

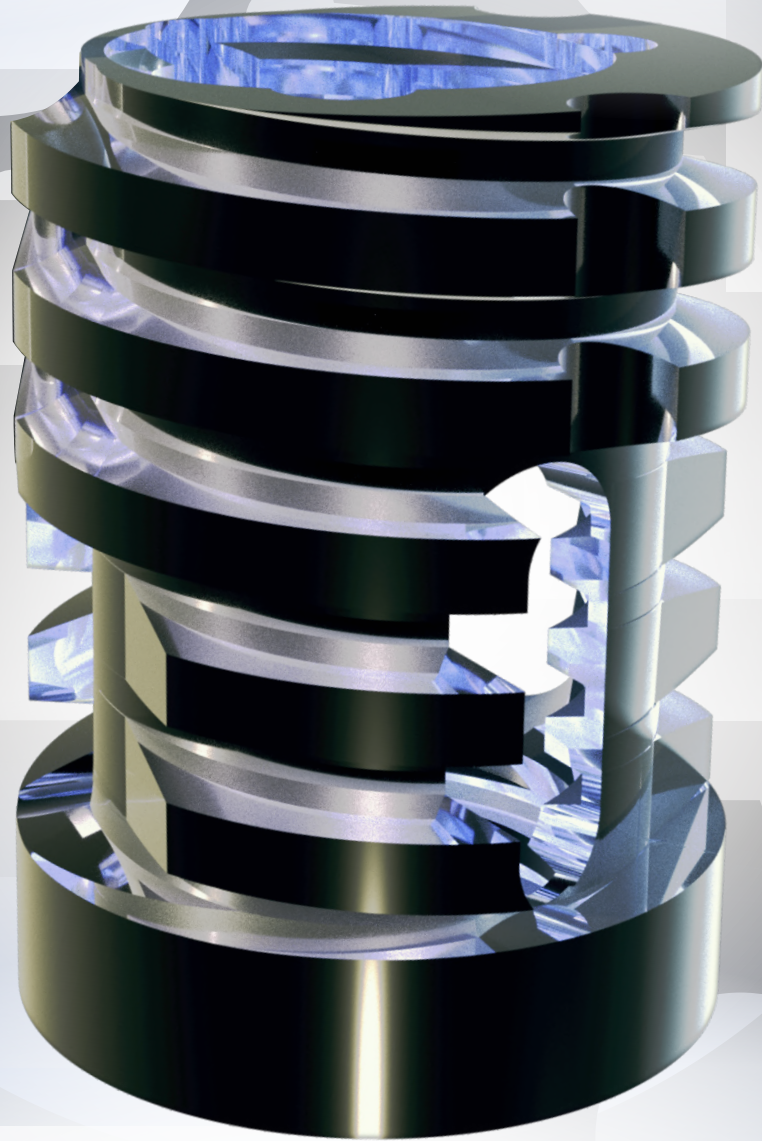


# PERMANENT THREAD REPAIR INSERTS



LIFETIME WARRANTY

*Patented and patents pending*



## FOR HEAVY INDUSTRIAL APPLICATIONS WHERE FAILURE IS UNACCEPTABLE

C-SERT.COM

971-347-3185

INFO@C-SERT.COM



# Advantages

## TOOL STEEL CONSTRUCTION

❖ **Benefit:** Can't wear out

## LEFT-HANDED EXTERNAL THREADS

❖ **Benefit:** No back-out with stuck bolts

## SELF-TAPPING

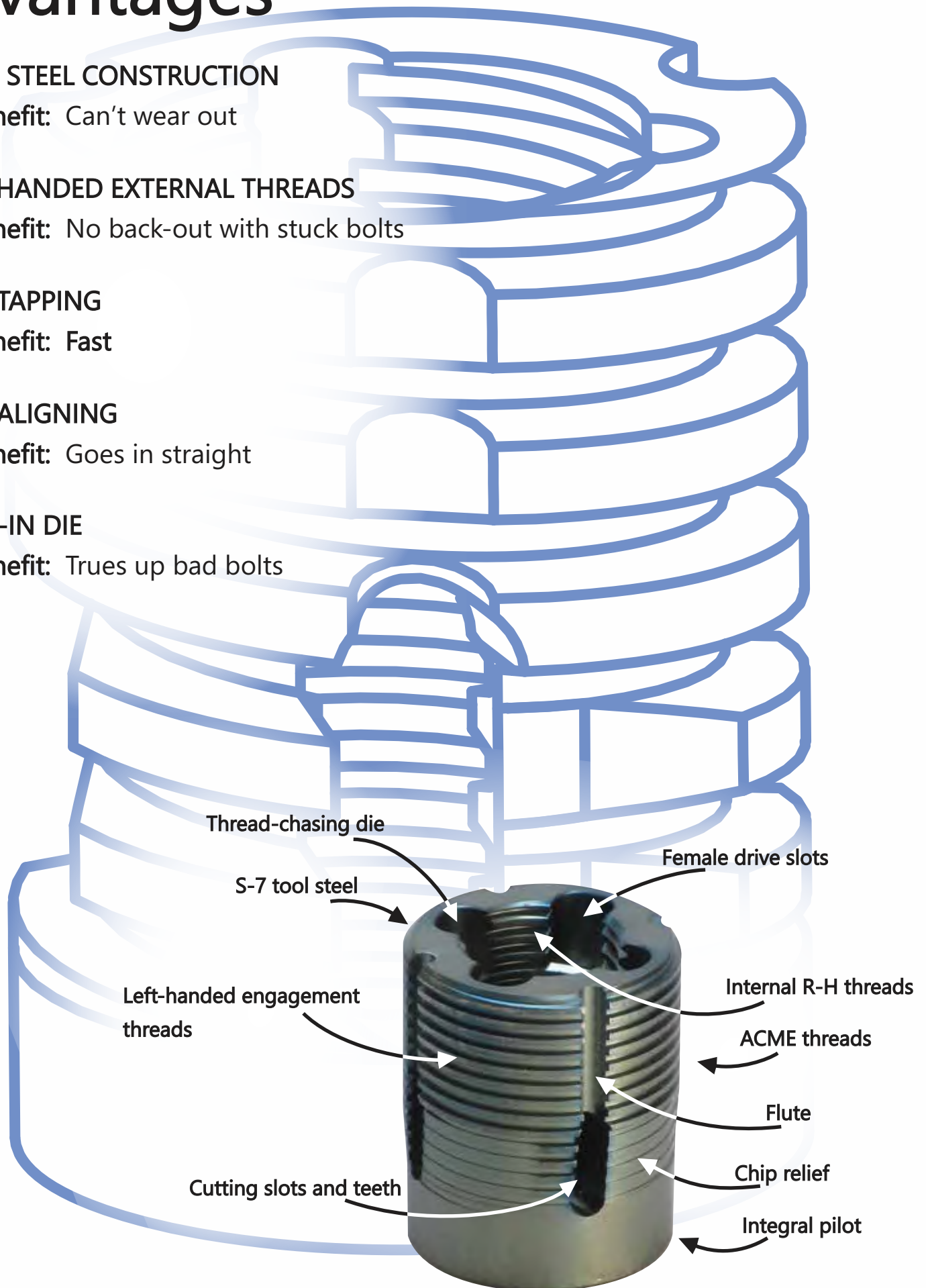
❖ **Benefit:** Fast

## SELF-ALIGNING

❖ **Benefit:** Goes in straight

## BUILT-IN DIE

❖ **Benefit:** Trues up bad bolts





## LIFETIME WARRANTY

**C-Sert Manufacturing warrants repairs made with C-Sert products for the lifetime of your equipment. This warranty provides for full product replacement and freight, at no charge to our customers.**

### What is covered:

**Thread failure:** due to stripping, nicking, general wear, and all other mechanical causes, excluding only corrosion.

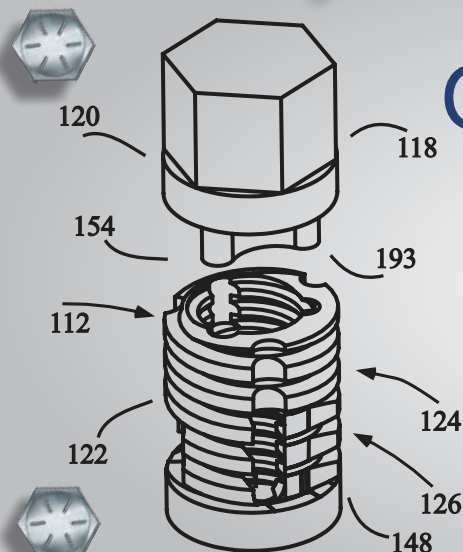
**Mechanical failure:** due to pull-out and back-out (including vibration).

As our customer, your only obligations under this warranty are to follow **C-Sert Manufacturing's** installation instructions, and to open up an accurate pilot hole to the diameter specified by **C-Sert**.



C-SERT.COM

*How can we offer a Lifetime Warranty on our C-Serts?  
(when no one else will give you even a 1-day guarantee)*



## Our Patented Design

- ❖ C-Serts cannot wear out because they're made of hardened and double-tempered tool steel, far harder and tougher than fasteners of all classes.
- ❖ C-Serts tap their way in, making a tight interference fit. That means there are no taps, no gaps, no springs, no glue, no mechanical aids whatsoever that could cause failure.

# SPECIFICATIONS

**Insert type:** self-tapping

**Means of securing:** interference fit

**Guide:** integral pilot

**Guide clearance:** .003-.004 under pilot hole diameter

**Integral die:** 3 to 6 cutting surfaces depending on diameter

**Internal threads:** Inch: Class 2B, Metric: Class 6H

**External thread type:** left-handed

**External thread profile:** ACME

**Hardness:** 56RC

**Heat treat:** through-hardened

**Tempering:** double draw

All C-Serts are self-tapping and self-aligning, with an integral die for truing up damaged or defective fasteners, left-handed external engagement threads, and a Life-time warranty against failure and thread wear.

## C-SERTS

Standard and metric are suitable for almost all repairs of OEM threaded holes. Also, they are thick enough to replace failed Heli-Coils, Keenserts, E-Z Locks, Hole Savers and other brands.

### Inches

Internal Dia.	Part Number	Package Quantity	Pilot Hole Diameter	Hex Socket Size	C-Sert Length	C-Sert Diameter
1/4"—20	CDS250	6 pieces	1/2"	1/2"	0.684"	0.521"
1/4"—28	CDS250-F	6 pieces	1/2"	1/2"	0.684"	0.521"
5/16"—18	CDS312	6 pieces	9/16"	5/8"	0.742"	0.548"
5/16"—24	CDS312-F	6 pieces	9/16"	5/8"	0.742"	0.548"
3/8"—16	CDS375	6 pieces	11/16"	3/4"	0.873"	0.716"
3/8"—24	CDS375-F	6 pieces	11/16"	3/4"	0.873"	0.716"
1/2"—13	CDS500	6 pieces	13/16"	3/4"	0.997"	0.840"
1/2"—20	CDS500-F	6 pieces	13/16"	3/4"	0.997"	0.840"
5/8"—11	C625	6 pieces	1"	23mm	1.249"	1.052"
5/8"—18	C625-F	6 pieces	1"	23mm	1.249"	1.052"
3/4"—10	C750	6 pieces	1-1/8"	23mm	1.495"	1.176"
3/4"—18	C750-F	6 pieces	1-1/8"	23mm	1.495"	1.176"
7/8"—9	C875	4 pieces	1-3/8"	27mm	1.875"	1.437"
1"—8	C1000	4 pieces	1-1/2"	27mm	2.103"	1.562"
1"—14	C1000F	4 pieces	1-1/2"	27mm	2.103"	1.562"
1-1/8"—7	C1125	3 pieces	1-3/4"	33mm	2.437"	1.812"
1-1/4"—7	C1250	3 pieces	1-3/4"	33mm	2.437"	1.812"
1-3/8"—6	C1375	2 pieces	2"	40mm	2.750"	2.062"
1-1/2"—6	C1500	2 pieces	2-1/4"	40mm	2.750"	2.312"
1-3/4"—5	C1750	2 pieces	2-3/4"	60mm	3.464"	2.812"

## C-SERTS

Standard and metric are suitable for almost all repairs of OEM threaded holes. Also, they are thick enough to replace failed Heli-Coils, Keenserts, E-Z Locks, Hole Savers and other brands.

Metric						
Internal Dia.	Part Number	Package Quantity	Pilot Hole Diameter	Hex Socket Size	C-Sert Length	C-Sert Diameter
6mm x 1.0	CDSM6	6 pieces	1/2"	1/2"	0.684"	0.521"
8mm x 1.25	CDSM8	6 pieces	9/16"	5/8"	0.742"	0.548"
10mm x 1.5	CDSM10	6 pieces	11/16"	3/4"	0.873"	0.716"
10mm x 1.25	CDSM10-F	6 pieces	11/16"	3/4"	0.873"	0.716"
12mm x 1.75	CDSM12	6 pieces	13/16"	3/4"	0.997"	0.840"
14mm x 2.0	M14	6 pieces	1"	23mm	1.249"	1.052"
16mm x 2.0	M16	6 pieces	1"	23mm	1.249"	1.052"
18mm x 2.5	M18	6 pieces	1-1/8"	23mm	1.495"	1.176"
20mm x 2.5	M20	4 pieces	1-3/8"	27mm	1.875"	1.437"
24mm x 3.0	M24	4 pieces	1-1/2"	27mm	2.103"	1.562"
30mm x 3.5	M30	3 pieces	1-3/4"	33mm	2.437"	1.812"
36mm x 4.0	M36	2 pieces	2"	40mm	2.750"	2.062"
42mm x 3.0	M42-F	2 pieces	2-3/4"	60mm	3.464"	2.812"

## HEAVY WALL C-SERTS

Heavy-wall C-Serts are intended for when a hole has already been enlarged and you want to return to the original fastener size. They can also be used to replace failed heavy-wall Keenserts and failed custom threaded sleeves.

Inches						
5/8"—11	C625-HW	4 pieces	1-5/16"	27mm	1.495"	1.364"
3/4"—10	C750-HW	4 pieces	1-5/16"	27mm	1.495"	1.364"
1"—8	C1000-HW	3 pieces	1-3/4"	33mm	2.437"	1.812"
1-1/4"—8	C1250-HW	2 pieces	2"	40mm	2.700"	2.062"

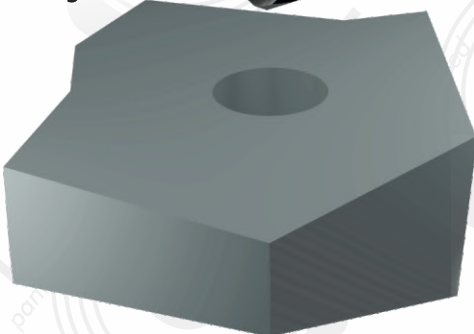
Metric						
16mm x 2.0	M16-HW	4 pieces	1-5/16"	27mm	1.495"	1.364"
20mm x 2.5	M20-HW	4 pieces	1-1/2"	33mm	2.103"	1.562"
24mm x 3.0	M24-HW	3 pieces	1-3/4"	33mm	2.437"	1.812"
30mm x 3.0	M30-HW	2 pieces	2"	40mm	2.700"	2.062"

# Instructions



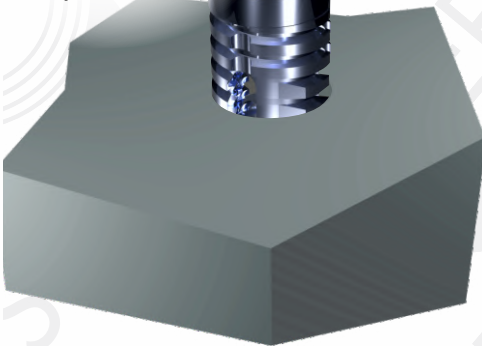
## Step 1

Use a drill bit or annular cutter to open up the pilot hole to the diameter shown on the C-Sert packaging, and slightly deeper than the C-Sert's length.



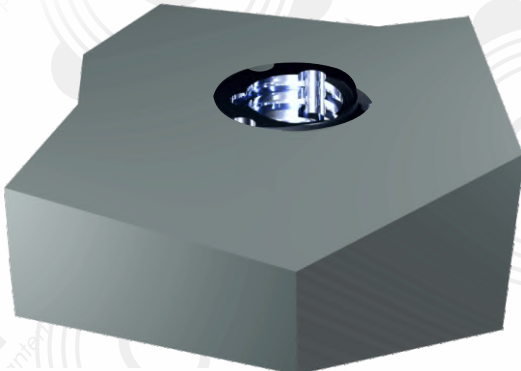
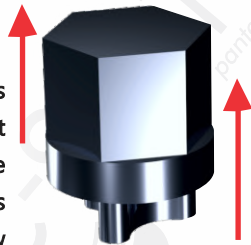
## Step 3

Put the C-Sert in the pilot hole.



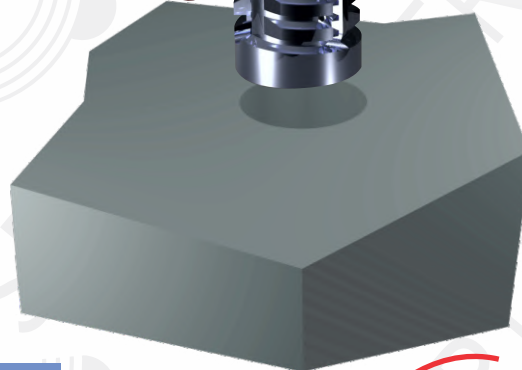
## Step 5

Once the top of the C-Sert is flush with the surface (or a bit below if you prefer), remove the installer, break up the chips inside the C-Sert, and blow them out.



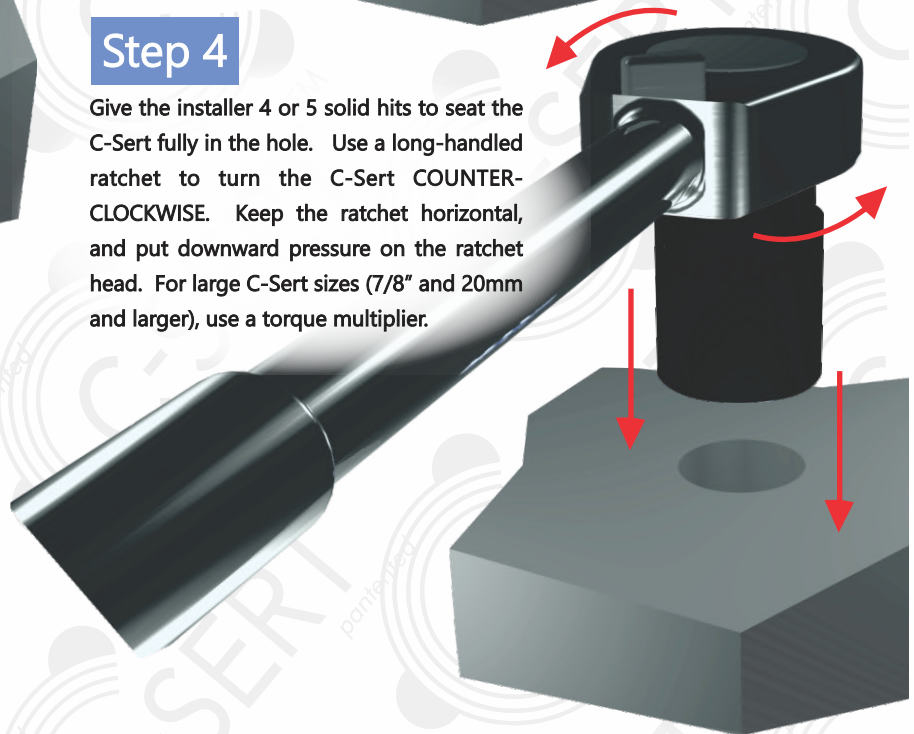
## Step 2

Apply plenty of cutting oil to the C-Sert, including to the guide, and fit the hex-head installer into the C-Sert.



## Step 4

Give the installer 4 or 5 solid hits to seat the C-Sert fully in the hole. Use a long-handled ratchet to turn the C-Sert COUNTER-CLOCKWISE. Keep the ratchet horizontal, and put downward pressure on the ratchet head. For large C-Sert sizes (7/8" and 20mm and larger), use a torque multiplier.

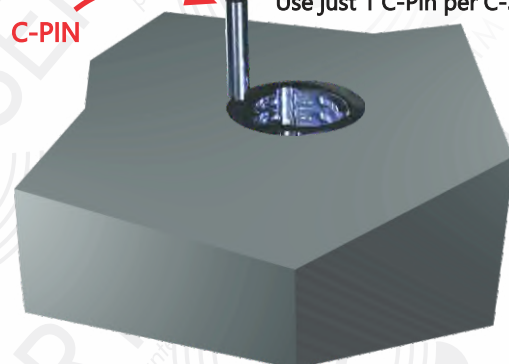


## Step 6

Install a C-Pin whenever there is a gap between the C-Sert and the part you're bolting. Position the C-Pin tight against the C-Sert and tap it lightly until it starts in the hole, then carefully drive it flush. Use just 1 C-Pin per C-Sert.



C-PIN



# MINI THINWALL C-SERTS ❖ For use where space is at a premium

**Insert type:** self-tapping

**Means of securing:** interference fit

**Guide:** detachable pilot

**Guide clearance:** .003-.004 under pilot hole diameter

**Internal threads:** Inch: Class 2B, Metric: Class 6H

**External thread type:** right-handed

**External thread profile:** standard, with flat crest

**Metallurgy:** 8620 gear steel

**Hardness:** 62RC, core 45RC

**Heat treat:** case hardened

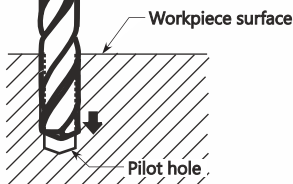
All Mini Thinwall C-Serts are self-tapping and self-aligning with a detachable pilot and Life-time warranty against failure and thread wear.

Internal Dia.	Part Number	Package Quantity	Pilot Hole Diameter	Hex Socket Size	C-Sert Length	C-Sert Diameter
1/4"—20	C250	10 pieces	23/64"	7/16"	0.487"	0.375"
5/16"—18	C312	10 pieces	29/64"	1/2"	0.557"	0.469"
3/8"—16	C375	10 pieces	17/32"	9/16"	0.687"	0.563"
1/2"—13	C500	8 pieces	45/64"	3/4"	0.745"	0.734"
6mm x 1.0	M6	10 pieces	23/64"	7/16"	0.487"	0.375"
8mm x 1.25	M8	10 pieces	29/64"	1/2"	0.557"	0.469"
10mm x 1.5	M10	10 pieces	17/32"	9/16"	0.687"	0.563"
10mm x 1.25	M10-F	10 pieces	17/32"	9/16"	0.687"	0.563"
12mm x 1.75	M12	8 pieces	45/64"	3/4"	0.745"	0.734"
12mm x 1.25	M12-F	8 pieces	45/64"	3/4"	0.745"	0.734"

## Step 1

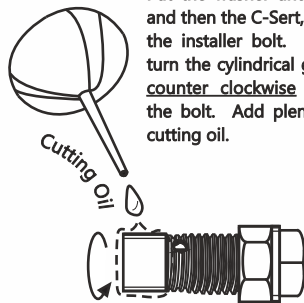
Drill out the damaged threads to the diameter shown on the packaging, and slightly deeper than the length of the C-Sert.

If possible, use a mag drill.



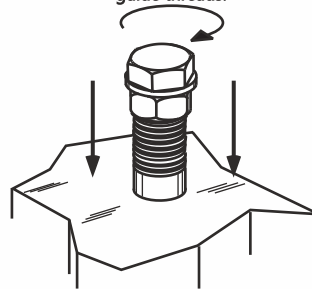
## Step 2

Put the washer and nut, and then the C-Sert, onto the installer bolt. Next, turn the cylindrical guide counter clockwise onto the bolt. Add plenty of cutting oil.



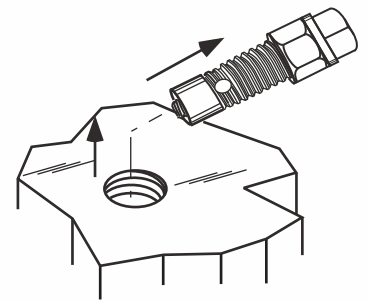
## Step 3

Place the C-Sert assembly into the pilot hole, as deep as it will go. Turn the assembly clockwise just 2 or 3 full turns to form guide threads.



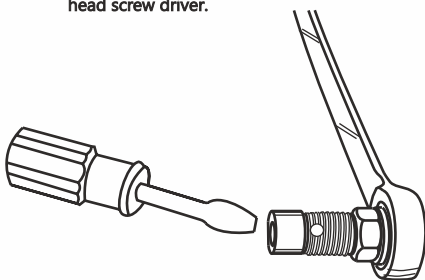
## Step 4

Back the C-Sert assembly out of the pilot hole.



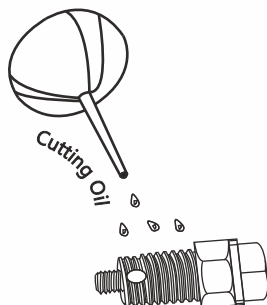
## Step 5

Hold the bolt head with a wrench, and break the cylindrical guide free with a flat head screw driver.



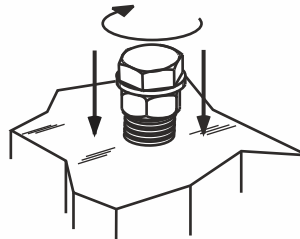
## Step 6

Apply cutting oil to the C-Sert.



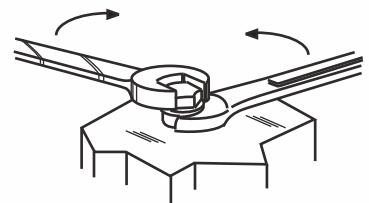
## Step 7

Turn the C-Sert in manually so that it follows the pilot threads that you did in Step 3. Then turn the C-Sert in steadily until the installation nut shoulders up against the surface of the workpiece.



## Step 8

When the nut has shouldered up against the surface of the workpiece, secure it well with a wrench, and then with a second wrench remove the installer bolt. Break up the chips inside the C-Sert and blow them out.



# FAQ



## Do I need a tap to install a C-Sert?

No, C-Serts are self-tapping.

## Do I need thread locker?

No. C-Serts cut their way in. They make an interference fit. So any thread locker would just get squeezed out as the C-Sert bores in.

## What keeps C-Serts in place?

Friction, pure and simple. The C-Sert's external tapping threads produce more friction than the fastener's torque rating.

## Can I remove a C-Sert?

Yes, you can, although the only reason to remove a C-Sert would be to reposition the hole.

## If I remove a C-Sert, can I use it to repair another damaged hole?

Yes, you can. C-Serts are taps and can be reused, just like a tap.

## Why do C-Serts have left-handed external threads?

If you use an impact wrench to remove a stuck bolt from a C-Sert, the L-H external threads prevent the C-Sert backing out with the bolt.

## When I install a C-Sert, can I use the same size bolt as before?

Yes, the fastener size remains the same.

## In what types of metal can C-Serts be installed?

In mild steel, high carbon steel, alloy steels (like 4130), cast iron; in aluminum and magnesium; in copper, brass and bronze. They also work in 400 Series stainless, but not well in 300 Series stainless.

## Can C-Serts be installed in through-holes?

Yes, but most applications are in blind holes.

## Can C-Serts withstand high temperatures?

Yes. They won't loosen, but they lose some of their hardness at over 1100 degrees Fahrenheit (base metal temperature, not ambient temperature).

## What are C-Serts made from?

From S-7 high impact tool steel, through-hardened to 56RC. Our C-Sert Mini's are made from 8620 gear steel, case hardened to 62RC.

## When I buy C-Serts, what comes with them?

An installer, cutting fluid, and instructions. And, at your option, a drill bit (for C-Serts up to 1" and 24mm). For opening up large C-Serts' pilot holes, another option we offer is annular cutters.

## Where are C-Serts made?

Los Angeles, CA, USA

[C-SERT.COM](http://C-SERT.COM) 971-347-3185 [INFO@C-SERT.COM](mailto:INFO@C-SERT.COM)

C-Sert Manufacturing ❖ Portland, Oregon

