THE ANNALS OF "DUNAREA DE JOS" UNIVERSITY OF GALATI
FASCICLE XII WELDING EQUIPMENT AND TECHNOLOGY ISSN 1221-4639
1999-2000

Influence Factors on Mechanical Characteristics of Underwater GMAW Joints

Dănuț Mihăilescu *, Emil Constantin *,
Elena Scutelnicu *, Aurelia Mihailescu **
* Dunărea de Jos University of Galați,
** Metallurgical College of Galați

ABSTRACT

The paper presents the influence of the factors pressure, cooling rate and the presence of water vapors on the mechanical characteristics of underwater GMAW joints. The influence factors were separately simulated. The results of separated tests were compared with the results of real underwater GMAW. The supposition was that underwater GMAW cumulates these influences. The tests were performed for several levels of deep (different values of hydrostatic pressure). One simulating laboratory stand was designed, manufactured and used to determine the welded joint cooling rate influence. In order to do the rest of the tests, two special stands (pressured chambers) were achieved. This hyperbaric equipment can simulate depths by 100 m. Special mechanised devices ensure the welding and the wire filler speed. In case of GMAW, special welding torches were developed. The tests were performed both in air (with controlled atmosphere) and underwater. The samples were mechanical tested (including hardness tests). Several conclusions are finally presented.

References

1. **Mihailescu, D., Constantin, E.,** *Simulator de mare adâncime destinat sudarii mecanizate MIG-MAG subacvatice,* Lucrarile celei de a VIII-a Conferinte de Tehnologii Moderne de Sudare, 28-30 oct. 1993, Galati, pag. 74 - 80.
2. **Mihailescu, D.,** *Capete de sudare mecanizata MIG-MAG subacvatice,* Lucrarile celei de a VIII-a Conferinte de Tehnologii Moderne de Sudare, 28-30 oct. 1993, Galati, pag. 81 - 85.
3. **Mihailescu, D., Constantin, E.,** *Influenta presiunii mediului asupra proprietatilor mecanice ale înbinarilor sudate MAG-CO_2, hiperbarice,* Lucrarile celei de-a IX Conferinte "Tehnologii Moderne de Sudare", Universitatea "Dunarea de Jos" din Galati, 1996, pag. 108 - 114.
4. **Mihailescu, D., Constantin, E.,** *Influenta vitezei de racire asupra proprietatilor mecanice ale îmbinarilor sudate MAG-CO_2 sub apa,* Lucrarile celei de-a IX Conferinte "Tehnologii Moderne de Sudare", Universitatea "Dunarea de Jos" din Galati, 1996, pag. 121 - 127.