DIN 488-6:2024-09 (E)

Reinforcing steel - Part 6: Assessment of conformity

Contents

Page

Foreword 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 6

4 Symbols 7

5 Assessment of conformity 8
5.1 General 8
5.2 Factory production control (FPC) 8
5.2.1 General 8
5.2.2 Sampling and testing of finished products 9
5.2.3 Assessment of test results 12
5.2.4 Traceability 14
5.2.5 Determination of long-term quality level 15
5.3 Initial type testing 16
5.3.1 General 16
5.3.2 Test scope (standard properties and fatigue strength) 16
5.3.3 Performing fatigue tests 19
5.3.4 Assessment, reporting and measures 20
5.4 Third-party inspection of factory production control and random testing 23
5.4.1 General 23
5.4.2 Random testing of test specimens taken in the works 23
5.4.3 Assessment, reporting and measures 29

6 Test methods 30
6.1 Test conditions 30
6.2 Bars, coils, reinforcing wire and decoiled products 30
6.3 Welded fabric 30
6.4 Lattice girders 31

7 Certification 31

Annex A (normative) **Requirements for copper contents 0,60 % < Cu ≤ 0,80 % according to the cast analysis (in connection with DIN 488-1:2009-08, Table 2)** 32

Annex B (normative) **Method for measurement of shear force of welded joints in lattice girders — Shear test on welded intersections** 34
B.1 General 34
B.2 Method 1 34
B.3 Method 2 35

Annex C (normative) **Method for determining the corrected relative rib area in the case of decoiled products** 36
C.1 General 36
C.2 Calculated value of the corrected relative rib area 36
C.2.1 General 36
C.2.2 Condition for using the corrected relative rib area 36
C.2.3 Determining the calculated value of the corrected relative rib area 37

Annex D (normative) **Tables for determining the acceptance constant *k*** 39

Bibliography 46

Figures

Figure B.1 — Principle of the shear test using method 1 34

Figure B.2 — Principle of the shear test using method 2 35

Tables

Table 1 — Symbols 7

Table 2 — Assignment of the tasks for assessing the conformity of the reinforcing steel with the requirements of this standard 8

Table 3 — Number of test specimens for welded fabrics 10

Table 4 — Number of test specimens for lattice girders 11

Table 5 — Type and number of tests for the initial type testing of bars, coils and reinforcing wire coils and bars 16

Table 6 — Number of samples for the standard properties of bars, coils, reinforcing wire coils and bars and decoiled products in the initial type testing 17

Table 7 — Type and number of tests for the initial type testing of welded fabric 18

Table 8 — Number of samples for the standard properties of welded fabric in the initial type testing 18

Table 9 — Number of samples for the standard properties of lattice girders in initial type testing 19

Table 10 — Type and number of tests for the third-party inspection of bars, coils and reinforcing wire bars and coils 24

Table 11 — Testing of the standard properties of bars, coils and reinforcing wire bars and coils in the third-party inspection 24

Table 12 — Number of samples for the standard properties of decoiled products in the third-party inspection 25

Table 13 — Type and number of tests for the third-party inspection of welded fabric 26

Table 14 — Testing of the standard properties of welded fabric in the third-party inspection 27

Table 15 — Testing the standard properties of lattice girders in the third-party inspection 28

Table 16 — Conditions for determining the mechanical properties 30

Table A.1 — Additional test rules to be applied in the factory production control for reinforcing steels with a copper content between 0,60 % < Cu ≤ 0,80 % according to the cast analysis 32

Table D.1 — Acceptance constant k for R_e, F_s, F_j, Δ_{An} and f_R and as a function of the number (n) of test results in the case of unknown standard deviation (for a permitted percentage of rejects of 5 % [$p = 0{,}95$] at a probability of 90 %) **39**

Table D.2 — Acceptance constant k for A_{gt}, $R_{e,ist}/R_{e,nenn}$ and R_m/R_e and as a function of the number (n) of test results in the case of unknown standard deviation (for a permitted percentage of rejects of 10 % [$p = 0{,}90$] at a probability of 90 %) **40**

Table D.3 — Acceptance constant k for R_e, F_s, F_j, Δ_{An} and f_R and as a function of the number (n) of test results in the case of known standard deviation (for a permitted percentage of rejects of 10 % [$p = 0{,}90$] at a probability of 90 %) **41**

Table D.4 — Acceptance constant k for A_{gt}, $R_{e,ist}/R_{e,nenn}$ and R_m/R_e and as a function of the number (n) of test results in the case of known standard deviation (for a permitted percentage of rejects of 5 % [$p = 0{,}95$] at a probability of 90 %) **42**

Table D.5 — Acceptance constant k for $2\sigma_a$ as a function of the number (n) of test results (for a permitted percentage of rejects of 5 % [$p = 0{,}95$] at a probability of 75 % according to ISO 12491:1997) **43**

Table D.6 — Acceptance constant k for R_e, F_s and F_j as a function of the number (n) of test results in the case of unknown standard deviation — valid for reinforcing steel bars, welded fabric, lattice girders and straightened reinforcing wire (for a permitted percentage of rejects of 5 % [$p = 0{,}95$] at a probability of 25 %) — ISO 12491:1997 ..... **43**

Table D.7 — Acceptance constant k for A_{gt}, $R_{e,ist}/R_{e,nenn}$ and R_m/R_e as a function of the number (n) of test results in the case of unknown standard deviation — valid for reinforcing steel bars, welded fabric, lattice girders and straightened reinforcing wire (for a permitted percentage of rejects of 10 % [$p = 0{,}90$] at a probability of 25 %) — ISO 12491:1997 ..... **44**

Table D.8 — Acceptance constant k for R_e, F_s and F_j as a function of the number (n) of test results in the case of unknown standard deviation — valid for reinforcing steel coils and reinforcing wire coils (for a permitted percentage of rejects of 5 % [$p = 0{,}95$] at a probability of 50 %) — ISO 12491:1997 ..... **44**

Table D.9 — Acceptance constant k for A_{gt}, $R_{e,ist}/R_{e,nenn}$ and R_m/R_e as a function of the number (n) of test results in the case of unknown standard deviation, valid for reinforcing steel coils and reinforcing wire coils (for a permitted percentage of rejects of 10 % [$p = 0{,}90$] at a probability of 50 %) — ISO 12491:1997 ..... **45**