Key Industry Program

CemTec

Cement Industry...

WEAR & FUSION TECHNOLOGY

Castolin Eutectic®
**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.

**Your resource for protection, repair and joining solutions**

**Wear Protection Expert**

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.
**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.

**CDP WEAR PLATES AND CASTOTUBES**

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

Kiln Tyre Problems

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.
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.
**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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**Addresses of Castolin Eutectic Companies in Europe**

<table>
<thead>
<tr>
<th>Country</th>
<th>Address</th>
<th>Phone Numbers</th>
</tr>
</thead>
</table>
| Austria, Hungary, South East Europe | Castolin GmbH  
Brunner Strasse 69  
1235 Wien  
+43-(0)1-869 45 41-0 |                                                      |
| Belgium                  | s.a. Castolin Benelux n.v.  
222-228, Blvd de l’Humanité  
1190 Bruxelles  
+32-(0)2-370 1370 |                                                      |
| Czech Republic           | Castolin pol.s.r.o.  
Trojska 18/122  
18200 Praha 8  
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| France                   | Castolin France S.A.  
22, Av. du Québec BP 325  
Z.A. Courtaboeuf 1- Villebon  
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| Germany                  | Castolin GmbH  
Gutenbergstrasse 10  
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| Netherlands              | Castolin Benelux N.V.  
Rotterdamseweg 406  
2629 HH Delft  
+31-(0)15-256 9203 |                                                      |
| Belgium                  | Castolin Scandinavia  
Teknologiparken, Akersv. 24 C  
0177 Oslo  
+47-22-11 18 70 |                                                      |
| Belgium                  | Castolin Sp.z.o.o.  
P.O. Box 502, ul. Robotnicza  
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| Sweden, Denmark          | Castolin Benelux N.V.  
Rotterdamseweg 406  
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+31-(0)15-256 9203 |                                                      |
| Switzerland              | MESSER Eutectic Castolin Switzerland SA  
Swiss Market Centre  
Ch. de la Venoge 7  
1025 St. Sulpice  
+41-(0)21 694 1111 |                                                      |
| Russia                   | Messer Cutting & Welding OOO  
Ul. Bolschaia Tulskajya 10/9  
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Redditch B98 9NZ  
+44-(0)1527 58 2200 |                                                      |

For all others Countries please contact:

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Export Market Center  
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CH-1001 Lausanne, Switzerland

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**Your resource for protection, repair and joining solutions**

For further information, please visit our homepages:

www.castolin.com   www.eutectic.com

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WEAR & FUSION TECHNOLOGY

Ask for a demonstration from our Application Specialists.

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