

Database of embedment parameters from soft- and hardwoods

SND-ID: 2024-275. **Version:** 1. **DOI:** <https://doi.org/10.5878/esgh-ad44>

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Comments_references.txt (2.48 KB)
Embedment_database_beech.txt (5.34 KB)
Embedment_database_birch.txt (2.42 KB)
Embedment_database_larch.txt (1008 bytes)
Embedment_database_oak.txt (4.05 KB)
Embedment_database_pine.txt (1.52 KB)
Embedment_database_poplar.txt (3.36 KB)
Embedment_database_spruce.txt (13.65 KB)

Download all files

2024-275-1.zip (~33.8 KB)

Citation

Schweigler, M. (2019) Database of embedment parameters from soft- and hardwoods (Version 1) [Data set]. Linnaeus University. Available at: <https://doi.org/10.5878/esgh-ad44>

Creator/Principal investigator(s)

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Description

The database includes embedment parameters from in total 1565 tests, taken from 7 reports originating from ENSTIB/LERMaB Epinal, Vienna University of Technology (IMWS, TU Wien), Linnaeus University Växjö (LNU), TU Delft and Karlsruhe Institute of Technology (KIT). It comprises parameters from embedment test on 6 soft- and hardwood species, 4 wood-based products, 4 dowel diameter, loaded at 7 different load-to-grain angles.

The embedment parameters can be used to describe load-displacement curves of steel dowels embedded in wood, being exploited in numerical models for single-dowel connections.

Embedment parameters given in the database are explained and discussed in: Schweigler, M., T. K. Bader, J.F. Bocquet, and C. Sandhaas (2019). "Embedment test analysis and data in the context of phenomenological modeling for dowelled timber joint design." In: Proceedings of INTER/52-07-08 , Tacoma, USA.

Update: 2020-07-06: Parameters from embedment tests on birch (solid timber) are added Benistand, T. (2020).

The database includes embedment parameters taken from following reports:

Benistand, T. (2019). "Comportements structurels des Essences de bois feuillus français en vue de leur meilleure intégration aux Eurocodes 5." PhD thesis. University of Lorraine, France (in progress).

Benistand T, Bleron L., Bocquet J.F (2020) " Embedding Strength Prediction for European Hardwood Species" In: Proceedings INTER/53-07-9.

Blaß, H. J. and T. Uibel (2007). "Tragfähigkeit von stiftförmigen Verbindungsmitteln in Brettsperrholz (in German)". In: Karlsruher Berichte zum Ingenieurholzbau Band 8.

Lemaître, R. (2020). "Développement d'un outil de calcul non linéaire de dimensionnement d'assemblages bois tridimensionnels soumis à des torseurs plans." PhD thesis. University of Lorraine, France.

Sandhaas, C., G.J.P. Ravenshorst, H.J. Blass, and J.W.G. van de Kuilen (2013). "Embedment tests parallel-to-grain and ductility aspects using various wood species". In: European Journal of Wood and Wood Products 71(5), pp. 599–608.

Schweigler, M., T. K. Bader, G. Hochreiner, G. Unger, and J. Eberhardsteiner (2016). "Load-to-grain angle dependence of the embedment behavior of dowel-type fasteners in laminated veneer lumber". In: Construction and Building Materials 126, pp. 1020–1033.

Schweigler, M., T. K. Bader, J. Vessby, and J. Eberhardsteiner (2017). "Constrained displacement boundary conditions in embedment testing of dowel-type fasteners in LVL". In: Strain 53(6). DOI: 10.1111/str.12238.

The dataset was originally published in DiVA and moved to SND in 2024.

Data contains personal data

No

Language

[English](#)

Data format / data structure

[Numeric](#)

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Identifiers

URN: [urn:nbn:se:lnu:diva-87945](https://nbn-resolving.org/urn:nbn:se:lnu:diva-87945)

Research area

[Building technologies](#) (Standard för svensk indelning av forskningsämnen 2011)

Keywords

[Wood](#), [Trees](#), [Hardwood trees](#), [Tree species](#), [Civil engineering](#)

Accessibility level

Access to data through SND

Data are freely accessible

Use of data

[Things to consider when using data shared through SND](#)

Versions

Version 1. 2019-09-30

This resource has the following relations

Is referenced by [Embedment test analysis and data in the context of phenomenological modeling for dowelled timber joint design:](#)

Download metadata

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