

THE C-SERT INSTALLATION SYSTEM

Fast • Easy • Accurate • Safe

C-SERT.COM

971-347-3185

INFO@C-SERT.COM

The old way...

100-lb. drill
A crane
2 guys
A long, hard day...



THE C-SERT WAY

29-lb. drill. No crane. 1 guy. Done in minutes!



Saves time. Saves money. Saves your back. Keeps you safe.

HOW IT WORKS



C-Serts C-Serts are the most reliable thread-repair method in the world.
Backed by our **Lifetime Performance Warranty**.

The **C-Sert Installation System** makes them the easiest and fastest to install too.



JUST 4 COMPONENTS

1. **Light-weight mag drills.** German made, best-in-class. See our website for full specs.
2. **Annular cutters.** German made. TiN coated & carbide-tipped.
3. **60-degree Weldon shank center.**
4. **Paste lubricant/coolant.**

1.



2.



2.



3.



4.



JUST 4 STEPS

1. Install the Center and position the mag drill.
2. Put paste lubricant in the cutter.
3. Install the cutter in the drill and eliminate your damaged threads.
4. Replace the cutter with a larger size and finish the pilot hole.

ANNULAR CUTTERS

The key to opening up very large holes using very small mag drills.

Because annular cutters are hollow, they can't remove all the pilot hole's material at once, so we use 2 or 3 different sizes -- from smaller to larger -- to arrive at the final pilot hole diameter. This is what machinists call "stepping" the hole, or making lap cuts.

Why is that a light-weight mag drill and annular cutters can open up very large C-Sert pilot holes? 2 reasons:

- 1) Lap cuts -- Several different size cutters share the work.
- 2) Low tool pressure -- Annular cutters produce much less tool pressure than drill bits, so they don't need a big mag drill with its heavy magnet and motor.

ANNULAR CUTTER SIZES FOR C-SERT PILOT HOLES

| Bolt Size | C-Sert Part Number | Cutter # 1 | Cutter # 2 | Cutter # 3 | Cutter # 4 |
|-----------|--------------------|------------|------------|------------|------------|
|-----------|--------------------|------------|------------|------------|------------|

For Standard-Wall C-Serts -- USS & SAE Threads

Inches

| | | | | | |
|---------|----------|----------|----------|----------|----------|
| 1/2-13 | CDS500 | AC812-2 | | | |
| 1/2-20 | CDS500-F | AC812-2 | | | |
| 5/8-11 | C625 | AC812-2 | AC1000-2 | | |
| 5/8-18 | C625-F | AC812-2 | AC1000-2 | | |
| 3/4-10 | C750 | AC937-2 | AC1125-2 | | |
| 3/4-16 | C750-F | AC937-2 | AC1125-2 | | |
| 7/8-9 | C875 | AC1125-2 | AC1375-2 | | |
| 1"-8 | C1000 | AC1250-3 | AC1500-3 | | |
| 1"-14 | C1000-F | AC1250-3 | AC1500-3 | | |
| 1 1/8-7 | C1125 | AC1437-3 | AC1750-3 | | |
| 1 1/4-7 | C1250 | AC1500-3 | AC1750-3 | | |
| 1 1/2-6 | C1500 | AC1750-3 | AC2000-3 | AC2250-3 | |
| 1 3/4-5 | C1750 | AC2000-4 | AC2250-4 | AC2500-4 | AC2750-4 |



Note the 2 set-screw flats on the cutters' Weldon shanks for quick tool changes.

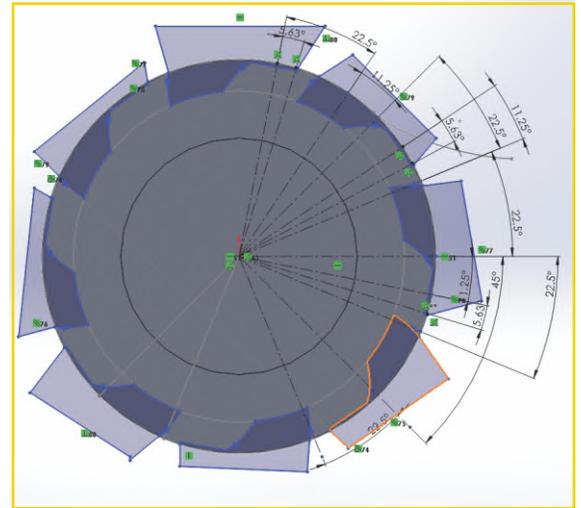
For Heavy-Wall C-Serts – USS Threads

| | | | | |
|---------|----------|----------|----------|----------|
| 5/8-11 | C625-HW | AC1062-2 | AC1312-2 | |
| 3/4-10 | C750-HW | AC1062-2 | AC1312-2 | |
| 1"-8 | C1000-HW | AC1250-3 | AC1500-3 | AC1750-3 |
| 1 1/4-7 | C1250-HW | AC1500-3 | AC1750-3 | AC2000-3 |

Metric

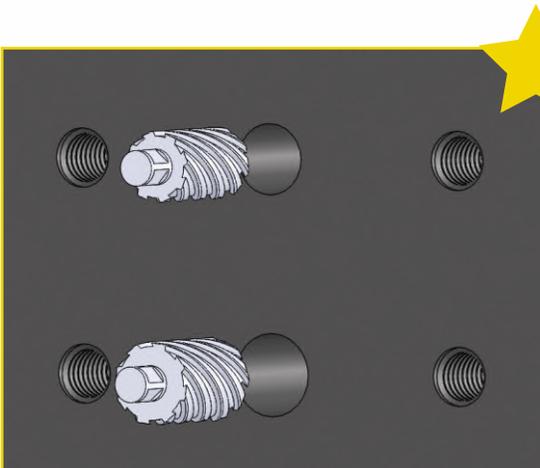
For Standard-Wall C-Serts – Metric Threads

| | | | | | |
|------|--------|----------|----------|----------|----------|
| 12mm | CDSM12 | AC812-2 | | | |
| 14mm | M14 | AC812-2 | AC1000-2 | | |
| 16mm | M16 | AC812-2 | AC1000-2 | | |
| 18mm | M18 | AC937-2 | AC1125-2 | | |
| 20mm | M20 | AC1125-2 | AC1375-2 | | |
| 24mm | M24 | AC1250-3 | AC1500-3 | | |
| 30mm | M30 | AC1500-3 | AC1750-3 | | |
| 36mm | M36 | AC1500-3 | AC1750-3 | AC2000-3 | |
| 42mm | M42 | AC1937-4 | AC2250-4 | AC2500-4 | AC2750-4 |



For Heavy-Wall C-Serts – Metric Threads

| | | | | |
|------|--------|----------|----------|----------|
| 16mm | M16-HW | AC937-2 | AC1312-2 | |
| 20mm | M20-HW | AC1062-2 | AC1375-2 | |
| 24mm | M24-HW | AC1250-3 | AC1500-3 | AC1750-3 |
| 30mm | M30-HW | AC1500-3 | AC1750-3 | AC2000-3 |



Stepping the C-Sert's pilot hole with 2 sizes of cutter.
Changing out the cutter to a larger size takes just seconds.



TO MAKE THINGS EVEN EASIER...

Once you've opened up the **C-Sert's** pilot hole, you're ready to turn in the **C-Sert**. For really small **C-Serts** (1/4" through 1/2" and 6mm through 12mm) all that's required is a small hand ratchet. But for larger **C-Serts** you'll need to apply some "elbow grease." Here's how to make lighter work of it.

LONG HANDLED 3/4"-DRIVE RATCHET WITH SAFETY EXTENSION HANDLE



This Proto Brand ratchet can be used to install standard 5/8", 3/4", 14mm, 16mm, and 18mm C-Serts and their Heavy-Wall versions. The locking extension handle is made by C-Sert from solid-stock aircraft grade aluminum.

TORQUE MULTIPLIER



This Neiko Brand torque multiplier can be used to install 7/8", 1", 1 1/8", 1 1/4", 20mm, 24mm, and 30mm **C-Serts**, and the Heavy-Wall versions of the 1", 1 1/4", 20mm, and 30mm. For larger **C-Serts**, a heavy-duty Neiko model is also available.

See our website for full specs.





INSTRUCTIONS

Background

This system replaces commonly used big magnetic drills and drill bits. Instead, it utilizes a light-weight mag drill and annular cutters ("slugger bits"). With the C-Sert System, you'll open up the C-Sert's pilot hole by making 2 lap cuts with the annular cutters rather than making one cut with a heavy mag drill and a drill bit. This saves your back, it saves you time, and it keeps you safe.

How to open up the Pilot Hole

1. Open the mag drill case. Read the manufacturer's instructions. Yeah, yeah, we know no one reads the instructions, but read the ones that matter. Forget the stuff that says, "Don't stick your fingers in the electrical outlet..." You know what we mean.
2. The drill comes with a threaded stud that keeps the chuck from damage in shipping. Remove the stud by using a pliers and the tapered "shiv" that comes with the drill to knock the chuck loose. If the chuck comes completely loose, make sure the "tang" on the end of the Morse taper lines up with the internal slot in the chuck. Use a flashlight if you have to. Then give the chuck a good solid blow to make sure it's seated fully, or else it can go bad.
3. Put everything you'll need on a cart next to your project. No running back and forth to the crib to get stuff you forgot! This includes everything we sent you



sent you, plus plant air to blow out chips, a hammer, ratchet or torque multiplier, sockets, and a screwdriver to break up the chips the C-Sert will make as it cuts its way in.

4. Put the 60-degree center in the chuck. Tighten one set screw.

5. Plug in the drill.

6. Center the drill on the hole you're going to open up. Turn on the drill's magnet. You may not get the drill centered the first time you try. If you don't, just turn off the magnet briefly and fine tune the center. You'll get it. **From this point on, don't turn off the magnet until the hole's final pass is done.**
7. Remove the 60-degree center. Pick up the first annular cutter (check the enclosed chart to make sure you have the right one!) and stuff some paste lube into it. A teaspoon is plenty. Put the annular cutter into the chuck and tighten both set screws down well. Turn on the drill. Here's where you need some experience and common sense. **You** determine the feed rate. At first, you're going to get some chatter. Don't let it bother you. Press through it until the cutter starts to bite smoothly. Then let the cutter do the work, **not you**. There's no problem in going too deep. To make things go faster, mark the flutes of the cutter with an indelible metal marker, or mark a dowel or "chopstick" as a depth gauge and check as you go. Your hole just has to be deeper than the C-Sert's length.



8. Once you've reached the right depth, back out the cutter. **Don't turn off the drill's magnet.** Loosen the cutter. Replace it with the next, larger cutter. Remember first to put a teaspoon of paste lube in the cutter. Tighten the cutter well in the chuck. Drill to depth, same as before. You're done.

FAQ



What's the cost of this installation system of yours?

It's low, really low. For a bit under \$1,100 you get our #MD29 29-lb. mag drill, at least 2 cutters, a 60-degree center, and paste lube. The #MD35 35-lb. drill and its components come out just under \$2,1000.

C-Sert is a distributor of the mag drills, cutters, etc. We pass along all the components at our distributor cost. No mark-up, because the easier it is for you to buy the system and quickly install C-Serts, the better for us both.

I thought these "slugger bits" were just for through holes, like for truck frames. Am I wrong?

Most of the time you'd be right, but not for C-Sert pilot holes, because we're starting with an existing hole and all we're doing is enlarging it. So, yes, the cutters do work on blind holes

Why can't I just use my own magnetic drill and bits?

You can. But if your C-Sert pilot hole is big, then your mag drill has to be big and heavy. That's what we're trying to avoid for you.

How many holes can I open with a cutter before it gets dull?

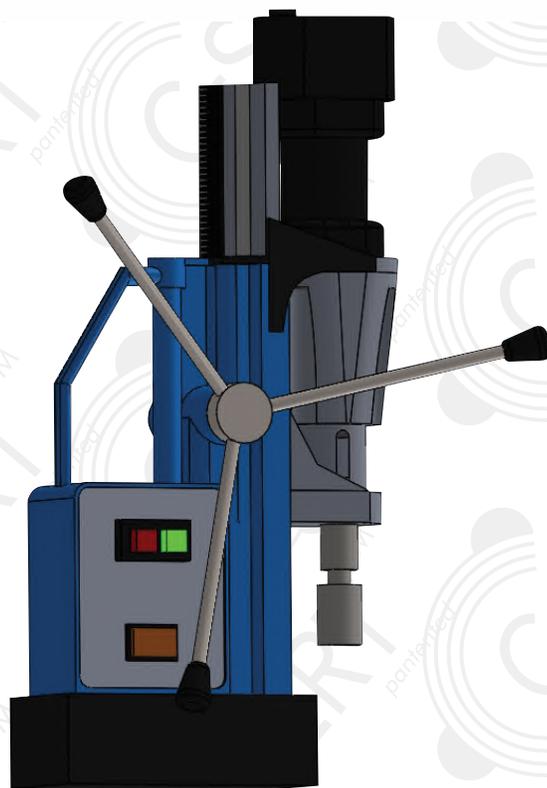
Around 100 linear inches of depth, so long as you don't force it, you pay attention to the feed rate, and you use the paste lube.

Why the paste lubricant? Why not traditional liquid coolant?

Most mag drills, especially the light-weight ones, have gravity-fed coolant systems. They're fussy. Worse, they don't work when the drill is horizontal, like on a mill stand or platen. The paste lube works in all positions and is "idiot proof."

How do you use this paste lube?

You stuff a teaspoon of it into the annular cutter. When the cutter starts to cut, it heats up. The paste lube melts and runs straight to the cutting teeth, exactly where you want it to be.



How does the 60-degree center work?

You put it in the mag drill and tighten one set screw, then position the center in the hole and turn on the magnet. If you're off a bit, briefly turn off the magnet, move the drill and turn the magnet back on to fine tune the center.

What size holes is the 60-degree center good for?

All C-Sert sizes, 1/4" through 1-3/4" and 6mm through 42mm.

What are annular cutters made of?

All the 2"-long cutters are HSS with a titanium nitride coating; all the 3"-long and 4"-long cutters are carbon steel with carbide teeth.

Who makes your annular cutters?

BDS Maschinen, Germany.

Who makes your magnetic drills?

BDS Maschinen, Germany

Why did you choose this brand of mag drill?

We thought the BDS drills showed the best combination of light weight, magnet strength, horsepower, maximum stroke (vertical travel), and reliability. Plus, we liked that they had a minimum of electronics, which means fewer things to go wrong in the field.

Do you stock the components, or are they special order?

Everything is in stock in Portland, Oregon, USA.

C-SERT.COM 971-347-3185 INFO@C-SERT.COM

C-Sert Manufacturing Portland, Oregon