

# STAR Watch

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## Battling the Paper Beast: Paper Shredders 101

According to the New York State Bar Association (Opinion# 641 – 02/16/1993 (40-92)), all attorneys must comply with local ordinances that require the recycling of office paper. In addition, the opinion states that “Confidences and secrets of clients must be given appropriate protection.” To many, the simplest way to get rid of large amounts of paper documents is to enter into a contract with a shredding service and pay someone else to deal with the problem.

Depending on the terms of the agreement, this could be a good way to deal with the wholesale disposal of documents containing sensitive information – as long as the price is right AND the manner in which the documents are handled is described in detail in the service agreement.

The purpose of this article is not to discourage readers from using a shredding service, but provide information about a reasonable alternative: a large capacity in-house shredder. In our opinion, the decision to opt for a shredding service over an in-house shredder is based on a lack of easily-understandable information about shredders. In this article, we will enumerate and explain the various features of office-sized shredders

so that you will be able to understand what the vendors are saying about their products. Let’s get started.

### Cut Type, Security Level and Shred Size.

The “cut type” of a shredder is usually listed as “strip”, “cross-cut”, or “diamond-cut” although some manufacturers use other terms. Strip cut means the paper comes out in long thin strips. Cross-cut (and diamond-cut) means that the strip is cut a second time, perpendicular (cross-cut) or diagonal (diamond-cut) to the first cut, creating even smaller shreds of paper. The paper in this case comes out more like confetti than strips. Many little short pieces are much harder to decipher than even the thinnest long strips.

When shredding documents, the smaller the shred, the greater the security. The sales information for virtually every shredder on the



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market shows the security level for each shredder. But, what does the number really mean? The security levels were formulated by the Deutsches Institut für Normung (German Institute for Standardization). This standard, known as DIN 32757-1, assigns a numeric value between 1 and 6 based on the size of the shreds. What do these numbers mean?

Level 1: 10.5mm (0.41") strip-cut or cross-cut into pieces 10.5 x 40mm (0.41 x 1.58"). A shredder with this security level is only good for general business documents that contain no sensitive information.

Level 2: 5.8mm (0.23") strip-cut or 7.5 x 40mm (0.30 x 1.58") cross-cut. This would be the minimum level for internal documents that contain mildly sensitive information.

Level 3: 1.9mm (0.08") strip-cut or 3.9 x 30mm (0.15 x 1.18") cross-cut. A shredder rated at this level of security could be used to shred confidential documents such as personal-related data and documents.

Level 4: 1.9 x 15mm (0.08 x 0.59") cross-cut. This shredder could be used to shred confidential documents that are of critical importance to an organization.

Level 5: 0.78 x 11mm (0.03 x 0.43") cross-cut. A shredder with this security level could be used to shred confidential documents that have high security requirements, such as those from government offices or fundamental research institutes.

Level 6: 0.8 x 4mm (0.03 x 0.16") cross-cut. A shredder with this security level could be used to shred highly confidential, official documents. Level 6 also falls within the range of the NSA/CSS 02-01 specifications adopted by the United States Department of Defense for high-security paper shredders.

What should the security level be? Level 3 is adequate. Level 4 might be an option if the price is right. Generally, the cost of a shredder goes up as the shred size gets smaller.

### Capacity

How much paper can be shredded in a given amount of time? Instead of a single number

that documents how many sheets of paper can be shredded in a minute or an hour, most manufacturers provide two separate numbers: Shredder Speed and Stack Size.

Stack Size. This is the number of pages of paper that can be fed into the shredder at a time. This number can be as low as 5 on personal shredders or greater than 60 on high capacity shredders.

Shredder Speed. This number indicates how fast the stack of paper will be fed into the shredder. On personal shredders, the number can be as low as 5 feet per minute (fpm). At that rate, a stack of 8.5" x 11" paper would take about 12 seconds to be shredded. On high capacity shredders, it could be greater than 30 feet per minute (1 stack of paper every two seconds)

So, approximately how much paper can a unit shred in a minute?

Capacity = Stack Size x Shredder Speed

Determining what the shredder capacity needed by an organization is not an exact science and we struggled with this. From our printer logs, we knew that we print somewhere between 11,000 and 15,000 sheets of paper per month. We have a total of 20 staff members, so we calculated the paper usage per staff member per month to be a maximum of 750 sheets/month. Assuming that there are 20 business days in the month, we print approximately 750 sheets/day. So, we need a shredder that can shred 750 pages in a 7 or 8 hour business day. Right? Not really.

It did not take very long for us to figure out what was missing from the calculation: Human nature. Some staff members will dutifully shred the contents of their recycle bin daily, others will do it once a week (187.5 pages), once every two weeks (375 pages), or once a month (750 pages). Most likely, the event will only occur when the recycle bin under his/her desk is completely filled (1500-2500 pages).

We also realized that everyone has a limit to the amount of time that he/she will devote to shredding paper. Using no particular scientific method, it was decided that the maximum time that a staff member would be willing to devote to



shredding his/her recyclable paper is 5.0 minutes per event.

So, in order to shred 1500 – 2500 pages contained in the overflowing recycle bin in 5 minutes, the shredder that we select must have a capacity of 300-500 sheets/minute. After a little more thought, we arbitrarily set the minimum acceptable capacity to 500 sheets/minute.

#### **Does the shredder have an automatic oiler?**

If you want a shredder to last, the cutters must be lubricated (Pick any shredder – even a little one. Check the operating instructions). Failing to keep the shredder lubricated is the primary reason that shredders wear out. It is also the quickest way to void the warranty.

With an automatic oiler installed, the shredder applies the correct amount of oil at the correct interval. All of the parts stay lubricated. The shredder continues to work efficiently. The warranty remains in force.

While this option is not cheap (\$450 - \$850), it is the only way to ensure that the shredder is being properly maintained. This is especially true when there are dozens of possible users. No user needs to be concerned about when the machine was last oiled. Each user only needs to verify that there is oil in the automatic oiler reservoir that is mounted on the outside of the machine.

Even though the cost of the oiler was significant, the potential for damage to the shredder by omitting this option convinced us that it was a necessity.

#### **Shredding Staples, Paper Clips, Credit Cards, CDs/DVDs**

When shredding large amounts of paper, it is almost impossible to be sure that all staples and paper clips have been removed. A high capacity shredder should be able to eat staples with no problem. Paper clips are a little tougher but many large models can handle those too.

The cost of a tougher model that can eat staples or paper clips is usually cheaper than the cost of

replacing ruined blades on that cheaper model when someone forgets to take them out. Every office has at least one person who never remembers to remove the staples, so it would be best to avoid any shredder that doesn't state outright that staples are OK.

If any of the advocates handle Social Security cases, you will need to deal with CDs. Not all shredders can handle CDs, DVDs or credit cards. If your office needs to dispose of a significant number of CDs, DVDs or credit cards, make sure that the shredder(s) that you are considering can handle them. One nice feature that we found on several shredders is a separate cutting slot and holding bin for shredded CDs, DVDs and credit cards. Mixing the shards of plastic with the shredded paper will make it less desirable to most recyclers.

#### **Throat Size**

Sometimes called Throat Width or Entry Width, this is the easiest feature to understand. This determines what size paper the shredder will handle. Most office paper is 8-1/2"x11" so many low-end shredders have throats as small as 8-3/4" wide. The narrower the throat, the more the operator is required to organize the paper into neat stacks so that it will fit into the machine. This can become a very time-consuming activity.

The nice thing about the extra large throat is, with standard letter size paper, you can throw it in any old way. Even sideways it fits easily. We would recommend that you look for a shredder with an opening of 16". No matter how the stack of 8-1/2"x11" paper is rotated, it will fit into the shredder. With legal size paper, it will fit in any orientation except when it is fed diagonally.

#### **Motor Size and Duty Rating**

It takes a lot of power to shred paper. If you don't believe us, stack up 10-20 sheets of paper and try to cut through it with a nice sharp pair of scissors. It's not easy. In order to cut a stack of paper into 1/4" strips, a shredder must have enough power to make at least 30 simultaneous cuts – That will require 30 times the force required for a single cut. If



the paper is cut into 1/8" strips, the number of simultaneous cuts doubles along with the power needed to make those cuts. On heavy-duty shredders, the power of the motor is a critical issue. As the capacity of the shredder increases, the power needed operate the shredder increases.

Duty Rating. Many of the motors that power low-cost paper shredders are not designed to run for long periods of time. From the information contained in operations manuals for low-cost or light-duty shredders, we found that they are only expected to run 5 - 8 minutes at a time. After that, there is a mandatory cool-down period of 15 - 20 minutes.

Shredders that have a continuous-duty motor can be expected to run "continuously" at their rated capacity. The motors will not overheat as long as the operator does not overload the unit.

Duty cycle is normally rated as either "intermittent" or "continuous" and is defined as the time rating under full load. In other words can the motor run at full load continuously or only intermittently.

Motor Horsepower. This is the strength of the motor. But as simple as this may sound, manufacturers don't always publish easy-to-understand information. Some manufacturers rate the motors on their shredders by "peak" horsepower, also known as brake horsepower or maximum horsepower. Peak horsepower is the maximum output that a motor can produce while the motor is starting up and has the start windings engaged. Peak HP can be as much as 5-7 times the "rated" or running HP. Under normal operating conditions, the start windings are only engaged for a small fraction of a second. Therefore, using peak horsepower as a comparison tool can be very misleading since under normal operating conditions the motor only develops this horsepower during startup.

Most electric motor manufacturers rate their motors by the horsepower developed after the motor has come up to its designed operating rpm's and disengaged the start windings. This is often referred to as running or rated horsepower and is a true indication of the HP a motor can sustain over a long period of time.

What if the motor power is measured in Watts (or Kilowatts) instead of Horsepower? No problem. 1.0 Horsepower = 745.7 Watts. You can do the math.

Electrical power. Where are going to plug the shredder in? Many shredders can be plugged into any 110 volt outlet. But the more powerful the motor in the shredder, the more likely it is to require a dedicated 15 or 20 Amp 110 volt outlet. Be sure to ask about this. Resetting a tripped circuit breaker gets old fast.

### Warranty

Among manufacturers, we found quite a variance in what the warranty covered (parts only or parts & labor), the period of the warranty, and what is required to receive warranty service. We found some office-sized shredders that offered lifetime warranty on the cutters, but only 1 year on the rest of the parts and only 90 days labor. We immediately eliminated those units from consideration.

Another manufacturer offered lifetime warranty on the cutters and 1 year parts & labor – but in order to get warranty service, the unit must be shipped back as prepaid freight. Since all of the shredders weighed more than 100 pounds (some weigh almost 400 lbs), the cost of getting the unit serviced under the warranty could be hundreds of dollars. Those units were also eliminated from consideration.

There are a lot of office-sized shredders that offer a 2 year parts + labor + on-site warranty. One that we found offers a 3 year warranty with on-site service. We feel that the warranty should cover parts and labor for the unit for at least 2 years. If you feel that the manufacturer's warranty is not long enough, many



vendors sell extended warranties.

Lastly, if you are seriously considering the purchase of a specific unit: Demand that the vendor provide you with a copy of the warranty and a copy of the operator manual. Read it. We found several circumstances where the information shown on the web page was correct, but misleading (ie. The web pages states that the warranty is "lifetime", but the warranty document says that only the cutters have a lifetime warranty. On another website, it stated that the motor was rated for "continuous duty", but the operator instructions warned that the unit should not be run continuously for more than 30 minutes). If the vendor is unwilling or unable to provide the information, find another vendor.

**Costs**

After browsing through dozens of vendor web sites, we are quite confident when we say: Nobody pays retail. The difference between MSRP and sale price was typically 50%. Among vendors, the price for a specific unit could vary by 25%. As shown below, we have tried to give a general idea of shredder cost based on capacity. The price ranges shown below are for cross-cut shredders (Security Level 3) that include an automatic oiler and inside delivery (see "Shipping" below):

400-600 pgs/min	\$2,500-\$4,000
600-800 pgs/min	\$3,500-\$4,500
800-1000 pgs/min	\$4,000-\$5,000
1000-1250 pgs/min	\$4,500-\$5,600

Shipping. Almost every shredder comes with "Free Shipping\*". With some vendors, it really is full-service free delivery. Most times, there is a catch: It is only free shipping to your loading dock. If you don't have a loading dock, delivery must be made by lift-gate truck. For the lift-gate truck, add \$75 to the delivery charge. But, that will not get the shredder inside of your office. To get the shredder moved off the street, you need to specify "Inside delivery". That will add another \$75. Now that it is in your

office, someone can uncrate it and move it to the proper location in the office – That won't be the delivery person. To avoid all of this hassle, it would be better to pay for "White glove service" if offered. For \$229, the vendor unloads the delivery truck, moves it to your office, uncrates it, and make sure that it works. It is worth the money.

Shredding supplies. There are only two things needed to keep the shredder happy: Bags to hold the shredded paper and shredder oil. Depending on the shredder, each bag will hold between 40 and 60 gallons of paper shreds. That is a lot of weight. The bags need to be strong. The cost will be somewhere between \$1.00 and \$1.50 per bag when purchased in quantity. Shredder oil will cost \$30-\$50 per gallon. Each gallon will keep the shredder properly lubricated for about 95 hours of run time (for a shredder that is capable of shredding 500 pgs/min, that would equate to one gallon of oil every 2,850,000 pages of paper).

**In conclusion...**

Hopefully, this article has provided you with enough information to begin your investigation into the benefits of in-house shredding versus the use of a shredding service. We respect the decision of an organization to opt for a shredding service instead of shredding documents in-house. But based on our priorities, operational procedures and cost-analysis, an in-house large capacity shredder makes sense for us. An analysis of your organization's needs may lead you to a different conclusion.





## WNYLC Web Statistics For January 2012

Total Hits.....1,662,452  
 Number of Pages Viewed.....316,662  
 Total Visitors.....92,463  
 Average Hits/Day.....53,627  
 Average Pages /Day.....10,214  
 Top Web Browsers Used:  
 Internet Explorer 9.x.....9%  
 Internet Explorer 8.x.....24%  
 Internet Explorer 7.x.....14%  
 Internet Explorer 6.x.....4%  
 Firefox.....15%  
 Google Chrome.....7%

Top Operating Systems Used:  
 Windows 7.....24%  
 Windows Vista.....10%  
 Windows XP.....34%  
 Mac OS.....4%  
 Linux.....2%  
 iPad.....2%



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