

specimen starts off with significant tensile stresses in the subsurface fusion region which are then largely observed to shift to compressive stresses deeper into the cross section of the weld bead. Further into the weld bead, the compressive stresses are then again seen to shift to tensile stresses [4].

As expected and proven by literature, significant residual stresses are present in the weld region with comparatively minimal residual stresses in the base metal. Additionally, it is therefore, also safe to say that the residual stresses will have a probable presence in the Heat Affected Zone of the weld. Consequently in event of material failure, the welded structure is highly susceptible to fail/fracture from the weld region.

It is pertinent to note that the residual stresses calculated from this technique might show marginal disparity, to the stress values computed from other residual stress measurement techniques. However in all events, the general development and the resulting stress profiles are wholly compliant.

6. References

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