

BUTTERFLY CONTROL VALVE

Swing Clear & Step Seat

DN50 - DN2200 (2" – 84")

Leeds Valve are world leaders in the manufacture and supply of butterfly valve solutions for niche applications in many diverse industries including oil and gas, LNG, power generation, industrial gas and naval marine, in materials from carbon steel to aluminium bronze, stainless steel and titanium.

Description

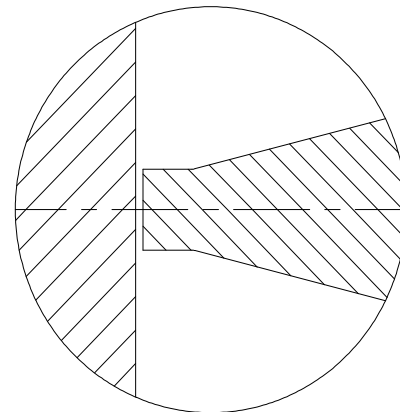
Leeds Valve Swing Clear & Step Seat Butterfly Control Valves are designed to control the flow of liquids and gases for more severe applications generally encountered in chemical and petrochemical applications where a complete tight shut-off is not essential. The 'swing clear' disc which has no contact with the valve body enables the valves to be used with high pressures and a wide range of temperatures. Reduced leakage can be obtained with our Step Seat valves on limited applications, high and low temperature gasses.

Sizes vary from 50mm up to 2200mm with body ratings of ANSI Class 150 to 2500 and NP6 to NP400. Temperatures from minus 196°C to 1000°C, line pressures up to 450 bars and closed pressure drops up to 100 bars can be handled, depending upon valve size and construction.

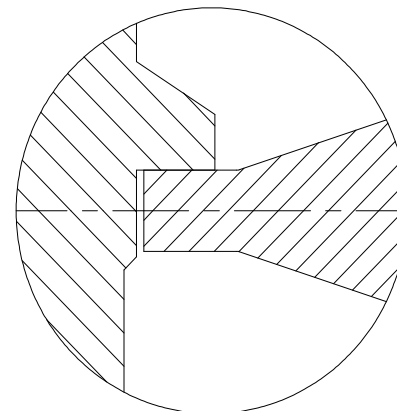
Types of swing clear and step seat valve bodies include Wafer, Lugged, Double Flanged and Butt Weld Ends. Discs have a streamlined shape which provides minimum resistance to flow and on larger valves ribs are incorporated for extra strength. Special clearance is provided between body and disc to prevent seizure in valves used at elevated temperatures.

Actuation of the valves can be pneumatic, electric or manual, operating through 60° regulating control applications and 90° for On/Off service. Accessories include positioners (pneumatic/electric), transmitters, transducers, limit switches, air sets and solenoid valves.

Standard pattern valves are generally designed to suit a static maximum pressure up to 10 Bar and pressure differentials depending on valve size and construction. Flange drilling can be up to NP16 or ANSI 150.
(Max. static pressure of 10 Bar)



Swing Clear Design



Step Seat Design

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Heavy pattern valves are for heavy duty services to suit static pressure in excess of 10 Bar and pressure differential depending on valve size and construction. Flange drilling can be up to ND400 or ANSI 2500.

To enable our engineers to offer the correct valve for the application the following data should be included in your enquiry.

- List of flow data
- For high temperature applications, details of temperature gradients and cycles, gas composition etc
- Piping material and pipe inside diameter (to ensure disc travel does not foul pipe).
- Flange rating
- Valve action on supply fail
- Actuator operating data
- Accessories
- Other information which may be important such as dust particles, abrasive fluids or gases, when copper is not allowed, high and low atmospheric temperatures, sand storms, ammonia atmosphere, special paint requirements, NDT and inspection requirements

Two butterfly valves linked together and mounted on a standard tee can be used for a three way blending, diverting or shut off valve.

The valves can be operated with manual, electric or pneumatic actuators, either one actuator with inter-connecting linkage or with two separate actuators.

Leeds valve specialize in valves for high temperature gas control.

Standard materials for low pressure applications	up to 600 °C	Heat resisting cast iron
	up to 800 °C	Stainless Steel
	up to 1000 °C	37/18 Nickel chrome alloy steel

To accommodate pipe insulation and distance actuator from heat, open type extensions are recommended on valves 250 °C / 600 °C and totally enclosed extensions in the same material as valve body for temperatures above 600 °C.

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Technical Standards

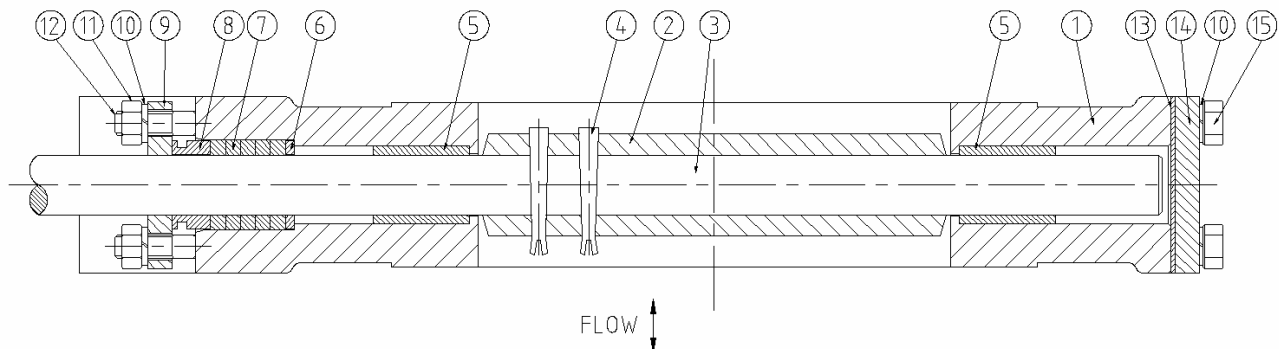
- **Design:** API 609, BS 5155, MSS SP68
- **Pressure Testing:** API 598, BS 6755 Part 1
- **Wall Thickness:** ANSI B16.34
- **Face To Face Dimensions:** BS5155, API 609, DIN 3202, ISO 5752
- **Quality Assurance:** ISO 9001:2008

Materials

	Description	Qty	Material				
			Cast Iron	Carbon Steel	Stainless Steel	Duplex	Al-Bronze
1	Body	1	BS 1452 GR 250	ASTM A216 WCB	ASTM A351 CF8M	ASTM A890 6A	BS 1400 AB2
2	Disc	1	BS 1452 GR 250	ASTM A216 WCB	ASTM A351 CF8M	ASTM A890 6A	BS 1400 AB2
3	Shaft	1	ASTM A276 316	ASTM A276 316	ASTM A276 316	UNS 32760	BS 3076 NA 18
4	Taper Pins*	2	ASTM A276 316	ASTM A276 316	ASTM A276 316	UNS 32760	BS 3076 NA 18
5	Bearings	2	GLACIER	GLACIER	GLACIER	NORGLIDE	MP2
6	Gland Ring	1	ASTM A276 316	ASTM A276 316	ASTM A276 316	UNS 32760	BS 3076 NA 18
7	Packing Rings*	6	P.T.F.E	P.T.F.E	P.T.F.E	P.T.F.E	P.T.F.E
8	Gland Follower	1	ASTM A276 316	ASTM A276 316	ASTM A276 316	ASTM A276 316	ASTM A276 316
9	Gland Plate	1	ASTM A240 316	ASTM A240 316	ASTM A240 316	ASTM A240 316	ASTM A240 316
10	Spring Washer*	6	BS 6105 304 A2	BS 6105 304 A2	BS 6105 304 A2	BS 6105 304 A2	BS 6105 304 A2
11	Hex Head Nut*	2	ASTM A194 8M	ASTM A194 8M	ASTM A194 8M	ASTM A194 8M	ASTM A194 8M
12	Engineers stud*	2	ASTM A193 B8M	ASTM A193 B8M	ASTM A193 B8M	ASTM A193 B8M	ASTM A193 B8M
13	Blank End Gasket	1	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
14	Blank End Plate	1	ASTM A240 316	ASTM A240 316	ASTM A240 316	ASTM A240 316	ASTM A240 316
15	Hex Head Screw	4	ASTM A193 B8M	ASTM A193 B8M	ASTM A193 B8M	ASTM A193 B8M	ASTM A193 B8M

Valve in closed position

Note: * items quantity may differ between sizes



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Dimensions

ANSI 150

Valve Size (mm)	A	B	C1	C2	D	E	F	G	H	J	K
50	50	99	52	108	129	106	15	50	15	4	M10x15DP
65	65	108	52	112	144	134	15	50	15	4	M10x15DP
80	80	127	52	114	151	123	15	50	15	4	M10x15DP
100	100	157	52	185	169	171	15	50	15	4	M10x15DP
125	125	188	56	140	195	184	15	50	15	4	M10x15DP
150	150	216	56	140	207	201	20	50	15	4	M10x15DP
200	200	270	60	235	247	201	20	50	15	4	M10x15DP
250	250	324	68	165	295	270	30	70	17	4	M12x20DP
300	300	378	78	356	335	310	30	70	17	4	M12x20DP
350	340	429	78	275	354	305	30	70	17	4	M12x20DP
400	390	465	78	387	385	355	35	70	17	4	M12x20DP
450	440	533	78	450	405	390	35	70	17	4	M12x20DP
500	490	568	78	229	442	415	35	70	17	4	M12x20DP
600	590	705	100	267	515	460	35	70	17	4	M12x20DP
700	690	775	100	292	585	495	35	70	17	4	M12x20DP
750	740	813	100	300	615	555	35	70	17	4	M12x20DP
800	790	864	100	316	630	595	35	70	17	4	M12x20DP
900	890	972	100	330	680	645	35	70	17	4	M12x20DP
1000	990	1080	120	410	740	705	40	70	17	4	M12x20DP

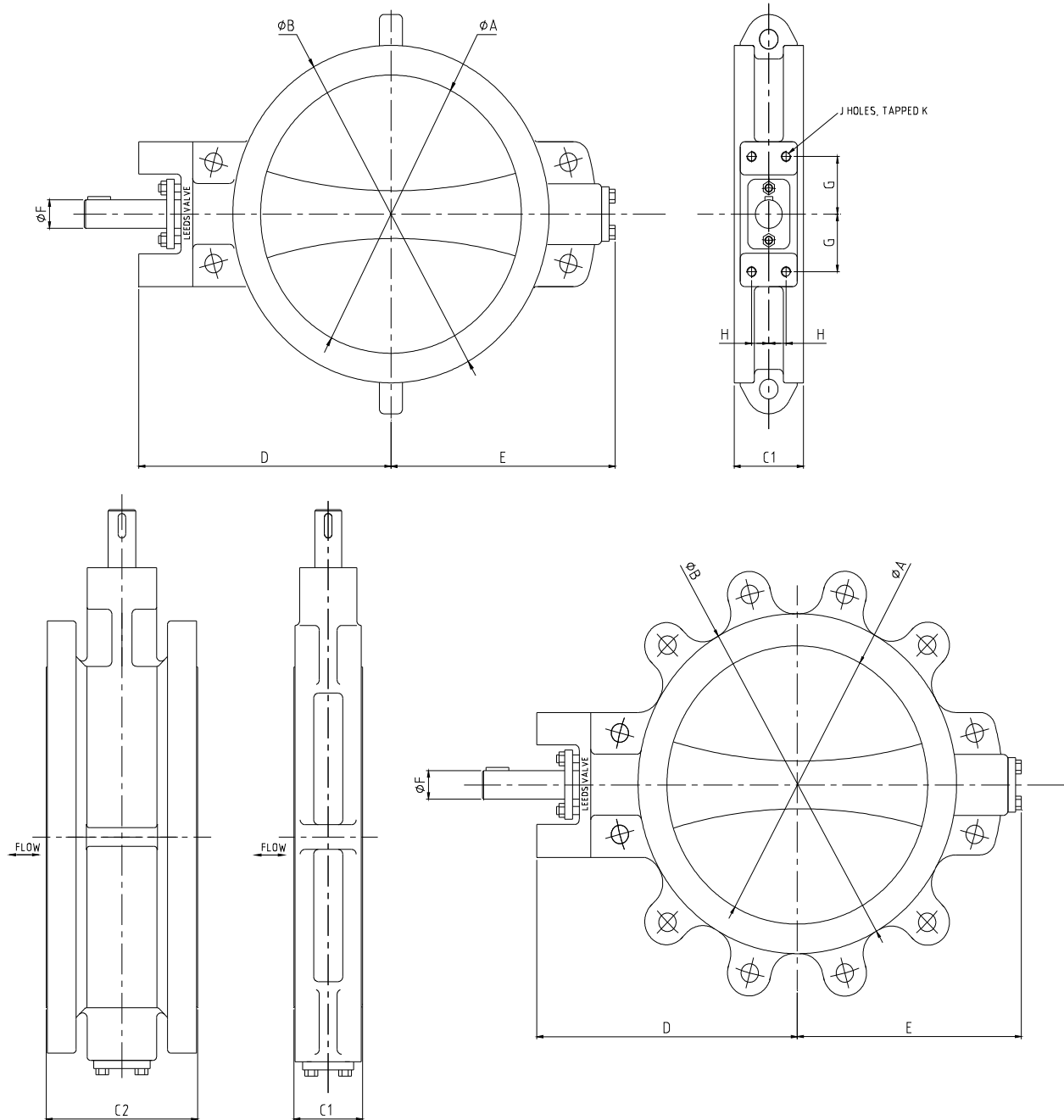
C1 = LVC Standard

For Dimensions for larger valves or valves of a higher pressure rating, please contact the sales department.

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CV Values

Nominal bore	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
50	0.6	2.4	8.6	17	29	48	74	106	148	184
65	1	3.8	13.6	27	47	77	119	173	242	297
80	1.3	5.6	17	35	64	107	176	282	442	550
100	2.3	9	28	61	111	184	294	423	552	606
125	3.8	13.7	44	97	175	285	463	685	940	1084
150	5.3	19.6	65	141	254	422	669	991	1398	1635
200	9.5	36	126	265	469	773	1221	1797	2527	2965
250	15	58	206	428	750	1231	1935	2842	3985	4819
300	21	87	307	630	1097	1793	2814	4124	5785	7119
350	27	107	381	787	1375	2254	3540	5134	7041	8515
400	36	142	514	1053	1833	2997	4666	6811	9311	11424
450	45	184	667	1358	2356	3843	5985	8725	12022	14805
500	56	222	807	1651	2871	4693	7350	10678	14700	18375
600	88	338	1211	2448	4235	6898	10794	15645	21630	27037
700	111	448	1620	3284	5691	9273	14479	21101	29253	36078
750	127	522	1893	3842	6661	10857	16936	24738	34335	42105
800	145	591	2147	5248	7527	12262	19116	27916	38898	47649
900	186	752	2741	5528	9548	15540	24202	35332	49245	60585
1000	243	1000	3510	7110	12320	20100	31500	46100	64500	77800

For Step Seats reduce the above Cv by approx. 5%

For Cv figures for larger valves or valves of a higher pressure rating, please contact the sales department.

All dimensions / weights are approximate. The information on this data sheet is accurate to the best of Leeds Valve's knowledge; however we reserve the right to alter the product specification at any time.