

## Miniature Tension Force Sensor K-100 with Nominal Force from 1 ... 100 kN



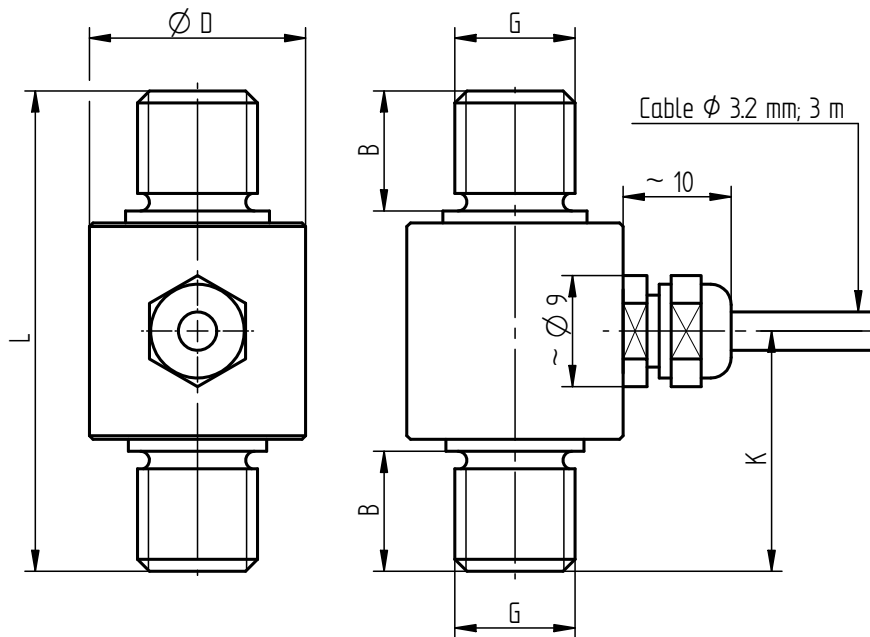
### Performance Features

- Miniature sensor for tension force
- Simple handling and assembly
- Reliable and durable
- Long-term stability
- Level of protection IP65
- Special versions on request

### Application

- Equipment engineering
- Fully automated machining centres
- Measuring and control devices
- Rope force measurement
- Tool engineering
- Special mechanical engineering

## Dimensions of K-100 in mm



Article-No.	Nominal Force [kN]	Dimensions [mm]					Weight [kg]
		B	ØD	G	K	L	
100120	1	8	14	M5	17.5	35	0.1
100121	2	8	14	M5	17.5	35	
100122	5	8	14	M8	17.5	35	
100123	10	10	18	M10	20	40	0.2
100124	20	12	24	M12	22.5	45	
100125	50	15	29	M16	25	50	0.3
104419	100	20	35	M24x2	35	70	0.4

## Pin Connection

### Electrical connection

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

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

### Miniature Tension Force Sensor K-100

Nominal force $F_{nom}$	kN	1	2	5	10	20	50	100
Accuracy class	% $F_{nom}$	0.3						
Rel. repeatability error in unchanged mounting position $b_{rg}$	% $F_{nom}$	0.1						
Relative creep	% $F_{nom}/30 \text{ min}$	< $\pm$ 0.1						
Rated characteristic value $C_{nom}$	mV/V	1.00 $\pm$ 15%						
Input/output resistance $R_e/R_a$	$\Omega$	350						
Insulation resistance $R_{iS}$	$\Omega$	>2*10 <sup>9</sup>						
Rated range of excitation voltage $B_{U, nom}$	V	2 ... 12 [ $\leq$ 5 kN; 2 ... 6]						
Electrical connection		Cable, PURS, 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 $TK_0$	% $F_{nom}/10 \text{ K}$	$\pm$ 0.2						
Temperature effect on characteristic value $TK_C$	% $F_{nom}/10 \text{ K}$	$\pm$ 0.2						
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						
Rated displacement $S_{nom}$	mm	<0.1						
Material measuring body		Stainless steel						
Material housing		Aluminum						
Level of protection		IP65						

## Options

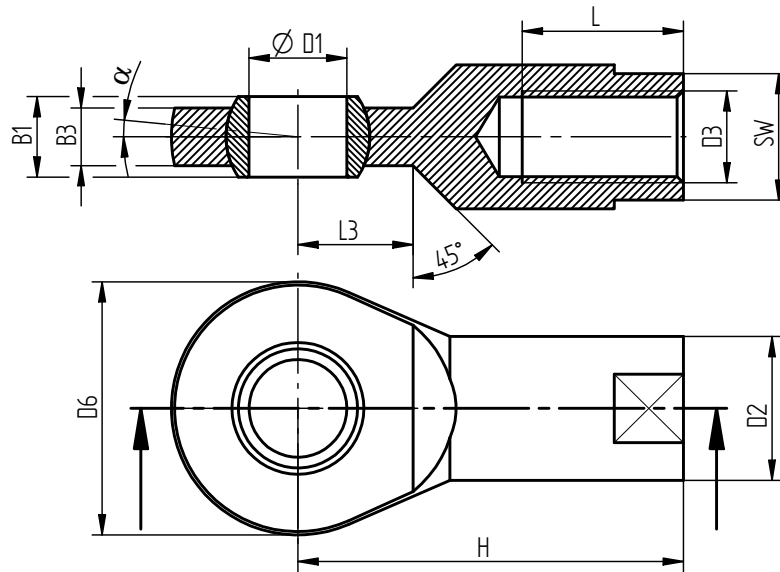
Article-No.	Description	
100218	Control signal	100 % $F_{nom}$
100896	Nominal sensitivity adjustment	
42828	Extended temperature range	-30 $^{\circ}\text{C}$ ... 100 $^{\circ}\text{C}$ [ $\geq$ 20 kN]
42829	Extended temperature range	-30 $^{\circ}\text{C}$ ... 120 $^{\circ}\text{C}$ [ $\geq$ 20 kN]
42830	Extended temperature range	-40 $^{\circ}\text{C}$ ... 150 $^{\circ}\text{C}$ [ $\geq$ 20 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 <sub>0</sub> [N]
		B1	B3	ØD1	D2	D3	D6	H	L	L3	α	SW		
43805	EF 5	8	6	5	11	M5	18	27	10	10	6.5°	9	0.02	11900
42768	EF 8	8	5	8	13	M8	23	36	16	12	7.5°	11	0.04	13100
42769	EF 10	9	6	10	16	M10	28	43	20	13	6.0°	14	0.06	18800
40585	EF 12	10	7	12	19	M12	32	50	22	15	5°	17	0.09	28000
40590	EF 17	14	10	17	25	M16	44	67	28	20	5°	22	0.21	57900
40250	EF 25	20	16	25	35	M24x2	62	94	42	30	3.5°	30	0.57	119100

### Tolerances for Type EF

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

### Cable and input connector

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 miniature tension force sensor K-100:

