

Ultra-Drop™ Drop-In Anchors



Description

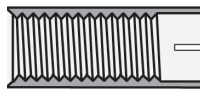
The Ultra-Drop™ Drop-in Anchor is an **internally threaded**, flush mount, expansion anchor designed for use in solid concrete, stone, and solid block based materials. The Ultra-Drop features a **knurled body** that increases friction between the anchor body and the internal walls of the hole.

Options include a standard, coil thread, lipped and mini. The standard drop-in anchors are also available in 304ss and 316ss.

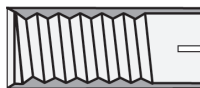
Key Features & Benefits

- ▶ **Easy to install** using a hammer (or mallet) and a setting tool
- ▶ **Internally threaded** anchor allows easy bolt removability and service work
- ▶ **Two-piece anchor** comprised of internally threaded anchor body and an expansion cone insert
 - Case hardened expansion cone insert prevents galling and binding during expansion
- ▶ **Tapered bottom lip** provides maximum depth and holding power
- ▶ Anchor design offers **consistent holding power** in shallow embedment
- ▶ **Eliminates requirement for rod couplings** in overhead applications
- ▶ **Internal thread*** accepts UNC bolts or threaded bolts
 - Coil thread style accepts standard coil thread rod or coil thread bolts
- ▶ Available in a variety of materials:
 - Zinc-plated carbon steel
 - 304 stainless steel
 - 316 stainless steel

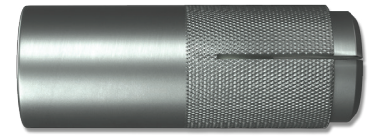
Internal Threads*



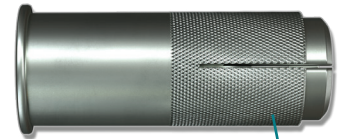
Standard, Lipped and Mini Anchors accept UNC standard thread



Coil Thread Anchors accept standard coil thread



Standard and Coil Thread



Lipped



Mini



Specifications, Listings and Approvals

Materials:

Carbon steel with zinc plating
– ASTM B633 Type III, SC1 (clear chromate added)

Type 304 and Type 316 stainless steel

Internal Thread*:

UNC coarse thread or standard coil thread

– 1/4" - 3/4" UNC Coarse Thread

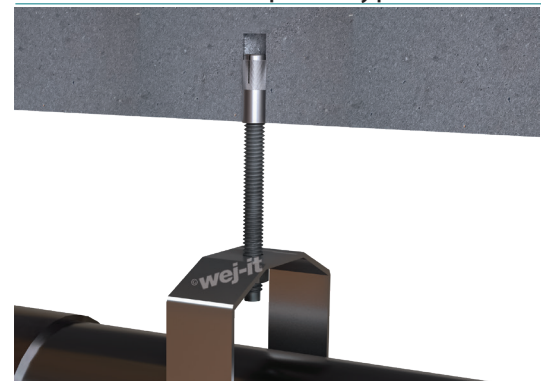
– 1/2" & 3/4" Coil Thread

Federal Specifications:

GSA FFS-325, Group VIII, Type I

Applications

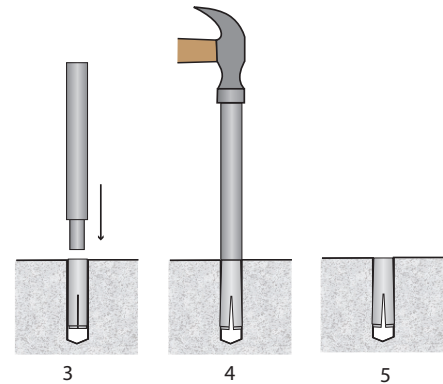
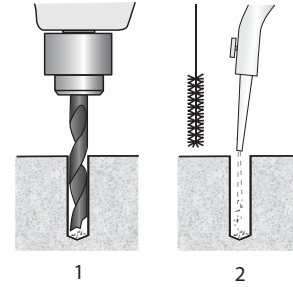
- ▶ Conduit Suspension
- ▶ Cable Trays & Strut
- ▶ Pipe Supports
- ▶ Fire Sprinklers
- ▶ Utilities
- ▶ Suspended Lighting



Installation Information

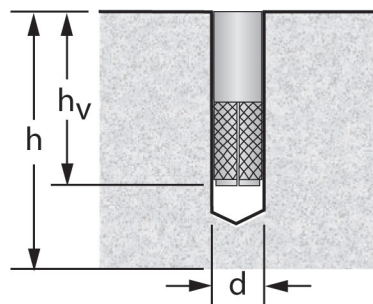
Instructions

1. Drill the hole perpendicular to the work surface at the required embedment depth. To assure full holding power, do not ream the hole or allow the drill to wobble.
2. Clean the hole using compressed air and a nylon brush.
3. Place the anchor into the hole. Make sure that the top of the anchor is flush with, or below, the level of the work surface.
4. Insert the setting tool into the threaded end of the anchor and expand the anchor by striking the end of the setting tool with a hammer. The anchor is set (fully expanded) when the shoulder of the setting tool touches the anchor. **Full expansion is necessary for proper anchor performance.**
5. The anchor is now ready to accept threaded hardware.



NOTE: Always wear safety glasses. Follow the drill manufacturer's safety instructions. Use only solid carbide-tipped drill bits meeting ANSI B212.15 diameter standards.

Length Selection



h_v : Minimum embedment depth
 h : Base material thickness
 d : Anchor diameter
 Note: Anchor diameter = drill bit diameter

Installation Data

Standard, Lipped and Coil Thread

| Anchor Dia. (in.) | Thread Size (UNC) | Thread Depth (in.) | Anchor Length/ Minimum Embed. Depth (in.) | Drill Bit Dia. (in.) | Install. Torque Approx. (ft-lb.) | Critical Edge Dist. (in.) | Min. Edge Dist. (in.) | Critical Spacing (in.) | Min. Spacing (in.) |
|-------------------|-------------------|--------------------|---|----------------------|----------------------------------|---------------------------|-----------------------|------------------------|--------------------|
| 1/4 | 1/4-20 | 7/16 | 1 | 3/8 | 5 | 3-1/2 | 1-3/4 | 3 | 1-1/2 |
| 3/8 | 3/8-16 | 3/4 | 1-9/16 | 1/2 | 10 | 5-1/4 | 2-5/8 | 4-1/2 | 2-1/4 |
| 1/2 | 1/2-13 | 13/16 | 2 | 5/8 | 20 | 7 | 3-1/2 | 6 | 3 |
| 1/2 Coil Thread | 1/2-6 | 13/16 | 2 | 5/8 | 20 | 7 | 3-1/2 | 6 | 3 |
| 5/8 | 5/8-11 | 1-7/16 | 2-1/2 | 7/8 | 40 | 8-3/4 | 4-3/8 | 7-1/2 | 3-3/4 |
| 3/4 | 3/4-10 | 1-3/8 | 3-1/4 | 1 | 80 | 10-1/2 | 5-1/4 | 9 | 4-1/2 |
| 3/4 Coil Thread | 3/4-4-1/2 | 1-3/8 | 3-1/4 | 1 | 80 | 10-1/2 | 5-1/4 | 9 | 4-1/2 |

Mini

| Anchor Dia. (in.) | Thread Size (UNC) | Thread Depth (in.) | Anchor Length/ Minimum Embed. Depth (in.) | Drill Bit Dia. (in.) | Install. Torque Approx. (ft-lb.) | Critical Edge Dist. (in.) | Min. Edge Dist. (in.) | Critical Spacing (in.) | Min. Spacing (in.) |
|-------------------|-------------------|--------------------|---|----------------------|----------------------------------|---------------------------|-----------------------|------------------------|--------------------|
| 1/4 | 1/4-20 | 3/8 | 5/8 | 3/8 | 3 | 3 | 1-1/2 | 1-7/8 | 15/16 |
| 3/8 | 3/8-16 | 7/16 | 3/4 | 1/2 | 5 | 4-1/2 | 2-1/4 | 2-1/4 | 1-1/8 |
| 1/2 | 1/2-13 | 5/8 | 1 | 5/8 | 10 | 6 | 3 | 3 | 1-1/2 |

Performance Data – Standard/Lipped/Coil Thread Anchors

Ultimate and Allowable Loads (lbs.) – Normal-Weight Concrete

| Anchor Dia. (in.) | Min. Embed. Depth (in.) | Allowable | | | | | | Ultimate | | | | | |
|-------------------|-------------------------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|
| | | 2,000 psi | | 4,000 psi | | 6,000 psi | | 2,000 psi | | 4,000 psi | | 6,000 psi | |
| | | Tension | Shear | Tension | Shear | Tension | Shear | Tension | Shear | Tension | Shear | Tension | Shear |
| 1/4 | 1 | 378 | 458 | 510 | 495 | 528 | 533 | 1510 | 1830 | 2040 | 1980 | 2110 | 2130 |
| 3/8 | 1-1/2 | 650 | 1095 | 1048 | 1148 | 1258 | 1178 | 2600 | 4380 | 4190 | 4590 | 5030 | 4710 |
| 1/2 | 2 | 1188 | 1560 | 1460 | 1603 | 1790 | 1655 | 4750 | 6240 | 5840 | 6410 | 7160 | 6620 |
| 5/8 | 2-1/2 | 1348 | 2520 | 2100 | 3010 | 2768 | 3245 | 5390 | 10080 | 8400 | 12040 | 11070 | 12980 |
| 3/4 | 3-1/4 | 2275 | 3670 | 2588 | 3868 | 3125 | 4085 | 9100 | 14680 | 10350 | 15470 | 12500 | 16340 |

*Allowable load capacities are calculated using an applied safety factor of 4:1

Ultimate and Allowable Loads (lbs.) – Structural Lightweight Concrete

| Anchor Dia. (in.) | Min. Embed. Depth (in.) | Allowable | | | | | | Ultimate | | | | | |
|-------------------|-------------------------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|
| | | 2,000 psi | | 4,000 psi | | 6,000 psi | | 2,000 psi | | 4,000 psi | | 6,000 psi | |
| | | Tension | Shear | Tension | Shear | Tension | Shear | Tension | Shear | Tension | Shear | Tension | Shear |
| 1/4 | 1 | 278 | 458 | 418 | 495 | 463 | 533 | 1110 | 1830 | 1670 | 1980 | 1850 | 2130 |
| 3/8 | 1-1/2 | 748 | 1095 | 973 | 1148 | 1160 | 1178 | 2990 | 4380 | 3890 | 4590 | 4640 | 4710 |
| 1/2 | 2 | 1163 | 1560 | 1243 | 1603 | 1485 | 1655 | 4650 | 6240 | 4970 | 6410 | 5940 | 6620 |
| 5/8 | 2-1/2 | 1495 | 2520 | 2030 | 3010 | 2195 | 3245 | 5980 | 10080 | 8120 | 12040 | 8780 | 12980 |
| 3/4 | 3-1/4 | 2350 | 3670 | 2883 | 3868 | 3240 | 4085 | 9400 | 14680 | 11530 | 15470 | 12960 | 16340 |

*Allowable load capacities are calculated using an applied safety factor of 4:1

Load Adjustment Factors

| Spacing in Normal-Weight and Lightweight Concrete (Tension and Shear) | | | | | | |
|---|-------|-------|------|-------|-------|------|
| Anchor Dia. | 1/4 | 3/8 | 1/2 | 5/8 | 3/4 | |
| Embedment h_v | 1 | 1-1/2 | 2 | 2-1/2 | 3-1/4 | |
| Critical Spacing S_{cr} | 3 | 4-1/2 | 6 | 7-1/2 | 9-3/4 | |
| Min. Spacing S_{min} | 1-1/2 | 2-1/4 | 3 | 3-3/4 | 4-7/8 | |
| Actual Spacing S_{act} | 1-1/2 | 0.50 | - | - | - | - |
| | 2-1/4 | 0.75 | 0.50 | - | - | - |
| | 3 | 1.00 | 0.67 | 0.50 | - | - |
| | 3-3/4 | - | 0.83 | 0.63 | 0.50 | - |
| | 4-1/2 | - | 1.00 | 0.75 | 0.60 | - |
| | 4-7/8 | - | - | 0.81 | 0.65 | 0.50 |
| | 6 | - | - | 1.00 | 0.80 | 0.62 |
| | 7-1/2 | - | - | - | 1.00 | 0.77 |
| | 9-3/4 | - | - | - | - | 1.00 |

For tension and shear anchor loads, the critical spacing (S_{cr}) is equal to 3 embedment depths at which the anchor achieves 100% of load. Minimum spacing (S_{min}) is equal to 1.5 embedment depths at which the anchor achieves 50% of load.

| Edge in Lightweight Concrete (Tension) | | | | | | |
|--|--------|-------|-------|-------|--------|------|
| Anchor Dia. | 1/4 | 3/8 | 1/2 | 5/8 | 3/4 | |
| Critical Edge Dist. C_{cr} | 3-1/2 | 5-1/4 | 7 | 8-3/4 | 10-1/2 | |
| Min. Edge Dist. C_{min} | 1-3/4 | 2-5/8 | 3-1/2 | 4-3/8 | 5-1/4 | |
| Actual Edge Dist. C_{act} | 1-3/4 | 0.80 | - | - | - | - |
| | 2 | 0.83 | - | - | - | - |
| | 2-5/8 | 0.90 | 0.80 | - | - | - |
| | 3-1/2 | 1.00 | 0.87 | 0.80 | - | - |
| | 4-3/8 | - | 0.93 | 0.85 | 0.80 | - |
| | 5-1/4 | - | 1.00 | 0.90 | 0.84 | 0.80 |
| | 7 | - | - | 1.00 | 0.92 | 0.87 |
| | 8-3/4 | - | - | - | 1.00 | 0.93 |
| | 10-1/2 | - | - | - | - | 1.00 |

For tension anchor loads, the critical edge distance (C_{cr}) is equal to 14 anchor diameters at which the anchor achieves 100% of load. Minimum edge distance (C_{min}) is equal to 7 anchor diameters at which the anchor achieves 80% of load.

| Edge in Normal-Weight Concrete (Tension) | | | | | | |
|--|--------|-------|-------|-------|--------|------|
| Anchor Dia. | 1/4 | 3/8 | 1/2 | 5/8 | 3/4 | |
| Critical Edge Dist. C_{cr} | 3-1/2 | 5-1/4 | 7 | 8-3/4 | 10-1/2 | |
| Min. Edge Dist. C_{min} | 1-3/4 | 2-5/8 | 3-1/2 | 4-3/8 | 5-1/4 | |
| Actual Edge Dist. C_{act} | 1-3/4 | 0.90 | - | - | - | - |
| | 2-5/8 | 0.95 | 0.90 | - | - | - |
| | 3-1/2 | 1.00 | 0.93 | 0.90 | - | - |
| | 4-3/8 | - | 0.97 | 0.93 | 0.90 | - |
| | 5-1/4 | - | 1.00 | 0.95 | 0.92 | 0.90 |
| | 7 | - | - | 1.00 | 0.96 | 0.93 |
| | 8-3/4 | - | - | - | 1.00 | 0.97 |
| | 10-1/2 | - | - | - | - | 1.00 |

For tension anchor loads, the critical edge distance (C_{cr}) is equal to 14 anchor diameters at which the anchor achieves 100% of load. Minimum edge distance (C_{min}) is equal to 7 anchor diameters at which the anchor achieves 90% of load.

| Edge in Normal-Weight Concrete (Shear) | | | | | | |
|--|-------|-------|-------|-------|--------|------|
| Anchor Dia. | 1/4 | 3/8 | 1/2 | 5/8 | 3/4 | |
| Critical Edge Dist. C_{cr} | 3-1/2 | 5-1/4 | 7 | 8-3/4 | 10-1/2 | |
| Min. Edge Dist. C_{min} | 1-3/4 | 2-5/8 | 3-1/2 | 4-3/8 | 5-1/4 | |
| Actual Edge Dist. C_{act} | 1-3/4 | 0.50 | - | - | - | - |
| | 2 | 0.57 | - | - | - | - |
| | 2-5/8 | 0.75 | 0.50 | - | - | - |
| | 3 | 0.86 | 0.57 | - | - | - |
| | 3-1/2 | 1.00 | 0.67 | 0.50 | - | - |
| | 4-3/8 | - | 0.83 | 0.63 | 0.50 | - |
| | 5-1/4 | - | 1.00 | 0.75 | 0.60 | 0.50 |
| | 6 | - | - | 0.86 | 0.69 | 0.57 |
| | 7 | - | - | 1.00 | 0.80 | 0.67 |
| | 8 | - | - | - | 0.91 | 0.76 |
| | 8-3/4 | - | - | - | 1.00 | 0.83 |
| 10-1/2 | - | - | - | - | 1.00 | |

For shear anchor loads, the critical edge distance (C_{cr}) is equal to 14 anchor diameters at which the anchor achieves 100% of load. Minimum edge distance (C_{min}) is equal to 7 anchor diameters at which the anchor achieves 50% of load.

Performance Data - Mini Anchors

Ultimate and Allowable Loads (lbs.) – Normal-Weight Concrete

| Anchor Dia. (in.) | Min. Embed. Depth (in.) | Allowable | | | | | | Ultimate | | | | | |
|-------------------|-------------------------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|
| | | 2,000 psi | | 4,000 psi | | 6,000 psi | | 2,000 psi | | 4,000 psi | | 6,000 psi | |
| | | Tension | Shear | Tension | Shear | Tension | Shear | Tension | Shear | Tension | Shear | Tension | Shear |
| 1/4 | 5/8 | 248 | 283 | 285 | 385 | 303 | 405 | 990 | 1130 | 1140 | 1540 | 1210 | 1620 |
| 3/8 | 3/4 | 445 | 608 | 543 | 945 | 583 | 1043 | 1780 | 2430 | 2170 | 3780 | 2330 | 4170 |
| 1/2 | 1 | 755 | 990 | 820 | 1188 | 920 | 1198 | 3020 | 3960 | 3280 | 4750 | 3680 | 4790 |

*Allowable load capacities are calculated using an applied safety factor of 4:1

Load Adjustment Factors

| Spacing in Normal-Weight and Lightweight Concrete (Tension and Shear) | | | | |
|---|-------|-------|-------|------|
| Anchor Dia. | 1/4 | 3/8 | 1/2 | |
| Embedment h_v | 5/8 | 3/4 | 1 | |
| Critical Spacing S_{cr} | 1-7/8 | 2-1/4 | 3 | |
| Min. Spacing S_{min} | 15/16 | 1-1/8 | 1-1/2 | |
| Actual Spacing S_{act} | 15/16 | 0.50 | – | – |
| | 1-1/8 | 0.60 | 0.50 | – |
| | 1-1/2 | 0.80 | 0.67 | 0.50 |
| | 1-7/8 | 1.00 | 0.83 | 0.63 |
| | 2-1/4 | – | 1.00 | 0.75 |
| | 3 | – | – | 1.00 |

*For tension and shear anchor loads, the critical spacing (S_{cr}) is equal to 3 embedment depths at which the anchor achieves 100% of load. Minimum spacing (S_{min}) is equal to 1.5 embedment depths at which the anchor achieves 50% of load.

| Edge in Normal-Weight Concrete (Tension) | | | | |
|--|-------|-------|------|------|
| Anchor Dia. | 1/4 | 3/8 | 1/2 | |
| Critical Edge Dist. C_{cr} | 3 | 4-1/2 | 6 | |
| Min. Edge Dist. C_{min} | 1-1/2 | 2-1/4 | 3 | |
| Actual Edge Dist. C_{act} | 1-1/2 | 0.90 | – | – |
| | 2-1/4 | 0.95 | 0.90 | – |
| | 3 | 1.00 | 0.93 | 0.90 |
| | 4-1/2 | – | 1.00 | 0.95 |
| | 6 | – | – | 1.00 |

*For tension anchor loads, the critical edge distance (C_{cr}) is equal to 12 diameters at which the anchor achieves 100% of load. Minimum edge distance (C_{min}) is equal to 6 anchor diameters at which the anchor achieves 90% of load.

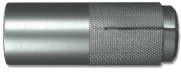
| Edge in Normal-Weight Concrete (Shear) | | | | |
|--|-------|-------|------|------|
| Anchor Dia. | 1/4 | 3/8 | 1/2 | |
| Critical Edge Dist. C_{cr} | 3 | 4-1/2 | 6 | |
| Min. Edge Dist. C_{min} | 1-1/2 | 2-1/4 | 3 | |
| Actual Edge Dist. C_{act} | 1-1/2 | 0.75 | – | – |
| | 2-1/4 | 0.88 | 0.75 | – |
| | 3 | 1.00 | 0.83 | 0.75 |
| | 4-1/2 | – | 1.00 | 0.88 |
| | 6 | – | – | 1.00 |

*For shear anchor loads, the critical edge distance (C_{cr}) is equal to 12 diameters at which the anchor achieves 100% of load. Minimum edge distance (C_{min}) is equal to 6 anchor diameters at which the anchor achieves 75% of load.

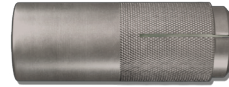
Ultra-Drop™ Drop-In Anchors



Order Information



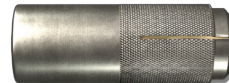
| Standard: Zinc-Plated Carbon Steel | | | | | |
|------------------------------------|----------------|-------------|---------------|--------------|-----------------|
| Catalog Number | Drill Bit Dia. | Thread Size | Anchor Length | Box Quantity | Carton Quantity |
| WD14 | 3/8 | 1/4 - 20 | 1 | 100 | 1000 |
| WD38 | 1/2 | 3/8 - 16 | 1-5/8 | 50 | 500 |
| WD12 | 5/8 | 1/2 - 13 | 2 | 50 | 500 |
| WD58 | 7/8 | 5/8 - 11 | 2-1/2 | 25 | 200 |
| WD34 | 1 | 3/4 - 10 | 3-1/4 | 25 | 150 |
| WD78 | 1-1/8 | 7/8 - 9 | 4 | 10 | 40 |



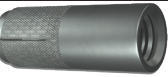
| Standard: Type 304 Stainless Steel | | | | | |
|------------------------------------|----------------|-------------|---------------|--------------|-----------------|
| Catalog Number | Drill Bit Dia. | Thread Size | Anchor Length | Box Quantity | Carton Quantity |
| WDS14 | 3/8 | 1/4 - 20 | 1 | 100 | 1000 |
| WDS38 | 1/2 | 3/8 - 16 | 1-5/8 | 50 | 500 |
| WDS12 | 5/8 | 1/2 - 13 | 2 | 50 | 500 |
| WDS58 | 7/8 | 5/8 - 11 | 2-1/2 | 25 | 200 |
| WDS34 | 1 | 3/4 - 10 | 3-1/4 | 25 | 150 |



| Lipped: Zinc-Plated Carbon Steel | | | | | |
|----------------------------------|----------------|-------------|---------------|--------------|-----------------|
| Catalog Number | Drill Bit Dia. | Thread Size | Anchor Length | Box Quantity | Carton Quantity |
| WDL14 | 3/8 | 1/4 - 20 | 1 | 100 | 1000 |
| WDL38 | 1/2 | 3/8 - 16 | 1-5/8 | 50 | 500 |
| WDL12 | 5/8 | 1/2 - 13 | 2 | 50 | 500 |
| WDL58 | 7/8 | 5/8 - 11 | 2-1/2 | 25 | 200 |
| WDL34 | 1 | 3/4 - 10 | 3-1/4 | 25 | 150 |



| Standard: Type 316 Stainless Steel | | | | | |
|------------------------------------|----------------|-------------|---------------|--------------|-----------------|
| Catalog Number | Drill Bit Dia. | Thread Size | Anchor Length | Box Quantity | Carton Quantity |
| WDS514 | 3/8 | 1/4 - 20 | 1 | 100 | 1000 |
| WDS538 | 1/2 | 3/8 - 16 | 1-5/8 | 50 | 500 |
| WDS512 | 5/8 | 1/2 - 13 | 2 | 50 | 500 |
| WDS558 | 7/8 | 5/8 - 11 | 2-1/2 | 25 | 200 |
| WDS534 | 1 | 3/4 - 10 | 3-1/4 | 25 | 150 |
| WDS578 | 1-1/8 | 7/8 - 9 | 4 | 10 | 40 |



| Coil Thread: Zinc-Plated Carbon Steel | | | | | |
|---------------------------------------|----------------|-------------|---------------|--------------|-----------------|
| Catalog Number | Drill Bit Dia. | Thread Size | Anchor Length | Box Quantity | Carton Quantity |
| WDCT12 | 5/8 | 1/2 - 6 | 2 | 50 | 500 |
| WDCT34 | 1 | 3/4 - 4-1/2 | 3-1/4 | 25 | 150 |



| Setting Tools | | | |
|----------------|-------------------------|----------|---|
| Catalog Number | Sets Anchor Thread Size | Quantity | |
| ST14 | STM14* | 1/4 | 1 |
| ST38 | STM38* | 3/8 | 1 |
| ST12 | STM12* | 1/2 | 1 |
| ST58 | - | 5/8 | 1 |
| ST34 | - | 3/4 | 1 |
| ST78 | - | 7/8 | 1 |



| MINI: Zinc-Plated Carbon Steel | | | | | |
|--------------------------------|----------------|-------------|---------------|--------------|-----------------|
| Catalog Number | Drill Bit Dia. | Thread Size | Anchor Length | Box Quantity | Carton Quantity |
| WDM14 | 3/8 | 1/4 - 20 | 5/8 | 100 | 1000 |
| WDM38 | 1/2 | 3/8 - 16 | 3/4 | 50 | 500 |
| WDM12 | 5/8 | 1/2 - 13 | 1 | 50 | 400 |

* MINI Setting Tool

For more information, please contact:



Divisions of Mechanical Plastics Corp.

110 Richards Avenue • Norwalk, CT 06854

Phone: 203-857-2200

Fax: 203-857-2201 • E-mail: sales@wejit.com

www.toggler.com • www.wejit.com

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