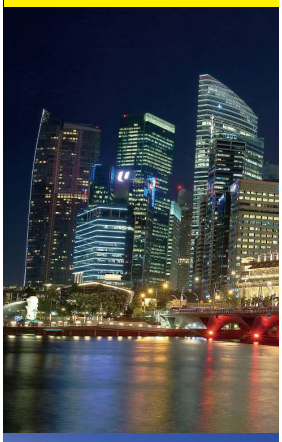
Completely revised training!



Nadcap

MFN is a Partner in Education in Nadcap

MFN Shot Peening & Flap Peening Workshop in Singapore

Date: 4th - 5th May 2027

➢ **2 day Shot Peening Training L1-L3 (FAA accepted)**
Fee: 900 S$ for L1-L3
Optional Test for Certificate of Achievement:
120 S$ for each test L1 -L3

Only at MFN

➢ **2 day Evening Classes from 16:45-18:45**
Practical Shot Peening Training
Fee: 720 S$

Date: 6th May 2027

➢ **1 day Flap Peening Training (FAA accepted)**
Fee: 650 S$
Optional Test for Certificate of Achievement: 120 S$

Location: - ARTC at CleanTech Two, 3 CleanTech Loop, #01-01, CleanTech Park

Registration Fees:
- Included: course documentation, break refreshments and lunches
- Not included: transportation, lodging and other meals
- Class size is limited. Make early reservations.
  (For Shot Peening Training: up to 30 pax, For Flap Peening Training: up to 15 pax)
- Payment to be made before the workshop

Supported by:
Advanced Remanufacturing and Technology Centre
ARTC

Cancellation:
- Cancellation will be charged 70 S$ and must be made in writing 7 days prior to the start of the workshop.
- "No Shows" will be liable for the full fee.

Note: Workshops sometimes get cancelled. Check with organizer before making non-refundable flight or hotel arrangements.

Registration: (One form per person. You may copy this form.	
Name:	Surname:
Company:	Street:
Postal Code:	City:
Country:	Phone:
E-Mail:	Fax:

Shot Peening Training (2 days, L1-L3): 900 S$	☐	**4th -5th May 2027**
Optional Test for Certificate of Achievement: 120 S$ for each level	☐	**L1** ☐ **L2** ☐ **L3**
Evening Classes for Practical Shot Peening (2 x 16:45-18:45): 720 S$	☐	**4th -5th May 2027**

Flap Peening Training (1 day): 650 S$	☐	**6th May 2027**
Optional Test for Certificate of Achievement: 120 S$	☐	**Flap Peening**

For registration please fill the form above and send it back per email: info@mfn.li

Why attend the MFN Shot Peening Workshop?

MFN is organizing frequently these international 1-3 days Shot Peening Workshops and Trade Shows to attract a wide spread audience. Suppliers from the industries, invited guest speakers, MFN scientific advisers and MFN trainers are combined to provide a mixture of knowledge that is beneficial to all those involved in peening, rather than exclusively for one particular group in this field. So operators, supervisors, process & maintenance engineers, buyers, even trainers will be able to either learn something completely new, or at least be able to refresh their knowledge.

FAA accepted Courses:

All 3 courses offered during the workshop are FAA accepted. Participants who passed the optional examination receive a "Certificate of Achievement", which has the related FAA identification number on it. The FAA acceptance gives the courses a general credibility. However, there are a lot of aviation repair and overhaul stations, which do receive frequent FAA audits. Especially those companies will appreciate to have access to a FAA accepted shot peening training.

MFN is Partner in Education in Nadcap:

Nadcap and MFN have agreed to recognise and promote the cooperation between the two organizations in areas of common interest according to their purpose, namely aerospace special process assessment. The cooperation will be known as “Partners in Education” and is intended to create synergy, making optimal use of the resources available, for the accreditation related activities offered by both organizations so as to provide an effective and efficient service to the aerospace industries in the world.

Topics of Workshop:

-introduction to peening and theory, -peening intensity, -effect of peening, -Almen saturation curve, -peening coverage, -exposure time, -peening location, -process documentation, -masking solutions, -workpiece fixtures, -shape & size inspection of peening media, -specifications, -shaded strips, -audits by 3rd parties, -specifications & standards, -peening equipment components, -air & wheel peening, -machinery styles and application examples, -hole peening, -flap peening, -peen forming, -optimization of shot peening for fatigue critical applications, -residual stress, -XRD and BNA measurement of shot peening induced stresses, -laser peening, ultrasonic peening, cavitation peen, -deep rolling, -shot peening process improvement, -shot peening in the automotive industry, -nanostructured surfaces obtained by severe shot peening, -etc.

Description about the courses at: *www.mfn.li/workshop/courses*

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Advanced Remanufacturing and Technology Centre ARTC

MFN Workshops in Singapore are supported by ARTC

Federal Aviation Administration

MFN offers training that is accepted by the FAA

Schedule: MFN Shot Peening Workshop

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4th of May, 2027	
Time	Description Day 1: **Shot Peening Workshop L1-L3**
8:45-8:55	**Offical Opening**
8:55-9:35	**Introduction to Peening:** Why Shot Peen Components? How does peening work? Peen Forming and Straightening; The Development of Peening; Applications for Shot Peening
9:35-10:15	**Intensity-1:** What is Peening Intensity? Measuring Peening Intensity; Equipment for Intensity Measurement; Intensity Measurement Requirements
Morning Break (35 minutes)	
10:50-11:30	**Coverage and Inspections:** Shot Peening Inspections; Definition of Coverage; Development of Coverage; Inspection of coverage; Coverage vs. Intensity; Visual Check of the Coverage Degree
11:30-12:10	**Wheel Shot Peening Machines:** Wheel Blasting Principle; Intensity Curves – Single Wheels; Blade Shapes; Comparison of the Intensity; Wheel Power and Steel Shot Throughput; Remote Controlled Dosing; Universal Blast Wheel Unit; Media Recovery and Recycling; Advantages and Limitations of Wheel Technique
Lunch Break (45 minutes)	
12:55-13:35	**Compressed Air Shot Peening Machines and Nozzles:** Shot Delivery Systems; Media Flow Control; Air Pressure Control; Nozzle Manipulation; Robotic Systems; Rotary Index System; Direct Pressure Nozzles; Lance Nozzles and Hole Peening
13:35-14:15	**Shot for Peening Process:** Peening Shot; Shot Specifications; Quality Control; Process Control; Application; Surface Contamination; Choice of Shot; Peening Shot Identification; Typical Aerospace Peening Shot Label
Afternoon Break (30 minutes)	
14:45-15:25	**Performing and Documentation of a Peening Process:** Technique Sheet; Flow Chart; Intensity Verifi cation; Pre and Post Peen Inspection; Documentation
15:25-15:50	**Repetition and Questions**
15:50-16:30	**Exam for FAA accepted L1 Shot Peening Certificate**

New Topics!
Completely revised!

Time	Description Day 1: **Practical Shot Peening Training on PLC controlled Machine**
16:45-18:45	Media Evaluation 1. Saturation curve development (Introduction) a) Parameters Setup up b) Development of Saturation Curve (Almen Strips) c) Progressive Saturation Curve software 2. Exposure to cast steel media 3. Examination of deformed shot a) Review criteria for defective particles b) Conduct fracture counts 4. Equipment /Hardware Review a) Sieves b) Rotap Separator c) 20x Microscope

machine used in training

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Schedule: MFN Shot Peening Workshop

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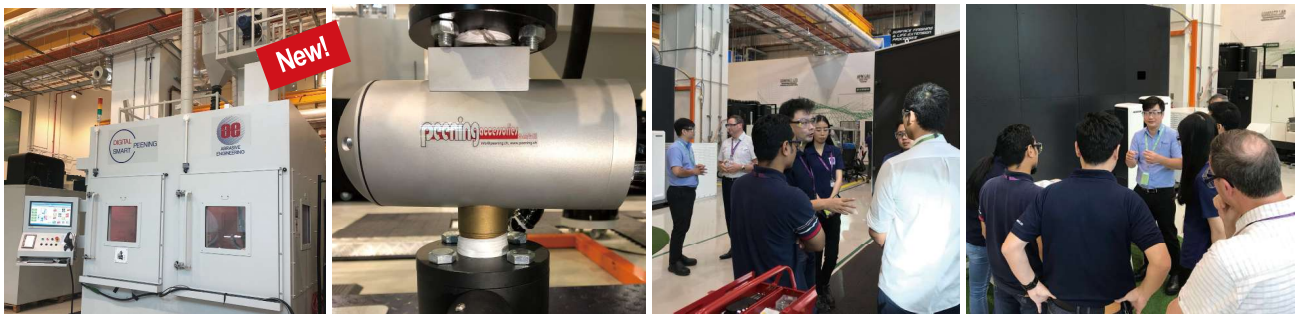
5th of May, 2027	
Time	Description Day 2: **Shot Peening Workshop L1-L3**
8:45-9:25	**Intensity-2:** Parameters of Shot Peening; Residual Stress Profile; Parameters Affecting Intensity; Almen Strips, Holders and Gages; Measuring Peening Intensity; Constructing the Saturation Curve; Saturation Curve Exercise; Shaded Almen Strips
9:25-9:55	**Coverage:** Definition of Coverage, Development of Coverage, Visual Inspection, Influencing Factors, Topography of Peened Surface, Planning & Simulation of Coverage, Life-cycle Enhancement
9:55-10:25	**Fatigue:** Crack Initiation; Stress Intensity Factor; S-N Curves, Peening Parameters and Resulting Residual Stresses; Corrosion Fatigue
Morning Break (20 minutes)	
10:45-11:25	**Residual Stresses, Origins and Measurement:** Elastic and plastic deformation; Stress-Strain Curves-Ductility and Resilience; Origins, Interaction between Sources of Residual Stress; Typical Shot Peened RS Profile; The Barkhausen Effect; Strain Relief Technique; Method and The Principles of X-Ray Diffraction; Polished Surface; Debye-Scherrer Measurement Technique
11:25-12:05	**Peening Media Specification & Quality Control:** Definition of Media according to Specification; Shot Types & Specifications for Aerospace Applications; Quality Control; Equipment; Procedure
Lunch Break (45 minutes)	
12:50-13:30	**Preparing For Shot Peening Audits:** Types & Level of Audit; Confirm the Audit Scope; Preparation checklist; Quality System; Documentation; Control Maintenance; Consumable materials records and Certificates of Conformity; Calibration; Training Programme; Job Audits; Specifications & Standards; Non Conformance Report; Corrective Action Report
13:30-14:10	**Alternative Peening Technologies Part 1:** Laser Shock Peening; Ultrasonic Peening
14:10-15:10	**Alternative Peening Technologies Part 2:** Rotary Flap Peening; Deep Rolling; Cavitation Peening
Study Break and answering Questions (30 minutes)	
15:40-16:10	**Exam for FAA accepted L2 Shot Peening Certificate** (30 minutes)
16:10-16:40	**Exam for FAA accepted L3 Shot Peening Certificate** (30 minutes)

New Topics!
Completely revised!

Time	Description Day 2: **Practical Shot Peening Training on PLC controlled Machine**
16:45-18:45	Machine Components and Intensity Determination 1. Equipment / Hardware Review a) Robotic Shot Peening Machine: Review major machine components (Robot/Spindle, Reclaim /Sieve), Review Process control (Air, shot, velocity) b) Almen Strips and Holders: Different almen strips types C,A,N, Block and types of almen fixtures (Photos) 2. Generate a simple almen strip program with a single almen block on the turntable a) Run various almen strips b) Plot automated saturation curve using software c) Demonstrate how changing parameters (air pressure, shot flow, angle affect peening intensity)

Only at MFN



machine used in training

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Advanced Remanufacturing and Technology Centre ARTC

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Federal Aviation Administration

MFN offers training that is accepted by the FAA

Schedule: MFN Flap Peening Workshop

6th of May, 2027	
Time	Description Day 1: **Flap Peening Workshop**
9:00-9:45	**Introduction to Flap Peening:** How peening works; History of Peening; Flap selection; Straightening & forming; Applications
9:45-10:35	**Flap Peen Intensity & Coverage:** What is peening Intensity? Measuring peening intensity; Almen equipment; Saturation curves; Coverage inspection
Morning Break (20 minutes)	
10:55-11:35	**Flap Peen Procedure & Quality Control:** Initial intensity & speed; Flap selection; Verification of intensity; Peening Internal diameters; Coverage inspection; Qualification requirements; Specification & Standards
11:40-12:15	**Theoretical Test for FAA accepted Flap Peening Certificate:** Multiple choice questions; saturation curve construction and analysis
Lunch Break (40 minutes)	
12:55-14:45	**Individual Assessments:** AMS 2590 qualification requirement
Afternoon Break (20 minutes)	
15:05-16:45	**Individual Assessments:** AMS 2590 qualification requirement

Headquarters Switzerland
Tel +41.44.831 2644
info@mfn.li, www.mfn.li

More details at
www.mfn.li/trainers

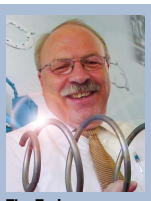
Organiser:
Steven Baiker
Publisher MFN

Organiser:
S. H. Tan
Training Coordinator

The Trainers:
Peter Beckmerhagen
Official MFN Trainer
and Book Author

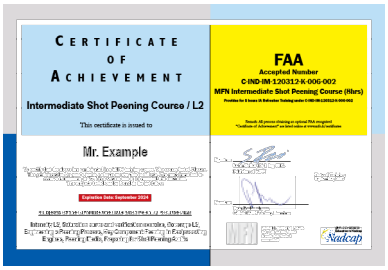
The Trainers:
Shlomo D. Ramati
Official MFN Trainer
and Book Author

The Trainers:
Rishabh K Shah
Official MFN Trainer

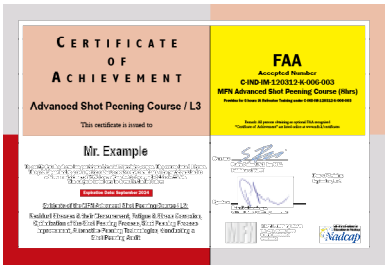


The Trainers:
Albert Schlatter
Official MFN Trainer

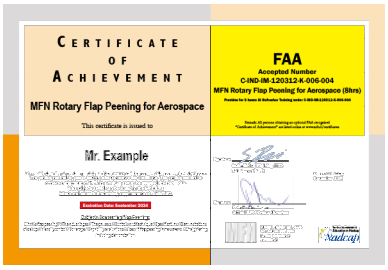
Basic / L1 Certificate indicating FAA Ref. Nr.



Intermediate / L2 Certificate indicating FAA Ref. Nr.



Advanced / L3 Certificate indicating FAA Ref. Nr.



Flap Peening Certificate indicating FAA Ref. Nr.

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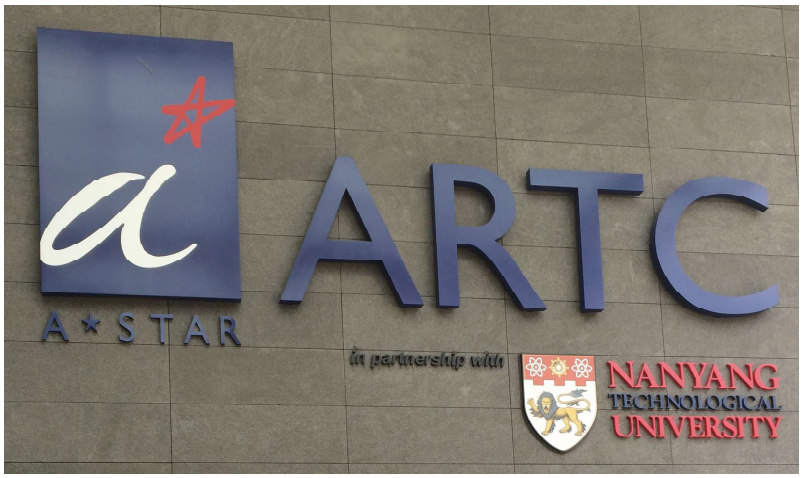
MFN Workshop Location:



Advanced Remanufacturing and Technology Centre (ARTC)
CleanTech Two
3 CleanTech Loop, #01-01
CleanTech Park, Singapore 637143

Hotel Recommendations:

Nanyang Executive Centre (Inside NTU)
www.ntu.edu.sg/nec
(about 3 min drive to ARTC)

Arena Suites
www.arenaclub.com.sg
(about 6 min drive to ARTC)

Fragrance Hotel - Waterfront
www.fragrancehotel.com
(about 16 min drive to ARTC)

Village Residences West Coast
www.stayfareast.com
(about 15 min drive to ARTC)

Holiday Inn
www.ihg.com/holidayinn
(about 26 min drive to ARTC)

Santa Grand Hotel West Coast
www.santagrandhotels.com
(about 16 min drive to ARTC)

Courses available at MFN:

- Shot Peening L1-L3 **FAA accepted!**
- Practical Shot Peening
- Flap Peening **FAA accepted!**
- Blast Cleaning & Surface Preparation
- Residual Stress Measurement
- Tumbling & Vibro-Finishing **FAA accepted!**
- Surface Enhancement Technologies
- CONSULTING: Shot Peening

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