

### Product Introduction

D1-AB, D2-AB, D3-AB, D4-AB and D5-AB Boron-free glass direct rovings or single-end continuous rovings are designed for use in filament winding, pultrusion and weaving applications in polyester, vinyl ester or epoxy resin systems. Typical products include pultrusion profiles such as window frames, ladders, telecommunication cables and gratings. High-voltage insulating rods, tanks and pipes, etc. are also included.

### Product Description

All direct roving is manufactured to meet ISO 9001 standards. These direct rovings are produced by pulling individual fibers directly from the bushing and then winding them onto a roving package ready for shipment. The uniform distribution of a proprietary sizing system assures an excellent resin-to-glass binding through uniform distribution of the binding agent. A direct roving process represents the optimum technology in forming glass fiber and results in maximum strand integrity.

### Packaging

Pallet dimensions:

Pallet height, cm (in) 94 (37) or 120 (47)

Pallet length, cm (in) 112 (44)

Pallet width, cm (in) 112 (44)

Number of layers: 3 or 4

48-roll pallet weight, kg (lb) 816 (1799)

64-roll pallet weight, kg (lb) 1088 (2399)

Doff dimensions:

Doff height\*, cm (in) 26 (10)

Doff weight\*, kg (lb) 17 (37.5)

Doff diameter, cm (in) 26 (10)

Doffs/layer 16

Doffs/pallet 48 or 64

Doffs are wrapped in plastic bags, then packed in individual cardboard boxes or bulk-packed.

\*275TEX Direct Roving

Doff height, cm (in) 13 (5)

Doff weight, kg (lb) 8 (17.5)

### Storage

Unless otherwise specified, it is recommended to store glass fiber products in a cool, dry area. Temperature should not exceed 35°C (95°F) and the relative humidity should be kept below 75%. Glass roving products must remain in packaging material until just prior to its use. If these conditions are respected, the glass fiber product should not undergo significant changes when stored for extended periods of time.

### Stacking

To ensure safety and avoid damage to the product, skids should not be stacked more than two high. When stacking two pallets high, care should be taken to correctly and smoothly place the top pallet.



### Features

### Customer Benefits

Excellent processing

D1-AB, D2-AB, D3-AB, D4-AB and D5-AB roving have even tension and excellent integrity, which means a smooth run out through the package. The product will run out at various speeds. In addition, the product has low fuzz and good abrasion resistant properties that will result in smoother parts, less cleanup, improved production efficiencies and reduced costs.

Fast wetting properties

D1-AB, D2-AB, D4-AB and D5-AB roving allow fast, uniform wet out of the strand in resin systems. Fast wet out should allow you to optimize part fabrication time, increasing productivity and improving your competitive position in the market.

Multi-compatible size	D2-AB roving silane based sizing is designed to have excellent adhesion with polyester, vinyl ester and epoxy resin systems. Multi-compatibility allows a change in the resin system without the need for the time consuming effort of changing the glass in the creel.
Application flexibility	D1-AB, D2-AB, D4-AB and D5-AB roving are available in a variety of TEX values. The products allow you to meet the various demands of parts used in different applications, thus increasing your competitive ability in the market.
Superior composites properties	D1-AB, D2-AB, D4-AB and D5-AB rovings are designed to provide composites with superior physical and chemical properties.

## Product Data

ID Number	Filament Diameter (Microns)	Linear Density (TEX, yds/lb)	Compatible Resin	% Organic Solid (LOI)	% Moisture Content	Applicable Process
D1-027-AB	13	275/1800	UP, VE	0.55 ± 0.20	≤ 0.10	Weaving
D1-041-AB	13	415/1200	UP, VE	0.55 ± 0.20	≤ 0.10	Weaving
D1-073-AB	15	735/675	UP, VE	0.55 ± 0.20	≤ 0.10	Weaving
D1-110-AB	16	1100/450	UP, VE	0.55 ± 0.20	≤ 0.10	Weaving / Filament Winding
D1-115-AB	16	1150/431	UP, VE	0.55 ± 0.20	≤ 0.10	Weaving / Filament Winding
D1-200-AB	22	2000/250	UP, VE	0.55 ± 0.20	≤ 0.10	Weaving / Filament Winding
D1-220-AB	23	2200/225	UP, VE	0.55 ± 0.20	≤ 0.10	Weaving / Filament Winding
D1-240-AB	24	2400/207	UP, VE	0.55 ± 0.20	≤ 0.10	Weaving / Filament Winding
D1-440-AB	23	4400/113	UP, VE	0.55 ± 0.20	≤ 0.10	Weaving / Filament Winding
D1-480-AB	24	4800/103	UP, VE	0.55 ± 0.20	≤ 0.10	Weaving / Filament Winding

ID Number	Filament Diameter (Microns)	Linear Density (TEX, yds/lb)	Compatible Resin	% Organic Solid (LOI)	% Moisture Content	Applicable Process
D2-110-AB	16	1100/450	UP, VE, EP	0.50 ± 0.20	≤ 0.10	Weaving/Pultrusion/Filament Winding
D2-115-AB	16	1150/431	UP, VE, EP	0.50 ± 0.20	≤ 0.10	Weaving/Pultrusion/Filament Winding
D2-200-AB	22	2000/250	UP, VE, EP	0.50 ± 0.20	≤ 0.10	Weaving/Pultrusion/Filament Winding
D2-220-AB	23	2200/225	UP, VE, EP	0.50 ± 0.20	≤ 0.10	Weaving/Pultrusion/Filament Winding
D2-240-AB	24	2400/207	UP, VE, EP	0.50 ± 0.20	≤ 0.10	Weaving/Pultrusion/Filament Winding
D2-440-AB	23	4400/113	UP, VE, EP	0.50 ± 0.20	≤ 0.10	Weaving/Pultrusion/Filament Winding
D2-480-AB	24	4800/103	UP, VE, EP	0.50 ± 0.20	≤ 0.10	Weaving/Pultrusion/Filament Winding

ID Number	Filament Diameter (Microns)	Linear Density (TEX, yds/lb)	Compatible Resin	% Organic Solid (LOI)	% Moisture Content	Applicable Process
D3-110-AB	16	1100/450	Amine/Anhydride Cured Epoxy	0.55 ± 0.20	≤ 0.10	Pultrusion/Filament Winding
D3-115-AB	16	1150/431	Amine/Anhydride Cured Epoxy	0.55 ± 0.20	≤ 0.10	Pultrusion/Filament Winding
D3-200-AB	22	2000/250	Amine/Anhydride Cured Epoxy	0.55 ± 0.20	≤ 0.10	Pultrusion/Filament Winding
D3-220-AB	23	2200/225	Amine/Anhydride Cured Epoxy	0.55 ± 0.20	≤ 0.10	Pultrusion/Filament Winding
D3-240-AB	24	2400/207	Amine/Anhydride Cured Epoxy	0.55 ± 0.20	≤ 0.10	Pultrusion/Filament Winding
D3-440-AB	23	4400/113	Amine/Anhydride Cured Epoxy	0.55 ± 0.20	≤ 0.10	Pultrusion/Filament Winding
D3-480-AB	24	4800/103	Amine/Anhydride Cured Epoxy	0.55 ± 0.20	≤ 0.10	Pultrusion/Filament Winding

Special products are available according to customers' requirements

ID Number	Filament Diameter (Microns)	Linear Density (TEX, yds/lb)	Compatible Resin	% Organic Solid (LOI)	% Moisture Content	Applicable Process
D4-110-AB	16	1100/450	Amine Cured Epoxy	0.55 ± 0.15	≤ 0.10	Filament Winding
D4-115-AB	16	1150/431	Amine Cured Epoxy	0.55 ± 0.15	≤ 0.10	Filament Winding
D4-200-AB	22	2000/250	Amine Cured Epoxy	0.55 ± 0.15	≤ 0.10	Filament Winding
D4-220-AB	23	2200/225	Amine Cured Epoxy	0.55 ± 0.15	≤ 0.10	Filament Winding
D4-240-AB	24	2400/207	Amine Cured Epoxy	0.55 ± 0.15	≤ 0.10	Filament Winding
D4-440-AB	23	4400/113	Amine Cured Epoxy	0.55 ± 0.15	≤ 0.10	Filament Winding
D4-480-AB	24	4800/103	Amine Cured Epoxy	0.55 ± 0.15	≤ 0.10	Filament Winding

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ID Number	Filament Diameter (Microns)	Linear Density (TEX, yds/lb)	Compatible Resin	% Organic Solid (LOI)	% Moisture Content	Applicable Process
D5-030-AB	13	300/1654	UP, VE	0.55 ± 0.20	≤ 0.10	Pultrusion
D5-041-AB	13	415/1200	UP, VE	0.55 ± 0.20	≤ 0.10	Pultrusion
D5-073-AB	15	735/675	UP, VE	0.55 ± 0.20	≤ 0.10	Pultrusion
D5-110-AB	16	1100/450	UP, VE	0.55 ± 0.20	≤ 0.10	Pultrusion
D5-115-AB	16	1150/431	UP, VE	0.55 ± 0.20	≤ 0.10	Pultrusion
D5-200-AB	22	2000/250	UP, VE	0.55 ± 0.20	≤ 0.10	Pultrusion
D5-220-AB	23	2200/225	UP, VE	0.55 ± 0.20	≤ 0.10	Pultrusion
D5-240-AB	24	2400/207	UP, VE	0.55 ± 0.20	≤ 0.10	Pultrusion
D5-440-AB	23	4400/113	UP, VE	0.55 ± 0.20	≤ 0.10	Pultrusion
D5-480-AB	24	4800/103	UP, VE	0.55 ± 0.20	≤ 0.10	Pultrusion

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## Disclaimer of Liability

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