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SOLUTIONS

Power Floated Concrete Solutions

**Admixture solutions for
large concrete slabs**



Master Builders Solutions®

Our comprehensive portfolio

Concrete Admixtures for:

- Low Clinker Concrete Solutions
- Precast Concrete Solutions
- Ready-Mixed Concrete Solutions
- Below Ground Waterproofing Solutions

Underground Construction Solutions for:

- Ground Engineering
- Mining Industry
- Rock Bolting
- Sprayed Concrete
- TBM systems
- Water Management

We provide value-added technology and market leading R&D capabilities to improve the performance of construction materials and to enable the reduction of CO₂ emissions in the production of concrete admixtures, cement additives, and solutions for underground construction.

We collaborate across areas of expertise and regions and draw on the experience gained from countless construction projects worldwide, leveraging global technologies, as well as our in-depth knowledge of local building needs, to develop innovations that help make you more successful and drive sustainable construction.

Founded in 1909, Master Builders Solutions® operates 35 production sites globally, supporting you in mastering your building challenges of today and tomorrow - for a decarbonised future.

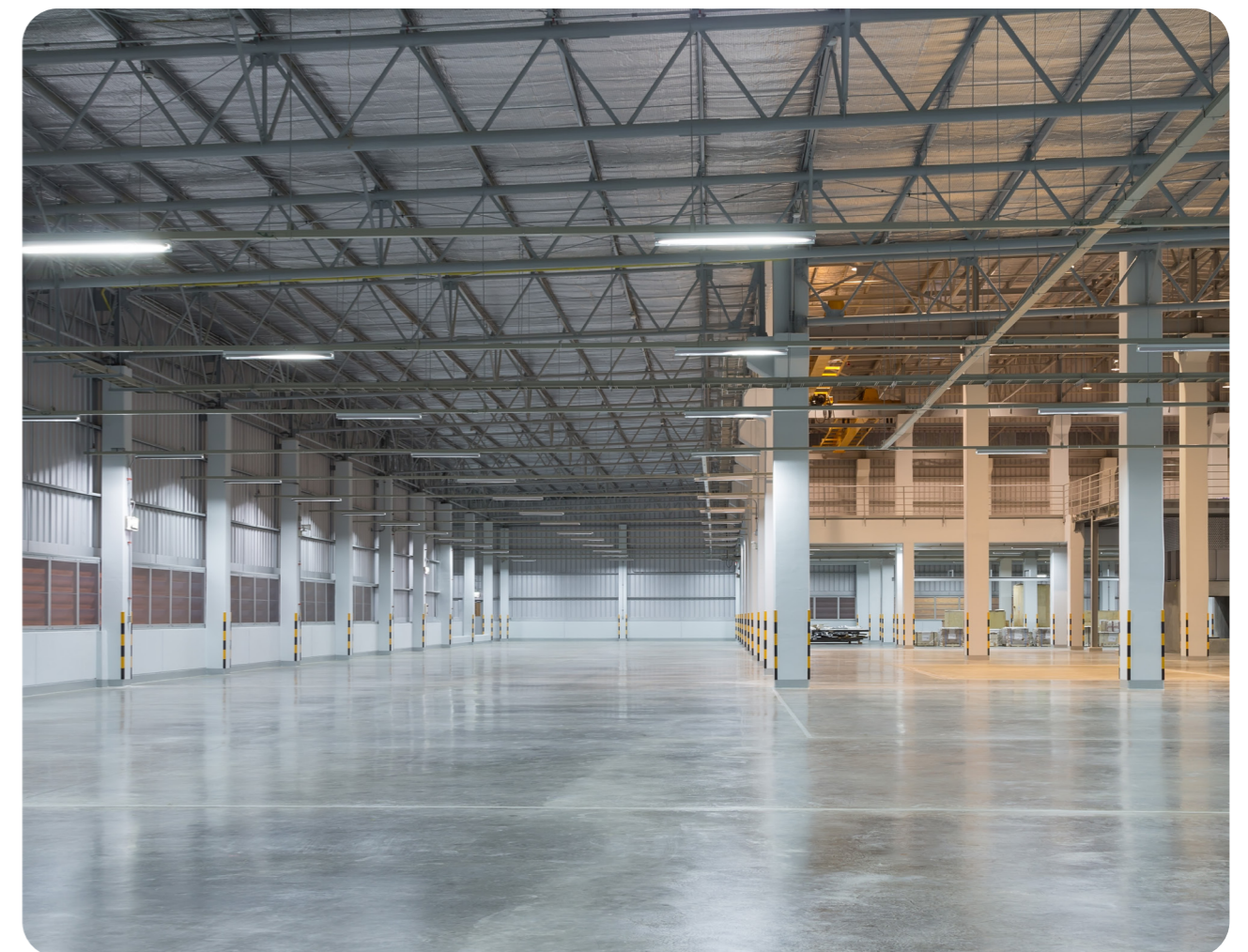


Power Floated Concrete Solutions

This product application guide has been developed to provide an overview of the unique solutions developed by Master Builders Solutions for achieving maximum performance in power floated concrete.

Power floated concrete is a concrete finish achieved using a machine designed to smooth, and to a certain extent, level a newly laid concrete floor, once all bleed water has evaporated. When carried out correctly, power floated concrete produces a smooth, very dense and hard-wearing surface finish, suitable for highly trafficked areas.

Power floating is generally carried out once the concrete has hardened as the concrete needs to take the weight of the machine and operator. The machine sits on top of the concrete in a similar manner to a hovercraft with the circular pans or large flat metal floats underneath, which rotate at a very high speed. The pans/floats spin and polish out all imperfections to achieve a smooth and shiny finish.



Application Areas

Industrial Warehouses and Factories:

Power-floated concrete floors are popular in industrial settings due to their durability and resistance to heavy traffic, abrasion, and impact.

Commercial Spaces:

Power-floated floors provide a clean and polished look, making them suitable for retail environments.

Transportation:

Power-floated concrete is used in areas with high foot traffic, such as terminals and concourses.

Distribution Centers:

Power-floated floors can withstand the movement of pallet jacks, forklifts, and heavy loads typical in distribution environments.

Manufacturing:

Power-floated concrete is used in manufacturing plants where smooth floors contribute to a clean and efficient work environment.

Education:

Power-floated concrete floors are employed in corridors, cafeterias, and other high-traffic areas in educational facilities.

Public Spaces:

Power-floated concrete can be used in outdoor areas where a durable, low-maintenance surface is required.

Advantages

Smooth and polished surface

One of the benefits of power floated concrete is its aesthetic finish. Power floating results in a smooth and polished surface which gives the floor an attractive shine.

Increased durability

Power floated concrete bears the weight of heavy machinery such as forklifts extremely effectively, making it the perfect choice for industrial flooring.

Resistant to cracking

Power floating essentially recompacts the concrete, and plastic-shrinkage cracking, potentially caused by the concrete drying too quickly, is closed together again.

Dust-free

A power float finish creates a dense surface where the surface is heavily compacted, eliminating the dust that is often a problem with unfinished concrete floors.



Challenges

Power floated concrete offers the best option for smoothing large concrete slabs and getting the slab to a hard, level finish. However, timing is crucial and if power floating is undertaken too early, bleed water may be worked into the surface thereby weakening it and leading to the risk of surface delamination.

Therefore, before beginning the power floating process, the concrete must be left to partially set, having been levelled and tamped. The amount of setting time necessary before power floating will depend on variables such as concrete mix design, ambient temperature and humidity. A simple test for considering when to begin floating is when the heel of a boot leaves only a slight impression of approximately 3 – 4 mm.



Humm-Sonde

A more scientific method of determining the correct time to start power floating is to use a Humm-Sonde. This is a simple, but effective, tool that measures the concrete's resistance to surface penetration.

The Humm-Sonde is used by placing the bottom tip on the concrete, the sliding weight is then raised and dropped 25 times and the depth of penetration into the concrete is then measured.

Typically, a penetration depth of between 35 and 50mm equates to the time when the concrete is ready for power floating operations to commence, with 40mm penetration being a typical value. Several readings should be taken across the concrete to obtain a representative value.

Power floating of air-entrained concrete should not be undertaken due to the significant risk of surface delamination.



Solution

MasterFinish SLB 101 has been specifically developed for use in power floated concrete applications. Its unique formulation is designed to permit usage across a wide variety of concrete constituent material types. Due to the nature of its formulation, MasterFinish SLB 101 gives a wide operating window, and tolerance to minor dosing equipment variations. Preference is always given to MasterFinish SLB 101 being added during the original concrete mixing however, it can also be added at the job site provided that the resultant concrete is mixed until fully homogenised.



One of the major risks with using admixtures in concrete's that are to be power floated, is the potential for delamination to occur due to the natural method of action of modern water reducing admixtures. MasterFinish SLB 101 contains a unique chemical method of reducing this delamination potential to as low as possible.

Compatible Master Builders Solutions Products

MasterFinish SLB 101 is compatible and recommended for use with:

- MasterLife SRA 900 - shrinkage reducing admixture for concrete.
- MasterKure 207 WB - curing compound for concrete surfaces.



Project Reference

Project: LIDL Distribution Centre

Applicator: Stanfords Industrial Flooring

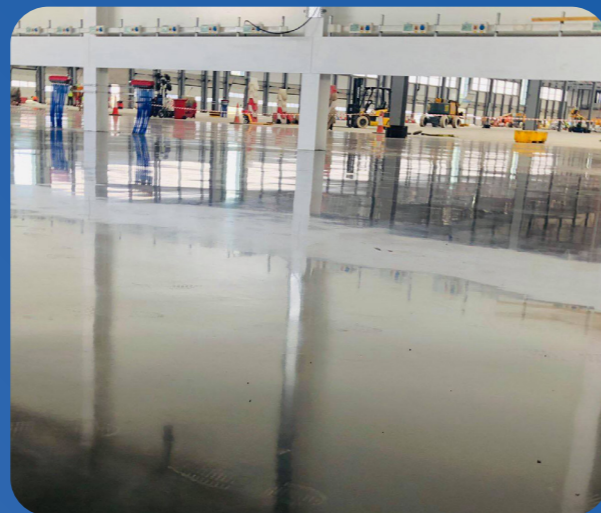
Main Contractor: Winvic Construction

Concrete Producer: Tarmac

The project is Lidl's largest distribution centre in the UK and was designed to meet the demands of a BREEAM target of 'very good', meaning the centre will have a high level of energy and water efficiency, and a lower impact on the environment.

The facility's 624,000 sq. ft concrete floor needed to withstand the intended traffic for years to come and needed to be poured in approximately 300m3 sections daily and finished by power float.

Approximately 15,000m3 of ready-mixed concrete, containing MasterFinish SLB 101, was used to construct the facility's floor slab.



Relevant Hyperlinks

For more information, please click below to learn more

MasterFinish SLB 101

Water-reducing admixture for industrial concrete floor slabs with power-floated finishes

MasterLife SRA 900

Shrinkage reducing admixture for concrete

MasterKure 207 WB

Curing compound for concrete surfaces

Project Reference

Water reducing admixture for the production of industrial floor slabs power floated concrete finish



Master Builders Solutions® for the Construction Industry

MasterAir

Complete solutions for air entrained concrete

MasterCast®

Solutions for the manufactured concrete product industry

MasterCem®

Solutions for cement manufacture

MasterCO₂re™

Solutions for low-clinker concrete

MasterEase®

Low viscosity for high performance concrete

MasterFinish®

Solutions for formwork treatment and surface improvement

MasterFiber®

Comprehensive solutions for fiber reinforced concrete

MasterGlenium®

Solutions for high performance concrete

MasterKure®

Solutions for concrete curing

MasterLife®

Solutions for enhanced durability

MasterMatrix®

Advanced rheology control for concrete

MasterPel®

Solutions for hydrophobization, anti-efflorescence and surface protection

MasterPolyheed®

Solutions for mid-range concrete

MasterPozzolith®

Solutions for water-reduced concrete

MasterRheobuild®

Solutions for high strength concrete

MasterRoc®

Solutions for underground construction and surface improvement

MasterSet®

Solutions for set control

MasterSphere®

Solutions for guaranteed freeze-thaw resistance

MasterSuna®

Solutions for sand and gravel in concrete

MasterSure®

Solutions for extraordinary workability retention

Master X-Seed®

Advanced accelerator solutions for concrete

Unveil the Power of MasterCO₂re™: Intelligent Cluster System for Low-clinker Concrete Production

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