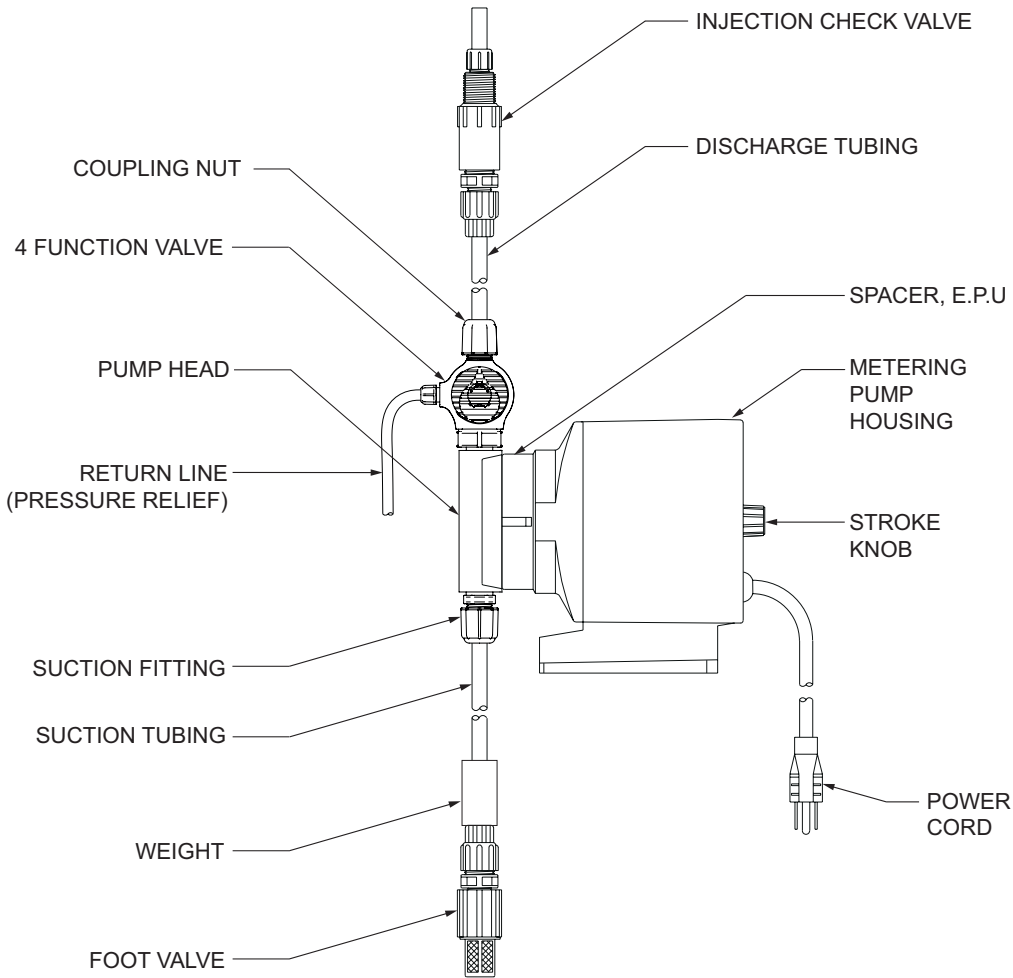




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**Metering Pump Component Diagram**

# Series P1

# Electronic Metering Pump

# Specification Sheet and Assembly Details

Manual No : 1934, 1842

Rev. : C, E

Rev. Date : 6/01, 10/2015

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# Specification Sheet

## Series P

### GENERAL

Chemical metering pumps shall be positive displacement, Liquifram™ type pumps that are UL and CUL approved. Output volume shall be adjustable while pumps are in operation from zero to maximum capacity of:

|               |            |                        |
|---------------|------------|------------------------|
| P02, P12      | - 0.21 GPH | (0.79 liters per hour) |
| P03, P13      | - 0.42 GPH | (1.6 liters per hour)  |
| P04, P14, P74 | - 0.58 GPH | (2.2 liters per hour)  |
| P05, P15, P75 | - 1.0 GPH  | (3.8 liters per hour)  |
| P06, P16, P76 | - 2.0 GPH  | (7.6 liters per hour)  |
| P08, P18, P78 | - 3.2 GPH  | (12.1 liters per hour) |

Chemical metering pumps shall be capable, without a hydraulically backed diaphragm, of injecting solutions against pressures up to:

|               |           |            |
|---------------|-----------|------------|
| P02, P12      | - 150psig | (10.3 Bar) |
| P03, P13      | - 110psig | (7.6 Bar)  |
| P04, P14, P74 | - 250psig | (17.3 Bar) |
| P05, P15, P75 | - 110psig | (7.6 Bar)  |
| P06, P16, P76 | - 50psig  | (3.5 Bar)  |
| P08, P18, P78 | - 22psig  | (1.5 Bar)  |

### SERIES P0

The stroke frequency will be fixed at the following rates.

|                    |                          |
|--------------------|--------------------------|
| P02, P03           | - 60 strokes per minute  |
| P04, P05, P06, P08 | - 100 strokes per minute |

Stroke length shall be adjustable by readily accessible dial knob located opposite the liquid handling end.

### SERIES P1

Adjustment shall be by means of readily accessible dial knobs, one for changing stroke length and the other for changing stroke frequency. Both knobs are to be located opposite the liquid handling end.

### SERIES P7

Control of Series P7 metering pumps shall be selectable between internal and external pulsing by means of a switch integral with frequency control knob. "External" position to be below lowest internally paced frequency setting. Stroke length shall be adjustable by means of readily accessible dial knob. When in external pulsed mode, Series P7 units shall accept signals without the use of electrical timer or internal timer.

### DRIVE

The pump drive shall be totally enclosed with no exposed moving parts. Solid state electronic pulser shall be fully encapsulated and supplied with quick connect terminals at least 3/16" (4.75 mm) wide. Electronics shall be housed in chemical resistant enclosure at the rear of the pump for maximum protection against chemical spillage. Electrical power consumption shall not exceed 22 watts per hour under full speed and maximum pressure conditions. Pump weight shall not exceed 14 lbs (6.5 kg).

### AUTOMATIC PRESSURE RELIEF

To eliminate need for pressure relief valve, Liquifram™ shall automatically stop pulsating when discharge pressure exceeds pump pressure rating by not more than 35%.

### MATERIAL

Chemical metering pump housing shall be of chemically resistant glass fiber reinforced thermoplastic. All exposed fasteners shall be stainless steel. Chemical metering pump valves shall be ball type, with ceramic balls<sup>1</sup>. Valve seat and seal ring shall be renewable by replacing the combination seat-seal ring<sup>2</sup> or cartridge valve assembly. Pump head shall be of transparent acrylic<sup>3</sup> material capable of resisting the pumped chemical. Fittings and connections at pump head shall be PVC<sup>4</sup>.

### CHECK VALVES AND TUBING

A total of 16 ft (4.8 m) of polyethylene tubing<sup>5</sup> shall be provided per pump complete with compression connections. A foot valve with integral one piece strainer shall be provided for the suction line, and an injection check/back pressure valve with 1/2" NPT male connection for the injection point. The injection check valve shall incorporate a dilating orifice which prohibits scale formation and accumulation of crystalline deposits.

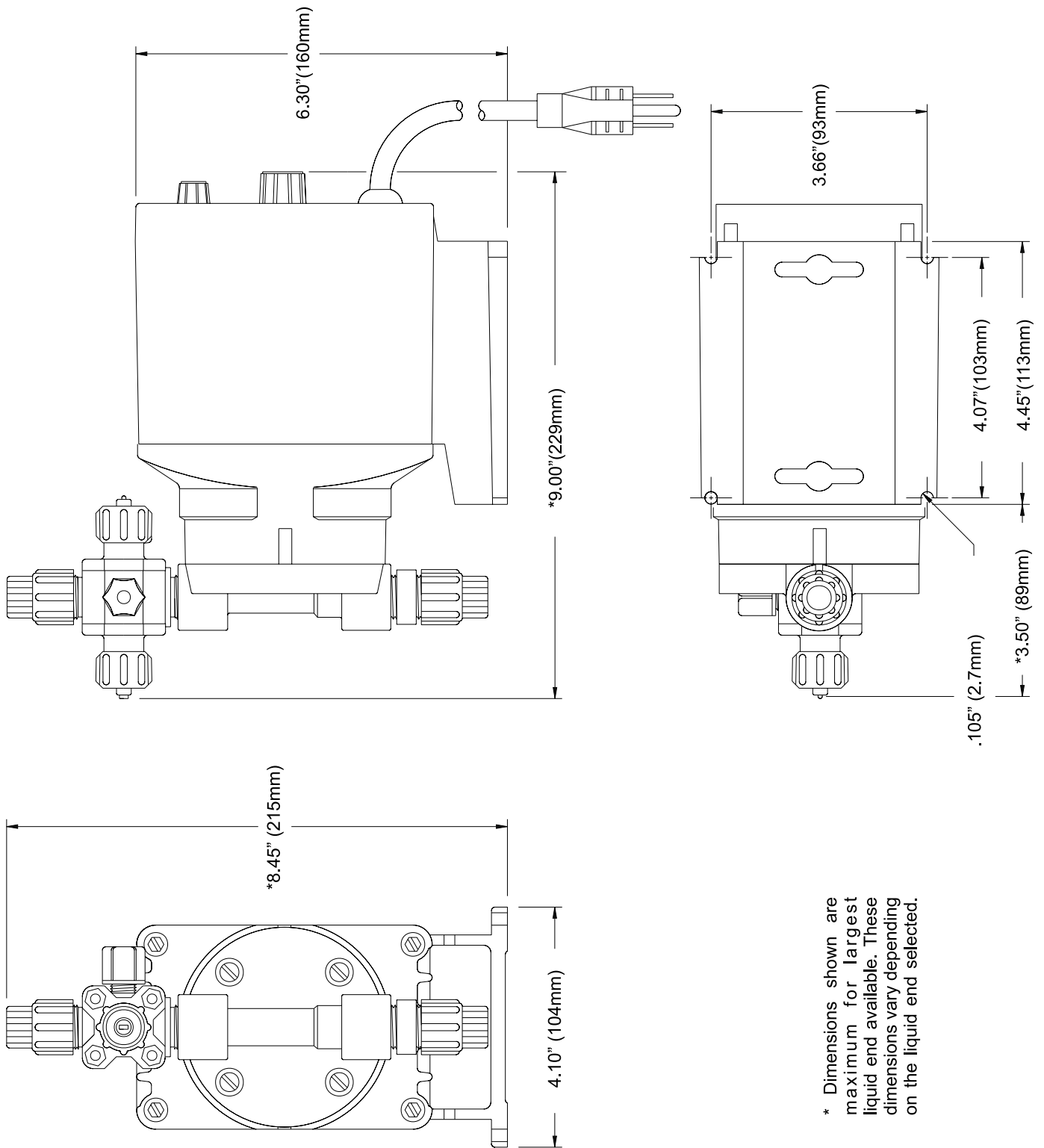
### Notes:

1. Type 316 stainless steel or PTFE may be specified.
2. Hypalon®, PTFE or Polyprel® may be specified.
3. PVDF, PVC, Polypropylene, or Type 316 stainless steel may be specified.
4. PVDF, Polypropylene, or Type 316 stainless steel may be specified.
5. 6 ft. (1.8 m) of vinyl suction tubing may be specified in place of polyethylene for the suction side only. 1/4" pipe thread may be specified.



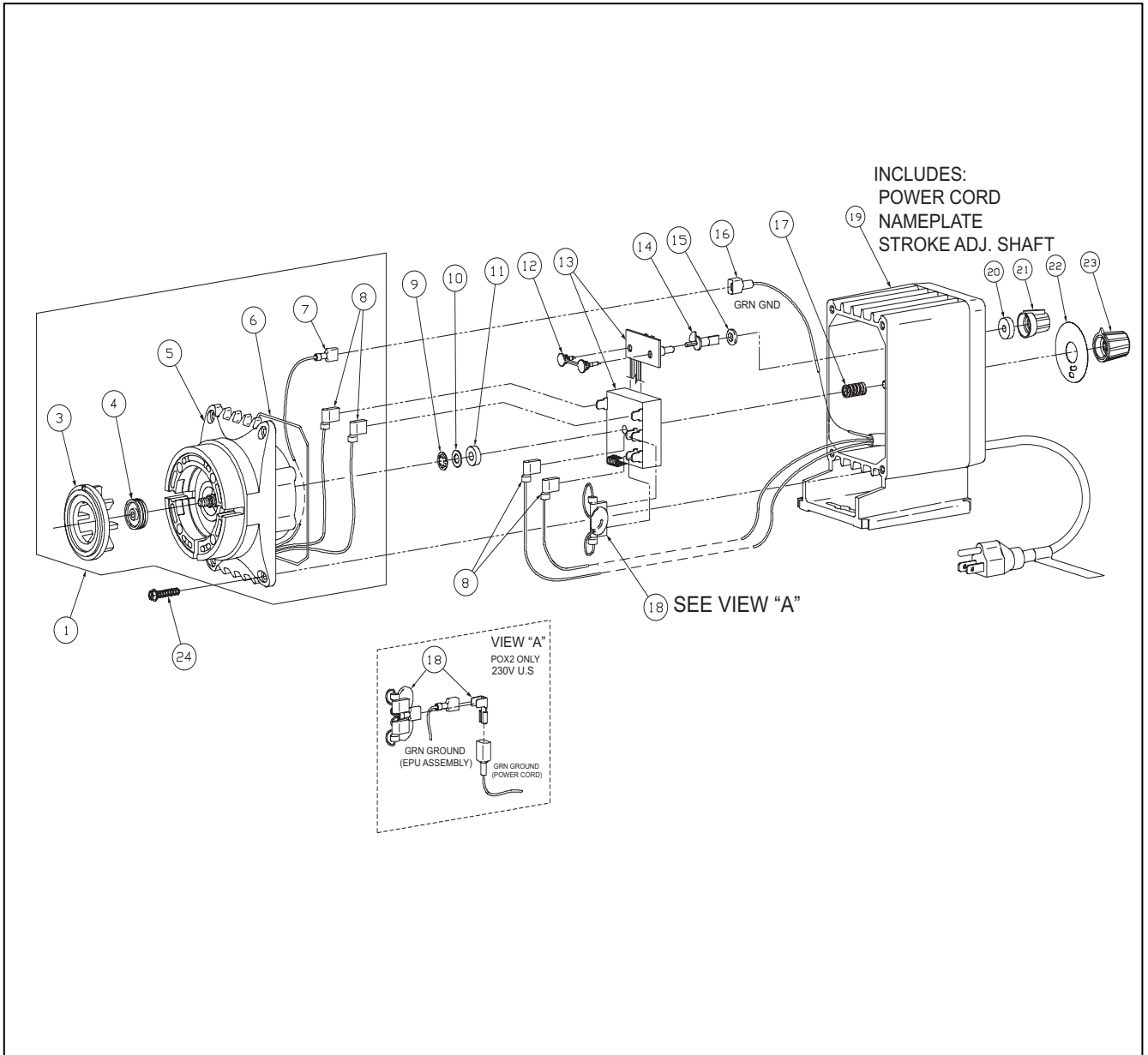
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\* Dimensions shown are maximum for largest liquid end available. These dimensions vary depending on the liquid end selected.

# SERIES P1 DRIVE ASSEMBLY EXPLODED VIEW DIAGRAM



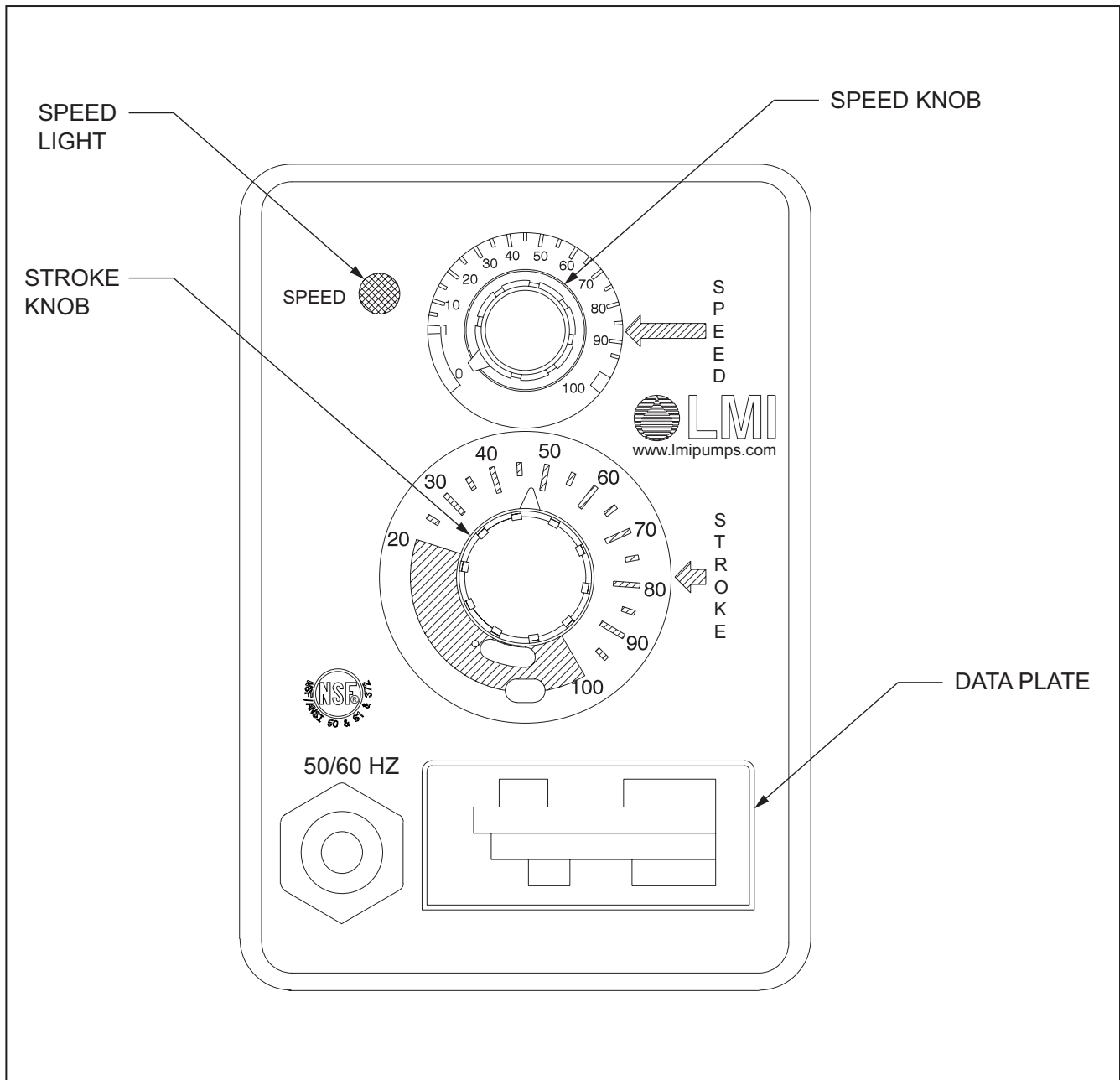
## SERIES P1 DRIVE ASSEMBLY PARTS LIST

| Key Number | Model Series   | Part Number | Description            | Qty |
|------------|--|-------------|------------------------|-----|
| 1          | P121   | 30107       | EPU WITH DISK 0.5      | 1   |
|            | P122, P123, P125, P126, P127                               | 30108       | EPU WITH DISK 0.5      |     |
|            | P131   | 30109       | EPU WITH DISK 0.9      |     |
|            | P132, P133, P135, P136, P137                               | 30110       | EPU WITH DISK 0.9      |     |
|            | P141   | 30240       | EPU WITH DISK 0.5      |     |
|            | P142, P143, P145, P146, P147                               | 30241       | EPU WITH DISK 0.5      |     |
|            | P151   | 30242       | EPU WITH DISK 0.9      |     |
|            | P152, P153, P155, P156, P157                               | 30243       | EPU WITH DISK 0.9      |     |
|            | P161   | 33338       | EPU WITH DISK 1.8      |     |
|            | P162, P163, P165, P166, P167                               | 31781       | EPU WITH DISK 1.8      |     |
| 3          | P12, P14   | 29445       | DISK 0.5               | 1   |
|            | P13, P15   | 29437       | DISK 0.9               |     |
|            | P16  | 29442       | DISK 1.8               |     |
| 4          | P1   | 10973       | SEAL                   | 1   |
| 5          | P121, P131   | 30530       | EPU                    | 1   |
|            | P122, P123, P125, P126, P127, P132, P133, P135, P136, P137 | 30531       |                        |     |
|            | P141, P151   | 30154       |                        |     |
|            | P142, P143, P145, P146, P147, P152, P153, P155, P156, P157 | 30155       |                        |     |
|            | P161   | 31862       |                        |     |
|            | P162, P163, P165, P166, P167                               | 31131       |                        |     |
| 6          | P1   | 10166       | O-RING                 | 1   |
| 7          | P1   | 10182-1     | WIRE TERMINAL (FEMALE) | 1   |
| 8          | P1   | 25070-1     | WIRE TERMINAL (FLAG)   | 4   |
| 9          | P1   | 10422       | RETAINING RING         | 1   |
| 10         | P1   | 25963       | WASHER, NYLON          | 1   |

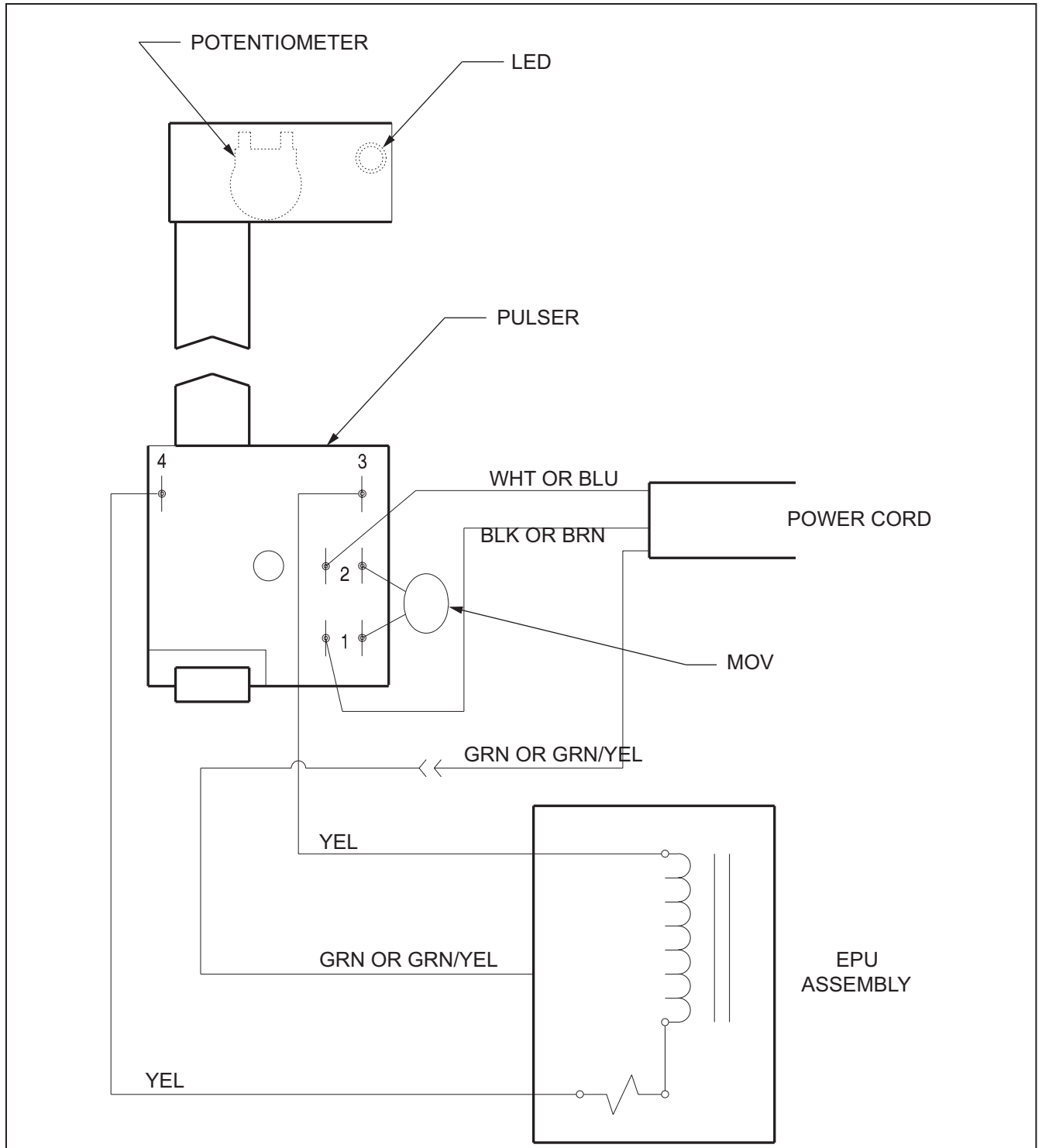
## SERIES P1 DRIVE ASSEMBLY PARTS LIST

| Key Number | Model Series   | Part Number | Description                  | Qty |
|------------|--|-------------|------------------------------|-----|
| 11         | P1   | 30391       | WASHER, RUBBER               | 1   |
| 12         | P1   | 35744       | DUAL PIN                     | 1   |
| 13         | P1   | 36255       | PULSER                       | 1   |
| 14         | P1   | 35743       | SPEED SHAFT                  | 1   |
| 15         | P1   | 34497       | O-RING                       |     |
| 16         | P1   | 10368-1     | WIRE TERMINAL (MALE)         | 1   |
| 17         | P1   | 25414       | SPRING                       | 1   |
| 18         | P121, P131, P141, P151, P161   | 10626       | VARISTOR ASSEMBLY, 115V      | 1   |
|            | P122, P132, P142, P152, P162   | 31255       | VARISTOR ASSEMBLY, 230V US   | 1   |
|            | P123, P133, P143, P153, P163, P125, P135, P145, P155, P165, P126, P136, P146, P156, P166, P127, P137, P147, P157, P167 | 10627       | VARISTOR ASSEMBLY, 230-250V  | 1   |
| 19         | P121, P131, P141, P151, P161   | 38411       | HOUSING ASSEMBLY, 115V       | 1   |
|            | P122, P132, P142, P152, P162   | 38412       | HOUSING ASSEMBLY, 230V US    |     |
|            | P123, P133, P143, P153, P163   | 38413       | HOUSING ASSEMBLY, 230V DIN   |     |
|            | P125, P135, P145, P155, P165   | 38414       | HOUSING ASSEMBLY, 240V UK    |     |
|            | P126, P136, P146, P156, P166   | 38415       | HOUSING ASSEMBLY, 250V AUST  |     |
|            | P127, P137, P147, P157, P167   | 38416       | HOUSING ASSEMBLY, 230V SWISS |     |
| 20         | P1   | 30803       | GASKET                       | 1   |
| 21         | P1   | 30709       | SPEED KNOB                   | 1   |
| 18         | P12  | 30418       | STROKE DIAL                  | 1   |
|            | P13  | 31545       |                              |     |
|            | P16  | 31127       |                              |     |
| 19         | P1   | 31891       | STROKE KNOB                  | 1   |
| 20         | P1   | 30306       | SCREW                        | 4   |

# SERIES P1 CONTROL PANEL DETAIL



# SERIES P1 WIRING DIAGRAM





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