JÁ-BAR "Complete Proven Source"

Optical Filtering Devices series 100

Description:

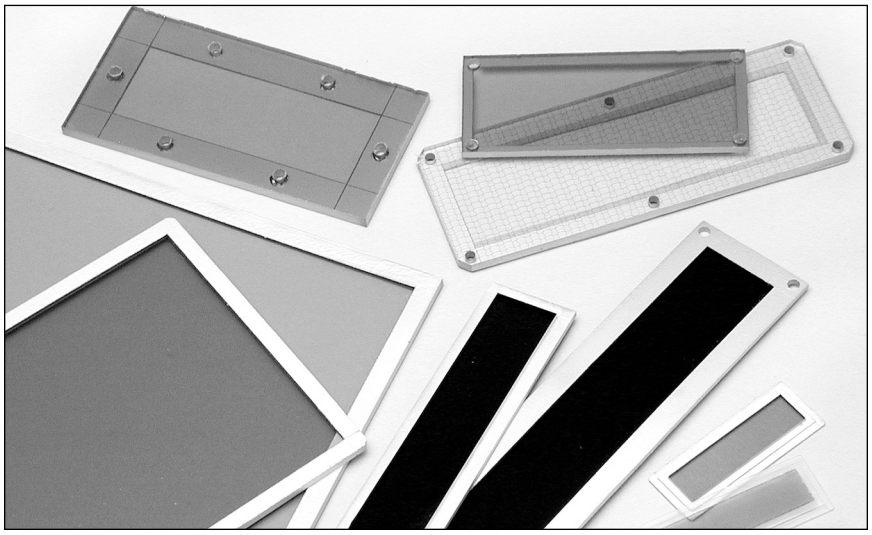
Optical filtering devices are most commonly produced, by incorporating a layer of woven mesh into a sheet of clear acrylic (Per L-P-391D Type 1 Grade C) and machined to fit your specifications. They can be supplied to you from .060 thick to .300 thick, and sizes can range from .25" to 24" in width and length. Variations can be produced depending upon your required needs.

Application:

Optical filtering devices are used in any application where the viewing port has to be optically clear and also shield against unwanted EMI/RFI interference. The mesh that is incorporated in it can provide the needed attenuation, while the gasket and method of termination can provide the desired electrical bond. Gaskets should inhibit moistureand supply conductivity throughout the window. Wire mesh bonded to (SERIES 400), or Oriented in (SERIES 600) either sponge or solid silicone can supply this termination. Other typical interfaces include Conductive Fabric over Foam (SERIES 577), and Particle Filled Elastomers (SERIES 800).

The first five digits of the Part Number, are determined by combining the Material / Construction choice above with the conductive media choice listed below. Keep in mind the Conductive Films are not available with mesh, except in a Post-Lamination process.

When choosing the conductive media, it is important to consider both, Shielding Performance capabilities,and the optical characteristics. In most instances, enhanced performance will lessen the light transmissions, which will result in slightly less visibility. Customers are recommended to discuss there application with our engineers to insure the optimum over-all performance



11XX-XXXX Conductive Films	Optical grade metalized polyester films, with 10-20 ohms/square coating.
12XX-XXXX Acrylic	Acrylic with wire as the conductive media, embedded into the body of the acrylic sheet. Meets UL94-HB requirements
13XX-XXXX Edge Bonded	Either acrylic, poly-carbonate, or a combination as the optical media with an interlayer of wire as the conductive media structurally bonded along the perimeter.
14XX-XXXX Laminations	Fully laminated glass, polycarbonate, glass/poly combinations, and acrylic are available with PVB interlayer. By properly terminating with a "Flying Lead" or Silver Bus Bar, achieving the highest level of Optical Shielding Performance available

TABLE 1.1 - OPTICAL MEDIA

Part No.	Wire	Count	% Open Area	Diameter
1X1a	Monel	10-15	92	.0022
1X2a	Monel	10-15	92	.0045
1X3a	SnCuFe	10-15	92	.0045
1X4a	Blk Cu	50	82	.0022
1X4b	Blk Cu	70	75	.0022
1X4c	Blk Cu	100	64	.0022
1X5a	Ag/Cu Blk	100	64	.0022
1X5b	Ag/Cu Blk	145	52	.0022
1X6a	Ag/SS Blk	50	88	.0015
1X6b	Ag/SS Blk	80	82	.0015
1X6c	Ag/SS Blk	100	77	.0015
1X6d	Ag/SS Blk	200	46	.0015
1X6e	Ag/SS Blk	230	47	.0015
1X6f	Ag/SS Blk	100	65	.0022
1X6g	Ag/SS Blk	165	46	.0022
1X7a	SS	50	88	.0015
1X7b	SS	80	77	.0022
1X7c	SS	100	64	.0022
1X7d	SS	230	47	.0015
1X8	Conductive Film	—	—	—

TABLE 1.1 - OPTICAL MEDIA

Sn Cu Fe - Tin Plated, Copper Steel
Blk Cu - Blackened Copper
Ag Cu Blk - Silver Plated Copper Blackened
SS Ag Blk - Silver Plated Stainless Steel Blackened

Optical Filtering Devices
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Part No.	Surface Finish
XXX-XX1X	Smooth both sides
XXX-XX2X	Anti glare 1 side Coarse (limited availability)
XXXXX3X	Clear Hard coat finish
XXX-XX4X	Anti reflection hard coat finish (< .6% reflection)
XXX-XX5X	Anti glare 2 sides Coarse (limited availability)
XXX-XX6X	Anti glare 1 side Fine
XXX-XX7X	Anti glare 2 sides Fine

TABLE 1.2 - CONDUCTIVE MEDIA

Part No.	Color	Roman Has #	% Light Transmission
XXX-1XXX	Clear	*	*
XXX-2XXX	Gray	2064	28%
XXX-3XXX	Bronze	2370	10%
XXX-4XXX	Red	2423	7%
XXX-5XXX	Amber	2451	53%
XXX-6XXX	Blue	2152	25%
XXX-7XXX	Red	2444	8%
XXX-8XXX	Gray	2074	12%

TABLE 1.4 - TINTING: ACRYLIC

Part No.	Shielding Media	Openings/in.	% Open Area	1 MHz	10 MHz	100 MHz	400 MHz	1 GHz	10 GHz
1X1a	Monel	10-15	92	35	70	90	90	25	-
1X2a	Monel	10-15	92	40	100	105	95	40	-
1X3a	SnCuFe	10-15	92	40	105	110	98	40	-
1X4a	Blk Cu	50	82	95	105	86	60	48	30
1X4b	Blk Cu	70	75	107	112	100	65	60	35
1X4c	Blk Cu	100	64	108	110	89	70	60	40
1X5a	Ag/Cu Blk	100	64	108	110	88	75	65	42
1X5b	Ag/Cu Blk	145	52	120	112	105	85	80	62
1X6a	Ag/SS Blk	50	88	95	90	85	60	55	25
1X6b	Ag/SS Blk	80	82	105	90	85	65	60	35
1X6c	Ag/SS Blk	100	77	120	112	93	80	87	75
1X6d	Ag/SS Blk	200	46	120	110	98	85	86	65
1X6e	Ag/SS Blk	230	47	120	120	95	95	80	60
1X6f	Ag/SS Blk	100	65	120	115	112	95	90	70
1X6g	Ag/SS Blk	165	46	120	120	106	100	81	60
1X7a	SS	50	88	93	90	80	60	55	25
1X7b	SS	80	77	106	88	80	65	60	32
1X7c	SS	100	64	120	105	88	76	62	40
1X7d	SS	230	47	120	120	95	95	80	60
1X8	Conductive Film	N/A	N/A	120	120	106	100	81	61

Hertz - Unit of frequency equal to 1 cycle per second.
KHz - Kilohertz - one thousand cycles per second (1,000)
MHz - Megahertz - one million cycles per second (1,000,000)
GHz - Gig hertz - one billion cycles per second (1,000,000,000)
Shielding Effectiveness testing was performed by independent testing laboratories, IAW MIL-STD-285

TABLE 1.5 – SHIELDING PERFORMANCE

Material	Thickness (in.)	Thickness (mm)	Weight of Free Falling Object	Energy to Break (ft-lb)
Acrylic Sheet	.098	2.5	.25	3.0
Acrylic Sheet	.118	3.0	2.0	4.7
Acrylic Sheet	.177	4.5	2.0	11.1
Acrylic Sheet	.236	6.0	5.0	18.1
Single Strength Window Glass	.100	—	.25	0.8
Double Strength Window Glass	.125	—	.25	1.8
Plate Glass	.187	—	.25	2.0
Plate Glass	.250	—	.25	1.0
Laminated Safety Glass	—	—	.25	1.1

Table 1.6 : IMPACT RESISTANCE OF ACRYLIC SHEET VS. GLASS

Acrylic Sheet Impact Comparison
Falling Projectile Impact Strength

The table to the left shows that various thickness of Acrylic sheets have greater impact resistance than various types of glass when impacted with a hard object, such as a stone. The test samples were 12" x 12", with edges loosely clamped.

Termination Styles