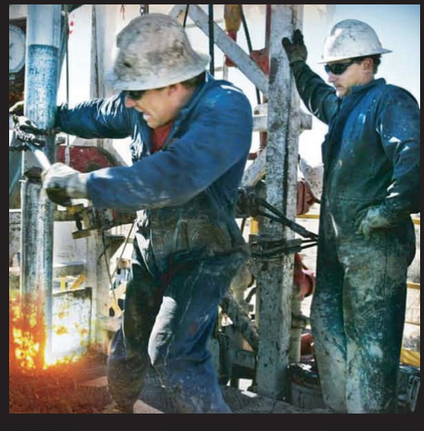
Bruck
textiles

AUSTRALIAN MADE AND OWNED

AUSTRALASIA'S LEADING INNOVATOR OF TECHNICAL TEXTILES

Performance - Protection - Comfort - Breathability - Durability - Integrity







www.brucktextiles.com.au

BRUCK TEXTILES

Privately owned Australian company that has been developing quality fabrics since 1946. Australia's largest manufacturer of fabrics, with offices in Sydney, Melbourne and Wangaratta, where the production facility is located. All Bruck products are manufactured in Australia.

With proven design capability, integrated product development processes and sophisticated planning and warehousing systems, Bruck has become a globally recognised competitive supplier of high performance textiles.

The Bruck® range of performance and protective fabrics are used in applications such as Military, Mining, Oil and Gas, Structural and Wildland Fire Fighting, Work Wear, Corporate Wear, Metal Smelting and General Industrial.

Bruck is a market leader in the innovative development of advanced textiles such as Bruck Barricade™, Bruck Endurance™, XP Merino®, Melba Sentinel® and Melba Enforcer® 24K, to name a few. With on-going emphasis on performance textiles technology and an investment commitment to match, Bruck has introduced solutions in high performance areas such as fragmentation protection, NIR Signature Management, waterproof and breathable wet weather outerwear, flame retardant cold weather outerwear, extreme cold weather outer and underwear, aramids, para-aramid and FR viscose, exploring new innovative developments in protective and defence fabrics.

We are committed to manufacturing in an environmentally responsible manner meeting the performance expectations of our employees, customers and the community at large.

Bruck® fabrics are independently accredited to Oeko-Tex® Standard 100 Product Class II, giving consumers the confidence of knowing textile products tested against this criteria are guaranteed to contain no concentrations of harmful substances that are detrimental to human health.

Bruck® products are 'world class' and deliver the best in fabric technology and know-how. This is why Bruck is the only Australian weaver that manufactures DuPont Nomex® fabric and the proprietary PBI® Gold and PBI® Matrix fabric for firefighters.

Bruck is Australia's only licensed manufacturer of PROBAN® flame protective fabrics. The PROBAN® process from Rhodia has been perfected over 50 years to give cotton and cotton rich fabrics permanent and reliable flame retardant properties. PROBAN® treated fabrics are durable and proven through long term use in a variety of environments.

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AUSTRALIAN MADE AND OWNED

MELBA SENTINEL®

Performance - Comfort - Breathability - Durability

MELBA SENTINEL® is the standard for comfort and performance in the protective fabrics market. Bruck have taken the durable protection of DuPont™ Nomex® Comfort fibres and combined them with the softness, comfort and absorbency of Lenzing FR® Viscose. This unique intimate blend delivers inherent and permanent flame retardant performance, anti-static qualities and exceptional moisture wicking - making MELBA SENTINEL® fabric the right choice for next-to-skin garments.

Benefits at a glance:

- Excellent comfort levels - soft, light, highly breathable and highly moisture wicking
- Excellent durability - strong and tough - a product that delivers exceptional value for money
- Inherently flame retardant - a feature that can not wash out or wear out
- Superior thermal protection - excellent heat transfer resistance for weight
- Wildland firefighting certified - full test reports available according AS/NZS 4824:2006
- Exceptional performance in colour fastness - colour that's built in by the DuPont™ Nomex® producer colour process

MELBA SENTINEL® 165

MELBA SENTINEL® 200

MELBA SENTINEL® 220P

MELBA SENTINEL® 220R

MELBA SENTINEL® Range Minimum Performance Data:

Property[1]	Method	Performance
Flame Spread - Surface Ignition[1]	ISO 15025 Procedure A	No hole formation No molten or flaming debris Average afterflame ≤ 2s Average afterglow ≤ 2s
Flame Spread - Edge Ignition[1]	ISO 15025 Procedure B	No Molten or Flaming Debris Average Afterflame ≤ 2s
Heat Transfer[1] (Radiation)	ISO 6942 Method B @ 20kW/m^2	$t_{24} \geq 11s$ TF ≤ 70% $t_{24} - t_{12} \geq 4s$
Heat Resistance[1]	ISO 17493 5 minutes @ 260 °C	No Melt No Drip No Ignition Shrinkage ≤ 10%
Thermal Resistance	ISO 11092	≤ 0.055 m^2. K/W
Water Vapour Resistance	ISO 11092	≤ 10 m^2. Pa/W
Dimensional Change[1]	ISO 5077	≤ 3% Warp and Weft
MELBA SENTINEL® fabrics meet the requirements of AS/NZS 4824:2006		

[1]After pre-treatment according to ISO 6330:2000 Procedure 2A, E:5 cycles.

Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave	Tensile Strength ISO 13934-1 [N]	Tear Strength ISO 4674-1 Method B [N]	Abrasion Resistance ISO 12947-2 @ 12kPa
MELBA SENTINEL® 165	50% Nomex® 50% Lenzing FR®	147	165	Plain	warp > 570 weft > 460	warp > 20 weft > 20	> 40,000
MELBA SENTINEL® 200	70% Nomex® 30% Lenzing FR®	147	200	Plain	warp > 830 weft > 580	warp > 25 weft > 20	> 45,000
MELBA SENTINEL® 220P	70% Nomex® 30% Lenzing FR®	147	220	Plain	warp > 1000 weft > 650	warp > 30 weft > 25	> 50,000

STRUCTURAL

Performance - Comfort - Breathability - Durability

Bruck engineered solutions for Structural Firefighting are much more than just fabrics - they're systems. The overall performance of your turnout gear is the sum of each individual layer. For this reason, we are continually evolving fabrics whose high performance properties can be synergised from the inner most lining, through the thermal and moisture barriers, to the outer shell.

Tough, durable and dependable systems are extremely important, as is how your gear feels against the skin and moves with your body. Bruck fabrics are developed to last and feel good to wear. Our systems minimise weight and maximise breathability, thereby minimising metabolic heat stress, while you remain protected from flame, radiant heat, and chemical splash. Bruck products are proven tough to withstand the challenges of Structural Firefighting.

Bruck partners with the global leaders in inherent flame retardant fibre technology and high quality yarn producers to bring you the MELBA ENFORCER® and MELBA FORTRESS® collection of outer shells and the MELBA INSUL-TEX® range of thermal liners and scrims.

MELBA ENFORCER® PBI Gold®

MELBA ENFORCER® PBI Matrix®

MELBA FORTRESS® 3G

MELBA FORTRESS® 3D

MELBA FORTRESS® 260

MELBA FORTRESS® 205

Structural Firefighting Fabric Performance Data:

Property[1]	Method	Performance
Residual strength after exposure to radiant heat	ISO 13934-1 ISO 6942 Method A @ 10 kW/m²	≥ 450 N
Abrasion Resistance	ISO 12947-2 @ 12 kPa	> 20,000 Cycles
Flame Spread - Surface Ignition	ISO 15025 Procedure A	No Hole Formation No Molten or Flaming Debris Average Afterflame ≤ 2 s Average Afterglow ≤ 2 s
Flame Spread - Edge Ignition	ISO 15025 Procedure B	Char length ≤ 100 mm No Molten or Flaming Debris Average Afterflame ≤ 2 s
Heat Resistance	ISO 17493 5 minutes @ 260 °C	No Melt No Drip No Ignition Shrinkage ≤ 5%
Dimensional Change	ISO 5077	≤ 3% Warp and Weft
Surface Wetting	ISO 4920	≥ 4
Penetration by Chemicals[2]	AS/NZS ISO 6530 40% NaOH at 20 °C 36% HCI at 20 °C 37% H_2SO4 at 20 °C O-xylene 100% at 20 °C	> 80% Run Off
Bruck Structural fabrics meet the requirements of AS/NZS 4967:2009/Amdt1:2010		

[1] After pretreatment according to AS/NZS 4967:2009 Amdt 1 Clause 3.12.4.
[2] Tested in assembly

Fabric	Composition	Width (cm)	Weight (g/m²)	Weave	Tensile Strength ISO 13934-1 [N]	Tear Strength ISO 4674-1 Method B [N]
MELBA ENFORCER® 24K	40% PBI® / 60% Kevlar®	147	205	Twill	warp > 1600 weft > 1600	warp > 190 weft > 190
MELBA ENFORCER® PBI Gold®	40% PBI® / 60% Kevlar®	147	220	Twill Rip-resist	warp > 1900 weft > 1500	warp > 115 weft > 100
MELBA ENFORCER® PBI Matrix®	40% PBI® / 60% Kevlar® p-Aramid matrix	147	205	Plain	warp > 1400 weft > 1500	warp > 115 weft > 110
MELBA FORTRESS® 3G®	Nomex® IIIA p-Aramid grid	147	220	3-Dimensional	warp > 1000 weft > 1200	warp > 75 weft > 140
MELBA FORTRESS® 3D	Nomex® IIIA	147	220	3-Dimensional	warp > 1000 weft > 1200	warp > 55 weft > 130
MELBA FORTRESS® 260	Nomex® IIIA	147	260	Twill Rip-resist	warp > 1950 weft > 1050	warp > 135 weft > 145
MELBA FORTRESS® 205	Nomex® IIIA	147	205	Twill Rip-resist	warp > 1400 weft > 790	warp > 75 weft > 65

MELBA ENFORCER® 24K

MELBA ENFORCER® 24K

The overall performance of your structural firefighting gear is the sum of its individual layers. For this reason, we are continually evolving MELBA ENFORCER® outer shells to enhance the performance of each layer and optimise protection, comfort and durability. MELBA ENFORCER® 24K does just that, delivering a tough outer shell with freedom of movement, high strength without the burden of weight and heritage coming from years of dependable service.

The DNA of MELBA ENFORCER® PBI® 24K outer shell:

- Tough against abrasion, durable, outstanding tear resistance and PBI® dependable
- Unique construction to make your suit feel good and move with your body
- Minimise weight and maximise comfort

Property[1]	Method	Performance
Mass	AS 2001.2.13	205 g/m^2
Residual strength after exposure to radiant heat	ISO 13934-1 ISO 6942 Method A @ 10 kW/m^2	≥ 450 N
Abrasion Resistance	ISO 12947-2 @ 12 kPa	> 24,000 Cycles
Flame Spread - Face Ignition	ISO 15025 Procedure A	No Hole Formation No Molten or Flaming Debris Average Afterflame ≤ 2 s Average Afterglow ≤ 2 s
Flame Spread - Edge Ignition	ISO 15025 Procedure B	Char length ≤ 100 mm No Molten or Flaming Debris Average Afterflame ≤ 2 s
Heat Resistance	ISO 17493 5 minutes @ 260 °C	No Melt No Drip No Ignition Shrinkage ≤ 5%
Dimensional Change	ISO 5077	≤ 3% Warp and Weft
Surface Wetting	ISO 4920	≥ 4
Penetration by Chemicals[2]	AS/NZS ISO 6530 40% NaOH at 20 °C 36% HCI at 20 °C 37% H_2SO4 at 20 °C O-xylene 100% at 20 °C	> 80% Run Off
Tensile Strength	ISO 13934-1	≥ 1,600 N
Tear Strength	ISO 4674-1 Method B	≥ 190 N
Bruck Structural fabrics meet the requirements of AS/NZS 4967:2009/Amdt 1:2010		

[1] After pretreatment according to AS/NZS 4967-2009 Amdt 1 Clause 3.12.4 and [2] Tested in assembly

WILDFIRE

Protection - Comfort - Integrity - Durability

Bruck has a proud history of protecting firefighters and is dedicated to providing the widest range of high performance fabrics that meet and exceed your performance requirements. Our fabrics see action in diverse terrains and climates so our range reflects the specific needs of you, our customer.

For over 40 years DuPont™ Nomex® fabric has been synonymous with firefighter protection. Not only does Nomex® bring inherent flame retardant properties to protective clothing, it also delivers lighter, tougher and more breathable fabrics that meet the continually evolving performance needs for safety and comfort. Bruck is the only weaver of Nomex® fabrics in Australia and the exclusive manufacturer of MELBA COMFORT ADVANTAGE®, MELBA SHIELD® and MELBA SENTINEL® – fabrics developed specifically to protect wildland firefighters.

For comfort and value, Cotton is hard to beat and for the world's most reliable treatment for flame retardant performance Bruck chooses to work exclusively with PROBAN® solutions. Produced in Australia, the Bruck fabric range of 100% Cotton and Cotton rich blends give you the assurance of lasting performance and ease of wear that only Proban® treated fabric can offer.

At Bruck, our focus is on your safety, protection and comfort. It is this commitment that drives our investments and innovation in protective fabrics.

MELBA COMFORT ADVANTAGE® 150

MELBA SHIELD® 200

MELBA SENTINEL® 200

BRUCK RIGGER™ PROBAN®

The BRUCK Wildfire Range Minimum Performance Data:

Property[1]	Method	Performance
Flame Spread - Surface Ignition[1]	ISO 15025 Procedure A	No hole formation No molten or flaming debris Average afterflame ≤ 2s Average afterglow ≤ 2s
Flame Spread - Edge Ignition	ISO 15025 Procedure B	No Molten or Flaming Debris Average Afterflame ≤ 2s
Heat Transfer[1] (Radiation)	ISO 6942 Method B @ 20kW/m^2	$t_{24} \geq 11s$ TF ≤ 70% $t_{24} - t_{12} \geq 4s$
Heat Resistance[1]	ISO 17493 5 minutes @ 260 °C	No Melt No Drip No Ignition Shrinkage ≤ 10%
Thermal Resistance	ISO 11092	≤ 0.055 m^2.K/W
Water Vapour Resistance	ISO 11092	≤ 10 m^2.Pa/W
Dimensional Change[1]	ISO 5077	≤ 3% Warp and Weft
BRUCK Wildfire fabrics meet the requirements of AS/NZS 4824:2006		

[1]After pre-treatment according to ISO 6330:2000 Procedure 2A, E: Proban® fabric after 50 cycles; Nomex® fabric after 5 cycles.

Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave	Tensile Strength ISO 13934-1 [N]	Tear Strength ISO 4674-1 Method B [N]
MELBA COMFORT ADVANTAGE® 150	Nomex® Comfort	147	150	Plain	warp > 870 weft > 680	warp > 75 weft > 68
MELBA COMFORT ADVANTAGE® 175	Nomex® Comfort	147	175	Twill Rip-resist	warp > 1100 weft > 720	warp > 75 weft > 80
MELBA COMFORT ADVANTAGE® 200	Nomex® Comfort	147	200	Twill Rip-resist	warp > 1400 weft > 790	warp > 74 weft > 65
MELBA SHIELD® 165	Nomex® Comfort	147	165	Plain	warp > 860 weft > 680	warp > 40 weft > 30
MELBA SHIELD® 175	Nomex® Comfort	147	175	Plain Rip-resist	warp > 900 weft > 690	warp > 45 weft > 40
MELBA SHIELD® 200	Nomex® Comfort	147	200	Twill Rip-resist	warp > 1200 weft > 780	warp > 50 weft > 45
MELBA SENTINEL® 165	50% Nomex® 50% Lenzing FR®	147	165	Plain	warp > 570 weft > 460	warp > 20 weft > 20
MELBA SENTINEL® 200	70% Nomex® 30% Lenzing FR®	147	200	Plain	warp > 830 weft > 580	warp > 25 weft > 20
MELBA SENTINEL® 220P	70% Nomex® 30% Lenzing FR®	147	220	Plain	warp > 1000 weft > 650	warp > 30 weft > 25
BRUCK RIGGER™ Proban®	100% Proban® Cotton	147	340	3/1 Twill	warp > 1020 weft > 600	warp > 25 weft > 25
BRUCK CRUISER™ Proban®	100% Proban® Cotton	147	300	3/1 Twill	warp > 840 weft > 475	warp > 20 weft > 20
BRUCK ENDURANCE™ MW	88% Proban® Cotton 12% HT Nylon	147	265	2/1 Twill	warp > 840 weft > 600	warp > 25 weft > 29

MILITARY FABRICS

Bruck is the major supplier of combat and non-combat uniform fabrics for the Australian Defence Force. Bruck has invested in research and development to deliver innovative solutions in high performance areas including fragmentation protection, NIR Signature Management, waterproof and breathable wet weather outerwear, flame retardant cold weather outerwear and extreme cold weather outer and underwear.

CAMOUFLAGE FABRICS

- With and without NIR Signature Management Camouflage
- Australian Multicam Camouflage Uniform (AMCU)
- Australian Multicam Print Camouflage (AMP)
- Disruptive Pattern Navy Uniform (DPNU)
- Air Force General Purpose Uniform (GPU)
- Disruptive Pattern Camouflage Uniform (DPCU)

FLYERS CLOTHING

- Inherent FR and Antistatic
- Cold Weather Flyers Ensembles

PROTECTIVE CLOTHING

- Anti-Ballistics
- Fragmentation Protection

WET AND COLD WEATHER ENSEMBLES

- Wet Weather Laminates
- FR Cold Weather Outerwear
- Cold and Extreme Cold Weather Underwear

NON-COMBAT

Bruck has a wide range of fabrics suitable for ceremonial and general service duties. Fabrics are available in various compositions and weights for end uses including Trousers, Shirts, Shorts, Hats, etc.

- Structural Firefighting in PBi® and NOMEX®
- Working Dress
- Parade Uniforms

COMBAT UNIFORM FABRICS

Disruptive Pattern Camouflage Uniform (DPCU)

This five colour disruptive pattern camouflage called DPCU was developed following aerial photographs of the Australian terrain to determine which colours and patterns would be most suitable for camouflage uniforms. The standard DPCU works in areas from arid bushland through to tropical jungle all over Australia.

Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave	Tensile Strength [N]	Tear Strength [N]	Breathability
DPCU Oxford	75/25 Cotton Polyester	147	155 - 175	Oxford	warp > 840 weft > 440	warp > 25 weft > 20	$R_{et} \leq 6m^2$ Pa/W
DPCU Twill	75/25 Cotton Polyester	147	230 - 255	Twill	warp > 1050 weft > 650	warp > 40 weft > 40	$R_{et} \leq 6m^2$ Pa/W

Disruptive Pattern Naval Uniform (DPNU)

DPNU is the naval version of the DPCU, consisting of the littoral colours of various shades of grey with greens. The disruptive pattern is not meant to provide camouflage but to align with the other Australian services which use the distinctly Australian pattern, making personnel identifiable as Australian, and through the use of the littoral colours as naval personnel. The fabric is flame retardant and maintains its FR properties after laundering and exposure to sea water.

Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave	Tensile Strength [N]	Tear Strength [N]	Breathability
DPNU Oxford	75/25 Cotton Polyester	147	238 - 262	Oxford	warp > 840 weft > 440	warp > 25 weft > 17	$R_{et} \leq 8m^2$ Pa/W
DPNU Twill	75/25 Cotton Polyester	147	285 - 315	Twill	warp > 950 weft > 650	warp > 30 weft > 40	$R_{et} \leq 8m^2$ Pa/W

Australian Multicam Pattern (AMP)

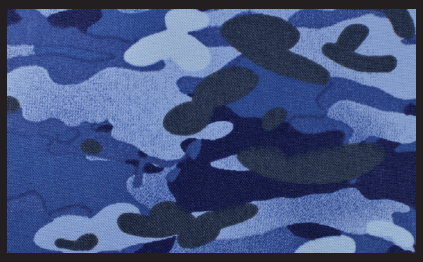
The Australian Multicam Pattern is a unique version of the Multicam combat uniform worn by US, British and Australian troops in Afghanistan. The AMP provides a greater level of concealment across the range of terrains in Afghanistan – urban, desert and green and Iraq. Suitable for both combat and field environments.

Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave	Tensile Strength [N]	Tear Strength [N]	Breathability
AMP Twill	75/25 Cotton Polyester	147	230 - 255	3/1 Twill	warp > 1050 weft > 650	warp > 40 weft > 40	$R_{et} \leq 6m^2$ Pa/W
AMP MW Twill	75/25 Cotton Polyester	147	185 - 205	3/1 Twill	warp > 860 weft > 580	warp > 28 weft > 28 After 100% wet pick-up	$R_{et} \leq 6m^2$ Pa/W

COMBAT UNIFORM FABRICS

Air Force General Purpose Uniform (GPU)

New uniform fabric provides the Royal Australian Air Force a modern and distinctive identity, clearly distinguishing it from the other services. This is a functional uniform to suit the Air Forces unique working environment, to be worn within the workplace and on non-work like operational duties such as deployment on humanitarian assistance and disaster relief operations.



Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave	Tensile Strength [N]	Tear Strength [N]	Breathability
GPU Oxford	75/25 Cotton Polyester	147	155 - 175	Oxford	warp > 840 weft > 440	warp > 25 weft > 20	$R_{et} \leq 6 m^2$ Pa/W
GPU Twill	75/25 Cotton Polyester	147	230 - 255	3/1 Twill	warp > 1050 weft > 650	warp > 40 weft > 40	$R_{et} \leq 6 m^2$ Pa/W

Australian Multicam Camouflage Uniform (AMCU)

Developed by the Australian Defence Forces the AMCU was launched in September 2014. The AMCU fabric is a multi-terrain capable camouflage for land close combat operations, all other land operations, field training, as well as a dress of the day uniform. The AMCU is made from a new hybrid pattern and colour palette that combines the pattern features of the Australian Multicam Pattern with the colour palette used for the Disruptive Pattern Camouflage Uniform.

Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave	Tensile Strength [N]	Tear Strength [N]	Breathability
AMCU Oxford	75/25 Cotton Polyester	147	165 - 155	Oxford	warp > 840 weft > 440	warp > 25 weft > 20	$R_{et} \leq 6 m^2$ Pa/W
AMCU Twill	75/25 Cotton Polyester	147	245 - 265	3/1 Twill	warp > 1050 weft > 650	warp > 40 weft > 40	$R_{et} \leq 6 m^2$ Pa/W

FLYERS CLOTHING

FLYERS CLOTHING

Spun Aramid fabrics for flying crew suits and ground crew suits provide a comfortable, lightweight and durable clothing solution for the Air Force and Armoured fighting crewmen. These inherent fire retardant and permanently antistatic fabrics offer protection against cockpit fires and extreme temperatures, exposure to dust and combustible gases, hot metallic surfaces and sharp edges and contact with petroleum, oils and lubricants. Available in Sage Green, Desert Tan and Camouflage print.

Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave	Tensile Strength [N]	Tear Strength [N]	Breathability
Flyers Twill	93% Meta Aramid 5% Para Aramid 2% Carbon (Anti-static Fibre)	147	190 ± 5%	Twill	warp > 1050 weft > 750	warp > 55 weft > 45	$R_{et} \leq 7 m^2$ Pa/W
Flyers Plain	93% Meta Aramid 5% Para Aramid 2% Carbon (Anti-static Fibre)	147	150 ± 5%	Plain	warp > 800 weft > 550	warp > 45 weft > 35	$R_{et} \leq 7 m^2$ Pa/W

AIRCREW FR TRILAMINATES FOR COLD WEATHER

Flame resistant trilaminates for the Cold Weather Flyers Ensemble for Australian Defence Forces aircrew operating on ground and in-flight. This trilaminate outer shell fabric comprises of a Spun Aramid Antistatic blend with a breathable PTFE membrane and a spun aramid knitted scrim as the inner layer. Typically used as a multi-layer garment with a fleece inner lining. Available in Sage Green and printed Camouflage patterns.

Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave	Tensile Strength [N]	Tear Strength [N]	Breathability
Flyers Twill	98% Meta Aramid 2% Carbon Face/ PTFE Membrane 98% Aramid 2% Carbon Backing	147	242	Plain Face / Knit Back	warp > 770 weft > 550	warp > 40 weft > 30	$R_{et} \leq 18 m^2$ Pa/W

WET & COLD WEATHER FABRICS

WET WEATHER LAMINATES

Flexible fabric solutions with either a combination of a shell fabric and a separate dropliner or a trilaminate comprising of a rugged polyester shell, hydrophyllic breathable PU membrane and a fleece backing. These solutions are abrasion resistant, highly breathable and fully windproof.

Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave	Tensile Strength [N]	Tear Strength [N]	Breathability
Benbruckula WTR	100% Polyester	140	170	Plain	warp > 850 weft > 650	warp > 20 weft > 20	$R_{et} \leq 18 m^2$ Pa/W
Trilaminate Dropliner	100% Polyester	130	115	Warp Knit	warp > 150 weft > 200	warp > 10 weft > 10	$R_{et} \leq 18 m^2$ Pa/W
Benbruckula Trilaminate	100% Polyester	140	370	Plain	warp > 800 weft > 650	warp > 20 weft > 20	$R_{et} \leq 18 m^2$ Pa/W

A time tested trilaminate with 100% PES shell, PTFE membrane and 100% PES knit back. Bruck has supplied this wet weather fabric to the ADF since 2008 for the wet weather ensemble. Proven for performance, durability and excellent wearer comfort.

Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave	Tensile Strength [N]	Tear Strength [N]	Breathability
1714 Trilaminate	100% Polyester PTFE Membrane	140	190	Plain	warp > 850 weft > 650	warp > 20 weft > 20	$R_{et} \leq 18 m^2$ Pa/W

FR COLD WEATHER OUTERWEAR

Bruck FR cold weather solutions come with an FR Aramid and PTFE trilaminate. This fabric has inherent FR properties combined with maximum breathability and water resistance. Available in Sage Green or Printed Camouflage.

Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave	Tensile Strength [N]	Tear Strength [N]	Breathability
FR Trilaminate	98% Aramid PTFE Membrane 2% Carbon Face	140	242	Plain	warp > 770 weft > 550	warp > 40 weft > 30	$R_{et} \leq 18 m^2$ Pa/W

COLD WEATHER UNDERGARMENTS

Bruck XP Merino® fabric provides very comfortable and permanent fire retardant protective undergarments. This fabric is naturally anti-static with UV protection and odour reducing properties. This fabric provides next to body protection against threats of fire, radiant heat and other potentially hazardous environments.

Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave
XP Merino Interlock	50/50 Wool FR Viscose	150 - 160	252 - 278	Plain
XP Merino Knit	50/50 Wool FR Viscose	165 - 175	165 - 175	Plain

PROTECTIVE CLOTHING

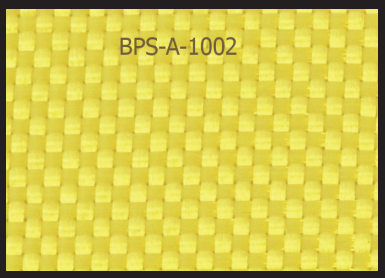
FRAGMENTATION PROTECTION

Developed in collaboration with Defence Materials and Technology Centre, a next generation next to skin protective apparel fabric. This new state of the art high strength fabric delivers improved level of fragmentation protection against IEDs compared to the current combat uniform fabrics with minimal impact on comfort or mobility and performance of the soldier.

Fabric	Density (g/m^2)	Description	Width (cm)
9917-24	265	High strength twill weave with improved protection against IEDs. Excellent wearer comfort.	147
9917-25	275	High strength twill weave with improved protection against IEDs. Excellent wearer comfort.	147

ANTI-BALLISTIC

Aramids for soft body armour, helmets and hard armour composites. Using a range of high tensile para-aramid yarns which are proven in protection applications, Bruck range of anti ballistics offers light weight, durable and cost effective solutions for different levels of threats such as bullets or fragments to suit individual customer needs.



Fabric	Density (g/m^2)	Description	Width (cm)
BPS-A-1001	205	High performance plain weave fabric, delivering a light-weight option when protection and comfort are important.	97, 120, 110, 143, 160
BPS-A-1002	310	Versatile anti-ballistic solution, produced from 1670 D Tex yarn.	100, 135
BPS-A-1003	460	Options in the area of hard armour applications such as armour plate backing, vehicle armour and helmets.	100
BPS-A-CT709	200	TWARON® farbic specifications made from 930 D Tex microfilament yarn and is a highly recognised light-weight high performance anti-ballistic fabric.	120, 130
BPS-A-CT707	160	Manufactured from TWARON® microfilament 930 D Tex yarn, is ofter seen as a preferred low-weight option for a specific ammunition application.	100, 120
BPS-A-CT612	125	Manufactured from finer TWARON® 550 D Tex microfilament yarn for light-weight fabric that offers better protection with weight.	100, 130

NON-COMBAT FABRICS

FRAGMENTATION PROTECTION

Bruck has a wide range of fabrics suitable for ceremonial and general service duties. Fabrics are available in various compositions and weights for end uses including Trousers, Shirts, Shorts, Hats, etc.

STRUCTURAL FIREFIGHTING IN PBI® AND NOMEX®
WORKING DRESS
PARADE UNIFORMS

Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave	Tensile Strength	Tear Strength
Rapier	65% Polyester 35% Cotton	150	160	Plain	warp > 650 weft > 650	warp > 40 weft > 30
Navy Gaberdine	65% Polyester 35% Viscose	153	270	Twill	warp > 1700 weft > 1100	warp > 40 weft > 40
Legacy	65% Polyester 35% Cotton	148	135	Plain	warp > 550 weft > 600	warp > 25 weft > 35
Orion	65% Polyester 35% Viscose	150	220	Plain	warp > 1000 weft > 800	warp > 35 weft > 30
Underground	65% Polyester 35% Viscose	148	190	Plain	warp > 1000 weft > 750	warp > 35 weft > 25

PR97®

Protection - Comfort - Breathability- Durability

PR97® is the leading range of protective fabrics available for the hot metals industry where secondary or everyday protection from molten metal splash, flame, ignition, radiant and convective heat and electric arc hazards is required.

PR97® is a blend of natural fibres - Merino wool and Lenzing FR. The FR properties of PR97® are manufactured or 'built-in' to the FR viscose fibre, which means the fabrics protection cannot diminish over time through washing or laundering; unlike treated or chemically coated products where their protection can diminish through use.

The main benefit of PR97® is it's superior molten metal splash protection against a variety of metals including aluminium, cryolite, iron, steel, copper, magnesium and nickel.

The PR97® portfolio has been further enhanced to now include PR97 Ultra™ and PR97 Comfortknit™. PR97 Ultra™ is a lightweight woven shirting fabric which achieves a D1/E1 molten metal splash rating without an undergarment. PR97 Comfortknit™ is a lightweight knitted fabric for use as a flame retardant undergarment.

PR97®

NATURALLY, SUPERIOR PROTECTION

PR97 Ultra™ 220

PR97® 265

PR97 Ultra™ 290

PR97® 320

PR97® 380

PR97 Comfortknit™ 165

PR97 Comfortknit™ 230

PR97® Fabric Data:

Fabric	Composition	Width (cm)	Weight (g/m²)	Metal Splash ISO 9185		
				Molten Aluminium	Molten Cryolite	Molten Iron
PR97 Comfortknit™ 165	Wool / Lenzing FR®	155	165	-	-	-
PR97 Ultra™ 220	Wool / Lenzing FR®	150	220	D1	-	E1
PR97 Comfortknit™ 230	Wool / Lenzing FR®	165	230	D1	-	E1
PR97® 265	Wool / Lenzing FR®	147	260	D1	75g	E1
PR97 Ultra™ 290	Wool / Lenzing FR®	147	165	D3	> 100g	E3
PR97® 320	Wool / Lenzing FR®	147	175	D3	85g	E3
PR97® 380	Wool / Lenzing FR®	147	200	D3	> 100g	E3

PR97® and PR97 Ultra™ Fabric:

Property[1]	Method	Performance
Limited Flame Spread - Face Ignition[1]	ISO 15025 Procedure A	A1
Limited Flame Spread - Edge Ignition	ISO 15025 Procedure B	A2
Convective Heat	ISO 9151	B1
Radiant Heat	ISO 6942 Method B @ 20 kW/m²	C1
Contact Heat	ISO 12127 @ 250 °C	F1
Heat Resistance	ISO 17493 @ 180 °C	No ignition No Melt Shrinkage ≤ 5%
Dimensional Change[1]	ISO 5077	≤ 3% Warp and Weft
Tear Strength	ISO 13937-2	≥ 10N Warp and Weft
Tensile Strength	ISO 13934-1	≥ 300N Warp and Weft
pH Value[1]	ISO 3071	> 3.5 and < 9.5
All fabrics are tested to the Performance Standard ISO 11612		

PR97 Comfortknit™ Fabric:

Fabric	Limited Flame Spread ISO 15025 A	Electric Arc Protection NFPA 70E
PR97 Comfortknit 165	No molten or flaming debris Average afterflame ≤ 2s Average afterglow ≤ 2s	Category 2 (with PR97 Ultra 290)
PR97 Comfortknit 230	No molten or flaming debris Average afterflame ≤ 2s Average afterglow ≤ 2s	Category 2 (Dark Colours) Category 1 (Light Colours)

XP MERINO®

Renewable - Protection - Comfort - Durability

XP Merino® garments provide inherent and permanent FR protection for use in a range of hazards while performing to high standards of protection, comfort and easy care. If you value quality, comfort and presentation when selecting the right protection, XP Merino® fabrics provide the very best solution with the added benefit of being produced from sustainable renewable fibres.

The Bruck range of XP Merino® fabrics are ideal for garments that are designed to be worn all day everyday. XP Merino® fabrics are ideal for situations where there is potential exposure to hazards such as flash fire, radiant heat, electric arc and molten metal splash. In many instances, the required protection against these hazards can be provided by just one XP Merino® garment, eliminating the need for changing or adding garments for extra protection.

XP MERINO™

XP MERINO® 165

XP MERINO® 200

XP MERINO® 230

XP MERINO® 270

The XP Merino® Fabric Advantage:

- Inherent and Permanent flame retardant (FR) protection.
- Multi-protective with next-to-body protection against threats of fire, radiant heat, metal splash and electric arc.
- No thermoplastic melting fibres to stick to the skin.
- Maximum comfort due to flexible knit constructions and fine micron fibres that are smooth, breathable and temperature regulating.
- Naturally anti-static, with UV protection and odour reducing properties.
- Durability with easy care delivers excellent service life therefore value for money.
- Designed with the environment in mind: utilising merino wool fibres blended with Lenzing FR®, a wood based cellulose from renewable and sustainable resources.
- Designed for a great image: high quality superior fabric offers a smart look that suits traditional and contemporary garment design.

The XP Merino® fabric provides very comfortable, FR protective undergarments and FR protective shirts for personnel in the following workplaces:

- Fire and Emergency Services;
- Military & Police;
- Molten Metal Processing;
- Electrical Utilities;
- Petro-Chemical Refineries;
- Fuel Stations and Transport;
- Other potentially hazardous work place environments.

The BRUCK XP Merino® Flame Retardant Performance Data:

Property	Method	Performance
Flame Spread - Surface Ignition	ISO 15025 Procedure A	No molten or flaming debris Average afterflame ≤ 2s Average afterglow ≤ 2s

Fabric	Weight	Knit Construction	Composition
XP Merino® 165	165	Single Jersey	50% Merino Wool 50% Lenzing FR®
XP Merino® 200	200	Single Jersey	
XP Merino® 230	230	Interlock	
XP Merino® 270	270	Interlock	

BRUCK ENDURANCE™

Protection - Comfort - Lifetime FR - Arc Rated

The BRUCK ENDURANCE™ fabric range builds on over 50 years of tried and tested PROBAN® durable flame retardant performance with a unique Cotton rich blend engineered with High Tenacity Nylon. The resulting fabric delivers garments with appreciable weight savings that add excellent resistance to mechanical damage.

This makes BRUCK ENDURANCE™ PROBAN® fabric ideal for protective performance against a range of workplace hazards (arc flash, flash fire, molten ferrous metal splash and exposure to welding) and an excellent choice for the riggers of wildland firefighting.

The PROBAN® process ensures fabrics are guaranteed for flame resistance for the life of the garment with the advantage of natural Cotton to enhance comfort and HT Nylon to improve abrasion performance and boost protection.

The fabric range has versatile garment applications such as shirting, coveralls, jackets and trousers.

BRUCK ENDURANCE™ PROBAN® fabric is available in a wide range of colours and weights with certified results against the requirements of NFPA 70E and AS/NZS 4824:2006.

BRUCK ENDURANCE™ LW

BRUCK ENDURANCE™ MW

BRUCK ENDURANCE™ for safety & protection:

Investments and innovation in the development of performance textiles solutions by Bruck give you the assurance and capability to satisfy your protective clothing and equipment needs. Our focus is on the safety of those engaged in work with exposure to threats from radiant and convective heat, arc flash, molten metal splash and chemical splash and solutions using Bruck specialised materials.

Bruck Safety & Protective fabrics division is dedicated to assisting you to meet your safety objectives. The Bruck range of textiles and laminates are designed to protect and deliver excellent levels of comfort to the wearer, our understanding of each material's capability means you achieve the outcomes you're looking for.

BRUCK and the PROBAN® Fire Retardant Process:

Bruck is Australasia's only licensed manufacturer of PROBAN® flame protective fabrics. The PROBAN® process from Rhodia Operations has been perfected over 50 years to give cotton and cotton rich fabrics permanent and reliable flame retardant properties. PROBAN® treated fabrics are durable and proven through long term use in a variety of environments. The Bruck range of PROBAN® fabrics are suitable for protective clothing and equipment used for in wildland firefighting, defence and oil and gas industries – anywhere a permanent flame retardant solution is a necessity.

BRUCK ENDURANCE™ Flame Retardant Performance Data:

Property	Method	Performance
Flame Spread - Surface Ignition[1]	ISO 15025 Procedure A	No hole formation No molten or flaming debris Average afterflame ≤ 2s Average afterglow ≤ 2s
Flame Spread - Edge[1]	ISO 15025 Procedure B	Char length ≤ 100mm No molten or flaming debris Average afterflame ≤ 2s

BRUCK ENDURANCE™ is a trademark of Bruck Textiles Pty Ltd.

PROBAN® is a registered trademark of Rhodia Operations. Biological Activity test data and images supplied by Biogents.
Oeko-Tex® is a registered trademark of the International Association for Research and Testing in the Field of Textile Ecology (Oeko-Tex®)
[1]After 50 washing & drying cycles.

Fabric	Composition	Width (cm)	Weight (g/m^2)	Weave	Tensile Strength ISO 13934-1 [N]	Tear Strength ISO 4674-1 Method B [N]
BRUCK ENDURANCE™ LW	88% Proban® Cotton 12% HT Nylon	152	190	Twill	warp > 570 weft > 600	warp > 18 weft > 23
BRUCK ENDURANCE™ MW	88% Proban® Cotton 12% HT Nylon	147	250	Twill	warp > 840 weft > 600	warp > 25 weft > 29

Fabric	ARC Rating ATPV ASTM F 1959 [cal / cm^2]	Heat Attenuation Factor (HAF)[2] ASTM F 1959 [%]	NFPA 70E Category
BRUCK ENDURANCE™ LW	7.5	78.1	1
BRUCK ENDURANCE™ MW	10.2	74	2

BRUCK BURNOVER PROTECTION BLANKET™

Blanket Features & Benefits:

- Legendary PROBAN® durable fire retardant performance
- Exceptional thermal and fire retardant protection from a high tech insulating layer
- High strength to resist tearing
- Water-resistant so the blanket won't wet-out under spray
- Dual insulating performance to protect in a burnover and assist with hypothermia or shock
- Exceeds AS/NZS 4967-2009 protective performance for convective and radiant heat
- Fulfils CFA Victoria, NSW RFS and DFES WA performance requirements and AFAC standard
- Very compact fitting into a 20-litre space and lightweight
- Highly visible outer shell
- Australian Made

How To Survive:

- Hide behind a solid structure to block as much heat as you can and wrap yourself in the blanket.
- When in a car wind up your windows, close the vents, put on your hazard and headlights and leave the engine running, covering yourself with the blanket below window level.
- Get down as low as possible to the ground.
- Cover yourself with the blanket so no skin is exposed.

benchmark® PRODUCT CERTIFICATION

BMP 610771

SUPPORT INFORMATION

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Certified System
Quality
ISO 9001

Bruck
textiles

AUSTRALIAN MADE AND OWNED