DD11 Steel

OMEGA STEEL CO.
Istanbul · Dilovası plant

1.0332 · DD11 is the base grade of EN 10111, the hot-rolled low-carbon steels for cold forming: yield 170–340 MPa, tensile ≤ 440 MPa, elongation ≥ 28 %, carbon ≤ 0.12 % — a soft, ductile strip for bending, flanging and roll-forming that is guaranteed to form where S235JR is guaranteed only to carry. Material number 1.0332, old name StW 22. We stock 1.5–6 mm black and pickled at Dilovası.

1.0332 | Yield 170–340 MPa | A80 ≥ 28 % | 1.5–6 mm stock | Black or HRPO

DD11 is what you order when the part is bent rather than bolted: a 90° flange on a 4 mm bracket, a rolled tube, a swaged trailer cross-member. It costs the same as S235JR, forms better, and its certificate promises a yield window instead of a minimum — which is exactly what a press-shop wants to know.

CHEMICAL COMPOSITION

Element	C	Mn	P	S
max. % (ladle)	0.12	0.60	0.045	0.045

Typical heat: C 0.04–0.07, Mn 0.25–0.40, Si ≤ 0.03.

MECHANICAL PROPERTIES AND FORMABILITY

Property	Requirement	Typical value	Note
Yield strength ReH	170–340 MPa (≤ 360 below 2 mm)	220–290 MPa	window, not a minimum
Tensile strength Rm	≤ 440 MPa	340–400 MPa	
Elongation A80	≥ 28 % (≥ 2 mm: A5 ≥ 24 %)	30–36 %	
Bend radius (180°)	0.5 × t transverse	passes	
Hardness	—	60–70 HRB	

EQUIVALENT GRADES

System	Grade	Note
DIN 1614-1 (old)	StW 22	historic German
EN 10111 (1998)	DD11	previous edition
JIS G3131	SPHC	
ASTM A1011	CS Type B	
GB/T 3273 / 5213	Q195 / SPHC	

BLACK OR PICKLED — WHICH SURFACE DD11 IS BOUGHT IN

Condition	Process	Surface	Best for
Black (HR, as-rolled)	none — mill scale left on	blue-black oxide, 10–40 µm, flakes when bent	welded structures, plate to be blasted, hidden parts
HRPO (pickled & oiled)	HCl pickling of coil, rinse, light oil	uniform grey-metallic, scale-free, Ra ≈ 1–3 µm	forming, painting, roll-forming, tube making, visible parts
HRP / HRPO skin-passed	pickling + temper pass	flatter, tighter gauge, no Lüders lines	pressing, blanking, precision parts
Dry (pickled, unoiled)	pickling, no oil	bare, rusts within days	immediate galvanizing or welding only

DD11 exists in both conditions. Black is cheaper and fine where the part is blasted, galvanized or welded and painted afterwards; pickled is what a roll-former or a tube mill will accept, because scale scores the tooling.

STANDARDS

EN 10111:2008 — DD11, 1.0332 · EN 10051 — tolerances · EN 10204 3.1 · Former DIN 1614 StW 22 / EN 10111 (1998) DD11