BAUTECH DST PARKING SYSTEM

Monolithic concrete floor system

DESCRIPTION

Monolithic industrial floors BAUTECH constitute a durable and particularly economical solution of highest technical parameters and resistance to abrasion.
MULTITOP®, MULTITOP® ENDURO, BAUTOP® ENDURO, EXTRATOP® ENDURO – dry shake toppings (DST) used for monolithic concrete floors containing hard aggregates, high-performance cements with suitable admixtures and pigments. Applied and floated on freshly-made concrete, they create a coloured, marble-like, abrasion and dusting resistant, smooth floor of increased resistance to the penetration with oils, grease etc.

USE

- Surface-hardened floors of high hardness and abrasion and dusting resistance, in garages and roofed parking lots.

PRODUCT CHARACTERISTICS

- Very high resistance to abrasion
- High dusting resistance
- Contains abrasion-resisting metallic aggregates
- High impact resistance
- Easy to clean
- Sealed and non-dusting surface
- Frost-resistant
- Wide range of colours

APPLICATION CONDITIONS

The temperature of the ambient and foundation during the works and for the next 5 days should be between +5°C and +30°C. The surface made should be protected from losing water too quickly as a result of, for example, high temperatures, draught, sunlight operation etc. In order to ensure high quality and uniform colour, all works should be performed with suitable tools in an area protected from dust, EPS balls and similar impurities.

1. Floor on a ceiling made from reinforced concrete or a foundation slab made from reinforced concrete on bonding layer (thickness of the floor 6 cm or more)

- the floor slab in the section with slab thickness of 6-9 cm **MUST** be made on a bonding layer (e.g. in case of a 1% slope the section will be 3 m long)
- **BAUBOND** bonding layer joins the ceiling or foundation slab with the concrete of the floor
- floor concrete B25 or B30
- dilatation areas of the floor measuring max. 3 x 3 m

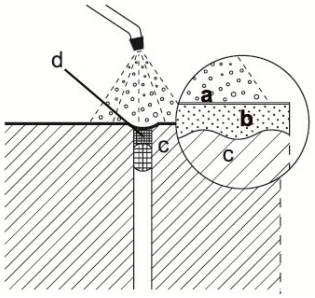
The remaining part of the floor is made as a floating floor with a sliding layer made of polyethylene, ≥ 0.2 mm thick, separating the floor slab from the substructure.

2. Floating floor on a ceiling made from reinforced concrete or a foundation slab made from reinforced concrete without an EPS layer (thickness of the floor 8 cm or more)

- the floor slab in the section with slab thickness of 8-9 cm must be reinforced at the bottom with a steel mesh from 5 mm diameter rods with eyes 150x150 mm from AIII N steel (e.g. in case of a 1% slope the section will be 1 m long)
- floor concrete B25 or B30
- dilatation areas of the floor measuring max. 3 x 3 m

3. Floating floor on a ceiling made from reinforced concrete or a foundation slab made from reinforced concrete with an EPS layer (thickness of the floor 10 cm or more)

- the floor slab in the section with slab thickness of 10-11 cm must be reinforced at the bottom with a steel net from 5 mm diameter rods (150x150 mm) from AIII N steel (e.g. in case of a 1% slope the section will be 1 m long)
- floor concrete B25 or B30
- only application of extruded polystyrene is allowed of permissible compressive stress ≥ 250 kPa with deformation at compression < 2% and permanent load for 50 years (e.g. *Styrodur C type 5000 CS, FLOORMATE 700-A*)
- dilatation areas of the floor measuring max. 3 x 3 m



a - BAUSEAL ENDURO
b - surface hardener MULTITOP/BAUTOP/ EXTRATOP ENDURO
c - concrete slab with fibres BAUMIX and BAUCON
d - joint sealant system BAUFLEX

MAXIMAL LOAD OF THE FLOOR

- evenly distributed of unspecified distribution **5 kN/m^2**
- vehicle load (passenger cars, vans) **15 kN/vehicle axis**

CONCRETE SLAB REINFORCED WITH BAUCON FIBRES

BAUTECH DST SYSTEM floors are used on surfaces of freshly-made low-shrinkage concrete:

- class C20/25 or higher
- w/c ratio ≤ 0,50
- amount of cement ≤ 350 kg/m^3
- alkali contents in cement <0,5%
- cement CEM I, CEM II/A-S, CEM II/B-S or CEM III/A
- aggregate ≤ 16 mm
- contents of fraction ≤ 0.25 mm - min. 4%
- sand point about 35%
- total amount of cement and aggregate of fraction ≤0.25 mm – max. 450 kg/m^3
- consistence on the construction site: S3, Abrams cone slump about 12 cm. Addition of steel fibres decreases the slump.
- **BAUCON** polypropylene fibres are used in the amount of 0.60 kg/m^3 of concrete. Polypropylene fibres are added always after the last fraction of aggregate, before cement, water and (super) plasticizer. Addition of BAUCON polypropylene fibres to a freshly-made concrete mixture acts as micro-reinforcement which decreases the plastic shrinkage and limiting the creation of shrinkage cracks in set concrete.

CAUTION! Do not add any volatile ashes, as these tend to accumulate in the top layer of the slab, which may cause the dusting of the floor or detachments of the hardenER. It is forbidden to add water to concrete mixture in order to increase its workability. This causes a significant loss of the strength of the concrete and a clear increase of the chemical and physical shrinkage, leading to the creation of uncontrolled scratches and cracks.

The concrete must be properly compacted.

MAKING OF FLOOR WITH THE "DRY TO WET" METHOD

Before a surface hardener is used, the concrete must achieve proper hardness. The setting time of concrete depends on the temperature, relative humidity of the air etc. The surface of the concrete must not get too hard, therefore its condition must be frequently checked. As a result, selection of the optimal moment to begin application of the surface hardener will be possible. The works may be commenced when the imprints of feet on the concrete are not deeper than 3-4 mm. Remove excess of cement grout from the surface of the concrete with rubber squeegees and refresh the surface with a disk. Then spread about 2.0 kg/m^2 of Bautop Enduro hardening agent. Perform rough troweling of the surface with a disc, spread the hardener again, in the amount of about 2.0 kg/m^2 and trowel the whole of it once more with a disc. The amount of spreaded hardener is about 4.0 kg/m^2 ± 10%. Continuously control the consumption, as careless spreading of the hardener may decrease the quality of the floor. Perform the subsequent stages of troweling with blades set gradually at increasing angles.

CURING

Immediately after the troweling is completed, the whole surface should be treated with a selected preparation in order to prevent too quick loss of water:

BAUSEAL® EKO

A water-diluted sealer for industrial floors applied with the spraying method, with a low-pressure sprayer. Sealer should be applied once, with a thin layer, paying attention that no puddles are left.
Efficiency: 1 litre per 8-12 m^2

BAUSEAL® ENDURO
A solvent-based sealer for industrial floors applied on freshly made concrete floor, immediately after the last mechanical troweling is done. Sealer should be applied with the spraying method, with a low-pressure sprayer. Sealer should be applied once, with a thin layer, paying attention that no puddles are left.
Efficiency: 1 litre per 8-10 m^2
BAUTECH FORMULA®
Silicate and polymer based agent for the maintenance, strengthening and sealing of concrete surfaces. BAUTECH FORMULA should be applied evenly on the surface with the spraying method in the amount of 0.1 - 0.2 l/m^2 until complete coverage is obtained.
The surface should stay wet for 15 - 20 minutes. An additional amount of the agent should be applied in places where it dries up faster – a microfiber mop helps distribute the agent evenly and maintain the surface wet for the necessary time.
Efficiency: 1 litre per 4-10 m^2
NANOSEAL®
Lithium and polymer based agent for the maintenance, strengthening and sealing of concrete surfaces. Thanks to the penetration and hardening of concrete in molecular structure, it allows to obtain a highly resistant cement matrix of extreme physical and chemical properties. Additional modification with a specially selected polymer binding agent provides the maximum level of sealing the concrete by bonding those ingredients of the concrete matrix that are devoid of free calcium compounds.
NANOSEAL should be applied evenly on the surface with the spraying method in the amount of 0.1 - 0.2 l/m^2 until complete coverage is obtained. The surface should remain wet for 15 - 20 minutes. An additional amount of the agent should be applied in places where it dries up faster – a microfiber mop helps distribute the preparation evenly and maintain the surface wet for the necessary time.
Efficiency: 1 litre per 4-10 m^2

2. Cover all surface of the floor with polyethylene sheet to additionally protect the floor concrete from losing water during the maturation time and to keep it humid for:
- 14 days if concrete from Portland cement was used,
- 21 days if concrete from metallurgical cement was used,

3. protect the floor from mechanical damage, such as: streams of leaking water, accidental shocks transferred by the ground from further places, shocks caused by transport of materials, careless work of people (may lead to desegregation of the concrete mixture),

4. protect the floor from low temperatures (below + 5 °C),

5. protect the floor from sunlight and draughts,

6. to brighten up the floor, silicate and lithium preparation **NANOCOAT®** may be applied. Thanks to the small molecular size, the preparation deeply penetrates the concrete matrix, creating the so-called surface micro-reinforcement formula, which guarantees high chemical and physical resistance, hardens and seals the floor surface and creates a coherent, non-dusting and waterproof structure. Maintenance with silicate formulations while the floor is covered with film may lead to the creation of white salt blooming on its surface. Should this occur, the floor must be cleaned using an automatic scrubber in order to remove all sediments, before the application of NANOCOAT. NANOCOAT should be applied using a high-quality microfiber mop, so that no streaks are left on the surface, as these will remain visible and will negatively influence the appearance of the floor. When the surface has dried up (after about 60 minutes), it should be polished with a delicate, white pad or special diamond polishing pads which increase the temperature of the polished floor to about 30°C. Depending on the required gloss, the activity may be repeated 2-3 times. Consumption: 1 litre per 20-60 m2

JOINTS

Expansion joints should be cut 24-72 hours after troweling works on the surface of the floor are finished. Expansion and contraction joints should be enlarged to the desired width and depth 28 days after the concrete floor is made. The edges of the widened joints should be bevelled with an angle grinder. Thoroughly remove dust from the joints. The surface must be clean, dry, uniform, free from grease, dust and loose particles. Any paint, cement grout and particles loosely bound with the surface must be unconditionally removed. After cleaning the joints with a vacuum cleaner, introduce on the proper depth cord BAUCORD of diameter about 25% larger than the width of the joint. BAUCORD is elastic and chemically resistant material from expanded polyethylene with closed pores. It constitutes an integral element of the joint sealant system. Ground the bevelled surfaces and joint walls with BAUFLEX PRIMER and leave for about 60 minutes, when the primer becomes sticky. BAUFLEX PRIMER is a ready-to-use polyurethane grounding compound which increases adhesion of sealants to concrete. After preparing joints in the above-described manner, application of BAUFLEX® 35 – a single-component flexible sealant for industrial floors – may be commenced. The foundation and ambient temperature should be +10 ÷ +25°C, at the relative humidity of the air not exceeding 80% and the humidity of the joint walls below 4%. The joint should be filled with the sealant pressed out of the pistol until its level is equal with that of the floor Remove the excessive amounts of the mass. During application pay attention that the mass has full contact with the joint walls. Avoid closing air bubbles in the mass. If protection tapes were used at the edges, remove them while the mass is still soft. Rooms where the works are performed should be separated and protected from the entry of casual visitors and keep a protection zone regarding the use of open fire, welding works in particular.

SAFETY PRECAUTION, STORAGE, TECHNICAL DATA

Safety precaution, storage, transport conditions and specifications for each product are listed in the Product Technical Data Sheets.

MISCELLANEOUS INFORMATION

- All the information herein refers to products stored and used according to our recommendations, has been presented in good faith and takes into account the current state of knowledge and experience of BAUTECH. You are obliged to use the product in accordance with its intended purpose and BAUTECH's recommendations. All the technical information provided is based on laboratory tests and trials. Out-of-laboratory tests may give different results due to the conditions, location, manner of application and other circumstances that are out of BAUTECH's control. Any different recommendations issued by our employees must be made in writing; otherwise, they shall be deemed null and void. These instructions replace all the previous ones and make them void.
- The surface of the made floor may have differences in the shade and appearance, depending on the conditions and manner of performing works, drying conditions etc. This is not a defect of the product and does not influence the technical parameters and functional properties of the floor. Colour diversification of the floor may also result from non-homogenous concrete foundation.
- If the relative humidity of the air is below 40%, blooming may appear on the surface. If the relative humidity of the air exceeds 80%, the setting process of the concrete may be extended.
- Hair-like crack may appear on the surface of floor troweled mechanically. This is a typical phenomenon on concrete floors with no influence on the functional properties of the floor.

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