

Force Sensor KD40S

Nominal force ranges $\pm 2\text{N}$, $\pm 10\text{N}$, $\pm 20\text{N}$, $\pm 50\text{N}$, $\pm 100\text{N}$, $\pm 500\text{N}$, $\pm 1000\text{N}$, $\pm 2000\text{N}$

The force sensor KD40S is very well suited for testing tasks in quality assurance as well as in materials testing due to its compact construction.

Inward and outward force transmission are arranged centrally.

The force sensors KD40S up to 100N are constructed as multi-range sensors. The accuracy of 0.1% is already reached at an rated output of 0.5 mV/V. This means that the zero-point stability is 4 times higher than in a sensor with the nominal output of 2 mV/V. The force sensor KD40S can be used up to an output signal of 2 mV/V or four times the specified nominal force.

The force sensor KD40S (up to 100 N) should be installed in such way that the outgoing cables are assigned to the immobile side of the measuring construction. Thus forces from the connecting cable do not have an influence on measurement results.

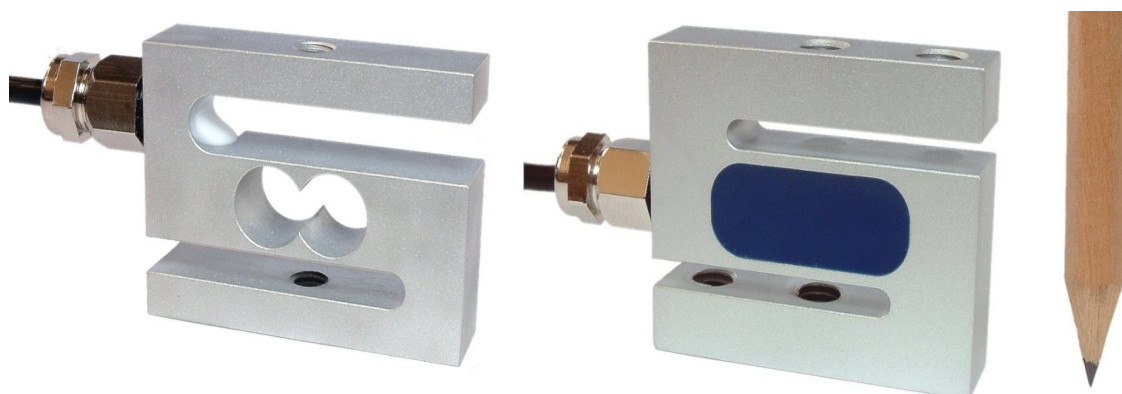
From 500N upwards the force sensors KD40s have a nominal rated output of 1.0mV/V. They can safely be overloaded up to 1.5x their nominal force.

The cable output can be found in the middle of the two force transmission beams.

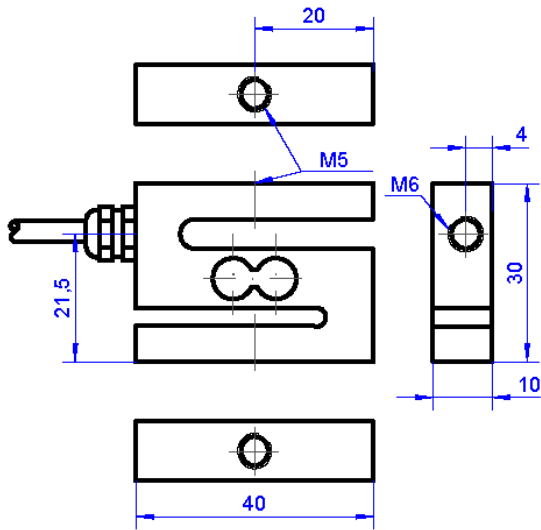
For force transfer there exists one thread M5 (up to 100N) and M6 (from 500N) in the top and bottom side of the force sensor.

Additionally there is a thread M6 (from 500N) that can be used as anti-twist protection.

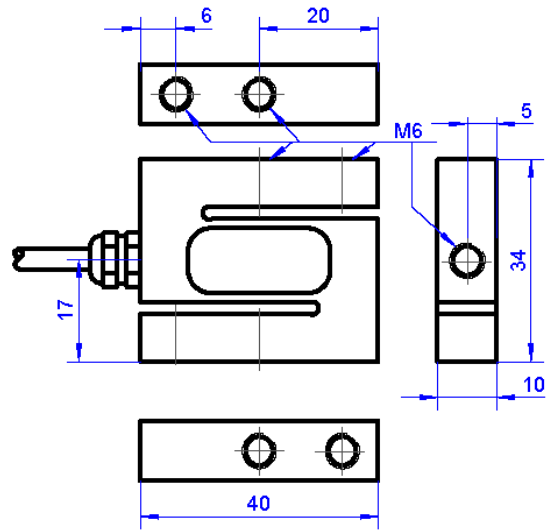
The force sensor from a nominal force of 1000N has a height of 34 mm.



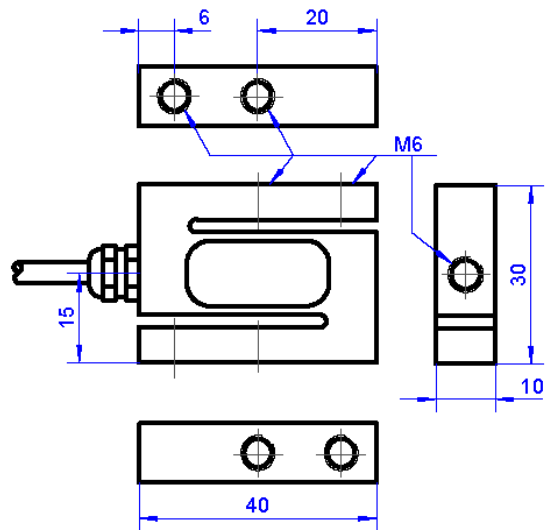
Dimensions



±2, 5, 10, 20, 50, 100N



±1000N, ±2000N



±500N

Pin Configuration

		Version 1	Version 2
+Us	positive bridge supply	red	brown
- Us	negative bridge supply	black	white
+UD	positive bridge output	green	green
- UD	negative bridge output	white	yellow

Force Sensor KD40S

Nominal force ranges $\pm 2\text{N}$, $\pm 5\text{N}$, $\pm 10\text{N}$, $\pm 20\text{N}$, $\pm 50\text{N}$, $\pm 100\text{N}$

Technical Data 2N...100N

Force sensor	tension / compression	
Construction	double beam	
Length \times width \times height	40 \times 30 \times 10	mm \times mm \times mm
Force transmission	M5	mm
Fastening	M5	mm
Material	aluminum	
Accuracy classes	0.1	
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Nominal force F_N	$\pm 2 \dots \pm 2000$	N
Nominal displacement	< 0.05	mm
Operating force	400	% F_N
Breaking force	> 300	% F_N
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Nominal temperature range	+10...+60	$^{\circ}\text{C}$
Operating temperature range	-20...+80	$^{\circ}\text{C}$
Storage temperature range	-40...+80	$^{\circ}\text{C}$
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Nominal output (S_N)	$0.5 \pm 0.1\%$	mV/V
Zero signal tolerance	± 10	% F_N
Max. supply voltage	10	V
Input resistance	400 ± 20	Ohm
Output resistance	350 ± 2	Ohm
Insulation resistance	$> 5 \cdot 10^9$	Ohm
Connection, 4 conductor open	2	m
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Linearity error	$\ll 0.1$	% S_N
Backlash width	$\ll 0.1$	% S_N
Temp. coeff. of the zero signal	$\leq \pm 0.02$	% F_N/K
Temp. coeff. of the nominal output	$\leq \pm 0.01$	% S_N/K
Zero point return error (30 min)	$\ll 0.1$	% S_N
Creep error (30 min)	$\ll 0.1$	% S_N



Force Sensor KD40S

Nominal force ranges $\pm 500\text{N}$, $\pm 1000\text{N}$, $\pm 2000\text{N}$

Technical Data 500N...2000N

Force sensor	tension / compression	
Construction	shear beam	
Length \times width \times height (500N)	40 \times 30 \times 10	mm \times mm \times mm
Length \times width \times height (1000-2000N)	40 \times 34 \times 10	mm \times mm \times mm
Force transmission	M6	mm
Fastening	M6	mm
Material	aluminum	
Accuracy classes	0,1	
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Nominal force F_N	$\pm 500 \dots \pm 2000$	N
Nominal displacement	< 0.5	mm
Operating force	150	% F_N
Breaking force	> 300	% F_N
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Nominal temperature range	+10...+60	$^{\circ}\text{C}$
Operating temperature range	- 20...+80	$^{\circ}\text{C}$
Storage temperature range	- 40...+80	$^{\circ}\text{C}$
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Nominal output (S_N)	1.0 \pm 0.1%	mV/V
Zero signal tolerance	± 10	% F_N
Max. supply voltage	10	V
Input resistance	1200 \pm 50	Ohm
Output resistance	1000 \pm 5	Ohm
Insulation resistance	> 5 \cdot 10 ⁹	Ohm
Connection, 4 conductor open	2	m
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Linearity error	≤ 0.1	% S_N
Backlash width	≤ 0.1	% S_N
Temp. coeff. of the zero signal	$\leq \pm 0.02$	% F_N/K
Temp. coeff. of the nominal output	$\leq \pm 0.01$	% S_N/K
Zero point return error (30 min)	≤ 0.1	% S_N
Creep error (30 min)	≤ 0.1	% S_N