

# TOWER™

METALWORKING FLUIDS



# What We Stand For

## Driving Technology

Continuing to track the needs of the future

- Concept to Formula
- Forward-Thinking Mindset
- On-Site R&D Laboratories
- Employing Creativity

## Unparalleled Support

Delivering world-class service and support

- Customer Focused
- Proactive Approach
- Enhanced Customer Service
- Technical Expertise

## Creating Value

Continual improvement of metalworking fluids

- Experience since 1933
- Advancing Formulas
- Custom Solutions
- Results Oriented

## Providing Solutions

Providing innovative ideas and solutions

- Value-Added Formulas
- Process-Minded Thinking
- Critical Thinking Skills
- Understanding Constraints

## Safety Focused

Committed towards delivering SAFE products

- Renewable Resources
- Dermatitis-Free
- Safer & Cleaner Facilities
- No Harm to Employees

# Management Team



**Scott Prince**  
President/CEO



**Kevin McCarthy**  
Executive VP / CFO



**Lloyd Hundley**  
VP / Laboratory  
Director



**Linda Nagel**  
Director of Finance &  
Admin



**Bob Anderson**  
Technical Services  
Manager



**Chris Fletcher**  
Sales & Marketing  
Manager



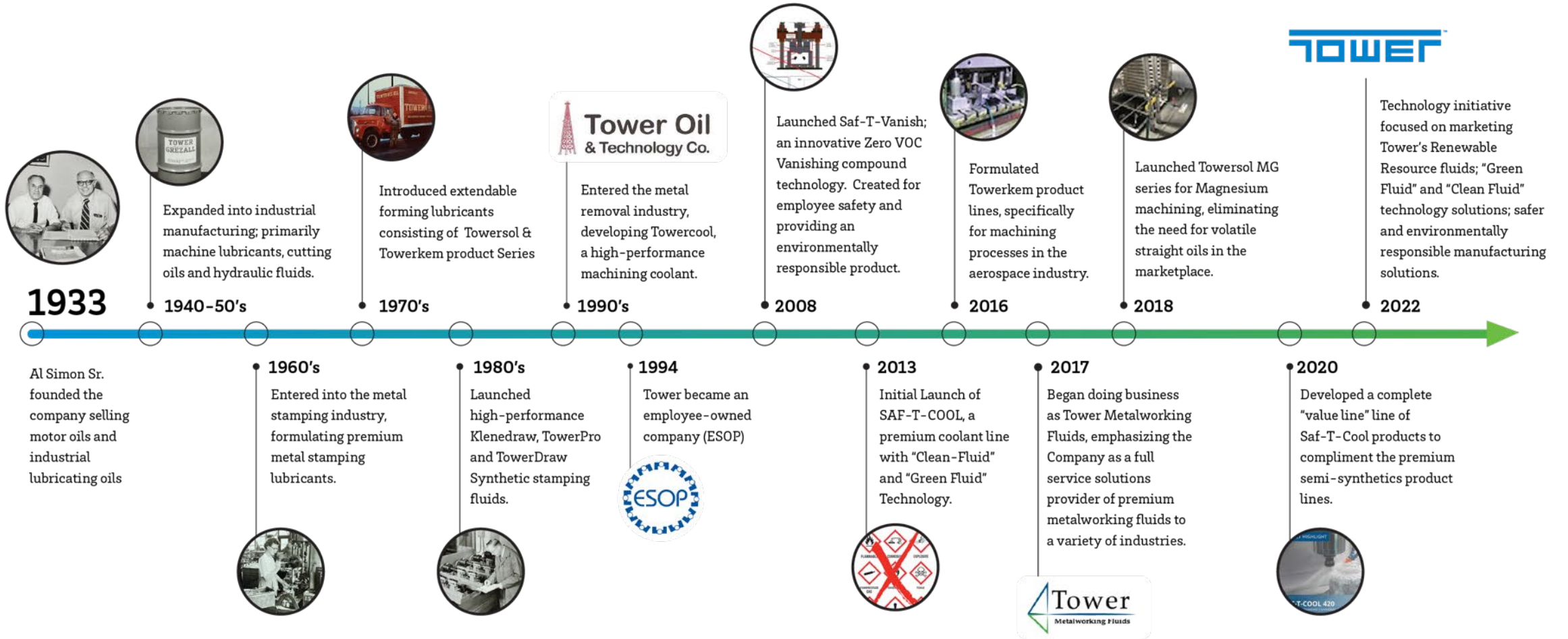
**Rich Wagyu**  
Operations Manager



From space travel to automotive parts to ordinary everyday household items, Tower Metalworking Fluids is a pioneer in helping metalworking industries craft precision parts and products that keep our world running.



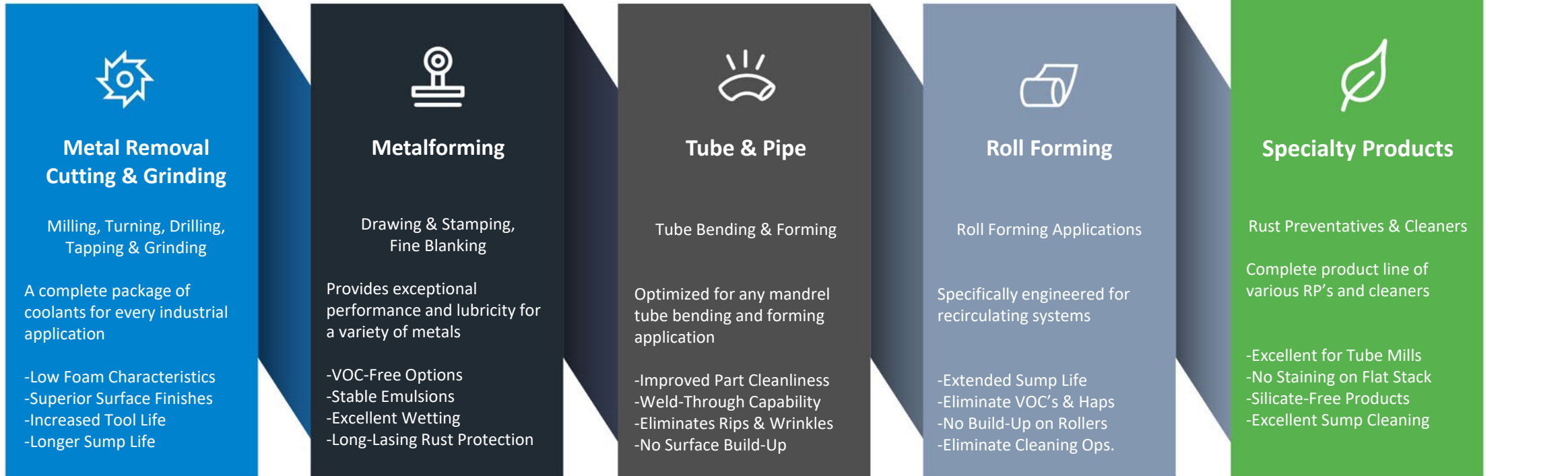
# Tower Timeline





# Product Line

Tower offers Advanced Metalworking Fluids specially formulated for achieving peak performance.



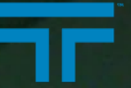


# Operations

Our production site and warehouse is strategically located in Chicago ensuring quick turnaround and delivery to meet our customer needs around the world.

- 50,000 sq. ft. facility located near Midway Airport in Chicago, Illinois USA
- On-Site R&D Laboratories, Manufacturing, Quality, Engineering and Sales
- Blending specifically to meet customer applications and processes
- Flexible manufacturing of 5-gallon pails, 55-gallon drums, 330-gallon totes and 5,000-gallon tankers
- Inside and outside storage capacity of over 600,000 gallons

# APPLYING ADVANCED CHEMISTRY TO Product Development



- Two independent on-site R&D Labs for the development of new high-performance products
- Chemists & technicians combined 95+ years experience
- Formulating specifically for individual customer needs and applications
- Specializing in developing leading-edge fluid technology designed for the health & safety of all employees
- Extensive custom research capabilities



A man with a beard and safety glasses, wearing a blue shirt, is focused on working on a piece of machinery in a factory or industrial setting. The background shows various industrial components and a red and white striped banner.

# PARTNERSHIP THROUGH Experience and Knowledge



- Understanding Your Objectives
- Engineering and Project Management
- Identifying Custom Solutions
- Developing Business Case Opportunities
- Product Education and Technical Assistance

# TECHNICAL SOLUTIONS THROUGH On-Site Support



- Monitor Reporting
- Inventory Management
- Lubrication Equipment
- Technical Consulting

**BRUDERER**



# Doing Business with Tower

ON TIME  
DELIVERY

99.2%

2021 RESULTS  
BASED ON 5,937  
SHIPMENTS

ERROR-FREE  
SHIPMENTS

99.4%

2021 RESULTS  
BASED ON 5,937  
SHIPMENTS

RETURNED/REJECTED  
BATCHES

9

2021 RESULTS  
BASED ON 3,692  
BATCHES PRODUCED



# Quality Standard

ISO 9001:2015





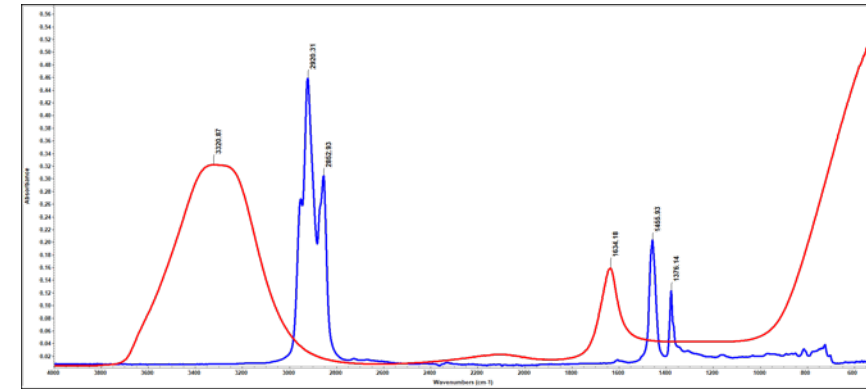
# Quality

PERFORMANCE TESTING



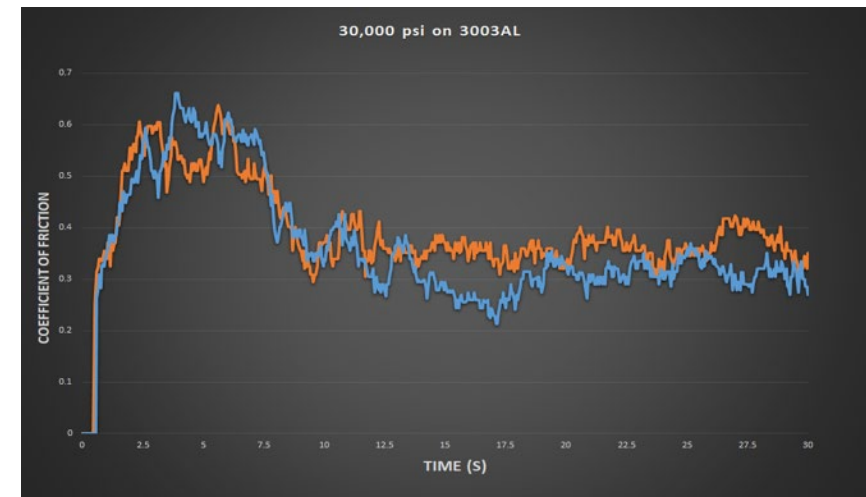
## Fourier Transform Infrared Spectroscopy (FTIR)

- Infrared light and specialized electronics to enable high resolution spectroscopy to identify organic, polymeric and in some cases inorganic materials.
- Enables accurate quantification and identification of products to ensure precise manufacturing and quality control.



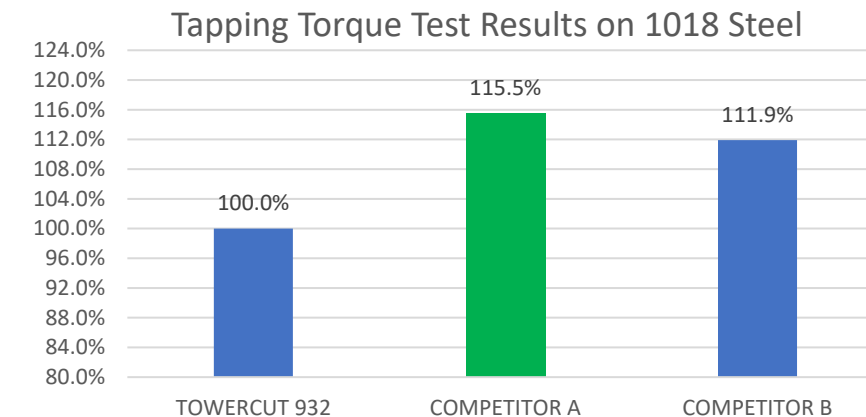
## Twist Compression Tester (TCT)

- One of only twenty such testing units in the US providing valuable data of load carrying capabilities and slip values on experimental “Metalworking Lubricant” formulas



## Micro Tap Torque Tester

- Quantitative Measure of the Lubricity Performance.
- ASTM standard method designation of D5619
- Excellent test of discriminating product performance in the laboratory.





# Performance Monitoring



## LABORATORY MONITOR SUMMARY

COMPANY:  
LOCATION:  
TOWER REP:

PRODUCT:  
TANK SIZE:  
UNIT/NUMBER:

Date Rec'd	Sample Date	Lab No.	RI		Volume %	pH Greater Than	Conductivity Less Than	Tramp Oil Less Than	Appearance	Odor	CIC Rust	Total Biological Activity (TBA)	Metal Fines Less Than	Alkalinity mL/RI	2024-T3 AL Staining	7075 AL Staining
			Low	High												
Target Range			3.6	5.4	7.5%	7.4	7500	3%	Clear/Slt Hazy Blue	Typical	<Slight	≤10 <sup>4</sup>	2%	15.2	<Slight	<Slight
03/09/20	03/03/20	20-093		4.5	7.5%	7.8	3270	Nil	Clear Colorless	Typical	Nil	Nil	Nil	16.0	Nil	Nil
03/17/20	03/11/20	20-105		4.6	7.7%	7.8	3360	Nil	Clear Colorless	Typical	Nil	Nil	Nil	16.4	Nil	Nil
06/08/20	06/02/20	20-146		6.0	10.0%	7.7	4290	Nil	Slt Hazy Colorless	Typical	Nil	Nil	Nil	17.3	Nil	Nil
06/19/20	06/10/20	20-167		6.3	10.5%	7.7	4330	Trace	Slt Hazy Colorless	Typical	Nil	Nil	Nil	16.6	Nil	Nil
06/23/20	06/18/20	20-171		6.4	10.7%	7.7	4430	Trace	Slt Hazy Colorless	Typical	Nil	Nil	Nil	16.8	Nil	Nil
06/30/20	06/25/20	20-174		6.6	11.0%	7.8	4160	Trace	Slt Hazy Colorless	Typical	Nil	Nil	Nil	16.9	Nil	Nil
07/06/20	07/01/20	20-178		4.7	7.8%	7.6	3520	Trace	Slt Hazy Colorless	Typical	Nil	Nil	Nil	16.5	Nil	Nil

NOTES: Fluid Concentration is determined from RI (Refractive Index), where VOLUME % = 1.67 X RI

### COMMENTS - REFER TO NOTES BELOW ADDITIONAL COMMENTS

- 20-093
- 20-105
- 20-146 **1**
- 20-167 **1**
- 20-171 **1**
- 20-174 **1**
- 20-178

Note	Criteria	Definition	Control Recommendation
1	RI	Refractive Index	Adjust the concentration to the targeted range.
2	pH	Alkalinity materials	Use coolant concentrate to increase the pH.
3	Conductivity	Charged materials	Do a partial or total dump and recharge the system.
4	Tramp Oil	Oil Contamination	Check for proper skimmer operation & remove floating oil.
5	Appearance	Fluid Appearance	Observe.
6	Odor	Fluid odor	Treat foul odors with biocide/fungicide.
7	CIC Rust	Corrosion	Adjust concentration & pH if needed. Treat TBA. Use LS-T-457
8	TBA	Bacteria, fungus, mold	Treat with biocide/fungicide to control biological activity.
9	Metal Fines	Chip removal	Address chip removal & filtration.
10	7075 AL	Aluminum Staining	Treat with aluminum stain inhibitor.



# Products

ENVIRONMENTALLY RESPONSIBLE & SAFE





## METALFORMING

Provide high-performance & superior lubricity, while achieving excellent rust and stain protection.

### **KLENEDRAW**

Water soluble synthetic, *Oil-Free* solutions producing exceptionally clean parts that can even be welded and provide excellent rust protection.

### **TOWERPRO**

Water soluble oil technology offering premium performance from light-duty to extra heavy-duty metal forming operations.

### **SAF-T-VANISH**

VOC-Free and solvent free disappearing fluids. Truly unique in the industry

### **TOWERDRAW**

Compounded straight oils, vanishing fluids & chlorine-free chemistries

### **TOWER FINE BLANKING SERIES**

Offering both traditional and chlorine-free chemistries



## KLENEDRAW

- Contains No Hazardous Ingredients
- In-Process Rust Protection
- Light/Medium Viscosity
- Cleans Easily in Aqueous Cleaners
- Excellent Surface Wetting
- Low Odor and Light Colored

## TOWERPRO

- Cleans in Water Based Systems
- Replaces Straight Compounded Oils
- Contains No Hazardous Ingredients
- Performs a Wide-Range of Operations
- Excellent Heavy-Duty Performance
- In-Process Rust Protection





## TOWERDRAW

- Provides Boundary-Film Lubrication
- Provided for Cleaner Parts
- Applied by Drip, Roller Coater or Airless Spray
- Suitable for Ferrous & Non-Ferrous Material
- Used in Stamping, Drawing & Rollform Operations
- Low Odor and Light Colored

## SAF-T-VANISH

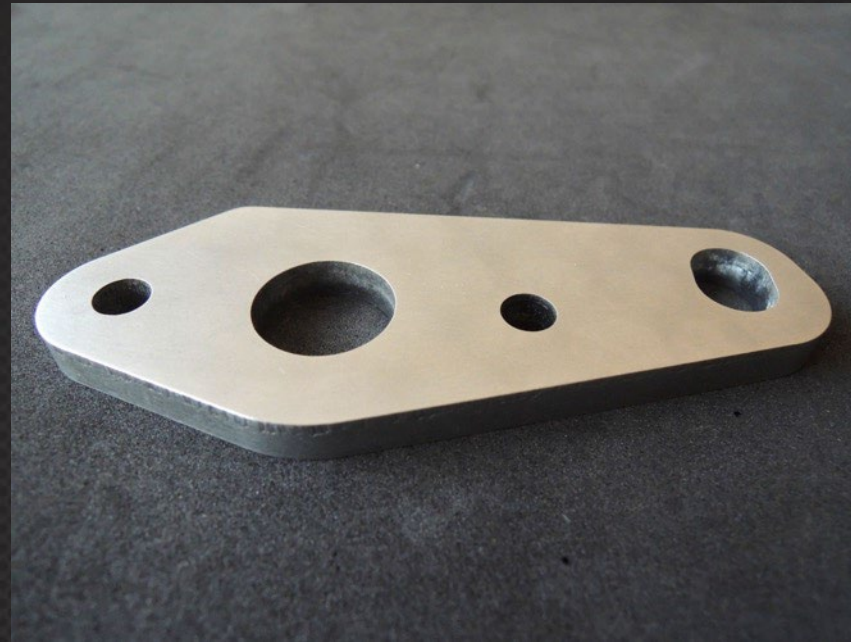
- No VOC's, HAP's or other Hazards
- Parts Clean After Evaporation
- Provides Excellent Corrosion Protection
- Applied by Drip, Roller Coater or Airless Spray
- Excellent Cooling, Flushing & Wetting Properties
- Superior Tool Life with Minimal Residue





## FINE BLANKING

- Chlorinated & Non-Chlorinated
- Performs at Extreme Temperatures
- Designed for heavy-Duty Operations
- Excellent Surface Wetting
- Oxidation Resistant
- Low Odor Characteristics





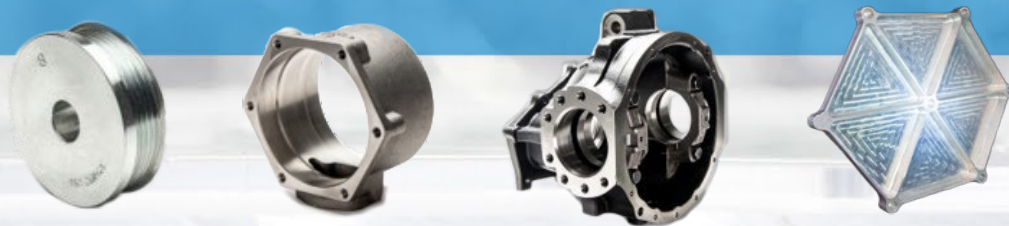
## Metal Removal Cutting & Grinding

### **TOWERKEM**

High performance, biostatic, synthetic coolants with special chemistry that reject tramp oils while providing exceptional rust protection and extended sump life.

### **SAF-T-COOL**

Chemistry formulated with renewable resources and low foam characteristics that cleans and rinses the machine as it runs, eliminating residues and protecting against corrosion.





## TOWERKEM

- Excellent Staining & Corrosion Protection
- Excellent Tramp Oil Rejection
- Minimal Residue Characteristics
- Excellent Biological Resistance



High Pressure – No Foam



Normal Flood

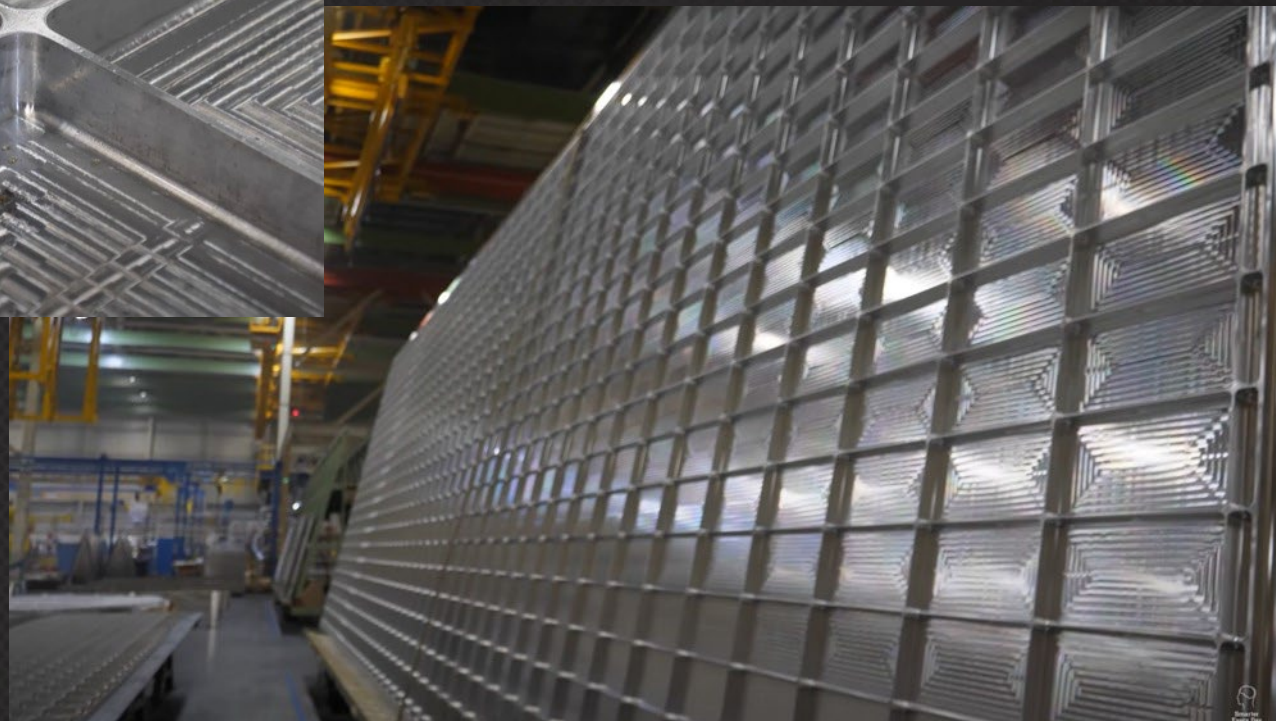
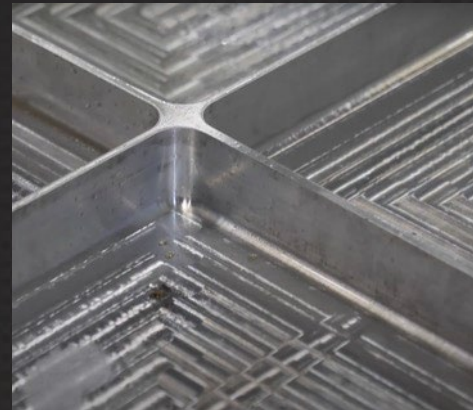


Clean and Safe



## TOWERKEM

- Low Misting Characteristics
- Outstanding Sump Life
- Superior Cleanliness on Machine



7xxxx Aluminum Rocket Side Panel



## SAF-T-COOL

- No Hazards-No Pictograms
- Excellent Sump Life
- Excellent Surface Finish & Tool Life
- Low Misting & Foam Characteristics
- Excellent Rust & Corrosion Protection
- No Sticky Deposits or Residues
- No Employee Skin irritation
- Reduces Carry-Off & Lowers Usage
- Cleans Machine While Running



Before using Tower Saf-T-Cool



90 Days After using Tower Saf-T-Cool



Pictogram-Free!





## Tube & Pipe

### **TOWERDRAW**

Products formulated as gels, pastes or compounded oils for more extreme processes. Formulated with a high degree of lubricity with excellent barrier and EP film strength for the toughest applications.

### **BEND-ALL**

Offering light to heavy synthetic gels formulated for bending, sizing, and other end forming operations. These products form a high-strength lubricating film on the mandrel and ID of the tube that will not slump or run-off under extreme temperatures. Allows for easy cleaning and weld-through capability when no wash is desired.





## BEND-ALL

Products offering light to heavy-duty synthetic gels formulated for bending, sizing, and other end-forming operations.

- Improved Part Cleanliness
- Weld-Through Capability
- Eliminates Build-Up on Surfaces
- No Slump or Run-Off
- Meets Navy Low Halogen Specs
- Eliminates Rips and Wrinkles





## TOWERDRAW

Products offering light to heavy-duty synthetic and oil fluid technology formulated for bending, flanging, flaring, swaging, sizing, and other end-forming operations.

- Hazard Free
- Improved Part Cleanliness
- Weld-Through Capability
- Meets Navy Low Halogen Specs
- Eliminates Rips and Wrinkles





## Roll Forming

### ROLLFORM COOLANTS

Designed for recirculating systems and is balanced to provide extended sump life. Formulated for a variety of ferrous and non-ferrous materials as well as coated materials used in a variety of industries and applications.

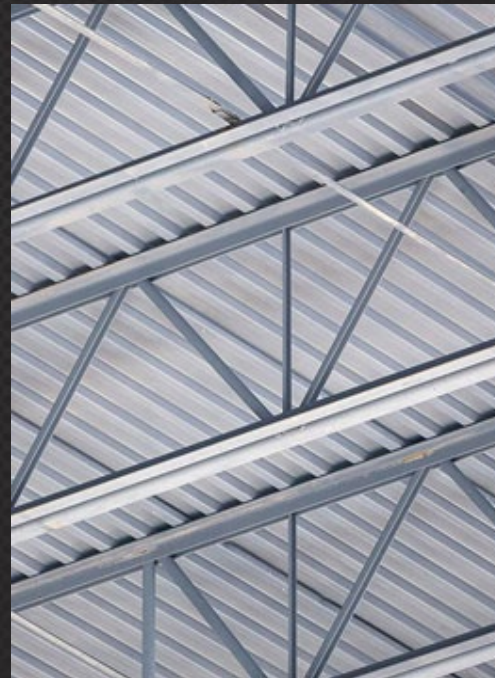
### SAF-T-VANISH

Products manufactured using ingredients derived from renewable resources. Formulated to replace vanishing oils made with hydrocarbon solvents that contain VOC's and HAPs. Designed for lighter roll forming operations and can be applied by roller coater, micro mist spray or airless spray systems.



## SAF-T-VANISH

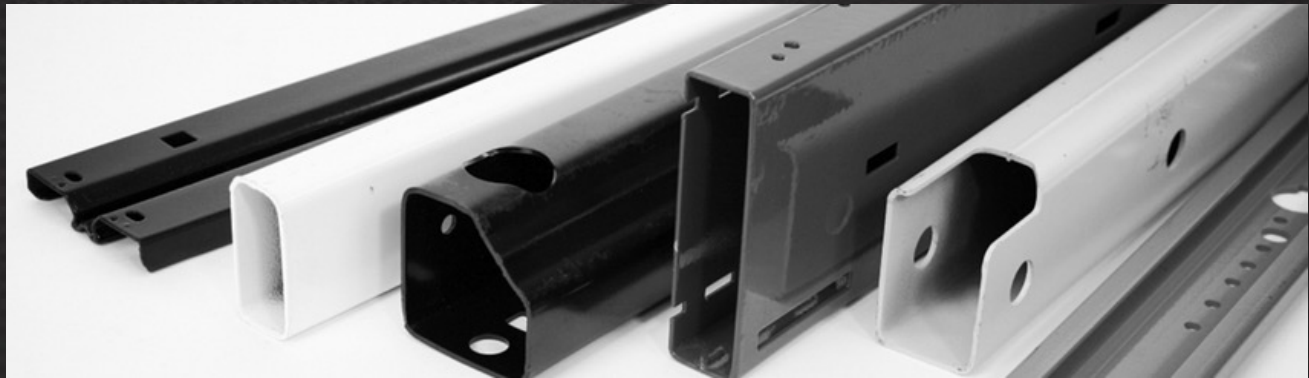
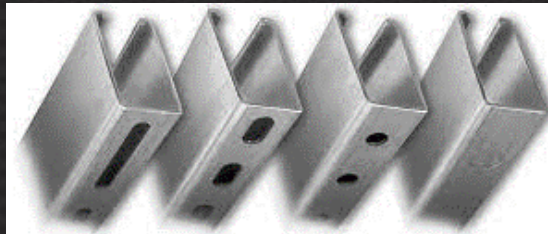
- Formulated Using Ingredients Derived from Renewable Resources.
- Designed for Lighter Metalforming, Drawing, Stamping and Roll-Forming Applications
- No VOC's
- Completely Hazard-Free
- Bio-Degradable





## ROLLFORM / TUBEFORM

- Especially Designed for Recirculating Systems
- Superior Lubricity
- Extends Sump Life
- Eliminates Build-Up on Rolls
- Provide Excellent Rust & Stain Protection





## Specialty

Rust Preventatives & Cleaners

Complete product line of various Rust preventatives and cleaners

### Rust Preventatives

Displaces Water Efficiently  
12 Months Outdoor Protection  
Excellent for Tube Mills  
No Staining on Flat Stack  
Process  
Minimal Film on Metal Surfaces

### Cleaners

Excellent for Sump Cleaning  
Safe on Ferrous & Non-Ferrous  
Materials  
Excellent Corrosion Protection  
Silicate-Free Products  
Works as Machines Run  
Low Residues

Our unique products use Tower's exclusive **"Clean Fluid"** and **"Green Fluid"** technology and have **No Hazardous Warnings!**



## RUSTBEAT

- Extreme Rust & Stain Protection
- Ideal for All Cleaning Systems
- Available as Dry, Oil or Wax Film
- VOC-Free Options
- Excellent for Humid Environments
- Water Displacing
- Weld-Over Capabilities
- Completely Hazard-Free



Outside Tube Storage – No Protection



Bar Stock with Protection





## TOWERKLENE

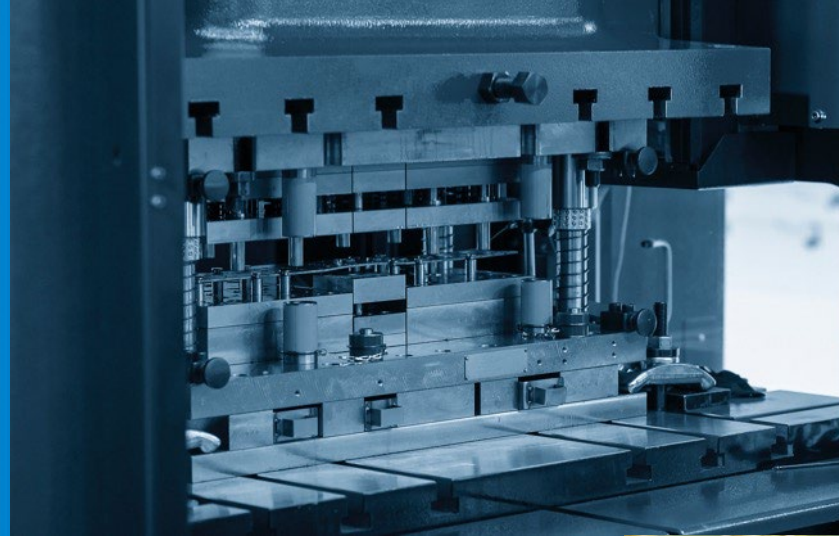
- Low Foaming
- Excellent for Sumps and Central Systems While in Operation
- Silicate-Free with Excellent Corrosion Protection
- All-Metal Safe



# Providing “Total Value” to the Process

- Increased Tool Life
- Eliminate Foul Smell & Odors
- Long Sump Life
- No Clogging Screens or Filters
- Lower Overall Usage Cost
- No Sticky-Tacky Residues
- Environmentally Friendly & Safe Products

Eliminate Hazardous Ingredients  
Clean Fluid / Green Fluid Technology  
Improved Operator Safety and Morale



Thank you.



Tower Metalworking Fluids – [www.towermwf.com](http://www.towermwf.com)

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