



Prace realizowane w ramach Projektu:

OPRACOWANIE PROTOTYPU SPRĘŻARKI O ZNACZĄCO ULEPSZONYCH PARAMETRACH TECHNICZNYCH JAKO PIERWSZY KROK DO STWORZENIA W POLSCE SILNIKA TURBOŚMIGŁOWEGO NOWEJ GENERACJI

UMOWA Z NCBiR O DOFINANSOWANIE PROJEKTU W RAMACH PROGRAMU OPERACYJNEGO INTELIGENTNY ROZWÓJ POIR.01.01.01-00-1400/15 z dnia 05.05.2016

Działania 1.1.1 „Badania przemysłowe i prace rozwojowe realizowane przez przedsiębiorstwa” w ramach I Osi priorytetowej: „Wsparcie prowadzenia prac B+R przez przedsiębiorstwa” Programu Operacyjnego Inteligentny Rozwój, 2014 – 2020

CPV: 73000000-2 (Usługi badawcze i eksperymentalno-rozwojowe oraz pokrewne usługi doradcze)

Research works conducted as part of the project:

DEVELOPMENT OF A PROTOTYPE COMPRESSOR WITH SIGNIFICANTLY IMPROVED TECHNICAL PARAMETERS AS THE FIRST STEP TO CREATE IN POLAND A NEW GENERATION TURBOPROP ENGINE

FINANCING AGREEMENT WITH THE NCR&D POIR.01.01.01-00-1400/15 from 05.05.2016

Measure 1.1.1 “Industrial research and development work conducted by enterprises” as part of Priority Axis I “Support for R&D activity of enterprises” of the Smart Growth 2014-2020 Operational Program

CPV: 73000000-2 (Research and development services and related consultancy services)

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# Model Based Enterprise (MBE) in Prototype Compressor Project for New Turboprop Engine

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**Abstract:** Model Based Enterprise (MBE) is the next generation strategy of product definition for comprehensive use during the whole product life cycle. Selected elements of the MBE concept were implemented during a new turboprop compressor development project. The goal of the project is to design, build and validate thru development testing the new compressor system maintaining shorter than typical overall development cycle of 4 years. Classical product definition methods based on typical 3D models and 2D drawings were not sufficient to meet project expectations - including increased compressor performance requirements, technical complexity, demanding schedule and ability to timely react to evolving project requirements. MBE strategy appeared to be the appropriate solution. Despite the concept has been successfully functioning for some time, the prototype compressor project implemented it in a wider scope than similar projects in the past.

Model Based Enterprise includes:

- Development phase: Model Based Definition (MBD), Engineering Design Control Structure (EDCS), Digital Engine (DE), 3D Stack-up analysis
- Manufacturing phase: Computer Numerical Control (CNC), CAD2CAM review, In-Process Models (IPM)
- Quality control: Coordinate-Measuring Machine (CMM) or CT Scanning

The paper provides overview of MBE tools implemented in the Prototype Compressor project, discusses benefits and implementation obstacles.

**Key Terms and Acronyms:** MBE, MBD, PMI, 3D model.