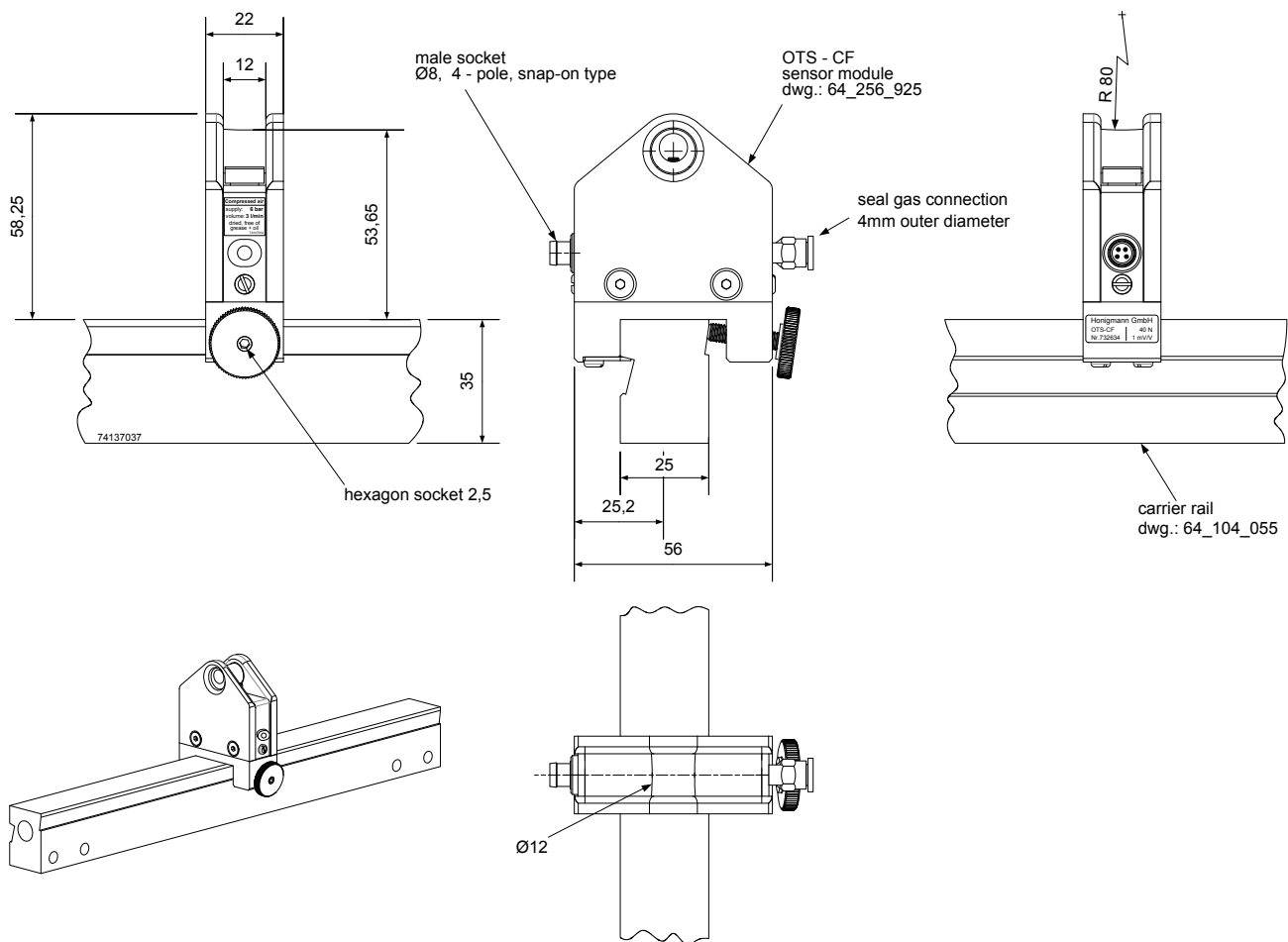


### Scale drawings

#### Standard version

- seal gas supply directly on the sensor
- sensor position on carrier rail steplessly variable



All dimensions in mm

Dimensions of the carrier rail are exemplary and custom-specific.

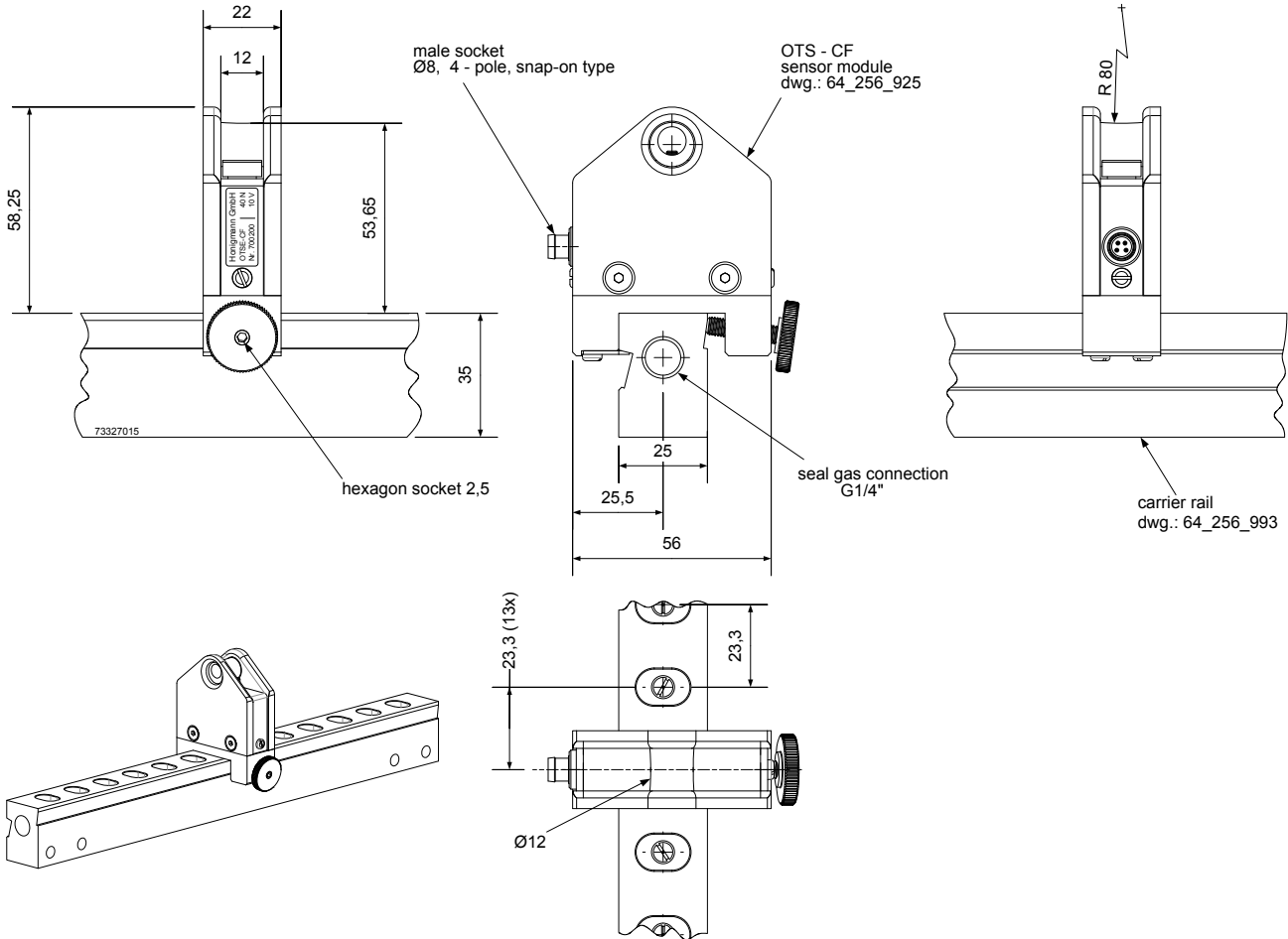
# OTS-CF

## On-line Tension Sensor for Carbon Fibers



### Special version

- central seal gas supply on the carrier rail
- sensor position on carrier rail in fixed intervals



All dimensions in mm  
 Dimensions of the carrier rail are exemplary and custom-specific.

**Rated measuring ranges**

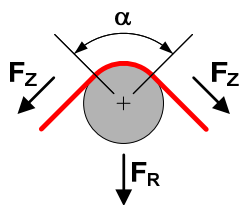
Nominal force [N]									
40									

The measuring range of the sensor begins at the force's zero point.  
Nominal forces differing from the list are available.

**Calculating the nominal force**

The resulting force depends on the wrap angle at the measuring position.

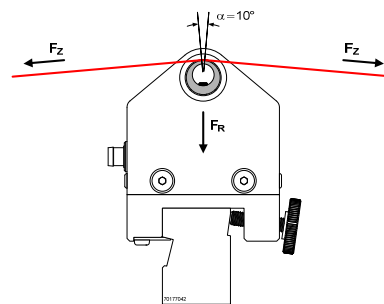
$$F_R = 2 \cdot F_Z \cdot \sin \frac{\alpha}{2}$$



α: wrap angle  
F<sub>Z</sub>: tension  
F<sub>R</sub>: resulting force

**Example**

wrap angle α	resulting force F <sub>R</sub>
5°	0,09 • F <sub>Z</sub>
10°	0,17 • F <sub>Z</sub>
20°	0,35 • F <sub>Z</sub>
30°	0,52 • F <sub>Z</sub>



α = 10°, F<sub>Z</sub> = 40N  
The resulting force F<sub>R</sub> is 6,8N.

**Order code**

	OTS	- CF	- 40	- S
Type				
Design				
Nominal force [N]				
Connection	S: with male socket			

**Options**

- Seal gas supply directly on the sensor
- Central seal gas supply on the carrier rail

**Scope of supply**

- Sensor according to scale drawing
- Flow control valve DV3L6 (at option seal gas supply directly on the sensor)
- Pneumatic tube, 2m long

**Accessories**

- Connection cable with mating connector
- Carrier rail

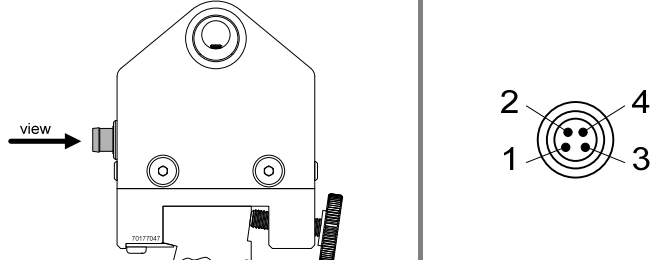
**Technical data**

Nominal force ( $F_N$ )	<b>N</b>	40
Rated output	<b>mV/V</b>	1
Rated output tolerance	<b>%</b>	< $\pm 0,2$
Accuracy class		0,5
Excitation voltage max.	<b>V</b>	12
Reference excitation voltage	<b>V</b>	10
Input resistance	<b><math>\Omega</math></b>	$350 \pm 3$
Output resistance	<b><math>\Omega</math></b>	$350 \pm 1$
Isolation resistance	<b>G<math>\Omega</math></b>	> 10
max. wrap angle	<b>°</b>	60
Nominal temperature range	<b>°C</b>	5 to 50
Operational temperature range	<b>°C</b>	-10 to 50
Storage temperature range	<b>°C</b>	-30 to 70
Reference temperature	<b>°C</b>	23
Temperature influence per 10 K		
- on the zero point (TK0)	<b>% <math>F_N</math></b>	< $\pm 0,2$
- on the calibration (TKC)	<b>% <math>F_N</math></b>	< $\pm 0,15$
Creep after 30 minutes	<b>% <math>F_N</math></b>	< $\pm 0,05$
Linear output signal up to	<b>% <math>F_N</math></b>	approx. 125
Mech. overload protection takes effect at	<b>% <math>F_N</math></b>	approx. 140
Overload protected <sup>1</sup>	<b>% <math>F_N</math></b>	> 1000
Typ. deflection at nominal force	<b>mm</b>	0,07
Typ. natural frequency of the sensor	<b>kHz</b>	1,5
Weight	<b>g</b>	approx. 160
Connector	male socket, $\varnothing$ 8 mm, 4-pole, snap-on type gold-plated contacts	
Sensor housing	aluminium	
Protection class	IP54 in conjunction with seal gas	

<sup>1</sup> radial incoming force without additional bending or tilting moment

**Electrical connections**

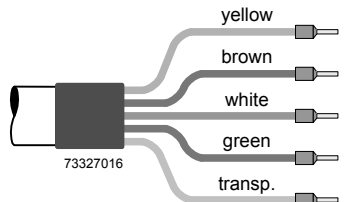
**Connector pin assignment**



1	+ U <sub>Br</sub>	Excitation
2	- U <sub>Br</sub>	
3	+ U <sub>Sig</sub>	Output
4	- U <sub>Sig</sub>	

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**Connecting cable colour assignment**



yellow	+ U <sub>Br</sub>	Excitation
brown	- U <sub>Br</sub>	
white	+ U <sub>Sig</sub>	Output
green	- U <sub>Sig</sub>	
transp.	Shield	(not connected to housing)

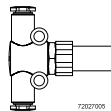
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**Mating connector:** female cable connector, angled or straight, Ø 8 mm, 4-pole, gold plated contacts, snap-on type

**Seal gas connection**

if directly supplied on the sensor

**Flow control valve**



DV3L6

factory-adjusted,  
3l/min at 6bar

**Seal gas supply**



The seal gas must be dried, free of grease + oil.



- Input pressure: **6bar**
- Rated volume flow: **3l/min**

Technical design subject to change without prior notice. © 2014 by Honigmann

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