

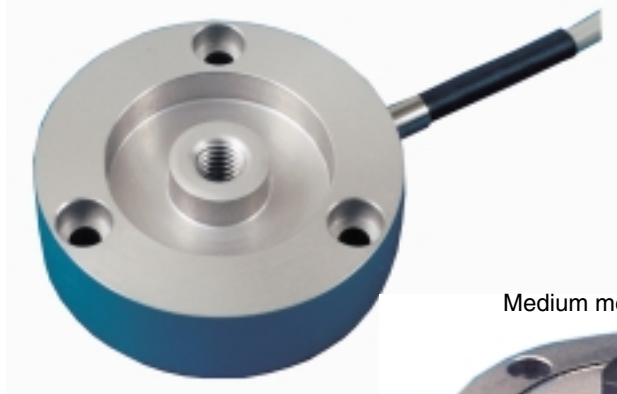
Tension and Compression Load cell

Model 8524

Code:	8524 E
Manufacturer:	burster
Delivery:	ex stock
Warranty:	12 months
Issue:	1.4.2003

CAD-Data by web2CAD
Info: Data sheet 80-CD-ROM-E

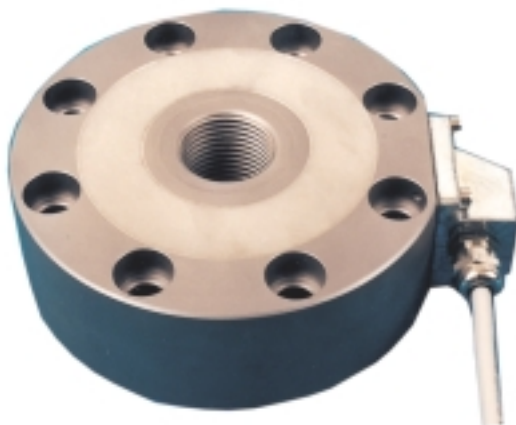
Small measurement ranges



Medium measurement ranges



Large measurement ranges



- Available ranges from 0 ... 500 N to 0 ... 200 kN
- Accuracy $\leq 0.25\%$ F.S.
- Sensitivity 1.5 mV/V
- Material: stainless steel
- Simple mounting
- Universally applicable

Application

Due to their compact design and construction, these tension-pressure load cells can be operated without any problems in laboratories as well as in industrial environments. Made of corrosion-resistant steel, these load cells can be integrated easily into existing structures, thanks to their standardized key ratings and simple assembly. In accordance with the measurement task involved, model 8524 can be used to measure static, quasi-static as well as dynamic tensile and compressive forces.

Areas of application include:

- Measurement of compression and insertion forces
- Measurement of spring forces
- Measurement of shearing and cutting forces
- Force measurement and control during assembly
- Measurement of pressure on drilling machines

A load-centering plate mounted on the load cell can be used to measure, for example, joint lugs, tensile forces in ropes, chains etc. (refer to page 4: load-centering plate).

Description

The bending plate inside the load cell is equipped with strain gauges which, on the exertion of a force, supply a bridge-output voltage directly proportional to the measurement variable. The centre axis of the tension-pressure load cells incorporates a continuous thread through which the measurement force needs to be introduced - free of transverse and torsional components - either via a load introduction button or an application-specific adapter. From a measurement range of 0 ... 5 kN onwards, the measurement accuracy is ideal if the load cell has been mounted on a level, hard and polished base. This is not necessary in the case of small measurement ranges of up to 0 ... 2 kN, thanks to 3 special bearing blades (refer to page 3, top).

Structural measures should be taken to avoid exposing the load cell to lateral forces (for instance, mounting on movable bearings, levers held by roller bearings). Attachment via the clearance bores integrated in the external ring allows simple handling of the sensor.

Technical data

Order Code	Measuring Range	Dimensions [mm]									Thread T	Number of Holes on G	Natural Frequency [kHz]	Mass [kg]
		øD1	øD2	øD3	øD4	H	øG	øX	øY	W				
8524-5500	0 ... ± 0.5 kN	54.5	15	35.5	33.5	16	45	4.5	8	11.4	M 8x1.25	3	> 2	0.25
8524-6001	0 ... ±1 kN	54.5	15	35.5	33.5	16	45	4.5	8	11.4	M 8x1.25	3	> 3	0.25
8524-6002	0 ... ±2 kN	54.5	15	35.5	33.5	16	45	4.5	8	11.4	M 8x1.25	3	> 5	0.25
8524-6005	0 ... ±5 kN	54.5	15	35.5	34.5	16	45	4.5	8	11.4	M 8x1.25	6	> 8	0.25
8524-6010	0 ... ±10 kN	54.5	15	35.5	34.5	16	45	4.5	8	11.4	M 8x1.25	6	> 12	0.25
8524-6020	0 ... ±20 kN	79	22	59	58.6	25	68	4.5	8	20.4	M 12x1.5	8	> 4	0.65
8524-6050	0 ... ±50 kN	119	44	94	92.6	35	105	6.6	11	28.2	M 24x1.5	8	> 3	2
8524-6100	0 ... ±100 kN	155	60	109	107	50	129	13.5	20	36.5	M 36x3	8	> 3	5
8524-6200	0 ... ±200 kN	155	60	109	107	50	129	13.5	20	36.5	M 36x3	8	> 5	5

Electrical Values

Bridge resistance (full bridge circuit) of foil strain gauge:
350 Ω, nominal*

Excitation: max. 10 V DC or AC

Sensitivity: 1,5 mV/V ± 0,25 %
positive output at compression

Calibration Resistor: 80 kΩ ± 0.1 %
The bridge output signal resulting from a shunt of this value is shown in the calibration certificate.

* Deviations from stated values are possible.

Ranges 20 kN and 50 kN: Cable diameter 5 mm
bending radius min 20 mm
radial cable output
PG screw connection
on flange angle
Module for output 1.5 mV/V
Integrated in cable
(see drawing 3)

Ranges 100 kN and 200 kN: Cable diameter 7 mm
bending radius min 35 mm
tangential cable output
PG screw connection
on flange angle
(see drawing 4)

Environmental Conditions

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

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

Temperature effect zero shift: ≤ 0.02 % F.S./K

Temperature effect span shift: ≤ 0.02 % Rdg./K

Wiring code:
white Excitation (positive)
brown Excitation (negative)
yellow Output (positive)
green Output (negative) } On application of compression

Mechanical Values

Accuracy: combined value for non-linearity, hysteresis and repeatability
< ± 0.25 % F.S.

Kind of measurement: Tension and compression, calibration in compression direction

Deflection-full scale: approx. 80 μm

Overload-safe: 150 % over capacity

Overload-burst: > 250 % over capacity

Dynamic performance:
recommended 70 % of capacity
maximum 100 % of capacity

Material: stainless steel 1.4542

Protection class: according to DIN 40050 ≤ 10 kN IP 52
≥ 20 kN IP 64

Electrical termination:
shielded, high flexible cable with bare ends for soldering, length approx. 2 m

Ranges up to 10 kN: Cable diameter 5 mm
Radial cable output
Metal tube
length 10 mm
diameter 6 mm
Protection against buckling
with shrinking hose
length 30 mm
diameter 5.5 mm
bending radius min.25 mm
(see drawing 2)

Dimensions: see table and scale drawing
Units with range ≤ 0 ... 2 kN are equipped with edges within clearance holes, therefore they are 1.5 mm higher.

Weight: see table

Assembly:
range ≤ 0 ... 2 kN 3 clearance holes with edges for three-point-support
(see drawing 1)
range ≥ 0 ... 5 kN 6 - 8 clearance holes
(see drawings 2 - 4)

The entire bearing area of the sensor must be mounted on a base which is hardened (60 HRC), flat, polished or - better still - lapped.

Counterbores in compliance with DIN 74-Km, in compliance with DIN 912 for Allen screws.

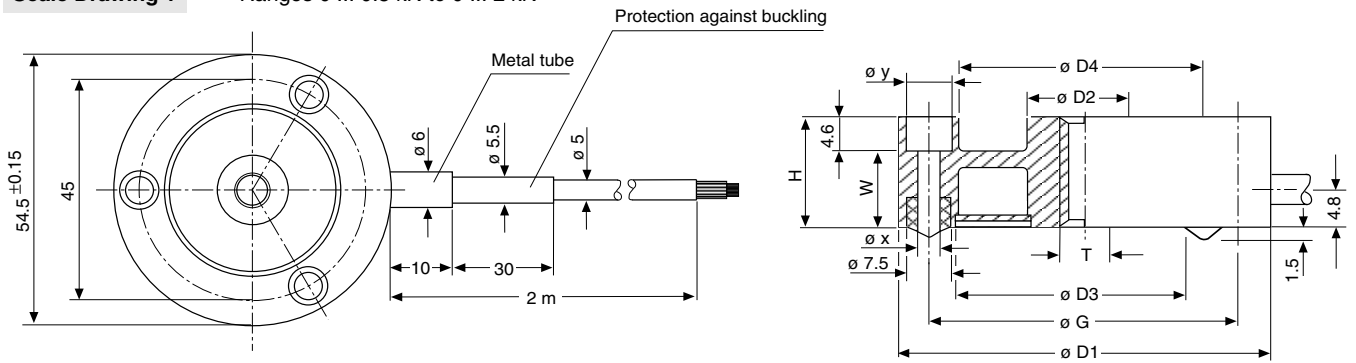
Mechanical strength of screws: 12.9. or better

Also refer to the accessories comprising load-centering plates and load-introduction buttons.

Sensor CAD drawing can be imported from CD-ROM or downloaded from the Internet.

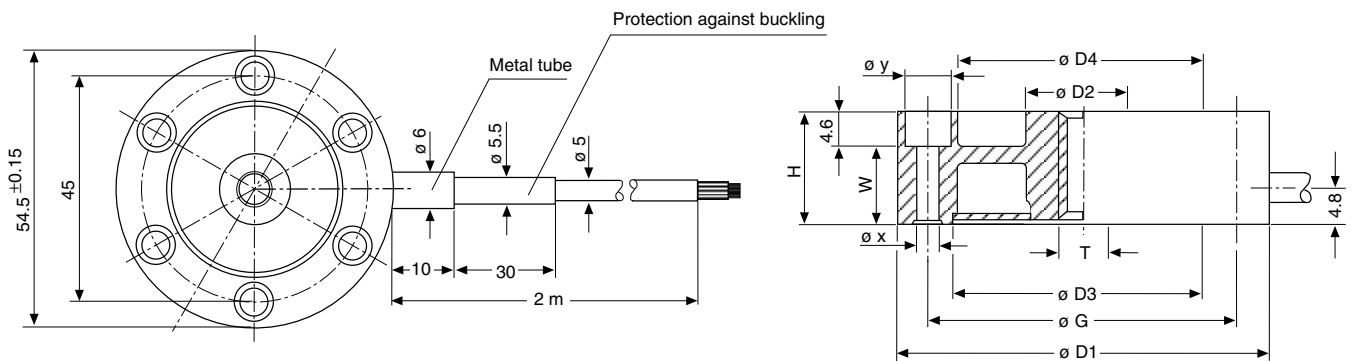
For more information on *power/PARTS* please refer to the introduction of section 8 in the catalog.

Scale Drawing 1 Ranges 0 ... 0.5 kN to 0 ... 2 kN

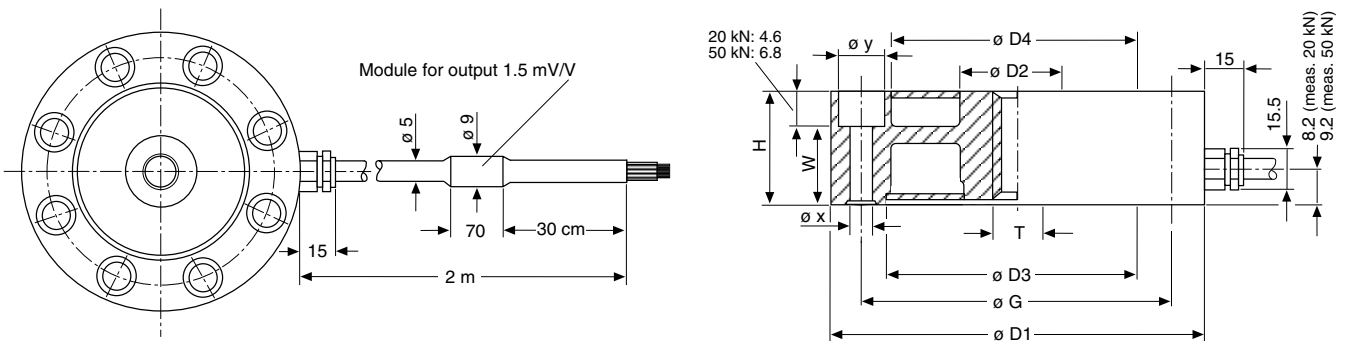


The three bearing blades eliminate the need for a polished assembly base

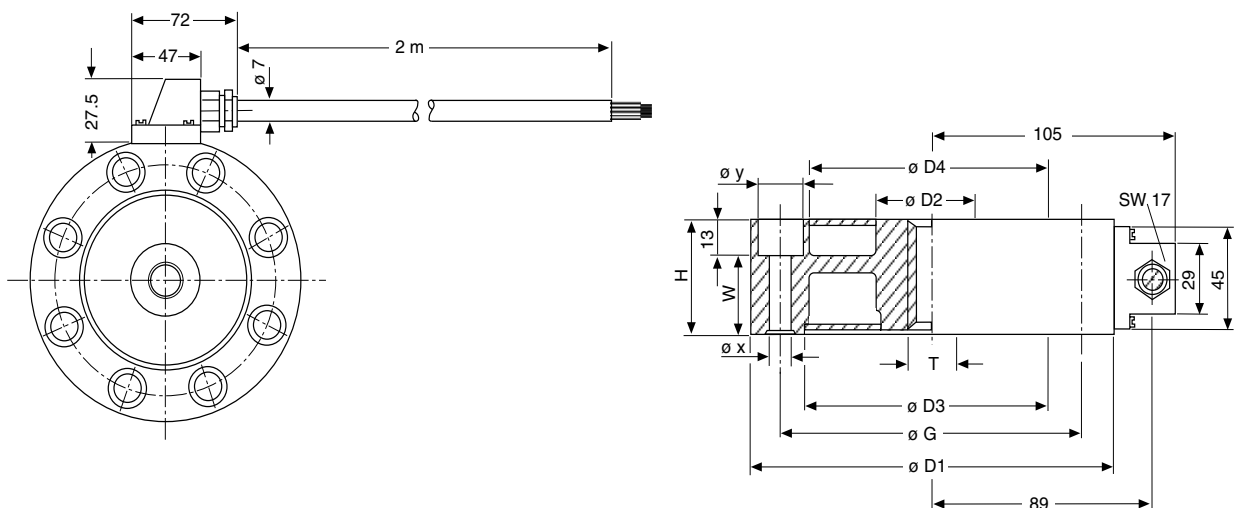
Scale Drawing 2 Ranges 0 ... 5 kN and 0 ... 10 kN



Scale Drawing 3 Ranges 0 ... 20 kN and 0 ... 50 kN



Scale Drawing 4 Ranges 100 kN and 200 kN



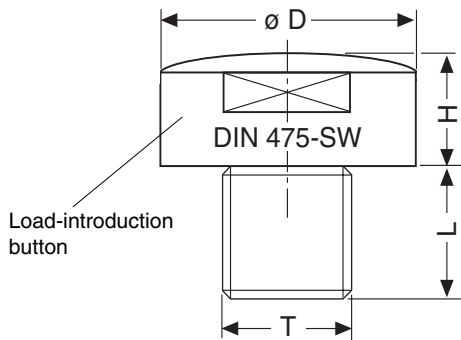
8524-E

Accessories

Load buttons

Load buttons for introducing compressive forces

Order Code	for Load Cell with Nominal Load	Dimensions [mm]					Tightening torque	Mass [kg]
		$\varnothing D$	H	L	T	SW		
8580-V008	0,5 kN, 1 kN, 2 kN, 5 kN, 10 kN	14	7.3	7	M 8 x 1.25	-	sturdy	0.01
8580-V012	20 kN	20	15.1	12	M 12 x 1.5	16	10 Nm	0.05
8580-V024	50 kN	40	20	17	M 24 x 1.5	32	20 Nm	0.25
8580-V036	100 kN, 200 kN	57	30	40	M 36 x 3	46	50 Nm	1



These load buttons prove extremely useful if a mechanical coupling (for instance, by means of a threaded rod) is not necessary or possible for a measurement of compressive forces. The spherical surface minimises measurement errors in the case of decentral force introduction.

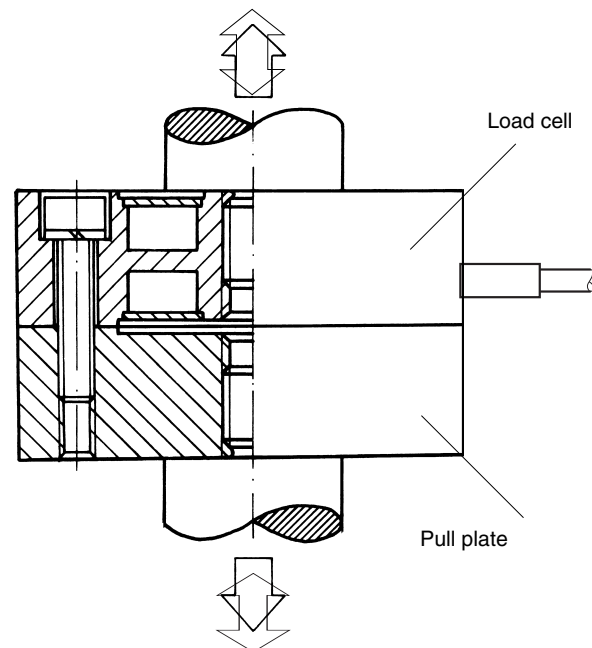
The compression force needs to be introduced into the load button by means of a component with a plane surface, hardness ≥ 60 HRC.

Pull plate

A pull plate extends the range of application of flat-design tension-pressure load cells to include the measurement of tensile forces in freely movable arrangements (rope tension, joint tension ...).

A pull plate has roughly the same dimensions as the sensor body and is mounted on the load cell (see diagram). The central tapped holes allow an installation of customer-specific or standard threaded components (for example, joint heads).

Order Code	for Nominal Load [kN]	Centric Thread	Mass [kg]
8590-V002	bis 10	M 8 x 1.25	0.28
8590-V003	20	M 12 x 1.5	0.70
8590-V004	50	M 24 x 1.5	2.2
8590-V005	100, 200	M 36 x 3	5.5



Screws of strength class 12.9 are required for attaching the pull plates to the load cells.

Order Information

Tension and compression load cell range 0 ... 20 kN **Model 8524-6020**

Accessories

Mating connector, 12-pole for burster desktop devices **Model 9941**
9-pole for 9310 **Model 9900-V209**

Mounting of mating connector to conductor cable **Model 99004**

Change in the key rating of 1.5 mV/V (standard) to 1 mV/V in the sensor cable **Order Code V010**

Supply units, amplifiers and process-monitoring devices, such as model 9243 modular amplifier, model 9180 digital indicator or model 9714 process interface **refer to section 9 of catalog.**

Special Calibration Certificate (WKS)

Load cell with or without measuring device (amplifier or monitor)
Calibration at 20% steps of the measuring range. up and down

Variants: Tension and/or compression direction.

Examples: 1. Calibration in 20% steps, compression up and down (11 measurement points).

2. Calibration in 20% steps, tension and compression up and down (22 measurement points).