Replaces:
RN 800:2023-04-06

Delivery Conditions for structural steels

S235JR; S355J2; E335

Content

Changes

2025-01-22:
The following changed in comparison to RN 800:2023-04-06:

a) updated references
b) Chapter 6 a): Correction regarding the authorisation of IACS member societies
c) Chapter 6 f): Wording for required certificates clarified
d) editorially revised

1 Scope

This factory standard applies to products of non-alloy structural steels according to the references in chapter 2. This standard applies with priority over the standards mentioned below. It applies to holders, brackets, welded components, housings and other components made of the materials mentioned, except for pipes and pipelines.

2 References

The following documents, cited in part or in whole, shall apply for the use of this standard. In case of dated references, only the referenced edition applies; in case of undated references, the latest edition of the referenced document (including all amendments) applies. The applicable version of the standards listed below shall apply to all contents not covered by this factory standard.

DIN EN 10021	General technical delivery conditions for steel products
DIN EN 10025-1	Hot rolled products of structural steels - Part 1: General technical delivery conditions
DIN EN 10025-2	Hot rolled products of structural steels - Part 2: Technical delivery conditions for non-alloy structural steels
DIN EN 10163-1	Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections - Part 1: General requirements
DIN EN 10163-2	Delivery requirements for surface conditions of hot-rolled steel plates, wide flats and sections - Part 2: Plate and wide flats
DIN EN 10204	Metallic products - Types of inspection documents
RN 68-1	Welded constructions; Steel housings
RN 68-2	Welded constructions; Housings for type yacht premium
RN 1550	Material samples
RN 1567	Remanent magnetism in components
RN 1936	Labelling; Raw material, parts and gearboxes

3 Terms and definitions

as rolled	conventional hot rolling without normalising or thermomechanical rolling and/or heat treatment conditions such as normalising or quenching The symbol for this delivery condition is **+AR**
normal annealing	heat treatment consisting of austenitisation followed by air cooling The symbol for this delivery condition is **+N**
normalising rolling	rolling process with a final forming in a specific temperature range, which leads to a material condition equivalent to that after normalising, so that the set values of the mechanical properties are maintained even after an additional normalising The symbol for this delivery condition is **+N**

4 Requirements

4.1 Chemical analysis

Note: bold values in the tables deviate from the standardised maximum specifications

Table 1 Smelt analysis (acc. to DIN EN 10025-2, tables 1 + 2, mass fractions in %)

Steel name	Material No.	C	Si	Mn	P	S	N	Cu
S235JR	1.0038	0.17	--	1.40	0.035	0.035	0.012	**≤ 0.40**
S355J2	1.0577	**0.22**	0.55	1.60	0.025	**0.030**	--	**≤ 0.40**
E335	1.0060	--	--	--	0.045	0.045	0.012	**--**

4.2 Mechanical properties

Table 2 Minimum yield strength R_{eH} (acc. to DIN EN 10025-2, tables 6 + 7, in N/mm²)

Steel name	Nominal thickness in mm							
	≤ 16	**> 16 ≤ 40**	**> 40 ≤ 63**	**> 63 ≤ 80**	**> 80 ≤ 100**	**> 100 ≤ 150**	**> 150 ≤ 200**	**> 200 ≤ 250**
S235JR	235	225	215	215	215	195	185	175
S355J2	355	345	335	325	315	295	285	275
E335	335	325	315	305	295	275	265	255

Table 3 Tensile strength R_m (acc. to DIN EN 10025-2, tables 6 + 7, in N/mm²)

Steel name	Nominal thickness in mm			
	≥ 3 ≤ 100	**> 100 ≤ 150**	**> 150 ≤ 250**	**> 250 ≤ 400**
S235JR	360 - 510	350 - 500	340 - 490	330 - 480
S355J2	470 - 630	450 - 600	450 - 600	450 - 600
E335	570 - 710	550 - 710	540 - 710	540 - 710

4.3 Heat treatment

Table 4 Required delivery conditions

Steel name	Heat treatment condition	Note
S235JR	+AR	for small parts with low mechanical load: e. g. holder, covers etc.
	+N	for parts with higher mechanical load: e. g. housings
S355J2	+N	all parts
E335	--	no indication

5 Order details

Table 5 Order details

Steel name	Heat treatment condition	Cu	Examples
S235JR	+AR +N	≤ 0.40	*Werkstoff S235JR +AR mit Cu ≤ 0,40%* *Werkstoff S235JR +N mit Cu ≤ 0,40%*
S355J2	+N	≤ 0.40	*Werkstoff S355J2 +N mit Cu ≤ 0,40%*
E335	--	--	*Werkstoff E335*

6 Other requirements

a) Steel and forging plant
- certified acc. to: DIN EN ISO 9001 ff.
- approved by at least one member society of IACS

b) Further requirements for welded constructions (if specified in the order)
- RN 68-1 and/or
- RN 68-2

c) Sample material and collection
- RN 1550

d) Remanent magnetism
- RN 1567

e) Labelling
- RN 1936

f) Documentation (must be digitally available upon delivery)
- acceptance test certificate 3.1 acc. to DIN EN 10204 per melt and furnace trip or per piece or production lot with specification of primary material and forging ratio
- copy of the acceptance test certificate 3.1 from the steel manufacturer
- evidence of radioactivity and remanent magnetism
- forging schedule (on special request)