Hitachi Construction Machinery / Wenco in Open Pit Coal Mining

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Agenda

Section 1. Introduction about Hitachi Group and Hitachi Construction Machinery
   1-1. Hitachi Ltd. Introduction – General
   1-2. Hitachi Ltd. Introduction – Revenue by Business Segment
   1-3. HCM Introduction – General
   1-4. HCM Introduction – Products / Revenue by Product Categories
   1-5. HCM Introduction – Mining Machinery Product Line-Up
   1-6. HCM and Wenco in Coal Industry

Section 2. Hitachi Construction Machinery ICT Technology and Solution Business
   2-1. Hitachi Group Technologies for Mining Machineries
   2-2. Hitachi Construction Machinery - Solution Business Expansion
   2-3. ICT Solutions by Hitachi Construction Machinery
   2-4. AHS - Autonomous Haulage System

Section 3. Wenco and Fleet Management Solutions
   3-1. Wenco FMS Major Clients for Open Pit Coal Mining
   3-2. Overview of Wenco Fleet Management System
   3-3. Wenco Mine Solutions
Section 1. 
Introduction about Hitachi Group and Hitachi Construction Machinery
1-1. Hitachi Ltd. Introduction - General

Hitachi Ltd.

Healthcare
Power Systems
Infrastructure Systems
Industrial Products
Rail Systems
Urban Planning and Development Systems
Defence Systems
Information & Telecommunication Systems
Energy Solutions

Company Name: Hitachi, Ltd.
Established: Feb. 1, 1920 (Founded in 1910)
Headquarters: Tokyo, Japan
Capital: 4.6 Billion USD (458,790M JPY)
Consolidated Revenue: 91.6 Billion USD (9,162,264M JPY)
Consolidated # of Employees: 303,887
Web: http://www.hitachi.com/

* As of Mar. 2017
** Use 1.0 USD = 100 JPY

Hitachi was founded in 1910 by Namihei Odaira as an electrical repair shop servicing a copper mine for Kuhara Mining Co. in Hitachi City, about 150 kilometers to the north-east of Tokyo.

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1-2. Hitachi Ltd. Introduction – Revenue by Business Segment

- **High Functional Materials & Components**: 14%
- **Construction Machinery**: 20%
- **Social Infrastructure & Industrial Systems**: 23%
- **Electronic Systems & Equipment**: 12%
- **Automotive Systems**: 10%
- **Information & Telecommunication Systems**: 6%
- **Financial Services**: 6%
- **Others (Logistics and Other Services)**: 2%

**Total Revenue**: 91.6 Billion USD

*As of Mar. 2017
**Use 1.0 USD = 100 JPY

*Power Systems migrated to MHPS in Feb. 2014 (Mitsubishi : Hitachi = 65% : 35%)
1-3. HCM Introduction – General

Hitachi Construction Machinery

Company Name: Hitachi Construction Machinery Co., Ltd.
Established: Oct. 1, 1970
Headquarters: Tokyo, Japan
Capital: 0.8 Billion USD (81,576M JPY)
Consolidated Revenue: 7.53 Billion USD (753,947M JPY)
Number of Employee: Consolidated 21,447
Number of Group Company: Subsidiaries 85, Affiliates 12
Web: https://www.hitachicm.com/

* As of Mar. 2017
** Use 1.0 USD = 100 JPY

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1-4. HCM Introduction – Products / Revenue by Product Categories

**Products**

- **Construction**
  - Mini Excavators
  - Medium Excavators
  - Wheel Loaders
  - Compaction Equipment
  - Cranes & Foundation Machines

- **Mining**
  - Demolition Equipment
  - Metal Recycling Equipment
  - Forest Machineries
  - Double-Front Work Machine

**Sales Revenue – Mar. 2017**

- **Mining Machinery** 16%
- **Construction Machinery** 83%
- **Solution Business** 1%

Total 7.53 Billion USD

**Solution Business**
1-5. HCM Introduction – Mining Machinery Product Line-Up

**Mining Machinery Product Line-Up**

**Rigid Dump Trucks**
- AC Electrical Drive
  - EH3500AC-3 Payload: 190 tonne
  - EH4000AC-3 Payload: 220 tonne
  - EH5000AC-3 Payload: 300 tonne

**Ultra Large Size Hydraulic Excavators**
- **Backhoe**
  - Bucket Size: 5.2 – 43.0 m³
- **Loading Shovel**
  - Bucket Size: 5.9 – 40.0 m³

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1-6. HCM and Wenco in Coal Industry

HCM Mining Machinery

Wenco FMS

- Coal: 63.6%
- Iron Ore: 12.8%
- Copper: 7.5%
- Gold: 9.9%
- Oil Sands: 3.4%
- Lease: 1.9%
- Other / Various: 0.9%

- Coal: 49.0%
- Gold: 15.9%
- Diamonds: 10.3%
- Iron Ore: 7.6%
- Copper: 5.5%
- Oil Sands: 2.1%
- Other: 9.7%

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Section 2.
Hitachi Construction Machinery
ICT Technology and Solution Business
2-1. Hitachi Group Technologies for Mining Machineries

In House Technology

- AC Drive Control
- Information & Telecommunication
- AC Drive Rigid Dump Truck
- Powertrain, Trolley System, Vehicle Stability Control, Peripheral Vision Support System by Hitachi
- Electric Drive Hydraulic Shovel Power Train made by Hitachi

Hitachi Construction Machinery
Mining Trucks and Shovels

- Fleet Management, Asset Health Management
- Traffic Management
- Remote Operation & Management
- Sensing / Image Processing
- Autonomous Operation

3D Modeling / Mapping Technology

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2-2. Hitachi Construction Machinery - Solution Business Expansion

**Mining Business**
- Visualization of the Information around machinery
- Autonomous Haulage System
- Mining Fleet Management System

**Construction Business**
- Application for i-Construction
- Survey: 3D survey
- Design & Construction Plan: 3D data
- Construction: ICT machinery
- Verification: 3D data as-built management

Increase of safety
Upgrade of productivity
Reduction of life cycle cost

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Global e-Service

ConSite for Mining
Consolidated Solution for Construction Sites

More than 230,000 machinery
144 country / regions

Note: In Some Regions, Global e-Service is Not Available by Local Regulations.
Hitachi
Autonomous Haulage System

PoC / Test at
Coal Mine in Australia

Coming Soon
in Year 2019
Section 3.
Wenco and Fleet Management Solutions
Open Pit Mining - Coal Mining

Wenco FMS Major Clients

Coal India
(SECL)
Dipka
Kusmunda
Gerva
(ECL)
Sonnepur Bazari

KPUC
- Kayan Puta Utama Coal

Teck

Luminant

Wencolite
Kosse
Beckvile
Big Brown
Oak Hill
Tatum
Thermo Spring
Three Oaks
Winfield Sth

Line Creek (LCO)
Green Hills (GHO)
Elkview (EVO)
Coal Mountain (CMO)
Cardinal River (CRO)
Fording River (FRO)

Meandu

Maules Creek

Coal Company and Mining Contractors

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3-2. Overview of Wenco Fleet Management System

- GPS Antenna
- Wi-Fi Antenna
- MDT5 on-board Controller
- Touch Panel Screen
- Location information
- Wireless LAN antenna, GPS
- Haul road
- Waste dirt storage area
- Crushing facilities, Refining facilities
- Loading area
- Dispatcher room
- Database server

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3-3. Wenco Mining Solutions

IoT Cloud Platforms

Maintenance

Safety

Machine Guidance

Fleet Management Systems

Business Intelligence

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Alrosa Jubilee

Alrosa Jubilee introduced Dynamic Dispatch. In turn, they produced an additional 3,250 loads each month — 1.43 million tons in its first year (valued at greater than the cost of the Wencomine FMS).
Polyus Olimpiada

Polyus Olimpiada introduced Dynamic Dispatch, haul route control, ore quality. They saw a vast range of improvements, including a 10.5% increase in truck cycles.
Assarel Medet JSC

This mine began using Wencomine FMS’s ore quality control. They rapidly reduced deviation in ore grades by 18%, which lowered the mine’s total operating costs by 3%.
CNRL Horizon

This oil sands operator trialed Fuel Dispatch in 2015. The automated fueling process grew the time between fuel sessions by 30%, leading to an extra week of production per truck each year.
Thank You