

Product Specification

CES190 High Efficiency Film Fill



C. E. Shepherd Company

Product Description

CES 190 is a high efficiency cross corrugated film fill with excellent thermal performance characteristics designed for installation in heavy industrial counterflow cooling towers. The fill packs are constructed from individual sheets of UV protected PVC formulated for cooling tower applications and in compliance with CTI-136. The fill packs will operate satisfactorily in continuous operating temperatures of 140°F or less.

The surface of the fill has an engineered microstructure to improve heat transfer. The individual sheets are strategically bonded together at “DEDICATED JOINTS” with a male/female connection and a destructive connection. The final assembly results in a staggered pattern of flutes to form a structurally sound honeycomb pattern.

This fill is suitable for applications where TSS levels are 25 ppm or less (100 ppm if bacterial activity is low), make-up is from uncontaminated sources, cycles of concentration are low, water treatment includes good biological & scale control, there are minimal airborne contaminants and there are virtually no oils or greases in the system.



CES 190

Applicable Commercial Standards

Property	Test Method	Typical Values
Specific Gravity	ASTM-D792	1.41 ± 0.04
Tensile Strength (psi)	ASTM-D638	5500 min
Tensile Modulus (psi)	ASTM-D638	3.5 x 10 ⁵ min
Flexural Strength (psi)	ASTM-D790	10,000 min
Flexural Modulus	ASTM-D790	3.5 x 10 ⁵ min
Heat Distortion Temperature (°F)	ASTM-D648	162 min
Flammability 1	UL94 Vertical Burning	94V-0
Flammability 2	UL94 Horizontal Burning	94H-B
Flame Spread	ASTM-E84	25 or less

ASTM methods shown above are based on the Annual Book 1999 and have been modified to suit practical conditions.

For dimensions and/or physical properties different from those listed above or special requirements including weatherability, flammability, etc., contact CES for agreement on the specifications.

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Product Dimensions

Description	Units	Value
Flute Height	Inches	0.75
Flute Width	Inches	1.90
Flute Corrugation Angle	Degrees	30.0
Surface Area	FT ² /FT ³	48
Contact Points	#/FT ³	690
Module Depth	Inches	12.0/24.0
Module Width	Inches	12.0
Max Module Length	Inches	120.0
Sheets per 12" module	Each	16
Sheet Thickness – Before Forming	Mils	14.0/19.0
Sheet Thickness – After Forming	Mils	10.0/15.0

Custom module sizes and sheet thickness can be tailored to customer specification. Contact CE Shepherd Co for details.

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