SINGLE SPEED DIAMOND FLOOR GRINDER

Operating Manual

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This manual provides the basic information required and is only to be used as a guideline.

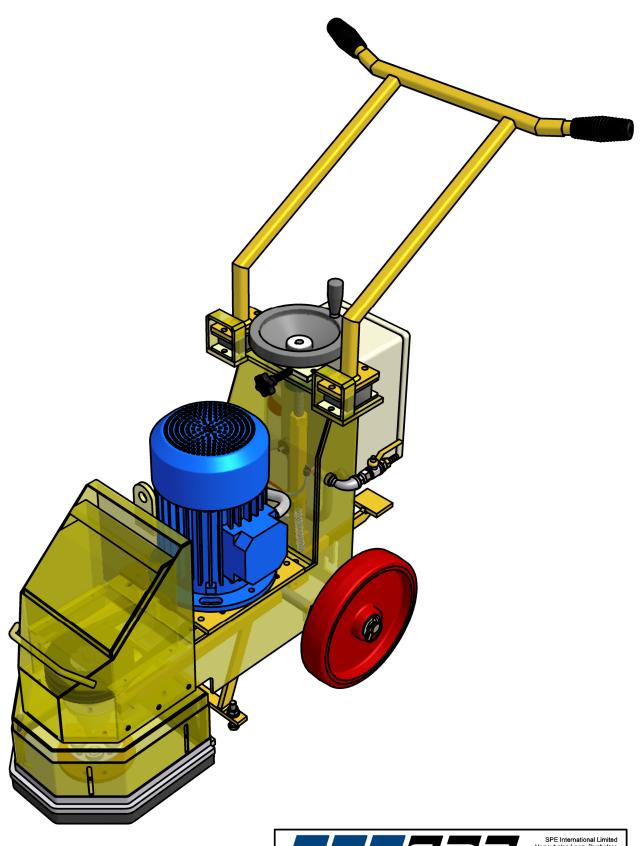
The SPE machines are manufactured and covered by SPE design registrations granted and pending.

SPE International Ltd reserves the right to alter the equipment design and specification as required without notice.

The SPE product range is subject to amendment and improvement as a result of on going research



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DFG 250



DFG 250 Single Speed Diamond Floor Grinder

OPERATING MANUAL

This manual covers to the best of our knowledge the operation and maintenance of the **DFG 250-1** diamond floor grinder. Before operation of the equipment the manual should be read and understood by the operator. The safety regulations must be followed at all times. Service of electrical components should be carried out by authorised personnel. Failure to follow these instructions could result in damage to the machine and/or serious personal injury or death.

WARNING

Failure to follow these instructions may result in serious personal injury or death. SPE disclaims all responsibility for damage to persons or objects arising as a consequence of incorrect handling of the machine and failure to inspect the machine for damage or other faults that may influence the operation prior to starting work.





INDEX

Page No

| 1 | Starting Work |
|-----|---|
| 2 | Changing Grinding Plate Wet Grinding Weight |
| 3 | Maintenance |
| 4 | Safety |
| 5-6 | Accessories |
| 7 | Spare Parts Breakdown |
| 8 | Body Components |
| 9 | Height Adjusting Components |
| 10 | Drive Components |
| 11 | Electric, Vacuum & Water Components |
| 12 | Main Components Wiring Diagram |
| 13 | Electrical Components |
| 14 | Specifications |
| 15 | Noise/Vibration Assessment |
| 16 | Warranty |
| 17 | Declaration of Conformity |
| 18 | Conditions of Sale |



Operating Manual

STARTING WORK

BEFORE STARTING WORK CHECK SET UP OF THE MACHINE AND GRINDING PLATE HAS BEEN COMPLETED.

- 1. Ensure the power supply is correct.
- DFG 250 this should be a 415v 16 amp supply from the mains or generated with a minimum supply of 10 kva on 50 cycles
- 2. DFG 250 the plug on the machine is a 5 pin 415v 16 amp red plug
- 3. Loosen set screws securing front and rear dust skirt enclosures to allow free movement up and down.
- 4. Lower the machine on to the grinding plate by releasing foot pedal.
- 5. It is vital at this stage that the machine should be set to grind the floor along the same plane. Incorrect set up will result in uneven diamond wear, deep grinding marks, vibration and damage to the flexible coupling that support the heads.
- 6. Set the machine down on the floor to be prepared and check the level of the floor with a spirit level. Place the spirit level on the front side of the machine and adjust the rear wheel height using the black hand wheel until the level of the machine is the same as the level of the floor. Then lock the hand wheel.
- 7. Set the dust skirts to the correct height approx 0.5mm clear of the floor and tighten up screws.
- 8. Lift the floor grinder up using foot pedal ensuring the grinding head is clear of the floor and fit either a dust extraction hose or a water supply. Examine grinding plate for any damage and check allen screw bolts are tight. See page 2, Changing grinding plate for torque setting

The floor grinder is now ready to commence work.

- 9. Connect the machine to the power supply and turn the red isolator switch to the ON position. Red light will illuminate on the electric panel. Ensure foot pedal is locked into the raise position.
- 10. Start motor up by pressing the green button on electric panel.
- 11. Lower the machine on to the floor using foot pedal whilst moving the machine either forwards or backwards. Try to grind in a figure of eight pattern for best finish

NEVER ALLOW THE MACHINE TO REMAIN STATIONARY WHILST THE GRINDING PLATE IS ROTATING AND IN CONTACT WITH THE SURFACE

- 12. When lifting machine to cease grinding the head should be lifted off the floor slowly with the dust extraction still operating in order to allow the dust to clear from the work area 13. If the operator has any difficulty whilst operating the machine press the red stop button
- located on electrical panel.



Operating Manual

CHANGING GRINDING PLATE

- 1. Lift the DFG off the floor to its maximum height using foot pedal.
- 2. Disconnect from power supply.
- 3. Tilt the machine backwards on to its handles. The machine must be secured and supported.
- 4. Make sure the grinding plate is cool to the touch.
- 5. Use an Allen key to undo the countersunk screws securing the diamond plate to the flexible couplings.
- 6. Remove grinding plate and replace.
- 7. Ensure grinding plate is seated to coupling correctly prior to tightening counter sunk screws diagonally to a maximum torque of 75Nm
- 8. Lower the machine back to an upright position.
- 9. Reset dust skirt and level machine See starting work page 1
- 10. Reconnect to the power supply

CHECK FOR CORRECT WEAR RATE AFTER QUARTER OF AN HOUR AND AGAIN AT HALF AN HOUR INTERVAL. - THIS WILL GIVE AN IDEA OF WEAR RATE

SEE ACCESSORIES SHEET FOR AVAILABLE PLATES - Pages 5-6

11. Adjust machine level as the plate reduces through wear.

WET GRINDING

When grinding wet a hose is connected to the water tap on the side of the machine where an adjustment handle for the water supply is mounted. The water is ejected forward under the grinding plate.

When grinding wet the machine should still not be allowed to stop moving whilst the plates are in connect with the surface.

WARNING: Do not allow water to make contact with electrical components

WEIGHT

It is recommended that the weight is removed at the commencement of grinding and ONLY ADDED if an increased pressure is needed on the surface.



Operating Manual

MAINTENANCE

AFTER USE:

- Clean the machine to remove all build up of dust and surface residue. If using a hose pipe or pressure washer take care that water is not directed onto electrical components and switches.

(Note: Motors and switches are not waterproof)

- Ensure the height adjustment thread is cleaned and then lightly oiled. Periodically it should be removed and the female, threaded section cleaned out and oiled regularly to maintain a light, smooth height adjustment.
- The drive belts will give a long and trouble free operating life if basic procedures are followed. The drive belts are tensioned by sliding the motor along the adjusting slots. It is important that the drive belts are not over tensioned. Serious damage could be caused to the drive shaft, drive shaft bearings and drive motor if the belts are excessively tight.
- All components should be checked daily for tightness and the drive belts for tension.
- The flexible drive couplings that support the grinding heads should be checked on a weekly basis. The coupling should be firm without excessive movement
- Any excess vibration due to uneven head wear should result in the grinding head being changed to eliminate damage to couplings and bearing assembly support units.



Operating Manual

SAFETY

Only trained operatives should be allowed to work the **DFG250-1** floor grinder.

Note: It is possible that the noise level produced by the Diamond Floor Grinder could exceed 90dbA. Appropriate PPE must be worn and the equipment must be used in line with guidelines laid down by the Health & Safety Executive.

Never leave the DFG250 unattended whilst in use. Always stop the motor and lift the grinding head prior to leaving the machine.

Always ensure that all power leads and hoses are disconnected before attempting to service the machine. Never tip the machine backwards until the grinding plate has stopped rotating and the machine has been isolated at main supply.

Noise and vibration will occur at various levels dependant on the attachments and work being completed. SPE have assessments conducted under test conditions detailed in the operating manual see page 15. However it is recommended that additional tests are taken on site to provide the operator with accurate information on using the equipment within the guidelines laid down by the health and safety executive.

Note:

- 1) Never operate the DFG250-1 without belt guard fitted.
- 2) Never operate the DFG250-1 outdoors in wet conditions as the electrical components are not waterproof.



Operating Manual

ACCESSORIES

| | Part No | Description | Application |
|------|---------|---|---|
| 6:00 | 6401 | Economy grade 250mm 10 segment (blue) | Economical removal of most types of adhesives and surface contaminants. Excellent for using on rougher surfaces as a first grind. Can be used wet or dry. |
| | 6402 | Super Agressive 250mm 10 segment (red) | Designed for the removal of S/L and epoxy coatings in a commercially viable way. Can be used for the majority of aggressive grinding applications and will give extended wear on heads. Can be used wet or dry. |
| 2000 | 6403 | Standard Grade 250mm 16 segment (blue) | Removal and grinding of most types of concrete floor in preparing for follow on coatings. General all purpose head for most grinding works. Can be used wet or day. |
| | 6404 | High performance 250mm 20 segment (blue) | Fast removal and grinding of most types of plain and painted concrete floors. Will key floors for coatings, removal of high spots, lip edges etc. Suitable for first and second stage grinding to terrazzo and aggregated seamless floors. Can be used wet or dry. |
| | 6405 | Button head 250mm 16 segment (blue) | For the removal of the thicker adhesive on sand / cement screed whether open or closed. Will cope with large volume areas in a cost effective manner. To be used with softer elastomeric and thin film coatings. |
| | 6408 | Polymer diamond backing plate | Backing drive plate for the polymer diamond system. Takes 16 polymer button inserts. |

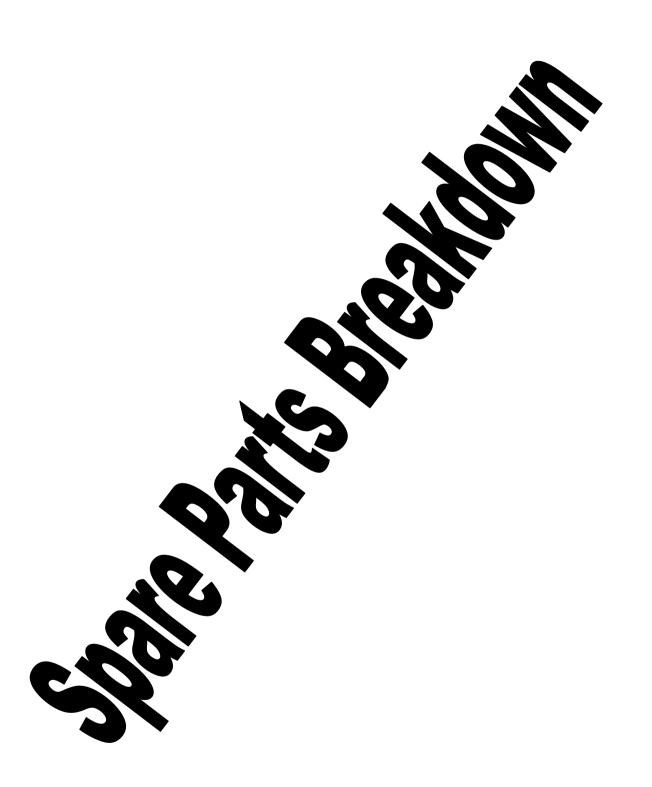


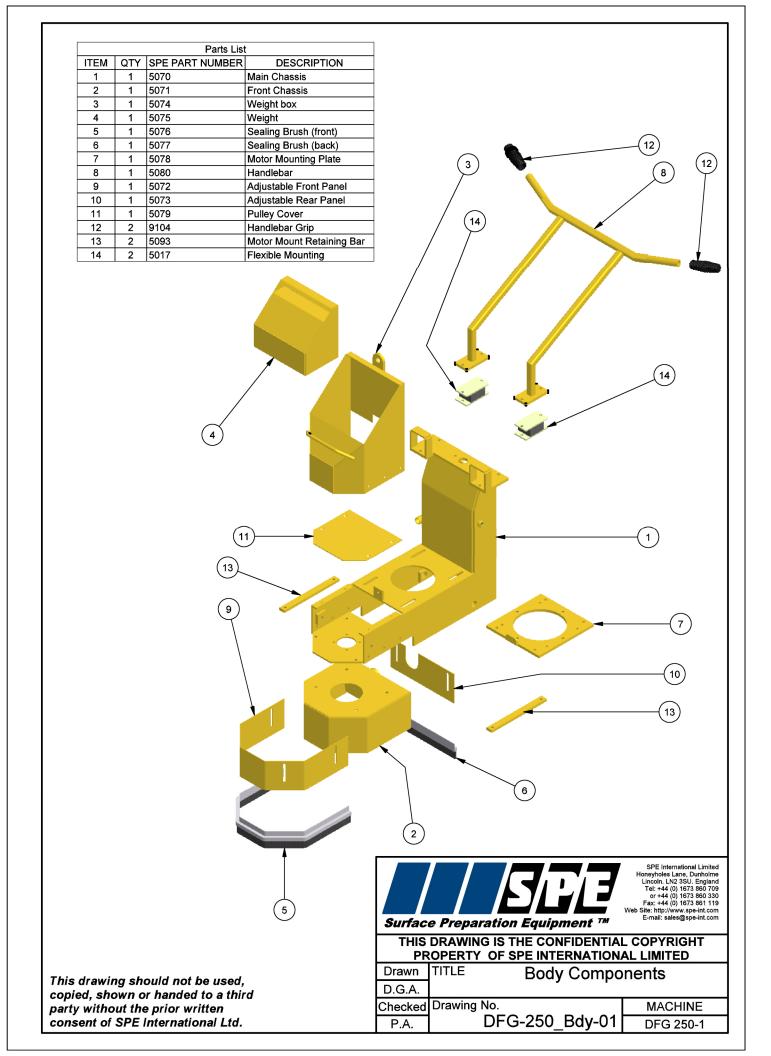
Operating Manual

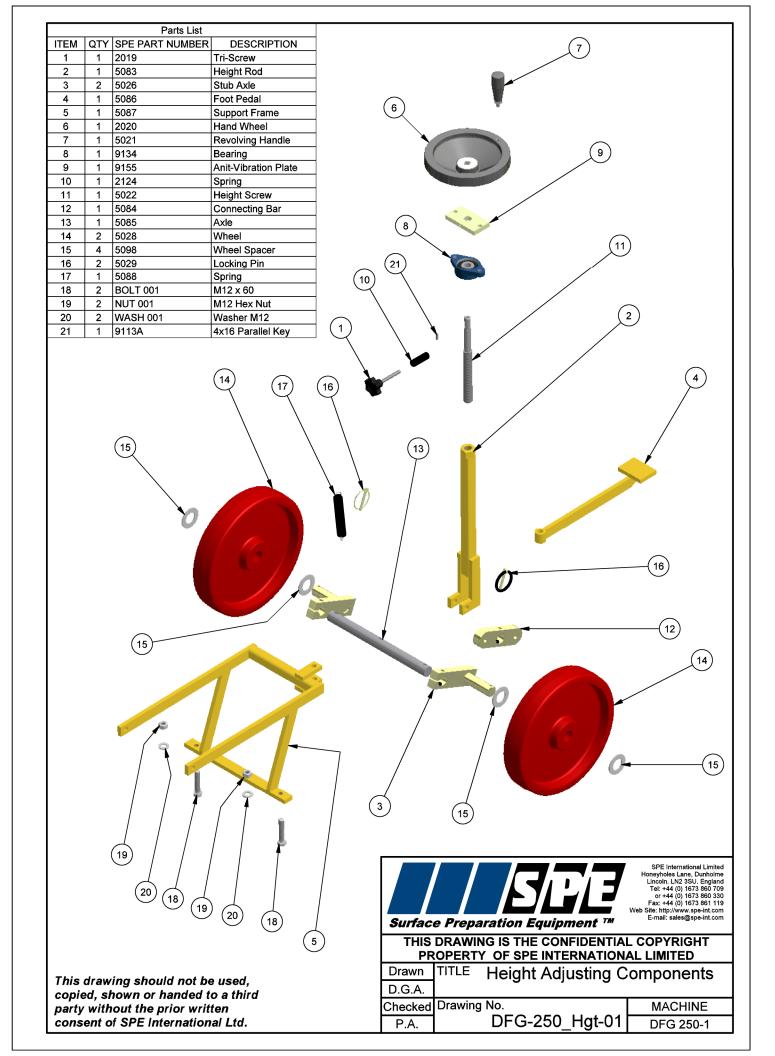
| | 6420 6409 6410 6411 6412 6413 6414 | GREEN ULTRA COARSE 16no BLACK EXTRA COARSE 16no BROWN COARSE 16no RED MEDIUM 16no YELLOW FINE 16no WHITE EXTRA FINE 16no BLUE ULTRA FINE 16no | Polymer diamond system to be used only on the DFG 500 twin speed (slow speed option) for second stage grinding and polishing of terrazzo, stone and marble etc. The buttons fit securely into the aluminium backing plate. Wet use only. |
|---|--|---|---|
| 00000 | 6422 6423 | COARSE STEEL POLYMER 16No MEDIUM STEEL POLYMER 16No | Steel polymer diamond system to be used on DFG 500 twin speed (slow speed option). For second stage grinding and finishing of cementitious, polyurethane and epoxy based terrazzo, terrazzo tiles and concrete flooring. Provides rapid action and long life. Wet use only. |
| | 6403C | Fine grit 250mm 16 segment (purple) | Finishing and polishing of cementitious polyurathane, epoxy based terrazzo, terrazzo tiles and decorative aggregated concrete flooring. Can be used wet or dry. |
| | 6415 | Carborundum grinding and wire brush block holder drive plate. | Drive plate for the carborundum grinding blocks and wire brush blocks. |
| | 6416 6417 6418 | Carborundum grinding blocks Fine Medium Coarse | For economical polishing and grinding removal of high spots, over watered slabs, rain damaged slabs, lip edges etc. |
| AND DESCRIPTION OF THE PERSON | 6419 6421 | 16 gauge round wire block Spring steel block | General scarifying, removal of rubber carpet backing, grease and oil build-up without damage to substrate. |

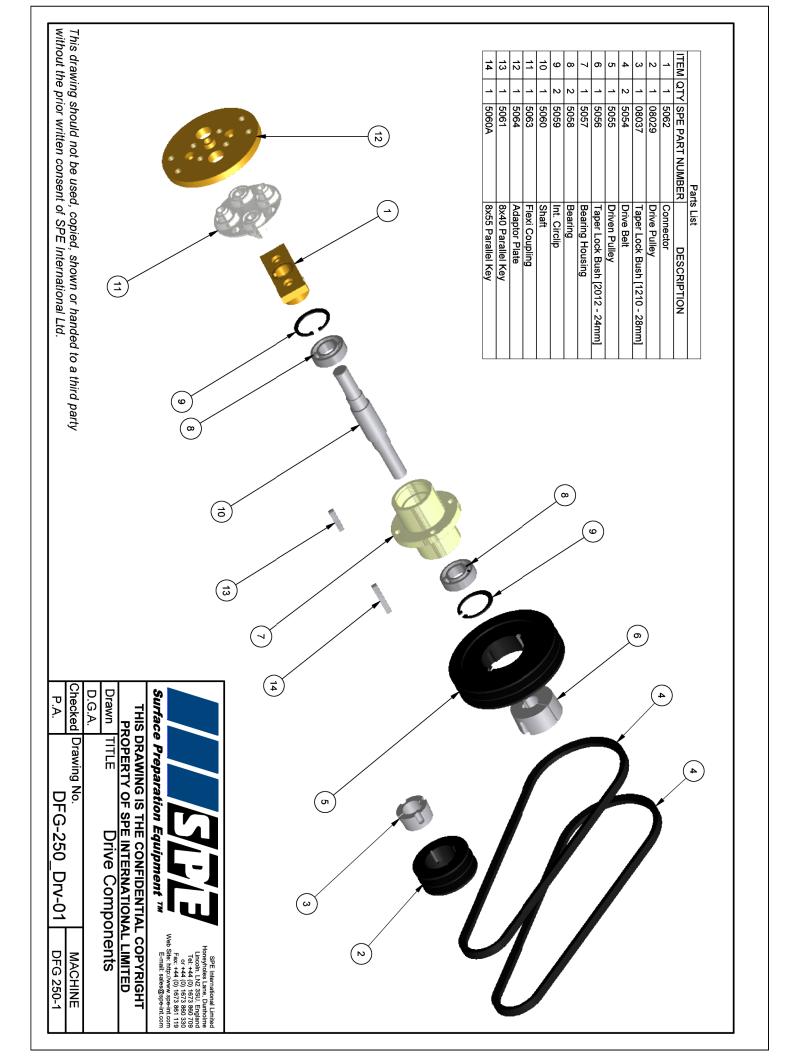


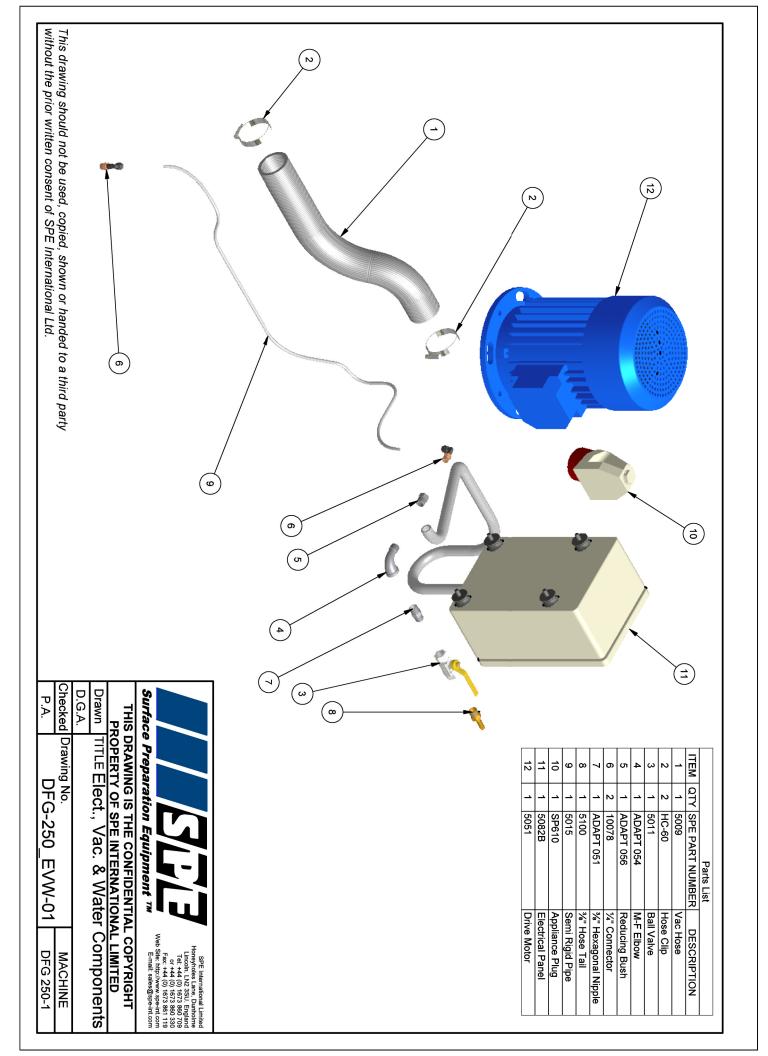
Operating Manual

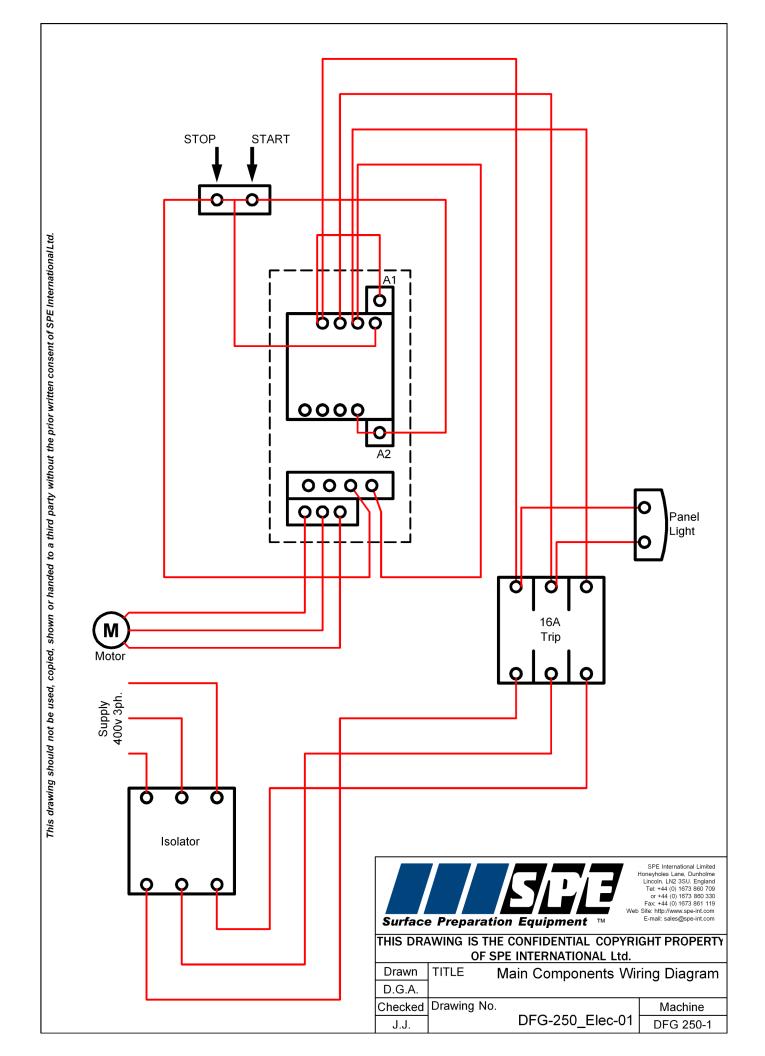














Operating Manual

DFG250 SINGLE SPEED ELECTRICAL COMPONENTS

| QTY | DESCRIPTION | SPE PART NO. |
|-----|---------------------------|--------------|
| 1 | Panel | SP58015 |
| 1 | Back Plate | SP55815 |
| 1 | Contactor | SPLC1D18N7 |
| 1 | Start Switch | SPZB4BZ101 |
| 1 | Stop Switch | SPZB4BZ102 |
| 1 | Start Button | SPZB4BA3 |
| 1 | Stop Button | SPZB4BS44 |
| 1 | Panel Lamp | SPZB4BV5 |
| 1 | Lens | SPZB4BV04 |
| 1 | Overload | SPLRD16 |
| 1 | Trip | SP60HD316 |
| 1 | Gland | 9258/200 |
| 1 | Brass Bush inc. Nut | 608-222 |
| 4 | Rubber Mount | 9245/250 |
| 1 | Isolator 40Amp | SPFWA4/3C |
| 1 | 16A 5Pin Surface Mtd Plug | SP610 |



Operating Manual

SPECIFICATION SHEET

| Туре | DFG250 Electric |
|-------------------------|-----------------|
| Part Number | DFG250-1 |
| Power Output | 5.5 kw |
| Voltage | 380/415 |
| Cycles | 50hz |
| Head Speed r.p.m. | 1400 |
| Motor Speed r.p.m. | 2800 |
| Machine Dimensions (mm) | |
| Length | 1120 |
| Width | 670 |
| Height | 1040 |
| Weight (kg) | 160 |
| Ballast Weight (kg) | 1x20 |

ELECTRICAL REQUIREMENTS

| Machine | Volts | Plug size | Cable Size (mm) | Max Cable Length | Transformer | Generator |
|----------|---------|--------------|-----------------|---------------------|-------------|-----------|
| DFG250-1 | 380/415 | 16 Amp 5 Pin | 2.5 – 4 core | 75 metres | - | 10 kva |



Operating Manual

RECORD OF NOISE AND VIBRATION ASSESSMENT

Manufacturer: SPE

Type: Diamond Floor Grinder Model No. DFG250-1 Electric Concrete floor surface

Inserted Tool: 1 Diamond plate

Running Conditions: 1400 rpm

HAV Note: Acoustic Associates

HAND-ARM VIBRATION

Frequency Weighted Energy Equivalent Accelerations (a_{h,w})

| Measurement Position | А | ccelerat | tion (m/s | s²) |
|----------------------|------|----------|-----------|-------|
| | Х | Υ | Z | Vecto |
| | axis | axis | axis | r Sum |
| Handle | 2.29 | 3.54 | 2.37 | 4.84 |

NOISE LEVELS

Sound Power Level (LWA)

| L _{WA} at Octave Band Centre Frequency (Hz) | | | | | | | Sound Power | |
|--|------|------|------|------|------|------|----------------|----------|
| | | | | | | | | Level |
| 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | L_{WA} |
| 51.1 | 73.7 | 88.3 | 92.0 | 95.1 | 97.3 | 90.9 | 80.3 | 100.9 |

Operator's Ear

| | L _{Aeq,T} at | Overall Level Level | | | | | | | |
|------|-----------------------|---------------------|------|------|------|------|------|-----------------------|-------|
| 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | (L _{Aeq,T}) | dB(C) |
| 39.1 | 57.7 | 74.6 | 79.2 | 81 | 79.8 | 75.8 | 67.2 | 86.1 | 101.7 |
| | | | | | | | | | |





Operating Manual

WARRANTY

The standard warranty period of this equipment is **12 months** from the date below in accordance with the company Conditions of Sale (copy attached).

| Warranty start date: | As despatch date | |
|----------------------|-----------------------|--|
| Model: | DFG250-1 | |
| Serial no: | | |
| Customer name: | | |
| Customer Address: | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Manufacturer: | SPE International Ltd | |
| | Honeyholes Lane | |
| | Dunholme | |
| | Lincoln | |
| | LN2 3SU | |
| | England | |
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| Email: | sales@spe-int.com | |
| Web site: | www.spe-int.com | |
| | | |
| | | |
| Distributor: | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |



Operating Manual

DECLARATION OF CONFORMITY

WE SPE INTERNATIONAL LTD

OF Honeyholes Lane Dunholme Lincoln LN2 3SU

DECLARE that under our sole responsibility for the supply/manufacture of the product

(Description/name) DFG250 Diamond Floor Grinder

(Model/type) DFG250-1

to which this declaration relates is in conformity with the following standards and other normative documents following the provisions of Directive 2006/42/EC.

Brian Jacklin – Technical Manager SPE INTERNATIONAL LTD



CONDITIONS OF SALE

DFG250-1Operating Manual

The quotation overleaf and any order placed following such quotation are subject to the following conditions of sale in which SPE International Limited is referred to as the "Company".

1. Validity of quotation

No order received from a customer by the Company shall constitute a contract until accepted in writing by the Company.

2. Prices

Prices quoted by the Company are firm for 30 days only or until previously withdrawn. Unless otherwise stated all prices are exclusive of any applicable Value Added Tax for which the customer shall be additionally liable to the Company.

3. Delivery

Delivery periods and dates are given in good faith but are not the subject of any warranty or condition and time shall not be of the essence of the contract in these respects. No liability will attach to the Company if delivery periods or dates are not met for any reason whatsoever.

4. Payment

Save as may otherwise be agreed in writing the customer shall pay the price in full on or before the estimated delivery date whereupon the Company shall raise a receipted invoice. Each invoice includes an Overdue Account Levy of 5% of the total invoice value inclusive of VAT. Subject to payment in full being made on or before the due date a sum equal to the Overdue Account Levy shall be credited to the customers account with the Company. Until such time as payment in full has been made the Company shall be under no obligation to allow or effect of any goods to the customer.

Warranty

The Company warrants that all goods supplied by it will correspond to their specifications and will be free from defects in materials or workmanship for a period of 12 months from the date of delivery. The Company's obligation in the event of a breach of this warranty is limited to the repair or replacement of any defective goods which shall be returned at the cost and expense of the customer to the Company. This warranty is given in lieu of all the other warranty or conditions expressed or implied (whether by statute or otherwise) and is subject to the following conditions:-

- **5.1** Claims must be notified in writing to the Company within seven days from the date of delivery or (where the defect is not apparent on reasonable inspection) as soon as practicable after discovery of the defect.
- **5.2** The Company shall be under no liability in respect of any defect in the goods arising from any drawing, design or specification supplied by the customer.
- **5.3** The Company shall be under no liability if the defect or failure in the reasonable opinion of the Company arises from wilful damage or misuse, negligence by the customer or any third party. Failure to follow the Company instructions, usage of non-recommended parts and materials, alteration or repair of the goods without the prior approval of the Company or non-recommended maintenance.
- 5.4 The Company shall be under no liability if the price for the goods has not been paid by the due date for payment.
- 5.5 The above warranty does not extend to:-
- **5.5.1** Parts, materials or equipment not manufactured by the company in respect of which the customer shall be entitled only to the benefit of any such warranty or guarantee as is given by the manufacturer to the Company.
- **5.5.2** Any component part of the goods or associated parts coming into contact with abrasive elements or dust within surface Preparation equipment.
- 5.5.3 Fair wear and tear of moving parts within the goods.
- **5.6** Except in the case of death or personal injury caused by the Company negligence, the Company shall not be liable for any consequential loss or damage (whether for loss of profit or otherwise) or other claims for consequential compensation.

6. Carriage

Packing, carriage and insurance charges in respect of delivery of the goods to the customer will be charged to the customer at cost to the company.

7. Damage in Transit

The company does not accept any liability for loss or damage to the goods while in transit to the customer.

8. Risk

The risk in the goods shall pass to the customer on delivery to the customer or (if earlier) when possession of the goods is taken by a carrier for delivery to the customer.

9. Force Majeure

The Company shall not be liable to the customer or be deemed to be in breach of any contract with the customer by reason of any delay in performing or any failure to perform any obligation of the Company obligation in relation to the goods if the delay or failure was due to force majeure or to any other cause beyond the Company's reasonable control.

10. Reservation of Title

The goods sold under these conditions shall remain the absolute property of the Company and legal title in the goods shall remain vested in the Company until payment in full of all amounts invoiced or due to the Company in respect of the goods. If the customer shall enter into liquidation have a winding up order made against it or have a Liquidator, receiver, administrator or administrator receiver shall be appointed over its assets, income or any part there of before the property in the goods has passed in accordance with this condition the Company shall be entitled immediately after giving notice of its intention to repossess any goods to enter upon the premises of the customer with such transport as may be necessary and to repossess any goods to which it has title under this condition. No liquidator, receiver, administrator or administrative receiver of the customer shall have authority to sell goods to which the Company has title without the prior written consent of the Company.

11 Insolvency of Customer

If the customer being a body corporate, shall pass a resolution or suffer an order of the Court to be made for winding – up, or if a Receiver, Administrator or Administrative Receiver shall be appointed or, being an individual or partnership, shall suspend payment, propose or enter into any composition or arrangement with his or their creditors, or have a bankruptcy order made against him or them, then the Company shall have the right, without prejudice to any other contract with the customer, not to proceed further with the contract and shall be entitled to charge for work already carried out (whether completed or not) and for goods and materials already purchased for the customer such charge to be an immediate debt due from the customer.

12. Patent Rights, etc

The acceptance of a quotation includes the recognition by the customer of the Company under any patents, trademarks, registered designs or other intellectual property rights relating to the goods and the customer undertakes that patent numbers, trademarks or other trade markings on goods supplied shall not be obliterated, altered or defaced.

13. Applicable Law

These conditions shall be governed by and construed in accordance with English law and parties acknowledge and accept the exclusive jurisdiction of the English Courts.