Company Profile

Kalorindo

PT. Intan Prima Kalorindo

Heat Transfer Technology

Engineering, Manufacturing, and Maintenance

Table of Content

Heat Transfer Technology

Company Background

History

PT. Intan Prima Kalorindo (Kalorindo) line of business is majoring in heat exchanger engineering, manufacturing, installation and maintenance. Kalorindo established on 21 September 2002 and managed by experienced and professional engineers have been officially licensed in several aspects, such as SIUP Besar, SIUJK, SBU Mekanikal, SBU Elektrikal, SBU Sipil, SBU Energi Baru Terbarukan. Engineering design and manufacturing process are conducted in Kalorindo workshop which is located at Jalan Tekno Raya B-1F Kawasan Industri Jababeka III Cikarang, Bekasi, West Java, 17530.

Kalorindo's role in design as well as manufacturing process (e.g. Heat Exchanger, Air Cooled, Gas Cooled, and Oil Cooled) have been acknowledged and certified in ASME Code, API 661, TEMA, and QHSE (Quality, Health, Safety, Environment: ISO 9001; ISO 14001; OHSAS 18001). Additionally, in the field of maintenance and implementation of quality management system for design and manufacturing of heat exchanger, our products have been certified by ASME in manufacturing Vessel (U Stamp) and maintenance (R Stamp).

Kalorindo has also been acknowledged by the issuance of CSMS by PT. Pertamina RU VI Balongan, Approved Manufacturer List by PT. Pertamina EP, Assessment Certificate by PT. Pertamina RU V Balikpapan, Sertifikat Tanda Rekanan Workshop by PT. PLN (Persero), and Apresiasi Produk Dalam Negeri (APDN) by Ministry of Energy and Mineral Resources of Republic Indonesia (as the score given is 903).

In regards to the designing process we use several original software applications such as HTRI (Heat Transfer Research Inc.), SolidWork Premium, SolidWork Flow Simulation, 3Dvia Composer, and StadPro.

Kalorindo performance up to 2016 has produced approximately 2300 units, heat exchanger product for our clients scattered in Indonesia. Our clients cover such as PT. PLN (Persero), PT. PJB, PT. Indonesia Power, PT. Pertamina EP, PT. Pertamina PHE ONWJ, PT. Pertamina RU, PT. Pertamina Gas, ESDM, BPPT, Kemenristekdikti, Perum Jasa Tirta II, PT. Chevron Indonesia, PT. Medco Energy, and PT. Borneo Karya Persada and other private sectors in Indonesia.

Company Name
PT. Intan Prima Kalorindo

Established
21 September 2002

Founder
Dr. Yogi Sirodz Gaos

Type of Business
Engineering, Manufacturing, Installation, and Maintenance

VISION & MISSION

VISION

To manufacture a world class product of heat transfer and renewable energy power plant equipment as well as to be go public in 2025.

MISSION

1. *Increase the local content of Kalorindo's products and services.*
2. *Optimize the engineering process, using reverse engineering and research & development which being achieved by using the engineering software, the U Stamp, and the other International Standards.*
3. *Optimize the manufacturing process, using CNC machines, the ASME Code, the other International Applying Standards.*
4. *Develop the operation and maintenance by utilizing reverse engineering and predictive maintenance, which can be achieved by R Stamp.*
5. *Being the engineering, procurement, and contractor (EPC) based company which optimizes the engineering, manufacturing, procurement and construction processes.*
6. *Manufacture competitive products that prioritize the quality and warranty of the products, consumer's trust as well as the price of the product.*

Certification

SKT MIGAS
Nomor: 0042/SKT-03/DMT/2012

SKT PERTAMINA EP
No. SKT-056/EP7210-SKT/2011

Tanda Rekanan Worskhop
Nomor : 0270/611/SPA/2013

PT. Pertamina EP
Approved Manufacturer List (AML)

PT. Pertamina
RU V Balikpapan

ASME U Stamp
Nomor: 41.686 - Scope: Manufacture of Pressure Vessels

SKT ESDM
Energi Baru Terbarukan
Nomor : 73.Ket/30/DEP/2013

National Board R Stamp
Nomor : R-8610
Scope : Metallic repairs and/or

APDN - ESDM
(Apresiasi Produk Dalam Negeri)
Nilai Keberpihakan : 903
http://migas.esdm.go.id/

Kalorindo established in 21 September 2002 and managed by experienced and professional engineers have official licensees in SIUP, SBU Mekanikal, SBU Elektrikal, SBU Sipil, SBU Energi Baru Terbarukan.

In the field of maintenance and implementation of quality management system for design and manufacturing heat exchanger.

Product

PREHEATER

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Heat Exchange	: up to 500 KW
MAWP	: up to 25 bar
Design Pressure	: 30 bar
Test Pressure	: 32 bar
Hot Fluid	: Brine Water
Cold Fluid	: Hydrocarbon

CN:41,685 R:8610 CID:13/02433 CID:13/02432 CID:13/02434

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Kalorindo

PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

CONDENSOR

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Heat Exchange	: 0.1 up to 200 MW
MAWP	: max 1.5 bar
Design Pressure	: 10 bar
Test Pressure	: 6.5 bar
Hot Fluid	: Water and Hydrocarbon
Cold Fluid	: Water

CN : 41,685 R : 8610 CID : 13/02433 CID : 13/02432 CID : 13/02434

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Kalorindo

PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

EVAPORATOR

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Heat Exchange	: up to 2 MW
MAWP	: up to 90 bar
Design Pressure	: 135 bar
Test Pressure	: 117 bar
Hot Fluid	: Hydrocarbon and Water
Cold Fluid	: Water

CN : 41,685 R : 8610 CID : 13/02433 CID : 13/02432 CID : 13/02434

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Kalorindo

PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

SHELL & TUBE

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Heat Exchange	: up to 1 MW
MAWP	: up to 20 bar
Design Pressure	: 30 bar
Test Pressure	: 26 bar
Hot Fluid	: Water and Oil
Cold Fluid	: Water

CN:41,685 R:8610 CID:13/02433 CID:13/02432 CID:13/02434

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Kalorindo

PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

HIGH PRESSURE HEATER

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Heat Exchange	: up to 2 MW
MAWP	: up to 90 bar
Design Pressure	: 135 bar
Test Pressure	: 117 bar
Hot Fluid	: Steam
Cold Fluid	: Water

CN:41,685 R:8610 CID:13/02433 CID:13/02432 CID:13/02434

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

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PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

LUBE OIL COOLER

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Heat Exchange	: up to 1 MW
MAWP	: up to 20 bar
Design Pressure	: 30 bar
Test Pressure	: 26 bar
Hot Fluid	: Oil
Cold Fluid	: Fresh Water & Sea Water

CN:41,685 R:8610 CID:13/02433 CID:13/02432 CID:13/02434

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Kalorindo

PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

ORC BINARY CYCLE PLTP

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Generator Power Output	: 65 KW
Thermal Efficiency	: 9.7%
MAWP	: 15 bar
Working Fluid	: N-Pentane
Hot Fluid	: Brine Steam

CN:41,685 R:8610 CID:13/02433 CID:13/02432 CID:13/02434

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Kalorindo

PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

GAS COOLER

Type your text

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Heat Exchange	: up to 4 MW
MAWP	: up to 250 bar
Design Pressure	: 300 bar
Test Pressure	: 325 bar
Hot Fluid	: Gas
Cold Fluid	: Air

CN : 41,685 R : 8610 CID : 13/02433 CID : 13/02432 CID : 13/02434

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Kalorindo

PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

FIN FAN COOLER

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Heat Exchange	: up to 10 MW
MAWP	: up to 10 bar
Design Pressure	: 30 bar
Test Pressure	: 13 bar
Hot Fluid	: Water & Oil
Cold Fluid	: Air

CN : 41,685 R : 8610 CID : 13/02433 CID : 13/02432 CID : 13/02434

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Kalorindo

PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

FIN FAN COOLER FOXTROT

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Gas Cooler / Lube Oil

Heat Exchange	: 9.818 / 0.941 mmbthu/h
MAWP	: 444.7 / 164.7 psia
Design Pressure	: 510 bar psig
Test Pressure	: 26 bar
Hot Fluid	: Hydrocarbon Gas / Lube Oil
Cold Fluid	: Air / Air
Material	: Stainless Steel 316L

CN:41.685 R:8610 CID:13/02433 CID:13/02432 CID:13/02434

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)
All Stenless Steel Material SA-240 TP 316L

Kalorindo

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Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

FILTRATION UNIT

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

MAWP	: 600 Psi
Operating Temp	: 40 ^{0}C
Flow Rate	: 400 GPM
Design Pressure	: 600 Psi
Test Pressure	: 780 Psi
Fluid	: Water

CN:41.685 R:8610 CID:13/02433 CID:13/02432 CID:13/02434

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Kalorindo

PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

HERMATIC TURBINE

ENGINEERING

Calculating and Drawing

- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME

Performance

Capacity : 5 kWe - 100 kWe
Fluid : Steam, R245fa, n-Pentane

CN:41,685 R:8610 CID:13/02433 CID:13/02432 CID:13/02434

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Kalorindo

PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

FIN FAN COOLER MIKE MIKE 1st Stage

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Heat Exchanger	: 9.15 MMBtu/hr
Design Pressure	: 350 psig
Design Temperature	: 320 degF
Test Pressure	: 455 psig
Hot Fluid	: Discharge Gas
Cold Fluid	: Air
Material	: Duplex S32205

CN:41,685 R:8610 CID:13/02433 CID:13/02432 CID:13/02434

Type your text

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Kalorindo

PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

FIN FAN COOLER MIKE MIKE 2nd Stage

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Heat Exchanger	: 11.3 MMBtu/hr
Design Pressure	: 900 psig
Design Temperature	: 350 degF
Test Pressure	: 1170 psig
Hot Fluid	: Discharge Gas
Cold Fluid	: Air
Material	: Duplex S32205

CN:41,685 R:8610 CID:13/02433 CID:13/02432 CID:13/02434

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Kalorindo

PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

FIN FAN COOLER for ROLLS-ROYCE GAS ENGINE

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Heat Exchanger	: 1.3 MW
Design Pressure	: 10 bar
Test Pressure	: 13 bar
Hot Fluid	: Water/Air
Cold Fluid	: Air
Material	: JIS H3300 (Cu 99.99%)

CN:41,685 R:8610 CID:13/02433 CID:13/02432 CID:13/02434

MANUFACTURING

Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Kalorindo

PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

Shell and Tube
FOR ORC BINARY CYCLE ELECTRIC POWER GENERATION
LAHENDONG (500 kWe)

ENGINEERING

Calculating and Drawing

- HTRI
- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Heat Exchanger	: 6.8MW
Design Pressure	: 13 barG
Design Temperature	: 200 degC
Test Pressure	: 17 barG
Tubeside Fluid	: Geothermal Brine
Shellside Fluid	: Purified Water
Tubeside Material	: Stainless Steel TP316L
Shellside Material	: Carbon Steel

CN:41,685 R:8610 CID:13/02433 CID:13/02432 CID:13/02434

MANUFACTURING
Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Kalorindo

PT. Intan Prima Kalorindo
Heat Transfer Technology
Engineering, Manufacturing, and Maintenance

Component Assembly and Pipeline Construction
FOR ORC BINARY CYCLE ELECTRIC POWER GENERATION
LAHENDONG (500 kWe)

ENGINEERING

Calculating and Drawing

- Solid Works Flow Simulation
- Solid Works Premium
- 3DVIA Composer

Standard and Code

- ASME
- TEMA
- API

Performance

Design Pressure	: 13 barG
Design Temperature	: 200 degC
Test Pressure	: 17 barG
Fluid	: Water
Material	: Carbon steel

CN:41,685 R:8610 CID:13/02433 CID:13/02432 CID:13/02434

MANUFACTURING
Material According to ASME BPV Code Section II
Manufacturing by precision machine (CNC)

Company Compliancy

ISO 9001
Quality Management System

CID: 13/02432

ISO 14001
Enviromental Manajemen System

CID: 13/02434

OHSAS 18001
Health and Safety

CID: 13/02433

QHSE

QUALITY, HEALTH, SAFETY, ENVIRONMENT

Applying Standard = TEMA, API 661 & ASME Code.

Using Original Software = HTRI, Staad Pro, Solid Works, Optimiser.

Publication = Journal HE ISSN 1979-617X

MICROSOFT OFFICE (ORIGINAL)
Product Key: W623K-K7TVB-8QTCC-QD3J2-YT6H8

SOLIDWORKS PREMIUM (ORIGINAL)
Serial Number(s): 9000 0080 6090 0276 XKB4 G6FK

SOLIDWORKS FLOW SIMULATION (ORIGINAL)
Serial Number(s): 9000 0080 6091 5344 T4V5 3F7J

TO MAKE A MANUAL: 3DVIA COMPOSSER (ORIGINAL)
Serial Number(s): 9000 0096 0136 0993 ZWVS QYGH

HEAT TRANSFER RESEARCH, INC (HTRI) (ORIGINAL)
Serial Number(s): 1500214865 J22V

STAAD Pro V8i (Original)
Version: 20.07.09.31

WIND FLOW OPTIMIZING (ORIGINAL)

STRESS ANALYSIS CALCULATION

Production Facilities

CNC Milling 5 Unit
Internal Coolen, Thread Mill
Horisontal & Vertical Milling

CNC Lathe Machine
Ø 540 mm

Lathe Machine
Ø 2000 mm

NC Bending Machine
Thickness 6 mm x 3000 mm

NC Cutting Machine
Thickness 6 mm x 3000 mm

Radial Drilling Machine
Bed size 800 x 1000 mm

Kalorindo Heat Transfer Technology

Production Facilities

NC Dishing Machine
Ø 4000 mm

NC Flanging Machine
Ø 4000 mm

Fork Lift
5 ton

CNC Plasma Cutting
SS : 60 mm, MS : 100 mm

Air Compressor
Airman, Puma

Tube Expander
Kreis

Production Facilities

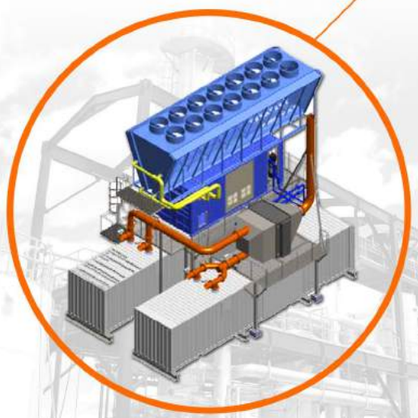
CNC Roll Plate Machine
Thickness 25mm

Crane 40 ton
40 ton, 10 ton, 5 ton

GREEN ENERGY

ENERGY BARU TERBARUKAN

ORGANIC RANKINE CYCLE (ORC))



Isometric drawing containerized Power Plant

In 2014, PLN rented hundreds of mobile generator set (MGS) that have an electric capacity of 1.4 MW from a private company. Later on, the private company established a partnership with General Electric (GE) Indonesia to utilize the exhaust gas from the MGS using an ORC approaches. The exhaust gas can produce electricity up to 140 kW. As a result of the success in developing the renewable energy (ORC-based approaches), GE wants to manufacture the ORC in the mass production scheme.

So that, GE points Kalorindo as the local vendor for this project. The ORC: 1) has an efficient Hermetic Turbine Generator that produced by GE; 2) uses Magnetic Bearing Technology; 3) has 26.000 RPM; 4) has 400 Hz; 5) has 100 to 200 Volts; 6) has a control system that produced by GE; and 7) manufactured in a containerized power plant that produced by GE.

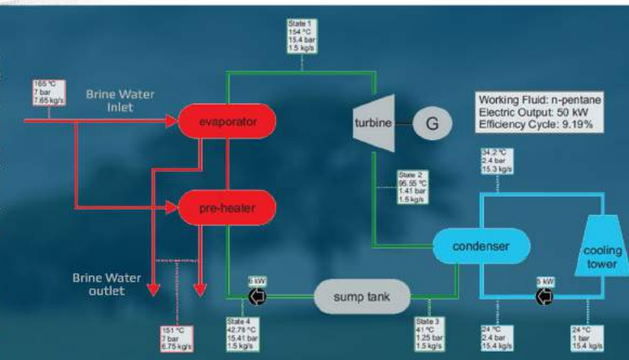
In one year of development process, Kalorindo's engineering team has conducted research that produces several types of containerized ORC power plant drawing. Figure 1 illustrates one of several types of containerized ORC power plant drawing. Therefore, Kalorindo has listed as a local vendor by GE regarding ORC fabrication (with local vendor number: K53774).

In the period of 2013 to 2016, Kalorindo has manufactured several ORC products. Our clients were: The Ministry of Research, Technology and Higher Education in which we independently fabricated the turbine (3 kW); Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences, located in Lahendong geothermal site (500 kW); The Ministry of Energy and Mineral Resources located in Dieng geothermal power plant (65 kW); and Agency for Assessment and Application of Technology (BPPT) located in Mount Windu power plant (100 kW).

BIOMASS

In 2012 to 2013, GE was pointing Kalorindo as a local partner in order to manufacture wet type biomass power plant that has a capacity of 1 MW in Sumba, East Nusa Tenggara. This wet type biomass produces a clean syngas (synthesis gas) from the gasification process in the gasifier. The clean syngas itself comes from two steps of scrubber process which being cold from the absorption chiller process. In general, the primary syngas function is to generate the movement of the gas engine generator. In addition, during one year period (2012 to 2013) of collaboration, Kalorindo was also developing the engineering constructions for the power plant.

Furthermore, Kalorindo has produced three units of Heater Biomass, which has a capacity of 10 kW (each) in Bolaang Mongondow, Sulawesi Utara. These Heater Biomass are using geothermal (e.g. brine water) as the primary energy.



REFERENCE LIST

ORC PLTP Binary Cycle 50 kWe
Client : The Ministry of Energy and Mineral Resources
Location : Dieng Geothermal Site, Wonosobo, JCentral Java

Solar Thermal Parabolic ORC 3 kWe
Fund : The Ministry of Research, Technology and Higher Education
Location : Jenderal Soedirman University, Purwokerto, Central Java

Containerized ORC
Partner: General Electric Indonesia

HE and Piping for ORC PLTP Lahendong 500 kWe
Client : Helmholtz Centre Postdam GFZ German Research Centre for Geosciences
Location : Lahendong Geothermal Site, North Celebes
Scope of Work : Operation and Maintenance

Solar Thermal Semi-Cylinder ORC
Fund : Lembaga Pengelola Dana Pendidikan
Client : Universitas Ibn Khaldun, Bogor
Location : Campus area of Universitas Ibn Khaldun, Bogor, West Java

Mobile Biodiesel (300 Litter per Batch)
Client : The Ministry of Energy and Mineral Resources
Lokasi : Mobile Site

Kalorindo

CORPORATE
SOCIAL
RESPONSIBILITY

~ *Because We Care* ~

Green
Office area

Blood
Donation

Qurban
Eid ul-adha

KALORINDO PERFORMANCE UP

to 2016 has produced approximately 2300 units heat exchanger product for our clients scattered in Indonesia.

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www.kalorindo.co.id