Gillfab™ 4030 Panel

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Description

Gillfab 4030 is a semi-structural sandwich panel composed of aluminum skins bonded to an aluminum honeycomb core.

Applications

Used in many aircraft for interior applications including bulkheads, shelving, and galley panels. The skin thickness, alloy, honeycomb density, and panel thickness can be ordered to meet end use requirements.

Features

- High strength-to-weight ratio.
- Wide range of cores and facing alloys available.
- Good general purpose sandwich panel.
- Service temperature range: -70°F to 160°F, short term at 250°F.

Specifications

- Lockheed LAC-C-28-1145, Types 5, 7, 9, and 10.

Construction

Adhesive:	Epoxy adhesive to MMM-A-132 Type 1, Class 2 and 3.
Core:	5052 aluminum foil honeycomb; density and cell size per customer requirement.
Facings:	Aluminum alloy; 2024-T3, 7075-T6, 6061-T3 or as specified.

Availability

Thickness:	Per customer specification from .125" and up.
Size:	Up to 48" x 144" without splices in the facings.
Facing:	Standard aluminum thickness (.01", .016", .012", .025", .032" and up in .01" multiples).
Core:	Density range from 3.1 to 8.1 pcf.
Cell Sizes:	1/8", 3/16", 1/4", or 3/8" are standard.

Standard Tolerances

Thickness:	±0.01"
Length:	+0.5", -.125"
Width:	+0.5", -.125"
Warpage:	<.003 L^2/t where L = length (ft.) and t = thickness (in.)

Alternative Gill Products

Product Number	Difference
Gillfab 4030L	Qualified to Lockheed LAC-C-28-917.
Gillfab 4030X	Aluminum facings have anodized coating for improved corrosion resistance.
Gillfab 4033	Meets requirements of IAI Ltd, M.S. 04.0015, physical and mechanical requirements, Types 1-6. Facings are primed for maximum bond durability.
Gillfab 4201	Corrosion resistant primer and higher weight adhesive are used for structural application.
Gillfab 5030	Commercial quality version of Gillfab 4030. Uses 3003 alloy honeycomb core.

Properties of Gillfab 4030

Based on 0.5" thick panel with .020"/.020" Thick Facings, 3/16" Cell Size
and 5.7 pcf Nominal Density Aluminum Core (Typical Average Values)

Property	Test Method	Typical Values	
		English	(Metric)
Mechanical			
Long beam flexural strength, 20" span	MILSTD 401B		
Ultimate load, lbs(kg)		484	(220)
Facings stress, ksi(MPa)		42	(290)
Deflection at 100 lb, in(mm)		.15	(3.81)
Sandwich peel, in-lbs(N-m)/3" width	MILSTD 401B		
At room temperature		40	(4.52)
After 30 day water soak		40	(4.52)
Panel core shear, psi(kPa)	MILSTD 401B		
Ribbon(L) direction		491	(3,385)
Transverse(W) direction		328	(2,261)
Flatwise compressive strength, psi (kPa)	MILSTD 401B	600	(4,133)
Flatwise tensile strength, psi(kPa)	MILSTD 401B	700	(4,822)
Physical			
Weight, psf(kg/m^2)		.90	(4.40)
Impact strength, Gardner	MODEL 11K3		
2 lb. dart, in-lbs(N-m)		40	(4.52)
Max. Service Temperature, $^oF(^oC)$		160	(71)
Thermal Conductivity	ASTM C177		
BTU-Ft/Ft^2 hr ^oF(W/cm ^oC)		1.4	(.024)
Flammability			
60 sec. vertical exposure	FAR 25.853a		
self-extinguishing time(sec)		0	
burn length, inches (mm)		0.1	(2.54)
45 degree test	FAR 25.855		
self-extinguishing time(sec)		0	
penetration		None	
glow time (sec)		None	

Comparison of Core Types and Bonding Strengths

Core Cell	Density PCF	Core Shear Ribbon Dir. PSI	Flatwise Tensile PSI	Type of Failure	C.D. Peel in -lb./3
3/8”	3.0	190	740	(core)	30
1/8”	3.1	220	750	(core)	50
3/8”	3.6	250	740	(adhesive)	50
1/4”	4.3	330	940	(core)	64
1/8”	4.5	350	1,100	(core)	72
1/4”	6.0	505	990	(core)	61
1/4”	7.9	680	1,100	(adhesive)	68
1/8”	8.1	710	1,200	(adhesive)	72

M.C. Gill Corp.
4056 Easy Street
El Monte, CA 91731-1087 USA
626-443-4022 info@mcgillcorp.com

M.C. Gill Europe Ltd. - Insoleq
23 Enterprise Road, Balloo Industrial Estate South
Bangor Co-Down BT19 7TA, Northern Ireland
+44 (0) 2891 470073 sales@mcgillcorp.com

www.mcgillcorp.com