How should carbon steel, Cr-Mo and stainless steel be compared for elevated-temperature service?

High-Temperature Steel for Pipe and Tube: Grades, Properties and Service Limits

Family	Example specification / grade	Primary advantage	Key limitation
Carbon steel	ASTM A106 Gr.B	Availability, weldability and economics within code limits	Allowable-stress reduction and creep/oxidation limits at higher temperature
Low-alloy Cr-Mo	ASTM A335 P11/P22	Better elevated-temperature and creep behavior than carbon steel	PWHT, welding and hardness control become more important
Modified 9Cr	ASTM A335 P91	High creep strength for more demanding service	Strict heat-treatment and welding control
Austenitic stainless	A213/A312 304H/316H families	Oxidation/corrosion resistance and austenitic high-temperature stability	Cost, thermal expansion, SCC/corrosion environment and fabrication

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