

2-day Technical Training Course (CF01)

Program: Manufacturing Insight Skills (MIS)

Session Topics - "Cold Forging Tool Materials and Tool Processing Control"

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 production cost for cold forging depends significantly on the tool life. Owing to high forging loads & tool stresses, cold forging is one of the most demanding metal forming applications. Therefore, selection of proper tool materials & tool making control are vital for the success of cold forging process. This 2-day technical program is specially designed for forging industry to emphasize on finding tool materials with a combination of high strength and toughness to withstand the typically high forming stress from the cold forging process as well as adopting proper tool making procedures to perfect tooling condition prior tool running. The training is intended to improve understanding of tooling material & tool making practices of both cemented carbides & tool steel materials including high performance powder metallurgy & high speed tool steel grades. The trainer will explain the WHAT and HOW variables & limitations that could affect the performance of cold forging tools and providing material solutions to counter wear, chipping & cracking problems.

Benefits:

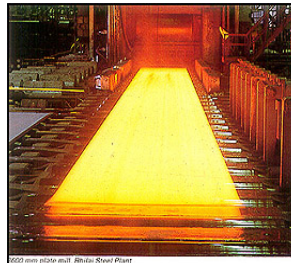
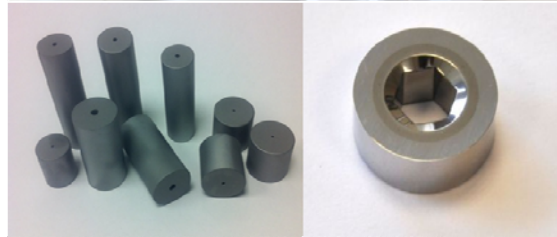
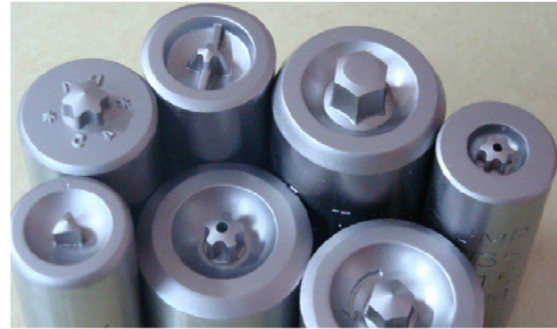
1. Explore different types of cemented carbide & tool steel materials.
2. Learn the basic of tool materials quality & properties.
3. Study the effect of tool making processes on tool strength & quality.
4. Understand the various testing & measuring techniques in performing quality and property inspection.
5. Gain applied engineering knowledge on selection guides on tool materials and proper tool making process.



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:

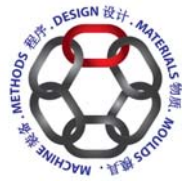
- 1. Tooling Materials - *The Many Classes & Family Of Tool Materials***
 - Cemented Carbides – Introduction & Types
 - Tool Steels – Instruction & Types
 - Classifications & Standards – Country Code, Brand Name
- 2. Material Quality & Properties - *The Impact of Material Factor on Tooling Performance***
 - Material Quality & Defects (Refining techniques, Alloying Elements; Inclusions, Carbide Segregation, Porosity, Grain Size).
 - Material Properties (Mechanical & Technological Properties)
- 3. Material Processing – *Good Manufacturing Practices for Proper Tool Making***
 - Machining Control
 - Heat Treatment Control
- 4. Material Testing – *Identifying & Examining The Quality & Properties of Tool Materials***
 - Mechanical Tests
 - Microstructure Examinations
 - Non-Destructive Tests
- 5. Video Presentation – *Seeing is Believing***
 - Tool Materials
 - Powder Metallurgy Refining Process
 - Heat Treatment of Tool Steels
 - Mechanical, Metallography & Non-Destructive Testing

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:

METALLOY CONSULTANT SERVICES PLT

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(Registered Training Provider under PSMB: LLP0003449-LGN)

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◇ Developing K-Workers; Promoting Scientific Manufacturing ◇