



CoGRI GROUP



Wheel Track Grinding

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 & right) load wheel tracks. Grinding all 3 wheel paths ensures that each wheel of the VNA truck follows a similar floor 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.

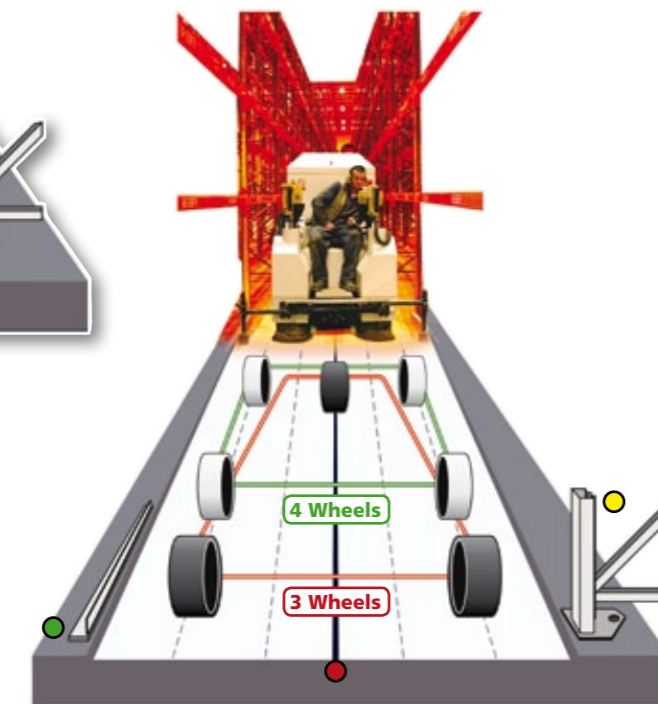
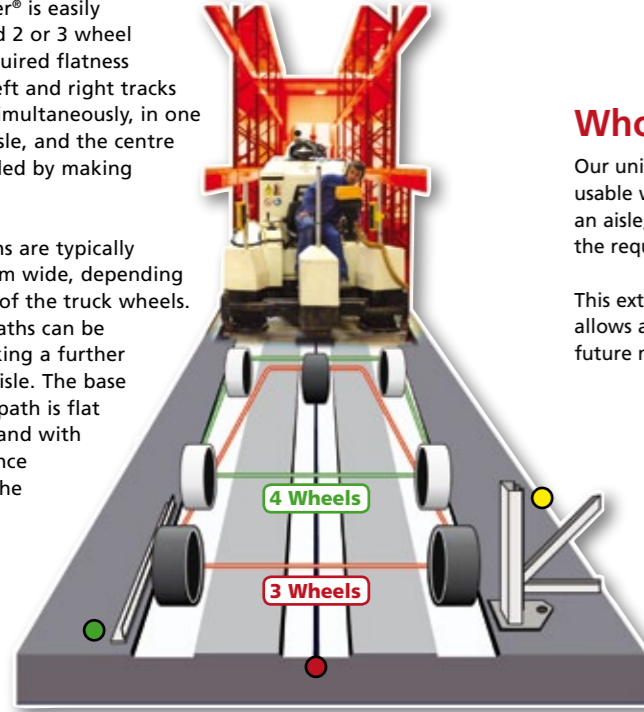
The Laser Grinder® is easily adapted to grind 2 or 3 wheel paths to any required flatness tolerance. The left and right tracks are performed simultaneously, in one pass along an aisle, and the centre track can be added by making a second pass.

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.

Whole Aisle Width Grinding

Our unique Laser Grinder® process allows us to grind across the full usable width of a narrow aisle. By making 3 or more passes along an aisle, we are able to provide a single ground path that satisfies the required flatness specification in all potential wheel paths.

This extremely popular alternative to the 'wheel track' grinding method allows a client total flexibility of choice in the use of their existing and future materials handling equipment.



- If existing guide rails are installed, our ground paths can be cut as close as 20mm away from the rail face. A low profile guide rail system can work better with the guide rails installed within our ground paths.
- Wire guidance lines can be installed within the ground path to ensure complete synergy between truck, floor and guidance system. Grinding the centre wheel track with an existing wire guidance line in place usually requires the wire to be re-installed.
- Grinding can be performed with or without the racking system in place, in a fully stocked operational warehouse or on a construction site. These points also refer to Whole Aisle Width Grinding: see illustration right.

Global Flooring Solutions...

Concrete Grinding Ltd is a subsidiary of the global consortium, the CoGri Group. Working in conjunction with other members of the CoGri Group of Companies, we are able to provide a full range of services to meet all your warehouse / industrial concrete floor requirements.



Superflat High Tolerance Floor Technology

- Superior floor testing technology
- Design
- Consultancy
- Floor flatness surveying & testing including; abrasion resistance testing - UKAS accredited & slip / skid resistance testing
- QA / on-site training
- Bespoke surveys



Specialists in Superflat Floor Grinding

- Aisles in new and existing floors upgraded to any international flatness standards
- Total grinding flexibility to suit all VNA forklift trucks
- Manual floor grinding
- Superflat floor grinding with the patented Laser Grinder®
- Ultraflat floor grinding with the Laser Grinder® XPT
- Bespoke tolerance grinding
- Minimum interference to operational warehouse environment
- Wire guidance installation



Specialists in Warehouse/Industrial Floor Refurbishments

- Rapid-set floor screed systems
- Floor coating systems
- Floor surface preparation
- Floor joint repairs and stabilising
- Re-surfacing of worn out floors
- General floor surface grinding
- Floor repair & maintenance products

www.cogrigrp.com

Making the World a **Flatter** Place...

Concrete Grinding Ltd.
Dene House
North Road
Kirkburton
Huddersfield
United Kingdom
HD8 0RW

www.concrete-grinding.com

Tel: +44 (0)1484 600080
Fax: +44 (0)1484 600095
Email: info@concrete-grinding.com
Website: www.concrete-grinding.com

Specialists in **Superflat** Floor Grinding

speed > precision > quality



CoGRI GROUP



Specialists in Superflat Floor Grinding

Concrete Grinding Ltd are specialists in the enhancement of floor flatness, particularly in narrow aisles and have developed the Laser Grinder® and the Laser Grinder® XPT, the world's most advanced laser guided grinding systems. The Laser Grinder® and the Laser Grinder® XPT enable aisles on new and existing floors to be upgraded to the flatness standards required to operate VNA forklift trucks safely and at their optimum efficiency.

History

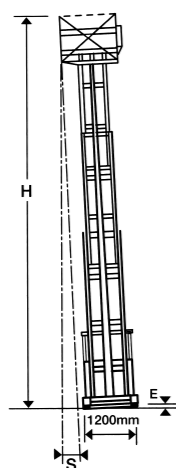
Concrete Grinding Ltd was first established in 1989, as a small manual floor grinding service, operating traditional single-headed, trolley-mounted grinding machines.

During the early 1990's the company began building their own concrete floor grinding systems to accommodate the growing demand for a more efficient and clean method of grinding concrete floors superflat in operational warehouse aisles. The early proto type machine soon developed into the unique world-leading patented Laser Grinder® technology that we have at our disposal today. Since then a fleet of Laser Grinders® have been built and are operating globally with a permanent base at Concrete Grinding Ltd's Head Office in the UK and at our global CoGri Group offices.

The addition of Laser Grinder® XPT, 'Xtra Precision Technology', to the company's armoury enables Concrete Grinding Ltd to offer ULTRAFLAT floor profiles that far exceed the limits of current international standards.

Floor Flatness in Very Narrow Aisles (VNA)

Flatness is an essential requirement of a floor slab in all categories of industry, none more so than in the aisles of high bay warehouses where defined path narrow aisle forklift trucks operate. Even a relatively minor variation in floor level between the wheel tracks of a VNA truck is magnified in direct proportion to the height of the racking.



A high standard of floor flatness is an essential requirement for the safe and efficient operation of a narrow aisle forklift truck. The static lean table (right) indicates how the potential for truck lean is increased by the lifting height.

Static Lean Table

The table insert shows the static lean of a fork lift truck assuming the mast is rigid. Due to the engineering tolerances in the mast the dynamic force when the truck is moving this could increase the static lean by upto 3 times the figure shown. The centre to centre distance between the load wheels of the fork lift truck is: 1.2 metres.

(E) - Difference in elevation between the left and right hand fork truck wheels mm.											
	3	4	5	6	7	8	9	10	11	12	
6	15	20	25	30	35	40	45	50	55	60	
6.5	16	22	27	33	38	43	49	54	60	65	
7	18	23	29	35	41	47	53	58	64	70	
7.5	19	25	31	38	44	50	56	63	69	75	
8	20	27	33	40	47	53	60	67	73	80	
8.5	21	28	35	43	50	57	64	71	78	85	
9	23	30	38	45	53	60	68	75	83	90	
9.5	24	32	40	48	55	63	71	79	87	95	
10	25	33	42	50	58	67	75	83	92	100	
10.5	26	35	44	53	61	70	79	88	96	105	
11	28	37	46	55	64	73	83	92	101	110	
11.5	29	38	48	58	67	77	86	96	105	115	
12	30	40	50	60	70	80	90	100	110	120	
12.5	31	42	52	63	73	83	94	104	115	125	
13	33	43	54	65	76	87	98	108	119	130	

VNA warehouses are generally designed to give the maximum number of pallet movements per hour, using the minimum number of trucks. To achieve this, the VNA trucks must be able to operate at an efficient speed and with minimal downtime due to maintenance problems. Floors that are not constructed specifically for VNA use do not generally have the necessary flatness tolerances within the aisle locations.

A poor standard of floor flatness can contribute significantly to the cost of operating and maintaining a VNA installation. In addition, frequent and expensive damage can also be caused to the trucks, stock and racking.

A well maintained floor, with the correct standard of flatness and good quality joint construction, can contribute to increased productivity and efficiency, low maintenance costs and a pleasant working environment.

Profileograph Surveys

Working in conjunction with Face Consultants Ltd, we can provide state of the art Digital Profileograph surveys of proposed or existing narrow aisle floors. The survey data is displayed in a colour coded graphical format, giving a clear indication of the standard of floor flatness e.g. before or after grinding.



Surveys can be carried out to check compliance with all current, worldwide floor flatness specifications.

SILVER SERVICE

Manual Floor Grinding

Concrete Grinding Ltd are able to offer this service, however this method is unlikely to produce the best possible floor profile. It will still fall within the maximum limits of a given specification, but manual grinding generally does not produce a floor profile that gives maximum truck performance.

- Basic floor grinding solution
- Suitable for reducing errors in floor flatness so that a floor just complies with the required flatness specification; TR34, TR34 Appendix C, EN 15620, ACI Fmin or DIN 15185
- Ideal solution for floors with minimal errors that only just fail to meet the required flatness specification

GOLD SERVICE

Superflat Floor Grinding

The Laser Grinder® has been specifically developed to operate in a working warehouse environment, with minimal interference to a client's ongoing operation. The wet, vacuum-enclosed grinding process is free from airborne dust and is clean enough to work alongside fully stocked racks - even in food and pharmaceutical storage facilities. Our philosophy is to grind the least amount of concrete that is required to provide the maximum benefit for the end user.

Key features and benefits are:-

- Total grinding flexibility to suit all VNA forklift trucks; 2 tracks, 3 tracks or whole aisle width
- Guaranteed to achieve all international defined movement specifications; TR34 & TR34 Appendix C, ACI Fmin, DIN 15185, EN 15620 and VDMA Guideline
- There is no inconvenience to warehouse operations, even in adjacent aisles, and no need to re-locate or protect stock in the aisles being ground
- Minimal amount and depth of grinding required to meet the specification by only correcting errors in floor surface regularity, rather than grinding the whole aisle from end to end - a cost effective solution which our competitors cannot offer!
- Suitable for use in operational warehouses including food and pharmaceutical storage facilities - even in sub-zero temperatures
- Laser guided technology constantly checks and maintains the correct path during the grinding process - accurate to within fractions of a millimetre
- Completely self sufficient machines, with no trailing high voltage cables or water pipes - ensuring very safe working practices are maintained
- Powered by one of the World's cleanest lean burn diesel engines fitted with a catalytic converter
- No requirement for three phase power or generators - therefore no hidden electricity charges
- Each path is ground flat across its width to ensure that each VNA forklift truck wheel makes full contact with the floor surface
- Can grind through bolts up to 12mm in diameter and metal joints that fall within the required ground path

PLATINUM SERVICE

Ultraflat Floor Grinding

In today's fast paced world, customers can purchase items with a click of a mouse and select same day delivery. This means that warehouse operators are under pressure to perform at optimum efficiency 24 / 7 which leaves little room for error or downtime. As MHE and warehouse technology becomes more sophisticated to cope with faster delivery and meet expectations, the demand for flatter floors has also grown.

The Laser Grinder® XPT, 'Xtra Precision Technology', has been developed to provide clients with a flatter floor than ever before. The Laser Grinder® XPT can achieve ULTRAFLAT (exceptionally tight tolerance) concrete floor grinding in narrow aisle warehouses that far exceeds the limits of current international standards.

As with the standard Laser Grinder®, the Laser Grinder® XPT is suitable for operation in a live warehouse environment, offering little or no interference to ongoing warehouse activities and shares all the benefits highlighted in the Gold Service. In addition, the XPT's other pioneering features and benefits include:-

- ULTRAFLAT floor grinding with proven results - achieves possibly the flattest floors in the World, giving maximum truck performance!
- Guaranteed to exceed all international defined movement specifications; TR34 & TR34 Appendix C, ACI Fmin, DIN 15185, EN 15620 and VDMA Guideline
- Curve computer control - allows minimal depth of grinding
- Reduced emissions that meet the latest Euro 5 standard
- Lower noise levels < 84 DBA
- Enhanced operator control system

If a project requires something special - an ultraflat floor to exceptionally tight tolerances, the Laser Grinder® XPT is the perfect solution.

Bespoke Tolerance Grinding Available



▲ The Laser Grinder® XPT is used in the Platinum Service

