

Understanding Fire Risks and Fire Protection Options for CNC Machine Shops

 **FIRETRACE**™ | International


A Halma company

Meet the Presenters



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Did You Know?

\$50 Billion

Machine shops over lose \$50 billion annually from unplanned downtime delays

40%

of machine shops that close due to a fire never reopen, and of those that do, 30% of these shops fail within three years

20%

of all CNC machines are running oil-based coolant

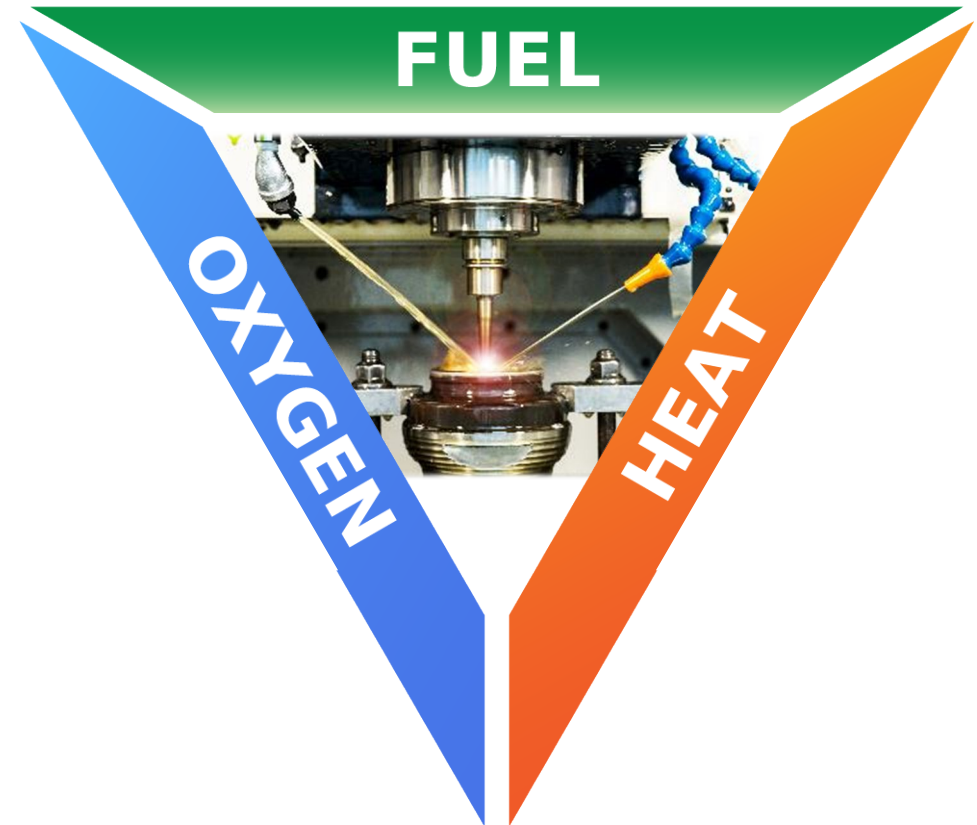
76%

As of 2017, 76% of manufacturers reported having automation in the works in their shops, which includes unattended machining

What Causes the Risk?

Understanding the Fire Tetrahedron

For a fire to start you need 3 things: fuel, oxygen, and heat. In a CNC machine running oil, you have two of the three. All that is needed is an event to occur that generates enough heat or a spark to ignite.



Risk Factors for CNC Fires?

**OIL-BASED
COOLANTS**

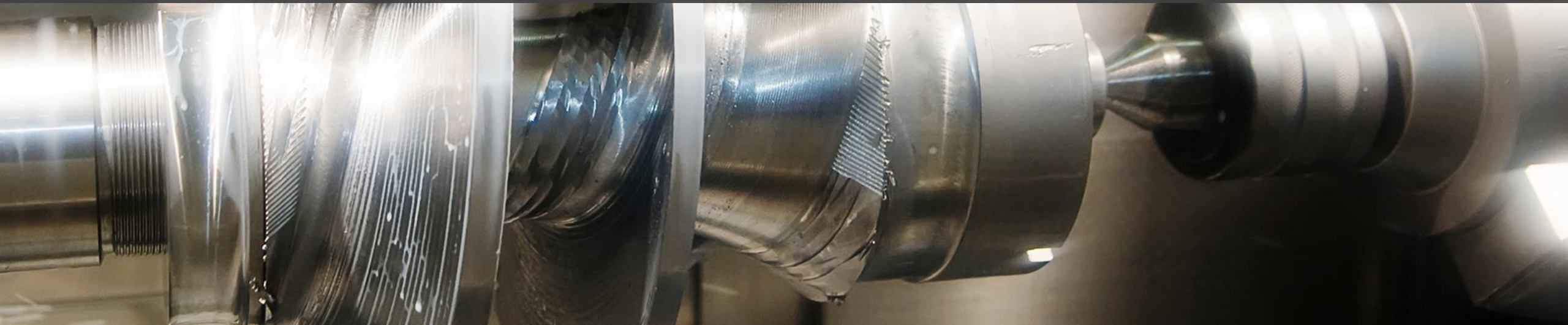
EXOTIC METALS

i.e. Magnesium,
Titanium

**RUNNING
LIGHTS OUT/
UNATTENDED**

**HIGH SPEED,
PRECISION
OPERATIONS**

Medical, Aerospace
Automotive, Firearms



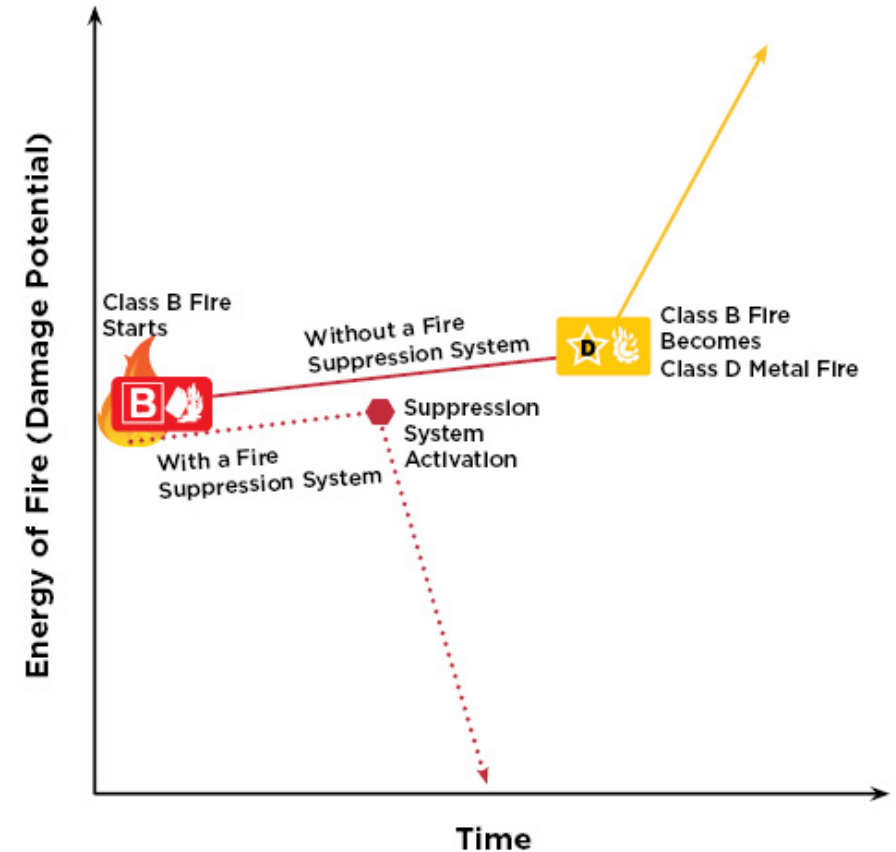
The Class Matters

The most common fires seen in machine shops are Class B fires, which are caused by a flammable liquid, i.e. oil-based coolant.

If these fires are suppressed quickly, damage and downtime can be minimized.

If not suppressed quickly, the energy builds and can create a Class D Metal Fire, which can be extremely difficult, if not impossible to put out without substantial damage.

Automatic fire suppression systems suppress Class B fires before a Class D fire has the chance to start.



Common Causes of Fires in CNC Machines are



Operator Error



Broken Tool



Metal Chips + Heat



Machine Malfunction

Comparing Your Options

	Fire Suppression System	Handheld Extinguisher	Sprinkler System
No human actuation required	X		X
Automatically shuts down machine	X		
Localized fire suppression	X	X	
System deploys at first sign of fire	X	X*	
System does not damage machine	X	X	
No clean up required	X	X**	
24/7 protection	X		X
Required by Fire Code		X	X

**Dependent on reaction time of operator*

***Dependent on chemical used*

Why Are Leading Machine Shops Using Fire Suppression?

- ☒ Protecting lucrative contracts – minimize downtime in case of a fire
- ☒ Insurance rate reductions
- ☒ Personnel protection
- ☒ Protecting assets/equipment

Weighing the Cost

WHAT IF YOU HAVE A FIRE WITHOUT FIRE SUPPRESSION?

\$250,000

Average CNC
Machine Cost

4-8 weeks

Average Downtime
in Fire Event

\$16,000

Downtime
Cost/Shift (Assume
3 shifts, High-end
shop)

\$336,000

Cost/Week

\$1.9M-\$2.9M

Cost of Fire Incident

Other potential costs: employee injury, loss of shop

Fire suppression systems on average are only 2%-4% the total cost of a CNC machine

How Will Installing Automatic Fire Suppression Affect Your Machines?



Fast installation in half a day



Plug and play system



Shared service schedule with extinguishers



Clean agents are safe for equipment

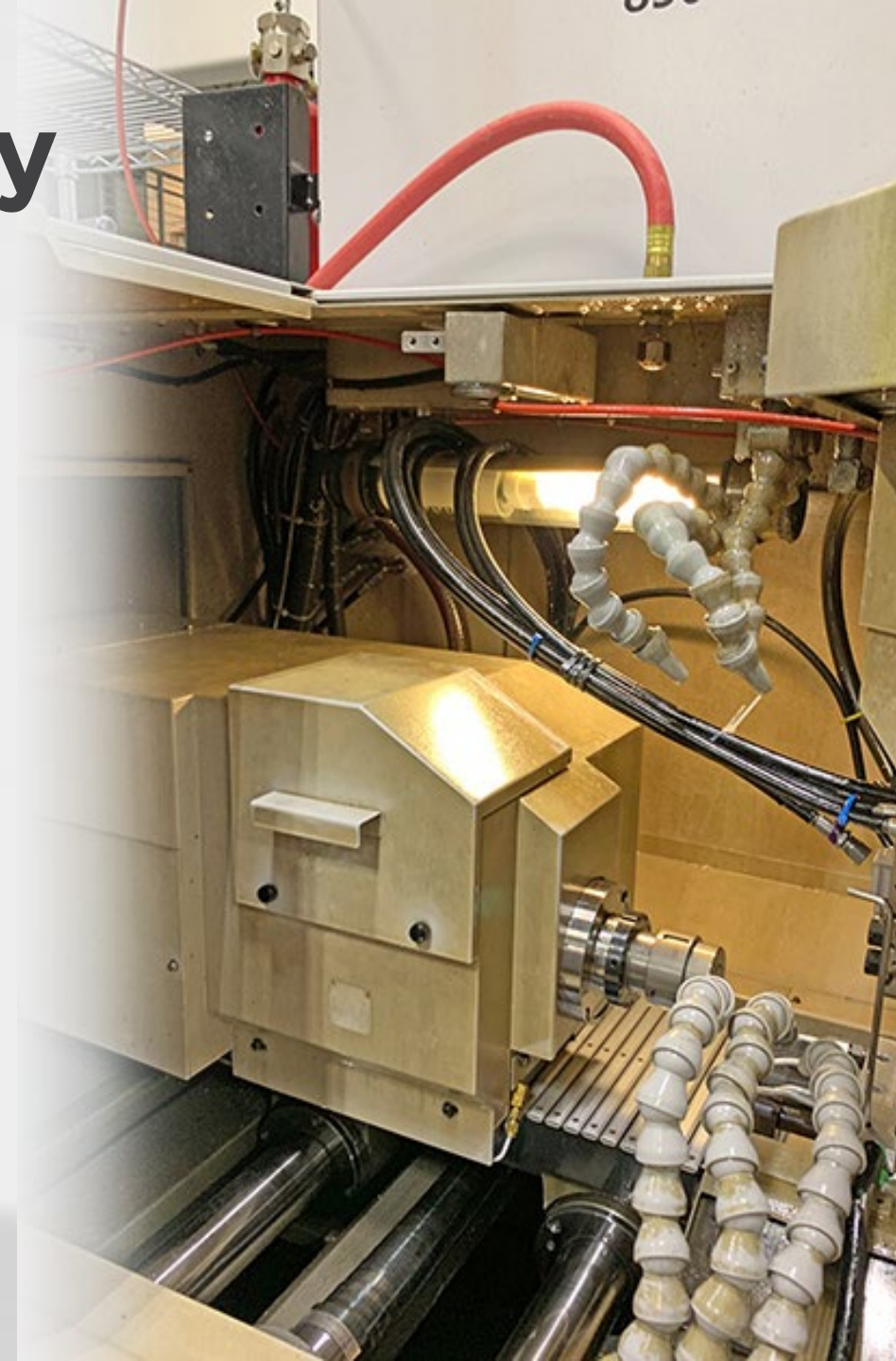
Hear From The Industry

“Anybody that turns any kind of metal knows the risk of the hot oil with the process, so for me investing in a system is really a no brainer”

Alexander Nachursk, CNC Operator at CNC Machining Solutions

“If you are running oil, you need two things: pollution control equipment and a fire suppression system.”

Sherwin Feldstein, Owner of United Standard Industries



A Case Study

Guidemark Precision in Quakertown PA had a save on an SR-32J while machining titanium medical parts.

The suppression system put the fire out before the operators had even realized there was a fire.

They estimated a cost savings of \$500K due to the Firetrace system.

“I can’t even imagine what would have happened if I didn’t have a Firetrace system on our machines. We were back up and running the same day with basically no damage.”

*Nick Tomes, Director of Manufacturing
Guidemark Precision, Quakertown, PA*



Suppressing A CNC Machine Fire



Is Fire Suppression For You?

Evaluate your fire risks:

- Machining with Oil Based Coolants
- Machining Exotic Metals
- “Lights Out Operation”
- High Speed, Precision machining

Evaluate your Business Risks:

- Protecting Contracts
- Protecting Business Continuity
- Protecting your People

[Download Your CNC Risk Assessment Today](#)

Contact the Presenters

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