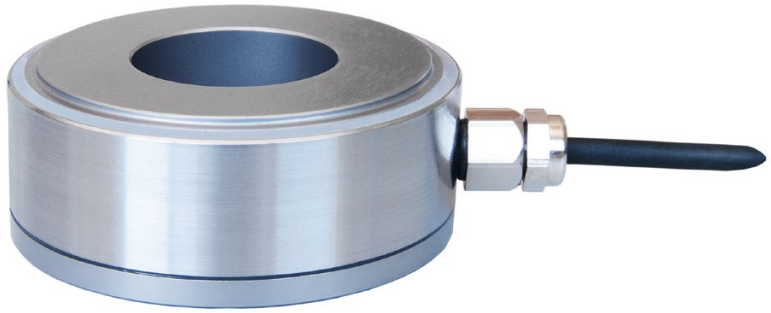
Lorenz® messtechnik gmbh

Compression Ring Force Sensor K-181 with Rated Force from 15 to 1500 kN

TEDS

Data sheet



Performance Features

- Compression ring force sensor for measurement of clamping forces
- TEDS (Transducer Electronic Data Sheet) Standard IEEE 1451.4 (optional)
- Measuring washer
- Low measuring range, very high natural frequency
- Stainless steel
- Level of protection IP65
- Long-term stability
- Simple handling and assembly
- Special versions on request

Application

- Equipment engineering
- Automotive industry
- Measuring and control devices
- Fully automated machining centres
- Tool engineering
- Special mechanical engineering

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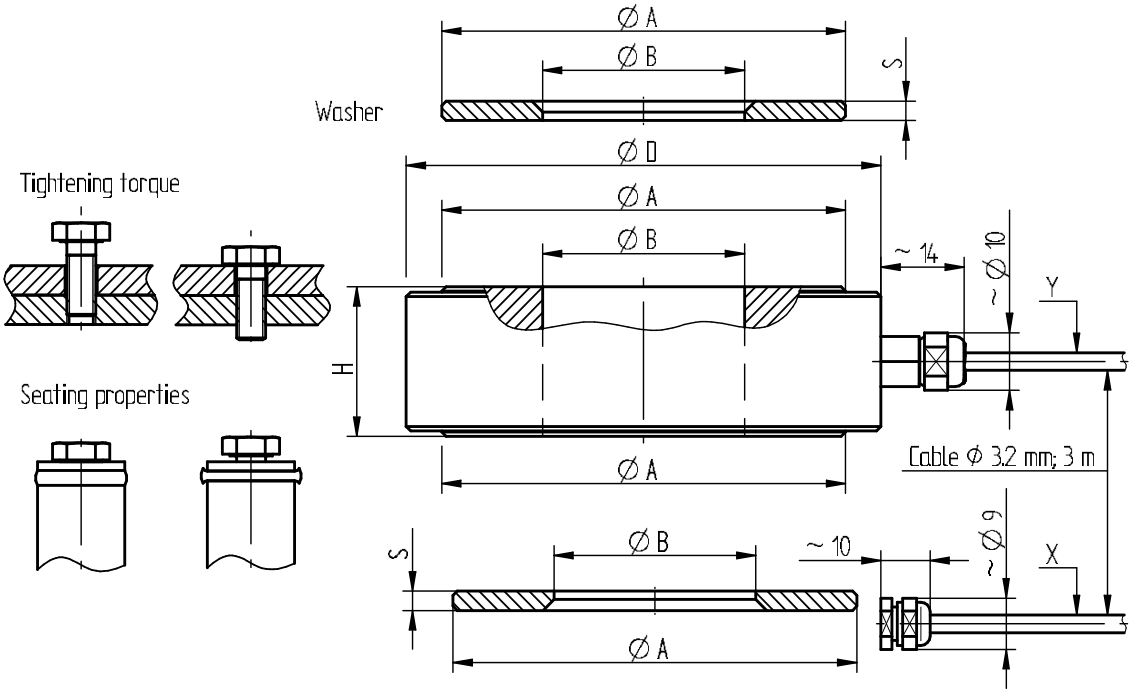
Dimensions[1] in mm



Article-No.	Rated Force [kN]	Dimensions [mm]								Weight [kg]
		For Screw	ØA	ØB	ØD	H	S	X	Y	
115715	15	M6	12	6.3	24	12	2	X	-	0.1
115716	30	M8	16	8.3	27	12	2	X	-	0.1
115717	60	M10	22	10.3	33	12	2	X	-	0.2
115718	80	M12	26	12.3	37	15	2.5	X	-	0.2
115719	120	M16	33	16.3	44	15	2.5	X	-	0.3
115720	160	M20	39	20.3	50	15	3	X	-	0.3
115770	350	M24	54	24.5	65	22	3	X	-	0.6
115771	500	M30	66	30.8	79	27	3	-	X	0.9
115772	600	M36	74	37	87	27	3.5	-	X	1.1
115773	720	M39	80	40	93	27	4	-	X	1.3
115774	1000	M42	93	43	106	30	4	-	X	1.9
115775	1200	M48	103	49	116	30	4.5	-	X	2.3
115776	1500	M52	114	53.5	127	35	4.5	-	X	3.1

Connection Assignment

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

[1] Two pieces hardened washers in scope of delivery

Technical Data acc. to VDI/VDE/DKD 2638

Compression Ring Force Sensor K-181		
Rated force F_{nom}	kN	15 ... 1500
Accuracy class, unchanged installation position	% F_{nom}	1
Accuracy class, changed installation position	% F_{nom}	3
Rel. repeatability error in unchanged mounting position b_{rg}	% F_{nom}	0.3
Relative creep	% F_{nom}/30 min	<±1
Rated characteristic value C_{nom}	mV/V	1.00 ±20 %
Input/output resistance R_e/R_a	Ω	350
Insulation resistance R_{is}	Ω	>2*10^9
Rated range of excitation voltage $B_{U, nom}$	V	2 ... 6
Electrical connection		Cable, PURS, 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 TK_0	% F_{nom}/10 K	±0.3
Temperature effect on characteristic value TK_C	% F_{nom}/10 K	±0.3
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		Stainless steel
Level of protection		IP65

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	
100896	Rated sensitivity adjustment	
42828	Extended temperature range	-30 °C … 100 °C
42829	Extended temperature range	-30 °C … 120 °C
42830	Extended temperature range	-40 °C … 150 °C
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

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 compression ring force sensor K-181:

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

Further suitable amplifiers you can find on our homepage under www.lorenz-messtechnik.de