한국소성가공학회 2005년도 춘계학술대회 논문집 pp. 353~366

2005 KSTP Spring Congress

2005. 05. 12-13

At GTIC in Korea

Latest Cold Forging

- Precision Forging -

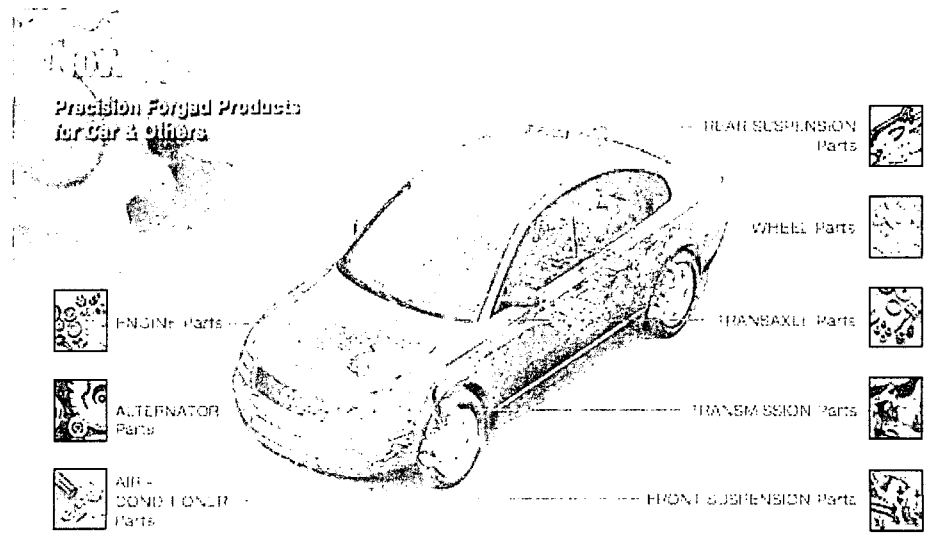
NICHIDAI Corp. JP

Corporate Adviser

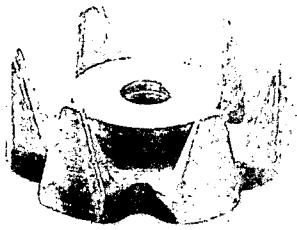
Hyoji Yoshimura

Automotive Parts

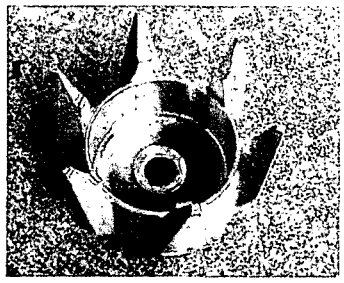
by NICHDAI Precision Forging Technology



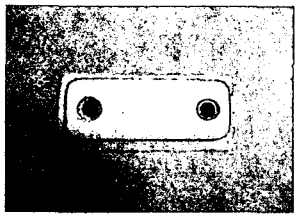
Alternator Parts



Pole-Alternator



Rotor core



Alternator shoe

Start Housing

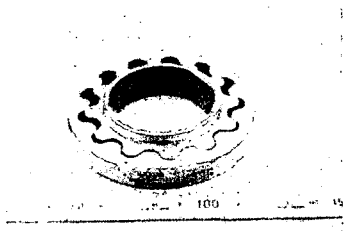
Start Pinion

3

Air-conditioner Parts

Scroll

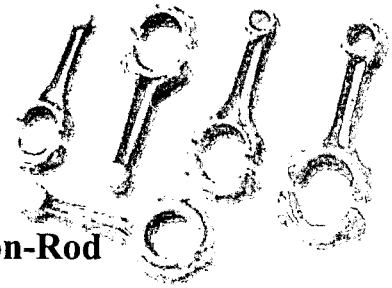
Piston



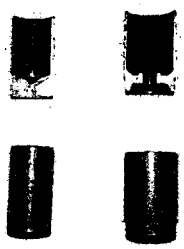
Rotor

4

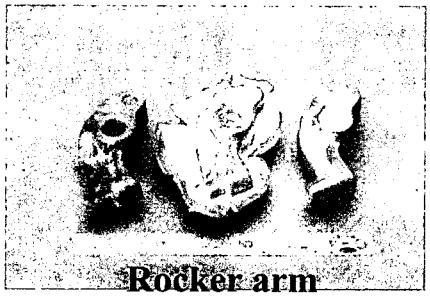
Engine parts



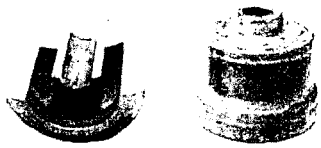
Con-Rod



Piston



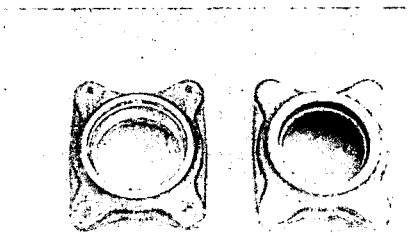
Rocker arm



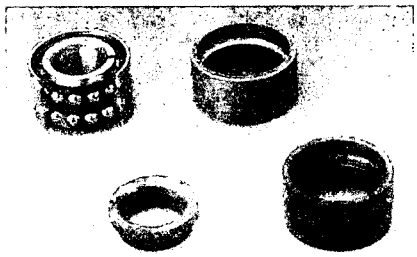
Valve

Rear suspension parts

Hub Flange



Hub



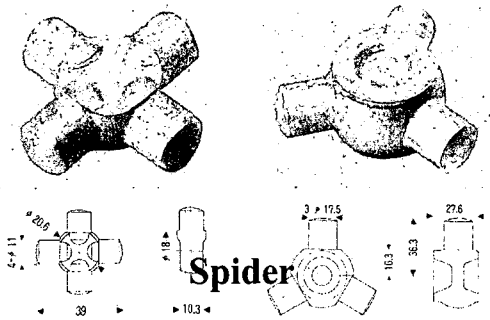
Hub Units

6

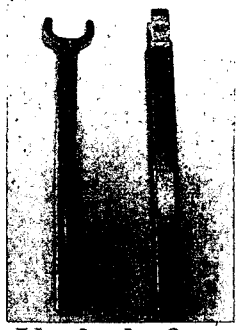
Trans axels Parts

Pinion

Impeller Hub

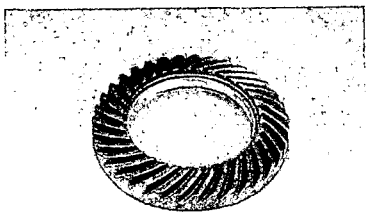


Spider



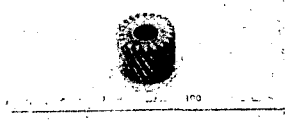
York shaft

Transmission parts

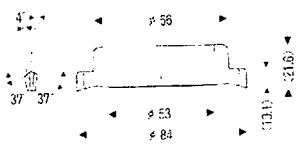


Impeller Hub

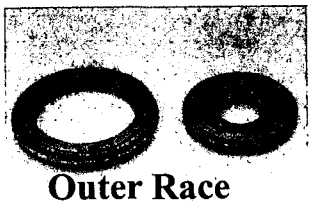
Helical Gear



Corn Clutch



AT Gear

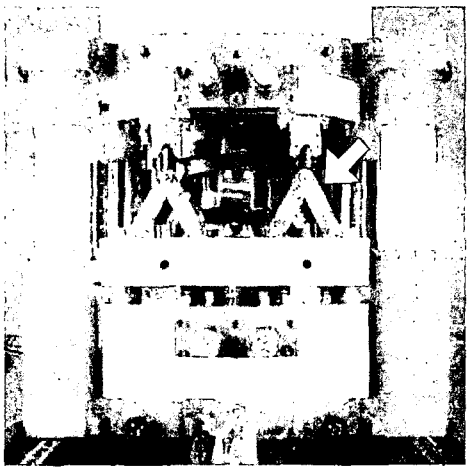


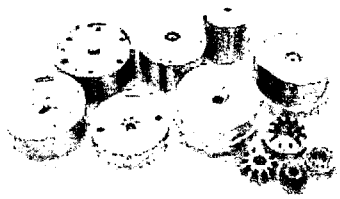
Outer Race

Gear Diff.

NICHIDAI Enclosed Die Set

With pantograph system





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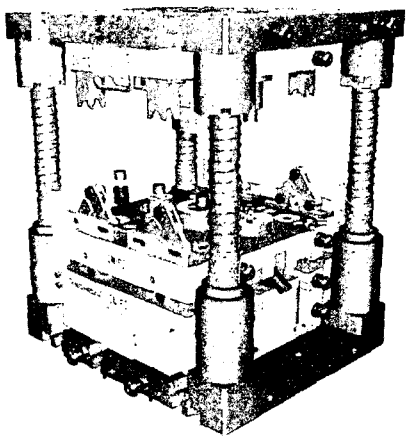
NICHIDAI Enclosed Die Set

With pantograph system



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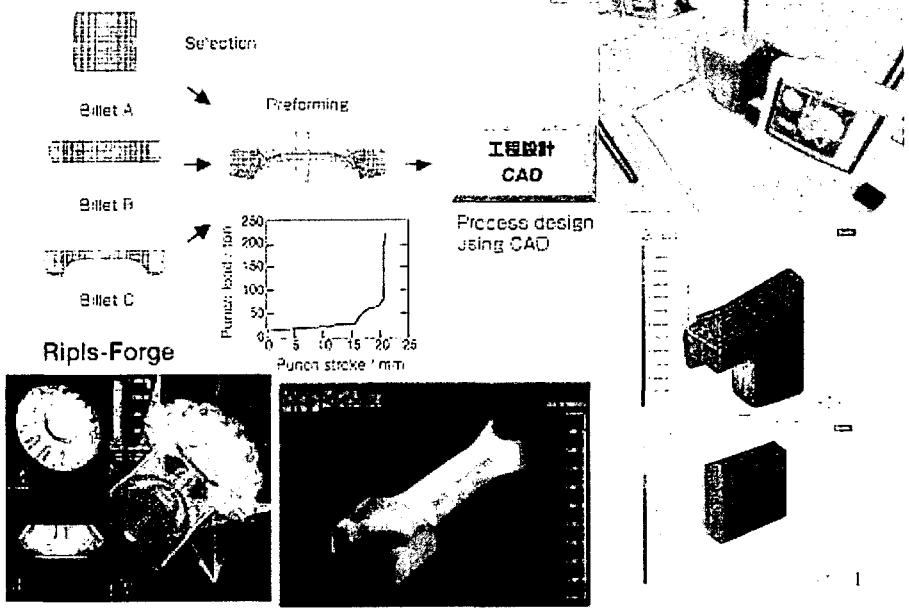
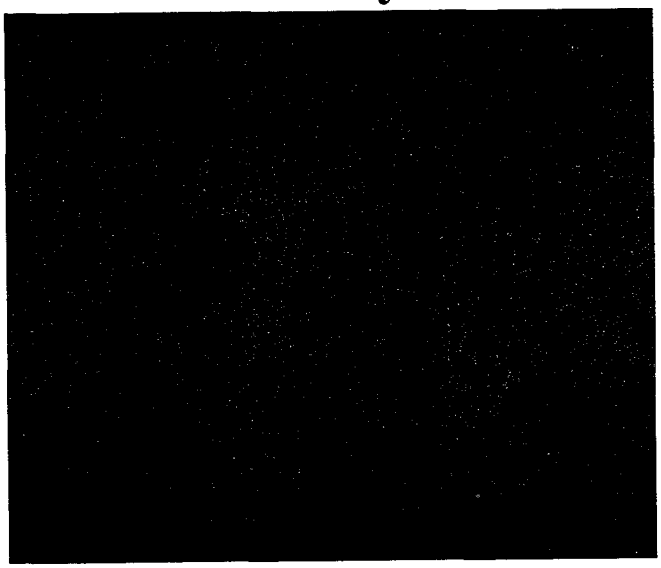
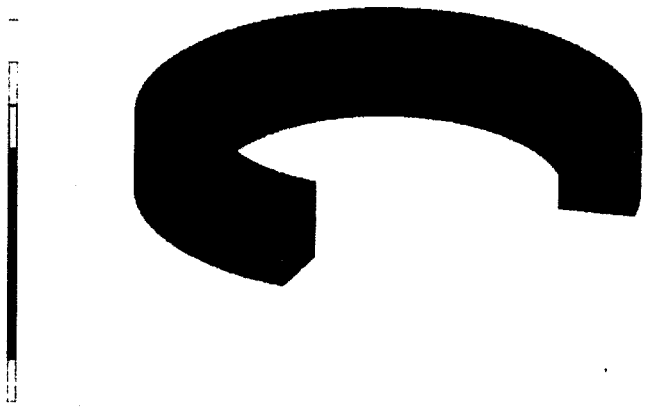
2,3D Analyzing Technology



NICHIDAI CAE technology
Bevel Gear 3D Analysis



Clutch 3D analysis



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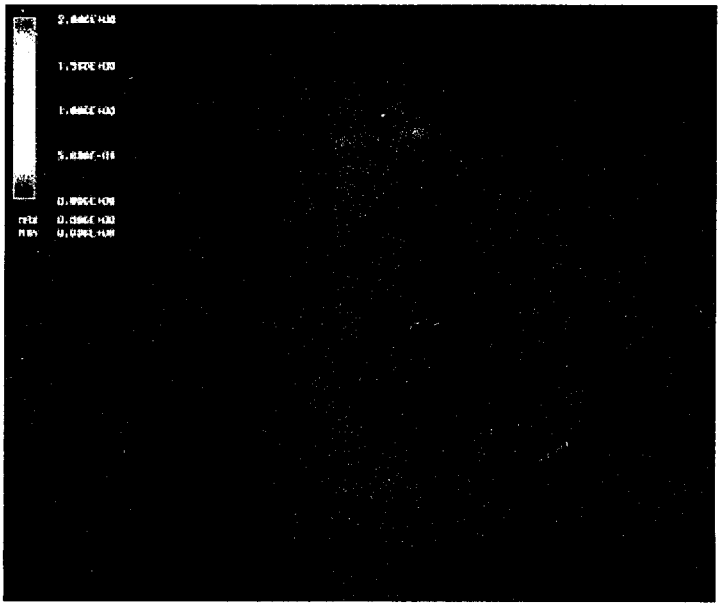
Case inner 3D analysis



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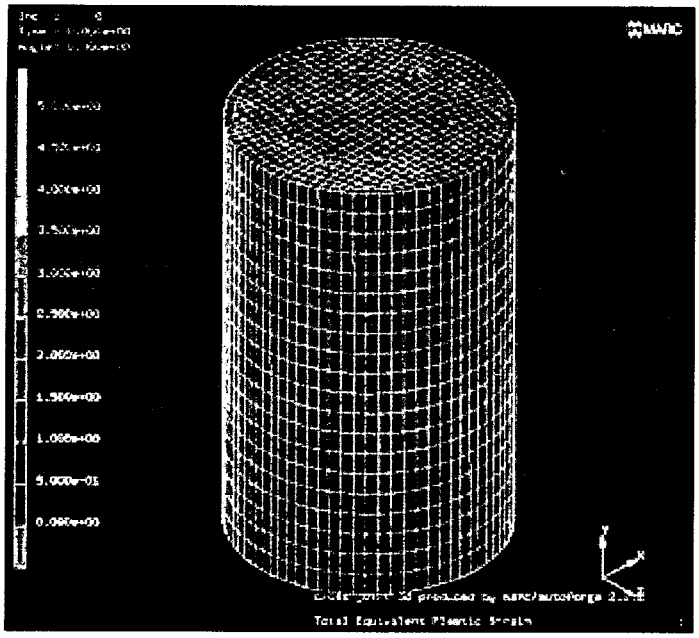
Spider 3D analysis



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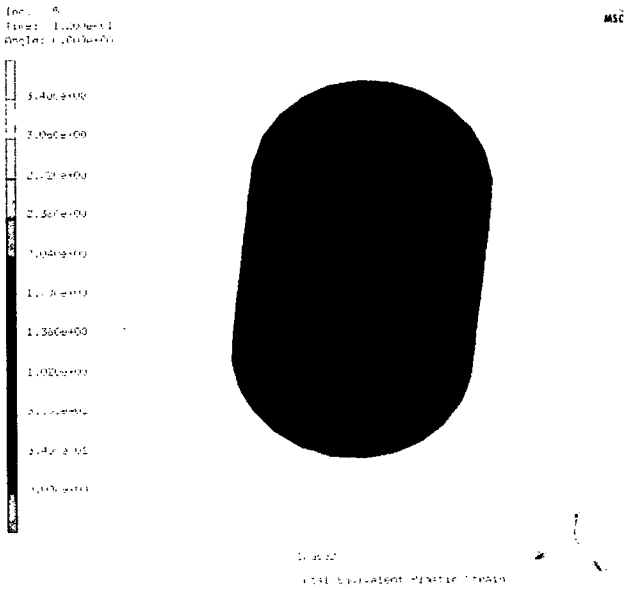
Tripod 3D analysis



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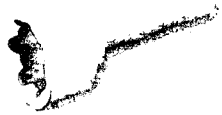
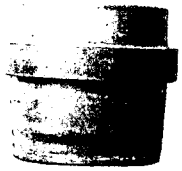
Precision Forged parts

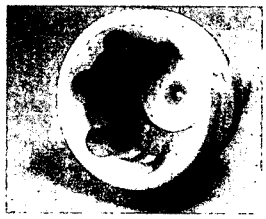
Cage steering



Inner race



Ball Housing



CV joint

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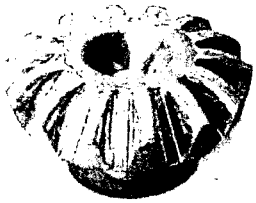
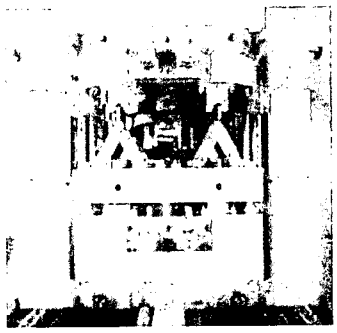
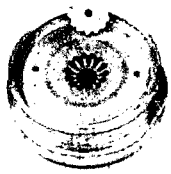
Bevel Gear Precision Forming technology



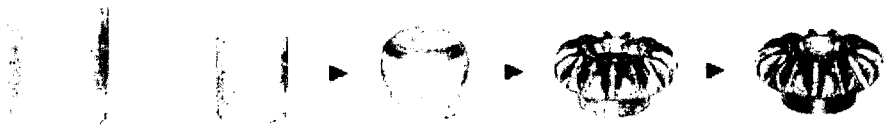
Forged Bevel



Enclosed Die set

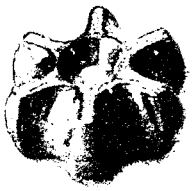


Die



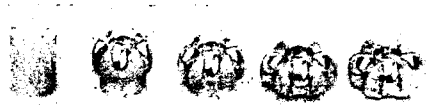
Billet

Inner Race
Precision forming technology



As Forged

Die



Forming process

CV Joint Assy.

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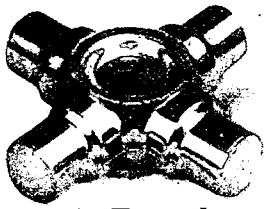
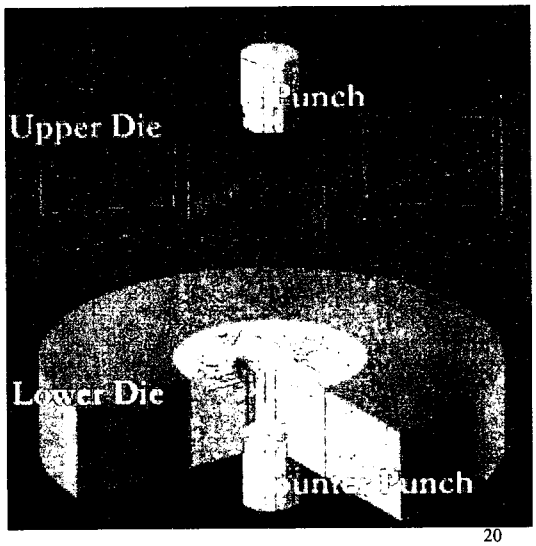
Spider
Precision forming technology



As Forged

Die



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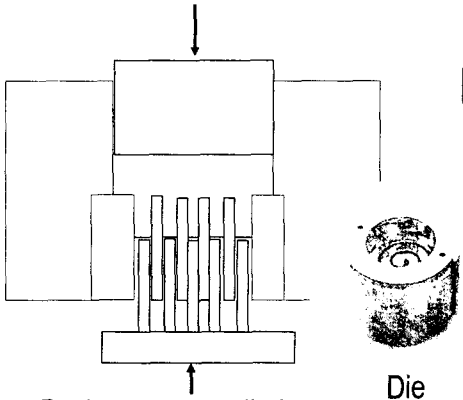
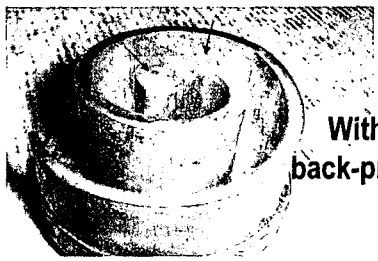
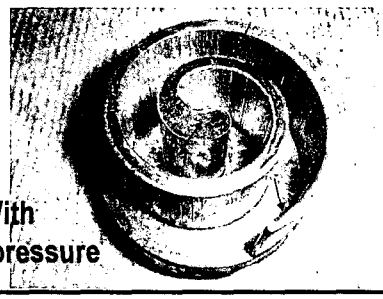
Examples of Precision Forging Components

•Extrusion forging with backpressure





Without back-pressure



With back-pressure

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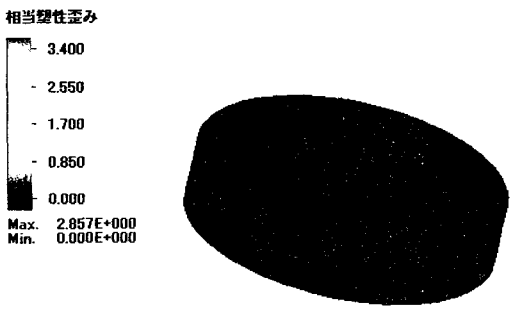
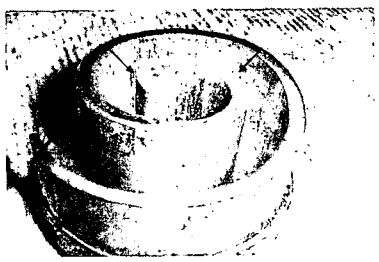
3D Analysis of Scroll Precision Forging (1/2)

•Extrusion forging without backpressure





Without back-pressure

0.00%

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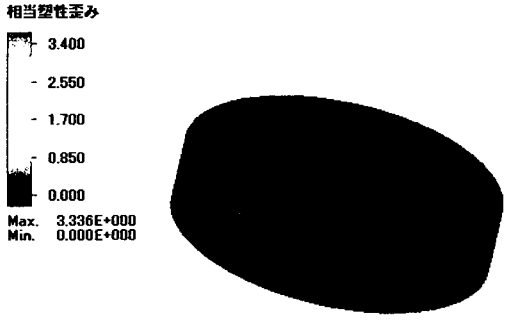
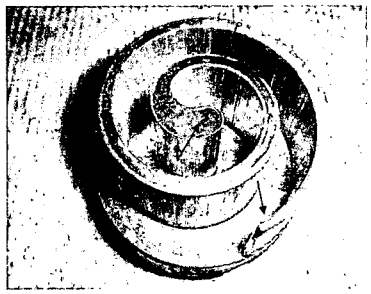
3D Analysis of Scroll Precision Forging (2/2)

•Extrusion forging with backpressure





With
back-pressure

0.00%

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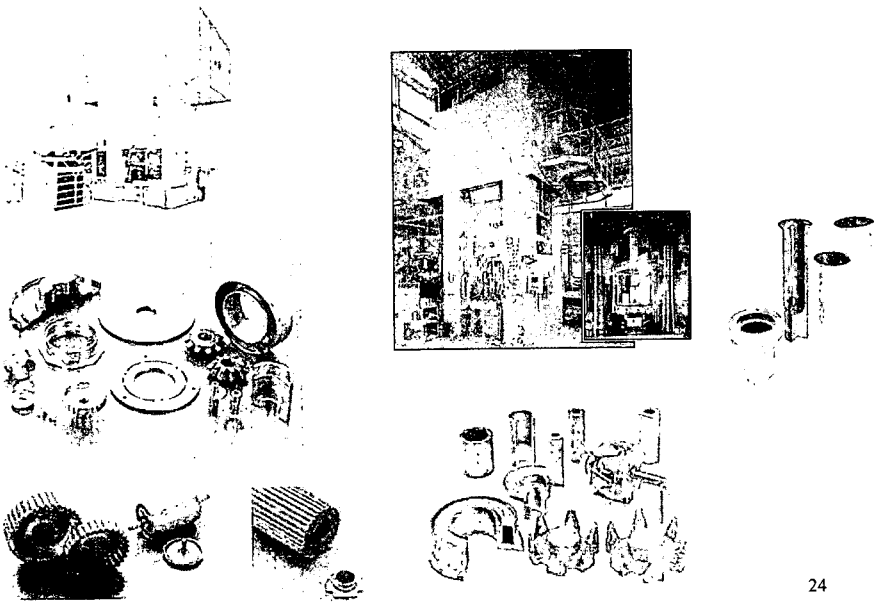
Cold forging press



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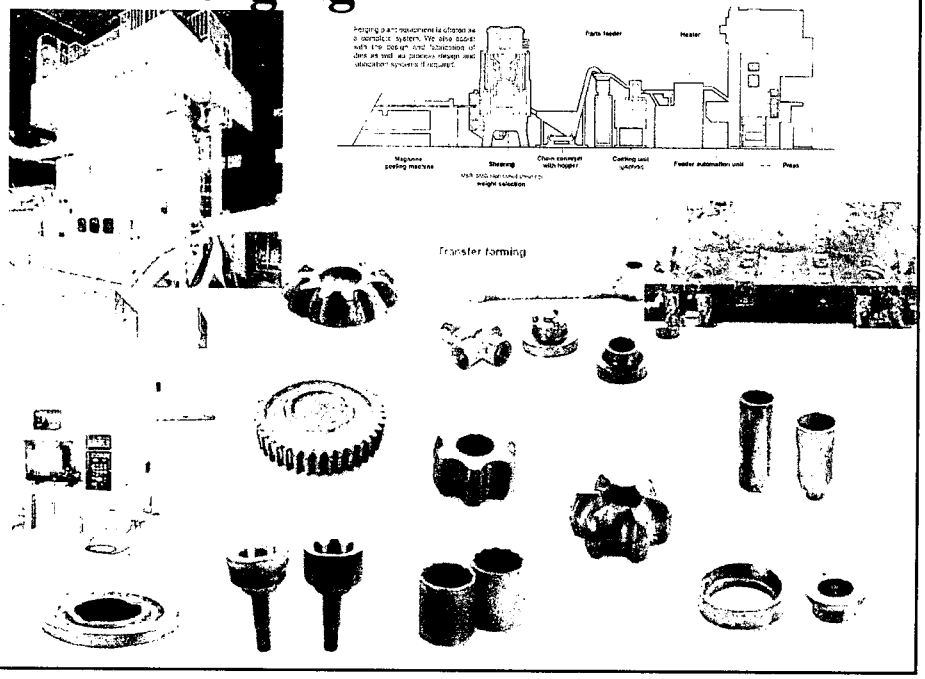
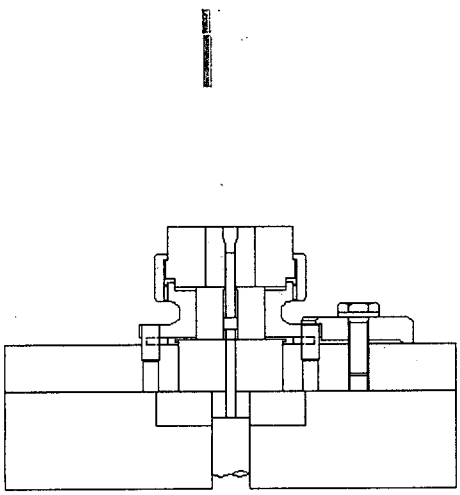
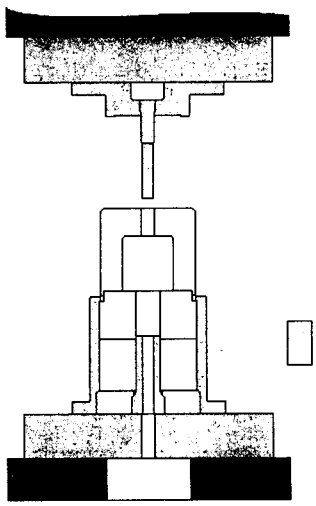
Warm forging



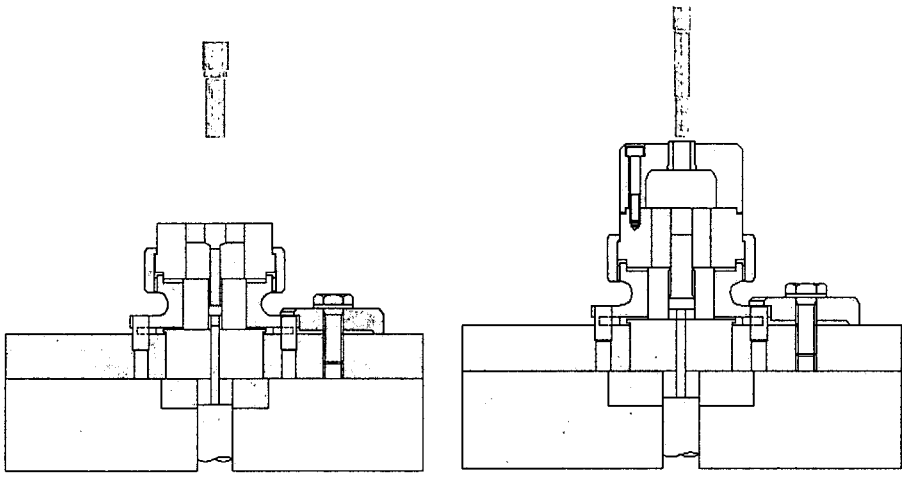
Ironing



Piercing



Extrusion



Forward Extrusion **Backward Extrusion**

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Total Forging solution

by NICHIDAI

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