

DuFLEX™ panels are specifically designed to reduce construction time and to optimize structural weight in high performance composite structures. Time-consuming laminating, coring and vacuum bagging steps normally required to fabricate high performance composites are avoided, and material waste, labour and tooling costs are greatly reduced.

DuFLEX™ panels are manufactured with multiaxial E-fibreglass or carbon fibre skins, laminated with a high performance epoxy resin. Fibre orientation and ply schedules are based on design or engineering specifications to best meet weight targets, stress and impact loads, and other design parameters.

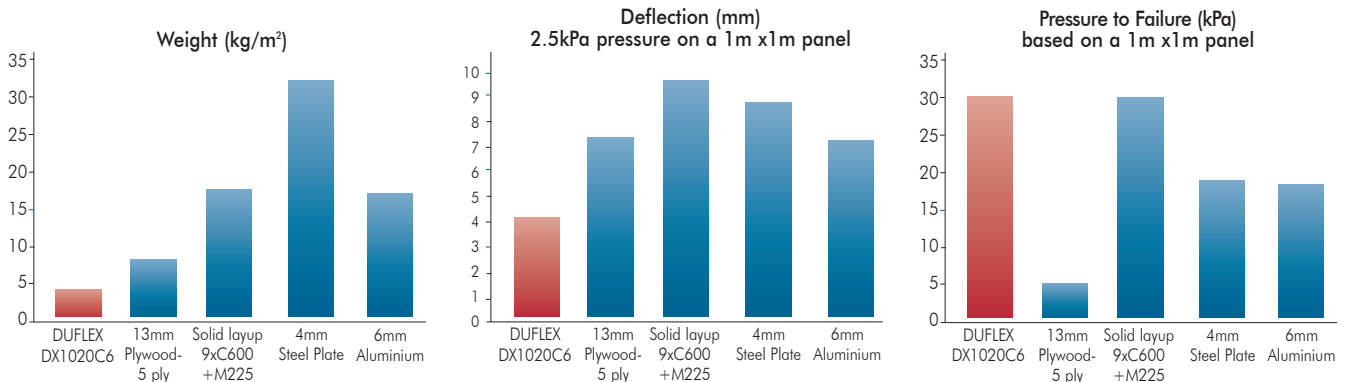
The laminates are finished with peel ply to protect the laminate from contamination and to reduce preparation of the surface prior to secondary bonding or laminating.

AIREX® C70.75 is a unique closed-cell, cross-linked polymer foam that combines high stiffness and strength to weight ratios with superior toughness and ductility. High moisture resistance, and the capability to handle elevated process and operating temperatures make it an excellent choice for use in structural sandwich applications.

Typical applications include hull shells, decks, super-structures, bulkheads, frames and stringers in one-off construction, prototypes and running plugs. Non marine applications include, rail floors, wall, doors, roof and interior partitions, automotive floors and truck bodies, and architectural long span roofing and partitions.

TYPICAL LAMINATE PROPERTIES			
Laminate thickness 0.53mm per 600gm		Fibre Fraction 62-64% weight fraction	
	Test Method	Biaxial - Warp (0°)	Biaxial - Warp (0°)
Tensile Strength	ASTM D3039	371.9 MPa	327.6 MPa
Tensile Modulus	ASTM D3039	21.27 GPa	18.22 GPa
Compressive Strength	ASTM C-273	293.8 MPa	255.5 MPa
Compressive Modulus	ASTM C-273	21.27 GPa	18.22 GPa

MATERIAL COMPARISONS	Weight (kg/m <sup>2</sup> )	Deflection (mm)	Pressure to Failure(kPa)
DUFLEX Foam DX1020C6	3.6	4.2	30
13mm Plywood- 5ply	8.1	7.4	5
Solid Layup 9x C600+M225	16.9	9.5	30
4mm Steel Plate	31.4	8.6	19
6mm Aluminium Plate	16.2	7.1	18



## JOINING & BONDING

To offset the individual size of the panel, DuFLEX™ can be supplied with both long edges pre-machined to facilitate joining. The DuFLEX Z-Joint is structurally effective and achieves a smooth and fair surface profile. A high density epoxy adhesive is specified for joining DuFLEX Z-joints. Contact ATL Composites for suitable adhesives.

Manual joining of the panels is also possible, Contact ATL Composites for specific details.

## CUTTING

Diamond-coated fibreglass tooling is recommended for best tool life. The best edge finish is achieved with circular saws running aluminium cutting blades, however blade life is greatly reduced.

## KITS

ATL Composites offers in-house CAD and CNC cutting services, and can produce pre-fabricated DuFLEX kits from electronic design files.

### STANDARD STOCK DuFLEX WITH AIREX® C70.75 CORE 80 kg/m<sup>3</sup>

Order Code*	Description	Core Thickness	Nominal Weight kg/m <sup>2</sup>
DX1010C6	1 x 600gm biaxial E-glass on either side	10 mm	2.8
DX1012C6	1 x 600gm biaxial E-glass on either side	12 mm	3.1
DX1015C6	1 x 600gm biaxial E-glass on either side	15 mm	3.3
DX1020C6	1 x 600gm biaxial E-glass on either side	20 mm	3.6
DX1025C6	1 x 600gm biaxial E-glass on either side	25 mm	4.0
DX2010C6	2 x 600gm biaxial E-glass on either side	10 mm	4.9
DX2012C6	2 x 600gm biaxial E-glass on either side	12 mm	5.1
DX2015C6	2 x 600gm biaxial E-glass on either side	15 mm	5.4
DX2020C6	2 x 600gm biaxial E-glass on either side	20 mm	5.6
DX2025C6	2 x 600gm biaxial E-glass on either side	25 mm	6.1

\* **Example** - order code for a 12mm panel with 1 layer of 600 gm biaxial is DX1012C6  
Alternative skin laminates and foam densities available on request

Sheet size - 1200mm x 2400mm

## STORAGE

DuFLEX™ panels should be stored flat, out of direct sunlight, and kept dry and clean. Panels supplied with fibreglass skins have peel-ply on the surface, which should be left in place as long as possible, to protect them from surface contamination.

ATL Composites reserves the right to alter specifications without prior notice.

NOTE Our products are intended for sale to industrial and commercial customers. We request that customers inspect and test our products before use and satisfy themselves as to contents and suitability. Nothing herein shall constitute a warranty, express or implied, including any warranty or merchantability or fitness, nor is protection from law or patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is replacement of our materials and in no event shall we be liable for special or consequential damages. 24/08/06



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