

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/cohort

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

PMA in-plant training programs are fully customizable. Subjects in this agenda can be removed, replaced or additional topics added from other PMA in-plant training programs.

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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