Aluminum - A non-ferrous metal. Its chemical weight is about one-third as much as steel. Aluminum resistant to atmospheric corrosion but can be very reactive with other metals. Thus, its main use in valve is for handwheels and identification tags.

Copper - Among the most important properties of wrought copper materials are their thermal and electrical conductivity, corrosion resistance, wear resistance and ductility. Wrought copper performs well in high temperature applications and is easily joined by soldering or brazing. Wrought copper is exclusively used for fittings.

Bronze - One of the first alloys developed in the Bronze Age. It is generally accepted as the industry standard for pressure rated bronze valves and fittings. Bronze has a higher strength than pure copper. It casts easily. Machinability is excellent and is joined easily with solder or brazing. Bronze is very resistant to pit corrosion, and is generally more resistant to most chemicals than pure copper.

Silicon Bronze - Has the ductility of copper with equal or greater corrosion strength than copper. Silicon Bronze has greater resistance to stress cracking than most brasses and the increase in strength makes it an excellent choice for a stem material in pressure rated valves.

Aluminum Bronze - The most widely accepted disc material used in butterfly valves. Aluminum Bronze is heat treatable and is equal in strength to carbon steel. Formation of an aluminum oxide layer on exposed surfaces makes this metal very corrosive resistant. However, it's not recommended for high pH wet system applications.

Brass - Generally has good corrosion resistance and machinability. It is susceptible to de-zincification in some valve design and specific application. The primary uses for wrought brass: iron valve stems and the ball and stem in ball valves.

Gray Iron - An alloy of iron, carbons and silicon that is easily cast and machined. In the as-cast condition, becomes a good pressure vessel but is susceptible to shock load and can fracture under stress. Gray iron has superior corrosion resistance to steel in certain environments making it a standard choice for iron bodies and bonnets of Class 125 & 250 Gate, Globe and Check.

Ductile Iron - Has similar chemical composition to Gray iron but special treatment in the casting process modifies the metallurgical structure yielding mechanical properties equal to carbon steel but retains the superior corrosion resistance in certain environments. This metallurgical structure change make it an ideal choice for butterfly valve bodies.

Cast Steel - Has excellent mechanical properties, good resistance to stress corrosion and sulfides. Carbon Steel has high and low temperature strength as well as excellent fatigue strength characteristics. Primarily used in the manufacture of gate, globe, check and ball valves for application up to 850°F.

Nickel-Plated Ductile Iron - Nickel coatings has received wide acceptance for use in chemical processing industry. These coatings have a high tensile strength - 50 to 225 ksi, which improves the abrasion and wear characteristics. This is plating is widely specified as a disc coating for butterfly valves.

400 Series Stainless Steel - An alloy of iron, carbon and chromium. This stainless is normally magnetic due to its martensitic structure and iron content. Four Hundred Series stainless steel is resistant to high temperature oxidation and has improved physical and mechanical properties over carbon steel. The most common application in valves is for stem materials in gate, butterfly valves and for backseat busing and wedges in Cast Steel valves.

316 Stainless Steel - An alloy of iron, carbon, nickel and chromium. This material is non-magnetic and has more ductility than 400 Series Stainless Steel. Austenitic in structure, it has very good corrosion resistance to a wide range of environments, is not susceptible to stress cracking corrosion cracking, and is not affected by heat treatment. Most common uses in valves are for body, ball and stem materials.

329 Series Stainless Steel - Duplex stainless steel’s have a micro-structure that is a mixture of austenite and ferrite. This blend produces alloys with twice the yield strength of austenitic alloys and upgrade in general corrosion resistance in parts that are not going to be welded. The most common application in valves is for stem materials in ball and butterfly valves.