



**DFG280**

**OWNER'S 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.

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# SAFETY

Only trained operatives should be allowed to work the DFG280 floor grinder.

All operatives should wear ear defenders, goggles and an effective dust mask. Note: It is possible that the noise level produced by the DFG280 could exceed 90dbA. Personal noise protection must be worn and the equipment must be used in line with guidelines laid down by the Health & Safety Executive.

Never leave the DFG280 unattended whilst in use. Always stop the motor prior to leaving the machine.

Keep the electric lead away from the grinding head.

Always use the correct voltage for the machine and RCD protection.

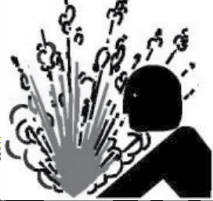


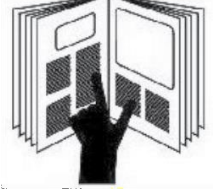
Always ensure that all power leads are disconnected before attempting to service the machine. The service of electrical components should be carried out by authorised personnel. Never tip the machine completely backwards until the grinding plates have stopped rotating, just raise slightly.

Vibration will occur at various levels dependent on the attachments and work being completed. It is recommended that tests are taken on site to provide the operator with accurate information on using the equipment within the guidelines laid down by the Health & Safety Executive.

Never operate the machine without a dust skirt.

**NOTE:**  
**NEVER OPERATE THE COMPACT FLOOR GRINDER IN WET CONDITIONS AS ELECTRICAL COMPONENTS ARE NOT WATERPROOF**

# SAFETY PRECAUTIONS

	<p><b>DANGER</b>  <b>EXPLOSION HAZARD</b></p> <p>Never operate the machine in an explosive atmosphere, near combustible materials, or where ventilation does not clear exhaust fumes.</p>
	<p><b>WARNING</b>  <b>BURN HAZARD</b></p> <p>Never come into contact with the engine or muffler when engine is operating or shortly after it is turned off. Serious burns may occur.</p>
	<p><b>CAUTION</b>  <b>MOVING PARTS</b></p> <p>Before starting the machine, ensure that all guards and safety devices are in place and functioning properly.</p>
	<p><b>ATTENTION</b>  <b>READ OWNER'S MANUAL</b></p> <p>Read and understand owner's manual before using this machine. Failure to follow operating instructions could result in serious injury or death.</p>

# DFG280 OPERATING MANUAL

This manual covers, to the best of our knowledge, the operation and maintenance of the DFG280. 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.

# STARTING WORK

Check the following prior to starting the equipment.

- Check all nuts and bolts for tightness
- Check the plugs and cables for damage

1. The machine is fitted with an adjustable handle which can be folded over for ease of lifting and transportation. The handle can be adjusted by releasing the two locking pins on the side and moving the handle into one of three positions for preferred operator comfort. This is then locked in place by re-engaging the locking pins.

2. Fit a suitable grinding head by tilting the machine backwards on to its handle. The machine must be secured and supported. Attach the grinding head to the machine using the four countersunk fixing screws and tighten. Lower the machine back to the upright position.

3. Connect the vacuum hose to the dust extraction port, if a dust control vacuum is being used. We recommend the SPE VAC316 3 motor vacuum for dust control.

4. Ensure that the power supply is correct for the machine (see page 11 for further details). Connect the machine to the power supply.

5. To start the machine

- Check that the stop button is out by rotating clockwise.
- Lift the grinding head slightly by tipping the machine onto its rear wheels.
- Press the start button.
- Lower the machine onto the floor, moving the head evenly across the surface to ensure a smooth ground finish.

6. To stop the machine, push the red stop button.

7. The machine is also fitted with two removable panels in the dust shroud which can assist with edge work. Undo the two thumb nuts and remove the panel to allow the grinding head to get closer to the vertical surface. Once done, replace the panel and refit and tighten the two thumb nuts.

***Never allow the machine to stop moving whilst grinding head is in contact with the surface.***



## **GENERAL OPERATION**

Although excessive downward pressure on the cutters may marginally improve the work rate/finish this would increase the wear rates on the head, components and could result in overloading the motor.

Tests have shown that two light passes are quicker and more cost effective than one slow heavy pass and have conclusively shown that heavy downward pressure reduces the life of the tooling discs used.

The DFG280 is normally operated in a forwards and left to right direction, the operator varying the speed of travel to determine the final finish. It is permissible to operate the machine with a backwards and forwards action. Each pass should be overlapped to produce a uniform finish.

## **CHANGING THE GRINDING HEAD**

1. Disconnect from the power supply.
2. Tilt the machine backwards on to its handle. The machine must be secured and supported.
3. Make sure the grinding head is cool to the touch.
4. Use a hex key to undo the countersunk screws securing the Grinding Head to the adaptor plate.
5. Remove the grinding head and replace.
6. Ensure the grinding head is seated to the adaptor plate correctly prior to tightening the countersunk screws diagonally.
7. Lower the machine back to the upright position.
8. Reconnect to the power supply.

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

# ELECTRICAL INSTRUCTIONS

The DFG280 machine is supplied with a specially commissioned 110V electric motor and starter switch assembly. Each unit is fully tested and the safety overload relays have been calibrated and set according to the manufacturers specifications. In the event of the malfunction on a new machine the owner should first check that the power supply on site is suitable and adequate.

## **DFG280-5 (110V)**

- The **110V** motor requires a 32 Amp supply.
- To avoid voltage drop the cable size must be a minimum of 4.0mm 3 core. Maximum length of cable not to exceed 30 metres.
- If a transformer is used it must have a continuous rated output of at least 3 KVA. In practice this means that a 5 KVA transformer must be used.

## **DFG280-1 (415V Three Phase)**

## **DFG280-3 (230V Single Phase)**

- The **230V/400V** require a 16 Amp supply.

## **DFG280-6 (115V)**

- The **115V** motor requires a 15 Amp supply.

All cables should be fully uncoiled and never left wrapped around cable reels or tied in loops.

If the power is to be generated, the DFG280 requires a minimum 8kva generator.

The motor is protected with a safety trip in the panel. Should the trip be activated, it will reset automatically after cooling down.

If the motor repeatedly cuts out then it will be damaged. The possible causes are either an inadequate power supply, overloading of the machine, or an electrical fault.

# MAINTENANCE

Prior to any maintenance or adjustment disconnect the machine from the power supply.

## **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)
- All components should be checked daily for tightness.
- Check the plugs and cables for damage.
- The flexible drive coupling that support the grinding head should be checked on a weekly basis.
- Any excess vibration due to uneven head wear should result in the head being changed to eliminate damage to coupling.

# BASIC MAINTENANCE CHECKLIST

## **DAILY:** (or every 8hrs to 10hrs)

- Check all nuts and bolts for tightness.
- Check the condition of the grinding head
- Check the plugs and cables

## **WEEKLY:**

All the above with the following: -

- All of the above with the following.
- Check the flexible drive coupling
- Check the support wheels and grease

**DFG280-5 (110V)**

ITEM NO.	SPENo	DESCRIPTION	QTY.
1	5350	Main Body Plate	1
2	5351	Handle (Bottom Section)	1
3	5352	Handle (Top)	1
4	5353	Connector	1
5	5354	Adapter Plate	1
6	5356	Shroud	1
7	5357	Floating Shroud	1
8	(5358)	Shroud Edging	2
9	5359	Exhaust Bracket	1
10	5360	Motor (110V)	1
11	5361	Axle (Rear)	1
12	5362	Axle Sleeve	1
13	5363	Pivot Plate (10mm)	2
14	5364	Pivot Plate	2
15	5365	Pivot Plate Packer	2
16	5366	Clamping Bar	4
17	5367	Electrical Box Plate	1
18	5368	End Cap	2
19	5369	End Cap (with hole)	1
20	5370	Roll Pin	2
21	5371	Bearing	4
22	5372	Bearing Spacer	4
23	5373	Extraction Tube	1
24	5374	Flexi-Coupling	1
25	5375	Retaining Screw	3
26	5376	Dust Skirt (580mm)	1
27	5377	Dust Skirt (140mm)	3
28	5378	Thumb Nut	4
29	5355	T-Mag Plate	1
30	5380	Handle Grip (Back)	2
31		Handle Grip (Front)	
32	6013	Wheel (Rear)	2
33	7379	Locking Pin	2
34	9104	Handlebar Grip	2
35	BOLT022	M6x16 Hex Screw	6
36	BOLT042	M8x20 Hex Screw	2
37	BOLT043	M8x25 Hex Screw	4
38	BOLT045	M8x35 Hex Head Set Screw	4
39	BOLT166	M10 x 60 Socket Countersunk Head Screw	2
40	BOLT268	M10x60 SOK Head Screw	2
41	BOLT305	M8x10 Cup Point Grub Screw	2
42	BOLT325	M10x30 Button Head Skt Screw	4
43	BOLT326	M10x35 Button Head Skt Screw	12
44	NUT043	M6 Nyloc Nut	3
45	NUT044	M8 Nyloc Nut	4
46	NUT045	M10 Nyloc Nut	10
47	SPCG/LNM20	Cable Gland EMC	1
48	SPM1Z1701P	Enclosure	1
49	SPM1Z1740P	Stop Button	1
50	SPM1P2500	Switch	1
51	SPM1X14110	Under Voltage Coil	1
52	TI/009	Tube Insert (Black)	2
53	WASHER003	M6 Plain Washer	9
54	WASHER004	M8 Plain Washer	12
55	WASHER005	M10 Plain Washer	14
56	WASHER005	M10 Plain Washer	8
57	WASHER009	M20 Plain Washer	2
58	WASHER023	M6 Spring Washer	6
59	WASHER024	M8 Spring Washer	6
60	WASHER052	M8x30 Repair Washer	2

**DFG280-3 (230V)**

ITEM NO.	SPENo	DESCRIPTION	QTY.
11	5360A	Motor (230V)	1
50	SPM1P1400	Switch	1
51	SPM1X14230	Under Voltage Coil	1

**DFG280-1 (415V)**

ITEM NO.	SPENo	DESCRIPTION	QTY.
11	5360B	Motor (415V)	1
47	SPCG/LNM25	Cable Gland	2
50	SPM1P065	Switch	1
51	SPM1X14400	Under Voltage Coil	1

**DFG280-6 (115V)**

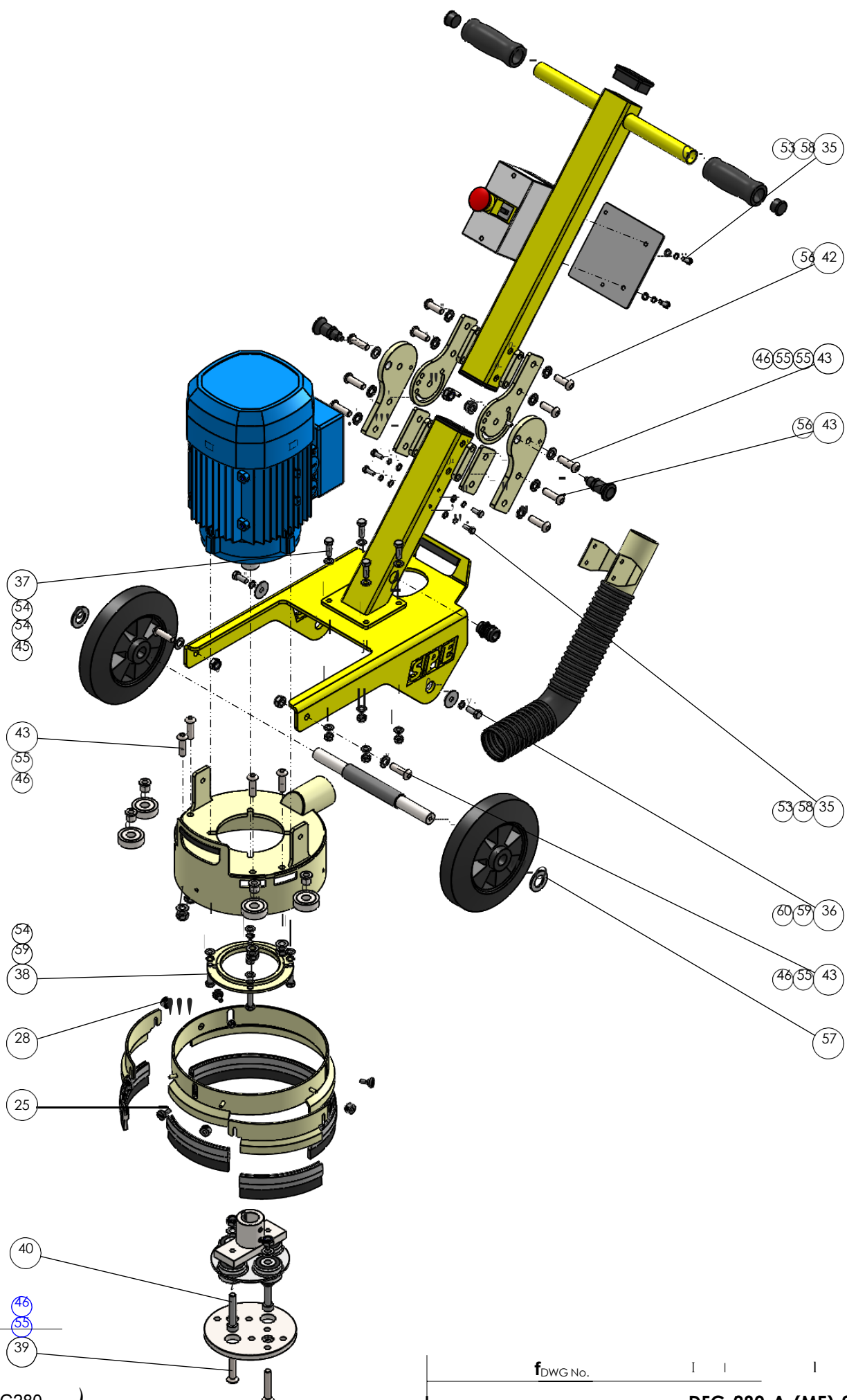
ITEM NO.	SPENo	DESCRIPTION	QTY.
4	5382	Connector	1
11	5360C	Motor (115V)	1
50	SPM1P1800	Switch	1
61	5381	Adapter Plate	1

SPM1X1702P	Enclosure Kit (Enclosure + Stop Button)
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**PARTS BREAKDOWN**

DWG No.		DFG-280-A-(BOM)-0	
SCALE	NOT TO SCALE	SHEET	1 of 6





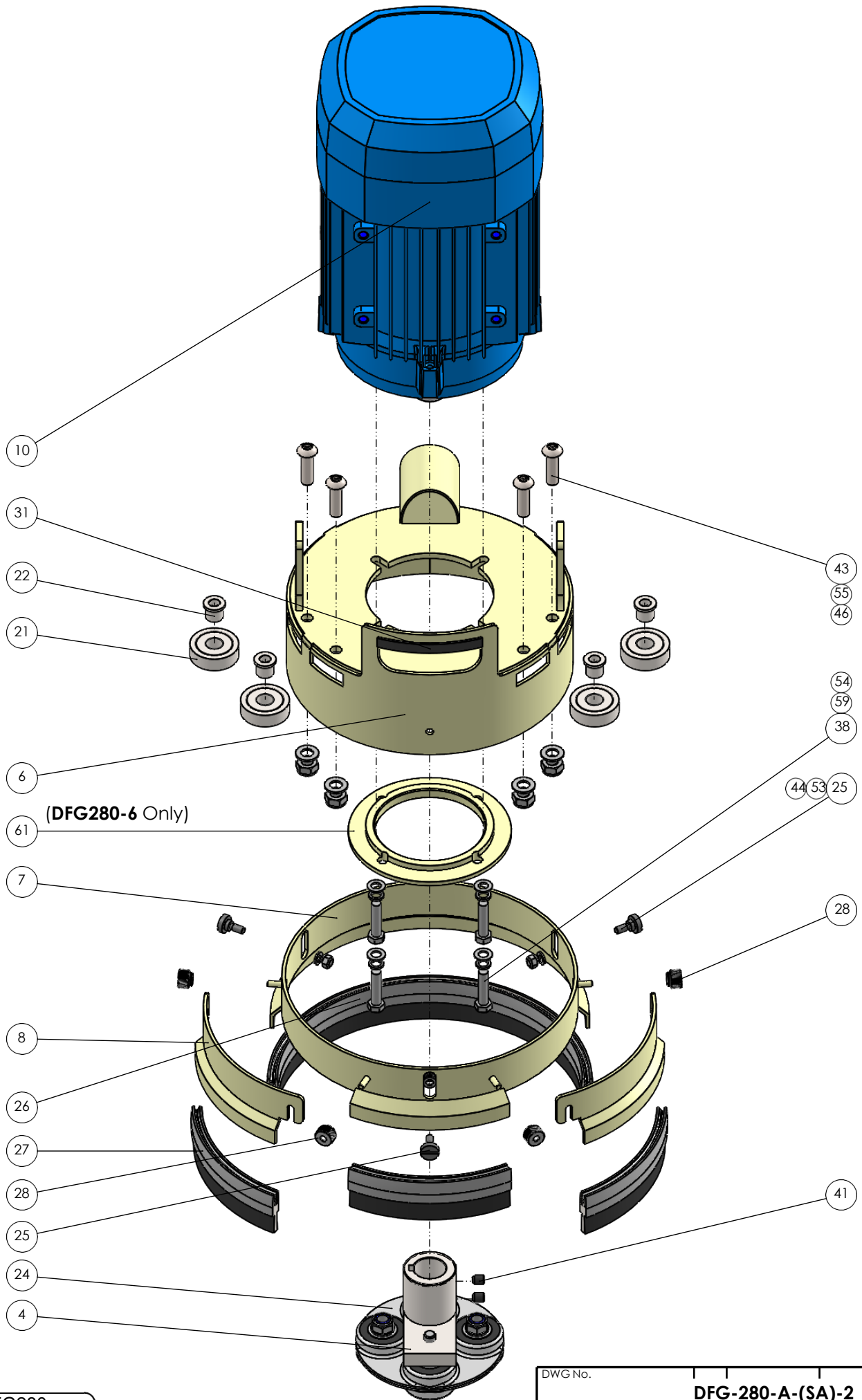
**DFG280**

f<sub>DWG</sub>No. | | | r=

**DFG-280-A-(ME)-2** FASTENERS

SCALE NOTTO SCALE

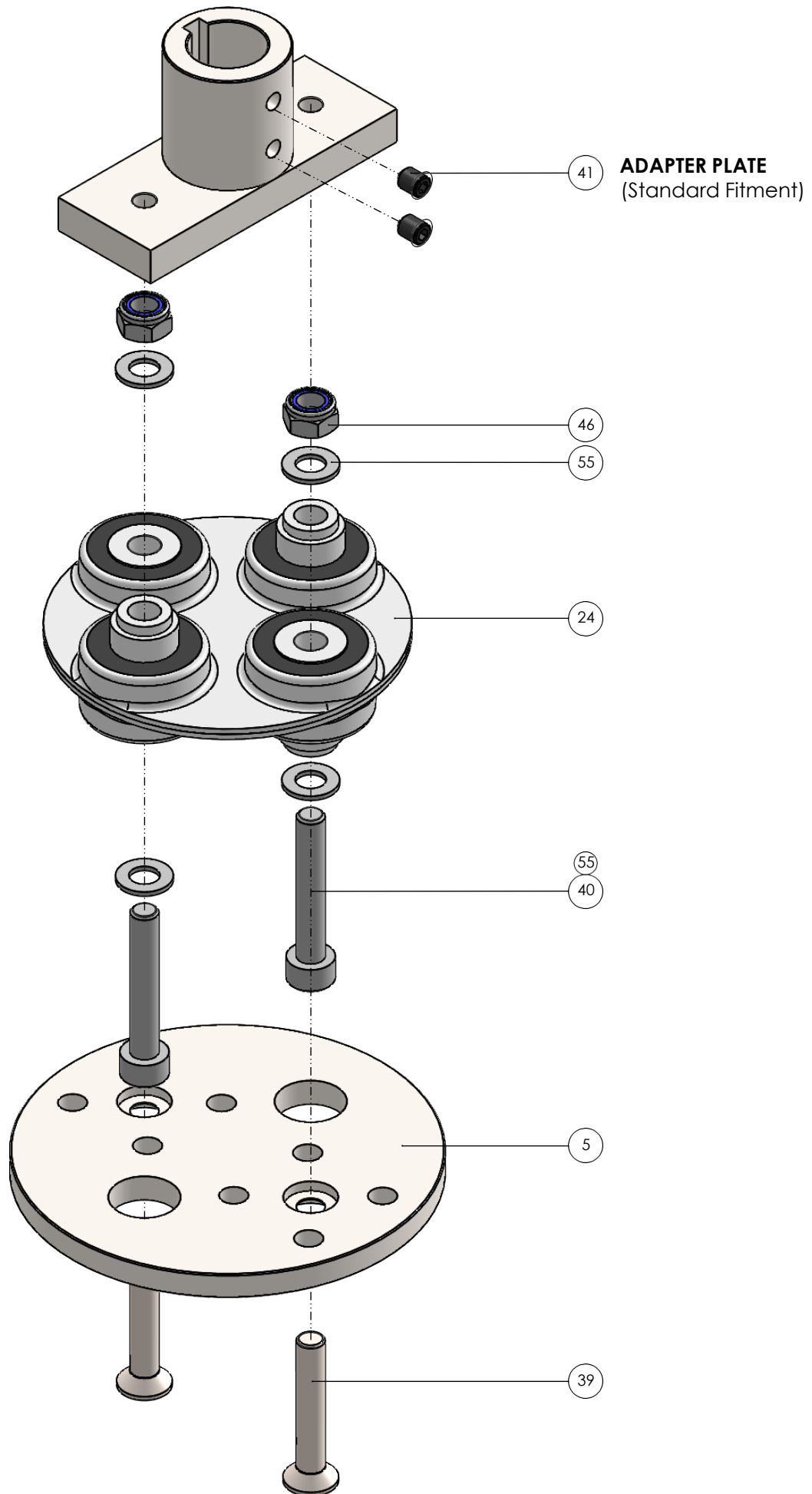
SHEET



DFG280

DWG No.		DFG-280-A-(SA)-2	HEAD
SCALE	NOT TO SCALE	SHEET	4 of 6





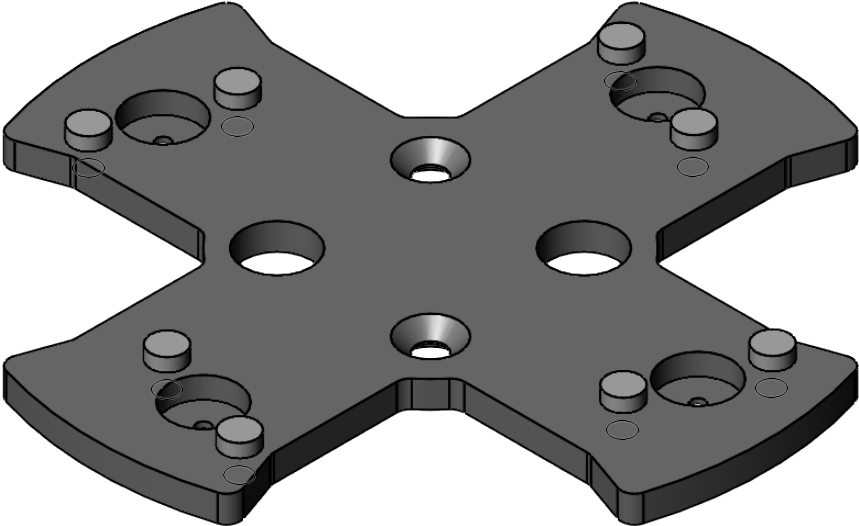
DFG280

DWG No.	DFG-280-A-(SA)-3	COUPLING
SCALE	NOT TO SCALE	SHEET 5 of 6

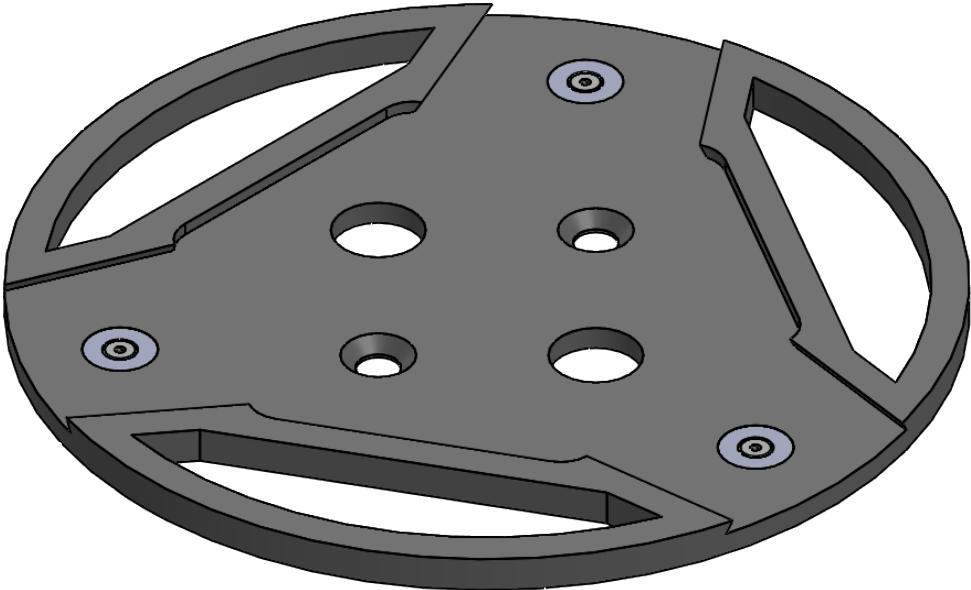
**OPTIONAL TOOLING PLATES**

SPENo.	DESCRIPTION
5355	T-Mag Plate
5381	Slide Mag Plate

**T-MAG PLATE**

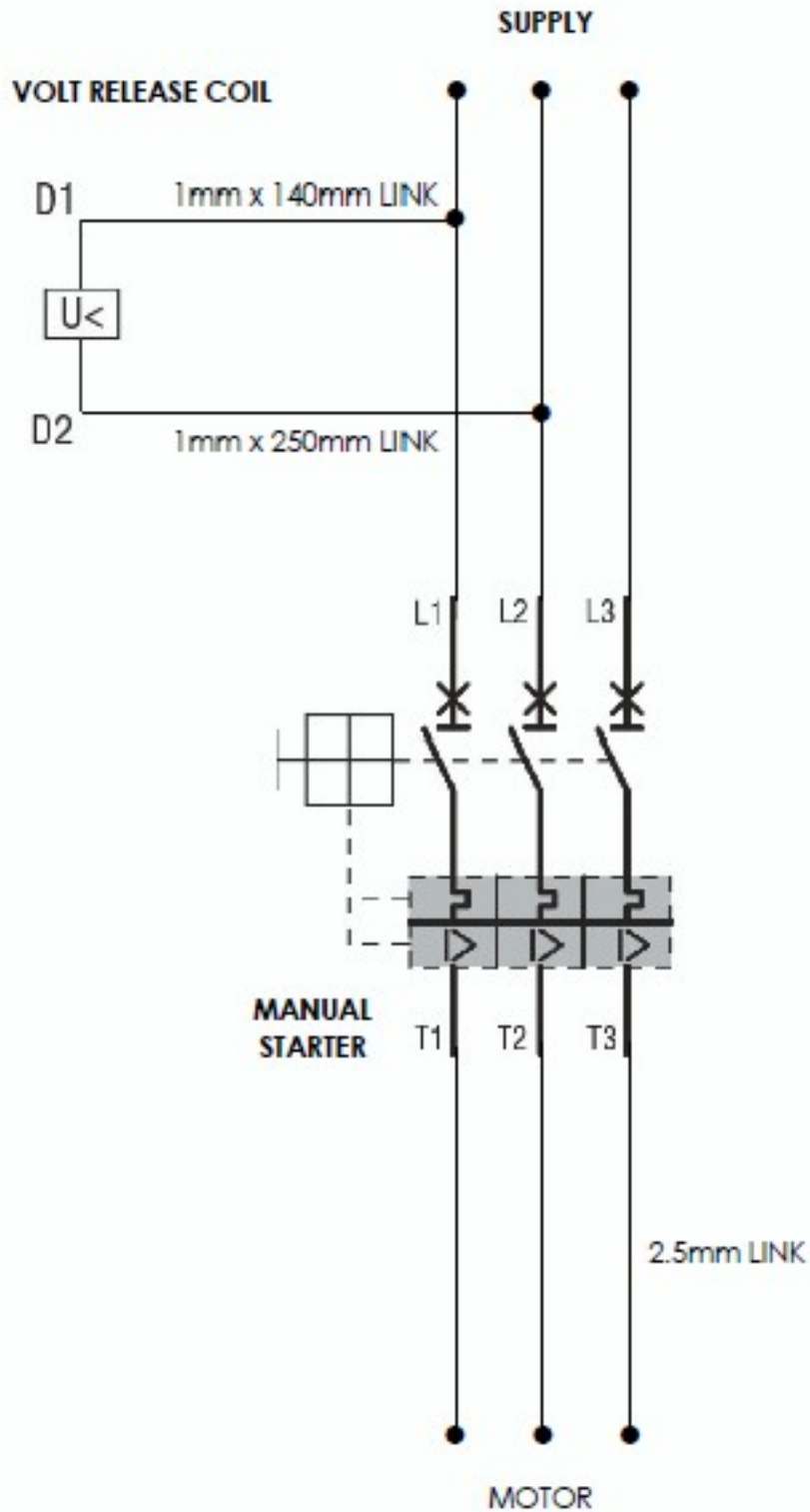


**SLIDE MAG PLATE**



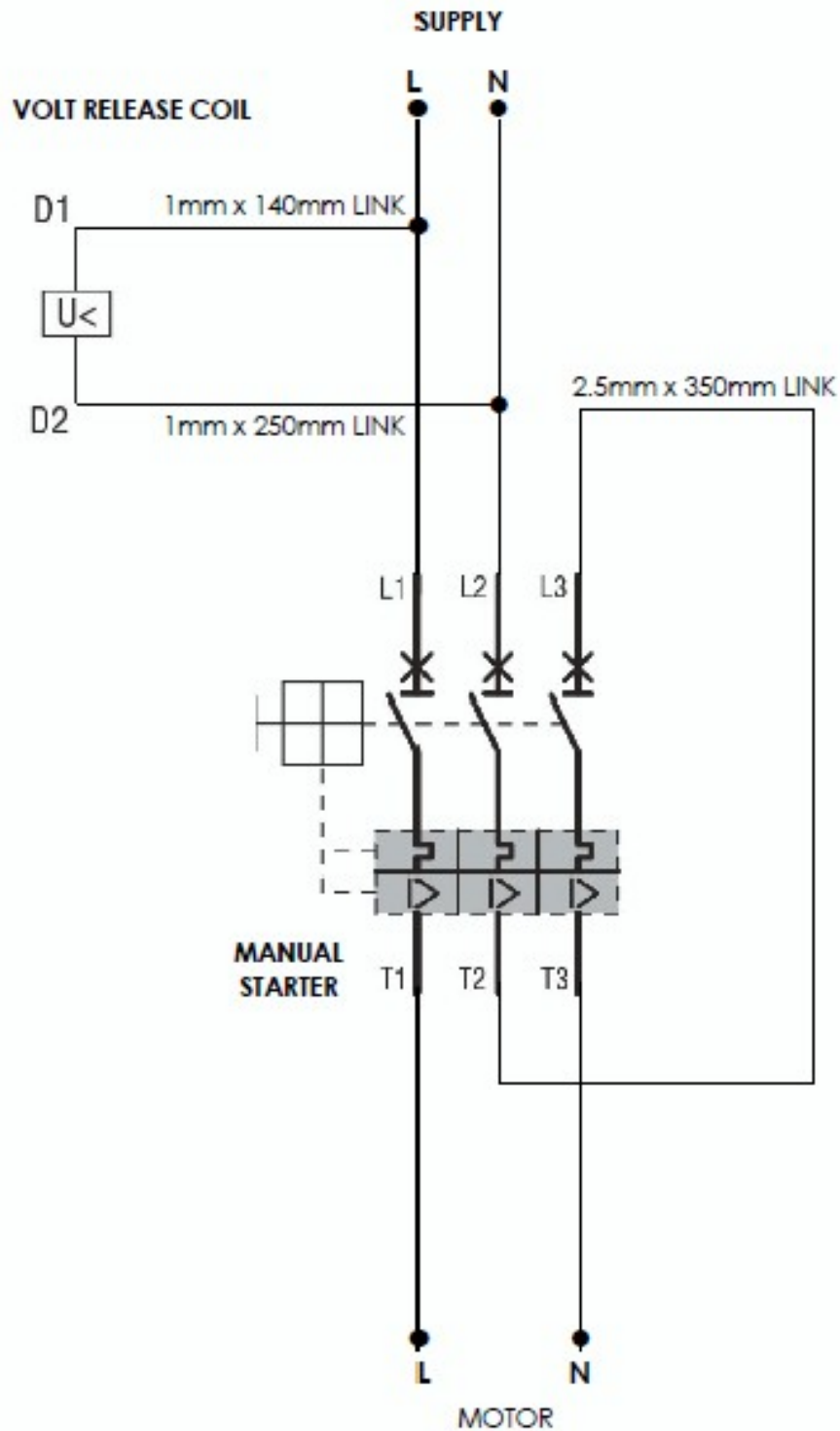
# WIRING DIAGRAM

## DFG280-1



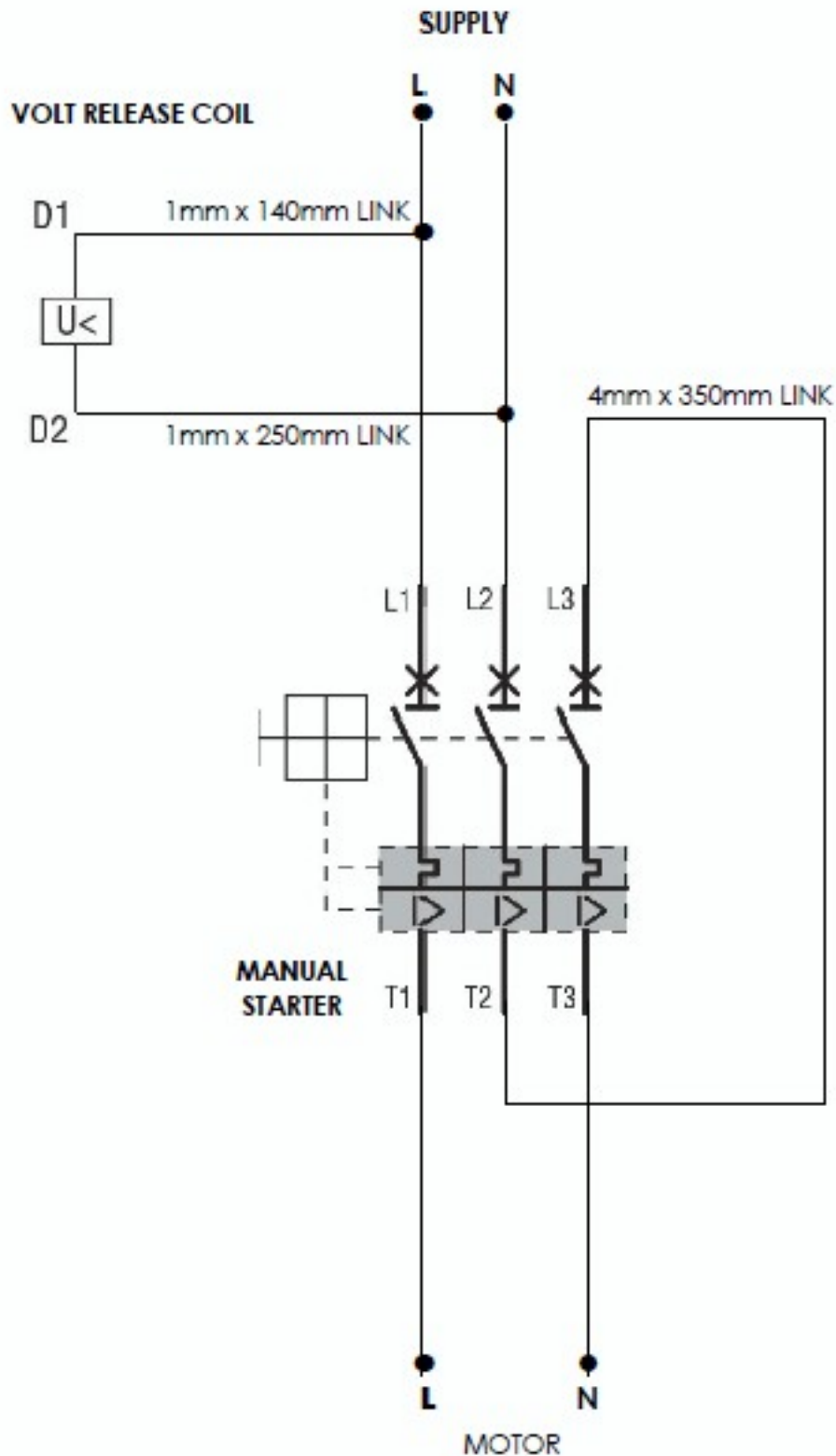
# WIRING DIAGRAM

## DFG280-3



# WIRING DIAGRAM

## DFG280-5



# ELECTRICAL REQUIREMENTS

DFG280-1

Volts	Plug Size	Cable Size (mm)	Norm Cable Length	Transformer	Generator
415V	16 Amp 5 Pin	2.5 - 3 Core	30 metres	-	8 kva

DFG280-3

Volts	Plug Size	Cable Size (mm)	Norm Cable Length	Transformer	Generator
230V	16 Amp 3 Pin	2.5 - 3 Core	30 metres	-	8 kva

DFG280-5

Volts	Plug Size	Cable Size (mm)	Norm Cable Length	Transformer	Generator
110V	32 Amp 3 Pin	4.0 - 3 Core	30 metres	5 kva	8 kva

DFG280-6

Volts	Plug Size	Cable Size (mm)	Norm Cable Length	Transformer	Generator
115V	15 Amp 3 Pin	2.5 - 3 Core	30 metres	-	8 kva

# SPECIFICATION SHEET

Specifications	
DFG280-1	
Type	Electric 3 Phase
Power Output	2.2kw
Voltage	415V
Cycles	50hz/60hz
Head Speed r.p.m.	1720
Engine motor speed r.p.m.	1720
Machine Dimensions (mm)	
Length	1000 / 660*
Width	356
Height	940 / 550*
Weight (kg)	49
	*With handle folded

Specifications	
DFG280-3	
Type	Electric 1 Phase
Power Output	2.2kw
Voltage	230V
Cycles	50hz
Head Speed r.p.m.	1400
Engine motor speed r.p.m.	1400
Machine Dimensions (mm)	
Length	1000 / 660*
Width	356
Height	940 / 550*
Weight (kg)	46.5
	*With handle folded

Specifications	
<b>DFG280-5</b>	
<b>Type</b>	Electric 1 Phase
<b>Power Output</b>	2.2kw
<b>Voltage</b>	110V
<b>Cycles</b>	50hz
<b>Head Speed r.p.m.</b>	1400
<b>Engine motor speed r.p.m.</b>	1400
<b>Machine Dimensions (mm)</b>	
<b>Length</b>	1020 / 660*
<b>Width</b>	280
<b>Height</b>	940 / 560*
<b>Weight (kg)</b>	49
	*With handle folded

Specifications	
<b>DFG280-6</b>	
<b>Type</b>	Electric 1 Phase
<b>Power Output</b>	1.1kw
<b>Voltage</b>	115v
<b>Cycles</b>	60hz
<b>Head Speed r.p.m.</b>	1690
<b>Engine motor speed r.p.m.</b>	1690
<b>Machine Dimensions (mm)</b>	
<b>Length</b>	1020 / 660*
<b>Width</b>	280
<b>Height</b>	940 / 560*
<b>Weight (kg)</b>	49
	*With handle folded



## RECORD OF NOISE AND VIBRATION ASSESSMENT

Manufacturer:	SPE
Type:	Compact Floor Grinder
Model No.	DFG280-5 Electric
Operation :	Concrete floor surface
Inserted Tool:	Diamond Plate
HAV Note:	Independent

### HAND-ARM VIBRATION

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

Measurement Position	Acceleration ( $m/s^2$ )			
	X axis	Y axis	Z axis	Vector Sum
Handle	1.59	2.79	1.77	3.67

### NOISE LEVELS

#### Sound Power Level ( $L_{WA}$ )

$L_{WA}$ at Octave Band Centre Frequency (Hz)								Sound Power Level $L_{WA}$
63	125	250	500	1000	2000	4000	8000	
51.0	73.8	88.4	91.9	94.9	97.5	90.8	80.2	<b>100.7</b>

#### Operator's Ear

$L_{Aeq,T}$ at Octave Band Centre Frequency (Hz)								Overall Level ( $L_{Aeq,T}$ )	$L_{Peak}$ dB(C)
63	125	250	500	1000	2000	4000	8000		
39.3	56.5	74.7	78.0	80.9	79.9	75.7	67.1	<b>86.0</b>	<b>101.5</b>

# 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).

Bartell agrees to furnish without charge, F.O.B. our plant, a replacement for any part or portion thereof, comprising the main unit of the DFG280, consisting of the head housing assembly, save and except power units, prove upon our examination, to be defective in either material or workmanship within a period of twelve (12) months from date of purchase, provided that notice of such defective part or portion thereof is given to Bartell Ltd. within the twelve month warranty period. No further or other guarantee or warranty expressed or implied in connection with the sale of the machine is given and our sole liability consists in replacing defective parts or portions thereof. We shall not be responsible for any special, indirect or consequential damages arising in any manner whatsoever.

This guarantee is for the sole benefit of the original purchaser as end user. Our responsibility under this guarantee ends in the case the original purchaser transfers ownership of the BEF200N, makes any changes or adds any parts or devices not of our manufacture to the machine.

<i>Warranty start date:</i>	<b>As despatch date</b>
<i>Model:</i>	<b>DFG280</b>
<i>Serial no:</i>	
<i>Customer name:</i>	
<i>Customer Address:</i>	

<i>Manufacturer:</i>	<b>SPE International Ltd</b>
	<b>Honeyholes Lane</b>
	<b>Dunholme</b>
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<i>Telephone:</i>	<b>+44 (0) 1673 860709</b>
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<i>Email:</i>	<b>sales@spe-int.com</b>
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# 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)            **DFG280**

(Model/type)                 **DFG280**

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**

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.
- 5. 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 which come 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 thereof 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.