

# Pullen®

## Installation, Maintenance and Spares for VM(P) and VVC Pumps

### Installation

#### Location

Pullen VM(P) and VVC pumps may be fitted in a horizontal or vertical pipeline and must be arranged so that the adjacent pipework can be vented of air before start up.

Pumps should be located as near the source of water supply as possible.

In boiler houses it is advisable to keep electrically driven pumps and their starters away from the vicinity of the boilers or flues because of the high ambient temperatures in these regions.

#### Valves and Pipework

The suction and discharge pipes should be sized to pass the required quantity without excessive frictional loss. The suction pipe must never be smaller than the inlet branch size of the pump.

The pipework must be supported as close to the pump as possible and should line up correctly with the inlet and outlet flanges to prevent any pipe strain being imposed on the pump casing.

It is advisable to fit isolating valves in the suction and discharge pipework so that the pump can be inspected without draining down the system.

To prevent freezing and consequent damage to an exposed pump in cold weather the pump casing must be drained during shut-off periods.

Provision for this must be made in the adjacent pipework.

#### Electrical Equipment

The motor and starter must be wired in accordance with the diagrams supplied with the equipment. Flexible conduit should be run to the motor to allow free movement for stripping and inspection.

#### Starting

Check that there are no obstructions in the suction pipework which could cause the pump to be starved of water.

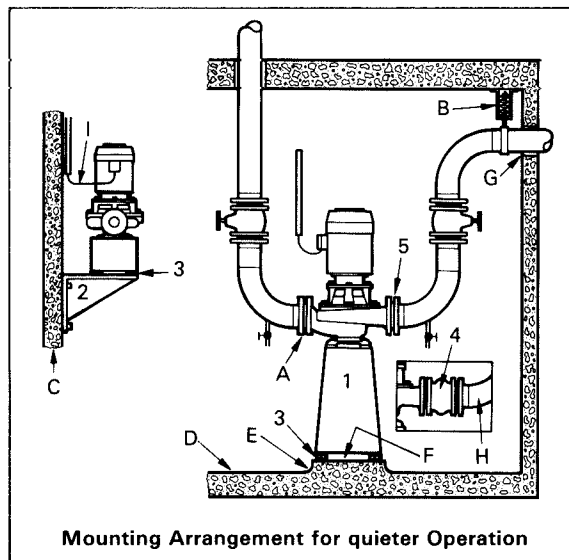
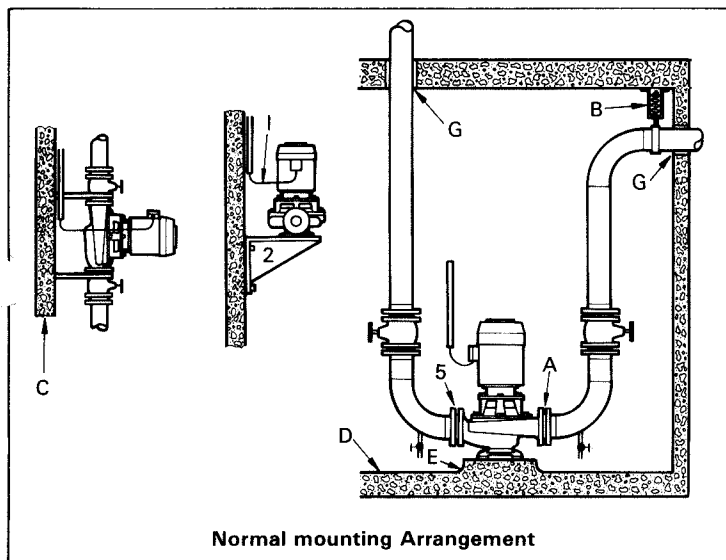
The system must always be fully primed before starting the pump.

#### Serious damage can be caused by running the pumps dry.

Before starting, ensure that the isolating valves in the suction and discharge pipework are fully open.

After the pump has been started, check that the motor is running in the correct rotation as indicated by the direction arrows cast on the pump casing and on the motor cowl.

Rotation of all VM and VVC pumps is **CLOCKWISE** looking on the non-drive end of the motor. Some twin VMP pumps have one pump running anti-clockwise.



### Guidelines for pump erection

- A—Do not subject pump connections to strain from pipework.
- B—Pipe supports—preferably with spring hangers.
- C—Do not mount pumps on to light concrete walls, i.e. breeze block.
- D—Pump should be mounted on to a solid foundation.
- E—Provide a concrete plinth on which to mount the pump or pedestal.
- F—Do not grout in the space between the pedestal and the floor.
- G—Pipework must not be in contact with the structure. Fill gap with insulating material, but do not cover with plaster, etc.
- H—Pipework should be supported adjacent to flexible connections.
- I—Flexible conduit to motor allows for dismantling the pump.

### Accessories—available from Pullen Pumps

- 1 Pedestal—500mm high when filled with concrete and supported on anti-vibration mountings prevents noise transmission to the floor.
- 2 Wall Bracket—when used with concrete inertia block of 1.5 to 2 times the pump weight. Supported on anti-vibration mountings prevents noise transmission to the wall.
- 3 Anti-vibration Mountings—available for use with pedestals or wall brackets.
- 4 Flexible Connections—help to reduce noise transmission to the pipework.
- 5 Counterflanges—for screwed and welded pipework.
- 6 Blanking Plates for twin pumps—allows one pump to be removed for service with minimum interruption to the water supply.

## Stripping

Before stripping the pump ensure that the electrical supply to the motor is isolated and the fuses are withdrawn.

Isolate the pump and drain the adjacent pipework and pump of water.

Remove the nuts which secure the backcover to the casing and withdraw the motor complete with backcover and impeller leaving the casing in the pipeline.

Remove the impeller nut, impeller and impeller key.

Remove the partition plate (if fitted). On larger pumps this is secured with dome-head screws.

The rotary portion of the mechanical seal can now be removed from the motor shaft (a smear of soft soap or vegetable oil will facilitate this).

Remove the backcover by unfastening the four nuts which secure it to the motor.

The stationary seat of the mechanical seal can now be removed from the backcover.

## Maintenance

Pullen VM(P) and VVC pumps have been designed for maintenance-free running and are fitted with long-life, self-adjusting mechanical seals requiring no attention.

### Recommended greases for motor bearings

Shell Alvania RA, Duckhams LB10, Castrol Spherol AP3 or any equivalent good quality bearing grease.

Motors without grease nipples are fitted with pre-packed shielded bearings and require no attention.

Motors with grease nipples require two strokes with a grease gun every six months.

**NOTE:** OVERGREASING CAN CAUSE SEVERE DAMAGE TO THE BEARINGS.

## Rebuilding

To rebuild the pump proceed in the reverse order to stripping, observing the following points:

Examine the casing 'O' ring joint for damage and replace if necessary.

When replacing the mechanical seal, lubricate the shaft lightly with soft soap or vegetable oil.

**DO NOT USE MINERAL OIL OR GREASE**

Push the mechanical seal along the shaft using a suitably sized tube, taking care that the carbon face in the rotary portion remains in the correct position during assembly.

Immediately after fitting the mechanical seal fit the impeller key and impeller on to the shaft. This prevents the mechanical seal from setting itself on to the shaft in the wrong position.

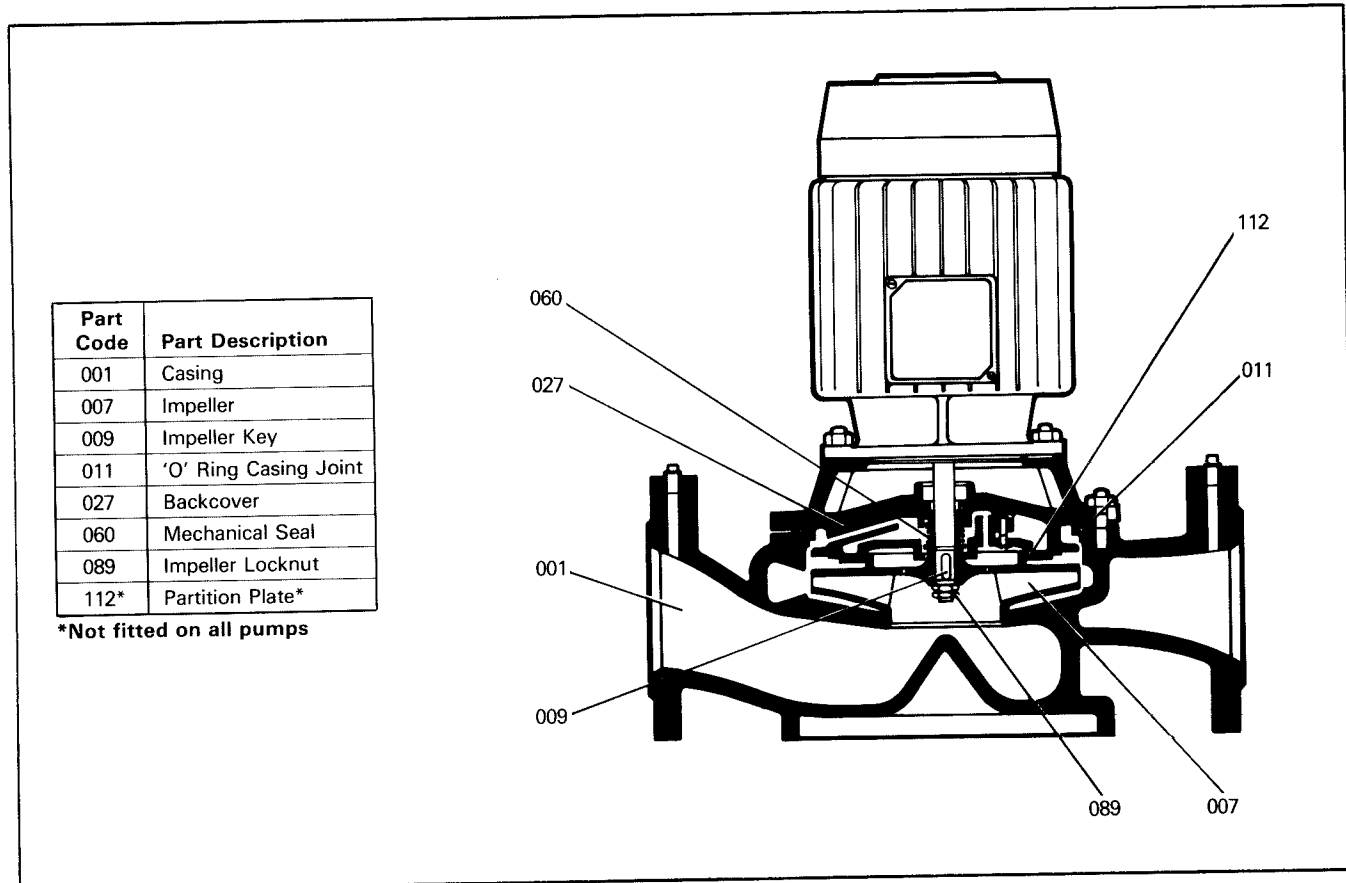
### Note:

Any component giving unsatisfactory performance should be returned to Pullen Pumps Service Department for examination together with full details of the working conditions.

## Spares

Please give as much information as possible when ordering spares. In particular please quote the job number and part code or part description. The job number is stamped on the name plate attached to the pump.

For spares or information required for the electric motor or starter, give the job number together with the name plate particulars attached to the motor or starter.



We reserve the right to alter design and specification without prior notice



# Pullen Pumps Ltd

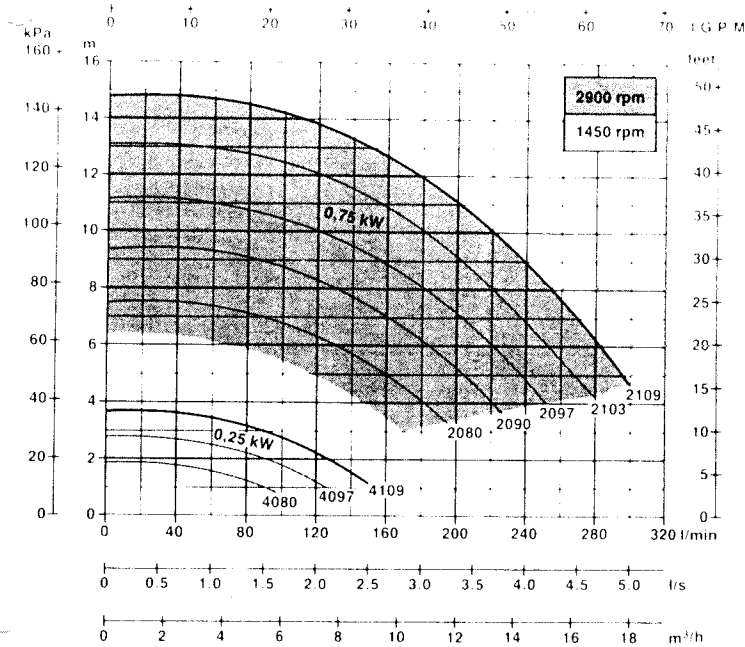
A company in the Scanpump Group

### Head Office

58 Beddington Lane  
Croydon, Surrey CR9 4PT  
Tel: 01-684 9521 Telex: 946597 Fax: 01-689 8892

### Northern Sales Office

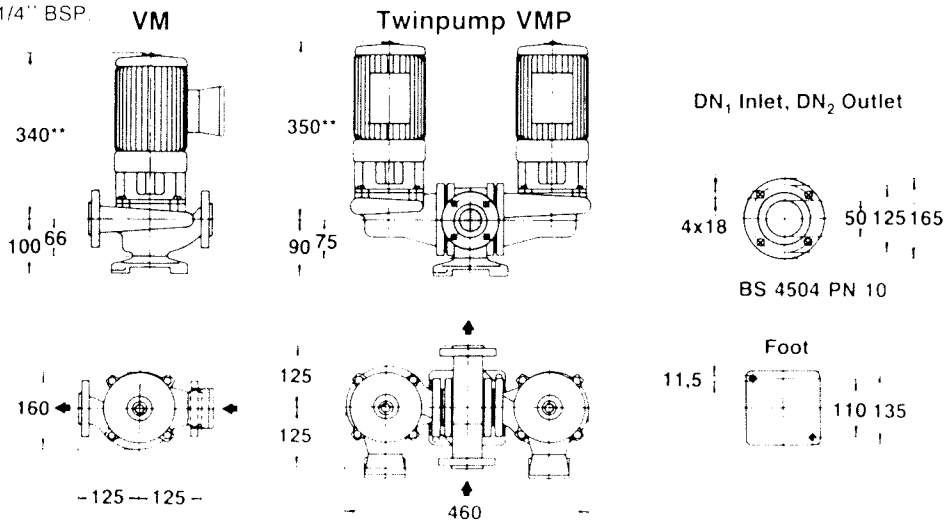
255 Europa Boulevard, Gemini Business Park  
Westbrook, Warrington, Cheshire WA5 5TN  
Tel: 0925 51155 Fax: 0925 30665



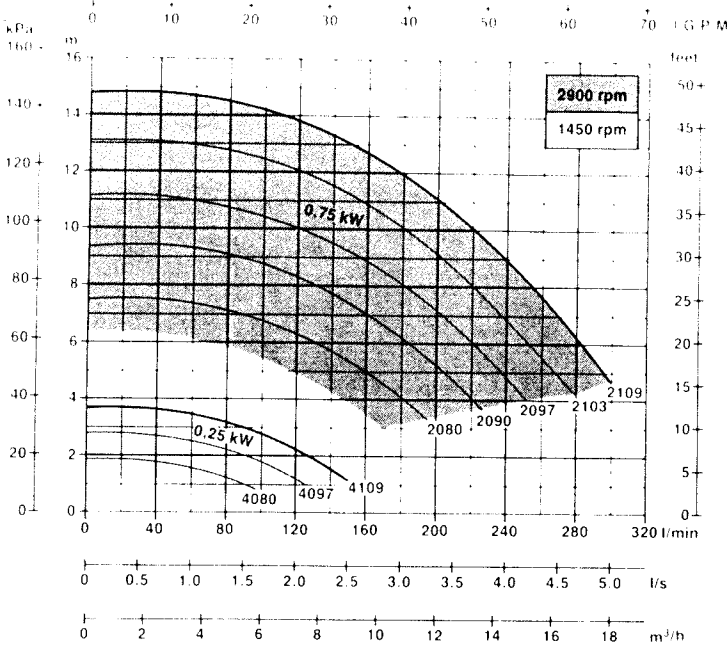
VM56-2090  
14.12.90  
HW

| Pump type       | Max. temp. °C | Max. press. bar | Connection DN <sub>1,2</sub> | Motor three-phase 380 V |           | 220 V |      | 415 V |   | 240 V* |   | Weight kg | Noise level dBA@1m |
|-----------------|---------------|-----------------|------------------------------|-------------------------|-----------|-------|------|-------|---|--------|---|-----------|--------------------|
|                 |               |                 |                              | Power kW                | Speed rpm | A     | A    | A     | A | A      | A |           |                    |
| VM 56/4080      | 120           | 10              | 50                           | 0.25                    | 1450      | 0.72  | 1.25 | 0.71  |   |        |   | 25        | 52                 |
| VM 56/4097      |               |                 |                              | 0.25                    | 1450      | 0.72  | 1.25 | 0.71  |   |        |   | 25        | 52                 |
| VM 56/4109      |               |                 |                              | 0.25                    | 1450      | 0.72  | 1.25 | 0.71  |   |        |   | 25        | 52                 |
| VM 56/4080-1ph  |               |                 |                              | 0.25                    | 1380      |       |      |       |   | 1.50   |   | 25        | 54                 |
| VM 56/4097-1ph  |               |                 |                              | 0.25                    | 1380      |       |      |       |   | 1.50   |   | 25        | 54                 |
| VM 56/4109-1ph  |               |                 |                              | 0.25                    | 1380      |       |      |       |   | 1.50   |   | 25        | 54                 |
| VM 56/2080      | 120           | 10              | 50                           | 0.75                    | 2900      | 1.82  | 3.15 | 1.76  |   |        |   | 28        | 56                 |
| VM 56/2090      |               |                 |                              | 0.75                    | 2900      | 1.82  | 3.15 | 1.76  |   |        |   | 28        | 56                 |
| VM 56/2097      |               |                 |                              | 0.75                    | 2900      | 1.82  | 3.15 | 1.76  |   |        |   | 28        | 56                 |
| VM 56/2103      |               |                 |                              | 0.75                    | 2900      | 1.82  | 3.15 | 1.76  |   |        |   | 28        | 56                 |
| VM 56/2109      |               |                 |                              | 0.75                    | 2900      | 1.82  | 3.15 | 1.76  |   |        |   | 28        | 56                 |
| VMP 56/4080     | 120           | 10              | 50                           | 0.25                    | 1450      | 0.72  | 1.25 | 0.71  |   |        |   | 52        | 52                 |
| VMP 56/4097     |               |                 |                              | 0.25                    | 1450      | 0.72  | 1.25 | 0.71  |   |        |   | 52        | 52                 |
| VMP 56/4109     |               |                 |                              | 0.25                    | 1450      | 0.72  | 1.25 | 0.71  |   |        |   | 52        | 52                 |
| VMP 56/4080-1ph |               |                 |                              | 0.25                    | 1380      |       |      |       |   | 1.50   |   | 52        | 54                 |
| VMP 56/4097-1ph |               |                 |                              | 0.25                    | 1380      |       |      |       |   | 1.50   |   | 52        | 54                 |
| VMP 56/4109-1ph |               |                 |                              | 0.25                    | 1380      |       |      |       |   | 1.50   |   | 52        | 54                 |
| VMP 56/2080     | 120           | 10              | 50                           | 0.75                    | 2900      | 1.82  | 3.15 | 1.76  |   |        |   | 58        | 56                 |
| VMP 56/2090     |               |                 |                              | 0.75                    | 2900      | 1.82  | 3.15 | 1.76  |   |        |   | 58        | 56                 |
| VMP 56/2097     |               |                 |                              | 0.75                    | 2900      | 1.82  | 3.15 | 1.76  |   |        |   | 58        | 56                 |
| VMP 56/2103     |               |                 |                              | 0.75                    | 2900      | 1.82  | 3.15 | 1.76  |   |        |   | 58        | 56                 |
| VMP 56/2109     |               |                 |                              | 0.75                    | 2900      | 1.82  | 3.15 | 1.76  |   |        |   | 58        | 56                 |

\* Single phase, capacitor.  
Gauge tappings 1/4" BSP.



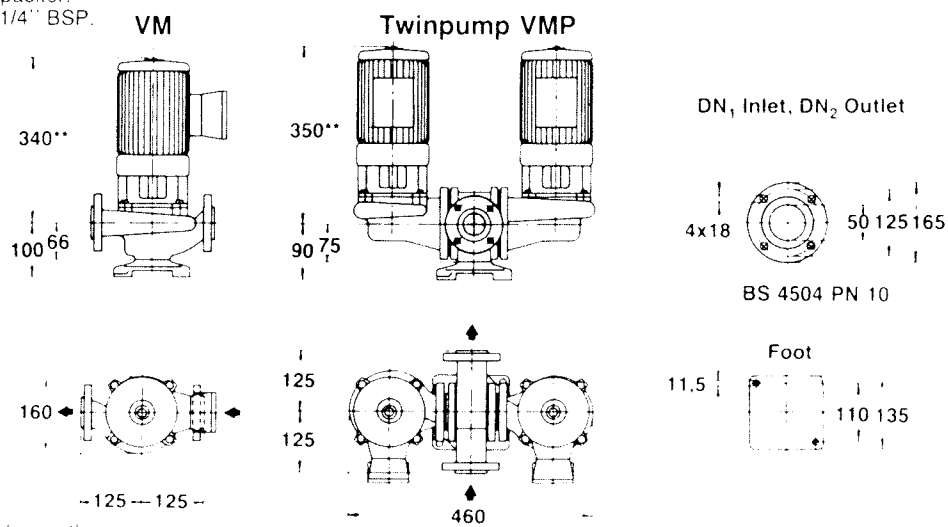
\*\* Allow 70 mm to dismantle pump  
All dimensions in mm



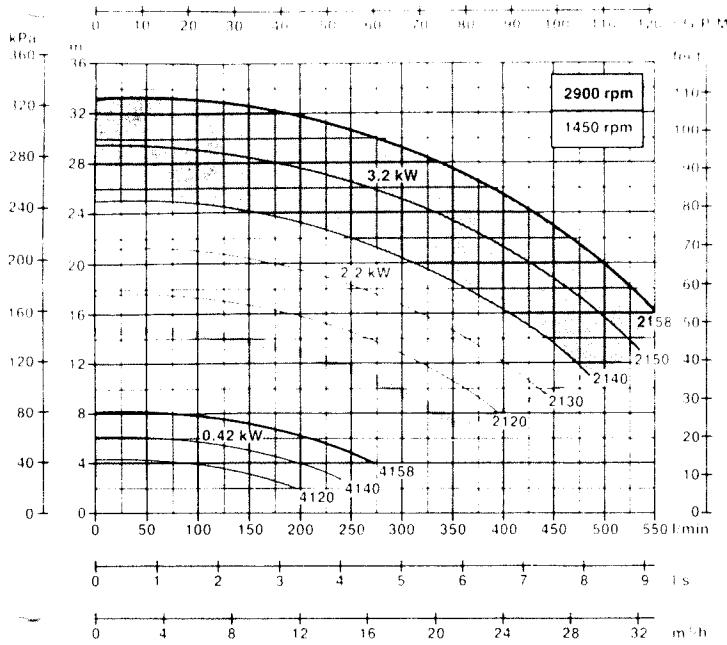
VM56-2097  
14-12-90  
HW

| Pump type       | Max. temp. °C | Max. press. bar | Connection DN <sub>1,2</sub> | Motor three-phase |                |                |                 | Weight kg | Noise level dBA@1m |    |    |
|-----------------|---------------|-----------------|------------------------------|-------------------|----------------|----------------|-----------------|-----------|--------------------|----|----|
|                 |               |                 |                              | 380 V Power kW    | 220 V Power kW | 415 V Power kW | 240 V* Power kW |           |                    |    |    |
| VM 56/4080      | 120           | 10              | 50                           | 0.25              | 1450           | 0.72           | 1.25            | 0.71      | 25                 | 52 |    |
| VM 56/4097      |               |                 |                              | 0.25              | 1450           | 0.72           | 1.25            | 0.71      | 25                 | 52 |    |
| VM 56/4109      |               |                 |                              | 0.25              | 1450           | 0.72           | 1.25            | 0.71      | 25                 | 52 |    |
| VM 56/4080-1ph  |               |                 |                              | 0.25              | 1380           |                |                 |           | 1.50               | 25 | 54 |
| VM 56/4097-1ph  |               |                 |                              | 0.25              | 1380           |                |                 |           | 1.50               | 25 | 54 |
| VM 56/4109-1ph  |               |                 |                              | 0.25              | 1380           |                |                 |           | 1.50               | 25 | 54 |
| VM 56/2080      | 120           | 10              | 50                           | 0.75              | 2900           | 1.82           | 3.15            | 1.76      | 28                 | 56 |    |
| VM 56/2090      |               |                 |                              | 0.75              | 2900           | 1.82           | 3.15            | 1.76      | 28                 | 56 |    |
| VM 56/2097      |               |                 |                              | 0.75              | 2900           | 1.82           | 3.15            | 1.76      | 28                 | 56 |    |
| VM 56/2103      |               |                 |                              | 0.75              | 2900           | 1.82           | 3.15            | 1.76      | 28                 | 56 |    |
| VM 56/2109      |               |                 |                              | 0.75              | 2900           | 1.82           | 3.15            | 1.76      | 28                 | 56 |    |
| VMP 56/4080     | 120           | 10              | 50                           | 0.25              | 1450           | 0.72           | 1.25            | 0.71      | 52                 | 52 |    |
| VMP 56/4097     |               |                 |                              | 0.25              | 1450           | 0.72           | 1.25            | 0.71      | 52                 | 52 |    |
| VMP 56/4109     |               |                 |                              | 0.25              | 1450           | 0.72           | 1.25            | 0.71      | 52                 | 52 |    |
| VMP 56/4080-1ph |               |                 |                              | 0.25              | 1380           |                |                 |           | 1.50               | 52 | 54 |
| VMP 56/4097-1ph |               |                 |                              | 0.25              | 1380           |                |                 |           | 1.50               | 52 | 54 |
| VMP 56/4109-1ph |               |                 |                              | 0.25              | 1380           |                |                 |           | 1.50               | 52 | 54 |
| VMP 56/2080     | 120           | 10              | 50                           | 0.75              | 2900           | 1.82           | 3.15            | 1.76      | 58                 | 56 |    |
| VMP 56/2090     |               |                 |                              | 0.75              | 2900           | 1.82           | 3.15            | 1.76      | 58                 | 56 |    |
| VMP 56/2097     |               |                 |                              | 0.75              | 2900           | 1.82           | 3.15            | 1.76      | 58                 | 56 |    |
| VMP 56/2103     |               |                 |                              | 0.75              | 2900           | 1.82           | 3.15            | 1.76      | 58                 | 56 |    |
| VMP 56/2109     |               |                 |                              | 0.75              | 2900           | 1.82           | 3.15            | 1.76      | 58                 | 56 |    |

\* Single phase, capacitor.  
Gauge tappings 1/4" BSP.



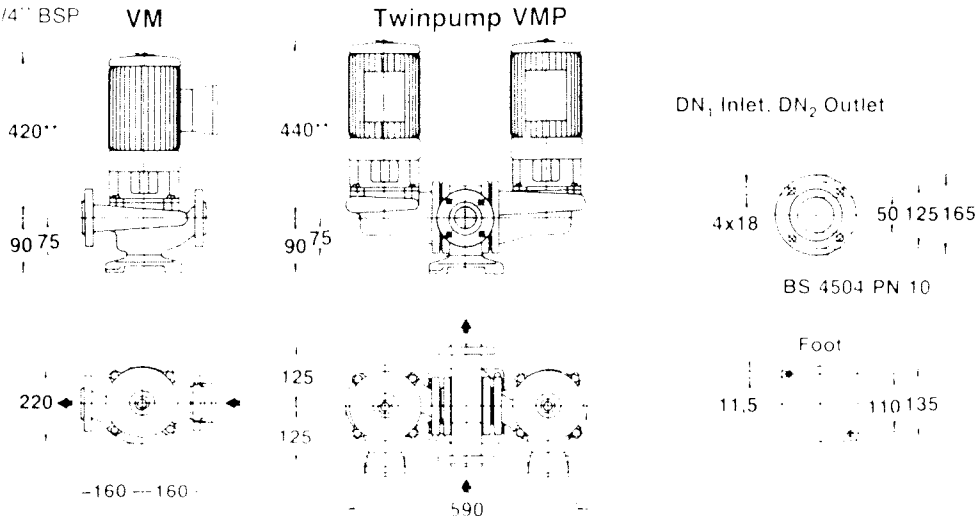
\*\* Allow 70 mm to dismantle pump.  
All dimensions in mm



VM57-2120  
14-12-90  
H.S.

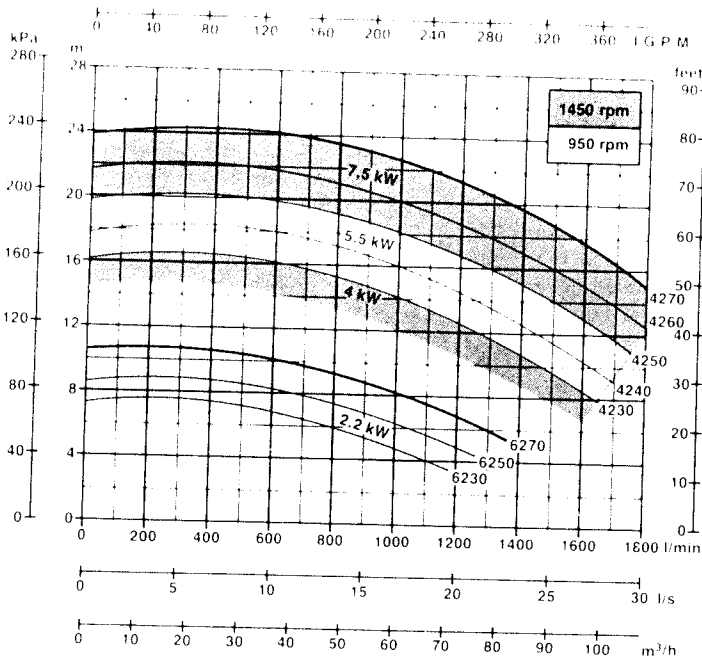
| Pump type       | Max. temp. C | Max. press. bar | Connection DN <sub>1,2</sub> | Motor three-phase |           | 380 V |       | 220 V |   | 415 V |      | 240 V* |    | Weight kg | Noise level dBA 1m |
|-----------------|--------------|-----------------|------------------------------|-------------------|-----------|-------|-------|-------|---|-------|------|--------|----|-----------|--------------------|
|                 |              |                 |                              | Power kW          | Speed rpm | A     | A     | A     | A | A     | A    |        |    |           |                    |
| VM 57/4120      | 120          | 10              | 50                           | 0.42              | 1450      | 1.20  | 2.08  | 1.15  |   |       |      |        | 34 | 51        |                    |
| VM 57/4140      |              |                 |                              | 0.42              | 1450      | 1.20  | 2.08  | 1.15  |   |       |      |        | 34 | 51        |                    |
| VM 57/4158      |              |                 |                              | 0.42              | 1450      | 1.20  | 2.08  | 1.15  |   |       |      |        | 34 | 51        |                    |
| VM 57/4120-1ph  |              |                 |                              | 0.42              | 1380      |       |       |       |   |       | 2.30 |        | 34 | 51        |                    |
| VM 57/4140-1ph  |              |                 |                              | 0.42              | 1380      |       |       |       |   |       | 2.30 |        | 34 | 51        |                    |
| VM 57/4158-1ph  |              |                 |                              | 0.42              | 1380      |       |       |       |   |       | 2.30 |        | 34 | 51        |                    |
| → VM 57/2120    | 120          | 10              | 50                           | 2.2               | 2900      | 4.80  | 8.30  | 5.00  |   |       |      |        | 41 | 66        |                    |
| VM 57/2130      |              |                 |                              | 2.2               | 2900      | 4.80  | 8.30  | 5.00  |   |       |      |        | 41 | 66        |                    |
| VM 57/2140      |              |                 |                              | 2.2               | 2900      | 4.80  | 8.30  | 5.00  |   |       |      |        | 41 | 66        |                    |
| VM 57/2150      |              |                 |                              | 3.2               | 2900      | 7.50  | 13.00 | 7.80  |   |       |      |        | 41 | 66        |                    |
| VM 57/2158      |              |                 |                              | 3.2               | 2900      | 7.50  | 13.00 | 7.80  |   |       |      |        | 41 | 66        |                    |
| VMP 57/4120     | 120          | 10              | 50                           | 0.42              | 1450      | 1.20  | 2.08  | 1.15  |   |       |      |        | 70 | 51        |                    |
| VMP 57/4140     |              |                 |                              | 0.42              | 1450      | 1.20  | 2.08  | 1.15  |   |       |      |        | 70 | 51        |                    |
| VMP 57/4158     |              |                 |                              | 0.42              | 1450      | 1.20  | 2.08  | 1.15  |   |       |      |        | 70 | 51        |                    |
| VMP 57/4120-1ph |              |                 |                              | 0.42              | 1380      |       |       |       |   |       | 2.30 |        | 70 | 51        |                    |
| VMP 57/4140-1ph |              |                 |                              | 0.42              | 1380      |       |       |       |   |       | 2.30 |        | 70 | 51        |                    |
| VMP 57/4158-1ph |              |                 |                              | 0.42              | 1380      |       |       |       |   |       | 2.30 |        | 70 | 51        |                    |
| VMP 57/2120     | 120          | 10              | 50                           | 2.2               | 2900      | 4.80  | 8.30  | 5.00  |   |       |      |        | 84 | 66        |                    |
| VMP 57/2130     |              |                 |                              | 2.2               | 2900      | 4.80  | 8.30  | 5.00  |   |       |      |        | 84 | 66        |                    |
| VMP 57/2140     |              |                 |                              | 2.2               | 2900      | 4.80  | 8.30  | 5.00  |   |       |      |        | 84 | 66        |                    |
| VMP 57/2150     |              |                 |                              | 3.2               | 2900      | 7.50  | 13.00 | 7.80  |   |       |      |        | 84 | 66        |                    |
| VMP 57/2158     |              |                 |                              | 3.2               | 2900      | 7.50  | 13.00 | 7.80  |   |       |      |        | 84 | 66        |                    |

\* Single phase, capacitor.  
Gauge tappings 1/4" BSP



\*\* Allow 70 mm to dismantle pump

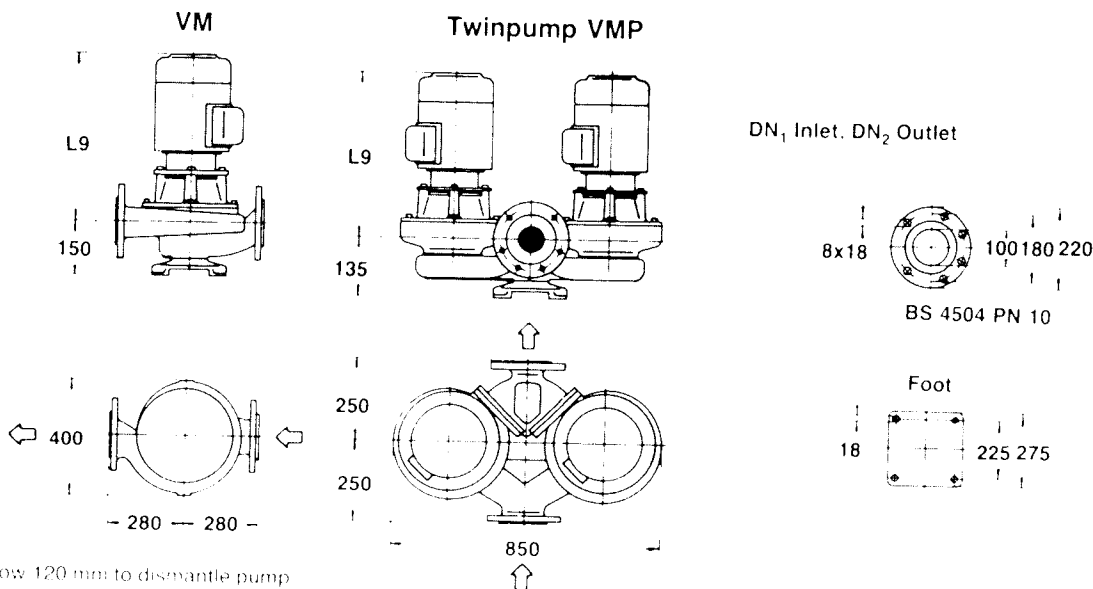
All dimensions in mm



vm106-4250  
14.12.90  
*[Signature]*

| Pump type    | Max. temp. C | Max. press. bar | DN <sub>1,2</sub> | L <sub>9</sub> * | Motor three-phase 380 V |           |      | 220 V | 415 V | Weight kg |
|--------------|--------------|-----------------|-------------------|------------------|-------------------------|-----------|------|-------|-------|-----------|
|              |              |                 |                   |                  | Power kW                | Speed rpm | A    |       |       |           |
| VM 106/6230  | 120          | 10              | 100               | 424              | 2.2                     | 950       | 5.60 | 9.70  | 5.80  | 95        |
| VM 106/6250  |              |                 |                   | 424              | 2.2                     | 950       | 5.60 | 9.70  | 5.80  | 95        |
| VM 106/6270  |              |                 |                   | 424              | 2.2                     | 950       | 5.60 | 9.70  | 5.80  | 95        |
| VM 106/4230  | 120          | 10              | 100               | 424              | 4                       | 1450      | 9.00 | 15.6  | 9.10  | 95        |
| VM 106/4240  |              |                 |                   | 455              | 5.5                     | 1450      | 12.0 | 21.0  | 12    | 105       |
| VM 106/4250  |              |                 |                   | 455              | 5.5                     | 1450      | 12.0 | 21.0  | 12    | 105       |
| VM 106/4260  |              |                 |                   | 493              | 7.5                     | 1450      | 16.0 | 28.0  | 16    | 114       |
| VM 106/4270  |              |                 |                   | 493              | 7.5                     | 1450      | 16.0 | 28.0  | 16    | 114       |
| VMP 106/6230 | 120          | 10              | 100               | 427              | 2.2                     | 950       | 5.60 | 9.70  | 5.80  | 192       |
| VMP 106/6250 |              |                 |                   | 427              | 2.2                     | 950       | 5.60 | 9.70  | 5.80  | 192       |
| VMP 106/6270 |              |                 |                   | 427              | 2.2                     | 950       | 5.60 | 9.70  | 5.80  | 192       |
| VMP 106/4230 | 120          | 10              | 100               | 427              | 4                       | 1450      | 9.00 | 15.6  | 9.10  | 192       |
| VMP 106/4240 |              |                 |                   | 458              | 5.5                     | 1450      | 12.0 | 21.0  | 12.0  | 212       |
| VMP 106/4250 |              |                 |                   | 458              | 5.5                     | 1450      | 12.0 | 21.0  | 12.0  | 212       |
| VMP 106/4260 |              |                 |                   | 496              | 7.5                     | 1450      | 16.0 | 28.0  | 16.0  | 230       |
| VMP 106/4270 |              |                 |                   | 496              | 7.5                     | 1450      | 16.0 | 28.0  | 16.0  | 230       |

auge tappings 1/4" BSP

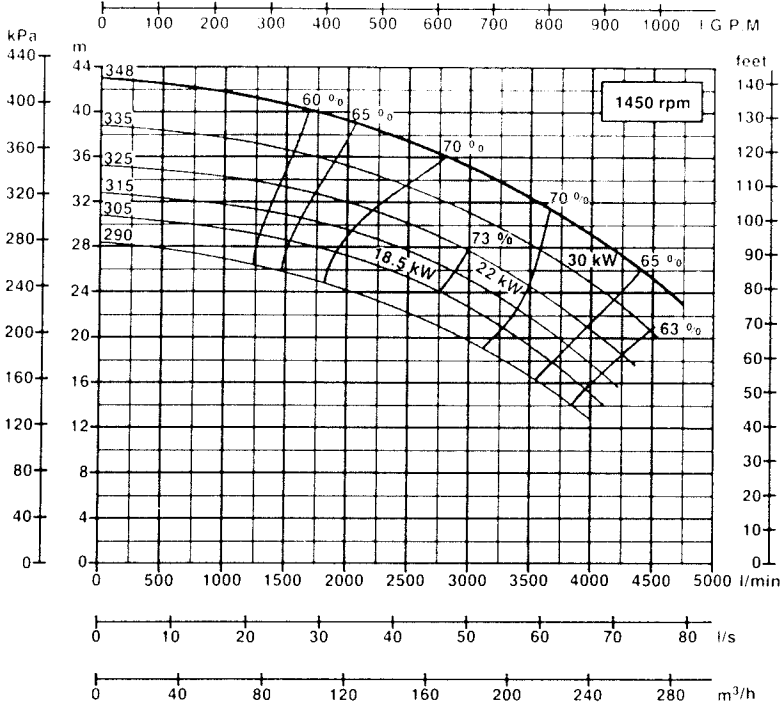


Allow 120 mm to dismantle pump

All dimensions in mm

# Pullen

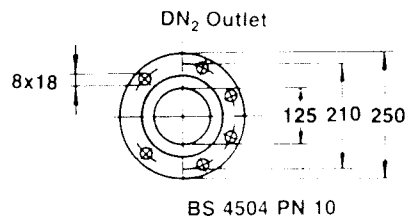
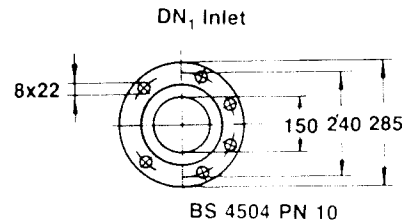
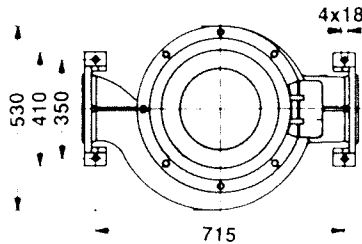
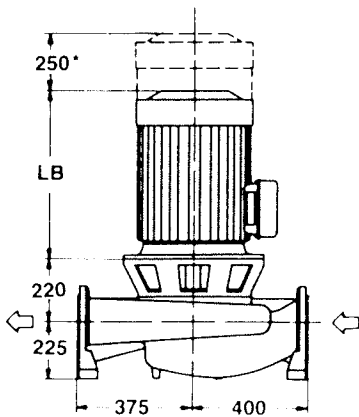
VM 128



*VM128  
14-12-90*

| Pump type | Max. temp C | Max. press. bar | Connection      |                 |     | Motor three-phase |           |      | 380 V A | 220 V A | 415 V A | Weight kg |
|-----------|-------------|-----------------|-----------------|-----------------|-----|-------------------|-----------|------|---------|---------|---------|-----------|
|           |             |                 | DN <sub>1</sub> | DN <sub>2</sub> | LB  | Power kW          | Speed rpm |      |         |         |         |           |
| VM 128    | 140         | 10              | 150             | 125             | 576 | 18.5              | 1450      | 37.0 | 64.0    | 34.0    | 332     |           |
| VM 128    |             |                 |                 |                 | 576 | 22                | 1450      | 44.0 | 76.0    | 40.0    | 352     |           |
| VM 128    |             |                 |                 |                 | 612 | 30                | 1450      | 59.0 | 102.0   | 54.0    | 402     |           |

Gauge tappings 3/8" BSP



\* Clearance to dismantle pump

All dimensions in mm.