



SAMSON

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PRESS RELEASE

PI 09-3/2017 · 16 November 2017

1939 characters (including spaces), 302 words

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Simulations

SAMSON has created the perfect environment for the R&D process by bringing together simulations and actual tests. Simulation tools are integrated into the process at an early stage, which gives SAMSON a deep insight into a product's behavior. This approach also cuts R&D cost by reducing the number of iterations required during pre-development; and it allows for in-depth analyses of how a product functions with regard to the different physical phenomena. Further along in the R&D process, a prototype developed largely based on simulations is subjected to real-life functional and wear tests. As a result, new products by SAMSON have a short time-to-market and achieve a high level of reliability in a wide variety of applications already when they are launched onto the market.

SAMSON uses simulation tools at various stages in the R&D process. Solid mechanics/finite element method (FEM) and computational fluid dynamics (CFD) play an important role during valve design. FEM simulations make it possible to predict elastic and permanent deformations caused by external forces and thermal influences so that conclusions can be drawn on the compressive strength and fatigue failure of all parts. The fluid mechanical properties of every single part within a valve are analyzed using CFD simulations. Using this method, the cross-sectional area of flow can be optimized by minimizing pressure losses and the flow forces resulting from them as well as by avoiding dead cavities and severe turbulence.

Other simulation tools are used, for example to optimize the shape of plastic parts by simulating injection molding procedures. Simulations, for example of switching circuits and control loops, are also an integral part of the development of electronics. Based on the digital infrastructure installed in the ROLF SANDVOSS INNOVATION CENTER, it will be possible to test different plants fitted with SAMSON control valves as well.

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