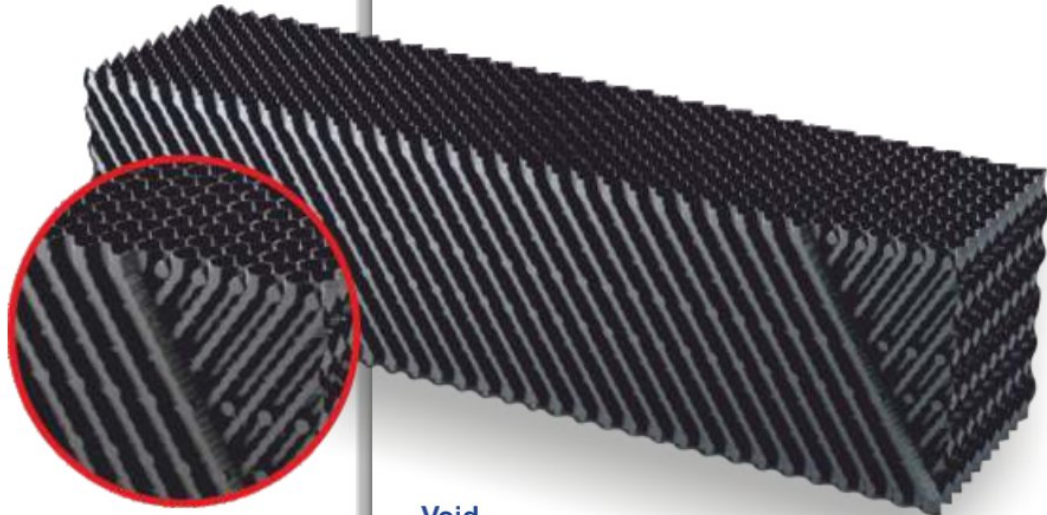


Onda 11

Film fill media for heat transfer



This module features a honeycomb structure with a maximized surface area. It is made of self-extinguishing, thermoformed PVC sheets that are solvent-bonded or welded together.

Thanks to its unique cross-fluted design, this pack boasts exceptional mechanical strength and optimal surface area for heat transfer. The properties of the material used offer the highest level of protection against chemical degradation and weather exposure.

Product Code

- CTPAK 11
- Sheet spacing 11 mm
- 26 Sheet / Standard bundle

Material

Self-extinguishing PVC (P.P. Available) that meets ASTM standard E-84 and CTI standard 136

Operating Temperature

- Standard -5° +60°
- High temperature -5° +75°
- Low temperature -40° +60°

Size

- Length: from 900 mm to 2750 mm
- Width: up to 600 mm
- Depth: up to 600 mm

For non-standard sizes, please contact our technical office

Thickness Before Forming

- 300 micron
- Other thicknesses available upon request.

Heat transfer surface area

280 m²/m³

Void

97%

Cross corrugated flutes - Angle:

60°

Main features

- Self-extinguishing.
- Lightweight and easy to move.
- High mechanical strength.
- Resistant to chemical degradation and biological attack.
- Enables continuous and widespread air-to-water contact.
- Self-supporting structure.
- High performance.

Uses

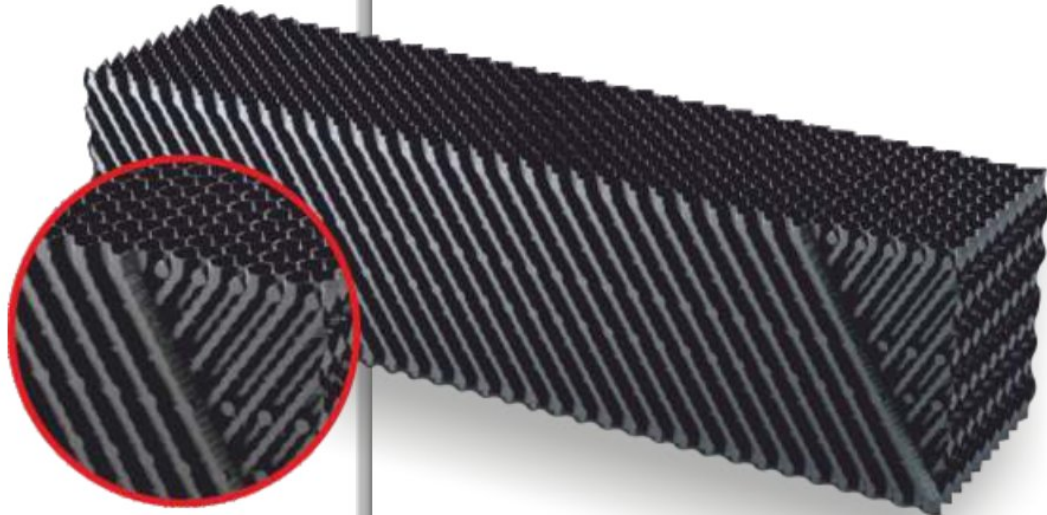
- Heat treatment / evaporative cooling.
- Filtration.
- Purification.
- Simultaneous nitrification-denitrification.
- Industrial fluid separation.

Applications

- Cooling towers fill media.
- Chemical scrubbers.
- Oil-water separators.
- Paint booths.

Onda 12

Film fill media for heat transfer



This module features a honeycomb structure with a maximized surface area. It is made of self-extinguishing, thermoformed PVC sheets that are solvent-bonded or welded together.

Thanks to its unique cross-fluted design, this pack boasts exceptional mechanical strength and optimal surface area for heat transfer. The properties of the material used offer the highest level of protection against chemical degradation and weather exposure.

Product Code

- CTPAK 12
- Sheet spacing 12 mm

Material

Self-extinguishing PVC (P.P. Available) that meets ASTM standard E-84 and CTI standard 136

Operating Temperature

- Standard -5° +60°
- High temperature -5° +75°
- Low temperature -40° +60°

Size

- Length: from 900 mm to 2750 mm
- Width: up to 600 mm
- Depth: up to 600 mm

For non-standard sizes, please contact our technical office

Thickness Before Forming

- 270 micron
- Other thicknesses available upon request.

Heat transfer surface area

248 m²/m³

Void

97%

Cross corrugated flutes - Angle:

60°

Main features

- Self-extinguishing.
- Lightweight and easy to move.
- High mechanical strength.
- Resistant to chemical degradation and biological attack.
- Enables continuous and widespread air-to-water contact.
- Self-supporting structure.
- High performance.

Uses

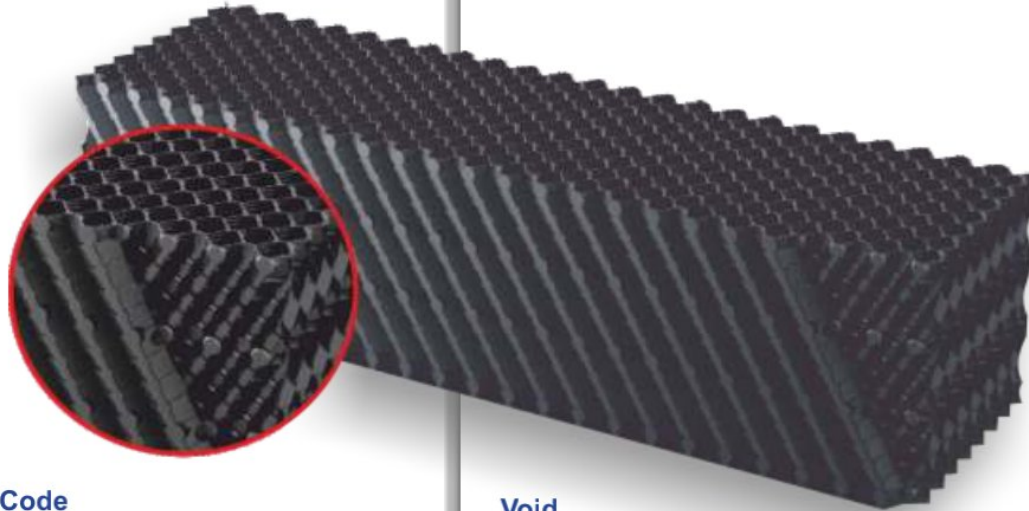
- Heat treatment / evaporative cooling.
- Filtration.
- Purification.
- Simultaneous nitrification-denitrification.
- Industrial fluid separation.

Applications

- Cooling towers fill media.
- Chemical scrubbers.
- Oil-water separators.
- Paint booths.

Onda 19

Film fill media for heat transfer



This module features a honeycomb structure with a maximized surface area. It is made of self-extinguishing, thermoformed PVC sheets that are solvent-bonded or welded together.

Thanks to its unique cross-fluted design, this pack boasts exceptional mechanical strength and optimal surface area for heat transfer. The properties of the material used offer the highest level of protection against chemical degradation and weather exposure.

Product Code

- CTPAK 19
- Sheet spacing 19 mm

Material

Self-extinguishing PVC that meets ASTM standard E-84 and CTI standard 136

Operating Temperature

- Standard -5° +60°
- High temperature -5° +75°
- Low temperature -40° +60°

Size

- Length: from 900 mm to 2750 mm
 - Width: up to 600 mm
 - Depth: up to 600 mm
- For non-standard sizes, please contact our technical office*

Thickness Before Forming

- 300 micron
- Other thicknesses available upon request.

Heat transfer surface area

152 m²/m³

Void

96%

Cross corrugated flutes - Angle:

60°

Main features

Sheets may be supplied for on-site assembly, which means a significant reduction in shipping costs.

- Self-extinguishing.
- Lightweight and easy to move.
- High mechanical strength.
- Resistant to chemical degradation and biological attack.
- Enables continuous and widespread air-to-water contact.
- Self-supporting structure.
- High performance.

Uses

- Heat treatment / evaporative cooling.
- Filtration.
- Purification.
- Biological oxidation.
- Industrial fluid separation.

Applications

- Cooling towers fill media.
- Chemical scrubbers.
- Oil-water separators.
- Paint booths.
- Purification plants

OFpak 21

Counterflow Reduced Fouling Fill
Offset Vertical Flute Design

Type

Counterflow fill

Materials

PVC

Color

Black or white

Standard dimensions

- Length: from 1200 mm to 2400 mm
- Width: from 300 mm up to 600 mm
- Depth: from 300 mm up to 600 mm

Surface area

149 m² / m³

Working Temperature

- Standard -5°C +55°C
- High temperature +75°C

Thickness before forming

From 260 to 500 micron.

Sheet Spacing

21 mm

Key Benefits

The use of PVC in compliance with the design construction of counterflow fill **OFpak21** warrants:

- Lightness and easy handling.
- High thermal performance.
- High resistance to erosion from water spray.
- Low maintenance.
- Low pressure drop.
- Reduced fouling.

On request, the product may be supplied in **HPVC**, available for high temperature applications and conditions.

OFpak21 is a counterflow fill, obtained thanks to the assembly of shaped PVC sheets by thermoforming.

With its particular surface design, **OFpak21** allows to increase the surface cooling area, making more efficient the air/water mixing.

Directional changes in air and water flow provide by offset vertical flutes of **OFpak21** allow to increase cooling level and greatly reduce the occurrence of fouling, promoting the thermal efficiency.

OFpak21 can be realized in blocks or in sheets of different size. The self-extinguishing PVC used for realize this counterflow fill has an excellent fire rating and meets ASTM E-84 and CTI STANDARD 136.



Use

Its vertical design and its high specific surface area allow the use of counterflow fill in a large number of applications:

- Cooling towers with polluted water.
- Scrubbers and stripping towers.
- Purification systems.

VC 25 TRICKLE GRID

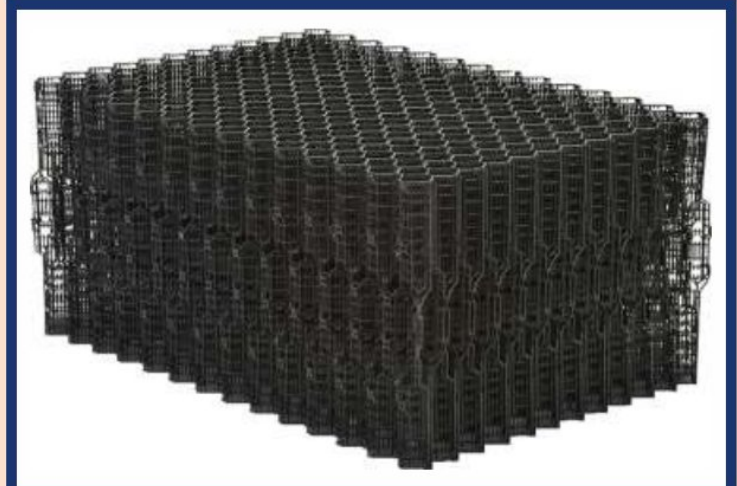
Combination of film- and splash-fill

High-performance trickle fill installations allow a completely new way of thinking about the design of film installations. The plastic is used only where it really makes sense - not a water-scarce areas - also a water film which flows around both sides - combined with droplet cleansing and thus the highest cooling interface.

High thermal performance (through water film formation) at the lowest pressure loss (less than vertical offset channel). The material thickness of 1.5-2 mm is many times higher than fill inserts.

Particular attention is paid to environmental compatibility (solvent-free), simple and fast mechanical processing by means of patented assembly technology. In addition, every local fire protection requirement is strictly adhered to.

The machines which we developed for processing single lattices are suitable for permanent use as well as for deployment on construction sites under weather protected conditions.



Lowest drop pressure
up to 3 metre module length available

Due to the open vertical-offset grid structure with a free volume of > 97%, these trickle fill installations are particularly suitable for contaminated as well as highly polluted water quality.

Areas of application are cooling towers, agricultural and exhaust air applications.

Technical data (VC25):

Effective surface area:	~100 m ² /m ³
Channel opening:	2 × 25 (Simple wave height 25 mm)
Material:	Polypropylene (PP)
Standard dimensions:	910 × 610 × H:450 mm
Free volume:	> 97%
Weight of new fill	~ 25 – 30 kg/m ³
Density:	0.95 – 1.1 g/cm ³
Thickness of plastic:	1.5 - 2 mm
Operating temperatures:	<75°C constant, max 80°C short term
Flammability rating:	ASTM E 84, UL 94, DIN 4102-B2, DIN 4102-B1, M2

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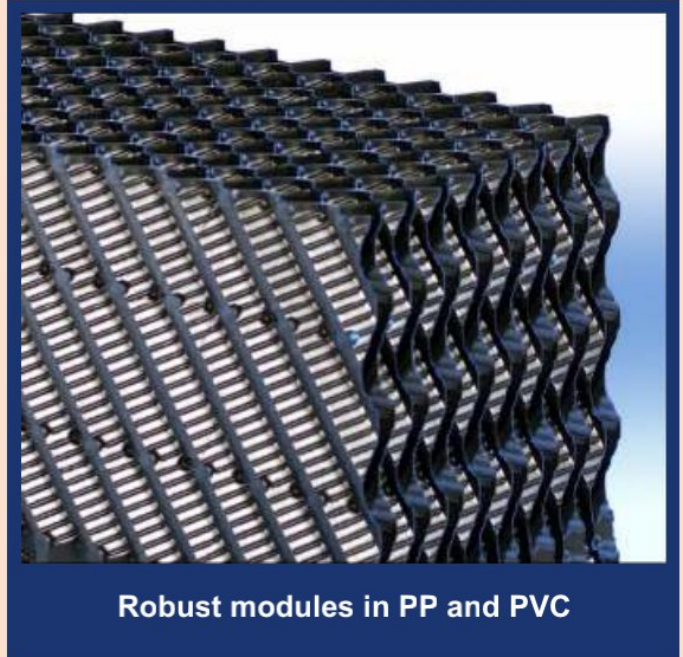


V12 V15 V19 V27

Cellular - fills in PP + PVC

Features and advantages:

- § Film thickness distribution directly from the melt - giving extremely high strengths and no possibility of reverting to original shape at elevated temperatures.
- § With same geometry and weight: PP exhibits higher strength than PVC because of greater film thickness.
- § Fully automated welding - very inexpensive and substantially greater strength than 'mechanical pressing'.
- § No adhesives and solvents which pollute the environment.
- § PP up to 78°C continuous use temperature, PVC up to 55°C.
- § Produced from PP/PVC granulate with high percentage of UV protection additives.
- § On-site fabrication to reduce transport costs possible thanks to automatic welders.
- § Hundreds of thousands of cubic meters installed worldwide.
- § Technical support for different applications.
- § Product of Germany.



Robust modules in PP and PVC

Technical data:		V12	V15	V19	V27
Effective surface	[m ² /m ³]	240	190	150	125
Width of channel	[mm]	2 × 12	2 × 15	2 × 19	2 × 27
Material (UV-stabilized)		PP / PVC			
Standard dimensions	[mm]	2400 × 300 × H: 600 / 300 / 150			
Void	[%]	> 97			
Weight of new Plastic	[kg/m ³]	20 – 60			
Density of plastic	[g/cm ³]	PP: 0.95 – 1.1		PVC: 1.4 – 1.6	
Thickness of foil	[mm]	< 1.5 mm			
Temperature of operations	[°C]	PP: -20 to 75		PVC: 0 to 55	

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SG45 - Splash grid Fill

Splash Grid Fill is the popular choice for use in all applications where water quality is very poor. It is suitable for polluted cooling waters with high contents of suspended solids, oils and the like.

In accordance with the thermal design conditions several fill layers are hanged from the structural beams by means of stainless steel wires, with each layer turned 90 degrees to the next lower level.



Technical data (SG45):

Material	PP
Channel width	45 mm
Grid size	700 x 700 x 300
Vertical spacing of layers	200 – 600 mm
Max. solids content in the cooling water	unlimited
Max. operation temperature	80 °C

RANDOM FILL

Description

RANDOM FILL

Random fill have an elevated surface/ volume ratio and in the same time offer a passageway for the air flux to be treated. The falling scrubbing liquid is distributed as a thin film that moistens their vast surface, forming an extended contact area with the air. In this way the pulling down of polluting substances is extremely aided.



Applications

- Chemical industry
- Gas effluent treatment.
- In general in scrubbing columns/towers.

Technical Data

	Size		Pieces per cubic meter	Surface	Voidage	Spokes	Kg/m ³			
	inches	mm	Pce/m ³	m ² /m ³	%	Num.	PP	PP/V	PVDF	PVC
ROLL	5/8	15	235.000	348	91	2 + 2	110.7	128.5	230	200
	1	26	45.600	245	93	4 + 4	87.8	96.8	180	160
	1½	38	15.000	143	94	4 + 4	82	94.5	162	140
	2	50	6.400	114	94	4 + 4	60	71	119	130
	3½	90	1.180	82	96	6 + 6	60	71	119	130

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ECpak 19

Cross Flow Fill Sheet for Heat Transfer

Product Code

- ECPAK 19
- Sheet spacing 19 mm

Material

Self-extinguishing PVC that meets ASTM standard E-84 and CTI standard 136

Material Properties

- Tensile Strength: 6.300 psi (at room temp.)
- Tensile Modulus: 325.000 psi
- Specific Gravity: 1.5

Operating Temperature

- Standard: - 5°C ~ + 55°C
- High temperature: + 60°C
- Low temperature: - 40°C

Dimensions

- 750 x 800 mm

Weight

- 20 - 38 Kg/m³

Maximum Continuous Hot Water Temp.

- 55 °C

Thickness Before Thermoforming

- 400 micron

Exchange Surface

- 168 m²/m³

Applications

- Cooling towers fill media.
- Chemical scrubbers.
- Oil-water separators.
- Paint booths.
- Purification plants

The PVC (Polyester Vinyl Chloride) fill developed for crossflow cooling towers, flame resistant and has very high heat exchange performance. The specially combined material makes it durable and withstands chemical reaction.

