

Section 02084

FRAMES, GRATES, RINGS, AND COVERS

PART 1 GENERAL

1.01 SUMMARY

Iron castings for manhole frames and covers, inlet frames and grates, catch basin frames and grates, meter vault frames and covers, adjustment rings, and extensions.

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. No payment will be made for frames, grates, rings, covers, and seals under this Section. Include payment in 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). If Contract is Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.03 REFERENCES

A. AASHTO - American Association of State Highway and Transportation Officials

1. Standard Specification for Highway Bridges
2. M306: Standard Specification for Drainage, Sewer, Utility, and Related Castings
3. M105: Standard Specification for Gray Iron Castings

B. ASTM A48/A48M - Standard Specification for Gray Iron Castings

C. ASTM A615/A615M REV A - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

1.04 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. Include plans, elevations, sections, and connection details. Show anchorage and accessory

items. Include setting drawings for location and installation of castings and anchorage devices.

1.05 RELATED REQUIREMENTS

- A. Section 01270 – “Measurement and Payment”
- B. Section 01330 – “Submittal Procedures”
- C. Section 02081 – “Cast-In-Place Concrete Manholes”
- D. Section 02082 – “Precast Concrete Manholes”
- E. Section 02085 – “Valve Boxes, Meter Boxes, and Meter Vaults”
- F. Section 02087 – “Brick Manholes”

1.06 – 1.13 NOT USED

PART 2 PRODUCTS

2.01 MANUFACTURER(S) (NOT USED)

2.02 MATERIALS AND/OR EQUIPMENT

- A. Castings
  - 1. All castings shall be made from gray cast iron conforming to the requirements of AASHTO M105 class 35b.
  - 2. Castings intended for traffic service shall be clean castings capable of withstanding an application of 40,000 pound proof load as described in Section 5 of AASHTO M306 (includes items such as frames, grates, rings, covers, trench drainage, etc.)
  - 3. Fabricate castings to conform to shapes, dimensions, and with wording or logos shown on Plans.
  - 4. All castings shall be manufactured in accordance with the requirement of Section 4 of AASHTO M306.
  - 5. Unless otherwise indicated, all castings shall be provided uncoated.
  - 6. Each individual casting shall include all markings as shown on the Plans and in accordance with the applicable specifications and shall be identified by the producing foundry showing the following: Name of producing foundry; country of manufacturer preceded by the words “Made in,” such as “Made in USA”; material designation, heat identification and cast date (MM/DD/YY),

casting lettering as required by the purchaser. If a casting is melted and poured at one foundry and labeled with the name of another organization, manufacturer, or foundry the casting shall include the name of the producing foundry and the organization the casting is produced for. The name of the producing foundry and the organization the product is made for shall have lettering of equal size, be in close proximity to each other, and be easily identified from the same side of the casting. The casting shall also include any additional markings as required in Section 9 of AASHTO M306 and Section 17 of AASHTO M105.

**B. Special Frames and Covers**

1. Where indicated on Plans, provide watertight manhole frames and covers with minimum of four bolts and gasket designed to seal cover to frame. Supply approved watertight manhole covers and frames.
2. Where shown on Plans, provide manhole frames and covers with 48 inch diameter clear opening, with inner cover for 22 inch diameter clear opening. Provide approved inner cover with pattern shown on Plans.

**C. Adjustment Rings for Asphalt Overlays**

1. Use castings conforming to Section 2.02.A.
2. One piece casting with dimensions to fit frame and cover.

**2.03 FABRICATION (NOT USED)**

**2.04 SOURCE QUALITY CONTROL**

**A. Testing Requirements**

1. Testing shall be performed in accordance with the following inspection criteria unless otherwise specified in the contract or purchase order. The manufacturer/supplier shall be responsible for carrying out all of the required tests and inspections. All testing shall be conducted in the United States using purchaser approved reliable facilities. The manufacturer/supplier shall maintain complete records of all such tests and inspections. All testing shall be paid for by the manufacturer/supplier.
2. The manufacturer shall report and certify material information obtained from separately cast test bars. If there are more than three test bar failures in a calendar year the manufacturer shall report this to the purchaser and shall discontinue supplying product. In order to resume supplying product, documentation that a new Quality System is in place to ensure material compliance must be submitted to and accepted by the purchaser. The manufacturer may also supply under subsection C.

PART 3 EXECUTION

3.01 – 3.02 NOT USED

3.03 ERECTION/INSTALLATION APPLICATION AND/OR CONSTRUCTION

- 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. Install adjustment rings in existing frames with clean bearing surfaces that are free from rocking.
- D. Provide rounded or square concrete collars for manholes and valve boxes in unpaved areas as shown on the Plans and in accordance with the applicable specification sections: 02081 "Cast-in-Place Concrete Manholes", 02082 - "Precast Concrete Manholes", 02085 - "Valve Boxes, Meter Boxes and Meter Vaults", and 02087 - "Brick Manholes".

3.04 – 3.10 (NOT USED)

END OF SECTION