



# ESA Messtechnik GmbH

Schlossstr. 119 - D-82140 Olching / Munich  
Telefon: +49 (0)8142 444 130 - Fax: +49 (0)8142 444 131  
Internet: [www.esa-messtechnik.de](http://www.esa-messtechnik.de)  
E-Mail: [info@esa-messtechnik.de](mailto:info@esa-messtechnik.de)

## Transducer for Screw/Bolt Forces Model CL-20

### Features:

- Measurements of static and dynamic compression forces on screws and bolts
- For screws of M8 up to M20 diam.
- Easy mounting
- Accuracy 1 %
- 3 years warranty

The model CL-20 force transducer is designed for measuring compression forces in screwed connections. Mod. CL-20 features easy mounting and handling combined with high for screws of sizes between M8 and M20. Force range is between 25 kN (M8) and 250 kN (M20). Further sizes and ranges on request.



### Specifications:

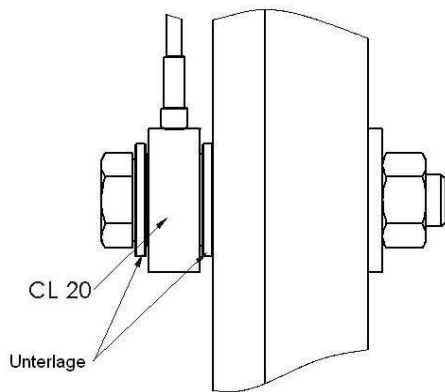
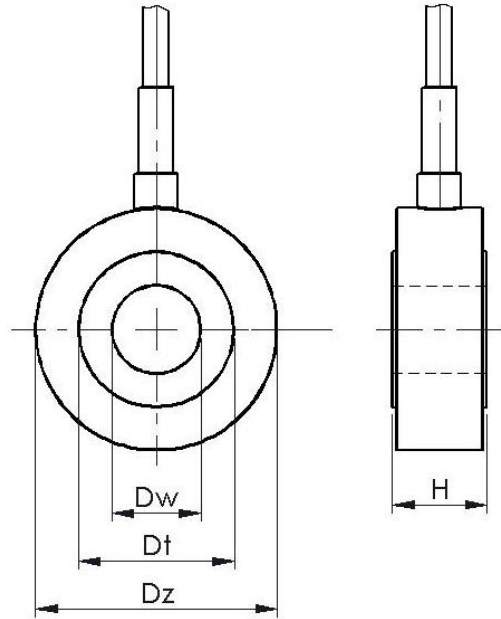
Ranges relative to screw diameter	[kN]	See the table on the next page
Accuracy	%	1 (referred to Full Scale)
Sensitivity	[mV/V]	1,5 ± 10 %
Excitation Voltage	[VDC]	10
Input Impedance	[Ω]	700
Output Impedance	[Ω]	700
Operating Temp. Range	[°C]	-20 to +80
Compensated Temp. Range	[°C]	20 to +90
Temp. Stability of Sensitivity	[%/10K]	≤ 0,1
Temp. Stability of Zero	[%/10K]	≤ 0,1
Non linearity Referred to Full Scale*	%	<1
Overload Capability	[%]	50
Insulation Resistance	GΩ	≥ 40
Cable Connection		O-Ring (O1)
Protection		IP67
Dimensions		See drawing and table below
Spring Element Material		High-alloy steel
Cable Length		3 m (standard), or according to specification

\* with 10 % overload and careful observation of mounting recommendations.

**Dimensions:**

Typ	Range	Dw	Dt	Dz	H
	kN	mm	mm	mm	mm
CL-20-8	25	8,1	14	26	10
CL-20-10	50	10,1	19	31	11
CL-20-12	75	12,1	23	35	12
CL-20-14*	10	14,1	16,5	28	11
CL-20-14	100	14,1	27	39	13
CL-20-16	150	16,1	32	44	14
CL-20-18	200	18,1	37	49	15
CL-20-20	240	20,1	40,5	52,5	16

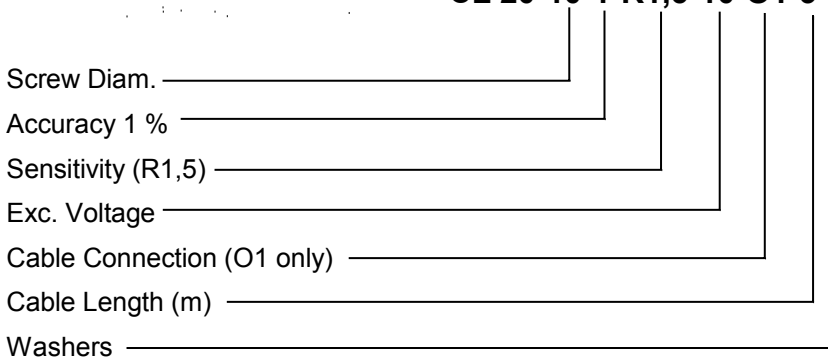
\* Version with 1 mV/V sensitivity



**Mounting Recommendation**

**Ordering Information:**

**CL 20-10-1-R1,5-10-O1-3-P**



**Example:**

**CL20-10-1-R1,5-10-O1-3P:** CL20 for screw diam. M10, accuracy 1%, sensitivity 1,5mV/V, exc. voltage 10VDC, cable connection: O-Ring, cable length 3m, washer for mounting.