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HIGH PULSE POWER BACKGROUND
“High Pulsed Power (HPP) refers to a brief discharge of concentrated electrical energy that generates a huge electrical power, much like in thunderstorms.”
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INTRODUCTION TO THE TECHNOLOGY
Advanced Metal Processing Solutions

FORMING

WELDING

JOINING

"HARNESSING PULSED POWER TECHNOLOGY TO ACHIEVE RESULTS NEVER MET BEFORE"
Viscoplasticity

Viscoplasticity is a state of metal, making it behave as liquid at Hyper-Speed.

A well known physical phenomenon, never before used commercially.

HYPER-SPEED ACCELERATION IS THE KEY TO VISCOPLASTICITY.
### Advantages of the Technology

#### STABLE CORE TECHNOLOGY
- High Repeatability & Cost Efficiency due to generic stability of Bmax’s core technology.

#### BETTER YIELD
- Process stability eliminate failures & re-work

#### GREEN & CLEAN
- No Heat
- No Smoke
- No Sparks
- No Oil
- No Detergents

#### HIGHER PRODUCTION RATE
- Process time is extremely short
- Handling is the bottleneck

#### LOWER COST
- Lower energy consumption
- Smaller footprint
- Lower cost of quality

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"IN ADDITION TO SUPERIOR PERFORMANCES, PULSED POWER ALSO BRINGS NEW ADVANTAGES TO METAL PROCESSING"
Systems & Business Models

WE SELL THE SYSTEMS

WE LEASE THE SYSTEMS

WE PRODUCE YOUR PARTS
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MAGNETIC PULSE WELDING
Magnetic Pulse Welding (MPW)

• Cold Process
• Weld Dissimilar Metals
• Weld Non-Weldable Metals
• Stronger than the Mother Metal
• Smaller Foot Print
• Low E Consumption & Emission

SOLID STATE WELDING BY HIGH VELOCITY IMPACT
MPW - Principles

COIL

MAGNETIC FIELD PRESSURE

FLYER

PARENT

CONTACT POINT SPEED

RESULTING COLD WELD

ALUMINUM/STEEL WELDING SIMULATION
Principle take from explosive welding
At those speeds, the metal enters its viscoplasticity phase, which allows atomic level bonding to occur.
Wide range of combination
High performance and quality

**Quality of interface**
MP welding provides high quality and cleaner interface

**High performance**
In testing, the mother material will surrender prior to the weld area

- Burst testing
- Torque testing

MPW  | MIG Welding  | Aluminum pressure vessel
Benefits on the production line

Conventional Welding

- Degreasing
- Feeding
- Welding 15 to 45 sec
- Cleaning
- Straightening
- Heat Treatment
- Testing

Rework 2% to 15%
85-90 % Yield

Magnetic Pulse Welding (MPW)

- Feeding
- Welding 0.1 sec
- No Cleaning
- No Straightening
- No Heat Treatment
- Testing

No Degreasing
99.7% to 100% Yield
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MAGNETIC PULSE CRIMPING
Magnetic Pulse Crimping (MPC)

Mechanical Joint by Compression

- Cold Process
- Extreme Strength
- Can Replace Welding
- Join Metal to Composite (Glass, Polymer ...)
- Hybrid Combination of Materials
- Low E Consumption & Emission
Mechanical Joint by Expansion

- Cold Process
- Extreme Strength
- Can Replace Welding
- Join Metal to Composite (Glass, Polymer ...)
- Hybrid Combination of Materials
- Low E Consumption & Emission
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APPLICATIONS IN AUTOMOTIVE INDUSTRY
Advanced Welding/Crimping Process

- Sub second weld time
- Dissimilar metals
- High performance joining, using less material
- Different shapes
- No heat affected zone
Advanced Welding/Crimping Process

Sub second weld time

Dissimilar metals

High performance joining, using less material

Different shapes

No heat affected zone