

## Brief Explanation of the Physics behind LORCH SpeedPulse XT.

Pulse welding, in general, either utilises I-I (constant current constant current) or U-I (constant voltage constant current). Both of which have benefits and drawbacks.

Pulse welding always aimed at one droplet per pulse cycle and this is easier to achieve with the I-I method, however, the U-I method was always more welder friendly, i.e. it was easier to handle for the operator as it was more like conventional spray arc.

Lorch used I-I until they developed SpeedPulse - which was I-I-I. This kept all of the known benefits of conventional Pulse but enabled much faster welding speeds, up to 48% faster, along with deeper penetration. LORCH SpeedPulse processes were launched in 2008.

Next, LORCH developed another completely new and patented method of Pulse welding, the SpeedPulse XT. This utilises a revolutionary system called I-U-I (constant current constant voltage constant current) and combines the benefits of both I-I and U-I.

Great results were possible with SpeedPulse but to achieve optimum results welding stainless steel, for example, everything had to be exactly right and the operator a skillful one. If the torch angle was a couple of degrees out, or the stick-out length was just a couple of millimeters too long or too short, the weld would be less than excellent.

The new SpeedPulse XT processes were much more forgiving as they combine the easy-to-weld characteristics from the U-I method with the precision and arc stability of the I-I regulation.

Best of all, the SpeedPulse XT processes maintain the benefits for increasing speed and productivity of the original SpeedPulse processes, (I-I-I), i.e. weld up to 48% faster with improved penetration.

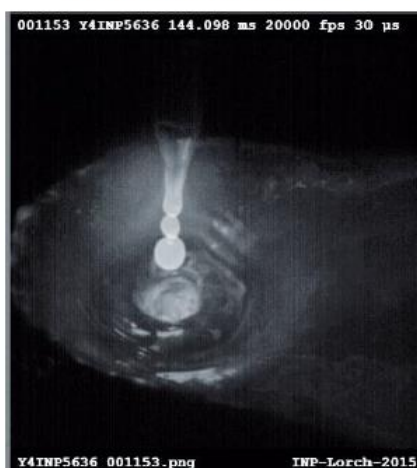
### **The Process**

- Instead of only one droplet a continuous but still pulsed material transfer
- High melt-off efficiency, with higher welding speed
- At the same time deep penetration
- Improved controllability of the arc

### **The Benefits**

- Speed... up to 48% faster
- Lower heat input, reduced distortion
- Superior, deeper penetration
- 10 DB quieter
- Reduced electrical power consumption

NEW SPEED PULSE XT



CONVENTIONAL PULSE

