

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 sensor¹⁾
- Piston stroke ≤ 0.5 mm, force introduction as total clamping force
- Operates without supply voltage
- 5-year leak-tightness warranty²⁾



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 years²⁾. 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.

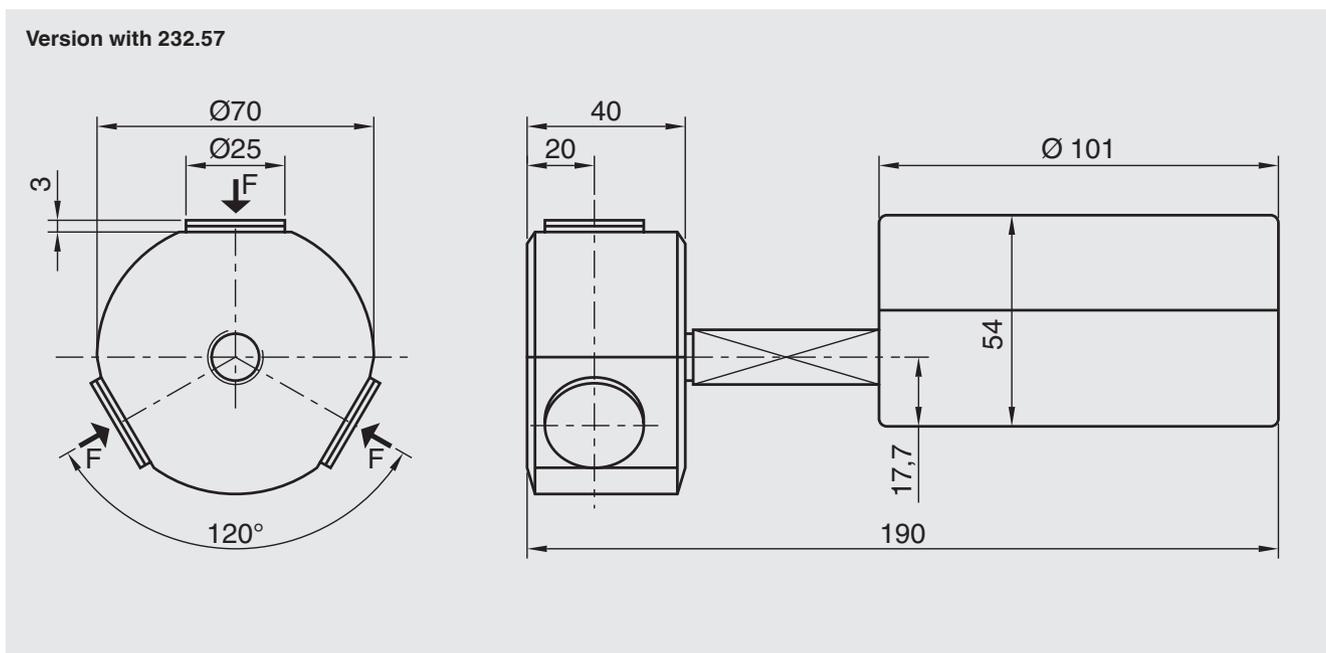
2) Use of the force measuring unit as intended is a prerequisite for the extended 5-year warranty.

Specifications per VDI/VDE/DKD 2638

Model F1103	
Rated force F_{nom}	0 ... 1.1 kN to 0 ... 180 kN
Nominal size	NS 3 x 6
Display <ul style="list-style-type: none"> ■ Standard ■ Option 	Pressure gauge 232.57 (NS 100) Digital pressure gauge DG-10 Pressure sensor (on request)
Relative linearity error d_{lin} <ul style="list-style-type: none"> ■ Standard ■ Option 	$\leq \pm 1.6 \% F_{nom}$ (analogue display) ¹⁾ $\leq \pm 0.5 \% F_{nom}$ (pressure sensor/digital pressure gauge) ¹⁾
Limit force F_L	100 % F_{nom}
Breaking force F_B	> 130 % F_{nom}
Force introduction <ul style="list-style-type: none"> ■ Standard ■ Option 	Total clamping force Clamping force per jaw
Rated displacement s_{nom}	< 0.5 mm
Rated temperature range $B_{T, nom}$	-10 ... +50 °C
Ingress protection (per EN/IEC 60529)	IP65
Case	Stainless steel
Piston	Stainless steel
Mounting type <ul style="list-style-type: none"> ■ Standard ■ Option 	Adapter L = 50 mm Capillary Measuring hose for "separation without any losses"
Fill fluid	Glycerine/water 70 %/30 %
Weight in kg <ul style="list-style-type: none"> ■ 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 ¹⁾]	Capillary [max. L ¹⁾]
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	-	■ ²⁾	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 $\pm 1.6\% F_{nom}$ for all connected measuring instruments.

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

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