Field Evaluation Services Newsletter

UPCOMING TRADE SHOWS

& ELECTRICAL WORKPLACE INCIDENTS

3D PRINTING EQUIPMENT NEWS

CUTTING EDGE TECHNOLOGY NEWS

TOP SAFETY RECALLS

May 2016

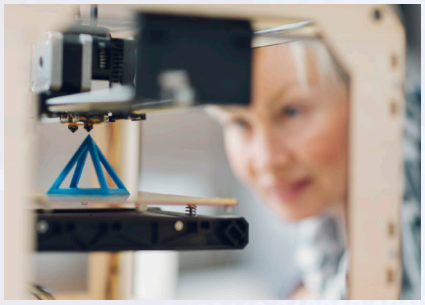
TÜVRheinland®

TÜV RHEINLAND'S MONTHLY NEWSLETTER ON FIELD EVALUATION SERVICES

MAY 2016

FIELD EVALUATION OF 3D PRINTING EQUIPMENT

by Greg Smith



3D printing, also known as Stereolithography, has seen an incredible boom in popularity, even within the last year. Recently, there have even been small systems developed that could be used in the home. In the workplace, 3D rapid prototyping involves a great number of equipment types, and very little of this equipment is Listed by a Nationally Recognized Testing Laboratory (NRTL). Another new process, known as Direct Metal Laser Sintering (DMLS), uses high-wattage lasers to micro-weld powdered metals and alloys to form fully functional metal components. Field Evaluation of this equipment is challenging, uncovering a variety of issues and electrical hazards.

Since much of the 3D printing systems are non-certified, our Field Evaluation team has been inspecting a great deal of this equipment. Some of the common issues we find include: Incorrect use of supplementary protectors as Branch protection; non-certified power supplies (Including laser power supplies); Inadequate Short Circuit Current Rating (SCCR); Incorrect grounding; Warning and Caution markings missing and more. Applicable US Standards may include UL508A, UL61010-1, UL499, NFPA 70 (NEC) and others.
In addition to the actual 3D printing systems, a variety of support equipment is needed to complete rapid prototyping projects. This equipment may include powder sifters, vacuum units, industrial mixers, curing ovens, and machine shop equipment for DMLS processes. Common findings are similar to the actual printing systems, but can also include: Inadequate or missing 3 phase motor protection; primary protection of transformers; accessibility to electric shock, missing arc flash and electrical nameplate data.
US Field Evaluations usually only cover electrical shock and fire hazards, however other hazards can also be present. Some materials used in these processes are potentially toxic, and there are also risks of exposure to laser radiation. Personal protective equipment such as masks and special clothing are used to mitigate hazards from materials, in some situations an Industrial Hygienist is needed to evaluate what is being used. Laser radiation is usually addressed with interlocked doors and warning markings, and a physicist can be hired to review these hazards.

In 3D manufacturing processes where potentially ignitable powders are used (Especially metallic powders), there may be inadequate ventilation, or the area was never classified as Hazardous Location, (Class II, Division 1 or 2 per the NEC). Also, equipment may have been added after the initial move-in without an analysis to determine if the area should be classified.

Top Product Safety Recalls

- Staples Promo Products Canada recalls Power Bank PowerStation
- Robert Bosch Tool Recalls Grinders
- Payless Pulls Kids' Light-Up Shoes
- Walmart Recalls Rival Electric Water Kettles
- One World Technologies Recalls Snow Blowers
- Digital Clamp Meters Recalled by Klein Tools

Fire/Burn Hazard | Shock Hazard

3D PRINTING EQUIPMENT NEWS

- Expiring Patents And The Next Generation Of 3D Printing
- 3D Printing Metal In Midair
- First 3D Printed Superconducting Cavity
- Stryker Debuts 3D Printed Lumbar Cage Spinal Implant
- Metal Powders And The Anton Paar Powder Cell
- 3D Printing To Reconstruct A Cancer Survivor's Jaw
- OSHA Cites 3-D Printing Firm In MA After Explosion
- The Personal Factory Is Here; A New Era Of Invention
- Body Parts And Rocket Engines: 3D Printing
- 3D Printer Creates Real Bones Using Synthetic Material

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ELECTRICAL & WORKPLACE INCIDENTS

- Loud Explosions Rock Quiet Bay Ridge Street in Brooklyn
- Feds Fine Battelle (ID) After 2015 Electric Arc Flash Explosion
- Complaint Leads OSHA To Cite Steel Fabricator With 11 Violations
- Electrician Electrocuted On Job In San Francisco
- Employer Exposes Workers To Machine, Electrical Hazards
- Out-of-Control Wind Turbine Shook Itself Apart
- Raccoon Causes Power Outage For 38,000 Seattle Residents
- Metro Train Pulls Out Of A Station Just SECONDS Before A Large Electrical Fire
- Warrensburg, MO Worker Killed When Struck By Machine
- 2 Injured In 'electrical Explosion' At Tallahassee VA Building
- Teen Boy Electrocuted While Doing Experiment
- Field Evaluations: An Inspector's Point Of View
- One Person Killed In Plant Explosion In Georgia
- TVA Worker Electrocuted At Northwest Alabama Dam
- Two Injured In Oven Explosion at Aurora CO Commercial Bakery
- Alabama Teen Drowning May Be Result Of Electric Shock
- Police ID Linden Worker Killed After Getting Caught In Machine
- Pittsburgh Light Rail Evacuated After Electrical Fire
- Intuitive Surgical Settles DaVinci Robot Product Liability Lawsuit
- Woman Falls Into Trash Compactor That Turns On, Mangles Leg

RESOURCE LINKS

TÜVRheinland®

ACCREDITATIONS

- OSHA ACCREDITATION
- SCC ACCREDITATION

FEDERAL LAWS FOR THE WORKPLACE

- OSHA/US DOL BULLETIN: CERTIFICATION OF WORKPLACE PRODUCTS BY NATIONALLY RECOGNIZED TESTING LABS
- OSHA: ALL EQUIPMENT MUST BE NRTL APPROVED
- NRTL PART 1
- NRTL PART 2
- 29CFR1910.303A SUBPART S ELECTRICAL
- OSHA: INDUSTRIAL MACHINERY IS ELECTRICAL EQUIPMENT
- 29CFR1910.399 DEFINITIONS

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CUTTING EDGE TECHNOLOGY NEWS

ARTIFICIAL INTELLIGENCE

- AI Lawyer Has Been Hired By Its First Official Law Firm
- AI Teaching Assistant Helped Students Online
- Beer With A Bot? From Bots To Artificial Intelligence
- Autonomous Vehicle Disruptions Ahead
- Robots Step Into New Planting, Harvesting Roles
- Meet Your New Industrial Robot Coworkers
- Former Googlers Launch Start-Up To Make Self-Driving Trucks
- Meet Aido, An Interactive Personal Home Robot

- Black Diamond Could Double Solar Cell Efficiency
- Nanotubes Assemble! Rice Introduces 'Teslaphoresis'
- Solar Cell Produces Electricity From Rain And Sunlight
- IOT Piggybacks On Lego: Simple Physics & Quantum Levitation
- The Scary Index: How Smartphones May Lead To Life After Death
- Hover Camera Is A Floating Device That Captures Every Picture Perfect Moment With A 13 MP Camera
- Australian Scientists Created The World's Most Efficient Solar Panel
- Giant Wave-riding Platform Design Puts Solar Power Out To Sea
- USA Students Built Car That Gets 2,500 Mpg, Will Display It Saturday At Car Show
- Salt Water Into Drinking Water: World's Largest Desalination Plant Up And Running
- Holographic, Flexible Smartphone Projects Princess Leia Into The Palm Of Your Hand
- This Chinese Smartphone Is Real And Completely Flexible
- Rural Hospitals Often Safer, Cheaper For Common Surgeries
- On-demand 'nanotube Forests,' Has Potential Industry Applications

CUTTING EDGE TECHNOLOGY NEWS CONTINUED

BIOLOGY AND TECHNOLOGY

- Send A Text Message, Or In-app Push Message, Simply By Thinking It.
- Google Patents A Cyborg Lens That Injects Into Your Eyeball
- Chinese Researchers Have Built A Mind Controlled Car
- Sony: Its Contact Lens Now Can Record And Play Videos Too!
- Writing Can Make You Happier

ASTRONOMY AND TECHNOLOGY

- SpaceX Announces Plan To Send Mission To Mars In 2018
- New 360-degree View Of Mars Released By NASA
- SpaceX Dragon Cargo Capsule Lands With Payload From ISS
- Physicists Discover A New Form Of Light
- 1,200 New Planets Discovered Through NASA's Kepler Space Telescope

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UPCOMING TRADE SHOWS

Book an Appointment

Virginia IAEI	June	27 - 28	Glen Allen, VA
NC Association of Electrical Contractors	July	14 - 16	Myrtle Beach, SC
Georgia IAEI	July	15 - 17	Buford, GA
NC IAEI Chapter Convention	August	14 - 16	Atlantic Beach, NC
IAEI SW	August	21 - 25	Tucson, AZ

Will you be attending one of these upcoming shows?
Set up an appointment with us today!

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