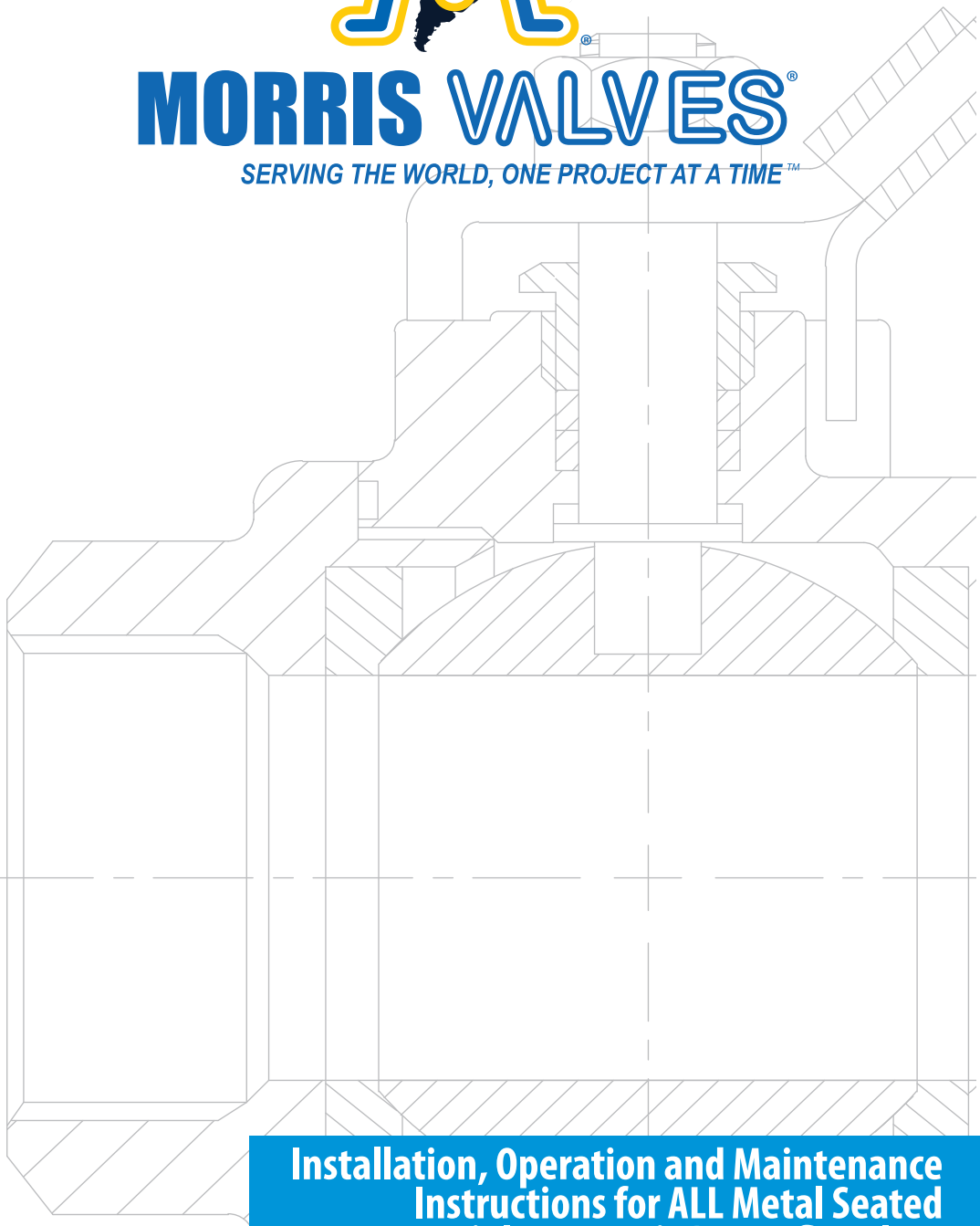
MORRIS VALVES®

SERVING THE WORLD, ONE PROJECT AT A TIME™



Installation, Operation and Maintenance Instructions for ALL Metal Seated Triple Eccentric Butterfly Valves

www.morrisvalve.com

MORRIS VALVES®

SERVING THE WORLD, ONE PROJECT AT A TIME™

In 1984, our journey into the business of repairing valves and industrial instrumentation began. That journey has led us to represent and service well known American brands and companies. In early 2000, our experience and growing passion for the valve industry encouraged our decision to launch our own brand, Morris Valves. Starting with the highly requested Ball Valves, the brand has been based on the principal of quality and performance to match our customers' needs. Our high standards of production later lead us to incorporate other models such as Gate Valve and Check Valves to our production. These additions were carefully selected to match our Standard of Quality. Our success has been driven by our belief of "Tradition with Quality" in everything we do. Our products are developed with that belief which drives our growth and guides the service we provide to our customers.

Contacts

USA
Address: 12060 S.W. 129th Court Suite – 104, Fl 33186
Telephone: +1(786) 779 7469
Email: sales@morrisvalve.com

Address: 6803 Theall Rd Building B, Houston, Tx 77066
Telefhone: +1 (832) 666-5576
Cel: +1 (786) 779-7469
Email: sales@morrisvalve.com

Venezuela - Puerto Ordaz
Address: Zona Industrial los Pinos, Manzana 7 Parcela 10, Puerto Ordaz, Edo. Bolívar.
Telephone: +58(286)994-2996
Fax: +58(286)994-4162

Vision

Our vision is to be amongst the leading corporations in the supply of goods and services related to valves, their components and industrial equipment in general. We want to conquer new markets in conformity with international standards and remain committed to customer satisfaction, the welfare of our company and the sustainability our planet.

Mision

Our mission is to use our highly trained, highly focused, and extremely motivated staff to work with manufacturers who value quality and have the vision for new development and product applications to ensure the timely provision of goods and services related to valves, their components and industrial equipment in general. We maintain a rigorous standard of customer satisfaction, which will provide for the welfare of the company, the welfare of the countries we serve, and most importantly the sustainability of the planet.

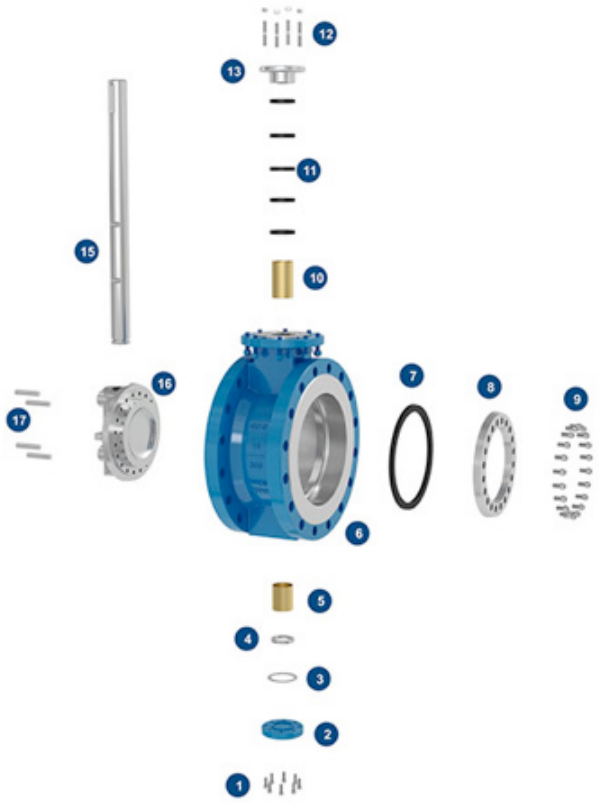
"Serving the world, one project at a time"

CE APPROVED

SIZE:
NPS (3 – 64″)

BUTTERFLY VALVE,
TRIPLE EXCENTRIC,SHUT OFF
/ WAFER, LUG, FLANGE, BW

BFV-TEXC TYPE



A. Design & Manufacture to Meet with:

a. API 609(Category B),ASME B16.34, Flanged, Wafer & Lugged Body.
Flanges meets with:
1. Wafer & Wafer Lugged:
* Face to face: API 609.
* End Flange Dimensions: ASME B16.5 & ASME B16.47.
2. Flanged:
* Face to face: API 609/ ISO 5752 Ser. 13/ Ser. 14/ Ser. 8
* Test: API 598.
EN 593, Flanged, Wafer and Lugged Body.
* Flanges meets with EN 1092.
* Face to face dimension: EN 558.
* Test: EN 12266-1

B. Features:

- Achieve tight shut-off, zero leakage at temperatures as low as – 29 to 250 ° C.
* Laminated seat valve: Zero leakage sealing in bi-directional (As per DIN class I or ANSI Class VI).
* Integral seat valve: Bi-directional tight sealing (As per ANSI Class V).
- Triple Offset valves incorporate 3-way eccentricity. The metal seat is capable of very tight shut off at Temperatures up to +600°C.
- Excellent isolation function for gas and liquid.
- Takes up little space between flanges for its installation.
- Applicable to harsh working condition such as high temperature, high pressure and corrosive conditions.
- Welded stainless steel or stellite body seat, is specially designed for long service life.
- The seal ring is easy to be replaced and adjusted.
- Inherently fire safe design (Metal to Metal Seating Surface).
- Actuator.
* Lever handle, Gear box and hand wheel, Electric Actuators, Pneumatic actuators.
- Accessories.
* Local Position Indicator.
* On-OFF Limit Switches.
- ISO 5211 square drive shaft for easy automation.
- CE/PED Certification, Per EN 10204-3.1 available for all the Sizes.

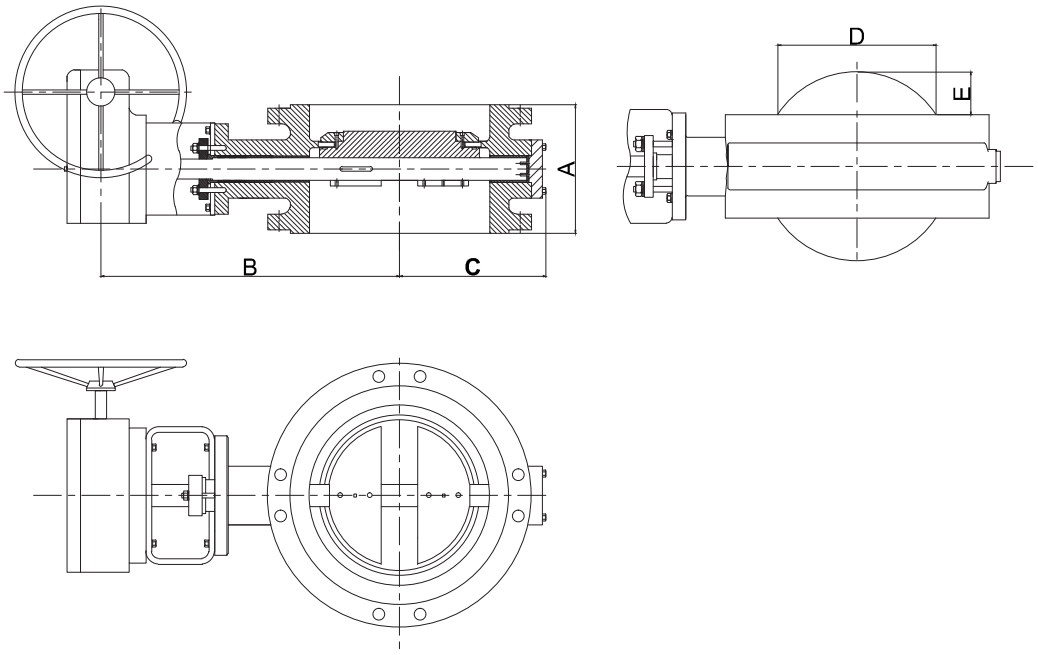
C. Usually used to shut off flow or Isolation functions in piping systems. Widely applied in the field of:

- Energy Industry (High temperature Applications).
* Steam Plants in Geothermal Plants.
* Thermo-Electric Generation Plants.
- Water supply and drainage.
- Sewage disposal.
- Industrial pipe lines with corrosive medium in:
* Metallurgy.
* Iron and Steel Plants.
* Petro-Chemical Industry.

D. Main Parts and Materials, Basic Configuration.

ITEM	PART NAME	CARBON STEEL	STAINLESS STEEL	LOW TEMPERATURE Steel	HIGH TEMPERATURE Steel
1	Screw for bottom cover	8.8/B7	B8	B8/L7	B8/L7
2	Bottom cover	A105	304	304/LF2	304/LF2
3	Gasket	304+Graphite	304+Graphite	304+Graphite	304+Graphite
4	Clamping ring	1035	304	304	304
5	Lower bushing	SF-1	SF-1S/C95200	SF-1S/C95200	SF-1S/C95200
6	Body	WCB	CF8	LCB/LC1	LCB/LC1
7	Sealing ring	304+Graphite	304+Graphite	304+Graphite	304+Graphite
8	Retaining ring	A105	304	304/LF2	304/LF2
9	Screws on retaining ring	8.8/B7	B8	B8/L7	B8/L7
10	Upper Bushing	SF-1	SF-1/C95200	SF-1/C95200	SF-1/C95200
11	Packing	Flexible Graphite	Flexible Graphite	Flexible Graphite	Flexible Graphite
12	Studs for gland	8.8/B7	B8	B8/L7	B8/L7
13	Packing gland	WCB	CF8	CF8/LF2	CF8/LF2
14	Yoke	WCB	WCB/CF8	WCB/CF8	WCB/CF8
15	Shaft	410/420	304/17-4PH	410/17-4PH	410/17-4PH
16	Disc	WCB	CF8	LCB/LC1	LCB/LC1
17	Pin	410/420	304/17-4PH	410/17-4PH	304/XM-19

FLANGED TYPE

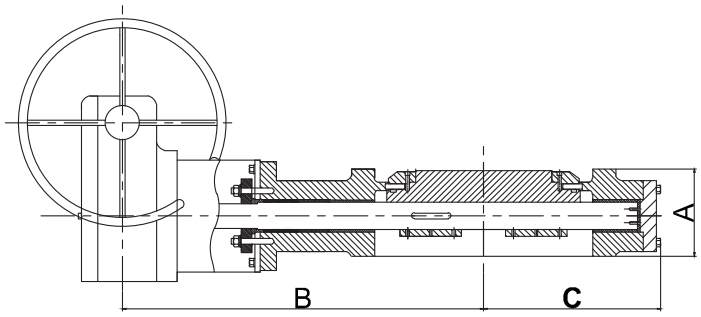


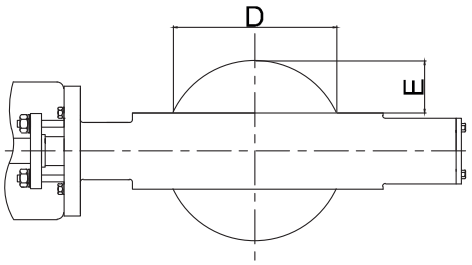
SIZE NPS	CLASS 150							CLASS 300						CLASS 600					CLASS 900					CLASS 1500			
(in)	DN	A	B	C	D	E	Wt	A	B	C	D	E	Wt	A	B	C	D	Wt	DN	A	B	C	Wt	A	B	C	Wt
3	80	114	265	130			30	114	265	130			50	180	335	155		50									
4	100	127	275	140			35	127	275	150			70	190	372	170		60									
6	150	140	300	160	45	8	45	140	390	200			80	210	410	200		95	150	225	466	254	199	275	475	257	450
8	200	152	415	205	128	28	65	152	455	230	125	28	125	230	490	255		230	200	275	568	305	445	325	575	307	770
10	250	165	475	240	182	45	110	165	490	253	180	46	165	250	580	305		365	250	325	618	331	504	390	630	371	1323
12	300	178	510	265	235	65	150	178	545	295	235	66	216	270	600	335	61	395	300	375	700	407	710	450	720	414	1628
14	350	190	560	305	265	75	190	190	585	335	275	78	305	290	630	370	150	445	350	425	759	432	978	515	770	493	2860
16	400	216	590	335	294	78	250	216	625	375	291	77	380	310	750	410	172	735	400	475	825	483	1354	575	830	530	3630
18	450	222	585	360	345	100	280	222	680	405	336	105	420	330	816	455	226	910	450	500	875	534	1737	640	925	591	4730
20	500	229	670	395	380	115	385	229	755	455	395	120	530	350	820	475	263	1435	500	575	985	585	2212	700	1015	664	5500
24	600	267	725	475	475	145	570	267	910	530	476	150	1040	390	990	565	353	1520	600	675	1055	661	3793	765	1090	780	8448
28	700	292	820	495	555	180	760	292	950	565	564	185	1440	470	1200	665	470	2440									
32	800	318	1000	640	677	224	860	318	1082	665	655	211	1720														
34	850	330	1025	650	706	235	1060	330	1130	695	699	235	1960														
36	900	330	1030	675	740	250	1100	330	1192	745	699	235	2035														
38	950	410	1055	690	752	238	1240	410	1120	715	762	235	2460														
40	1000	410	1145	745	783	250	1657	410	1140	735	815	261	2750														
42	1050	410	1200	795	867	285	1871	410	1220	775	868	290	3275														
48	1200	470	1385	905	980	320	2858	470	1405	885	994	335	5100														
54	1350	530	1365	950	1110	369	3800																				
60	1500	600	1450	1040	1240	402	4600																				
64	1600	600	1700	1150	1271	416	6080																				

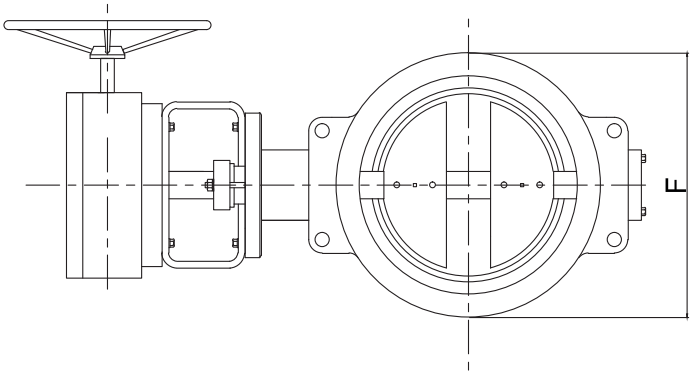
All dimensions in mm and weights in kg
Class 600 - Face-to-face dimensions above 24" are manufacturer's standard.
Class 900 - Face-to-face dimensions are as per ISO 5752 Ser. 8
Class 1500 - Face-to-face dimensions are as per manufacturer's standard.

MORRIS VALVES
SERVING THE WORLD, ONE PROJECT AT A TIME
6803 Theall Rd Building B, Houston, Texas. 77066 Phone :+1 (832) 666-5576 www.morrisvalve.com

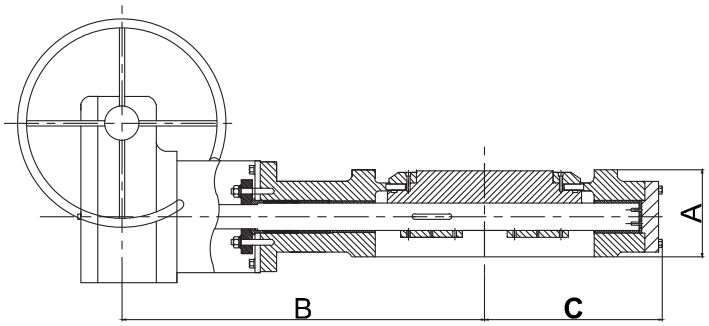
WAFER TYPE

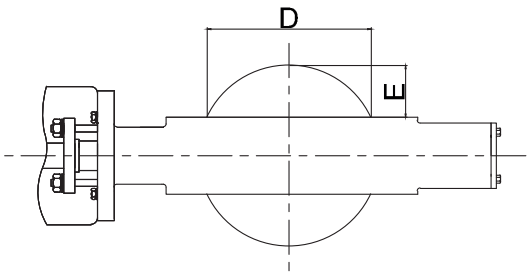


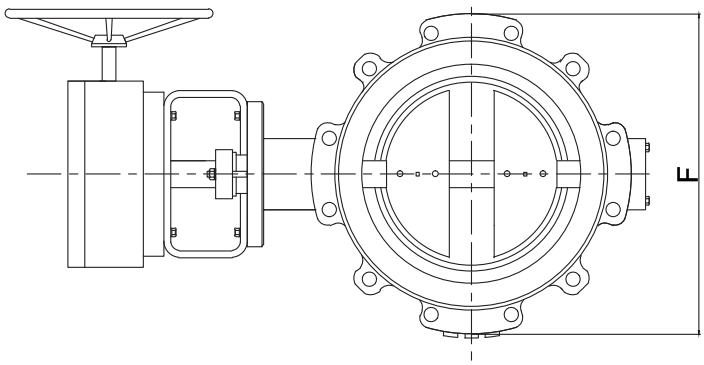




LUG TYPE





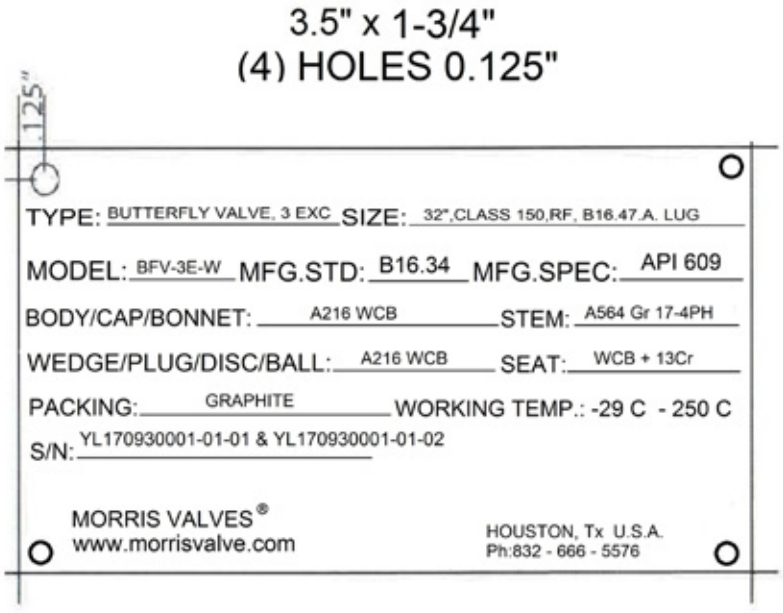


SIZE		CLASS	A	B	C	D	E	WAFER		LUG	
NPS (in)	DN							J	Wt (Kg)	J	Wt (Kg)
3	80	150	48	265	130	75	18	127	25	190	30
		300	48	265	130	71	18	127	31	210	40
		600	54	335	155	71	15	127	35	210	48
4	100	150	54	270	140	99	27	158	31	230	35
		300	54	267	148	94	27	158	60	255	71
		600	64	372	170	94	16	158	44	275	60
6	150	150	57	300	160	151	52	216	40	280	45
		300	59	350	195	143	52	216	58	320	76
		600	78	410	182	143	30	216	70	355	95
8	200	150	64	325	190	197	70	270	58	345	65
		300	73	423	222	188	70	270	97	380	126
		600	102	490	255	183	41	270	147	420	200
10	250	150	71	470	240	249	85	324	98	405	110
		300	83	435	250	242	85	324	120	445	156
		600	117	580	305	231	64	324	268	510	365
12	300	150	81	460	260	299	110	381	134	485	150
		300	92	535	295	292	110	381	166	520	216
		600	140	600	335	275	64	381	300	560	408
14	350	150	92	560	305	331	147	413	170	535	190
		300	117	610	330	324	147	413	235	585	305
		600	155	630	370	302	85	413	313	605	425
16	400	150	102	560	345	381	153	470	223	595	250
		300	133	642	370	375	153	470	292	650	380
		600	178	750	410	348	89	470	603	685	820
18	450	150	114	586	360	432	165	534	250	635	280
		300	149	690	400	422	165	534	323	710	420
		600	200	816	455	392	101	534	669	745	910
20	500	150	127	700	390	483	157	585	344	700	385
		300	159	755	450	472	157	585	408	775	530
		600	216	820	475	437	113	585	809	815	1100
24	600	150	154	725	455	578	220	693	491	815	550
		300	181	925	530	562	220	693	785	915	1020
		600	232	990	565	519	132	693	1118	940	1520

Installation, Operation and Maintenance Instructions for ALL Metal Seated Triple Eccentric Butterfly Valves

Identification of valves

1. Each valve has a stainless steel name plate fixed to the body. The nameplate is marked with details such as valve size (in inches), ASME class rating, materials of construction, limiting temperature and serial number of the valve. A typical name plate is shown bellow.



Tag number will also be attached to the valve if requested at the time of order.

MORRIS VALVES
SERVING THE WORLD, ONE PROJECT AT A TIME
6803 Theall Rd Building B, Houston, Texas. 77066 Phone :+1 (832) 666-5576 www.morrisvalve.com

Storage

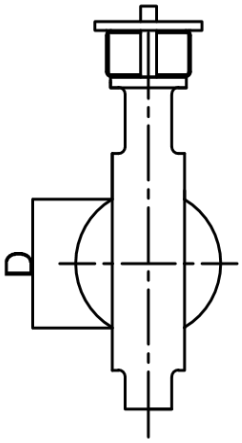
* On receipt check that the valve and accessories are intact. Ensure that the valve is in fully closed position.
* End protectors on either side of the valve should be kept intact and removed only at the time of installation.
* Valve should be stored in a covered area. If covered area is not available, waterproof covering material should be spread over the valves and the valves should be kept on a wooden pallet at least 6" (150mm) above the ground level.
* Do not apply tar, paint, grease or any other material inside the valve, as this will impair the performance of the valve.
* While transporting the valve from storage to installation site, it shall not be dragged on the floor.

Planning and Responsibilities

* Conduct a risk assessment and eliminate or reduce hazards to an acceptable level.
* Work in accordance with safe Procedures of work.
* Observe all site health safety rules according the OSHA.
* Due to variety of duties in which this valve can be employed, it is the end user's responsibility to ensure compatibility of media with the material of construction of the product for each specific application.
* Before equipment is installed in areas which may be subject to extreme seismic activity consult with your Safety Department.

What to do, What do not.

* **These valves are not to be used for End of line service.**
* Wear all necessary protective equipment for conducting the work.
* Never remove or maintain a valve or joint unless the line has been fully drained and de-pressurized.
* Ensure that the valves are used within the pressure temperature service conditions as per ASME B16.34. Also refer name plate for pressure temperature limits.
* Valve hand wheels are designed only for operation. The hand wheel must not be used for handling the valve.
* Lined Pipes and Heavy walled pipes should have a minimum inside diameter well clear of Dimension "D" (Refer Figure) in Disc full open position



Installation

Preparation for Installation

* Move the valves as close as possible to the installation site before removing the end protectors.
* After removing the end protectors, check the inside of the valve and remove any rust inhibitor or dirt.
* Clean the pipe flanges of any rust / dirt.
* In flanged end valves the raised face should be cleaned and free of any damage/score marks.
* In BW End valves ensure that the End preparation is in line with the mating part and free from any damage / nicks etc.
* Ensure that the pipe line has been flushed free of dirt, weld spatter etc. before installation.

Pre-Commissioning Test

* All valves are factory tested in accordance with API 598, as mentioned in the product catalogue.
* Wherever valves are required to be re-tested before installation, ensure that a proper test rig is available at the site. Valves should be tested as per API 598,by an authorized faculty as per approved procedures
Only demineralised water free of dirt and suspended impurities shall be used for testing. It is advisable to add corrosion inhibitor in the water and it is also recommended that after testing is over, the valve internals are dried with dry nitrogen or air.

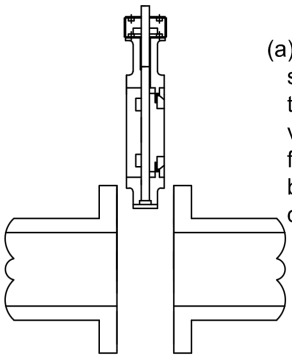
Installation Configuration

* For best performance it is recommended that these valves are installed with the shaft horizontal with the hand wheel facing up.
* This valve has bi-directional sealing capabilities and therefore can be installed in either direction. However, a preferred flow direction is indicated in the valve by means of an arrow mark and it is strongly recommended that the valve is installed such that the flow is in the direction of the arrow.

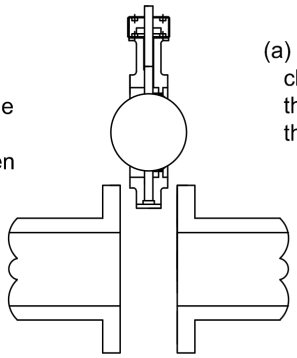
Lifting Position

* Valves should be lifted using suitable mechanical equipment.
* Chains, Slings and other lifting equipment should be regularly inspected.
* Do not attempt to lift the valve by applying load on hand wheel, Gear Unit, actuator or any other accessory.
* Chains or slings should be fixed around the valve body.
* Use lifting Lugs, eyebolts for handling.
* Valves shall be in closed position during handling.
*When valves are fitted with Fail-Open actuators, care is to be taken so as to manually override the valves to close position.

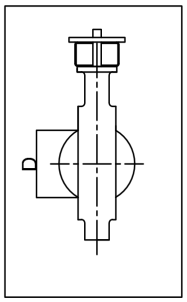
☑ Corret Installation ☒ Incorret Installation

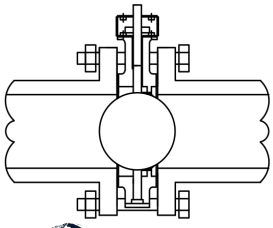


(a) Mating pipe flange should be kept well apart to allow free access for the valve. the disc should be fully closed or slightly open but not protruding to damage the seal.

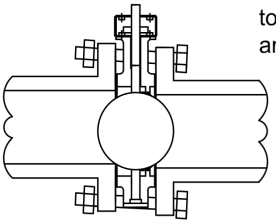


(a) Mating flange are too close to allow access for the valve and the disc in the wrong position.





(b) Before evenly tightening the flange bolts see that the valve is centralised and then it possible, fully open with care to ensure the seal does not foul the internal bore of the pipe.



(b) If the valve is not centralised between the adjoining pipe flanges this will result in excessive torque, damage to the seal and eventual leakage.

MORRIS VALVES
SERVING THE WORLD, ONE PROJECT AT A TIME

6803 Theall Rd Building B, Houston, Texas. 77066 Phone :+1 (832) 666-5576 www.morrisvalve.com

Flanged End Connections.

* These valves are manufactured in accordance to the standards specified in the product catalogue, unless otherwise specified by the customer.
* Gaskets and flange bolting which are not supplied with the valve should meet the requirement of the end flange standard of the valve.
* Pipe flanges shall be pulled together evenly by tightening opposite pairs of bolts in star pattern.
* For wafer type valves, it has to be ensured that the valve bore is along the centerline of the pipe.
* Ensure that the pipeline stresses are not transferred on to the valve as this may impair the performance of the valve.
* Do not use the valve as a jack to pull the pipe into alignment.

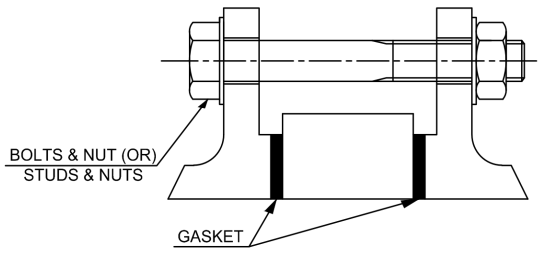
Butt welded Connections

* The valve ends and the pipe ends should be aligned.
* The pipe work in the butt weld end connection should also have the correct gap to allow the end to end dimension of the valve.
* Correct welding material shall be used as per approved procedures for welding.

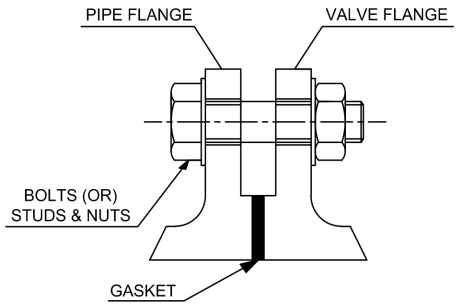
WARNING: Valve should be kept in closed position during welding.

Bolting Arrangement

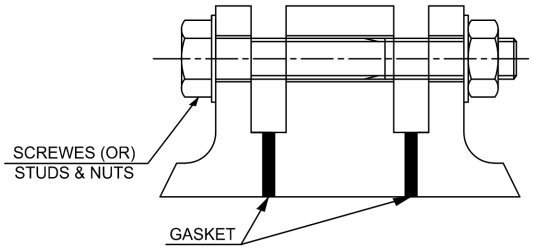
1. The bolting arrangement will vary according to the type of valve. Refer Fig for details.



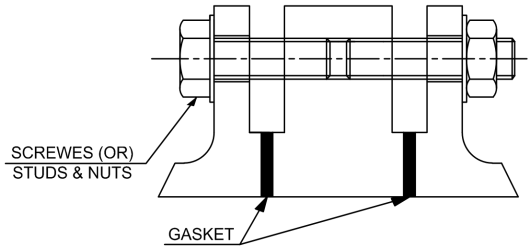
WAFER



DOUBLE FLANGED



WAFER LUGGED
CLEARANCE HOLES



WAFER LUGGED
THERADED HOLES

Operation

* These valves are not to be used for End of line service.
* These valves are provided with various operators such as Manual (Gear unit), Electric or Pneumatic actuators.
* Gear units are of worm type and are self-locking. The direction of rotation of the hand wheel to shut the valve is indicated on it. Position indicators on the gear unit show the angular movement of the disc and also the open and shut positions.

Electrical Actuators.

* Electrical actuators are fitted to the manual override gear unit or directly mounted.
* For operational details consult the manufacturer's instruction manual and the appropriate wiring diagram.
* Ensure that electrical connections are given as indicated in the wiring diagram for the specific actuator.
* Before making a test run move the disc to an intermediary position by means of the hand wheel.
* Start the motor and see if the working direction is correct.
* Ensure correct phase connection to avoid failure of actuator.

Pneumatic Actuators

* Pneumatic actuators are fitted to the manual override gear unit or directly mounted.
* For operational details consult the manufacturer's instruction manual and appropriate pneumatic circuit diagram.
* Ensure that the port connections are as given in the pneumatic circuit.
* For Double acting actuators, move the disc to an intermediate position by using manual override.
* Run a test by supplying air and see if the direction of operation is correct.

Operator Accessories.

* Mechanical Stopper – Mechanical stoppers are provided on gear units and manual override gear units. These are factory set and should not be disturbed.
* Limit Switch – Limit switches are factory set and should not be disturbed.
* However, for valves with extension spindle, actuator is approximately pre-set and should be reset at site. The pre-setting can also be modified if required once the valve has been put into service. Consult manufacturer instruction for more details.

*** Warning: In valves fitted with PTFE gland packing, and gasket with PTFE filler, which have been exposed to an external fire, it is recommended that the packing and the gasket be changed immediately before further use of the valve.**

In-line Maintenance

* These butterfly valves require only minimum in-line maintenance for satisfactory performance.
* Check Gland nuts for tightness at regular intervals. If loose, tighten them evenly.
* Refer Table I for Gland nut tightening Torque.

TABLE I - Gland tightening torque in Nm (Max)

Valve Size (in)	Class 150	Class 300
3	4- 13	5.1 - 15
4	4 - 14	5.1 - 15
6	5.1 - 25	7.3 - 30
8	5.1 - 28	9.0 - 33
10	7.3 - 29	11.3 - 52
12	7.3 - 47	11.3 - 56
14	9.0 - 49	14.1 - 59
16	11.3 - 52	16.9 - 72
18	11.3 - 66	16.9 - 93
20	113. - 82	16.9 - 97
24	16.9 - 121	22.6 - 150
30	73.4 - 144	123.2 - 211
32	73.4 - 144	-
36	96.0 - 180	135.6 - 235
40	123.2 - 230	-
42	123.2 - 230	180.8 - 260
48	135 - 235	237.3 - 270

MORRIS VALVES
SERVING THE WORLD, ONE PROJECT AT A TIME

6803 Theall Rd Building B, Houston, Texas. 77066 Phone :+1 (832) 666-5576 www.morrisvalve.com

Routine Maintenance

Gland Leak

* Check the tightness of the gland nuts and tighten evenly if required. If the leak persists, the packing may be renewed.

Packing Replacement

Caution: DO NOT replace the gland packing when the line is under pressure. Do not over-tighten packing and gland nuts. Over-tightening will increase the torque required to operate the valve.

* Remove the gear unit/actuator and connecting keys. Its position relative to the valve must be noted for reassembly of gear unit/actuator.
* Remove gland nut, gland flange and gland.
* Remove packing and carefully clean packing cavity and shaft.
* Insert new packing rings. Most of the packing rings are already cut so that they can be inserted around the stem. In case of solid molded packing like Graphite rings, use a sharp knife and cut the ring at 30° angle. The slightly twist the ring and insert it around the stem. Do not open up the ring as it could break.
* Reassemble gland, gland flange and gland nut.
* Reassemble connecting keys, gear unit/actuator and close the valve.

Caution: The gear unit/actuator will be a free moving fit. Do not force it on the stem.

* Tighten the gland nuts and cycle the valve.
* Pressurize the line. If leakage is detected, tighten the gland nuts slowly and evenly until leakage stops.

Gear Units

* Gear Operated valves are fitted with enclosed water tight worm gear units. The gears are designed to function without maintenance for many years. All gear units are lubricated with heavy bearing grease when assembled and may be refilled as required.

Periodic Maintenance

Dismantling

* The pipeline shall be drained of the line fluid and the valve removed from the line before dismantling.
* Care should be taken during the removal of wafer and wafer lugged valves fitted with fail-open actuators. Such valves shall be closed using the manual over-ride gear unit before removing from the pipeline. If no manual over-ride is available, the fail open actuator shall be dismantled before the valve is removed from the pipe line. Subsequently, the valve shall be closed with a wrench and then removed.
* The Operator may be changed without removing the valve from the pipeline, however, the line pressure should be relieved.
* Maintenance of the operator shall be done as per manufacturer instruction.
* Operator shall be changed when the valve shall be in the fully closed condition.
* If the operator has a fail-safe position that cannot be overridden then unscrewing the bolting on the valve bracket should dismantle the actuator.

Inspection

* Keep the valve in full open condition and examine the body seat and laminar seal for wear / damage.
* The gland nuts can be loosened to operate the valve if no other means of actuation is possible.
* Check for tightness of the locking screw and grub screw on the disc hub.
* Check if the retainer bolting is uniformly tight to the specified torque. For torque details refer Table I.

TABLE II – Retainer bolt tightening torque in Nm	
Bolt Dimension (mm)	**Torque value (Nm)**
8	12
10	24
12	41
14	66
16	103
18	142
20	201
22	274
24	348

Replacement of Seal

* If there is excessive damage / wear on the seal, it shall be replaced by a new spare.
* Remove the retainer by unscrewing of the bolting.
* Remove the old Seal Ring and the locating pin.
* The gasket under the Seal Ring should also be replaced at the time of Seal Ring replacement.
* Place the gasket in the appropriate groove on the disc.
* Insert the locating pin on the disc.
* Place the laminar seal over the gasket (so as to mate with the seat in body). Locate the seal ring using the locating pin in the recess provided in both the seal and disc.
* A Punch mark is provided on the laminar seal and this shall be facing the operator during seal assembly.
*Mount the retainer ring to the disc using the retainer screws and hand tighten them to allow for seal movement.
* Apply a thin film of lubricant on the body seat as well on the conical seat of the seal.
* Operate the valve from full open to full close at least two times and after the seal has aligned with the body seat, tighten the retainer screws to the specified torque. For torque details refer Table I.

The Valve shall be in closed position during tightening of the retainer bolting.

Reassembly

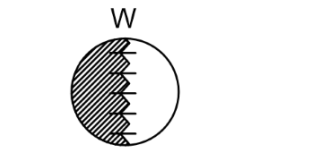
* Gland nuts shall be tightened to the torque values given in Table I.
* With the valve in fully closed position, it shall be installed back in the pipe line as stated in section INSTALLATION.
* The gaskets have to replaced every time the valve is removed from the line.

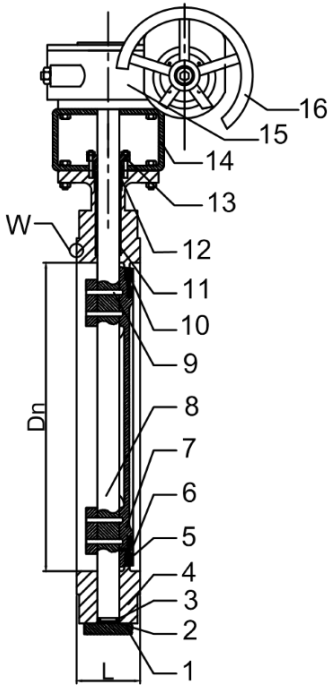
Repair Kits

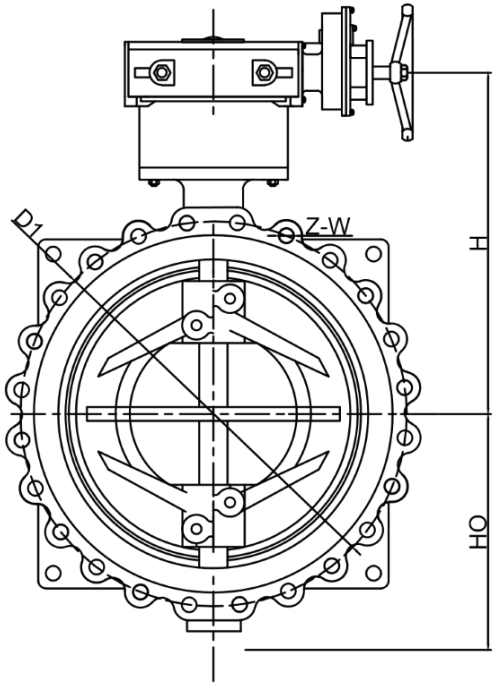
Repair kits are available for all all Metal Seated Triple Eccentric Butterfly Valves consisting of:
* One set of gland packing,
* Seal Ring and Seal gasket.
* Details of the content are found in the instruction sheet supplied with the kit.

Dismantling of valves for attending for gland packing replacement as well as replacement of seal should be done under expert supervision, after de-pressurizing the line and evacuating all the line fluid from the valve.

MORRIS VALVES
6803 Theall Rd Building B, Houston, Texas. 77066 Phone :+1 (832) 666-5576 www.morrisvalve.com







Specification			
Nominal Pressure		150LB	
Testing Pressure	Shell Tets (Hyd)	3.0	Mpa
	Seal Test (Hyd)	2.2	
	Reverse Pressure Test (Hyd)	—	
Suitable Pressure		≤2.0	
Suitable Temperature		29℃ ~ 250℃	
Suitable Medium		WATER,OIL,STEAM	

TECHNICAL REQUIREMENTS

1 DESING AND MANUFAFURE AS PER: API 609

2 PRESSURE TEST AS PER: API 598

3 FACE TO FACE DIMENSIONS AS PER: API 609

4 FLANGE DIMENSIONS AS PER: ASME B16.47 SR A

5 LEAKAGE RATE CLASS VI: PER STANDARD IEC 60534-4/ANSI/FCI 70-2

No.	PART NAME	MATERIAL
1	Battom Cover	ASTM A105
2	Gasket	316+GRAPHITE
3	Thrust Ring	ASTM A29 Gr. 1035
4	Body	ASTM A216 Gr. WCB+13Cr
5	Sealing Ring	316+GRAPHITE
6	Screw	ASTM A193 Gr. B8
7	Disc	ASTM A216 Gr. WCB
8	Shaft	ASTM A564 Gr. 17-4PH
9	Taper Pin	ASTM A276 Gr. 410
10	Retainer	ASTM A105
11	Bushing	Seft-lubricating
12	Packing	GRAPHITE
13	Gland	ASTM A216 Gr. WCB
14	Yoke	ASTM A216 Gr. WCB
15	Wormgear	ASSEMBLY SET
16	Handwheel	CARBON STEEL

NPS	Dn	D1	Z-W	L	H0	H
32´´	805	977.9	28-1½´´ - 8 UN	190	575	825

REV.	MORRIS VALVES ®			Title: BUTTERFLY VALVE-TRIPLE-E XCENTRIC		
Checked	MORRIS	Date	24/07/2017	Material		Sheet
Designer	MORRIS	Scale		Dwg_No.	S70926-1807-IT-03	
Drawn	J.AREVALO	Model	BFV-TEXC-WCB-32-B16.47A-LUG			01 , 01

6803 Theall Rd Building B, Houston, Texas. 77066 Phone :+1 (832) 666-5576 www.morrisvalve.com

Code: MVI-MD-R-14
Ver:0

MATERIAL & TEST CERTIFICATE. EN 10204-3.1

Page No.	1 of 1	Date:	2018-1-5	Certificate No:	S70926-1807-CG	Cust. Ref	No: 1807

MATERIAL TYPE

CUSTOMER:	Distribuidora Guaticobre LLC	END USER:	ICE. (INSTITUTO COSTARICENSE DE ELECTRICIDAD)

MORRIS VALVES
SERVING THE WORLD, ONE PROJECT AT A TIME

STANDARD	ITEM	MATERIAL	P/N	SIZE	QTY	HEATING No
ASTM A216	BODY	ASTM A216 WCB	YL170930001-01-01~02	LTD373H - 150LB 32"	2	C3510
ASTM A216	DISC	ASTM A216 WCB	YL170930001-01-01	LTD373H - 150LB 32"	1	L161
ASTM A216	DISC	ASTM A216 WCB	YL170930001-01-02	LTD373H - 150LB 32"	1	L101
ASTM A564	STEM	ASTM A564 630	YL170930001-01-01~02	LTD373H - 150LB 32"	2	L135

Check and Test

Pressure Test				Visual & functional Inspection			
Shell Hydrostatic	Backseat	Low pressure seat	High pressure seat	Item	k	Item	Conclusion
Test Pressure 3.0 MPa Test Medium: Water Time: 300 s	Test Pressure ____ MPa Test Medium: ____ Time: ____ s	Test Pressure 0.6 MPa Test Medium: Air Time: 120 s	Test Pressure 2.2 MPa Test Medium: Water Time: 120 s	Checking of order specifications	OK	Test of operation/ Cleanliness	OK
				Check of Dimensions	OK	Anti-hydrogen	OK
				Check of marks	OK	Visual Inspection	OK
The pressure test results are in compliance with: ☐API 6D-2008 ■API 598 ☐GB/T 13927 ☐ BS6755				Checking of surface	OK	Rightness of material certification	OK

Physical & Chemical Test

It.	Size	HEAT.	Material	Main Chemical composition										Mechanical Properties					
				C	Mn	Si	S	P	Cr	Ni	Mo	V	Cu	σb MPa	σs MPa	δ5 %	ψ %	σK KJ/ m2	HB
BODY	LTD373H - 150LB 32"	C3510	ASTM A216 WCB	0.22	0.6	0.4	0.016	0.017	0.2	0.1	0.019	0.01	0.24	515	261	27	47	/	/
DISC	LTD373H - 150LB 32"	L161	ASTM A216 WCB	0.22	0.7	0.3	0.015	0.016	0.2	0.1	0.018	0.01	0.13	515	263	28	47	/	/
DISC	LTD373H - 150LB 32"	L101	ASTM A216 WCB	0.21	0.7	0.4	0.016	0.015	0.2	0.1	0.019	0.01	0.14	515	261	27	46	/	/
STEM	LTD373H - 150LB 32"	L135	ASTM A564 630	0.04	0.8	0.5	0.003	0.032	16	3.8	/	/	4.1	1123	1020	21	55	/	/

Remarks:

The Physical and Chemical test results are in compliance with ■ ASTM A216 WCB ■ ASTM A564 630 □ ASTM A276-2008 □ ASTM A193-2008 □ ASTM A194-2008

This is to certify that the above results are true.The products are in compliance with order requirements.

Checker and Tester 李博洞 P&C analyzer 王洋 Q.A. director 邹梦 Check department 胡耀

Manufacturer:

NANTONG HIGH & MEDIUM PRESSURE VALVE CO.,LTD. 南通高中压阀门有限公司

A Tradition of Quality

Our passion is to develop solutions for difficult situations in Industrial Applications, no matter how large or small the project.

"Serving the world, one project at a time"