

Hydraulic ring force transducer Geotechnical version up to 1,500 kN Model F6148

WIKA data sheet FO 52.21

Applications

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

Special features

- Measuring ranges 0 ... 150 kN to 0 ... 1,500 kN
- Relative linearity error ± 1.0 % with analogue pressure gauge, ± 0.5 % with digital pressure gauge or pressure sensor
- Piston stroke ≤ 0.5 mm
- Operates without supply voltage
- Case and piston made of galvanised steel



Hydraulic ring force transducer, model F6148

Description

The model F6148 hydraulic ring force transducer, geotechnical version, is available in nominal size NS 146 up to 1,500 kN.

A cylinder-piston combination, filled with hydraulic medium, in a steel version with surface coating or in stainless steel version (option), forms the basis of the anchor force measuring system. For nominal size NS 146, the force-bearing surface of the piston is 146 mm² and the rated displacement of the piston does not exceed 0.5 mm.

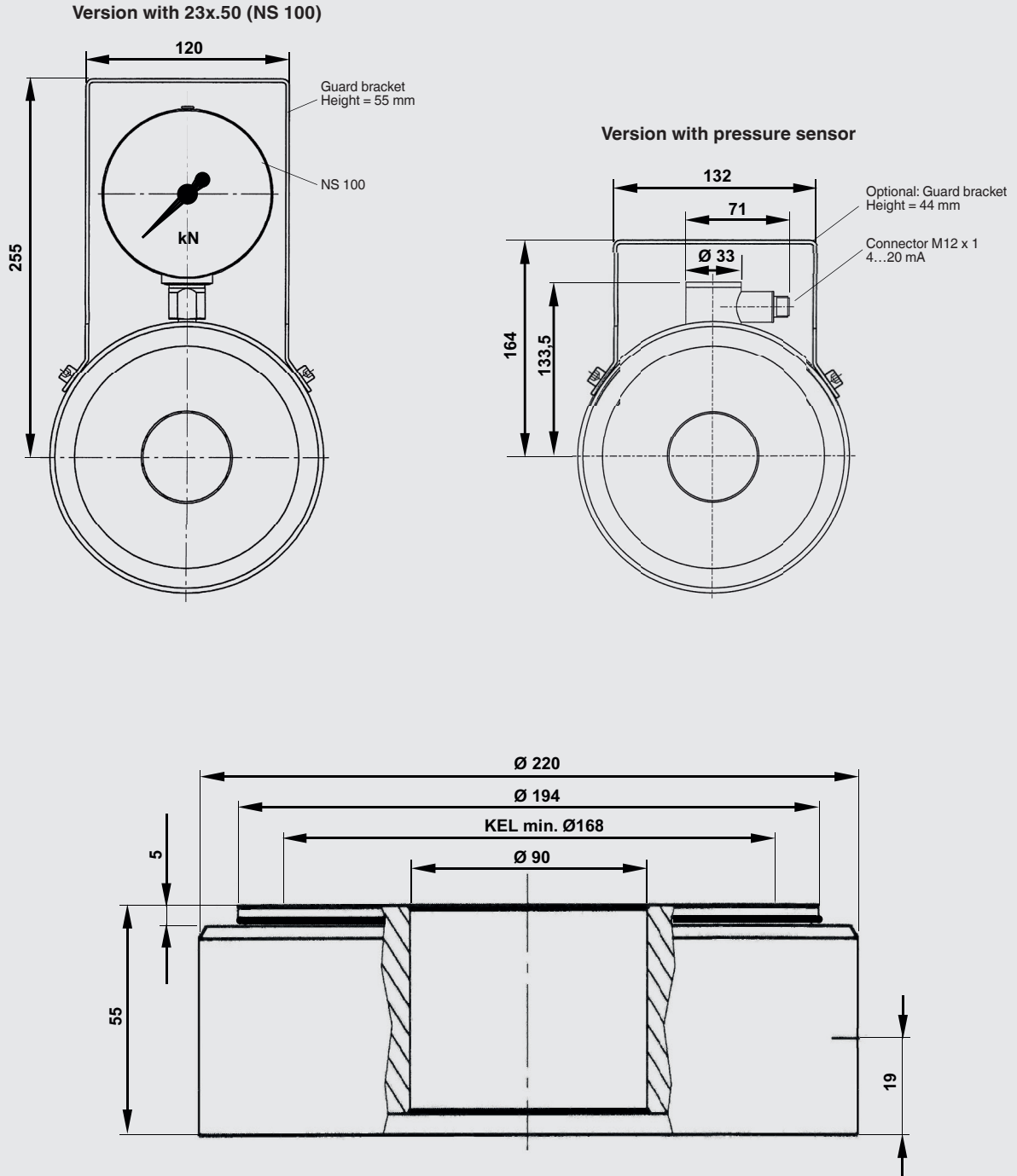
Both the mechanical and the electrical version are optionally available with directly attached measured value pick-up/display (capillary line or adapter "separation without any losses") as well as with an external version. It is an extremely robust design, in line with the requirements of geotechnical engineering.

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.

Specifications per VDI/VDE/DKD 2638

Model F6148	
Rated force F_{nom}	0 ... 150 kN to 0 ... 1,500 kN
Nominal size	NS 146
Display <ul style="list-style-type: none"> ■ Standard ■ Option 	Pressure gauge 23x.50 (NS 100) Digital pressure gauge DG-10 Pressure sensor (on request)
Relative linearity error d_{lin} <ul style="list-style-type: none"> ■ Standard ■ Option 	$\leq \pm 1.0 \% F_{nom}$ (analogue display) $\leq \pm 0.5 \% F_{nom}$ (pressure sensor/digital pressure gauge)
Temperature effect on <ul style="list-style-type: none"> ■ the characteristic value TK_C ■ the zero signal TK_0 	1 % $F_{nom}/10 K$ 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) <ul style="list-style-type: none"> ■ Analogue display ■ Pressure sensor/digital pressure gauge 	IP65 IP67
Case <ul style="list-style-type: none"> ■ Standard ■ Option 	Steel, galvanised Stainless steel
Piston <ul style="list-style-type: none"> ■ Standard ■ Option 	Steel, galvanised Stainless steel
Guard bracket <ul style="list-style-type: none"> ■ Analogue display ■ Pressure sensor/digital pressure gauge 	yes optional
Mounting type <ul style="list-style-type: none"> ■ Analogue display ■ Pressure sensor/digital pressure gauge ■ Option 	direct direct Capillary, measuring hose for "separation without any losses"
Analogue output <ul style="list-style-type: none"> ■ Supply voltage ■ Load ■ Electrical connection ■ Option 	4 ... 20 mA, 2-wire, DC 0 ... 30 V for current output $\leq (UB - 6 V)/0.024 A$ Circular connector M12 x 1, 4-pin Hand-held measuring instrument ViSens E3908
Fill fluid	Glycerine 70 %, water 30 %
Force introduction	as full-faced as possible, min. 75 % of the piston diameter
Weight in kg	13.5

Dimensions in mm



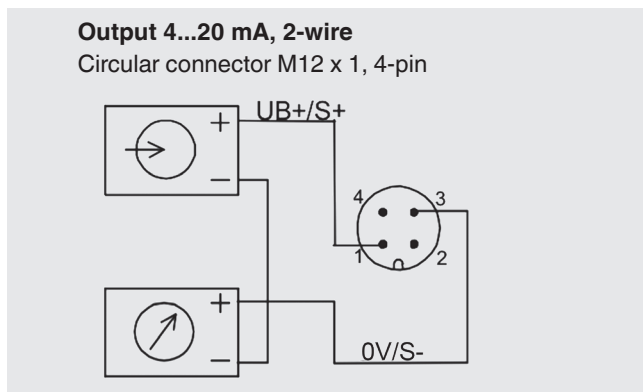
The sealed threaded connections of the hydraulic force transducer must not be loosened!
Non-compliant handling invalidates the warranty and a measuring function is no longer assured.

Version		Display
Rated force	System pressure	23x.50
kN	bar	
150	100	■
250	160	■
350	250	■
450	315	■
600	400	■
750	500	■
900	600	■
1,000	700	■
1,200	800	■
1,400	950	■
1,500	1,000	■

Other rated loads and versions on request

■ = possible selection

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

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