**PENETRATOR™**
The time-tested screw – Upscaled!

- Soil
- Sand
- Asphalt
- Underwater

- Commercial
- Residential
- Military
- Permanent
- Temporary

**Reusable**
*Screw in, screw out*

**Strong**
*Cast aluminum 356 alloy aircraft-quality aluminum heat treated to T6 specification*

**Lightweight**
The ALUMINUM advantage:
*Shipping cost, on-site handling, NO RUST*

**Alternative to concrete footings**
*PE36 and PE46 – the “big ones” – no digging, no forms, no pouring, no waiting, easy leveling*

**YOU HAVE IT, WE HOLD IT™**
The PENETRATOR is one of our three anchor designs to handle projects large or small, simple or complex

**PULLOUT STRENGTH**
Table on last page
DIMENSIONS AND ANATOMY

- Aircraft-quality cast aluminum 356 alloy
- Heat-treated to T6 specification

**PE18**

- **PE18**
  - 1" hex head
  - 2" flange
  - 1" neck
- 18"
- 1.5 pounds

**PE26**

- 1" hex head
- 2" flange
- 1" neck diam.
- 26"
- 2 pounds

**PE10**

- 1" hex head
- 2" flange
- 1" neck diam.
- 10"
- 1 pound

**PE18-SQ**

- **PE18-SQ**
  - ½” square drive
  - flat head
- 2" flange
- 1" neck
- 1¾” flight diameter
- 18"
- 1.5 pounds

**PE36**

- **PE36**
  - ½" flat head
  - 3" flange diam.
- 36"
- 12 lbs.
- 3 lbs.

**PE46**

- **PE46**
  - ¼” I.D. pipe fits over
  - Tapped hole:
  - ½”-13 thread
  - 2½” depth
- 46"
- 10 lbs.
- 10 lbs.

**PE14**

- **PE14**
  - 1.4” neck diameter
  - 6” galvanized steel stud with washer and nut
  - 1.5” ID pipe fits over
  - Same top on both
  - ½” square drive
  - Tapped hole:
  - ½”-13 thread
  - 2½” depth
- 14.5"
- 12"
- 2¼” I.D.
- 1.5 lbs.

**PE9**

- **PE9**
  - ¾” hex head
  - 1¼” flange
- 9"
- 1½” flight diameter
- 5/8” neck diameter
- ½” neck diameter
- 0.3 lbs.

**PE-T9**

- **PE-T9**
  - 4” handle
  - 1½” flight diameter
- 9"
- 1½” flight diameter
- 1½” flight diameter
- 0.36 lbs.
The four Penetrator “sisters”

- PE10
- PE18
- PE18-SQ
- PE26

<table>
<thead>
<tr>
<th>FLIGHT</th>
<th>NECK</th>
<th>FLANGE</th>
<th>LENGTHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot;</td>
<td>1&quot;</td>
<td>Same</td>
<td>10&quot;, 18&quot;, 26&quot;</td>
</tr>
<tr>
<td>1¾&quot;</td>
<td>Same</td>
<td>Same</td>
<td>Same</td>
</tr>
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</table>

Different LENGTHS

<table>
<thead>
<tr>
<th>LENGTH</th>
<th>FLANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10&quot;</td>
<td>Same</td>
</tr>
<tr>
<td>18&quot;</td>
<td>Same</td>
</tr>
<tr>
<td>26&quot;</td>
<td>Same</td>
</tr>
</tbody>
</table>

... OR use your own:

- ¼" plate: 1½" hole
- ½" plate: 1⅝" hole
- ¾" plate: 1⅝" hole

FLANGE top

Can be used in two ways:

- SCREW DOWN against a bracket, plate, or other surface
- TIE OFF using tie-off cable or your own cable, rope, or strap

Doubled over to make a larger loop
Installation: EASY
Getting it into the ground

**Recommendation**
6-point socket (instead of 12-point socket) will minimize wear and rounding of hex head for repeated installation/removal

**IMPACT WRENCH**

- PLANter PE14
- Erosion mat PE9
- Even for the “big ones” if soil conditions allow
- Pneumatic impact wrench PE46

Watch the video at aeavideo.com

**T-HANDLE**

- Ratcheting or non-ratcheting
- Socket or square drive

**POWER TAKEOFF**

rigged with 2” socket for PE36 or PE46
on tractor, skid-steer (Bobcat) or other PTO-equipped machinery

Watch the video at aeavideo.com

**... OR DESIGN YOUR OWN METHOD**

- 2” socket with ratchet and LONG pipe for added leverage PE46
- Gas-powered auger with bit modified for square drive or hex head PE18-SQ

**PRE-DRILL**
in asphalt and hard soils

Drill pilot hole through asphalt – at least 10” deep in hard soil – to reduce stress on the anchor (and on the installer!)

<table>
<thead>
<tr>
<th>Pilot hole diameter</th>
<th>PE10, PE18, PE26</th>
<th>PE14</th>
<th>PE36</th>
<th>PE46</th>
</tr>
</thead>
<tbody>
<tr>
<td>1”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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866-520-8511
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Attachment: YOUR CHOICE
Connecting to your structure

**TAPPED TOP**
for stud, bolt, eye, hook, or other threaded fitting

- ½"-13 thread
- ¼"-10 thread

**FLANGE TOP**
- Screw down against a surface or bracket
- Attach to tie-off cable

PE10
PE18
PE18-SQ
PE26
PE36
PE46-Hex

**CABLE CLAMPS**
to make a custom loop

**PIPE TOP**
for pipe or post fitted over the Penetrator’s top

Pipe could be...
- Part of the structure being anchored
- Installation assist for below-grade depth of tapped-top Penetrator to keep a clear path for threaded rod (see SONAR station on page 9)

1.5" ID

See Footings on next page for larger pipes

**BRACKETS**

**TIE-OFF CABLES**
for attachment to...
- Guying cable
- Shackle
- Turnbuckle
- Bolt or fitting on the structure
- Structural member

**BASES**
for pipe or post

For 2.5”-3” round pipe
- Clear-hole for ¼" bolt

For 3” square post
- Single-hole base with round or square sleeve

See Footings on next page for more pipes and posts

**GUYING TOP**
for attachment to...
- Cable
- Webbing
- Shackle

Fits up to ½" cable

**OPTIONS**
- Optional attached tie-off cable

We can make custom brackets and cables to your specification

We can make custom brackets and cables to your specification
ALTERNATIVE TO CONCRETE FOOTINGS
Screw shape provides both upward and DOWNWARD grip

UPWARD pullout strength

DOWNWARD support strength

Works like an ANCHOR

Works like a FOOTING

PE46 tested to 9,000 lbs of downward pressure with only 0.119" of downward displacement

PE36
PE46

The “big ones”

• No digging
• No forms
• No pouring
• No waiting
• Easy leveling

Weight test

16,100 pounds

4,025 lbs on each Penetrator, with only 75% of their length in the ground supporting the load

Easy leveling:
Screw DOWN, screw UP

BRACKETS

We can make custom brackets to your specification

PE36
PE46-Hex

PE46-Hex8

TAPPED TOP
¾"-10 thread

2¼" I.D. pipe fits over

2" Schedule 40 pipe fits over

Two clear holes for ¼" bolts

PE36
PE46-Hex

For 2" or smaller pipe or round post

For lumber post or beam

For 2" lumber

2" pipe

4x4 lumber

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PENETRATORS AT WORK

Solar array

PE46-Hex  Double-duty as both ANCHORS and FOOTINGS

Dome

PE26

Grain bin

PE10

Conveyor ski lift

PE26

Underfloor ductwork

PE26 installed through strap
Prevents shifting or floating when concrete is poured over the ducts

Movie screen

PE18 with tie-off cable
Pool cover tethers

PE14 with Allen bolt

*Bolt is screwed down flush when cover is off*

Floating islands

PE46-Guy in the lake bottom with cable up to the island

*Manmade wetlands for natural water filtration*

Channel markers

PE26 with hole drilled through hex head to bolt on the marker

Walkway lights

PE14-STD

*Hollow faux rock secured like a planter*

Fireworks setup

"Laundry line" string of fireworks

PE26 with tie-off cable

Guyed frame

PE26 with tie-off cable to turnbuckle

*Temporary fabric structure in the Nevada desert*

Hardpan technique: Drill 1" x 10” pilot hole
Hunting blind

PE26 attached to legs

Cantilevered parking canopies

PE46-Guy attached to rebar cage in poured concrete block, for stabilization against tipping

Could also use 8” or 10” arrowheads

Sports goal

PE26 through pipe bracket

To prevent serious tip-over injuries

Ground mount

PE14-STD

Tripod

PE18 Temporary mount for solar panel to power equipment in the field

Swing set

PE18 and PE18-SQ with swing set brackets

PENETRATORS AT WORK (continued)
Hangars on asphalt

Hangar’s wall studs also secured directly into the ground with 10” arrowhead anchors

PE18s hold the ground framing

Through asphalt:
- PILOT HOLE FIRST – 1” for PE18/PE26
- Extra pullout strength due to asphalt’s added grip plus compacted soil below

The hand-turned “little one”

PE-T9

- Yard
- Vacation
- Backpacking

Camping tents

Beach shelters

RV awnings

Pop-up tents

Tie-off cable to your structure

Through asphalt:
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Through asphalt:
- PILOT HOLE FIRST – 1” for PE18/PE26
- Extra pullout strength due to asphalt’s added grip plus compacted soil below
Stream instrumentation

PE18 with pipe bracket
Water testing equipment

Inflatable water slide

PE18-SQ through the structure’s loop

Weather tower

Quick setup to measure wind speed in approaching Hurricane Ivan

PE26 for the base plate

Planters

PE26 for the guying cables

PE14-STD Double duty:
• Hold in place
• Prevent theft

Walkway

Cable clamps for guy-wire’s loop around PE26

PE46-Hex as ANCHOR and FOOTING
### STRENGTH

**PULLOUT resistance**

#### PENETRATORS™

<table>
<thead>
<tr>
<th>LOAD CAPACITY</th>
<th>9&quot;</th>
<th>10&quot;</th>
<th>14&quot;</th>
<th>18&quot;</th>
<th>26&quot;</th>
<th>36&quot;</th>
<th>46&quot;</th>
</tr>
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<tbody>
<tr>
<td><strong>SOIL CLASS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Hardpan / asphalt</td>
<td>400</td>
<td>1,000</td>
<td>2,500</td>
<td>4,500</td>
<td>8,400</td>
<td>14,000</td>
<td></td>
</tr>
<tr>
<td>2. Dense sand or gravel</td>
<td>200</td>
<td>700</td>
<td>1,700</td>
<td>3,100</td>
<td>6,000</td>
<td>9,500</td>
<td></td>
</tr>
<tr>
<td>3. Medium sandy gravel</td>
<td>100</td>
<td>350</td>
<td>600</td>
<td>1,100</td>
<td>2,100</td>
<td>3,300</td>
<td></td>
</tr>
<tr>
<td>4. Loose medium-to-fine sand</td>
<td>Less than 100</td>
<td>200</td>
<td>350</td>
<td>630</td>
<td>1,000</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td>5. Loose fine uncompacted sand</td>
<td>Less than 100</td>
<td>100</td>
<td>200</td>
<td>360</td>
<td>350</td>
<td>1,100</td>
<td></td>
</tr>
</tbody>
</table>

#### STRENGTH TESTING

Hydraulic proof tester

*Up to 15,000 lbs.*

#### BEYOND THE CATALOG ...

**CUSTOM WORK**

- Flash cutting — *Fused cable ends, custom length*
- Cable assemblies
- Brackets — *Plasma cutter, press brake (metal bending)*
- Full machine shop — *From CNC to welding*
- Prototypes
- Custom packaging
- Heat-seal bagging
- Bar coding

*Let us help with your designs and ideas*