



## LUBRICANTS FOR **TUBE & PIPE FABRICATION**

- QUALITY PRODUCTS
- MODERN PRODUCTION FACILITIES
- PROFESSIONALLY STAFFED RESEARCH AND DEVELOPMENT LABORATORIES
- LEADING EDGE TECHNOLOGY
- TECHNICAL ENGINEERS HAVING EXPERIENCE IN
  - ◆ LUBRICANT APPLICATION
  - ◆ PROCESS COMPATIBILITY
  - ◆ STORAGE AND HANDLING
  - ◆ LUBRICANT SELECTION
  - ◆ IN-PLANT TRAINING
  - ◆ TROUBLE SHOOTING
- PRODUCT SPECIALISTS
- CUSTOM FORMULATIONS TO MEET SPECIFIC NEEDS

**ENGINEERED SOLUTIONS**  
▶ **BOTTOM LINE RESULTS**



## **TECHNICAL SUPPORT**

Tower's technology does not stop with metal forming lubricants. Our field engineers are trained to analyze your total manufacturing process and recommend compatible chemistries for metalforming, cleaning, and protecting against rust. We can even provide the high quality machine lubricants required for your equipment. *Tower wants to assist you in the evaluation and testing of suitable products. We believe customers should take advantage of this service.*

### **CUT-OFF LUBRICANTS**

We have developed lubricants for various cut-off processes. These formulations have excellent wetting, anti-wipe and extreme pressure protection required for tube and pipe cut-off operations. JET-SET airless spray and UNIST equipment is recommended for application of lubricant onto the cut-off tools. The following products are used as cut-off lubricants: **TOWER A-719, KLENEDRAW 3401, TOWERDRAW TC-92**

### **END-FORMING LUBRICANTS**

End-forming is a specialized tube fabricating operation. Generally the equipment and tooling are designed to perform specific operations such as flaring, expanding, swaging and beading. Swaging and expanding are severe cold working operations that require extreme pressure type lubricants. Many of the draw bending lubricants are also used for end-forming operations: **BEND-ALL 004, BEND-ALL 80, TOWERPRO 7718-E, TOWER A-108, TOWERDRAW TC-92**

### **CLEANING CHEMICALS**

A full line of cleaners, conversion coatings, sealers and final rinse corrosion inhibitors are available. The **TOWERKLENE** line of products was designed to be compatible with the many types of chemistries used in our metal forming lubricants. This compatibility between the cleaner and forming lube can improve the metal finishing process. The following cleaners are popular in tube and pipe applications: **TOWERKLENE 246-A, TOWERKLENE 42-A, TOWERKLENE Saf-T-24**

### **RUST PROTECTION**

We can provide products for in-process, indoor or outdoor protection. The **RUSTBEAT** line includes oil, solvent and water based products that can give rust protection for a wide range of applications. **RUSTBEAT 198** leaves a dry film, **RUSTBEAT 1313** leaves a light oily film, and **RUSTBEAT WS-72** can be diluted with water.

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## PASTES

**TOWERDRAW TC-89** is a modified complex chemical soap, water-dilutable, non-hardening paste. It provides a strong barrier film, high degree of lubricity, and contains solid PTFE lubricants.

**TOWERDRAW TC-77** is a heavy duty paste developed as a lubricant for drawn over mandrel tube and pipe bending. It forms a heavy duty lubricating film without the use of chemical extreme pressure agents. It meets the Navy low halogen specification.

**BEND-ALL 80** is an extreme pressure lubricating paste. It was developed for use on the most difficult bending operations and for large diameter tubing. It is safe for use on all metals.

## WATER SOLUBLE COMPOUNDS

**KLENEDRAW W-4177** is an oil-free complex soap developed to lubricate bending and end forming operations on tubing. It can be used neat or diluted with water, can be welded through, and is easy to clean.

**TOWERSOL G-6200** is a heavy-duty, chlorine-free, high viscosity soluble oil. It can be used neat or diluted up to 6:1 for bending and end-forming.

## COMPOUNDED OILS

**TOWERDRAW TC-92** is a draw bending lubricant suitable for use in micro metering pump application systems. It utilizes synthetic wetting and extreme pressure agents that reduce friction, enhance lubricity and provide excellent film strength.

**TOWER A-108** is an extreme pressure type of compounded oil designed as a lubricant for metal forming operations on ferrous metals and stainless steel. It is particularly effective for tube bending and swaging operations.

**TOWERDRAW 9925-TD** is a super heavy-duty metal forming lubricant designed to be cleanable in alkaline wash systems. This product is formulated to give maximum protection against “build-up” on tooling, and galling of stainless steel tubing used for food and chemical applications.

## GELS

**BEND-ALL 004** and **BEND-ALL 006 (Heavy Duty)** are synthetic gels formulated as a lubricant for draw bending and end-forming operations on tube and pipe. They form a high strength lubricating film on the mandrel and ID of the tube that will not slump or run off, even under high temperatures. They are easy to clean and can be welded through.



## DRAW BENDING LUBRICATION GUIDE

Material	Pastes	Water Soluble Compounds	Oil Based Compounds	Gels
Carbon Steel Alloys	TC-89 TC-77* 80	W-4177 G-6200	TC-92 A-108 9925-TD	004 006
Stainless Steel	TC-89 TC-77* 80	W-4177 G-6200	TC-92 A-108 9925-TD	004 006
Aluminum Alloys	TC-89 TC-77* 80	G-6200	TC-92 A-108	
Aluminized Steel	TC-89 TC-77* 80	G-6200	TC-92 A-108 9925-TD	004 006
Iron Pipe	TC-89 TC-77* 80	W-4177 G-6200	TC-92 A-108 9925-TD	004 006
Titanium	TC-89 TC-77* 80		TC-92 A-108 9925-TD	

\*Meets US Navy low halogen specification

