



FMA

INDUSTRIAL

**+ WORLD STANDARD –UNIQUE
ATTACHMENT SOLUTIONS
FOR MINING EQUIPMENT**

**+ CABLE REELERS
TYRE HANDLERS**

2 FACTORIES
IN CHILE **+ 40** YEARS OF
EXPERIENCE





100% MINING FOCUSED

**+ THE ONLY ATTACHMENT DESIGNER
AND MANUFACTURER TOTALLY
DEVOTED FOR THE MINING INDUSTRY**

+ WE UNDERSTAND MINERS.



INNOVATE



CUSTOMIZE

+ DEVELOP LONG TERM RELATIONSHIPS

THE COMPANY

40 YEARS OF EXPERIENCE

- + **1981-93:** FMA Partners introduce Komatsu in Chile.
- + **1993:** FMA starts operations in a joint Venture with IMAC Canada.
- + **2007:** Chilean Partners acquire 100% of the company.



FMA EQUIPMENT WORLDWIDE



SOME CUSTOMERS

- + **BHP BILLITON**
- + **CODELCO**
- + **VALE**
- + **ANGLOAMERICAN**
- + **RIO TINTO**
- + **GLENCORE**
- + **ANTOFAGASTA MINERALS**
- + **TECK QUEBRA BLANCA**

CHILE

Mining:

- Anglo American Los Brocos
- Anglo American El Soldado
- Anglo American Mantos Blancos
- Anglo American Mantoverde
- Cap
- Cap Los Colorados
- Cap Romeral
- Codelco Andina
- Codelco Chuquibambilla
- Codelco El Salvador
- Codelco El Teniente
- Codelco Gabriela Mistral
- Codelco Radomiro Tomic
- Compañía Contractual Minera Candelaria
- Compañía Minera Doña Inés de Collahuasi SCM
- Compañía Minera Florida Yamana Gold Inc.
- Compañía Minera Nevada (Pascua Lama)
- Compañía Minera TECK Carmen de Andacollo
- Compañía Minera Xstrata Lomas Bayas
- Empresas Melón
- Minera Andacollo
- Minera Cerro Colorado Ltda.
- Minera El Abra
- Minera El Toqui
- Minera El Tesoro
- Minera Escondida Ltda.
- Minera Esperanza
- Minera Huasco
- Minera Meridian Ltda.
- Minera Punta del Cobre
- Minera Spence S.A.
- Minera Zaldivar Ltda.
- Molibdenos y Metales
- SCM Atacama Kosan
- Soquimich

GERMANY

- Alga Baumaschinen
- Luminant BB mining Co. LLC

ARGENTINA

- Minera Alumbrera
- Sidernet S.A.

BRAZIL

- CSN Companhia Siderurgica Nacional
- Samarco Mineracao S.A.
- Vale S.A.

BOLIVIA

- Grupo Minero La Roca
- Minera San Cristobal

BOTSWANA

- Debswana

CANADA

- Minesupply

CHINA

- Yantai Jereh Oilfield Services Group

COLOMBIA

- Cerrejon BHP

DISTRIBUTION NETWORK FOR WORLD CLASS CUSTOMER SERVICE AND SUPPORT

- + **AUSTRALIA** : EQUIPMENT PLACEMENT
- + **AFRICA** : OTRACO AFRICA
- + **PERU** : ENERGOTEC
- + **COLOMBIA** : INCOMAQ
- + **BRAZIL** : PREMIUM ENGHENERIA
- + **USA AND CANADA**: MINESUPPLY INTERNATIONAL
- + **GERMANY**: ALGA NUTZFAHRZEUG



DUAL CABLE REELER



CUSTOMER'S REQUIREMENTS

The continuous development of mining and with it the complex handling of electrical cables, Today, the task of handling and winding electrical cables must be mechanized as much as possible.

Therefore a reeling system with a manipulator arm is required to ensure operation with as little human intervention as possible, and that allows to manipulate the cables in a mechanized way saving time and efforts.

Innovation + Development

- The new CB6500/SCRB450 Reel System in particular offers an alternative in cable handling when the customer requires a system mounted on their loader equipment or wheeled tractors.
- This new design, more reinforced with an arm developed for mining, the CB6500+SCRB450 version with a manipulator arm in the center, allows better weight distribution and cable manipulation on both sides of the equipment under equal conditions.

Arm length, high structural stress

DIFFICULTIES OF OTHER DESIGNS

We have reviewed the designs used in the mining industry for cable management, which has allowed us to analyse opportunities for design and operational improvements. This has not been unrelated to our own designs, which are in service but have now been substantially improved.

Very high assembly



OPERATION

The operation in this design has some disadvantages, the laying of the cable, the arm over the cabin, no clear view and a great structural and mechanical stress on the equipment.



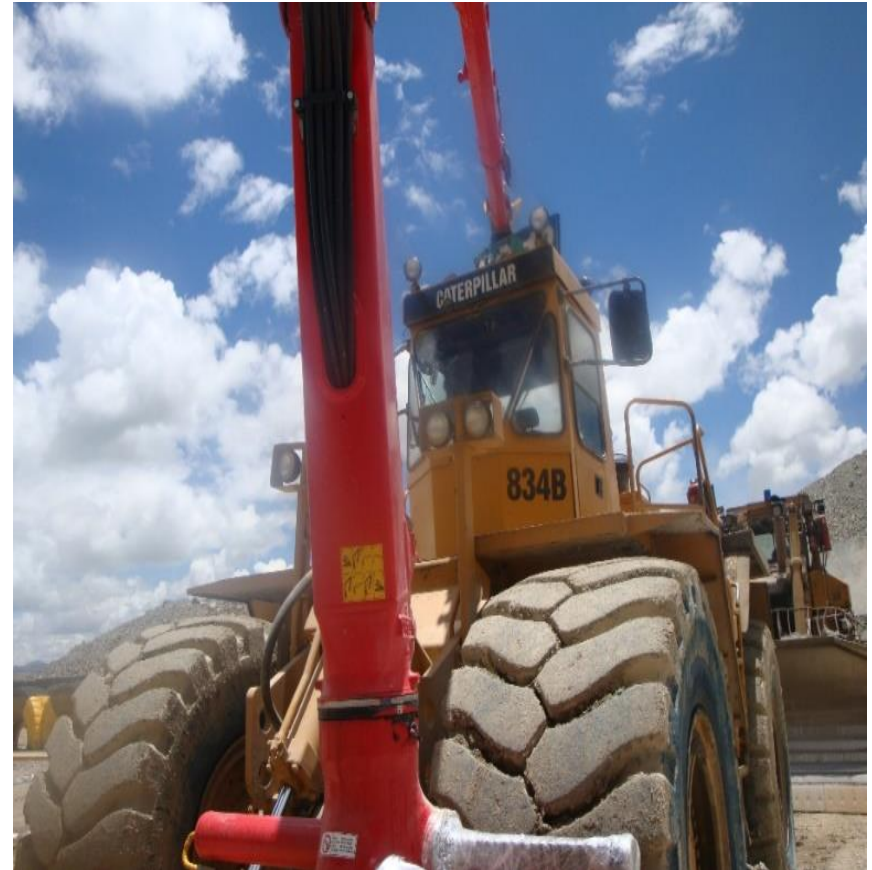
The slewing system installed in this type of arms, driven by hydraulic motors or rack and pinion cylinders, presents problems in the slewing beyond what is expected, due to the mechanical configuration.

ANALYSIS



The position of the long and rigidly designed boom, which was displaced over the cabin due to improper operation and jamming of the electrical cable.

RISKS DETECTED



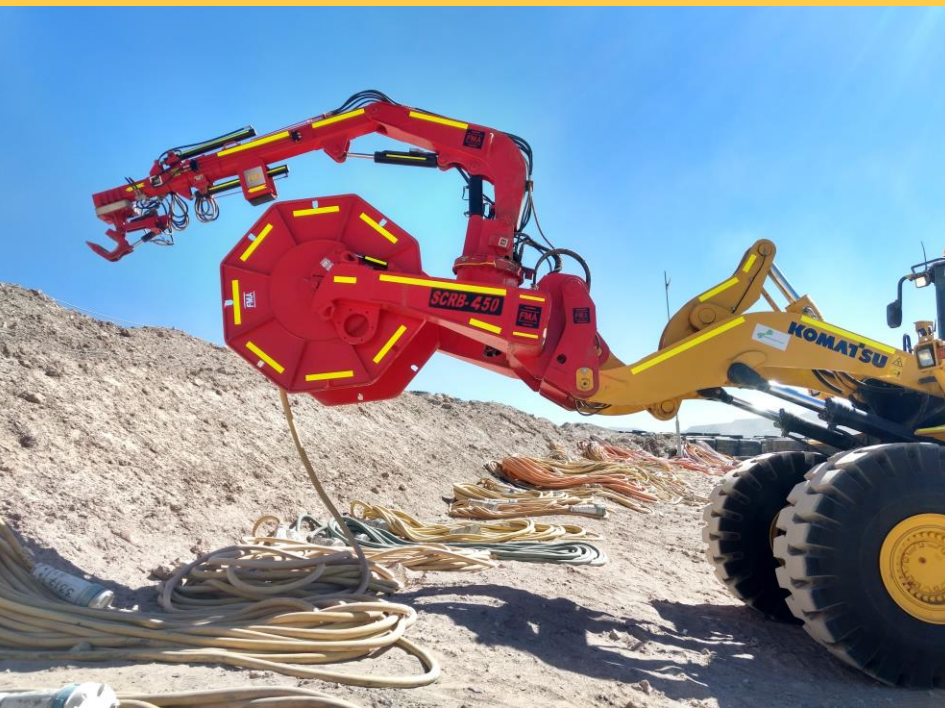
The image shows a yellow construction vehicle, likely a crane or excavator, with a focus on the operator's cab. A large circular inset on the left side of the image provides a view from the operator's perspective, looking over the cab and towards the right side of the vehicle. The text "View over cab, operator's right side strike" is overlaid on this circular view. The background of the main image shows the yellow body of the vehicle and a cloudy sky.

**View over cab,
operator's right side
strike**



**View from Operator's Cabin,
left side strike**

DUAL CABLE REELER



ARM POSITIONED AT THE CENTRE OF THE CARRIER

- + The view shows the arm coverage at full rotation and extension.
- + It is possible to see the distance from the cab to the end of the boom, allowing for safe operation and increased visibility.



ROTATION SYSTEM DRIVEN BY CYLINDERS AND MECHANICAL ROTATION RESTRICTOR

The rotation system is driven by heavy-duty hydraulic cylinders with load valves designed to absorb excessive forces and a system of mechanical limiters that provide high resistance to rotation beyond what is programmed and necessary.

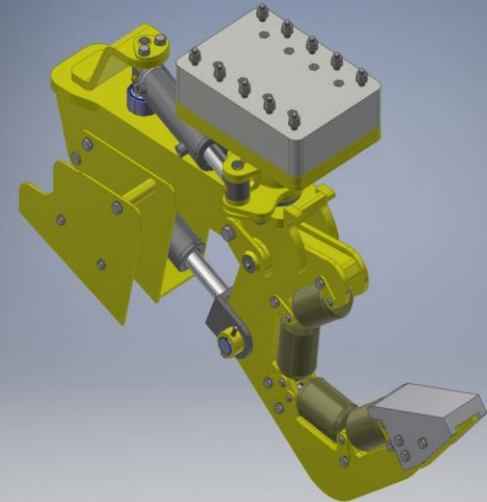
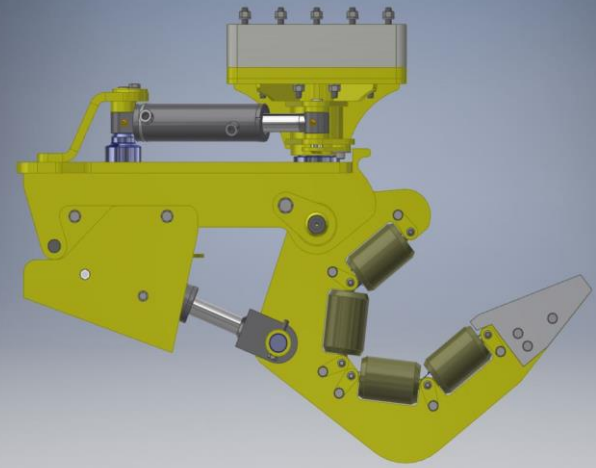


CABLE MANAGEMENT SYSTEM



CABLE HANDLING SYSTEM

ELECTRICALLY INSULATED HYDRAULIC CLAMP



HANDLING CLAW WITH ELECTRICAL INSULATION SYSTEM

- + The cable management system has two important properties, one is the task of isolating the equipment against leakage due to cable damage and the other is to act as a fuse in the event of an overload.
- + The design exclusively allows the handling of electric cable and prevents damage to the arm in the event of faulty operation.



TELESCOPIC ARTICULATED BOOM CB 6500



Vibration and structural overstress control system

The arm is equipped with a hydraulic regeneration system based on control valves and N2 accumulator.





Features of the SCR Arm CB6500

- Arm on rotational base on bearing.
- Generation of rotational movement driven by two hydraulic cylinders.
- Reinforced mechanical rotation limitation system.
- Articulated arm.
- Two telescopic sections for better handling and operational reach.
- Isolated cable gripping system with vertical and horizontal drive.



TELESCOPIC SYSTEM

- The boom has two telescopic stages that allow it to reach up to 6.5 metres.
- These extensions also make it easier to move, operate in tight or confined spaces.
- Also, the improvement in keeping the boom dimensionally less extended than on older rigid systems.



LIMIT SWITCH

It reduces the rotational speed of the arm when it reaches either end of the turntable, i.e. once the arm moves towards one of the two sides, these stroke limiters act by reducing the approach speed and then the rotation stops when the mechanical and hydraulic limit is contacted.

MOVEMENT OF EQUIPMENT



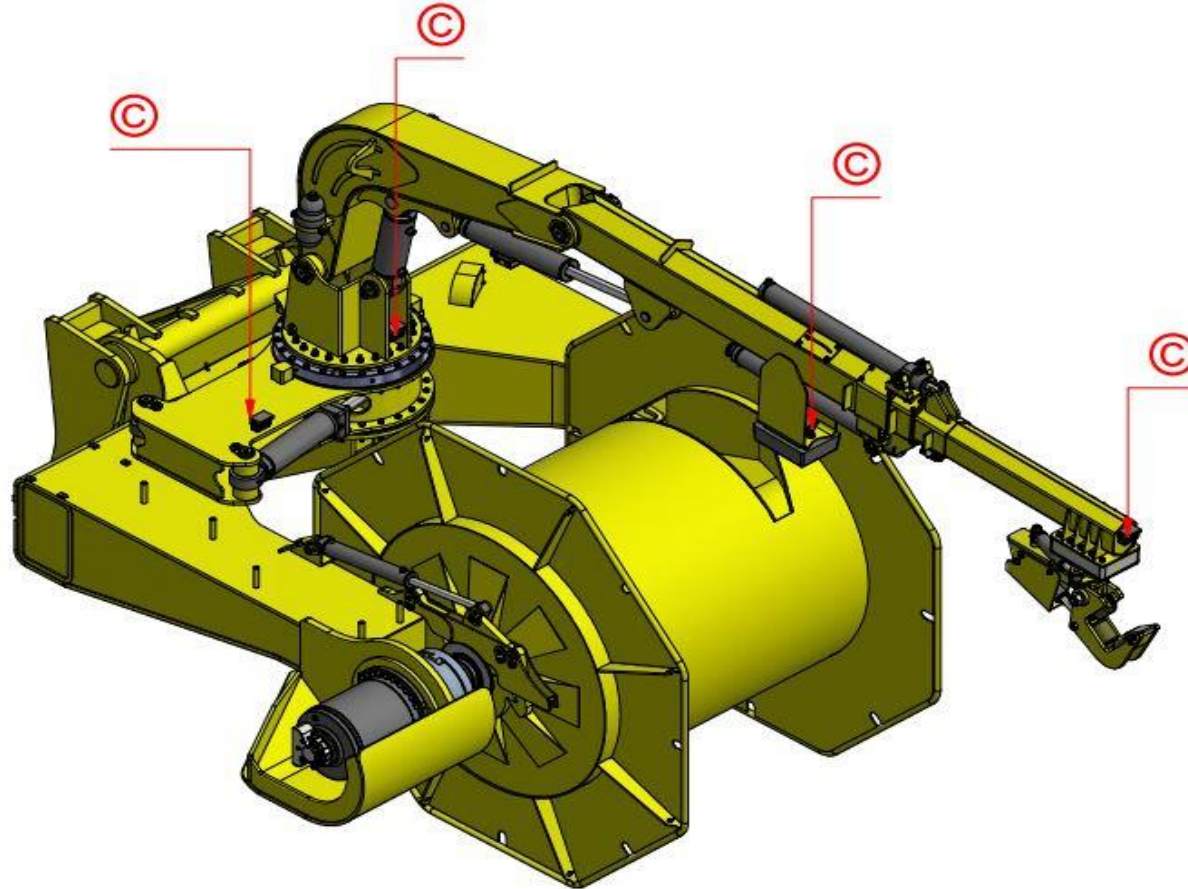
CABLE REELER



CABLE PICK-UP AND DROP-OFF WITHOUT STAFF INTERACTION



LOCATION DUAL CAMERAS



DUAL CAMERAS



Cámara 1



Cámara 2



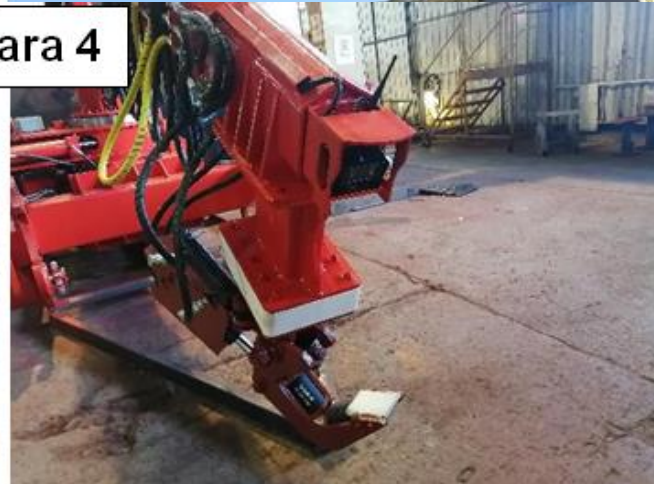
DUAL CAMERAS



Cámara 3



Cámara 4





**HIGH PRECISION
SAFE CABLE
MANAGEMENT**

**TAKING MAN OUT
OF THE FIRE LINE**

SPECIAL ADVANTAGE

The FMA DUAL Equipment can be supplied for connection to the carrier with Quick Coupling System.

This interchangeability allows the front loader to be used as a reel loader or as a normal bucket loader when required.



DUAL CABLE REELER ON SITE

DUAL EQUIPMENT	Quantity
Minera Escondida	10
Minera Spence	2
Codelco Chuquicamata	4 (2 of them in production supply 2025)
División ministros Hales Mine	3
Codelco Radomiro Tomic	2
Minera Los Pelambres	2 in production supply 2025
Codelco División Andina	1
Finning Quebrada Blanca	3
Minera Centinela	4
Minera Mantoverde	2
Minera Lomas Bayas	2 (1 of them in production supply 2025)
Minera Caserones	1
Minera Sierra Gorda	3
Minera FMGL (Australia)	4
BHP (Australia)	1
Las Bambas (PERÚ)	1
Minera Cerrejón (Colombia)	4
Minera Oyu Tolgoi (Mongolia)	1
Minera Vale Carajas (Brasil)	1
Minera Vale S11D (Brasil)	1
Minera Vale Salobo (Brasil)	1
TOTAL EQUIPMENT	53

DUAL CABLE REELER IMAGES





DUAL CABLE REELER IMAGES



CERTIFICATIONS



ISO 9001/
14001/45001
Bureau Veritas



Total quality
Management
ISO 9001:2015



Product
Excellence
ISO 9001:2015



Customer
satisfaction
ISO
9001:2015



Health and
Safety at Work
ISO 45001:2018



Care and
Respect for
the environment
ISO 14001:2015





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