

Key Industry Program

CemTec

Cement Industry...



WEAR & FUSION TECHNOLOGY



KNOW-HOW IN THE CEMENT INDUSTRY

For over 100 years, Castolin Eutectic has been a pioneer and leader in wear and fusion technologies. Welding, brazing, thermal spray and wear plates - these are our core technologies for providing innovative, cost-effective and complete solutions for prolonging the service life of equipment in all major industries.

Based upon hundreds of successful applications approved by our clients across the globe, Castolin Eutectic can provide optimized solutions with a wide range of products and technologies to combat specific wear in Power Plants. Castolin Eutectic has a detailed understanding of every major wear problem within the Cement industry, and can provide industry-tested application solutions.

Our know-how is shared worldwide through our international CemTec team, composed of specialists in cement production process applications. The forces that pull our extensive know-how together around the world are our Key Industry Program and our unique Terolink applications database.

CemTec



Your resource for protection, repair and joining solutions

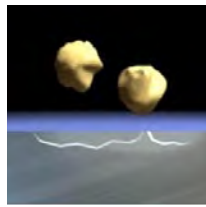
WEAR PROTECTION EXPERT



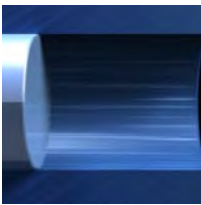
Abrasion



Erosion



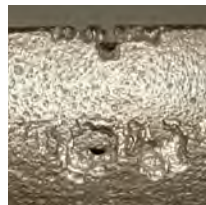
Impact



Friction



Heat & Corrosion



Cavitation

At Castolin Eutectic, we take the time to study industry specific types of wear because until the nature of the wear is fully understood, the correct solution cannot be identified. Damage caused by these wear groups costs money, especially in downtime and lost production, replacement parts, repair and ongoing maintenance.

Castolin Eutectic has proved for more than a century that a preventive maintenance program can extend the life of critical machine parts by as much as 500%. Castolin Eutectic has the «know-how» to identify the most serious wear problems and «show how» to avoid them. Castolin Eutectic can greatly increase your plant efficiency and profits.



Metallurgical Laboratory



Micrograph of Wear Phenomena

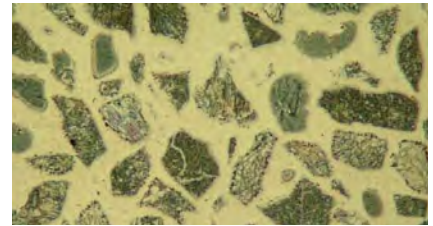
INNOVATIONS

Castolin Eutectic has invested in Research & Development in many specific solutions to wear problems. This includes areas such as carbide selection, carbide size, carbide distributions, matrix compositions, application procedures and process equipment.

Skills and knowledge of Castolin Eutectic experts have enabled us to create a range of overlay materials combating the widest combination of wear types. This range is continually growing, as we harness new materials to provide better solutions to existing problems as well as answers to new challenges. The results of this extensive work are demonstrated by the hundreds of patents registered by Castolin Eutectic in the areas of wear protection and fusion technologies during its 100 year history.

Some examples of products developed which are especially adapted for the Power industry by Castolin Eutectic are:

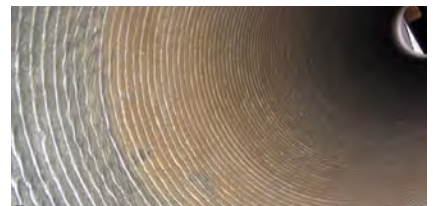
- EnDOtec and TeroMatec cored wires for welding anti-wear coatings.
- Spray and fuse processes; CastoDyn SF Lance and Superjet Eutalloy.
- High quality wear plates and tubes: CDP and Castotubes
- Eutronic Arc System: highest deposition rates and excellent anti-erosion protection
- CaviTec Patented alloy system producing anti wear coatings with outstanding cavitation resistance on pumping equipment.



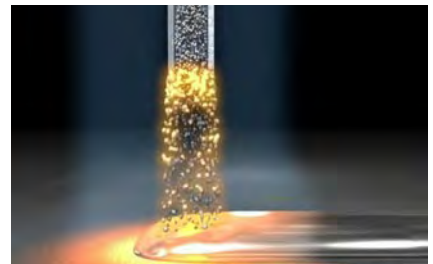
Micrograph of Coating with Tungsten Carbides



Fusion of Eutalloy Coating



High Quality Wear Tubes: CastoTubes



EnDOtec cored alloy Wire Welding Process

CDP WEAR PLATES AND CASTOTUBES



CastoTubes



CastoDur Diamond Plates



Wear Resistant Fan built with CDP



Wear Resistant Exhaust Fan

Castolin Eutectic develops, manufactures and markets ready-to-use wear plates and tubes under the brand name Castodur Diamond Plates (CDP) and CastoTubes. These composite materials consist of a steel plate or tube overlaid with wear-resistant deposits by means of welding or metal powder coating, and provide exceptional protection against erosion and abrasion. Aimed for complex part-geometries, the material can be cut, bent and welded.

A successful application with CDP in the Cement industry is the wear protection of fans against the hot and dust laden fumes produced in the furnace.

SOLUTIONS FOR THE CEMENT INDUSTRY

Castolin Eutectic is your resource for protection, wear and joining solutions. We believe in working with our customers to find the best answers to their problems. Expert in wear problems we can provide solutions for:

- Manufacture of new finished and semi-finished wear parts.
- Repair of broken parts
- Rebuilding of worn parts
- Protection against wear and corrosion
- Fusion technology

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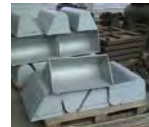
Primary hammer crusher - Mobile



Separator fan blades



Raw mill transport pipe



Elevator bucket lips



Crusher bars



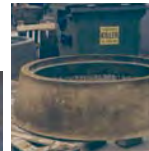
Fan housing



Raw mill fan



Separator diaphragm



Coal mill roller shells



Clinker breaker discs



Clinker breaker housing



Clinker breaker hammer



Clinker sieve bars



Finish mill feed



Feed trunnion liner



Roller press wear

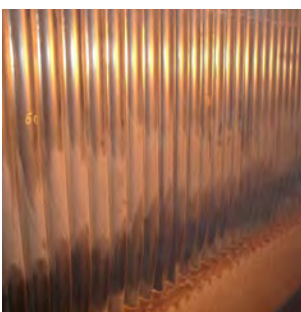


Roller press spalling repair

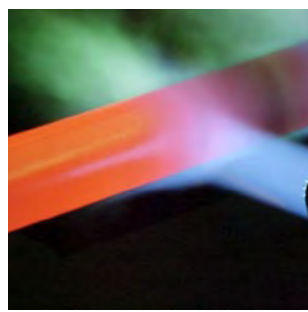


Ball mill impact plates

KILN TYRE PROBLEMS



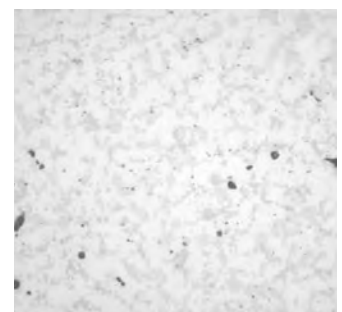
New Boiler Tubes with Protective Coating



Spray and Fuse Process



Eutalloy Powder Thermal Spray

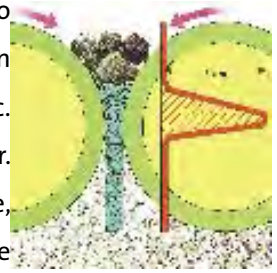


Dense, homogenous structure of a fused coating, no path for penetration by corrosion.

For protection against high-temperature corrosion, Castolin Eutectic typically recommends very high-chromium content nickel-based alloys, usually supplied in the form of a Eutalloy® powder and deposited by flame spraying. These alloys are then fused to increase the bond strength of the coating to the substrate to remove all «open» porosity. This creates a very dense, homogeneous coating which provides maximum resistance to corrosion. The discrete «closed» pores block any penetration of corrosion through to the substrate.

ROLLER PRESS

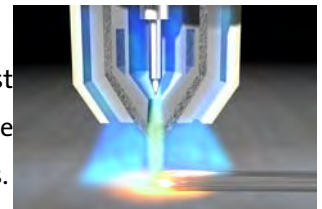
Compared with traditional jaw, conical or ball mill crushers, roller crushers provide up to 30% energy savings, reduced working noise levels and 30% to 100% increased production output. Roller Presses crush various materials such as clinker, limestone, minerals, clays etc. by compression between two rollers but they are subject to high stress abrasion and wear. Consequently, the roller surface is often weld hardfaced to increase the lifetime. In France, a cement plant operating a Roller Press experienced 3-4 months roller lifetime using the traditional 4-6 layer weld overlay approach due to premature spalling of the brittle weld deposit (see photo)



New Castolin Eutectic Plasma Technology solution

Plasma Transferred Arc is a Modern Hybrid welding wearfacing process using powder and a plasma source. To improve the wear life, the extremely wear resistant tungsten carbides material in powder form was used in a special matrix, EuTroLoy PG 6503. Two layers of powder alloy resulting in a total uniform coating thickness of 6 mm (see photos) applied by a specialised Castolin Eutectic subcontractor.

Result : After 16 months, wear was limited to 1mm with no sign of spalling and the cost of the job was lower than the former solution. In addition, productivity savings were generated by the increased service life of the PTA and EuTroLoy protected press rollers.



CASTOLAB

We believe in making our extensive know-how fully available to our customers, but for situations where technology transfer is complex or requires a rapid turn-around, we have our own maintenance service workshops; CastoLabs. These fully resourced skill centers develop advanced procedures for transfer to end-users.

Castolin Eutectic CastoLabs are located in Germany, Belgium, Holland, Spain, Austria, Poland, Czech Republic and the United Kingdom, and are best contacted through Castolin Eutectic via our website (www.castolin.com). In countries without CastoLabs, Castolin Eutectic collaborates with approved workshops which are in close contact with Castolin Eutectic's specialists and technologies.



Welding



Wearfaced Boiler Tubes



Spray & Fuse on Boiler Tubes



Repair Welding



In Situ Wearfacing



Fan built with Wear Resistant CDP



Thermal Spraying

CASTOLIN EUTECTIC

Castolin Eutectic Locations



The unique Terolink database of Castolin Eutectic contains almost 6,000 fully documented approved applications from around the globe. The case studies include photographs, technical data, detailed descriptions and cost-saving analyses.

Training



To increase customer know-how in wear technology and repair techniques, we have developed a full line of seminars and training programs, teaching all relevant personnel from welders and engineers to sales teams and managing directors.

Manufacturing

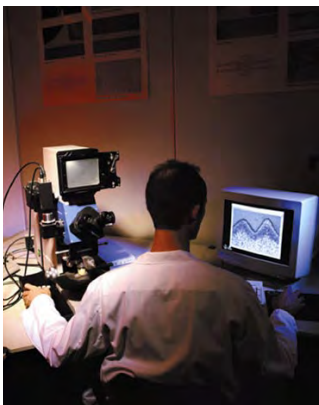


Castolin Eutectic Cored Wire Production

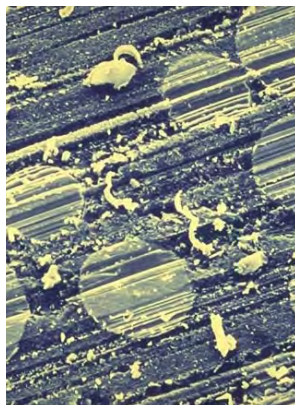
Product Portfolio - Widest in the Industry



R&D-Wear Test Laboratory



Laboratory of Metallurgy



Micrograph of Wear Phenomena

Together with our sister company, the Messer Group, we can offer our customers a very powerful range of products and services. Being «Part of the Messer World» means:

- Investing €420 million before 2008
- More than 6,000 motivated employees
- Over 100 factories to meet the needs of customers
- Technical sales support in over 120 countries
- 2,000 technical sales people in the field with our customers every day

HISTORY OF CASTOLIN EUTECTIC



- 1906: Foundation of Castolin in Lausanne, Switzerland by Jean-Pierre Wasserman. His stroke of genius: to discover a way of welding cast iron at low temperature; in the following years, this innovation was further developed for all industrial metals including aluminium alloys.
- 1940: Foundation of Eutectic Welding Alloys Corporation in New York
- 1952: Foundation of Castolin France
- 1959: Foundation of Eutectic Japan Ltd
- 1962: Foundation of Eutectic India Ltd.
- 1960's: International consolidation under Castolin Eutectic
- 1970's: Creation of training centers for Maintenance & Repair technologies
- 1978: Establishment of World Head Quarters in St-Sulpice, Switzerland
- 2000: Merger with Messer Cutting & Welding and creation of the MEC Group - Messer Eutectic Castolin
- 2005: Part of the Messer World
- 2006: 100 years



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Your resource for protection, repair and joining solutions



For further information,

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WEAR & FUSION TECHNOLOGY



*Ask for a demonstration
from our Application
Specialists.*

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