

H.O.T. PRODUCT MEMO # 010-W

TXP High Feed Milling Cutters



Product category: H.O.T. product

Application Area: Very High Feed rate face milling and pocket milling in steels, and cast irons

Target Markets: Mold and Die market including manufacturers of mold bases and any cavity type work. General market including face milling applications using CNC machining centers, either horizontal or vertical types providing that the machines are rigidly built and have feed capabilities of 250 IPM or more along with sufficient H.P.

Features and Benefits:

- **FEED RATE.** The TXP cutters are capable of very high feed rates in steels and cast irons . Thus, the major impact that a TXP cutter can have on an operation is by reducing the overall cycle time.
- **Multi-functional.** Because of the design, the TXP cutter can also ramp feed, circular and helically interpolate mill. Again providing reduced cycle time. By using a ramping cut there is no lost time as the mill never leaves the cut or by using a ramp feed the user can generate a pocket without having to first drill a starter hole.

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Product Strengths:

- **Thick Inserts.** Inserts for the TXP cutter are .250” thick to withstand the high cutting forces developed in high feed milling.
- **AH120-** this powerful and popular grade is the only grade you need to cut carbon steels, alloy steels, mold steels and both cast and nodular iron.
- **Double Clamping.** We use both an insert screw and a top clamp to position and hold the trigon inserts in their pockets.
- **Large radius:** The leading edge of the cutter blends to a generous radius that generates the surface of the parts
- **Unique design and concept:** TXP offers a new and exciting way to mill parts that no other cutter can offer.

Application Example Compared to Conventional Milling:

- Milling 1018 steel plate:
- Using conventional milling tools and practices, a 4-inch, 5 tooth, face mill would be run at 500 SFM, and .008 IPT, 19.1 IPM. Good machine practice would be to take $\frac{3}{4}$ of the cutter diameter (3 inches) and .100” deep of cut. At these conditions the metal removal rate is **5.73 in³ /min.**
- Using the TXP milling process we would run at the same 500 SFM and 3 inches width of cut, but at .060 deep and as much as .080-inch per tooth or **228 IPM.** At these conditions the metal removal rate would be **41.04 in³/min. That’s seven times faster!**
- A job that might take 7 hours could be done in one hour, a savings of six hours. At a burden rate of \$120 per hour (not unusual on today’s CNC machining centers) 6 hours saved equals \$720. A 4-inch TXP is only \$749

Technical Information:

- The TXP cutter should be run a very close to normal speeds for a given material. It is the **feed rate** that we can increase, not the RPM.
- The TXP is a **STOCK REMOVAL** tool. The finish generated by it’s cutting edges will appear to be rough. This is normal and to be expected. In fact, if the finish is good it is likely the tool is being fed too slow.
- For all applications we recommend to run the TXP cutter DRY and if possible use a air blast to remove chips.