**Portfolio**: Aerospace

**Division**: Aerospace Engine Systems

**Work Location**: Trollhättan

**Legal Employee Entity**: GKN Aerospace Sweden AB

**Vacancy Title**: Master Thesis in Mechanical Engineering

**Justification:** Andreas Borg

# Role Purpose

**Om GKN Aerospace**:

*GKN Aerospace is the aerospace operation of GKN plc, serving a global customer base and operating in North America and Europe. With sales of £2.2 billion in 2014, the business is focused around three major product areas - aerostructures, engine products and transparencies, plus a number of specialist products - electro-thermal ice protection, fuel and flotation systems, and bullet resistant glass. The business has significant participation on most major civil and military programmes. GKN Aerospace is a major supplier of integrated composite structures, offers one of the most comprehensive capabilities in high performance metallics processing and is the world leading supplier of cockpit transparencies and passenger cabin windows.*

# Key Responsibilities

**Proposed thesis title:**

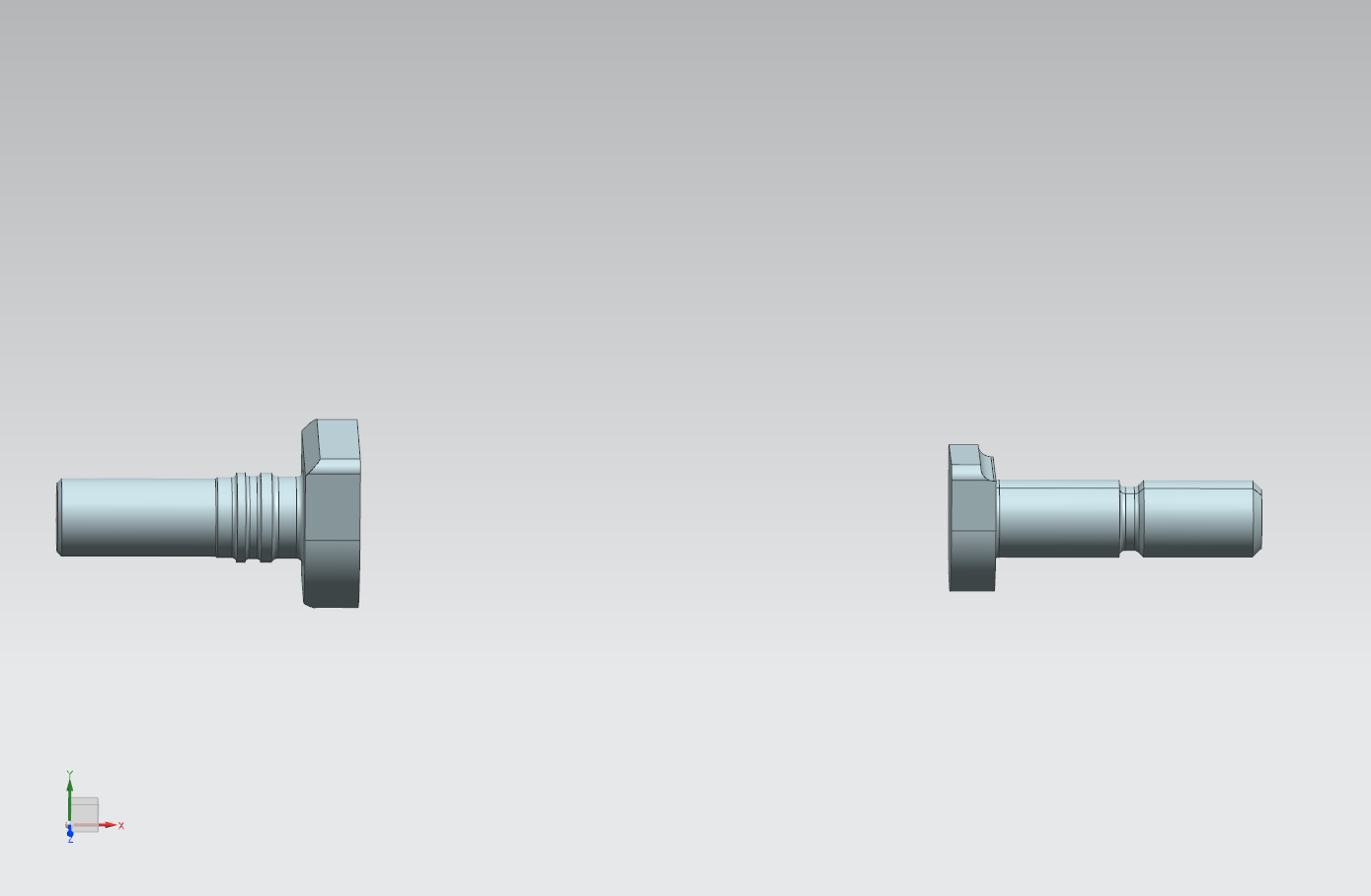
**Period of time and amount of credits:** *30 credits/20 weeks.*

**Number of students:** 1

**Start date:** Spring 2018

**Uppdragsbeskrivning***.*

Blind assembly of bolted flanges include a D-head bolt.



D-head bolt

Locking ring



Due to parts fixation need, there is a oversize hole on the threaded size of the bolt.

The unpleasant result was found that the substantially weakest element in the joint was the nut.

1. Literature review of suitable solutions
2. Define geometrical boundaries, max integral washer, type of tool (hex, double hex, TORX, …)
3. Suggest and model of potential nut designs
4. Review the suggested nut for manufacturing and standardization purpose
5. Verify by FE analysis the improved strength and pre-tension force in the bolt
6. Recommendation of a high pre-tension force nut.

The results expected are:

* Results from a literature study
* Report verification and generalized method
* Report by CAD model and tabularized standards , the recommended nut

# Qualifications/Experience/Skills

Recommended academic background: Mechanical.

Send CV and personal letter to Per Widström (Per.Widstrom@gknaerospace.com)

**Function**: **Employee Type**: Intern/Co-op

**Advertising start date (External &Internal):** 2017-10-05

**Advertising end date (External & Internal):** 2018-01-15