Subject: Surviving the new Norm in your Metallurgical lab.

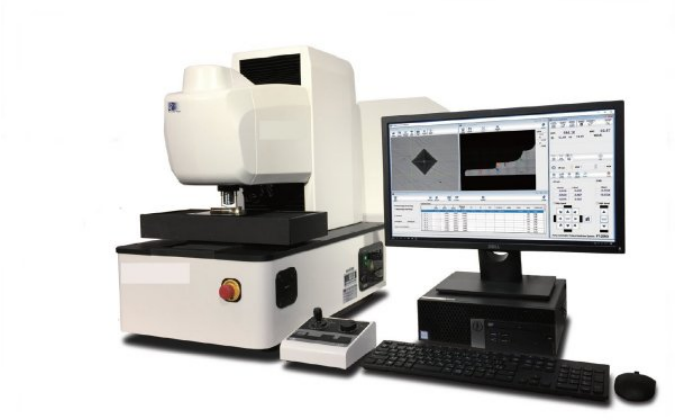
Can our companies recover and implement processes to work with the new norm for employee safety with masks, work place distancing, & cleanliness not to mention, more work than most labs can handle as we start back up again with potentially less workers to perform the needed operations or even the loss of key experienced technicians.

How will you be able to meet the demands of your business and the required micro hardness testing with fewer technicians and still keep the workplace safe for everyone with the new distancing requirements for industry? Staggered hours, fewer technicians, multiple shifts, all creating delays in production and efficiency.

Risky in todays environment& Poor use of your technicians time

One very obvious solution is automation for the lab.

Automation = No eyepiece, No Manual Micrometers
Unattended with less physical contact
with faster, lower cost results



We all have to do more with the tools available to us and this is one tool with a massive impact on productivity with the inherent benefit of limiting the physical contact with traditional microscopes and manual stage micrometers on conventional manual micro hardness tester for Vickers and Knoop testing.

To read the whole article and see the time study click here:

Nothing today offers the perfect solution but if we can install our CLC-10 ARS in a nuclear hot cell to be managed entirely without human contact we can certainly offer you some level of improvements even if you manually place your mounts on the stage and use a mouse to select an indentation pattern to run.

Automation offers actual cost benefits in addition to the safety issues built in. At the end of this note is a short exercise to compare the cost of performing a typical manual micro hardness test and manual case depth with 25 indents to a fully automated test for both scenarios to allow you to compare the cost differences.

Problems overcome with a fully automated Micro Hardness solution:

Employee safety and health concerns using a manual micro hardness tester
Staff limitations due to reductions or staggered manpower
Cost increases from adding a second shift
Production delays due to backlog of testing required to release products
Potential quality and warranty costs due to reduced testing of materials
Staff turnover resulting in mistakes and inaccurate results

Additional Considerations and Case study

There are a lot of real hurdles every testing lab is going to have to deal with now and in the future, if you have not already considered how to reduce costs, utilize your manpower better and to make the lab a safer place to work considering the current Pandemic and every company's need to keep manpower to a minimum in all possible areas.

Sitting in front of a traditional micro hardness tester for hours, waiting for each indentation to be made, moving the sample to another location using manual micrometer stages and doing it all over and over again is absolutely inefficient and a poor return on the cost of a trained technician.

It is not having your valuable technician's time wasted writing down Vickers or Knoop values or even worse if your equipment is really old, micron length of the indents and consulting a chart or wheel to convert to a VHN or KHN value then filling out a report for your customer or internal purposes.

Time is money as the old saying goes. Capital investment is always a fight for quality control equipment but there are creative methods including Lease to own plans that can help you immediately start to see the benefits in your business of this sort of automation.

The following is a short example of what it takes to perform a single indent, which hardly ever happens, and then extending that study to a traditional case depth study with 25 indents just to document how much time and money is invested, not to mention the risk of multiple users placing their face and nose against the eyepiece to make the measurement.

Your choice, if you want to read on to see what industry is investing in manpower every day to confirm the heat treatment various products.

FACT: A single micro hardness indent takes approximately 1.5 minutes to locate, indent and measure. This is without documentation which is usually hand written on older systems without a printout. How that is broken down is as follows:

Note: This as an actual timed study using a standard manual micro hardness tester with manual micrometer driven stage micrometers.

1. Place the sample after preparation on the stage of the tester, locate the exact location for the test and initiate the test cycle. Using a typical ASTM recommended minimum dwell time this part of the test cycle will take 1.0 minute.
2. Measuring a Vickers Indentation, complying with ASTM by measuring two diagonals, at best will take another 30 seconds assuming the indent is in good focus. The least amount of time for a single indent will be 1.5 minutes approximately.

FACT: Case depth cost as follows:

1. As above in steps 1 & 2 first indent is 1.5 minutes.
2. Relocate & Indent each new location is approximately 30 seconds
3. Read Vickers indents average with indent in focus 25 seconds ea.
4. Documentation will add approximately 20 seconds each.

Total time for 25 indents which is typical of a case depth of 0.025” with one indent every 0.005” will be approximately 43 minutes per sample on a single case depth traverse.

Assuming the cost of a technician is $15,00/hr. plus benefits the burdened hourly cost is estimated at $19.00 / hr. so the cost to just test this one sample will be about $14.00 to sit in front of a manual micro hardness tester and manually position and measure the indents.

This does not sound like a lot except that you lost the 43 minutes of the technician’s time while he or she sat in front of the tester to complete this short 25 indentation sample.

Automation of this process with a cost comparison following.

1. Place sample on stage, select a preprogrammed pattern from a list to run, Click on the edge of the part to establish starting point. Select to run the pattern and leave. Cycle is as low as 30 seconds to initiate the run of 25 indents including reading and documentation.
2. Leave the tester to perform other important functions in your lab while the CLC is making the indents and measuring the indents
3. Return to the tester and export results to Excel® approximately 1 minute total invested

Total technician time investment with automation can be as little as 5 minutes showing a reduction in labor investment of up to 40 minutes on this sample.

If you do as little as 5 samples per day your technician is spending over 3.5 hours minimum sitting in front of a conventional micro hardness tester indenting moving and measuring those indents.

Depending on your overhead and labor rate, automation can offer a significant savings not to mention the difficulty in obtaining trained technicians and with the current environment the need to have a safe and clean working environment and social distancing in the workplace.

If any of this makes any sense to you let us know and we can discuss the automation as well as costs and creative ways to finance this investment.

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