

Technical Data Sheet

Stabox[®] – rebar connection system

1. General

The Stabox rebar connections boxes are used to simplify formwork at construction joints in reinforced concrete construction. Where reinforcement bars with $\varnothing \leq 14\text{mm}$ cross a construction joint then rather than have them protrude through the formwork they can be integrated as bent bars in the Stabox case. The Stabox can be installed in the first concrete pour and after stripping the reinforcement bars can be rebent out of the case to provide a lap length for the continuing reinforcement in the correct position. Production and application of rebending reinforcement steel are regulated in the DIN 1045-1, part 12.3.2 'Bending and Rebending'. The DBV data sheet „Rebending of reinforcement steel and requirements for steel cases“ contains more detailed information on the technical requirements and the calculation basis. All the latest regulations and additional recommendations are taken into account and implemented in the Stabox production.

2. Processing standardisation and inspection

Processing and quality control inspections conform to the standards listed below unless compliance with other country-specific regulations is required.

- DIN 1045-1:2008-08
- DBV data sheet „Rebending...“ ,version January 2008
- Stabox design tables, version November 2008
- External quality control and certificate of compliance for further processing of concrete steel BSt 500 WR (semi-annual quality control, ÜZ Reg.-Nr.WV 182/20WR, Nov. 2007)
- Internal quality control BSt 500 WR (constant quality control/inspection certificates)

3. Material

Steel reinforcement complies with country-specific requirements

- Germany and standard: concrete steel reinforcement BSt 500 WR, guaranteed rebendability according to DIN 488
- Austria: BSt 550 „Tempcore 55“, according to ÖNORM B 4200-7, edition 1987.04
- Netherlands: BSt 500 WR, KOMO certificated
- Steel case: cold-rolled steel strip according to DIN – EN 10130, DC 01
- Steel cover: cold-rolled steel strip according to DIN – EN 10130, DC 01
- Galvanised, depending on the requirements of steel case/steel: hot-dipped galvanised steel strip according to DIN EN 10326/10327
- Sealing stoppers: PS polystyrene caps (to be removed after opening the reinforcement case)

Steel cases may only remain in the construction when consisting of a material with at least the same stiffness as the concrete (Stabox). Plastic made cases must be removed completely.

4. Surface quality

The classification of the reinforcement cases with respect to the surface quality „rough“, „smooth“ and „extremely smooth“ is carried out in compliance with test results of the DBV datasheet „rebending...“, enclosure A. The requirements for category „interlocked“ is specified in DIN 1045-1, picture 35 a. Unclassified reinforcement cases are to be classified as „extremely smooth“.

- Stabox S: joint surface according to DIN 1045-1, „interlocked“

Calculation of load bearing capacity:

In the case of transverse stresses V_{Ed} to the steel case (examples c, d, e) according to DBV data sheet „Rebending...“, the Stabox[®] S rebar connection fulfils the requirements of the highest category interlocked to DIN 1045-1.

It is not possible to assume higher values for c_j and μ for the calculation of the maximum possible transverse force absorption V_{Rd} to DIN 1045-1.

- Stabox T: joint surface according to DIN 1045-1, „interlocked“

Calculation of longitudinal transmission:

In the case of longitudinal stresses V_{Ed} to the steel case (examples a, b) according to DBV data sheet „Rebending...“, the Stabox[®] T rebar connection fulfils the requirements of the highest category interlocked to DIN 1045-1.

It is not possible to assume higher values for c_j and μ for the calculation of the maximum possible thrust force absorption V_{Rd} to DIN 1045-1.

5. Stabox – rebar connection design tables

The calculation basis and the tabular values for the Stabox load calculation charts are constantly adjusted to current standards.

- Standard types
 - Stabox S loading case a/b „smooth“
 - Stabox S loading case c „interlocked“
 - Stabox S loading case e „interlocked“
- Special types
 - Stabox T loading case a/b „interlocked“
 - Stabox S loading case e, corbel „interlocked“

In addition to load calculation charts, we can provide the calculation basis for all Stabox special types after having received information on the requirements for building elements and loading values.