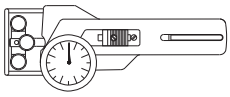


SCHMIDT
control instruments

DX SERIES

12 Tension ranges from 10 - 50 cN to 5 - 20 daN

Universal tension meters for most industrial applications

fig. 1: ***Adjustable damping (Code A) to provide steady tension readings*** *(see page E)*

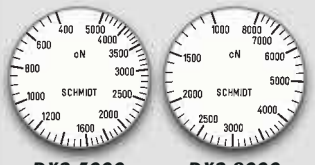
fig. 2: ***Special finger support located on the rear side of the housing***

fig. 3: ***Material thickness compensator with material sample inserted***

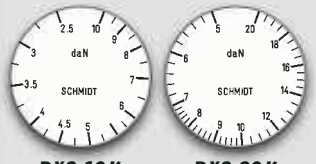
DX2-50 ***DX2-120***

DX2-200 ***DX2-400***

DX2-1000 ***DX2-2000***



DX2-5000 ***DX2-8000***



DX2-10 K ***DX2-20 K***

DX2-2000 EDM ***DX2-3000 EDM***

SCHMIDT scales are manufactured according to the most stringent quality requirements. Printed scales are not used. Instead, each scale is individually marked for the instrument involved. This ensures highest quality. Our special procedure makes it possible to provide tension meters fine tuned to a specific tension range, or calibrated to custom supplied material, or units of measure such as g or kg.

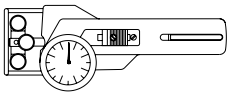
Special features:

- ✚ *Built-in material thickness compensator improves accuracy for changing diameters on DX2-1000 and higher ranges*
- ✚ *Special finger support reduces the effort to move the outer roller assembly*
- ✚ *Filament guide and roller shifting mechanism ensure easy acquisition of the running material*
- ✚ *Custom-built configurations and special calibration are available*
- ✚ *Built-in mounting holes permit fixed installation for continuous tension measurement*

Standard features:

- ▮ *Everything in operator's view:*
  – the guide rollers
  – the measured material
  – the readings
- ▮ *Ball-bearing mounted, V-grooved guide rollers*
- ▮ *Each instrument is individually calibrated for highest accuracy*
- ▮ *41 mm Ø scale*
- ▮ *Rugged aluminium housing*
- ▮ *Inspection Certificate with calibration report optionally available*

SCHMIDT
control instruments



Model DX2

Please ask for additional informations!

Model DX2-2000-EDM
Wire EDM version
(Code EDM)

1st IN TENSION METERS WORLDWIDE

Model DX2-10K-L
with special lever (Code L) for easy use on higher tension ranges

Available Models

MODEL	Tension Ranges cN	Measuring Head Width* mm	SCHMIDT Calibration Material**	Material thickness compensator included
DX2-50	10-50	66	PA: 0.12 mm Ø	
DX2-120	20-120	66	PA: 0.12 mm Ø	
DX2-200	20-200	66	PA: 0.12 mm Ø	
DX2-400	20-400	66	PA: 0.20 mm Ø	
DX2-1000	50-1000	66	PA: 0.30 mm Ø	✔
DX2-2000	200-2000	116	PA: 0.50 mm Ø	✔
DX2-5000	400-5000	116	PA: 0.80 mm Ø	✔
DX2-8000	1000-8000	116	PA: 1.00 mm Ø	✔
DX2-10K	2.5-10 daN	116	PA: 1.00 mm Ø	✔
DX2-20K-L	5-20 daN	216	PA: 1.50 mm Ø	✔

Other tension ranges and measuring head widths available on request.
Other units of measure available – g or kg.
* Depending on model, either width of filament guide or outer distance between outside guide rollers
** Suitable for 95% of applications (see also chart on page 9)
PA = Polyamide Monofilament

Guide Rollers

→ see page E →

	Line Speed $v_{max.}$ ... m/min	Roller Material
V-grooved		
Standard	2000	Hardcoated aluminium (No. R 10003)
Code K	3500	Hardcoated aluminium
Code H	5000	Plasma-coated aluminium (for Model DX2-120 and higher ranges)
Code T	1000	Plastic (POM) black
Code W	1000	Nickel-plated steel
Code ST	1000	Hardened steel
Code B	1000	Tempered steel for tire cord
Code CE 1	1000	Ceramic
Code ASY asymmetrical groove	1000	Hardcoated aluminium – Gauge without filament guide – (for Model DX2-120 and higher ranges)
U-grooved		
Code U	2000	Hardcoated aluminium

Optional Accessories

→ see page E →

Code A	**Air damping** (Model DX2-120 to DX2-5000 only)
Code L	**Special lever** (standard for Model DX2-20K – recommended for Model DX2-10K –)
Code M	**Memory pointer** (DX2-120 and higher ranges)
Code EDM	**Version for electro discharging machines** **Model DX2-2000-EDM:** 50-2000 cN **Model DX2-3000-EDM:** 100-3000 cN

Specifications

	DX Series
Calibration:	According to SCHMIDT factory procedure
Accuracy:	±1% full scale or ±1 graduation on scale
Scale diameter:	41 mm
Temperature range:	10-45 °C
Air humidity:	85% RH, max.
Housing material:	Die-cast aluminium
Housing dimensions:	188 x 85 x 45 mm (L x W x H)
Weight, net (gross):	up to DX2-10K approx. 470 g (1000 g) DX2-20K-L approx. 580 g (2000 g)

Special calibration using customer supplied samples is available: Please supply a sample of at least 5 m in length.

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www.hcl-asia.com.hk

Model with tension range	+	Code for guide rollers (if not standard)	+	Code for accessory	=	Complete Order No.
DX2-400	+	H	+	A-M	=	DX2-400-H-A-M

SCHMIDT
control instruments

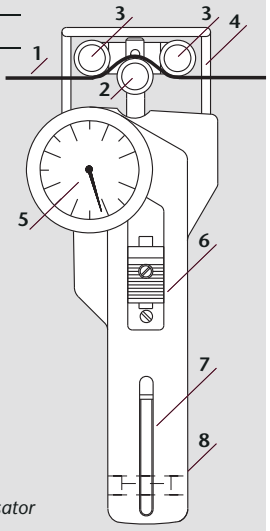
General Information on SCHMIDT Tension Meters

1st IN TENSION METERS WORLDWIDE

Operating elements DX2:

✚ *All SCHMIDT tension meters feature the 3-roller measuring system. The center measuring roller is deflected by the tension of the measured material. This measuring principle assures highest accuracy and repeatability.*

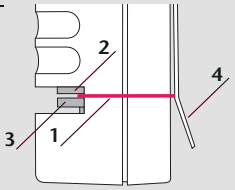
✚ *All rollers are equipped with precision ball bearings.*



1 Measured material
2 Measuring roller (center guide roller)
3 Outer guide rollers
4 Filament guide
5 Scale
6 Thumbpiece
7 Sample holder clip
8 Material thickness compensator

Material thickness compensator:

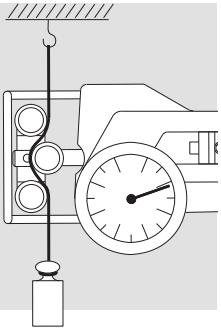
✚ *SCHMIDT hand-held tension meters are equipped, if necessary, with a material thickness compensator. This exclusive feature is only found on SCHMIDT tension meters and minimizes any error caused by changing material diameters.*



1 Material sample *2+3* two Discs *4* Sample holder clip

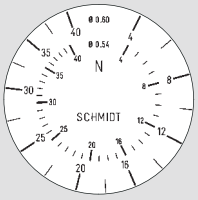
SCHMIDT calibration:

✚ *To ensure highest precision, each tension meter is individually calibrated according to the SCHMIDT factory procedure. For calibration a known weight is suspended from the standard calibration material, vertically, as shown in the figure.*
This method is accepted – worldwide – as the industry standard.

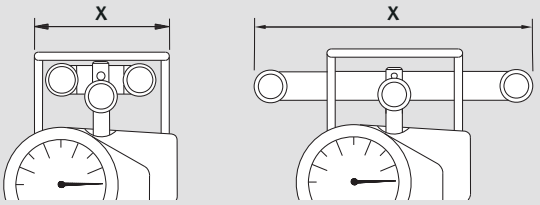


Special scale for customer materials:

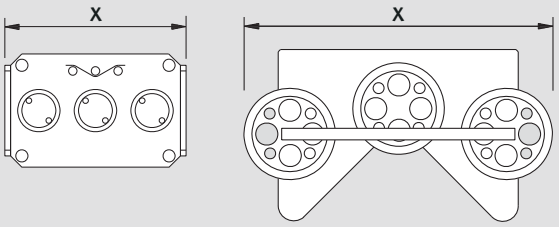
✚ *Special calibration to customer-supplied material is optionally available. This takes into account the customer material's rigidity and diameter, if it differs significant from the SCHMIDT calibration material. Special calibration to two different materials is optionally available.*



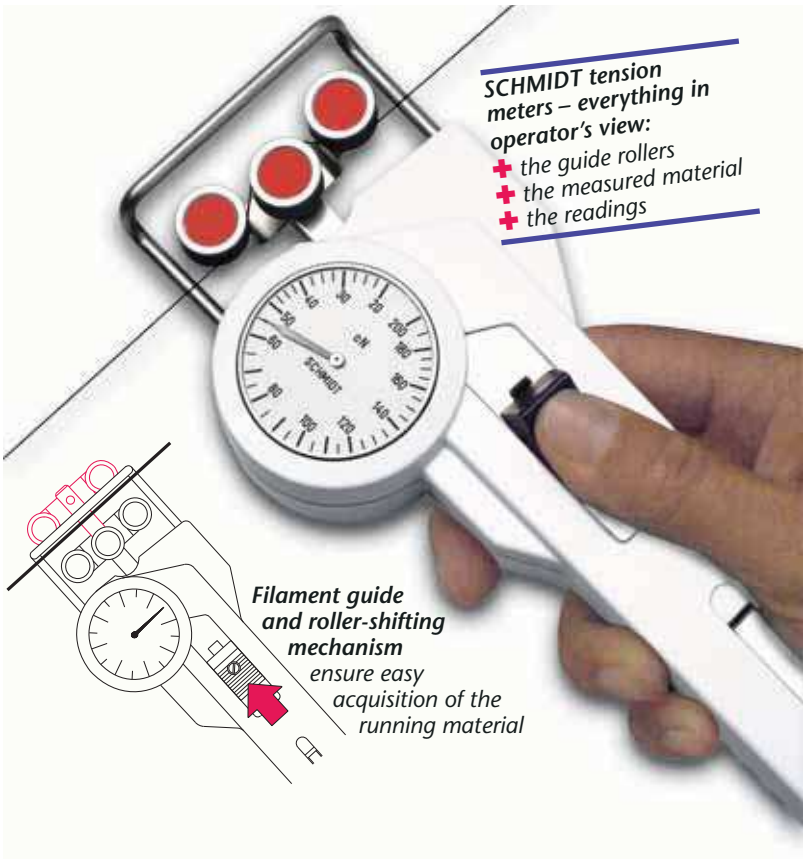
Measuring head width on hand-held instruments:



Measuring head width on online sensors:



✚ *The width of the measuring head varies with the model design and the tension range. Dimension »X« defines the minimum access space required along the material path. It is determined by the width of the filament guide, the distance between the two outer guide rollers, or the outside dimensions of the front plate, whichever is the largest.*



SCHMIDT tension meters – everything in operator's view:
✚ the guide rollers
✚ the measured material
✚ the readings

Filament guide and roller-shifting mechanism ensure easy acquisition of the running material

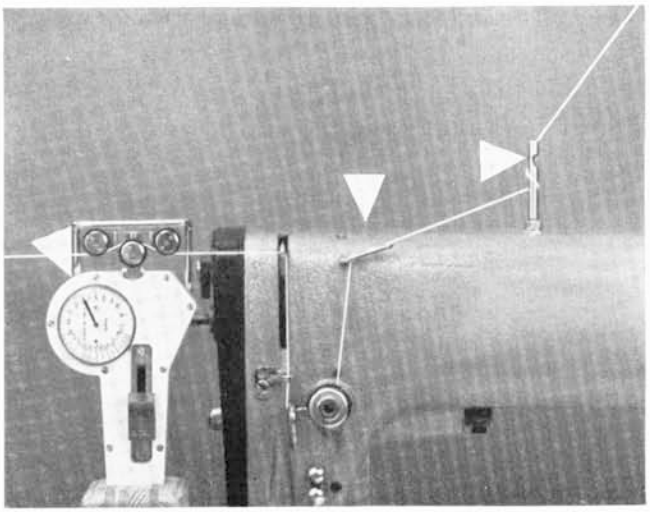


Abb. 296

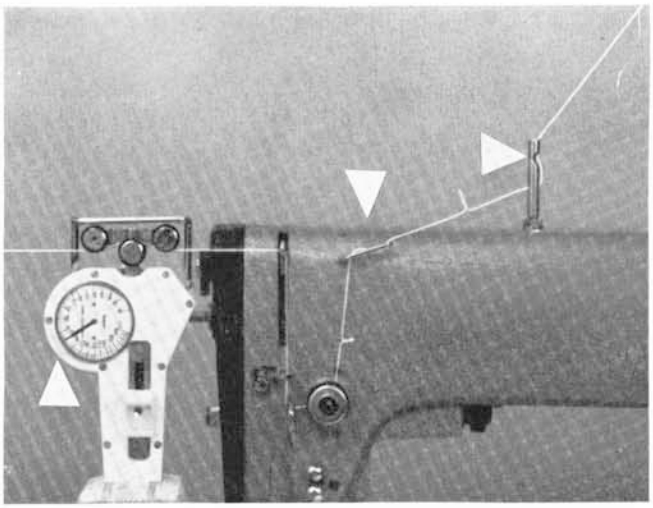


Abb. 297

Abb. 296 Richtige Oberfadenspannung

Der Nadelfaden soll durch sämtliche Fadenleitwege geführt werden, um eine Vorspannung zu erzielen. Dadurch ist es möglich, die Hauptspannung auf einen nähgünstig geringeren Wert einzustellen.

Geringe Spannung bedeutet glatten Nahtausfall und störungsfreies Nähen.

Bild 296 zeigt den Umspinnungszwirn RASANT 120, der beispielsweise lediglich eine Fadenspannung von 175 g benötigt.

Abb. 297 Die Oberfadenspannung ist zu hoch.

Die Nadelfadenspannung von ca. 350 g liegt für den Nähprozeß zu hoch. Der Nadelfaden hat eine zu geringe Vorspannung. Er wird vor allem durch die Spannungsscheiben zu sehr abgeklemmt. Die Drehungen des Nadelfadens werden verschoben; es entstehen Drallstauungen und Zwirbelbildungen.

Der Fadenspannungsmesser Type DXX hat einen Meßbereich von 20–1000 g. Zum leichteren Erfassen von Zugspannungsspitzen wird ein zusätzlicher Schleppzeiger empfohlen.

Die beiden Fotos wurden freundlicherweise von der Firma Ackermann-Göggingen AG zur Verfügung gestellt.

Fig. 296 – Correct nedle thread tension

The needle thread must pass through all thread guiding parts to achieve pre-tensioning. The main tension can then be reduced to a level appropriate to sewing. Low tension is equivalent to a perfect seam and troublefree stitching.

Fig. 296 shows the corespun RASANT 120 which, for instance, requires no more than 175 g tension.

Fig. 297 – Needle thread tension is too high

A needle thread tension of approximately 350 g is too high for sewing. The pre-tensioning of the needle thread is too low. The thread is braked too fiercely by the tension discs. The twist of the needle thread is displaced, giving rise to twist accumulation and to curling.

The Thread-Tensionmeter Type DXX has a measuring range of 20–1000 g. For easily realizing the tension tops, an additional memory pointer is recommended.

Both photographs have been put at our disposal by Messrs. Ackermann-Göggingen AG.

Fig. 296 – Tension correcte du fil supérieure

Le fil d'aiguille doit passer par tous les guide-fils de la machine de façon à obtenir une tension suffisante. Il est ainsi possible de régler la tension générale du fil à la tension minima la plus intéressante.

Une faible tension du fil permet un travail de couture facile et régulier. La Fig. 296 représente le fil de guipage RASANT 120 qui ne nécessite qu'une tension de seulement 175 g.

Fig. 297 – La tension du fil est trop forte

La tension du fil de l'aiguille avec 350 g environ est trop forte pour ce procédé de couture. Le fil de l'aiguille a une prétension qui est trop faible. Il est trop serré en particulier dans les disques de tension. Les enroulements du fil sont décalés. Il en résulte des torsions et des noeuds.

Le Tensiomètre pour fils textiles Type DXX a une gamme de lecture de 20–1000 g. Pour repérer facilement des têtes de tension on recommande en supplément un aiguille index.

La Soc. Ackermann-Göggingen AG a eu la bienveillance de mettre les deux photographes à notre disposition.