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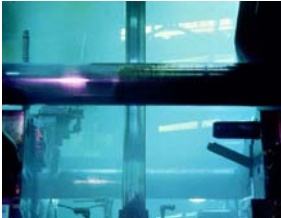
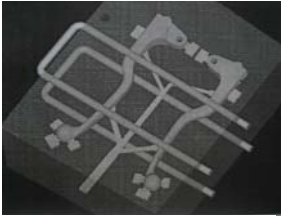
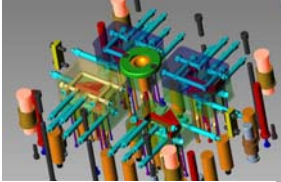
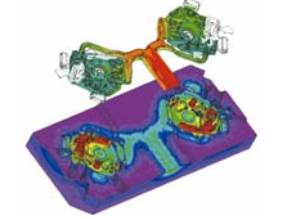
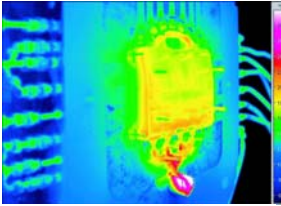
Die Casting  
Technology  
Program  
Series

2-day Technical Training Course

## THERMAL CONTROL FOR QUALITY DIE CASTING

By: William Lee

2-day course, SBL program, Public & In-house training available.



### Course Overview

Waterlines cooling & die spray are two important thermal management activities used to remove heat from the die and maintain the earlier pre-set die temperature for achieving consistent casting quality & ensuring a reasonable die life performance. A too low die temperature cools the metal flow and increases the percent of solidified metal in the melt stream which can easily cause surface defect problems while too hot a die will subject the expensive tooling to thermal damages such as heat checking, soldering & erosion or hot wear attack.

The training will highlight the importance of thermal management in die casting process, and engineer the cooling so as to obtain consistent die operating temperatures. The major die temperature controlling factors such as melt temperature, die preheating, water cooling, die spray & cycle time will be reviewed in this 2-day technical program. Course participants will learn & appreciate this up-front engineering effort which will put die thermal conditions in a more robust operating window for a profitable die casting operation.

### Benefits

1. Learn how improper die cooling system and die spray application could affect some of the common die casting defects.
2. Study proper thermal analysis to design waterline cooling system.
3. Know the correct way of applying die spray during die casting process.
4. Understand the logical impact /effect of the many thermal controlling parameters & the variability of these parameters & how they interact with each other.

### Course Content

#### 1. The Basic of Thermal Management

Casting defects and die temperature; die surface temperature; temperature measurement; temperature manipulation; heating & cooling cycle in die casting; thermal barrier; thermal conductivity; heat transfer; specific heat & latent heat.

#### 2. Water-Line Cooling

Heat source & removal; cooling medium & control, thermal balancing & cooling design; heat flow pattern; waterlines dimensioning & locating.

#### 3. Die Spray Control

Die spray & die stresses, cooling & lubrication effectiveness from die spray; temperature, flow rate & target control; die spray maintenance.

#### 4. Case Study & Thermal Design Issues

Thermal design for a heat sink.

Organized by:

**Metalloy Consultant Services (for public course)**

**Metalloy Technology Services (for in-house program)**

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## Course Instructor



### **William K.W. Lee**

Dip. Tech (TARC), B.Eng (Hons) EC, UK

Full-time Technical Training Instructor for Metalloy Group of Companies (Malaysia)

Contract Speaker for Society of Manufacturing Engineers (SME, USA)

Contract Speaker for Tooling Industry Forum of Australia (TIFA, Australia)

**William Lee** - Malaysian, a materials engineer is currently technical training director & full time industry speaker for Metalloy Group of Companies. He is also a contract speaker for Society of Manufacturing Engineers (SME, USA) & Tooling Industry Forum of Australia (TIFA). He has instructed technical courses covering materials selection, tool processing, tooling improvement, manufacturing engineering, tools & dies design, failure understanding, heat treatment process and advanced tooling materials and surface treatment technology for many organizations & technical colleges / universities since 1990. He will bring a wealth of teaching experience to these programs along with his strong industrial background as a former technical manager & heat treatment manager for tool steels & heat treatment companies in Malaysia.

## Target Participants

This course will be of interest to practicing die casting staff, to designers, quality managers, controllers and production engineers & supervisors. Buyers and users of castings and industry executives would also gain a better understanding of the benefits and issues involved when designing die casting die to achieve quality die casting parts.

## Public Course Training Schedule

Return to [home page](#) & click **Public Courses** then click **200x Public Course Schedule**.

## Course Registration

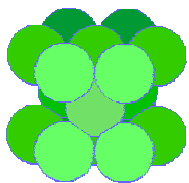
Return to [home page](#) & click **Public Courses** then click **Public Course Registration Form**.

## Course Fees

Contact us to find out **special rate for early bird registration** & enjoy **10% discount** for group registration with enrollment of **4** or more participants.

## Contact Person

**Ms. Nancy Hee**, Administrator – METALLOY Technical Training Unit (Tel: 03-80751529)



# Knowledge for Productivity

◆ **We Provide The Missing Link Study for Manufacturing Improvement Program** ◆

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