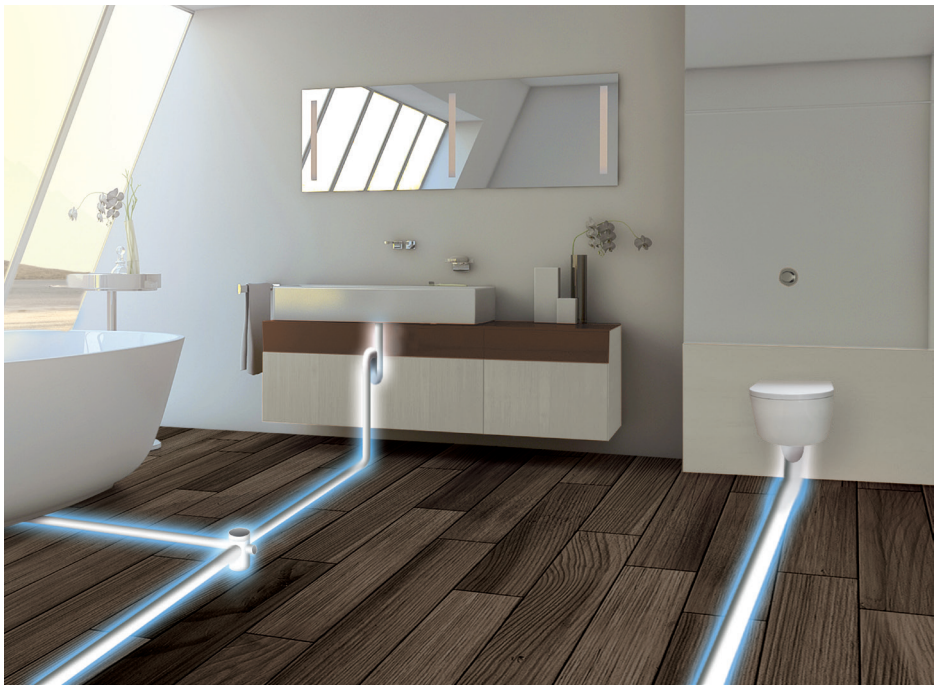
BRANZ Appraised
Appraisal No. 1236 [2023]

MARLEY OPTIM® DWV SANITARY PIPE SYSTEM



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BRANZ Appraisals

Technical Assessments of products for building and construction.

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WFTAO
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Product

1.1 The Marley OPTIM® DWV Sanitary Pipe System is a non-pressure, uPVC drain, waste and vent system consisting of OPTIM® pipes and fittings.

Scope

2.1 The Marley OPTIM® DWV Sanitary Pipe System has been appraised for use within the following scope:

- as pipes, fittings and materials for sanitary plumbing systems designed and installed in accordance with NZBC Acceptable Solution G13/AS3 and AS/NZS 3500.2; and,
- for use as a sanitary plumbing system for internal use within buildings.

2.2 Installation of components and accessories supplied by Marley New Zealand Limited must be carried out by licensed and registered plumbers or drainlayers.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, the Marley OPTIM® DWV Sanitary Pipe System, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC.**

Clause B2 DURABILITY: Performance B2.3.1 (a) not less than 50 years, (b) 15 years and B2.3.2. The Marley OPTIM® DWV Sanitary Pipe System meets these requirements. See Paragraph 8.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The Marley OPTIM® DWV Sanitary Pipe System meets this requirement.

Clause G13 FOUL WATER: Performance G13.3.1 and G13.3.2. The Marley OPTIM® DWV Sanitary Pipe System meets these requirements. See Paragraphs 7.1-7.5.

Technical Specification

4.1 The Marley OPTIM® DWV Sanitary Pipe System is designed for use in buildings as a solid wall pipe, non-pressure plumbing system. Pipes are extruded in uPVC for use in drain, waste and vent applications. Joint systems include rubber ring jointing (RRJ) and solvent socket jointing (SOE).

4.2 The Marley OPTIM® DWV Sanitary Pipe System consists of a selection of pipe diameters and associated injection moulded uPVC fittings. Pipe ends and fittings are formed and may contain a pre-fitted blended natural rubber O-ring, depending on the jointing method to be used. Pipe lengths are manufactured and supplied with one pre-formed socket end and one male end. The system is designed for conventional push-fit component connection or solvent joints.

4.3 The Marley OPTIM® DWV Sanitary Pipe System is available in the range as detailed in Tables 1 and 2.

Table 1: Marley OPTIM® DWV Pipe Range

Nominal Size (mm)	Socket Type	Non-Rated	SN4	SN6	SN8	SN10	SN16
32	Solvent	X[1]					
40	Solvent	X[1]					
50	Solvent	X[1]					
65	Solvent	X[1]					
80	Solvent	X[1]					
100	Solvent & RRJ			X[1]		X[1]	X[1]
150	Solvent & RRJ		X[1]		X[1]		X[1]
175	Solvent & RRJ		X[1]		X[1]		X[1]
225	RRJ		X[1]		X[1]		X[1]
300	RRJ		X[1]		X[1]		X[1]
375	RRJ		X[1]		X[1]		X[1]
475	RRJ				X[2]		X[2]

Note: [1, 2] relate to the pipe manufacturers as specified in the Manufacturers section. Pipes are generally available in 1, 3, 4 and 6 m lengths.

Table 2: Marley OPTIM® DWV Fitting Range

Item	Sizes	Types
Plain Bends (DN)[1]	32 mm, 40 mm, 50 mm, 65 mm, 80 mm, 100 mm and 150 mm	45°
Plain Bends (DN)[1]	32 mm, 40 mm, 50 mm, 65 mm, 80 mm, 100 mm and 150 mm	88°
Plain Bends (DN)[3]	40 mm, 50 mm, 65 mm and 100 mm	15°
Plain Bends (DN)[1]	40 mm and 100 mm	60°
Plain Bends (DN)[3]	100 mm	5°, 30°
Spigot Bends (DN)[3]	100 mm	5°, 15°, 30°
Spigot Bends (DN)[1]	100 mm	11°, 22°, 43°, 88°
Spigot Bends (DN)[3]	65 mm	40°
Spigot Bends (DN)[1]	80 mm	45°
Spigot Bends (DN)[3]	80 mm	88°
M & F Spigot Bends (DN)[1]	40 mm, 50 mm	43°, 88°

Item	Sizes	Types
Reducer Bends [DN][3]	50/40 mm	45°
Inspection Bends [DN][3]	50 mm	45°
	65 mm	45°, 85°
Inspection Bends [DN][1]	80 mm	45°, 88°
Access Bends [DN][3]	100 mm	88°
Side Access Bends [DN][1]	100 mm	45°, 88°
Plain Junctions [DN]	32 mm, 40 mm, 100 mm, 150 mm	45°, 88°
Plain Junctions [DN][3]	50 mm	45°
Plain Junctions [DN][1]	50 mm	88°
Plain Junctions [DN][3]	65 mm	45°, 88°
Plain Junctions [DN][1]	80 mm	88°
Reducer Junction	100/50 mm[3], 100/65 mm[1], 100/80 mm[1], 150/100 mm[1]	45°
Reducer Junction[3]	150/100 mm M&F	88°
Inspection Junction [DN][3]	50 mm and 100 mm	88°
Rear Access Junction [DN][1]	80 mm	88°
Access Junction [DN][3]	100 mm	88°
Side Access Junction [DN][1]	100 mm	LH and RH
Ring Seal Adaptor [DN][1]	80 mm, 100 mm	-
Coupler [DN]	32 mm[1], 40 mm[1], 50 mm[1], 65 mm[3], 80 mm[1], 150 mm[3]	Straight
	100 mm[1]	Threaded
	50 mm[3], 65 mm[3], 100 mm[1]	Fixed Expansion
	100 mm[3]	Inspection/T Coupler
	150 mm[1]	Ring Seal Coupler, RJ Slip Coupler
	100 mm[1]	Expansion Coupler, RJ Combination Coupler
Adaptors [DN][1]	32 mm, 40 mm, 50 mm	Female
	32 mm, 40 mm, 50 mm	Male
Cu-PVC Connectors [DN]	32 mm[1], 40 mm[1], 50 mm[1], 100 mm[3]	-
Strap Boss [DN][1]	80/50 mm, 100/50 mm	-
Level Invert	40/32 mm[1], 50/32 mm[1], 50/40 mm[1], 65/40 mm[3], 65/50 mm[3], 80/50 mm[1],80/65 mm[1], 100/50 mm[3], 100/65 mm[1], 100/80 mm[1], 150/100 mm[3]	-
Pipe Red Bush[3]	100/40 mm, 100/50 mm	Red
Socket Reducer Bush	40/32 mm[1], 50/40 mm[1], 65/40 mm[3], 65/50 mm[3], 80/50 mm[1], 100/50 mm[1], 100/65 mm[1], 100/80 mm[3]	-
PVC-Ceramic Adaptors[3]	100 mm	-

Item	Sizes	Types
Pan Connector [DN]	80 mm[1], 100 mm[1]	F&F
	100 mm[3] M &F	Concentric and Offset
Access Pipe [DN][1]	100 mm	M&F
Inspection Pipe[3]	100 mm	F&F
Flashing Cone [DN]	32 mm[1], 40 mm[1], 50 mm[1], 65 mm[3], 80 mm[1] and 100 mm[1]	-
Access Plug [DN][1]	32 mm, 40 mm, 50 mm, 80 mm, 100 mm	-
Screw Cap [DN]	100 mm[3], 150 mm[3]	Screw Cap only
	100 mm[1], 150 mm[1]	Screw Cap and Base
Push On Cap [DN]	32 mm[1], 40 mm[1], 50 mm[1], 65 mm[3], 80 mm[1], 100 mm[1] and 150 mm[1]	-
Pipe Clips [DN][1]	32 mm, 40 mm, 50 mm, 80 mm	-
	32 mm, 40 mm, 50 mm, 80 mm	Stand Off
Pipe Clip Stand-off Hanger[1]	80 mm	-
Vent Cowl	50/40 mm[1]	-
	65 mm[3], 80 mm[1], 100 mm[3]	-
Gully Trap[1]	Compakt Boss Gully Trap	
Gully Grate[3]	100 mm	
Boss Junction[3]	80/50/40 mm and 100/50/40 mm	
Plain Bend [DN][1]	100 mm, 150 mm	45°
	100 mm, 150 mm	88°
Spigot Bend [DN][1]	100 mm	11°, 22°
RJ Access Bend [DN][1]	100 mm	45°, 88°
RJ Junction [DN][1]	150 mm	45°
RJ Reducing Junction [DN][1]	150/100 mm	45° MF, 45°
Access Junction [DN][1]	100 mm	LH, RH
Plain Junction [DN][1]	100 mm	45°, 88°
	150 mm	45°, 88°
Septic Tank Junction [DN][1]	100 mm	
Fresh Air Inlet [DN][1]	100 mm	-
RJ Level Invert [DN][1]	100/80 mm	-
RJ PVC-Ceramic Adaptor [DN][1]	100 mm	-
Ceramic-PVC Adaptor [DN][3]	100 mm	-
RJ Access Pipe [DN][1]	100 mm	-
Gully Trap [DN][1]	100 mm	-
Gully Dish [DN][1]	100 mm	Complete, Lid only
Waste Gully [DN]	80/50 mm[3], 80/65 mm[3], 100/50 mm[3], 100/65 mm[3], 100 mm[1]	-

Note: [1, 3] relate to the fitting manufacturers as specified in the Manufacturers section.

4.4 Solvent joints of the Marley OPTIM® pipes and fittings are made using Marley Primer[4] and Marley Gold[4] solvent.

Handling and Storage

5.1 Handling and storage on-site of all materials supplied by Marley New Zealand Limited, is under the control of the licensed and registered plumber or drainlayer. It is recommended that the pipes and O-rings are protected from sunlight at all times during storage prior to installation. Care must also be taken to avoid surface damage to the pipes and fittings. For further information on storage and handling requirements, refer to the Technical Literature.

Technical Literature

6.1 This Appraisal must be read in conjunction with:

- Sections 7 and 8 of Marley OPTIM®DWV Sanitary Systems Technical Design Manual, January 2020.

6.2 All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

General

Foul Water Sanitary Plumbing

7.1 The Marley OPTIM® DWV Sanitary Pipe System must be installed following sanitary plumbing design, and the Marley New Zealand Limited installation instructions for the system. See Paragraphs 13.1-13.3.

7.2 Sanitary plumbing systems incorporating the Marley OPTIM® DWV Sanitary Pipe System must be designed in accordance with NZBC Acceptable Solution G13/AS3 and AS/NZS 3500.2.

7.3 The Marley OPTIM® DWV Sanitary Pipe System is for use in the interior of buildings. When it is installed where it could be exposed to ultraviolet (UV) light, it shall be protected. Marley OPTIM® DWV pipes and fittings contain titanium dioxide in accordance with AS/NZS 1260, which will protect them from UV before installation.

7.4 The pipes and fittings must be connected to a drainage system designed in accordance with NZBC Acceptable Solutions G13/AS2 before entering the ground.

Impact Resistance

7.5 The Marley OPTIM® DWV Sanitary Pipe System has adequate resistance to impact loads likely to be encountered in normal installation and service, although some scratching of the surface finish could occur during installation. The likelihood of impact damage to the system when used in commercial situations should be considered at the design stage, and appropriate protection should be considered for vulnerable areas.

Durability

Serviceable Life

8.1 The Marley OPTIM® DWV Sanitary Pipe System is expected to have a serviceable life comparable with conventional plumbing and drainage systems, provided the system is installed and maintained following the instructions of Marley New Zealand Limited and this Appraisal.

Maintenance

9.1 The Marley OPTIM® DWV Sanitary Pipe System does not require maintenance in normal service. Where accessible, fixings should be inspected periodically to check the system continues to be secure.

Prevention of Fire Occurring

10.1 Separation or protection must be provided to the Marley OPTIM® DWV Sanitary Pipe System from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Verification Method C/VM1 and Acceptable Solution C/AS1, and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

Fire Affecting Areas Beyond the Fire Source

11.1 Sanitary piping systems are exempt from surface finish requirements by NZBC Acceptable Solution C/AS1, Paragraph 4.3 c) and NZBC Acceptable Solution C/AS2, Paragraph 4.17.6 c).

Installation Information

Installation Skill Level Requirement

12.1 Installation of the Marley OPTIM® DWV Sanitary Pipe System and associated components supplied by Marley New Zealand Limited must only be installed by licensed and registered plumbers or drainlayers.

System Installation

13.1 Installation must be completed in accordance with instructions given in the Marley OPTIM® DWV Sanitary Pipe System Technical Literature and this Appraisal. Installation of the pipe and fitting system is similar to standard rubber ring jointed or solvent jointed pipe systems.

13.2 Installation of the Marley OPTIM® DWV Sanitary Pipe System as a sanitary plumbing system must be in accordance with NZBC Acceptable Solution G13/AS3 and AS/NZS 3500.2.

13.3 The Marley OPTIM® DWV Sanitary Pipe System must be enclosed within buildings where it is not exposed to UV light.

Health and Safety

14.1 When jointing pipes and/or fittings with solvent joints, the safety precautions given in the Technical Literature must be followed.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

15.1 Testing of the pipes and fittings in accordance with the requirements of AS/NZS 1260 was carried out by Marley New Zealand Limited in their IANZ Accredited laboratory. Test results were reviewed by BRANZ and found to be satisfactory.

Other Investigations

16.1 An assessment was made of the durability of the Marley OPTIM® DWV Sanitary Pipe System by BRANZ technical experts.

16.2 Site inspections have been carried out by BRANZ to assess the practicability of installation, and to examine completed installations.

16.3 The Technical Literature for the Marley OPTIM® DWV Sanitary Pipe System has been examined by BRANZ and found to be satisfactory.

Quality

17.1 The quality management system of Marley New Zealand Limited has been assessed and registered as meeting the requirements of ISO 9001.

17.2 Marley OPTIM® DWV pipes and fittings hold WaterMark and/or StandardsMark Certifications to AS/NZS 1260.

17.3 The manufacture of the Marley OPTIM® DWV Sanitary Pipe System components and accessories has been examined by BRANZ and found to be satisfactory.

17.4 The quality of materials, components and accessories supplied to the market by Marley New Zealand Limited is the responsibility of Marley New Zealand Limited.

17.5 Quality of installation on-site of components and accessories supplied by Marley New Zealand Limited is the responsibility of the licensed and registered installing plumber or drainlayer.

17.6 Designers are responsible for the building design, and design of the associated sanitary plumbing system within the building.

17.7 Building owners are responsible for any required maintenance of the Marley OPTIM® DWV Sanitary Pipe System in accordance with the advice of Marley New Zealand Limited.

Sources of Information

- AS 2887-1993 Plastic waste fittings.
- AS/NZS 1260:2017 PVC-U pipes and fittings for drain, waste and vent applications.
- AS/NZS 3500.2:2021 Plumbing and drainage - Sanitary plumbing and drainage.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Manufacturers

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NZBN: 9429038863431

[2] **RX Plastics Limited**

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www.rxp.co.nz

NZBN: 9429031867276

[3] **Vinidex Pty Ltd**

Level 4, 26 College Street, Darlinghurst, NSW 2010, Australia

www.vinidex.com.au

[4] **Bostik New Zealand Ltd**

19 Eastern Hutt Road, Wingate, Lower Hutt

www.bostik.co.nz

NZBN: 9429039292674

BRANZ

In the opinion of BRANZ, Marley OPTIM® DWV Sanitary Pipe System is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to Marley New Zealand Limited, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
   a) relates only to the product as described herein;
   b) must be read, considered and used in full together with the Technical Literature;
   c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
   d) is copyright of BRANZ.
2. Marley New Zealand Limited:
   a) continues to have the product reviewed by BRANZ;
   b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
   c) abides by the BRANZ Appraisals Services Terms and Conditions;
   d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
   a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
   b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
   c) any guarantee or warranty offered by Marley New Zealand Limited.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to Marley New Zealand Limited or any third party.

For BRANZ

Claire Falck
Acting Chief Executive
Date of Issue:
30 May 2023