



GBT-BÜCOLIT GmbH

Benzstraße 2, D-45772 Marl
Tel.: +49 (0) 23 65 / 98 95 - 0
Fax: +49 (0) 23 65 / 98 95 - 95
info@buecolit.de, www.buecolit.com

GBT Benelux b. v.

Schuit 16A, NL-1724 BD Oudkarspel
Tel.: +31 (0) 226 / 34 30 13
Fax: +31 (0) 226 / 34 53 21
info@buecolit.nl, www.buecolit.com

GBT Benelux n. v.

Starrenhoflaan 27 B, B-2950 Kapellen
Tel.: +32 (0) 3 / 664 55 05
Fax: +32 (0) 3 / 664 55 04
info@buecolit.be, www.buecolit.com

GBT POLSKA sp. zo.o.

ul. Staszica 18/25, PL 97-400 Bełchatów
Tel.: +48 (0) 44 / 6 33 90 85
Fax: +48 (0) 44 / 6 16 92 63
office@gbt-polska.pl, www.buecolit.com

HAW Linings GmbH

Werkstraße 30 – 33, D-31167 Bockenem
Tel.: +49 (0) 50 67 / 990-0
Fax: +49 (0) 50 67 / 990-2772
info@haw-linings.com, www.haw-linings.com

HAW Linings Benelux n.v.

Starrenhoflaan 27B, B-2950 Kapellen
Tel.: +32 (0) 3 / 664 55 15
Fax: +32 (0) 3 / 664 55 04
info@haw-linings.com, www.haw-linings.com





Plant redevelopment



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Plant redevelopment: Safe operation in the toughest conditions.

Industrial plants today are subject to extreme requirements and working conditions – 8,000 operating hours and more per year is not unusual. Maximum utilisation and optimum process flows are decisive productivity factors here.

Despite the best of technology, industrial plants are, however, constantly exposed to natural, inevitable wear. The wear is even higher the more aggressive the effects are on the materials used.

Process safety and productivity can thus only be guaranteed through regular repair, maintenance and redevelopment.

The major challenges are: reducing inspection shutdowns to a minimum – extending plant availability and maintenance intervals to the maximum. This is precisely where GBT competencies lie.

GBT gives you considerable support in reaching your goals in a fast and uncomplicated manner. We are specialised in handling redevelopment and conversion

projects extremely effectively and efficiently – from the optimised choice of lining to project management, production, delivery and installation, through to the warranty.

Our solutions are used everywhere which demands maximum reliability and availability. There, where process safety, efficiency and resilience are measured to the highest standards.

Preliminary planning and practical implementation are carried out seamlessly at GBT – projects are implemented across all technologies. From one source, and under one's own responsibility, effectively and efficiently.



Understanding and managing processes. Solving tasks competently.

The basis of any planning and implementation in plant maintenance is the understanding and mastery of various industrial processes. A competence which has grown at GBT for over more

than nine decades. It allows us to act safely, accurately and reliably. With engineering capacities for customised services in plant redevelopment and optimisation:

- Checking of optimisation potential of planned development activities by GBT process engineers.
- Precise and detailed project plans by GBT project management.
- Design and production of new, individual plant components, such as valves, flaps, filters, tanks, generators, apparatus and steel elements.



- Implementation of planned activities by GBT site management, on time and of high quality.
- Assurance of maximum quality standards during the production and installation by GBT production monitoring.

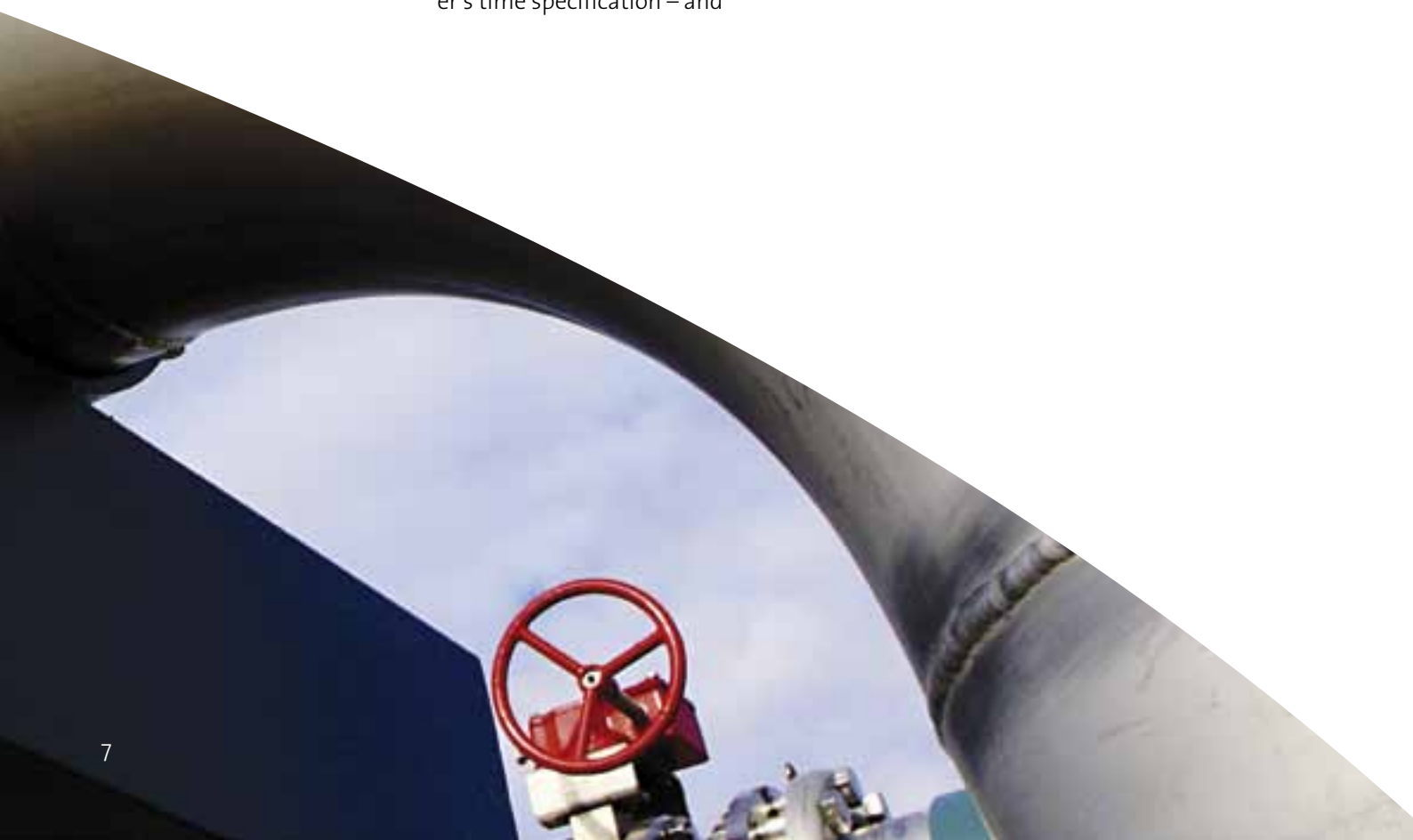
Be it redevelopment, plant optimisation or plant construction – we ensure that technical processes run as safely, effectively and economically, as your planning intends.

And always under a very important requirement: Time optimisation.

For time is the decisive factor for the overall calculation of industrial plant redevelopment. Downtimes and stoppages, as well as expensive bypass or alternative solutions, ultimately determine the project's cost calculation.

The basis of our strict scheduling is overall processing of most projects within the GBT Company Group. We always keep an eye on the customer's time specification – and

we always have the process under our own control. This applies from the first concept in the planning team to the last welding seam produced on-site.



It is the diversity which makes our solutions unique.

GBT ensures effective plant protection where, due to chemical-physical reaction processes, there is corrosive damage from aggressive media. Our goal: the assurance of high reliability and

availability while complying with the legal requirements for safety and environmental protection.

Power stations and waste incineration facilities

The technology used in flue gas cleaning plants of power stations and waste incineration facilities is primarily based on the principle of wet washing. It produces diverse

corrosive environmental conditions in the process plants and flue gas ducts. Media wetted components are predominantly exposed to watery suspensions of solids

and dissolved salts, such as chlorides and sulphates. Gaseous substances, such as SO_2 , HCl and NO_x , are also present.



Together with the high operating temperature, extremely corrosive conditions for the used construction material develop.

As a result of different plant designs and individual operating modes, practically each flue gas cleaning plant has its own load profile from chemical, thermal and mechanical stresses. As one of the most experienced companies for heavy corrosion protection, GBT specialises in the analysis of such stresses, the plant redevelopment and the increase of plant resilience.

This is not just about the use of advanced coating, rubber lining and lining materials, but also about the production of entire components and plant parts by the appropriate specialists of the GBT company group.

Examples of applications:

- Redevelopment of flue gas ducts, ventilators, flaps, etc.
- Redevelopment of flue gas scrubbers while optimising the quench and separating behaviour

- Redevelopment and conversion of chimney installations with optimised corrosion protection
- Redevelopment of heat exchangers in flue gas cleaning plants
- Redevelopment of electrical and fabric filters



Chemicals industry

Safe, trouble-free and reliable against corrosion in highly aggressive chemicals, these basic requirements apply in the chemicals industry for optimum surface protection.

GBT develops and applies a number of highly effective lining systems and com-

ponents for use in apparatus, containers, tanks and pipelines in the chemicals industry. Their outstanding characteristics are extremely stable and have maximum resistance for absolute process safety, economic plant operation and compliance with all legal requirements.

Example areas of use:

- Redevelopment and optimisation of process containers
- Coating of process columns and trays
- Development, construction and delivery of pipelines and tanks made of steel, stainless steel, thermoplastics and duroplastics



Cement industry

To reduce energy consumption, so-called refuse-derived fuels (RDF) are increasingly used in the cement industry. A good and efficient approach which is however associated with corrosion problems.

Because in the combustion of RDF, a considerable amount of hydrochloric acids are released. Also, even at temperatures of 1,400 °C, there is condensation from chlorine or HCl. Their diffusion eventually leads to harmful acid formation which attacks the anchors and steel surfaces.

The same applies to the flue gas scrubbers. Here too, acids combined with high temperatures lead to corrosive deposits on critical points of the plant.

GBT counters these extremely aggressive factors with coating systems which have been especially designed for the needs of the cement industry, expanded to include a wide range of construction and services, precisely tailored to the industry.

Example for redevelopment and optimisation for GBT applications:

- Raw and scrubber gas ducts
- Electrical and fabric filters, fans, ventilators and sound dampers
- Heat exchangers, rotary kilns and gas fireplaces
- Raw meal mills and trough screw conveyors
- Cyclones, clinker and spray coolers, peripherals container



Automotive industry

The necessary use and formation of aggressive chemicals and solvents in the process of cathodic dip coating in the automotive production requires a special surface protection of the dip tank. GBT is one of the world's most experienced and accomplished specialists for the renovation and re-coating of plants for cathodic dip coating.

To detect and remove damage early on, we periodically review the condition of the linings of our dip tanks. In this way, any required redevelopment or optimisation activities can be planned early and efficiently carried out from one source by GBT.

Examples of solutions:

- Redevelopment and optimisation of dip tanks
- Conversion and coating of spraying booths
- Conversion, redevelopment and lining of supply and exhaust air systems
- Redevelopment, coating and optimisation of pre-treatment plants



Steel industry

For the iron and steel industry, GBT develops, delivers and installs both acid-resistant coating systems as well as components for surface treatment equipment, acid recovery and gas cleaning.

For example:

- Apparatus, containers and fittings for acid recovery
- Lining systems for normal and stainless steel pickling lines
- Coating for all plant areas
- Coating systems according to the requirements of the Water Management Act for tanks and surfaces
- Concrete protection from thermoplastics and glass-fibre reinforced plastics (GFRP)
- Site rubber lining
- Coatings for collecting chambers and tanks, absorbers, gas ducts, etc.
- Acid-resistant brickwork





The GBT Company Group: Specialists in cooperation

A whole is more than the sum of its parts. One plus one is much more than two – especially when new, joint strengths are created from the connection of individual efforts, when specialists link their knowledge to new expertise and when distinct knowledge inspires the enthusiasm to try something new. Just like in the GBT Company Group.

More than 100 years of experience are connected in the company group with the dynamics of a rapidly growing cooperation of specialists, making a service system that sets an example throughout the market in terms of density and range.

Six sites in Germany and Europe, partner companies and representations in the USA, China, India and Switzerland – this is the group's basic geographic data.

More than 300 employees from 15 nations – this shows the open-mindedness and flexibility of our community and stands for transfer of knowledge without limits.

Dedication and success in the most demanding sectors of industrial plant engineering as well as plant development and coating technology; this is proof of the wide-ranging expertise under the GBT Company Group umbrella.

This is how our services connect perfectly with the high demands of our customers. Now we've come full circle – for what really matters are good connections.

