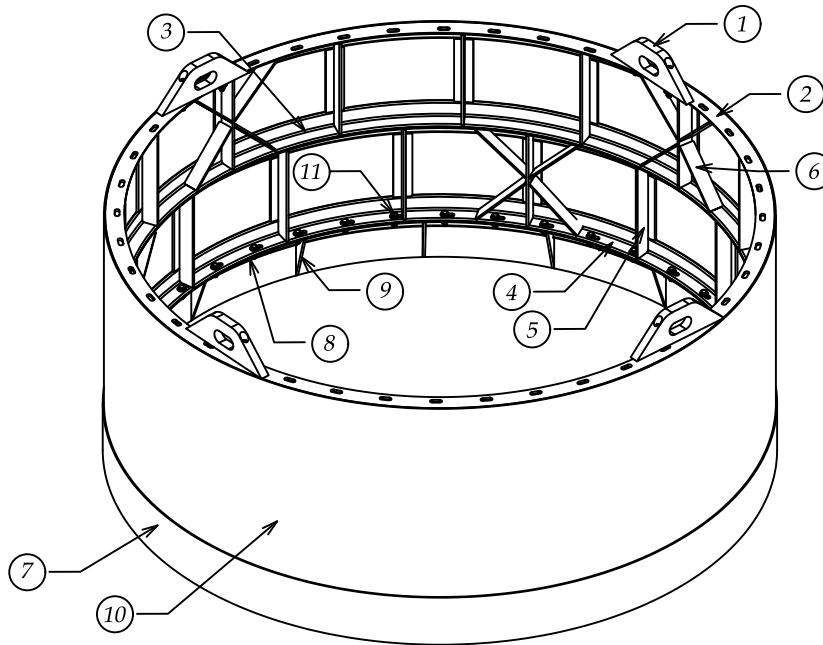


# Mr. Manhole - Circular Trench Box - 70" Diameter



## Legend:

- ① Lift Points (4) consisting of 1" thick A-36 Steel with 1" (min.) steel section in all directions from the connection opening. Each lift point shall be attached to the top ring of the top section of the trench box using 2 - 1/2"x3/4" grade 8 hex head steel bolts, 4 - 1/2" steel flat washers (one against each bolt head and one against each nut), and 2 - 1/2" grade 8 steel hex nuts with nylon locking mechanism. These bolts shall be tightened to 107 ft.-lb. of torque. The four lift points shall be installed in such a manner that they straddle vertical support members and are evenly spaced around the top ring of the trench box section (90° to one another).
- ② Top flange (1 per 2' tall ring assembly) consisting of 1/4" thick 2"x2" A-36 steel angle iron that has been cold rolled into a continuous 69-3/4" outside diameter circle. This flange shall have 40-1/2" diameter x 3/4" long slots evenly spaced around the flange (9° to one another).
- ③ Middle flange (2 per 2' tall ring assembly) consisting of 1/4" thick 2"x2" A-36 steel angle iron that has been cold rolled into a continuous 69-3/4" outside diameter circle. The 2 middle flanges shall be welded, where they meet on the outside of the trench box, with a continuous weld all the way around. The 2 middle flanges shall be welded, where they meet on the inside of the trench box, with 1" (min.) long welds spaced no more than 6" apart (5" max. between welds) all the way around. Stagger the vertical supports before welding the 2 rings together to make a 2' tall ring assembly.
- ④ Bottom flange (1 per 2' tall ring assembly) consisting of 1/4" thick 2"x2" A-36 steel angle iron that has been cold rolled into a continuous 69-3/4" outside diameter circle. This flange shall have 40-1/2" diameter x 3/4" long slots evenly spaced around the flange (9° to one another).
- ⑤ Vertical support angle (16 per 12" ring, 32 per full 2' tall ring assembly) consisting of 3/16" thick 2"x2" A-36 steel angle iron. The vertical support angles must be welded to the upper, middle and lower flanges with 1-3/4" welds (total of four) with one weld on each side of each end of the support angle. These welds are at 90° to each other.

Legend (Cont.):

- ⑥ Support gusset (16 per 12" ring, 32 per full 2' high ring assembly) consisting of 3/16" thick by 1-3/4" wide by 7" long A-36 steel. One end of each gusset shall be welded to the appropriate flange with a 1-3/4" weld. The other end of each gusset shall be welded to the appropriate vertical support angle using a 1-3/4" weld where the end of the gusset meets the vertical support angle. Additionally, all gussets shall be welded to the vertical support angles and the flanges using a 1-3/4" (min.) weld where the side of the gusset meets these structural members.
- ⑦ Outer knife edge consisting of a 1/4" thick A-36 steel ring 6" wide.
- ⑧ Knife edge flange that is identical to the top flange (#2 above). The knife edge flange and the outer knife edge shall be welded together where they meet with 1" (min.) long welds spaced no more than 6" apart (5" max. between welds) all the way around.
- ⑨ Triangular knife edge support gusset (total of 16) evenly spaced consisting of 3/16" thick by 1-3/4" wide by 5-3/4" tall A-36 steel. The triangular gussets shall be welded to the top flange with 2 - 1-3/4" (min.) welds. The triangular gussets shall be welded to the outer knife edge using 4 - 1" (min.) welds. One at the top of the gusset and one at the bottom of the gusset on each side of the gusset.
- ⑩ Outer skin (1 per 2' high ring assembly) consisting of 1/8" thick A-36 steel 24" wide. The edges of the outer skin shall be welded to the top flange around the bottom flange with 1" (min.) long welds spaced no more than 6" apart (5" max. between welds) all the way around.
- ⑪ 1/2" grade 8 hex head steel bolts, 2-1/2" steel flat washers (one against the bolt head and one against the nut), and 1/2" grade 8 steel hex nut with nylon locking mechanism. These bolts shall be tightened to 107ft.-lb. of torque. Ring assemblies shall be fastened together using 40 of these bolts (one in every hole). The bottom knife edge shall be fastened to the bottom ring assembly using 40 of these bolts (one in every hole).

Safety Precautions:

- Ring assemblies must be bolted together with the vertical support angles evenly staggered (not directly over each other).
- Individual ring assemblies shall not be more than 24" tall.
- The bottom knife edge shall not be more than 6" tall.
- The total combined height of the knife edge and assemblies shall not exceed 10' - 6".
- When moving the trench box, all four lift points and the Mr. Manhole trench box lifting apparatus must be used.
- Every bolt hole between ring assemblies and between the bottom ring assembly and the knife edge ring must contain the proper bolt, nut, and washers and they must be tightened to the proper torque.
- The entire trench box and all of its parts must be inspected for damage before each use. All damaged parts must be replaced before use. Do not use a damaged trench box.
- Do not enter the trench box if the top of the top ring is not 6" (min.) above the highest point of the surrounding grade.
- Do not use this trench box in excavations that are not circular in shape.
- Do not use this trench box in circular excavations that are greater than 72" in diameter.

Certification Statement:

I have tested the above described circular trench box and certify that, in my professional opinion, this trench box is safe for human entry up to 10' (max.) below grade.

Certified by Materials Testing, Inc. - Brad J. Core, Principal/Engineer



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