

# YH YoohanENS

Global networker Yoohan ENS



## Value No.1 Solution Provider

# **Yoohan ENS**

YH ENS tries to challenge continuously to become the company to grow with customers together .

We will be the best business partner with trust and expectation based on People, technique and value as our core value.

We will provide a differentiated service with accumulated technology and know-how as your business partner for happy value creation.



*Shipbuilding  
&Marine*

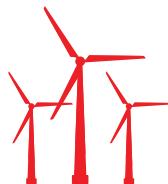


*Industrial  
machines*



*Construction  
equipment*

**Yoohan ENS  
BUSINESS**



*Wind turbines*



*Special  
equipment*



# R&D

With creativity & passion, YH ENS R&D tries to challenge for improving professional competency.

- Develop planetary reducer for shipbuilding, construction equipment and wind power generators
- Provide 3D solution as customer's requirements
- Analyze the design verification and optimized design

## ➤ R&D development area

### Reducer

- Reducer with the teeth of cycloid
- Minimized & lightened Planetary reducer with high efficiency
- Planetary reducer to be adaptable on high torque
- Satisfy with various specification for shipbuilding and wind power
- Many patent about planetary reducer and hydraulic brake

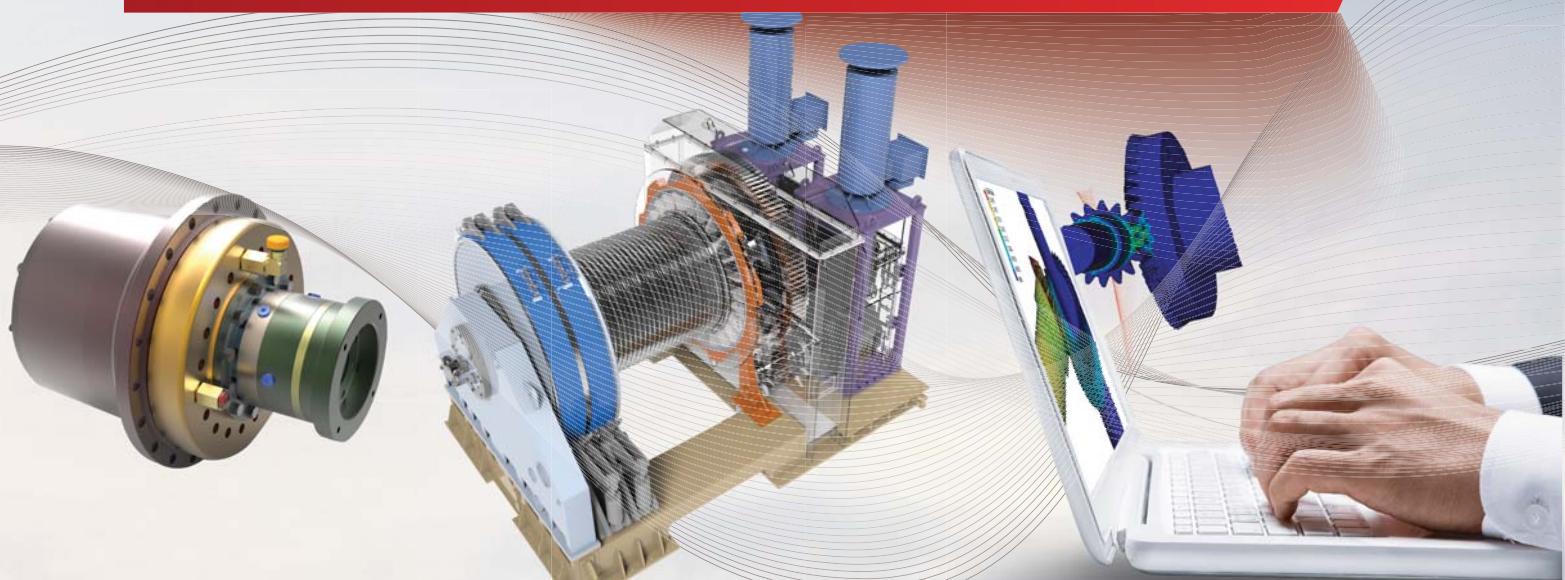
### Design automation

- Gear teeth and Parametric 3D modeling
  - Gear strength analysis
  - Drawings & Kinematic simulation
- Template & Automation
  - Assembly template
  - Part template

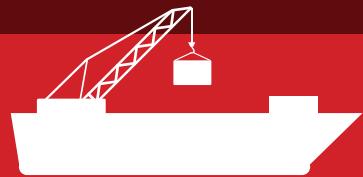


It establishes trust in customers with continuous passion and new value creation.

- **People : Future management with person**
- **Technique : New technology through continuous human resource cultivation**
- **Value : Social value realization with person & technique**



# Shipbuilding&Marine



## › Application

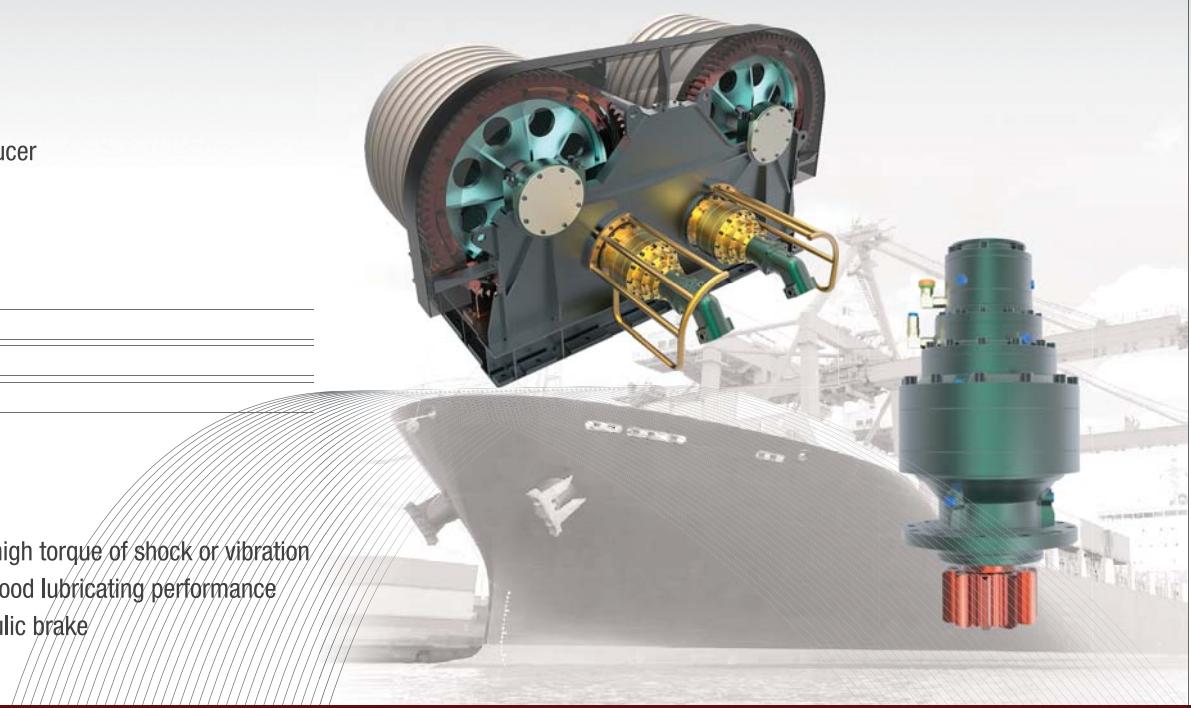
- Slewing reducer, Hoist reducer
- Reducer for Winch

## › Specification

Gear Ratio	1/12 ~ 1/350
Stages	2,3,4
Break	Lining Type

## › Features

- Planetary reducer against high torque of shock or vibration
- Excellent endurance with good lubricating performance
- Adjustable torque of hydraulic brake



# Construction equipment



## › Application

- Drum reducer module of mixer truck
- Drive reducer module of wheel hub
- Drive reducer module of driving

## › Specification

Gear Ratio	1/3 ~ 1/350
Stages	1,2,3,4
Break	Lining Type, Disc Type

## › Features

- High reducing ratio in minimizing & weight-lightening
- Outstanding endurance from shock & vibration
- Various oil brake system application (Lining type, Disc type)



# Wind turbines



## › Application

- Pitch drive reducer
- Yaw drive reducer

## › Specification

Gear Ratio	1/3 ~ 1/350
Stages	2,3,4
Break	Optional

## › Features

- Planetary reducer with low noise & high endurance
- Various reducing ratios according to customer's requirements
- Reducer for special application



# Industrial machines

## › Application

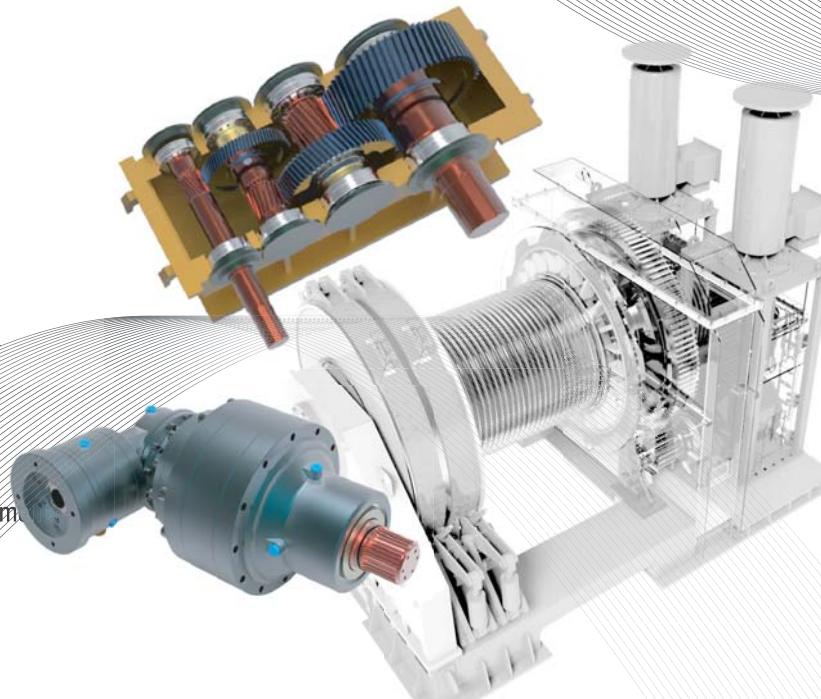
- Reducer / Increaser for industry plant
- Reducer / Increaser for iron industry plant

## › Specification

Gear Ratio	1/3 ~ 1/350
Stages	1,2,3,4
Break	Optional

## › Features

- Various specification & system according to customer's requirements
- 2-stage reducer system
- Reducer of special specification





# Special equipment

## › Application

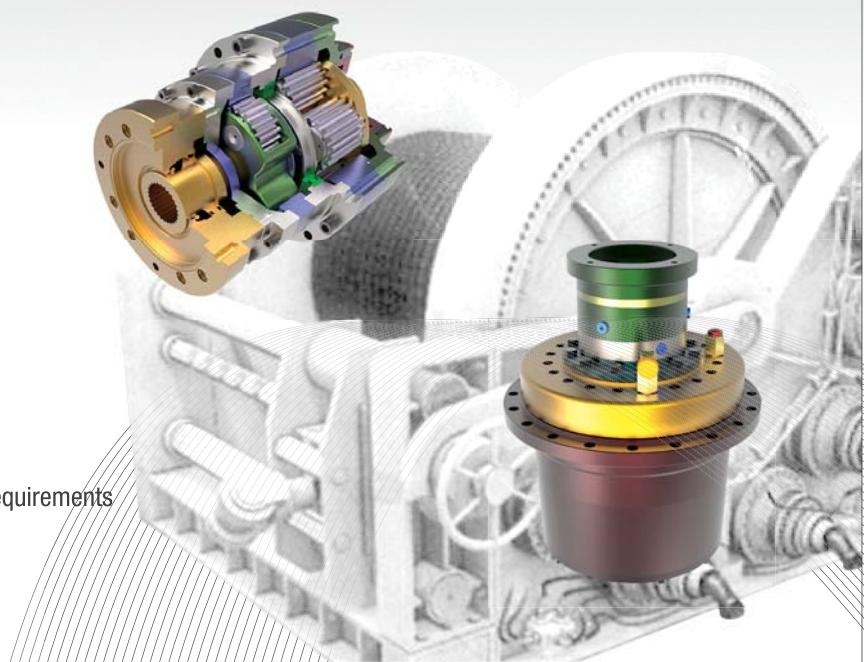
- Reducer/ Increaser for special equipment

## › Specification

- System implementation & various specification according to various customer's requirements

## › Features

- Special application and system
- Satisfy various customer's requirements
- Various specification & system according to customer's requirements

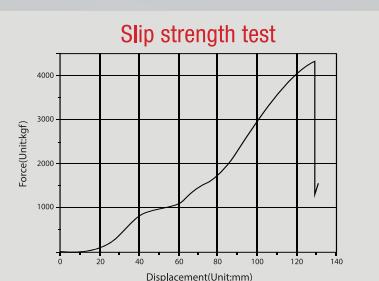
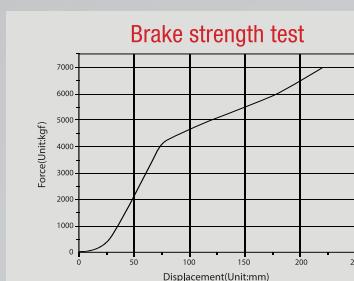


## Development status

### 2-stage planetary reducer

#### › Test Conditions

SPL No	Test Name	Test Velocity	Test Results	Remark
SPL#1	Slip strength test	1mm/sec	2,048kgf.m	Horizontal length of jig to work on rotary system: 0.5m
	Brake strength test		3,368kgf.m	
SPL#2	Slip strength test		2,141kgf.m	
	Brake strength test		3,486kgf.m	

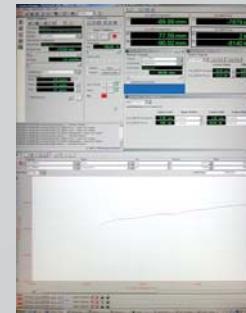




## 3-stage planetary reducer

### Test Conditions

Test Name	SPL No.	Test Velocity	Test Results	Remark
Brake strength test	SPL#1	1mm/sec	31,735N·m	Vertical length of jig to work on rotary system : 0.4m
	SPL#2		31,932N·m	



## planetary reducer with hydraulic brake

### Test Conditions

Product	Item	Target	Notes
Reducer for shipbuilding	Opening pressure of oil brake	40±5(bar)	Horizontal length of jig to work on rotary system: 0.8m
	Leakage	0(cc)	
	Max. pressure of oil brake	300over(bar)	
	Torque of oil brake	650over(Nm)	
	Max. torque	60,000over(Nm)	



### Opening pressure of hydraulic pressure

Test product	Test picture
SPL#1	
SPL#2	





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