

Annex for The Netherlands

Steel Design 5

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Joints



Colofon/Content

Annex for The Netherlands to *Joints* (Steel Design 5)

This annex has been prepared by prof.ir. J.W.B. Stark and prof.dr.ir. J. Wardenier and is based on the original Dutch version of *Joints*, published in 2014 by Bouwen met Staal as *Knopen* by the same authors. References are made to each **NA** symbol in *Joints* and – where relevant – the corresponding clause in the Eurocode.

Annexes to *Joints* (Steel Design 5) are also available for Belgium, Luxembourg and Switzerland and can be downloaded free of charge from the website of Bouwen met Staal.

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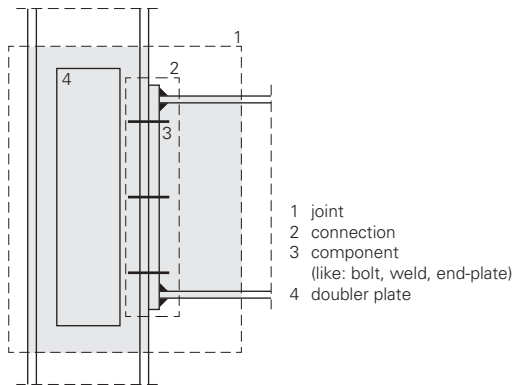


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Joint characteristics in frames



NL1.1 Eurocode terminology of connection and joint.

English	Dutch (EN 1993-1-8)	Dutch (common use)	French	German
connection	verbinding	verbinding	attache	Verbindung
joint	verbinding	knoop	assemblage	Anschluss

NL1.2 Use of connection and joint in Dutch, French and German language.

p. 1-2

EN 1993-1-8, cl. 1.4

The terms 'connection' and 'joint' (according to Eurocode) are illustrated in figure NL1.1 and have also respective Dutch, German and French equivalents (table NL1.2).

However, 'connection' is often used where 'joint' is appropriate according to the given definitions. So in practice it is certainly necessary to remain attentive to what is actually meant.

In the Dutch translations of EN 1993-1 (both NEN-EN and NBN) the term 'verbinding' is used for both connections and joints. The term 'knoop' is used for a sub-assembly of a beam-to-column connection as shown in EN 1993-1-8, fig. 1.1 (see fig. NL1.1).

Moreover, in the field of welding-technology, the term 'joint' is used for exactly the welded area (as in 'butt welds in T-joints').

And even in this textbook (*Joints*) the term 'connection' is sometimes used where strictly speaking it is a 'joint' (occurring mostly in chapter 5).

p. 1-56

Literature

Additional literature specific for The Netherlands:

- Commissie SG/TC-10a (Verbindingen), *Momentverbindingen*, Staalbouwkundig Genootschap, Rotterdam 1999.
In English: Committee SG/TC-10a (Connections), *Moment connectons*, Staalbouwkundig Genootschap, Rotterdam 1999.
- Commissie SG/TC10a (Verbindingen), *Normaalkrachtverbindingen en dwarskrachtverbindingen*, Staalbouwkundig Genootschap, Rotterdam 1998.
In English: Committee SG/TC10a (Connections), *Connections for transferring normal forces and/or shear*, Staalbouwkundig Genootschap, Rotterdam 1998

Pinned joints in frames

p. 2-36**Literature**

Additional literature specific for The Netherlands:

6. Commissie SG/TC10a (Verbindingen), *Normaalkrachtverbindingen en dwarskrachtverbindingen*, Staalbouwkundig Genootschap, Rotterdam 1998.
In English: Committee SG/TC10a (Connections), *Connections for transferring normal forces and/or shear*, Staalbouwkundig Genootschap, Rotterdam 1998
7. C.M. Steenhuis, *Achtergronden bij 'Aanbevelingen voor ontwerp van normaalkracht verbindingen en dwarskracht verbindingen* (TNO Bouw rapport 97-CON-R1508), Rijswijk 1997.
In English: C.M. Steenhuis, *Backgrounds to 'Recommendations for the design of connections for transferring normal forces and/or shear'* (TNO Bouw report 97-CON-R1508), Rijswijk 1997.

Moment-resistant joints in frames

p. 3-10a

The recommended value for buildings $\gamma_{M0} = 1,0$ is accepted.

EN 1993-1-1, cl. 6.1(1)

p. 3-10b

The recommended value $\gamma_{M0} = 1,0$ is accepted.

EN 1993-1-1, cl. 6.1(1)

p. 3-13

The recommended value $\gamma_{M0} = 1,0$ is accepted.

EN 1993-1-1, cl. 6.1(1)

p. 3-36a

The recommended value for buildings $\gamma_{M2} = 1,25$ is accepted.

EN 1993-1-1, cl. 6.1(1)

p. 3-36b

The recommended value $\gamma_{M0} = 1,0$ is accepted.

EN 1993-1-1, cl. 6.1(1)

p. 3-44

The recommended value $\gamma_{M0} = 1,0$ is accepted.

EN 1993-1-1, cl. 6.1(1)

Column bases

p. 4-9a The recommended value $\alpha_{CC} = 1,0$ is accepted.	EN 1992-1-1, cl.3.1(6)
p. 4-9b The recommended value $\gamma_c = 1,5$ is accepted.	EN 1992-1-1, cl.3.1(6)
p. 4-11 The recommended value $\gamma_c = 1,5$ is accepted.	EN 1992-1-1, cl.3.1(6)
p. 4-19 The recommended value $\gamma_{Mc} = \gamma_c = 1,5$ is accepted.	EN 1992-1-1, cl.3.1(6)
p. 4-23 The recommended value $\gamma_{M2} = 1,25$ is accepted.	EN 1993-1-1, cl. 6.1(1)
p. 4-27 The recommended value $\gamma_c = 1,5$ is accepted.	EN 1992-1-1, cl.3.1(6)
p. 4-29 The recommended value $\gamma_{M2} = 1,25$ is accepted.	EN 1993-1-1, cl. 6.1(1)
p. 4-30 The recommended value $\gamma_{Mc} = \gamma_c = 1,5$ is accepted.	EN 1992-1-1, cl.3.1(6)
p. 4-31a The recommended value $\gamma_{Mc} = \gamma_c = 1,5$ is accepted.	EN 1992-1-1, cl.3.1(6)
p. 4-31b The recommended value $\gamma_{Mc} = \gamma_c = 1,5$ is accepted.	EN 1992-1-1, cl.3.1(6)
p. 4-34a The recommended value $\gamma_{M2} = 1,25$ is accepted.	EN 1993-1-1, cl. 6.1(1)
p. 4-31b The recommended value $\gamma_{M2} = 1,25$ is accepted.	EN 1993-1-1, cl. 6.1(1)

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13. A.G.J. Berkelder, 'Mortelvoegen, voetplaten en ankers', *Bouwen met Staal* 24 (1973), p. 27-34.
In English: A.G.J. Berkelder, 'Grouts, base plates and anchor bolts', *Bouwen met Staal* 24 (1973), p. 27-34.
14. L.P. Bouwman, *Vermoeiing van bouten en geboute verbindingen*, Staalbouwkundig Genootschap, Rotterdam 1980.
In English: L.P. Bouwman, *Fatigue of bolts and bolted connections*, Staalbouwkundig Genootschap, Rotterdam 1980.
15. L.P. Bouwman, 'Recente onderzoekingen op bouten en verankeringen', *Bouwen met Staal* 77 (1986), p. 6-11.
In English: L.P. Bouwman, 'Recent research on bolts and anchors', *Bouwen met Staal* 77 (1986), p. 6-11.
16. L.P. Bouwman, 'Bijzondere aspecten bij dynamisch op trek belaste geboute verbindingen', *Bouwen met Staal* 92 (1989), p. 11-13.
In English: L.P. Bouwman, 'Special aspects of dynamically loaded bolted connections in tension', *Bouwen met Staal* 92 (1989), p. 11-13.
17. L.P. Bouwman, A.M. Gresnigt en A. Romeijn, *Onderzoek naar de bevestiging van stalen voetplaten aan funderingen van beton* (Stevin-rapport 25.6.89.05/c6), Technische Universiteit Delft, Delft 1989.
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19. *Korte ankers in beton; berekening en uitvoering* (CUR-aanbeveling 25), CUR en Bouwen met Staal, Gouda/Rotterdam 2000 (2nd edition).
In English: *Short anchor bolts in concrete: design and execution* (CUR recommendation 25), CUR and Bouwen met Staal, Gouda/Rotterdam 2000 (2nd edition).

Hollow section joints

No annex required for this chapter.