

## Piezoelectric load cells SlimLine

Type 9173C, 9174C, 9175C,  
9176C, 9177C

### Piezoelectric force transducers for tensile and compression forces of up to –20 ... 75 kN

Piezoelectric load cells, also known as piezoelectric force transducers, are preloaded and calibrated force sensors that are delivered ready for mounting and for the measurement of tensile and compression forces. The integrated cable is protected by a fluoroelastomer sheath. SlimLine load cells are easy to install and are immediately ready for measurements.

- Calibrated force transducer
- Compact design, very small dimensions
- Integrated, non-detachable cable with fluoroelastomer sheath
- Plug coupling with mounting plate

#### Description

The preloaded piezoelectric force sensor can measure tensile and compression forces and produces an electric charge that is directly proportional to the applied force. This is converted to a proportional voltage by the charge amplifier, to be connected downstream (e.g., Kistler Type 5074A...), that can be processed further as desired.

The SlimLine sensor is installed in the load cell ground-isolated, thereby largely avoiding problems with ground loops.

#### Application

Thanks to its great stiffness, the compact SlimLine force transducer is especially well suited for the measurement of rapidly changing tensile and compression forces. The elastic behavior of the measurement object is not noticeably influenced. Quasi-static measurements, i.e., measurements with relatively large time constants, are possible. You can find specific information on the integrated sensors in the sensor data sheet for Types 9133C ... 9137C at [www.kistler.com/force](http://www.kistler.com/force).

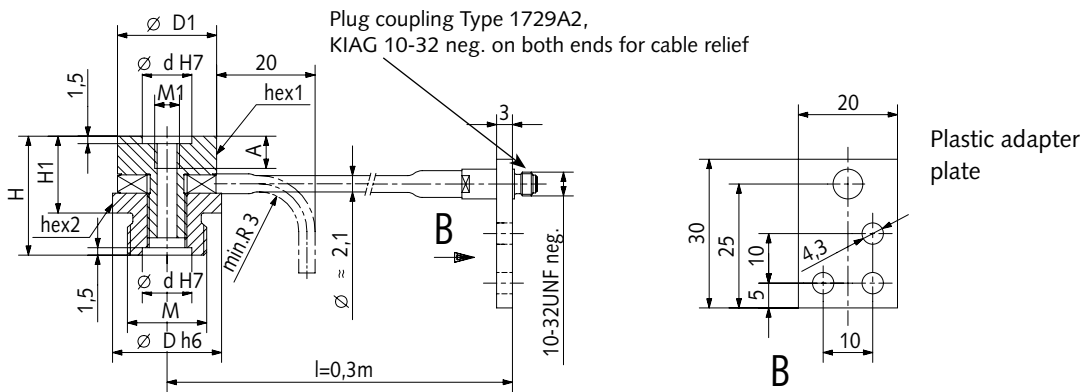
#### Application examples

- Force measurement in robotic systems
- Monitoring on presses and punching, stamping and welding machines
- Clamping processes, e.g., force transducer combined with hydraulic cylinder
- Joining technology, e.g., insertion, press-fitting of assembly parts, etc.



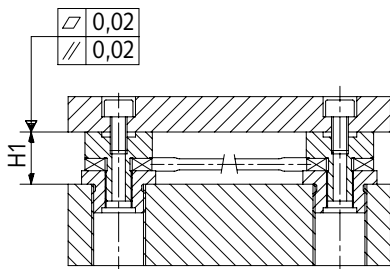
#### Technical data

Sensitivity	pC/N	≈–3.5
Linearity, incl. hysteresis	% FS0	±1
Threshold	N	≤0.02
Insulation resistance	Ω	≥10 <sup>13</sup>
Ground isolation	MΩ	≥100
Temperature coefficient	%/°C	–0.02
Operating temperature range	°C	–20 ... 80
Cable length	m	0.30
Typical calibration interval (dependent on of installation and application)	year	1

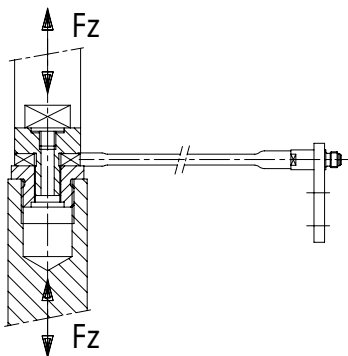


Type	Range: Tensile (-) and compression (+) kN	Calibrated range kN	Overload kN	Bending moment (max., $F_z = 0$ ) N-m	Dimensions in mm									
					D	D1	d	H	H1	A	M	M1	hex1 or WAF	hex2 or WAF
9173C	-3 ... +12	0 ... 12	-3.3/14	10	18	16	8	22	14	5.5	M12x1.25	M4	14	16
9174C	-5 ... +20	0 ... 20	-5/25	20	22	20	10	24	16	6.5	M16x1.5	M5	18	20
9175C	-8 ... +30	0 ... 30	-9/35	30	26	24	12	28	19	7.5	M20x1.5	M6	22	24
9176C	-16 ... +60	0 ... 60	-18/70	70	32	30	15	34	23	9.5	M24x2	M8	28	30
9177C	-20 ... +75	0 ... 75	-22/95	125	38	36	18	38	28	12.5	M30x2	M10	34	36

**Installation types**



Installation of the SlimLine force transducer in platforms or dynamometers of extremely low overall height.

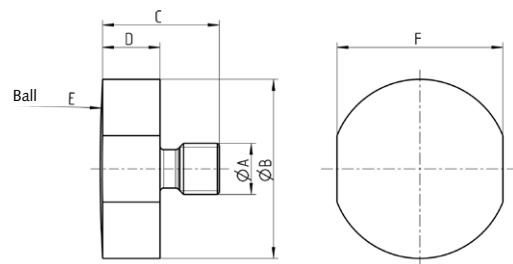


Measurement of tensile and compression forces. Area of application, e.g., in combination with hydraulic cylinders.

**Installation**

Before installing the force transducer, make certain that the contact surfaces are cleanly machined, flat and stiff. The threads of the fastening elements should be perfectly aligned axially. For strain relief of the integrated cable, plug coupling Type 1729A2 should always be mounted at a suitable location on the measurement object.

**Force distributing cap Type 9416A3 ... 9416A7**



Sensor Type	Cap Type	A	B	C	D	E	F
9173C	9416A3	M4x0.7	14	11.3	6	130	WAF13
9174C	9416A4	M5x0.8	18	14.3	8	150	WAF16
9175C	9416A5	M6x1.0	22	16.3	9	200	WAF20
9176C	9416A6	M8x1.25	28	18.3	9	260	WAF26
9177C	9416A7	M10x1.5	34	20.3	9.8	320	WAF32

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