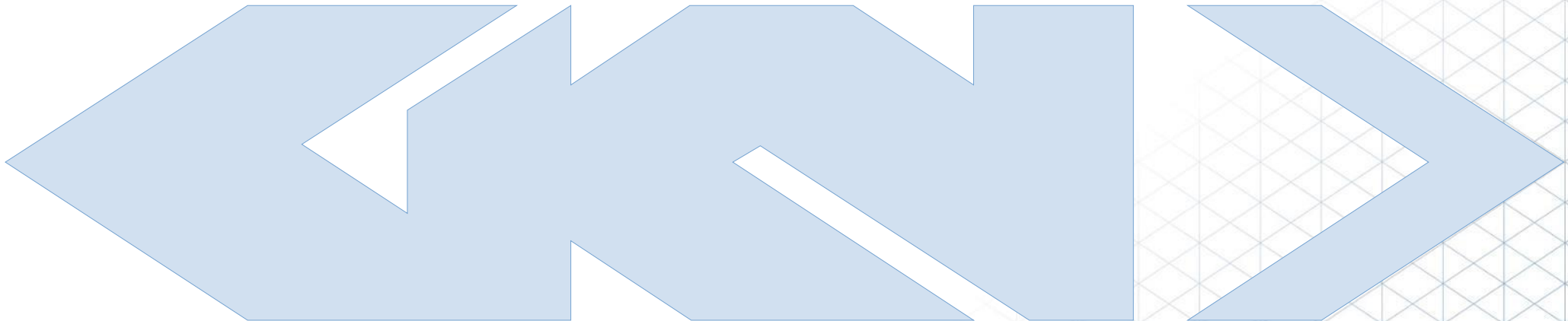


# Demonstratorer – SweDemo

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GKN Aerospace



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# Major Demonstrators

## Fan static module

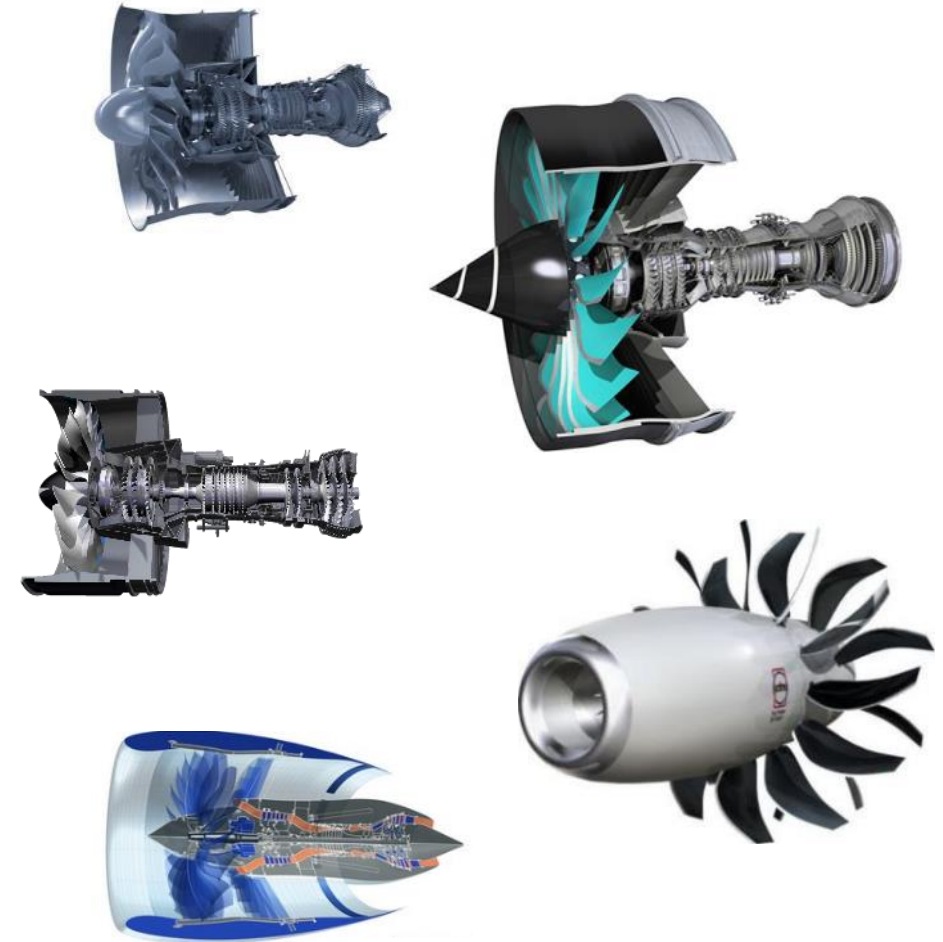
- > GKN responsible for fan case, fan frame, fan OGVs, IMC

## Compressor module

- > GKN responsible for LPC and IMC

## Exhaust module

- > GKN responsible for TEC and exhaust



# SWE DEMO MOTOR

SWE DEMO is a Vinnova funded program to support an increased participation in international demonstrator programmes

## Research centres

- > Högskolan Väst
- > Innovatum
- > Swerea IVF
- > Swerea SICOMP
- > KTH
- > Chalmers
- > FCC

## SME

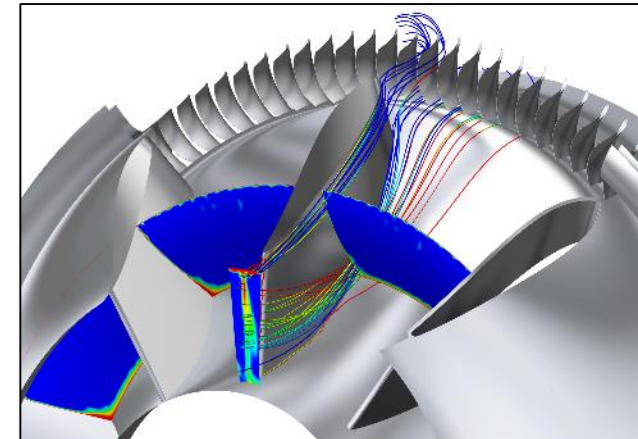
- > Brogren Industries
- > Tooltec
- > Permanova
- > Midroc Automation
- > Tuvanium
- > Inpernova
- > TPC Hallstahammar
- > GSG/ANVA
- > MVG Kristinehamn
- > Termospect
- > Dalco
- > RLM Mekaniska
- > Råbe Tooling
- > VBRC
- > BodyCote
- > AIM

# Compressor module

## Technology validation of compression system

- > Reduced module/engine length through integrated design
- > Increased overall module efficiency through improved & validated design tools
- > Reduced cost through advanced machining & inspection technology
- > Increased functionality through efficient bleed system and water/ice extraction

-5% fuel burn



# Compressor module

Technology demonstration & validation through a logical series of rig tests

## Build 0 – GKN in-house rig

- > Water extraction testing

## Build 1 – ICD wind tunnel tests

- > Exploring the ICD design space
  - 1.0 – Baseline
  - 1.1 – Aggressive
  - 1.2 – Tuned

## Build 2 – 2-spool compressor rig

- > Verify an optimized integrated compression system

## Build 3 – Notional Engine

- > Quantify the full potential of the novel compressor module



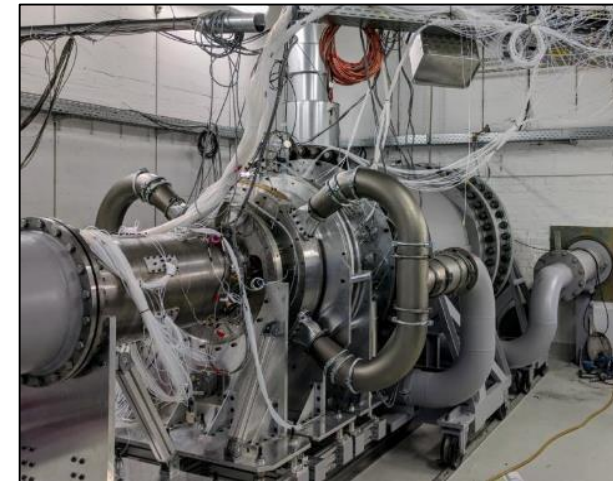
# Compressor module

**Build 0 – GKN in-house rig** Test of water extraction and validation of particle tracking methodology



**Build 1 – DLR wind-tunnel tests**

- > Mapping the ICD design space and understanding functional limits
- > Closely coupled LPC-ICD and bleed integration



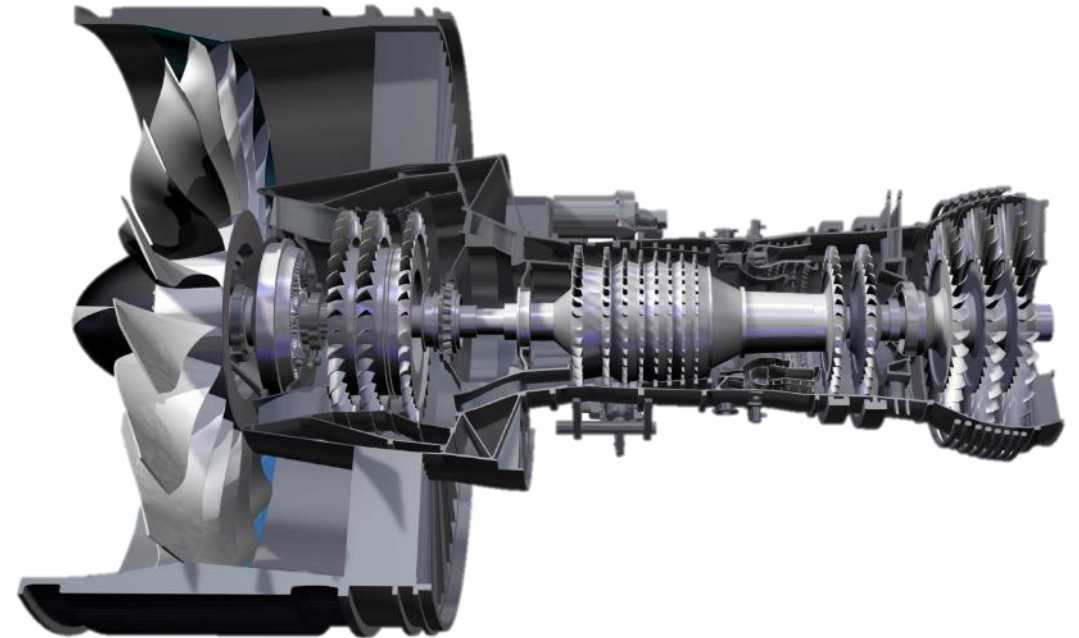
# Compressor module

## Build 2 – 2-Spool Compressor Rig

- > Verification of an optimized integrated LPC-ICD-HPC compression system
- > Unique test rig for compressor module validation
- > GKN will demonstrate:
  - A light-weight, compact ICD
  - A high-performance, light-weight LPC stage
  - Efficient and robust machining technology

## Build 3 – Notional Engine

- > Quantification of the full potential of an optimized integrated compressor module through Notional Engine assessment
- > Impact on:
  - Engine length
  - Fuel-burn
  - Weight



# Why Demonstrators?

**Validation to TRL6 is difficult and very expensive**

**Can only be made in collaboration with an OEM**

**Positioning for future business**

**Relevant, high TRL topics for SMEs and Research Centres**

**INNOVATION**