

## PRODUCT SPECIFICATION

The fill is to be manufactured by Brentwood Industries, or equal and will meet the following specifications:

1. Scope:

ACCU-PAC OF-21ma (Offset-Fluted) fouling-resistant film fill designed for cooling of power plant, petrochemical, HVAC and other process cooling waters.

2. Material of Construction:


A. General

The fill shall be fabricated from rigid, corrugated PVC sheets that are conducive to cooling water and UV protected. The fill modules shall be resistant to rot, fungi, bacteria and inorganic/organic acids and alkalies as commonly found in cooling towers.

B. PVC SHEETS

The PVC sheet shall be prime, rigid PVC conforming to commercial standard ASTM D1784:12454B with the following properties:

PROPERTY	TEST METHOD	UNIT	TYPICAL VALUE
Specific Gravity	D792	gm./cu.cm.	1.45 max.
Tensile Strength	D638/D882	psi	6,000 min.
Flexural Modulus	D790	psi	425,000 min.
Flexural Strength	D790	psi	11,000 min.
Elastic Modulus	D638/D882	psi	360,000 min.
IZOD Impact	D256	ft.lbs./in.	1.0 min.
Impact Resistance	D4226	in. lbs./mil	0.8 min.
Heat Deflection	D648	°F(264 psi)	160 min. - PVC 175 min. - HPVC
Flame Spread Rating	E-84		less than 5
Flammability	D635		self extinguishing less than 5 sec.


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### 3. Installation:

The fill shall be installed as per the recommendation of the fill manufacturer and in accordance with the engineer's specification, which shall include the following:

- A. The fill modules shall be carefully cut or trimmed to fit within 1/4 inch (or less) of any obstruction or sidewall to prevent air bypass.
- B. The fill shall be conveyed to the top of the tower by mechanical conveyor or crane. Cranes shall be used or conveyors shall be constructed as necessary to transport the fill to the working level inside the tower, and the fill modules shall be moved by hand for final placement.
- C. The shaping, cutting and trimming of the fill modules may be done in the tower provided that precaution is taken by the Contractor to prevent any chips, broken pieces, or debris from falling into the fill by using canvas tarpaulins or similar working materials to cover the fill modules. All fill modules shall be cleared of any such fallen material before a new layer of fill is added. The top layer of fill should also be completely protected from damage and such falling material due to any subsequent work until the "start up" of the system.
- D. The fill module edges should be protected from damage due to workers walking on them. To prevent such damage, the Contractor shall use plywood or other suitable temporary planking.
- E. The fill modules shall be placed in the tower to provide the closest possible fit with adjacent modules without damaging the modules. The module packing arrangement shall be as recommended by the cooling tower manufacturer and shown on the installation drawings. Fill modules within each layer shall be installed such that the sheets of all modules are parallel to each other. Modules in respective layers shall be installed at right angles to the layer immediately below and above.
- F. The fill modules in the bottom layer shall be centered over the fill support system.

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## C. Chemical

Resistance to Grease Fats, Oils	Excellent	ASTM D722-45
Resistance to Acids	Excellent	ASTM D543
Resistance to Alkalies	Excellent	ASTM D543

The PVC sheets shall be of uniform thickness and free from holes, air bubbles, foreign matter, undispersed raw material or other manufacturing defects, which may adversely affect their performance.


## D. Fill Modules

The fill modules shall be fabricated from PVC sheets of quality stated above and have vertically offset flutes arranged in a staggered pattern with adjacent sheets providing a continuous and horizontal redistribution of air and water. The flute height for each corrugation shall be 0.818 inches (20.8mm).

The fill shall measure up to 18 inches wide, 11.811" (300mm) or 23.622" (600mm) high and up to 8' (2440mm) long and provide a minimum surface area of 45 ft<sup>2</sup>/ft<sup>3</sup> (147.8 m<sup>2</sup>/m<sup>3</sup>) with a minimum of 95% void-to-volume ratio.

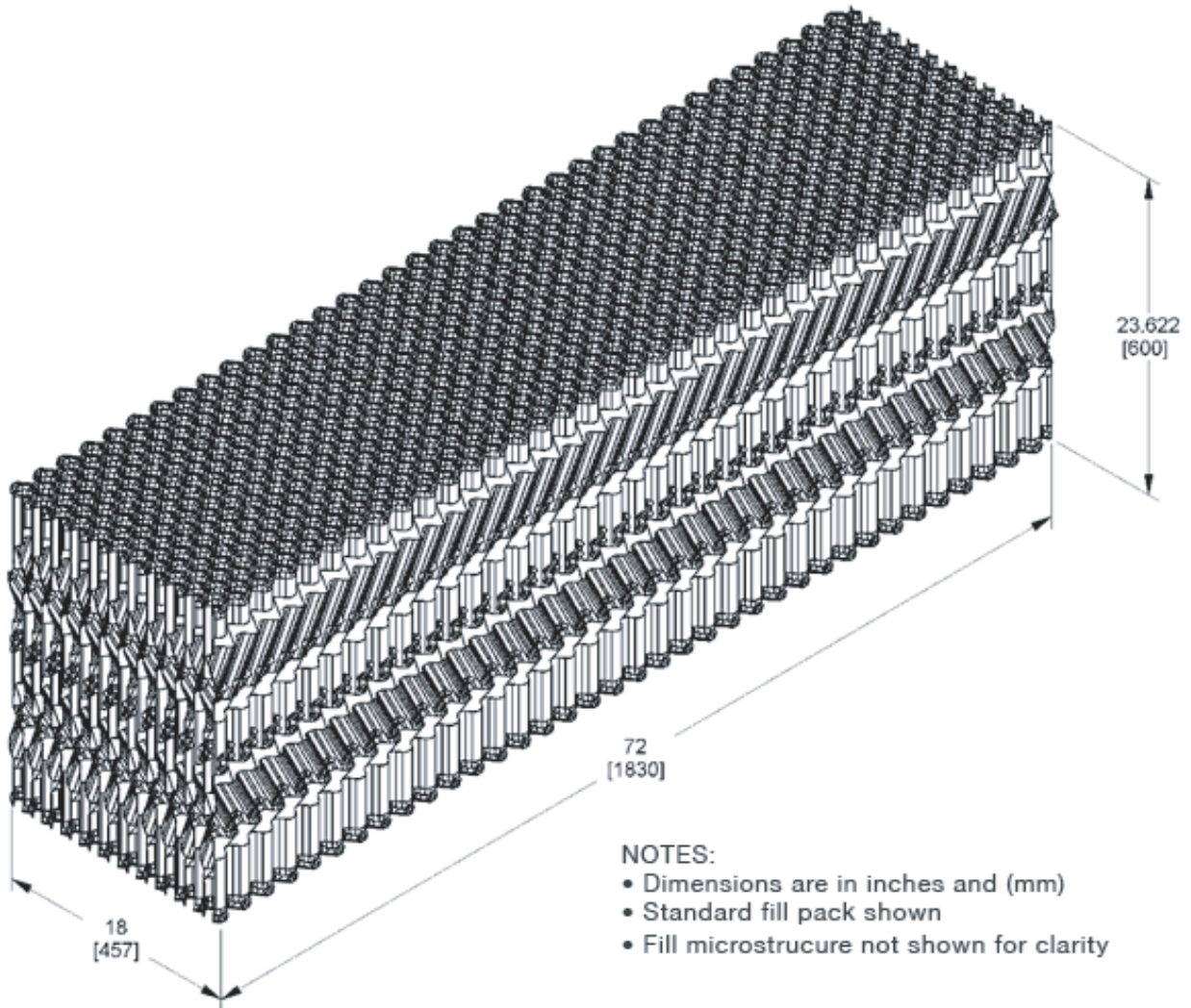
The self-supporting fill modules shall be made from sheets of above configuration and have a specific number of mechanical bonds formed on each sheet. These sheets shall be bonded mechanically together to provide a finite number of contact points and to form strong and homogenous fill modules. Fill modules shall have edge bonding. Fill modules made using adhesives or solvent cements, which adversely affect the integrity of the sheet, should be limited to the application only on contact areas between sheets. Random or roll coating of adhesives shall not be allowed.

Modules shall be fully mechanically bonded, including edge bonding to form a structurally rugged honeycomb and meet the structural loading requirements without any edge crimping or deformation of sheets at the design load.

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SURFACE AREA	SHEET SPACING	FLUTE ANGLE	SHEETS PER FT.	MEDIA PACK SIZES: Depth (D), Width (W), Length (L)		
				Minimum	Maximum	Standard
45 ft <sup>2</sup> /ft <sup>3</sup> (147.8 m <sup>2</sup> /m <sup>3</sup> )	21 mm	NA	14.7	D: 11.8 in (300 mm) W: 5 in (127 mm) L: 1 ft (305 mm)	D: 23.8 in (605 mm) W: 18 in (400 mm) L: 10 ft (3050 mm)	D: 11.8 in (300 mm) or 23.6 in (600 mm) W: 18 in (458 mm) L: 4 ft (1220 mm), 6 ft (1829 mm), 8 ft (2439 mm) or 10 ft (3048 mm)



- NOTES:**
- Dimensions are in inches and (mm)
  - Standard fill pack shown
  - Fill microstructure not shown for clarity