# DC05 Cold Rolled Steel

**OMEGA STEEL CO.**
Istanbul · Dilovası plant

1.0312 · DC05 is the extra-deep-drawing grade of EN 10130: yield ≤ 180 MPa, tensile 270–330 MPa, elongation ≥ 40 %, guaranteed r90 ≥ 1.9 and n90 ≥ 0.20, carbon ≤ 0.06 %, non-ageing. Material number 1.0312, old name St 15. It is the sheet for automotive outer panels, complex multi-stage draws and parts with draw ratios above 2.1. Coil and sheet 0.50–2.5 mm, matt surface B, imported or rolled to order.

1.0312 | Yield ≤ 180 MPa | A80 ≥ 40 % | r90 ≥ 1.9 · n90 ≥ 0.20 | 0.50–2.5 mm to order

DC05 exists for the parts that DC04 cannot quite finish: a wheel-arch, a fuel-tank half, a two-stage drawn cylinder with a flange. Its higher r-value keeps the wall from thinning where DC04 would neck, and the press shop pays about 15 USD/t for that margin. We bring it in from Erdemir or EU mills against the part and the tonnage.

## CHEMICAL COMPOSITION

| Element | C | Mn | P | S |
|---|---|---|---|---|
| max. % (ladle) | 0.06 | 0.35 | 0.025 | 0.025 |

Typical heat: C 0.015–0.025, Mn 0.10–0.20, Al 0.04–0.07.

## MECHANICAL PROPERTIES AND DEEP-DRAWING INDICES

| Property | Requirement | Typical value | Note |
|---|---|---|---|
| Yield strength Rp0.2 | ≤ 180 MPa | 130–170 MPa | |
| Tensile strength Rm | 270–330 MPa | 280–310 MPa | |
| Elongation A80 | ≥ 40 % | 42–48 % | |
| r90 | ≥ 1.9 | 2.0–2.3 | guaranteed |
| n90 | ≥ 0.20 | 0.21–0.24 | guaranteed |
| Ageing | non-ageing | guaranteed | |

## EQUIVALENT GRADES

| System | Grade | Note |
|---|---|---|
| DIN 1623 (old) | St 15 | historic German |
| EN 10130 (1991) | Fe P05 | previous edition |
| JIS G3141 | SPCF | |
| ASTM A1008 | EDDS | |
| GB/T 5213 | DC05 | |

## SURFACE, ROUGHNESS AND OILING ON AN OUTER-PANEL GRADE

| Code | Meaning | Ra (µm) | Typical use |
|---|---|---|---|
| A | normal surface — minor defects (pores, scratches, slight marks) allowed | — | general fabrication, hidden parts |
| B | best surface — the better side free of defects that impair a uniform paint finish | — | visible painted or plated parts |
| b (bright) | smooth roll finish | ≤ 0.4 | chrome plating, decorative |
| g (semi-bright) | standard finish | 0.4–0.9 (typ. 0.6–1.9) | painting, powder coating |
| m (matt) | shot-blasted rolls | 0.6–1.9 | deep drawing, paint adhesion |
| r (rough) | heavy texture | > 1.6 | special |
| oiling | light rust-preventive oil both sides (standard); dry or heavy oil on request | — | |

On outer panels the surface designation drives the cost more than the grade does: B with a bright or semi-bright roll finish is what a class-A painted panel needs, and it is ordered per coil rather than per lot.

## STANDARDS

EN 10130:2006 — DC05, 1.0312 · EN 10131 — tolerances · EN 10204 3.1 · Former DIN 1623 St 15 / EN 10130 Fe P05



Updated 22 September 2026 · figures are nominal; the mill certificate governs