

This document will soon
proudly feature our new
brand & design – Minebea Intec



sartoriusintec

PR 6201 (100 t ... 520 t) Precision Compression Load Cell



100 t, 200 t, 300 t, 520 t, Type L | LA | N

- Easy to install
- Well-proven rockerpin design
- Full stainless steel housing
- Wide temperature range
- High overload capacity
- Resistant against vibrations
- IP68, IP69K
- Suitable for Smart Calibration
- Optionally available with an extended Temperature range up to 150 °C
- Ex-Version available
- Optionally available as dual bridge version
- In combination with selected mounting kits certified according to EN 1090

Product Profile

The PR 6201 range of load cells is specially designed for weighing silos, tanks and process vessels.

The unique design principle, in combination with the FlexLock installation kits, makes it possible to balance out movements arising from mechanical or thermal expansion or contraction of the vessel or its supporting construction.

Alongside this, the unit has an especially high overload capacity of up to 200%.

At the same time, this range distinguishes itself – in addition to its high measurement accuracy and repeatability – above all for its unmatched reliability, robustness and stability, which offer trouble-free operation without adjustment, year after year.

The pendulum support principle, combined with patented measuring element geometry, ensures that force transmission into the sensor is always at the optimum level and, in this way, the effect on measurement accuracy is minimized. At the same time, the load cell offers a particularly high overload range, high repeatability and perfect linearity.

There is an especially wide working temperature range attributable to sophisticated resistance strain gauge technology. The hermetically sealed enclosure and special TPE cable allow the unit to be used even under extreme operating conditions in harsh production environments.

The entire measurement chain can be calibrated without the use of reference weights. Due to "matched output" technology, a damaged load cell can be exchanged without the need for re-calibration. This saves a tremendous amount of time during commissioning.

An explosion-proof (Ex) version of this range of load cells is also available, as an option, for use in intrinsically safe environments.

Restoring force

For each mm of movement that the top of the load cell shifts from the vertical axis, the following horizontal restoring force is generated:

E_{max} 100 t:

1.23 % of the vertical load on the load cell

E_{max} 200 t:

0.65 % of the vertical load on the load cell

E_{max} 300 t:

0.65 % of the vertical load on the load cell

E_{max} 520 t:

1.20 % of the vertical load on the load cell

Load cell housing

Full stainless steel housing, membrane and measuring element hermetically sealed, welded, filled with inert gas.

Material-No: 1.4301 (DIN 17440), equivalent to 304 S11/S15 (B.S.)

Ingress Protection

IP68, IEC 529 (equivalent to NEMA 6). The load cell can be submerged in water to a depth of 1.5 m for 10,000 hours, IP69K.

Cable

Robust, flexible, screened
Sheath: TPE Thermopl. Elastomere, grey (for PR 6201/..E: blue)
Diameter: 5 mm, wires 4 × 0.35 mm²
Length: 12 m

Bending radius:

Fixed installation: ≥ 50 mm

Flexible installation: ≥ 150 mm

Certificate of conformity

Valid for: PR 6201/..E

Feature:

II 1 G EEx ia IIC T6, II 1D IP65 T 85 °C

Registration number:

PTB 02 ATEX 2059, TÜV 03 ATEX 2301x

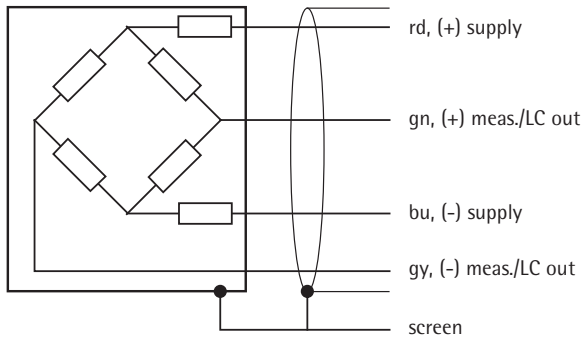
High temperature

This load cell is optionally available with an extended usable temperature range of -40 °C to +150 °C

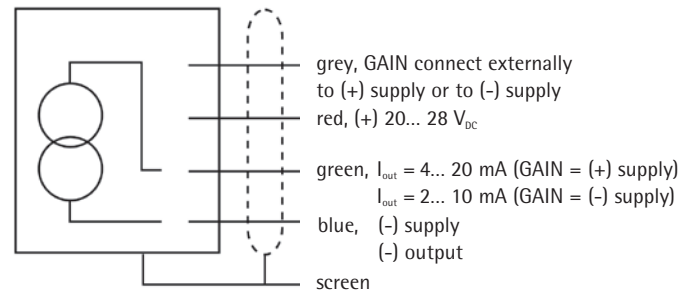
Technical Data

		LA	L	N		
Accuracy class		0.5	0.5	0.06	%E _{max}	
Minimum dead load	lowest limit of specified measuring range	E _{min}	0		%E _{max}	
Maximum capacity	highest limit of specified measuring range	E _{max}	see table		kg	
Rated output	relative output at maximum capacity	C _n	16 mA	1.0 (520 t: 2.6)	1.0 (300 t: 1.5)	mV/V
Tolerance on rated output	permissible deviation from rated output	d _c	< 1.0	< 1.0	< 0.25	%C _n
Zero output signal	load cell output signal under unloaded condition	S _{min}	4 mA	< 2.0	< 1.0	%C _n
Repeatability error	max. change in load cell output for repeated loading	e _R	< 0.02	< 0.02	< 0.01	%C _n
Creep, during 30 min.	max. change in load cell output under nominal load	d _{cr}	< 0.05	< 0.05 (< 0.02 at 520 t)	< 0.03	%C _n
Non-linearity	max. deviation from best straight line through zero	d _{lin}	< 0.3	< 0.3 (520 t: < 0.1)	< 0.05	%C _n
Hysteresis	max. difference in LC output between loading and unloading	d _{hy}	< 0.25	< 0.25 (520 t: < 0.5)	< 0.06 (100 t: < 0.04)	%C _n
Temperature effect on S _{min}	max. change of S _{min} per 10K over B _r referred to C _n	TK _{Smin}	< 0.2	< 0.2	< 0.06	%C _n /10K
Temperature effect on C	max. change of C per 10K over B _r referred to C _n	TK _C	< 0.1	< 0.1	< 0.03	%C _n /10K
Input impedance	between supply terminals	R _{LC}	-	650 ± 50	650 ± 6	Ω
Output impedance	between measuring terminals	R ₀	-	610 ± 3	610 ± 1	Ω
Insulation impedance	between measuring circuit and housing at 100 V _{DC}	R _{IS}	-	> 5000 × 10 ⁶		Ω
Insulation voltage	between circuit and housing, PR 62../.E only		-	500		V
Recommended supply voltage	to hold the specified performance	B ₀	20 ... 28	4 ... 24	4 ... 24	V
Max. supply voltage	permissible for continuous operation without damage	U _{max}	28	32 (NE- and LE-Version: 25)		V
Nominal ambient temp. range	to hold the specified performance	B _r	-10 ... +55	-10 ... +55	-10 ... +55	°C
Usable ambient temp. range	permissible for continuous operation without damage	B _{ru}	-30 ... +55	-40 ... +95	-40 ... +95	°C
Storage temperature range	transportation and storage	B _{ri}	-40 ... +70	-40 ... +95	-40 ... +95	°C
Permissible eccentricity	permissible displacement from nominal load line	S _{ex}	10	10	10	mm
Vibration resistance	resistance against oscillations (IEC 68-2-6 Fc)		20 g, 100 h, 10 ... 150 Hz			
Air pressure effect	influence of ambient air pressure on S _{min}	PK _{Smin}	100 t: 700 / 200 t + 300 t + 520 t: 1400 g/kPa 100 t: 1.0 / 200 t: 1.6 / 300 t: 2.4 / 520 t:			
Nominal deflection	max. elastic deformation under nominal load	S _{nom}	100 t: 1.0	200 t: 1.6	300 t: 2.4	mm (520 t: 2.7)

PR 6201/...L, N, NE

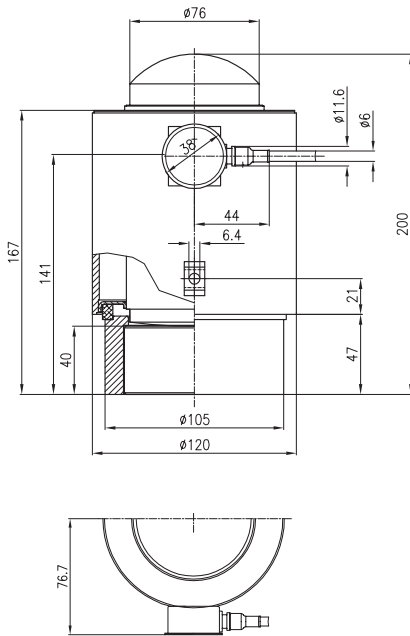


PR 6201/...LA

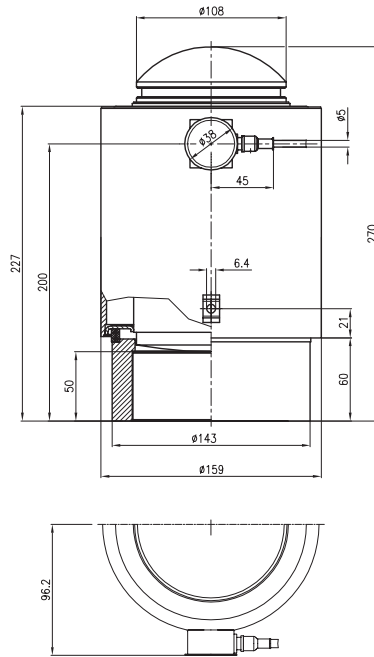


Connections diagrams

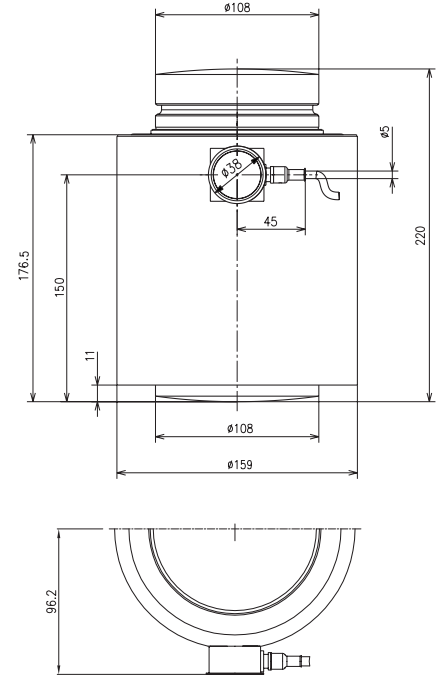
PR 6201/15



PR 6201/25 ... /35



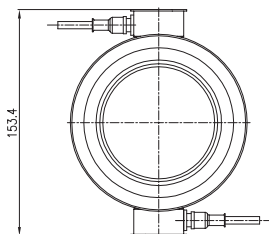
PR 6201/520t



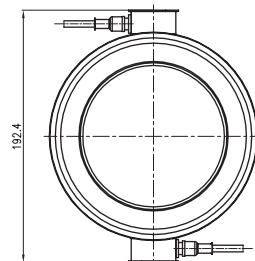
Dimensions in mm

Delivery without Load and bottom disc

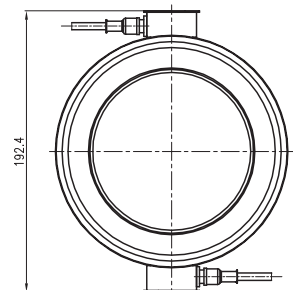
PR 6201/15 Dual Bridge



PR 6201/25 ... /35 Dual Bridge



PR 6201/520t Dual Bridge



Dimensions in mm

Order information

Type	Rated capacity E _{max}	Version	Max. usable load	Destructive load	Packing	Weight gross net
PR 6201/15	100 t	L LA N NE NDB NDBE	200 t (LA: 120 t)	500 t	250 × 250 × 270	12.0 kg 10.8 kg
PR 6201/25	200 t	LA N NE NDB NDBE	400 t (LA: 240 t)	1000 t	280 × 280 × 320	27.0 kg 25.4 kg
PR 6201/35	300 t	N NE NDB NDBE	400 t	1000 t	280 × 280 × 320	27.0 kg 25.4 kg
PR 6201/520t	520 t	L LE LDB LDBE	550 t	1000 t	280 × 280 × 320	20.9 kg 20.9 kg

Options

Type	Equipment		Dimensions (w × l × h mm)	Order Number
PR 6130/08	Cable junction box	Material: Polycarbonate, Protection class IP65, for up to 8 load cells	200 × 120 × 75	9405 361 30083
PR 6130/04N	Cable junction box	Material: Aluminium, painted, Protection class IP67, for up to 4 load cells	175 × 80 × 57	9405 361 30043
PR 6130/34Sa	Cable junction box	Material: stainless steel 1.4301, IP68, IP69K for all industrial, W&M applications, for up to 4 load cells	190 × 160 × 60	9405 361 30343
PR 6130/35S	Cable junction box	Material: stainless steel 1.4301, IP68, IP69K for all industrial, W&M applications, for up to 4 load cells	172 × 105 × 55	9405 361 30353
PR 6130/38S	Cable junction box	Material: stainless steel 1.4404, IP68, IP69K for all industrial, W&M applications, for up to 8 load cells	240 × 170 × 70	9405 361 30383
PR 6130/64Sa	Cable junction box for Ex-Applications	Material: stainless steel 1.4301, IP68, IP69K for all industrial, intrinsically safe and W&M applications, for up to 4 load cells	190 × 160 × 60	9405 361 30643
PR 6130/65S	Cable junction box for Ex-Applications	Material: stainless steel 1.4301, IP68, IP69K for all industrial, intrinsically safe and W&M applications, for up to 4 load cells	172 × 105 × 55	9405 361 30653
PR 6130/68S	Cable junction box for Ex-Applications	Material: stainless steel 1.4404, IP68, IP69K for all industrial, intrinsically safe and W&M applications, for up to 8 load cells	240 × 170 × 70	9405 361 30683
PR 6135	Installation cable	for industrial applications, grey	D = 9	9405 361 35..2
PR 6135/..A	Installation cable	reinforced with reinforced coating for industrial applications, grey	D = 13	9405 361 35..9
PR 6136	Installation cable	for intrinsically safe applications, blue	D = 11	9405 361 36..1
PR 6136/..A	Installation cable	reinforced with reinforced coating for intrinsically safe applications, blue	D = 13	9405 361 36..9
PR 6143/55N	Load and bottom disc	for PR 6201 (520 t)	∅ 138 × 358	9405 361 43551
PR 6145/08N	Platten-Einbausatz	for PR 6201 (100 t)	180 × 130 × 290	9405 361 45081
PR 6145/10N	Platten-Einbausatz	for PR 6201 (200 t ... 300 t)	220 × 180 × 385	9405 361 45101
PR 6143/15N	MiniFLEXLOCK	for PR 6201 (100 t)	400 × 300 × 290	9405 361 43151
PR 6143/25N	MiniFLEXLOCK	for PR 6201 (200 t ... 300 t)	400 × 340 × 385	9405 361 43251
PR 6001/02N	Universal vessel foot	for PR 6201 (100 t)	300 × 130 × 290	9405 360 01021
PR 6001/03N	Universal vessel foot	for PR 6201 (200 t ... 300 t)	370 × 180 × 385	9405 360 01031
PR 6001/32N	MaxiFLEXLOCK	for PR 6201 (100 t)	660 × 340 × 350	9405 360 01321
PR 6001/33N	MaxiFLEXLOCK	for PR 6201 (200 t ... 300 t)	730 × 380 × 445	9405 360 01331
PR 6144/15N	SeismicMount	for PR 6201 (100 t)	950 × 310 × 298	9405 361 44151
PR 6144/35N	SeismicMount	for PR 6201 (200 t ... 300 t)	1150 × 350 × 387	9405 361 44351
PR 6144/55N	SeismicMount	for PR 6201 (520 t)	1180 × 350 × 428	9405 361 44551
PR 6101/15N	Pivot	for level measuring in combination with PR 6143/15N	300 × 130 × 290	9405 561 01151
PR 6101/25N	Pivot	for level measuring in combination with PR 6143/15N	450 × 180 × 385	9405 561 01251
PR 6143/80	Constrainer	as additional stabilization, max. horizontal force 2 kN		9405 361 43801
PR 6143/83	Constrainer	as additional stabilization, max. horizontal force 20 kN		9405 361 43831
PR 6152/02	Constrainer	as additional stabilization, max. horizontal force 200 kN		9405 361 52021
PR 6001/9x	Welding plates	for PR 6001 Mounting kits		9405 360 019..1

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