HOLMAN PLUMBING

BPIR Summary

Prepared November 2023

> DWV U-PVC Fittings

HOLMAN

BPIR Summary

Drain Waste and Vent (DWV) U-PVC Fittings manufactured to AS/NZS 1260

Name	Drain, Waste and Vent (DWV) U-PVC Fittings
Line	Unplasticized Polyvinyl Chloride U-PVC Fittings manufactured to AS/NZS 1260
Identifier	HOLMAN Industries (DWV) AS/NZS 1260

Holman PVC-U DWV Fittings are designed and suitable for use in Drain, Waste and Vent applications. DWV fittings are intended for use above and below ground including exposure to direct sunlight.

Unplasticized Polyvinyl Chloride is the predominant material used in DWV applications in Australia.
The economic advantages are publicly documented well accepted by the industry. They are lightweight, resistant to a wide variety of chemicals, do not support combustion (fittings are approved for multi-storey plumbing in conjunction with approved fire stop collars).

PVC-U pipes and fittings are impervious to bacterial and fungal attacks and are not subject to electrolytic or galvanic corrosion.

DWV pipes and fittings are designed with high impact strength, which prevents damage during handling and installation.

All parts assemble easily using either solvent cement or rubber seal rings to accommodate thermal expansion/ contraction or ground movement.

Relevant building code clauses

B2 Durability — B2.3.1 (a)

F2 Hazardous building materials — F2.3.1

G13 Foul water — G13.3.1, G13.3.2

Compliance

All Holman Industries Certifications and Licences are available for download at the HOLMAN Website under the following link: Plumbing Supplier - Australian Made & Accredited - Holman Industries

- AS/NZS 1260 WaterMark and ISO Type 5 - Licence No. 74772
- AS/NZS 1260 WaterMark and ISO Type 5 - Licence No. 21246
- AS/NZS 1260 WaterMark - Licence No. 21844
- AS/NZS 1260 WaterMark - Licence No. 26022
- AS/NZS 4020:2018 – Licence No. AMI-TT-74772
- Best Environmental Practice (BEP) Licence No. 78003
- Best Environmental Practice (BEP) Licence No. 78006
- ISO 9001:2015 Licence No. QMS-21388

All Type Testing documents are strictly confidential, information is retained with our Certification Assessment Body (CAB) responsible for compliance and licencing and may only be released by application by formal written request. Holman Industries reserves the right to deny access at company discretion.

Contact Details

Manufacture location (Australia)	11 Walters Drive, Osborne Park, WA 6017 Australia U 1-2/68 Lisgar Street, Virginia, QLD 4014 Australia U4/90 Quinns Hill Road East, Stapylton, QLD 4207 Australia
Legal and trading name of manufacturer	BOOKLEAF as Trustee for the EDEN Unit Trust T/A Holman Industries
Manufacturer address for service	11 Walters Drive Osborne Park WA 6017 Australia
Manufacturer location (Overseas)	Shanghai Xinguanghua Plastic Industry Co T/A Zhejiang Vicpic Plastic Industry Co. Ltd – No 3699 Yuanjiang Road, Minghuang, Shanghai, China Yonggao Co. Ltd – No. 2 Daixi Road, Huangyan Economic Development Zone, Taizhou, Zhejiang China
Legal and trading name of importer	BOOKLEAF as Trustee for the EDEN Unit Trust T/A Holman Industries
Manufacturers website	**www.holmanindustries.com.au**

Product Limitations

Effect of Low Temperature	The impact resistance of PVC-U pipe and fittings decreases with the reduction in ambient temperature; therefore, extra care should be exercised if installations are carried out at ambient temperature near 0° C.
Effect of Elevated Temperatures	PVC-U DWV fittings have a softening point of approximately 80° C. As the material has a low thermal conductivity, DWV pipe and fittings can cope with typical discharges at higher temperatures, although “Full Bore” and extended periods of discharge should be avoided. The recommended maximum continuous operational temperature for PVC-U pipe systems is 60°C. This limitation refers to the complete pipe wall being at 60°C and would also apply to continuous flow of a fluid at 60°C.
Specialised Applications	DWV pipe and fittings systems are more than adequate for normal domestic applications in low and multi-rise dwellings. For intermittent flow, the fluid temperature can be higher due to the low thermal conductivity of PVC. In these circumstances, the duration and volume of the discharge will determine the maximum temperature, which should be assessed in terms of an average thermal limitation of 60°C across the pipe wall thickness. In most common cases, higher temperature discharges are limited to a small volumes and short durations, and PVC pipes and fittings are deemed as satisfactory. For example, thermal cycling tests for PVC drainage pipes require that a test installation withstand alternating 90 second cycles of 34 litres of water at 88°C to 95°C and 34 litres of water at 10°C to 15°C without leakage or excessive deformation. In applications such as commercial laundries or kitchens, where large volumes of fluids at higher temperatures are discharged over longer periods of time, specific advice should be obtained before selecting PVC.

Product Advantages

High Flow Rates	Products smooth inner bores and lack of internal projections ensure optimum hydraulic capacity over the long-term life of the pipeline system.
Flammability	PVC-U is highly resistant to and does not support combustion. PVC-U is extremely difficult to ignite and will not propagate a fire.
Non- Conductivity	PVC-U does not conduct electricity and is not subject to galvanic or electrolytic action.
Tree root Resistance	Solvent Weld joints which are installed with compliance to AS/NZS 2032 and AS/NZS 3500 have excellent resistance to intrusions from tree roots which may result in blockages or infiltration in other industry pipeline systems. Elastomer seal joints which are installed with compliance to AS/NZS 2032 and AS/NZS 3500 are designed with a higher interface pressure which provide a high resistance to tree root intrusions.
Corrosion Resistance	PVC-U possesses an inert nature which provides full corrosion resistance; therefore, it does not require wrapping, coating, or lining of the pipeline system. This material properties promote a long system operational lifespan. Spacing between manholes can be increased due to the decreased likelihood of blockages, and increased flow rates possible with PVC-U sewer systems.
Manhole Reduction	In some specific cases, manholes may be replaced with PVC-U Risers and or Access Points.
Leakage Elimination	Infiltration from ground water and exfiltration from sewerage is due to broken and cracked elements and or joint openings. This is typically a result of ground movement, PVC-U provides a sound economic solution with precision joint systems, flexible pipe barrel and sealed access points made from PVC-0U sewer pipe and fitting systems. Both the solvent cement and elastomeric seal joints eliminate the contamination of the groundwater aquifer and surface water by sewer effluent, with may result in health hazards, visual pollution and public concern.

Chemical resistance

The well documented optimal chemical resistance of PVC-U to acid alkalis, oxidising and reducing agents make it particularly suitable for a wide range of industrial and domestic applications. In general PVC-U is resistant to most oils, fats, alcohols, and aromatic-free petrol, but is unsuitable for use with aromatic and chlorinated hydrocarbons, esters and ketones which can ultimately lead to swelling and softening of the material/s.

Impact Resistance

The impact resistance of PVC is reduced at lower temperatures. Under impact loading, PVC exhibits a transition between ductile behaviour at room temperature and brittle behaviour as the temperature is reduced. The ductile to brittle transition temperature is dependent on formulation. For some grades, impact strength at -20°C is approximately half that at +20°C.

Provision for expansion and contraction

Consideration must be given to thermal expansion and contraction in situations where the installation temperature differs from the operation temperature, or where thermal variation is likely during operation and maintenance. The coefficient of thermal expansion is 7 x 10-5/ °C which means that for example, a pipe system which is installed at 20°C, and then cooled down to -10°C during operation, will contract by approximately 2.10mm for every metre in length. Pipe design systems shall ensure that thermal movement does not result in a significant “bending moment” at the rigid connections or to bends and tees. Refer to AS/NZS 2032 – Installation of PVC pipe systems, for guidance on provision for thermal movement.

Installation requirements

Installation practices are to be with reference to AS/NZS 3500 Plumbing and Drainage and AS/NZS 2032 Installation of PVC Pipe Systems.
The Holman Industries Stabilised Fittings range shall be installed as per AS 3500.2

Jointing Methods

PVC-U pipelines are designed to be easily assembled. While rubber ring jointed (RRJ) pipe systems can be fully assembled above the trench, care must be taken to ensure joints do not pull apart during lowering into the trench. All joints must be subsequentially be inspected. DWV Solvent Weld pipe systems may be jointed above the trench but not lowered into the trench until the solvent has completed its initial set stage.

Solvent Weld joint

Only Solvent Cement and Priming Fluids that are manufactured to AS/NZS 3879 “Solvent Cements and Priming Fluids for PVC (PVC-U and PVC-M) and ABS pipe and fittings” are recommended.
To achieve a strong and leak free joint Installers shall:

1. Select the correct solvent cement for the intended application/s
2. Select the correct pipe for the application and the correct fitting/s using the relevant Holman Product Catalogue
3. Follow jointing steps 1 to 8 carefully in jointing instructions. Shortcuts will result in poor joints that are likely to leak or cause system failures.

Solvent Weld Jointing Instructions – Steps 1 to 8

*** Do not work with hot pipes and fittings or on hot windy days without providing adequate protection to the pipes and fittings from the wind.*

When not in use always keep lid on solvent cement to minimise evaporation. DO NOT use solvent if over 12 months old.

Step 1 – Cut spigot square and deburr

Cut the spigot as square as possible using a mitre box and hacksaw or power saw where applicable. Remove all swarf and burrs from both inside and outside edges with a sharp knife, file, or using sandpaper. Swarf and burrs which are left behind will wipe or remove the solvent cement and prevent proper joining. Also, swarf left behind may dislodge and jam taps and valves.

Step 2 – Check alignment

Check and ensure the pipe and spigot or fittings are properly aligned. Adjustments or alterations must be made prior to applying the solvent cement so the joint is not compromised at the welding stage.

Step 3 – Mark Clearly

Mark the spigot by using a pencil or marker only, at a distance equivalent to the internal depth of the socket. Do not score or damage the surface of the pipe or fitting.

Step 4 – Clean and soften the surface

Thoroughly clean the inside of the socket and area between the pencil (witness) mark and the spigot end with a clean, lint free cotton cloth dipped in priming fluid (defer from using any synthetic material). This removes dirt and grease and will soften the PVC surface. Attention: Do not brush or pour the priming fluid onto the jointing surface.

** Holman Industries recommends the use of protective gloves. If contact with skin occurs, wash affected area with soap and water immediately.*

Step 5 – Coat socket first – then spigot

Apply a thin and uniform coat of solvent cement onto the internal surface of the socket. Ensure that solvent build up does not occur in the root area of the socket. A pool of solvent cement in the root area of the socket will severely weaken the pipe or fitting. Next apply a uniform coat of solvent cement to the external surface of the spigot up to the pencil mark (witness) mark.

Step 6 – Assemble and hold for 30 seconds

Quickly assemble the joint before the solvent cement starts to set, by pushing the spigot squarely and firmly as far as the pencil (witness) mark, ending with a quarter turn to ensure the cements spreads evenly in the joint. Hold the joint in position for a minimum of thirty (30) seconds without any movement.

Step 7 – The welding stage

Wipe of any excess solvent cement from outside of the joint and where possible, from the inside of the joint. Do not disturb the joint for at least a further five (5) minutes, movement may break the initial welding bond.

Step 8 – Curing and testing

The “cure time” ensures the joint will achieve sufficient strength to allow for testing by internal pressure or vacuum. The minimum cure time for solvent weld joints in DWV pipes and fittings is twenty-four (24 hours)

Elastomeric seals

DWV rubber ring joint fittings are supplied with rubber rings for ease of jointing, these rubber rings fit easily into the ring groove of the socket.

It is necessary to cut pipes on site using a fine-toothed handsaw. A mitre box is recommended to ensure the cut is square to the pipe axis and all burs must be removed with a file.

The cut position should be measured allowing for adequate penetration “depth” of the spigot onto the socket. Measure socket depth at every joint as pipe manufacturers run different socket designs and therefore different witness marks related to their socket design. A witness mark and chamfer depth, which is similar to the pipe manufacturer design is essential before attempting to join the pipes and fittings.

Rubber Ring Jointing Instructions – Steps 1 to 4

Cut the spigot as square as possible using a mitre box and hacksaw or power saw where applicable. Remove all swarf and burrs from both inside and outside edges with a sharp knife, file, or using sandpaper. Swarf and burrs which are left behind will wipe or remove the solvent cement and prevent proper joining. Also, swarf left behind may dislodge and jam taps and valves.

Step 1 – Clean jointing surface

Remove all dust and dirt from the pipe or fitting spigot and socket.

Step 2 – Ring and Groove

Check the Rubber Ring is correctly seated into the ring groove. Where possible remove the rubber ring to clean the ring groove ensuring there are no contaminants prior to re-seating the rubber ring into the ring groove.

Step 3 – Apply lubricant

Apply lubricant to the spigot, fully covering the circumference up to the witness mark. Ensure the lubricant is applied evenly to also cover the chamfered section. This will help in the initial jointing stage.

Step 4 – Insert pipe or fitting

Ensuring the pipe or fitting is aligned, introduce the spigot into the socket up to the witness mark, witness mark must be still visible to ensure the joint can adjust to thermal expansion and contraction. Jointing may be assisted with the use of a crowbar of a wooden block. Extra care must be taken to ensure the socket of the joint being made is restrained to prevent any backwards movement which may affect the previous joints made in the stack.

Handling and Storage

While PVC-U pipes and fittings are light and easy to handle, careless handling may result in unnecessary damage. Pipes and fittings should not be dropped or thrown onto hard surfaces or allowed to come into contact with sharp objects that could inflict deep scratches.

Bowing or distortion

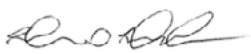
- Pipes and fittings can distort under high applied loads due. This may be caused by not being properly supported or stacking incorrectly. This can be aggravated at high ambient temperature and long-term storage.
- Heat sources should be avoided to reduce the risk of distortion.
- If pipes are stored outdoors for more than 12 months, they should be protected by for example, hessian or white shade cloth in a manner that allows ventilation and avoids heat build-up. Fittings are to be stored indoors only, up to the installation stage.

Responsible person

As the responsible person as set out in Regulation 3, I confirm that the information supplied in this declaration is based on information supplied to the company as well as the company's own processes and is therefore to the best of my knowledge, correct.

I can also confirm that Holman Industries manufactured Drain, Waste and Vent (DWV) U-PVC Fittings are not subject to a warning on ban under s26 of the Building Act.

Signed for and on behalf of :



Mauro Meloni
National QA and Technical Compliance Manager
November 2023