

# DOUBLE FLANGED BUTTERFLY VALVE F 012-A



## TECHNICAL DATA

Nominal diameter:	2 in – 48 in
Face-to-face:	EN 558 Series 13 ISO 5752 Series 13 API 609 Table 2C BS 5155 short NF E 29-305.1
Flange accommodation:	DIN 2501 PN 6/10/16 ANSI B 16.5, Class 150 MSS SP44 Class 150 AWWA C 207 AS 2129 Table D and E BS 10 Table D and E JIS B 2211-5 K JIS B 2212-10 K
Flange Surface Design:	DIN 2526, Form A-E, ANSI RF
Top flange:	EN ISO 5211 NF E 29-402
Marking:	DIN EN 19
Tightness check:	DIN 3230 T3 BO, BN (Leakage Rate 1) ISO 5208, Category 3 API 598 Table 5 ANSI B 16-104, Class VI
Temperature range:	–4 °F to + 320 °F (depending on pressure, medium and material)
Operating pressure:	max. 230 psi
Differential pressure:	max. $\bar{p}$ 230 psi
Vacuum:	3 psi absolute (depending on medium and temperature)

The double flanged design is suitable for high pressure loading and is excellently suited for use in heavy industry, shipbuilding and waterworks.

## FEATURES

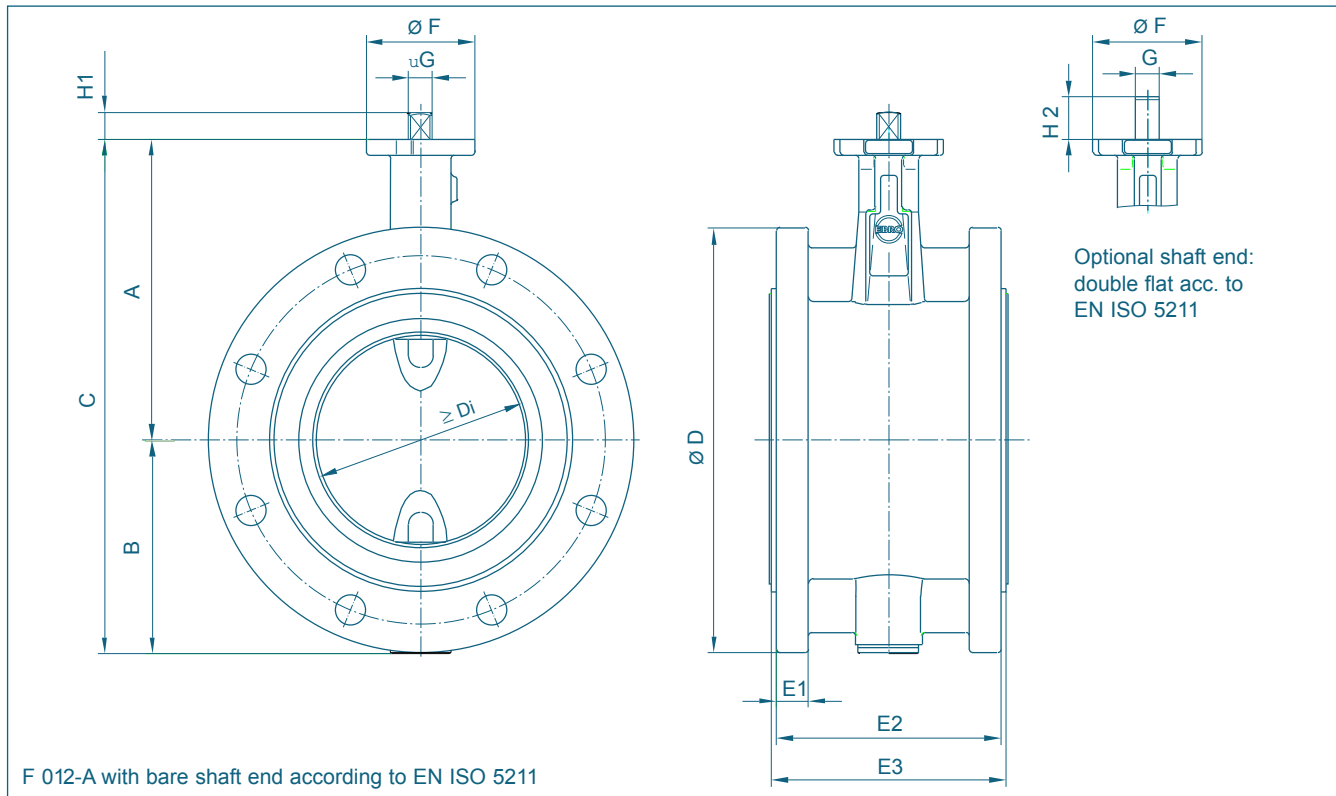
- Absolutely tight sealing with flow in either direction
- The valve body and disc are accurately machined which results in low operating torque and long service life and reliability.
- Triple shaft bearings prevents shaft deflection and guarantees optimum guidance even after many years of operating service.
- Can be disassembled, material-specific recycling possible.
- Single flange mounting is possible.
- Can be installed in any desired position.
- Maintenance-free
- Fully repairable valve

## GENERAL APPLICATIONS

- Offshore
- Water and wastewater technology
- Shipbuilding



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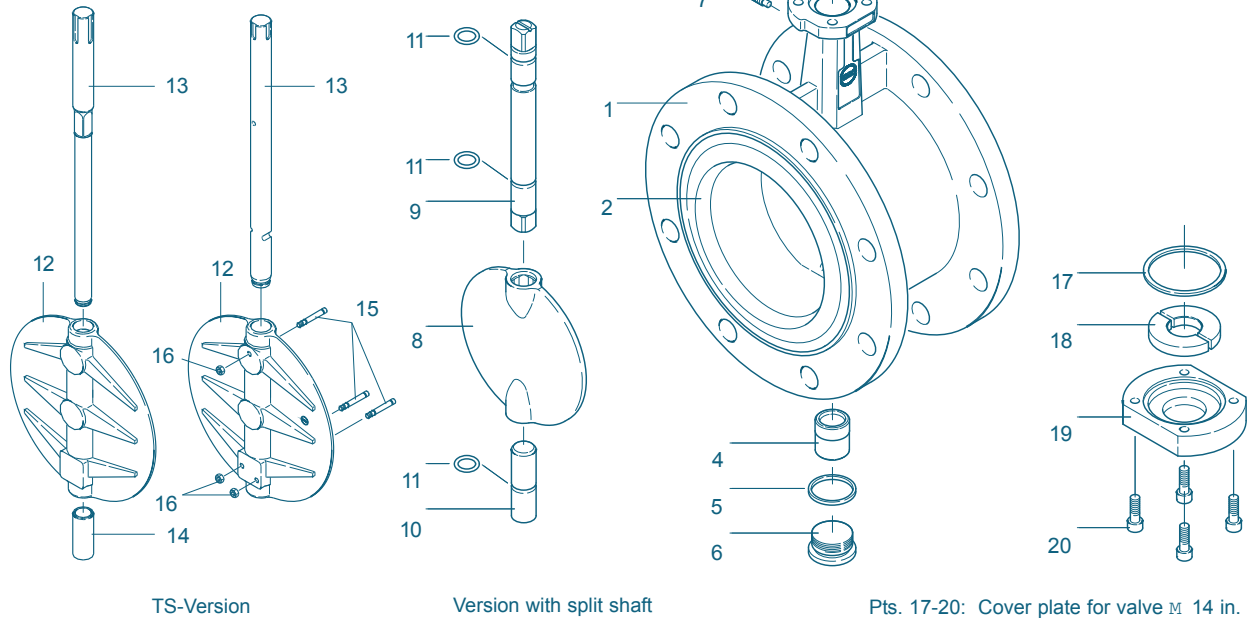
DN [mm]	Size [in]	Dimensions [in]													Weight [lb] (GGG-40)	
		A	B	C	Di	D	E1	E2	E3	F	Flange	G	H1	H2	Split Shaft	TS- Shaft
50	2	4.96	3.31	8.27	1.91	6.50	0.59	4.02	4.26	2.13	F04	0.43	0.47	0.75	20	-
65	2½	5.28	3.66	8.94	2.50	7.29	0.59	4.18	4.41	2.13	F04	0.43	0.47	0.75	22	-
80	3	6.19	4.10	10.28	3.09	7.88	0.67	4.26	4.49	2.56	F05	0.55	0.63	0.99	26	27
100	4	6.58	4.53	11.11	3.88	9.02	0.67	4.77	5.00	2.56	F05	0.55	0.63	0.99	35	36
125	5	7.09	5.00	12.10	4.87	10.01	0.75	5.28	5.52	2.56	F05	0.55	0.63	0.99	52	54
150	6	8.00	5.91	13.91	5.83	11.23	0.75	5.28	5.52	3.55	F07	0.67	0.75	1.18	63	67
200	8	8.98	6.93	15.92	7.84	13.51	0.83	5.75	5.99	3.55	F07	0.67	0.75	1.18	86	89
250	10	10.48	8.35	18.83	9.77	16.00	0.91	6.26	6.50	4.93	F10	0.87	0.95	1.54	134	141
300	12	11.47	9.34	20.80	11.66	19.03	0.95	6.70	7.01	4.93	F10	0.87	0.95	1.54	179	186
350	14	13.08	10.60	23.68	13.32	21.00	0.95	7.17	7.49	5.91	F12	*	*	-	235	247
400	16	14.30	12.37	26.67	15.29	23.52	1.10	8.20	8.51	5.91	F12	*	*	-	312	325
450	18	15.64	13.20	28.84	16.96	25.22	1.30	8.43	8.75	6.90	F14	*	*	-	402	413
500	20	17.22	15.96	33.17	19.48	27.97	1.58	8.79	9.02	8.27	F14/F16	*	*	-	512	528
550	22	17.97	17.14	35.11	21.28	29.55	1.58	8.63	9.02	8.27	F16	*	*	-	589	627
600	24	19.78	18.32	38.10	23.25	33.10	1.58	10.13	10.52	11.82	F16/F25	*	*	-	666	726
700	28	22.89	19.98	42.87	26.79	36.25	1.62	11.27	11.50	11.82	F16/F25	*	*	-	895	1012
800	32	24.82	21.91	46.73	30.73	41.37	1.85	12.29	12.53	11.82	F25	*	*	-	1328	1372
900	36	27.42	24.31	51.73	34.67	46.41	1.85	12.61	13.00	11.82	F25	*	*	-	1639	1731
1000	40	30.38	26.60	56.97	38.61	50.43	1.85	15.92	16.15	13.79	F30	*	*	-	2072	2398
1200	48	35.66	31.91	67.57	46.10	59.49	2.17	18.12	18.52	13.79	F30	*	*	-	3080	

\* according to the mounted actuator

Subject to change without notice.

# DOUBLE FLANGED BUTTERFLY VALVE F 012-A

## MATERIAL SPECIFICATION AND PARTS LIST



TS-Version

Version with split shaft

Pts. 17-20: Cover plate for valve M 14 in.

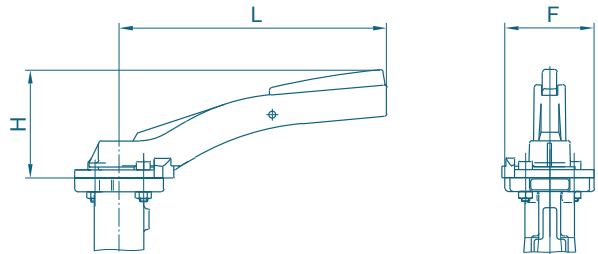
Pt.	Bezeichnung	Material	Material-No.	ASTM	Pt.	Description	Material	Material-No.	ASTM				
1	Body	Nodular Cast Iron	GGG-40	0.7040	9/10	Shafts	Stainless Steel	X14CrMoS17	1.4104	430F			
		Carbon Steel	GS-C25	1.0619			WCB	Stainless Steel	X5CrNiMo17-12-2	1.4401	316		
2	Seat	NBR	Acrylonitrile butadiene rubber			11	O-ring	Bronze	CuAlNiBZ				
		EPDM	Ethylene propylene caoutchouc					NBR	Acrylonitrile butadiene rubber				
		CSM	Chlorsulphonated polyethylene					FPM	Fluorocarbon caoutchouc				
		FPM	Fluorocarbon caoutchouc					12	TS-disc	Nodular Cast Iron	GGG-40	0.7040	60-40-18
		VSI	Silicon rubber							Stainless Steel	G-X6CrNiMo10-20	1.4408	CF8M
3/4	Bearing bush	Bronze	RG 5			13	TS-shaft	Aluminium Bronze	CuAl10Ni	2.0975	C 95800		
		Polyamide						Coating	Halar, Rilsan				
		PTFE						Surface					
								Quality	electropolished, mirror finished				
5	Seal DIN 7603	Copper	Cu			14	Sleeve	Stainless Steel	X5CrNi18-10	1.4301	304		
								Steel	St52.3	1.0570	572-50		
6	Plug screw DIN 908	Stainless Steel	11SMnPb30	1.0718 galv.	SAE12L14	15	O-ring	NBR	Acrylonitrile butadiene rubber				
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M			FPM	Fluorocarbon caoutchouc				
7	Threaded pin DIN 915	Steel	45 H galvanized			16	Retainin ring	Stainless Steel	X39CrMo17-1	1.4122			
		Stainless Steel	X5CrNiMo17-12-2	1.4401	B8M			Stainless Steel	X5CrNiMo17-12-2	1.4401	316		
8	Disc	Aluminium Bronze	CuAl10Ni	2.0975	C95800	17	O-ring	NBR	Acrylonitrile butadiene rubber				
		Coating	Halar, Rilsan					18	Shaft retention	Bronze	RG 5		
		Surface								19	Cover plate	Grey Cast Iron	GG-25
		Quality	electropolished, mirror finished					20	Screw			Steel	45 H galvanized
										Stainless Steel	X5CrNiMo17-12-2		B8M
										Other materials upon request.			

Subject to change without notice.

# ACTUATORS F 012-A

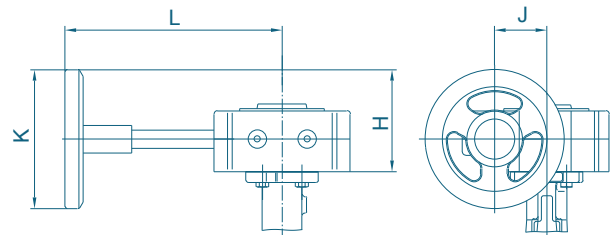
## HAND LEVER

DN [mm]	Size [in]	Hand Lever	F	H	L	Weight [lb]
50- 65	2-2½	Size II	2.13	2.76	6.11	0.22
80-125	3-5	Size II	2.56	3.15	7.68	0.33
150-200	6-8	Size III	3.54	3.94	10.87	1.10



## WORM GEAR

DN [mm]	Size [in]	Gear	H	J	K	L	Weight [lb]
50-65	2-2½	Size I	3.51	1.54	4.93	5.99	4
80-125	3-5	Size II	3.51	1.54	4.93	6.26	3
150-200	6-8	Size III	5.08	1.85	7.88	7.96	5
250	10	Size IV	5.08	2.36	7.88	9.93	6
300-350	12-14	Size V	6.23	2.99	9.85	11.03	13
400-450	16-18	Size VI	8.98	3.55	14.03	12.69	35
500	20	Size VII	10.95	4.85	18.01	16.00	67
550-600	22-24	Size VIII	13.99	6.07	24.03	18.36	99
700-800	28-32	Size XIV	11.62	2.13	18.01	18.36	143
900	36	Size XV	11.58	3.82	18.01	19.62	228
1000	40	Size XVI	9.97	9.34	14.03	21.99	409
1200	48	Size XVII	12.73	11.50	18.01	25.49	576

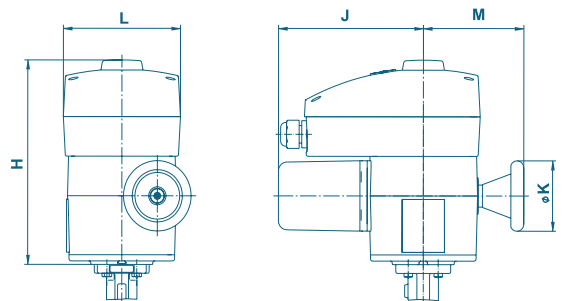


The dimensioning of actuators refers to an operating pressure of 145 psi.

## ELECTRIC ACTUATOR

DN [mm]	Size Actuator [in]	Type	H	J	K	L	M	Weight [lb]
50-150	¾-6	E 65	9.17	6.67	3.15	5.47	4.68	15
200-250	8-10	E 110	9.88	9.59	4.92	5.47	5.28	30
300-350	12-14	E 160	9.41	10.84	7.80	5.47	6.18	55
400-500	16-20	E 210	10.87	12.21	12.40	5.47	8.46	88

The dimensioning of actuators refers to an operating pressure of 145 psi.



Other Actuators: See Documentation of the Manufacturer.

Subject to change without notice.

# ACTUATORS F 012-A

## PNEUMATIC DOUBLE ACTING

DN [mm]	Size [in]	Actuator Type	H	J	K	L	Weight [lb]
50-65	2-2½	EB4	3.78	2.92	1.93	5.71	2
80-125	3-5	EB5	4.26	3.47	2.17	6.86	3
150	6	EB6	4.85	4.06	2.44	8.20	5
200	8	EB8	5.36	4.53	2.68	9.85	9
250-300	10-12	EB10	6.11	5.32	3.11	12.29	14
350-450	14-18	EB12	7.17	6.26	3.70	14.45	26
500	20	EB265	9.14	5.99	2.99	15.37	39
600-700	24-28	EB270	10.95	8.67	4.33	17.53	70
800-900	32-36	EB280	10.95	8.67	4.33	23.64	92

The dimensioning of actuators refers to the following operating conditions:

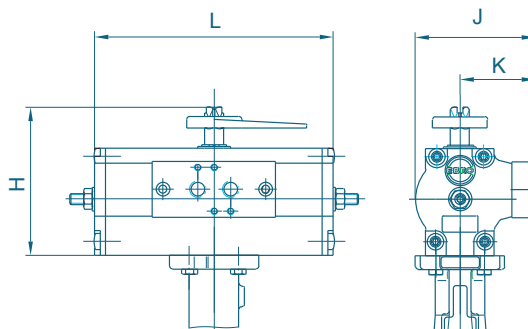
Control air Pressure: 90 psi

Operating Pressure: 1 Inch - 12 Inches 145 psi

14 Inches 90 psi

16 Inches - 36 Inches 45 psi

Dimensioning for other conditions: upon request



## PNEUMATIC SPRING RETURN

DN [mm]	Size [in]	EBF Actuator	H	J	K	L	Weight [lb]
50-100	2-4	EB5	4.26	3.47	2.17	10.76	6
125	5	EB6	4.85	4.06	2.44	12.84	11
150	6	EB8	5.36	4.53	2.68	15.33	16
200	8	EB10	6.11	5.32	3.11	20.72	31
250-300	10-12	EB12	7.17	6.26	3.70	25.85	55
350-400	14-16	EB270	10.95	8.67	4.33	25.81	99
450-600	18-24	EB280	10.95	8.67	4.33	40.19	149

The dimensioning of actuators refers to the following operating conditions:

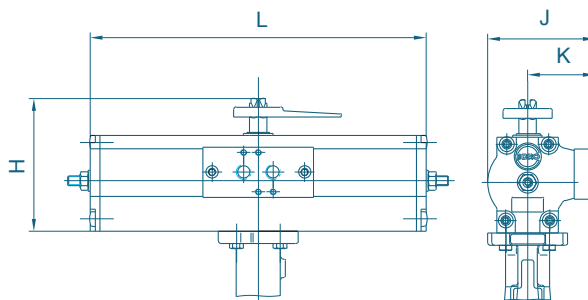
Control air Pressure: 90 psi

Operating Pressure: 1 Inch - 12 Inches 145 psi

14 Inches 90 psi

16 Inches - 36 Inches 45 psi

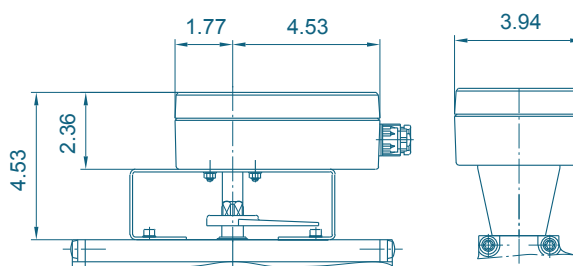
Dimensioning for other conditions: upon request



## SWITCH BOX SERIES MSK/NSK

MSK: Switch Box with integrated micro limit switches.

NSK: Switch Box with integrated proximity switches.



Other Actuators: See Documentation of the Manufacturer.

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# DOUBLE FLANGED BUTTERFLY VALVE F 012-A

## TORQUE

- The torque values specified (MD) are based on liquid and lubricant media.
  - Powdery (non-lubricant) media  
Md x 1.3
  - Dry gases/high viscous media  
Md x 1.2
  - The values specified are based on the initial breakaway torque.
  - Dynamic torque specification available upon request.
- Considering the dimensioning of actuators, please contact our engineers.

DN [mm]	Size [in]	Operating pressure			
		45 [psi]	90 [psi]	145 [psi]	230 [psi]
50	2	36	62	62	80
65	2 1/2	59	80	133	159
80	3	150	97	159	212
100	4	200	159	248	327
125	5	350	195	398	522
150	6	420	398	974	1106
200	8	720	673	1239	1770
250	10	900	1593	1770	2124
300	12	1050	2124	2478	3186
350	14	1560	4779	5399	6195
400	16	2070	5487	6638	7523
450	18	2700	6602	7611	13275
500	20	4600	9735	19957	32657
600	24	7800	10620	26550	51596
700	28	13806	19824	30533	53985
800	32	18320	33630	58410	99120
900	36	23895	43365	62835	128325
1000	40	40710	60003	101775	215940
1200	48	69030	106200	185850	389400

All Values in Inch Lbs.

## C<sub>v</sub>-VALUES

- The C<sub>v</sub>-values specified are based on tests carried out by the Delfter Hydraulics Laboratories, the Netherlands.
  - Permissible velocity of flow  
Vmax 15 ft/s for liquids and  
Vmax 230 ft/s for gases.
  - The throttle function is linear at an angle 30° to 70°.
  - Avoid cavitation!
- For further values, please contact our engineers.

DN [mm]	Size [in]	Opening angle Alpha°							
		20°	30°	40°	50°	60°	70°	80°	90°
50	2	1	9	15	26	44	58	76	99
65	2 1/2	2	10	26	49	89	138	198	250
80	3	9	28	58	110	174	279	384	488
100	4	15	33	76	151	209	395	640	930
125	5	30	76	151	267	407	616	1012	1176
150	6	41	105	233	419	744	1047	1570	2442
200	8	50	209	407	674	1163	1861	3489	4652
250	10	145	419	768	1279	2093	3605	6164	7443
300	12	233	640	1163	1861	3024	5815	8722	9885
350	14	407	907	1628	2791	4652	9304	12560	13375
400	16	570	1221	2093	3100	6396	12793	13956	16863
450	18	593	1256	2372	3896	7094	13374	16980	23841
500	20	605	1279	2554	4070	7211	13956	17561	24423
600	24	872	1628	3256	5931	10234	16282	25586	34076
700	28	895	2041	3791	6955	12328	19887	29424	41868
800	32	1397	2628	5292	9571	15003	23609	34076	51870
900	36	1791	2652	7013	12211	20469	33960	49020	68617
1000	40	2559	4617	9653	16840	27912	43147	70129	94784
1200	48	5873	9188	16049	22911	38960	61988	84957	119382