

## Ring force transducers HEAVY DUTY for forces from 4 kN up to 2500 kN

Nominal diameter	ND 40 mm
	ND 60 mm
	ND 90 mm
	ND 160 mm
	ND 240 mm
	ND 410 mm



### Description

The load cell in ring form is used for the measurement on shafts and spindles to which a load cell of standard shape cannot be attached.

The distinctive feature of this load cell by comparison with the others is the ring shape of the load cell piston and diaphragm. The force acts on a thrust roller bearing and is transmitted without rotation to the ring shaped piston. 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 measuring 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<sup>3</sup> or litres. Maximum piston stroke is 0.8 mm.

The widely differing conditions governing installation, particularly in the case of the ring shaped load cells, will often require different designs of casing and fastenings. In most cases it would be possible to adapt design to customer's requirements. The measuring devices employed may be pressure gauges, pressure sensors or other pressure measuring devices fitted with contacts.

### 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
- Ambient temperature -25 ... +90°C
- Stainless steel casing and piston
- Accuracy 1% of end scale value when used with pressure measuring instruments class 1.0 and 23°C
- Maximum piston stroke 0.8 mm
- Operation without power supply

### Measuring ranges

- 4 kN ... 2500 kN

### Applications

- Screw feeders
- Propeller shafts
- Tailstock spindles
- Special mechanical engineering applications
- Cable force measurements

**Model: F6126, F6132, F6139,  
F6151, F6154, F6166**

## Technical data

Model	F6126	F6132	F6139	F6151	F6154	F6166	Options
Nominal size	ND 40	ND 60	ND 90	ND 160	ND 240	ND 410	
Accuracy	1% of end scale value when used with pressure measuring instruments class 1.0 and reference temperature 23°C						
Limited 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	stainless steel						
Piston	stainless steel						
Connecting line  standard lengths: 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, s.s. 1.4571 with 7 mm diameter spiral steel jacket in s.s. 1.4301 -flexible tube, s.s. 1.4571 with 7mm diameter spiral steel jacket in s.s. 1.4301 and 10 mm diameter polyethylene jacket						-Bend with glands on the load cell -capillary tube throttle
Pressure measuring device	-Nominal diameter 100 mm / 160 mm in stainless steel, not a non-ferrous metal measuring system -other pressure gauges on request						-ND 160 with tare-, zero-point adjustment -alarm limit contact
Hydraulic fluid	glycerine/water, FFI.-No. 8						
Mounting	Threaded borings in base of casing						
Dimensions	see dimensional drawing						

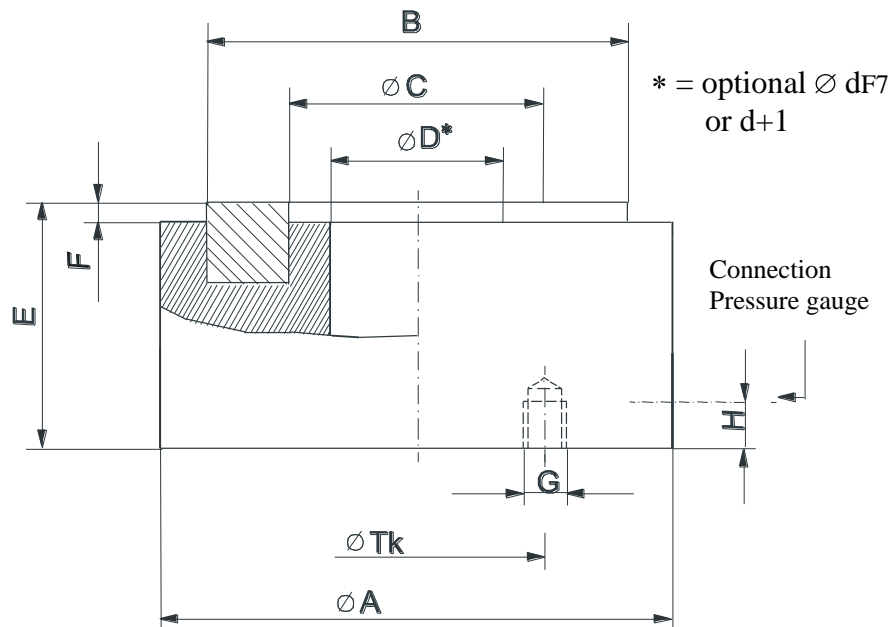
Measuring range  [kN]	Pressure range on measuring device in bar						The size of the load cell indicates The surface area of the piston in cm <sup>2</sup>
	F6126 ND 40	F6132 ND 60	F6139 ND 90	F6151 ND 160	F6154 ND 240	F6166 ND 410	
1.0							The measuring device can be supplied with a scale in kN, N, t, kp, kg, m3 or litres
1.6							
2.5							
4.0	0.. 10						
6.0	0.. 16	0.. 10					
10.0	0.. 25	0.. 16	0.. 10				
16.0	0.. 40	0.. 28	0.. 16	0.. 10			
25.0	0.. 60	0.. 40	0.. 28	0.. 16	0.. 10		
36.0	---	0.. 60	0.. 40	---	---		
40.0	0..100	0.. 70	0.. 40	0.. 25	0.. 16	0.. 10	
60.0	0..160	0..100	0.. 70	0.. 40	0.. 25	0.. 16	
100.0	0..250	0..160	0..100	0.. 60	0.. 40	0.. 25	
160.0	0..400	0..280	0..160	0..100	0.. 70	0.. 40	
250.0	0..600	0..400	0..280	0..160	0..100	0.. 60	
400.0		0..700	0..450	0..250	0..160	0..100	
600.0			0..700	0..350	0..250	0..140	
1000.0				0..600	0..400	0..250	
1600.0					0..700	0..400	
2500.0						0..600	

### 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: .....

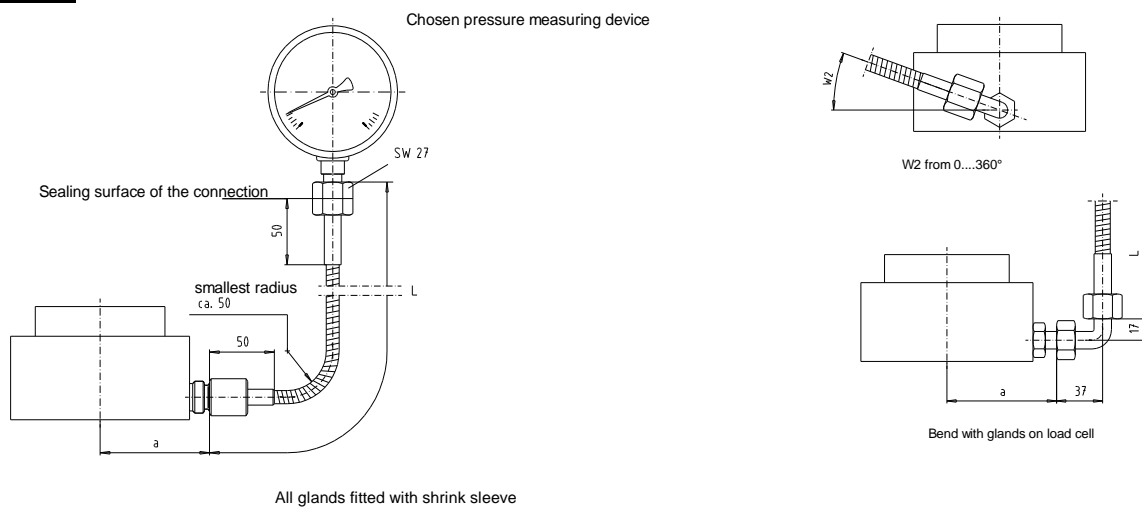
## Dimensions



Load cell – size	$\varnothing A$	$\varnothing B$	$\varnothing C$	$\varnothing D$	$\varnothing T_k$	G	E	F	H
ND 40	100	83	38	25	70	4x M 8	58	3	22.5
ND 60	120	100	56	40	90	4x M 8	62	5	22.5
ND 90	170	130	80	60	120	4x M 10	68	5	22.5
ND 160	210	180	120	100	170	4x M 10	70	5	22.5
ND 240	250	225	142	125	200	4x M 12	75	5	22.5
ND 410	310	280	180	160	260	4x M 12	75	5	22.5

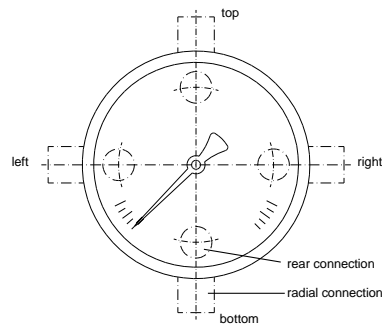
## Installation example

### A: Flexible tube

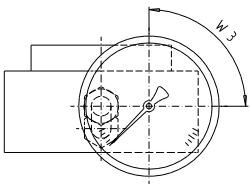


# Installation example

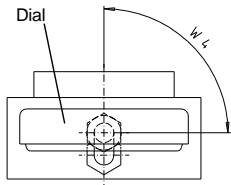
## B. Rigid tube with pressure gauge as measuring device



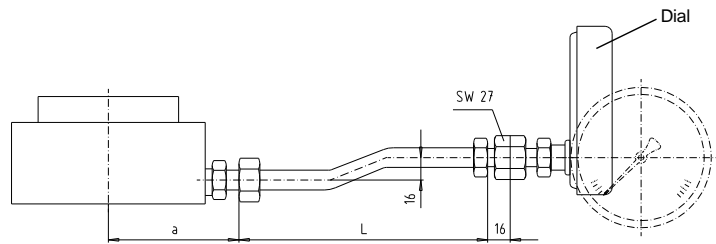
### a) Rigid tube with angled bend



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



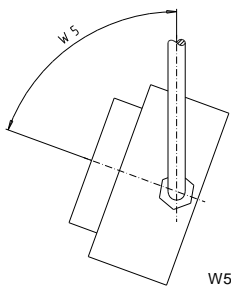
Pressure gauge, radial connection  
W4 from 0...360°



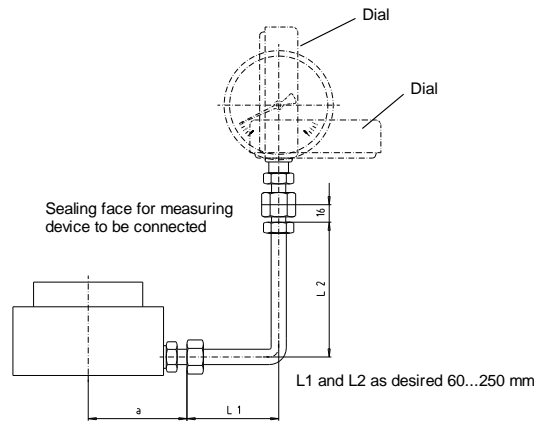
Sealing surface for pressure measuring device

L as desired 100...250 mm

### b) Rigid angled tube

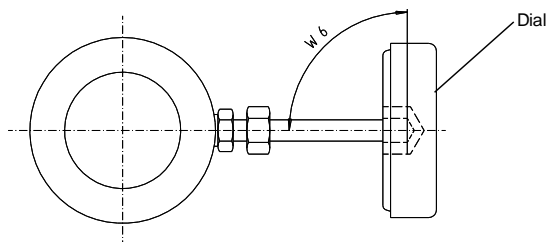


W5 from 0...360°

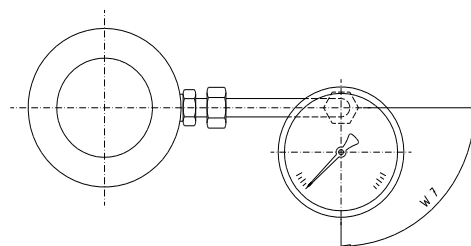


Sealing face for measuring device to be connected

L1 and L2 as desired 60...250 mm



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



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

Subject to technical changes