

# PRÜFSTELLE TEXTIL



SÄCHSISCHES  
TEXTIL  
FORSCHUNGS  
INSTITUT e.V.

Durch die Deutsche Akkreditierungsstelle GmbH nach  
DIN EN ISO/IEC 17025 akkreditierte Prüfstelle.  
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enthaltene Prüfverfahren sind mit einem \* gekennzeichnet.



Von der Federation Internationale de L'Automobile (FIA) Paris zugelassene Stelle zur Prüfung von hitze-  
und flammresistenter Schutzkleidung für Auto-Rennfahrer gemäß Standard FIA 8856-2000

## UNTERSUCHUNGSBERICHT | TESTREPORT

**Order-No. STFI:** P20180991; T336\_18  
**Order-No. Client:** unknown

**Date of report:** 2018-05-09  
**Responsible person:** Meier, S.

**Client:** Smart Energy Building GmbH  
Mr. Frank Herzog  
Burgsdorffstr. 15  
01129 Dresden

**Test order:**  
**of:** 2018-04-17  
**Order receipt:** 2018-04-17  
**Test material received:** 2018-04-17

**Test item:****Marking:****Processing code:**

Woven fabric, M3.2, red/ white

Sample 01

Sampling was supplied by the issuer. The test department is not informed about the sampling procedure.

**Test methods:**

*Testing atmosphere: (20±2) °C/ (65±4) % humidity*

**(1) Determination of resistance to cutting by sharp objects to ISO 13997:1999-08\***

Test equipment: TDM-100; Serial number: 10EO-0305

Blade sharpness correction factor:  $C = 0,743$

Batch of blades: 3933 096 2016 (R-2056P, VVC)

Test speed:  $(2,5 \pm 0,5)$  mm/s

Test direction: 45 ° to machine direction of the material

**(2) Determination of puncture resistance to DIN EN 388:2017-01, para 6.5**

Test of the sample single-layered and double-layered (puncture from red to white side of the sample)

geprüft

**Test results:**

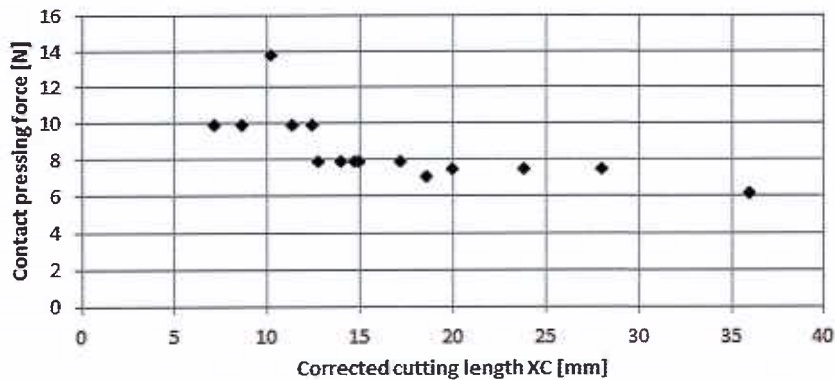
**(1) Determination of resistance to cutting by sharp objects to ISO 13997:1999**

**Pre-Measurement**

Sample 01, M3.2				
Cutting stroke length range	Weight on the pan [g]	Cutting length [mm]	Contact pressing force [N]	Corrected cutting length XC [mm]
5 mm – 15 mm	500	9,682	9,81	7,19
	500	11,680	9,81	8,68
	500	16,700	9,81	12,41
	500	15,330	9,81	11,39
	700	13,785	13,734	10,24
15 mm – 30 mm	400	20,147	7,848	14,97
	400	23,180	7,848	17,22
	400	17,212	7,848	12,79
	400	19,885	7,848	14,77
	400	18,850	7,848	14,01
30 mm – 50 mm	380	32,065	7,456	23,82
	380	37,767	7,456	28,06
	380	26,905	7,456	19,99
	360	25,002	7,063	18,58
	310	48,485	6,082	36,02

**Evaluation Pre-Measurement:**

**Regression Pre-Measurement**



Used function of correlation: Power function with coefficient of correlation  $r^2=0,614$

Calculated contact pressing force at a cutting length of 20 mm: 7,59 N

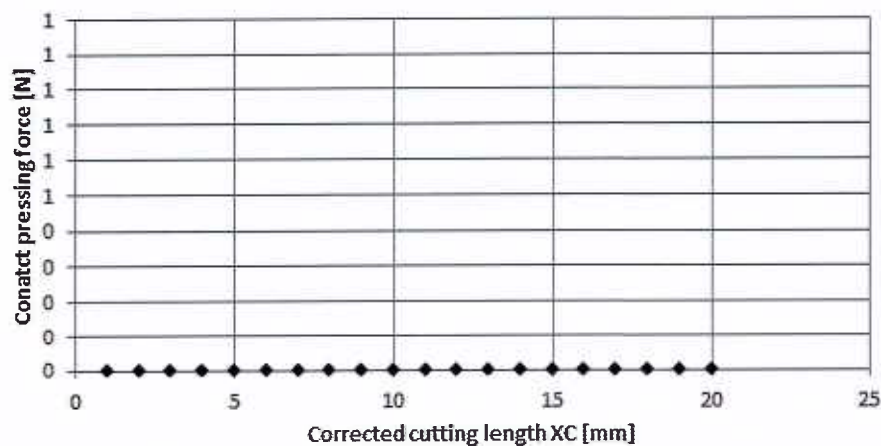
To used weight on the pan for a cutting length of 20 mm: 387 g

### 1<sup>st</sup> Test series

Sample 01, M3.2			
Weight on the pan [g]	Cutting length [mm]	Contact pressing force [N]	Corrected cutting length XC [mm]
387	25,197	7,59	18,72
387	31,785	7,59	23,62
387	25,487	7,59	18,94
387	36,99	7,59	27,48
387	29,902	7,59	22,22
<b>Mean value</b>			<b>22,20</b>
Standard deviation			3,629
Coefficient of variation			16,35

### Evaluation of 1<sup>st</sup> Test series:

Regression 1<sup>st</sup> Test series



Used function of correlation: Power function with coefficient of correlation  $r^2=0,611$

Calculated contact pressing force at a cutting length of 20 mm: 7,69 N

To used weight on the pan for a cutting length of 20 mm: 392 g

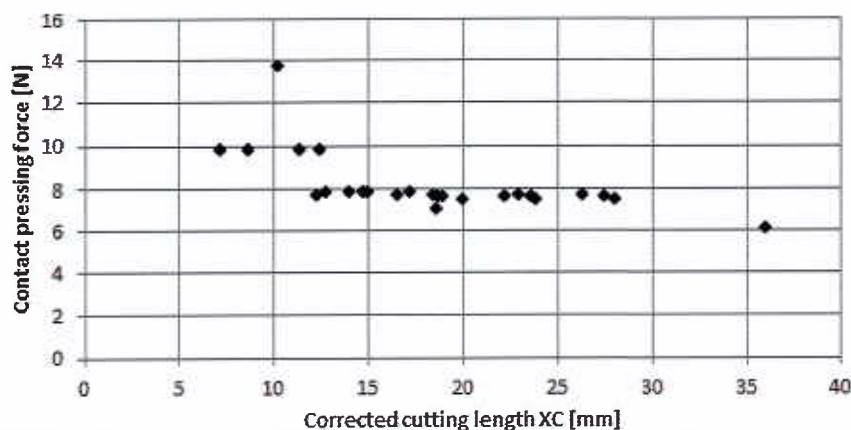
- 2<sup>nd</sup> Test series necessary, because mean value of cutting length is not between 18 mm and 22 mm

**2nd Test series**

Sample 01, M3.2			
Weight on the pan [g]	Cutting length [mm]	Contact pressing force [N]	Corrected cutting length XC [mm]
392	30,885	7,69	22,948
392	35,47	7,69	26,354
392	16,545	7,69	12,293
392	24,82	7,69	18,441
392	22,232	7,69	16,518
<b>Mean value</b>			<b>19,311</b>
Standard deviation			5,492
Coefficient of variation			28,44

**Evaluation of 2<sup>nd</sup> Test series:**

**Regression 2<sup>nd</sup> Test series**



Used function of correlation: Power function with coefficient of correlation  $r^2=0,558$

Calculated contact pressing force at a cutting length of 20 mm: **7,69 N**

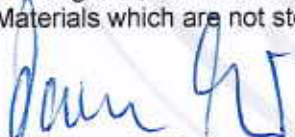
To used weight on the pan for a cutting length of 20 mm: 392 g

**The result of 7,69 N corresponds to performance level B to DIN EN 388:2017-01.**

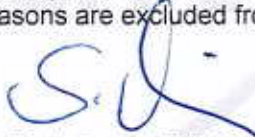
Pos.	Test method	Unit	Sample 01, M3.2, single-layered
(2)	<u>Puncture resistance</u>		
	Mean value	N	24,2
	Single values	N	18,8/ 19,6/ 20,9/ 36,5
	Standard deviation	N	8,23
	Coefficient of variation	%	34,04
	Level of performance	---	---

Pos.	Test method	Unit	Sample 01, M3.2, double-layered
(2)	<u>Puncture resistance</u>		
	Mean value	N	69,2
	Single values	N	52,8/ 113/ 49,1/ 61,8
	Standard deviation	N	29,7
	Coefficient of variation	%	42,97
	Level of performance	---	1

The testing period is defined as timeframe between receipt of samples and issue date of test report. The test results refer to the specimen delivered. This test report should not be copied in parts. Unless otherwise agreed, all materials we received within this order will be kept for a maximum time of 6 month. Materials which are not stored because of technical or safety reasons are excluded from that.

  
 Dipl.-Eng. M Marian Hierhammer  
 Head of Accredited Test Department



  
 Dipl.-Eng. (FH) Susann Meier  
 Accredited Test Laboratory