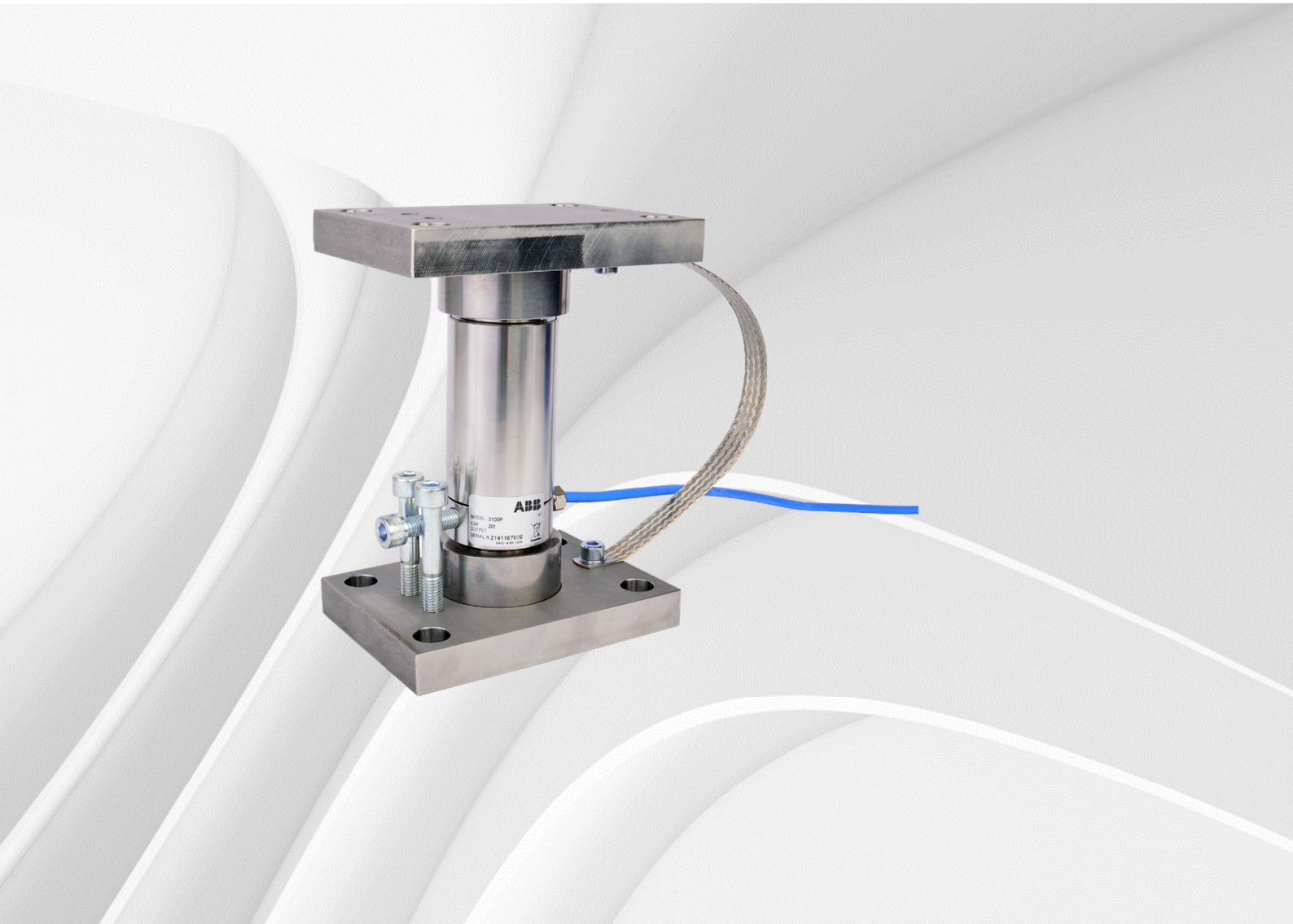
ABB MEASUREMENT & ANALYTICS | DATA SHEET

9QGPS3100P

Pendular compression load cell



Measurement made easy
Compression load cell

Material
- Totally made of stainless steel

IP rating IP 67

Canister, high capacity load cell (up to 500 t)

Pendular technology – Self restoring

Available in C1,5 (1'500 d) OIML / R 60 (EN 45501)

Matched impedance and sensitivity (for parallel connection)

A whole range of mounting accessories available

Available options (non exhaustive list)
- ATEX intrinsic safety
- High service temperature (up to 180 °C [356 °F])
- IP rating IP 68

Applications

The load cell 9QGPS3100P is perfectly designed to the following applications:

- Weighbridges, high capacity reactors weighing
- Silos, tanks or hoppers weighing

Capacities

5 - (7.5) - 10 - (15) - 20 - 30 - 50 - (75) - 100 - (150) - 200 - 300 - 500 t

Explosion protection (option)

ATEX intrinsic safety:

- Ex II 1GD Ex ia IIC T6 or T4 Ga Ex ia IIIC T80°C Da

Specification

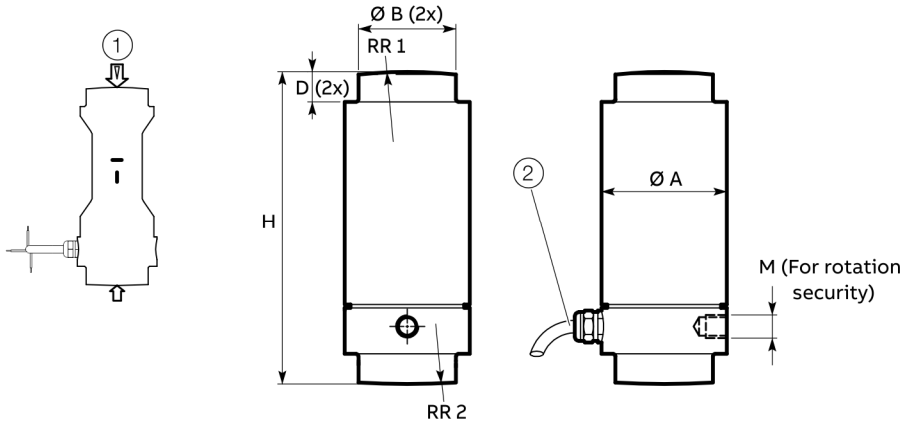
	0.25	0.1	C 1.5
Measuring accuracy			
Accuracy class	0.25 % F.S	0.1 % F.S	1500 d OIML
Combined error (Non linearity + hysteresis)	< ±0.25 % F.S.	< ±0.1 % F.S.	< ±0.035 % F.S.
Linearity error	< ±0.25 % F.S.	< ±0.1 % F.S.	< ±0.03 % F.S.
Repeatability error	< ±0.1 % F.S.	< ±0.03 % F.S.	< ±0.015 % F.S.
Creep error over 30 min.	< ±0.1 % F.S.	< ±0.06 % F.S.	< ±0.035 % F.S.
Sensitivity tolerance	< ±0.3 %	< ±0.3 %	< ±0.2 %
Temperature coefficient of the sensitivity	< ±0.05 % F.S./10 °C	< ±0.05 % F.S./10 °C	< ±0.017 % F.S./10 °C
Temperature coefficient of zero signal	< ±0.035 % F.S./10 °C	< ±0.035 % F.S./10 °C	< ±0.025 % F.S./10 °C
Reference temperature	23 °C (73.4 °F)	23 °C (73.4 °F)	23 °C (73.4 °F)
Temperature data			
Nominal temperature range	−10 to 45 °C (14 to 113 °F)	−10 to 45 °C (14 to 113 °F)	−10 to 45 °C (14 to 113 °F)
Service temperature range	−25 to 70 °C (−13 to 158 °F)	−25 to 70 °C (−13 to 158 °F)	−25 to 70 °C (−13 to 158 °F)
Storage temperature range	−50 to 85 °C (−58 to 185 °F)	−50 to 85 °C (−58 to 185 °F)	−50 to 85 °C (−58 to 185 °F)
Electrical Data			
Input resistance	350 to 702 Ω ±2 Ω	350 to 702 Ω ±2 Ω	350 to 702 Ω ±2 Ω
Output resistance	350 to 702 Ω ±2 Ω	350 to 702 Ω ±2 Ω	350 to 702 Ω ±2 Ω
Insulation resistance (50 V)	> 5000 MΩ	> 5000 MΩ	> 5000 MΩ
Reference excitation voltage	10 V DC	10 V DC	10 V DC
Nominal range of excitation voltage	3 to 12 V DC	3 to 12 V DC	3 to 12 V DC
Nominal sensitivity	1.5 mV/V	1.5 mV/V	1.5 mV/V
Load limits			
Safe load limit	150 % F.S.	150 % F.S.	150 % F.S.
Breaking load	> 300 % F.S.	> 300 % F.S.	> 300 % F.S.
Static lateral force limit	15 % F.S.	15 % F.S.	15 % F.S.
Permissible dynamic loading	50 % F.S.	50 % F.S.	50 % F.S.

F.S.: Full scale

Dimensions

Load cell model 9QGPS3100P (Pendular compression load cells)

Range 5 to 500 t, IP 67 (optional IP 68)
All dimensions in mm (in)



(1) Force direction

(2) Cable length: 12 m (39.37 ft) or 20 m (65.62 ft) at 500 t

Figure 1: Standard dimensions load cell model 9QGPS3100P

Capacities	Ø A	Ø B*	D	H	M	RR1	RR2	H1	H2	Max deflexion	Weight kg (lb)
5 to 30 t	54 (2.13)	42 (1.65)	13 (0.51)	135 (5.31)	M10	200 (7.87)	250 (9.84)	165 (6.50)	205 (8.07)	0.03 to 0.1 (0.0012 to 0.0039)	2.2 (4.85)
50 to 100 t	≈ 89 (3.50)	64 (2.52)	30 (1.18)	190 (7.48)	M12	300 (11.81)	300 (11.81)	234 (9.21)	294 (11.57)	0.26 to 0.34 (0.0102 to 0.0134)	5 (11.02)
150 to 200 t	115 (4.53)	90 (3.54)	20 (0.79)	210 (8.27)	M16	400 (15.75)	400 (15.75)	290 (11.42)	370 (14.57)	0.33 (0.0130)	15 (33.07)
300 t	136 (5.35)	110 (4.33)		240 (9.45)				338 (13.31)	418 (16.46)	0.4 (0.0157)	23 kg (50.71)
500 t (2 mV/V)	180 (7.09)	130 (5.12)	25 (0.98)	350 (13.78)	M12	600 (23.62)	600 (23.62)	610 (24.02)	—	0.57 (0.0224)	46 kg (101.41)

* Tolerance 0 to −0.1 (0 to −0.0039)

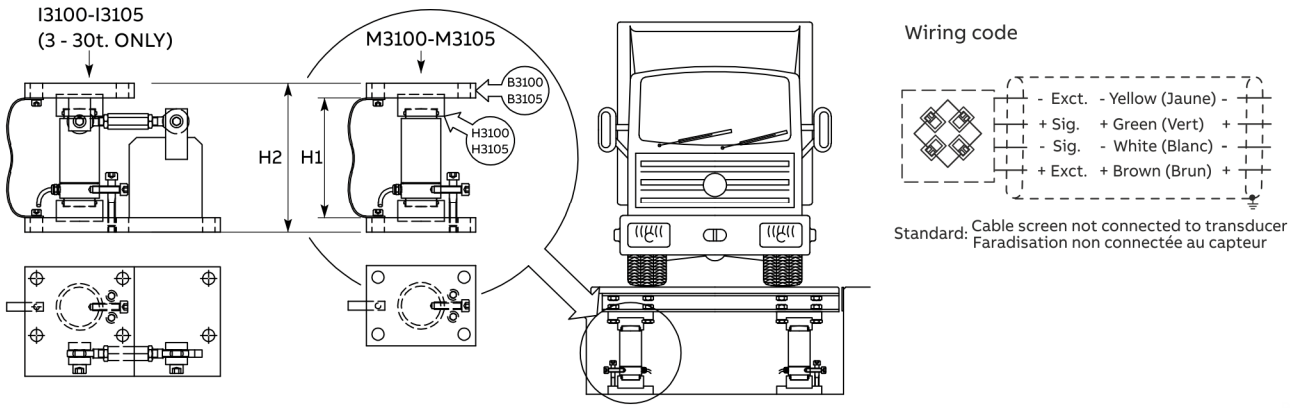


Figure 2: Accessories

Load cell model H3100P (Hard compression pieces for 3100P)

Material stainless steel

All dimensions in mm (in)

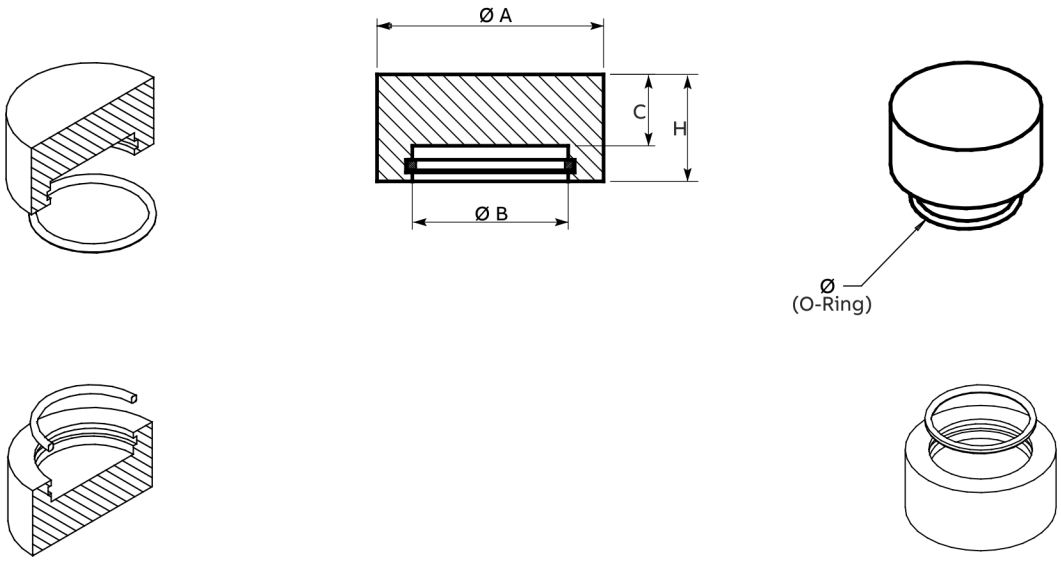


Figure 3: Standard dimensions H3100P

Capacities	Ø A	Ø B	C	H	Ø (O-Ring)	Weight kg (lb)
5 to 30 t	64 (2.52)	44 (1.73)	20 (0.79)	30 (1.18)	42 × 3 (1.65 × 0.12)	±0.65 (1.43)
50 to 100 t	99 (3.90)	66 (2.60)	32 (1.26)	43 (1.69)	64 × 4 (2.52 × 0.16)	±2.3 (5.07)
150 to 200 t	128 (5.04)	92 (3.62)	50 (1.97)	65 (2.56)	90 × 5 (3.45 × 0.20)	±6 (13.23)
300 t	148 (5.83)	112 (4.41)	59 (2.32)	75 (2.95)	110 × 5 (4.33 × 0.20)	±9 (19.84)
500 t	178 (7.01)	132 (5.20)	90 (3.54)	105 (4.13)	130 × 5 (5.12 × 0.20)	±19.3 (42.55)

Other capacities and dimensions available on reques

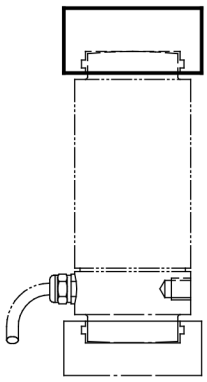


Figure 4: Other view

… Dimensions

Accessories

Load cell model I3100 stainless steel (including rod ends), model I3105 coated steel
Easy mount for models 9QGPS3100P and 9QGPS3105P
Range 5 to 30 t
All dimensions in mm (in)

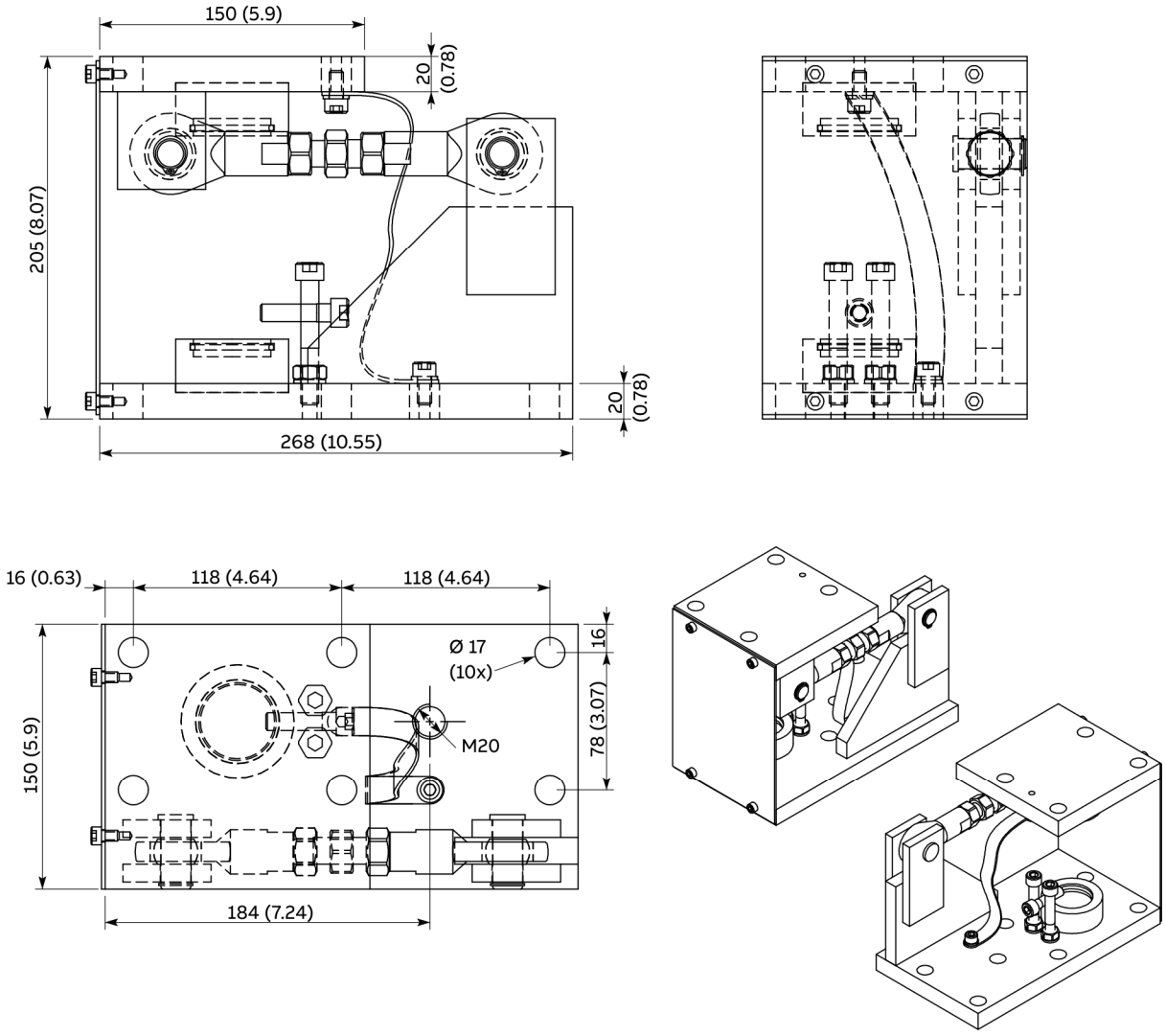


Figure 5: Accessories

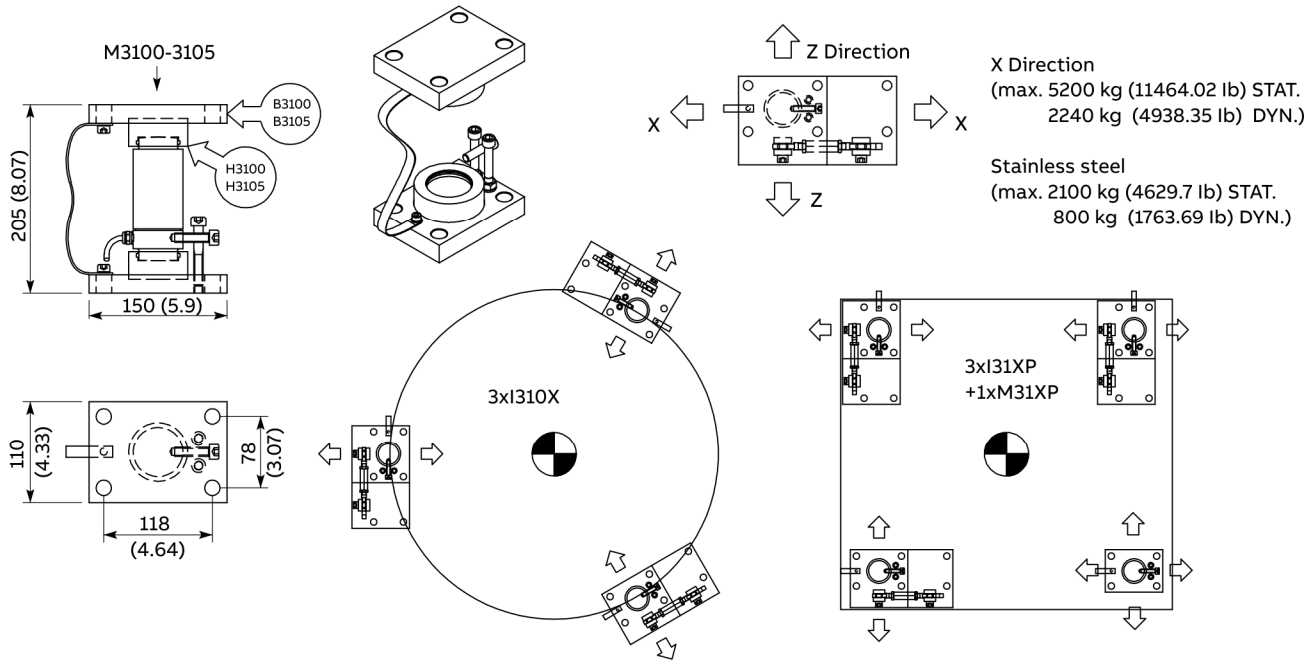
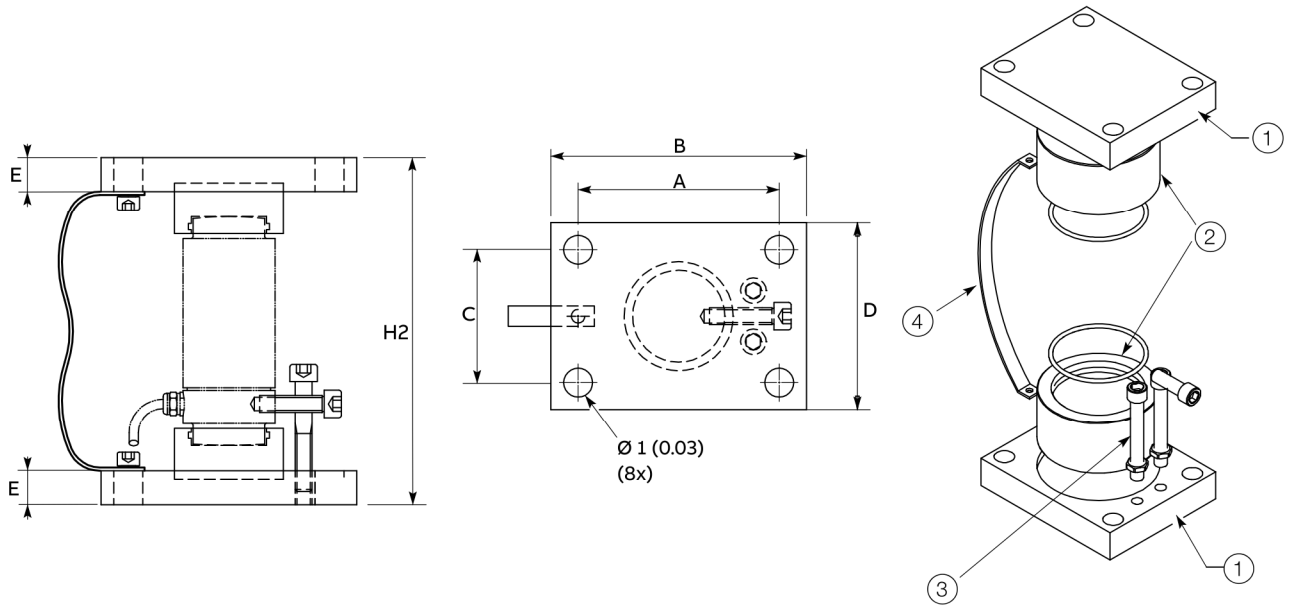


Figure 6: How to install 9QGPS3100P load cells with easy mount I310x and M310x on different applications correctly.

… Dimensions

Accessories

Load cells model M3100 (stainless steel), model M3105 (coated steel)
Pendular kit unit for models 9QGPS3100P and 9QGPS3105P, Range 5 to 500 t
All dimensions in mm (in)



1. Plate
2. Hard compression piece ('H3100')
3. Anti-rotating blocking screws
4. Electrical ground strap

Figure 7: Accessories, pendular kit unit for models 9QGPS3100P and 9QGPS3105P

Capacities t	A	B	C	D	E	Ø1	H2	Weight kg (lb)
5 to 30	118 (4.65)	150 (5.91)	78 (3.07)	110 (4.33)	20 (0.79)	17 (0.67)	205 (8.07)	≈ 5.7 (12.57)
50 to 100	130 (5.12)	170 (6.69)	90 (3.54)	130 (5.12)	30 (1.18)	21 (0.83)	294 (11.57)	≈ 13 (28.66)
150 to 200	185 (7.28)	235 (9.25)	135 (5.31)	185 (7.28)	40 (1.57)	25 (0.98)	370 (14.57)	≈ 35.5 (78.26)
300							418 (16.46)	≈ 41 (90.39)
500	200 (7.87)	260 (10.24)	200 (7.87)	260 (10.24)	40 (1.57)	27 (1.06)	594 (23.39)	≈ 78 (171.96)

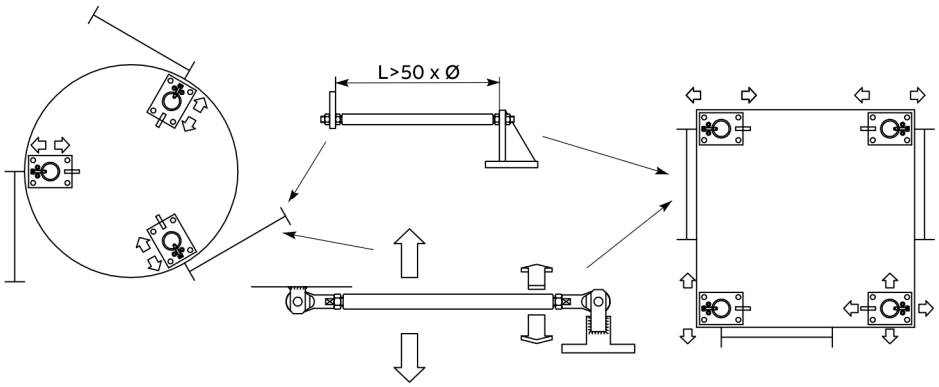


Figure 8: Correct use of tie rods

Notes

Notes

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