Compression force transducer HEAVY DUTY for force up to 2500 kN

Nominal diameter

ND 10 mm
ND 40 mm
ND 100 mm
ND 250 mm

Description

These hydraulic load cells are used in combination with a pressure measuring device to measure forces. The pressure measuring devices employed can be pressure gauges, pressure sensors or other pressure measuring devices fitted with contacts.

In accordance with the surface area of the piston, the force acting on it is transferred to the hydraulic fluid and from there via the connecting tube to the mea-suring instrument.

The straightforward relationship between the pressure, force and piston surface area enables the scale of the measuring instrument to be graduated in a variety of units, e.g. kN, kg, t, m^3 or litres.
Maximum piston stroke is 0.8 mm.

Precise conversion of force to pressure requires the force to act vertically and centred on the piston which must not be exposed to any other forces of thrust or traction. The ball and socket or round form load plate facilitate the required centred action of the force and are accordingly part of the ordinary supply schedule.

The connection line between the load cell and pressure measuring device is a rigid tube for direct assembly and a flexible tube for other kinds of assembly. The position of the connection stub can be adapted to particular installation requirements.

Note

Hydraulic measuring devices are filled with hydraulic fluid in a vacuum environment. For this reason a guarantee of proper functioning is only given on fully assembled units. Sealing glands must not be loosened or removed.

Features

- for compression forces
- nominal temperature -25 to +90°C
- Case, steel zinc plated and chromated
- Stainless steel piston
- Accuracy 1% of end scale when used with pressure measuring instruments class 1.0 and +23°C
- Maximum pistion stroke 0.8 mm
- Operation without power supply

Measuring range

- 1 kN ... 2500 kN

Applications

- Measurement of forces in hoists, girder and presses
- Measurement of rope and strip tension
- Measurement of torque
- Automobile and brake test benches
- Monitoring of content in bunkers, silos and tanks by measuring weight, etc.

Model: F1108, F1125, F1142, F1157

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Technical data

Model	F1108	F1125	F1142	F1157	Options
Nominal size	ND 10	ND 40	ND 100	ND 250	
Accuracy	1% of end scale value when used with pressure measuring devices class 1.0 and reference temperature +23°C				
Limit load	130% F_{nom}				
Breaking load	> 150% F_{nom}				
Combined error	≤± 1% of F.S.				
Nominal deflection	< 0.8 mm				
Nominal temperature range	-25 … +90°C				
Protection type	IP 65				
Case	Steel, zinc plated and chromated				
Piston	Stainless steel, 1.4021				
Diaphragm	Rubber				
Connecting line standard lenghts: 1, 2, 3, 4, 6 m maximum 16 m	- Rigid right angle tube, steel zinc plated and chromated - Rigid angled tube, steel zinc plated and chromated - Flexible tube, 1.4571, with 7 mm diameter spiral steel jacket in 1.4301 - Flexible tube, 1.4571, with 7 mm diameter spiral steel jacket in 1.4301 and 10 mm diameter polyethylene jacket				- Bend with glands on the load cell - Capillary tube throttle
Hydraulic fluid	glycerine/water, FFl.-no. 8				
Mounting	Threaded borings in base of casing				-Square flange fastening
Pressure measuring device	-Nominal diameter 100 / 160 in steel or stainless steel, not a non-ferrous metal measuring system -other pressure measuring devices on request				-ND 160 with tare-, zero-point adjustment -alarm limit contact
Dimensions	see dimensional drawing				
Accessories	-Nominal diameter 10 / 40 ball and socket -Nominal diameter 100 / 250 round form load plate				

Measuring range [kN]	Pressure range on measuring device in bar				
	Model F1108 ND 10	Model F1125 ND 40	Model F1142 ND 100	Model F1157 ND 250	The size of the load cell indicates the surface area of the piston in cm^2
1.0	0.. 10				
1.6	0.. 16				The measuring device can be supplied with a scale in KN, N, t, kp, kg, m3 or litres
2.5	0.. 25				
4.0	0.. 40	0.. 10			
6.0	0.. 60	0.. 16			
10.0	0.. 100	0.. 25	0.. 10		
16.0	0.. 160	0.. 40	0.. 16		
25.0	0.. 250	0.. 60	0.. 25	0.. 10	
40.0	0.. 400	0.. 100	0.. 40	0.. 16	
60.0	0.. 600	0.. 160	0.. 60	0.. 25	
100.0	0..1000	0.. 250	0.. 100	0.. 40	
160.0		0.. 400	0.. 160	0.. 60	
250.0		0.. 600	0.. 250	0.. 100	
400.0		0..1000	0.. 400	0.. 160	
600.0			0.. 600	0.. 250	
1000.0			0..1000	0.. 400	
1600.0				0.. 600	
2500.0				0..1000	

Order details

Model: .....
Load cell, size: .....
Measuring range: .....
Connected via, ...m tube
made of, ...with .....
to measuring device: .....

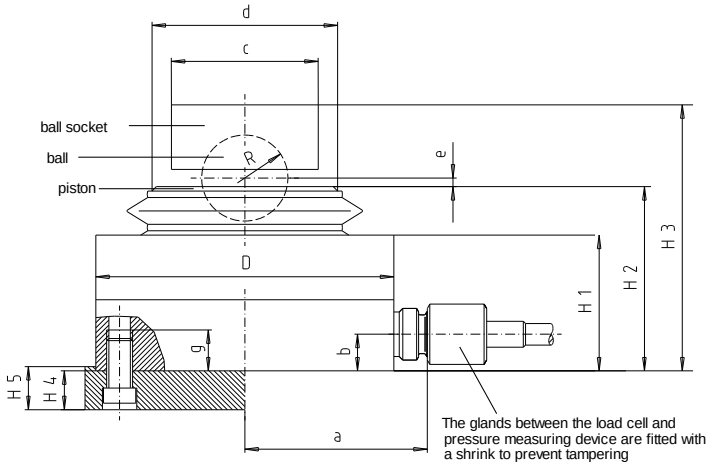
Accessories:
Ball and socket or round form load plate
Option: .....

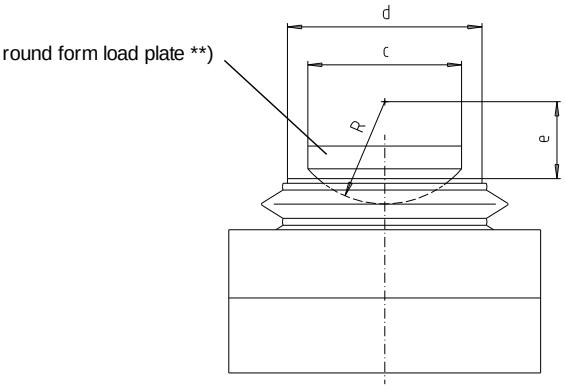
or

Model: .....
Load cell, size: .....
Measuring range: .....
Connected via rigid tube: .....
L or L1 and L2: .....
W3 or W4 to W7: .....
to measuring device: .....
Accessories:
Ball and socket or round form load plate
Option: .....

Installation example

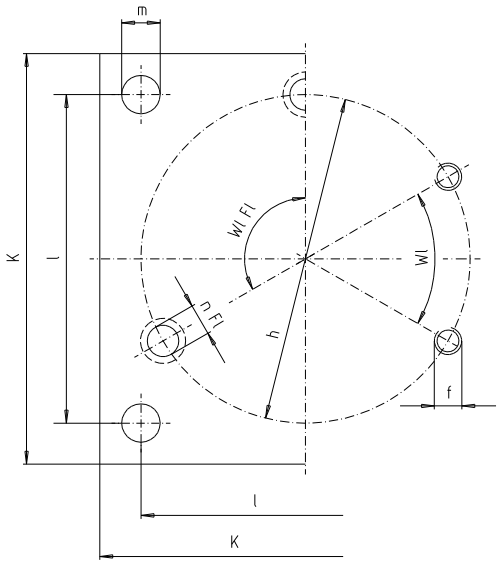
A: Load cell





*) ball and ball socket for diameters 10 and 40
**) round form load plate for diameters 100 and 250

B: Flange fastening

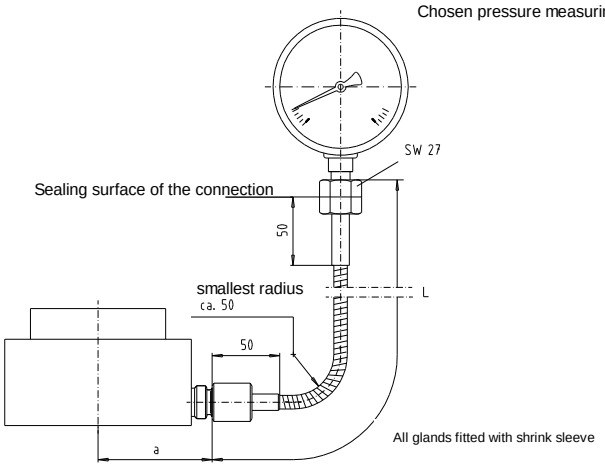


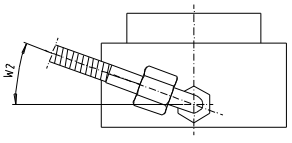
Position of the boring in the flange | Position of the threaded boring in the base of the casing

Table of dimensions

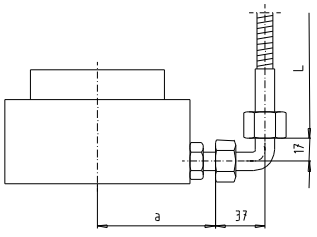
		Load cell - size			
	Dim.	10	40	100	250
Load cell	a	57	82	109	144
	b	16	17	17	17
	c	35 ø	68 ø	76 ø	118 ø
	d	45 ø	90 ø	128 ø	198 ø
	D	88 ø	138 ø	192 ø	262 ø
	R	10	20	45	70
	e	2,5	4	33,5	49
	f	M 8	M 10	M 12	M 12
	g	17	19	17	23
	h	70 ø	120 ø	165 ø	238 ø
	n	6	8	6	12
	H 1	56	63	72	77
	H 2	79	85,5	98,5	104,5
	H 3	99	123,5	117,8	130,8
	W 1	60°	45°	60°	30°
Flange fasening	H 4	16	18	18	23
	H 5	18	20	20	25
	L	105	150	200	270
	l	80	120	160	220
	m	14 ø	14 ø	14 ø	18 ø
	n fl.	3	4	6	6
	Wl. fl.	120°	90°	60°	60°

C: Flexible tube





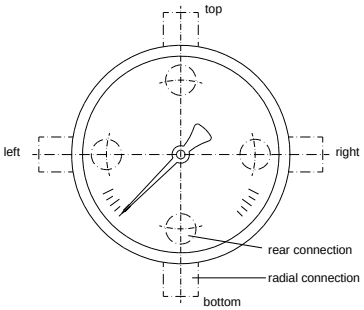
W2 from 0....360°



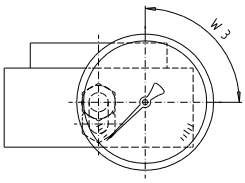
Bend with glands on load cell

Installation example

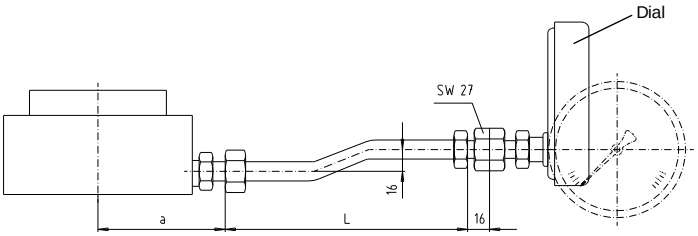
D. Rigid tube with pressure gauge as measuring device



a) Rigid tube with angled bend

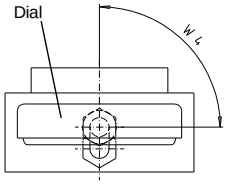


Pressure gauge, rear connection
W3 from 0....360°



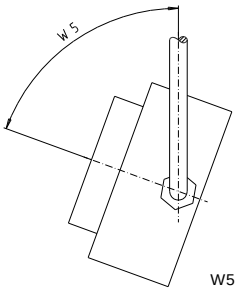
Sealing surface for pressure measuring device

L as desired 100....250 mm

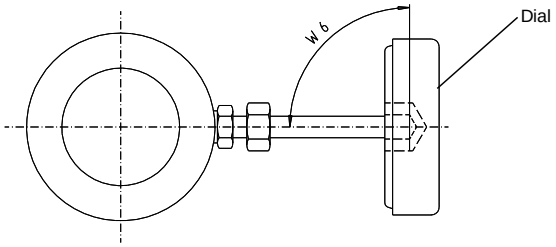


Pressure gauge, radial connection
W4 from 0....360°

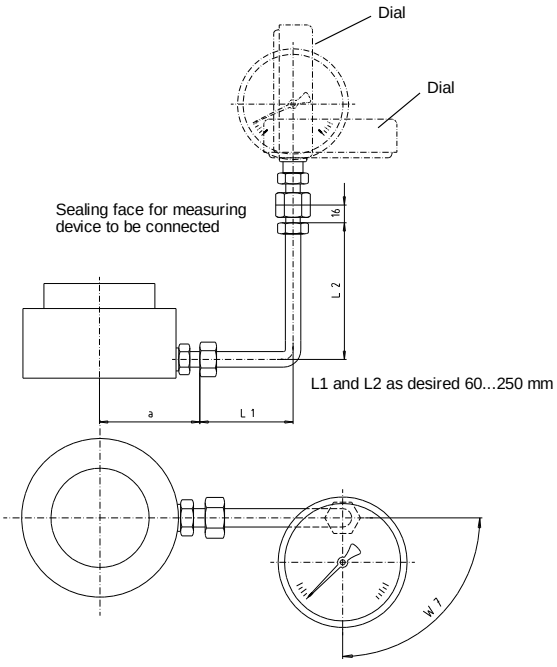
b) Rigid angled tube



W5 from 0....360°



Pressure gauge, radial connection, W6 from 0...360°



L1 and L2 as desired 60...250 mm

Pressure gauge, rear connection, W7 from 0....360°

Subject to technical changes