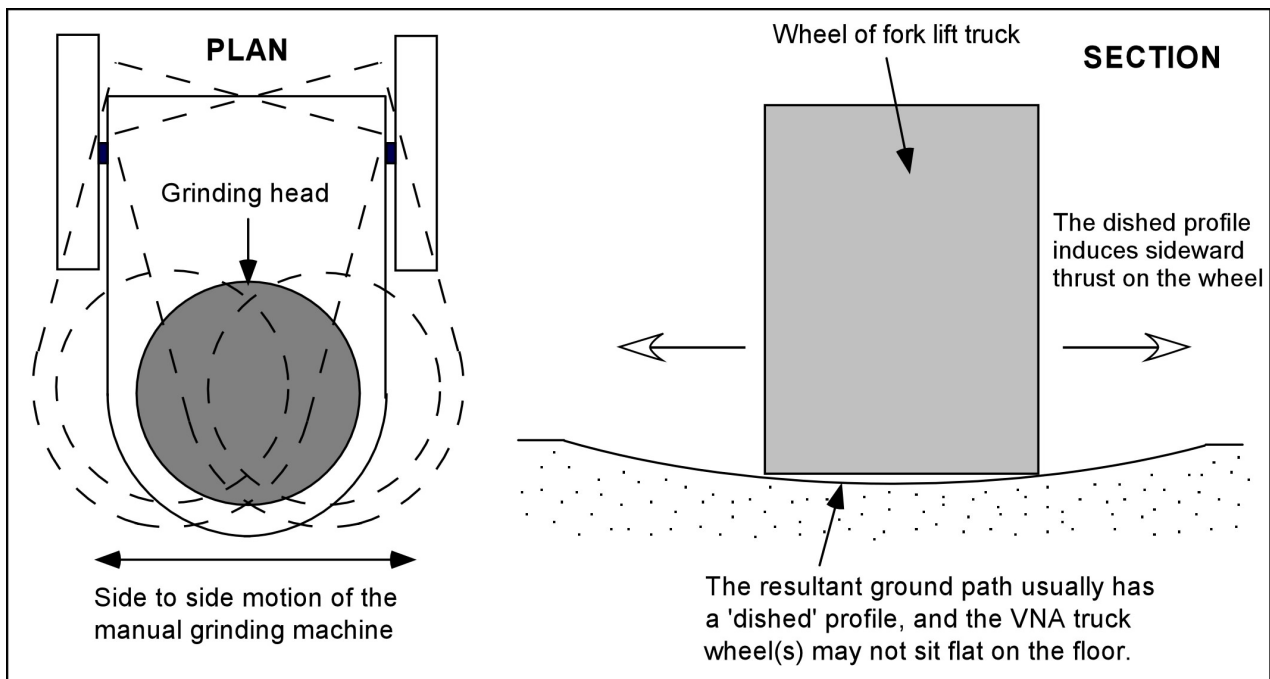




DISADVANTAGES OF MANUAL GRINDING

Manual floor grinding, using trolley mounted grinding machines, is a method that we professed over 10 years ago, before we developed and patented our laser-guided **Laser Grinder[®]** process. At that time, manually operated diamond headed grinders provided the most effective method of upgrading the floor flatness in the narrow aisles of a VNA warehouse. However, then, as now, this method had the following drawbacks:-

- The manual operation of the heavy equipment is strenuous and labour intensive. The amount of time and effort required to treat even the smallest of flatness problems can be significant – and soul destroying for the grinding operative.
- The relatively small diameter of the grinding blades is not conducive with the width of most VNA fork truck wheels. Therefore, to create a wide enough running path, the grinding machine needs to be moved from side to side, as well as back and forth along the wheel tracks. This can create a 'dished' profile as shown in the diagram below.



- The left and right wheel tracks are treated entirely separately, so it becomes extremely difficult to make them follow identical profiles. A VNA truck feels every bump in its defined wheel paths and if these bumps occur in different places and on opposite sides of an aisle to each other, the VNA truck is going to feel them even when they are 'within tolerance'.
- Trolley mounted grinding machines are powered by petrol, LPG or 3 Phase (415v) electric motors. This inevitably means that they produce harmful exhaust emissions, or they require long lengths of high voltage power cable to be routed to the work area. In a busy operational warehouse this is usually considered to be unacceptable.

- Manual grinding is carried out as a 'wet' or a 'dry' process. Wet grinding requires a constant supply of water to the grinding head, to minimise but not totally eradicate dust, which can create a lot of mess and slurry on the warehouse floor, and worse still on nearby stock or racking. Dry grinding requires the use of large, powerful dust extraction units, to avoid air-borne dust. These vacuum units will require further electric cables to be run across the warehouse floor.
- Frequent checking of the manual grinding process is necessary to ensure that the correct amount of concrete is being removed in the correct areas. This checking, using optical levels, straightedges or Profileographs, is disruptive to the grinding process as the floor needs to be cleaned and cleared of equipment before each check is made. It may then be necessary to re-grind the same area, and then re-clean and re-check until the results are satisfactory.

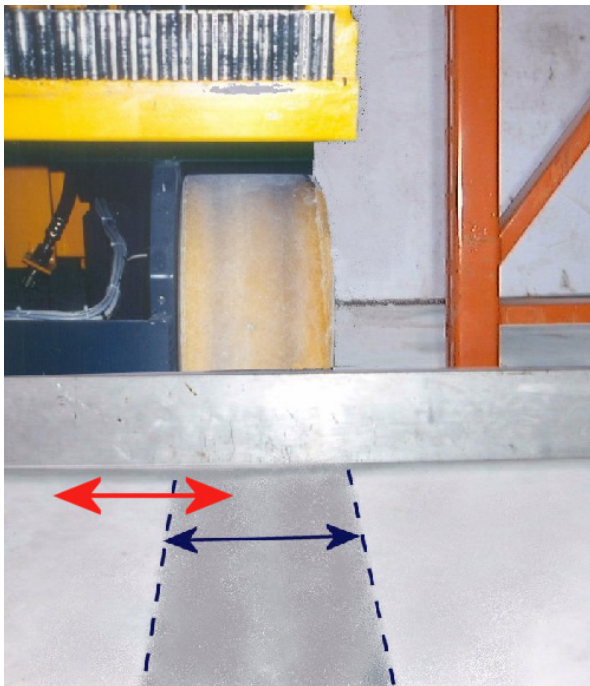
Grinding to the limits of Floor Flatness Specifications

Perhaps the most serious disadvantage of the manual grinding process is the general tendency for the operators of this method to work as close as possible to the limits of the floor flatness specification.

For example, if there is a 3.5mm transverse difference in elevation, between left and right wheel tracks, and the specification allows up to 2.5mm, the manual grinding contractor will only remove 1.0mm. This will be just enough to satisfy the specification, but it will leave the warehouse user with a floor that has the worst possible surface regularity allowed within the confines of that specification.

This fact, together with the 'dishing' effect and general undulations of the manually ground paths, can make the final check with a Profileograph a potentially misleading exercise. Depending upon the amount of 'dishing' and the exact wheel spacings of the Profileograph's sensors, the 'compliance check' survey can represent a significantly different floor profile to that upon which the wide wheels of the VNA forklift truck will operate. (see diagrams overleaf)

The adverse effect of a 'dished' or 'feather-edged' ground path



A badly 'dished' ground path can affect the forklift truck's ability to drive in a straight line, as the wheels naturally try to run into the base of the ground path. This can create excessive loading on rail guidance systems and, with wire guidance systems, the trucks can actually 'come off the wire' and lose the guidance signal.

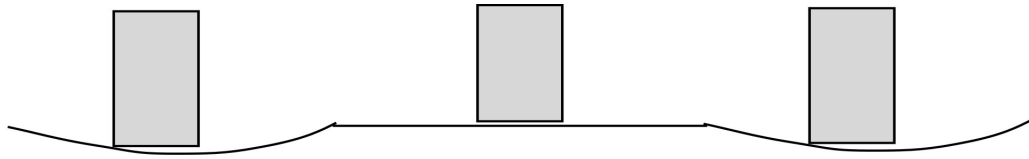
In the example shown left, the deepest section of the 'dished' ground path (the red arrow) is not where the VNA truck's load wheel actually runs.

The truck wheel is running half way up the 'feathered' slope.

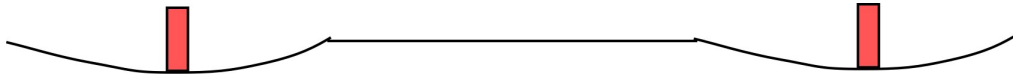
This will lead to irregular and frequent wear of the tyre and wheel bearings, as well as making it difficult for the wire-guided truck to drive in a straight line.

Profileograph surveys of manual ground paths

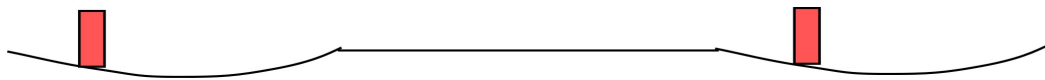
- a) The 'dished' effect of the ground paths (exaggerated for the purposes of the diagram below) does not allow the VNA forklift truck's wheels to sit correctly onto the floor, which can cause excessive tyre wear and steering problems.



- b) The narrow sensor wheels of a profileograph are able to run in the deepest part of the 'dished' ground path (see below), giving a distorted picture of the actual wheel paths along which the much wider VNA forklift truck wheels will run. A compliance check after 'remedial grinding' can sometimes give the indication that the floor flatness has been successfully upgraded, when in fact it may not have.



- c) By running the profileograph, even slightly off the true centre lines of the truck wheels, a completely different floor profile will be measured. This could be the part of the floor that the truck wheels actually run on.

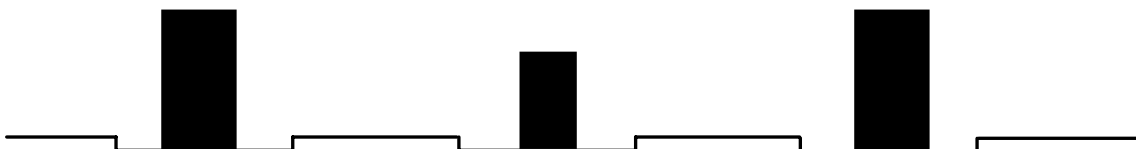


The **LASER GRINDER**[®] - the **ONLY** alternative to manual grinding!

The **Laser Grinder** method ensures that each wheel of each VNA truck will operate on a flat surface:-



A four wheeled VNA forklift truck



A three wheeled VNA forklift truck



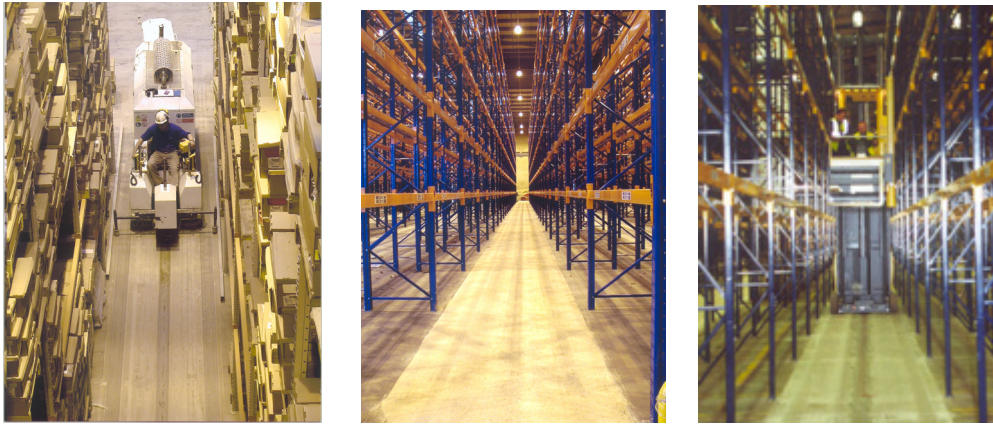
Our unique 'whole aisle grinding' process allows ANY truck to use ANY part of the ground path

Profileograph Surveys of the **Laser Grinder's** ground paths



The flat, high tolerance ground paths ensure that wherever the Profileograph sensors, or VNA forklift truck wheels run, the results will be identical and well within the limits of the specification.

IF YOU NEED TO GRIND – YOU NEED TO **LASER GRIND !!**



Only the **Laser Grinder[®] process can reliably provide the required standard of floor flatness across the width of each truck wheel, or if required across the whole aisle width.**



For more information on our Company, Products and Services, please call or visit our Website.