DYM CO., LTD.

Plain Bearings: A Global Leader

DYM bearings allow for optimized performance in a broad range of rotating equipment with unmatched knowledge and experience.

The best support in your business.





Index

HISTORY

DYM ORGANIZATION NX9 MODEL BASED MANUFACTURING

OVERALL CAPACITY ENTERPRISE RESOURCE PLANNING SYSTEM

QUALITY MANAGEMENT SYSTEM/ CERTIFICATES POINT OF PRODUCT SYSTEM

CERTIFICATE OF APPROVAL MANUFACTURING PROCESS

CUSTOMERS MANUFACTURING LEAD TIME

INNOVATION WEBSITE – WWW.DYMBRG.COM

MAIN FACILITIES

● MARINE DIESEL ENGINE PROJECT EXPERIENCE : 1981 ~ NOW

• POWER PLANT PROJECT EXPERIENCE: 1989 ~ NOW

● REDUCTION GEAR & COMPRESSOR EXPERIENCE: 1986 ~ NOW

• STEEL PLANT PROJECT EXPERIENCE: 1986 ~ NOW



STEEL PLANT



HYDRO



MARINE

1981



NUCLEAR

1989



THERMAL

1990



GEARBOX

1995



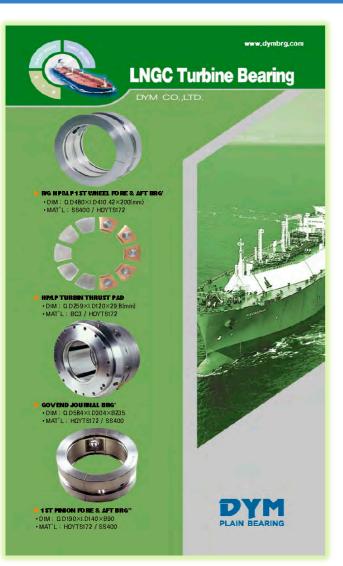
GAS TURBINE

2014



- 1981 Established the company named "DONG YANG METAL IND.CO., LTD." in Young-do, Busan, Korea. JUNE 1, 1981.
- Localized the Tilting Pad Journal Bearing for the Centrifugal Compressor (32,000 RPM) and delivered to POSCO.
- 1987 Manufactured White Metal Bearing for the Engine (RTA84C, 54,000HP) of the Project APL #1 ~#5, delivered to HSD(EX.HANJUNG).
- 1989 Localized Turbine and Generator Bearing for Nuclear Power Station and delivered to DOOSAN (EX.HANJUNG).
- 1991 Built the second workshop in Dadae-dong, Busan, Korea.
- 1994 ISO 9002, Approved by DET NORSKE VERITAS Q.A.
- 1997 Qualified by FUJI Electronic, Japan as a Bearing supplier





Developed the Tilting Thrust and Journal Bearing for Turbo-Chiller. (LS MTRON) **Developed the Tilting Pad Journal Bearing for Centrifugal Compressor. (SAMSUNG TECHWIN)** 7FH2 Bearing and delivered to DOOSAN. (EX.HANJUNG). Developed Sleeve Bearing (MHI Model) 39" & 42" for POSCO. Qualified by GE Power systems, U.S.A as a Steam Turbine & Generator Bearing supplier. Qualified by GE Oil & Gas Nuovo Pignone, Italy as a Centrifugal Compressor Bearing. Qualified by POSCO, Korea as a shell & Sleeve bearing supplier.

Qualified by MAN B&W, Denmark as a Thin Shell Bearing supplier.





- 2003 Qualified by HITACHI, ltd. Power Systems, Japan as a Bearing supplier.
- 2004 Qualified by TOSHIBA Corporation, Japan as a Generator Bearing supplier.
- **2004** Qualified by SEISA Gear LTD, Japan as a Thrust Pad Bearing supplier.
- 2004 Qualified by Mitsubishi Heavy Industries, LTD. Japan as a MET Turbo Charger Bearing supplier.
- 2004 Qualified by GE Power systems, USA as a 390H type Endshield Generator Bearing and delivered to Harbin electric machinery Harbin China.
- 2004 Qualified by HITACHI NICO, JAPAN as a Bearing Supplier
- 2005 Certified by BV as a White Metal Bearing for internal Combustion Engines.
- 2005 Qualified by GE Power systems, USA as a 330H type End shield Generator Bearing.
- 2007 Contract with FORMOSA for Gear Shaft Bearing in Taiwan for GE.

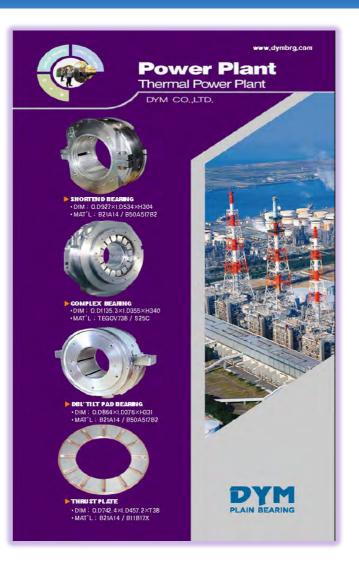




2007 Supplied Thrust Plate for Nuclear Power to Nuclear Power Corporation India Limited. Qualified by GE for Gas Turbine Accessory Gear Unit, USA as a Gear accessory bearing. Qualified by SIEMENS, GERMANY as a Steam Turbine Bearing. **Qualified by GE, Large Steam Turbine Generator Bearing** Qualified by TOSHIBA for all of Nuclear Metal Bearing supplier. 2010 ISO 14001, OHSAS 18001 Approved by DET NORSKE VERITAS Q.A Supplied OM-1 PROJECT Bearing for Nuclear Power to Toshiba. Qualified by MITSUBISHI ELECTRIC, Japan as a Generator Bearing supplier.



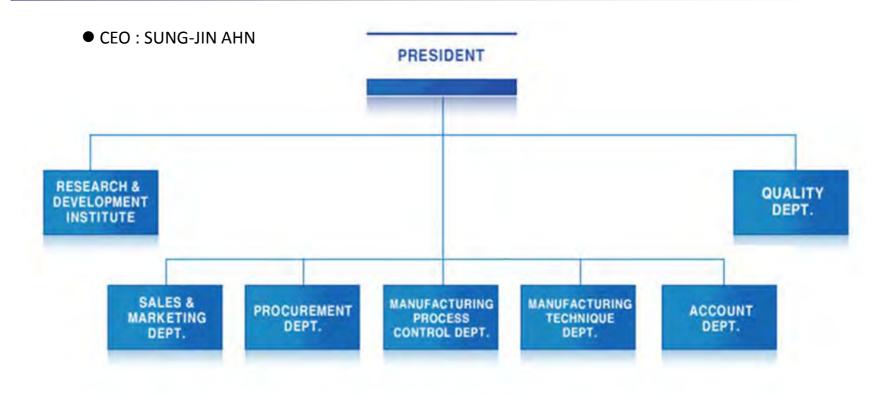
Qualified by ALSTOM, FRANCE as a Nuclear bearing supplier.



- 2011 Supplied AP1000 Bearing for Nuclear Power to Toshiba.
- **2012** Qualified by GE, 9E Gas Turbine Bearing.
- 2013 Qualified by GE, 7EA Gas Turbine Bearing.
- 2013 Qualified by GE, Packing Casing & Packing Head.
- 2013 Supplied Generator Seal Rings for Andritz Hydro.
- 2013 Supplied Journal Bearing for Steel Plant to BHEL.
- **2013** Supplied Main Bearing for Marine engine to BLOHM + VOSS.
- **2014** Approved by GE to manufacture Hardware
- 2015 Supplied High speed bearing for steam turbine to Larsen & Turbo in India.



DYM Organization



Number of Employees: 50 (Office 18 / Workshop 32)

Quality Management System

QUALITY SYSTEM

SIX SIGMA

ISO 9002 CERTIFIED BY DNV IN 1994

ISO 9001;2008 CERTIFIED BY DNV IN 2003

ISO 14001;2004 CERTIFIED BY DNV IN 2010

OHSAS 18001;2007 CERTIFIED BY DNV IN 2010



TECHNICAL SUPPORTING FIRMS KIMS (KOREA INSTITUTE OF MATERIALS SCIENCE)

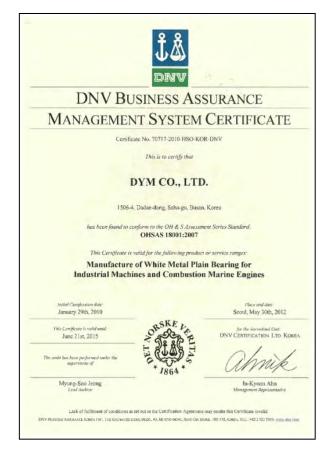
KTA (KOREA TECHNOPARK ASSOCIATION)

KTR (KOREA TESTING & RESEACH INSTITUTE)

BUSAN NATIONAL UNIVERSITY (MECHANICAL ELEMENT DESIGN LAB)

ECKA GRANULES® - SUPPLIER OF WHITE METAL INGOT

Quality Management Certificates

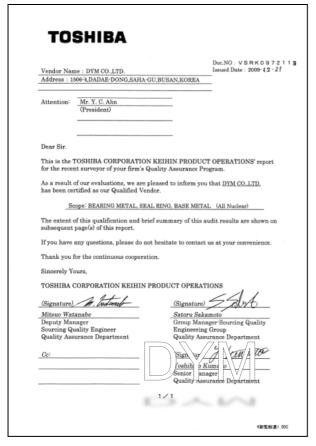






<OHSAS 18001> <ISO 14001> <ISO 9001>

Certificate of Approval







<TOSHIBA Corp>
(ALL NUCLEAR)

<MHPS>
(ALL BEARING)

<Korea Hydro &
Nuclear Power Co.,Ltd>

Certificates of Approval





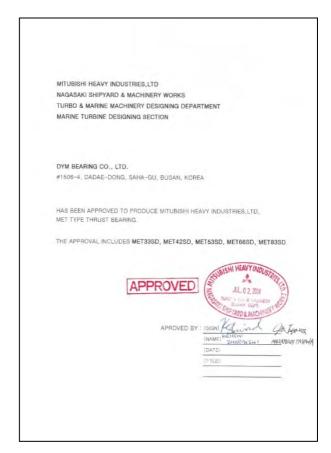


<MAN DIESEL> <WÄRTSILÄ> <HYUNDAI>

Certificates of Approval

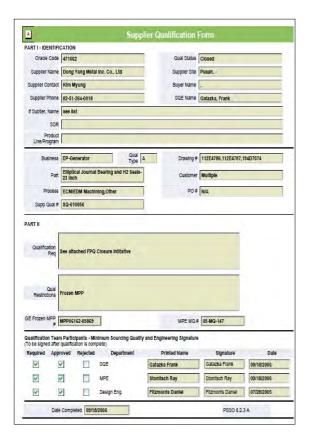


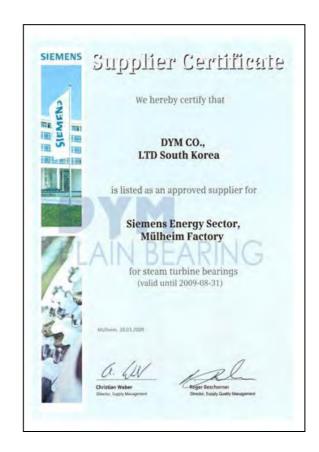




<POSCO> <BV CERT> <MITUBISHI>

Certificates of Approval





<SIEMENS>
(STEAM TURBINE)



<ALSTOM>
(BEARING)

<GE POWER & WATER>

Our Customers

















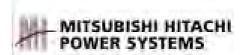
















































DOOSAN PUMA UTS 1620

- Scope : Ø2000 x H1556

- Stroke (X/Z): 1727 / 960 mm

- Installed on Sep. 16, 2014











◆ DOOSAN Puma 280 Turn/Mill Centre

- Maximum machining range : φ420 x L658, 3600 r/m

- STROKE

X : 242 mm

C: 360 mm

Z: 680 mm

Newly Installed on Sep. 2015

◆ DOOSAN HM50 MCT

- Maximum machining range: 500 x 500mm

- STROKE

X : 710 mm

C: 600 mm

Z: 600 mm





- Maximum machining range : ϕ 1,450 x H1,450 / 2,200 kg (FH 8,800 : ϕ 1,250 x H1,250 / 2,200 kg)

- STROKE

X: 1,400 mm Y: 1,200 mm Z: 1,325 mm

#1. Installed on JAN. 2009.



◆ DOOSAN DS - 130C

Maximum machining range: L3,000 x H2,000 x W1,600 / 15,000 kg
 (FH 4,000 x H2,000 x H1,600 / 15,000 kg)

- STROKE

X: 2,800 mm

Y: 1,800 mm

Z : 1,425 mm

#1. Installed on MAR. 2009.

#2. Installed on APR. 2009.

Horizontal Boring Machine

- Stroke (X/Z): 1600 / 1300 mm, 4 Equip.

Vertical Turning Machine

- Table size: 1600mm, 16 Equip







3D MEASURING INSTRUMENT





NIKON ALTERA 15.12.10

SCANNING STROKE

- X: 1,525mm

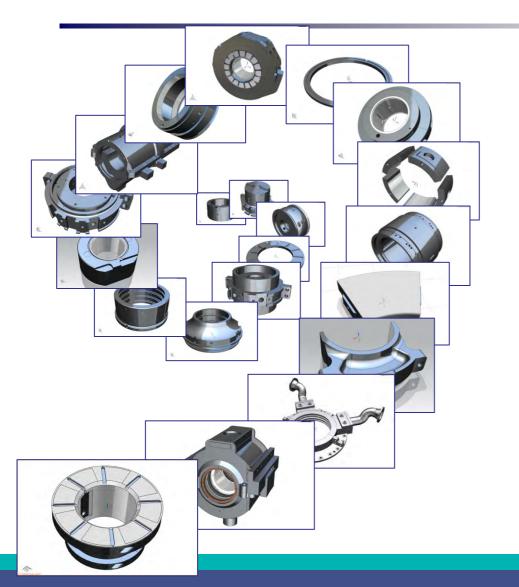
- Y: 1,220mm

- Z: 1,016mm

- MAXIMUM WEIGHT: 5,500kg

- ACCURACY: 1.9 \mu m

NX9 Model based Manufacturing



- 1. Beforehand solution for error
- 2. Be easy to feedback
- 3. Data Verification



- 1. Improve the quality and reduce the lead time
- 2. Application 3. Data Verification to master data piece for machining
- 3. Competitive price

Application Key – Steam Turbines



TILTING PAD BEARINGS

THRUST BEARINGS

BEARING RINGS

ELLIPTICAL BEARINGS

THRUST PLATES

JOURNAL BEARINGS

COMBINED THRUST BEARINGS

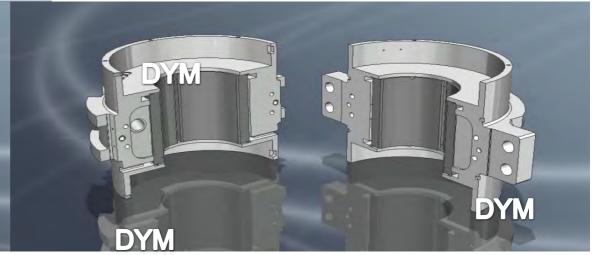
LINER PADS

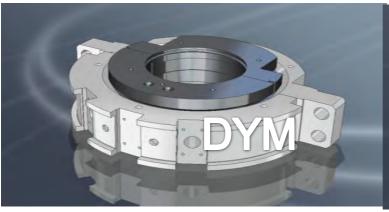
Model Based Manufacturing

4 PAD THRUST BEARING ASSEMBLY SHORTEND BEARING

& BEARING RING ASSEMBLY

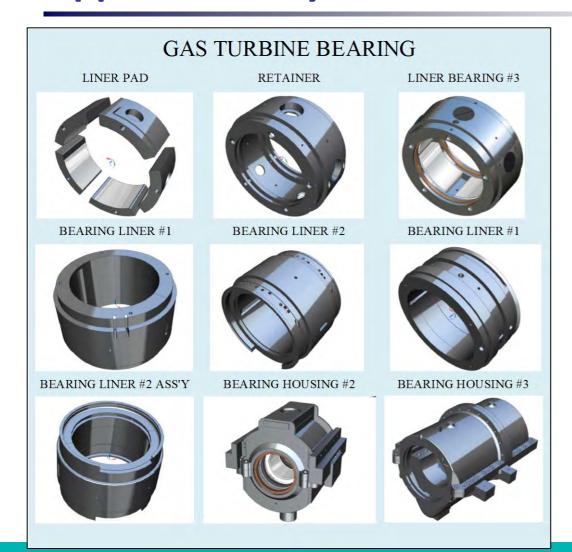








Application Key – Gas Turbines



LINER BEARINGS

LINER PADS

BEARING HOUSINGS

OIL DEFELECTORS

SEAL STATIONARIES

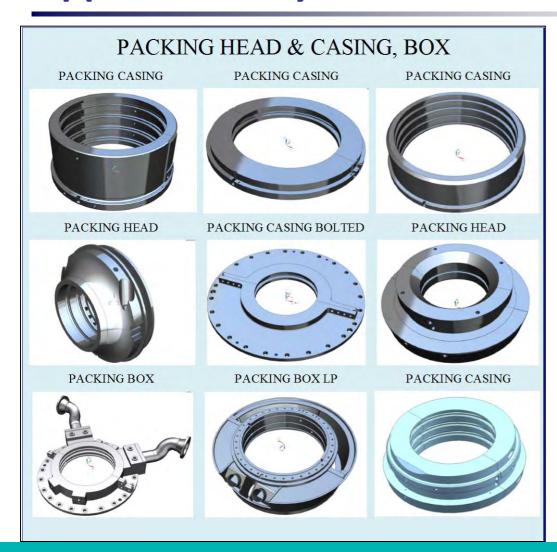
RETAINERS

Model Based Manufacturing

7EA #2. BEARING HOUSING & LINER ASSEMBLY 5PADS



Application Key – PACKING CASING



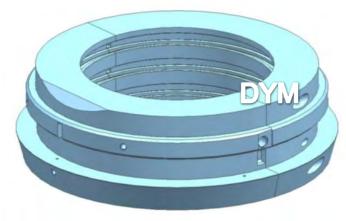
PACKING CASINGS

PACKING HEADS

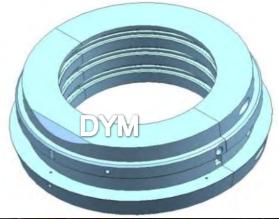
PACKING BOXES

Model Based Manufacturing

PACKING CASING









Application Key - Generators



324 ENDSHIELD BEARING

7FH2 ENDSHIELD BEARING

390 H ENDSHIELD BEARING

330 H ENDSHIELD BEARING

390 H ENDSHIELD BEARING

450 H ENDSHIELD BEARING

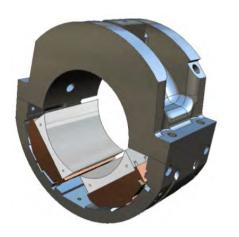
H2 Seal Rings

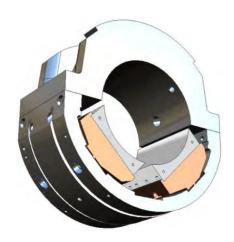
BEARING BUSH

TILTING PAD BEARING

Model Based Manufacturing

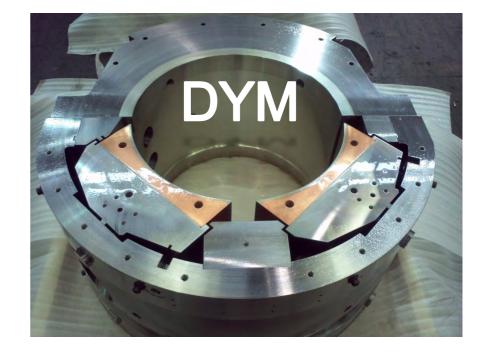
T.P450 BEARING(660MW)











Application Key – Reduction Gear & Pump



THRUST PAD

THRUST BEARING

RADIAL BEARING

PUMP & SHAFT BEARING

COMPRESSOR BEARING

Model Based Manufacturing

REDUCTION GEARTHRUST PAD





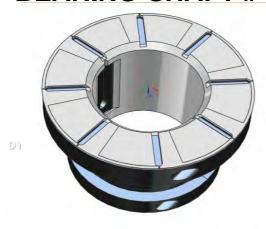






Model Based Manufacturing

BEARING-SHAFT #4





BEARING-PUMP GEAR





Application Key – Marine Engine



MAIN BEARING

BEARING SHELL

GUIDE SHOE

CON.ROD BEARING

OIL DISTRIBUTOR RING

BEARING COVER

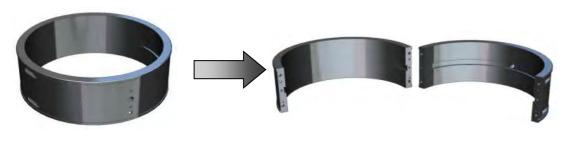
GUIDE RAIL

SEGMENT

GUIDE DISC

Model Based Manufacturing

MAIN BEARING (S50MC)



SEGMENT(S50MC)



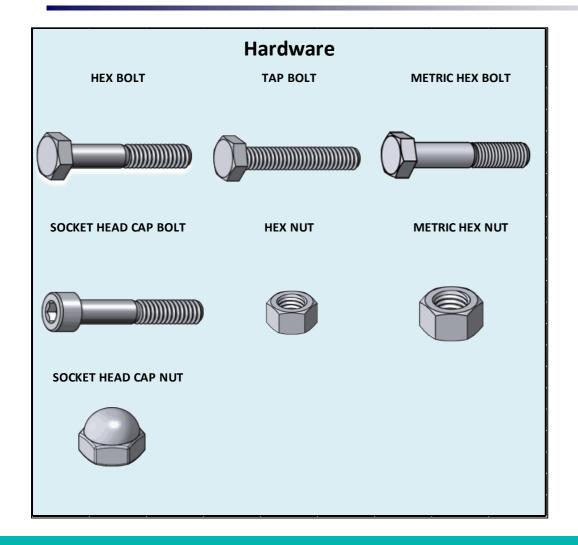
OIL DIST. RING(ø575)



GUIDE SHOE(S50MC)



Application Key – Parts



SOCKET HEAD BOLTS

TAP BOLTS

ADJ PADS

SHIMS

PLATES

BUSHINGS

PLUG PIPES

ORIFICE PLUGS

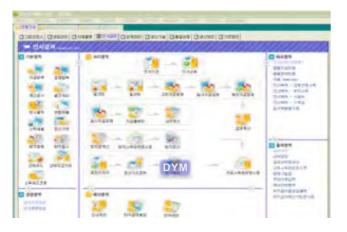
WASHERS

Enterprise Resource Planning System













Point of Product System





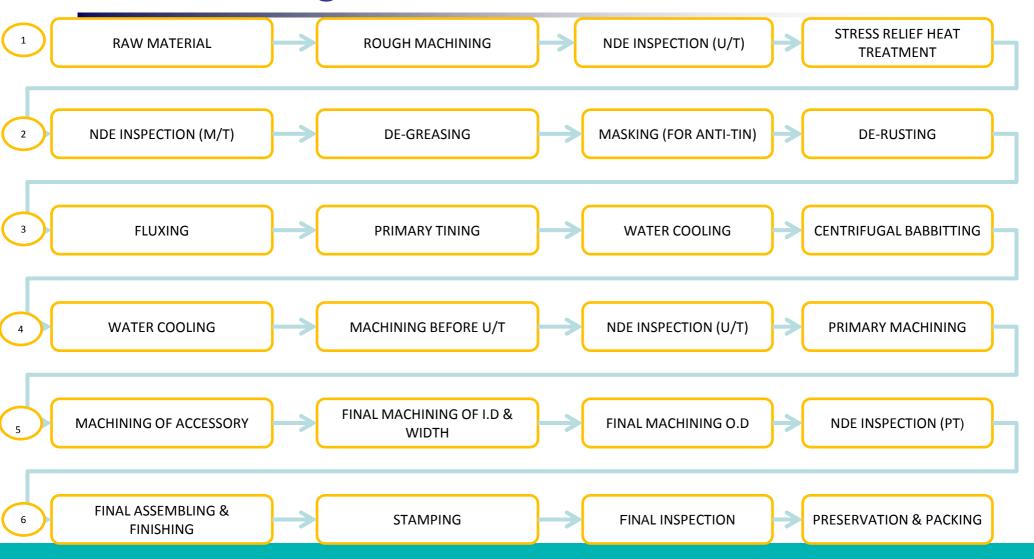






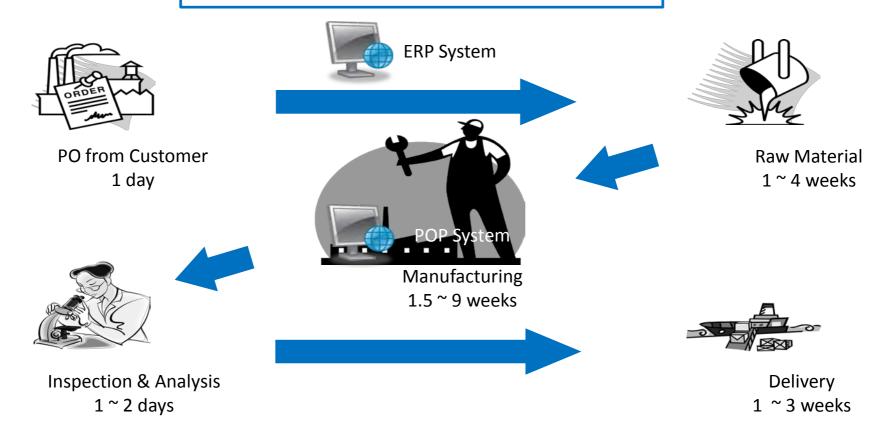
* POP system can handle the separated resources in each part of factory for a plan of shot period, order operating, factory inventory, process control and inspection data gathering.

Manufacturing Process



Manufacturing Lead Time

ISO 9001, 14001, OHSAS 18001



Total weeks from PO to Delivery: 4 weeks(minimum) ~ 12 weeks (maximum)

Website - WWW.DYMBRG.COM

















THANK YOU FOR YOUR ATTENTION.

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