



INTECH[®]
ANCHORING
SYSTEMS

MAGNACORE PRODUCT CATALOG

SIMULTANEOUS DRILLING & GROUTING

Magnacore's Self-Drilling Anchor (SDA) is a hollow bar system that consists of fully threaded steel bar sections, couplers, nuts, and drill bits. The hollow centers of the bars enable this system to simultaneously drill and grout.

The hollow bar serves as a drill rod with a sacrificial bit that is threaded onto the end and is left in place following drilling. The bar is continuously threaded so it can be cut and coupled together anywhere along its length.

During drilling, cement grout is injected into the hollow core of the bar using a grout plant that is connected to the drill rig (see our Magnacore Equipment brochure). The cement grout exits through grout ports in the sacrificial bit, serving as a stabilizer and efficiently flushing the spoils from the borehole. This prevents looser surrounding material from collapsing due to the higher relative density of the grout.

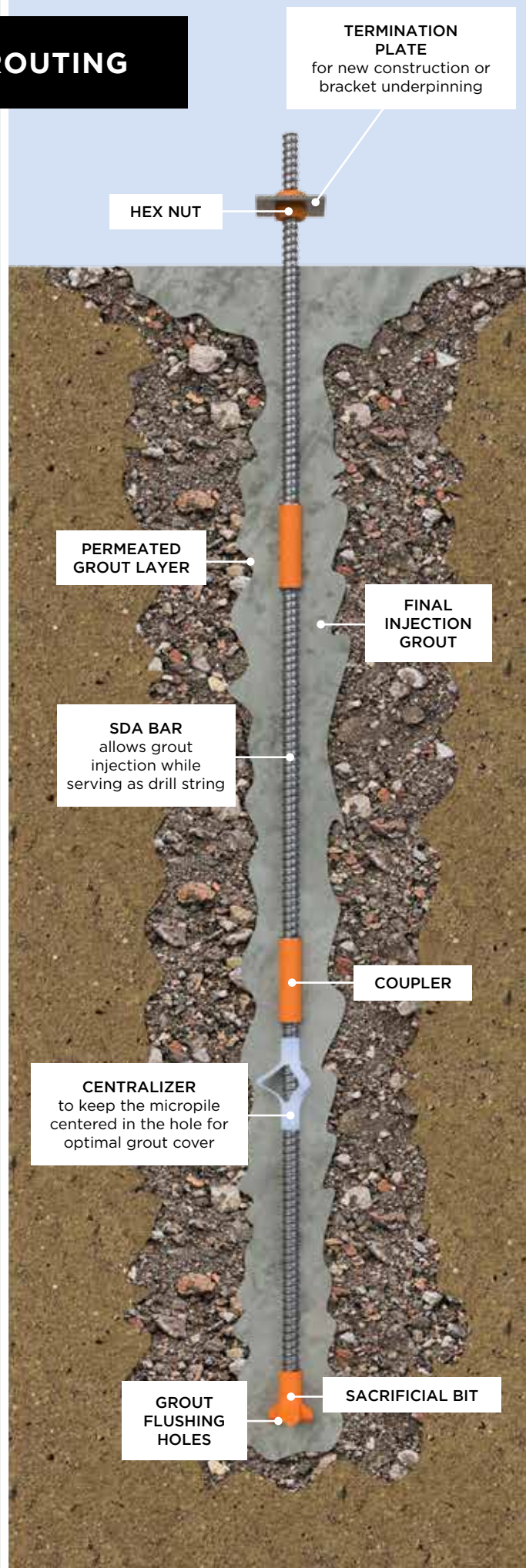
The Magnacore Self-Drilling Anchor is ideal for loose or collapsible soils. The unique, all-in-one installation process gets the job done, while saving time and money.

KEY FEATURES

- Anchor bar simultaneously serves as a drill rod
- Eliminates the need for borehole drilling
- Concurrent drilling and grouting speeds installation
- Can be installed in confined spaces
- Effective in various ground conditions with the use of soil-specific drill bits
- Can be used as a soil nail, tieback anchor, or micropile
- Hot dipped galvanized material available for corrosive protection

APPLICATIONS

- Slope, embankment, and rock stabilization
- Shoring and excavations
- Foundation underpinning
- Soil retention



SPECIFICATIONS

The Magnacore Self-Drilling Anchor (SDA) is a deep foundation element for virtually any soil or rock profile, but are particularly useful in ones that are collapsible.

It is formed in a single, top-down operation by the injection of a high-pressure, neat cement grout mixture, which is pumped through the bar and serves as the drill string. The neat grout mix exits through grout ports at the end of the sacrificial bit and permeates into the looser adjacent soils. This mix and permeation are what forms the competent reinforced grout column.

Bar Type	Outer Diameter	Inner Diameter	Area	Ultimate Load (P_u)	Yield Load (P_y)	Ultimate Stress (F_u)	Yield Stress (F_y)	Weight
MCR32/15	1.26 in (32 mm)	0.59 in (15 mm)	0.79 in ² (510 mm ²)	81 kips (360 kN)	63 kips (280 kN)	102 ksi (706 MPa)	80 ksi (549 MPa)	2.69 lbs/ft (4.00 kg/m)
MCR38/18	1.50 in (38 mm)	0.71 in (18 mm)	1.17 in ² (752 mm ²)	124 kips (550 kN)	101 kips (450 kN)	106 ksi (731 MPa)	87 ksi (598 MPa)	3.96 lbs/ft (5.90 kg/m)
MCR51/29	2.01 in (51 mm)	1.14 in (29 mm)	1.78 in ² (1146 mm ²)	180 kips (800 kN)	142 kips (630 kN)	101 ksi (698 MPa)	80 ksi (550 MPa)	6.05 lbs/ft (9.00 kg/m)
MCT40/20	1.57 in (40 mm)	0.79 in (20 mm)	1.22 in ² (790 mm ²)	121 kips (539 kN)	97 kips (430 kN)	99 ksi (682 MPa)	79 ksi (544 MPa)	4.17 lbs/ft (6.20 kg/m)
MCT40/16	1.57 in (40 mm)	0.63 in (16 mm)	1.42 in ² (917 mm ²)	148 kips (660 kN)	118 kips (525 kN)	104 ksi (720 MPa)	83 ksi (573 MPa)	4.84 lbs/ft (7.20 kg/m)
MCT52/26	2.05 in (52 mm)	1.02 in (26 mm)	1.92 in ² (1236 mm ²)	209 kips (929 kN)	164 kips (730 kN)	109 ksi (752 MPa)	86 ksi (591 MPa)	6.52 lbs/ft (9.70 kg/m)
MCT76/45	2.99 in (76 mm)	1.77 in (45 mm)	3.89 in ² (2510 mm ²)	427 kips (1900 kN)	337 kips (1500 kN)	110 ksi (757 MPa)	87 ksi (598 MPa)	13.24 lbs/ft (19.70 kg/m)

R Thread (Round)

MCR_

Outer diameter



Inner diameter



T Thread (Trapezoidal)

MCT_

Outer diameter



Inner diameter



Our standard stock length of bar are 4.92 ft (1.5 m) and 9.84 ft (3 m). The standard bar is non-galvanized. Galvanized bars can be ordered custom. Magnacore is available in both “R” (Round) and “T” (Trapezoidal) thread.

Other accessories such as centralizers, plates, beveled washers, and sleeved bars are available on request. Special orders can be placed for custom bar lengths, sizes, and bit sizes.

As every project is unique and presents its own challenges, our in-house engineering staff is available to assist with design, load testing, and installation support.





HOLLOW BAR

Part No.	Outer Diameter	Inner Diameter	Area	Ultimate Load (P_u)	Yield Load (P_y)	Ultimate Stress (F_u)	Yield Stress (F_y)	Weight
MCR32/15	1.26 in (32 mm)	0.59 in (15 mm)	0.79 in ² (510 mm ²)	81 kips (360 kN)	63 kips (280 kN)	102 ksi (706 MPa)	80 ksi (549 MPa)	2.69 lbs/ft (4.00 kg/m)

COUPLER

Part No.	Outer Diameter	Length	Weight	Notes
MCR32COUPLER	1.65 in (42 mm)	6.30 in (160 mm)	1.90 lbs (0.86 kg)	With sealing ring
MCR32COUPLER-G	1.65 in (42 mm)	7.48 in (190 mm)	2.20 lbs (1.00 kg)	Galvanized with sealing ring



HEX NUT

Part No.	Key Size	Length	Weight	Notes
MCR32HEXNUT	1.81 in (46 mm)	1.77 in (45 mm)	0.82 lbs (0.37 kg)	
MCR32HEXNUT-G	1.81 in (46 mm)	2.17 in (55 mm)	0.95 lbs (0.43 kg)	Galvanized



DRILL BIT

Part No.	Bit Diameter	Notes
MCR32-64EXX	2.52 in (64 mm)	Carbide Cross Cut Bit for softer sedimentary rocks such as marls, mudstones, siltstone
MCR32-76EXX	2.99 in (76 mm)	
MCR32-90EXX	3.54 in (90 mm)	
MCR32-100EXX	3.94 in (100 mm)	
MCR32-76ESS	2.99 in (76 mm)	Carbide Button Bit for sand, fills, gravel, strong rock
MCR32-100CLAY	3.94 in (100 mm)	Clay Bit for clay, soft soil, marls, loose sand, or gravel
MCR32-110CLAY	4.33 in (110 mm)	
MCR32-76EYY	2.99 in (76 mm)	Carbide Tri-Blade for competent ground, strong rock
MCR32-76EY	2.99 in (76 mm)	Tri-Blade for chalk, gravel



DRILL BIT ADAPTER

Part No.	Length	Weight	Notes
MCR32/R38DBA	1.97 in (50 mm)	0.29 lbs (0.13 kg)	R32 to R38



Special orders can be placed for custom bar lengths, sizes, and bit sizes.



HOLLOW BAR

Part No.	Outer Diameter	Inner Diameter	Area	Ultimate Load (P_u)	Yield Load (P_y)	Ultimate Stress (F_u)	Yield Stress (F_y)	Weight
MCR38/18	1.50 in (38 mm)	0.71 in (18 mm)	1.17 in ² (752 mm ²)	124 kips (550 kN)	101 kips (450 kN)	106 ksi (731 MPa)	87 ksi (598 MPa)	3.96 lbs/ft (5.90 kg/m)

COUPLER

Part No.	Outer Diameter	Length	Weight	Notes
MCR38COUPLER	2.01 in (51 mm)	7.87 in (200 mm)	3.31 lbs (1.50 kg)	With sealing ring
MCR38COUPLER-G	2.01 in (51 mm)	7.87 in (200 mm)	3.31 lbs (1.50 kg)	Galvanized with sealing ring



HEX NUT

Part No.	Key Size	Length	Weight	Notes
MCR38HEXNUT	1.97 in (50 mm)	2.36 in (60 mm)	1.04 lbs (0.47 kg)	
MCR38HEXNUT-G	1.97 in (50 mm)	3.15 in (80 mm)	1.41 lbs (0.64 kg)	Galvanized



DRILL BIT

Part No.	Bit Diameter	Notes
MCR38-90EXX	3.54 in (90 mm)	Carbide Cross Cut Bit for softer sedimentary rocks such as marls, mudstones, siltstone
MCR38-100EXX	3.94 in (100 mm)	
MCR38-115EXX	4.53 in (115 mm)	
MCR38-150EXX	5.91 in (150 mm)	
MCR38-64ESS	2.52 in (64 mm)	Carbide Button Bit for sand, fills, gravel, strong rock
MCR38-90ESS	3.54 in (90 mm)	
MCR38-100ESS	3.94 in (100 mm)	
MCR38-115ESS	4.53 in (115 mm)	
MCR38-90CLAY	3.54 in (90 mm)	Clay Bit for clay, soft soil, marls, loose sand, or gravel
MCR38-100CLAY	3.94 in (100 mm)	
MCR38-115CLAY	4.53 in (115 mm)	
MCR38-130CLAY	5.12 in (130 mm)	
MCR38-150CLAY	5.91 in (150 mm)	



DRILL BIT ADAPTER

Part No.	Length	Weight	Notes
MCR38/T52DBA	2.68 in (68 mm)	0.86 lbs (0.39 kg)	R38 to T52
MCR38/R51DBA	2.68 in (68 mm)	0.93 lbs (0.42 kg)	R38 to R51



Special orders can be placed for custom bar lengths, sizes, and bit sizes.



HOLLOW BAR

Part No.	Outer Diameter	Inner Diameter	Area	Ultimate Load (P _u)	Yield Load (P _y)	Ultimate Stress (F _u)	Yield Stress (F _y)	Weight
MCR51/29	2.01 in (51 mm)	1.14 in (29 mm)	1.78 in ² (1146 mm ²)	180 kips (800 kN)	142 kips (630 kN)	101 ksi (698 MPa)	80 ksi (550 MPa)	6.05 lbs/ft (9.00 kg/m)

COUPLER

Part No.	Outer Diameter	Length	Weight	Notes
MCR51COUPLER	2.48 in (63 mm)	7.87 in (200 mm)	4.08 lbs (1.85 kg)	With sealing ring
MCR51COUPLER-G	2.76 in (70 mm)	7.87 in (200 mm)	6.33 lbs (2.87 kg)	Galvanized with sealing ring



HEX NUT

Part No.	Key Size	Length	Weight	Notes
MCR51HEXNUT	2.95 in (75 mm)	3.15 in (80 mm)	4.06 lbs (1.84 kg)	
MCR51HEXNUT-G	2.95 in (75 mm)	3.15 in (80 mm)	3.88 lbs (1.76 kg)	Galvanized



DRILL BIT

Part No.	Bit Diameter	Notes
MCR51-76EXX	2.99 in (76 mm)	Carbide Cross Cut Bit for softer sedimentary rocks such as marls, mudstones, siltstone
MCR51-100EXX	3.94 in (100 mm)	
MCR51-115EXX	4.53 in (115 mm)	
MCR51-130EXX	5.12 in (130 mm)	
MCR51-150EXX	5.91 in (150 mm)	
MCR51-200EXX	7.87 in (200 mm)	Carbide Button Bit for sand, fills, gravel, strong rock
MCR51-76ESS	2.99 in (76 mm)	
MCR51-100ESS	3.94 in (100 mm)	
MCR51-115ESS	4.53 in (115 mm)	
MCR51-130ESS	5.12 in (130 mm)	
MCR51-150ESS	5.91 in (150 mm)	Clay Bit for clay, soft soil, marls, loose sand, or gravel
MCR51-130CLAY	5.12 in (130 mm)	
MCR51-150CLAY	5.91 in (150 mm)	
MCR51-175CLAY	6.89 in (175 mm)	
MCR51-200CLAY	7.87 in (200 mm)	



DRILL BIT ADAPTER

Part No.	Length	Weight	Notes
MCR51/T76DBA	2.34 in (1.06 mm)	1.06 lbs (0.48 kg)	R51 to T76



Special orders can be placed for custom bar lengths, sizes, and bit sizes.



HOLLOW BAR

Part No.	Outer Diameter	Inner Diameter	Area	Ultimate Load (P_u)	Yield Load (P_y)	Ultimate Stress (F_u)	Yield Stress (F_y)	Weight
MCT40/20	1.57 in (40 mm)	0.79 in (20 mm)	1.22 in ² (790 mm ²)	121 kips (539 kN)	97 kips (430 kN)	99 ksi (682 MPa)	79 ksi (544 MPa)	4.17 lbs/ft (6.20 kg/m)
MCT40/16	1.57 in (40 mm)	0.63 in (16 mm)	1.42 in ² (917 mm ²)	148 kips (660 kN)	118 kips (525 kN)	104 ksi (720 MPa)	83 ksi (573 MPa)	4.84 lbs/ft (7.20 kg/m)

COUPLER

Part No.	Outer Diameter	Length	Weight	Notes
MCT40COUPLER	2.13 in (54 mm)	5.51 in (140 mm)	2.49 lbs (1.13 kg)	With sealing ring
MCT40COUPLER-G	2.13 in (54 mm)	5.51 in (140 mm)	2.51 lbs (1.14 kg)	Galvanized with sealing ring



SPHERICAL NUT

Part No.	Key Size	Length	Weight	Notes
MCT40SCNUT	2.56 in (65 mm)	1.97 in (50 mm)	2.12 lbs (0.96 kg)	
MCT40SCNUT-G	2.56 in (65 mm)	1.97 in (50 mm)	2.09 lbs (0.95 kg)	Galvanized



DRILL BIT

Part No.	Bit Diameter	Notes
MCT40-90EXX	3.54 in (90 mm)	Carbide Cross Cut Bit for softer sedimentary rocks such as marls, mudstones, siltstone
MCT40-100EXX	3.94 in (100 mm)	
MCT40-115EXX	4.53 in (115 mm)	
MCT40-150EXX	5.91 in (150 mm)	
MCT40-90ESS	3.54 in (90 mm)	Carbide Button Bit for sand, fills, gravel, strong rock
MCT40-100ESS	3.94 in (100 mm)	
MCT40-115ESS	4.53 in (115 mm)	
MCT40-100CLAY	3.94 in (100 mm)	Clay Bit for clay, soft soil, marls, loose sand, or gravel
MCT40-130CLAY	5.12 in (130 mm)	
MCT40-150CLAY	5.91 in (150 mm)	



DRILL BIT ADAPTER

Part No.	Length	Weight	Notes
MCT40/R51DBA	2.68 in (68 mm)	0.75 lbs (0.34 kg)	T40 to R51
MCT40/T52DBA	2.68 in (68 mm)	0.66 lbs (0.30 kg)	T40 to T52



Special orders can be placed for custom bar lengths, sizes, and bit sizes.



HOLLOW BAR

Part No.	Outer Diameter	Inner Diameter	Area	Ultimate Load (P _u)	Yield Load (P _y)	Ultimate Stress (F _u)	Yield Stress (F _y)	Weight
MCT52/26	2.05 in (52 mm)	1.02 in (26 mm)	1.92 in ² (1236 mm ²)	209 kips (929 kN)	164 kips (730 kN)	109 ksi (752 MPa)	86 ksi (591 MPa)	6.52 lbs/ft (9.70 kg/m)

COUPLER

Part No.	Outer Diameter	Length	Weight	Notes
MCT52COUPLER	2.76 in (70 mm)	6.30 in (160 mm)	5.20 lbs (2.36 kg)	With sealing ring
MCT52COUPLER-G	2.76 in (70 mm)	6.30 in (160 mm)	5.31 lbs (2.41 kg)	Galvanized with sealing ring



SPHERICAL NUT

Part No.	Key Size	Length	Weight	Notes
MCT52SCNUT	3.15 in (80 mm)	2.76 in (70 mm)	5.07 lbs (2.30 kg)	
MCT52SCNUT-G	3.15 in (80 mm)	2.76 in (70 mm)	5.07 lbs (2.30 kg)	Galvanized



DRILL BIT

Part No.	Bit Diameter	Notes
MCT52-115EXX	4.53 in (115 mm)	Carbide Cross Cut Bit for softer sedimentary rocks such as marls, mudstones, siltstone
MCT52-130EXX	5.12 in (130 mm)	
MCT52-150EXX	5.91 in (150 mm)	
MCT52-200EXX	7.87 in (200 mm)	Carbide Button Bit for sand, fills, gravel, strong rock
MCT52-115ESS	4.53 in (115 mm)	
MCT52-130ESS	5.12 in (130 mm)	
MCT52-130CLAY	5.12 in (130 mm)	Clay Bit for clay, soft soil, marls, loose sand, or gravel
MCT52-150CLAY	5.91 in (150 mm)	
MCT52-175CLAY	6.89 in (175 mm)	
MCT52-200CLAY	7.87 in (200 mm)	



DRILL BIT ADAPTER

Part No.	Length	Weight	Notes
MCT52/T76DBA	2.56 in (65 mm)	2.36 lbs (1.07 kg)	T52 to T76



Special orders can be placed for custom bar lengths, sizes, and bit sizes.



HOLLOW BAR

Part No.	Outer Diameter	Inner Diameter	Area	Ultimate Load (P_u)	Yield Load (P_y)	Ultimate Stress (F_u)	Yield Stress (F_y)	Weight
MCT76/45	2.99 in (76 mm)	1.77 in (45 mm)	3.89 in ² (2510 mm ²)	427 kips (1900 kN)	337 kips (1500 kN)	110 ksi (757 MPa)	87 ksi (598 MPa)	13.24 lbs/ft (19.70 kg/m)

COUPLER

Part No.	Outer Diameter	Length	Weight	Notes
MCT76COUPLER	3.74 in (95 mm)	8.66 in (220 mm)	10.58 lbs (4.80 kg)	With sealing ring
MCT76COUPLER-G	3.74 in (95 mm)	8.66 in (220 mm)	10.58 lbs (4.80 kg)	Galvanized with sealing ring



HEX NUT

Part No.	Key Size	Length	Weight	Notes
MCT76HEXNUT	3.94 in (100 mm)	3.15 in (80 mm)	5.89 lbs (2.67 kg)	
MCT76HEXNUT-G	3.94 in (100 mm)	3.15 in (80 mm)	6.08 lbs (2.76 kg)	Galvanized



DRILL BIT

Part No.	Bit Diameter	Notes
MCT76-130EXX	5.12 in (130 mm)	Carbide Cross Cut Bit for softer sedimentary rocks such as marls, mudstones, siltstone
MCT76-150EXX	5.91 in (150 mm)	
MCT76-175EXX	6.89 in (175 mm)	
MCT76-200EXX	7.87 in (200 mm)	Carbide Button Bit for sand, fills, gravel, strong rock
MCT76-130ESS	5.12 in (130 mm)	
MCT76-150ESS	5.91 in (150 mm)	
MCT76-175ESS	6.89 in (175 mm)	
MCT76-200ESS	7.87 in (200 mm)	Clay Bit for clay, soft soil, marls, loose sand, or gravel
MCT76-150CLAY	5.91 in (150 mm)	
MCT76-175CLAY	6.89 in (175 mm)	
MCT76-200CLAY	7.87 in (200 mm)	



Special orders can be placed for custom bar lengths, sizes, and bit sizes.



Accessories

Accessory	Notes
Sleeved Pipe	Available in PVC and HDPE for all bar sizes. Used to create a bond break in the active zone of the pile.
Centralizer	Available in PVC and used to center the bar assembly in the drill hole.
Bearing Plate	Customized for each application.
Bevel Washer	Assists with terminating angled tiebacks.

Note: Slurry additives for drilling fluids as well as other consumable supplies are available.

Special orders can be placed for custom bar lengths, sizes, and bit sizes.



WE'RE HERE TO HELP!

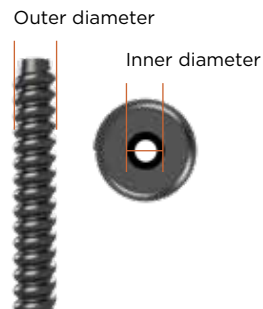
Take advantage of our professional engineers and expert team who offer valuable insights, recommendations, and technical expertise at every stage. Contact us today!



Bar Type	Outer Diameter	Inner Diameter	Recommended Maximum Bit Diameter ⁴			Maximum Compression Load ^{1,2}			Maximum Tension Load ^{1,3}
			Clay	Cross Cut	Button	Clay	Cross	Button	
MCR32/15	1.26 in (32 mm)	0.59 in (15 mm)	4.53 in (115 mm)	3.94 in (100 mm)	3.94 in (100 mm)	53 kips (235 kN)	46 kips (204 kN)	46 kips (235 kN)	27 kips (120 kN)
MCR38/18	1.50 in (38 mm)	0.71 in (18 mm)	5.91 in (150 mm)	5.91 in (150 mm)	5.12 in (130 mm)	85 kips (378 kN)	85 kips (378 kN)	73 kips (324 kN)	40 kips (177 kN)
MCR51/29	2.01 in (51 mm)	1.14 in (29 mm)	7.87 in (200 mm)	6.89 in (175 mm)	5.91 in (150 mm)	136 kips (604 kN)	117 kips (520 kN)	100 kips (444 kN)	56 kips (249 kN)
MCT40/20	1.57 in (40 mm)	0.79 in (20 mm)	5.91 in (150mm)	5.91 in (150mm)	5.12 in (130mm)	83 kips (369 kN)	83 kips (369 kN)	71 kips (315 kN)	38 kips (169 kN)
MCT40/16	1.57 in (40 mm)	0.63 in (16 mm)	7.87 in (200 mm)	5.91 in (150 mm)	5.12 in (130 mm)	127 kips (564 kN)	91 kips (404 kN)	79 kips (351 kN)	47 kips (209 kN)
MCT52/26	2.05 in (52 mm)	1.02 in (26 mm)	7.87 in (200 mm)	6.89 in (175 mm)	5.91 in (150mm)	145 kips (644 kN)	125 kips (556 kN)	109 kips (484 kN)	65 kips (289 kN)
MCT76/45	2.99 in (76 mm)	1.77 in (45 mm)	7.87 in (200 mm)	7.87 in (200 mm)	7.87 in (200 mm)	211 kips (938 kN)	211 kips (938 kN)	211 kips (938 kN)	135 kips (600 kN)

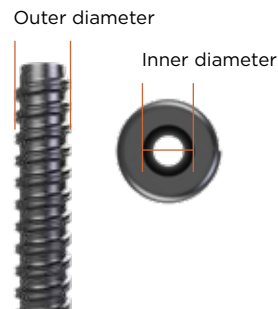
R Thread (Round)

MCR_

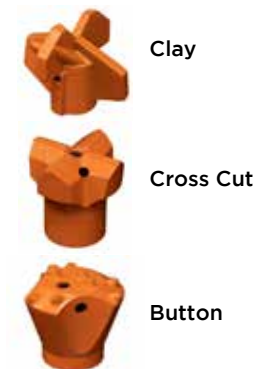


T Thread (Trapezoidal)

MCT_



Drill Bits



1. The presented loads are design loads and serve as an approximation of the strength of the materials. These estimates are based solely on the products currently supplied by Intech and should not be extrapolated to other suppliers' materials. It is essential to consider maximum test loads and appropriate material strength reductions when determining the full structural capacity design. This table should not be used in place of a complete structural design, which should be assessed by a Professional Engineer. A comprehensive structural design, compliant with the prescribed design methodology, such as FHWA, PTI, IBC, AASHTO, and/or the methodology specified for the project, should be conducted per project and element. Moreover, it should be noted that the loads are established using a minimum f'_c of 5,000 psi for the grout.
2. The presented loads are established using a Test Load Factor of Safety (FOS) of $2.0 \times DL$ and a maximum grout column diameter determined by the bit diameters specified in the last three columns. Opting for lower acceptable Test Load Factors of Safety may require a reduced material section to attain the same strength. It is important to note that the actual structural capacity will depend on the Magnacore steel bars, any steel casing, and the grout column diameter utilized, as per a complete design methodology.
3. The loads presented here are established using a Test Load FOS of $2.0 \times DL$. It should be noted that opting for a lower Test Load Factor of Safety may necessitate a reduced material section to achieve the same level of strength. The steel section and methodology selected for design will govern the final outcome and are not influenced by the bit size or grout column diameter.
4. The presented bit diameters reflect Intech Anchoring Systems recommended maximums for each type of bar carried, based on typical industry practice and material stock. In cases where a larger bit diameter is desirable for a specific bar size, Intech can provide a larger bit size than those depicted here. It should be noted that the recommended maximums may vary depending on the hardness of the material being drilled. Softer materials may allow for larger bit diameters, while denser or harder materials may require a smaller bit diameter for effective penetration. The transfer of energy through the drill string from the top of the hole is crucial to the drilling process and may influence the selection of bit or material size.

INTECH[®]
ANCHORING
SYSTEMS

MAGNACORE[®]
SELF-DRILLING
ANCHORS