

# Advanced Light RTM Composites Tooling Training December 9-12, 2019

**Limited number of spaces available.**  
Register online via the link below or email  
your registration form to  
[rachel.menges@compositesone.com](mailto:rachel.menges@compositesone.com).

Register Today: <http://tiny.cc/c3byfz>  
**See registration form for payment details.**

## **Location:**

Diab Inc  
315 Seahawk Drive  
DeSoto, TX 75115

## **Cost:**

\$500 USD per person  
(Lunch and graduation  
dinner included)

## **Hotel Accommodations:**

Hampton Inn & Suites Dallas - DeSoto  
1311 E Centre Park Blvd  
DeSoto, TX 75115  
972-228-0200

Holiday Inn Express & Suites Dallas South - DeSoto  
1310 E Wintergreen Rd  
DeSoto, TX 75115  
972-224-3100

Hilton Garden Inn  
800 N. Main  
Duncanville, TX 75116  
972-283-9777

PARTICIPANTS UNDERSTAND THAT THEY  
WILL RECEIVE CONFIDENTIAL INFORMATION  
AND USE OF LIGHT RTM MOLDS AND THEY  
WILL NOT COPY SUCH INFORMATION IN  
WHOLE OR IN PART.

## Schedule of Events

### **Monday, Dec. 9 - 9:30 AM - 4:30 PM**

- Economics of LRTM
- Product Design for Process and Flange
- LRTM Injection Demonstration
- A-Side Mold Construction
- Steps in LRTM Mold Building
- LRTM Demonstration

### **Tuesday, Dec. 10 - 8:00 AM - 4:30 PM**

- Waxing Techniques
- Waxing Demonstration
- Design First Layer of Wax
- LRTM Injection Demonstration
- Waxing First Layer

### **Wednesday, Dec. 11 - 8:00 AM - 4:30 PM**

- Second Layer of Wax
- LRTM Injection Demonstration
- Waxing Flange Details
- Start Lay-Up on B-Side
- More Laminates on B-Side
- MVP Equipment
- LRTM Injection Demonstration

### **Thursday, Dec. 12 - 8:00 AM - 4:30 PM**

- Finish Wax and Laminate on B-Side
- Mold Repair and Maintenance
- Gel Coating, Glass Loading, and Troubleshooting
- Questions and Answers
- LRTM Injection Demonstration
- Introduction to Flex Molding (Silicone Bag System)
- Graduation Dinner

# ClosedMold Alliance

Composites One • MVP  
RTM North Technologies

## Advanced Light RTM Composites Tooling Training

### 4-DAY HANDS ON TRAINING

December 9-12, 2019

DeSoto, TX



# Hands On Light RTM Composites Tooling Training

## You will learn the basics of Light RTM Tooling including:

### WHY RTM?

- Advantages and other options

### PATTERN DESIGN AND PREPARATION

- Flanges, draft angles, and undercut considerations

### BUILDING THE FACE TOOL

- Materials, their properties, and temperature controls
- Designing, building, and attaching the back-up frame
- Accurate location clamping and attachment system

### DEFINING THE PART TO BE BUILT

- Working with dimensional wax
- Designing product cut-offs, vents, and peripheral seals
- Injection port location, multiple injection ports, and sensors
- Designing for ribs, cores, inserts, etc.
- Handling complicated shapes, undercuts, etc.

### HOW TO ENSURE PART ACCURACY

- Controlling the problem of laminate shrinkage

### BUILDING THE BACK TOOL

- Designing the frame and locking accuracy

### TOOL LIFE AND CARE

- Replacing the tool faces

### FINISHING AND PREPARATION OF THE TOOL

- Preparing the tool surface
- Release agents and their application
- Installing the mold seal
- Reinforcement materials replacement

### GETTING STARTED

- Materials and resources

### COSTING TOOLS AND PARTS

- Materials, wastage rates, and formulas for costing

### RESIN SYSTEMS AND REINFORCEMENTS

- Review of available resin systems and properties
- Review of reinforcement applications and sources

### FILLERS AND THEIR EFFECTS

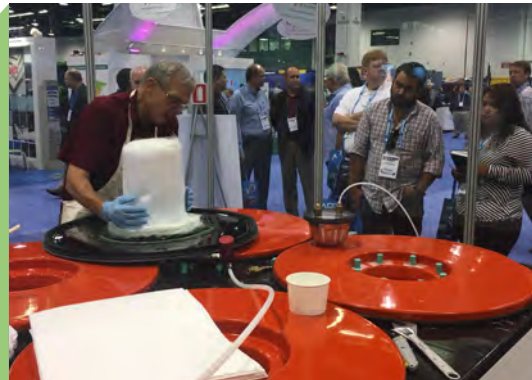
- Impact on surface finish, part cost, and fire retardant
- Surface finish requirements

### INJECTION MACHINES

- Features and benefits
- Catalyst and cure systems, production rates
- Preform materials, manual to fully automated

### FLEX MOLDING

- Review of silicone bag systems
- Features and benefits
- Materials and start-up



## Registration Form

Advanced Light RTM Composites Tooling Training  
December 9-12, 2019

\$500 per registrant - Full Payment is required with registration prior to  
December 2, 2019

Name: \_\_\_\_\_ Title: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Products currently being manufactured: \_\_\_\_\_

Please circle one:    Fabricator    Supplier    Distributor    Other



## Registration and Payment Due December 2, 2019

You may register online via the link below or email your  
registration form to [rachel.menges@compositesone.com](mailto:rachel.menges@compositesone.com)  
<http://tiny.cc/c3byfz>

Please send payment to:

RTM North \Attn: Doris Smith  
43 First Avenue  
Vanastra, ON N0M1L0

Please make checks payable to RTM North. Full payment is  
required with this registration. Registration will not be  
considered final until payment is received. All cancellations  
made ten working days prior to the commencement of the  
workshop will receive a full refund. Cancellations made less  
than ten days prior will be subject to a refund if there is a  
confirmed alternate. All cancellations must be made in writing.