Common Condenser Tube materials

condenser-tube

Material family	Example standard or grade	Advantage	Important limitation
Low-carbon steel	ASTM A179 / ASTM A214	Economical for controlled service	Requires oxygen, corrosion and water-quality control
Austenitic stainless steel	TP304L / TP316L	Good general resistance and clean surface	Chloride pitting and crevice corrosion remain possible
Duplex stainless steel	Project grade	Higher strength and chloride resistance	Weld and heat-treatment quality are critical
Copper and copper alloys	ASTM B111 / ASTM B111M	Good thermal conductivity and long condenser-service history	Some alloys are sensitive to ammonia, sulfides and erosion-corrosion
Copper-nickel	C70600 / C71500	Useful resistance in many cooling-water and marine services	Water quality, velocity and sulfide contamination must be controlled
Titanium	ASTM B338	Excellent seawater and chloride resistance	Higher initial cost and galvanic-compatibility controls
Nickel alloys	Project grade	Highly corrosive or higher-temperature service	High cost and strict fabrication/PMI requirements

Source / basis: https://niktrd.com/condenser-tube