

ChildSure® Playground Fence System

System description	The fence system consists of 2400mm long (standard length) panels with a series of uprights welded into two horizontal rails. The panel is then connected to a post with a shroud or proprietary security bracket that is fixed to both with a series of self-drilling tek screws.
System function	To prevent children entering or leaving a designated area and as a result being exposed to, or coming into contact with a range of hazards.
Typical applications	Playgrounds, kindergartens, child-care centres.
Panel height	1200mm (standard)*. <i>*The height, fence style and picket material will determine if the fence is child-safe.</i>
Post spacing	2480mm post centres or 2415mm gap between posts (standard)*. <i>*This assumes a 65x65mm post.</i>
Gap under fence	50-100mm on level ground*. <i>*The maximum gap under the fence for child-safe applications is 100mm.</i>
Picket top profile	Flat Top* (i.e. the top face of the panel is smooth and continuous as there is not picket extending above the rail); Loop Top (i.e. a round picket in a looped style extends above the rail); or Rod Top (i.e. the picket extends above the rail and has a plastic insert in the top of the picket). <i>*The Flat Top style is recommended for child-safe applications as there is no head entrapment hazard created by the adjacent pickets and the top rail, as is the case with a Loop Top and Rod Top style.</i>
Panel configuration	The horizontal rails have a hole punched in one or both sides of the tube to suit the profile of the vertical picket. The picket is then inserted through/ into the rail and welded in place. The picket ordinarily finishes flush with the bottom face of the bottom rail (standard). The picket extends 120mm above the top rail for the Loop Top and Rod Top styles.
Picket profile	16x1.2mm Circular Hollow Section (CHS) steel. <i>Recommended alternative for heavier duty applications: 19x1.2mm Circular Hollow Section (CHS) steel; or</i> 25x25x1.2mm Square Hollow Section (SHS) steel.
Picket spacing	16mm round: 106mm centre-to-centre of each vertical picket. 19mm round: 106mm centre-to-centre of each vertical picket. 25mm square: 140mm centre-to-centre of each vertical picket.
Rail material	For the 16mm round picket, a 38x25x1.6mm RHS steel rail is used. For the 19mm round and 25 square picket, a 40x40x1.6mm SHS steel rail is used.
Panel brackets to connect the panel to the post	1mm gauge pressed zinc plated shrouds (four per panel: one at each corner). The shroud fits over the end of the rail of the panel and mounts on the face of the post in line with the panel. There are two fixing points through the shroud to the post and one through the shroud to the rail of the panel; or <i>Recommended alternative for heavier duty application: Bluedog SmartaBracket®: 3mm gauge mild steel material, 1-piece heavy duty, hot dipped galvanised security bracket (four brackets per panel). The bracket fits over the end of the 40x40mm rail of the panel and mounts on the non-attack side (normally the inside) of a 65x65mm fence post. There are two fixing points to the post and one to the rail of the panel. This bracket centres the panel on the post along the fence alignment.</i>

Change of direction brackets	Bluedog SmartaBracket [®] : 3mm gauge mild steel material, 1-piece heavy duty, hot dipped galvanised security bracket. The bracket fits over the end of the 40x40mm rail of the panel and mounts in-line with the panel on the post. There are two fixing points through the bracket to the post and two through the bracket to the rail of the panel. The bracket neatly accommodates changes of direction in the fence without the need to cut or bend the bracket.
Fasteners	Colour matched 12 gauge self-drilling tek screw (three screws per shroud); or <i>Recommended alternative for heavier duty application:</i> 12g x 25mm long tamper proof self drilling Tek screw in a Class 3 (minimum) corrosion finish (three screws per bracket). Requires a special setting tool that fits to a drill to install and remove the screw.
Intermediate posts	65x65x1.6mm SHS (1500mm long for 900mm high panel); or <i>Recommended alternative for heavier duty applications:</i> 65x65x2.5mm post (1500mm long).
In ground post footings	Fence posts Ø300mm x 600mm deep using 20mpa concrete for 1200mm high fencing*. Gate posts Ø450mm x 650mm deep using 20mpa concrete for 1200mm high fencing* <i>*Adequacy subject to the fixing surface, fence height and potential loadings.</i>
Post with base flanges for hard surfaces	130x130x5mm square steel flange* with 4xØ13 holes (one at each corner) to suit M10 or M12 anchors. The flange has a cut out in the centre to accommodate a 65x65 post. The post inserts into the flange and is then welded in place. The base flanges are hot dip galvanised after fabrication (before welding to the post). <i>*Adequacy subject to the fixing surface, fence height and potential loadings.</i>
Post cap	Bluedog pre-galvanised steel square cap (powder coated). The pressed steel cap is fitted on site (tap on with rubber mallet) and fits tightly over the top of the post and is not easily removed once installed. The cap can be fixed in place with a self drilling tek screw if required.
Gate frame	Stiles (i.e. vertical sections at each end of the gate leaf) 40x40x1.6mm (three horizontal rails for increased rigidity). <i>Recommended alternative for heavier duty applications:</i> Stiles and Rails 65x65x1.6mm SHS (three horizontal rails).
Gate configuration	The horizontal rails have a hole punched in one or both side of the tube to suit the profile of the vertical picket. The picket is then inserted through/ into the rail and welded in place at each rail.
Gate locking hardware	Downee Magnetic Safety Latch (to suit self closing gates); or Bluedog Boltn'Lock [®] heavy duty Ø20mm slide-bolt unit. This unit fixes to the gate latch stile on site with a combination of 14 gauge tek screws and/or M8 bolts. The slide-bolt is lockable with a standard padlock in both the open and closed positions. A slide bolt receiver (5mm thick mild steel material, hot dip galvanised after fabrication) fixes to the gate post or adjacent double gate latch stile on site with a combination of 14g tek screws and M8 bolts. The unit is zinc plated and then powder coated.
Gate drop-bolt hardware	Ø16mm x 550mm long drop bolt (screw on site with 3 x 14g self-drilling tek screws). The unit is pad lockable in the down position only. The unit is zinc plated and then powder coated.

Gate hinging	<p>Heavy duty self-closing hinge* that screws to the hinge stile and gate post on site with 8 x 14g tek screws. The hinge does not hold the gate open at 90 degrees. This hinge allows the gate leaf to swing back on itself but not through the opening; or</p> <p><i>Recommended alternative for heavier duty applications:</i> SureClose hydraulic self-closing hinge that screws to the hinge stile and gate post on site with 8 x 14g tek screws. The hinge does not hold the gate open at 90 degrees and has a final 'snap-close' function to ensure a heavier gate closes properly. This hinge allows the gate leaf to swing back on itself but not through the opening.*</p> <p><i>*A gate stop fitted to the latch stile or gate post is recommended for both hinge types to prevent the hinges being damaged from 'over-swing' through the gate opening.</i></p> <p>Goliath (single) ball bearing hinge (top and bottom). Fitted on site to the gate post and gate stile with a combination of 2 x 14g teks and 1 x M8 bolt. The unit is zinc plated and then powder coated.; or</p> <p><i>Recommended alternative for heavier duty applications:</i> Bluedog Eternity® greasable tapered roller bearing (bottom) and sealed deep groove ball bearing hinging (top) to suit the 65mm gate stile. The top assembly allows the level of the gate leaf to be lifted or lowered. A 10mm gate post bracket is secured to the gate post with 4 x M10x25mm long stainless steel screws (that requires a specialist setting tool to install for tamper resistance). The gate post is drilled and tapped to suit the M10 fasteners. The gate stile bracket inserts into the top and bottom gate stiles and is fixed with a 14g tek.</p>
Gate posts	<p>75x75x3mm (1800mm long to suit 1200mm high fence) for small single gates. 100x100x4mm (1800mm long to suit 1200mm high fence) for openings up to 4800mm.</p>
Tubular pre-galvanised material	<p>Mild steel. Strength grade: C250 minimum. Zinc coating inside and out with 50 grams/square metre minimum. Recommend 135 grams/ square metre minimum for increased corrosion resistance.</p>
Weld type	<p>All welds are Silicon bronze*. <i>*This weld has superior corrosion resistance and powder coating film adhesion to a standard mild steel weld.</i></p>
Metal pretreatment	<p>The product undergoes a 7 stage chemical pretreatment process to clean, etch and prepare the metal surface for powder application. This process includes first submerging the product in two consecutive heated alkali degreasing baths, then a series of rinse baths and then a nanoceramic conversion coating bath that places a fine crystalline structure on the surface of the steel for the powder to 'key' into and prevents oxidation on the surface before powder coating. This facilitates improved powder film adhesion.</p>
Powder coat process	<p>The product is powder coated using an automated conveyerised powder coating line. Powder is applied to the metal surface using air pressure and an electrostatic charge. The product then passes through a heated curing oven. This causes the powder to gel and then harden to a tough durable surface. The thickness and curing times are closely monitored as these variables influence the mechanical characteristics of the finished coating.</p>
Powder coat for standard outdoor applications	<p>For standard outdoor application D1000 Excel™ polyester powder is used as standard. All powders used are supplied by Interpon and formulated by Akzo Nobel. Interpon D1000 exhibits a tougher cured film which provides superior damage resistance to packaging materials. It is designed to give excellent long term exterior durability and colour retention and is available in a limited range of colours and in gloss, satin and matt finishes. Film thickness: ~80µm minimum.</p>
Powder coat for applications at risk of graffiti	<p>For applications at risk of graffiti, EasyClean™ can be used as an alternative to the standard polyester coating. EasyClean is a Polyurethane coating that is designed to allow the simple and rapid removal of most forms of graffiti. This ease of graffiti removal reduces overall maintenance costs. Interpon Typical applications include fence</p>

	installations at train, tram and bus stations, schools and playgrounds. Film thickness: ~80µm minimum.
Powder coat for higher corrosion environments	<p>For applications that will be subject to higher corrosion, a zinc-rich epoxy primer can be applied under the top coat of polyester to give much greater corrosion resistance. The epoxy primer provides a non-porous barrier between the corrosive elements (salt, pollutants etc.) and the metal surface.</p> <p>Alternatively, the product can be hot dip galvanised after fabrication. This involves immersing the product in a bath of molten zinc. This applies a heavy coating of continuous protective zinc over all surfaces (internal and external).</p>
Applicable Australian Standards	<p>AS 1450 – Steel tubes for mechanical purposes - Product Designation AS 1450/C250/ERW.</p> <p>AS 1397 – Steel sheet and strip – Hot-dip zinc-coated or alu/zinc coated - Product Designation AS 1397/G2.</p> <p>AS 1163 – Structural steel hollow sections – Product Designation AS 1163 C350LO.</p> <p>AS/NZS 4680:2006 – Hot dip galvanized (zinc) coatings on fabricated ferrous articles</p> <p>AS 4506.2005 Metal finishing - Thermoset powder coatings.</p> <p>AS 1296.1 – 2007 Swimming Pool Safety – Safety Barriers for swimming pools.</p>
Testing	<p>Internal: AS 1296.1 – 2007 Swimming Pool Safety – Safety Barriers for swimming pools; Appendix A Test for Strength & Rigidity of Fencing Openings.</p> <p>External: ALS test certificates.</p>
Bluedog reference material	<p>Drawing set</p> <p>Installation guide</p> <p>Proforma product specification</p>