MESCO
Engineering Quarterly

Marketing Division
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2015
Domestic Sales

Kamioka Branch
Domestic Sales

Wasabo Hydropower Plant of Kamioka Mining Completed

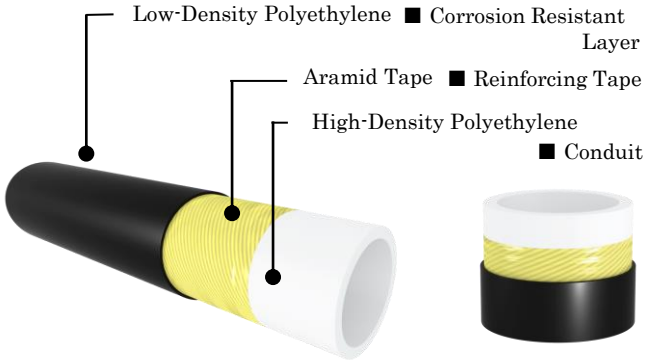
Operation Started - May 15, 2015

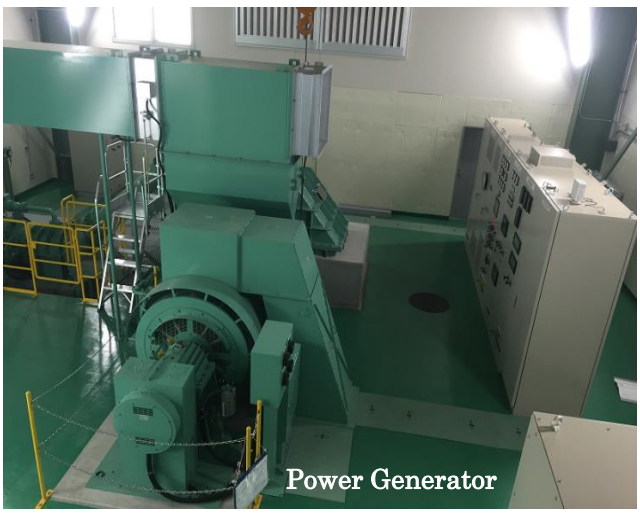
Mesco's Domestic Marketing & Sales Dept., jointly with our Kamioka Branch, received an order from Kamioka Mining Co., Ltd. for construction of Wasabo Hydro-Electric Power Plant, and started its operation on May 15, 2015. The project took about one year to be completed, while the project team had to struggle with an unusually heavy snowfall of a record level that hit the construction site in the winter time. Kamioka Mining Co., Ltd. has focused its efforts on development of renewable energy sources, and this newly built power plant is an example of those activities. It produces a maximum output of 840 kW and has been running successfully. We also received an order for Mesco Pipe to be used for the pressure water pipe line that runs from the water intake to the turbine. For high pressure applications, our Aramid sheathed polyethylene pipe of the operating pressure of 2.0 MPa as well as high density polyethylene pipe products are used.

We are committed to delivering engineering services that contribute to our customers' needs on a continued basis, by putting together Mesco's technological resources and expertise.

WEETA

Aramid Sheathed Polyethylene Pipe



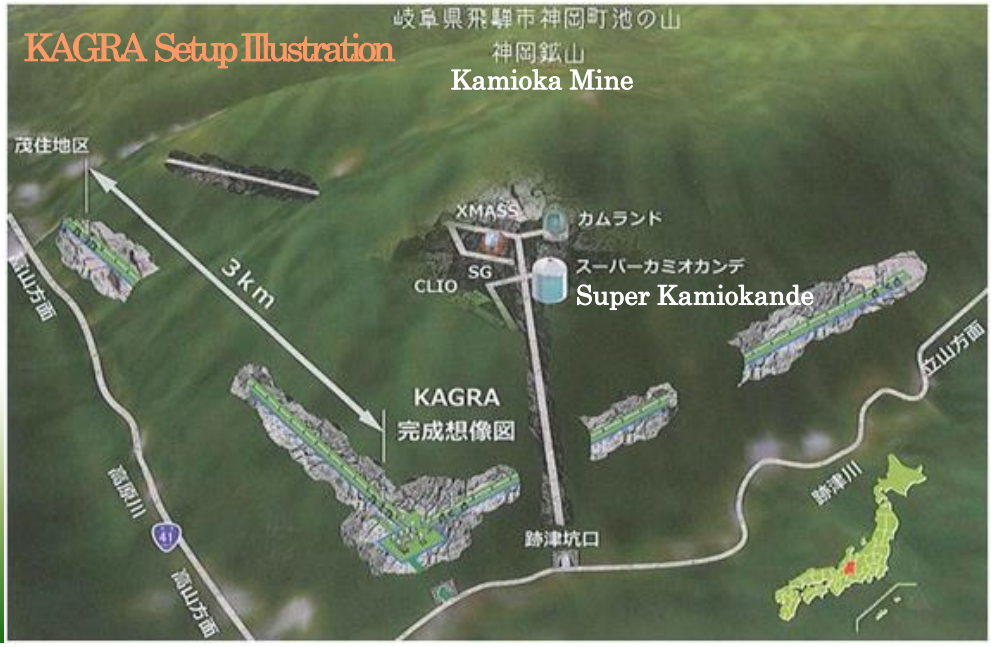

Power Generator

Msco Pipe

MESCO *Mesco's abundant track records and excellent technologies have led to a high reputation gained in various fields.*

Kamioka Branch

Installation & Assembly of Ultra-High Vacuum Ducts for KAGRA



(Source: Institute for Cosmic Ray Research, University of Tokyo)

On March 31, 2015, Kamioka Branch completed the ultra-high vacuum duct installation and electrical work for KAGRA, and handed over the project to Institute for Cosmic Ray Research, University of Tokyo. This project involved the work of carrying in ultra-high pressure vacuum ducts of the respective diameters of 800 mm and 1,000 mm and of a combined total length of 6 km, into straight tunnels of 3 km each in length that run on squarely crossing X and Y-axes, and installing them in place. The extremely stringent aligning accuracy required for the installation work was achieved over the entire duct length of 6 km, and thus the vacuum pressure of 10^{-7} Pa was achieved. We also carried out such other tasks as carrying in and installing a variety of vacuum vessels. A huge vacuum vessel weighing 11 tons, called "Cryostat", in particular, attracted attention, and its handling and installation process was televised by NHK. This facility is intended for detection of gravitational waves involved in Albert Einstein's famous "General Theory of Relativity". Successful detection of gravitational waves is hoped to lead to winning a Novel prize. Mesco also contributed earlier to the construction of "Super Kamiokande", another research facility of Institute for Cosmic Ray Research, University of Tokyo, and "KamLAND", a research facility of Tohoku University, as well. It is indeed a pleasure and an honor for Mesco to be playing an important roll in such advanced technologies associated with cosmic ray research programs.

Mesco is committed to delivering products of the quality and at the cost that meet our customers' needs by making the best of our technologies backed by our experience and references.


Ultra-High Vacuum Duct


Cryostat

Overseas Sales

PT. Mitui Kinzoku ACT Indonesia Plant Completed

Mesco completed a turn-kry plant engineering, procurement, and construction project for PT. Mitsui Kinzoku ACT Indonesia and handed it over on March 9, 2015. This was our second plant construction project carried out in Indonesia, following PT. Mitsui Kinzoku Catalysts Jakarta's project. We successfully delivered the plant on schedule despite the harsh conditions typical to Indonesia we had to face, such as the law systems changing day to day, quality of the soil which easily gets inflated with water, and a long lasting rainy season, with which we were proudly credited by the customer. Mesco will continue to contribute to our customers' needs in their entering overseas operations and their expansions, by providing services which suit the respective local legal systems.


Completion Ceremony

Domestic Sales

Delivery of ISA Stripping Machine to Pan Pacific Copper

Production Increase of 30,000 t/y Enabled at Tamano Smelter

Mesco delivered an ISA process permanent cathode (PC) stripping machine for the No.1 copper electrolysis plant of Hibi Smelter and handed it over. This was the second unit that followed the stripping machine delivered earlier to the No.2 copper electrolysis tank house in 2006. Hibi Smelter is now operating 100% on the PC process. While the electrolytic copper is produced mainly in two different processes, i.e., the "Starting Sheet Electrolytic Process" and the "PC Process", the "PC Process" has now virtually become the standard electrolytic copper process used in many countries in the world, thanks to its feature that it does not require starting sheets to be produced, thus improving the productivity significantly.


ISA Stripping Machine

PC Process Now Employed for Entire Group

The PC process is used by Pan Pacific Copper, Ltd. not only at its Hibi Smelter, but also at its Hitachi Copper Refinery where the PC process was first introduced in Japan and also at its Saganoseki Smelter. Mesco thus continues to contribute to improvement of our customers' productivity by fully utilizing our technological expertise of high level accumulated in the non-ferrous metal smelting operations.

▼Cathode Plate

Domestic Sales

2015 NEW Environmental Exhibition Booth

Global Warming Prevention

Straight 5-Year Booth Exhibition

Mesco has set up a booth consecutively for five years since 2011 at the Environmental Exhibition. The exhibition this year was open for four days from May 26 through May 29. The number of visitors to the exhibition totalled 167,540, many of whom also paid a visit to Mesco's booth. Exhibited at our booth were display models of the Wasabo power plant generating a power of 840 kW and the latest boiler dust removal equipment, as well as panels showing our industrial automatic machines and so on. We received a great amount of responses from those who kindly visited our booth. We sincerely appreciate the attention paid to our exhibits and cordially thank every one of those who shared time with us at the show.

We will continue to strive to propose the best of our offers, by keeping in mind one of Mesco's mission statements "Putting Our Customers First".

Thanks Again
for Visiting Us !!!

Finally

In this issue, we took up as the main topic the Wasabo power plant delivered to Kamioka Mining Co., Ltd. As presented above, we attracted attention from a large number of visitors at the Environmental Exhibition. We will also be providing full support to Mitsui Mining & Smelting for its large-scale hydro-electric power plant renewal project. Hydro-electric power plants have an advantage of a long life of 40-50 years. Use of Mesco Pipe should further contribute to achieving longer life of the systems including the conduits.

Among many other renewable energy sources, the hydro-electric power generation, assisted by proper planning of the conduit routing in less environmentally destructive manners, is considered to be a more eco-friendly energy source. We will, by joining our forces together, continue to strive to contribute to forming a more environmentally friendly energy society. As such, we would appreciate your continued support and attention.

So'ichiro Kimura, GM
Domestic Marketing & Sales Dept.

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Authorized by: So'ichiro Kimura (kimura_s@mesco.co.jp)
Produced by: Kazuki Horie (horie@ mesco.co.jp)

MESCO
Mesco, Inc.
Supporting the Technologies for Tomorrow

Head Office: Arca East 14 Fl., 3-2-1 Kinshi, Sumida-ku, Tokyo 130-8531, Japan
Phone +81-(0)3-5610-7839, Fax +81-(0)3-5610-7863
URL: http://www.mesco.co.jp

Overseas Offices: in Malaysia, Taiwan, Thailand, and the Philippines