

# AWWA Gate Valve Evolution

2018 Clean and Safe Drinking Water Workshop

March 27<sup>th</sup>, 2018

Presented by Jeff B. Jensen





# Purpose - Underground Gate Valves

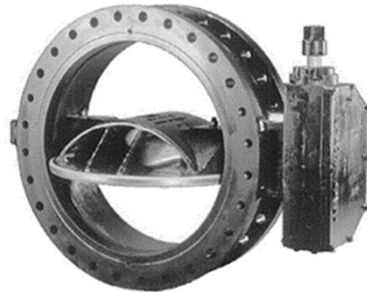
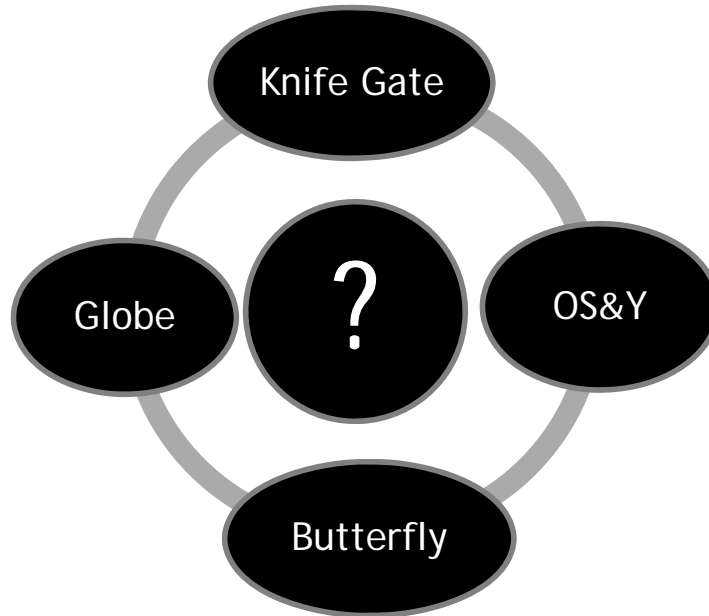
**Mueller Co.**

- **Isolation**
  - Repair
  - Tie in
  - Customer shutdown
- **Flow Control**
- **By-pass**
- **UDF programs**
- **Hydrant repair**



# AWWA NRS Gate Valve = most trusted Underground WDS Valve

**Mueller Co.**



# AWWA GV Stem design

**Mueller Co.**

**AWWA C509 & C515 'valve stems and thrust collars shall be integral design'**



# Critical Valve Standards = AWWA/ULC/FM



**NSF**  
Testing & inspection  
1200 employees  
Est 1944

**AWWA**  
Voluntary standards  
50,000 members  
Est 1888



**ANSI**  
Verify Standards,  
international  
3.5 million members  
Est 1918

**City/Town/  
Village**

**FM**  
Alternative to insurance  
4400 employees  
Est 1850

**UL/ULC, LLC**  
Audit processes  
1200 employees, 46 countries  
Est 1894



**BREAKTHROUGH  
TO EXCELLENCE**





# AWWA Gate Valve offering



## NRS Double Disc Gate Valve

DDGV AWWA C550 ( Cast or Ductile Iron) 2"-36"

## NRS Resilient Wedge Full Body Gate Valve

RWGV AWWA C509 (Cast or Ductile Iron) 2"-48"

## NRS Resilient Wedge Reduced Wall Gate Valve

RWGV C515 (Ductile Iron only) 4"-48"

## Outside Screw & Yoke Gate Valve

Rising Stem RWGV AWWA C509 (Cast or Ductile Iron) 2"-24"

Rising Stem RWGV AWWA C515 (Ductile Iron) 2"-24"

## Tapping Valve

RWTV C509 (Cast or Ductile Iron) 4"-24"



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# AWWA C509 & C515 Resilient Wedge Gate Valve

**Mueller Co.**



## Common End Connections:

- Flange ANSI B16.1/16.5 2"-48"
- Mechanical Joint (MJ) 2"-54"
- MJ x Flange 2"-48"
- Threaded 2"-3"
- Slip-on 4"-16"
- Radial IPS Push-on 2"-8"
- HDPE fused end 4"-12"



# AWWA C500 (1952) Gate Valve

**Mueller Co.**

Prior to RWGVs, these were used...

- Metal Seated Gate Valves
- Double Disc Parallel Seat Iron Body Bronze Mounted (IBBM) Gate Valves

4" to 30" dia rated 150 psi (1,034 kPa)

Seat leak 1oz./nom. size/hour

Allowed in AWWA C500 standard

Manufacture example:

4" Mueller IBBM GV, rated 150 psi (Cast Iron)



**OBSOLETE**

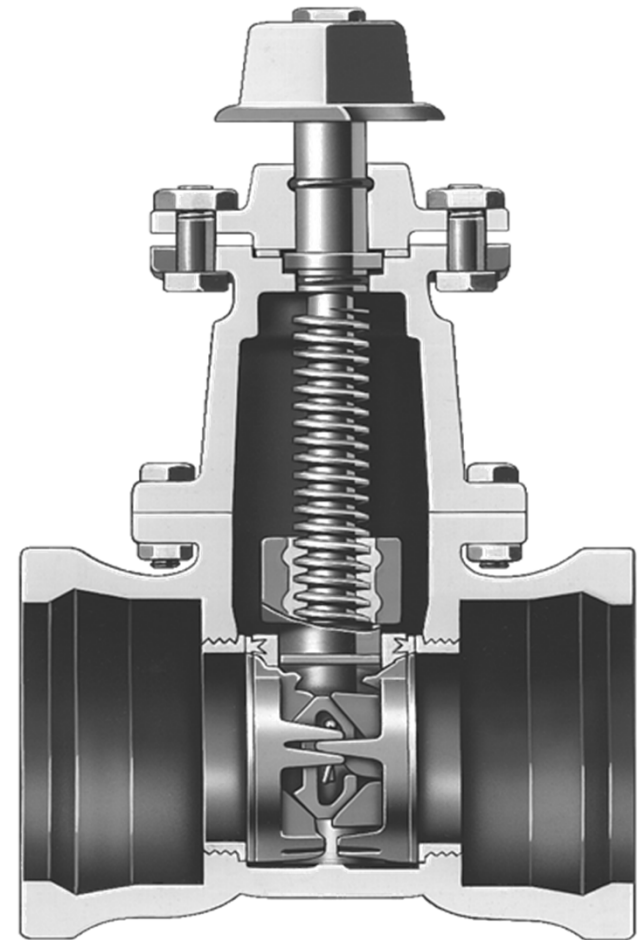


# AWWA C500 (1952) Gate Valve

**Mueller Co.**

## Issues:

- **Stuffing Box**  
Used Packing before 1952 often leaked
- **Gear Operated above 12”**  
Worm gear costly & repairs
- **DDGV needs bypass**  
fill lines slowly & equalize pressure
- **Sediment build up**



# AWWA C509 (1980-present) RWGV

**Mueller Co.**

3" to 12" dia rated 200 psi (1,380 kPa)

16" to 30" dia rated 150 psi (1,034 kPa)

Structural test: 2 x WP

Zero leak tolerance

Torque test



Cast Gray Iron to ASTM A126, Class B

Ductile Iron ASTM A395 or A536

Manufacture examples:

Mueller A2370 stem/wedge - 4", rated 200psi

Mueller A2360 - 6", rated 250 psi (Cast Iron)

# AWWA C509 (1980-present) RWGV

**Mueller Co.**

- Full port body Cast or Ductile
- Resilient Wedge tapered on both sides of disc
- One piece bronze or SS stem
  - O-ring sealed
  - By-pass optional
  - Open Left or Right
  - NRS or OS&Y designs



**A2362 Series C509**



# AWWA C515 (1993-present) RWGV

**Mueller Co.**

3" to 36" dia rated 200 psi (1380 kPa)

Structural test: 2 x WP

Zero leakage

Torque test



“Reduced Wall Thickness since higher strength ductile iron used  
Lighter weight exerts less stress on the end connections”

Ductile Iron ASTM A395 or A536” - AWWA C515 standard

Manufacture example:

Mueller A2361 6", rated 350 psi (Ductile Iron)



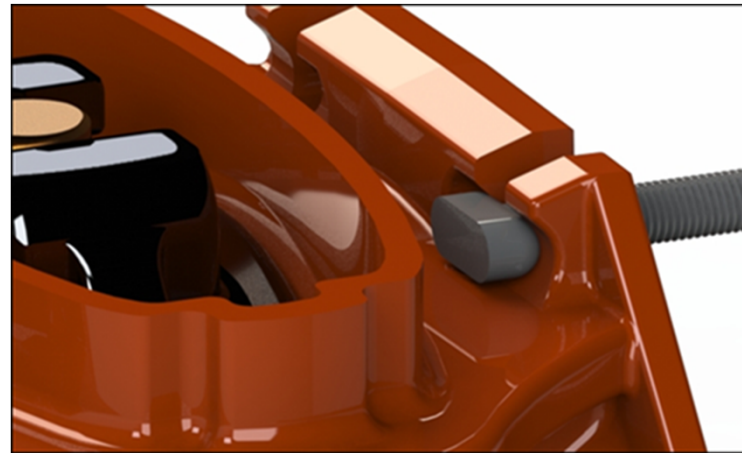
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# AWWA C515 (1993-present) RWGV

**Mueller Co.**



- Same primary features as C509 but ductile iron body only.
- DI allows for added features



**A2361 Series C515**

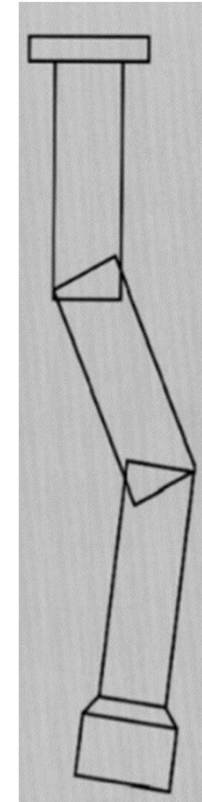
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# RWGV Installation key notes

**Mueller Co.**



1. Do not Deflect @ end connection
2. Operate prior to install
3. Close Valve
4. Handle carefully
5. Lift into trench using OEM lug
6. Firm trench/blocking
7. **Select valve box or vault in such no stress is transmitted**
8. **Reduce Epoxy damage C550**





# No job too big for a gate!

**Mueller Co.**



Newfoundland  
Labrador

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TO EXCELLENCE**