ABSOLUTE CONFIDENCE IN YOUR TEST- AND MEASUREMENT EQUIPMENT AND DATA

Kistler – Accredited calibrations worldwide

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KISTLER
measure. analyze. innovate.

Content

Kistler worldwide calibration services

Kistler is the world market leader in dynamic measurement technology. Quality and maximum precision are our goals - for the high-tech products we manufacture as well as for our customer-oriented services

In metrology, traceable calibrations are the basis for precise measurements. Kistler offers a comprehensive range of calibration services tailored to the specific needs of its customers.

Kistler calibration services are available at Tech Centers, technical offices and production companies around the world. We also offer on-site and local calibrations to minimize your logistics efforts. Customers benefit from calibration services that are traceable to national or international standards, with short delivery times and low shipping costs.

Request a quote!
You can rely on our specialists to find the best solution for your specific calibration requirements.

Calibrations create added value
Calibrations provide you with feedback on the metrological behavior of a measuring device.

The precision and stability of the measuring devices can only be ensured by monitoring by periodical calibrations. This ensures controlled processes in production. Periodical calibration creates the basis for reliable measurement results. Traceable calibrations stand for a high and accepted standard.

After a second or third calibration, ideally carried out by the same calibration service provider, confidence in the device can also be backed up by data.

This creates the basis for further decisions on topics such as recalibration intervals. All measuring devices are exposed to environmental influences throughout their service life. Wear, overloading or shock loads can damage the devices or change their properties. These events can falsify the measured values. The users of the measuring device are often unaware of the resulting problems.

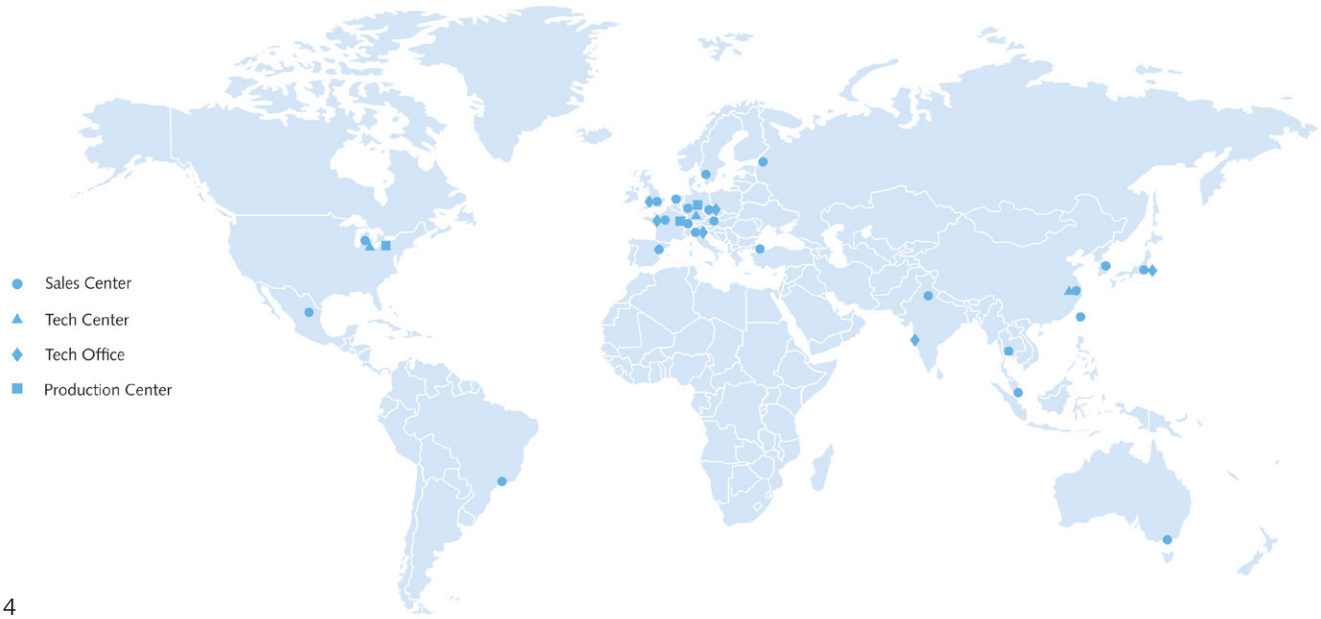
For these reasons, periodic calibrations are essential to ensure that your measuring devices work accurately and reliably

Your benefits from Kistler calibration services:

- **Expertise: decades of calibration experience**
- **Calibration also possible for third-party products**
- **One hand solutions**

Why are calibrations necessary ?

- Industrial standards (e.g. ISO 9001, IATF 16949) request periodical calibrations
- Calibrated measuring equipment is the basis for precise measurements
- Calibration provides proof that the measuring devices are accurate and reliable.



Traceable calibration, performed by our ISO 17025 accredited laboratories

Accredited calibrations – your advantages:

- International acceptance
- Meets industrial requirements (e.g. IATF 16949)
- Performed by ISO 17025 accredited laboratories
- On-site and in-situ calibration available

Kistler – your accredited partner for calibrations – worldwide

Calibration results are accepted worldwide only if traceable to a national standard. Kistler has a worldwide network of accredited calibration laboratories for many parameters. Traceable (accredited) calibrations are offered in many measurands and ranges.

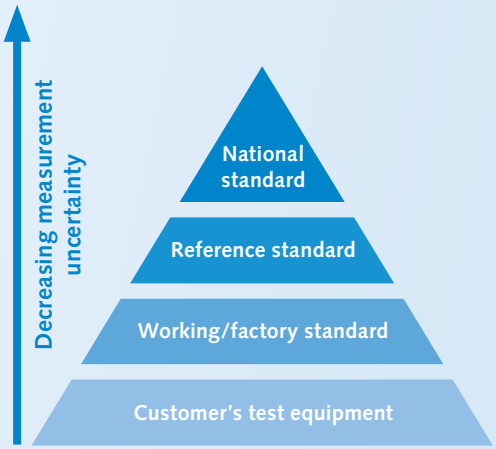
We offer our calibration services in stationary laboratories as well as on-site for many measurands.
We also offer a wide range of service calibrations for requests outside the scope of our accreditation.

Traceable calibrations
Traceable calibrations are performed by laboratories accredited according to ISO 17025. This standard implements the definitions and specifications of the International Dictionary of Metrology (VIM) and ensures the quality of laboratory services.

A calibration is basically defined as a recording of measured values with the associated measurement uncertainty. A calibration records the measured values and records them on the calibration certificate together with the respective measurement uncertainties.

Only a traceable calibration by an accredited laboratory guarantees metrological verification traceable to national standards

Reference standards for accredited calibration laboratories



The Kistler laboratories are audited by the national accreditation bodies:

Location	Accreditation body
Switzerland	SAS
Germany	DAkkS
USA	ANAB
	A2LA
United Kingdom	UKAS

On-site calibration

On-site calibrations are a solution, especially for measuring systems that are very large or heavy and difficult to send to a permanent calibration laboratory. Kistler is accredited to perform on-site calibrations for many measurands.

In-situ calibration

In-situ calibrations can be carried out to meet special requirements and if the measurement setup must not be dismantled (e.g. for medical applications).

In-situ calibrations are calibrations in the installed state of a transducer. An in-situ calibration can also be useful if, for technical reasons or downtimes due to time-consuming dismantling are to be minimized.

Test- and measurement equipment management

Do you need support in answering questions and making decisions about calibrations and equipment management? Do you need help with the variety of applicable standards and regulations?

- Why calibration?
- How often must be calibratet
- How shall calibration intervall detemined?
- Calibration of measurement chains or single sensors?
- Traceable- or service calibration?

Kistler will be happy to advise you on the answers to these and other questions and help you set up a management system for your test and measurement equipment that ensures audit compliance. Contact us - our experts will support you!
service@kistler.com

Accredited Kistler calibration laboratories: locations, measured variables and measuring ranges of permanent laboratories

Germany

Calibration laboratory Kistler Remscheid GmbH

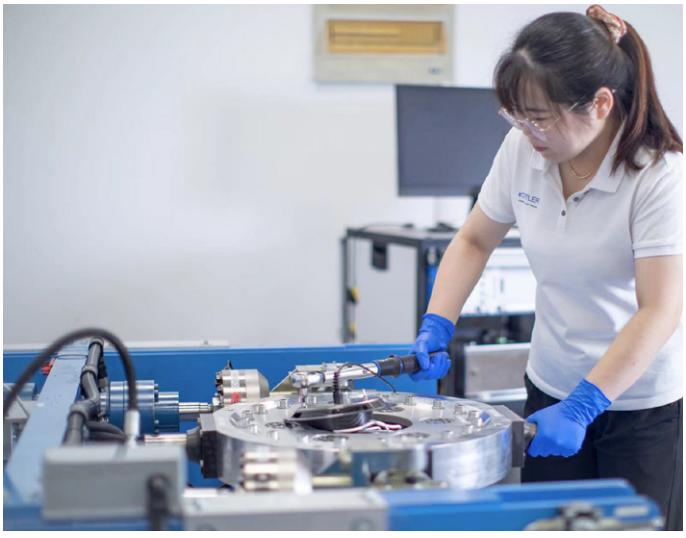
Measurand/Unit under test	Range		
Angle of rotation			
Direct angle transducer Indirect angle systems	0°	to	360°
Torque			
Torque sensors and torque measuring equipment	0.01 N·m	to	<0.1 N·m
	0.1 N·m	to	<1 N·m
	1 N·m	to	1 kN·m
	>1 kN·m	to	2 kN·m
	>2 kN·m	to	20 kN·m
Transfer torque wrenches	0.1 N·m	to	<1 N·m
	1 N·m	to	1 kN·m
Torque wrench calibration systems	0.2 N·m	to	<2 N·m
	2 N·m	to	3 kN·m
Manual operated torque tools	0.01 N·m	to	<1 N·m
	1 N·m	to	<5 N·m
	5 N·m	to	1.5 kN·m
Force			
Force sensors and measuring equipment	2 kN	to	500 kN

Calibration laboratory Kistler Instrumente GmbH, Lorch

Measurand/Unit under test	Range		
Torque			
Torque sensors and torque measuring chains	0.004 N·m	to	0.01 N·m
	>0.01 N·m	to	<0.1 N·m
	0.1 N·m	to	20 N·m
	0,1 N·m	to	<0,2 N·m
	0.2 N·m	to	<0.4 N·m
	0.4 N·m	to	<1 N·m
	1 N·m	to	200 N·m
	1 N·m	to	10 N·m
	>10 N·m	to	3 kN·m
	1 N·m	to	5 N·m
	>5 N·m	to	10 N·m
	>10 N·m	to	20 N·m
	>20 N·m	to	5 kN·m
	1 kN·m	to	20 kN·m
	>20 kN·m	to	100 kN·m

Calibration laboratory Kistler ATD Heidelberg

Measurand/Unit under test	Range		
Acceleration			
Acceleration transducers and measuring chains	200 m/s²	to	2 000 m/s²
Force			
Force sensors	0,5 kN	to	50 kN
Multicomponent force and torque	0,5 kN	to	50 kN
Multicomponent transducers (ATD)	2 N·m	to	1 400 N·m
Length			
Displacement sensors	0 mm	to	200 mm
	>200 mm	to	600 mm
	>600 mm	to	850 mm



Calibration laboratory Kistler Instrumente GmbH Sindelfingen

Measurand/Unit under test	Range		
Acceleration			
Accelerometers, acceleration measuring chains (reference frequency range)	1 m/s²	to	80 m/s²
	10 m/s²	to	200 m/s²
Acceleration sensors			
Acceleration measuring chains (medium frequency range)	5 m/s²	to	200 m/s²
Accelerometers			
Accelerometers (low-frequency range)	0,1 m/s²	to	80 m/s²
Vibration calibrator	1 m/s²	to	20 m/s²
Frequency	10 Hz	to	160 Hz
	>160 Hz	to	<1 kHz
	1 kHz	to	<5 kHz
	5 kHz	to	<9 kHz
	9 kHz	to	10 kHz
Distortion	10 Hz	to	10 kHz
Voltage			
Voltage measuring amplifier with grounded input and differential input, ICP-Measuring amplifier with constant current supply	70 mV	to	30 V
Charge			
Charge amplifier with grounded input and differential input	7 pC	to	10 nC
Pressure	1 bar	to	
Absolute pressure p_{abs}	3 bar	to	401 bar
	>401 bar	to	1 401 bar
	0 bar	to	20 bar
Positive pressure p_e	0 bar	to	
	2 bar	to	400 bar
	>40 bar	to	1 400 bar
	0 bar	to	20 bar
Force	0.01 N·m	to	<0.1 N·m
Force sensors	0.1 N·m	to	<1 N·m
	1 N·m	to	1 kN·m
	>1 kN·m	to	2 kN·m
	>2 kN·m	to	20 kN·m
Multicomponent Force and torque	0.1 N·m	to	<1 N·m
	1 N·m	to	1 kN·m
Multicomponent sensors	0.2 N·m	to	<2 N·m
	2 N·m	to	3 kN·m
Length			
Length sensors	2 mm	to	500 mm

Calibration laboratory Kistler Instrumente GmbH München

Measurand/Unit under test	Range		
DC voltage	0 V	to	1 mV
DC sources	>1 mV	to	10 mV
	>10 mV	to	100 mV
	>100 mV	to	1 V
	>1 V	to	10 V
	>10 V	to	20 V
	>20 V	to	100 V
	>100 V	to	1 000 V
DC voltage	0 V	to	450 µV
Measuring systems	>450 µV	to	3 mV
	>3 mV	to	4.5 mV
	>4.5 mV	to	10 mV
	>10 mV	to	30 mV
	>30 mV	to	45 mV
	>45 mV	to	300 mV
	>300 mV	to	450 mV
	>450 mV	to	3 V
	>3 V	to	4.5 V
	>4.5 V	to	30 V
DC current	0 A	to	100 µA
Sources	>100 µA	to	1 mA
	>1 mA	to	10 mA
	>10 mA	to	100 mA
	>100 mA	to	1 A
	>1 A	to	3 A
	1 mA	to	20 mA
DC resistance	0 Ω	to	100 Ω
Resistance	>100 mΩ	to	1 Ω
	>1 Ω	to	10 Ω
	>10 Ω	to	100 Ω
	>100 Ω	to	250 Ω
	>250 Ω	to	660 Ω
	>660 Ω	to	1 kΩ
	>1 kΩ	to	10 kΩ
	10kΩ	to	100 kΩ
	>100 kΩ	to	1 MΩ

Switzerland

Calibration laboratory Kistler Winterthur AG

Measurand/Unit under test	Range		
Fluid overpressure Piezoelectrical pressure sensor calibration	1 bar	to	10 ba
	10 bar	to	<100 bar
	100 bar	to	1 000 bar
	1 000 bar	to	8 000 bar
Piezoresistive pressure sensor calibration	0 bar	to	<5 bar
	5 bar	to	<50 bar
	50 bar	to	1 000 bar
	1 000 bar	to	5 000 bar
Force Piezoelectric force sensor calibration	0.05 kN	to	<2 kN
	2 kN	to	50 kN
	1 kN	to	100 kN
	1 kN	to	<50 kN
	50 kN	to	500 kN
Charge Generation and calibration	1 pC	to	<20 pC
	20 pC	to	<50 pC
	50 pC	to	<200 pC
	200 pC	to	<48 000 pC
	48 nC	to	3 100 nC
Voltage (DC)	0 V	to	<0.12 V
	0.12 V	to	<1.2 V
	1.2 V	to	<12 V
	12 V	to	100 V
Voltage (AC)	0 V	to	<0.12 V
	0.12 V	to	<1.2 V
	1.2 V	to	<12 V
	12 V	to	30 V
	0 Vpp	to	<0.33 Vpp
	0.33 Vpp	to	<3.3 Vpp
	3.3 Vpp	to	<33 Vpp
	33 Vpp	to	85 Vpp
Current (DC)	0 mA	to	<0.37 mA
	0.37 mA	to	<1.4 mA
	1.4 mA	to	<4.5 mA
	4.5 mA	to	<144 mA
	144 mA	to	1 000 mA
Resistance (DC)	0.01 Ω	to	<12 Ω
	12 Ω	to	<120 Ω
	0.12 kΩ	to	<1.2 kΩ
	1.2 kΩ	to	<12 kΩ
	12 kΩ	to	<120 kΩ
	0.12 MΩ	to	<1.2 MΩ
	1.2 MΩ	to	<12 MΩ
	12 MΩ	to	120 MΩ

Measurand/Unit under test	Range		
Capacity	1 pF	to	<1000 pF
	1 nF	to	<100 nF
	100 nF	to	<1 000 nF
	1 pF	to	<10 pF
	10 pF	to	<100 pF
	100 pF	to	<1 000 pF
	1 nF	to	<10 nF
	10 nF	to	<100 nF
	100 nF	to	1 000 nF

United Kingdom

Permanent calibration laboratory Kistler Instruments Ltd., Hook

Measurand/Unit under test	Range		
Charge, DC, 100 Hz & 1 kHz Nominal set points at full range	10 pC		
	100 pC		
	1 nC		
	10 nC		
	100 nC		
	1 µC		
	2 µC		
Range values 500 mV to 10 V	2 pC	to	10 pC
	10 pC	to	100 pC
	100 pC	to	1 nC
	1 nC	to	10 nC
	10 nC	to	100 nC
	100 nC	to	1 µC
	200 nC	to	2 µC
All range values	2 pC	to	10 pC
	10 pC	to	100 pC
	100 pC	to	1 nC
	1 nC	to	10 nC
	10 nC	to	100 nC
	100 nC	to	1 µC
	200 nC	to	2 µC
DC voltage Zero volts	100 mV	to	200 mV
	200 mV	to	10 V
	100 mV	to	200 mV
	200 mV	to	10 V
Voltage Current resistance ratio piezo resistive amplifiers	10 Ω	to	1000 Ω
Excitation current	1 mA	to	4 mA
Pressure Continuous calibration of piezoelectric pressure sensors	10 MPa	to	100 Mpa
	100 MPa	to	800 MPa

USA

Calibration laboratory Amherst, NY/Novi, MI

Measurand/Unit under test	Range		
Acoustics and vibration Vibration Magnitude/Frequency 0.5 Hz to 20 Hz	5 mV	to	4 V/gn
Vibration, Magnitude & Charge/ Frequency response			
10 Hz to 2 000 Hz	5 mV	to	4 V/gn
>2 000 Hz to 10 000 Hz	0.1 pC	to	100 pC/gn
>10 000 Hz to 15 000 Hz			
>15 000 Hz to 17 000 Hz			
>17 000 Hz to 20 000 Hz			
Vibration, rotational (magnitude)			12.5 Hz
Electrical – DC/low frequency			
Charge (automated)	1.6 pC	to	90 000 pC
Charge (manual)	5 pC	to	2 000 000 pC
Charge (automated)	±100 pC		
	±1 000 pC		
	±10 000 pC		
	±100 000 pC		
	±1 000 000 pC		
DC Voltage – source	–10 V	to	10 V
DC Voltage – measure	–10 V	to	10 V
Gain accuracy	0.5	to	150
Gain accuracy	1x, 10x, 100x		
Mass and mass related			
Force, dynamic (voltage sensitivity)	0.04 lbf	to	5 lbf
Force, impulse (sensitivity at 100 Hz)	100 lbf	to	5 000 lbf
Force, static (voltage, charge sensitivity)	50 lbf	to	50 000 lbf
Pressure Absolute	–14.5 psi	to	<0 psi
	>0 psi	to	500 psi
Pressure Sinusodial	50 psi	to	1 000 psi
Pressure, static	20 psi	to	15 000 psi
	5 000 psi	to	100 000 psi
Pressure, pneumatic Gage/absolute Current: 4 mA to 20 mA	–14.5 psi	to	<0 psi
	>0 psi	to	1 500 psi
Pressure, pneumatic Gage/absolute Voltage: up to 10 V	–14.5 psi	to	<0 psi
	>0 psi	to	1 500 psi

Measurand/Unit under test	Range		
Pressure, hydraulic Current: 4 mA to 20 mA	500 psig	to	5 000 psig
Pressure, hydraulic Voltage: up to 10 V	500 psig	to	6 000 psig
Pressure, hydraulic Voltage: up to 10 V	0 bar	to	700 bar
Acoustics and vibration			
Vibration Magnitude/ Frequency response			
3 Hz to 8 Hz	0.04 mV	to	4 V/gn at 100 Hz
>8 Hz to 16 Hz			
>16 Hz to 1 000 Hz	0.1 pC	to	100 pC/gn
>1 000 Hz to 5 000 Hz			
>5 000 Hz to 10 000 Hz			
Electrical – DC/low frequency			
DC voltage – source	–10 V	to	10 V
DC voltage – measure	–10 V	to	10 V
	0 V	to	20 V
Charge	2 pC	to	2 100 000 pC
Charge (automated)	±100 pC		
	±1 000 pC		
	±10 000 pC		
	±100 000 pC		
	±1 000 000 pC		
Current – measure	1 mA	to	20 mA
Length – dimensional metrology			
Linear displacement	0 mm	to	300 mm
Rotational displacement	0°	to	360°
Mass and mass related			
Force, static	100 N	to	500 N
	>500 N	to	5 000 N
	>5 000 N	to	500 000 N
	2 200 N	to	22 000 N
	>22 000 N	to	500 000 N
Pressure, static	1 bar	to	300 bar
	80 bar	to	8 000 bar
Mass and mass related	1 bar	to	250 bar
Velocity	1 kph	to	330 kph
Force Moment	0.5 kN	to	25 kN
	12.5 N·m	to	1 000 N·m
Torque sensors	2 N·m	to	10 N·m
	10 N·m	to	200 N·m
	50 N·m	to	500 N·m
	500 N·m	to	2kN·m
	2 kN·m	to	4 kN·m

USA

Calibration laboratory Amherst, NY/Novi, MI

Measurand/Unit under test	Range		
Torque wrenches	2 N·m	to	20 N·m
	>20 N·m	to	500 N·m
Time and frequency			
Frequency – measure	0 Hz	to	20 000 Hz
Time – measure	0 µs	to	150 µs
Angular rate	–3 000 °/sec	to	3 000 °/sec

China

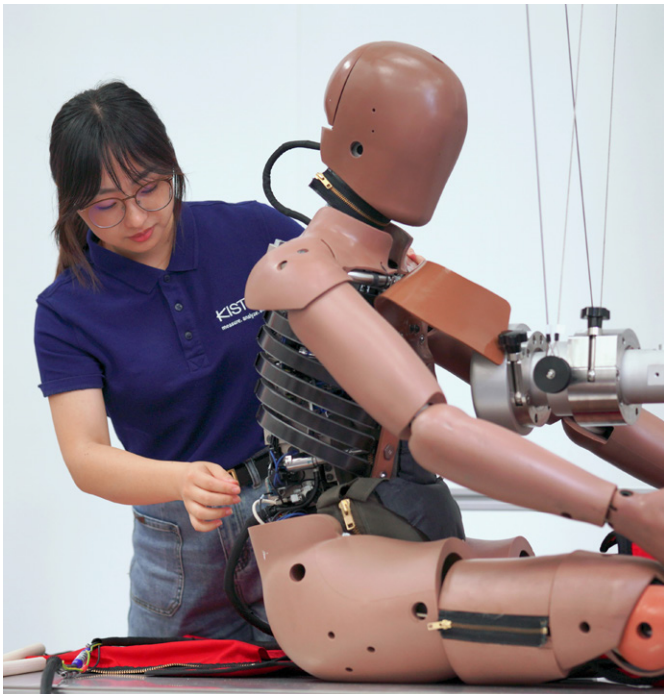
Calibration laboratory Kistler Innovative Technology Co., Ltd., Shanghai

Measurand/Unit under test	Range		
Force	0 kN	to	50 kN
Length Linear sensors	0 mm	to	800 mm

Japan

Calibration laboratory Kistler Japan Co. Ltd, Shinyokohama

Measurand/Unit under test	Range		
Acoustic Accelerometer	Voltage sensitivity: mV/(m/s²) Accelerometer output ≥0.01 mV		
	20 Hz	to	1 kHz
	1 kHz	to	5 kHz
	5 kHz	to	10 kHz
	Charge sensitivity: pC/(m/s²) Accelerometer output ≥1 pC		
	20 Hz	to	1 kHz
	1 kHz	to	5 kHz
	5 kHz	to	10 kHz
Mass, force and weighing devices Load cell	**Force**		
	100 N compression		
	200 N compression		
	500 N compression		
	1 000 N compression		
	2 000 N compression		
	5 000 N compression		
	10 000 N compression		
	20 000 N compression		
	50 000 N compression		
	Torque		
	400 N·m compression		
	680 N·m compression		
	900 N·m compression		



Kistler calibration laboratories with accreditation for on-site calibrations: measurands and measuring ranges

On-site accreditation Kistler Remscheid GmbH

Measurand/Unit under test	Range		
Angle of rotation Angle sensors in combination with torque	0°	to	360°
Torque Torque measuring systems	0.2 N·m 200 N·m	to to	1 N·m 60 kN·m
Torque wrench calibration systems	0.2 N·m 2 N·m	to to	<2 N·m 3 kN·m

On-site accreditation Kistler Instrumente GmbH Lorch

Measurand/Unit under test	Range		
Force (WPM) Force measuring systems not according to DIN 51220	0.5 kN >15 kN	to to	15 kN 300 kN

Accredited measurands and measuring ranges: Kistler calibration laboratories

Measurand/Unit under test	Range			Laboratory, City, Country
Acceleration sensors Acceleration measuring chains (medium frequency range)	5 m/s²	to	200 m/s²	Kistler Instrumente GmbH Sindelfingen, Germany
Acceleration Acceleration transducers and measuring chains	200 m/s²	to	2 000 m/s²	Kistler ATD Heidelberg, Germany
Acceleration Accelerometers, acceleration measuring chains (reference frequency range)	1 m/s² 10 m/s²	to to	80 m/s² 200 m/s²	Kistler Instrumente GmbH Sindelfingen, Germany
Accelerometer	Voltage sensitivity: mV/(m/s²) Accelerometer output ≥0.01 mV			Kistler Japan Co. Ltd, Shinyokohama, JP
	20 Hz 1 kHz 5 kHz	to to to	1 kHz 5kHz 10 kHz	
	Charge sensitivity: pC/(m/s²) Accelerometer output ≥1 pC			
	20 Hz 1 kHz 5 kHz	to to to	1 kHz 5 kHz 10 kHz	
Accelerometers Accelerometers (low-frequency range)	1 m/s² 10 m/s²	to to	80 m/s² 200 m/s²	Kistler Instrumente GmbH, Sindelfingen, Germany
Acoustic und vibration Vibration, magnitude/frequenz (0,5 Hz to 20 Hz)	5 mV	to	4 V/gn	Amherst, NY/Novi, MI, USA
Angle of rotation on-site Angle sensors in combination with torque	0°	to	360°	Kistler Remscheid GmbH, Germany
Angle of rotation Direct angle transducer Indirect angle systems	0°	to	360°	Kistler Remscheid GmbH, Germany
Angular rate	–3 000	to	3 000 °/s	Amherst, NY/Novi, MI, USA
AC Voltage	0 V 0.12 V 1.2 V 12 V 0 Vpp 0.33 Vpp 3.3 Vpp 33 Vpp	to to to to to to to to	<0.12 V <1.2 V <12 V 30 V <0.33 Vpp <3.3 Vpp <33 Vpp 85 Vpp	Kistler Winterthur AG, Switzerland
Capacity	1 pF 1 nF 100 nF 1 pF 10 pF 100 pF 1 nF 10 nF 100 nF	to to to to to to to to to	<1000 pF <100 nF <1 000 nF <10 pF <100 pF <1 000 pF <10 nF <100 nF 1 000 nF	Kistler Winterthur AG, Switzerland

Measurand/Unit under test	Range			Laboratory, City, Country
Charge	2 pC	to	2 100 000 pC	Amherst, NY/Novi, MI, USA
Charge (automated)	1.6 pC	to	90 000 pC	Amherst, NY/Novi, MI, USA
Charge (automated)	± 100 pC ± 1 000 pC ± 10 000 pC ± 100 000 pC ± 1 000 000 pC			Amherst, NY/Novi, MI, USA
Charge (manual)	5 pC	to	2 000 000 pC	Amherst, NY/Novi, MI, USA
Charge All ranges	2 pC 10 pC 100 pC 1 nC 10 nC 100 nC 200 nC	to to to to to to to	10 pC 100 pC 1 nC 10 nC 100 nC 1 µC 2 µC	Amherst, NY/Novi, MI, USA
Charge Automated	± 100 pC ± 1 000 pC ± 10 000 pC ± 100 000 pC ± 1 000 000 pC			Amherst, NY/Novi, MI, USA
Charge Charge amplifier with grounded input and differential input	7 pC	to	10 nC	Kistler Instrumente GmbH Sindelfingen, Germany
Charge Generation and calibration	1 pC 20 pC 50 pC 200 pC 48 nC	to to to to to	<20 pC <50 pC <200 pC <48 000 pC 3 100 nC	Kistler Winterthur AG, Switzerland
Charge Range 500 mV to 10 V	2 pC 10 pC 100 pC 1 nC 10 nC 100 nC 200 nC	to to to to to to to	10 pC 100 pC 1 nC 10 nC 100 nC 1 µC 2 µC	Amherst, NY/Novi, MI, USA
Charge, DC, 100 Hz & 1 kHz Nominal set points at full range	10 pC 100 pC 1 nC 10 nC 100 nC 1 µC 2µC			Amherst, NY/Novi, MI, USA
Continuous calibration of piezoelectric pressure sensors	10 MPa 100 MPa	to to	100 Mpa 800 MPa	Amherst, NY/Novi, MI, USA
Current – measure	1 mA	to	20 mA	Amherst, NY/Novi, MI, USA

Measurand/Unit under test	Range			Laboratory, City, Country
DC current	0 mA		<0.37 mA	
	0.37 mA		<1.4 mA	
	1.4 mA		<4.5 mA	Kistler Winterthur AG, Switzerland
	4.5 mA		<144 mA	
	144 mA		1 000 mA	
DC current sources	0 A	to	100 µA	
	>100 µA	to	1 mA	
	>1 mA	to	10 mA	
	>10 mA	to	100 mA	Kistler Instrumente GmbH München, Germany
	>100 mA	to	1 A	
	>1 A	to	3 A	
	1 mA	to	20 mA	
DC resistance	0 Ω	to	100 Ω	
Resistance	>100 mΩ	to	1 Ω	
	>1 Ω	to	10 Ω	
	>10 Ω	to	100 Ω	
	>100 Ω	to	250 Ω	Kistler Instrumente GmbH München, Germany
	>250 Ω	to	660 Ω	
	>660 Ω	to	1 kΩ	
	>1 kΩ	to	10 kΩ	
	>10kΩ	to	100 kΩ	
	>100 kΩ	to	1 MΩ	
DC restistance	0.01 Ω	to	<12 Ω	
	12 Ω	to	<120 Ω	
	0.12 kΩ	to	<1.2 kΩ	
	1.2 kΩ	to	<12 kΩ	Kistler Winterthur AG, Switzerland
	12 kΩ	to	<120 kΩ	
	0.12 MΩ	to	<1.2 MΩ	
	1.2 MΩ	to	<12 MΩ	
	12 MΩ	to	120 MΩ	
DC voltage – measure	–10 V	to	10 V	Amherst, NY/Novi, MI, USA
	0 V	to	20 V	
DC voltage – measure	–10 V	to	10 V	Amherst, NY/Novi, MI, USA
DC voltage – source	–10 V	to	10 V	Amherst, NY/Novi, MI, USA
DC voltage	Zero Volts			
	100 mV	to	200 mV	
	200 mV	to	10 V	Amherst, NY/Novi, MI, USA
	100 mV	to	200 mV	
	200 mV	to	10 V	
DC voltage – source	–10 V		to 10 V	Amherst, NY/Novi, MI, USA
DC voltage	0 V	to	1 mV	
DC sources	>1 mV	to	10 mV	
	>10 mV	to	100 mV	
	>100 mV	to	1 V	Kistler Instrumente GmbH München, Germany
	>1 V	to	10 V	
	>10 V	to	20 V	
	>20 V	to	100 V	
	>100 V	to	1 000 V	

Measurand/Unit under test	Range			Laboratory, City, Country
DC voltage Measuring systems	0 V	to	450 µV	Kistler Instrumente GmbH München, Germany
	>450 µV	to	3 mV	
	>3 mV	to	4.5 mV	
	>4.5 mV	to	10 mV	
	>10 mV	to	30 mV	
	>30 mV	to	45 mV	
	>45 mV	to	300 mV	
	>300 mV	to	450 mV	
	>450 mV	to	3 V	
	>3 V	to	4.5 V	
	>4.5 V	to	30 V	
Distortion	10 Hz	to	10 kHz	Kistler Instrumente GmbH Sindelfingen, Germany
DV voltage	0 V	to	<0.12 V	Kistler Winterthur AG, Switzerland
	0.12 V	to	<1.2 V	
	1.2 V	to	<12 V	
	12 V	to	100 V	
Excitation current	1 mA	to	4 mA	Amherst, NY/Novi, MI, USA
Fluid overpressure Piezoelectrical pressure sensor calibration	1 bar	to	10 bar	Kistler Winterthur AG, Switzerlan
	10 bar	to	<100 bar	
	100 bar	to	1 000 bar	
	1 000 bar	to	8 000 bar	
Fluid overpressure Piezoresistive pressure sensor calibration	0 bar	to	<5 bar	Kistler Winterthur AG, Switzerlan
	5 bar	to	<50 bar	
	50 bar	to	1 000 bar	
	1 000 bar	to	5 000 bar	
Force	0 kN	to	50 kN	Kistler Innovative Technology Co., Ltd., Shanghai, CN
Force Force sensors	2 kN	to	20 kN	Kistler Instrumente GmbH Sindelfingen, Germany
Force (WPM) on-site Force measuring systems not according to DIN 51220	0.5 kN	to	15 kN	Kistler Instrumente GmbH Lorch, Germany
	>15 kN	to	300 kN	
Force Piezoelectric force sensor calibration	0.05 kN	to	<2 kN	Kistler Winterthur AG, Switzerland
	2 kN	to	50 kN	
	1 kN	to	100 kN	
	1 kN	to	<50 kN	
	50 kN	to	500 kN	
Force Force sensors	0.5 kN	to	50 kN	Kistler ATD Heidelberg, Germany
Force Force sensors and measuring equipment	2 kN	to	500 kN	Kistler Remscheid GmbH, Germany
Force Moment	0.5 kN	to	25 kN	Amherst, N/Novi, MN, USA
	12.5 N·m	to	1 000 N·m	
Force, dynamic (Voltage sensitivity)	0.04 lbf	to	5 lbf	Amherst, NY/Novi, MI, USA
Force, impulse (Sensitivity at 100 Hz)	100 lbf	to	5 000 lbf	Amherst, NY/Novi, MI, USA
Force, static (Voltage, charge sensitivity)	50 lbf	to	50 000 lbf	Amherst, NY/Novi, MI, USA

Measurand/Unit under test	Range			Laboratory, City, Country
Force, static	100 N	to	500 N	Amherst, NY/Novi, MI, USA
	>500 N	to	5 000 N	
	>5 000 N	to	500 000 N	
	2 200 N	to	22 000 N	
	>22 000 N	to	500 000 N	
Frequency – measure	0 Hz	to	20 000 Hz	Amherst, NY/Novi, MI, USA
Frequency	10 Hz	to	160 Hz	Kistler Instrumente GmbH Sindelfingen, Germany
	>160 Hz	to	<1 kHz	
	1 kHz	to	<5 kHz	
	5 kHz	to	<9 kHz	
	9 kHz	to	10 kHz	
Gain accuracy	0.5	to	150	Amherst, NY/Novi, MI, USA
Gain accurancy			1x, 10x, 100x	Amherst, NY/Novi, MI, USA
Hydraulic pressure Current: 4 mA to 20 mA	500 psig	to	5 000 psig	Amherst, NY/Novi, MI, USA
Hydraulic pressure Voltage: up to 10 V	500 psig	to	6 000 psig	Amherst, NY/Novi, MI, USA
Hydraulic pressure Voltage: up to 10 V	0 bar	to	700 bar	Amherst, NY/Novi, MI, USA
Length – dimensional metrology				Amherst, NY/Novi, MI, USA
Length Displacement sensors	0 mm	to	200 mm	Kistler ATD Heidelberg, Germany
	>200 mm	to	600 mm	
	>600 mm	to	850 mm	
Length Length sensors	0 mm	to	200 mm	Kistler Instrumente GmbH Sindelfingen, Germany
	>200 mm	to	600 mm	
	>600 mm	to	850 mm	
Length Linear sensors	0 mm	to	800 mm	Kistler Innovative Technology Co., Ltd., Shanghai, CN
Linear displacement	0 mm	to	300 mm	Amherst, NY/Novi, MI, USA
Manual operated torque tools	0.01 N·m	to	<1 N·m	Kistler Remscheid GmbH, Germany
	1 N·m	to	<5 N·m	
	5 N·m	to	1.5 kN·m	
Mass and mass related	1 bar	to	250 bar	Amherst, NY/Novi, MI, USA
Mass, force and weighing devices	**Force**			Kistler Japan Co. Ltd, Shinyokohama, JP
	100 N compression			
	200 N compression			
	500 N compression			
	1 000 N compression			
	2 000 N compression			
	5 000 N compression			
	10 000 N compression			
	20 000 N compression			
	50 000 N compression			
	Moment			
	400 N·m compression			
	680 N·m compression			
	900 N·m compression			

Measurand/Unit under test	Range			Laboratory, City, Country
Multicomponent force and torque	0.5 kN	to	50 kN	Kistler ATD Heidelberg, Germany
Multicomponent transducers (ATD)	2 N·m	to	1 400 N·m	
Multicomponent force and torque	2 kN	to	50 kN	Kistler Instrumente GmbH Sindelfingen, Germany
Multicomponent transducers	0.1 kN·m	to	10 kN·m	
	2 kN	to	50 kN	
	0.1 kN·m	to	10 kN·m	
Pneumatic pressure Gage/absolute Current: 4 mA to 20 mA	–14.5 psi	to	<0 psi	Amherst, NY/Novi, MI, USA
	>0 psi	to	1 500 psi	
Pneumatic pressure Gage/absolute Current: 4 mA to 20 mA	–14.5 psi	to	<0 psi	Amherst, NY/Novi, MI, USA
	>0 psi	to	1 500 psi	
Pneumatic pressure Gage/absolute Voltage: Up to 10 V	–14.5 psi	to	<0 psi	Amherst, NY/Novi, MI, USA
	>0 psi	to	1 500 psi	
Positive pressure p_e	0 bar			Kistler Instrumente GmbH Sindelfingen, Germany
	2 bar	to	400 bar	
	>400 bar	to	1400 bar	
	0 bar	to	20 bar	
Pressure Absolute pressure p_{abs}	1 bar			Kistler Instrumente GmbH Sindelfingen, Germany
	3 bar	to	401 bar	
	>401 bar	to	1401 bar	
	0 bar	to	20 bar	
Pressure Absolute	–14.5 psi	to	<0 psi	Amherst, NY/Novi, MI, USA
	> 0 psi	to	500 psi	
Pressure Sinusodial	50 psi	to	1 000 psi	Amherst, NY/Novi, MI, USA
Pressure Static	20 psi	to	15 000 psi	Amherst, NY/Novi, MI, USA
	5 000 psi	to	100 000 psi	
Pressure Static	1 bar	to	300 bar	Amherst, NY/Novi, MI, USA
	80 bar	to	8 000 bar	
Rotational displacement	0°	to	360°	Amherst, NY/Novi, MI, USA
Time – measure	0 µs	to	150 µs	Amherst, NY/Novi, MI, USA
Torque on-site Torque measuring systems	0.2 N·m	to	1 kN·m	Kistler Remscheid GmbH, Germany
	200 N·m	to	60 kN·m	
Torque sensors	2 N·m	to	10 N·m	Amherst, NY/Novi, MI, USA
	10 N·m	to	200 N·m	
	50 N·m	to	500 N·m	
	500 N·m	to	2kN· m	
	2 kN·m	to	4 kN·m	
Torque wrench calibration systems	0.2 N·m	to	<2 N·m	Kistler Remscheid GmbH, Germany
	2 N·m	to	3 kN·m	
Torque wrench calibration systems on-site	0.2 N·m	to	<2 N·m	Kistler Remscheid GmbH, Germany
	2 N·m	to	3 kN·m	

Measurand/Unit under test	Range			Laboratory, City, Country
Torque wrenches	2 N·m	to	20 N·m	Amherst, NY/Novi, MI, USA
	>20 N·m	to	500 N·m	
Torque Torque sensors and torque measuring equipment	0.01 N·m	to	<0.1 N·m	Kistler Remscheid GmbH, Germany
	0.1 N·m	to	<1 N·m	
	1 N·m	to	1 kN·m	
	>1 kN·m	to	2 kN·m	
	>2 kN·m	to	20 kN·m	
Torque Torque sensors and torque measuring chains	0.004 N·m	to	0.01 N·m	Kistler Instrumente GmbH Lorch, Germany
	>0.01 N·m	to	<0.1 N·m	
	0.1 N·m	to	20 N·m	
	0.1 N·m	to	<0.2 N·m	
	0.2 N·m	to	<0.4 N·m	
	0.4 N·m	to	<1 N·m	
	1 N·m	to	200 N·m	
	1 N·m	to	10 N·m	
	>10 N·m	to	3 kN·m	
	1 N·m	to	5 N·m	
	>5 N·m	to	10 N·m	
	>10 N·m	to	20 N·m	
	>20 N·m	to	5 kN·m	
	1 kN·m	to	20 kN·m	
	>20 kN·m	to	100 kN·m	
Transfer torque wrenches	0.1 N·m	to	<1 N·m	Kistler Remscheid GmbH, Germany
	1 N·m	to	1 kN·m	
Velocity	1 kph	to	330 kph	Amherst, NY/Novi, MI, USA
Vibration Magnitude & charge/frequency response 10 Hz to 2 000 Hz >2 000 Hz to 10 000 Hz >10000 Hz to 15 000 Hz >15 000 Hz to 17 000 Hz >17 000 Hz to 20 000 Hz	5 mV 0.1 pC	to	4 V/gn 100 pC/gn	Amherst, NY/Novi, MI, USA
Vibration, magnitude/frequency response 3 Hz to 8 Hz >8 Hz to 16 Hz >16 Hz to 1 000 Hz >1 000 Hz to 5 000 Hz >5 000 Hz to 10 000 Hz	0,04 mV at 100 Hz 0,1 pC	to	4 V/gn 100 pC/gn	Amherst, NY/Novi, MI, USA
Vibration, magnitude/frequency 0.5 Hz to 20 Hz	5 mV	to	4 V/gn	Amherst, NY / Novi, MN, USA
Vibration calibrator	1 m/s²	to	20 m/s²	Kistler Instrumente GmbH Sindelfingen, Germany
Vibration, rotational (magnitude)	12.5 Hz			Amherst, NY/Novi, MI, USA
Voltage Voltage measuring amplifier with grounded input and differential input, ICP-Measuring amplifier with constant current supply	70 mV	to	30 V	Kistler Instrumente GmbH Sindelfingen, Germany
Voltage Current resistance ratio Piezo resistive amplifiers	10 Ω	to	1 000 Ω	Amherst, NY/Novi, MI, USA

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