

Speed up your delivery times using Contract Inspection.

Your delivery deadline is hanging over your head like a 500 lb. chandelier that's about to fall. The last thing you need is one more delay. And as Murphy's Law kicks in, the parts are held up in inspection. Neither the OEM nor the supplier has the extra inspection capacity to push the parts through the last step of the way. While they may have the inspection capacity to handle the average day-to-day workload, when the end of the month crush hits they are overwhelmed. It's enough to make a grown man(ager) cry! What can you do?

There is a solution. Contract inspection companies are in business just to solve that problem. A contract inspection company is a high-tech laboratory that focuses on inspecting parts for other businesses. Although they do not manufacture anything themselves, they often have extensive manufacturing experience. Because they focus on inspection, their equipment and systems are more geared toward rapid turnaround than most manufacturing company inspection departments. That is a fact of life; if you focus on one thing, you will be better at it than someone assigned multiple tasks. Contract inspection labs often have more advanced technology as well, for faster turnarounds that help save you anguish (and money!).

How does better technology improve turnaround? One case study is a contract inspection laboratory, Quality Inspection which we'll call QI, but it should apply for most Contract Inspection companies. QI has 5 state-of-the-art Mitutoyo CMM's (Coordinate Measuring Machines) that can check large numbers of parts rapidly. Two of the machines are DCC (Direct Computer Control) and three are manual. For single part First-Article inspections, a manual machine is the fastest because there is no programming involved. Large quantities of parts can be checked faster on a DCC, which is robotic much like a CNC Mill. QI also has three Video Inspection systems to allow rapid inspection of very small features. By having the best technology available to check each different type of part, they can reduce the time the parts spend in inspection. Most manufacturing companies do not have this extensive equipment scope in their own inspection departments, and the right tools always make any job faster and easier. The right equipment can certainly make a big difference in turnaround times.

A good example would be one of QI's customers, Senior Flexonics - a manufacturer of complex engine components for the aerospace industry. Senior Flexonics has its own inspection department with their own CMM's but sometimes they can get overloaded. They send their high priority parts to QI to achieve faster turnaround. Says David Detwiler, a Quality Manager at Senior Flexonics, "Quality Inspection ... has been an off-load CMM facility for us for the past year. During this time they provided first class inspections, reports and an unrequired effort to even problem solve our assemblies. It has been a pleasure to have this supplier on our team as they have always delivered on time." By sending their hot inspection jobs to a contract inspection company, they have dramatically reduced the time their parts spend in inspection.

There is more to fast turnaround than just equipment. At QI, there are several experienced technicians on staff who specialize in high-tech, high-speed inspection. In a manufacturing environment, inspectors often get interrupted with the daily inspection chores, so the hot First-Article job sits on the shelf until they have time. QI's technicians can work uninterrupted because they are given an inspection job and are allowed to work on it until completion. When a manufacturing inspector gets a job, they must first make a report to record the data into. Inspectors are not secretaries, so they are slow at this task. QI uses special staff members to generate reports so their CMM techs get more inspecting time per hour than their counterparts. By having a special staff of highly trained technicians, a contract inspection lab will reduce the time a part takes to be inspected.

Contract Inspection can save money as well. Contract laboratory CMM technicians have the best and the fastest equipment available, so they can do a part in half the time of typical

manufacturing inspectors. Many companies cannot justify the expense of these high-tech inspection machines. A typical medium sized DCC CMM machine costs \$150,000 including set-up, taxes, touch probe and video probe, computer and software. A temperature controlled room for the CMM costs \$1,200 a month including floor space and electricity. An annual maintenance contract costs \$2,500 a year. A skilled programmer/operator costs \$60,000 a year. Allowing for 15% cost of capital for the CMM, this comes to \$99,400 a year or \$48.72 an hour, IF the machine is in use 40 hrs a week. In the real world, CMM's in a manufacturing environment are only busy 50% of the time. In that case it is \$97.45/hr. A typical Contract Inspection lab costs \$60-\$75 per hour. Only if you use a CMM 40 hours or more every week is it cheaper to do it in-house, and that is rare.

Another area where contract laboratories excel at is difficult high-technology inspections. Nowadays many parts are defined by computer datasets instead of paper blueprints. Paper blueprints were easy to interpret and most parts defined by them could be inspected using low-tech equipment, albeit slowly. With computer datasets, the parts can only be checked by using high-powered CAD/CMM software and DCC CMM equipment. These datasets come in many different formats: IGES, STEP, ACIS, CATIA and others. To keep an expert on staff to inspect these kinds of parts takes constant training and a large software investment. Since contract inspection labs see all kinds of datasets from many different companies, they become experts in all the different dataset formats.

Contract inspection can be very useful in resolving problems between OEM's and job shops. Sometimes there are disputes between OEM's and job shops as to whether the parts delivered actually meet the blueprint specification. What generally happens is the job shop submits an inspection report with the parts delivery, but the OEM needs to verify the report. Because of variations in inspection departments, there are always differences in readings. This can lead to delays, MRB action, counterclaims, and sometimes lawsuits. Almost as bad, everyone is inspecting the same parts twice! Because a contract inspection laboratory has no stake in the results except as they pertain to the accuracy of the inspection, they make an excellent impartial third-party judge. By using a Third-Party inspection company, these disputes can be quantified and resolved quickly.

What should you look for in a contract laboratory?

1. Make sure they have the right equipment for the job you need inspected. Are their machines large enough to check your part? If the part is small, do they have Video capability? If you have large numbers of parts to be shot, do they have DCC capability? If the part is defined by dataset, do they have the right software to read in and check the data?
2. What is the cost of the inspection? Don't rely on hourly rate alone. What matters is the total cost of that particular inspection. They should provide a hard quote prior to starting on your job.
3. Reputation. Have they been in business long? Do they have references? All labs should offer a money-back guarantee that the work performed is what you need.
4. What is their current turnaround? This changes from day to day due to the nature of the business. If the turnaround is unacceptable, find another lab that can make your deadline. But keep in mind, while one lab might be too busy this week, next week may be different.
5. Finally, pay them a visit. Make sure you are comfortable with their staff. Keep in mind that inspection is a communication business. They need to communicate clearly with you to insure there won't be errors caused by misunderstandings.

While most all contract laboratories are reputable, they all have their different strengths. Find one that has done similar work in the same field as your company.

Contract inspection laboratories are the wave of the future. They are now in nearly every state in the U.S. and in most major cities. Their cost is often less than performing the work in-house. They can fill gaps in your inspection technology. Disputes between OEM's and job shops can be settled by an impartial judge. There is no longer a need to constantly train your own inspectors when you can hire a highly trained technician whenever you need one. It is rare that a modern OEM has it's own investment casting shop, or it's own laser cutting equipment, or it's own powdered metal forming shop. It is not cost-effective to own all the necessary equipment in today's high-tech environment. The same is true for inspection. The better solution is out-sourcing to a modern Contract Inspection Laboratory.