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AS/NZS 1260:2017 – DWV Fittings - SCOPE OF USE

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.

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.

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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.

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.

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