Advances in Blanking & Multi-Blanking Technology

Improving product quality while achieving higher levels of efficiency has become synonymous with success in the nineties. The expanded use of close tolerance blanks in the production of fabricated components is playing an important role. Cut-To-Length/Blanking Lines that can efficiently produce parts consistently within a specific tolerance eliminate the need to reshear the parts to bring them within specification. Immediate benefits are reduced labor and scrap costs, better fitting parts, and fewer problems in down-line secondary processing. While there is a growing demand for "closer and closer" tolerances, there remains a great deal of confusion regarding the definition of a blank: what is the proper way to measure them, what types of Cut-To-Length/Blanking Lines are best suited to produce the most accurate parts, and why?

Before you can determine why one type of line is more efficient and produces better tolerance than another, you must first address the issue of what is square and how it is measured.

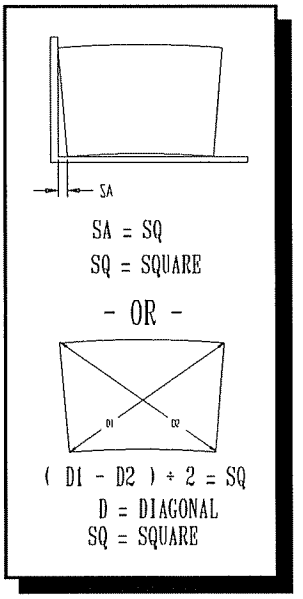
What is square?

When discussing square, you must be very careful to clarify what you mean by square. There are different opinions on what is square and how it should be measured. The American Society for Testing and Material's (ASTM) definition of "*Out-of-Square Tolerances*" and how to check them are as follows:

(ASTM A568)

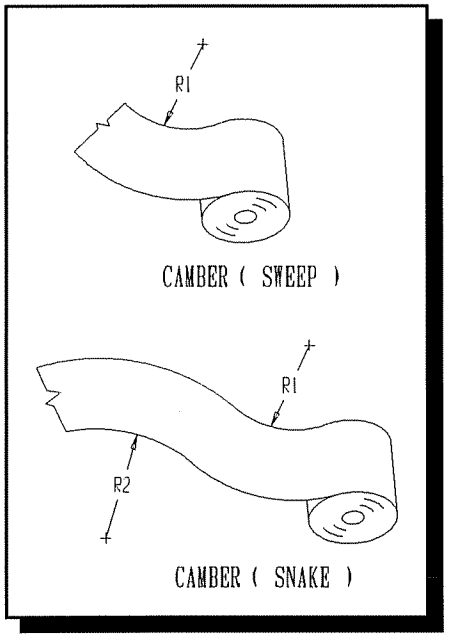
COLD ROLLED CARBON AND HSLA SHEET STEEL

"OUT-OF-SQUARE IS THE GREATEST DEVIATION OF AN END EDGE FROM A STRAIGHT LINE AT A RIGHT ANGLE TO A SIDE AND TOUCHING ONE CORNER. IT IS ALSO OBTAINED BY MEASURING THE DIFFERENCE BETWEEN THE DIAGONALS OF THE CUT LENGTH SHEET. THE OUT-OF-SQUARE DEVIATION IS ONE HALF OF THAT DIFFERENCE" (DWG 1).



DWG 1

What really happens?



DWG 2

To understand what really happens, you must understand the effects of camber on parts. Typically, every coil will have some degree of camber; that is, one side is physically longer than the other. There are two types of camber. The first is referred to as **Sweep**. This is typically found on mill coils. All the camber goes in one direction and is fairly consistent except for the head and tail of the coil. The second is **Snake** or **Serpentine**. The camber will oscillate from side to side. This type of camber can sometimes be present in mill coils; however, it is typically found on narrower slit coils. It is usually caused by secondary processing such as slitting. Since almost all coil has some degree of camber, you will normally have a part with one side longer than the other.