COUPON SIZES FOR MECHANICAL TESTING

One of the most frequently asked questions we are asked in the physical laboratory and inspection department is, "What size and how many samples do I need to send in for testing of my…" The following brief article will answer this question for the most frequently requested materials.

The table below is a good starting point for material samples. Welded samples are a vastly more complex issue and are dependent on the purpose of the testing (weld procedure qualification or welder/welding operator qualification) and what range of thicknesses are to be qualified. We suggest consulting the appropriate AWS code (D1.1 for structural steel, D1.2 for aluminum, D1.3 for sheet steel and D1.4 for reinforcing steel) to determine your requirements.

Before beginning to peruse these codes, you should determine the range of thicknesses you will be joining and the positions in which you will need to weld. This information will enable you to use the appropriate table in the AWS codes to determine how many and what type of tests will need to be run. Since this information can be very confusing to those who are not familiar with it, we encourage you to call us with your needs. We will be happy to work with you to determine what samples are required to complete your testing.

For verification of mechanical properties of various construction metals, refer to the following:

Type	Size/Thickness	No. of Specimens	Minimum Length	Minimum Width
Reinforcing Steel	#3 - #11 (10mm – 36mm)	2	24"	N/A
Reinforcing Steel	#14 and #18 (43mm and 57mm)	2	36"	N/A
Prestressing Strand	All	2	72"	N/A
Prestressing Wire or Rod	All	2	72"	N/A
Sheet	< ¼" ("Gauge Numbers")	2	24"	2"
Plate	> ¼"	1	24"	2"
Tube and Pipe	All	1	24"	2"

For plate samples, the size shown is the final size after machining. This means that for flame cut specimens the cut size should be slightly larger so that a two-inch sample remains after removal of the flame cut edge. The same consideration applies to samples cut from tube and pipe.

For reinforcing steel, a test consisting of the two samples as shown above is required for each heat and each size for each 25 tons (50,000 pounds). For prestressing steel, a test consisting of the two samples as shown for each 5,000 pounds or fraction thereof is required for work permitted in the City of Los Angeles. For other work a test consisting of two samples as shown is required for each heat and each coil.

Please Note: The requirements for your project, based on the plans and specifications or the applicable building code, may require a different testing protocol. Twining, Inc. strongly suggests that you verify the above sampling requirements. We will not be responsible for any damages or delays caused by utilization of this information.