

SPECIFICATIONS / AVAILABLE CONFIGURATIONS & STYLE NUMBERS (2" - 12")
M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

M&H Valve AWWA C509 Resilient Wedge Gate Valves
Meet or Exceed the Requirements of AWWA Standard C509

Size Range	Water Working Pressure psi	Bubble Tight Seat Test psi	Hydrostatic Shell Test psi
AWWA 2" - 12"	250 Water Works	250 & 400	500
ULFM 4" - 12"	200 Fire Protection	250 & 400	500

Available End Connections	Size Range	Style No. With 2" Nut	Style No. With Hand wheel	Style No. With Post Plate
Mechanical Joint (NRS) (no 2 1/2")	2"-12"	4067-01	4067-01-HW	4067-01P (3"-12")
Flanged Ends (NRS)	2"-12"	4067-02	4067-02-HW	4067-02P (3"-12")
Flanged End X Mechanical Joint (NRS)	3"-12"	4067-13	4067-13-HW	4067-13P (3"-12")
Push-on (For PVC / SDR) (NRS)	2"-12"	4067-03	4067-03-HW	4067-03P (3"-12")
Threaded (NRS)	2"-3"	4067-07	4067-07-HW	4067-07P (3" only)
Threaded (NRS)(With T-Head Nut)	2"-3"	4067-07THN (With T-Head Nut)		
***Threaded (OS&Y)	2"-3"	N/A	4068-07	
Tyton X Tyton (NRS) (For D.I. / C900)	4"-12"	4067-22	4067-22-HW	4067-22P (4"-12")
Tyton X Flange (NRS) (For D.I. / C900)	4"-12"	4067-23	4067-23-HW	4067-23P (4"-12")
***Flanged Ends (OS&Y)	2"-12"	N/A	4068 & 4068A*	N/A
**Tapping Valve (NRS)	4"-12"	4751-01	4751-01HW	4751-01P (4"-12")
M.J. Cutting-in valve (NRS)	4"-12"	4576-01	4576-01-HW	4576-01P (4"-12")
****Flanged End (Open Mitre Box)	3"-12"	4211-O	4211-O-HW	N/A
****Flanged End (Enclosed Mitre Box)	4"-12"	4211-C	4211-C-HW	N/A

Notes: *4068A is Tapped & Plugged in "A" Position (2" - 4" = 1/2" tap)(6" - 12" = 3/4" tap)
 **Each size accommodates a full size diameter tapping cutter.
 ***2" OS&Y Flanged and Threaded versions are UL Listed.
 ****Can provide with all available end connections.
 2" and 2 1/2" are not included in AWWA C509.

NOTE: It is recommended that valves be installed with stems vertical when used in raw sewage or sludge applications or in water with excessive sediment.



**RECOMMEND SPECIFICATIONS (NRS STYLE 4067)(OS&Y STYLE 4068)(2"-12")
M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)**

RECOMMENDED SPECIFICATIONS (2"-12")

1. Valves shall conform to the latest revision of AWWA Standard C509 covering resilient seated gate valves for water supply service.
2. The valves shall have an iron body, bonnet, and O-ring plate. The wedge shall be totally encapsulated with rubber.
3. The sealing rubber shall be permanently bonded to the wedge per ASTM D-429.
4. Valves shall be supplied with O-ring seals at all pressure retaining joints. No flat gaskets shall be allowed.
5. The valves shall be either non-rising stem or rising stem, opening by turning left or right, and provided with 2" square operating nut or a handwheel with the word "Open" and an arrow to indicate the direction to open.
6. Stems shall be cast copper alloy with integral collars in full compliance with AWWA. All stems shall operate with copper alloy stem nuts independent of wedge and of stem (in NRS valves). OS&Y (rising stems) shall be bronze
7. All stems shall have two O-rings located above the thrust collar and one O-ring below. Stem O-rings shall be replaceable with valve fully opened and subjected to full pressure.
8. The stems on 2"-12" shall also have a low torque thrust bearing located above and below the stem collar to reduce friction during operation.
9. Waterway shall be smooth, unobstructed and free of all pockets, cavities and depressions in the seat area. Valves 2" and larger shall accept a full size tapping cutter.
10. The body, bonnet and O-ring plate shall be fusion-bonded epoxy coated, both interior and exterior on body and bonnet. Epoxy shall be applied in accordance with AWWA C550 and be NSF 61 Certified.
11. Each valve shall have maker's name, pressure rating, and year in which it was manufactured cast in the body. Country of origin to be clearly cast into body & cover castings.
12. Prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to the requirements of AWWA C509 (and UL/FM where applicable).
13. Valves shall have all component parts cast and assembled in the USA and shall be manufactured by the M&H Valve Company.

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PRODUCT ANALYSIS (2"-12")

M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

FEATURES	BENEFIT
2"-12" Bubble Tight Closure at 250 psi (AWWA Service)	<ul style="list-style-type: none"> • No Leakage – No loss of water
Wedge Has Dual Rubber Seal	<ul style="list-style-type: none"> • Assures drop-tight shut-off in either direction.
Smooth, Unobstructed Waterway to Maximize Flow.	<ul style="list-style-type: none"> • High flow characteristics • 100% smooth passage without turbulent flow • No sediment build up • Will not impede travel of line cleaning tools
Only Three Internal Parts	<ul style="list-style-type: none"> • Virtually maintenance free
Integral Cast Tongue and Groove Between Wedge and Valve Body.	<ul style="list-style-type: none"> • Positive gate alignment every time
No Metal Seat Rings	<ul style="list-style-type: none"> • Nothing to be damaged by scoring
Delrin* Anti-Friction Thrust Bearing	<ul style="list-style-type: none"> • Operating torque to close and open held to absolute minimum
Solid, Bronze Stem Nut and High Strength Bronze Stem	<ul style="list-style-type: none"> • No corrosion • Trouble free service
Stem Nut is Self Centering	<ul style="list-style-type: none"> • Eliminates possible stress on stem and wedge
Two O-Ring Seals Above Stem Thrust Collar and One Below	<ul style="list-style-type: none"> • Two O-Rings can be replaced with valve in service (Valve needs to be fully opened)
High Strength Iron Wedge Fully Encapsulated with Rubber Permanently Bonded to Metal.	<ul style="list-style-type: none"> • Trouble free service with minimum maintenance • No leaks – no wear
No Lubrication Required	<ul style="list-style-type: none"> • Trouble free service
Body / Bonnet Epoxy Coating Inside & Out	<ul style="list-style-type: none"> • Unprecedented Protection Against Corrosion and abrasion
10 Year Limited Warranty Against Defective Materials or Workmanship	<ul style="list-style-type: none"> • Customer assurance that M&H believes in the strong product they produce.
American Cast and Assembled	<ul style="list-style-type: none"> • American Jobs • American backed for more than 100 years • American quality and accountability

* DuPont Trademark

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PERFORMANCE INFORMATION (AWWA & UL/FM)

M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

2"-12" AWWA PERFORMANCE INFORMATION

1. Valve complies with AWWA C509 specs where applicable.
2. Valve is rated at 250psi working pressure.
3. Valve is bubble-tight at all pressures up to full rated pressure (250psi).
4. Valve has been subjected to torques 150 percent of the designated minimum required torques.
5. Valve has been cycle tested full opened to close 5,000 times without loss of bubble-tight seal.
6. Rubber to iron bond on wedge is inspected for strength as per ASTM D 429 specification.

4"-12" UL/FM PERFORMANCE INFORMATION

1. Valve complies with Underwriters Laboratory standard UL 262.
2. Valve is UL/FM rated at 200psi working pressure.
3. Valve is bubble-tight at all pressures up to the full rated pressure (200psi)
4. Valve is capable of bubble-tight seal at twice the rated pressure (400psi) for short periods of time.
5. 4"-6" valve sizes have been hydrostatically shell tested at five times the rated pressure (1,000 psi).
6. 8", 10", and 12" valve sizes have been hydrostatically shell tested at four times the rated pressure (800psi).
7. Valves has been subjected to torques 150 percent of the designated minimum required torques.
8. Valve has been cycle tested 5,000 times without loss of bubble-tight seal.
9. Rubber to iron bond on wedge is inspected for strength as per ASTM D 429 specification.

Note: For complete data on the tests Underwriters Laboratories performed reference UL File EX783

NOTE: It is recommended that valves be installed with stems vertical when used in raw sewage or sludge applications or in water with excessive sediment.

MATERIAL SPECIFICATIONS (1 of 2)

M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

CAST IRON SPECIFICATION ASTM A126 CLASS B

Physical Properties

Minimum tensile strength	31,000 psi
Minimum transverse strength	3,300 lbs.
Minimum deflection (12" Centers)	.12 in

Chemical Analysis (percent)

Phosphorus (maximum)	.75
Sulfur (maximum)	.15

DUCTILE IRON SPECIFICATION ASTM A536

Physical Properties

Minimum tensile strength	65,000 psi
Minimum yield strength	45,000 psi

STYRENE BUTADINE RUBBER – ASTM D-5000 “O-Rings

Hardness	78± 5
100% Modulus (PSI)	800

STANDARD “Wedge / Seat Rubber” & ALTERNATE---EPDM “O-Rings”

Hardness	80± 2
100% Modulus (PSI)	600
Tensile (PSI)	1,450
Elongation (%)	150
Compression set, ASTM D395 Method B	18% max.

MATERIAL SPECIFICATIONS (2 of 2)

M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

STANDARD CAST BRONZE—ASTM B584 CDA836 (Stem Nut)

Physical Properties

Minimum tensile strength	30,000psi
Minimum yield strength	14,000psi
Minimum elongation (in 2 inches)	20%

Chemical Analysis

*Copper	84.0 – 86.0
Lead	4.0 – 6.0
Tin	4.0 – 6.0
Nickel (maximum)	1.0
Zinc	4.0 – 6.0

* = CU + NI = 79% Min

CAST BRONZE – ASTM B584 CDA867 (Stem)

In accordance with SECTION 4.4.5 of AWWA C509

Physical Properties

Minimum tensile strength	80,000 psi
Minimum yield strength	32,000 psi
Minimum elongation (in 2 inches)	15%

Chemical Analysis

Copper	55.0 – 60.0
Lead (maximum)	.50 – 1.5
Aluminum	1.0 – 3.0
Iron	1.0 – 3.0
Nickel (maximum)	1.0
Zinc	30.0 – 38.0
Manganese	1.0 – 3.5
Tin (maximum)	.2

ALTERNATE CAST BRONZE – NDZ-S ASTM B763 UNS C99500 (Stem)

In accordance with SECTION 4.4.5 of AWWA C509

Physical Properties

Minimum tensile strength	70,000 psi
Minimum yield strength	40,000 psi
Minimum elongation (in 2 inches)	12%

Chemical Analysis

Copper	82.8
Lead (maximum)	.25
Aluminum (maximum)	2.0
Iron (maximum)	5.5
Nickel (maximum)	5.5
Zinc (maximum)	2.0
Silicon (maximum)	2.0

FLOW COEFFICIENTS (2"-12")

M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

FLOW COEFFICIENTS (2"-12")

VALVE SIZE	Cv (FULL OPEN)	K (FULL OPEN)
2"	300	0.15
2 1/2"	500	0.130
3"	800	0.115
4"	1500	0.105
6"	3600	0.090
8"	6700	0.080
10"	10,500	0.080
12"	15,000	0.080

Note: 2" & 2 1/2" not included in AWWA C509

$$C_v = \frac{Q}{\sqrt{\Delta P}}$$

$$K = f \frac{L}{D}$$

Values given are calculated, based on hydraulic lab test on 6" R/W valve.

CR (CORROSION RESISTANCE) INTERIOR & EXTERIOR COATING (1 of 2)
M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

CR (CORROSION RESISTANCE) COATING

M&H Valves CR Coating is a high performance, one-part, heat-curable, thermoset coating which provides superior corrosion resistance protection for metal parts.

M&H Valves CR Coating material is a stable, non-toxic resin consisting of 100% solids. It is impervious to and imparts no taste to potable water. M&H CR Coating is formulated from materials deemed acceptable in the Food and Drug Administration's Document Title 21 of the Federal Regulations on food additives, Section 175.300 entitled "Resinous and Polymeric Coatings".

M&H Valves CR Coating is applied by a heat application, fusion—bonding process which secures the coating materials to the metal valve components. This process provides a continuous coating 6-8 mils thick with excellent adhesion qualities.

The durable M&H Valve CR Coating has a hard finish and exhibits excellent corrosion resistance in the most aqueous solutions and good abrasion resistance. It will not sag or cold flow or become soft during long-term storage. In addition to excellent corrosion resistance to aqueous solutions, the coating has excellent stability and resistance to acidic soil conditions.

M&H Valve CR Coating meets the requirements of the American Water Works Association Standard C-550 entitled "Protective Interior Coatings for Valves and Hydrants". This high performance coating has a ten year history of satisfactory service as a corrosion protection coating used in corrosive potable water applications and soil conditions.

CR (CORROSION RESISTANCE) INTERIOR & EXTERIOR COATING (2 of 2)
M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

CR (CORROSION RESISTANCE) COATING

CHEMICAL	Epoxy Rating	
	70°F	180° F
ACIDS:		
Acetic, 10%	F	N
Benzene Sulfonic, 10%	E	E
Benzoic	E	E
Boric	E	E
Chloracetic, 10%	E	E
Chromic, 5%	F	N
Citric, 10%	E	N
Fatty Acids	E	E
Fronmic, 90%	E	F
Hydrobromic, 20%	G	G
Hydrochloric, 20%	E	G
Hydrocyanic	E	E
Hydrofluoric, 20%	G	G
Hypochlorous, 5%	F	N
Lactic, 5%	F	N
Maleic, 25%	E	E
Nitric, 5%	E	G
Nitric, 30%	G	P
Oleic	E	E
Oxalic	E	E
Phosphoric	G	F
Picric	G	F
Steraric	E	E
Sulfuric, 50%	G	F
Tannic	E	E
Ketones	F	F
Ethers	F	F
Esters	F	F
Gasoline	E	E
Cargon Tetrachloride	E	E
ORGANICS:		
Aniline	G	P

CHEMICAL	Epoxy Rating	
	70°F	180° F
ALKALIES:		
Ammonium Hydroxide	E	E
Calcium Hydroxide	E	E
Potassium Hydroxide	E	E
Sodium Hydroxide	E	E
ACID SALTS:		
Aluminum Sulfate	E	E
Ammonium Chloride*	E	E
Copper Chloride*	E	E
Iron Chloride*	E	E
Zinc Chloride*	E	E
ALKALINE SALTS:		
Barium Sulfide	E	E
Sodium Bicarbonate	E	E
Sodium Carbonate	E	E
Sodium Sulfide	E	E
Trisodium Phosphate	E	E
NETRAL SALTS:		
Calcium Chloride*	E	E
Magnesium Chloride*	E	E
Potassium Chloride*	E	E
Sodium Chloride*	E	E
SOLVENTS:		
Alcohols	E	E
Aliphatic Hydrocarbons	E	E
Aromatic Hydrocarbons	E	E
Benzene	E	E
Formaldehyde, 37%	E	E
Phenol, 5%	E	G
Mineral Oils	E	E
Vegetable Oils	E	E

KEY: E – no attack
 G – Appreciably no attack
 F – some attack, but useable in some instances
 P – attack, not recommended for use
 N – rapidly attacked
 * - and nitrate and sulfate

VALVE ACCESSORIES

M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

VALVE ACCESSORIES

Mechanical operational accessories are used for valves having special operational needs such as;

1. Location with limited access
2. Hazardous locations
3. Revision of operational position
4. High Torque Operation
5. Indication of Valve Position

Accessory selection must be evaluated for its capability to transmit the required torque requirements to the valve. To assure long-term trouble free operation, its materials of construction should take into account factors relating to corrosion and maintenance.

Accessories used on M&H valves can include the following:

- Electric Motor Operators
- Stem Guides
- Indicator Posts
- Hand wheels
- “T” Handles
- Extension Stems
- Floor Boxes
- Chain Wheels
- Floor stands (Non-rising stem)
- Position Indicators
- Miter Box Gearing
- Electronic Switches

LIMITED WARRANTY

M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

TEN YEAR LIMITED WARRANTY ON M&H VALVE RESILIENT WEDGE GATE VALVES

M&H Valve Company warrants that its Resilient Wedge Gate Valves will be free from defects in material and workmanship under normal and customary use and maintenance for a period of ten (10) years from the date of purchase, provided the hydrant is installed and maintained according to M&H Valve instructions, and applicable codes. The foregoing warranty does not cover failure of any part or parts from external forces, including but not limited to earthquake, vandalism, vehicular or other impact, application of excessive torque to the operating mechanism or frost heave.

Should any M&H Valve Company part or parts fail to conform to the foregoing warranty, M&H Valve shall, upon prompt written notice thereof, repair, or replace, F.O.B. point of manufacture, such defective part or parts. Purchaser shall, if requested, return the part or parts to M&H Valve, transportation prepaid. Purchaser shall bear all responsibility and expense incurred for removal, reinstallation and shipping in connection with any part supplied under the foregoing warranty.

THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY OR FITNESS. IN NO EVENT SHALL M&H VALVE COMPANY BE RESPONSIBLE OR LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL LOSSES, DAMAGES OR EXPENSES.

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