PART 1 GENERAL

1.01 SCOPE OF WORK

A. This section covers cast iron Circular Flap Gates and Rectangular Flap Gates for gravity flow (FG-AC, AR) and diameter pump discharge (FG-ACP) applications utilizing a double pivot design.

1.02 GENERAL

A. The equipment provided under this section shall be cast, machined, assembled, erected, and placed in proper operating condition in full conformity with the drawings, specifications, engineering data instructions and recommendations of the equipment manufacturer, unless exceptions are noted by the engineer.

B. Flap Gates shall be supplied with all the necessary parts indicated on the drawings, specified or otherwise required for a complete, properly operating installation, and shall be the latest standard product of a manufacturer regularly engaged in the production of Flap Gates.

C. Flap Gates supplied under this section shall be Series FG-AC, FG-AR and FG-ACP cast iron Flap Gates as manufactured by Rodney Hunt Inc

1.03 QUALITY ASSURANCE

A. The manufacturer shall have experience in the production of substantially similar equipment, and shall be able to show evidence of satisfactory operation in at least 5 installations.

1. The manufacturer shall be ISO certified.

1.04 SUBMITTALS

A. The manufacturer shall submit, for approval by the purchaser, drawings showing the principal dimensions, general construction and materials used in the gate.
PART 2  PERFORMANCE

2.01 OPERATION

A. Unless otherwise specified, Flap Gates shall open whenever the upstream head is over 0.2’ (61mm) higher than the downstream head.

2.02 DESIGN HEAD

A. The Flap Gates shall be designed to withstand the design head shown in the schedule or on the plans. In no case shall the Flap Gate be designed for less than 15 feet of seating head. Spherica covers shall be designed according to ASME protocol for thin domed shapes. Rectangular covers shall be designed considering the composite section of the ribs and back.

PART 3  PRODUCT

3.01 GENERAL DESIGN. Flap Gates shall be flange framed and constructed entirely of cast iron with resilient or bronze seats and bronze, ductile iron or stainless steel hinge arms. Hinge pins and all hardware shall be stainless steel.

3.02 WALL THIMBLE. Where required, the wall thimble shall be cast iron and supplied by the Gate manufacturer. Refer to the schedule at the end of this section for types and applicable locations. Material thicknesses shall be according to the manufacturer’s recommendations.

3.03 BODY. The frame/body shall be cast iron. For diameter Flap Gates in excess of 102” in diameter or rectangular gates with either dimension equal to or greater than 84” the body shall have additional anchors above on in line with the upper hinge supports.

3.04 COVER. Diameter covers shall be cast iron, spherically designed to withstand maximum operating loads and at an angle between 2 degrees and 5 degrees from the vertical when in the seated position. Rib spacing on rectangular covers shall not exceed 16”. The cover shall be provided with a cast in lifting lug or stainless steel eye bolt for securing the cover open.

3.05 SEALS. When specified, resilient seats, 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. When specified, bronze seats will be pneumatically impacted into dovetailed grooves machined in the body and cover and machined to a 63-micro-inch finish for maximum water tightness. Bronze to bronze seating will not be acceptable for the Series FG-ACP flap Gates.

3.06 HINGE ARMS. Hinge arms shall be manganese bronze, ductile iron or stainless steel with stainless steel hinge pins and hardware. Hinge pins shall designed in single or double shear. All hinge pins for pump discharge applications will be designed in double shear. Each hinge arm will have two pivot points. The lower pivot will have limited rotation with an adjustable stop. The upper hinge pins will be adjustable for sensitivity. A lubrication fitting will be supplied for each pivot or the pivot point will be

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supplied with self-lubricating bushings or material. The hinge pins on all Flap Gates greater than 42” in either dimension and all pump discharge flap valves shall be double nutted.

3.07  PUMP DISCHARGE. An anti-locking bar is required between the hinge arms to prevent excessive counter rotation about the lower hinge pin or the cover shall be configured to prevent counter rotation. A steel leaf spring attached to the body and extended over the cover will be provided on the Series FG-ACP Gates to safely limit travel of the cover during initiation of pump discharge. A rubber pad will be provided on the spring at the contact point with the cover.

PART 4  MATERIALS

Body and cover
Wall thimble (when req’d): Choose 1
- Cast Iron (ASTM A126, Class B)
- Cast Iron with 2% nickel (ASTM A126, Class B)
- Ductile Iron (ASTM A536 80-55-06)
- NiResist (ASTM A436, Type 1, 1A or 2)

Hinge Arms:
- Manganese Bronze (ASTM B584 C865) or
- Ductile Iron (ASTM A536 80-55-06) or
- Stainless steel (ASTM A 276, Type 304 or 316)

Hinge Pins & All Hardware:
- Silicon Bronze (ASTM B98 C655) or
- Stainless Steel ,Type 304 or 316

Seal for Resilient Seated Flaps & Bumper cushions:
- Neoprene or Buna N

Seal for Metal-Seated:
- Bronze (ASTM B21 C464 or ASTM B133 C110)

Anti-locking Bar:
- Carbon steel A36/A53

Bumper spring:
- Spring Steel

PART 5  EXECUTION

5.01  INSTALLATION. Gates and appurtenances shall be handled and installed in accordance with the manufacturer’s recommendations.