Sheet Metal Specifications & Properties
In-Plant Training Agenda (Sample)

*Designed for two shifts (or two cohorts on one shift) per day, 3 hours each shift/cohoot*

**DAY 1 (3-hours)**

Introduction(s)

**Communicating in the Language of the Die**
- What the Die Does Not Understand
- Material Certifications
- Rockwell Hardness – Not and Indicator of Formability
- What the Die Understand
- The Language of the Die

**Mechanical Properties of Sheet Metals**
- The Uniaxial Tensile Test
- Tensile Properties and Formability
- Directionality (Inclusions)
- Grain Size and Its Impact on Formability
- Properties Related to Springback

**The Impact of Steel Processing on Formability**
- Slab Production
- Hot Rolling
- Cold Rolling
- Hot Roll Steel vs. Cold Rolled Steel
- Coiled Sheet vs. Coiled Strip
- Mill Capability

**Service Centers (Toll Processing)**
- Pickling/Oiling
- Temper Rolling
- Stretch Leveling
- Coil Slitting
- Camber
- Defects

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DAY 2 (3-hours)
The Impact of Material Properties on Production
  • Bending (elongation)
  • Shear Edge Damage
  • Hole Expansions/Extrusions
  • Stretching/Embossing (material n-values)
  • Drawing (material r-values)
  • What Happens When Steel Gets Stronger (HSLA/AHSS)

Stainless Steel Alloys
  • Types of Stainless Steel
  • Formability of Stainless Steels
  • Impact on Die Life
  • Lubrication Considerations
  • Burr Control

Aluminum & Aluminum Alloys
  • Alloys and Temper
  • Formability of Aluminum
  • Impact on Die Life
  • Lubrication Considerations
  • Controlling Burrs and Preventing Slivers in the Die
  • Lubrication Considerations

Other Non-Ferrous Materials
  • Copper and Copper Alloy (Brass, Bronze, etc.)
  • Nickel and Nickel Alloys
  • Titanium and Titanium Alloys

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