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Figure 1. Photo of DLR's buckling test facility.

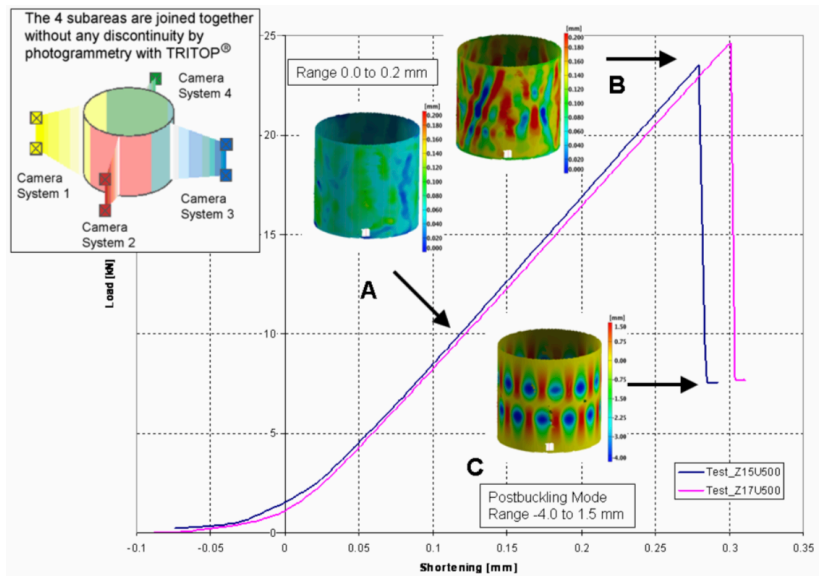


Figure 3. Load shortening curves of cylinders Z15U500, Z17U500 and ARAMIS measurement of Z15U500.

The images above are from: R. Degenhardt, A. Bethge, A. Kling, R. Zimmermann and K. Rohwer, "Probabilistic approach for better buckling knock-down factors of CFRP cylindrical shells – tests and analyses", 18th Engineering Mechanics Division Conference (EMD2007), 2007. Also see: Degenhardt, R., Bethge, A., Kling, A., Zimmermann, R., Rohwer, K., Klein, H., Tessmer, J., and Calvi, A., 2007, "Probabilistic Approach for Improved Buckling Knock-Down Factors of CFRP Cylindrical Shells," Proceedings of the 10th European Conference on Spacecraft Structures, Materials, and Mechanical Testing, DLR, Berlin, Paper No. CEAS-2007-434.

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See:

<https://www.researchgate.net/scientific-contributions/75873297-Arne-Bethge>

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Selected Publications:

R. Degenhardt, A. Bethge, A. Kling, R. Zimmermann and K. Rohwer, "Probabilistic approach for better buckling knock-down factors of CFRP cylindrical shells – tests and analyses", 18th Engineering Mechanics Division Conference (EMD2007), 2007

Degenhardt, Richard and Bethge, Arne and Kling, Alexander and Zimmermann, Rolf and Rohwer, Klaus and Teßmer, Jan and Calvi, Adriano (2007), "Probabilistic approach for improved buckling knock-down factors of CFRP cylindrical shells", First CEAS European Air and Space Conference, 2007-09-10 - 2007-09-13, Berlin, Germany, CD ISSN 0700-408, pp. 3091-3100.

Degenhardt, R., Bethge, A., Kärger, L. Probabilistic aspects of buckling knock down factors - test and analysis. 10. 12. 2007. DLR, Institute of Composite Structures and Adaptive Systems. ESTEC-DLR 19709/06/NL/IA
J. Orf L K, R. Degenhardt, and A. Bethge. The Influence of imperfection on the buckling behaviour of unstiffened CFRP-cylinders. In proceeding of 2nd International Conference on Buckling and Postbuckling Behaviour of Composite Laminated Shell Structures, 2008. p. 2-5.

R. Degenhardt, A. Kling, A. Bethge, J. Orf, L. Kärgler, R. Zimmermann, K. Rohwer, and A. Calvi, "Investigations on imperfection sensitivity and deduction of improved knock-down factors for unstiffened CFRP cylindrical shells," *Composite Structures*, vol. 92, no. 8, pp. 1939–1946, July 2010.