Hydraulic ring force transducer Geotechnical version up 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
- Relative linearity error ±1.0 % with analogue pressure gauge, ±0.5 % with digital pressure gauge or pressure sensor
- Piston stroke ≤ 0.5 mm
- 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 up to 6,000 kN. 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.

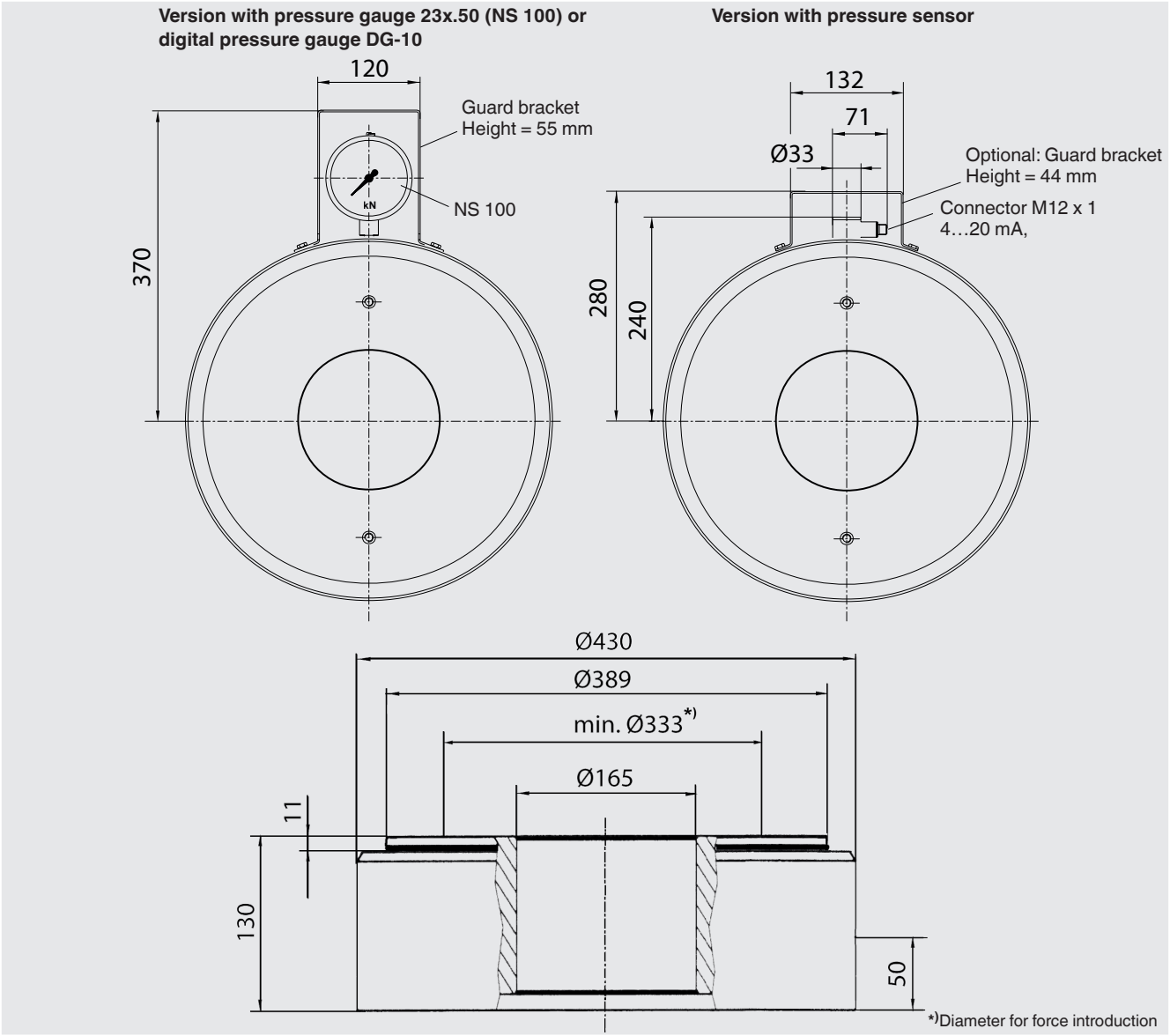
Data sheets showing similar products:

Hydraulic ring force transducer; Geotechnical-version up to 700 kN; model F6137; data sheet: FO 52.20
Hydraulic ring force transducer; Geotechnical-version up to 1,500 kN; model F6148; data sheet: FO 52.21
Hydraulic ring force transducer; Geotechnical-version up to 3,200 kN; model F6160; 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
Nominal size	NS 383
Display	
Standard	Pressure gauge 23x.50 (NS 100)
Option	Digital pressure gauge DG-10
	Pressure sensor
Relative linearity error d_{lin}	
Standard	≤ ±1.0 % F_{nom} (analogue display)
Option	≤ ±0.5 % F_{nom} (pressure sensor/digital pressure gauge)
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
Rated temperature range $B_{T, nom}$	-30 … +60 °C
Ingress protection (per EN/IEC 60529)	
Analogue display	IP65
Pressure sensor/digital pressure gauge	IP67
Case	
Standard	Steel, galvanised
Option	Stainless steel
Piston	
Standard	Steel, galvanised
Option	Stainless steel
Guard bracket	
Analogue display	yes
Pressure sensor/digital pressure gauge	optional
Mounting type	
Analogue display	direct
Pressure sensor/digital pressure gauge	direct
Option	Capillary, measuring hose for “separation without any losses”
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
Fill fluid	Glycerine 70 %, water 30 %
Force introduction	As full-faced as possible, min. 75 % of the piston diameter
Weight in kg	122

Dimensions in mm



Version		
Rated force	System pressure	Pressure gauge 23x.50 (NS 100) Digital pressure gauge DG-10 Pressure sensor
kN	bar	
800	100	■
1,300	160	■
2,000	250	■
2,500	315	■
3,500	400	■
4,000	500	■
5,000	600	■
6,000	700	■
Other rated forces and versions on request		

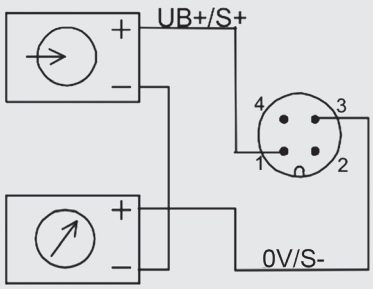
■ = possible selection

The sealed threaded connections of the hydraulic force transducer must not be loosened!
Non-compliant handling invalidates the warranty and a measuring function is no longer assured.

Pin assignment, analogue output

4 ... 20 mA (2-wire)		
	Pin	**Connection identification**
Supply UB+	1	brown
Supply 0V/UB-	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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