



## **COMPANY PROFILE**



## **GADING SUPPLY & SERVICES SDN BHD**

Address:

No. 09-01, Jalan Api-Api 5, Taman Megah Ria,  
81750 Masai, Johor Darul Takzim

Tel: 017-601 9220 / 012-604 9347 / 012-769 0311

Email: [gading.group.gsb@gmail.com](mailto:gading.group.gsb@gmail.com)

<http://gading.yolasite.com>

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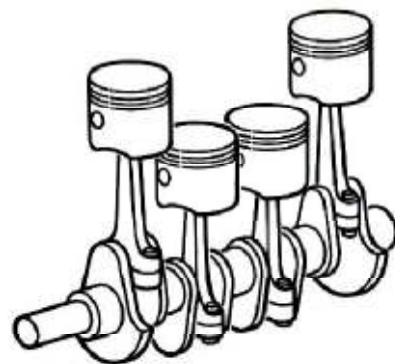
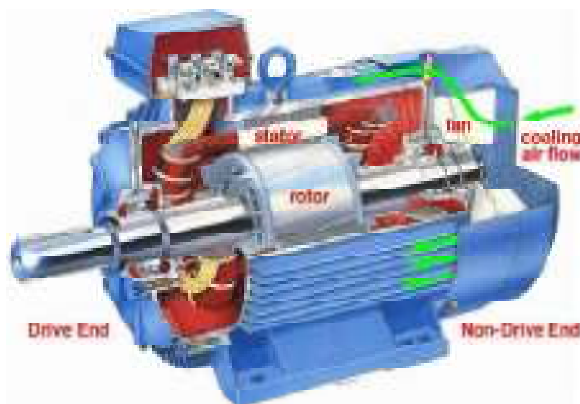
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## COMPANY INTRODUCTION

**GADING SUPPLY & SERVICES SDN BHD (GSSB)** was incorporated in 2007 that formerly known as GADING (2005). GSSB started the business by carrying the Predictive & Preventive Maintenance services for Maintenance peoples. The great acceptance from the market survey, GSSB increases the commitment by delivered more Technical application and knowledge. Together on the achieving company ambitious, the GSSB are now expanded the core business through the Performance Testing **(Pump Performance Test)** and technical support services.

Through this, GSSB brought the best technologies application known as Vibration Monitoring & Analysis into the industries. Since the introduction performed a few years ago, now a large number of the surrounding company are already aware of the importance in implementing good program and proper maintenance application for their management system.



## COMPANY OVERVIEW

GSSB are now involved mainly in the Testing, Commissioning and Engineering Technical Support Services. GSSB now focusing its business by continuing in participating into:

- Oil & Gas Industry
- Petrochemical
- Refineries
- Power Industries
- Process Plant Industry
- Marine Industry
- Bio-Diesel & Biomass
- Heavy Industry Process
- Water Treatment Industry
- Oleochemical Industry
- Government Sector
- Manufacturing Factory Industries
- Private Contract

We also offer a comprehensive Predictive & Preventive maintenance range of services including:

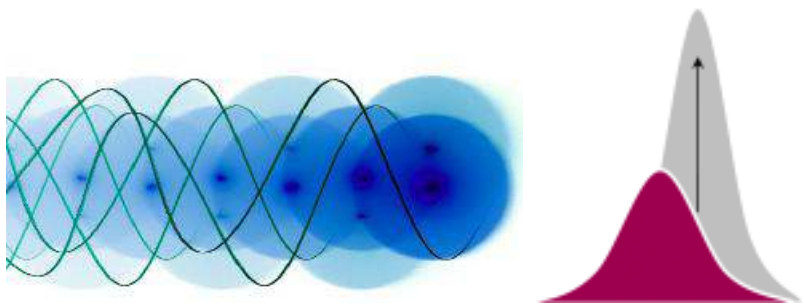
- Engineering Consultations
- Maintenance Services
- Technology Training
- Contract Services

We have vast practical experience to call on when we approach any problems that our customer may have. We bring with us, knowledge and experience on having worked with some companies around this regions through the Condition Based Monitoring Program.

Condition Based Monitoring (CBM) program is established by a GSSB management after being introduced to the capabilities of Predictive Maintenance (PdM) – especially reliability of rotating equipment as a Vibration Specialist. The business decision always is made in-term to take advantage of these PdM technologies, the capital funds and manpower are allocated to this state-of-the-art maintenance technology. At the initial onset, there is a great expectation of reaping the benefits from increasing equipment uptime by eliminating unscheduled breakdowns.

In the spirit of Continuous Improvement, and as the PdM program matures in knowledge, experience and training, our analysts realize the need to improve their vibration database for customer satisfaction. Many companies are staffed on the lean side of manpower. In addition, as the PdM program demonstrates its ability to predict equipment failures, the workload increases, resulting in assigned daily activities in excess of the available 40 hrs/wk. As a result, it is time to build the database for optimum program effectiveness.

Based on the understanding, the groups of people are involved in firming the company that capable to fulfill the industries needs. It named GSSB and now we are completely ready to give full contribution to the various industries.



## COMPANY INFORMATION

Name : GADING SUPPLY & SERVICES SDN. BHD.

Company Reg. : 776246 – W

Business Address : No. 09-01 Jalan Api-Api 5,  
Taman Megah Ria,  
81750 Masai, Johor Darul Takzim

Email : gading.group.gssb@gmail.com

Directors : Mohd Helmy Bin Ibrahim  
Ir. Abdul Halim Mohd Damiah

Secretary Company : Mohd Shafie Bin Sian (LS 05525)  
No.46-A, Jalan Ara 1, Taman Rinting,  
81750 Masai, Johor,  
Johor Darul Takzim.

Paid Up Capital : RM 250,000.00

Authorised Capital : RM 250,000.00

Banker : Malayan Banking Berhad  
14, Pusat Perdagangan (Business Centre)  
Jalan Bandar, 81700 Masai,  
Johor Darul Takzim.

Account No. : GADING SUPPLY & SERVICES SDN. BHD  
Maybank Berhad – 501244312336

... yang telah dipaparkan di bawah ini adalah merupakan salinan daripada ...



**BORANG 9**  
**AKTA SYARIKAT 1965**

(Iskayen 662)

No. Syarikat  
**776246**

**PERAKUAN PEMERBADANAN SYARIKAT SENDIRIAN**

**Adalah diperakui bahawa**

**GADING SUPPLY & SERVICES SDN. BHD**

telah diperbadankan di bawah Akta Syarikat 1965, pada dan mulai dari  
**07** haribulan Jun 2007, dan bahawa syarikat ini adalah sebuah syarikat

berhad menurut syer dan bahawa syarikat ini adalah sebuah syarikat sendirian

Dibuat di bawah tandatangan dan meter saya di Johor Bahru  
pada 07 haribulan Jun 2007

**ROSLI B. HJ AHMAD**

**RENEONG PENDAFTAR SYARIKAT**

**MALAYSIA**

UserID: ms... 17/2007-11:34:54 AM

# COMPANY ORGANIZATION CHART

## GADING SUPPLY & SERVICES SDN BHD

**MOHD HELMY IBRAHIM**  
OPERATION MANAGER  
VIBRATION SPECIALIST  
(ROTATING & RECIPROCATING MACHINERY)

**PROASPECT SOLUTIONS SINGAPORE**  
**S.T.ANBUKKANI**  
CONSULTANT & RESEARCH

**MOHAMAD RAFI BIN ABU BAKAR**  
MARKETING / PUBLIC RELATIONS MANAGER

**TEO MEI LING**  
ADMINISTRATION EXECUTIVE

GENERAL CLERK

ACCOUNT CLERK

### CBM DIVISION

#### OPERATION TEAM A

**SHAHRIZAN ANUAR**  
STATIC & ROTATING  
ENGINEER

TECHNICAL  
ASSISTANT  
(4)

#### OPERATION TEAM B

**BAHARUDDIN BIN MUSTAPHA**  
MACHINERY EXECUTIVE  
VIBRATION ANALYST

TECHNICAL  
ASSISTANT  
(4)

#### OPERATION TEAM C

**AMIR HAFIZ ZUBIR**  
QA/QC JR. ENGINEER

TECHNICAL  
ASSISTANT  
(4)

**HISHAM BIN MOHAMED**  
TECHNICAL ADVISOR /  
PROJECT MANAGER

TECHNICAL  
ASSISTANT

TECHNICAL  
ASSISTANT

TECHNICAL  
ASSISTANT

### ENGINEERING DIVISION

**OPTIMIZATION HEAD**

TECHNICAL  
ASSISTANT

TECHNICAL  
ASSISTANT

TECHNICAL  
ASSISTANT

ASST MARKETING

ASST MARKETING



## COMPANY TRACK RECORDS

### COMPANY: PELANGI SHIPPING SDN BHD

INDUSTRIES: SHIP CHARTERED

JOB DESCRIPTION: Performing CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Services for Generator Set (rotating machineries).

Details: Floating (On-Board) Overhauling of Generator Set (Daihatsu 6 in-line cylinder), Vibration Analysis for Before and after overhaul,

### COMPANY: MALAYSIA MARINE & HEAVY ENGINEERING SDN BHD

INDUSTRIES: LNG PUTERI ZAMRUD / PUTERI ZAMRUD 1

JOB DESCRIPTION: Performed Predictive & Proactive Maintenance Services for rotating machineries – Motor Compressor, Blower Fan & Pumps.

Details: Vibration Analysis, Precision On-site Balancing works, Precision Laser Alignment works, Consultation & Product Supplier.

### COMPANY: LEIGHTON SEA (M) SDN BHD

INDUSTRIES: PIPE LAY BARGE – FLOATING REPAIR (Owned AUSTRALIA)

JOB DESCRIPTION: Berthing Agency, Predictive & Proactive Maintenance Services Total Barge (Hot works).

Details: Vibration Analysis, Precision On-site Balancing works, Precision Laser Alignment works, Consultation & Product Supplier.

### COMPANY: ASL SHIPYARD SINGAPORE PTE LTD

INDUSTRIES: TANKER ALICE THERESA (Owned DENMARK)

JOB DESCRIPTION: Performed of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Services for DMA Requirements on board – SEA TRIAL.

Details: Comfort Vibration Analysis, Precision On-site Balancing works, Precision Laser Alignment works, Consultation & Product Supplier.

### COMPANY: JASA MERIN SDN BHD

INDUSTRIES: PERMINT SEPOI

JOB DESCRIPTION: Performed of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Services for rotating machineries – Main Engine, Pump & Generator Engine on board.

Details: Vibration Analysis, Precision On-site Balancing works, Precision Laser Alignment works, Consultation & Product Supplier.

**COMPANY: TL OFFSHORE SDN BHD**

**INDUSTRIES: MV PACESETTER**

**JOB DESCRIPTION:** Performed **CONDITION BASED MAINTENANCE (CBM)** – Predictive & Proactive Maintenance Services for rotating machineries on board – Hydrant pump Gearbox.  
**Details:** Vibration Analysis, Precision On-site Balancing works, Precision Laser Alignment works, Consultation & Product Supplier.

**COMPANY: ANTARA STEEL MILLS SDN BHD**

**INDUSTRIES: STEEL MILLS PLANT**

**JOB DESCRIPTION:** Contracting of **CONDITION BASED MAINTENANCE (CBM)** – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.  
**Details:** Vibration Analysis for RCS Insurance, Precision On-site Balancing works, Precision Laser Alignment works, HRDF Claimable Training Program, Consultation & Product Supplier.

**COMPANY: HOLCIM MALAYSIA SDN BHD / HOLCIM MARKETING (M) SDN BHD**

**COMPANY: LAFARGE CEMENT SDN BHD**

**COMPANY: YTL SLAG CEMENT SDN BHD**

**INDUSTRIES: CEMENT PLANT**

**JOB DESCRIPTION:** Contracting of **CONDITION BASED MAINTENANCE (CBM)** – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.  
**Details:** Vibration Analysis for Maintenance Department, Precision On-site Balancing works, Precision Laser Alignment works, HRDF Claimable Training Program, Consultation & Product Supplier.

**COMPANY: KERRY INGREDIENTS SDN BHD (JOHOR)**

**INDUSTRIES: FOOD MANUFACTURING PLANT**

**JOB DESCRIPTION:** Contracting of **CONDITION BASED MAINTENANCE (CBM)** – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.  
**Details:** Vibration Analysis for Maintenance Department, Precision On-site Balancing works, Precision Laser Alignment works, HRDF Claimable Training Program, Consultation & Product Supplier.

**COMPANY:** PGEO SDN BHD  
**INDUSTRIES:** OLEOCHEMICAL PLANT  
**JOB DESCRIPTION:** Contracting of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.  
**Details:** Vibration Analysis for Maintenance Department, Precision On-site Balancing works, Precision Laser Alignment works, Consultation & Product Supplier.

**COMPANY:** STRATEGI TEGAS SDN BHD (Sg. JOHOR & Sg. LAYANG)  
**INDUSTRIES:** WATER TREATMENT PLANT  
**JOB DESCRIPTION:** Contracting of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.  
**Details:** Vibration Analysis for Maintenance Department, Precision On-site Balancing works, Precision Laser Alignment works, Consultation & Product Supplier.

**COMPANY:** IFFCO MALAYSIA SDN BHD  
**INDUSTRIES:** OLEOCHEMICAL & PRODUCTION PLANT  
**JOB DESCRIPTION:** Contracting of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.  
**Details:** Vibration Analysis for Maintenance Department, Precision On-site Balancing works, Precision Laser Alignment works, HRDF Claimable Training Program, Consultation & Product Supplier.

**COMPANY:** PETROCHEMICAL SDN BHD  
**INDUSTRIES:** PETROCHEMICAL PLANT  
**JOB DESCRIPTION:** Contracting of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.  
**Details:** Precision On-site Balancing works, HRDF Claimable Training Program, Consultation & Product Supplier.

**COMPANY:** ZONC ENGINEERING SDN BHD  
**INDUSTRIES:** MECHANICAL REPAIRING COMPANY  
**JOB DESCRIPTION:** Contracting of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.  
**Details:** Vibration Analysis for Maintenance Department, Precision On-site Balancing works, Consultation & Product Supplier.

**COMPANY:** GREAT SAMA SDN BHD  
**INDUSTRIES:** ELECTRICAL REPAIRING COMPANY  
**JOB DESCRIPTION:** Contracting of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.  
**Details:** Vibration Analysis for Maintenance Department, Precision On-site Balancing works, Consultation & Product Supplier.

**COMPANY:** CALSONIC KANSEI MALAYSIA SDN BHD  
**INDUSTRIES:** MANUFACTURING  
**JOB DESCRIPTION:** Contracting of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.  
**Details:** Vibration Analysis for Maintenance Department, Precision On-site Balancing works, Consultation & Product Supplier.

**COMPANY:** POLYMERLATEX SDN BHD  
**INDUSTRIES:** PRODUCTION PLANT  
**JOB DESCRIPTION:** Contracting of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.  
**Details:** Vibration Analysis for Maintenance Department, Precision On-site Balancing works, Consultation & Product Supplier.

**COMPANY:** MEWAHOLEO INDUSTRIES SDN BHD  
**INDUSTRIES:** PRODUCTION PLANT  
**JOB DESCRIPTION:** Contracting of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.  
**Details:** Vibration Analysis for Maintenance Department, Precision On-site Balancing works, Consultation & Product Supplier.

**COMPANY:** GKY EQUIPMENT RENTAL (M) SDN BHD  
**INDUSTRIES:** MACHINERY RENTAL COMPANY  
**JOB DESCRIPTION:** Third party inspection and Witnessing of load testing of welding racks and gas/cylinder racks and other related load lifting frames.

**COMPANY: TECHNIP – ASIAFLEX PRODUCT SDN BHD**

**INDUSTRIES: MANUFACTURING PLANT**

**JOB DESCRIPTION:** Contracting of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.

**Details:** Vibration Analysis for Maintenance Department, Precision On-site Balancing works, Precision Laser Alignment works, Consultation & Product Supplier.

**COMPANY: KISWIRE CORD SDN BHD**

**INDUSTRIES: MANUFACTURING PLANT**

**JOB DESCRIPTION:** Contracting of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.

**Details:** Vibration Analysis for Maintenance Department, Precision On-site Balancing works, Precision Laser Alignment works, Consultation & Product Supplier.

**COMPANY: KERRY INGREDIENTS SDN BHD (PENANG)**

**INDUSTRIES: FOOD MANUFACTURING PLANT**

**JOB DESCRIPTION:** Contracting of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.

**Details:** Vibration Analysis for Maintenance Department, Precision On-site Balancing works, Precision Laser Alignment works, HRDF Claimable Training Program, Consultation & Product Supplier.

**COMPANY: KEWALRAM (ECOOILS SDN BHD)**

**INDUSTRIES: OLEOCHEMICAL & PRODUCTION PLANT**

**JOB DESCRIPTION:** Contracting of CONDITION BASED MAINTENANCE (CBM) – Predictive & Proactive Maintenance Program for rotating machineries in total Plant productions.

**Details:** Vibration Analysis for Maintenance Department, Precision On-site Balancing works, Precision Laser Alignment works, HRDF Claimable Training Program, Consultation & Product Supplier.

## INTERNATIONAL REFERENCES

### ISO 10816-3

#### Evaluation standard for vibration monitoring

The effective value of the vibration velocity is used for assessing the machine condition. This value can be determined by almost all conventional vibration measurement devices.

DIN ISO 10816-3 separates the machines into different groups and takes the type of installation into account.

- Green: Zone A  
Vibration values from machines just put into operation.
- Yellow: Zone B  
Machines can run in continuous operation without any restrictions
- Orange: Zone C  
Vibration values in yellow indicate that the machine condition is not suitable for continuous operation, only for a limited period of time. Corrective measures should be taken at the next opportunity.
- Red: Zone D  
Dangerous vibration values – damage could occur to the machine.

								<b>Velocity</b>  10-1000 Hz $f > 600$ rpm 2-1000 Hz $f > 120$ rpm			
										11	0.43
										7.1	0.28
										4.5	0.18
										3.5	0.14
										2.8	0.11
										2.3	0.09
										1.4	0.06
										0.71	0.03
										rigid	flexible
								Foundation			
pumps > 15 kW radial, axial, mixed flow				medium sized machines 15 kW < P ≤ 300 kW		large machines 300 kW < P < 50 MW		Machine Type			
integrated driver		external driver		motors 160 mm ≤ H < 315 mm		motors 315 mm ≤ H					
Group 4		Group 3		Group 2		Group 1		Group			

**A** New machine condition

**C** Short-term operation allowable

**B** Unlimited long-term operation allowable

**D** Vibration causes damage

## INTERNATIONAL REFERENCES

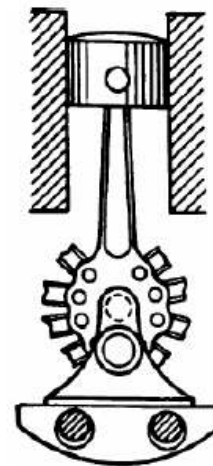
DIN ISO 10816-7	Category 1		Category 2						
Pump type	Rotodynamic pumps with high reliability, availability or security requirements.		Rotodynamic pumps for general or less critical applications.		r < 600 rpm				
Power	< 200 kW	> 200 kW	< 200 kW	> 200 kW	0.5 rpm 1.0 rpm 2.0 rpm				
Velocity $v_{eff}$  10–1000 Hz r > 600 rpm  2–1000 Hz r < 600 rpm	7,6	D	9,5	D	Displacement $S_{D-P}$  130 80 50 µm				
	6,5	C	8,5	C					
	5,0	B	6,1	B					
	4,0	A	5,1	A					
	3,5	A	4,2	A					
	2,5	A	3,2	A					
mm/s rms		mm/s rms							
		A	Newly commissioned machines	B	Unrestricted long term operation	C	Restricted long term operation	D	Vibration causing damage

## Vibration Evaluation Standard – Reciprocating machine

Vibration Severity Grade	Overall vibration measurement measured on the machine structure			Machine Class*						
	Displacement in µm – micron (rms)	Velocity In mm/sec (rms)	Acceleration meter / sec <sup>2</sup> (rms)	1	2	3	4	5	6	7
1,1	≤ 17,8	≤ 1,12	≤ 1,76	A / B	A / B	A / B	A / B	A / B	A / B	A / B
1,8	≤ 28,3	≤ 1,78	≤ 2,79	A / B	A / B	A / B	A / B	A / B	A / B	A / B
2,8	≤ 44,8	≤ 2,82	≤ 4,42	A / B	A / B	A / B	A / B	A / B	A / B	A / B
4,5	≤ 71,0	≤ 4,46	≤ 7,01	A / B	A / B	A / B	A / B	A / B	A / B	A / B
7,1	≤ 113	≤ 7,07	≤ 11,1	C	A / B	A / B	A / B	A / B	A / B	A / B
11	≤ 178	≤ 11,2	≤ 17,6	D	C	A / B	A / B	A / B	A / B	A / B
18	≤ 283	≤ 17,8	≤ 27,9	D	D	C	A / B	A / B	A / B	A / B
28	≤ 448	≤ 28,2	≤ 44,2	D	D	D	C	A / B	A / B	A / B
45	≤ 710	≤ 44,6	≤ 70,1	D	D	D	D	C	A / B	A / B
71	≤ 1125	≤ 70,7	≤ 111	D	D	D	D	D	C	A / B
112	≤ 1784	≤ 112	≤ 176	D	D	D	D	D	D	C
180	> 1784	> 112	> 176	D	D	D	D	D	D	D

Zone A: Vibration of newly commissioned machines;  
Zone B: Machines considered acceptable for unrestricted long-term operation  
Zone C: Machines considered unsatisfactory for long-term continuous operation  
Zone D: Vibration values normally considered to be sufficient severity to cause damage to the machine  
 \* depends on size, construction, assembly and speed. Refer ISO 10816-6 for details

ISO 10816 – 6: 1995



Machinery Evaluation as per ISO 10816 Guide line:



GADING SUPPLY & SERVICES SDN BHD (776246W)

## List of equipment:

### Rotating & Reciprocating Analysis & Study

- Vibration Analyzer - Adash, Pruftechnik VibXpert, SKF Microlog, Shenck, Realwave, Benstone, Commtest, CSI etc
- Software - DDS, Omnitrend, Prism4, RBMWare.
- Balancing - Adash, Pruftechnik VibXpert, Shenck
- Alignment - Easy Laser, Rotalign, Rotalign Pro

### Thermography Survey

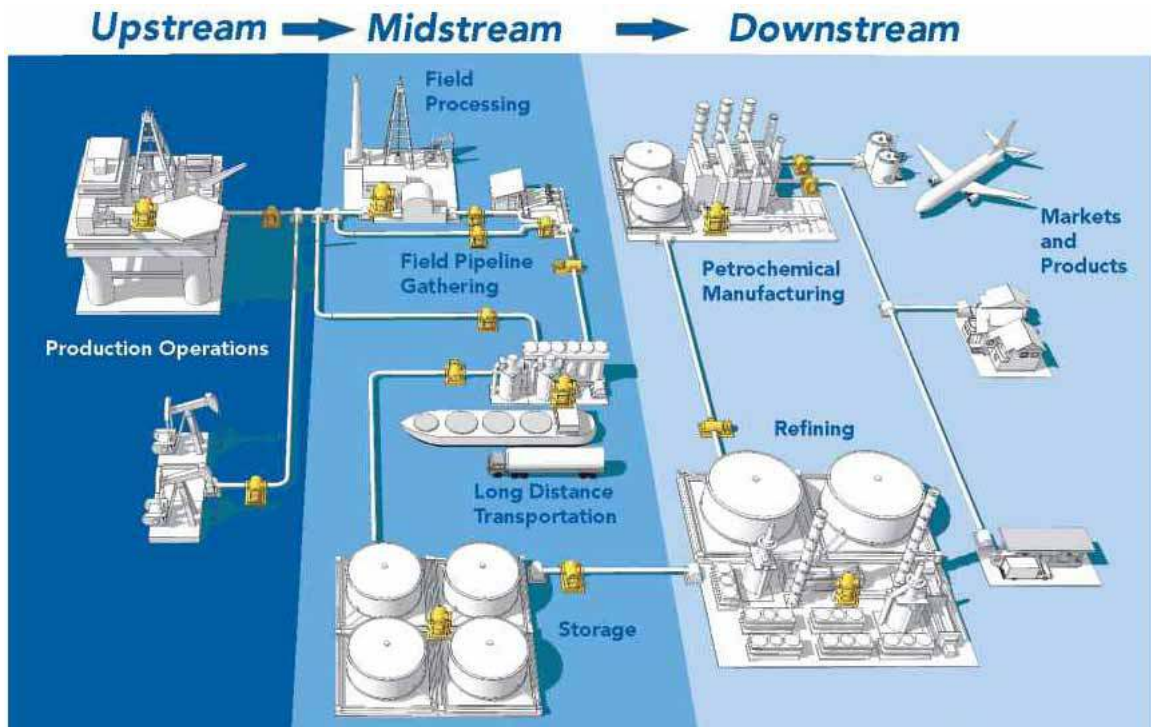
Thermal Imaging Camera & Software – Avio, Flur, NEC

### Performance Test Equipment

- Power & Harmonics Analyzer - PROVA  
FLUKE POWER DATALOGGER (1735)



# OUR MARKETS



# OUR CLIENTS



## SERVICES INFORMATION & PACKAGES

Integrated solution provider on condition diagnosis,  
Engineering predictive & proactive maintenance of machinery.

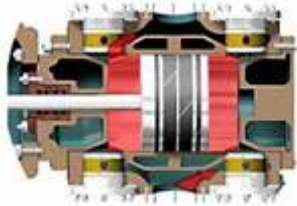
### Diagnostic Engineering (DiEg)



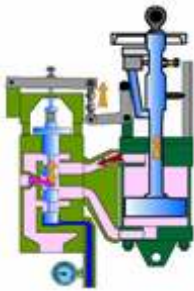
Vibration Diagnosis  
Condition Based Monitoring (CBM) Program



Infrared Thermography Survey  
Electrical Machine Diagnosis  
Sound & Noise Study / Control  
Ultrasonic (Sound) testing & survey  
Power Quality / Partial Discharge Analysis



Dynamic Balancing & Laser Alignment  
Proactive Maintenance Management  
Training Program on DiEg Techniques



Provide wide range of DiEg product  
Shut down assessment consultancy  
Failure avoidance program  
Remote diagnostic consultancy  
Process optimization program

Get more details explanation in appendixes -----



# Service Information™

Predictive monitoring designed to lower your total cost  
of equipment ownership

## 2013 SERVICES PROVIDED

- PREDICTIVE MAINTENANCE PROGRAM
- VIBRATION ANALYSIS / DIAGNOSTIC
  - IN SITU BALANCING
- CLAIMABLE TECHNOLOGY TRAINING
  - PRODUCT SUPPLY

## ADDITIONAL SERVICES PROVIDED

- SERVICE MAINTENANCE for COOLING TOWER SYSTEM
- REPAIR & OVERHAULING ROTATING/RECIPROCATING MACHINERY
  - TECHNICAL CONSULTANCY (COMMISSIONING & TESTING)



## Predictive Maintenance

Customized periodic monitoring programs accurately predict mechanical problems on rotating machines. GSSB uses the latest technology, computer analysis, and trending to identify specific faults before a breakdown, enabling the convenience of scheduled repairs. The program's efficiencies streamline customer maintenance, offering up to a 12 to 1 return on investment (ROI).

### ADVANTAGES:

1. Up to a 12 to 1 return on investment
2. Diminishes large scale repairs/costly damage
3. Increases operational uptime/revenue
4. Reduces operational and labor costs
5. Accurately identifies equipment problems
6. Economical scheduling of maintenance
7. Improves equipment reliability
8. Customized database
9. Convenient collection routes

### COMPLIMENTARY APPRAISAL

Seize the opportunity and receive GSSB's complimentary facility appraisal. Let us demonstrate our predictive technology, survey your equipment, and provide a quotation for a Predictive Maintenance Program.

Utilize the expertise of GSSB professionals without incurring the expense associated with travel and on-site time. Acquiring data can be accomplished by simply using in-house personnel with negligible training. Data can then be transmitted to our professionals for expert analysis.

GSSB can design a program that will help you maximize production and profits by significantly reducing machinery downtime and operational costs. All machinery produces vibration, whether it is benign or harmful. It is therefore necessary to distinguish between the two forms, and when entrusted in the hands of our experienced analysts, the distinction is clear and concise. Our comprehensive reports include detailed analysis with simple recommendations for correcting problems before failure occurs.

When initiating a predictive maintenance program, immediate results reveal to the customer numerous equipment faults. Diagnostic output files, available to user defined paths such as CMMS programs, allow customers the opportunity to take prompt action regarding the initial flood of maintenance problems. As problems are resolved, the numbers of major faults wane, turning a client's maintenance program from reactive to proactive. Equipment problems are prioritized and conveniently resolved around production and employee scheduling. Meanwhile, managers who use just-in-time inventory can order parts only for the immediate job. Over time, proactive maintenance creates reliable machinery requiring fewer personnel to maintain it.





### Vibration Analysis

GSSB's has remained the trusted in vibration analysis since our inception in 2004. Our staff members each have between 5-10 years of experience conducting vibration analysis and troubleshooting on every type of machinery. The industry experts turn to us when they cannot solve their machinery problems. Experience is the difference between GSSB and all the rest. Conducting vibration analysis takes tremendous skill and knowledge which only comes with, on the job, experience. Your machines are the lifeblood of your organization. Make sure you have the experts on your team with the experience and technology to accurately diagnose and solve your machinery problems.

Mechanical vibration provides invaluable information on the health of your rotating equipment, similarly to how the Doctor helps to evaluate our health. GSSB's state-of-the-art equipment and diagnostic techniques predict problems well in advance of breakdown, reducing unexpected downtime and repair costs. This approach improves equipment reliability, while eliminating the stress associated with obsolescent reactive maintenance programs.

- Vibration Analysis ADVANTAGES:**
- Saving Repair and Production Costs
  - Conveniently Schedule Maintenance Repairs
  - Creates Reliable Equipment that Lasts for Years
  - Drastically Reduces Production Downtime/Cost
  - Diminishes Large Scale Repairs and Failures
  - Reduces Maintenance Costs



We perform vibration analysis in applications including machinery start up/acceptance testing, instant machinery fault diagnostics and routine periodic condition monitoring. GSSB is a 24-hour service company within the region. Emergency service is always available at your facility. Service personnel are accustomed to evaluating rotating equipment (large, small, low speed, high speed, flexible, rigid) in both land-based and marine applications. If you have a service requirement for machinery vibration analysis and special testing, contact us so we can quickly resolve your machinery problems and put you back on the path of profitability.

Vibration analysis is essentially the heartbeat of all mechanical equipment. Capturing this vibration in a number of different forms allows an experienced vibration analyst to diagnose equipment ailments, such as worn bearings, imbalance, misalignment by measuring the amplitude and frequency of the vibration. With this knowledge, customers can prevent equipment problems well before they affect production.

For nearly a decade, GSSB engineers have serviced virtually every portion of the region by guiding customers through complicated maintenance dilemmas. Vibration analysis has always provided invaluable information to protect our customer's equipment from failure. Early problem detection allows customers to proactively resolve maintenance issues.

Our vibration analysis is also useful on structures for identifying natural or modal effect frequencies necessary for specifying structural modifications. For equipment sensitive to external vibration, we also identify transmission paths for effective isolation. Where applicable, GSSB designs vibration absorbers or other practical methods to attenuate problems. There is no reason to tolerate mediocre equipment performance. Our analysis tools accurately clarify the source and severity of every impasse so production remains on schedule and the client can continue on making a profit.



# Precision on Site Balancing Information™



## Dynamic Balancing

- Solving vibration problems on rotating equipment is another area in which we have years of specialist skills and expertise.
- Our dynamic balancing service, which can be carried out on-site, utilizes the latest in computer technology, and operates to the required industry tolerances. It significantly reduces the mechanical wear and extends component life.

## On Site Balancing

GSSB provides within its wide range of condition monitoring tools, a mobile vibration analysis and dynamic balancing services.

- If severe electro and mechanical vibrations are left undetected without attention, they can cause failure that may lead to expensive loss of production and damage to plant.
- The monitoring instrument used by our site engineer will pinpoint vibrations and imbalance within rotary plant. It will measure the degree and the frequencies, the positions and determine the cause.
- The engineers will present the client with a comprehensive report on each surveyed installation complete with the action required to correct the faults.
- In cases where a machine requires having its rotor rebalanced, arrangements can be made to correct the imbalance on site if necessary.

## Field Rotor Balancing

Dynamic balancing extends your equipment's life by eliminating vibration that destroys mechanical components. We can balance rotors in their own bearings or on our fleet of portable balancing machines. Our balancing machines are available for on-site balancing throughout the region.

Precision On-site balancing drastically reduces downtime and repair costs, while increasing your productivity. Our staff brings extensive balancing experience to your plant for virtually every type, shape, and size of rotor, from 415V drive motor up to 11KV drive motor for Blower, Suction, Air separator, Cooling Tower, Compressor, Exhaust fans ETC.

## Field Rotor Balancing Brochure

High/Low Speed Dynamic On-Site balancing is provided by experienced GSSB engineers for in-place balancing requirements. If the equipment can be operated at speed and there is access to the balance correction planes, GSSB personnel perform single and multi-plane balancing on rigid and flexible rotors. Their skill and expertise, in combination with sophisticated instrumentation, assure you of a precision tolerance with a minimal amount of service time or machinery operation. The result is a precision balance and a quick return to service.

During balancing, very close attention is paid to other conditions which may be adversely affecting operation of the machinery. Any such conditions detected while balancing are addressed and resolved at the appropriate time with respect to the balancing program. After balancing, rotor balance sensitivities are permanently recorded. This affords one shot trim balancing capability in any future balancing scenario. All service is followed up with a written report detailing findings, corrections, recommendations, etc.



## GSSB HRDF Claimable Training Seminars

GSSB can provide expert training in vibration analysis, as well as all predictive disciplines, such as Vibration Technology training, Predictive Maintenance Application Etc. The courses can be held in-house at your facility and are specifically tailored to your needs. GSSB HRDF Claimable Training Seminars provide courses in Machinery Vibration Analysis, Stimulation Cases, and Data Management. Lunch, refreshments, and training manuals are included.

### MANUAL PROVIDES:

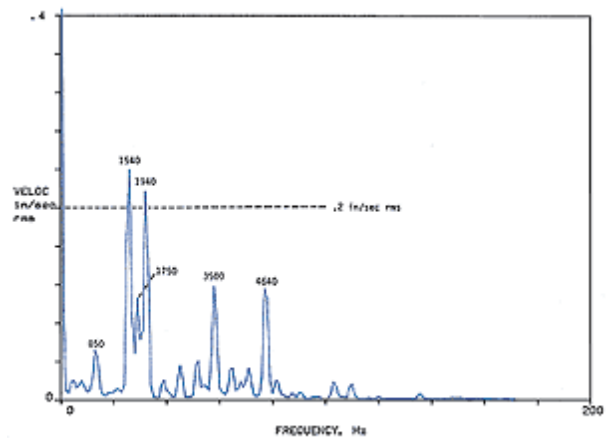
- Procedures for evaluating equipment conditions
- Knowledge of predictive technology's capabilities
- Ability to discern between machinery faults
- Establishment of a predictive maintenance program

In a time when corporate profit means everything, it is essential that corporations seize any opportunity to gain an edge over the competition. The computer age has brought tremendous efficiencies to every aspect of life, and maintenance is no exception. Today, GSSB has technology that can detect machinery problems well in advance of failure, providing exceptional savings to companies. However, technology by itself is worthless unless you understand how to harness its power.

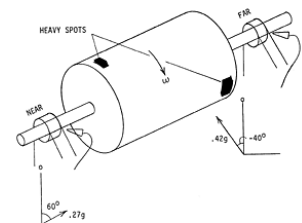
For over 5 years, GSSB's experience and technology has furnished customers with maintenance savings. Our training program imparts this knowledge to every company interested in streamlining their maintenance program. We tailor the curriculum to the user's needs, empowering them with a deep understanding of their machinery and all of the predictive maintenance technologies especially through Vibration Technology.

Our instructors follow a systematic teaching plan that walks trainees through every type of mechanical symptom and the best technology for detecting it. Furthermore, GSSB employs practical examples from the customer's maintenance program to personalize each lesson, which provides them with firsthand experience on the tremendous opportunities for maximizing their maintenance system.

Corporations that have embraced the rapidly advancing technologies have thrived and bounded over their competition with astonishing profits. Do not get caught behind your competition, allow GSSB to train your staff on the best maintenance technology practices today.



Vibration Specification

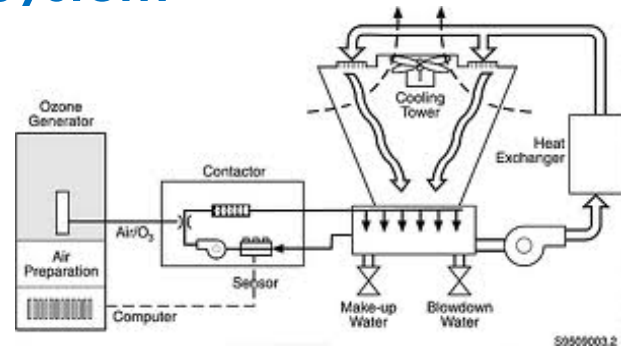


Two-Plane Balancing

# Optimizing Cooling Tower System

## Introduction

Cooling towers are heat exchangers that use water and air to transfer heat from air-conditioning systems to the outdoor environment. Most commonly, they are used to remove heat from the condenser water leaving a chiller. Cooling towers are usually located on rooftops or other outdoor sites. Because they are frequently out of sight, they are often neglected by operation-and-maintenance technicians, resulting in lower cooling-system efficiency. This document will help you adopt best practices for the efficient operation and maintenance of cooling towers.



## Types of Cooling Towers

There are two basic types of cooling towers, open and closed (sometimes called direct and indirect).

### Open (Direct) Cooling Towers

Open cooling towers expose the condenser water coming from the chiller plant directly to the atmosphere. This warm water is sprayed over a fill in the cooling tower to increase the contact area, and air passes through the fill. Most of the heat is removed by evaporation. The cooled water remaining after evaporation drops into the collection basin and is returned to the chiller's condenser.



## Closed (Indirect) Cooling Towers

A closed cooling tower circulates warm water from the chiller plant through tubes located in the tower. In a closed tower, the cooling water does not come in contact with the outside air. Water that circulates only within the cooling tower is sprayed over the tubes and a fan blows air across the tubes. This cools the condenser water within the tubes, which is then recirculated to the chiller plant.

## TOWER CHECK



## Key Components of Cooling Towers

The components of a cooling tower work together.



### Water Distribution

Hot water from the chilled-water system is delivered to the top of the cooling tower by the condenser pump through distribution piping. In an open tower, the hot water is sprayed through nozzles onto the heat transfer medium (fill) inside the cooling tower. Some towers feed the nozzles through pressurized piping; others use a water-distribution basin and feed the nozzles by gravity. In a closed-loop tower, the water from the condenser loop runs through tubes in the tower and is not exposed to the outside air. Water for cooling the tubes circulates only in the tower.



In the open tower, a cold-water collection basin at the base of the tower gathers cool water after it has passed through the heat transfer medium. The cool water is pumped back to the condenser to complete the cooling-water loop. In the closed tower, the condenser water cools as it moves through the piping in the tower and returns to the chiller plant.



### Heat Transfer Medium (Fill)

Cooling towers use evaporation to release waste heat from an HVAC system. In an open tower, hot water from the condenser is slowed down and spread out over the fill. Some of the hot water is evaporated in the fill area, or over the closed-circuit tubes, which cools the water. Cooling tower fill is typically arranged in packs of thin corrugated plastic sheets or as splash bars supported in a grid pattern.

### **Air Flow**

Large volumes of air are flowing through the heat-transfer medium help increase the rate of evaporation and the cooling capacity of the tower. The cooling-tower fans generate this airflow. The size of the cooling-tower fan and airflow rate are selected to achieve the desired cooling at design conditions of condenser-water temperatures, water flow rate, and wet-bulb temperature.

Cooling towers may have propeller fans or squirrel-cage blowers. Small fans may be connected directly to the driving motor, but most designs require an intermediate speed reduction provided by a power belt or reduction gears. The fan and drive system operate in conjunction with the control system to control start/stop and speed. Variable-speed drives (VSDs), when added to the fan motors, control fan speed and more precisely regulate the temperature of the water as it leaves the tower.

### **Drift Eliminator**

As air moves through the fill, small droplets of cooling water become entrained and can exit the cooling tower as carry-over or drift. Devices called drift eliminators remove carry-over water droplets. Cooling-tower drift becomes annoying when the droplets fall on people and surfaces downwind from the cooling tower. Efficient drift eliminators virtually eliminate drift from the air stream.



**BEFORE**



**AFTER**



## Vibration collection and analysis

Vibration collection and analysis is a non-destructive process used to detect the most common rotating equipment problems such as:

- Unbalance
- Mechanical looseness
- Bearing defects
- Gear defects
- Blade/impeller faults
- Abnormal structural resonance
- Misalignment
- Rubbing
- Loss of lubrication
- Oil whirl
- Cavitations / recirculation irregularities

If left undetected, these problems lead to catastrophic damage, extensive repair costs, and lost production.

## Contact Us:

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## It's all part of VibXpert Advantage and the GSSB commitment to reliability

VibXpert Advantage is a unique, collaborative program designed to reduce total cost of ownership (TCO) and improve operating profitability.

Comprised of five interrelated value-building modules, a VibXpert Advantage implementation consists of metrics-based programs that optimize management and operation of rotating equipment with an emphasis on:

- Reliability
- Energy efficiency
- Safety
- Operations and maintenance
- Procurement
- Technical solutions



WE ARE:

ALWAYS COMMITTED  
ALL WAYS accepts CHALLENGES  
ALL THE WAYS exceeds EXPECTATIONS

WHAT WE DO?

Any competitive & challenging business practitioners cannot tolerate the failures and its consequences that have negative impacts. We provide integrated proActive solution's to empower our clients to derive the effective business strategy to enhance their assets / business values. The typical ways are to understand what causes failure and how to AVOID it or ELIMINATE or mitigate its effect by Six Sigma, Lean Business & innovative approaches.

CONSULTANCY SPECTRUM  
PROACTIVE STRATEGY  
ASSET MAINTAINABILITY  
ABILITY – Knowledge & Skill Training  
EMPOWER SOLUTION to attain sustainable profitABILITY

**Consult us for additional details:**  
[gading.group.gssb@gmail.com](mailto:gading.group.gssb@gmail.com)

PRO ACTIVE STRATEGY

The proActive strategies are now adopted with utmost priority in all means of business practices as better successful alternatives to enhance the profitability and eliminate the negative impacts. We bring unique proActive solution with logical, tactical, innovative strategies combined with Six Sigma, Lean business and Innovation tools.

PROCESS

- Decide, Device, Define
- Implement, Interpret, Innovate
- Consolidate, Compare, Control
- Evaluate, Eliminate, Empower



The proActive maintenance strategy with an effective predictive and an optimized preventive maintenance programme will ensure that assets can be operated without failure even beyond their design life.

- Decide criticality of the assets by assessing failure consequence and its relative risk
- Consolidate and categories the asset based on failures natures and its impacts
- Define the Key Performance Indicator to measure process effectiveness and plant performance improvement.
- Device the reliABILITY program for each asset and interpret condition based tasks
- Device means to measure deviations i.e. normal and abnormal conditions
- Evaluate the severity of deviation and control it or implement strategies to eliminate it
- Consolidate and analyze the data. Explore innovative means to improve the practices.
- Empower the righteous decision making practices to do the right work at the right time



#### ASSET MAINTAINABILITY

MaintainABILITY is the probability that a machine can be retained in or restored to its specified operable condition within a specified interval of time, when maintenance is performed in accordance with prescribed procedures. Mean Time to Repair is the indicator of Asset operatability and maintainability. Our deliverables are:

- Optimize maintenance strategies and system design to maximize the availability, production
- Ensure optimum balance of equipment maintainability by eliminating the potential failures.
- Proactively align the systems, practices and procedures to effectively enhance the lifecycle

## ABILITY - KNOWLEDGE and SKILL TRAINING.

"If you keep trying only that which you have tried, you can only expect to get the results that you've always gotten." Albert Einstein

Any successful implementation of strategies requires a dedicated and committed team to embrace the new changes and methodologies. But, usually human behaviour resist to change due to obvious reasons like, where someone's belief or value in traditional practices does not allow them to accept new practices; people may believe that the new plan or system is wrong or as a threat or may be uncertain of their abilities to learn new skills, their aptitude with new systems, or their ability to take on new roles & responsibilities. We understand those resistances to change mindset of people's behaviours, beliefs & culture and we help them to overcome it before it becomes a significant obstacle.

Our ABILITY program brings CONFIDENCE to *decisively* manage your own assets:

- CapABILITY to do unmistakABILITY tasks
- AdoptABILITY to enhance reliABILITY / availABILITY
- AdaptABILITY to controllABILITY /accountABILITY
- DecidABILITY to manage riskABILITY



We provide wide range of training program, which are practical oriented, logical thinking and common sense approaches

- Six Sigma, Lean Business Practices in Maintenance – Common sense approaches
- Practical Aspects of Reliability Engineering – Case Studies
- Shutdown Plant Maintenance Practices
- Asset MaintainABILITY - Better Practices in Maintenance and Reliability
- Root Cause Failure Analysis
- Maintenance cum Process Reliability Assessment
- Condition Diagnostic Training – Vibration, InfraRED Thermography, Ultrasound etc



## WHERE WE OPERATE:

- MALAYSIA
  - SINGAPORE
  - INDIA
  - Indonesia
  - Philippines
  - Thailand
  - China
- 
- Power, Utility, Steel, Paper, Refinery Plants, Cement Plants, Water Treatment Plants, Waste treatment plants etc.
  - Navy, Air force, Military, Defense – Segments.
  - Transport – Aircraft, Railway, Ship & Off-shore, Rig etc.
  - Manufacturing – Petrochemical, Electronic, Piping, Pharmaceutical etc.



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