M2	314-040-600*	
1 g - 500 g	E1 - M2	314-050-600*	
1 g - 1 kg	E1 - M2	314-060-600*	
1 g - 2 kg	E1 - M2	314-070-600*	
1 g - 5 kg	E1 - M2	314-080-600***	
1 g - 10 kg	E1 - M2	314-090-600***	

Weight containers for rectangular weights or other test weights, stainless steel glass bead blasted, adjusted to OIML class M1

Preconfigured weight containers for testing high-load floor scales, pallet scales, pallet truck scales, crane scales, etc. This can also be used for storing the weights. This means the weight container and the weights can be placed on the balance in one go, saving you time and money. The weight container is adjusted to OIML accuracy class M1. Other OIML accuracy classes are also available, please ask.

Weight of the weight container, OIML class M1	Tol +/- g	Possible equipment, rectangular weights, OIML class M1	Maximum total weight (weight container incl. weights)	
				KERN
20 kg	1,0	5 × 20 kg	120 kg	346-022-005
40 kg	1,5	8 × 20 kg	200 kg	346-042-008
50 kg	2,5	10 × 20 kg	250 kg	346-052-010
50 kg	2,5	4 × 50 kg	250 kg	346-055-004
50 kg	2,5	9 × 50 kg	500 kg	346-055-009
60 kg	3,0	8 × 50 kg and 2 × 20 kg	500 kg	346-065-009



Weight of the weight container, OIML class M1	Tol +/- g	Possible equipment, test weights, OIML class M1	Maximum total weight (weight container incl. weights)	
				KERN
20 kg	1,0	max. 10 × 10 kg or 5 × 20 kg	120 kg	347-022-005
40 kg	2,0	max. 16 × 10 kg or 8 × 20 kg	200 kg	347-042-008
50 kg	2,5	max. 20 × 10 kg or 10 × 20 kg	250 kg	347-052-010
60 kg	3,0	max. 22 × 20 kg	500 kg	347-062-022



Individual weight containers for rectangular weights or other test weights, calibrated to OIML class M1

Individual weight carriers for testing high capacity floor scales, pallet scales, pallet truck scales, crane scales, etc. This can also be used for storing the weights. This means the weight container and the weights can be placed on the scale in one go, saving time and money.

The weight container can be calibrated to OIML accuracy classes M1 – M3. On request, KERN will make you a “tailor-made” weight carrier to your specifications.

Example:

3 block weights	each 50 kg, class M1	=	150 kg
1 weight container	each 50 kg, class M1	=	50 kg
Total		=	200 kg

Weight of the weight container, OIML class M1

	KERN
Individual weight container for rectangular weights	346-000-000
Individual weight container for test weights	347-000-000



Example illustration