Be The Top

In The Industry

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PARTS FOR AUTOMOBILES
PARTS FOR HEAVY EQUIPMENTS








SINIL
www.sifg.co.kr

Company Introduction

SINIL is a hot forging and machining company that produces parts for automobiles, heavy equipment, and agricultural machinery. We are manufacturing and machining various parts products used in powertrains, such as Axle shaft, gears, and C/V Joints, and track rollers; hydraulic components and supplying automotive and heavy equipment components to prominent global automobile companies, including Hyundai Motor Company Caterpiller Inc. and Volvo Construction Equipment Korea.

In an unlimited competition age, in which no one could survive without strengthening quality and price competitive edge, SINIL's competiveness has already been acknowledged industrywide. Taking a step further, we are making continuous innovation to create better values. Since 2007, we havestarted company-wide efforts to produce the best quality products and achieve the highest productivity in the industry, in cooperation with a consulting company.

To achieve global standards, and goals beyond them, in every aspect of business operation, SINIL has obtained international certificates such as ISO14001, OHSAS 18001, and TS16949. We are improving process management with recently introduced 6-sigma methodology, and ultimately aim to provide best services in three essential areas, quality, price, and delivery to realize values which our clients try to offer to end consumers.

Based on these objectives, we has established a Win-Win strategy to help us develop together our clients and partners, while reinforcing the capability of each business unit to implement the strategy.The automobile industry is the basis of the Korean industry. With vehicles using our products running around the world today, we take great pride in our products and will continue to do our best to become a company that offers the best quality products.

Finally, SINIL's all executives and employees promise to serve as an inseparable companion for the future of our customers.

Thanks you.

Chief Executive Officer **Jun Ji-hun**

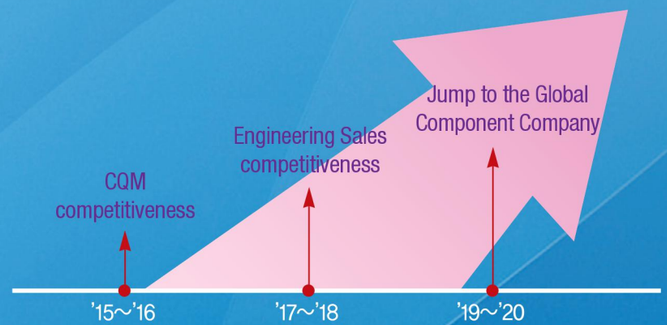
Vision

Vision ····· "Be small but Strong Company in component business related with Forging"

Value ·····

Basic value	Competitive Value	Future Value
Quality + Delivery	Lowest Price	Technology / Sourcing Convenience

Strategic Goal Rood Map ·····



Strategic Task ·····

Operation Strategy	R&D Strategy	Growing Strategy
CQM competitive enhancement / Start up Machining Business	New Technology & Method Development / Components Study in advance	Domestic Major Customer Expansion / Develop Global Market

Core competence ···

Operation Efficiency	Multi-Networking	Customer Value Creation	Continuous Innovation

Organizational Culture ·····

"Be Professional In Fun"

History

1987~1990

- Jan. 1987
  Founded' Bangwon'Metal Company
- Aug. 1988
  Started manufacturinghot forging products (Components for automobiles, heavy construction equipment, and Agricultural machinery)

1991~1999

- Nov. 1992
  Installed 1600 ton press line
- Dec. 1993
  1st grade of Plant Quality Control Awarded
- Jan. 1994
  Installed UpsetterLine
- Aug. 1999
  ISO 9002 Certification (Small and Medium Enterprise Certification Center)

2000~2011

- Jan. 2000
  Corporation Changed its name to SINIL Corp.
- Dec. 2000
  QS 9000 Certification (KMAQA)
- Dec. 2003
  ISO 14001 Certification (KMAQA)
- Oct. 2004
  ISO/TS 16949, ISO 14001, OHSAS 18001 Certification (SGS)
- May 2005
  Installed 4500 ton Press Line
- Aug. 2006
  Certificated a patent for Hot Forging Process Using Separated Die
- Jul. 2008
  Established R&D Center
- Feb. 2009
  Certificated INNO-BIZ (S&MBA), approved as a Venture Business (KIBO)
- Feb. 2010
  Awarded as"Best Supplier" From Volvo Construction Equipment KOREA
- Feb. 2010
  Certified as a Business Specialized in Parts and Materials (KIBO)
- Jan. 2011
  Established Busan Machining Shop (Busan M/S)
- Feb. 2011
  Installed Robot Arm on 7.5 Inch Up-Setter
- Mar. 2011
  Obtained a patent for Yoke Shaft

2012~Present

- Mar. 2012
  Installed 4500ton Robot Transferring Equipment
- May. 2012
  Installed more Machining Equipments at Busan M/S
- 2012 Installed Semiautomated Robot Transferring Equipment
  - 3500ton Forging Press
  - 2500ton Forging Press
  - 5 Inch Up-Setter
- 2012 Registered as a new supplier for Caterpillar
- Dec. 2012
  Installed Dent preventive Equipment
  - 2500ton Forging Press
  - 3500ton Forging Press
  - 4500ton Forging Press
- Aug. 2013
  Installed 4000ton Forging Press with Dent preventive Equipment
- Oct. 2013
  Obtained a patent for Excavator Yoke Tooling
  Installed Transferring Equipment for forging
- Jun. 2015
  Certified as Caterpillar SQEP Bronze Level
- Aug. 2015
  Machining Division moved for extension (Busan)
- Feb. 2016
  Recognized as root–technology specialized company (The Small & medium business administration)
- Jun. 2016
  Named as "Promising Export Company"
- Aug. 2016
  Certified as Caterpillar SQEP Silver Level
- Aug. 2017
  Certified as Caterpillar SQEP Platinum Level
- Aug. 2018
  Certified as Caterpillar SQEP Platinum Level

Foundation

Fetal movement

1st Growth Period

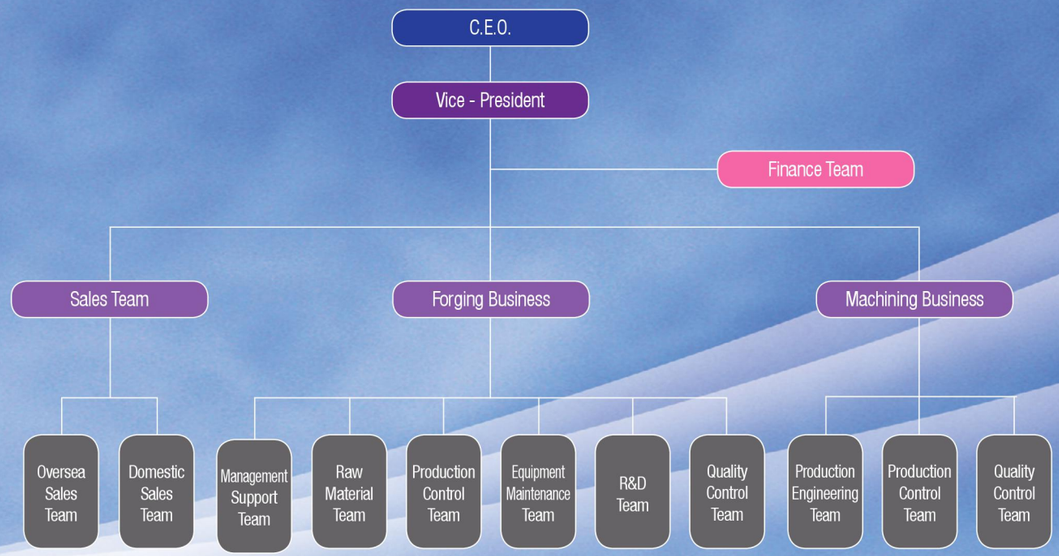
2nd Growth Period

Certificates / Patent

Caterpillar SQEP Platinum Level

Hyundai Motors SQ "S" Level

Organizational Chart



Parts for Automobiles

TRANSMISSION GEAR

Transmission Gears for Commercial Buses and Trucks produced at 3500 Ton and 4500 Ton press

AXLE SHAFT

The Rear Axle Shafts for Commercial Vehicles and Agricultural Equipment which produced at 5”and 7.5”upsetter

PISTON

Forged piston for diesel engine

BEVEL GEAR

The sorts of Bevel Gears, which are used for the device to distribute the rotation speed of both wheels when moving on a curve.

YOKE

The sorts of Yokes which are propeller shaft parts to deliver the rotation power of a transmission to an accelerator.

JOINT

The sorts of Joints, which are used on parts connecting materials of constant velocity of a shaft when the driving force of a transmission is transferred to a wheel.

DRIVE PINION & RING GEAR

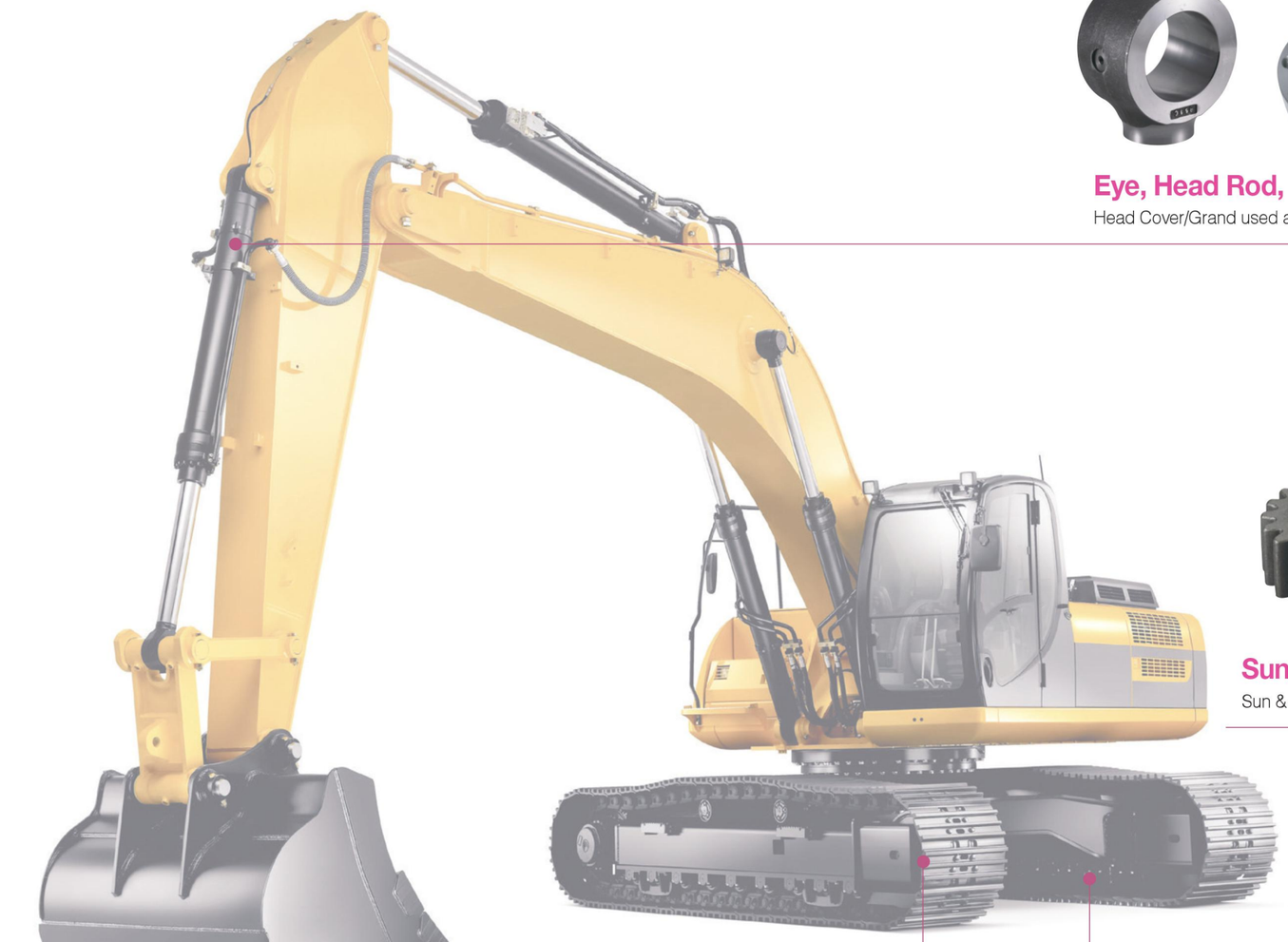
Ring Gear used for devices to alter the spinning force of vehicle transmissions into the driving force of both wheels.

Parts for Automobiles

Parts for Heavy Equipments

Eye, Head Rod, Head Cover, Piston, Cover End, Flange, Yoke

Head Cover/Grand used at connecting part of Hydraulic Cylinder



Sun Gear, P/L Gear, Ring Gear

Sun & P/L Gear used at driving gear part of construction equipment

SPROCKET SEGMENT

Sprocket Segments for Under - Carriage of Construction Equipment

Recoil Spring Yoke

Product that has developed cast iron products into forged products

ROLLER

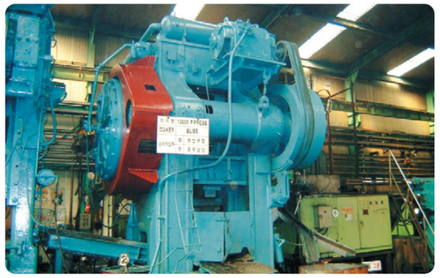
Track Rollers for Under-Carriage of Construction Equipment

LINK

Links for Under-Carriage of Construction Equipment

Parts for Heavy Equipments

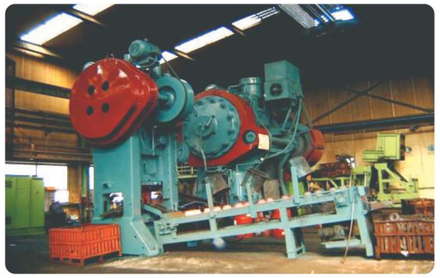
Press Forging Line



1300 TON FORGING PRESS LINE

1600 TON FORGING PRESS LINE

2500 TON FORGING PRESS LINE



3500 TON FORGING PRESS LINE

4000 TON FORGING PRESS LINE

4500 TON FORGING PRESS LINE

Upsetter Forging Line

5 inch Upsetter Line

7.5 inch Upsetter Line

Machining Equipments

- Multi-Task Machine 1 EA
- Machining Center 7 EA
- 4 Axis CNC Lathe 2 EA
- CNC Lathe 14 EA

CNC Horizontal Lathe SKT28

CNC Vertical Lathe SKT-V3R

CNC –ACT(Five-Axis Machine) J-300

Hwacheon_Hi-Tech 450A

Horizontal Machining Center KH50G

Vertical Machining Center VX650 / 50

Horizon Machining Center HM5000

Vertical Machining Center Mynx 650

Software

2D Design Software : AUTO CAD 2000, 2008, 2009, 2011, 2012
3D Design Software : UG NX 7.5
Simulation Software : DEFORM V.10.2

Other Facilities - Cutting, Finishing, Mold Processing

Correction Equipments

Hydraulic coining press, hydraulic press

Surface Treatment Equipments

Shot Blast: 3 units (1.0 ton/ch, 1.5 ton/ch, 1 Ton/ch Hanger Type)

Cutting Equipments

Billet Shearing Machine 1 unit, Circular Saw Machine 7 units, Band Saw Machine 4 units.

Mold Process Equipments

C.N.C Machining Center, C.N.C Lathe, Electric Discharge Machine, Miller, Radial Drilling Machine, Engraving Machine, etc.

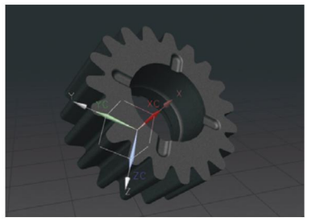
Testing &Inspection Equipment

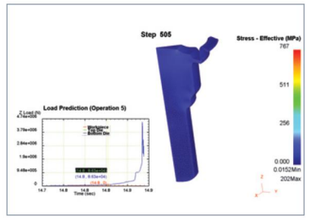
Main Factory

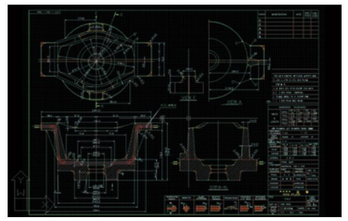
- Universal Material Tester
- Spectromrter
- Microscope
- Jominy Tester
- Muffle Furnace
- Brinell Hardness Tester
- Rockwell Hardness Tester
- EQUO Tip Hardness Tester
- Shore Hardness Tester
- Magnetic Particle Tester
- Ultra – sonic Tester
- Optical pyrometer
- Metascope

Busan Machining Division

- 3D Coordinate Measuring Machine
- Contour Measuring Machine
- Two-dimensional measurer
- Surface Roughness Tester
- Micro Vickers Hardness Tester
- Rockwell Hardness Tester
- Brinell Hardness Tester
- Metallurgical Microscope
- Precision granite surface plate stand







Specialized Items

Track Roller (Double Roller)

- Product name : Track Rollers used in the crawler type of heavy equipments
- Production line : 3500 ton and 4500 ton large press lines.
- Product size : Outer diameter up to 320mm, weight up to 60 Kg
- Technical features : The patented Open/Close Forging Method is applied to the red-marked part to form a depressed shape. This method saves material and process costs and increases product strength by forming grain flow lines.
  Patent name : A Forging System using Open and Close Type Mold.
  - A round mold is divided into 4 parts which form a concave part, and open and close using special springs by wider than the size of the concave to enable the product to be ejected.

Yoke Shaft (Drive Shaft)

- Product name : Yoke Shaft
- Production line : 5 inch , 7.5 inch Upsetter
- Product size : Max. gap between the horns 200mm, max. shaft length 1,000mm
- Technical features : Apart from the conventional process where primary rough forming is processed in an upsetter and then finished in a hammer forging machine, the entire process is completed by forging in the upsetter.
- Patent name : An upsetter mold and method which can form the yoke of long yoke shaft in a single process.
  Conventionally, U-shaped yoke and shaft are separately produced and jointed by friction welding. In the new method, the yoke is completely formed in a forging upsetter without need of further process.

Recoil Spring Yoke

- Product name : Recoil Spring Yoke
- Product shape : A forging having asymmetric profile
- Product size : Width 250-340mm, height 120-200mm
- Technical features : This product has been produced by casting, but now, by forging. The Recoil Spring Yoke is for excavators. The product has been produced by casting which inevitably undergoes low yield ratio of about 60% and high defect ratio of about 10%, and further, delivery would have to be delayed due to the problem in material supply.
  We have developed the forging process for this product, securing the stability of production in addition to cost saving, quality improvement, and short delivery lead time. The purchasing department of our customer has selected this one of their 6-Sigma improvement themes.

Near Net(Precision) Forging

- Product Name : Near-Net Shape Forged Gears of P/L & Sun Gear for Heavy Construction Equipment
- Shape of Product : Thinner and more detailed geometric features Closer dimensional tolerance.
- Production Equipments : 1600, 2500, 3500, and 4500Ton Hot Forging Press
- Work Scope : Module Size Minimum 5, Outer Diameter Maximum 200mm, Product Face Width between 100mm – 120mm
- Competitive Advantage Factors
  Forging Process : Reduce raw material weight and save energy post process cost
  Machining Process : Remarkably reduce machining time and tooling cost
- Technology Features : Metal flow line is formed at gear tooth; therefore it brings superior mechanical property. Flashless closed-die forging

Production Process

Raw material in-coming

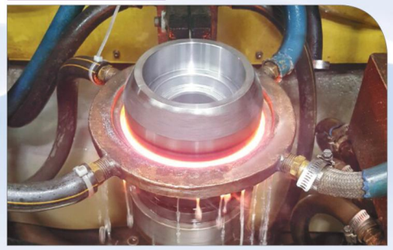
Cutting

Forging

Heat treatment

Machining

Heat treatment



Shipping

SINIL

Major Clients