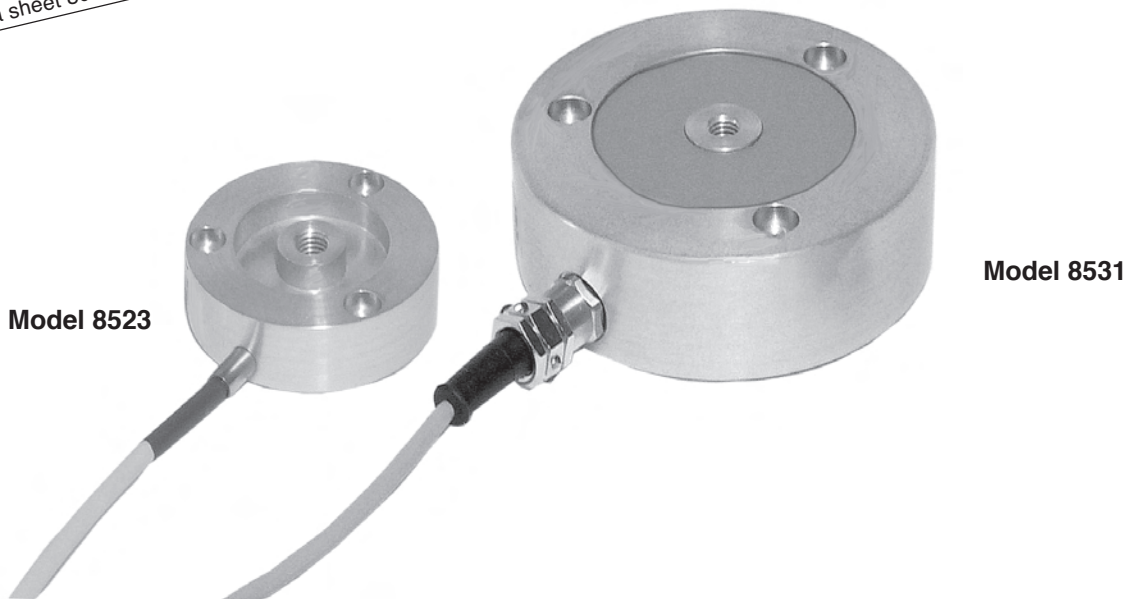


## Tension-Compression Load Cells

Models 8523, 8531

Code:	8523 E
Manufacturer:	burster
Delivery:	ex stock
Warranty:	24 months

CAD data in 3D/2D available on  
**POWERPARTS** by web2CAD  
Info: data sheet 80-CD-ROM-E



Model 8523

Model 8531

- Load ranges from 0 ... 20 N to 0 ... 5000 N
- Accuracy up to 0.15 % F.S.
- Material high-strength aluminium
- Standardized sensitivity
- Exceptional low price
- For tension and compression measurements

### Application

These sensor series are especially suitable for the measurement of static and quasi-static tension and compression measurements. The membrane load cells are designed on proven technology. Owing to their compact and sturdy design they are suitable for their use in production facilities as well as in the laboratory and test field. All load cells (exception model 8523-20/50 N) are provided with a standardized signal output. This provides interchangeability of the amplifier without its adjustment. Furthermore it is possible to connect several load cells on a parallel basis.

#### Applications:

- Cable for measurement
- Measurement of bar, rods and framework forces
- Press-fit processes
- Balance and test scales
- Friction forces
- Retention forces

### Description

Either by a load button or by an application specific thread part the load to be measured is applied to the load cell through a M8 thread which is located in the axis of the tension and compression sensors. In the sensor element there is an applied strain gauge full bridge changing the directed load into an electrical signal.

Thanks to the three-point support the mounting of the load cells does not present any problem. Hereby the requirements for the mounting surface are reduced.

In order to achieve an optimal measuring result, the force to be measured must be applied axially. Lateral forces can be avoided by constructional measures like mounting the load cell on movable bearings, guiding sleeves, and so on.

Load buttons (see drawings) enable an optimal appliance of the compression forces to the load cells. Due to the sensor's convex surface and upon non-axial load appliance up to an angle error of 3° the measurement error is insignificant.

**8523-E**

**Technical Data**

*Dim. tolerances acc. ISO 2768-f*

Order Code	Load Range	Accuracy <sup>1)</sup> [%v.E.]	Sensitivity [mV/V]	ø D [mm]	H [mm]	Natural-Frequency [kHz]	Weight [kg]	French Torque for Mounting Screws 12.9
8523-20	0 ... 20 N	≤ ± 0.5	nominal <sup>2)</sup> 1.0	54.5	16	0.5	0.15	3 Nm
8523-50	0 ... 50 N	≤ ± 0.5	nominal <sup>2)</sup> 1.0	54.5	16	0.75	0.15	3 Nm
8523-100	0 ... 100 N	≤ ± 0.5	standardized 1.5 ± 0.5 %	54.5	16	0.80	0.15	3 Nm
8523-200	0 ... 200 N	≤ ± 0.2	standardized 1.5 ± 0.2 %	54.5	16	1.1	0.15	3 Nm
8523-500	0 ... 500 N	≤ ± 0.2	standardized 1.5 ± 0.2 %	54.5	16	2.3	0.15	3 Nm
8531-1000	0 ... 1000 N	≤ ± 0.25	standardized 1.5 ± 0.2 %	89.5	22	1.0	0.35	6 Nm
8531-2000	0 ... 2000 N	≤ ± 0.15	standardized 1.5 ± 0.2 %	99.5	30	1.8	0.35	6 Nm
8531-5000	0 ... 5000 N	≤ ± 0.15	standardized 1.5 ± 0.2 %	99.5	30	3.0	0.35	6 Nm

1) The figures specified are the combined value for non-linearity, hysteresis and repeatability

2) More or less deviation from stated value is possible

**Electrical Values**

Bridge resistance: full bridge circuit of foil strain gauges 350 Ω, nominal<sup>2)</sup>

Calibration resistor: 80 kΩ ± 0.1 %  
The bridge output voltage resulting from a shunt of these values is shown in the calibration certificate. Model 8523 with ranges 20 N and 50 N are calibrated by shunt of 100 kΩ.

Excitation: range 20 N max. 5 V DC or AC  
range 50 N to 5000 N recommended 5 V DC or AC max. 10 V DC or AC

Output (Sensitivity): see table

Insulation resistance: > 10 MΩ

**Environmental Conditions**

Temperature operating: -30 °C ... +80 °C

Temperature compensated: 15 °C ... +70 °C

Temperature effect: Zero model 8523 ≤ ± 0.01 % F.S./K  
Zero model 8531 ≤ ± 0.01 % F.S./K  
Span ≤ ± 0.02 % Rdg./K

**Mechanical Values**

Kind of measurement: tension or compression direction, calibrated in compression direction

Deflection full scale: ≈ 80 μm

Overload safe: 130 % over capacity

Overload burst: approx. 300 % over capacity

Dynamic performance: recommended 50 % over capacity (not suitable for large number of load cycles in tension or compression direction)

Casing material: high-grade aluminium, anodized

Natural frequency: see table

Degree of protection in acc. with EN 60529: model 8523 IP 52  
model 8531 IP 64

Electrical termination: Screened, highly flexible cable with free soldered ends, length approx. 2 m, diameter 4.5 mm, bending radius > 40 mm. For model 8523 from range 0 ... 100 N the standardization is integrated in the sensor cable (length 7 cm, diameter 8 mm, distance from cable end 30 cm).

Wiring code connection (standard): white + excitation  
brown - excitation  
yellow + signal output  
green - signal output

Dimensions: see table and technical drawings

Weight: see table

Mounting: wrench torque for mounting screws, strength class 12.9 see table

**Special Calibration (WKS)**

For compression or/and tension direction, sensor only or with instrumentatoion, calibration on 20%-steps up and down.

**Order Information**

Load cell model **8523- ...N** (please state load range)

Load cell model **8531- ...N** (please state load range)

**Accessories**

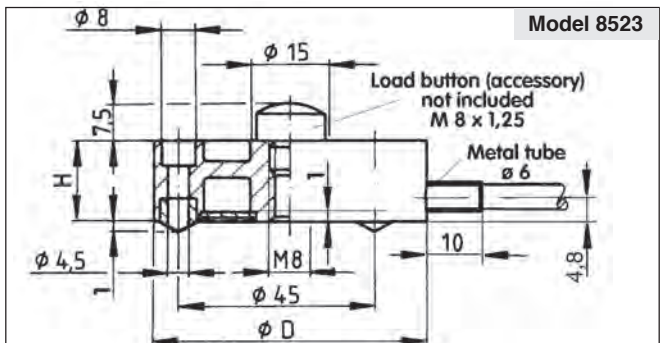
**Mating connector**  
- 12 pole to all burster desktop devices **Model 9941**  
- 9 pole for DIGIFORCE® 9310 and 9235 **Model 9900-V209**

**Mounting of mating connector**  
on sensor cable upon prevalent use of the load coil  
a) in compression direction (load cell is calibrated in compression direction, output signal is positive in compression direction) **order code 99004**  
b) in tension direction direction (output signal is positive in tension direction) **order code 99007**

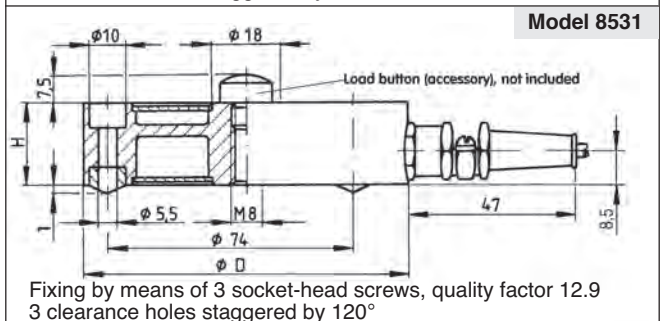
**Load button** for introduction of compressive forces polished and induction hardened, HRC 60 (not included in delivery) **Model 8580-V008**

**Pull plate** for measuring tension and compression forces (on both sides rings can be mounted)  
- for 8523 **Model 8590-V002**  
- for 8531-1000N **Model 8590-V006**  
- for 8531-2000/5000N **Model 8590-V007**

**Strain gauge simulator** replaces load cell for checking or adjustment of amplifier or monitor **Model 9405**  
Supply devices, amplifiers and process monitoring units  
**see section 9 of the catalog.**



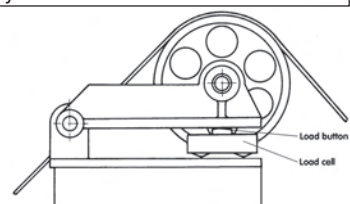
Fixing by means of 3 socket-head screws, quality factor 12.9  
3 clearance holes staggered by 120°



Fixing by means of 3 socket-head screws, quality factor 12.9  
3 clearance holes staggered by 120°

**Application example**

A stable joint fastening of the arm protects the load cell against impermissible lateral and torsion forces.



Sensor CAD drawing can be imported in 3D or 2D version from CD-ROM or downloaded from the Internet.

For more information on **POWERPARTS** by web2CAD please refer to