On the effect of memory of maximal prestress under cyclic loading(*)

M. ŚLIWOWSKI (WARSZAWA)

IN THE PAPER cyclic properties of an aluminium alloy and stainless steel are investigated under simple and complex stress state. The critical tests on the standard specimens of an aluminium alloy were realized for cyclic tension-compression. These tests deal to answer the question, which parameter: maximal deformation of maximal microstress is the best

(*) Not received before the deadline.

measure of pre-loading for theoretical description of the memory effect under cyclic loading. Influence of pre-deformation on the cyclic properties of the alloy when stabilization of cyclic plastic deformation is reached, was also studied.

The effect of memory of maximal prestress for steel was examined on the tubular specimens. The cyclic curves (skeleton curves) were determined for different paths in the strain space. The skeleton curves for virgin and prestrained material have been compared.

The plastic prestrain was realized at the nonproportional cyclic deformation for circular form of the cycle in the strain space. The cycling was continued up to reaching stabilization of cyclic plastic deformation.

Experimental results have been interpreted in the light of hypothesis of the memory of maximal prestress.

POLISH ACADEMY OF SCIENCES
INSTITUTE OF FUNDAMENTAL TECHNOLOGICAL RESEARCH.