

*From the desk of G. A. Aaker, Jr., PE.*

## Material Specifications For Selection of Exposed Bolting

Material and Service	Notes	Bolting Specification	Nut Specification
Carbon Steel			
Standard Temperature, (-20 to 250°F) sour service	(1) (2)	A193/A193M Gr B7M	A194/194M Gr 2HM
Low Temperature or sour service (-20 to -50°F)	(1) (2)	A320/A320M Gr L7M	A194/A194M Gr 7M

### Notes:

1. Standard temperature service refers to operation at temperatures from 120°C (250°F) to -29°C (-20°F). Low temperature service refers to operation at temperatures in the range of -45°C (-50°F) to -29°C (-20°F).
2. When pressure/temperature ratings cannot be achieved using B7M or L7M bolting, high alloy, precipitation hardenable, high strength bolting shall be used. Prior written approval is required from COMPANY.
3. Material designations for bolts and nuts must be stenciled on each component in an acceptable location in accordance with Paragraph 11.5.