



LifeStyle  
Innovator

# KOLON DACC Composite

 KOLON DACC COMPOSITE

**1**

**KOLON Group**

**2**

**KOLON DACC  
Composite**

**3**

**Business**

**4**

**Vision**

**5**

**Major Reference**

# 01 KOLON Group

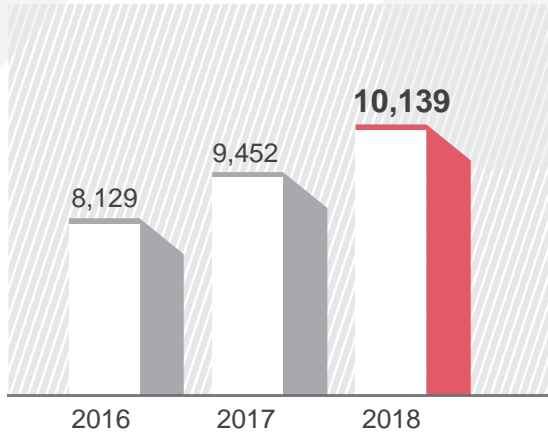
1. Group Overview
2. Milestone
3. Global Footprints



## Group Overview

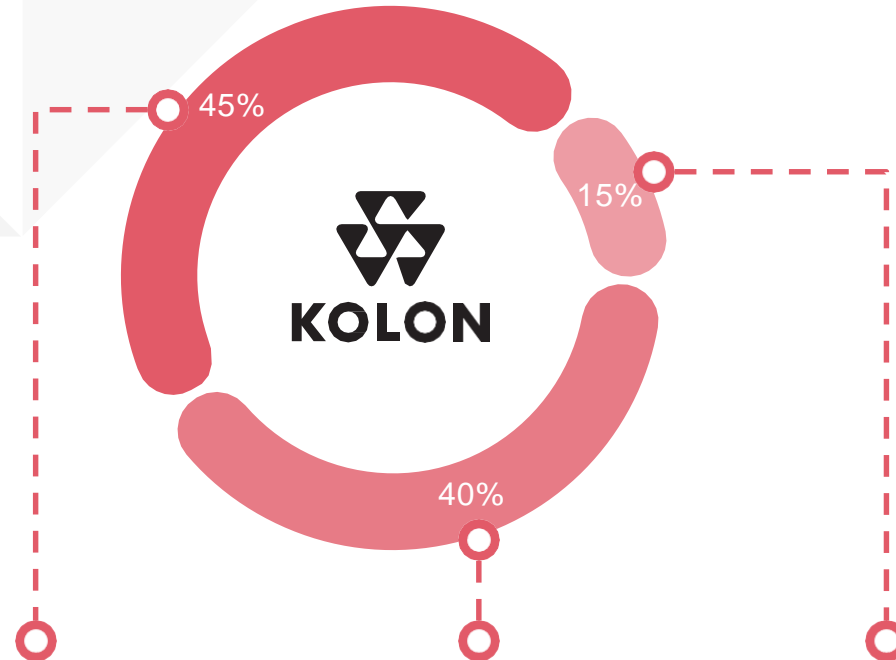
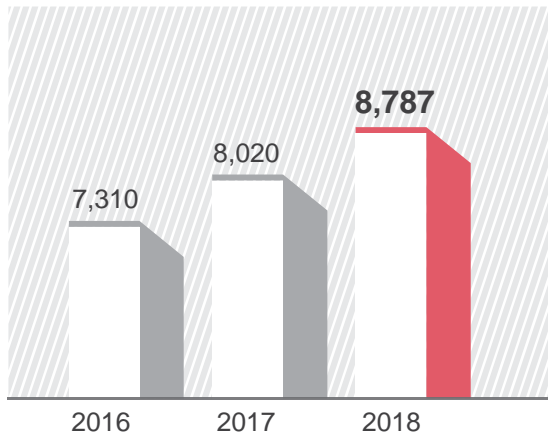
### Total Assets

Unit : USD million



### Total Sales

Unit : USD million



Core Material	Construction & Services	Fashion & Distribution
KOLON INDUSTRIES(Manufacturing Division)	KOLON GLOBAL	KOLON INDUSTRIES(FnCDivision)
KOLON GLOTECH	KOLON BENIT	KOLON AUTO(AUDI)
KOLON MATERIAL	KOLON INVESTMENT	KOLON GLOBAL(BMW/B&O)
KOLON PLASTICS	KOLON NATURE BRIDGE	KOLON AUTOMOTIVE(VOLVO)
KOLON LIFE SCIENCE	KOLON MOD/LSI	KOLON AUTOPLATFORM
KOLON PHARMACEUTICALS		TISSUEGENE, INC
KOLON DACC COMPOSITE		SWEETMEAL



Milestone

# “KOREA NYLON”, KOLON

1954

- Grew into synthetic fiber manufacturer.
- Diversified business portfolio into national key industries. (Construction, Chemicals)



- First introduced nylon to Korea.
- Started Nylon production in 1957.

1963-1989



1990-1999

- Development of Advanced Chemical.
- Established holding Company in China. ('13)
- Composite Material as Group Future Growth Engine. ('15)



- Established Central Research Center. ('92)
- Formation of 3 Primary Business Domains.

2000-





## Global Footprints



- Office
- Manufacturing Site
- R&D Site

12

Overseas Manufacturing Sites

17

Domestic Manufacturing Sites

18

Overseas Offices

6

Domestic R&D Sites

# 02 KOLON DACC Composite

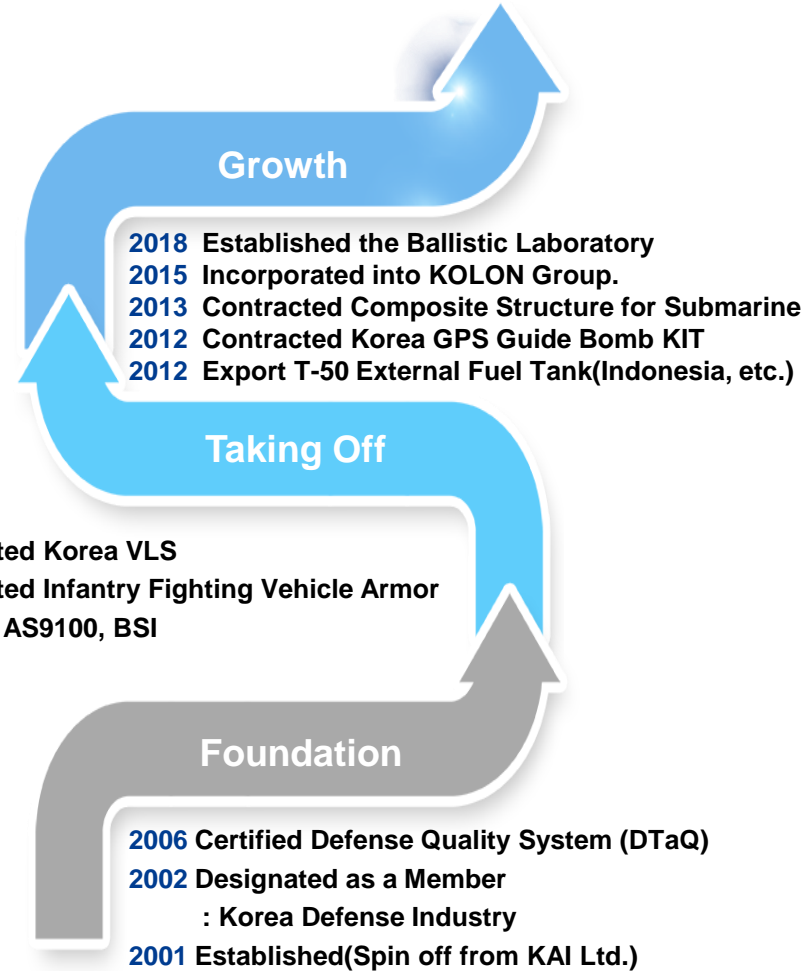
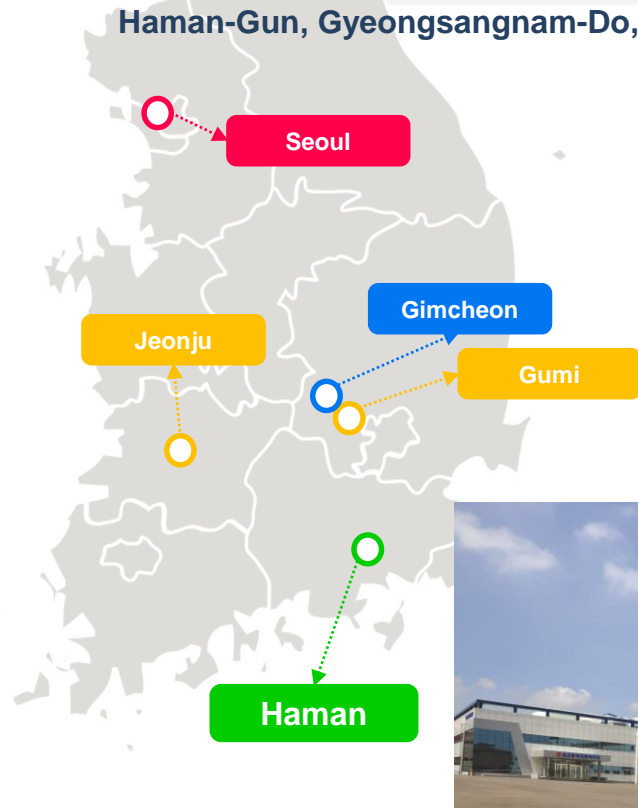
1. Milestone
2. Capability
3. Quality System



## Milestone

# KOLON DACC COMPOSITE

- Established Nov. 2001
- Incorporated into KOLON Group in Dec. 2015
- Business Area : Advanced Composite
- Location: 26-23, Hamansandan 1Gil, Gunbuk-Myeon Haman-Gun, Gyeongsangnam-Do, KOREA



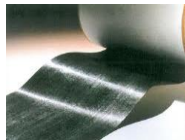
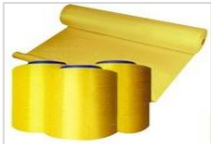


Capability

# Total Solution Provider of Advanced Composites

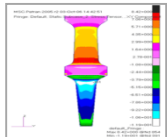
## Raw Material

- Fiber
  - Carbon
  - Glass
  - Aramid
- Resin
  - Thermoset
  - Thermoplastic
- Prepreg, LFT, UD Tape



## Design & Analysis

- Structural Design
  - CATIA V5 / CD3
  - AutoCAD
- Structural Analysis
  - Hypermesh
  - PATRAN
  - NASTRAN
  - Management
  - PLM



## Process

- Manufacturing
  - Autoclave
  - Hydroclave
  - Filament Winding
  - Press Molding
  - Pultrusion
  - RTM / VARTM
- Equipment
  - NC Ply Cutter
  - Auto Grinding Robot
  - 4Axis Spindle Winding
  - 5Aixs Winding M/C



## Test & Evaluation

- Equipment
  - Instron
  - Optical Microscope
  - Pressure Tester
  - UT / RT
  - A scan/ C scan
- Test
  - Specimen (Static/Fatigue)
  - Pressure Test
  - Sound Transmission Test



# Quality System

## Aerospace

## Defense

## Automobile



AS9100 Rev. D



GE  
(Composite Bonding)



NADCAP AC7118  
(Composite Bonding)



KDS 0050-9000-3



IATF 16949

Prime Minister Award for Defense Quality Management (2017.12)

Certified Korea Service Quality Superior Company (2017.07)



# 03 Business

1. Business Area
2. Major Customer
3. Roadmap

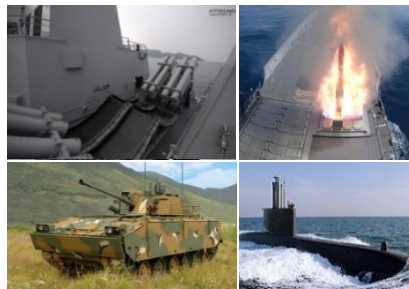




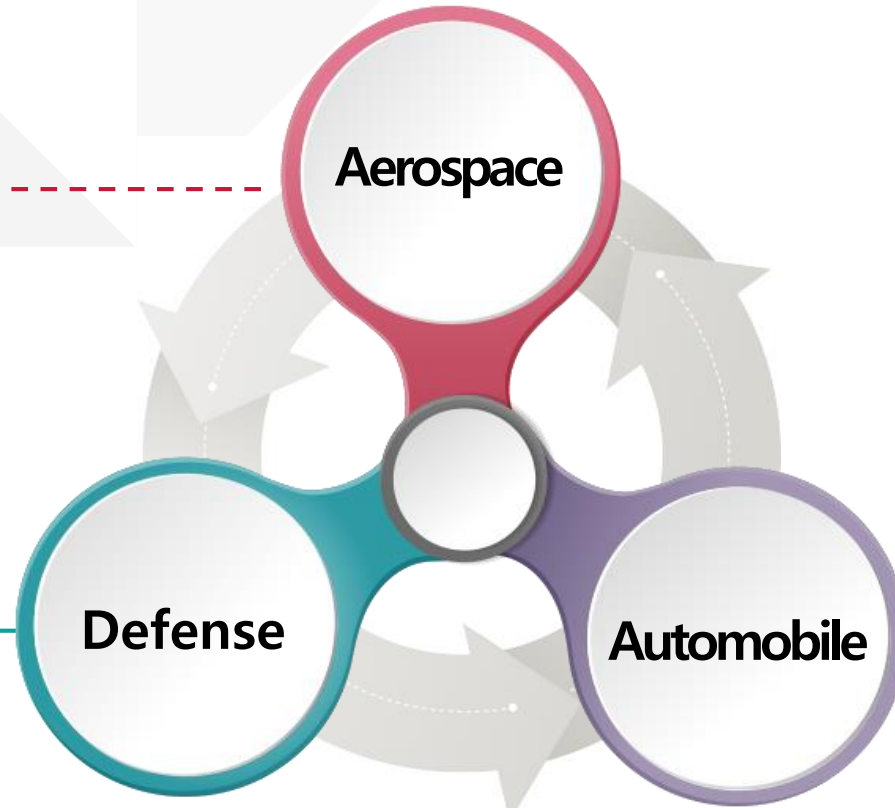
# Business Area



Aircraft External Fuel System  
Composite Body Kit  
Composite Engine Parts Assembly



Launch Canister Assembly  
Vertical Launching System  
Composite Body & Protection System  
Composite Body & SONA System



## Aerospace

## Defense

## Automobile

Composite P/D Shafts



CNG & Hydrogen Fuel System

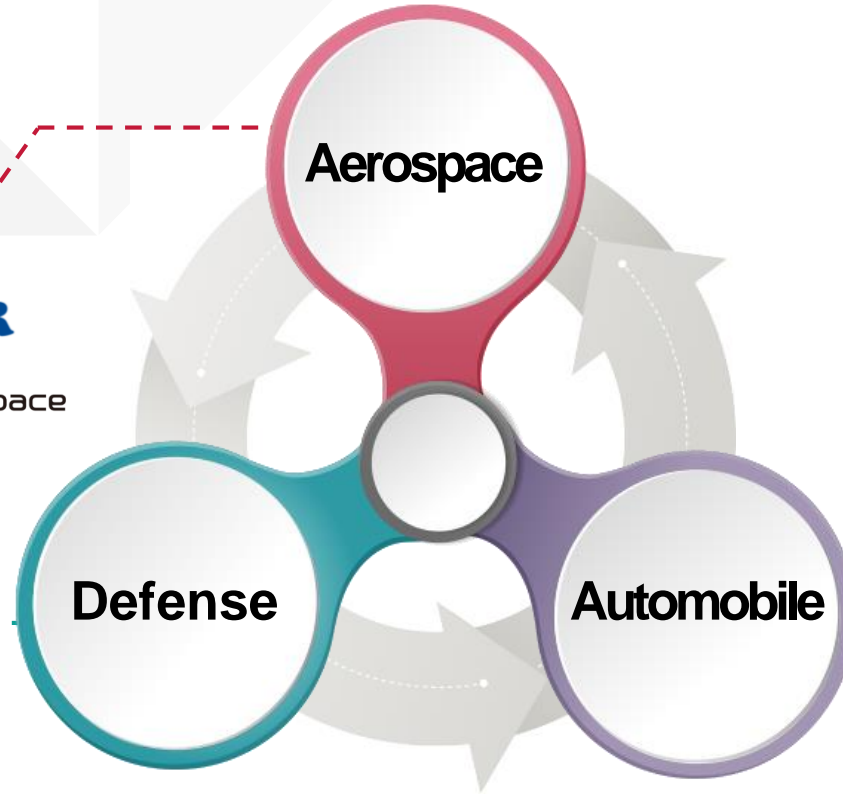
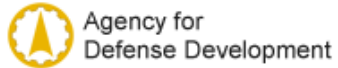


Suspension System



### Major Customer

#### Government Org



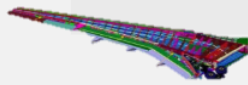


# Roadmap - Aerospace

## As-Is : 2020



**KT-1 Structure**



**B-787 FTE**



**Composite Kit**



**MLG Door Assembly**



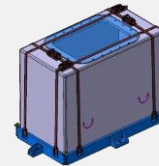
**KO-1 External Fuel Tank(50Gal)**



**FA-50 External Fuel Tank(150Gal)**



**Helicopter Fuel Tank**



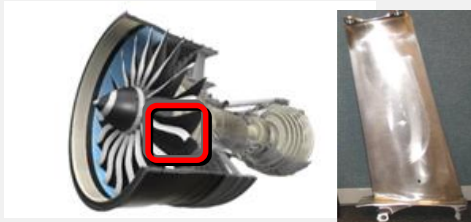
## Expansion : 2025



**Secondary Composite Structure**



**External Fuel Tank & Pylon Assembly**



**Engine Vane**



**Composite Vane & Fan Blade**



**Composite Cowling & Nacelle Assembly**



# Roadmap - Defense

## As-Is : 2020



Vertical Launcher Canister



Launcher Canister



Long range Canister



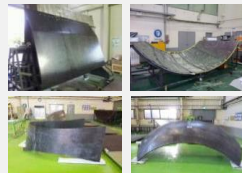
Combat Vehicle Composite Parts



Composite Armored Assembly



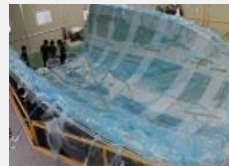
Composite Armored Hull



Composite Structure(1400t)



GRP Casing



Composite Structure (3000t)



Composite Propeller



Submarine Structure Assembly



Hydrogen Storage Module

## Expansion : 2025



Launcher Assembly

# Roadmap – Protection

## As-Is : 2020



Ballistic Helmet



Hard armor plate



Tactical Vest with Hard armor plate



PKX Bullet-Proof Plate



Bullet-Proof Plate for Battle Ship



Established Ballistic Lab



Certified KOLAS

## Expansion : 2025



Future Soldier System



Next Generation Bullet-Proof system for Ship



Cooperation with U.S Ballistic testing Lab



# Roadmap - Automobile

## As-Is : 2020



Non-structure part



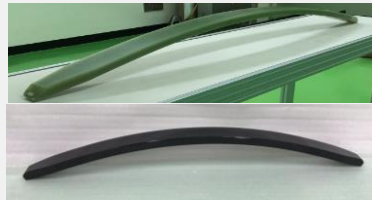
Structure part



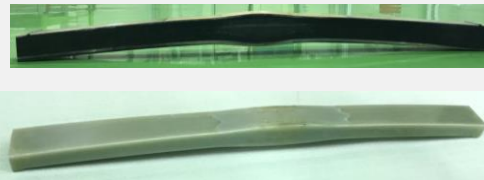
CNG/Hydrogen Tank (350bar)



CNG/Hydrogen Tank (700bar)



Composite Leaf Spring(3.5ton)

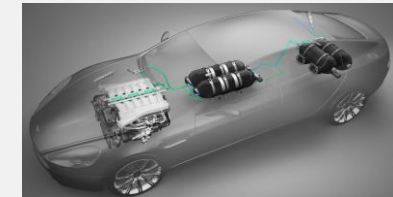


Composite Leaf Spring(27ton)

## Expansion : 2025



Structure Module



H2 Storage Module



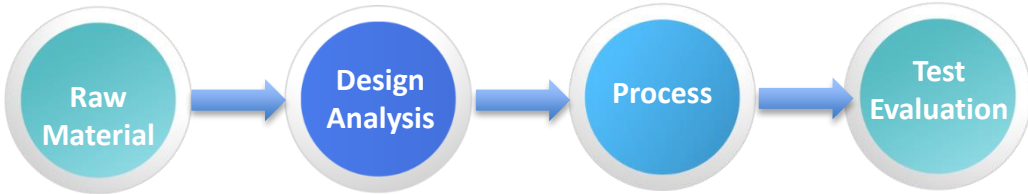
Leaf Spring Assembly

# 04 Vision



Vision

# Total Solution Provider of Advanced Composites





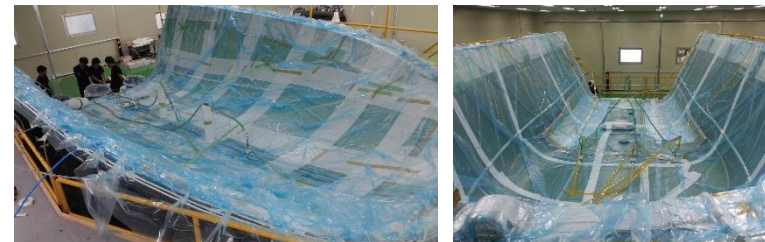
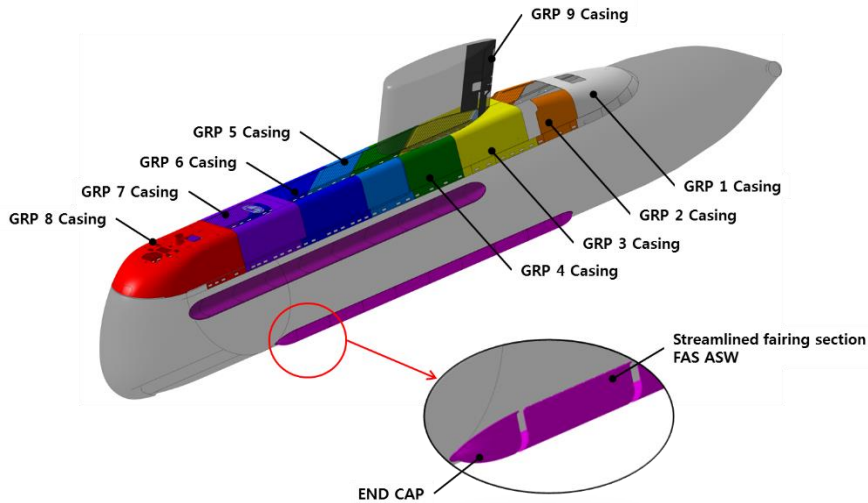
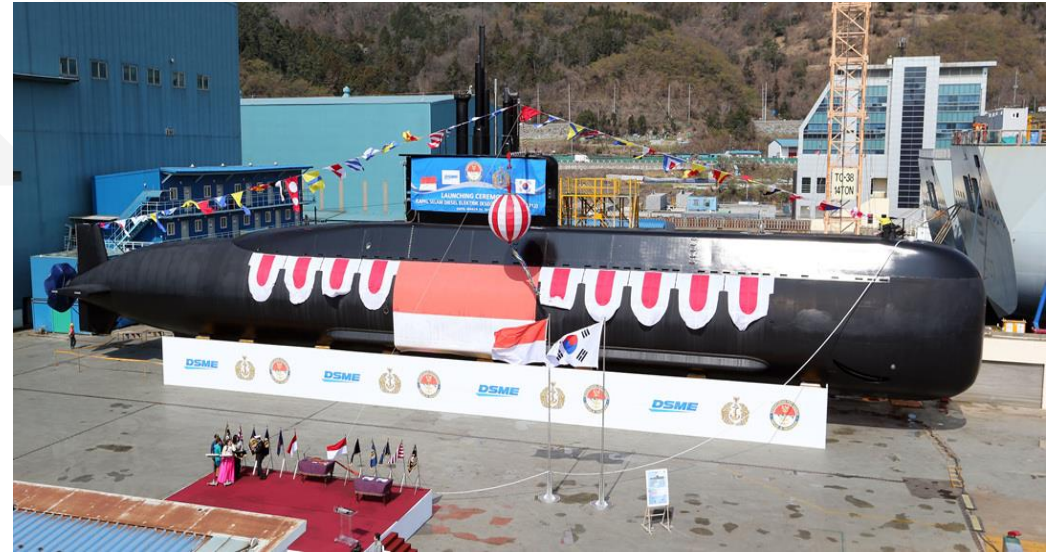
# 05 Major Reference

# 209 Class Composite Structure and FAS Sonar dome

Developed Manufacturing Process

Delivered

- Indonesian Batch-1 Structure
  - Detail Designed of Upper Hull GFRP Structure
  - Material/Process Localized for Upper Hull GFRP Structure
  - Developed Manufacturing Process for CHA Acoustic Window
  - Developed Manufacturing Process for FAS Window



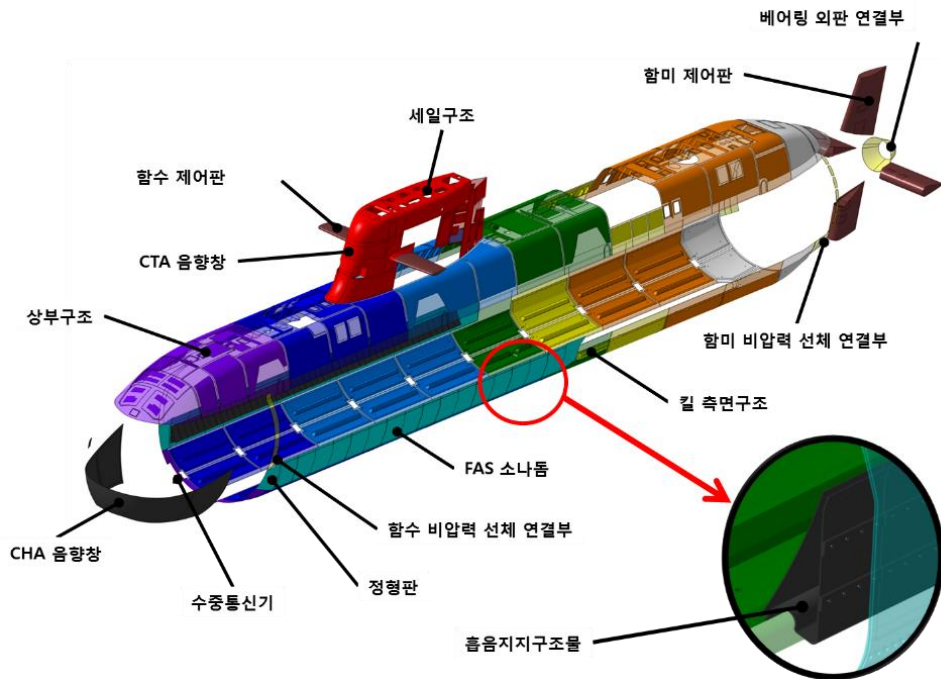
HULL Structure Curing

# Jangbogo III B-1 Composite Structure, Hydrogen Casing and FAS Sonar Dome

Developed Manufacturing Process

On The Production

- Jangbogo-III Batch-1 Structure
  - Detail Designed of Non-pressure(GFRP & CFRP) HULL Structure
  - Material/Process Localized for GFRP, CFRP Sandwich Structure
  - Developed Manufacturing Process for CHA, PRA, CTA Acoustic Window
  - Developed FAS Window
  - Developed Support Structure for Sound Absorbing Material
  - Developed Hydrogen Casing for AIP system



FAS Dome and Mount Structure

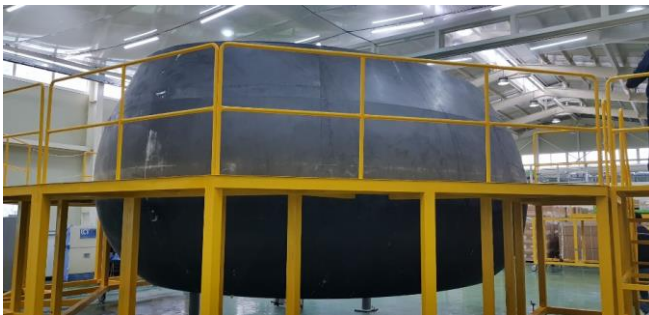


Hydrogen tank GRP Casing



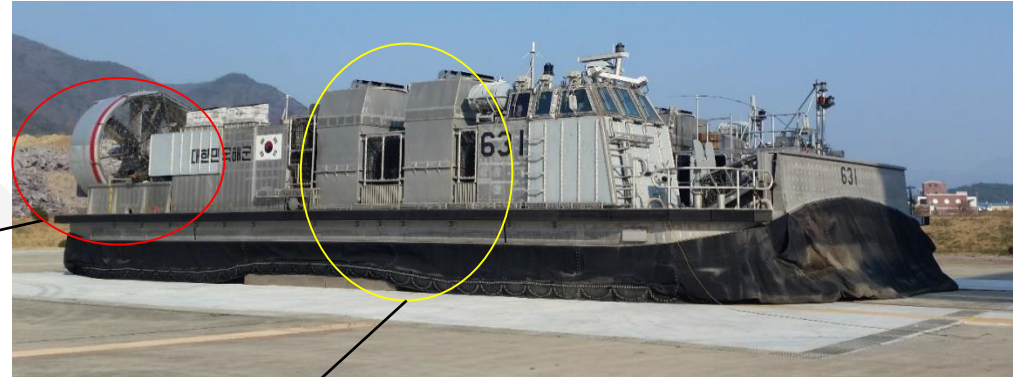
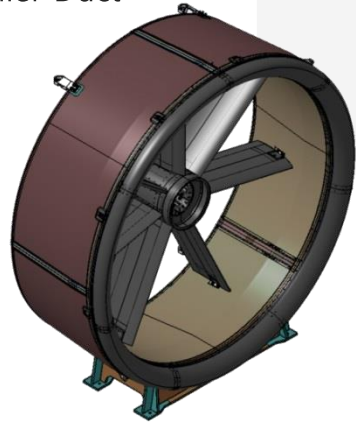
## Gwanggaeto-III B-2 Hull Mounted Sonar

- Specification
  - Size : 00.0 x 0.0 x 0.0 (L x B x H) Integral Structure
  - CFRP + PU + NBR Sandwich Type

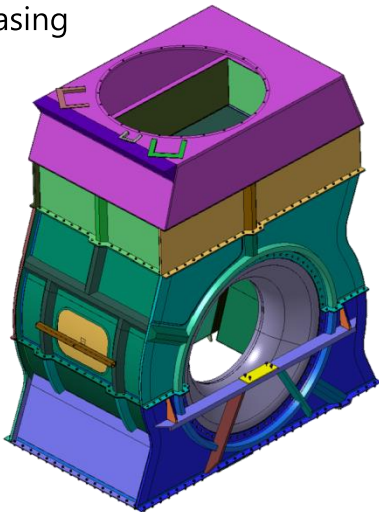


# Landing Ship Fast(LSF)-II Lift Propeller Duct & Fan Casing

Propeller Duct



Lift Fan Casing





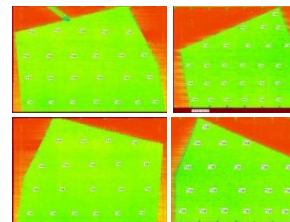


## Sonar Structure(Sea Chest & Acoustic Window)

SEA CHEST of Intercept Passive Sonar for Auxiliary Towing Salvage-II(ATS-II)



Acoustic Window for Multi-purpose Training Boat(MTB)



# THANK YOU

THE SUCCESS PARTNERS

 **KOLON DACC COMPOSITE**