AHB

TOOLING & MACHINERY

COMPLETE METALWORKING SOLUTIONS

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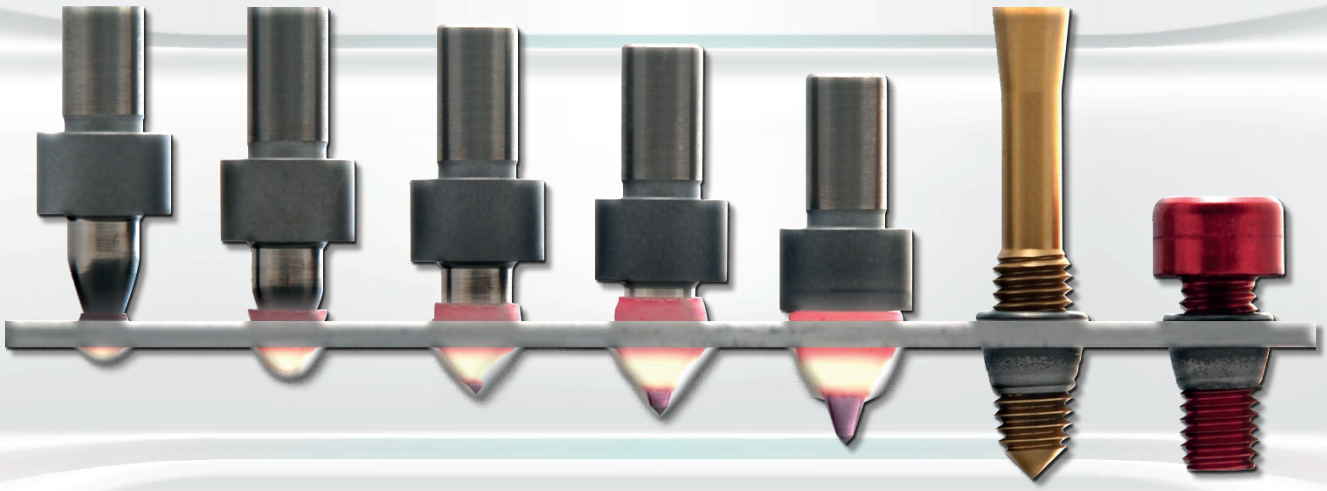
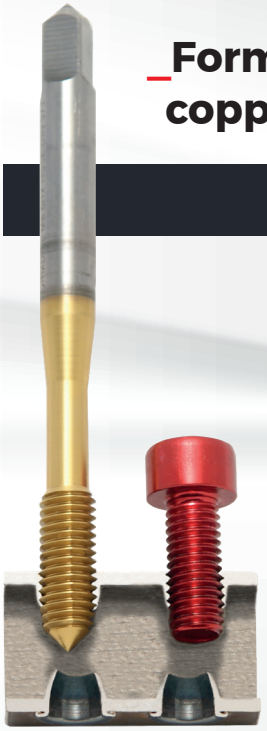
formdrill®



Form your own inserts as simple as 1, 2, 3

www.formdrill-usa.com

_Formdrills will produce your own inserts out of the part's material



_Formdrill process works in steel, stainless steel, copper, brass and aluminum up to 0.500" thickness

_More ADVANTAGES & BENEFITS

- Very fast process
- Strong connections, high pull out and torque values
- Very cost effective compared to weld nuts or threaded inserts
- No special machines required
- Only small investment required
- Repeatability, high tolerances
- No additional components
- Can easily be automated
- Clean workspace (chipless)

_Application Wizard

The wizard is available for determining steel and stainless steel applications.

Provides required tools, machining parameters and prices for your specific application. Check it out on our website!

_How does it WORK?

Formdrills use rotational speed and axial force to produce friction.
This friction heats up the material and softens it enough to make a hole and displace the material to form an insert.

The length of the formed insert is 2 to 3 times the original material thickness.

The next step is to create threads using a forming tap, Formtap.

Self-tapping screws can be used to save the tapping operation.
This formed insert can also be used as a through hole for welded, soldered or brazed connections in copper tubing or for a load bearing surface as in U-Joints.

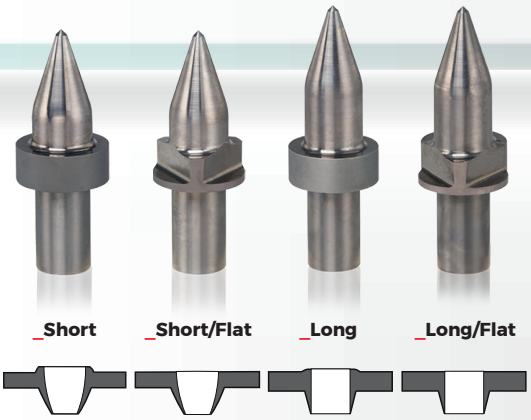
_To form your own inserts you can use a standard drill press, milling machine or CNC system and the following tools and accesosories:

1. A **_Formdrill** specified by diameter and style

_Short styles are used in thinner materials

_Long styles are for thicker materials and for straight through holes

_Short / flat or **long / flat** style to remove the upper portion of the bushing for a flush flat surface finish



2. _Tool holder and **Collet**
Available in different sizes and shanks. The tool holders have a special heat sink attached for dissipating excess heat generated by repetitive drilling. This is very important to protect your drilling equipment.

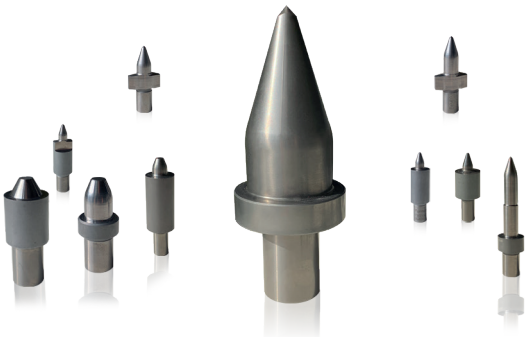
4. _Formtap is a roll forming style tap used to maximize thread strength and pull-out resistance. No chips are produced.

3. _Lubrication Unit
Lubrication units are available for use in CNC machines.

5. _Lubricant is designed to prolong tool life by reducing material build up on the tool. Lubricants are available in both paste and liquid form.

6. _Formdrill Portable Mag drill
Mobile solution to use our Formdrill tools outside the work shop. The drill is manufactured to the highest quality standards and can be used up to M10 in 3.0mm (7/16-UNC - 1/8NPT in 0.120" wall)

7. _Special Tools
We also manufacture special Formdrill tools according to your application. Everything is possible: different length, angle, coating, cut off tip or any other modification.
Our engineers will gladly assist in designing custom Formdrill tools.



8. _Starter Set
A complete set to start with Formdrill. Tool case with Formdrill tool, Formtap, lubricant; Everything you need to get started. Available in many different setups.

The process is proven; it has been in use for over 50 years.

Users include multi-national groups in the automotive, heating and cooling, medical equipment, building structural frameworks, road lighting and signal fixtures and metal furniture manufacturers.

Formed inserts are as strong or stronger than the same diameter welded nuts:

Thread type and Ø	Wall Thickness	Din Welded nuts (pull-out force in N)	Formdrill (pull-out force in N)	Torque (in Nm)	Class
M4 x 0.70	2.0 mm (.080")	8,750	8,280	9.0	8
M5 x 0.80	2.0 mm (.080")	14,200	14,940	13.0	10
M6 x 1.0	3.0 mm (.120")	24,000	+24,000	26.0	12
M10 x 1.25	4.0 mm (.160")	69,500	69,800	96.0	12
M12 x 1.75	5.0 mm (.200")	84,000	97,000	267.0	10
M20 x 2.5	5.0 mm (.200")	196,000	+200,000	-	8

These values apply to mild steel. Torque and pull-out resistance will vary with different materials.

NPT Formed Inserts have been pressure tested by several of our customers: Generally, vessels being tested deform and sometimes burst at the seams before the Formdrill connections leak.

Drill presses, milling machines or CNC systems will work. Examples of equipment requirements are as follows:

UNC Threads

Thread diameter	Formdrill part no.	Motor power	Spindle Speed (mild steel)	Spindle Speed (stainless steel)	Cycle Time (seconds)
1/4" - 20	FD0570S	1.6	2,800 RPM	2,500 RPM	2.2 sec
3/8" - 16	FD0870S	2.0	2,500 RPM	2,100 RPM	3.4 sec
1/2" - 13	FD1170S	2.7	2,000 RPM	1,800 RPM	4.9 sec
3/4" - 10	FD1780S	4.0	1,500 RPM	1,000 RPM	10.0 sec

NPT Threads

Thread diameter	Formdrill part no.	Motor power	Spindle Speed (mild steel)	Spindle Speed (stainless steel)	Cycle Time (seconds)
1/8" - 27	FD0940S	2.4	2,200 RPM	1,900 RPM	3.6 sec
1/4" - 18	FD1240S	2.7	2,000 RPM	1,800 RPM	5.1 sec
1/2" - 14	FD1960S	4.0	1,200 RPM	1,100 RPM	12.7 sec
3/4" - 14	FD2500S	5.3	900 RPM	850 RPM	20.1 sec

Metric Threads

Thread diameter	Formdrill part no.	Motor power	Spindle Speed (mild steel)	Spindle Speed (stainless steel)	Cycle Time (seconds)
M3 x 0.5	FD0270S	1.3	3,300 RPM	2,600 RPM	1.8 sec
M5 x 0.8	FD0450S	1.6	2,800 RPM	2,500 RPM	1.8 sec
M8 x 1.25	FD0730S	2.0	2,500 RPM	2,100 RPM	3.9 sec
M20 x 2.5	FD1870S	4.0	1,300 RPM	1,100 RPM	11.9 sec

Parameters may vary according to material properties. Consult us for Aluminum and Copper.

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Subsidiaries

Belgium	www.formdrill.com
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