

ATORN® spring balances with spherical probes

Application:

For testing and setting control elements with adjustable friction moments, contact forces in electrical switch gears and regulating and controlling elements in motor vehicles.

- Dial face with scale in centinewtons (cN) or newtons (N)
- Error limit 0.01 x (final value + measured value)
- Trailing pointer
- **Ident. No. 151:** Shortened sensor lever

Execution:

- Measuring possible in both directions

Delivery:
In case



Min./max. force of measuring range	3-30 cN	5-50 cN	10-100 cN	25-250 cN	50-500 cN	100-1000 cN	300-3000 cN	500-5000 cN	1000-10000 cN
Scale value, force (cN)	1	1	2	5	10	20	50	100	200
Meter Ø (mm)	36	36	36	36	72	72	72	72	72
Sensor length (mm)	29	29	29	29	48	48	48	48	8
Weight (g)	64	64	64	64	260	260	278	294	290
44100...	041	051	061	081	091	101	121	131	151
Ident. No.	●	○	●	●	●	●	●	●	○

Prod. Gr. 440

Handheld tensile and pressure force tester, model 1191

with analogue measurement display

Application:

Robust, mechanical handheld force measuring unit for mobile applications, for bi-directional force measurement in workshops and in quality assurance.

Advantage:

- Robust, simple and safe to use
- Maintenance-free

Execution:

- High-precision measuring springs arranged in opposing directions
- Force-proportional precision gauge for measuring travel
- Calibration is carried out using reference measuring devices or weights

Delivery:

Pressure plate diameter 23 mm, draw hook, 2 extensions M6 x 15 or 45 mm, factory calibration certificate and transport case.

Technical data:

- Meter diameter: 50 mm
- Trailing pointer: Yes
- Error limit, based on end value: +/- 1 %

Min./max. force of measuring range	0-100 N	0-500 N
Scale value, force (N)	1	10
44165...	030	050
Ident. No.	●	●

Prod. Gr. 443



Handheld tensile and pressure force tester, model 326

With electronic measurement display

Application:

Robust, electronic handheld force measuring unit for mobile applications, for checking actuation forces and rigidity of assemblies and components such as springs, buttons, switches, levers, closures etc. This unit is used primarily in quality assurance, incoming goods inspections, production and research and development.

Execution:

- Fixed measuring frequency from 1000 Hz
- High-resolution force sensor
- Processor-controlled electronics with the latest software
- Calibration is carried out using reference measuring devices or weights
- Rechargeable batteries ensure smooth operation
- Peak value memory for tensile and compressive forces
- 5-digit LCD display + comma with optional backlight

- Display resolution +/- 20,000 digits
- design with path encoder deliverable on request

Advantage:

- Simple and safe to use
- Maintenance-free, electronic handheld force measuring device for mobile applications
- Once saved, basic settings remain stored even when the device is switched off
- Ergonomic design, therefore suitable for left and right-handed users
- Fixed installation possible in testing devices

Delivery:

device with battery pack set, 230 V AC power supply unit/charger, USB charging cable, factory calibration certificate, transport case, accessories

Technical data:

- Error limit, based on end value: 1%



Min./max. force of measuring range	0-50 N	0-100 N	0-200 N	0-500 N	0-1000 N	0-2000 N	0-5000 N
Digit increment, force (N)	0.02	0.05	0.1	0.2	0.5	1	2
Connection thread for clamping device	M6	M6	M6	M6	M6	M12	M12
44166...	Ident. No.	006 ○	011 ●	021 ●	051 ●	101 ●	201 ○
							501 ○

Prod. Gr. 443

ATORN® Handheld tensile and pressure force tester

With electronic measurement display and wide functional range

Application:

Robust, electronic manual force measuring device for mobile use, for testing operating forces as well as the strength of components such as springs, buttons, switches, levers, closures, etc. The main areas of application for these force gauges are in quality assurance, inspection of incoming goods, production, research and development.

Execution:

- Robust aluminium housing with ergonomic grip recesses
- Modern, colour touch-screen display 128x128 pixels, 7 digit + comma
- Data logger/measured value recording via built-in 2 GB memory, used via USB 3.0
- OpenCollector output for controlling external devices
- Exported data output to ASCII/CSV

- Adjustable measuring frequencies from 50 Hz to 2000 Hz

Advantage:

- Measured value display is flexible and intuitive to configure
- Rechargeable lithium-ion batteries ensure a long operating life
- Options for interacting using motorised load frame and external sensors
- Comprehensive functions and features
- Two M6x10 mounting screws on each face and on the rear which can be used e.g. for a fixed installation

Delivery:

Tensile and compressive force measuring unit; USB power supply; pressure pieces 1x diameter 10 mm, 1x tip and 1x cutter; 1x swivel pull hook with 10 mm aperture; 60 mm extension, CE declaration of conformity; manual



Min./max. force of measuring range	0-50 N	0-100 N	0-200 N	0-500 N	0-1000 N	0-2000 N	0-5000 N
Digit increment, force (N)	0.001	0.01	0.01	0.01	0.1	0.1	0.1
Min. measurement frequency (Hz)	50	50	50	50	50	50	50
Max. measuring frequency (Hz)	2000	2000	2000	2000	2000	2000	2000
Measurement uncertainty based on end value	0.05 %	0.05 %	0.05 %	0.05 %	0.05 %	0.05 %	0.05 %
Connection thread for clamping device	M6	M6	M6	M6	M6	M12	M12
44181...	Ident. No.	300 ●	305 ●	310 ○	315 ●	320 ●	325 ○
							330 ●

Prod. Gr. 486

Test stand, model 101

For tensile and compressive force measuring instruments

Application:

For reliable acquisition of forces and paths, torques and angles required when inspecting materials and assemblies. Potential areas of application are, for example, incoming/outgoing goods inspection and occasional quality checks in production.

Execution:

- Height-adjustable test stand
- Lever-operated manual test stand
- Robust design, primarily for tensile and compressive forces up to 500 N

42455... | Ident. No. 010

Prod. Gr. 443

Advantage:

- Easy to use
- Sturdy guide pillar with cross beam on one side for high stability
- Cost-effective and high-quality solution for small-scale inspections

Technical data:

- Max. force range: 500 N
- Travel motion: Manual
- Overall stroke: 250 mm



Example application: Test stand with tensile and compressive force measuring unit. Delivered without tensile and compressive force measuring unit

Test stand, model 102

For tensile and compressive force measuring instruments

Application:

For reliable acquisition of forces and paths, torques and angles required when inspecting materials and assemblies. Potential areas of application are, for example, incoming/outgoing goods inspection and occasional quality checks in production.

Execution:

- Manually-operated tensile/compression test frames
- Primarily for tensile and compressive forces up to 1000 N
- Basic device for correct positioning of torsion inspections

42455... | Ident. No. 020

Prod. Gr. 443

- When combined with a force measuring unit, this test frame forms a complete inspection machine

Advantage:

- Easy to use
- C-frame for high stability
- Cost-effective and high-quality solution for small-scale inspections

Technical data:

- Max. force range: 1000 N
- Travel motion: Manual
- Overall stroke: 495 mm



Example application: Manual test stand with tensile force and compressive force measuring unit. Delivered without tensile force and compressive force measuring units.

Test stand, model 103

For tensile and compressive force measuring instruments

Application:

For reliable acquisition of forces and paths, torques and angles required when inspecting materials and assemblies. Potential areas of application are, for example, incoming/outgoing goods inspection and occasional quality checks in production.

Execution:

- Electronically-operated tensile/compression test frames
- Primarily for tensile and compressive forces up to 1000 N
- When combined with a force measuring unit, this test frame forms a complete inspection machine

42455... | Ident. No. 030

Prod. Gr. 443

- Integrated incremental travel measurement
- Automatic switch-off when limit values are reached
- Centrally-arranged drive spindle

Advantage:

- Easy to use
- High stability
- Cost-effective and high-quality solution for small-scale inspections

Technical data:

- Max. force range: 1000 N
- Travel motion: Motorised
- Overall stroke: 550 mm



Example application: Motor-driven test stand with ATORN ZD2 tensile force and compressive force measuring unit. Delivered without tensile force and compressive force measuring units.

Cylindrical spring force meter

Application:

For weighing in laboratories and on site

Execution:

- Suspension from retaining ring possible
- Load attached by hook
- made from chrome-nickel steel and brass, high-gloss nickel-plated
- Laser-engraved black scale

- Overload protection up to approx. 20% above final value
- Not suitable for dynamic loads
- Error limit <= 1% of end value
- Integrated linear measuring springs

Technical data:

- Min. force measuring range: 0 N



Max. force measuring range (N)	2	5	10	25	50	100	200	300	600	1000
Scale value, force (N)	0.02	0.05	0.1	0.25	0.5	2	4	5	10	20
Length (mm)	250	250	250	250	250	255	255	290	342	368
Sleeve Ø (mm)	14.5	14.5	14.5	14.5	14.5	14.5	18	21	28	28
44210... Ident. No.	010	020	030	040	050	060	070	080	090	100
	○	●	●	●	●	●	●	●	●	●

Prod. Gr. 443

ORION® Cylindrical spring balances

Application:

For weighing components which can be fastened to a hook.

Execution:

- Spring balance suspended from a retaining ring
- Component attached by hook
- Not suitable for dynamic loads

- Blue anodised aluminium housing
- Brass inner tube with aluminium scale
- Error limit $\leq 1\%$ of end value
- Overload protection up to approx. 10% above final value

Technical data:

- Diameter: 19.5 mm



Min./max. weight measuring range	0-0.2 kg	0-1 kg	0-2.5 kg	0-5 kg	0-10 kg	0-20 kg
Scale value, weight (kg)	0.02	0.1	0.25	0.5	1	2
Length (mm)	363	363	363	363	363	376
44216... Ident. No.	010	030	040	050	060	070

Prod. Gr. 443

ATORN® Force measuring cell with analogue measurement display

Application:

For static and quasi-static force measurement on machines and equipment, e.g. hydraulic presses, rolling machines, calenders, bending machines, strength testing machines, torque meters etc.

Execution:

- Analogue manometer, diameter 63 mm with trailing pointer
- Force measuring cell made from VA steel in slim design
- Integrated throttle damping
- Two M6 fixing threads on housing floor
- Error limit 2% of final value

Advantage:

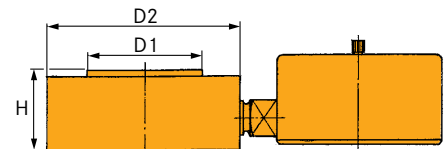
- Very slim design for in constricted spaces
- Integrated throttle damping for light, abrupt loading and unloading

Delivery:

With calibration certificate, in plastic case

Technical data:

- Protruding piston height: 2 mm
- Fastening thread: 2 x M6
- Error limit, based on end value: 2%
- Manometer diameter: 63 mm



Min./max. force of measuring range	0-0.16 kN	0-0.25 kN	0-0.6 kN	0-1 kN	0-1.6 kN	0-2.5 kN	0-6 kN	0-10 kN	0-16 kN	0-25 kN	0-60 kN	0-100 kN
Scale value, force (kN)	0.005	0.005	0.01	0.02	0.05	0.05	0.1	0.2	0.5	0.5	1	2
Outer Ø (mm)	75	75	75	75	75	75	75	75	75	75	90	90
Overall height of force sensor (mm)	30	30	30	30	30	30	30	30	30	30	32	32
Piston Ø (mm)	45	45	45	45	45	45	45	45	45	45	56	56
Fastening thread clearance (mm)	55	55	55	55	55	55	55	55	55	55	75	75
Mean distance between manometer and force sensor (mm)	82	82	82	82	82	82	82	82	82	82	90	90
44420... Ident. No.	021	031	051	061	071	081	101	111	121	131	151	161

Prod. Gr. 490



Other hydraulic force measuring cells

Application:

The ring-shaped force measuring cell is principally employed where mechanical engineering elements (shafts, spindles, clamping bolts, draw bolts, tension bolts or the like) must be routed through the pressure hull, for example,

to measure axial forces on machine tools.

Technical data:

- Measurement ranges: 0-1 kN to 0-2.5 MN
- Error limit: $\leq \pm 1\%$



Delivery of the electric force sensors

- For combination with the display units MMV 22 and MEC-9163, the force sensors are supplied with connecting plugs and characteristic curve adjustment
- For connecting the force sensors to display units from other manufacturers, they will be supplied with bare ends and without characteristic curve adjustment

KERN suspended scales up to 200 kg

practical suspended scales within reach at all times

Application:

For rapid checking of weights with high mobility.

- Pull-out tape measure, length 1 m
- Data hold function (weight display can be frozen for 5 s)
- Tara button for zeroing under load

Execution:

- Large LED display
- Display units: kg/lb/N
- Functions: AUTO OFF

Delivery:

With battery



Ident. No. 030-040



Ident. No. 060
Type HDB

Type description	CH 15K20	CH 50K50	CH 50K100	HDB 5K5N	HDB 10K10
Max. weight measuring range (kg)	15	50	50	5	10
Digit increment, weight (g)	20	50	100	5	10
Height (mm)	270	270	270	195	195
Housing dimensions (LxWxH)	30 x 90 x 176 mm	30 x 90 x 176 mm	30 x 90 x 176 mm	25 x 70 x 105 mm	25 x 70 x 105 mm
Weight (kg)	0.25	0.25	0.25	0.15	0.15
44228...	Ident. No. 010	030	040	050	060

Prod. Gr. 443

KERN crane scales up to 10 t

with remote control

Application:

No. 44267: For production, quality control and logistics applications. Also suitable for continuous use in industrial environments thanks to the sturdy construction and robust design.

No. 44605: For applications in production, quality control and logistics. Also suitable for continuous use in industrial environments thanks to the sturdy construction and robust design.

Execution:

- Powered by internal rechargeable battery
- Data hold function
- Large LCD display

No. 44267:

- Rotating hook with safety lock
- Radio remote control with a range of approx. 20 m

No. 44605:

- Wireless remote control with range of approx. 20 m
- Robust plastic housing

Advantage:

- If the hold function is activated, the figure is 'frozen' (no weight change) when not in use.

Delivery:

Mains charger, radio remote control



No. 44267



No. 44605 150

Type description	HFM 1T0.1	HFM 3T0.5	HFM 5T0.5	HFM 10T1	HCD 100K-2	HCD 300K-1	HCD 60K-2
Max. weight measuring range (kg)	1000	3000	5000	10000	150	300	60
Digit increment, weight (g)	100	500	500	1000	50	100	20
Housing dimensions (LxWxH)	175 x 270 x 200 mm	175 x 270 x 200 mm	190 x 300 x 230 mm	190 x 300 x 230 mm	79 x 150 x 98 mm	79 x 150 x 98 mm	79 x 150 x 98 mm
Weight	15 kg	16.5 kg	25 kg	37 kg	950 g	950 g	950 g
44267...	Ident. No. 210	220	230	240	-	-	-
	o	o	o	(o)			
44605...	Ident. No. 150	151	152		150	151	152
	Price/unit, €				(196.00)	(196.00)	(196.00)

Prod. Gr. 447

KERN Pocket scales

Type TGC

Application:

For fast weighing with highest mobility.

- Stainless steel weighing tray, hygienic and easy to clean

Execution:

- Especially flat design
- Cover made of impact-resistant plastic as pressure and dust protection. Can also be used as a weighing vessel

Technical data:

- Housing dimensions (LxWxH): 130 x 100 x 16.5 mm



Ident. No. 154

Type description	TGC 150-2S05	TGC 1K-3S05	TGC 500-1S05
Max. weight measuring range (g)	150	1000	500
Digit increment, weight (g)	0.01	1	0.1
44605...	Ident. No. 153	154	155
	Price/unit, € 19.80	19.80	19.80

Prod. Gr. 447

KERN KERN compact scales, type PCB and FCB

Application:

For versatile applications in laboratories and production facilities.

- Option: Battery operation

Advantage:

- User-programmable weighing unit (thread length g/m, paper weight g/m²)

Delivery:

Mains adapter

Technical data:

- With unit counting: Yes
- Data transmission type: RS232
- Housing dimensions (LxWxH): 245 x 163 x 79 mm



Ident. No. 011



Ident. No. 041

Type description	PCB 250-3	PCB 1000-1	PCB 3500-2	PCB 6000-1	PCB 10000-1
Max. weight measuring range (g)	250	1000	3500	6000	10000
Digit increment, weight (g)	0.001	0.1	0.01	0.1	0.1
Plate length x plate width	-	130 x 130 mm	130 x 130 mm	150 x 170 mm	150 x 170 mm
Panel Ø (mm)	81	-	-	-	-
Min. item weight (g)	0.002	0.2	0.02	0.2	0.2
Reproducibility (g)	0.001	0.1	0.02	0.1	0.1
Linearity (g)	0.005	0.2	0.05	0.3	0.3
44605...	Ident. No. 011	021	031	041	045
	●	●	●	●	●

Prod. Gr. 447

KERN Precision scales

type 572

Application:

Versatile applications; suitable for use e.g. as laboratory scales, counting scales or checkweigher scales.

Advantage:

- User-programmable weighing unit (thread length g/m, paper weight g/m²)

Execution:

- Robust metal housing
- LCD display with 14 mm digit size
- Automatic reference optimisation
- Mechanical overload protection
- Options: Battery operation

Delivery:

Mains adapter

Technical data:

- With unit counting: Yes
- Data transmission type: RS232
- Housing dimensions (LxWxH): 310 x 180 x 90 mm



Type description	572-33	572-39	572-45	572-49	572-57
Max. weight measuring range (g)	1610	4210	12100	16100	24100
Digit increment, weight (g)	0.01	0.01	0.05	0.1	0.1
Plate length x plate width	-	-	160 x 200 mm	160 x 200 mm	160 x 200 mm
Panel Ø (mm)	150	150	-	-	-
Min. item weight (g)	0.03	0.03	0.15	0.3	0.3
Reproducibility (g)	0.01	0.02	0.05	0.1	0.1
Linearity (g)	0.03	0.03	0.15	0.3	0.3
44615...	Ident. No. 010	016	020	030	040
	○	○	●	○	○

Prod. Gr. 447

KERN Platform scales Type DE-D

Application:

For versatile use in various locations such as production, warehousing and shipping.

Execution:

- Dual range scales with automatic switch-over
- Display unit (degree of protection IP65) with 1.5 m cable
- Options: Stand for display unit
- Freely-programmable weighing unit, e.g. displays in thread length g/m, paper weight g/m²
- Formulation function for weighing different components

- Backlit LCD display with 25 mm digit size

Advantage:

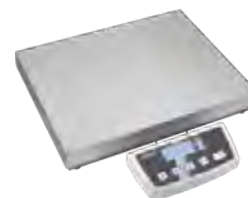
- Dual measurement display for finer digit increment and higher accuracy in the initial weighing range
- Versatile positioning of display unit, free-standing or bolted to scales

Delivery:

Mains adapter

Technical data:

- With unit counting: Yes
- Data transmission type: RS232



Type description		DE 6K1D	DE 15K0.2D	DE 35K5D	DE 60K1D	DE 60K10DL	DE 150K20DL	DE 300K50D	DE 300K50DL
Max. weight measuring range (kg)		3	6	15	30	30	60	150	150
Max. weight measuring range 2 (kg)		6	15	35	60	60	150	300	300
Digit increment, weight (g)		1	0.2	5	1	10	20	50	50
Digit increment 2, weight (g)		2	0.5	10	2	20	50	100	100
Plate length x plate width		315 x 305 mm	315 x 305 mm	315 x 305 mm	315 x 305 mm	522 x 403 mm	522 x 403 mm	522 x 403 mm	650 x 500 mm
Min. item weight (g)		2	0.4	10	2	20	40	100	200
Reproducibility (g)		1	0.2	5	1	10	20	50	50
Reproducibility 2 (g)		2	0.5	10	2	20	50	100	100
Linearity (g)		3	0.8	15	4	4	60	150	150
Linearity 2 (g)		6	2	30	8	40	100	300	300
44618...	Ident. No.	200 ○	210 ○	230 ○	240 ○	260 ●	280 ●	290 ○	300 ○

Prod. Gr. 447

KERN Counting scales Type CPB

Application:

For counting and weighing components

Execution:

- Counting total memory for adding up measured values
- Display: Total weight, reference weight in g, total quantity
- Large LCD display with 20 mm digit size and back-light function
- AUTO-OFF function can be selected after 1/5/30 min.
- Automatic reference optimisation

- Programmable acoustic signal on reaching quantity
- Options: Battery operation approx. 70 h without backlight possible

Delivery:

Mains adapter

Technical data:

- Plate length x plate width: 294 x 225 mm
- With unit counting: Yes
- Data transmission type: RS232
- Housing dimensions (LxWxH): 350 x 320 x 125 mm



Type description		CPB 6K0.1N	CPB 15K0.2N	CPB 30K0.5N
Max. weight measuring range (kg)		6	15	30
Digit increment, weight (g)		0.1	0.2	0.5
Min. item weight (g)		0.1	0.25	0.5
44616...	Ident. No.	251	261	271

Prod. Gr. 447

KERN test weights

We also supply test weights in standard and special shapes, individually and as combined sets. DKD calibration certificates can be provided for all test weights.



Individual weights in INOX steel



Individual weights in brass



Cast bar weights



Support bars for slotted weights



Brass slotted weights



Sets of test weights, standard and individual sets in a plastic or wooden case

➔ Further information, advice and quotations available on request.