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Experimental analysis of transverse impact loading on composite cylinders

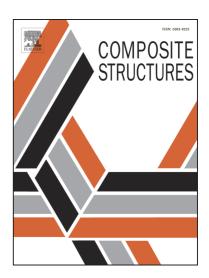
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PII: S0263-8223(15)00634-0

DOI: http://dx.doi.org/10.1016/j.compstruct.2015.07.088

Reference: COST 6669

To appear in: Composite Structures



Please cite this article as: Ribeiro, M.L., Vandepitte, D., Tita, V., Experimental analysis of transverse impact loading on composite cylinders, *Composite Structures* (2015), doi: http://dx.doi.org/10.1016/j.compstruct.2015.07.088

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## ACCEPTED MANUSCRIPT

EXPERIMENTAL ANALYSIS OF TRANSVERSE IMPACT LOADING ON COMPOSITE CYLINDERS

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**Abstract** 

The present study consists on experimental analyses of composite cylinders made by filament

winding process, which are under transverse impact loading. The results are shown and

discussed considering the influence of the stacking sequence as well as the total thickness of

the cylinders. Thus, the results are normalized regarding the stiffness of each cylinder, and

there are discussions based on identified damages, different graphics (force, displacement and

strain vs. time), energy balance between impactor and coupons, as well as elastic and

dissipated energy ratios and response delays for different strain gauges positions on the

cylinders. Finally, guidelines for designing composite cylinders are presented considering the

aspects addressed by the experimental analyses.

Keywords: experimental analysis; filament wound cylinders; transverse impact loading;

impact damage.

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