



Setting the **Standard** for **Shielding**.



» Franchised Distributor

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MS On-Board / Online Catalog 2018

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# Standard Drawn EMI/RFI Shields

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## Seamless Protective Cages!

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**Save Time & Costs**  
with largest selection available!  
**STANDARD DRAWN SHIELDS**



[ Rev / May 29<sup>th</sup> 2018 ]



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**OrderOnline**



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[www.masach.com](http://www.masach.com)

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## Setting the Standard for Shielding.



Masach brings twenty five years of know-how and expertise into every standard shield produced. Our ever-growing selection of standard EMI/RFI shields is the largest in the industry, saving our customers precious time and money while catering to the electronic industry's growing high frequency and RF applications. With emphasis on technology and design, Masach drawn EMI/RFI shields boast top performance across the metrics, featuring a seamless protective cage, robust construction, optimal planarity and two-piece shield design.

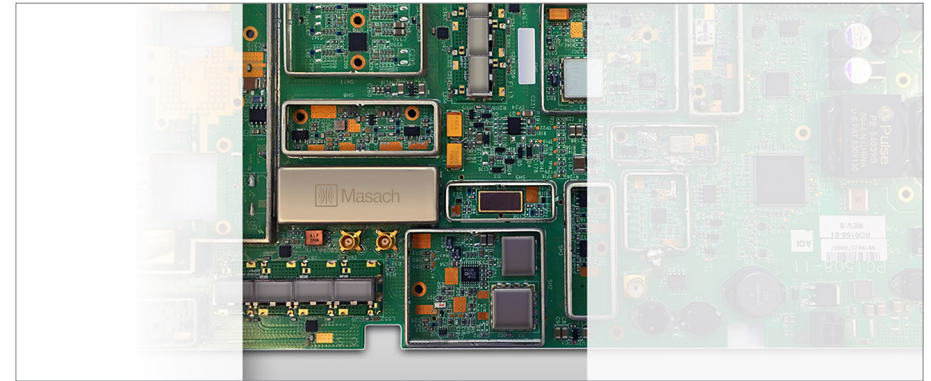


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## Whatever your EMI/RFI challenge..



### Introduction



Masach specializes in board level EMI/RFI shielding design and production for small, medium and large scale runs. Founded in 1994, Masach is a globally recognized and leading supplier of some of the world's largest electronic companies, driven by highest quality customer service with uncompromised product performance.

Every step of the production cycle, from raw materials and design to packaging and shipping, is meticulously executed under one roof leveraging dedicated hydraulic presses, cutting-edge tool room assemblies, forming operations and more.

Masach utilizes the latest laser technology to deliver most advanced 3D cutting of formed or bent shields made of thin gage materials, CNC punching and more. We remain committed to meet the needs of every industry – from telecommunications and network equipment to military and medical – with the right board level EMI/RFI shielding solution for every challenge.

## Hermetically Sealed EMI/RFI Shields.



### A higher level of protection



EMI/RFI engineers prefer hermetically sealed shields at high frequencies due to their superior performance over time. Designed for highest shielding performance leveraging a unique hermetic design and fabrication process, Masach seamless protective cages are in a class of their own.

Most conventional shields are produced by bending the frames and covers, leaving slits for dust and interference. Masach's unique fabrication process utilizes drawn frames and snap-on covers to produce a seamless, more hermetic shield that is as durable as it is effective.

Featuring a convenient two-piece design, our shields enable inspection and repair of shielded components without having to remove the entire shield. Masach shields are known for their planarity, offering optimal yield of reflow soldering for even better overall performance. Our ever-growing selection of EMI/RFI hermetically sealed shields are suitable for small, medium, and large-scale runs.

## Seamless Protective Cage!

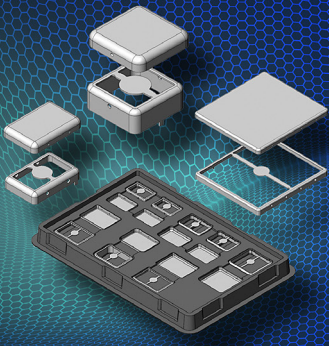


### Features & Benefits



- **Seamless Protective Cage** for higher shielding effectiveness
- **Optimal Planarity** for higher yield on reflow soldering
- **Solid Construction** to resist dents and warps
- **Two-piece Shield Design** enables repair of components without removing the shield, saving time and reducing repair damage

## Largest Library of Two-piece Shields.



**Comprehensive Library of Two-piece EMI/RFI Shields**

Extensive range of Drawn EMI/RFI shields from Masach, boosts flexibility

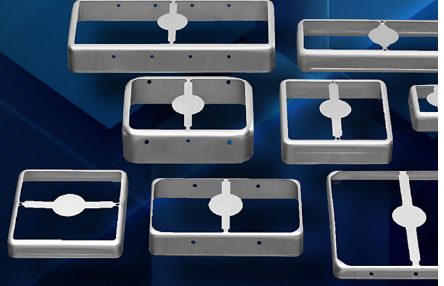
[LEARN MORE](#)

Enjoy our extensive range of drawn shields for utmost flexibility in design



Masach offers the largest selection of standard drawn EMI/RFI shields in the electronics industry. Our ever-growing range of sizes delivers more flexibility in surface mount configurations where interference may occur or is identified during the board design phase. The highly reliable two-piece design (frame and cover) accommodates virtually any surface mount application.

## Fast and Economical Approach.



**Fast and Economical EMI/RFI Shields**

Off-the shelf, Fully SMD Compatible suitable for all stages of production

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Shorter engineering design time, lower product cost and quicker time to market



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Masach standard shields saves on custom design costs, doing away with the need to produce expensive prototypes for evaluation, as well as significantly reduces delivery times. Our standard drawn EMI/RFI shields consist of tin-plated steel alloys, commonly used for board-level shielding due to their exceptional mechanical formability, environmental compliance, and relative low cost.

Engineers taking part in the board design phase can take advantage of the information concerning all mechanical aspects of Masach shields, conveniently available for download (PDF datasheets and CAD files), from the website product page.

## Pick-out your next EMI/RFI Shield »


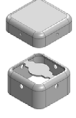



# The largest selection of standard EMI/RFI shields in the industry!













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**OrderOnline**

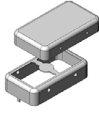

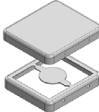


**NOTE.** All Items in this category are according to our Tinplate Standard Steel: (1) TS275E 8.4/8.4 (2) Electrolytic Tin Plate As Per En 10202:2001 Min Tin Thickness 3.5 um (3) General tolerance (+/-) 0.2mm unless otherwise specified. Non dimensioned items remain Masach Tech Ltd. property.






If you cannot find a standard shield according to your requirements, you are welcome to contact us at: [info@masach.com](mailto:info@masach.com) and we will make the adjustments or find a suitable solution for your specific needs.




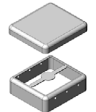
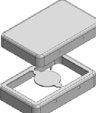
MS SET PN.	MS PN.	Description	Length (Ext)		Width (Ext)		Height (Ext)	
			mm	inch	mm	inch	mm	inch
	MS087-10F	EMI/RFI Frame	8.7	0.343	6.3	0.248	3	0.118
	MS087-10C	EMI/RFI Cover	9.3	0.366	6.9	0.272	2.7	0.106
Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD								
	MS093-10F	EMI/RFI Frame	9.3	0.366	9.3	0.366	5	0.197
	MS093-10C	EMI/RFI Cover	9.7	0.382	9.7	0.382	3	0.118
Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD								
	MS110-10F	EMI/RFI Frame	11	0.433	11	0.433	2.8	0.110
	MS110-10C	EMI/RFI Cover	11.6	0.457	11.6	0.457	2.8	0.110
Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD								
	MS110-20F	EMI/RFI Frame	11	0.433	11	0.433	6	0.236
	MS110-20C	EMI/RFI Cover	11.6	0.457	11.6	0.457	2.8	0.110
Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD								
	MS130-10F	EMI/RFI Frame	13	0.512	13	0.512	5	0.197
	MS130-10C	EMI/RFI Cover	13.6	0.535	13.6	0.535	3	0.118
Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD								

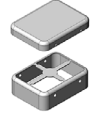


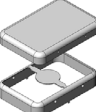

MS SET PN.	MS PN.	Description	Length (Ext)		Width (Ext)		Height (Ext)	
			mm	inch	mm	inch	mm	inch
MS135-20	MS135-20F	EMI/RFI Frame	13.5	0.531	13.5	0.531	5.1	0.201
	MS135-20C	EMI/RFI Cover	14.1	0.555	14.1	0.555	3	0.118
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS148-10	MS148-10F	EMI/RFI Frame	14.8	0.583	8.9	0.350	2	0.079
	MS148-10C	EMI/RFI Cover	15.2	0.598	9.3	0.366	2	0.079
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS156-10	MS156-10F	EMI/RFI Frame	15.6	0.614	10.6	0.417	3	0.118
	MS156-10C	EMI/RFI Cover	16	0.630	11	0.433	2.6	0.102
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS168-10	MS168-10F	EMI/RFI Frame	16.8	0.661	13.5	0.531	5	0.197
	MS168-10C	EMI/RFI Cover	17.2	0.677	13.9	0.547	3	0.118
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS183-10	MS183-10F	EMI/RFI Frame	18.3	0.720	10.5	0.413	3	0.118
	MS183-10C	EMI/RFI Cover	18.9	0.744	11.1	0.437	3	0.118
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							



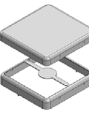

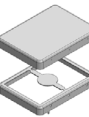
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			mm	inch	mm	inch	mm	inch
MS190-10	MS190-10F	EMI/RFI Frame	19	0.748	13.9	0.547	2	0.079
	MS190-10C	EMI/RFI Cover	19.4	0.764	14.3	0.563	1.7	0.067
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS193-10	MS193-10F	EMI/RFI Frame	19.3	0.760	10.5	0.413	3	0.118
	MS193-10C	EMI/RFI Cover	19.9	0.783	11.1	0.437	2.7	0.106
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS206-10	MS206-10F	EMI/RFI Frame	20.6	0.811	17.8	0.701	3	0.118
	MS206-10C	EMI/RFI Cover	21.2	0.835	18.4	0.724	2.7	0.106
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS209-10	MS209-10F	EMI/RFI Frame	20.9	0.823	15.3	0.602	1.65	0.065
	MS209-10C	EMI/RFI Cover	21.3	0.839	15.7	0.618	1.7	0.067
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS209-20	MS209-20F	EMI/RFI Frame	20.9	0.823	15.3	0.602	2	0.079
	MS209-20C	EMI/RFI Cover	21.3	0.839	15.7	0.618	1.7	0.067
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							

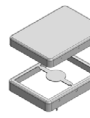
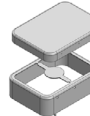


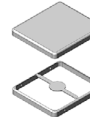
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			mm	inch	mm	inch	mm	inch
MS210-10	MS210-10F	EMI/RFI Frame	21	0.827	12	0.472	5	0.197
	MS210-10C	EMI/RFI Cover	21.6	0.850	12.6	0.496	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS213-10	MS213-10F	EMI/RFI Frame	21.3	0.839	19.9	0.783	2.9	0.114
	MS213-10C	EMI/RFI Cover	21.7	0.854	20.3	0.799	2.5	0.098
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS220-10	MS220-10F	EMI/RFI Frame	22	0.866	19.3	0.760	3.3	0.130
	MS220-10C	EMI/RFI Cover	22.6	0.890	19.9	0.783	3	0.118
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS220-20	MS220-20F	EMI/RFI Frame	22	0.866	17.7	0.697	3	0.118
	MS220-20C	EMI/RFI Cover	22.4	0.882	18.1	0.713	3	0.118
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS220-30	MS220-30F	EMI/RFI Frame	22	0.866	11.3	0.445	2.8	0.110
	MS220-30C	EMI/RFI Cover	22.6	0.890	11.9	0.469	2.8	0.110
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							


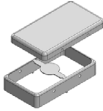
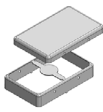
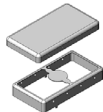
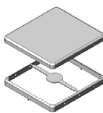
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			mm	inch	mm	inch	mm	inch
MS220-40	MS220-40F	EMI/RFI Frame	22	0.866	11.3	0.445	7	0.276
	MS220-40C	EMI/RFI Cover	22.6	0.890	11.9	0.469	2.8	0.110
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS223-10	MS223-10F	EMI/RFI Frame	22.3	0.878	17.3	0.681	5	0.197
	MS223-10C	EMI/RFI Cover	22.7	0.894	17.7	0.697	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS226-10	MS226-10F	EMI/RFI Frame	22.6	0.890	17.1	0.673	2	0.079
	MS226-10C	EMI/RFI Cover	23	0.906	17.5	0.689	2	0.079
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS233-10	MS233-10F	EMI/RFI Frame	23.3	0.917	17.5	0.689	5	0.197
	MS233-10C	EMI/RFI Cover	23.7	0.933	17.9	0.705	2.8	0.110
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS233-20	MS233-20F	EMI/RFI Frame	23.3	0.917	14.5	0.571	3	0.118
	MS233-20C	EMI/RFI Cover	23.7	0.933	14.9	0.587	3	0.118
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							

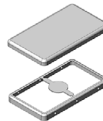

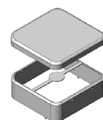

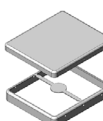
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			mm	inch	mm	inch	mm	inch
MS256-10	MS256-10F	EMI/RFI Frame	25.6	1.008	15.5	0.610	2.3	0.091
	MS256-10C	EMI/RFI Cover	26	1.024	15.9	0.626	2.3	0.091
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS257-10	MS257-10F	EMI/RFI Frame	25.7	1.012	25.7	1.012	6.5	0.256
	MS257-10C	EMI/RFI Cover	26.3	1.035	26.3	1.035	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS259-10	MS259-10F	EMI/RFI Frame	25.9	1.020	25.9	1.020	3	0.118
	MS259-10C	EMI/RFI Cover	26.3	1.035	26.3	1.035	3	0.118
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS260-10	MS260-10F	EMI/RFI Frame	26	1.024	23	0.906	7.8	0.307
	MS260-10C	EMI/RFI Cover	26.6	1.047	23.6	0.929	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS263-10	MS263-10F	EMI/RFI Frame	26.3	1.035	16.8	0.661	4.5	0.177
	MS263-10C	EMI/RFI Cover	26.9	1.059	17.4	0.685	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							


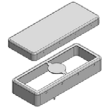



MS SET PN.	MS PN.	Description	Length (Ext)		Width (Ext)		Height (Ext)	
			mm	inch	mm	inch	mm	inch
MS263-20	MS263-20F	EMI/RFI Frame	26.3	1.035	19.8	0.780	8.1	0.319
	MS263-20C	EMI/RFI Cover	26.9	1.059	20.4	0.803	3.7	0.146
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS268-10	MS268-10F	EMI/RFI Frame	26.8	1.055	15.6	0.614	2.5	0.098
	MS268-10C	EMI/RFI Cover	27.4	1.079	16.2	0.638	2.5	0.098
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS268-20	MS268-20F	EMI/RFI Frame	26.8	1.055	15.6	0.614	4	0.157
	MS268-20C	EMI/RFI Cover	27.4	1.079	16.2	0.638	2.5	0.098
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS288-10	MS288-10F	EMI/RFI Frame	28.8	1.134	19.4	0.764	5	0.197
	MS288-10C	EMI/RFI Cover	29.4	1.157	20	0.787	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS293-10	MS293-10F	EMI/RFI Frame	29.3	1.154	25.3	0.996	6.4	0.252
	MS293-10C	EMI/RFI Cover	29.9	1.177	25.9	1.020	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							

MS SET PN.	MS PN.	Description	Length (Ext)		Width (Ext)		Height (Ext)	
			mm	inch	mm	inch	mm	inch
MS300-10	MS300-10F	EMI/RFI Frame	30	1.181	24.4	0.961	3.5	0.138
	MS300-10C	EMI/RFI Cover	30.6	1.205	25	0.984	3	0.118
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS308-10	MS308-10F	EMI/RFI Frame	30.8	1.213	17.8	0.701	4.4	0.173
	MS308-10C	EMI/RFI Cover	31.4	1.236	18.4	0.724	4.4	0.173
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS312-10	MS312-10F	EMI/RFI Frame	31.2	1.228	30	1.181	5	0.197
	MS312-10C	EMI/RFI Cover	31.8	1.252	30.6	1.205	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS321-10	MS321-10F	EMI/RFI Frame	32.1	1.264	16.6	0.654	2.5	0.098
	MS321-10C	EMI/RFI Cover	32.5	1.280	17	0.669	2.2	0.087
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS323-10	MS323-10F	EMI/RFI Frame	32.3	1.272	23.8	0.937	3.7	0.146
	MS323-10C	EMI/RFI Cover	32.9	1.295	24.4	0.961	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							

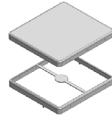



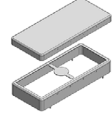
MS SET PN.	MS PN.	Description	Length (Ext)		Width (Ext)		Height (Ext)	
			mm	inch	mm	inch	mm	inch
MS323-20	MS323-20F	EMI/RFI Frame	32.3	1.272	23.8	0.937	4.7	0.185
	MS323-20C	EMI/RFI Cover	32.9	1.295	24.4	0.961	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS323-30	MS323-30F	EMI/RFI Frame	32.3	1.272	23.8	0.937	9	0.354
	MS323-30C	EMI/RFI Cover	32.9	1.295	24.4	0.961	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS329-10	MS329-10F	EMI/RFI Frame	32.9	1.295	20.7	0.815	2.5	0.098
	MS329-10C	EMI/RFI Cover	33.3	1.311	21.1	0.831	2.2	0.087
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS333-10	MS333-10F	EMI/RFI Frame	33.3	1.311	13.3	0.524	4.4	0.173
	MS333-10C	EMI/RFI Cover	33.9	1.335	13.9	0.547	3.5	0.138
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS338-10	MS338-10F	EMI/RFI Frame	33.8	1.331	30.3	1.193	3.3	0.130
	MS338-10C	EMI/RFI Cover	34.2	1.346	30.7	1.209	3.2	0.126
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							

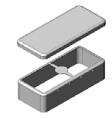

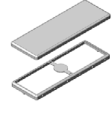

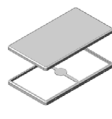
MS SET PN.	MS PN.	Description	Length (Ext)		Width (Ext)		Height (Ext)	
			mm	inch	mm	inch	mm	inch
MS345-10	MS345-10F	EMI/RFI Frame	34.5	1.358	23.3	0.917	3.5	0.138
	MS345-10C	EMI/RFI Cover	35.1	1.382	23.9	0.941	3.3	0.130
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS353-10	MS353-10F	EMI/RFI Frame	35.3	1.390	20	0.787	6.4	0.252
	MS353-10C	EMI/RFI Cover	35.7	1.406	20.4	0.803	3.5	0.138
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS353-20	MS353-20F	EMI/RFI Frame	35.3	1.390	22.3	0.878	6.4	0.252
	MS353-20C	EMI/RFI Cover	35.7	1.406	22.7	0.894	3.5	0.138
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS355-10	MS355-10F	EMI/RFI Frame	35.5	1.398	19	0.748	5.5	0.217
	MS355-10C	EMI/RFI Cover	36.1	1.421	19.6	0.772	3.8	0.150
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS366-10	MS366-10F	EMI/RFI Frame	36.6	1.441	34.1	1.343	3.3	0.130
	MS366-10C	EMI/RFI Cover	37	1.457	34.5	1.358	2.8	0.110
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							



MS SET PN.	MS PN.	Description	Length (Ext)		Width (Ext)		Height (Ext)	
			mm	inch	mm	inch	mm	inch
MS378-10	MS378-10F	EMI/RFI Frame	37.8	1.488	21.6	0.850	3	0.118
	MS378-10C	EMI/RFI Cover	38.4	1.512	22.2	0.874	2.7	0.106
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS382-10	MS382-10F	EMI/RFI Frame	38.2	1.504	33.3	1.311	5	0.197
	MS382-10C	EMI/RFI Cover	38.8	1.528	33.9	1.335	3	0.118
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS384-10	MS384-10F	EMI/RFI Frame	38.4	1.512	37.6	1.480	11	0.433
	MS384-10C	EMI/RFI Cover	39	1.535	38.2	1.504	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS400-10	MS400-10F	EMI/RFI Frame	40	1.575	18.3	0.720	4	0.157
	MS400-10C	EMI/RFI Cover	40.6	1.598	18.9	0.744	3	0.118
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS402-10	MS402-10F	EMI/RFI Frame	40.2	1.583	34.6	1.362	5.3	0.209
	MS402-10C	EMI/RFI Cover	40.8	1.606	35.2	1.386	3.5	0.138
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							

MS SET PN.	MS PN.	Description	Length (Ext)		Width (Ext)		Height (Ext)	
			mm	inch	mm	inch	mm	inch
MS412-10	MS412-10F	EMI/RFI Frame	41.2	1.622	13.6	0.535	5.1	0.201
	MS412-10C	EMI/RFI Cover	41.8	1.646	14.2	0.559	3.2	0.126
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS415-10	MS415-10F	EMI/RFI Frame	41.5	1.634	16.8	0.661	6.8	0.268
	MS415-10C	EMI/RFI Cover	42.1	1.657	17.4	0.685	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS415-20	MS415-20F	EMI/RFI Frame	41.5	1.634	26.5	1.043	9.5	0.374
	MS415-20C	EMI/RFI Cover	42.1	1.657	27.1	1.067	5	0.197
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS423-10	MS423-10F	EMI/RFI Frame	42.3	1.665	15.3	0.602	4.4	0.173
	MS423-10C	EMI/RFI Cover	42.9	1.689	15.9	0.626	3.5	0.138
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS448-10	MS448-10F	EMI/RFI Frame	44.8	1.764	18.2	0.717	3	0.118
	MS448-10C	EMI/RFI Cover	45.2	1.780	18.6	0.732	2.8	0.110
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							

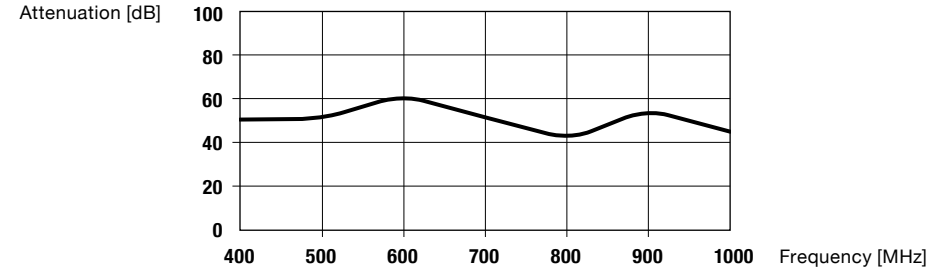
MS SET PN.	MS PN.	Description	Length (Ext)		Width (Ext)		Height (Ext)	
			mm	inch	mm	inch	mm	inch
MS448-20	MS448-20F	EMI/RFI Frame	44.8	1.764	18.2	0.717	5.7	0.224
	MS448-20C	EMI/RFI Cover	45.2	1.780	18.6	0.732	2.8	0.110
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS453-10	MS453-10F	EMI/RFI Frame	45.3	1.783	16.2	0.638	6	0.236
	MS453-10C	EMI/RFI Cover	45.9	1.807	16.8	0.661	2.9	0.114
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS466-10	MS466-10F	EMI/RFI Frame	46.6	1.835	17.3	0.681	5	0.197
	MS466-10C	EMI/RFI Cover	47.2	1.858	17.9	0.705	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS473-10	MS473-10F	EMI/RFI Frame	47.3	1.862	23.3	0.917	5.3	0.209
	MS473-10C	EMI/RFI Cover	47.9	1.886	23.9	0.941	3.5	0.138
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS477-10	MS477-10F	EMI/RFI Frame	47.7	1.878	18.2	0.717	4	0.157
	MS477-10C	EMI/RFI Cover	48.3	1.902	18.8	0.740	3	0.118
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							

MS SET PN.	MS PN.	Description	Length (Ext)		Width (Ext)		Height (Ext)	
			mm	inch	mm	inch	mm	inch
MS483-10	MS483-10F	EMI/RFI Frame	48.3	1.902	44.3	1.744	4.4	0.173
	MS483-10C	EMI/RFI Cover	48.9	1.925	44.9	1.768	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS511-10	MS511-10F	EMI/RFI Frame	51.1	2.012	25.7	1.012	6.5	0.256
	MS511-10C	EMI/RFI Cover	51.7	2.035	26.3	1.035	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS511-20	MS511-20F	EMI/RFI Frame	51.1	2.012	38.4	1.512	6.5	0.256
	MS511-20C	EMI/RFI Cover	51.7	2.035	39	1.535	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS513-10	MS513-10F	EMI/RFI Frame	51.3	2.020	26.5	1.043	9.5	0.374
	MS513-10C	EMI/RFI Cover	51.9	2.043	27.1	1.067	3.5	0.138
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS544-10	MS544-10F	EMI/RFI Frame	54.4	2.142	23.9	0.941	7.5	0.295
	MS544-10C	EMI/RFI Cover	55	2.165	24.5	0.965	4	0.157
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							

MS SET PN.	MS PN.	Description	Length (Ext)		Width (Ext)		Height (Ext)	
			mm	inch	mm	inch	mm	inch
MS544-20	MS544-20F	EMI/RFI Frame	54.4	2.142	23.9	0.941	13.5	0.531
	MS544-20C	EMI/RFI Cover	55	2.165	24.5	0.965	3.5	0.138
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS585-10	MS585-10F	EMI/RFI Frame	58.5	2.303	49.7	1.957	4.7	0.185
	MS585-10C	EMI/RFI Cover	59.1	2.327	50.3	1.980	3	0.118
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS593-10	MS593-10F	EMI/RFI Frame	59.3	2.335	20.6	0.811	2.8	0.110
	MS593-10C	EMI/RFI Cover	59.9	2.358	21.2	0.835	2.5	0.098
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS593-20	MS593-20F	EMI/RFI Frame	59.3	2.335	20.6	0.811	5.7	0.224
	MS593-20C	EMI/RFI Cover	59.9	2.358	21.2	0.835	3	0.118
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							
MS631-10	MS631-10F	EMI/RFI Frame	63.1	2.484	35.5	1.398	2.8	0.110
	MS631-10C	EMI/RFI Cover	63.5	2.500	35.9	1.413	2.5	0.098
	Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD							

MS SET PN.	MS PN.	Description	Length (Ext)		Width (Ext)		Height (Ext)	
			mm	inch	mm	inch	mm	inch
MS737-10	MS737-10F	EMI/RFI Frame	73.7	2.902	28.1	1.106	2.9	0.114
	MS737-10C	EMI/RFI Cover	74.3	2.925	28.7	1.130	3	0.118
		Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD						
MS-ENG-KIT21	MS-ENG-KIT21	Engineering Kit	---	---	---	---	---	---
		Seamless Protective Cage   Two-piece Shield   Tin Plated Steel   SMD						

## Typical PCB Shielding Effectiveness.



[Typical performance of 51.1mm x 38.4mm EMI/RFI shield as reference]

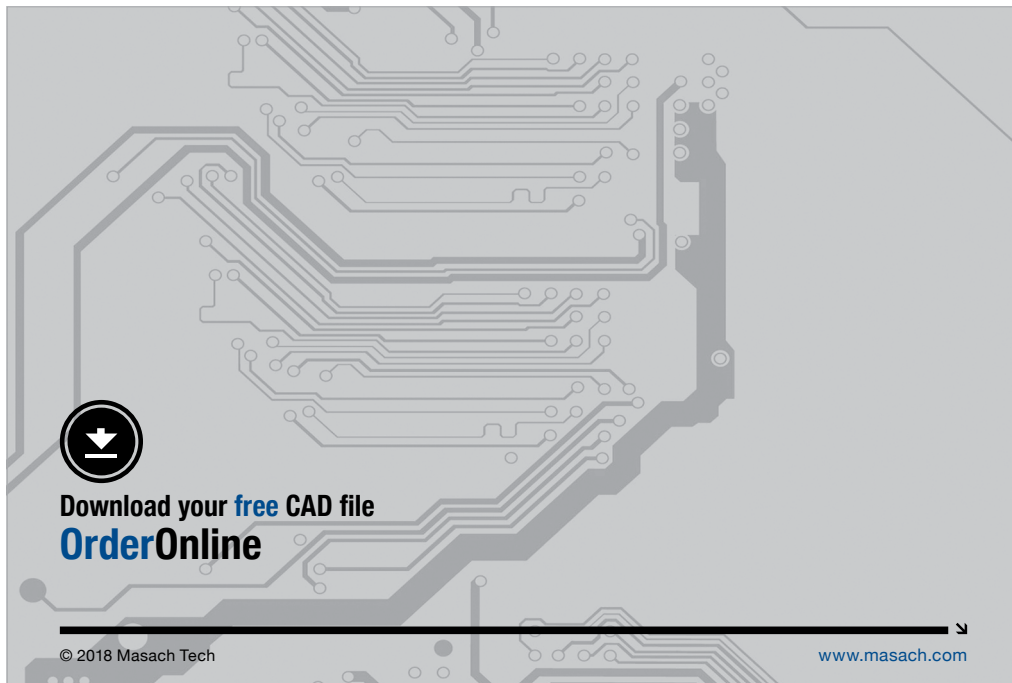
## Tinplate Steel Stock Storage & Handling


### Materials Specification: Cold Reduced Electrolytic Tinplate Steel Tinplate Standard: TS275E8.4/8.4 EN 10202:2001

The materials used to fabricate these shields are based on mild steel with less than 0.12% Carbon and no more than 1% alloying elements and naturally occurring impurities. Major shielding elements are thus ferrous and tin. The thin resultant layer of tin enables shields to be easily soldered to PC boards as well as to resist corrosion during the assembly process. Tin plate shields offer the most cost effective shielding protection provided the following care is taken during storage and handling:

1. Do not pass these components through a salt bath test, they are not designed for such severe treatment. Alternate materials (albeit more expensive) are available.
2. Frames should be left in the package trays until assembly to preserve shield planarity.
3. Store in a cool dry place and avoid water or other liquids from coming into contact with shields.
4. Mild scratching and scuffs are natural for processed shields from pre-plated material. Protective films can be ordered especially for unblemished finish of covers.
5. Extremely thin film of oil may cover some shields. This does affect soldering and need not be removed.

Tinplate shields constitute over 85% of the materials used in the Masach production program and have been proven effective in their respective applications.




  
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## Worldwide Activity.



### Global Recognition



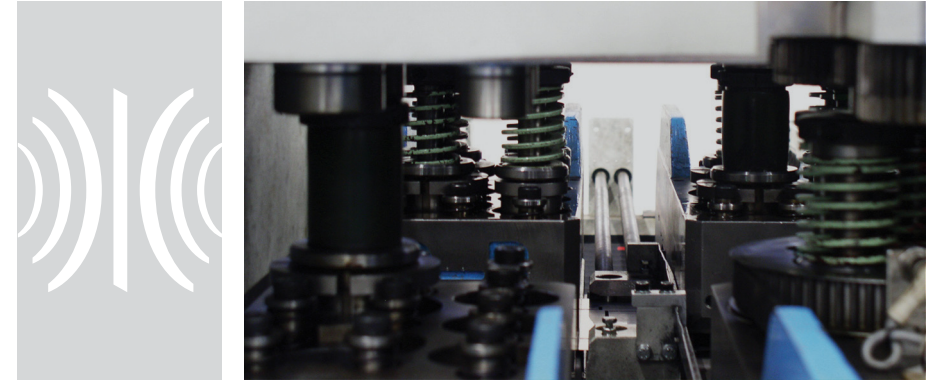
We continue to develop innovative products utilizing new manufacturing techniques, serving our ever-growing network of worldwide distributors and customers.

### ISO 9001:2015 Quality Assurance



We provide our customers with highest quality products and timely delivery, managed by a state of the art ERP system in accordance with ISO 9001 quality standards.

## Green Policy.



### RoHS & Reach Compatible



We use only fabricated materials that are RoHS and Reach compatible, with standards continually updated. COC of base material used is available upon request.

### Scrap and Discarded Material

All material scrap resultant from the fabrication process is gathered and stored in separate bins for subsequent recycling. We pride ourselves in achieving 100% recycling of all metallic waste. Plastic sheet scrap resultant from the vacuum form process is 100% recycled via the raw material provider. We encourage our customers to return the vacuum form package trays and packing cartons for future recycling.

### Environment

Our modern fabrication plant and facilities are surrounded by trees, shrubs and flower beds. Water condensed from the plant's air conditioners serve to water our gardens, requiring no additional irrigation.

MS SET PN.	Length (Ext)		Width (Ext)		Height (Ext)	
	mm	inch	mm	inch	mm	inch

MS087-10	8.7	0.366	6.3	0.366	3	0.197
MS093-10	9.3	0.366	9.3	0.366	5	0.197
MS110-10	11	0.433	11	0.433	2.8	0.110
MS110-20	11	0.433	11	0.433	6	0.236
MS130-10	13	0.512	13	0.512	5	0.197
MS135-20	13.5	0.531	13.5	0.531	5.1	0.201
MS148-10	14.8	0.583	8.9	0.350	2	0.079
MS156-10	15.6	0.614	10.6	0.417	3	0.118
MS168-10	16.8	0.661	13.5	0.531	5	0.197
MS183-10	18.3	0.720	10.5	0.413	3	0.118
MS190-10	19	0.748	13.9	0.547	2	0.079
MS193-10	19.3	0.760	10.5	0.413	3	0.118
MS206-10	20.6	0.811	17.8	0.701	3	0.118
MS209-10	20.9	0.823	15.3	0.602	1.65	0.065
MS209-20	20.9	0.823	15.3	0.602	2	0.079
MS210-10	21	0.827	12	0.472	5	0.197
MS213-10	21.3	0.827	19.9	0.783	2.9	0.114
MS220-10	22	0.866	19.3	0.760	3.3	0.130
MS220-20	22	0.866	17.7	0.697	3	0.118
MS220-30	22	0.866	11.3	0.445	2.8	0.110
MS220-40	22	0.866	11.3	0.445	7	0.276
MS223-10	22.3	0.878	17.3	0.681	3	0.118
MS226-10	22.6	0.890	17.1	0.673	2	0.079
MS233-10	23.3	0.917	17.5	0.689	5	0.197
MS233-20	23.3	0.917	14.5	0.571	3	0.118
MS256-10	25.6	1.008	15.5	0.610	2.3	0.091
MS257-10	25.7	1.012	25.7	1.012	6.5	0.256
MS259-10	25.9	1.020	25.9	1.020	3	0.118
MS260-10	26	1.024	23	0.906	7.8	0.307
MS263-10	26.3	1.035	16.8	0.661	4.5	0.177
MS263-20	26.3	1.035	19.8	0.780	8.1	0.319
MS268-10	26.8	1.055	15.6	0.614	2.5	0.098
MS268-20	26.8	1.055	15.6	0.614	4	0.157
MS288-10	28.8	1.134	19.4	0.764	5	0.197
MS293-10	29.3	1.154	25.3	0.996	6.4	0.252
MS300-10	30	1.181	24.4	0.961	3.5	0.138
MS308-10	30.8	1.213	17.8	0.701	4.4	0.173
MS312-10	31.2	1.228	30	1.181	5	0.197

MS SET PN.	Length (Ext)		Width (Ext)		Height (Ext)	
	mm	inch	mm	inch	mm	inch

MS321-10	32.1	1.264	16.6	0.654	2.5	0.098
MS323-10	32.3	1.272	23.8	0.937	3.7	0.146
MS323-20	32.3	1.272	23.8	0.937	4.7	0.185
MS323-30	32.3	1.272	23.8	0.937	9	0.354
MS329-10	32.9	1.295	20.7	0.815	2.5	0.098
MS333-10	33.3	1.311	13.3	0.524	4.4	0.173
MS338-10	33.8	1.331	30.3	1.193	3.3	0.130
MS345-10	34.5	1.358	23.3	0.917	3.5	0.138
MS353-10	35.3	1.390	20	0.787	6.4	0.252
MS353-20	35.3	1.390	22.3	0.878	6.4	0.252
MS355-10	35.5	1.398	19	0.748	5.5	0.217
MS366-10	36.6	1.441	34.1	1.343	3.3	0.130
MS378-10	37.8	1.488	21.6	0.850	3	0.118
MS382-10	38.2	1.504	33.3	1.311	5	0.197
MS384-10	38.4	1.512	37.6	1.480	11	0.433
MS400-10	40	1.575	18.3	0.720	4	0.157
MS402-10	40.2	1.583	34.6	1.362	5.3	0.209
MS412-10	41.2	1.622	13.6	0.535	5.1	0.201
MS415-10	41.5	1.634	16.8	0.661	6.8	0.268
MS415-20	41.5	1.634	26.5	1.043	9.5	0.374
MS423-10	42.3	1.665	15.3	0.602	4.4	0.173
MS448-10	44.8	1.764	18.2	0.717	3	0.118
MS448-20	44.8	1.764	18.2	0.717	5.7	0.224
MS453-10	45.3	1.783	16.2	0.638	6	0.236
MS466-10	46.6	1.835	17.3	0.681	5	0.197
MS473-10	47.3	1.862	23.3	0.917	5.3	0.209
MS477-10	47.7	1.878	18.2	0.717	4	0.157
MS483-10	48.3	1.902	44.3	1.744	4.4	0.173
MS511-10	51.1	2.012	25.7	1.012	6.5	0.256
MS511-20	51.1	2.012	38.4	1.512	6.5	0.256
MS513-10	51.3	2.020	26.5	1.043	9.5	0.374
MS544-10	54.4	2.142	23.9	0.941	7.5	0.295
MS544-20	54.4	2.142	23.9	0.941	13.5	0.531
MS585-10	58.5	2.303	49.7	1.957	4.7	0.185
MS593-10	59.3	2.335	20.6	0.811	2.8	0.110
MS593-20	59.3	2.335	20.6	0.811	5.7	0.224
MS631-10	63.1	2.484	35.5	1.398	2.8	0.110
MS737-10	73.7	2.902	28.1	1.106	2.9	0.114

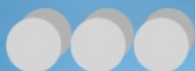
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