



# Smart Voltage Height Control System

INTELLIGENCE FOR HIGHER PRODUCTIVITY



# Smart Voltage Height Control

Engineered for consistent cut quality and maximum consumable life.

ESAB continues to advance Integrated Plasma and CNC Cutting Technology

ESAB first patented the electrode wear detection system in 1998, and was the first to introduce an arc voltage sample & hold system in 2001. Now Smart Voltage Height Control delivers consistent cut quality and maximum consumable life for the PT-36 Precision Plasmarc™ torch. By integrating height control functions, the plasma system, and the CNC, ESAB delivers the best, most automated system for maintaining plasma torch cutting height.

## Features and Benefits

### • Improved Cut Quality

Smart Voltage Height Control automatically corrects the arc voltage as the electrode wears. Cutting height remains constant even as the arc gets longer. Cut quality is maintained because the correct cutting height is maintained.

### • Maximum Consumable Life

Unnecessary consumable changes are reduced because the torch stays at the correct height. The electrode can fully wear without the torch cutting closer and closer to the plate. Fewer crashes means fewer damaged nozzles.

### • Lower Operating Cost

The result is better cut quality and consistency in all of your cut parts. Overall cost-per-part is reduced by maximizing consumable life and reducing production interruptions.

### • Higher Productivity

Productivity improves by reducing interruptions and automating arc voltage corrections. Fewer consumable changes and more consistent cut quality result in more parts cut per shift.

## Flexible Solution

Smart Voltage height Control works on mild steel, stainless steel, and Aluminum. It works with dry cutting, under water cutting, and water injection cutting. It handles multiple torches simultaneously. And it's available with ESAB's VBA Global PRO plasma bevel cutting station when straight cutting.

## The Benefits of Integration

Smart Voltage Height Control is an important part of ESAB's Smart Cycle integrated plasma cutting system, a complete system technology exclusive to ESAB. As the technology leader in machine and process automation and the only total system supplier, ESAB is uniquely qualified to integrate the entire plasma cutting process.



ESAB's PB-MB-1 High Speed Plasma Station for straight plasma cutting with the PT-36 Precision Plasmarc™ torch.

Smart Voltage Height Control uses ESAB's PB-MB-1 plasma torch station, which features Pneumatically Balanced tool-tip sensing, Magnetic Breakaway crash protection, and a position encoder for accurate Z-axis control. This advanced torch station also includes an electrical touch-sensor that detects when the torch is in contact with the plate. This dual-sensor system provides the most accurate sensing of the plate surface, which is used as the reference for piercing and initial cutting height.

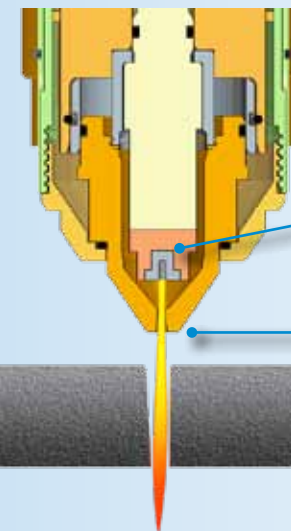
## Traditional Arc Voltage Control

All plasma cutting results in electrode wear, forming a divot on the electrode face where the arc attaches. Traditional voltage control simply maintains the same arc voltage by driving the torch lower toward the plate as the divot grows in depth. This keeps the arc the same length but puts the nozzle closer to the plate,

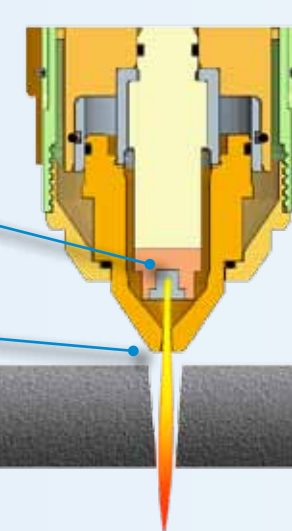
changing edge quality and cut angle. Eventually the torch gets so close it starts to crash into the plate. Some operators manually increase the voltage to get more life out of the electrode, but most simply change the consumables.

## Standard Voltage Control

New Electrode



Spent Electrode



## A Better Solution

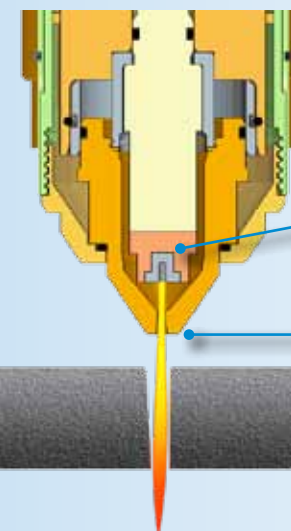
With Smart Voltage Height Control, no operator intervention is required. The Vision T5 CNC's built-in process database sets the optimum cutting height. The system automatically adjusts the arc voltage over the life of an electrode in order to maintain consistent cutting height.

Edge quality and cut angle are most influenced by nozzle to plate distance, so keeping torch standoff constant improves part quality and consistency.

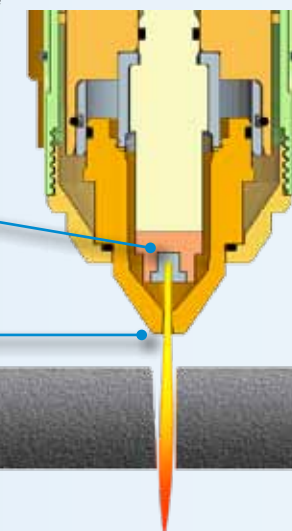
Keeping the torch at a constant height also eliminates premature consumable changes, so each electrode is used for the maximum life possible.

## Smart Voltage Height Control

New Electrode



Spent Electrode





# ESAB Cutting Systems

Productivity - Service - Reliability



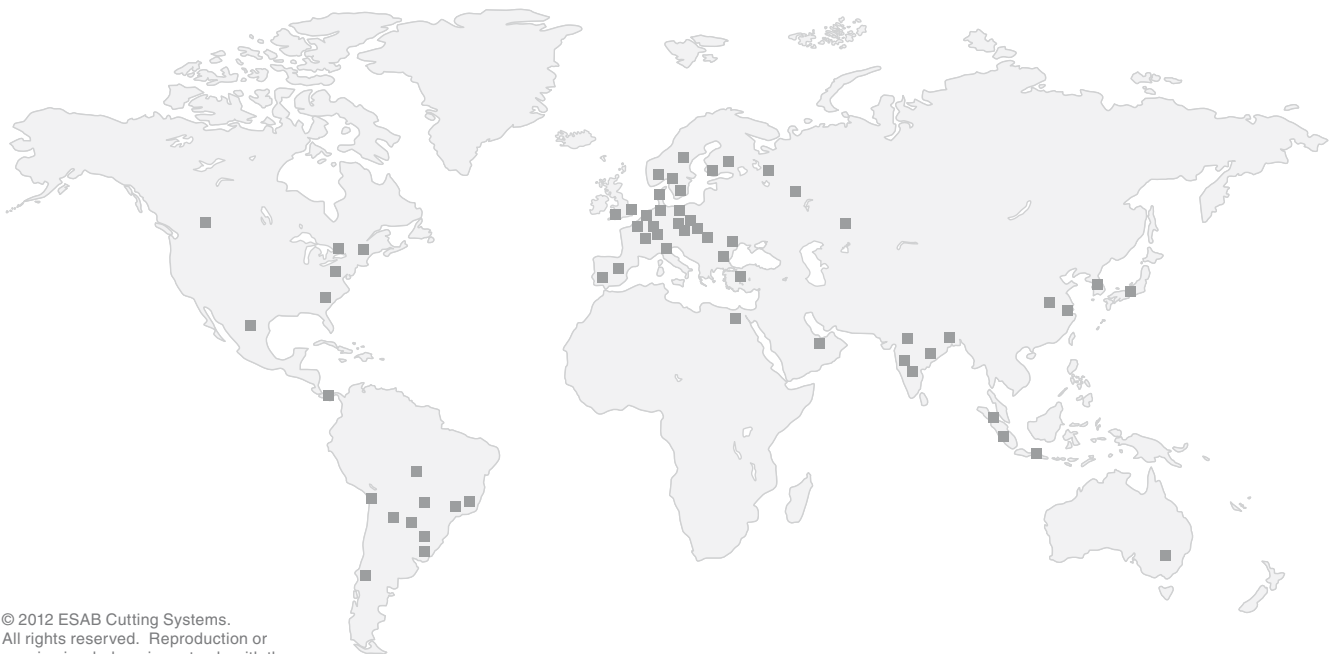
**When you buy ESAB**, you get more than just a machine. You get an experienced and dedicated partner supporting you throughout the life of your machine.

We are committed to exceeding your expectations of after-sales service and support, to providing an efficient supply chain for

spares, wear and consumables; and to offering a comprehensive range of services and products to ensure your continuing success.

Quality products, innovative technology and dedicated customer service... these are the hallmarks of your partnership with ESAB.

ESAB sales and service offices worldwide



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