

## Manta Ray Anchors Q&A

### Frequently Asked Questions

1. Q: What is the load capacity of the Manta Ray anchors?

A: There are 4 models:

MR-3 with 5/8"(1.6 cm) PH rod 16,000 lbs-force (7,257 kg-force) ultimate  
MR-1 with 3/4" (1.9 cm) PH rod 23,000 lbs-force (10,432 kg-force) ultimate or with 1" (2.5 cm) rod  
36,000 lbs-force (16,329 kg-force) ultimate  
MR-2 with 3/4" (1.9 cm) PH rod 23,000 lbs-force (10,432 kg-force) ultimate or with 1" (2.5 cm) rod  
36,000 lbs-force (16,329 kg-force) ultimate  
MR-SR with 3/4" (1.9 cm) PH rod 23,000 lbs-force (10,432 kg-force) ultimate or with 1" (2.5 cm) rod  
36,000 lbs-force (16,329 kg-force) ultimate

2. Q: Into what soils can the Manta Ray anchors be installed?

A: Can be installed through Class 2 soils including decomposed rock and permafrost

3. Q: Is the Manta Ray anchor RUS approved?

A: Yes the MR-1, MR-2, MR-3 and MR-SR are listed in section z of the RUS List of Approved Materials

4. Q: How long have Manta Ray anchors been used?

A: Nearly 30 years

5. Q: How reliable are the Manta Ray anchors?

A: Extremely. They are time tested, used extensively for commercial applications including the support of structures.

6. Q: How deep should the Manta Ray anchor be installed

A: As with other anchors, the Manta Ray anchor must be installed below frost depth and into competent soil. Typical installation is with one 7 ft (2.1 m) length power hub anchor rod.

7. Q: What is maximum installed depth?

A: There is no depth limit. Additional power hub anchor rods with coupling and drive steel tool sections can be added for greater installed depth. Installed depth, when necessary, can exceed the maximum 14 ft (4.3 m) of power hub anchors and 10 ft (3 m) limit for plate anchors.

8. Q: Can I use a line truck to install the Manta Ray

A: Yes ---Connect the hand held hydraulic operated jack hammer with up to 50 ft (15.2 m) of hose from the line truck. Typical performance specifications are 1200 blows per minute at 8gpm and 2000 psi (30 lpm/140 bar). Go to installation specification for more detail

9. Q: What depth can I install with the standard SGC-14drive steel tool set?

A: With the standard drive steel tool kit install to 8 ft (2.4 m) depth for countersink for a 7 ft (2.1 m) anchor rod.



MacLean Power Systems LLC

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10. Q: Is the same Drive Steel used for all Manta Ray anchors?

A: Yes

11. Q: How long does it take to install a Manta Ray anchor?

A: About the same time as installing a power hub screw anchor. Typically within 30 minutes including set- up and knockdown.

12. Q: What if obstruction is encountered and the Manta Ray anchor cannot be driven further?

A: As long as the drive steel tool is not removed from the anchor, pulling up on the anchor rod attached to the anchor will remove it.

13. Q: Can the Manta Ray anchor be installed through black top (macadam)?

A: Yes – can be driven through black top.

14. Q: Can the Manta Ray be installed in decomposed rock or caliche?

A: Yes --- Go to Installing Instructions for supplementary instructions.

15. Q: Can Manta Ray anchors be installed in permafrost?

A: Yes – Go to Installing Instructions for supplementary instructions for permafrost.

16. Q: Can the Manta Ray anchors be installed in a swamp

A: Yes --- and larger models are available with more surface area.

17. Q: How far apart can I install the Manta Ray anchors?

A: Minimum of 2 feet (.6 m). Based on soil, harder soil allows closer placement, softer soil placement is further apart.

18. Q: What is minimum required hydraulic jack hammer size?

A: Recommend 90 lb Class jack hammer. A 67 lb Class may be used for soft soils.

19. Q: How deep should the Manta Ray be installed with a 7 ft (2.1 m) length power hub anchor rod?

A: When load is applied with the load locker, the anchor will rotate and pull out of the ground typically 1 to 2 times the anchor length, so the eye nut will be sufficiently above grade level. Go to Installing Instructions for more details for each model Manta Ray

20. Q: What is standard pack qty?

A: MR-1 standard pack = 4 each & total carton weight = 48 lbs (21.8 kg)

MR-2 standard pack = 4 each & total carton weight = 40 lbs (18.1 kg)

MR-3 standard pack = 6 each & total carton weight = 43 lbs (19.5 kg)

MR-SR standard pack = 2 each and total carton weight = 43 lbs (19.5 kg)



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21. Q: Who do I contact to place an order?

A: MPS customer service at Fort Mill, S.C.

22. Q: Can I get a sample for tryout?

A: Yes. Place sample order with MPS customer service.

23. Q: What is lead time?

A: In Stock at MDC.

24. Q: Can these be installed manually?

A: No --- Requires a hydraulic power unit and jackhammer.

25. Q: What is recommended proof load?

A: Proof load to 50 % of rod rating or expected working load whichever is less

MR-3 with 5/8"(1.6 cm) PH rod 16,000 lbs-force (7,257 kg-force) ultimate =8,000 lbs-force (3,629 kg-force)  
MR-1 with 3/4" (1.9 cm) PH rod 23,000 lbs-force (10,432 kg-force) ultimate = 11,500 lbs-force (5,216 kg-force)  
MR-1 with 1" (2.5 cm) rod 36,000 lbs-force (16,329 kg-force) = 18,000 lbs-force (8,165 kg-force)  
MR-2 with 3/4" (1.9 cm) PH rod 23,000 lbs-force (10,432 kg-force) ultimate =11,500 lbs-force (5,216 kg-force)  
MR-2 with 1" (2.5 cm) rod 36,000 lbs-force (16,329 kg-force) ultimate =18,000 lbs-force (8,165 kg-force)  
MR-SR with 3/4" (1.9 cm) PH rod 23,000 lbs-force (10,432 kg-force) ultimate =11,500 lbs-force (5,216 kg-force)  
MR-SR with 1" (2.5 cm) rod 36,000 lbs-force (16,329 kg-force) ultimate = 18,000 lbs-force (8,165 kg-force)

26. Q: Do you remove the eye nut to drive the anchor?

A: Yes--- So that Load Locker can be used.

27. Q: What is weight of load locker?

A: total 149 lbs (67.6 kg) but in sections.

28. Q: What is weight of each Load Locker component?

A: Base plate 48 lbs (21.78 kg)  
Ram 77 lbs (34.9 kg)  
Box 11 lbs (5.0 kg)  
Adapter setting bar 9 lbs (4.1 kg)  
Tapered jaw set 4 lbs (1.8 kg)

29. Q: What is Gad extractor used for?

A: To remove multiple installed drive tool sections.

30. Q: What is Drive Shank used for?

A: Fits in jackhammer and connects drive steel to the jackhammer.



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31. Q: What is life of Drive Steel tools?

A: Long term--Subject to maintenance.

32. Q: How is Load Locker calibrated?

A: Calibrated at factory. May be recalibration by local hydraulic cylinder supplier.

33. Q: What tooling is required?

A: Load locker. Required. Catalog number LL-1

Drive Steel Kit. Required. Catalog number SGC-14

Jack hammer. Option if not available. Catalog number HB90-14 Hydraulic Power Unit. Option if not available. Catalog number GPU18-8CE

34. Q: What do I do if driving the Manta Ray anchor is very slow to almost impossible in very tough soil?

A: Go to Installing Instructions for supplementary instructions for special soil conditions.

35. Q: I predrilled a hole but the Manta Ray anchor does not tip up and slides back up the hole

A: Go to Installing Instructions for supplementary instructions for special soil conditions.

36. Q: Why does the load locker register 4,000 lbs-force (1,814 kilogram-force) when there is obviously no load on the anchor and the valve needle is in the neutral position

A: This is a characteristic of the hydraulic valve on the load locker called trapped pressure. Hydraulic pressure is trapped on both sides of the cylinder piston and registers on the gauge. The gauge reads zero when the valve handle is pulled to retract the piston. This does not affect the load locking of the anchors if the proper procedure is followed. Go to Installing Instructions for more details and the proper load locking procedure.

37. Q: What if I want to hold a constant load for a period of time as a proof test?

A: Set the bypass valve on the load locker to the load. This permits the installer to shift the valve on the load locker wide open while the bypass valve limits the pull force to the bypass setting. Then the installer can monitor movement of the anchor without worrying about the load level. Go to Installing Instructions for supplementary instructions.

38. Q: Can a portable power source be used for the jackhammer?

A: Yes – Use GPU18-8CE portable hydraulic unit.

39. Q: Will drive tool fit on all jackhammers?

A: Yes. Standard drive kit for 1-1/4" x 6 inch (3.2 cm x 15.2 cm). Also available 1-1/8" x 6 inch (2.9 cm x 15.2 cm) shank for installing with other generally available hydraulic jack hammers.

40. Q: Is technical support available?

A: Yes. Contact MPS.

*Contact your local MPS supplier for assistance.*



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