Iberográfica Capa Rota - Portugal	Layers Influence Data Record	**Compressibility**	Doc. PROC - LAB - 011 Data: 29 - 11 - 2010 Folha. 1 de 6 Rev. 0

Item #	Brand/ /Model	Sample # / / Job #	D0 mm	D1 mm	D04 mm	D5 mm	I1 µm	I5 µm	Ip1 %	Ip5 %	Comp. Loss %	Gauge Loss @ 60kPa µm	Gauge Loss @ 1060kPa µm	HE Energy Hysteresis Nmm	EE Elastic Nmm	Damping Capacity % (DC)	Test Time s
			Thickness				Indentation										
15A	D / I	177/849516/01-1	2,03	1,81	1,94	1,80	217	135	12,0	7,5	37,9	90,3	7,9	0,95	7,02	13,5	83,4
15B	D / I_	177/849516/01-1	0,62	0,58	0,61	0,58	47	32	8,2	5,5	36,6	17,7	2,0	-0,40	1,34	-29,6	22,9
15B*	D / I_	177/849516/01-1	0,61	0,56	0,59	0,56	57	33	10,2	5,9	42,4	26,0	2,1	-0,14	1,60	-9,0	109,0
15C	D / I_	177/849516/01-1	1,19	0,93	1,10	0,91	254	182	27,2	19,9	28,2	89,2	17,6	1,95	8,78	22,2	107,4
15D	D / I_	177/849516/01-1	1,51	1,28	1,41	1,27	228	146	17,8	11,5	35,9	93,4	11,8	1,03	7,34	14,0	89,6
16A	D / II	178/-	1,98	1,80	1,92	1,79	184	135	10,3	7,5	27,0	59,4	9,5	0,86	7,12	12,1	81,5
16B	D / II_	178/-	0,62	0,57	0,60	0,57	45	32	7,9	5,6	29,2	14,3	1,5	-0,35	1,48	-23,4	22,6
16C	D / II_	178/-	1,14	0,89	1,06	0,87	246	186	27,6	21,3	24,1	77,9	17,8	1,72	8,99	19,1	108,8
16D	D / II_	178/-	1,45	1,22	1,37	1,21	222	153	18,2	12,6	31,1	78,9	9,7	0,97	7,70	12,6	93,2

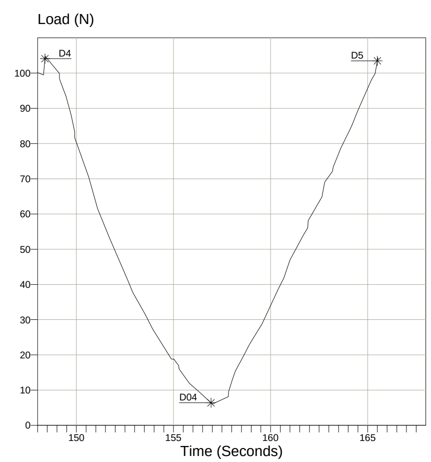
(*) - Test effected at equipment's lowest speed of 0,2 mm/min

Test standard: ISO 12636 4.5
Tester: Lloyd LR 10K Plus (Speed: 1 mm/min)
Disk: 11,20 mm Ø
Operator: DMiranda
Graphs: Row # All

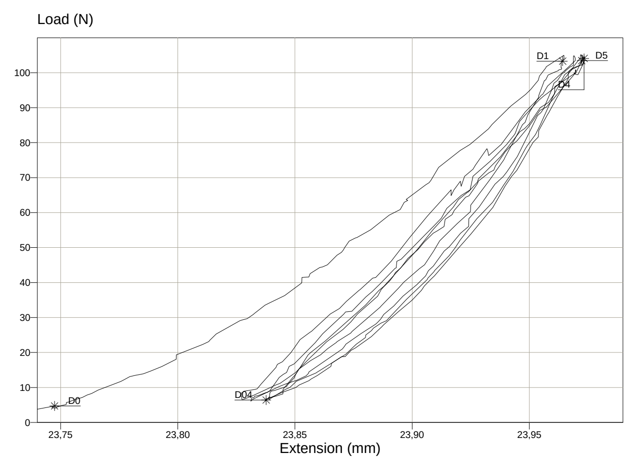
Legend

Compressibility	Thickness (mm)
I1=(D0-D1) mm	D0; D04: @ 60 kPa
I5=(D04-D5) mm	D1; D5: @ 1060 kPa
Ip1=[(D0-D1)/D0*100] %	Gauge Loss GL (µm)
Ip5=[(D04-D5)/D04*100] %	@ 60 kPa = D0-D04
Cp Loss=[(I1-I5)/I1*100] %	@ 1060 kPa = D1-D5
HE: D5 -D4 (Nmm)	DC:(HE-EE)/EE*100%
EE: D5-D04 (Nmm)	Test Time: D5 -D0 (s)

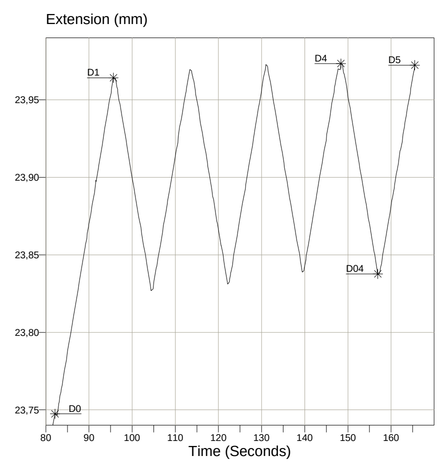
Results: Item # 16C	
I1: 0,246 mm	GL @: 60 kPa: 78 µm
I5: 0,186 mm	GL @1060 kPa: 18 µm
Ip1: 27,6 %	HE: 1,71 Nmm
Ip5: 21,3 %	EE: 8,99Nmm
Cp Loss: 24,1 %	DC: 19 %
	Test Time: 108,8 s



Default Time Span=20"

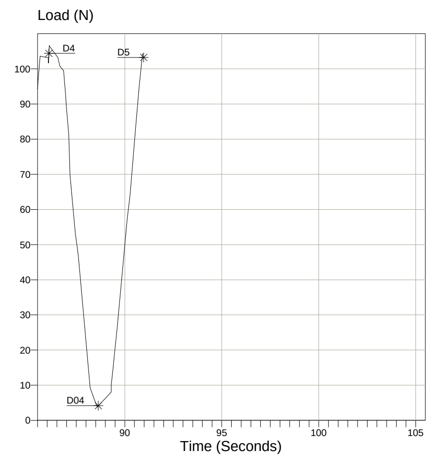


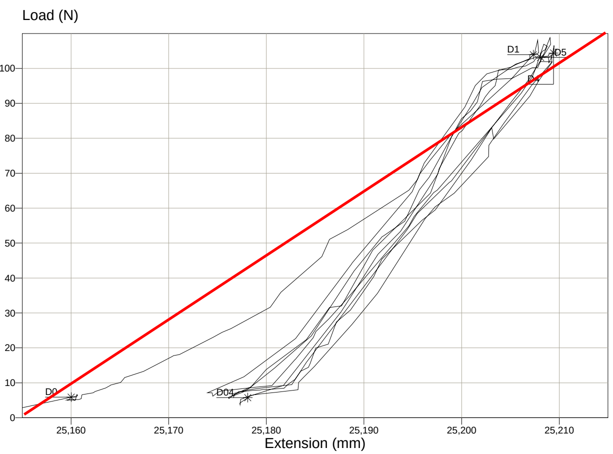
Extension Span=0.25mm



Time Span~T(D5-D0)

Iberográfica Capa Rota - Portugal	Layers Influence Data Record	**Compressibility**	Doc. PROC - LAB - 011 Data: 29 - 11 - 2010 Folha. 2 de 6 — Rev. 0





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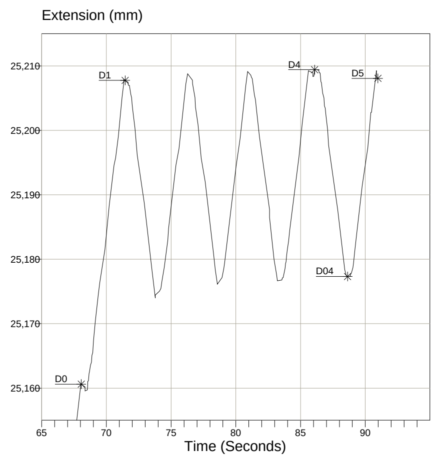
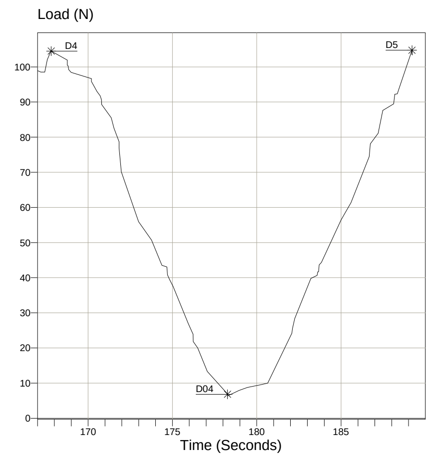
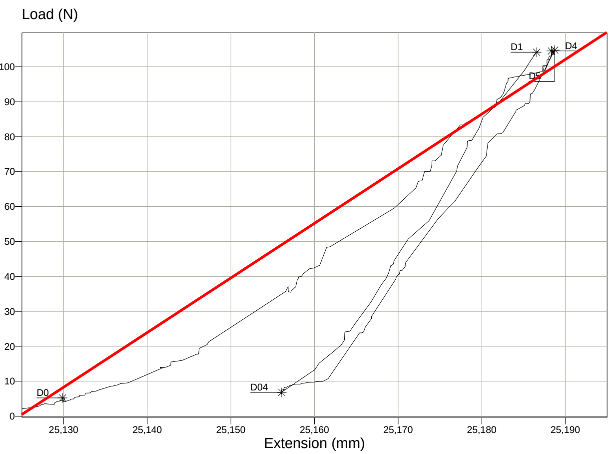
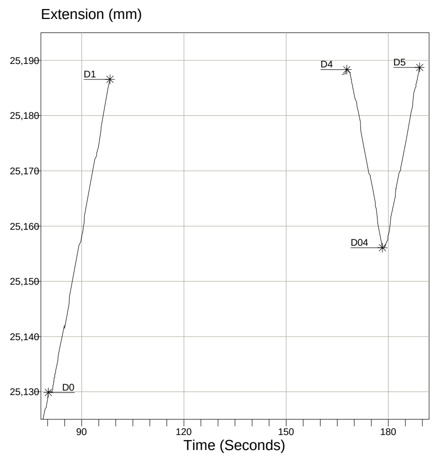




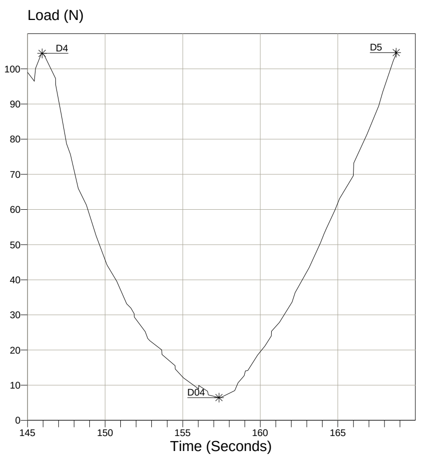
Time Span=23"



Extension Span=0.07mm



Iberográfica Capa Rota - Portugal	Layers Influence Data Record	**Compressibility**	Doc. PROC - LAB - 011 Data: 29 - 11 - 2010 Folha. 3 de 6 — Rev. 0



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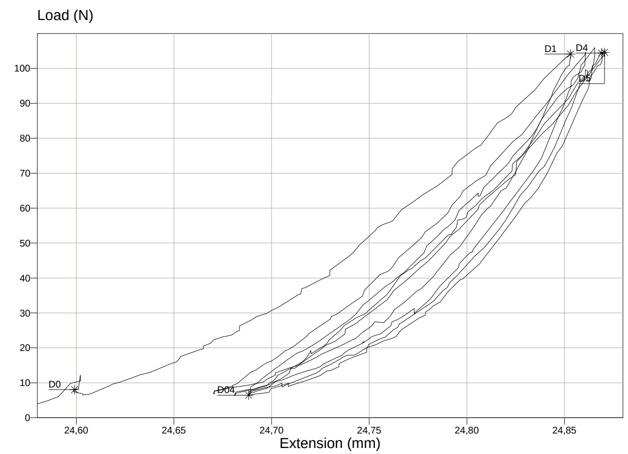
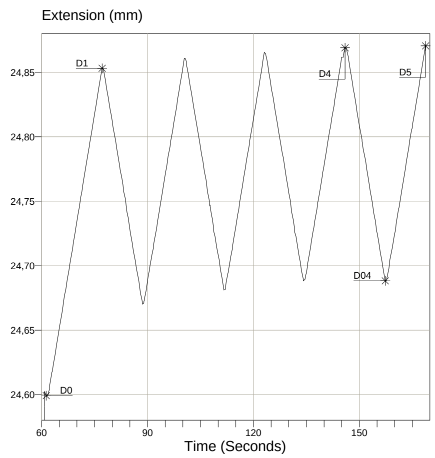
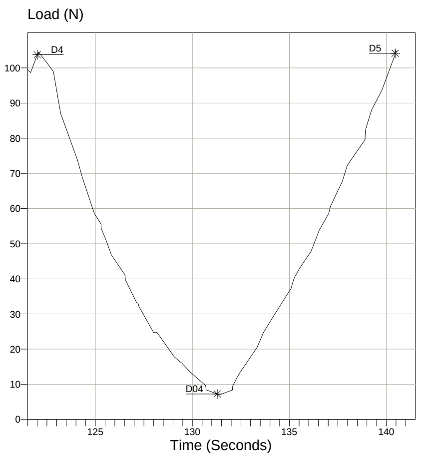
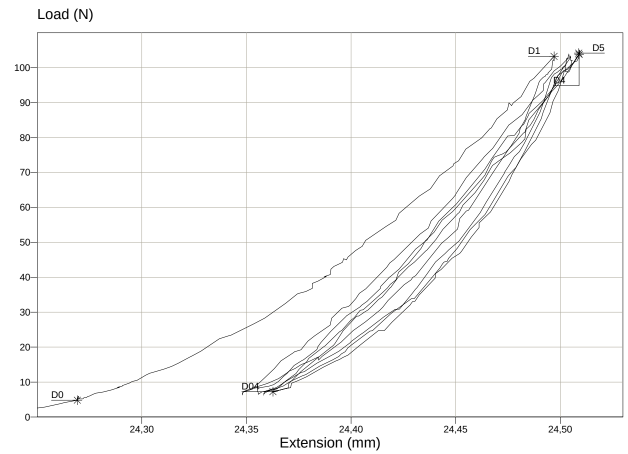


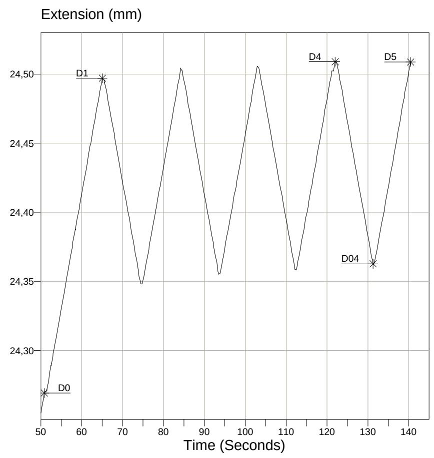
Extension Span=0.30mm



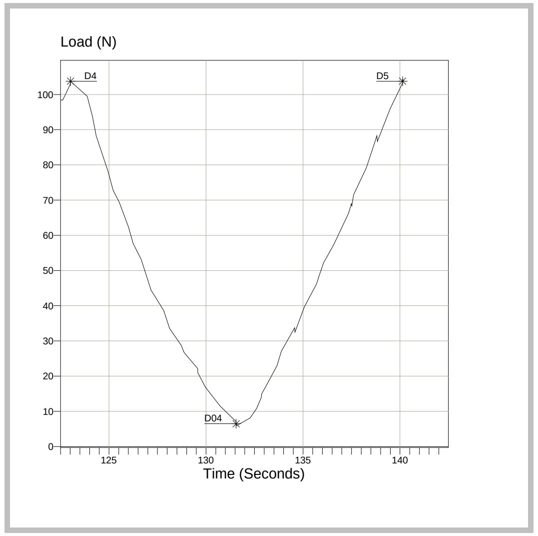


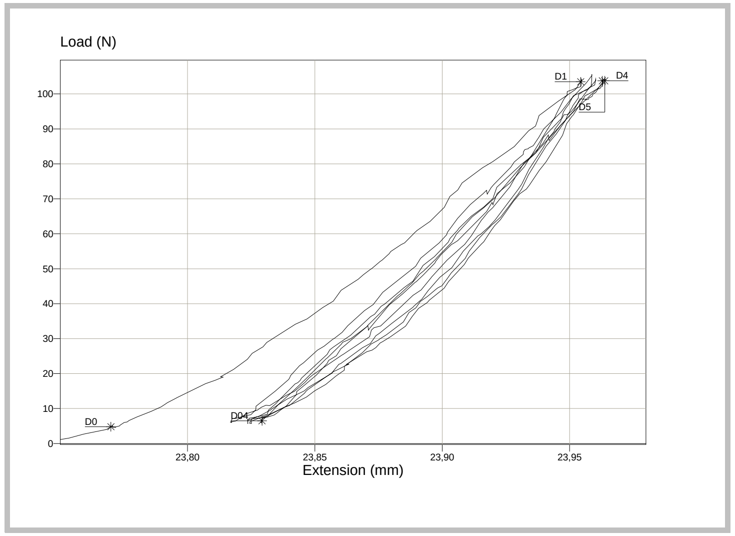


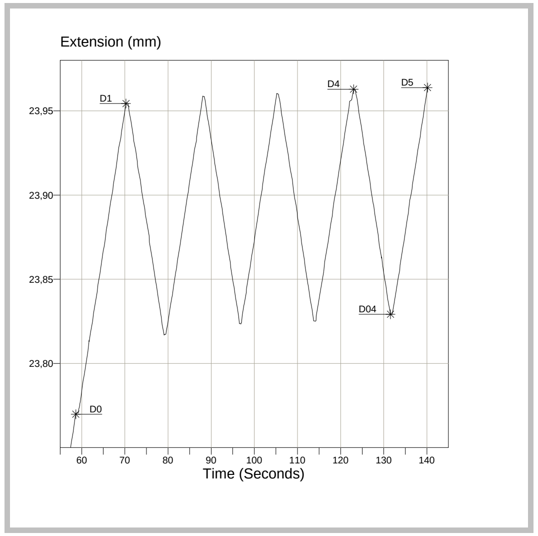
Extension Span=0.28mm

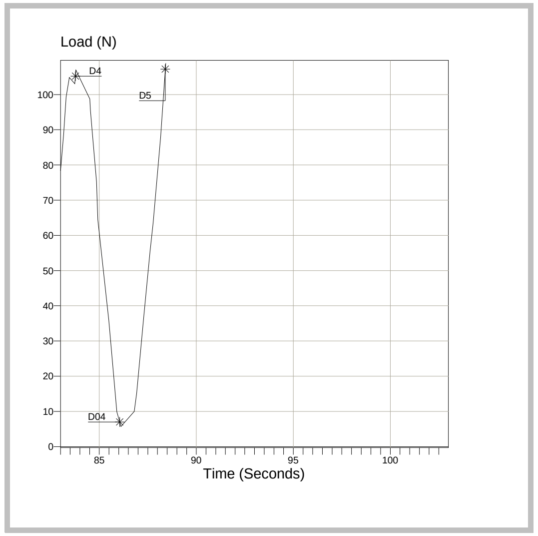


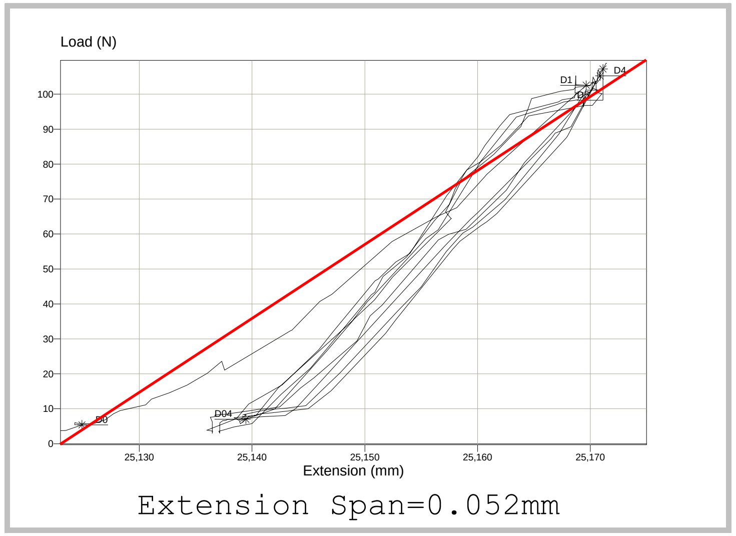
Iberográfica Capa Rota - Portugal	Layers Influence Data Record	**Compressibility**	Doc. PROC - LAB - 011 Data: 29 - 11 - 2010 Folha. 4 de 6 / Rev. 0

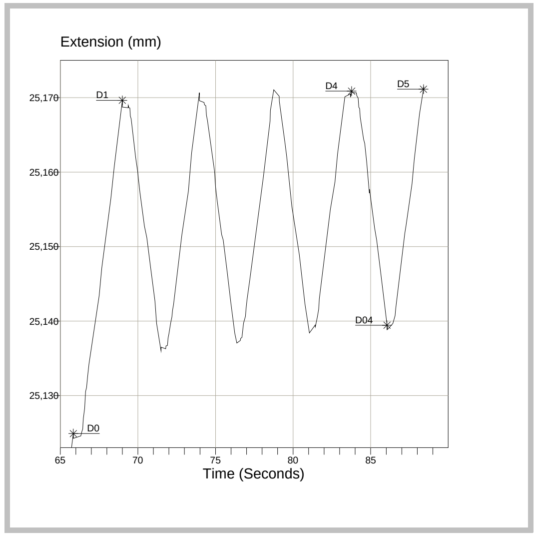




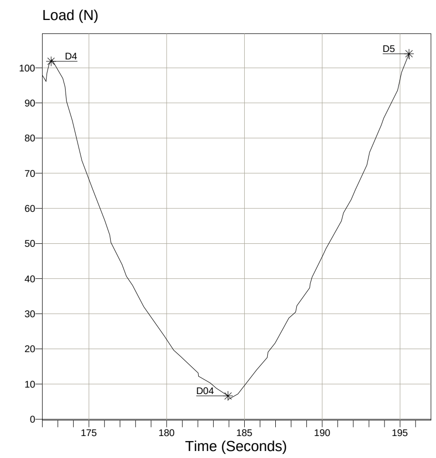




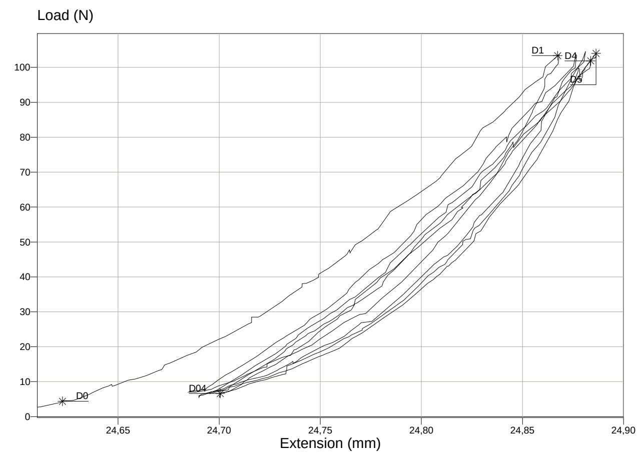




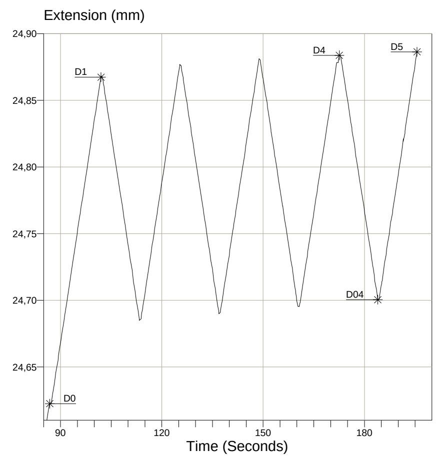
Iberográfica Capa Rota - Portugal	Layers Influence Data Record	**Compressibility**	Doc. PROC - LAB - 011 Data: 29 - 11 - 2010 Folha. 5 de 6 Rev. 0

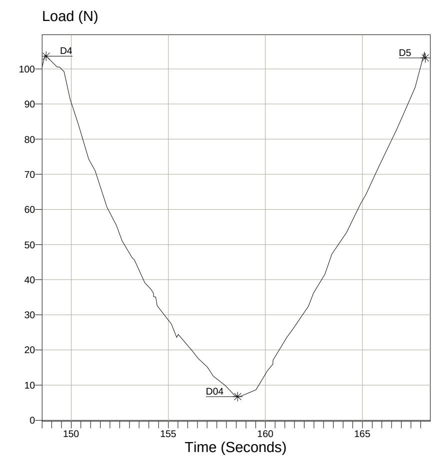


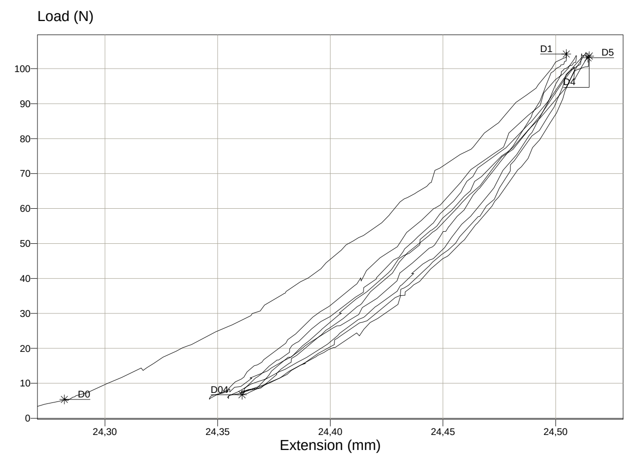
Time Span=25"



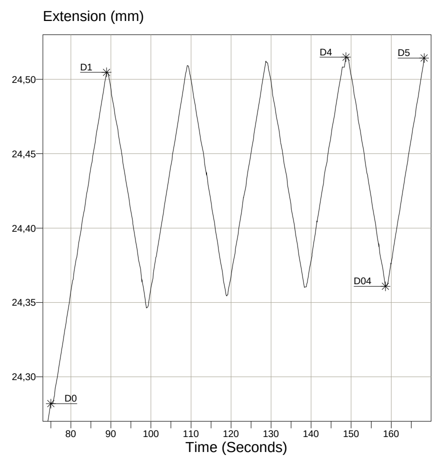
Extension Span=0.29mm







Extension Span=0.26mm



Test Presentation

Structure of samples 15&18 - Model I and 16&17 - Model II, did afford further study of the role of the blanket layers. Accordingly two further sample sets, identical in area to samples #1 to #50 were prepared and tested as follows:

1st Set - Model I
Sample 15A - Identical to samples #15 and #18, but from a different batch.
Sample 15B - Surface Layer plus Compressive Ply (SL+CP).
Sample 15C - Compressive Layer (CL).
Sample 15D - Compressive Layer plus Carcass (CL+C).

An identical 2nd Set was also prepared (Sample 16A through to 16D) referring to Model II.

Notes

- Preparation of stripped-off samples B to D did somehow alter its in-the-composite performance. Nevertheless results are still useful in understanding the particular effect of each blanket layer .

- It is not viable to extend ISO 12636 - section 4.5 method to evaluate energy related parameters on SL+CP samples taken from 1.9 mm thickness blankets. Even at the lowest test speeds available, equipment's moving carriage inertia overshoots beyond test tension and influence on test results is far too large, "negative" meaningless data being generated that must be thus not considered.

- Both blanket models have a consistently high compressibility, typical of sheet fed applications.

- Apparently hysteresis losses were kept in mind during blankets design.

- Compression characteristics of the blankets result not only from the behaviour and relative importance of each of its layers but also from the respective interaction effect.

- When tested separately compressive layers yield rather higher compressibility figures than when integrated with textile plies. Even a mere confinement atop the carcass (CL+C) limits its "free" performance and composite compressibility loss is higher.

- Surface rubber plus glue and compressive ply (SL+CP) indentation compression percentage is around 5.5 %, similar for both blanket models. This means that the compressive layer adds another 35 % plus compressibility to the blanket.

- However a better understanding of the compressive blanket performance in comparison with the conventional blanket is achieved when it is realised that on our samples SL indentation amounts to 0.03 mm while total blanket indentation is 0.13 mm, meaning that the compressive layer is taking ~0.10 mm of total blanket deformation.

And it must not be forgotten that in a conventional blanket it would be hardly possible to increase significantly blanket's surface rubber thickness without incurring in a too high dot gain.

- Present compressibility tests did not help much in disclosing the role of the compressive ply.

- Although two blanket models were considered from items # 15 to # 18 (items # 15 & # 18 refer to model I and items # 16 & # 17 refer to model II) on the original test sequence and another two samples # 15A and # 16A were considered on the present document, compressibility test results were not enough to establish compression performance difference between one model and the other. Dispersion of values as measured on three samples of each model did not enable a conclusion to be drawn.

- Further tests are under way.