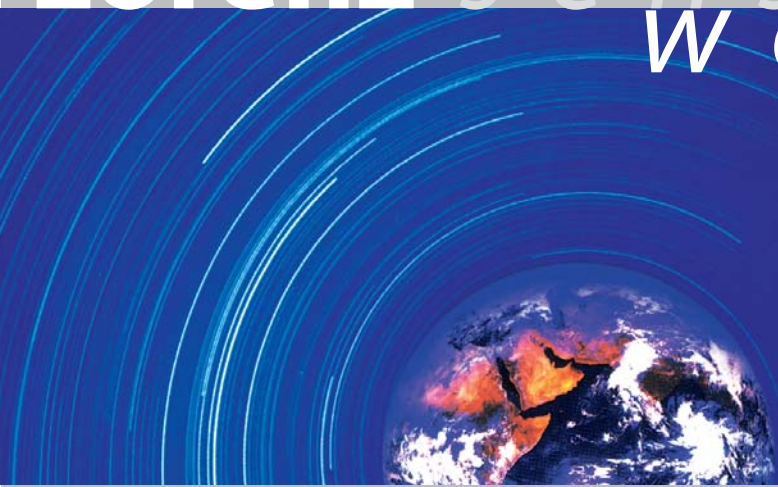


Lorenz sensors worldwide torque force weight sensors



Our customers include companies in the following sectors:

Our quality management system ensures quality at the highest level:



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- Packaging Technology
- ...

Sensors
 Measured Value Acquisition
 Measured Data Processing
 System Solutions

Lorenz *sensors*

Lorenz *measured data processing*

Lorenz *measured value acquisition*

Lorenz *system solutions*



Development



Engineering



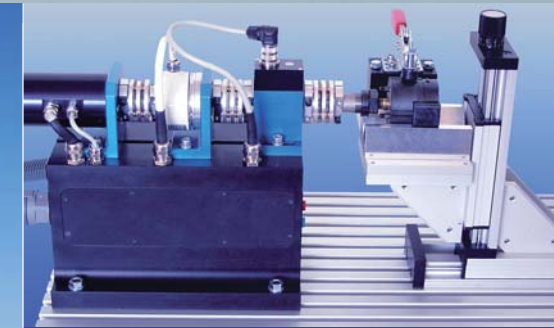
Production



Assembling



Test Benches



Customisation Solutions

The Lorenz Messtechnik production spectrum:

Torque sensors, force sensors, load cells as well as the related measuring amplifiers.



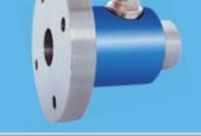

Furthermore testing devices and system solutions which act for the acquisition, processing and analyses of torque, speed and angle of rotation as well as other physical and electrical sizes.

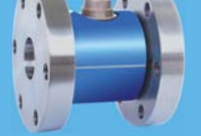



Calibration:
DKD- Calibration
Proprietary Calibration

DKD
DKD-K-37801

Torque Sensors





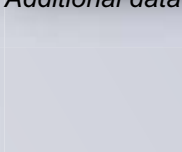
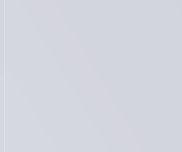
Non-Rotating (Static)	Type	Mechanical Connection	Measuring Range [N·m]	Accuracy Class	Output Signal [mV/V]	Excitation [V]	Area of Application / Characteristics
	D-2452	Shaft	0.005 ... 20000	0.1 (0.05)	0.5 1.5	2 ... 12	Reaction torque measurement, e.g. for extruders
	DK-15	Shaft with keyway	1 ... 100	0.2 (0.1)	1	2 ... 12	Reaction torque measurement, e.g. in test stands
	DV-14	Square / Square socket	2 ... 5000	0.2 (0.1)	1	2 ... 12	Survey of assembly tools for screws and nuts
	D-2431	¼" hexagon, quick action chuck	0.2 ... 20	0.1	1 2	2 ... 12	Survey of assembly tools for screws and nuts
	DH-15	Flange with fixing shoulder and female threads / Shaft	0.005 ... 20	0.2 (0.1)	0.5 1	2 ... 12	For very small measuring ranges
	DFW-25	Flange with center hole and mounting holes / Shaft with keyway	5 ... 1000	0.2 (0.1)	1	2 ... 12	Compact design
	DFW-35	Flange with center hole and mounting holes / Square	2 ... 2000	0.2 (0.1)	1	2 ... 12	Survey of assembly tools for screws and nuts
	D-2223	Flange with center hole and mounting holes / Square socket	2 ... 5000	0.2 (0.1)	1	2 ... 12	Survey of assembly tools for screws and nuts
	D-2209	Flange with spigot and mounting holes at both ends	1 ... 5	0.2	1	2 ... 12	Compact design
	D-2553	Flange with large through hole and center counter bore	10 ... 200	0.1	1	2 ... 12	Compact design

Non-Rotating (Static)	Type	Mechanical Connection	Measuring Range [N·m]	Accuracy Class	Output Signal [mV/V]	Excitation [V]	Area of Application / Characteristics
	DF-30	Flange with center hole and female threads at both ends	10 ... 20000	0.1 (0.05)	1	2 ... 12	Compact design
	D-2268	Flange with spigot and female threads / Flange with center hole and mounting holes	100 ... 5000	0.1	1	2 ... 12	Short design

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Torque Sensors

Rotating Contactless	Type	Mechanical Connection	Measuring Range [N·m]	Accuracy Class	Output Signal	Excitation [V]	Max. Speed [min ⁻¹]	Measurement of Speed / Angle
	DR-3000	Shaft	0.5 ... 5000	0.1	± 25000 digits	4 ... 6 from USB	12000 ... 30000	✓ Standard
	DR-2643	Shaft	0.5 ... 5000	0.1	± 5 V (± 10 V)	12 ... 28	12000 ... 30000	✓ Option
	DR-2112	Shaft	0.1 ... 20000	0.1	± 5 V (± 10 V)	12 ... 28	5000 ... 15000	✓ Option
	DR-2412				± 25000 digits		Option	
	DR-2112-R	Shaft	0.1 ... 1000	0.2	± 5 V (± 10 V)	12 ... 28	7000 ... 15000	✓ Option
	DR-2412-R				± 25000 digits		Option	
	DR-2212	Shaft	0.1 ... 20000	0.1	± 5 V (± 10 V)	12 ... 28	3500 ... 15000	✓ Option
	DR-2512				± 25000 digits		Option	
	DR-2212-R	Shaft	0.1 ... 1000	0.2	± 5 V (± 10 V)	12 ... 28	7000 ... 15000	✓ Option
	DR-2512-R				± 25000 digits		Option	
	DR-2477	Shaft	0.2 ... 200	0.25	± 5 V (± 10 V)	12 ... 28	6000 ... 8000	-
	DR-2500	Shaft, without bearings	0.005 ... 150	0.1	± 5 V (± 10 V)	12 ... 28	20000 ... 30000	✓ Option (only Speed Measurement)
	DR-2600				± 25000 digits			
	DR-2554	Shrink disk hub, Clamping hub or Parallel key hub, without bearings	50 ... 1000	0.1	± 5 V (± 10 V)	12 ... 28	3700 ... 13600	✓ Option (only Speed Measurement)

Rotating Contactless	Type	Mechanical Connection	Measuring Range [N·m]	Accuracy Class	Output Signal	Excitation [V]	Max. Speed [min ⁻¹]	Measurement of Speed / Angle
	MR-12	Center hole with keyway / Driving shaft with flange and mounting holes	20 ... 5000	0.1	± 5 V (± 10 V)	12 ... 28	5000 ... 12000	✓ Option
	DR-2481	External and Internal Spline Drive	260	0.5	± 10 V	12 ... 28	15000	-
Dual Range								
	DR-2208	Shaft	5 / 0.5 ... 20000 / 2000	0.1	± 5 V (± 10 V)	12 ... 28	5000 ... 15000	✓ Option
	DR-2508				± 25000 digits		Option	
	DR-2531	Shaft	5 / 0.5 ... 20000 / 2000	0.1	± 5 V (± 10 V)	12 ... 28	3500 ... 12000	✓ Option
	DR-2831				± 25000 digits		Option	







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Torque Sensors

Rotating Contactless for Screw Driving Systems	Type	Mechanical Connection	Measuring Range [N·m]	Accuracy Class	Output Signal	Excitation [V]	Max. Speed [min ⁻¹]	Measurement of Speed / Angle
	DR-3001	Square / Square socket	0.1 ... 5000	0.1	± 25000 digits	4 ... 6 from USB	1000 ... 4000	✓ Standard
	DR-2113	Square / Square socket	0.1 ... 5000	0.1	± 5 V (± 10 V)	12 ... 28	1000 ... 4000	✓ Option
	DR-2413				± 25000 digits			
	DR-2493	Square / Square socket	0.1 ... 5000	0.25	± 5 V (± 10 V)	12 ... 28	1000 ... 4000	✓ Option
	DR-3003	Square / Square socket	0.1 ... 20	0.1	± 25000 digits	4 ... 6 from USB	3000 ... 4000	✓ Standard
	DR-2153	¼" hexagon, quick action chuck	0.1 ... 20	0.1	± 5 V (± 10 V)	12 ... 28	3000 ... 4000	✓ Option
	DR-2453				± 25000 digits			
	DR-2494	¼" hexagon, quick action chuck	0.1 ... 20	0.25	± 25000 digits	12 ... 28	3000 ... 4000	✓ Option
	DR-2114	¼" hexagon, quick action chuck	0.1 ... 20	0.1	± 5 V (± 10 V)	12 ... 28	3000 ... 4000	✓ Option
	DR-2414				± 25000 digits			
	DR-1986	Square / Square socket	1 ... 12	0.3	± 5 V (± 10 V)	12 ... 28	2000	✓ Standard
	DR-1987		4 ... 80					
	DR-1988		60 ... 240					
	DR-2124	External and Internal Spline Drive	150 ... 500	0.3	± 5 V (± 10 V)	12 ... 28	2000	✓ Standard

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Torque Sensors

Rotating with Slipping	Type	Mechanical Connection	Measuring Range [N·m]	Accuracy Class	Output Signal	Excitation [V]	Max. Speed [min ⁻¹]	Measurement of Speed / Angle
	DR-2	Shaft with keyway	1 ... 500	0.1	0.5 2	2 ... 12	1000 ... 2000	-
	DR-20	Shaft with keyway	1 ... 500	0.1	0.5 2	2 ... 12	1000 ... 2000	✓ Standard
Rotating with Slipping for Screw Driving Systems	Type	Mechanical Connection	Measuring Range [N·m]	Accuracy Class	Output Signal	Excitation [V]	Max. Speed [min ⁻¹]	Measurement of Speed / Angle
	DR-1	Square / Square socket	1 ... 5000	0.1	0.5 2	2 ... 12	500 ... 2000	-
	DR-12	Square / Square socket	1 ... 5000	0.1	0.5 2	2 ... 12	500 ... 2000	✓ Standard
	DR-2291	1/4" hexagon, quick action chuck	1 ... 20	0.1	0.5 2	2 ... 12	2000	-
	DR-2335	1/4" hexagon, quick action chuck	1 ... 20	0.1	0.5 2	2 ... 12	2000	✓ Standard

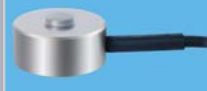





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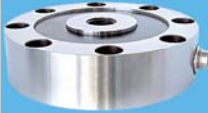







Force Sensors

Compressive Force Sensors	Type	Load Introduction / Mechanical Connection	Measuring Range [kN]	Accuracy Class	Output Signal [mV/V]	Excitation [V]	Area of Application / Characteristics
	K-13	Load button in rocker pin design Optional: Mounting side with female threads	0.01 ... 100	0.5	0.5 ... 1	2 ... 6 ... 2 ... 12	E.g. for insert press monitoring
	K-13B	Load button in rocker pin design Optional: Mounting side with female threads	0.01 ... 100	0.5	0.5 ... 1	2 ... 6 ... 2 ... 12	With overload protection e.g. for insert press monitoring
	K-14	Plan surface with central through hole	0.05 ... 100	0.5	1	2 ... 12	E.g. for insert press monitoring
	K-2528	Plan surface with central through hole and mounting holes	0.2 ... 10	1	1	2 ... 12	E.g. for insert press monitoring
	K-2529	Plan surface with central through hole and mounting holes	0.5 ... 20	1	1	2 ... 12	E.g. for insert press monitoring
	K-18	Plan surface with central through hole and spigot at both ends	5 ... 5000	0.5	1	2 ... 12	Small position feedback < 0,1 mm, e.g. for insert press monitoring
	K-22	Load button in rocker pin design / Bearing surface	0.05 ... 2	0.5	1	2 ... 6	Miniature transducer for thrust and insert press monitoring
	K-180	Plan surface with central through hole	15 ... 500	1 ... 3	1	2 ... 6	E.g. for measuring preload of screws
	K-450	Load button in rocker pin design / Fixing hole, female threads on the mounting face	1 ... 1000	0.1 ... 0.3	2	2 ... 12	Universal force transducer, e.g. for the examination of ground pressure plaks or insert press monitoring
	K-1250	External ring surface with spigot at the lower external ring	2 ... 100	0.5	1	2 ... 12	Flat dimensions, e.g. for insert press monitoring

Compressive Force Sensors	Type	Load Introduction / Mechanical Connection	Measuring Range [kN]	Accuracy Class	Output Signal [mV/V]	Excitation [V]	Area of Application / Characteristics
	K-1613	Load button in rocker pin design Optional: Mounting side with female threads	0.1 ... 50	0.5	1	2 ... 12	Miniature transducer, e.g. for insert press monitoring
	K-2071	Load button in rocker pin design / Mounting side with center hole	5 ... 15	0.3	1	2 ... 6	Miniature Transducer, e.g. for Industrial Process Control for Press Fitting, Riveting, Clinching, Stamping ..
	K-2283	Plan surface at both ends	50 ... 150	1	1	2 ... 12	Miniature Transducer, e.g. for Pressing Tools, Impact Measurements, Crash Testing, Punch, Stamping ..
Tension Force Sensors	Type	Load Introduction / Mechanical Connection	Measuring Range [kN]	Accuracy Class	Output Signal [mV/V]	Excitation [V]	Area of Application / Characteristics
	K-100	External threading at both ends	1 ... 100	0.3	1	2 ... 6 ... 2 ... 12	E.g. for solar wing controlling or rope force measurement
	K-1107	External threading at both ends	0.01 ... 0.2	0.2	0.5	2 ... 6	Miniature transducer, e.g. for examination of rope force or for force regulation in a bowden cable
	K-1368	Link plates at both ends	0.01 ... 0.2	0.2	1	2 ... 6	Miniature transducer, e.g. for force regulation in belt tension adjusters



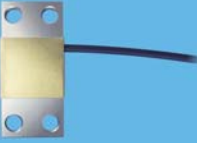

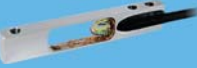

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Force Sensors

Compression and Tension Force Sensors	Type	Load Introduction / Mechanical Connection	Measuring Range [kN]	Accuracy Class	Output Signal [mV/V]	Excitation [V]	Area of Application / Characteristics
	K-11	Plan surface with central internal thread, through holes for screws, fixing hole	0.5 ... 2000	0.05 ... 1.0	2	2 ... 12	E.g. for material test equipments or insertion power measurement
	K-1563	External threading at both ends	0.1 ... 2	0.15 ... 0.3	1 ... 2	2 ... 12	E.g. for material testing or rope force measuring
	K-12	External threading at both ends	0.5 ... 1000	0.1 ... 0.25	1	2 ... 12	E.g. for tension / compressive test equipments, examination of actuating forces
	K-2145	External threading / Mounting face with female screw threads	0.5 ... 200	0.1 ... 0.25	1 ... 2	2 ... 12	E.g. for material testing or spring force measuring
	K-25	Internal threads at both ends	0.02 ... 50	0.1 ... 0.2	1 ... 2	2 ... 12	E.g. for tension / compressive test equipment
	K-1427	External threading / Central internal screw thread	0.5 ... 200	0.1 ... 0.25	1 ... 2	2 ... 12	E.g. for material testing or insert press monitoring
Dual Range							
	K-1882	Plan surface with spigot and female threads at both ends	1 / 10 15 / 150	0.2 ... 0.4	1	2 ... 12	E.g. for monitoring of assembly forces in the automobile industry
Force Transmissions							
	EF, EM, EF42, E2, ED, E3	Diverse					Force Transmissions, Thrust Pieces and Mounting Flanges

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Special Sensors




Special Sensors	Type	Load Introduction / Mechanical Connection	Measuring Range	Accuracy Class	Output Signal [mV/V]	Excitation [V]	Area of Application / Characteristics
	K-1661	Shaft	20 ... 400 kN	1	1	2 ... 12	Load measuring stud, e.g. for load measurement in idler pulleys
	K-2148	Spigot with mounting holes / Center hole with clamping	1 ... 2 kN	0.5	0.5 ... 1	2 ... 12	E.g. for web tension measuring systems
	DZ-1	Link plate with holes at both ends	60 N/mm ²	0.5	ca. 1	2 ... 12	E.g. for insert press monitoring, examination of material stresses or fluid level monitoring
	K-2565	Ergonomically shaped handle	1500 N	0.1	1	2 ... 12	Sensor for hand force measuring, e.g. for medical applications
	K-1509	Plan surface with mounting holes	2 ... 20 N	0.2	1	2 ... 6	Force sensor with very compact dimensions, e.g. for measurement of ball bearing friction
	K-2618	Around the circumference 3x 120°	30 ... 300 kN	1	1	2 ... 12	Force sensor, e.g. for measurement of tension forces in lathe chucks

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Multi-Component Sensors

Torque Static / Force Sensors	Type	Load Introduction / Mechanical Connection	Measuring Range	Accuracy Class	Output Signal [mV/V]	Excitation [V]	Area of Application / Characteristics	
	M-2416	External thread / Spigot with female threads	20 N / 0.1 N·m 50 N / 0.5 N·m	0.2 (F); 0.2 (Mt)	0.5	2 ... 8	E.g. for the optimization of the granulation of abrasives	
	M-1902	Central female thread / Mounting surface at the major diameter with female threads	100 kN / 100 N·m / 100 N·m	0.2	0.5	2 ... 12	For screw testing: Thread and screw head friction torque, pre load measurement	
	M-2230	Central female thread / Mounting surface at the major diameter with female threads	100 kN / 100 N·m / 100 N·m	0.2	0.5	2 ... 12	For screw testing: Thread and screw head friction torque, pre load measurement	
	M-1983	Central female thread / Mounting surface at the major diameter with female threads	40 kN / 60 N·m / 60 N·m	0.5	0.5	2 ... 12	For screw testing: Thread and screw head friction torque, pre load measurement	
	M-2396	Flange with center hole and female threads at both ends	0.5 kN / 5 N·m 1 kN / 10 N·m 1 kN / 30 N·m 20 kN / 20 N·m 0.5 kN / 50 N·m 2 kN / 50 N·m	0.3 (F) 0.2 (Mt)	1	2 ... 12	E.g. for the optimization of the cutting force of drills	
	M-2025	Spigot with female threads / Plan surface with female threads	10 kN / 10 N·m 20 kN / 20 N·m	0.2 (F) 0.2 (Mt)	1	2 ... 12	E.g. for the examination of the characteristics of elastomers	
	M-2354	Plan surface with center hole and female threads at both ends	10 kN / 10 N·m	0.2 (F) 0.2 (Mt)	1	2 ... 12	E.g. for the examination of the bearing friction of ball bearings	
Torque Rotary / Force Sensor	Type	Load Introduction / Mechanical Connection	Measuring Range	Accuracy Class	Output Signal	Excitation [V]	Max. Speed [min ⁻¹]	Measurement of Speed / Angle
	M-2371	Shaft end with keyway / external thread	100 N / 2 N·m 250 N / 5 N·m 500 N / 5 N·m	0.4 (F) 0.2 (Mt)	± 5 V (± 10 V)	12 ... 28	3000	✓ Option

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