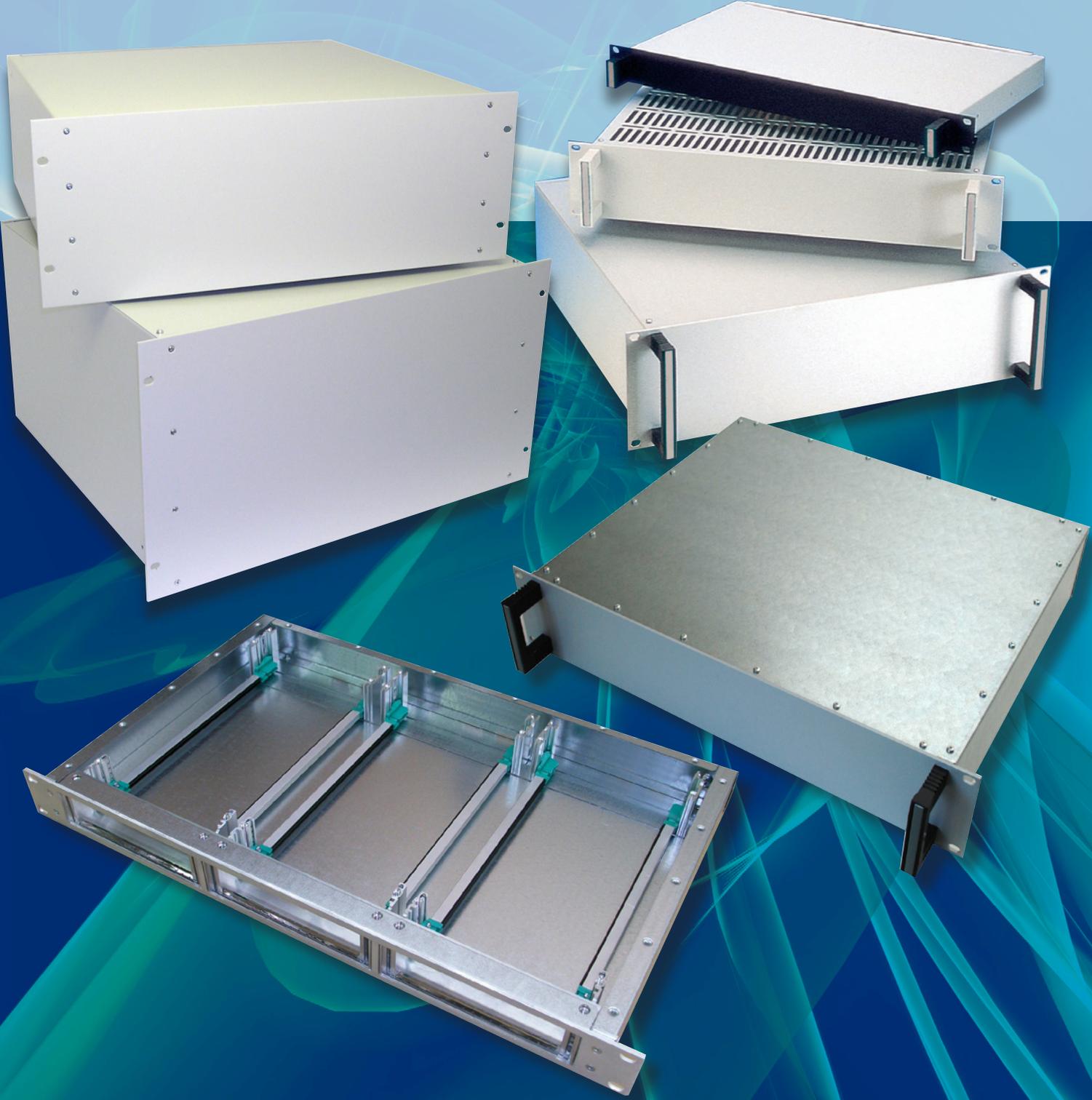


# VEROTEC

Electronics Packaging



**19" Rack Cases**

## CUSTOM 19" RACK CASES

TecServ+ is the vehicle by which Verotec delivers its value added services. These fall within 5 main categories and are described below. When it comes to 19" rack cases, we've worked with many customers in the past to design, manufacture and help bring to market modified and custom versions of our standard products – a small selection of these are pictured below. If you have any special 19" rack case requirements, please contact our sales office.

### ENGINEERING SERVICES:

- + Complete review of commercial, electro-mechanical, environmental and regulatory product requirements with customer.
- + Import of STEP, IGES, DWG & DXF file formats
- + Mechanical and electrical design using latest CAD software
- + 3D Modelling to allow conceptual testing before production
- + Component selection from a vast library of parts

### MANUFACTURING SERVICES:

- + Prototype / pre-production samples using small batch shop
- + Modification of standard catalogue products (including machining, CNC punching, laser cutting, painting & silk-screening)
- + Manufacture of custom / bespoke products (including fabrication, machining, CNC punching, plating, painting & silk-screening)
- + Assembly & kitting of components
- + Integration & mechanical / electrical testing of complex systems

### COMPLIANCE SERVICES:

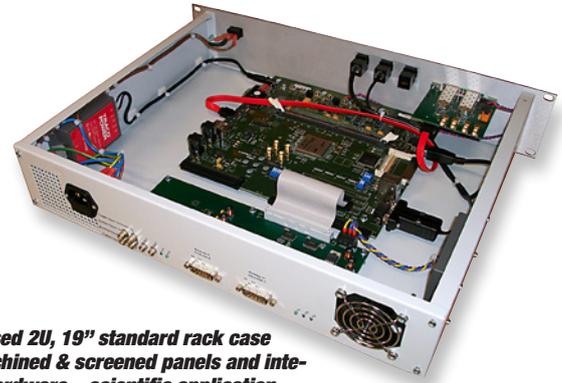
- + Validation of product design and/or specification
- + Advice on environment legislation (RoHS, Reach, Weee etc.)
- + In-house pre-compliance testing for CE marking (Safety, EMC)
- + Supply of product technical construction file
- + Testing & certification of a product at an approved test house (for EMC, shock & vibration, altitude, temperature, humidity etc.)

### LOGISTICAL SERVICES:

- + Express manufacturing service for quick turnaround of urgent orders
- + Special / bespoke packaging for safe transport of goods
- + Scheduled orders (including JIT and KAN BAN systems)
- + Stock holding & distribution
- + Exporting (including export packaging, land/sea/air transportation, freight forwarding, customs documentation & shipping manifests)

### PROJECT MANAGEMENT SERVICES:

- + Initial project consultation
- + Capability and feasibility study
- + Estimation of project cost and leadtime
- + Management of design process (specification to validation)
- + Management of manufacturing process (prototype to production)
- + Cost reduction programmes throughout product life cycle



*Customised 2U, 19" standard rack case with machined & screened panels and integrated hardware – scientific application.*



*Customised 3U, 19" standard rack case with machined & screened front panel and cable management – telecoms application.*



*Customised 1U, 19" eurocard rack case with machined front and rear panel and special guides – railway application.*



*Customised 2U, 19" veroshield rack case painted black with machined & screened front panel – military application.*

# 19" Rack Cases – Standard

## STANDARD RACKCASES

19" rack cases are designed to offer a simple solution to many 19" mounting applications. The design allows numerous combinations to be assembled according to the application and hence offers total flexibility for the design engineer, using common piece parts. It also allows the case to be presented in a number of attractive finishes for individual product tailoring of 19" mounting applications.

Standard 1U-4U Rackcase components may be ordered separately; alternatively 1U-6U Rackcases can be configured in which case they are supplied fully assembled. Accessories include chassis trays to aid the mounting of internal components.

### FEATURES

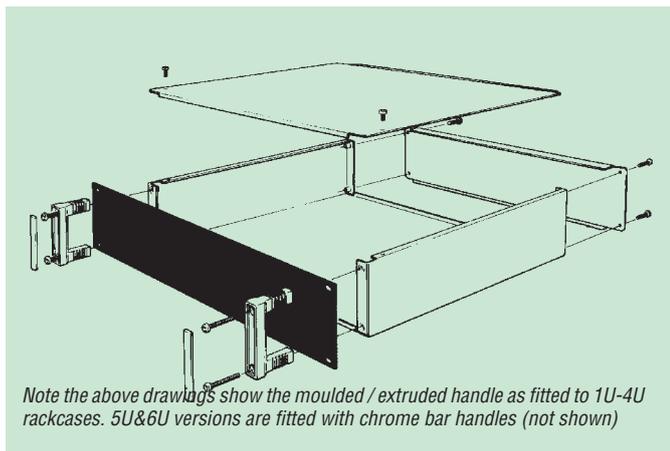
- Conforms to IEC 297-1, DIN 41494
- Simple design for total access
- Three depth variations
- Standard heights are 1U, 2U, 3U and 4U. Heights of 5U and 6U are subject to an MOQ
- Numerous configurations for total flexibility
- Choice of handle trim colours
- Components available separately (1U-4U)
- Available configured and assembled (1U-6U)
- Chassis Trays Available

Standard heights are 1U, 2U, 3U and 4U. Heights of 5U and 6U are subject to an MOQ.

### CONTENTS OF KIT

Item/Description	Material/Finish
Top and base	0.9mm zintec, Painted RAL 7035 Grey
Front panels	3mm anodized aluminium (clear) or 2mm steel painted black
Rear panels	0.9mm zintec, Painted RAL 7035 Grey
Handles (1U-4U)	ABS RAL 7035 or black and clear/black painted aluminium extrusion.
Handles (5U & 6U)	9.5mm mild steel bar, polished chrome

### EXPLODED VIEW



### MAXIMUM INTERNAL HEIGHT

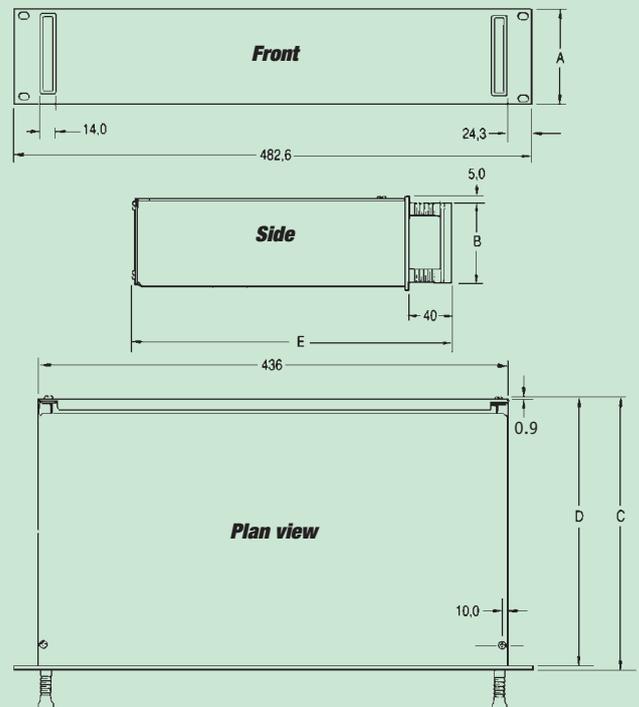
The maximum internal heights of the rack cases, that is the distance between the inside of the top cover and base at the centre of the enclosure, are detailed in the table right. Note that the construction of the rack case includes a return fold and inserted flange around the edges of the base / cover which should be taken into consideration as the internal height is reduced in these areas.

Height of Unit	Max. Internal Height
1U	35.7mm
2U	80.15mm
3U	124.60mm
4U	169.05mm
5U	213.50mm
6U	257.95mm



19" RACK CASES

### DIMENSIONAL DETAIL



Height of Unit	A(mm)	B(mm)	Depth of Unit	C	D	E
1U	44.45	34	250mm (1U-4U)	252.0	245.8	292
2U	88.9	78	350mm (1U-4U)	352.0	345.8	392
3U	133.35	122	450mm (1U-4U)	452.0	445.8	492
4U	177.8	167	250mm (5U&6U)	252.0	245.8	296
5U	222.25	162	350mm (5U&6U)	352.0	345.8	396
6U	266.7	214	450mm (5U&6U)	452.0	445.8	496

\*Assuming 3mm F/panel thickness

# 19" Rack Cases – Standard

## HOW TO CONFIGURE THE RACK CASE

Since it is generally accepted that the case will consist of a top, base, front and rear, the following example illustrates how to select the configuration which best suits you.

### TOP COVER

This is available in 3 depths of 250mm, 350mm and 450mm in a ventilated and unventilated version and is simply attached to the case by means of two fasteners at the front.

### HANDLES

For 1U, 2U, 3U and 4U versions, either black or grey plastic / extruded aluminium handles may be selected. They are supplied with grey highlight strips and are secured to the case using four fixing screws through the front panel fixing centres. For 5U&6U versions, heavy duty, polished chrome steel bar handles are supplied – note these are not available as a separate component part.

### BASE

This is available in 3 depths of 250mm, 350mm and 450mm and six heights of 1U-6U. It is available in ventilated and unventilated versions. Note that 5U&6U bases are not available as separate component parts.

### FRONT PANELS

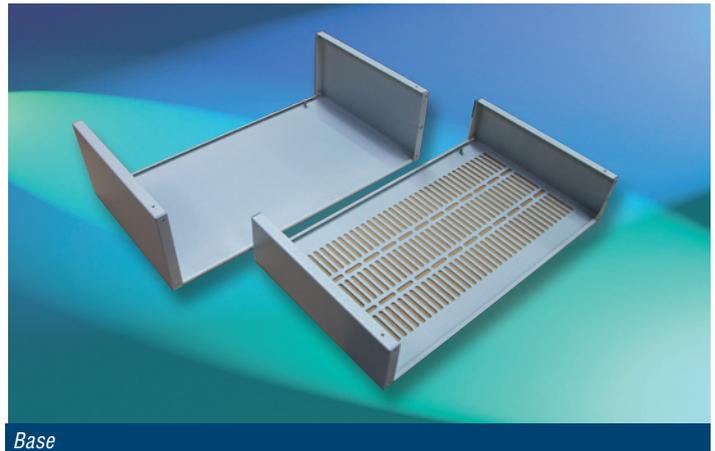
These are available in clear anodised aluminium or black painted steel versions and are attached to the base by means of four screw fixings (eight on 4U-6U versions). There are six height variations of 1U-6U and all will accept front panel handles. Note that 5U&6U front panels are not available as a separate component parts.

### REAR PANELS

These are available in RAL 7035 painted zinc and are attached to the base by 4 screw fixings. There are six height variations of 1U-6U and all are removable by four screw. Note that 5U&6U rear panels are not available as a separate component part.



Top Cover



Base



Rear panels



Front panels



1U-4U Handles



5U & 6U Handles

## ORDERING INFORMATION – COMPONENT PARTS

Top covers	250mm	350mm	450mm
Ventilated	503-232963	503-232965	503-232967
Unventilated	503-232964	503-232966	503-232968

Base 1U	250mm	350mm	450mm
Ventilated	503-232945	503-232951	503-232957
Unventilated	503-232946	503-232952	503-232958

Base 2U	250mm	350mm	450mm
Ventilated	503-232947	503-232953	503-232959
Unventilated	503-232948	503-232954	503-232960

Base 3U	250mm	350mm	450mm
Ventilated	503-232949	503-232955	503-232961
Unventilated	503-232950	503-232956	503-232962

Base 4U	250mm	350mm	450mm
Ventilated	503-4003032	503-4003034	503-4003036
Unventilated	503-4003033	503-4003035	503-4003037

Front panels	1U	2U	3U	4U
Black painted	503-232970	503-232973	503-232976	503-4003038
Clear anodise	503-232971	503-232974	503-232977	503-4003039

Rear panels	1U	2U	3U	4U
RAL 7035 painted steel	503-232984	503-232985	503-232986	503-4003040

## ORDERING INFORMATION – COMPONENT PARTS

Handles	1U	2U	3U	4U
Black	503-232978	503-232980	503-232982	503-4003041
Grey	503-232979	503-232981	503-232983	503-4003042

Note 1: Care should be taken with 1U and 2U 450mm deep versions not to excessively weight load the unit without the use of additional chassis supports.

Note 2: To have your rack case delivered assembled, use the tables on the next page to configure a part number.

# 19" Rack Cases – Standard

## CONFIGURED RACKCASES

So that specific permutations can be provided, the below charts should be used to configure exact requirements. Each digit of the ordercode represents an available option for example, part number 519-110113 represents a 1U rack case, 250mm deep with a plain top cover and base, clear anodised front panel and grey handles. Configured units are shipped assembled. 5U & 6U versions are subject to a 5 piece MOQ.

\* Note: Grey and Black handles only available on 1U-4U Rackcase. 5U&6U versions fitted with chrome bar handles.



6U, 19" vented rack case with black front panel

## ORDERING INFORMATION – 1U, 2U & 3U RACKCASES

### 519 - 1 1

X

X

X

X

Height	Depth	3rd Digit
1U	250mm Nominal	0
2U		1
3U		2
1U	350mm Nominal	3
2U		4
3U		5
1U	450mm Nominal	6
2U		7
3U		8

Top & Base Covers	4th Digit
Vented top & base	0
Unvented top & base	1
Vented top / unvented base	2
Unvented top / vented base	3
Vented base only	4
Unvented base only	5

Front Panel	5th Digit
No front panel	0
Clear anodised front panel	1
Black painted front panel	2

Rear Panel & Handles	6th Digit
No handles or rear panel	0
R/panel & grey handle	1
R/panel & black handle	2
Grey handles only No rear panel	3
Black handlers only No rear panel	4
R/panel only No Handles	5

## ORDERING INFORMATION – 4U, 5U & 6U RACKCASES

### 519-22

X

X

X

X

Height	Depth	3rd Digit
4U	250mm Nominal	0
5U		1
6U		2
4U	350mm Nominal	3
5U		4
6U		5
4U	450mm Nominal	6
5U		7
6U		8

Base & Top Cover	4th Digit
Vented top & base	0
Unvented top & base	1
Vented top / unvented base	2
Unvented top / vented base	3
Vented base only	4
Unvented base only	5

Front Panel	5th Digit
No front panel	0
Clear anodised front panel	1
Black painted front panel	2

Rear Panel & Handles	6th Digit
No handles or rear panel	0
Rear panel & grey handles *	1
Rear panel & black handles *	2
Grey handles * No rear panel	3
Black handles * No rear panel	4
Rear panel only. No handles	5

## CHASSIS TRAY

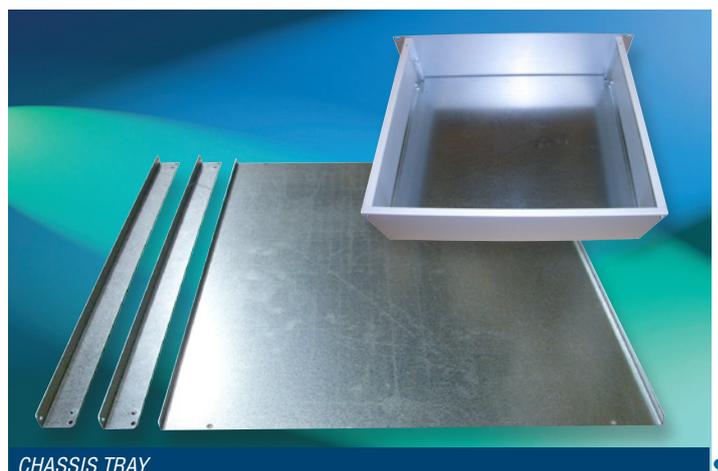
To facilitate the mounting of electro/mechanical components in to the rackcase, a chassis tray may be used. Available in three depths, the tray is formed front and back to prevent bowing and is supported either side by a chassis runner that's secured to the side of the case using screw fixings supplied. The chassis tray is conductive and non-perforated and sits 15mm above the base of the case to give adequate space for fixings.

## CONTENTS OF KIT

Description	Qty	Material/Finish
Chassis Tray	1	0.9mm Zintec plated steel
Chassis Runner	2	0.9mm Zintec plated steel
Fixings		

## ORDERING INFORMATION

Description	Ordercode
19" x 250mm	503-4002616
19" x 350mm	503-4002617
19" x 450mm	503-4002618



CHASSIS TRAY

# 19" Rack Cases – Veroshield

## VEROSHIELD RACK CASE

The Veroshield case is designed for applications that demand a high level of EMC shielding, protection against ingress of dust / water and a cosmetic appeal without compromising on strength and usability. The enclosure is constructed from 0.9 mm galvanised steel to maintain electrical conductivity throughout the unit; an additional 19" aluminium front panel, external to the screened enclosure, is provided to improve the appearance when the unit is mounted in a rack or desktop case. The Veroshield case has been designed to meet the requirements of IP54, offering protection against dust and splashing water. This is achieved due to its solid construction, use of return flanges at each edge and number of screw tight fixings. Removable top and bottom covers facilitate easy access to the internal components; they are secured with multiple fixings around their periphery to ensure that slot lengths are kept to a minimum to preserve the high levels of attenuation. The flat panel construction enables the units to be easily machined to suit the requirements of the application.

### Features:

- Available in 1U, 2U & 3U heights
- Compatible with Diplomat 19" Cases
- High performance EMC shielding
- Designed to meet IP54
- Robust construction
- Easy assembly / access
- Conductive finish
- Cosmetic appeal
- Handles for easy handling
- Eurocard 19" Rack Cases) Supplied assembled

### Applications

The development of modern electronic systems has led to increasing problems with RFI/EMI. Most of these can be overcome by good design practise at board and component level. For those systems that are especially sensitive Verotec produce the Veroshield case which offers typical attenuation in excess of 110dB up to 10MHz.

### Material and Finish

Description	Material / finish
Top, Base, Inner Front & rear panel	: 0.9mm Galvanised Steel
Front Panel	: 3mm Clear Anodised Aluminium
Handles	: Black ABS with light grey infill strip
Extrusion	: Black painted

### Ordering Information

Description	Ordercode
1U x 19" x 265mm	<b>503-4002203</b>
2U x 19" x 365mm	<b>503-4002204</b>
3U x 19" x 365mm	<b>503-4002205</b>

### CHASSIS TRAY

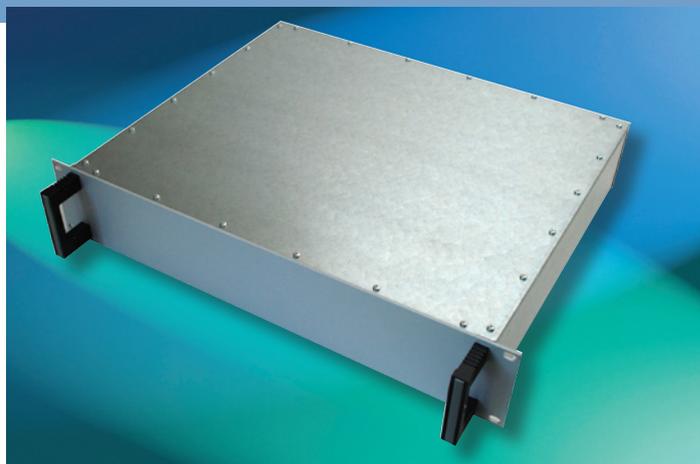
To facilitate the mounting of electro/mechanical components in to the rackcase, a chassis tray may be used. Available in three depths, the tray is formed front and back to prevent bowing and is supported either side by a chassis runner that's secured to the side of the case using screw fixings supplied. The chassis tray is conductive and non-perforated and sits 15mm above the base of the case to give adequate space for fixings.

### CONTENTS OF KIT

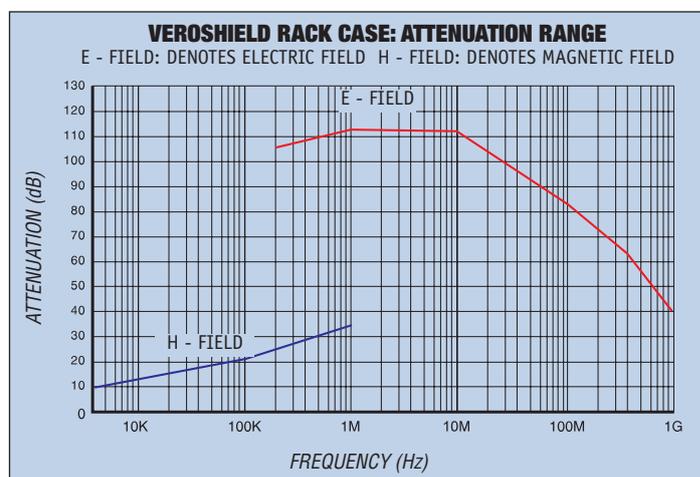
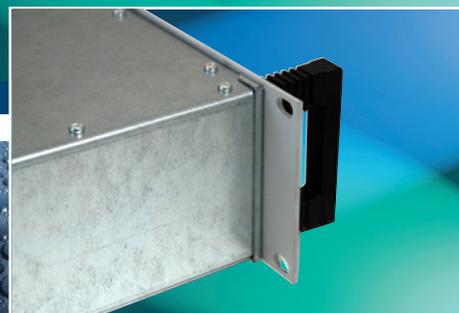
Description	Qty	Material/Finish
Chassis Tray	1	0.9mm Zintec plated steel
Chassis Runner	2	0.9mm Zintec plated steel
Fixings		

### ORDERING INFORMATION

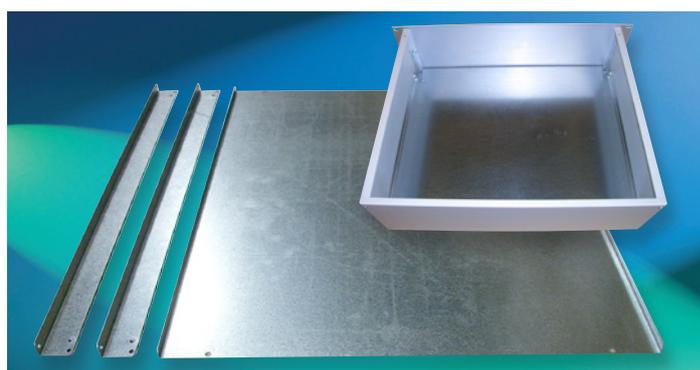
Description	Ordercode
19" x 250mm	<b>503-4002616</b>
19" x 350mm	<b>503-4002617</b>
19" x 450mm	<b>503-4002618</b>



VEROSHIELD

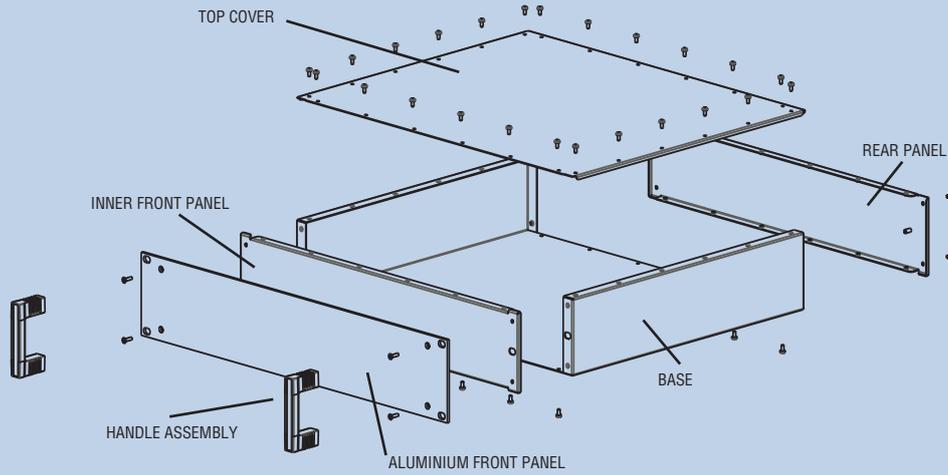


Typical attenuation figures are in excess of 110 dB up to 10 MHz, falling linearly to 40 dB at 1 GHz.

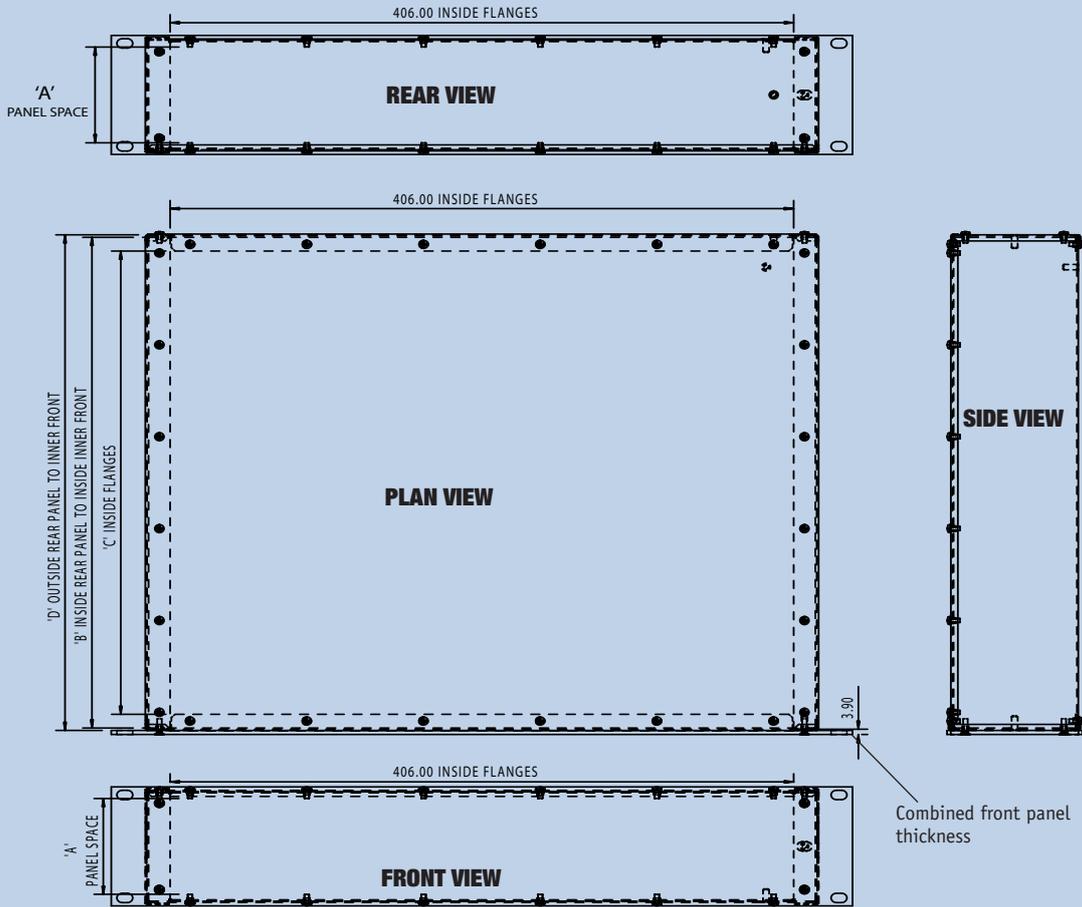


CHASSIS TRAY

## EXPLODED VIEW



## DIMENSIONAL DETAIL



SIZE	Order Code	Dim A	Dim B	Dim C	Dim D
1U x 19" x 265mm	503-4002203	26.47	263.2	242.8	266.8
2U x 19" x 365mm	503-4002204	70.92	363.2	342.8	366.8
3U x 19" x 365mm	503-4002205	115.37	363.2	342.8	366.8

# 19" Rack Cases – Eurocard

## EUROCARD RACK CASE

The Eurocard rack case allows any size of standard Eurocard PCB to be mounted horizontally in 1U or 2U of 19" rack-space. Ideal for applications where only a small number of PCBs are required (perhaps only 1), and where 19" rack-space is at a premium, this enclosure provides a cost effective packaging solution to the alternative option of vertically mounting cards in a subrack, where up to 9U could be required. The base and cover are punched with a universal hole pattern that allows tiebars to be positioned in various places, allowing numerous configurations of different sized Eurocards to be installed, for example 1 x 3Ux160mm PCB & 1 x 6Ux220mm PCB or a single 9Ux160mm PCB. A 3U or 6U area may also be left unpopulated to make way for other equipment (PCBs, fans, PSUs etc.) and in such cases, the front apertures can be blanked off with filler panels.

Both IEC and IEEE front tiebars can be fitted to cater for tradition eurocards but also modern types for CompactPCI, VME64x, VPX etc., where the front panels incorporate injector / extractor handles. The cover is easily removed to provide internal access and thus facilitate the testing and interrogation of PCBs. The units feature an EMC compatible vent pattern on either side to aid airflow allowing cards to be cooled, whilst the rear panel includes a removable gland plate that can easily be machined for connector cut-outs.

## EMC & ESD

Available in 1U (6HP) or 2U (12HP) heights, the units feature an extruded, 19" front panel for strength & rigidity that also accepts a double-swipe, stainless steel EMC gasket. This further enhances the shielding effectiveness of the enclosure by providing an electrical seal between the 19" panel aperture and Eurocard front panel edge. Provision is made in the card guide for an earthing clip to be fitted, so that as the PCB is inserted, any static electricity is safely discharged before contact with the mating connector is made. The enclosure is manufactured from galvanised steel and aluminium extrusion to maintain electrical conductivity throughout.

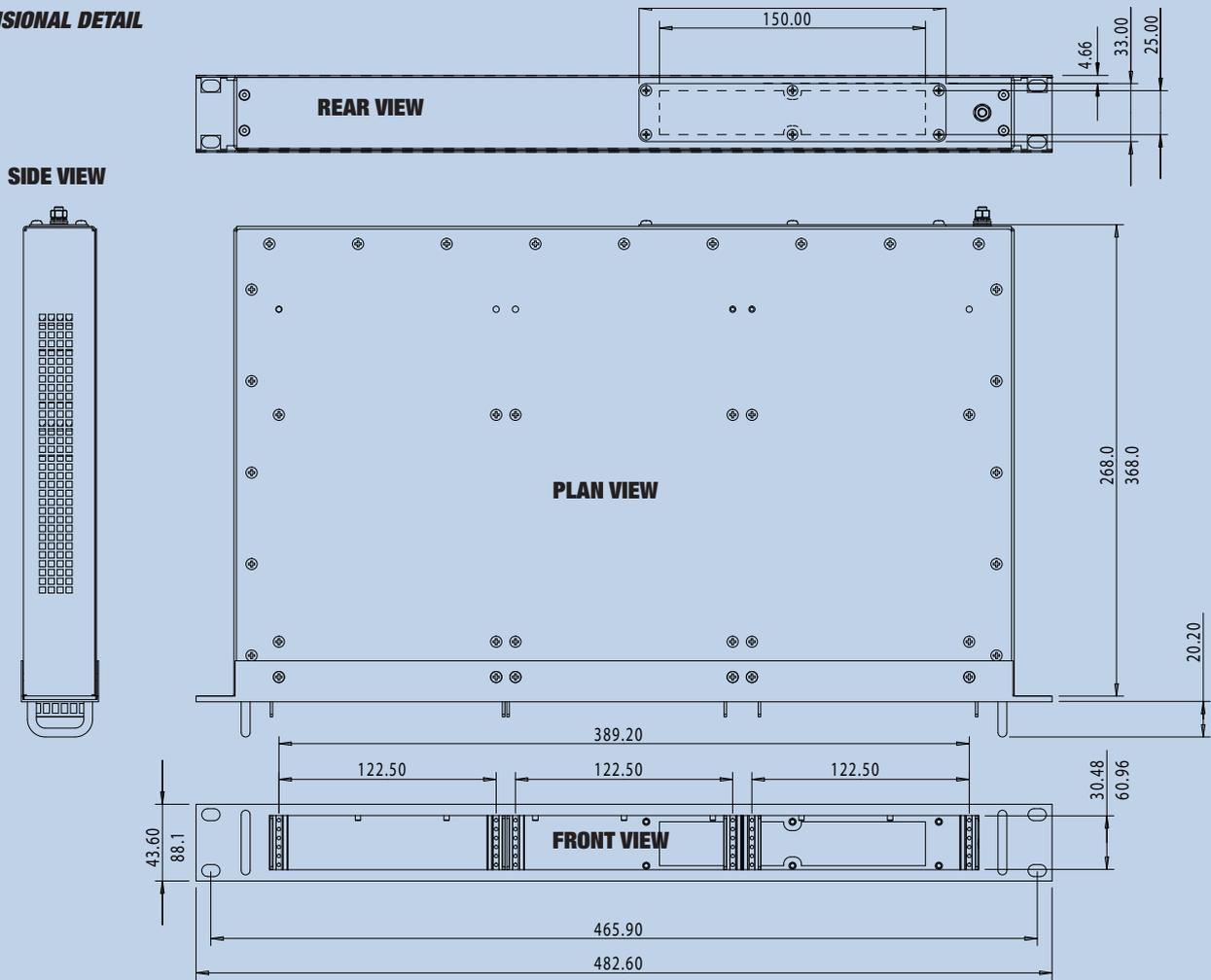


1U 19" Eurocard Rackcase (3x3U) & (1x3U&6U)

## FEATURES

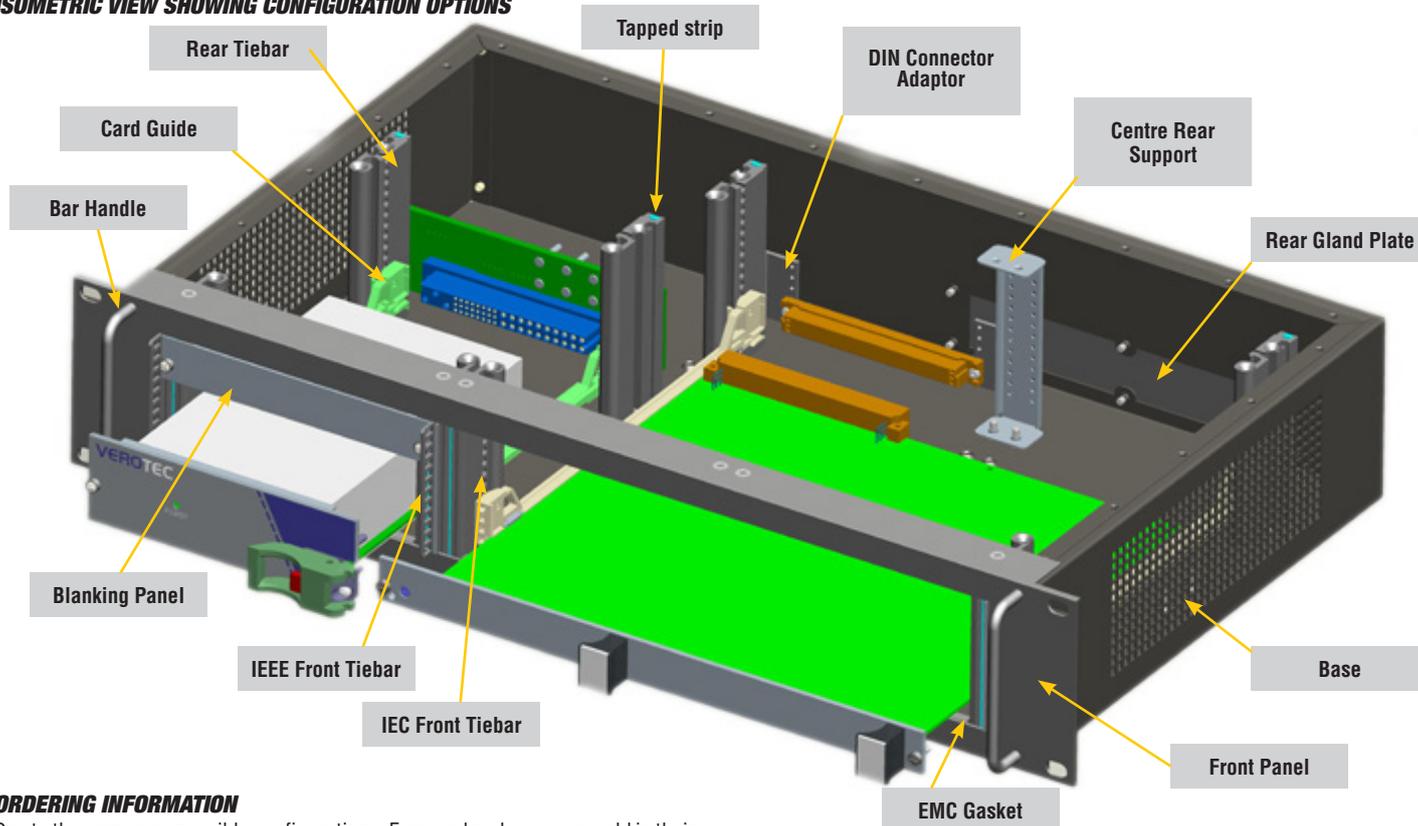
- IEC 60297-1 & 3 and IEEE 1101.10 compatible
- 1U (6HP) & 2U (12HP) heights, 270mm & 370mm Depths
- Accepts a mix of 3U, 6U & 9U Eurocards in 160mm & 220mm depths
- EMC and ESD compatibility
- Side ventilation
- Accepts numerous configurations of different sized Eurocards
- Robust construction (KM6-HD tiebars)
- Removable rear gland plate (for machining)
- Front panel bar handles for easy handling
- Removable top cover for easy access

## DIMENSIONAL DETAIL



# 19" Rack Cases - Eurocard

## ISOMETRIC VIEW SHOWING CONFIGURATION OPTIONS



### ORDERING INFORMATION

Due to the numerous possible configurations, Eurocard rackcases are sold in their constituent parts as detailed below. Should you require them assembled, please contact our sales office.

### EUROCARD RACKCASE BASES & GLAND PLATES

The base encompasses the vented sides and rear panel but does not include the rear gland plate which must be ordered separately. The rear panel aperture is 150mm x 25mm.

Material is 0.9mm galvanised steel

Description	Unit	Ordercode
1U x 19" x 270mm base	1	503-4004798
1U x 19" x 370mm base	1	503-4004800
2U x 19" x 270mm base	1	503-4004799
2U x 19" x 370mm base	1	503-4004801
Rear gland plate (includes fixings)	1	503-4004802

### EUROCARD RACKCASE TOP COVERS

Material is 0.9mm galvanised steel

Description	Unit	Ordercode
270mm top cover & fixings	1	503-4004803
370mm top cover & fixings	1	503-4004804

### EUROCARD RACKCASE 19" FRONT PANELS, GASKET & HANDLES

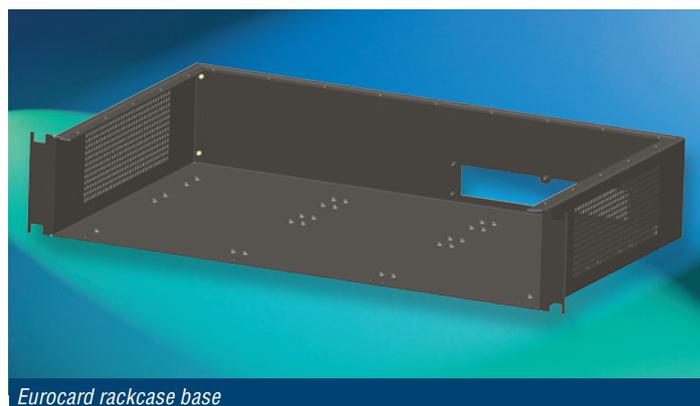
The extruded front panels incorporate standard 19" fixing holes and include a single 9U x 6HP (on 1U) or 9U x 12HP (on 2U) cut-out for PCB access. A single 9U slide-on EMC gasket may also be fitted to the bottom edge of the cut-out to interface with card fronts where a high degree of shielding is required. A pair of 5mm chrome bar handles should be fitted to the 19" panels to aid handling of the rackcase.

Front panel material is extruded aluminium, Iridite NCP

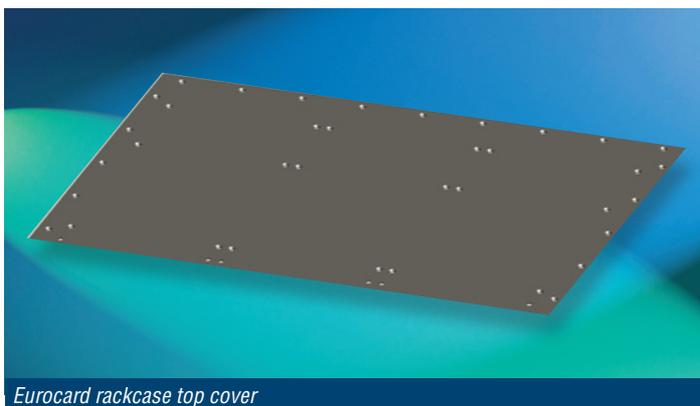
Gasket material is stainless steel

Bar handle material is mild steel, polished chrome finish

Description	Unit	Ordercode
1U x 19" front panel & fixings	1	503-4004805
2U x 19" front panel & fixings	1	503-4004806
9U double-swipe EMC gasket	1	665-319157
1U front panel bar handle kit & fixings	Pair	503-4004807
2U front panel bar handle kit & fixings	Pair	503-4004808



Eurocard rackcase base



Eurocard rackcase top cover



Eurocard rackcase front panel with gasket & handles fitted

# 19" Rack Cases - Eurocard

## ORDERING INFORMATION

Due to the numerous possible configurations, Eurocard rackcases are sold in their constituent parts as detailed below. Should you require them assembled, please contact our sales office.

## EUROCARD RACKCASE TIEBARS, TAPPED STRIPS, SPACERS & DIN ADAPTORS

Tiebars are ordered singly as required. IEEE types include the punched lip for use with injector / extractor handles found with VME64x, CPCI etc. A tapped strip is required in each tiebar and optional DIN connector mounting adaptors should be used for securing DIN 41612 connectors directly to rear tiebars. Centre rear supports are formed metal and therefore do not require tapped strips. 1mm insulated spacers should also be used to maintain correct geometry between backplane and rear tiebar. These are supplied in 84HP lengths and should be cut down to the desired length.

*Tiebar & DIN adaptor material is extruded aluminium, iridite NCP finish  
Tapped strip material is mild steel, zinc & clear passivate finish  
Insulated spacer material is PVC UL94V0  
Centre rear support material is galvanised steel*

Description	Unit	Ordercode
1U (6HP) IEC front tiebar	1	503-4004809
1U (6HP) IEEE front tiebar	1	503-4004810
1U (6HP) rear tiebar	1	503-4004811
2U (12HP) IEC front tiebar	1	503-4004812
2U (12HP) IEEE front tiebar	1	503-4004813
2U (12HP) rear tiebar	1	503-4004814
1U (6HP) centre rear support	1	503-4004836
2U (12HP) centre rear support	1	503-4004837
1U (6HP) tapped strip	1	503-4004815
2U (12HP) tapped strip	1	503-4004816
1mm insulating spacer (84HP length)	1	950-10014
6HP DIN connector adaptor kit	Pair	950-249491
Tiebar fixings (M3 taptite screws)	Pk100	503-4004817
Backplane / connector fixings (M2.5 x 6)	Pk100	173-12530

## EUROCARD RACKCASE GUIDES & CLIPS

Available in 160mm or 220mm lengths, these IEEE 1101.10 compliant card guides accommodate both 1.6mm and 2.4mm PCBs and simply clip into place, although screw fixings for added strength are available. A green version with a 0.5HP offset guide position is available for use with PICMG 2.11 compliant (CompactPCI) power supplies. Accessories include PCB grounding clips and front panel ESD clips – both fit into a cavity in the guide and are useful in static sensitive applications.

*Guide material is glass filled poly carbonate  
Earth clip material is stainless steel*

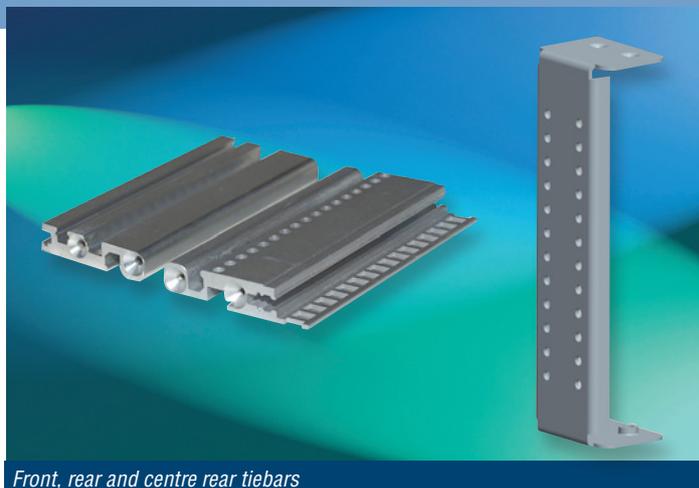
Description	Unit	Ordercode
160mm PCB guide	Pk10	900-4003910
220mm PCB guide	Pk10	900-4003909
160mm PCB guide (green with 0.5HP offset for CompactPCI power supplies)	Pk10	900-4003913
PCB guide fixing screw (optional)	Pk100	900-4003919
PCB grounding clip	Pk10	900-4003920
Front panel ESD clip	Pk10	900-4003921

## EUROCARD RACKCASE BLANKING PANELS

For vacant slots or where cards do not have their own front panels, blanking panels may be fitted to close the front aperture. Plain (flat plate) versions are anodised and fitted with plastic bushes. Shielded types are extruded and conductively finished with metal bushes. They are fitted with an EMC gasket and interface with the rackcase front panel as well as adjacent front panels to form a sealed unit.

*Plain panel material is anodised aluminium  
Shielded panel material is extruded aluminium, irridite NCP finished*

Description	Unit	Ordercode
3U x 2HP plain blanking panel kit	1	957-236038
6U x 2HP plain blanking panel kit	1	957-236048
3U x 2HP shielded blanking panel kit	1	951-4004051
6U x 2HP shielded blanking panel kit	1	951-4004050
3U x 6HP plain blanking panel kit	1	957-236044
6U x 6HP plain blanking panel kit	1	957-236052
3U x 6HP shielded blanking panel kit	1	951-4004081
6U x 6HP shielded blanking panel kit	1	951-4004087



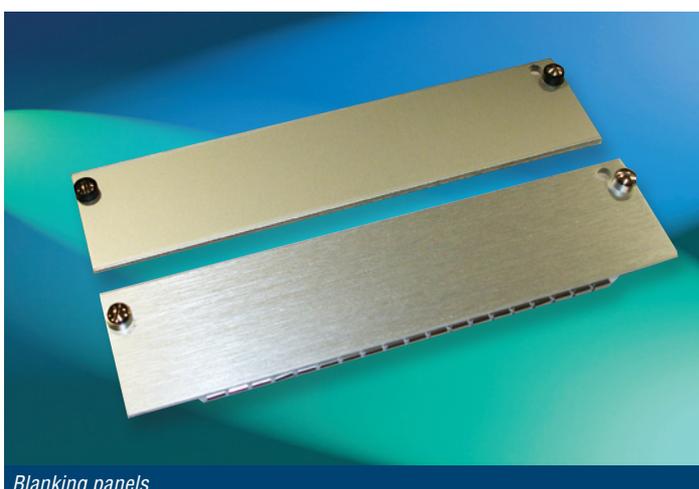
Front, rear and centre rear tiebars



Tapped strips, insulating spacers and DIN adaptors



Card guides and earth clips



Blanking panels