



THERMOPLASTIC PROPERTY DETERMINATION FOR CAE, AND HIGH STRAIN RATE TENSILE

WSS-M99D68-A1

1. SCOPE

This specification defines the requirements for measuring selected material properties used in CAE simulation or equivalent modeling of automotive components made from thermoplastic production materials.

2. APPLICATION

This specification was released originally to communicate test methods and test parameters for material property data collection to the thermoplastic material suppliers. The data can then be combined with other material property data to model automotive components made from the material.

3. REQUIREMENTS

3.1 APPROVED SOURCES

This specification does not use approved sources. Any reliable supplier meeting these requirements may be used.

3.2 CONDITIONING AND TEST CONDITIONS

All test values are based on material conditioned for not less than 24 h prior to testing in a controlled environment of 23 +/- 2 °C and 50 +/- 5% relative humidity. Testing of the material should occur in the conditioning environment or soon after removal.

3.3 SAMPLE PREPARATION

Specimen J 80 mm x 15 mm x 2.5 +/- 0.6 mm (ISO 8256, Type 3; see Figure 1)

Test specimens must be milled (high speed milling) out of injection molded plaques with film gate injection on the short side. Plaque size should be approximately 250 mm x 150 mm x 2.5 mm (+/- 0.6 mm). Other dimensions are possible but must be discussed beforehand with the Ford Materials Engineering and/or Ford CAE experts. The specimens must not be taken from the edges or in the film gate area of the plaque to avoid skin effects of the injection molding process. Specimen J test specimens must be extracted from the position described in Figure 2.

Date	Action	Revisions	Rev. 04
2018 07 19	Editorial	See Summary of Revisions	C. Lewis, NA
2018 07 02	Revised	Removed Determination Creep Behavior	C. Lewis, NA
2013 08 05	Released		M. Corley, EMI L. Soreide, FNA

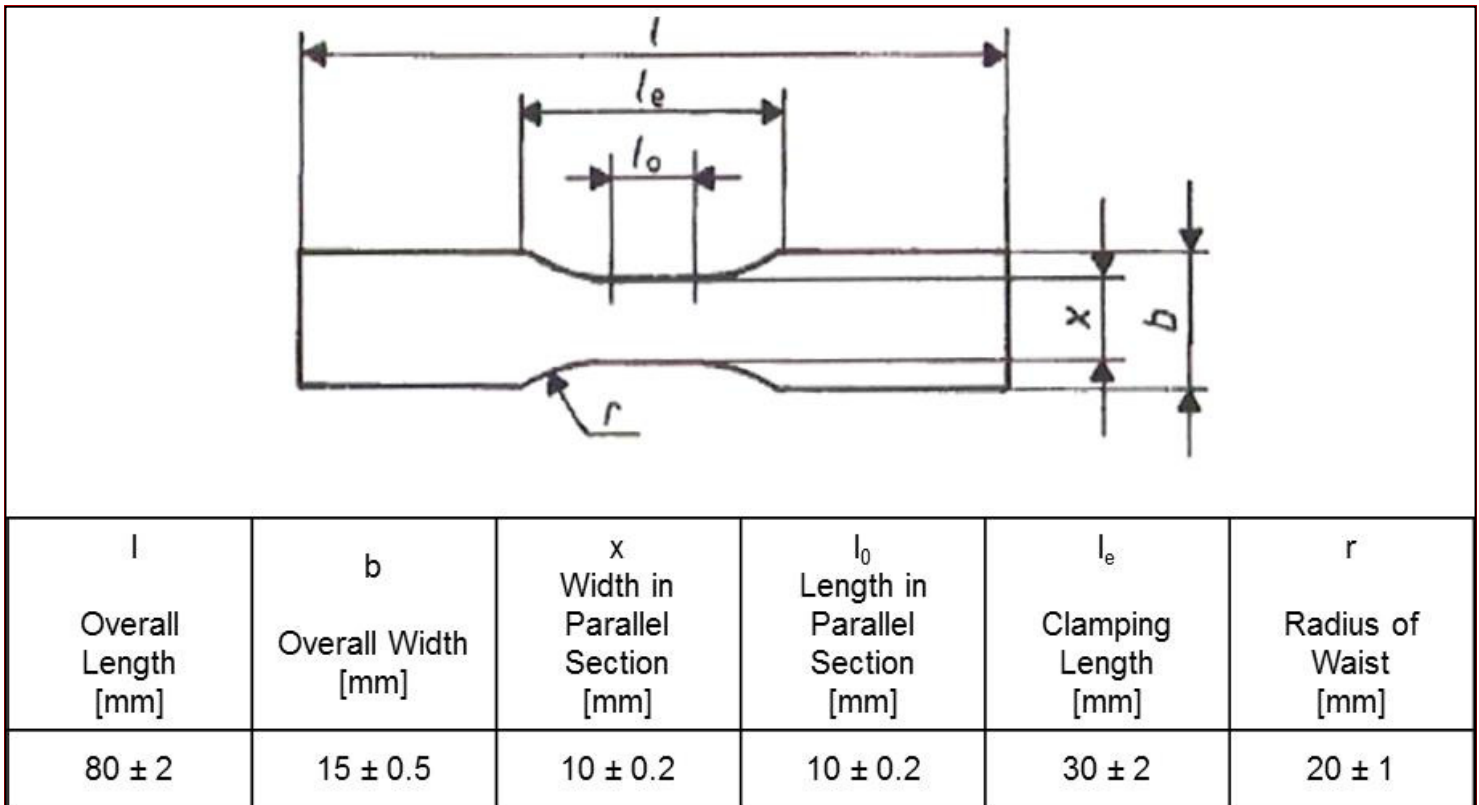


Figure 1 – Specimen J, ISO 8256, Type 3

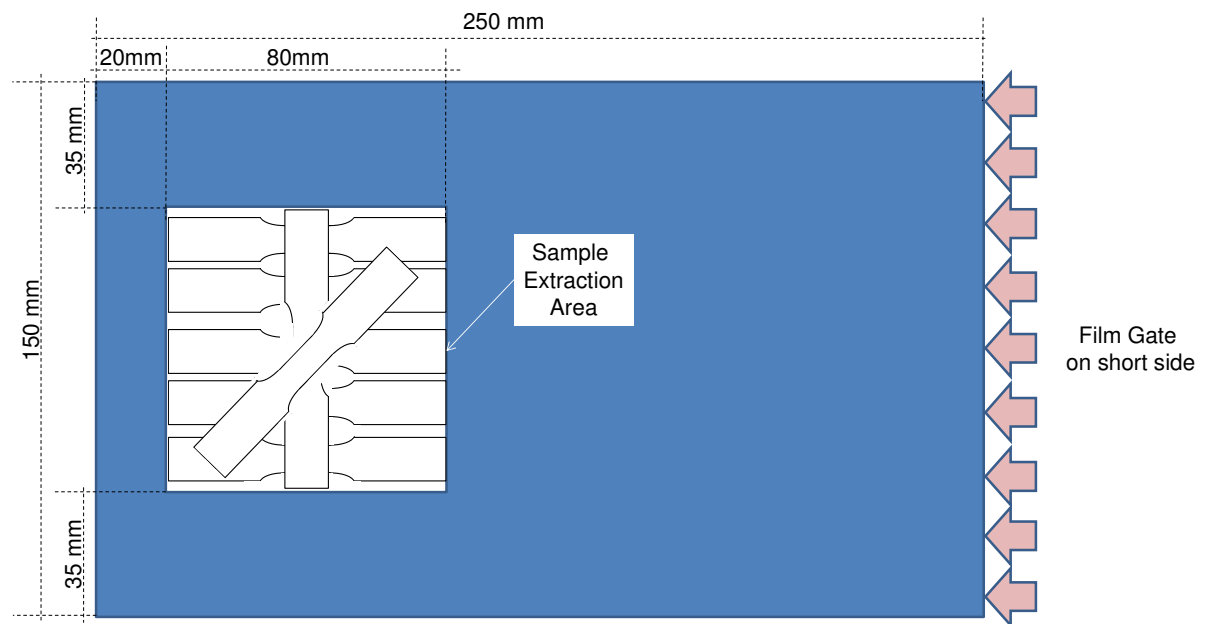


Figure 2 – Test Specimen Extraction Area Definition

For fiber reinforced thermoplastics it is important that the plaques show a strong fiber orientation and fiber alignment in the extraction area. Other plaque dimensions and extraction areas must be mutually agreed upon by Ford Materials Engineering and Ford CAE. Injection molding simulations can be used to prove the suitability of other plaque geometries and extraction areas.