

2 Available models

2.1 General information

- 1** These instruction manual refer to the DTS model of the DT series; they are also applicable to the following models:
DTSB, DTSE, DTSF und DTSL.

The individual models of the DT series are also available with the following modifications (customized versions):

- Special tension ranges
- Customized measuring head width for applications with limited access space
- Customized distance between the two outside guide rollers to minimize deflection of fragile material

2.1.1 Available DTS models

Model	Tension Ranges cN	*Measuring Head Width mm	**SCHMIDT Calibration Material	Material Thickness Compensator
DTS-200	1 - 200.0	66	0.12 mm Ø	
DTS-500	1 - 500.0	66	0.12 + 0.20 mm Ø	yes
DTS-1000	10 - 1000	66	0.20 + 0.40 mm Ø	yes
DTS-2000	20 - 2000	66	0.40 + 0.70 mm Ø	yes
DTS-2500	25 - 2500	116	0.40 + 0.70 mm Ø	yes
DTS-4000	40 - 4000	66	0.50 + 0.80 mm Ø	yes
DTS-5000	50 - 5000	116	0.60 + 1.00 mm Ø	yes
DTS-10K	0.1 - 10.00 daN	116	0.80 + 1.40 mm Ø	yes
DTS-20K	0.2 - 20.00 daN	166	1.20 + 1.80 mm Ø	yes
DTS-30K	0.3 - 30.00 daN	216	1.40 + 2.00 mm Ø	yes
DTS-50K	0.5 - 50.00 daN	216	steel rope 1.5 mm Ø (7 x 7 x 0.15)	
DTS-60K-ASYB	0.6 - 60.00 daN	270	steel rope 2.0 mm Ø (7 x 7 x 0.30)	

* Depending on model, either width of filament guide or outer distance between outside guide rollers.

** Suitable for 95 % of all applications. PA = Polyamide Monofilament.

If the material to be measured differs significant from the SCHMIDT calibration material in diameter, rigidity, shape, etc., we recommend calibration using customer supplied material.

Instruments with calibration on customer sample are not adjusted and calibrated on material 1.

International unit of tension force: 1 cN = 1.02 g = 0.01 N

1 daN = 1.02 kg = 10.0 N

2.1.1 Available DTS models

Model	Tension Range cN	Textile Industry Applications	Wire Industry Applications (Copper Wire)
DTS-200	1 - 200.0	max. 200 tex	max. 0.15 mm Ø
DTS-500	1 - 500.0	max. 500 tex	0.05 - 0.25 mm Ø
DTS-1000	10 - 1000	max. 1000 tex	0.10 - 0.40 mm Ø
DTS-2000	20 - 2000	max. 2000 tex	0.30 - 0.60 mm Ø
DTS-2500	25 - 2500	max. 2500 tex	0.30 - 0.70 mm Ø
DTS-4000	40 - 4000	max. 4000 tex	0.35 - 0.90 mm Ø
DTS-5000	50 - 5000	max. 5000 tex	0.40 - 1.00 mm Ø
DTS-10K	0.1 - 10.00 daN	max. 10000 tex	0.70 - 1.40 mm Ø
DTS-20K	0.2 - 20.00 daN	max. 20000 tex	1.00 - 2.00 mm Ø
DTS-30K	0.3 - 30.00 daN	max. 30000 tex	1.20 - 2.50 mm Ø
DTS-50K	0.5 - 50.00 daN	max. 50000 tex	1.40 - 3.00 mm Ø
DTS-60K-ASYB	0.6 - 60.00 daN	max. 60000 tex	1.80 - 3.50 mm Ø



DTS guide rollers:

V-grooved	Line Speed max. m/min	Roller Material
Standard	2000	Hard-coated aluminium
Code K	3500	Hard-coated aluminium
Code H	5000	Plasma-coated aluminium
Code T	1000	Plastic (POM) black
Code W	1000	Nickel-plated steel
Code ST	1000	Hardened steel
Code B	1000	Tempered steel for measuring tire cord
Code CE2	1000	ceramic-coated aluminium
Asymmetrical groove Code ASY	1000	Hard-coated aluminium (not for DTS-200)
Code ASYB	1000	Tempered steel for measuring tire cord (not for DTS-200)
U-grooved Code U	2000	Hard-coated aluminium (not for DTS-200)

2.2 Specifications

Calibration:	According SCHMIDT factory procedure
Accuracy:	For PA from 5 % up to 100 % full scale: ± 0.5 % full scale ± 1 digit remaining tension range and other calibration materials: ± 3 % full scale ± 1 digit
Accuracy DTSL:	From 5 % up to 100 % full scale: ± 3 % full scale ± 1 digit remaining tension range, device with tension range 50 and 60 daN and customer supplied material: ± 5 % full scale ± 1 digit
Memory for material curves:	1 factory adjustment and 4 for customized calibrations
Measuring units:	Force (switchable): cN, daN, g, kg, N, lb Thickness (switchable): mm, inch
Overrange:	Approx. 10 % full scale, without accuracy guarantee
Overload protection:	100 % full scale
Measuring principle:	Strain gauge bridge
Measuring roller deflection:	Max. 0.2 mm
Signal processing:	digital
Measuring frequency:	Max. 1 kHz (1000 measurements/sec), internal 8 kHz
Display:	Graphic LCD display 3 different displays: numeric, numeric with bargraph, X-Y-diagramm (time-tension)
Display update time:	2/sec (Display update)
Memory:	Min, Max, Peak, Avg and Last
Damping:	Adjustable electronic damping (averaging)
Cal. Adjustment:	± 10 steps in 1 % increments
Thickness compensation:	Max. 2.5 mm (not available for all models)
Auto power off:	Approx. 3 minutes of non-use
Signal processing:	16 bit A/D
Temperature coefficient:	Gain: less than ± 0.01 % full scale/ $^{\circ}\text{C}$ at 25°C Zero point: better than ± 0.03 % full scale/ $^{\circ}\text{C}$ at 25°C
Temperature range:	$10 - 45^{\circ}\text{C}$
Air humidity:	85 % RH, max.
Power supply:	LiPo Accumulator (approx. 40 h continuous use, charging time approx. 3 1/2 h), USB AC adapter 100 - 240 V AC, adapters (EU/USA/UK/AUS-NZ)
Housing material:	Die-cast aluminium
Housing dimensions:	265 x 78.5 x 46 mm (L x W x H)
Weight net (gross):	Up to DTS-50K approx. 875 g (1550 g) DTS-60K-ASYB approx. 1040 g (2700 g)

2.3 Connecting the tension meter



The requirements of the CE specification are only complied with if the tension meter is equipped and operated with equipment supplied by Hans Schmidt & Co GmbH. Certification to the CE specification does not extend to, and shall be invalid for any other combination. For damage resulting thereby we assume no liability.