Test&Motion

Application Module:

Tensile/compression test for wood EN 789

Version 1.0 (State 20160819)

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1 Introduction

Dear customer, thank you for choosing a product of **DOLI Elektronik GmbH**. **Test&Motion** is a modern application for the operating systems Microsoft Windows XP/7/8/10©.

This manual does not deal with the **Test&Motion software** in general but with the application module Plastics Tensile Test HO 2 in particular. Hence, it is recommended to read the **Test&Motion** application manual in order to get familiar with the software. Please follow the demands and safety hints listed in the manual!

1.1 Symbols

The different symbols in this manual will allow you to find your way more easily.

Table 1: Symbols and their meanings.

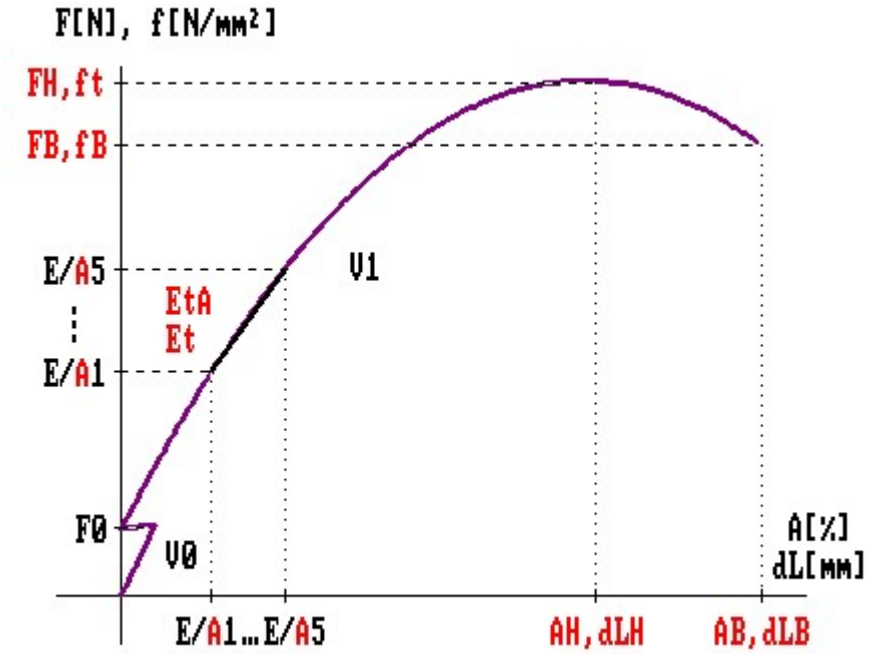
Symbol	Meaning
	**Safety Instructions:** **In order to avoid interruptions in the work flow as well as damages to man and machine, follow the safety instructions at all cost.**
	**Job/work instructions:** **Instructive part of the document with precise work instructions.** **Here you are asked to do something.**
	**Information:** **General information and descriptions of working procedures, etc.**
	**Note:** **Important note for the operation, the function or for the working procedures.**
	**Tip:** **Gives tips for easy handling of the Test&Motion Software, the EDCs or the testing instrument.**

2 Application module HO 2: Tensile/compression test for wood EN 789

2.1 Field of application

Determination of peak load, load at fracture, E modul, Stiffness, Resistance and extensions for up to 5 reference values in Tensile/compression test . Determination of deflection at constant load.

2.2 Test graphic HO 2



2.3 Input values HO 2

1. Click Menu Test → Command Settings → Input values. Here you can find expedient input values for this test regulation, already. If necessary adjust the values to your needs.

Table 2: Input values for test HO 2.

Parameter	Meaning	Dimension / Selection possibilities
E1	Reference value 1	[N, kN], [N/mm²], [mm], [%], [s, min, h], [% Fmax]
E2	Reference value 2	analog E1
E3	Reference value 3	analog E1
E4	Reference value 4	analog E1
E5	Reference value 5	analog E1
Choice:	Modul limits	• 10% - 40% of FH • Input values E1, E5 • Search autom. regress. line

2.4 Results HO 2

1. Click Menu Test → Command Settings → Results. Here you can already find expedient results. If necessary, adjust the values to your needs.

Table 3: Results for test HO 2.

Parameter	Meaning	Dimension
FH	Maximum force (tensile or compression)	[N]
ft, fc	Tensile or compression strength	[N/mm²], [MPa]
FH/b	Peak load / sample width	[N/mm]
AH	Extension at maximum force	[%]
dLH	Elongation at maximum force	[mm]
FB	Force at fracture	[N]
fB	Strength at fracture	[N/mm²], [MPa]
FB/b	Force at sample break / sample width	[N/mm]
AB	Extension at sample break	[%]
dLB	Elongation at sample break	[mm]
F1 / A1	Force / Extension at E1	[N, %]
F2 / A2	Force / Extension at E2	[N, %]
F3 / A3	Force / Extension at E3	[N, %]
F4 / A4	Force / Extension at E4	[N, %]
F5 / A5	Force / Extension at E5	[N, %]
R1 / dL1	Strength / Elongation at E1	[N/mm², mm]
R2 / dL2	Strength / Elongation at E2	[N/mm², mm]
R3 / dL3	Strength / Elongation at E3	[N/mm², mm]
R4 / dL4	Strength / Elongation at E4	[N/mm², mm]
R5 / dL5	Strength / Elongation at E5	[N/mm², mm]
Et, Ec	Tensile or compression E-modul between input values E1 and E5 or between limits (autom. defined)	[kN/mm²], [GPa]
t	Test duration (time from point F0 up to test end)	[s]
S0	Sample cross section	[mm²]

PA1	Sample dimension 1	[mm]
PA2	Sample dimension 2	[mm]

2.5 Hints for the test HO 2

2.5.1 Pre-load F0

For the test control, the elongation and the strain will be set to zero when pre-load F0 is reached (see explanations about elongation and strain further down, also).

The measuring length then will be corrected to L0' = L0 + dL(F0)

whereas

L0'	corrected measuring length
L0	measuring length
dL(F0)	sample deformation at F0

2.5.2 Input values E1 ... E5

At 5 different points of the measured value curve, defined by the input values E1 ... E5, you can determine for each input value 2 reference values

- In case of selection of a strength or tension unit the corresponding longitudinal change and extension are determined

- In case of selection of a unit of length [mm] or extension unit [%] the corresponding strength and tension are determined.

- In case of selection of a unit of time the strength determined to this date and longitudinal change are spent.

2.5.3 Modul

The tensile/compression- modulus of elasticity is calculated optionally between the input values E1 and E5, or one determines the Modul automatically as a steepest rise on the strength/deformation characteristic.

2.5.4 Test end

With compression tests you should always activate "Smax" as an test end criterion (Safeguarding criterion). Smax is to be chosen in this case smaller than the distance of the plates at test start.

Smax < LE at test start