

I INTERNATIONAL CONFERENCE
KRASNOYARSK, RUSSIA
30 July 2020

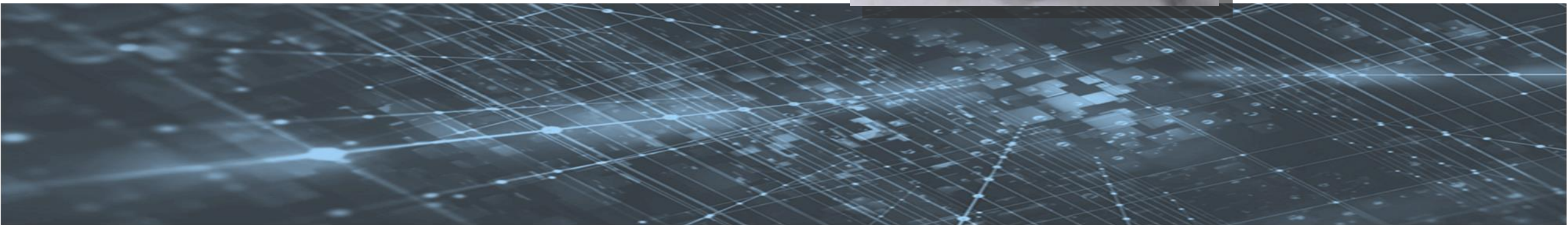
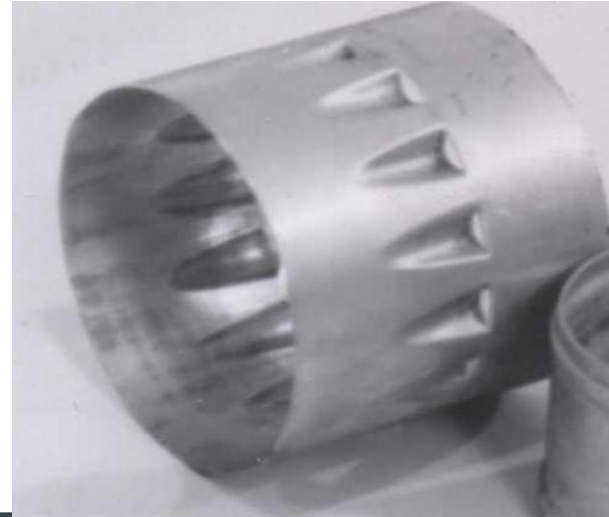
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Presentation to the report №1016
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«Simulation the expansion of a branch-pipe blinds by the pressure of
magnetic field»

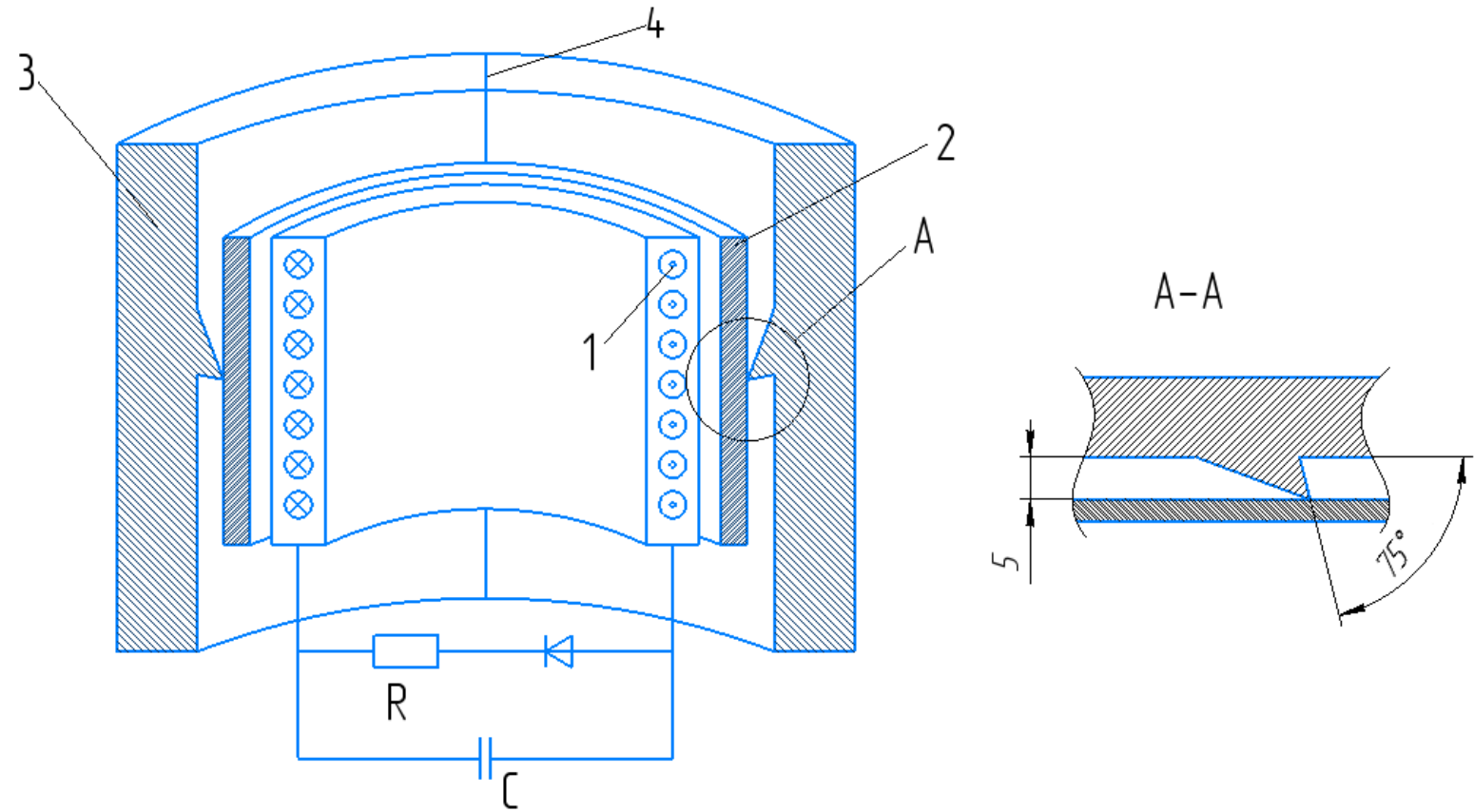
N V Kurlaev, N A Ryngach, F M Tagoev and M E Ahmed Soliman

One of the important tasks in the production of aircraft pipelines is the development of new and improvement of existing technologies.

To carry out the technological process, a branch-pipe was chosen, which serves to mix the flows of hot and cold air in the aircraft air conditioning system:



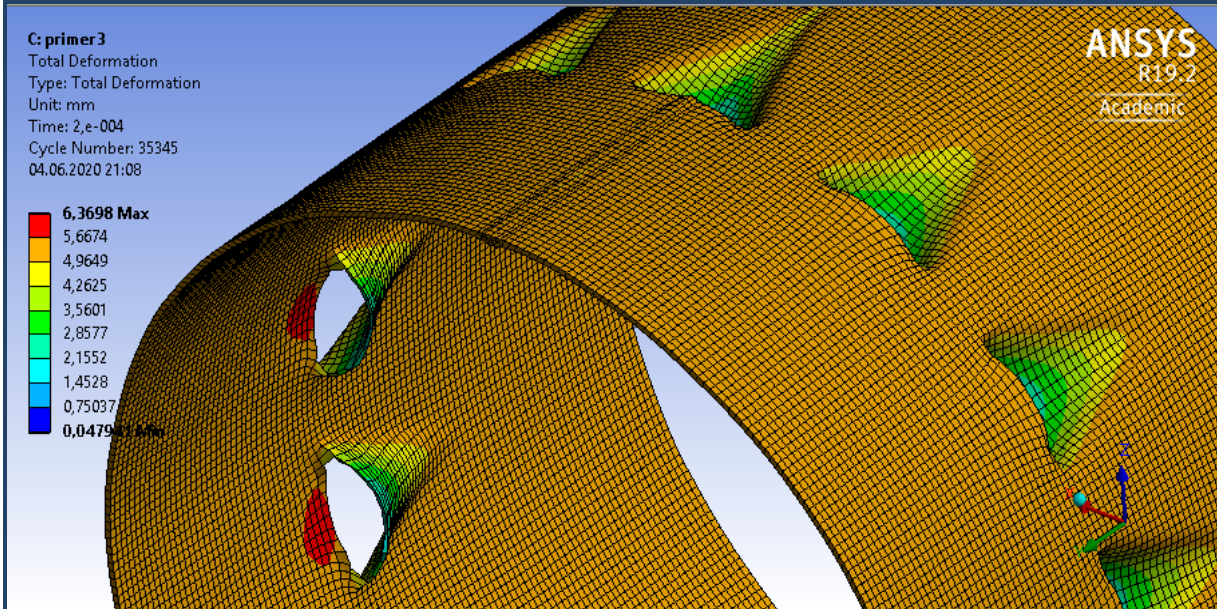
The technological process:
separation
operations plus
calibration



Principled scheme of the operation «expansion» by the pressure of (PMF): 1 – inductor; 2 – tube; 3 – split die; 4 – die connector line



Conclusions



Result of simulation

- Numerical simulation of the magnetic-pulse pressure used for joint technological operation of tubular parts made by welding, it was determined that the most effective method is the method of «expansion» (PMF) to the workpiece, where the gap between the workpiece and the die is minimal.
- Numerical studies by using the finite element method (FEM) can determine the optimal value of the pressure of (PMF) for tubular parts with minimal thinning.
- The optimal modes of the technological process of magnetic-pulse shaping are determined, which allows to save electricity and, thus, increase the resource of equipment and tools.
- Experimental studies are necessary to evaluate the accuracy and validate the numerical study, which performed by using the Explicit Dynamics module of ANSYS.

Contacts

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