Ultrasonic Technology for Spouted Pouches
• Company Profiles
• Ultrasonic Technology
• Commercial Implications
• Required Machines for implementation.
• Pilot Facility
Our Machinery Business

- The Widmann GmbH & Co. KG is based in Schlierbach, State of Baden-Württemberg in Germany.

- The family owned enterprise was founded in 1946 and staffs a workforce of over 80 employees.

- Widmann has over 850 machines installed worldwide.
Machinery Market Share

- Office and Stationery Products: 60%
- Automotive and Filtration: 20%
- Pharmaceutical Products: 15%
- Food and Homecare Products: 5%

Web Converting Machines for:
- Office and Stationery Products
- Automotive and Filtration
- Pharmaceutical Products
- Food and Homecare Products
Our Machinery Business

Industries

Converting Packaging

Solutions

Shrink Sleeves
Pouches
Flexible Packaging
Tape Multipack.

Partners

8 Supply Chain Partner Factories.

Clients

+2000 Machines

People

20 Year Old Company
Shrink Sleeves

Pouches

Tape Multipacks

Flexible Packaging
Karlville & Widmann Coming Together

- Demonstration / Service Center – Miami Florida
- Contract Packaging & Pilot Facility for Food and Home & Personal Care Filling
Ultrasonic Technology
Ultrasonic Welding

- Ultrasonic is transported by oscillations
- Frequency = number of oscillations per second
  \[ f = \frac{n}{t} \text{ measured in Hertz } 1\text{Hz} = 1\text{s}^{-1} \]

infrasound  audible sound  ultrasound  hypersound

> 16Hz  16Hz – 20kHz  16kHz – 100kHz  < 100kHz

Only ultrasonic can be used for industrial applications.
Ultrasonic Welding

The ultrasonic oscillating system consists of:

- Horn out of titanium
- Booster
- Sonotrode shoe
- Converter
- Generator
Ultrasonic Welding

The functioning of ultrasonic welding:

• **Generator** → Transforms the supply voltage into high frequency alternating voltage
• **Converter** → Transforms electric oscillation into mechanical oscillation
• **Booster + sonotrode** → Reinforces and transports the mechanical oscillation to the workpiece
• **Tool + press** → Influences pressure in the sealing area

Sound is transmitted and reduced between 2 material webs, this creates heat and makes welding possible.
Ultrasonic Welding

- Block Sonotrodes
- Sonotrodes formed to a table
- Shapes are only formed by tools

- Flat surface

- Block Sonotrode

- Table

- Shape
Ultrasonic Welding
Parameters for Ultrasonic Welding

- Welding force
- Welding time
- Holding force after welding
- Holding time after welding
- Energy
- Tool temperature
- Horn temperature
Parameter Flow

- Press Time @ 200 milliseconds (ms)
- Total Cycle Time @ 600 ms = 100 Cycles Per Minute x 4 pouches per Cycle = 400 PPM
Commercial Implications
Advantages Flexible Packaging Production

• Materials
  • Use of recyclable ready materials - DOW
  • Lower cost of material as no heat shield required.
  • 5-7% Material Saving in Smaller formats as 3mm vs 7mm
  Seals with Thermal

• Production Efficiency
  • Up to 70% increase of cycles
  • Up to 80% lower setup and changing times as tools not hot
  • No risk of burns during cleaning work
  • Energy efficient vs Thermal

• Quality
  • Reliable production process by constant energy input, Digitally
  Controlled Sealing Process
  • Lower leak risks
Sustainable Advantages

• 1/4 of electrical energy demand, i.e. 75% less CO2 pollution
• Material savings through narrow seams and thin film material
• No release of pollutants through resulting gases from burning plastics
• Low rejection rates in the packaging industry
• No PET as a “heat shield” necessary
• Use of recyclable ready films
What’s the big deal?

• Enable Brands
• Enable Converters
• Enable Market
Ultrasonic Pouch Making

- 100% Ultrasonic Pouch Maker for pouches between 90 ml to 1000 ml.
Ultrasonic Spout Welding

- Machines for insertion of top and corner spouts from 90 ml to 3000 ml.
- Processes **top spout** up to 200 pouches per minute in a two up version
- Processes **top & corner spout** up to 100 pouches per minute in a one up version
- Brands Ready Technology
Ultrasonic Welding, Filling & Capping

- High Speed Filler – Low Foot Print
- Patented High Speed Nozzle
- Spout Welding Integration
- Brands Ready Technology
Pilot Facility
Business Concept

- Widmann & Karlville coming together to create Global Showcase for Industry
- Show First Hand Ultrasonic Plant in Operation
- Enable Converters & Film Suppliers to Develop and Bring to Market new lamination constructions for Ultrasonic converting.
- Enable spout fabricators to design fitment for ultrasonic and to market spouts to converters and brands.
- Showcase first hand to bands best path forward with low cost + high quality process with sustainable vision.
Capabilities

- Ultrasonic Pouch Making
  - Pilot Testing & Production

- Ultrasonic Spouting
  - Pilot Testing & Production

- Food – Juice & Puree Production
  - Spouted Pouch Filling & Processing
  - High Pressure Processing via Green Plant Toll Services

- Home & Personal Care Production
  - Spouted Pouch Filling & Processing
Food Pouches
Thank you!
Look Forward to your Miami Visit!