



# TSR



[www.twintecgroup.com](http://www.twintecgroup.com)



# Twintec Services & Renovation

Twintec is a specialist with a worldwide track record in the design and construction of concrete floor slabs and offers a service for investigation, maintenance and where required adaptation, renovation or replacement of existing concrete floor slabs – **Twintec Services & Renovation (TSR)**.

The world of logistics and warehousing continues to evolve at a rapid pace. As customers demand change, companies are adapting to new operating models and introducing new technologies to meet those demands. Developers and investors must satisfy customer needs whilst retaining a return on investment and protecting assets for future revenues. The same applies to End User owners for their own property portfolio.

Concrete floors are a key component within existing warehousing, logistics, distribution and manufacturing facilities. Consider the life costs of the floor and the factors to consider:



*TSR has the solutions to meet your changing needs.*

## Factors for Change

- Change of ownership or tenants with new operating requirements
- Racking, storage and/or MHE upgrades requiring new floor slab operating specifications
- Change from free movement to defined movement storage
- Use of robotic technology
- Damage to existing floor that impacts business efficiencies or safe working

# Total Offer Concept

The Twintec unique total offer concept [Design-Build-Guarantee] is also applied to the **TSR** solutions available for existing floor slabs with the utilisation of the in depth knowledge, skills and competence of the Twintec Group.

Twintec's experience and specialist knowledge provides a total service, one point of contact and project management from the initial investigation through to completion of any renovation works. Working in more than 30 countries worldwide – we have the knowledge, experience, and local availability to satisfy your requirements.



## Services

- Floor slab inspection & advice
- Design & engineering checks and proposals
- Cleaning & cleaning products
- Surface enhancements; micro-grinding & polishing
- Repairs; cracks, joints, surface problems
- Flatness & levelling remediation
- Concrete floor slab removal & replacement



## Design and Engineering

R&G Engineering is a specialist engineering Twintec Group company that provides innovative, state of the art services for **TSR** solutions, these include:

- ✓ Structural design
- ✓ Repairs methodology
- ✓ Materials testing
- ✓ Surveying

After the ownership of real estate changes or new end users start to utilise existing facilities, the concrete floor slab may need to be verified and upgraded to meet the requirements of the envisaged use.

A concrete industrial floor needs to have an appropriate flatness and strength to provide a suitable surface for the storage requirements, operation of machinery and materials handling equipment in combination with an appropriate levelness to ensure that it can function safely and efficiently to meet the operational needs of the end user.

## Adaptation

When there is a change of ownership or a new end user renting the space, a concrete floor slab is not always suitable for its future operational needs.

In order to meet new requirements, the floor must be adapted to new customer operational needs, to new industry standards or to new equipment (MHEs, VNA forklifts or automated robotics equipment).

This includes upgrading flatness and weight tolerances, enhancing the surface performances, or even rebuilding the whole floor.



# Repairs

Older concrete floor slabs or those being upgraded for new tenants or change of use may need repairs and due to Twintec's wide experience **TSR** provides appropriate, customised and sustainable solutions for concrete floor renovation.

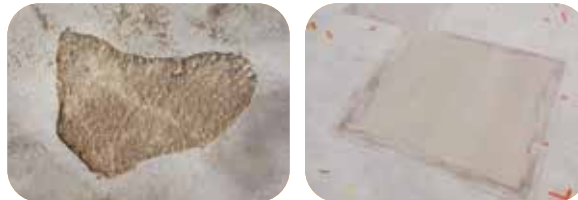
Twintec in-house knowledge, material selection and developed repair techniques will offer the best results.

Twintec is dedicated to building a sustainable future working with selected material partners to use the most appropriate environmentally friendly products available on the market.

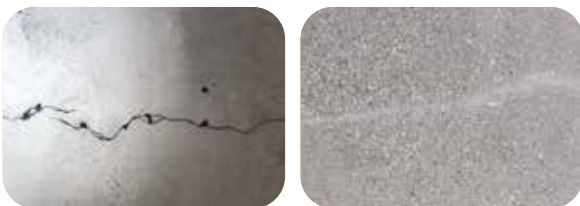
Racking bolts removed



Impact damage repair / surface delamination repair



Crack repairs



Construction or contraction joint repair



## Twintec® TwinFLEX Joint

Twintec® TwinFLEX is a liquid expansion joint in combination with load transfer joint for seamless load transfer and smooth transition between concrete floor slab panels. This liquid is also used to repair joints and cracks on existing slabs.

Potential Damage



Joint deterioration

MHE wheel damage

Solution





# Surface Treatments

## Twintec® TwinBEST

The need to reduce surface dusting or increase abrasion resistance on an older concrete floor slab may be a requirement for existing or new owners/tenants.

Twintec® TwinBEST is a silicification of the surface with a modified silicate for permanent densification of the concrete surface. It increases abrasion resistance and reduces surface dusting.

Methodology: Firstly, special abrasive brushes fitted to a washer scrubber remove marks and stains from the floor prior to TwinBEST being applied. TwinBEST densifier impregnates the surface producing a reactive bond with the free lime particles in its core to produce a denser and more durable surface.

*Before & After*



## Twintec® PLUS

Twintec® PLUS micro-grinding and polishing system is the ultimate concrete surface enhancer. Combining diamond grinding to remove the micro-roughness of the slab with the application of uniquely developed TwinBEST Densifier and TwinSeal Protective Sealer:

- TwinBEST penetrates into the slab and produces a reactive bond with free lime particles within the concrete, densifying its core.
- TwinSeal seals the surface and provides protection against water and oil penetration.

A final diamond pad polish completes the process to obtain a glossy finish. Twintec® PLUS treatment becomes part of the floor - it won't chip, flake or wear off.

### Features & Advantages

- Enhances density, abrasion resistance and floor reflection, maintaining slip resistance
- Creates a dust-free glossy surface
- Reduces staining and cleaning time and easy tyre mark removal
- Water & oil penetration reduction (DIN 52617, DIN EN 150 15148)

*Before & After*



# Maintenance

The life cost of a concrete floor slab and the operation efficiency of a facility can both be significantly improved by timely maintenance, repairs or upgrading of a concrete floor slab.

Regular maintenance costs for a concrete floor slab that has been constructed incorporating saw-cuts have been shown to be extremely high for end users in highly trafficked warehouses. Year on year costs increase, not only on the saw-cuts themselves for joint sealant, and repairs, but also for replacement tyres, wheels and control boards on MHE. Contact **Twintec** to discuss your specific requirements.

Concrete floor slabs need to be inspected and maintained on a regular basis in order to achieve the design working life. **TSR** provides advice for programming these activities and executes planned maintenance inspections.

## Cleaning Products

### Twintec® GR+



Twintec® GR+ is a highly effective alkaline basic cleaner for concrete floor slabs. An optimal combination of cleaning components, it performs a deep scrub on the surface to remove tenacious marks and stains as well as light oil/grease soiling. It can be used periodically when the concrete floor slab needs a deep clean.



### Twintec® LSR



Twintec® LSR is a daily maintenance care product for industrial concrete surfaces. This lithium silicate-based product is composed of an optimal combination of cleaning and impregnating agents. Repeated use of LSR over time results in additional density to the surface.





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