

Type RC1 Load Cell



Product Description

The type RC1 is a stainless steel rocker column load cell with complete hermetic sealing. It is a perfect fit for use in harsh industrial environments.

Application

- Weighbridges, hoppers, tanks and silos

Key Features

- Capacities from 250 kN to 900 kN (25.5 t to 91.8 t)
- Stainless steel construction
- Environmental Protection IP68 with complete hermetic sealing
- Self restoring design
- Calibration in mV/V/Ω

Approvals

- OIML approval to C1 (Y = 4 667) and C3 (Y = 10 000)
- NTEP approval to 10 000 intervals, Class III L
- ATEX hazardous area approval for Zone 0, 1, 2, 20, 21 and 22
- FM hazardous area approval

Packed Weight

| | | | | |
|-----------------|-----|-----|-----|-----|
| ■ Capacity (kN) | 250 | 400 | 600 | 900 |
| Weight (kg) | 3.6 | 6.6 | 7.0 | 7.0 |

Available Accessories

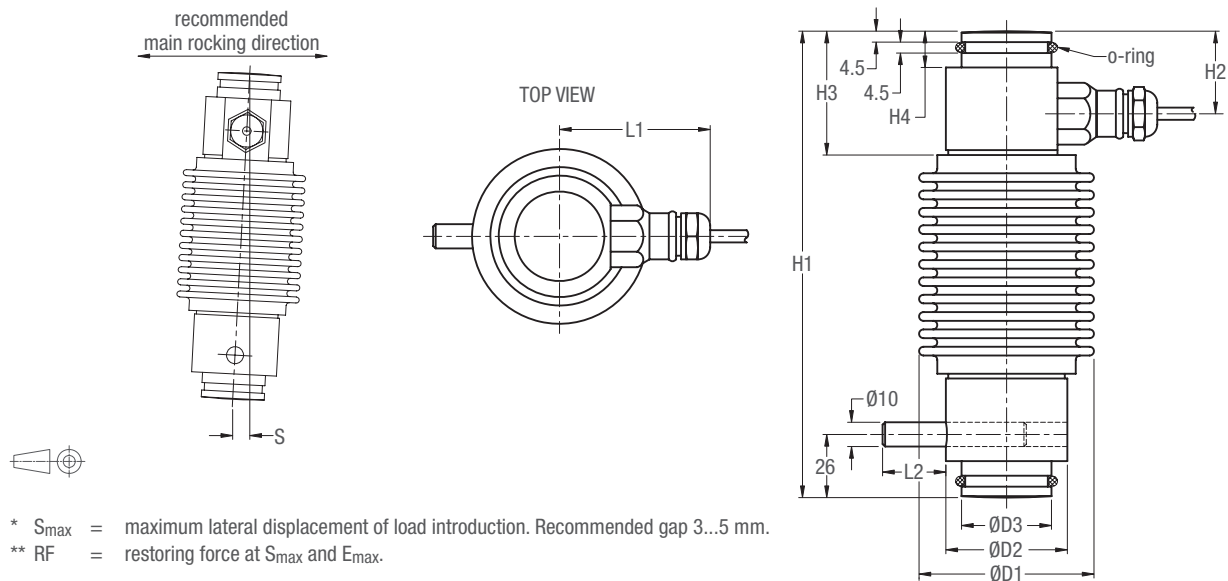
- Compatible range of application hardware
- Compatible range of electronics

Specifications

| | (E _{max}) | kN | 250 / 400 / 600 / 900 | | |
|--|---------------------|--------------------|---------------------------|--|--------------------------|
| Maximum capacity | | t | 25.5 / 40.8 / 61.2 / 91.8 | | |
| Metric equivalents (1 N=0.10197 kg) | | | (GP) | C1 | C3 |
| Accuracy class according to OIML R60 | | | n.a. | 1 000 | 3 000 |
| Maximum number of verification intervals | (n _{LC}) | | n.a. | E _{max} /4 667 | E _{max} /10 000 |
| Minimum load cell verification interval | (v _{min}) | | n.a. | E _{max} /4 667 | E _{max} /10 000 |
| Temp. effect on minimum dead load output | (TC ₀) | %*RO/10°C | ± 0.0400 | ± 0.0280 | ± 0.0140 |
| Temperature effect on sensitivity | (TC _{RO}) | %*RO/10°C | ± 0.0200 | ± 0.0160 | ± 0.0100 |
| Combined error | | %*RO | ± 0.0500 | ± 0.0300 | ± 0.0200 |
| Non-linearity | | %*RO | ± 0.0400 | ± 0.0300 | ± 0.0166 |
| Hysteresis | | %*RO | ± 0.0400 | ± 0.0300 | ± 0.0166 |
| Creep error (30 minutes) / DR | | %*RO | ± 0.0600 | ± 0.0490 | ± 0.0166 |
| Rated Output | (RO) | mV/V | | 2 ± 0.1% | |
| Calibration in mV/V/Ω (A...I classified) | | % | | ± 0.05 (± 0.005) | |
| Zero balance | | %*RO | | ± 5 | |
| Excitation voltage | | V | | 5...15 | |
| Input resistance | (R _{LC}) | Ω | | 400 ± 15 | |
| Output resistance | (R _{out}) | Ω | | 351 ± 1 | |
| Insulation resistance (100 V DC) | | MΩ | | ≥ 5 000 | |
| Safe load limit | (E _{lim}) | %*E _{max} | | 200 | |
| Ultimate load | | %*E _{max} | | 300 | |
| Compensated temperature range | | °C | | -10...+40 | |
| Operating temperature range | | °C | | -40...+80 (ATEX -40...+60) | |
| Load cell material | | | | stainless steel 17-4 PH (1.4548) | |
| Sealing | | | | complete hermetic sealing; cable entry sealed by glass to metal header | |
| Protection according EN 60 529 | | | | IP68 (up to 2 m water depth) / IP69K | |

The limits for Non-Linearity, Hysteresis, and TC_{RO} are typical values.
The sum of Non-linearity, Hysteresis and TC_{RO} meets the requirements according to OIML R60 with p_{LC}=0.7.

Dimensions (in mm)

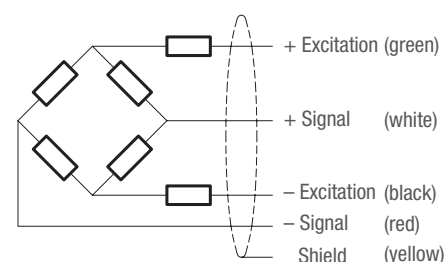


| Type | L1 | L2 | H1 | H2 | H3 | H4 | D1 | D2 | D3 | S _{max} * | RF** |
|------------|----|----|-----|----|----|----|----|----|------|--------------------|-------|
| RC1-250 kN | 62 | 33 | 192 | 34 | 51 | 15 | 72 | 50 | 37 | 10.5 | 19 kN |
| RC1-400 kN | 69 | 26 | 225 | 36 | 57 | 16 | 85 | 64 | 37 | 11 | 20 kN |
| RC1-600 kN | 69 | 26 | 225 | 36 | 57 | 16 | 85 | 64 | 54.4 | 12.5 | 63 kN |
| RC1-900 kN | 69 | 26 | 225 | 36 | 57 | 16 | 85 | 64 | 54.4 | 9 | 94 kN |

Wiring

- The load cell is provided with a shielded, 4 conductor cable (AWG 20). Cable jacket polyurethane
- Cable length:

| | |
|------|------------------------|
| 12 m | for RC1-250 kN |
| 16 m | for RC1-400 kN |
| 18 m | for RC1-600 and 900 kN |
- Cable diameter: 7.8 mm
- The shield is floating
(On request the shield can be connected to the load cell body)



Type RC3 Load Cell



Product Description

The type RC3 is a stainless steel self centering rocker column load cell with complete hermetic sealing. It is a perfect fit for use in harsh industrial environments.

Application

- Weighbridges, hoppers, tanks and silos

Key Features

- Wide range of capacities from 7.5 t to 300 t
- Stainless steel construction
- Environmental Protection IP68 with complete hermetic sealing
- Self restoring design
- High input resistance
- Calibration in mV/V/Ω

Options

- Integrated surge protectors
- Y = 10 000 for C3 (for 30 t and 40 t)

Approvals

- OIML approval to C1 (Y = 5 000), C3, C3 M18 and C4 (Y = 15 000)
- NTEP approval to 10 000 intervals, Class III L (for 7.5 to 100 t)
- ATEX hazardous area approval for Zone 0, 1, 2, 20, 21 and 22
- FM hazardous area approval

Packed Weight

| | | | | | |
|----------------|-----|-----|------|------|-----|
| ■ Capacity (t) | 7.5 | 15 | 22.5 | 30 | 40 |
| Weight (kg) | 1.3 | 1.4 | 1.5 | 3.3 | 3.6 |
| ■ Capacity (t) | 50 | 100 | 150 | 300 | |
| Weight (kg) | 4.5 | 4.7 | 8.5 | 26.5 | |

Available Accessories

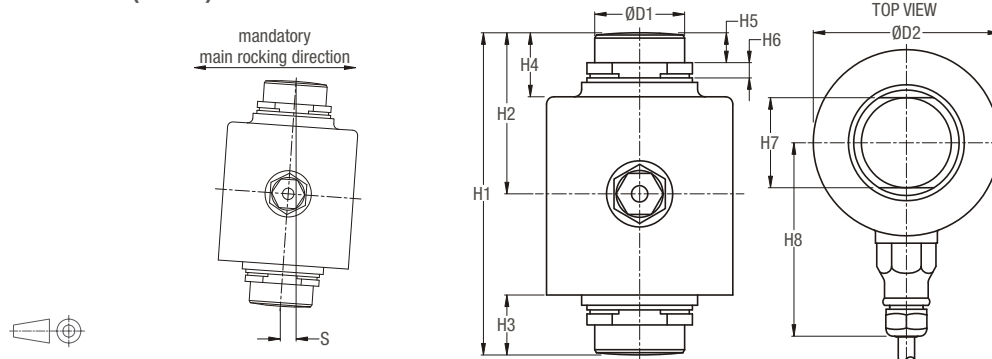
- Compatible range of application hardware
- Compatible range of electronics

Specifications

| | | | | | | | |
|--|---------------------------------------|-------------------------|--|--------------------------------|---------------------------|----------|----------|
| Maximum capacity | (E _{max}) | t | 7.5 / 15 / 22.5 / 30 / 40 / 50 / 100 / 150 / 300 | 7.5 / 15 / 22.5 / 30 / 40 / 50 | | | |
| Minimum dead load | (E _{min}) | | | 2%*E _{max} | | | |
| Accuracy class according to OIML R60 | | | (GP) | C1 | C3 | C3 MI 8 | C4 |
| Maximum number of verification intervals | (n _{LC}) | | n.a. | 1 000 | 3 000 | | 4 000 |
| Minimum load cell verification interval | (v _{min}) | | n.a. | E _{max} / 5 000 | E _{max} / 15 000 | | |
| Temp. effect on minimum dead load output | (TC ₀) | %*RO/10°C | ± 0.0400 | ± 0.0280 | ± 0.0093 | | |
| Temperature effect on sensitivity | (TC _{RO}) | %*RO/10°C | ± 0.0200 | ± 0.0160 | ± 0.0100 | | ± 0.0080 |
| Combined error | | %*RO | ± 0.0500 | ± 0.0300 | ± 0.0200 | ± 0.0180 | ± 0.0180 |
| Non-linearity | | %*RO | ± 0.0400 | ± 0.0300 | ± 0.0166 | ± 0.0166 | ± 0.0125 |
| Hysteresis | | %*RO | ± 0.0400 | ± 0.0300 | ± 0.0166 | ± 0.0062 | ± 0.0125 |
| Creep error (30 minutes) / DR | | %*RO | ± 0.0600 | ± 0.0490 | ± 0.0166 | ± 0.0062 | ± 0.0125 |
| Option | Min. load cell verification interval | (v _{min opt}) | n.a. | n.a. | E _{max} / 10 000 | n.a. | n.a. |
| | Temp. effect on min. dead load output | (TC _{0 opt}) | %*RO/10°C | n.a. | ± 0.0140 | n.a. | n.a. |
| Rated Output | (RO) | mV/V | 2 ± 0.1% | | | | |
| Calibration in mV/V/Ω (A...I classified) | | % | ± 0.05 (± 0.005) | | | | |
| Zero balance | | %*RO | ± 5 | | | | |
| Excitation voltage | | V | 5...15 | | | | |
| Input resistance | (R _{LC}) | Ω | 1 150 ± 50 | | | | |
| Output resistance | (R _{out}) | Ω | 1 000 ± 2 | | | | |
| Insulation resistance (100 V DC) | | MΩ | ≥ 5 000 | | | | |
| Safe load limit | (E _{lim}) | %*E _{max} | 200 | | | | |
| Ultimate load | | %*E _{max} | 300 | | | | |
| Compensated temperature range | | °C | -10...+40 | | | | |
| Operating temperature range | | °C | -40...+80 (ATEX -40...+60) | | | | |
| Load cell material | | | stainless steel 17-4 PH (1.4548) | | | | |
| Sealing | | | complete hermetic sealing; cable entry sealed by glass to metal header | | | | |
| Protection according EN 60 529 | | | IP68 (up to 2 m water depth) / IP69K | | | | |

The limits for Non-Linearity, Hysteresis, and TC_{RO} are typical values.
The sum of Non-linearity, Hysteresis and TC_{RO} meets the requirements according to OIML R60 with p_{LC}=0.7.

Dimensions (in mm)



| Type | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | D1 | D2 | S _{max} * | RF** |
|------------|-----|-----|------|------|------|------|------|-------|------|-----|--------------------|--------|
| RC3-7.5 t | 89 | 44 | 17 | 23 | 11 | 6 | 28 | 75 | 28 | 65 | 4.5 | 11 kN |
| RC3-15 t | | | | | | | | | | | | 20 kN |
| RC3-22.5 t | | | | | | | | | | | | 30 kN |
| RC3-30 t | 140 | 70 | 26 | 28 | 13 | 6.5 | 39 | 84 | 39 | 81 | 10.5 | 34 kN |
| RC3-40 t | | | | | | 11.7 | | | | | | 10 |
| RC3-50 t | 178 | 89 | 32 | 34 | 17 | 8.5 | 44 | 94 | 44 | 99 | 9 | 51 kN |
| RC3-100 t | | | 38.5 | 38.5 | | 12 | | | 62 | 62 | | 141.3 |
| RC3-150 t | 210 | 105 | 42.7 | 42.7 | 20.6 | 12.8 | 76.2 | 121.5 | 76.2 | 165 | 14.5 | 240 kN |
| RC3-300 t | 280 | 140 | 55.9 | 55.9 | 25 | 21.5 | 100 | | 100 | | 15 | 468 kN |

* S_{max} = maximum lateral displacement of load introduction. Recommended gap 2...3 mm for 7.5...22.5 t, 3...5 mm for 30...300 t.

** RF = restoring force at S_{max} and E_{max}.

Wiring

- The load cell is provided with a shielded, 4 conductor cable (7.5 to 22.5 t: AWG 24; 30 t + 40 t: AWG20 or AWG24; 50 t or higher: AWG 20). Cable jacket polyurethane
- Cable length: various lengths available (see product label)
- Cable diameter: 5 mm for 7.5 to 22.5 t (30 t and 40 t as an option)
7.8 mm for 30 to 300 t
- The shield is floating
(On request the shield can be connected to the load cell body)

