

AN AIRTIGHT SOLUTION FOR SOIL MOVEMENT

Plastec swivel and expansion joints are Australian made products specifically designed for Australia's ever changing soil conditions.

Reactive soils are prone to expansion and contraction due to variations of moisture content. These soils undergo volume change and can be destructive.

Plastec's range of swivel and expansion joints have enabled engineers and installers to overcome many of the problems associated with reactive soils and the subsequent structural damage caused. Due to the seasonal variations in Australia and the prevalence of reactive soils a new Australian standard (ATS5200.055) has been created to specifically cover products with flexible, intermediate joints for drainage and sewerage applications.

SOIL CLASSIFICATION

- A** Most sand and rock sites with little or no ground movement from moisture changes.
- S** Slightly reactive clay sites with only slight ground movement from moisture changes.
- M** Moderately reactive clay or silt sites which experience moderate ground movement from moisture changes.
- H** Highly reactive clay sites which experience very high ground movement from moisture changes.
H Class has recently been split into sub-classes H1 and H2 as per AS2870.
- E** Extremely reactive clay sites which can experience extreme ground movement from moisture changes.
- P** Sites which include soft soils, such as soft clay or silt or loose sands; landslip; mine subsidence; collapsing soils; subject to erosion reactive sites subject to abnormal moisture conditions or sites which cannot be classified otherwise.

SURFACE MOVEMENT (Y'S)

0 - 10 mm

10 - 20 mm

20 - 40 mm

H1 - 40-60 mm
H2 - 60-75 mm

75 mm +

For classes M, H & E further division based on the depth of the expected movement is required. For deep-seated movements, characteristic of dry climates and corresponding to a design depth of suction change H, equal to or greater than 3m, the classification shall be M-D, H-D or E-D as appropriate. For example, H-D represents a highly reactive site with deep moisture changes, and H represents a highly reactive site with shallow moisture changes.

IMPORTANT CHANGES TO AS2870 - RESIDENTIAL SLABS AND FOOTINGS

Section 5.6.4 - Plumbing requirements for H1, H2 and E sites

(b) Drains attached to or emerging from underneath the building shall incorporate flexible joints immediately outside the footing and commencing within 1 metre of the building perimeter to accommodate a total range of differential movement in any direction equal to the estimated (Y's) of the site. This requirement applies to all stormwater and sanitary plumbing drains and discharge pipes.

Plastec swivel and expansion joints provide flexibility to your pipe work system to achieve optimum performance and peace of mind. Please note it is a mandatory requirement that all builders obtain a soils report from a qualified soils engineer prior to commencing on-site structural works.

Plastec swivel and expansion joints are fully WaterMark approved (ATS5200.055).

When soils move they do so in a wave like motion moving both horizontally and vertically whilst also undergoing expansion and contraction. This movement can inflict extreme force and pressure on plumbing and drainage systems and when compromised can result in cracked walls, damaged footings, raised walls and damaged slabs to name a few.

Incorporating both Plastec swivel and expansion joints into your plumbing and drainage installation can assist in offsetting much of the associated problems when working with reactive soils.

EXPANSION JOINT

The correct installation of expansion joints will allow for flexibility within a plumbing and drainage system. Expansion joints can be installed in either a vertical or horizontal position and can be used as a repair fitting or as a plumbing and drainage fitting to accommodate expansion and contraction above or below ground.

The expansion joint provides an easy solution for pipe repair as it provides a water tight seal whilst allowing for future soil movement.

To initiate movement crack the joint as shown in the installation instructions. This will allow for the joint to be freely withdrawn to the required setout for installation. A witness mark is provided to assist when installing in reactive soils.

The expansion joint is available in 90mm, 100mm and 150mm and now in HDPE with internal stop. For full expansion measurements refer to the product guide table.

It is recommended that an expansion joint be installed at every change of direction on all H + E class sites, unless specified otherwise.

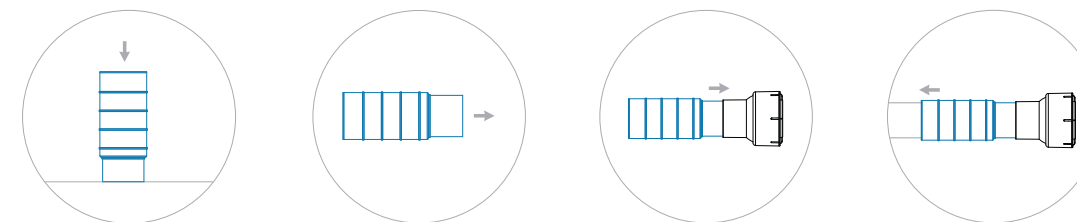
EXPANSION JOINTS

SIZE	CODE	OPEN	CLOSED	EXPANSION
150mm	15642	589mm	387mm	202mm
100mm	15130	438mm	285mm	153mm
90mm	15131	313mm	210mm	103mm

SIZE	CODE	OPEN	CLOSED	EXPANSION
110mm	17123	434mm	284mm	150mm

INSTALLATION

In reactive soil areas the expansion joint should be installed in conjunction with a swivel joint or combination joint. Specifically for site classes H + E.

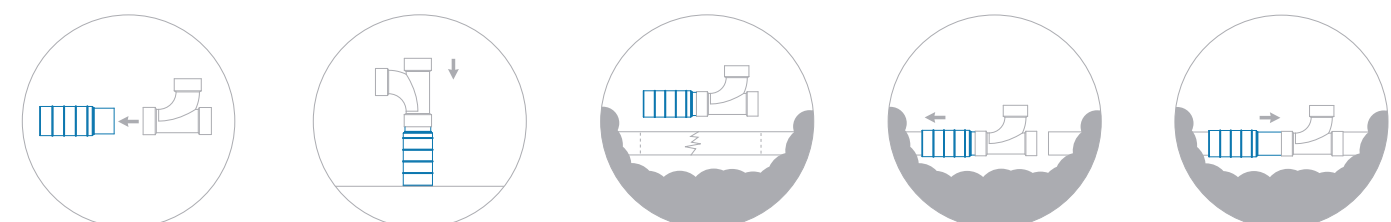


- Prior to installing initiate movement by pushing on a hard surface until fitting is full closed.
- Expand fitting until set in the middle. This allows for roughly 75mm expansion and 75mm contraction.
- Clean and apply solvent cement to pipe end of expansion joint into a FxF swivel joint. Swivel joint also available in MxF.
- Clean and apply solvent cement to pipe. Work into socket end of expansion joint.

Note - all solvent cementing shall be carried out in accordance with AS/NZS 3879 : 2011

Typical pipe repair installation.

Expansion joints can be used in vertical or horizontal positions and can be used above or below ground.



- Solvent cement required fitting to spigot end of expansion joint.
- To initiate movement the joint must be "cracked" by pushing downwards against a hard surface until joint is closed.
- Measure area of broken pipe by using expansion joint and fitting. Cut and remove pipe.
- Remove swarf and solvent cement socket end of expansion joint to pipe as per AS/NZS3879.
- Solvent cement end of fitting and expand onto pipe as per AS/NZS3879.

Plastec packages it's expansions joints in 90 um plastic bags. These are non-biodegradable and can be used as wrapping if required.

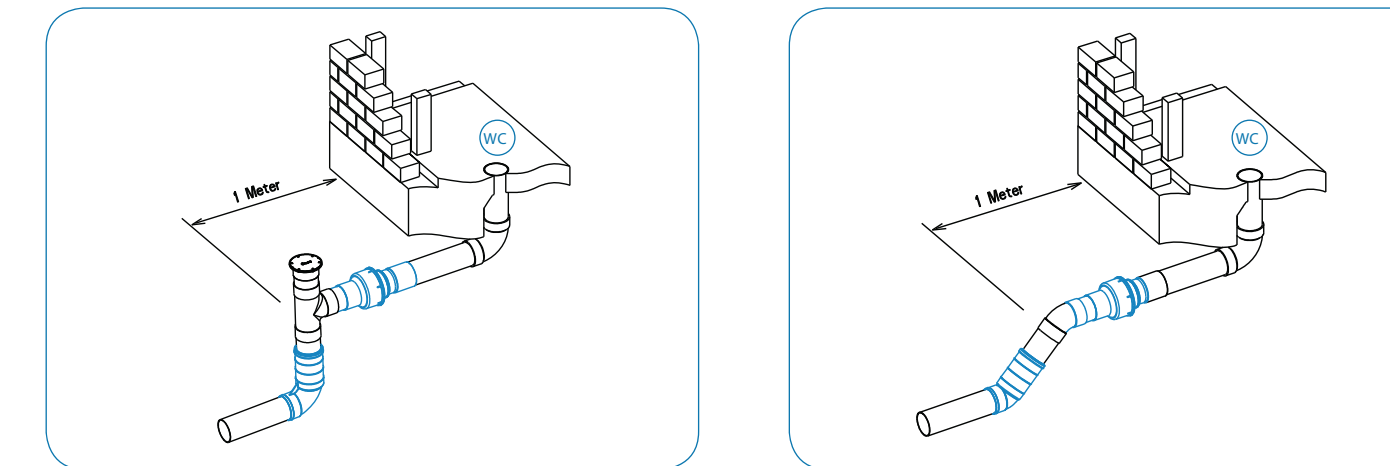
EXPANSION ELBOWS

Ideal for waffle slab installations, shallows drains and where lack of height could be an issue. Perfect below inspection openings.

SIZE	CODE	MAX MOVEMENT	DEGREE
100mm	17319	155mm	45°
100mm	17320	240mm	45°

SIZE	CODE	MAX MOVEMENT	DEGREE
100mm	17317	155mm	90°
100mm	17318	240mm	90°

TYPICAL INSTALLATION



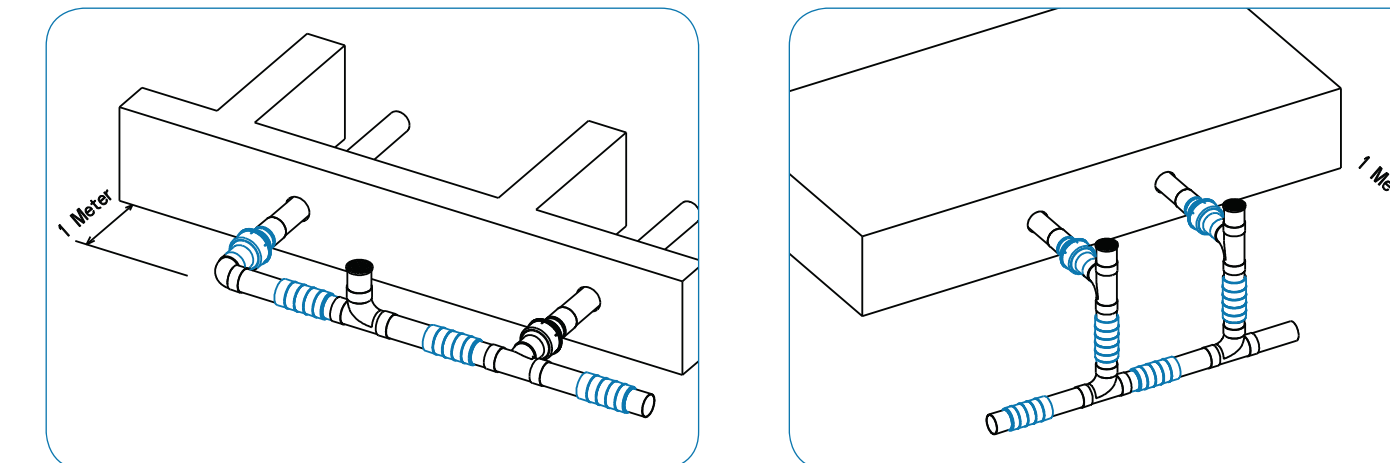
SWIVEL JOINT

Plastec's watermarked swivel joint has been independently air tested in excess of 200kpa. It doesn't require the use of toxic root inhibitor tape, is compact in size and comes in both FxF and MxF for ease of

installation. Plastec's swivel joint can rotate 20 degrees from its axis giving it more flexibility than any other joint on the market. Like the expansion joint it is able to be air tested in accordance with AS/NZS 3500.

SIZE	CODE	TYPE	ROTATION FROM AXIS
150mm	15643	F x F	+/- 20°
100mm	15132	F x F	+/- 20°
100mm	15199	M x F	+/- 20°

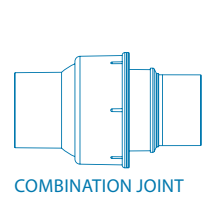
TYPICAL INSTALLATION.



SWIVEL/EXPANSION COMBINATION JOINTS

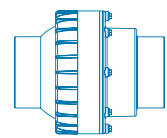
Plastec's unique range of swivel/expansion combination joints offers even more flexibility in one compact fitting. Plastec's combination joint allows for 40 degree inclusive swivel movement and 52mm expansion. It is available for installation in both DWV and HDPE pipework and comes

in both MxM and MxF options. Perfect for use in all types of soil classifications and ideal for plumbing, drainage, trade waste, septic and rainwater tank installations.



COMBINATION JOINT

SIZE	CODE	TYPE	OPEN	CLOSED	EXPANSION	ROTATE
100mm	16370	MxM	337mm	285mm	52mm	+/- 20
100mm	16365	MxF	337mm	285mm	52mm	+/- 20
50mm	17378	FxF	297mm	217mm	80mm	+/- 13.5
65mm	17414	FxF	316mm	236mm	80mm	+/- 13.5

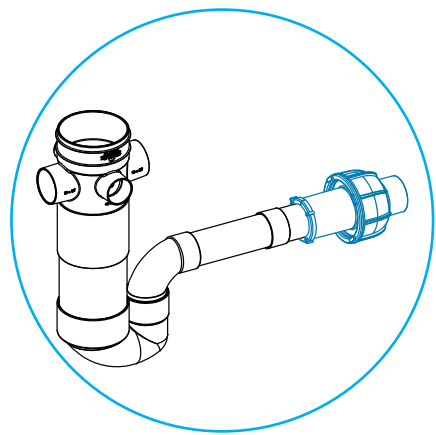


HDPE COMBINATION JOINT

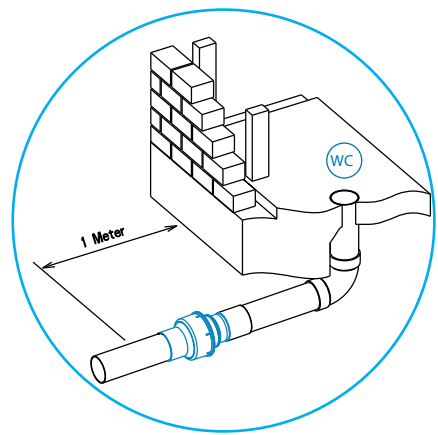
SIZE	CODE	TYPE	OPEN	CLOSED	EXPANSION	ROTATE
110mm	16875	EF*	291mm	231mm	60mm	+/- 20

Note: For H and E class sites it is recommended that expansion joints be used in conjunction with swivel and combination joints.

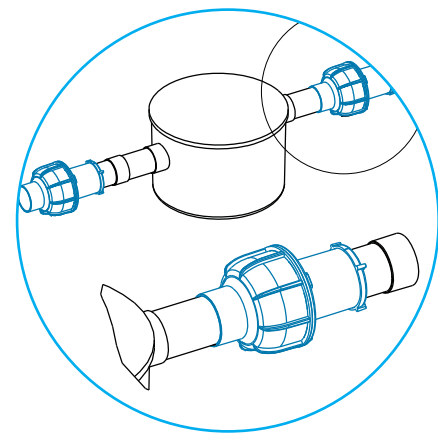
INSTALLATION DETAILS - TYPICAL



FWG discharging to drain.



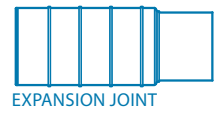
Initial fitting from the perimeter of building as per AS2870 Sect 5.6.4 (b).



Inlet/outlet on above or below ground tanks.

* ELECTROFUSION OR BUTT WELD

ELIMINATE THE RISK FACTOR AND ALLOW NATURE TO TAKE ITS COURSE! BY USING SWIVEL AND EXPANSION JOINTS YOU CAN RISK MANAGE ANY PLUMBING AND DRAINAGE SYSTEM.



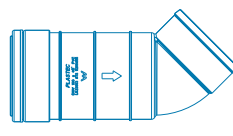
EXPANSION JOINT

CODE	SIZE	TYPE	CARTON	EXPANSION	SUIT
15131	90mm	-	11	103mm	DWV
15130	100mm	-	12	153mm	DWV
15642	150mm	-	8	202mm	DWV



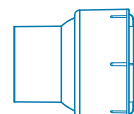
HDPE EXPANSION JOINT

CODE	SIZE	TYPE	CARTON	EXPANSION	SUIT
17123	110mm	EF*	-	150mm	HDPE



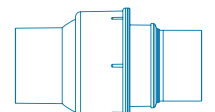
EXPANSION ELBOW

CODE	SIZE	TYPE	CARTON	EXPANSION	SUIT
17319	100mm	45°	-	155mm	DWV
17317	100mm	90°	-	155mm	DWV
17320	100mm	45°	-	240mm	DWV
17318	100mm	90°	-	240mm	DWV



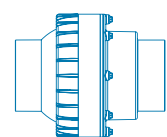
SWIVEL JOINT

CODE	SIZE	TYPE	CARTON	EXPANSION	SUIT
15199	100mm	MxF	12	-	DWV
15132	100mm	FxF	12	-	DWV
15643	150mm	FxF	6	-	DWV



COMBINATION JOINT

CODE	SIZE	TYPE	CARTON	EXPANSION	SUIT
17414	65mm	FxF	-	80mm	DWV
17378	50mm	FxF	-	80mm	DWV
16370	100mm	MxM	8	52mm	DWV
16365	100mm	MxF	8	52mm	DWV



HDPE COMBINATION JOINT

CODE	SIZE	TYPE	CARTON	EXPANSION	SUIT
16875	110mm	EF*	-	60mm	HDPE

* ELECTROFUSION OR BUTT WELD



SOIL MOVEMENT PRODUCTS

SWIVEL AND EXPANSION JOINTS



Please see inside for full product range



All plastec expansion, swivel and combination joints are WaterMark approved.

FOR TECHNICAL AND SALES ENQUIRES PLEASE CONTACT

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