

HA-BE CONCRETE COLOURS

Our system for the ready-mixed and precast concrete industry





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Requirements on concrete colours
SUITABLE PIGMENTS

► **Inorganic, synthetic pigments**

According to DIN EN 12878, concrete colours must be based on inorganic, synthetic pigments, e.g. iron oxides, chromium oxides, cobalt blue, titanium white, and carbon-based black pigments. These base pigments are then again base of an endless variety of concrete colours.

The Ha-Be colour range

REQUIREMENTS ON CONCRETE COLOURS

For colouring your concrete, the quality of the colour used is of crucial importance. Therefore, concrete colours manufactured and used within the European Union, must meet several requirements, specified in DIN EN 12878. We are certified to this European standard and thus only offer products that meet the standard's demands.

NORMATIVE SPECIFICATIONS IN DIN EN 12878

According to DIN EN 12878, concrete colours must be based on inorganic, synthetic pigments as these are weather-, UV- and alkaline-resistant.

REINFORCED OR NON-REINFORCED CONCRETE?

The standard distinguishes its requirements on concrete colours into two categories and in regards to the intended use or uses of the final construction product: In category A, for colours used in non-reinforced concrete such as manufactured concrete products and in category B, for colours used in steel-reinforced concrete. In category B, the standard determines limits to ensure that adding colour to concrete does not cause any adverse reactions. A defined maximum chloride content for example protects steel-reinforced concrete from steel corrosion.

CERTIFIED QUALITY

Before being used, concrete colours are required to proof their conformity to the normative specifications in DIN EN 12878. Ha-Be is certified to this DIN EN standard and thus only manufactures and offers products that meet the standard's requirements. Consequently, all our concrete colours bear the CE mark.

THE HA-BE
COLOUR
RANGE



The Ha-Be colour range

OUR PIGMENTS & GRANULES

Convincing by functionality is one thing. But coloured concrete also needs to impress by shape and design. The colour is of crucial importance here. Whether black, anthracite, red, yellow or beige – our multi-faceted, high-quality pigments, granules and liquid colours provide a unique look to your concrete products.

ENDURING BRILLIANCE AND INTENSITY

Enhance the appearance of your concrete products by colouring them. Choose out of an extensive range of high-quality pigments and granules – whether iron oxides, carbon pigments, chromium oxide, cobalt blue or titanium white. Our special manufacturing processes add outstanding longevity to them – for concrete colours with enduring brilliance and intensity.

DURABLE, WEATHERPROOFED AND UV-RESISTANT

Our concrete colours convince with maximum stability and weather resistance. Based on inorganic, synthetic raw materials, they are highly resistant to UV and weathering.

QUALITY FIRST

All our concrete colours comply with DIN EN 12878 and allow the standard-compliant colouring of your concrete products. It is our pleasure to advise you personally in colour selection, application and dosage.

THE HA-BE
COLOUR
RANGE



The Ha-Be colour range

OUR LIQUID COLOURS

In addition to pigments and granules, our product portfolio also includes high-quality liquid colours branded Ha-Be Color. Of course, they own the same high-quality standards as our pigments and granules. Gain considerable advantages from using our colour slurries:

COLOURING AT FULL POWER!

Liquid colours are suspensions of pigments, water and additives. During the manufacturing, the pigments optimally disperse and thus develop their full colour power – providing the concrete with a high level of colour brilliance.

MIXED COLOURS – DELIVERED READY-TO-USE

In contrast to pigments and granules, mixed colours are delivered ready-to-use and thus do not require additional equipment. This saves time and simplifies processes. Yet another advantage: as all pigments can be mixed together, a huge variety of individual shades and tints is feasible.

QUICK DISPERSION – SHORTER MIXING TIMES

Liquid colours are very easy to mix. They quickly disperse and mix with the concrete. This allows you to achieve shorter mixing times and optimise your production processes.

EXACT DOSAGE – UNIFORM COLOUR RESULT

Compared to pigments, liquid colours are much more accurately to dose, which, in turn, does not only lead to uniform results, but also limit and reduce the risk of colour variations.

NO INTERACTIONS WITH ADMIXTURES

Since we manufacture both admixtures and concrete colours, we are able to match up the raw materials of both product ranges. In doing so, we exclude potential interactions and ensure a reliable, perfect colour result.

THE HA-BE
COLOUR
RANGE



The Ha-Be colour range

ENDLESS VARIETY OF COLOUR SHADES

We offer a broad range of colours in liquid as well as in solid form. In addition to the standard colours, we also reproduce or design unique colours.

INDIVIDUAL COLOURS

You need a special blend? Therefore, we have initiated our „Colourise Your Concrete“-concept. We match or design your specific colour considering the properties and ingredients of your concrete, i.e. the colour of the cement, grain sizes of aggregates, w/c-ratio and thus also limit the risk of any colour deviation. Contact us, we will be pleased to help you.

REPRODUCING COLOURS

You require a specific colour match? Having a sample or being advised with the closest colour tone using standard colour codes like RAL or PANTONE®, we are able to match and reproduce specific colours.

STANDARD COLOURS

Our standard colours cover a wide range of muted, natural-looking shades, from light cream colours through to nuanced reds, yellows, browns, and to various black hues. Upon request, we are happy to advise you on your colour choice. Have a look at some of our standard colours at the next page!

The Ha-Be colour range

HA-BE COLOUR CHART – OUR CLASSICS

>> WHITE CEMENT*



>> GREY CEMENT*

Black 320	Black 341	Black 351	Black 370	Carbocrete
Brown 610	Brown 639	Brown 655	Brown 686	Purple 796
Red 110	Red 120	Red 130	Yellow 420	Yellow 430
Yellow 440	Yellow 960	Turquoise 735	Cobalt Blue 730	Navy Blue 731
Chrome Oxide Green 744	Titanwhite 720	Creme 572	Creme 573	Creme 574

Black 320	Black 341	Black 351	Black 370	Carbocrete
Brown 610	Brown 639	Brown 655	Brown 686	Purple 796
Red 110	Red 120	Red 130	Yellow 420	Yellow 430
Yellow 440	Yellow 960	Turquoise 735	Cobalt Blue 730	Navy Blue 731
Chrome Oxide Green 744	Titanwhite 720	Creme 572	Creme 573	Creme 574

*The colours shown can serve as guiding value only. The concrete colour depends on many factors. Products are prepared for defining the desired colour shade.



Colour adjustment & mix design development
BENEFIT FROM OUR SERVICE



COLOUR MATCHING



MIX DESIGN DEVELOPMENT



DESIRED RESULTS

Our service – your added value

COLOUR MATCHING & MIX DESIGN DEVELOPMENT

We support you in achieving the best possible quality for your colour. For this, not only the colour hue itself, but various concrete technological parameters need to be considered. Therefore, we initiated the „Colourise Your Concrete“-concept: we match or design your specific colour according to the properties and raw materials of your concrete mix design.

SAVE TIME, MONEY, AND RESOURCES!

Use your resources efficiently and leave the time-consuming development of mix designs to us. Our technical experts design your colour and take into account your specific concrete technological parameters. Using the previously determined raw materials, we test the colour and produce sample slabs. You get reliable results while saving time and money!

COLOURFAST SAMPLES – TRANSFERABLE RESULTS

When producing samples, we only use state-of-the-art stone presses that are able to copy the pressing processes of actual concrete production plants. Of course, all colour samples meet concrete technological requirements as well as the common standards of the concrete industry. In doing so, we obtain reliable results that can be transferred into industrial practice.

WE ARE HERE TO HELP!

Good concrete technology considers all parameters that may or may not have an impact altogether. This also includes dosing systems and plant technology. When it comes to colouring concrete, they are of crucial importance. Therefore, our technical experts personally supervise plant tests or trials on-site and thus support you to colourise your concrete accurately.

**OUR
SERVICE –
YOUR ADDED
VALUE**



Colour adjustment & mix design development

ON SITE APPLICATION TECHNOLOGY



ADJUSTMENT OF DOSAGE



SETTING UP SAMPLE AREAS



DURING CONCRETING

Our service – your added value

OUR TECHNICAL SUPPORT ON SITE

Limit your efforts and benefit from our service and support concept! Whether preliminary tests, concrete technological tests or trials on site – we at Ha-Be offer a comprehensive range of services that is of real added value to you: you save time and money!

EXTENSIVE CUSTOMER SERVICE CONCEPT

Our regional sales representatives work closely together with our technical experts. Our extensive customer service concept offers you a reliable support on site.

YOUR ADDED VALUE – OUR COLOUR EXPERTS

Colouring concrete can be challenging due to the various parameters that can affect the visual appearance of the coloured concrete and thus to a significant colour deviation from the initially chosen colour tone. So benefit from our experienced experts! They know what properties and ingredients of the concrete need to be considered to ensure a successful colouring. From dosing quantities and adjusting values to calibrating and setting up dosing systems – we support you on site.

WE LEND YOU A HELPING HAND

Good concrete technology considers all parameters that may or may not have an impact altogether. Our experienced colour experts provide a real added-value to you. They personally supervise plant tests or trials on site and thus support you to colourise your concrete accurately. You can rely on our experienced concrete technologists.

OUR
SERVICE –
YOUR ADDED
VALUE

Concrete Production – the raw materials

MAJOR FACTORS



AGGREGATES



TYPE OF CEMENT



W/C-RATIO



QUANTITY OF COLOUR

The production – what needs to be considered?

THE RAW MATERIALS

Colouring concrete is not only about choosing a colour. The resulting colour depends on various parameters. Therefore, all relevant properties and ingredients of the concrete e.g. the colour of the cement, grain sizes of aggregates, and the w/c-ratio should be considered in advance.

COLOUR OF THE CEMENT

Pigments can be used with all types of cement including grey, white, off white, slag or fly ash blends. In general, white cement may give brighter and lighter shades, whereas grey cement may lead to duller, darker shades. Our technical experts test and analyse the customer's used cement and advise on its suitability for matching the initially chosen colour shade.

COLOUR OF THE AGGREGATES

It is quite rare, but also the concrete's aggregates may affect the visual appearance of the coloured concrete. However, to limit and preclude the risk of any colour deviations from the initially agreed shade, also the aggregates are being considered by our concrete technologists.

W/C-RATIO

Even a small fluctuation in the w/c value can lead to a major change of the shade and thus to a significant colour deviation from the initially chosen colour tone. In general, however, the addition of water leads to brighter and lighter shades of the colour, whereas a low w/c-value results in duller and darker shades. Therefore, and to limit and preclude the risk of these colour deviations, the w/c-ratio should be constant.

DETERMINING DOSING QUANTITIES

Colour intensity increases as additions of pigments increase. Pigment addition is always expressed as percent by weight calculated on the cement. In general, pigment additions between 1-5% by weight lead to a satisfying result. Talking about liquid colours, we recommend pigment additions by weight between 2-8%. However, after achieving the colour saturation point, further increases in the dosage rate will fail to make an appreciable difference to the colour intensity. Even when figures vary for different shades of each pigment type, powdered pigments generally achieve their saturation at approximately 6 % dosage, on weight of cement and liquid colours at about 9-11% dosage, on weight of cement.



The production – what needs to be considered?

PRODUCING – MIXING – PROCESSING

Apart from the raw materials, the mixer itself, the mixing process, the mixing time, the processing and the placement are of crucial importance when colouring concrete. Producing samples and plotting test areas on-site are therefore of crucial importance, in order to limit and preclude the risk of any colour deviations.

CONCRETE MIXER

In order to achieve a homogeneous colour result, the colour pigments or the liquid colour must be distributed evenly in the concrete mixture. To ensure this, concrete colour should be added in the compulsory mixer of the plant and mixed there for a sufficient time.

For the production of ready-mixed concrete: Adding the colour in the truck mixer can lead to inhomogeneity and is therefore not recommended.

MIXING & MIXING TIME

Usually, powder pigments and liquid colours are added to the aggregates. After a dry mixing time of about 25-40 seconds, water and cement are added and mixed with the colour and aggregates. After all components have been added, attention should be paid to a sufficient mixing time. For ready-mix concrete and precast elements, the requirements for mixing the concrete, which are specified in DIN EN 206-1 and DIN 1045-2, must be observed.

PROCESSING & INSTALLATION / PLACEMENT

Further to the mix design and the mixing process, the processing and installation/placement of the concrete influence the final colour result. This includes, for example, the compaction process. As varying density can lead to an inhomogeneous colour results, the compaction must be properly carried out. In general, however, the lower the concrete compaction, the lighter the colour hue.

In addition, the ambient temperature during the hydration process, the type of formwork, the release agent used and curing compounds affect the colour result of the concrete.

Please note dimensions and connections

WORKING PRINCIPLE OF THE DOSING SYSTEM

► Required access

Access for forklift or wheel loader to the mobile plant must be guaranteed!

► Dimensions of the plant

Stand container: 1.25 m x 1.25 m x 1.80 m | Vol. 1000 l

Delivery container: 1.25 m x 1.25 m x 1.6 m | Vol. 800 l

Total required space 1.25 m (L) x 1.25 m (W) x 3.60 m

► Required connections

1x compressor (P) to DN 7.2

1x electrical connection (X) 230 V/1 A (control)

► Connections and cables

S1: control line between stand container and control

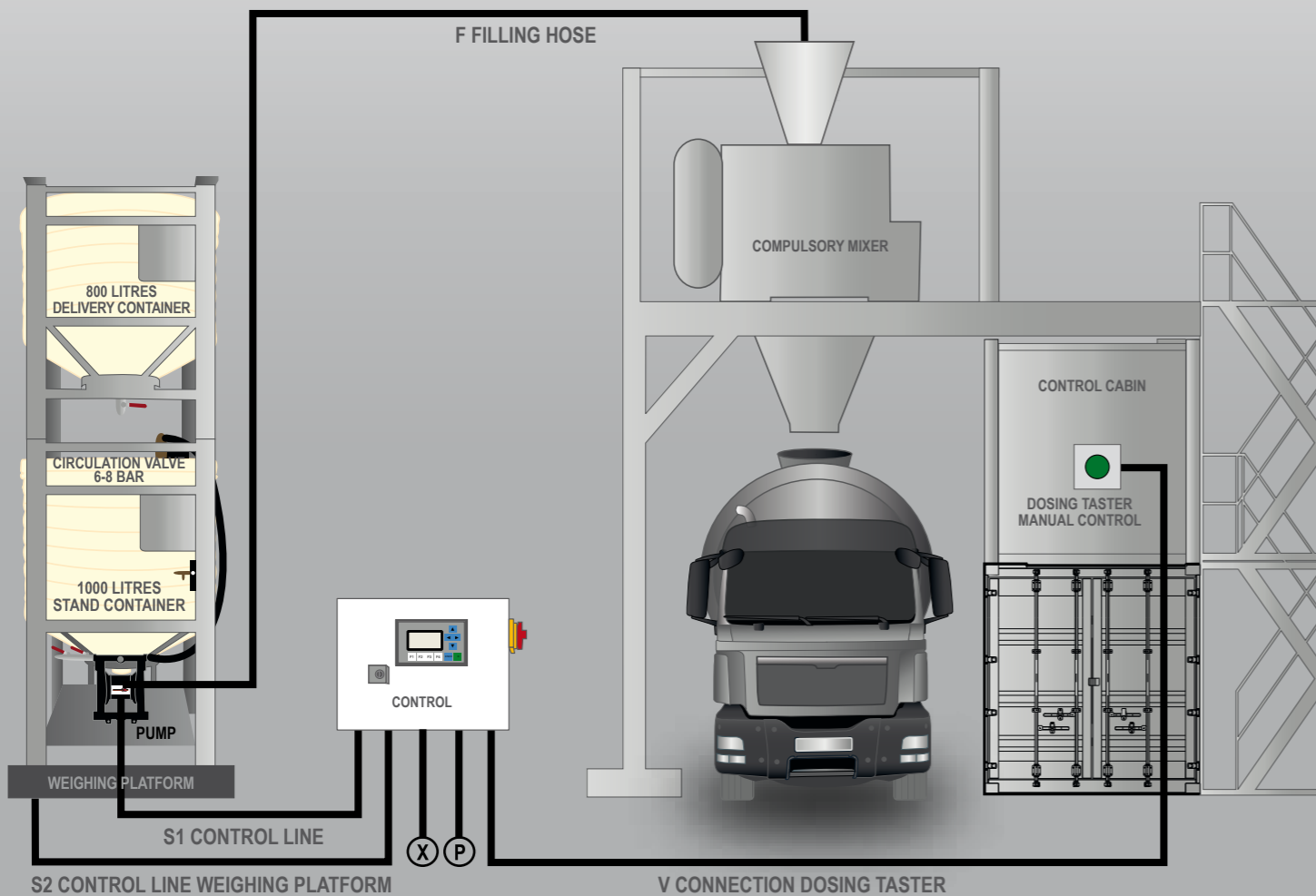
S2: Control line between weighing platform and control

(X): Electric cable between control and power connection

(P): Compressed air line between control and compressor

V: Connection between control and dosing button

F: filling hose between stand container and mixer



Application Technology

MOBILE DOSING SYSTEMS

Our product system is completed by the mobile plant technology for liquid colours. With its economic efficiency, precise dosing and the high process reliability, the systems represent an attractive alternative to the expensive installation of other new weighing technologies.

ECONOMIC EFFICIENCY

To the ready-mix and precast concrete industry, concrete colours are often project-related. Whenever a permanently integrated dosing systems for liquid colours seem not to pay off, we recommend mobile dosing systems. As it is technically feasible to integrate them into the existing production process, a complex interference with the process control system of the plant is not required and thus providing an economically attractive, cost-effective and popular solution.

HIGH DOSING ACCURACY – HIGH DESTINATION SAFETY

Whether volumetric or gravimetric – our systems ensure dosing accuracy. The colour dosing is recorded by precise systems and thus allows the accurate adherence to the mix design requirements. This provides the following advantages:

- Exact dosage
- Purposeful colouring
- Unnecessary material consumption can be reduced

PROCESS-SAFE – DUE TO OUR DOSING SYSTEM

Especially with the gravimetric dosing system you are able to control the dosing and to make corrections immediately, if necessary. As failures in dosing are avoided, you ensure the highest process reliability that is possible.

- Avoidance of incorrect dosing
- Error message in real time
- Avoidance of rejects

EASY HANDLING

Complicated setups and controls – that is in the past! Our dosing systems are simple to integrate into plant technologies and make it easy for your employees. Through a circulation valve, the liquid colour remains homogeneous even after a long downtime. If necessary, the colour is circulated.

- Easy handling
- Easy to understand
- Integrated circulation technology for high colour quality

APPLICATION
TECHNOLOGY



The system for sustainable, durable coloured concrete
DURAHIT® – OPTIMUM PROTECTION

► **The protection system with 6-fold effect**

Our DURAHIT® system protects your concrete permanently against:



WATER ABSORPTION FOOD STAINS OIL STAINS WEATHERING FREEZE-THAW ATTACKS EFFLOR-ESCENCE

For a long-lasting, striking appearance

OUR DURAHIT® – CONCRETE PROTECTION

Give your coloured concrete surfaces a long-lasting and pleasant appearance and rely on our DURAHIT® product system. Avoid discolouration and defects such as efflorescence and colour fading – and consequently the related time-consuming and costly repairs, replacements and cleansings.

THE DURAHIT® PRODUCT SYSTEM

Our DURAHIT®-Line consists of the following product components:

- ▶ Waterproofing admixtures and hydrophobic impregnations according to EN 934-2
- ▶ Colour-neutral premium impregnations according to EN 1504-2
- ▶ Colour intensifying coatings

TECHNICAL BENEFITS

DURAHIT® products provide a durable protection and impart benefits such as:

- ▶ Optimum water repellence
- ▶ Improved freeze-thaw salt resistance
- ▶ Reduction of efflorescence
- ▶ Increased oil, fuel and acid repellence
- ▶ Decreased risk of steel corrosion
- ▶ Enhanced resistance to defects
- ▶ Reduction of weathering
- ▶ Less staining

ECONOMICAL & AESTHETICAL BENEFITS

A high-quality and durable protection leads to even further benefits and is subsequently conducive to:

- ▶ Cost reduction for maintenance, repairs, and replacements
- ▶ Preservation of colour and aesthetic appearance
- ▶ Increased service life

ENVIRONMENTAL BENEFITS

DURAHIT® is dedicated to durability and makes an important contribution towards an environment-friendly and energy-saving use of concrete and raw materials

- ▶ Long-term performance of concrete
- ▶ Less replacements
- ▶ Higher durability
- ▶ More sustainability



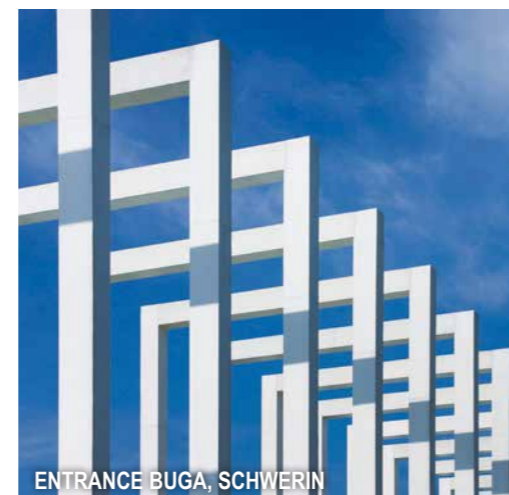
Ha-Be references
OUR CONCRETE COLOURS IN USE



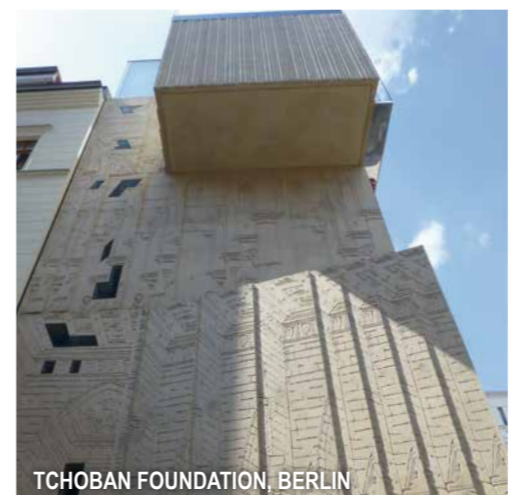
COMMUNITY CENTRE, POING



CREATIVE CENTRE HAVFEN, HANNOVER



ENTRANCE BUGA, SCHWERIN



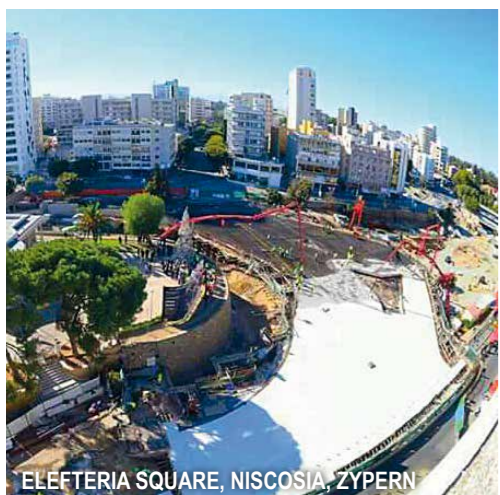
TCHOBAN FOUNDATION, BERLIN



NS-DOCUMENTATION CENTRE, MÜNCHEN



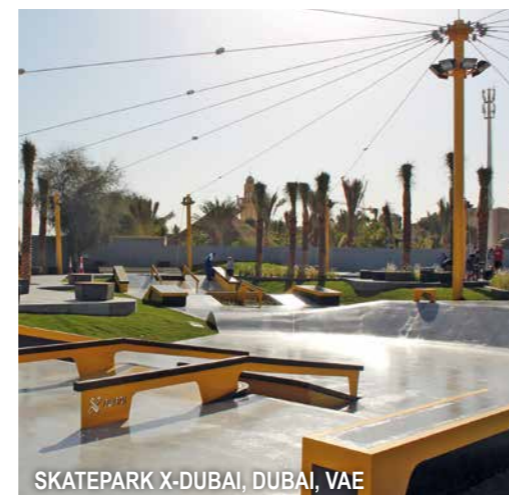
EGYPTIAN MUSEUM, MÜNCHEN



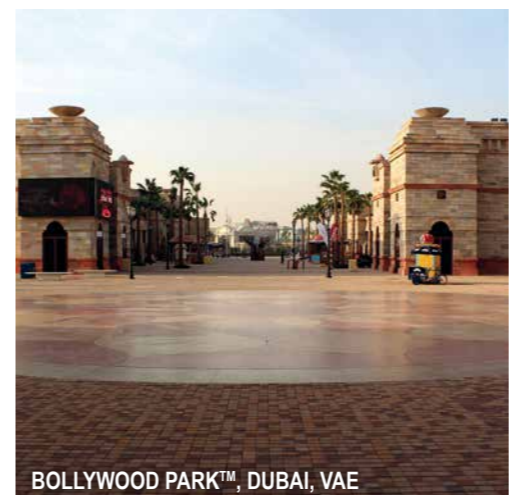
ELEFTERIA SQUARE, NISCOSIA, ZYPERN



TRAFFIC ROUNDABOUT, DETMOLD



SKATEPARK X-DUBAI, DUBAI, VAE



BOLLYWOOD PARK™, DUBAI, VAE



LANDESGARTENSCHAU, NORDERSTEDT



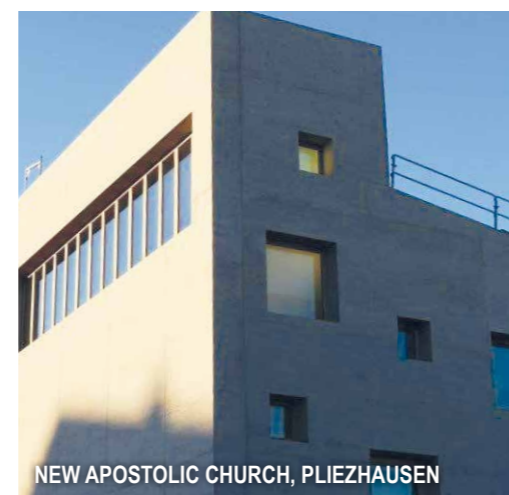
CHANEL 9 + 10, HAMBURG



SPREEBOGENPARK, BERLIN



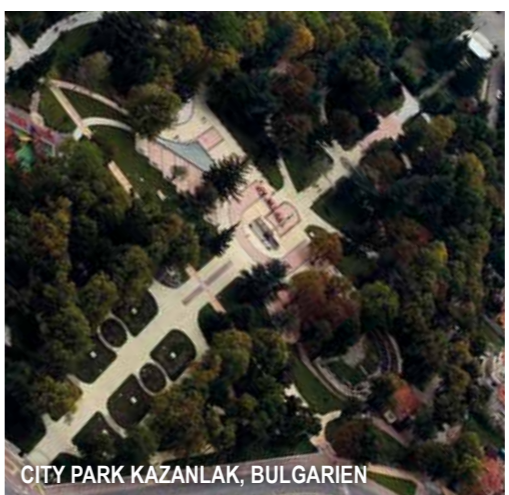
SKATEPARK, OSNABRÜCK



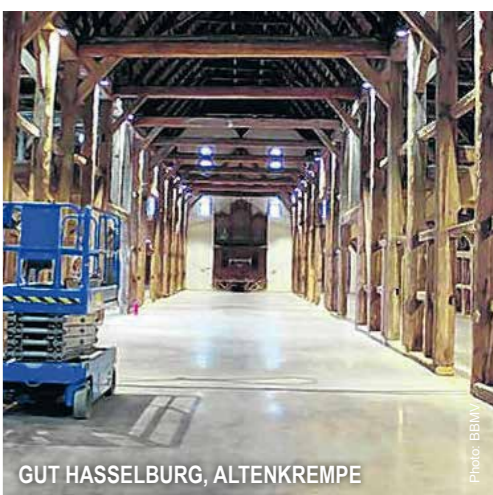
NEW APOSTOLIC CHURCH, PLIEZHAUSEN



PRIVATE SWIMMINGPOOL, RESIDENCE BAYERN



CITY PARK KAZANLAK, BULGARIEN



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