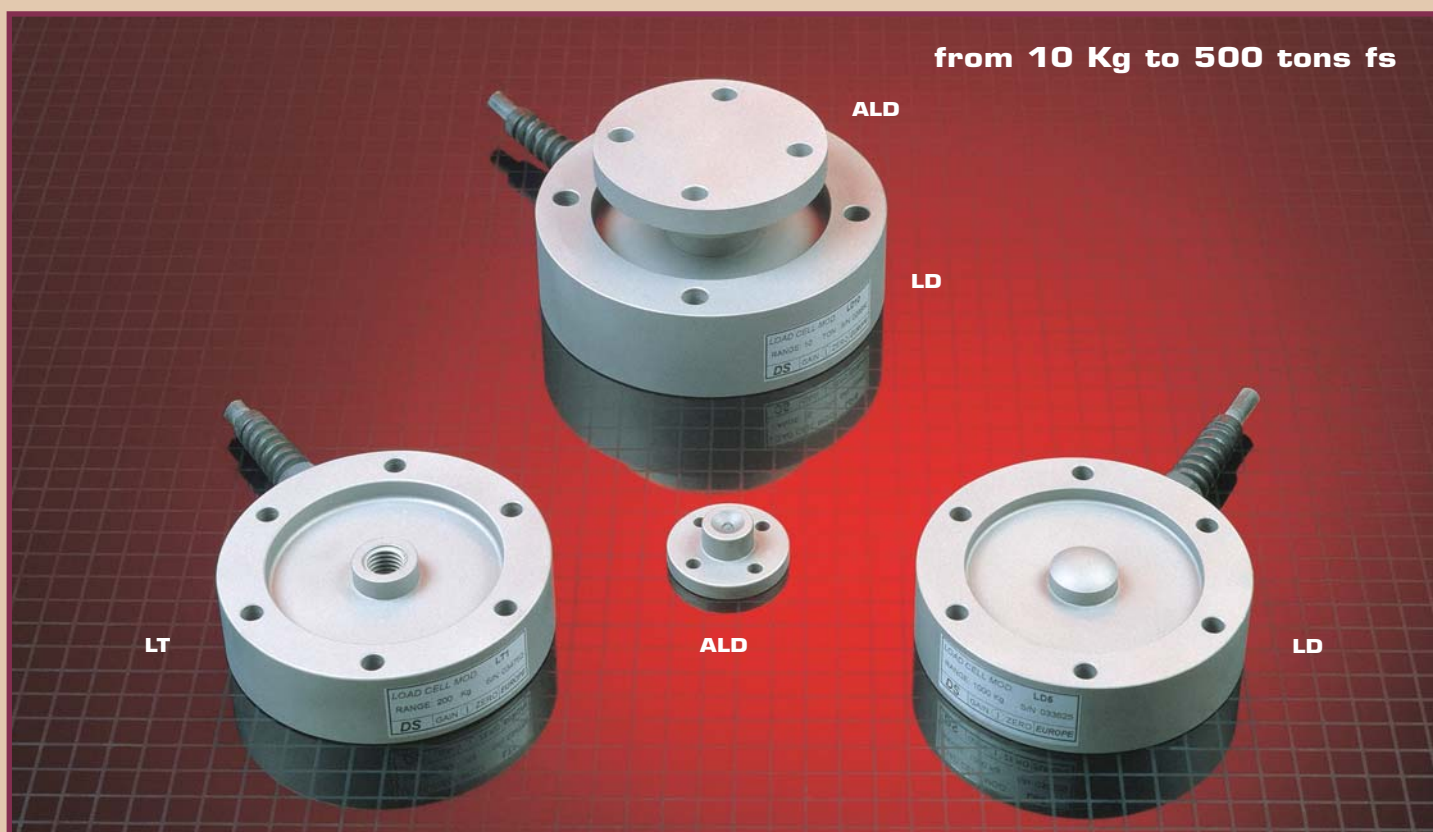


# PANCAKE LOAD CELLS

also with INTERNAL A/D ELECTRONICS SERIES LD-LT

from 10 Kg to 500 tons fs



## APPLICATIONS AND CONSTRUCTIVE FEATURES

The *Series LD and LT*, thin, precise and convenient load cells, find *applications* in the industry, for mechanical machines, for actuators, for weighing systems, for reservoirs singly installed for load concentrated in a point or in a group of 2 to 4 units distributed on several bearings.

The *Series LD* are suggested for compression; the *Series LT* for tension and compression applications.

### Some constructive peculiarities:

- **Hermetically sealed:** the upper body, the most weathered, is a solid metal piece without electrical circuits that, on contrary, are *immersed* in the lower internal cavity *protected* by water-repellent silicon filler, which is further protected by the external metal bearing ring of the cell that, at the installation, can be buttered by a gasket sealing rubber.
- **Number of sensors:** distributed on the measuring area, increasing from 4 to 12 with the increase of the diameter and of the capacity (FS) of the cell: to increase the accuracy and the insensitivity to the load position.
- **Final test certificate:** supplied for each cell and referred to secondary standards periodically calibrated at the National Physical Laboratory (NPL) - England.
- **Compression mounting accessories (for LD):** Upper mounting bases (saddles) Series ALD with spherical notch; Mounting set Series SLD for reservoirs (3÷4 cells); Lateral blocks Series TTLD.

### 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.

## PANCAKE LOAD CELLS: TECHNICAL SPECIFICATIONS:

**Measuring ranges** (see the table below):

*Mod. LD for compression:* 0 to ( 10 - 20 ) - 50 - 100 - 200 - 500 Kg;  
1 - 2 - 5 - 10 - 25 - 50 - 100 - 300 ( 500 ) tons.  
*Mod. LT for tension and compression:* 0 to  $\pm$  ( 10 - 20 ) - 50 - 100 - 200 - 500 Kg;  
1 - 2 - 3 - 5 - 10 - 30 tons.

**N° of sensors, Impedance (typical), Max dc excitation voltage:**

Mod. LD 1 - 5 - 10, LT 05-1-5 = N°4, ( optional 8 ), 350 ohm, 20 Vdc;  
Mod. LD 100, LT 50 = N°8, 700 ohms, 40 Vcc;  
Mod. LD 300 = N°12, 1050 ohms, 60 V.

## SPECIFICATIONS COMMON TO ALL THE SERIES LD and LT:

**Sensitivity:** 2 mV/V FS, typical ( 20 mV FS excitation 10 V; 40 mV FS with 20 V; 60 mV with 30 V ).

**Total error:** ( non-linearity + hysteresis + temperature effect on sensitivity ):  $< \pm 0,2$  % FS, typical.

**Creep:**  $< \pm 0,1$  % FS, during 4 hours test at FS. **Zero output return:**  $< \pm 0,07$  % FS, after 30 min. at FS.

**Zero unbalance:**  $< \pm 2$  % FS.

**Insulating resistance:**  $> 5000$  Mohms.

**Overload:**  $\pm 50$  % FS.

**Ultimate load limit:** about 2 times FS, with load on weighing axis.

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

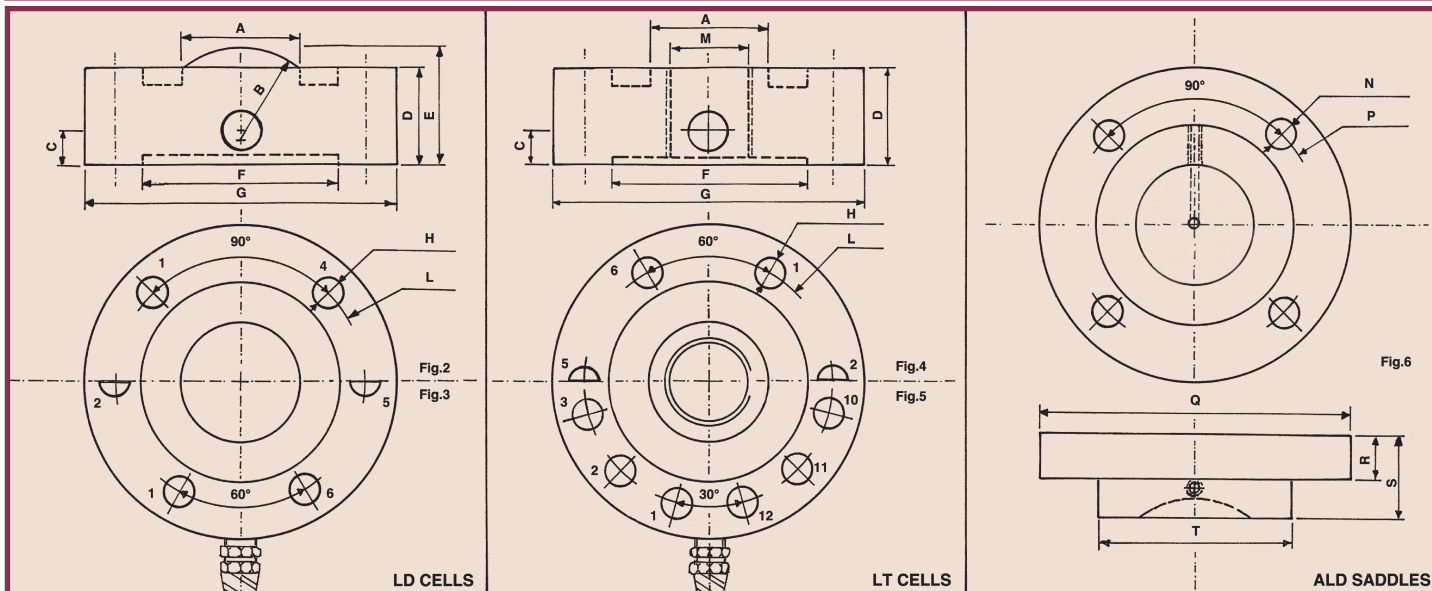
## INTERNAL A/D ELECTRONICS ( options ): TECHNICAL SPECIFICATIONS:

### • 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  $< 95$  %.



MODEL	RANGES	HOLES	MODEL	RANGES	HOLES	LD - LT SIZES (mm)										MODEL	ALD SIZES (mm) (Fig. 6)					
LD CELLS			LT CELLS			A	B	C	D	E	F	G	H	L	M	SADDLE	N	P	Q	R	S	T
LD1	10-20-50 100-200-500 Kg.	4 2	LT0,5	10-20-50 100-200 Kg.	4 4-2	10	7	9,5	27	29	60	78	4,5	34,5	M6	ALD1	4,5	27	38	9	15	16
LD5	1-2-5 tons	6 3	LT 1	(100)-200-500 1000 Kg.	6 4	20	15	9,5	27	31	70	99	6,5	42,5	M12x1,75	ALD5	8,5	60	78	15	25	40
LD10	5-10 tons	4 2	LT5	(05-1)-2-3 tons	6 4	30	20	9,5	35	42	80	118	8,5	49	M20x1,5	ALD10	8,5	60	78	15	25	40
LD100	20-50-100 tons	4 2	LT50	5-10-30 tons	12 5	72	40	13	55	78	122	177	16,5	74,5	M56x4	ALD100	16,5	149	177	33	50	110
LD300	300-(500) tons	4 2	-	-	-	150	100	17,5	126	160	200	344	36,5	136	-	ALD300	36,5	272	344	50	100	194

Technical specifications and prices may change without notice.

Bulletin: 240108-UK



**DS** EUROPE SRL