

2-day Technical Training Course (CF02)

Program: Manufacturing Insight Skills (MIS)

Session Topics - "Troubleshooting
Cold Forging Tools Failures"

Course Objective:

The objective of this patented MIS program is to raise technical competency of technical employees from local manufacturing industry for product quality & productivity improvement through understanding of vital manufacturing variables. At the end of the MIS training, participants will realize the importance of technical details study & the introduction of science & engineering procedures to their existing practices for a profitable manufacturing operation.

Session Overview:

The second cold forging training series specially designed for cold forging industry will discuss the die failures modes, troubleshooting & prevention to ensure reliable tooling performance for a profitable cold forming process. Owing to high forging loads & tool stresses, the service life of cold forging tools & performance are usually limited by fatigue failure, which causes fracture during repetition of forming blows, and by wear, which affects the dimensional tolerance of formed products. Replacement of broken or worn dies is clearly expensive. Lean manufacturing is harder to implement with inconsistent tool life. In addition, the unpredictability of tool life results in higher inventory levels as manufacturers try to keep the production running. It is thus imperative to understand the failures mechanism of cold forging tools to prevent future premature tool failures.

The trainer will explain steps in troubleshooting tools failures, common cold forging tool failure modes including fatigue, wear and fracture, recommendations to extend tools life.

Benefits:

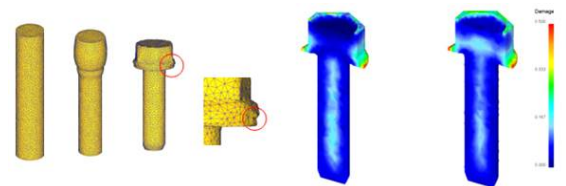
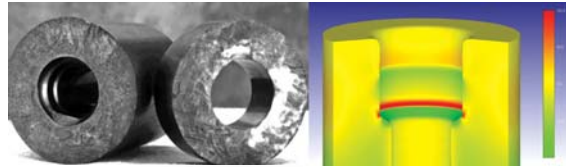
1. Understand tools & dies failures investigating procedures.
2. Learn fundamental sources of cold forging tools failures.
3. Study failures mechanisms & preventive measures to prolong tool life.
4. Be able to analyze factors that cause tools & dies failure.



Your Workshop Leader

Mr. William Lee

Dip.Tech (TARC), B.Eng (EC, UK)
Fulltime Technical Training Consultant
PSMB Certified Industry Trainer



Target Participants:

Target audience can be any technical personnel involved in activities related to tooling, parts or products manufacturing such as those from production, tooling, design, maintenance, quality control, R&D and purchasing departments.

Course Contents:

- 1. Stresses and Failures - The Driving Force for Components Failures**
 - Residual Stress; Applied Stress; Resultant Stress
 - Tensile & Compressive Stresses
 - Mechanical; Metallurgical & Thermal Stress
- 2. Fatigue Failures - The Leading Cause of Cold Forging Dies Failure**
 - Stages of fatigue fracture
 - Factors affecting fatigue life
 - Stress concentration
- 3. Wear Failures - The Tool Life & Dimensional Tolerance Limiting Factor**
 - Abrasive wear – mechanisms & preventions
 - Adhesive wear – mechanisms & preventions
 - Effect of microstructure & hardness
- 4. Troubleshooting Tool & Die Failures - 4-Step Troubleshooting Process**
 - 1st Step Troubleshooting: Gather All The Facts
 - 2nd Step Troubleshooting : Confirm & Compare to Best Practices
 - 3rd Step Troubleshooting : Search Out Root Failure Causes
 - 4th Step Troubleshooting : Plan & Test Corrective Action

Course Instructor:



William Lee - Malaysian, Materials Engineer with an honorable Bachelor Degree awarded by The Engineering Council of London (EC, UK). He has over 25 years working & teaching experience in manufacturing industry. William possesses strong fundamentals knowledge in technical science & has special talent to communicate and explain to others the principles involved in various engineering fields. His ability to present and link the various engineering disciplines with real

industrial use has made many of his course participants to appreciate the significant of technical details study for manufacturing improvement. Over the years, he has developed a series of patented Manufacturing Insights Skills (MIS) Training programs for various manufacturing industries. He is now a full time contract speaker for a few training organizers as well as professional associations in ASEAN & Australia. William will bring a wealth of teaching experience to this program along with his strong industrial background as a former engineering practitioner in tooling, materials, heat treatment, moulding & metal forming divisions. In addition, William is a versatile trilingual instructor who can instruct technical courses in English, Bahasa Malaysia or Mandarin (or a combination of the languages) to ensure full understanding of his presentation by his trainees from all levels.



Organized by:

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◆ Developing K-Workers; Promoting Scientific Manufacturing ◆