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관통 시험된 성형장약탄 라이너와 타겟 재료에 있어서의 미세조직 변화

(MICROSTRUCTURAL EVOLUTION OF SHAPED-CHARGE LINER AND TARGET MATERIALS DURING BALLISTIC TEST)

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초록

The microstructure of the 1020 mild steel target in the region ahead of craters, made by colliding against Cu and W-Cu shaped-charge jets, has been investigated in the present work. The region ahead of the crater impacted by the Cu shaped-charge jet reveals grain refinement implying the formation of sub-grains, while that of W-Cu one leads to a martensitic transformation indicating that the region was heated up to an austenitic region which was followed by rapid cooling. The pressure of W-Cu shaped-charge jet impacting against the target when calculated is higher than that of Cu one. The microhardness of the region ahead of the crater impacted by the W-Cu shaped-charge jet is also higher than that of the Cu one. The microstructure of W-Cu slug that remains inside of the crater depicts the occurrence of the remarkable elongation of W particles during the liner collapse. The microstructural evolution of the region ahead of the crater is discussed on the basis of the pressure dependency of the ferrite/austenite transformation in the steel.