

Ring force transducer

For general applications up to 1,500 kN

Model F6215

WIKA data sheet FO 51.28

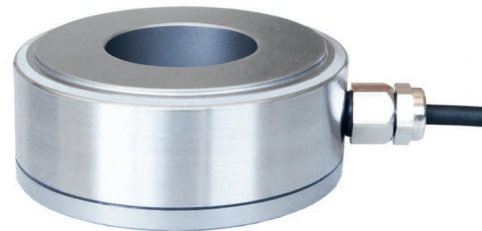


Applications

- Preload force measurement
- Plant construction
- Special machine building and tool making
- Measuring and control plants
- Experimental setups

Special features

- Measuring ranges 0 ... 15 kN to 0 ... 1,500 kN
- Compact design, easy installation
- Ingress protection IP65
- Relative linearity error 1 % F_{nom}



Ring force transducer, model F6215

Description

Ring force transducers are suitable for static measuring tasks. They serve for determining compression forces in diverse fields of application.

The force transducers in miniature design have been designed specifically for small dimensions and developed for measuring compression and preload forces.

Due to its compactness, this force transducer is usable in the widest range of industrial and laboratory applications. Fields of application include the simple determination of compression forces or where a ring geometry in a compact form is needed.

Note

To avoid overloading, it is advantageous to connect the force transducer electrically during assembly and to monitor the measured value. The measuring force must be initiated through the centre and without any shear force. When installing the force transducer, care should be taken that the support surface is flat, ground and sufficiently hard. Due to its small geometry, this force transducer reacts very sensitively to changing or different mounting positions. If a force introduction part is used, care must be taken to ensure that it has sufficient material thickness to prevent deflection.

Options

- Control function 100 % signal
- Sensitivity calibration 1 mV/V
- Cable amplifier with 4 ... 20 mA or DC 0 ... 10 V output

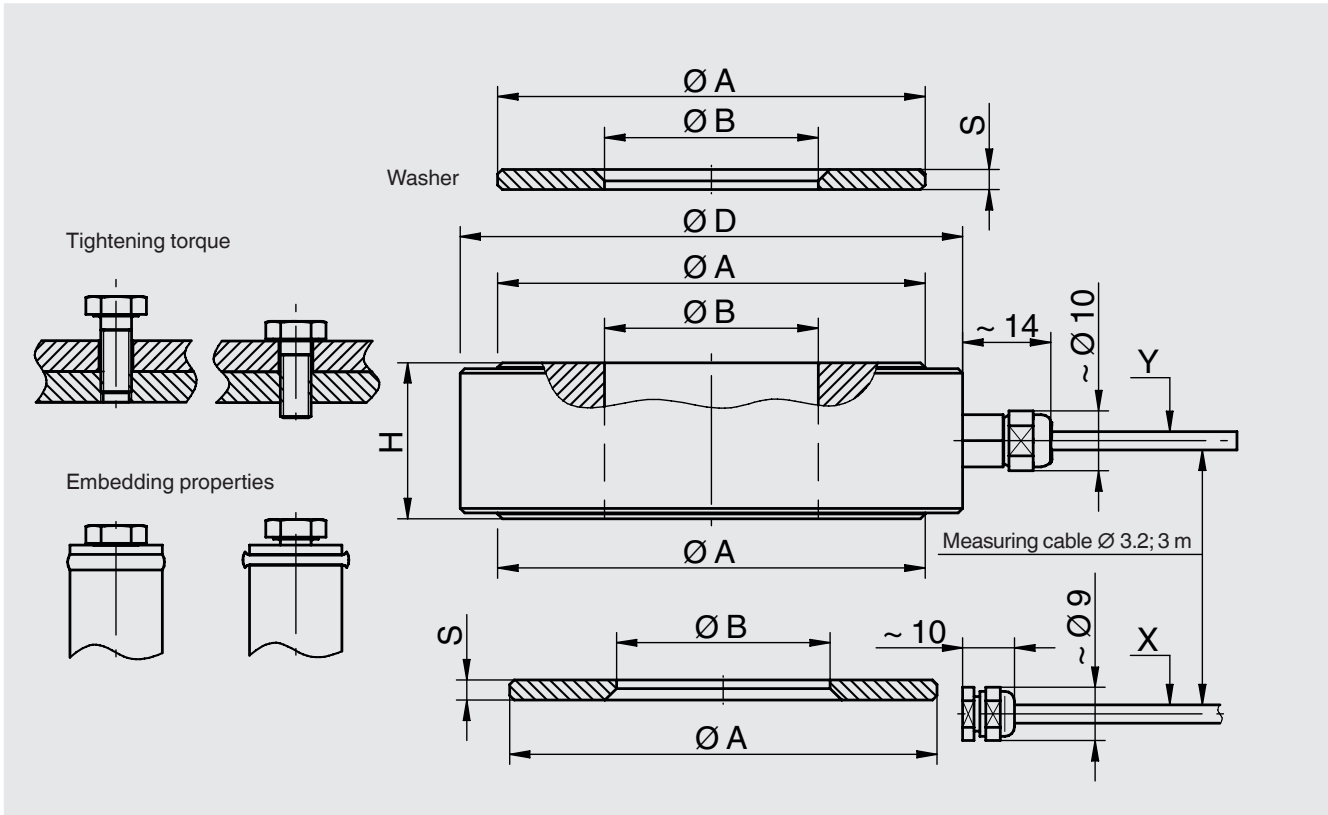
Specifications per VDI/VDE/DKD 2638

Model F6215													
Rated force F_{nom} kN	15	30	60	80	120	160	350	500	600	720	1,000	1,200	1,500
For thread size	M6	M8	M10	M12	M16	M20	M24	M30	M36	M39	M42	M48	M52
Force introduction	Apply full load to both force introduction surfaces												
Relative linearity error d_{lin}	$\leq \pm 1 \% F_{nom}$												
Relative span in unchanged mounting situation b_{rg}	$\leq \pm 0.3 \% F_{nom}$												
Relative creep, 30 min.	$\leq \pm 1 \% F_{nom}$												
Temperature effect on the zero signal TK_0	$\leq \pm 0.3 \%/10 \text{ K}$												
Temperature effect on the characteristic value TK_C	$\leq \pm 0.3 \%/10 \text{ K}$												
Limit force F_L	150 % F_{nom}												
Breaking force F_B	$> 300 \% F_{nom}$												
Permissible vibration loading per DIN 50100 F_{rb}	70 % F_{nom}												
Rated displacement s_{nom}	$< 0.1 \text{ mm}$												
Material of the measuring body	Stainless steel												
Rated temperature range $B_{T, nom}$	$-10 \dots +70 \text{ }^\circ\text{C}$												
Service temperature range $B_{T, G}$	$-30 \dots +80 \text{ }^\circ\text{C}$												
Storage temperature range $B_{T, S}$	$-50 \dots +95 \text{ }^\circ\text{C}$												
Reference temperature T_{ref}	23 °C												
Output signal (rated characteristic value) C_{nom}	1.0 mV/V $\pm 20 \%$												
Input-/ Output resistance R_e/R_a	350 Ω												
Insulation resistance R_{is}	$> 2 \text{ G}\Omega$												
Electrical connection													
Standard	Measuring cable, PUR, 3 m with bare cable ends												
Option	6-wire												
Voltage supply													
without amplifier	DC 2 ... 6 V for mV/V output												
with cable amplifier	DC 12 ... 28 V for output 0(4) ... 20 mA, DC 0 ... 10 V												
Ingress protection (per IEC/EN 60529)	IP65												
Control function (option)	100 % signal												
Weight in kg													
15 kN	0.1												
30 kN	0.1												
60 kN	0.2												
80 kN	0.2												
120 kN	0.3												
160 kN	0.3												
350 kN	0.6												
500 kN	0.9												
600 kN	1.1												
720 kN	1.3												
1,000 kN	1.9												
1,200 kN	2.3												
1,500 kN	3.1												

Approvals

Logo	Description	Country
CE	EU declaration of conformity ■ EMC directive ■ RoHS directive	European Union
EAC	EAC ■ EMC directive	Eurasian Economic Community

Dimensions in mm



Rated force in kN	Dimensions in mm								
	For screw	$\varnothing A$	$\varnothing B$	$\varnothing D$	H	S	X	Y	
15	M6	12	6.3	24	12	2	X	-	
30	M8	16	8.3	27	12	2	X	-	
60	M10	22	10.3	33	12	2	X	-	
80	M12	26	12.3	37	15	2.5	X	-	
120	M16	33	16.3	44	15	2.5	X	-	
160	M20	39	20.3	50	15	3	X	-	
350	M24	54	24.5	65	22	3	X	-	
500	M30	66	30.8	79	27	3	-	X	
600	M36	74	37	87	27	3.5	-	X	
720	M39	80	40	93	27	4	-	X	
1,000	M42	93	43	106	30	4	-	X	
1,200	M48	103	49	116	30	4.5	-	X	
1,500	M52	114	53.5	127	35	4.5	-	X	

Pin assignment

Electrical connection	
Excitation voltage (+)	Brown
Excitation voltage (-)	Green
Signal (+)	Yellow
Signal (-)	White
Control	Grey
Shield ⊕	Shield

Ordering information

Model / Rated force / Relative linearity error / Temperature range / Output signal / Electrical connection / Options

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