Skew notch joint HO2+

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Basic Documentation – Overview

In addition to the individual program manuals, you will find basic explanations on the operation of the programs on our homepage www.frilo.com in the Campus-download-section.

Application options

The HO2 application allows the design of compression-loaded timber connections as skew notch joints. With simple notch joints, the user can select among notched front joints and notched heel joints. For double notch joints, he/she can select among the combinations front-front, heel-heel, or front-heel.

The software calculates automatically the minimum and maximum depths of cut and the required forepart lengths. It also verifies the stress resistance in the connected member weakened through the skew notch. The depths of cut are adjustable within the permitted range. If the system dimensions do not comply with the conditions of the selected skew notch design, the defined values must be adjusted accordingly.

If the effective length is specified by the user, the resistance of the compression member against stresses that apply at the member ends due to an eccentric load introduction are verified.

The pre-defined loading on the skew notch joint must be entered as design load cases and the associated load action periods LDC must be assigned.

Available standards

- EN 1995
- DIN EN 1995
- ÖNORM EN 1995
- UNI EN 1995
- NTC EN 1995
- BS EN 1995
- PN EN 1995

Data entry

Basic parameters

Select the desired standard and the material.

Define the timber species "Softwood" "Glulam" or "Hardwood" as well as
the service class and the strength class (F5 = enter user-defined values
for hardwood and glued laminated timber)).

Note: *Glued laminated timber according to EN 14080:2013 for*
            Germany and Italy is implemented.
            *The "old" glued laminated timber is marked with a * (e.g.*
            GL24c).*

Properties	
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Basic parameters		
Design code		DIN EN 1995:2013
Ductility class		Low
Material		
Timber		Softwood
Material code		EN 338:2016
Strength class	F5	C24
Service class		2
Specific weight	γ [kN/m³]	6.00

Structural system

γ	angle limited by the compression strut and the connected member.
b1, h1	width and height of the compression strut.
b2, h2	width and height of the connected member.
lef	effective length of the compression strut: If l_{ef} > 0, the stress resistance and stability verifications are performed for the compressive member.
Rotation	allows the rotation of the graphical representation.
Joint	select between a connection on one side and on both sides.

| System			
Connection angle	γ	[°]	40.0
Width of strut	b1	[cm]	16.0
Height of strut	h1	[cm]	16.0
Chord width	b2	[cm]	16.0
Chord height	h2	[cm]	18.0
Buckling length	lef	[m]	2.00
Rotation		[°]	0.0
Joint		one-sided	
Remarks			
... to System			

Loading

Fc,d	compressive force in the strut, compression is positive (+) [kN].
Ft,d	tension force in the connected member, tension is positive (+) [kN].
LDC	duration of load. the loading on the compression member and the connected member shall be defined as design load cases and a load duration class (LDC) shall be assigned.

Load			
Compres. force	Fc,d	[kN]	35.0
Tensile force independent enterable			☐
Tension force	Ft,d	[kN]	26.8
Load-duration class	LDC	medium	

permanent
long
medium
short-term
instantaneous
short/instant

Design

Select the type of skew notch:

- Notched front joint

- Notched heel joint

- Double-notch front joint

- Double-notch heel joint

- Notched front and heel joint
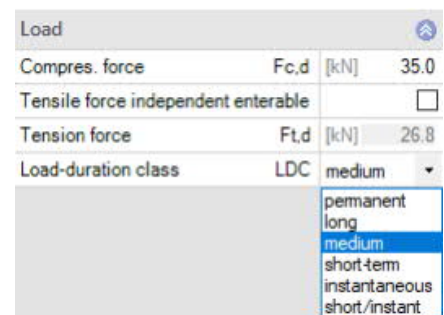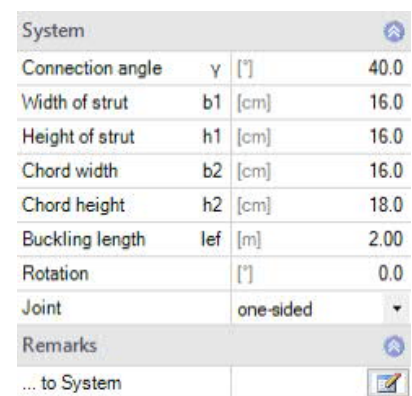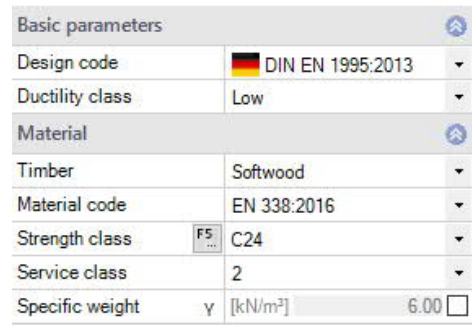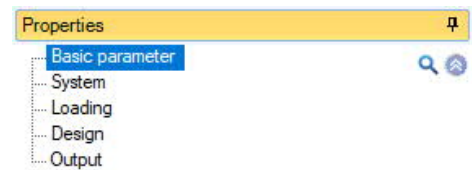
Skew notch

You can select the notch depths and required forepart lengths in this dialog. The notch depth and required forepart lengths calculated by the software are displayed.

The visibility buttons allow you to display the possible areas for the notch depth and the forepart length in the graphical representation.
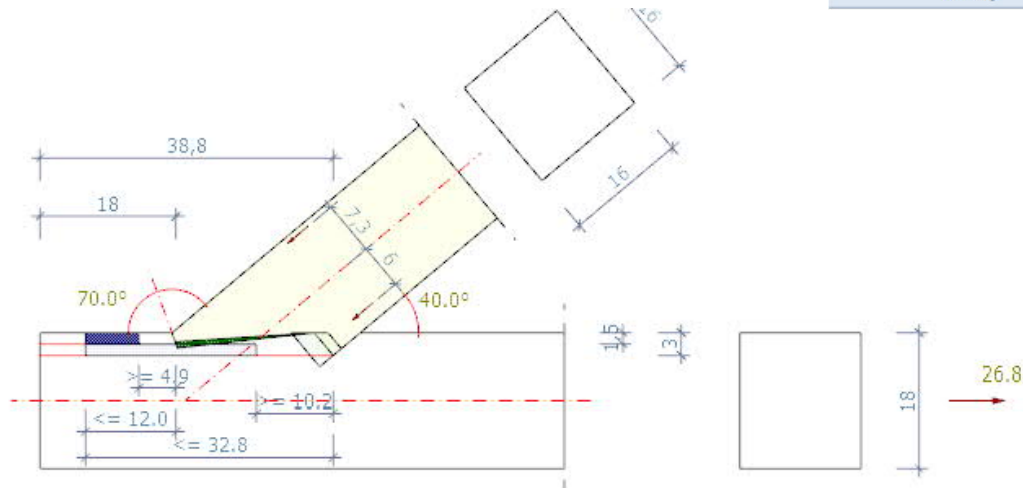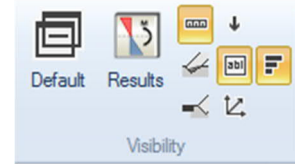
If these areas are not complied with they are displayed in red.

The notices below are included in the structural document and displayed in addition above the system graph.

Output

The "Document" tab displays the data to be put out.

See also

[Output and printing](#)

Optionally, you can generate a detailed output that includes intermediate values to check the calculation in addition to the defined values and the most important results.

Results

The maximum utilization is displayed on bottom right of the system graph.

Reference literature

/1/   Holzbau-Statische Berechnungen Teil 1, Holzwirtschaftlicher Verlag der Arbeitsgemeinschaft Holz e.V., Düsseldorf 1988

/2/   Andresen, K., Scheer, C.: Beispiele INGENIEUR-HOLZBAU, Berechnung und Konstruktion. Holzwirtschaftlicher Verlag Düsseldorf 1985.

/3/   Blass, H.J., Ehlbeck, J., Kreuzinger, H., Steck, G.: Erläuterungen zu DIN 1052:2004-08:. Bruderverlag Karlsruhe, 2004

/4/   Holzbau-Taschenbuch: Bemessungsbeispiele nach DIN 1052 Ausgabe 2004. Ernst & Sohn Verlag, Berlin 2004

/5/   DIN EN 1995-1-1:2010, DIN EN 01/01/1995:2010

/6/   Holzbau-Taschenbuch: /5/   Holzbau-Taschenbuch: Bemessungsbeispiele nach Eurocode 5, 11th Edition. Ernst & Sohn, Berlin 2014.