



## Troubleshooting Guide

	Potential Problem																						
	Accelerated corner wear	Barber pole	Bell mouth hole	Insert chipping	Blue chips	Build Up Edge (BUE)	Chatter	Chip packing	Chipping of point	Damaged or broken tools	Excessive margin wear	High flank wear	Hole lead off	Hole out of position	Hole out of round	Notching of insert	Oversize hole	Poor hole finish	Poor tool life	Power spikes - Load meter	Retract spiral	Step burned on insert	
Setup Condition	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Possible Solutions
<p>▲ Use of Standard, Standard Plus, Extended, Long, Long Plus, XL, and 3XL holders.</p> <p>See page 148 for Deep Hole Drilling guidelines.</p>		2	3				7		9				13	14			17				21		<ul style="list-style-type: none"><li>Start with short holder and drill a minimum depth equal to 2xD (see page # for instructions).</li><li>Spot hole with stub tool of same or greater included angle as T-A® drill insert.</li><li>Decrease feed a minimum of 50% until establishing full diameter.</li><li>Use special holder with wear pads or chrome bearing area to work with drill bushings.</li></ul>
Starting on an inclined surface.							7		9	10	11		13		15						21		<ul style="list-style-type: none"><li>Spot face surface to provide a flat entry surface.</li><li>Spot hole with stub tool of same or greater included angle as T-A® drill insert.</li><li>Decrease feed a minimum of 50% until establishing full diameter.</li><li>Use special holder with wear pads or chrome bearing area to work with drill bushings.</li></ul>
Worn or misaligned spindle (lathe, screw machine, chuck).	1		3				7		9	10	11		13				17	18			21		<ul style="list-style-type: none"><li>Align spindle and turret or tailstock.</li><li>Repair spindle.</li><li>Spot hole with stub tool of same or greater included angle as T-A® drill insert.</li></ul>
Use of low rigidity machine tools (radial drills, multi-spindle drill press, etc.).		2	3	4			7		9	10			13	14							21		<ul style="list-style-type: none"><li>Spot hole with stub tool of same or greater included angle as T-A® drill insert.</li><li>Reduce penetration rate to fall within the physical limits of the machine or setup (<b>NOTICE:</b> Do not reduce feed below threshold of good chip formation).</li><li>Use special holder with wear pads or chrome bearing area to work with drill bushings.</li><li>Use tougher tool steel grades with high wear resistant coatings.</li></ul>
Poor work piece support.		2		4			7			10	11				15			18			21		<ul style="list-style-type: none"><li>Provide additional support for the work piece.Reduce penetration rate to fall within the physical limits of the machine or setup (<b>NOTICE:</b> Do not reduce feed below threshold of good chip formation).</li><li>Use tougher tool steel grades with high wear resistant coatings.</li></ul>
Flood coolant, low coolant pressure or low coolant volume.	1				5	6		8		10		11					17	18	18	20		21	<ul style="list-style-type: none"><li>Run through coolant tool holder when drilling greater than one times diameter.</li><li>Increase coolant pressure and volume through the tool holder.</li><li>Reduce penetration rate to fall within the coolant limitations (<b>NOTICE:</b> Do not reduce feed below threshold of good chip formation).</li><li>Add a peck cycle to help clear chips.</li></ul>

**⚠ WARNING** Tool failure can cause serious injury. To prevent:

- When using holders without support bushing, use a short T-A® holder to establish an initial hole that is a minimum of 2 diameters deep.
- Do not rotate tool holder more than 50 RPM unless it is engaged with the workpiece or fixture.

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