

# Hydraulic compression force transducer NS 3 x 6, 3-jaw clamping force test instrument up to 180 kN Model F1103

WIKA data sheet FO 52.24

## Applications

- Measurement of clamping force in three-jaw chucks
- Equipment manufacturing
- Construction of jigs and fixtures
- Special machine building
- Measuring and control systems

## Special features

- Measuring ranges 0 ... 1.1 kN to 0 ... 180 kN
- Relative linearity error  $\pm 1.0 \dots 1.6 \% F_{nom}$  with analogue pressure gauge,  $\pm 0.5 \% F_{nom}$  with digital pressure gauge or pressure sensor<sup>1)</sup>
- Piston stroke  $\leq 0.5$  mm, force introduction as total clamping force
- Operates without supply voltage
- 5-year leak-tightness warranty<sup>2)</sup>



Hydraulic compression force transducer, model F1103

## Description

The hydraulic force transducer model F1103, version NS 3 x 6, is suited for regular testing of the clamping force in 3-jaw chucks. It thereby ensures optimum use of the clamping jaws.

Hydraulic force measurement is a simple way to capture and display the forces occurring in various applications. The force is measured using the principle of hydraulics: The force acting on a piston leads to a pressure increase that can be visualised on a connected display instrument. The scale of the display instrument can be defined in various units (e.g. N, kN, kg, t).

### Leak-tightness warranty

The warranty on leak tightness of the hydraulic force measuring unit was extended to 5 years<sup>2)</sup>. A force transducer that starts to leak within this period will be repaired free of charge.

1) For rated loads below 500 N, the accuracy is  $\pm 1.6 \% F_{nom}$  for all connected measuring instruments.

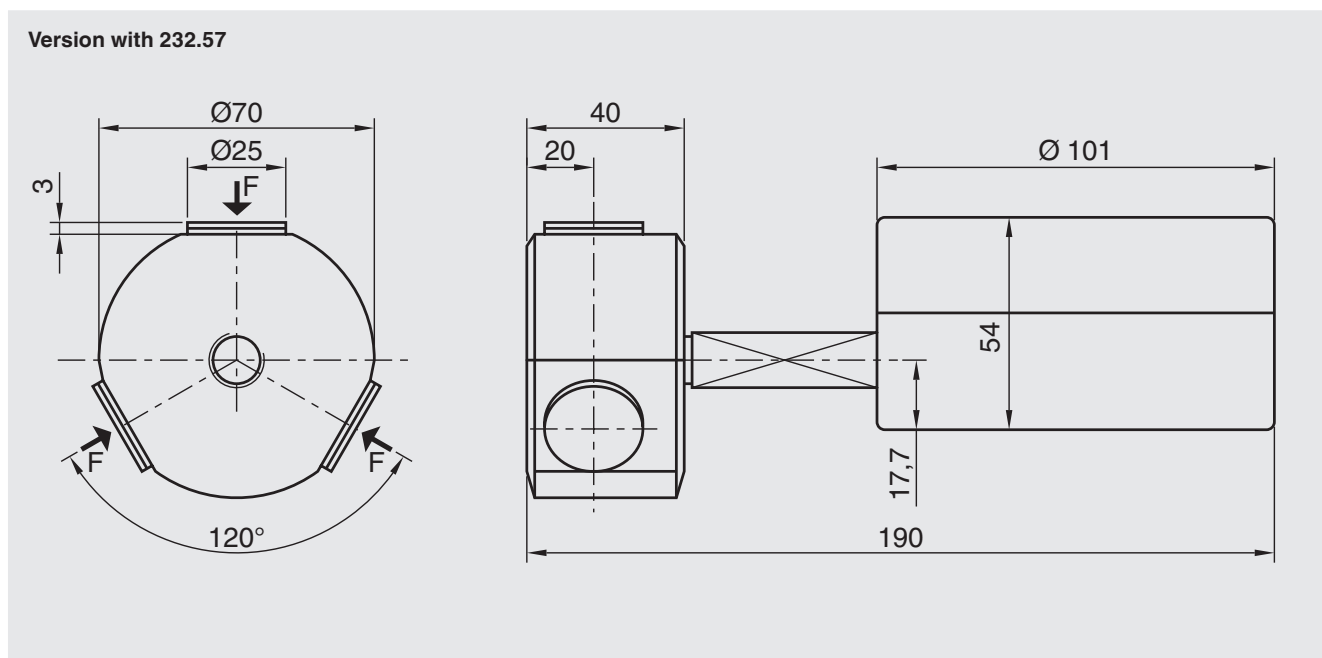
2) Use of the force measuring unit as intended is a prerequisite for the extended 5-year warranty.

## Specifications per VDI/VDE/DKD 2638

Model F1103	
<b>Rated force <math>F_{nom}</math></b>	0 ... 1.1 kN to 0 ... 180 kN
<b>Nominal size</b>	NS 3 x 6
<b>Display</b> ■ Standard ■ Option	Pressure gauge 232.57 (NS 100) Digital pressure gauge DG-10 Pressure sensor (on request)
<b>Relative linearity error <math>d_{lin}</math></b> ■ Standard ■ Option	$\leq \pm 1.6 \% F_{nom}$ (analogue display) <sup>1)</sup> $\leq \pm 0.5 \% F_{nom}$ (pressure sensor/digital pressure gauge) <sup>1)</sup>
<b>Limit force <math>F_L</math></b>	100 % $F_{nom}$
<b>Breaking force <math>F_B</math></b>	> 130 % $F_{nom}$
<b>Force introduction</b> ■ Standard ■ Option	Total clamping force Clamping force per jaw
<b>Rated displacement <math>s_{nom}</math></b>	< 0.5 mm
<b>Rated temperature range <math>B_{T, nom}</math></b>	-10 ... +50 °C
<b>Ingress protection (per EN/IEC 60529)</b>	IP65
<b>Case</b>	Stainless steel
<b>Piston</b>	Stainless steel
<b>Mounting type</b> ■ Standard ■ Option	Adapter L = 50 mm Capillary Measuring hose for "separation without any losses"
<b>Fill fluid</b>	Glycerine/water 70 %/30 %
<b>Weight in kg</b> ■ with pressure gauge 232.57 (NS 100) ■ with digital pressure gauge DG-10	2.4 2.2

1) For rated forces below 500 N, the relative linearity error is  $\pm 1.6 \% F_{nom}$  for all connected measuring instruments.

## 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		Options	
Rated force	System pressure	232.57	DG-10	Measuring hose DN 2 [max. L <sup>1)</sup> ]	Capillary [max. L <sup>1)</sup> ]
kN	bar			m	
1.1	6	■	-	0.5	1.0
1.8	10	■	-	1.0	2.0
3	16	■	-	1.0	2.0
3.5	20	-	■ <sup>2)</sup>	1.5	2.0
4.8	25	■	-	1.5	2.0
7	40	■	-	1.5	2.0
10	50	-	■	2.0	2.0
11	60	■	-	2.0	2.0
18	100	■	■	2.0	2.0
30	160	■	■	2.0	4.0
45	250	■	■	3.2	4.0
75	400	■	■	3.2	6.0
110	600	■	■	3.2	6.0
180	1,000	■	-	-	6.0
Other rated loads and versions on request					

■ = possible selection

1) For a rated force below 500 N, the relative linearity error is  $\pm 1.6 \% F_{\text{nom}}$  for all connected measuring instruments.

2) Relative linearity error  $< \pm 1.0 \% F_{\text{nom}}$

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We reserve the right to make modifications to the specifications and materials.

