



Professor Thomas Ummenhofer

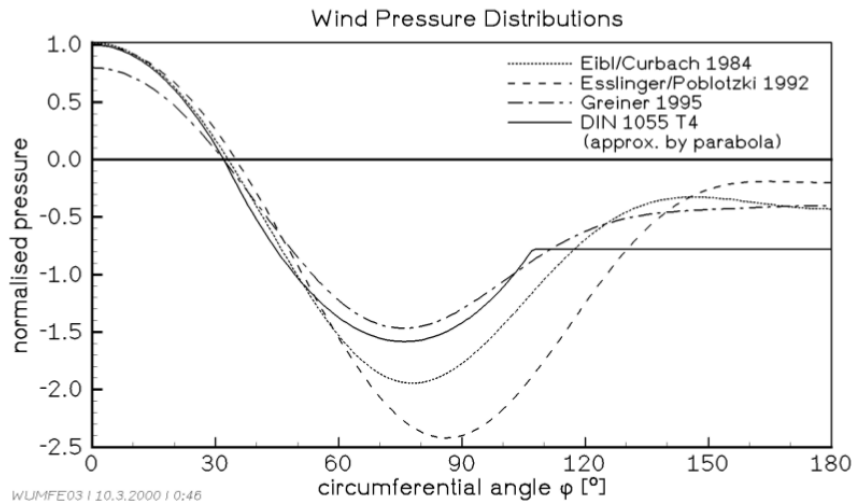


Figure 2: Comparison of different approximations for the wind pressure distribution

From: Thomas Ummenhofer and Peter Knoedel, “Modelling of boundary conditions for cylindrical steel structures in natural wind”, in Computational Methods for Shell and Spatial Structures, IASS-IACM 2000, M. Papadrakakis, A. Samartin and E. Onate (Editors), Athens, Greece 2000

See:

<https://stahl.vaka.kit.edu/english/72.php>

https://www.researchgate.net/profile/Thomas_Ummenhofer

<http://www.ibt.tu-braunschweig.de/index.php/menu-institut-de/menu-ehemalige-de/16-prof-dr-ing-thomas-ummenhofer>

<https://www.youtube.com/watch?v=fHSAaKGgfMo>

Research Center for Steel and Lightweight Structures
Karlsruhe Institute of Technology

Positions:

- Full professor of Steel and Light Metal Structures
- Joint Head of “Versuchsanstalt für Holz, Stahl und Steine”
- Checking engineer for structural designs, specialized in metallic and concrete structures
- Consulting engineer in the partnership “Peil, Ummenhofer und Partner”
- Technical Expert for the “Deutsches Institut für Bautechnik” (DIBt) for metal and composite structures
- Examiner of stability checks for receiving general building authority approvals for BSV of “Deutsches Institut für Bautechnik” (DIBt)
- Guiding adviser to the “Deutsche Materialeffizienzagentur”

Academic Career:

Academic Staff at “Versuchsanstalt für Stahl, Holz und Steine” of Karlsruhe University
Award of the title Dr.-Ing.

2000

Assistant Professor for steel bridge structures at the department of civil engineering,
University of Braunschweig

2002	Offer of full professorship in construction maintenance and structures at the department of civil engineering at Braunschweig University
June 2003	Full professor in the area of construction maintenance and structures at Braunschweig University
2008	Offer of full professorship in Steel and Light Metal Structures at the “Versuchsanstalt für Stahl, Holz und Steine”, Karlsruhe Institute of Technology
April 2009	Full professor in the department of Steel and Light metal Structures and joint head of “Versuchsanstalt für Stahl, Holz und Steine” at Karlsruhe Institute of Technology

Focuses of Work and Research:

- Steel and composite structures
- Steel bridge structures
- Structures for wind energy plants
- Tank and container structures
- Silo structures
- Adhesive bonding in steel construction
- Monitoring of adhesive bonds
- Control and monitoring of structures
- Damage processes in structural materials made of iron and steel
- Residual service life under fatigue loaded steel structures
- Maintenance and repair of bridges and other structures
- Historical steel- and iron structures
- Post-weld treatment methods
- Lockin-Termography for damage detection
- Research and development in steel- and light-weight structures
- Research and development of hybrid structures
- Casr steel components
- Weight optimization of structural steel components, topology optimization

Selected Publications:

Peter Knoedel, Thomas Ummenhofer and Ulrich Schulz, “On the modelling of different types of imperfections in silo shells”, *Thin-Walled Structures*, Vol. 23, Nos. 1-4, 1995, pp. 283-293, Special Issue: Buckling Strength of Imperfection-sensitive Shells

Knoedel, P.; Ummenhofer, T., Substitute Imperfections for the Prediction of Buckling Loads in Shell Design. CA-Silo. WG3: Metal Silo Structures, Imperfections in Metal Silos, Measurement, Characterisation and Strength Analysis. Workshop held at INSA Lyon, pp. 87-101. 1996.

Ummenhofer T., Peil U. & Schulz U. (1997). “A rigorous model for assessing the buckling strength of silos.” *Proc. Int. Conf. on Carrying Capacity of Steel Shell Structures*, Brno, Czech Republic, 91-97

Peter Knoedel and Thomas Ummenhofer, “An engineering model for checking the stability of cylindrical shell structures on local supports”, *Stahlbau*, Vol. 67, No. 6, pp 425-429, June 1998

Thomas Ummenhofer and Peter Knoedel, “Modelling of boundary conditions for cylindrical steel structures in natural wind”, in *Computational Methods for Shell and Spatial Structures*, IASS-IACM 2000, M. Papadrakakis, A. Samartin and E. Onate (Editors), Athens, Greece 2000

Peter Knoedel and Thomas Ummenhofer, “Ankerkräfte bei kurzen Zylinderschalen” (Anchor forces with short cylindrical shells), *Stahlbau*, Vol. 75, No. 9, pp 723-728, September 2006

Thomas Reinke, Adam J. Sadowski, Thomas Ummenhofer and J. Michael Rotter, “Large scale bending tests of spiral welded steel tubes”, EUROSTEEL 2014, Naples, Italy, September 10-12, 2014

A. Sadowski, J. Rotter, T. Reinke, T. Ummenhofer, Analysis of variance of tensile tests from spiral welded carbon steel tubes, *Constr. Build. Mater.*, 75 (2015), pp. 208–212

Sadowski AJ, Rotter JM, Reinke T, Ummenhofer T. Statistical analysis of the material properties of selected structural carbon steels. *Struct Safety* 2015;53:26–35.

Sadowski AJ, Rotter JM, Stafford P, Reinke T, Ummenhofer T. On the gradient of the yield plateau in structural carbon steels. *J Constr Steel Res* 2017;130:120–30

Peter Knoedel and Thomas Ummenhofer, “Rules for the analysis of tanks and silos using FEA”, *Stahlbau*, Vol. 86, No. 4, pp 325-339, April 2017, DOI: 10.1002/stab.201710479