



**Technical Information** 

## **Foot Valve Features and Benefits**

Used on the end of a suction line to stop fluids in the line emptying when the pump is turned off, thus eliminating the need to prime your pump at start up.

- High Peformance, Cost Effective Foot Valve
- Delivers high volumes of water quickly with unrestricted full flow
- Efficiency in excess of 95% compared to many other types of valves
- Unique design which incorporates a self cleaning diaphragm
- Operates via Pressure Differential and at any angle or position
- No Poppet Valve to wear or jam
- Easy access screw cap for servicing
- Diaphragm and Spring are interchangeable with the same size Check Valve
- Blockages reduced due to low fluid velocity through slots
- Manufactured from strong, non-corrosive UV stabilised materials
- Materials approved for use with Potable (drinkable) Water
- All connecting threads are BSPT and NPT
- Smooth operating valve for high efficiency



## **Foot Valve Approvals**

**SGS M&I** – HANSEN<sup>™</sup> Foot Valves have been approved in SGS Marine Certificate. The M&I division of SGS New Zealand Limited is the country's largest marine and industrial inspection, testing and Safe Ship Management service provider.

**AS/NZS 4020** – HANSEN<sup>™</sup> Foot Valves have met the requirements of AS/NZS 4020 Australia & New Zealand drinking water test standard.

See our website for further details.

# Foot Valve Dimensions

Product Code	T1 BSPT	a mm	b mm	c mm
FV25	1" (25mm)	69	72	NA
FV32	1 1/4" (32mm)	87	88	NA
FV40	1 1/2" (40mm)	99	99	NA
FV50	2" (50mm)	123	120	NA
FV63	2 1/2 (63mm)	152	NA	156



## **Foot Valve Parts and Materials**

Strong Non-Corrosive Materials

- Body High Quality Glass Fibre Reinforced Nylon
- Diaphragm Nitrile Rubber
- Spring Stainless Steel

All components of this valve are manufactured from materials approved for use with potable (drinkable) water

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## Foot Valve Chemical Resistance

CHEMICAL TYPE	RESISTANCE LEVEL			
	Good	<b>OK</b> But Check Further	BAD Try to Avoid	
Acids Weak			X	
Acids Strong			X	
Organic Acids Weak		X		
Organic Acids Strong			X	
Bases Weak	X			
Bases Strong		X		
Bleach			X	
CHEMICAL TYPE		RESISTANCE LEVEL		
Automotive Fuel	X			
Automotive Lubricants	X			
Hydraulic Fluids			X	
CHEMICAL TYPE		RESISTANCE LEVEL		
Solvents		X		
Hydrocarbons	X			
Halogens			X	
Alcohols			X	
Aldehydes			X	
Amines			X	
Esters			X	
Ethers			X	
Ketones			X	
CHEMICAL TYPE	RESISTANCE LEVEL			
Detergents	X			
Oxidising Agents			X	
Weak Hydrogen Peroxide		X		
Phenols			X	

PLEASE NOTE: This chart is intended as a basic guide only. The resistance to a given chemical will vary with temperature & concentrations. Some chemicals within the group mentioned may result in different rating. For further information, please email us with your specific question.



# **Choosing the Correct Foot Valve**

Use the following flow chart and technical specifications to determine the correct Foot Valve for your requirements

Firstly find your system flow across the bottom of the chart and then take a line vertically up the chart to the size valve with an acceptable head loss for your system. For dirty water applications choose the smallest valve that will be operating in the area shown by the thicker line with an acceptable head loss.

**Example:** if your pumping capacity is 400 l/min a FV40 head loss will be 1.8m and a FV32 head loss will be 3.2m



## Foot Valve Flow Chart

This chart has been prepared using the results from independent tests carried out by The University of Auckland, New Zealand.



# Foot Valve Technical Specifications

Maximum Head Pressure @ 20°C						
Valve	FV25	FV32	FV40	FV50	FV63	
psi	235	235	235	235	235	
Bar	16	16	16	16	16	
kPa	1600	1600	1600	1600	1600	

## Vacuum Required for Initial Flow

Valve	FV25	FV32	FV40	FV50	FV63
psi	-0.5	-0.5	-0.5	-0.5	-0.5
kPa	-3.5	-3.5	-3.5	-3.5	-3.5

Vacuum Required to Fully Open Diaphram

Valve	FV25	FV32	FV40	FV50	FV63
psi	-1.5	-1.5	-1.5	-1.5	-1.5
kPa	-10.0	-10.0	-10.0	-10.0	-10.0

Minimum Flow for Self Cleaning Action							
Valve	FV25	FV32	FV40	FV50	FV63		
l/min 110 210 300 460 600							

Connection Female BSPT						
Valve	FV25	FV32	FV40	FV50	FV63	
Thread size	1"	1 1/4"	1 1/2"	2"	2 1/2"	

Dimensions (mm)						
Valve	CV25	CV32	CV40	CV50	CV63	
Diameter	69	87	99	123	152	
Length	72	88	99	120	156	



## Foot Valve Steps to Quick and Easy Installation

- Use a thread sealing paste on female thread. We recommend Loctite 5331.
- Use graphs on Choosing the Correct Foot Valve Page to select the correct valve size.
- Keep your Foot Valve off the bottom of your water source to eliminate the valve sucking up rubbish/dirt.
- If you are using chemicals or have any special requirements that you wish to use your valve in, go to the Valve Chemical resistance Page or don't hesitate to contact us.

# Foot Valve Re-assembly

These Instructions are for those situations where you need to clean out the valve in the event that grit or debris has reduced its working efficiency.

# Note: Before re-assembling make sure that all components are fully cleaned.

- Turn Foot Valve body upside down (as per picture).
- Seat the diaphragm into the valve body.
- If spring is removed, place it over the pin and turn anti clockwise whilst pushing firmly to retain it on the spigot.
- Place the cap onto the valve body.
- Screw the cap fully onto the valve body and tighten down, hand tight only. For the 63mm valve, use the lugs to tighten the cap a further 1/4 to 1/3 turn until it stops.

The information given on this sheet is for guidance only. HANSEN PRODUCTS (NZ) LIMITED accepts no responsibility for the misuse or misapplication of this information.



Cross section shows valve in fully opened position





closed position



## **Foot Valve Frequently Asked Questions**

## Q Why won't my Valve seal?

- **A** 1. There may be something sitting between the diaphragm and diaphragm seating area. Pull the valve apart and clean out (replace diaphragm if damaged) as per assembly instructions. 2. Check to ensure you are using the correct size valve for your situation (See Choosing the Correct Foot Valve Page.)
- Q What temperature can I use Hansen Foot Valve at?
- A Hansen have tested all its products for use with cold water up to a maximum temperature of 60°C (140°F). We do not recommend the use of these products with temperatures higher than 60°C (140°F) as plastic expands due to temperature increases. Hansen cannot guarantee the products will perform when used with temperatures over 60°C (140°F). Hansen products that have failed in temperatures higher than 60°C (140°F) will not be covered by warranty.
- Q Do I have to remove my valve from the line to service?
- **A** No. Your valve can be left in line for servicing. Refer to the Re-assembly Page for further instructions.
- Q I have an existing water line with a 40mm valve on it and I want to replace the valve with a Hansen valve. Do I use the same size valve as my existing one?
- A You will need to refer to the Choosing the Correct Foot Valve Page and use these charts to determine the valve size required. In some situations you may be able to use a smaller Hansen valve than your existing non Hansen valve.

#### Q Can the Hansen Foot Valves be used with salt water passing through them?

**A** The spring in the valves is made of 302 grade stainless steel, and may eventually corrode in the salt water. The spring is available as a replacement **A** Work out the flow rate of your pump (your pump part if required. All other parts of the valve are fully resistant to salt water.

- Q The dam I'm pumping from can get guite dirty at times, including slime and weed, I find my existing foot valve requires constant cleaning. Will the Hansen Foot Valve solve this problem?
- A Yes the Hansen Foot Valve has been designed with the ability to work in dirty water situations and because of lower head losses of this valve you can select a smaller size than you normally would expect, thus with the higher velocities across the diaphragm the valve becomes self cleaning.
- Q Can I use my Hansen Foot Valve with my swimming pool/spa pool set up?
- **A** No, as the high concentration of chlorine used in the water for pools, will attack the material. The fitting material is only suitable for use with domestic water. Hansen products that are used in this application will not be covered by warranty.
- Q When choosing my Foot Valve do I select a valve size to match the suction pipe diameter?
- **A** No not necessarily, again because of the higher efficiencies of the Hansen Foot Valve you match your flow with the head loss your pump can afford, generally you will find the Hansen Foot Valve size will be less than the pipe diameter.
- Q The river I pump from is fairly shallow so I do pump some sand at times and find my existing Foot Valves have to be replaced often. Is the Hansen Foot Valve also a throw away valve?
- **A** No, although pumping sand is unadvisable because of the damage to your pump. You will find with the screw cap service access to the Hansen Foot Valve you only need to replace the parts that wear in these circumstances. Another suggestion would be because the Hansen Foot Valve can be installed at any angle you may be able to install the Hansen Foot Valve vertically above your suction pipe and keep it above any sand.

### Q How do I know what size valve to use?

supplier / installer can help you here) then refer to Choosing the Correct Foot Valve Page.