ASTM A106 Pipe

OMEGA STEEL CO.
Istanbul · Dilovası plant

ASTM A106 is the seamless carbon-steel pipe for high-temperature service — the refinery, power-plant and process-piping standard that ASME B31.1 and B31.3 designers write when the line carries steam, hot oil or hydrocarbons above the limits of A53. Grade B (240 MPa yield, killed, fine-grain) is the grade in almost every order; it is made only seamless (hot-finished or cold-drawn) and usually triple-certified A106 / A53 Type S / API 5L Gr B. We supply ½"–24" NPS in schedules 40, 80, 160 and XXS from Turkish and EU seamless mills, plain or bevelled, black or lightly oiled, with the A106 mill test report, hydrotest and NDE per order.

A106 Grade B | Seamless only | ½"–24" NPS | Sch 40 · 80 · 160 · XXS | Dual / triple certified

A53 is the pipe you can use; A106 is the pipe the refinery inspector will accept: the same schedules and the same 240 MPa, but seamless only, killed steel, and a certificate that says "high-temperature service".

SEAMLESS PIPE — NPS, OD, WALL AND WEIGHT

NPS	OD (mm)	Wall (mm)	kg/m
½"	21.3	2	0.95
½"	21.3	7.1	2.49
¾"	26.9	2.3	1.4
¾"	26.9	6.3	3.2
1"	33.7	2.6	1.99
1"	33.7	7.1	4.66
1¼"	42.4	3.2	3.09
1½"	48.3	3.2	3.56
1½"	48.3	9.53	9.11
2"	60.3	3.6	5.03
2"	60.3	9.53	11.93
2½"	76.1	3.6	6.44
3"	88.9	4	8.38
4"	114.3	4.5	12.19

First 14 of 19 rows — the full table is on the product page.

EN 10216-1/2 (P235TR2, P235GH) and ASTM A106 Gr. B; other schedules on mill order.

GRADES, STANDARDS AND TOLERANCES

Grade / standard	Yield (MPa)	Note
A106 Grade B	240 (35 ksi)	the specified grade; tensile ≥ 415 MPa; killed, fine grain
A106 Grade A	205 (30 ksi)	rare; lighter duty
A106 Grade C	275 (40 ksi)	higher strength, C ≤ 0.35; mill order
A53 Type S Grade B	240	seamless general-purpose; usually dual-certified with A106
API 5L Grade B PSL1	245	pipeline; triple certification common
EN 10216-2 P235GH / P265GH	235 / 265	European pressure equivalents, PED

A106 Grade B chemistry: C ≤ 0.30, Mn 0.29–1.06, P ≤ 0.035, S ≤ 0.035, Si ≥ 0.10; Cu ≤ 0.40, Ni ≤ 0.40, Cr ≤ 0.40, Mo ≤ 0.15, V ≤ 0.08 (sum ≤ 1.00). Hot-finished or cold-drawn, hydrotested; NDE in lieu of hydrotest by agreement.

A106 VS A53 VS API 5L

Standard	Process	Grade / yield	Chemistry	Service	Typical use
ASTM A106 Gr B	seamless only	240 MPa	killed, Si ≥ 0.10, alloy limits	high temperature (to ≈ 425 °C; graphitisation above)	boilers, refinery and process piping (B31.1 / B31.3)
ASTM A53 Gr B	ERW (Type E) or seamless (Type S)	240 MPa	no Si minimum, fewer limits	general: water, air, gas, structural	plumbing, fire, HVAC, structural
API 5L Gr B	seamless, ERW/HFW, SAW	245 MPa	pipeline chemistry, CEV limit	oil and gas pipelines	gathering and transmission lines
EN 10216-2 P235GH	seamless	235 MPa	killed, PED	elevated temperature	European boilers and vessels
ASME SA-106	seamless	as A106	as A106	code-stamped equipment	ASME I / VIII boilers and vessels

A106 Gr B seamless can be used wherever A53 Gr B is specified, not the reverse: A53 Type E is welded and not accepted for A106 service. Most seamless stock is triple-certified A106 / A53 S / API 5L Gr B.

TEMPERATURE AND PRESSURE LIMITS

Temperature	Allowable stress S	2" sch 40 (60.3 × 3.91)	6" sch 40 (168.3 × 7.11)	Note
to 40 °C	138	≈ 150 bar	≈ 100 bar	y = 0.4, no corrosion allowance, E = 1.0
200 °C	138	≈ 150 bar	≈ 100 bar	
300 °C	126	≈ 137 bar	≈ 91 bar	
400 °C	105	≈ 114 bar	≈ 76 bar	creep range begins
425 °C	90	≈ 98 bar	≈ 65 bar	practical upper limit; graphitisation risk above ≈ 425 °C in long service
450 °C and above	—	—	—	use P11 / P22 / P91 alloy pipe

Illustrative only — the piping designer calculates per the applicable code with corrosion and mill-tolerance allowances (12.5 % under-wall). A106 is not for cryogenic service (−29 °C limit without impact testing).

STANDARDS

ASTM A106 / A106M — seamless carbon steel pipe for high-temperature service · ASME SA-106 (boiler and pressure-vessel code) · ASME B36.10M dimensions; ASME B16.25 bevels · ASME B31.1 / B31.3 / B31.9 design codes · EN 10204 3.1 / 3.2