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TRANSMISSION ANALYSIS

Antonov employs an analysis led design process. The use of world leading commercial and in-house CAE software tools allow Antonov engineers to search the entire design space for the optimal solution early in the design process. Advanced durability and NVH analysis mitigates against technical risk, reduces the requirement for physical hardware testing, and reduces the potential of late emerging issues in the development program which are costly and time consuming to remedy.

DURABILITY ANALYSIS OF SHAFTS, GEARS & BEARINGS

Antonov's approach to the analysis of rotating gear systems begins early in the design process. Shafts, gears and bearings are analysed as part of the full transmission system enabling correct specification prior to detailed design effort. We have a wide range of experience with planetary and parallel axis transmissions both on client programs and Antonov's own transmission products. Typical analysis scope includes full system deflections and accurate life predictions for gears, shafts and bearings against defined duty cycles.

Software: RomaxDesigner

FINITE ELEMENT ANALYSIS

Antonov has extensive finite element capability for the analysis of complex components. Typical scope includes stiffness, durability and NVH analysis for transmission casings, differential housings, planet carriers, gear bodies, complex shafts, powertrain mounting brackets and shift mechanisms.

Software: Altair Hyperworks / MSC Nastran / Abaqus

STRUCTURAL OPTIMISATION

Whilst conventional finite element analysis is invaluable in accurately analysing fully detailed components, structural optimisation can yield significant benefits and time savings when utilised early in the design process to drive the design. Stiffness, strength and dynamic targets are combined with packaging information to optimise weight and cost, particularly for complex castings such as housings.

Software: Altair Optistruct

NVH ANALYSIS

As vehicles become increasingly refined, reducing transmission noise is becoming ever more critical. Antonov can minimise radiated noise by reducing both the sources of excitation and the dynamic response of the entire system including gear bodies, shafts, bearing pre-load and housing response.

DYNAMIC SIMULATION

Mathematical modelling, analysis and simulation of complete systems and subsystems based on principles of physics. The models created are used for transient analysis to understand the system characteristics. They can also be used for sizing and synthesis of systems and subsystems. Modelling and simulation also form an essential part of control system development.

Software: Matlab Simulink.

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ANTONOV EXPERIENCE

Antonov has 20 years of experience in the design, analysis and development of geared products for the automotive industry. As well as a wealth of technical capability brought to the company by the transmission industry's leading engineers, Antonov has well developed business and project management processes to ensure that projects are delivered to the highest quality, within budget and on time. Complementing Antonov's technical excellence, these processes and capabilities enable us to be a complete service supplier within the transmission sector.

PROJECT MANAGEMENT

With a proven track record in delivering projects on time and to budget, the Antonov project management team ensure that from project initiation to final delivery, the key elements and project structure are formulated and adhered to. Throughout the work flow, key milestones are defined and internal and external reviews are performed as required to ensure optimal delivery with minimal risk.

PROTOTYPE MANUFACTURE AND ASSEMBLY

Antonov offers a full prototype manufacture, assembly and test service. We are able to procure all BOM items through identification and management of suppliers to ensure quality and timescales are met. Procured parts are inspected before assembly in our dedicated facilities by our skilled and experienced technicians.

VOLUME PRODUCTION COSTING

It is essential that the full cost implications for volume production are evaluated early in the design process. Correct early design and process decisions ensure development programs run to budget and timescale and unit cost targets are achieved. Antonov offer a full volume production costing service to our clients.

SUPPLIER QUALITY AUDIT

Ensuring the quality and consistency of parts from external suppliers is time consuming when resources could be utilised more efficiently elsewhere in your business. Antonov can both audit and select suppliers that are able to provide the greatest robustness and continuity of supply.

SECURE CONFIDENTIAL WORKSPACE

Antonov has a dedicated transmission design, assembly and test facility based in the Midlands. Client programs are afforded the strictest confidence and dedicated project offices are available if required.

OEM INDEPENDENCE

Antonov is able to offer a range of consultancy and product services that are fully independent. We offer the perfect combination of a proven creative and technical pedigree through our fully engineered transmission products, whilst providing a service tailored to the individual requirements of each client.

For more information contact:

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