

MANTA RAY®

HOLDING CAPACITY CHART

SOIL TYPE	COMMON SOIL TYPE DESCRIPTION	MR-3	MR-2	MR-1	MR-SR
ULTIMATE STRENGTH (KIPS)		16	36	36	36
1/2	Dense fine compacted sand: Very hard silts and clays	16 ▲ ★ ▲	21 - 28 ▲ ▲	36 ● ▲ ★	N/A ▲
2/3	Dense Clay, sands and gravel: Hard silts and clays	12 - 16 ▲	15 - 22 ▲ ▲	24 - 36 ▲ ▲	36 - 40 ▲ ▲
3/4	Medium dense sandy gravel: Very stiff to hard silts and clay	9 - 14 ▲	12 - 18 ▲	18 - 20 ▲	24 - 34 ▲ ▲
5/6	Medium dense coarse sand and sandy gravel: Stiff to very still silts and clays	7 - 9 ▲	9 - 12 ▲	15 - 20 ▲	18 - 24 ▲
6/7	Loose to medium Fense fine to coarse sand: Firm to stiff clay and silts	5 - 8 ▲	7 - 10 ▲	10 - 15 ▲	14 - 18 ▲
7/8	Loose fine sand: Alluvium Soft- firm clays: Varied clays, fill, fine saturated silty sand	3 - 5 ▲ ■	5 - 8 ▲ ■	8 - 12 ▲ ■	9 - 14 ▲ ■

Use this chart for estimation only. True capacity must be tested with anchor load locker.

KIP (1,000 LBS) CAPACITY CHART BASED ON STANDARD 7FT (2.1 M) UTILITY ANCHOR ROD DEPTH IN SOIL

- Drilled hole required to install.
- ▲ Installation may be difficult. Pilot holes may be required.
- ★ Holding capacity limited by structural rating of anchors.
- ▲ Holding capacity limited by soil failure.
- Not recommended in these soils.
- Wide Variation in soil properties reduces prediction accuracy. Pre-construction field.

MANTA RAY®

HOLDING CAPACITY CHART

SOIL TYPE	COMMON SOIL TYPE DESCRIPTION	MR-3	MR-2	MR-1	MR-SR
	ULTIMATE STRENGTH (KN)	71	71	160	160
1/2	Dense fine compacted sand: Very hard silts and clays	71 ▲ ★ ▲	93 - 125 ▲ ▲	160 ● ▲ ★	N/A ●
2/3	Dense Clay, sands and gravel: Hard silts and clays	53 - 71 ▲	67 - 98 ▲ ▲	107 - 160 ▲ ▲	142 - 160 ▲ ▲
3/4	Medium dense sandy gravel: Very stiff to hard silts and clay	40 - 62 ▲	53 - 80 ▲	80 - 89 ▲	107 - 151 ▲ ▲
5/6	Medium dense coarse sand and sandy gravel: Stiff to very still silts and clays	31 - 40 ▲	40 - 53 ▲	67 - 89 ▲	80 - 107 ▲
6/7	Loose to medium Fense fine to coarse sand: Firm to stiff clay and silts	22 - 36 ▲	31 - 44 ▲	44 - 67 ▲	62 - 80 ▲
7/8	Loose fine sand: Alluvium Soft- firm clays: Varied clays, fill, fine saturated silty sand	13 - 22 ▲ ■	22 - 36 ▲ ■	36 - 53 ▲ ■	40 - 62 ▲ ■

Use this chart for estimation only. True capacity must be tested with anchor load locker.

KN CAPACITY CHART BASED ON STANDARD 7FT (2.1 M) UTILITY ANCHOR ROD DEPTH IN SOIL

- Drilled hole required to install.
- ▲ Installation may be difficult. Pilot holes may be required.
- ★ Holding capacity limited by structural rating of anchors.
- ▲ Holding capacity limited by soil failure.
- Not recommended in these soils.
- Wide Variation in soil properties reduces prediction accuracy. Pre-construction field.