



# Integrated

turnkey manufacturer for

# Palm Oil Mills



明勝合記機械工程有限公司  
**MSHK ENGINEERING SDN. BHD.**



ISO 9001:2015



# Company Background

**MSHK ENGINEERING SDN. BHD.** was registered as an engineering company by 'PENDAFTAR SYARIKAT MALAYSIA' (REGISTRAR OF COMPANIES MALAYSIA) on the 24th August 1990. The main objective of the company is to provide turnkey services which include Project Management, Fabrication, Erection, Testing and Commissioning of various mechanical engineering works.

**MSHK's** fabrication plant in **Kawasan Perindustrian Pengkalan II, Pusing, Perak** has been fully established as a leading fabricator of Palm Oil Industries. Based on our knowledge, experiences and facilities, we have been awarded to undertake Government and Private Sector Projects mainly on Palm Oil mills such as Turnkey Projects, Upgrading of mill capacity, Servicing and Maintenance Jobs.



Having a setup of nine blocks of cover-up building working area with a size of 19,000m<sup>2</sup> on a 9-acre piece of land, we have the capability to undertake large-scale projects due to the ample material storage space, large working area, and heavy machinery, all of which contribute to smooth operations in the production lines

**MSHK** also specializes in the casting industries where its subsidiary **MSBB ENGINEERING Sdn. Bhd.**, which is located in **Kawasan Perindustrian Pengkalan II**, is fully equipped with casting facilities. **MSBB ENGINEERING Sdn. Bhd.** has accumulated extensive experience in casting all types of highly wear resistant steel, manganese steel, cast iron etc. and it can produce up to 600 tonnes per month per normal shift.





## MENU LIST



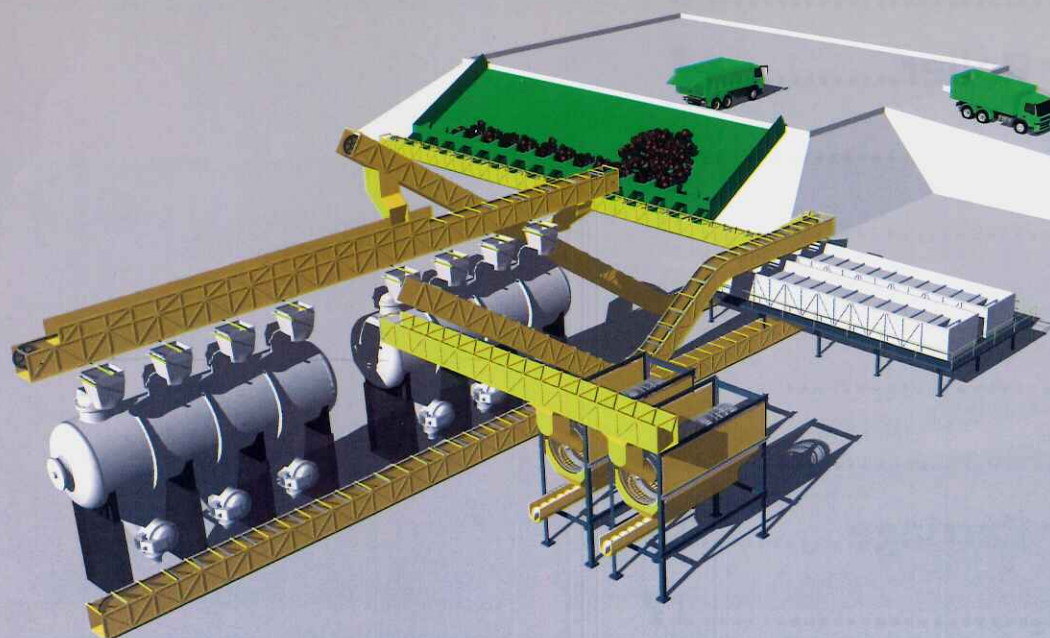
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# MULTIDOOR SYSTEM HORIZONTAL KINETIC (M.S.H.K. STERILIZER)



Patent Pending





# MULTIDOOR SYSTEM HORIZONTAL KINETIC (M.S.H.K. STERILIZER) Patent Pending



The Multidoor System Horizontal Kinetic (M.S.H.K. Sterilizer) was developed in response to the palm oil milling industries growing expectations of reducing manpower, increasing efficiency and improving performance parameters. With our many years of experience as a Turnkey Contractor and licensed Pressure Vessel manufacturer, we believe that the M.S.H.K. Sterilizer system is the right choice for new Palm Oil Mills and also existing palm oil mills.

### General Specifications

Capacity (FFB/charge/vessel)	20 tons	30 tons	40 tons	60 tons
Diameter	2.9m	3.2m	3.2m	3.8m
Straight Length	6.3m	7.5m	9.8m	11m
Shell	SA 516 Gr. 70	SA 516 Gr. 70	SA 516 Gr. 70	SA 516 Gr. 70
Liner	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Saddles	Mild steel	Mild steel	Mild steel	Mild steel
Clutch doors (MSB brand)	5 units	5 units	7 units	7 units
Auger Conveyors with drive units	2 lengths	2 lengths	3 lengths	3 lengths
Steam management	DAS Controls/Vickers Eaton/Rexroth/Parker			
Hydraulics System & PLC Control				
Control Valves	Included	Included	Included	Included
Insulation	0.5mm Aluminium Cladding with 50mm Rockwool			
Design Approval	Department of Occupational Safety and Health Malaysia			
Design Code	ASME Section VIII, Division I			





**MSB  
CLUTCH DOOR**



### Specifications

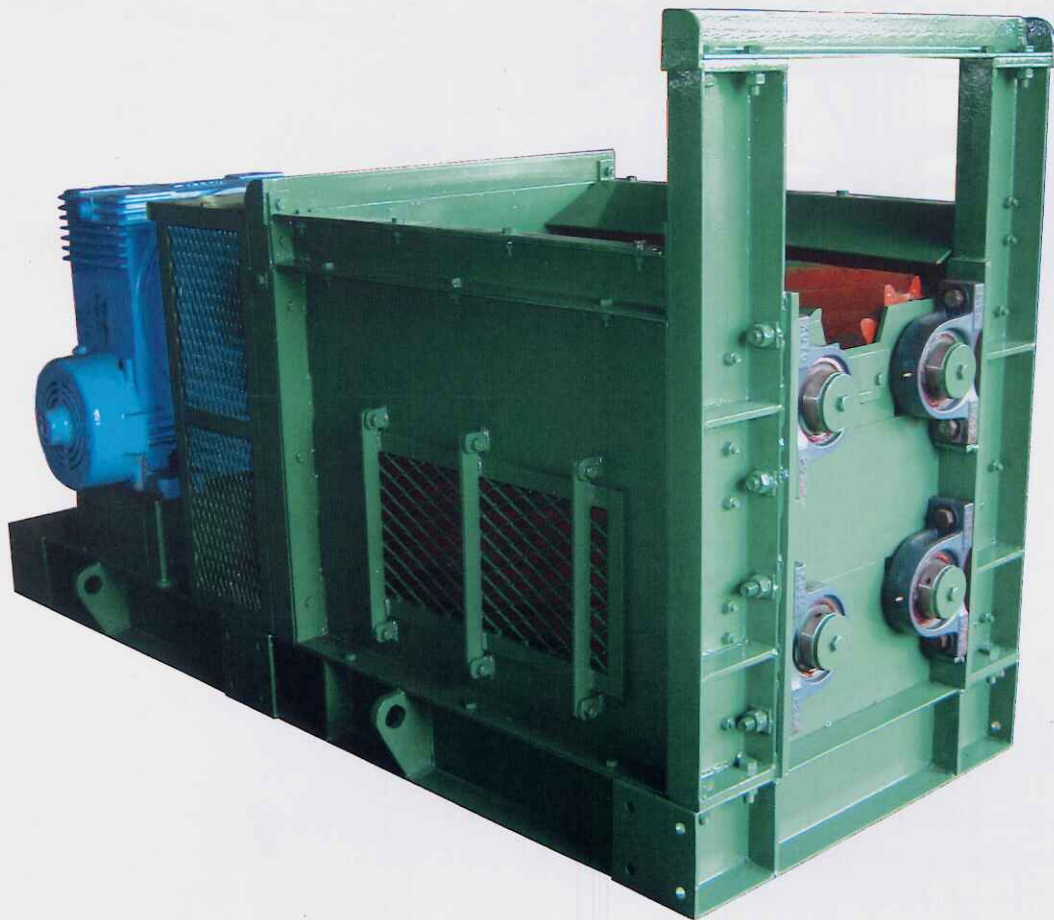
Model	MSB 2100OD	MSB 2700OD	MSB 3200OD & custom make design
Material	A516 Grade 70	BS4360-43A	JIS3101 SS400
Max Working Pressure	50 psi		
Max Operating Temperature	150°C		
Dish Head	15mm thick		
Dish Liner	4.5mm thick Stainless Steel / Mild Steel Full / Half Liner		
Locking Device	Rotating Ring Type		
Locking Ring	A516 Grade 70 Boiler Plate		
Locking Face & Groove Insert	304 Stainless Steel		
Rubber Seal	Oil & Heat Resistant Self-Energized Type		
Safety Features	One unit of steam release stainless steel ball valve and locking lever		

### Featured MSB Clutch Doors include:

- Post Weld Heat Treatment on locking ring, dish head flange & shell flange.
- Radiography test on lock ring butt weld joint carried out.
- High precision machining.
- Inspected, hydrostatic tested and approved by Department of Occupational Safety and Health (DOSH) Malaysia.



# MSB SINGLE / DOUBLE DECK CRUSHER ROLLER



Model	: MSB Single / Double Deck Crusher Rollers
Capacity	: Up to 60 Tons FFB Per Hour
Gearbox	: Elecon or Equivalent
Rollers	: Cast Steel 3% Cr. Mo.
No. Of Rollers	: 2 Or 4 Rollers
Spur Gear	: Assab 7210 Machined And Hardened
Bearings	: 4 or 8 units NTN / NSK or Equivalent Pillow Block Bearing
Flywheel	: Carbon Steel Wheel

## Advantages Of MSB Single/ Double Deck Crusher Rollers:

- 1) Improvement In Kernel Recovery Rate From 0.2% - 1%
- 2) Saving In Labour For Removing Hard Or Unstripped Bunches
- 3) Efficient Operation And Easy Maintenance
- 4) Fully Automatic In Segregation Of Hard Or Unstripped Bunches
- 5) Highly Wear Resistant Rollers Contribute To Longer Equipment Lifespan





# MSB CONTINUOUS TWIN SCREW PRESS





# MSB CONTINUOUS TWIN SCREW PRESS



MSB Continuous Twin Screw Presses were developed and manufactured through the combination of fabrication and foundry facilities, technical expertise, reliability and years of experience, therefore ensuring highly efficient palm oil extraction and easy maintenance as have been proven successfully in the palm oil industries.



## Specifications

Model	MSB P 9/10	MSB P15	MSB P20	MSB P25
Type	Twin Worm Screw			
Capacity	10 tons FFB/hr	15 tons FFB/hr	20 tons FFB/hr	25 tons FFB/hr
Dimension	3,500mm x 1,500mm x 790mm	3,900mm x 1,600mm x 790mm	5,400mm x 1,750mm x 1,103mm	5,320mm x 1,585mm x 1,100mm
Weight	Approx. 5 MT		Approx. 6 MT	
Electric motor	22kW (30HP)	30kW (40HP)	45kW (60HP)	
Gearbox	SEW or equivalent			
Hydraulic Cone Control	Vickers or Rexroth or equivalent			
Painting	2 coats of Red undercoat and 1 coat of MSB green finish			

Advantages of using MSB Screw Presses:-

- 1) Efficient design leading to low oil loss, low nut breakage and steady throughput.
- 2) Efficient Operation - Good and reliable design allowing easy operation.
- 3) Easy Maintenance - good design and standardization of parts ensuring low maintenance requirement.
- 4) Longer Equipment Life Span - Adheres to stringent quality control and quality of materials to ensure the production of a quality product.
- 5) Easy availability of spare parts from own foundry.



**MSB 3000L TO 6000L  
DIGESTERS**





## MSB 3000L TO 6000L DIGESTERS



Model	: MSB 3000L To MSB 6000L
Type	: Non – Jacketed
Capacity	: 3000L To 6000L
Motor Power	: 40Hp To 60Hp Electric Motor
Gearbox	: SEW/Sumitomo/or Equivalent
Shell Plate	: Approx. 12mm Thick Mild Steel Plate
Shell Liner	: Approx. 4.5mm Thick Stainless Steel SS304 Plate
Main Shaft	: 114mm Cast Steel Square Shaft
Stirrer Arms	: 5 sets of Cast Steel long arm, Short Arm and 1 set of Expeller Arm
Accessories	: Mechanical Level Indicator
Steam Heating	: Direct Steam Injection
Outlet Chute	: Stainless Steel SS304
Bottom Plate	: Approx. 15mm Thick Mild Steel Plate c/w 4.5mm Thick Stainless Steel SS304 Liner Plate
Bottom Cover Plate	: Approx. 18mm Thick Mild Steel Plate c/w Bush & Collar
Bearing	: NTN/NSK/or Equivalent
Insulation	: 50 mm Thick Rockwool and Cladded With 0.5mm Thick Aluminum Sheet



**MSB**  
**6 / 9 / 12-TON RIPPLE MILL**



Drawer-type design allowing for easy maintenance

Grand No: MY-146872-A  
Indonesia Patent Application No: P00201100145

Highly wear-resistant square rods  
contributing towards longer life span





# MSB 6 / 9 / 12-TON RIPPLE MILL



## Advantages of using MSB 6T & 9T ripple mills:

- Innovative design : Drawer-type design allowing for easy maintenance.
- Unique Design Ripple Mill : Highly wear-resistant and interchangeable Rods contribute to longer life span and fast and easy replacement of multiple square rods will result in lower maintenance costs.
- Higher Cracking Efficiency : Up to 98% of cracking is achievable.
- Robust Design : Easy operation and minimum maintenance is required
- Low Investment Cost : Less power consumption and easy installation

Model	MSB 6Ton Ripple Mill	MSB 9Ton Ripple Mill	MSB 12 Ton Ripple Mill
Capacity	Approx. 6 ton of nuts per hr	Approx. 9 ton of nuts per hr	Approx. 12 ton of nuts per hr
Drive unit	11kW x 1450rpm	15kW x 1450rpm	22kW x 1450rpm
Body	Mild Steel Body c/w M.S Channel Frame		
Pulley and Belt	Taper lock pulley c/w bush		
Rotor Rod	Carbon steel rods c/w hardening HRC 50 ~ 55		





## MSB 6 & 9 TON MONO EFB PRESS



### 6 TON

Model	: MSB Mono EFB Press
Capacity	: ~6 TON EFB / hr
Moisture in EFB	: 45 ~ 50 %
Main Frame	: Mild Steel
Base Frame	: Mild Steel
EFB Press Screw	: 3% Cr. Mo Alloy Steel
EFB Press Cage	: Stainless steel c/w reinforcement rings
Shaft	: Assab 705
Bearing	: NSK or equivalent
Gearbox	: SEW or equivalent
Motor	: 100 HP x 1450 rpm Motor
Final Speed	: ~ 22 rpm

### 9 TON

Model	: MSB Mono EFB Press
Capacity	: ~9 TON EFB / hr
Moisture in EFB	: 45 ~ 50 %
Main Frame	: Mild Steel
Base Frame	: Mild Steel
EFB Press Screw	: 3% Cr. Mo Alloy Steel
EFB Press Cage	: Stainless steel c/w reinforcement rings
Shaft	: Assab 705
Bearing	: NSK or equivalent
Gearbox	: SEW or equivalent
Motor	: 125 HP x 1450 rpm Motor
Final Speed	: ~ 22 rpm

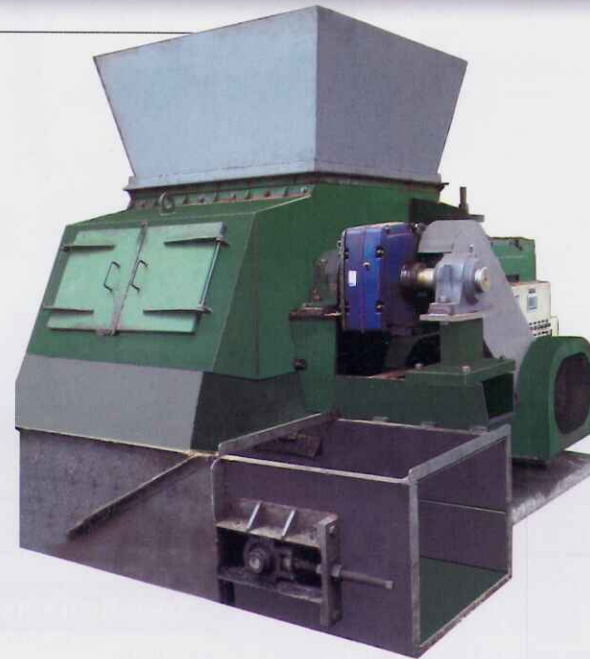


### Advantages of using MSB Mono EFB press

1. Innovative design contributing to higher OER and lower moisture content in fibre.
2. Good investment - system pays for itself in the long run through the use of EFB as boiler fuel, raw materials for compositing or other downstream activities.
3. Easily integrated into existing mill by utilizing available mill utilities.
4. Efficient operation - no extra manpower to operate and maintain the machine.
5. Longer Equipment Life Span - adheres to stringent quality control of materials.
6. Easy availability of spare parts from own foundry.



# MSB EFB SHREDDER



Model : MSB EFB Shredder  
Capacity : 4-5 MT EFB / hr  
continuous throughput

Length of  
Fiber strand : 2" – 4" long  
Main Frame : Mild Steel  
Base Frame : Mild Steel  
Cutter : Highly wear resistant  
and removable multiple  
cutter c/w flywheel.

Shredder Cage : Mild Steel  
Bearing : NSK  
Gearbox : Renold or Equivalent  
Motor : 125 Hp x 4P Motor



## Advantages of using MSB EFB Shredder

- 1) Innovative design contributing to less EFB storage.
- 2) Good investment - System pays for itself in the long run through the use of EFB fibre as boiler fuel, or raw materials for other downstream activities.
- 3) Easily integrated into existing mill with minor modifications.
- 4) Efficient operation - No extra manpower to operate and maintain the machine.
- 5) Longer equipment life span - adheres to stringent quality control of materials.
- 6) Easy availability of spare parts from own foundry.

*Capacity is based on empty fruit bunches pre-processed by Double Deck Bunch Crusher and MSB Mono EFB Presses and hard and unstripped bunches shall not exceed 2% FFB*



# MSB CAGE TRANSPORT CAR / TRANSFER CARRIAGE



## General

- Function** : To transfer FFB Cages from steriliser railtracks to Cage Tipper railtrack
- Brief Description** : Consists of mainframe resting on 4 wheels that travel along the pits on railtrack. The drive wheels are driven by hydraulic motors which receive hydraulic oil from hydraulic powerpack. The cages are moved in and out of the car by drag chain conveyor mounted on the car main frame. The movement of chain is by hydraulic motor which receives the hydraulic oil from the same powerpack
- Size** : 5-16 tonnes FFB cage per transfer
- Type** : Pit and fully hydraulic operated

## Specifications

Capacity	20 cages / hr
Long Travel Speed	Fast speed @ 20 m/min, Medium speed @ 12.5 m/min, Creep speed @ 0.5 m/min
Cage In/Out Speed	15 m/min
Hydraulic System	Consist of hydraulic pump, oil tank, hydraulic motor, tubing, lever control, relief valve, pressure gauges, pump strainer, check valve and etc.
Electric Motor	5.5 kW / 4 pole TEFC Squirrel Cage Induction Motor

## Remarks

We also fabricate Transfer Carriages with capability to handle 5 to 16 tonnes cages.



# MSB CAGE TIPPER



## General

**Function** : To Rotate FFB Cage And Discharge Into Hopper Then To SFB Conveyer

**Brief Description** : Tipper Consists Of Drum, Cage Rail Rotated By Hydraulic Motor Coupled To Gearbox, Chain Around The Tipper. Rotation Of The Tipper Drum Is 180°X Bi-Directions. Control Of Rotation Is By Push Button Located On Operating Cabin Near The Tipper.

## Specifications

Tipper Speed	1.5 - 2 rpm
Construction	Consist Of Frame, Rail Support Beam, Rail And Tipper Chute
Drive System	Hydraulic Powerpack Drives A Hydraulic Motor. The Output Shaft Is Fitted With Duplex Sprocket Which In Turn Drives The Tipper Through Transmission Chain.
Hydraulic System	Consist Of Hydraulic Pump, Oil Tank, Hydraulic Motor, Tubing, Lever Control, Relief Valve, Pressure Gauges, Pump Strainer, Check Valve And Etc.
Electric Motor	11 Kw / 4 Pole TEFC Squirrel Cage Induction Motor

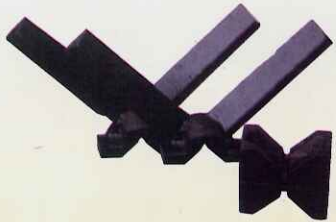
## Remarks

We Also Fabricate Cage Tippers With Capability To Handle 5 To 16 Tonnes Cages.



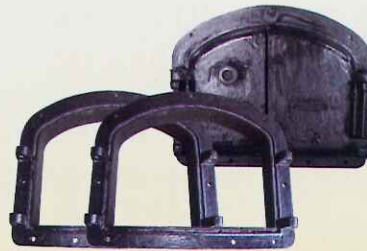
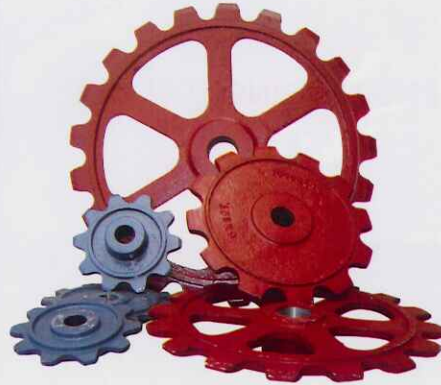


# MSB SPARE PARTS SUPPORT

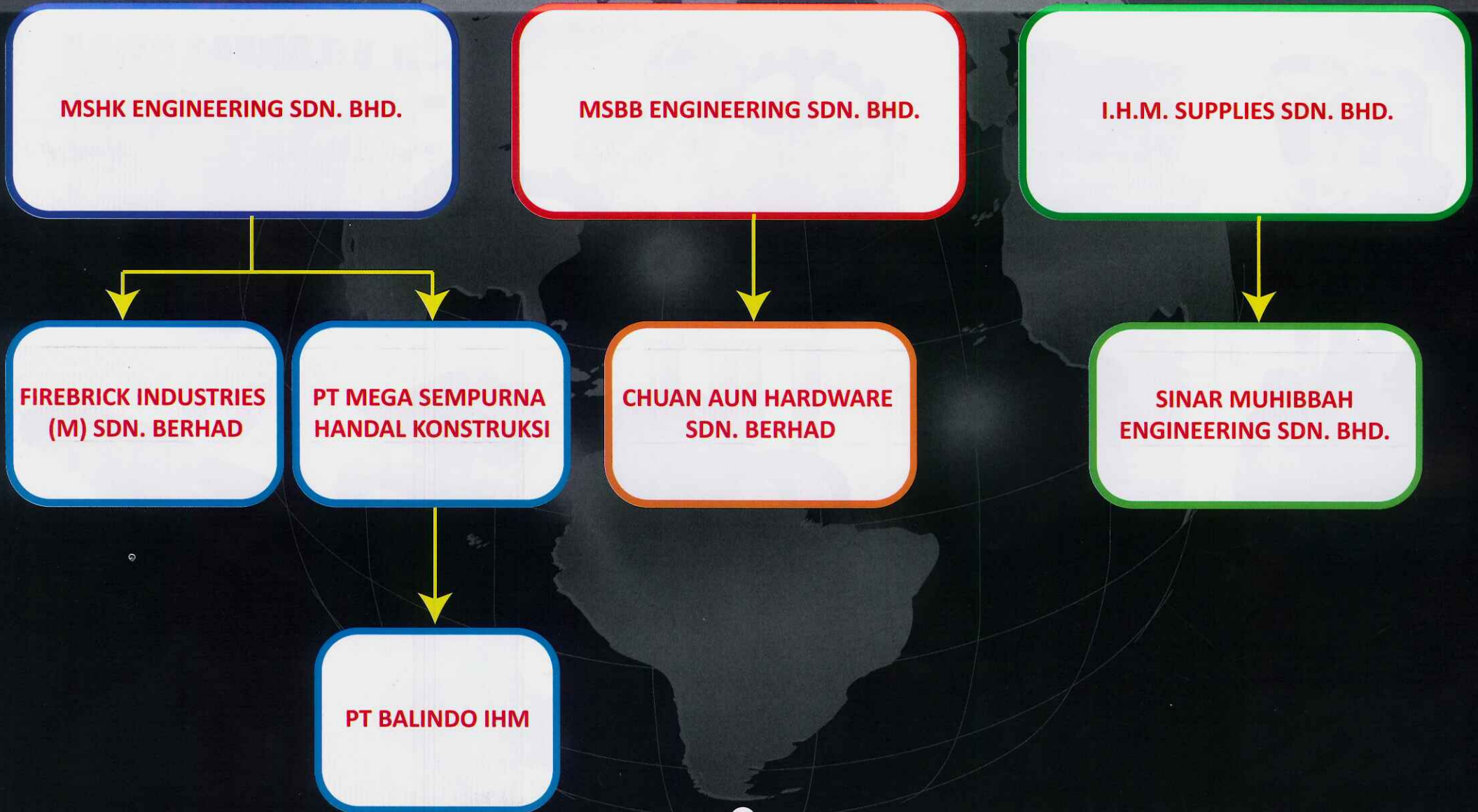




# MSB SPARE PARTS SUPPORT



# MSHK GROUP







# One Stop Solution Centre

The main sectors of business where MSHK Engineering Sdn. Bhd. is actively involved in are as follows:

- To Supply, Fabricate, Install, Testing and Commissioning of Mechanical Equipment and Plants for Palm Oil Mill such as Turnkey Basis, Upgrading Kernel Recovery Plant, Pressing Station, Clarification Station, Sterilizing & Fruit Reception Station, Waste Water Treatment Station and all type of Oil Storage Tanks.
- To Supply, Fabricate, Install, Supervision and Erect various sizes of Factory, Workshop Building.
- To provide technical assistance and supervision in connection with the manufacture and production of the equipment designed by the company.
- To Supply, Fabricate and Erect various sizes of Oil Storage Tank from 500-3000 Tonnes.
- To provide Services for Repairing, Upgrading, Servicing and Maintenance for Palm Oil Factory.
- To Supply and Fabricate FFB Cages from the range of 1.5 - 16 Tonnes
- To Supply and Fabricate P9, P15 & P20 Continuous Twin Screw Presses; 3000, 3500, 4000 & 5,000 Litre Digesters; 6 Ton & 9 Ton Ripple Mills (Nut Cracker); Single and Double Deck Crusher Rollers; and EFB Presses; Tippers & Transfer Carriages with capacities of 5MT to 16MT FFB, vertical sterilization systems, FFB Cage handling automation or indexing system, automatic tipper control, and digester level control, just to name a few.
- To Supply all types of cast steel and cast iron spare parts for palm oil mills i.e. Worm Screw, Press Cage, Digester Expellar Arm, Long and Short Arm, Vee Block, Lengthening shaft, Main Shaft, Press Cone, Bearing Block, Bogiewheels, Hanger Bearing etc.

With a complete team of technical personnel, good coordination and efficient management, we are in the position to provide excellent technical support, advice and training to our customers who are our end-users so that they will be comfortable and confident in using our products.



明勝合記機械工程有限公司

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