BOLLARDS & BOLLARD COVERS- 03 Advanced Polymer

ADVANCED POLYMER TECHNOLOGIES INNOVATION NO.3

ZEROCIVIL

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CPB CONTRACTORS

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Relationships creating success

Public Transport Authority

WorkSafe Western Australia

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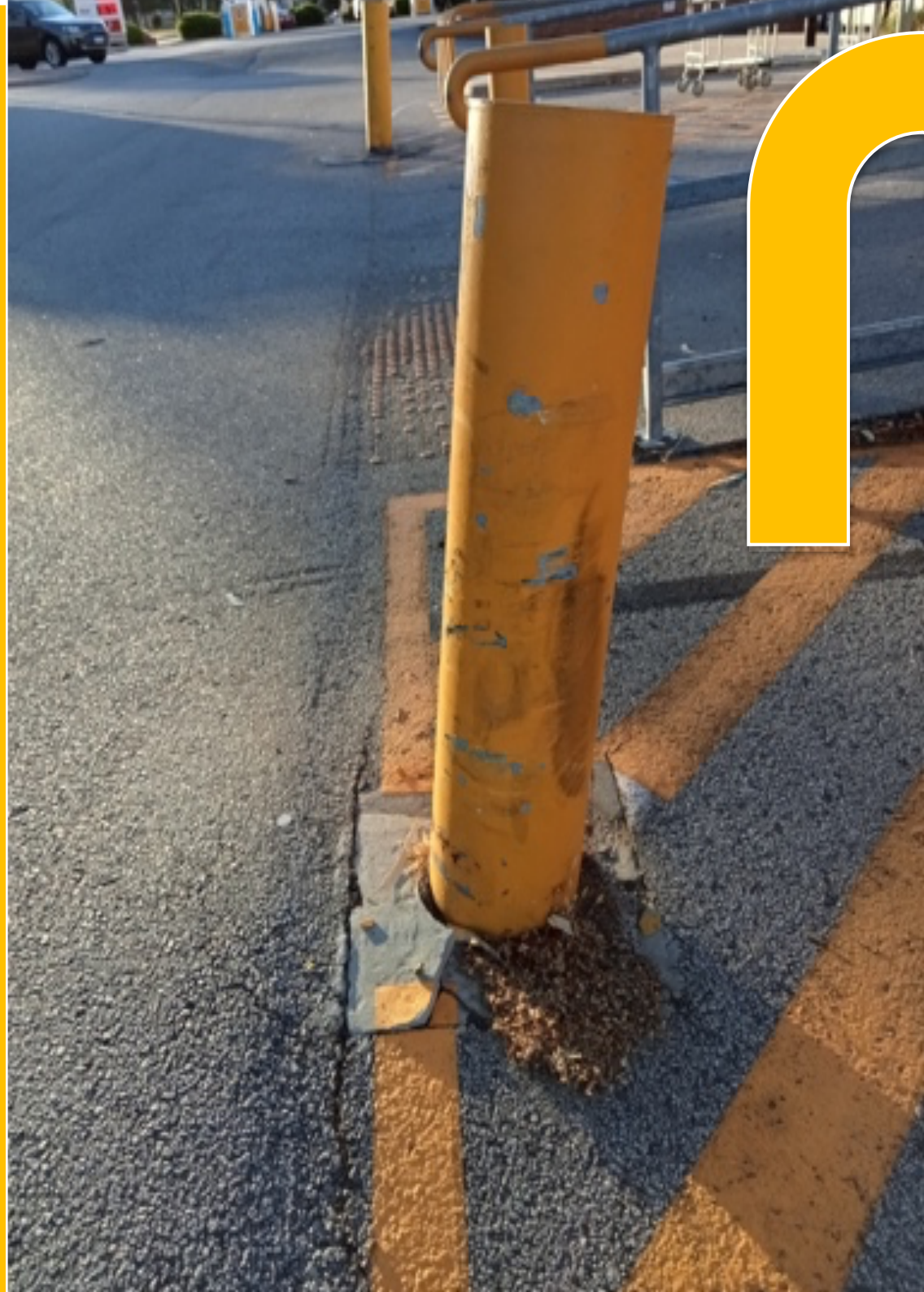
We're often mistaken for steel bollards, but we're really just big ol' softies.

But don't let our soft exterior fool you, unlike steel bollards we can take whatever you can deliver- whether it's taking a beating from trolleys or vehicles, we remain undeterred

We won't buckle under pressure and we're kind to vehicles– if they run into us, we - we won't be hurt by constant attacks as we're thick skinned and just don't let it show when we're hurt!

We are designed to withstand impact and the harsh Australian sun, so retain our good looks into old age. Made from Advanced polymers we provide an efficient electrical insulator, making us suitable for applications where safety is paramount.

It’s time to move
from repetition
to resilience



IMPACT RESISTANT

Made from impact absorbing advanced polymer compound, that provides a safe, soft surface and self recovers from light impact

UV RESISTANT

Made with unique blend of Supa UV our Advanced Polymer Bollards offer 4.5 times the UV protection required by Australian Standard (AS/NZ 4766:2006)

FOOTINGS CAN BE MADE REUSABLE

When secured on Impact Recovery System the concrete footings can be protected from damage for the entire lifespan of a development!

BOLLARDS CAN BE MADE REUSABLE

When secured on Impact Recovery System bollards self-recover from low-speed impact and are removable and reusable following severe impact

Bollards made from steel or concrete are strong but they are not scratch, dent, rust or impact resistant, creating a costly never ending cycle of damage and waste as both the bollard and costly footings require repeated replacement over the life of a development, often having a devastating effect on the surrounding pavement.

Photo Dept Transport Advanced Polymer Impact Recovery Bollards

EPOXY POWDER COATING 2 YEARS

The design life of epoxy powder coated steel is around 2 years in direct sunlight.

POLYESTER POWDER COATING 10 YEARS

Polyester powder coating is designed for outdoors and when properly pretreated can last 5- 10 years

ADVANCED POLYMER- 25 YEARS

Advanced Polymer Bollards have a design life of 50 years (25 years in direct sunlight)

HIGH UV RESISTANCE

Advanced Polymer Bollards and Bollard Covers have more than 4.5 times the UV8 protection required by AS/NZ 4766:2006. To protect it from fading, cracking and splitting

HIGH IMPACT RESISTANCE

Versatile thermoplastic that offers fantastic impact resistance and tensile strength. Its molecules are packed together so tightly, it provides incredible toughness combined with the ability to absorb impact force and recover

HEAVY DUTY DESIGN

Unlike most plastic Bollards on the market that are solid, made from recycled plastic and can break upon impact, we are rotomolded with heavy duty 7 mm walls which ensure that bollards are structurally sound and robust but remain flexible enough to absorb vehicle impact and recover

LOOKIN' GOOD IS IMPORTANT TO US

Solid 7 mm walls ensure Bollards and Bollard Covers remain looking good impact after impact. If scratched, they are the same colour throughout and when scuffed by vehicle tyres, they can simply be wiped clean using car polish.

SPECS

Tensile strength at 72°F: 1,400 psi
Tensile modulus: 57,000
Tensile elongation at break: 100%
Flexural modulus: 29,000 psi

150 mm Advanced Polymer Impact Recovery Surface Mount

Quality UV stabilised impact resistant material Highly durable

1250H

Cap moulded

Lightweight- easy to use

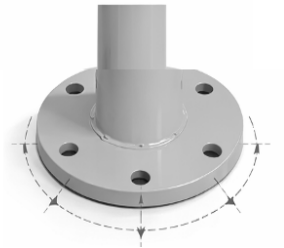
Secured using the Impact Recovery System

Heavy 7 mm wall thickness

Making bollards self-recover from light impact and reusable following severe impact.

Footings remain reusable following severe impact.

Secured on Re-usable Heavy Duty 10 mm thick x 300 mm diameter Base Plate with 5 evenly spaced anchors to distribute energy



RESILIENCE RATING – FOUR

1. Bollard casing is resistant to impact will not dent, chip or rust (UV stabilised)
2. Bollard footings resistant to impact
3. Bollards recover from low impact, removable and re-usable following severe impact
4. Footing re-usable following impact

Refer to Impact Chart

MORE INFO

150 mm Advanced Polymer Inground

100% AUSSIE MADE

1800L

Cap moulded

Quality UV stabilised impact resistant material Highly durable

Lightweight- easy to use

Flexes upon impact reducing risk of damage to footings

Heavy 7 mm wall thickness

Available in other colours- ask for colour chart. Min qty 10

Can concrete fill to ground level for added resistance and retain flexibility

RESILIENCE RATING – TWO + HALF

1. Bollard casing is resistant to impact will not dent, chip or rust (UV stabilised)
2. Bollard footings made resistant to light impact (as bollard flexes) but not resistance to high impact
3. Bollard re-usable following light impact but not re-usable following bad impact
4. Footing re-usable following light impact but not re-usable following bad impact

Refer to Impact Chart

150 mm Advanced Polymer Impact Recovery Inground

Quality UV stabilised impact resistant material Highly durable

1250H

Cap moulded

Lightweight- easy to use

Secured using the Impact Recovery System

Heavy 7 mm wall thickness

Making bollards self-recover from light impact and reusable following severe impact.

Removable and socket can be capped.

Secured on ZERO WASTE Foundations 350 or 650 mm Depth

Footing remain reusable following severe impact.

100% AUSSIE MADE

RESILIENCE RATING – FOUR

1. Bollard casing is resistant to impact will not dent, chip or rust (UV stabilised)
2. Bollard footings resistant to impact
3. Bollards recover from low impact, removable and re-usable following severe impact
4. Footing re-usable following impact

Refer to Impact Chart

MORE INFO

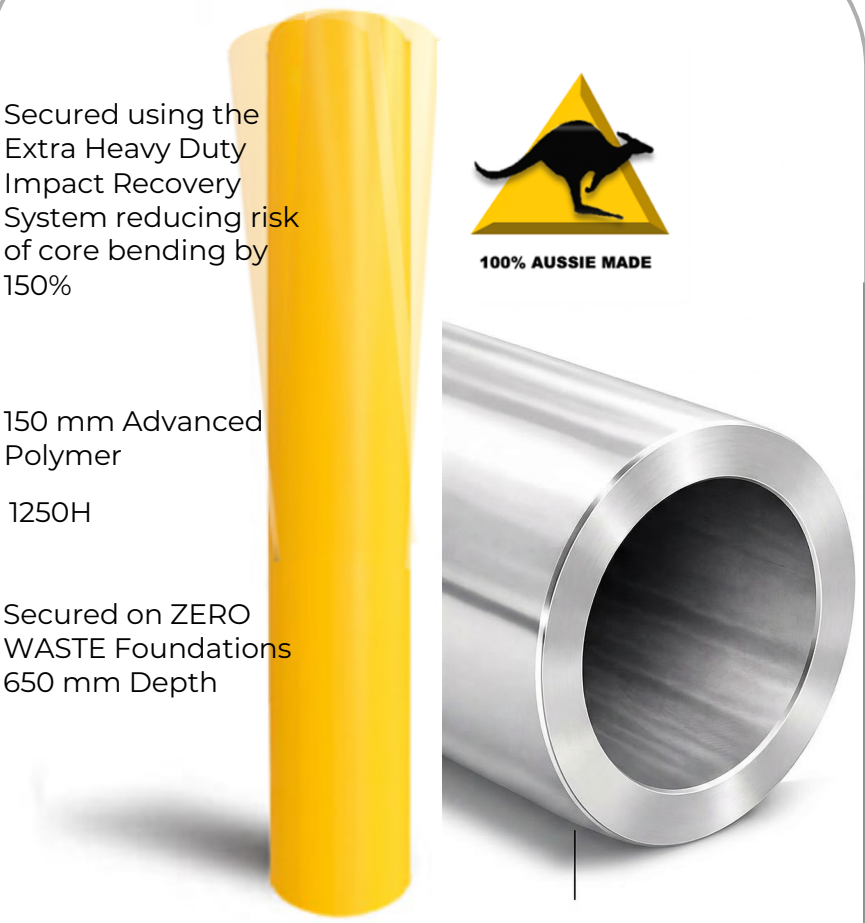
150 mm Advanced Polymer XHD Impact Recovery Inground

Secured using the Extra Heavy Duty Impact Recovery System reducing risk of core bending by 150%

150 mm Advanced Polymer

1250H

Secured on ZERO WASTE Foundations 650 mm Depth



Extra Heavy-duty Resistance Core

RESILIENCE RATING – SIX

1. Bollard casing is resistant to impact
2. Bollard footings resistant to impact
3. Bollards recover from low impact
4. Bollards re-usable following impact
5. Footing re-usable following impact
6. XHD Resistance core provides reduced risk of resistance core bending

Refer to Impact Chart

MORE INFO

190 mm Advanced Polymer Bollard Covers

Quality UV stabilised impact resistant material Highly durable

Available in range of colours including stone look

Secure using tape or self-drilling screws

1200-1500 H

190 TO FIT 165 Ø STEEL BOLLARD

150 TO FIT 130 Ø STEEL BOLLARD

Cap moulded

Lightweight- easy to use

Heavy 7 mm wall thickness

RESILIENCE RATING – SIX

1. Bollard Cover is resistant to impact
2. UV Stabilised
3. Heavy walled (7mm walls)
4. Fits 165 Steel Bollards
5. 150 mm Bollard diameter bollards
6. Large range of colours (Min 6 Covers)
7. Easy to attach
8. Easy to clean

Available in other dimensions- only stock 190 mm Covers

BOLLARD COVERS 03-02

ADVANCED POLYMER TECHNOLOGIES INNOVATION NO.3

02

190 mm Advanced Polymer Bollard Covers..... 12

Sizes..... 18

Outcome of Impact.....**Error! Bookmark not defined.**

Colour chart.....**Error! Bookmark not defined.**

You get a lot of bang for your buck-

We look seriously tough, but we're really just big ol' softies

Don't let our soft exterior fool you, unlike cheap plastic bollard covers that fade, split and become brittle - we can take whatever you can deliver- whether it's the harsh Australian sun or taking a beating from trolleys or vehicles, we remain undeterred

We won't buckle under pressure and we're kind to vehicles– if they run into us, we don't fall to pieces. We won't be hurt by constant attacks as we're thick skinned and just won't let it show when we're hurt!

It’s time to move
from repetition
to resilience

IMPACT RESISTANT

Made from impact absorbing advanced polymer compound, that provides a safe, soft surface reducing risk of damage to vehicles, wont chip and scratches don't show

UV RESISTANT

Made with unique blend of Supa UV our Advanced Polymer Bollards offer 4.5 times the UV protection required by Australian Standard (AS/NZ 4766:2006)

EASY TO INSTALL

Secured using padded tape or a simple self-drilling screw to secure cover to bollard

EASY TO MAINTAIN

If scuffed by vehicle tyres covers can be wiped clean or brought back to high shine using car polish

Bollards made from steel or concrete are strong but they are not scratch, dent, rust or impact resistant and despite poly coatings provide very low levels of UV resistance. Extend their lifespan up to 50 years using our Advanced Polymer covers.

CHEAP PLASTIC
2 YEARS

Cheap plastic exposed to direct sunlight undergoes rapid degradation due to ultraviolet (UV) radiation and heat

POLYMER UV STABILISERS
10 YEARS

Polymers with UV Stabilisation increase the lifespan of plastics to around 5 -10 years

ADVANCED POLYMER
25 YEARS

Advanced Polymer Bollards have a design life of 50 years (25 years in direct sunlight)

HIGH UV RESISTANCE
Advanced Polymer Bollards and Bollard Covers have more than 4.5 times the UV8 protection required by AS/NZ 4766:2006. To protect it from fading, cracking and splitting

HIGH IMPACT RESISTANCE
Versatile thermoplastic that offers fantastic impact resistance and tensile strength. Its molecules are packed together so tightly, this material boasts incredible toughness combined with the ability to absorb impact force and recover

HEAVY DUTY DESIGN
Unlike most plastic Bollard Covers on the market with thin 1-3 mm wall thickness, our Bollard Covers are rotomolded from a solid piece of Advanced Polymer material, with heavy duty 7 mm walls which ensure that bollards are structurally sound and robust

LOOKIN' GOOD IS IMPORTANT TO US
Solid 7 mm walls ensure Bollard Covers remain looking good impact after impact. If scratched, they are the same colour throughout and when scuffed by vehicle tyres, they can simply be wiped clean using car polish.

SPECS

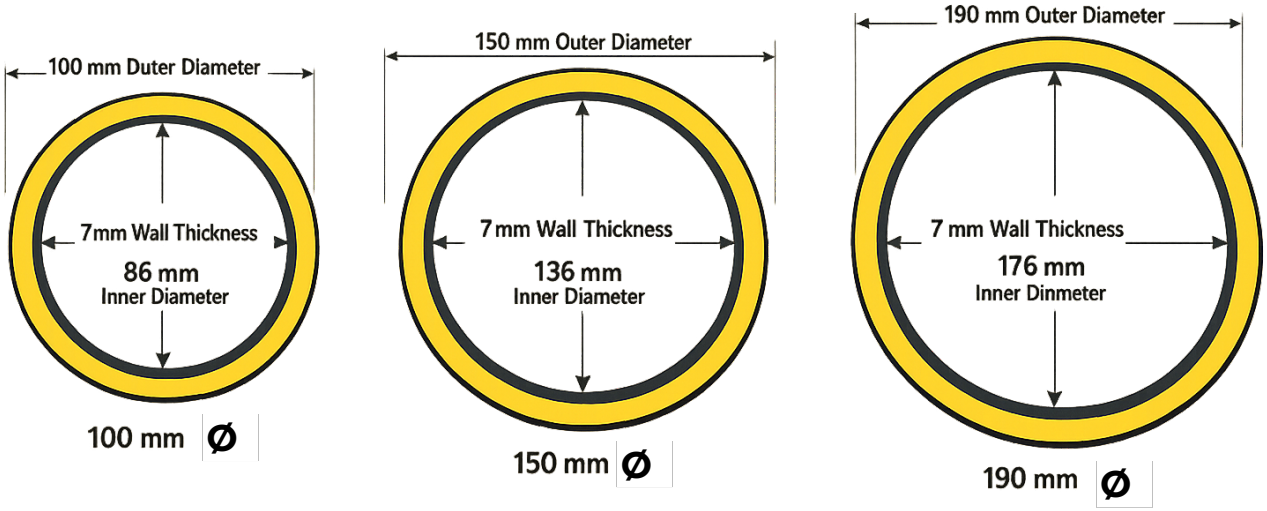
Tensile strength at 72°F: 1,400 psi
Tensile modulus: 57,000
Tensile elongation at break: 100%
Flexural modulus: 29,000 psi

Sizes

Dimension of covers

	DIAMETER	WALL THICKNESS	FITS MAX	SECURE
BOLLARD COVERS				
100 MM	100 mm	7 mm	76 mm	Tape or screw
150 MM	150 mm	7 mm	130 mm	Tape or screw
190 MM	190 mm	7 mm	165 /168 mm	Tape or screw

Note: Available in range of colours – including stone look grey or brown. Chart at end of document.


100 mm Duter Diameter
7mm Wall Thickness
86 mm
Inner Diameter
100 mm Ø
150 mm Outer Diameter
7 mm Wall Thickness
136 mm
Inner Diameter
150 mm Ø
190 mm Outer Diameter
7 mm Wall Thickness
176 mm
Inner Dinmeter
190 mm Ø

OUTCOME OF IMPACT 03-03

ADVANCED POLYMER TECHNOLOGIES INNOVATION NO.3

03

RATING – ONE POINT FOR EACH BENEFIT

1. Bollard casing is resistant to impact
2. Bollard footings resistant to impact
3. Bollards recover from low impact
4. Bollards re-usable following impact
5. Footing re-usable following impact
6. XHD Resistance core provides reduced risk of resistance core bending

DEFINITIONS:

IMPACT RESISTANT

Resistant to impact from a passenger vehicle (some bollard will flex and self-recover)

IMPACT RECOVERY

Resistant to impact from a vehicle (self-recover from light impact). Bollard and footings recoverable (re-usable) following even severe impact.

SPEED AT FAILURE

Failure speed indicates the approximate impact speed at which the bollard is likely to require replacement

	DEPTH	IMPACT RESISTANT	IMPACT RECOVERY	SPEED AT FAILURE
ADVANCED POLYMER BOLLARDS				
Hollow Bollard 1800 L	600 mm	YES, LIGHT IMPACT	NO	**4 kmph**
Concrete Fill Bollard 1800 L	600 mm	NO	NO	**6 kmph**
Surface Mount IRS Bollard 1250 H	Surface Mount	YES	YES	**10 kmph**
350 IRS Bollard 1250 H	350 mm	YES	YES	**12 kmph**
650 IRS Bollard 1250 H	650 mm	YES	YES	**14 kmph**
650 XHD IRS Bollard 1250 H	650 mm	YES	YES	**18 kmph**

Note: These figures are **engineering-positioning estimates**, not certified crash-test numbers. For more details refer to impact and resilience ratings charts

OPTION	INSTALL	RESILIENCE	FORGIVENESS	BENEFITS
ADVANCED POLYMER BOLLARDS				
Hollow Bollard	1800 advanced polymer bollard installed directly in concrete footing	**Medium**	**High**	Flexible response, softer interface between vehicle and asset, simple installation, lower upfront cost
Concrete Fill	1800 advanced polymer bollard with internal concrete infill terminating at ground level	**Medium–High**	**Medium**	Additional base support through buried section, more support at ground line than hollow version, above-ground impact zone remains more forgiving than a fully filled bollard
Surface Mount IRS	Secured using S-Mount IRS	**Medium–High**	**High**	Easy install, reusable mounting system, easier replacement, less disruption to existing slab than direct replacement of fixed bollards
350 IRS	Secured using **350 IRS**	**High**	**High**	Strong balance of flexibility, resilience and maintainability, suitable for asphalt and solid concrete footing areas, bollard and footings reused after impact
650 IRS	Secured using **650 IRS**	**Very High**	**Medium–High**	Greater embedment depth for more demanding locations, better suited to repeated low-speed strikes and service vehicle areas, bollard and footings reused after impact
650 XHD IRS	Secured using **650 XHD IRS**	**Extreme / Highest**	**Medium**	Most resilient installation option in the range, best for severe service conditions, minimises maintenance in harder-hit locations

	DEPTH	MAINTENANCE	REUSE FOOTING	REUSE BOLLARD	**RATING**
ADVANCED POLYMER BOLLARDS					
Hollow Bollard	600 mm				
Concrete filled (fully)	600 mm				
Surface Mount IRS	Surface Mount	NO	YES	YES	
350 IRS	350 mm	NO	YES	YES	
650 IRS	650 mm	NO	YES	YES	
650 XHD IRS	650 mm	NO	YES	YES	

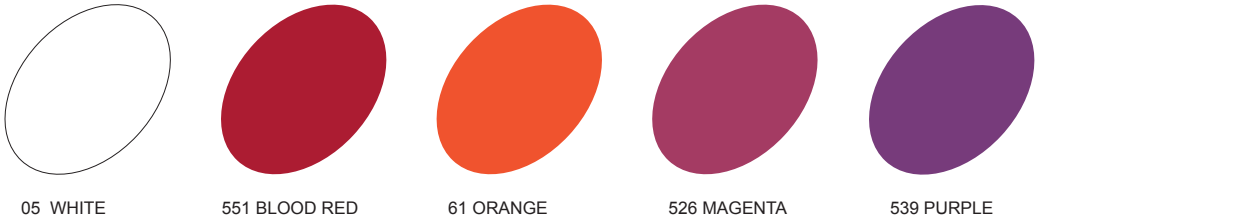
 Meets requirement

 Partially meets requirement

COLOUR CHART 03-04

ADVANCED POLYMER TECHNOLOGIES INNOVATION NO.3

04



05 WHITE
551 BLOOD RED
61 ORANGE
526 MAGENTA
539 PURPLE
18 YELLOW
257 LIME GREEN
209 LIGHT GREEN
329 TEAL
326 DARK BLUE
35 LIGHT BLUE

234 RIVER GUM
70 BLACK
89 SLATE GREY
206 MIST GREEN
2081 HERITAGE GREEN
890 ARMOUR GREY
930 WHEAT
392 MOUNTAIN BLUE
918 MERINO
916 BEIGE
947 SMOOTH CREAM
45 HERITAGE RED

NOTE: COLOURS ARE INDICATIVE ONLY REFER TO COLOUR SAMPLES FOR ACCURATE COLOURS

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