



Fig. 6. Specimen no. 2 (a) Discretized model; (b) exaggerated pre-buckling deformation; and (c) Buckling mode.

From: Guy Lagae and David Bushnell, "Elastic plastic buckling of internally pressurized torispherical vessel heads", Nuclear Engineering and Design, Vol. 48, No.2, pp 405-414, August 1978



Fig. 2 The deformation pattern for the first experiment

From: Wesley Vanlaere, Rudy Van Impe and Guy Lagae, "Buckling of stringer stiffened cylinders on local supports", 2006

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Biography:

Guy Lagae, born 1944, received his civil engineering degree from the Univ. of Ghent in 1969. He obtained his PhD with a dissertation on the lateral torsional buckling of planar frames in 1975 and is now (2014) professor of structural analysis.

Selected Publications:

Guy Lagae and David Bushnell, "Elastic plastic buckling of internally pressurized torispherical vessel heads", Nuclear Engineering and Design, Vol. 48, Nos. 2-3, August 1978, pp. 405-414

D. Vandepitte, G. Lagae, "Theoretical and experimental investigation of buckling of liquid-filled conical shells", in Third International Colloquium on Stability of Metal Structures, Paris, Preliminary Report, November 1983, pp. 399-406.

D. Vandepitte and G. Lagae, "Buckling of spherical domes made of microconcrete and creep buckling of such domes under long-term loading", Chapter in Inelastic Behaviour of Plates and Shells, Proceedings of International Union of Theoretical and Applied Mechanics, pp 291-311, 1986

R. Paridaens, D. Vandepitte, G. Lagae, J. Rathé, A. VandenSteen, "Design equations accounting for elastic buckling of liquid-filled conical shells", in Stability of Plates and Shell Structures, P. Dubas, D. Vandepitte

(eds), Ghent University, 1987, pp. 425–430

Vandepitte D, Van den Steen A, Van Impe R, Lagae G, Rathé J. Elastic and elastic-plastic buckling of liquid-filled conical shells. In *Buckling of Structures*, I. Elishakoff et al. (eds.), Elsevier, pp 433-449, 1988.

Dhanens, F., Lagae, G., Rathe, J. Van Impe, R., 1993. Stress in and buckling of unstiffened cylinders subjected to local axial loads. *J. Construct. Steel Res.*, 27: 89–106.

Belis J, van Impe R, Lagae G, Buffel P. Numerical stress analysis of the Fredericton water tower collapse according to a proposed modified reference length in the ECCS rules for liquid-filled conical shells. In *Extended Abstracts of International Symposium on Theory, Design and Realization of Shell and Spatial Structures*, Kunieda H. (ed.), IASS: Madrid, 2001

Van Impe R., Belis J., Buffel P. and Lagae G., “Experimental Buckling Analysis of Cylinders with Discrete Stringer Stiffeners above the Local Supports”, In: *Proceedings of the Ninth Nordic Steel Construction Conference*, Helsinki, 2001, pp.221-228.

Lagae G., Van Impe R., Buffel P., Vanlaere W., “Comparison of design buckling stresses for liquid –filled cones obtained with two different procedures”, *Proceedings of the Third European Conference on steel structures*, Coimbra (19-20/9), Portugal, 493-502, 2002.

Vanlaere W. , Lagae G., Van Impe R., Buffel P., Belis J. and De Beule M., “Boundary Conditions for Stringer Stiffened Cylindrical Shells on Local Supports”, In: *Proceedings of the International Conference on Design, Inspection, Maintenance and Operation of Cylindrical Steel Tanks and Pipelines*, Prague, 2003, pp.55-61.

Wesley Vanlaere, Rudy Van Impe and Guy Lagae, “Buckling of stringer stiffened cylinders on local supports”, https://www.researchgate.net/publication/233616742_Buckling_of_Stringer_Stiffened_Cylinders_on_Local_Suports 2006

Vanlaere W., Van Impe R., Lagae G. and Maes T., “Effect of varying the size of flatbar stiffeners on the buckling behaviour of thin cylinders on local supports”, *Structural Engineering and Mechanics*, Vol. 19, No. 2, 2005, pp.217-230.

Guy A. M. E. Lagae, Wesley M. H. Vanlaere and Rudy E. Van Impe, “Plastic buckling of conical tanks with large geometrical imperfections”, *Rene Maquoi 65th Birthday Anniversary Liège, Belgium, December 14, 2007*