Machining

Electric Cars, Shop Floor Efficiency and Metalworking Tips: Better MRO's Top 10 Stories of 2021

Roland Jones | Dec 14, 2021

For manufacturing, 2021 was a year of two halves. The first was characterized by renewal and growth, while the second was driven by shortages of talent and raw materials. Here's a look back at the stories that drew your attention the most over the past 12 months.

After ***a momentous 2020***, the year 2021 was a period of recovery, building back and adapting to change.

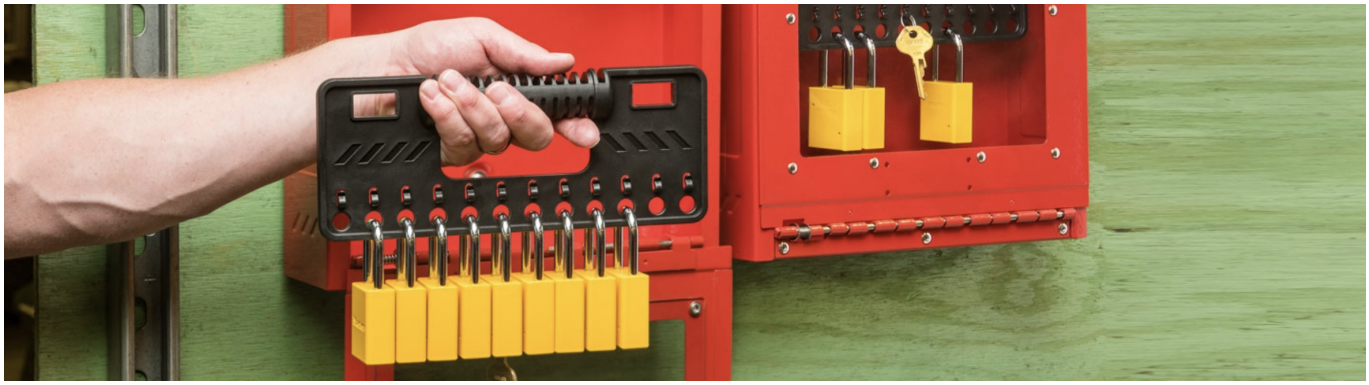
In our facilities and offices, we found new ways of working and living after the onset of the COVID-19 pandemic the year prior. We became more accustomed to using virtual platforms and new technologies that let us automate processes, making us more efficient.

When we look back at Better MRO's top 10 articles for 2021, we see a focus on the recovering automotive industry, creating workplace efficiencies, tool management, and tackling the machining skills gap. Other topics of interest to readers over the past year included machine safety, ergonomics in the workplace, and mitigating electrical dangers.

Below is our list of the year's most-viewed content. We hope you like our list, but we want to hear from you if you disagree with our selections. Are there other topics and articles that you particularly enjoyed, or did we miss any ideas and themes you think are important to cover? Let us know in the comments below.

Now on to our list of the year's most popular content.

No. 10: Lockout Safety Procedures: 5 Elements Critical to Success



In any year, there's always room for a perennial reminder about the importance of electrical safety in the workplace.

While electrical hazards have always been recognized as important issues that managers should monitor and safeguard against, serious injuries, deaths and damage to property continue to occur.

In March, William Belongea, safety services program manager at Master Lock, joined us to discuss the five critical ingredients for successfully implementing an effective and compliant lockout program.

As Belongea noted in his article, failure to implement a comprehensive lockout program—which includes procedures, training and auditing—leads to ***thousands of injuries and hundreds of deaths*** in U.S. workplaces.

And lockout/tagout (or LOTO) remains in the Occupational Safety and Health Administration's (OSHA) top 10 ***most frequently cited standards violations***.

Belongea identified five areas where safety managers can look for improvements. You can read about them by clicking on the link below.

Read more: Lockout Safety Procedures: 5 Elements Critical to Success

No. 9: 2020 OSHA Top 10 Violations: What They Cost and Tips to Avoid Them

In 2021, OSHA unveiled its list of the 10 most frequently cited workplace safety violations for 2020.

Those violations were unchanged from the year before, although some standards ***swapped positions in the list***. Fall protection remained OSHA's most frequently cited standard for the 10th successive year, clocking up 4,198 total violations and $22,767,761 in penalties.

Our article on the top 10 list not only identified the cost of each of OSHA's violations, it also offered tips for avoiding them.

For example, to improve fall protection companies could enhance training by using workplace signage to reinforce the need to follow the correct safety rules and procedures.

Read more: 2020 OSHA Top 10 Violations: What They Cost and Tips to Avoid Them

No. 8: Efficient Air Leak Detection: How to Manage Leaks Effectively in Your Facility

In our April article on detecting air leaks in facilities, we asked how we can solve this enduring problem.

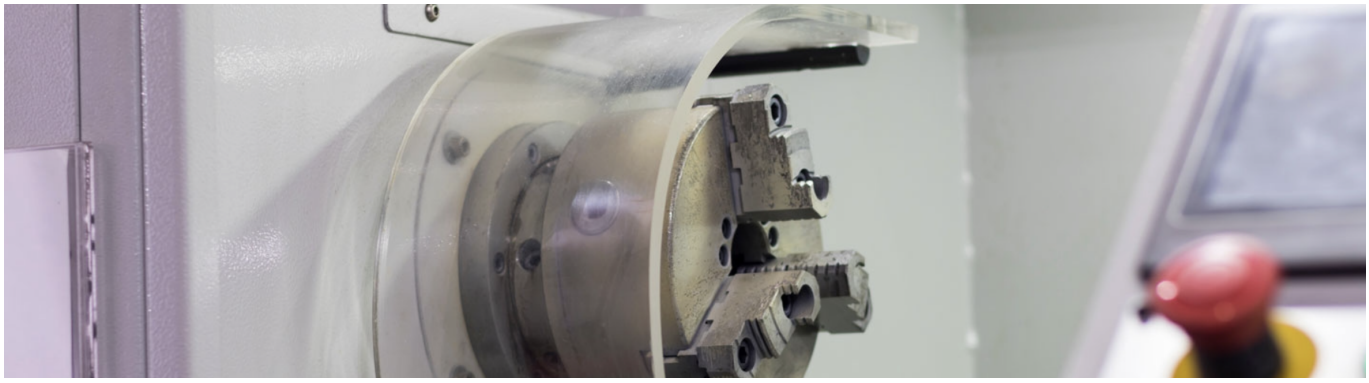
Leaks in a compressed air system are a common occurrence and, if not handled correctly, can be a significant source of energy loss for a facility, ***sometimes wasting 20 to 30 percent of a compressor's output***.

However, as our article pointed out, facilities that engage in proactive air leak testing and repair can reduce leaks to an acceptable level of less than 5 to 10 percent of total compressed air production capacity.

How can companies achieve this? Click on the article link below to find out.

Read more: Efficient Air Leak Detection: How to Manage Leaks Effectively in Your Facility

No. 7: Machine Safety: Here's Why You Should Be Taking It Seriously



On our increasingly automated production floors, the powerful and high-tech machines we use in the course of our work help us by making parts quickly and efficiently, lowering costs and improving profitability.

But those machines are also dangerous, and if not handled properly can potentially lead to serious injuries.

In our May article on the importance of machine safety, we explained why the interlock on the CNC

lathe is vital, or why spark deflectors on the bench grinder are set so close to the tool rest.

The answer in both cases is to keep you safe. As the article rightly says: “Don’t wait for OSHA to come knocking before donning your safety glasses.”

Read more: Machine Safety: Here’s Why You Should Be Taking It Seriously

No. 6: The Benefits of Focusing on Ergonomics in the Manufacturing Industry

In our August article on ergonomics in manufacturing, we tackled the issue of musculoskeletal disorders (or MSDs), which are sometimes also referred to as “ergonomic injuries.”

These injuries can happen when your body uses muscles, tendons and ligaments to perform tasks, usually in awkward positions or in frequent activities that, over time, can create pain and injury.

We offered potential solutions that may limit the impact of these injuries, such as using flooring to minimize fatigue, or investing in help from robots and other technological innovations.

Visit the link below to find out how reducing the risk of injury to your workers can lead to happier, healthier employees and fewer workdays lost to injuries and compensation claims.

Read more: The Benefits of Focusing on Ergonomics in the Manufacturing Industry

No. 5: Machining Metals: 6 Tips for Drilling Stainless Steel

While every machinist should know how to work with various materials, there’s always room for improvement.

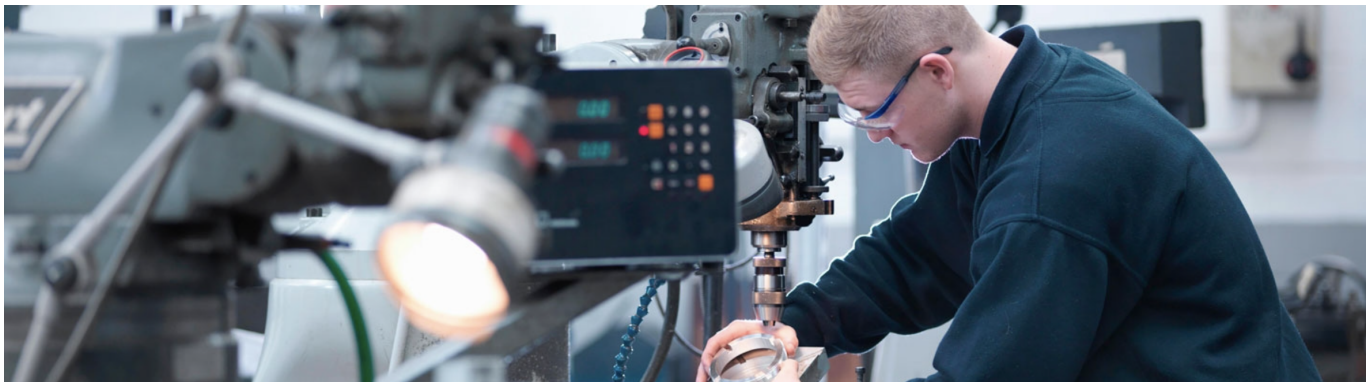
In September we launched a new article series offering tips and guidance for machining various materials: the correct tooling and the right speeds and feeds, plus the machinery required and the components companies should use.

We started off by looking at drilling stainless steel, offering tips and guidance for working on this metal, which is one of the more challenging metal groups and is used widely in medical, aerospace and general engineering applications.

For example, we pointed out that the chips produced from drilling stainless steels are long, stringy and dangerous, and if you don't get them under control, you'll face unnecessary downtime due to jammed workspaces and broken machines or personal injury from cuts.

Read more: Machining Metals: 6 Tips for Drilling Stainless Steel

No. 4: The CNC Machining Skills Gap: A Q&A with Tony Schmitz on Training Tomorrow's Workforce



The challenge of closing the skills gap in manufacturing continues to be a priority for educators and employers alike.

In March we spoke with Tony Schmitz, an engineering professor at the ***University of Tennessee***, Knoxville, and a joint faculty member at ***Oak Ridge National Laboratory*** (ORNL), who is on a mission to close the machine tools skills gap.

He created America's Cutting Edge (ACE), a CNC machining training program, in collaboration with the ***Institute for Advanced Composites Manufacturing Innovation*** (IACMI) and ORNL. ACE is supported by the U.S. Department of Defense ***Industrial Base Analysis and Sustainment (IBAS) program***.

Read our interview with Schmitz using the link below, in which he discusses the program and its objectives and the overall outlook for U.S. manufacturers.

Read more: The CNC Machining Skills Gap: A Q&A with Tony Schmitz on Training Tomorrow's Workforce

No. 3: Optimize or Replace Your Tools? Here Are 5 Questions to Ask

Tool maintenance is essential for maintaining the quality and life of your equipment.

In April, we tackled the question of when you should replace your cutting tools, and what to replace them with.

As the article notes, cutting tools are frequently misapplied in manufacturing environments where machine tool operators are not trained machinists.

Edge wear and damage are either overlooked or misunderstood. The wrong grade or geometry might be used, with improper feeds, speeds and depths of cut making matters even worse.

The result is waste and lost time, with less than stellar performance from machine shops under the same pressures as their skilled CNC counterparts.

Our article offers potential scenarios and suggests ways to deal with them.

Read more: Optimize or Replace Your Tools? Here Are 5 Questions to Ask

No. 2: Manufacturing Efficiency: 5 Ways to Maximize Shop Floor Space

Investing in good shop floor management helps manufacturers get more out of their business and be more efficient.

In a typical manufacturing facility, overcrowded tool cabinets, disorganized shelf space and improperly marked storage areas and walkways can make it difficult to keep all your tools, parts and materials in order. All of this can make a facility grossly inefficient.

It doesn't have to be this way. There are several best practices and solutions to help manufacturers find shop floor efficiencies, which are essential in today's competitive manufacturing market.

In our article on the topic, we identify five ways facility managers can improve efficiency, including adopting lean manufacturing techniques, using machine monitoring systems, and using smart workstation setups. Read more by clicking on the link below.

Read more: Manufacturing Efficiency: 5 Ways to Maximize Shop Floor Space

No. 1: Automotive Industry Trends: 3 Things to Watch for in Electric Car Manufacturing

Our most popular article of 2021 looked at the expected growth in the electric-powered vehicles market, which is ***predicted*** to reach $802 billion by 2027, a compound annual growth rate (CAGR) of 22.6 percent and a fivefold increase of the market's 2019 value.

The wide-scale adoption of electric vehicles, or EVs, will have significant repercussions for automotive suppliers that deliver millions upon millions of machined and fabricated components each year to automakers.

We identified three of the most significant developments for parts manufacturers, including the increased use of advanced materials, greater use of flexible machine tools, and the broader adoption of 3D printing. Read more by clicking on the link below.

Read more: Automotive Industry Trends: 3 Things to Watch for in Electric Car Manufacturing

Editor's note: To produce our list of top 10 articles, we analyzed the visits and engagement on all the content we published on the Better MRO site in 2021 to identify the most-visited items, excluding any content that was published in prior years (but updated for 2021).

Let us know your views on the stories and topics you found most useful in 2021—whether it's related to one of our stories above or didn't make this year's list.