

Data Sheet | Force Transducer Series RF

Nominal Force
25 kN – 10 MN



Key Facts

- ▶ Applications: materials testing | component and structural testing | industrial quality and process control
- ▶ Compressive and tensile forces, static and dynamic
- ▶ Very good overforce tolerance | especially resistant to any traverse forces and bending moments | simple assembly, diverse adaption options
- ▶ Accuracy class: 0.05
- ▶ Force introduction via flange
- ▶ Fatigue and long-term stability | cycles: > 100 million cycles^{*note amplitude}
- ▶ Standard or configurable variants for maximum flexibility

Options | Accessories

- ▶ Optional inner through hole
- ▶ Optional plug protection
- ▶ Nominal characteristic values depending on requirement and nominal force 2 / 1 / 1.6 mV/V
- ▶ Optional second axial measuring circuit for redundancy
- ▶ Optional bending measuring circuits M_x, M_y
- ▶ Optional extended temperature range from -40° to 180 °C
- ▶ Comprehensive electrical connection options
- ▶ Special variants also in small quantities

Technical Data | 25 – 630 kN

| Nominal force compression/tension | | $\pm F_{nom}$ | kN | 25 | 50 | 63 | 100 | 200 | 250 | 300 | 400 | 500 | 630 | | |
|--|---|----------------------------|---------------------------|---------------------|----|----|-----|-----|---|-----|-----|-----|-----|--|--|
| Metrological Data | Accuracy class | | | 0.05 | | | | | | | | | | | |
| | Force measurement range | | % | 1 - 100 | | | | | | | | | | | |
| | Linearity error | d_{lin} | % | 0.05 | | | | | | | | | | | |
| | Interpolation error | f_c | % | 0.4 | | | | | | | | | | | |
| | Hysteresis | h | % | 0.1 | | | | | | | | | | | |
| | Reversibility error | v | % | 0.5 | | | | | | | | | | | |
| | Repeatability (f.s.) | | % | 0.005 | | | | | | | | | | | |
| | Creep | | % | 0.025 | | | | | | | | | | | |
| | Temperature effect on characteristic value per 10 K | TK_C | %/10 K | 0.05 | | | | | | | | | | | |
| | Temperature effect on zero signal per 10 K | TK_0 | %/10 K | 0.05 | | | | | | | | | | | |
| | Eccentricity effect | | %/mm | 0.02 | | | | | | | | | | | |
| | Lateral force effect | | %/(0,1·F _{nom}) | 0.2 | | | | | | | | | | | |
| | Torque effect | | %/(mm·F _{nom}) | 0.005 | | | | | | | | | | | |
| | Characteristic value difference, tension/compression force | d_{ZD} | % | 1 | | | | | | | | | | | |
| | Electrical Data | Rated characteristic value | C_{nom} | mV/V | 1 | | | | 2 ³⁾ | | | | | | |
| Characteristic value tolerance | | d_c | % | 0.4 | | | | 0.2 | | | | | | | |
| Zero signal deviation ⁴⁾ | | $d_{S,0}$ | % | 1 | | | | 0.5 | | | | | | | |
| Input resistance | | R_e | Ω | ca. 750 | | | | | | | | | | | |
| Output resistance | | R_a | Ω | ca. 500 | | | | | ca. 750 | | | | | | |
| Insulation resistance | | R_{is} | Ω | >10 ⁹ | | | | | | | | | | | |
| Operating range of excitation voltage | | $B_{U,G}$ | V | 5 - 12 | | | | | | | | | | | |
| Protection (DIN EN 60529) | | | | IP 68 ²⁾ | | | | | IP 50 ¹⁾ ; IP 68 ²⁾ | | | | | | |

Technical Data | 25 – 630 kN

| | | | | | | | | | | | | | |
|-----------------|--|---------------|-------|-----------|-----|-----|------|------|------|------|------|------|------|
| Mechanical Data | Nominal force compression/tension | $\pm F_{nom}$ | kN | 25 | 50 | 63 | 100 | 200 | 250 | 300 | 400 | 500 | 630 |
| | Rated Displacement | s_{nom} | mm | 0.07 | | | 0.1 | | | 0.2 | | | |
| | Spring rigidity | c_{ax} | kN/mm | 350 | 700 | 900 | 1000 | 2000 | 2500 | 1500 | 2000 | 2500 | 3000 |
| | Mass | m | kg | 0.5 | | | 3 | | | 7.1 | 7.5 | 8 | 8.5 |
| | Proportionate moving mass | m_{mess} | kg | 0.25 | | | 1.5 | | | 4.5 | | | |
| | Fundamental resonant frequency | f_G | kHz | >9 | | | >5 | | | >4 | | | |
| | Permissible oscillation stress ³⁾ | | % | ± 80 | | | | | | | | | |
| Limits | Force limit | | % | | | | | | 150 | | | | |
| | Breaking force | | % | | | | | | 300 | | | | |
| | Lateral force limit | | % | | | | | | 60 | | | | |
| | Permissible eccentricity | e_G | mm | 30 | | | 40 | | | 50 | | | |
| | Bending moment limit | M_{bzul} | kN·m | 1 | 2 | 4 | 6 | 11 | 14 | 24 | 33 | 40 | 49 |
| | Rated temperature range | $B_{T,nom}$ | °C | 10 - 60 | | | | | | | | | |
| | Operating temperature range | $B_{T,G}$ | °C | -10 – +80 | | | | | | | | | |

1) Plug-in connection

2) Permanent connection

3) Rated characteristic value 16mV/V with permissible oscillation stress ± 100% available on request.

4) In unscrewed condition

Technical Data | 1 - 10 MN

| Nominal force compression/tension | | $\pm F_{nom}$ | MN | 1 | 1.2 | 1.5 | 2 | 2.5 | 3 | 4 | 5 | 6 | 7 | 8 | 10 |
|-----------------------------------|--|---------------|---------------------------|---|-----|-----|---|-----|---|-----|---|---|---|---|----|
| Metrological Data | Accuracy class | | | 0.05 | | | | | | | | | | | |
| | Force measurement range | | % | 1 - 100 | | | | | | | | | | | |
| | Linearity error | d_{lin} | % | 0.05 | | | | | | | | | | | |
| | Interpolation error | f_c | % | 0.4 | | | | | | 0.5 | | | | | |
| | Hysteresis | h | % | 0.1 | | | | | | | | | | | |
| | Reversibility error | v | % | 0.5 | | | | | | | | | | | |
| | Repeatability (f.s.) | | % | 0.005 | | | | | | | | | | | |
| | Creep | | % | 0.025 | | | | | | | | | | | |
| | Temperature effect on characteristic value per 10 K | TK_C | %/10 K | 0.05 | | | | | | | | | | | |
| | Temperature effect on zero signal per 10 K | TK_0 | %/10 K | 0.05 | | | | | | | | | | | |
| | Eccentricity effect | | %/mm | 0.02 | | | | | | | | | | | |
| | Lateral force effect | | %/(0,1·F _{nom}) | 0.2 | | | | | | | | | | | |
| | Torque effect | | %/(mm·F _{nom}) | 0.005 | | | | | | | | | | | |
| | Characteristic value difference, tension/compression force | d_{zD} | % | 1 | | | | | | | | | | | |
| Electrical Data | Rated characteristic value ³⁾ | C_{nom} | mV/V | 2 | | | | | | | | | | | |
| | Characteristic value tolerance | d_c | % | 0.2 | | | | | | 0.4 | | | | | |
| | Zero signal deviation ⁴⁾ | $d_{s,0}$ | % | 0.5 | | | | | | 1 | | | | | |
| | Input resistance | R_e | Ω | app. 750 | | | | | | | | | | | |
| | Output resistance | R_a | Ω | appr. 750 | | | | | | | | | | | |
| | Insulation resistance | R_{is} | Ω | >10 ⁹ | | | | | | | | | | | |
| | Operating range of excitation voltage | $B_{U,G}$ | V | 5 - 12 | | | | | | | | | | | |
| Protection (DIN EN 60529) | | | | IP 50 ¹⁾ ; IP 68 ²⁾ | | | | | | | | | | | |

Technical Data | 1 - 10 MN

| | | | 1 | 1.2 | 1.5 | 2 | 2.5 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | |
|------------------------|--|---------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|--|
| Mechanical Data | Nominal force compression/tension | $\pm F_{nom}$ | MN | | | | | | | | | | | | |
| | Rated Displacement | s_{nom} | 0.2 | | 0.3 | | | 0.4 | | 0.6 | | 0.7 | 0.8 | 0.7 | |
| | Spring rigidity | c_{ax} | 5 | 6 | 5 | 6.7 | 8 | 7.5 | 10 | 8.3 | 10 | 10 | 10 | 14 | |
| | Mass | m | 19 | | 46 | | | 81 | 207 | 285 | 295 | 291 | 298 | 490 | |
| | Proportionate moving mass | m_{mess} | 9.5 | | 23 | | | 41 | 104 | 143 | 148 | 145 | 149 | 245 | |
| | Fundamental resonant frequency | f_G | >3 | | >2 | | | >1 | | ~1 | | | | | |
| | Permissible oscillation stress ³⁾ | | % | | | | | | | | | | | | |
| Limits | Force limit | | % | | | | | | | | | | | | |
| | Breaking force | | % | | | | | | | | | | | | |
| | Lateral force limit | | % | | | | | | | | | | | | |
| | Permissible eccentricity | e_G | 50 | | | | | | 75 | 100 | | | | | |
| | Bending moment limit | M_{bzul} | 92 | 112 | 140 | 200 | 240 | 520 | 1000 | 1250 | 1500 | 1500 | 1500 | 3000 | |
| | Rated temperature range | $B_{T,nom}$ | °C | | | | | | | | | | | | |
| | Operating temperature range | $B_{T,G}$ | °C | | | | | | | | | | | | |

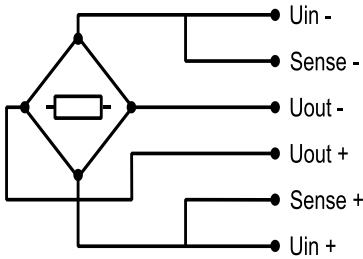
1) Plug-in connection


2) Permanent connection

3) Rated characteristic value 16 mV/V with permissible oscillation stress $\pm 100\%$ available on request.

4) In unscrewed condition

Cable Connection



| configurable variants | all standard variants |
|--|---|
| Permanent connection end not connected | Connection pluggable ¹⁾²⁾³⁾ |
| SMC: grey Ø 6.5 mm twisted in pairs 3 x 2 x 0.25 mm ² -35 °C to +90 °C | 7-pin LEMO Series 1 Female: - Male: |
| TMC (≥ 100 kN): red Ø 7,2 mm twisted in pairs 3 x 2 x 0.25 mm ² -50 °C to +180 °C |  |
| TMC (25 - 63 kN)⁴⁾: white Ø 2 mm -196 °C to +200 °C | |

| Connection | | Wire colour | Pin |
|------------------------|------------|--|---------|
| Supply voltage (+) | U_{in+} | SMC: blue TMC (red): white TMC (white): blue | 3 |
| Supply voltage (-) | U_{in-} | SMC: black TMC (red): brown TMC (white): black | 2 |
| Measurement signal (+) | U_{out+} | SMC: white TMC (red): grey TMC (white): white | 1 |
| Measurement signal (-) | U_{out-} | SMC: red TMC (red): pink TMC (white): red | 4 |
| Sense (+) | $Sense+$ | SMC: green TMC (red): green TMC (white): green | 5 |
| Sense (-) | $Sense-$ | SMC: grey TMC (red): yellow TMC (white): grey | 6 |
| Shielding | | SMC: yellow TMC (red): black TMC (white): yellow | Housing |

1) View too weldingside

2) Female LEMO S.A. Typ: EGG.1B.307.CLL; matching socket Male: FGG.1B.307.CLA.D72

3) In the nominal force 25 - 63 kN, the connection sockets are led to the outside with a black measuring cable type FMC | 30 cm | Ø 2.9. let outwards. □

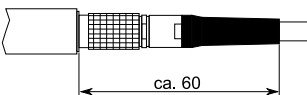
4) In the nominal force 25 - 63 kN, fixed high/low temperature measuring cables TMC = white cable with a temperature range: -196 °C to +200 °C.

► Pluggable cable connection

All standard variants of the series RF are equipped with a pluggable LEMO socket. Suitable measuring cables S-CAB / C-CAB are available as accessories.

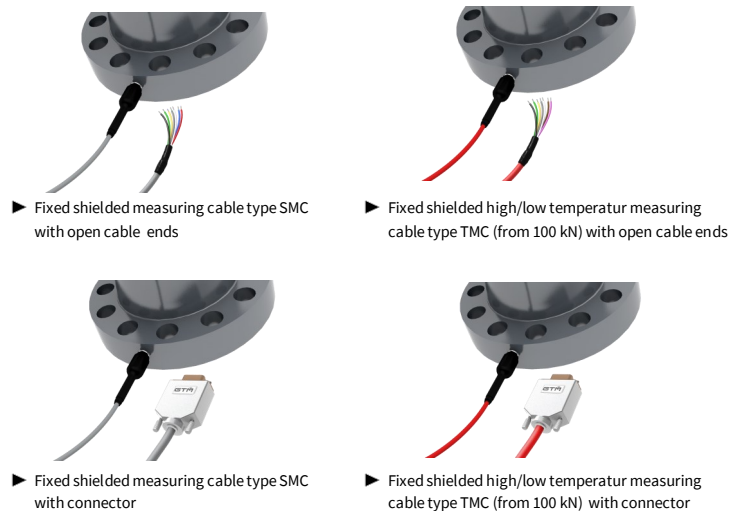


► Plug-in cable connection with shielded measuring cable type SMC (S-CAB-SMC-L-5M-F)



► Fixed measuring cable

All configurable variants of the series RF are optionally available with fixed measuring cables, e.g. with 5 / 10 / 15 m shielded standard measuring cable type SMC or 5 / 10 m high / low temperature measuring cables TMC and open cable ends or various connectors for strain gauge measuring amplifier connections.



Double Bridge | 2nd Measuring Circuit

► For the double measuring bridge (alternatively: two or three measuring circuits), the technical data apply equally to both measuring circuits.



Standard force transducer series RF
Single bridge | 1 x LEMO push-pull connection sockets female).



Configurable force transducer series RF
Double bridge | 1 x LEMO push-pull connection sockets female).

Bending Moment Measuring Circuits

► The bending moment measuring circuits Mx and My can be used advantageously with the use of a multi-channel measuring amplifier to control the force application. Combination bending moments and double bridge on request.



► **Configurable force transducer series RF**
Single bridge | bending moment measuring circuits Mx, My | 3 x LEMO push-pull connection sockets (female).

| Nominal Force | F_{nom} | kN | 25 - 63 (1 mV/V) | 100 - 500 (2 mV/V) |
|---|------------|----------|-------------------------------|-----------------------|
| Rated bending moment | Mb_{nom} | N·m | $F_{nom} \cdot 10 \text{ mm}$ | |
| Reproducibility | | % | 0.01 | |
| Temperature effect on characteristic value per 10 K | TK_C | %/10 K | 0.2 | |
| Temperature effect on zero signal per 10 K | TK_0 | %/10 K | 0.2 | |
| Rated characteristic value | C_{nom} | mV/V | 1) | |
| Input resistance | R_e | Ω | 400 | |
| Operating range of excitation voltage | $B_{U,G}$ | V | 12 | |

1) Specification shown on the label

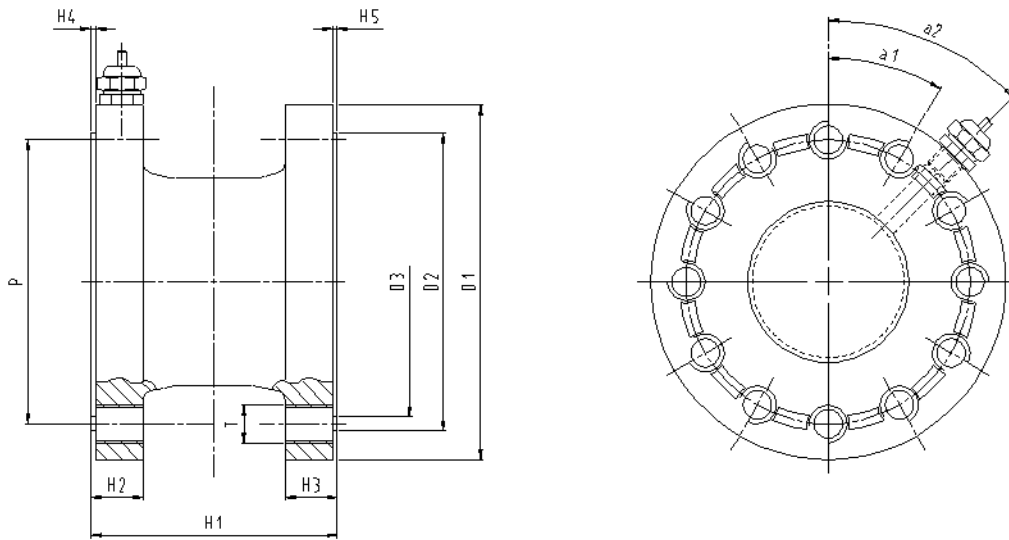
Inner Through Hole | from 100 kN

- ▶ In special cases, it may be necessary that design conditions require an inner through hole through the force transducer series RF. From the nominal force of 100 kN, the RF force transducers can optionally be equipped with an inner through hole.



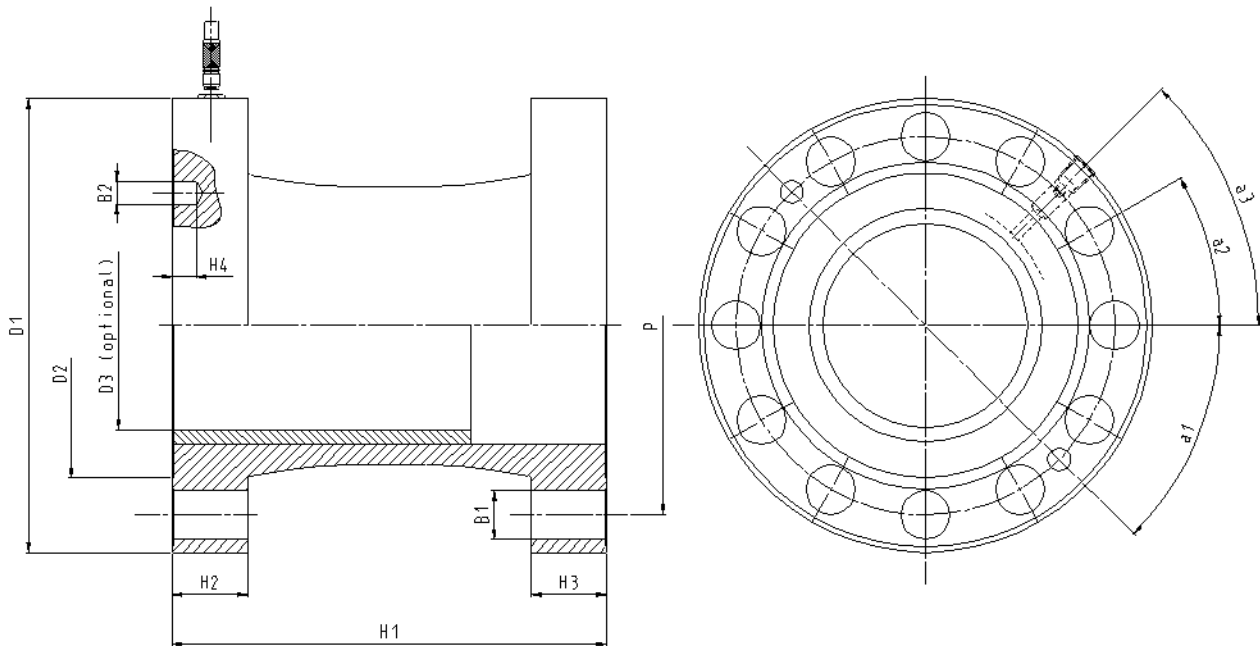
- ▶ **Configurable force transducer series RF**
with through hole option

Mating Dimensions | 25 – 63 kN



| | | | |
|-----------------------------------|-------------------|----|----------------|
| Nominal force compression/tension | $\pm F_{nom}$ | kN | 25 50 63 |
| Diameter | $\varnothing D_1$ | mm | 75 |
| Diameter | $\varnothing D_2$ | mm | 63-0.05 |
| Diameter | $\varnothing D_3$ | mm | 57+0.01 |
| Pitch circle diameter | $\varnothing P$ | mm | 60±0.1 |
| Thread | T | | M8 |
| Height | H_1 | mm | 52 |
| Height | H_2 | mm | 11 |
| Height | H_3 | mm | 11 |
| Height | H_4 | mm | 2+0.1 |
| Height | H_5 | mm | 2+0.1 |
| Angle | a_1 | | 30° |
| Angle | a_2 | | 45° |

Mating Dimensions | 100 kN – 10 MN



| Nominal force compression/tension | $\pm F_{nom}$ | kN | 100 | 300 | 1000 | 1500 | 3000 | 4000 | 5000 | 7000 | 10000 |
|--------------------------------------|-------------------|----|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | | | 200 | 400 | | 2000 | | | | | |
| | | | 250 | 500 | 1200 | 2500 | | | 6000 | 8000 | |
| Bore | $\varnothing B_1$ | mm | 11 | 22 | 26 | 33 | | | 39 | 45 | 45 |
| Bore | $\varnothing B_2$ | mm | 8H7 | 12H7 | | | | --- | | | |
| Diameter | $\varnothing D_1$ | mm | 130 | 197 | 240 | 305 | 415 | 536 | 570 | 600 | 750 |
| Diameter | $\varnothing D_2$ | mm | 91 | 128 | 161 | 192 | 301 | 380 | 385 | 386 | 535 |
| Diameter | $\varnothing D_3$ | mm | 60 | 88 | 110 | 119.7 | 236 | 250 | --- | | |
| Pitch circle diameter | $\varnothing P$ | mm | 112±0.1 | 160±0.1 | 200±0.1 | 250±0.1 | 360±0.2 | 480±0.2 | 512±0.2 | 512±0.2 | 675±0.2 |
| Height | H ₁ | mm | 112 | 160 | 230 | 326 | 358 | 400 | 580 | 580 | 650 |
| Height | H ₂ | mm | 22 | 25 | 40 | 57.5 | 69 | 80 | 130 | 130 | 140 |
| Height | H ₃ | mm | 22 | 25 | 40 | 57.5 | 69 | 80 | 130 | 130 | 140 |
| Height | H ₄ | mm | 14 | 13 | | | 15 | 20 | --- | | |
| Angle | a ₁ | | 45° | | | | 50° | 7.5° | --- | | |
| Angle | a ₂ | | 30° | | | | 20° | 15° | 15° | 15° | 11.25° |
| Angle | a ₃ | | 45° | | | | 50° | 7.5° | 7.5° | 7.5° | 5.63° |

Order Numbers | Standard Variants

► Force transducer Series RF | standard variants

| Nominal force | Description | Order number |
|---------------|---|--------------|
| 25 kN | Standard force transducer series RF 25 kN 1 mV/V | S-RF-025K |
| 50 kN | Standard force transducer series RF 50 kN 1 mV/V | S-RF-050K |
| 63 kN | Standard force transducer series RF 63 kN 1 mV/V | S-RF-063K |
| 2.5 kN | Standard force transducer series RF 100 kN 2 mV/V | S-RF-100K |
| 200 kN | Standard force transducer series RF 200 kN 2 mV/V | S-RF-200K |
| 250 kN | Standard force transducer series RF 250 kN 2 mV/V | S-RF-250K |
| 400 kN | Standard force transducer series RF 400 kN 2 mV/V | S-RF-400K |
| 500 kN | Standard force transducer series RF 500 kN 2 mV/V | S-RF-500K |
| 630 kN | Standard force transducer series RF 630 kN 2 mV/V | S-RF-630K |
| 1 MN | Standard force transducer series RF 1 MN 2 mV/V | S-RF-1M00 |
| 1,2 MN | Standard force transducer series RF 1.2 MN 2 mV/V | S-RF-1M20 |
| 1,5 MN | Standard force transducer series RF 1.5 MN 2 mV/V | S-RF-1M50 |
| 2 MN | Standard force transducer series RF 2 MN 2 mV/V | S-RF-2M00 |
| 2,5 MN | Standard force transducer series RF 2.5 MN 2 mV/V | S-RF-2M50 |
| 4 MN | Standard force transducer series RF 4 MN 2 mV/V | S-RF-4M00 |

Note: all standard versions always (1) without inner trough hole (2) no plug protection (3) single measuring bridge (5) standard temperature range (6) 1x LEM O connection socket 7-pin push-pull | no measuring cables included □

Order Numbers | Configurable Variants

► Force transducer Series RF | configurable variants

| Item | Code | Description |
|---|-------|---|
| Force Transducer Series RF | C-RF | Configurable force transducer series RF |
| Nominal Force | 025K | 25 kN |
| | 050K | 50 kN |
| | 063K | 63 kN |
| | 100K | 100 kN |
| | 200K | 200 kN |
| | 250K | 250 kN |
| | 300K | 300 kN |
| | 400K | 400 kN |
| | 500K | 500 kN |
| | 630K | 630 kN |
| | 1M00 | 1 MN |
| | 1M20 | 1.2 MN |
| | 1M50 | 1.5 MN |
| | 2M00 | 2 MN |
| | 2M50 | 2.5 MN |
| | 3M00 | 3 MN |
| | 4M00 | 4 MN |
| | 5M00 | 5 MN |
| 6M00 | 6 MN | |
| 7M00 | 7 MN | |
| 8M00 | 8 MN | |
| 10M0 | 10 MN | |
| Inner through hole | NO | without inner through hole |
| | TH | with inner through hole |
| Plug protection | N | No plug protection |
| | Y | With plug protection |
| Nominal sensitivity | 2.0 | 2 mV/V |
| | 1.0 | 1 mV/V |
| | 1.6 | 1.6 mV/V |
| Single or double measuring bridge | SB | Single bridge |
| | DB | Double bridge |
| Bending moment measuring circuits Mx, My | NO | No bending moment measuring circuits Mx, My |
| | BM | Bending moment measuring circuits Mx, My |
| Temperature range | S | Standard temp. range +10°C - +60°C |
| | E | Extended temp. range +10°C - ≤+120°C temperature adjustment |
| | L | Low and extended temp. range -40°C - ≤+120°C temp. adjustment low temp. protective measures |
| | H | High temp. range +10°C - +180°C temp. adjustment high temp. protective measures |
| Electrical transducer connection (for all selected measuring circuits) | B | High and low temp. range -40°C - +180°C temp. adjustment high and low temp. protective measures |
| | P | LEMO connection sockets(s) 7-pole push-pull on all measuring circuits |
| | A | 5 m fixed standard measuring cable type SMC on all measuring circuits |
| | B | 10 m fixed standard measuring cable type SMC on all measuring circuits |
| | C | 15 m fixed standard measuring cable type SMC on all measuring circuits |
| Cable connection type (for all selected measuring circuits) | S | 5 m fixed high/low temperature measuring cable type TMC* on all measuring circuits |
| | T | 10 m fixed high/low temperature measuring cable type TMC* on all measuring circuits |
| | P | LEMO connection sockets(s) selected no fixed measuring cable(s) |
| | F | Free cable ends on all measuring circuits |
| | A | D-Sub 9-pole plug on all measuring circuits |
| | B | D-Sub 15-pole plug on all measuring circuits |
| | C | MS 7-pole plug on all measuring circuits |
| | M | M12 8-pole plug on all measuring circuits |

Note: not all variants can be freely combined. Please use the product configurator or get in contact with our team.

Order-Example

| | | | | | | | | | | | | | | | | | | | | |
|---|---|----|---|------|---|----------------------------|---|--------------------|---|----------|---|---------------|---|--------------------------|---|---------------------|---|---|---|---------------------------------------|
| C | - | RF | - | 1M00 | - | TH | - | N | - | 1.6 | - | DB | - | NO | - | S | - | B | - | F |
| | | | | 1MN | | without inner through hole | | no plug protection | | 1.6 mV/V | | double bridge | | no bending moment Mx, My | | standard temperatur | | 10 m fixed cable type SMC on all measuring circuits | | free ends on all measuring circuits |

Order Numbers | Configurable Variants

| Item | Description |
|---|---|
| Inner through hole from 100 kN | In special cases, it may be necessary that design conditions require an inner through hole through the force transducer series RF. From the nominal force of 100 kN, the RF force transducers can optionally be equipped with an inner through hole. |
| Plug protection | In special cases it may be necessary to additionally equip the electrical connections on the force transducer series RF with a protective profile around the plug connection. Dimensions depending on nominal force. |
| Nominal sensitivity | The series RF force transducer is specified for a permissible oscillation stress of $\pm 80\%$ (25 kN - 63 kN @ 1mV/V ; from 100 kN @ 2 mV/V). 1 mV/V = 25 kN - 63 kN 2 mV/V = from 100 kN 1.6 mV/V = from 1 MN Note: For the nominal forces from 1MN, the option nominal characteristic value 1.6 mV/V can be selected. This allows a permissible oscillation stress of +100% (@1.6 mV/V) to be achieved for these nominal force ranges |
| Single or double measuring bridge | For redundancy reasons, it is necessary, for example in safety-relevant applications, to check the safety-relevant integrity of the measuring signal by means of a second measuring bridge (functional redundancy in the same force transducer). Via two separate measuring amplifier channels, two output signals are processed and evaluated independently of each other. This makes it possible to connect two measuring amplifiers with different characteristics (DC / CF). The second redundant measuring circuit is characterised by no crosstalk between the channels at different carrier frequencies. The selection of a double measuring bridge affects the number of connection sockets and measuring cables (if selected). |
| Bending moment measuring circuits Mx, My | The series RF force transducer can be optionally equipped with bending moment measuring circuits. The additional bending moment measuring circuits can be measured to control the horizontal bending moments Mx and My and can be provided as separate channels. The selection of bending moment measuring circuits affects the number of connection sockets and measuring cables (if selected). Note: Bending moment measuring circuits cannot be combined with double measuring bridge. Special variant on request. |
| Temperature range | The selection of the temperature range has an effect on the feature "electrical transducer connection" and the design of the series RF force transducer. S = For the standard temperature range +10°C - +60°C shielded measuring cables type SMC are used. E = For the extended temperature range +10°C - ≤ +120°C shielded high/low temperature measuring cables type TMC are used additional temperature compensation L = For the low and extended temperature range -40°C - ≤ +120°C shielded high/low temperature measuring cables type TMC* are used additional temperature compensation additional protective measures for use in the low temperature range H = For the high temperature range +10° - +180°C shielded high/low temperature measuring cables type TMC* are used additional temperature compensation additional protective measures for use in the high temperature range B = For the high and low temperature range -40° - +180°C shielded high/low temperature measuring cables type TMC* are used additional temperature compensation additional protective measures for use in the high and low temperature range Notes: *In nominal force 25 - 63 kN, fixed high/low temperature measuring cables TMC selection uses white, 6-core shielded test leads, Ø 2 mm, PFA sheath, temperature range: -196 to +200°C. - The additional temperature compensation ensures that the series RF force transducer fulfills the metrological characteristics over the selected temperature range |
| Electrical transducer connection | The series RF force transducer can be configured with fixed push-pull connection plugs (female) or fixed cables (type SMC or TMC) in different lengths. P = LEMO connection socket(s) 7-pole push-pull A = 5 m fixed standard measuring cable type SMC B = 10 m fixed standard measuring cable type SMC C = 15 m fixed standard measuring cable type SMC S = 5 m fixed high/low temperature measuring cable type TMC T = 10 m fixed high/low temperature measuring cable type TMC Notes: - In the nominal forces 25 - 63 kN, the push-pull connection plugs are led with a black measuring cable type FMC 30 cm to the outside. - In nominal force 25 - 63 kN, fixed high/low temperature measuring cables TMC selection uses white, 6-core shielded test leads, Ø 2 mm, PFA sheath, temperature range: -196 to +200°C. - The number of connection plugs or measuring cables results from the number of selected measuring bridges. The type of measuring cable depends on the selected temperature range. |

Order Numbers | Configurable Variants

| Item | Description |
|------------------------------|--|
| Cable connection type | <p>If the series RF force transducer is configured with fixed measuring cables, different connector types for strain-gauge measuring amplifiers can be selected in addition to open cable ends. The assembly of the selected connectors is carried out by GTM. The force transducer can be connected directly to a measuring amplifier.</p> <p>P = LEMO push-pull connection socket(s) no fixed measuring cables</p> <p>F = free cable ends on all configured measuring circuits</p> <p>A = D-Sub 9-pin on all configured measuring circuits</p> <p>B = D-Sub 15-pin on all configured measuring circuits</p> <p>C = MS 7-pole on all configured measuring circuits</p> <p>M = M12 8-pole on all configured measuring circuits</p> |

Order Numbers | Accessories

| Description | Order number |
|---|------------------|
| Measuring cable | |
| Standard measuring cable grey 5 m shielded and twisted in pairs cable sheath Ø 6.5 mm 6-wire technology transducer connection: straight plug (male) type LEMO 7-pole push-pull cable end amplifier: open | S-CAB-SMC-L-5M-F |
| Double-shielded measuring cable yellow 5 m double shielded and twisted in pairs cable sheath Ø 6.5 mm 6-wire technology transducer connection: straight plug (male) type LEMO 7-pole push-pull (male) cable end amplifier: open | S-CAB-DMC-L-5M-F |
| Temperature-resistant measuring cable red 5 m shielded and twisted in pairs cable sheath Ø 7.2 mm 6-wire technology transducer connection: straight plug (male) type LEMO 7-pole push-pull (male) cable end amplifier: open | S-CAB-TMC-L-5M-F |
| High flexible measuring cable black 5 m double shielded and twisted in pairs cable sheath Ø 2.9 mm 6-wire technology transducer connection: straight plug (male) type LEMO 7-pole push-pull (male) cable end amplifier: open | S-CAB-FMC-L-5M-F |
| Configurable measuring cable type SMC, DMC, TMC, FMC in different lengths with different connectors e.g. 90° angled | C-CAB-... |