湘电重型装备有限公司
XIANGTAN ELECTRIC MANUFACTURING GROUP HEAVY-DUTY EQUIPMENT CO.LTD

XEMC Introduction

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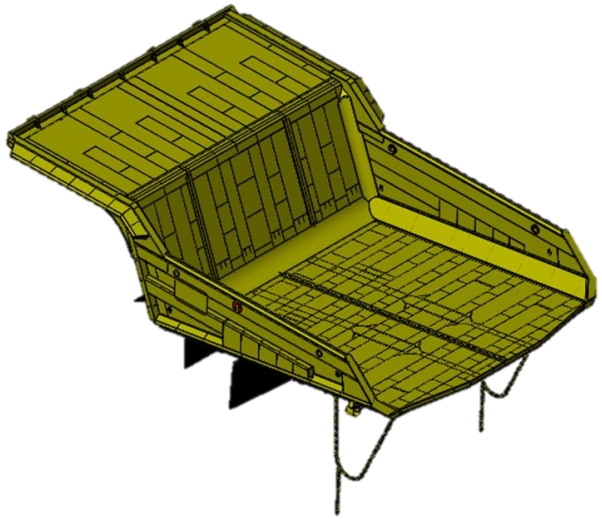
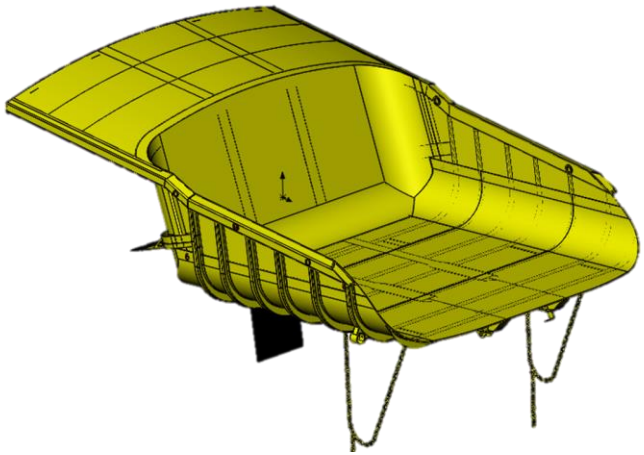
About XEHD

- A Subsidiary of XEMC group;
- 40 years' experience in mining dump truck industry;
- Over 700 employees;
- Over 35,000 sqm work shop;
- 100 units dump truck annual capacity;
- 200 units dump body annual capacity;
- Over 800 units dump trucks in Chinese domestic market;
- First Chinese supplier exported 220 ton class truck out of China;

XEMC Dump Body Business

- ❖one of Rio Tinto's major dump body supplier;
- ❖delivered 69 bodies to Australia market;
  - 19X730E body;
  - 46X830E body;
  - 4 X XEMC body;
- ❖30 X 930E High Performance Light Body to Oyu Tolgoi
- ❖Over 800 body in Chinese domestic market;





History and Experiences

MTW puts Chinese-supplied tray to work

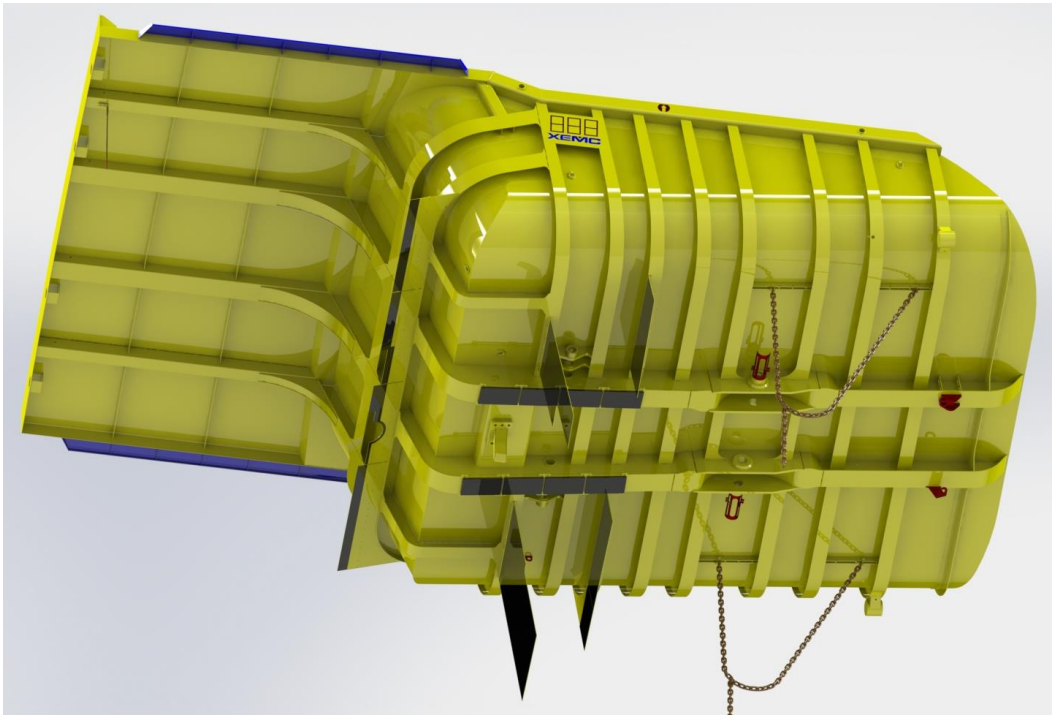
As part of a Rio Tinto Coal Australia strategy to identify and deliver benefits from emerging market procurement, a trial of an emerging market truck tray has begun at MTW and has the potential to drive down the cost of similar equipment purchases in the future by an outstanding 40 per cent.

The Chinese-manufactured 830E tray is being used to carry up to 215 tonnes of waste at a time, hitting target payloads and completing more than 280 loads since commencing in May.

译文：
MTW 将中国（湘电重装：XEMC 品牌）供应的车斗投入使用

作为力拓澳洲战略的一部分，从新兴市场进行采购从而获取利益，新兴市场的矿卡试用车斗开始在 MTW 使用，其有潜在可能性在将来将相似设备采购的成本显著降低达 40%。中国制造的 830E 的车斗用来一次装运 215 吨剥离物，达到了预期的装载量，且在 5 月份开始运行以来，完成了超过 280 次的装运。

Dump Bodies

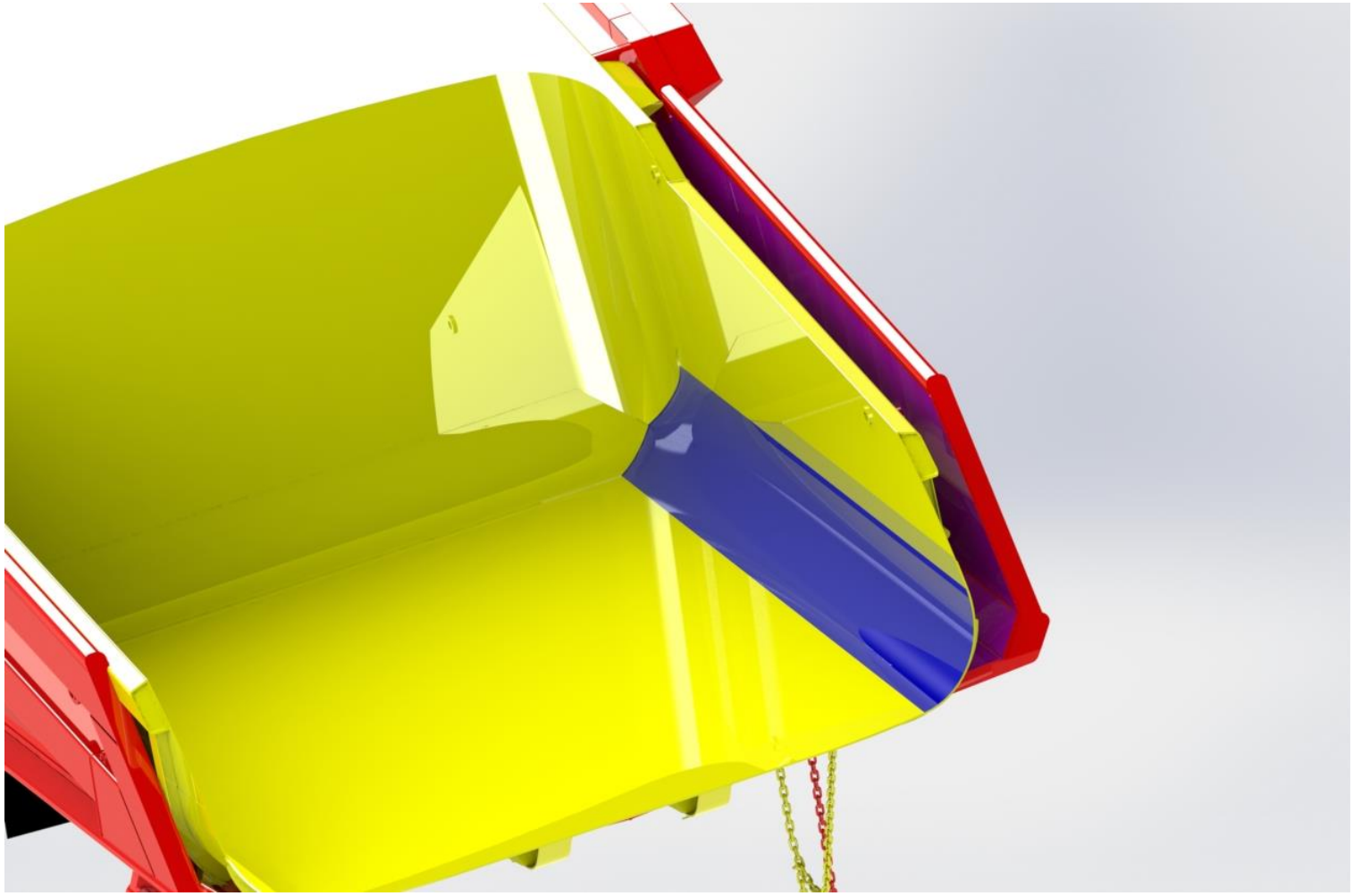


- Increased fatigue life
- Anti-hang-up
- Reduce Spillage
- Increased payload
- Fully customizable

Full Curved Body Features

Anti-hangup features incorporated in the base design

- large radius transitions assist in the reduction of material carry back and provide superior impact resistance.



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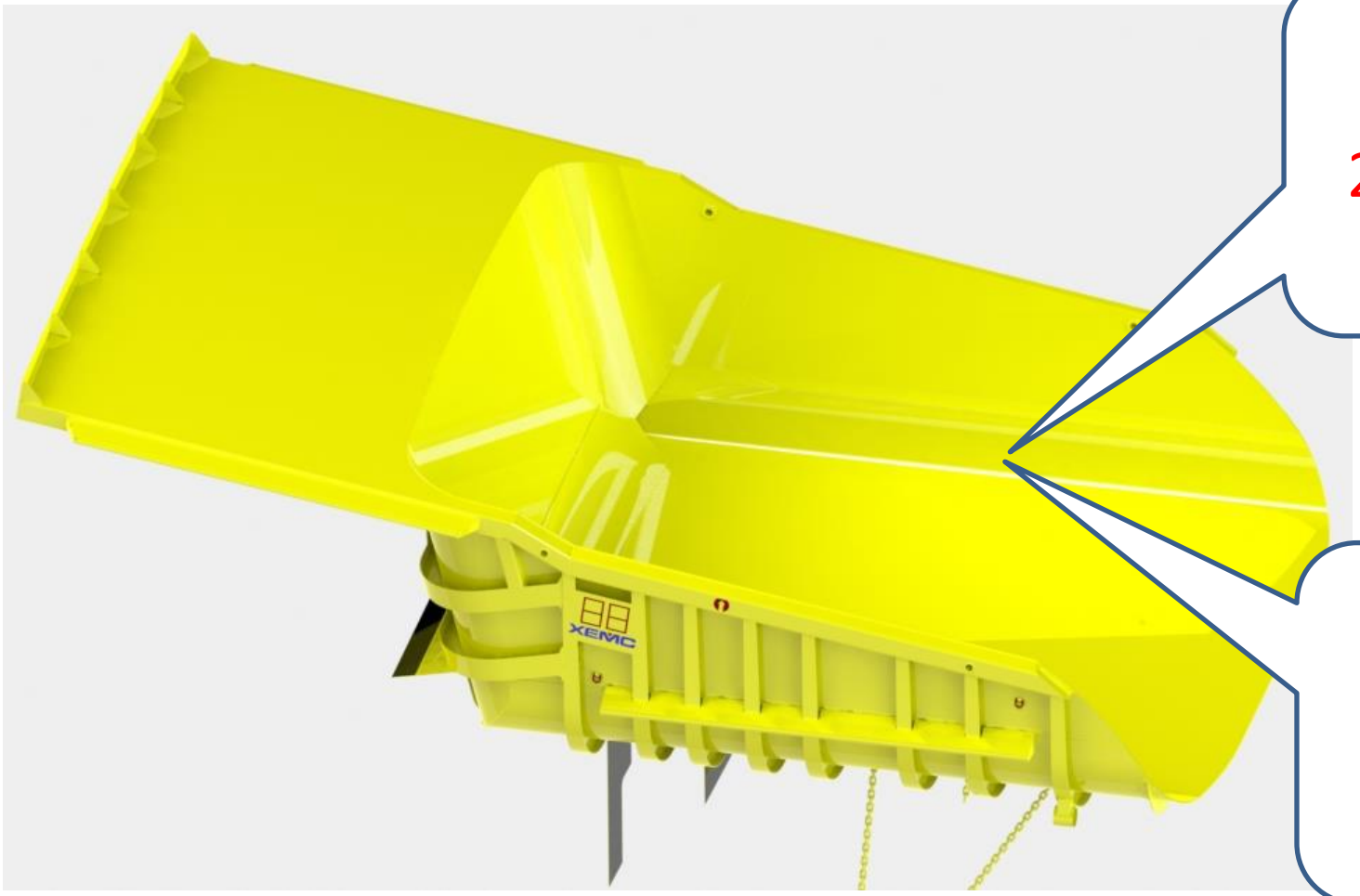
Full Curved Body Features

Payload advantage

– a 15%-25% weight saving over standard conventional bodies maximises payload depending on application. Significant payload improvements can be gained comparatively to standard designs.



37 T with 18,000 hours expected life.

23% lighter than the general body

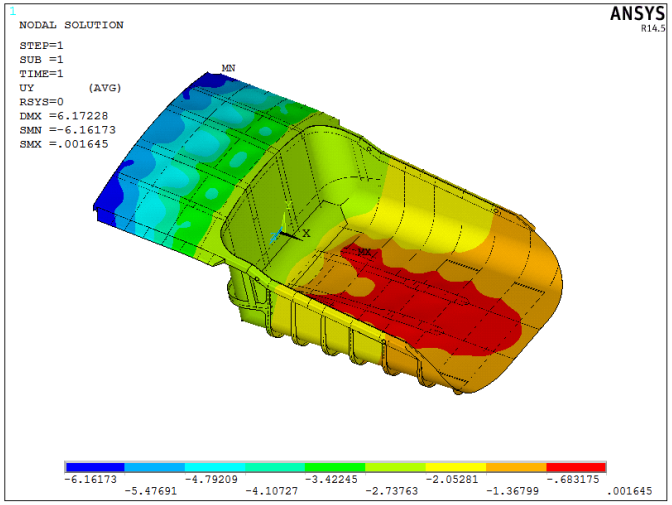
40 T with 24,000 hours expected life.

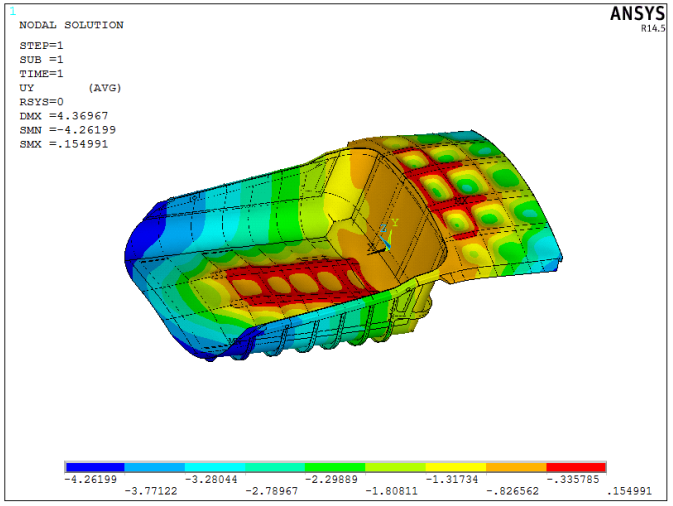
18% lighter than the general body

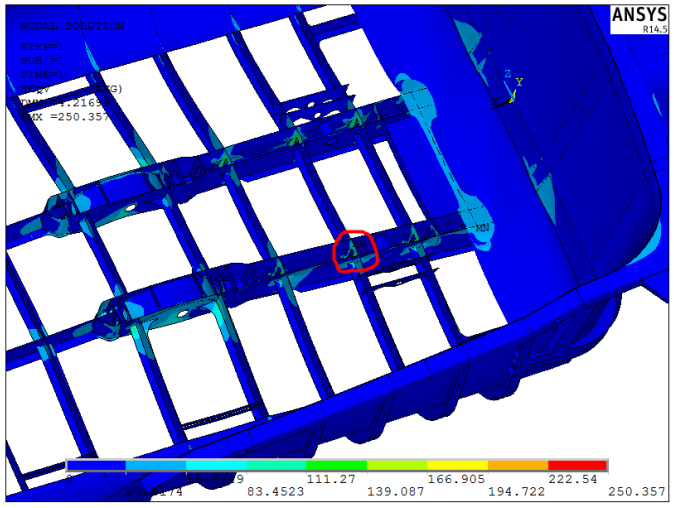
Full Curved Body Features

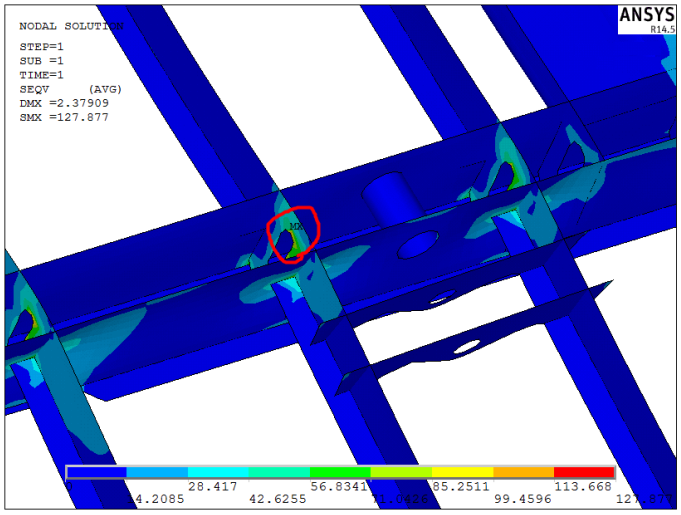
Increased fatigue resistance

– Significantly improved fatigue resistance has been realised within results of FEA analysis.









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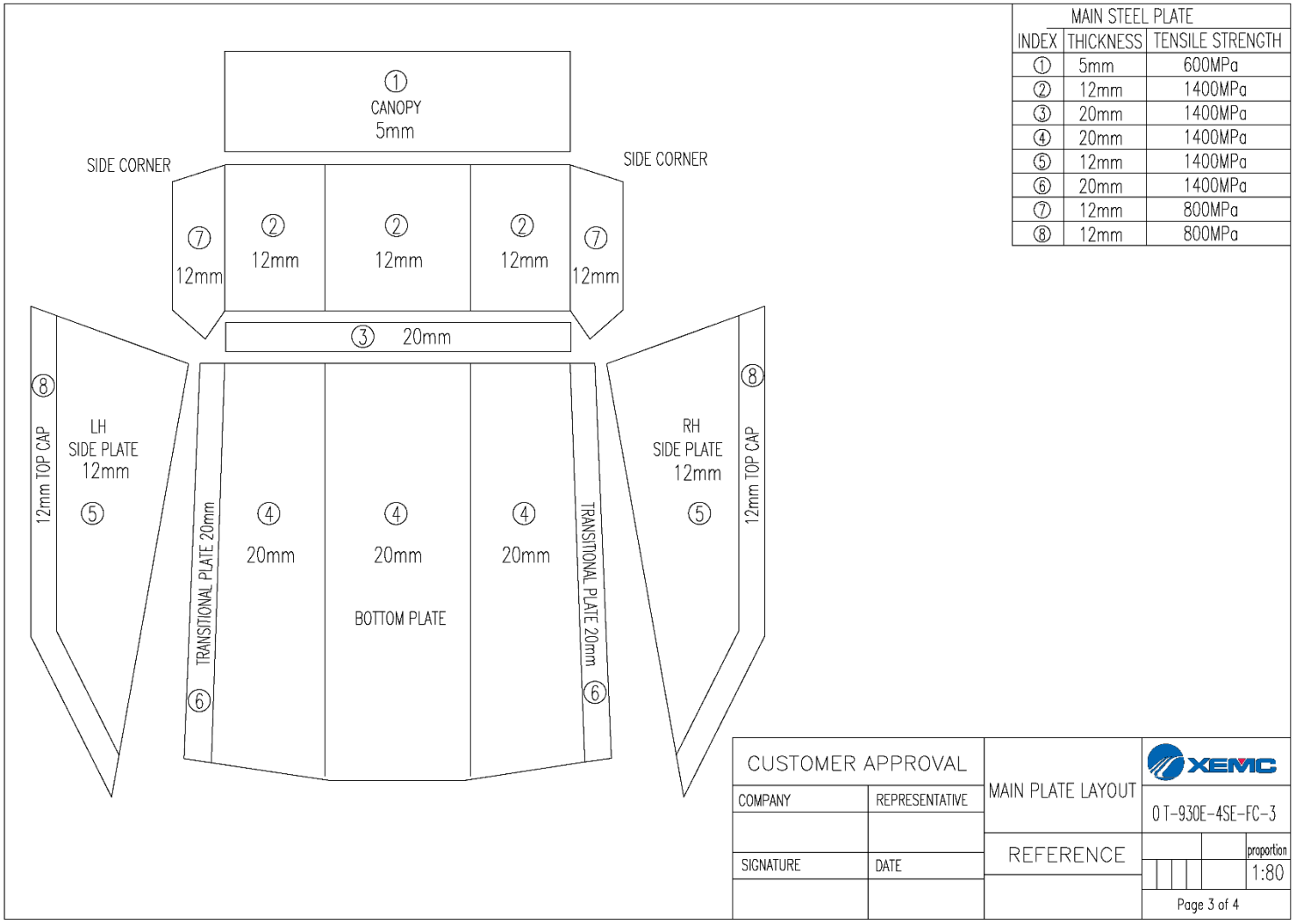
Full Curved Body Features

Constructed using high strength materials

- all inner main plates consist of heat treated abrasion resistant steel plate in the 450 nominal Brinell hardness range for superior impact and wear resistance.



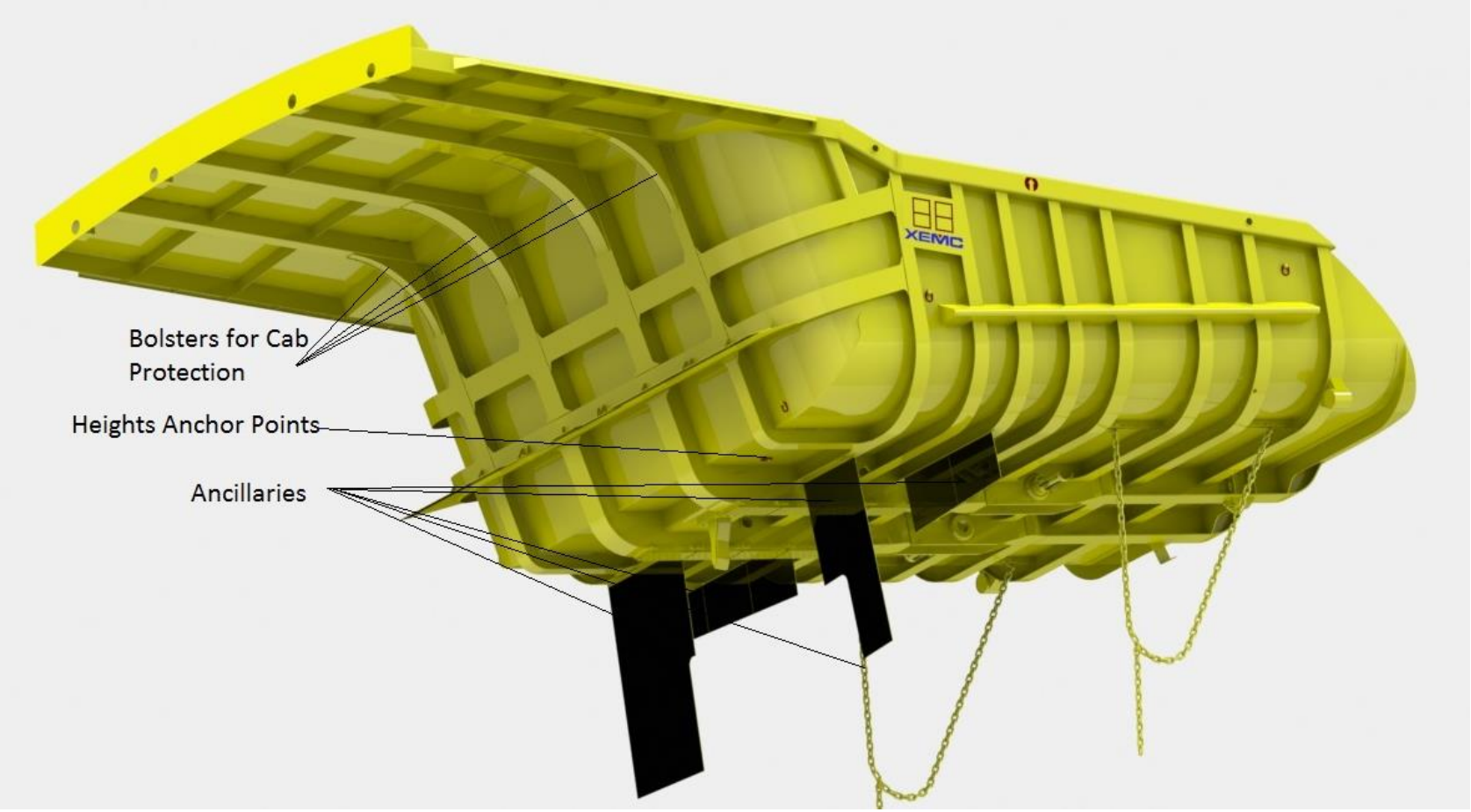
MAIN STEEL PLATE		
INDEX	THICKNESS	TENSILE STRENGTH
①	5mm	600MPa
②	12mm	1400MPa
③	20mm	1400MPa
④	20mm	1400MPa
⑤	12mm	1400MPa
⑥	20mm	1400MPa
⑦	12mm	800MPa
⑧	12mm	800MPa

CUSTOMER APPROVAL		MAIN PLATE LAYOUT	XEMC
COMPANY	REPRESENTATIVE		0T-930E-4SE-FC-3
SIGNATURE	DATE	REFERENCE	proportion 1:80
			Page 3 of 4

Full Curved Body Features

Largely simplified body design

– results in low ongoing maintenance costs to end user.



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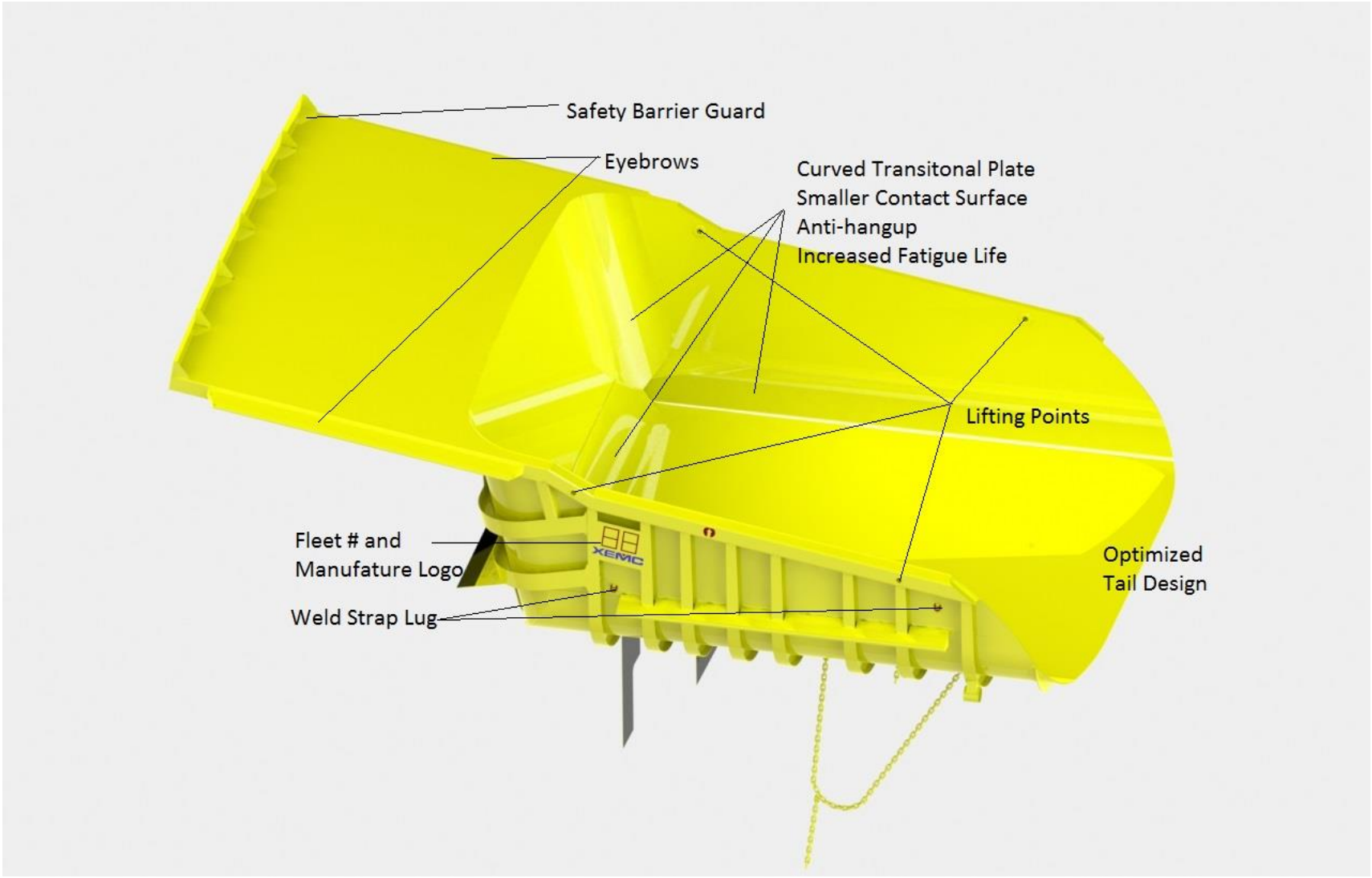
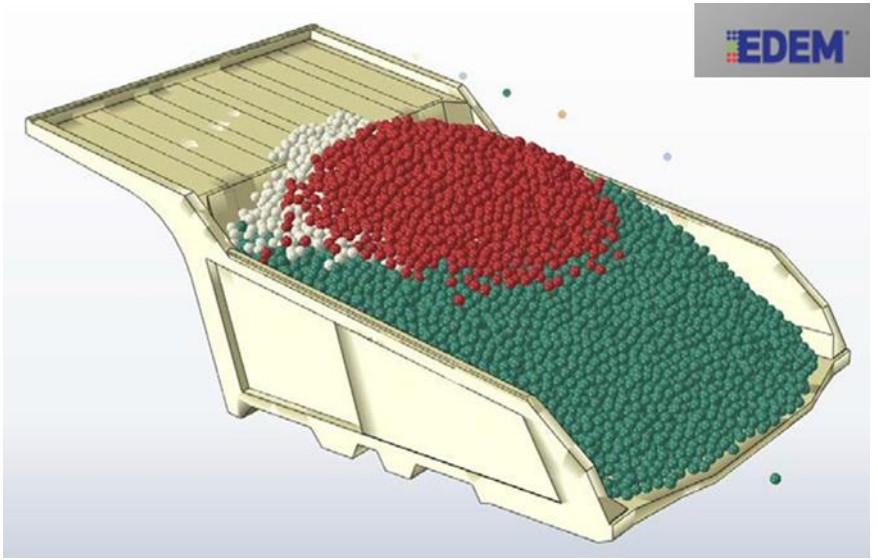


Full Curved Body Features

Verified design process

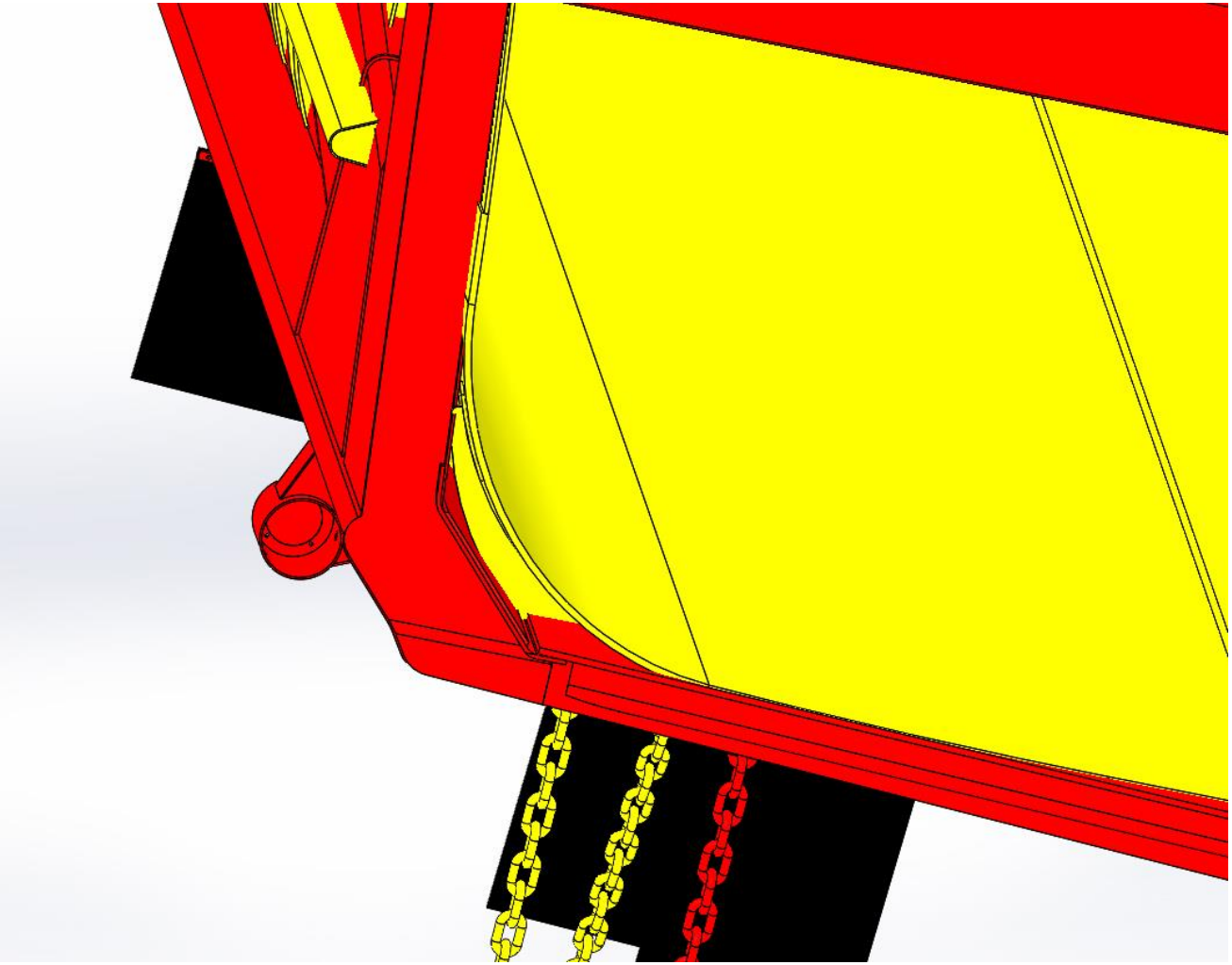
- designed with advanced 3D modelling software. (Solid works 2014) and analysed with the latest FEA and load simulation software (ANSYS / EDEM).



Full Curved Body Features

Fully optimised body structure

- the shape of the body has been optimised to suit real world loading conditions and better utilisation of structural material in critical areas.



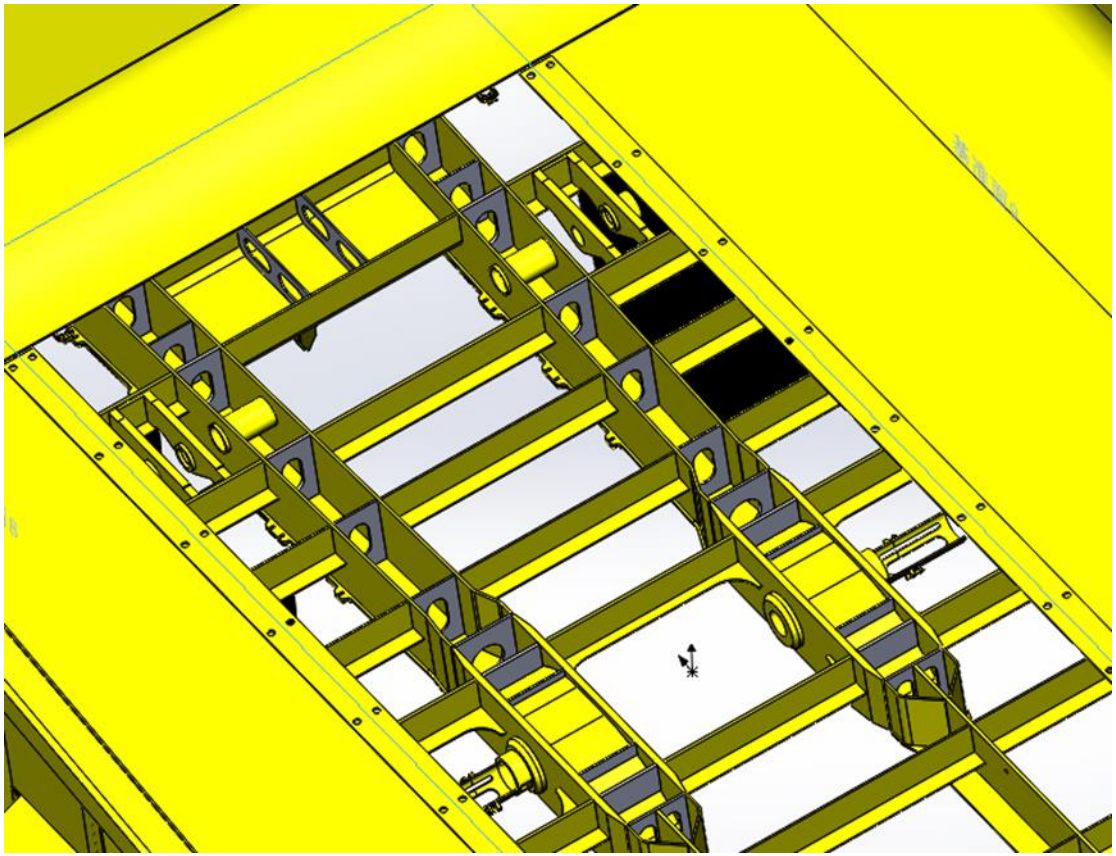
Full Curved Body Features

Impact protection

– impact resistant plates are incorporated into the base design and protect the upper side bolster from damage in the main loading zone.

Fully customisable

– can be designed to suit any mine specific application. (20000 – 30000 Hours.) . Available in conventional standard, Semi-curved, Full-curved configurations to suit fixed or varying SG.



OT CASE

- **30 High Performance Light Weight Body;**
- **10 made by Chinese Steel;**
- **20 made by Hardox Steel;**
- **Reduce weight from 54T to 36T**
- **Delivered in 8 months;**
- **Delivered in 5 sections, local final welding commissioning;**
- **Manage Mongolia local company to do the commissioning;**
- **Positive feedback for both Chinese steel body and Hardox Steel body;**

From: Perry, Alan (RT Commercial) <Alan.Perry@riotinto.com>
Sent: Thursday, 28 May 2020 11:28 AM
To: Jimmy Ji <jimmy.ji@xemc-hd.com.au>
Subject: RE: [External] RE: XEMC parts listing in Aust

Jimmi,

Hope my email finds you, your family and team at XEMC well.

Positive feedback for OT regarding trailer performance and support given by XEMC, so thanks for the support and looking after the team at OT. OT are starting to look at replacement periods and currently looks like hrs will be achieved on some bodies in 2021, so we will keep you updated on when tender will be sent out.

I have been going back and forth with Hu regarding an alternator and wheel motor you have in stock in Perth, would XEMC support doing a service exchange arrangement on these units? Happy to discuss number of turns required by XEMC to make the service exchange model viable.

* Wheel motor, model: 5GEB25C6,
* Alternator, model: 5GTA41C5,

Alan


25


25


XEMC
HT039

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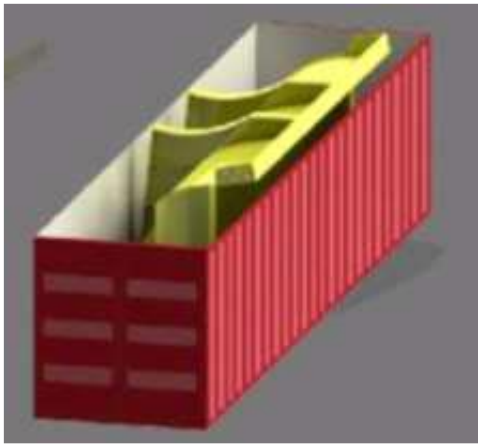
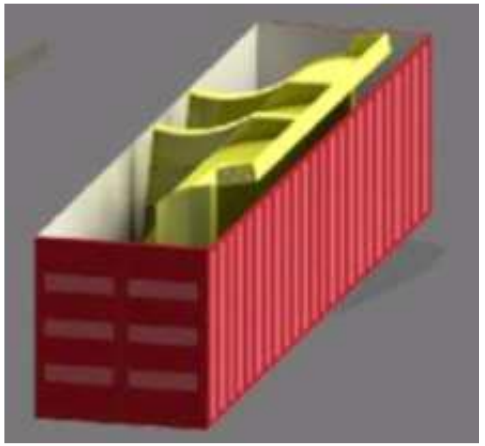
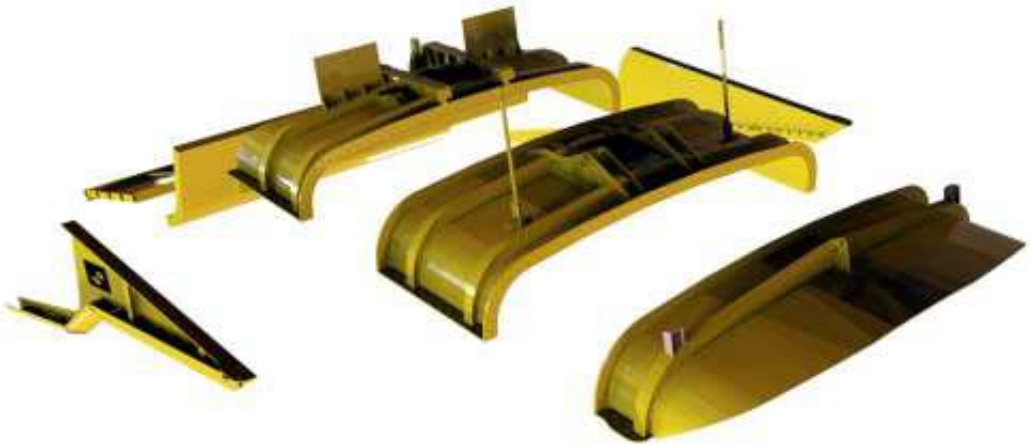
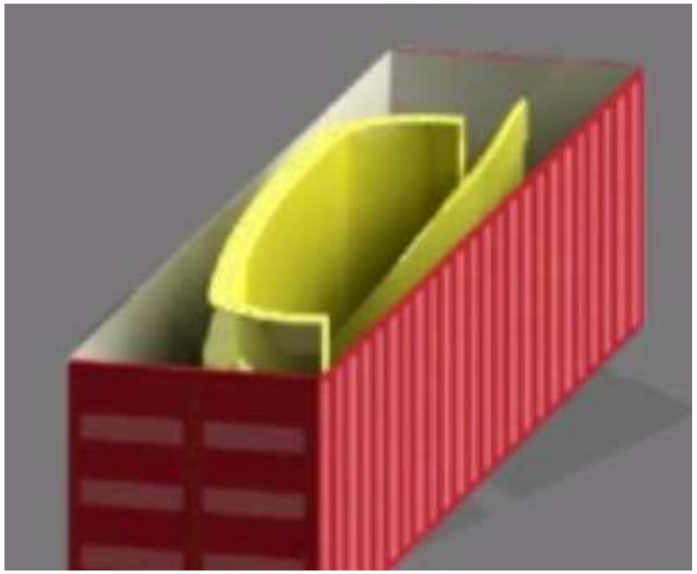
Full Curved Body Bolt Assemble Option

XEMC also can supply the body in sections and delivered by sea containers, joint with high performance specialized bolts.







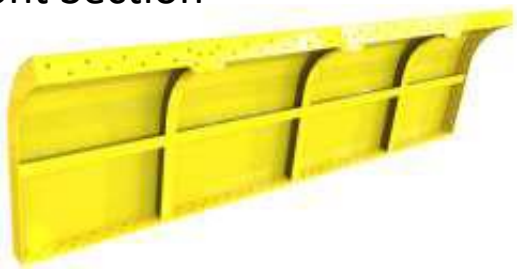


Full Curved Body Bolt Assemble Option

XEMC also can supply the body in sections and delivered by sea containers, joint with high performance specialized bolts.

Tail Section

Front Section



Central section

Canopy

Sides

Bolts Kits

Full Curved Body Bolt Assemble Option

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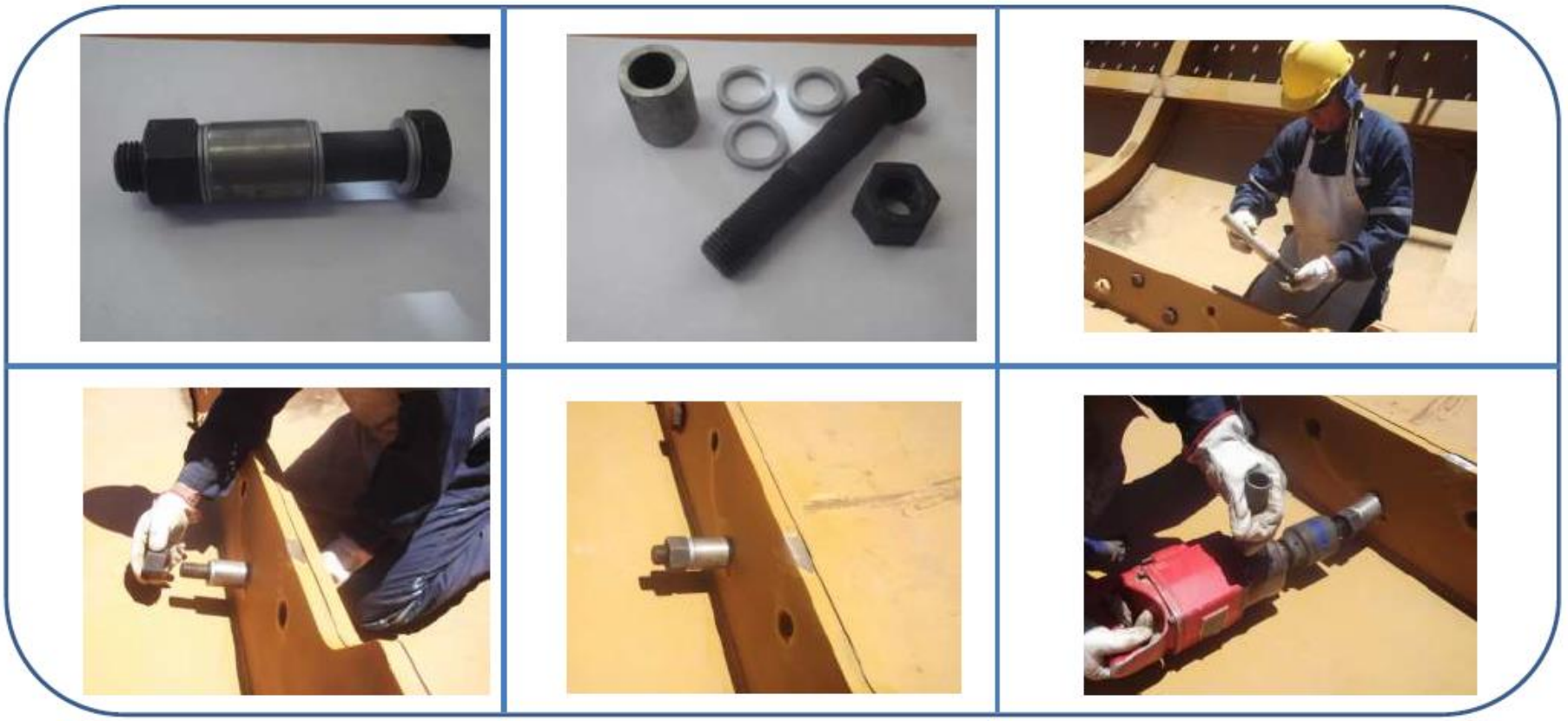

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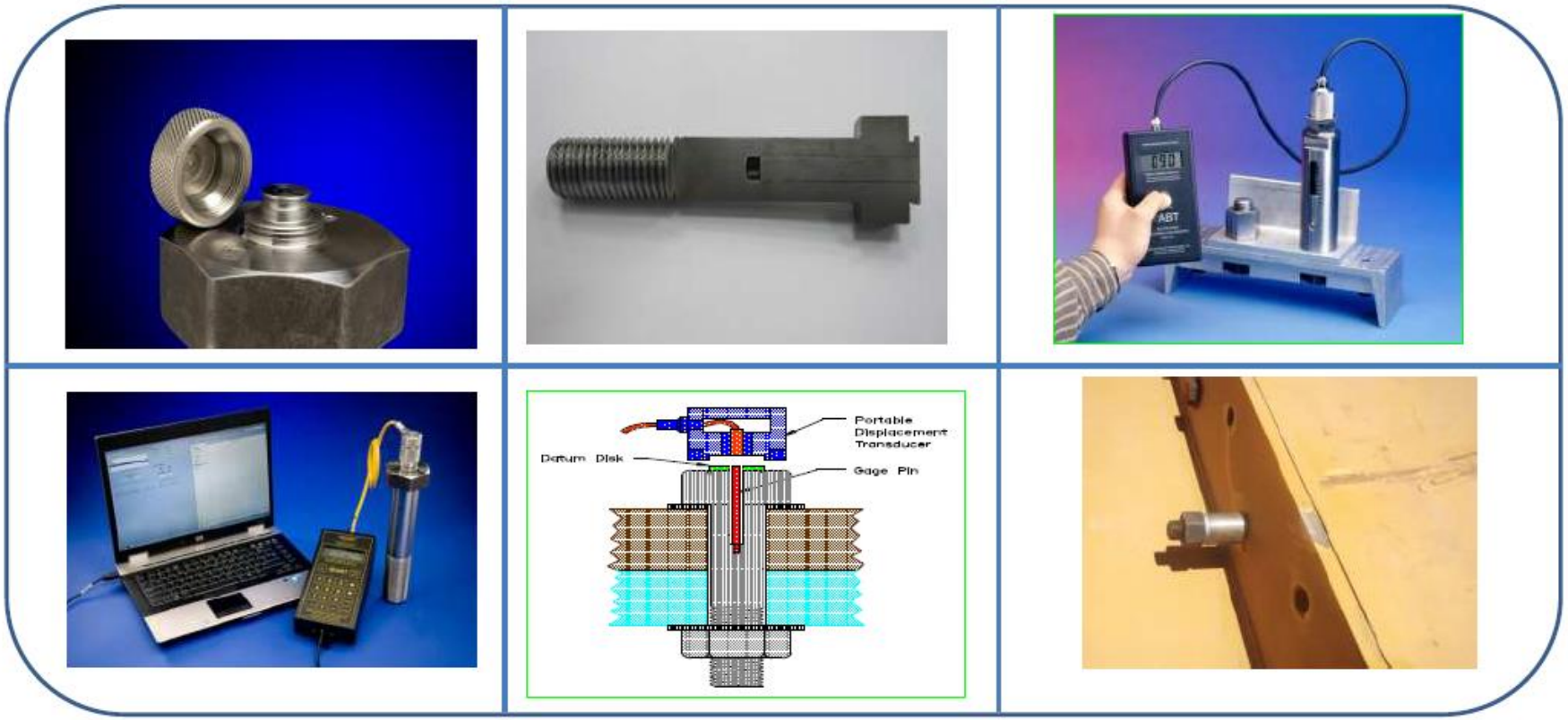


Full Curved Body Bolt Assemble Option

XEMC also can supply the body in sections and delivered by sea containers, joint with high performance specialized bolts.

The performance of bolts joint body is equivalent to the welding joint body.

Design

Virtual Software Packages Used:

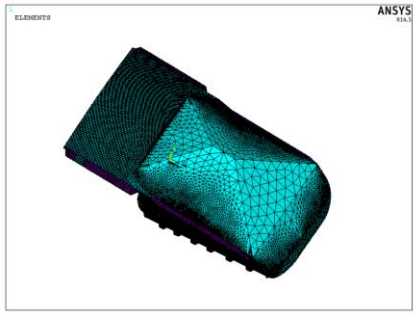
- Solid works Modeling
- ADAMS Dynamics
- MSC.PATRAN and MSC.NASTRAN
- Ansys Structural analysis
- EDEM Loading and Flow
- ADAMS → EASY5 → EDEM Coupling
- ENSIGHT – post processing

Real-life Methods Used:

- Material lab test
- Scale testing
- DNT Thickness Test

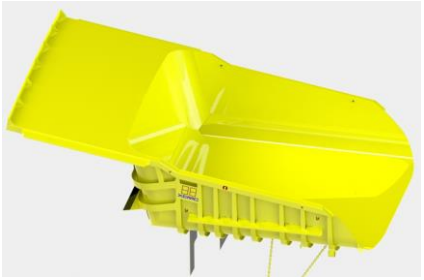
SOLIDWORKS
MSC Software Simulate More
ANSYS
DEMSolutions
ENSIGHT Engineering Visualization Software

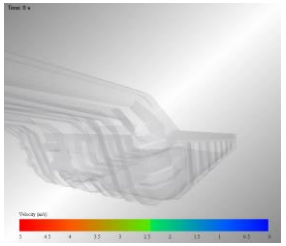
Rapid FEA



Dynamics

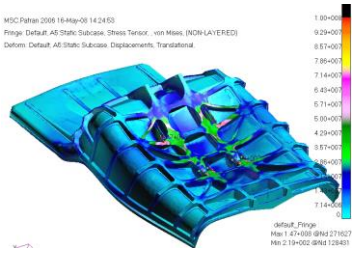
Solid Modelling

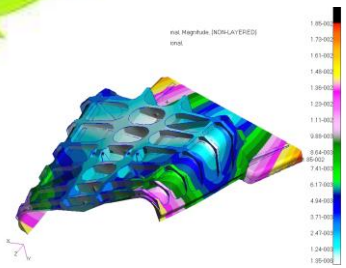




Flow Analysis

Detailed FEA





Modal Analysis

XEMC body can be manufactured by both Hadox Steel and Chinese Local steel.

10 body made by local steel (Xincheng Special Steel) has been applied in Oyu Tolgoi Project and the site performance is equivalent to the rest 20 made by Hadox Steel.

Local steel Options

- Nisco Steel
- **Leong Jin Steel**
- Xincheng Special Steel
- Both three options are passed the WPS test.

The benefit for local steel

- Equivalent performance as Hardox 450;
- Short Lead Time
  Hardox 450: more than 150 days
  Local Steel: 75 days
- Lower Price

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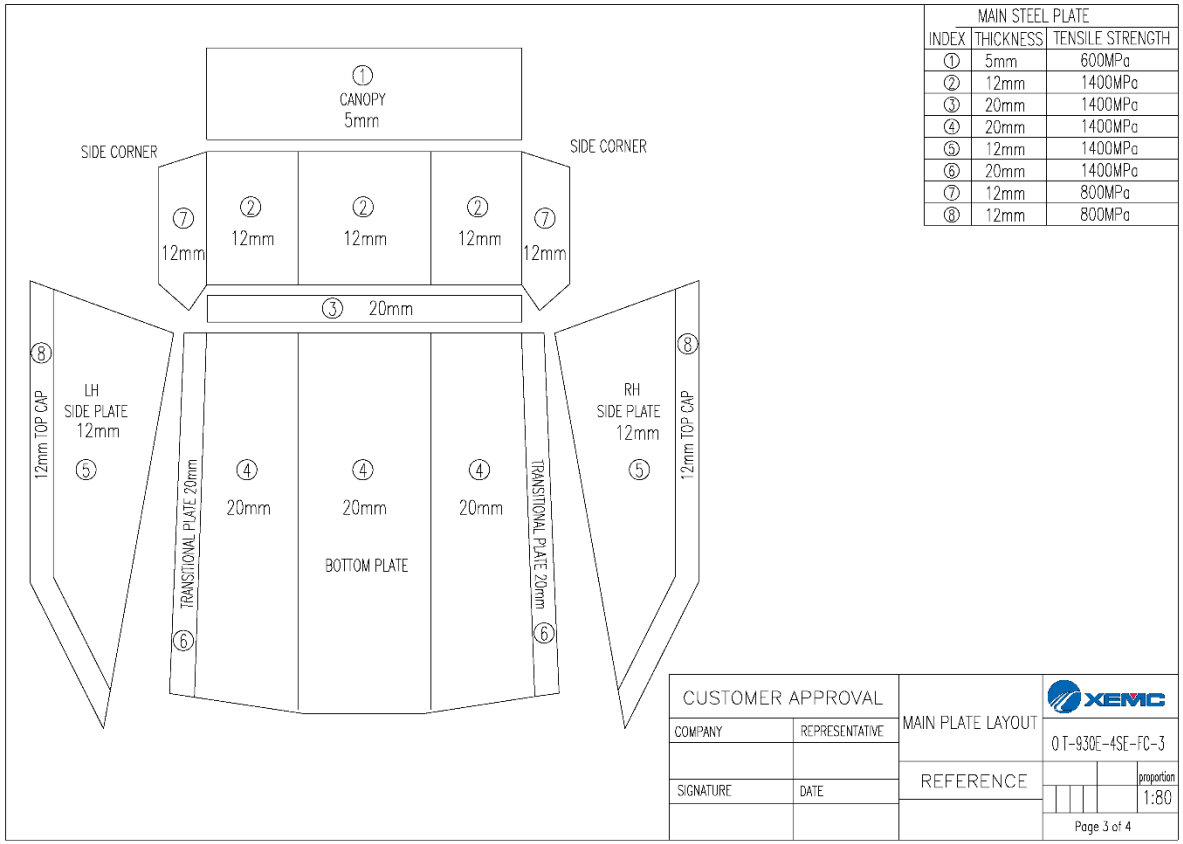
Steel Plate Cross Reference



Steel plate cross reference

Steel plates index	Thickness	Tensile Strength	RUUKKI	SSAB	NANJING	LEONG JIN	XINGCHENG
①	5mm	600MPa			NX-Q550E	LiftHi700	XC-Q550E
②	12mm	1400MPa	Raex450	Hardox450	NX-NM450E	WearTuf450	XC-NM450E
③	20mm	1400MPa	Raex450	Hardox450	NX-NM450E	WearTuf450	XC-NM450E
④	20mm	1400MPa	Raex450	Hardox450	NX-NM450E	WearTuf450	XC-NM450E
⑤	12mm	1400MPa	Raex450	Hardox450	NX-NM450E	WearTuf450	XC-NM450E
⑥	20mm	1400MPa	Raex450	Hardox450	NX-NM450E	WearTuf450	XC-NM450E
⑦	12mm	800MPa	Optim700QL/Strenx 700	Weldox700/Strenx 700	NX-Q690E	LiftHi700	XC-Q690E
⑧	12mm	800MPa	Optim700QL/Strenx 700	Weldox700/Strenx 700	NX-Q690E	LiftHi700	XC-Q690E

Note: ①refer to the steel plates marked in page 3 of XEG General Arrangement drawins.
the new Strenx 700 is the replacement of Optim700QL and Weldox700 after SSAB and RUUKKI joined together.

Fabrication

First Class Machinery

Leveler

plasma cutter

Plate shears

Hydraulic press

Welding Robot

Fabrication

First Class Machinery

6000T Hydraulic Press

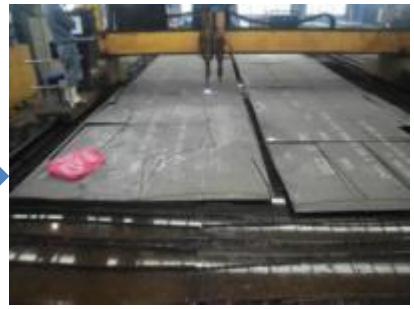
Leveler

Floor Assembly Platform

Fabrication Process Flow

Material Inspection

Cutting



Bending

Parts Manufacturing

Parts Assembly

Side Wall Assembly

Tray Assembly

Tray Welding

Onsite Commissioning

- Project Safety Management

Project Safety Goal: ZERO HARM

/Weekly safety check report applied
/Monthly safety re-joint safety report applied /Safety training every week
To improve the safety work in manufacturing workshop

Safety Joint Inspection & Weekly Report
每周安全联合检查及报告

Project name 项目名称: Rio Tinto HPDB Tray Project 2015 Contract No 合同号.

Location 地点.	1#, 2#厂房.	Date of the inspection 检查日期.	2015.8.19.
Prepared by 准备.	李宁.	Date of issue 发布日期.	2015.8.24.

ATTENDEES 参加人员.

XEMC representative 湘电代表.			BTS representative 中澳代表.		
Name 姓名.	Firm /Unit 公司/职位.	Attend (Y) 参加(是).	Name 姓名.	Firm /Unit 公司/职位.	Attend (Y) 参加(是).
.	.	.	李宁.	生产主管.	Y.
.	.	.	沈南.	作业长.	Y.
.	.	.	雷海亮.	作业长.	Y.
.	.	.	.	.	.
.	.	.	.	.	.

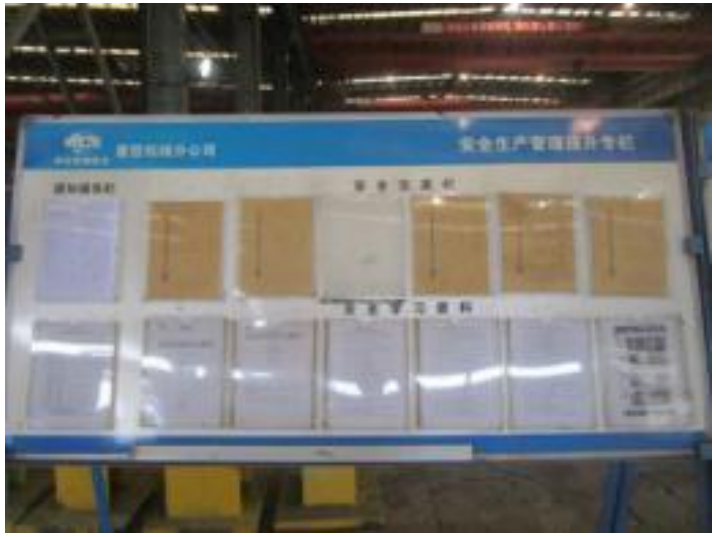
Weekly crew safety meeting topic & safety training ,activity 周安全会议主题或安全培训,活动.

1. 8月17日召开周安全会议，本周主题关于转动设备操作安全防护。

Safety Risk Point and Management 周安全风险点与处理方法.

Page 1 of 3

- Project Safety Management



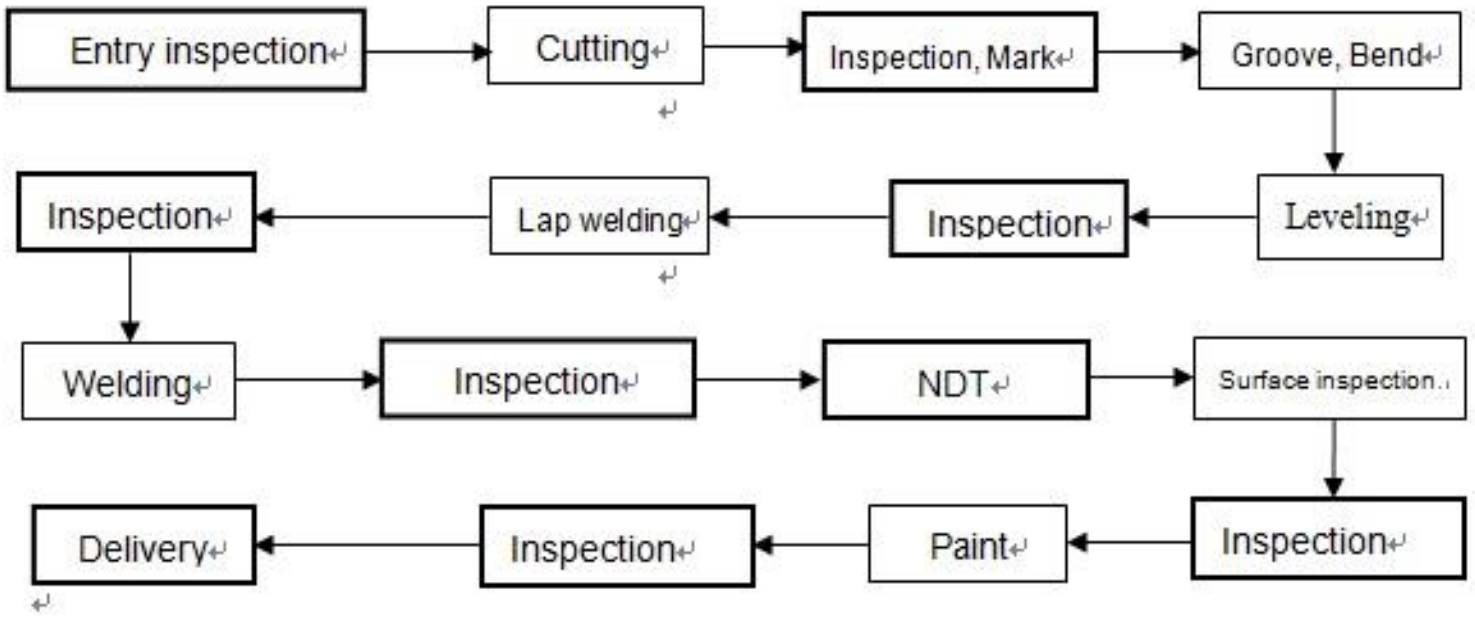
Quality Control

Quality Supervision

In order to make sure all the product from XEMC to meet the quality requirement and Australia Standard, XEHD hired an experienced third party for quality supervision

- Production Process Chart

To ensure the quality, all the fabrication must be 100% self-check before submitting to inspector for validation. The work-piece must be accepted by XEMC inspector before submit to RT representative for inspection. Inspection flow chart listed below:



> Welder Qualification

Welder Skill Test

Welder Certificate

- Manufacture Teams

No.	Item	Total	Team1	Team2	Team3	Team4	Team5	Team6	Team7
1	Members	100	10	15	15	15	15	15	15
2	Overseas project experience	82	10	10	8	8	8	6	7
3	Percentage of High level workers	80%	90%	90%	80%	80%	80%	80%	60%

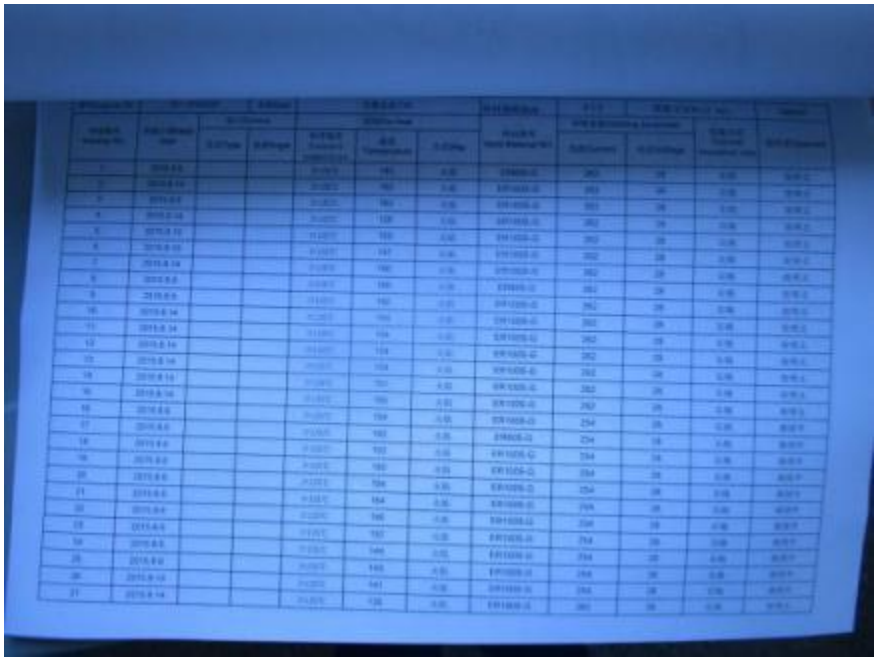
200 qualified welders standby for oversea project,60 welders own AWS D1.1 certification,40 welders own EN287 certification. The other own Chinese welding certification.

Quality Control
质量控制

Pre-heat temperature Control.

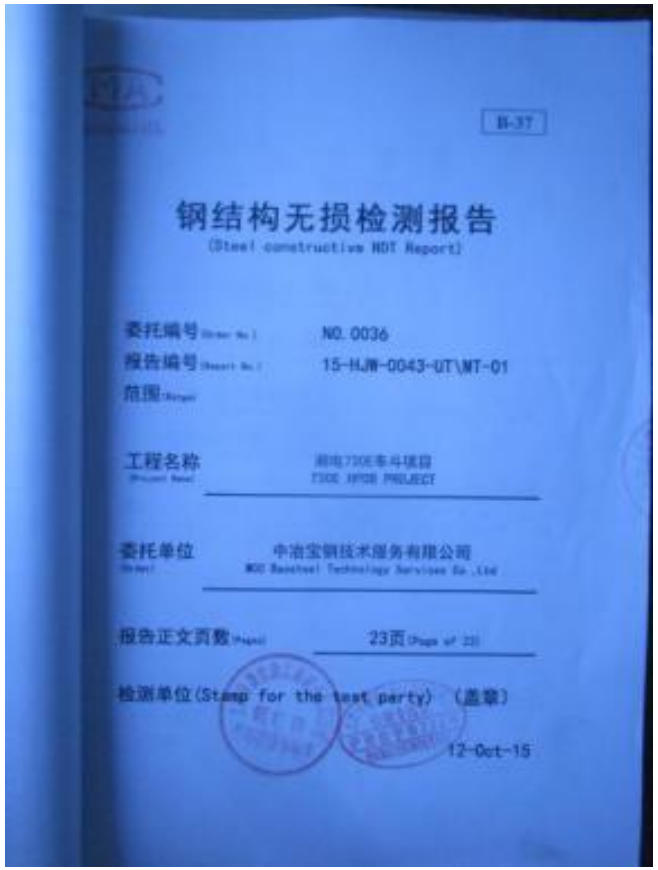
Weld wire inspection.

Weld machine parameter setup.



Every weld is traceable.

Third party NDT Test



NDT Report

Rio Tinto Third Party
Inspection Report

Painting Quality Control

To ensure the painting quality fulfill standard, painting supplier will test the painting force before delivery and supply report to customer representative

Maintenance Strategy

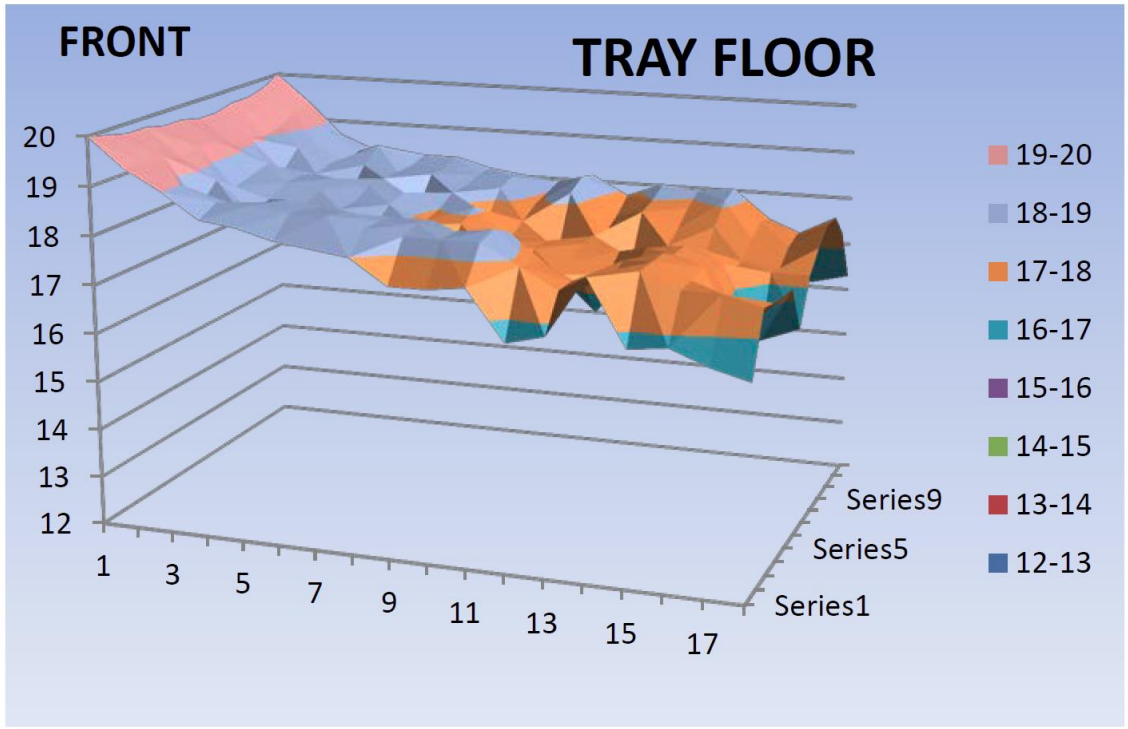
By employing simple maintenance procedures that include regular body inspections and wear measurements, the basic wear maintenance strategy will maximise the life of the floor and maintain the body weight at or below its commissioning weight.

1. Regular Inspection

This can be done when the truck is having other standard service checks such as, refuelling or servicing.

2. Wear Management

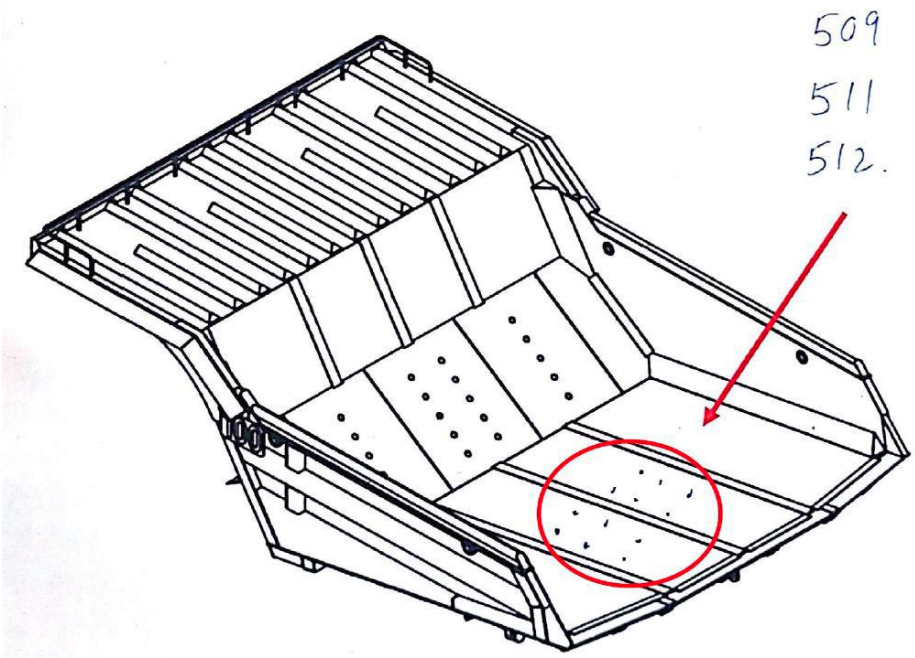
The Wear Management Program is a combination of measuring the floor at intervals of 6000 hours and downloading the measurements into a software program which produces wear maps. The wear map will determine the shape of the area to be protected, and the colour bands in the map will determine the thickness of the wear liners to be installed.

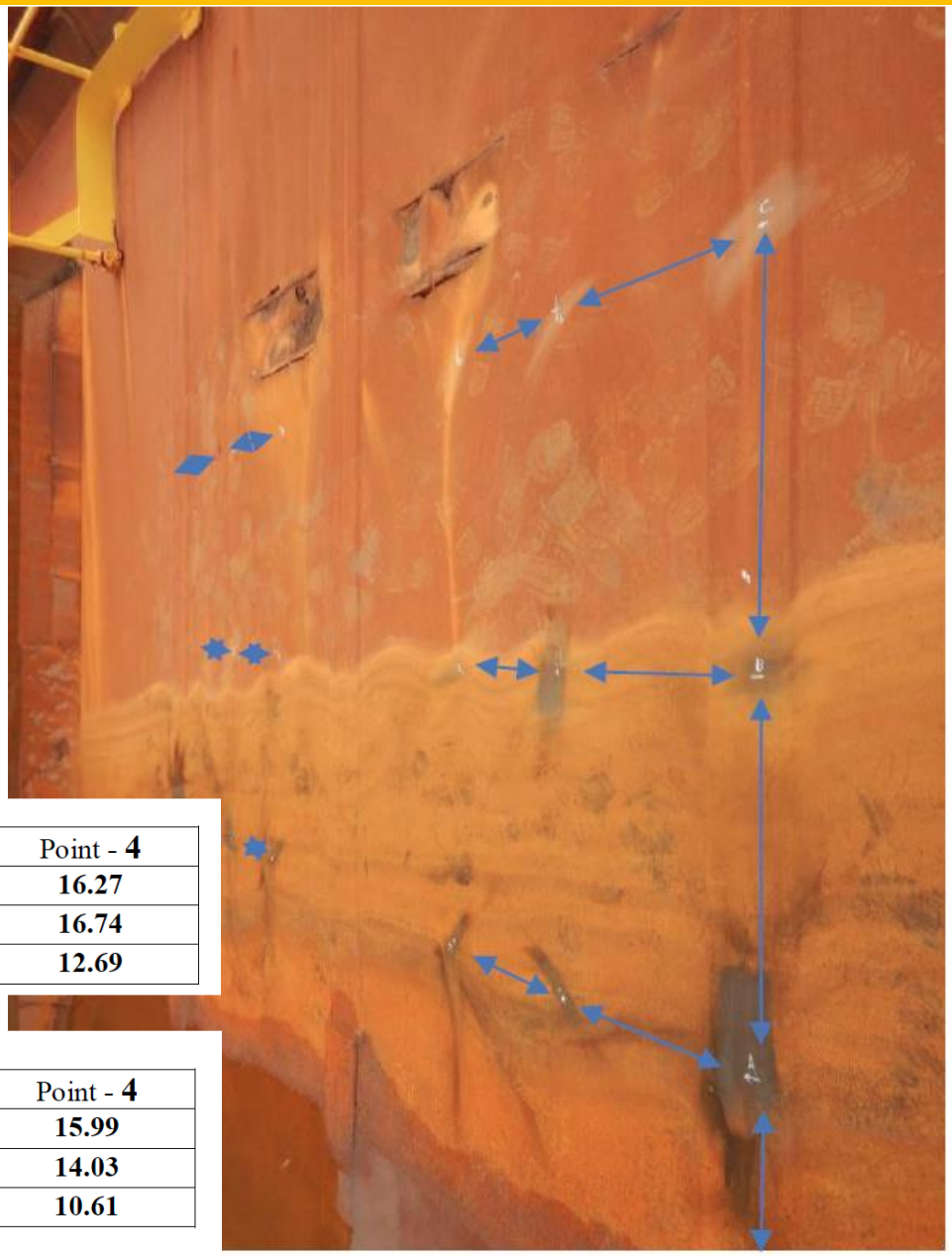


2. Wear Management

XEMC Body on XEMC Fleet in Tom Price, replaced around 22,000 hrs.
Original floor thickness 19mm;

2. Wear Management





	Point - 1	Point - 2	Point - 3	Point - 4
Row - A	16.70	14.38	15.09	16.27
Row - B	14.69	14.15	14.90	16.74
Row - C	12.68	14.01	14.35	12.69

	Point - 1	Point - 2	Point - 3	Point - 4
Row - A	15.84	13.39	10.09	15.99
Row - B	13.95	15.12	11.97	14.03
Row - C	10.95	14.14	14.75	10.61


Any Questions?
XEMC
XEMC
NO UNAUTHORISED
PARKING WITHIN
50 METRES
微信号：XEMC1936