



Material of Constructions for Butterfly Valves (Double & Triple Offset)- Model - 9000 & 9900

Sr. No.	Part	Carbon Steel	Low Temp. Steel	Stainless Steel	DUPLEX	Aluminium Bronze	Nickel Alloys
1	Body	ASTM A 216 Gr. WCB	ASTM A 352 Gr.LCB, LCC	ASTM A 351 Gr. CF8, CF8M	ASTM A890 Gr. 4A, 5A, 6A	ASTM B148 Gr. C95800, C95500 /B150 Gr C63200	ASTM A 494 Gr. CW6MC, CW12M, M53-1
2	Guide or Bearing Bush	SS304 / SS316 + PTFE	SS316 + PTFE	SS304, SS316 + PTFE	Duplex + PTFE	(Monel / Inconel / Brass)+ PTFE	(Monel / Inconel / Brass)+ PTFE
3	Thrust Washer	F304 / F316 / Brass	SS316 / Brass	F304 / F316 / Brass	Duplex / Brass	Brass	Inconel, Monel, Brass
4	Gasket (End Cover)	SPW(SS304, SS316, 410) + GRAPHOIL / PTFE	SPW SS316 + GRAPHOIL / PTFE	SPW(SS304, SS316) + GRAPHOIL / PTFE	SPW Duplex + GRAPHOIL / PTFE	SPW (Monel/Inconel) + GRAPHOIL / PTFE	SPW (Monel/Inconel) + GRAPHOIL / PTFE
5	End Cover	ASTM A 216 Gr. WCB	ASTM A 352 Gr.LCB, LCC	ASTM A 351 Gr. CF8, CF8M	ASTM A890 Gr. 4A, 5A, 6A	C95800, C95500, C63200	CW6MC, CW12M, M53-1
6	Bolt (End Cover)	ASTM A193 Gr. B7, B7M	ASTM A 320 L7,L7M	ASTM A 193 Gr. B8, B8M	ASTM A 193 Gr. B8, B8M	ASTM A 193 Gr. B8, B8M	ASTM A 193 Gr. B8, B8M
7	Disc	ASTM A 351 Gr. CF8, CF8M	ASTM A182 Gr. F316	ASTM A 351 Gr. CF8, CF8M	ASTM A 890 Gr. 4A, 5A, 6A	C95800, C95500, C63200	CW6MC, CW12M, M53-1
8	Stem	F304, F316, F6a, 17-4PH, AISI410	ASTM A182 Gr. F316	ASTM A 182 Gr. F304, F316	ASTM A 182 Gr. F51, F53, F55	Monel	Inconel 625, 750, 825, Monel
9	Spreader	F304, F316, F6a, 17-4PH, AISI410	SS316	SS304, SS316	ASTM A 182 Gr. F51, F53, F55	Monel	Inconel 625, 750, 825, Monel
10	Galnd Packing	PTEF / RPTFE / Graphite	PTEF / RPTFE / Graphite	PTEF / RPTFE / Graphite	PTEF / RPTFE / Graphite	PTEF / RPTFE / Graphite	PTEF / RPTFE / Graphite
11	Gland Bush	F304, F316, F6a, 17-4PH, AISI410	SS316	CF8, CF8M, SS304, SS316	4A, 5A, 6A, F51, F53, F55	C95800, C95500, C63200, Monel	INCOEL / MONEL
12	Gland Flange	WCB, A105N, SS304, SS 316	LCB, LCC, LF2, SS316	CF8, CF8M, SS304, SS316	F316, 4A, 5A, 6A, F51, F53, F55	F316, Monel	F316, INCOEL, MONEL
13	Stud	ASTM A 193 Gr. B7, B7M	ASTM A 320 L7,L7M	ASTM A 193 Gr. B8, B8M	A193 Gr. B8, B8M, B8M Cl.2	A193 Gr. B8, B8M, B8M Cl.2	A193 Gr. B8, B8M, B8M Cl.2
14	Nut	ASTM A194 2H, 2HM	194 Gr. 4L, 7M, 4	ASTM A194 Gr. 8, 8M	A194 GR. 8M, 8MA	A194 GR. 8M, 8MA	A194 GR. 8M, 8MA
15	Gasket (Retainer)	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
16	Seat Ring	(PTFE, RPTEF, Rubber, Graphite) + Metal	(PTFE, RPTEF, Rubber, Graphite) + Metal	(PTFE, RPTEF, Rubber, Graphite) + Metal	(PTFE, RPTEF, Rubber, Graphite) + Metal	(PTFE, RPTEF, Rubber, Graphite) + Metal	(PTFE, RPTEF, Rubber, Graphite) + Metal
17	Retainer	WCB, CF8, CF8M	LCB, LCC, SS316	ASTM A 351 Gr. CF8, CF8M	ASTM A890 Gr. 4A, 5A, 6A	C95800, C95500, C63200	CW6MC, CW12M, M53-1
18	Bolt (Retainer)	ASTM A193 Gr. B7, B7M	ASTM A 320 L7,L7M	ASTM A 193 Gr. B8, B8M	A193 Gr. B8, B8M, B8M Cl.2	A193 Gr. B8, B8M, B8M Cl.2	A193 Gr. B8, B8M, B8M Cl.2
19	Bracket	Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
20	Bolt (Bracket)	ASTM A193 Gr. B7, B7M	ASTM A 320 L7,L7M	ASTM A193 Gr. B8M, B8	ASTM A193 Gr. B8M, B8M Cl.2	ASTM A193 Gr. B8M, B8M Cl.2	ASTM A193 Gr. B8M, B8M Cl.2
21	Disc Pin	F304, F316, F6a, 17-4PH, AISI410	ASTM A182 Gr. F316	SS304, SS316	F51, F53, F55	Monel	Monel, Inconel
22	Bolt (Gear Operator)	ASTM A193 Gr. B7, B7M	ASTM A 320 L7,L7M	ASTM A 193 Gr. B8, B8M	ASTM A193 Gr. B8M, B8M Cl.2	ASTM A193 Gr. B8M, B8M Cl.2	ASTM A193 Gr. B8M, B8M Cl.2
23	Operation	Bare Stem, Manual & Actuation	Bare Stem, Manual & Actuation	Bare Stem, Manual & Actuation	Bare Stem, Manual & Actuation	Bare Stem, Manual & Actuation	Bare Stem, Manual & Actuation

NOTE :- ** Graphite Seat is available with Laminated seat in Triple Offset Design, not with Double Offset Design.

** Options of soft seats i.e. PTEF / RPTFE / EPDM / VION / NBR are available individually or with Flexible Metal Seat in Double Offset design.

** Item No. 15, Gasket (Retainer) is not available with soft seated valves.

** "INVACO" reserve rights to change MATERIALS & DESIGN anytime without prior notice.

