CUTTING EDGE TECHNOLOGY

The goal of Tronex engineering is to produce cutter designs and to manufacture cutting tools in order to achieve superior levels of cutting performance, quality, value, and comfort. We call this Cutting Edge Technology™.
Tronex **engineering** seeks to enhance cutting performance, quality, value & comfort in the following areas:

CUTTING PERFORMANCE

- Cuts before edges become dull (Often hundreds of thousands of cuts are possible
- Cutting access in small or confined areas
- Cutting fine wire or leads equal to or thinner than the width of a human hair
- Cutting fine hard wire (Wire made from stainless steel or tungsten can be cut without nicking of cutter edges)
- Cutting exceptionally flush
- ESD protection
- Cutting leads to a pre-determined length

QUALITY

- Reliability and consistency of operation
- Designed for the cutting task
- Blade sharpness and hardness
- Smoothness of operation
- Balance and feel
- Workmanship and appearance
- Ruggedness
- Resistance to rust

COMFORT

- Different handle lengths
- Cushion grips
- Spring opening
- Smooth operation
- Tip Protectors
- Angled cutting edges

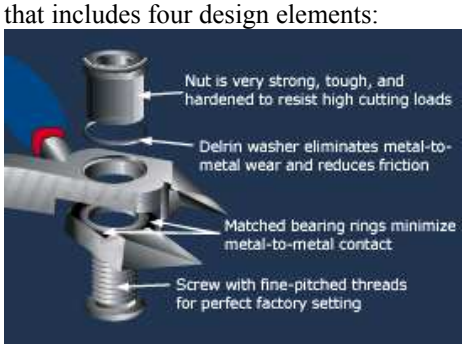
VALUE

- Low price for high performance and high quality
- Expert application advise
- Fast, on-time delivery
- Resharpening service

The **success** of Cutting Edge Technology™ rests on three major strengths:
UNIQUE CUTTER JOINT DESIGN | RAZOR FLUSH® EDGES | SPECIAL MANUFACTURING

UNIQUE CUTTER JOINT DESIGN

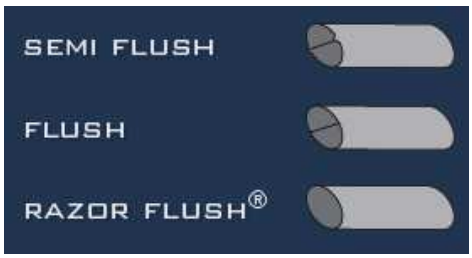
The heart of a cutter is its joint, the area that joins the two halves of a cutter. All Tronex cutter models, feature a unique construction that includes four design elements:



Bearing rings are machined into the bearing surface of each cutter body. The rings face each other as the two halves are brought together. In cutter operation, over perhaps hundreds of thousands of cycles, the two halves only bear and move against each other over the very limited area of the

RAZOR FLUSH® EDGES

Why exceptionally flush? When the end of a lead or wire must be soldered it is often necessary to have it as flush as possible to insure a highly reliable solder joint. If a wire is to be coated or if it needs to be threaded into some hole it may be necessary to have no burrs or "pinch" on the wire end. Delicate components are less likely to suffer shock when cut by an exceptionally flush cutter.



What is Razor Flush®? This is the name Tronex uses for the edge finish and anti-dulling protection on cutter models that cut exceptionally flush.

bearing rings. Thus the metal-to-metal contact is minimized. Also, since the mechanical load from cutting the work piece is resisted at a near maximum distance from the cutter centerline, relative joint movement, or play, is minimized.

Hardened nut of alloy steel & extended cross-sectional area anchors the joint against movement under the cutting load. Precision machining of the nut insures perfect alignment of the two cutting edges.

Allan head screw with fine-pitched threads allows for perfect joint adjustment during initial manufacture and during resharpening.

Delrin washer eliminates metal-to-metal wear under the shoulder of the nut and reduces friction during operation.

The two cutting edges on Razor Flush® cutters are finished with a delicate grinding operation to make them smooth, sharp, and in perfect alignment. The two edges come together much like two razor blades in opposition.

Adjustable anti-dulling protection is provided by a setscrew stop placed either in the handle or jaw of the cutter. The setscrew is adjusted at the factory to stop cutting edge motion exactly as the two blades come together. The setscrew thus prevents the blades from damaging themselves even when considerable force is applied.

SPECIAL MANUFACTURING

All Tronex cutting tools and pliers are manufactured in the USA. Almost all aspects of the manufacturing of a Tronex tool are performed at the Tronex factory. Tronex manufacturing is focused on precision hand tools; Tronex manufacturing only makes cutters and pliers.

Most manufacturing of Tronex cutters and pliers involves the use of special, proprietary processes and fixtures that have been developed by Tronex Technology, Inc. during the course of its 22-year history. Also the manufacturing process at Tronex is highly flexible, allowing production to be changed from one model to another in a very short time.

These very important characteristics of Tronex manufacturing have the following benefits to users of Tronex precision hand tools:

- High-grade alloy steel, made in USA, insures structural integrity, top mechanical properties in tensile and yield strength, and hardenability.
- Extremely close tolerances on mating parts are held thus insuring top cutter performance.
- In-house induction hardening of the cutting edges insures uniformity, conformity, and achievement of 63-65 Rockwell C hardness.
- Every cutter and plier is individually inspected and individually checked for proper performance.

- When needed Tronex can make deliveries in a very short time because almost all of the manufacturing is under one roof.
- Delivery lead-times, even for orders with many line items and orders for highly specialized tools, are very reliable.
- Tronex is sometimes asked to develop a new tool to meet a special need for a good customer. The inherent flexibility of manufacturing in the Tronex factory greatly aids in the product development process.

TECHNICAL BULLETINS:

EDGE HARDENING
The cutting edge is the most important part of a cutting tool. Therefore preparation of the cutting edge is done with expert engineering design and outstanding workmanship for tools of the highest quality.

CUTTER EDGES
All high quality cutters are compression cutters. This means that both cutting edges cut on the same plane. The cutting motion stops when the two edges hit each other or are stopped by an overbite protector.

HEAD SHAPE
The more metal there is on the cutting end of a precision cutting tool the longer the life of the tool. Oval head tools, with a lot of metal in the head, are best able to handle the repeated shock of the cutting load.

ERGONOMIC HANDLES
A cutting tool is deemed ergonomic if it materially contributes to reducing the probability of cumulative trauma disorders with the hand, finger, wrist, or arm.

GUIDE TO CUTTER APPLICATIONS:

This chart provides a general guideline for cutter model selection. Final selection should be made on the basis of the specific cutting task to be performed and examination of the specific cutter model design.

General Electronics:
5111 & 7111 | 5121 & 7121
5211 & 7211 | 5221 & 7221
5070 & 7070 | 5049 & 7049
5072 & 7072

Fine Electronics:
5112 & 7112 | 5122 & 7122
5212 & 7212 | 5222 & 7222
5312 & 7312 | 5049 & 7049

Exceptionally Fine Electronics:
5113 & 7113 | 5213 & 7213
5223 & 7223 | 5313 & 7313
5423 & 7423 | 5075 & 7075
5083 & 7083 | 5070 & 7070
5049 & 7049 | 5071 & 7071
5074 & 7074

Exceptionally Flush Cutting:
5113 & 7113 | 5123 & 7123
5213 & 7213 | 5223 & 7223
5313 & 7313 | 5423 & 7423
5082 & 7082 | 5070 & 7070
5049 & 7049 | 5074 & 7074

Exceptionally High Visibility Cutting:
5122 & 7122 | 5222 & 7222
5422 & 7422 | 5049 & 7049

Wire Harness Manufacturing:
5511 & 7511

Jewelry Making:
5111 | 5112 | 5113
5049 & 7049 | 5222 & 7222
5223 & 7223

Stringed Musical Instruments:
5511

Watch and Camera Repair:
5111 | 5222 | 5072

Model Building and Hobby:
5111 & 7011 | 5112 & 7112

Medical Device:
5311W | 5312W | 5422W
5084W | 5081W | 5521W | 5522W

Eye Glass Repair
5121

Racquet Stringing
5511 & 7511 | 5222 & 5222P

Telephone & Telecommunications
5111 & 7111 | 5112 & 7112