

SPS+

Butt Plate Joint

With the SPS+ program, butt plate joints in steel construction can be designed.

With the butt plate joint, two beams are connected by means of welded-on flush or protruding butt plates with two or four vertical screw rows so that they are moment resistant. I-shaped profiles are permitted as profile types.

Standards

- DIN EN 1993
- ÖNORM EN 1993

Calculation

The calculation of the connections is according to DIN EN 1993-1-8. In the verification of vertical four-row butt plate joints, the model listed in the following publications is used:

- Research report 3/2009: Entwicklung eines Bemessungsmodells für geschraubte momententragfähige Kopfplattenverbindungen mit 4 Schrauben in einer Schraubenreihe auf der Grundlage der prEN 1993-1-1:2003; Deutscher Ausschuss für Stahlbau DASt, Düsseldorf.
- WAGENKNECHT: Stahlbau-Praxis nach Eurocode 3, Band 3 Komponentenmethode, 2. Auflage; Beuth Verlag GmbH, Berlin, Wien, Zürich 2017.

Screw	
Name	M12
Strength class	10.9
Screw type	Black bolt
Initial pre-tension	without
Shear joint	Thread in shear
Hole diameter	d0 [mm] 13.0
Screw characteristics	
Tensile strength	fub [N/mm ²] 1000.0
Yield strength	fyb [N/mm ²] 900.0
Thread diameter of the screw d	[mm] 12.0
Shaft diameter	ds [mm] 12.0
Stress cross section	Asp [cm ²] 0.8
Shaft cross section	A [cm ²] 1.1
Washer diameter	dsa [mm] 24.0

