CPS
CONVEYOR PRODUCTS & SOLUTIONS

Project Experience

CONVEYOR PRODUCTS and SOLUTIONS PTY LTD

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Executive Summary

The CPS value proposition is focused on reducing the Total Cost of Ownership of our customers' bulk material handling systems through an engagement process founded on partnership principles, and delivered through the following factors:

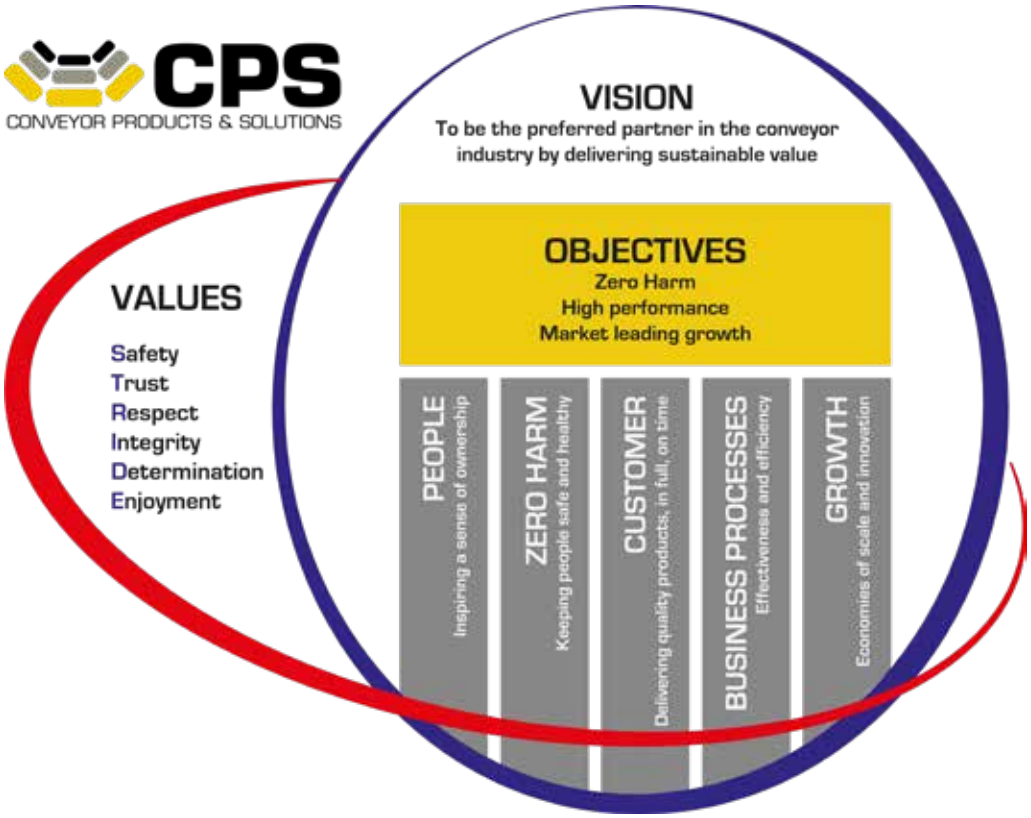
- **Teamwork & Alignment**: The CPS Way ensures our whole team is aligned to achieve our customers' objectives.
- **Australian Based**: CPS is a specialised roller manufacturer, manufacturing in Welshpool, Perth, Australia; ensuring the best possible DRIFOT (Delivered Right In Full On Time).
- **Quality Products**: CPS supplies consistent and reliable high-quality rollers that significantly reduce unscheduled conveyor breakdowns due to roller failure.
- **Product Range**: CPS designs and manufactures a full range of high-performance rollers and is able to supply all roller requirements.
- **Operational Support**: CPS structures the account management process to ensure regular and effective operational and engineering support focused on delivering solutions.
- **Rationalisation**: CPS has a proven track record in implementing a roller rationalisation process that reduces working capital and improves system reliability.
- **Capacity**: CPS has sufficient manufacturing capacity installed to safely manufacture all project roller requirements.
- **Pulleys**: CPS pulley facility was opened in January 2018, with the capacity to produce up to 350 pulleys per year of up to 2.5m diameter, with all machining and assembly operations handled in-house.

The CPS Way

At CPS, people are our most important asset. We recognise that effective teamwork is a critical success factor for the organisation. The CPS Way is an integrated process that enables an action-orientated, high-performance organisation by facilitating the achievement of the following objectives:

- Aligning the organisation and teams within the organisation to the CPS purpose
- Developing a company culture that is aligned to the values of the organisation
- Creating a clear and consistent communication tool
- Promoting the objectives of the organisation, and teams within the organisation
- Creating appropriate focus on a balanced view of the business
- Creating a framework for performance measurement and review
- Managing actions associated with performance improvement
- Creating a framework for innovation and continuous improvement
- Creating the conduit for attainment of goals

The CPS Way alignment tool is a graphic representation of the system, and is used in the company to maintain consistency and focus on achieving these objectives.



FQML Cobre Copper Project 2018

a. Scope

The Cobre Copper project is a large open-pit copper development located in Panama with annual production capacity of ~350,000 tonnes of copper in concentrate.

CPS was contracted by First Quantum to provide all design, engineering and manufacturing requirements for the idler package. The project included multiple conveyors of 600 – 2,600mm width. Rollers were designed to achieve over 70,000hrs L10 requirement, with all conveyors under 1,000mm using composite rollers. The total idler package for the project included ~60,000 rollers and ~18,000 frames.

Roller design, engineering and manufacturing were all conducted at CPS Welshpool facility. Frame design and engineering were completed by CPS Engineering in Welshpool. Fabrication was completed by sub-contractor.

b. Project Timing

The project began commissioning during 2018, continuing to ramp-up over 2019 and expected to reach 85mtpa throughput rate by 2020.

CPS was contracted by First Quantum in May 2017 and started manufacturing and delivering idlers in August 2017. CPS completed manufacture and delivery in March 2018. Total time, including design and engineering was 18 weeks.

c. Project Value

Total development capital costs for the project is estimated at US$6.3 billion.

The value of the project to CPS is approximately A$14 million.

d. Client Details

Owner/Operator: First Quantum Minerals Ltd

EPCM: Lycopodium

e. Innovations Implemented

In consultation with the customer and the EPCM, CPS installed anti-rollback conveyor rollers; a one-directional roller fitted with an internal device designed to prevent an inclined conveyor from running backwards in the event of a belt-snap. This one directional invention is a standard CPS idler that is equipped with a brake system that prevents the idler from rolling back.

Any of our standard CPS rollers can be fitted with the roller brake system, which ensures that the roller can only run in one direction. These rollers are normally installed on long and steep incline conveyor belts.

In addition, CPS recommended the use of its polyurethane rollers for use on the return side of the belt and on tracking frames.

h. Key CPS Personnel

Michael Einhorn, CEO
Warren Sexton, Head of Engineering & COO
Peter Copley, Engineering
Ahmad Fleyfel, Engineering
Ross Johnston, Project Management

i. Local and Indigenous Content

All engineering, design and roller manufacture was completed at CPS' Welshpool head office in Perth, Western Australia.

All engineering and design for frames was completed at CPS' Welshpool head office in Perth. The client was offered both local and offshore frame fabrication, with the final decision being offshore frame fabrication.

Rio Tinto Silvergrass Project 2017

a. Scope

The Silvergrass Project is the 16th mine at Rio Tinto's iron ore operations and produces low-phosphorous ore to maintain Rio Tinto's Pilbara Blend product. The brownfields expansion project will lower mine operating costs through the construction of a nine-kilometre conveyor to link Silvergrass to the processing plant at Nammuldi.

CPS was contracted by Rio Tinto to provide all design, engineering and manufacturing requirements for the idler package. The project included multiple conveyors of 900 – 1,800mm width. The 1,350mm 8km ultra-high-tolerance belt required frames to be designed to a ±0.5mm tolerance after galvanising. The total idler package for the project included ~19,000 rollers and ~6,000 frames.

Roller design, engineering and manufacturing were all conducted at CPS Welshpool facility. Frame design and engineering were completed by CPS Engineering in Welshpool. Fabrication was completed by sub-contractor.

b. Project Timing

CPS took 22 weeks to design, engineer and manufacture the idler package for the Project.

c. Project Value

Total development capital costs for the project is estimated at US$350 million.

The value of the project to CPS is approximately A$4 million.

d. Client Details

Owner/Operator: Rio Tinto

EPCM: RCR Tomlinson

e. Innovations Implemented

Optimisation of the roller selection by utilising polyurethane disc rollers on the return side of the belt as well as optimisation of the seal arrangement to lower the rim drag.

CPS delivered conveyor performance under the stipulated power demand requirements set out in project specifications.

FEA frame design to optimise frame strength and life.

h. Key CPS Personnel

Michael Einhorn, CEO
Warren Sexton, Head of Engineering & COO
Peter Copley, Engineering
Ahmad Fleyfel, Engineering
Ross Johnston, Project Management

i. Local and Indigenous content/participation

All engineering, design and roller manufacture was completed at CPS' Welshpool head office in Perth, Western Australia.

All engineering and design for frames was completed at CPS' Welshpool head office in Perth and local frame fabrication completed in Perth.

BHPIO Jimblebar Project 2016

a. Scope

The Jimblebar Project, located 40km east of Newman in the Pilbara, was initially commissioned to add 35MTpa production and eventually ramp up to 55MTpa.

CPS was contracted by BHPIO to provide all design, engineering and manufacturing requirements for the idler package. The project included multiple conveyors of 1,600 – 2,400mm width. The 1,600mm 5km ultra high tolerance belt required frames to be designed to a ±0.5mm tolerance after galvanizing. The total idler package for the project included ~17,000 rollers and ~5,400 frames.

Roller design, engineering and manufacturing were all conducted at CPS Welshpool facility. Frame design and engineering were completed by CPS Engineering in Welshpool. Fabrication was completed by sub-contractor.

b. Project Timing

CPS took 26 weeks to design, engineer and manufacture the idler package for the Project

c. Project Value

Total development capital costs for the project is estimated at US$3.2 billion.

The value of the project to CPS is approximately A$5 million.

d. Client Details

Owner/Operator: BHPIO

EPCM: Sedgman Civmec Joint Venture

e. Innovations Implemented

CPS introduced composite shell rollers rather than steel shell into the Jimblebar Project; a first for BHPIO on a greenfield project development with BHPIO.

CPS delivered conveyor performance under the stipulated power demand requirements set out in project specifications.

FEA frame design to optimize frame strength and life.

h. Key CPS Personnel

Michael Einhorn, CEO
Warren Sexton, Head of Engineering & COO
Peter Copley, Engineering
Ahmad Fleyfel, Engineering
Ross Johnston, Project Management

i. Local and Indigenous Content

All engineering, design and roller manufacture was completed at CPS' Welshpool head office in Perth, Western Australia.

All engineering and design for frames was completed at CPS' Welshpool head office in Perth and local frame fabrication completed in Perth.

Continuous Improvement

In addition to the preceding projects, CPS demonstrates continuous improvement initiatives to all customers, with examples outlined below;

- CPS is the preferred contracted of rollers to Fortescue Metals Group.
    - Roller specification review, audit and redesign process covering all sites and rationalising Fortescue roller supplies from over 220 material items to approximately 150 material items.
    - Engineering and drafting of all roller material items supplied, along with GA drawings with full dimensions supplied back to Fortescue for use on future tenders/document records.
    - Significantly increased reliability on rollers at all sites.
    - Significantly reduced cost of supply, compared to pre-contract supply prices.
    - Reduced capital required for spares holding due to local supply chain and committed rapid lead times.
    - Lowered Total Cost of Ownership (TCO) on conveyor rollers across all sites.
- CPS is the contracted supplier of idlers (rollers and frames) to BHP Iron Ore operations.
    - Driven idler project prototype trial (reduction in belt tension resulting in decreased belt carcass design and increased operating parameter potential).
    - Idler frame redesign and rationalisation project (including double to single jack-down and retractable style frames to improve maintainability).
    - Hybrid style, polymer shell wing rollers with steel or polymer centre rollers minimising handling mass, rim drag and optimising belt power draw efficiencies.
    - Consultancy on overland expansion projects related to optimised roller designs to maximise reliability and minimise operational expenses.
    - In excess of 30 individual site-based upgrade/improvement projects to rationalise and improve inventory and roller management.
- CPS is one of two contracted suppliers of idlers to Rio Tinto Iron Ore.
    - Engineering works across all RTIO sites to move standard steel rollers across to lighter weight, polymer shell rollers; minimising weight and rim drag, and increasing reliability.
    - Engineering audits and site-based analysis of historical high failure rate areas with suitable redesigned rollers proposed and executed.
- CPS supply conveyor rollers extensively throughout the remainder of the Iron Ore market.
- CPS supply a multitude of other customers in hard rock and coal mining applications.

CPS has proven its capability to supply premium quality, superior performing rollers at the quickest lead time, and will continue to do so whilst driving further roller improvements and reliability due the CPS drive to exceed expectations wherever possible.

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