



DIPLUS-S

HIGH-QUALITY NON-ALLOY STRUCTURAL STEELS

Specification DH-E80-A

Edition: November 2011

The specification DIPLUS-S stipulates the requirements for non-alloy structural steels above and beyond the minimum requirements stated in the EN 10025, Part 2 standard.

Product description

Designation and range of application

The DIPLUS-S specification applies to the following grades in conformity to EN 10025, Part 2, in the thickness range stated:

Grade	Plate thickness t [mm]
S235J0/J2, S275J0/J2, S355J0/J2/K2	6 ≤ t ≤ 250

DIPLUS-S can be supplied in accordance with the standard dimension chart.
Other dimensions are also possible in many cases.

Chemical composition

In accordance with EN 10025, Part 2, the following limits (stated in %) apply additionally:

S	P	Cu
≤ 0.005	≤ 0.020	≤ 0.30

The following fifteen elements are certified on the inspection certificate:

C, Si, Mn, P, S, Al, N, Cr, Cu, Mo, Ni, Nb, Ti, V, B

Maximum carbon equivalent:

Grade	Plate thickness t [mm]	CEV ¹⁾	CET ²⁾
S235J0, J2	6 ≤ t ≤ 40	0.32	0.24
	40 < t ≤ 150	0.35	0.26
	150 < t ≤ 250	0.37	0.28
S275J0, J2	6 ≤ t ≤ 40	0.38	0.29
	40 < t ≤ 150	0.40	0.31
	150 < t ≤ 250	0.42	0.33
S355J0, J2, K2	6 ≤ t ≤ 100	0.45	0.36
	100 < t ≤ 250	0.46	0.37

Delivery condition

Normalised in accordance with EN 10025-2

Order example

S355J2+N + DIPLUS-S

1) CEV = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15

2) CET = C + (Mn + Mo)/10 + (Cr + Cu)/20 + Ni/40



Mechanical and technological properties in the delivery condition

Tensile test at ambient temperature - transverse and longitudinal test specimens -

Tensile testing is performed perpendicular to the direction of rolling in conformity to EN 10025, Part 2. Since, in the majority of structural-steel engineering applications, the direction of load application in subsequent service is in the direction of rolling, plates ordered in accordance with this specification also possess the necessary minimum tensile properties in the longitudinal (i.e., the rolling) direction. This is assured by means of statistical evaluation without additional testing. Additional testing in the direction of rolling can also be agreed if desired.

Impact test on Charpy-V-specimens - longitudinal test specimens -

Grade	Plate thickness [mm]	Test temperature [°C]	Impact energy A_v [J]
S235J0	6 ≤ t ≤ 250	0	50
S235J2		-20	
S275J0		0	
S275J2		-20	
S355J0		0	
S355J2, K2		-20	

The minimum value stated is the average from three tests. Only one individual value may fall below the specified minimum average value, and must not be less than 70 % of that value. The test may be performed on Charpy-V test specimens of reduced width in the case of plate thicknesses of less than 12 mm; minimum width must be not less than 5 mm. The minimum impact value is then decreased in the same proportion as the reduction in specimen cross-section.

Ultrasonic testing

If not agreed otherwise, ultrasonic inspection in accordance with EN 10160 Class S0/E0 is performed on each plate for t ≤ 50 mm in accordance with EN 10160 Class S0/E0.

Testing

Testing is performed in accordance with EN 10025, Part 2. If not agreed otherwise, the test results are documented on Inspection Certificate 3.1 in accordance with EN 10204.

Identification of plates

If not agreed otherwise, the following marking is performed using low-stress steel stamps:

- Grade (e.g. S355J2+N + DIPLUS-S)
- Heat number
- Number of mother plate and individual plate
- Manufacturer's symbol
- Authorised inspection representative's sign

General technical delivery requirements

Unless otherwise agreed, the general technical delivery requirements in accordance with EN 10021 apply.

Tolerances

If not agreed otherwise, tolerances will be in conformity to EN 10029, Class A for thickness.

Surface quality

If not agreed otherwise, surface quality will be conform to EN 10163, Part 2, Class A1.

General note

Special characteristics not covered in this data sheet but required as a result of the intended application and/or intended working of the material must be agreed prior to placement of the corresponding order.



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The information shown on this data sheet constitutes only a product description. This data sheet is updated as and when necessary. The latest version of this data sheet is in all cases definitive and can be obtained from us on request or can be downloaded from www.dillinger.de

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