

COBRA CEMENTITIOUS BRAKE CONTROL

THE PROJECT

COBRA will demonstrate a completely novel brake pad production technology that will be based on an innovative hydraulic binder composition instead of phenolic resins, at comparable braking performance.

State-of-the-art brake pads are constituted by thermo setting phenolic resins, which are suitable for friction and relatively high contact temperature applications. Moreover reinforcing and filling constituents (about 90% in mass) are incorporated into the polymeric matrix.

Raw materials involved in the innovative hydraulic binder production will allow reducing energy consumption (75-83 MJ/kg phenolic resin compared to 3-9.4 MJ/kg cement) and water consumption (94-282 L/kg phenolic resin compared to 1.7-5.1 L/kg cement).

In addition the novel technology will avoid the emission of aerosols and secondary ultrafine particulate (PM0.1 in particular) generated during braking by traditional phenolic-resin-made pads.

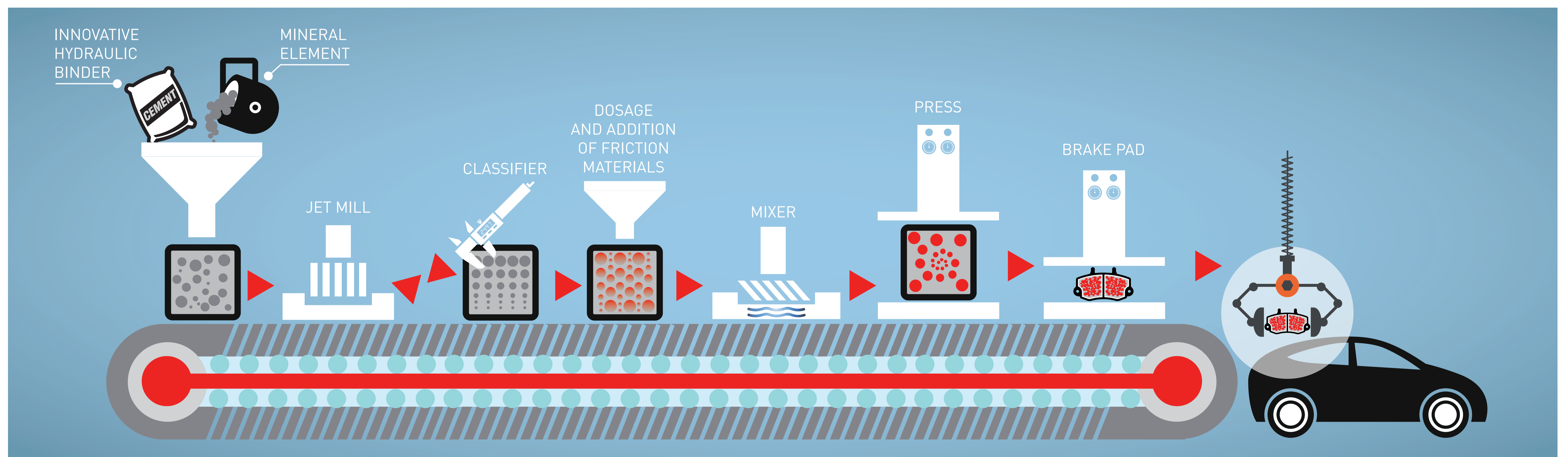
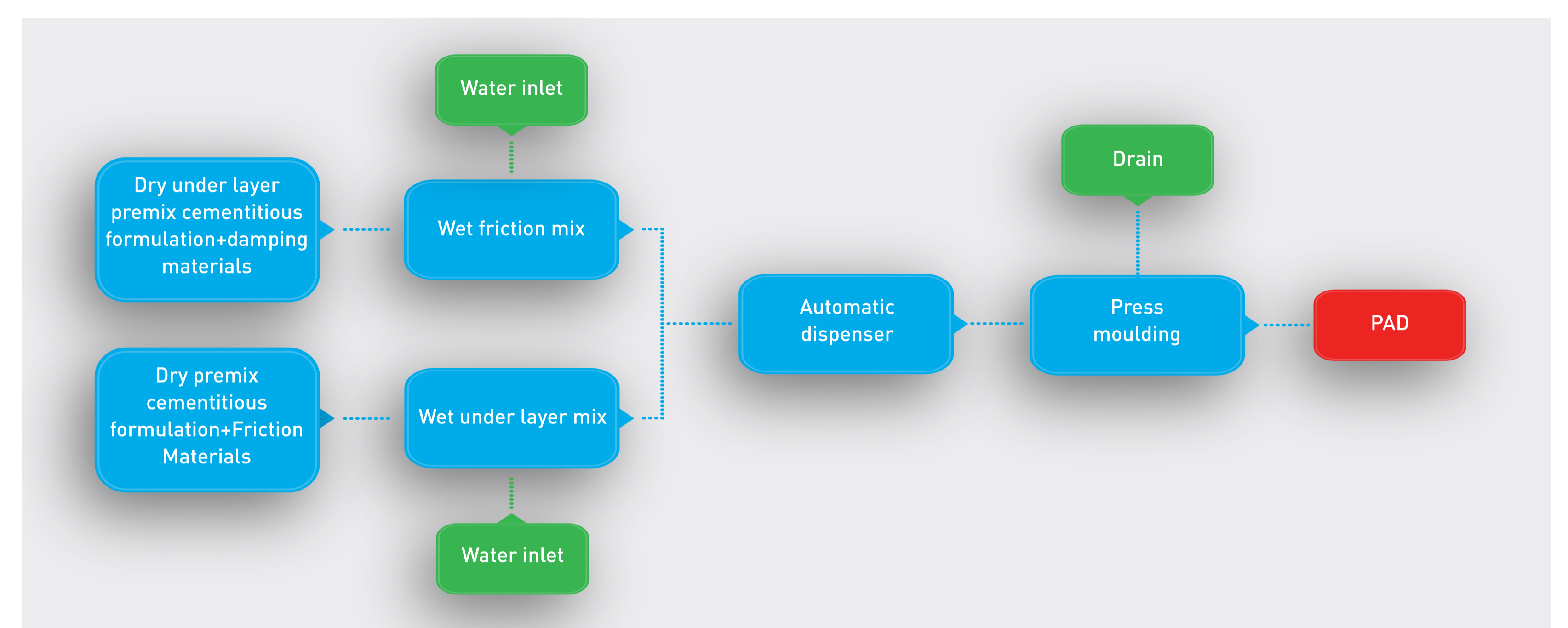


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TOTAL PROJECT COST € 3.825.529

TOTAL EU CONTRIBUTION € 1.483.911



Partners



Brembo is the world leader in the design and manufacturing of brake systems for cars, motorbikes and commercial vehicles, as well as other components for racing. Brembo develops and manufactures brake discs, calipers and pads, master cylinders, assembled and pre-bled brake modules and wheels; in Europe it's the only one producing the entire brake system.

The heart of Brembo company is constituted by the team of engineers and technicians who work in the Brembo R&D Centre, inside the Kilometro Rosso Science Park.

Brembo has built its success on its highly innovative approach, which over the years has made it unique around the world. Today the company operates in 16 countries of 3 continents, with a pool of more than 7600 employees, about 10% of whom are engineers and product specialists active in the R&D.



CTG, Italcementi Group Technical Centre, is engaged in designing, building and modernizing cement plants & machinery, optimizing production processes, doing R&D into building materials & products and specialized technical assistance.

CTG's R&D is centred at **i.lab**, Italcementi's new R&I Centre, which boasts first-class equipment for characterizing and testing materials and final products vis-à-vis chemical, physical and mechanical performance.

Special emphasis is placed on carrying out national and international R&D projects also in close collaboration with academia and renowned research centres, in an effort to anticipate market trends in favour of sustainable and innovative construction materials.



The **IRCCS Mario Negri Institute for Pharmacological Research** is a private, not-for-profit biomedical research organization, established in 1961, with three research units: Milan, Bergamo (Centro Anna Maria Astori), Ranica (Centro di Ricerche Cliniche per le Malattie Rare Aldo e Cele Daccò). The Institute's main research headings are the battle against human diseases (cancer, cardiovascular, nervous, mental, kidney and rare diseases), the toxic effects of environmental contaminants and research on drug addiction. Within the Institute training activities involve laboratory technicians and graduate researchers with PhD programs. The Institute is also involved in dissemination of the results of basic and applied research to the general public.



CiaoTech S.r.l., part of **PNO Group B.V.** The **PNO Group**, established in 1984, is specialised in Innovation Management, providing services to private and public organizations in Innovation processes, Technology Transfer and public funding for research and innovation. PNO is made up of a pool of around 250 professionals across 12 EU states including scientists, engineers, consultants, a Brussels policy advisory service. The company has the proven capability to link innovation suppliers and adopters from a unique Europe-wide network in multiple sectors, using advanced methodologies and proprietary on-line networking. PNO supports over 2000 clients throughout Europe, annually developing over 120 European projects fostering their successful Innovation.