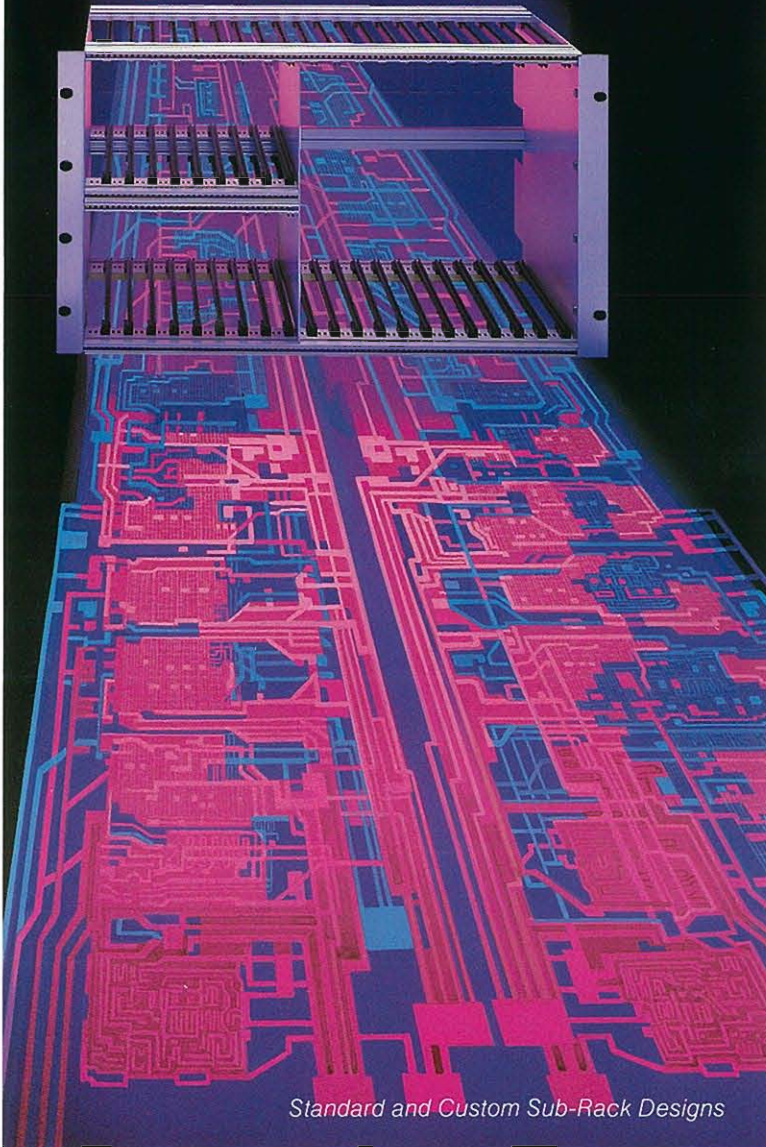


ESF

*Packaging
Systems*



Standard and Custom Sub-Rack Designs

Multibus II
VME
VXI

ESF
**Electro-Space
Fabricators, Inc.**



As the nation's leading manufacturer of printed circuit card enclosures, Electro-Space produces the highest quality standard or customized EURO packaging systems on the market. A skilled design engineering staff, modern 125,000-sq.-ft. production facilities, high-speed computerized systems, and complete in-house services assure close precision, high quality VME, VXI and Multibus® II* enclosures at significant cost savings of as much as 30%.



Standard or Custom Designs

Electro-Space maintains a large inventory of standard VME, VXI and Multibus II enclosures and accessories. We also have the capability to offer customized EURO packaging systems designed for versatility, compatibility and consistent high quality.

Assembled or Unassembled

Our Eurocard enclosures can be shipped to you completely assembled and ready for production use ... or unassembled if desired. Either way, you'll receive a rugged, reliable sub-rack designed for demanding environments.

Easy Order Form

We've developed the fastest, most efficient method of specifying a standard or custom Eurocard rack. Simply refer to the 3U, 6U, 9U and 12U specification pages. Then answer six easy questions on the form and FAX it to us. We'll do the rest!

Dependable Delivery

Complete in-house services, a location that assures direct shipping to any area of the country, computer control of work-in-process, tracking, scheduling and pricing allow ESF to efficiently meet all your most urgent orders. Rapid turnaround is also provided for custom requirements.

Quality Control

Electro-Space has a reputation for maintaining the highest quality standards every step of the way. Trained personnel thoroughly inspect all phases of work using state-of-the-art technology and equipment. All operations are fully certified ... we meet the strictest specifications for military and high-tech industries ... and we provide you with the most cost-effective, competitive end product.

*Multibus is a registered trademark of Intel Corp.

Definitions

Basic definitions of the standard EURO enclosure system:

Horizontal Pitch of Holes

1 HP = 5.08mm = .200 inch

Standard EURO Sub-Rack Depth

(Front mounting surface to backplane mounting surface)

Card Size	Depth
160mm (6.30)	6.90
220mm (8.66)	9.26
280mm (11.02)	11.62
340mm (13.39)	13.99
400mm (15.74)	16.35

Standard EURO Card Height

Sub-Rack	Card Height	Card Opening
3U	100.00mm (3.94)	3.96
6U	233.35mm (9.19)	9.21
9U	366.70mm (14.44)	14.46
12U	500.05mm (19.69)	19.71

Standard EURO Sub-Rack Overall Height

(1U = 44.45mm = 1.75 inch)

Sub-Rack	Nominal	Actual
3U	133.35mm (5.25)	5.22
6U	266.70mm (10.50)	10.47
9U	400.05mm (15.75)	15.72
12U	533.40mm (21.00)	20.97

Specifications

ESF's standard Eurocard racks are made of rugged aluminum extrusions for vibration resistance. The following materials and finishes meet the highest specifications requirements for electronic equipment:

Aluminum Extrusions

Sub-Rack Rails	6005-T5 or
Mounting Ears	6063-T6

Side Plates 5052-H32

Front Panels 5052-H32 or
6061-T6

Finish

Aluminum	Clear iridite MIL-C-5541
Steel	Zinc Plate ASTM B633 Type II (Yellow) Class SC-1

Plastic Parts Flame-Retardant Material
UL94V-0

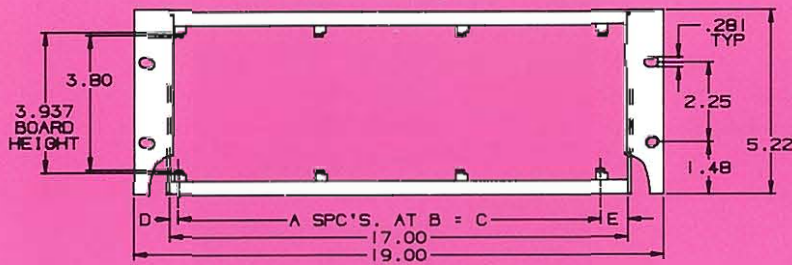
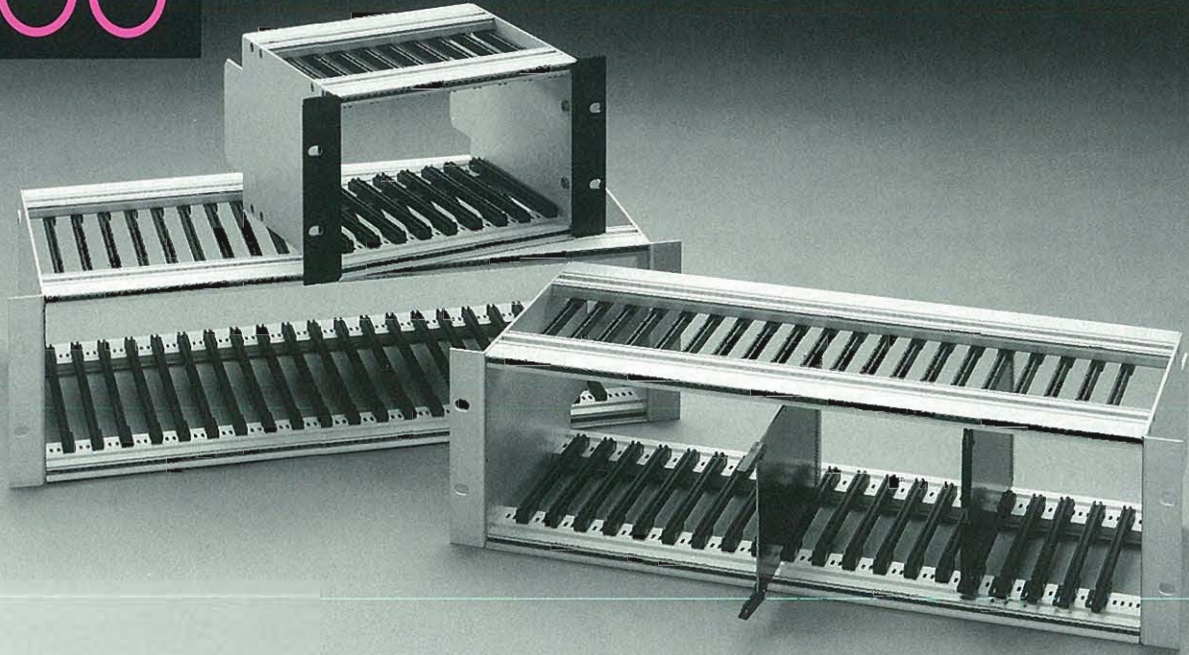
Hardware Stainless Steel
(unless otherwise specified)

Specifications subject to change without notice.

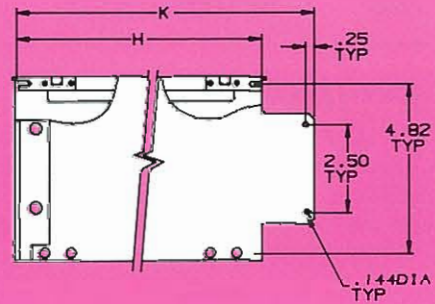
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3U



FRONT VIEW



RIGHT SIDE

FINISH : CLEAR IRIDITE - MIL-C-5541

3U Sub-Rack — 6 Easy Design Steps

ESF, the leading manufacturer of customized card enclosures, is also your best source for VME and Multibus II sub-racks. Whether you need a standard or customized design, assembled or unassembled, we deliver — within your time constraints and your budget.

Our standard 3U sub-racks are stocked and ready for immediate delivery. Our expert engineering staff can also customize an enclosure according to your specific needs. With ESF's total in-house capabilities, you'll receive the highest quality Eurocard enclosure in the industry.

The charts below show you the fastest, most efficient method of specifying a standard or custom 3U sub-rack.

Six easy steps assist you in determining card depths, backplane insulator needs, mounting ear and card guide styles, card positions and assembly requirements. Simply fill out the form and FAX it to us.

If you have customized needs that require special attention, send us your drawings or call one of our sales engineers. We'll assist you with the design approach and even create drawings for you.

Card Depth

1	Code	Card Depth	H	K
	160	160mm	6.90	8.40
	220	220mm	9.26	10.76
	280	280mm	11.62	13.12
	340	340mm	13.99	15.49
	400	400mm	16.35	17.85

Backplane Insulator Strip

2	Code	Description See Page 15
	S	With #300 Insulator Strip
	N	No Insulator Strip

Mounting Ear Style

3	Code	Description See Page 16
	AE	#141 Mounting Ear (20 Pos)
	BE	#140 Mounting Ear (21 Pos)
	FE	Formed Mounting Ear
	NE	No Mounting Ear

Card Guide Style

4	Code	Description	
	PG	#500 Panel Guide	See Page 12
	IG	#510 Injector/Ejector Guide	

Number and Location of Card Positions

5	Code	Description	A	B	C	D	E
	20S	20 Card Positions at Std. Locations	19	(4HP) .800	15.200	.629	1.171
	21S	21 Card Positions at Std. Locations	20	(4HP) .800	16.000	.229	.771
	C	Complete Table for Custom Requirement					

If your card positions are not at equal HP spacing call or FAX your exact card position requirements.

Assembly

6	Code	Description	
	A	Assembled Sub-Rack	#120 Threaded Strips and assembly hardware included. #350 Ident. Strips must be ordered separately if required.
	U	Unassembled Sub-Rack	

Company _____

Contact _____

Phone _____

3U Sub-Rack Part Number

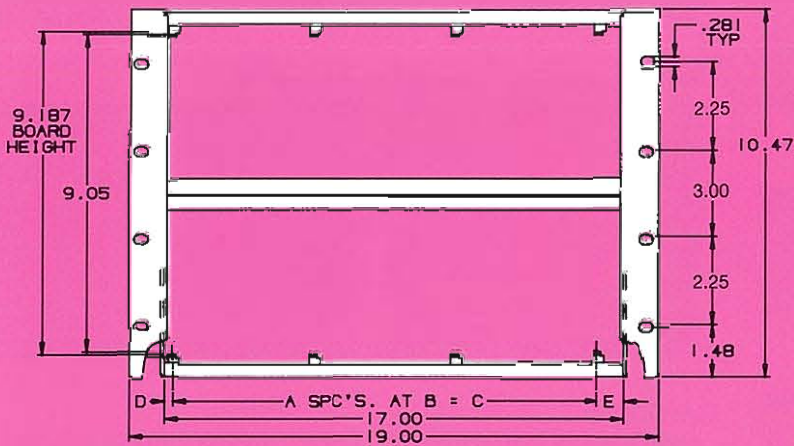
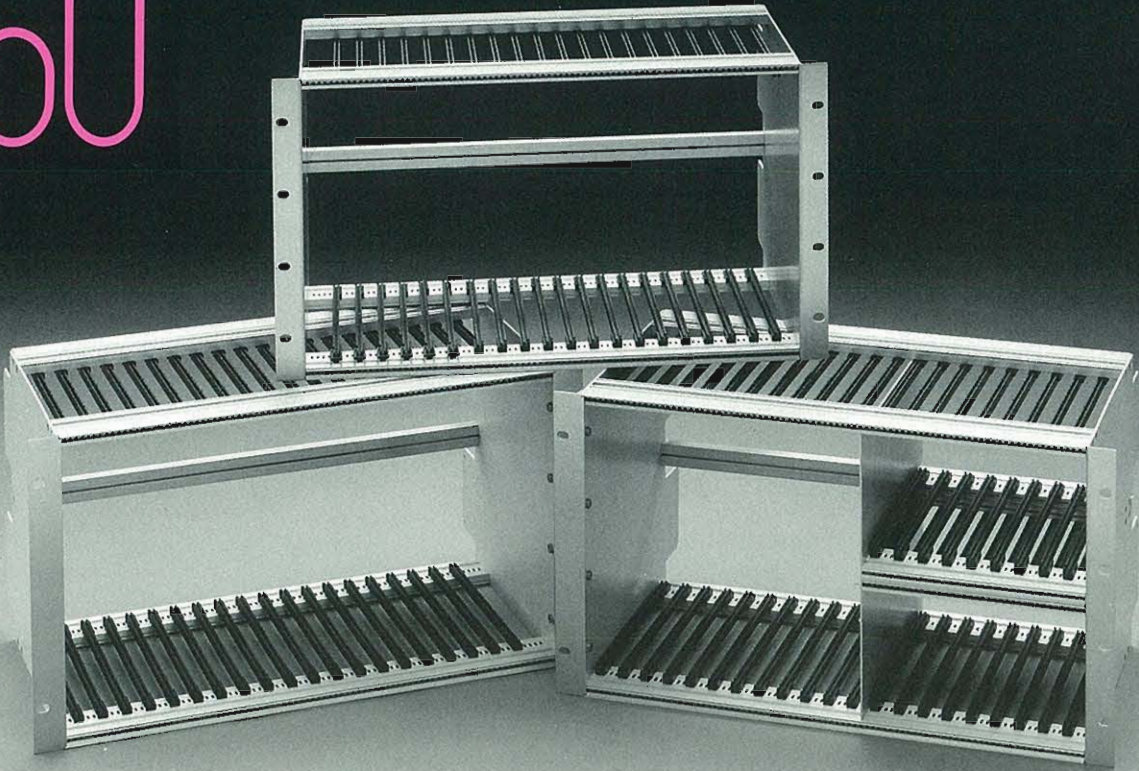
0	3	U	-	1	-	2	-	3	-	4	-	5	-	6
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Call or FAX for price and delivery.

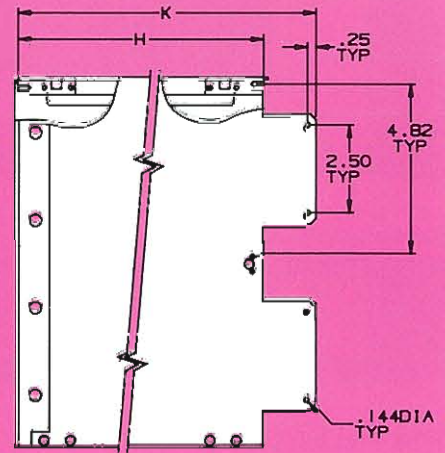
West High Street • Tipton, PA 19562
(610) 682-7181 • FAX (610) 682-2133

ESF
Electro-Space
Fabricators, Inc.

6U



FRONT VIEW



RIGHT SIDE

FINISH : CLEAR IRIDITE - MIL-C-5541

6U Sub-Rack — 6 Easy Design Steps

ESF, the leading manufacturer of customized card enclosures, is also your best source for VME and Multibus II sub-racks. Whether you need a standard or customized design, assembled or unassembled, we deliver — within your time constraints and your budget.

Our standard 6U sub-racks are stocked and ready for immediate delivery. Our expert engineering staff can also customize an enclosure according to your specific needs. With ESF's total in-house capabilities, you'll receive the highest quality Eurocard enclosure in the industry.

The charts below show you the fastest, most efficient method of specifying a standard or custom 6U sub-rack.

Six easy steps assist you in determining card depths, backplane insulator needs, mounting ear and card guide styles, card positions and assembly requirements. Simply fill out the form and FAX it to us.

If you have customized needs that require special attention, send us your drawings or call one of our sales engineers. We'll assist you with the design approach and even create drawings for you.

Card Depth

Code	Card Depth	H	K
160	160mm	6.90	8.40
220	220mm	9.26	10.76
280	280mm	11.62	13.12
340	340mm	13.99	15.49
400	400mm	16.35	17.85

Backplane Insulator Strip

Code	Description	See Page 15
S	With #300 Insulator Strip	
N	No Insulator Strip	

Mounting Ear Style

Code	Description	See Page 16
AE	#141 Mounting Ear (20 Pos)	
BE	#140 Mounting Ear (21 Pos)	
FE	Formed Mounting Ear	
NE	No Mounting Ear	

Card Guide Style

Code	Description	
PG	#500 Panel Guide	See Page 12
IG	#510 Injector/Ejector Guide	

Number and Location of Card Positions

Code	Description	A	B	C	D	E
20S	20 Card Positions at Std. Locations	19	(4HP) .800	15.200	.629	1.171
21S	21 Card Positions at Std. Locations	20	(4HP) .800	16.000	.229	.771
C	Complete Table for Custom Requirement					

If your card positions are not at equal HP spacing call or FAX your exact card position requirements.

Assembly

Code	Description	
A	Assembled Sub-Rack	#120 Threaded Strips and assembly hardware included. #350 Ident. Strips must be ordered separately if required.
U	Unassembled Sub-Rack	

Company _____

Contact _____

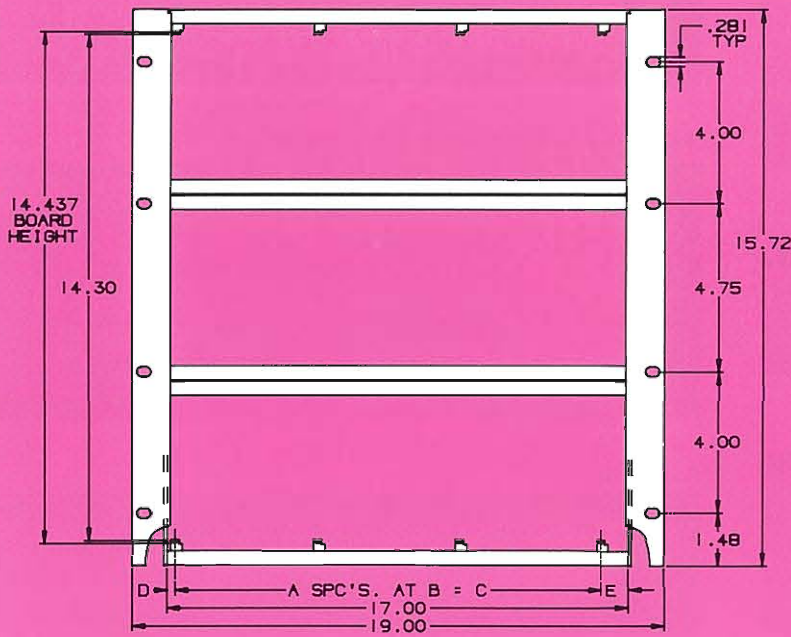
Phone _____

6U Sub-Rack Part Number

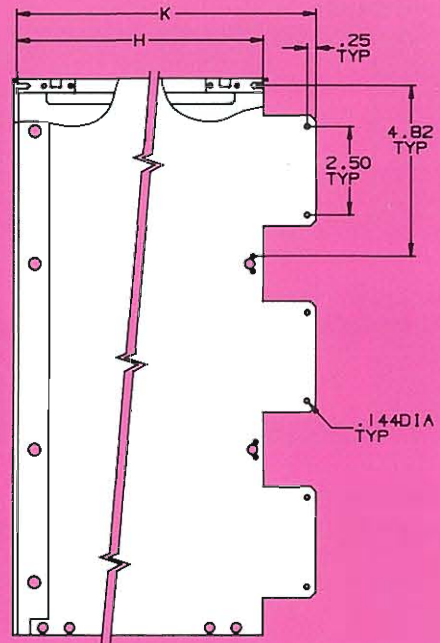
0	6	U	-	1	2	3	4	5	6

Call or FAX for price and delivery.

9U



FRONT VIEW



RIGHT SIDE

FINISH : CLEAR IRIDITE - MIL-C-5541

9U Sub-Rack — 6 Easy Design Steps

ESF, the leading manufacturer of customized card enclosures, is also your best source for VME and Multibus II sub-racks. Whether you need a standard or customized design, assembled or unassembled, we deliver — within your time constraints and your budget.

Our expert engineering staff can customize an enclosure according to your specific needs. With ESF's total in-house capabilities, you'll receive the highest quality Eurocard enclosure in the industry.

The charts below show you the fastest, most efficient method of specifying a standard or custom 9U sub-rack.

Six easy steps assist you in determining card depths, backplane insulator needs, mounting ear and card guide styles, card positions and assembly requirements. Simply fill out the form and FAX it to us.

If you have customized needs that require special attention, send us your drawings or call one of our sales engineers. We'll assist you with the design approach and even create drawings for you.

Card Depth

1	Code	Card Depth	H	K
	160	160mm	6.90	8.40
	220	220mm	9.26	10.76
	280	280mm	11.62	13.12
	340	340mm	13.99	15.49
	400	400mm	16.35	17.85

Backplane Insulator Strip

2	Code	Description	See Page 15
	S	With #300 Insulator Strip	
	N	No Insulator Strip	

Mounting Ear Style

3	Code	Description	See Page 16
	AE	#141 Mounting Ear (20 Pos)	
	BE	#140 Mounting Ear (21 Pos)	
	FE	Formed Mounting Ear	
	NE	No Mounting Ear	

Card Guide Style

4	Code	Description	
	PG	#500 Panel Guide	See Page 12
	IG	#510 Injector/Ejector Guide	

Number and Location of Card Positions

5	Code	Description	A	B	C	D	E
	20S	20 Card Positions at Std. Locations	19	(4HP) .800	15.200	.629	1.171
	21S	21 Card Positions at Std. Locations	20	(4HP) .800	16.000	.229	.771
	C	Complete Table for Custom Requirement					

If your card positions are not at equal HP spacing call or FAX your exact card position requirements.

Assembly

6	Code	Description	
	A	Assembled Sub-Rack	#120 Threaded Strips and assembly hardware included. #350 Ident. Strips must be ordered separately if required.
	U	Unassembled Sub-Rack	

Company _____

Contact _____

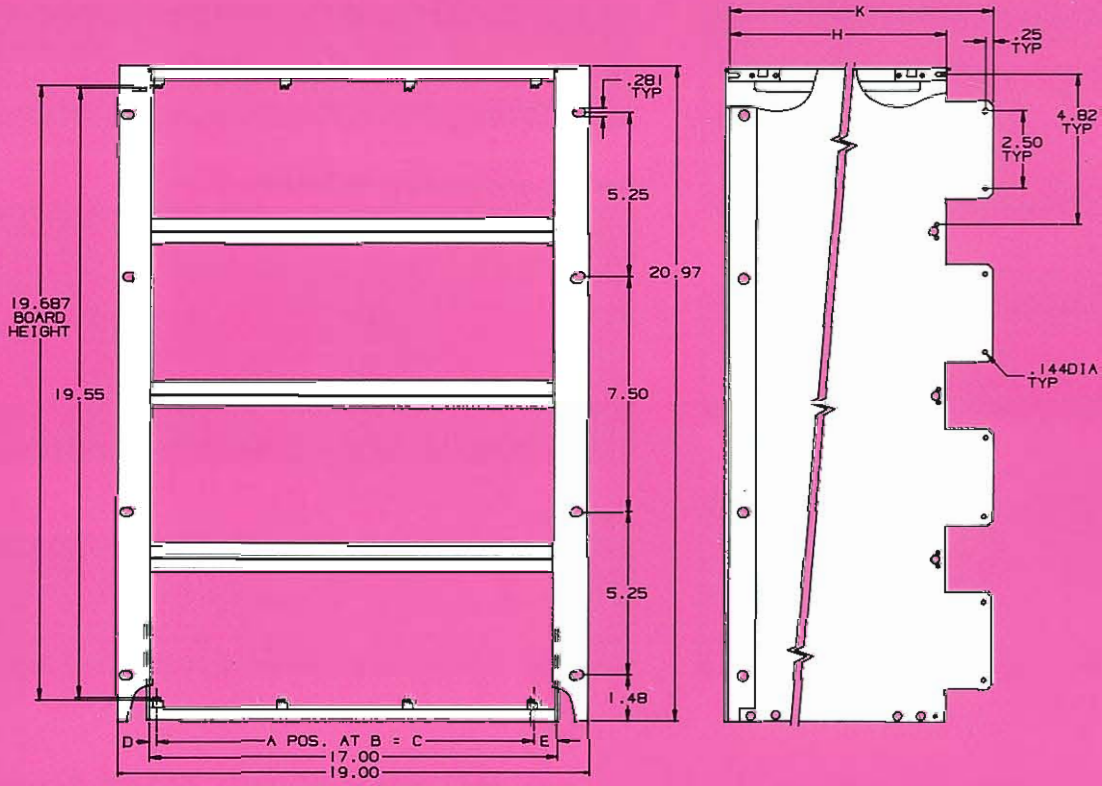
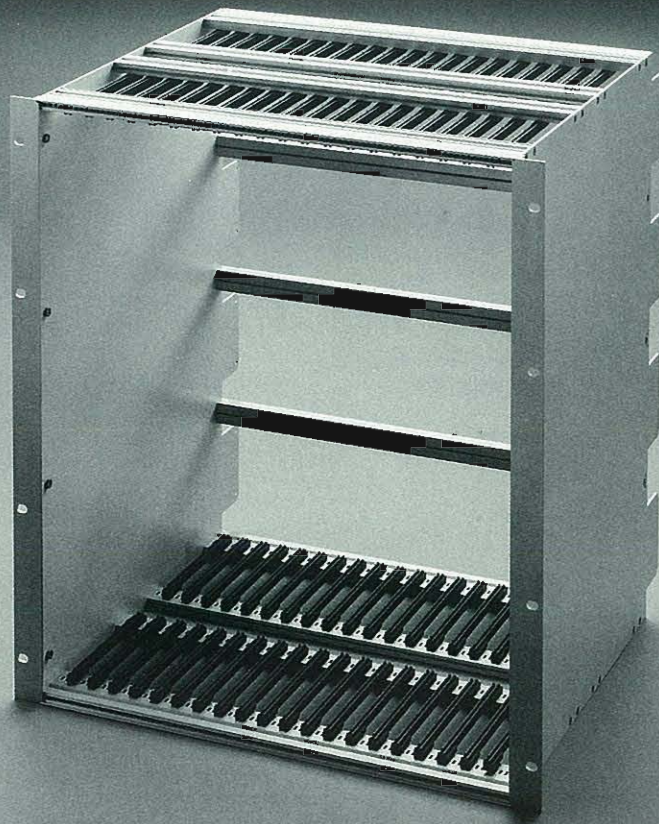
Phone _____

9U Sub-Rack Part Number

0	9	U	-	1	2	3	4	5	6	-

Call or FAX for price and delivery.

12U



FRONT VIEW

RIGHT SIDE

FINISH : CLEAR IRIDITE - MIL-C-5541

12U Sub-Rack — 6 Easy Design Steps

ESF, the leading manufacturer of customized card enclosures, is also your best source for VME and Multibus II sub-racks. Whether you need a standard or customized design, assembled or unassembled, we deliver — within your time constraints and your budget.

Our expert engineering staff can customize an enclosure according to your specific needs. With ESF's total in-house capabilities, you'll receive the highest quality Eurocard enclosure in the industry.

The charts below show you the fastest, most efficient method of specifying a standard or custom 12U sub-rack. Six easy steps assist you in determining card depths, backplane insulator needs, mounting ear and card guide styles, card positions and assembly requirements. Simply fill out the form and FAX it to us.

If you have customized needs that require special attention, send us your drawings or call one of our sales engineers. We'll assist you with the design approach and even create drawings for you.

Card Depth

1	Code	Card Depth	H	K
	160	160mm	6.90	8.40
	220	220mm	9.26	10.76
	280	280mm	11.62	13.12
	340	340mm	13.99	15.49
	400	400mm	16.35	17.85

Backplane Insulator Strip

2	Code	Description	See Page 15
	S	With #300 Insulator Strip	
	N	No Insulator Strip	

Mounting Ear Style

3	Code	Description	See Page 16
	AE	#141 Mounting Ear (20 Pos)	
	BE	#140 Mounting Ear (21 Pos)	
	FE	Formed Mounting Ear	
	NE	No Mounting Ear	

Card Guide Style

4	Code	Description	
	PG	#500 Panel Guide	See Page 12
	IG	#510 Injector/Ejector Guide	

Number and Location of Card Positions

5	Code	Description	A	B	C	D	E
	20S	20 Card Positions at Std. Locations	19	(4HP) .800	15.200	.629	1.171
	21S	21 Card Positions at Std. Locations	20	(4HP) .800	16.000	.229	.771
	C	Complete Table for Custom Requirement					

If your card positions are not at equal HP spacing call or FAX your exact card position requirements.

Assembly

6	Code	Description	#120 Threaded Strips and assembly hardware included. #350 Ident. Strips must be ordered separately if required.
	A	Assembled Sub-Rack	
	U	Unassembled Sub-Rack	

Company _____

Contact _____

Phone _____

12U Sub-Rack Part Number

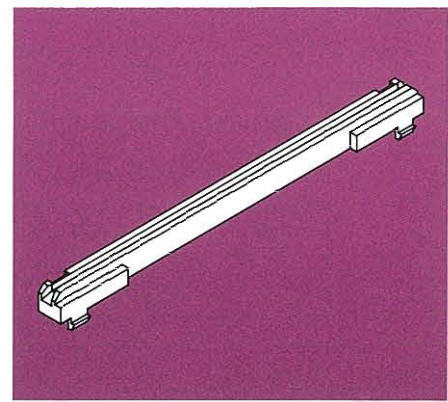
	1	2	3	4	5	6
1 2 U	-		-		-	

Call or FAX for price and delivery.

500

Panel Guides

- Extra thick, rigid material, molded of flame-retardant black nylon (UL94V-0)
- ESF extruded rail and guide design ideally suited for front panel applications. For injector/ejector applications, see 510 series below
- Compatible with virtually all panel-pull devices on the market
- Snaps into prepunched rectangular slots in ESF standard extruded aluminum rails

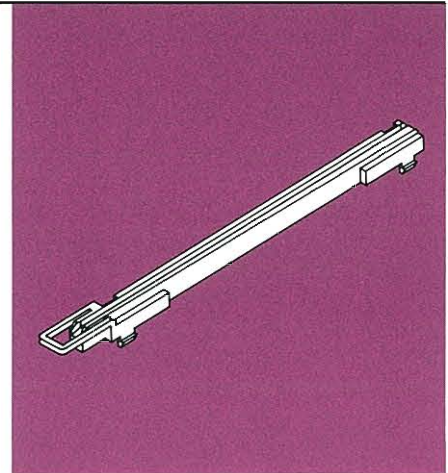


- Can also be installed on 1/16" thick sheet stock using two rectangular slots .080 x .25 on .20 centers
- Guide depth of .078

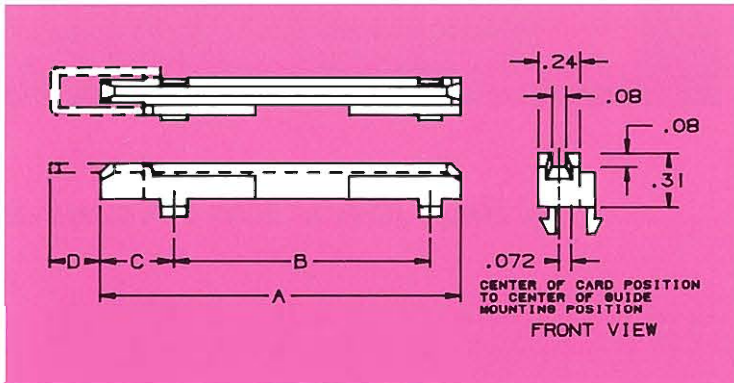
510

Injector/Ejector Guides

- Extra thick, rigid material, molded of flame-retardant black nylon (UL94V-0)
- Snaps into prepunched rectangular slots in ESF standard extruded aluminum rails
- Can also be installed on 1/16" thick sheet stock using two rectangular slots .080 x .25 on .20 centers
- Guide depth of .078
- Designed for use with ESF injector/ejector #400
- Unique loop design permits safe, damage-free insertion and extraction of boards (see page 13)



- Cost effective ... loop molded directly into guide eliminates need for additional snap-in piece
- Compatible with virtually all injector/ejectors on the market
- Must be ordered in sets (1 top & 1 bottom per card position)



Panel Guides

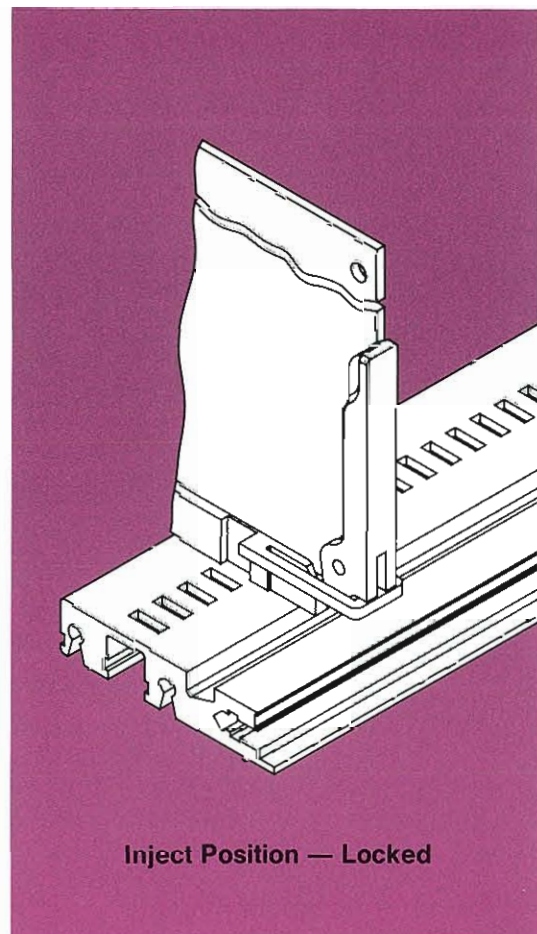
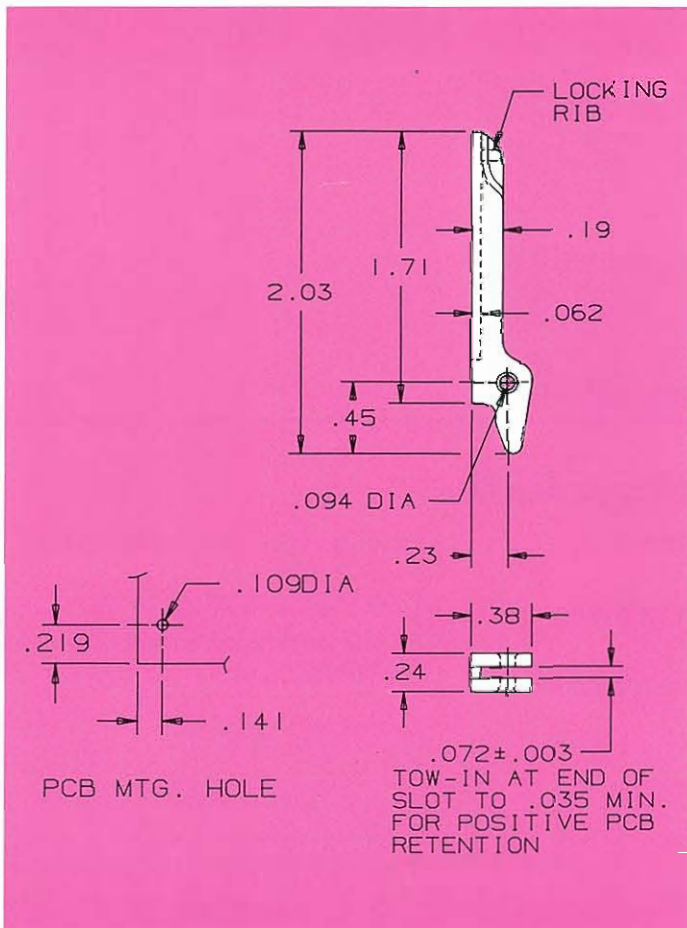
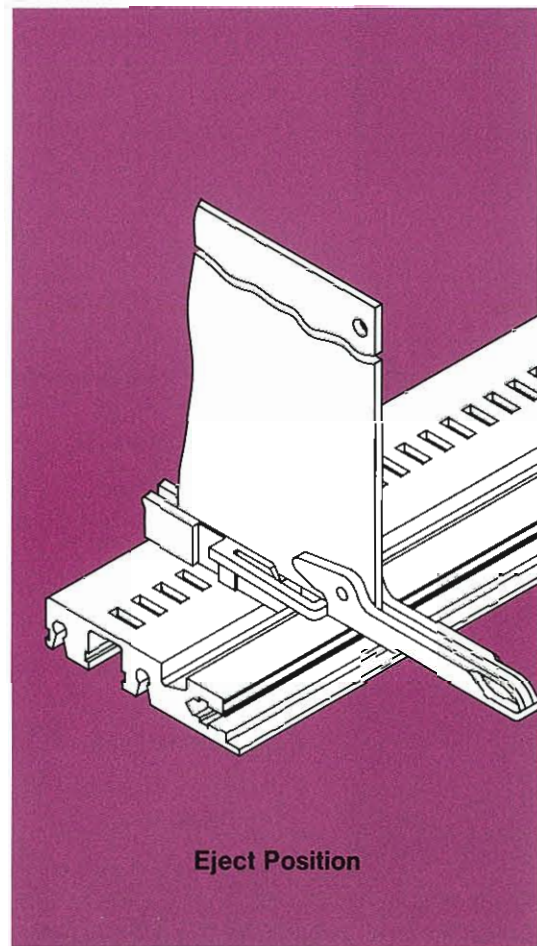
Part No.	A	B	C	D
500-0525BV	5.25	4.72	.26	—
500-0761BV	7.61	7.08	.26	—

Injector/Ejector Guides

Part No.	A	B	C	D	
510-B525BV	5.63	4.72	.64	.44	Bottom
510-T525BV	5.63	4.72	.64	.44	Top
510-B761BV	7.99	7.08	.64	.44	Bottom
510-T761BV	7.99	7.08	.64	.44	Top

Injector/Ejector

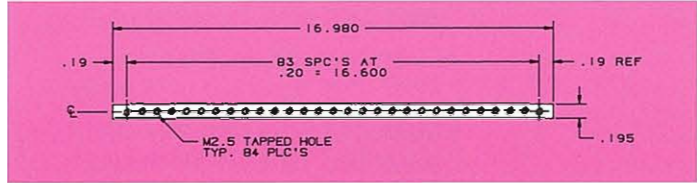
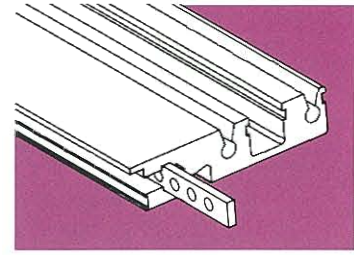
- Assure easy, damage-free insertion and extraction of 1/16" thick Eurocards
- Used in conjunction with ESF 510 series guide which allows device to function in two directions for insertion and card removal
- Unique locking dimple in handle grips card firmly in locked position
- Functionally compatible with most other Eurocard enclosures
- Molded of flame-retardant 30% glass-filled Type 6/6 black nylon (UL94V-0) to assure maximum rigidity and minimum deflection during operation
- Includes .093 diameter stainless steel mounting pin
- Two injector/ejectors recommended for larger boards to ensure straight-line removal
- Part #400-062 BGV



120

Threaded Strip

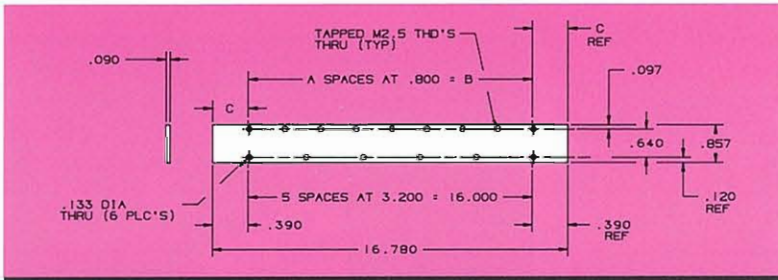
- Used for front panel mounting and for rear mounting of backpanels and connectors
- Slides easily into extruded grooves of horizontal rails
- Threads are M2.5 at horizontal pitch of 5.08mm (.200 centers)
- Material – .062 steel, zinc plate (yellow)
- For 19" enclosure, order Part Number 120-169800



160

Connector Mounting Rails

- For use with DIN 41612 connectors mounted individually
- Clearance holes on rail allow for quick mounting to rear of sub-rack
- Useful for special non-bussed applications
- Connector mounting holes (M2.5 threads) are located on standard .800 centers
- Material – .090 aluminum 6061-T6 Clear iridite per MIL-C-5541
- See table for standard Part Number ordering information (Specials available upon request)

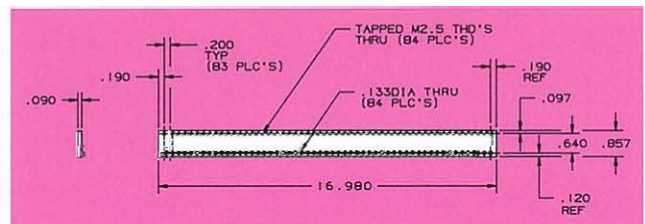


Part No.	NO. OF CONNECTOR LOCATIONS	A	B	C
160-200000	20	19	15.200	.790
160-210000	21	20	16.000	.390

161

Connector Mounting Rail

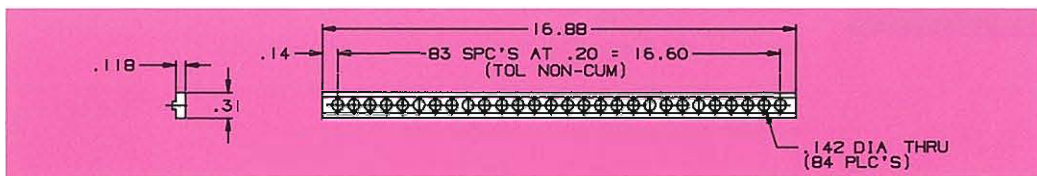
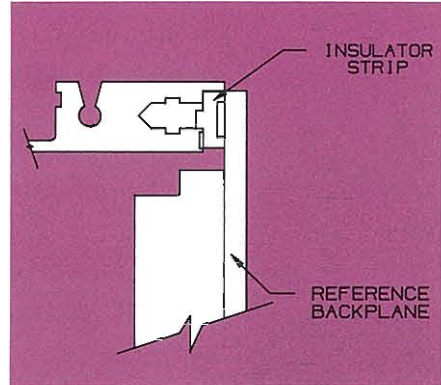
- For use with DIN 41612 connectors mounted individually
- Clearance holes on rail allow for quick mounting to rear of sub-rack
- Useful for special non-bussed applications
- Connector mounting holes (M2.5 threads) are located on standard .200 centers for maximum design flexibility
- Material – .090 aluminum 6061-T6 or 6005-T5 Clear iridite per MIL-C-5541
- For 19" enclosure, order Part Number 161-169800



300

Backplane Insulator Strip

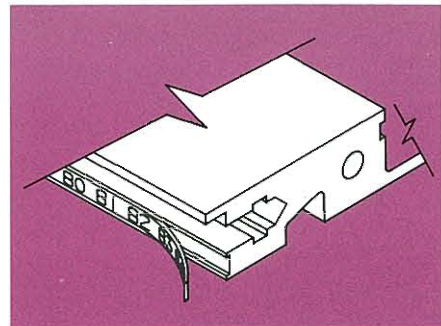
- Used for insulating backplanes and rear-wiring panels from sub-rack
- Prevents short-circuiting to chassis
- Easy assembly ... insulator strip with clearance holes to match threaded strip is captivated between extruded rail and backplane
- Plug-in depth of Euroboard is maintained
- Material — Flame-retardant tan ABS (UL94V-0)
- For 19" enclosure, order Part Number 300-84HP00



350

Identification Strips – 84HP

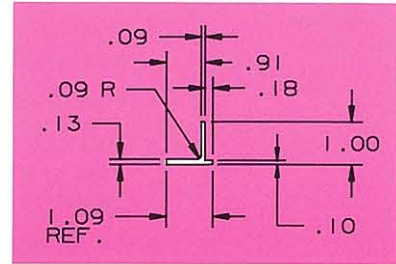
- Easily located on extruded groove for identification of card positions
- Made of chrome-backed mylar and self-adhesive
- Extruded groove should be cleaned prior to strip attachment
- Numbers are pitch of 1HP (.200 centers) ... black on yellow background
- For **front** identification (1, 2, 3 ... 84), order Part Number 350-0184 (6 per sheet)
- For **rear** identification (84, 83, 82 ... 1), order Part Number 350-8401 (6 per sheet)



140

Mounting Ears

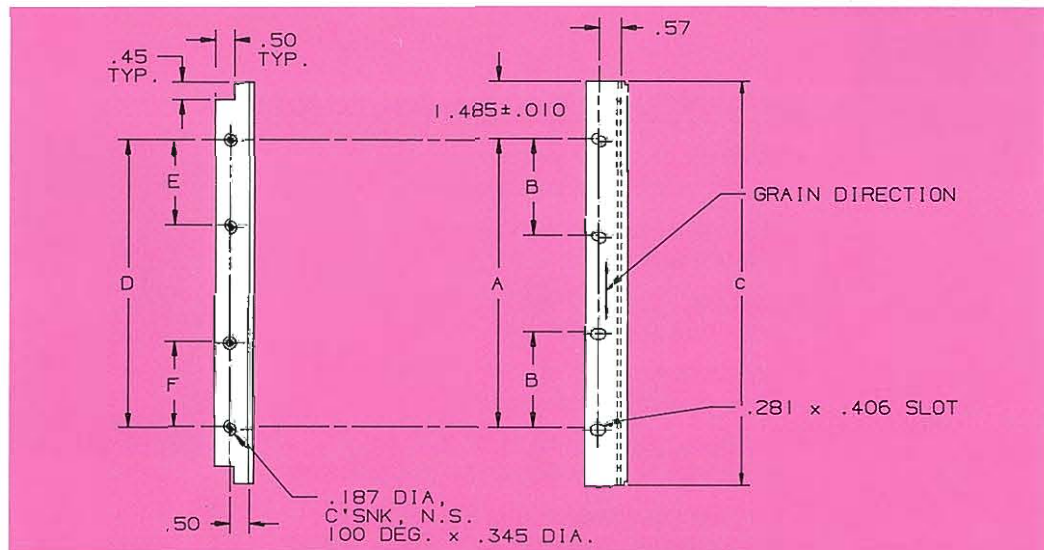
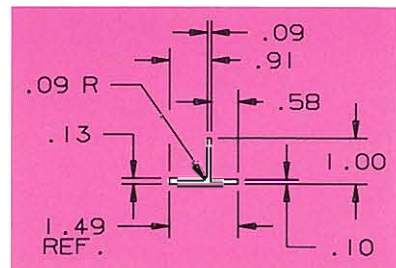
- Used with Europanel flush mounting applications
- Most commonly used on 21-position 19" sub-racks
- Material — 6005-T5/6063-T6 aluminum
Clear iridite per MIL-C-5541



141

Mounting Ears

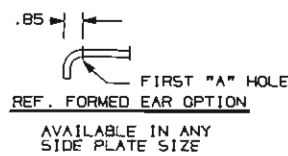
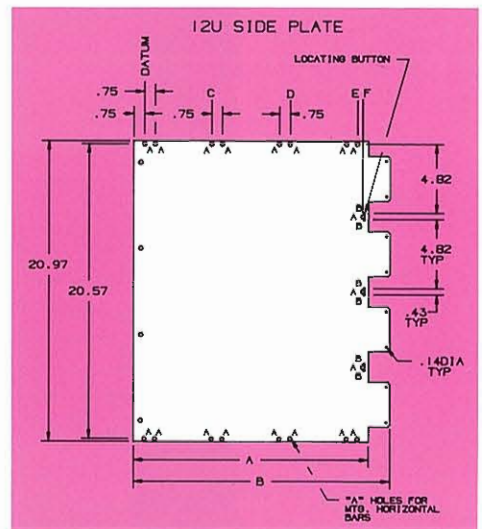
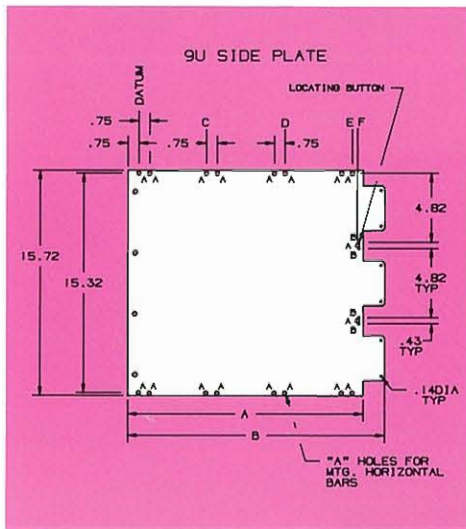
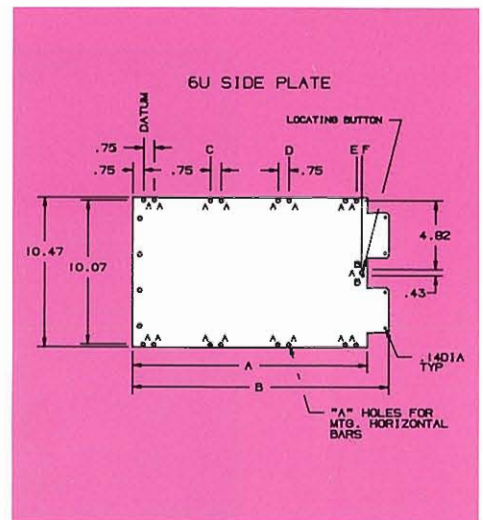
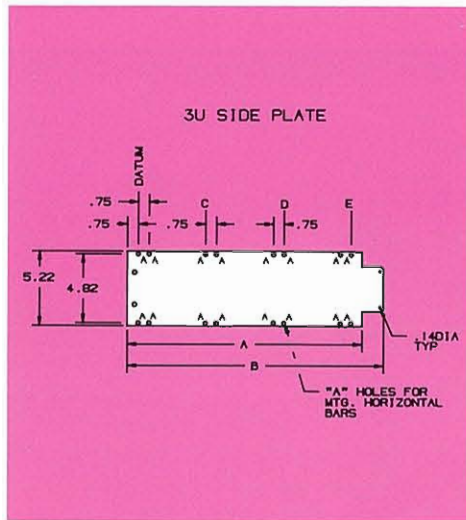
- Used with Europanel flush mounting applications
- Most commonly used on 20-position 19" sub-racks
- Eliminates need for front filler panels
- Material — 6005-T5/6063-T6 aluminum
Clear iridite per MIL-C-5541



Part No.	Front Mounting Slots			Side Holes			
	No. Slots	A	B	C	D	E	F
140-3U-H	2	2.25	-	5.22	2.25	-	-
141-3U-H							
140-6U-H	4	7.50	2.25	10.47	7.50	2.50	2.50
141-6U-H							
140-9U-H	4	12.75	4.00	15.72	12.75	4.25	4.25
141-9U-H							
140-12U-H	4	18.00	5.25	20.97	18.00	6.00	6.00
141-12U-H							

Sub-Rack Side Plates

- Standard side plates .090 aluminum 5052-H32 with clear iridite finish
- All dimensions for standard 3U, 6U, 9U and 12U sub-racks are pictured below
- Used in conjunction with Series 140 and 141 bolted-on mounting ears (see previous page)
- For lower cost, formed ear option available in place of bolted ears (see detail below)
- Special holes and hardware can be added to meet your specific requirements. Special finishes and silk screening also available



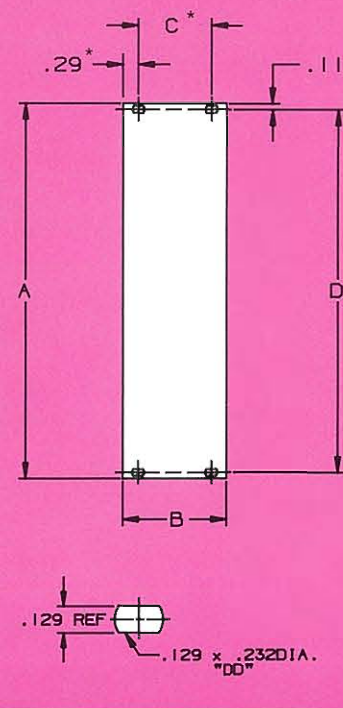
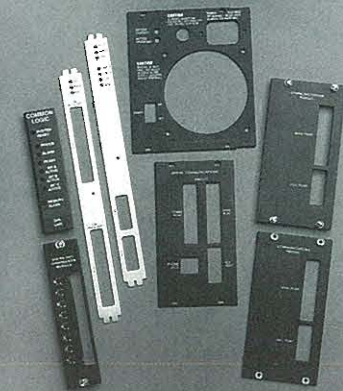
Sub-Rack Depth	Dimensions					
	A	B	C	D	E	F
6.30 (160)	6.90	8.40	—	—	5.40	5.76
8.66 (220)	9.26	10.76	—	—	7.76	8.12
11.02 (280)	11.62	13.12	7.05	—	10.12	10.48
13.39 (340)	13.99	15.49	4.69	7.81	12.49	12.85
15.75 (400)	16.35	17.85	4.69	10.17	14.95	15.21



Front Panels

- Fully customized panels, complete for immediate use
- For easy reference, use the standard EURO front panel dimensions shown. The "B" dimension allows for .020 clearance between panels
- Add special cut-outs, holes and hardware as needed
- Specify desired finish — anodize, iridite or paint
- Silk-screened — single or multi-colored
- Material — .100 aluminum 5052-H32, 6061-T6 or customer specified

	HP	A	B	C	D	
3U	3 HP	5.05 (128,27)	0.58 (14,73)	—	4.82 (122,43)	
	4 HP	5.05 (128,27)	0.78 (19,81)	—	4.82 (122,43)	
	5 HP	5.05 (128,27)	0.98 (24,89)	—	4.82 (122,43)	
	6 HP	5.05 (128,27)	1.18 (29,97)	—	4.82 (122,43)	
	7 HP	5.05 (128,27)	1.38 (35,05)	—	4.82 (122,43)	
	8 HP	5.05 (128,27)	1.58 (40,13)	—	4.82 (122,43)	
	10 HP	5.05 (128,27)	1.98 (50,29)	1.40 (35,56)	4.82 (122,43)	
	12 HP	5.05 (128,27)	2.38 (60,45)	1.80 (45,72)	4.82 (122,43)	
	6U	3 HP	10.30 (261,62)	0.58 (14,73)	—	10.07 (255,78)
		4 HP	10.30 (261,62)	0.78 (19,81)	—	10.07 (255,78)
		5 HP	10.30 (261,62)	0.98 (24,89)	—	10.07 (255,78)
		6 HP	10.30 (261,62)	1.18 (29,97)	—	10.07 (255,78)
7 HP		10.30 (261,62)	1.38 (35,05)	—	10.07 (255,78)	
8 HP		10.30 (261,62)	1.58 (40,13)	—	10.07 (255,78)	
10 HP		10.30 (261,62)	1.98 (50,29)	1.40 (35,56)	10.07 (255,78)	
12 HP		10.30 (261,62)	2.38 (60,45)	1.80 (45,72)	10.07 (255,78)	
9U		3 HP	15.55 (394,97)	0.58 (14,73)	—	15.32 (389,13)
		4 HP	15.55 (394,97)	0.78 (19,81)	—	15.32 (389,13)
		5 HP	15.55 (394,97)	0.98 (24,89)	—	15.32 (389,13)
		6 HP	15.55 (394,97)	1.18 (29,97)	—	15.32 (389,13)
	7 HP	15.55 (394,97)	1.38 (35,05)	—	15.32 (389,13)	
	8 HP	15.55 (394,97)	1.58 (40,13)	—	15.32 (389,13)	
	10 HP	15.55 (394,97)	1.98 (50,29)	1.40 (35,56)	15.32 (389,13)	
	12 HP	15.55 (394,97)	2.38 (60,45)	1.80 (45,72)	15.32 (389,13)	

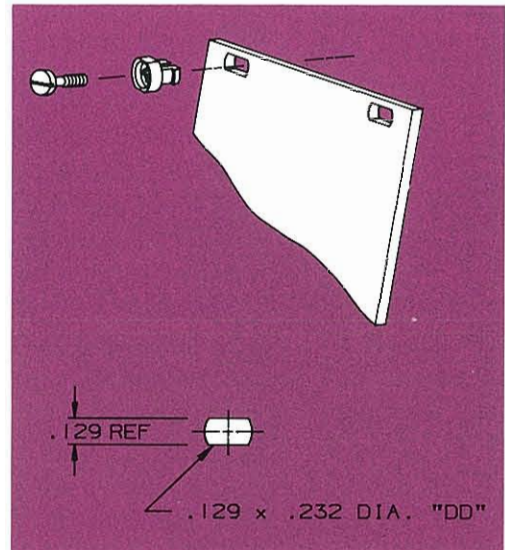
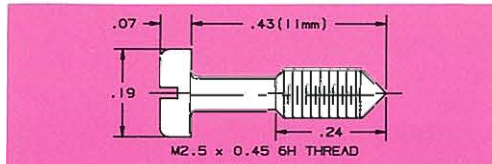


* C and .29 dimensions can vary by increments of .200 (5,08)

700

Collar Screw

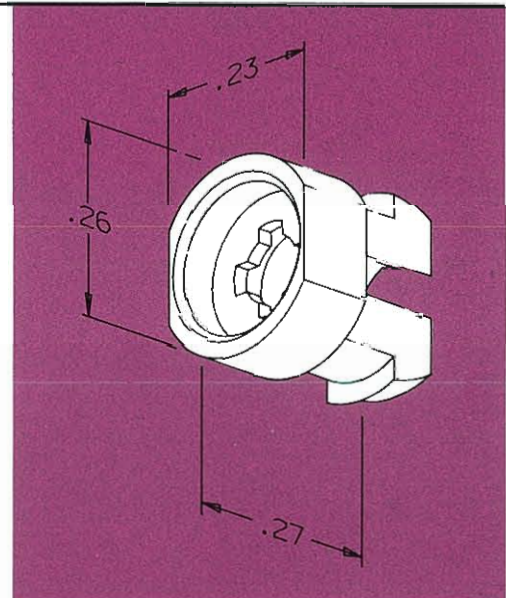
- M2.5 x 11mm
- Polished 302 stainless steel ensures non-stripping of threads
- Used for fastening front panels to EURO sub-racks
- Works in combination with ESF's 725 plastic retainer sleeve or 750 metal retainer sleeve
- Black oxide finish also available



725

Plastic Sleeve

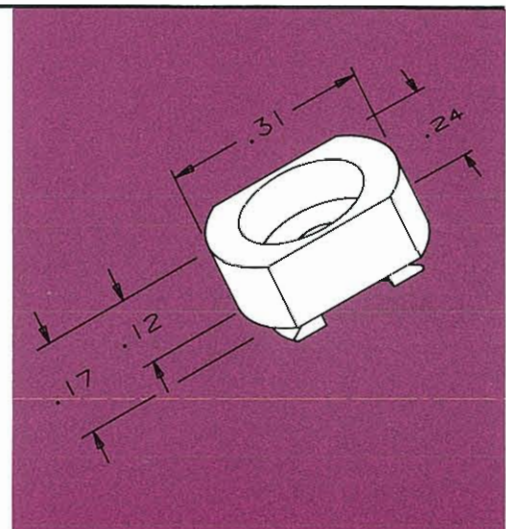
- Used with 700 panel screw for fastening front panels to EURO sub-rack horizontal rails
- Plastic sleeve snaps into prepunched holes in front panel (see view above)
- Captivates 2.5mm screw
- Material — Flame retardant tan ABS (UL94V-0)



750

Metal Sleeve

- Used with 700 panel screw for fastening front panels to EURO sub-rack horizontal rails
- Metal sleeve is pressed into prepunched holes in panel (see view above) for POSITIVE GROUNDING to chassis
- Captivates 2.5mm screw
- Finish — nickel-plated

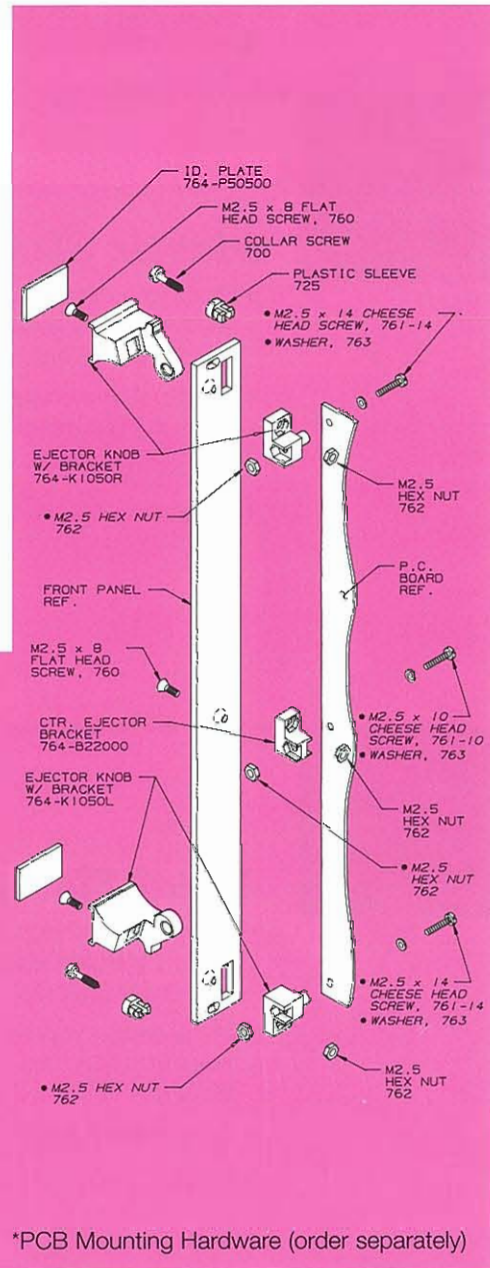
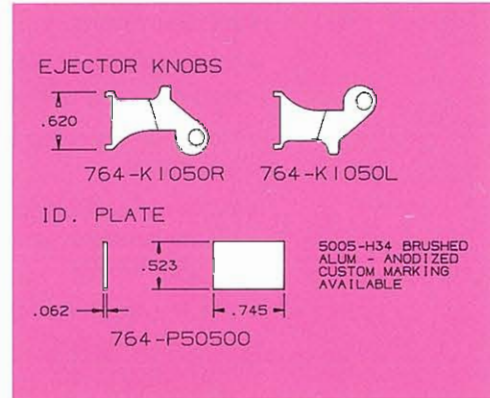
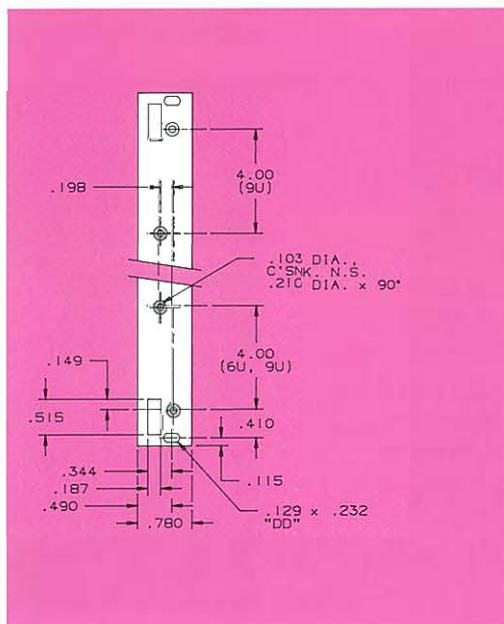
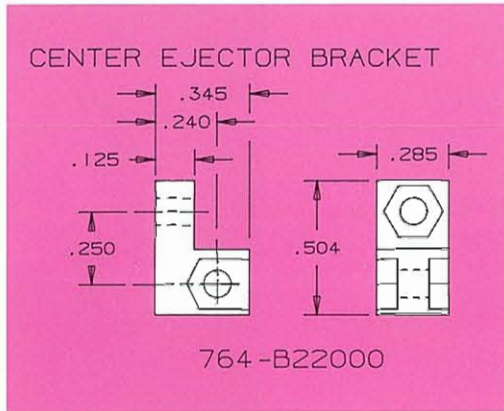


Single Ejector Knobs

- Assure easy extraction of plug-in unit
- Knobs are mirror image, not identical
- Anodized ID plate snaps into slot in knob and can be custom-marked as required
- Molded of flame-retardant Type 6/6 black nylon (UL94V-0)
- Double-wide (1.55) ejector knobs also available

Knobs and brackets are assembled by ESF to standard or customized panels ready for production use.

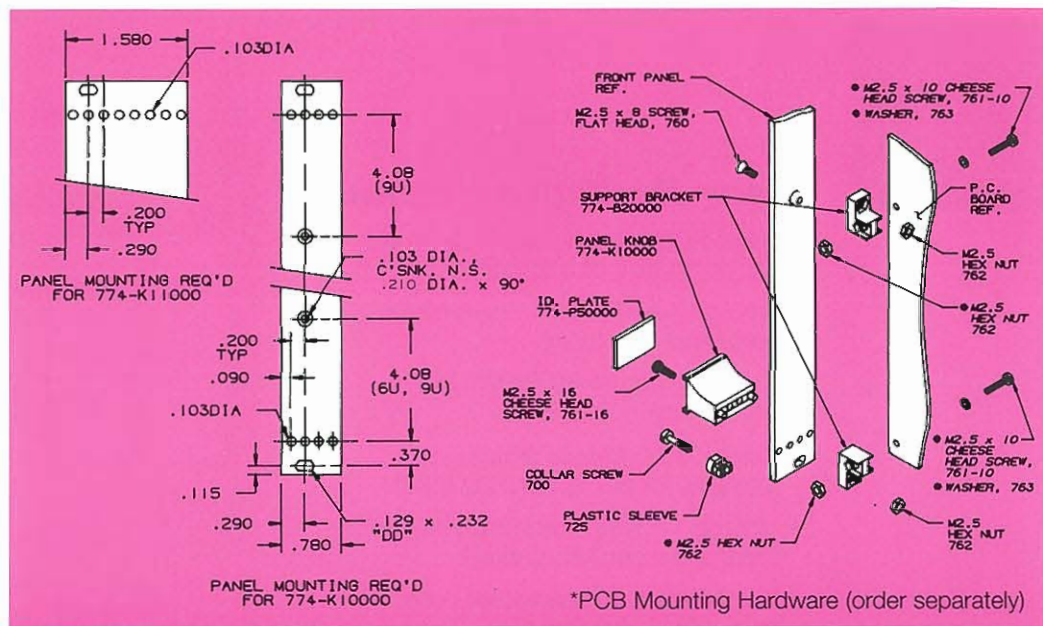
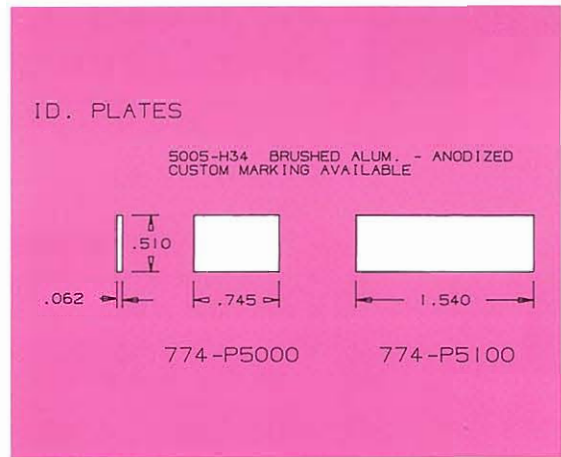
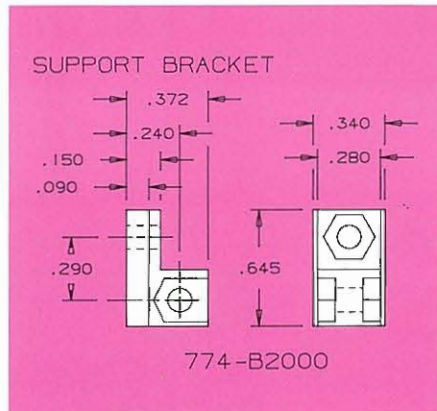
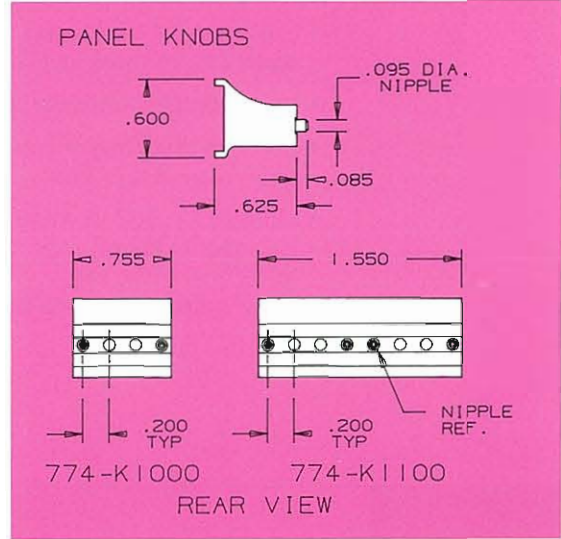
Panels can be fabricated, painted and silk-screened to your exact specifications. See page 18 for standard EURO front panel dimensions.



Panel Knobs

- Molded of flame-retardant Type 6/6 black nylon (UL94V-0)
- Locate with .095 dia. nipples
- Assemble to support bracket 774-B2000 with M2.5 x 16mm screw and nut
- Available in .755 and 1.550 widths
- Anodized ID plate snaps into slot in knob and can be custom-marked as required

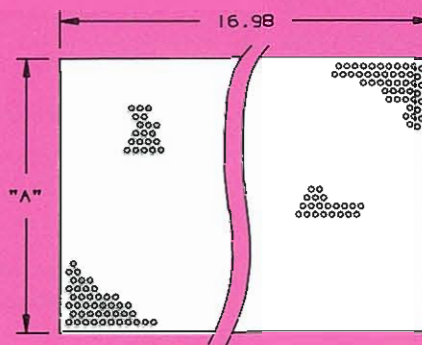
Knobs and brackets are assembled by ESF to standard or customized panels ready for production use. **Panels can be fabricated, painted and silk-screened to your exact specifications.** See page 18 for standard EURO front panel dimensions.



900

Perforated Shield-Flat

- Low-cost flat perforated shield slides easily into grooves of guide rails
- No assembly hardware required
- Used for shielding or mechanical protection of sub-rack
- Material — .063 aluminum 5052-H32
.125 dia. holes on .187 staggered centers (40% open) IPA 113
Clear iridite per MIL-C-5541

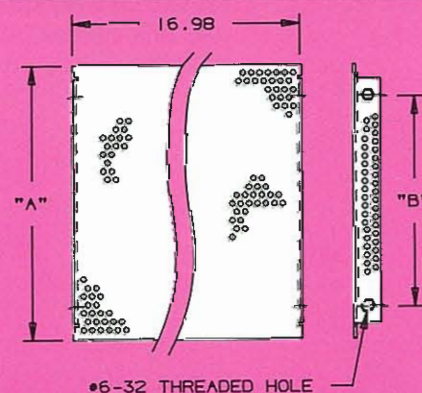


Part No.	"A" Dimension
900-010000	1.31
900-050000	3.67
900-070000	6.03

920

Perforated Shield-Grounding

- Grounding perforated shield slides easily into grooves of guide rails
- Assemble to side plates with 6-32 x 1/4" 100° FHMS — assures positive grounding
- Used for shielding or mechanical protection of sub-rack
- Material — .063 aluminium 5052-H32
.125 dia. holes on .187 staggered centers (40% open) IPA 113
Clear iridite per MIL-C-5541

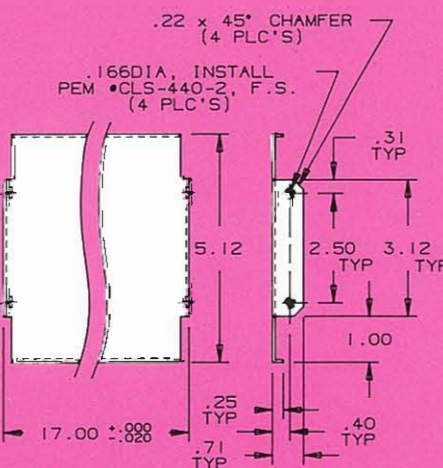


Part No.	"A"	"B"	Mtg. Holes
920-010000	1.31	-	2
920-050000	3.67	2.36	4
920-070000	6.03	4.72	4

940

Rear Protective Hood

- Used for mechanical protection on the wiring side of sub-rack
- Area also available for customized component mounting
- Assemble with 4-40 PHMS to ESF standard side plates
- Covers 3U sub-rack area; use multiples for 6U, 9U or 12U styles
- Material — .063 aluminum 5052-H32
Clear iridite per MIL-C-5541
- For standard 19" enclosure order part number 940-170000

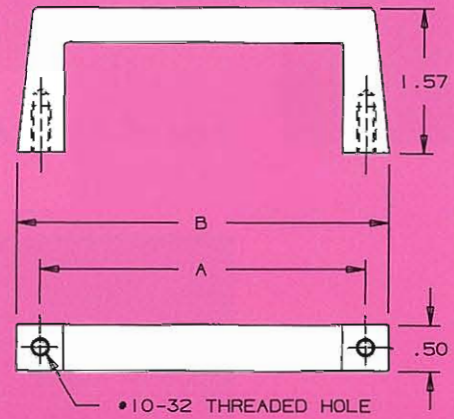


950

Rack Handles

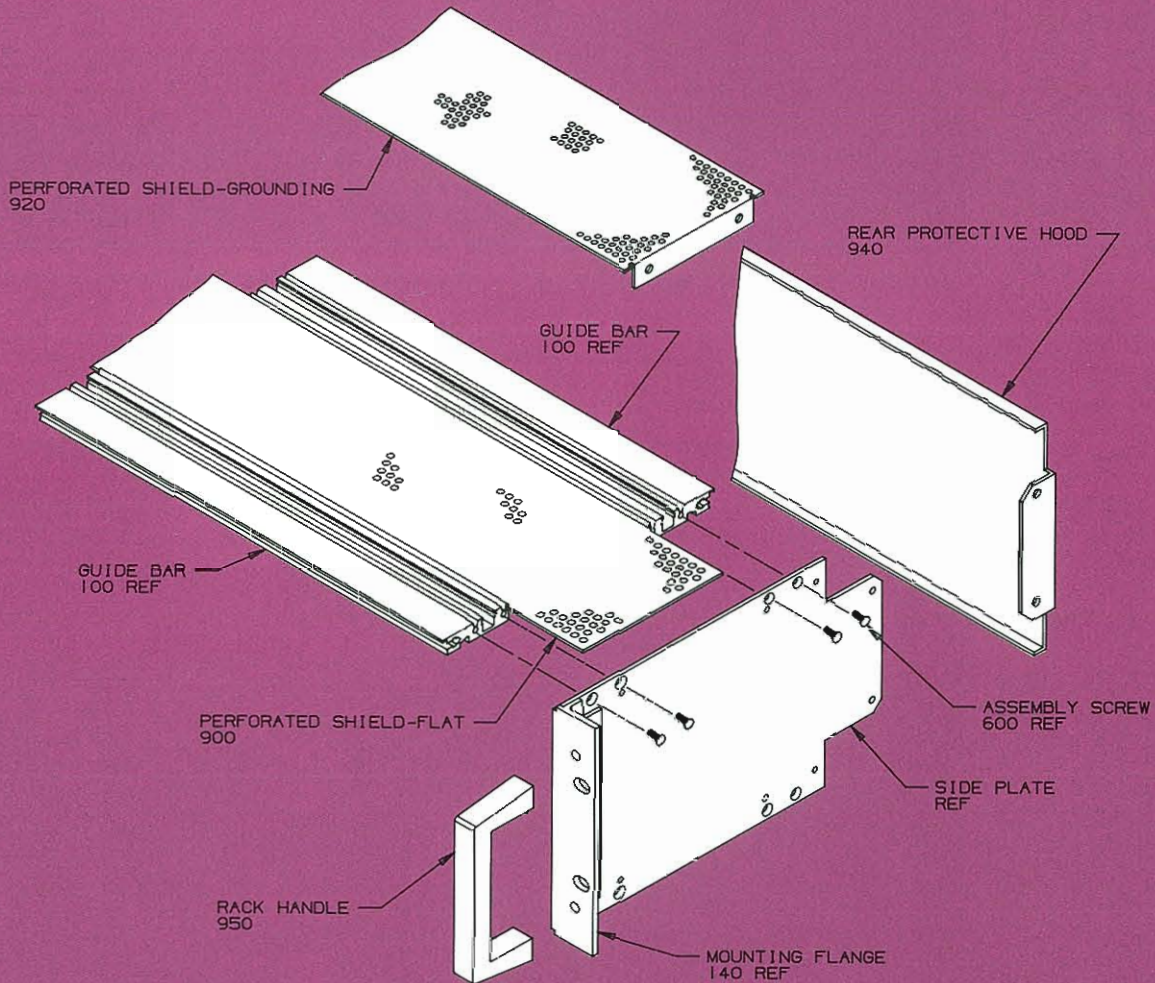
- High-tech appearance with rigid design
- Mounts to sub-rack mounting ears with two 10-32 x 3/8" 100° FHMS
- Material — 6005-T5 aluminum
Brushed clear anodize

Any of the 900 series EURO accessories can be assembled by ESF to your card rack, ready for production use.



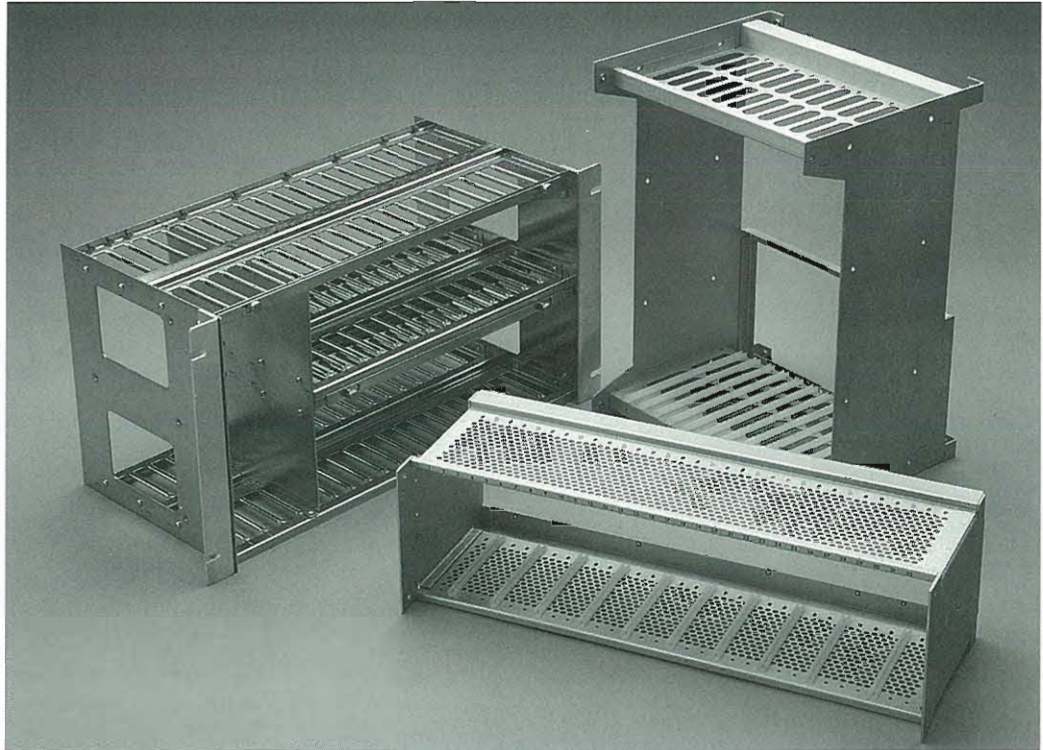
Part No.	"A"	"B"
950-040000	3.50	4.00
950-057500	5.25	5.75
950-075000	7.00	7.50

EXAMPLE: ASSEMBLED SUB-RACK CONFIGURATION

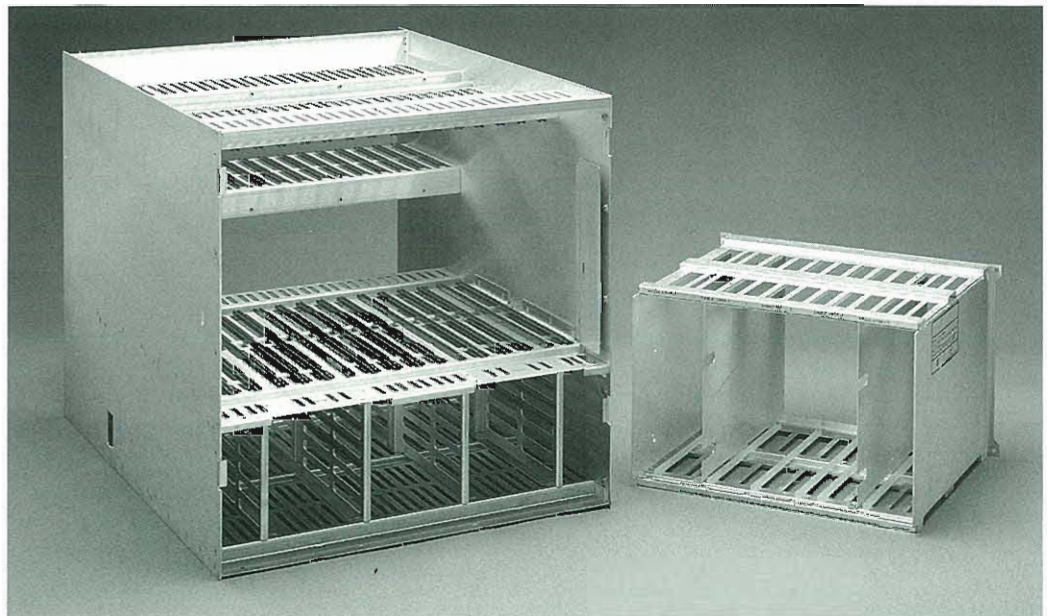




Total Customizing Capability



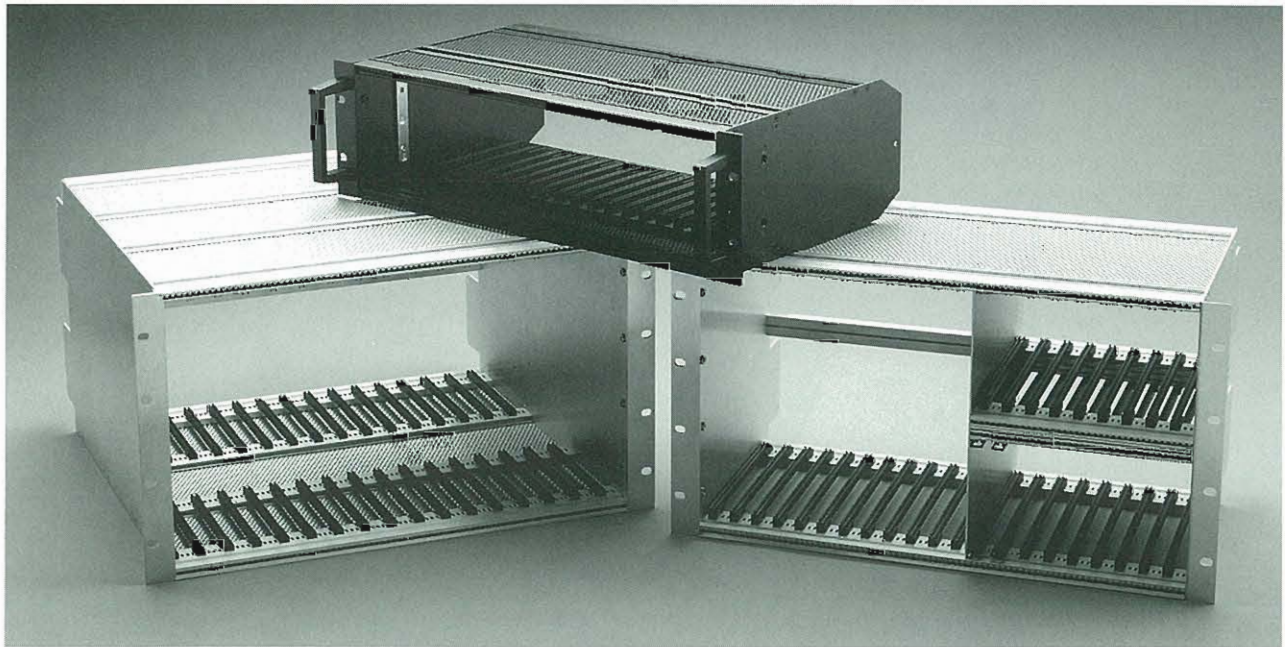
SLOT-AND-TAB FIXTURING ASSURES CLOSE TOLERANCES IN SINGLE & MULTI-BAY CARD RACKS.



ELECTRO-SPACE IS THE NATION'S LEADING MANUFACTURER OF PRINTED CIRCUIT CARD ENCLOSURES.

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- Complete in-house services, including chemical finishing, painting, silk-screening and value-added electro-mechanical assembly



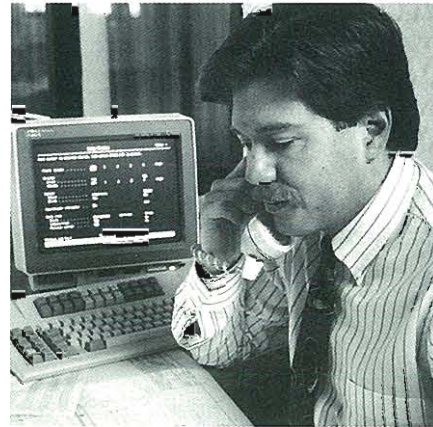
RUGGED EURO SUB-RACKS, STANDARD OR CUSTOM, OFFER COST ECONOMIES OF 30%.



Quality Is Built In Every Step Of The Way

For no additional cost, ESF's Design and Engineering Department performs a complete value analysis on each customer's product drawing, during which time design changes may be suggested for better manufacturability, tolerances and cost considerations. A growing number of customers are utilizing ESF's design service for initial product drawings. Our design engineers make sure that they understand everything there is to know about each product and its use, and they then utilize one of the most technologically advanced CAD/CAM systems to produce fully detailed manufacturing drawings and isometrics. This system facilitates fast, accurate drawing and revision control, and minimizes development lead time from concept to production.

With a full-time staff in our Quality Control Department 24 hours a day, ESF maintains tight control on every product — from the design stage ... through manufacturing and final inspection ... to packaging for shipment. Statistical Process Control (SPC) in key departments supports the total quality effort. The quality program is based on MIL-STD-105 and MIL-I-45208 standards.



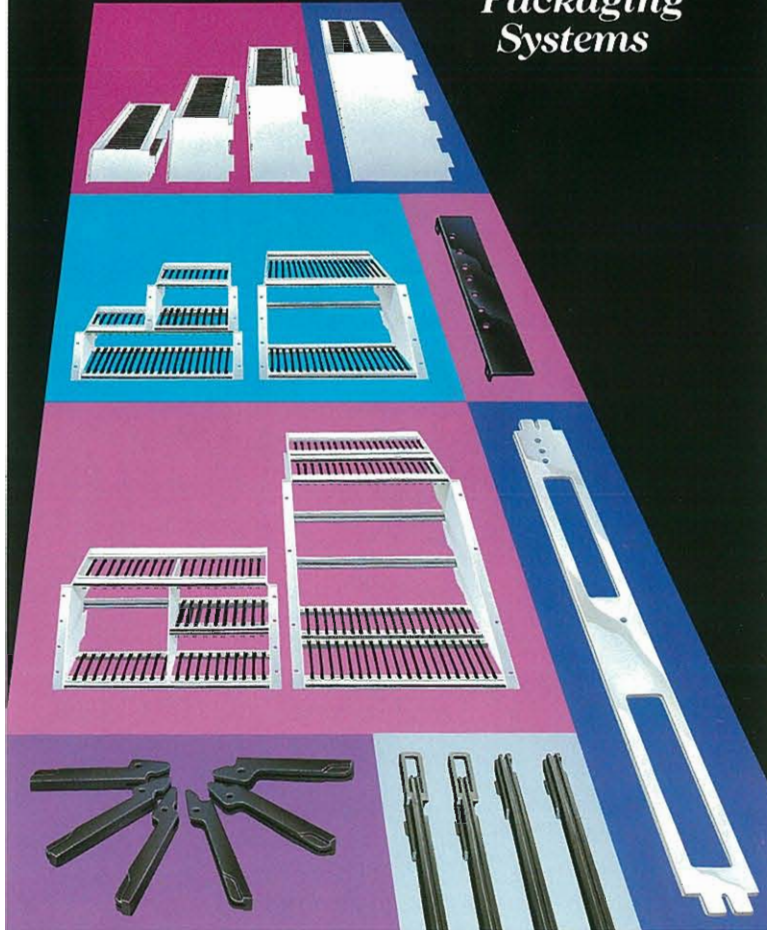
ESF also operates a Zero Defects Program, which requires a careful analysis of any defect to determine the cause and to make changes in order to avoid future defects in the same process. The cost of quality and remedial action are reviewed at regular supervisory staff meetings.

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PERSONNEL ASSURE
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