

# Hydraulic compression force transducer Welding tongs test instrument up to 36 kN Model F1102

## Applications

- Equipment manufacturing
- Construction of jigs and fixtures
- Special-purpose machine building
- Measuring and control instruments

## Special features

- Measuring ranges 0 ... 100 N to 0 ... 36 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  $\leq 0.5 \text{ mm}$
- Operates without supply voltage
- 5-year leak-tightness warranty<sup>2)</sup>



Hydraulic compression force transducer, model F1102

## Description

The hydraulic force transducer model F1102 serves to easily capture and display forces in applications of limited mounting space. With its plastic piston, the transducer is especially suited to measure compression forces occurring during closing of welding tongs.

Hydraulic force measurement is a simple way to capture and display the forces occurring in various applications. The force measurement is made using the principle of hydraulics: The force acting on a piston leads to a pressure increase which

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 forces below 500 N, the relative linearity error 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.

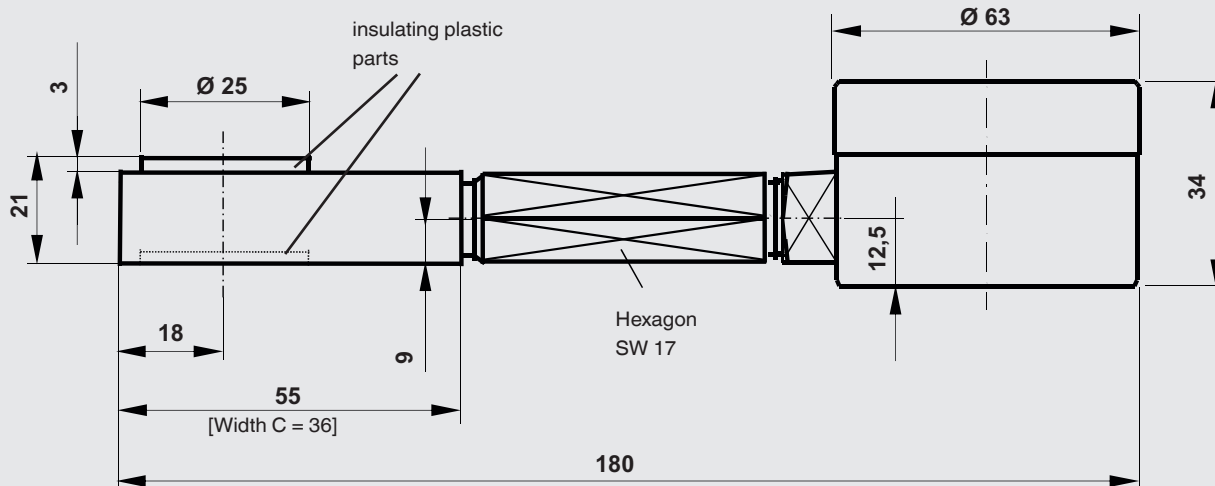
## Specifications per VDI/VDE/DKD 2638

Model F1102	
Rated force $F_{nom}$	0 ... 100 N to 0 ... 36 kN
Nominal size	NS 6
Display	Pressure gauge 213.40 (NS 63) Digital pressure gauge DG-10 Pressure sensor (on request)
Relative linearity error $d_{lin}$	<ul style="list-style-type: none"> <li>■ Standard <math>\leq \pm 1.6 \% F_{nom}</math> (analogue display)<sup>1)</sup></li> <li>■ Option <math>\leq \pm 0.5 \% F_{nom}</math> (pressure sensor/digital pressure gauge)<sup>1)</sup></li> </ul>
Limit force $F_L$	100 % $F_{nom}$
Breaking force $F_B$	> 130 % $F_{nom}$
Rated displacement $s_{nom}$	< 0.5 mm
Rated temperature range $B_{T, nom}$	-25 ... +50 °C
Ingress protection (per EN/IEC 60529)	IP65
Case	Stainless steel
Piston	Plastic (Delrin®)
Mounting type	<ul style="list-style-type: none"> <li>■ Standard Adapter L = 50 mm</li> <li>■ Option Capillary Measuring hose for "separation without any losses"</li> </ul>
Fill fluid	Glycerine/water 70 %/30 %
Weight in kg	
<ul style="list-style-type: none"> <li>■ with pressure gauge 213.40 (NS 63)</li> <li>■ with digital pressure gauge DG-10</li> </ul>	0.6 1

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

### Version with 213.40



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	213.40	DG-10	Measuring hose DN2 [max. L <sup>1)</sup> ]	Capillary [max. L <sup>1)</sup> ]
N/kN		bar			m	
100	N	1.6	■	-	-	-
160		2.5	■	-	-	-
250		4	■	-	-	1.0
400		6	■	-	0.5	1.0
600		10	■	-	1.0	2.0
1	kN	16	■	-	1.0	2.0
1.2		20	-	■ <sup>2)</sup>	1.5	2.0
1.6		25	■	-	1.5	2.0
2.5		40	■	-	1.5	2.0
3.2		50	-	■	2.0	2.0
4		60	■	-	2.0	2.0
6		100	■	■	2.0	2.0
10		160	■	■	2.0	4.0
16		250	■	■	3.2	4.0
20		315	■	-	3.2	4.0
25		400	■	■	3.2	6.0
36		600	■	■	3.2	6.0

Other rated loads and versions on request

■ = possible selection

1) For a rated forces 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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Page 3 of 3

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