Weld Displacement--Nut Welding Limits

Tech Note 118

SENSOTEC
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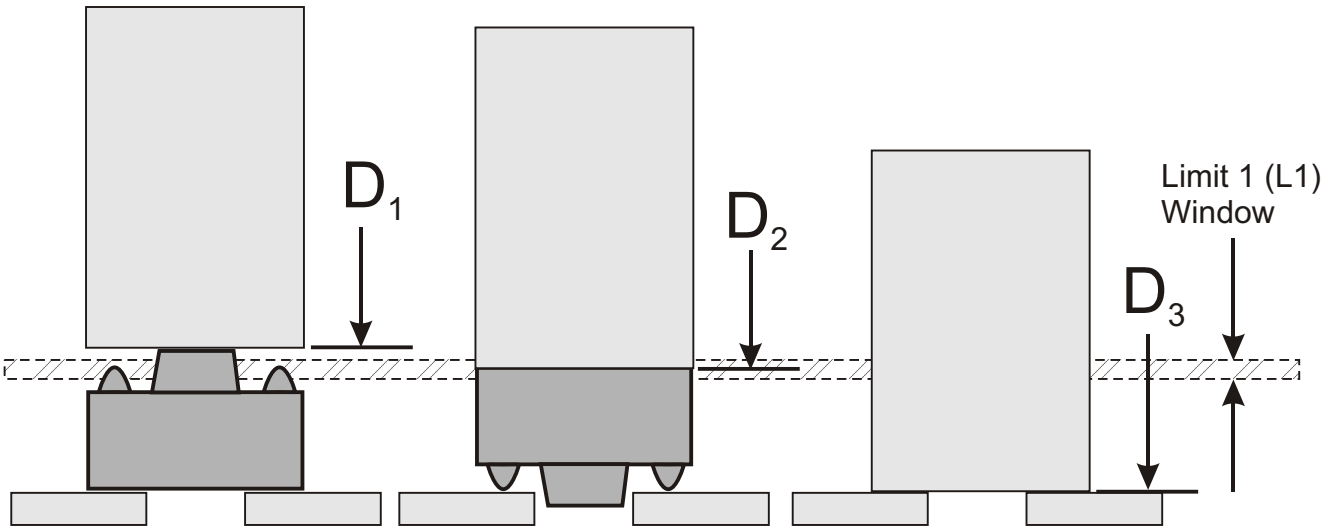
Before the Weld--Fault Detection



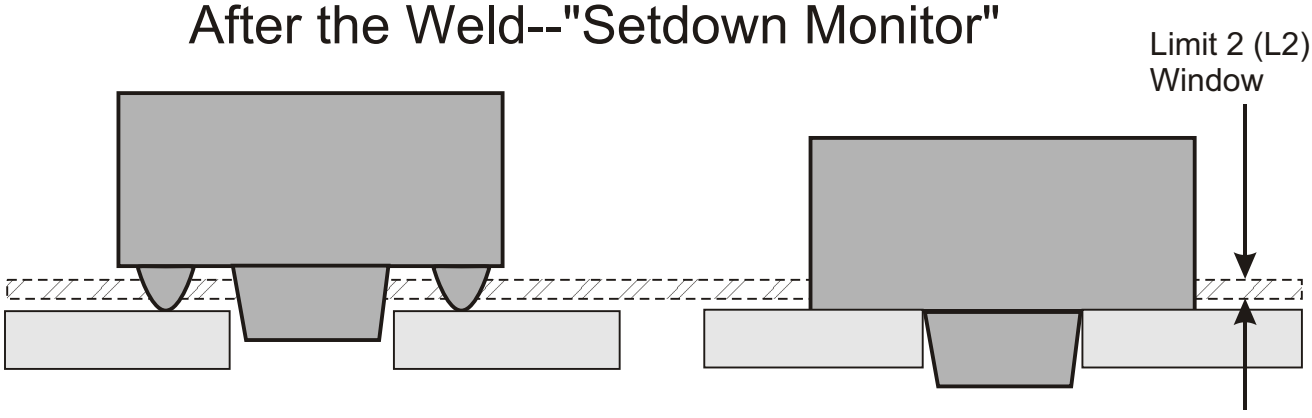
Upside-down or oversized nut-- **NO WELD**

Correct nut size and placement-- **OKAY TO WELD**

Missing or Undersized Nut-- **NO WELD**

Programming the WeldMeter--Set Limit 1 (L1) with a tolerance band equally divided around the nominal dimension of a good nut positioned correctly (D_2). Set L1 to be Normally Open so the relay closes to allow the weld to proceed when LVDT output, D, is within the limit window. Set the upper value of the error band low enough to detect a large or upside-down nut (D_1). Set the lower bound of the limit window to detect a small or missing nut (D_3).

After the Weld--"Setdown Monitor"



Too little Setdown

Too much Setdown

Programming the WeldMeter--Set Limit 2 (L2) with a tolerance band equally divided around the nominal dimension of an acceptable "setdown" value. Set L2 to be Normally Open so the relay closes to signal an acceptable weld.

Programming a "head retracted" signal--To eliminate the need for a switch to detect that the ram has fully retracted and is ready for the next weld, program a third limit, L3, with a single value and normally open. When the head is retracted, the L3 relay will close and allow the next weld to start.