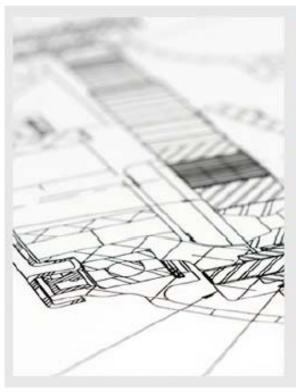






SM METAL SOLUTIONS Metal Casting & Forging







PRESENTATION 2018 Q1

CORPORATE PROFILE AND PRODUCTS FOR MINERAL PROCESSING

Who We Are







Background:

- For 2 generations, with over 30 years of experience in supplying wear replacement parts, complete with heat treatment and machining, ready to use or install into equipments.
- In Dec 2012, restructured and re-branded ourselves as:
 SM Metal Solutions Singapore & International Sales
 UTMOST Engineering Malaysia Sales
- Today, we have presence in Singapore, Malaysia, Australia and Canada

Our Objective:

- To provide one-stop engineering solution services for quality metal products (by casting, forging and/or fabrication) to assist customers in managing their supply chain.
- Cost saving for customers with logistic support in direct shipment.

Our Past Experience







Industries Supported:

- Mines & Quarries
 - Mineral Processing Equipments
 - After sales replacement parts
 - Bulk Material Handling for both new equipments and replacement parts
- Marine & Shipyards
- Turn-key Projects
- Waste To Energy
- General Engineering

Customers Supported:

- International Market
 - Original Equipment Manufacturers for new machines and after sales replacement parts
 - Distributors for after sales replacement parts
 - Engineering Companies on recon or reengineering of equipments
 - End Users, Central Purchase of Mining / Quarry Groups
- South East Asia Region
 - OEM After Sales Market
 - Direct End Users Mines / Quarries
 - Agents servicing the Mines

One-Stop Solution









SALES & SUPPORT

Global Visit to Customers
Customers Inquiries
Knowledge on inquired products
Quotations & Offers
Monitor of Orders

- WIP
- Required Reports
- Delivery
- Non-conformance Issues

ONE-STOP SOLUTION

Knowledge of Products usage & requirements,
Select best manufacturing solution
Ensure quality of products
Tested & Certified
Delivered to be Installed

LOGISTIC SUPPORT

Packing & Marking World Wide Shipping

- Warehouse Delivery
- FOB
- CIF
- Customers' Agent Assist on FTA Forms Shipment Monitoring

MANUFACTURING

Manufacturing Process

- Sand Cast
- Loss Wax
- Forging
- Machining
 Products Knowledge
 Manufacturing Solution
 First Article Inspection
 WIP Update
 Meet Delivery Date

QUALITY ASSURANCE

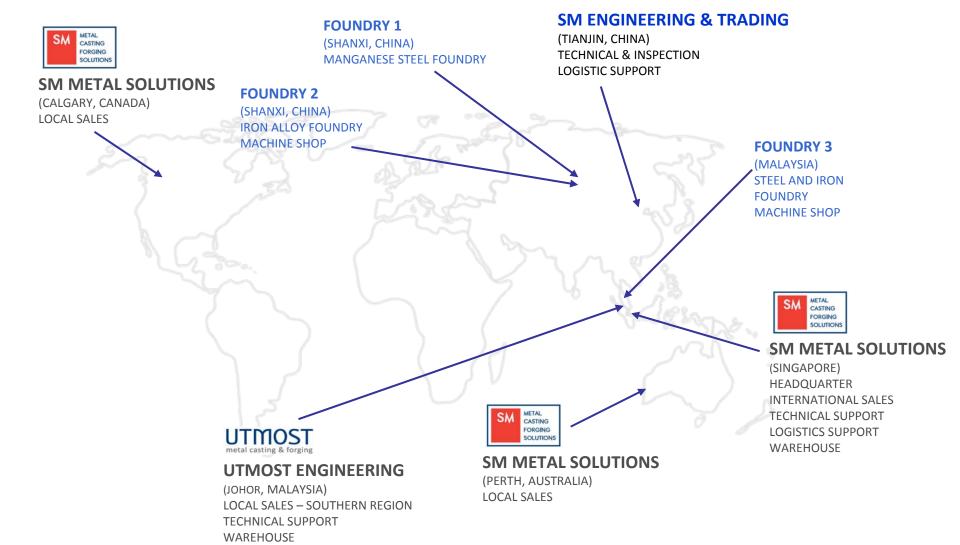
Products Requirement
FAT Inspection
Chemical Composition
Dimension Inspection
Non Destructive Testing
Trial Assembly
Functional Test
3rd Party Inspection
Reports Prior to Delivery

Our Network and Facilities









Facilities - China

Foundry 1 – Mn Steel Foundry

Production

Yearly: Approx. 6,000 MT Monthly: 500 to 600MT

Max Cap: 6 MT per piece net weight

3.0m L x 2.2m W x 1.3m HT

Dia 2.2m x 1.3m HT

Melting

Furnace: 2.5 MT Induction Furnace x 3 units Ladle: 5.0 MT Bottom Pour Ladle x 2 units

Sand System: CO2 Sand + Chromite Sand

Cast Tol: ISO 8062 CT 13 or better

Heat treatment

Furnace 1: 4.0m L x 2.3m W x 1.5m Ht Furnace 2: 5.0m L x 2.3m W x 1.5m Ht Quench Pit :10.0m L x 2.6m W x 6.0m Depth; Water Temp. below 30°C

Test sample taken for every melt to verify on Chemical Composition using Spectrometer prior to pouring.

Test sample of each pour will be kept for 2 years.











Foundry 2 – Iron Foundry

Production

Yearly: Approx. 3,000 MT Monthly: 200 to 300MT

Max Cap: Cast Iron 3MT per piece net weight

Alloy Iron 1.5MT per piece net weight

Alloy Iron: Ductile Iron, Cr Iron, Ni Hard

Melting

Furnace: 0.75 MT Furnace x 2 units

1.8 MT Furnace x 1 unit

Sand System : Furan Sand Cast Tol : ISO 8062 CT 13 or better



Facilities - Malaysia







Foundry 3 - Steel and Iron Foundry

Production

Yearly: Approx. 4,200 MT Monthly: 350 to 400MT

Max Cap: 7 MT per piece gross weight

Material: Cast steel, Manganese steel, Cast iron and

Ductile iron

Melting

Furnace: 4.5 MT Induction Furnace x 2 units

Ladle: 7.5 MT Bottom Pour Ladle Sand System: Resin Binder – Phenolic Cast Tol: ISO 8062 CT 13 or better

Heat treatment

Furnace 1: 3.5m L x 3.5m W x 4.0m Ht Furnace 2: 2.0m L x 3.0m W x 2.0m Ht

Quench Pit: Supported with cooler, jet and propellers

Test sample taken for every melt to verify on Chemical Composition using

Spectrometer prior to pouring.

Test sample of each pour will be kept for 2 years.











Some customers - mineral processing

























Some customers

























Materials







Standards & Specifications:

Manufacture according to BS, JIS, ASTM, AISI, DIN standards and specifications or to the nearest equivalent, supported with Mill Certificate.

Materials

Steel: Carbon Steel

Manganese Steel

Heat Resistant Steel

Stainless Steel

Alloy Steel

Iron: Cast Iron

Ductile Iron

Chrome Iron

Ni-hard

Manufacturing

Processes: Sand Casting

Loss Wax

Loss Foam

Forging

Machining

Fabrication

Standards Practiced or Equivalent

Steel Casting ASTM A781 / A781M

Tolerance ISO 8062 : 1994

Surface Finish MSS SP 55 – 2006

Our Strength







SM Metal Solutions produces main components and consumable spares of equipments used for mineral processing and bulk material handling, to International Original Equipment Manufacturers.

Our crusher spares and other wear products are used by Worldwide Operators in mining, quarrying and recycling industries, very often supplied thru International distributors within their region.

Support quarry operators in our region with common & critical crusher spares. Consumption and performance monitoring of common spares. Customized support package to suit customers' operations, ensuring minimum down time.

Ensure Customers' satisfaction with our swift response services and products' consistent quality performance.









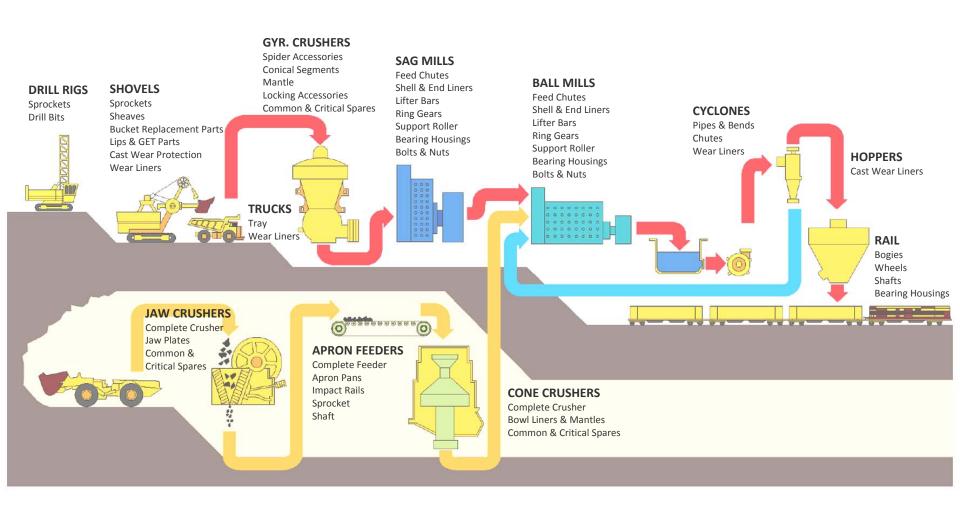
How can we support you







Mineral Processing









Original Equipment Manufacturer Experience

One-Stop Solution & Close Partner to OEM's Supply Chain

Building of Crusher:

Manufacture main body components, critical accessories and common spares Based on their design, specifications & requirements.



OEM prototype manufacturing Product improvement Product Quality vs. Overall Cost

After-Sales:

Price stability for common spares

Logistic hub with central stock consolidation

Advantages working with us:

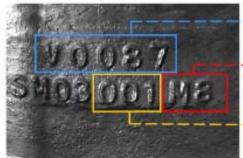
Non-Disclosure Agreement
Protect OEM's business interest
Price stability
Products certificates & traceability
Freight to any International ports











Pattern Number:

Assigned number for specific product during manufacturing. E.g. V 0087

Material Code:

M3: 11% - 14% Mn; Painted Blue M8: 16% - 18% Mn; Painted Black

Identity Number:

All our crusher spares are casted with an unique controlled ID on every piece crusher spares for traceability.











Original Equipment Manufacturer Experience

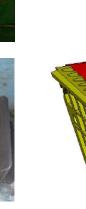
One-Stop Solution & Close Partner to OEM's Supply Chain



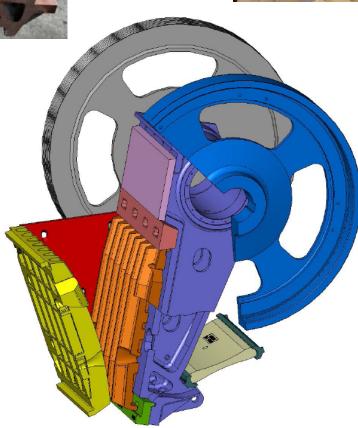


















- Loss wax casting
- Sand casting
- Forging parts





Distributors & End-users Experience

Solution to crusher common and critical spares

Crusher Common Spares:

Wide library of crusher common consumable spares for most crusher brands and models.

Manufactured by foundry specialized in Manganese Steel, supplied to OEMs, International Distributors and End Users in our region.

Quality Controlled by world-class Engineers ensuring products meeting International Standards.

Material in 14%, 18% & 21% Mn as per ASTM A128; AS 2074; GX 120 Mn Cr or nearest equivalent.

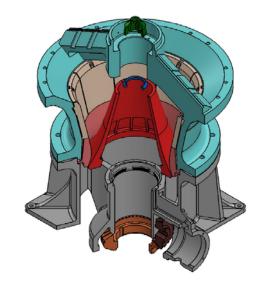
Unique Product ID for product traceability.

Utmost crushing performance.

The nearest alternative to genuine, at reasonable price.







UTMOST metal casting & forging





Distributors & End-users Experience

Solution to crusher common and critical spares

Critical Spares:

Carry stocks on critical spares on common crushers models. Swift response to sites visits.

Reverse engineering with short manufacturing lead time.











Cone Crushers:

Torch Rings . Distribution Cones . Various Bushings . Eccentric Accessories . Shafts . Gears . Countershafts . Seals . Locking Accessories . Others

Jaw Crushers:

Eccentric Shaft . Flywheels & Pulley . Locking Wedges . Toggle Seat & Plate . Bolts & Nuts . Others



Impact Crusher Spares & Accessories

UTMOST metal casting & forging





Blow Bars . Impact Plates . Side Liners . Bolts & Nuts

Blow Bars:

Manganese Steel or High Chrome Iron (27% Cr Iron)

Dye Pen to ensure free of surface defects

Marked with actual weight

Packed in sets required for shipment

Impact Plates:

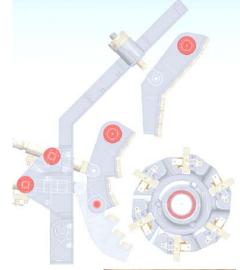
Manganese Steel

Max. usage of impact plates with customized design

Forged H/T bolts with self-locking nuts

Side Liners:

Manganese Steel or High Chrome Iron













Wear Plates / Liners







Wear Liners are widely used in most mineral processing equipments. Mainly in Mn Steel or High Chrome Alloy subjected to application.

Manganese Wear Plates:

Ideal for high impact with wear resistance application.

Commonly used in Crushers and Hoppers as protection liners to

equipment walls.











Feed Chute & Chute Liners







Customized chutes dispatch pipe & liners Manufactured as per customer's requirement.

Abrasion Resistant Cast Iron ASTM A532 / A532M Chrome Alloyed or Cr-Ni Alloyed

Manufactured as per customer's requirement















Liners Accessories









Unidan Mill
Outer, Inner & Intermediate Liners



Ø3m x 10mL Cement Clinker Mill Feed Head Liner – Inner &Outer





Feed Chute Liners – LHS & RHS







Feed Chute Liners











Various Cr Iron Sleeve Cap & Liners

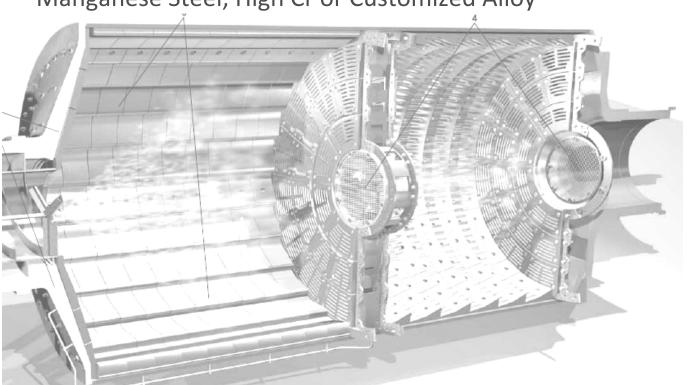
Mill Liners







Manganese Steel, High Cr or Customized Alloy















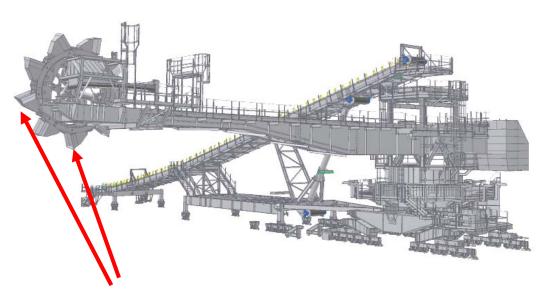
Customized Alloy Shrouds

By Sand and Loss Wax Casting









Bucket Teeth and Shrouds









Forging Products



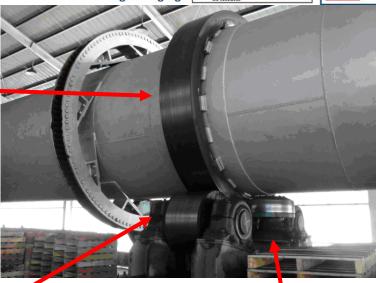
DIA 4.8m Riding Ring





Forged Support Roller and Shaft Shrink-fitted as Assembly





Rotary Kiln for Cement Plant



Thust Roller Assembly complete with Bearings

Rotary Kiln – Riding Ring & **Support Rollers**







Material

Carbon Steel: S45C; AS 1448; SC46; ASTM A 27; AS2074 or Equivalent Alloy Steel: AISI 4140; AISI 4340; AS1448; ASTM A148 or Equivalent

Max. Capacity

Casting: Up to 18tons Forging: Up to 20Tons Size: Up to 6m Dia.



Support roller Ø1270mm X 715mm



Support roller Ø1000mm X 550mm



Thrust roller



NDT Test

QA Reports

Mechanical

NDT Report

Chemical Analysis; Dimension Report;

Hardness; **Ultrasonic Test** Magnetic Particle Test



Riding ring



Riding ring Ø4400mm, 10.8tons



Thrust roller

Gears







Customized gears, by forging, machined by specialist, induction harden at teeth to meet customer's specification requirement









Gears

Case Study







Crown Gear Pinion

DIA4350mm x 460mm Ht DIA 820mm x 430mm Ht

















Bogie Wheels

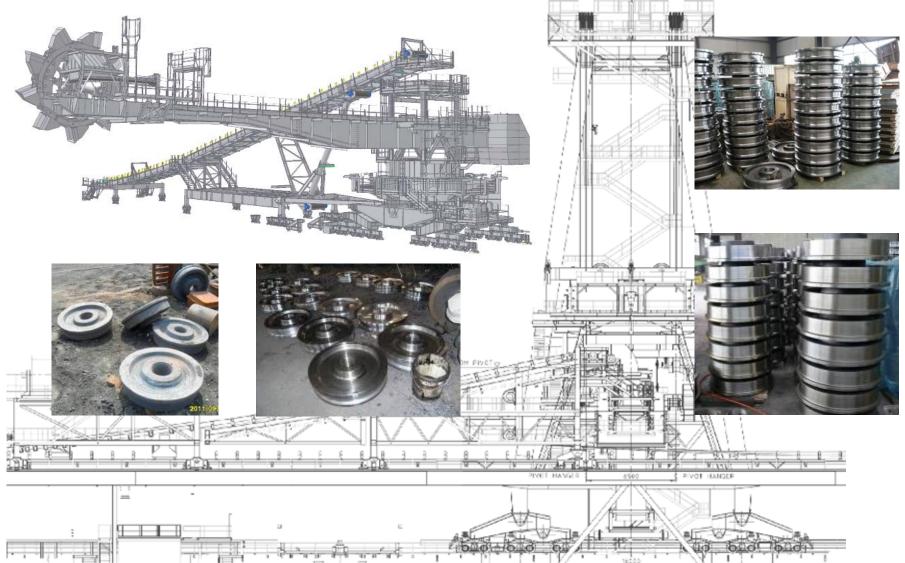






Customized material forged, heat treated and final machine.

Series of destructive and non-destructive testing conducted ensuring quality wheels



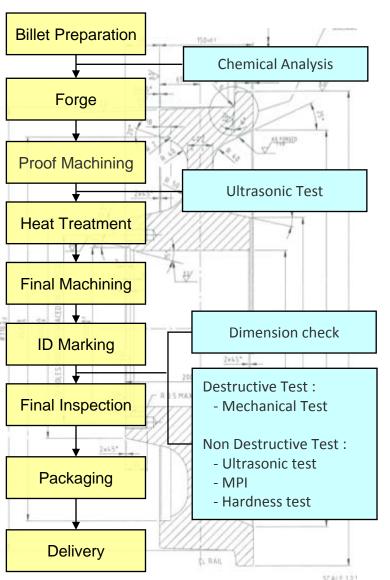
Quality Assurance & Testing























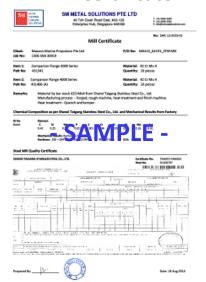
In-House Reports







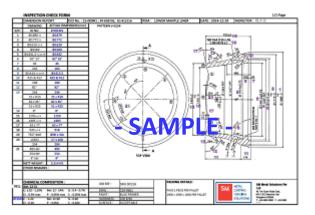
Mill Certificate



NDT Report



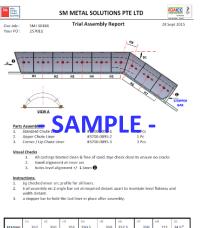
Dimension Report



Chemical Composition & Manufacturing Process Dimension Report Trail Assembly Report Non-destructive Test Report

Coordination 3rd Party Testing Services, if required

Trail Assembly Report





3rd Party Test Reports



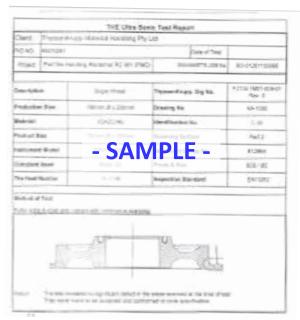




MPI Report



UT Report





CERTIFICATES









ISO 9001:2015

Certification Scope

Supply of Casting & Forging Products

Certificate No.:

JOS-17-0086

Date of Issue :

31 October, 2017

Date of Expiry: 03 September, 2018





WWW.JAS-ANZ.ORG/REGISTER

Further clarifications regarding the validity of this certificate may be obtained from EQA IMS Certification Pte Ltd (www.eqaims.com) at 1 Yishun Industrial Street 1, #04-10 APosh BizHub, Singapore 768160

CERTIFICATE



European Quality Assurance

Certificate of Registration

SM Metal Solutions Pte Ltd

48 Toh Guan Road East #03-128 Enterprise Hub, Singapore 608586

EQAIMS Hereby Grants to the above company whose Quality Management System is in conformance with

ISO 9001:2015

Certification Scope

Supply of Casting & Forging Products

Certificate No. Date of Issue Date of Expiry : QS-15-1233 : 31 October, 2017

ate of Expiry : 03 September, 2018







Further clarifications regarding the validity of this certificate may be obtained from EQA IMS Certification Pte Ltd (www.eqaims.com) at 1 Yishun Industrial Street 1, #04-10 A'Posh Bizhub, Singapore 768160

Working With Us







One-stop Solutions

- Engineering assistance
- Pattern and casting design and layout
- Pattern-making
- Production tooling construction
- Heat treatment
- Non-destructive testing
 - MPI
 - Ultra-sound
 - Dye pen test
 - Chemical analysis
 - Dimensional checks
 - Mechanical analysis
 - Machining
 - Finishing
- Complete with machining
- Finishing
 - Plating
 - Painting
- Packing for shipment
- Logistic support

Quality Products

- Quality control implement throughout each manufacturing process
- Chemical composition reading by spectrometer
- Good casting finishing with clear logo and wordings tidy casted
- Traceability of castings manufactured
- Prompt delivery
- Supporting reports
 - Mill Certificate
 - Dimension Report
- Target zero rejection

Quality Services

- Easy communication in common language
- Actual status updates of job in-progress
- Ensure on-time delivery
- Supporting reports ready prior to delivery
- Coordination with 3rd Party Inspectors
- Short term storage of finished products
- Logistics services and support for world wide delivery

Working With Us







PRODUCTS

+

SERVICES

=



- IN PROCESS MONITORING
- FINAL INSPECTION BEFORE DELIVERY
- 3RD PARTY INSPECTION (IF REQUIRED)

- DESIGN/ ENGINEERING
- COMMUNICATION
- REPORTS & DOCUMENTATION
- LOGISTICS

FINAL PRODUCTS
 DELIVERED TO
 SITE WITH ALL
 REQUIRED TEST
 REPORTS &
 DOCUMENTATION

MANUFACTURING OF CUSTOMIZE PRODUCTS & SERVICES TO SUIT INDIVIUDAL CUSTOMER'S REQUIREMENT, COMPLETE WITH REQUIRED TEST & REPORTS.

FOR SHORT RUN, MASS PRODUCTION OR TURN KEY PROJECTS.







We look forward to work with you

SM Metal Solutions Pte Ltd

48 Toh Guan Road East, #03-128 Enterprise Hub, Singapore 608586

Tel: +65 6896 8990

Email: info@smmetalsolutions.com

Utmost Engineering Sdn Bhd

1133, Jalan Sri Putri 3/2,

Taman Putri Kulai,

81000 Kulaijaya, Johor

Tel: 07-663 7184

Fax: 07-663 7142

Email: info@smmetalsolutions.com

www.smmetalsolutions.com



SM Metal Solutions Pte Ltd

Singapore Local & International Sales Management Office



UTMOST Engineering Sdn BhdMalaysia

Sales Office