

## Materials of Construction

Steel bolted bonnet valves described in this catalog are typically manufactured of carbon steel. When specified, the valves are available in the alloys shown below which are suitable for steam, water, oil, oil vapor, gas and general services. Please contact factory or customer service for availability and material breakdowns.

### Body and Bonnet or Cap Materials

Part No. Suffix	ASTM Classification	Material Classification	Service Conditions
None	A216 WCB	Carbon Steel	For service up to 1000° F where corrosion and oxidation are not a factor. (1) (4) (5)
6	A217 WC6	1 1/4 CR, 1/2 Mo	For service up to 1000° F. (3) (4) (5)
9	A217 WC9	2 1/4 CR, 1 Mo	For service up to 1100° F where good creep strength is required. (3) (4) (5)
5	A217 C5	5% CR, 1/2 Mo	For service up to 1200° F. Best corrosion and oxidation resistance plus high creep strength are required.
12	A217 C12	9% CR, 1 Mo	For service up to 1200° F. Best corrosion and oxidation resistance than other grades.
2	A351 LCC	Low Carbon Steel	For service from -50° F to 650° F. This material must be quenched and tempered to obtain tensile and impact properties needed at subzero temperatures.
3	A351 LC3	3 1/2% Nickel Steel	For service from -150° F to 650° F. A subsequent heat treat is given to obtain tensile and impact properties needed at subzero temperatures.

(1) Upon prolonged exposure to temperatures above 800° F, the carbide phase of carbon steel may be converted to graphite. Permissible, but not recommended for prolonged usage above 800° F.

(2) Valve regularly rated to 1000° F.

(3) Considerations should be given to the possibility of excessive oxidation (scaling) when used above 1050° F.

(4) Product used within the jurisdiction of Section 1 Power Boilers of the ASME Boiler and Pressure Vessel code is subject to the same temperature limitations as specified in that document.

(5) Product used within the jurisdiction of Power Piping, ANSI Code for Pressure Piping B31.1, is subject to the same maximum temperature limitations placed upon the material in paragraph 124.2.

### Trim Material

Part No. Suffix	API Trim Number	Nominal Trim	Seating Surfaces	Stem Material	Temperature
X	1	F6 / F6 (1)	13 Cr ASTM A217 (CA15)	13 Cr (410)	1100° F
U	5	HF / HF (2)	Stellite 6	13 Cr (410)	1200° F
A	9	Monel / Monel (4)	Monel	Monel	450° F
L	10	316 / 316 (3)	316 SS	316 SS	850° F
XU	8	F6 / HF (1) (2)	13 Cr ASTM A217 (CA 215) Stellite 6	13 Cr (410)	1100° F
AU	11	Monel / HF (4) (2)	Monel Stellite 6	Monel	450° F
LU	12	316 / HF (3) (2)	316 SS Stellite 6	316 SS	850° F

(1) 13% Chromium AISI Type 410 Stainless Steel.

(2) Hard Facing is weld deposited Cobalt base alloy.

(3) Austenitic Stainless Steel is a Ni-Cr-Mo stainless steel in the AISI Type 316 category.

(4) Ni-Cu Alloy.

### Valve Modification Suffix Identification

S.I.	Description	S.I.	Description	S.I.	Description	S.I.	Description
TD	Drain, Drill, and Tap	ST	Special Trim	SP	Special Paint	OV	(1) Gear (4) Pneumatic (2) Chainwheel (5) Hydraulic (3) Electric (6) Other
BP	Bypass	BW	Special Butt-Weld End Prep	LD	Locking Device		
PG	Special Packing and/or Gasket	RJ	Ring Joint	LR	Lantern Ring		