



**MASTRA<sup>®</sup> TECH**  
TOTAL ENERGY EFFICIENCY

## CLEANLINESS



## LUBRICATION

**Auto-Lub®**

**BIJUR DELIMON**  
INTERNATIONAL

**FARVAL**



**DELIMON®**

**denco**  
Lubrication



## SPECIALTY PRODUCT



**WHELEN®**  
ENGINEERING COMPANY INC

**Hose & Fittings**



**Hectronic**

**Electrode Paste  
&  
Refractories**

## TECHNICAL & ENGINEERING SERVICES

Preventative Maintenance

24/7 + 365 days

Installation & Commissioning

Feasibility Studies

Product Development

System Integration

# Capability Statement of PT Mastratech Indonesia

## An Overview

- **Establish in 2005 as a PMA** (Penanaman Modal Asing) Company status
  - Approved by the Indonesian Investment Coordinating Board (BKPM)
- Our **vision mission** ensures we take an **initiative** to understand the operational parameters and needs of our customers. Follows by optimum **system integration** of agency line of reputable products, for sustainable environmental **eco-friendly** (ramah lingkungan) objective.
- Represent **reputable product** brands for mining industry
  - Auto Lubrication Systems (MLS) [www.bijurdelimon.com](http://www.bijurdelimon.com)
  - Fire Suppression Systems (MSS)
  - Wiggins Fueling Systems (MFS) [www.fastfueling.com](http://www.fastfueling.com)
  - Fluid Cleanliness Filtration (MFC) [www.hypofiltration.com](http://www.hypofiltration.com)
  - Warning Light (MWL) [www.whelen.com](http://www.whelen.com)
  - Specialty Grease and Lubricants
- **Design and system integration** capability
- **Track record** in mining related industry
  - BUMA, HPU, JRN, TUC, PSG, MUM, Hilcon Jaya, BKPL, SBS, PIM, Vale Indonesia, Freeport Indonesia, etc.
  - United Tractor, Trakindo Utama, Hexindo Adi Perkasa, Kobexindo, etc.
  - Nusantara Support Services (Singapore), Sime Darby Industry (Malaysia), Penjom Gold Mine (Malaysia)
- Business foundation and growth based on **personal integrity and commitment**

## Equipment Physical Availability

We provide warranty and reinforced by the issuance of certificate

## Site Support

- **Vendor Held Stocks (VHS) at site locations** - Provide service parts on site.
- **Resident Site Mechanic** - Mechanic at locations on 24/7 basis
- **Refurbish all brands of Systems & Equipment** - Cross-referencing (Product service parts) and retrofitting (old equipment).
- **Satellite Service Center** - Sorowako, Tanjung Redeb, Samarinda, Lahat Bandar Lampung, Surabaya & Jakarta
- **Preventative Maintenance Monitoring Software** - Online tracking system, tailor made for Autolub & Fire Suppression System (If needed Mastratech can customize report based on customer request).
- **Management Site Visit** - To ensure all products and maintenance services are performing to set target as reported.
- **Supply & Services Contract**

# COMPANY FEATURE

## PT MASTRATECH INDONESIA

Related to Automatic Lubrication System and Fire Suppression System Project at Customer

No.	FEATURE	ADVANTAGE - our strengths	Our oppositions
1	<b>Exclusive Distributor</b>	<b>Factory warranty</b> <b>Principal visit</b> to Indonesia <b>Principal technical support</b>	Some of our oppositions, are not authorized agent / distributor for sold products. Hence, they can only provide <b>"TOKO" warranty</b> instead of "FACTORY" warranty. Hence, <b>limitation manufacturer support</b> for product sold.
2	<b>Product Focus</b>	PT Mastratech Indonesia & its business founder, focus supplies on selective few reputative brands of products - <b>auto-lub®</b> , <b>fire suppression &amp; wiggins</b> .	<b>Supermarket concept</b> , with a large scope of products supplies, either on <b>exclusive</b> and/or <b>parallel import basis</b> .
3	<b>Own Installation Team</b>	Reduce possibility of installation mistakes. <b>Manpower:</b> <ul style="list-style-type: none"> <li>PT Mastratech Indonesia have service personnel ready for project.</li> </ul> <b>Skill:</b> <ul style="list-style-type: none"> <li>PT Mastratech Indonesia founders were senior technical, sales and marketing personnel from major opposition vehicle lubrication companies in Australia and Indonesia.</li> <li>To generate sales revenue in early year of Mastratech incorporation, we acquire practically experience by servicing opposition lubrication products.</li> <li>PT Mastratech Indonesia provide internal training to our own field personnel.</li> <li>PT Mastratech Indonesia provide tailored training to customer field personnel.</li> <li>PT Mastratech Indonesia acquires continuous skill upgrade from visiting overseas principal. This includes sending our own personnel for training at our overseas principal.</li> </ul>	Some of our oppositions use <b>Sub Contactor</b> for installation.
4	<b>Policy and knowledge on other product brands.</b>	Good product knowledge. Able to <b>maintain multi brands</b> (auto-lub® & fire suppression systems), installed on both <b>old/or new machine</b> .	Some of our oppositions, would only maintain <b>selective brands of auto-lub®, fire suppression systems and equipment only</b> .
5	Maintain <b>"min-max" stock</b> at Jakarta Warehouse and <b>Vendor Held Stock (VHS)</b> at site locations.	<b>Reduce delivery time.</b> PT Mastratech Indonesia shall carry sufficient quantity of <b>repair kits</b> to service both Mastratech and oppositions. This shall minimise premature total change out of components. This shall give better cost saving for customer.	"Min-Max" appears to be a common practice among our oppositions. We have no information to comment on their <b>PA (physical availability)</b> .
6	<b>Experience in installation</b> of Automatic Lubrication System onto mining equipment - KOMATSU, CAT, VOLVO, HITACHI, KOBELCO, HYUNDAI, including maintenance.	<b>Reduce mining equipment down time.</b>	Some of our oppositions would only handle selective brands of equipment, due to their <b>restrictive corporate policy</b> .
7	<b>Preventative Maintenance Software</b> - It is a special tailor made for automatic lubrication and fire suppression system.	Easier and faster to see <b>interactive online performance</b> of products and man power on site. PT Mastratech Indonesia service centre at customer location, shall be equipped with SYSHAB. It is our own tailored made service maintenance software for vehicle auto-lubrication and vehicle suppression system. Report parameters can be reformat / adjusted to suit customer request.	We believe PT Mastratech Indonesia, is the only company that actually develop a <b>tailored preventative maintenance, interactive software</b> for auto-lub® and fire suppression systems, with <b>online monitoring system feature</b> .



# COMPANY FEATURE

## PT MASTRATECH INDONESIA

Related to Automatic Lubrication System and Fire Suppression System Project at Customer

No.	FEATURE	ADVANTAGE - our strengths	Our oppositions
8	<b>Main &amp; Satellite Service Centres</b> - Jakarta, Samarinda, Surabaya, Lahat, Bandar Lampung, Tanjung Redeb, Batu Kajang, Angsana and Sorowako.	<b>Reduce</b> materials delivery and mechanics <b>responsive time</b> .	A common practice among our oppositions, but some of our oppositions do it as a " <b>pillion passenger</b> " basis.
9	<b>Product &amp; Components Availability – During &amp; After Service Contract Period</b>	PT Mastratech Indonesia commit on availability (supplies) and support of Mastratech & also opposition (Lincoln & Graco) components, <b>during and outside</b> service contract period.	
10	<b>Warranty</b>	<ul style="list-style-type: none"> <li>• <b>NEW</b> auto-lubrication system warranty is 12 months from date of commissioning.</li> <li>• <b>Replacement service parts / components</b> warranty is limited to 6 months from date of installation by our service personnel.</li> <li>• <b>Maximum liability</b> of Mastratech, in all circumstances, is limited to replacing similar lubrication systems free of charge</li> </ul>	
11	<b>Price</b>	<ul style="list-style-type: none"> <li>• PT Mastratech Indonesia will supply, install and commission <b>new vehicle auto lubrication system</b>, at price around 10% below that of our major oppositions (Graco &amp; Lincoln Industrial only). This is subjected to "apple to apple" specification &amp; certain model of vehicles. In almost all cases, 5% to 10% saving is a definite.</li> <li>• PT Mastratech Indonesia commit to <b>offer components / service parts of oppositions</b> (Lincoln Industrial &amp; Graco), at price no higher than, legitimate / master distributor of our opposition products.</li> </ul>	
12	<b>Auto-Lubrication Inspection Methodology</b>	<p><b>Dynamic test</b> (vibration test, ultrasonic test) and <b>Static test</b> (temperature test) are two common methods use for assessing quality of lubrication oil and lubricants in industrial applications, specifically in <b>stationary machine in manufacturing &amp; process industry</b> (such as sugar mills, cement mills, steel mills etc), whereby lubricating oil is contained in an enclosed container / machinery. It performs lubrication by continuous circulation of lubricating oil in the so called "enclosed space" environment.</p> <p>By measuring vibration and temperature of machineries, we can determine the suitability / choice of lubricants / oils for that particular application. Less vibration &amp; low temperature rises indicate perfect choice of lubricants / oils for that application.</p> <p><b>To our knowledge, such Dynamic test (vibration, ultrasonic) and Static test (temperature) are not applicable for lubrication &amp; material dispensing line / systems.</b></p> <p>For <b>lubrication line in vehicle auto lubrication systems</b>, we are more concern if lubricants actually serve the desire lubrication point. The only way can be assessed if <b>by visual inspection</b>. In another words, if grease is actually coming out of lubrication point, it indicates grease has been delivered from grease tank to lubrication point, whereby excess grease or present of grease can be visually checked.</p>	

# Filtration System - Coalesce



**At Hy-Pro Filtration our objective is to optimize the reliability of your hydraulic and lubrication assets and keep your plant operating at peak productivity. Our innovative filtration products solve a range of contamination challenges including lube oil varnish, phosphate ester fluid maintenance, servo valve failures, gearbox filtration, oil reclamation, particulate contamination, removing water from oil, and many more.**

**View our products pages to learn about our vacuum dehydrators, diesel and turbine oil coalescers, soluble varnish removal systems, filter element upgrades, filter assemblies, filter carts, skids & panels and more.**

## COD Diesel Fuel Conditioning Skid



Diesel fuel cleanliness is more critical than ever with increasing combustion pressures and sensitivity of fuel injectors. Keep diesel fluids clean for reliable and fuel efficient engine operation and to keep stand-by fuel reserves ready for service.

COD coalesce skids rapidly remove water from diesel fuel > 99% single pass water removal efficiency and high efficiency particulate filtration. Units available up to 600 gpm / 2,271 lpm for high volume treatment of bulk diesel tanks.

## COT & COT1 Turbine Oil Coalesce Skid



COT turbine oil coalesce skids rapidly remove water from turbine oil with > 95% single pass efficiency, control particulate to 16/14/11 and lower. COT skids are available to handle reservoirs up to 20,000 gallons and feature all synthetic media elements for pre-filter, coalesce, separation and post-filter.

# Filtration System - Vacuum Dehydrators



FILTRATION

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## Vac - U - Dry



Contaminant Type	VAC-U-DRY Capability
Water	Remove 100% free water 90% + dissolved water
Particulate	ISO Cleanliness Code 13/11/8 per ISO4406:1999
Gases	Remove 100% free gases 90% + dissolved gases
Air	Remove 100% free air 90% + dissolved air

Hydraulic and lube oil fluid contamination causes 75% of all hydraulic component and bearing failures. Increase plant reliability with the efficient Vac-U-Dry vacuum dehydration unit.

The VUD series vacuum dehydrator optimizes the balance between heat, vacuum and process design to rapidly remove free, emulsified and dissolved water and gas.

Achieve and maintain water levels down to 10 ppm for any sized reservoir.

Vac-U-Dry is available up to 100 gpm (375 lpm) for viscosities up to ISO VG1000 with many features that set the Hy-Pro unit.

Applications is in steel mill lube systems, turbine lube reservoirs, oil flushing and reclamation, bio-diesel polishing, paper machine lube oil, gearboxes, compressors and any other hydraulic or lube applications susceptible to water contamination in oil.

Other contamination control technologies can be integrated into VUD such as turbine oil varnish removal, phosphate ester acid scavenging and gross free water removal by coalesce for the ultimate oil purifier or turbine oil conditioner.

# Filtration System - Varnish Removal



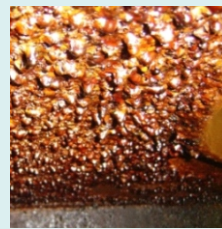
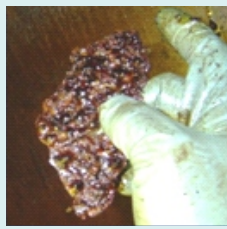
FILTRATION

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## Lube, AW Hydraulic and Turbine Lube Oil Varnish Removal

What is Varnish? A thin, hard, lustrous, oil-insoluble deposit, composed primarily of organic residue, & most readily definable by color intensity. It is not easily removed by wiping with a clean, dry, soft, lint-free wiping material and is resistant to saturated [light hydrocarbon] solvents. Its color may vary, but it usually appears in gray, brown or amber hues.



Varnish can be soft and gooey (sludge), hard and brittle (lacquer), stalactities or plated.



**SVR**



**FCLAW**



**FCLAW**



**FSTO**

When combustion and steam turbines fall victim to unit trip or fail-to-start condition varnish is the usual suspect. SVR Soluble Varnish Removal skids prevent and remove varnish deposit formation in lube oil by removing oxidation by-products as they are formed and while they are still in solution (dissolved). By removing the soluble varnish feedstock SVR is addressing the primary cause of varnish before varnish deposits can form.



# Auto Lubrication Systems - Mining Industry



Auto-Lub®



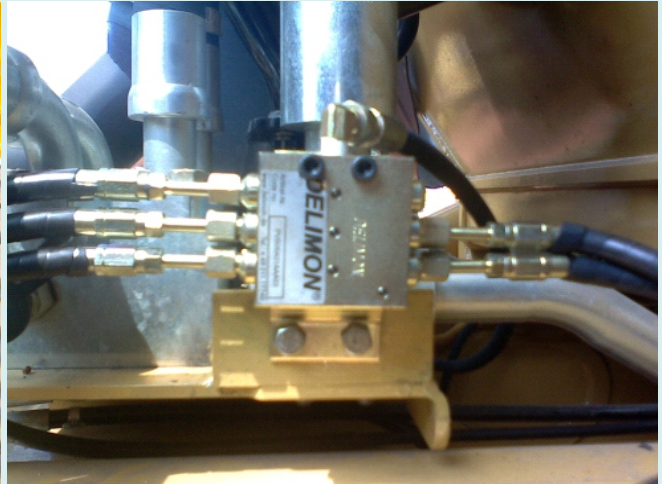
DELIMON®



Inadequate lubrication and bearing contamination are the two biggest contributors to improper lubrication resulting in over 50% of bearing failures causing machine downtime. Automatic lubrication systems can end these conditions associated with point-by-point manual lubrication. Too much lubrication creates safety or environmental hazards while too little lubrication causes bearing friction and wear. By applying a small amount of grease while the equipment is running ensures optimal lubrication to the bearings. The closed system design of an automatic lubrication system keeps dirt and contaminants out allowing for longer bearing life and less downtime.

Mastra® LUB (MLS) Vehicle Auto Lubrication Systems are automatic pre-programmed systems that dispense a measured amount of grease at timed intervals to bearings and other lubrication points. They are custom-engineered for robust mining environment, suitable for tropical to temperate climate with variant humidity. Our systems consist of major components from internationally accredited ISO certified manufacturers, including Bijur, Delimon and Farval - these companies are lubrication brands of Bijur Delimon International (BDI), a global leader in the design and manufacturing of various fluid dispensing products and systems.

## Mastra® LUB (MLS) Vehicle Auto Lubrication Systems



**Mastra® LUB (MLS)** vehicle auto lubrication systems are pre-engineered according to our own engineering design. They provide cost effective solutions for increasing uptime of mining and heavy equipment. There are a number of benefits to using an automatic lubrication system:

- Prolongs the life of the equipment adding resale value to the vehicle.
- Dramatic reduction in grease consumption as the precise amount of grease is metered at timed intervals.
- Increases productivity by eliminating the time spent on lubricating each machine manually.
- Lowers maintenance costs by reducing repair expenses and grease consumption.
- Improves safety by eliminating the daily practice of climbing all over the vehicle to lubricate.
- Receives proper lubrication irrespective of weather condition.

Automatic lubrication systems conserve lubricant and help prevent grease from hitting the ground protecting the environment, save valuable time and make routine maintenance simple.



# Auto Lubrication Systems - Heavy and General Industries



**DELIMON®**

**Denco**  
Lubrication



Bearing failure resulting from improper lubrication is a major cause of equipment downtime and unnecessary maintenance costs. The majority of failures are caused by contamination of bushings by dust, dirt and moisture, inadequate lubrication of bearings and over-lubrication of key pivot points. Direct costs resulting from inadequate lubrication can include cost of new replacement bearings, labour to replace these bearings and lost time, and its impact on productivity. On the other hand, indirect costs can include wasted lubricant, safety or housekeeping issues and higher labour costs involving manual lubrication practices.

Bijur Delimon International (BDI) is a global leader in the design and manufacturing of various fluid dispensing products and systems. It offers the widest lubrication systems in the marketplace. BDI has a family of lubrication brands that offer products for both light and heavy industry. Each of BDI brands has a long history of industrial success. BDI utilized the experience of each brand to provide the industry's widest product offering.

## Product Type

Bijur Delimon International provides a wide range of reliable lubrication products and components for almost any industrial application.

These product types include:

- Pumps   - Distribution Elements   - Controllers   - Special Lubrication Products   - Accessories



## System Type

Bijur Delimon International provides a wide range of reliable lubrication systems and cooling water systems for almost any industrial and process application.

These systems include:

Single Line System  
Dualine System  
Multi Line System

Progressive System  
Railway Lubrication  
Air-Oil Lubrication System

Oil Recirculation System  
Chain Lubrication System

## Industry

Bijur Delimon International has provided lubrication products for a variety of industries for over 80 years. Our diverse product line can be used in several industries, including new and emerging marketplaces.

These industries include:

Agriculture  
Automotive  
Cement  
Food and Beverage  
Machine Tools

Mining  
Mobile Off-Road  
Mobile On-Road  
Packaging  
Printing

Pulp and Paper  
Railway  
Steel  
Wind Energy

## MASTRATECH PRODUCTS FEATURE

For mining application

NAME OF SYSTEM	MARKET BRAND	PRODUCT OF ORIGIN		ADVANTAGE
		NAME	Manufactured in	
Automatic lubrication	Mastra <sup>®</sup> Auto-Lub <sup>®</sup> Lubrication System (MLS)	<b>Bijur Delimon International</b> - Delimon - Farval - Bijur - Denco - LubeSite	Germany USA Ireland UK	<ul style="list-style-type: none"><li>● Full <b>principal support</b></li><li>● Good <b>track record.</b></li><li>● <b>Manufacturer warranty</b></li></ul>



# Safety Systems - Vehicle Fire Suppression



Fire destroys billions of dollars worth of industrial and transit equipment every year. It causes manpower losses, decreased property value and in many cases, loss of human lives. Mining and heavy equipment are no exception. A fire in any of these vehicles is not only life-threatening, but could destroy an expensive irreplaceable vehicle.

These vehicles often work long hours under demanding conditions. Breaks in a fuel or hydraulic line in an engine compartment that touches off spilled fuel or hydraulic fluid can result in a rapidly expanding fire. Electrical shorts, particularly in larger mining vehicles can set the cable insulator on fire. Other ever-present dangers - coal dust igniting from a metal spark, a wire harness near the battery shorts against the vehicle's chassis, melts, then ignites. Often these fires start in parts of the vehicle where the operator cannot see smoke and flames until it is too late.

Mastra® Safety System (MSS) Vehicle Auto Fire Suppression Systems are designed to warn the operator and suppress the fire in its earliest stages before it becomes fully established and spreads to highly combustible areas, protecting both equipment and people. As a result, damage is limited and equipment downtime is held to a minimum. Fire risk is lower which in turn can lower insurance premium for the owners and/or leasees of the vehicles.

## Mastra® Safety System (MSS®) - Vehicle Auto Fire Suppression System

Mastra® Safety System (MSS®) vehicle auto fire suppression systems are unique engineered double protection, where using linear heat detector and plastic tube sensor to more ensure catch temperature and fire. We say Mastra® MSS E-HYBRID that use foam or dry chemical as the agent. The advantage of MSS are fully supervised, plug-in system, manual activated option, back-up battery in control panel, engine shut down, stainless steel foam line and down load of event. This system is complying to standard AS5062-2016.





## MASTRATECH PRODUCTS FEATURE

For mining application

NAME OF SYSTEM	MARKET BRAND	PRODUCT OF ORIGIN		ADVANTAGE
		NAME	Manufactured in	
Fire suppression	Mastra <sup>®</sup> Safety System (MSS <sup>®</sup> )	MSS <sup>®</sup>	INA	<ul style="list-style-type: none"> <li>● Our materials are to <b>mining specification</b>. Most of our oppositions use a combination of materials (building &amp; mining) specifications</li> <li>● Using <b>LOPEX<sup>®</sup></b> system, where all the components integrated and monitored by control panel.</li> <li>● Using <b>linear head detector</b> that have best detection performance against other type sensor (sensor module, pyrowick, etc.).</li> <li>● Have good <b>performance track record</b>.</li> <li>● <b>Manufacturer Warranty</b></li> </ul>

# Fueling Systems



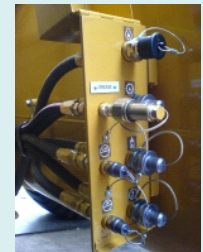
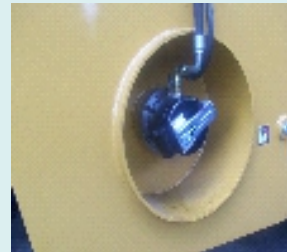
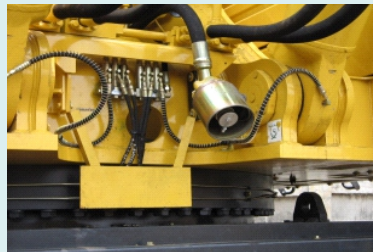
**Wiggins Service Systems - The Leader in Fueling**  
Systems since 1967  
Work Faster, Cleaner, Safer

**FAST FUEL®**

Since 1967, operators of heavy off-road equipment have relied on Wiggins Service Systems to provide faster and safer refueling of diesel powered machinery. By 1969, Wiggins Service Systems became a standard for Caterpillar. Today, Wiggins Service Systems are standard factory equipment on most large mining and construction vehicles produced worldwide. With rising costs associated with workers injury, hazardous material remediation and the increasing cost of diesel fuel, the Wiggins Service System is an essential tool for all off-road equipment. Wiggins Service Systems continue to lead the industry with innovative new products such as non-pressurized fast fuel systems. The patented non-pressurized fast fuel systems allow operators to use Wiggins high-flow fueling systems on vehicles with lightweight or composite fuel tanks. Wiggins - the #1 name for FAST - CLEAN - SAFE refueling solutions with aerospace quality and reliability.

As the exclusive agent/distributor for AdelWiggins Group, our Mastra® Fast Fuel® System (MFS) Vehicle Fueling Systems are complete with Wiggins components for fastsafe fueling solutions.

## Fuel Receivers - Centralized or External/Remote Mounted



**Fuel receivers** (with colour poppet options) at a centralized location. It enables oil and major fluids change in just 5 mins instead of some 30 minutes.

**Fuel receivers** can be external or remote mounted, allowing fueling to be completed while operator stands on the ground, meeting OHS requirements.

## Fuel Nozzles



### ZZ9A1 Fuel Nozzle

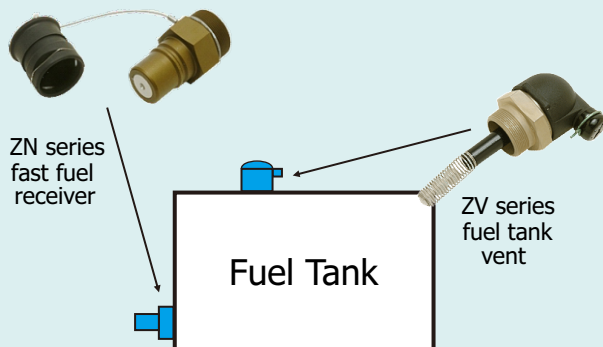
- Fuels at rates up to 150gpm.
- Lightweight composite.
- Elasto-dogs do not damage receivers/non-conductive.



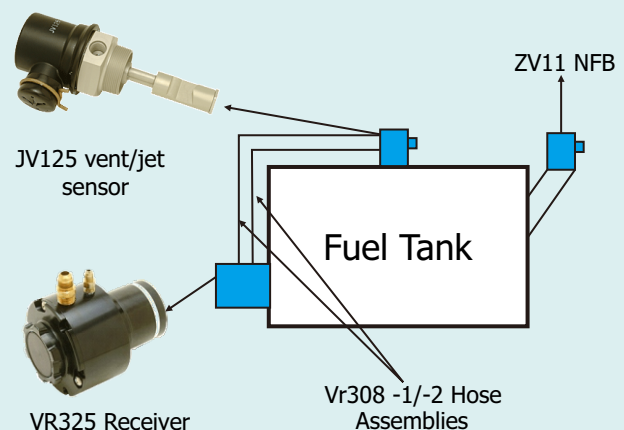
### VR301 High Rate Fueling Fuel Nozzle

- Fuels at rates up to 300gpm.
- Designed for very large vehicles with tank sizes over 1000 gallons.

## Pressurized Systems



## Non-Pressurized System



## MASTRATECH PRODUCTS FEATURE

For mining application

NAME OF SYSTEM	MARKET BRAND	PRODUCT OF ORIGIN		ADVANTAGE
		NAME	Manufactured in	
Fast fueling	Mastra <sup>®</sup> Fast Fueling System (MFS)	Wiggins	USA	<ul style="list-style-type: none"><li>● <b>Pioneer</b> of fast and safe fuelling system. <b>Standardized by OEM</b> (KOMATSU, CAT etc.)</li><li>● Full <b>principal support</b></li><li>● <b>Manufacturer Warranty</b></li></ul>

# Warning Systems and Signaling Devices

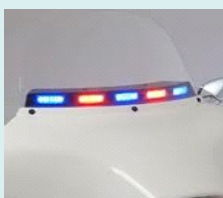


Responding to the needs of the emergency warning industry, the design and development of a wide range of high quality visual and audible innovative products are essential for safer vehicle operation. Lighting is essential to productivity due to different environmental requirements. There is also the relationship between lighting and human and vehicle performance. When it comes to lighting needs, there are thousands of possible applications, each application requires the same rigorous demands for durability, versatility and power. We represent a full range of lighting and safety technology products designed for every application. Our products from reputable manufacturers - Whelen, Woodway, Grote and Golight - will meet the most extreme conditions.

## Automotive

Whelen products for automotive applications are as follow:

Dash, Deck, Visor, Beacon, Power Supplies and Flasher, Light Head, Pole Assy, Systems DOT & Motor Cycles, Sirens, Switches and Speakers, Safety site, Emitters and back-up Alarms, Traffic Advisers, Mini Lightbars, Lightbars, 24VDC Green Products and Parts, Illumination Products.





# Warning Systems and Signaling Devices



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## Aviation

World aviation markets served:



Business / Corporate



General Aviation



Military



Rotocraft



Light Sport / Experimental



UAV

The Whelen products as shown bellow have parts manufacture approval from Federal Aviation Administration (FAA): Anti-Collision Strobe Light System, Rotating Beacon, Tail Position & Strobe Light Assy, Strobe Light Power Supply, Beacon Flasher, Landing Lights, Recognition Light and Wingtip Light Assembly, Wing Tip Light, Tail Light Assy, Downwash Light, Landing / Taxi Lights, Crew Call Horn, Fire Warning Horn, Helicopter Lighting, etc.



# Mass Notification Warning Systems



**How to warn people of a tornado, hurricane, tsunami, flash flood or chemical release and get the proper response?**

The most effective way to warn the public is to issue a siren warning and follow it with a clear, deliberate and powerful voice message. This two-step approach - **ALERT** and **INFORM**, will eliminate confusion, restore order and most importantly, save lives. Over 30 years ago Whelen produced the first reliable electronic mass notification product - the first major innovation in public warning in many decades. Today, Whelen offers a family of products that integrates outdoor and indoor warning into a single unified system. These warning products for public and industrial applications are specifically engineered for the emergency warning industry, being voice-capable and able to operate in the absence of electrical power. Whelen is the first name in Mass Notification, with more products installed worldwide than any other manufacturer.

## Whelen Mass Notification Products



Whelen Engineering Company Inc. has provided life saving high-power voice and siren warning systems for military, industrial and public situations to effectively trigger human awareness to surrounding dangers and impending natural disasters. Whelen manufactures a full range of public and industrial warning products, including state-of-the-art electronics for every application - campus/student alert, tornado/severe weather warning, hurricane warning, tsunami alert, chemical/industrial facilities, military bases, nuclear plant protection, community firehouse alert and port protection.

## Outdoor High-Power Voice and Siren Warning Systems



### To Alert and Inform ... with Whelen

The Whelen WPS2900 Series accomplishes this in two ways. One is to Alert - the powerful siren warning and broadcasting tones get the attention of those in danger. The other is to Inform - the voice messages provide live and pre-recorded voice information that describe the emergency and provide safety instructions through omni-directional sirens.



The WPS2900 Series delivers siren warning and broadcasting of unequalled clarity at uniform power levels (1dB) through 360°. This Series comes in 10 different models ranging in capability from 108dB to 129dB at 100 feet.

## Indoor Warning Systems



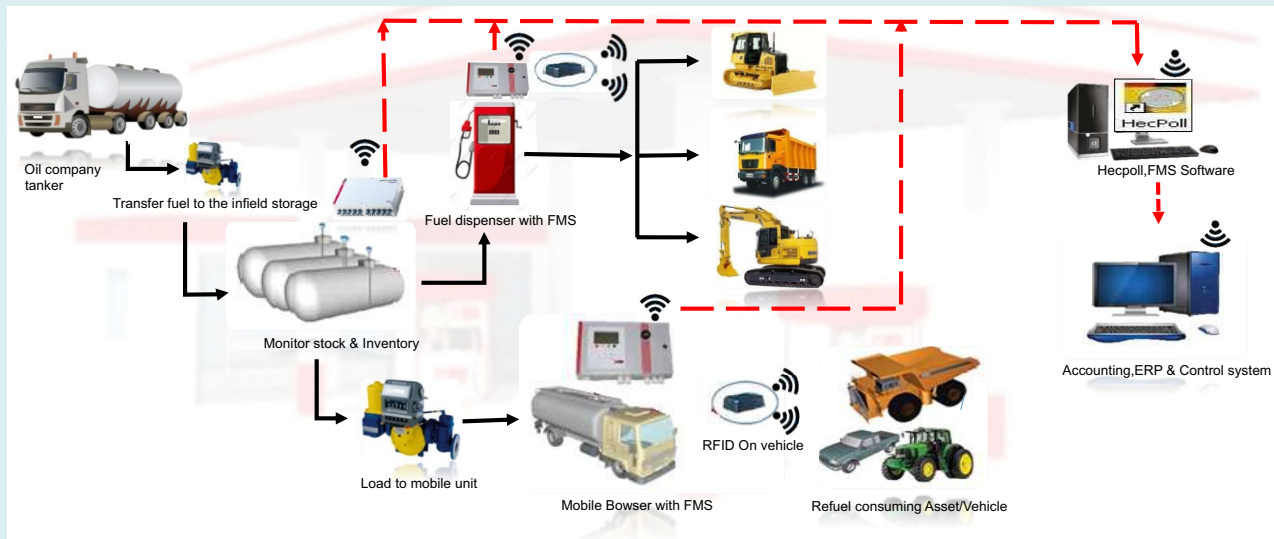
Notification and emergency action of those that are indoors can often be just as critical as those outdoors. The Whelen VA2000 Alert Monitor and Message Display provides instant information defining the emergency condition, sounds a piercing alarm, flashes a high intensity LED and displays one of up to 60 pre-programmed messages when activated. Messages remain on display until the unit is reset. The VA2000 extends the reach of a warning system delivering urgent text-based information to homes, schools, hospitals, businesses, industrial facilities, government offices and emergency vehicles.

# Fuel Management System

## Hectronic

**Hectronic provides a total integrated solution, combining hardware and software for refueling . It provides comprehensive fuel accounting, from receipt into bulk storage tanks through to the refueling point as the consuming vehicle or asset.**

### Advantage and benefits of system



- Robust & user friendly system
- Only authorised refuelling
- Accurate accounting on every litre of fuel received & dispensed
- Various types of reports available at click of mouse
- Remote monitoring & control on every stage of fuelling
- Customised MIS reports for optimising fuel cost
- High security standards
- Software can be integrated to third party system like SAP, ERP
- Inventory management on 24/7 basis
- Water detection in fuel
- Total transparency, better control over refuelling operations & brings clear business visibility on overall fuel expenditure

#### Solution Benefits:

- Modularity and scalability ensures quicker return on investment.
- Proven track record of reducing costs.
- Accurate and on time billing.
- Accurate and on time reports, including exception reports.
- Solution integration with existing equipment.
- Reducing fraudulent activities.
- Reduced errors because of minimal human intervention.
- Reduced run-dry occurrences and stock holding optimization.

#### Solution Features:

- Monitor inventory levels with tank gauging equipment.
- Track bulk stock movements, receipt, transfers and disposals.
- Track bulk vehicle loading.
- Track vehicle and asset refueling.
- Prevents fraudulent product dispensing with RFID tagging and authorization control.
- Static leak detection in storage tanks.
- Product verification, preventing cross-contamination in consuming assets.
- Transaction audit trail and cost code allocation for every transaction.
- Sales and purchase order linking with your accounting or ERP/SAP system.
- Reporting; consumption, exception reports, product reconciliation and more.



# Electrode Paste & Refractories



**RONGXING GROUP**

Electrode Paste is used in submerged arc furnaces for delivering power to the charge mix. Electrode Paste is added to the top of the electrode column in either cylindrical or briquette form. As the paste moves down the electrode column the temperature increase causes the paste to melt and subsequently bake forming a block of electrically conductive carbon. Electrode Paste is essentially a mix of Electrically Calcined Anthracite (ECA) or Calcined Petroleum Coke (CPC) with Coal Tar Pitch.

Rongxing group has consistently employed the most rigorous quality standards in order to meet and even exceed its customer's requirements and has attained ISO 9001:2008 certification for quality and process standards. The company operates state-of-the-art laboratories at its manufacturing facilities to ensure that only the highest quality product reaches its customers. All manufacturing facilities are also ISO 14001:2015 certified and follow internationally recognized environmental management standards.

## TYPICAL SPECIFICATIONS OF ELECTRODE PASTE



Electrode Paste Cylinder



Electrode Paste Briquettes

### GREEN PASTE

Property	Unit	ECA Base	CPC Base
Plasticity	%	As per customer's requirement	As per customer's requirement
Fixed Carbon	%	82 min	86 min
Volatile Matter	%	12 max	13 max
Ash	%	6 max	1 max
Apparent Density	gm/cc	1.65 min	1.65 min

### BAKED PASTE

Property	Unit	ECA Base	CPC Base
Fixed Carbon	%	93 min	99 min
Apparent Density	gm/cc	1.45 min	1.40 min
Cold Crushing Strength	kg/cm2	250 min	200 min
Electrical Resistivity	%	6 max	1 max



# Electrode Paste

PT Mastratech Indonesia is also a supplier of electrode paste and other carbon products for the ferroalloy, silicon, steel, and aluminum industries.

We provide professional services to evaluate the operating parameters of electric furnaces and produce the self-baking electrode paste for electric smelting of calcium carbide, pig iron and ferroalloys such as ferronickel, ferrosilicon and ferromanganese with optimum performance and controlled production cost.

## DIFFERENT FORMS OF ELECTRODE PASTE



Cylinder Shape



Eggs Shape



Briquette Shape



Trapezoid Shape

## TYPICAL SPECIFICATIONS

Typical electrode paste specification range is as shown below. Other specification can be tailored made to meet client request.

Description	UoM	Value
<b>GREEN</b>		
VOLATILES	%	10% - 15%
APPARENT DENSITY	gm/cc	1.38 - 1.55
PLASTICITY	%	30% - 40%
<b>BAKED</b>		
APPARENT DENSITY	gm/cm <sup>3</sup>	1.8 - 1.9
ELECTRICAL RESISTIVITY	micro ohm meter	55 - 90
COMPRESSIVE STRENGTH	N/mm <sup>2</sup>	>20
BENDING STRENGTH	N/mm <sup>2</sup>	4 - 6
YOUNG'S MODULUS	KN/mm <sup>2</sup>	2 - 4
ASH CONTENT	%	2% - 6%
SULPHUR	%	1% Max



# REFRACTORIES

**With more than 18 productions site and 16 countries, Calderys provides value added refractory solutions by supplying the most comprehensive range of monolithic and fire brick products for the iron, steel, foundry, aluminium, cement, thermal industries, petrochemical and others market.**

**Our excellent team have ability to deliver high-quality product and project management services, from planning and installation to commissioning.**



## Our Products

### Monolithic Refractories

- Conventional Castable
- Low Cement Castable
- Ultra Low Cement Castable
- High Alumina Castable
- Gunning Castable
- Plastic Refractories
- Ramming Mix
- Silicon Carbide Castable
- Magnesite Based Castable
- Mortar and Coating Material
- Insulating Castable

### Precast Refractories

- EAF Roof Block
- Roof Ring
- Tundish Snout
- Burner Block
- Tapping Block
- Lounder Block
- Well Block
- Damper
- Dome Brick
- Other Customised Refractories

### Brick Refractories

- Fire Clay Brick
- High Alumina Brick
- Insulating Brick
- Special Shape and Size Brick
- Anchor Brick
- Magnesite Brick
- Ramming Mix
- Magnesite-Chrome Brick
- Magnesite Carbon Brick



# Engineering And Technical Services

We believe in the value of providing total engineering solutions to address the needs and demands of our valued customers. With our technical strength and industrial experiences, we are well placed to provide a host of engineering and technical services to support customers' requirements from site surveys and design aspects to after-sales customer care services. Mastra® SERVICE (MSE) Engineering and Technical Services include:

- 365 days, 24/7 Maintenance and Service Contracts.
- Installation, testing and commissioning services.
- Inspection and feasibility studies of proposed systems and complex projects.
- Product development and implementation.
- Custom-engineered systems and integration of preventative maintenance solutions.

Our engineers and technicians are technically and skillfully trained by our principals on a regular basis, both locally as well as at our principals' overseas manufacturing facilities.

## Auto Lubrication and Fire Suppression Systems



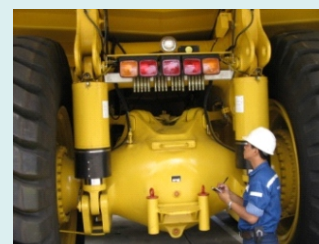
Vehicle auto lubrication system showing a pneumatic driven injector system installed on a motor grader construction equipment.



Hydraulic pump station on a dump truck.



Stainless steel foam cylinder.



Testing and commissioning of system to meet customers' satisfaction.

## Fueling Systems



Wiggins fueling systems for fastsafe fueling solutions. Reduce fueling time to 5 mins instead of 30 mins. Patented non-pressurized fast fuel systems use no floats, valves or electronic sensors. Most suited for installation on lightweight or composite fuel tanks.



## CCTV Camera and Safety Systems



Four-camera CCTV camera system fitted on Komatsu PC3000 at Kalimantan coal mine site provides enhanced views (front, rear and sides) of the equipment's peripherals. Increases operator confidence ensuring safety, better damage control and improve productivity.





# SAFETY SYSTEMS - MASTRA SAVE VIEW



The camera have IP65 weatherproof quad monitor and IP69K waterproof camera is perfectly designed for a wide range of commercial vehicles. This weatherproof monitor is suitable for a semi-open top construction machines like excavator, wheel loaders, etc. The camera (AE-CM10Z) is a IP69K camera that can be sprayed cleaning by a water pressure gun or steam without water leakage

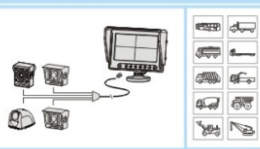
## Our Product

MSV70MC4



### Main Features

The 7 inch IP65 weatherproof quad monitor and IP69K waterproof camera is perfectly designed for a wide range of commercial vehicles. This weatherproof monitor is suitable for a semi-open top construction machines like excavator, wheel loaders, etc. The camera (AE-CM10Z) is a IP69K camera that can be sprayed cleaning by a water pressure gun or steam without water leakage.

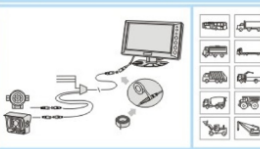


MSV70AC2



### Main Features

The 7" wide TFT LCD monitor directly connects up to two cameras. Camera selection can be realized both automatically and manually. Automatic picture display whenever reverse gear is engaged.

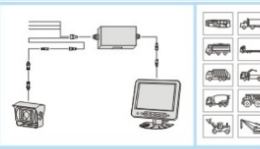


MSV56B1



### Main Features

The most economic system in the world! With compact and modern-designed 5.6" TFT LCD monitor and standard heavy duty SONY CCD camera, this one camera input system offers you a high quality image in day and night time. With wide input voltage 10V DC to 30V DC, it is able to offer you a steady and reliable quality.



AE-TM 56B



### Technical Data

Screen size: 5.6" / 4:3
Brightness: 350cd/m²
Resolution: 921600 pixels
Video input: 2
Power supply: 12/24V DC, without control box
Power consumption: ≤5W
Housing protection class: IP30
Shock resistance: ≥5G
Operating temperature: -20°C to +70°C
Dimension: 150(L)*126(W)*27(D)mm
Weight Approx: 479g



AE-CM 10Z



### Technical Data

Image type: 1/4 inch color sony CCD
Lens: 1.6mm, F2.5, 150° diagonal
Resolution: PAL 500(H)*582(V), NTSC 510(H)*492(V)
IR LEDs: 11 pcs
Horizontal resolution: 420 TV Line
Signal to noise ratio: >48dB
Power supply: DC12V±10%
Housing protection class: IP69K
Vibration resistance: ≥5G
Operating temperature: -30°C to +70°C
Dimension: 82.5(L)*71(W)*92(D)mm



AE-TM 70M



### Technical Data

Screen size: 7" / 16:9
Brightness: 400cd/m²
Resolution: 1152000 pixels
Video input: 4
Power supply: 12/24V DC, with control box
Power consumption: ≤5W
Housing protection class: IP65
Shock resistance: ≥5G
Operating temperature: -20°C to +70°C
Dimension: 200(L)*138.5(W)*76(D) mm
Weight Approx: 800g





## CONTACT INFORMATION



**PT Mastratech Indonesia is committed in providing the very best in quality, availability, reliability, durability and service. We will continue to excel beyond the boundaries of "Customer Value and Satisfaction" in acquiring premium and competitive products, optimize design concepts on preventative maintenance solutions and provide a high level of customer care and service excellence.**

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