PVC foam

Product Data Sheet

JLONcell Specification

- JLONcell series foam is close-cell cross-link rigid PVC foam, with excellent specific modulus and specific strength. The compressgive, tensile, shear and bending mechanical properties are all outstanding.
- JLONcell foam core not only has good fatigue properties, impact resistance and low moisture absotption, but also work as the insulation material. Strucell P foam has good fire resistance.
- JLONcell foam has nice size stability and machinability. It can compatible with many sandwich structure processing method and compatible with many kinds of resin system. It is the ideal core for the light weight high strength composite sandwich structure.
- JLONcell series product is widely used in the wind energy, marine, sports, railway car and aviation industry.

The typical specification of JLONcell series products

Properties	Test method	Unit	P45	P60	P80	P100	P130	P200
Apparent Density	ISO 845	kg/m3	48	60	80	100	130	200
		Ib/ft³	3.0	3.8	5.0	6.3	8.1	12.5
Compressive Strength	ASTM 1621B	Mpa	0.65	0.85	1.35	2.21	3.02	4.81
		Psi	94	123	196	321	438	698
Compressive Modulus	ASTM 1621B	Mpa	52	71	92	136	172	242
		Psi	7542	10298	13343	19725	24947	35099
Tensile Strength	ASTM C297	Mpa	1.42	1.61	2.21	3.52	4.78	7.15
		Psi	206	234	321	511	693	1037
Tensile modulus	ASTM C297	Mpa	55	75	95	132	175	253
		Psi	7975	10875	13775	19145	25375	36695
Shear Strength	ASTM C273	MPa	0.55	0.70	1.11	1.63	2.19	3.52
		psi	80	102	161	236	318	511
Shear modulus	ASTM C273	MPa	16	22	31	36	51	86
		psi	2321	3191	4496	5221	7397	12473
Shear elongation	ASTM C273	%	12	20	30	40	40	40
Water absoption	ISO 2896	%	1.9	1.8	1.6	1.5	1.4	1.2

JLONcell main properties:

- PVC cross link thermoset close cell foam
- Excellent specific strength, good impact resistance
- Good chemical resistance, nearly no water absorptive
- Good fire resistance, self extinguish without flame
- Good insulation properties
- Low, middle denstity perfect foam as the core material in the sandwich structure
- As the core material with various fiber reinforced resin composite material (carbon, fiberglass, nature fiber/epoxy, unsatured polyester, phenolic resin) skin to compose the sandwich structure
- Compatible with various composite processing method, vacuum thermoforming, spray, hand layup, vacuum bagging, low temperature curing prepreg lamination.
- As the sandwich structure, widely used in various industries, including the yacht, wind energy, railway car, tank cover, sports and light glider so on.

JLONcell foam color and sheet size:

JLONcell grade	Color	Sheet size (mm)
P45	Tint yellow	2450*1250
P60	Tint yellow	2450*1250
P80	Green	2200*1100
P100	Pink	2050*1050
P130	Blue	1950*980
P200	Brown	1700*850

Remarks:

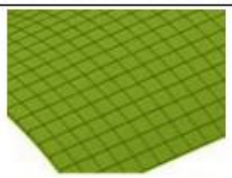
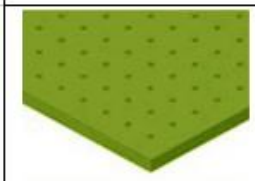
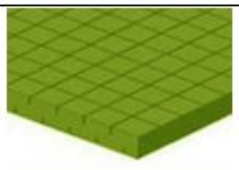
Tolerance：width and length +/-10 mm，thickness +/-0.5 mm，actually the tolerance can be +/-0.3mm

JLONcell foam density and thickness range:

JLONcell foam	Density range（kg/m3 ）	Thicknes range（mm）
P45	41-49	3-70
P60	54-72	3-65
P80	72-90	3-60
P100	90-115	3-50
P130	120-140	3-45
P200	180-230	3-40

JLONcell foam surface finishing：

According to various processing methods and different curvation of the layup surface, in order to optimise the resin absorption, we provided the following 6 surface finishings.

GRAPHIC	ITEM	DESCRIPTION	APPLY
	**Plain foam**	The plate is cutted without surface treatment. For the curved type, the plate can be adaped by the thermforming of the plain ones.	Hand layup, Press molding, Resin infusion
	**Contoured foam**	The plate is cut into small square in length and width direction on one side. And the other side will be bonded the glass fiber mesh.	Curved surfaces
	**Grooved foam**	The flow slots are opened on the surface. The plate groove can be made on one side or both sides, in the direction of length and width. It can be used as a flow path for the resin when using the resion infusion process. It also can drive away the accumulated air.	Hand layup, Press molding, Resin infusion
	**Perforated foam**	The holes in nthe foam is around 2mm, the actual hole size can be adjusted based on the foam core thickness and the density. With these holes, the air under the sheets can be expelled and the resin will be fluit to another side.	Hand layup, Press molding, Resin infusion
	**Grooved&Perforated foam**	Based on the grooved surface finishing sheets, have the hole in the groove, the diameter is 2mm, the groove can be in the length direction or the width direction, the groove distance is 20mm.	Hand layup, Press molding, Resin infusion
	**Double curved foam**	The sheets are cut to the 55-60% through the core thickness. The cut location of both sides is stagged. It is used on the curved surfaces. Compared with the countoured cut sheet, The resin absorption is lower.	Hook face

The processing methods and JLONcell foam surface finishing:

Surface finishing	Hand layup	Press molding	Resin infusion
Plain sheet	√	√	√
Perforated sheet	√		√
Grooved sheet	√		√
Perforated and grooved sheets	√	√	√
Double curved sheet			√
Contoured sheet			√

Here, the developable surface means the surface can be developed in to a plain, such as the column surface. In such case, when using the double curved surface or the contour cut sheets, we only need to have the scored cut in one direction to be compatible with the curved surface.

Hand layup is a very simple and easy-effective processing method, with single side tooling and room temperature curing epoxy resin, the reinforcement can be short chopped strand mat or oriented fiber glass, such as the un-twisted roving fabric. The properties of hand layup processing is one smooth surface finishing, can not monitor the part thickness, fiber content, void content and the finishing of backside, but the processing skills are relatively simple.

Press molding processing method is to press molding in the closed tooling under heating. The properties of the press molding is that it needs both the male tooling and the female tooling, the finished parts have 2 smooth surface finishing and we can control the thickness, quality and fiber content accurately, but the processing cost is relatively higher.

Resin infusion technology means one kind or some kinds of resin are infused into the close tooling cavity under the pressure. The required pressure can be applied with the vacuum (vacuum assisted resin infusion), gravity, the pump or the pressured tank. The most common vacuum assisted resin infusion system is using single side tooling, another side covered with the vacuum bag, vacuum assisted resin infusion.