Airport & Port CASTINGS

Meets FAA Requirements • Simplified Installation • Integrated Safety Features
Neenah Foundry's extra heavy-duty airport and port castings are exclusively manufactured to support the loadings imposed by all commercial and military aircraft. Proven to withstand time and rigors of repeated heavy wheel loads, Neenah parts provide continuous performance. Additional products are routinely being developed for our extra heavy-duty casting line, so if you don't find what you need in this brochure, please contact Neenah Foundry at 800-558-5075. We'll work with you and your application to provide an effective solution.
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Notes to the project designer:
- All items shown in Neenah's Airport Series are capable of withstanding minimum 100,000-pound loads as called for in FAA Advisory Circular AC 150/5320-6D Appendix 3 Item 2.d. (1).
- All items shown in Neenah's Airport Series will be furnished with covers or grates fastened to frames as called for in FAA Advisory Circular AC 150/5370-10A.
- All items shown in Neenah's Airport Series will be furnished unpainted per FAA Advisory Circular AC 150/5370-10A.
- Slotted vane drain shown on page 11 is furnished per FAA Advisory Circular AC 150/5370-10A.
- These products are to be specified and used under the guidance of qualified design professionals.

Military installations, container ports and industrial applications may have aircraft or equipment exerting heavier loads than those expected on commercial airports. The product designer must determine tire pressure, contact area and wheel spacing information for each such application, after which Neenah Product Engineering will be glad to provide the designer with product information to assist in the selection of appropriate castings.

The Boeing 727-200 gear configuration contact area (illustrated at right) is considered because of the possibility that the spacing of wheels is such that two may be concentrated on one casting.

Airport construction castings must sustain the loading requirements of a Boeing 727-200 or an Airbus 380 aircraft. Both present load-concentrated gear configurations and, essentially, the heaviest loads construction castings must bear. (See table below for individual wheel loads.)

For heavier dual gear aircraft, the FAA accepts the 34" between centerline of the tires as reasonable. Accordingly, construction castings with clear openings greater than 34" can be subjected to loadings greater than that of one wheel. However, load distribution on the casting may not necessarily be as critical as a single center-concentrated wheel load.

Wheel Chart

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>Wheels Per Strut</th>
<th>VMG* Pounds</th>
<th>Max. Load Per-Tire Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>727-100</td>
<td>2</td>
<td>76,900</td>
<td>34,450</td>
</tr>
<tr>
<td>727-200 STD</td>
<td>2</td>
<td>79,900</td>
<td>39,950</td>
</tr>
<tr>
<td>727-200 ADV</td>
<td>2</td>
<td>96,800</td>
<td>48,400</td>
</tr>
<tr>
<td>737-300</td>
<td>2</td>
<td>62,200</td>
<td>31,100</td>
</tr>
<tr>
<td>737-400</td>
<td>2</td>
<td>70,600</td>
<td>35,300</td>
</tr>
<tr>
<td>737-500</td>
<td>2</td>
<td>61,800</td>
<td>30,900</td>
</tr>
<tr>
<td>737-700</td>
<td>2</td>
<td>71,500</td>
<td>35,750</td>
</tr>
<tr>
<td>737-800</td>
<td>2</td>
<td>82,100</td>
<td>41,050</td>
</tr>
<tr>
<td>737-900</td>
<td>2</td>
<td>84,300</td>
<td>42,150</td>
</tr>
<tr>
<td>L1011-100</td>
<td>4</td>
<td>204,120</td>
<td>51,030</td>
</tr>
<tr>
<td>L1011-500</td>
<td>4</td>
<td>230,000</td>
<td>57,500</td>
</tr>
<tr>
<td>747-100B/300</td>
<td>4</td>
<td>174,000</td>
<td>43,500</td>
</tr>
<tr>
<td>747-400F</td>
<td>4</td>
<td>204,600</td>
<td>51,150</td>
</tr>
<tr>
<td>757-300</td>
<td>4</td>
<td>125,500</td>
<td>31,375</td>
</tr>
<tr>
<td>767-200ER</td>
<td>4</td>
<td>180,000</td>
<td>45,000</td>
</tr>
<tr>
<td>767-300ER</td>
<td>4</td>
<td>188,200</td>
<td>47,050</td>
</tr>
<tr>
<td>777</td>
<td>6</td>
<td>297,500</td>
<td>49,583</td>
</tr>
<tr>
<td>DC-1010</td>
<td>4</td>
<td>212,535</td>
<td>53,134</td>
</tr>
<tr>
<td>DC-1040</td>
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<td>210,532</td>
<td>52,633</td>
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<tr>
<td>MD-11</td>
<td>4</td>
<td>242,000</td>
<td>60,500</td>
</tr>
<tr>
<td>MD-80-83</td>
<td>2</td>
<td>76,280</td>
<td>38,140</td>
</tr>
<tr>
<td>MD-90-30</td>
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<td>75,740</td>
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</tr>
<tr>
<td>A380</td>
<td>6</td>
<td>353,475</td>
<td>58,912</td>
</tr>
<tr>
<td>A380</td>
<td>4</td>
<td>235,650</td>
<td>58,912</td>
</tr>
<tr>
<td>A380F</td>
<td>6</td>
<td>372,025</td>
<td>62,004</td>
</tr>
<tr>
<td>A380F</td>
<td>4</td>
<td>248,025</td>
<td>62,006</td>
</tr>
</tbody>
</table>

*Maximum static load per strut at the most aft center of gravity.
Airport drainage inlet frames and grates meet the demands of airport applications and are manufactured under rigorous quality control procedures.

Extra Heavy Duty Inlet Frames and Grates (the Neenah R-3475-E through R-3475-H series) offer superior strength, durability and the added confidence of resilient, high performance ductile iron that:

- is the best choice of metals
- only needs support on two short sides
- allows unobstructed clear opening

Hydraulic calculations available at neenahfoundry.com. Shop drawings available upon request.
R-3475-G Airport Drainage Inlet — Three Ductile Iron Grates

- Free open area of grate approximately 2.4 sq. ft. per grate.
- Easy-to-install one-piece frame.

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Grate Type</th>
<th>SO FT.</th>
<th>Weir Perimeter</th>
<th>Linear FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-3475-G</td>
<td>C</td>
<td>7.2</td>
<td>17.8</td>
<td></td>
</tr>
</tbody>
</table>

R-3475-H Airport Drainage Inlet — Four Ductile Iron Grates

- Free open area of grate approximately 2.4 sq. ft. per grate.
- Infinite lengths available.

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Grate Type</th>
<th>SO FT.</th>
<th>Weir Perimeter</th>
<th>Linear FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-3475-H</td>
<td>C</td>
<td>9.6</td>
<td>21.8</td>
<td></td>
</tr>
</tbody>
</table>

R-3477-A Airport Drainage Inlet Frame and Grate

- Also available with solid cover.

R-3480 Airport Drainage Inlet Frame and Double Grate

- Lids are bolted to frames.

R-3480-A Airport Drainage Inlet Frame — Single Grate

- Same as R-3480 except single unit.
- Also available with solid cover.

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Grate Type</th>
<th>SO FT.</th>
<th>Weir Perimeter</th>
<th>Linear FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-3480-A</td>
<td>A</td>
<td>1.8</td>
<td>8.5</td>
<td></td>
</tr>
</tbody>
</table>

Like all Neenah castings, these products offer exceptional durability, ease of installation and reliable performance.
Mooring Eye is placed on subgrade and filled with sand to exclude concrete during the pouring and finishing operation. Sand is easily washed out when paving is completed. Socket opening at bottom of Mooring Eye for wood or metal stake to bring to grade. Square socket design prevents displacement while concrete is being poured and, if required, the hole provides drainage to the subgrade after Mooring Eye is in place. Alternative method of setting is to push the Mooring Eye in position in the wet concrete. Both methods can be effective.

When used with bituminous slab, the Mooring Eye should be set in concrete base before paving. Design permits inflow of concrete, and the wide base ensures proper anchorage. Ribs on the R-3490 and R-3490-A have 1/2" holes for reinforcing rods, if needed. R-3490-B has 1-1/8" holes in ribs.

**Handholes**

**R-3486 Airport Tie-Down Frame and Lid**
- Covers deeply anchored large tie-down eyes for heavy aircraft.
- Meets FAA 250 PSI tire pressure requirement.

![Diagram of R-3486 Airport Tie-Down Frame and Lid](image)

**R-3487 Airport Inspection Frame and Lid**
- Meets FAA 250 PSI tire pressure requirement.

![Diagram of R-3487 Airport Inspection Frame and Lid](image)

**R-3488 Airport Control Box Frame and Lid**
- Lid furnished in extra heavy-duty ductile iron.
- Polyisoprene gasket set in machined dovetail groove.
- Lid pivots on stainless steel hinge pin with compression springs.

![Diagram of R-3488 Airport Control Box Frame and Lid](image)

**Mooring Eyes**

**R-3490 Airport Mooring Eye**
- For rope, clip- and hook-type anchors.
- 3-1/2' total depth, gray iron.
- Has 1/2' holes for reinforcing rods, if needed.
- Bars tested to withstand ultimate load of 9,000 lbs. in bending.

![Diagram of R-3490 Airport Mooring Eye](image)

**R-3490-A Airport Mooring Eye**
- For rope, clip- and hook-type anchors.
- 6' total depth, ductile iron.
- Has 1/2' holes for reinforcing rods, if needed.
- Bars tested to withstand ultimate load of 9,000 lbs. in bending.

![Diagram of R-3490-A Airport Mooring Eye](image)

**R-3490-B Airport Mooring Eye**
- For rope, clip- and hook-type anchors.
- 9' total depth, ductile iron.
- Has 1-1/8' cored holes in ribs.
- Bars tested to withstand ultimate load of 200,000 lbs. in bending.

![Diagram of R-3490-B Airport Mooring Eye](image)

<table>
<thead>
<tr>
<th>CATALOG NUMBER</th>
<th>HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-3490</td>
<td>3.5</td>
</tr>
<tr>
<td>R-3490-A</td>
<td>6</td>
</tr>
<tr>
<td>R-3490-B</td>
<td>9</td>
</tr>
</tbody>
</table>
Introducing Camlift!
Neenah Foundry now brings you the next generation in manhole covers, the Camlift. This means no more dead lifting covers that are too heavy, and helps reduced the time lost to job injuries. Camlift utilizes ductile iron to meet the load bearing capabilities required for airport and port conditions.

- No dead lifting
- Easy open and close feature
- Helps reduce job injuries
- No need for a pick-axe
- Readily used in elevated manhole applications
- One man operable
- Ductile iron for heavy loading conditions
- Superior stability and security
- Controlled operation

R-3491 Series Airport Catch Basin Frames and Grates/Solid Lids
- For slab or built-up manhole construction.

<table>
<thead>
<tr>
<th>CATALOG NUMBER</th>
<th>GRATE TYPE</th>
<th>SQ. FT. OPEN</th>
<th>WEIR PER/METER LINEAL FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-3491-AG</td>
<td>G</td>
<td>0.9</td>
<td>5.5</td>
</tr>
<tr>
<td>R-3491-GG</td>
<td>G</td>
<td>1.6</td>
<td>7.1</td>
</tr>
<tr>
<td>R-3491-HG</td>
<td>G</td>
<td>1.8</td>
<td>7.6</td>
</tr>
<tr>
<td>R-3491-JG</td>
<td>G</td>
<td>2.4</td>
<td>8.5</td>
</tr>
</tbody>
</table>

**Dimensions in Inches**

<table>
<thead>
<tr>
<th>Catalog No. Solid Lid</th>
<th>Catalog No. Open Grate</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-3491-AL</td>
<td>R-3491-AG*</td>
<td>21</td>
<td>2 1/2</td>
<td>18</td>
<td>27 1/2</td>
<td>5</td>
<td>1 1/4</td>
<td>1</td>
<td>2 7/8</td>
<td>1</td>
</tr>
<tr>
<td>R-3491-GL*</td>
<td>R-3491-GG*</td>
<td>27</td>
<td>2 1/2</td>
<td>24</td>
<td>33 1/2</td>
<td>5</td>
<td>1 1/2</td>
<td>1</td>
<td>2 7/8</td>
<td>1</td>
</tr>
<tr>
<td>R-3491-HL</td>
<td>R-3491-HG</td>
<td>29</td>
<td>1 3/4</td>
<td>27</td>
<td>35</td>
<td>6</td>
<td>1 1/2</td>
<td>1</td>
<td>2 7/8</td>
<td>1</td>
</tr>
<tr>
<td>R-3491-JL</td>
<td>R-3491-JG</td>
<td>32</td>
<td>3/8</td>
<td>2</td>
<td>30</td>
<td>6</td>
<td>1 1/2</td>
<td>1</td>
<td>2 7/8</td>
<td>1</td>
</tr>
</tbody>
</table>

Frames in gray iron, grates/covers in ductile unless noted otherwise. * Gray iron grate/cover.
R-3492 Series Airport Manhole Frames with Solid Lid or Grate

- For slab or built-up manhole construction.
- Can be fitted with grates for drainage (see R-3491 listings for comparable sizes).
- Top and bottom flanges provide complete anchorage so frame becomes an integral part of the slab.
- Lids can be gasket-sealed for watertight application.

Dimensions in Inches

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Catalog No.</th>
<th>A</th>
<th>AA</th>
<th>B</th>
<th>C</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>Lid/Grate Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-3492</td>
<td>R-3492-1</td>
<td>27</td>
<td>33 1/2</td>
<td>2 1/2</td>
<td>24</td>
<td>36</td>
<td>9</td>
<td>11/2</td>
<td>1</td>
<td>Gray Iron</td>
</tr>
<tr>
<td>R-3492-A</td>
<td>R-3492-A1</td>
<td>32 3/8</td>
<td>39 1/2</td>
<td>2</td>
<td>30</td>
<td>42</td>
<td>9</td>
<td>11/2</td>
<td>1</td>
<td>Ductile Iron</td>
</tr>
</tbody>
</table>

R-3492-C Airport Manhole Frame, Solid Lid

- For built-up manhole construction.

R-3492-CG Airport Manhole Frame and Ductile Iron Grate

- For built-up manhole construction.

R-3492-AE Large Manhole Frame, Solid Lid

- For slab manhole construction.

R-3492-B Airport Manhole Frame and Solid Lid

- For slab manhole construction.

R-3492-BG Airport Manhole Frame and Ductile Iron Grate

- For slab manhole construction.
R-3493-C Airport Manhole Frame and Ductile Iron Grate
- For built-up manhole construction.

<table>
<thead>
<tr>
<th>CATALOG NUMBER</th>
<th>TYPE</th>
<th>SQ. FT. OPEN</th>
<th>WEIR PERIMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-3493-C</td>
<td>Q</td>
<td>0.6</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Square/Rectangular Covers

R-3494 Airport Hinged Frame with Ductile Iron 4-Piece Hinged Lids

R-3495 Airport Manhole Frame, Ductile Iron Lid, C/S Bolted and Gasket Sealed
- Extra heavy-duty lid strength.
- Water tight.
- Lettered Airfield Lighting or other special lettering
- For slab or built-up manhole construction.

R-3497-A Airport Manhole Frame, Lid C/S Bolted
- Specify without lettering or other special lettering.
- Reversible frame for built-up or slab type manhole construction.

R-3499 Airport Utility Frame and Ductile Iron Lids
- Large 4' x 4' opening.

Covers are bolted to frame.
Neenah Foundry Spring Assist R-3498 Series...
This innovative one-of-a-kind product is manufactured to deliver long-lasting performance, ease-of-use, and low maintenance under the strenuous demands of airport/port applications.

- New SA Hinge allows lid to be replaced.
- Stainless steel spring provides significant lifting assist—hatches may be opened by any average-sized, able-bodied maintenance worker.
- Convenient, self-contained frame, lid and spring assembly.
- Eliminates the necessity to attach spring assemblies to concrete structure walls.
- Spring position on the lid allows it to swing out of the way of the free opening area.
- Allows easy spring removal and/or replacement.
- Integrated hold open safety bar.
- Ductile iron lid suitable for aircraft loads (exceeds FAA load requirements for direct heavy aircraft loadings).
- All covers furnished standard with countersunk stainless steel hex head bolts; meets FAA fastening requirements.
(Note: Neenah recommends all spring assist lids remain bolted when installed.)

Dimensions in Inches

<table>
<thead>
<tr>
<th>Catalog No. Solid Lid</th>
<th>Catalog No. Open Grate</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>E</th>
<th>F</th>
<th>Lid Weight</th>
<th>Grate Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Square</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-3498-K2S</td>
<td>R-3498-K2S</td>
<td>25 3/4 x 25 3/4</td>
<td>1 1/2</td>
<td>24 x 24</td>
<td>30 x 30</td>
<td>4</td>
<td>251#</td>
<td>189#</td>
</tr>
<tr>
<td>R-3498-P2S</td>
<td>R-3498-P2S</td>
<td>32 x 32</td>
<td>1 1/2</td>
<td>30 x 30</td>
<td>36 x 36</td>
<td>4</td>
<td>358#</td>
<td>325#</td>
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<tr>
<td>R-3498-R2S</td>
<td>R-3498-R2S</td>
<td>8 3/8 x 38 3/8</td>
<td>1 1/2</td>
<td>36 x 36</td>
<td>42 x 42</td>
<td>4</td>
<td>471#</td>
<td>415#</td>
</tr>
<tr>
<td>R-3498-T2S *</td>
<td></td>
<td>50 x 50</td>
<td>1 1/2</td>
<td>48 x 48</td>
<td>56 x 56</td>
<td>4</td>
<td>571#</td>
<td></td>
</tr>
<tr>
<td><strong>Rectangular</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-3498-J3S</td>
<td></td>
<td>25 7/8 x 37 7/8</td>
<td>1 1/2</td>
<td>36 x 24</td>
<td>42 x 30</td>
<td>4</td>
<td>340#</td>
<td></td>
</tr>
<tr>
<td>R-3498-R3S *</td>
<td>R-3498-R3S ***</td>
<td>76 9/16 x 38 3/8</td>
<td>1 1/2</td>
<td>74 3/16 x 36</td>
<td>80 3/16 x 42</td>
<td>4</td>
<td>471#</td>
<td>415#</td>
</tr>
<tr>
<td>*2-piece cover</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>utilizes removable support bar</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Furnished with Stainless Steel Fasteners
- Meets or Exceeds FAA Requirements
- Innovative Patented Design
- Many Units Available With Grate

“Slam Latch”
- High-strength ductile iron
- Facilitates lid-closing
- Easy installation/removal of safety bolts
- Provides additional fastening

New SA Hinge
Spring Assist Safety Arm
Stainless Steel Spring

Covers are bolted to frame.
R-3599-B Slotted Vane Drain, for Sheetflow

Neenah offers an ingenious and easy-to-install means of dealing with sheetflow drainage. To install the system, saw a slot in the top of a conventional PVC pipe, place the pipe on grade, bolt the Cast Iron Slotted Drain in place, and pour the concrete. When used in conjunction with a vane grate inlet, this system can capture virtually all of the water that would normally bypass the inlet basin. For further information, please call 1-800-558-5075 and ask to speak with the Product Engineering Department.

See www.neenahfoundry.com for installation instructions

- Versatile, cost-effective means of capturing sheetflow drainage.
- Captures approximately 0.5 CFS per lineal foot on longitudinal slopes up to 6%.
- Allows increased spacing between inlets.
- Added safety factor should the inlet basin be plugged or covered with snow.
- Suitable for aircraft loads.

Security Bolting

Neenah offers proven techniques for ensuring the security of castings. When bolting is specified, our standard issue is either hex head bolts or flat head slotted screws, both in high-quality stainless steel.

Should an installation require higher security levels, we can furnish other fastening options including:
- Pent Head Bolts
- Hex Socket with Pin*
- Pent Socket with Pin*
- Mcgard Bolts*
*Furnished as flathead or buttonhead

Neenah can also supply replacement or retrofit bolts to upgrade security in existing installations. For further information, contact your Neenah representative.

CAUTIONS:
Fastening Frames and Covers Together (Fastening Device): Specifiers and users must recognize that bolts and other fastening devices may have a tendency to work loose over a period of time due to traffic patterns, vibrations, temperature cycles, etc., and that routine inspection and maintenance schedules should be implemented to assure these fasteners remain tight and functional. They must determine the necessity and frequency of these inspection and maintenance intervals for each installation. Procedures should be established to assure that maintenance crews check fastening devices for proper function and torque bolts to your established requirements. Drawers must repair or replace fastening devices, stripped bolts, and threads promptly. Consider each installation individually to be sure traffic or usage patterns will allow the use of fastening devices.

Security Bolting Products

- Pent Head Bolts
- Hex Socket with Pin*
- Pent Socket with Pin*
- Mcgard Bolts*
*Furnished as flathead or buttonhead

Neenah can also supply replacement or retrofit bolts to upgrade security in existing installations. For further information, contact your Neenah representative.
Trench Systems

R-4993 and R-4994 Superior Durability Frame Series for Airports, Ports, Industrial Sites and Roads

These two new frames offer designers versatile options for locations where traditional angle frames may not adequately endure extreme conditions, such as: braking forces of ultra heavy vehicles; torsion forces from turning aircraft and container port vehicles; heavy airfield and industrial applications; and, highway tunnels. See www.neenahfoundry.com for installation instructions.

R-4993 w/ Type T Frame

- 254 square inches of masonry contact surface per foot.
- 150 square inches of masonry bearing surface per foot.
- Frame top section provides transition platform onto and off grating surface.
- Provision for bolting successive frame sections together
- Provides significant reinforcing bar opportunity

R-4994 w/ Type S Frame

- 350 square inches of masonry contact surface per foot.
- 65 square inches of masonry bearing surface per foot.
- Unique frame shape allows for larger trench opening beneath frame seat.
- Bolt holes are drilled clear through cantilever seat and will not trap debris.
- Provision for bolting successive frame sections together
- Provides significant reinforcing bar opportunity
- Frame is integrated within the concrete slab.
- Available with LitMate ball and socket connector. (see 4994-HLM page 14)

Dimensions in Inches

<table>
<thead>
<tr>
<th>Type T Catalog No.</th>
<th>Type S Catalog No.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>E</th>
<th>Grate Type Type A Type C Type D</th>
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<tbody>
<tr>
<td>R-4993-AAB</td>
<td>R-4994-AAB</td>
<td>8</td>
<td>2</td>
<td>6</td>
<td>19 1/4</td>
<td>4</td>
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<tr>
<td>R-4993-BAB</td>
<td>R-4994-BAB</td>
<td>10</td>
<td>2</td>
<td>8</td>
<td>21 1/4</td>
<td>6</td>
</tr>
<tr>
<td>R-4993-CAB</td>
<td>R-4994-CAB</td>
<td>12</td>
<td>2</td>
<td>10</td>
<td>23 1/4</td>
<td>8</td>
</tr>
<tr>
<td>R-4993-DAB</td>
<td>R-4994-DAB</td>
<td>14</td>
<td>2</td>
<td>12</td>
<td>25 1/4</td>
<td>10</td>
</tr>
<tr>
<td>R-4993-EAB</td>
<td>R-4994-EAB</td>
<td>17</td>
<td>2</td>
<td>15</td>
<td>28 1/4</td>
<td>13</td>
</tr>
<tr>
<td>R-4993-FAB</td>
<td>R-4994-FAB</td>
<td>20</td>
<td>2</td>
<td>18</td>
<td>31 1/4</td>
<td>16</td>
</tr>
<tr>
<td>R-4993-HAB</td>
<td>R-4994-HAB</td>
<td>26</td>
<td>2</td>
<td>24</td>
<td>37 1/4</td>
<td>22</td>
</tr>
<tr>
<td>R-4993-KAB</td>
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<td>34</td>
<td>2</td>
<td>32</td>
<td>45 1/4</td>
<td>30</td>
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<td>R-4993-OAB</td>
<td>R-4994-OAB</td>
<td>51</td>
<td>2</td>
<td>49</td>
<td>62 1/4</td>
<td>47</td>
</tr>
</tbody>
</table>

x - Indicates availability
Neenah's LiftMate Hinge System is now available with the R-4994 Type S Frame trench series. These trench drains are capable of supporting the heavy wheel loads of today's commercial environments. Visit www.neenahfoundry.com for more information on the LiftMate series.

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Dimensions in Inches</th>
<th>Available</th>
<th>Permagrip</th>
<th>Cover</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>A  B  C  E</td>
<td>Frame Length</td>
<td>Grate/Cover</td>
<td>Y/N</td>
</tr>
<tr>
<td>R-4994-FALM</td>
<td>20  2  16  30</td>
<td>24</td>
<td>'A' Grate</td>
<td>N</td>
</tr>
<tr>
<td>R-4994-HALM</td>
<td>26  2  22  36</td>
<td>24</td>
<td>'A' Grate</td>
<td>Y</td>
</tr>
</tbody>
</table>

R-4996-CA Self-Forming Trench Frame and Grate
Neenah's innovative trench system offers an easy-to-install, affordable answer to airport drainage needs. Constructed with durable cast iron, the system features the proven hydraulic performance of a constant-depth trench system.

- Special trench pan design simplifies installation.
- Competitively priced.
- Saves labor and materials cost.
- Iron pans withstand tough jobsite handling.
- Reusable assembly materials.
- Prefabricated angles and intersections available.
- End caps available.

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Standard Cover Dimensions</th>
<th>Frame Length</th>
<th>Outlet Location, Sizes Available</th>
<th>Available</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>A  B  C  D</td>
<td></td>
<td>Side  Bottom  End  Grate/Cover</td>
<td></td>
</tr>
<tr>
<td>R-4996-CA**</td>
<td>12  1 1/2  10  10</td>
<td>36</td>
<td>4, 6, 8  4, 6, 8  4, 6, 8  A</td>
<td></td>
</tr>
</tbody>
</table>

**Aircraft Rated – Standard Bolted.

Don't see what you're looking for? Call 800-558-5075
Available Published Specifications

There are several published specifications that are available to assist designers in specifying iron castings. It is the responsibility of the designer to determine if one or all of these specifications are appropriate for a given application. These specifications are referenced as follows:

For Gray Iron

AA 60005*  Federal Specification — Frames, covers, gratings, steps, sump and catch basin, manhole castings
AASHTO M 105  Standard Specification for Gray Iron Castings
AASHTO M 306  Standard Specification for Drainage Structure Castings

For Ductile Iron

ASTMA-536  Standard Specification for Ductile Iron Castings

For Airport Casting Use

FAA AC: 150/5370-10, item D-751  Manholes, Catch Basins, Inlets and Inspection Holes
FAA AC: 150/5320-6, Appendix 3  Design of Structures for Heavy Aircraft

For Handicapped Compliance

Americans With Disabilities Act (ADA), Sections 4 Accessible Routes and Section 4.5.4 Gratings.

There may be applicable requirements and specifications other than those shown above that need to be consulted before a designer specifies requirements.


Terms and conditions of sale: Visit www.neenahfoundry.com for more information.
Neenah Foundry
“Word on the Street is Neenah”
Since 1872, Neenah Foundry has been known for consistent quality, functional performance and design aesthetics. We’re also proud of a reputation for responsive support and service. When you choose Neenah Foundry, you’ve chosen the best.

Neenah offers an extensive selection of castings for construction and municipal use including manhole covers and frames, catch basins and curb inlets, cast iron downspouts, tree grates, bridge scuppers, detectable warning plates, and many other specialty products.

Contact any Neenah Foundry office for more information. Visit www.neenahfoundry.com to order our catalogs and brochures or to locate your local Neenah Foundry representative.

In support of the Green Initiative, Neenah Foundry is pleased to report that our products contain a minimum of 85% recycled content in the form of a minimum of 35% consumer-generated scrap metal and a minimum of 50% industrial-generated scrap metal.

Neenah Foundry Company
Box 729, Neenah, Wisconsin 54957-0729
800-558-5075 | www.neenahfoundry.com
920-725-7000 | Fax: 920-729-3661

These products are to be specified and used under the guidance of qualified design professionals.