

Compression Diaphragm Load Cell

Features

- Capacities 100KG – 200tf.
- Linearity $\pm 0.023\%$ RO.
- IP68 rating.
- Optional mounting accessories.

Applications

- Test machines.
- Misaligned loading applications.
- Restrictive height constraints.
- Virtually all industries.



Description

The C-C2S is a low profile, diaphragm design compression load cell produced from stainless steel. The C2S is produced for long term stability and is completely laser welded, suitable for dynamic applications. This is a standard design load cell.

The C-C2S load cell as standard offers mV/V output. There are also purpose-built mounting kits available for the C2S load cell range for capacities 100KG to 100tf. More information regarding the accessories available for the C2S can be found on **Pages 3 and 5** of this datasheet.

Typical Specification

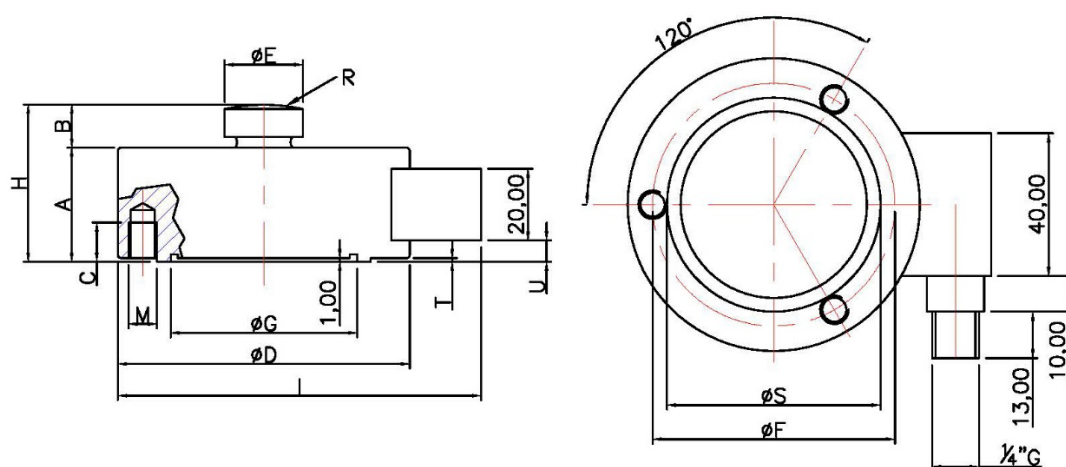
PARAMETER	VALUE	UNITS
Capacities Range (<i>E_{max}</i>)	100, 250, 500	KG
	1, 2.5, 5, 7.5, 10, 20, 30, 50, 75, 100, 150, 200	tf
Rated Output	2	mV/V
Nominal Sensitivity	0.1	$\pm\%$ of Rated Output
Minimum Verification Interval (<i>V_{min}</i>)	$E_{max} / 10000$	-
Combined Error	0.023	$\pm\%$ of Rated Output
Non-Repeatability	0.010	$\pm\%$ of Rated Output
Zero Return OVER 30 MINUTES	0.026	$\pm\%$ of Rated Output
Creep OVER 30 MINUTES	0.028	$\pm\%$ of Rated Output
Creep OVER 20 & 30 MINUTES	0.008	$\pm\%$ of Rated Output
Temperature Effect ON ZERO	0.024	$\pm\%$ of Rated Output/ $^{\circ}\text{C}$
Temperature Effect ON OUTPUT	0.017	$\pm\%$ of Rated Output/ $^{\circ}\text{C}$
Input Resistance	700 ± 2	Ω
Output Resistance	700 ± 2	Ω
Insulation Resistance	>5	G Ω
Zero Balance	1	$\pm\%$ of Rated Output
Excitation NOMINAL SUPPLY RANGE	1-15	Volts AC or DC
Excitation RECOMMENDED SUPPLY	10	Volts AC or DC
Excitation MAXIMUM SUPPLY	18	Volts AC or DC
Temperature Range NOMINAL RANGE	-10 to +40	$^{\circ}\text{C}$
Temperature Range COMPENSATED	-20 to +80	$^{\circ}\text{C}$
Temperature Range OPERATING	-20 to +70	$^{\circ}\text{C}$
Mechanical Limit SERVICE LOAD	120	% of Rated Output
Mechanical Limit SAFE OVERLOAD	150	% of Rated Output
Mechanical Limit ULTIMATE OVERLOAD	300	% of Rated Output
Mechanical Limit SAFE TRANSVERSE LOAD	50	% of Rated Output
Mechanical Limit SAFE DYNAMIC LOAD	50	% of Rated Output

Compression Diaphragm Load Cell

PARAMETER	VALUE	UNITS
Cable Length	5	m
Sensor Construction Material	Stainless Steel	-
Environmental Protection	IP68 (100h at 1m water column)	-

	100KG – 10tf	20tf – 30tf	50tf – 100tf	150tf – 200tf
DISPLACEMENT AT NOMINAL LOAD	~0.06mm	~0.16mm	~0.23mm	~0.36mm
WEIGHT (APPROX)	~1.3KG	~3.4KG	~9.4KG	~18.2KG
FIXING SCREWS DIAMETER	M8	M8	M16	M16
FIXING SCREWS RESISTANCE CLASS	12.9	12.9	12.9	12.9
FIXING SCREWS TIGHTENING TORQUE	80Nm	80Nm	230Nm	230Nm

Outline Dimensions in millimetres



CAPACITY	A	B	C	ØD	ØE	ØF	ØG	H	I	M	n°M	R	ØS	T	U
100KG – 10tf	32	12	11	82	22	68	52.3	44	102	M8	3	50	60	0.3	6
20tf – 30tf	50	14	12	126	35	90	77.3	64	148	M8	3	160	93	0.5	15
50tf – 100tf	60	20	20	165	60	130	92.3	80	188	M16	4	300	115	1	17
150tf – 200tf	80	30	20	200	80	152	107	110	223	M16	4	300	128	1	23

If the dimensions or specification do not suit, PCM has an in-house design team that should be able to satisfy your requirements.

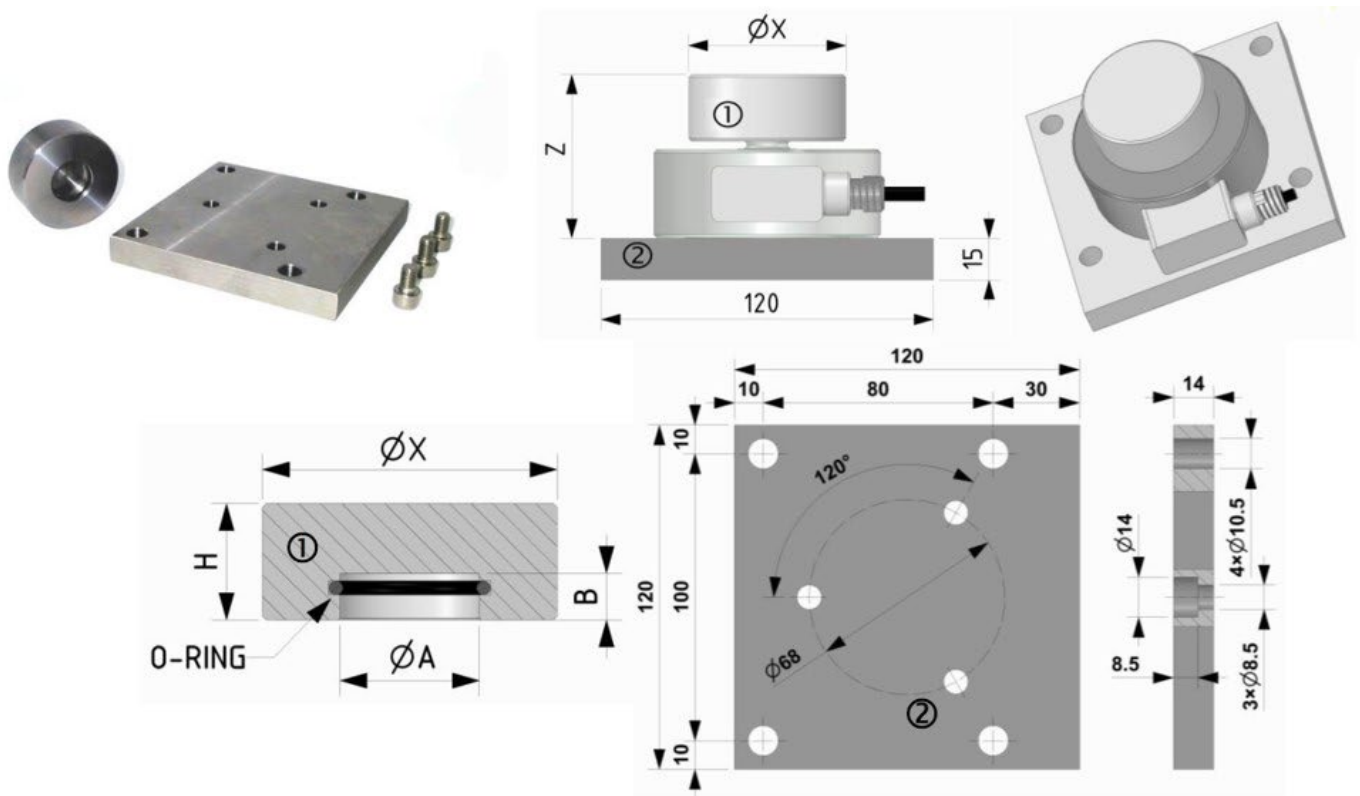
Ordering Codes

CAPACITY	ORDERING CODE
100KG	CC2S82100KC25
250KG	CC2S82250KC25
500KG	CC2S82500KC25
1tf	CC2S821TC25
2.5tf	CC2S822T5C25
5tf	CC2S825TC25
7.5tf	CC2S827T5C25
10tf	CC2S8210TC25
20tf	CC2S12620TC25H
30tf	CC2S12630TC25H
50tf	CC2S16550TC25
75tf	CC2S16575TC25
100tf	CC2S165100TC25

Compression Diaphragm Load Cell

CAPACITY	ORDERING CODE
150tf	CC2S200150TC25
200tf	CC2S200200TC25

Accessories

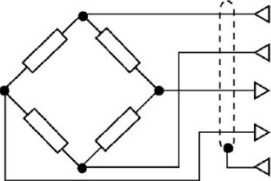


CAPACITY	ORDERING CODE	DESCRIPTION	Z	ØX	ØA	B	H
100, 250, 500KG 1, 2.5, 5, 7.5, 10tf	CTIC22	① Loading Head	59	57	23	9	24
	CPB120D82	② Mounting Plate	-	-	-	-	-
	CUPC2	③ Mounting Kit SEE P5	-	-	-	-	-
20, 30tf	CTIC35	① Loading Head	82	76	36	12	30
	CUPC3	③ Mounting Kit SEE P5	-	-	-	-	-
50, 75, 100tf	CTIC60	① Loading Head	106	126	61	12	38
	CUPC5	③ Mounting Kit SEE P5	-	-	-	-	-
150, 200tf	CTIC80	① Loading Head	157	128	81	21	68

Connector Options & Wiring Details

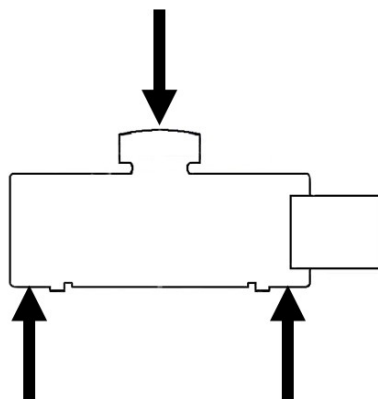
	ORDERING CODE	DESCRIPTION
	CMIL6MF + CMIL6FV5	Direct MIL6M output connector. Female 6 poles straight MIL6M connector complete with 5m PVC shielded cable.
	CONNM12MF + CONNM12FV5	Direct M12 output connector. Female 5 poles straight M12x1 connector complete with 3m PVC shielded cable.

Compression Diaphragm Load Cell

SCHEMATIC DIAGRAM	OUTPUT	CABLE ⁽¹⁾	MIL6M OPTIONAL	M12 OPTIONAL
	EXCITATION +	RED	A	1
	EXCITATION -	BLACK	B	3
	OUTPUT +	WHITE	D	2
	OUTPUT -	YELLOW	C	4
	-----	SHIELD	F	5

⁽¹⁾ PVC 105°C shielded cable, 5.2mm Ø with 4 tinned 0.35mm² Ø conductors. Shield connected to the body of the load cell.

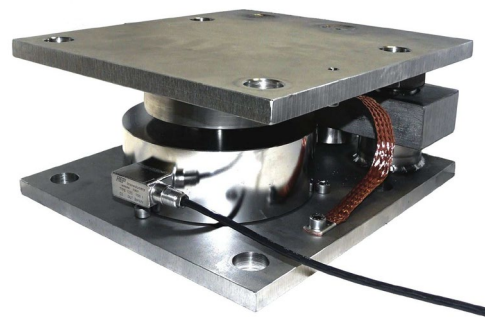
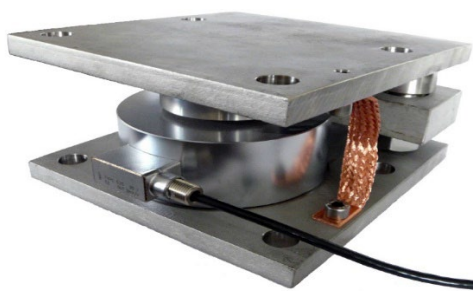
Loading Mode



Disclaimer

Modifications reserved. All details describe our products in general form only. PCM assumes no liability whatsoever and disclaims any express or implied warranty relating to sales and/or use of PCM products including liability or warranties relating to fitness for a particular purpose.

C-C2S Load Cell Mounting Kit



Description

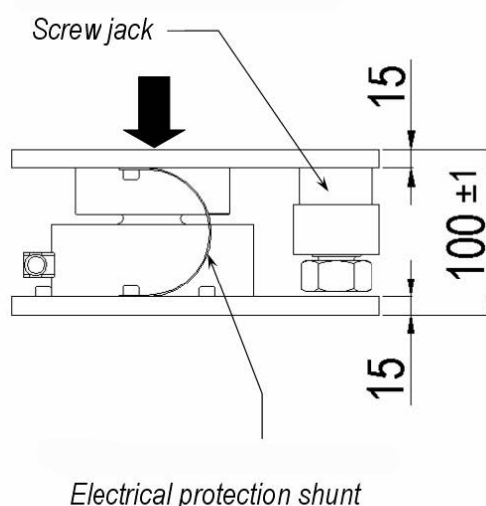
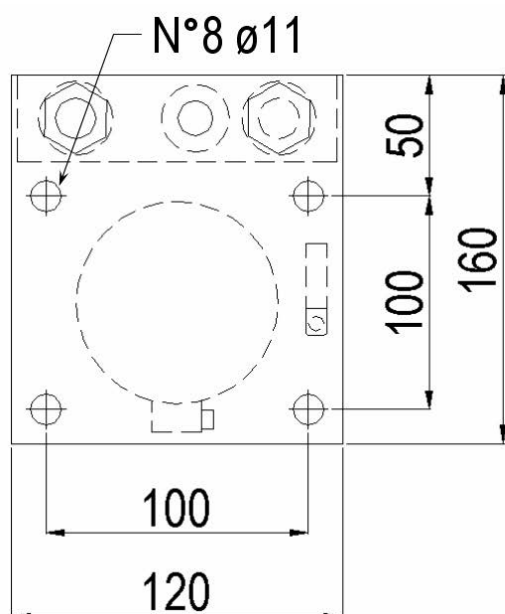
The C-C2S UPC mounting kits are completely executed from stainless steel (AISI 304) and has been designed to ease the installation of weighing and dosing systems, in tanks, bins and in static or vibrating hoppers. C2S load cells can be paired to the mounting kit to obtain an accuracy class of 1000, 2000 or 3000 divisions and an IP68 protection class.

The weighing unit is equipped with load self-alignment and transverse shift compensation to ensure high metrological performances even in the case of adjustments, thermal expansion, positioning errors, transverse thrusts and deformation of structures.

Typical Specification

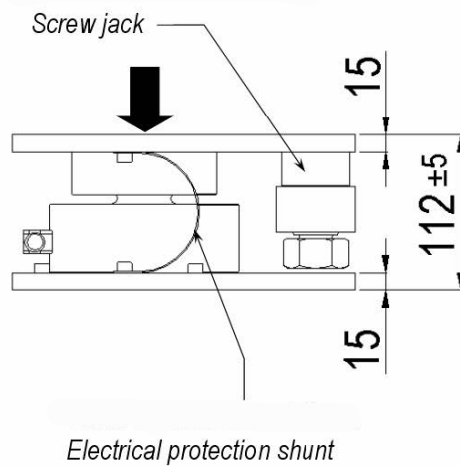
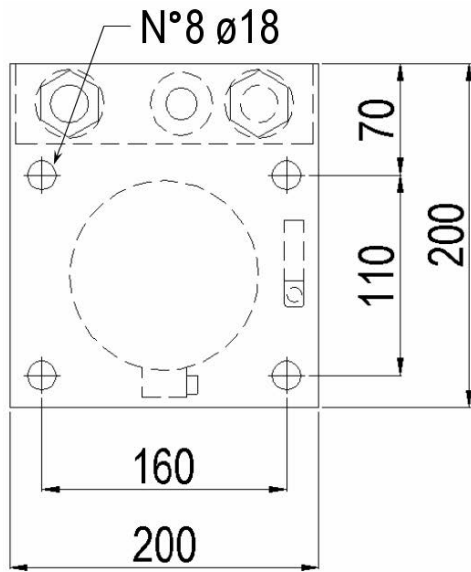
	UNIT	ORDERING CODE		
		UPC2	UPC3	UPC5
NOMINAL LOAD	tf	10	30	100
WEIGHT <small>EXCLUDING LOAD CELL</small>	KG	7	14	31
PERMISSIBLE HORIZONTAL FORCE <small>MAXIMUM</small>	kN	25	50	120
PERMISSIBLE LIFTING FORCE <small>MAXIMUM</small>	kN	40	80	210

Outline Dimensions in millimetres

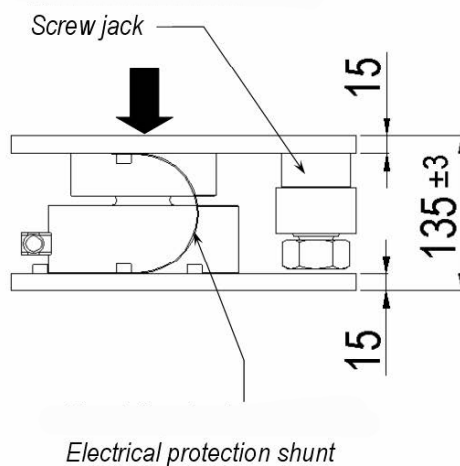
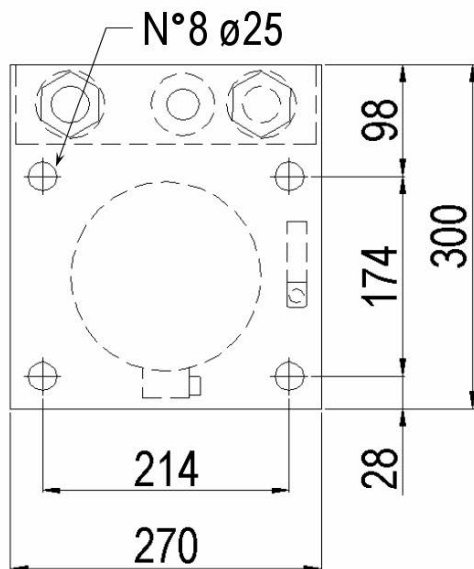


= UPC2

C-C2S Load Cell Mounting Kit

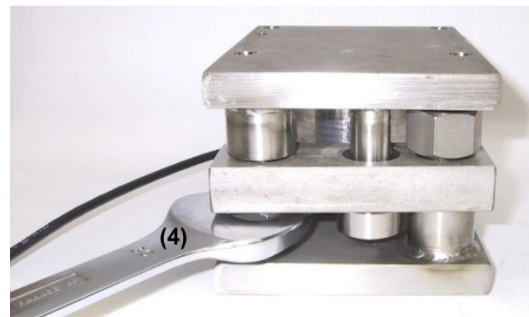
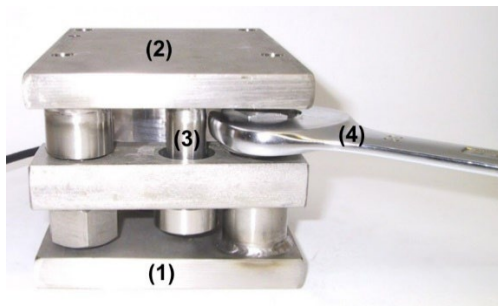


= UPC3



= UPC5

Assembly Instructions

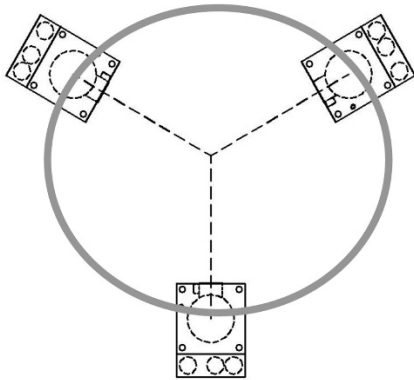


1. Fix the UPC loading plate (①) to the structure or the ground by checking that the plane is well finished, otherwise, utilise some counter-plates.
2. Place the system to be weighed onto the upper plates (②), taking care not to overload the load cells.
3. Horizontally adjust and secure the upper plate (②) in order to make it parallel and aligned with the lower plate (①).
4. Check that the shift limiter (③) is centred inside the hole - even after the system has been loaded several times - to avoid sources of friction that could alter weighing.

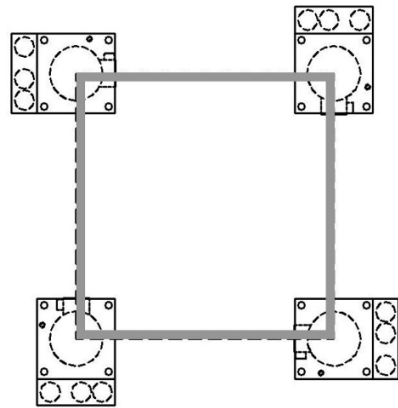
Load Cell Replacement

1. Lift the weighing unit upper plate (②) by alternately unscrewing the two lifting jacks (④) so the upper plate (②) never gets tilted. The weighing system must be unloaded.
2. Replace the load cell.
3. Screw and tighten the two jacks (④) to make the system safe and ready to use again.

Installation Examples



Circular system with 3 supporting points.



Square system with 4 supporting points.

It is recommended the load cell positioning shown in the above diagrams is followed to optimise the anti-shifting function.

Warning

During all phases of assembly, it is important to avoid any accidental overloading of the load cells and to be sure that no current passes through the load cell. During any welding operation, connect the ground pad onto the upper plate (②).

It is recommended to always scrupulously follow all safety regulations of the country in which the unit is to be installed. The installer must make a careful analysis of the environmental risks, taking into consideration seismic areas, wind etc. It will also be the installer's responsibility to provide the appropriate anti-tipping device.

Disclaimer

Modifications reserved. All details describe our products in general form only. PCM assumes no liability whatsoever and disclaims any express or implied warranty relating to sales and/or use of PCM products including liability or warranties relating to fitness for a particular purpose.