eNtsa

INNOVATION THROUGH ENGINEERING

DRIVING INNOVATION WITH ENTSA'S TEAM OF EXPERTS

ENTSA ENGINEERING SERVICES

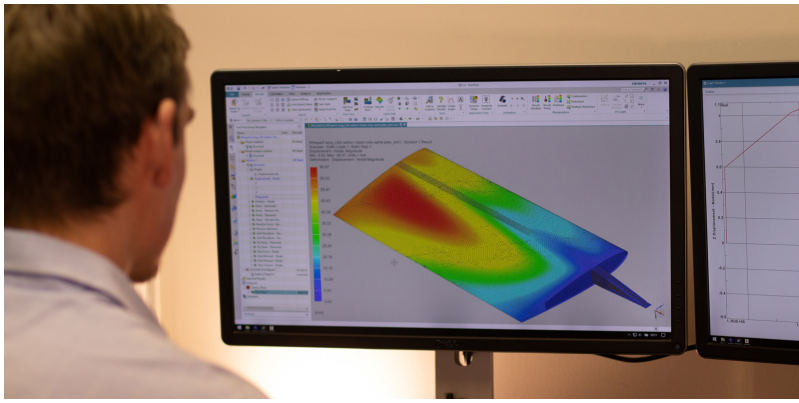
eNtsa is in the fortunate position, to have as its greatest asset, an innovative, creative, engineering team dedicated to developing bespoke solutions suited to ever changing industry needs. Coupled with a solid, reliable and recognised network, both locally and internationally, this is leveraged to position eNtsa as a sought-after and unique solutions provider to the power generation, petro-chemical and manufacturing industries.

> **"The design group is capable of handling all phases of the mechanical design process."**

DESIGN AND MODELLING CAPABILITIES

The Advanced Design and Modelling group within eNtsa provides a comprehensive range of mechanical design consulting services. Capabilities range from basic mechanical and CAD design through to advanced finite element analysis (FEA), allowing the group to provide a multidisciplinary mechanical design service. The group makes use of a number of leading CAD platforms that allow seamless interfacing with the varying client systems. Aligned with the CAD systems, the team makes use of NX Siemens, advanced finite element analysis software, which provides linear and non-linear analytical capability.

The design group is capable of handling all phases of the mechanical design process from sketching through to detailed 3D CAD design and issuing of detailed manufacturing specifications and 2D CAD drawings. Additional services include CAD draughting, component/ design assessment, product development, re-engineering, design optimisation and 2D to 3D CAD translation.
A vital component of any mechanical design process is component verification. The finite element analytical



capability underpins the production of verified components and systems. The group has developed these services and has the capability to provide FEA services that cover linear static, buckling and non-linear (geometric, contact, and material non-linearity) approaches. Also included in the group's capabilities are modal, thermal and coupled thermo-structural analysis. The group works closely with the automation capability that exists within eNtsa.

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CONTROLS AND AUTOMATION CAPABILITIES

The Controls and Automation group within eNtsa have vast experience in developing custom solutions for high-end machines and services, prototype development, small scale automation projects. The group has highly skilled members in electrical and electronic design, wiring and assembly, industrial and embedded system programming, and software development. The group has developed complex and innovative solutions for many industries such as automotive companies, petro-chemical, power generation and product manufacturing.

SPECIALISED ENGINEERING SERVICES

eNtsa developed a Small Punch Creep Testing (SPCT) platform which is utilised in industry projects and research, the fleet of platforms which numbers sixteen, are situated in a dedicated SPCT facility, removed from any disturbances. These units are considered industry ready and platforms have been provided to clients, with the furthest being at the VTT facility in Finland. The Small Punch Testing capability within eNtsa provides creep rupture and materials characterisation data using small sample testing methodologies.

WeldCore® is a locally developed (Proudly South African) material sampling and repair technology primarily for, but not limited to, the Power generation and Petro-chemical industries. Through the efforts of the eNtsa team, this technology received accreditation from the American Society of Mechanical Engineers (ASME) in 2015. This sanctioned the application of this technology in accordance with the ASME Boiler and Pressure Vessel Code (BPVC). Utilising the WeldCore® technology eNtsa is able to extract metallurgical samples for material analysis from in-service components without compromising the structural integrity of these components. This technology in conjunction with Small Sample Testing is utilised to map plant degradation and serve as a method of plant ranking.

> "WeldCore® is a locally developed (Proudly South African) material sampling and repair technology process."

SUPPLIER DEVELOPMENT

eNtsa contributes to South African industry with a vast range of specialised engineering and testing services which are aimed to support and stimulate local innovation. eNtsa is also able to make much needed engineering skills, services and training more readily available to SMEs operating in the local manufacturing and automotive sector through the Technology Station Programme (TSP), supported by the Technology Innovation Agency (TIA) and South African Department of Science and Innovation (DSI).

eNtsa also boasts a SANAS accredited mechanical testing facility in accordance with ISO17025:2017. Material testing, focuses on providing professional services in the field of failure investigation and assessing process-related material challenges. Testing services include material conformance testing with regards to material microstructure, chemical composition, thermal aging, corrosion resistance and mechanical properties.

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