

Standard Products Shielded Trays (Power & Data)

"Smart Shield": Electro-Magnetic Shielding Products

1. Selection Guide

Standard Products (Patent)

Trays to Protect Electronic Equipment:

Distance from the source to exposed area	100 A		300 A		500 A		1kA		3 kA		5 kA	
	Cable	Cable	Bus Bar	Cable	Bus Bar	Cable	Bus Bar	Cable	Bus Bar	Cable	Bus Bar	
< 1 meter	ST	HPT	ST	UHPT	HPT	MUHPT	UHPT	upon request	UHPT	upon request	upon request	
1 - 2 meters	ST	ST	ST	HPT	HPT	UHPT	HPT	MUHPT	UHPT	upon request	upon request	
>2 meters	ST	ST	ST	ST	ST	HPT	HPT	UHPT	HPT	MUHPT	UHPT	

ST ~ Standard Tray HPT ~ High Performance Tray UHPT ~ Ultra High Performance Tray MUHPT ~ Mu-ultra High Performance Tray
 note: chart according IEC 61000-4-8 (protection for electronic equipment) <3,75 μ T

Trays to Protect Human Beings:

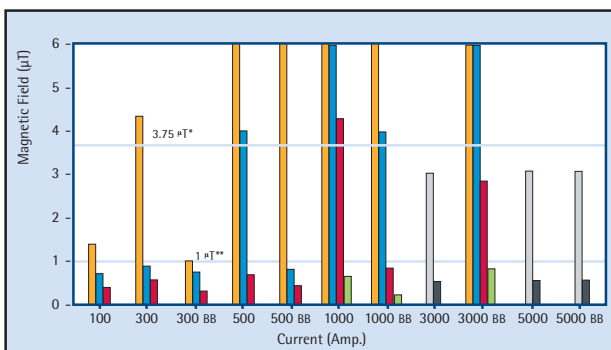
Distance from the source to exposed area	100 A		300 A		500 A		1kA		3 kA		5 kA	
	Cable	Cable	Bus Bar	Cable	Bus Bar	Cable	Bus Bar	Cable	Bus Bar	Cable	Bus Bar	
< 1 meter	HPT	HPT	ST	UHPT	HPT	MUHPT	UHPT	upon request	MUHPT	upon request	upon request	
1 - 2 meters	ST	HPT	ST	UHPT	HPT	MUHPT	UHPT	MUHPT	UHPT	upon request	upon request	
2 - 3 meters	ST	ST	ST	HPT	ST	UHPT	UHPT	MUHPT	UHPT	MUHPT	UHPT	
> 3 meters	ST	ST	ST	ST	ST	HPT	HPT	UHPT	HPT	UHPT	UHPT	

ST ~ Standard Tray HPT ~ High Performance Tray UHPT ~ Ultra High Performance Tray MUHPT ~ Mu-ultra High Performance Tray
 note: chart according NCRP recommendation (protection for people) <1 μ T

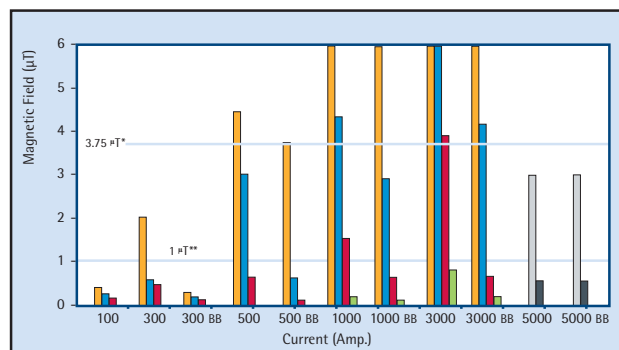
* special products and dimensions available upon request

2. Attenuation Tests (distance)

< 1 meter



1 - 2 meters



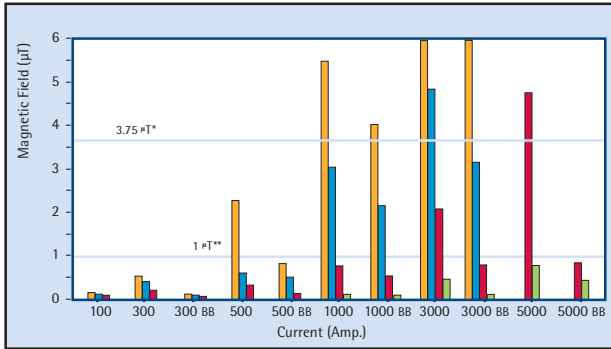
ST ~ Standard Tray HPT ~ High Performance Tray UHPT ~ Ultra High Performance Tray MUHPT ~ Mu-ultra High Performance Tray

* IEC61000-4-8 level from electronic equipment protection ** NCRP level from human beings protection

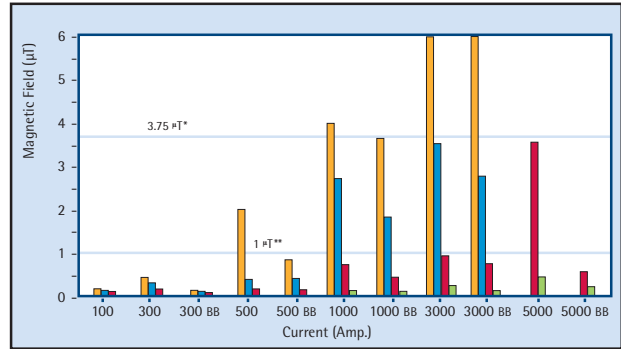
Shielded Trays (Power & Data)

"Smart Shield": Electro-Magnetic Shielding Products

2 - 3 meters



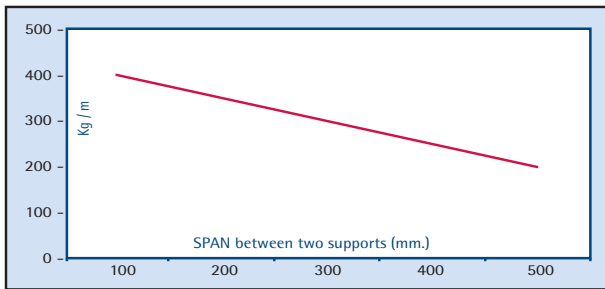
> 3 meters



ST ~ Standard Tray HPT ~ High Performance Tray UHPT ~ Ultra High Performance Tray MUHPT ~ Mu-ultra High Performance Tray

* IEC61000-4-8 level from electronic equipment protection ** NCRP level from human beings protection

3. Mechanical Weight Performance



- Easy Access
- Easy Installation
- Safe Cable Installation
- Maximum EMF Protection
- Cooling

Design Highlights



Overlapping



Ventilation

EN 66004 / 66231 / 66346 BS 6004 / 6231 / 6346

Current-Carrying Capacity Amps		
Conductor Cross Sectional - area (mm ²)	Correction Factor referred to reference method 11	
	2 Cables Single-Phase	3 or 4 Cables Three-Phase
>25	0,94	0,93

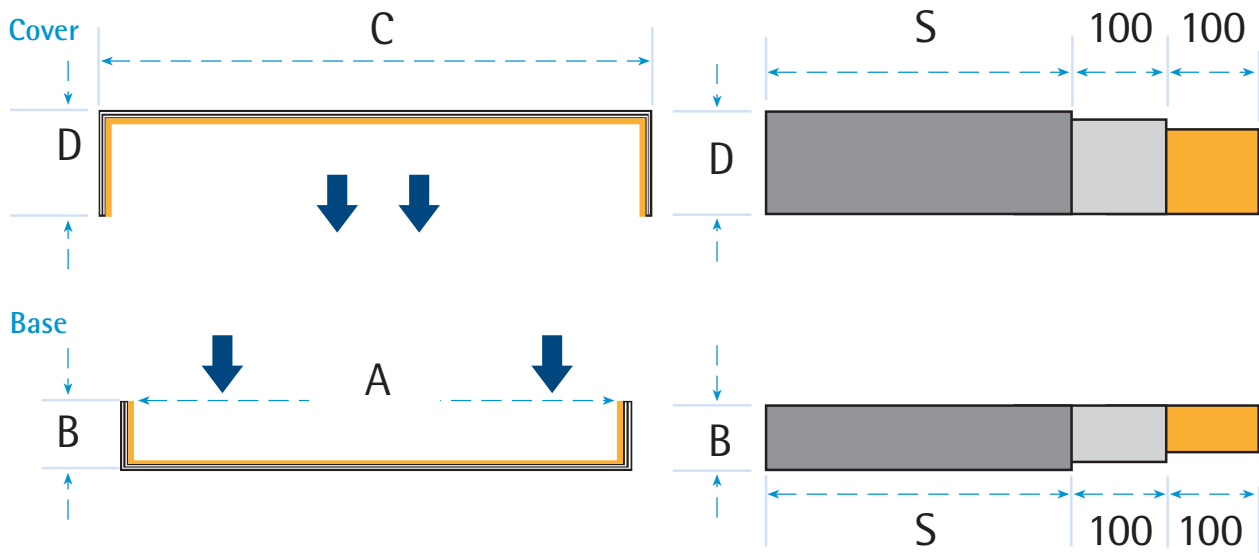


Shielded Trays (Power & Data)

"Smart Shield": Electro-Magnetic Shielding Products

4. Models and Dimensions(1):

Straight Segments (all dimensions in mm)



Ref. Number (example) Straight Segment

Problem: three phases cable of 1000 Amps, 10 meters length (straight) running (at 1 meter distance) from office area.

Question: what shielded tray should be installed to protect people (human beings)?

Answer:

10 units x	Shielding performance	Length	Straight	Width (A) - Height (B)
	MUHPT	1000	S	515 - 100

Standard Performance Tray (all dimensions in mm.)						
S	A (Base)	B	C (Cover)	D	Weight (kg.)	
ST 300	115	50 / 100 / 200	147	70 / 120 / 220	2,03 / 2,84 / 4,46	
	215	50 / 100 / 200	247	70 / 120 / 220	2,84 / 3,65 / 5,27	
	315	50 / 100 / 200	347	70 / 120 / 220	3,65 / 4,46 / 6,08	
	415	50 / 100 / 200	447	70 / 120 / 220	4,46 / 5,27 / 6,89	
	515	50 / 100 / 200	547	70 / 120 / 220	5,27 / 6,08 / 7,70	
ST 500	115	50 / 100 / 200	147	70 / 120 / 220	3,39 / 4,74 / 7,44	
	215	50 / 100 / 200	247	70 / 120 / 220	4,74 / 6,09 / 8,79	
	315	50 / 100 / 200	347	70 / 120 / 220	6,09 / 7,44 / 10,14	
	415	50 / 100 / 200	447	70 / 120 / 220	7,44 / 8,79 / 11,49	
	515	50 / 100 / 200	547	70 / 120 / 220	8,79 / 10,14 / 12,84	
ST 1000	115	50 / 100 / 200	147	70 / 120 / 220	6,78 / 9,48 / 14,88	
	215	50 / 100 / 200	247	70 / 120 / 220	9,48 / 12,18 / 17,58	
	315	50 / 100 / 200	347	70 / 120 / 220	12,18 / 14,88 / 20,28	
	415	50 / 100 / 200	447	70 / 120 / 220	14,88 / 17,58 / 22,98	
	515	50 / 100 / 200	547	70 / 120 / 220	17,58 / 20,30 / 25,68	

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High Performance Tray (all dimensions in mm.)							
S	A	(Base)	B	C	(Cover)	D	Weight (kg.)
HPT 300	115	50 / 100 / 200	160	75 / 125 / 225	4,25 / 5,87 / 9,11		
	215	50 / 100 / 200	260	75 / 125 / 225	5,87 / 7,49 / 10,73		
	315	50 / 100 / 200	360	75 / 125 / 225	7,49 / 9,11 / 12,35		
	415	50 / 100 / 200	460	75 / 125 / 225	9,11 / 10,73 / 13,97		
	515	50 / 100 / 200	560	75 / 125 / 225	10,73 / 12,35 / 15,59		
HPT 500	115	50 / 100 / 200	160	75 / 125 / 225	7,09 / 9,79 / 15,19		
	215	50 / 100 / 200	260	75 / 125 / 225	9,79 / 12,49 / 17,89		
	315	50 / 100 / 200	360	75 / 125 / 225	12,49 / 15,19 / 20,59		
	415	50 / 100 / 200	460	75 / 125 / 225	15,19 / 17,89 / 23,29		
	515	50 / 100 / 200	560	75 / 125 / 225	17,89 / 20,59 / 25,99		
HPT 1000	115	50 / 100 / 200	160	75 / 125 / 225	14,18 / 19,58 / 30,38		
	215	50 / 100 / 200	260	75 / 125 / 225	19,58 / 24,98 / 35,78		
	315	50 / 100 / 200	360	75 / 125 / 225	24,98 / 30,38 / 41,18		
	415	50 / 100 / 200	460	75 / 125 / 225	30,38 / 35,78 / 46,58		
	515	50 / 100 / 200	560	75 / 125 / 225	35,78 / 41,18 / 51,98		

Ultra High Performance Tray (all dimensions in mm.)							
S	A	(Base)	B	C	(Cover)	D	Weight (kg.)
UHPT 300	115	50 / 100 / 200	185	85 / 135 / 235	9,23 / 12,47 / 18,95		
	215	50 / 100 / 200	285	85 / 135 / 235	12,47 / 15,71 / 22,19		
	315	50 / 100 / 200	385	85 / 135 / 235	15,71 / 18,95 / 25,43		
	415	50 / 100 / 200	485	85 / 135 / 235	18,95 / 22,19 / 28,67		
	515	50 / 100 / 200	585	85 / 135 / 235	22,19 / 25,43 / 31,91		
UHPT 500	115	50 / 100 / 200	185	85 / 135 / 235	15,39 / 20,79 / 7,44		
	215	50 / 100 / 200	285	85 / 135 / 235	20,79 / 26,19 / 36,99		
	315	50 / 100 / 200	385	85 / 135 / 235	26,19 / 31,59 / 42,39		
	415	50 / 100 / 200	485	85 / 135 / 235	31,59 / 36,99 / 47,79		
	515	50 / 100 / 200	585	85 / 135 / 235	36,99 / 42,39 / 53,19		
UHPT 1000	115	50 / 100 / 200	185	85 / 135 / 235	30,78 / 41,58 / 63,18		
	215	50 / 100 / 200	285	85 / 135 / 235	41,58 / 52,38 / 73,98		
	315	50 / 100 / 200	385	85 / 135 / 235	52,38 / 63,18 / 84,78		
	415	50 / 100 / 200	485	85 / 135 / 235	63,18 / 73,98 / 95,58		
	515	50 / 100 / 200	585	85 / 135 / 235	73,98 / 84,78 / 106,38		

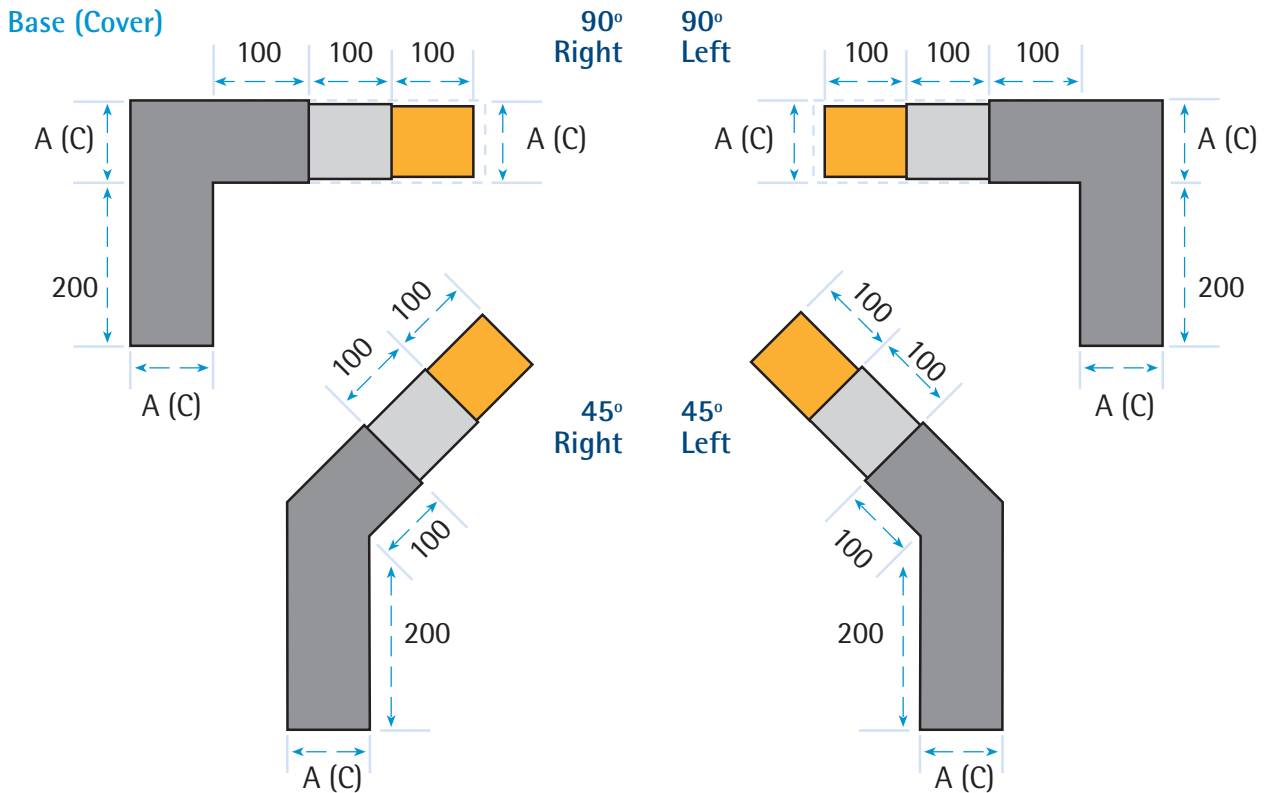
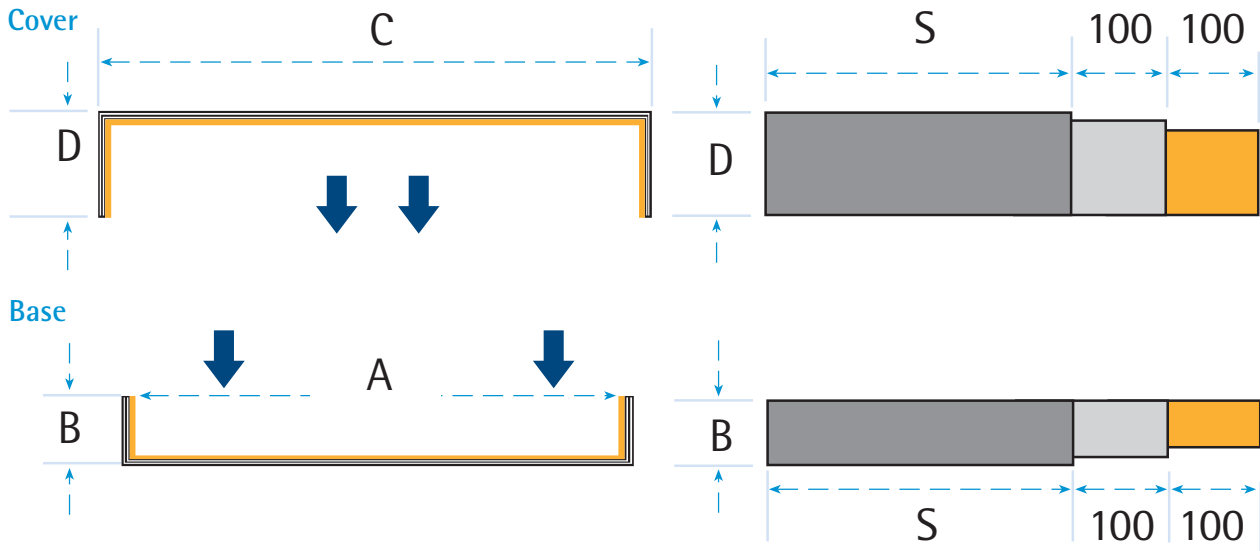
Mu-ultra High Performance Tray (all dimensions in mm.)							
S	A	(Base)	B	C	(Cover)	D	Weight (kg.)
MUHPT 300	115	50 / 100 / 200	185	85 / 135 / 235	9,99 / 13,49 / 20,50		
	215	50 / 100 / 200	285	85 / 135 / 235	13,49 / 16,99 / 24,00		
	315	50 / 100 / 200	385	85 / 135 / 235	16,99 / 20,50 / 27,51		
	415	50 / 100 / 200	485	85 / 135 / 235	20,50 / 24,00 / 31,01		
	515	50 / 100 / 200	585	85 / 135 / 235	24,00 / 27,51 / 34,51		
MUHPT 500	115	50 / 100 / 200	185	85 / 135 / 235	16,64 / 22,48 / 34,16		
	215	50 / 100 / 200	285	85 / 135 / 235	22,48 / 28,32 / 40,00		
	315	50 / 100 / 200	385	85 / 135 / 235	28,32 / 34,16 / 45,84		
	415	50 / 100 / 200	485	85 / 135 / 235	34,16 / 40,00 / 51,68		
	515	50 / 100 / 200	585	85 / 135 / 235	40,00 / 45,84 / 57,52		
MUHPT 1000	115	50 / 100 / 200	185	85 / 135 / 235	33,29 / 44,97 / 68,33		
	215	50 / 100 / 200	285	85 / 135 / 235	44,97 / 56,65 / 80,01		
	315	50 / 100 / 200	385	85 / 135 / 235	56,65 / 68,33 / 91,69		
	415	50 / 100 / 200	485	85 / 135 / 235	68,33 / 80,01 / 103,37		
	515	50 / 100 / 200	585	85 / 135 / 235	80,01 / 91,69 / 115,05		

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8. Models and Dimensions:

Curves (all dimensions in mm)



Ref. Number (example)
Curve Segment

Shielding performance	Angle	Curve (T)	Width (A) - Height (B)
MUHPT	90	R	515 - 200

Shielded Trays (Power & Data)

"Smart Shield": Electro-Magnetic Shielding Products

Standard Performance Tray (all dimensions in mm.)							
T	A	(Base)	B	C	(Cover)	D	Weight (kg.)
ST 45 R / L	115	50 / 100 / 200	147	70 / 120 / 220	1,93 / 2,60 / 3,95		
	215	50 / 100 / 200	247	70 / 120 / 220	3,09 / 3,77 / 5,12		
	315	50 / 100 / 200	347	70 / 120 / 220	4,53 / 5,20 / 6,55		
	415	50 / 100 / 200	447	70 / 120 / 220	6,23 / 6,91 / 8,26		
	515	50 / 100 / 200	547	70 / 120 / 220	8,20 / 8,88 / 10,23		
ST 90 R / L	115	50 / 100 / 200	147	70 / 120 / 220	2,16 / 2,84 / 4,19		
	215	50 / 100 / 200	247	70 / 120 / 220	3,82 / 4,49 / 5,84		
	315	50 / 100 / 200	347	70 / 120 / 220	6,01 / 6,68 / 8,03		
	415	50 / 100 / 200	447	70 / 120 / 220	8,74 / 9,42 / 10,77		
	515	50 / 100 / 200	547	70 / 120 / 220	12,01 / 12,69 / 14,04		

High Performance Tray (all dimensions in mm.)							
T	A	(Base)	B	C	(Cover)	D	Weight (kg.)
HPT 45 R / L	115	50 / 100 / 200	160	75 / 125 / 225	4,07 / 5,42 / 8,12		
	215	50 / 100 / 200	260	75 / 125 / 225	6,43 / 7,78 / 10,48		
	315	50 / 100 / 200	360	75 / 125 / 225	9,33 / 10,68 / 13,38		
	415	50 / 100 / 200	460	75 / 125 / 225	12,78 / 14,13 / 16,83		
	515	50 / 100 / 200	560	75 / 125 / 225	16,76 / 18,11 / 20,81		
HPT 90 R / L	115	50 / 100 / 200	160	75 / 125 / 225	4,59 / 5,94 / 8,64		
	215	50 / 100 / 200	260	75 / 125 / 225	7,97 / 9,32 / 12,02		
	315	50 / 100 / 200	360	75 / 125 / 225	12,42 / 13,77 / 16,47		
	415	50 / 100 / 200	460	75 / 125 / 225	17,96 / 19,31 / 22,01		
	515	50 / 100 / 200	560	75 / 125 / 225	24,57 / 25,92 / 28,62		

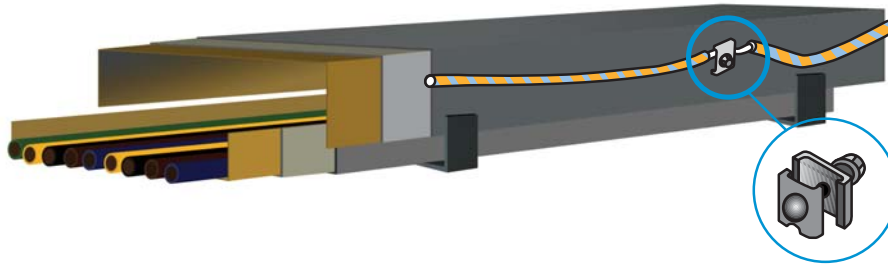
Ultra High Performance Tray (all dimensions in mm.)							
T	A	(Base)	B	C	(Cover)	D	Weight (kg.)
UHPT 45 R / L	115	50 / 100 / 200	185	85 / 135 / 235	8,98 / 11,68 / 17,08		
	215	50 / 100 / 200	285	85 / 135 / 235	13,84 / 16,54 / 21,94		
	315	50 / 100 / 200	385	85 / 135 / 235	19,78 / 22,48 / 27,88		
	415	50 / 100 / 200	485	85 / 135 / 235	26,80 / 29,50 / 34,90		
	515	50 / 100 / 200	585	85 / 135 / 235	34,90 / 37,60 / 43,00		
UHPT 90 R / L	115	50 / 100 / 200	185	85 / 135 / 235	10,26 / 12,96 / 18,36		
	215	50 / 100 / 200	285	85 / 135 / 235	17,28 / 19,98 / 25,38		
	315	50 / 100 / 200	385	85 / 135 / 235	26,46 / 29,16 / 34,56		
	415	50 / 100 / 200	485	85 / 135 / 235	37,80 / 40,50 / 45,90		
	515	50 / 100 / 200	585	85 / 135 / 235	51,30 / 54,00 / 59,40		

Mu-ultra High Performance Tray (all dimensions in mm.)							
T	A	(Base)	B	C	(Cover)	D	Weight (kg.)
MUHPT 45 R / L	115	50 / 100 / 200	185	85 / 135 / 235	9,71 / 12,63 / 18,47		
	215	50 / 100 / 200	285	85 / 135 / 235	14,96 / 17,88 / 23,72		
	315	50 / 100 / 200	385	85 / 135 / 235	21,39 / 24,31 / 30,15		
	415	50 / 100 / 200	485	85 / 135 / 235	28,98 / 31,90 / 37,74		
	515	50 / 100 / 200	585	85 / 135 / 235	37,74 / 40,66 / 46,50		
MUHPT 90 R / L	115	50 / 100 / 200	185	85 / 135 / 235	11,09 / 14,01 / 19,85		
	215	50 / 100 / 200	285	85 / 135 / 235	18,69 / 21,61 / 27,45		
	315	50 / 100 / 200	385	85 / 135 / 235	28,61 / 31,53 / 37,37		
	415	50 / 100 / 200	485	85 / 135 / 235	40,88 / 43,80 / 49,64		
	515	50 / 100 / 200	585	85 / 135 / 235	55,48 / 58,40 / 64,24		

Shielded Trays (Power & Data)

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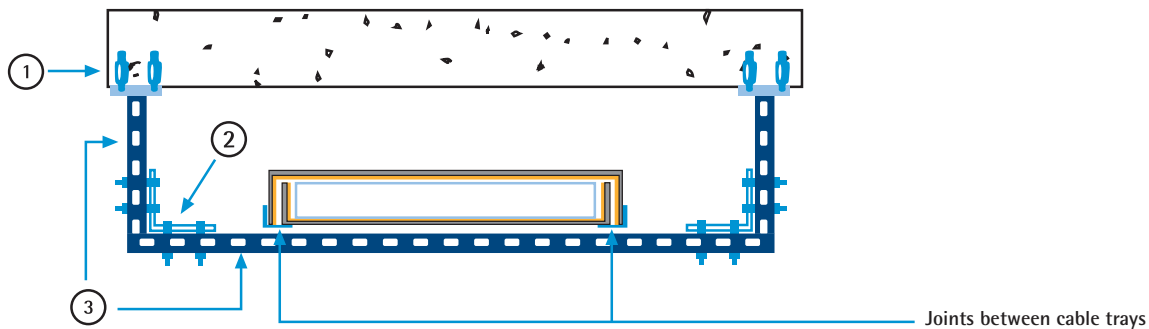
6. Installation Guide



Note: cable tray must be connected to ground with 25 mm² copper cable.

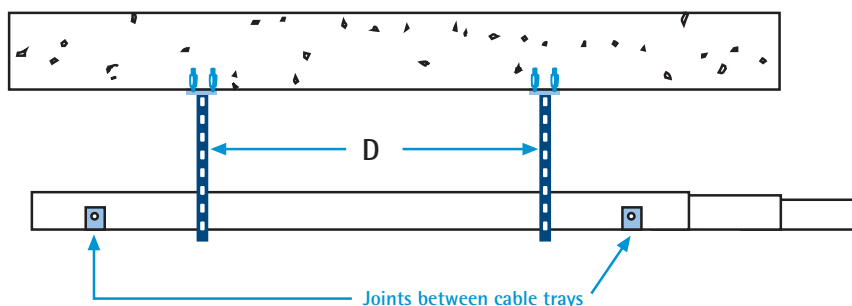
Supports (manufactured by HILTI)

Fixing supports to concrete ceiling



	Description	Reference (HILTI)	Screws	Length (mm)	Screws
1	Fastener or concrete	ML-B-30/220	307129/7	220	M8x30 and M8x60 (incl.)
		ML-B-30/350	307130/5	350	
2	Corners support and screws	ML-A-90	307128/9	44	M8x10 (incl.)
3	Vertical and horizontal support	ML-C-30	307120/6	2000	NO

Distance between Supports



Note: joints must be separated from fixing supports to concrete ceiling.

Important exception:

Models: UHPT 1000 S 515 or UHPT 1000 S 415 must be fixed with 3 supports, and also the MUHPT models.

2 supports for each straight segment or curve segment.

S: length of straight segment D: S/2

Shielded Trays (Power & Data)

"Smart Shield": Electro-Magnetic Shielding Products

7. Applications and Installations Examples Magnetic and Electric Field Low Frequency

1. Residential solution.

Electronic equipments (computers, servers, etc) and people protection (ex. High-voltage lines, subway lines, etc.).

In attention to the special circumstances and requirements of the real-estate market, we have developed an oriented screening solution to satisfy these needs.

Based on standard products, it fulfills the corresponding regulation, offering a real protection in environments of medium/low load voltage.

In short, it is a solution that provides the best relation quality/price for those special requirements.



2. Factories:

Offices near production lines, machines (ex. electric welding), transformers, electrical switchboards, etc.



3. Hospitals:

Protection of the sensible equipment (MRI Rooms and surroundings, X-ray room, etc.) and people.

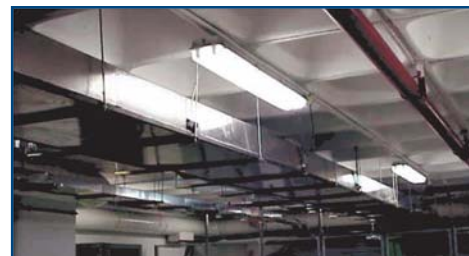


4. Semiconductor Fabs:

Electron-microscope rooms, e-beam writers, assembly and test areas, etc.



5. Telecom rooms / Network centers / Data Centers / Back-up Rooms.

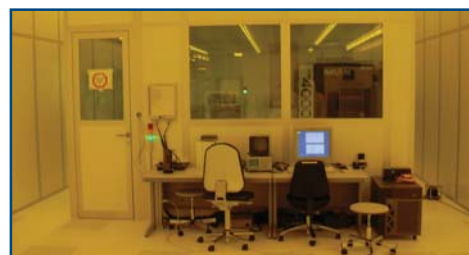


6. Airports:


Communication rooms, racks rooms, etc.





7. Pharmaceutical and Bio-tech Labs.



Certificate CE (Safety)

 DECLARATION OF CONFORMITY	
<i>The company:</i>	
ADVANCED SHIELDING TECHNOLOGIES EUROPE S.L	
<i>declare, that the product:</i>	
SHIELD TRAY & BACKPLANES	
<i>complies with the following standards or normative documents:</i>	
IEC 61000-4-8	Electronic equipment immunity from electromagnetic fields
IEC 61537	Cable Tray Systems and Cable Ladder Systems for Cable Management
NFPA 70	National Electrical Code, Article 392: Cable Trays; provide UL classification and labels.
NEMA VE 1/CSA C22.2 No. 126.1	Metal Cable Tray Systems, for materials, sizes, and configurations; provide cCSAus Certificate and labels.
AST s.l. ; c/A.Einstein, 43 ; E-08940 Cornellà LL. (Barcelona) Spain, T: +34 93 475 14 83 F: +34 93 377 28 80 E: info@ast-global.com W: www.ast-global.com	

Certificate TÜV (Performance)

 TÜV International Grupo TÜV Rheinland	
Subject:	Shielded Trays and Backplanes Electro-Magnetic Fields Attenuation Test according to the levels required by the standard IEC/EN 61000-4-8 and NCRP.
<i>This is to certify that the undersigned inspector of TÜV Internacional Catalunya, TÜV International Group Rheinland, S.L., has witnessed and inspected the test done by AST, S.L. according to the test protocol "S-2004/05-STD" about the Shielding effectiveness of the products :</i>	
<i>Shield Trays and Backplanes)</i>	
<i>The results of the test has been favourable in the accomplishment of the attenuation levels demanded by both the standard IEC/EN 61000-4-8 and recommendations by NCRP.</i>	
<i>The present statement letter is signed in Barcelona, 05th May, 2005</i>	
	
<i>* For more details see the Complete Result Test Report 35709529/05,</i>	