

# Rodney Hunt

## Flap Valves



- Circular opening for gravity flow, single pivot
- Circular opening for pump discharge.
- Rectangular opening for gravity flow
- Timber flap valves

Flexible flap valves also available



# Rodney Hunt Flap Valves:

A range of options for your flow control requirements.



## Series FV-SPR

Circular opening for gravity flow, single pivot, resilient seated

- 4" - 30"
- Low Cost
- Resilient to cast iron seating - low head loss
- Direct attachment to wall thimbles, pipe flanges or concrete wall

## Series FV-AC

Circular opening for gravity flow conditions

- 10" - 108"
- Designed to withstand stresses from high seating heads
- Unusually sensitive to low unseating heads (Opens at 0.2')
- Low head loss
- Cast iron to resilient or bronze to bronze seating
- Double pivot design with sensitivity adjustment

## Series FV-ACP

Circular openings for pump discharge requirements

- 10" - 66"
- All of the features of the FVAC Series plus:
- Designed to withstand forward and reverse flow surges as pump is operated
- Spring bumper limits disc travel to 90°
- Resilient seat to absorb closing shock
- Anti-locking bar eliminates flap overturn damage



# Rodney Hunt Flap Valves:

A range of options for your flow control requirements. (CONTINUED)



## Series FV-AR

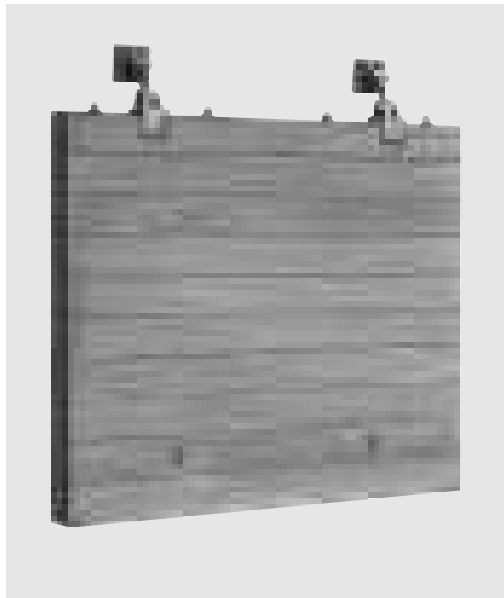
Rectangular opening for gravity flow conditions

- 12" x 12" to 120" x 120" square and rectangular
- Custom designed for specific head conditions
- Sensitive to low unseating heads
- Direct mount to concrete wall or thimble
- Cast iron to resilient or bronze to bronze seating
- Double pivot design

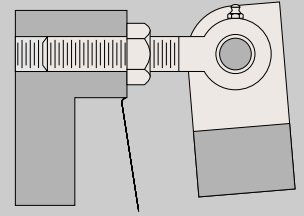
## Series FV-T

Timber Flap Valves

- Square or rectangular openings 36" x 48" to 120" x 84"
- Used as backwater gates, tide gates or flood control valves
- Long life with non-corrosive hardware and treated timber
- Available with resilient seal around frame or disc
- Proven economy

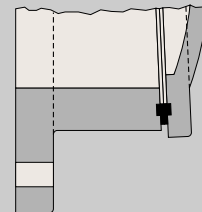
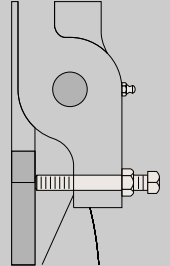


## Design Features

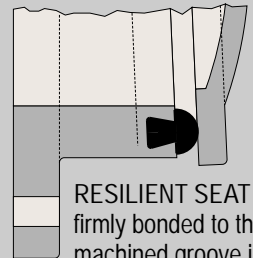


UPPER PIVOT is adjustable to vary the flap valve's sensitivity to unseating heads.

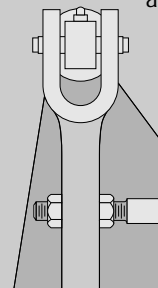
LOWER PIVOT allows for a controlled amount of cover rotation to assure that cover seat and body seat lie in the same plane.



BRONZE SEAT is mounted in a machined, dove-tailed groove.



RESILIENT SEAT is firmly bonded to the machined groove in the cast-iron body. This seat is normally supplied as neoprene or Buna-N rubber. Resilient seats are used where low backflow leakage rates are desired.



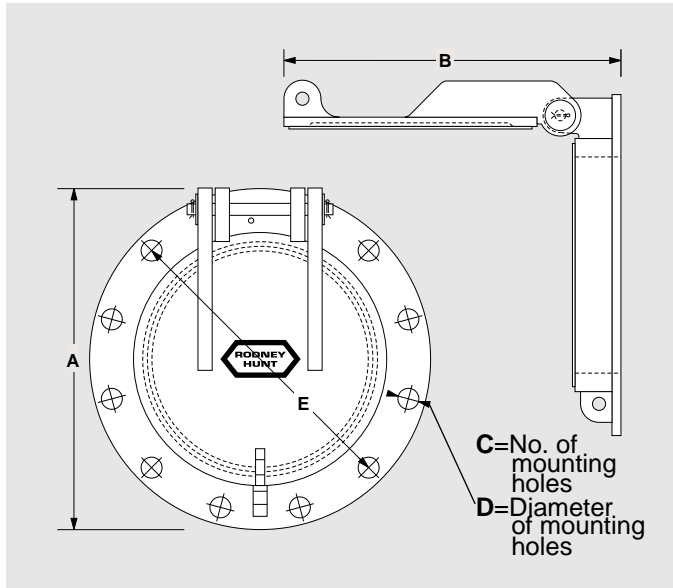
ANTI-LOCKING BAR is supplied with Series FV-ACP or when specified by customer requirements. This bar prevents the flap from tipping forward and becoming lodged in the opening.

See also Flexible Flap Valves by Rodney Hunt  
Ask for our brochure describing Flexible Flap Valve design features and specification requirements.

# Flap Valve Dimensions



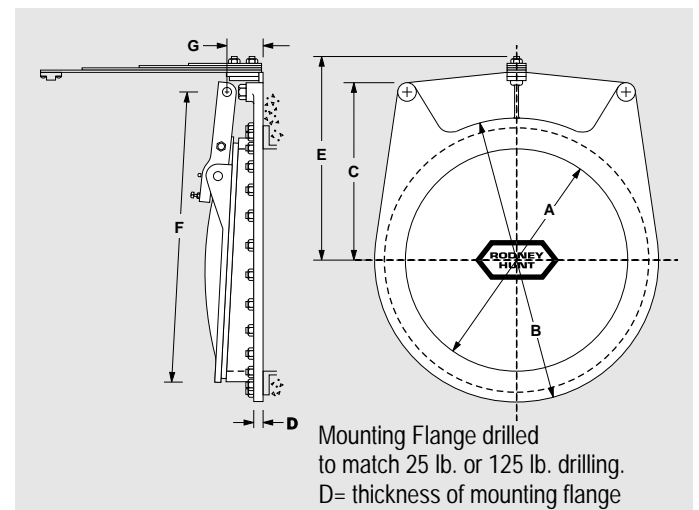
## Series FV-SPR



VALVE SIZE inches (mm)	A	B	C	D	E
4 (100)	9 (229)	10-3/8 (264)	8	3/4 (19)	7-1/2 (191)
6 (150)	11 (279)	12-3/8 (314)	8	7/8 (22)	9-1/2 (241)
8 (200)	13-1/2 (343)	14-3/8 (365)	8	7/8 (22)	11-3/4 (298)
10 (250)	16 (406)	16-3/8 (416)	12	1 (25)	14-1/4 (362)
12 (300)	19 (457)	18-3/8 (467)	12	1 (25)	17 (432)
14 (350)	21 (533)	20-3/8 (518)	12	1-1/8 (29)	18-3/4 (476)
16 (400)	23-1-2 (597)	22-3/8 (568)	16	1-1/8 (29)	21-1/4 (540)
18 (450)	25 (635)	24-3/8 (619)	16	1-1/4 (32)	22-3/4 (578)
20 (500)	27-1/2 (699)	26-3/8 (670)	20	1-1/4 (32)	25 (635)
24 (600)	32 (813)	30-3/8 (772)	20	1-3/8 (35)	29-1/2 (749)
30 (750)	38-3/4 (908)	36-3/8 (924)	28	1-3/8 (35)	36 (914)

## Series FV-AC and Series FV-ACP

A = Diameter inches (mm)	B	C	D	E	F	G
10 (250)	16 (406)	6-1/4 (159)	7/8 (22)	11-1/8 (283)	13-1/2 (343)	3 (76)
12 (300)	19 (483)	9-3/4 (248)	1 (25)	13-1/2 (343)	16-1/4 (413)	3 (76)
14 (350)	21 (533)	12 (305)	1-1/8 (29)	15-1/2 (394)	19-1/2 (495)	3-1/4 (83)
16 (400)	23-1/2 (597)	12-3/4 (324)	1-1/8 (29)	17-1/8 (435)	21-1/4 (540)	3-1/4 (83)
18 (450)	25 (635)	14-1/2 (368)	1-1/4 (32)	18-5/8 (473)	24 (610)	3-1/2 (89)
20 (500)	27-1/2 (699)	16-1/8 (410)	1-1/4 (32)	17-7/8 (454)	26-1/2 (673)	5 (127)
24 (600)	32 (813)	19-1/2 (495)	1-3/8 (35)	22-3/4 (578)	31-3/4 (806)	5-1/2 (140)
30 (750)	38-3/4 (984)	24 (610)	1-1/2 (38)	28-5/8 (727)	39-1/2 (1003)	6 (152)
36 (900)	46 (1168)	28-1/2 (724)	1-5/8 (41)	32-3/4 (832)	47 (1190)	6-1/2 (165)
42 (1075)	53 (1346)	33 (838)	1-3/4 (44)	36-1/2 (927)	54-1/2 (1380)	7 (178)
48 (1200)	59-1/2 (1511)	38 (978)	2 (1054)	41-1/2 (1575)	62 (1570)	7-1/2 (191)
54 (1375)	66-1/4 (1683)	42-1/2 (1080)	2 1/4 (57)	46-3/4 (1187)	69-1/2 (1770)	8-1/2 (216)
60 (1500)	73 (1854)	47 (1194)	2-1/4 (57)	52 (1321)	77-1/4 (1960)	8-1/2 (216)
66 (1650)	79 (2007)	51-1/2 (1308)	2-1/4 (57)	N/A	85-1/4 (2170)	8-1/2 (216)
72 (1800)	86-1/2 (2197)	54-1/8 (1375)	2-1/2 (64)	N/A	92-3/4 (2360)	8-1/2 (216)
78 (1950)	93-1/8 (2365)	60-1/2 (1537)	2-1/2 (64)	N/A	100-1/2 (2550)	8-1/2 (216)
84 (2100)	99-3/4 (2534)	65-1/4 (1657)	2-5/8 (67)	N/A	108 (2740)	9-1/2 (241)
96 (2400)	113-1/4 (2877)	74-1/2 (1892)	2-3/4 (70)	N/A	123 (3120)	9-1/2 (241)

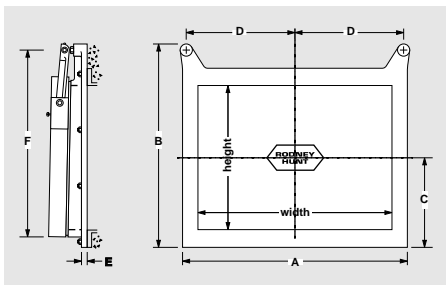


# Flap Valve Dimensions

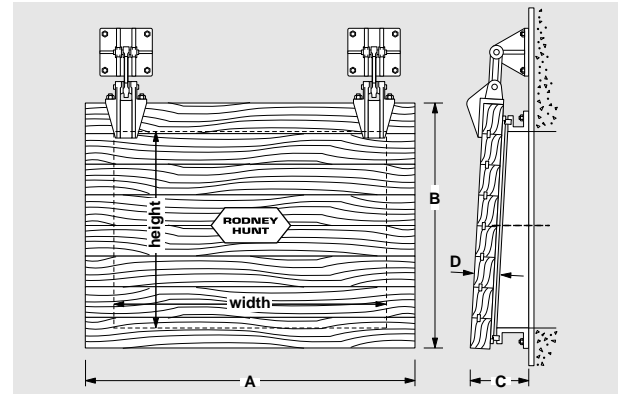


## Series FV-AR

WIDTH x HEIGHT inches (mm)	A	B	C	D	E	F
12x12 (300x300)	19 (483)	19-1/4 (489)	9-1/2 (241)	7-3/4 (197)	1 (25)	18-3/4 (476)
18x18 (450x450)	25 (635)	27 (686)	12-1/2 (318)	11-1/16 (281)	1-1/4 (32)	24-1/2 (622)
2424 (600x600)	32 (813)	35-1/2 (902)	16 (406)	14-9/16 (370)	1-3/8 (35)	32-3/4 (832)
30x30 (750x750)	36 (914)	43 (1092)	19 (483)	18-1/16 (459)	1-5/8 (41)	40-1/2 (1029)
36x24 (900x600)	45 (1143)	36 (914)	18-1/2 (470)	21 (533)	1-1/2 (38)	32-3/4 (832)
36x36 (900x900)	45 (1143)	51 (1295)	22-1/2 (572)	21-1/4 (540)	1-5/8 (41)	47 (1194)
36x48 (900x200)	45 (1143)	66-3/4 (1695)	28-3/4 (730)	21-1/4 (540)	2 (51)	62 (1765)
36x54 (900x1375)	46 (1168)	72-1/2 (1842)	32 (813)	21-1/2 (546)	2-1/4 (57)	69-1/2 (1765)
42x42 (1075x1075)	51-1/2 (1308)	58-3/4 (1492)	25-3/4 (654)	24-1/4 (516)	1-3/4 (44)	54-1/2 (1384)
48x18 (1200x450)	56 (1422)	28 (711)	13 (330)	26-13/16 (681)	1-5/8 (41)	24-1/2 (622)
48x24 (1200x600)	56 (1422)	35-1/2 (902)	16 (406)	26-13/16 (681)	1-5/8 (41)	32-3/4 (832)
4800 (1200x750)	56 (1422)	43 (1092)	19 (483)	27-1/16 (687)	1-5/8 (41)	40-1/2 (1029)
4806 (1200x900)	56 (1422)	51 (1295)	22-1/2 (572)	27-1/16 (687)	1-5/8 (41)	47 (1194)
48x48 (1200x1200)	57-1/2 (1461)	66-3/4 (1695)	28-3/4 (730)	27-1/2 (699)	2 (51)	62 (1575)
48x60 (1200x1500)	57-1/2 (1461)	81-3/4 (2076)	34-3/4 (883)	27-1/2 (699)	2-1/4 (57)	77-3/4 (1975)
54x54 (1375x1375)	64 (1626)	74-1/2 (1892)	32 (813)	30-1/2 (775)	2-1/4 (57)	69-1/2 (1765)
8006 (1500x900)	69-1/2 (1765)	51-1/4 (1302)	22-3/4 (578)	33-1/4 (845)	1-3/4 (44)	47 (1194)
60x48 (1500x1200)	69-1/2 (1765)	66-3/4 (1695)	28-3/4 (730)	33-1/2 (851)	2-1/4 (57)	62 (1575)
60x60 (1500x1500)	69-1/2 (1765)	81-3/4 (2076)	34-3/4 (883)	33-1/2 (851)	2-1/4 (57)	77-3/4 (1975)
60x72 (1500x1800)	69-1/2 (1765)	95-1/2 (2426)	41-1/2 (1054)	33-1/2 (851)	2-1/4 (57)	93-3/4 (2381)
72x48 (1800x 1200)	81-1/2 (2070)	64-3/4 (1645)	28-3/4 (730)	39-1/2 (1003)	2-1/4 (57)	62 (1575)
72x60 (1800x1500)	83 (2108)	82-1/2 (2096)	35-1/2 (902)	39-1/2 (1003)	2-1/4 (57)	77-3/4 (1975)
72x72 (1800x1800)	83 (2108)	95-1/2 (2426)	41-1/2 (1054)	40-1/4 (1022)	2-1/2 (64)	93-3/4 (2381)
84x84 (2100x2100)	95 (2413)	112-1/2 (2858)	47-1/2 (12073)	46-1/2 (1181)	2-3/4 (70)	107-3/4 (2737)
96x96 (2400x2400)	107 (2718)	124-1/2 (3162)	53-1/2 (1359)	52-1/2 (1334)	2-3/4 (70)	123-3/4 (3143)



## Series FV-T

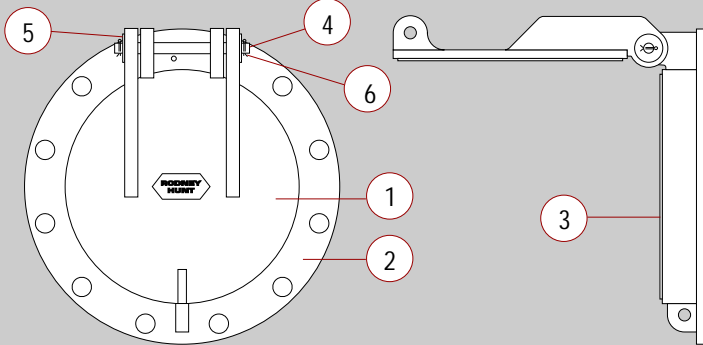


WIDTH x HEIGHT inches (mm)	A	B	C	D
36x48 (900x1200)	46 (1168)	58 (1473)	13 (330)	3-3/4 (95)
36x60 (900x1500)	46 (1168)	70 (1778)	13-1/2 (343)	3-3/4 (95)
48x48 (1200x1200)	58 (1473)	58 (1473)	13-3/4 (349)	4-1/2 (114)
48x60 (1200x1500)	58 (1473)	70 (1778)	14-1/4 (362)	4-1/2 (114)
60x36 (1500x900)	70 (1778)	46 (1168)	14 (356)	5-1/2 (140)
60x48 (1500x1200)	70 (1778)	58 (14733)	14314 (375)	5-1/2 (140)
60x60 (1500x 1500)	70 (1778)	70 (1778)	15-1/4 (387)	5-1/2 (140)
72x48 (1800x1200)	82 (2083)	58 (1473)	14-3/4 (375)	5-1/2 (140)
72x60 (1800x 1500)	82 (2083)	70 (1778)	15-1/4 (387)	5-1/2 (140)
72x72 (1800x1800)	82 (2083)	82 (2083)	16 (406)	5-1/2 (140)
84x48 (2100x 1200)	94 (2388)	58 (14733)	17-3/4 (451)	7-1/2 (191)
84x60 (2100x1500)	94 (2388)	70 (1778)	18-1/4 (464)	7-1/2 (191)
84x72 (2100x1800)	94 (2388)	82 (2083)	19 (483)	7-1/2 (191)
84x84 (2100x2100)	94 (2388)	94 (2388)	19-1/2 (495)	7-1/2 (191)
96x48 (2400x 1200)	106 (2692)	58 (1473)	17-3/4 (451)	7-1/2 (191)
96x60 (2400x1500)	106 (2692)	70 (1778)	18-1/4 (464)	7-1/2 (191)
96x72 (2400x1800)	118 (2997)	82 (2083)	19 (483)	7-1/2 (191)
108x36 (2750x900)	118 (2997)	46 (1168)	19 (483)	9-1/2 (241)
108x48 (2750x1200)	118 (2997)	58 (1473)	19-3/4 (502)	9-1/2 (241)
108x60 (2750x1500)	118 (2997)	70 (1778)	20-1/4 (514)	9-1/2 (241)
120x72 (3000x1800)	130 (3302)	82 (2083)	21 (533)	9-1/2 (241)
120x84 (3000x2100)	130 (3302)	94 (2388)	21-1/2 (546)	9-1/2 (241)

# Materials of Construction- Rodney Hunt Flap Valves

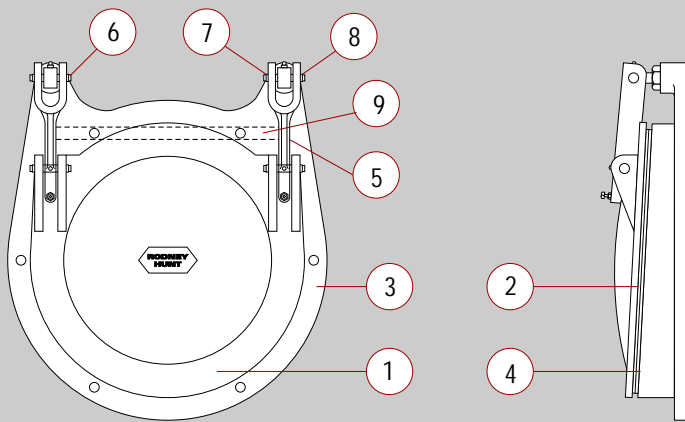


## Series FV-SPR



DESCRIPTION	MATERIAL
① Flap Cover	Cast Iron (A126 Class B)
② Body	Cast Iron (A126 Class B)
③ Body Seat Facing	Nitrile (D-2000)
④ Hinge Pins	Stainless Steel (A276 316)
⑤ Hinge Pin Washers	Stainless Steel (A276 316)
⑥ Cotter Pins	Stainless Steel (A276 316)

## Series FV-AC, FV-ACP, FV-AR

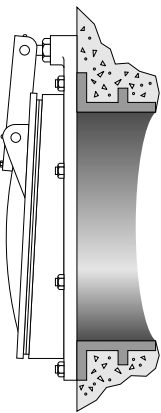


DESCRIPTION	MATERIAL
① Flap Cover	Cast Iron (A126 Class B)
② Cover seat Facing	Iron (A126 Class B) or Bronze (B21-464)
③ Body	Cast Iron (A126 Class B)
④ Body Seat Facing	Nitrile (D-2000) or Bronze (B21-464)
⑤ Hinge Arms	Bronze (B584 C865)
⑥ Hinge Pins	Stainless Steel (A276304)
⑦ Hinge Pin Washers	Stainless Steel (A276-304)
⑧ Cotter Pins	Bronze (B98 C655)
⑨ Anti-Locking Bar*	Steel (A108 C1018)
⑩ Bumper Spring*t	Heat Treated Spring Steel (A689)

\* FV-ACP only      † Not Shown

## Recommended Methods of Installation

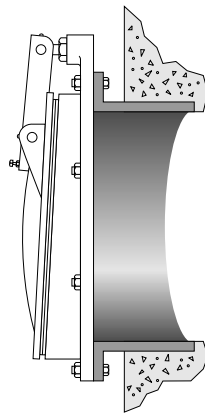
Mounted to  
cast iron  
wall thimble



Recommended for:

FV-SPR  
FV-AC  
FV-AR

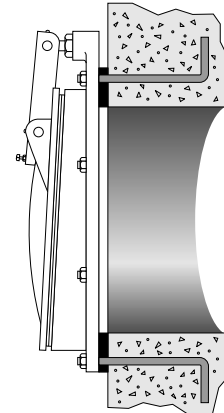
Mounted to  
standard  
pipe flange



Recommended for:

FV-SPR  
FV-AC  
FV-ACP

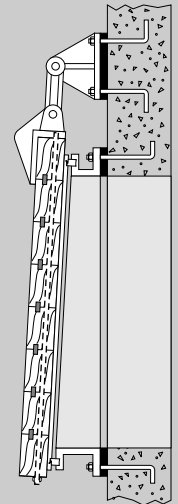
Mounted to  
concrete  
with  
anchor  
bolts



Recommended for:

FV-SPR  
FV-AC  
FV-AR

## Series FV-T



Mounted to  
concrete  
with  
anchor  
bolts

# FLAP VALVES - SAMPLE SPECIFICATIONS

## SINGLE PIVOT FLAP VALVE SERIES FV-SPR

The Flap Valve of the size indicated on the drawings and valve schedule will be flange framed with resilient to cast iron seating Rodney Hunt Series FV-SPR or approved equal. The cover & Body shall be cast iron ASTM A126 Class B. The resilient elastomer seat will be mounted in the body of the valve. Pivot hardware shall be Type 304 stainless steel. Attaching hardware shall be Type 304 stainless steel.

## FLAP VALVE SERIES FV-AC AND FV-ACP

The Flap Valve, size as indicated on the drawings and valve schedule, will be flange framed with resilient or bronze seats, Rodney Hunt Series FV-AC. The body will be cast iron, ASTM A126 Class B. The angle of the cover to the vertical, when seated shall be between 2 degrees and 5 degrees from the vertical and be consistent with the proper operation of the gate. Resilient seat, neoprene or Buna-N, will be bonded in a groove machined in the body to provide a wide seating surface for the seat machined on the cover. Bronze seats, when specified ASTM B21 C464 or ASTM B133 C110, will be pneumatically impacted into dovetailed grooves machined in the cast iron body and cover and machined to a 63 micro-inch finish for maximum water tightness. The cover, or flap, will be cast iron, ASTM A126 Class B, with spherically dished design to withstand maximum operating loads. The hinge arms will be No. 1 manganese bronze, ASTM B584 C865. The hinge pins, designed in double shear, will be silicon bronze, ASTM B98 C655, or Type 304 stainless steel. Each hinge arm will have two pivot points, an adjustable lower pivot with limited rotation and a threaded upper hinge post to adjust flap valve sensitivity. A lubrication fitting will be supplied for each pivot.

## ADD FOR SERIES FV-ACP

Bronze to bronze seating will not be accepted. An anti-locking bar, between the hinge arms, will be provided to prevent excessive rotation about the lower hinge pin.

A steel leaf spring attached to the body and extended over the cover will be provided to safely limit the travel of the cover during "pump discharge" operation. A rubber pad will be provided at the spring to cover the contact point. (Severe pump discharge applications may require ductile iron.)

## FLAP VALVE SERIES FV-AR

The Flap Valve, size as indicated on the drawings and valve schedule, will be flange-framed with resilient or bronze seats, Rodney Hunt Series FV-AR. The angle of the cover to the vertical, when seated shall be between 2 degrees and 5 degrees from the vertical and be consistent with the proper operation of the gate. The body will be cast iron ASTM A126 Class B. The flange will be faced and drilled for wall thimble or anchor bolt mounting.

Resilient seat, neoprene or Buna-N, when specified will be bonded in a groove machined in the body to provide a wide seating surface for the seat machined on the cover. Bronze seats, ASTM B21 C464 will be pneumatically impacted into dovetailed grooves machined in the cast iron body and cover and machined to a 63 micro-inch finish for maximum water tightness.

The cover, or flap, will be cast iron, ASTM A126 Class B, with reinforced flat plate design to withstand maximum operating loads.

The hinge arms will be No.1 Manganese bronze, ASTM B584 C865. The hinge pins, designed in double shear, will be silicon bronze, ASTM B98 C655 or Type 304 stainless steel. Each hinge arm will have two pivot points, an adjustable lower pivot with limited rotation and a threaded upper hinge post to adjust flap valve sensitivity. A lubrication fitting will be supplied for each pivot.

## TIMBER TIDE GATE

The gate shall be designed and constructed to function properly with a differential head of 0.5 feet across the gate. The angle of the gate flap to the vertical, when seated shall be between 2 degrees and 5 degrees from the vertical and be consistent with the proper operation of the gate.

The frame shall be cast iron ASTM A126 Class B.

The gate flap shall be made of Southern Yellow Pine, and be of No1 dense structural grade, smooth on four sides. The timber shall be of rectangular cross-section with a minimum dimension of 3 1/2", and shall be machined so that sides are square and parallel. The timbers shall be horizontal and shall be drawn together with 3/4" stainless steel Type 316 tie rods passing completely through the gate flap at a spacing no greater than 12" center to center. The gate flap shall be made watertight by keying the timbers together by splines of same timber running the entire length of the timbers or by placing 3/16" thick 40 durometer Neoprene or Buna-N rubber between adjacent timbers.

Hinge brackets of ductile iron ASTM A536 Grade 80-55-06 shall be designed to mount independently and be attached to the flap with Type 316 stainless steel nuts and bolts, and with hook type anchor bolts for the structural wall.

The hinge arms shall be ductile iron, ASTM A536 Grade 80-55-06. The hinge pins, designed in double shear, will be Type 316 stainless steel. Each hinge arm will have two pivot points, an adjustable lower pivot point with limited rotation and a threaded upper hinge post to adjust flap valve sensitivity. A lubrication fitting will be supplied for each pivot.

Resilient seat, neoprene or Buna-N, when specified, shall be 50-55 Shore "A" durometer and securely attached to the timber flap with Type 316 stainless steel fasteners.

## COATINGS (all valves and gates)

Coatings shall be two coats (5 mils DFT each coat) of amine modified polyamide epoxy Amerlock 400 or approved equivalent.

## TESTING (all valves and gates)

The gate seating shall be tested for leakage under the greatest unbalanced head of the water after installation. The leakage shall not be greater than 0.2 GPM per foot of seating perimeter.

