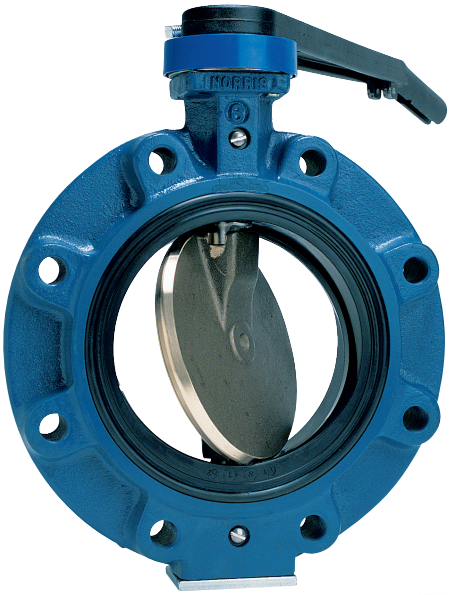
Norriseal Series 200 Butterfly Valves

Norriseal Series 200 butterfly valves provide bi-directional, positive shutoff to 200 psig working pressure. They are available in both resilient-seated (Series R200) and metallined (Series M200) configurations. All Series 200 butterfly valves feature a unique, angle disc that creates a 360° uninterrupted differential sealing surface.

Series 200 butterfly valves have double-shaft seals and body bushings to assure smooth, low-torque operation. They are available with a full range of pneumatic, electric and hydraulic actuation.

Series 200 butterfly valves have independent flange seals and a non-wetted body that may be specified with either lug or wafer design. All Series 200 butterfly valves are easily repaired in the field.



Series R200

Series M200

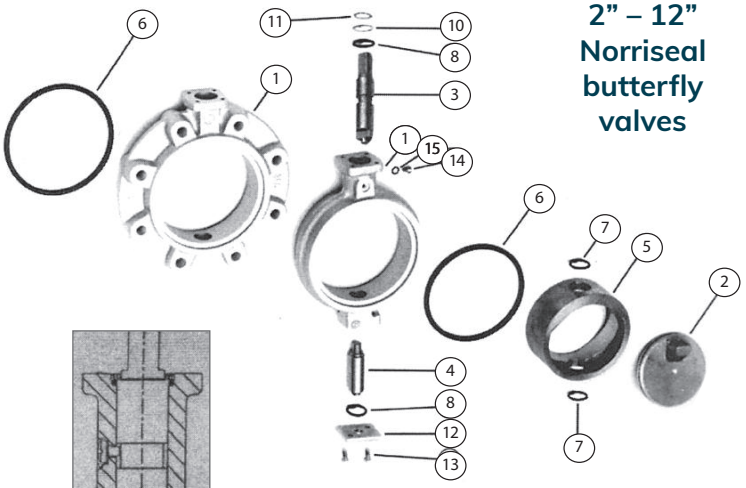
Features

- Double-shaft seals and body bushings assure smooth, low-torque operation
- Independent flange seals
- Rigid-backed rubber seat easily field-replaced
- Non-wetted body available in lug or wafer designs
- Rigid drive, precision disc-to shaft connection
- Resilient-seated design (R200) offered in a wide variety of elastomeric seals and metallic materials
- Metal-lined design (M200) provides positive shutoff with minimum sealing material
- Available with a variety of pneumatic, electric and hydraulic actuation

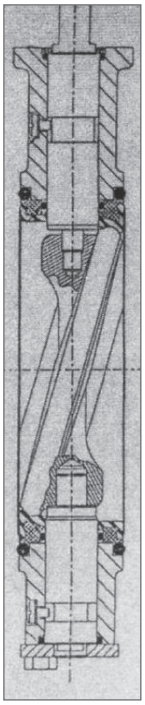
Series R200

When to use series R-200 valves

- **Use R-Series valves for positive shutoff to 200 psi wp.**
  Under certain service conditions, Norriseal valves may be rated up to 250 psi wp. Consult factory for trim recommendations and pricing.
- **Use R-Series valves for throttling control at flow rates up to 30 fps.**
- **Use R-Series valves at temperatures from -20° to + 250°F.**
  Proper selection of seal elastomers must be made for valve applications at extreme temperatures.
- **Use R-Series valves for bi-directional flow conditions**
- **Use R-Series valves for controlling the flow of liquids, gases and solids, including abrasive and corrosive materials.**
  R-Series valves are not recommended for handling gasoline and other volatile media. Volatile materials or solvents tend to dry out elastomers and make the valves difficult to operate. See M-Series section of catalog for gasoline service. Rubber liner and double O-ring shaft seals prevent line media from contacting body of valve, making use of premium body materials unnecessary. Only the internal wetted parts need to be corrosion resistant to the media.
- **Use R-Series valves for end-of-line suspension to full rated working pressure by temporarily installing a downstream flange or spool piece.**
  With the downstream flange removed, R-series valves are derated for safety to 75 psi wp.
- **Use R-Series valves for insulated lines.**
  14 inch and larger Norriseal valves will accommodate 2 inches of insulation on accompanying pipelines. A neck extender is available for use with 2 thru 12 inch wafer valves when lines are insulated.
- **Use R-Series valves with ANSI Class 125 cast iron or Class 150 steel flanges.**
  Weldneck or socket weld flanges are recommended for use with R-Series valves to provide support for the seat and to assure optimum performance at the full rated pressure of the valve. R-Series span type valves can be used with ANSI Class 300 flanges; however, some valve sizes may require special bolt drilling or spacers. Lug style bodies for use with ANSI Class 300 flanges are available on special order.



2” – 12” Norriseal butterfly valves



- **R-Series valves are designed for use with standard weight or schedule 40 pipe inside dimensions. Check data sheets for specific clearance dimensions.**
  If heavy wall, plastic or cement lined pipe is used, back beveling at the flange may be required for disc clearance.

2”–12” Norriseal butterfly valves parts description

1. **Body** – Valve body isolated from flow stream by resilient seat and O-ring seals. Steel bodies have Teflon bushings to prevent seizing with stainless steel shafts. Different models and materials are available. See exploded assembly.
2. **Disc** – Angle disc construction gives 360° uninterrupted contact of disc with seat. Disc does not seat in shaft holes, assuring bubble-tight shutoff time after time with no scrubbing of the elastomer in the shaft hole areas. Disc drive slot assures positive disc action. Precision fit prevents disc “flutter”.
3. **Operator shaft** – Operator shaft is retained by a sealed retention screw for safety. Shaft is double O-ring sealed to prevent leakage into shaft bearing areas and protect from outside contamination. Milled drive flats are parallel to disc, indicate disc position.

Series R200

4. **Bottom shaft** – Stationary bottom shaft is double O-ring sealed to prevent stem leakage.

5. **Seat** – Field replaceable resilient seat is bonded to a rigid backing ring to prevent seat from distorting or collapsing due to high velocity flow or in vacuum service. Rigid backing also prevents seat collapse during installation of valve between flanges.

6. **Body O-rings** – Body O-ring flange seals eliminate need for flange gaskets. Flange seals can be replaced without dismantling the valve and replacing the seat. Many times, an O-ring flange seal damaged during initial installation may still be used simply by turning it over and returning it to the body.

7-8. **O-ring shaft seals** – Shaft seals prevent leakage to atmosphere and permanently lubricated areas; protect from outside contamination.

10-11. **Steel and Teflon thrust washers** – Provide precision fit with topworks. Eliminates “disc flutter”.

12-13. **Bottom plate and capscrews** – Shaft seals prevent leakage to atmosphere and permanently lubricated areas; protect from outside contamination.

14-15 **Capscrew and washer** – Top shaft is retained by sealed retention screw for safety. Cannot be removed when valve is installed between flanges.

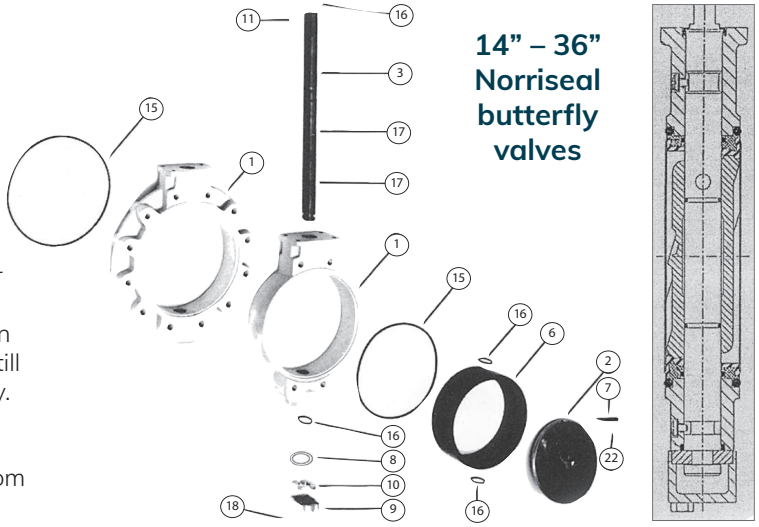
14”– 36” Norriseal butterfly valves parts description

1. **Body** – Valve body isolated from flow stream by resilient seat and O-ring seals. All 14” and larger bodies have inboard and outboard shaft bushings for handling shaft loads and to provide minimum operating torque. Different models and materials are available.

2. **Disc** – Angle disc construction gives 360° uninterrupted contact of disc with seat. Disc does not seat in shaft holes, assuring bubble-tight shutoff time after time with no scrubbing of the elastomer in the shaft hole areas.

3. **Shaft** – Through shaft, cross pinned to disc with straight dowel pin, assures maximum drive strength and field repairability. Disc pin does not penetrate the sealing plane of the disc.

6. **Seat** – Field replaceable resilient seat is bonded to a rigid back ing ring to prevent seat from distorting or collapsing due to high velocity flow or in vacuum service. Rigid backing also prevents seat collapse during installation of valve between flanges.



7. **Disc pin** – Disc pin does not penetrate the sealing plane of the disc.

8. **Shim set** – Assures proper disc support and centering in seating area.

9-10. **Thrust plate and washer** – Operator shaft is retained by a sealed retention screw for safety. Shaft is double O-ring sealed to prevent leakage into shaft bearing areas and protect from outside contamination. Milled drive flats are parallel to disc, indicate disc position.

11. **Key** – Provides precision fit with operator.

15. **Body O-rings** – Body O-ring flange seals eliminate need for flange gaskets. Flange seals can be replaced without dismantling the valve and replacing the seat. Many times, an O-ring flange seal damaged during initial installation may still be used simply by turning it over and returning it to the body.

16. **O-ring seat and shaft seals** – Seat and shaft seals prevent stem leakage to atmosphere and permanently lubricated areas; protect from outside contamination.

17. **O-ring disc / shaft seals** – Seals prevent leakage across disc plane.

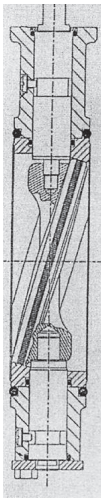
18. **Thrust plate capscrews** – To retain bottom thrust plate.

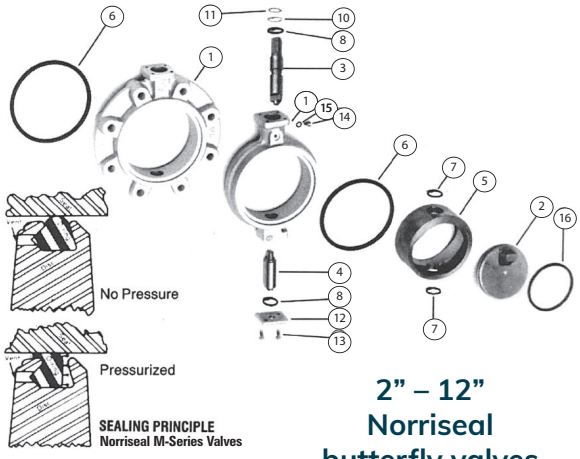
22. **Disc pin capscrews**– To retain disc pin.

Series M200

When to use series M-200 valves

- **Use M-Series valves for positive shutoff to 200 psi wp.**
  Under certain service conditions, Norriseal valves may be rated up to 250 psi wp. Consult factory for trim recommendations and pricing.
- **Use M-Series valves for throttling control at flow rates up to 16 fps.**
- **Use M-Series valves at temperatures from -40° to + 350°F.**
  Proper selection of seal elastomers must be made for valve applications at extreme temperatures.
- **Use M-Series valves of any size for complete bi-directional, zero bubble positive shutoff. A wide range of elastomer seals is available.**
- **Use M-Series valves for controlling the flow of liquids and gases, including abrasive and corrosive materials.**
  Limited use of elastomers in M-Series valves make them ideal for handling gasolines and other volatile media which tend to dry the elastomer. Field replaceable metal seat is available in a variety of exotic materials to resist corrosion. Metal seat liner and double O-ring shaft seals prevent line media from contacting body of valve, making use of premium body materials unnecessary. Only the internal wetted parts need to be corrosion resistant to the media. M-Series valves are not recommended for use when large abrasive material is present. See R-Series section.
- **Use M-Series lug-type valves for end-of-line suspension to full rated working pressure without a downstream flange or spool piece.**
- **Use M-Series valves for insulated lines.**
  14 inch and larger Norriseal valves will accommodate 2 inches of insulation on accompanying pipelines. A neck extender is available for use with 2 thru 12 inch wafer valves when lines are insulated.
- **Use M-Series valves with ANSI Class 125 cast iron or Class 150 steel flanges. Care should be exercised to assure that valve body is correctly centered when installing M-Series valves between slip-on flanges.**
  M-Series span type valves can be used with ANSI Class 300 flanges, however, some valve sizes may require special bolt drilling or spacers.





2" – 12" Norriseal butterfly valves

2"–12" Norriseal butterfly valves parts description

1. **Body** – Valve body isolated from flow stream by resilient seat and O-ring seals. Steel bodies have Teflon bushings to prevent seizing with stainless steel shafts. Different models and materials are available. See exploded assembly.
2. **Disc** – Angle disc construction gives 360° uninterrupted contact of disc with seat. Drive slot assures positive disc action. Precision fit prevents disc "flutter".
3. **Operator shaft** – Operator shaft is retained by a sealed retention screw for safety. Shaft is double O-ring sealed to prevent leakage into shaft bearing areas and protect from outside contamination. Milled drive flats are parallel to disc, indicate disc position.
4. **Bottom shaft** – Stationary bottom shaft is double O-ring sealed to prevent stem leakage.
5. **Seat** – Field replaceable metal seat isolates valve body from flow stream and eliminates need for premium body material.
6. **Body O-rings** – Body O-ring flange seals eliminate need for flange gaskets. Flange seals can be replaced without dismantling the valve and replacing the seat. Many times, an O-ring flange seal damaged during initial installation may still be used simply by turning it over and returning it to the body.

Series M200

7-8. O-ring shaft seals – Shaft seals prevent leakage to atmosphere and permanently lubricated areas; protect from outside contamination.

10-11. Steel and Teflon thrust washers – Provide precision fit with topworks. Eliminates “disc flutter”.

12-13. Bottom plate and capscrews – Bottom shaft is retained by a thrust plate. haft seals prevent

14-15 Capscrew and washer – Top and bottom shafts are retained by sealed retention screws for safety. Cannot be removed when valve is installed between flanges.

16. Disc O-ring seal – Pressure energized O-ring seal contained in specially designed groove in disc edge assures positive shutoff. The higher the pressure, the tighter the seal.

14”– 36” Norriseal butterfly valves parts description

1. Body – Valve body isolated from flow stream by resilient seat and O-ring seals. All 14” and larger bodies have inboard and outboard shaft bushings for handling shaft loads and to provide minimum operating torque. Different models and materials are available.

2. Disc – Angle disc construction gives 360° uninterrupted contact of disc O-ring with seat for dependable bubble-tight shutoff.

3. Shaft – Through shaft, cross pinned to disc with straight dowel pin, assures maximum drive strength and field repairability. Disc pin does not penetrate the sealing plane of the disc.

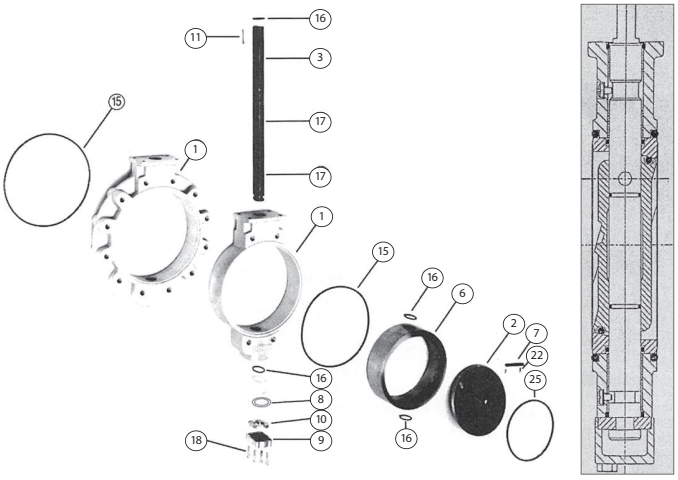
6. Seat – Field replaceable metal seat isolates valve body from flow stream; eliminates need for premium body material.

7. Disc pin – Disc pin does not penetrate the sealing plane of the disc.

8. Shim set – Assures proper disc support and centering in seating area.

9-10. Thrust plate and washer – Retains shaft from bottom.

11. Key – Provides precision fit with operator.



14” – 36” Norriseal butterfly valves

15. Body O-rings – Body O-ring flange seals eliminate need for flange gaskets. Flange seals can be replaced without dismantling the valve and replacing the seat. Many times, an O-ring flange seal damaged during initial installation may still be used simply by turning it over and returning it to the body.

16. O-ring seat and shaft seals – Seat and shaft seals prevent stem leakage to atmosphere and permanently lubricated areas; protect from outside contamination.

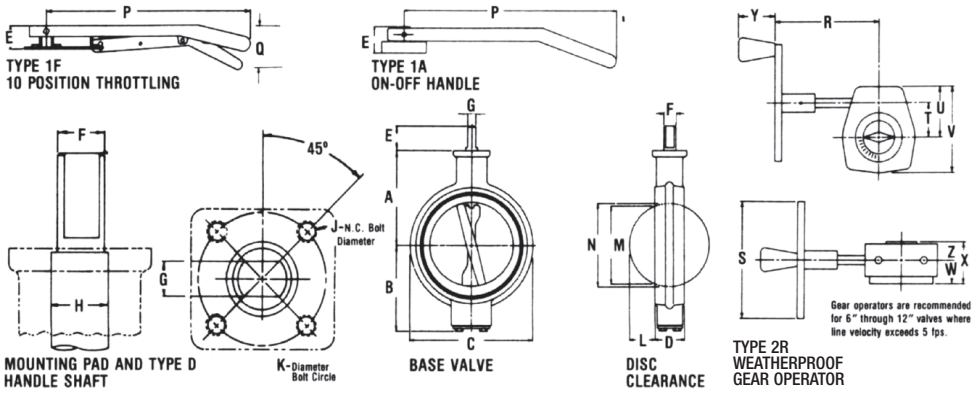
17. O-ring disc / shaft seals – Seals prevent leakage across disc plane.

18. Thrust plate capscrews – To retain bottom thrust plate.

22. Disc pin capscrews– To retain disc pin.

25. Disc O-ring seal – Pressure energized O-ring seal contained in a specially designed groove in disc edge assures positive shutoff. The higher the pressure, the tighter the seal.

R&M - Wafer style 2”-12” valves



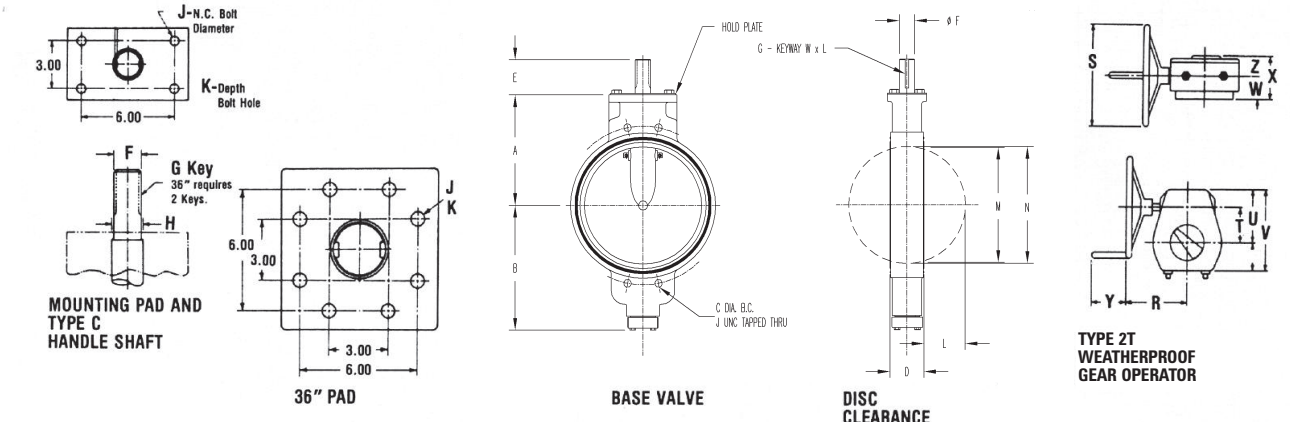
VALVE DIMENSIONS									
DIMENSION REFERENCE	VALVE SIZE (INCHES/MM)								
	2/50	2.5/65	3/75	4/100	5/125	6/150	8/200	10/250	12/300
A	3.70	4.14	4.41	4.88	5.28	6.50	7.45	9.38	10.41
B	3.26	3.78	4.05	4.50	4.94	5.90	6.85	8.64	9.67
C	4.12	4.88	5.38	6.88	7.75	8.69	10.88	13.32	16.00
D	1.63	1.75	1.75	2.00	2.13	2.13	2.50	2.50	3.00
E	1.31	1.31	1.31	1.31	1.31	1.69	1.69	2.00	2.00
F	.69	.69	.69	.69	.69	.88	.88	1.06	1.06
G	.50	.50	.50	.50	.50	.63	.63	.75	.75
H	.69	.88	.88	.88	.88	1.06	1.06	1.38	1.38
J	.25	.25	.25	.25	.25	.38	.38	.38	.38
K	1.81	1.81	1.81	1.81	1.81	2.34	2.34	2.63	2.63

DISC CLEARANCE									
L	0.40	0.50	0.75	1.10	1.53	1.91	2.67	3.70	4.50
M	1.77	2.06	2.69	3.59	4.72	5.55	7.44	9.58	11.52
N	2.41	2.72	3.20	4.19	5.17	5.91	7.81	9.89	11.89
Approx Wt. (lbs) Cast Iron Body	5	7	9	14	17	23	37	59	80

BOLT DATA									
For Use with ANSI Class 150 Weldneck Flanges. For optimum valve performance, it is recommended that butterfly valves be installed between weld neck flanges or flanges with equivalent inside dimensions.									
Bolt Size	.63 x 4.00	.63 x 4.50	.63 x 4.50	.63 x 4.50	.75 x 5.50	.75 x 5.50	.75 x 6.00	.88 x 6.00	.88 x 7.00
No. Required	4	4	4	8	8	8	8	12	12

OPERATOR DIMENSIONS									
P	9.94	9.94	9.94	9.94	9.94	15.00	15.00	16.00	16.00
Q	3.34	3.34	3.34	3.34	3.34	3.66	3.66	3.66	3.66
R	6.88	6.88	6.88	6.88	6.88	7.50	7.50	8.00	8.00
S	6.00	6.00	6.00	6.00	6.00	8.00	8.00	8.00	8.00
T	2.36	2.36	2.36	2.36	2.36	2.36	2.36	3.00	3.00
U	3.50	3.50	3.50	3.50	3.50	3.50	3.50	4.38	4.38
V	5.93	5.93	5.93	5.93	5.93	5.93	5.93	7.50	7.50
W	5.25	5.25	5.25	5.25	5.25	5.25	5.25	6.75	6.75
X	2.92	2.92	2.92	2.92	2.92	2.92	2.92	3.27	3.27
Y	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63
Z	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.88	1.88
Approx Wt. (lbs) 2R & 2RM Operator	7	7	7	7	7	8	8	13	13

R&M - Wafer style 14”-36” valves



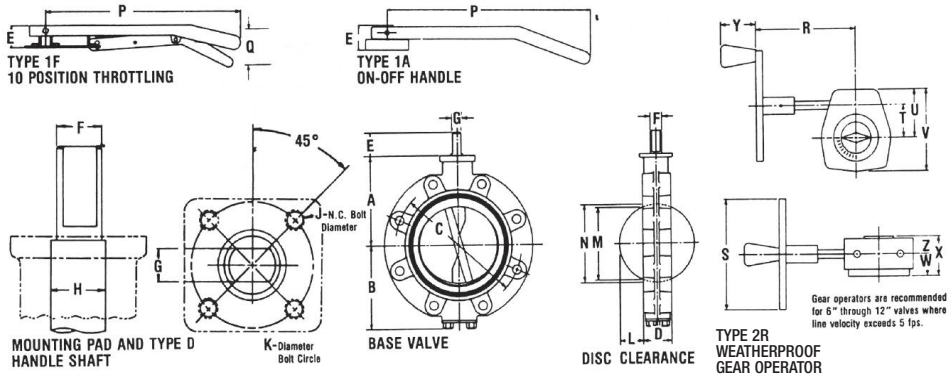
VALVE DIMENSIONS							
DIMENSION REFERENCE	VALVE SIZE (INCHES/MM)						
	14/350	16/400	18/450	20/500	24/600	30/750	36/900
A	12.63	14.00	14.75	16.00	17.50	23.63	26.00
B	14.30	15.71	16.40	17.65	19.15	22.84	28.70
C	18.75	21.25	22.75	25.00	29.50	36.00	42.75
D	3.75	4.13	4.63	5.13	5.00	7.00	8.50
E	3.94	3.94	3.94	3.94	3.94	3.94	4.75
F	1.75	1.75	1.75	2.50	2.50	2.50	3.00
G	.38 x2.5	.38x2.5	.38x2.5	.63x2.94	.63x2.94	.63x2.94	.75x3.0
H	1.75	2.00	2.25	2.50	2.50	3.00	3.50
J	.63	.63	.63	.63	.63	.75	.75
K	1.50	1.50	1.50	1.50	1.50	1.50	1.50

DISC CLEARANCE							
L	4.80	5.25	6.38	7.16	9.22	11.17	13.42
M	12.80	14.78	16.72	18.72	20.75	28.50	34.25
N	13.34	15.34	17.34	19.41	21.33	29.21	35.25
Approx Wt. (lbs) Cast Iron Body	187	262	351	432	550	1160	1840

BOLT DATA							
For Use with ANSI Class 150 Weldneck Flanges. For optimum valve performance, it is recommended that butterfly valves be installed between weld neck flanges or flanges with equivalent inside dimensions.							
Bolt Size	1.00 x 7.75	1.00 x 8.50	1.13 x 9.00	1.13 x 10.00	1.25 x 11.50	1.25 x 14.00	1.50 x 15.00
No. Required	8	12	12	16	16	24	28
Capscrew Size	1.00NCx3.00	1.00NCx3.00	1.00NCx3.00	1.00NCx3.00	1.00NCx3.00	1.00NCx3.00	1.50NCx3.75
No. Required	8	8	8	8	8	8	8

OPERATOR DIMENSIONS							
R	9.75	9.75	9.75	17.25	17.25	17.84	17.84
S	12.75	12.75	12.75	24.00	24.00	24.00	24.00
T	4.83	4.83	4.83	5.38	5.38	2.69	7.13
U	6.63	6.63	6.63	7.63	7.63	9.44	10.81
V	10.13	10.13	10.13	11.13	11.13	14.94	16.31
W	9.00	9.00	9.00	10.81	10.81	12.00	14.00
X	5.00	5.00	5.00	5.14	5.14	7.38	7.75
Y	4.50	4.50	4.50	N/A	N/A	N/A	N/A
Z	2.88	2.88	2.88	2.88	2.88	4.00	4.00
Approx Wt. (lbs) 2R & 2RM Operator	70	70	70	90	90	210	260

R&M - Lugged style 2”-12” valves



DIMENSION REFERENCE	VALVE DIMENSIONS VALVE SIZE (INCHES/MM)								
	2.00	2.5/65	3/75	4/100	5/125	6/150	8/200	10/250	12/300
A	3.70	4.16	4.41	4.88	5.28	6.50	7.45	9.38	10.41
B	3.26	3.78	4.05	4.50	4.94	6.00	6.94	8.64	9.69
C	4.75	5.50	6.00	7.50	8.50	9.50	11.75	14.25	17.00
D	1.63	1.75	1.75	2.00	2.13	2.13	2.50	2.50	3.00
E	1.31	1.31	1.31	1.31	1.31	1.69	1.69	2.00	2.00
F	.69	.69	.69	.69	.69	.88	.88	1.06	1.06
G	.50	.50	.50	.50	.50	.63	.63	.75	.75
H	.69	.88	.88	.88	.88	1.06	1.06	1.38	1.38
J	.25	.25	.25	.25	.25	.38	.38	.38	.38
K	1.81	1.81	1.81	1.81	1.81	2.34	2.34	2.63	2.63

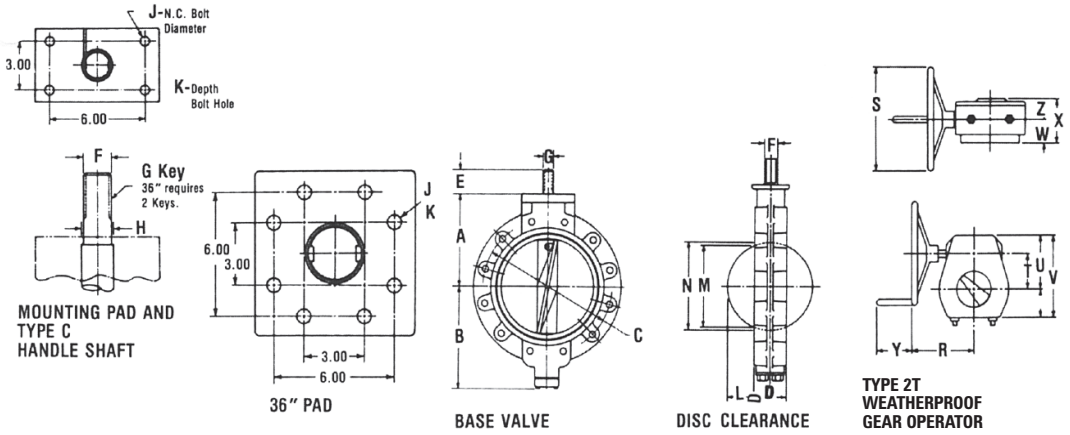
DISC CLEARANCE									
L	0.40	0.50	0.75	1.10	1.53	1.91	2.67	3.70	4.50
M	1.77	2.06	2.69	3.59	4.72	5.55	7.44	9.58	11.52
N	2.41	2.72	3.20	4.19	5.17	5.91	7.81	9.89	11.89
Approx Wt. Cast Iron Body	7	9	11	18	22	30	44	68	108

BOLT DATA For Use with ANSI Class 150 Weldneck Flanges. For optimum valve performance, it is recommended that butterfly valves be installed between weldneck flanges or flanges with equivalent inside dimensions.									
Capscrew Size	.63NC x 1.50	.63NC x 1.50	.63NC x 1.75	.63NC x 1.75	.75NC x 1.75	.75NC x 2.00	.75NC x 2.25	.88NC x 2.25	.88NC x 2.50
No. Required	8	8	8	16	16	16	16	24	24

*Through-tapped from face to face for studs or capscrews unless specified otherwise.

OPERATOR DIMENSIONS									
P	9.94	9.94	9.94	9.94	9.94	15.00	15.00	16.00	16.00
Q	3.34	3.34	3.34	3.34	3.34	3.66	3.66	3.66	3.66
R	6.88	6.88	6.88	6.88	6.88	7.50	7.50	8.00	8.00
S	6.00	6.00	6.00	6.00	6.00	8.00	8.00	8.00	8.00
T	2.36	2.36	2.36	2.36	2.36	2.36	2.36	3.00	3.00
U	3.50	3.50	3.50	3.50	3.50	3.50	3.50	4.38	4.38
V	5.93	5.93	5.93	5.93	5.93	5.93	5.93	7.50	7.50
W	5.25	5.25	5.25	5.25	5.25	5.25	5.25	6.75	6.75
X	2.92	2.92	2.92	2.92	2.92	2.92	2.92	3.27	3.27
Y	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63
Z	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.88	1.88
Approx Wt. (lbs) 2R & 2RM Operator	7	7	7	7	7	8	8	13	13

R&M - Lugged style 14”-36” valves



VALVE DIMENSIONS							
DIMENSION REFERENCE	VALVE SIZE (INCHES/MM)						
	14/350	16/400	18/450	20/500	24/600	30/750	36/900
A	12.63	14.00	14.75	16.00	17.50	23.63	26.00
B	14.30	15.71	16.40	17.65	19.15	22.84	28.70
C	18.75	21.25	22.75	25.00	29.50	36.00	42.75
D	3.75	4.13	4.63	5.13	5.00	7.00	8.50
E	3.94	3.94	3.94	3.94	3.94	3.94	4.75
F	1.75	1.75	1.75	2.50	2.50	2.50	3.00
G	.38x2.5	.38x2.5	.38x2.5	.63x2.94	.63x2.94	.63x2.94	.75x3.0
H	1.75	2.00	2.25	2.50	2.50	3.00	3.50
J	.63	.63	.63	.63	.63	.75	.75
K	1.50	1.50	1.50	1.50	1.50	1.50	1.50
DISC CLEARANCE							
L	4.80	5.25	6.38	7.16	9.22	11.17	13.42
M	12.80	14.78	16.72	18.72	22.83	28.50	34.25
N	13.34	15.34	17.36	19.41	23.38	29.21	35.25
Approx Wt. Cast Iron Body	234	339	432	538	621	1300	2150
BOLT DATA							
For Use with ANSI Class 150 Weldneck Flanges. For optimum valve performance, it is recommended that butterfly valves be installed between weldneck flanges or flanges with equivalent inside dimensions.							
Capscrew Size	1.00NC x 3.00	1.00NC x 3.00	1.13NC x 3.50	1.13NC x 3.50	1.25NC x 4.00	1.25NC x 4.00	1.50NC x 4.50
No. Required	24	32	32	32	48	48	64
Capscrew Size	-	-	-	1.13NC x 3.00	1.25NC x 3.25	125NC x 3.50	1.50NC x 4.00
No. Required	N/A	N/A	N/A	8	8	8	8
OPERATOR DIMENSIONS							
R	9.75	9.75	9.75	17.25	17.25	17.84	17.84
S	12.75	12.75	12.75	24.00	24.00	24.00	24.00
T	4.83	4.83	4.83	5.38	5.38	2.69	7.13
U	6.63	6.63	6.63	7.63	7.63	9.44	10.81
V	10.13	10.13	10.13	11.13	11.13	14.94	16.31
W	9.00	9.00	9.00	10.81	10.81	12.00	14.00
X	5.00	5.00	5.00	5.14	5.14	7.38	7.75
Y	4.50	4.50	4.50	N/A	N/A	N/A	N/A
Z	2.88	2.88	2.88	2.88	2.88	4.00	4.00
Approx Wt. (lbs) 2P & 2PM Operator	70	70	70	90	90	210	260

TABLE VII - OPERATING TORQUES 200 SERIES (INCH POUNDS)
Operating torques for wet service shown in table below include 50% service factor. For dry torques, multiply the values shown by 1.33.

Valve Size		R-Series - Wet Service								M-Series - Wet Service								D-Series - Wet Service							
		Line Pressure - PSI								Line Pressure - PSI								Line Pressure - PSI							
IN	MM	0	50	75	100	125	150	175	200	0	50	75	100	125	150	175	200	0	50	75	100	125	150	175	200
2	50	64	89	101	114	126	138	150	162	50	93	114	135	156	178	199	220	24	63	81	98	115	131	146	164
2.5	65	72	96	109	121	134	146	158	170	75	116	137	158	178	199	219	240	24	63	81	98	115	131	146	164
3	75	100	129	143	158	172	187	202	216	100	150	175	200	225	250	275	300	31	84	106	126	144	166	184	203
4	100	160	220	248	280	308	340	368	400	180	285	338	390	443	495	548	600	64	162	205	249	285	327	368	410
5	125	245	352	400	440	488	544	584	640	270	478	581	685	789	893	996	1,100	98	260	330	391	451	530	591	656
6	150	720	800	840	896	940	984	1,032	1,080	500	789	934	1,078	1,223	1,367	1,512	1,656	297	600	704	806	881	972	1,045	1,154
8	200	1,512	1,782	1,848	1,968	2,096	2,224	2,320	2,448	750	1,413	1,744	2,075	2,406	2,738	3,069	3,400	624	1,231	1,478	1,697	1,912	2,113	2,262	2,479
10	250	2,160	2,512	2,688	2,872	3,040	3,216	3,408	3,600	1,050	2,038	2,531	3,025	3,519	4,013	4,506	5,000	648	1,601	1,949	2,262	2,508	2,814	3,067	3,330
12	300	3,448	3,960	4,200	4,400	4,696	4,944	5,192	5,440	1,300	3,425	4,488	5,550	6,613	7,675	8,738	9,800	690	2,947	2,625	3,053	3,463	3,832	4,154	5,032
14	350	5,700	6,500	6,900	7,300	7,700	8,200	8,600	9,000	1,510	4,250	5,600	7,000	8,400	9,800	11,100	12,500	855	2,898	3,600	4,078	4,463	4,743	4,990	5,118
16	400	7,100	8,100	8,600	9,000	9,500	10,000	10,500	11,000	1,790	5,350	7,100	8,900	10,700	12,400	14,200	16,000	710	3,404	4,510	5,260	5,780	6,265	6,705	6,975
18	450	9,550	10,800	11,500	12,100	12,700	13,000	14,000	14,600	2,000	5,900	7,800	9,800	11,700	13,600	15,600	17,500	860	4,576	6,145	7,328	8,102	8,826	9,986	9,824
20	500	10,100	12,100	13,100	14,000	15,000	16,000	17,000	18,000	2,250	7,300	9,850	12,400	14,900	17,400	20,000	22,500	1,010	5,162	6,985	8,286	9,231	10,122	10,939	11,475
24	600	14,500	17,000	18,000	19,000	20,250	21,500	22,750	24,000	2,700	9,400	12,750	16,100	19,450	22,800	26,150	29,500	1,595	6,460	8,100	9,500	10,935	12,255	13,423	14,640
30	750	35,000	38,750	40,625	42,500	44,375	46,250	48,150	50,000	3,400	15,300	21,250	27,200	33,150	39,100	45,050	51,000	2,100	11,625	15,031	17,425	19,969	22,200	24,544	26,500
36	900	40,000	47,500	52,200	55,000	58,800	62,500	66,300	70,000	45,000	23,300	33,000	42,000	52,000	61,000	71,000	80,000	2,600	14,500	20,400	26,300	32,700	38,200	44,100	50,000

Series 200 Model Code

6 M 3 0 1 1 - 4 2 3 B - 2 R

A B C D E F G H I

A

VALVE SIZES (INCHES)	
Code	Series
2...36	2" - 36" *

* With the exception of sizes 3.5, 22, 26, 28, 32

B

SERIES	
Code	Series
R	Resilient Seat
M	Metal Seat
D	Metal to Metal Seat (Damper Style)

C

VALVE CONFIGURATION	
Code	Configuration
00	Special to be Described
10	Single Rib Wafer Body
11	ISO Wafer Body (DI only)
20	Double Rib Wafer Body [1]
30	Full Lugged Body [2]
31	ISO Lugged Body (DI only) [1]

[1] ISO Bodies for sizes 2" to 12" Only
[2] For Bronze bodies

D

BODY MATERIAL	
Code	Material
11	Ductile Iron ASTM A395 60-40-18
20	Carbon Steel (WCB) ASTM A216 Gr. WCB
30	Valve Bronze ASTM B61
31	Nickel Aluminum Bronze ASTM B148 Alloy 95800
40	Aluminum Alloy ASTM B26 Alloy356-T6

E

DISC MATERIAL	
Code	Material
1	Ductile Iron ASTM A395 60-40-18
2	316 Stainless Steel ASTM A743/ A351 Gr. CF8M
4	Aluminum Bronze ASTM B148 Alloy C95400 2" thru 14" B148 Alloy C95500 16" thru 36"
6	Monel (Ni Cu Alloy) ASTM A494, M30C
C	Hastelloy "C" ASTM A494 CW 12MW
P	NiAl Bronze ASTM B148 Alloy C95800

F

SHAFT MATERIALS	
Code	Material
2	316 Stainless Steel ASTM A276 Type 316
3	416 Stainless Steel ASTM A582 Type 416 [2]
4	Monel (NiCu Alloy) ASTM B164, Class A
6	K-Monel (NiCuAl Alloy) Alloy QQ-N-286A [1]
7	17-4 PH Stainless Steel ASTM A564 Type 630 [3]
C	Hastelloy "C" 276 ASTM A574 Alloy N10276

[1] K-Monel std. in 24" and larger valves with Monel shaft
[2] 316SS for Stub Shafts only. Sizes 2" to 12"
[3] 17-4PH for Through Shaft only. Sizes 14" to 36"

G

SEAT MATERIAL	
Code	Seat R Series
A	Buna N
B	Fluoroelastomer (Viton)
E	Neoprene (Black)
G	Neoprene (White)
S	EPDM (Ethylene Propylene Rubber)

Code	Seat M Series
1	Cast Iron ASTM A126, Class B
2	316 Stainless Steel ASTM A743/ A351 Gr. CF8M
3	Aluminum Bronze ASTM B148 Alloy C95300
5	Monel (Ni Cu Alloy) ASTM A494, M30C
G	NiAl Bronze ASTM B148 Alloy C95800

H

SEALS	
Code	Material
A	Buna N
B	Viton
E	Neoprene (Black)
G	Neoprene (White)
R	AFLAS
S	EPDM
V	Low Temp Neoprene

I

NORRISEAL OPERATORS					
Code	Manual Operators	Code	Mechanical Operators	Code	Diaphragm Operators
1A	(2-12) STD Handle with 1J Topworks	2E	(2-12) Gear - W.P. - Aluminum Bronze Marine Trim	**	
1F	(2-12) Squeeze Trigger 10 Pos (1)	2ES	(2-12) 2E Subm. for Salt Water	2G11	(2-4) 35 SR Diaphragm Actuator
1FM	(2-12) 1F with Marine Trim	2R	(2-12) Gear Operator Aluminum Case	2G12	(2-4) 35 PB Diaphragm Actuator
1J	(2-12) STD Topworks On-Off	2T	(2-36) Gear Operator Cast Iron Case	2G13	(2-8) 70 SR Diaphragm Actuator
1AM	(2-5) STD Handle with 1S Topworks	2RM	2R with Marine Trim	2G15	(6-12) 180A SR Diaphragm Actuator
1P	(2-8) Locking Topworks	2TM	2T with Marine Trim	2G16	(6-12) 180 PB Diaphragm Actuator
1Q	(2-8) 1P Topworks with STD Handle			2G17	(12-20) 180 SR Diaphragm Actuator
1JS	(2-8) STD On-Off Topworks, Stainless Steel				

[1] STD Handle in Aluminum, Ductile Handle available as an option (1A DUCT)

**2G numbers listed are basic numbers only. Complete actuator model number MUST be used when ordering. SR-spring return. Specify fail/open or fail/closed. PB-pressure balanced/double acting.

Please note: Not all available options are shown.

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