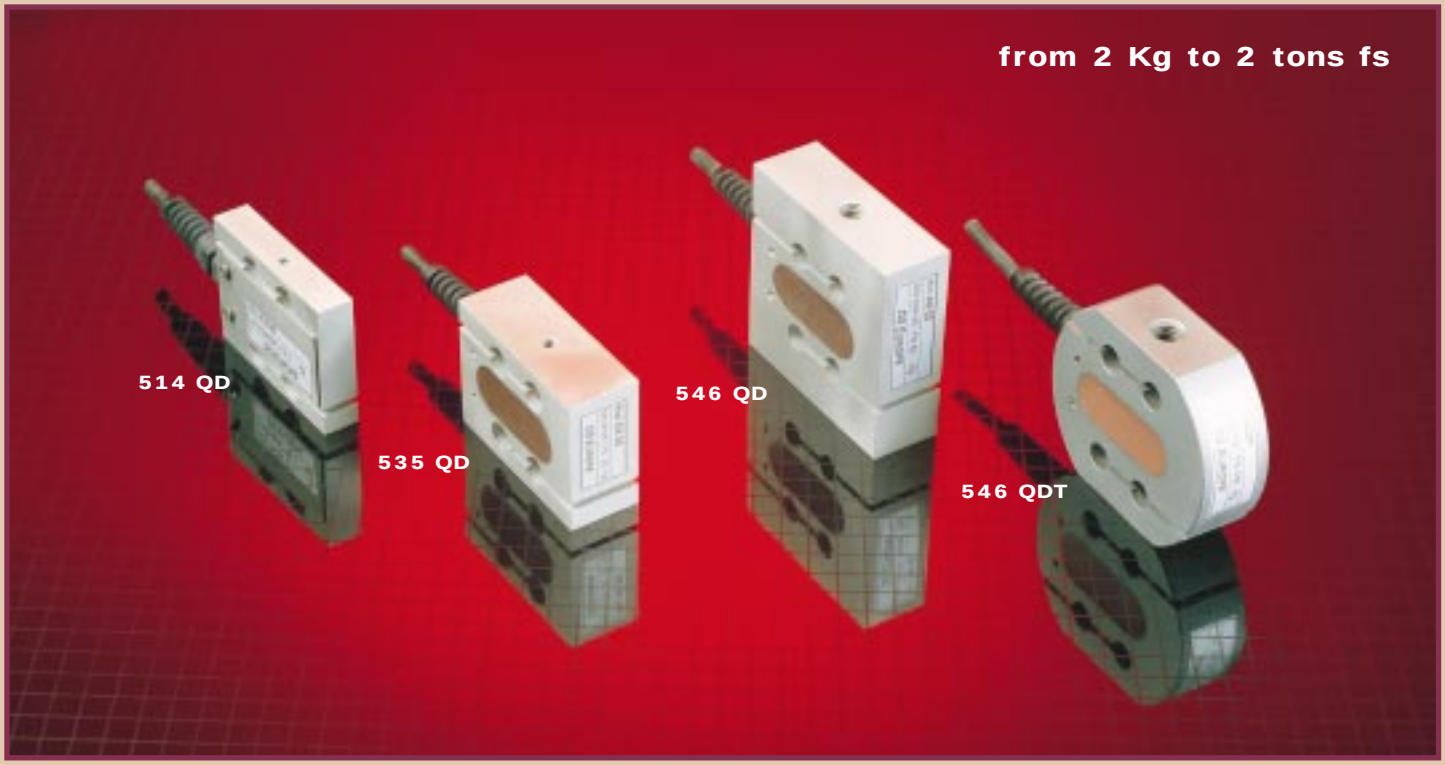
Z-FOLDED LOAD CELLS

also with INTERNAL A/D ELECTRONICS SERIES 500 QD



APPLICATIONS AND CONSTRUCTIVE FEATURES

The *Series 500 QD* are load cells for industrial purpose since long time on the market, which have been submitted to several improvements, with full reliability and suitable also for severe environmental conditions. *Thousands* of these cells are continuously working for years submitted to *billions cycles/year*.

The *main improvements* introduced have been: metal alloys with great toughness and quality, internal artifices of design and of layout to support, without damages, dynamic and heavy operation, filling of the internal cavity with water-repellent and high insulating silicon gel and rubber: to withstand also aggressive environment and water condensation.

The operating principle:

is based on a *flexing of a parallelogram*, where the weighing pan moves parallel to itself as in load cells for legal scales.
This principle gives an accuracy and an insensitivity to off-centre loads impossible to reach in z-folded load cells, apparently similar to the Series 500QD, but working with a different principle (shear).
Off-centres of the load application of 5 to 10 cm may be acceptable.

Other constructive features:

- *Body of the cell*: in aluminum alloy for the Models: 514-535-546 QD up to 110 Kg and high strength steel for the Mod. 546 QDT.
- *Internal calibration* for all the models without internal amplifier: it allows an easy calibration of the weighing system by the Customer.
- *Final test certificate* for each cell referred to secondary standards certified at NPL (National Physical Laboratory - England).

ADVANTAGES OF THE INTERNAL A/D ELECTRONICS (options):

- *Analog electronics (-A)*: zero (tare) regulation from outside, insensitivity to the cable length and better insensitivity to the external electrical disturbances.
- *Digital electronics (-D)*: all settings are performed by a remote computer: zero (tare) suppression, conversion to mechanical units (Kg, tons, etc.), calibration and operating controls of all the measuring system, alarm (threshold) levels and their hysteresis (CAN), 8 points of customized linearization, up to 32 feasible transducers connected to an only line strongly free from electrical disturbances (ask for the bulletin: “Transducers with digital electronics”).

All the internal electronics have *CE certification* for emission and immunity to electromagnetic disturbances.

LOAD CELLS SERIES 500 QD: TECHNICAL SPECIFICATIONS:

Measuring ranges: Mod. 514 QD: 0÷2-3 Kg; Mod. 535 QD: 0÷6-12-25 Kg; Mod. 546 QD (Al.): 0÷60-110 Kg; Mod. 546 QDT (Fe): 0÷220-330-550 Kg – 1 – 2 tons.

Maximum error: (non-linearity + hysteresis + temperature effect on sensitivity):
for Mod. 514 QD-535 QD: C3 = 3000 intervals: < ±0,023% FS;
for Mod. 546 QD-546 QDT: C 1,5 = 1500 intervals: < ±0,046% FS.

Sensitivity: 2 m V/V FS, typical.
Repeatability error: < ±0,033% FS
Temperature effect on zero within 5° K: for Mod. C 3: < ±0,023 % FS; for Mod. C 1,5: < ±0,046 % FS.
Zero unbalance: < ± 2 % FS.
Bridge impedance: 350 ohm, typical.
Insulation resistance: >5000 Mohms.
Excitation recommended: up to 10 V dc/ac; maximum: 20 V dc/ac.
Safe load limit: 50 % over FS.
Ultimate load limit: about 3 times FS with load on weighing axis.
Temperature limits (OIML-60): compensated: -10 ÷ +40°C; Operating: -15÷ +75°C; Rh < 95% (NBS-44).

Note: *for dynamic loads; with shocks and vibrations difficult to estimate the max load allowed must be reduced to avoid yielding and ruptures.*

INTERNAL A/D ELECTRONICS (options): TECHNICAL SPECIFICATIONS:

• **Analog electronics** (suffix: -A):

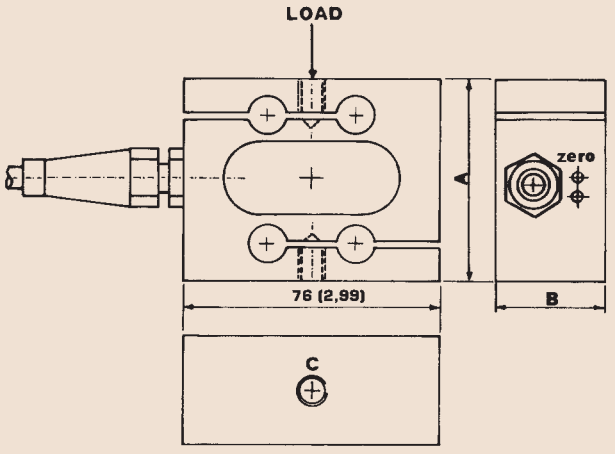
Voltage amplifiers:
- **A5** = supply: 10,5 to 28 Vdc; output: 0 to 5 V.
- **A10** = supply: 18 to 28 Vdc; output: 0 to 10 V.

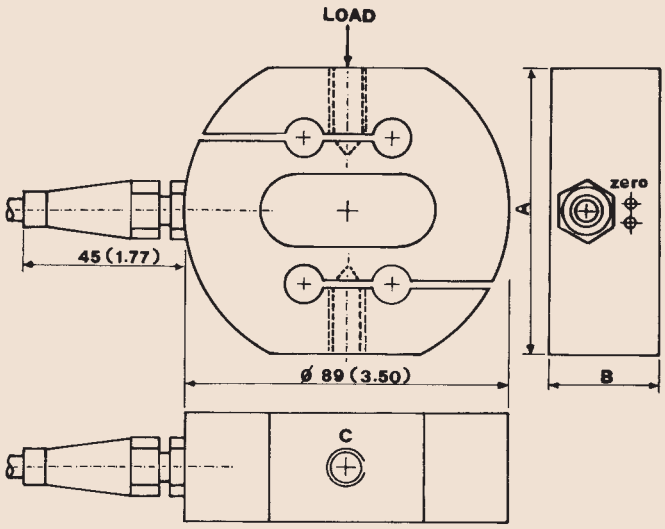
Current amplifier:
- **A4** = supply: 18 to 40 Vdc; output: 4 to 20 mA

• **Digital electronics:** (suffix: -D).

- Digital outputs: **-D2x** = RS 422 and RS 485. **-D4x** = CAN.
- Protocol (x): **-D20** = DSEbus, **-D21** = Modbus,
  -D40 = CAN layer 2; **-D41** = CAN open (DSP 406); **-D42** = Devicenet.
- A/D Converter: 24 bit max (Sigma Delta).
- Bandwidth: from zero to 1,94 Hz up to 390 Hz (-3 dB), depending on A/D update frequency.
- Baud rate: from 1200 to 115.200 baud (RS 485/442) or 1 Mbit max for CAN.
- Analog output (option): from 0 to 5 V (12 bit D/A).
- Operating temperature range: from -20 to +70°C; **Rh** < 95 %.

OVERALL DIMENSIONS





MOD.	RANGES	A	B	C	RANGES	A	B	C
Units	Kg	mm			lbs	inches		UNF
514 QD	0÷2-3	56	14,8	M5	0÷5-7	2.20	.55	1/4-28
535 QD	0÷6-12-25	56	29	M6	0÷15-25-50	2.20	1.14	1/4-28
546 QD	0÷60-110	76	29	M8	0÷150-250	2.99	1.14	3/8-24

MOD.	RANGES	A	B	C	RANGES	A	B	C
Units	Kg	mm			lbs	inches		UNF
546 QDT	0÷220-330 550-1000	76	29	M12 x 1,75	0÷500-750 1200-2500	2.99	1.14	1/2-20
546 QDT	2 tons	76	58	M16 x 1,5	4500	2.99	2.28	5/8-18

Technical specifications and prices may change without notice.

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