

# Flattening will get you everywhere

*With ever increasing advances in forklift truck technology, the surface on which they travel is becoming more important. Floor flatness can be the key to efficient operations. Gerardine Coyne reports*

**D**ean Martin once said, "You're not drunk if you can lie on the floor without holding on", and in industry too, the floor plays an important part in holding things together. Its role is not just structural, the floor is a completely integrated part of the materials handling system. Its construction, both method and materials, is defined by the needs of the warehouse. And for operations using forklift trucks, an increasingly important aspect of the floor is flatness. Flatness is vital as it has a significant impact on efficiency and safety. It affects the speed at which lift trucks can travel, particularly in narrow aisles or Very Narrow Aisles (VNAs). Also, many VNA trucks now incorporate sophisticated computer systems and are even guided down the aisle by low frequency cables in the floor, making flatness imperative.

If the wheel/s on one side of a truck are 10mm higher or lower than the wheel/s on the other side, this does not cause problems at ground level – the truck will move or stand at a very slight angle. However, 12 or more metres above the ground, that slight angle translates into many centimetres off the true vertical, and forks can hit the racking and/or product

unless drivers are very slow and careful. And a reduction in speed equals a reduction in productivity, anathema to any business. Uneven floors can also cause trucks to jump off the guidance wire set in the floor unless they are driven very slowly, which again reduces productivity.

## Laying the groundwork

When a new VNA warehouse floor is being laid, ideally the aim should be to produce the required flatness standard in the first place, without the need for subsequent grinding. Floors laid without reliance on grinding will have cross-aisle and down-aisle tolerances in all tracks that are well within standard requirements. However, Concrete Grinding (CG) has a solution for floors that do need grinding. The Laser Grinder is a technologically advanced floor grinding machine for working warehouse environments. It causes minimal disruption to ongoing operations as the wet, vacuum-enclosed grinding process is free from airborne dust and clean enough to work alongside fully stocked racks. It is a self-sufficient unit, and does not require power cables or water pipes. When the grinding is completed the floor surface is immediately useable. The Laser Grinder can easily achieve the following International industry Standards:

- TR34
- TR34 Appendix C
- DIN 15185
- ACI Fmin100

The Laser Grinder does not necessarily grind flat from one end of an aisle to the other as this would usually require very deep grinding. By using the allowable longitudinal slopes of the required flatness specification, CG can follow the general profile of the existing floor.

CG recently completed a contract for Sony DADC at its distribution centre in Enfield. Before grinding, one steel joint running across each aisle was removed and replaced with a Standard Arris repair. The Laser Grinder then ground the width of the 660m long aisles for compliance to the

DM2 spec. Originally, the floor was manually ground in the outer wheel tracks only to TR34 Category 1. However, the user found this unsatisfactory as the 3-wheeled VNA trucks were disengaging from the guidance wire and touching the racking when travelling at height. On completion of the contract, the user noticed a significant improvement in the safe and smooth operation of the VNA trucks. All grinding work was carried out with minimal inconvenience to the user and without stock needing protection.

As a minimum requirement, any remedial grinding for a 3-wheeled VNA forklift truck must upgrade the floor flatness to the specified tolerances in the front (left and right) load wheel tracks. Grinding all 3 wheel paths ensures that each wheel of the VNA truck follows a similar profile, allowing faster operations and high-level pallet movements to be carried out safely. Remedial grinding for a 4-wheeled VNA forklift truck should ensure that all 4 wheels are accommodated within the ground paths.

CG's Laser Grinder is easily adapted to grind 2 or 3 wheel paths to any required flatness tolerance. The left and right tracks are performed simultaneously, in one pass along an aisle, and the centre track can be added by making a second pass. The ground paths are typically 300mm or 380mm wide, depending upon the width of the truck wheels. Wider ground paths can be achieved by making a further pass along the aisle. The base of each ground path is flat across its width and with sufficient clearance to each side of the truck wheel.

The issue of floor flatness grows more important as truck developments increase. As trucks have been getting faster – up to 11kph – and lifting to greater heights, more productivity is potentially available. If Deano were alive and working on a warehouse floor today, he'd definitely be running with the Flat Pack.

