



Stable Process, Stable Profits

By Miles Free, Director of Industry Research and Technology, PMPA, mfree@mpa.org

The commercial demands of keeping our shops busy, machines up and running and employees working means that many of us spend just enough time to get the job to the floor, but no more. What if we spent a bit more time to assure that the team in the shop gets not just a job to run, but a job that will run as a stable and robust process?

Unstable Process: Normal for Many

Shops with unstable processes are characterized by a firefighting management style. As fires (problems) arise in operations, the team reacts with holds on parts, inspections, adjustments to the operation and more. Unstable processes increase costs through additional overtime, unplanned inspection and loss of production through rejected parts. The rejected parts and parts consumed during process adjustment increase the materials consumed, reducing material yield. More operating hours of machine time will be needed, but to catch up, not to produce the job as quoted. Finally, a single tool failure can result in a cascading series of tool failures and crashes that result in further delays, downtime, cost overruns and loss of profits.

The Goal is to Have a Stable Process

Shops with stable processes are characterized by predictable production, sustainable labor ratios and achieving expected material and parts yields. Because the equipment is operating as planned, machines are used effectively, and quality issues and unplanned inspection of product are minimized. Another key characteristic of shops with stable processes is proactive tool changes. By being proactive on tool changes, shops with stable processes are able to set up guidelines or rules for changing tools before they fail, thus avoiding cascading failures, crashes and unplanned downtime. The result is effective use of all resources: man, material, machines and production of parts, as planned, within projected costs.

Stability: We Already Have the Tools

Process stability is difficult to assess in our high-mix shops. But evidence of process instability is easy to find in our books as costs, yields and profits fail to meet plan.

Cpk is a process capability measure of the "natural variation" in our processes. When you quote or accept a job for production, does your team evaluate the required dimensions in terms of demonstrated Cpk? What about the geometric relationships on the print? Do you have Cpk for deviation? Is your company's process capability knowledge "formally documented," or only "tribally maintained?" What

if the member of the tribe with that knowledge isn't at work when the job comes in?

Training operators to look for pre-failure indicators is another tool to help you build stability into your machining processes. Chatter is often thought to be a problem of its own. Actually, chatter is a pre-failure indicator that your process is not optimized—wrong feed, speed or other parameter for the tool/material/operation combination. Train your team to respond effectively to chatter and watch your process stability and profitability improve. Together.

Standard setup and standard methods are another way that you can remove variability from your operations and replace it with predictability. Running jobs on the machine called for, not the "first one available," will eliminate entire classes of deliberately created variability by the planning and scheduling team. Failing to put the job on the right machine throws the entire operation into chaos. Having the discipline to put the job on the machine so that the highest and best use of the equipment is achieved will give you improved capability and reduced variability.

The role of stable processes to provide profitability in our high-mix/high-volume shops is often overlooked.

Holding your team to the use of a standard practice, method or approach does not mean that your operators will never be creative. What it does is give them a place to stand for problem-solving, so that when a problem does arise, they can apply their creativity, because they know how the process normally performs.

Best practices can erase a lot of pain. We're no longer running as many jobs using free-cutting and free-machining materials as we did in the past. Many of the materials used for the jobs we run today are at the limits of our technology's ability to machine. That is why we need to adopt best practices like through-tool coolant, permanently fixed fluid delivery lines, and more. Standardizing these kinds of techniques to best practices eliminates a lot of "what if" variables when a problem arrives unexpectedly in your process. Is there a higher cost to adopt these kinds of best practice techniques? Higher than what exactly? Higher than "how many hours of unexpected machine downtime" per

Continued on page 22

Stable Process, Stable Profits

Continued from page 17

month? Higher than “double or triple tool consumption” because the tools are not being consistently flooded or fed coolant? I’m not sure that an economic case can be made to not use our best practice knowledge to eliminate these kinds of unexpected costs until they show up as process variables. If we know the right thing to do, why don’t we do it?

Firefighting is a management style that I witnessed often in the early part of my career. “Stuff” happened, and the best “firemen” somehow put out the fires. Products got shipped. Profits were elusive. The longer I spend in the

precision machining industry, the more I appreciate that great management isn’t about reacting to fires. Great management is about controlling the factors under your control so that a fire can’t spontaneously erupt.

Anticipation is a sign of a great manager. Control of the significant factors affecting workmanship, productivity and quality is the proof of a great manager. Stable processes in a shop are the evidence that I would seek if I was going to convict someone of being a great manager. What evidence would you look for?

2 GREAT BLOGS! | YOURCAREERFACTS.COM PMPASPEAKINGOFFPRECISION.COM

Why Join PMPA? GROW!

To grow and profit today, you have to work smarter. You have to relentlessly eliminate waste. PMPA is the way to expand your knowledge and increase your capabilities in order to grow your business. Through daily interaction with PMPA staff members, you have access to our expertise on important issues. You’re also able to tap the collective knowledge of your peers; those who have “been there” and “done that.”

Through the meetings, resources and online connections, reports and more, we give you the tools to grow. We look at emerging markets and let you know what’s hot and what’s not. PMPA programs help you understand your markets so you can make sense of the issues. And, we provide relevant information to help you make informed decisions.

HOT TOPICS

PMPA members support one another through email Listserves, where they can solve problems, share advice, sell excess material and equipment, and learn about new developments and opportunities. Here is a list of topics that were recently discussed:

- Production chart for BSA 88L
- Bore gaging system
- Drill walk/eliminating runout condition
- 3/4-20 tap recommendations
- Drill sharpener
- Vendor recommendations
- Weldability of 1045 steel
- 1045 flat bar
- Lipe rollaway magazine bar feeder
- Alignment of Swiss CNC
- VOIP pros and cons

PMPA CALENDAR

Below is the calendar of upcoming conferences and events scheduled for the 2016 program year. For the latest district/chapter meeting information, please view the Calendar of Events at pmpa.org/events/calendar. If you have questions about PMPA conferences or regional meetings, please contact Monte Guitar, director of technical programs, at 440-526-0300 or mguitar@pmpa.org.

2016 National Technical Conference
April 9-12, 2016
Amway Grand Plaza Hotel
Grand Rapids, Michigan

2016 Annual Meeting
October 21-25, 2016
Westin Hilton Head Island
Resort & Spa
Hilton Head, South Carolina



6880 West Snowville Rd., Suite 200 • Brecksville, Ohio 44141

Phone: 440-526-0300 • Fax: 440-526-5803

Website: pmpa.org

© 2016 P M P A