

Application note EN 2243-3 Climbing Drum Peel Test

Target of test	Measuring the gluing of the layer of honeycomb (carbon fibre)
Testing machine	Universal testing machine class 1 Load cell ~ 1 kN or bigger (max. 5 kN)
Testing tools	climbing Drum Peel fixture
Specimen preparation	Sawing, milling
standard	EN 2243-3 (equivalent ASTM D 1781)
Tool dimension	drum-Ø 100 driver rolls-Ø 125 width for specimen 100
Testing speed	25 mm/minute – Auf – Ab – Auf – Ab (4 phases)
Specimen geometry	Specimen width 75 mm, specimen length 300 mm incl. 2 times clamping 25 mm

Results	description: average value of typically oscillating forces	unit
Total force	Layer stiffness, drum weight, net peeling force	N
Drum weight	Incl. Layer stiffness and drum weight	N
Layer stiffness	Difference of drum winding force / unwinding force	N
Net peeling force	Difference total force minus drum weight and layer stiffness / width 75	N/75mm

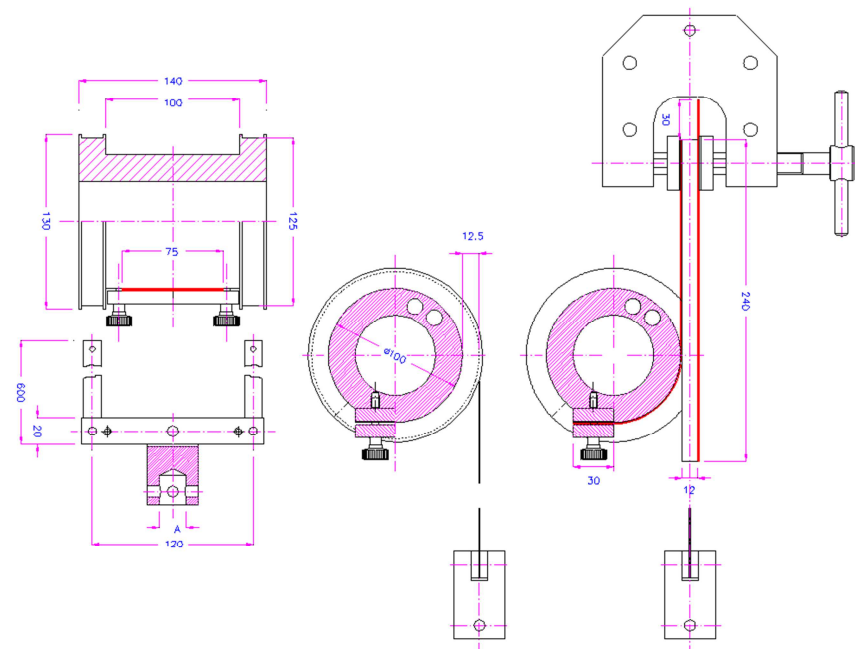
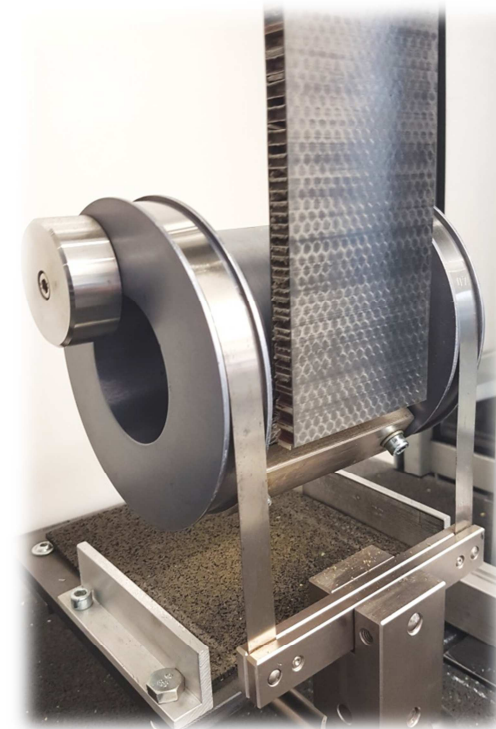


The climbing drum peel is used to evaluate the Separating force / adhesion of the top layer of a composite system (honeycomb core with a cover layer). This combination has an extreme stiffness depending on the high-quality bonding of both parts. The adhesive force is determined by means of special peeling tool. Due to the special design of this test tool, the connection is not peeled apart by shearing force, but is nearly orthogonally peeled.

The drum peeling tool can easily be adapted to a GALDABINI universal testing machine. In addition, a simple clamping head is required, on which the opposite side of the cover is clamped and pulled at a speed of 25 mm. The graph of the force increases steadily in the experiment until a repetitive spontaneous partial detachment takes place. The cover layer gradually loosens. In order to prevent a falsification of the adhesive force by start-up behaviour / a fall at the end, the beginning and the end regions are not taken into evaluation. An adhesion mean value is calculated from the mean part of the gross force. This represents the adhesive force together with the drum weight and the top layer stiffness. In a second driving path, an average force is again determined to receive the stiffness of layer. The net peel resistance (net adhesion force) is determined by subtracting the ascertained drum weight and ascertained cover layer stiffness. In the drum peeling tool, a counter-weight prevents a distortion of force due to eccentricity.

With a GALDABINI testing machine you may

- download the method and extract the ZIP
- copy the complete folder to data folder
- load the method to preferred methods ("Search")
- mount climbing drum peel fixture
- teach in: start position | type of load cell | overload limit to 5 kN (protection tool)



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Methoden-Name: DIN EN 2243-3 Trommelschalenversuch fuer Wabenkernverbunde	
LOG-Name: DIN EN 2243-3	Serie 1 - A320
Zusatzinfo Prüfer	
Norm Standard : DIN EN 2243-3	Proben Nr. Specimen no. : 11313
Temperatur Temperature : 23 ° C	Prüfer Test Engineer : Wolfram Schütz
Probenlänge Specimen length : 305 +/- 1 mm	Probenbreite Specimen width : 75 +/- 0.5
Prügeschwindigkeit Testing speed : 25 mm/min	Methode installiert Released : TH 25.11.2013 / RD20.11.2013
Dickenmessung Thickness Measuring : Mikrometerschraub	Breitenmessung Measuring width : Messscheiber analog vernier cal

Proben Nr.	Test Datum	Test Zeit	Proben Breite	Gesamtkraft	Trommel	Dehnung	Dehnung	Bruch Art	Schad	Kommentar
Specimen	Date of	Time of	Width	Total force	Drumhead	Layer strain	Net post	Failure	Post	Comments
no.	Test	Test	mm	N	g	g	mm/mm	mode	direction	

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