



Corporate Profile

360° anti-wear portfolio from a single reliable source



Composite Wearplates

Hardfacing Consumables

Sintered Hard Materials

Hybrid Pre-hardfaced Castings

Coating & Re-furbishment Services

Automation Equipment

Innovative anti-wear solutions since more than two decades.

Hardcarb Technologies has been working relentlessly in the field of wear protection since more than two decades. By focusing on wear problems in a wide spectrum of Industries ranging from ore processing to cement, power, aluminum, dredging, foundry, construction etc, Hardcarb has helped and assisted to solve a great variety of wear problems. This focus also means that Hardcarb has collected more practical wear-related experience than most competitors.

Our founders Dr. Rohit Shah and Dr. Wolfgang Wahl were involved in fighting wear problems since many decades. Originally formed in 1999, Hardcarb has transformed from a company manufacturing only composite wearplates to one manufacturing the entire spectrum of hardfacing materials, composite materials as well as automation equipment. The harsh wear conditions existing in the Indian coal and iron ore Industries have paved way for multiple technological innovations from Hardcarb, most prominent being the development of near-nanostructured hardfacing superalloys.

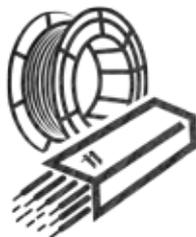


Founders - Dr. Rohit M. Shah & Dr. Ing. Wolfgang Wahl

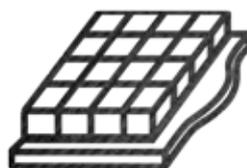
360° ANTI-WEAR PORTFOLIO



composite wearplates



hardfacing consumables



sintered hard materials

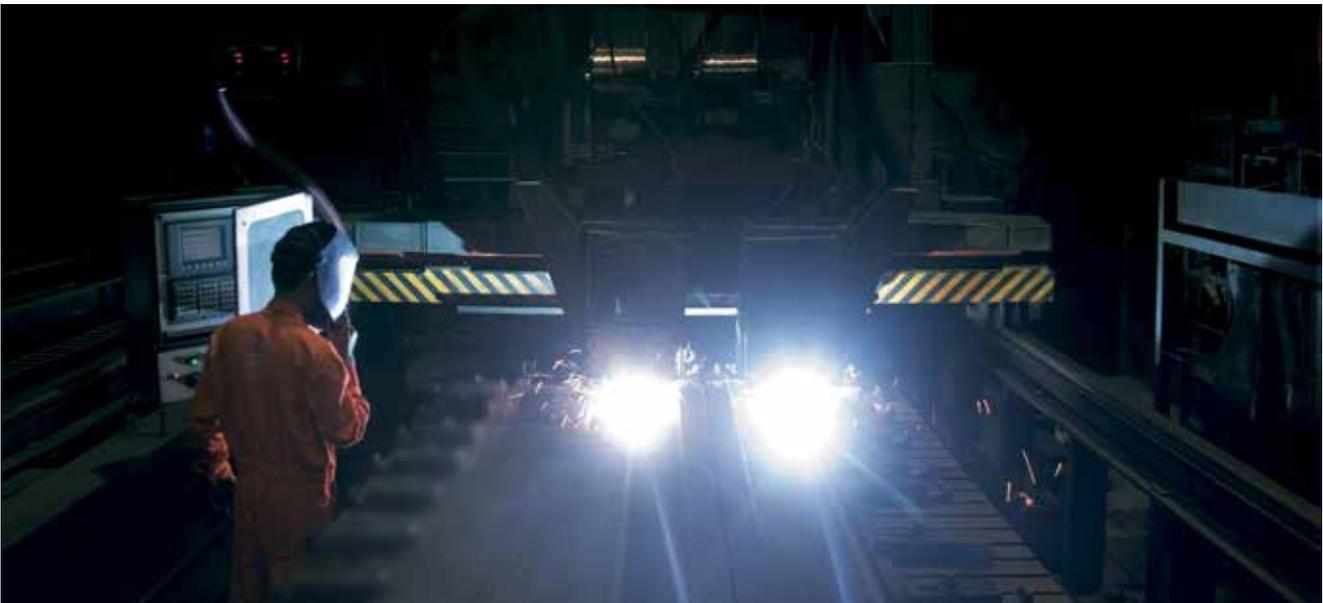


hybrid pre-hardfaced cast parts



automation and hardfacing services

Composite wearplates & fabricated components



Concept

Composite wearplates consist of a steel backing plate on which a very hard wear-resistant alloy is deposited using an open-arc welding process. This hard alloy may contain chromium carbides, complex carbides, tungsten carbides and/or metal borides of extreme hardnesses depending on the application conditions and expected service life. Hard coatings from 2 mm upto 30 mm are easily achievable, though most common are the 3mm to 12 mm thickness range. Backing plate can be plain carbon steels, fine-grained steels, hardened steels, stainless steels etc.

Hardcarb advantage

Hardcarb wearplates should not be compared with sheets coated using conventional hardfacing techniques such as flux-cored wire welding, submerged arc welding etc. Our wearplates are manufactured using a proprietary Carb-O-inject™ process which is still today, one of the only rare techniques of obtaining very hard, dense, closely packed primary carbides from top to bottom of the hardfacing deposit. It is this unique property that ensures the superior performance of Hardcarb wearplates as compared to all competitors worldwide.

Having worked with the harsh Indian coal environment for more than 15 years where conventional alloys fail, Hardcarb has developed many new-generation alloys which are based on the principles of nanotechnology thus allowing rapid undercooling rates to be achieved during the welding process itself. This results in alloys having extreme wear-resistance properties and, in some grades, bulk hardnesses much beyond the 70 HRC threshold of conventional alloys.

High performance welding consumables



Our Hardcarb® & Nicrolloy® series of alloys are available in many different material specifications and forms:

Material specification

- » Hardfacing
- » Repair and buffering
- » Stainless steels
- » Dissimilar steel joining

Material forms

- » Covered electrodes
- » Flux-cored wires
- » Tubular electrodes
- » Bare, composite rods
- » Metal powders

Categories

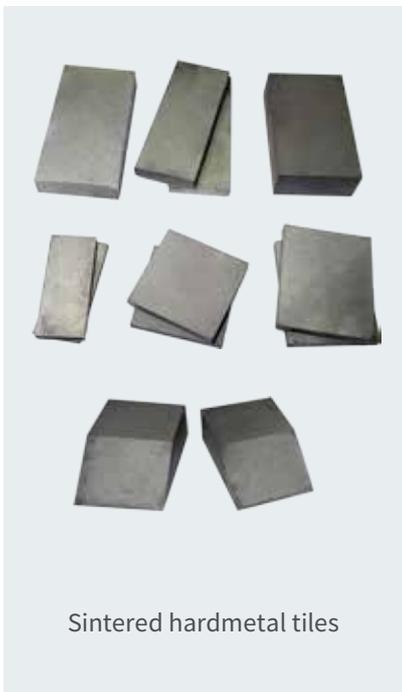
Iron based, cobalt based and nickel based hardfacing materials are available in four broad categories:

- » Primary chromium carbide series with added complex carbides / borides
- » Fused or super-hard spherical tungsten carbides
- » Complex titanium carbide impact resistant alloys and work hardening / buffering / stainless alloys.
- » Nano-structured series incorporating nano-crystalline materials for unparalleled performance.

Many different wear problems can be solved efficiently and quickly onsite with such welding materials. Our trained technicians are also available for customers to carry out such welding jobs at site. All know-how pertaining to different base material welding procedures are well documented and available for customers.

Typical applications are hardfacing of grinding rollers and tables of vertical mills, refurbishment of high pressure rollers, coating of sand mixing tools, hardfacing excavator teeth, powder deposition welding of fan blades, and the hardfacing of equipment such as sinter crushers, coke crushers, blast furnace charging chutes etc.

Sintered hard materials & components



Hardmetals

Sintered hardmetals provide unparalleled increase in service life of severe wearing components. These are applied by a special brazing process and are custom-designed for abrasion, impact, temperature, erosion and/or corrosion resistance. A notable advantage of these tiles is that they provide severe abrasion and erosion resistance along with good impact resistance - a property not achievable in most of the other wear solutions.

High alumina ceramics

High alumina ceramics are an excellent solution for severe wear zones which do not see dynamic conditions such as vibrations, thermal shocks, impact etc. These tiles are available in pastable, bolttable, weldable or mechanical interlocking forms and can easily be used to cover large wearing areas quickly. These tiles are a preferred choice in highly abrasive pneumatic conveying systems, cyclones, fly-ash/coal pipelines etc.

Ceramic rubber impact panels can also be supplied for applications involving abrasion in combination with impact.



Hybrid pre-hardfaced cast parts and refurbishment services



Hardcarb produces special hybrid castings for achieving contrasting properties such as toughness and hardness in the same component. Using our special polyarmour™ process, cast parts can be hardfaced to thicknesses as high as 100 mm without compromising on impact resistance. These hybrid castings have been well proven in highly demanding applications such as sinter crushers in steel mills, grinding rollers in cement and slag vertical mills as well as coal crushing hammers. Using powerful alloys in combination with Polyarmour process, service life enhancement to the tune of 3X over conventional OEM solutions is easily achievable.

Re-furbished scrap lasts longer than original !

One of the major activities at Hardcarb is re-furbishment of severely worn parts such as grinding mill components. Completely worn-out ni-hard, hi-chrome or forged components can be re-furbished to near-new conditions. Techniques have been developed over the years to achieve hardfacing thicknesses of upto 100 mm, if required, on large parts. The biggest advantage is that the repaired components last 2 - 4 times longer than original castings and such repairs can be repeated on multiple occasions.

Automation equipment



Hardcarb Automation is dedicated to developing PLC/CNC/Robotic based welding and thermal cutting systems. The key to success is the integration of simple ideas with sophisticated yet maintenance-free components which are sourced from highly reputed manufacturers world-wide.

Utilizing years of knowledge on the hardfacing procedures of different materials and the operating conditions/ requirements of various workshops worldwide, Hardcarb is in a position to work closely with all customers for developing specialized welding and cutting solutions. Our expertise in welding procedures, mechanical design, processes and advanced computational analyses ensures a reliable and maintenance-free solution on a completely Indian platform.

One of the highlights is the ultra portable in-situ hardfacing machine as shown on the right which can be used to carry out complicated hardfacing operations with remarkable ease and accuracy. Minimal setup time, plug-and-play design and simple interface makes this a “must have” equipment in all bulk hardfacing shops.

Contact Us

—

HARDCARB TECHNOLOGIES PVT. LTD.

(Formerly known as Vautid-Shah Hardface Pvt. Ltd.)

R-728, TTC Industrial Area,
M.I.D.C. Rabale, Navi-Mumbai,
Maharashtra - 400 701, India.

t: +91 (22) 68414141

e: sales@hardcarb.com

w: www.hardcarb.com

Authorized Distributor