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CASTLE CANVAS

Established more than 35 years ago, manufacturing has been the core of our business with our domestic, commercial and industrial clients requiring such traditional textile products as bags, banners, tents, marquees, tarpaulins, tonneau covers, canopies, caravan annexes, etc as well as one-off products, designed and supplied for specific end uses for which there are often no "off the shelf" substitutes available.

16 years ago, in response to market demand, we commenced manufacturing a range of spill and pollution control products for use on land and in the marine environment - folding storage bunds, spill mats, wash pads, fence booms, oil booms, hazardous chemical booms, general purpose booms, drain seals, drain wardens, spill barrier wall sections. Illustrated on the following pages are some of those products.

Illustrated above, a 16,200 litre capacity tanker bund, demonstrating the portability and compact sizing of our folding storage bunds. This one, with physical dimensions of 15m x 3.6m x 0.3m, folds to packed dimensions of 900mm x 900mm x 400mm, and a total weight of 100 kg.

BUNDS

Our bunds are manufactured to CUSTOM SIZES as required, using XR5® geomembrane, CoolGuard® FTL30 engineered membrane & 930gsm PVC. Please refer to samples & technical data, pages 5-12.

EXAMPLES OF SIZES & CAPACITIES:

1.2m x 1.2m x 0.3m (430 Litre)
1.8m x 1.2m x 0.3m (640 Litre)
1.8m x 1.8m x 0.3m (970 Litre)
2.4m x 2.4m x 0.3m (1,720 Litre)
7.0m x 4.0m x 0.3m (8,400 Litre)
15.0m x 3.6m x 0.3m (16,200 Litre)

PLEASE NOTE:

* **Bunds are available in 0.3m, 0.4m, 0.5m & 0.6m wall heights.**
* **Extra wall height will allow an increase in storage capacity whilst utilising the same floor area.**
* **For calculation of floor area required, allow base size plus double wall height of bund e.g. a bund 1.2m x 1.2m x 0.3m requires a minimum of 1.8m x 1.8m floor area.**
* **Where space is critical, there is the option of internal supports (increased capacity for the available floor area).**
* **Drainage outlets are optional, either 25mm with cap or 50mm-100mm with ball valves or camlock fittings.**
* **Geotextile is available as a sub-base option.**

Final inspection of bunds before consignment

Folding and packing of bunds

Fixed wall bund- ideal for use where floor space is limited

PROJECT:

Storage facility for shipping containers used to warehouse drilling lubricants.

LOCATION:

BROOME
WESTERN AUSTRALIA

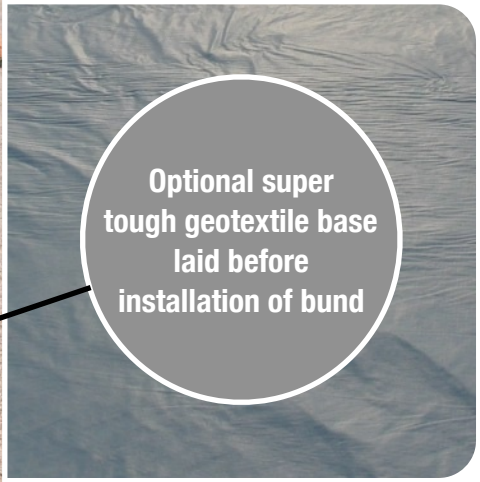
DETAILS:

Three bunds supplied
2 @ 18m x 12m x 0.5m
1 @ 18m x 10m x 0.5m

Total combined capacity:

306,000 Litres.

XR5® bund 108,000 litre capacity being installed at Broome



Optional super tough geotextile base laid before installation of bund

XR5® bund holding 3 x 40' & 1x 20' container

Sample of *XR-5®* by Seaman Corp®
See technical data over page

XR5® TECHNICAL DATA Extract from data published by the manufacturers of the geomembrane, Seaman Corp

Section 3 - Chemical/Environmental Resistance

Part 1 - XR-5® Fluid Resistance Guidelines

The data below is the result of laboratory tests and is intended to serve only as a guide. No performance warranty is intended or implied. The degree of chemical attack on any material is governed by the conditions under which it is exposed. Exposure time, temperature, and size of the area of exposure usually varies considerably in application, therefore, this table is given and accepted at the user's risk. Confirmation of the validity and suitability in specific cases should be obtained. Contact a Seaman Corporation Representative for recommendation on specific applications.

When considering XR-5 for specific applications, it is suggested that a sample be tested in actual service before specification. Where impractical, tests should be devised which simulate actual service conditions as closely as possible.

EXPOSURE	RATING	EXPOSURE	RATING
AFFF	A	JP-4 Jet Fuel	A
Acetic Acid (5%)	B	JP-5 Jet Fuel	A
Acetic Acid (50%)	C	JP-8 Jet Fuel	A
Ammonium Phosphate	T	Kerosene	A
Ammonium Sulfate	T	Magnesium Chloride	T
Antifreeze (Ethylene Glycol)	A	Magnesium Hydroxide	T
Animal Oil	A	Methanol	A
Aqua Regia	X	Methyl Alcohol	A
ASTM Fuel A (100% Iso-Octane)	A	Methyl Ethyl Ketone	X
ASTM Oil #2 (Flash Pt. 240° C)	A	Mineral Spirits	A
ASTM Oil #3	A	Naphtha	A
Benzene	X	Nitric Acid (5%)	B
Calcium Chloride Solutions	T	Nitric Acid (50%)	C
Calcium Hydroxide	T	Perchloroethylene	C
20% Chlorine Solution	A	Phenol	X
Clorox	A	Phenol Formaldehyde	B
Conc. Ammonium Hydroxide	A	Phosphoric Acid (50%)	A
Corn Oil	A	Phosphoric Acid (100%)	C
Crude Oil	A	Phthalate Plasticizer	C
Diesel Fuel	A	Potassium Chloride	T
Ethanol	A	Potassium Sulphate	T
Ethyl Acetate	C	Raw Linseed Oil	A
Ethyl Alcohol	A	SAE-30 Oil	A
Fertilizer Solution	A	Salt Water (25%)	B
#2 Fuel Oil	A	Sea Water	A
#6 Fuel Oil	A	Sodium Acetate Solution	T
Furfural	X	Sodium Bisulfite Solution	T
Gasoline	B	Sodium Hydroxide (60%)	A
Glycerin	A	Sodium Phosphate	T
Hydraulic Fluid- Petroleum Based	A	Sulphuric Acid (50%)	A
Hydraulic Fluid- Phosphate		Tanic Acid (50%)	A
Ester Based	C	Toluene	C
Hydrocarbon Type II (40% Aromatic)	C	Transformer Oil	A
Hydrochloric Acid (50%)	A	Turpentine	A
Hydrofluoric Acid (5%)	A	Urea Formaldehyde	A
Hydrofluoric Acid (50%)	A	UAN	A
Hydrofluosilicic Acid (30%)	A	Vegetable Oil	A
Isopropyl Alcohol	T	Water (200°F)	A
Ivory Soap	A	Xylene	X
Jet A	A	Zinc Chloride	T

Ratings are based on visual and physical examination of samples after removal from the test chemical after the samples of Black XR-5 were immersed for 28 days at room temperature. Results represent ability of material to retain its performance properties when in contact with the indicated chemical.

Rating Key:
A – Fluid has little or no effect
B – Fluid has minor to moderate effect
C – Fluid has severe effect
T – No data - likely to be acceptable
X – No data - not likely to be acceptable

Sample of *CoolGuard®* FTL30
See technical data over page

COOLGUARD® FTL30 TECHNICAL DATA

Extract from data published by Cooley/*Group*, manufacturers of CoolGuard® FTL30® engineered membrane

CHEMICAL RESISTANCE GUIDE

Ratings Guide *All properties are at room temperature. Performance at elevated temperatures may be significantly different for some chemicals.*

A – Should have little or no effect on the material at the given concentration and temperature
B – Some effect on the material at the given concentration and temperature. Caution advised.
X – Not recommended.
ND – No data available / **T1** – No data available but likely to be acceptable / **T2** – not likely to be acceptable.

CHEMICAL	XR-5	CoolGuard®			CHEMICAL	XR-5	CoolGuard®		
		FTL	MPK	HRL			FTL	MPK	HRL
AFF	A	ND	ND	ND	Jet A	A	A	A	A
Acetic Acid (5%)	B	A	B	X	JP-4 jet Fuel	A	A	B	B
Acetic Acid (50%)	X	X	X	X	JP-5 Jet Fuel	A	A	B	B
Ammonium Hydroxide	A	B	B	B	JP-8 Jet Fuel	A	A	B	B
Ammonium Phos phate	T1	A	A	A	Kerosene	A	A	B	B
Ammonium Sulfate	T1	A	A	A	Magnesium Chloride	T1	A	A	A
Antifreeze (ethylene glycol)	A	A	A	A	Magnesium Hydroxide	T1	A	A	A
Animal Oil	A	A	A	A	Methanol	A	A	B	X
Aqua Regia	T2	X	X	X	Methyl Alcohol	A	A	B	X
ASTM Fuel A	A	A	B	B	Methyl Ethyl Ketone	T2	X	X	X
ASTM Oil #2	A	A	B	B	Mineral Spirits	A	A	B	B
ASTM Oil #3	A	A	B	B	Naphtha	A	A	B	B
Benzene	T2	X	X	X	Nitric Acid (5%)	B	B	B	B
Calcium Chloride Sol'n	T1	A	A	A	Nitric Acid (50%)	X	X	X	X
Calcium Hydroxide	T1	A	A	A	Perchloroethylene	X	X	X	X
Chlorine solution (20%)	A	A	A	A	Phenol	T2	X	X	X
Clorox™	A	A	A	A	Phenol Formaldehyde	B	B	B	B
Corn Oil	A	A	A	A	Phosphoric Acid (50%)	A	B	B	B
Crude Oil	A	A	A	A	Phosphoric Acid (100%)	X	X	X	X
Diesel Fuel	A	A	A	B	Phthalate Plasticizer	X	X	X	X
Ethanol	A	A	A	X	Potassium Chloride	T1	A	A	A
Ethyl Acetate	X	X	X	X	Potassium Sulfate	T1	A	A	A
Ethyl Alcohol	A	A	A	X	SAE-30 Motor Oil	A	A	A	A
Fertilizer solution	A	A	A	A	Salt Water (25%)	B	A	A	A
Fuel Oil #2	A	A	B	B	Seawater	A	A	A	A
Fuel Oil #6	A	A	B	B	Sodium Acetate Sol'n	T1	A	A	A
Furfural	T2	X	X	X	Sodium Bisulfite Sol'n	T1	A	A	A
Gasoline	B	A	B	B	Sodium Hydroxide (60%)	A	X	A	A
Glycerin	A	A	A	A	Sodium Phosphate	T1	A	A	A
Hexane	ND	A	A	B	Sulphuric Acid (50%)	A	B	B	X
Hydraulic Fluid (petroleum)	A	A	B	B	Tannic Acid (50%)	A	A	A	A
Hydraulic Fluid (ester)	X	X	X	X	Toluene	X	X	X	X
Hydrocarbon Type II	X	X	X	X	Transformer Oil	A	A	B	B
Hydrochloric Acid (50%)	A	B	B	X	Turpentine	A	B	B	B
Hydrofluoric Acid (5%)	A	A	A	A	Urea Formaldehyde	A	A	A	A
Hydrofluoric Acid (50%)	A	B	B	B	Vegetable Oil	A	A	A	B
Hydrofluosilicic Acid (30%)	A	B	B	B	Water (200F)	A	A	A	B
Isopropyl Alcohol	T1	A	A	A	Xylene	T2	X	X	X
Ivory™ Soap	A	A	A	A	Zinc Chloride	T1	A	A	A

Sample of 930gsm PVC Protex Side
See technical data on following pages

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APPENDIX C

Chemical Resistance of Flexible PVC @ 20°C

S – Satisfactory L – Limited Application U – Unsatisfactory C – Colour Change

A		
Acetaldehyde	40%	S
	100%	U
Acetic acid	10%	S
	10%-60%	S
	80%	L
	100%	U
Acetic ester		U
Acetone		U
Acetylene		S
Adipic acid		S
Achohols:		
butyl – *see butanol*		
ethyl – *see ethanol*		
furfuryl		U
methyl – *see methanol*		
propargyl – *see prop-2-yn-1-ol*		
propyl – see *propanol*		
Aldehydes except		U
acetaldehyde and formaldehyde		
Aliphatic esters		U
Aliphatic halogen compounds		U
Alum		S
Aluminium		
chloride		S
flouride		S
hydroxide		S
sulphate		S
Amonia		
gas		S
liquid		U
solution		S
bicarbonate – *see ammonium hydrogen carbonate*		
carbonate		S
chloride		S
flouride	20%	S
hydrogen carbonate		S
hydrosulphide diluted		S
hydroxide – *see amonia solution*		
metaphosphate		S
nitrate		S
persulphate		S
sulphate		S
sulphide		SC
thiocyanate		S
Amyl acetate		U
Amyl chloride		U
Aniline		
100%		U
hydrochloride		U
sulphate		U
Anthraquinone sulphonic acid		
aq. suspension	up to 30°C	S
Antiformine	2% aq.	S
Antimony chloride		S
Aqua regia		U
Aromatic nitro compounds		U
Aromatic solvents		U
Arsenic acid	80%	S

B		
Barium		
carbonate		S
chloride		S
hydroxide		S
sulphate		S
sulphide		SC
Beer		S
Benzaldehyde		U
Benzene		U
Benzenesulphonic acid		U
Benzoic acid		S
Bismuth carbonate		S
Bisulphite liquor (cont. SO_2)		S
Bleach lye	12% active chlorine	S
Borax – *see disodium tetraborate*		
Boric acid		S
Brass plating solution		S
Brine		S
Bromic acid		S
Bromine		
10% aq. solution		L
gas – moist		U
liquid		U
Bromomethane		U
Butadiene	100%	S
Butane gas		S
Butanediol	10%	S
	60%	U
100%		U
Butanol		S
Butyl acetate		U
Butyl phenol		U
Butyric acid	20%	S
	100%	U
C		
Calcium		
carbonate		S
chlorate		S
chloride		S
hypochlorite		S
nitrate		S
sulphate		S
Camphor oil		U
Carbon		
disulphide		U
dioxide, dry		S
dioxide, moist		S
monoxide		S
tetrachloride		U
Carbonic acid		S
Castor oil		S
Chloramin		S
Chloric acid	20% solution	S

Chlorine		
	100% dry gas	L
	above 5% moist gas	U
	1-5% moist gas	L
	0-5% moist gas	S
	liquid	U
	solution (chlorine water)	L
	treated water	S
Chloroacetic acid		S
Chlorobenzene		U
Chloroethane		U
Chloroform		U
Chloromethane		U
Chlorosulphonic acid		L
Chrome alum		S
Chromic acid	50%	S
Chromium plating solution – hard		S
Cider		S
Citric acid		S
Coconut fatty acid		S
Coconut oil alcohols		S
Copper		
cyanide		S
plating solution, high-speed		S
sulphate (sat.)		S
Cotton seed oil		S
Cresol	90%	U
Cresylic acid	50%	U
Crotonaldehyde		U
Cupric		
chloride		S
flouride		S
nitrate		S
sulphate		S
Cuprous chloride		S
Cyanide		
cadmium plating solution		S
copper plating solution		S
Cyclohexane		U
Cyclohexanol		U
D		
Densodrin W		S
Detergents		S
Developers – photographic		S
Dextrine		S
Dextrose		S
Diazo compounds		S
Dibutyl phthalate		L
Dichloroethane		U
Dichloromethane		U
1,2-dichloropropane		U
Diethylene glycol – *see digol*		
Diethyl ether		U
Diglycolic acid – *see oxydiacetic acid*		
Digol		S
Dimethyl sulphoxide		U
Dioctyl phthalate		U
Dodecanoic acid		S

Chemical Resistance of Flexible PVC @ 20°C

S – Satisfactory L – Limited Application U – Unsatisfactory C – Colour Change

E		
Emulsifiers		S
Essential oils		U
Esters		U
Ethanediol		S
Ethanol	100%	S
	96%	S
	40%	S
Ethers		U
Ethyl		
acetate		U
acrylate	100%	U
butyrate		U
chloride – *see chloroethane*		
Ethylene		
dichloride – *see dichloroethane*		
glycol – *see ethanediol*		
oxide		U
F		
Fats		S
Fatty acids		S
Ferric		
chloride		S
nitrate		S
sulphate		S
Ferrous		
chloride		S
sulphate		S
Fixing Bath - photographic		S
Fluorine		U
Fluosilicic acid	32%	S
Formaldehyde (formalin)	40%	S
Formic acid	100%	L
	50%	S
Fruit pulp		S
Fruit juice drinks		S
G		
Gases		
lighting -		
vary with aromatic content		L
lighting - free from benzole		S
roasting		S
Gas liquors		L
Gelatin		S
Glucose		S
Glycerol (glycerine)		S
Glycine	10%	S
Glycollic acid	37%	S
Glycocol – *see glycine*		
Grape sugar		S
Gold plating solution		S
H		
Hexamine		U
Hydrobromic acid	50%	S
Hydrochloric acid		
	concentrated	S
	10%	S
Hydrocyanic acid		S
Hydrofluoric acid	100%	U
	60%	U
	40%	S
Hydrofluosilicic acid	32%	S
Hydrogen		S
bromide		S
chloride dry		S
peroxide	95%	L
peroxide	90%	L
peroxide	30%	S
phosphide		S
sulphide		S
Hydroxylamine sulphate	12%	S
Hydrosulphite	10%	S
Hydrochlorous acid		S
I		
Indium plating solution		S
Iodine, ethanolic solution (tincture)		U
Isopropyl nitrate		U
K		
Kerosene		S
Ketones		U
L		
Lactic acid	100%	U
	10%	S
Lauric acid – *see dodecanoic acid*		
Lead		
acetate		S
tetraethyl – *see tetraethyl-lead*		
Linoleic acid		S
Linseed oil		S
M		
Magnesium		
carbonate		S
chloride		S
hydroxide		S
nitrate		S
sulphate		S
Maelic acid		S
Malic acid		S
Meat juices		S
Mecuric		
chloride		S
cyanide		S
Mercurous nitrate		S
Mercury		S
Mersol D		S
Methanol	100%	S
	10%	S
Methylamine		L
Methyl		
bromide – *see bromomethane*		
chloride – *see chloromethane*		
ethyl ketone		U
methacrylate monomer		U
Methylated spirits		S
Methylene chloride – *see dichloromethane*		
Methysulphonic acid	100%	S
Milk		S
Mineral oil		S
Molasses		S
Monochloroacetic acid – *see chloroacetic acid*		
Mowilith D		S
N		
Naphtha		S
Naphthalene		U
Nekal BX		S
Nickel salts		S
Nicotene		S
Nitric acid		
	concentrated 98%	U
	50-65%	L
	50%	S
	30-50%	S
	25%	S
Nitrobenzene		U
Nitrous moist fumes		L
O		
Octyl cresol		U
Oils		
AV/CAT		S
Aviation Rust Ban 621		S
Castrol GTX		S
diesel oil		S
Esso Aviation Turbo oil		L
Esso Extra 20W/30		L
furnace oil		S
Gulf Oil Hydrosil 41		S
penetrating oil		S
(99% paraffin, 1% wintergreen)		
Shell Tellus 27		S
sturgeon oil		S
Oleic acid		S
Oleum fumes	10%	L
Orthophosphoric acid		S
Oxalic acid		S
Oxydiacetic acid		S
Oxygen		S
Ozone	100%	S
	10%	S

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APPENDIX C (continued)

Chemical Resistance of Flexible PVC @ 20°C

S – Satisfactory L – Limited Application U – Unsatisfactory C – Colour Change

P		
Palmitic acid		S
Paraffin		
emulsion		S
wax		S
Perchloric acid		S
Petrol	free from aromatics	S
Phenol	90%	L
Phenylhydrazine		U
Phenylhdrazine hydrochloride		L
Phosgene		
gas		S
liquid		U
Phosphoric acid –		
see orthophosphoric acid		
Phosphorous yellow		S
Phosphorus		
pentoxide		S
trichloride		U
Photographic		
developers		S
fixing bath		S
emulsion		S
Picric acid solution		S
Potassium		
bicarbonate –		
see potassium hydrogen carbonate		
bichromate –		
see potassium dichromate		
borate	1%	S
bromate	10%	S
bromide		S
carbonate		S
chromate	40%	S
cyanide		S
dichromate		S
ferricyanide		S
ferri/ferrocyanide		S
ferrocyanide		S
flouride		S
hydrogen carbonate		S
hydroxide		S
nitrate		S
perborate		S
perchlorate	1%	S
permanganate	15%	S
persulphate		S
sulphate		S
thiosulphate		S
Propane	gas and liquid	S
Propanol		S
Propylene dichloride –		
see 1, 2-dichloropropane		
Prop-2-yn-1-ol	70%	S
Pyridine		U
Pyrogallic acid	2%	S

R		
Rhodium plating solution		S
S		
Salicylic acid		S
Sea water		S
Silicic acid		S
Silver		
cyanide		S
nitrate		S
plating solution		S
Soap solution		S
Sodium		
acetate		S
benzoate		S
bisulphate		S
borate		S
bromide		S
carbonate		S
chlorate		S
chloride		S
chromate		S
cyanide		S
ferrocyanide		S
flouride		S
hydroxide	up to 60%	S
hypochlorite	concentrated	S
lauryl ethyl sulphate		S
orthophosphate		S
di-sodium orthophosphate		S
nitrate		S
sulphate		S
sulphide		SC
di-sodium tetraborate		S
thiosulphate		S
Spirits		S
Spinning bath solution		
cont. CS_2	700mg/l	
cont. CS_2	200mg/l	
cont. CS_2	100mg/l	S
Stannic chloride		S
Stannous chloride		S
Starch solution		S
Stearic acid		S
Sugar, syrup, jams and preserves		S
Sulphites		S
Sulphur		S
dioxide	dry	S
dioxide	wet	S
dioxide	liquid 100%	L
trioxide	dilute	L
Sulphuric acid		
	fuming	U
	98%	U
	96%	L
up to 75%		S
Sulphurous acid		S

T		
Tallow		S
Tannic acid	10%	S
Tartaric acid	10%	S
Tetraethyl-lead		S
Tetrahydrofuran		U
Thionyl chloride		U
Tin plating solution		S
Toluene		U
Transformer oil		S
Trichloroethylene		U
Triethanolamine		S
Trilone		S
Trimethylpropane –	10%	S
see sodium orthophosphate		
Tritolyl (tricresyl) phosphate		U
Turpentine		S
U		
Urea	up to 30%	S
Urine		S
V		
Vegetable oils		S
Vinegars		S
Vinyl acetate		U
Viscose (rayon) spinning solution		S
W		
Water		S
distilled		S
hard		S
soft		S
Waste gases		
carbon dioxide		S
carbon monoxide		S
hydrochloric acid		S
hydroflouric acid		S
nitrous oxides		
	traces only	S
	higher concentrations	U
sulphur dioxide	dry	S
sulphur trioxide, oleum D		L
sulphuric acid	traces only	S
Wax alcohols		S
Wines		S
X		
Xylene		U
Y		
Yeast		S
Z		
Zinc		
chloride		S
plating solution		S
sulphate		S

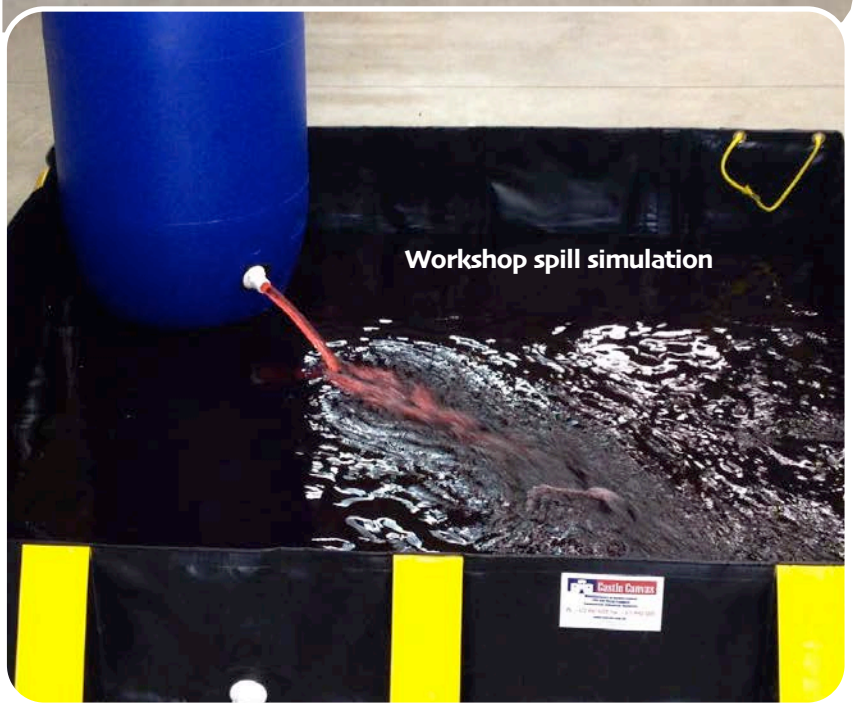
Tanker bund with 600mm wall


Container covers & storage bunds

Neoprene drain seal 1.2m x 1.2m

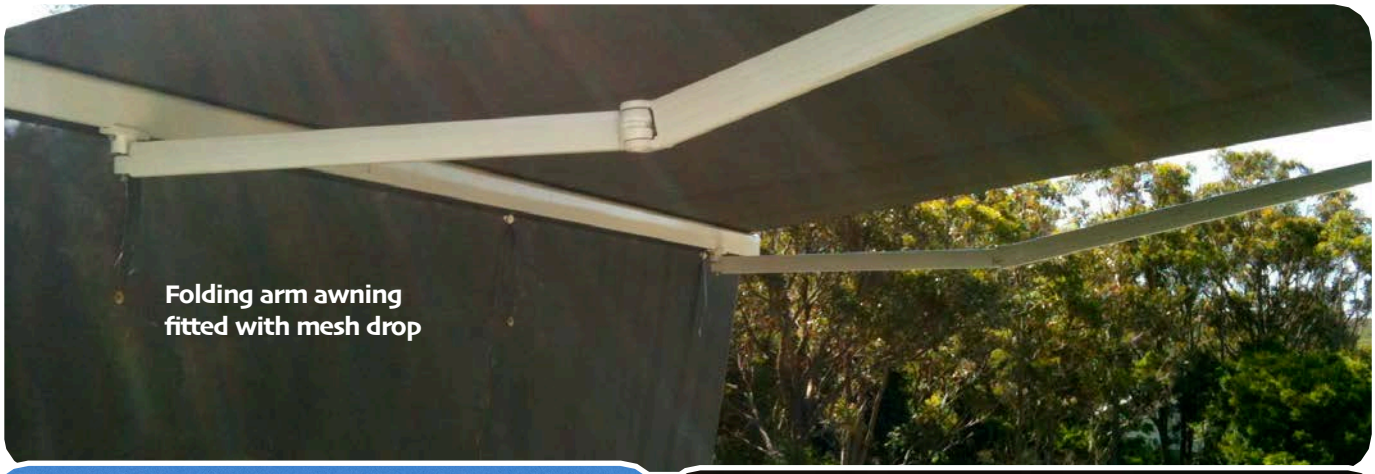

Workshop spill tray
with 60mm foam wall

Workshop
foam bund wall



Workshop spill simulation

Some of the wide range of products manufactured by Castle Canvas

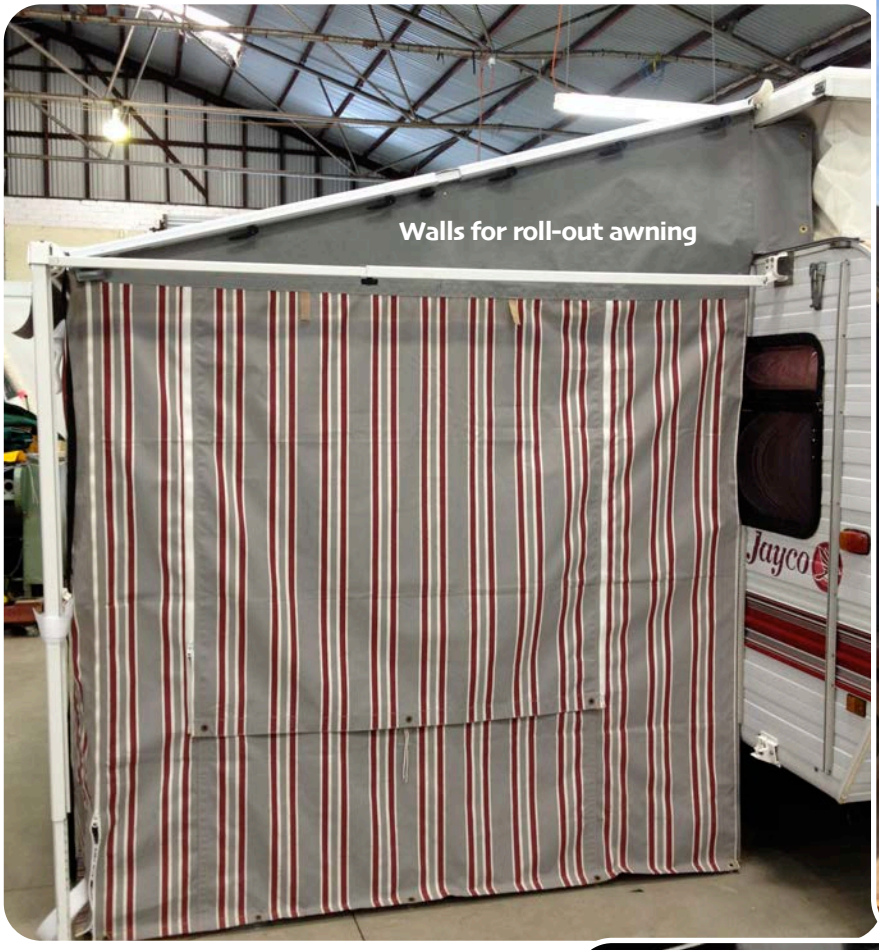


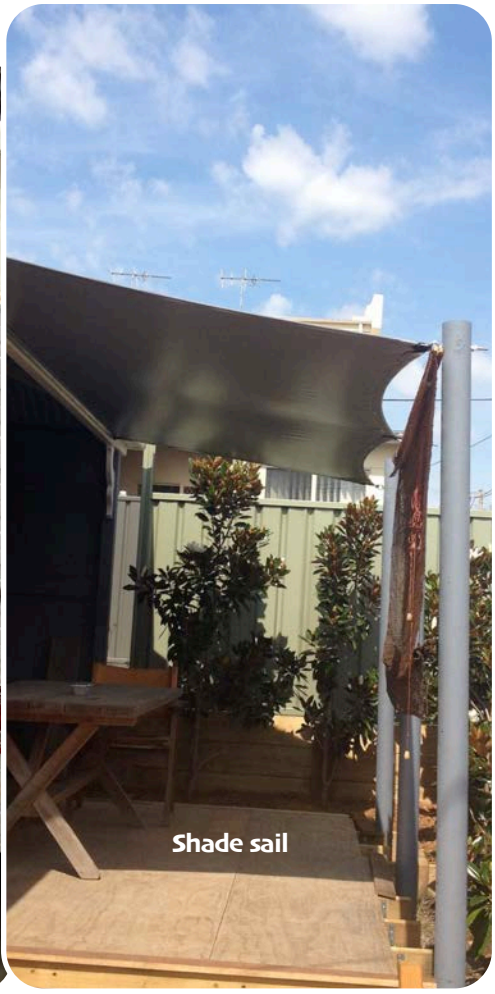
Folding arm awning
fitted with mesh drop

Folding arm awning
fitted with mesh drop

Skylight shade cover

Shade sail and lace in panels


Walls for roll-out awning
Jayco


Shade sail


Trailer tonneau cover


Trailer canopy

Fire retardant PVC welding screens

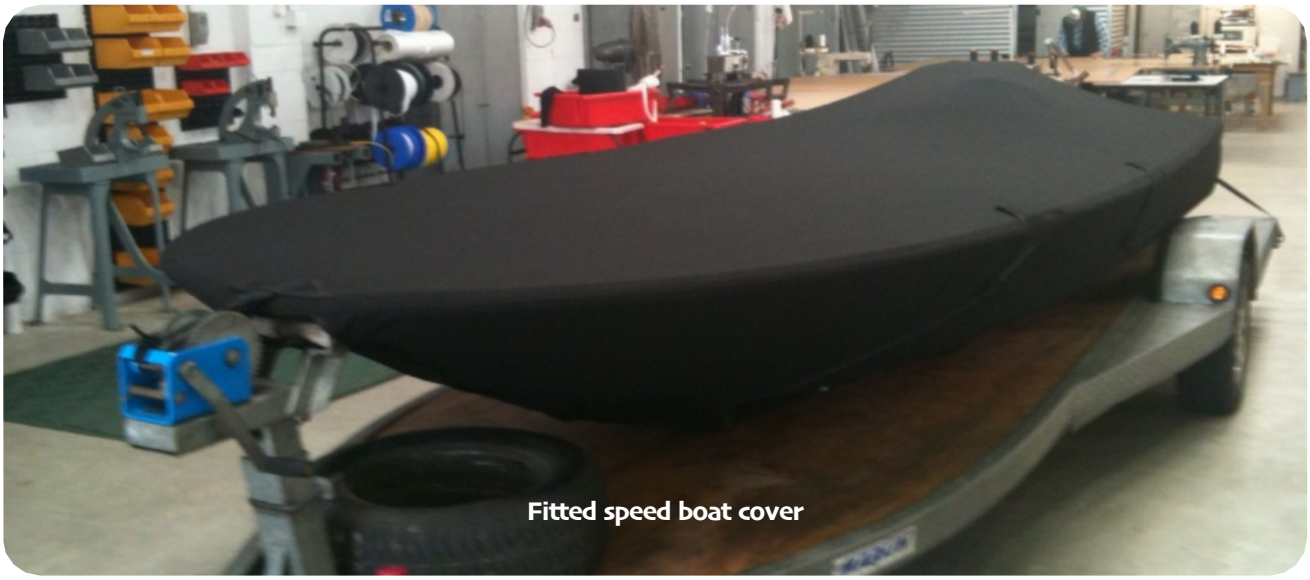
Bag for personal safety equipment

Operating manual pouch

Bag for personal safety equipment

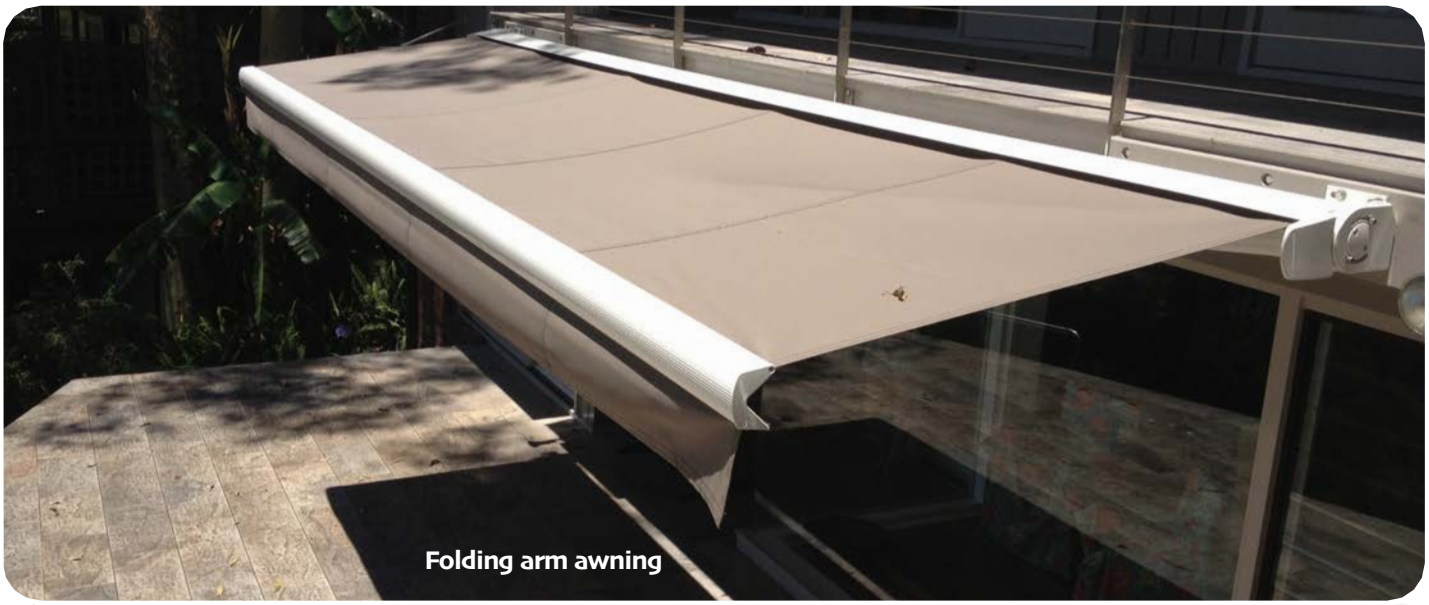
Fitted canvas canopy


Fitted tonneau cover


Fitted speed boat cover

Top crank roller blind. Black mesh for privacy, keep the view


Top crank roller blind. Black mesh for privacy



Folding arm awning

Marquee tent 4.5m x 4.5m

Permanent on-site framed annexe

From the manufacture of relatively small custom-designed bags used for packaging personal protection equipment and specialised electrical equipment, to very large custom-built folding XR5 bunds for use on gas exploration drilling rigs, we exercise strict quality control in order to supply a high quality product. Starting with accurate project descriptions and/or drawings, detailed cutting lists, written instructions and discussions within the work team, calibration of all machinery prior to commencement of project, through to rigorous inspection and cleaning of each and every item prior to packing, we can guarantee delivery of our products to the customer with zero defects. And we always deliver to schedule.

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