

TECHFLOW PRODUCTS LTD

FREE
3rd Year Warranty
When Fitted with Techflange



TURBO PUMP RANGE INSTALLATION INSTRUCTIONS



**PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE
PROCEEDING WITH THE INSTALLATION**

**FAILURE TO COMPLY COULD INVALIDATE YOUR WARRANTY AND
ADVERSELY AFFECT THE PERFORMANCE OF THE PUMP**

**IF YOU REQUIRE ANY FURTHER INFORMATION PLEASE CALL
THE TECHNICAL HELPLINE 01444 258017**

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The TECHFLOW TURBO range of regenerative pumps with integral flow switches have been designed to boost pressure and flow from normal domestic tank fed supplies to mixing type shower valves and/or to other suitable terminal appliances / outlets in the house. A comprehensive range of twin, single and negative head pumps is available. Please contact the HELPLINE for full details.

It is essential to ensure that the MINIMUM USABLE cold water storage capacity of 225L (50 galls.) for the Turbo 1 & 2 and 300L (70 galls.) for the Turbo 3 / 4 & 6SE is available and that the hot water capacity is adequate for the application.

The installer / end user must ensure that the product is suitable for the application for which it is intended.

Techflow pumps are designed to comply with the United Kingdom water fitting bye laws scheme and all installations should be carried out by a competent person in accordance with the relevant Water Bye Laws and requirements of the Institute of Electrical Engineers.

TURBO PUMP RANGE SPECIFICATIONS					
MODEL	TURBO 1	TURBO 2	TURBO 3	TURBO 4	TURBO 6SE
WEIGHT	10.0KG	10.5KG	13.5KG	18.0KG	16.0KG
VOLTAGE	220/240V	220/240V	220/240V	220/240V	220/240V
WATTS	250W	330W	740W	1500W	1500W
FUSE RATING	5A	5A	5A	13A	13A
SPEED	2800 RPM	2800 RPM	2800 RPM	2800 RPM	2800 RPM
INSULATION CLASS	F	F	F	F	F
RATING	CONTINUOUS				
CONNECTIONS	22 mm 'PUSH ON' FLEXIBLE HOSES				
MAX. INLET PRESSURE	1.5 BAR	1.5 BAR	1.5 BAR	1.5 BAR	1.5 BAR
MAX. INLET HOT TEMP.	65°C	65°C	65°C	65°C	65°C

TURBO PUMP RANGE DIMENSIONS						
MODEL	TURBO 1	TURBO 2	TURBO 3	TURBO 4	TURBO 6SE	
OVERALL LENGTH	270	270	285	380	310	
WIDTH	130	130	130	150	150	
HEIGHT	210	210	210	210	210	
PIPE WORK CENTRES	LENGTH	235	235	250	345	-
	WIDTH	37.5	37.5	37.5	37.5	37.5

INSTALLATION DETAILS

I SITING

- 1.1 For optimum performance the pump should be sited at the base of the hot water cylinder and never more than 4 metres from the HOT WATER cylinder. It must also be at least 300mm (12") below the bottom of the cold water storage tank (see Fig 5). A minimum gravity flow of 1 litre per minute is required on each side of the pump to activate the flow switches.
- 1.2 The pump must be mounted horizontally on its four feet on a rigid level surface to facilitate adequate ventilation to the underside of the motor.
- 1.3 If installed in the roof space or other unheated areas, adequate protection against frost must be provided whilst maintaining ventilation to the pump motor.

2 PIPE WORK CONNECTIONS

- 2.1 Figs. 1-5 show typical installations with Fig. 1 being the recommended method for all pump types. Figs. 2-5 can be used for some pump types and these are detailed below in order of preference:
Fig 1 - **ANY PUMP**
Fig 2 - **Turbo 1 & 2 only**
Fig 3 - **Turbo 1 & 2 only**
Fig 4 - **Turbo 1 & 2 only**
Fig 5 - **Turbo 1, 2 & 3 only**
- 2.2 Where a SECONDARY BOSS is fitted to the cylinder this can be converted to a non-stop fitting by using a BOSS ADAPTOR (**3/4in Part No 25-010 or 1in Part No 25-009**). The pipework should extend through the fitting as with an Essex Flange (See Fig 1.)
- 2.3 When the pump is sited ABOVE the HOT WATER CYLINDER only a TECHFLANGE or Non-Stop Essex flange fitted with an ANTI-GRAVITY LOOP should be used. A manual finger vent should be fitted at the highest point immediately before the HOT inlet to the pump (See Fig 5).
- 2.4 The dedicated COLD WATER connection from the cold water storage tank should be positioned at least 25 mm (1") below the cold water supply pipe to the hot water cylinder. **NEVER CONNECT COLD WATER MAINS SUPPLIES DIRECTLY TO THE PUMP OR PLACE IT IN THE SAME LINE AS ANOTHER PRESSURE PUMP.**
- 2.5 The DOWN SERVICE from the cold water storage tank to the hot water cylinder should be made on the opposite side of the tank from the cold mains inlet (to minimise aeration to the pump) and run in 22mm min. However, when the total demand from the hot water cylinder is likely to exceed 30 l/min, a 28mm down service **MUST** be used. Typically, this will occur when two or more bathrooms are supplied from a single hot water cylinder.
- 2.6 Only PLASTIC TUBE or COPPER PIPE to relevant B.S. specification should be used - NEVER use stainless steel tube as this is not compatible with the 22 mm 'push on' type fittings on the inlet/outlet flexible hoses. Wherever possible it is recommended that plastic tube is used as this will reduce even further any resonance or noise levels but adequate support should be provided.
- 2.7 Supplies to the pump inlets and the hot expansion / vent **MUST** be run in 22mm (min) pipework. Downstream pipework should be 22mm wherever possible but 15mm can be used for short runs. However, this will result in reduced performance from the pump.
- 2.8 The flexible coupling hoses with 22mm 'push on' connectors supplied must be used in all installations. The pump should be sited in a position where these hoses are not bent or deflected by more than 30° from the vertical.
- 2.9 Before fitting the hoses ensure that the Float Stop and Inlet Filter are correctly located in the recess provided.
- 2.10 To remove the hoses from the pump or pipework hold the grey collet towards the fitting and pull off the hose. **NEVER CONNECT PIPEWORK DIRECTLY TO THE PUMP ALWAYS USE THE HOSES SUPPLIED.**

FIG. 1 TECHFLANGE, NON-STOP ESSEX FLANGE OR SECONDARY BOSS WITH ADAPTER

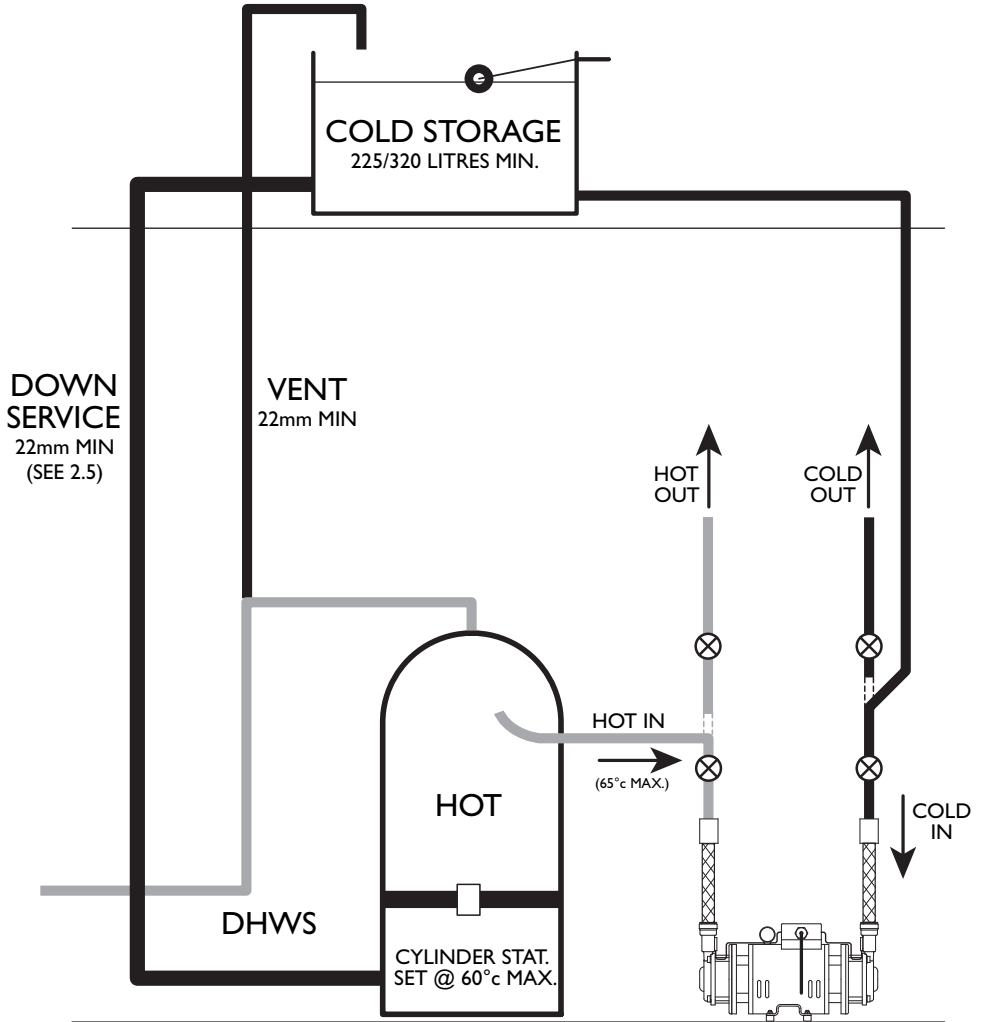


FIG. 2 WARIX FLANGE

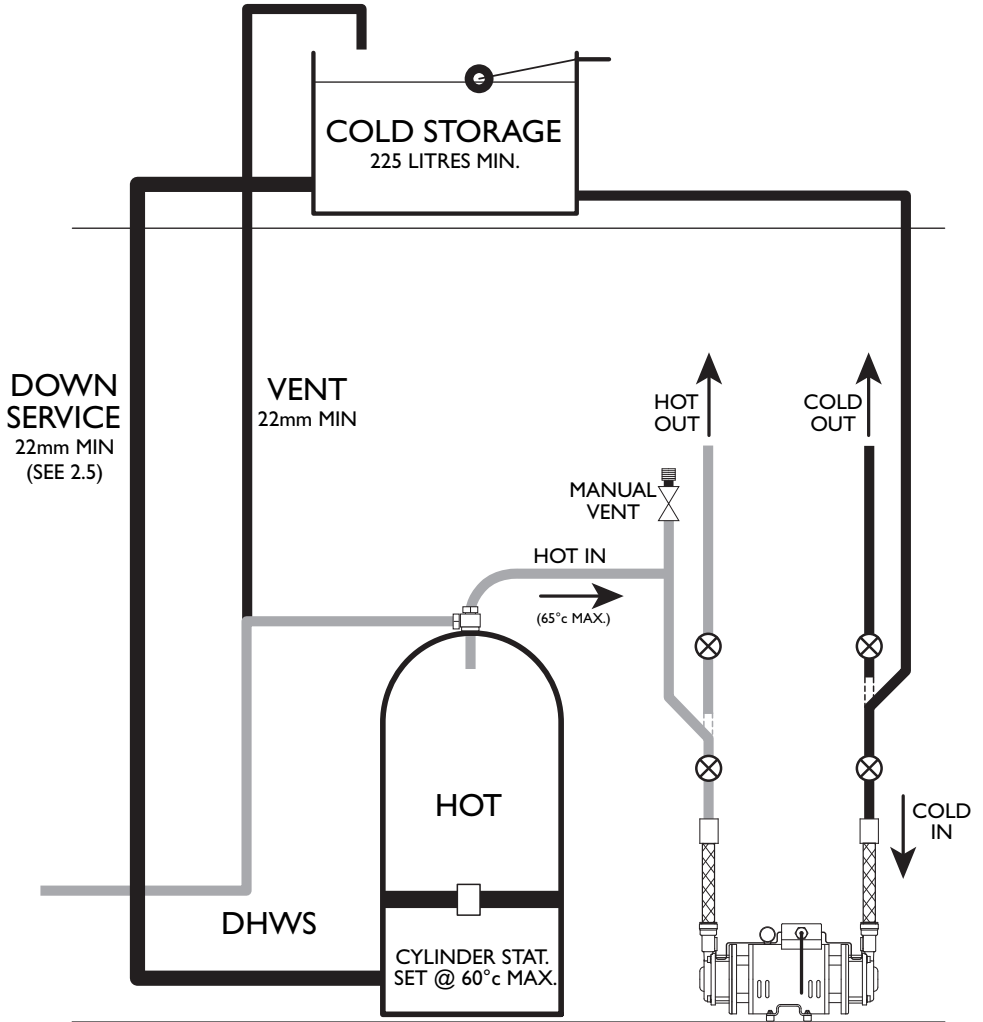


FIG. 3 SURREY FLANGE

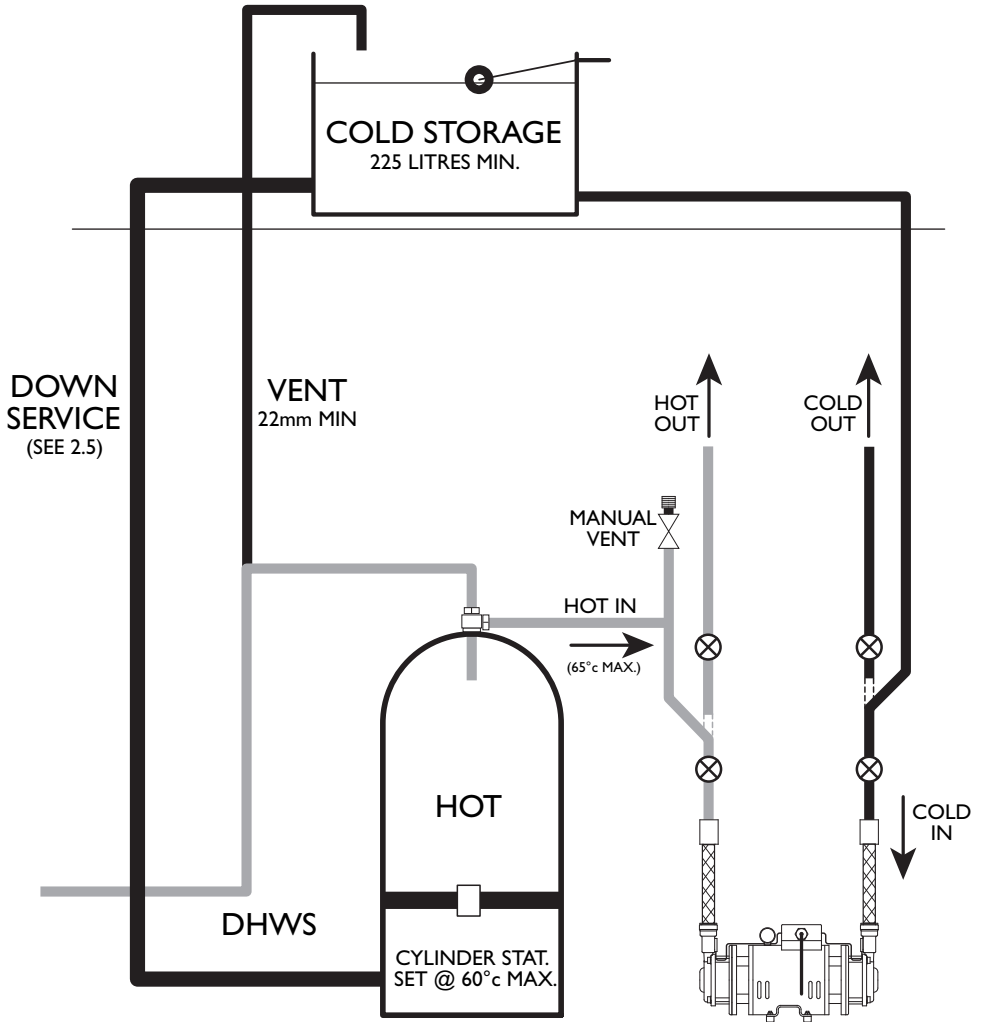


FIG. 4 TAKE OFF FROM ANGLED VENT

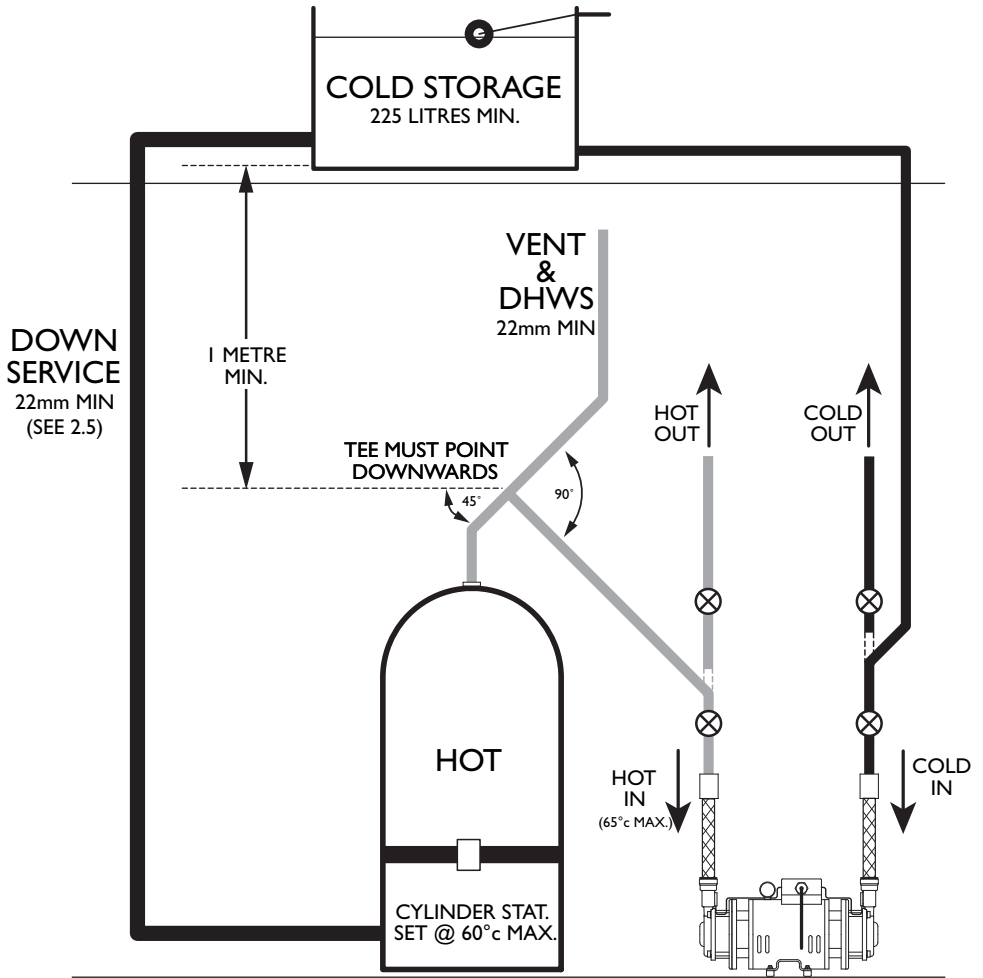
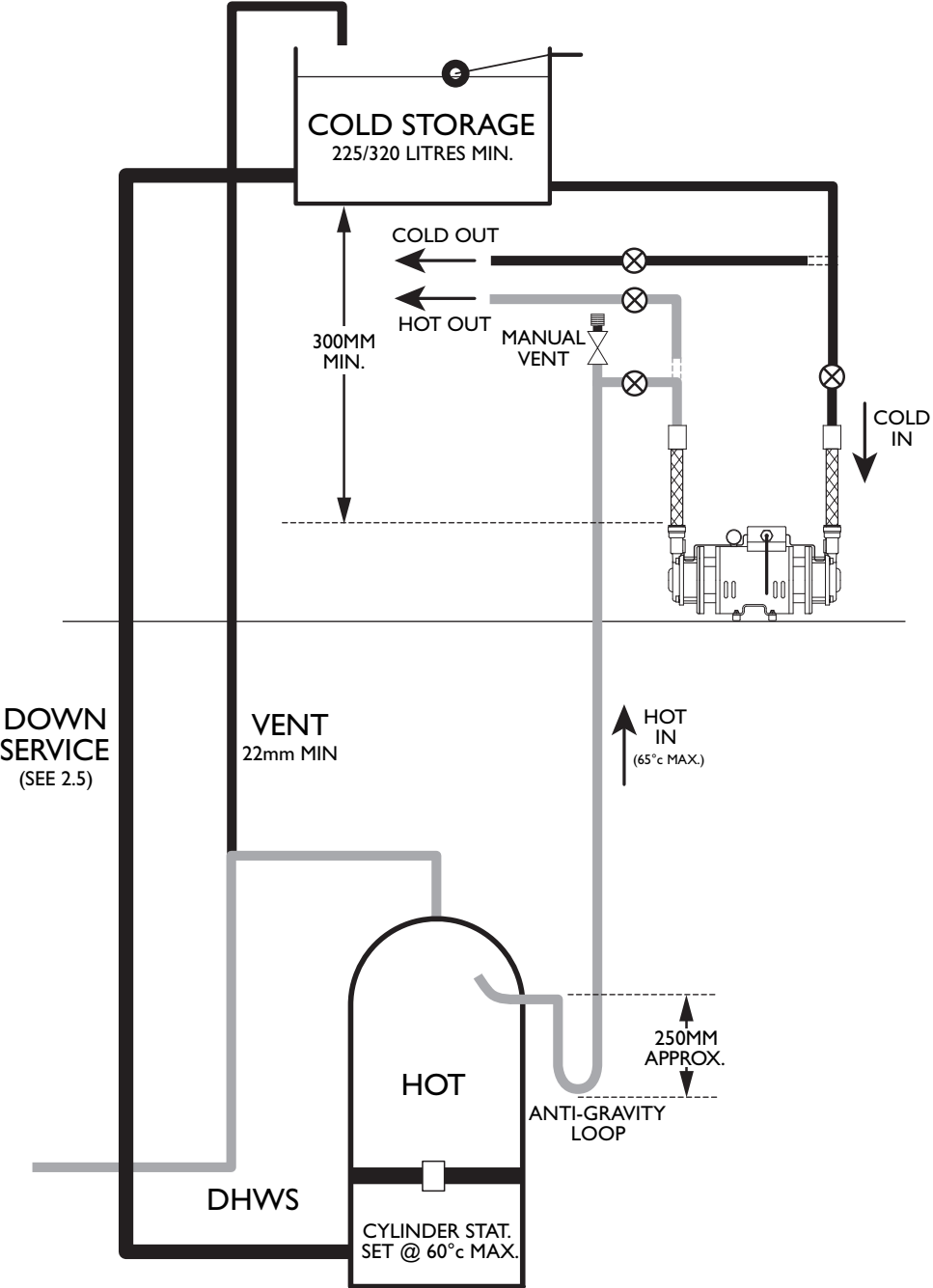


FIG. 5 TECHFLANGE & ANTI-GRAVITY LOOP



- 2.11 Either end of the pump can be used for hot or cold connection.
- 2.12 Ensure that the OUTLET connections are made to the ports marked with the 'arrow'.
- 2.13 All connecting pipes should be cut with a standard pipe cutter so that the pipe end is correctly finished prior to insertion into the flexible hose coupling. If any other tool is used to cut the pipe, the end of the pipe must be thoroughly deburred and chamfered before fitting. Also, check that the end is cut perpendicular to the length of the pipe.

3 TECHFLANGE INSTALLATION (SEE FIG.6)

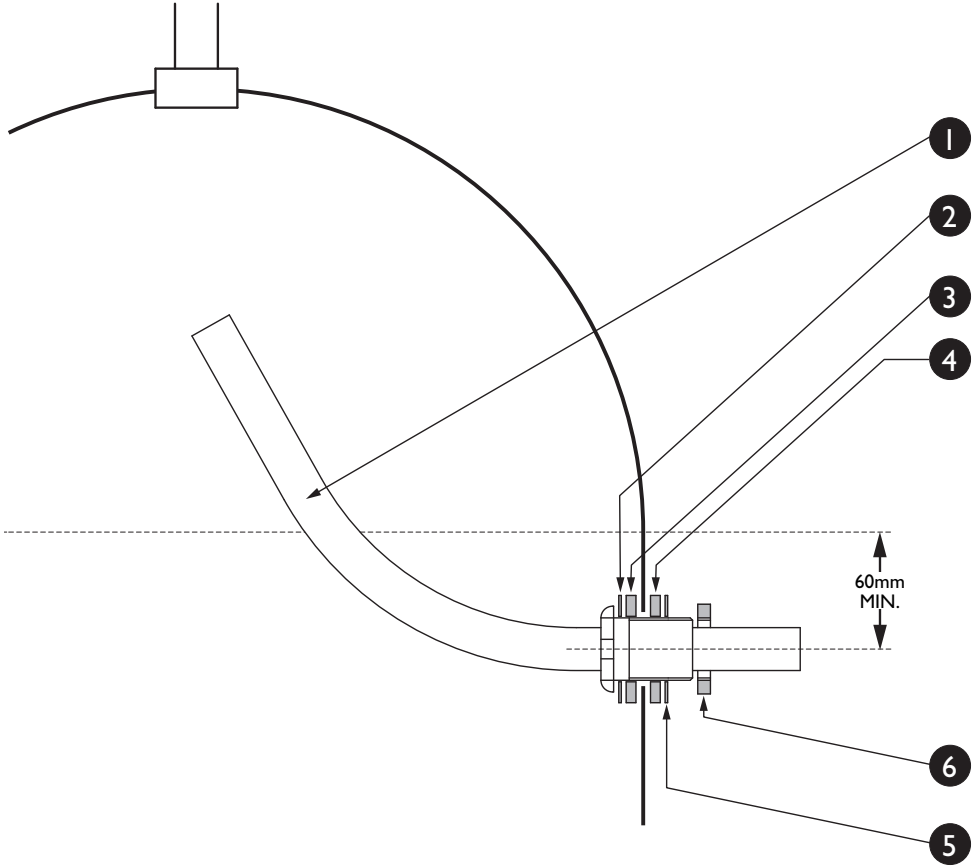
- 3.1 Select a position on the hot water cylinder away from any immersion heater port as water drawn from the area around the immersion heater will be aerated.
- 3.2 Mark the centre point of the proposed hole approx. 60mm below the cylinder seam and cut a 75mm square out of the insulating material.
- 3.3 Lower the water level in the cylinder to a point below the position of the proposed hole.
- 3.4 Using the template supplied (see Pump box) mark out the centre-point of the hole and a circle 60mm diameter.
- 3.5 Using the Shell Cutter supplied cut a hole (35mm dia.) using the marked centre point. Clean away any burrs from cut edge of the hole and remove any limescale deposit from the inside face of the cylinder to ensure a clean sealing face.
- 3.6 Remove Nut and Washers from the Flange Assembly (1). Manipulate the Flange Assembly (1) through the hole cut in the cylinder by holding at an angle and rotating. Check that the flange tube does not interfere with the immersion heater coil and if necessary reduce length of tube.
- 3.7 Open up the gap in the Split Washer (2) and slide onto the Flange Assembly (1). Feed split end through cylinder wall and rotate to position on inside of cylinder. Locate over the threaded section of the flange and pull Flange Assembly (1) up against inside wall of cylinder to close gap in washer.
- 3.8 Now slide Sealing Washer (3) onto flange and feed through hole to position on threaded section of Flange Assembly (1).
- 3.9 Fit second Sealing Washer (4) and Clamp Washer (5) over flange and push up against cylinder wall.
- 3.10 Apply a bead of clear silicon sealant around inner diameter of Clamp Washer (5). Fit Nut (6) and hand tighten. **DO NOT APPLY SEALANT TO SEALING WASHER (4).**
- 3.11 Ensure that the RED DOT on the Flange Assembly (1) is positioned upper-most and that the assembly is central within the circle marked on the cylinder. Lightly tighten Nut (6) to clamp up assembly. **DO NOT OVER TIGHTEN.**
- 3.12 Adjust length of protruding copper tube if required and complete pipework to Pump inlet ensuring that an isolating valve is fitted. When using compression fittings ensure that the Flange Assembly (1) is gripped to prevent rotation. Close isolating valve re-fill system and check for leaks. If necessary tighten Nut (6) to achieve seal.

4 ISOLATING VALVES

- 4.1 22mm GATE TYPE or FULL - BORE LEVER OPERATED BALL TYPE isolating valves **MUST** be fitted to all inlets and outlets in an accessible position and as close to the pump as possible. **SERVICE CALLS WILL NOT BE UNDERTAKEN BY TECHFLOW PERSONNEL WHERE ISOLATING VALVES ARE NOT FITTED.**
- 4.2 Ballofix and other types of isolating valves **MUST NOT** be fitted as they can be restrictive resulting in starvation at the pump inlet and subsequent damage to the pump.

FIG. 6

TECHFLANGE INSTALLATION



5 HOT WATER TEMPERATURE

- 5.1 The temperature of the hot supply **MUST NOT** exceed 65°C at the pump inlet. A cylinder stat. **MUST** be fitted to provide adequate temperature control and set to a **MAXIMUM** temperature of 60°C.
- 5.2 If fitting blending valve to the hot supply this should be a low restriction type with minimum 3/4" connections.

6 ELECTRICAL INSTALLATION

THIS PUMP MUST BE EARTHED

- 6.1 The electrical installation **MUST** be undertaken by a competent person and **MUST** comply with the relevant IEE regulations.
- 6.2 All pipework must be cross bonded and an RCCB fitted in compliance with IEE regulations.
- 6.3 The 240 volt supply should be taken via a fused spur from the domestic ring main and fitted with a 5 amp fuse. **HIGHER RATED FUSES SHOULD NOT BE FITTED.**

7 COMMISSIONING

- 7.1 The inlet pipework must be thoroughly flushed to purge the system of any swarf, traces of flux etc. BEFORE connection to the pump.
- 7.2 Having connected both inlet and outlet supplies open all isolating valves.

CHECK FOR LEAKS.

- 7.3 Open the shower valve or terminal fitting and allow water to flow through the system on GRAVITY for 2/3 minutes. With the shower valve still open switch on the power supply to the pump for 5/10 seconds and then switch off again. Allow a further 30 seconds of GRAVITY flow before switching the pump on to run for 10 seconds. Repeat this cycling until all air is purged from the system. Use the fitted manual finger vents to assist in purging the system.

NOTE: If a flexible hose and handset shower system is installed remove the handset from the shower hose and lay the hose in the shower tray when purging the system. This ensures maximum gravity flow and will reduce the purging time.

NEVER ATTEMPT TO OPERATE A DRY PUMP AS THIS WILL CAUSE IRREPARABLE DAMAGE TO CRITICAL INTERNAL SEALS ETC.

8 FLOWSWITCH SENSITIVITY ADJUSTMENT

If required the flowswitches can be adjusted for sensitivity. If the pump fails to start then release by half a turn the two capscrews which retain the flowswitch to the pump body and slide the flowswitch **DOWNWARDS** by only 1 or 2 mm. If the pump shows a tendency to continue running with all outlets closed then move the flowswitch **UPWARDS** by 1 or 2mm. Re-tighten the capscrews after adjustment.

NOTE: THE 'NHE' SPEC PUMPS WILL CONTINUE TO RUN FOR APPROXIMATELY 10 SECONDS ONCE ALL OUTLETS ARE CLOSED.

9 WHOLE HOUSE PUMPING

When in excess of 6 high usage appliances with separate hot and cold outlets are pumped a **Whole House Pack**, consisting of 2 x single ended SE/NHE pumps should be fitted. Contact the HELPLINE for further advice.

10 NEGATIVE HEAD INSTALLATIONS

A Negative Head situation occurs when the level of cold water in the storage tank falls below the shower head outlet or other taps or appliances resulting in no gravity flow through the system or insufficient flow to operate the integral flow switches fitted in the standard Turbo pumps.

PLEASE NOTE THE REQUIREMENT FOR A MINIMUM 300mm (12") GAP BETWEEN THE BOTTOM OF THE COLD WATER TANK AND THE PUMP INLETS STILL APPLIES.

See **Section 12** for installation of 'NHE' Negative Head Pumps.

11 SERVICING

TECHFLOW PUMPS ARE FACTORY SEALED UNITS AND THEREFORE SERVICING OR REPAIRS SHOULD ONLY BE CARRIED OUT BY TECHFLOW OR ITS AUTHORISED SERVICE AGENTS.

DISMANTLING THE PRODUCT WILL INVALIDATE YOUR WARRANTY.

12 'NHE' NEGATIVE HEAD SYSTEM INSTALLATION (SEE FIG.7)

The 'NHE' Pressure Switch Assemblies activate the pump when the pressure in the system drops. This will occur when the shower valve or other outlet is opened. The unit will also prevent the pump from running dry in the event of water supply failure.

NOTE: Max. system head on Turbo INHE - 5 metres (0.5 bar)

Max. system head on all other Turbo 'NHE' Pumps - 10 metres (1.0 bar)

IF THIS HEAD IS EXCEEDED THE PUMP WILL FAIL TO OPERATE

- 12.1 Ensure that the Float Stops and Inlet Filters are correctly located in the inlet and outlet ports.
- 12.2 Push-fit the stem end of the two pressure switch assemblies (1) to the OUTLET ports marked with the arrow.
- 12.3 Ensure that the sealing washer is correctly located in the manifold (5) and screw the expansion vessel (6) to the manifold (5). **HAND TIGHTEN ONLY, IT IS ADVISABLE TO GRIP THE MANIFOLD WHILST TIGHTENING.**
- 12.4 Connect the blue tubing (7) to both the manifold (5) and the pressure switch assembly (1). Push the tubing over the fitting tail and tighten the knurled screw.
- 12.5 Push-fit the Hoses (2) and (3) to the pump INLET ports and the 'NHE' Pressure Switch Assembly to the OUTLET ports.
- 12.6 Thoroughly flush through the pipework and connect to complete the connections to the pump hoses. Isolating Valves (4) **MUST** be fitted to both inlet and outlet pipework.

NOTE: If Isolating Valves are NOT fitted to BOTH inlets and outlets then site visits will not be undertaken.

- 12.7 Connect the Pump Power Lead to a fused spur ensuring that the correct rated fuse is fitted.

COMMISSIONING

- 12.8 Ensure that the power supply to the Pump is OFF.
- 12.9 Turn on the water supply to the pump.
- 12.10 Open the shower valve and allow 2 or 3 minutes for the water to reach the pump and for air to vent out of the system.
- 12.11 Turn on the power supply and the pump should now operate.
- 12.12 Allow the pump to run for several minutes to purge air from the system.
- 12.13 Close the shower valve and after a few seconds the pump will stop.

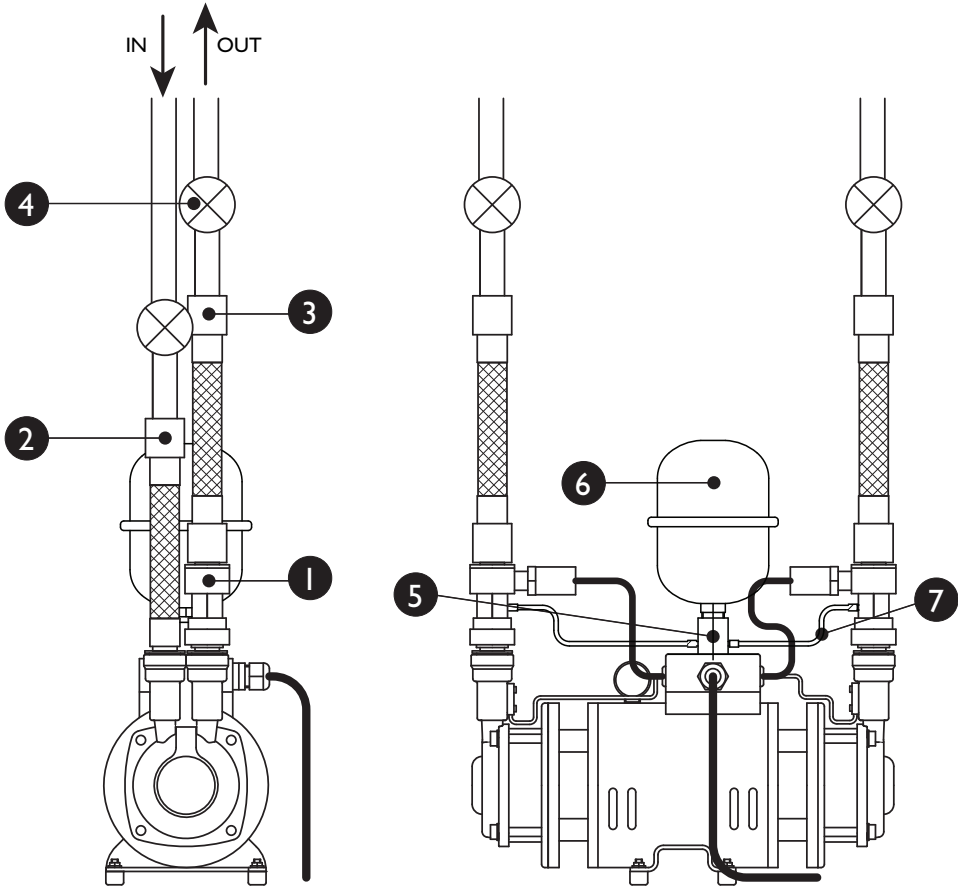
OPERATION

- 12.14 Opening the shower valve will automatically start the pump.
- 12.15 When the shower valve is closed the pump will run on for a few seconds before stopping. This is quite normal as the pressure in the pipework is being re-charged.
- 12.16 If the pump continues to stop/start with all outlets closed then check for leaks in the pipework.

NOTE: On long pipe-runs it is possible that the pump will run for a short time every few hour to re-charge the system. This is quite normal.

- 12.17 In the event of water supply failure or excessive aeration of the supply the pump will shut-down. Once the water supply is restored switch off the mains electrical supply to the pump, leave for a few seconds and then switch on again. This will re-set the pump which can then be operated normally.

FIG. 7 'NHE' NEGATIVE HEAD SYSTEM



13 SINGLE ENDED PUMPS

The TECHFLOW TURBO range of SE (single ended) pumps have been designed to boost pressure and flow from tank fed supplies to suitable terminal appliances.

Both flow-switch and pressure switch operated (NH type) pumps are available and these can be used to pump separate hot or cold supplies or alternatively fitted downstream of a mixer valve to pump a blended supply (SEE FIG.8)

For further information or advice please contact our HELPLINE.

INSTALLATION

- 13.1 Follow instructions as outlined in Sections 1– 6 ensuring that the appropriate hot or cold supply to the pump is fitted in line with these Installation Instructions.
- 13.2 When the pump is fitted downstream of a shower mixer valve to boost blended flow install as shown in Fig. 8 below. The pipe run from the mixer valve to the pump should be 22mm min. and for best results the pump should be sited as close as possible to the mixer valve.

NOTE: The NHE (negative head) Pump types cannot be fitted in this type of installation.

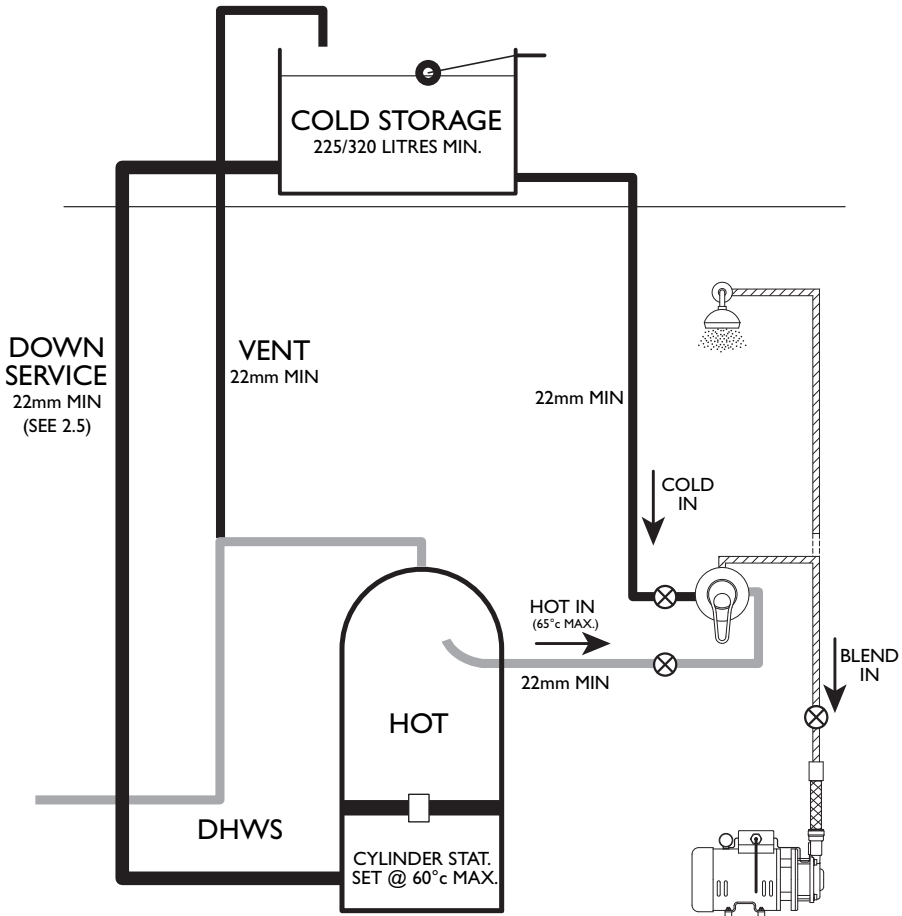
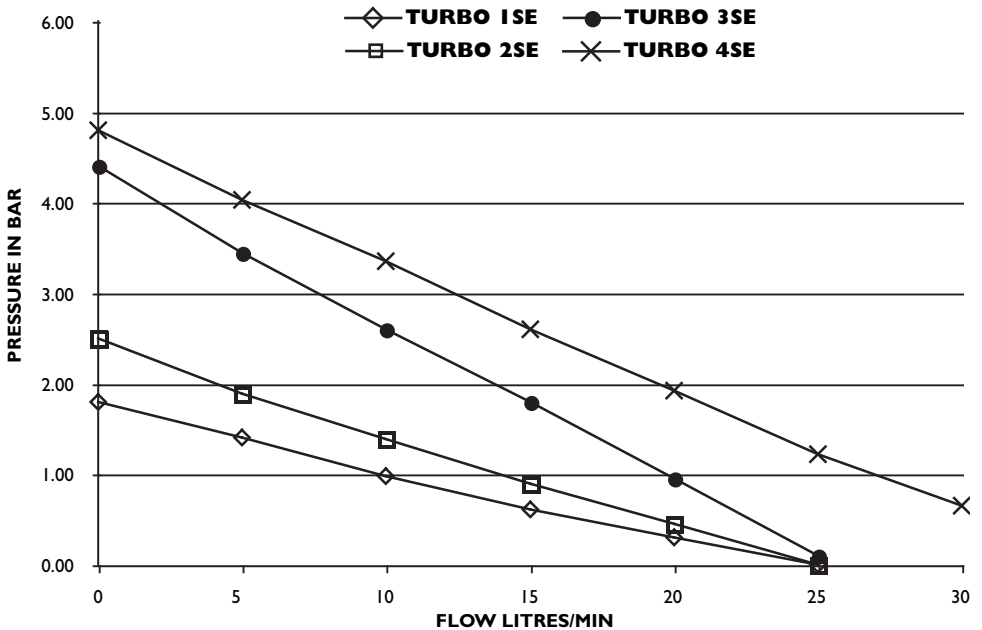
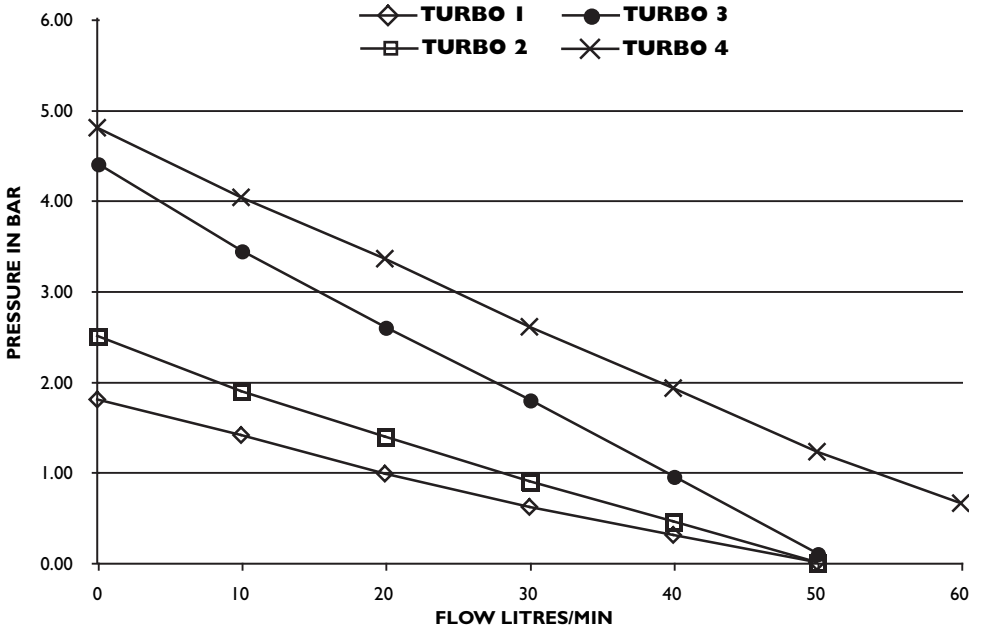


FIG. 8
TYPICAL INSTALLATION PUMPING
BLENDED SUPPLY

FIG. 8 PERFORMANCE DATA



TECHFLOW PRODUCTS LTD. WARRANTY STATEMENT

Thank you for buying one of our 'TURBO' range of pumps.

We are confident that the superior design and operating performance of our pump, combined with very high standards of manufacturing quality, will offer long operational life and product satisfaction.

The TERMS and CONDITIONS of the WARRANTY are:

1. The Scope of the Warranty

TECHFLOW PRODUCTS LTD. ('The Company') will, subject to the terms and conditions below and for the warranty period specified in paragraph 3, repair or replace free of charge any of its products that, in the opinion of the company, are defective because of faulty materials or workmanship. This warranty will not apply to any of the Company's product(s) that in the opinion of the company have been modified altered or misused in any way or where the products have been incorrectly installed or operated other than as described in the Company's 'Installation Instructions, or if any servicing or repair of the product(s) has been carried out by anyone other than our authorised Company Service Engineer or Dealer.

2. TERMS AND CONDITIONS

This Warranty is available to you on the following terms and conditions.

- 2.1 You are the original purchaser of the product(s) from an authorised dealer of the company ('The Dealer') and not an assignee or subsequent purchaser of the product(s).
- 2.2 You must provide evidence of the date of purchase of the product(s) by retaining the original invoice or receipt from the Dealer. Without such evidence the Company reserves the right to reject any claim under the terms of the Warranty.
- 2.3 Any alleged defect of the Company's product(s) giving rise to liability as stated in paragraph 1 must be advised to the Company within 30 days of discovery

3. THE WARRANTY PERIOD

- 3.1 This warranty will run for a period of 2 years from the date of purchase. If the pump is installed in compliance with Fig. 1 of these instructions using either a **Techflange** or **Non-Stop Essex Flange** the Warranty will be extended by one year to three years from the date of purchase.
- 3.2 The Warranty period in respect of any product(s) repaired or replaced under the terms of the Warranty shall be that part of the above 2 year period which remains unexpired.
4. In the event of a claim for repairs or replacement being made under the terms of the Warranty where, in the opinion of the Company, the defect has not been caused by the Company's materials or workmanship then the company reserves the right to charge the claimant at the hourly rates and list prices prevailing in respect of any service engineer's time and any replacement parts.
5. This Warranty is given in addition to and does not alter your statutory rights.
6. This Warranty is applicable only to products(s) purchased and used exclusively in the U.K.
7. Where the company makes a replacement the product(s) replaced shall be returned to the Company immediately and shall become the property of the Company.
8. No authority has been given to any person, company or any other party to waive the terms of this Warranty.