AMERICAN

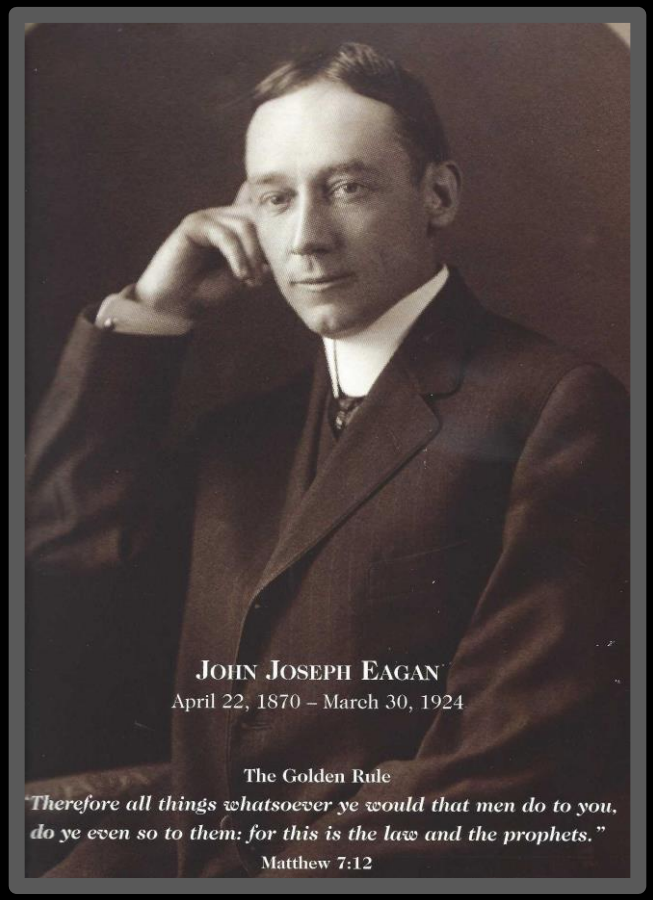
THE RIGHT WAY

A DISCUSSION ON THE USE AND APPLICATION OF VALVES

Presented By:

Rob Byrer

AMERICAN: Who We Are



1905 – FOUNDED AMERICAN CAST IRON PIPE COMPANY

1921 - GOLDEN RULE ADOPTED AS GUIDING PRINCIPLE

1924 - EAGAN TRUST ESTABLISHED

How DIP Is Made

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AMERICAN: Who We Are

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AMERICAN Flow Control Product Line

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TAPPING VALVES AND TAPPING SLEEVES

AMERICAN Flow Control Product Line

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INDICATOR POST
AND
RW VALVE WITH INDICATOR PLATE

AMERICAN Flow Control Product Line

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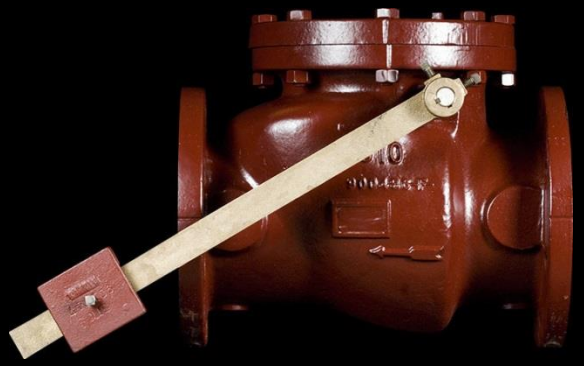
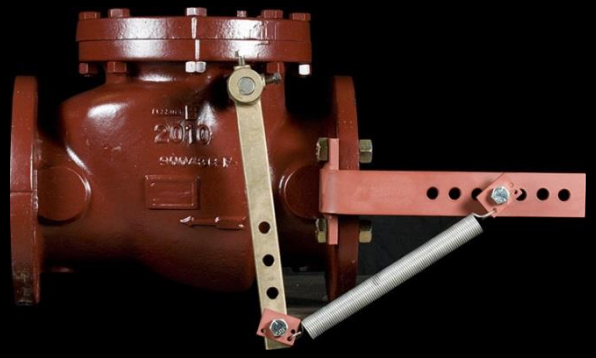
SWING CHECK VALVES





SERIES 2500 - RESILIENT WEDGE GATE VALVES

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RW GATE VALVES
2” – 66”

SERIES 2500 - RESILIENT WEDGE GATE VALVES

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NRS

OS&Y

STANDARD CONFIGURATIONS

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GEARS:

SPUR = Vertical

BEVEL = Horizontal

APPLICATIONS

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TAPPING VALVES

MOV UNITS

VALVES WITH INDICATORS

VALVE SELECTION

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- START - EARLY IN THE PROJECT
- AVOID - USING OLD PROJECT SPECS
- AVOID - WHAT WAS USED LAST TIME
- LOOK - AT BIGGER PICTURE
- LOOK - AT EACH PROJECT ON ITS OWN MERIT

VALVE TYPES

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MULTI-TURN VALVES:	OPEN/CLOSE (Gate Valves)
QUARTER TURN VALVES:	THROTTLING (BFV, Plug, Ball Valves)

FLUID MEDIUM

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HISTORICALLY –

RAW WATER:	GATE VALVES BUTTERFLY VALVES
RE-USE WATER:	GATE VALVES BUTTERFLY VALVES
TREATED WATER:	GATE VALVES BUTTERFLY VALVES
WASTEWATER:	GATE VALVES - VERTICAL PLUG VALVES

GATE VALVE - HISTORY

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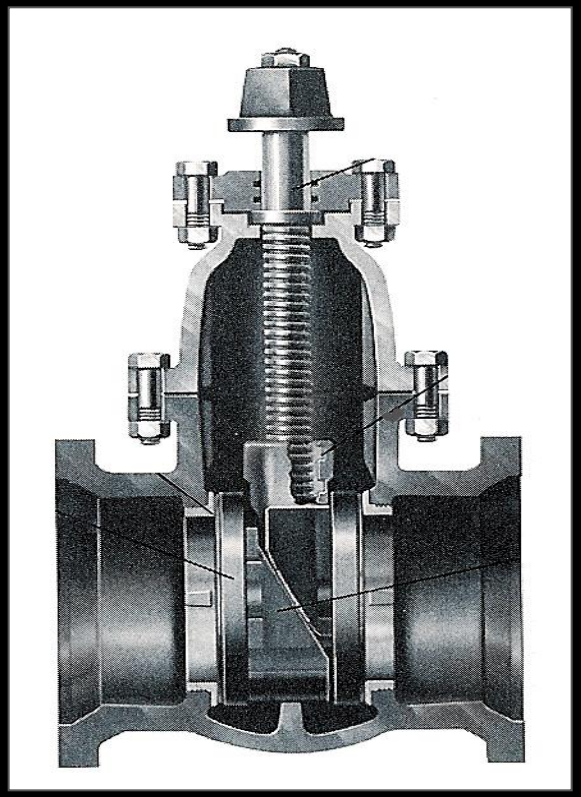
DOUBLE DISC GATE VALVES



- Originally Covered by ANSI/AWWA C500
- Arbitrary Wall Thicknesses
- Closure Achieved by a “Bridging Action”
- Limited Coating
- Pockets
- Build-Up in Seats
- Elevated Torques – Required By-Passes
- Allowable Leakage – Each Seat 1 oz / per inch diameter / per hour

GATE VALVE - HISTORY

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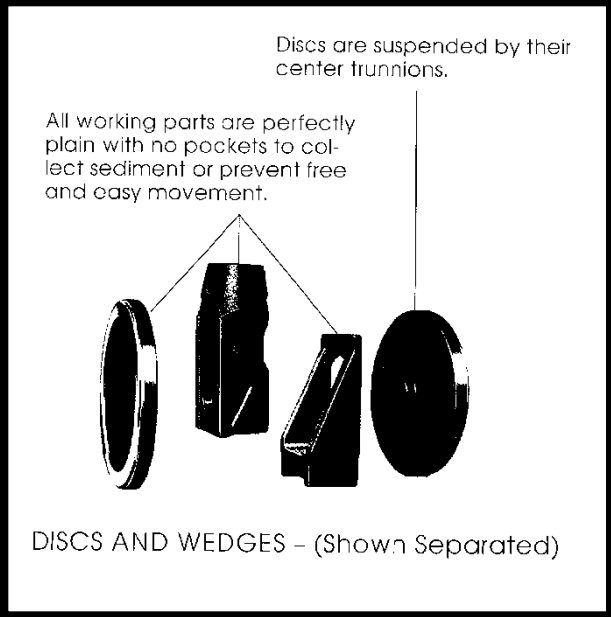
METAL SEATS

- Susceptible to build-up
- Susceptible to corrosion
- Lower pressure ratings
- Prone to damage
- Multiple parts
- Higher Torques



DISCS AND WEDGES – (Shown Separated)

GATE VALVE - HISTORY

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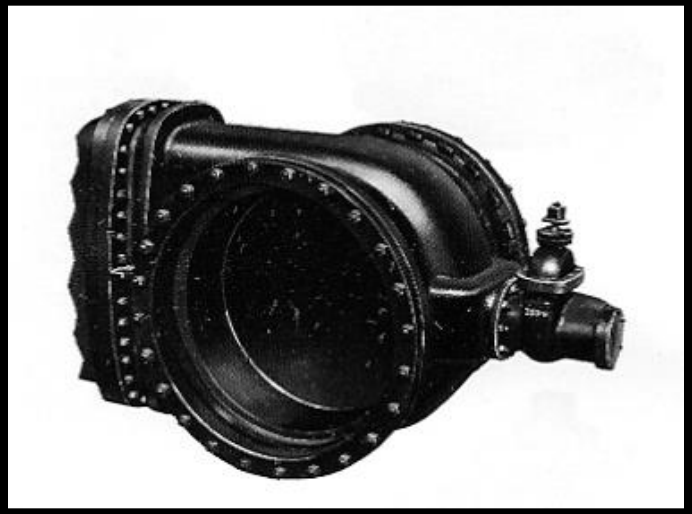
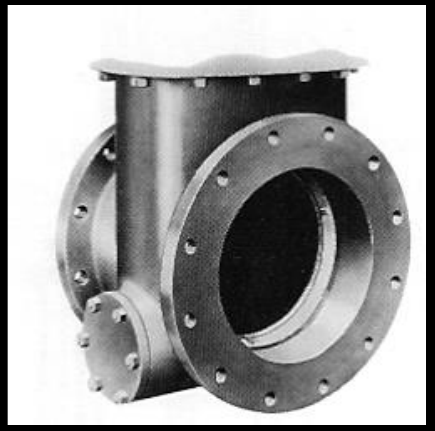
REQUIRED USE OF

- By-passes
- Rollers, Tracks and Scrapers
- Clean-outs





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TORQUE COMPARISON - RWGV vs DDGV

SIZE (IN)	PRESSURE (psig)	2500 RWGV WITHOUT GEARS (FT-LBS)	2500 RWGV WITH GEARS (FT-LBS)	PRESSURE (psig)	DDGV WITHOUT GEARS (FT-LBS)	DDGV WITH GEARS (FT-LBS)
4	250	40	N/A	200	29	N/A
6	250	80	N/A	200	58	N/A
8	250	90	N/A	200	90	N/A
10	250	150	N/A	200	180	N/A
12	250	175	N/A	200	228	N/A
14	250	168	130	150	260	N/A
16	250	215	130	150	352	196
18	250	235	160	150	435	242
20	250	333	167	150	628	349
24	250	400	200	150	974	541
30	250	1148	338	150	1861	591
36	250	1275	375	150	2818	895
42	250	2400	350	150	4200	933
48	250	2720	400	150	6205	1379
54	250	2720	400	150	8513	1182
60	250	4760	700	150	-	-
66	250	4760	700	150	-	-

NOTES: 1. DDGV torque values established from archived information using the AMERICAN-Darling 50-Line Double Disc Gate Valve design.

2. This information is accurate to the best of our knowledge. However, it should be used with caution. The information contained herein was prepared, and in some cases provided, to customers, designers and/or consumers as a general service. AMERICAN Flow Control cannot be responsible for any issues and/or accidents resulting from its use. Further, AMERICAN is not repsonsoble for any errors and/or omissions.

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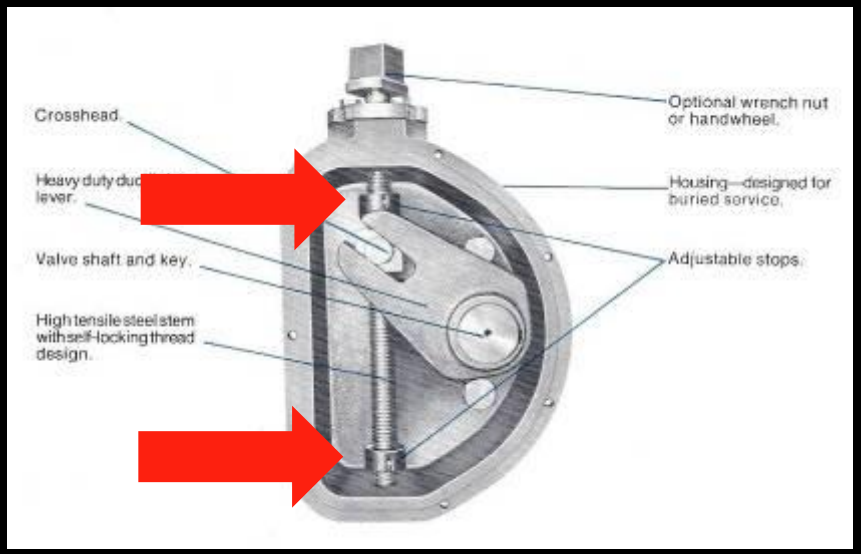
HISTORY:

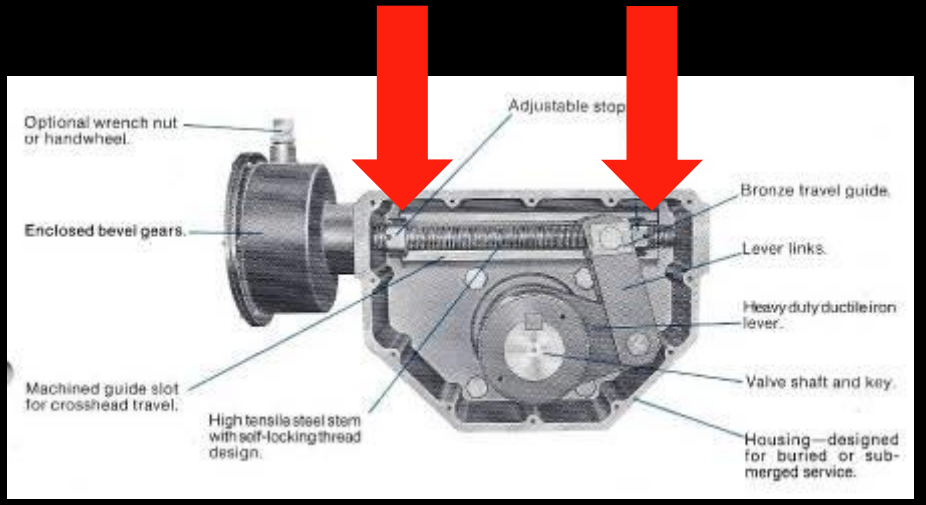
DOUBLE DISC GATE VALVES (AWWA C-500)
- Hard to operate
- Allowed to leak

CREATED MARKET FOR:

BUTTERFLY VALVES (AWWA C-504)
- Easier to operate
- No allowable leakage

BUTTERFLY VALVES - REVIEW





TRAVEL STOPS – INSIDE MANUAL ACTUATORS

BUTTERFLY VALVES - REVIEW

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ACTUATOR ADJUSTMENT

BUTTERFLY VALVES - REVIEW

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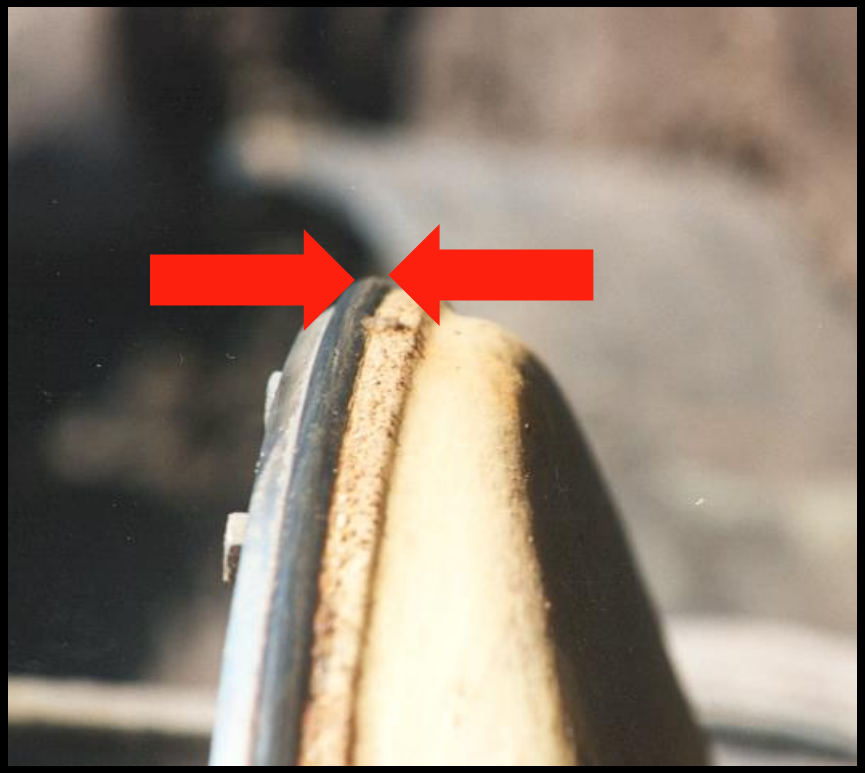
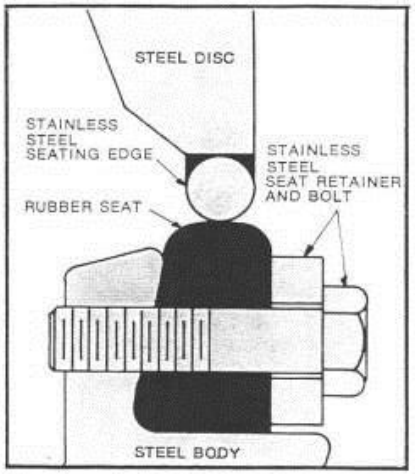
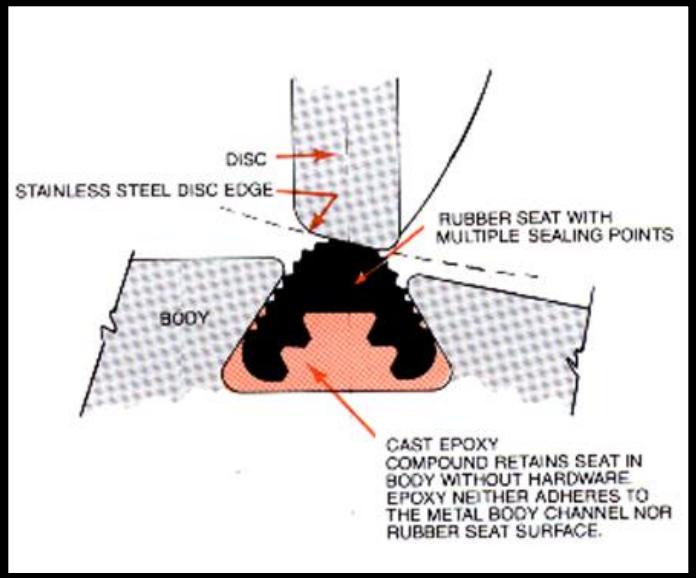


SEAT WIDTH

BUTTERFLY VALVES - REVIEW



Seat is contained in body of valve by stainless steel retaining segments and screws. Seat adjustment up to ¼ inch is possible to insure bubble-tight closure even after many years of hard service.



SEAT ADJUSTMENT

BUTTERFLY VALVES - REVIEW

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POTENTIAL FOR LEAKS

BUTTERFLY VALVES - REVIEW

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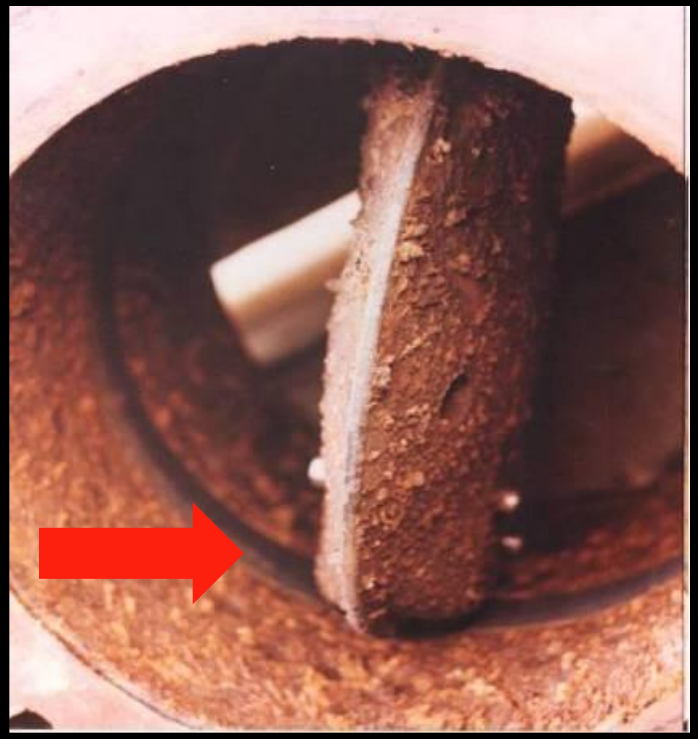
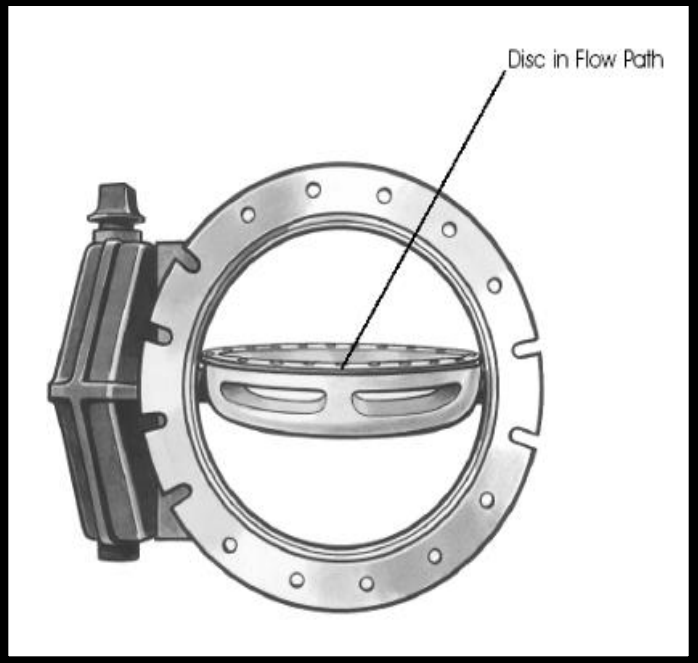


CORROSION and BUILD-UP

BUTTERFLY VALVES - REVIEW



FLOW RESTRICTION

PUMPING COST UP TO 10x HIGHER

LIMITS CLEANING / PIGGING OF LINE

BUTTERFLY VALVES - REVIEW

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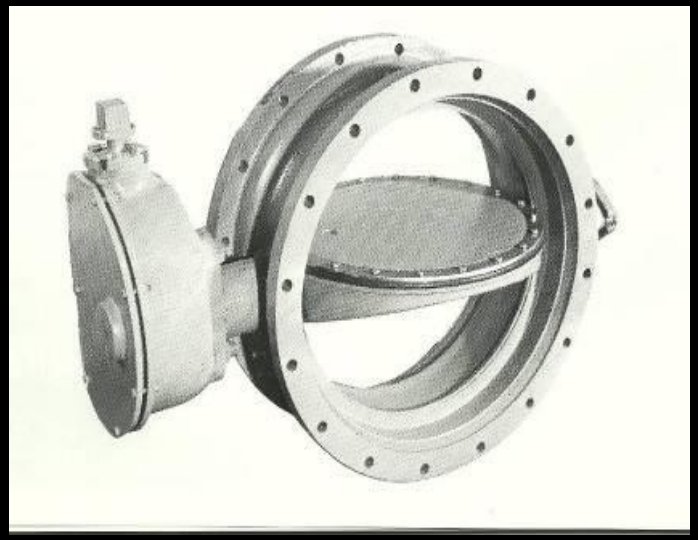

LIMITS CLEANING / PIGGING OF LINE

RW GATE VALVE - HISTORY

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RESILIENT WEDGE GATE VALVES

- Development of ANSI/AWWA C509
- Fusion-Bond Epoxy (FBE) Inside and Out
- Smooth Waterway
- Single Piece Encapsulated Wedge
- Elevated Pressure Rating to 200 psig
- Zero Leakage

IRON STRUCTURE

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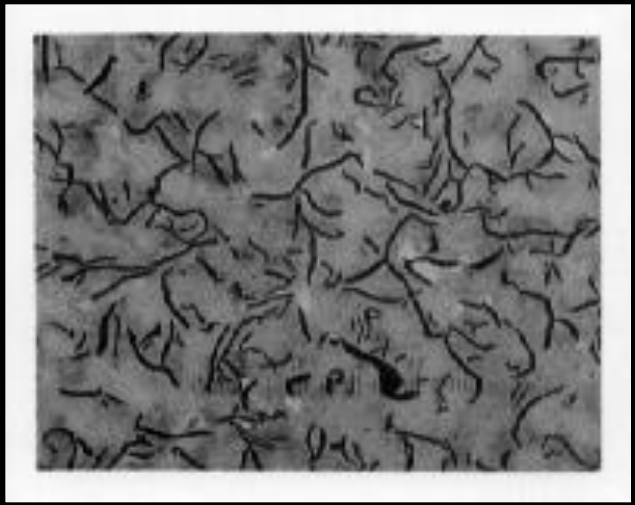
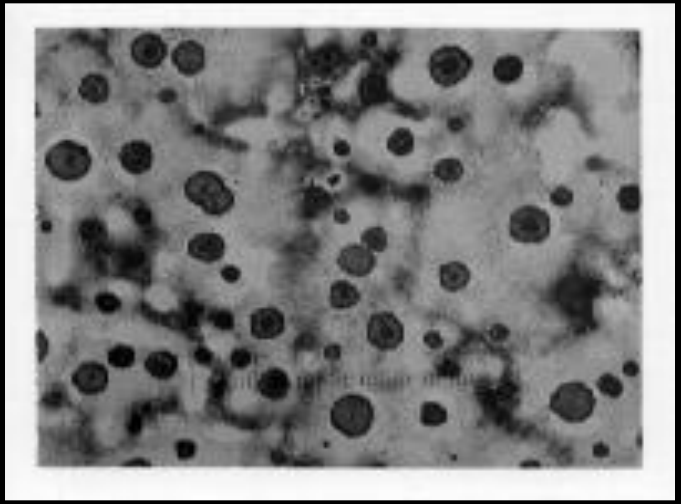
CAST IRON



FLAKE LIKE STRUCTURE

DUCTILE IRON



NODULAR STRUCTURE

Ductile Iron VS. Gray (cast) Iron

RW GATE VALVE - HISTORY

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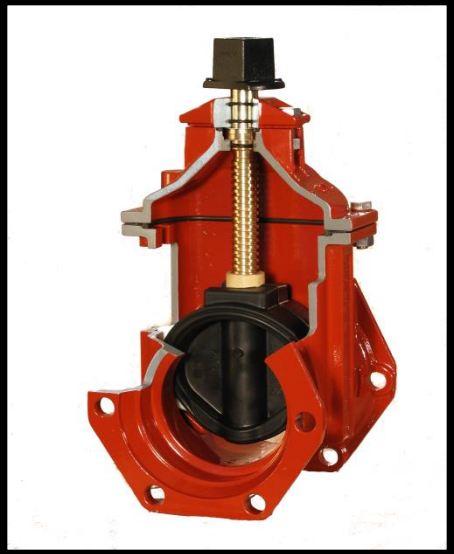
RESILIENT WEDGE GATE VALVES

- Development of ANSI/AWWA C515
- Use of DI (65-45-12) = Lighter / Stronger
- Smooth Waterway
- Single Piece Fully Encapsulated EPDM Wedge
- Elevated Pressure Rating to 250 psig



RW GATE VALVE - DESIGN

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SIMPLISTIC DESIGN

3 MOVING PARTS

- Stem
- Wedge Nut
- Wedge

RW GATE VALVE - DESIGN

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DI Wedge

Fully Encapsulated with EPDM Rubber

RW GATE VALVE - DESIGN

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Polymer Covered Wedge Guides

AWWA STANDARDS

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AWWA C-500 - METAL SEATED

- Allowable Leakage @ 150 psig (14” and Larger)
- Greater Weight

AWWA C-504 – BUTTERFLY

- Zero Leakage
- Pressure Rating @ 150 psig

AWWA C-509 – RESILIENT SEATED

- Gray Cast Iron Body
- Zero Leakage
- Pressure Rating @150 psig (14” and Larger)
- Greater Weight

AWWA C-515 - RESILIENT SEATED

- Ductile Iron Body
- Zero Leakage
- Pressure Rating @ 200 psig (AMERICAN = 250 psig)
- Reduced Wall Thickness
- Lighter Weight / Easier to Handle

VALVE JOINT REVIEW

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MECHNICAL JOINT

2” – 48”

VALVE JOINT REVIEW

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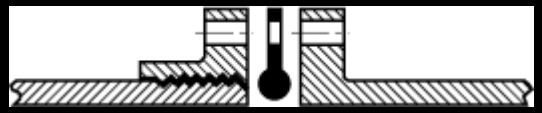
FLANGE



AMERICAN
Toruseal
Gasket

2” – 66”

VALVE JOINT REVIEW

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PUSH-ON JOINT

2” – 16”

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FLEX-RING® JOINT

16” – 60”

AMERICAN SERIES 2500 with FLEX-RING® JOINTS

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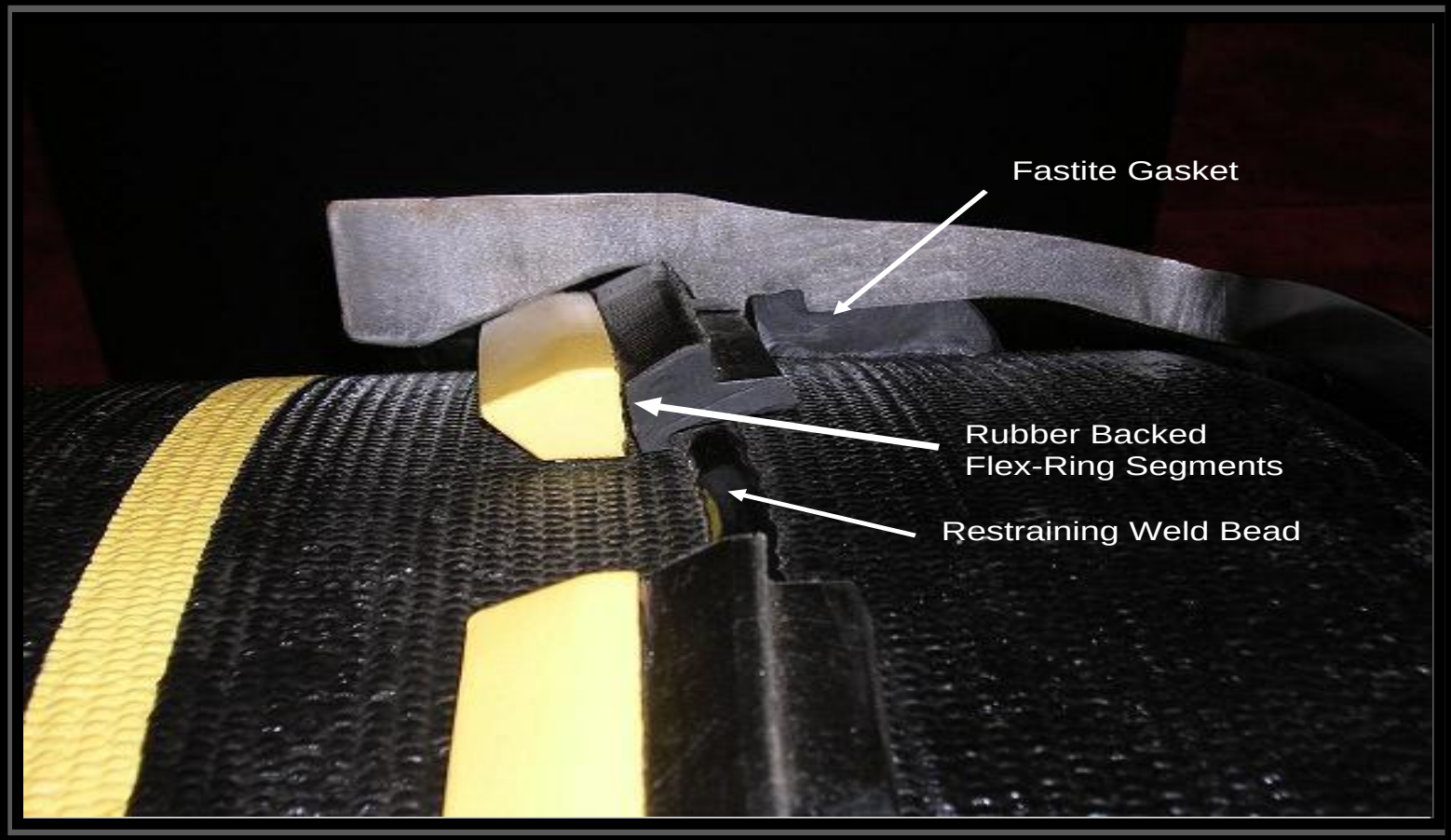
RW Gate Valve - Boltless Restrained Joint

Available in Size 16” -60”

AMERICAN SERIES 2500 with FLEX-RING® JOINTS



Positive Joint Restraint

AMERICAN SERIES 2500 with FLEX-RING® JOINTS

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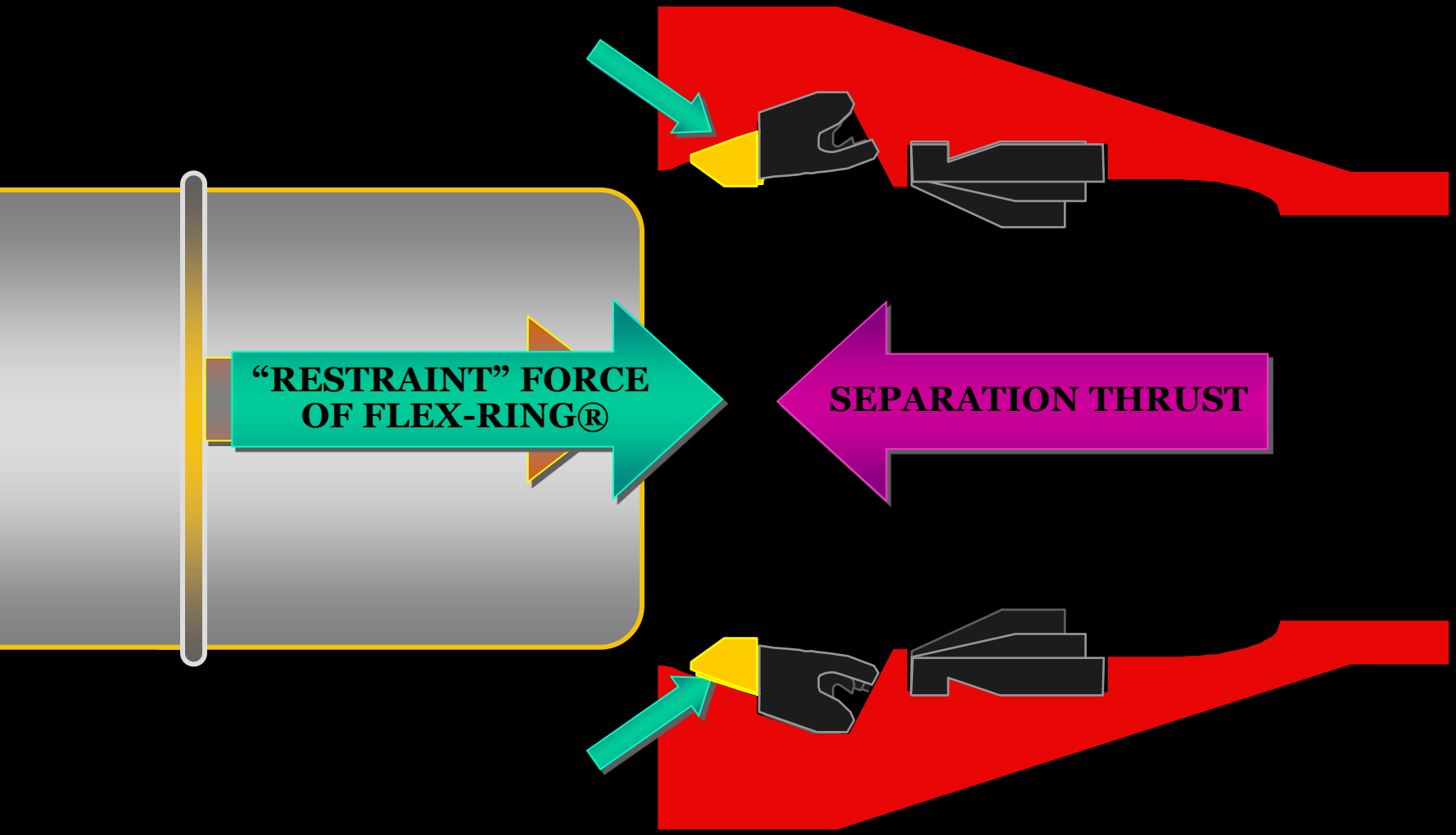

Friction Style MJ - Restrainers

Valve Size	Wedge Bolts	MJ Tee Head Bolts	Total Bolts
16”	12	12	24
18”	12	12	24
20”	14	14	28
24”	16	16	32
30”	20	20	40
36”	24	24	48
42”	28	28	56
48”	32	32	64

Flex – Ring® = No bolts and nuts to inventory, install, or tighten

VALVE JOINT REVIEW

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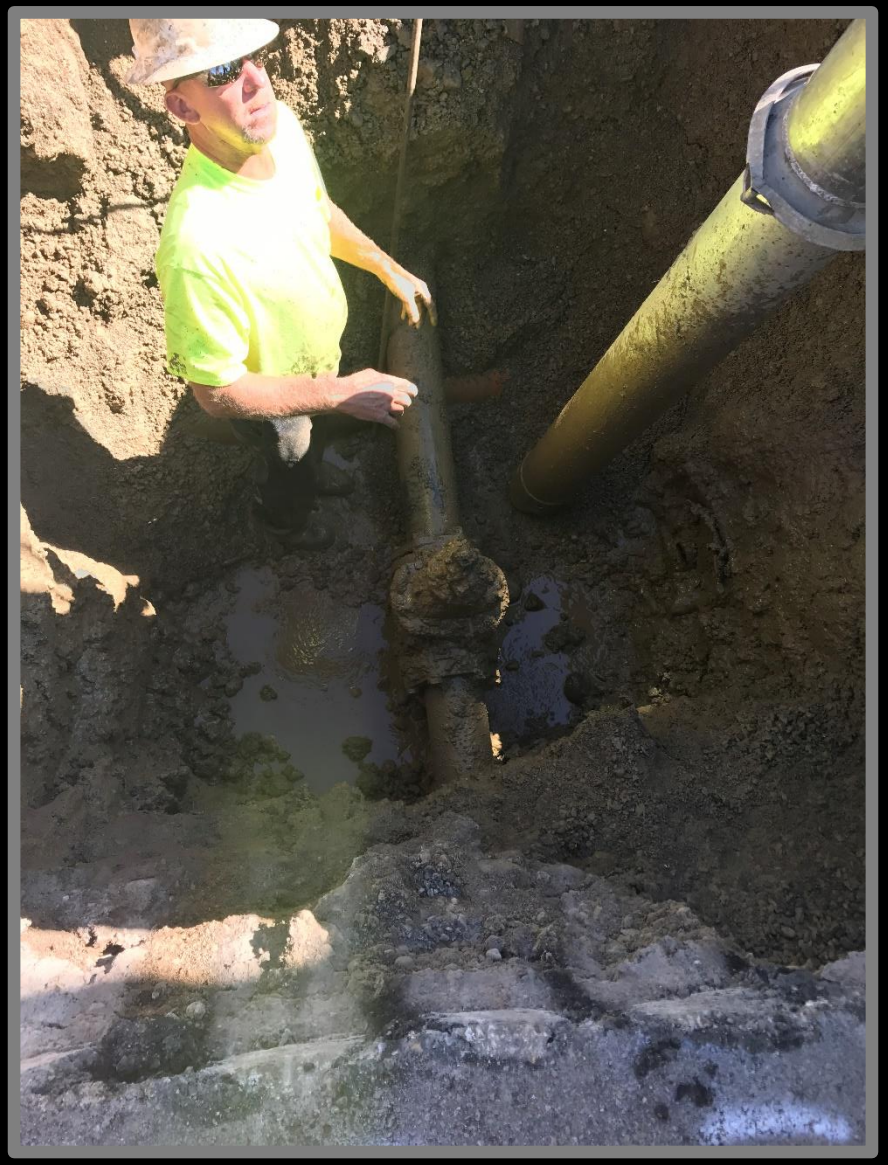
ALPHA JOINT

CURRENT CONFIGURATIONS:

- 4” -12” RW Gate Valves with ALPHA x ALPHA Ends
- American-Darling Fire Hydrants (90-Degree Base)
- Waterous Fire Hydrants (90-Degree Base)

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DOING IT THE RIGHT WAY
FOR OVER 100 YEARS

AMERICAN Flow Control

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Established 1991

B84B

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- INTRODUCED IN 1984
- RATED @ 250 psig
- MEETS or EXCEEDS ANSI/AWWA C-502 Standards
- UL LISTED / FM APPROVED IN APPLICABLE CONFIGURATIONS
- INDUSTRY'S ONLY POSITIVE COMPRESSION DRAIN SYSTEM
- EXCLUSIVE COLLAR STYLE NOZZLE RETENTION SYSTEM

PRODUCT MARKINGS

- AMERICAN LOGO
- VALVE OPENING SIZE
- MODEL NUMBER
- YEAR OF MANUFACTURE
- DIRECTION TO OPEN
- AWWA CREDENTIAL
- PRESSURE RATINGS
- APPLICABLE UL LISTINGS AND FM APPROVALS

B84B

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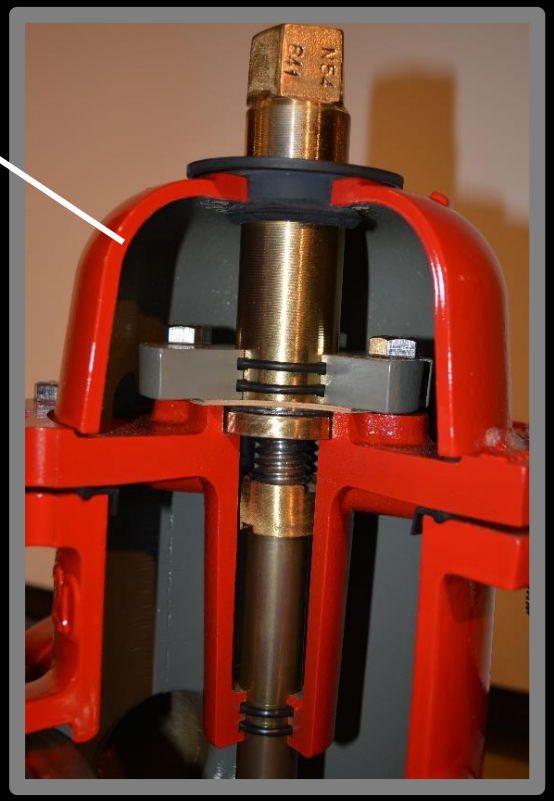

One-Piece Bronze Op Nut & Thrust Washer

Weather Cover & Shield

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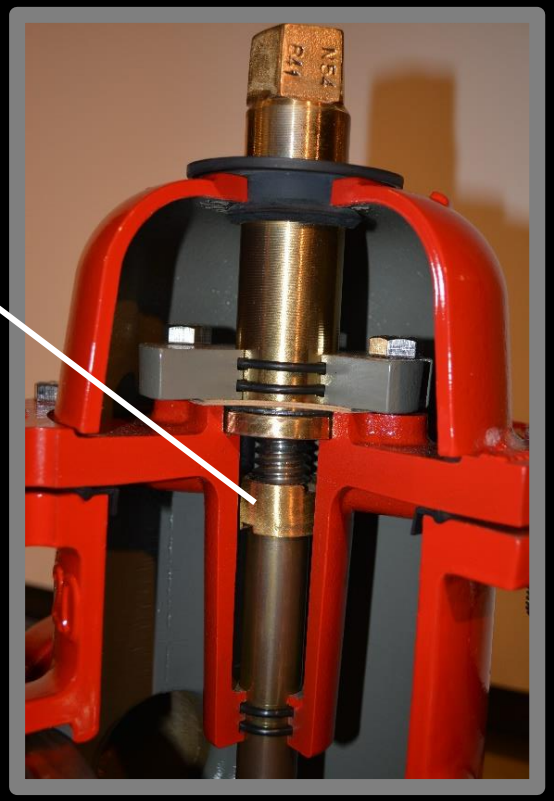
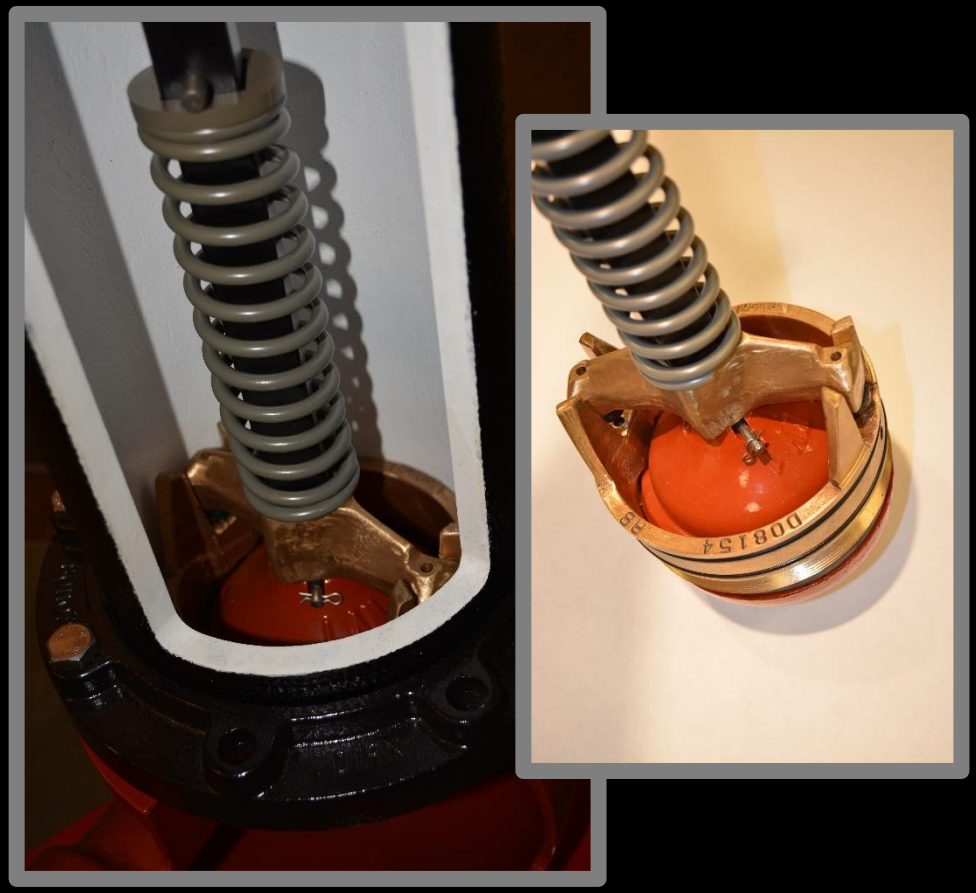
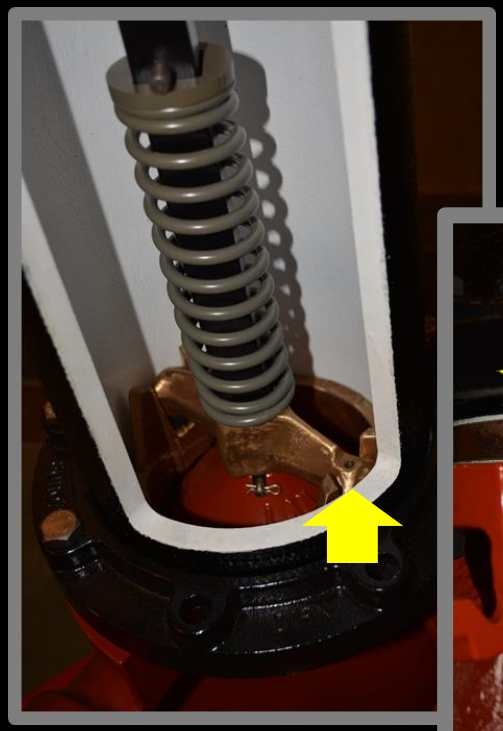


Bury Tag

Proprietary Square Hydrant Rod



Hydrant Lower Barrel
AMERICAN'S Proprietary Positive Compression Drain



2 - Drain Ports

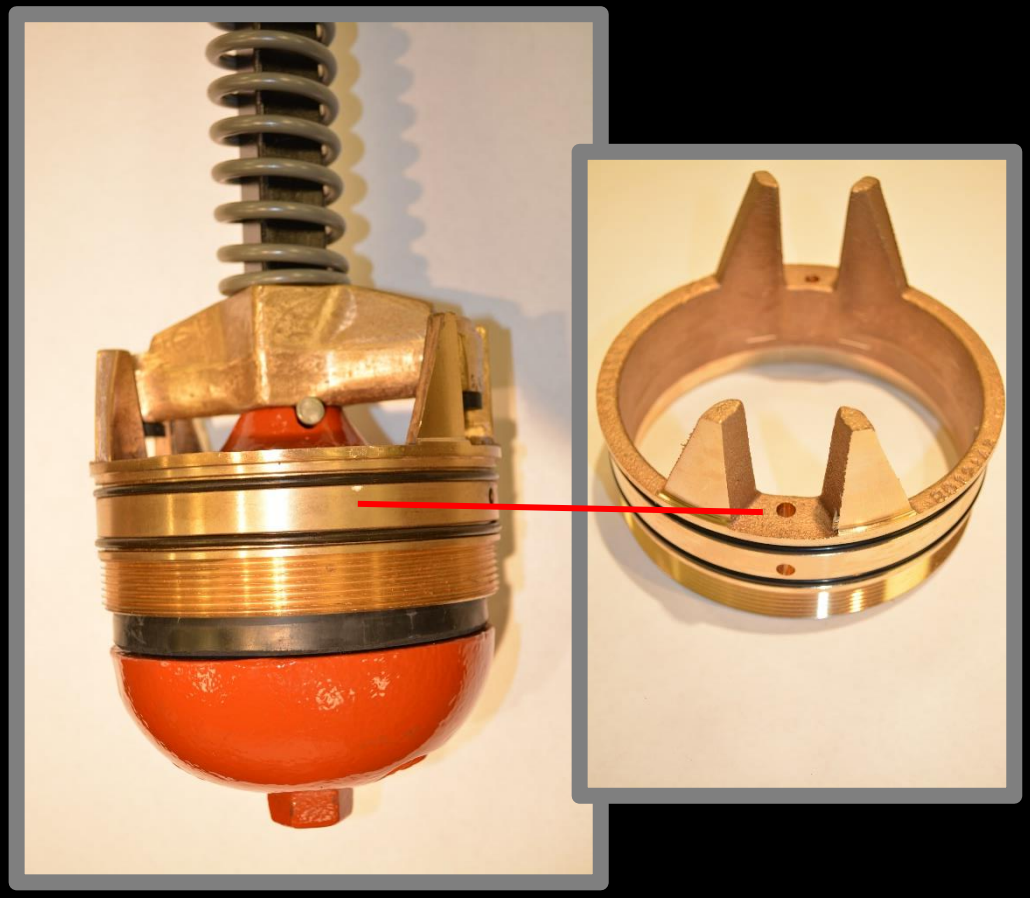
4 - Drain Outlets

Positive Compression Drain

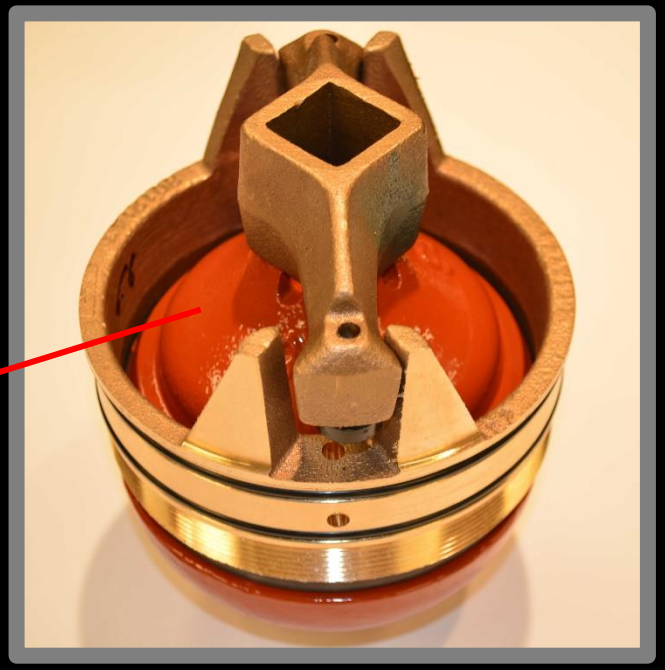
Hydrant Closed
Drains Are Open

Hydrant Open
Drains Are Closed

Drains Close Within 3 Turns



Spring is Compressed as Hydrant is Operated
Drain Ports are Covered in the All Bronze Hydrant Seat



Hydrant Valve Assembly