

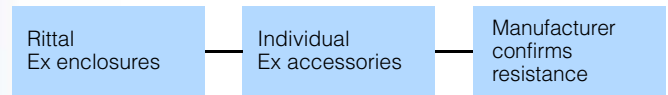
# Ex enclosures

## Features

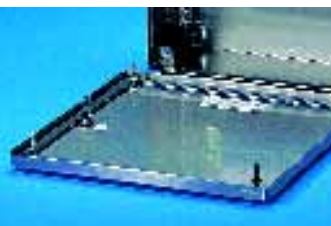
1.7  
Ex enclosures

Under ATEX, the requirements placed on Ex enclosures for use in explosion hazard atmospheres are high. For this reason, Rittal refuses to compromise in this area. Enclosure concepts proven a million times over are tailored to the specific Ex requirements. The results is a series of empty enclosures providing ideal conditions for applications in the chemical and petrochemical industries, in the offshore sector and in the food industry.

Baying systems TS 8 prepared for Ex pressurisation, see page 152.



### Ex enclosures, stainless steel



**Based on KL** with screw-fastened cover and profile strips with mounting holes on both sides of the enclosure for the attachment of support rails or mounting plate.



**Based on AE** with hinged door, cam lock and mounting plate made from sheet steel, zinc-plated.



Blind threaded bushes M8 in the rear panel for wall mounting and side panel for **external connection of a PE conductor**.



### Ex enclosures, plastic



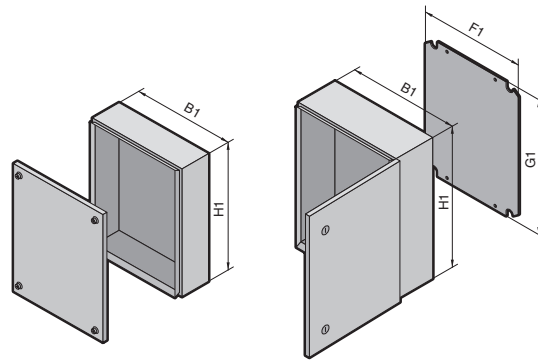
**Double seal** on top and/or bottom edges of the door thanks to the additional, integral rain protection strip.



Attachment from the outside with **wall mounting bracket** 9266.000 into the threaded inserts M8 x 15.



Moulded **bosses** in the door for the attachment of cable routing.



### With screw-fastened lid

**Material:**  
Stainless steel 1.4301 (AISI 304)

**Surface finish:**  
Brushed, grain 240

**Protection category:**  
IP 66 to EN 60 529/09.2000

**Supply includes:**  
Enclosure, lid with all-round foamed-in PU seal.

**Certificates:**  
PTB 03 ATEX 1013U

### With hinged door

**Material:**  
Stainless steel 1.4301 (AISI 304)  
Mounting plate: Sheet steel

**Surface finish:**  
Brushed, grain 240  
Mounting plate: Zinc-plated

**Protection category:**  
IP 66 to EN 60 529/09.2000

**Supply includes:**  
Enclosure, door with all-round foamed-in PU seal, mounting plate.

**Certificates:**  
PTB 02 ATEX 1082U

**Approvals,**  
see page 41.

**Detailed drawing,**  
see page 1226/1227.

### With screw-fastened lid

Width (B1) mm	Packs of	150	200	300	300	300	400	Page
Height (H1) mm		150	200	150	200	300	200	
Depth mm		80	80	80	80	120	120	
<b>Model No. KEL</b>	<b>1</b>	<b>9301.000</b>	<b>9303.000</b>	<b>9302.000</b>	<b>9304.000</b>	<b>9306.000</b>	<b>9305.000</b>	
Weight (kg)		1.3	1.8	1.8	2.4	3.9	3.6	

### Accessories

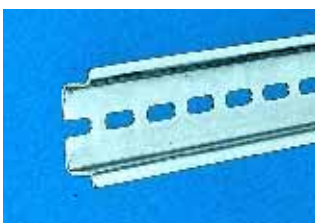
Mounting plates		1560.700	1562.700	1561.700	1563.700	1567.700	1564.700	978
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To order Ex enclosures in stainless steel 1.4404 (AISI 316L), please add extension .500 to the Model No. Delivery times available on request.

### With hinged door

Width (B1) mm	Packs of	200	300	380	380	380	600	600	760	800
Height (H1) mm		300	380	300	380	600	600	760	760	1000
Depth mm		155	210	155	210	210	210	210	300	300
Mounting plate width (F1) mm		162	334	334	334	334	549	549	704	739
Mounting plate height (G1) mm		275	275	275	355	570	570	730	730	955
<b>Model No. KEL</b>	<b>1</b>	<b>9401.600</b>	<b>9409.600</b>	<b>9402.600</b>	<b>9403.600</b>	<b>9404.600</b>	<b>9405.600</b>	<b>9406.600</b>	<b>9407.600</b>	<b>9408.600</b>
Number of cams		1	1	1	1	2	2	2	2	2
Weight (kg)		3.8	7.7	7.4	9.7	13.3	15.6	22.3	30.5	36.3

To order Ex enclosures in stainless steel 1.4404 (AISI 316L), please add extension .500 to the Model No. Delivery times available on request.



**Support rails**  
in matching sizes,  
Model No. see page 1002.

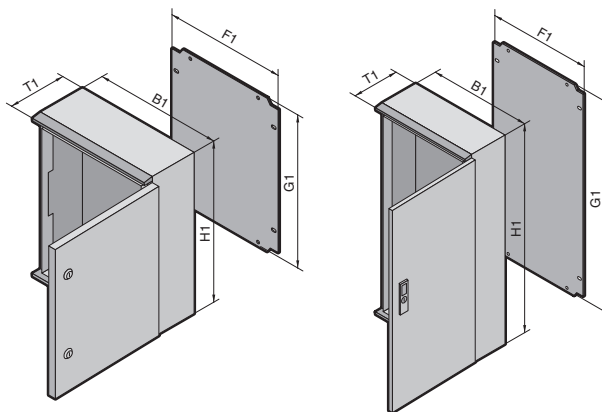


**Wall mounting bracket,**  
Model No. see page 975.

# Ex enclosures

## Plastic

1.7 Ex enclosures



**Material:**

Enclosure: Fibreglass-reinforced unsaturated polyester  
 Surface resistance: <math>< 10^9 \Omega</math>  
 Mounting plate:  
 Sheet steel, zinc-plated, passivated

**Colour:**

RAL 9011

**Protection category:**

IP 66 to EN 60 529/09.2000  
 KEL 9209.600:  
 IP 56 to EN 60 529/09.2000

**Supply includes:**

Enclosure, door with all-round foamed-in PU seal, mounting plate.

**Certificates:**

PTB 03 ATEX 1011U

**Approvals,**

see page 42.

**Detailed drawing,**

see page 1182/1183.

<b>Width (B1) mm</b>	Packs of	200	250	300	400	400	500	600	600	800
<b>Height (H1) mm</b>		300	350	400	400	600	500	600	800	1000
<b>Depth (T1) mm</b>		150	150	200	200	200	300	200	300	300
Mounting plate width (F1) mm		145	195	245	345	345	417	545	517	717
Mounting plate height (G1) mm		250	300	350	350	550	450	550	750	950
<b>Model No. KEL</b>	1	<b>9201.600</b>	<b>9202.600</b>	<b>9203.600</b>	<b>9204.600</b>	<b>9205.600</b>	<b>9207.600</b>	<b>9206.600</b>	<b>9208.600</b>	<b>9209.600</b>
Number of cams		1	1	2	2	2	2	2	1)	1)
Weight (kg)		3.7	4.6	6.0	6.5	11.5	12.9	15.9	24.3	39.0

<sup>1)</sup> 3-point lock system.



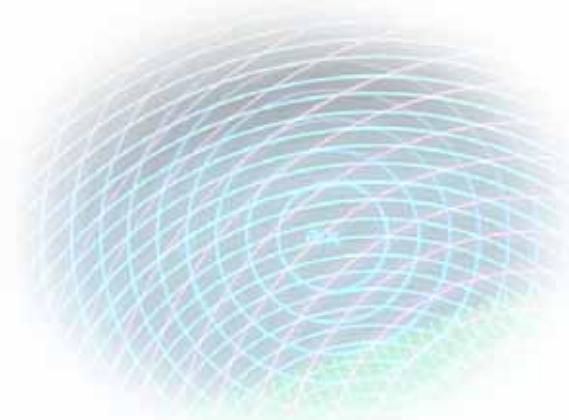
**Wall mounting bracket,**  
 Model No. see page 975.



**Baying system TS 8,**  
 prepared for Ex pressurisation,  
 Model No. see page 152.

Forward-thinking EMC planning is crucial for the permanent functioning of sensitive electronics.

Electromagnetic compatibility is required of your product. For this reason, our EMC specialists will support you with expert assistance and advice. We can help you to effectively prevent both the inlet and outlet of interference fields into and from enclosures.



### EMC enclosures and cases

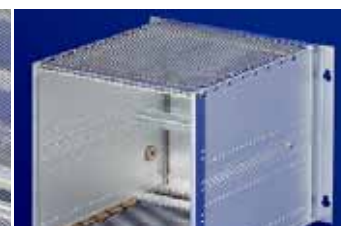
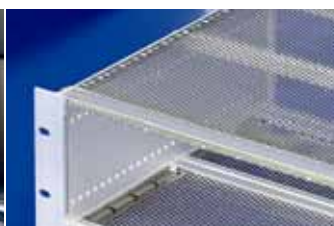


EMC enclosures: Gland plates are deliberately omitted in order to achieve a high shielding effect.

EMC baying system: Frame made from sheet steel with an aluminium zinc surface finish. EMC/IP combination seals ensure slot-free all-round contact.

EMC free-standing enclosures: Solid top and sides. EMC/IP seals are attached to the door, rear panel and gland plate.

### EMC subracks and systems

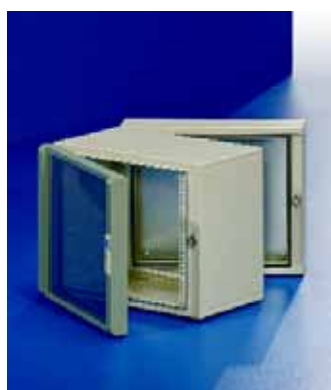


Ripac rack-mounted systems for CPCI and VMEbus, with power supply, backplane, climate control, EMC and ESD protection.

Ripac Vario EMC: Vibration and shock-tested subracks equipped for EMC-compatible installation.

Ripac Compact and Ripac Vario Mobil: The EMC specialists for mounting on top-hat rails, mounting plates, or for use in rail vehicles.

### EMC electronic enclosures



Wall-mounted enclosure, based on Rittal EL, 3-part: Front door with 4 mm EMC polycarbonate window, hinged centre part, solid wall unit.

Low-resistance connection between the glazed door and conductive sealing edge ensures a high shielding effect.

## The Rittal EMC concept

Rittal offers excellent pre-requisites for EMC enclosure configurations in the form of its standard sheet steel enclosures, EMC-shielded enclosures, and a practical range of EMC accessories.

Even the standard enclosures offer good shielding against electrical fields, which is generally sufficient for many applications.

Depending on the individual application, anything is possible, be it closely inter-meshed potential equalisation in a standard enclosure to prevent conducted interference, or extra shielding to protect against high-frequency electromagnetic fields. The large enclosures in the TS 8 series offer a "good" level of shielding even in the standard version.

For Rittal EMC enclosures with a high level of shielding, excellent attenuation levels and attractive value-for-money products are achieved on the basis of zinc-plated metal surfaces in conjunction with low-resistance EMC shields.

According to EMC legislation, CE labelling is only compulsory for active equipment and systems.

Empty enclosures are not subject to the EMC Directive because these are passive components which cannot be furnished with a declaration of conformity with regard to EMC standards.

1.8

EMC enclosures



### EMC terminal boxes KL

#### Material/surface finish:

Sheet steel with aluminium zinc-coating, powder-coated in RAL 7035 on the outside, interior surfaces conductive.

#### Protection category:

IP 55 to EN 60 529/09.2000.

The EMC version ("high RF attenuation") has been certified by the VDE.

#### Supply includes:

Enclosure, cover with special seal and cover screws.

Width mm	Height mm	Depth mm	Model No. KL
300	300	120	1507.750

Other sizes available on request.

#### Approvals,

see page 42.

#### EMC diagram,

see page 331.



### EMC E-Box EB

#### Material/surface finish:

Sheet steel with aluminium zinc-coating, powder-coated in RAL 7035 on the outside, interior surfaces conductive.

#### Protection category:

IP 55 to EN 60 529/09.2000.

The EMC version ("high RF attenuation") has been certified by the VDE.

#### Supply includes:

Enclosure with mounting plate, door with special seal including 180° hinge and cam lock with double-bit insert.

#### Note:

All sizes available on request.

#### EMC diagram,

see page 331.



### EMC compact enclosures AE

#### Material/surface finish:

Sheet steel with aluminium zinc-coating, powder-coated in RAL 7035 on the outside, interior surfaces conductive.

#### Protection category:

IP 55 to EN 60 529/09.2000.

The EMC version ("high RF attenuation") has been certified by the VDE.

#### Supply includes:

Enclosure with mounting plate, door with special seal (130° hinge) including cam lock with double-bit insert.

Width mm	Height mm	Depth mm	Model No. AE
380	380	210	1380.750
600	380	210	1039.750
600	600	210	1060.750
800	1000	300	1180.750

Other sizes available on request.

Approvals, see page 42.

EMC diagram, see page 331.





## EMC baying systems TS 8

### Material:

Sheet steel with aluminium zinc-coating  
 Door: 2.0 mm  
 Rear panel: 1.5 mm  
 Mounting plate: 3.0 mm

### Surface finish:

Framework, door, rear panel and roof plate of sheet steel with an aluminium zinc-coating, spray-finished on the outside in RAL 7035 and unpainted on the inside.

### Protection category:

IP 55 to EN 60 529/09.2000.  
 The EMC version ("high RF attenuation") has been certified by the VDE.

### Supply includes:

Enclosure frame with removable door, rear panel and roof plate, r/h door hinge, can be changed to opposite side, 4 eyebolts, fitted, mounting plate, three-part gland plates.

Width mm	Height mm	Depth mm	Model No. TS	
			TS enclosures	TS side panels
800	2000	600	<b>8806.750</b>	<b>8106.750</b>
800	2000	800	<b>8808.750</b>	<b>8108.750</b>

### Note:

Other sizes available on request.

### Property rights:

European patent no. 0 857 406 with validity for CH, ES, FR, GB, IT, NL, SE  
 US patent no. 6,384,323  
 Japanese patent no. 3 193 059



### Also required:

EMC baying seal TS 8800.690, see page 1033, for bayed enclosures.

### EMC diagram,

see page 331.



## EMC free-standing enclosure ES 5000

### Material:

Sheet steel with aluminium zinc-coating  
 Enclosure body: 10-fold profiled  
 Door: 2.0 mm  
 Rear panel: 1.5 mm  
 Mounting plate: 3.0 mm

### Surface finish:

Enclosure body, door, rear panel and roof plate of sheet steel with an aluminium zinc-coating, spray-finished on the outside in RAL 7035 and unpainted on the inside.

### Protection category:

IP 55 to EN 60 529/09.2000.  
 The EMC version ("high RF attenuation") has been certified by the VDE.

### Supply includes:

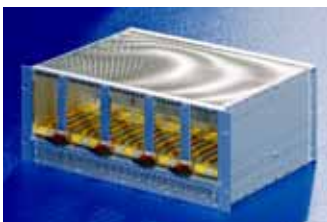
Enclosure, closed top and sides, removable rear panel, r/h door hinge, can be changed to opposite side, 2 eyebolts, not fitted, mounting plate, three-part gland plates.

### Note:

All sizes available on request.

### EMC diagram,

see page 331.



## EMC subrack Ripac Vario

The Ripac Vario EMC subrack system was developed with consideration for EMC aspects. The subracks are equipped with a conductive surface finish and with EMC components such as springs and extrusions. Further upgrading will allow individual EMC requirements to be met, depending on your required application.

### Technical specifications:

Total depth:  
 245, 285, 305, 345, 405, 465, 525, 585 mm  
 Installation width: 84 HP  
 Height: 3 U, 4 U, 6 U, 7 U, 9 U

### Testing:

Vibration and shock-tested to:  
 IEC 600-68-2-6 test Fc  
 IEC 600-68-2-27 test Ea

### Standards:

Ripac Vario subracks are based on the system dimensions to IEC 60 297-3.

### Material:

Side panels: 2.5 mm aluminium  
 Flanges and horizontal rails:  
 Extruded aluminium section  
 Cover plates: Aluminium

### Surface finish:

Clear-chromated

### Note:

Further information, see page 553.

### EMC diagram,

see page 331.



## EMC wall-mounted enclosure, based on Rittal EL, 3-part

### Material:

Wall unit and centre part:

1.5 mm sheet steel

Mounting plate:

2.5 mm sheet steel

Front door:

Extruded aluminium section, die-cast aluminium corner connectors, 4 mm polycarbonate pane, with EMC mesh.

### Surface finish:

Powder-coated

Enclosure: RAL 7035

Door frame: RAL 7033

### Protection category:

IP 55 to EN 60 529/09.2000

### Supply includes:

1 wall unit, solid,

2 gland plates, solid,

1 centre part, hinged,

2 x 482.6 mm (19") mounting angles, fitted,

1 mounting plate, zinc-coated, passivated,

1 front door with EMC polycarbonate pane.

U	Width mm	Height mm	Depth mm	Model No. EL
6	600	345	515	<b>2256.705</b>

Delivery times available on request.

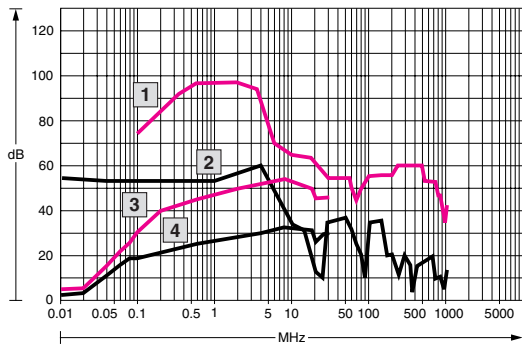
### Approvals,

see page 331.

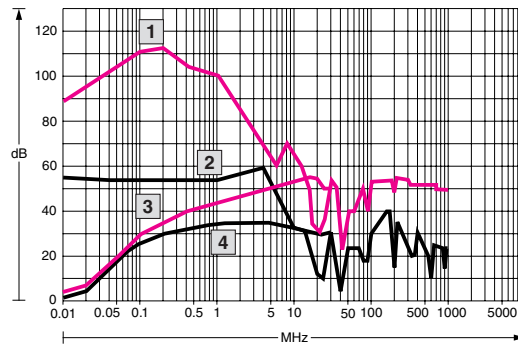
### EMC diagram,

see page 331.

**EMC terminal boxes KL** Page 328



**EMC free-standing enclosure ES 5000** Page 329

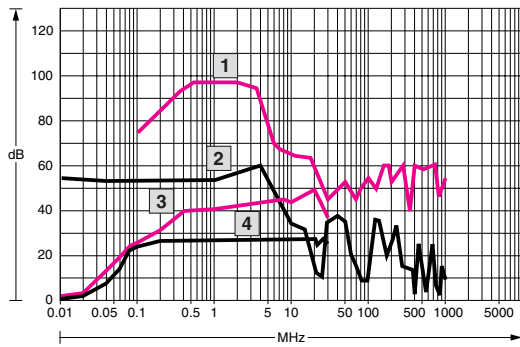


MHz = frequency  
dB = RF attenuation

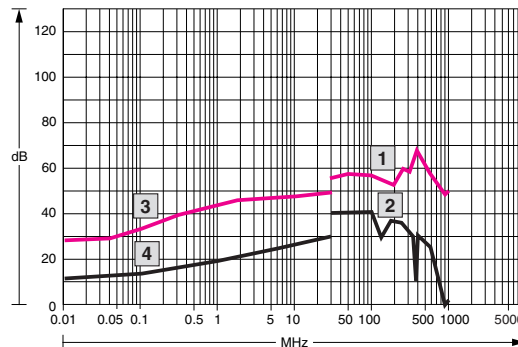
- 1** E field = Electrical field [V/m] EMC enclosures
- 2** E field standard enclosures
- 3** H field = Magnetic field [A/m] EMC enclosures
- 4** H field standard enclosures

**B**  
**1.8**  
EMC enclosures

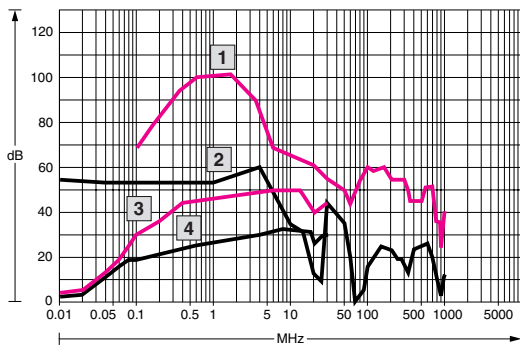
**EMC E-Box EB** Page 328



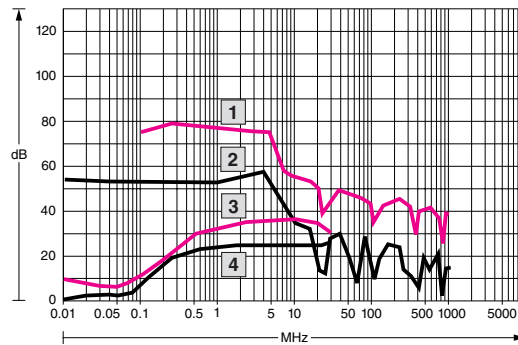
**EMC subrack Ripac Vario** Page 329



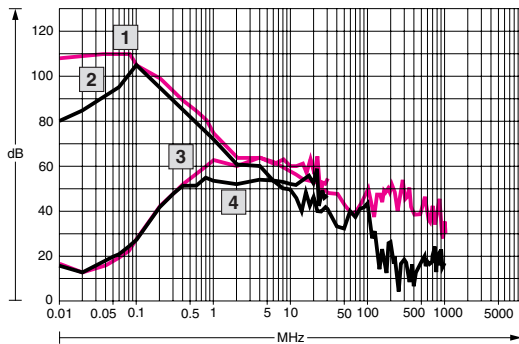
**EMC compact enclosures AE** Page 328



**EMC wall-mounted enclosure, based on Rittal EL, 3-part** Page 330



**EMC baying systems TS 8** Page 329



**Approvals:**

**EMC terminal boxes KL**

- UL
- CSA
- TÜV
- Lloyds Register of Shipping
- VDE

**EMC baying systems TS 8**

- UL – Underwriters Laboratories Inc. For USA and Canada

**EMC free-standing enclosure ES 5000**

- UL
- CSA

**EMC wall-mounted enclosure, based on Rittal EL, 3-part**

- TÜV
- Russian Maritime Register of Shipping
- Lloyds Register of Shipping

- VDE
- UL – Underwriters Laboratories Inc. For USA and Canada