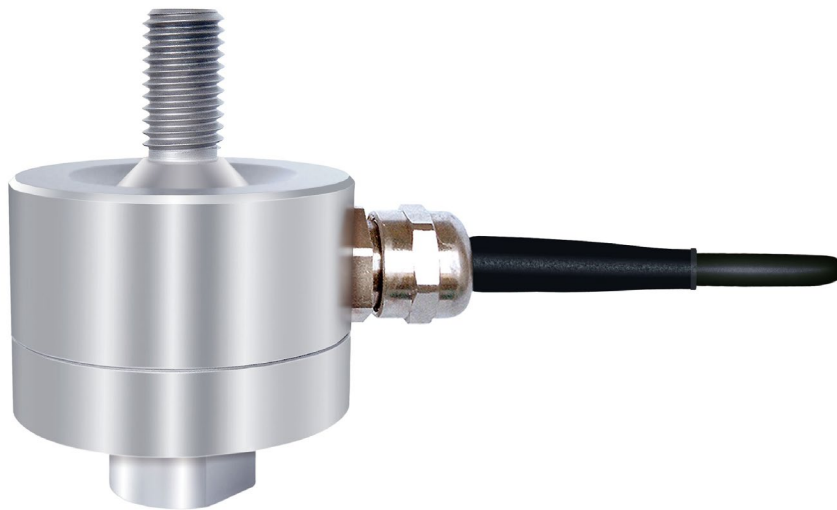


## Tension and Compression Force Sensor K-1427 with Nominal Force from 0.5 ... 200 kN



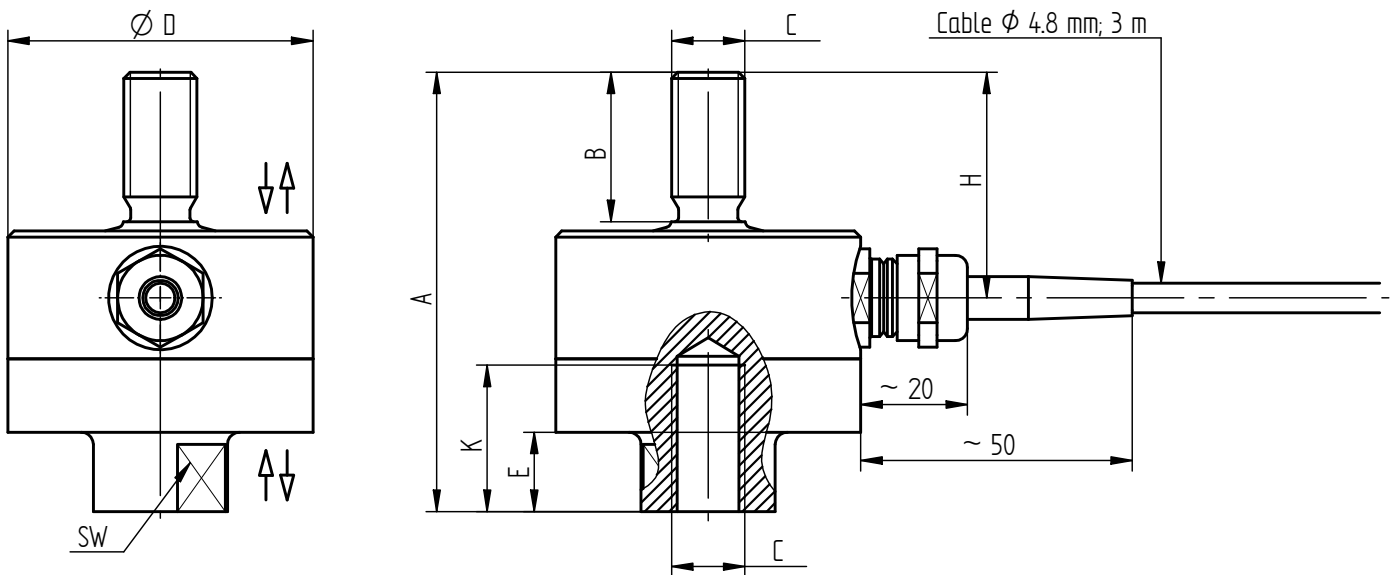
### Performance Features

- Sensor for tension and compression force measurement
- 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 of K-1427 in mm



Article-No.	Nominal Force [kN]	Dimensions [mm]								Weight [kg]
		A	B	C	ØD	E	H	K	SW	
100463	0.5	72	24	M12	50	13	37	24	19	0.7
100462	1									
100461	2									
100460	5									
100459	10									
100458	20	112	38	M20x1.5	90	15	54	38	30	2.7
100457	50	142.5	47	M24x2	100	19	72	45	36	2.9
100456	100	197	67	M36x3	135	29	99	65	60	10.1
100455	200	232	85	M45x3	155	32	118	80	70	15.6

## Connection Assignment

### Electrical Connection

Excitation (-)	green	●
Excitation (+)	brown	●
Signal (+)	yellow	●
Signal (-)	white	○
Control signal (option)	grey	●
Shield	shield	⊥

## Technical Data acc. to VDI/VDE/DKD 2638

### Tension and Compression Force Sensor K-1427

Nominal 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	% $F_{nom}/30 \text{ min}$	< $\pm$ 0.06								
Rated characteristic value $C_{nom}$	mV/V	2.00 [ $\leq$ 10 kN; 1.00] $\pm$ 0.1%								
Input/output resistance $R_e/R_a$	$\Omega$	350								
Insulation resistance $R_{is}$	$\Omega$	> $2 \cdot 10^9$								
Rated range of excitation voltage $B_{U, nom}$	VDC	2 ... 12								
Electrical connection		Cable, PVC, 3 m with free strands								
Reference temperature $T_{ref}$	$^{\circ}\text{C}$	23								
Rated temperature range $B_{T, nom}$	$^{\circ}\text{C}$	-10 ... 70								
Operating temperature range $B_{T, G}$	$^{\circ}\text{C}$	-30 ... 80								
Storage temperature range $B_{T, S}$	$^{\circ}\text{C}$	-50 ... 95								
Temperature effect on zero signal $TK_0$	% $F_{nom}/10 \text{ K}$	$\pm$ 0.25								
Temperature effect on characteristic value $TK_C$	% $F_{nom}/10 \text{ K}$	$\pm$ 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

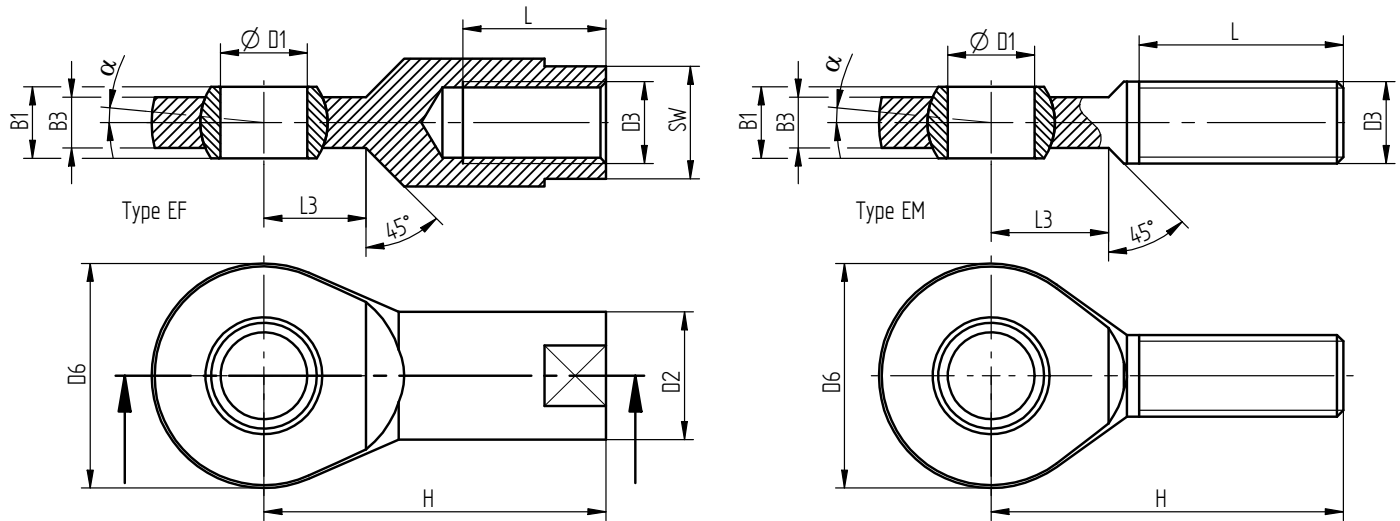
Article-No.	Description	
100218	Control signal	100 % $F_{nom}$
42828	Extended temperature range	-30 $^{\circ}\text{C}$ ... 100 $^{\circ}\text{C}$
42829	Extended temperature range	-30 $^{\circ}\text{C}$ ... 120 $^{\circ}\text{C}$ [ $\geq$ 2 kN]
42830	Extended temperature range	-40 $^{\circ}\text{C}$ ... 150 $^{\circ}\text{C}$ [ $\geq$ 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 Eyes with Female or Male Thread 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

Article-No.	Type - EM	Dimensions [mm]										Weight [kg]	Load rating stat. $C_0$ [N]
		B1	B3	ØD1	D3	D6	H	L	L3	α			
40183	EM 12	10	7	12	M12	32	54	33	15	5°	0.07	23000	
41762	EM 20	16	12	20	M20x1.5	51	78	47	25	4.5°	0.27	76700	
40294	EM 25	20	16	25	M24x2	62	94	57	32	3.5°	0.51	119100	
40587	EM 35	25	20	35	M36x3	82	140	92	38	3.5°	1.33	180800	
40592	EM 45	32	25	45	M45x3	102	165	100	50	4°	2.62	276200	

### Tolerances for Types EF and EM

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-1427:

LCV	SI-USB	GM 40	GM 80	GM 80-PA
				

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