# Enercon Flame Plasma Technology

## Powerful Flame Treatment with Precise Control

Improve adhesion on plastics, glass, metals and more.

Enercon Flame Plasma Treaters offer safe and reliable surface treatment for any flat or dimensional surface. Our advanced combustion control architecture and unique high velocity power burner ensures powerful and repeatable surface treating results.

**IMPROVES ADHESION OF INKS, COATINGS & ADHESIVES**

**LONG LASTING, UNIFORM, HIGH TREATMENT LEVELS**

**FAIL SAFE DESIGN**

**ADVANCED CONTROL ENSURES RELIABILITY**

**EFFICIENT SURFACE DECONTAMINATION AND POLISHING**

enercon®

**Innovative People.**
**Ensuring Your Treating Success.**

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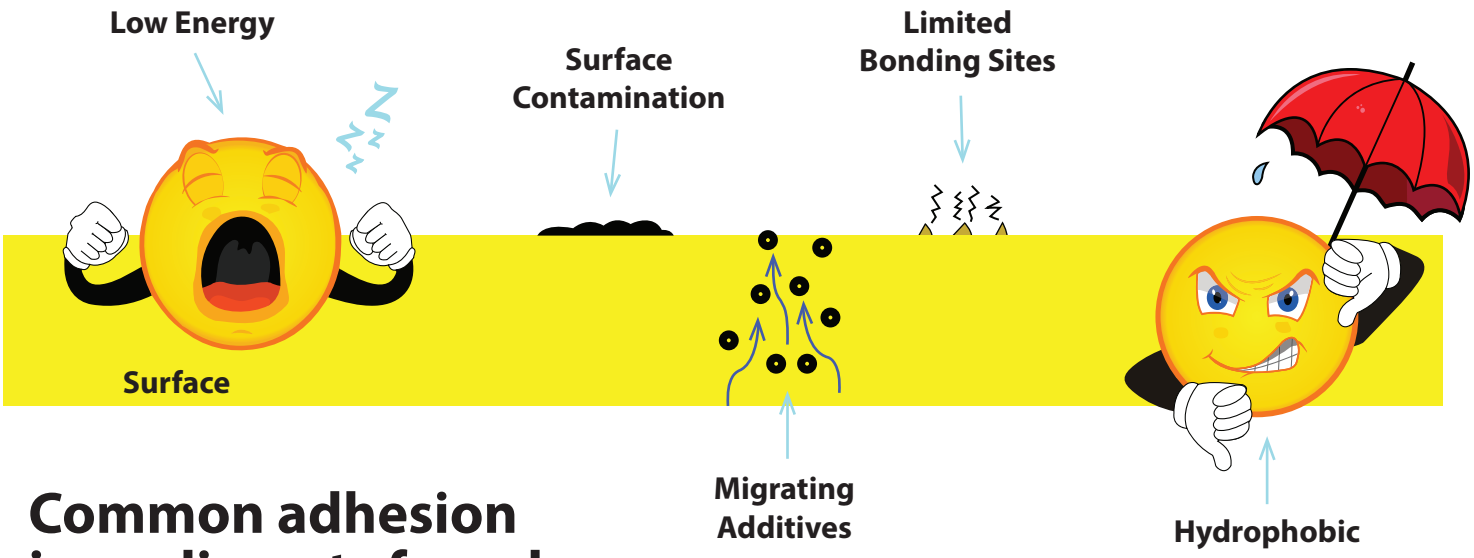
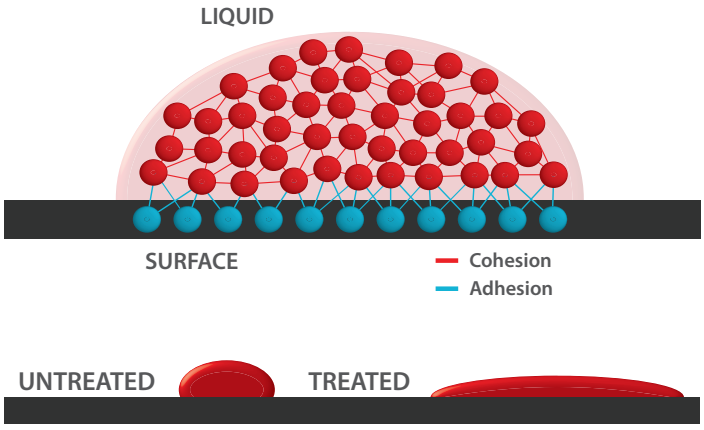
# Increase Surface Adhesion




## Common adhesion impediments found on surfaces

Non-porous and hydrophobic surfaces have low surface energy with few available bonding sites due to low levels of charged ions on the surface. Additionally, any type of surface contamination affects adhesion negatively. This contamination can include material additives & release agents which can migrate to the surface.




# Clean, etch and functionalize

### Clean Surfaces

Flame plasma treatment removes organic and inorganic impurities & contaminants from the surface. Flame plasma species react with the surface by vaporizing low molecular weight contaminants, exposing a clean surface and improving adhesion.

### Etches Surfaces

Micro etching of a polymer surface is accomplished as charged ions, neutral atoms and radicals, in both the plasma forming gas and the reactive process gas, bombard the surface.

Increasing surface area creates more bonding sites which promotes adhesion success.

### Functionalizes Surfaces

Flame plasma activation or functionalization is the concurrent process of using radicals to break up surface polymer bands to create cross linking of surface molecules.

This process increases polar groups which directly contributes to the surface's adhesion properties.

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**Ensuring Your Treating Success.**

# Enercon Flame Plasma Applications

Flame Plasma Technology combines an advanced combustion control system with high velocity PowerFlame™ burner technology for long lasting and uniform treatment on plastics, metals and glass.

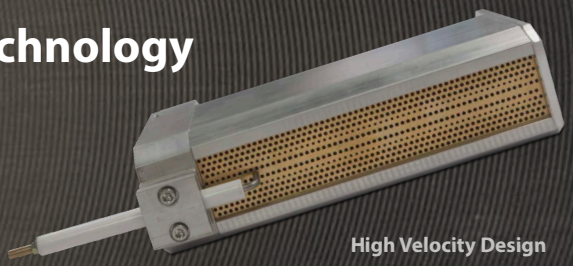

Functionalize ABS, BOPP, PE, PET, PP, TPU & more

Removes oils & contaminants

Cleans & Sterilizes glass

## PowerFlame™ High Velocity Burner Technology

- High-velocity ports for powerful treatment
- Multiple burner designs for optimal dwell time
- Uniform treatment across entire width of burner
- Eliminates laning or striations
- Brass inserts are easily removed for cleaning
- Variable treat widths including burner deckling



High Velocity Design


## Advanced Combustion Control

- Air/gas ratio control provides a consistent flame over the entire power adjustment range
- Flow meters for air & gas provide precise reproduction of process parameters
- Adjust flame power with a single control
- Operate on natural gas or propane

### PRO SYSTEM FEATURES ALSO INCLUDE

- Intuitive Touch Screen Display guides users through operation, monitoring, fault logs & more
- Closed loop flow control technology
- Eliminates manual adjustments and calibration
- Advanced Troubleshooting, Software Updates & Data Access through USB port
- Remote start/stop & prime capabilities through Enercon supplied cables or advanced communication through ethernet

## Flame Plasma Safety

**FAIL SAFE DESIGN**
Stops gas flow if any critical device in the cabinet fails

**SAFETY SOLENOID VALVES**
Redundant valves in the gas train immediately prevent gas flow if any of the monitored variables are not satisfied.

**PRESSURE SWITCHES**
Mounted to air and gas lines to detect adequate pressure

**REVERSE FLOW VALVE**
Prevents backflow into the gas line

**FLAME DETECTION ELECTRODE**
Works in conjunction with the flame safety relay to monitor the presence of the flame at the burner.

**FLAME SAFETY RELAY**
Monitors flame & controls the redundant safety solenoid gas line valves

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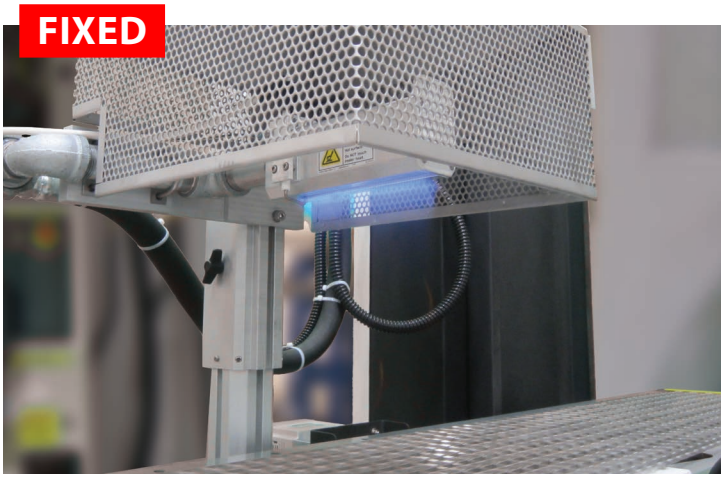
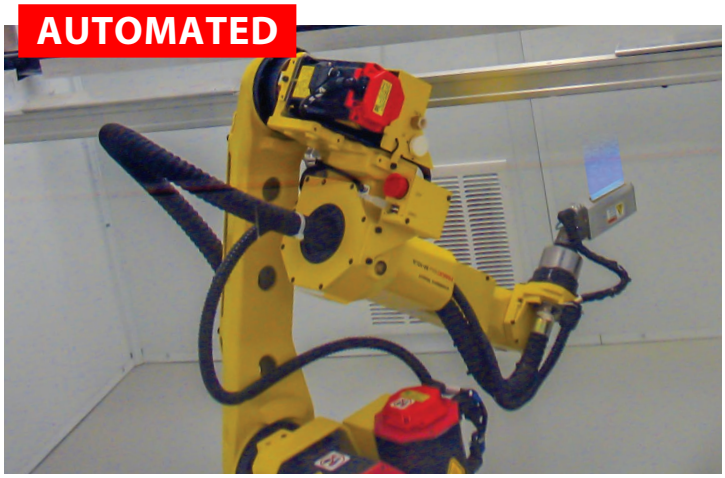
# Flame Plasma Integration Options

**FIXED**



Fixed position of flame burner over conveyor or indexing system

**AUTOMATED**



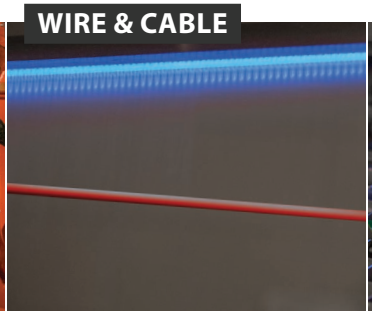
Robotic automation of flame treatment for complex and varying surface geometries

# Enercon Flame Plasma Trials

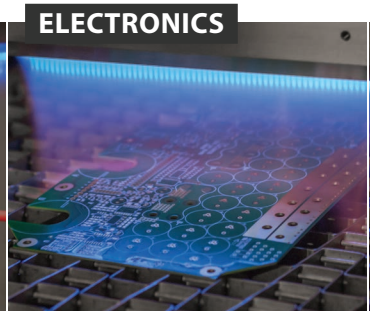
## Putting your application to the test is the best way to find the optimal surface treating solution

**AUTOMOTIVE**

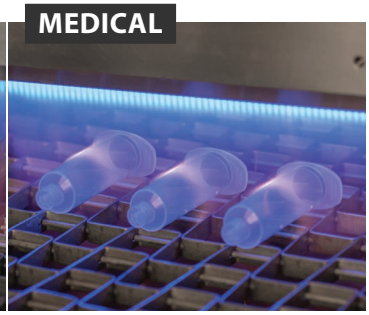
**WIRE & CABLE**



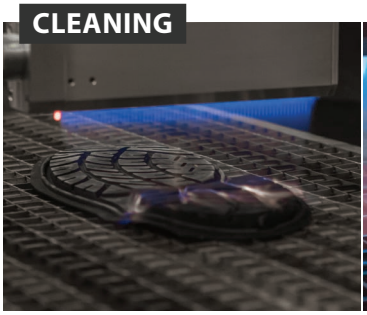
**ELECTRONICS**



**MEDICAL**

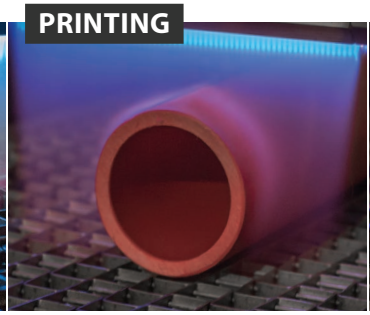


**CLEANING**

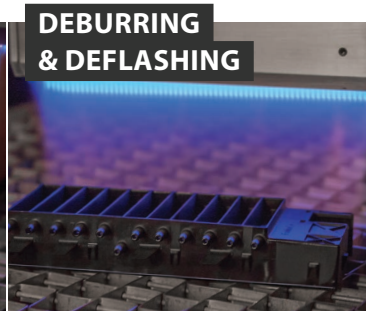


**COATING & PAINTING**

**PRINTING**



**DEBURRING & DEFLASHING**



Enercon offers free flame plasma laboratory trials to help you determine which technology is best for your application.

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