



FS Oil-Free Sprinkler Compressor Range Operators Handbook

Covering Models:-

FSB150
FSB200

FSP75
FSP150
FSP200
FSP250

FSD25
FSD50

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Operating Manual

**Your Bambi Air Compressor is a precision engineered product.
By following these simple steps you will ensure years of trouble free use.**

Parts & Service are available from your Bambi dealer.

It is important to quote Model, Type & Serial Number in all communications.

The substitution of parts not manufactured nor approved by Bambi can impair performance, service life and create potential mechanical or personnel hazards and will invalidate your warranty.

Bambi reserves the right to modify the contents of this operating booklet without notice and the information is in no way binding on the company.

Warranty

Provided the operating instructions have been followed, and the compressor has been properly maintained, Bambi FS compressors are guaranteed against faulty workmanship for a period of 2 years.

The guarantee does not cover damage by misuse, incorrect parts or service. Contact Bambi Air Compressors or your system installer for further information.

1) Safety Precautions

What you **must** do:

- Read these instructions before using your air compressor.
- Ensure the compressor has been installed, electrically connected and piped in by a properly qualified person.
- Ensure the compressor is kept upright at all times.

What you **must not** do:

- Do not attempt any maintenance on the compressor until it has been isolated from the power supply.
- Do not attempt any work on the compressor until the air receiver and pipe work systems are depressurised.
- Compressed air is dangerous if misused and can prove fatal. Avoid any bodily contact with compressed air.
- During operation the motor will become quite hot to the touch. Avoid contact to prevent burns.
- Never tamper with the pressure relief valve.
- Never lubricate the oil free motor or pump assembly; this will cause severe damage.
- Never obstruct cooling fans or outlet vents.

2) Siting The Compressor

What you **must** do:

- Provide adequate protection from the weather.
- Site the compressor level in both planes.
- Larger models are heavy. Ensure the surface has sufficient load bearing capacity.
- Allow access for maintenance all around the compressor.
- Site in a dry area, avoiding damp or humid conditions. The site must be dust free, well ventilated and have a cool ambient temperature. 0 to 40°C should be regarded as the maximum allowable ambient.
- Ensure that the fixings are robust enough to hold the compressor securely during operation.

What you **must not** do:

- Enclose the compressor or allow hot air generated by the motor to re-circulate around the compressor. Ensure there is 30cm clearance around the compressor.

3) Electrical Connections

Where applicable, compressors are supplied with a moulded plug in accordance with national standards.

Never remove the moulded plug.

Wired in accordance with European Standard –

Single phase: Blue = neutral, Brown = live, Yellow & Green Stripe = earth

Three phase: Brown/Black/Grey = Phase conductors

Blue = Neutral

Yellow and Green Stripe = earth

Three phase compressors should be connected by a competent person

Note !

For FSP/FSD compressors in three phase when fitted with Bailey and Mackay pressure switch a neutral feed is required.

4) Operation

Refer to exploded parts diagrams and illustrations when reading this section.

4.1) Pipework Connections

Connect a ½" BSP female fitting flexi hose from the compressor air outlet connection to the sprinkler system isolation valve

FSP/FSD Range

Use the supplied ½" BSP male fitting flexi hose (supplied with FSP and FSD models) between the Sprinkler System isolation valve and compressor air outlet connection.

4.2) Starting and Stopping

Plug or wire the compressor into an outlet socket of nominal voltage and fitted with the correct fuse as shown in section Electrical Connections.

FSB150 / 200

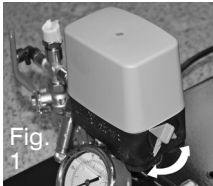
Switch the compressor on and off using the 0/1 switch located on the pressure switch.



The compressor will start running and automatically switch off at the preset cut out pressure (3 bar). As air pressure drops in the system pipe work, the compressor will restart at the preset cut-in pressure (2bar). A preset pressure relief valve set to 6 bar is incorporated to protect the compressor from overpressure.

FSP 75 / 150 / 200 / 250 - FSD 25 / 50

a) Danfoss Pressure Switch



Ensure the pressure switch is in the "Auto" position - see Fig. 1. Switch the compressor on and off using the mains isolator switch - see Fig. 3.

The compressor will start running and automatically switch off at the cut out pressure selected by adjusting the pressure switch.

The pressure switch is factory set to 3bar cut out pressure and 2 bar cut-in pressure. A minimum of 0.2 bar differential must be maintained.

b) Bailey and Mackey Pressure Switch



Fig. 2

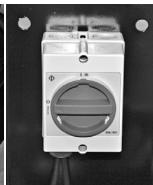


Fig. 3

Switch the compressor on and off using the mains isolator switch - see Fig. 3.

The compressor will start running and automatically switch off at the cut out pressure selected by adjusting the variable pressure switch - see Fig. 2.

The pressure switch is factory set to 3bar cut out pressure and 2 bar cut-in pressure.

A minimum of 0.2 bar differential must be maintained.

As air pressure drops in the system pipework the compressor will restart at the selected cut-in pressure. A preset pressure relief valve set to 6bar is incorporated to protect the compressor from overpressure.

Note !

Each time the compressor switches off or the power supply is interrupted, you will hear a short hiss of air. You are hearing the unloader valve discharging the residual delivery pipe pressure. This is normal.

4.3) Restricted mode



A lever type ball valve, with a red handle, that is situated in the pipe work at the front of the compressor controls the compressor air flow output rate.

With the red lever in the in-line position, full compressor airflow rate is allowed for initial pressurisation of the system.

With the lever at 90° the compressor output is reduced to provide a topping up mode to maintain system pressure – the lever should be set to this position after the initial pressurisation of the system.

5) Technical

5.1) FSB / FSP Range

We recommend the compressor has a maximum 50% duty cycle to prolong pump life.

Note !

The motor must never be allowed to run continuously otherwise it will overheat and may become damaged.

Do not ignore air leaks. All air connections must be leak free to prevent the compressor from over heating.

The compressor is fitted with a thermal overload. In the event of excessive temperature the compressor will switch off and the internal thermal protector will activate. To re-set follow the procedure below-

Switch off. Allow 50 minutes for the motor to cool down then switch back on at the pressure switch. The compressor should now restart.

You must find the cause of the overload and rectify this before continuing to use the compressor.

Check for -

- Air leak on the dry pipe system
- Air leaks on the pneumatic fittings
- Compressor not the correct size for the work load

Contact your service engineer to investigate the cause.

5.2) FSD Range

The compressor in the FSD range is continuously rated and designed to operate at a nominal working pressure as shown on the compressor identification label.

However, it is still important to identify any system leaks or blockages that can cause the compressor to run in an inefficient manner and shorten its working life.

6) Preventative Maintenance

Operation	Daily	Weekly	Annually	2 Years	5 Years
Replace Air Intake Filter			•		
Check Pressure Relief Activation			•		
Clean Ventilation Grilles			•		
Check Piston Ring [FSB/FSP]				•	
Check diaphragm and valve strip [FSD]				•	

Above are to be considered minimum frequency

All Bambi FS range compressors are oil-free and so do not require any lubrication service intervals.

7) Troubleshooting

Symptom	Reason	Action
Compressor does not start	1. System air pressure is above 3bar (or level set on pressure switch where adjustable)	Check system pressure and ensure system manual isolation valve is open.
	2. FSP/D Models – on/off switch turned to off position	Turn to ON position.
	3. Power Supply failed	Check Power Supply.
Compressor cuts in and out for short periods	1. Air Leaks in system pipe work	Isolate compressor from system, if compressor stops, check for leaks in system pipe work.
	2. Air leaks on pressure gauge assembly or pipe work with non-return valve at compressor.	Isolate compressor from system, if compressor continues to start and stop for short periods check all connections for leaks with soapy water or leak detection fluid.
Compressor Thermal Trip operates	1. Non return valve allowing air to remain in compressor discharge line prior to starting	Check and clean or replace non return valve.
	2. Solenoid un-loader valve [where fitted] failure	Replace solenoid un-loader valve
	3. Pipeline blockage	Remove blockage
	4. Compressor operating excessively due to air leaks	Check for leaks as above
	5. Too high ambient temperature	Check that there is sufficient space around compressor Lower ambient temperature by additional cooling

8) Technical Specification

10.1) Pumps

FSB / FSP Range:

FS 0.75Hp Pump Specification	FSP75
Motor Kw / Hp	0.55 / 0.75
Voltage	220/240
Frequency Hz	50
Amps	5
Displacement l/min	120

FS 1.5Hp Pump Specification	FSB/P150
Motor Kw / Hp	1.1 / 1.5
Voltage: Single phase 3 phase	220/240 380/415
Frequency Hz	50
Amps 1 phase/3 phase	7/3
Displacement l/min	175

FS 2.0Hp Pump Specification	FSB/P200
Motor Kw / Hp	1.5 / 2.0
Voltage: Single phase 3 phase	220/240 380/415
Frequency Hz	50
Amps 1 phase/3 phase	11/4
Displacement l/min	220

FS 2.5Hp Pump Specification	FSB/P250
Motor Kw / Hp	1.84 / 2.5
Voltage: Single phase 3 phase	220/240 380/415
Frequency Hz	50
Amps 1 phase/3 phase	12/5
Displacement l/min	300

FSD Range: Single Phase

FSD25 Single Phase Specification	FSD25
Motor Kw / Hp	0.25 / 0.34
Voltage	220/240
Frequency Hz	50
Amps	1.8
Displacement l/min	55

FSD50 Single Phase Specification	FSD50
Motor Kw / Hp	0.46 / 0.62
Voltage	220/240
Frequency Hz	50
Amps	2
Displacement l/min	116

Three Phase

FSD25 Three Phase Specification	FSD25
Motor Kw / Hp	0.37 / 0.50
Voltage	380/415
Frequency Hz	50
Amps	1.8
Displacement l/min	55

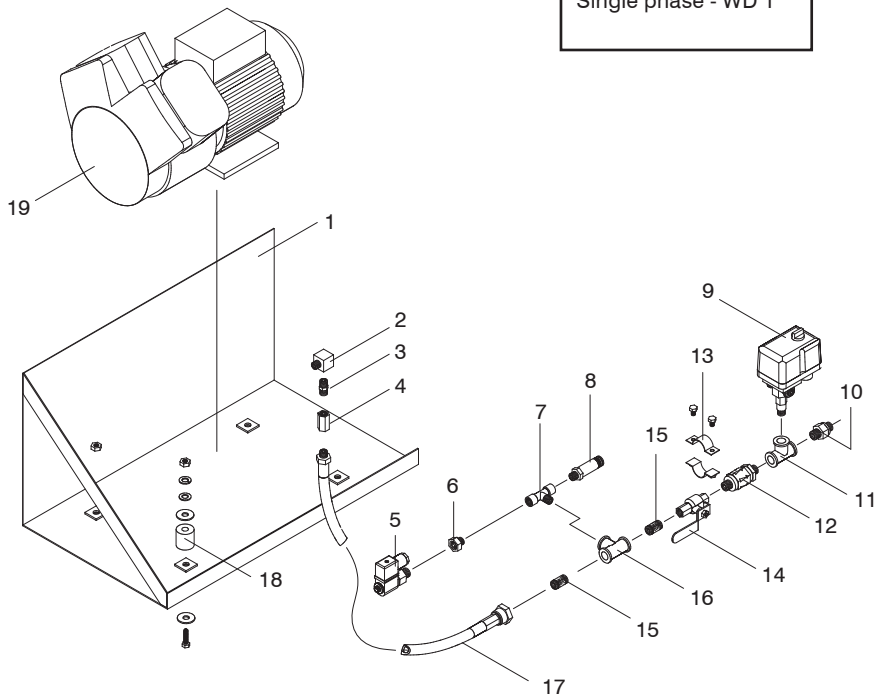
FSD50 Three Phase Specification	FSD50
Motor Kw / Hp	0.55 / 0.75
Voltage	380/415
Frequency Hz	50
Amps	1.4
Displacement l/min	116

FSB150

Ref No.	Description	Part no.
1	Frame	BPB0207
2	Elbow	BPB0614
3	3/8 x 3/8bsp special nipple	BPB0654
4	3/8bsp socket	BPB0419
5	Solenoid valve	BPB0545
6	1/4 x 1/8bsp reducing bush	BPB0041
7	1/4bsp Tee FFM	BPB0917
8	Relief valve	BPB0146
9	Pressure switch	BPB0205
10	3/8 x 1/2bsp MM adaptor	BPB0211

11	3/8bsp Tee	BPB0159
12	Non-return valve	BPB0822
13	Clamp	BPB0162
14	Regulator valve	BPB0167
15	3/8bsp nipple	BPB0283
16	3/8 x 1/4bsp Tee	BPB0174
17	Pipe	BPB0858
18	Spacer	BPB0209
19	Pump	BPB0540
20		
21		

Wiring diagram:
Single phase - WD 1

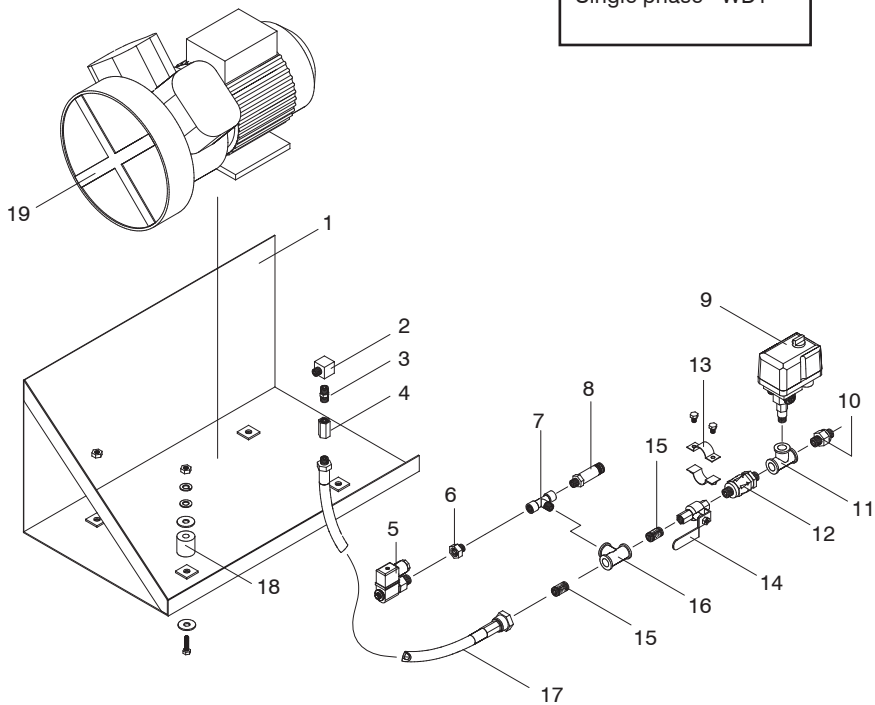


FSB200

Ref No.	Description	Part no.
1	Frame	BPB0207
2	Elbow	BPB0614
3	3/8 x 3/8bsp special nipple	BPB0654
4	3/8bsp socket	BPB0419
5	Solenoid valve	BPB0545
6	1/4 x 1/8bsp reducing bush	BPB0041
7	1/4bsp Tee FFM	BPB0917
8	Relief valve	BPB0146
9	Pressure switch	BPB0205
10	3/8 x 1/2bsp MM adaptor	BPB0211

11	3/8bsp Tee	BPB0159
12	Non-return valve	BPB0822
13	Clamp	BPB0162
14	Regulator valve	BPB0167
15	3/8bsp nipple	BPB0283
16	3/8 x 1/4bsp Tee	BPB0174
17	Pipe	BPB0858
18	Spacer	BPB0209
19	Pump	BPB0541
20		
21		

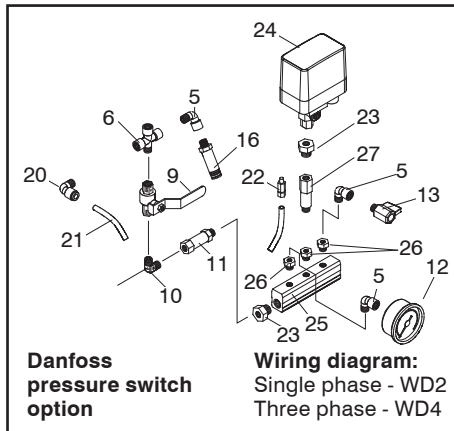
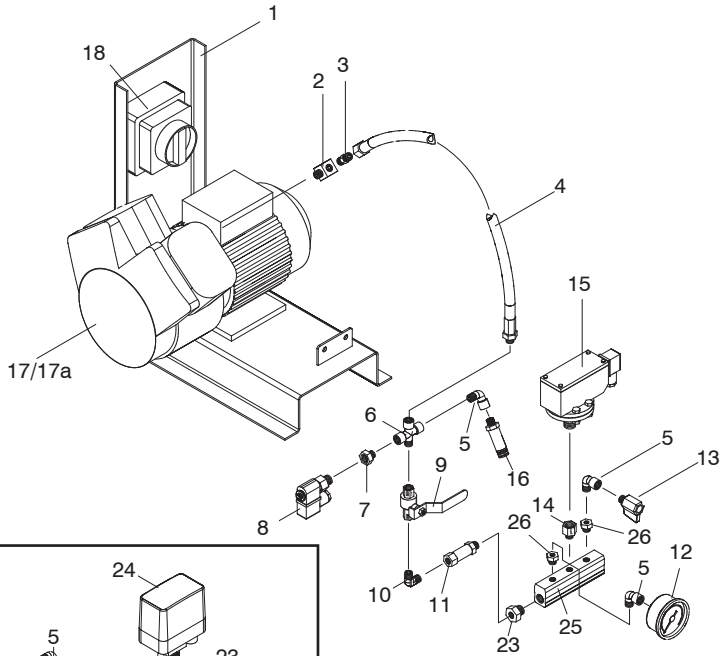
Wiring diagram:
Single phase - WD1



FSP 75 / 150

Ref No.	Description	Part no.
1	Frame	BPB0338
2	Elbow	BPB0614
3	3/8 x 3/8bsp special nipple	BPB0654
4	Pipe	BPB0357
5	1/4bsp M/F elbow	BPB1139
6	1/4bsp cross	BPB0136
7	1/4 x 1/8bsp reducing bush	BPB0041
8	Solenoid valve	BPB0545
9	Regulator valve	BPB0093
10	1/4bsp M/M elbow	BPB0448
11	Non-return valve	BPB0147
12	Gauge	BPB0178
13	On-off tap	BPB1079

14	3/8 x 1/2bsp reducing bush	BPB0916
15	Pressure switch	BPB0287
16	Relief valve	BPB0146
17	Pump [single phase]	BPB0540
17a	Pump [3 phase]	BPB0542
18	Isolator switch	BPB0218
20	1/4bsp x 6mm push-fit elbow	BPB0042
21	6mm pipe	BPB0203
22	Unloader valve	CP3993
23	1/2 x 1/4bsp reducing bush	CP0137
24	Pressure switch	CP2228
25	Manifold	BPB0915
26	1/4 x 3/8bsp reducing bush	BPB0356
27	1/4 x 1/4bsp extension	BPB0775
28		



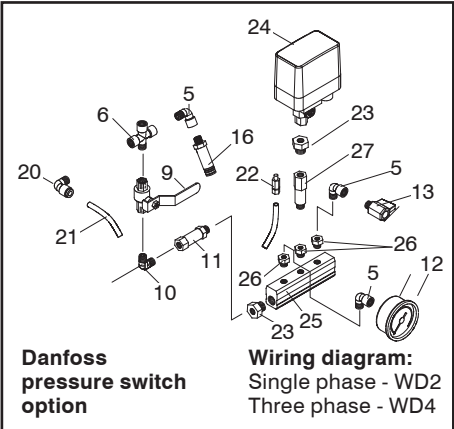
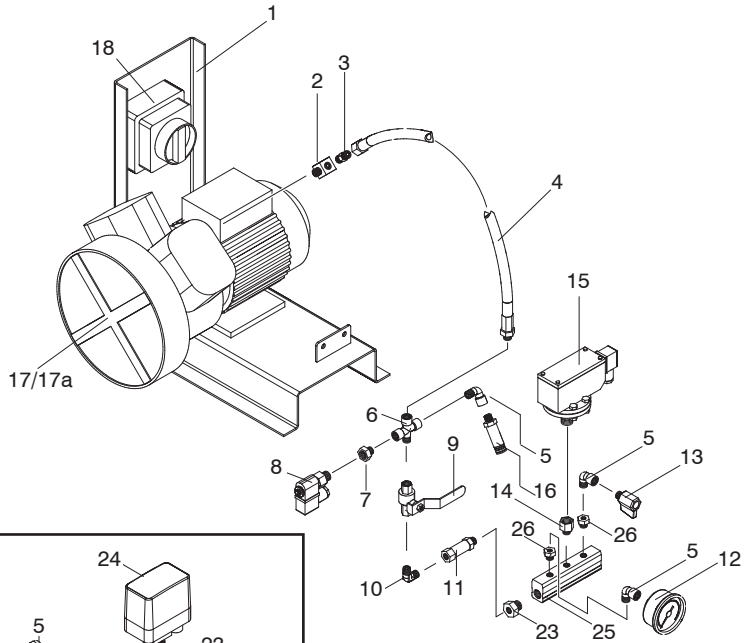
Bailey and Mackey pressure switch option

Wiring diagram:
Single phase - WD6
Three phase - WD8

FSP200

Ref No.	Description	Part no.
1	Frame	BPB0338
2	Elbow	BPB0614
3	3/8 x 3/8bsp special nipple	BPB0654
4	Pipe	BPB0357
5	1/4bsp M/F elbow	BPB1139
6	1/4bsp cross	BPB0136
7	1/4 x 1/8bsp reducing bush	BPB0041
8	Solenoid valve	BPB0545
9	Regulator valve	BPB0093
10	1/4bsp M/M elbow	BPB0448
11	Non-return valve	BPB0147
12	Gauge	BPB0178
13	On-off tap	BPB1079

14	3/8 x 1/2bsp reducing bush	BPB0916
15	Pressure switch	BPB0287
16	Relief valve	BPB0146
17	Pump [single phase]	BPB0541
17a	Pump [3 phase]	BPB0543
18	Isolator switch	BPB0218
20	1/4bsp x 6mm push-fit elbow	BPB0042
21	6mm pipe	BPB0203
22	Unloader valve	CP3993
23	1/2 x 1/4bsp reducing bush	CP0137
24	Pressure switch	CP2228
25	Manifold	BPB0915
26	1/4 x 3/8bsp reducing bush	BPB0356
27	1/4 x 1/4bsp extension	BPB0775
28		



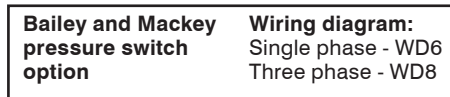
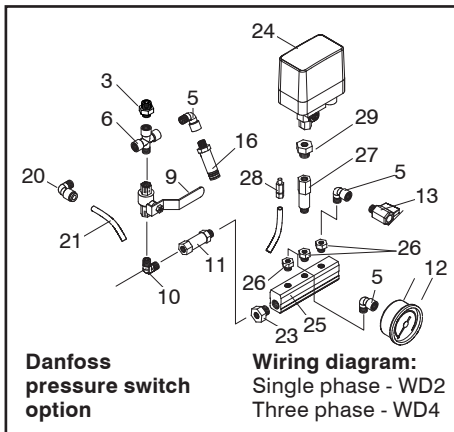
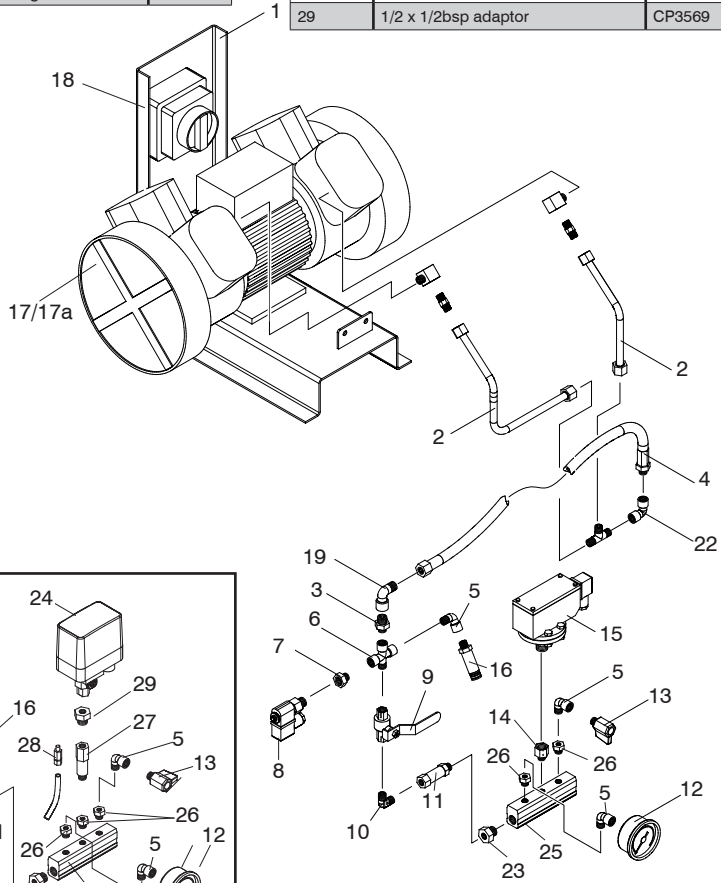
Bailey and Mackey pressure switch option

Wiring diagram:
Single phase - WD6
Three phase - WD8

FSP250

Ref No.	Description	Part no.
1	Frame	BPB0338
2	Pipe assembly	
3	3/8 x 1/4bsp connector	BPB0591
4	Pipe	BPB0858
5	1/4bsp M/F elbow	BPB1139
6	1/4bsp cross	BPB0136
7	1/4 x 1/8bsp reducing bush	BPB0041
8	Solenoid valve	BPB0545
9	Regulator valve	BPB0093
10	1/4bsp M/M elbow	BPB0448
11	Non-return valve	BPB0147
12	Gauge	BPB0178
13	On-off tap	BPB1079
14	3/8 x 1/2bsp reducing bush	BPB1139

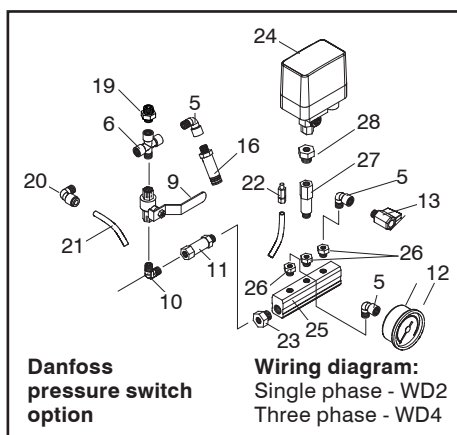
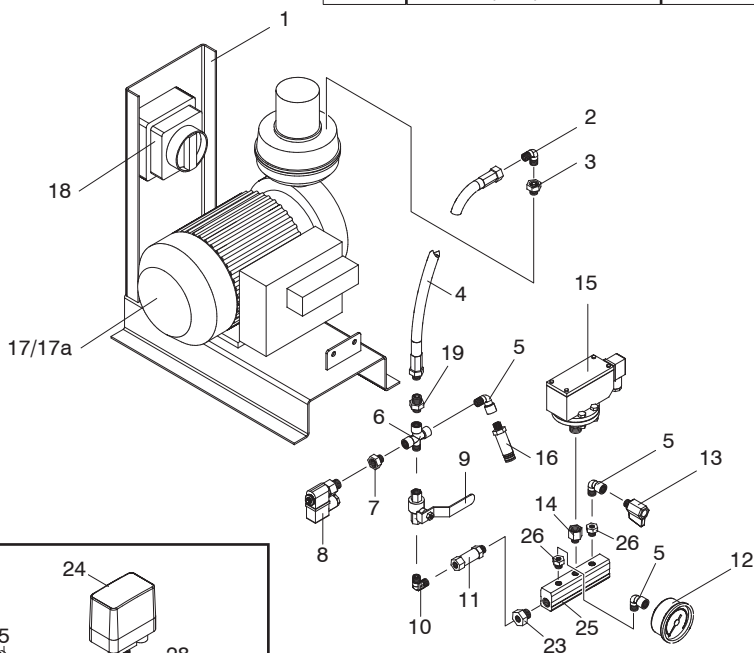
15	Pressure switch	BPB0287
16	Relief valve	BPB0146
17	Pump [single phase]	BPB0870
17a	Pump [3 phase]	BPB0871
18	Isolator switch	BPB0218
19	3/8bsp M/F elbow	BPB0282
20	1/4bsp x 6mm push-fit elbow	BPB0042
21	6mm pipe	BPB0203
22	3/8bsp F/F elbow	BPB0837
23	1/2 x 1/4bsp reducing bush	CP0137
24	Pressure switch	CP2228
25	Manifold	BPB0915
26	1/4 x 3/8bsp reducing bush	BPB0356
27	1/4 x 1/4bsp extension	BPB0775
28	Unloader valve	CP3993
29	1/2 x 1/2bsp adaptor	CP3569



FSD25

Ref No.	Description	Part no.
1	Frame	BPB0338
2	3/8bsp M/M elbow	BPB0629
3	1/2 x 3/8bsp reducing bush	BPB0211
4	Pipe	BPB0357
5	1/4bsp M/F elbow	BPB1139
6	1/4bsp cross	BPB0136
7	1/4 x 1/8bsp reducing bush	BPB0041
8	Solenoid valve	BPB0545
9	Regulator valve	BPB0093
10	1/4bsp M/M elbow	BPB0448
11	Non-return valve	BPB0147
12	Gauge	BPB0178
13	On-off tap	BPB1079

14	3/8 x 1/2bsp reducing bush	BPB0916
15	Pressure switch	BPB0287
16	Relief valve	BPB0146
17	Pump [single phase]	CCD/189/05
17a	Pump [3 phase]	CCD/189/03
18	Isolator switch	BPB0218
19	3/8 x 1/4bsp connector	BPB0591
20	1/4bsp x 6mm push-fit elbow	BPB0042
21	6mm pipe	BPB0203
22	Unloader valve	CP3993
23	1/2 x 1/4bsp reducing bush	CP0137
24	Pressure switch	CP2228
25	Manifold	BPB0915
26	1/4 x 3/8bsp reducing bush	BPB0356
27	1/4 x 1/4bsp extension	BPB0775
28	1/2 x 1/2bsp adaptor	CP3569



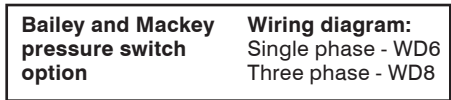
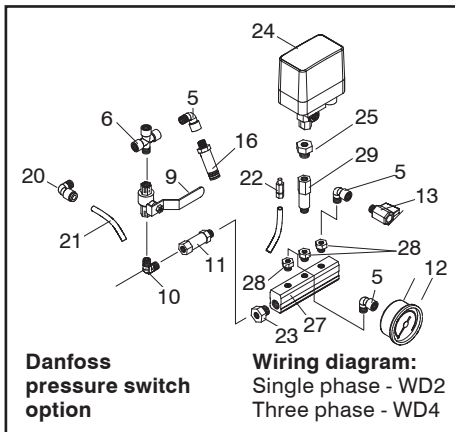
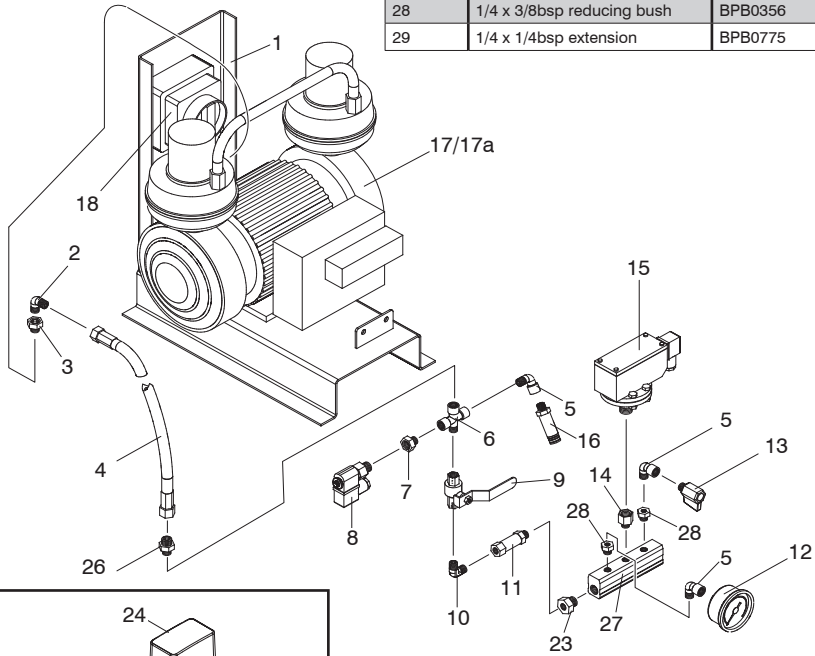
Bailey and Mackey pressure switch option

Wiring diagram:
Single phase - WD6
Three phase - WD8

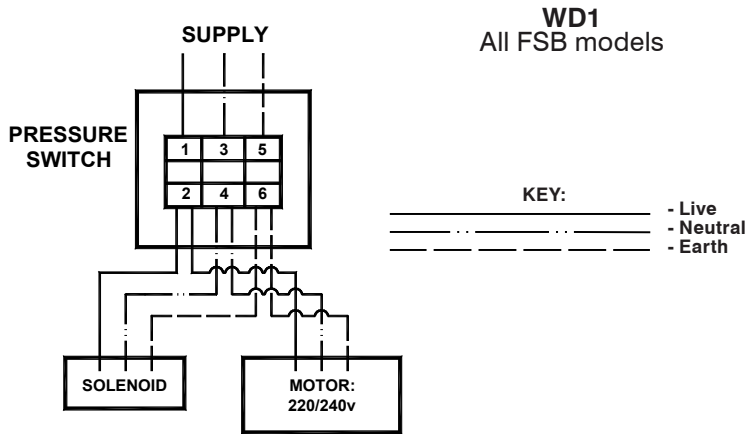
FSD50

Ref No.	Description	Part no.
1	Frame	BPB0338
2	3/8bsp M/M elbow	BPB0629
3	1/2 x 3/8bsp reducing bush	BPB0211
4	Pipe	BPB0508
5	1/4bsp M/F elbow	BPB1139
6	1/4bsp cross	BPB0136
7	1/4 x 1/8bsp reducing bush	BPB0041
8	Solenoid valve	BPB0545
9	Regulator valve	BPB0093
10	1/4bsp M/F elbow	BPB1139
11	Non-return valve	BPB0147
12	Gauge	BPB0178
13	On-off tap	BPB1079

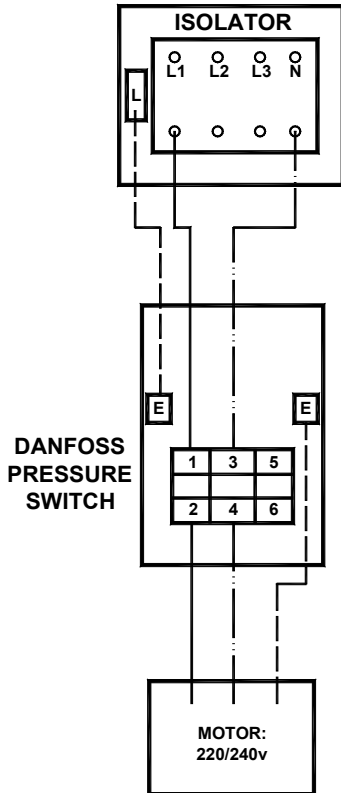
14	3/8 x 1/2bsp reducing bush	BPB0916
15	Pressure switch	BPB0287
16	Relief valve	BPB0146
17	Pump [Single phase]	CC2D/197/03
17a	Pump [3 phase]	CC2D/197/14
18	Isolator switch	BPB0218
20	1/4bsp - 6mm push-fit elbow	BPB0042
21	6mm pipe	BPB0203
22	Unloader valve	CP3993
23	1/2 x 1/4bsp reducing bush	CP0137
24	Pressure switch	CP2228
25	1/2 x 1/2bsp adaptor	CP3569
26	1/4 x 3/8bsp reducer	BPB0591
27	Manifold	BPB0915
28	1/4 x 3/8bsp reducing bush	BPB0356
29	1/4 x 1/4bsp extension	BPB0775



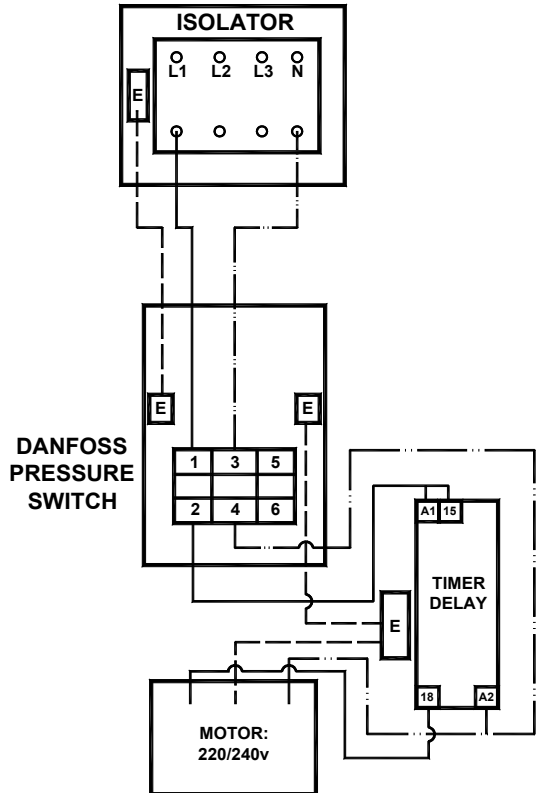
Wiring Diagrams



WD2
Single phase Danfoss

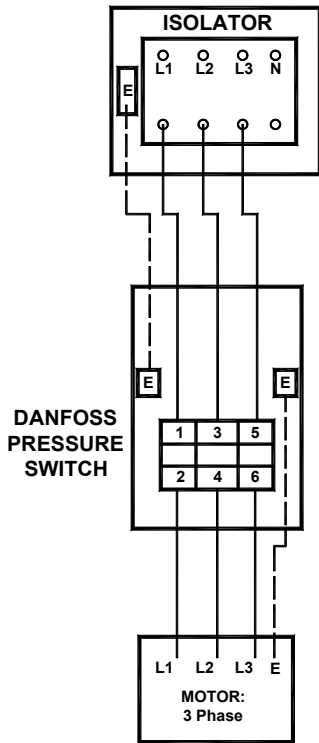


WD3
Single phase Danfoss with timer

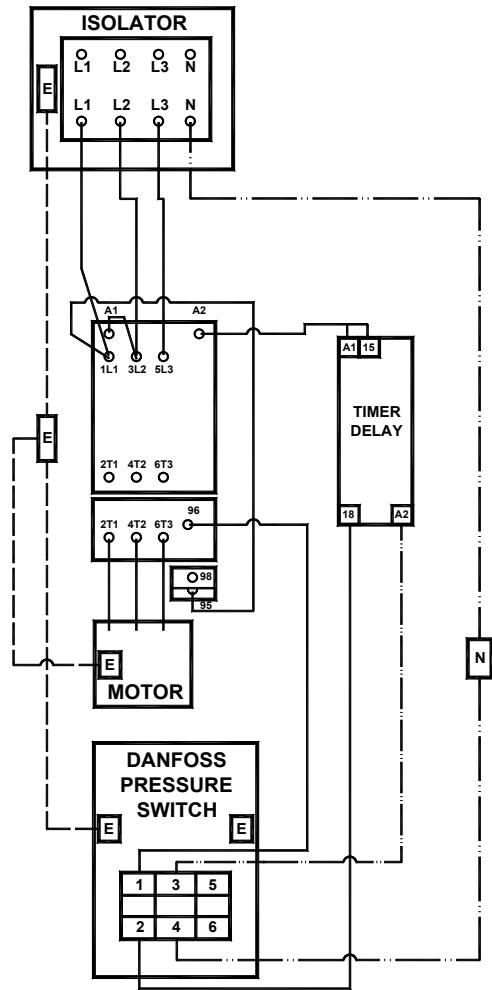


Wiring Diagrams

WD4
3 phase Danfoss



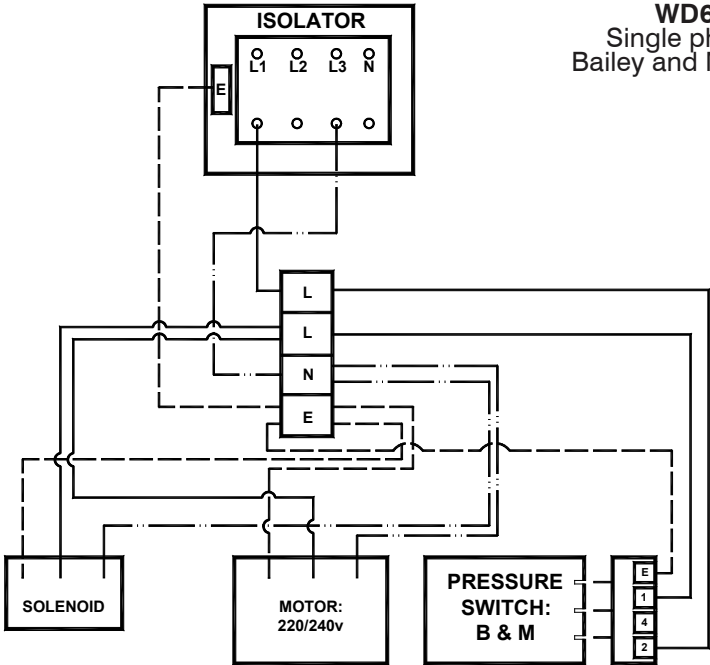
WD5
3 phase Danfoss with timer



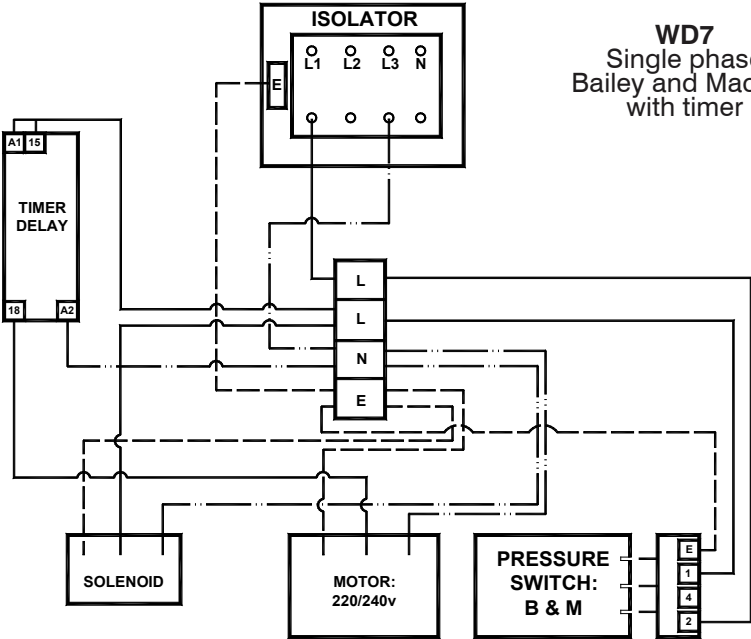
KEY:

- Live
- Neutral
- Earth

WD6
Single phase
Bailey and Mackey

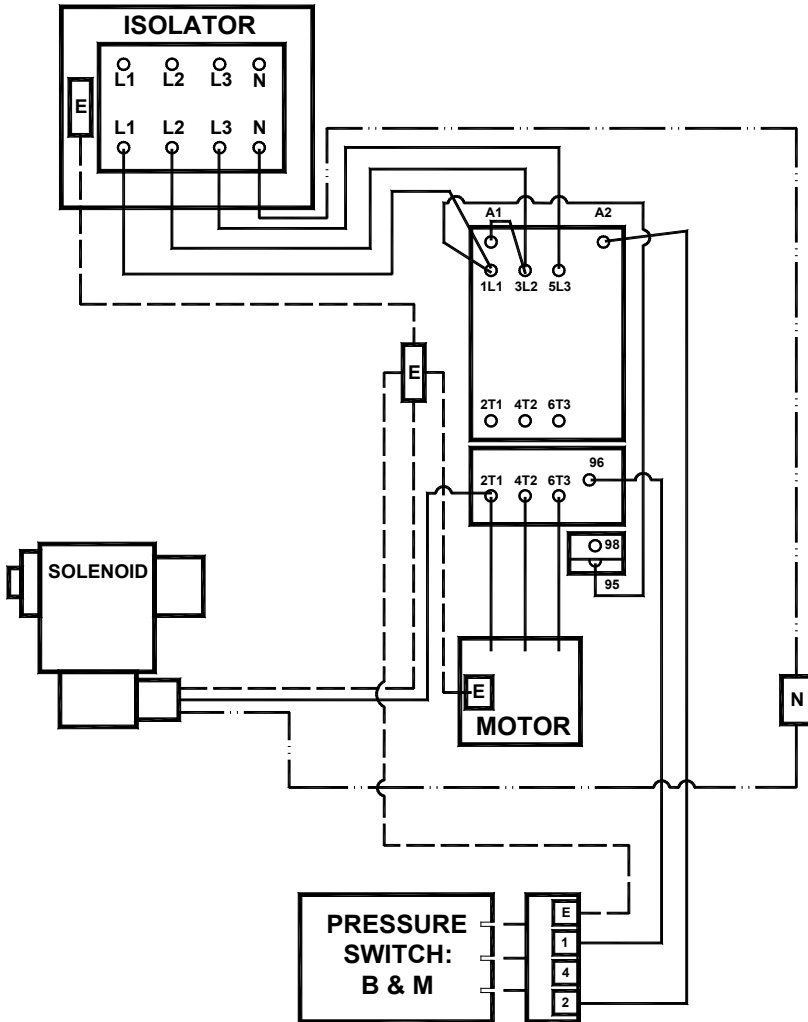


WD7
Single phase
Bailey and Mackey
with timer



Wiring Diagrams

WD8 Three phase Bailey and Mackey

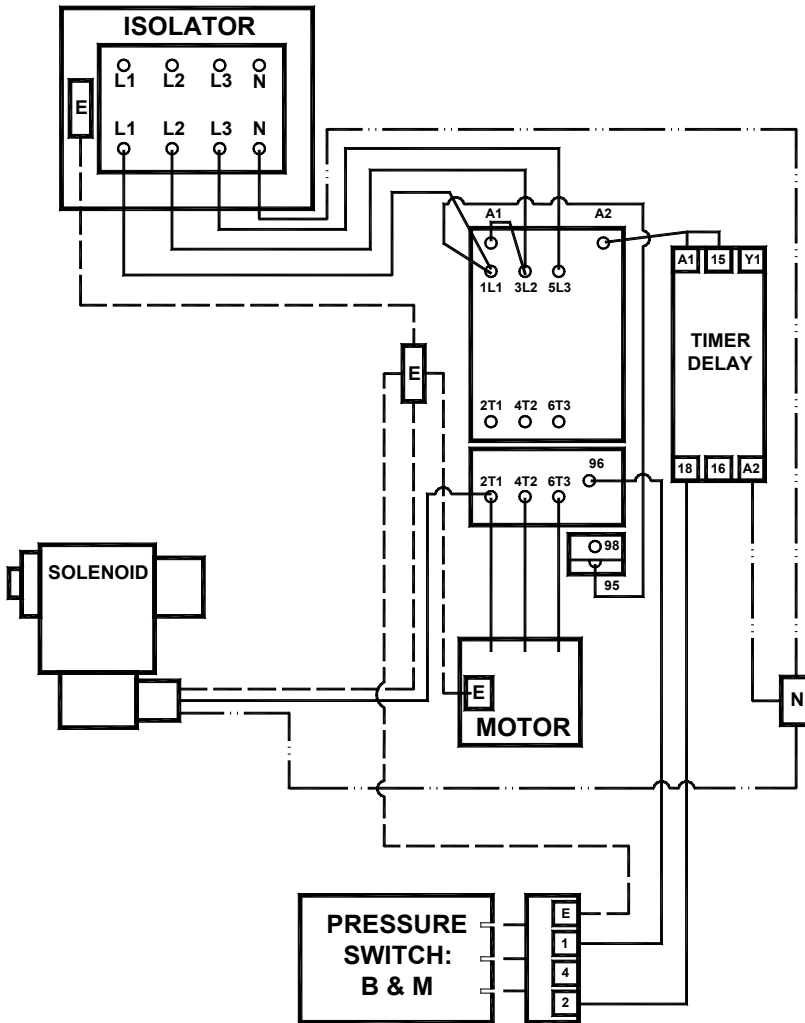


KEY:

- - Live
- - Neutral
- - Earth

Wiring Diagrams

WD9
3 phase Bailey and Mackey
with timer



Issue 2: 09/14

