



# **HOW TO AVOID CNC FIRES**

**BASED ON REAL LIFE**

# FEEDS AND SPEEDS

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FAST SPINDLE & SLOW FEED = FRICTION



CNC TOOLS MOVE 1000 INCHES PER  
MINUTE OR MORE.

SLOWER FEED REQUIRES LOWER  
SPINDLE RATE



# KNOW YOUR TOOLS

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CUTTING TOOLS HAVE SPECIFIC USES.



INCORRECT USE INCREASES FIRE RISK



# KNOW YOUR TOOLS

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## UP CUT END MILLS

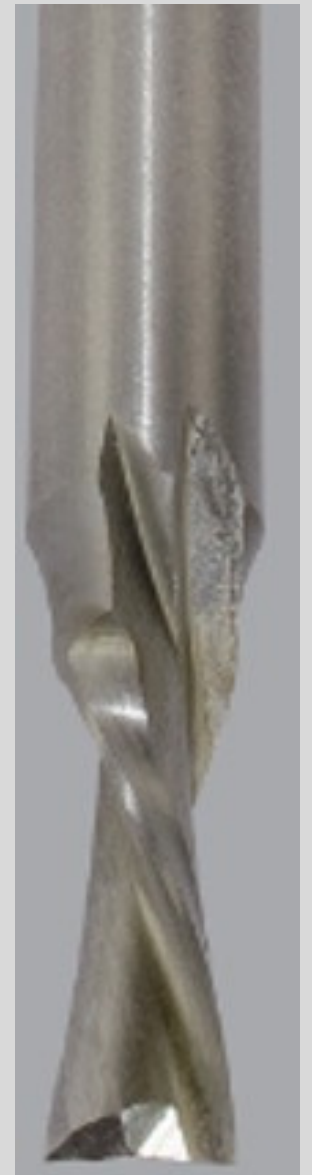
USED PRIMARILY WITH  
PLASTICS TO EXTRACT  
WASTE UPWARD



# KNOW YOUR TOOLS

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DOWN CUT END MILLS  
TYPICALLY USED IN WOOD  
FOR GROOVING, SLOTTING  
AND SIMILAR



**DO NOT USE FOR DRILLING**



# KNOW YOUR TOOLS

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COMPRESSION END MILLS  
TYPICALLY USED FOR CUTTING  
PLYWOOD AND MELAMINE

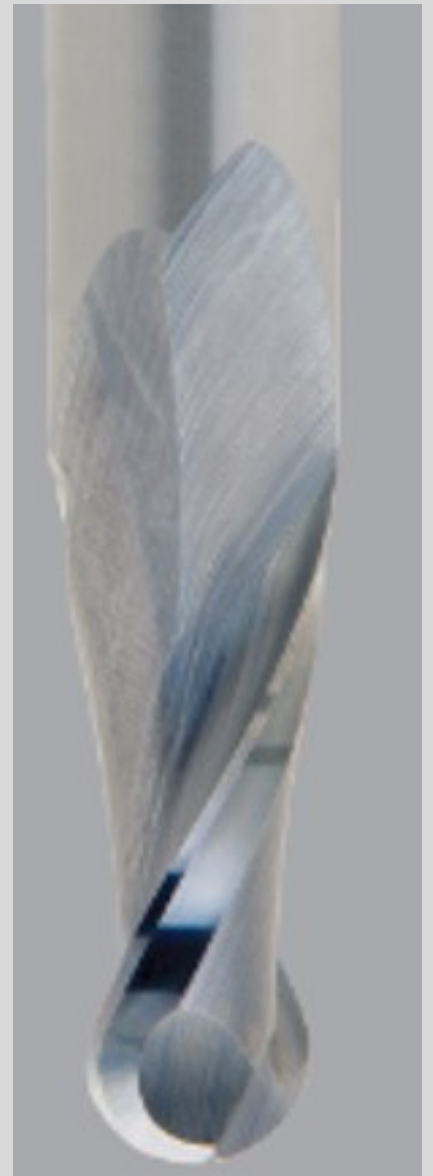
**DANGER**  
**DO NOT USE FOR DRILLING**



# KNOW YOUR TOOLS



## BALL NOSE



USED TO CUT GROOVES IN BOARDS,  
COVERED EDGES AND 3D SURFACING



# KNOW YOUR TOOLS



## PROFILING

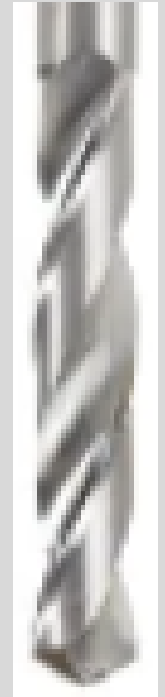
USED TO MAKE DECORATIVE EDGES  
**VERY IMPORTANT TO PAY ATTENTION  
TO FEEDS AND SPEEDS**





# KNOW YOUR TOOLS

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## DRILL BITS

USED TO DRILL HOLES TO A SPECIFIC  
DIAMETER

**IMPROPER FEEDS AND SPEEDS  
INCREASE FIRE RISK**



# KNOW YOUR TOOLS

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## LEFT & RIGHT HAND DRILL BITS

TYPICALLY USED IN MULTI-DRILL UNITS  
OR ROUTING HEADS

**LH DRILL BIT REQUIRES CLOCKWISE  
SPINDLE ROTATION**



# KNOW YOUR TOOLS

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## SAWING HEADS

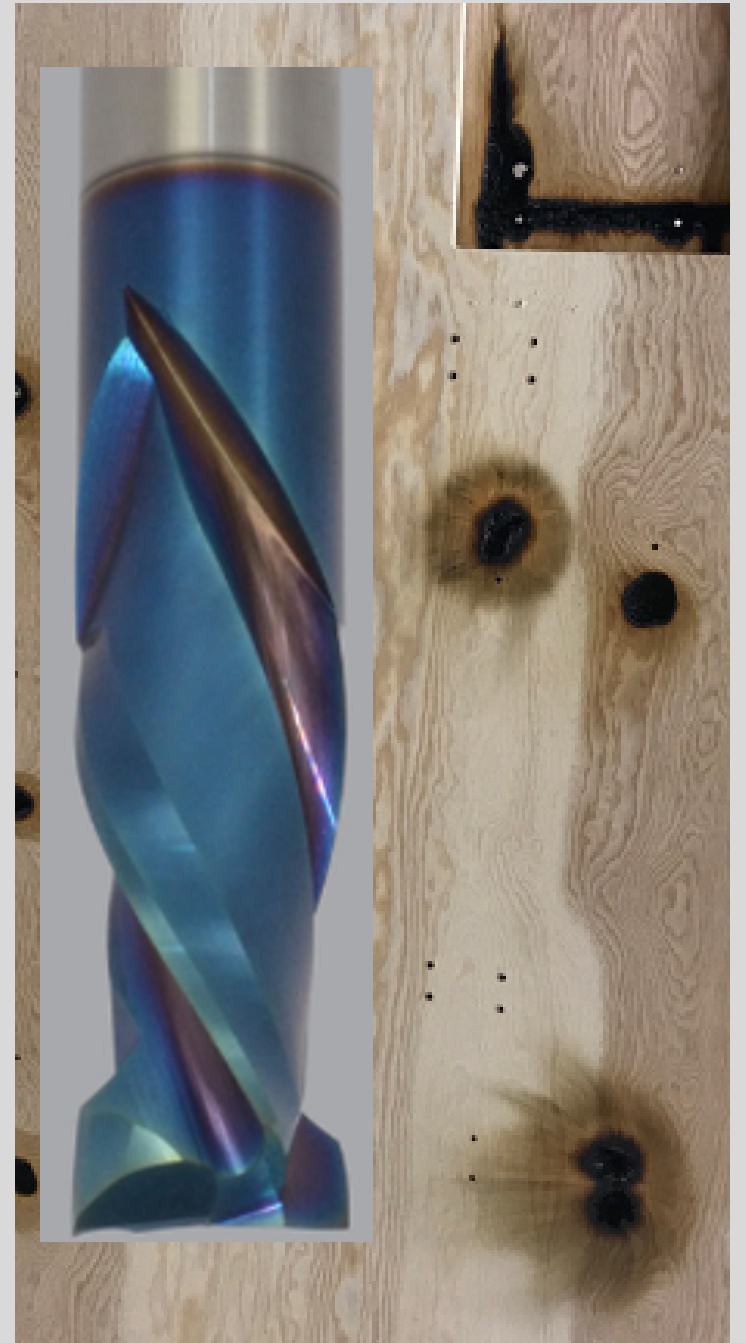
DULL BLADES AND  
INCORRECT ROTATION  
INCREASE FIRE RISK 



# WRONG

## DON'T DO THIS

COMPRESSION CUTTER  
USED INCORRECTLY TO  
DRILL HOLES IN 3/4 PLY



# **CNC FIRE?**

## **DON'T PANIC**

- 1. CALL 911**
- 2. STOP ALL CUTTING**
- 3. MOVE TOOL AWAY FROM PARTS**
- 4. TURN OFF CNC**
- 5. TURN OFF DUST COLLECTION**
- 6. TURN OFF VACUUM PUMPS**
- 7. REMOVE MATERIAL FROM SPOIL BOARD**
- 8. POUR WATER ON BURNED AREAS**
- 9. CHECK UNDERSIDE OF SPOIL BOARD**
- 10. REMOVE VACUUM PUMP FILTERS**
- 11. REMOVE DUST COLLECTION BAGS AND MOVE OUTDOORS**



# TIPS

## TO REDUCE CNC FIRE RISK

1. USE SHARP, BALANCED CUTTING TOOLS
2. DON'T USE CUTTERS TO DRILL HOLES
3. USE PROPER CUTTING FEED & SPINDLE RPM RATES
4. CONFIRM CORRECT SAW BLADE ROTATION
5. KEEP SPOIL BOARDS IN GOOD SHAPE
6. KEEP VACUUM PUMP FILTERS CLEAN
7. OBSERVE CUTTING BEST PRACTICES
8. DON'T LET OPERATORS REDUCE FEED RATE



# STAY SAFE

I'm Jim Paden. I eat, live, and breath CNC.

Let's keep learning.

Follow me for more CNC Tips.

Comment with your CNC questions.





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