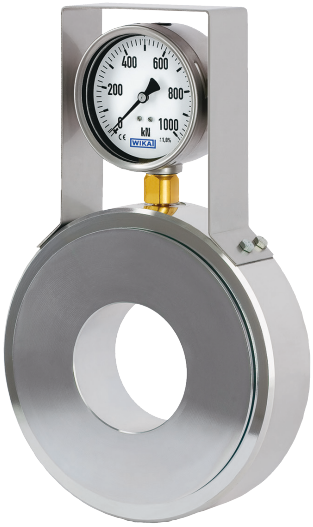
Hydraulic ring force transducer Geotechnical version to 6,000 kN Model F6171

Applications

- Structural engineering, civil engineering and special civil engineering
- Tunnel construction
- Mining (surface and underground)
- Surveying and bridge building
- Slope stabilisation, retaining walls and excavations

Special features

- Measuring ranges 0 ... 800 kN to 0 ... 6,000 kN [179,847 lbf to 1,348,854 lbf]
- Relative linearity error
  ±1.0 % F_{nom} with analogue pressure gauge,
  ±0.5 % F_{nom} with digital pressure gauge or pressure sensor
- Piston stroke ≤ 0.5 mm [≤ 0.02 in]
- Operation without supply voltage with analogue displays
- Case and piston made of galvanised steel



Hydraulic ring force transducer, model F6171

Description

The model F6171 hydraulic ring force transducer, geotechnical version, is available in measuring range 800 kN to 6,000 kN [179,847 lbf to 1,348,854 lbf]. The ring force transducers in geotechnical version are hydraulic force measuring units which, in conjunction with measuring or display instruments, can directly display the measured values or output them as an analogue signal. It is an extremely robust design in line with the requirements of geotechnical engineering.

The force is measured using the principle of hydraulics - the force acting on a piston leads to a pressure increase. This is then visualised, either directly by a connected display instrument or converted by means of a pressure sensor into an analogue signal.

With these hydraulic force measuring units, clamping forces are detected at the anchor head in a simple way and brought directly to the display. The force measuring units are used for continuous monitoring of anchors and other bracing rods/cables. Applications for hydraulic force measuring units can be found in the field of geotechnology in various fields such as tunnel construction, bridge building and slope stabilisation.

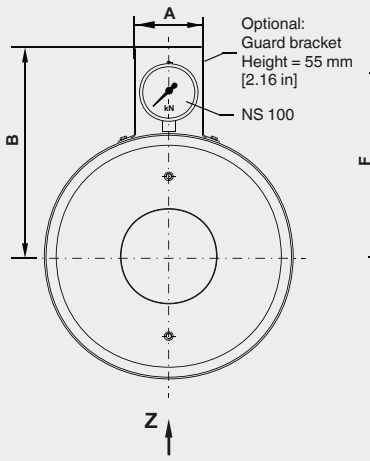
Data sheets showing similar products:
Hydraulic ring force transducer; geotechnical version to 700 kN; model F6137; see data sheet: FO 52.20
Hydraulic ring force transducer; geotechnical version to 1,500 kN; model F6148; see data sheet: FO 52.21
Hydraulic ring force transducer; heavy Duty version to 1,500 kN; model F6154; see data sheet: FO 52.17
Hydraulic ring force transducer; geotechnical version to 3,200 kN; model F6160; see data sheet: FO 52.22

Specifications per VDI/VDE/DKD 2638

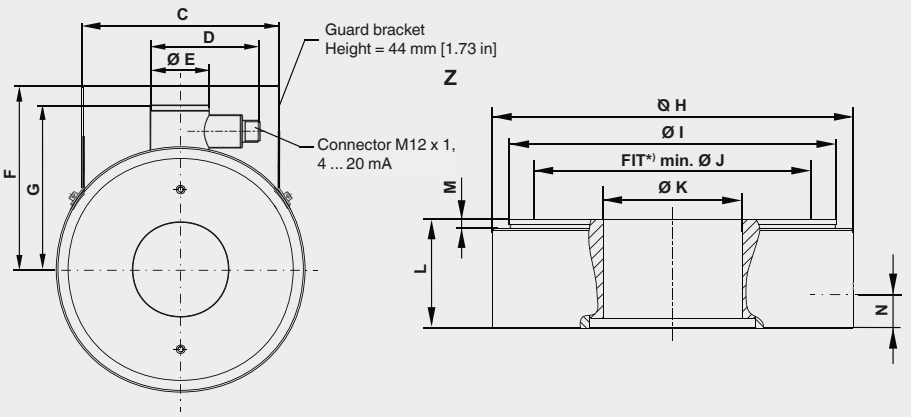
Model F6171	
Rated force F_{nom}	0 ... 800 kN to 0 ... 6,000 kN [0 ... 179,847 lbf to 0 ... 1,348,854 lbf]
Nominal size	NS 383
Display	■ Pressure gauge, model 23x.50 (NS 100) ■ Digital pressure gauge, model DG-10 ■ Pressure sensor (on request)
Relative linearity error d_{lin}	
Pressure gauge	≤ ±1.0 % F_{nom}
Pressure sensor/digital pressure gauge	≤ ±0.5 % F_{nom}
Temperature effect on	
the characteristic value TK_c	1 % F_{nom} /10 K
the zero signal TK_0	1 % F_{nom} /10 K
Limit force F_L	100 % F_{nom}
Breaking force F_B	> 130 % F_{nom}
Rated displacement s_{nom}	< 0.5 mm [< 0.02 in]
Rated temperature range $B_{T, nom}$	-30 … +60 °C [-22 ... 140 °F]
Ingress protection (per EN/IEC 60529)	
Pressure gauge	IP65
Digital pressure gauge/pressure sensor	IP67
Case	■ Steel, electrogalvanised ■ Stainless steel (option)
Piston	■ Steel, electrogalvanised ■ Stainless steel (option)
Guard bracket	
Pressure gauge	Yes
Digital pressure gauge/pressure sensor	Optional
Mounting type	
Pressure gauge	Direct mounting
Digital pressure gauge/pressure sensor	Direct mounting
Option	■ Capillary ■ Measuring hose for “separation without any loss less connection“
Output signal	4 … 20 mA, 2-wire
Analogue output	
Supply voltage	DC 10 … 30 V for current output
Load	≤ (UB - 6 V) / 0.024 A
Electrical connection	■ Circular connector M12 x 1, 4-pin Hand-held ■ Measuring instrument ViSens E3908 (option)
Fill fluid	Glycerine 70 % / water 30 %
Force introduction	As full-faced as possible, min. 75 % of the piston diameter
Weight	122 kg [269 lbs]

Dimensions in mm [in]

Version with model 23x.50 (NS 100)



Version with pressure sensor



*) FIT = Force introduction

Dimensions in mm [in]													
A	B	C	D	ØE	F	G	ØH	ØI	ØJ	ØK	L	M	N
120 [4.7]	370 [14.57]	132 [5.2]	71 [2.8]	33 [1.3]	280 [11]	240 [9.45]	430 [16.9]	389 [15.3]	333 [13.11]	165 [6.5]	130 [5.12]	11 [0.43]	50 [1.96]

Version		Pressure gauge, model 23x.50 Digital pressure gauge, model DG-10 Pressure sensor (on request)
Rated force kN [lbf]	System pressure bar	
800 [179,847]	100	■
1,300 [292,252]	160	■
2,000 [449,618]	250	■
2,500 [562,022]	315	■
3,500 [786,831]	400	■
4,000 [899,236]	500	■
5,000 [1,124,045]	600	■
6,000 [1,348,854]	700	■
Other rated loads and versions on request		

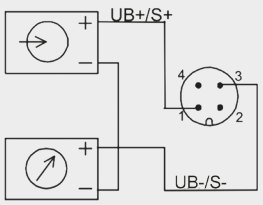
■ = possible selection

Pin assignment, analogue output

4...20 mA (2-wire)		
	Pin	Connection identification
Supply UB+/S+	1	Brown
Supply UB-/S-	3	Blue
Signal S+	1	Brown
Signal S-	3	Blue
Shield ⏚	case	case

Output 4...20 mA, 2-wire

Circular connector M12 x 1, 4-pin



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