

Tension and Compression Force Sensor K-2145 with Rated Force from 0.5 ... 200 kN



Data sheet



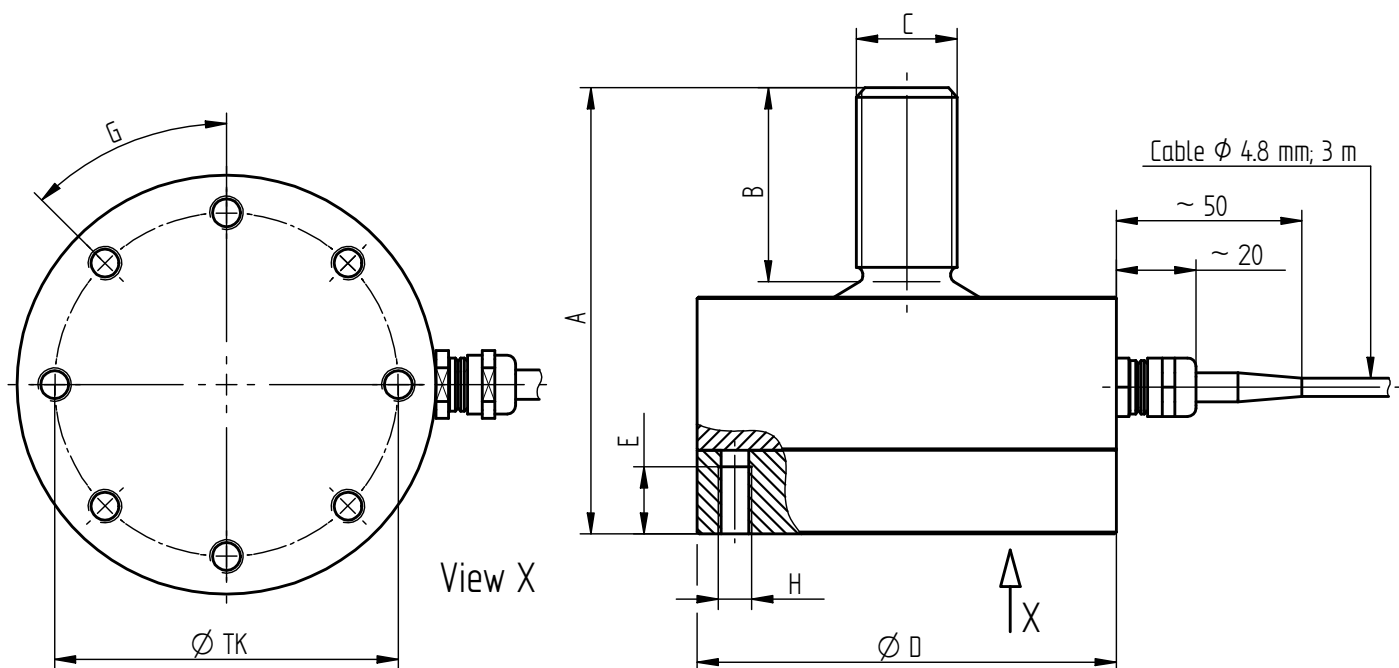
Performance Features

- Sensor for tension and compression force measurement
- TEDS (Transducer Electronic Data Sheet)
Standard IEEE 1451.4 (optional)
- Simple handling and assembly
- Reliable and durable
- Long-term stability
- Level of protection IP67
- Special versions on request

Application

- Equipment engineering
- Fully automated machining centres
- Measuring and control devices
- Materials testing machines
- Tool engineering
- Special mechanical engineering

Dimensions in mm



Article-No.	Rated Force [kN]	Dimensions [mm]								Weight [kg]
		A	B	C	ØD	E	G	H	ØTK	
105748	0.5	57	24	M12	50	8	4x90°	M5	40	0.6
106386	1									
106387	2									
105794	5									
105677	10									
101753	20	82	38	M20x1.5	90	14	6x60°	M8	70	2.0
110644	50	107	47	M24x2	100	14	8x45°	M8	82	3.3
110645	100	144	67	M36x3	135	18	8x45°	M10	110	7.3
110646	200	170	85	M45x3	155	18	8x45°	M10	135	10.8

Connection Assignment

Electrical Connection

Excitation (-)	Green	●
Excitation (+)	Brown	●
Signal (+)	Yellow	●
Signal (-)	White	○
Control signal or TEDS (option)	Gray	●
Shielding	Shield	⊕

Technical Data acc. to VDI/VDE/DKD 2638

Tension and Compression Force Sensor K-2145

Rated force F_{nom}	kN	0.5	1	2	5	10	20	50	100	200
Accuracy class compression force or tension force	% F _{nom}	0.1								
Accuracy class compression force and tension force	% F _{nom}	0.25								
Rel. repeatability error in unchanged mounting position b_{rg}	% F _{nom}	0.08								
Relative creep	% F _{nom} /30 min	<±0.06								
Rated characteristic value C_{nom}	mV/V	2.00 [≤10 kN; 1.00] ±0.1 %								
Input/output resistance R_e/R_a	Ω	350								
Insulation resistance R_{is}	Ω	>2*10 ⁹								
Rated range of excitation voltage B_{U, nom}	VDC	2 ... 12								
Electrical connection		Cable, PVC, 3 m with free strands								
Reference temperature T_{ref}	°C	23								
Rated temperature range B_{T, nom}	°C	-10 ... 70								
Operating temperature range B_{T, G}	°C	-30 ... 80								
Storage temperature range B_{T, S}	°C	-50 ... 95								
Temperature effect on zero signal TK₀	% F _{nom} /10 K	±0.25								
Temperature effect on characteristic value TK_C	% F _{nom} /10 K	±0.07								
Maximum operating force F_G	% F _{nom}	130								
Force limit F_L	% F _{nom}	150								
Breaking force F_B	% F _{nom}	>300								
Permissible oscillation stress F_{rb}	% F _{nom}	70								
Lateral force resistance	% F _{nom}	50								
Rated displacement S_{nom}	mm	<0.1								
Preferential direction		Tension direction								
Material		Stainless steel								
Level of protection		IP67								

Options

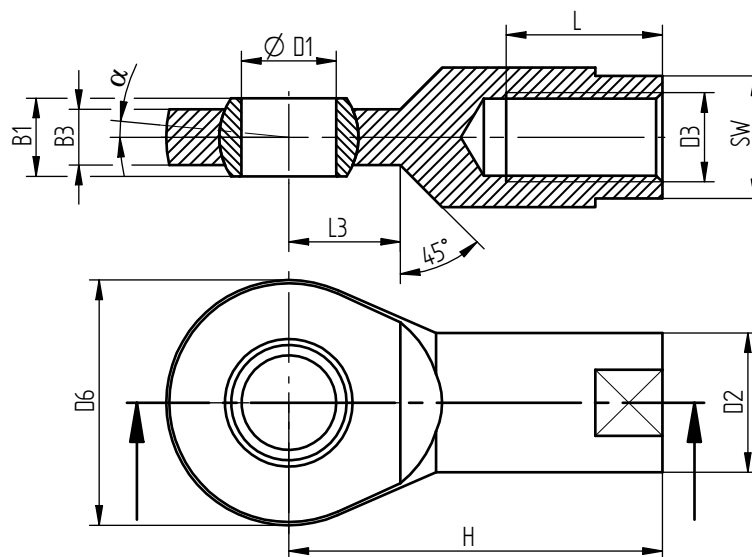
Article-No.	Description	
100218	Control signal	100 % F _{nom}
100739	Control signal	80 % M _{nom}
106154	Control signal	50 % M _{nom}
113134	TEDS-standard IEEE 1451.4	
42828	Extended temperature range	-30 °C ... 100 °C
42829	Extended temperature range	-30 °C ... 120 °C [≥2 kN]
42830	Extended temperature range	-40 °C ... 150 °C [≥2 kN]
103954	Calibration in kg or t	
107592	6-wire connection	

Calibrations

Article-No.	Description	
400628	Linearity diagram in accordance to factory standard	25 % steps
400170	Linearity diagram in accordance to factory standard	10 % steps
400960	Proprietary calibration acc. to DIN EN ISO 376 and DAkkS-DKD-R 3-3	3 steps
400652	Proprietary calibration acc. to DIN EN ISO 376 and DAkkS-DKD-R 3-3	5 steps
400640	Proprietary calibration acc. to DIN EN ISO 376 and DAkkS-DKD-R 3-3	8 steps
	DAkkS-Calibration/Standard on request	

Accessories

Dimensions of Joint Eye Type EF in mm



Article-No.	Type - EF	Dimensions [mm]											Weight [kg]	Load rating stat. C ₀ [N]
		B1	B3	ØD1	D2	D3	D6	H	L	L3	α	SW		
40585	EF 12	10	7	12	19	M12	32	50	22	15	5°	17	0.09	28000
41433	EF 20	16	12	20	28	M20x1.5	51	77	33	23	4.5°	24	0.29	76700
40250	EF 25	20	16	25	35	M24x2	62	94	42	30	3.5°	30	0.57	119100
40588	EF 35	25	20	35	51	M36x3	82	125	61	38	3.5°	41	1.23	180800
40591	EF 45	32	25	45	67	M45x3	102	165	76	50	4°	55	3.09	276200

Tolerances for Type EF

ØD1		ΔD1		ΔB1		ΔH	
>	≤	Tolerance		Tolerance		Tolerance	
5	18	0	-0.008	0	-0.12	+1.2	-1.2
18	30	0	-0.010	0	-0.12	+1.7	-1.7
30	50	0	-0.012	0	-0.12	+2.1	-2.1

Electrical Connection

Article-No.	Description
10323	Cable connector KS6 (6-pin series 581) incl. sensor mounting
10320	Cable connector KSSH15 (15-pin) incl. sensor mounting
43418	Input connector ZA9612FS (ALMEMO) incl. sensor mounting and connector calibration
49205	Input connector ZKD712FS (ALMEMO 202) incl. sensor mounting and connector calibration

Amplifiers

Examples of suitable amplifiers for the tension and compression force sensor K-2145:

LCV	GM 78	GM 40	GM 80	SI

Further suitable amplifiers you can find on our homepage under <https://www.lorenz-messtechnik.de/english/products/>