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## **COMPUTER SOFTWARE MODELING OF TECHNOLOGICAL PROCESSES IN WELDING**

Modeling the processes occurring in metal during welding with the help of modern computer software allows optimizing the technological parameters of the

welding production with a significant reduction in the cost of designing the technological processes of welding.

CAE Systems (Computer Aided Engineering) Such programs can be built on a modular basis, distinguishing certain types of welding or process models. Examples can be SPOTSIM, BUTTSIM, MAGSIM, LASIM, CUTSIM (ComHighTech - International Scientific and Educational Center "Computer High Technologies in Materials Connections"); SysWeld (ESI Group, France); SOAR (Sandia Optimization & Analysis Routines for automated welding - National Laboratory of the US Department of Energy); SORPAS (Swantec, Denmark); VirtualArc (ABB, Sweden).

ComHighTech product consists of several software packages that allow you to perform certain functions: MAGSIM - simulation of MAG welding (semi-automatic in active protective gases), SPOTSIM - simulation of contact point welding, CUTSIM - simulation of laser cutting, ARMSW - creation of technological documentation, MEXSW - analysis of mechanical properties of the zone of thermal impact, FLUX 2.1 - calculation of parameters of the mode of welding under flux.

Sysweld calculates indicators such as welding speed, running energy, parameters of the active heat source and filler material (stamp, diameter, feed rate). SOAR carries out modeling of thermal processes of various types of welding (arc, contact, laser) and surfacing: thermal calculations, development of energy-efficient technologies.

Fronius International GmbH, the world's leading manufacturer of welding equipment, has released the free Weld Wizard app for Android and Apple iOS (iPhone) smartphones. The application is a calculation tool for determining the parameters of the welding mode and process efficiency indicators.

The innovation make everyday work for welding technology experts a whole lot easier. There is a possibility select different welding processes for a chosen weld seam geometry, allowing to precisely calculate the energy input and the costs per meter of weld seam.

Weld Wizard includes high-speed videos showing droplet detachment and the arc in detail.

When generating financial calculations and comparisons, it is absolutely precise and provides welders, design engineers and work schedulers with all the relevant information quickly and easily.

The simple **classification** of the settings into surfacing rate, energy input and economic comparison make the app particularly user friendly and easy to navigate.