

Anchor Load Measuring Units for forces 200 kN up to 10.000 kN

load cells for anchor load measuring

F6137 - NG 82
F6148 - NG 146
F6160 - NG 383
F6172 - NG 1326



Description

The anchor load measuring units of tecsis are hydraulic load cells combined with either analogue or digital displays. They have a high degree of precision.

The hydraulic load cells are mounted directly at the fixing point of the anchor and measure tension on the anchor in a precise and cost-efficient way.

The load measuring units are used for constant monitoring of the forces weighing on ground anchors, soil nails and cables.

They can be used for:

- long-time monitoring of anchor loads
- monitoring of anchor- and vertical loads in tunnel building or mining, in the construction of foundations and construction pits, retaining walls, slopes and other applications
- pile loads and pile testing

The force introduction is designed according to the application. The force on the piston is transformed into hydraulic pressure that is transferred to the attached gauge, which can show different units such as kN or t.

The displacement of the piston is $\leq 0,5$ mm.

Note

Hydraulic load cells are filled with a filling liquid under vacuum conditions. tecsis can only take warranty for complete units that have been filled by us, and that have never been opened by the customer.

Features

- for compression force
- measuring forces on ground anchors
- environment temperature -30 to $+60^{\circ}\text{C}$
- housing and piston galvanized steel, stainless steel as an option
- accuracy at $+21^{\circ}\text{C}$ environment temp:
 - $\pm 1.0\%$ full scale with pressure gauge 100mm
 - $\pm 0.5\%$ full scale with analogue output 4-20mA
- piston displacement $\leq 0,5$ mm
- available with or without power consumption

Measuring ranges

- 0 ... 200 kN to 0 ... 10.000 kN

Applications

- anchor measuring
- slope monitoring
- construction and civil engineering
- tunnel construction
- mining (above and below ground)
- foundation construction
- retaining walls and excavation
- construction pits
- bridge building
- earth and rock engineering
- soil dynamics
- construction monitoring
- etc.

Model: F6137, F6148, F6160, F6172

Technical data: Anchor Load Measuring Units

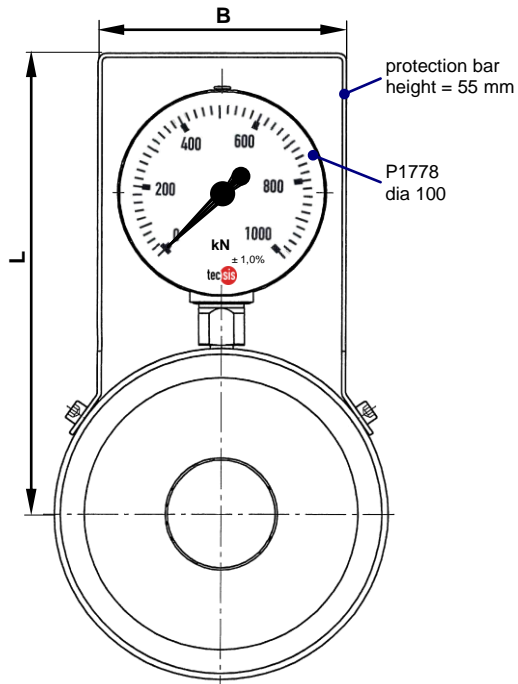
Article numbers	F6137 / F6148 / F6160 / F6172		Options
Nominal size	NG 82 / NG 146 / NG 383 / NG 1326		
Nominal load F_{nom}	0 ... 200 kN up to 0 ... 10.000 kN		
Version	with pressure gauge	with electrical output signal	
Total error	$\leq \pm 1.0\%$ of full scale at +21°C	$\leq \pm 0.5\%$ of full scale at +21°C	
Limit load	$130\% F_{nom}$	$\geq 150\% F_{nom}$ (depending on range)	
Breaking load	$\leq 150\% F_{nom}$ (depending on range)	$\geq 300\% F_{nom}$ (depending on range)	
Displacement	< 0,5 mm	< 0,5 mm	
Environment temperature range	-30 ... +60°C	-30 ... +60°C	
Protection class EN 60 529 / IEC 529	IP 65	IP 67	
Housing	Galvanized steel	Galvanized steel	Stainless steel
Piston	Galvanized steel	Galvanized steel	Stainless steel
Mounting	Direct	Electronics mounted to transducer	
Filling liquid	Glycerin-water mix, no. 8	Glycerin-water mix, no. 8	
Pressure gauge -with protection bar	-dia 100 - P1778 - (DE 206)	P3342	- maximum pointer; - others on request
Analogue output signal - signal current - supply - burden - electrical connector	---	4 ... 20 mA - 2 wire - 4 / 20 mA - 10 ... 30 VDC - $\leq (UB - 6 V) / 0.024 A$ - M12 x 1, 4 pin	- handheld display ViSens E3908 (DE 978) - sensor cable for rough environment (force catalogue, pp 244 + 245)
		On request: - system solutions for anchor and soil measurement; - anchor kits (sets of 4, 8 etc.) cable transmission to data logger in an outdoor housing	

Version					Display / signal			Dimensions												
Model	Dia [cm ²]	Nominal load	Scale value	Pressure range bar	Pressure gauge [mm]	Protection bar [mm]	Output 4 - 20 mA [mm]	$\varnothing A$ [mm]	$\varnothing B$ [mm]	$\varnothing C$ [mm]	$\varnothing d$ [mm]	E [mm]	F [mm]	H [mm]	L [mm]	L1 [mm]	L2 [mm]	B	Load cell weight [kg]	
F6137	82	200 kN	5 kN	250	■	■	■	161	132	52	33	55	5	19	215	103.5	62.5	120	8.3	
F6137	82	250 kN	5 kN	315	■	■	■													
F6137	82	320 kN	10 kN	400	■	■	■													
F6137	82	500 kN	10 kN	600	■	■	■													
F6137	82	600 kN	10 kN	700	■	■	■													
F6148	146	240 kN	5 kN	160	■	■	■	220	194	90 / 105	33	55	5	19	255	133.5	62.5	120	13.7 / 12.8	
F6148	146	450 kN	10 kN	315	■	■	■													
F6148	146	500 kN	10 kN	350	■	■	■													
F6148	146	600 kN	10 kN	400	■	■	■													
F6148	146	900 kN	20 kN	600	■	■	■													
F6148	146	1000 kN	20 kN	700	■	■	■													
F6148	146	1200 kN	20 kN	800	■	■	■													
F6148	146	1300 kN	---	900	---	---	■													
F6160	383	600 kN	10 kN	160	■	■	■	325	294	165	33	75	5	20	316	186	62.5	120	35.7	
F6160	383	1000 kN	20 kN	250	■	■	■													
F6160	383	1200 kN	50 kN	315	■	■	■													
F6160	383	1500 kN	50 kN	400	■	■	■													
F6160	383	2000 kN	50 kN	520	---	---	■													
F6160	383	2400 kN	50 kN	600	■	■	■													
F6160	383	2500 kN	50 kN	700	■	■	■													
F6160	383	3000 kN	100 kN	800	■	■	■													
F6160	383	3400 kN	---	800	---	---	■													
F6172	1326	3200 kN	100 kN	250	■	■	■	580	564	360	33	85	5	27.5	460	313	62.5	120	104	
F6172	1326	4000 kN	100 kN	315	■	■	■													
F6172	1326	6000 kN	---	460	---	---	■													
F6172	1326	8000 kN	100 kN	600	■	■	■													
F6172	1326	10000 kN	200 kN	800	■	■	■													

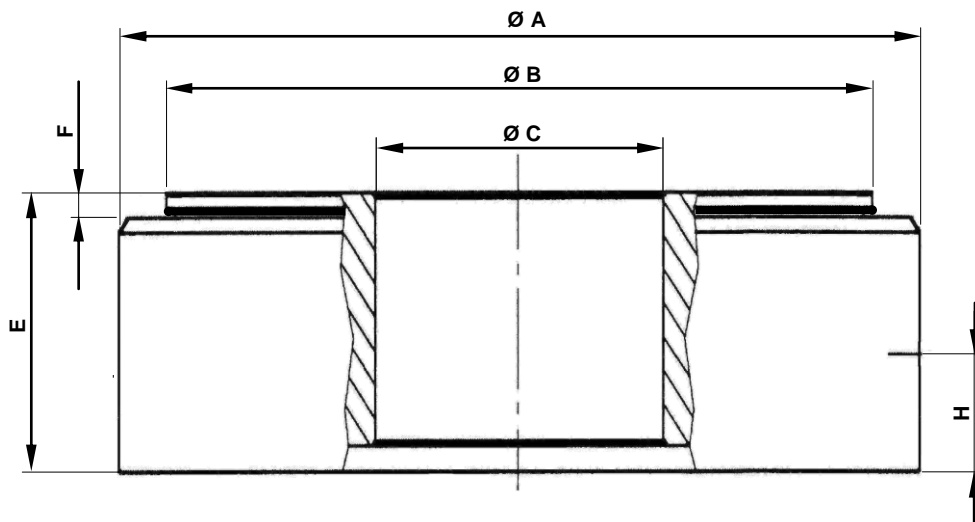
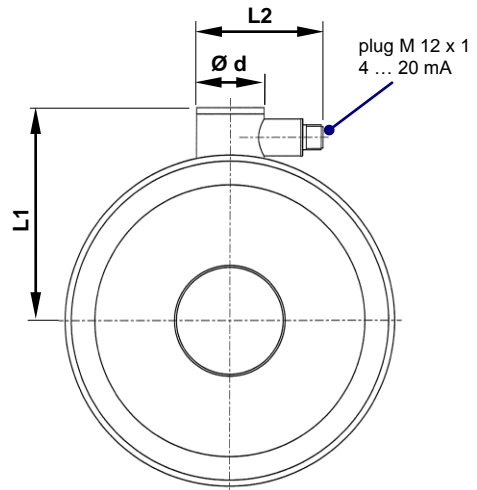
Other nominal loads and versions on request

Technical data: Anchor Load Measuring Units

Load cell for anchor load
with pressure gauge

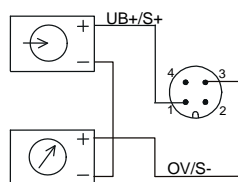


Load cell for anchor load
with signal output 4 ... 20 mA



Electrical connection:

output signal 4...20mA (2-wire)
plug M 12 x 1 - 4-pin



4...20 mA (2 - Leiter)		
	pin	designation
supply: UB+	1	brown
supply: 0V	3	blue
signal: S+	1	brown
signal: S-	3	blue
	thread M12x1	shield

940E01

Different versions

Load cells: F6137, F6148, F6160 and F6172 for anchor load
with pressure gauge, P1778, diameter 100mm
or
with analogue output, P3342, 4 ... 20 mA, 2-wire;
and
digital display with microprocessor, E3908 - 5-digit, -battery powered-;
or
data logger with outdoor housing, cable connected

Measuring unit with pressure gauge
Pressure gauge dia 100 - P1778

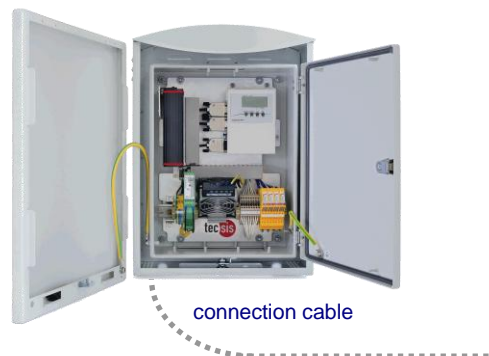


Measuring unit with electrical output signal 4..20 mA
Pressure sensor P3342

and
Handheld display E3908 "ViSens"
with micro processor - battery powered



Measuring unit „System solution“ with data logger and outdoor housing
cable connected



technical changes reserved