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**CASTINGS & STEEL CASTINGS (CARBON),  
GRAY IRON CASTINGS, AND DUCTILE IRON CASTINGS**

Iron castings shall be either gray iron castings meeting the requirements of ASTM A48 or ductile (nodular) iron castings meeting the requirements of ASTM A536 and / or steel castings meeting the requirements of ASTM A 27.

Unless otherwise specified gray iron castings bridge rockers and shoes shall meet the requirement of class 35B, ductile iron castings shall meet the requirements of Grade 65-45-12 and steel castings shall meet the requirements of Grade 65-35.

Aluminum alloy castings shall conform to the requirements of ASTM B26 Alloy, ANSI 356.0.

Acceptance shall be on the basis of certification and proper identification. An identification imprint "Iowa DOT SW-602" shall be placed on each frame and cover. The manufacturer may also imprint marks or trade names on the castings. Weighing and verification may be required as directed by the Engineer. Castings shall conform to the shape, weight and dimensions of the standard plan. Surfaces of the castings shall be free from burnt-on sand or adhering sand, scale, cracks, hottears and shall be removable smooth as determined by visual examination. Welding, painting or plugging will not be accepted.

The finished casting shall show careful finished workmanship. Castings which have been damaged either during manufacture or shipping shall be rejected. Any defects such as cracks, cold joints, porosity, sand inclusions, scabs, or slags shall be basis for rejection.

Bearing surfaces between manhole rings and covers or grates and frames shall be cast or machined to produce a uniform bearing throughout the parameter area of contact.

Castings that will be subjected to roadway traffic (heavy) shall have fully machined bearing surfaces as indicated on the standard road plan. Machined portion of the frame shall completely accommodate the machined portion of the cover so that only machined surfaces come in contact. Pairs of machined castings shall be matched and marked to facilitate subsequent identification at installation.

Field inspection personnel may verify weight and dimensional requirements and perform visual inspection for acceptance and/or rejection on project site.

Permissible Variations - Frame

- Cover opening diameter + 1/16 in. (+ 1.6 mm)
- Cover opening depth + 1/32 in. (+ 0.8 mm)
- Height + 1/8 in. (+ 3.2 mm)
- Flange + 1/4 in. (+ 6.4 mm)

Permissible Variation-Cover

- Diameter + 1/16 in. (+ 1.6 mm)

- Seat Depth  $-1/32$  in. (+ 0 mm, -0.8 mm)

All other dimensions +  $1/8$  in. (+ 3.2 mm)

Casting which has been damaged either during manufacture or in shipping may be rejected. Repairing shall not be allowed without prior approval of the engineer.

Weight

	Minimum Weight			
<a href="#">SW-602</a>		Frame	Cover	Combined Frame +Cover
	Type I	150 lbs	145 lbs	
	Type 2	230 lbs	145 lbs	
<a href="#">RM-42</a> *				145 lbs

Permissible weight variations +5% of the specified weight limit.

Manufacturer's certification shall state that the castings representing each furnished casting have been tested and inspected and has been found to meet the specification requirements including a report of test results furnished at the time of shipment. Authorized personnel shall sign the certification statement.

Note: All iron castings shall be melted and manufactured in the USA.

\* Cast utility access cover for use with Precast Concrete Handhole