

**SECTION 02315
FRAMES, GRATES, RINGS and COVERS**

PART I: GENERAL

1.1 GENERAL REQUIREMENTS

- A. Iron castings for manhole frames and covers.
- B. Inlet frames and grates.
- C. Catch basin frames and grates.
- D. Meter vault frames and covers.
- E. Adjustment of rings and extensions.
- F. Ring grates.

1.2 MEASUREMENT AND PAYMENT

- A. Unit Prices:
 - 1. No payment shall be made for frames, grates, rings, covers and seals under this Section. Include payment in the unit price for related item.
 - 2. Payment to rack over existing manhole is on a unit price basis for each manhole.
 - 3. Refer to Section 01270 – Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum):
 - 1. If Contract is Stipulated Price Contract, payment for Work in this Section is included in Total Stipulated Price.

1.3 REFERENCES

- A. AASHTO – American Association of State Highway Officials.
 - 1. AASHTO Standard Specification for Highway Bridges.
- B. ASTM – American Society for Testing and Materials.
 - 1. ASTM A48 – Standard Specification for Gray Iron Castings.
 - 2. ASTM A615 – Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
- C. AWS – American Welding Society.
 - 1. AWS – D12.1 Welding Reinforcing Steel.
- D. CFTS – City of Friendswood Technical Specifications.

1.4 SUBMITTALS

- A. Conform to requirements of Section 01330 – Submittal Procedures.
- B. Submit copies of manufacturer's specifications, load tables, dimension diagrams, anchor details and installation instructions.
- C. Submit shop drawings for fabrication and installation of casting assemblies that are not included in the Drawings or City of Friendswood Standard Details. Include plans, elevations, sections and connection details. Show anchorage and accessory items. Include setting drawings

for location and installation of castings and anchorage devices.

PART II: PRODUCTS

2.1 CASTINGS

- A. Use castings for frames, grates, rings and covers conforming to ASTM A48, Class 35B. Provide locking covers if indicated on the Drawings.
- B. Use clean castings capable of withstanding application of AASHTO M306- forty thousand pound (40000 Lb) proof loading without detrimental permanent deformation.
- C. Fabricate castings to conform to shapes, dimensions and with wording or logos shown on the Drawings. Standard dimensions for manhole covers are thirty-two inches (32 In) in diameter. Twenty-four inch (24 In) diameter is acceptable for curb inlets only.
- D. Use clean castings, free from blowholes and other surface imperfections. Use clean and symmetrical cast holes in covers, free of plugs.

2.2 BEARING SURFACES

- A. Machine bearing surfaces between covers or grates and their respective frames so that even bearing is provided for position in which casting may be seated in frame.

2.3 SPECIAL FRAMES AND COVERS

- A. Where indicated on the Drawings, provide watertight manhole frames and covers with minimum of four (4) bolts and gasket designed to seal cover to frame. Supply approved watertight manhole covers and frames.
- B. Where shown on the Drawing, provide manhole frames and covers with forty-eight inch (48 In) diameter clear opening, with inner cover for twenty-two inch (22 In) diameter clear opening. Provide approved inner cover with pattern shown on the Drawings.

2.4 FINISH

- A. Unless otherwise specified, use uncoated coat iron.

2.5 FABRICATED RING GRATES

- A. Fabricate ring grates from reinforcing steel conforming to ASTM A615.
- B. Conform to welds connecting bars to AWS D12.1.

2.6 ADJUSTMENT RINGS FOR ASPHALT OVERLAYS

- A. Use castings conforming to Paragraph 2.1.
- B. One (1) piece casting with dimensions to fit frame and cover.

PART III: EXECUTION

3.1 INSTALLATION

- A. Install castings according to approved shop drawings, instructions in related specifications and applicable directions from manufacturer's printed materials.
- B. Set castings accurately at required locations to proper alignment and elevation. Keep castings plumb, level, true and free of rack. Measure location accurately from established lines and grades. Brace or anchor frames temporarily in form work until permanently set.
- C. Fabricate ring grates in accordance with City of Friendswood Standard Detail, "Ring Grate for Open End of eighteen inch (18 In) to seventy-two inch (72 In) Stubs to Ditch". Set in mortar in mouth of pipe bell.
- D. Install adjustment rings in existing frames with clean bearing surfaces that are free from rocking.

END OF SECTION