

Models: 87, 88

Ductile Iron Wafer and Full Lug Butterfly Valves Sizes: 2" - 24" (25 - 60mm)

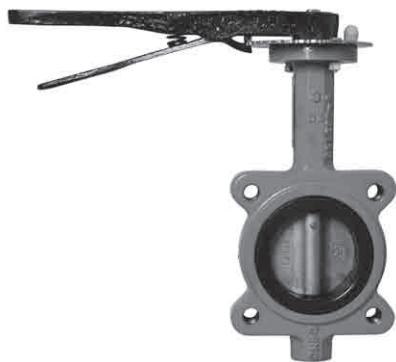
Pressure Non-Shock			
Model	Size	Material	Rating
87	2"-12"	Ductile Iron	200psi
87	14"-24"	Ductile Iron	150psi
88	2"-12"	Ductile Iron	200psi
88	14"-24"	Ductile Iron	150psi

Max. temp. can be limited by seat material. Consult Factory.

Not Recommended for Steam Service.



Model 87M (Wafer)



Model 88M (Lug)

Typical Service

These soft-seated butterfly valves are designed for a variety of general applications in the control of water, air, oil, gases, and corrosive media. They are equally effective for on-off, throttling, or isolation service requirements. Lug style valves are designed for dead-end service to the full pressure rating of the valve. Models 87 and 88 butterfly valves are especially well suited for higher velocity service and vacuum service.

Features

- Phenolic backed (2" - 14"), aluminum backed (16" - 24"),
- non-collapsible, resilient elastomer seat. Available in EPDM or Buna-N.
- ISO 5211 mount is standard. Double D shaft is standard 2" - 10" while keyway design is supplied 12" - 24"
- Stem is a one-piece design for maximum strength and is retained in valve body for blowout proof operation. 416SS stem is standard with aluminum bronze or ductile iron discs. 316SS is standard for 316SS discs (2" - 12") and 431SS is standard for 316SS discs (14" - 24")
- Stem bushings provide shaft support for proper stem alignment and minimize stem deflection. Duralon bushings are standard material in 2" - 12" sizes. Bronze bushings are standard in 14" - 24" sizes.
- Stem seals prevent external contamination of stem area and provide backup for the primary shaft seal formed by the disc/seat interface.
- ASTM-A563 ductile iron body available in full lug (Model 88) or wafer (Model 87) designed for use between ANSI 125 and 150 flanges. Face-to-face dimension comply with API 609 and MSS-SP-67.
- Available in standard 10-position locking handle or optional infinite positioning locking handle. Also gear operators are available 2" - 24". Contact the factory for electric or pneumatic actuation.

Performance Guidelines

Guidelines for throttling service:

Liquids - Line velocity should not exceed 20ft./sec.

Gases - Line velocity should not exceed 15,000 ft./min.

Materials

MODEL 87, MODEL 88	
Body	Ductile Iron
Stem	416SS, 316SS, 431SS
Disc	Ductile Iron, Aluminum Bronze, 316SS
Seat	EPDM - 5°F to 250°F (-15°C to +121°C) Buna-N - 14°F to 176°F (-10°C to +80°C)

Note: Do not use EPDM when hydrocarbons are present

Job Name _____

Contractor _____

Job Location _____

Approval _____

Engineer _____

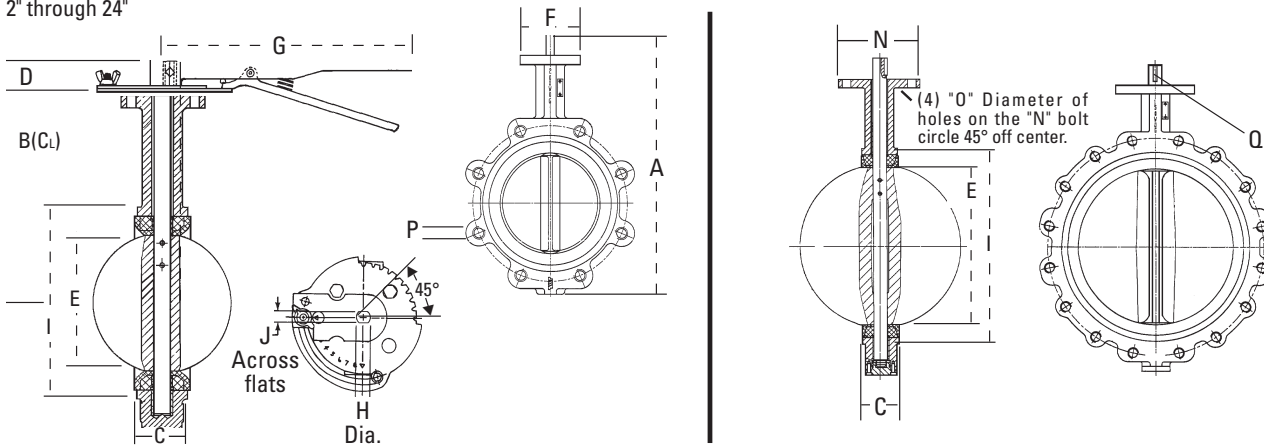
Contractor's P.O. No. _____

Approval _____

Representative _____

Dimensions and Weights

2" through 24"

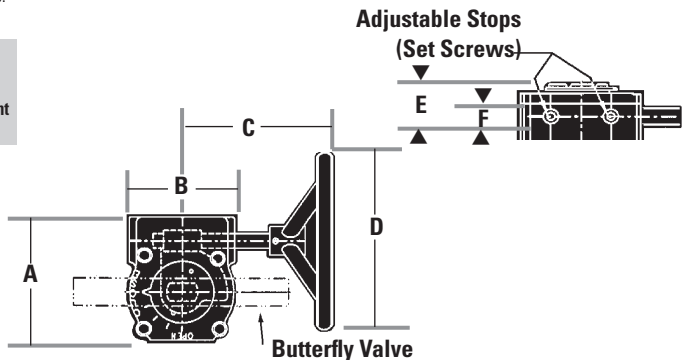


Size	A		B		C		D		E		F		G		H		I		J	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
2"	10 3/4	273	6 5/8	161	1 5/8	42	1 1/4	32	2 1/8	54	3 1/16	77	10 1/2	267	1/2	13	3 3/4	95	3/8	9
2 1/2"	11 1/2	295	6 7/8	175	1 3/4	45	1 1/4	32	2 1/2	64	3 1/16	77	10 1/2	267	1/2	13	4 1/4	108	3/8	9
3"	12 1/2	308	7 1/8	181	1 3/4	45	1 1/4	32	3 1/8	79	3 1/16	77	10 1/2	267	1/2	13	4 3/4	120	3/8	9
4"	13 1/2	346	7 3/8	200	2	52	1 1/4	32	4 1/8	105	3 3/8	92	10 1/2	267	3/8	16	6 1/8	154	1/2	11
5"	14 1/2	372	8 1/8	213	2 1/8	56	1 1/4	32	4 7/8	124	3 3/8	92	10 1/2	267	3/4	19	7 1/8	181	1/2	13
6"	15 1/2	397	8 3/8	226	2 3/16	56	1 1/4	32	6 1/8	156	3 3/8	92	10 1/2	267	3/4	19	8 3/16	208	1/2	13
8"	18 1/2	479	10 1/4	260	2 3/8	60	1 3/4	45	8	202	5	125	14	356	7/8	22	10 1/4	260	3/4	16
10"	21 1/4	540	11 1/2	292	2 3/8	66	1 3/4	45	9 1/2	251	5	125	14	356	1 1/8	29	12 1/2	320	1 1/8	21
12"	24 1/2	626	13 1/4	337	3	76	1 3/4	45	11 1/2	301	6	150	14	356	1 1/4	32	14 3/4	375	—	—
14"	26 1/4	679	14 1/2	368	3	76	1 3/4	45	13 1/2	333	6	150	—	—	1 1/4	32	15 5/16	405	—	—
16"	30	762	15 1/4	400	3 3/8	87	2	50	15 3/8	391	6 1/2	175	—	—	1 1/2	33	18 1/2	470	—	—
18"	31 1/2	800	16 1/2	422	4 1/8	105	2	50	17 3/8	442	6 1/2	175	—	—	1 1/2	38	20 1/16	525	—	—
20"	35 1/8	897	18 1/8	480	5 1/8	130	2 1/2	53	19 3/8	493	8 1/4	210	—	—	1 3/4	41	22 1/4	565	—	—
24"	42 1/2	1088	22 1/2	562	6	152	2 1/4	58	23 3/8	594	8 1/4	210	—	—	2	50	27 1/8	693	—	—

Size	TOP PLATE DRILLING				TAPPED LUG DATA				KEY WAY		WEIGHT (LBS.)†		SEATING TORQUE		Cv RATING	
	N		O		BOLT CIRCLE		NO.	BOLT P	Q		88	87	Buna-N, EPDM (in./lbs.)		Cv Rating	
	in.	mm	in.	mm	in.	mm	Holes		in.	mm			Size	Normal Conditions	Size	Full Open
2"	2	50	1/4	7	4 3/4	121	4	5/8"-11UNC x 1 1/2"	—	—	8	6	2"	134/214	2"	135
2 1/2"	2	50	1/4	7	5 1/2	140	4	5/8"-11UNC x 1 3/4"	—	—	10	7	2 1/2"	190/289	2 1/2"	220
3"	2	50	1/4	7	6	150	4	5/8"-11UNC x 1 3/4"	—	—	10	7	3"	250/387	3"	302
4"	2 1/4	70	3/8	10	7 1/2	191	8	5/8"-11UNC x 2"	—	—	17	12	4"	390/644	4"	600
5"	2 3/4	70	3/8	10	8 1/2	216	8	3/4"-10UNC x 2 1/2"	—	—	25	16	5"	600/959	5"	1,022
6"	2 3/4	70	3/8	10	9 1/2	241	8	3/4"-10UNC x 2 3/4"	—	—	27	20	6"	907/1,542	6"	1,579
8"	4	102	1/2	13	11 1/4	298	8	3/4"-10UNC x 2 3/4"	—	—	40	29	8"	1,697/2,919	8"	3,136
10"	4	102	1/2	13	14 1/4	362	12	7/8"-9UNC x 3"	—	—	63	48	10"	2,500/4,857	10"	5,340
12"	5	125	1/2	13	17	432	12	7/8"-9UNC x 3"	1/2 x 1 1/4	6 x 32	107	78	12"	3,300/7,071	12"	8,250
14"	5	125	1/2	13	18 1/4	476	12	1"-8UNC x 3"	1/4 x 1 1/4	6 x 32	156	99	14"	3,500/7,305	14"	11,917
16"	5 1/2	140	1 1/8	18	21 1/4	540	16	1"-8UNC x 3 3/4"	3/8 x 1 1 1/2	8 x 46	203	140	16"	5,500/10,027	16"	16,388
18"	5 1/2	140	1 1/8	18	22 3/4	578	16	1 1/8"-7UNC x 4 1/4"	3/8 x 1 3/8	10 x 40	269	188	18"	8,200/13,437	18"	21,705
20"	6 1/2	165	7/8	22	25	635	20	1 1/8"-7UNC x 5 1/2"	3/8 x 1 3/8	10 x 40	392	248	20"	10,000/17,925	20"	27,908
24"	6 1/2	165	7/8	22	29 1/2	750	20	1 1/4"-7UNC x 6"	1/2 x 2 3/8	13 x 60	593	450	24"	18,680/28,020	24"	43,116

†Weights are for valves with ductile iron or aluminum bronze discs. 2" - 12" have levers; 14" - 24" have bare shafts. Refer to Watts F-CDBF for gear operator weights.

GEAR DIMENSIONS: STD. WEATHERPROOF W/ HANDWHEEL								
Valve Size	A	B	C	D	E	F	#Turns Open - Close	Unit Weight (lbs)
	Depth	Width	CL to HW	HW Dia.	Height	CL to MT Pad		
2", 2 1/2", 3"	5.0	4.2	6.5	6.0	2.7	1.5	7.0	10.0
4"	5.0	4.2	6.5	6.0	2.7	1.5	7.0	10.0
5", 6"	5.0	4.2	6.5	6.0	2.7	1.5	7.0	10.0
8"	7.0	6.2	9.5	12.0	3.0	1.8	7.5	27.5
10"	7.0	6.2	9.5	12.0	3.0	1.8	7.5	27.5
12", 14"	7.8	6.4	9.5	12.0	3.0	2.0	12.5	33.0
16"	11.5	9.6	15.0	16.0	4.2	2.5	20.0	70.5
18"	11.5	9.6	15.0	16.0	4.2	2.5	20.0	70.5
20"	11.5	9.6	15.0	16.0	4.2	2.5	20.0	70.5
24"	12.6	9.1	15.0	24.0	4.5	2.0	20.0	80.0



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