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 R2 Catch Basin Frame
- 201.7.0 R2 Type B-1 Hook Lock Cascade Grate – Flow From Left
- 201.7.1 R Type B-2 Hook Lock Cascade Grate – Flow From Right
- 201.9.0 R2 B-1 Grate and Frame – Flow From Left – Assembly Details
- 201.9.1 R B-2 Grate and Frame – Flow From Right – Assembly Details
- 201.10.0 R2 Type A-4 Hook Lock Bar Grate
- 201.10.1 R Type A-4 Hook Lock Bar Grate and Frame Assembly Details

The following Standard Construction Drawings issued January 16, 2009, are superseded by the corresponding drawings listed above, effective immediately: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 B-1 Grate and Frame – Flow From Left – Assembly Details
- 201.9.1 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

Application

- Hook Lock Grates shall be used as the standard catch basin grates on MassHighway facilities. 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 shall be used on facilities where bicycle travel is legally allowed. Hook Lock Bar Grates shall be used on all other facilities.

• On municipally-owned facilities, municipal standard grates may be used in lieu of Hook Lock Grates per the direction of the affected municipality.

• 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.

• Refer to Engineering Directive E-07-003, “Drainage Structures”, and other relevant policies and standards for additional guidance regarding drainage structures.

Attachments: New Standard Construction Drawings
GUTTER SIDE

NOTE - FOUR FLANGE FRAME SHOWN. MAY ALSO BE SUPPLIED AS THREE FLANGE FRAME WITH THIS FLANGE REMOVED

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

MACHINE TOLERANCES:
✓ MACHINED SEATS (4) REQUIRED FLAT AND IN PLANE WITHIN 0.010" TOTAL INDICATOR READING

CLASSIFICATION:
ASTM A48 CLASS 308 GRAY CAST IRON WITH NO BLACK ASPHALT COATING ALLOWED

WEIGHTS:
3-FLANGE FRAME 240 LBS. MIN
4-FLANGE FRAME 270 LBS. MIN

CASTING TOLERANCES:
SHALL CONFORM TO AASHTO M306

AASHTO HS 20 LOAD RATED

CATCH BASIN FRAME

DATE OF ISSUE
June 2009

DRAWING NUMBER
201.6.0 R2
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.

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

WEIGHT: 265 LBS. MIN
AASHTO HS 20 PROOF LOAD

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

CAST BACK FACE WITH MOLD DATE AND PART NO.

Machine tolerances:
Surfaces noted \( \sqrt { } \) must be machined flat and in-plane within .010" Total Indicator Reading

NOTE: CASCADE GRATE ONLY TO BE USED ON FACILITIES WHERE BICYCLE TRAVEL IS LEGALLY ALLOWED.

CASTING TOLERANCES: SHALL CONFORM TO AASHTO M306

TYPE B-1
HOOK LOCK CASCADE GRATE
FLOW FROM LEFT

DATE OF ISSUE: June 2009
DRAWING NUMBER: 2017.0 R2
TYPE B-2
HOOK LOCK CASCADE GRATE
FLOW FROM RIGHT

WEIGHT: 265 LBS, MIN
AASHTO HS 20 PROOF LOAD

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

CASTING TOLERANCES:
SHALL CONFORM TO AASHTO
M306

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

NOTE: CASCADE GRATE ONLY TO BE
USED ON FACILITIES WHERE BICYCLE
TRAVEL IS LEGALLY ALLOWED.

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.

CAST BACK
FACE WITH
MOLD DATE
AND PART NO.

SECTION C-C

D

END VIEW

N.T.S.

GUTTER SIDE

FLOW

CAST BACK
FACE WITH
MOLD DATE
AND PART NO.

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

NOTE: ISSUE
June 2009

DRAWING NUMBER
201.7.1R
FLOW

FRAME MAY BE INSTALLED WITH THIS FLANGE REMOVED FOR CURB INLET. FOUR FLANGE IS SHOWN. SEE DWG 201.6.0 R2 FOR MORE INFORMATION.

SECTION B-B

33" MIN.

24 1/4"

25 3/4"

15/16"

1 1/4"

1 1/4"

15/16"

22"

24" MIN

SECTION A-A

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 & GRAT ES TO BE CAST WITH FRAME AND GRATE

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 240 LBS. MIN
4-FLANGE FRAME 270 LBS. MIN
B-1 GRATE 265 LBS. MIN

CASTING TOLERANCES:
SHALL CONFORM TO AASHTO M306

AASHTO HS 20 PROOF LOAD

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

DATE OF ISSUE
June 2009

DRAWING NUMBER
201.9.0 R2
FRAME MAY BE INSTALLED WITH THIS FLANGE REMOVED FOR CURB INLET. FOUR FLANGE IS SHOWN. SEE DWG 201.6.0 R2 FOR MORE INFORMATION.

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

AASHTO HS 20 PROOF LOAD N.T.S.

SECTION A-A

SECTION B-B

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 1/8 turn past snug.

WEIGHTS:
3-FLANGE FRAME 240 LBS. MIN
4-FLANGE FRAME 270 LBS. MIN
B-2 GRATE 265 LBS. MIN

CASTING TOLERANCES: SHALL CONFORM TO AASHTO M306

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

DATE OF ISSUE June 2009
DRAWING NUMBER 201.9.1R
CASTING TOLERANCES:
SHALL CONFORM TO AASHTO M306

Tumbler should be set at 1 1/4" below machined grate seat for installation.
Once grate is set in frame, torque bolt 1/2 turn past snug.

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

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

NOTE: BAR GRATE NOT TO BE USED ON FACILITIES WHERE BICYCLE TRAVEL IS LEGALLY ALLOWED.
FRAME MAY BE INSTALLED WITH THIS FLANGE REMOVED FOR CURB INLET. FOUR FLANGE IS SHOWN. SEE DWG 201.6.0 R2 FOR MORE INFORMATION.

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

SEE DWG # FOR MORE INFORMATION ON GRATE GEOMETRY.

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:
SHALL CONFORM TO AASHTO M306

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 ½ turn past snug.

WEIGHTS:
3-FLANGE FRAME 240 LBS. MIN
4-FLANGE FRAME 270 LBS. MIN
A-4 GRATE 295 LBS. MIN

TYPE A-4
HOOK LOCK BAR GRATE AND FRAME ASSEMBLY DETAILS