Hook Lock Grates for Catch Basins

Drawings

The following Standard Construction Drawings (attached) are issued for use as described herein, effective immediately:

- 201.6.0 R Catch Basin Frame
- 201.7.0 R Type B-1 Hook Lock Cascade Grate – Flow From Left
- 201.7.1 Type B-2 Hook Lock Cascade Grate – Flow From Right
- 201.9.0 R Type B-1 Grate and Frame – Flow From Left – Assembly Details
- 201.9.1 Type B-2 Grate and Frame – Flow From Right – Assembly Details
- 201.10.0 R Type A-4 Hook Lock Bar Grate
- 201.10.1 Type A-4 Hook Lock Bar Grate and Frame Assembly Details

The following Standard Construction Drawings issued 9/22/95 are superseded by the corresponding drawings listed above, effective immediately:

- 201.6.0 Catch Basin Frame
- 201.7.0 Massachusetts Cascade Grate
- 201.9.0 Frame for Massachusetts Cascade Grate
- 201.10.0 Catch Basin Grate Type A-1 for Freeways and Expressways

The following Standard Construction Drawing issued 9/22/95 shall be deleted, effective immediately:

- 201.8.0 Cascade Bar Design for Massachusetts Cascade Grate

Application

Hook Lock Grates shall be used as the standard catch basin grates on MassHighway roadways. Catch Basin Frames as shown in the attached Drawings are machined to ensure a non-rocking fit and must be used with each Hook Lock Grate.
Hook Lock Cascade Grates may be used on any facility, but must be used on all MassHighway roadways where bicycle traffic is allowed.

Hook Lock Cascade Grates or municipal standard grates shall be used on municipally-owned roadways per the direction of the affected municipality.

Hook Lock Bar Grates shall only be used on limited access facilities where bicycles are prohibited from the roadway.

Frames and grates conforming to this Directive shall be incorporated into the specifications and bid documents for all projects advertised after the date of this Directive. The specifications and bid documents for these projects shall also include the replacement of all existing frames and grates within the limits of the project, if the existing frames and grates do not conform to this Directive.

Hook Lock Grates and conforming Catch Basin Frames may be installed by Extra Work Order on active construction projects at the direction of the Construction Engineer, provided a reasonable price can be established and agreed to.

Attachments: New Standard Construction Drawings
GUTTER SIDE

NOTE - ALL CORNERS ARE RECESSED AND BELOW MACHINED SEAT

MACHINE TOLERANCES:
✓ MACHINED SEATS (4) REQUIRED FLAT AND IN PLANE WITHIN .010" TOTAL INDICATOR READING

CLASSIFICATION:
ASTM A48 CLASS 30B GRAY CAST IRON WITH NO BLACK ASPHALT COATING ALLOWED

WEIGHTS:
3-FLANGE FRAME  265 LBS. MIN
4-FLANGE FRAME  295 LBS. MIN

CASTING TOLERANCES:
DIMENSIONS ARE IN INCHES - FRACTIONAL ± 1/16" ON ALL DIMENSIONS UP TO 12" AND ADD ADDITIONAL ± 1/16" PER FOOT

AASHTO HS 20 LOAD RATED

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DRAWING NUMBER
201.6.0 R
GUTTER SIDE

4 7/16"

1 1/16"

23 7/8"

3 7/16"

4 1/16"

11"

FLOW

SECTION C-C

CLASSIFICATION:
ASTM A48 CLASS 30B GRAY CAST IRON
WITH NO BLACK ASPHALT COATING ALLOWED

CAST BACK
FACE WITH
MCLD DATE
AND PART NO.

WEIGHT: 265 LBS. MIN
AASHTO HS 20 PROOF LOAD

NOTE: IDENTIFYING INFORMATION
SHOWN ON FRAMES & GRATES TO BE
CAST WITH FRAME AND GRATE

Machine tolerances:
Surfaces noted √ must
be machined flat and
in-plane within .010"
Total Indicator Reading

CASTING TOLERANCES:
DIMENSIONS ARE IN INCHES -
FRACTIONAL ± 1/16" ON ALL
DIMENSIONS UP TO 12" AND ADD
ADDITIONAL ± 1/16" PER FOOT

Tumbler should be set at 1 1/4" below
machined grate seat for installation.
Once grate is set in frame, torque bolt 3/4
turn past snug.

#6 LOCK TUMBLER ASSEMBLY
(1) REQUIRED - CONSISTS OF:
5/8" x 5" ST. STL. BOLT
5/8" ST. STL. FLAT WASHER
CAST IRON TUMBLER
ST. STL. CAPTURE NUT
STAINLESS STEEL GRADE 304

TYPE B-1
HOOKLOCK CASCADE GRATE
FLOW FROM LEFT

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DRAWING NUMBER
201.7.0 R
Type B-2
Hooklock Cascade Grate
Flow from Right

Weight: 265 Lbs, Min AASHTO HS 20 Proof Load

Note: Identifying information shown on frames & grates to be cast with frame and grate

Classification:
ASTM A48 Class 30B
Gray Cast Iron
With No Black Asphalt Coating Allowed

Machine tolerances:
Surfaces noted △ must be machined flat and in-plane within .010"
Total Indicator Reading

Casting Tolerances:
Dimensions are in inches - fractional ± 1/16" on all
Dimensions up to 12" and add additional ± 1/16" per foot

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Drawing Number
201.7.1
**FRAME MAY BE INSTALLED WITH THIS FLANGE REMOVED FOR CURB INLET. FOUR FLANGE IS SHOWN. SEE DWG 201.6.0 R FOR MORE INFORMATION.**

**SECTION B-B**

**AASHTO HS 20 PROOF LOAD**

**#6 LOCK TUMBLER ASSEMBLY (1) REQUIRED—CONSISTS OF:**

- 5/8" x 5" ST. STL BOLT
- 5/8" ST. STL. FLAT WASHER
- CAST IRON TUMBLER
- ST. STL. CAPTURE NUT
- STAINLESS STEEL GRADE 304

**CLASSIFICATION:**
**ASTM A48 CLASS 30B GRAY CAST IRON**
**WITH NO BLACK ASPHALT COATING ALLOWED**

*Tumbler should be set at 1 1/4" below machined grate seat for installation.*

*Once grate is set in frame, torque bolt 1/4 turn past snug.*

**WEIGHTS:**
- 3-FLANGE FRAME 265 LBS. MIN
- 4-FLANGE FRAME 295 LBS. MIN
- B-1 GRATE 265 LBS. MIN

**CASTING TOLERANCES:**
**DIMENSIONS ARE IN INCHES - FRACTIONAL ± 1/16" ON ALL**
**DIMENSIONS UP TO 12" AND ADD ADDITIONAL ± 1/16" PER FOOT**

**NOTE:** SEAT SURFACES ON BOTH FRAME AND GRATE ARE MACHINED AND GRATE MUST NOT ROCK IN FRAME WHEN ASSEMBLED.

**NOTE:** IDENTIFYING INFORMATION SHOWN ON FRAMES & GRATES TO BE CAST WITH FRAME AND GRATE

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**MASS HIGHWAY CONSTRUCTION STANDARDS**

**B-1 GRATE AND FRAME**

**FLOW FROM LEFT**

**ASSEMBLY DETAILS**

**DATE OF ISSUE**
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**DRAWING NUMBER**
201.9.0 R
CLASSIFICATION:
ASTM A48 CLASS 30B
GRAY CAST IRON
WITH NO BLACK
ASPHALT COATING
ALLOWED

AASHTO HS 20 PROOF LOAD
N.T.S.

FRAME MAY BE INSTALLED
WITH THIS FLANGE REMOVED
FOR CURB INLET. FOUR
FLANGE IS SHOWN. SEE
DWG 201.6.0 R FOR MORE
INFORMATION.

SECTION A-A

SECTION B-B

#6 LOCK TUMBLER ASSEMBLY
(1) REQUIRED—CONSISTS OF:
5/8" x 5" ST. STL. BOLT
5/8" ST. STL. FLAT WASHER
CAST IRON TUMBLER
ST. STL. CAPTURE NUT
STAINLESS STEEL GRADE 304

Tumbler should be set at 1 1/4" below machined grate seat
for installation.

Once grate is set in frame, torque bolt 1/4 turn past snug.

WEIGHTS:
3-FLANGE FRAME 285 LBS. MIN
4-FLANGE FRAME 285 LBS. MIN
B-2 GRATE 265 LBS. MIN

CASTING TOLERANCES:
DIMENSIONS ARE IN INCHES -
FRACTIONAL ± 1/16" ON ALL
DIMENSIONS UP TO 12" AND ADD
ADDITIONAL ± 1/16" PER FOOT

NOTE: SEAT SURFACES ON BOTH FRAME AND GRATE ARE MACHINED
AND GRATE MUST NOT ROCK IN FRAME WHEN ASSEMBLED.

NOTE: IDENTIFYING INFORMATION SHOWN ON FRAMES & GRATES TO
BE CAST WITH FRAME AND GRATE

B–2 GRATE AND FRAME
FLOW FROM RIGHT
ASSEMBLY DETAILS

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DRAWING NUMBER
201.9.1
N.T.S.
WEIGHT: 205 LBS. (MIN)
NOTE: IDENTIFYING INFORMATION SHOWN ON FRAMES & GRATES TO BE CAST WITH FRAME AND GRATE

#6 LOCK TUMBLER ASSEMBLY
(1) REQUIRED—CONSISTS OF:
5/8" x 5" ST. STL. BOLT
5/8" ST. STL. FLAT WASHER
CAST IRON TUMBLER
ST. STL. CAPTURE NUT
STAINLESS STEEL GRADE 304

AASHTO HS 20 PROOF LOAD

CLASSIFICATION:
ASTM A48 CLASS 30B GRAY CAST IRON WITH NO BLACK ASPHALT COATING ALLOWED

Machine tolerances:
Surfaces noted ✓ must be machined flat and in-plane within .010" Total Indicator Reading

CASTING TOLERANCES:
DIMENSIONS ARE IN INCHES - FRACTIONAL ± 1/16" ON ALL
DIMENSIONS UP TO 1/2" AND ADD ADDITIONAL ± 1/16" PER FOOT

Tumbler should be set at 1 1/4" below machined grate seat for installation.

Once grate is set in frame, torque bolt to 85 ft.lb. (1/2 turn from hand snug)
FRAME MAY BE INSTALLED WITH THIS FLANGE REMOVED FOR CURB INLET. FOUR FLANGE IS SHOWN. SEE DWG 201.6.0 R FOR MORE INFORMATION.

NOTE: IDENTIFYING INFORMATION SHOWN ON FRAMES & GRATGES TO BE CAST WITH FRAME AND GRATE

SEE DWG # FOR MORE INFORMATION ON GRATE GEOMETRY.

#6 LOCK TUMBLER ASSEMBLY
(1) REQUIRED CONSISTS OF:
- 5/8" x 5" ST. STL BOLT
- 5/8" ST. STL FLAT WASHER
- CAST IRON TUMBLER
- ST. STL CAPTURE NUT
- STAINLESS STEEL GRADE 304

CASTING TOLERANCES:
DIMENSIONS ARE IN INCHES - FRACTIONAL ± 1/16" ON ALL DIMENSIONS UP TO 12" AND ADD ADDITIONAL ± 1/16" PER FOOT

CLASSIFICATION:
ASTM A48 CLASS 30B GRAY CAST IRON WITH NO BLACK ASPHALT COATING ALLOWED

NOTE: SEAT SURFACES ON BOTH FRAME AND GRATE ARE MACHINED AND GRATE MUST NOT ROCK IN FRAME WHEN ASSEMBLED.

Tumbler should be set at 1 1/4" below machined grate seat for installation.

Once grate is set in frame, torque bolt to 85 ft.lbf. (1/2 turn from hand snug)

WEIGHTS:
- 3-FLANGE FRAME: 265 LBS. MIN
- 4-FLANGE FRAME: 295 LBS. MIN
- A-4 GRATE: 205 LBS. MIN

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201.10.1