

Tension/compression force transducer

For material testing up to 2,200 kN

Model F2222

WIKA data sheet FO 51.29

Applications

- Materials testing machinery
- Apparatus construction
- Production lines
- Measuring and inspection equipment
- Special equipment and machinery construction

Special features

- Measuring ranges 0 ... 22 N up to 0 ... 2.200 kN (0 ... 5 lbs up to 0 ... 500 klbs)
- Simple installation, low installation height
- High long-term stability, dynamic fatigue strength for load alternations
- Protection class IP66
- Relative linearity error 0.1 % F_{nom}

Description

The tension/compressive force transducer is characterized by high accuracy and low installation height. It can be used in harsh industrial environments in laboratories or test field for static or dynamic measurement tasks.

The force transducer has a bore through the center with internal thread, is splash-proof and works reliably even under difficult operating conditions.



Tension/compression force transducer, model F2222

Note

In order to avoid overloading, it is advantageous to connect the force transducer electrically during installation and to monitor the measured value.

The force to be measured must be applied concentrically and free of transverse force. The force transducers are to be mounted on a level surface.

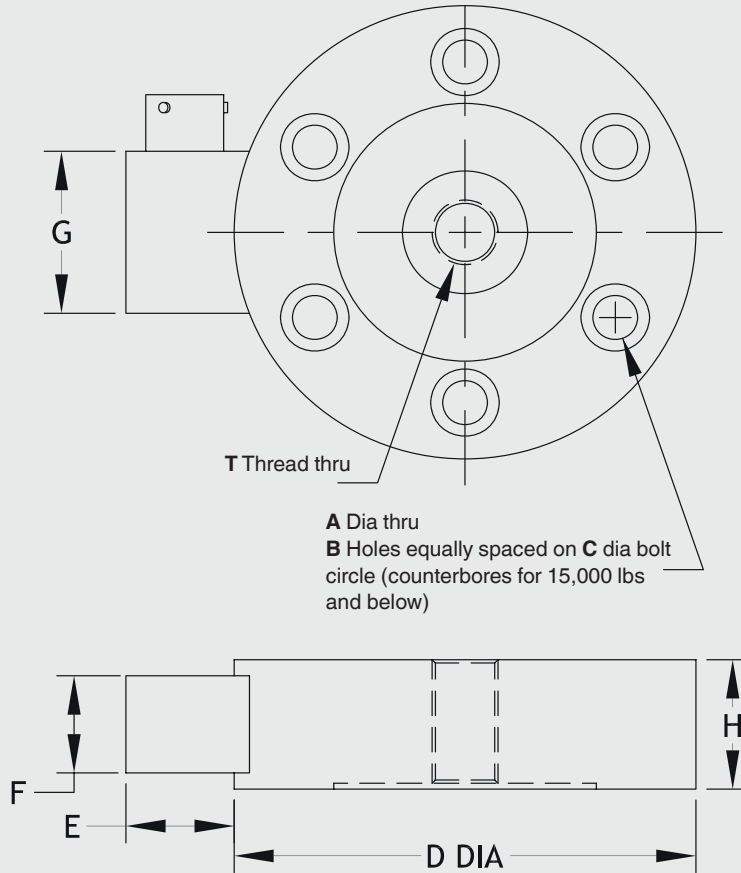
Options

- Redundant design with second measuring bridge
- Load input elements available
- Extended temperature ranges
- Cable connection
- Integrated amplifier

Specifications in accordance with VDI/VDE/DKD 2638

| Model F2222 | | |
|--|--|--|
| Rated force F_{nom} kN | 0.02 / 0.04 / 0.08 / 0.11 | 0.22 / 0.44 / 0.88 / 2.22 / 4.44 / 8.89 / 13.34 / 22.24 / 33.36 / 44.48 / 66.72 / 88.96 / 133.45 / 222.41 / 333.62 / 444.82 / 667.23 / 889.64 / 1,334.47 / 2,224.11 |
| Nominal load F_{nom} lbs | 5 / 10 / 20 / 25 | 50 / 100 / 200 / 500 / 1,000 / 2,000 / 3,000 / 5,000 / 7,500 / 10,000 / 15,000 / 20,000 / 30,000 / 50,000 / 75,000 / 100,000 / 150,000 / 200,000 / 300,000 / 500,000 |
| Relative linearity error d_{lin} | $\leq \pm 0.20 \% F_{nom}$ | $\leq \pm 0.10 \% F_{nom}$ |
| Relative creep, 30 min. | $< \pm 0.1 \% F_{nom}$ | |
| Relative reversibility error v | $\leq \pm 0.10 \% F_{nom}$ | $\leq \pm 0.08 \% F_{nom}$ |
| Relative repeatability error in unchanged mounting position b_{rg} | $\leq \pm 0.10 \% F_{nom}$ | $\leq \pm 0.03 \% F_{nom}$ |
| Relative deviation of zero signal $d_{S,0}$ | $\leq \pm 1 \% F_{nom}$ | |
| Temperature effect on zero signal TK_0 | $< \pm 0.05 \% \text{ of F.S./10 K}$ | |
| Temperature effect on characteristic value TK_C | $< \pm 0.05 \% \text{ Reading/10 K}$ | |
| Force limit F_L | 150 % F_{nom} | |
| Breaking force F_B | $> 300 \% F_{nom}$ | |
| Permissible oscillation stress acc. to DIN 50100 F_{rb} | $\pm 70 \% F_{nom}$ | |
| Rated displacement s_{nom} | $< 0.4 \text{ mm}$ | |
| Material | $\leq 200 \text{ klbs}$ Stainless steel $> 200 \text{ klbs}$ Steel | |
| Operating temperature range $B_{T,G}$ | $-54 \dots +121^\circ\text{C}$ | |
| Reference temperature T_{ref} | $15 \dots +71^\circ\text{C}$ | |
| Output signal (rated output) C_{nom} | $\leq 25 \text{ lbs: } 2 \text{ mV/V}$ $\geq 50 \text{ lbs: } 3 \text{ mV/V}$ | |
| Input-/output resistance R_e/R_a | 350 Ω | |
| Insulation resistance | $> 2 \text{ G}\Omega$ | |
| Electrical connection | <ul style="list-style-type: none"> ■ Standard ■ Option | |
| Supply voltage | <ul style="list-style-type: none"> ■ Standard ■ Option | |
| Protection (acc. to IEC/EN 60529) | IP66 | |
| Option | <ul style="list-style-type: none"> ■ Redundant design with second measuring bridge ■ Load input elements available ■ Extended temperature range ■ Cable connection ■ Integrated amplifier | |

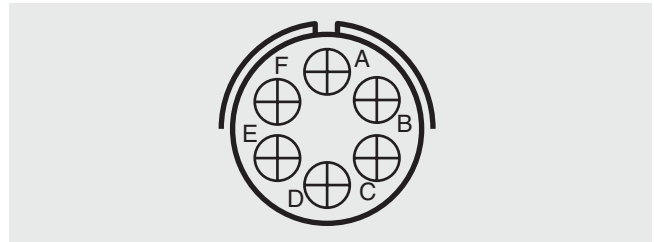
Dimensions



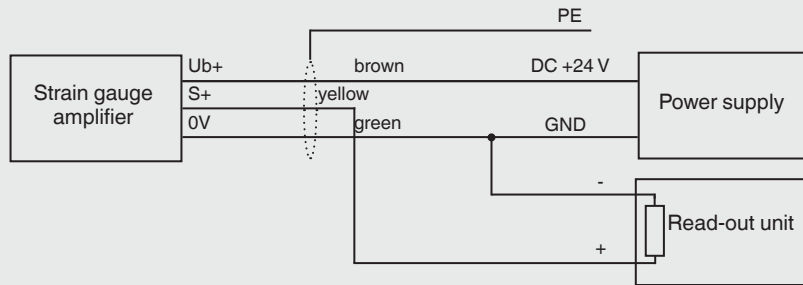
| Nominal load (Rated force) | Dimensions in inch (mm) | | | | | | | | |
|--|-------------------------|------------------|-----------------|---------------|-----------------------|-------------|-----------------|-----------------|-----------------|
| | ØD | H | A | B | Ø C bolt circle | T | E | F | G |
| 5 / 10 / 20 / 25 (0.02 / 0.04 / 0.08 / 0.11) | 2.50 (63.5) | 0.80 (20.32) | 0.18 (4.57) | 6 (152.4) | 2.00 (50.8) | 1/4-28UNF | 0.82 (20.83) | 0.75 (19.05) | 1.25 (31.75) |
| 50 / 100 / 200 / 500 / 1,000 (0.22 / 0.44 / 0.88 / 2.22 / 4.44) | 3.00 (76.2) | 1.00 (25.4) | 0.28 (7.11) | 6 (152.4) | 2.25 (57.15) | 3/8-24UNF | 0.82 (20.83) | 0.75 (19.05) | 1.25 (31.75) |
| 2,000 / 3,000 / 5,000 (8.89 / 13.34 / 22.24) | 3.50 (88.9) | 1.00 (25.4) | 0.34 (8.64) | 6 (152.4) | 2.63 (66.8) | 1/2-20UNF | 0.82 (20.83) | 0.75 (19.05) | 1.25 (31.75) |
| 7,500 / 10,000 / 15,000 (33.36 / 44.48 / 66.72) | 5.50 (139.7) | 1.80 (45.72) | 0.40 (10.16) | 8 (203.2) | 4.50 (114.3) | 1-1UNS | 1.25 (31.75) | 1.50 (38.1) | 2.00 (50.8) |
| 20,000 / 30,000 / 50,000 (88.96 / 133.45 / 222.41) | 6.00 (152.4) | 1.80 (45.72) | 0.53 (13.46) | 8 (203.2) | 4.88 (123.95) | 1 1/2-12UNF | 1.25 (31.75) | 1.50 (38.1) | 2.00 (50.8) |
| 75,000 / 100,000 (333.62 / 444.82) | 9.00 (228.6) | 2.50 (63.5) | 0.66 (16.76) | 12 (304.8) | 7.75 (196.85) | 2-12UN | 1.25 (31.75) | 1.50 (38.1) | 2.00 (50.8) |
| 150,000 / 200,000 (667.23 / 889.64) | 11.0 (279.4) | 3.00 (76.2) | 0.78 (19.81) | 12 (304.8) | 9.50 (241.3) | 2 1/2-12UN | 1.25 (31.75) | 1.50 (38.1) | 2.00 (50.8) |
| 300,000 / 500,000 (1,334.47 / 2,224.11) | 14.0 (355.6) | 4.25 (107.95) | 1.00 (25.4) | 12 (304.8) | 11.75 (298.45) | 3 1/2-8UN | 1.25 (31.75) | 1.50 (38.1) | 2.00 (50.8) |

Pin assignment

| Electrical connection mV/V | |
|----------------------------|---------|
| Excitation voltage (+) | Pin A&B |
| Excitation voltage (-) | Pin C&D |
| Signal (-) | Pin E |
| Signal (+) | Pin F |



Pin assignment for integrated amplifier or cable amplifier (output 4 20 mA)



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