



CO-ORDINATING WORKING GROUP

"CLASSIFICATION SOCIETIES – DIESEL"

**(WG2)**

**Proposal towards IACS Machinery Panel**

St. Stutz/Secretary WG2/ST-11-083

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**Subject: Autofrettage (Pre-stressing)**

Background

VDMA and CIMAC have discussed this topic for quite some time with the aim to reach a common understanding and common wording of the rules of the different Classes.

Some component manufacturers are applying the method of "autofrettage" in the production process. By this procedure the components are subjected to an enormous pressure causing the subject parts to yield, which results in internal compressive residual stresses.

Consequently the durability will be increased and can further increase the resistance to stress corrosion cracking. This method is commonly used for manufacturing high-pressure components such as injection systems (fuel pumps, fuel pressure pipes etc.).

We know that several Classes have already started to adapt their rules so that autofrettage replaces the conventional Class requested pressure test. This is because autofrettage is performed at a significant higher pressure.

Proposal

In order to reach a common understanding and interpretation of the rule for pressure tests we propose to all IACS members to review the respective requirements and to add a common wording as e.g.:

*"For components that are subject to pressure tests and "autofrettage" treatment, pressure testing of blanks at the manufacturer is not required".*

Sources

Studies and reports from: Royal Military College of Science, UK  
Faculty of Engineering Bu-Ali Sina University, Iran  
Interlaken Technology Corporation  
ASME rules