



HUNTINGDON FUSION  
TECHNIQUES ■ HFT

**MultiStrike®**

**Tungsten Electrodes  
and**

**TEG-1000 Grinder**

**Catalogue**

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**Inventors, Innovators,  
Developers and Manufacturers of  
MultiStrike® Tungsten Electrodes  
and  
TEG-1000 Tungsten Grinder**

Proud Members of The American Welding Society

# Techweld® MultiStrike® TUNGSTEN ELECTRODES



Techweld® MultiStrike® Tungsten Electrodes have been developed with the health and safety of the end user in mind.

MultiStrike® Tungsten Electrodes generate up to 10 times the performance of 2% thoriated electrodes under identical conditions.

MultiStrike® Tungsten Electrodes lower the working temperature giving cooler welds.

The number of arc strikes is increased before regrinding is needed. MultiStrike® Tungsten Electrodes represent the highest quality, totally traceable, longest lasting and are the most reliable tungsten electrodes available.

They can be used for welding of steels and alloys with DC as well as aluminium with AC techniques giving narrower, lower heat input welds.

The carefully balanced mix of non-radiotoxic dopants used in MultiStrike® Tungsten Electrodes produces a 10 times greater performance than conventional thoriated tungsten electrodes and provide a stable performance over the current range from 0 - 300 Amps.

## SUMMARY OF MAIN FEATURES

For improved TIG welding of steels, aluminium and their alloys:

- Increased number of arc strikes before resharping is necessary.
- Contains no radioactive material, non-radiotoxic.
- Non thoriated, eliminates carcinogenic thoria.
- Non carcinogenic.
- Improved dopant distribution.
- Lowers the working temperature giving cooler welds.
- Special packaging gives guarantee of quality and traceability.
- Traceability with every tungsten.
- AC & DC welding.

MultiStrike® Tungsten Electrodes are totally traceable, each being identified by a batch number shown on the special packaging.

Immediate delivery is available for MultiStrike® Tungsten Electrodes.

## TWICE THE STRIKING POWER

Because of growing concerns of potential hazards of ingestion of radioactive dust, MultiStrike® Tungsten Electrodes contain a rare earth dopant to replace thorium and eliminate the radioactive content.

The unique dopant content of MultiStrike® Tungsten Electrodes has only half the density of thorium. With the 2% of our dopant that is included, there is twice as much dopant and twice as much striking power than in thoriated tungstens.

The larger volume of dopant in MultiStrike® Tungsten Electrodes gives much improved distribution of the dopant itself.

Furthermore, these special electrodes give good welding results from low to high current levels.

MultiStrike® Tungsten Electrodes can be used on aluminium and its alloys as well as steels.



2% Thoriated Tungsten  
after 20 automatic welds



MultiStrike® Tungsten  
after 200+ welds

## SPECIAL PACKAGING GUARANTEES QUALITY WITH EACH BATCH CONTROL

MultiStrike® Tungsten Electrodes always originate from the identical source, giving the user a guarantee of product quality, reliability, repeatability, consistency and traceability.

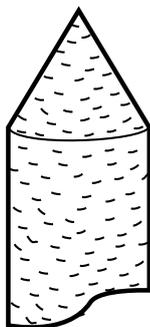
Each pack of 10 is supplied in special packaging which is your guarantee of **quality and traceability** every time.



Radiation Monitor - low background radiation level



2% Thoriated Tungsten  
showing risk of uneven thorium  
distribution



MultiStrike® Tungsten  
showing double the dopant  
with even distribution



© HFT®



© HFT®

## NO RADIO-ACTIVE ELEMENTS

Unlike tungsten-thoria, MultiStrike® Tungsten Electrodes contain no radioactive element. Where health and safety authorities or others are concerned about the radioactive or carcinogenic effects of thoria, MultiStrike® Tungsten Electrodes are a high quality alternative.



Radiation Monitor - Relatively high radiation level compared to MultiStrikes®

## MULTISTRIKE®, A GREEN TUNGSTEN ELECTRODE, SAFE FOR USE, NON-TOXIC and NON-CARCINOGENIC

- **They are safer.** They do not contain radioactive thoria, known as a carcinogen.
- **They last longer.** Under most conditions, MultiStrike® Tungstens Electrodes should provide more than twice the number of starts than thoriated tungstens.
- **They do not generate as much heat.** Having a lower electron voltage potential than thoriated tungstens, MultiStrike® Tungsten Electrodes are especially useful for applications requiring low heat input, like orbital welding, micro-TIG and micro-plasma welding.
- **They require lower voltages.** MultiStrike® Tungstens Electrodes contain a special dopant which reduces the starting voltage needed to establish the arc.
- **They can reduce stocking costs.** The same electrodes can be used in some AC welding techniques as well as in DC welding.

### If you are a New User. . . . .

- You may need to vary your welding current slightly to compensate for the MultiStrike® Tungsten Electrodes lower operating voltage and temperature.
- Check out the reliability, repeatability and reproducibility of the MultiStrike® Tungsten Electrodes.

## 5 REASONS TO USE MULTISTRIKE® TUNGSTENS



Radiation Monitor - shows comparison of radiation levels

1. Contain NO carcinogenic material.
2. For AC and DC welding.
3. Can be used on aluminium welding.
4. Increases the number of arc strikes before re-sharpening is necessary.
5. Lowers the working temperature giving cooler welds.



## WORK FUNCTION - some specific background and science

The work function of a metal or alloy is the energy needed to remove an electron from Fermi level in the material to a point at an infinite distance outside the surface.

This is relevant to TIG welding since the lower the work function of an electrode, the lower the voltage necessary to strike an arc.

The work function of tungsten is 4.35 ev. Therefore, the addition of a stable metal oxide with a work function lower than pure tungsten, lowers the work function of the tungsten.

Thorium's work function is 3.4 ev.

The special blend of dopants in MultiStrike® Tungsten Electrodes has a work function of 2.9 ev.

Huntingdon Fusion Techniques HFT® special blend of dopants, along with its stringent in-house production specification ensure that the dopant is distributed evenly through the Techweld® MultiStrike® Tungsten Electrodes, maintaining an even performance from start to finish.

## SEE WHAT OUR CUSTOMERS HAVE TO SAY....

Huntingdon Fusion Techniques HFT® have received numerous letters of praise from users, many of them major international manufacturers.

Here are some comments which have been received in writing to give you an idea of the benefits others have experienced using Techweld® MultiStrike®.

**"We manufacture small pharmaceutical fittings using manual TIG welding and produce tube-tube joints using mechanised orbital welding. In both applications we have observed a four to five time improvement between re-grinding when replacing thoriated tungsten with your MultiStrike®." New York, USA.**

"The number of arc strikes between re-sharpening is considerably greater with MultiStrike® than with thoriated electrodes. We also find the lower heat input is a benefit since we often weld in very close proximity to glass." Senior Production Engineer.

**"The introduction of MultiStrike® has been welcomed by all our welding staff. The new electrodes are giving excellent results and demonstrating much improved strike characteristics. Although more expensive than the previous electrodes, their life is significantly longer which is expected to lead to long-term cost savings. We are also aware of the health and safety benefits of using non-thoriated electrodes." European Manufacturing Facility.**

"We have tested your MultiStrike® under production conditions where we need to make short lengths welds using the TIG process. On a batch of 50 components only 2 light re-grinds were required compared to 7 heavy regrinds when using thoriated electrodes. Even when the welder occasionally touched the work with the electrode there was no material change in performance whereas we would normally expect to have to re-grind. Better weld quality and finish was observed. We were particularly impressed with the health and safety aspects and have taken the decision to remove all thoriated electrodes from site." Production Service Manager.

"We manufacture thin-walled hollow shaft products in type 316 stainless steel. Whereas with thoriated electrodes we regularly encounter problems with weld pitting which necessitates re-welding and often re-machining, this has been virtually eliminated when using MultiStrike®. Significant savings in the cost of post weld operations have been observed." Texas, USA.

**"We have now had an opportunity to evaluate your MultiStrike® Electrodes and can report extended working life between re-grinds and improvement in initial strike rates. The most significant improvement however is in automatic machine use." Technical Manager.**

"We use computer controlled equipment for hot wire cladding with stellite. With thoriated electrodes, we observed rapid contamination leading to regrinding after only 15/30 minutes. Using MultiStrike® has been a revelation since we can achieve 8 hours of work between regrinds. Savings in downtime have thus been significant." Welding Engineer, Brighouse, UK.



*You will prefer using Techweld® MultiStrike® Tungsten Electrodes from Huntingdon Fusion Techniques HFT®.*

**REPEATABLE STRIKES EVERYTIME.....!**

# Techweld® MultiStrike® TEG-1000 Tungsten Electrode Grinder



© HFT®



## FEATURES

### Repeatable points every time

The use of the TEG-1000 Grinder will give repeatable Tungsten Electrode points every time, enabling consistent repeatable arc performance and welding results.

### Axial grinding

By grinding the points longitudinally, the TEG-1000 eliminates arc flicker or wander.

### Any diameters

Sizes from 1.0 to 3.2 mm can be ground using the multi hole tappet that is part of the grinder. Other diameters and short lengths can be ground by using the appropriate accessory tappets, collets and pin vice.

### Return on Investment

The Grinder has been purpose designed and manufactured for the job. The cost saved in grinding wheels alone can provide rapid payback on the small outlay required to purchase this Grinder.

### Prolonged Tungsten Electrode life

Savings can be achieved because of the increased life of properly ground Tungsten Electrodes. With the special collet accessory, shorter tungstens can be held, significantly increasing the life time of each Tungsten Electrode before it is discarded.

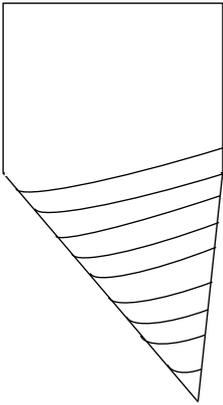
TIG welding requires Tungsten Electrodes with perfectly ground and polished tips. Huntingdon Fusion Techniques' TEG-1000 provides these, time-after-time, to exactly the same size and shape at low cost.

The diamond wheel grinds the Tungsten Electrodes longitudinally. This prevents arc flicker or wander caused by circumferential lines or ridges found on Tungsten Electrodes, which have been ground incorrectly.

With Tungsten Electrodes ground and polished, mechanised welding can produce identical, repeatable results every time. With manual welding the shape of the Tungsten Electrode is just as important. With a correctly-shaped tip, the arc can be precisely positioned with none of the preferential arcing experienced when using poorly shaped manually ground tips.

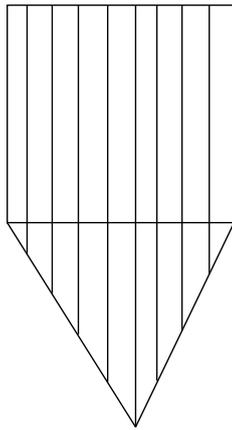
The TEG-1000 is a high performance tool that is an essential for every welding workshop where GTAW/TIG, Plasma/PAW or resistance welding processes are used.

**Incorrect direction of grinding**



Typical Tungsten Electrode tip by hand grinding

**Correct direction of grinding**



Tungsten Electrode tip from the TEG-1000 Grinder



4 Size collet holder for short tungstens (1.0mm, 1.6mm, 2.4mm and 3.2mm)



4 hole tappet and angle guide

### MULTISTRIKE® TUNGSTEN ELECTRODES

MultiStrike® Tungsten Electrodes are the only fully traceable tungstens available. Many of our customers report that they perform better than other type of electrodes for the majority of TIG and plasma applications.

MultiStrike® are thoria free and environmentally friendly. When used in automatic and manual welding processes, operators experience less down time and can achieve full weld penetration with less heat input and up to ten times greater arc striking before re-grinding is necessary.

New MultiStrike® Tungstens work just as well on DC welding of steels as well as AC Welding of Aluminium. They perform much better than Zirconiated tungstens and last longer. One MultiStrike® Tungsten can be used for all GTAW/Tig, PAW/Plasma and resistance welding.



Various tappets and collets available for TEG-1000

- British manufactured.
- Quiet in operation.
- Separate on and off switches.
- CE Mark.
- 110 Volt and 220 Volt versions 50/60 Hz.
- Easy wheel replacement.
- Can be retrofitted to the new vacuum unit.
- Bench mounted system.
- Vacuum unit accessory gives safe and clean disposal of dry powder, no wet radioactive sludge to worry about.
- Easy to use collet and angle guide system.
- Integral handle making unit portable and easy to move to different locations.
- A published technical paper is available about tungsten electrode grinding, a copy of which is available upon request.





# Worldwide Care and

# Customer Support



For further information and support, please contact us at:

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LinkedIn Weld Purging Best Practices Group



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TECHNIQUES ■ HFT

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