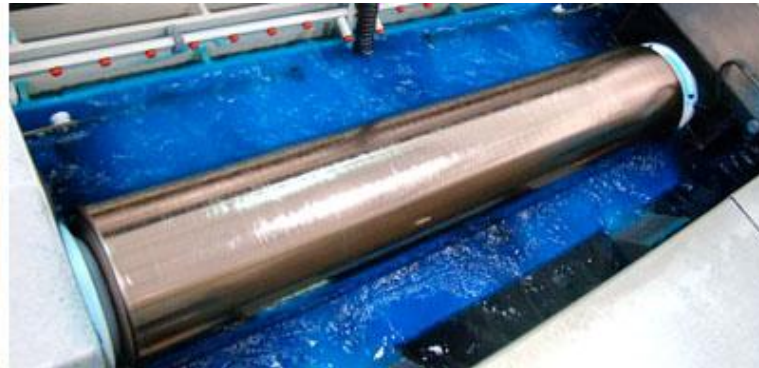
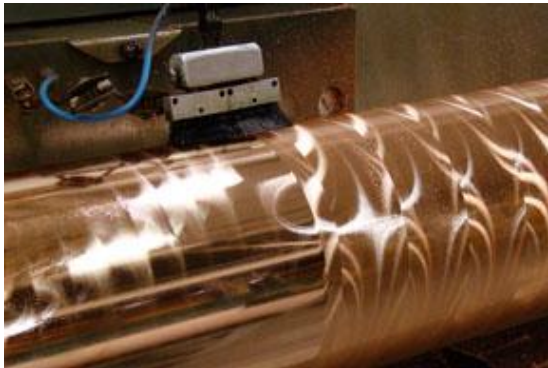


Packaging Engraving Process and Business Update



What We Do

Produce large numbers of accurately customized engravings for a wide variety of presses, substrates and ink systems.



Business Update :

- **Static to declining volume**
- **Significant fluctuation in demand**
- **Fewer, larger converter companies**
- **Shorter lead time**
- **Self Manufacturing is declining**

Business Update :

- **Job Engineering, Project Management and Problem Solving are often included in the engraving service model and price**
- **Innovative approaches to process and product are more important than ever**
- **Client Integration is common; on-site people, intercompany teams and shared resources**

Business Update :

- Cylinder base cost is *still* a barrier to choosing gravure
- Gravure leads as the best process for metallic inks, special coatings and high resolution imagery
- Migration from flexo and offset to gravure is happening in some categories
- Contingent Liability Claims are more prevalent

Process Update :

Technology

- **Engraving**
 - Electromechanical
 - Extreme Engraving
 - Direct Laser
 - Laser Imaging/Chemical Engraving
- **Automation**
 - Copper Plating
 - Chrome Plating
 - Surface Finishing

Process Update :

Quality/ Cost

- **Lean Manufacturing Approach**
 - Reducing man hours/cylinder
 - Reducing WIP
 - Increasing capacity
- **Standardized work/Customized Approach**
- **Reduce or Eliminate Cylinder Proofing**
 - Quality built in
 - Tighter process controls

Process Update :

Developmental

- Alternatives to conventional cylinder base
 - Nickel Sleeve
 - Polymer build up
- Stochastic screening
- Unique screen combinations and cell configurations as a result of laser technology
- Plate to size
- Automate when and where it makes sense