

Destructive Testing Advantages

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Abstract

Destructive Testing (DT) is a common process, used in several industrial sectors, related to the quality of the material of welded joints, recurring to different types of methods centered on comprehending materials' behaviour and performance under particular conditions, allowing to understand their breaking point.

Therefore, it is important to understand Destructive Testing advantages, once DT is the main topic on [TRUST – Destructive Testing Technician](#)¹ project.

This paper presents an overview of Destructive Testing advantages reinforcing the importance of qualifying professionals to implement DT.

Keywords: Destructive Testing; DT Advantages; DT Qualification

Introduction

Destructive Testing has been, historically, given preference as a testing method for checking metals since it was believed that it was the only way to accomplish precise results. Therefore, Destructive Testing has been performed to understand and compare metals structures for about the same time as humans have been able to break down metals.

Usually, Destructive Testing methods are intentionally designed to make a material fail so that its robustness and point of failure can be analysed. Through the analysis and recording of the failure in the material (e.g., with high-speed cameras, sound detectors or stress gauges), the exact moment of when the failure occurs can be detected as well as viewed in slow motion.

Destructive Testing procedures can either be customised to replicate a specific environmental condition or follow specific standards. For the reason, destructive testing comprises an assortment of advantages that overrule the disadvantages.

¹TRUST project aims to design a new European Destructive Testing Technician qualification standard (aligned with EQF level 4), to reply to the urgent need for qualifying personnel in this specific field.

Advantages of Destructive Testing

The range of Destructive Testing advantages are:

- 🌀 Facilitates the identification of the mechanical properties of the adhesive joint, such as: fracture strength, elongation, modulus of elasticity, etc.
- 🌀 Facilitates the definition and comparison of the mechanical properties of the adhesive or adhesive bonding according to the different types of stresses, such as tension, compression, shear, peel, dynamic forces of impact, etc.
- 🌀 Destructive Testing is covered by several standards.
- 🌀 Destructive Testing costs related to the equipment and the tests itself are lower in comparison with the ones for Non-Destructive Testing.
- 🌀 Ability to verify the surface preparation, curing conditions, working conditions and adhesives system products (e.g., primers, activators, adhesives, etc.).
- 🌀 Foresee and detect the estimated nature of the failure or breakdown that may occur during the lifetime of the bonded joint in use, when the specimen is previously submitted to an accelerated ageing.

Conclusion

This paper aims to provide to its readers an overview of what Destructive Testing (DT) Advantages are in order to promote the importance of the relevancy of the work being done under the TRUST project, that aims to create a European Destructive Testing Technician (EDTT) qualification.

The EDTT qualification is being develop having specific ISO standards as guidelines, to ensure the alignment with industry's requirements, allowing for much improved personnel in the field of DT. Therefore, the need to know the advantages of Destructive Testing to contribute for the better understanding of the potentials of DT by the future professionals who want to work in DT.

References

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