

## Prolific Engineering & Services Co., Ltd (PES) History



On December 12, 2012; Prolific Group expanded into 2 companies, in which Prolific Engineering & Service Co., Ltd. (PES) becomes the addition to the Prolific Heating International Co., Ltd. (PHI) in order to fully serve ever increasing customers. PHI focuses on design, manufacture, trading and servicing of heater and heating related equipment, while PES focuses on design & manufacture, repairing/servicing of furnaces and other related services. As a result, Prolific Group has comprehensive products and services for extensive heating and furnace industries.

#### **Prolific Heating International (PHI)**

"Our Heat is your Improvement"

- Established on : July 20, 2005
- Line of Business:
  - √ Trading
  - ✓ Design
  - ✓ Manufacturing Heating System
  - ✓ Brand Agency



#### **Prolific Engineering and Services (PES)**

"Heart of Furnace"

- Established on: December 12, 2012
- Line of Business:
  - ✓ Design & Manufacturing
  - ✓ Repairing & Preventive Maintenance
  - ✓ OEM
  - ✓ Other Services
  - ✓ After services (IPSEN & GasDen Ro)

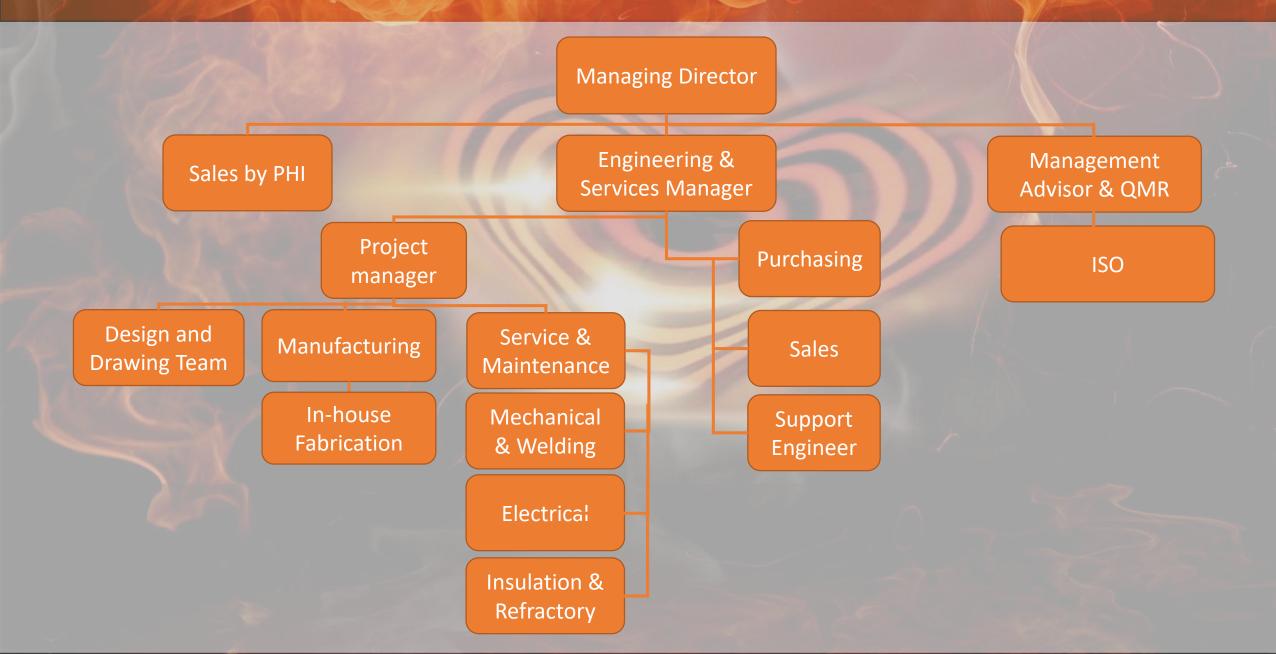




Samutprakarn, Thailand

## **Organization Chart of PES**





## Management Philosopy





**ETHICS** - Conducting Business with integrity, ethics and fairness to customers, partners and employees.



**RESPONSIBILITY** – We take great responsibility towards customers, suppliers and employees in what we offer to provide



**PROFESSIONAL** – We built the best from our expertise including knowledge, skill and experience



**QUALITY** – Quality products and services created from experienced design, quality composition and creative skills.

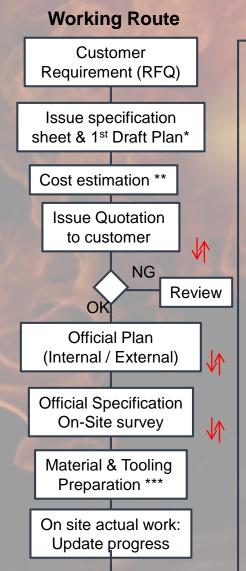


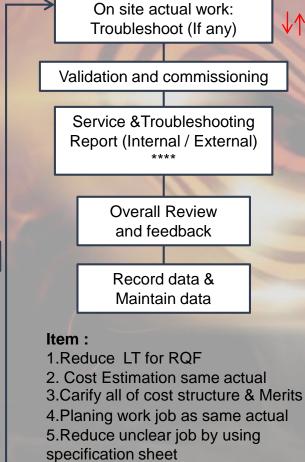
**EFFECTIVE & EFFICIENT –** We focus on the ability to achieve the optimum desired result while applying the best resources efficient and effectively.

# Service Engineering Work Flow & Improvement Items



Way of Thinking: QCDS systematic improvement & Knowledge management.





Knowledge management by using data

base systems & mobile app

How to:

#### Improvement Item & KPI Item

#### Quality

- Reliable of service
- Increasing onsite Quality

#### Problem

- Working Standard
- Human Development

#### **Delivery**

- Reduce L/T RFQ
- Reduce onsite delay problem
- On time service

## Cost Structure (To clarify & C/D)

- Labor cost
- Utility cost
- Tooling cost
- Direct material Cost

#### Safety

- Zero Accident
- Near miss sharing
- Dangerous work assessment

#### **Engineering**

- New Technology
- Knowledge management

Self Development road map Resource & Manpower plan Knowledge Management Technology & Skill Road Map

Upgrade Service Engineering job by using Systematic & Knowledge Management Database

#### RANGE OF SERVICES



Repair &
Preventive
Maintenance
(Overhaul,
installations, etc.)

Manufacturing (in-House and other furnace)

OEM (Original Equipment Manufacturing)

After Service (IPSEN, Tokyo Gasden Ro, Katsura Seiki) Retrofit (Prothermal Business Solution)

Other Services

# REPAIRING & PREVENTIVE MAINTENANCE



PES provides comprehensive solution to enhance the production process in order to reach efficiency & effectivity. Our system design are customized design, engineered to fit your operation and manufactured exclusively by PES. We also provide installation and complete engineering services. Our services in repairing & preventive maintenance consist of:

- Cleaning, Adjustment, Installation, Overhaul of Burner / Heater, Insulation & Refractory (Other products related to furnace & heating equipment)
- Maintenance Service (Yearly, Monthly, Scheduled, or On Demand)
- Reform / Advancement of Customer Demands/ Measuring/ Calibration/ Temp. Uniformity
- Cleaning the brazing furnace, melting & holding furnace, vacuum furnace, annealing furnace, etc.
- Leak Test of Gas and Air
- Magnetic Force test solenoid valve
- **❖** Emergency On-Site Repairs & Routine Maintenance

## Repairing & Preventive Maintenance



Replacement & Installation of Radiant Heater









Replacement Rollers & Chain

## Repairing & Preventive Maintenance



Checking of Radiant Heater









Repairation of Gas Generator

## Repairing & Preventive Maintenance



Reparation of Muffles









Installation of Mesh Belt



Overhaul Quenching & Tempering Furnace



# Product & Furnace Design



## Customized Design Furnace

- Tempering Furnace
- Baking Furnace
- Homogenized Furnace
- Melting and Holding Furnace
- Dry Off Furnace
- Aging Furnace
- Annealing Furnace
- Quenching Furnace
- Curing Oven
- Pre-Heat Mold Furnace

#### **Customized Design Equipment**

- Muffle
- Cooling Water Jacket
- Shell and Tube Heat Exchanger
- Circulation Fan
- Roller & Conveyor System
- Stainless Steel Curtain
- Hot Water Tank
- Retort









Twin Chamber Baking Furnace

Quenching Furnace





Full Line of In-House Heat Treatment





Annealing Furnace



Pusher / Roller Type Tempering Furnace



TD Coating Furnace





Mesh Belt Normalizing Furnace



Aluminum Holding Furnace Capacity 300 Kg/hour





Dry Off Furnace/Mesh Belt Type Maximum Temperature of 350 C









**Gas Generator & Piping System** 















# OEM

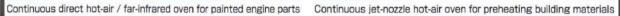






Continuous conveyor oven for auto plastic parts







# After Sales Services – GasDen Ro



Check, Change & Repair of Heater















Hard Work Wins

Retrofit for Nadcap Aerospace Standard



#### WHAT SET A SIDE PES FROM THE REST?



# Reduces Chances of Breakdowns

Our Support Team is here to help keep your equipment running at peak performance. We know that minimizing downtime is critical. We will help you find the solution you need in order to get your furnace running as soon as possible and to minimize downtime through upgrades, parts, maintenance, repair, and service.



#### **Knowledgeable Technicians**

Our knowledgeable technicians can diagnose and fix any problem that you might have. Our team of highly experienced can provide technical advice and support or can service or repair your products. So if there's anything you don't understand about furnace repair, or you want tips for future repair you can always ask our technicians.



#### Cooperation (IPSEN & PES)

We offer the same high-quality workmanship and long-term results on every job we take on. If you're looking for furnace repair, there's one thing that you'll be looking for above everything else: not a quick fix, but a thorough and lasting fix. With the cooperation of PES & IPSEN team, we supply solution from the perspective of furnace maker as well as experts in after sales service.



# Spare and Replacement Parts Available

Prolific Group supplies its customers with quality replacement and genuine parts provided by IPSEN for your furnace. We keep a large inventory of these parts on-hand to minimize downtime and ensure efficiency. Our team stay ahead of the changes in the industry and get your furnace done right every time.



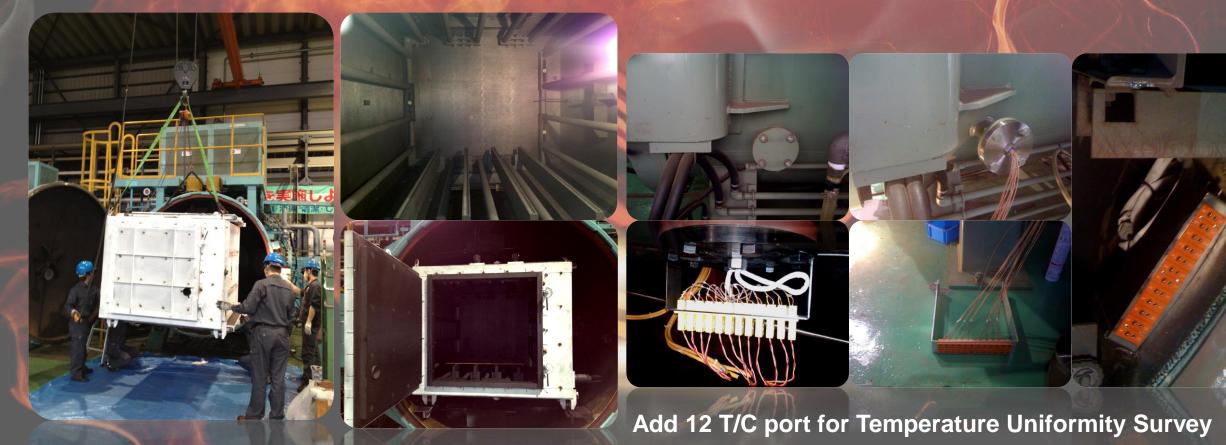




Helium leak testing and repair insulation in vacuum furnace

Repair insulation and heater of vacuum furnace



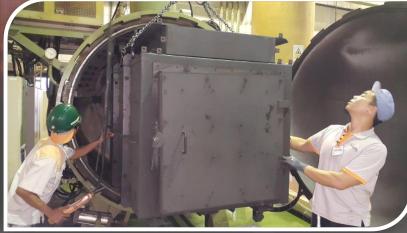


Overhaul – hot zone replacement











**Insulation Overhaul – Vacuum Furnace** 

Cleaning up cooling water line



## **Upgrade Control Cabinet**





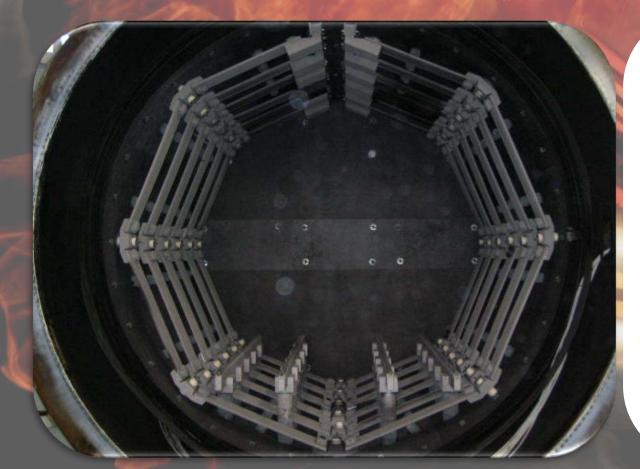


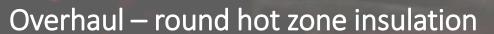




Add T/C for SAT accordingly with AMS2750E









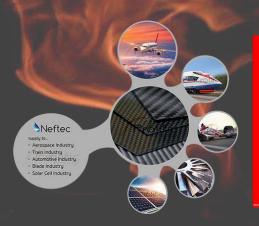
Vacuum furnace spare parts

# Aerospace and Aviation Industry





As the airline industry has grown exponentially due to escalating global travel demand that has caused the shift of the Thailand's technological focus and standard; from automotive producers to be aerospace and aviation industry MRI (Maintenance, Repair & Overhaul) hub and parts producers. Thus Prolific Group has advanced itself in partnering with multiple suppliers that qualified for aerospace and aviation industry. Prolific Group has start to gain acknowledgement in Thailand as supplier to the Aerospace and aviation industry through the products of:











C/C Composites "Neftec"

**IPSEN** 

**PHI Radiant Heater** 

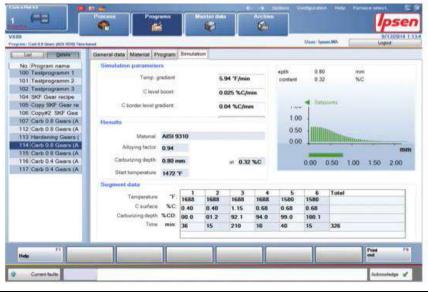
**PHI Basket & Tray** 

PHI Carbon Heater & Graphite Insulation



gas outlet









In completing the furnace product line, Prolific Group has been cooperating with Nabertherm for supplying wide ranges of Nabertherm furnace, and act as the turnkey supplier, with capability of supporting installation, commissioning & after sales service; which includes the supply of spare parts of the furnaces.

Nabertherm with have been developing and producing industrial furnaces for many different applications for 70 years. As manufacturer, Nabertherm offers the widest and deepest range of furnaces worldwide.

Nabertherm's competitive advantages are:

- Made in Germany
- Setting Standards in Quality and Reliability
- Global Sales & Service Network Close to Customer
- Large customer test center
- Customer Service & Spare parts
- Experience in many fields of Thermal Processing

# Main Target Market







## Other Applicable Industries are:

- Jewelry Industry
- Medical Industry
- Ceramic Industry

# **Industrial Category**



# Glass Industry Process Application

Annealing

Hardening

**Tempering** 

Bending

Slumping

Welding

Laminating

Fusing

Melting of Glass

**Photovoltaics** 

Quartz Glass Technology

Fiber Optics

**Heat Soak** 

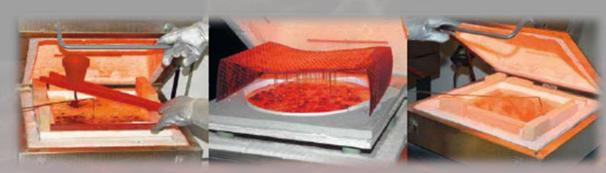
Laboratory











# **Arts & Crafts Industrial Application**

Pottery

Porcelain Painting

> Glass Painting

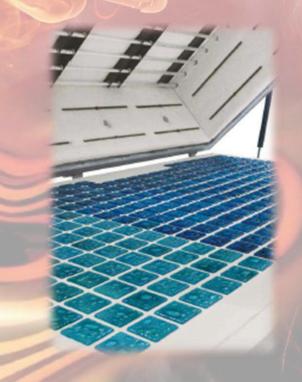
> > Fusing

Decorating

Raku









# Industrial Application for Advanced Material Industry

Powder Metallurgy

**Technical Ceramics** 

**Bio Ceramics** 

**Additive Manufacturing** 

3D-Printing

MLCC, LTCC, HTCC

MIM, CIM

Lamps/Illuminants/LED

Fuel Cell/Battery Manufacturing

**Photovoltaics** 

**Crystal Growth** 

Polymerization

**Energy Efficiency Technology** 



### Furnaces for Additive Manufacturing Processing Industry

**Retort Furnaces** 

**Chamber Furnaces** 

**Forced Convection Furnaces** 

**Annealing Furnaces** 

**Protective Gas Boxes** 

Furnaces for Debinding

**Sintering Furnaces** 

High Temperature **Furnaces** 

Ovens

**Chamber Ovens** 











Cold-wall retort furnace VHT 100/12-MO for processes in high vacuum

## Furnaces & Accessories for Dental Industry

Sintering Furnaces for:

Laser Sintering Burnout Furnaces Model Casting Production Furnaces

Translucent Zirconia

Zirconia

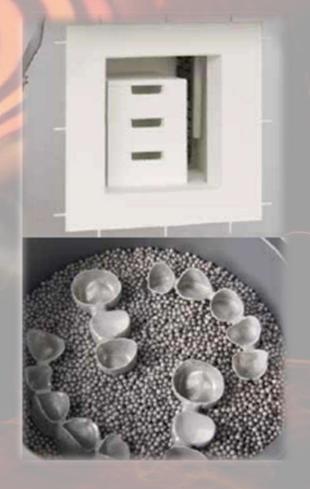
CoCr Alloys

CAD/CAM Systems









### **Furnaces for Thermal Process Technology**

**Annealing Furnaces** 

Hardening Furnaces

**Tempering Furnaces** 

Forming Furnaces

**Preheating Furnaces** 

Forging Furnaces

**Heat Cleaning Furnaces** 

Vacuum Technology

**Pyrolysis** 

**Brazing Furnaces** 

**De-binding Furnaces** 

**Sintering Furnaces** 

**Retort Furnaces** 

Continuous & Wire Annealing Furnaces

**Tube Furnaces** 

Salt-bath Furnaces

Nitriding and Carburizing

**Furnaces** 

Hardening Systems

Quenching Baths



**Furnaces for Foundry** 

**Melting Furnace** 

**Holding Furnace** 

Core Drying Furnace

Thermal Decoring Furnace

**Dewaxing Furnace** 

Quenching Furnace













# Furnaces for Laboratory Furnace

Muffle Furnaces

**Preheating Furnaces** 

**Ashing Furnaces** 

**Tube Furnaces** 

Ovens

Forces Convection
Furnaces

Chamber Furnace s

**Melting Furnaces** 

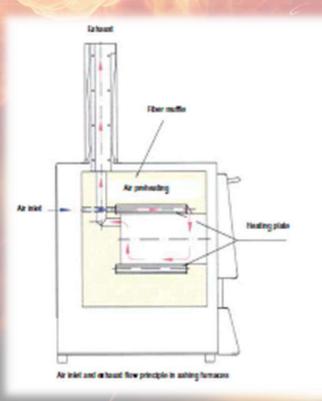
High-Temperature Furnaces

Retort Furnaces

Vacuum Furnaces

**Annealing Furnaces** 

Clean Room Furnaces





















### Other Services















# **Equipment and Tooling**





Temperature
Uniformity Survey
Recorder



Thermoscan Infrared Camera



Flue Gas Analysis



**Laser Level Measuring** 



**Insulation Tester / Mega-Ohm Meter** 



**Milliohm Meter** 



**Pipe Threading Machine** 



**Argon Welding Machine** 



**Arc Welding Machine** 



**Lathe Machine** 



**Milling Machine** 



**Plasma Cutter** 

# **On-Site Safety**



**General Work** 



**Welding Work** 

# On-Site Form Requirements

# Prolific Engineering & Service บริษัท โพรลิฟิค เอ็นจิเนียริ่ง แอนด์ เซอร์วิส จำกัด 11/11 หมู่ 11 ตาบล ราชาเทวะ ฮาเภอ บางพลี จังหวัด สมุทรปราการ 10540 Tel. 0-



ชื่อโครงการ

CUSTOMER NAME :
ชื่อลูกค้า

RESPONSIBLE Person : \_\_\_\_\_\_\_ Phone no. :
ผู้รับผิดชอบพื้นที่ เบอร์

Finish Date :

Start Date : \_\_ วันทีเริ่มงาน

JOB NAME:

วันส่งมอบ

#### MANDATORY PERSONAL PROTECTIVE EQUIPMENT

เขตบังคับสวมใส่อุปกรณ์ป้องกันอันตรายส่วนบุคคล





Job Name
Customer Name
Project Leader
Emergency Contact
Start / Finish Date

Safety Equipment

**Project Billboard** 

### Certificates

### Certificate

ISO 9001:2015

Certificate Registr. No. 01 100 1432776

Certificate Holder:



Prolific Heating International Co., Ltd. 11/11 Moo 11, Rachathava, Bangplee, Samutprakam 10540 Thailand

Scope:

Sales of Heaters, Furnaces and Related Parts (e.g. Wires, Insulators, Ceramic Parts including Spare Parts and Other Supporting Parts)

Design and Manufacturing of Heaters

Proof has been furnished by means of an audit that the

requirements of ISO 9001:2015 are met.

Validity:

The certificate is valid from 2018-02-13 until 2021-02-12. First certification 2015

2018-01-05

TÜV Rheinland Cert GribH









#### สำนักงานสวัสดิการและคุ้มครองแรงงานจังหวัดสมุทรสาคร

#### นายจุมพล ขันทอง

ผ่านการฝึกอบรมหลักสูตรเจ้าหน้าที่ความปลอดภัยในการทำงาน ระดับบริหาร ตามก<del>ถกระกรวงกำหนดมา</del>ตรงานในการบริหารและการจัดการด้านความป*ออกดัย* อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ. ๒๕๕๘ ระหว่างวันที่ ๑๕ - ๑๖ ภูมภาพันธ์ พ.ศ. ๒๕๕๕

> วะยะเวลาการฝึกลบรม ๑๒ ชั่วโมง ให้ไว้ ณ วันที่ ๑๖ กูแลาพันธ์ พ.ศ. ๒๕๕๕



(นายบุญฤทธิ์ แสนพาน) ชวัชติการและผู้มครองแรงงานจังหวัดสมุทรสาทร



ขอมอบวูฒิบัตรนี้ไว้เพื่อแสดงว่า

นายจุมพล ขันทอง

ได้ผ่านการฝึกอบรมหลักสูตร

"ความปลอดภัยในการทำงานเกี่ยวกับไฟฟ้าสำหรับลูกจ้างซึ่งปฏิบัติงานเกี่ยวกับไฟฟ้า"

อบรมวันที่ 18 มิถุนายน พุทธศักราช 2559 ระยะเวลาการฝึกอบรม 6 ชั่วโมง

C Jake

(นายสมชาย พรมอัอล) วิทยากรศัสดน

### **Safety Officer**



#### คณะกรรมการส่งเสริมการพัฒนาฝีมือแรงงาน

หนังสือรับรองฉบับนี้ให้ไว้เพื่อแสดงว่า

นายฉันติชัย พองพรม

#### **ได้ผ่านการทดสอบมาตรฐานฝีมือแรงงานแห่งชาติ**

หมายเดนาระณีเณ edokted dd

ขถาบันพัฒนาให้ใดแรงงานดาล « สมุทรปราการ

เมื่อวันที่ ๑๔ พฤศจิกายน ๒๕๕๘

ให้ไว้ ณ วันที่ ๒ กันวาณ ๒๕๕๘

อริบติกรมตัดตาฟิรีตต

าเายทะเบียน

ผู้ดำเนินการทดสอบ





#### Burner

#### Combustion and Burner Technology

Our Burner Division focuses on gas burner products, and system for Industrial Furnace and Thermal Technology "Optimized Technology for your wide improvement"

#### Founded:

Type of Business:

- Design
- Manufacturing
- Authorized brand distributor
- Service of Burner and Accessories

### Non-ferrous

#### Non-Ferrous

### Non-ferrous Products and Innovation

Our Non-Ferrous Division focuses on Non-Ferrous metal industrial products and services provider "Providing Non-Ferrous Products and Solutions for Excellence"



#### PHI

#### Prolific Heating International Co., Ltd.

Our company is one stop of services provider in industrial heater and Burner products

"Our Heat is your Improvement" Founded: July 20th, 2005

- Type of Business :
- Trading
- Brand Agency
- Design
- Manufacturing

### DCD

#### PSB (Prolific Group)

Prothermal Solutions
Business (PSB)
Solution based business
focused on improvement of
productivity and efficiency
in thermal requirement.

### "Maximize your Profitability through PSB"

Founded: January 2015 Type of Business:

- Cost effective materials
- Innovation and machinery improvement of machinery
- Methodology Improvement
- Overall Resources Development



### PES

#### PES

#### Prolific Engineering & Service Co., Ltd

Our company is a furnace designer, maker, and related services provider

"Heart of Furnace"

Established on : December 12, 2012

#### Line of Business:

- Design & Manufacturing
- Repairing & Preventive
   Maintenance
- OEM
- After services
   (IPSEN & GasDen Ro, Katsura
   Nabertherm)
- Other Services







Prolific Engineering & Services Co., Ltd. (PES)

11/11 Moo 11 Soi Kingkaew 37, Kingkaew Rd., Rachathava, Bangplee, Samutprakarn 10540, Thailand.

Tel: (662) 170-8171 (Auto 6 Lines)





### www.phiheating.com



Management System ISO 9001:2015



www.tuv.com ID 9105080820