

# Ring force transducer

## For screw forces up to 450 kN

### Model F6804



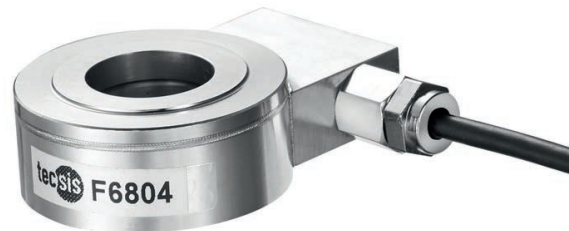
WIKA data sheet FO 51.60

#### Applications

- Determining bolt preloads
- Measuring and control systems
- Testing and production equipment
- Press and jointing force measurement
- Clamping force measurement and tension force measurement on rods

#### Special features

- Measuring ranges 0 ... 3 kN to 0 ... 450 kN
- Relative linearity error 2 %  $F_{nom}$
- Material: Stainless steel
- Ingress protection IP65



Ring force transducer, model F6804

#### Description

The force transducers of the F6804 series are suitable for the measurement of compression forces and are available with nominal loads of 3 kN to 450 kN. This force transducer has been designed with a ring geometry and constructed, specifically, for the measurement of screw and preload forces.

The field of application of this force transducer are applications such as measurement and test equipment in which, for example, screw or bolt forces are measured. In addition, the force on spindle drives or general force can be measured using a ring geometry. Fields of application include the simple determination of bolt preloads where the force transducer is used as a measuring washer.

#### Note

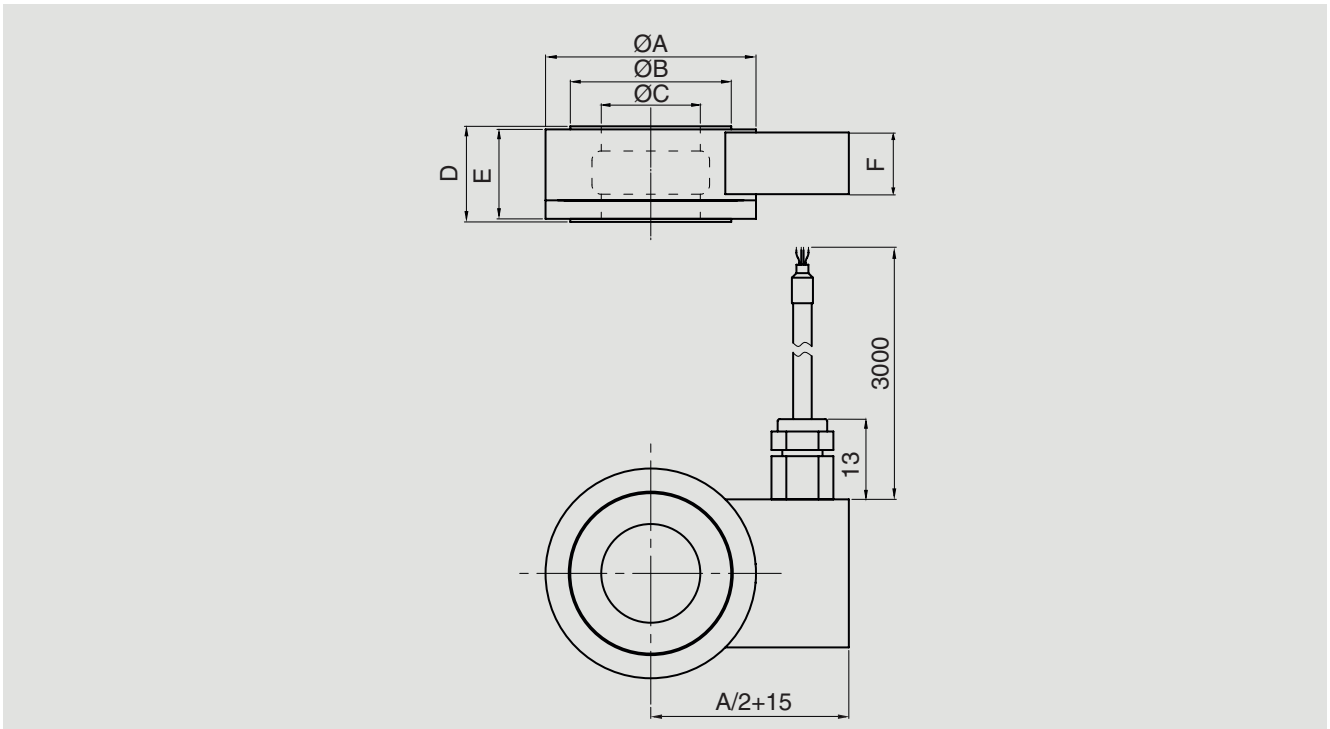
To avoid overloading, it is advantageous to connect the force transducer electrically during assembly and to monitor the measured value.

The measuring force must be introduced through the centre and free of transverse force. When assembling 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.

## Specifications per VDI/VDE/DKD 2638

Model F6804	
Rated force $F_{nom}$ kN	3, 5, 10, 20, 50, 100, 150, 200, 300, 450
Relative linearity error $d_{lin}$	2 % $F_{nom}$
Relative creep, 30 min. at $F_{nom}$	0.5 % $F_{nom}$
Relative reversibility error $v$	2 % $F_{nom}$
Relative span in unchanged mounting situation $b_{rg}$	0.5 % $F_{nom}$
Relative deviation of zero signal $d_{S,0}$	$\pm 2$ % $F_{nom}$
Temperature effect on the zero signal $TK_0$	0.05 % $F_{nom}/10$ °C
Temperature effect on the characteristic value $TK_C$	0.05 % $F_{nom}/10$ °C
Limit force $F_L$	150 % $F_{nom}$
Breaking force $F_B$	200 % $F_{nom}$
Material of the measuring body	Stainless steel
Rated temperature range $B_{T, nom}$	-10 ... +60 °C
Service temperature range $B_{T, G}$	-20 ... +80 °C
Input resistance $R_e$	385 $\pm$ 30 $\Omega$
Output resistance $R_a$	350 $\pm$ 5 $\Omega$
Insulation resistance $R_{is}$	$\geq 5,000$ M $\Omega$ /DC 100 V
Output signal (rated characteristic value) $C_{nom}$	1.0 $\pm$ 10 % mV/V
Electrical connection	Cable $\varnothing 3 \times 3,000$ mm
Voltage supply	DC 5 V (max. 10 V)
Ingress protection (per IEC/EN 60529)	IP65
Weight	
3 kN - 20 kN	0.1 kg
50 kN - 200 kN	1.1 kg
100 kN - 450 kN	1.9 kg

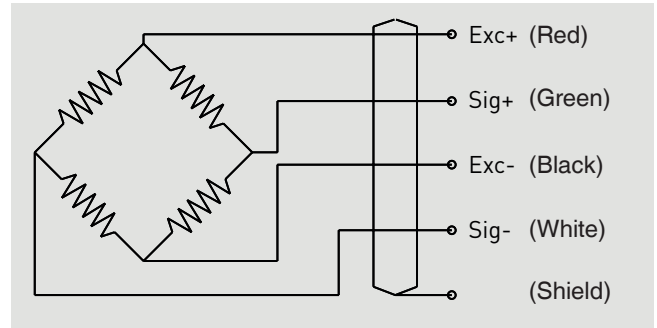
## Dimensions in mm



Rated force in kN	Dimensions in mm					
	$\varnothing A$	$\varnothing B$	$\varnothing C$	D	E	F
3, 5, 10, 20	34	24	16	15	14	10
50, 100, 150, 200	69	54	32	50	49	30
100, 200, 300, 450	95	78	50	50	49	30

## Pin assignment

Electrical connection	
Excitation voltage (+)	Red
Excitation voltage (-)	Black
Signal (+)	Green
Signal (-)	White
Shield $\oplus$	Shield



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