Comparative range of common ASTM A333 grades

Low-temperature steel pipe: toughness, grades and design limits

Grade	Metallurgical group	Reference impact-test temperature*	Engineering position
Grade 1	Carbon–manganese	−45 °C (−50 °F)	General cold service; often less available than Gr.6
Grade 3	≈3.5% Ni	−101 °C (−150 °F)	Colder duty; nickel-alloy welding and supply control
Grade 6	Fine-grain carbon steel	−45 °C (−50 °F)	Common refinery, process and refrigeration grade
Grade 7	≈2.25% Ni	−73 °C (−100 °F)	Below the usual Gr.6 temperature range
Grade 8	≈9% Ni	−195 °C (−320 °F)	Specialized cryogenic duty and fabrication
Grade 9	≈1.75% Ni	−73 °C (−100 °F)	Intermediate nickel-alloy option
Grade 10	Higher-strength C–Mn	−59 °C (−75 °F)	Higher strength with weldability control
Grade 11	High-nickel alloy	−195 °C (−320 °F)	Highly specialized grade with limited availability

Source / basis: https://niktrd.com/low-temperature-steel