

## Precision Tension and Compression Load Cell

Designed for dynamic applications and a long service life!

**MODEL 8525** **NEW**

Preliminary data sheet



Large measuring ranges

### Highlights

- Measuring ranges from 0 to 10 kN up to 0 to 200 kN
- Non-linearity of 0.1 % F.S.
- Highly resistant to against lateral thanks due to supporting diaphragms
- Degree of protection IP65
- 6-wire version

### Options

- Improved linearity deviation of 0.05 % F.S.
- Extended temperature range of -30 to +120 °C
- Standardized characteristic value 2.0 mV/V
- Rated output in tension direction
- burster TEDS
- Pull plate and rod end bearings

### Applications

- Reference measurements
- Material testing
- Tensile forces (tension in cables, chains etc. with pull plate)
- Weights

### Product description

The high-precision low-profile force transducer of model 8525 is versatile and suitable for demanding static and dynamic tension and compression applications thanks to its flat design. The inner structure and the two additionally mounted support diaphragms above and below the actual measuring element desensitize the sensors to extraneous lateral forces and torques.



Medium measuring ranges



View of connector  
Small measuring ranges



With load button 8591-ZxxM



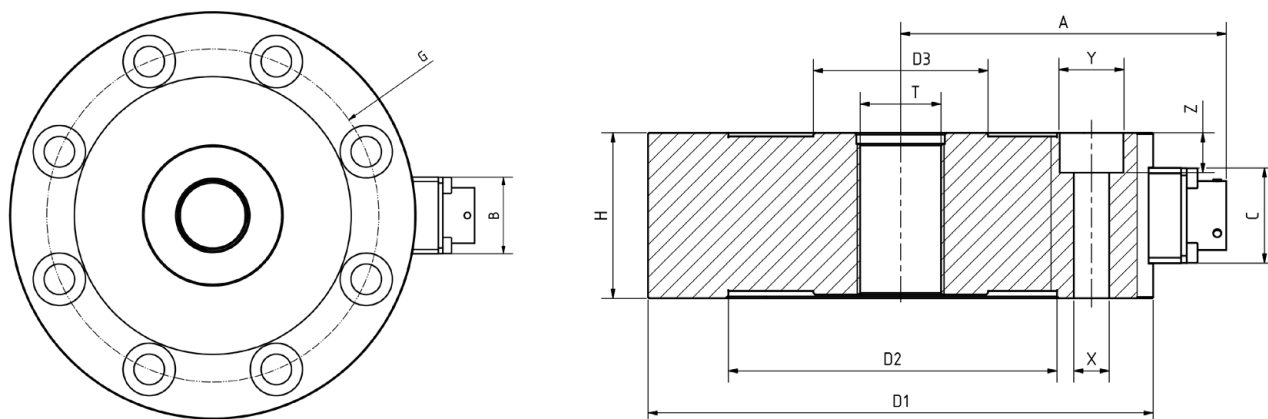
## Technical data

8525	–	6010	6020	6050	6100	6200
Measuring range calibrated in N and kN from 0 to		±10 kN	±20 kN	±50 kN	±100 kN	±200 kN
		±2.2 klbs	±4.5 klbs	±11.2 klbs	±22.5 klbs	±45.0 klbs
Accuracy						
Relative non-linearity*		< ±0.1 % F.S.				
Relative combined error*		< ±0.1 % F.S.			< ±0.15 % F.S.	
Relative hysteresis		< ±0.1 % F.S.			< ±0.2 % F.S.	
Temperature effect on zero signal		≤ 0.02 % F.S./K				
Temperature effect on characteristic value		≤ ±0.02 % F.S./K				
Electrical values						
Nominal characteristic value		2.2 mV/V				
Standard measurement direction		Compression and tension direction. Calibration in the reference direction of compressive force. If used in the tension direction, a slight change in the characteristic value is to be expected.				
Standardization**		Optional 2.0 mV/V(±0.25 %)				
Bridge resistance		Approx. 350 Ω nominal				
Excitation voltage		Recommended 5 V DC or AC/max. 10 V DC or AC				
Insulation resistance		> 30 GΩ at 45 V				
Ambient conditions						
Rated temperature range**		+15 °C to +70 °C (optional –30 °C to +120 °C)				
Operating temperature range		–30 °C to +80 °C				
Mechanical values						
Full-scale deflection	[µm]	30	40	60		70
Max. operational force		150% of rated load				
Breaking force		> 250% of rated load				
Dynamic stress		Recommended: 70% of the rated load, maximum: 100% of rated load				
Degree of protection (EN 60529)			IP65			
Miscellaneous						
Material		Stainless steel 1.4542				
Resonant frequency	[kHz]	4.3	5.1	1.9	2.3	3.0
Weight	[kg]	0.9		3.5	4.2	4.4

\*Specifications in the range of 20 % to 100 % of rated (nominal) load  $F_{nom}$

\*\*Temperature range for the optional TEDS or standardization board 0 to 60 °C

Dimensional drawing



8525	–	6010	6020	6050	6100	6200
Measuring range from 0 to		±10 kN	±20 kN	±50 kN	±100 kN	±200 kN
Geometry						
Dia. D1	[mm]	88.9		139.7	152.4	
Dia. D2	[mm]	51.5		95.2	105.9	
Dia. D3	[mm]	18		48.3	58.9	
Dia. G	[mm]	66.7		114.3	123.8	
A	[mm]	64		90.1	96.6	
B/C	[mm]			26.3		
H	[mm]	27		45.7	45.7	
Central internal thread T	[mm]	M12 x 1.5		M24 x 1.5	M36 x 3.0	
Dia. X	[mm]	9		10.5	13	
Dia. Y	[mm]	14		18	-	
Dia. Z	[mm]	9		11	-	
Number of through-holes to dia. G		6		8	8	
Installation						
Intended mounting screws		6 x M8		8 x M10	8 x M36	
Tightening torques of mounting screws (when used in tension direction)	[N*m]	20		50	120	
Mounting screws		Strength 10.9 or higher			Strength 12.9 or higher	
Mounting instructions		The entire mounting surface of the sensor must rest on a fully hardened (60 HRC), flat, ground (better yet, lapped) surface.				

## Electrical connection

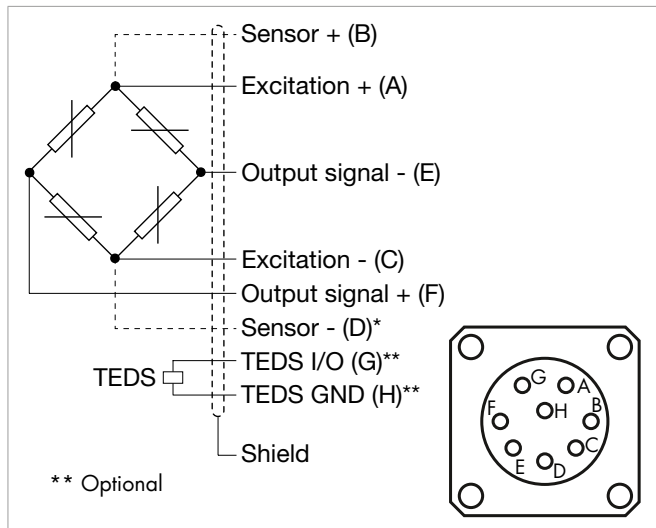
### Output signal

burster load cells are based on a strain-gage Wheatstone bridge. With this measuring principle, the output voltage (mV/V) is highly dependent on the sensor supply voltage. Suitable instrumentation amplifiers, indicator and display devices and process instruments can be found on our website.



### burster TEDS

The "**burster** Transducer Electronic Data Sheet" (TEDS) is memory in which sensor identification data, calibration data and other sensor parameters are stored. In conjunction with your own suitable burster device, it is possible to carry out a simple adjustment to achieve maximum accuracy of the measuring chain. This makes it easy to replace the sensor in just a few steps without losing precision.

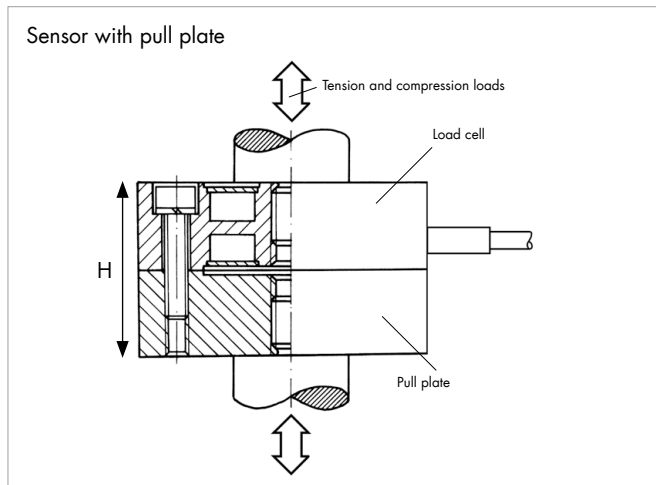


8525	-	6010	6020	6050	6100	6200
Measuring range from 0 to		±10 kN	±20 kN	±50 kN	±100 kN	±200 kN
Electrical connection						
Description		Bayonet plug, 8-pin 9900-V643; mating connector included with device				

## Options

### Pull plates (8590-V...)

A pull plate extends the possible uses of tension-compression load cells to include tensile force measurement in a movable arrangement (cable system or joint forces). The pull plate is attached to the flange of the sensor with its outer flange. Customer-specific threaded parts or rod end bearings can be mounted in the central internal thread. Pull plates are part of the sensor after installation. The sensor and plate are calibrated as a unit and are only supplied assembled together. Screws with a strength of 12.9 are required to mount the pull plates.



Item number		See order code				
Compatible for measuring range from 0 to		±10 kN	±20 kN	±50 kN	±100 kN	±200 kN
Geometry						
Central internal thread T		M12 x 1.5		M24 x 1.5		M36 x 3.0
Total height H	[mm]	52.4			91.4	
Installation						
Mounting screw tightening torques	[N*m]	20		50		120
Miscellaneous						
Weight	[kg]	0.9		5		6

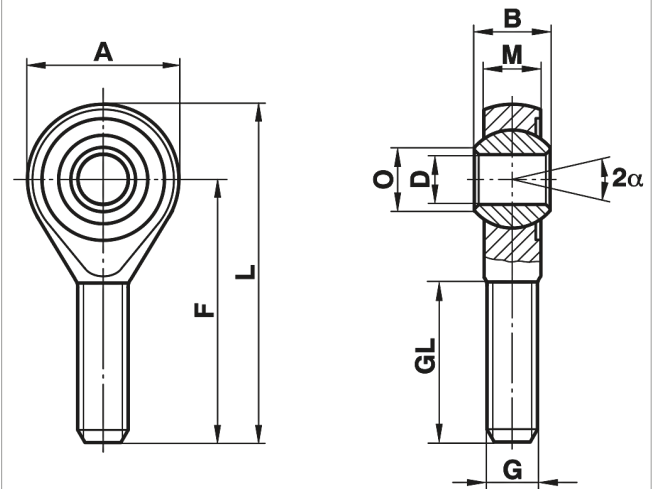
## Accessories

### Rod end bearings

The load cell of model 8525 can optionally be equipped with a rod end bearing. Up to two rod end bearings can be used in combination with a pull plate (see option). Rod end bearings ensure optimum force transmission when the sensor is used in the tension direction. Slight misalignments can also be compensated for in the compression direction.

- Optimum load application
- Corrects alignment errors
- Suitable for very high dynamic and static loads
- Made of stainless steel
- Temperature range:  $-45\text{ °C}$  to  $+120\text{ °C}$
- PTFE insert, maintenance-free
- DIN 648 dimension series K
- Ball holes H7, recommended connection spigot: g6
- Inner ring not suitable for continuous rotation

Rod end bearings with external thread



### Order code

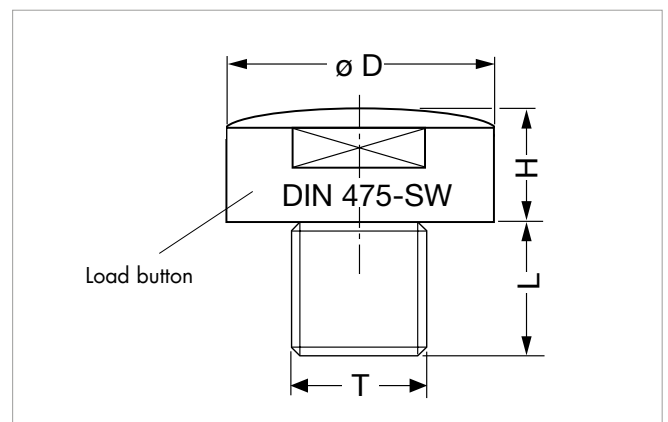
8591	-	Z12M	Z24M	Z36M
B	[mm]	16	31	43
M	[mm]	12	22	28
A	[mm]	32	60	80
F	[mm]	54	94	125
L	[mm]	70	124	165
O	[mm]	15.4	29.6	37.7
D	[mm]	12	25	35
G		M12 x 1.5	M24 x 1.5	M36 x 3.0
GL	[mm]	33	57	73
α	[°]	13	15	19

### Miscellaneous

Stat. load rating	[kN]	42.0	118.0	230.0
Dyn. load rating	[kN]	32.0	122.0	205.0
Weight	[g]	87	600	1600

### Load buttons

Load buttons are used when pure compression loads are to be introduced into a load cell and a direct coupling to the mechanical environment via the central sensor thread is not necessary/possible. The crowned surface of the load button minimizes angular errors in load application of up to  $3^\circ$ . The compression load must be applied to the button via a flat and hardened contact surface. The optimum hardness is 60 HRC or more.



**Order code**

8580	—	V012		V024	V036	
Compatible for measuring ranges from 0 to		±10 kN	±20 kN	±50 kN	±100 kN	±200 kN
Geometry						
Dia. D	[mm]	20.0		40.0	57.0	
H	[mm]	15.1		20.0	30.0	
L	[mm]	12.0		17.0	40.0	
T		M12 x 1.5		M24 x 1.5	M36 x 3	
TH	[mm]	16		32	46.0	
R		25		100	200.0	
Installation						
Tightening torques	[N*m]	Max. 10		Max. 20	Max. 50	
Miscellaneous						
Weight	[kg]	0.05		0.25	1	

**Connectors and devices****Order code**

<b>Connection cable</b>	
99643-000A-0570030	Connection cable, length 3 m, open at one end
<b>Connector</b>	
9941	12-pin connector, suitable for all desktop units
9900-V148	4-pin connector plug, suitable for I/O-Link 9210 (only possible with 4-wire technology)
9900-V209	9-pin connector plug, suitable for SENSORMASTER, DIGIFORCE® and TRANS CAL
9900-V229	9-pin connector plug with TEDS
9900-V245	8-pin connector plug, suitable for ForceMaster
<b>Devices</b>	
7281-V0001	Mobile measuring device with strain gage simulator and sensor test ( $R_{IT}$ , $R_{aT}$ , Shunt and $R_{ISO}$ )
See Section 9	Evaluation instrumentation, amplifiers and process monitoring devices such as digital indicators of model 9180, model 9163, amplifier module of model 9250 or DIGIFORCE® of model 9307

**Calibration****Test and calibration certificate**

Included with the sensor	With details of the zero point, full-scale output and shunt calibration.
<b>Standard factory calibration certificate for load cells or measuring chains (WKS)</b>	
Optionally available	Our standard factory calibration is carried out in 20-percent increments from zero until the rated load is reached for increasing and decreasing loads with an unchanged installation position. The factory calibration can be carried out in the compression and/or tension direction.
<b>Special factory calibration certificate for load cells or measuring chains (WKS)</b>	
On request	We are happy to calibrate sensors and measuring chains to the customer's specifications.
<b>Calibration certificate with accreditation symbol for product group load cell 8525</b>	
Optionally available	Calibration certificate with accreditation symbol for load cell 8525. Calibration is based on the accreditation of calibration laboratory D-K-15141-01-00 for the scope of parameters listed in the annex of the accreditation certificate. Traceability to national standards and wide international recognition is therefore assured (DAkkS is a signatory to the EA, ILAC and IAF Multilateral Recognition Arrangements). Calibration is carried out in accordance with ISO 376 in 10 force levels (10-percent increments) from zero until the rated force is reached for increasing and decreasing loads in various installation positions.

## Order code

Measurement range	Code	Measurement range
0 to ±10 kN	6 0 1 0	0 to ±2.2 klbs
0 to ±20 kN	6 0 2 0	0 to ±4.5 klbs
0 to ±50 kN	6 0 5 0	0 to ±11.2 klbs
0 to ±100 kN	6 1 0 0	0 to ±22.5 klbs
0 to ±200 kN	6 2 0 0	0 to ±45.0 klbs

					Available from stock on short notice							
					N	X	R	O	S	O	O	O
8	5	2	5	-		X		0	S		0	
■ Nominal characteristic value/not standardized					N							
■ Standardization to 2.0 mV/V					F							
■ burster TEDS in sensor connector*							S					
■ Without TEDS							R					
*Temperature range limited to 0 to +60 °C												
■ No option										0		
■ Pull plate										5		
■ Rated temperature range of +15 °C to +70 °C											0	
■ Extended rated temperature range of -30 °C to +120 °C											J	

## Note

### ■ Brochure

Our brochure **“Load cells for production, automation, R&D and quality assurance”** is available for download at our website or can be requested. It contains numerous applications, detailed product descriptions and overviews.

### ■ Product videos

You can find our **installation videos** at: [www.youtube.com/bursterVideo](http://www.youtube.com/bursterVideo) 

### ■ CAD data

Download via [www.burster.de](http://www.burster.de) or directly from [www.traceparts.de](http://www.traceparts.de)

