

# Metal Tube and Fitting Material Compatibility

As a general rule, tube and fitting materials should be the same. If different materials must be considered, the following chart can be used as a general guide. Since operating conditions differ with applications, this chart should be used only as a guide and not a firm recommendation. Before making a final

decision on material combination, it should be sufficiently tested under appropriate conditions to assure suitability for the intended application. For additional material combinations, contact the Tube Fittings Division.

Tube Material	Specification	Construction	Condition	Max. Hardness	Temperature Range (7)	Application	Tube Material to Fitting & Material Compatibility												
							Seal-Lok ORFS (SAE J1453)			Triple-Lok 37° Flare (SAE J514)				Ferulok Flareless (SAE J514)			In-tru-Lok	EO / EO-2 Flareless (ISO 8434-1)	
							S	SS	B	S	SS	B	M	S	SS	M			B
Carbon Steel C-1010	SAE J524 (ASTM A179) (8)	Seamless	Fully Annealed	HRB 72	-65° to 500°F -55° to 260°C	High pressure hydraulic, air, & some specialty chem	E	NR	(6)	G	NR	(6)	NR	E	NR	NR	NR	NR	
	SAE J525 (ASTM A178) (8)	Welded & Drawn					E	NR	(6)	E	NR	(6)	NR	E	NR	NR	NR	NR	
	SAE J356	Welded & Flash Controlled					G	NR	(6)	NR	NR	(6)	NR	G	NR	NR	NR	NR	
Carbon Steel C-1021	SAE J2467	Welded & Flash Controlled	Fully Annealed	HRB 75	-65° to 500°F -55° to 260°C	High pressure hydraulic	E	NR	(6)	NR	NR	(6)	NR	E	NR	NR	NR	NR	
	SAE J2435	Welded & Drawn					E	NR	(6)	E	NR	(6)	NR	E	NR	NR	NR	NR	
Carbon Steel High Strength Low Alloy (HSLA)	SAE 2613	Welded & Flash Controlled	Sub-critically annealed	HRB 90	-65° to 500°F -55° to 260°C	High pressure hydraulic	E (10)	NR	(6)	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	SAE J2614	Welded & Drawn					E	NR	(6)	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Alloy Steel 4130	ASTM A519	Seamless			-65° to 500°F -55° to 260°C	High pressure hydraulics	E (4)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
St 37.4 (Carbon Steel)	DIN 2391 Part 2 (Metric)	Seamless	Fully Annealed	HRB 72	-65° to 500°F -55° to 260°C	High pressure hydraulic, air, & some specialty chem	E	NR	NR	G	NR	NR	NR	NR	NR	NR	NR	E	
Stainless Steel 304 & 316	ASTM A213 ASTM A269	Seamless	Fully Annealed	HRB 90	-425° to 1200°F -255° to 650°C (3)	High pressure, high temp, or generally corrosive media (1)	(6)	E	(6)	(6)	G	(6)	NR	(6)	E	NR	NR	NR	
	ASTM A249 ASTM A269	Welded & Drawn					(6)	E	(6)	(6)	E	(6)	NR	(6)	E	NR	NR	NR	
1.4571 1.4541 Stainless Steel	DIN 17458 Tab 8 (Metric)	Seamless	Fully Annealed	HRB 90	-425° to 1200° -255° to 650°C (3)	High pressure, high temp, or generally corrosive media (1)	(6)	E	NR	(6)	G	NR	NR	E	NR	NR	NR	E	
Copper	SAE J528 (ASTM B-75) (8)	Seamless	Soft Annealed Temper 0	60 Max. Rockwell 15T	-325° to 400°F -200° to 205°C	Low pressure, low temp, water, oil & air	E	(6)	E	G	(6)	E	NR	G (2)	NR	NR	E	E	
Aluminum 6061	ASTM-B210	Seamless	T6 Temper	HRB 56	-325° to 400°F -200° to 205°C	Low pressure, low temp, water, oil, air & some specialty chem	NR	NR	NR	G	NR	NR	NR	E (2)	NR	NR	(6)	NR	
			0 & T4 Temper	HRB 30			E (5)	NR	NR	G	NR	NR	NR	E (2)	NR	NR	(6)	NR	
Monel 400	ASTM-B165	Seamless	Fully Annealed	HRB 70	-400° to 800°F -240° to 425°C	Sour gas, marine & gen chem processing media	NR	(6)	NR	NR	(6)	NR	E	(6)	E	NR	NR	NR	
Nylon		Extruded	Flexible & Semi-Rigid		-60° to 200°F -50° to 95°C	Lube lines, chem process controls & air	NR	NR	NR	NR	NR	NR	G (2)	G (2)	G (2)	E	G (2), (9)		

**Ratings Key:** NR Not Recommended, F Fair, G Good, E Excellent. **Fitting Materials Code:** S Steel, SS Stainless Steel, B Brass, M Monel. **Table U7 — Tube and Fitting Material**

- Notes:**
- 1) For highly corrosive media or service environment, contact the Tube Fittings Division.
  - 2) Requires different assembly procedure. Contact the Tube Fittings Division.
  - 3) Low temperature limit for stainless steel Ferulok fittings is -20°F (-30°C).
  - 4) For brazing only. Grade 4130 not recommended with Parflange process.
  - 5) For use with Parflange process only. Not recommended with brazing.
  - 6) Use depends on specific application. Contact the Tube Fittings Division.
  - 7) Applies to tube material.
  - 8) Comparable specifications to SAE.
  - 9) With metric version of tubing.
  - 10) Not tested with Parflange. Contact the Tube Fittings Division.

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