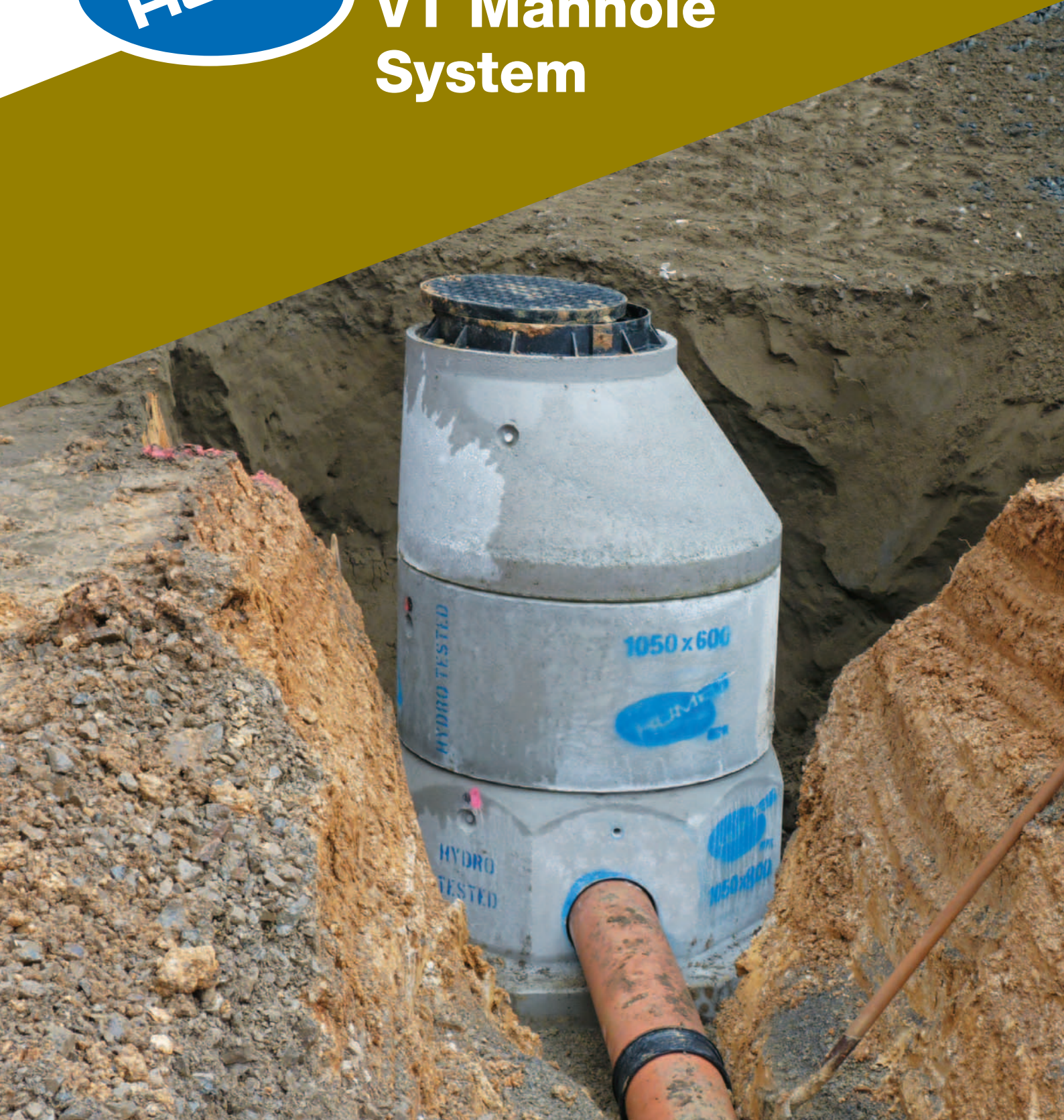




# VT Manhole System



Rubber ring jointed sewer and stormwater manhole system

# Introduction

Humes VT 1050 mm concrete sealed manhole system are manufactured using the vibration technology process in Auckland. The new manhole system is designed for both sewer and stormwater applications offering the following benefits to installers and asset owners:

Features/Benefits	Installer	Specifier/Asset Owner
Rubber ring jointing system hydrostatically tested to AS/NZS 4058:2007 standard	- No joint epoxy which saves time	- Sealed flexible joints which can accommodate ground movements
Factory made benching with 50 MPa concrete for sewer applications	- Time saving on benching - No need for earthenware lining – providing cost savings on materials	- Improved hydraulics and assurance that the benching is made from strong and durable concrete
Soft spots in bases	- Time saving and easy for creating pipe penetration as soft spots have no reinforcement	
Rubber ring jointed risers	- Flexibility to alter heights during construction	- Sealed, flexible joint between base and risers
Rubber ring Jointed Rebated Conical Lid and Flat Lid	- Rebate on Conical Lid enables easy installation for the streetware	- Takes away the epoxy joint between the riser and the lid, which in the current system is a potential risk for infiltration
Plastic encapsulated steps	- Time saving as steps do not need to be bolted and epoxied	- No step holes which is currently a potential area for infiltration
Structural performance testing to AS 4198	- Only manhole system tested for structural performance in NZ	

## VT Manhole Bases and Risers

Humes VT 1050 mm concrete manhole bases are designed for both sewer and stormwater applications.

### 1100 Unbenched base

The new 1100 mm high base has soft spots which will accommodate pipes larger than nominal diameter of 160 mm. This base requires benching to suit the specific pipe configuration.

### 800 Benched base

The 800 mm short base is ideal for sewer applications with factory made 50MPa concrete benching and soft spots to accommodate pipes with outside diameters of up to 160 mm. The benching has a built-in fall of 50 mm as per the requirement of the Land Development standard NZS 4404:2010.

With 45° and 90° channels formed straight through, there is no need for messy and time consuming onsite benching practices. The unused channels can be filled in as shown in the adjacent picture.



# VT Manhole Bases and Risers (continued)

## Riser on base summary table

Type of base	Benched	Internal diameter (mm)	Overall Height (mm)	Width (mm)	Wall thickness (mm)	Soft spot Ømm	Mass (kg)	Lifting clutches required (tons)
1100	No	1050	1100	1580	110	500	1720	2.5
800	Yes	1050	800	1580	110	200	1816	2.5

## Risers

VT 1050 manhole system offers a 300, 600, 900 and 1200 mm high rubber ring jointed risers. The risers are common to both sewer and stormwater systems. The self lubricated rubber rings enable easy jointing and a watertight seal. The rubber rings also provides the flexibility to increase or decrease manhole heights as construction is undertaken.

Effective riser height (mm)	Internal diameter (mm)	Width (mm)	Wall thickness (mm)	Mass (kg)	Lifting clutches required (tons)	No of steps in the riser
300	1050	1270	110	292	2.5	1
600	1050	1270	110	592	2.5	2
900	1050	1270	110	893	2.5	3
1200	1050	1270	110	1193	2.5	4



# VT Manhole Lids

With the new VT Manhole system, Humes offers the option of rubber ring jointed flat and conical lids.

## Flat Lids

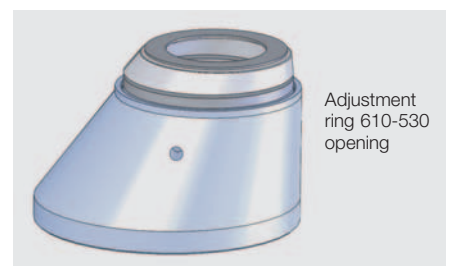
Flat lids are precast and designed for both heavy and light duty applications. The flat lids are made to NZS 3109:1997 Precast standard.



## Conical Lids

670 mm high conical lids have been tested for structural performance as per AS 4198:1994 standard and are designed to deliver a Class D load rating of 210KN. The conical lid can provide a complete manhole option when combined with a base. The entry point aligns with the wall of the manhole to make entry directly down the step face of the risers. The conical profile reduces from 1050 to a 610 mm opening and streetware can be directly epoxied into the rebated top of the conical lid. Standard adjustment rings are also available for finer height adjustments.

A special adjustment ring is also available for installations that require 530 mm opening. This adjustment ring will reduce the opening from 610 mm to 530 mm.



# VT Manhole Accessories

To complement the Humes VT 1050 mm manhole system, we also offer the following accessories:

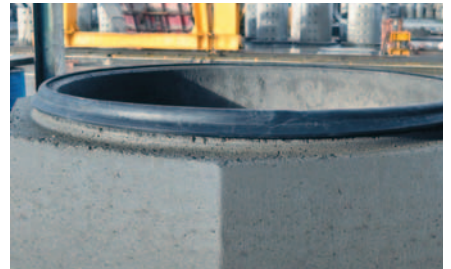
## Sewer Manhole Adaptors

Humes patented manhole adaptors with nominal diameters of 100 mm and 160 mm provide watertight flexible mechanical joints, which can accommodate up to six degrees of deflection. Sizes larger than 160 mm nominal diameter are available as a special.



## Rubber Rings

Humes has chosen a rubber seal specifically designed by Forsheda, a leading concrete pipe ring manufacturer, for manholes. The prelubricated rubber ring provides for easy jointing (and disassembly) and a water tight seal for manhole bases, risers and cones.







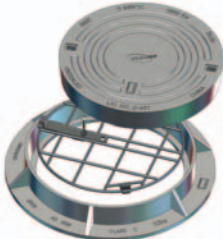
## Plastic Encapsulated Steps

Humes has chosen Caswick high grip manholes steps. The new steps have an increased width from 225 to 300 mm and are made to European Standard EN13101. The steps are made from structural carbon steel and coated with HDPE. They are push fitted into cast in inserts and rated to a pull out test of 5.0KN.



## Standards Marked Streetware

Humes Standards Marked (AS3996) ductile iron lids with grey iron frames are designed to fit within the rebate of VT manhole conical lid. There are options to choose from:

Description	Class D Ductile Iron Manhole Cover Set	Class D Ductile Iron Locking Manhole Cover Set	Manhole Safety Grill
	 	 	
Item #	78250	78255	For complete manhole safety, the new Humes Safety grill prevents falls and access to manholes. Available in either galvanised or stainless steel in either a 500 mm or 610 mm size with a locking option. Designed to be retrofitted to most manholes, the safety grill has been independently tested to a weight loading of 500KG.
Class	D	D	
Clear Opening (mm)	600	600	
Frame Diameter (mm)	810	810	
Lid Diameter (mm)	682	682	
Frame Depth (mm)	102	102	
Lid Depth (mm)	47	47	
Weight (Kg)	80	80	

For further technical details or advice freephone 0800 502 112 or visit [www.humes.co.nz](http://www.humes.co.nz)

Buyers and users of the products described in this brochure must make their own assessment of the suitability and appropriateness of the products for their particular use and the conditions in which they will be used. All queries regarding product suitability, purpose or installation should be directed to the nearest Humes Sales Centre for service and assistance. © Fletcher Concrete and Infrastructure Limited 2011. Printed 11/11.

