

# ***RAFT***<sup>TM</sup>

RESISTIVE ADAPTIVE FEEDBACK TECHNOLOGY

beyond adaptive welding





WHAT

**RAFT™** users have to say.

I am very impressed with the tip dress verification system of the WTC RAFT system. I was called out to the robot that kept telling us that the tip dresser was not correct. The dresser was working fine and the dressing was very clean but the RAFT system kept telling us that the tip dress was incorrect. Then I noticed that someone installed the wrong tip dress cutter spool into the dresser motor. We put the right cutter in place and immediately the tip dress verification passed OK. This is very precise and can tell us that the tips comes to within micro ohms.

James C. - Weld Engineer

“ IMPRESSED WITH THE TIP DRESS VERIFICATION ”

We use many WTC RAFT controls in our very large prototype body build and I find the WTC controls to be very easy to use and setup. We setup our manual welding stations to automatically weld our steel car bodies with many ranges of stack ups. The RAFT system has much more functionality that we have come across from others and the analysis tools that are available on my computer makes it very informative of the welding processes that are required for our new car bodies.

Tony B. - Weld Engineer

“ VERY EASY TO USE AND SETUP ”



**REMOVE  
DISTURBANCES,  
MAINTAIN  
CONSISTENCY  
& MINIMIZE  
EXPULSION  
WITH RAFT™.**



**RAFT™** ADAPTS THE WELD CURRENT AND WELD TIME TO TACKLE DISTURBANCES.

## SoftQ FEATURES

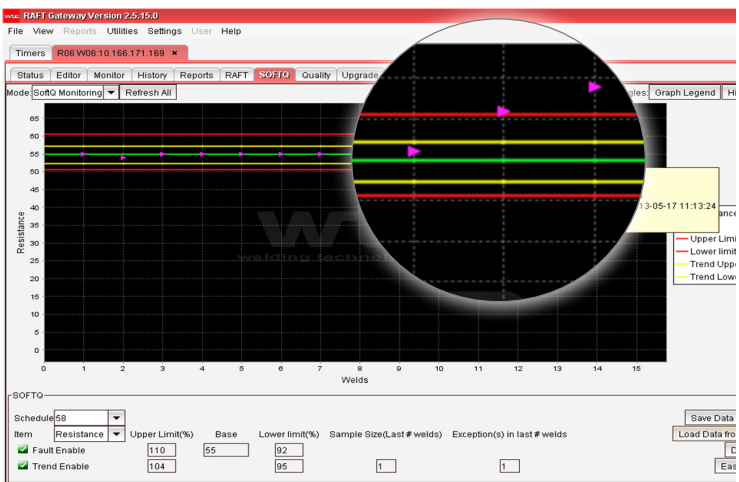
### ► TIP DRESS VERIFICATION

**SoftQ** can measure the precise resistance of welding tips after they have been dressed. Although dressers can remove slag from the edges, the control can identify if the surface of the electrodes has been brought back to an approved condition.



**AVOID WELD SPILLS  
TIP DRESS VERIFICATION**

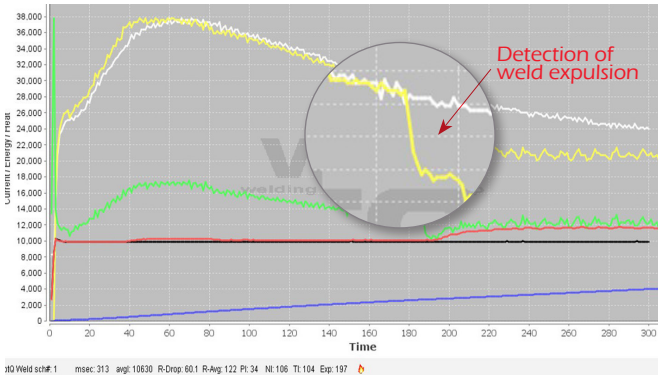
**REDUCE COSTLY WELD FLASH  
EXPULSION FREE REPORTING**



The **SoftQ** graphing tool analyzes the results of the tip dress operation allowing you to set an alert level and fault level.

## ► MONITORING WELDING FLASH

The **SoftQ** tool for expulsion detection actively monitors every weld and creates a report of expulsions occurring in the plant - regardless of welding in Adaptive or Current Regulation Mode. In adaptive mode, the weld control will generally weld in the lower section of the lobe to reduce expulsion.



The yellow resistance curve in the example above shows expulsion that occurred at the 197 millisecond time.

**CONTROL YOUR PROCESS**  
PROCESS INTEGRITY

**MAXIMIZE PRODUCTIVITY**  
TOOLING INTEGRITY

## ► EXPULSION FREE REPORTING



This chart shows all the welding in a range of time and highlights where your expulsion problems are. Red are the most occurring followed by Yellow and then Green which are under control. You can set limits as you wish.

# SoftQ FEATURES

## ► NUGGET INTEGRITY

VERIFICATION OF WELD NUGGET SIZE

**SoftQ** reports the nugget integrity for each weld, which is derived from the ratio of the actual weld against your reference weld nugget size

## ► TOOLING INTEGRITY

TOOLING HEALTH

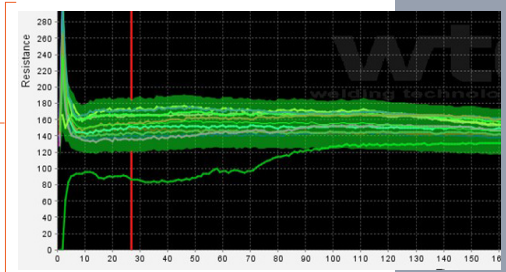
Schedule maintenance with Tooling Integrity. **SoftQ** reports tooling wear and shunting paths.

## ► PROCESS INTEGRITY

IDENTIFY PROCESS CHANGES

**SoftQ** identifies process changes caused by disturbances. These could be a result of part fit up, shunting, sealer, part coating, or incorrect stack up. Knowing these process changes before they cause problems will improve the quality in your welding processes.

*You can easily develop comprehensive process resistance envelope and detect any operations that goes outside these boundaries. With RAFT Gateway Network software, you can report these excursions by control, by machine, and by part.*

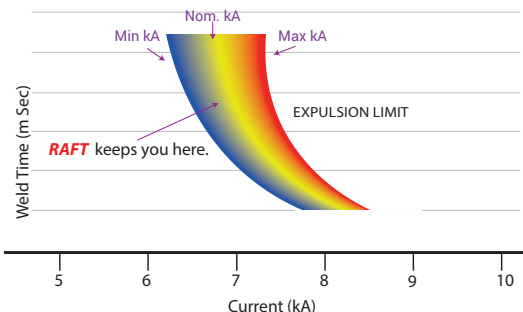


**GAIN CONFIDENCE**  
**NUGGET INTEGRITY**

# AdaptQ FEATURES

## RUNNING IN CRUISE CONTROL

With **SoftQ** constantly performing analyses of the weld nugget, tooling and processes, you can let the weld control's intelligent adaptive algorithm make prompt changes to the current and weld time allowing quick recovery from disturbances. This feature lets you set the initial current regulation schedule in the lower part of the weld lobe as far away from the expulsion limit and thereby reducing flash.



# The **RAFT™** Advantage

## analyze

### SoftQ

Quality monitoring data tools for post weld data analysis. Works in Constant Current & Adaptive welding modes.



## adapt

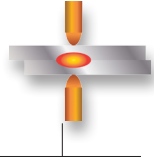
### AdaptQ

Adaptive algorithm that adjusts current and time of the weld in process.

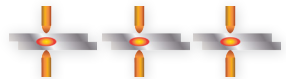
### post welding analysis



### reference weld



### production welds



### PI Envelope

#### Resistance Envelope

### SoftQ Monitoring

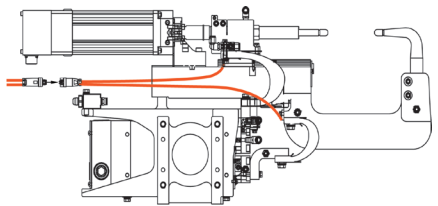
- Heat
- Energy
- Current
- C Factor
- Weld Time
- Resistance
- Secondary V
- Process Integrity
- Nugget Integrity
- Tooling Integrity
- Force

## The ESSENTIALS



Gen6 Inverter

- WTC welding control equipped with a Gen6 inverter.

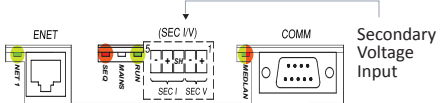
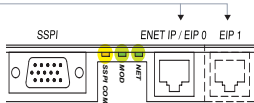


Welding Gun with Secondary Voltage Leads

- Welding gun instrumented with secondary voltage sensing wires.



### RAFT Gateway network ports



### RAFT Ready Timer

- Weld Processor installed using **RAFT** Gateway Network Software.



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