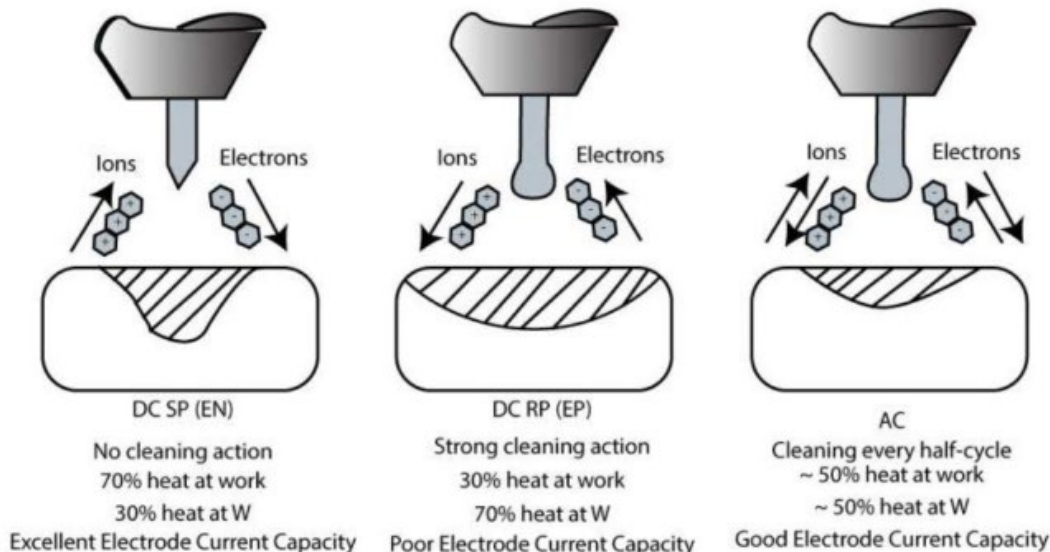


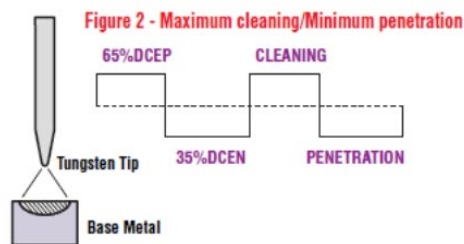
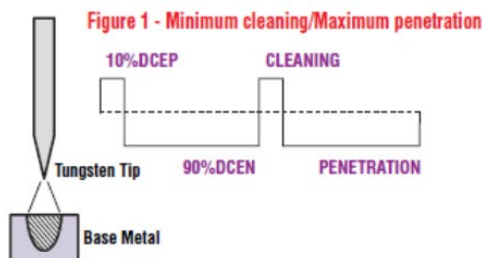
AC Welding of Non-ferrous Metals.

First off the HF has nothing to do with cleaning. HF is only for non-contact arc starting. THE RP Reverse Polarity of the AC cycle does the cleaning. The SP Straight Polarity does the welding.



So, what actually does the cleaning? It is the positively charge gas ions that bombard the surface of the aluminum to remove the oxide. This action only happens when the AC wave cycle is in reverse polarity. Action is like sand blasting paint off a surface. Cannot weld the aluminum without removing the oxide. The reason is the oxide's melting temperature is way higher than the aluminum being welded. By the time you reach the melting temperature of the oxide the aluminum has melted away.

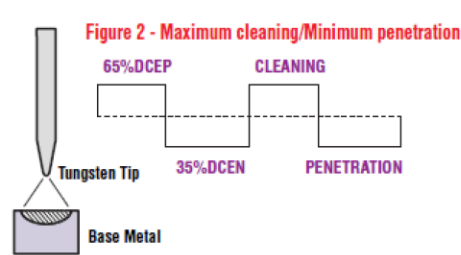
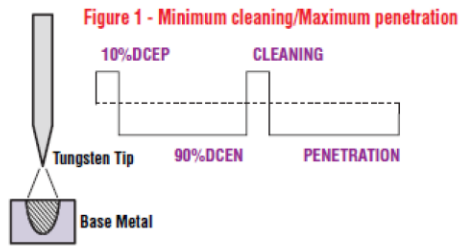
So, what is the Balance setting? The balance setting is an option in Square wave AC welding machines. As explained above the reverse polarity cleans the aluminum surface of oxide. The heat generated by the reverse half cycle is absorbed by the electrode and the torch. The Straight half cycle does the welding. If you limit the time spent in the reverse polarity you reduce the heat input into the electrode and Torch. You typically only require enough reverse polarity to cause the cleaning gas ion phenomenon to remove the oxide on the surface of the aluminum. Any more is wasted heat into the torch. So, by minimizing the percent of reverse polarity lets say to 10% then 90% of the sinewave is used for welding. What you gain is a stable arc that can be welded with a pointed tungsten. What you want is to set the reverse polarity to perform the cleaning without overheating the electrode or torch. Typically, on clean metal around 15% to 20%.



300AP AC TIG Wave Shapes

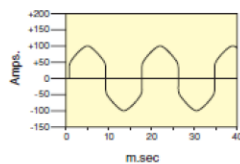
Effects of Wave Balance Adjustment on AC/GTAW - Complete Welding Control.

The 300AP AC output uses advanced embedded micro-processor technology. This control of the wave form changes the amount of time spent on DCEP (cleaning) and DCEN (penetration) parts of each cycle, increasing arc stability. The DCEP cycle insures that the aluminum oxide is thoroughly removed, allowing the DCEN cycle a thorough penetration of the base metal. Both cycles enhance weld quality and significantly improve performance. When a conventional system changes its wave balance, there can be as much as a 50% increase in amperage draw. Sanrex® 300AP amperage draw is unaffected by any adjustments. The 300AP increases efficiency and eliminates tungsten spitting and enables the use of a smaller diameter tungsten electrodes to operate at a higher current levels. Figures 1 & 2 show the difference in TIG torch electrode.

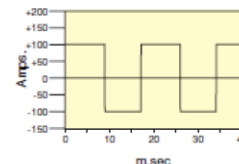


SanRex - The Leader in Technology and Service!

Conventional
Square AC
wave @ 100
amps output

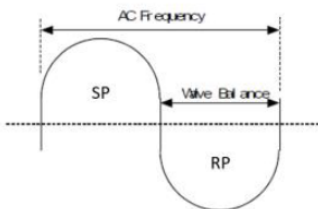


Sanrex 300AP
Square Wave
Inverter Power
Supply @ 100
amps output.

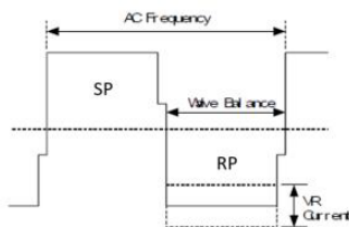
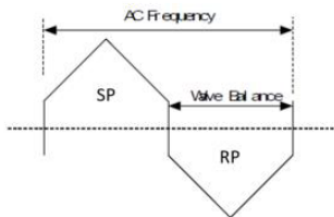


300AP AC Waveshapes

AC Soft



Triangle Wave



AC Soft includes all the benefits of AC square wave with the addition of maximum puddle control and good wetting action of the weld puddle which helps to overcome surface tension.

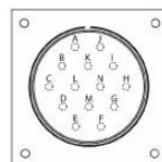
Triangle Wave provides the punch of the peak amperage, while reducing overall heat input. Fast puddle formation increases travel speed, limiting heat input and reducing weld distortion, especially on thin materials.

VR Current (Variable of Reverse Polarity Current) is the independent adjustment of the RP Current half cycle of the AC wave to precisely control the heat input to the work and the electrode.

The SP amperage controls the amount of heat directed to the work, while the RP amperage effects the arc cleaning action.

VR Current along with AC Wave Balance dramatically effects the RP cleaning action. Reducing VR Current will reduce the heat input to the TIG Torch and reduce electrode geometry degradation and increases heat input to the work piece for increased travel speeds. Increasing VR Current will enhance cleaning when welding on a dirty work piece.

Simple Automation Interface for Fixed, hard and Robotic automation applications includes Remote Weld ON/OFF, Remote Amperage Control, OK-to-Move Weld Arc ON signals.



Front view of 14-Pin
Socket Receptacle

