



Challenge for Sustainable Growth:

Innovative R&D and Strategic International Sales Activities

Masahito Yamanaka
YAMANAKA ENG Co., Ltd.

Topics

■ Dies & Molds

- ✓ Trend of dies & mold business
- ✓ Introduction about forging dies

■ Yamanaka Eng

- ✓ General introduction

■ International Sales Activities

- ✓ Correspondence for deindustrialization in domestic market

■ R&D Policy to Explore New Business

- ✓ Introduction of recent development examples

■ Education & Training

- ✓ Excitement for everyone

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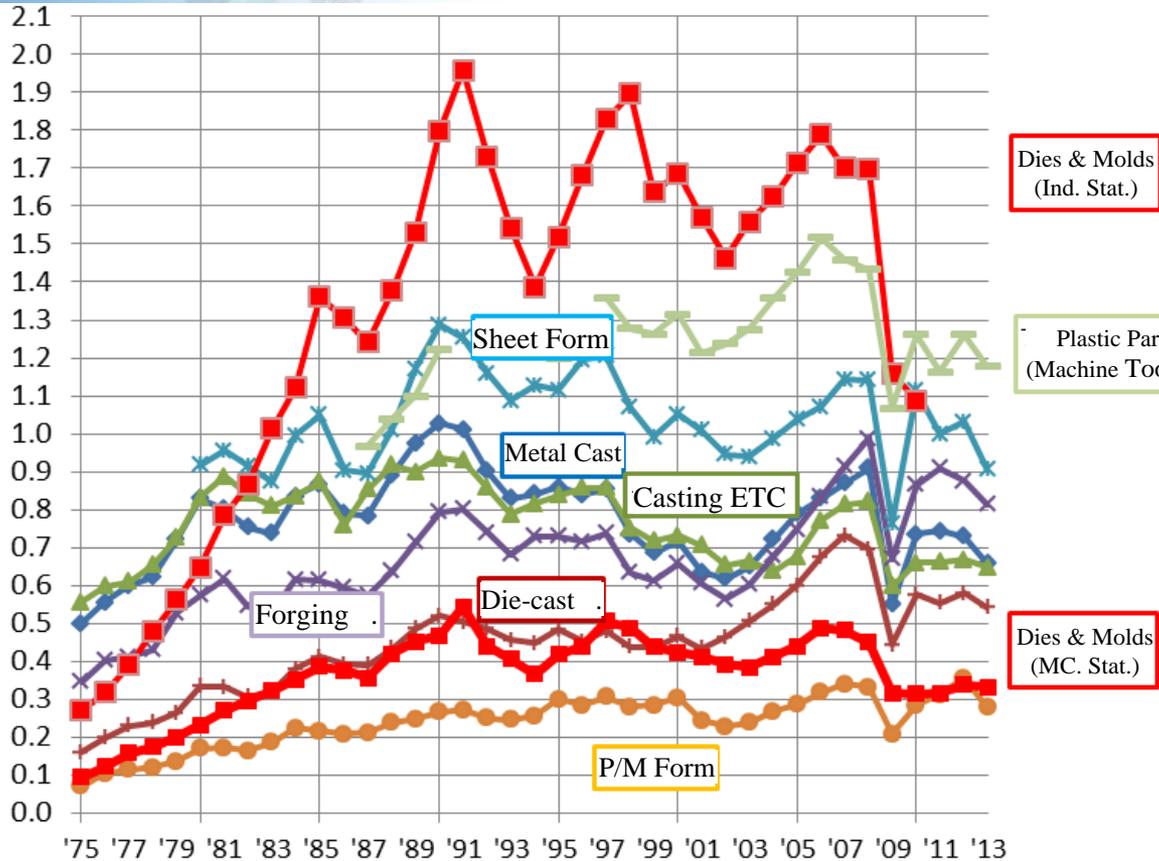
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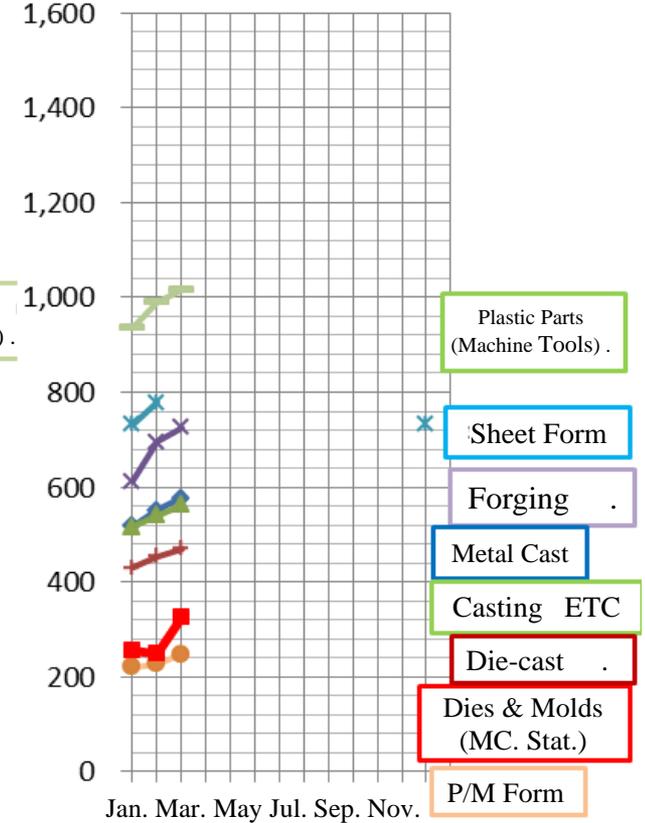
Market Size in Japan

Production Amount

10k
Billion Yen



100
Million Yen



From year book of machinery statistics and year book of current production statistics iron and steel, non-ferrous metals, and fabricated metals

Strong / Weak Points of Dies & Mold Industry

■ Mother Tool

- ✓ Dies & mold are known as the basis of manufacturing, essential items for new development and trials.

■ High Value Added Product, High Labor Cost Ratio

- ✓ Difficult to start-up the business even if sufficient investment is provided.
- ✓ Transferring from tacit knowledge to explicit knowledge (CAD, NC machines) is on-going actively.
- ✓ No sufficient amount of work → Easily going to excessive competition and deficit order

■ Small Companies

- ✓ Employee number: Less than 3: 53%, Less than 9: 78%, Less than 19: 89%, More than 100: 0.9%
- ✓ Industries having high technical ability to respond various, complex, and difficult needs
- ✓ Usually weak in management, sales, and R&D

■ High Unit Price Per Weight, Small-quantity Production

- ✓ Not only local production, also usually imported and exported
- ✓ Sheet metal forming: 1.5M Yen/ton, Die-cast: 3M Yen/ton, Plastic: 4M Yen/ton, P/M 13M Yen/ton

■ No Stock, Short Lead-Time → Unstable Order

Past

- High profit ratio 
- Difficult to make large companies 

Current

- Decreasing domestic market 
- Difficult to success in overseas market without any specialties
- Trend of major companies is local procurement based on globalization policy

Future

- Exhaustion of "Support industry"
→ Difficult to perform test trials and to develop new product in Japan 

Six Keywords Toward Future of Die & Mold Industry

New manufacturing companies having core technology of dies & mold manufacturing

Increasing Profit ratio

New facilities

Proper retained earnings

Choice of work

World class

1. Technology

- Technical improvement, R&D
- Manufacturing trial
- Government project (SAPOIN)
- Activities in related organizations (JSDMT, etc...)
- Constructing network including Industry Associations

2. Value of Product

- Parts forming
- Machining
- ETC

3. Human resource

- CEO collecting information using various networks
- Technical training for employee
- Career staffs for globalization & innovation
- Ex-employees

Technical improvement needs funding
→ **Catching the support chance is important in small companies**

4. Trade Practice

- Intellectual property rights
- New dies/mold = Assets
Modification = Cost
Lease = Cost
- PR activity: Not initial cost, but total cost

5. Appeal

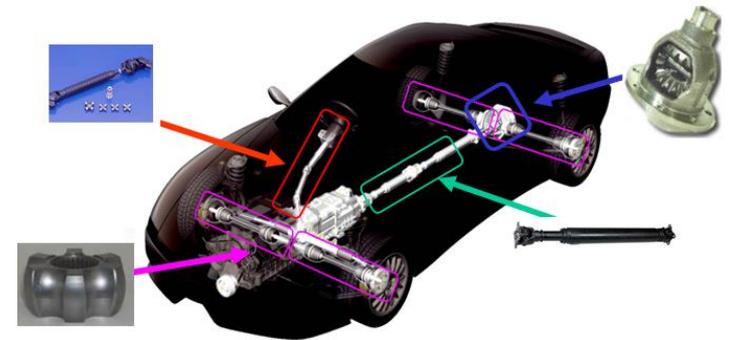
- Full-time sales staffs
- Investment for sales dept.
- Language skills
- Exhibitions (domestic/international)
- Effective use of internet

6. Globalization

- Sales activities in overseas
- Technical cooperation
- Production in overseas

What is Forging Process?

- Forging is a manufacturing process involving the shaping of metal using localized compressive forces. (From Wikipedia)
- Manufacturing “**KATANA**” (Japanese sword) is known as the origin of forging technology in Japan. Now, forging products are used in many fields, especially for the important safety related parts in many industries such as automotive, industrial machineries & tools, airplanes, ships.



Characteristics of Cold Forging Business

■ Short Lead-Time



✓ Usually less than 1 – 2 month



✓ Request for minimum stocks

■ Many Design Variables



✓ Difficult to adjust delivery date

■ Main Customer

✓ Automotive industries

■ Niche Industry

■ Completely Order Receiving Type Business

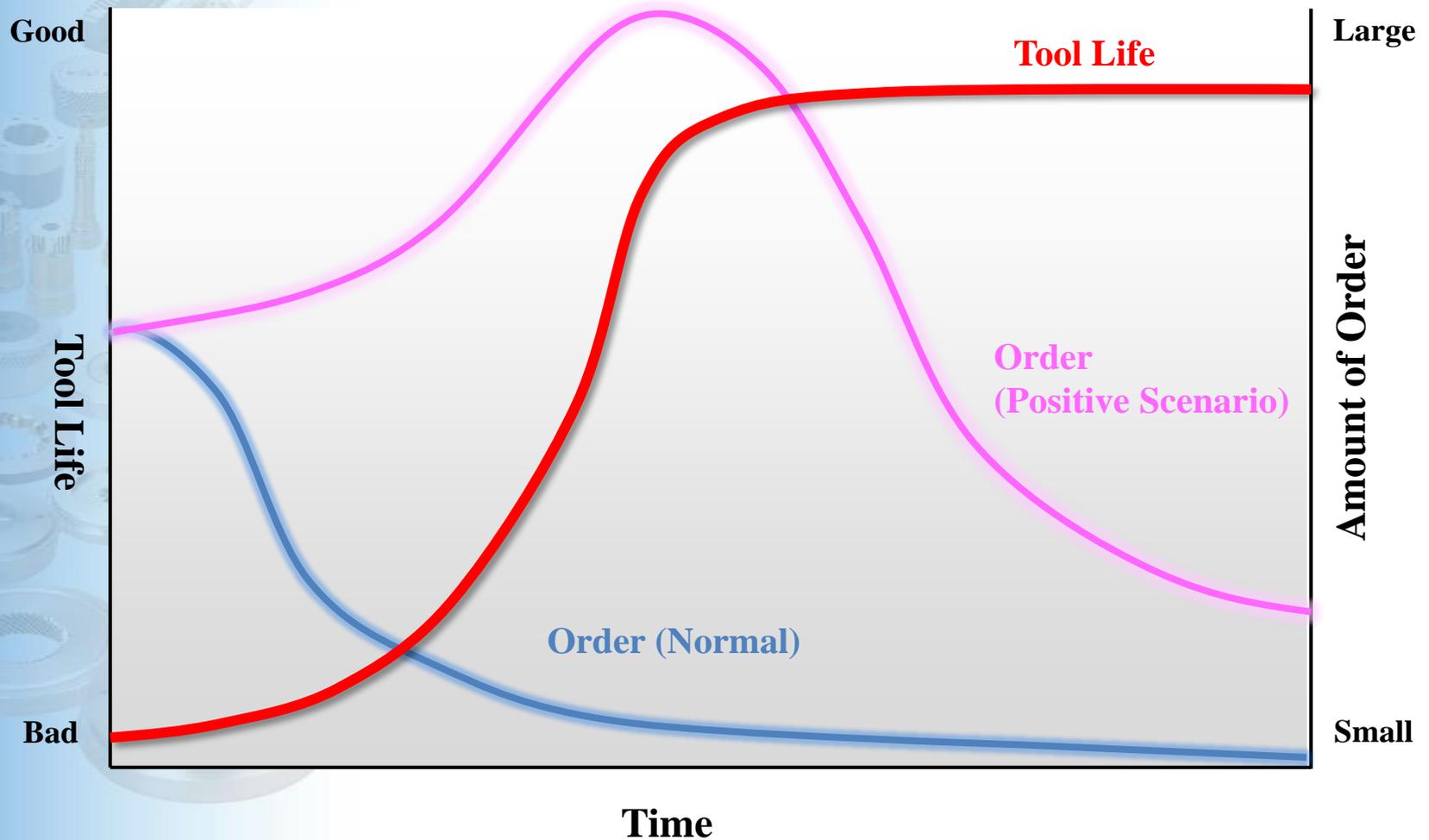


✓ All unique products → Difficult to standardize



✓ Usually, 10k – 100k of tool life → Repeated order

Relationship between Tool Life and Amount of Order



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■ R&D Policy to Explore New Business

- ✓ Introduction of recent development examples

■ Education & Training

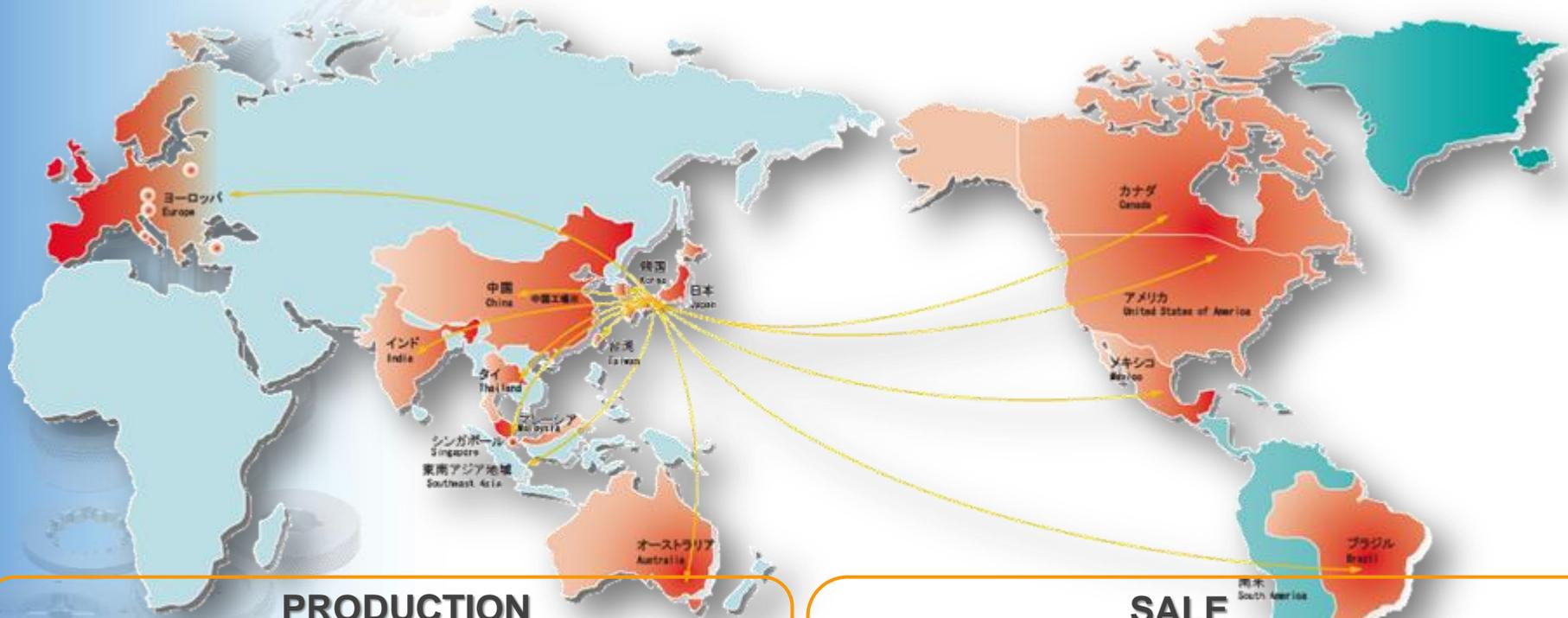
- ✓ Excitement for everyone

Company Profile

Name	Yamanaka Eng Co., Ltd
Establish	February, 1961
Formal start	July, 1966
Capital	85 million JPY
President	Masahito Yamanaka (as board of director)
Employees	230 persons
Products	Enclosed fold forging tools, warm, hot forging tools
	Tools for metal powder and composite molding
	Simulation analysis software (general deform processing, heat treatment, cutting)
	Additional components for press machine Mass production
Headquarters' address	〒578-0901 4-24 4-chome, Kano, Higashiosaka, Osaka TEL(072)962-0676 FAX(072)960-2545
Oversea	【Singapore】 Yamanaka FormTeQ PTE,LTD
	【China】 YEG TECH (Ningbo) Co., Ltd
	Yamanaka Moulding & Tooling (Ningbo) Co., Ltd
	【Thailand】 OEI YAMANAKA Co., Ltd



Export & Oversea Related



PRODUCTION

- ▶ YEG TECH (Ningbo) Co., Ltd
39 KEJIDADA0, NINGHAI INDUSTRIAL ESTATE NINGBO CHINA
- ▶ Yamanaka Moulding & Tooling (Ningbo) Co., Ltd
39 KEJIDADA0, NINGHAI INDUSTRIAL ESTATE NINGBO, CHINA
- ▶ OEI YAMANAKA Co., Ltd (Thailand)
18/18 Mu.11 T.Bangsaothong A.Bangsaothong Samuthprakam
10540.THAILAND

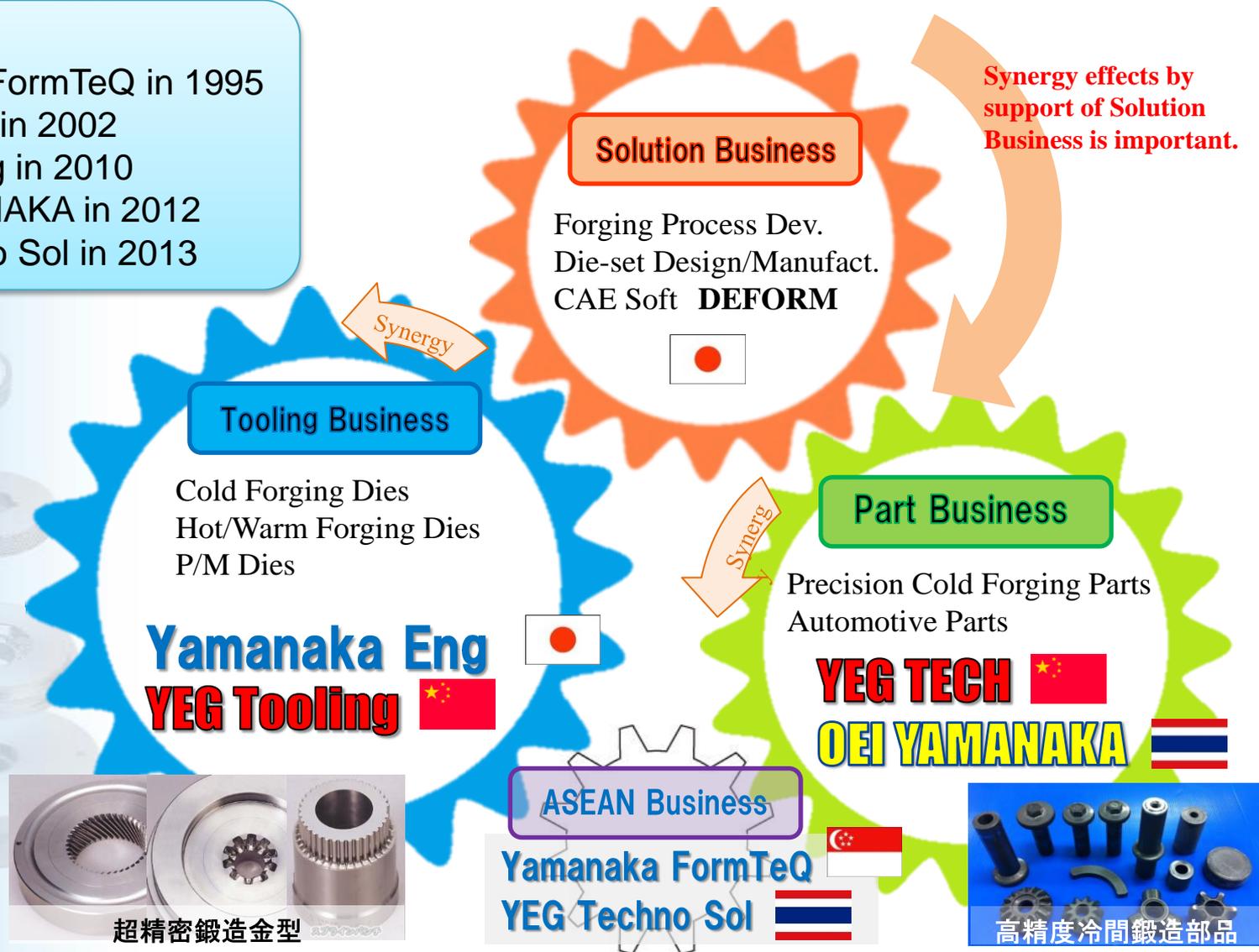
SALE

- ▶ YEG Techno Sol Co., Ltd.
29 Bangkok Business Center Building, No.1107, Sukhumvit 63 Road,
Khwaeng Klongton Nua, Khet Wattana Bangkok THAILAND 10110
- ▶ Yamanaka Form TeQ PTE.,LTD (Singapore)
194,Pandan Loop,#07-24,Pantech Industrial Complex
- ▶ Shanghai Sale Office
Room 204, No. 1 Hanhe Garden, Lane 1389 DongXiu Road,
Pu Dong District, Shanghai, P.R. China

Business Strategy

Establishing

- ✓ Yamanaka FormTeQ in 1995
- ✓ YEG TECH in 2002
- ✓ YEG Tooling in 2010
- ✓ OEI YAMANAKA in 2012
- ✓ YEG Techno Sol in 2013



What Is Solution Business?



User's Satisfaction

Production Management System

Verification

YPMS

Design Assist System

Manufacturing

YDAS

Dies Design

Precision Mfg. Facilities

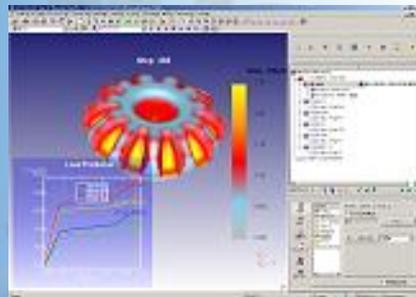
Trial Presses



1600 ton



1200 ton Servo Press



DEFORM

Process Design



Consulting

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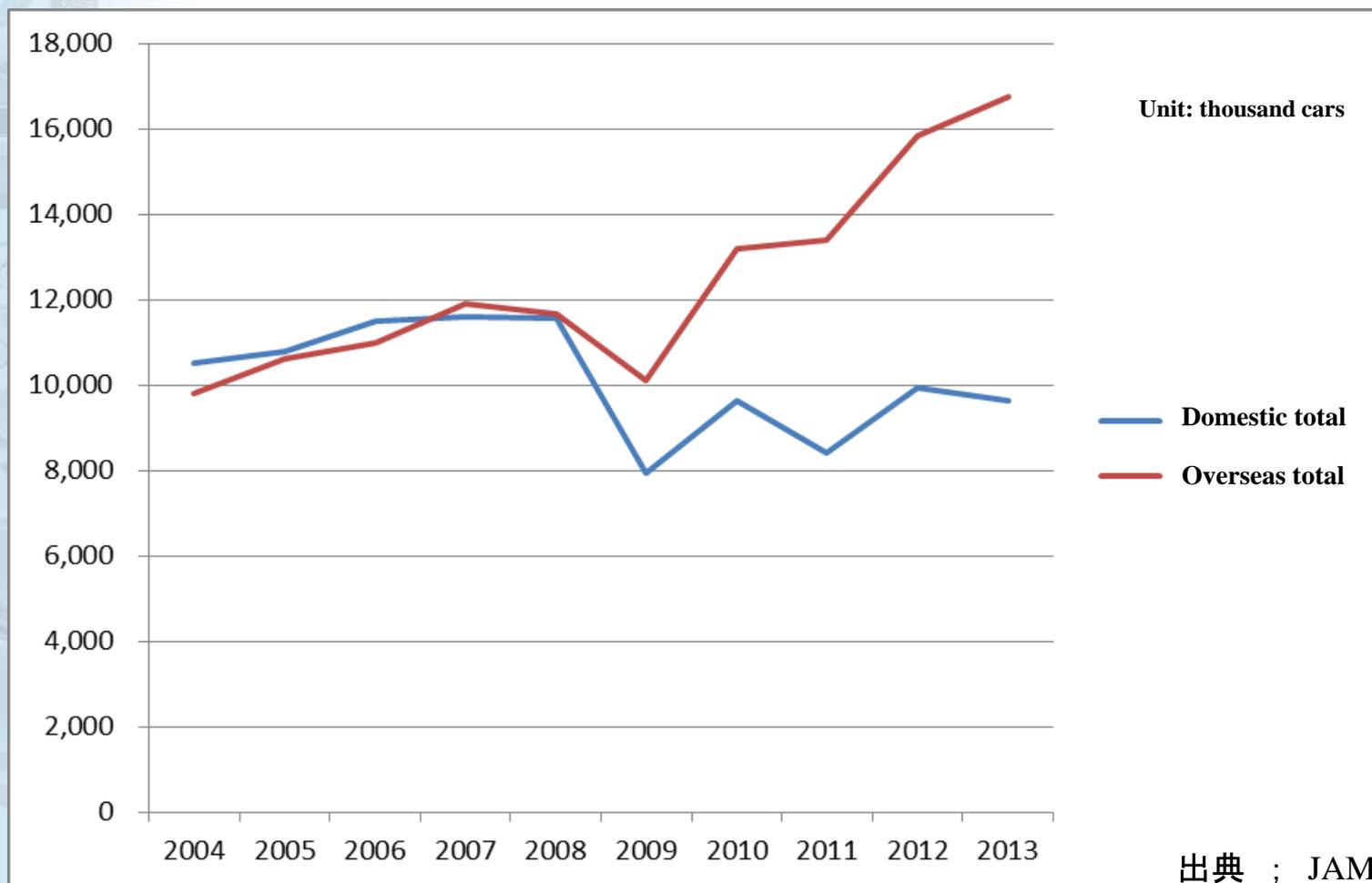
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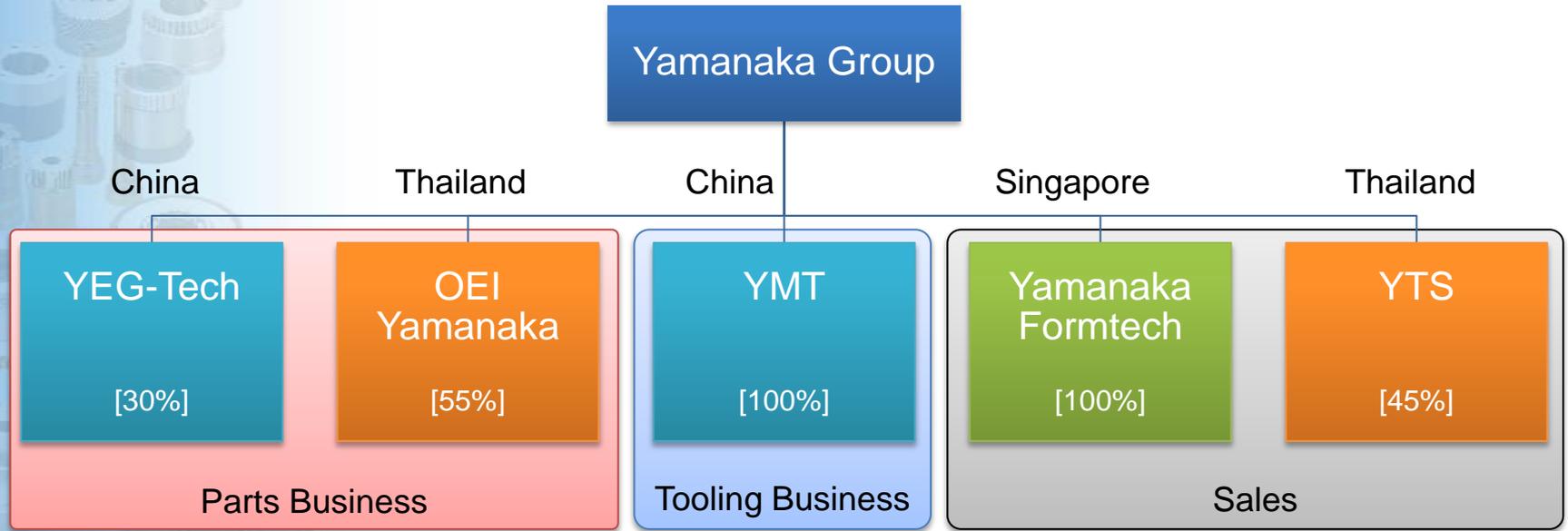
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Why Should We Go Outside?

■ Trend of Automobile Production by Japanese Car Makers



Yamanaka Group



Joint Venture

Yamanaka Group



YEG-TECH (China)



YMT (China)



OEI-YAMANAKA (Thailand)



Important Points for Globalization

■ Consideration of Policy

- ✓ Expanding overseas business
→ Expanding domestic business

■ Specifying Details

- ✓ Joint venture or full ownership?
- ✓ Reliable partner?
- ✓ Similar company philosophy?
(Working style, 5S, training, payment...)
- ✓ Making environment to withdraw easily
(Light management style)

Advantage & Disadvantage of Joint Venture

■ Advantage

- ✓ Advantage on personnel management
- ✓ Pipe-lines in local government and industrial organizations
- ✓ Reducing time for start-up
- ✓ Supply based on local price

■ Disadvantage

- ✓ Time consuming to make a decision
- ✓ Possibility to have any trouble concerning money

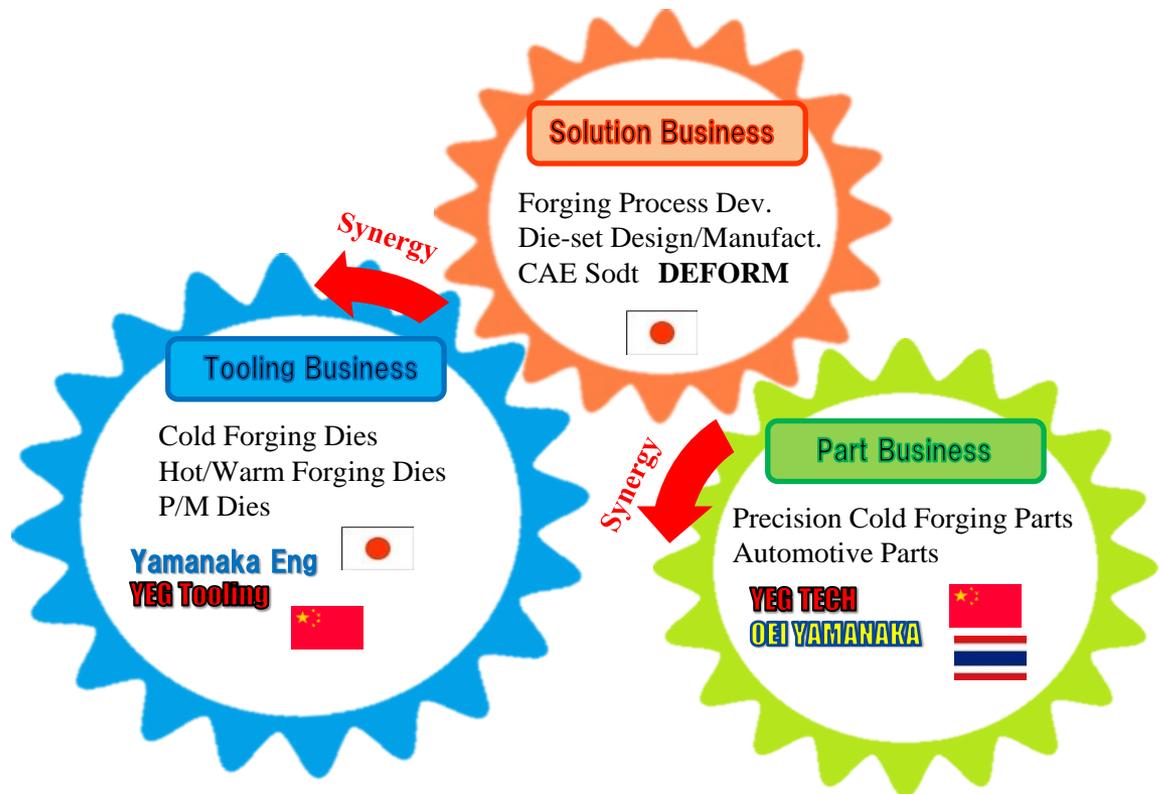
Important Issues in Joint Venture

- Visualization of Management Status ← KPI
- Mutual Exchange in Various Manner (WG or Owner Meeting) ← Golf
- Clear Division of Roles (Execution/Observation)
- Making Environment for Open Discussion



Important Issues in Globalization for Future

- Unfolding Business Actively Based on Strategy
- Digging-out Local Partners
- Training of Management Members



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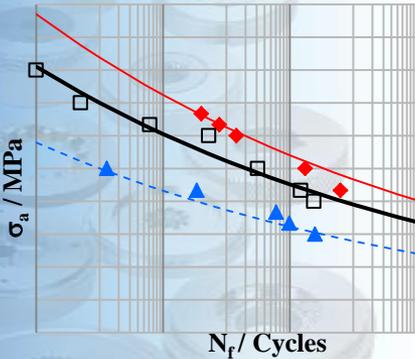
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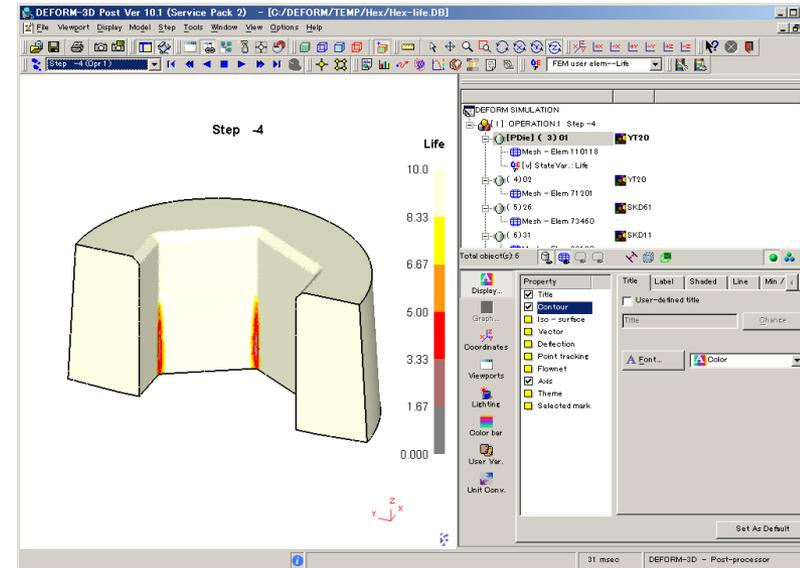
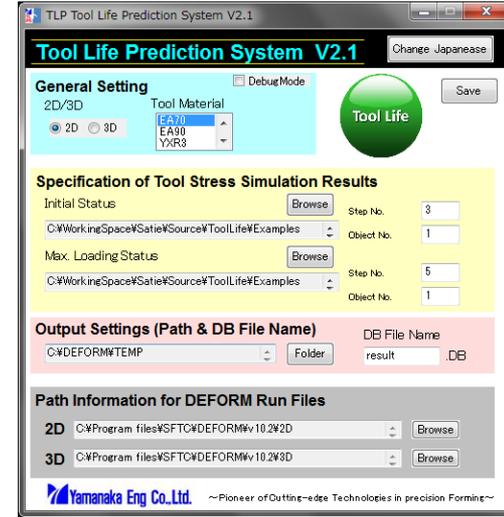
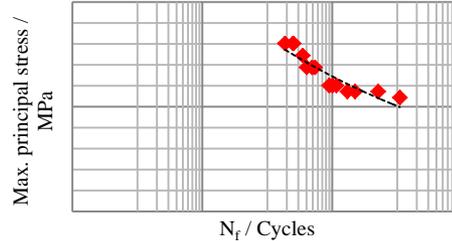
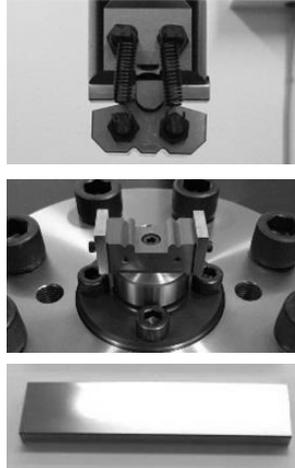
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Tool Life Prediction System

Axial Tension Compression Test



4-point Bending Test



Possibility of Servo-press

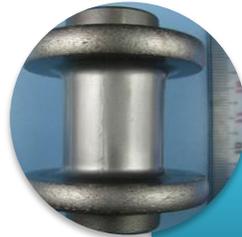
- Collecting accurate flow stress data
- Improving simulation accuracy
- Improving robustness of DOE study
- Improving simulation efficiency for multiple simulations

Servo-press



CAE

Innovative forging process



Complex geometry

- NSM
- Unification



Formability Control

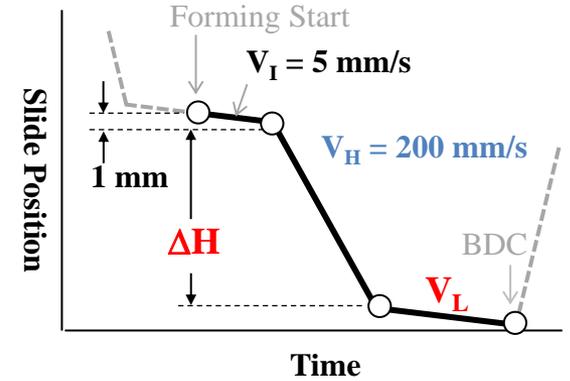
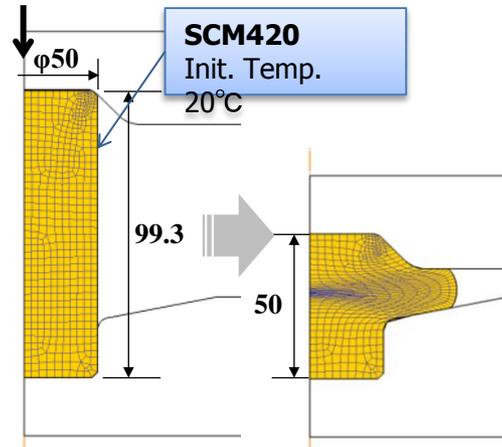
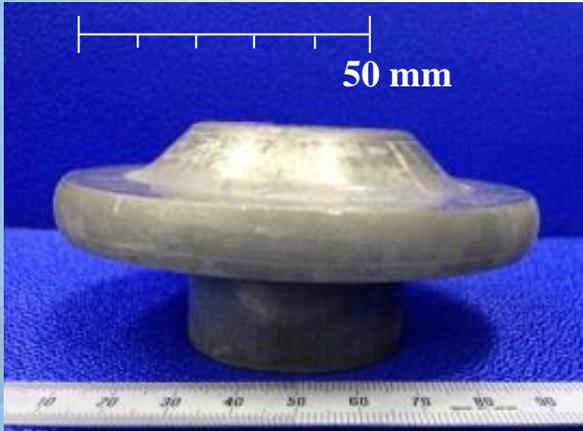
- Load reduction
- Mg/Al/Ti Alloys



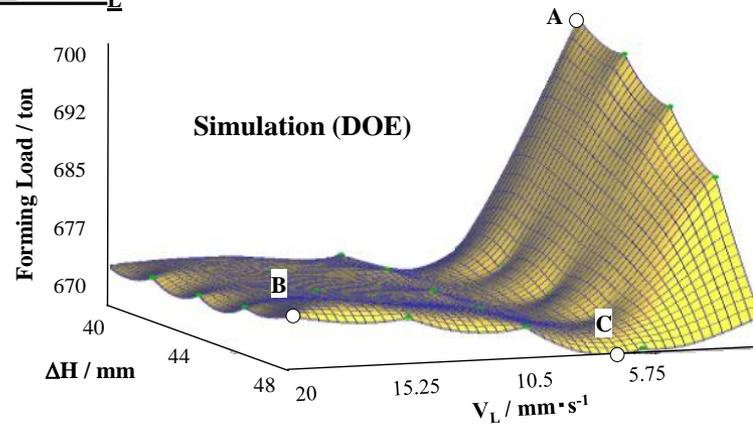
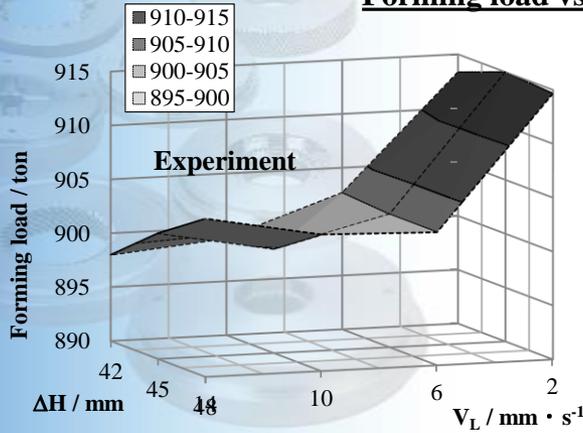
Precision Gear Forming

- Tooth surface control, Crowning
- High precision helical gear

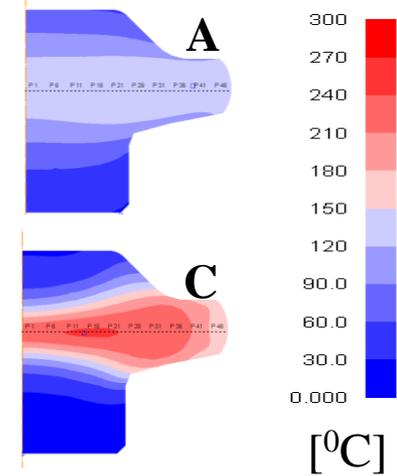
Servo-press: Forming Load Reduction in Pulley Upsetting Process



Forming load vs. ΔH & V_L



Temperature dist.



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Principle of Training

**Most important mission of
manufacturing company is
“Human Resource Development”**

*“Human” transfer, develop, and innovate the
technique, which is most important value of
manufacturing company.*



Growth of Members = Growth of Company

Management using individual strong points

**Training is…
→ Learning Together**

Training System

Target	Newly-Hired	Newbie (2nd - 4th year)	Veteran (more than 5 years)	Candidate for Next Leader	Management	
					Team Leader	Group Leader
Skill	<ul style="list-style-type: none"> Basic knowledge Basic performance Moral Business manner 	<ul style="list-style-type: none"> Practical knowledge Performance Spontaneous activity Training & learning 	<ul style="list-style-type: none"> Expert knowledge Performance (complete) Spontaneous activity Training (Newbie) 	<ul style="list-style-type: none"> Potential for leader Problem analyzing Management Training 	<ul style="list-style-type: none"> Potential for GL Problem solving Coaching Teamwork Progress management 	<ul style="list-style-type: none"> Management ability Evaluation/Training Strong motivation for accomplishing goal Decision making Leadership
Stratified Training Program	<p>Orientation</p> <p>ELDER System</p> <p>Follow-up Training</p> <p>MBO Program</p> <p>OJT</p>			<p>Coaching</p>	<p>Leader Training</p>	<p>Management Training</p>

Training by Skill Types		Self-Development	
<ul style="list-style-type: none"> Sales Staff Training Inside Training 	<ul style="list-style-type: none"> Sales & Health Training Quality Control Training 	<ul style="list-style-type: none"> Skill Test Correspondence Course 	<ul style="list-style-type: none"> Seminar (Inside/Outside) Acquisition of Qualifications



*Thank you
for your Attention!*
감사합니다!
ありがとうございます!

 **Yamanaka Eng Co., Ltd.**

