

fischer elektronik

to cool to protect to connect



f.case.e

Cases

19" technology



ISO 9001
ISO 14001
ISO 27001

Accessories

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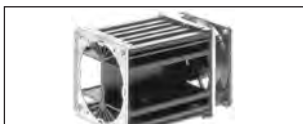





















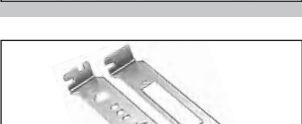















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**flucticus defendere
from the series
flucticus,
homage to Hokusai, 2020,**

16.000 photos 10 x 15 on cardboard, 60 x 60 cm

**from:
Thomas Kellner
www.thomaskellner.com**

A	A 1 - A 140				
B	B 1 - B 62				
C	C 1 - C 22				
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<p>Extruded profiles: extruded heatsinks, extruded heatsinks with solder pins, fin coolers, fluid coolers, high-performance heatsinks</p>	<p>A 1 – A 140</p> <p>A</p>
<p>Heatsinks for processors and LED: heatsinks and fan coolers for universal PGA/BGA, DIL, PLCC, Intel Pentium Xeon, Intel Pentium IV, heatsinks for LED</p>	<p>B 1 – B 62</p> <p>B</p>
<p>Board level heatsinks: finger-shaped heatsinks, heatsinks for transistors in plastic case, attachable heatsinks, small heatsinks, copper heatsinks for D PAK and others</p>	<p>C 1 – C 22</p> <p>C</p>
<p>Cooling aggregates: miniature cooling aggregates, heatsink cooling aggregates, high capacity cooling aggregates, multi module cooling aggregates, hollow-fin aggregates</p>	<p>D 1 – D 36</p> <p>D</p>
<p>Accessories for electronic components: thermal conductive materials, mounting parts for heatsinks, thermal conductive paste, thermally conductive adhesive, aluminium oxide and mica wafers, silicone washers, guide rails, solder stop plug, clip fastening for mounting rail</p>	<p>E 1 – E 52</p> <p>E</p>
<p>Sockets: IC-sockets for DIL, PLCC, sockets for transistors, LED displays, crystal oscillators and connector-sleeves</p>	<p>F 1 – F 26</p> <p>F</p>
<p>PCB connectors and accessories: male and female headers, grid spacing 2.54, 2.00 and 1.27 mm, high precision contact strips, jumpers</p>	<p>G 1 – G 108</p> <p>G</p>
<p>IDC connectors: design DIL, single and double row female headers, lockable connectors, ribbon cable</p>	<p>H 1 – H 19</p> <p>H</p>
<p>D-Sub connectors: male and female headers, connectors with mounting angle, connectors for ribbon cable, SMD and mixed layout, D-Sub shells, cut-out covers</p>	<p>I 1 – I 38</p> <p>I</p>
<p>Brackets: brackets for PC and PCI with or without fixing tab, retainer for ISA versions</p>	<p>K 1 – K 32</p> <p>K</p>
<p>Optoelectronics: LED-holders for front panel assembly, LED-holder without LED, LED-holder with mounted LED, light pipes for SMDs</p>	<p>L 1 – L 11</p> <p>L</p>
<p>Cases: desk consoles, shell cases, extruded assembled cases, combination cases, tube cases, miniature aluminium cases, design cases, cooling cases, ventilation frames, feet and bushings, special front panels, sheet constructions</p>	<p>M 1 – M 76</p> <p>M</p>
<p>19" Extension systems: plug-in chassis, subracks, bench cases, system cases, insert modules, part front panels, rack handles, PC-board holder, extender cards</p>	<p>N 1 – N 70</p> <p>N</p>

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ASA 20	NEW N 34	CC 35 130	M 64	EME 24	NEW N 36	G 113	M 7
ASA 21	NEW N 34	CC 35 160	M 64	EME 28	NEW N 36	G 116	M 7
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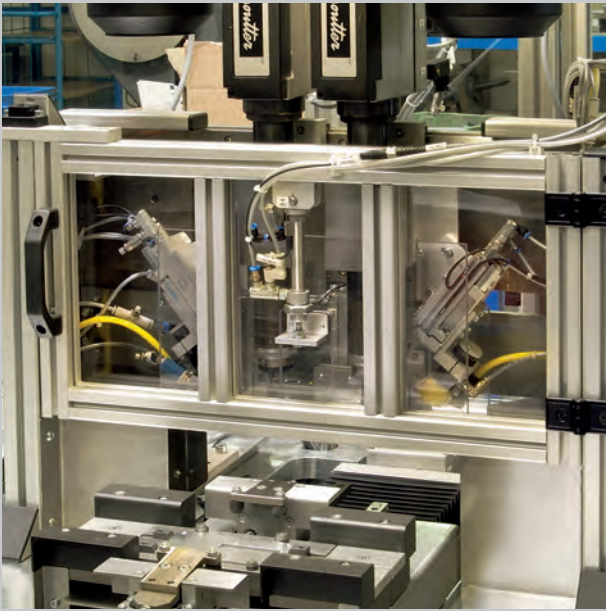
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STP 28	NEW N 43	TFP KG ... 3 6 ...	N 53	VESA GT 3 70	NEW N 12
TFP ... 3 4 ...	N 52	TFP KG ... 3 7 ...	N 53	VESAO 1 260 009	N 10
TFP ... 3 5 ...	N 52	TFP KG ... 3 8 ...	N 53	VESAO 1 260 063	N 10
TFP ... 3 6 ...	N 52	TFP KG ... 3 10 ...	N 53	VESAO 1 260 333	N 10
TFP ... 3 8 ...	N 52	TFP KG ... 3 12 ...	N 53	VME 09	NEW N 44
TFP ... 3 9 ...	N 52	TFP KG ... 3 14 ...	N 53	VME 10	NEW N 44
TFP ... 3 10 ...	N 52	TFP KG ... 6 4 ...	N 53	VS 1	N 58
TFP ... 3 12 ...	N 52	TFP KG ... 6 5 ...	N 53	VS 2	N 58
TFP ... 3 14 ...	N 52	TFP KG ... 6 6 ...	N 53	VS 3	N 58
TFP ... 3 16 ...	N 52	TFP KG ... 6 7 ...	N 53	VS 4	N 59
TFP ... 3 20 ...	N 52	TFP KG ... 6 8 ...	N 53	VS 5	N 59
TFP ... 3 21 ...	N 52	TFP KG ... 6 10 ...	N 53	VS 6	N 59
TFP ... 3 24 ...	N 52	TFP KG ... 6 12 ...	N 53	VS 7	N 59
TFP ... 6 4 ...	N 52	TFP KG ... 6 14 ...	N 53	VSA 09	NEW N 44
TFP ... 6 5 ...	N 52	TFP KG R ... 3 8 ...	N 55	VSA 10	NEW N 44
TFP ... 6 6 ...	N 52	TFP KG R ... 3 14 ...	N 55	VTP 09	NEW N 44
TFP ... 6 8 ...	N 52	TG 384 1 5	N 19	VTP 10	NEW N 44
TFP ... 6 9 ...	N 52	TON 49 20	M 43	WAG 100	M 51
TFP ... 6 10 ...	N 52	TON 61 26	M 43	WAG 120	M 51
TFP ... 6 12 ...	N 52	TON 86 36	M 44	WAG 160	M 51
TFP ... 6 14 ...	N 52	TON 111 30	M 44	WAG 200	M 51
TFP ... 6 16 ...	N 52	TS CE	N 4	WAG 220	M 51
TFP ... 6 20 ...	N 52	TUF 41 16	M 25	WME 14	NEW N 45
TFP ... 6 21 ...	N 52	TUF 55 16	M 25	WME 21	NEW N 45
TFP ... 6 24 ...	N 52	TUF 55 25	M 25	WME 28	NEW N 45
TFP 3 3 ...	N 51	TUF 55 35	M 25	WME 42	NEW N 45
TFP 3 4 ...	N 51	TUF 58 32	NEW M 25	WSA 14	NEW N 45
TFP 3 5 ...	N 51	TUF 69 28	M 25	WSA 21	NEW N 45
TFP 3 6 ...	N 51	TUF 80 42	M 26	WSA 28	NEW N 45
TFP 3 7 ...	N 51	TUF 84 32	NEW M 26	WSA 42	NEW N 45
TFP 3 8 ...	N 51	TUF 94 32	M 26	WTP 14	NEW N 45
TFP 3 9 ...	N 51	TUF 105 52	M 26	WTP 21	NEW N 45
TFP 3 10 ...	N 51	TUF 120 42	M 26	WTP 28	NEW N 45
TFP 3 12 ...	N 51	TUF 135 52	NEW M 26	WTP 42	NEW N 45
TFP 3 14 ...	N 51	TUG 03	M 27		
TFP 3 16 ...	N 51	TUG 05	M 27		
TFP 3 18 ...	N 51	TUG 07	M 27		
TFP 3 20 ...	N 51	TUG 09	M 27		
TFP 3 21 ...	N 51	TUG 17	M 28		
TFP 3 24 ...	N 51	TUG V 09	M 29		
TFP 3 28 ...	N 51	TUG V 17	M 29		
TFP 3 40 ...	N 51	TUS 58 39	NEW M 30		
TFP 3 42 ...	N 51	TUS 84 39	NEW M 30		
TFP 3 60 ...	N 51	UTG 54 49	M 24		
TFP 3 63 ...	N 51	UTG 71 66	M 24		
TFP 3 84 ...	N 51	UTG 104 99	M 24		
TFP 6 3 ...	N 51	VES 1 260	N 6		
TFP 6 4 ...	N 51	VES 1 300	N 6		
TFP 6 5 ...	N 51	VES 1 360	N 6		
TFP 6 6 ...	N 51	VES 2 260	N 6		
TFP 6 7 ...	N 51	VES 2 300	N 6		
TFP 6 8 ...	N 51	VES 2 360	N 6		
TFP 6 9 ...	N 51	VES 3 260	N 6		
TFP 6 10 ...	N 51	VES 3 300	N 6		
TFP 6 12 ...	N 51	VES 3 360	N 6		
TFP 6 14 ...	N 51	VES 4 260	N 6		
TFP 6 16 ...	N 51	VES 4 300	N 6		
TFP 6 18 ...	N 51	VES 4 360	N 6		
TFP 6 20 ...	N 51	VES 5 260	N 6		
TFP 6 21 ...	N 51	VES 5 300	N 6		
TFP 6 24 ...	N 51	VES 5 360	N 6		
TFP 6 28 ...	N 51	VES 6 260	N 6		
TFP 6 40 ...	N 51	VES 6 300	N 6		
TFP 6 42 ...	N 51	VES 6 360	N 6		
TFP 6 60 ...	N 51	VESA 1 260	N 8		
TFP 6 63 ...	N 51	VESA 1 280	N 8		
TFP 6 84 ...	N 51	VESA 1 300	N 8		
TFP AG ... 3 4 ...	N 54	VESA 1 360	N 8		
TFP AG ... 3 5 ...	N 54	VESA 2 260	N 8		
TFP AG ... 3 6 ...	N 54	VESA 2 280	N 8		
TFP AG ... 3 7 ...	N 54	VESA 2 300	N 8		
TFP AG ... 3 8 ...	N 54	VESA 2 360	N 8		
TFP AG ... 3 9 ...	N 54	VESA 3 260	N 8		
TFP AG ... 3 10 ...	N 54	VESA 3 280	N 8		
TFP AG ... 3 12 ...	N 54	VESA 3 300	N 8		
TFP AG ... 3 14 ...	N 54	VESA 3 360	N 8		
TFP AG ... 3 16 ...	N 54	VESA 4 260	N 8		
TFP AG ... 3 18 ...	N 54	VESA 4 280	N 8		
TFP AG ... 3 20 ...	N 54	VESA 4 300	N 8		
TFP AG ... 6 4 ...	N 54	VESA 4 360	N 8		
TFP AG ... 6 5 ...	N 54	VESA 5 260	N 8		

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19" cases PLUSLINE	N 2
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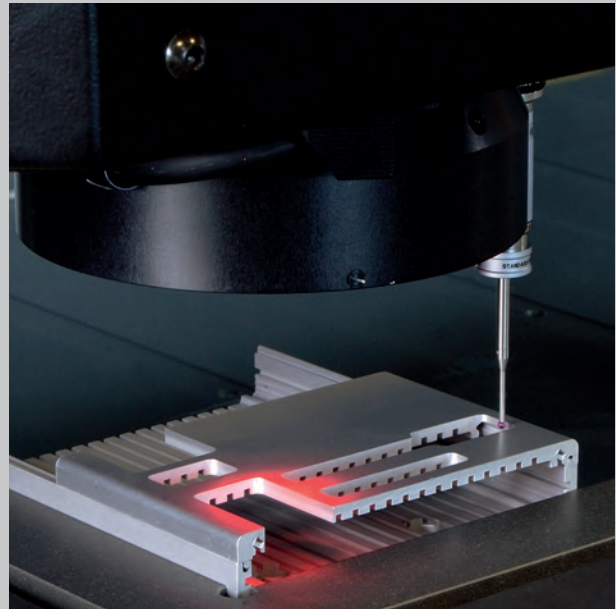
efficient special machines



modern sheet processing



burr-avoiding cutting technology



certified quality management



reliable deburring technology



high manufacturing depth

Quality-Management System ISO 9001

We are certified to ISO 9001. This process-directed quality management system implies a constant focus on satisfying the demands of customers, and this is the major objective of our company.

The implementation and further development of our quality management system demonstrably ensures

- guaranteed customer satisfaction and thus the success of our company,
- compliance with customers' requirements at all times through defined processes,
- early detection and prevention of errors, and
- checking of both process effectiveness and efficiency on a regular basis together with steady improvement.

It is through constant vigilance and the provision of evidence that we deliver flawless products, which fully comply with quality requirements, that we maintain our quality certification.

In order to secure lasting company success and to meet our customers' expectations now and in the future, we define measurable objectives within the framework of our quality system, which are regularly checked and developed. We are committed to constant measurement and improvement of our performance.

Our quality management system applies to all processes carried out by our company.

Certificate

Standard **ISO 9001:2015**

Certificate Registr. No. **09 100 4274**

Certificate Holder: **fischer elektronik** 

Fischer Elektronik GmbH & Co. KG
Nottebohmstr. 28
58511 Lüdenscheid
Germany

Scope: Design/construction, manufacture, assembly and technical advice for heatsinks, sockets, connectors, mounting parts, cases, 19" assembly systems, computer accessories

Proof has been furnished by means of an audit that the requirements of ISO 9001:2015 are met.

Validity: The certificate is valid from 2018-11-01 until 2021-10-31.
First certification 1994

2018-10-17


TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

www.tuv.com



Certificate

Standard **ISO 14001:2015**

Certificate Registr. No. **01 104 8209**

Certificate Holder: **fischer elektronik** 


Fischer Elektronik GmbH & Co. KG
Nottebohmstr. 28
58511 Lüdenscheid
Germany

Scope: Design/construction, manufacture, assembly and technical advice for heatsinks, sockets, connectors, mounting parts, cases, 19" assembly systems, computer accessories

Proof has been furnished by means of an audit that the requirements of ISO 14001:2015 are met.

Validity: The certificate is valid from 2018-10-09 until 2021-10-08.
First certification 1998

2018-10-17


TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

www.tuv.com



Environmental Management System ISO 14001

We consider protection of the environment and saving of natural resources entrepreneurial tasks of high priority.

Aware of this, our company was the first German heat-sink manufacturer to implement, the environmental management system in accordance with ISO 14001 in 1998.

Our entrepreneurial responsibility comprises preventing accidents, safeguarding against occupational diseases, designing workplaces to suit human requirements, developing products which are safe to use, saving resources and avoiding environmental impact to the maximum extent possible.

We already consider environmental compatibility in the product and process development stage. The environmental impact of our activities is documented, assessed and in a continuous improvement process reduced to a minimum.

Implementation and consistent working on and with the environmental management system is a vital process and a constant challenge but finally it will always lead to better results.

Information management norm DIN EN ISO/IEC 27001

Information security is becoming more important. For the success of our business information are essential values. Administering and protecting those has our top priority.

The information security management system to ISO/IEC 27001 considers three kinds of information: availability, confidentiality and integrity.

This information security management system is the basis for continuous monitoring and optimisation processes. It also ensures the scrupulous handling with information. A protection against attacks on the corporate network and theft is ensured.

Within the information security management system the risk evaluation such as human misconduct takes place by means of error-possibility-influence-analysis.

Certificate

Standard	ISO/IEC 27001:2013
Certificate Registr. No.	01 153 101878
Certificate Holder:	fischer elektronik
	Fischer Elektronik GmbH & Co. KG Nottebohmstr. 28 58511 Lüdenscheid Germany
Scope:	Design/construction, manufacture, assembly and sales for heatsinks, sockets, connectors, mounting parts, cases, 19" assembly systems, PCB accessory SoA Version 2.0 from 04.09.2017
	Proof has been furnished by means of an audit that the requirements of ISO/IEC 27001:2013 are met.
Validity:	The certificate is valid from 2017-10-01 until 2020-09-30. First certification 2011
	2017-10-24
	 TÜV Rheinland Cert GmbH Am Grauen Stein · 51105 Köln



Europäische Gemeinschaft

AEO-Zertifikat

1. Inhaber des AEO-Zertifikats
Fischer Elektronik GmbH & Co KG
EORI-Nummer: DE 2499770
Nr. der aml. Eintragung: HRA 2836
UST-IDNr(n): DE 125797501

DE AEOC 101367
(Nummer des Zertifikats)

2. Erteilende Behörde
Hauptzollamt Dortmund
Kronenburgallee 7
DE-44139 Dortmund



Der in Feld 1 genannte Inhaber ist

Zugelassener Wirtschaftsbeteiligter

"AEOC (zollrechtliche Vereinfachungen)"

3. Tag, ab dem das Zertifikat wirksam ist:

16.03.2010

www.tuv.com



The authorised economic operator AEO-certificate

Since 1st January 2008 companies based in the European Union and involved in customs activities have been able to apply for the status of Authorised Economic Operator (AEO). The status entitles a benefit of safety-relevant custom controls and/or simplification according to custom regulations.

The goal is here to ensure an uninterrupted global supply chain from the producer to the end user. The status of an authorised economic operator is valid in all Member States and is not limited in time.

Our company has the status AEO-C (customs simplification).

The legal requirements of an authorised economic operator are essentially the result of:
Article 5a community custom code (ZK)
Article 14a - 14x community custom code implementing provision (ZK-DVO)



Electronica, Fair Munich

D



Embedded World, Exhibition Center Nuremberg

D



Light + Building, Fair Frankfurt

D



Enova, Porte de Versailles Paris

FR



PCIM, Exhibition Center Nuremberg

D

We exhibit



embedded world
Exhibition & Conference

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www.embedded-world.de
Exhibition Center Nuremberg
hall 4A, stand 516



Frankfurt D
08. 03. - 13. 03. 2020
www.light-building.de
Exhibition Frankfurt
hall 8.0, stand H24



Munich D
14. 05. - 17. 05. 2020
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MOC Munich
hall 3, stand K13



Wuerzburg D
29. 06. - 01. 07. 2020
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VCC Vogel Convention Center



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Munich D
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embedded world
Exhibition & Conference

Nuremberg D
02. 03. - 04. 03. 2021
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Exhibition Center Nuremberg

Imprints of heatsinks and housings – your and our repro time is valuable !

Production processes:

digital UV printing

Digital UV printing delivers high resolution printing with sharp contours through precise color application with up to 1200 dpi whereby the colors used cover the complete CMYK spectrum as well as white and silver tones. By means of a full-surface white underlay as a primer intensive colours are generated even on dark surfaces. With this printing method it is possible to print color gradients, pictures or photos. UV LEDs being activated immediately after the printing process harden the ink and ensure optimum durability of the ink on rough and smooth surfaces. Plastic materials, lacquered components and anodized or transparent passivated aluminum surfaces can be printed.

Silk screen printing

In a silk screen process the printing colour is printed on the material to be printed with help of a squeegee through a finely woven tissue. On the so-called silk a light-sensitive coating is applied which hardens by UV irradiation. Certain places which should remain translucent are covered by a film before the UV irradiation. The resulting screen is inserted in the silk printing machine and the requested colour is spread over the silk by a flood squeegee. In the next working step the silk frame is lowered over the workpiece to be printed and the colour is pressed on the material to be printed through the open spaces in the silk, the printing motive. The following hardening is processed at room temperature or by means of UV lamps.

Pad printing

The pad printing is an indirect gravure process for printing on different objects in almost any form and material. With a flood squeegee the requested colour is pulled over a cliché and then removed from the cliché with help of a doctor blade so that only a colour film remains in the recesses. The so-called pad absorbs the colour in the following working steps and presses it on the printing material in a rolling movement. The following hardening of the 2k-colours is processed at room temperature or by means of UV lamps. The pad printing allows the printing on different surface structures as well as on convex / concave curved parts due to the deformability of the pad.

Sub-elox printing

The sub-eloxal printing is a special printing process which is only used on aluminium surfaces. The special nature of this printing process is the colour that is printed in an anodised and open-pore aluminium surface. In a first production step the produced article is degreased and pickled in an anodising plant. Hereby the natural oxide layer of the aluminium is removed and a porous surface is produced. After the anodising process the requested motive is applied on the resulted surface by means of digital printing. Beforehand the aluminium workpiece is warmed up to 50°C whereby a fast drying of the applied colour is achieved. After permanent drying of the surface the final product is compressed in a hot water bath. Due to the hot water sealing the open pores are closed and a hard oxide layer is created under which the previously applied colour is enclosed.

The order for the printing has to contain the font, font size and the exact position of the scripture together with a dimensioning by considering countersinks, etc. A requested company logo always has to be sent as a vector file. If those specifications are neglected the printing order possibly has to be rejected or it leads to a lot of additional work which is associated with additional costs.

The fulfilment of the following criteria enables a smooth order processing:

- Adobe Illustrator (.ai/.eps)** without continuous-tone image; used fonts converted into paths or supplied
- Adobe Acrobat (.pdf)** all fonts enclosed; continuous-tone images colour-separated
- InDesign (.indd)** spot colour or scale colours with right resolution (300 dpi colour, black and white 600 dpi); no RGB

This results in additional time requirement and therefore additional costs:

Precise testing of the data on usability by our repro department. Screen formats (.jpg, .gif, .png) and paper patterns, stickers or anything similar are usually not suitable for creating templates in most cases.

Templates which definitively cannot be used:

Imperfect copies such as paper-fax / Microsoft Office files (.doc, .xls, .ppt) can only be used for inspection or for transmitting texts.

Please always add dimensional drawings (.pdf; .dxf) to the parts to be printed.

Please note as a general rule: retouching work extending beyond the standard time will be invoiced additionally at cost price.

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Explanations – references – printings



... index area:
shows topics/categories

“current”



Examples KOH-profiles	→	M 12
Design case	→	M 41 - 47
Decorative surfaces	→	M 55
EMC seals	→	N 29 - 34



SA	=	black anodised
AL	=	degreased aluminium
ME	=	clear anodised
TP	=	chrome-free transp. passivated



... index area:
shows topics/categories

“further”

... page number

... footnotes, give references to pages with combinable or similar products

... art. no.

... additional options

... option for surface finishing

... link to page

... length in [mm]

... 19" construction 482.6 [mm]

... thermal resistance in [K/W]

... height unit 44.45 [mm]

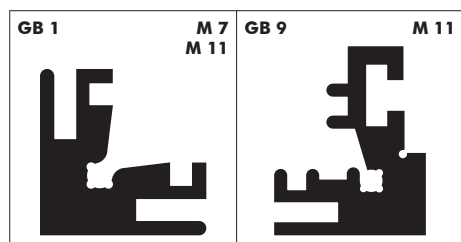
... width unit 5.08 [mm]

... insertion depth


































... number of guide slots

Profile overview

Edge profiles


























Combination profiles







<p>KO H 0</p> <p>M 16 M 65</p> 	<p>KO H 1</p> <p>M 16 M 65</p> 	<p>KO H 2</p> <p>M 16 M 65</p> 	<p>KO H 4A</p> <p>M 16 M 65</p> 	<p>KO H 6</p> <p>M 17 M 65</p> 	<p>KO H 7</p> <p>M 17</p> 
<p>KO H 8</p> <p>M 17 M 65</p> 	<p>KO H 10</p> <p>M 17 M 65</p> 	<p>KO H 14</p> <p>M 17 M 65</p> 	<p>KO E 14</p> <p>M 18</p> 	<p>KO E 2</p> <p>M 16</p> 	<p>KO N 2</p> <p>M 16</p> 
<p>KO P 2</p> <p>M 17</p> 	<p>KO T 2</p> <p>M 16</p> 	<p>KO T 3</p> <p>M 16</p> 	<p>KO L 1</p> <p>M 18</p> 	<p>KO L 2</p> <p>M 18</p> 	<p>KO R 2</p> <p>M 16</p> 
<p>KO W 2</p> <p>M 18</p> 	<p>KO K 2</p> <p>M 16</p> 	<p>KO K 14</p> <p>M 18</p> 	<p>KO HL 0</p> <p>M 19</p> 	<p>KO HL 1</p> <p>M 19</p> 	<p>KO HL 2</p> <p>M 19</p> 
<p>KO HL 4</p> <p>M 19</p> 	<p>KO HL 6</p> <p>M 19</p> 	<p>KO HL 10</p> <p>M 19</p> 	<p>KO HL 14</p> <p>M 20</p> 	<p>KO G 5</p> <p>M 17</p> 	<p>KO F 3</p> <p>M 17</p> 
<p>KO TL 2</p> <p>M 20</p> 	<p>KO LL 2</p> <p>M 20</p> 	<p>KO RL 2</p> <p>M 20</p> 			

Profile overview




Tube profiles

TUG 03 M 27 	TUG 05 M 27 M 66 	TUG 07 M 27 	TUG 09 M 27 	TUG 17 M 28 M 66 	TUG V 09 M 29 
TUG V 17 M 29 	GP 222 M 24 	GP 211 M 24 	GP 223 M 24 	GB 305 M 22 	GB 50 M 23 
GP 213 M 25 M 62 	GP 214 M 26 M 62 	GP 215 M 26 M 62 	GP 216 M 26 M 62 	GP 217 M 62 M 25 	GP 218 M 62 M 25 M 63 
GP 219 M 62 M 25 	GP 220 M 62 M 26 	GP 221 M 25 	GB 87 M 61 M 30 	GB 88 M 61 M 30 	

Profiles for cases with slide-in cover panel


























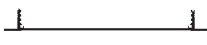

GB 81 M 8 	GB 82 M 8 	GB 83 M 9 	GB 84 M 9 	GB 307 M 8 	GB 308 M 9 
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Profiles for design case FRAME with integrated heatsink








GB 89 M 63 M 47 	GB 90 M 63 M 47 	GB 91 M 63 M 47 
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Profile overview

Profiles for miniature aluminium casing









GB 39  M 32 M 33 M 37	GB 46  M 32 M 33 M 37	GB 48  M 35 M 38 M 36	GB 49  M 35 M 38 M 36	GB 57  M 32	GB 58  M 32 M 37
GB 59  M 32 M 37	GB 60  M 32 M 37	GB 61  M 34	GB 62  M 33	GB 63  M 34 M 37	GB 64  M 33 M 37
GB 73  M 35 M 36	GB 74  M 33	GB 80  M 33	GB 85  M 39 M 40 M 41	GB 86  M 39 M 40	GB 92  M 33
GB 93  M 34	GB 94  M 43	GB 95  M 43	GB 96  M 44	GB 97  M 36	GB 98  M 36
GB 300  M 40 M 41	GB 301  M 40	GB 303  M 44			

Side panel profiles


GB 36  M 12	GB 38  M 12	GB 76  M 64 M 10	GB 77  M 64 M 10	GB 78  M 64 M 10	GB 79  M 64 M 10
G 118  M 52					

Profile overview







Profiles for subracks

GB 5  N 69	GB 20  N 69	GB 27  N 69	GB 29  N 17 N 69	GB 30  N 17 N 69	GB 33  N 69
GB 34  N 69	GB 35  N 17				




Profiles for subracks

GL 7  N 57 N 70
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Profiles for 19" plug-in boxes

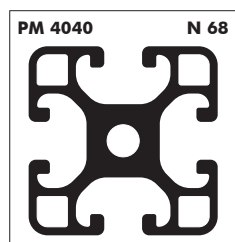
GB 18  N 6 N 66	GB 19  N 6 N 66	GB 21  N 66	GB 22  N 8 N 66	GB 23  N 8 N 66	GB 52  M 6
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Profiles for 19" plug-in boxes

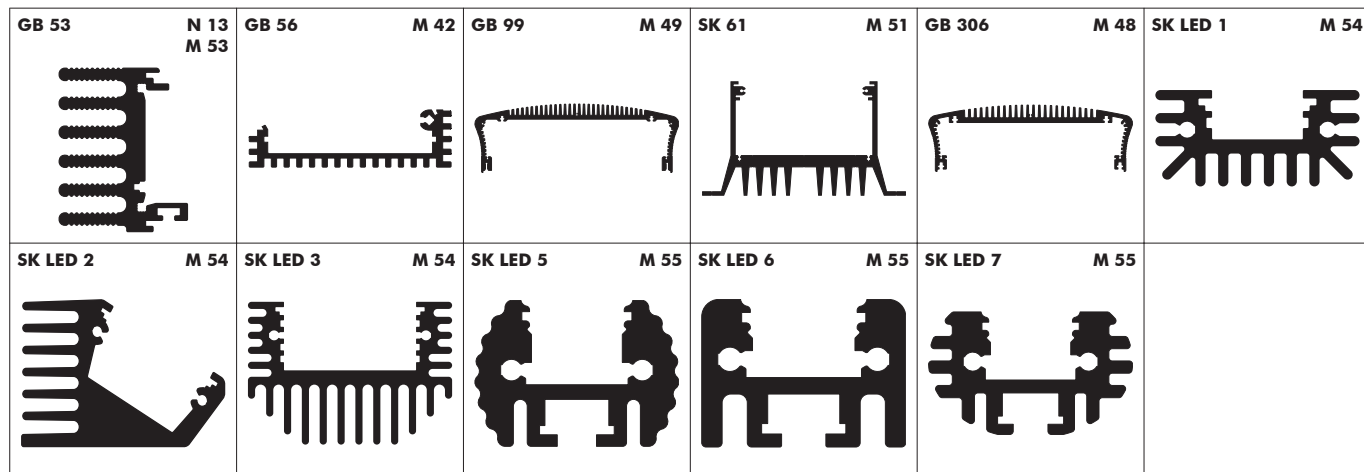
GB 28  N 67	GB 40  N 67	GB 54  N 67
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Profile overview

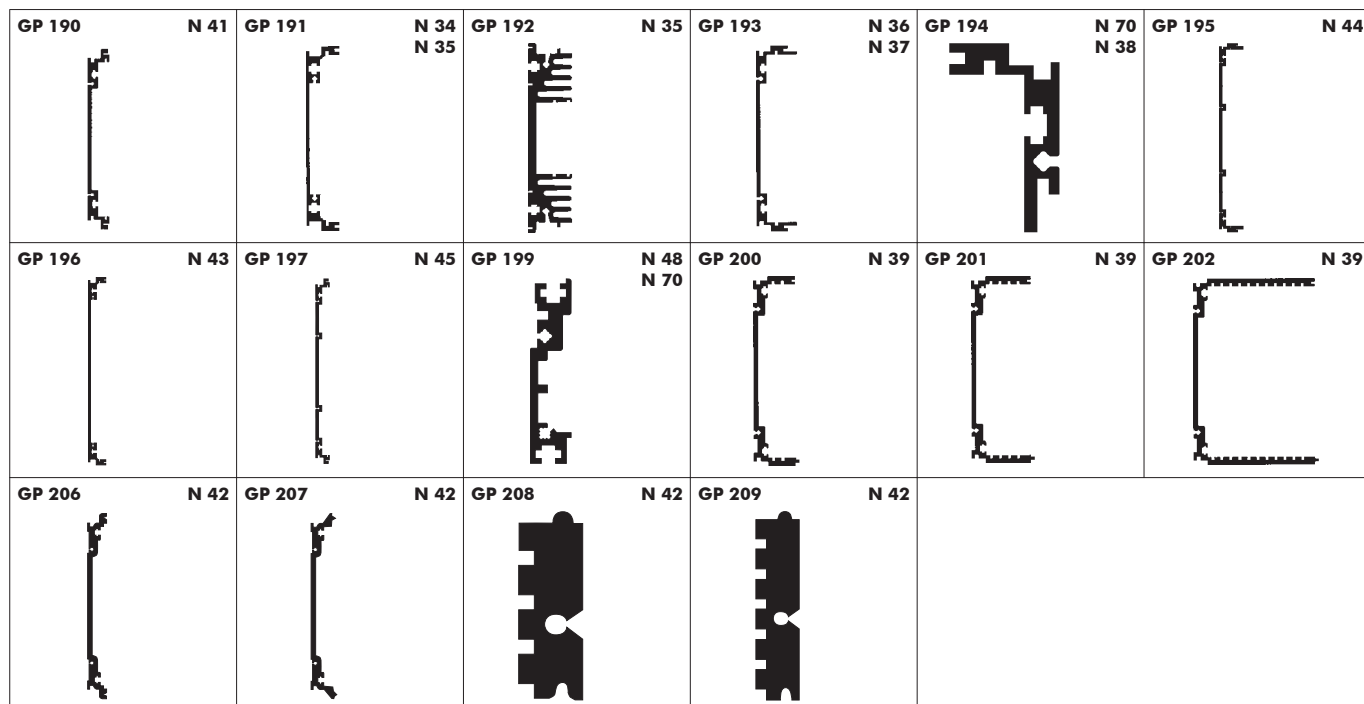
Profiles for mechanical engineering



Profiles for case with cooling fins



Profiles for case with cooling fins





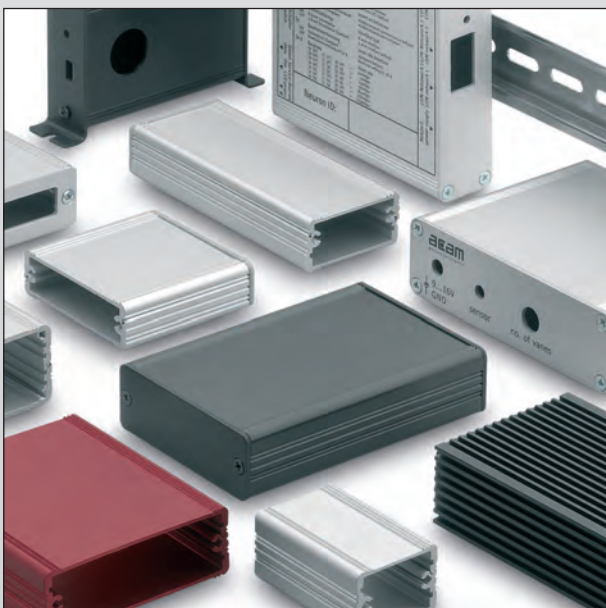
Desk consoles and shell cases

- wide product range of flexible designed desk consoles and shell cases made of aluminium
- for non-standardised components, printed circuit boards and components
- with integrated guide slots in grid spacing 1 HP
- customised front panel printings
- special dimensions, machinings and surface treatments acc. to your demand



Combination- and tube cases

- for all common Eurocard formats with various combination possibilities
- use like bench case or for fastening of mounting rails
- wall or ceiling mounting by permanently installed fixing mounting brackets
- suitable version for EMC by means of electrical conductive surfaces and seals
- EMC compliant design by electrical conductive surfaces and sealings



Miniature aluminium cases

- case as tube or half shell profile with spring and groove
- with integrated cooling fins
- integrated guide slots for carrying PCB or mounting plates
- D-Sub connectors can be mounted without front panel
- cut outs, special lengths and surface treatments according to customer's request



Cooling cases

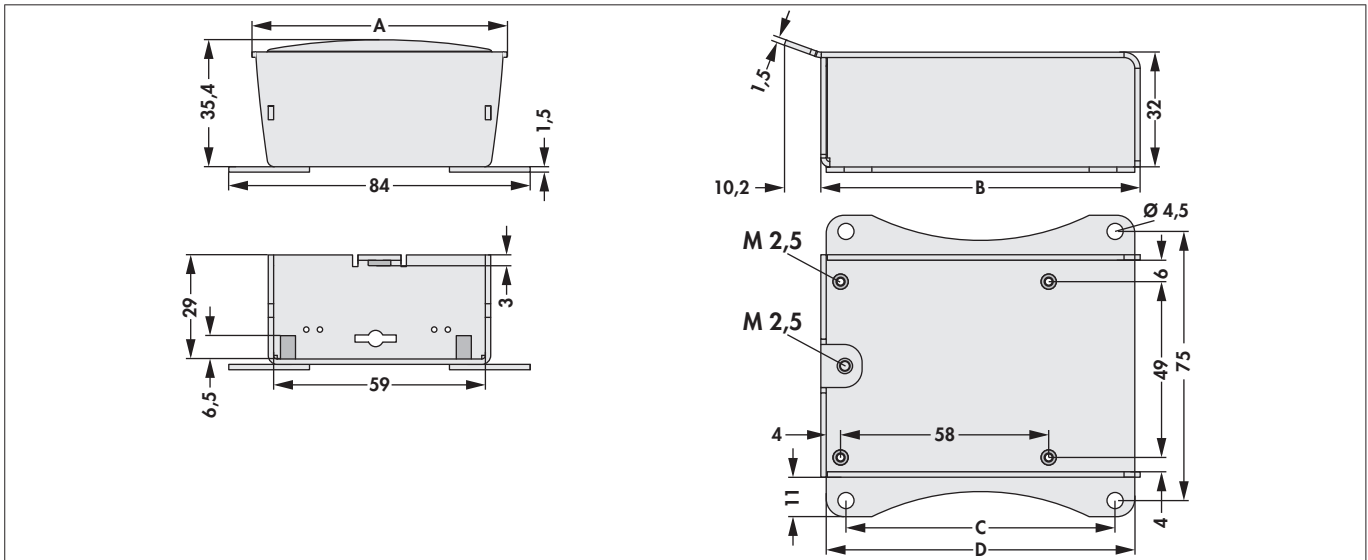
- solid cooling cases made of aluminium
- excellent thermal efficiency by means of integrated cooling fins
- inner guide rail for application of 100 mm Eurocards or non standardised components
- additional machinings, modifications and surface treatments for your particular specifications

Shell cases for Raspberry Pi



contents of delivery: **1** = 1 x upper part; **2** = lower part; **3** = 2 x fixing straps (optional); **4** = mounting material; **5** = 1 x fixing of mounting rail (optional)

- solid case made of 1,5 mm thick aluminium half shells designed for the single board computer Raspberry Pi
- easy to install thanks to an easy screwing
- ventilation slots in the upper and lower part for an improved heat transport
- optional fixing straps for RSP 1, RSP 3 also fitting to VESA MIS-D 75 x 75
- optional heat sink set including heat conducting foil **WLFT 404** suitable for the corresponding variant of the Raspberry Pi
- special machinings, further surfaces and colours (e. g. green (similar **RAL 6032**) and violet (similar **RAL 4008**)) upon request

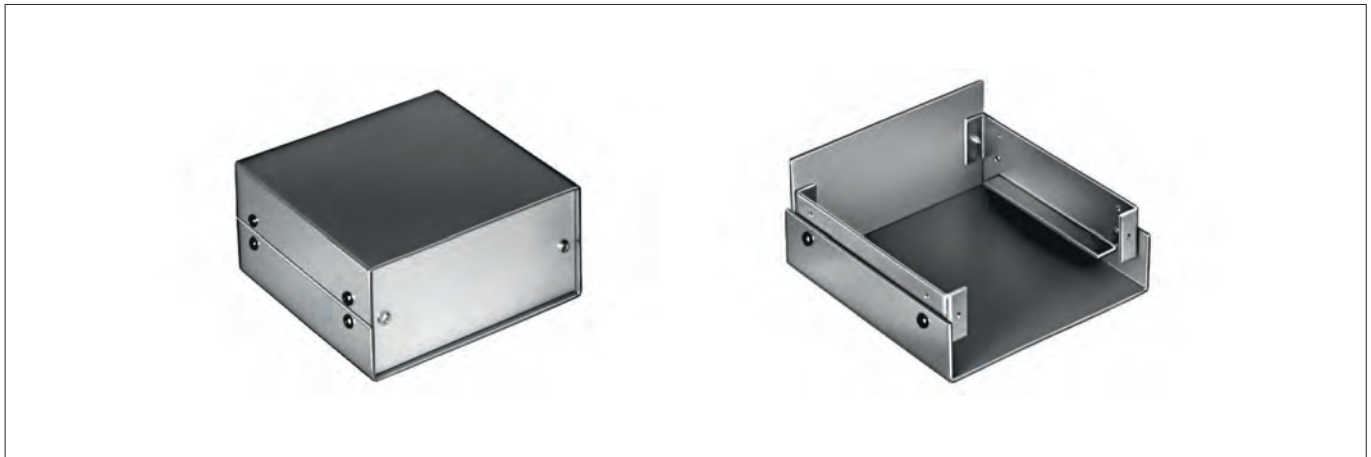


art. no.	suitable for Raspberry Pi	dim. [mm]			
		A	B	C	D
RSP 1 ...	2 Mod. B, 3 Mod. B, 3 Mod. B+	71.0	89.0	75.0	86.0
RSP 2 ...	3 Mod. A+	68.4	69.5	56.5	66.5
RSP 3 ...	4 Mod. B	71.0	90.0	75.0	86.0

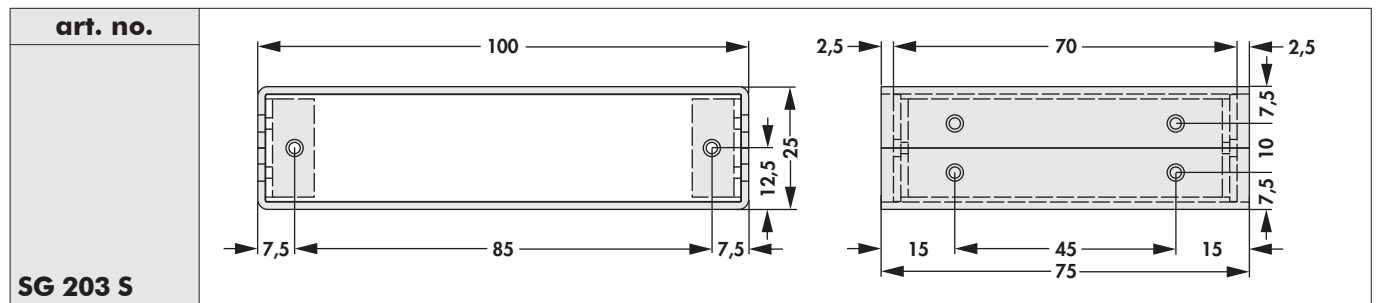
please indicate:	... surface	... fixing strap (optional)
	SA = black anodised ME = natural colour anodised MS = case profile SA, cover panels ME B = case profile SA, cover panels blue (similar to RAL 5015) R = case profile SA, cover panels red (similar to RAL 3001) OG = case profile SA, cover panels orangegold (similar to RAL 1028)	L = with fixing straps
	... fixing of mounting rail (optional)	... heatsink set (optional)
	KL = fixing of mounting rail	KS = heatsink set

Embedded case	→ M 48 – 49	Tube cases	→ M 22 – 30
PC/104 cases	→ M 23	Miniature aluminium case	→ M 32 – 44
Extruded assembled cases	→ M 7 – 10	Heat dissipating cases	→ M 47 – 55
Combination cases	→ M 14 – 20	Design case	→ M 61 – 66

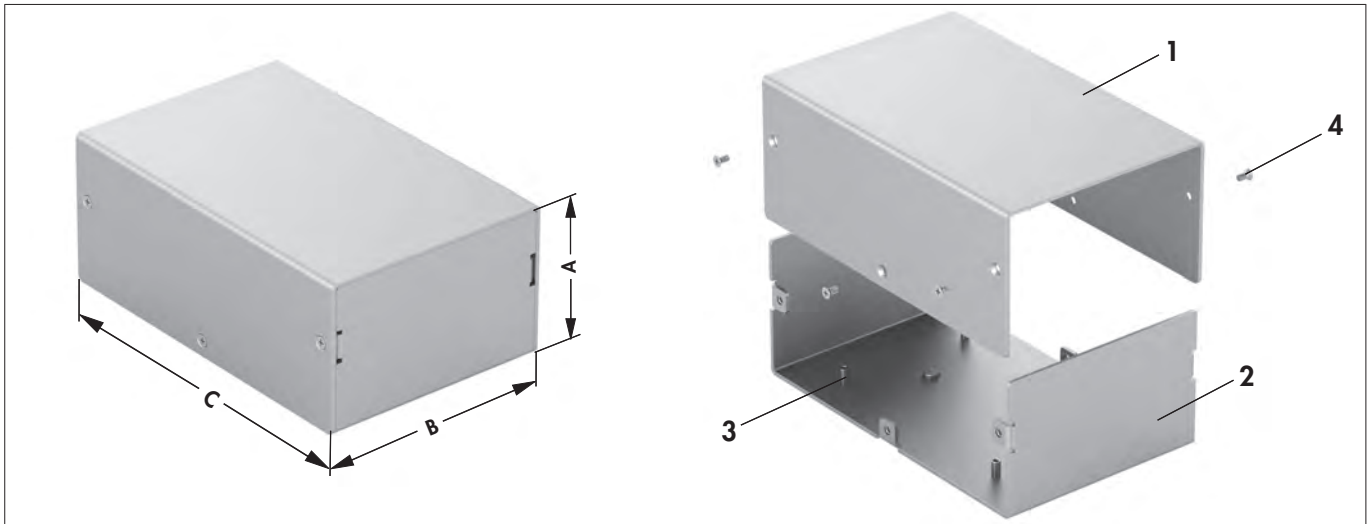
Shell cases



- completely made of aluminium
- material thickness 1.5 mm on all sides
- shell panels lacquered black (**RAL 9005**), cover panels natural colour anodised
- special dimensions, treatments and surfaces on request
- supplied as a demounted kit including cover panels and mounting material



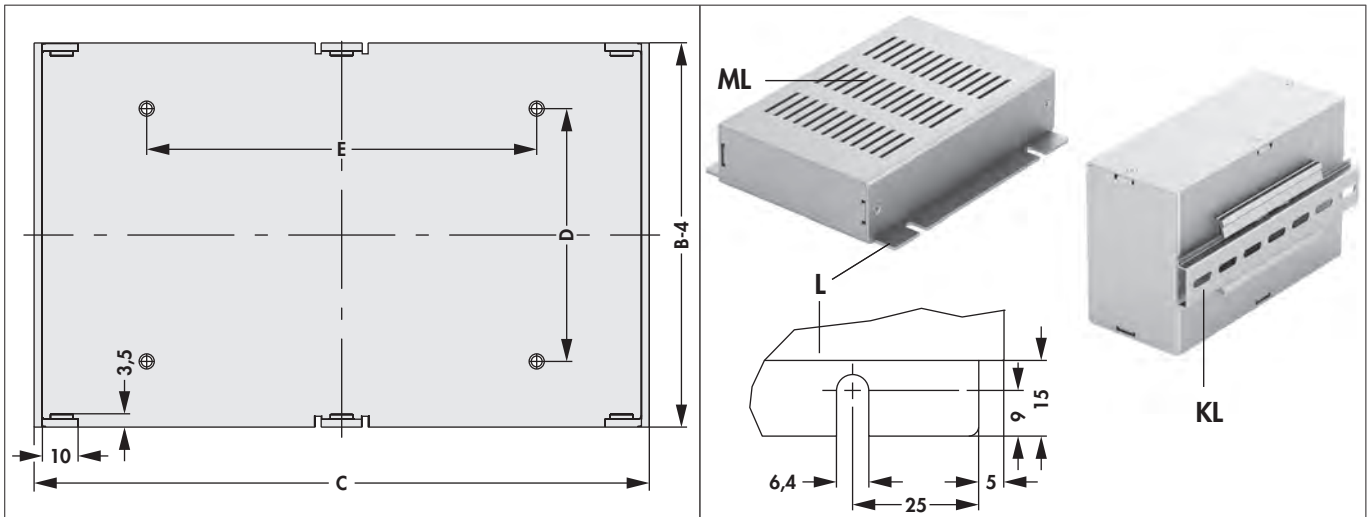
Shell cases variable



contents of delivery:

1 = upper shell; **2** = lower shell; **3** = 4 x M3 – threaded bush for PCB mounting; **4** = mounting material

- universal shell case with variable dimensions
- easy and fast mounting
- insertion of non-standardised PCBs and devices
- material thickness of the half shells 2 mm, other material thicknesses on request
- special treatments, surfaces and labelings acc. to customer specifications



possible dimensions:						
art. no.	A		B		dim. [mm]	
SGV ...	max. 150	max. 250	max. 300	max. 238	max. 286	thread sleeve height
						6/8/10/12/14/20
please indicate with your order:						
art. no.	A		B		dim. [mm]	
SGV ...						thread sleeve height
please indicate:		... surface SA = black anodised ME = natural colour anodised TP = transparent passivated		... fixing of mounting rail (optional) KL = fixing of mounting rail		... fixing tab (optional) L = fixing tab
				... ventilation slots (optional) ML = ventilation slots		

Extruded assembled cases
Desk consoles
Euro case
Combination cases

→ M 7 – 10
→ M 11
→ M 12
→ M 14 – 20

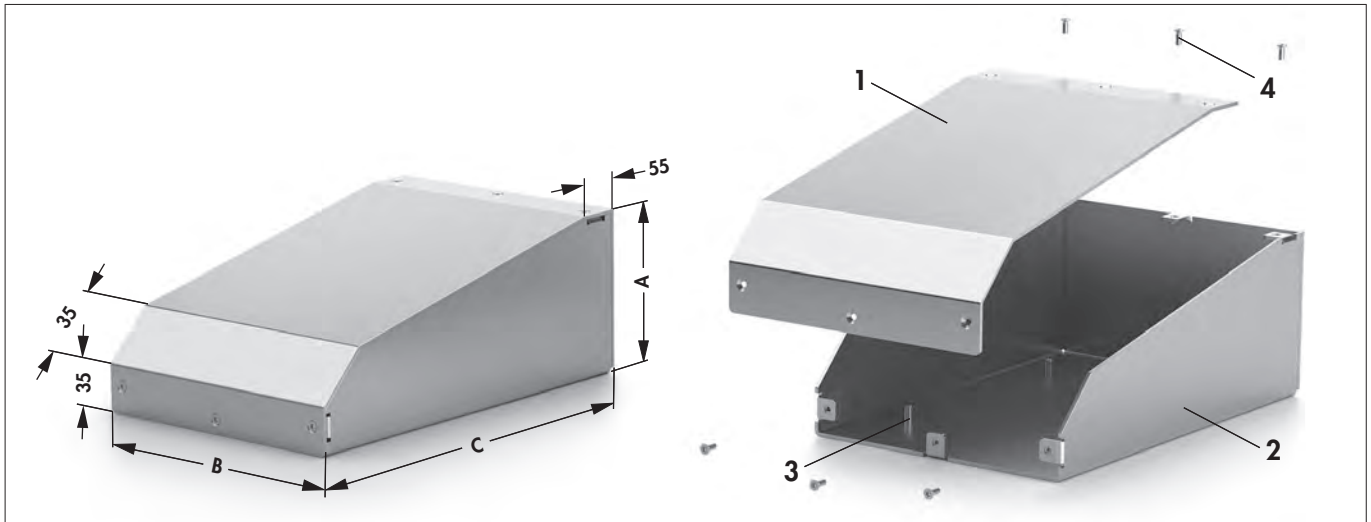
Tube cases
Miniature aluminium case
Heat dissipating cases
Design case

→ M 22 – 30
→ M 32 – 44
→ M 47 – 55
→ M 61 – 66

M 4

A
B
C
D
E
F
G
H
I
K
L
M
N

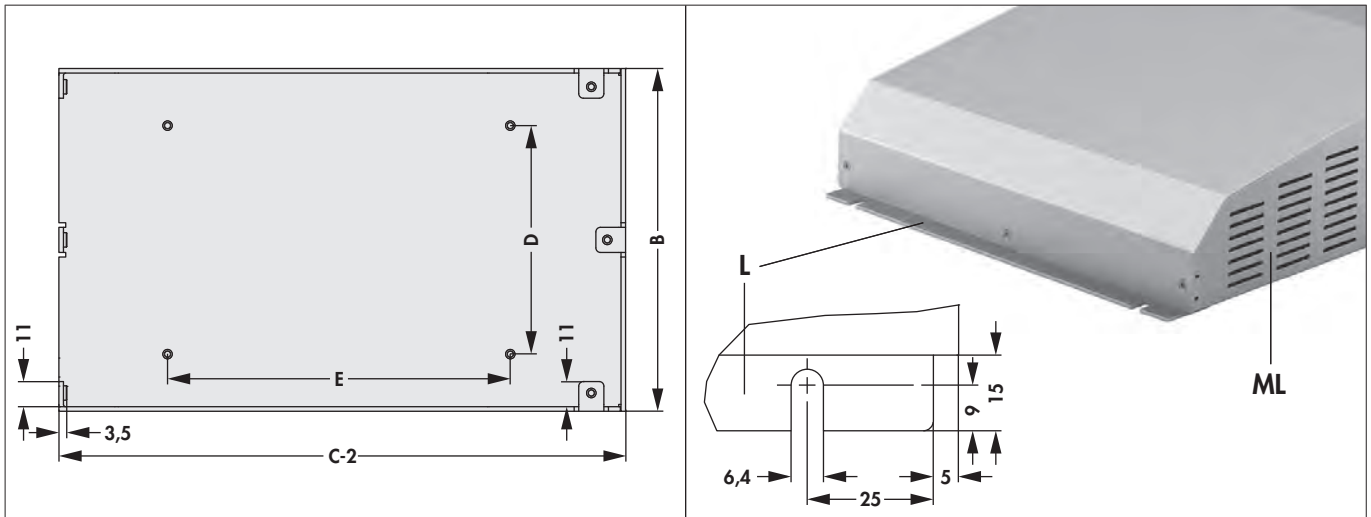
Shell cases variable



contents of delivery:

1 = upper shell; **2** = lower shell; **3** = 4 x M3 – threaded bush for PCB mounting; **4** = mounting material

- universal shell case with variable dimensions
- easy and fast mounting
- insertion of non-standardised PCBs and devices
- material thickness of the half shells 2 mm, other material thicknesses on request
- special treatments, surfaces and labelings acc. to customer specifications



possible dimensions:						
art. no.	dim. [mm]					
	A	B	C	D	E	thread sleeve height
SGV P ...	max. 200	max. 500	max. 400	max. 476	max. 376	6/8/10/12/14/20
please indicate with your order:						
art. no.	dim. [mm]					
	A	B	C	D	E	thread sleeve height
SGV P ...						
please indicate:		... surface SA = black anodised ME = natural colour anodised TP = transparent passivated		... fixing tab (optional) L = fixing tab		
		... ventilation slots (optional) ML = ventilation slots				

M 5

Extruded assembled cases
 Desk consoles
 Euro case
 Combination cases

→ M 7 – 10
 → M 11
 → M 12
 → M 14 – 20

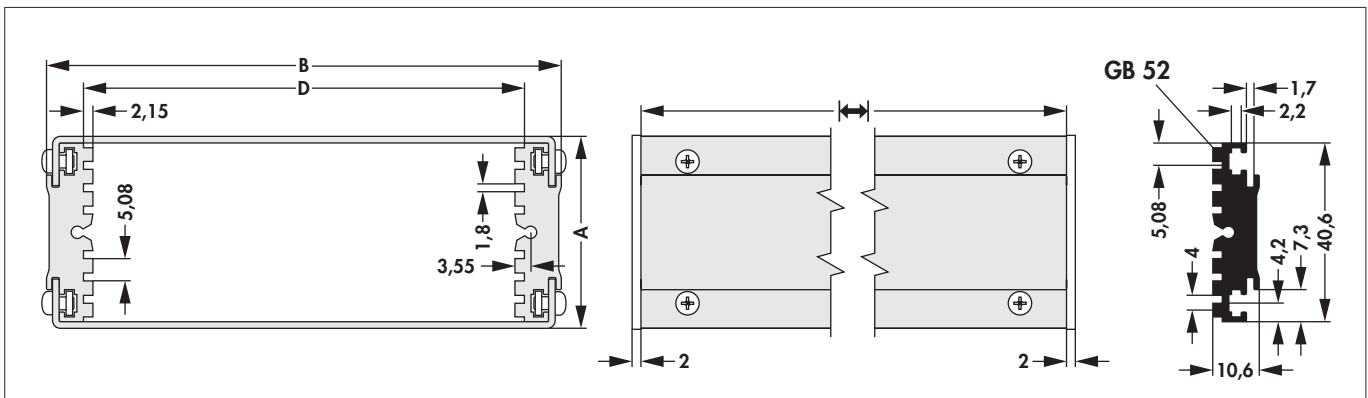
Tube cases
 Miniature aluminium case
 Heat dissipating cases
 Design case

→ M 22 – 30
 → M 32 – 44
 → M 47 – 55
 → M 61 – 66

Shell cases with side panel profile



- flexible shell case for different dimensions
- side panel profile with integrated guide slots in 5.08 mm grid spacing (1 HP)
- for insertion of non-standard components or printed circuit boards
- cover panels and side panel profiles natural colour anodised, half shells black anodised
- special dimensions, drillings and surface treatments upon request
- supplied as a demounted kit, including cover panels and mounting material



art. no.	↔ [mm]	number of profiles	dim. [mm]			
			A	B	D	U
SGP 101 SA	160	2	43.6	117.2	100.3	1
SGP 105 SA	220			250.6	233.7	
SGP 201 SA	160	4	84.3	117.2	100.3	2
SGP 204 SA				250.6	233.7	
SGP 205 SA	220					

Profile sold by the metre → M 13

Extruded assembled cases
Desk consoles
Euro case
Combination cases

→ M 7 - 10
→ M 11
→ M 12
→ M 14 - 20

Tube cases
Miniature aluminium case
Heat dissipating cases
Design case

→ M 22 - 30
→ M 32 - 44
→ M 47 - 55
→ M 61 - 66

M 6

A

B

C

D

E

F

G

H

I

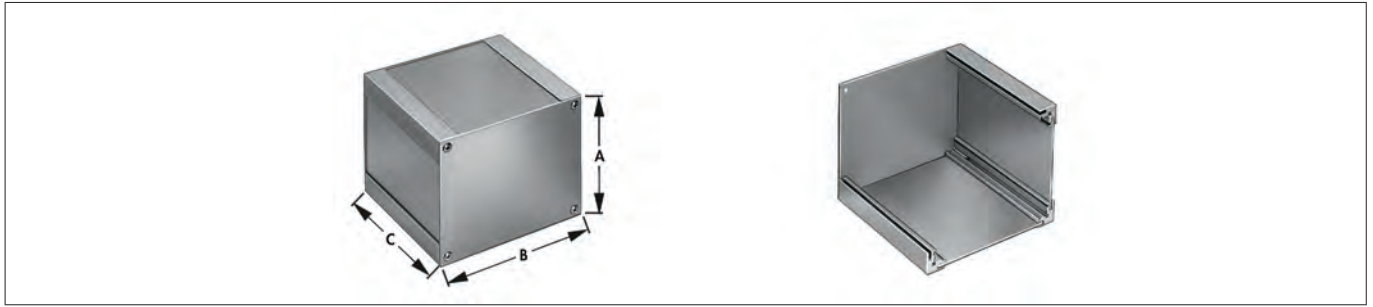
K

L

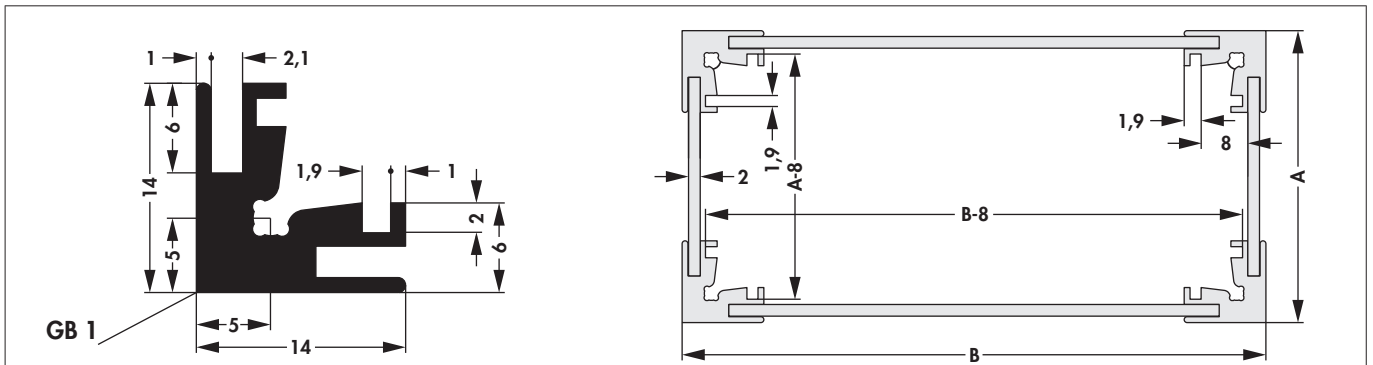
M

N

Extruded assembled cases



- the profiles have internal guide slots for insertion of PCBs or similar components
- supplied as a demounted kit, incl. cover panels and mounting material
- **material:** aluminium profile and sheet (thickness 2 mm)
- special dimensions, drillings and surface treatments upon request



art. no.	for Eurocards [mm]	dim. [mm]		
		A	B	C
G 102 ...	—	60	100	154.0
G 107 ...		100	200	204.0
G 108 ...			300	304.0
G 109 ...			200	204.0
G 111 ...		150	200	304.0
G 112 ...			300	404.0
G 113 ...		80	200	304.0
G 116 ...	100x160		108	168.0
G 117 ...	160x233.5		168	241.5

please indicate: ... surface
SA = black anodised
ME = natural colour anodised

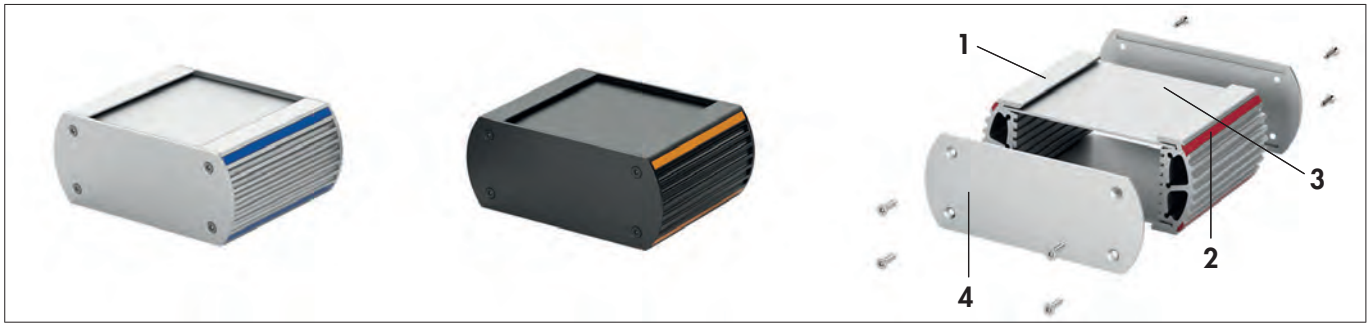
Profile sold by the metre → M 13

Case with slide-in cover panel

<p>art. no.</p> <p>GD 125 41 ...</p>	
<p>art. no.</p> <p>GD 135 38 ...</p>	
<p>art. no.</p> <p>GD 165 59 ...</p>	
<p>please indicate: ... $\left[\right]$ 100 120 160 220 mm</p> <p>... surface SA = black anodised ME = natural colour anodised</p>	

Profile sold by the metre → M 13

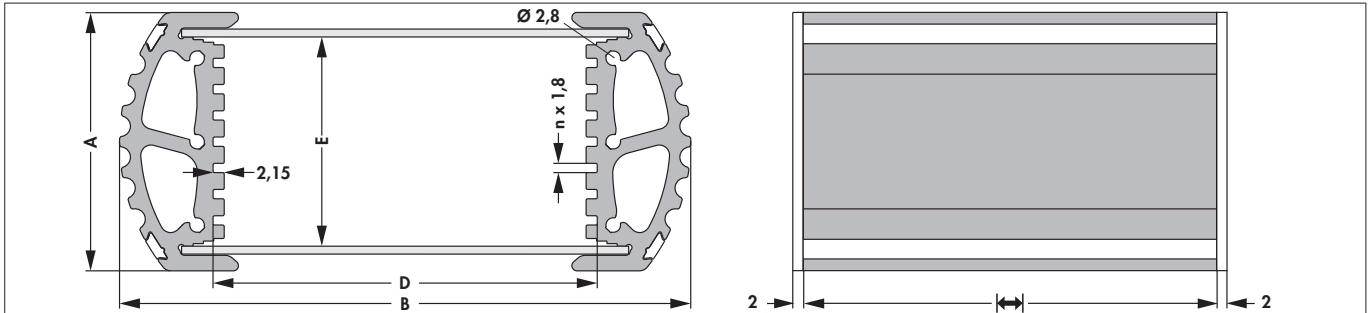
Extruded assembled cases



contents of delivery:

1 = 2 x side panel profile; **2** = 4 x design strip; **3** = 2 x cover plate (1.5 mm); **4** = 2 x cover plate (2 mm); mounting material

- variable case by utilization of aluminium sheets and extruded profiles in four different heights
- integrated guide grooves in the side panel profile for receiving PCBs
- the cover plates can be varied by 1.5 - 3 mm
- design strips are available in the colours **turquoise blue (similar to RAL 5018)**, **heather violet (similar to RAL 4003)**, **ultramarine blue (similar to RAL 5002)**, **fire red (similar to RAL 3000)** and **daffodil yellow (similar to RAL 1007)**
- other plate thicknesses, special productions, treatments and modifications according to your demands



art. no.	dim. [mm]					art. no.	dim. [mm]				
	A	B	D	E	n		A	B	D	E	n
GV 35 51 ...	35	84.2	51.0	25.5	4	GV 60 85 ...	60	123.2	85.0	50.5	9
GV 35 67 ...		100.5	67.3			GV 60 100 ...		138.5	100.3		
GV 35 85 ...		118.2	85.0			GV 60 116 ...		154.2	116.0		
GV 35 100 ...		133.5	100.3			GV 60 130 ...		168.2	130.0		
GV 35 116 ...		149.2	116.0			GV 60 160 ...		198.5	160.3		
GV 35 130 ...		163.2	130.0			GV 60 200 ...		238.2	200.0		
GV 35 160 ...		193.5	160.3			GV 60 233 ...		271.6	233.4		
GV 50 85 ...	50	121.2	85.0	40.5	7	GV 70 85 ...	70	125.2	85.0	60.5	11
GV 50 100 ...		136.5	100.3			GV 70 100 ...		140.5	100.3		
GV 50 116 ...		152.2	116.0			GV 70 116 ...		156.2	116.0		
GV 50 130 ...		166.2	130.0			GV 70 130 ...		170.2	130.0		
GV 50 160 ...		196.5	160.3			GV 70 160 ...		200.5	160.3		
GV 50 200 ...		236.2	200.0			GV 70 200 ...		240.2	200.0		
GV 50 233 ...		269.6	233.4			GV 70 233 ...		273.6	233.4		

please indicate:

... $\left[\right]$
85 100 120 160 200 220 mm

... surface

SA = black anodised
ME = natural colour anodised

... colour design strip

EV = heather violet
FR = fire red
NG = daffodil yellow
TB = turquoise blue
UL = ultramarine blue

Profile sold by the metre → M 13

Design case
Heat dissipating cases
Miniature aluminium case
Tube cases

→ M 61 - 66
→ M 47 - 55
→ M 32 - 44
→ M 22 - 30
Combination cases
Euro case
Extruded assembled cases
Shell cases

→ M 14 - 20
→ M 12
→ M 7 - 10
→ M 6

M 10

A

B

C

D

E

F

G

H

I

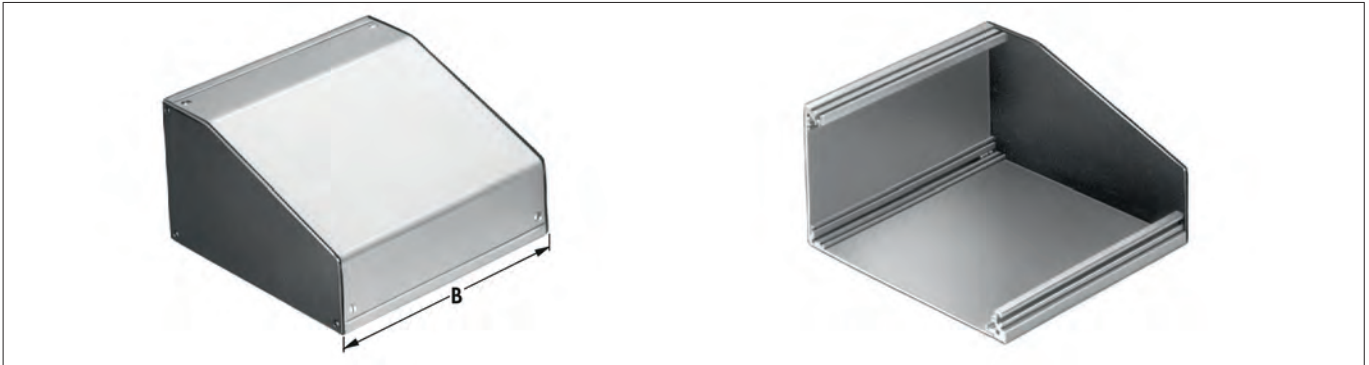
K

L

M

N

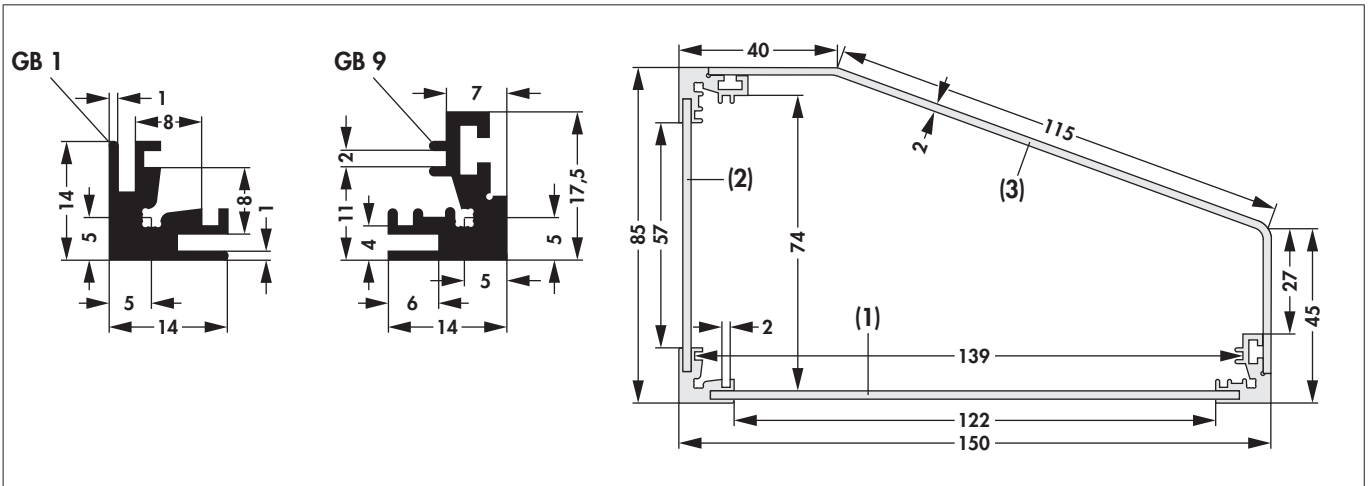
Desk consoles



- the profiles have internal guide slots for inserting the PCBs or similar components
- supplied as demounted kit incl. cover plates and mounting material
- **assembly time:** 1-2 minutes
- **material:** aluminium profile and sheet (thickness 2 mm)
- special dimensions, drillings and surface treatments upon request

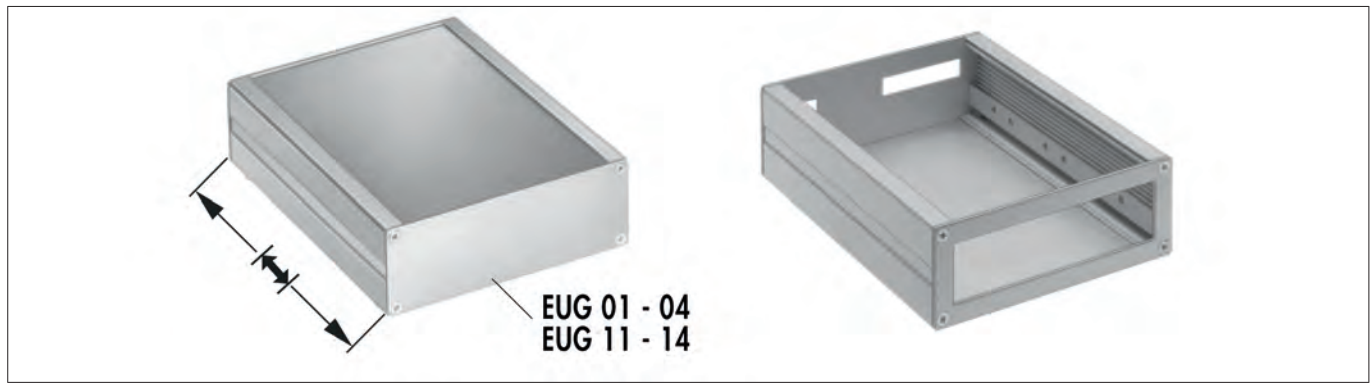
contents of delivery:

- bottom panel natural colour anodised (1)
- rear panel natural colour anodised (2)
- front panel natural colour anodised (3)
- 2 side panels black anodised
- 2 struts extrusion with guide slots and T-grooves for M 3
- 1 strut corner extrusion, screws, nuts

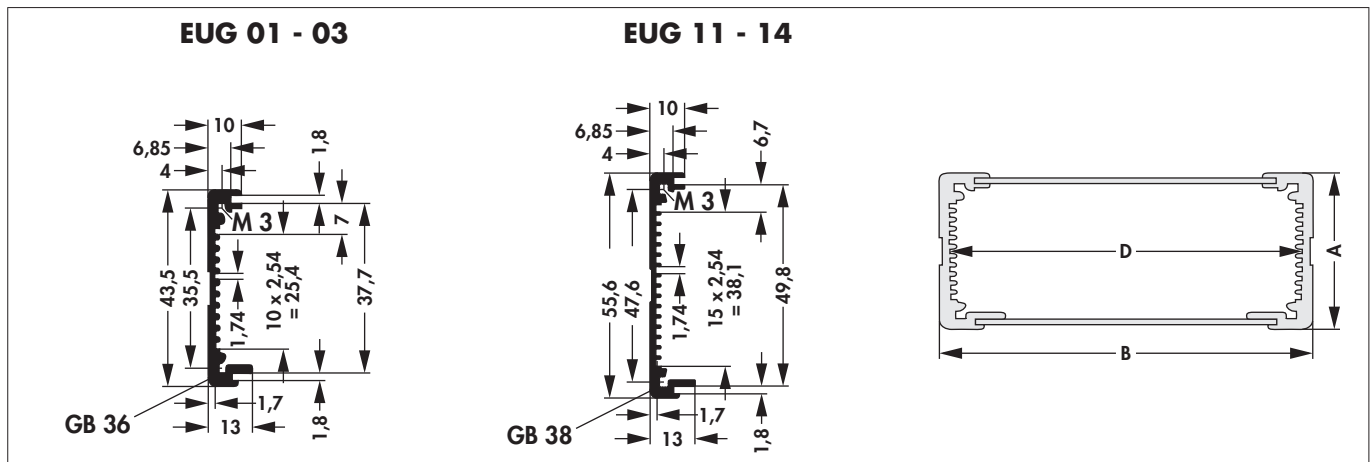


art. no.	dim. [mm]
	B
PG 150 SME	150
PG 250 SME	250
PG 300 SME	300

Profile sold by the metre → M 13



- aluminium profile with internal guide rails for inserting PCBs or other component combinations
- supplied as demounted kit, incl. 1.5 mm cover panels and mounting material
- special dimensions, drillings and surface treatments upon request



art. no.	for Eurocards [mm]	H [mm]	dim. [mm]			
			A	B	D	U
EUG 01	100x160	160	43.5	104.0	100.0	1.00
EUG 02	100x220	220		237.4	233.4	
EUG 03	233.4x160	160	55.6	104.0	100.0	1.25
EUG 11	100x160			237.4	233.4	
EUG 12	100x220	220				
EUG 13	233.4x160	160				
EUG 14	233.4x220	220				

surface: natural colour anodised

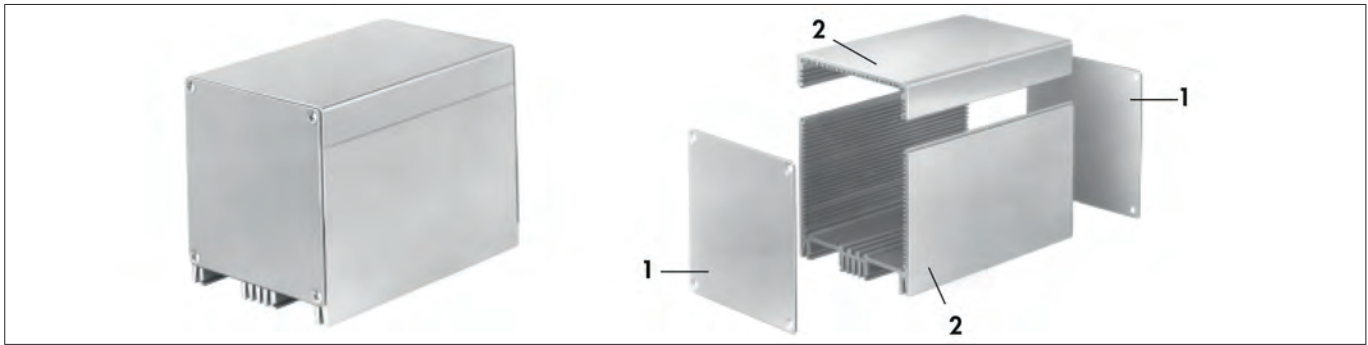
Profile sold by the metre → M 13

Shell-, extruded assembled cases, desk consoles and Euro cases

Profile in meter lengths

art. no.	dim. [mm] lengths	suitable for	page	
GB 1 1000 ...	1000	G ...	7	
		PG ... SME	11	
GB 9 1000 ...		PG ... SME	11	
GB 36 1000 ...		EUG ...	12	
GB 38 1000 ...		EUG ...	12	
GB 52 1000 ...		SGP ...	6	
GB 76 1000 ...		GV ...	10	
GB 77 1000 ...		GV ...	10	
GB 78 1000 ...		GV ...	10	
GB 79 1000 ...		GV ...	10	
GB 81 1000 ...		GD 82 34 ...	8	
GB 82 1000 ...		GD 105 44 ...	8	
GB 83 1000 ...		GD 135 38 ...	9	
GB 84 1000 ...		GD 165 59 ...	9	
GB 307 1000 ...		GD 55 28 ...	8	
GB 308 1000 ...		GD 125 41 ...	9	
<p>please indicate: ... surface SA = black anodised ME = natural colour anodised</p>				

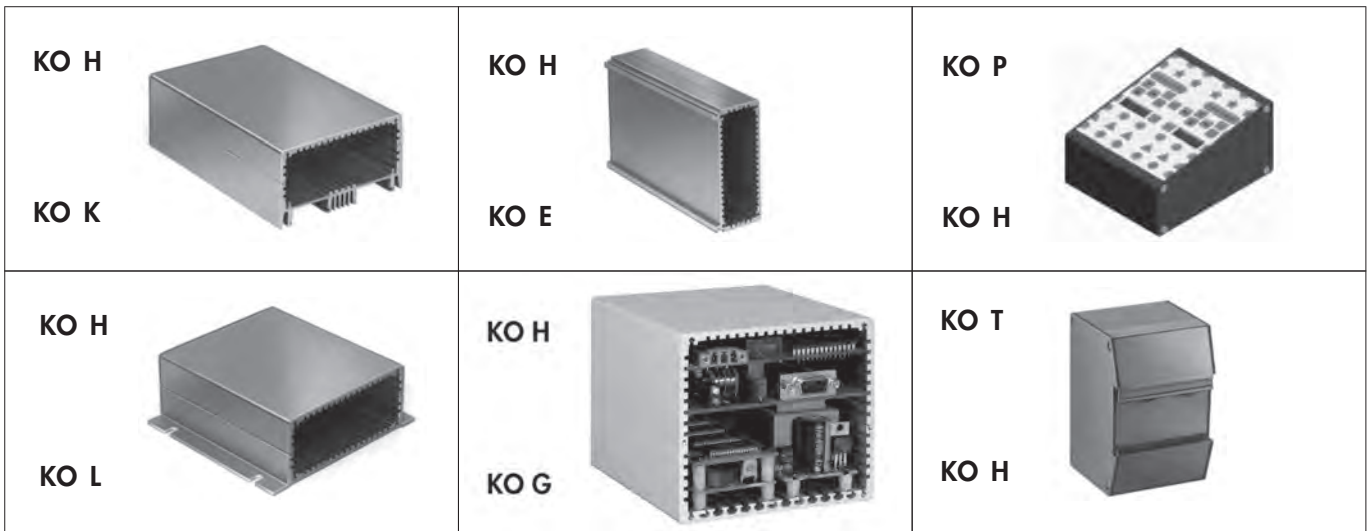
Combination cases



1 cover plate; 2 aluminium profile

- case for 100 mm Eurocards with various combination possibilities
- integrated guide slots in 5,08 mm grid spacing (1 HP)
- suitable version for EMC by means of electrical conductive surface treatments (**TP**) and additional conductive seals (protection class IP 54 achievable) **EDKO** → M 71
- the **KO** series profiles can be combined with each other as well as with profiles of module design **HB**
- profile **KO T** for 35 mm DIN-mounting rail according to DIN EN 60 715 (formerly DIN EN 50 022)

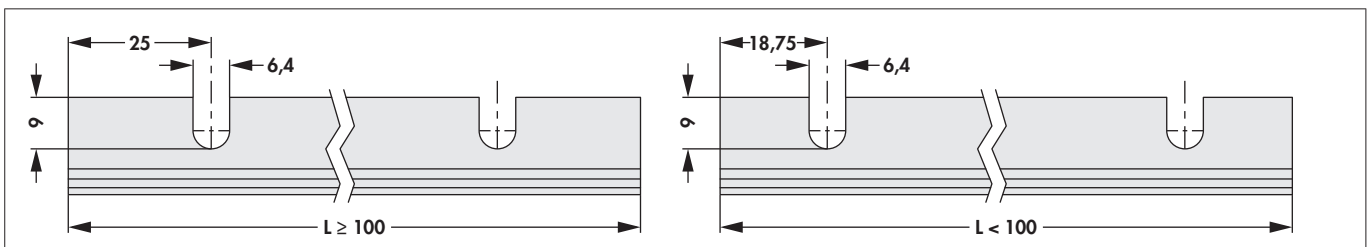
Examples of KO-cases



profile versions:

- KO H** = cover; **KO E** = 19" insert module; **KO K** = cooling fins;
KO L = screw strap; **KO W** = cooling case; **KO N** = slot for sliding nut M 4;
KO T = with integrated fixing clamp for 35 mm DIN-mounting rail;
KO F = with THFU mounting possibility; **KO R** = fin cover; **KO G** = threaded rails, square nut

* fixing slots / fixing tabs



Order example **KO H-Profile**
 Tube cases
 Heat dissipating cases
 Miniature aluminium case

→ M 15
 → M 22 - 30
 → M 47 - 55
 → M 32 - 44

Design case **SECCO**
 Design case **FRAME**
 Design case **CHAC**
 Design case **EUROTAINER**

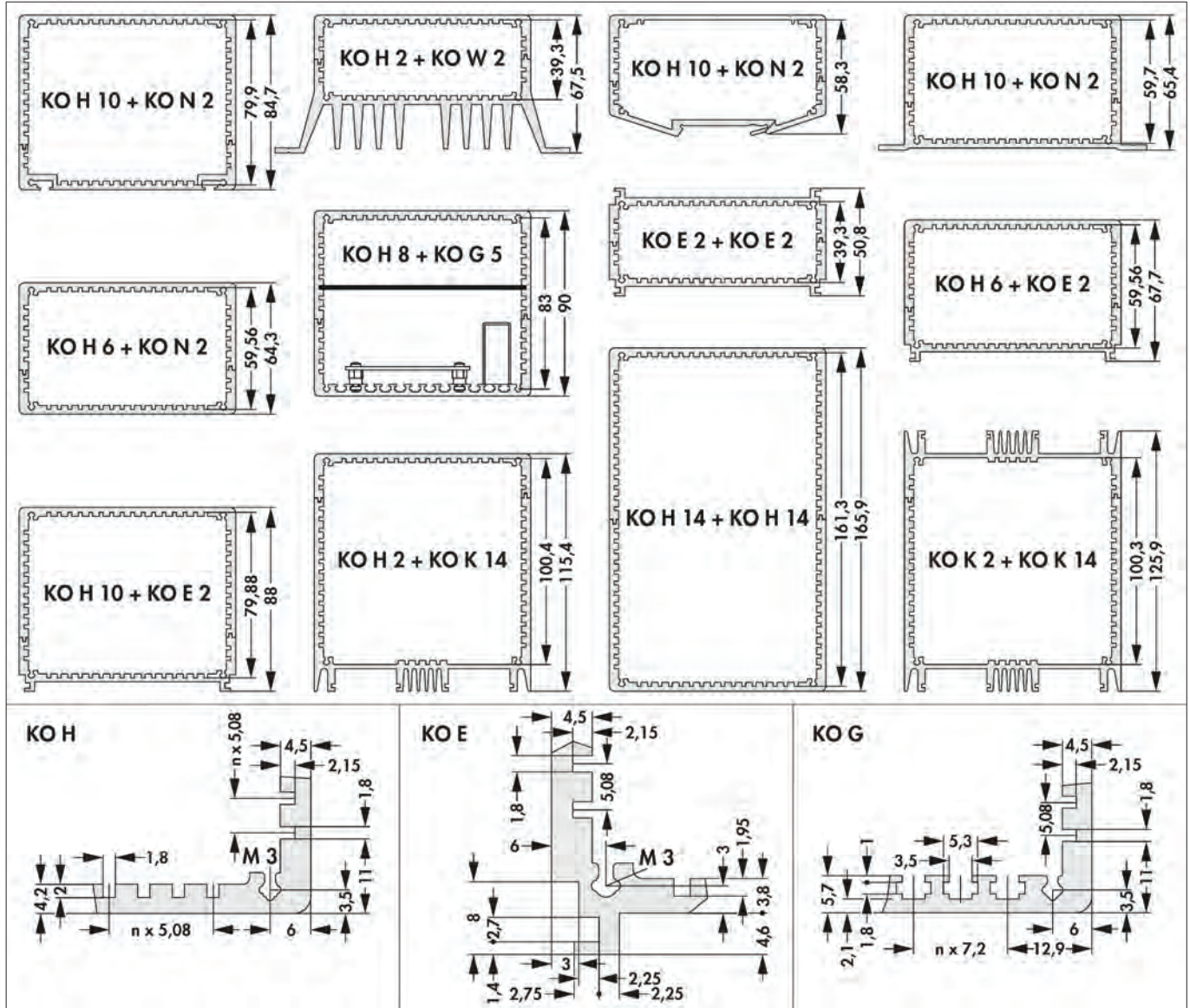
→ M 61
 → M 62 - 63
 → M 64
 → M 65

M 14

A
B
C
D
E
F
G
H
I
K
L
M
N

Combination cases

Complete cases / Combination possibilities



Order example

KOK 2	KOH 10	160	MS
first profile	second profile	available lengths (internal dimension): 100, 120, 160, 200, 220, 234 mm	requested surface finish: SA = complete case black anodised ME = complete case clear anodised MS = case profile black anodised, cover panels clear anodised TP = complete case chrome-free transparent passivated
further surfaces upon request			
please order cover plates separately			

Combination cases

<p align="center">art. no.</p> <p>KO H 0</p>	<p align="center">art. no.</p> <p>KO H 1</p>
<p>SM 4 *</p>	
<p align="center">art. no.</p> <p>KO N 2</p>	<p align="center">art. no.</p> <p>KO H 2</p>
	<p>EN 60 715 - 35 x 7,5 EN 60 715 - 35 x 15</p>
<p align="center">art. no.</p> <p>KO E 2</p>	<p align="center">art. no.</p> <p>KO T 2</p>
<p>EN 60 715 - 35 x 7,5 EN 60 715 - 35 x 15</p>	
<p align="center">art. no.</p> <p>KO T 3</p>	<p align="center">art. no.</p> <p>KO R 2</p>
<p align="center">art. no.</p> <p>KO H 4 A</p>	<p align="center">art. no.</p> <p>KO K 2</p>

* slide nut SM 4 fitting to KO N ...

Profile sold by the metre → M 21

Order example KO H-Profile
Tube cases
Heat dissipating cases
Miniature aluminium case

→ M 15
→ M 22 - 30
→ M 47 - 55
→ M 32 - 44

Design case SECCO
Design case FRAME
Design case CHAC
Design case EUROTAINER

→ M 61
→ M 62 - 63
→ M 64
→ M 65

M 16

A
B
C
D
E
F
G
H
I
K
L
M
N

Combination cases

	<p>BFSLP</p> <p>*</p>
<p align="center">art. no.</p>	<p align="center">art. no.</p>
<p>KO P 2</p>	<p>KO G 5</p>
<p align="center">art. no.</p>	<p align="center">art. no.</p>
<p>KO H 6</p>	<p>KO H 7</p>
<p align="center">art. no.</p>	<p align="center">art. no.</p>
<p>KO F 3</p>	<p>KO H 8</p>
<p align="center">art. no.</p>	<p align="center">art. no.</p>
<p>KO H 10</p>	<p>KO H 14</p>

* mounting set BFSLP suitable for KO G 5

Profile sold by the metre → M 21

M 17

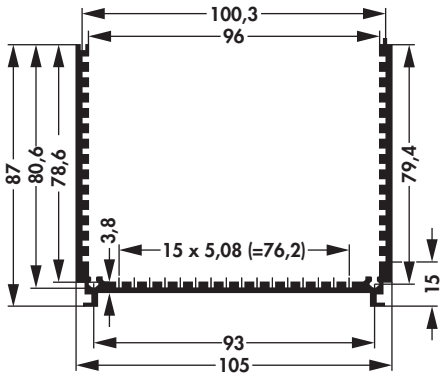
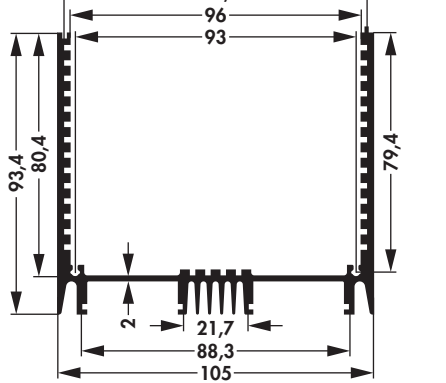
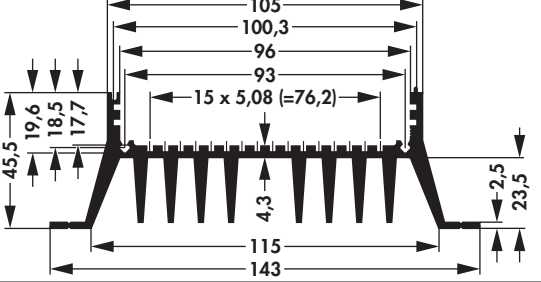
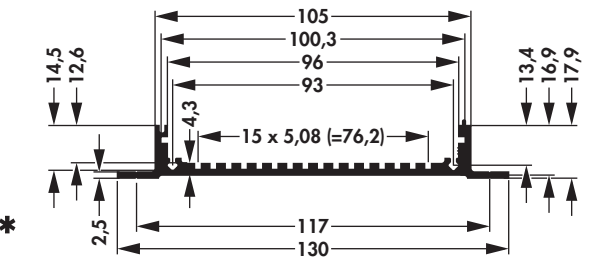
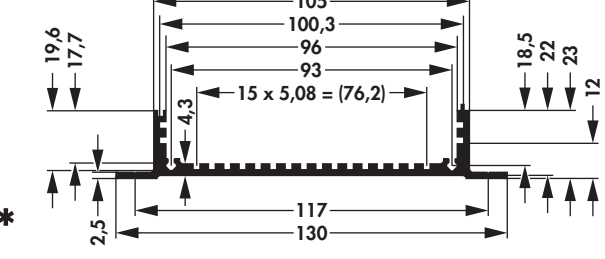

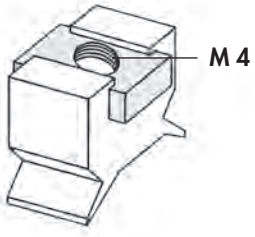
Order example KO H-Profile
Tube cases
Miniature aluminium case
Heat dissipating cases

→ M 15
→ M 22 - 30
→ M 32 - 44
→ M 47 - 55

Design case SECCO
Design case CHAC
Design case FRAME
Design case EUROTAINER

→ M 61
→ M 64
→ M 62 - 63
→ M 65

Combination cases

	
<p>art. no. KO E 14</p>	<p>art. no. KO K 14</p>
	
<p>art. no. KO W 2</p>	
	
<p>art. no. KO L 1</p>	<p>art. no. KO L 2</p>
	
<p>art. no. BFSLP</p>	<p>art. no. SM 4</p>

* fixing slots KO L 1, KO L 2 → M 14

Profile sold by the metre → M 21

Order example KO H-Profile
Tube cases
Heat dissipating cases
Miniature aluminium case

→ M 15
→ M 22 - 30
→ M 47 - 55
→ M 32 - 44

Design case SECCO
Design case FRAME
Design case CHAC
Design case EUROTAINER

→ M 61
→ M 62 - 63
→ M 64
→ M 65

M 18

A

B

C

D

E

F

G

H

I

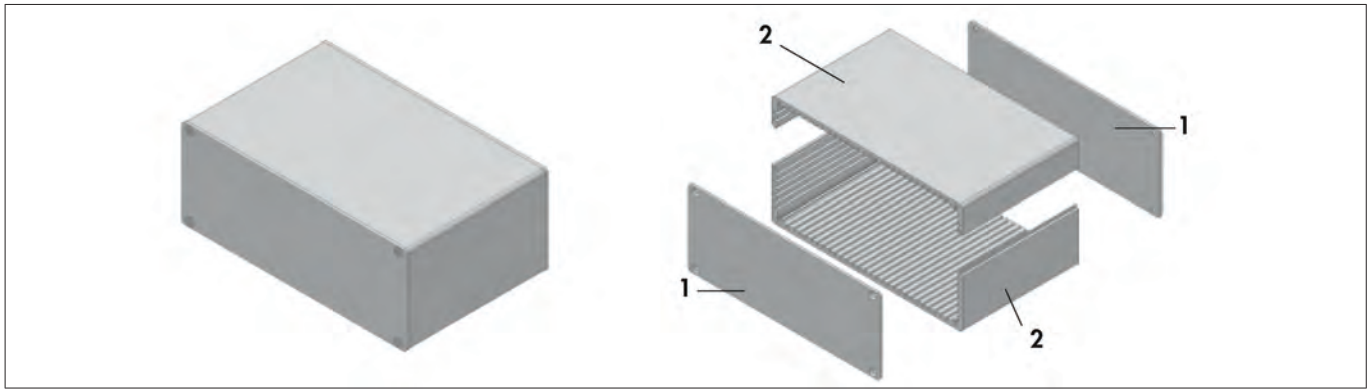
K

L

M

N

Combination cases



1 = cover plate 2 mm; **2** = aluminium profile

- case for 160 mm Eurocards with various combination possibilities
- integrated guide slots in 5.08 mm grid spacing (1 HP), 2 mm standard cover panels
- EMC compatible version by means of electrical conductive surfaces (**TP**) and additional conductive seals (results also in proof specification IP 52) **EDKOL** → M 72
- EMC and IP 52 can only be achieved in combination with 3 mm thick cover plates

art. no.	art. no.
KO HL 0	KO HL 1
art. no.	art. no.
KO HL 2	KO HL 4
art. no.	art. no.
KO HL 6	KO HL 10

Profile sold by the metre → M 21

M 19

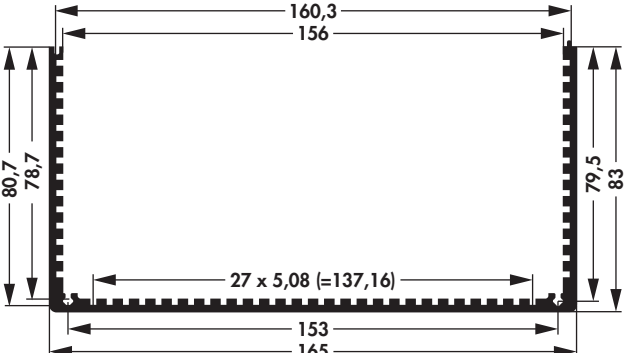
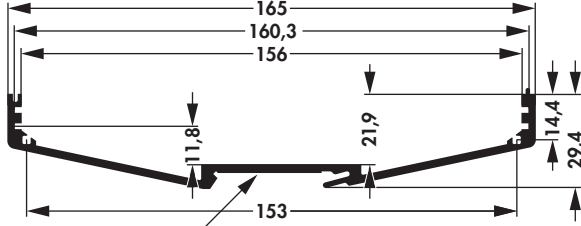
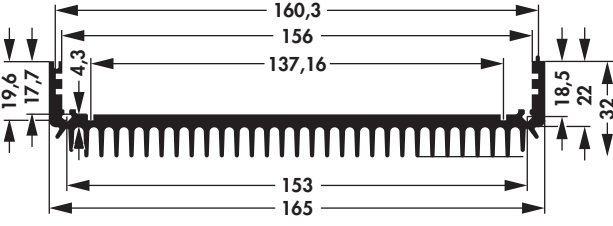
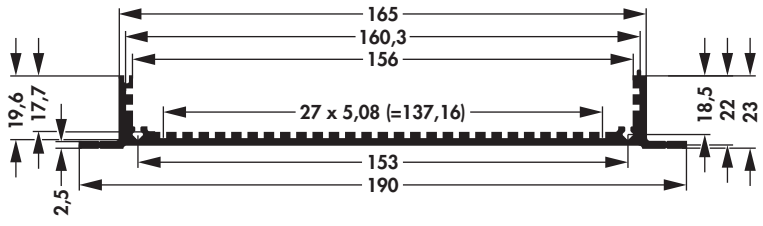
Design case SECCO
Design case EUROTAINER
Design case CHAC
Design case FRAME

→ M 61
→ M 65
→ M 64
→ M 62 - 63

Order example KO HL
Tube cases
Miniature aluminium case
Heat dissipating cases

→ M 20
→ M 22 - 30
→ M 32 - 44
→ M 47 - 55

Combination cases

	 EN 60 715 - 35 x 7,5 EN 60 715 - 35 x 15
art. no.	art. no.
KO HL 14	KO TL 2
	
art. no.	
KO RL 2	
art. no.	
KO LL 2	 <p align="center">*</p>

* fixing slots KO LL 2 → M 14

Profile sold by the metre → M 21

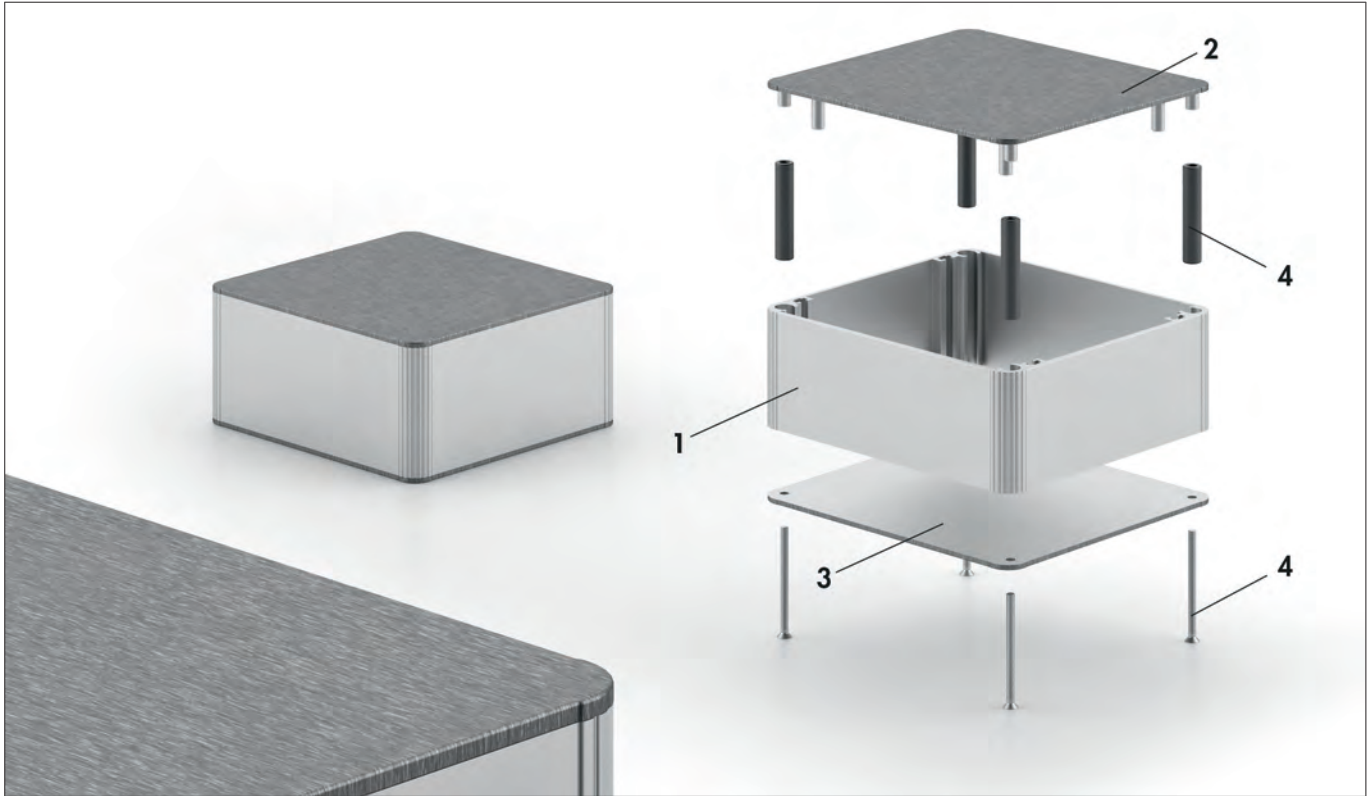
Order example

KO HL 2	KO HL 6	160	MS
first profile	second profile	available lengths (internal dimension): 100, 120, 160, 200, 220, 234 mm	requested surface finish: SA = complete case black anodised ME = complete case clear anodised MS = case profile black anodised, cover panels clear anodised TP = complete case chrome-free transparent passivated
please order cover plates separately			

Combination cases
Profile in meter lengths

art. no.	dim. [mm] lengths	suitable for	page
KO E 14 1000 ...		KO E 14	18
KO E 2 1000 ...		KO E 2	16
KO F 3 1000 ...		KO F 3	17
KO G 5 1000 ...		KO G 5	17
KO H 0 1000 ...		KO H 0	16
KO H 1 1000 ...		KO H 1	16
KO H 2 1000 ...		KO H 2	16
KO H 4 A 1000 ...		KO H 4 A	16
KO H 6 1000 ...		KO H 6	17
KO H 7 1000 ...		KO H 7	17
KO H 8 1000 ...		KO H 8	17
KO H 10 1000 ...		KO H 10	17
KO H 14 1000 ...		KO H 14	17
KO HL 0 1000 ...		KO HL 0	19
KO HL 1 1000 ...		KO HL 1	19
KO HL 2 1000 ...		KO HL 2	19
KO HL 4 1000 ...	1000	KO HL 4	19
KO HL 6 1000 ...		KO HL 6	19
KO HL 10 1000 ...		KO HL 10	19
KO HL 14 1000 ...		KO HL 14	20
KO K 14 1000 ...		KO K 14	18
KO K 2 1000 ...		KO K 2	16
KO L 1 1000 ...		KO L 1	18
KO L 2 1000 ...		KO L 2	18
KO LL 2 1000 ...		KO LL 2	20
KO N 2 1000 ...		KO N 2	16
KO P 2 1000 ...		KO P 2	17
KO R 2 1000 ...		KO R 2	16
KO RL 2 1000 ...		KO RL 2	20
KO T 2 1000 ...		KO T 2	16
KO T 3 1000 ...		KO T 3	16
KO TL 2 1000 ...		KO TL 2	20
KO W 2 1000 ...		KO W 2	18
please indicate: ... surface SA = black anodised ME = natural colour anodised			

Case for Embedded shape factor NUC



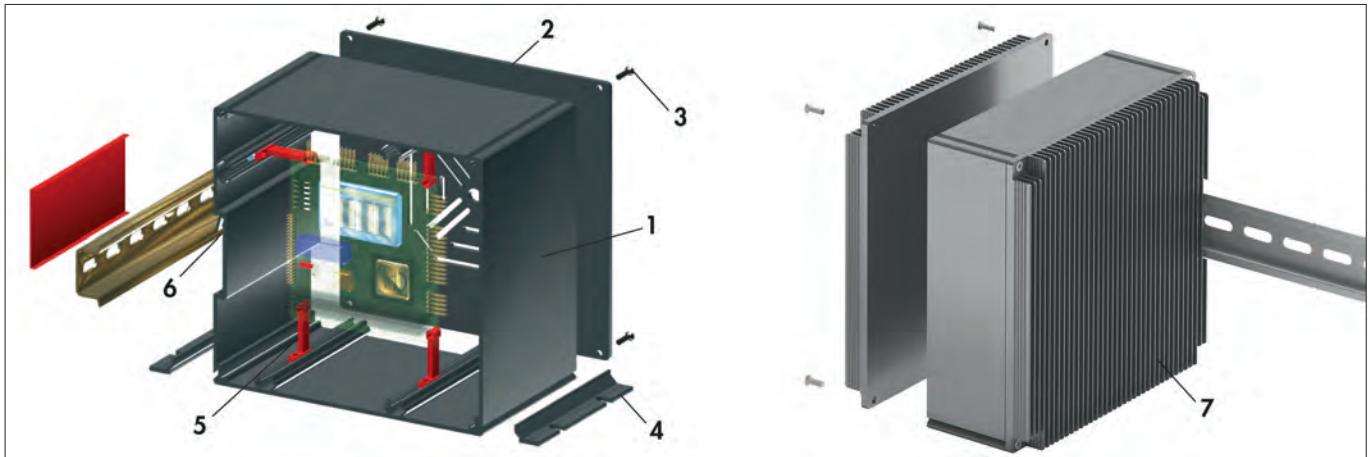
contents of delivery: 1 = 1 x case profile; 2 = 1 x cover panel; 3 = 1 x bottom panel; 4 = mounting material

- tube case made of aluminium with 2 mm thick top- and bottom panel
- case glass-beaded, cover panels grinded
- integrated T-grooves in the case profile for installing a mounting plate or angles for a PCB-mounting
- **M3** thread welding bushes for mounting PCBs with the standard shape factor Embedded NUC
- for different shape factors, i.e. PC/104 and COM Express (Compact) as well as non-standard dimensions upon request
- additional mounting accessory, suitable threaded rails as well as different dimensions, machinings and surfaces upon request

art. no.	GB 305	
NUC 113 121 ...		
<p>please indicate: ... $\left[\right]$ 32.5 42.5 50.5 60.5 mm</p>	<p>... surface SA = black anodised ME = natural colour anodised SM = case profile ME, cover panels SA</p>	

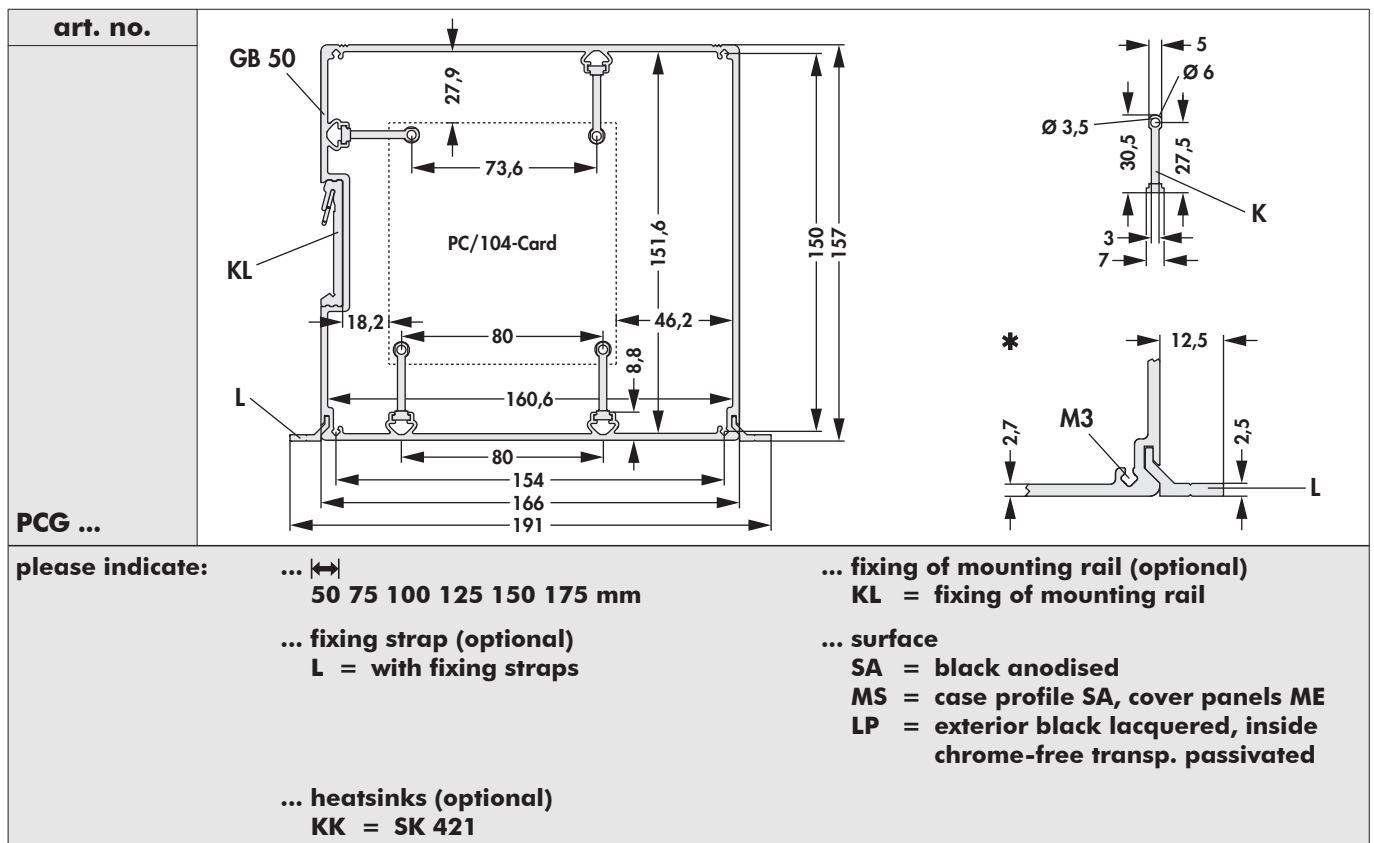
Profile sold by the metre → M 31

Tube cases



contents of delivery: **1** = 1 x case profile; **2** = 2 x cover panel; **3** = mounting material; **4** = 2 x fixing strap (**L**) (optional); **5** = 4 x PCB holders (**K**); **6** = 1 x mounting rail (**KL**) (optional); **7** = 2 x heatsink SK 421 (**KK**) (optional)

- aluminium case for inserting i.e. PC/104 cards
- ideal for industrial applications in harsh environment
- EMC compliant design due to chrome free transparent passivated (electroconductive) surface
- 3 mm thick aluminium cover panels with ventilation slots
- optional with mounting rail (**KL**) acc. to DIN EN 60 715 (formerly DIN EN 50 022)
- optional with fixing tab (**L**) for wall or ceiling mounting
- optional 2 lateral heatsinks "SK 421" (**KK**) for passive cooling with $R_{th} = 1,2 \text{ K/W}$ each (heatsinks replaced cover panels)
- customer specified machinings or special designs upon request



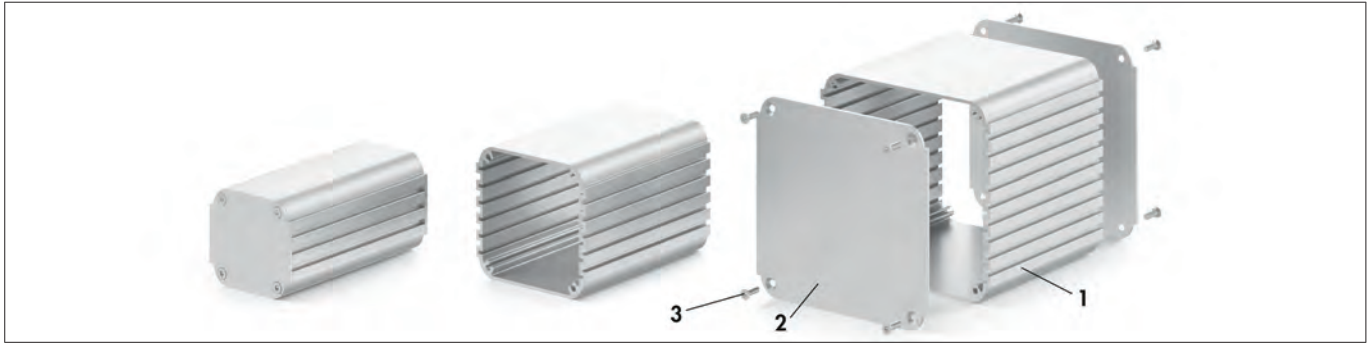
* fixing slots → M 14

Profile sold by the metre → M 31

M 23	PC/104 cases	→ M 23	Embedded case	→ M 48 - 49
	Shell cases	→ M 2	Case for HF-technology	→ M 67
	Design case FRAME	→ M 62 - 63	Combination cases	→ M 14 - 20
	Design case SECCO	→ M 61	Heat dissipating cases	→ M 47 - 55

Tube cases

Universal tube case



contents of delivery:

1 = 1 x case profile; **2** = 2 x cover panel; **3** = mounting material

- universal tube case made of aluminium with cover panels of 2 mm thickness
- guide slots for horizontal insertion of PCBs with 1.6 mm thickness
- EMC compatible version due to chrome-free transparent passivated, electrical conductive surface
- other dimensions, machinings and surfaces upon request

<p>art. no.</p> <p>UTG 54 49 ...</p>	
<p>art. no.</p> <p>UTG 71 66 ...</p>	
<p>art. no.</p> <p>UTG 104 99 ...</p>	
<p>please indicate:</p>	<p>... ...</p> <p>75 100 150 160 200 mm</p> <p>... surface</p> <p>SA = black anodised</p> <p>MS = case profile SA, cover panels ME</p> <p>LP = exterior black lacquered, inside chrome-free transp. passivated</p>

Profile sold by the metre → M 31

PC/104 cases
Shell cases
Design case FRAME
Design case SECCO

→ M 23
→ M 2
→ M 62 - 63
→ M 61

Embedded case
Case for HF-technology
Combination cases
Heat dissipating cases

→ M 48 - 49
→ M 67
→ M 14 - 20
→ M 47 - 55

M 24

A

B

C

D

E

F

G

H

I

K

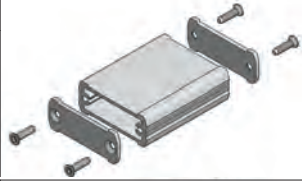
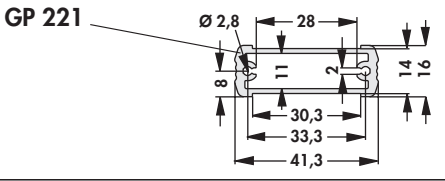
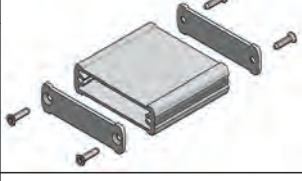
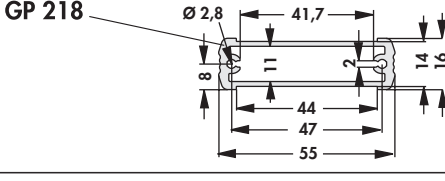
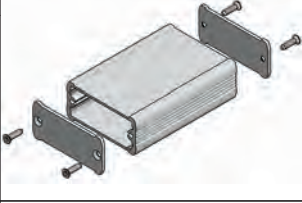
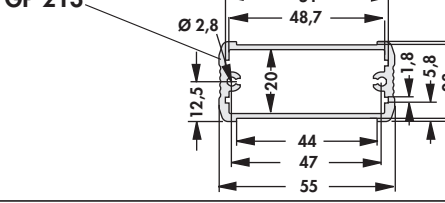
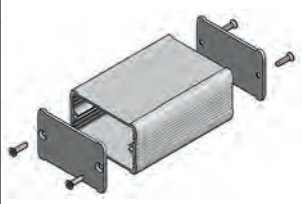
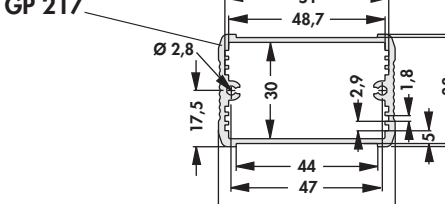
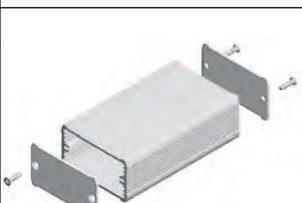
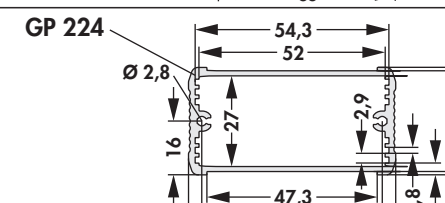
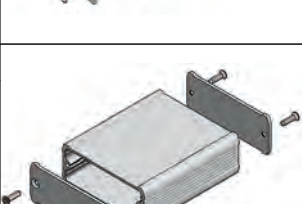
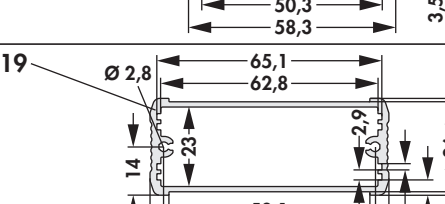

L

M

N

Tube cases

- universal tube case with integrated guide slots for insertion of non standardised circuit boards
- EMC compatible version due to electrical conductive surfaces (**TP**) and additional conductive seals **EDKO** → M 73
- integration possibilities for front foils or foil keypads
- the 2 mm covers panels can be perforated or imprinted acc. to your specifications
- supplied as demounted kit incl. cover plates and mounting material

art. no. TUF 41 16 ...		GP 221 
art. no. TUF 55 16 ...		GP 218 
art. no. TUF 55 25 ...		GP 213 
art. no. TUF 55 35 ...		GP 217 
art. no. TUF 58 32 ...		GP 224 
art. no. TUF 69 28 ...		GP 219 
please indicate: ...  50 80 100 120 160 200 220 mm		... surface SA = black anodised ME = natural colour anodised MS = case profile SA, cover panels ME

Profile sold by the metre → M 31

M 25

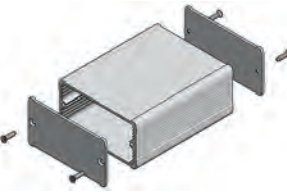
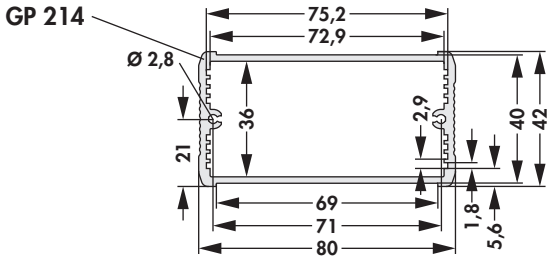

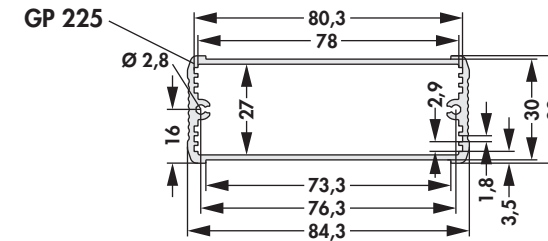
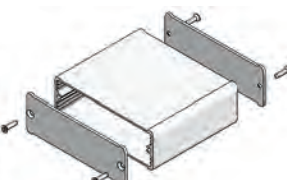
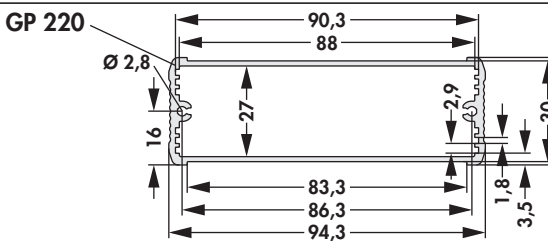

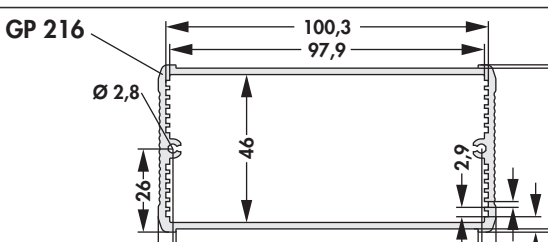

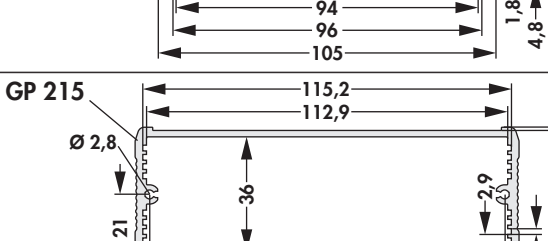
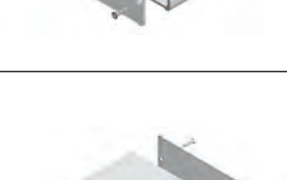
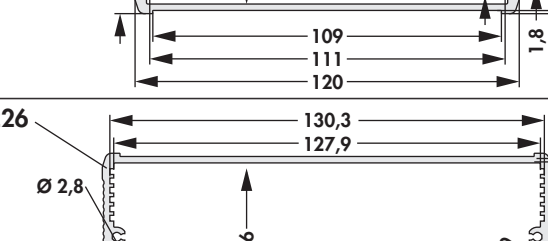

EMC-seals
 Design case RAIL
 Design case FRAME
 Design case SECCO

→ M 71 - 73
 → M 66
 → M 62 - 63
 → M 61

Design case CHAC
 Case for HF-technology
 Combination cases
 Heat dissipating cases

→ M 64
 → M 67
 → M 14 - 20
 → M 47 - 55

Tube cases

<p>art. no.</p> <p>TUF 80 42 ...</p>		<p>GP 214</p> 
<p>art. no.</p> <p>TUF 84 32 ...</p>		<p>GP 225</p> 
<p>art. no.</p> <p>TUF 94 32 ...</p>		<p>GP 220</p> 
<p>art. no.</p> <p>TUF 105 52 ...</p>		<p>GP 216</p> 
<p>art. no.</p> <p>TUF 120 42 ...</p>		<p>GP 215</p> 
<p>art. no.</p> <p>TUF 135 52 ...</p>		<p>GP 226</p> 
<p>please indicate: ...  50 80 100 120 160 220 mm</p>		<p>... surface SA = black anodised ME = natural colour anodised MS = case profile SA, cover panels ME</p>

Profile sold by the metre → M 31

EMC-seals
 Design case RAIL
 Design case FRAME
 Design case SECCO

→ M 71 - 73
 → M 66
 → M 62 - 63
 → M 61

Design case CHAC
 Case for HF-technology
 Combination cases
 Heat dissipating cases

→ M 64
 → M 67
 → M 14 - 20
 → M 47 - 55

M 26

A

B

C

D

E

F

G

H

I

K

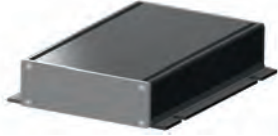
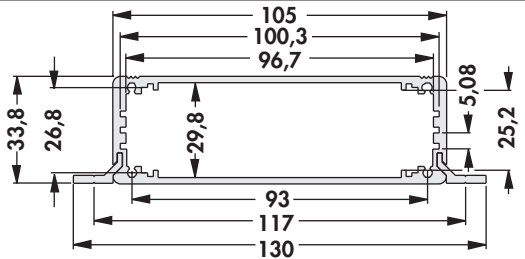

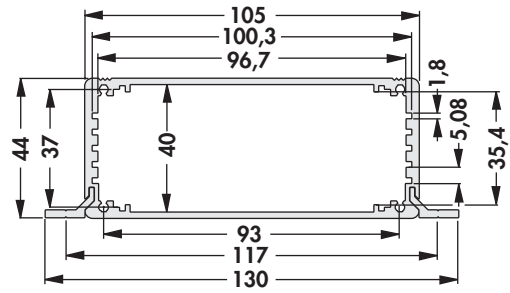

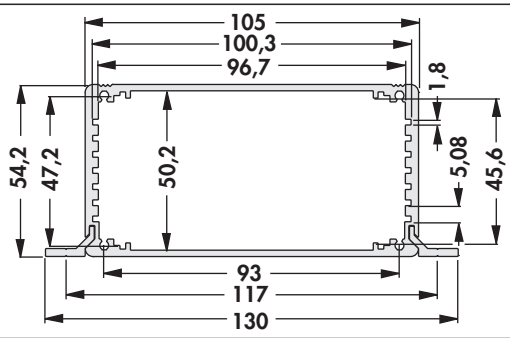

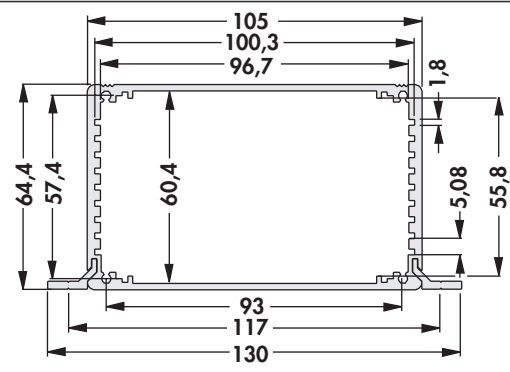

L

M


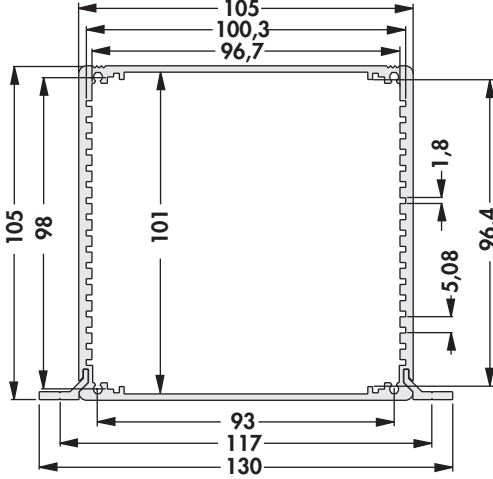

N

Tube case with horizontal guide grooves

- case for 100 mm Eurocards with integrated guide slots in 5.08 mm grid spacing (1 HP)
- EMC compatible version due to chrome-free transparent passivated (electrically conductive) surface and additional sealing **EDKO**
- mounting of the fixing straps without screws
- case available up to IP 54 by using seals **EDKO** → M 71
- the 3 mm thick coverpanels can be machined and printed according to your requirements
- supplied as a demounted kit including cover plates and mounting material

art. no. TUG 03 ...			
art. no. TUG 05 ...			
art. no. TUG 07 ...			
art. no. TUG 09 ...			
please indicate: ...  100 120 160 200 220 mm ... surface SA = black anodised MS = case profile SA, cover panels ME LP = exterior black lacquered, inside chrome-free transp. passivated			... fixing strap (optional) L = with fixing straps

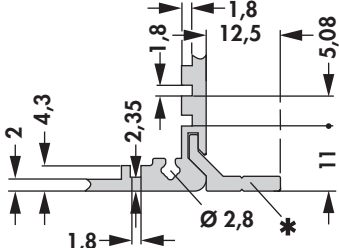
Tube case with horizontal guide grooves

art. no.		
TUG 17 ...		
please indicate:	...  100 120 160 200 220 mm	... fixing strap (optional) L = with fixing straps
	... surface SA = black anodised MS = case profile SA, cover panels ME LP = exterior black lacquered, inside chrome-free transp. passivated	

Profile sold by the metre → M 31

*1 detailed cut-out; * fixing slots → M 14

*1



EMC-seals
 Design case RAIL
 Design case FRAME
 Design case SECCO

→ M 71 - 73
 → M 66
 → M 62 - 63
 → M 61

Design case CHAC
 Case for HF-technology
 Combination cases
 Heat dissipating cases

→ M 64
 → M 67
 → M 14 - 20
 → M 47 - 55

Tube cases with horizontal and vertical guide grooves

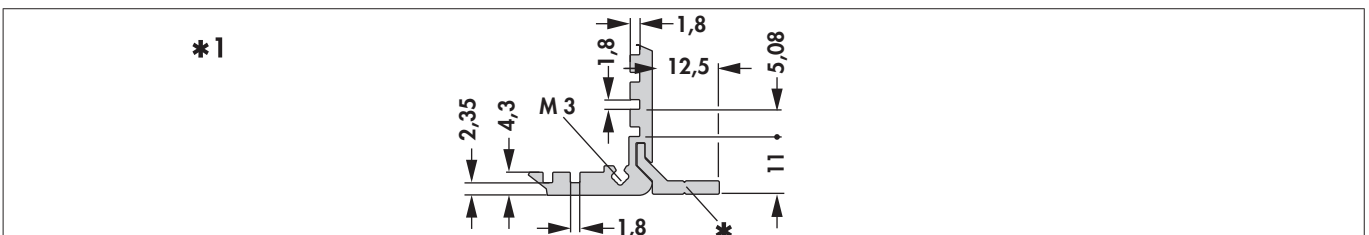


- tube case with horizontal and vertical integrated guide slots in 5.08 mm grid spacing (1 HP) for inserting 100 mm Eurocards and non standard PCBs
- EMC compatible version due to chrome-free transparent passivated (electrically conductive) surface and additional sealing **EDKO**
- mounting of the fixing straps without screws; case available up to IP 54 by using seals **EDKO** → M 71
- the 3 mm thick covers and the tube profiles can be machined and printed according to your requirements
- tube profile with M 3 fastening screw thread for cover panels, other dimensions and surfaces upon request
- supplied as a demounted kit, including cover plates and mounting material

art. no.		
TUG V 09 ...		
art. no.		
TUG V 17 ...		
please indicate:	... $\left[\right]$ 100 120 160 200 220 mm	... fixing strap (optional) L = with fixing straps
... surface	SA = black anodised ME = natural colour anodised MS = case profile SA, cover panels ME	

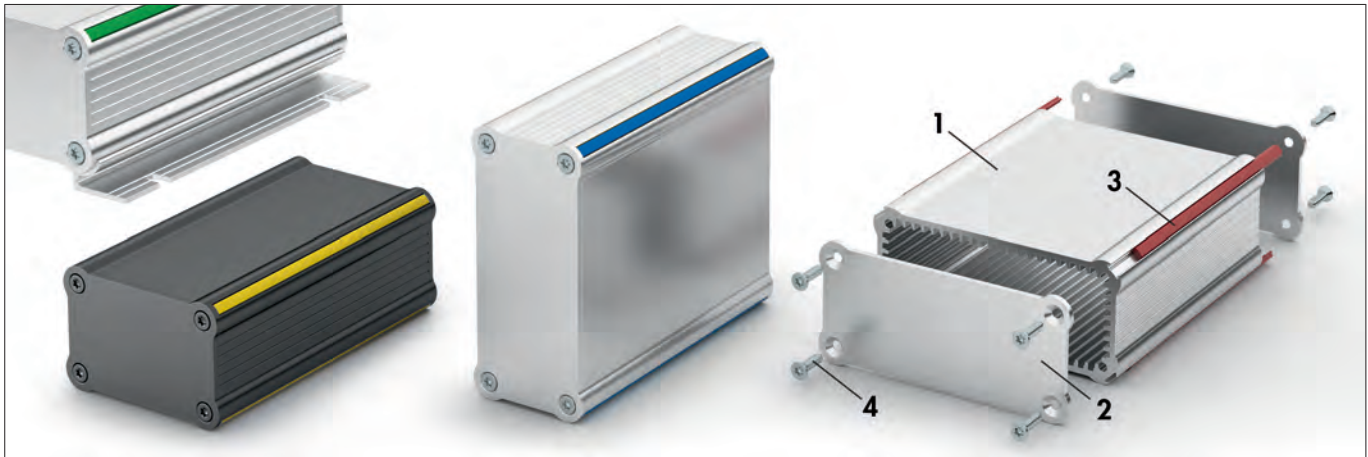
Profile sold by the metre → M 31

*1 detailed cut-out; * fixing slots → M 14



M 29	EMC-seals	→ M 71 - 73	Design case CHAC	→ M 64
	Design case RAIL	→ M 66	Case for HF-technology	→ M 67
	Design case FRAME	→ M 62 - 63	Combination cases	→ M 14 - 20
	Design case SECCO	→ M 61	Heat dissipating cases	→ M 47 - 55

Tube cases



contents of delivery:

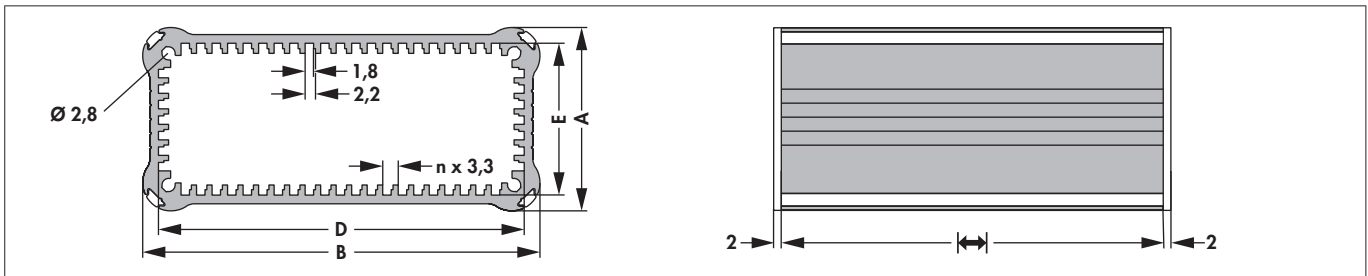
1 = 1 x basic profile (**GB 87** for **TUS 58 39 ...**, **GB 88** for **TUS 84 39 ...**)

2 = 2 x cover plate (2 mm)

3 = 4 x plastic design strip

4 = mounting material

- universal aluminium tube case with integrated guide slots for insertion of non-standardised components or circuit boards
- horizontal or vertical insertion possibility of PCB's in 1.6 or 2 mm material thickness
- ergonomical shape due to special outer contour
- EMC compatible version due to electrically conductive surfaces (**TP**) and additionally conductive sealings **EDKO "TUS"** → M 73
- design strips in sky blue (similar to **RAL 5015**), brick red (similar to **RAL 3002**), bright green (similar to **RAL 6038**), pure orange (similar to **RAL 2004**) or sulphur yellow (similar to **RAL 1016**)
- special designs, treatments, modifications and versions according to customer specifications
- further colours of the design bar and surface treatments upon request



art. no.	dim. [mm]			
	A	B	D	E
TUS 58 39 ...	39	58.9	52.2	32.3
TUS 84 39 ...		84.5	77.8	

please indicate: ... $\left[\right]$ 50 80 100 120 160 200 220 mm ... surface SA = black anodised ME = natural colour anodised MS = case profile SA, cover panels ME	... fixing strap (optional) L = with fixing straps
	... colour design strip HB = sky blue KR = carmine red GL = bright green RO = pure orange SG = sulphur yellow

Profile sold by the metre → M 31

EMC-seals
 Design case RAIL
 Design case FRAME
 Design case SECCO

→ M 71 - 73
 → M 66
 → M 62 - 63
 → M 61

Design case CHAC
 Case for HF-technology
 Combination cases
 Heat dissipating cases

→ M 64
 → M 67
 → M 14 - 20
 → M 47 - 55

M 30

A

B

C

D

E

F

G

H

I

K

L

M

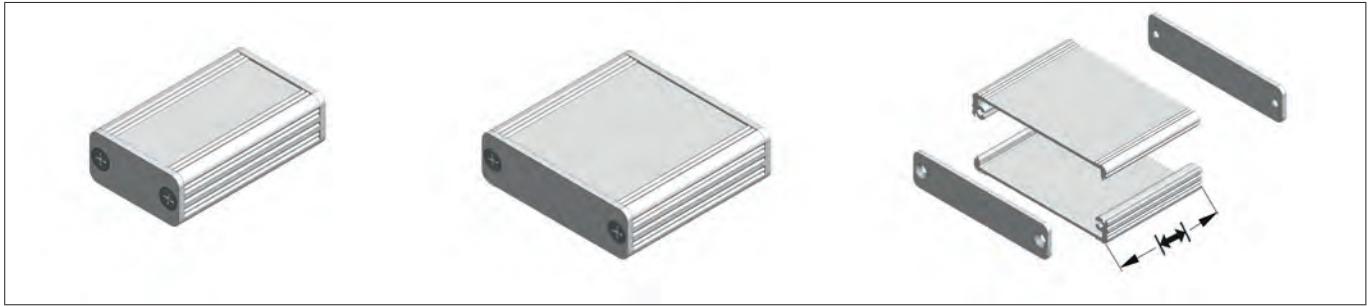
N

Tube cases

Profile in meter lengths

art. no.	dim. [mm] lengths	suitable for	page	
GB 50 1000 ...	1000	PCG ...	23	
GB 87 1000 ...		TUS 58 39 ...	30	
GB 88 1000 ...		TUS 84 39 ...	30	
GB 304 1000 ...		NUC 113 121 ...	22	
GP 211 1000 ...		UTG 71 66 ...	24	
GP 213 1000 ...		TUF 55 25 ...	25	
GP 214 1000 ...		TUF 80 42 ...	26	
GP 215 1000 ...		TUF 120 42 ...	26	
GP 216 1000 ...		TUF 105 52 ...	26	
GP 217 1000 ...		TUF 55 35 ...	25	
GP 218 1000 ...		TUF 55 16 ...	25	
GP 219 1000 ...		TUF 69 28 ...	25	
GP 220 1000 ...		TUF 94 32 ...	26	
GP 221 1000 ...		TUF 41 16 ...	25	
GP 221 1000 ...		UTG 54 49 ...	24	
GP 221 1000 ...		UTG 104 99 ...	24	
GP 221 1000 ...		TUF 58 32 ...	25	
GP 221 1000 ...		TUF 84 32 ...	26	
GP 221 1000 ...		TUF 135 52 ...	26	
TUG 03 1000 ...		TUG 03 ...	27	
TUG 05 1000 ...		TUG 05 ...	27	
TUG 07 1000 ...		TUG 07 ...	27	
TUG 09 1000 ...		TUG 09 ...	27	
TUG 17 1000 ...		TUG 17 ...	28	
TUG V 09 1000 ...		TUG V 09 ...	29	
TUG V 17 1000 ...		TUG V 17 ...	29	
<p>please indicate: ... surface SA = black anodised ME = natural colour anodised</p>				

Miniature aluminium casing also for D-Sub



- casing tubes made of aluminium sections which are slotted into each other and screwed together
- the recommended tightening torque of the screws for mounting the front panels is min. 0.7 Nm
- the tubes form a guide groove in the centre for insertion of a printed circuit board or installation plate with a thickness of 1.8 mm, lateral in the profile until 1.6 mm
- while using the corresponding case D-Sub connectors can be mounted without front panel
- supplied as demounted kit incl. 2 mm cover plates and mounting material
- cutouts, special lengths and surface treatments upon request

<p>D-Sub 9-pin → f.con "I"</p>		
art. no.	art. no.	art. no.
AKG 33 16 ...	AKG 33 20 ...	AKG 33 24 ...
<p>D-Sub 15-pin → f.con "I"</p>		
art. no.	art. no.	art. no.
AKG 41 16 ...	AKG 41 20 ...	AKG 41 24 ...
<p>D-Sub 25-pin → f.con "I"</p>		
art. no.	art. no.	art. no.
AKG 55 16 ...	AKG 55 20 ...	AKG 55 24 ...
please indicate: ... 50 80 100 mm	... surface	SA = black anodised ME = natural colour anodised

Profile sold by the metre → M 45

EMC-seals
Combination cases
Heat dissipating cases
Tube cases

→ M 71 - 73 Design case
→ M 14 - 20 Design case RAIL
→ M 47 - 54 Design case FRAME
→ M 22 - 30 Design case EUROTAINER

→ M 61
→ M 66
→ M 62 - 63
→ M 65

M 32

A

B

C

D

E

F

G

H

I

K

L

M

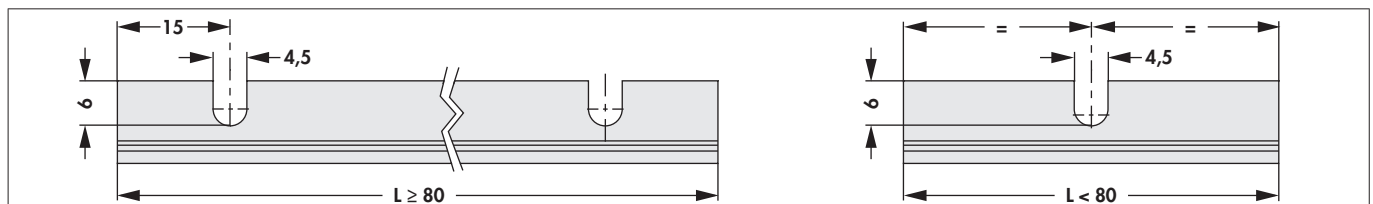
N

Miniature aluminium casing also for D-Sub

art. no.	art. no.	
AKG 55 28 ...	AKG 55 32 ...	
art. no.	art. no.	art. no.
AKG 55 20 L ...	AKG 55 24 L ...	AKG 55 28 L ...
art. no.	art. no.	art. no.
AKG 69 16 ...	AKG 69 20 ...	AKG 69 24 ...
art. no.	art. no.	
AKG 69 28 ...	AKG 69 32 ...	
please indicate: ... 50 80 100 mm		... surface SA = black anodised ME = natural colour anodised

Profile sold by the metre → M 45

* fixing slots / fixing tabs



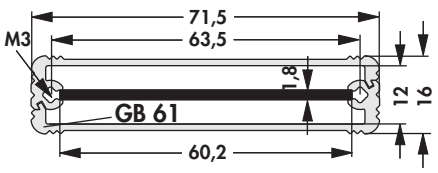
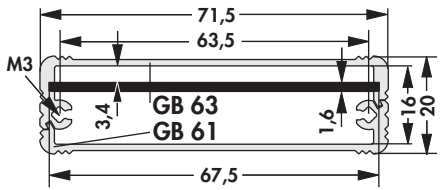
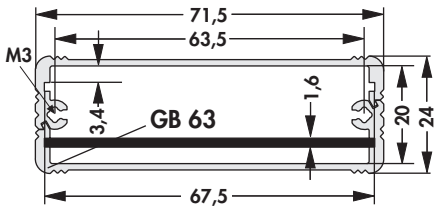
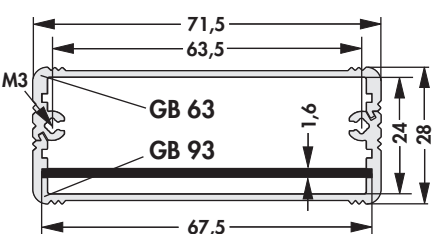
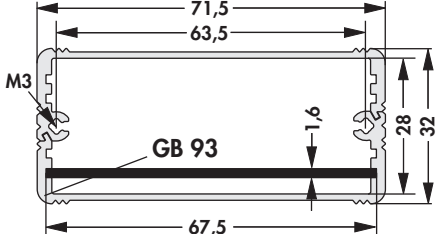
M 33

EMC-seals
 Combination cases
 Heat dissipating cases
 Tube cases

→ M 71 - 73 Design case SECCO
 → M 14 - 20 Design case RAIL
 → M 47 - 55 Design case FRAME
 → M 22 - 30 Design case EUROTAINER

→ M 61
 → M 66
 → M 62 - 63
 → M 65

Miniature aluminium casing also for D-Sub

 <p>D-Sub 37-pin → f.con "I"</p>		
art. no.	art. no.	art. no.
AKG 71 16 ...	AKG 71 20 ...	AKG 71 24 ...
		
art. no.	art. no.	
AKG 71 28 ...	AKG 71 32 ...	
<p>please indicate: ... $\begin{matrix} \text{---} \\ \text{---} \end{matrix}$ 50 80 100 mm</p>		<p>... surface SA = black anodised ME = natural colour anodised</p>

Profile sold by the metre → M 45

EMC-seals
Combination cases
Heat dissipating cases
Tube cases

→ M 71 - 73 Design case SECCO
→ M 14 - 20 Design case RAIL
→ M 47 - 55 Design case FRAME
→ M 22 - 30 Design case EUROTAINER

→ M 61
→ M 66
→ M 62 - 63
→ M 65

M 34

A

B

C

D

E

F

G

H

I

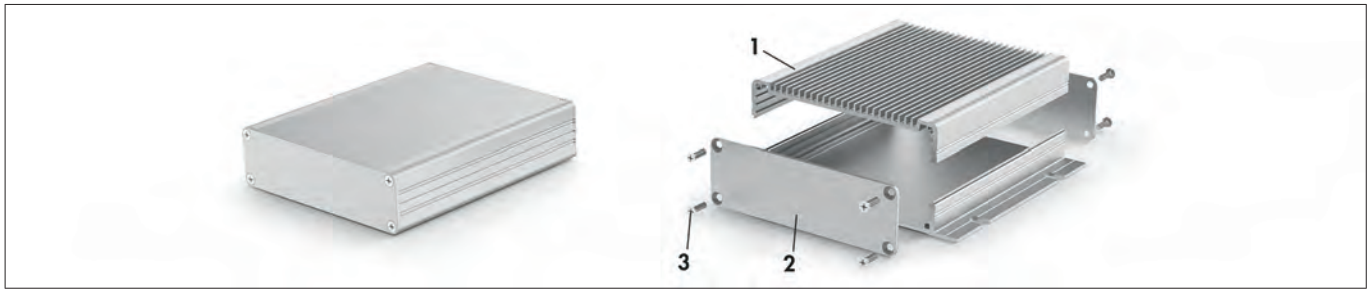
K

L

M

N

Miniature aluminium casing for eurocards



contents of delivery:

1 = 2 x case profile; **2** = 2 x cover panel (2 mm); **3** = mounting material

- aluminium case made of half-shells which are slotted into each other for insertion of 100 mm eurocards
- designs with fixing strap for a wall or ceiling mounting
- optimized thermal management by means of integrated cooling fin geometry
- further dimensions, machinings and surfaces upon request

art. no.	art. no.
AKG 105 22 ...	AKG 105 26 ...
art. no.	art. no.
AKG 105 30 ...	AKG 105 34 ...
art. no.	art. no.
AKG 105 38 ...	AKG 105 46 ...
<p>please indicate: ... $\left[\right]$ 80 100 120 160 200 220 mm</p>	<p>... surface SA = black anodised ME = natural colour anodised</p>

Profile sold by the metre → M 45

M 35	<p>EMC-seals Combination cases Heat dissipating cases Tube cases</p>	<p>→ M 71 - 73 → M 14 - 20 → M 47 → M 22 - 30</p>	<p>Design case SECCO Design case RAIL Design case FRAME Design case EUROTAINER</p>	<p>→ M 61 → M 66 → M 62 - 63 → M 65</p>
-------------	---	--	---	--

Miniature aluminium casing for eurocards

<p style="text-align: center;">* art. no.</p> <p style="text-align: center;">AKG 105 26 ... L</p>	<p style="text-align: center;">* art. no.</p> <p style="text-align: center;">AKG 105 30 ... L</p>
<p style="text-align: center;">* art. no.</p> <p style="text-align: center;">AKG 105 38 ... L</p>	<p style="text-align: center;">* art. no.</p> <p style="text-align: center;">AKG 105 34 ... L K</p>
<p style="text-align: center;">* art. no.</p> <p style="text-align: center;">AKG 105 30 ... K</p>	<p style="text-align: center;">* art. no.</p> <p style="text-align: center;">AKG 105 34 ... K</p>
<p style="text-align: center;">* art. no.</p> <p style="text-align: center;">AKG 105 42 ... K</p>	

* fixing slots → M 14

EMC-seals
Combination cases
Heat dissipating cases
Tube cases

→ M 71 - 73 Design case SECCO
→ M 14 - 20 Design case RAIL
→ M 47 Design case FRAME
→ M 22 - 30 Design case EUROTAINER

→ M 61
→ M 66
→ M 62 - 63
→ M 65

M 36

A

B

C

D

E

F

G

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L

M

N

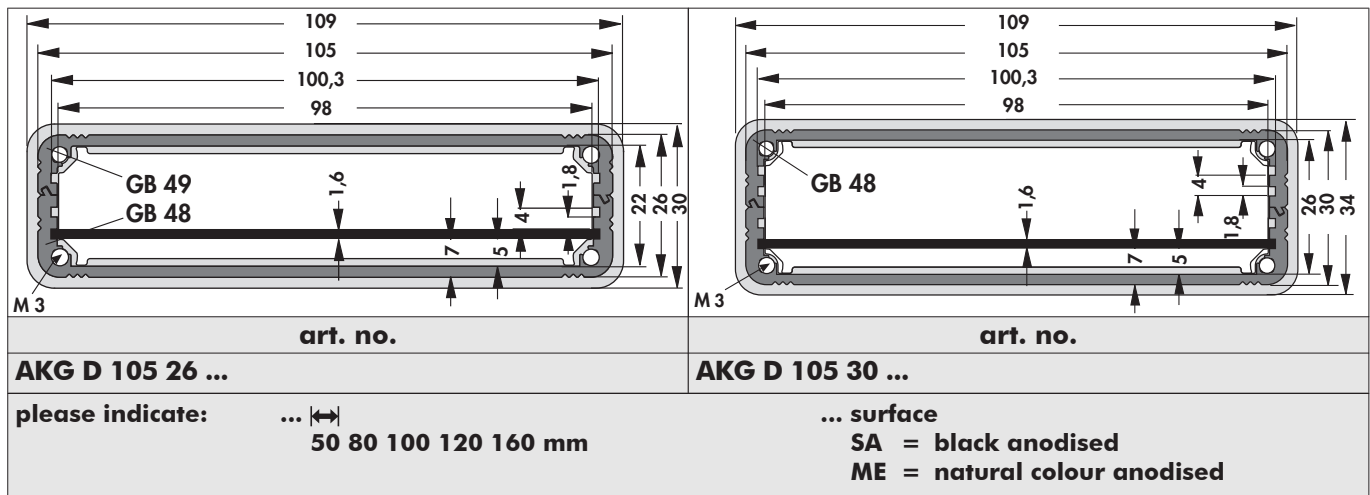
Miniature aluminium casing, anti-slip



- tube case consisting of AL-profiles which are slotted into each other and screwed together
- anti-slip and save application as a bench case due to revolving sealing, cobalt blue (similar to **RAL 5013**)
- guiding groove for insertion of non-standardized PCBs or mounting plates with a thickness of 1.6-1.8 mm
- special designs and treatments, modifications and options according to your requests
- different colours of the sealing and surface upon request

<p>GB 58</p>	<p>GB 59</p>	<p>GB 60</p>
art. no.	art. no.	art. no.
AKG D 33 24 ...	AKG D 41 20 ...	AKG D 41 24 ...
<p>GB 39</p>	<p>GB 46</p>	
art. no.	art. no.	
AKG D 55 20 ...	AKG D 55 24 ...	
<p>GB 64</p>	<p>GB 63</p>	
art. no.	art. no.	
AKG D 69 24 ...	AKG D 71 24 ...	
<p>please indicate: ... $\left[\begin{array}{c} \text{---} \\ \text{---} \end{array} \right]$</p> <p style="text-align: center;">50 80 100 mm</p>	<p>... surface</p> <p>SA = black anodised</p> <p>ME = natural colour anodised</p>	

Miniature aluminium casing



Profile sold by the metre → M 45

Design case SECCO
 Design case FRAME
 Design case CHAC
 Design case EUROTAINER

→ M 61
 → M 62 – 63
 → M 64
 → M 65

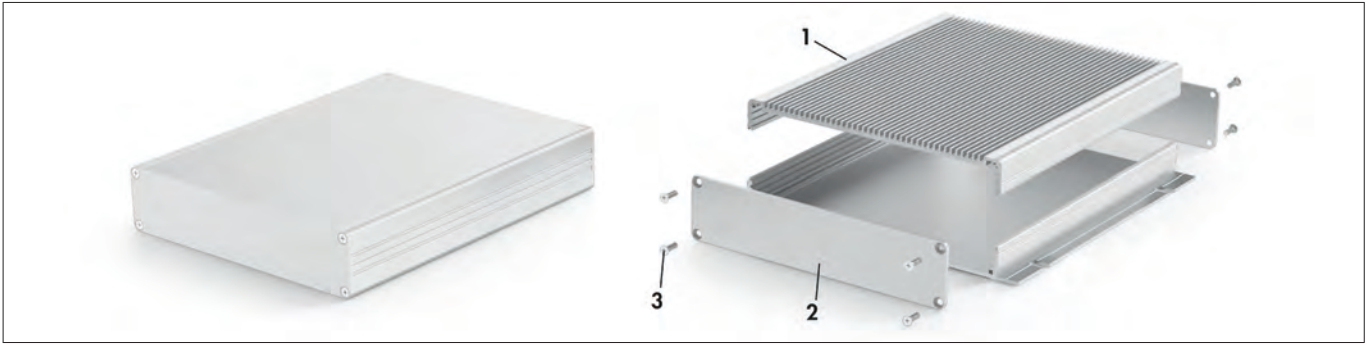
EMC-seals
 Combination cases
 Tube cases
 Heat dissipating cases

→ M 71 – 73
 → M 14 – 20
 → M 22 – 30
 → M 47 – 55

M 38

A
B
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M
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Miniature aluminium casing for 160 mm eurocards



contents of delivery:

1 = 2 x case profile; **2** = 2 x cover panel (2 mm); **3** = mounting material

- combination case with internal guide rails for inserting 160 mm Eurocards with a thickness of 1.6 mm
- casing tube made of aluminium profiles which are slotted into each other and screwed together
- designs with fixing strap for a wall or ceiling mounting
- optimized thermal management by means of integrated cooling fin geometry
- with **M 3** fixing threads for cover panels; further dimensions and surfaces upon request
- further dimensions, machinings and surfaces upon request

art. no.	
AKG 165 38 ...	
art. no.	
AKG 165 42 ...	
art. no.	
AKG 165 46 ...	
please indicate:	<div style="display: flex; justify-content: space-between;"> <div> <p>... 100 120 160 200 234 mm</p> </div> <div> <p>... surface SA = black anodised ME = natural colour anodised</p> </div> </div>

Profile sold by the metre → M 45

M 39

Design case SECCO
Design case FRAME
Design case CHAC
Design case EUROTAINER

→ M 61
→ M 62 – 63
→ M 64
→ M 65

EMC-seals
Combination cases
Tube cases
Heat dissipating cases

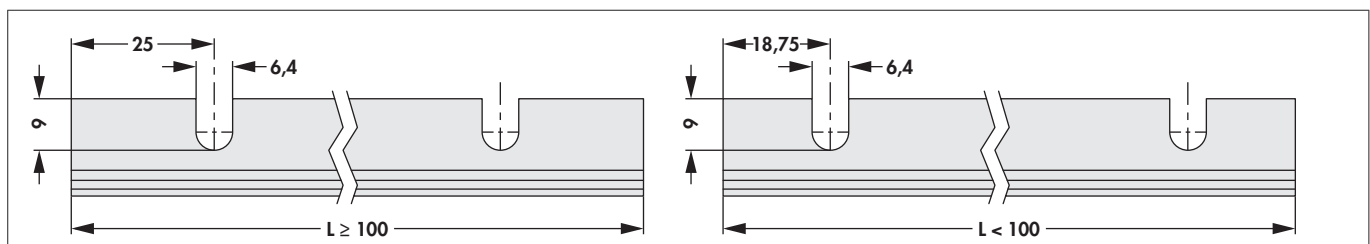
→ M 71 – 73
→ M 14 – 20
→ M 22 – 30
→ M 47 – 55

Miniature aluminium casing for 160 mm eurocards

art. no. AKG 165 38 ... L	
art. no. AKG 165 42 ... L	
art. no. AKG 165 38 ... L K	
art. no. AKG 165 38 ... K	
<p>please indicate: ... 100 120 160 200 220 234 mm</p> <p>... surface SA = black anodised ME = natural colour anodised</p>	

Profile sold by the metre → M 45

* fixing slots / fixing tabs



Design case SECCO
 Design case FRAME
 Design case CHAC
 Design case EUROTAINER

→ M 61
 → M 62 – 63
 → M 64
 → M 65

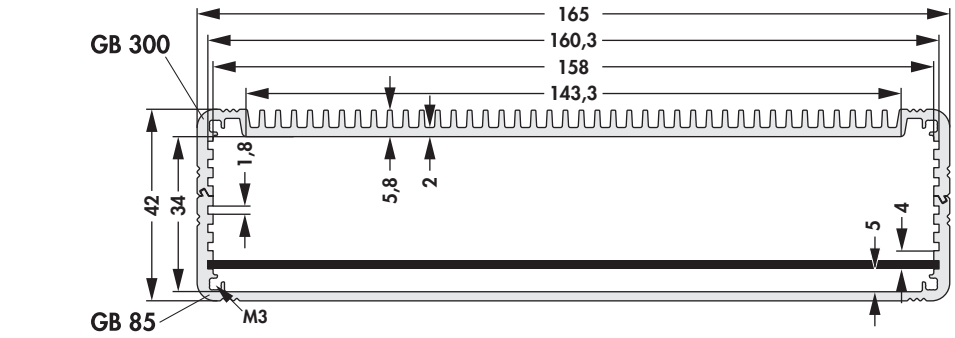

EMC-seals
 Combination cases
 Tube cases
 Heat dissipating cases

→ M 71 – 73
 → M 14 – 20
 → M 22 – 30
 → M 47 – 55

M 40

A
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Miniature aluminium casing for 160 mm eurocards

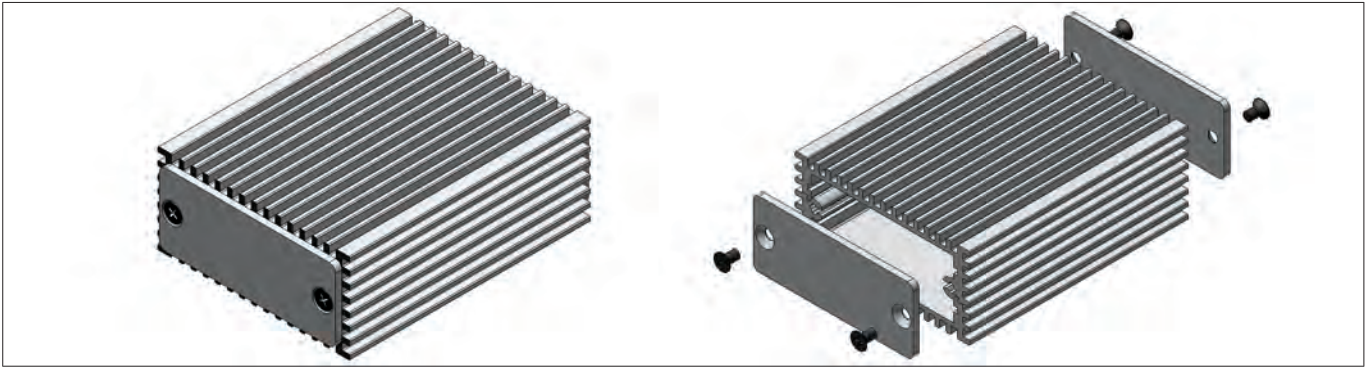
art. no.	
AKG 165 42 ... K	
please indicate:	...  100 120 160 200 220 234 mm
	... surface SA = black anodised ME = natural colour anodised

A
B
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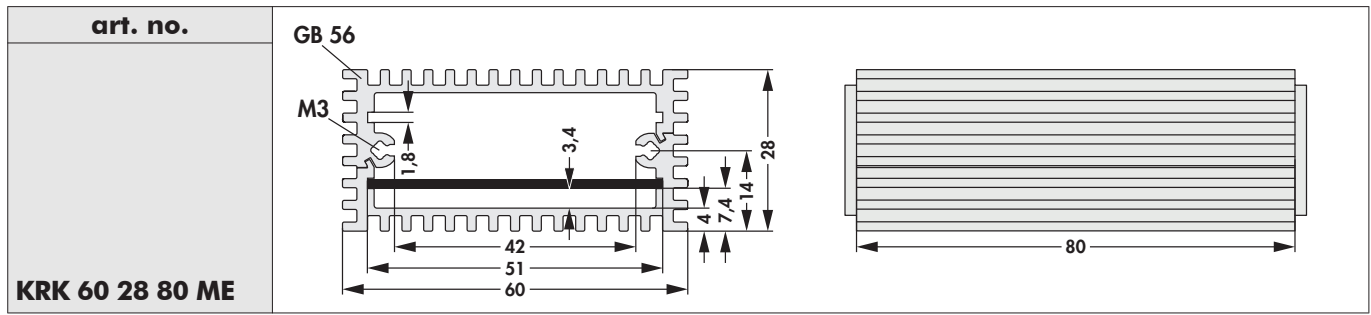
M 41

- | | | | |
|------------------------|-------------|------------------------|-------------|
| Design case SECCO | → M 61 | EMC-seals | → M 71 - 73 |
| Design case FRAME | → M 62 - 63 | Combination cases | → M 14 - 20 |
| Design case CHAC | → M 64 | Tube cases | → M 22 - 30 |
| Design case EUROTAINER | → M 65 | Heat dissipating cases | → M 47 - 55 |

Miniature aluminium casing with cooling fins



- with integrated cooling fins; casing tubes made of aluminium sections which are slotted into each other and screwed together
- the tubes form a guide groove in the centre for insertion of a printed circuit board or installation plate with a thickness of 1.5-1.6 mm and a width of 44 mm
- D-Sub connector, 25-way, can be mounted → **f.con "I"**
- profile can also be combined with the profiles of case AKG 55 (**GB 39** and **GB 46**)
- supplied as demounted kit, incl. 2 mm cover panels and mounting material
- surface natural colour anodised
- cutouts, special lengths and other surface treatments upon request



Profile sold by the metre → M 45

Design case SECCO
 Design case FRAME
 Design case CHAC
 Design case EUROTAINER

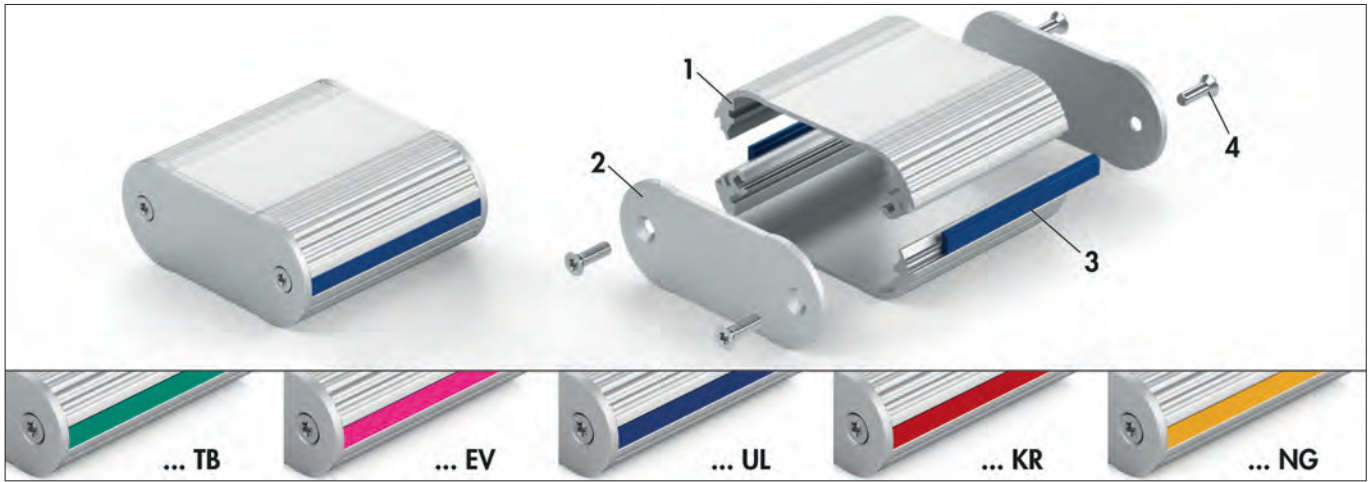
→ M 61
 → M 62 - 63
 → M 64
 → M 65

EMC-seals
 Combination cases
 Tube cases
 Heat dissipating cases

→ M 71 - 73
 → M 14 - 20
 → M 22 - 30
 → M 47 - 55

M 42

Miniature case "TONDO"



contents of delivery:

- 1 = 2 x housing halves
- 2 = 2 x cover panel
- 3 = 2 x plastic design strip
- 4 = mounting material

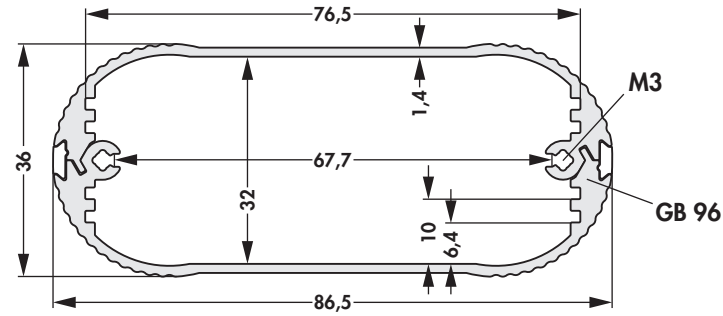
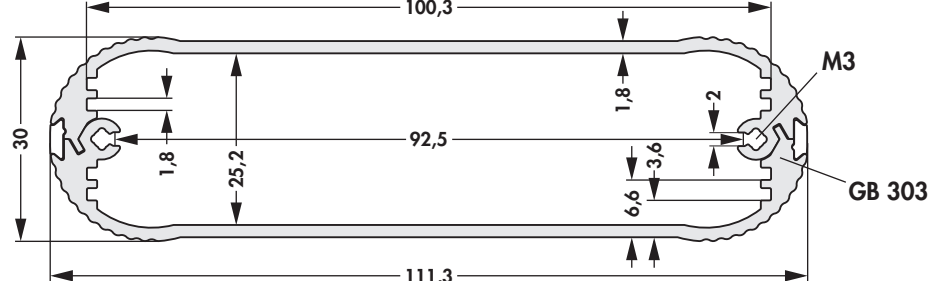
- handy miniature case made of aluminium profiles which are plugged against each other, cover panels of 2 mm thickness and lateral integrated plastic design strips
- lateral guide grooves for insertion of PCBs with a thickness of 1.6 mm, with 1.8 mm thickness centred in the area of the thread channels
- integration possibilities for foil keypads
- design strips are available in the colours **turquoise blue (similar to RAL 5018)**, **heather violet (similar to RAL 4003)**, **ultramarine blue (similar to RAL 5002)**, **carmine red (similar to RAL 3002)** and **daffodil yellow (similar to RAL 1007)**
- special treatments, special lengths, surfaces and colours upon request
- supplied as a demounted kit

art. no.	
TON 49 20 ...	
art. no.	
TON 61 26 ...	
please indicate:	<p>... $\leftarrow \rightarrow$ 50 80 100 120 160 200 220 mm</p> <p>... surface SA = black anodised ME = natural colour anodised</p> <p>... colour design strip EV = heather violet KR = carmine red NG = daffodil yellow TB = turquoise blue UL = ultramarine blue</p>

Profile sold by the metre → M 45

M 43	Design case CHAC	→ M 64	Extruded assembled cases	→ M 7 - 10
	Design case EUROTAINER	→ M 65	Combination cases	→ M 14 - 20
	Design case SECCO	→ M 61	Heat dissipating cases	→ M 51 - 55
	Design case FRAME	→ M 62 - 63	Tube cases	→ M 22 - 30

Miniature case "TONDO"

<p>art. no.</p> <p>TON 86 36 ...</p>	
<p>art. no.</p> <p>TON 111 30 ...</p>	
<p>please indicate: ... $\left \right$ 50 80 100 120 160 200 220 mm</p> <p>... colour design strip EV = heather violet KR = carmine red NG = daffodil yellow TB = turquoise blue UL = ultramarine blue</p> <p>... surface SA = black anodised ME = natural colour anodised</p>	

Profile sold by the metre → M 45

Design case CHAC
Design case EUROTAINER
Design case SECCO
Design case FRAME

→ M 64
→ M 65
→ M 61
→ M 62 - 63

Extruded assembled cases
Combination cases
Heat dissipating cases
Tube cases

→ M 7 - 10
→ M 14 - 20
→ M 51 - 55
→ M 22 - 30

M 44

A
B
C
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M
N

Miniature aluminium casing

Profile in meter lengths

art. no.	dim. [mm] lengths	suitable for	page
GB 39 1000 ...	1000	AKG 55 20 ...	32
		AKG 55 16 ...	32
		AKG 55 20 L ...	33
		AKG D 55 20 ...	37
GB 46 1000 ...	1000	AKG 55 24 ...	32
		AKG 55 20 ...	32
		AKG 55 24 L ...	33
		AKG 55 28 ...	33
		AKG D 55 24 ...	37
		AKG D 55 20 ...	37
GB 48 1000 ...	1000	AKG 105 30 ...	35
		AKG 105 38 ...	35
		AKG 105 26 ...	35
		AKG D 105 26 ...	38
		AKG D 105 30 ...	38
		AKG 105 30 ... L	36
		AKG 105 34 ... K	36
		AKG 105 22 ...	35
GB 49 1000 ...	1000	AKG 105 34 ...	35
		AKG 105 26 ...	35
		AKG D 105 26 ...	38
		AKG 105 26 ... L	36
		AKG 105 30 ... K	36
		KRK 60 28 80 ME	42
GB 56 1000 ...	1000	AKG 33 16 ...	32
GB 57 1000 ...	1000	AKG 33 20 ...	32
GB 58 1000 ...	1000	AKG 33 20 ...	32
		AKG 33 24 ...	32
		AKG D 33 24 ...	37
GB 59 1000 ...	1000	AKG 41 20 ...	32
		AKG 41 16 ...	32
		AKG D 41 20 ...	37
GB 60 1000 ...	1000	AKG 41 24 ...	32
		AKG 41 20 ...	32
		AKG D 41 24 ...	37
		AKG D 41 20 ...	37
GB 61 1000 ...	1000	AKG 71 16 ...	34
		AKG 71 20 ...	34
GB 62 1000 ...	1000	AKG 69 16 ...	33
		AKG 69 20 ...	33
GB 63 1000 ...	1000	AKG 71 20 ...	34
		AKG 71 24 ...	34
		AKG D 71 24 ...	37
GB 64 1000 ...	1000	AKG 69 20 ...	33
		AKG 69 24 ...	33
		AKG D 69 24 ...	37
GB 73 1000 ...	1000	AKG 105 34 ...	35
		AKG 105 38 ...	35
		AKG 105 46 ...	35
		AKG 105 38 ... L	36
		AKG 105 42 ... K	36
please indicate:	... surface		
	SA = black anodised		
	ME = natural colour anodised		

M 45

EMC-seals
Combination cases
Heat dissipating cases
Tube cases

→ M 71 - 73
→ M 14 - 20
→ M 47 - 54
→ M 22 - 30

Design case
Design case **RAIL**
Design case **FRAME**
Design case **EUROTAINER**

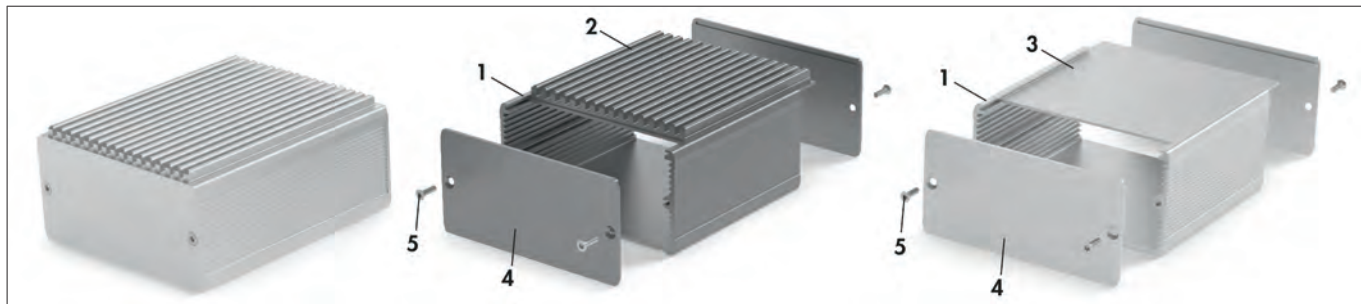
→ M 61
→ M 66
→ M 62 - 63
→ M 65

Miniature aluminium casing
Profile in meter lengths

GB 74 1000 ...		AKG 55 20 L ...	33
		AKG 55 24 L ...	33
		AKG 55 28 L ...	33
GB 80 1000 ...		AKG 55 28 ...	33
		AKG 55 32 ...	33
		AKG 55 28 L ...	33
GB 85 1000 ...		AKG 165 46 ...	39
		AKG 165 42 ...	39
		AKG 165 42 ... L	40
		AKG 165 42 ... K	41
GB 86 1000 ...		AKG 165 38 ...	39
		AKG 165 42 ...	39
		AKG 165 38 ... L	40
		AKG 165 38 ... K	40
GB 92 1000 ...		AKG 69 28 ...	33
		AKG 69 32 ...	33
GB 93 1000 ...		AKG 71 32 ...	34
		AKG 71 28 ...	34
GB 94 1000 ...		TON 49 20 ...	43
GB 95 1000 ...	1000	TON 61 26 ...	43
GB 96 1000 ...		TON 86 36 ...	44
GB 96 1000 ...		AKG 105 26 ... L	36
		AKG 105 30 ... L	36
		AKG 105 38 ... L	36
		AKG 105 34 ... L K	36
GB 96 1000 ...		AKG 105 34 ... L K	36
		AKG 105 30 ... K	36
		AKG 105 34 ... K	36
		AKG 105 42 ... K	36
		AKG 105 38 ... K K	0
GB 300 1000 ...		AKG 165 38 ... L K	40
		AKG 165 38 ... K	40
		AKG 165 42 ... K	41
		AKG 165 38 ... K K	0
GB 301 1000 ...		AKG 165 38 ... L	40
		AKG 165 42 ... L	40
		AKG 165 38 ... L K	40
GB 95 1000 ...		TON 111 30 ...	44
please indicate:	... surface		
	SA = black anodised		
	ME = natural colour anodised		

Case with insertable heatsinks or top panel

Heat dissipating cases



contents of delivery:

1 = 1 x basic profile (**GB 89** for **GE K 80 42 ...** and **GE D 80 42 ...**, **GB 90** for **GE K 105 52 ...** and **GE D 105 52 ...**, **GB 91** for **GE K 120 42 ...** and **GE D 120 42 ...**); **2** = heatsink (**SK 601** machined); **3** = top panel;
4 = 2 x cover panel (2 mm); **5** = mounting material

- universal case made of aluminium with integrated guide slots for mounting non-standard PCBs or devices as well as 100 mm euro cards
- integrated heatsink for dissipating big heat flow volumes (**GE K ...**) or insertable cover Panel (**GE D ...**)
- integration possibility for foil keypads for the version with insertable cover panel
- special designs and treatments, modifications and surfaces possible according to your demand

art. no.	dim. [mm]					
	A	B	D	E	Y	n
GE K 80 42 ...	47	80	75.2	35	66	9
GE K 105 52 ...	57	105	100.3	45	91	13
GE K 120 42 ...	47	120	115.2	35	106	9
please indicate:	... 50 100 120 160 220 mm			... surface SA = black anodised ME = natural colour anodised		

art. no.	dim. [mm]					
	A	B	D	E	Y	n
GE D 80 42 ...	42	80	75.2	35.9	66	9
GE D 105 52 ...	52	105	100.3	45.9	91	13
GE D 120 42 ...	42	120	115.2	35.9	106	9
please indicate:	... 50 100 120 160 200 220 mm			... surface SA = black anodised ME = natural colour anodised		

Profile sold by the metre → M 57

M 47

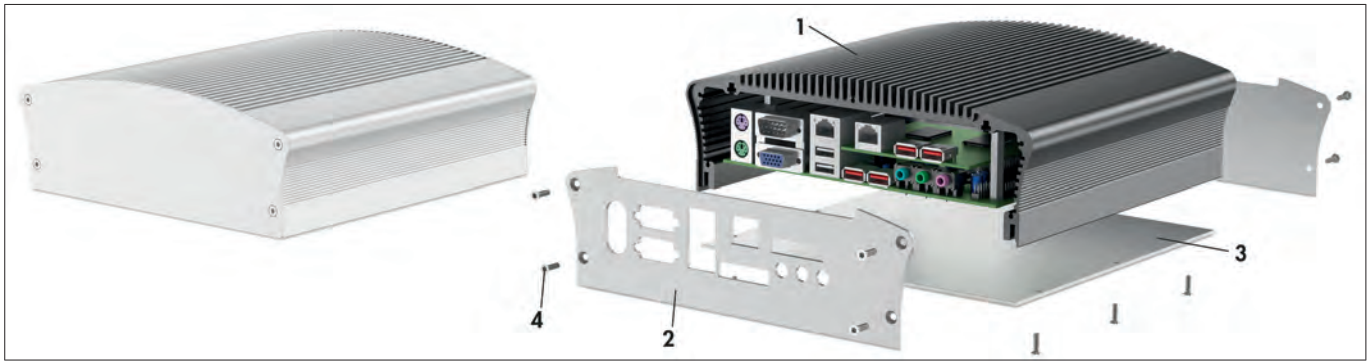
Heat dissipating cases
 Tube cases
 Extruded assembled cases
 Combination cases

→ M 47 - 55
 → M 22 - 30
 → M 7 - 10
 → M 14 - 20

Design case **EUROTAINER**
 Design case **CHAC**
 Design case **SECCO**
 Design case **FRAME**

→ M 65
 → M 64
 → M 61
 → M 62 - 63

Case with cooling fins: Embedded case



contents of delivery: 1 = 1 x case profile; 2 = 2 x cover panel; 3 = 1 x bottom panel; 4 = mounting material

- universal cooling fin case made of aluminium extruded profile, cover panels in 2 mm thickness and removable bottom panel
- optimized heat dissipation by means of external cooling fins
- the integrated T-grooves in the case profile for mounting of i.e. mainboards in the Mini-ITX or NUC form factor by means of distance, bolts and mounting plate also EBX, Nano ITX, EPIC, ETX/XTX and PC/104 form factors by means
- internal guide grooves for inserting PCBs or mounting plates
- wall-, ceiling- or top-hat rail mounting by means of fixing straps or top-hat rail mounting from the bottom
- special designs, embedded cover panels, machinings, surfaces and printings upon request

<p>art. no.</p> <p>EMB 135 ...</p>		
<p>art. no.</p> <p>EMB 175 ...</p>		
<p>please indicate:</p> <p>... $\left[\begin{array}{c} \text{---} \\ \text{---} \end{array} \right]$ 105 150 200 250 mm</p> <p>... surface</p> <p>SA = black anodised</p> <p>ME = natural colour anodised</p> <p>MS = case profile SA, cover panels ME</p> <p>... way of fixation (optional)</p> <p>KL = fixing of mounting rail</p> <p>LS = mounting strap set</p> <p>... accessories (optional)</p> <p>BL = bottom panel with ventilation slots</p>		

* accessories mounting set BFS → M 50

Profile sold by the metre → M 57

19" cooling fins with handle
Shell cases
Tube cases
Combination cases

→ N 13
→ M 2
→ M 22 - 30
→ M 14 - 20

Design case EUROTAINER
Design case CHAC
Design case SECCO
Design case FRAME

→ M 65
→ M 64
→ M 61
→ M 62 - 63

M 48

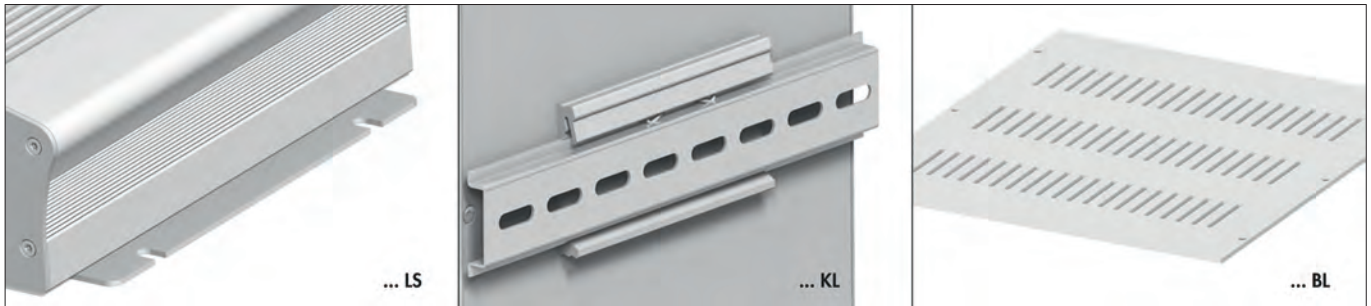
A
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N

Case with cooling fins: Embedded case

art. no.			
EMB 215 ...			
please indicate:	... $\left[\begin{array}{c} \text{---} \\ \text{---} \end{array} \right]$ 150 200 250 mm	... surface SA = black anodised ME = natural colour anodised MS = case profile SA, cover panels ME	
	... way of fixation (optional) KL = fixing of mounting rail LS = mounting strap set	... accessories (optional) BL = bottom panel with ventilation slots	

* accessories mounting set BFS → M 50

Profile sold by the metre → M 57



M 49

19" cooling fins with handle
 Shell cases
 Tube cases
 Combination cases

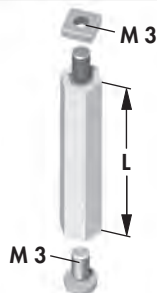
→ N 13
 → M 2
 → M 22 - 30
 → M 14 - 20

Design case EUROTAINER
 Design case CHAC
 Design case SECCO
 Design case FRAME

→ M 65
 → M 64
 → M 61
 → M 62 - 63

Accessory for the embedded case

– accessory for the embedded case, insulating

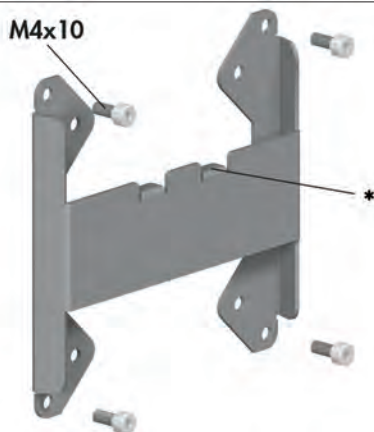


art. no.	dim. [mm] L	art. no.	dim. [mm] L	art. no.	dim. [mm] L
BFS 15	15	BFS 25	25	BFS 35	35
BFS 20	20	BFS 30	30	BFS 40	40

Monitor bracket

– suitable for VESA MIS-D 75/100

* suitable for mounting rail KL 35 100



art. no.	details
MH 135 ...	for EMB 135 ... KL & EMB 175 ... KL
please indicate:	... surface SA = black anodised ME = natural colour anodised

Design case **EUROTAINER**
 Design case **CHAC**
 Design case
 Tube cases

→ M 65
 → M 64
 → M 61
 → M 22 – 30

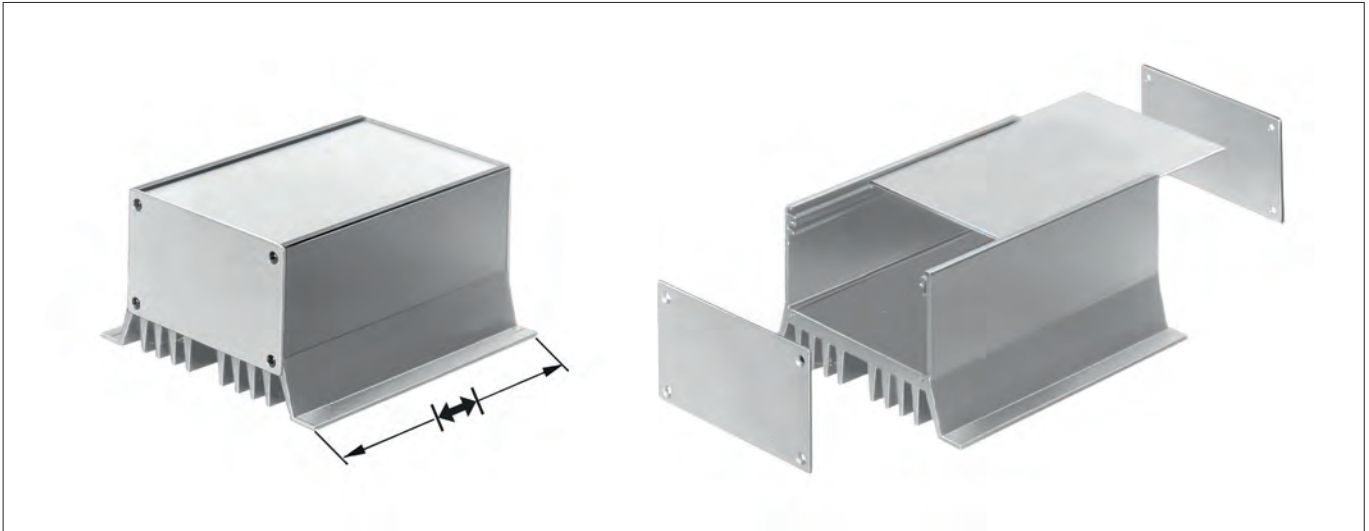
Design case **FRAME**
 19" cooling fins with handle
 Shell cases
 Combination cases

→ M 62
 → N 13
 → M 2
 → M 14 – 20

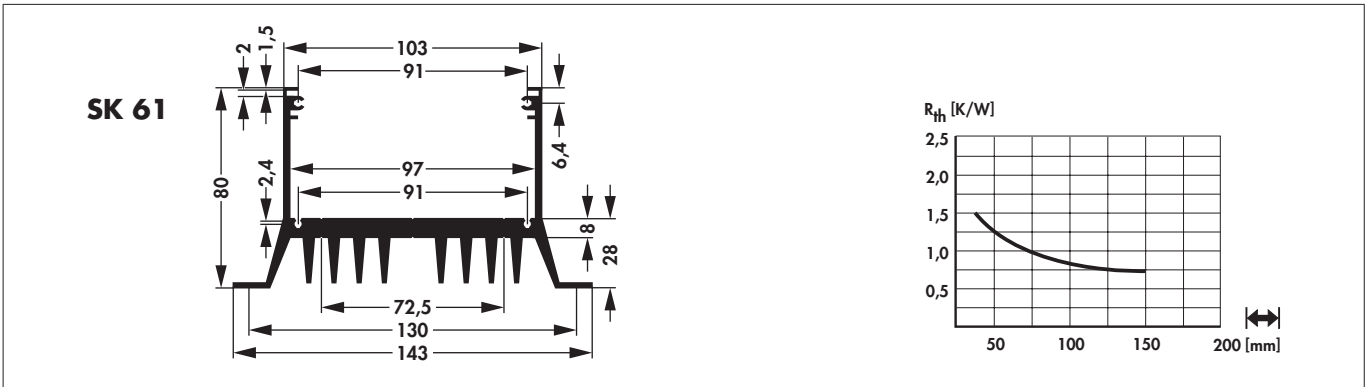
M 50

A
B
C
D
E
F
G
H
I
K
L
M
N

Heat dissipating case



- solid profile case with integrated cooling fins; extendable cover panel and screwmounted 2 mm cover panels
- further dimensions and surface treatments upon request



art. no.	dim. [mm]
WAG 100 ...	100
WAG 120 ...	120
WAG 160 ...	160
WAG 200 ...	200
WAG 220 ...	220
please indicate: ... surface SA = black anodised ME = natural colour anodised	

Profile sold by the metre → M 57

Heat dissipating case

Side panel profile for heat dissipation case

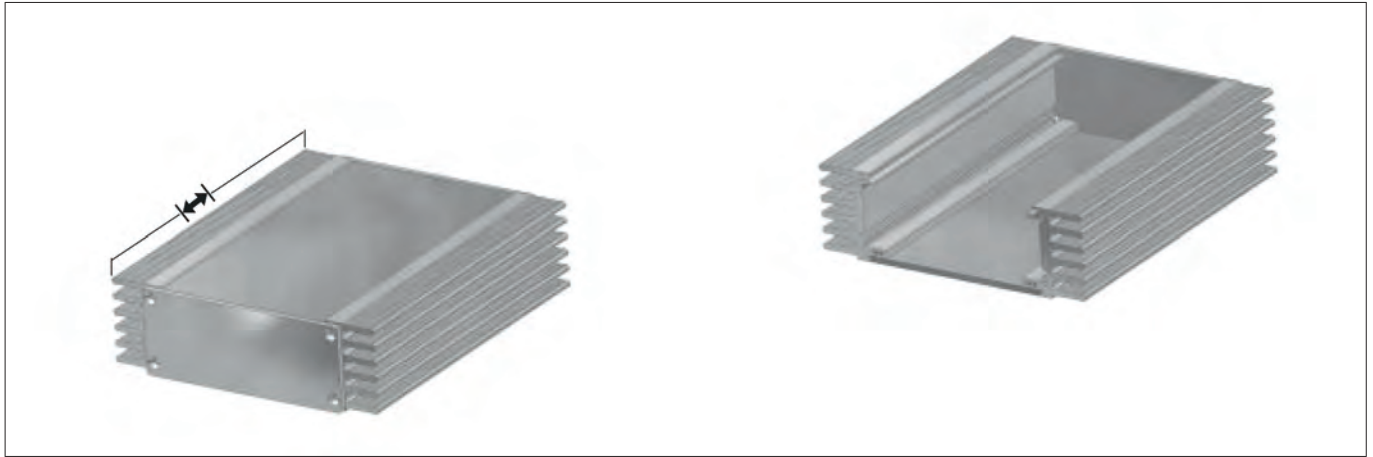


- solid side panel profile for assembly of cooling cases with cooling profiles
- integrated guide slots in 5.08 mm grid spacing (1 HP)
- with **M 3** fixing threads for cover panels
- special dimensions, drillings and surface treatments upon request
- **suitable for:**
SK 42, SK 94, SK 113, SK 118, SK 119, SK 132, SK 136, SK 166, SK 198, SK 410, SK 421, SK 439, SK 463 ...u. a.
- the cooling profiles can also be cut in fin direction, thus the cases are available in different widths

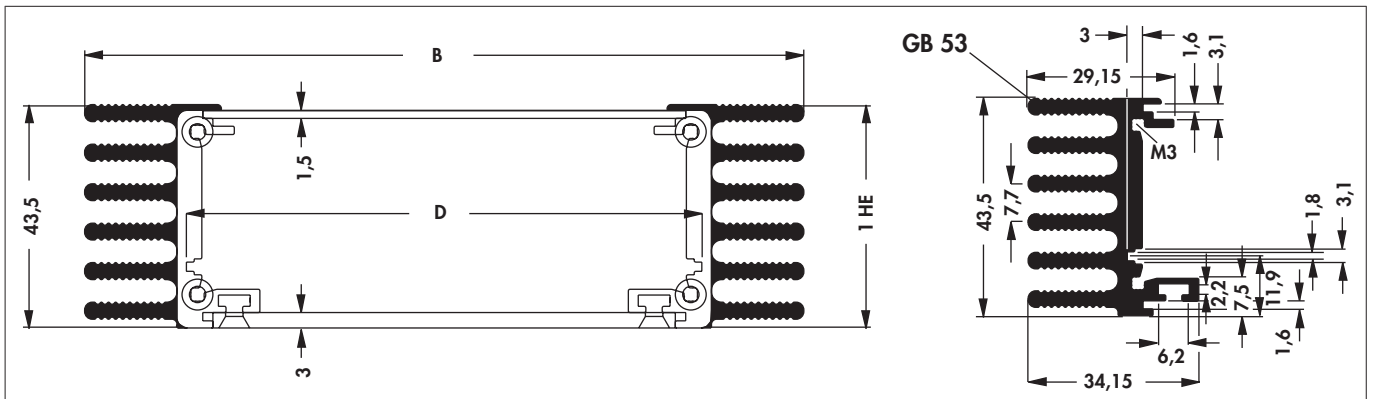
art. no.		
	G 118	
G 118 ...		
please indicate:	... $\left[\right]$ 100 150 200 mm	... surface SA = black anodised ME = natural colour anodised

Profile sold by the metre → M 57

Case with cooling fins



- with integrated guide rails for application of Eurocards or other components
- the 2.5 mm thick covers can be machined and printed according to your requirements
- with **M 3** fixing threads for covers
- supplied as kit, incl. cover plates and mounting material
- special dimensions and surface treatments upon request




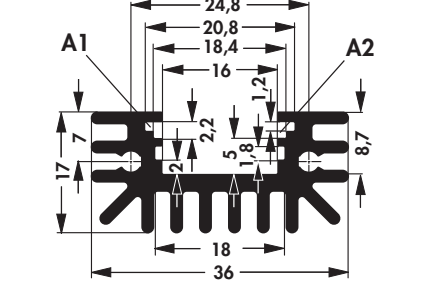
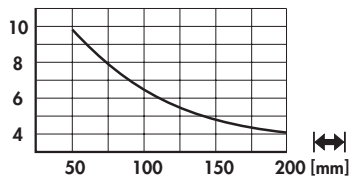

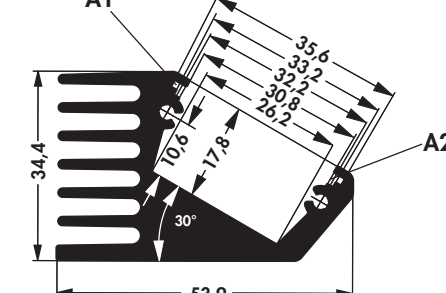
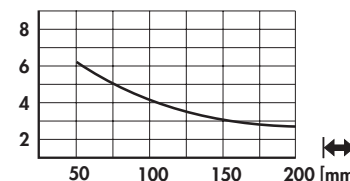
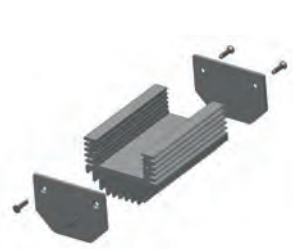
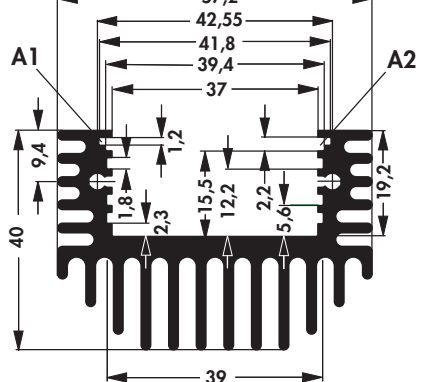
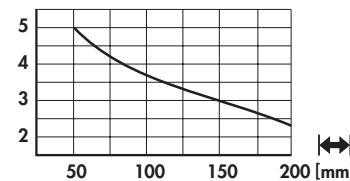
art. no.	for Eurocards [mm]	dim. [mm]	dim. [mm]	
			B	D
KRG 01 ...	100x160	160	140.0	100.0
KRG 02 ...	100x220	220		
KRG 03 ...	233.4x160	160	273.4	233.4
KRG 04 ...	233.4x220	220		

please indicate: ... surface
SA = black anodised
ME = natural colour anodised

Profile sold by the metre → M 57


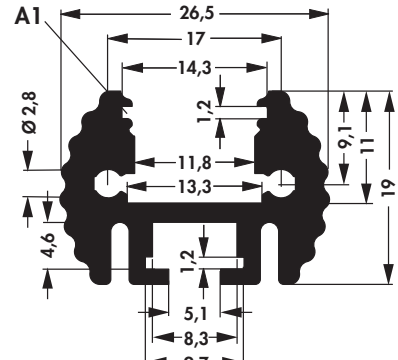
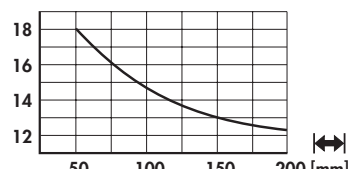

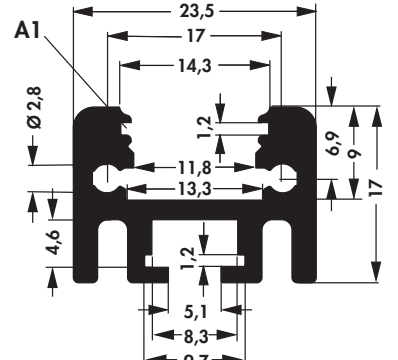
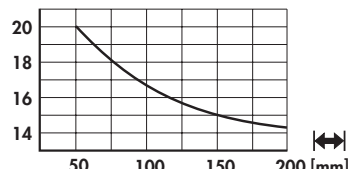

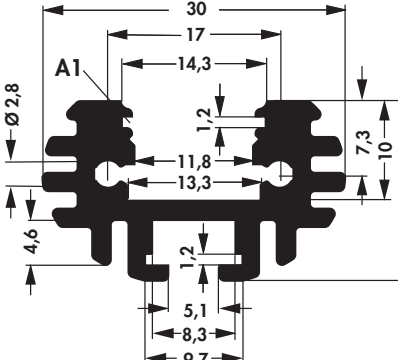
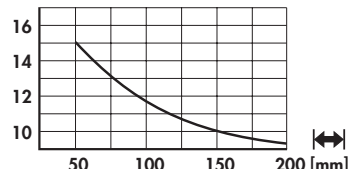
Heat dissipating cases for LED Line module

- aluminium casing with cooling fins suitable for flexible and rigid LED Line Modules
- possibility to insert covers from sheet metal and plastic
- respective heatsink profiles → **SK LED ...** heatsink catalogue **f.cool**
- customer specific designs, lengths and treatments upon request
- delivery as demounted kit including cover plates of 2 mm strength and mounting material
- option for **G LED 1 - 3**: cover plate A2 of 2 mm strength available

art. no. G LED 1 ...			SK LED 1 R_{th} [K/W] 
art. no. G LED 2 ...			SK LED 2 R_{th} [K/W] 
art. no. G LED 3 ...			SK LED 3 R_{th} [K/W] 
<p>please indicate: ... $\left[\right]$ 100 150 200 500 750 1000 2000 mm</p> <p>... cover plate (optional) (optional) A1 = 1mm plate thickness A2 = 2mm plate thickness</p> <p>... surface SA = black anodised ME = natural colour anodised</p>			

Profile sold by the metre → M 57

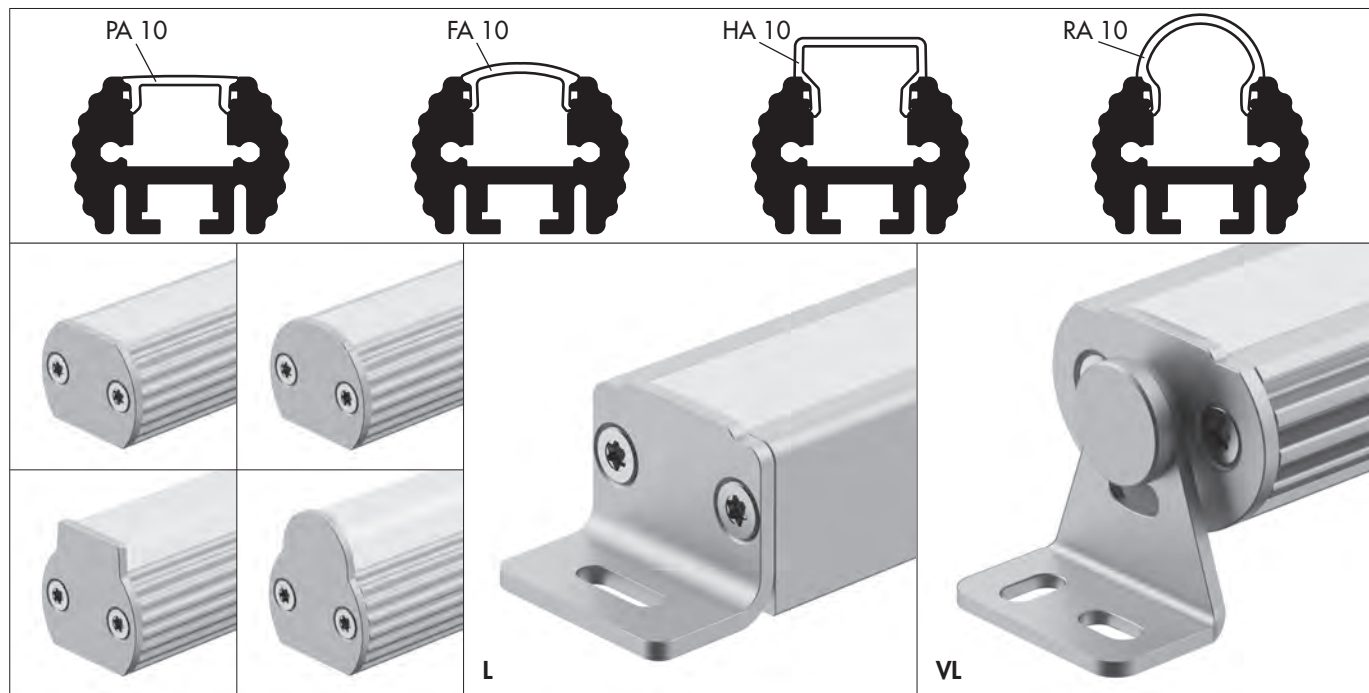
Heat dissipating case for LED Line module

<p>art. no.</p> <p>G LED 5 ...</p>			<p>SK LED 5</p> <p>R_{th} [K/W]</p> 
<p>art. no.</p> <p>G LED 6 ...</p>			<p>SK LED 6</p> <p>R_{th} [K/W]</p> 
<p>art. no.</p> <p>G LED 7 ...</p>			<p>SK LED 7</p> <p>R_{th} [K/W]</p> 
<p>please indicate: ... \longleftrightarrow 100 150 200 500 750 1000 2000 mm ... cover plate (optional) (optional) A1 = 1mm plate thickness</p> <p>... surface SA = black anodised ME = natural colour anodised</p>			

Profile sold by the metre → M 57

Heat dissipating case for LED Line module

- suitable plastic covers for **G LED 5 - 7**, including matching cover plates upon request
- plastic covers in 40 % milky, 75 % matt or 95 % clear (only PA 10 and FA 10) available
- mounting angle (**L**) or in adjustable version (**VL**) upon request



Heat dissipating cases
 Miniature aluminium case
 Combination cases
 19" cooling fins with handle

→ M 47 - 55 Design case FRAME
 → M 32 - 44 Design case SECCO
 → M 14 - 20 Design case CHAC
 → N 13 Design case EUROTAINER

→ M 62 - 63
 → M 61
 → M 64
 → M 65

M 56

A

B

C

D

E

F

G

H

I

K

L

M

N

Heat dissipating case
Profile in meter lengths

art. no.	dim. [mm] lengths	suitable for	page	
G 118 1000 ...	1000	G 118 ...	52	
GB 53 1000 ...		KRG ...	53	
GB 96 1000 ...		EMB 215 ...	49	
GB 304 1000 ...		EMB 135 ...	48	
GB 304 1000 ...		EMB 175 ...	48	
GB 89 1000 ...		GE K ...	47	
		GE D ...	47	
GB 90 1000 ...		GE K ...	47	
		GE D ...	47	
GB 91 1000 ...		GE K ...	47	
		GE D ...	47	
SK 61 1000 ...		WAG ...	51	
SK LED 1 1000 ...		G LED 1 ...	54	
SK LED 1 2000 ...		G LED 1 ...	54	
SK LED 1 3000 ...		G LED 1 ...	54	
SK LED 2 1000 ...		G LED 2 ...	54	
SK LED 2 2000 ...		G LED 2 ...	54	
SK LED 2 3000 ...		G LED 2 ...	54	
SK LED 3 1000 ...		G LED 3 ...	54	
SK LED 3 2000 ...		G LED 3 ...	54	
SK LED 3 3000 ...		G LED 3 ...	54	
SK LED 5 1000 ...		G LED 5 ...	55	
SK LED 5 2000 ...		G LED 5 ...	55	
SK LED 5 3000 ...		G LED 5 ...	55	
SK LED 6 1000 ...		G LED 6 ...	55	
SK LED 6 2000 ...		G LED 6 ...	55	
SK LED 6 3000 ...		G LED 6 ...	55	
SK LED 7 1000 ...		G LED 7 ...	55	
SK LED 7 2000 ...		G LED 7 ...	55	
SK LED 7 3000 ...		G LED 7 ...	55	
please indicate: ... surface SA = black anodised ME = natural colour anodised				



SECCO

- unique, elegant design with shockproof plastic covers and integrated sealings
- revolving guide grooves for the application of non-standardized PCBs in thicknesses of 1.6 or 2 mm
- IP protection class 67 achievable without the use of additional sealings
- integration possibility for front foils or foil keypads
- customized modifications/colours upon request



FRAME

- use as bench case in combination with a shock proof plastic frame and seal
- integrated guide slots for application of guide rails or non-standardized components
- electrically conductive surfaces and seals as EMC compatible versions on request
- special designs, treatments, modifications and individual colour scheme of the plastic covers



CHA3

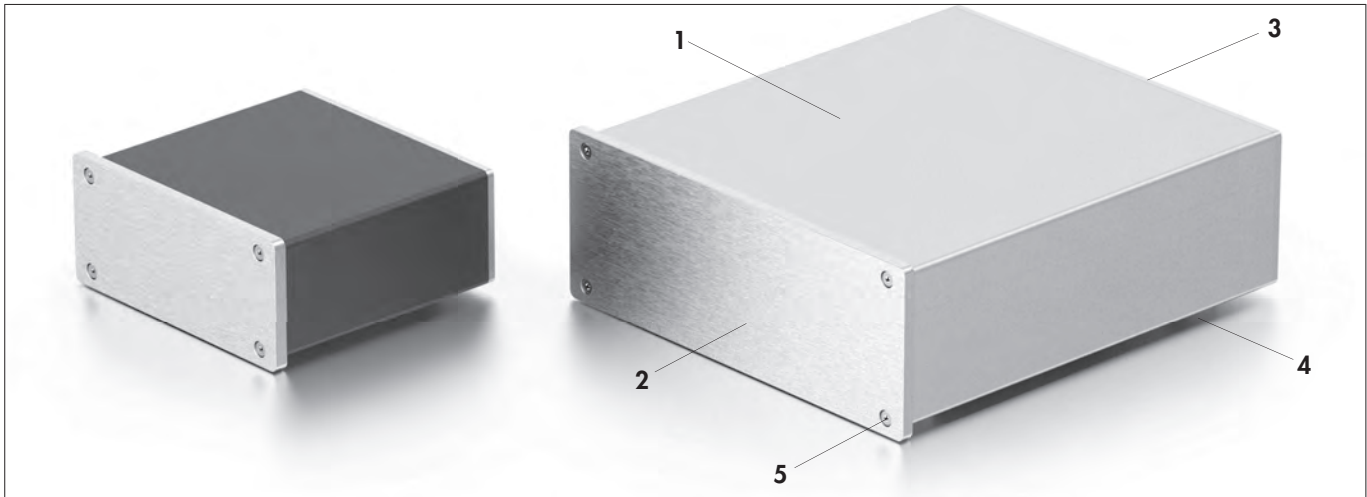
- modern case design in combination with shock proof plastic frames & integrated skid resistant standing feet
- horizontal and vertical variable aluminium case with integrated guide slots for application of any PCB and components
- EMC compatible version due to electrical conductive surfaces and round cables
- realisation of customised special versions



€tainer Rail

- aluminium case for 100 mm Eurocards with integrated guide slots in 5.08 mm grid spacing (1 HP)
- interchangeable assembly possibilities (also stackable) of the cases by means of solid plastic frame
- ergonomic case rail suitable for mobile operation or as a bench case
- EMC compatible version by means of electrically conductive surfaces (TP) and conductive seals (EDKO)
- special treatments and versions according to customer's requirements

Aluminium decorative case

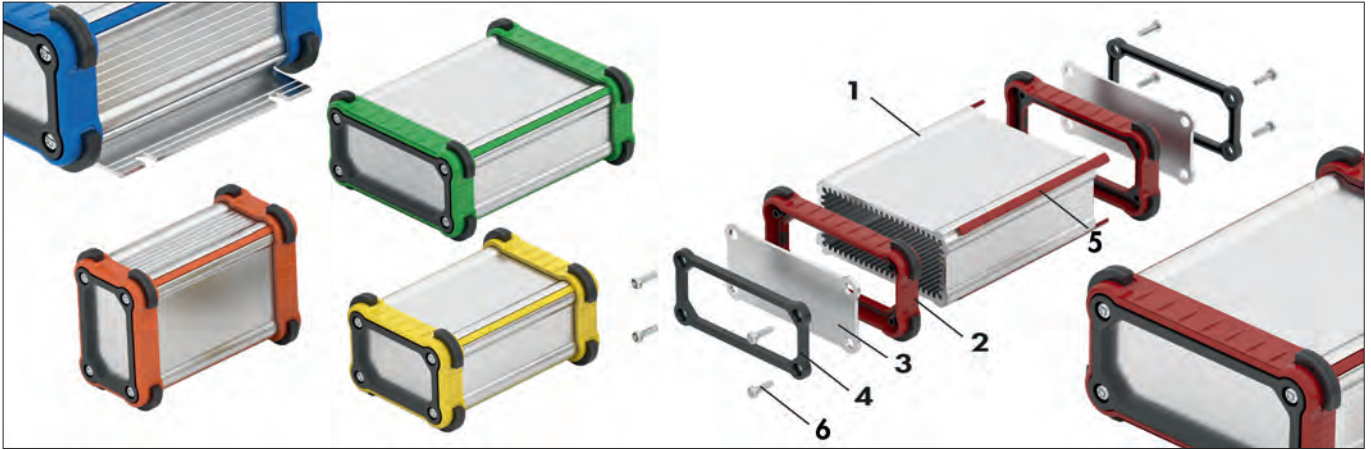


contents of delivery: 1 = 2 x case profile; 2 = 1 x front panel; 3 = 1 x back panel; 4 = device base (PVC); 5 = mount. material

- high class decorative and robust case made of aluminium
- on the basis of combination case profiles **KOH ...** → M 16 and **KO HL ...** → M 19
- front panel decoratively polished with 180 grit, case profile glass bead blasted
- suitable as an amplifier case or for similar applications with highly decorative standards
- other device bases upon request
- individual customer specific machinings and surface coating upon request

<p>art. no.</p> <p>ADG 111 50 ...</p>	
<p>art. no.</p> <p>ADG 171 65 ...</p>	
<p>please indicate:</p> <p>... $\left[\right]$ 100 120 160 200 220 234 mm</p> <p>... front panels 6 = 6 mm 8 = 8 mm 10 = 10 mm</p> <p>... surface SA = black anodised ME = natural colour anodised MS = case profile SA, front panels ME</p>	

Design case SECCO

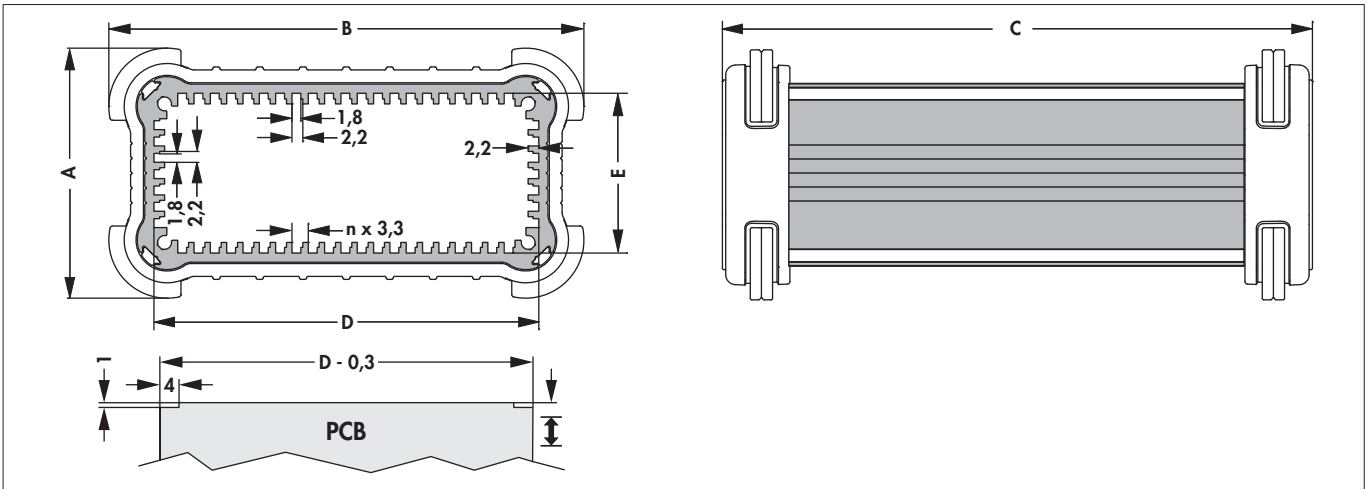


contents of delivery:

1 = basic profile; 2 = 2 x plastic exterior frame; 3 = 2 x cover panel (2 mm); 4 = 2 x plastic pressed on frame (similar RAL 7012); 5 = 4 x plastic design strip; 6 = mounting material

- multi-purpose tube case made of aluminium with integrated guide slots for mounting non-standard PCBs or devices
- unique, elegant design with shock-proof plastic covers and integrated sealing
- horizontal or vertical mounting possibility of the PCB with 1.6 or 2 mm thickness
- protection class IP 67 achievable without using additional sealings
- integration possibility of front foils or front keypads
- special designs and treatments, modifications and versions possible according to your demand
- outer frames and design strips in sky blue (similar to RAL 5015), brick red (similar to RAL 3002), bright green (similar to RAL 6038), pure orange (similar to RAL 2004) or sulphur yellow (similar to RAL 1016)
- other colours and surfaces upon request

C = deliverable inside length + 19 mm

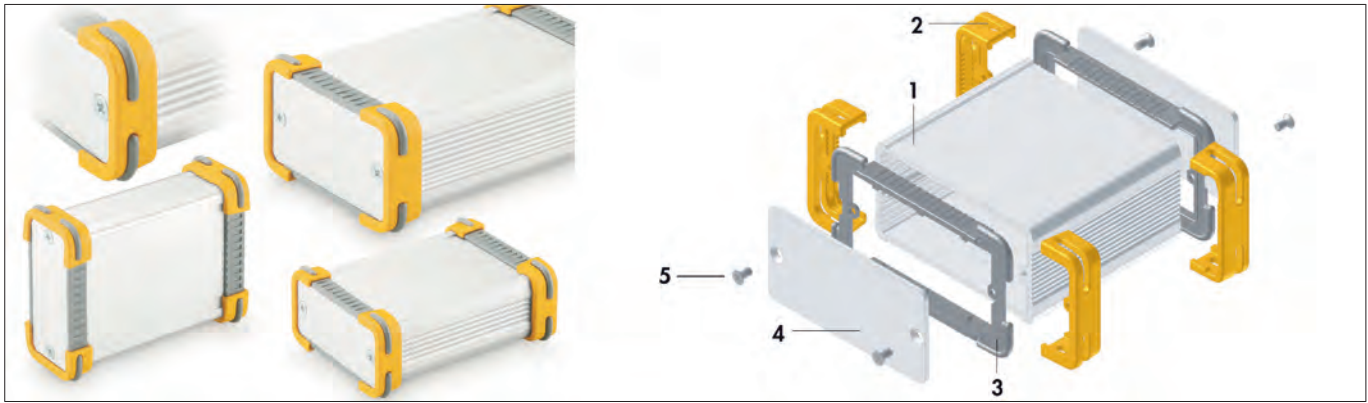


art. no.	dim. [mm]				
	A	B	D	E	n
SEC 58 39 ...	50.5	70.4	52.2	32.3	13
SEC 84 39 ...		96.0	77.8		21

<p>please indicate:</p> <p>... $\left[\right]$ 50 80 100 120 160 200 220 mm</p> <p>... surface SA = black anodised ME = natural colour anodised MS = case profile SA, cover panels ME</p>	<p>... fixing strap (optional) L = with fixing straps</p> <p>... colour design strip HB = sky blue KR = carmine red GL = bright green RO = pure orange SG = sulphur yellow</p>
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M 61	Euro case	→ M 12	Miniature aluminium case	→ M 32 - 44
	Combination cases	→ M 14 - 20	Extruded assembled cases	→ M 7 - 10
	Tube cases	→ M 22 - 30	Desk consoles	→ M 11
	Heat dissipating cases	→ M 47 - 55	Shell cases	→ M 2 - 6

Design case FRAME

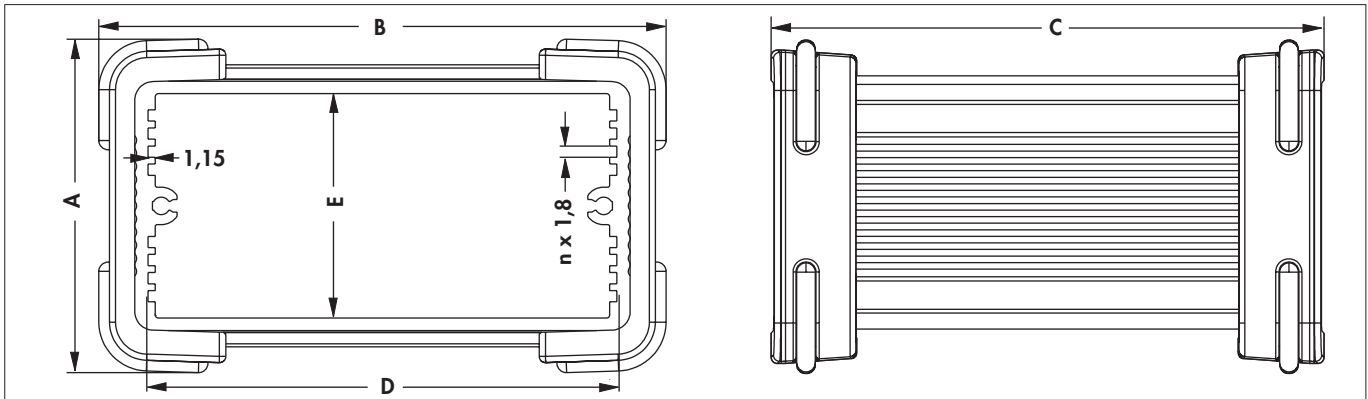


contents of delivery:

- 1 = 1 x basic profile
- 2 = 4 x plastic frame (similar RAL 1007)
- 3 = 2 x seal (similar RAL 7005, no EMC)
- 4 = 2 x cover plate (2 mm)
- 5 = mounting material

- universal aluminium tube case with integrated guide slots for application of non-standardised components or printed circuit boards
- modern design in combination with a shock proof plastic cover and sealing for the use as desk case
- insertion possibilities for front foils or foil keypads
- EMC compliant version due to electrically conductive surfaces and sealings upon request
- special designs and treatments, modifications and versions due to customers specifications
- other colours and surface treatments upon request

C = available internal lengths + 14 mm



art. no.	dim. [mm]				
	A	B	D	E	n
FR 55 16 ...	24.0	63.6	43.1	11	1
FR 55 25 ...	33.0		51.0	20	3
FR 55 35 ...	43.0		65.1	30	7
FR 69 28 ...	36.0	77.7	75.2	23	5
FR 80 42 ...	53.5	91.0	90.3	36	9
FR 94 32 ...	40.0	102.9	100.3	27	7
FR 105 52 ...	63.5	116.0	115.2	46	13
FR 120 42 ...	53.5	131.0		36	9

In addition to our standard colour daffodil yellow (similar to RAL 1007) the plastic covers are also available in the colours beige (similar to RAL 1001), ivory (similar to RAL 1014), sulphur yellow (similar to RAL 1016), blood orange (similar to RAL 2002), pure orange (similar to RAL 2004), fire red (similar to RAL 3000), traffic red (similar to RAL 3020), red violet (similar to RAL 4002), signal blue (similar to RAL 5005), pigeon blue (similar to RAL 5014), azure (similar to RAL 5015), moss-green (similar to RAL 6005), traffic green (similar to RAL 6024), chocolate brown (similar to RAL 8017) and deep black (similar to RAL).

Euro case
Combination cases
Tube cases
Heat dissipating cases

→ M 12
→ M 14 - 20
→ M 22 - 30
→ M 47 - 55

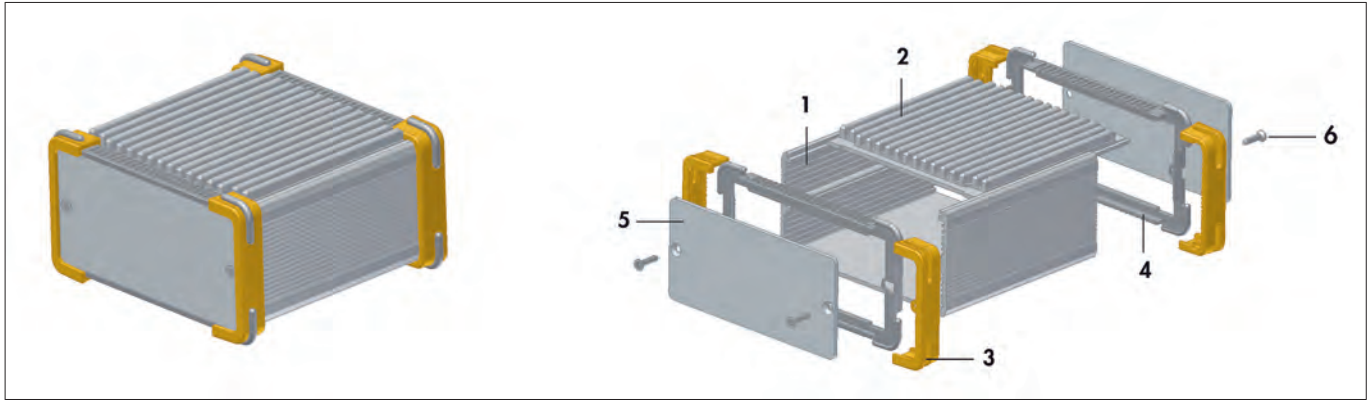
Miniature aluminium case
Extruded assembled cases
Desk consoles
Shell cases

→ M 32 - 44
→ M 7 - 10
→ M 11
→ M 2 - 6

M 62

A
B
C
D
E
F
G
H
I
K
L
M
N

Design case FRAME with integrated heatsink

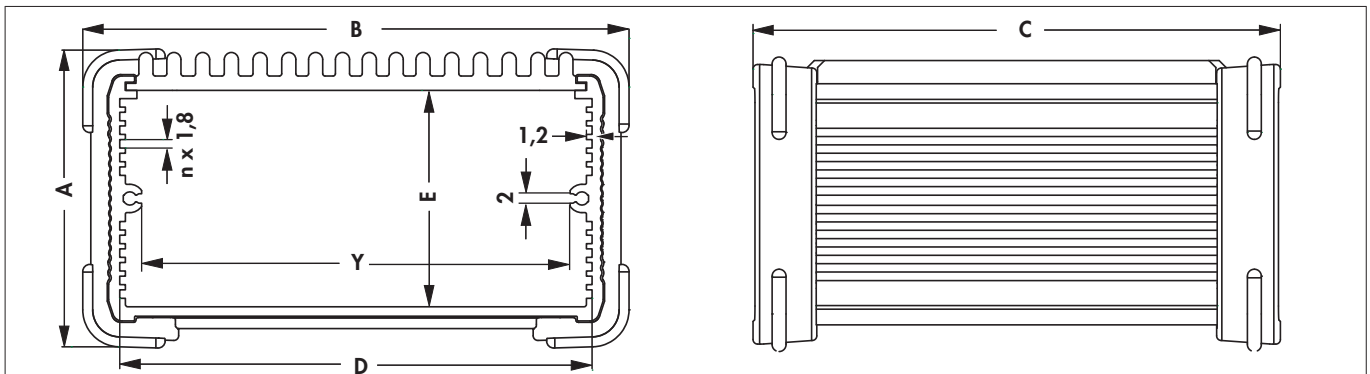


contents of delivery:

- 1 = 1 x basic profile
- 2 = heatsink (SK 601 machined)
- 3 = 4 x plastic cover (similar RAL 1007)
- 4 = 2 x sealing (similar RAL 7005)
- 5 = 2 x cover panel (2 mm)
- 6 = mounting material

- universal case made of aluminium with integrated guide slots for mounting non-standard PCBs or devices
- modern design in combination with a shock-proof plastic cover and sealing for the use as a desk case
- integrated heatsink for dissipating big heat flow volumes
- EMC compliant versions by means of electrically conductive surfaces and sealings upon request
- special designs and treatments, modifications and versions according to your demand
- other colours and surfaces upon request

C = deliverable inside length + 14 mm



art. no.	dim. [mm]					
	A	B	D	E	Y	n
FR K 80 42 ...	53.5	91	75.2	35.9	66	9
FR K 105 52 ...	63.5	116	100.3	45.9	91	13
FR K 120 42 ...	53.5	131	115.2	35.9	106	9
please indicate:	... < > 50 80 100 120 160 200 220 mm			... surface		
				SA = black anodised		
				ME = natural colour anodised		
				MS = case profile SA, cover panels ME		

Design case CHAC

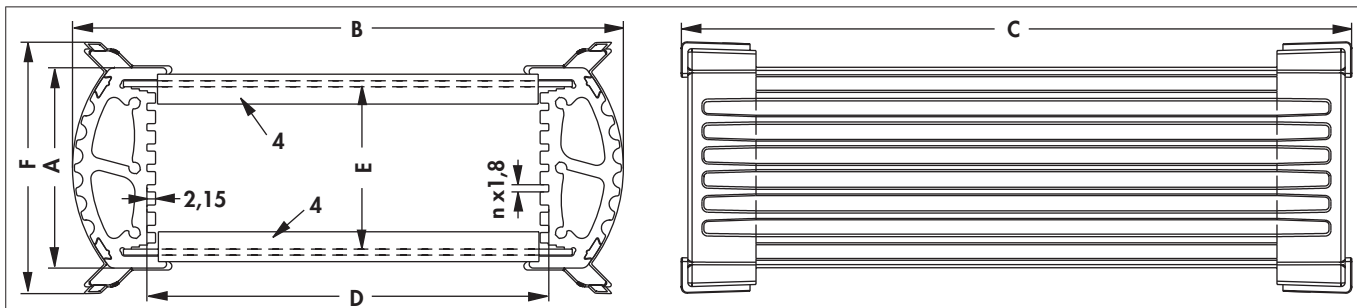


contents of delivery:

1 = 2 x side panel profile; **2** = 4 x plastic frame (RAL 3000); **3** = 8 x skid resistant standing feet (RAL 1001); **4** = 4 x reinforcing profiles; **5** = 4 x plastic side panel; **6** = 2 x cover panel (1.5 mm); **7** = 2 x cover plate (2 mm); **8** = mounting material

- modern design case in combination with shock proof plastic cover and integrated, skid resistant standing feet
- variable case by using 2 mm aluminium panels, 1.5 mm thick cover panels as well as extrusion profiles in four different heights
- side panel profiles with integrated guide slots used for inserting any PCB and component
- EMC compatible version due to electrically conductive surface treatment (TP) and round cords (Art. No. LSS 10)
- further material thicknesses, special designs, colours and treatments as well as modifications upon request
- further case widths and lengths upon request

C = available internal lengths +38 mm

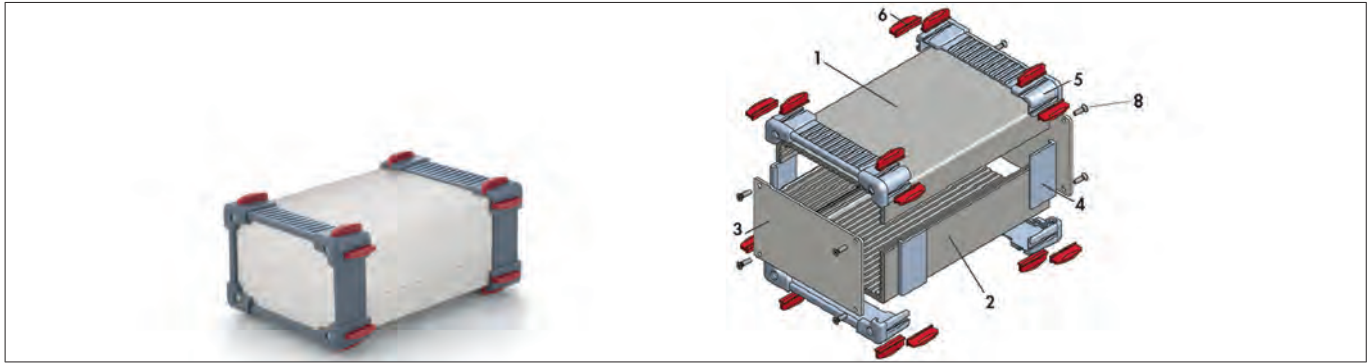


art. no.	dim. [mm]						art. no.	dim. [mm]					
	A	B	D	E	F	n		A	B	D	E	F	n
CC 35 51 ...	35	84.2	51.0	25.5	47.7	4	CC 60 85 ...	60	123.2	85.0	50.5	72.7	9
CC 35 67 ...		100.5	67.3				CC 60 100 ...		138.5	100.3			
CC 35 85 ...		118.2	85.0				CC 60 116 ...		154.2	116.0			
CC 35 100 ...		133.5	100.3				CC 60 130 ...		168.2	130.0			
CC 35 116 ...		149.2	116.0				CC 60 160 ...		198.5	160.3			
CC 35 130 ...		163.2	130.0				CC 60 200 ...		238.2	200.0			
CC 35 160 ...		193.5	160.3				CC 60 233 ...		271.6	233.4			
CC 50 85 ...	50	121.2	85.0	40.5	62.7	7	CC 70 85 ...	70	125.2	85.0	60.5	82.7	11
CC 50 100 ...		136.5	100.3				CC 70 100 ...		140.5	100.3			
CC 50 116 ...		152.2	116.0				CC 70 116 ...		156.2	116.0			
CC 50 130 ...		166.2	130.0				CC 70 130 ...		170.2	130.0			
CC 50 160 ...		196.5	160.3				CC 70 160 ...		200.5	160.3			
CC 50 200 ...		236.2	200.0				CC 70 200 ...		240.2	200.0			
CC 50 233 ...		269.6	233.4				CC 70 233 ...		273.6	233.4			

please indicate: ... $\left[\right]$ 85 100 120 160 200 220 mm

... surface
SA = black anodised
ME = natural colour anodised
LP = exterior black lacquered, inside chrome-free transp. passivated

Design case EUROTAINER

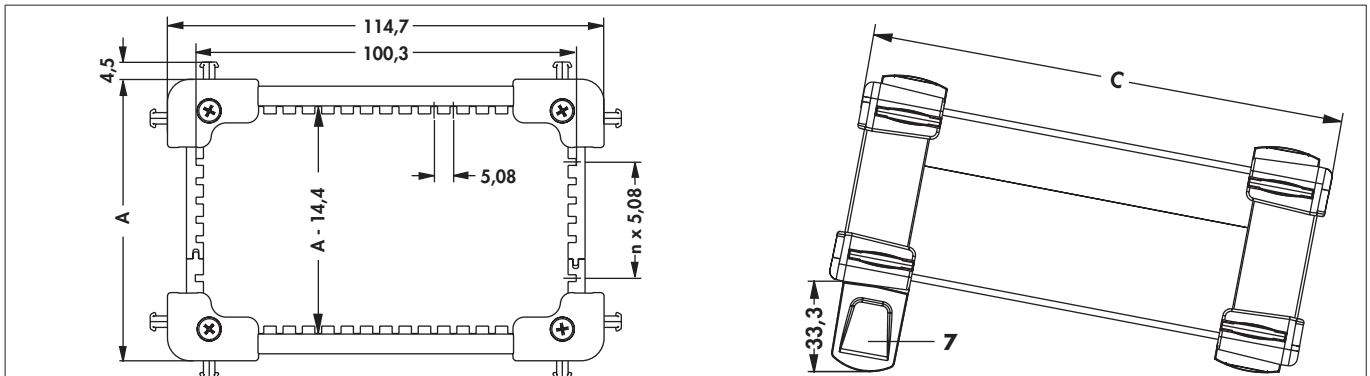


contents of delivery:

1 = 1 x case upper part; **2** = 1 x case lower part; **3** = 2 x cover plate (2 mm); **4** = 4 x side panel profile;
5 = 4 x plastic frame (RAL 5014 pigeon blue); **6** = 16 x standing feet small (RAL 4002 red violet);
7 = 2 x standing feet large (RAL 4002 red violet); **8** = mounting material

- multi-purpose aluminium case for 100 mm Eurocards with integrated guide slots with a modular spacing of 5,08 mm (1 HP)
- horizontal and vertical connection possibility (stackable) due to a robust plastic frame
- EMC compliant design achieved by electrical conductive surface treatment and additional conductive seals **EDKO** → M 71
- insertion possibility for front foils or foil keypads
- protection class IP 54 achievable by use of seals **EDKO** → M 71
- cover panels can be perforated or imprinted to your specifications
- further surface treatments upon request

C= available internal length + 15 mm

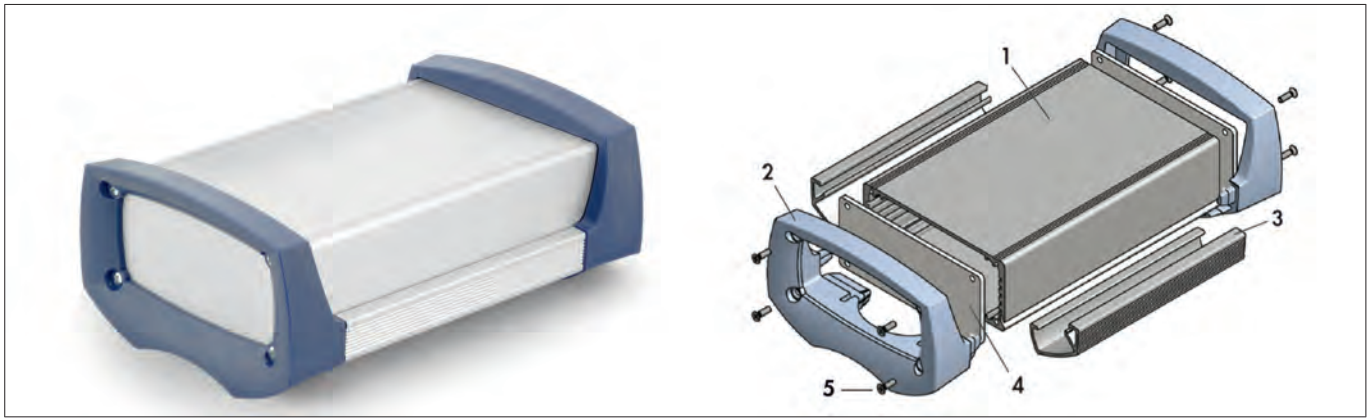


art. no.	dim. [mm]		art. no.	dim. [mm]		art. no.	dim. [mm]	
	A	n		A	n		A	n
ET 02 00 ...	38.40	2	ET 06 01 ...	69.00	7	ET 14 02 ...	114.70	16
ET 01 01 ...	43.50		ET 06 02 ...	74.10	8	ET 14 04 ...	124.80	18
ET 02 01 ...	48.60	3	ET 06 04 ...	84.20	10	ET 14 06 ...	135.10	20
ET 02 02 ...	53.70	4	ET 10 02 ...	94.40	12	ET 14 08 ...	145.20	22
ET 04 01 ...	58.70	5	ET 14 00 ...	99.43	14	ET 14 10 ...	155.40	24
ET 04 02 ...	63.80	6	ET 10 04 ...	104.50		ET 14 14 ...	175.70	28

please indicate: ... $\left| \right|$ **100 120 160 200 220 mm**

... surface
SA = black anodised
ME = natural colour anodised
LP = exterior black lacquered, inside chrome-free transp. passivated

Design case RAIL



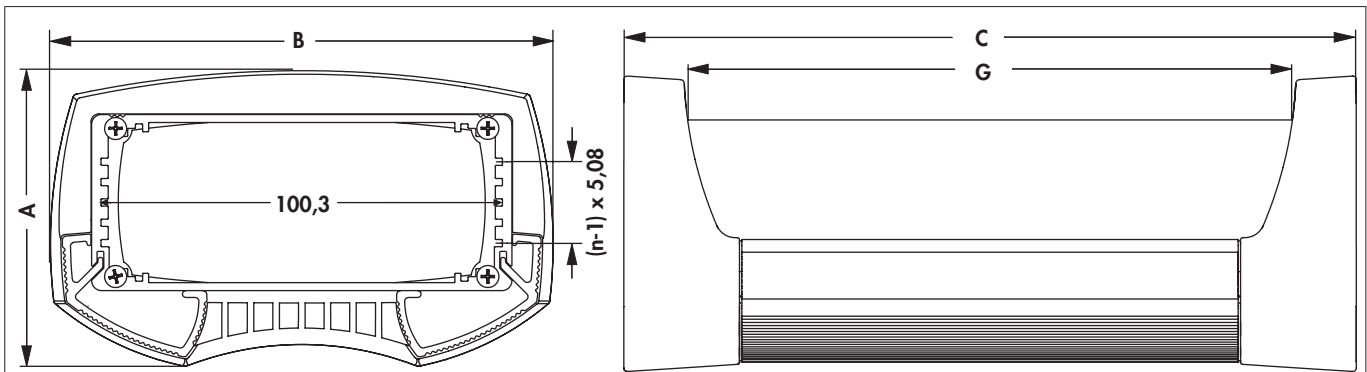
contents of delivery:

1 = 1 x basic profile; 2 = 2 x plastic frame (RAL 5014 pigeon blue oder RAL 9005 deep black);
 3 = 2 x handle profile; 4 = 2 x cover plate (3 mm); 5 = mounting material

- ergonomic aluminium case, suitable for portable use or as a bench case
- insertion possibility for 100 mm Eurocards with a grid spacing of 5.08 mm (1 HP)
- EMC compatible design achieved by means of electrically conductive surface treatment and additional conductive seals EDKO → M 71
- the special shape combined with convenient handling profiles enables safe handling, also for mobile applications
- shock-proof plastic cover
- integration possibility for front foils or foil keypads
- protection class IP 65 achievable by use of seals IDKO upon request
- the cover plates can be perforated or imprinted according to your specifications
- further colours and surface treatments upon request
- combined with the seals EDKO → M 71 and IDKO longer handle profiles are required

Please indicate with your order!

C = available internals lengths +23 mm



art. no.	dim. [mm]				
	A	B	C	n	G
RL 05 100 ...	73.5	125	123	5	91
RL 05 160 ...			183		151
RL 05 200 ...			223		191
RL 05 220 ...			243		211
RL 17 100 ...	135.0	127	123	17	93
RL 17 160 ...			183		153
RL 17 200 ...			223		193
RL 17 220 ...			243		213

please indicate: ... colour of plastic cover
 B = pigeon blue (RAL 5014)
 S = deep black (RAL 9005)

... surface
 SA = black anodised
 ME = natural colour anodised

Euro case
 Combination cases
 Tube cases
 Heat dissipating cases

→ M 12
 → M 14 - 20
 → M 22 - 30
 → M 47 - 55

Miniature aluminium case
 Extruded assembled cases
 Desk consoles
 Shell cases

→ M 32 - 44
 → M 7 - 10
 → M 11
 → M 2 - 6

M 66

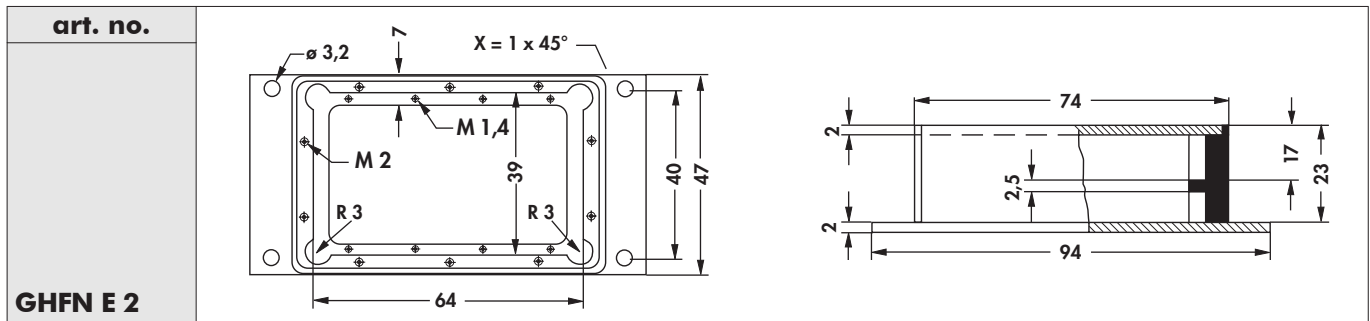
A
B
C
D
E
F
G
H
I
K
L
M
N

Cases for HF technology



- the case series GHF is especially suitable for the use of devices and electronic components in the branch of high frequency technology
- the cases are made of a special aluminium alloy (AlMg4.5Mn) and they are milled from a solid block
- the precision angular and plane-parallel millings guarantee an optimal fit of the cover, reproducible housing geometry for precision-fit installation of the HF-components as well as excellent adaptability of flange and carrier elements
- an electrically conductive layer can be applied as a surface treatment for the cases
- aluminium in the raw or polished state as well as other surface treatments are carried out according to customer's requirements
- high-frequency cases without drilling pattern for connectors upon request
- further mechanical processing such as cut-outs, contour millings, threads and threaded inserts etc. as well as dimensional changes and special cases, are carried out according to customer's requirements

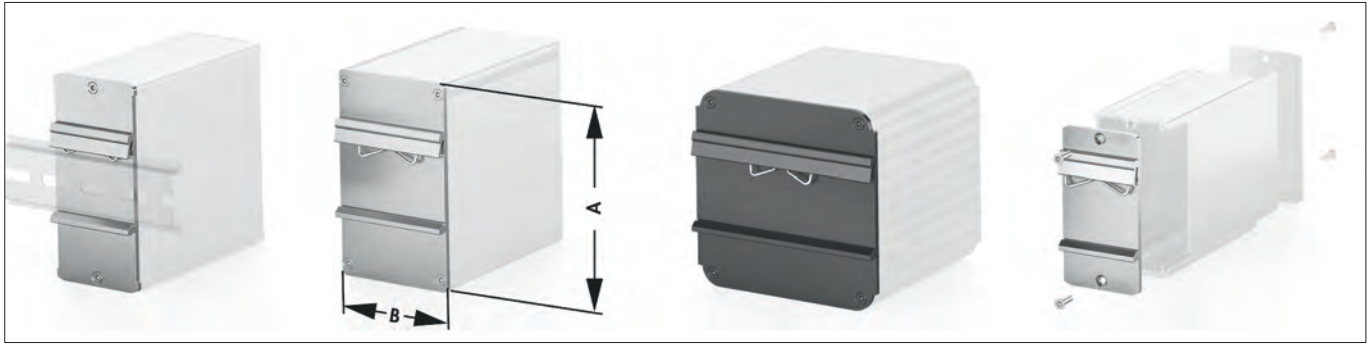
X = Fase



Customised case with top and bottom panel on request.



<p>M 67</p>	<p>Miniature aluminium case Shell cases Tube cases Heat dissipating cases</p>	<p>→ M 32 - 44 → M 2 - 6 → M 22 - 30 → M 47 - 55</p>	<p>Combination cases Design case SECCO Design case EUROTAINER Design case RAIL</p>	<p>→ M 14 - 20 → M 61 → M 65 → M 66</p>
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Case rear panel with integrated mounting rail

- universal, massive case rear panel with integrated mounting rail made of aluminum
- secure hold thanks to stable extruded profile with integrated wire form spring made of stainless steel
- for all 35 mm mounting rails according to DIN EN 60 715 (formerly DIN EN 50 022) in rail material thicknesses from 1 to 2.3 mm
- quick and simple mounting of the case to a mounting rail by snapping on directly
- replaces a standard cover plate of the respective case
- adapted to the respective case
- the position of the mounting rail is always in the middle of the case
- customer-specific machinings or special designs on request
- a listing of all possible combination cases (**KO ...**) is also available on the Internet. The table below only gives examples

art. no.	for cases	for combination cases	dim. [mm]		
			A	B	
RKL 80 42 ...	GE D 80 42/ GE K 80 42	—	80	42	
RKL 80 42 1 ...	TUF 80 42				
RKL 104 99 ...	UTG 104 99				
RKL 105 39 ...	—	KO H 1+KO H 2/ KO H 1+KO R 2	105	39	
RKL 105 42 ...	AKG 105 42 K	—		42	
RKL 105 44 ...	TUG 05	KO H 0+KO G 5/ KO H 2+KO H 2		44	
RKL 105 44 1 ...	GD 105 44	—		46	
RKL 105 46 ...	AKG 105 46	—		49	
RKL 105 49 ...	—	KO H 0+KO H 6/ KO H 1+KO H 4 A		52	
RKL 105 52 ...	GE D 105 52/ GE K 105 52	—		54	
RKL 105 52 1 ...	TUF 105 52	—		59	
RKL 105 54 ...	TUG 07	KO H 0+KO H 7/ KO H 1+KO G 5		64	
RKL 105 59 ...	—	KO H 0+KO H 8/ KO H 1+KO H 6		69	
RKL 105 64 ...	TUG 09/ TUG V 09	KO H 1+KO H 7/ KO H 2+KO H 6		74	
RKL 105 69 ...	—	KO H 1+KO H 8/ KO H 2+KO H 7		79	
RKL 105 74 ...		KO H 4 A+KO H 6/ KO H 8+KO R 2		84	
RKL 105 79 ...		KO H 1+KO H 10/ KO H 6+KO G 5		89	
RKL 105 84 ...		KO H 2+KO H 10/ KO H 6+KO H 6		95	
RKL 105 89 ...		KO H 6 + KO H 7/ KO H 8+KO G 5		99	
RKL 105 95 ...		KO H 6+KO H 8/ KO H 7+KO H 7		104	
RKL 105 99 ...		KO H 1+KO H 14/ KO H 10+KO G 5			
RKL 105 104 ...		TUG 17/ TUG V 17		KO H 6+KO H 10/ KO H 8+KO F 3	
please indicate:					
... surface					
SA = black anodised					
ME = natural colour anodised					
TP = transparent passivated					

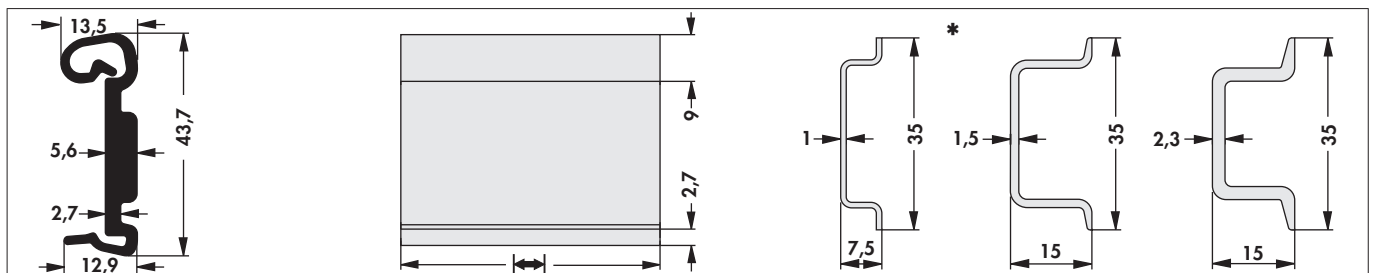
Accessories for cases



KL 35 K ...

Fastening for mounting rail

- universal, solid plastic clip fastening for all 35 mm mounting rails
- suitable for rail material thicknesses from 1 to 2.3 mm according to DIN EN 60 715 (formerly DIN EN 50 022)
- registered design DE 200 07 435.0
- fast and easy mounting of heatsinks, casings etc. due to direct snap up on the mounting rail
- safe hold due to a stable extruded plastic profile with integrated spring back
- electroconductive material or surface on request
- special lengths and treatments on customer's request
- * = examples of mounting rail versions suitable for **KL 35 K**



art. no.	dim. [mm]
KL 35 K 40	40
KL 35 K 50	50
KL 35 K 75	75
KL 35 K 100	100
colour:	anthracite grey
class of inflammability:	UL 94 V-0
material:	rigid PVC
heat distortion:	-30°C ... +80°C

M 69

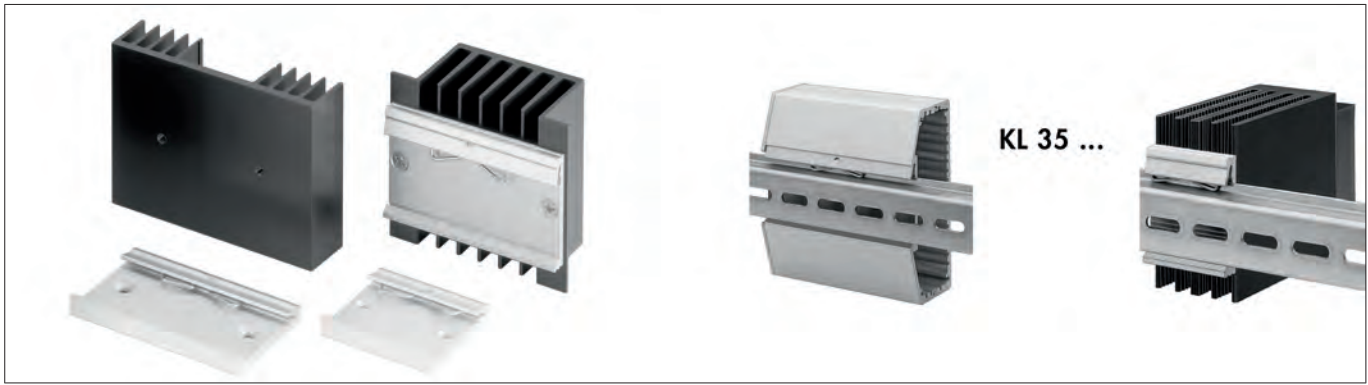
Combination cases
 Tube cases
 Design case EURO TAINER
 Design case RAIL

→ M 14 - 20
 → M 22 - 30
 → M 65
 → M 66

Design case SECCO
 Design case CHAC
 Euro case
 Extruded assembled cases

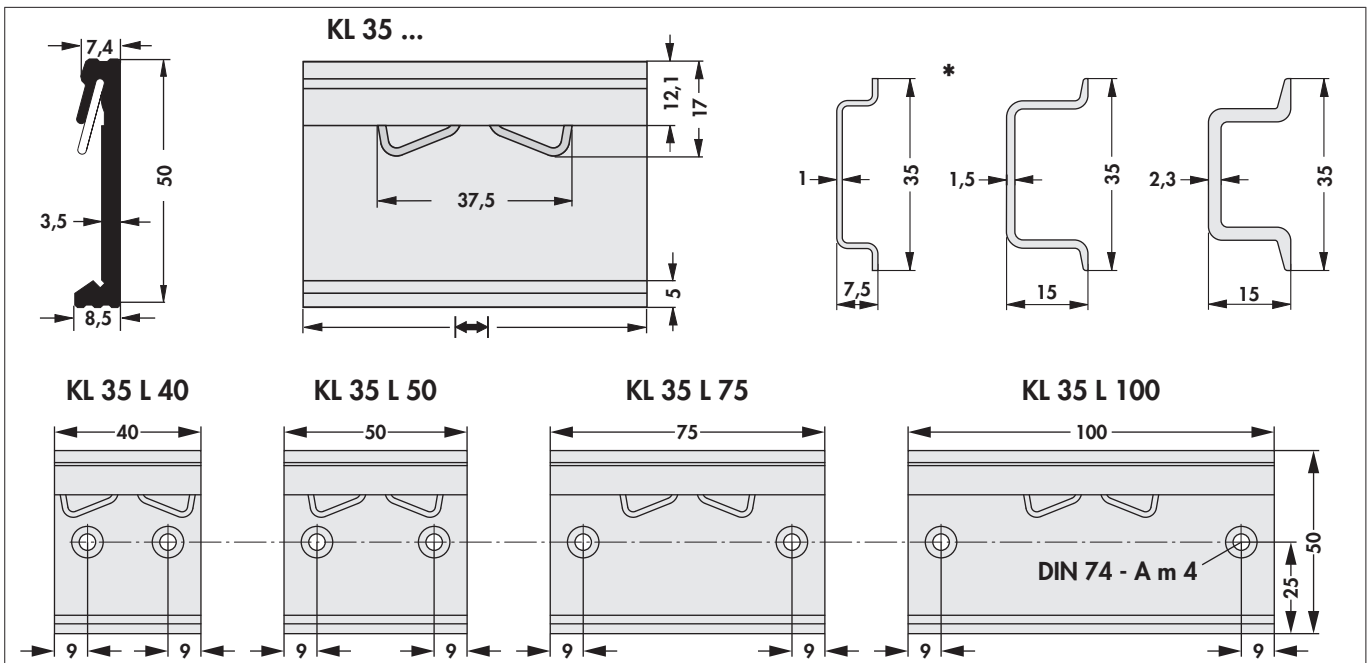
→ M 61
 → M 64
 → M 12
 → M 7 - 10

Accessories for cases



Fastening for mounting rail

- universal, massive aluminium clamp mounting for all 35mm mounting rails
- suitable for rail material thicknesses from 1 to 2.3 mm according to DIN EN 60 715 (formerly DIN EN 50 022)
- fast and easy mounting of heatsinks, casings etc. by direct snap up on the mounting rail
- safe hold due to a stable extruded profile with integrated wire form spring made of stainless steel
- special lengths (≥ 40 mm), machinings and surfaces upon request
- * = examples of mounting rail versions suitable for KL 35

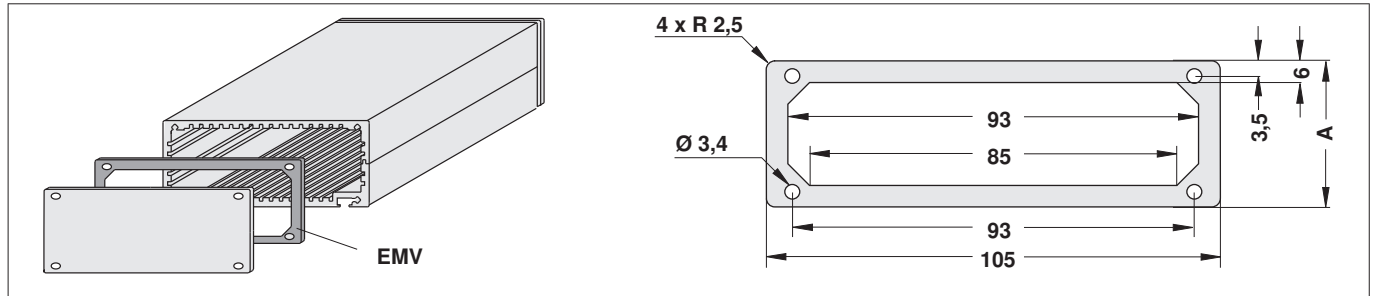


art. no.	dim. [mm]	art. no.	dim. [mm]
KL 35 40	40	KL 35 L 40	40
KL 35 50	50	KL 35 L 50	50
KL 35 75	75	KL 35 L 75	75
KL 35 100	100	KL 35 L 100	100
surface:	natural colour anodised		
material:	aluminium		

Accessories for cases

EMC seals for combination cases, EUROTAINER, RAIL and TUG

- consisting of 0.8 mm thick electrically conductive rubber silicone
- placed between housing profiles and covers, additionally the protection class IP 54 is achievable
- the protection, respectively the sealing of the housing halves in the longitudinal groove can also be effected with the help of an EMC-silicone-hose
- for achieving an EMC shield the case is to be ordered with an electrically conductive finish:
- **TP** = chrome-free transparent passivated/on request additional lacquering of the exterior surfaces
- **EMC silicone hose:** core Ø = 0.5 mm; outside Ø = 1.4 mm
- **art. no. LSS 10 ...** (please specify requested length in m)



art. no.	for EUROTAINER	for RAIL	for TUG	for combination cases	VPE	dim. [mm] A
EDKO 33	ET 01 01 ...	—	TUG 03 ...	KO H 1+KO H 1	6 pcs.	33
EDKO 38	ET 02 01 ...	—	—	KO H 1+KO H 2/ KO H 1+KO E 2/ KO H 1+KO L 2/ KO H 1+KO W 2		38
EDKO 44	ET 02 02 ...	RL 05 ...	TUG 05 ...	KO H 2+KO E 2/ KO H 2+KO H 2/ KO H 2+KO L 2/ KO H 2+KO W 2		44
EDKO 57 T	—	—	—	KO H 4 A+KO T 2	4 pcs.	57
EDKO 49	ET 04 01 ...	—	—	KO H 1+KO H 4 A		49
EDKO 54	ET 04 02 ...	—	TUG 07 ...	KO H 2+KO H 4 A/ KO H 4 A+KO E 2/ KO H 4 A+KO L 2/ KO H 4 A+KO W 2		54
EDKO 59	ET 06 01 ...	—	—	KO H 1+KO H 6		59
EDKO 64	ET 06 02 ...	—	TUG 09 ...	KO H 2+KO H 6/ KO H 6+KO E 2/ KO H 6+KO L 2/ KO H 6+KO W 2		64
EDKO 79	ET 10 01 ...	—	—	KO H 1+KO H 10		79
EDKO 84	ET 10 02 ...	—	—	KO H 2+KO H 10/ KO H 6+KO H 6/ KO H 10+KO L 2/ KO H 10+KO W 2	84	
EDKO 100	ET 14 01 ...	—	—	KO H 1+KO H 14	2 pcs.	100
EDKO 105	ET 14 02 ...	RL 17 ...	TUG 17 ...	KO H 2+KO H 14/ KO H 14+KO E 2/ KO H 14+KO W 2/ KO H 14+KO L 2		105
EDKO 125	ET 14 06 ...	—	—	KO H 6+KO H 14/ KO H 10+KO H 10		125
EDKO 145	ET 14 10 ...	—	—	KO H 14+KO H 10		145
EDKO 165	ET 14 14 ...	—	—	KO H 14+KO H 14	165	

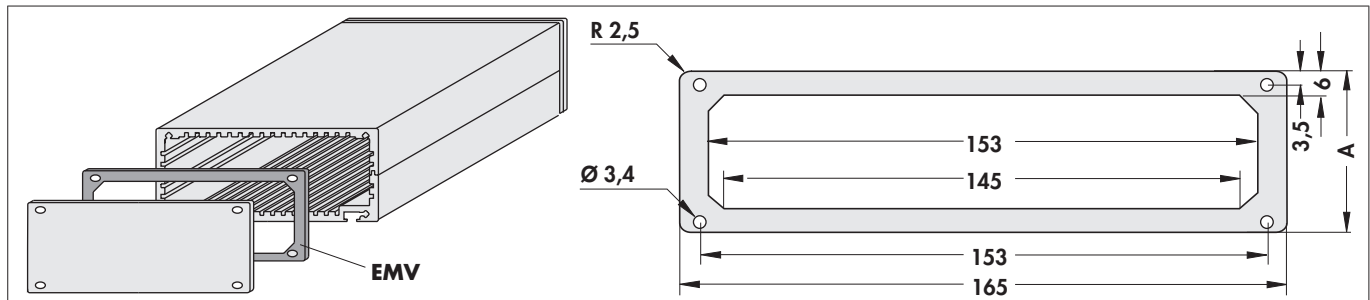
temperature range:	-55°C ... +200°C
surface:	transparent passivated
material:	conductive rubber silicone, 0.8mm thick



art. no.
LSS 10

M 71	Combination cases	→ M 14 - 20	Design case	→ M 61
	Tube cases	→ M 22 - 30	Design case CHAC	→ M 64
	Design case EUROTAINER	→ M 65	Euro case	→ M 12
	Design case RAIL	→ M 66	Extruded assembled cases	→ M 7 - 10

EMC - IP seals

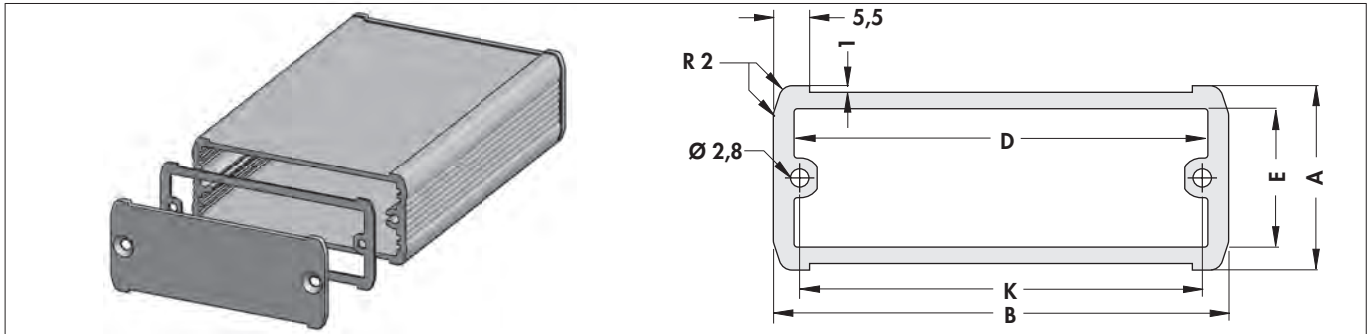
 – the protection class IP 52 is achievable for the profiles **KO HL ...** by using a 3mm thick cover plate


art. no.	for combination cases	VPE	dim. [mm]
			A
EDKOL 23	KO HL 0+KO HL 1	6 pcs.	23.6
EDKOL 28	KO HL 0+KO HL 2/ KO HL 0+KO LL 2		28.7
EDKOL 33	KO HL 1+KO HL 1		33.8
EDKOL 38	KO HL 1+KO LL 2/ KO HL 1+KO HL 2		38.9
EDKOL 44	KO HL 2+KO HL 2/ KO HL 2+KO LL 2		44.0
EDKOL 49	KO HL 1+KO HL 4/ KO HL 6+KO HL 0		49.0
EDKOL 54	KO HL 2+KO HL 4/ KO HL 4+KO LL 2	4 pcs.	54.1
EDKOL 59	KO HL 1+KO HL 6		59.3
EDKOL 64	KO HL 2+KO HL 6/ KO HL 4+KO HL 4/ KO HL 6+KO LL 2		64.4
EDKOL 69	KO HL 0+KO HL 10		69.4
EDKOL 74	KO HL 4+KO HL 6	2 pcs.	74.5
EDKOL 79	KO HL 1+KO HL 10		79.6
EDKOL 84	KO HL 2+KO HL 10/ KO HL 6+KO HL 6/ KO LL 2+KO HL 10		84.7
EDKOL 89	KO HL 0+KO HL 14		89.7
EDKOL 94	KO HL 4+KO HL 10		94.8
EDKOL 100	KO HL 1+KO HL 14		99.9
EDKOL 105	KO HL 2+KO HL 14/ KO HL 6+KO HL 10/ KO HL 14+KO LL 2		105.0
EDKOL 115	KO HL 4+KO HL 14		115.1
EDKOL 125	KO HL 6+KO HL 14/ KO HL 10+KO HL 10	1 pcs.	125.4
EDKOL 145	KO HL 10+KO HL 14		145.7
EDKOL 166	KO HL 14+KO HL 14		166.0
temperature range:	-55°C ... +200°C		
material:	conductive rubber silicone, 0.8mm thick		

Accessories for cases

EMC seals for TUF

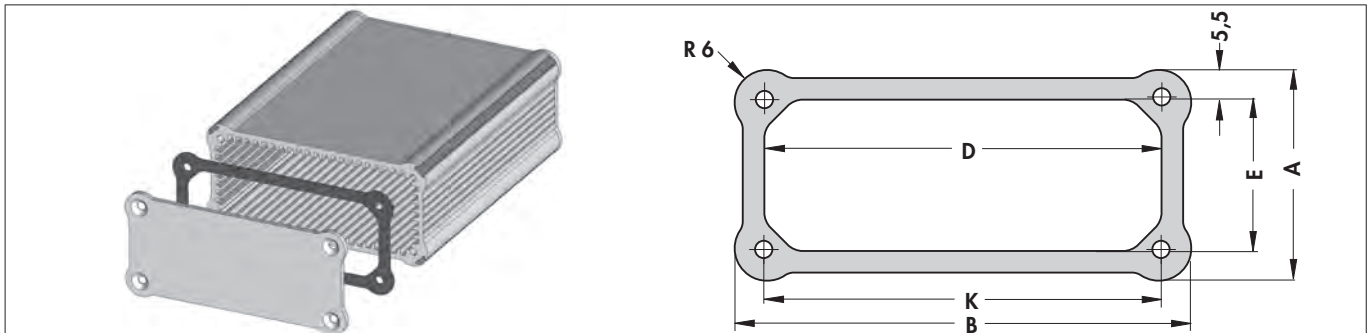
- consisting of 0.8 mm thick electrically conductive rubber silicone
- placed between housing profiles and covers
- in order to achieve a EMC screening the **TUF cases** have to be ordered with an electrically conductive surface: **TP** = chrome-free transparent passivated/on request additional lacquering of the exterior surfaces



art. no.	for TUF	VPE	dim. [mm]				
			A	B	D	E	K
EDKO 41 16	TUF 41 16...	6 pcs.	16	41.3	35.0	9	33.30
EDKO 55 16	TUF 55 16 ...		25	55.0	48.7	18	47.00
EDKO 55 25	TUF 55 25 ...		35			28	
EDKO 55 35	TUF 55 35 ...		28	69.1	62.8	21	61.10
EDKO 69 28	TUF 69 28 ...		42	80.0	72.9	34	71.00
EDKO 80 42	TUF 80 42 ...	4 pcs.	32	94.3	88.0	25	86.30
EDKO 094 32	TUF 94 32 ...	6 pcs.	52	105.0	97.9	44	96.00
EDKO 105 52	TUF 105 52 ...	4 pcs.	42	120.0	112.9	34	110.95
temperature range:		-55°C ... +200°C					
material:		conductive rubber silicone, 0.8mm thick					

EMC seals for TUS


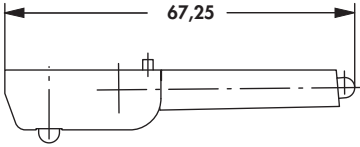
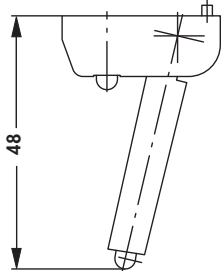
- consisting of 0.8 mm thick conductive rubber silicone
- placed between housing profiles and covers
- in order to achieve a EMC screening the **TUF cases** have to be ordered with an electrically conductive surface: **TP** = chrome-free transparent passivated/on request additional lacquering of the exterior surfaces



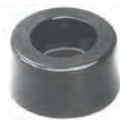
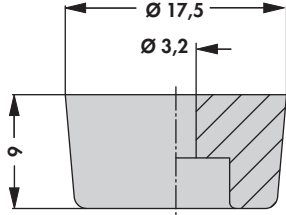

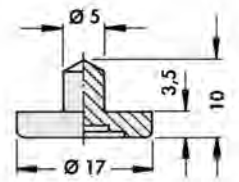
art. no.	for TUS	VPE	dim. [mm]				
			A	B	D	E	K
EDKO 58 39	TUS 58 39 ...	6 pcs.	39	58.9	47.9	28	47.9
EDKO 84 39	TUS 84 39 ...			84.5	73.5		73.5
temperature range:		-55°C ... +200°C					
material:		conductive rubber silicone, 0.8mm thick					

Accessories for cases


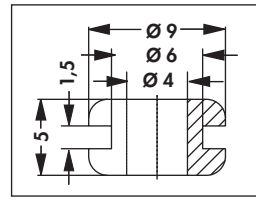
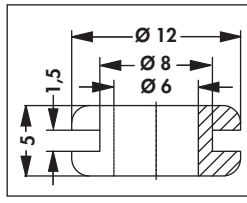
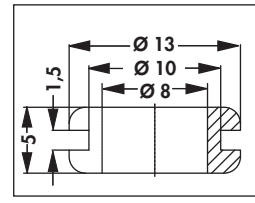
Tilt foot

		
art. no.	mounting	type of delivery
AF 1	by screws	set (2 pcs. with tilt bracket / 2pcs.without tilt bracket+assembly material)
colour:	black	
material:	glass fibre filled polyamide with rubber insert (skid and scratch resistant)	


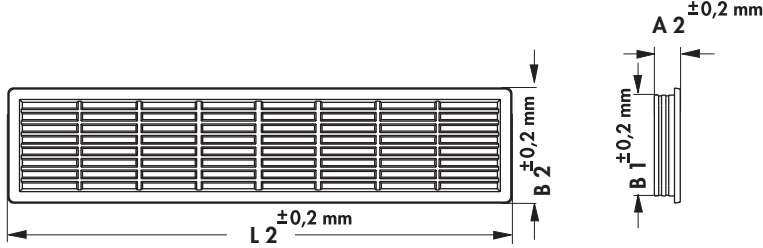
Feet

			
art. no.	mounting	art. no.	mounting
GF 1759	by screws	GF 1710	by pressing into the chassis drilling

Bushings

			
	KDF 49	KDF 612	KDF 813
art. no.	mounting	art. no.	mounting
KDF 49	by pressing into the chassis drilling	KDF 813	by pressing into the chassis drilling
KDF 612			
colour:	black		
material:	impact proof polystyrene (tri-soluble)		

Ventilation-frames

							
art. no.	mounting	dim. [mm]					
LB 1504 SW	for fixingA plastic-glove is suitable	L 1	L 2	A 1	A 2	B 1	B 2
		144.5	149	6.5	8.2	35	40

Combination cases
Tube cases
Design case EUROTAI^NER
Design case RAIL

→ M 14 - 20
→ M 22 - 30
→ M 65
→ M 66

Design case
Design case CHAC
Euro case
Extruded assembled cases

→ M 61
→ M 64
→ M 12
→ M 7 - 10

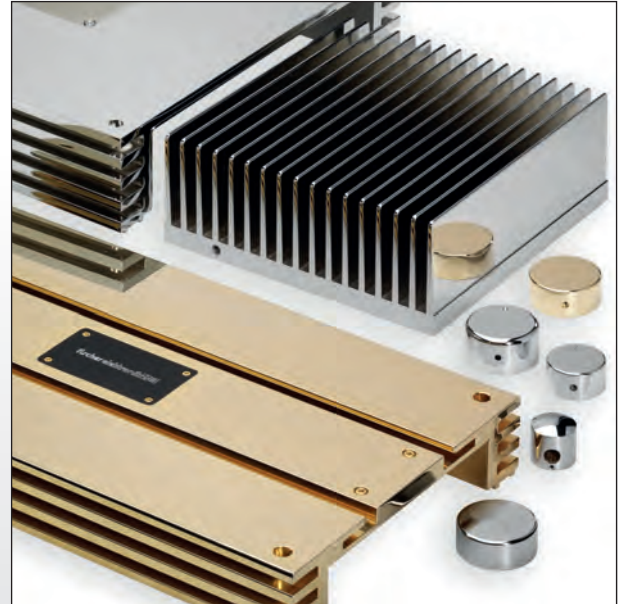
M 74

A
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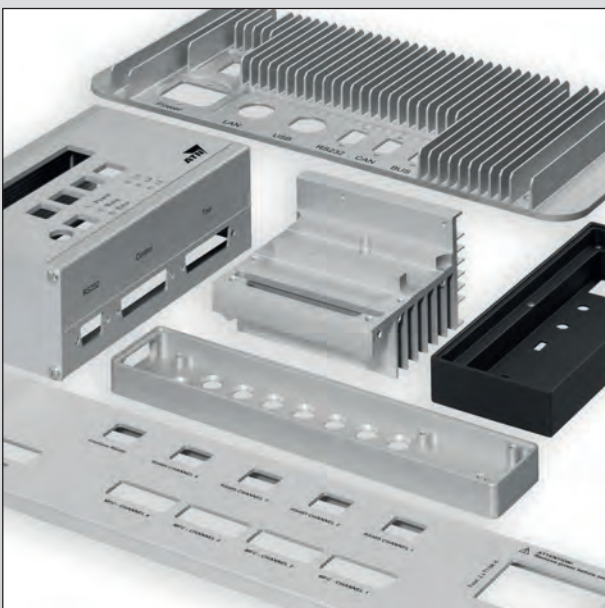
Development and construction

- competent partner with experience of more than 40 year
- innovative product development, product-specific support by means of application engineers
- design assistance, feasibility analyses and product optimizations
- construction support and preparation of drawings



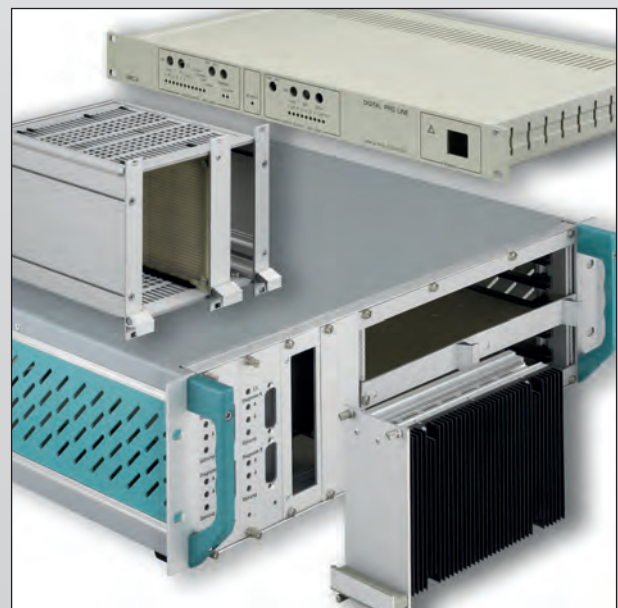
Chromium and gold plating

- chromium plating and gold plating of front panels, extruded profiles and construction parts
- qualitative constant and reproducible, high quality surfaces
- various gloss levels by means of different polishing processes
- processing of brass, aluminium and steel



Decorative aluminium milled parts

- high quality, very precise milled decorative aluminium parts
- exact radii and sharp-edged cutouts by using most modern CNC machining centers
- precision ground surfaces
- natural colour and black anodized



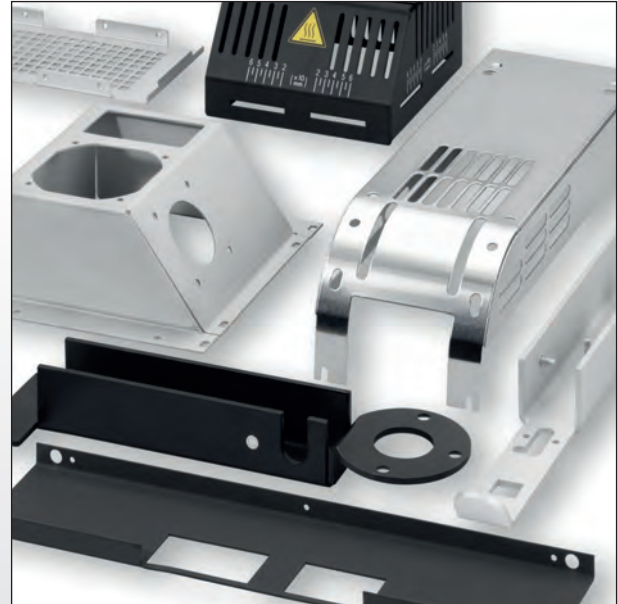
19" construction system

- 19" inserts with side panels made of extruded profiles
- standard insert cassettes with ventilation slots and integrated heatsink for Europe- and double Europe cards
- 19" Rack Case with various part front panels TFP
- transparent passivated, conductive surfaces for EMC-applications
- individual colour according to customer specifications



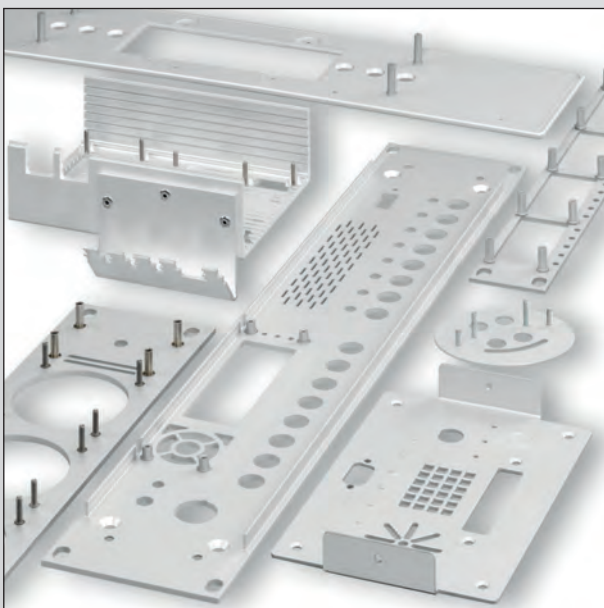
Front plates for the cases and 19" technology

- manufactured from aluminium, steel or stainless steel sheets
- front plates pre-assembled on standard cases according to your requests
- black and clear or special anodised surfaces on customer's request
- lacquer in all current RAL-colours
- EMC screened front plates by means of electrically conductive surfaces



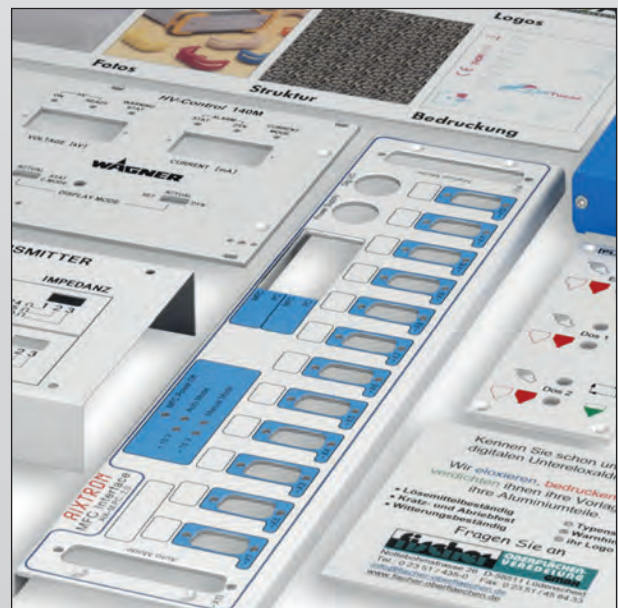
Sheet metal forming

- fast and efficient sheet metal forming according to customer's request by means of modern CNC pressing- and bending machines
- for highest quality requirements milled cut-outs and outline contours
- easy data exchange by means of CAD-CAM design- and program systems of the latest generation
- prototype construction, small batches



Additional treatment possibilities

- force fitting or welding of threaded pins, thread nuts and flat plugs
- sand blasting for homogeneous surfaces by means of automatic blasting plants
- unidirectional grinding according to customised grid size
- high-definition, exact engraved fonts
- individual treatment possibilities



Printing

- permanent screenprinting in all standard RAL-, HKS- and Pantone colours made in-house screen printing plant
- pad printing for contour parts
- digital sub-eloal printing in high-resolution quality, photo-realistic and tamper proof
- printing of aluminium, plexiglas, standard plastics etc.
- issue of artwork by own repro department



19" system cases

- modular design made of aluminium profiles- and sheets for different case positions
- same external dimensions like subracks therefore also suitable for installation in 19" cabinets
- possibility to mount any part front panel and circuit board on front- and backside
- all dimensions, dividing possibilities and colours changeable acc. to customer specifications



19" subracks

- for standard and EMC application
- integrated module rails with positioning aid for application of guide rails
- designs with subdivision in different height units
- wide range of accessories and modifications
- subrack with all expansion possibilities individual for your application purpose



19" plug-in box

- installation from horizontal mounted circuit cards or non-standardized components
- 1-6 U, with or without handles
- side panels are made out of aluminium panels or extruded profiles
- multif. versions with removable cover and bottom panels
- permanent screen printing in all current RAL colours
- customised drillings and profile treatments



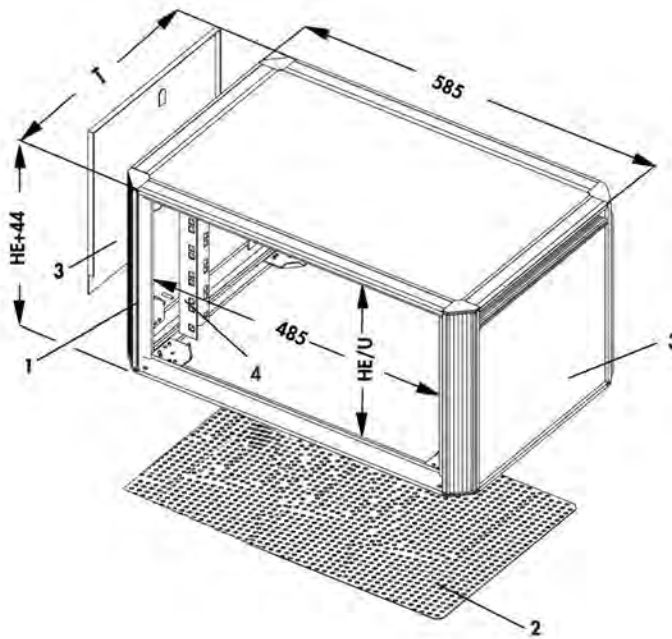
19" insert modules

- integrated T-nuts for insulation strips, threaded rails or square nuts
- EMC-shielded application due to electrical conductive surfaces and sealings
- with internal guide for PC-boards in mounting grid 1 HP
- external screw channels for avoiding short-circuits due to screw splinters
- realisation of special customised versions

19" cases PLUSLINE

- basic case with modular rails 19" variable in depth for application of built-in parts, colour **ultramarine blue (RAL 5002)**
- bench case with recessed grips
- side panels detachable
- possibility to mount shelves, intermediate shelves with/without telescopic rails
- suitable for steady-state use
- additional payload max. 100 kg
- 19" assembly dimensions according to IEC 297-1 (DIN 41494)
- all accessories available on request
- **contents of delivery:** basic case, assembled

1 = basic case; **2** = bottom with ventilation slots (**option BL**); **3** = firmly mounted side panel (**PL H**); **4** = 19" grid struts



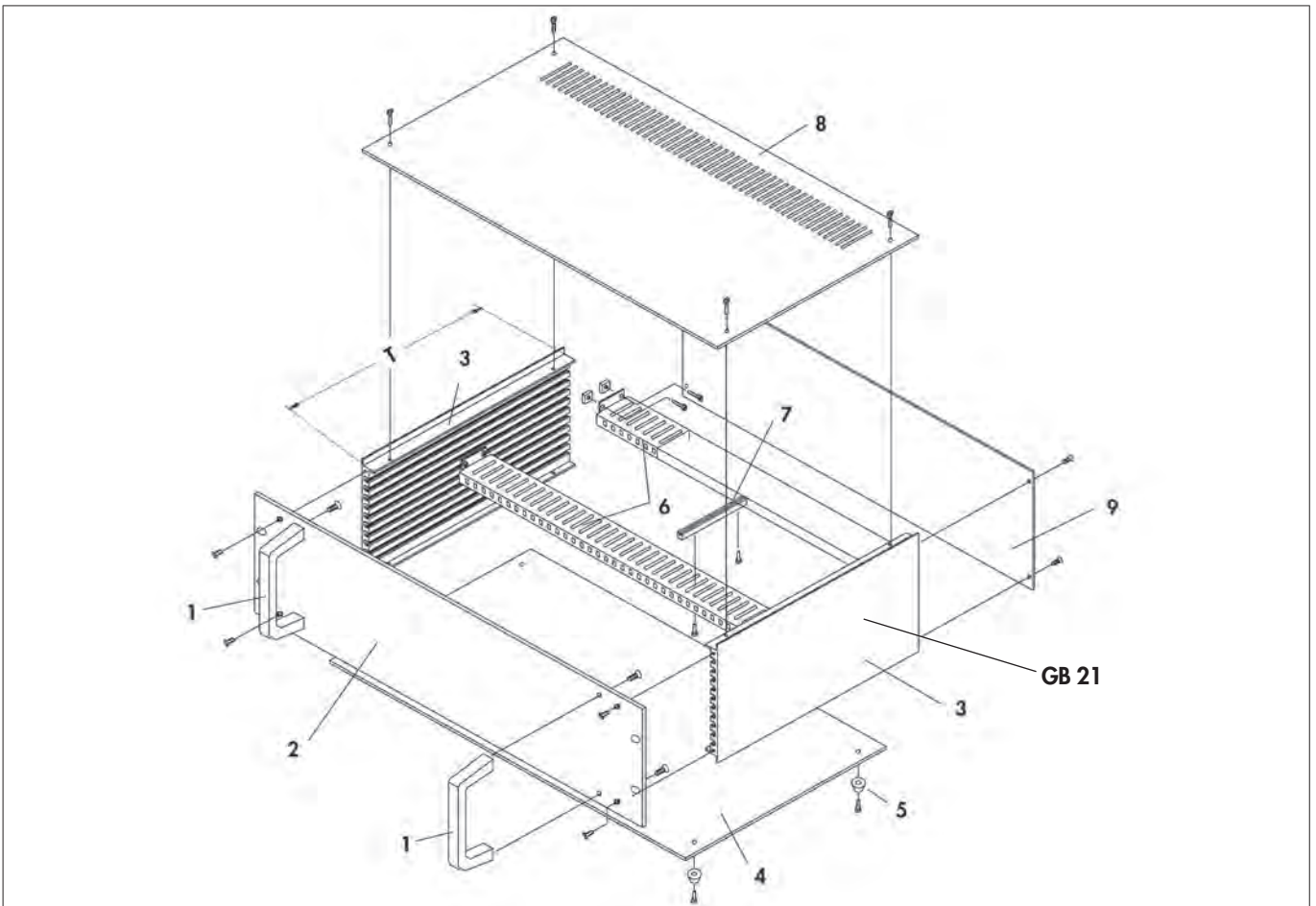
art. no.	U	dim. [mm]
		T
PL H 06 320 UL ...	6	320
PL H 09 440 UL ...	9	440
PL H 12 380 UL ...	12	380
PL H 12 500 UL ...		500
PL H 24 500 UL ...	24	
please indicate: ... accessories (optional)		
BL = bottom panel with ventilation slots		

19" plug-in chassis



- with mounting possibility for PCB's
- closed version
- with side panels of slotted aluminium profile for insertion of carrier rails **TS CE**
- mounting rails with oval hole cut-outs for **M 3** both above and on the sides featuring 2 HP spacing
- oval hole cutouts for mounting of e.g. modules or guide rails **FS 6**
- with removable cover and bottom panels, by means of guide rails **FS 6** additional PCBs can be mounted
- cover with 1 row of ventilation slots, bottom panel closed
- **contents of delivery:** front panel with handles; 2 x aluminium profile side panels
1 x bottom and cover plate; 1 x rear panel; fixing material

1 = handle; **2** = front plate (4mm); **3** = side panel profile; **4** = bottom panel; **5** = foot
6 = carrier rail **TS CE**; **7** = guide rail; **8** = cover panel; **9** = rear panel (3 mm)



art. no.	dim. [mm] T	art. no.	dim. [mm] T
CE 3 260	260	CE 3 360	360
surface:		front panel and handles are natural colour anodised/ side panels, cover panels and rear panels transparent passivated	

N 3

19" handles
19" front panels
19" case PLUSLINE
Fixing material

→ **N 64 - 65**
 → **N 63**
 → **N 2**
 → **N 62**

19" cooling fins with handle
19" case PLUSLINE
19" plug-in boxes
19" system case RACKCASE

→ **N 13**
 → **N 2**
 → **N 5 - 13**
 → **N 16 - 18**

19" plug-in chassis

Mounting rails

- used to fasten modules or guide-rails
- mounting rail is perforated in 2 HP spacing, width 3.2 mm over the whole length

art. no.	
TS CE	
surface:	chrome-free transparent passivated

Threaded rails

- the threaded rails are inserted into the side panel profiles to fasten the mounting rails. (6 x 2 ; M 3)
- dimensioned drawing of the side panel profile **GB 21** → N 66

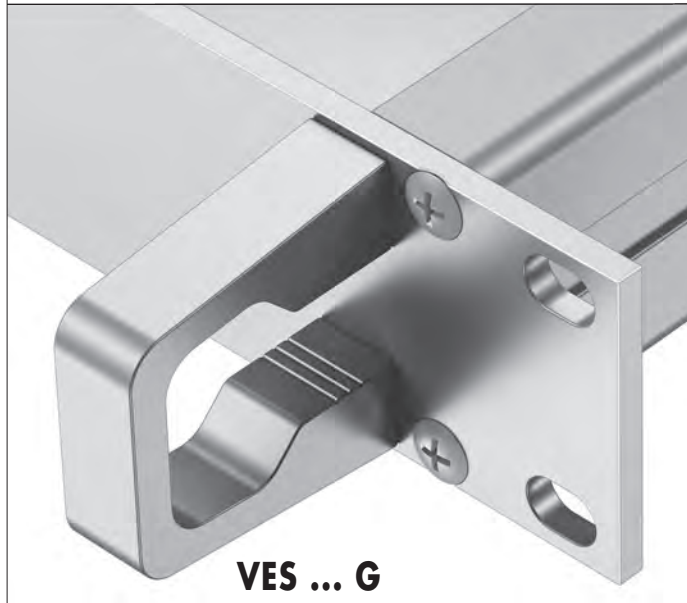


art. no.	dim. [mm]	art. no.	dim. [mm]
	T		T
GS 260	260	GS 360	360

19" plug-in boxes



VES ...



VES ... G

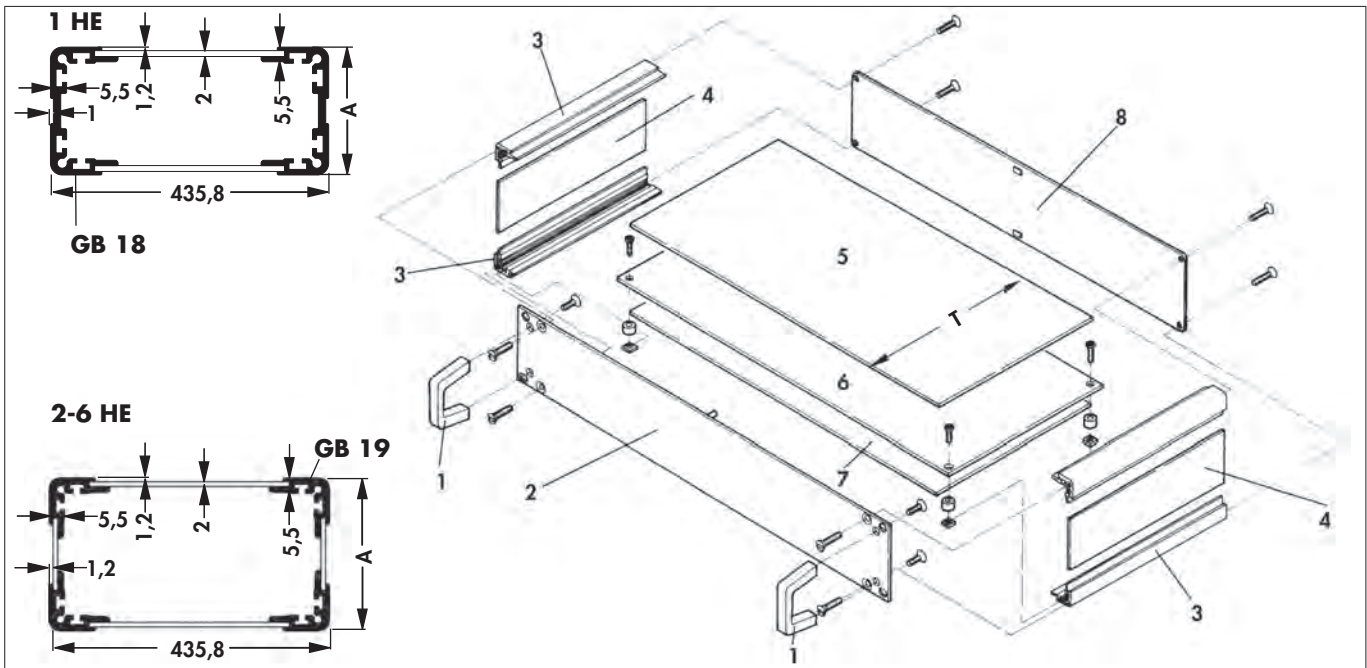


VES ... L

- 19" plug-in box **VES** for insertion of non-standardised components or circuit boards
- side panels in 1 U version made of side panel profile **GB 18**
- side panels in 2-6 U version made of edge profiles **GB 19** with inserted side panels
- sliding-screw channel in the profiles is used for insertion of the mounting- or chassis panel **MPW**; hence no perforation needed in the bottom panel
- support element on the front panel and back panel avoid deflection of cover and bottom panel
- special mechanical treatments, other dimensions and surfaces are possible according to customer's request
- **material thickness:** front panel 4 mm, back panel 2 mm
- **contents of delivery:** front panel, side panels, edge and/or side profiles, rear panel, cover and bottom panel
- dimensioned drawing of the side panel profile **GB 18/19** → N 66

19" plug-in boxes

1 = handles; 2 = front panel (4 mm); 3 = edge profile; 4 = side panel; 5 = cover panel; 6 = mounting panel; 7 = bottom panel; 8 = back panel (2 mm); ET = insertion depth



art. no.	dim. [mm]		art. no.	dim. [mm]		
	A	ET		A	ET	
VES 1 260 ...	43.5	262	VES 4 300 ...	177.0	302	
VES 2 260 ...	88.1		VES 5 300 ...	221.4		
VES 3 260 ...	132.5		VES 6 300 ...	265.9		
VES 4 260 ...	177.0		VES 1 360 ...	43.5		362
VES 5 260 ...	221.4		VES 2 360 ...	88.1		
VES 6 260 ...	265.9		VES 3 360 ...	132.5		
VES 1 300 ...	43.5	VES 4 360 ...	177.0			
VES 2 300 ...	88.1	VES 5 360 ...	221.4			
VES 3 300 ...	132.5	VES 6 360 ...	265.9			

please indicate:

... accessories (optional)

G = handles

DL = cover panel with ventilation slots

L = cover and bottom panels with ventilation slots

surface:

natural colour anodised

Mounting plate

– perforations in the bottom panel are avoided by fixing devices on the mounting plate



art. no.	dim. [mm]		art. no.	dim. [mm]	
	T			T	
MPW 260	260		MPW 360	360	
MPW 300	300				

19" front panels

19" handles

Profiles for 19" plug-in boxes

19" benchtop cases

→ N 63

→ N 64 – 65

→ N 66

→ N 19

Variable guide rails

Reinforced guide rails

Profiles for 19" front panels

19" cooling fins with handle

→ N 28

→ N 28

→ N 67 – 68

→ N 13

N 6

A

B

C

D

E

F

G

H

I

K

L

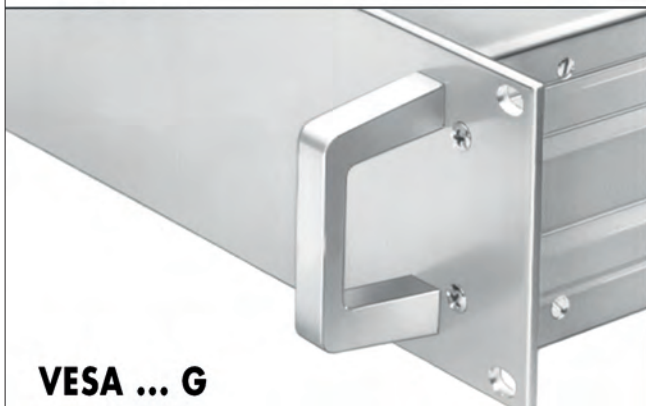
M

N

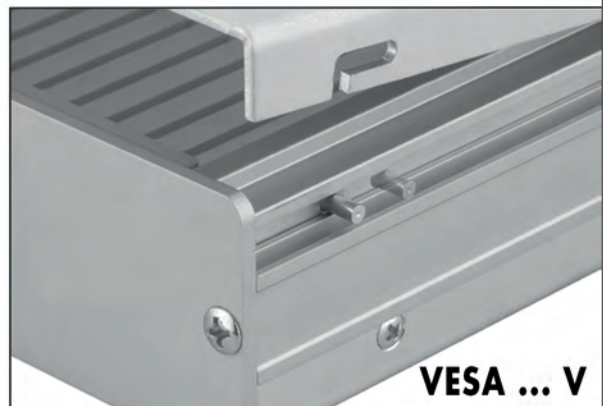
19" plug-in box with removable cover panel



VESA ...



VESA ... G

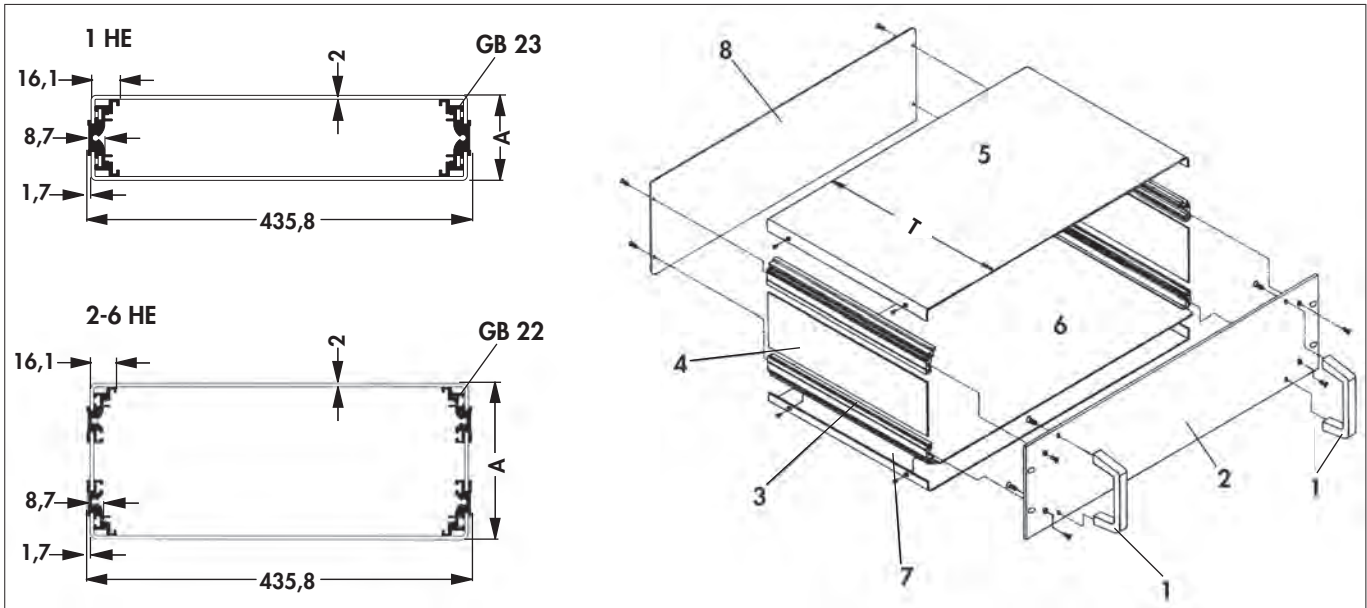


VESA ... V

- 19" plug-in box **VESA** for insertion of non-standardised components or circuit boards
- cover and bottom panels are screwed together laterally with edge profiles
- side panel at 1 U version made of side panel profile **GB 23**
- 2-6 U version with edge profiles **GB 22** and side panels
- front and rear panel from 1 to 3 U made of **AL-profile** → **N 67**
- front and rear panel for 4 U and more made from AL-plate
- guide grooves in the profile are used for the insertion of the mounting- or chassis panels **MPH**
- sliding-screw channel in the edge profiles used for mounting the carrier rail **TS CE**
- **contents of delivery:** front panel, side panels, edge profiles, rear panel, cover and bottom plate

19" plug-in box with removable cover panel

1 = handles; 2 = front panel; 3 = edge profile; 4 = side panel, 5 = cover panel; 6 = mounting panel; 7 = bottom panel; 8 = rear panel; ET= insert depth



art. no.	dim. [mm]		art. no.	dim. [mm]	
	A	ET		A	ET
VESA 1 260 ...	43.8	263	VESA 1 300 ...	43.8	303
VESA 2 260 ...	86.2	262	VESA 2 300 ...	86.2	302
VESA 3 260 ...	130.6		VESA 3 300 ...	130.6	
VESA 4 260 ...	175.0		VESA 4 300 ...	175.0	
VESA 5 260 ...	219.4		VESA 5 300 ...	219.4	
VESA 6 260 ...	264.0		VESA 6 300 ...	264.0	
VESA 1 280 ...	43.8		283	VESA 1 360 ...	
VESA 2 280 ...	86.2	282	VESA 2 360 ...	86.2	362
VESA 3 280 ...	130.6		VESA 3 360 ...	130.6	
VESA 4 280 ...	175.0		VESA 4 360 ...	175.0	
VESA 5 280 ...	219.4		VESA 5 360 ...	219.4	
VESA 6 280 ...	264.0		VESA 6 360 ...	264.0	

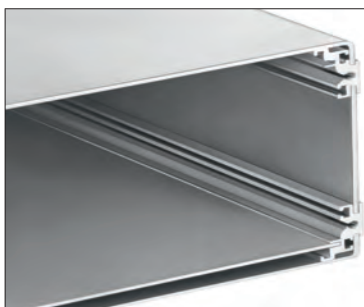
please indicate: ... accessories (optional)
G = handles
V = locking device
DL = cover panel with ventilation slots
BL = bottom panel with ventilation slots
L = cover and bottom panels with ventilation slots

surface: natural colour anodised

19" plug-in box with removable cover panel

Mounting plate

– perforations in the bottom panel are avoided by fixing devices on the mounting plate



art. no.	dim. [mm] T	art. no.	dim. [mm] T
MPH 260	260	MPH 360	360
MPH 300	300		

19" plug-in box for horizontal installation of PCBs

- 19" plug-in box, 1 U, with removable aluminium cover and bottom panel
- edge profile, front and rear panel made of aluminium profile
- fully transparent passivated to insulate against electromagnetic interference
- installation of 3, 6 or 9 U Eurocards, with a horizontal depth of 160 or 220 mm
- mounting height of the module rails 8 HP; other dimensions on request
- **contents of delivery:** **1** = edge profile **GB 23**; **2** = cover panel (1.5 mm); **3** = bottom panel (1.5 mm); **4** = threaded rail; **5** = module rails 8 HP

L = PCB

art. no.	for Eurocards (U)	art. no.	for Eurocards (U)
VESAO 1 260 009 ...	1x9	VESAO 1 260 333 ...	3x3
VESAO 1 260 063 ...	1x6/ 1x3		

please indicate:

- ... rear module rail (optional)
- IZ** = integrated Z-rail
- ... accessories (optional)
- G** = handles
- L** = cover and bottom panels with ventilation slots

19" front panels
 19" handles
 Profiles for 19" plug-in boxes
 19" benchtop cases

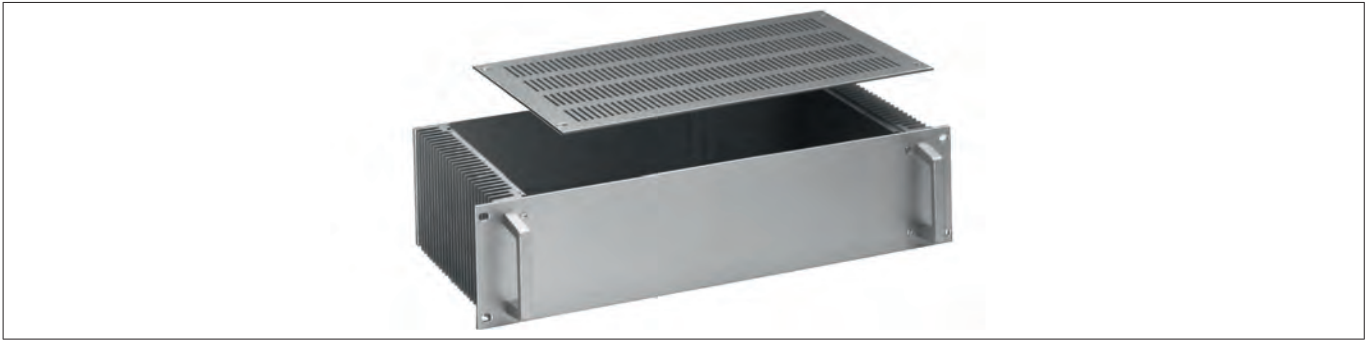
→ N 63
 → N 64 - 65
 → N 66
 → N 19

Variable guide rails
 Reinforced guide rails
 Profiles for 19" front panels
 19" cooling fins with handle

→ N 28
 → N 28
 → N 67 - 68
 → N 13

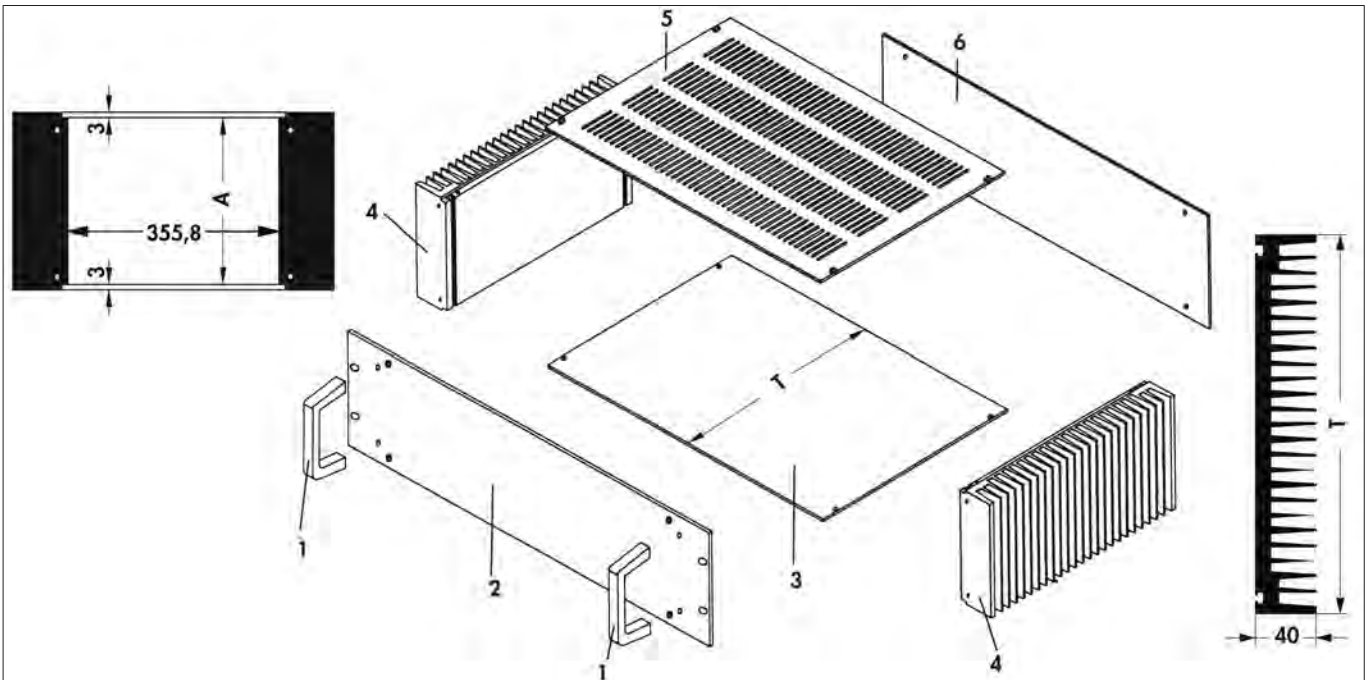
N 10

19" plug-in box with integrated cooling fins



- 19" plug-in box **SKE** for insertion of non-standardised components
- with side panels made of extruded heatsink **SK 91/ SK 93**, CNC-machined upon request
- sliding-screw channels in the profiles permit the insertion of a mounting panel
- cover panel equipped with ventilation slots as a standard feature, bottom panel closed
- all plug-in boxes equipped with handles as a standard
- particularly stable design
- side panel profile: **SKE ... 250 (SK 91); SKE ... 400 (SK 93)**
- **contents of delivery:** front panel (4 mm) with handles, 2 side panels consisting of extruded heatsinks, bottom and cover plate (3 mm), rear panel (3 mm)

1 = handle; **2** = front panel (4 mm); **3** = bottom panel; **4** = side panel profile; **5** = cover panel; **6** = rear panel (3 mm); design; **ET** = insert depth; **T** = insert depth **ET** - 3 mm



art. no.	dim. [mm]		art. no.	dim. [mm]	
	A	ET		A	ET
SKE 1 250	37.6	253	SKE 1 400	37.6	403
SKE 2 250	82.1		SKE 2 400	82.1	
SKE 3 250	126.5		SKE 3 400	126.5	
SKE 4 250	171.0		SKE 4 400	171.0	
SKE 5 250	215.4		SKE 5 400	215.4	
SKE 6 250	259.9		SKE 6 400	259.9	
surface:		side panel profile, cover and bottom plate as well as the rear panel are black anodised/ front panel and handles are natural colour anodised			

19" insert with low depth



contents of delivery:

1 = front panel (made of profiles GB 28, GB 40, GB 54); 2 = hood; 3 = handles (optional); mounting material

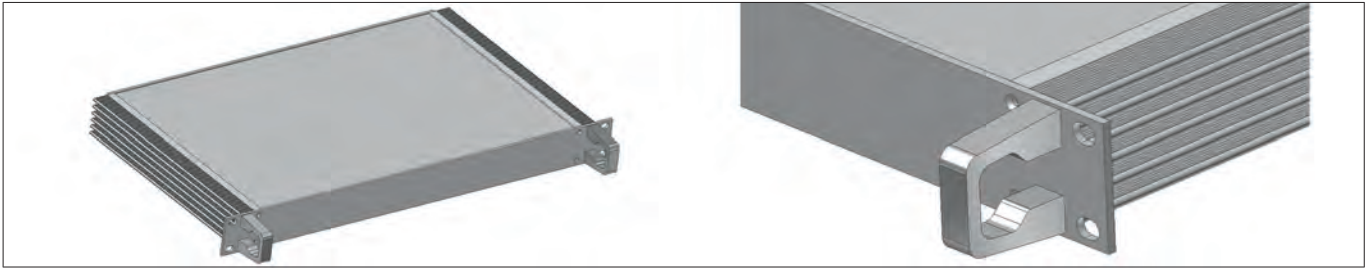
- 19" insert with low depth for insertion of non-standardised devices or PCBs
- front panels made of extruded aluminium profiles 1 U up to 3 U, hoods made of 1.5mm aluminium sheets
- insertion depth 50 mm and 70 mm
- case optionally with handles as well as hoods with ventilation slots
- surface of the single components is natural colour anodised
- other depths, surfaces and customer specific machinings upon request

art. no.	dim. [mm]			art. no.	dim. [mm]		
	A		T		A		T
VESA GT 1 50 ...	43.8	39.6	50	VESA GT 1 70 ...	43.8	39.6	70
VESA GT 2 50 ...	88.1	81.8		VESA GT 2 70 ...	88.1	81.8	
VESA GT 3 50 ...	132.5	126.2		VESA GT 3 70 ...	132.5	126.2	

please indicate: ... accessories (optional)
G = handles
ML = ventilation slots

surface: natural colour anodised

19" plug-in box with cooling fins



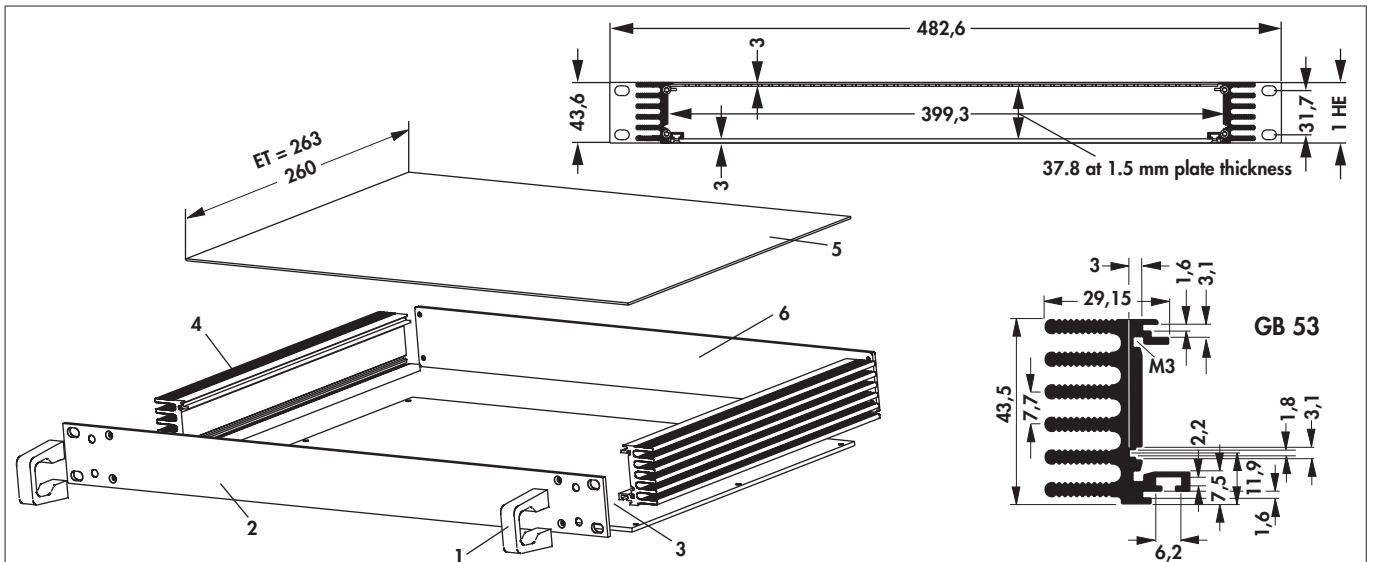
- space-saving 1 U 19" plug-in box for insertion of non-standardised components or circuit boards
- with side panels made of extruded cooling fin profiles with removable top and bottom panel made of aluminium
- integrated sliding-screw channels in the profiles permit the insertion of a mounting panel
- **contents of delivery:** front panel (3 mm), two side panels made of aluminium profile, bottom plate (3 mm), cover plate (3 mm), rear panel (3 mm), mounting material

ET (insert depth) = 263 mm

TE (width unit) = 84 mm

1 = handles; **2** = front plate (3 mm); **3** = bottom panel (3 mm); **4** = side panel profile; **5** = cover panel (3 mm);

6 = rear panel (3 mm)



art. no.	HP	dim. [mm]	ET
KRE 1 84 260 G	84		263
surface:	natural colour anodised		

N 13

19" front panels
19" handles
Profiles for 19" plug-in boxes
19" plug-in boxes

→ N 63
→ N 64 - 65
→ N 66
→ N 5 - 11

Profiles for 19" front panels
Guide rails
Reinforced guide rails
Variable guide rails

→ N 67 - 68
→ N 27 - 28
→ N 28
→ N 28

A

B

C

D

E

F

G

H

I

K

L

M

N



19" system case Rack Case

- case serie Rack Case consisting of extruded aluminium profiles and sheets
- modular assembly for different case construction stages
- suitable for EMC applications by means of electrical conductive surfaces and EMC extension sets
- modern design and colours
- customised versions and modifications



Customised 19" system case Rack Case

- all dimensions modifiable according to customer's request
- for highest quality standards milled cut-outs and contours
- individual colour schemes according to your specifications
- permanent screenprinting in all current RAL- HKS and Pantone colours
- wide range of accessories



19" bench case Rack Case

- front- and backside assembly of standardised BUS backplane and extender cards
- cover-, bottom- or side panels with ventilation slots
- wide range of rack handles
- dividing possibility in various height units by optional add-on kits

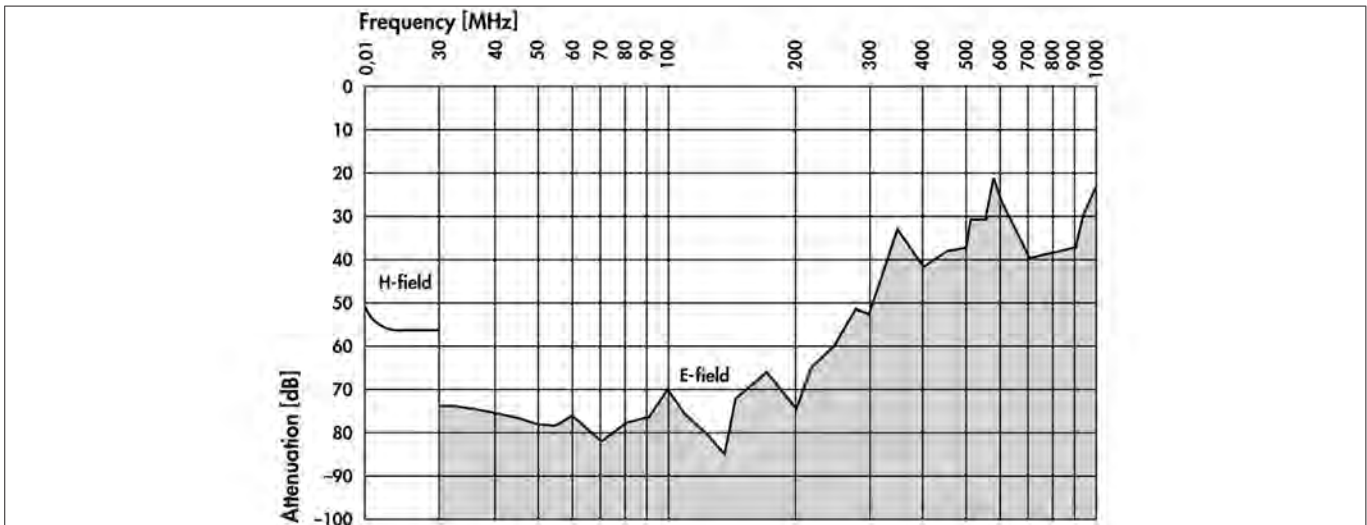


System case Rack Case for 19" cabinet assembly

- external dimensions as subracks, hence also suitable for 19" cabinet assembly
- 19" cabinet fastening by means of solid aluminium angles
- integrated module rails for application of guide rails for Eurocards
- use of standard part front panels TFP as a front- and back cover

19" system cases for EMC application

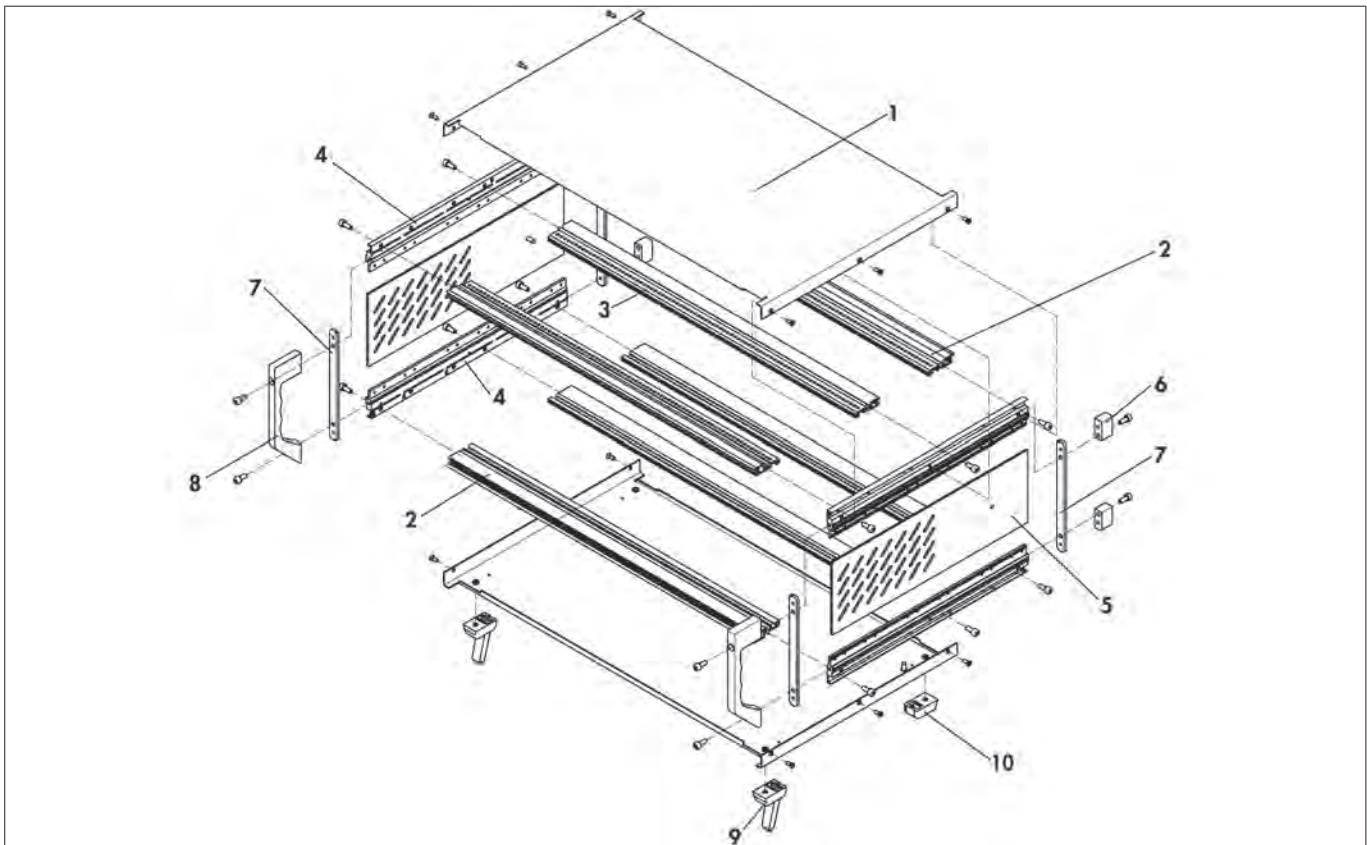
- the system case RACKCASE is suitable for EMC applications
- all metallically conductive contact surfaces are transparent passivated
- **test procedure:** in conformity with VG norm 95373, Part 15
- **article tested:** system case RACKCASE, 3 U, 84 HP, 280 mm deep, with closed rear and front panel and ventilation slots in the cover and bottom panel; rear and front panel electrically connected to the sides by means of contact springs



19" system cases RACKCASE, constructional design

- 19" system case consisting of extruded aluminium profiles and plates (apart from the support feet)
- hence all dimensions can be altered as per customer's request
- standard cover and bottom panels are silver grey (RAL 7001) lacquered, the other covering parts as required
- colours can also be adapted to individual design requirements
- the aluminium profiles and the inner surfaces of the covering panels are transparent passivated and thus electrically conductive
- EMC-screening by means of the extension set **RAC E** and the EMC-front panels **EGT F → N 30**

1 = cover panel; **2** = module rail for part front panels and rear panels; **3** = centre module rail;
4 = side profile; **5** = side panel; **6** = foot; **7** = rear closing panel; **8** = handle; **9** = tilt foot; **10** = screwed foot



19" EMC subracks
 19" case PLUSLINE
 19" plug-in boxes
 19" subracks

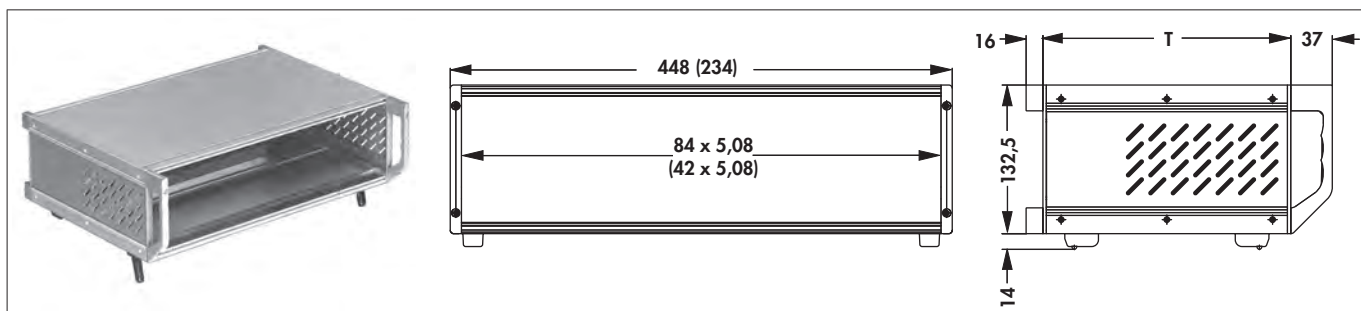
→ N 29 - 33
 → N 2
 → N 5 - 13
 → N 20 - 25

19" EMC subracks
 Insert modules 19"
 Part front panels
 Profiles for 19" plug-in boxes

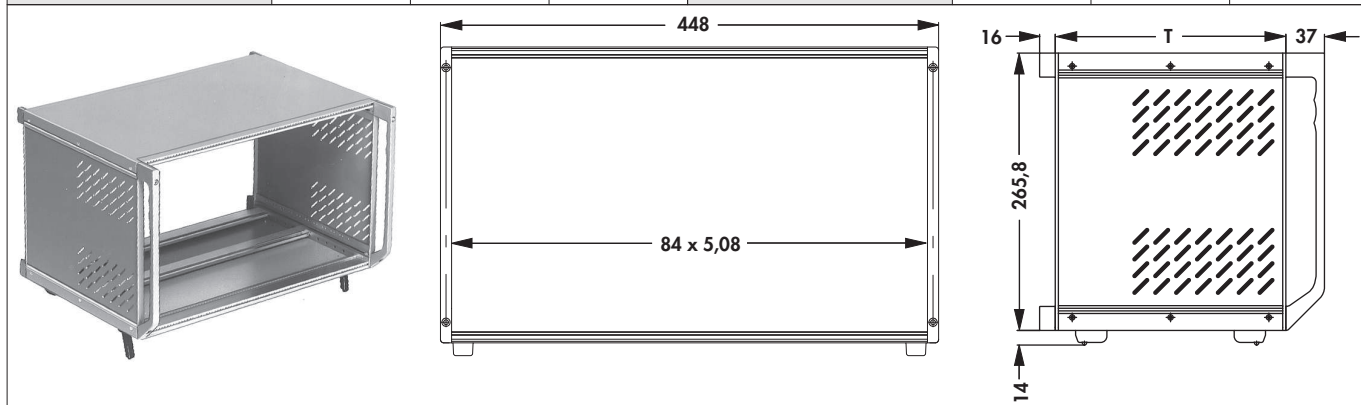
→ N 29 - 33
 → N 34 - 47
 → N 51 - 55
 → N 66

19" system cases RACKCASE

- further part units **HP** on request
- standard lacquered cover-and bottom panels silver-grey (**RAL 7001**)
- **contents of delivery:**
 4 x module rails **GB 29**, 2 x module rails **GB 30**, 6 x threaded rails, 4 x side profiles **GB 35**, 2 x handles, 1 x bottom panel,
 1 x cover panel, 2 x side panels, 4 x side covers, 4 x rear panel feet, 2 x screw-on feet, 2 x tilt feet, mounting material



art. no.	HP	U	dim. [mm] T	art. no.	HP	U	dim. [mm] T
RAC 342 220 ...	42	3	220	RAC 384 280 ...	84	3	280
RAC 342 280 ...			380				
RAC 342 380 ...			480				
RAC 384 220 ...	84		220				



art. no.	HP	U	dim. [mm] T	art. no.	HP	U	dim. [mm] T
RAC 6 220 ...	84	6	220	RAC 6 380 ...	84	6	380
RAC 6 280 ...			280	RAC 6 480 ...			480

please indicate:

- ... colour of side panels and handles
TB = turquoise blue (RAL 5018)
NB = night blue (RAL 5022)
S = black (RAL 9005)
- ... closed side panel (optional)
O = closed
- ... ventilation slots (optional)
BL = in bottom panel
DL = in top panel
L = in top- and bottom panel

Accessories for 19" system cases RACKCASE

EMC expansion kit

- creates an electrically conductive connection of the profiles and the covering parts
- suitable EMC front panels **EGT F** → N 30

contents of delivery:

4 x contact plates, 2 x earthing wire, 8 x contact springs with 10 contacts for 3 U, 16 x contact springs with 10 contacts for 6 U



art. no.	suitable for type	art. no.	suitable for type
RAC E 3	RAC 3	RAC E 6	RAC 6

19" Fixing part

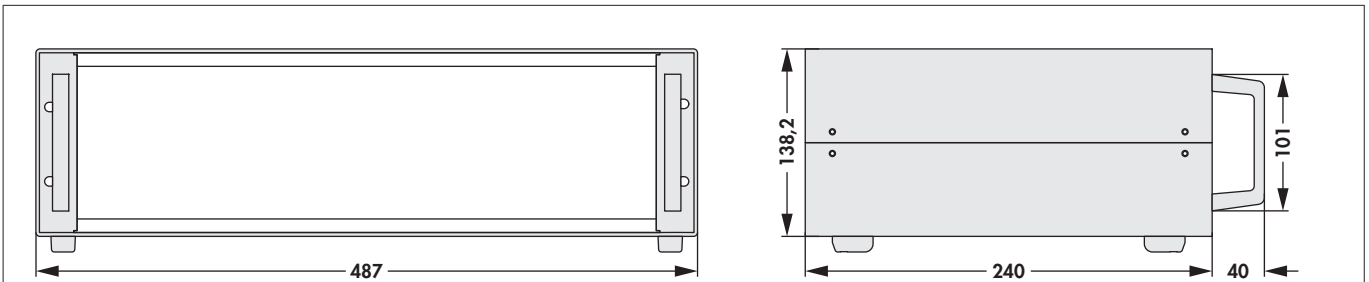


art. no.	suitable for type	art. no.	suitable for type
RAC B 3	RAC 3	RAC B 6	RAC 6

19" bench cases



- simple 19" bench case, easy assembly
- with folding legs and robust handles
- construction: two cover sheets and a rear panel are screwed to the standard subrack
- cover panels lacquered
- version **IZ**: rear module guide rail of the subrack is equipped with integrated Z-rails for VG connectors, DIN 41612



art. no.	for Eurocards [mm]
TG 384 1 S	100x160
colour of cover panel:	deep black (RAL 9005)

N 19

19" case PLUSLINE
19" plug-in chassis
19" plug-in boxes
Part front panels

→ N 2
→ N 3 - 4
→ N 5 - 13
→ N 51 - 55

19" cooling fins with handle
19" handles
Guide rails
19" front panels

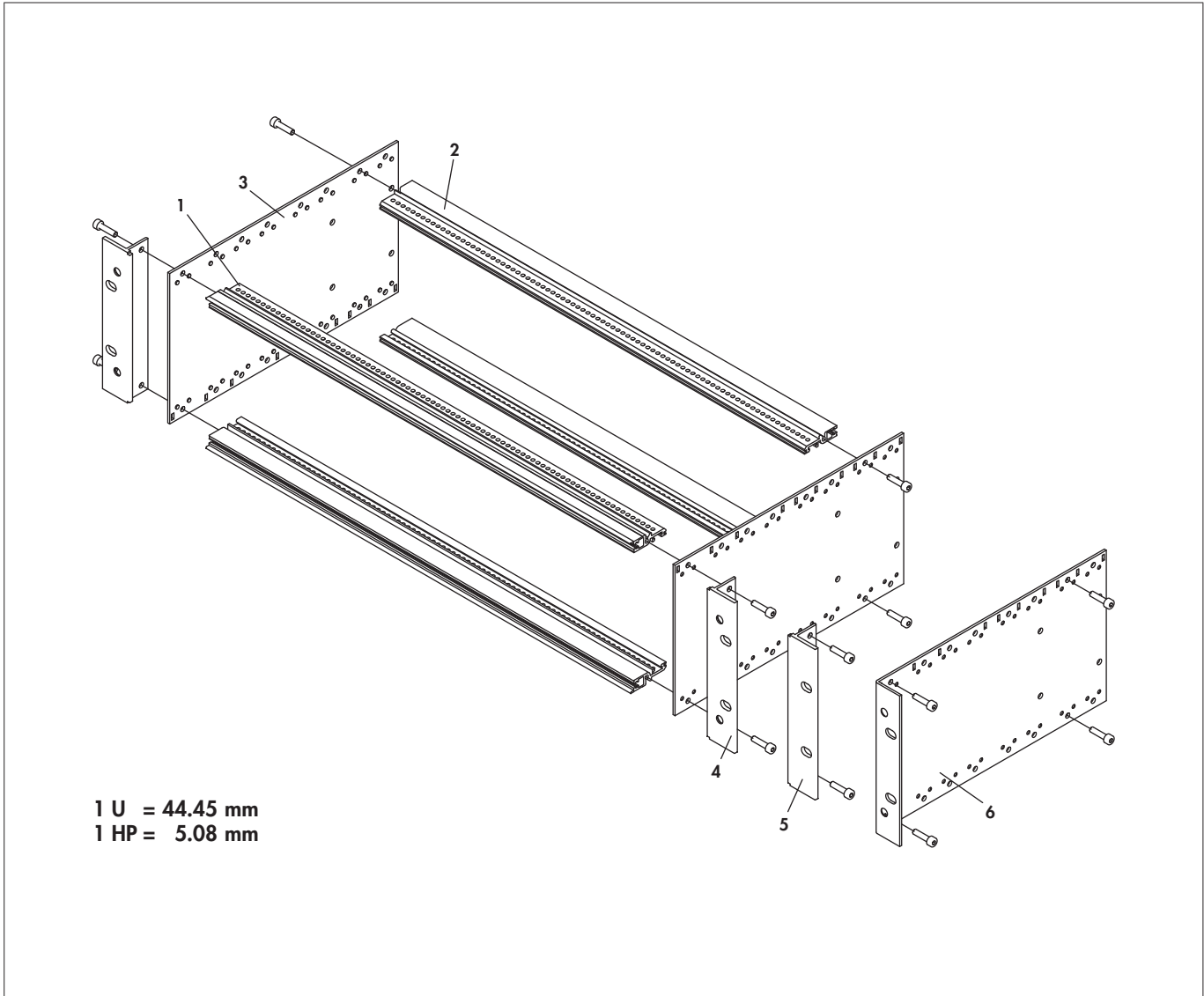
→ N 13
→ N 64 - 65
→ N 27 - 28
→ N 63

19" subracks

- side panels made from aluminium sheet thickness 2 mm, with inserted twist protection for the module rails
- module rails from extruded aluminium with printing for easier positioning of these guide rails
- reallocation of the module rails in grid without further machining of the side panels
- marks for correct mounting of the module rails are embossed
- 19" fixing angles can be mounted at front and rear side optionally
- all surfaces natural colour anodised; electrically conductive surface treatments on request
- special heights, depths and HPs available on request

basic unit:

1 = front module rail **GB29**; **2** = back module rail **GB30**; **3** = side panels; **4** = fixing angle with handle perforation (**BGTG**); **5** = fixing angle without handle perforation (**BGTO**); **6** = angled side panel (**BGT**)



19" insert modules accessory
19" EMC subracks
Part front panels
Handles for part front panels

→ N 26 - 28
→ N 25 - 29
→ N 51 - 55
→ N 57

Insert modules 19"
Fixing material
19" front panels
Profiles for 19" plug-in boxes

→ N 34 - 47
→ N 62
→ N 63
→ N 66

N 20

A

B

C

D

E

F

G

H

I

K

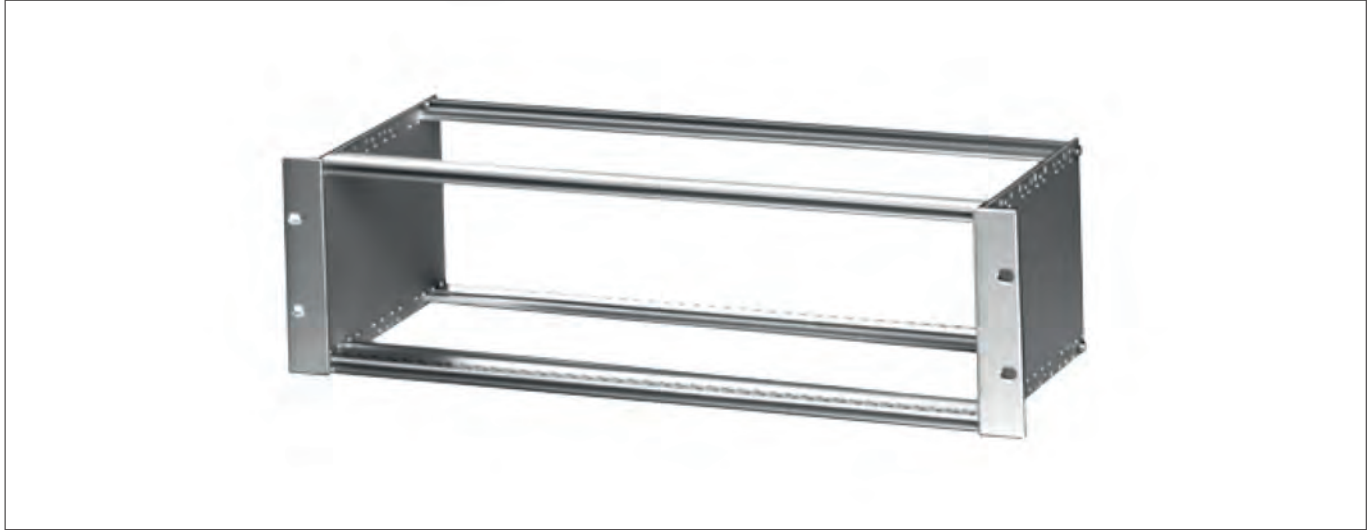
L

M

N

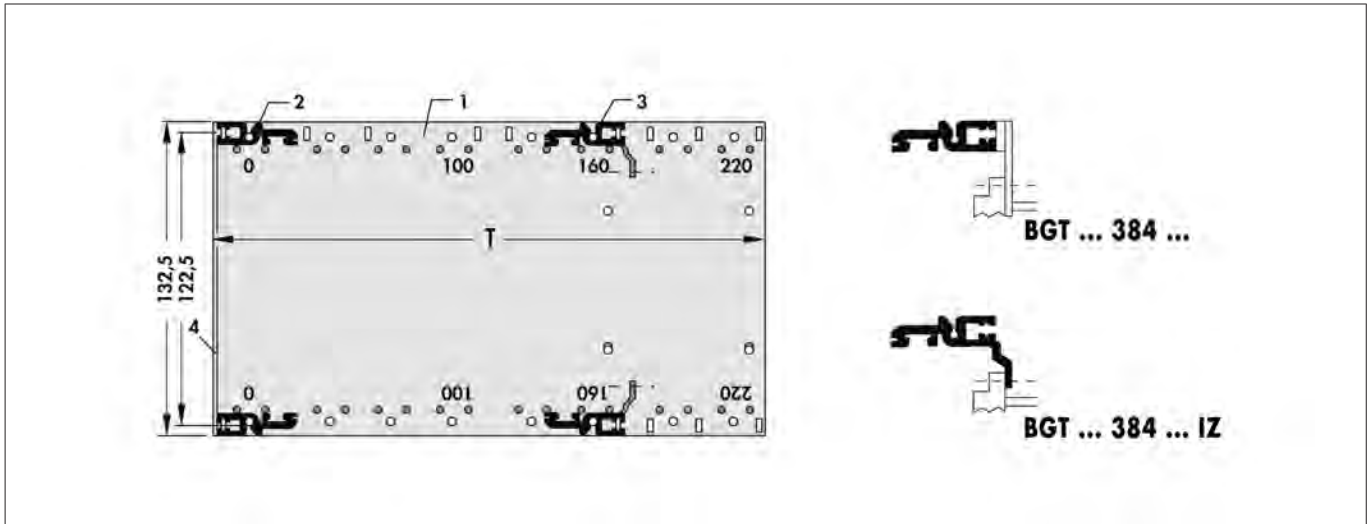
19" subracks

3 U subracks



basic unit:

- 1 = 2 x side panels; 2 = 2 x front module rail; 3 = 2 x rear module rail;
- 4 = 2 x fixing angles (only **BGTO** and **BGTG**); mounting material



art. no.	fixing part	dim. [mm] T
BGT 384 180 ...	angled side panel	175.5
BGT 384 240 ...		235.5
BGT 384 300 ...		295.5
BGTG 384 180 ...	fixing angle with handle perforation	175.5
BGTG 384 240 ...		235.5
BGTG 384 300 ...		295.5
BGTO 384 180 ...	fixing angle without handle perforation	175.5
BGTO 384 240 ...		235.5
BGTO 384 300 ...		295.5
please indicate: ... rear module rail (optional) IZ = integrated Z-rail		

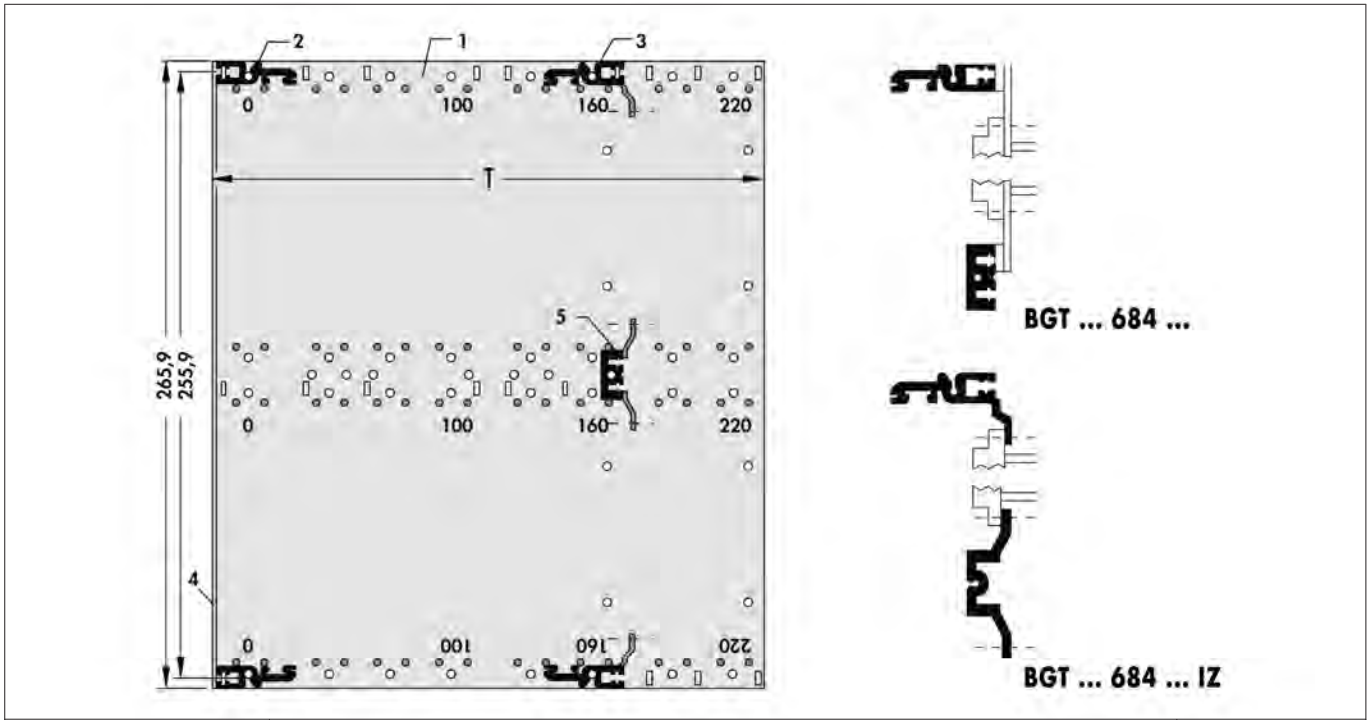
19" subracks

6 U subracks for Double-Eurocards



basic unit:

1 = 2 x side panels; 2 = 2 x front module rail; 3 = 2 x rear module rail;
 4 = 2 x fixing angles (only **BGTO** and **BGTG**); 5 = 1 x middle connector carrier;
 mounting material



art. no.	fixing part	dim. [mm] T
BGT 684 180 ...	angled side panel	175.5
BGT 684 240 ...		235.5
BGT 684 300 ...		295.5
BGTG 684 180 ...	fixing angle with handle perforation	175.5
BGTG 684 240 ...		235.5
BGTG 684 300 ...		295.5
BGTO 684 180 ...	fixing angle without handle perforation	175.5
BGTO 684 240 ...		235.5
BGTO 684 300 ...		295.5
please indicate: ... rear module rail (optional) IZ = integrated Z-rail		

19" insert modules accessory
 19" EMC subracks
 Part front panels
 Handles for part front panels

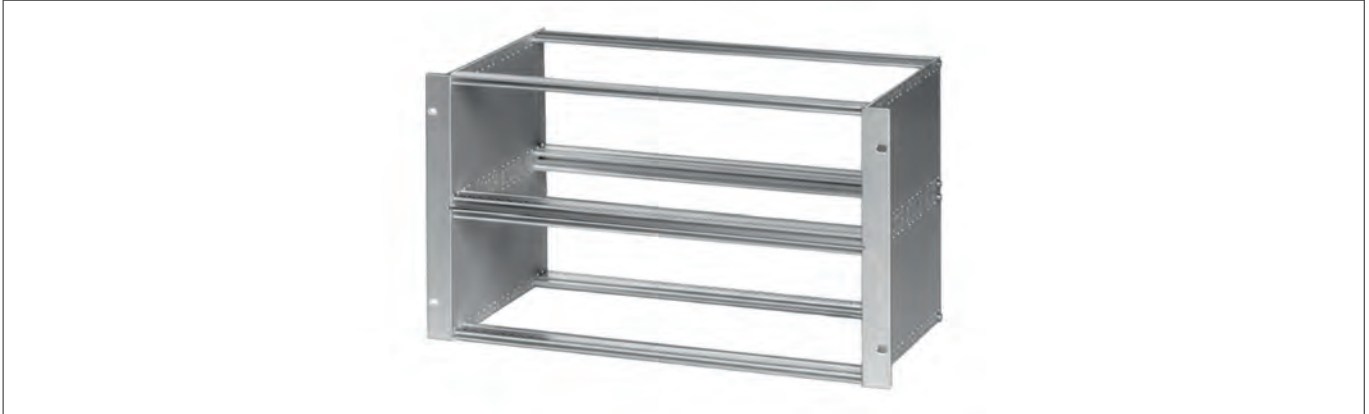
→ N 26 - 28
 → N 25 - 29
 → N 51 - 55
 → N 57

Insert modules 19"
 Fixing material
 19" front panels
 Profiles for 19" plug-in boxes

→ N 34 - 47
 → N 62
 → N 63
 → N 66

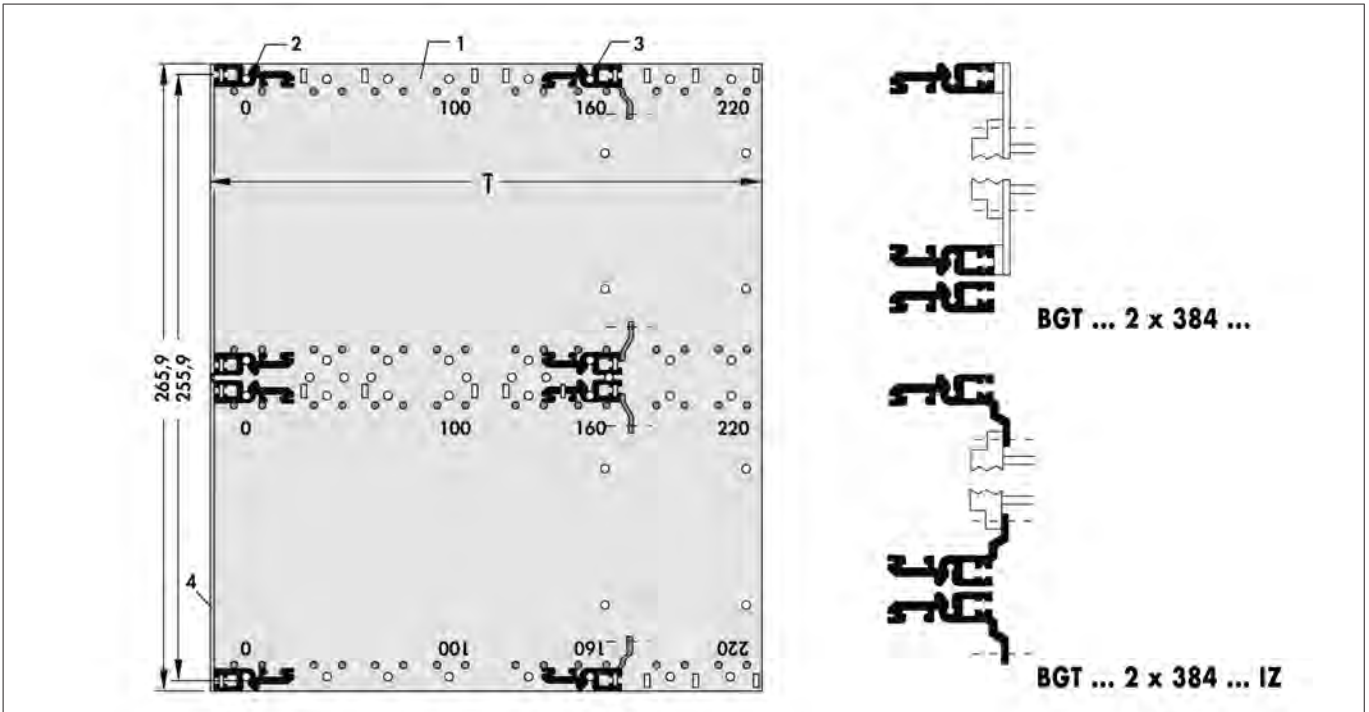
19" subracks

6 U subracks with subdivision 2 x 3 U



basic unit:

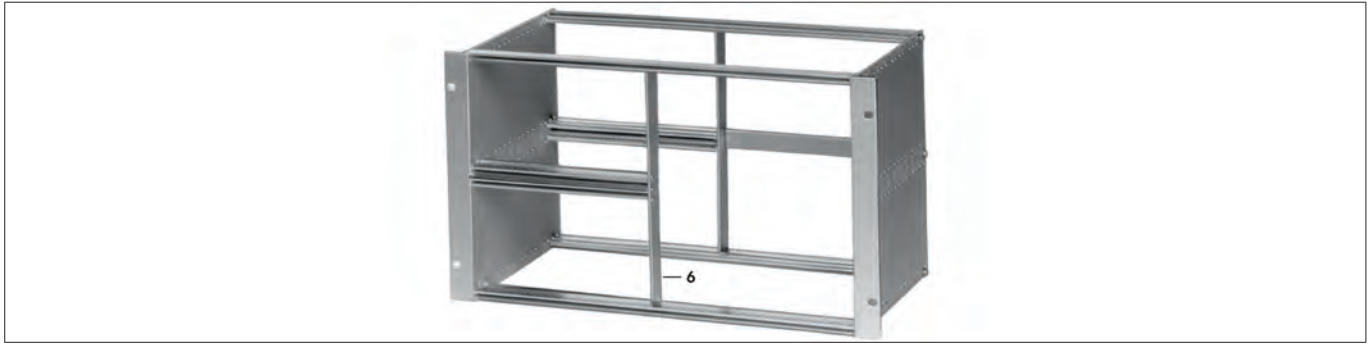
1 = 2 x side panels; **2** = 4 x front module rails; **3** = 4 x rear module rails;
4 = 2 x fixing angles (only **BGTO** and **BGTG**); mounting material



art. no.	fixing part	dim. [mm] T
BGT 2 x 384 180 ...	angled side panel	175.5
BGT 2 x 384 240 ...		235.5
BGT 2 x 384 300 ...		295.5
BGTG 2 x 384 180 ...	fixing angle with handle perforation	175.5
BGTG 2 x 384 240 ...		235.5
BGTG 2 x 384 300 ...		295.5
BGTO 2 x 384 180 ...	fixing angle without handle perforation	175.5
BGTO 2 x 384 240 ...		235.5
BGTO 2 x 384 300 ...		295.5
please indicate: ... rear module rail (optional) IZ = integrated Z-rail		

19" subracks

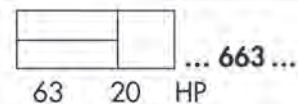
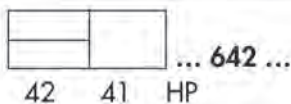
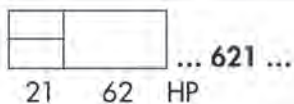
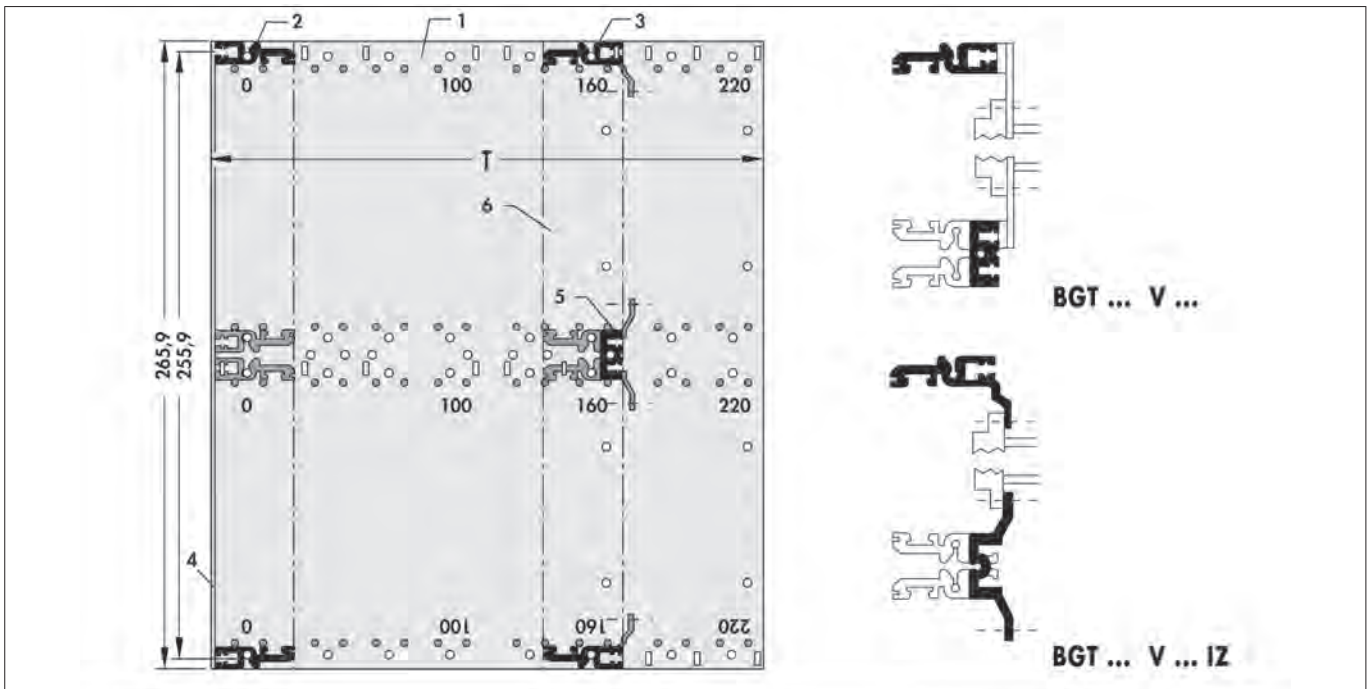
6 U subracks with subdivision for Eurocards and Double-Eurocards



basic unit:

1 = 2 x side panels; **2** = 4 x front module rails; **3** = 4 x rear module rails;

4 = 2 x fixing angles (only **BGTO** and **BGTG**); **5** = 1 x middle connector carrier; **6** = 2 x vertical supports; mounting material



art. no.	fixing part	dim. [mm] T
BGT V ... 180 ...	angled side panel	175.5
BGT V ... 240 ...		235.5
BGT V ... 300 ...		295.5
BGTG V ... 180 ...	fixing angle with handle perforation	175.5
BGTG V ... 240 ...		235.5
BGTG V ... 300 ...		295.5
BGTO V ... 180 ...	fixing angle without handle perforation	175.5
BGTO V ... 240 ...		235.5
BGTO V ... 300 ...		295.5
please indicate:	... subdivision 621 = 21 62 HP 642 = 42 41 HP 663 = 63 20 HP	... rear module rail (optional) IZ = integrated Z-rail

19" insert modules accessory
 19" EMC subracks
 Part front panels
 Handles for part front panels

→ N 26 - 28
 → N 25 - 29
 → N 51 - 55
 → N 57

Insert modules 19"
 Fixing material
 19" front panels
 Profiles for 19" plug-in boxes

→ N 34 - 47
 → N 62
 → N 63
 → N 66

N 24

A

B

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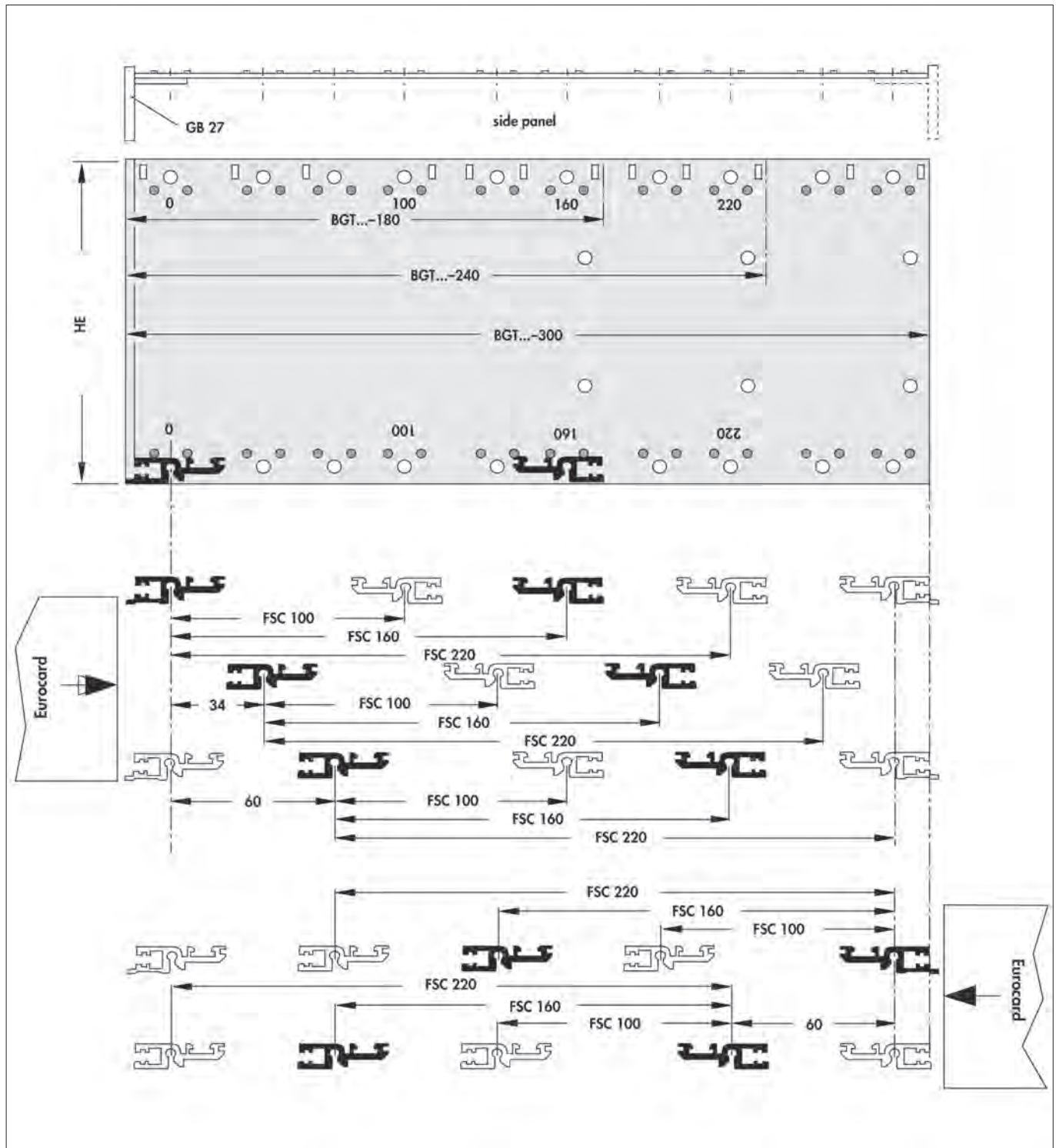
K

L

M

N

Mounting options of the guide rails FSC

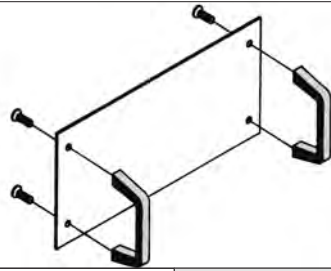


art. no.	for Eurocards [mm]
BGT ... 180	100x100/ 100x160/ 233.5x100/ 233.5x160
BGT ... 240	100x100/ 100x160/ 100x220/ 233.5x100/ 233.5x160/ 233.5x220
BGT ... 300	100x100/ 100x160/ 100x220/ 100x280/ 233.5x100/ 233.5x160/ 233.5x280/ 233.5x220
please indicate:	... position module rail 100 = for FSC 100 160 = for FSC 160 220 = for FSC 220

Accessories for 19" subracks

Rack handles

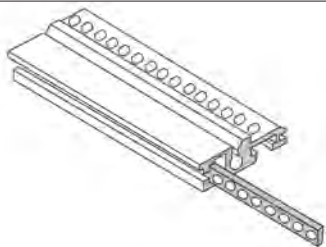
- very stable version made of solid aluminium, 1 set comprises 2 handles incl. mounting material
- further sizes **G** → N 64



art. no.	suitable for subracks	art. no.	suitable for subracks
BGT 0384 7ME	3 U	BGT 0684 7ME	6 U

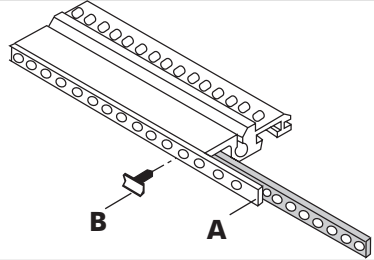
Threaded rails

- threaded rails with M 2.5 threads for mounting of fixing rails and front panels
- 1 set contains 4 threaded rails

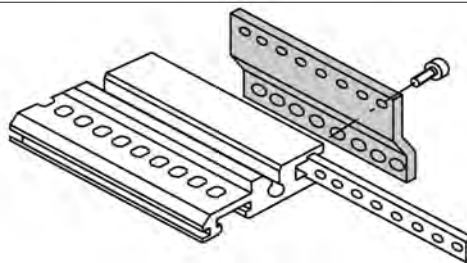
art. no.	
BGT 384 2	

Insulation strip (A)

- for rear module rail
- is used for isolation of the BUS-backplane
- with the isolating strips the standard insert depth for the plug-in module in the subrack will be established

art. no.	
IST 84	
class of inflammability:	UL 94 V-0
material:	PBT, self-extinguishing

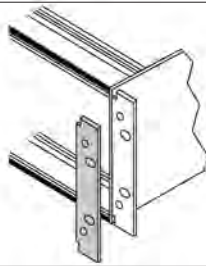
Z-rails for connectors



art. no.	packing unit
GB 5 L	1 set contains 2 Z-rails for connectors with 32/48/64/96 contacts to DIN 41612
GB 20 L	1 set contains 2 Z-rails for connectors with 31 contacts according to DIN 41617

Accessories for 19" subracks

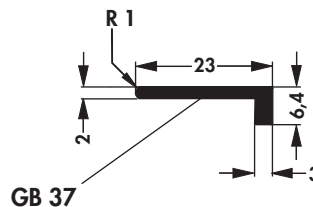
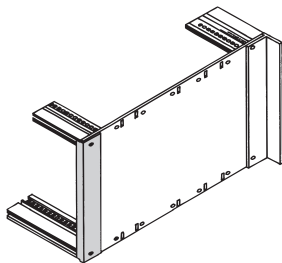
Cover panels



art. no.	handle perforation	suitable for subracks
BGTG 384 6	with	3 U
BGTG 684 6		6 U
BGTO 384 6	without	3 U
BGTO 684 6		6 U

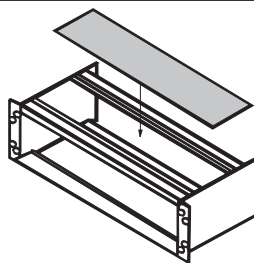
Rear terminal profile

– 2 pieces cover the 2.54 mm gap between the part front panel and side panel



art. no.	suitable for subracks	art. no.	suitable for subracks
RA 3	3 U	RA 6	6 U
surface:		natural colour anodised	

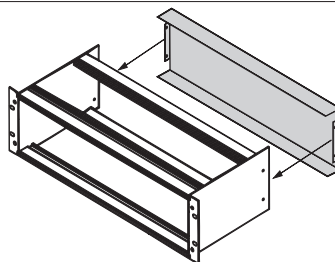
Perforated cover panel



art. no.	depth of PCB [mm]	art. no.	depth of PCB [mm]
AB 211	160	AB 271	220

Backpanel protective cover

– with side panel depth of 240 and 300 mm gives mechanical and antistatic protection
 – delivery incl. mounting material



art. no.	suitable for subracks
RV 3 240	3 U

N 27

19" front panels
 19" subracks
 19" EMC subracks
 Part front panels

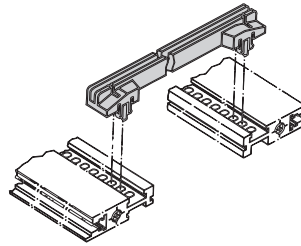
→ N 63
 → N 20 – 25
 → N 29 – 33
 → N 51 – 55

Extractors
 Handles for part front panels
 Insert modules 19"
 Profiles for 19" plug-in boxes

→ N 61
 → N 57
 → N 34 – 47
 → N 66

Guide-rails

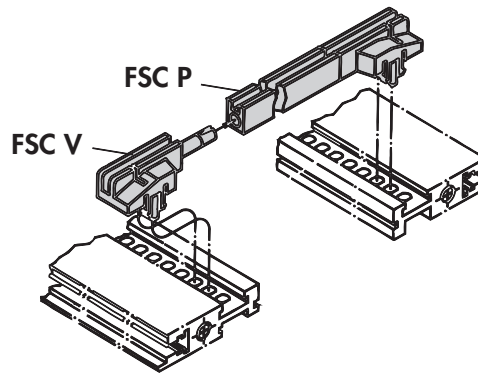
– with advanced mounting pins and locking nebs for easy mounting



art. no.	for Eurocards [mm]
FSC 100	100x100/ 233.5x100
FSC 160	100x160/ 233.5x160
FSC 220	100x220/ 233.5x220

Variable guide-rails

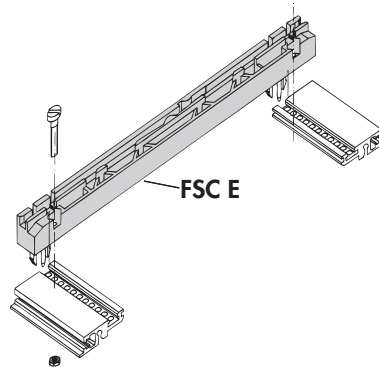
- contains 1 pair of head pieces (left and right) and 1 profile
- head pieces (1 pair): art. no. **FSC V**; profile (in running meters) art. no. **FSC P**
- further profile lengths upon request



art. no.	art. no.
FSC P	FSC V

Reinforced guide rails

- easy and fast to mounting by using clips
- can also be screwed into the module rails (M 2.5 x 12, on request)
- high rigidity
- centred with spring-loaded strut
- good ventilation due to lattice work



art. no.	for Eurocards [mm]
FSCE 160	100x160/ 233.5x160
FSCE 220	100x220/ 233.5x220

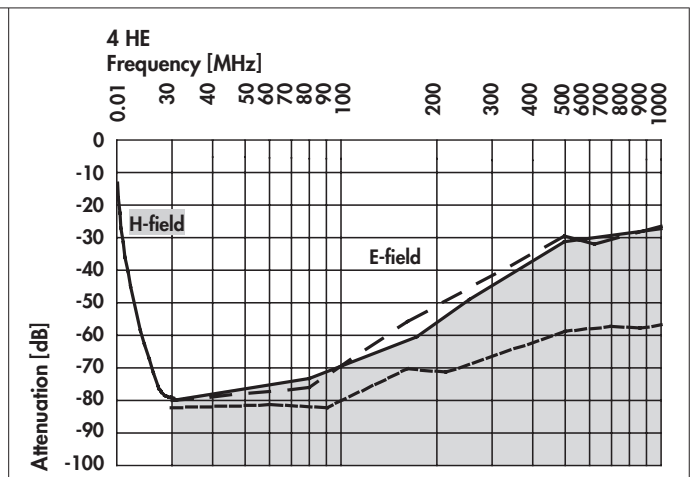
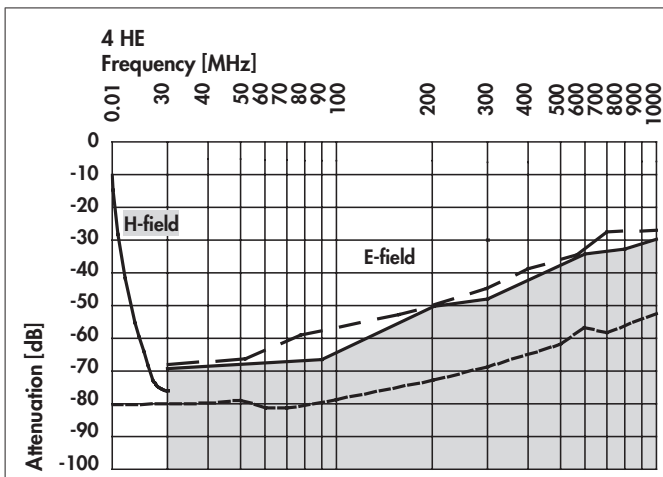
19" EMC subracks



- completely closed subrack EGT for use in environments with electro-magnetic interference
- subrack is sealed by EMC-shielded part front panels or 84 HP front panel
- all parts chrome-free transparent passivated

Screening against electromagnetic interference

- test procedure: in conformity with VG standard 95373, part 15
- article tested: subrack 84 HP, depth 280 mm, with closed rear and front panel:
 - ——— closed cover panel
 - - - - cover panel with ventilation slots
 - - - - - closed cover panel, additionally equipped with contact spring strips
- back and front panel electrically connected to side panel by means of contact springs
- without contact spring strips, the average shielding amounts to: approx. 50 dB if frequency is between 30 and 100 MHz approx. 40 dB between 100 and 300 MHz and approx. 20 dB for more than 400 MHz
- with contact spring strips the frequency range is approx. 80 dB between 30 and 100 MHz approx. 65 dB between 100 and 300 MHz approx. 50 dB for more than 400 MHz



N 29

Embedded case
Fixing material
19" front panels
19" subracks

→ **M 48 - 49**
 → **N 62**
 → **N 63**
 → **N 20 - 25**

19" insert modules accessory
Insert modules 19"
Part front panels
Profiles for 19" plug-in boxes

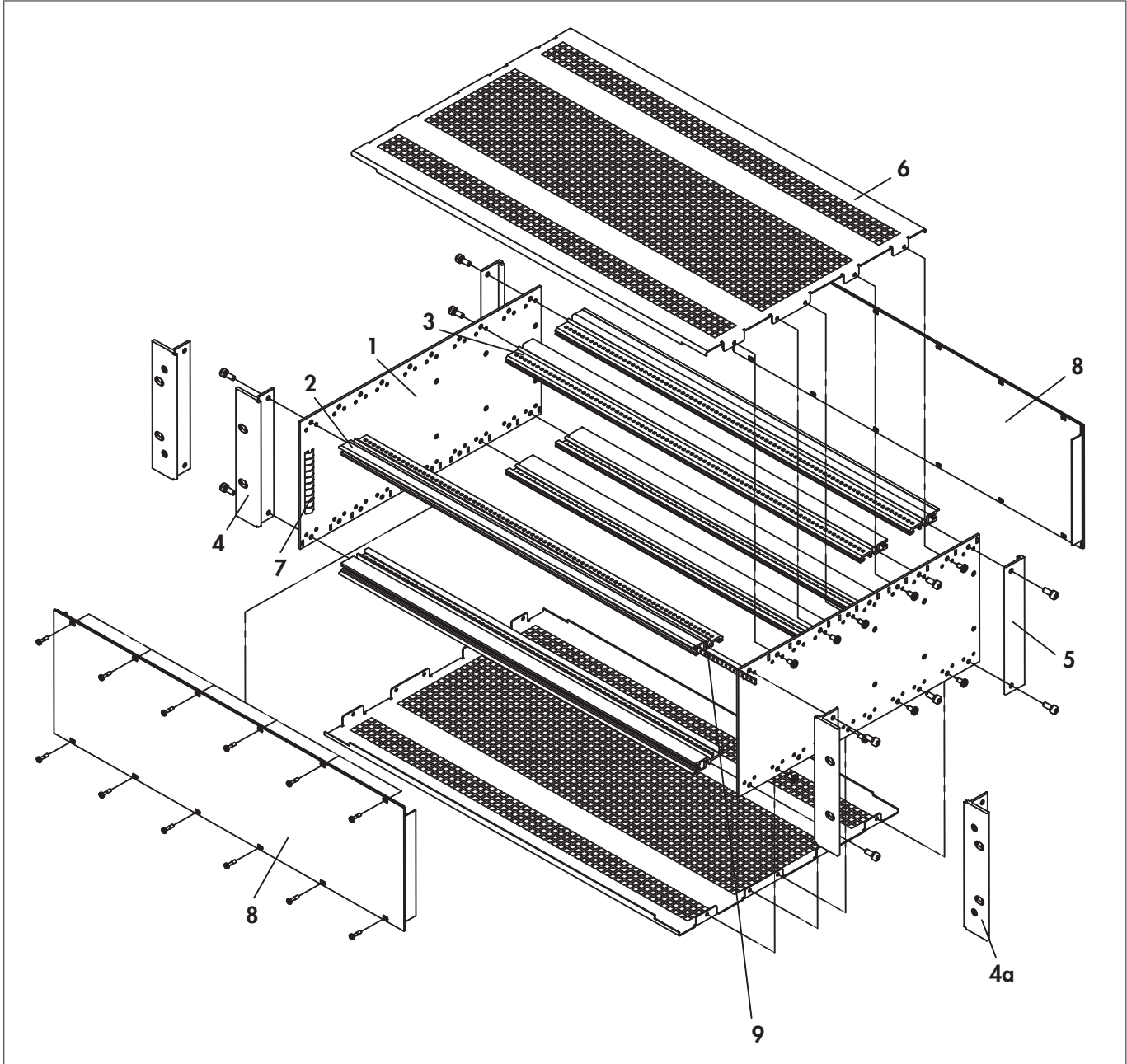
→ **N 26 - 28**
 → **N 34 - 47**
 → **N 51 - 55**
 → **N 66**

19" EMC subracks

– assembly of the subracks also with different positioning of the module rails (dimension l = 60 mm) upon request

1 = side panel; **2** = front module rail **GB 29**; **3** = rear module rail **GB 30**; **4** = 19" fixing angle **EGTO**;
4a = 19" fixing angle **EGTG**; **5** = rear terminal profile **GB 37**; **6** = cover (**OL** or **ML**); **7** = contact spring;
8 = front plate **EGT F 384**

please order separately: 9 = threaded rail **BGT 384/2**



Embedded case
 Fixing material
 19" front panels
 19" subracks

→ M 48 – 49 19" insert modules accessory
 → N 62 Insert modules 19"
 → N 63 Part front panels
 → N 20 – 25 Profiles for 19" plug-in boxes

→ N 26 – 28
 → N 34 – 47
 → N 51 – 55
 → N 66

N 30

A

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L

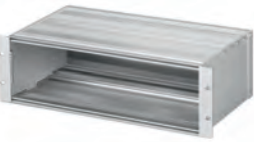
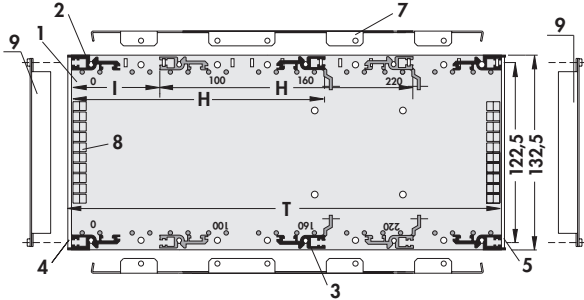


M

N

19" EMC subracks


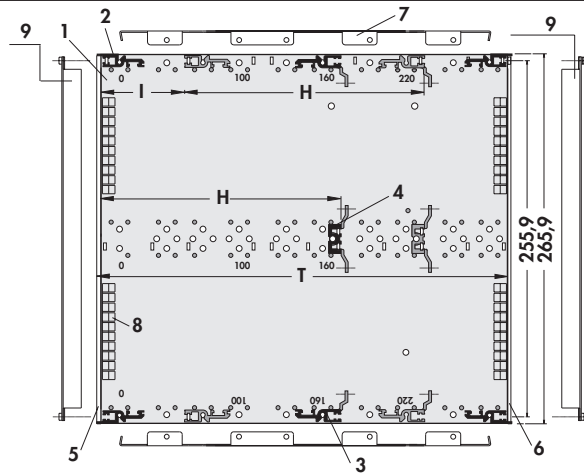
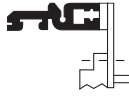

3 U rack subrack

basic unit: **1** = 2 x side panels; **2** = 4 x front module rails; **3** = 2 x rear module rails; **4** = 2 x fixing angles (**EGT O** and **EGT G**); **5** = 2 x rear terminal profiles; **7** = 2 x covers (**OL** or **ML**); **8** = contact springs; mounting material
please order separately: **9** = front-/rear panel art.no. **EGT F 384**

			EGT ... 384 ...	
				EGT ... 384 ... IZ ...
art. no.	fixing part	depth of PCB		dim. [mm]
EGTG 384 240 ...	fixing angle with handle perforation	160	T	H
EGTG 384 300 ...		220	235.5	172.2
EGTO 384 240 ...	fixing angle without handle perforation	160	235.5	172.5
EGTO 384 300 ...		220	295.5	232.2

6 U subracks for Double-Eurocards

basic unit: **1** = 2 x side panels; **2** = 4 x front module rails; **3** = 2 x rear module rails; **4** = 1 x middle connector carrier; **5** = 2 x fixing angles (with handle perforation); **6** = 2 x rear terminal profiles; **7** = 2 x covers (with ventilation slots); **8** = 8 x contact springs, mounting material
please order separately: **9** = front-/rear panel art.no. **EGT F 684**

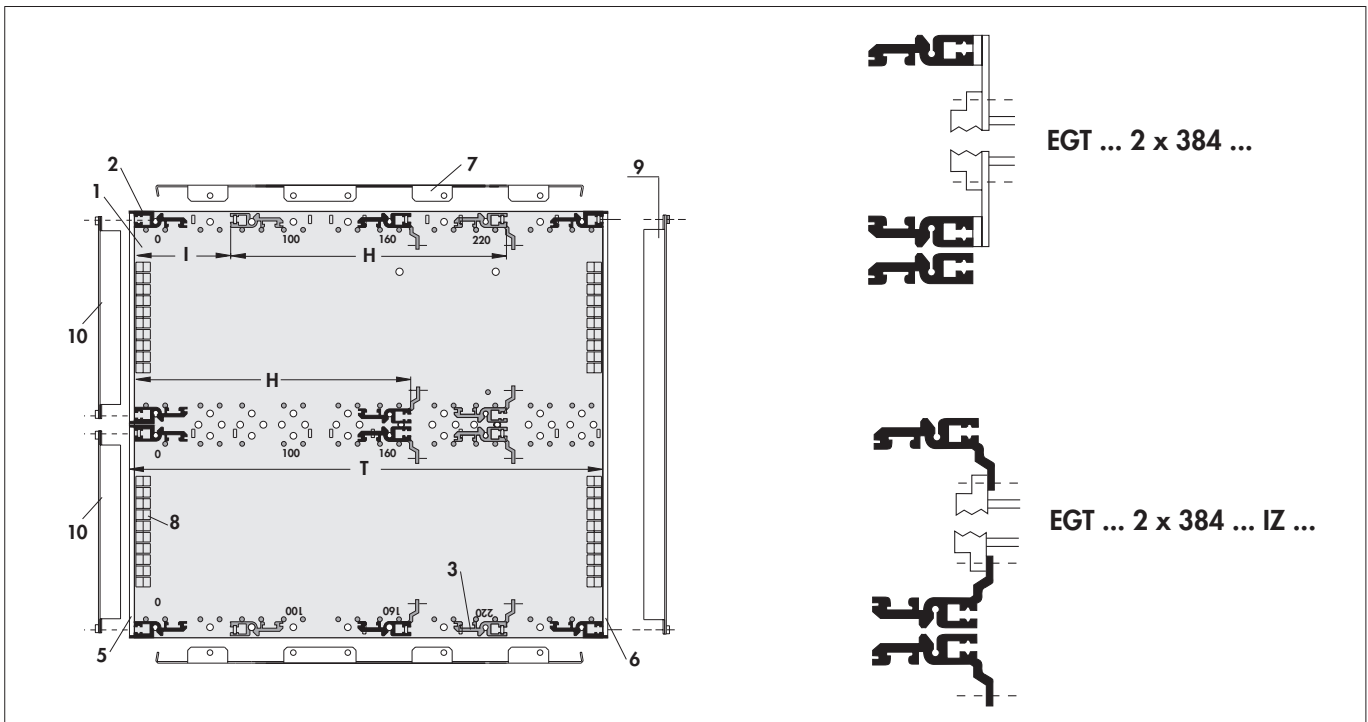
			EGT ... 684 ...	
				EGT ... 684 ... IZ ...
art. no.	fixing part	depth of PCB		dim. [mm]
EGTG 684 240 ...	fixing angle with handle perforation	160	T	H
EGTG 684 300 ...		220	235.5	172.2
please indicate:		... rear module rail (optional)		
IZ = integrated Z-rail		... covers		
		OL = without ventilation slots		
		ML = with ventilation slots		

19" EMC subracks

6 U subracks with sub-division 2 x 3 U



basic unit: **1** = 2 x side panels; **2** = 6 x front module rails; **3** = 4 x rear module rails; **5** = 2 x fixing angles (with handle perforation); **6** = 2 x rear terminal profiles; **7** = 2 x covers (with ventilation slots); **8** = 8 x contact springs; mounting material
please order separately: **9** = front-/rear panel art.no. **EGT F 684**; **10** = front-/rear panel art.no. **EGT F 384**



art. no.	fixing part	dim. [mm]		
		depth of PCB	T	H
EGTG 2 x 384 240 ... ML	fixing angle with handle perforation	160	235.5	172.2
EGTG 2 x 384 300 ... ML		220	295.5	232.2
please indicate: ... rear module rail (optional)				
IZ = integrated Z-rail				

Embedded case
 Fixing material
 19" front panels
 19" subracks

→ M 48 - 49 19" insert modules accessory
 → N 62 Insert modules 19"
 → N 63 Part front panels
 → N 20 - 25 Profiles for 19" plug-in boxes

→ N 26 - 28
 → N 34 - 47
 → N 51 - 55
 → N 66


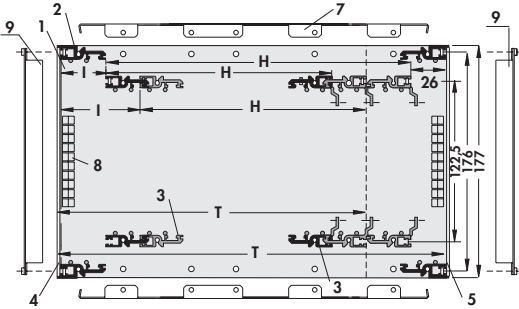


N 32

A
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19" EMC subracks

4 U subracks

basic unit: **1** = 2 x side panels; **2** = 4 x front module rails; **3** = 4 x rear module rails; **4** = 2 x fixing angles (**EGT O** and **EGT G**); **5** = 2 x rear terminal profiles; **7** = 2 x covers (**OL** or **ML**); **8** = 4 x contact springs; mounting material
please order separately: **9** = front-/rear panel art. no. **EGT F 484**

		 EGT ... 484 ...  EGT ... 484 ... IZ ...
art. no.	fixing part	dim. [mm] depth of PCB T H I
EGTG 484 300 ...	fixing angle with handle perforation	220 295.5 232.2 34
EGTO 484 300 ...	fixing angle without handle perforation	220 295.5 232.2 34
please indicate:	... rear module rail (optional) IZ = integrated Z-rail	... covers OL = without ventilation slots ML = with ventilation slots

N 33

Embedded case
 Fixing material
 19" front panels
 19" subracks

→ M 48 - 49
 → N 62
 → N 63
 → N 20 - 25

19" insert modules accessory
 Insert modules 19"
 Part front panels
 Profiles for 19" plug-in boxes

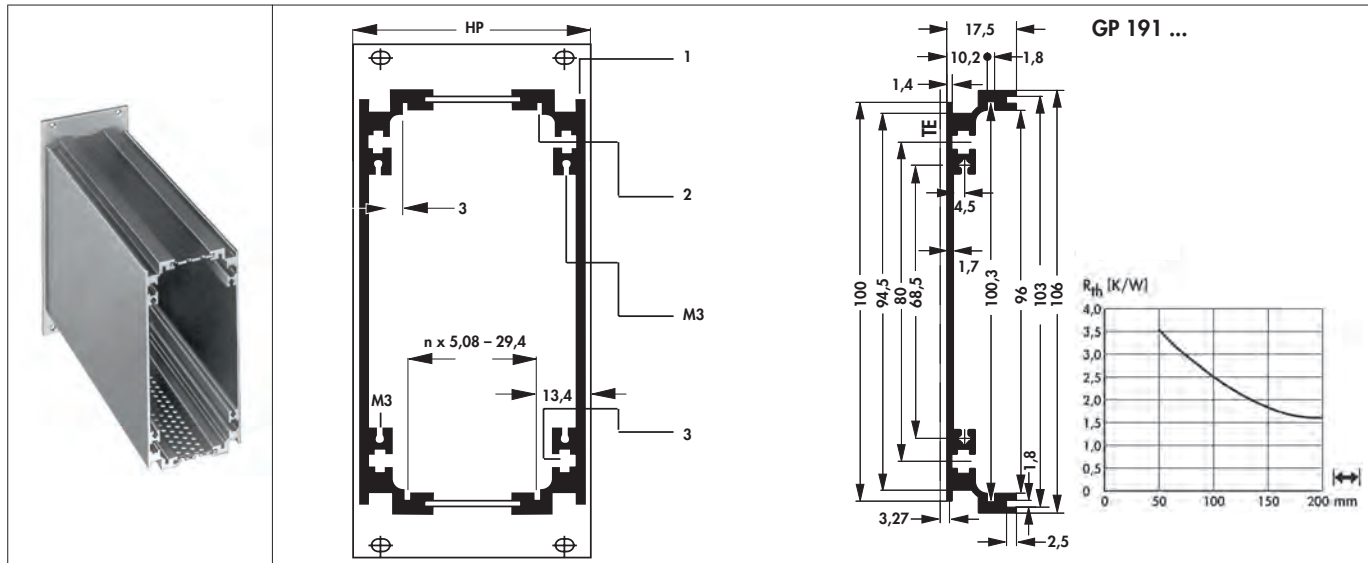
→ N 26 - 28
 → N 34 - 47
 → N 51 - 55
 → N 66

Insert modules for 19" subracks, 3 U

Design A

- standard insert module, with T-grooves for threaded rails, slide nuts or screw head
- rear view without end plate

1 = guide ridge for 19" cases; **2** = slot for Eurocard: distance to guide ridge 2 width-units: 2 x 5.08 mm;
3 = slot for threaded rails, hexagon screws respectively screw nuts M 3



art. no.	Surface	HP	art. no.	Surface	HP	art. no.	Surface	HP
AME 08 ...	ME	8	ASA 08 ...	SA	8	ATP 08 ...	TP	8
AME 09 ...		9	ASA 09 ...		9	ATP 09 ...		9
AME 10 ...		10	ASA 10 ...		10	ATP 10 ...		10
AME 14 ...		14	ASA 14 ...		14	ATP 14 ...		14
AME 20 ...		20	ASA 20 ...		20	ATP 20 ...		20
AME 21 ...		21	ASA 21 ...		21	ATP 21 ...		21
AME 24 ...		24	ASA 24 ...		24	ATP 24 ...		24
AME 28 ...		28	ASA 28 ...		28	ATP 28 ...		28
AME 42 ...		42	ASA 42 ...		42	ATP 42 ...		42

please indicate:

- ... insert depth: 160 220 mm
- ... perforated cover panel (optional): L
- ... cut-out of rear panel: R 1, R 2, R 3
- ... handle (optional): KG = plastic-handle, AG = aluminium-handle

ME = front panel, profiles and rear panel natural colour anodised
SA = front panel natural colour anodised, profiles and rear panel black anodised
TP = front panel, profiles and rear panel transparent passivated
cut-out of rear panel R 1 - R 3 explanation page **available rear panels** → N 46

Profile section

art. no.	Surface	dim. [mm]
GP 191 1000 AL	AL	1000
GP 191 166 ME	ME	166
GP 191 226 ME		226
GP 191 1000 ME		1000

AL = nature degreased
ME = natural colour anodised

- | | | | |
|-------------------------|-------------|--------------------------------|-------------|
| 19" case PLUSLINE | → N 2 | Part front panels | → N 51 - 55 |
| 19" subracks | → N 20 - 62 | 19" EMC subracks | → N 29 - 33 |
| Extractors | → N 61 | PCB holder | → N 58 - 59 |
| Heatsink insert modules | → N 48 | Profiles for 19" plug-in boxes | → N 66 |

N 34

A
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Insert modules for 19" subracks, 3 U

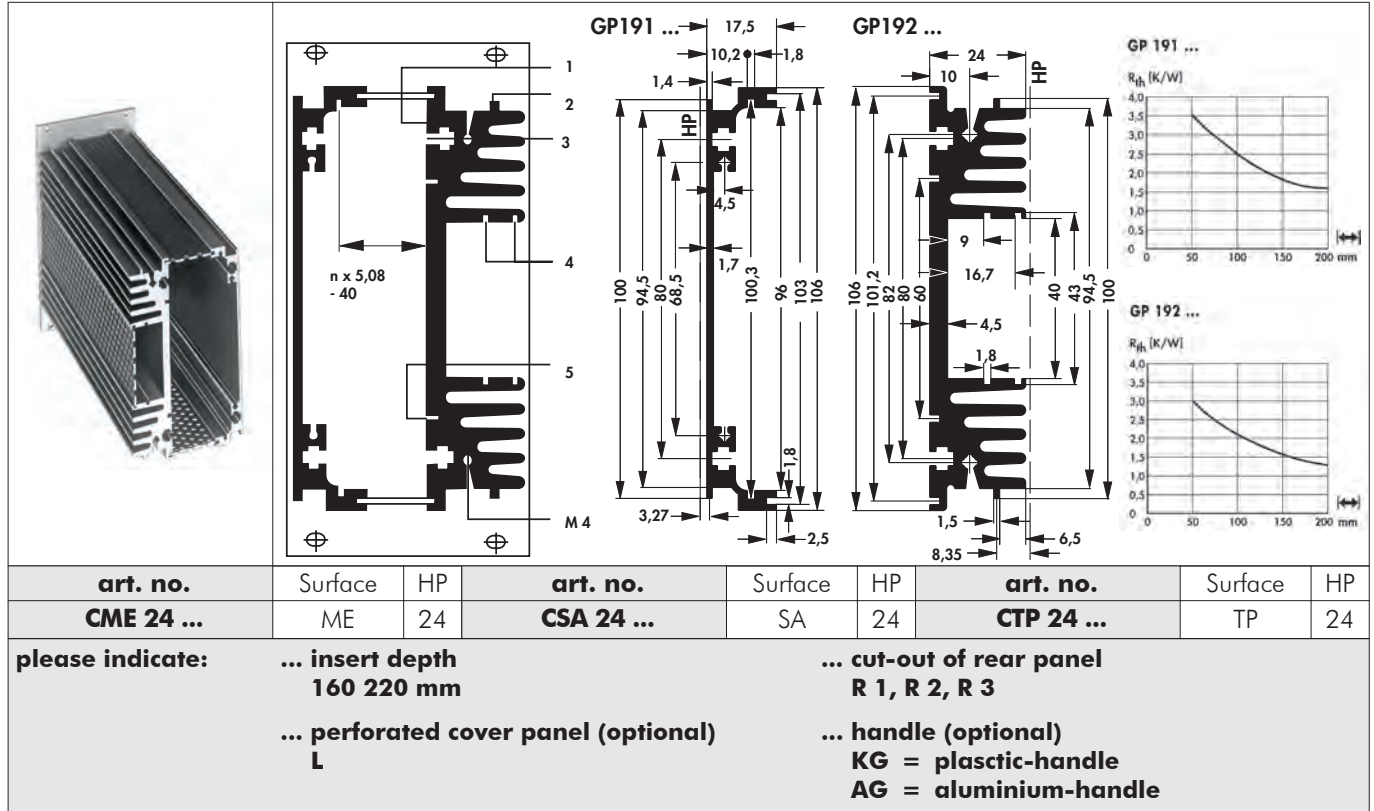
Design C

- with T-grooves for threaded strips, slide nuts M 3 or screw heads
- each side of the insert module with heatsink, incl. guide rails for the cover panels or PCBs
- the guide slots of the outer fins fit into 19" subracks
- upon request the side panel profile can be drilled to all common used transistor pin layouts
- rear view without end plate

1 = guide ridge for 19" cases; **2** = slots for outer plates, cover panels and perforated sheets;

3 = slots for threaded rails, square nuts M 3 and hexagon screws; **4** = slots for integrated circuits, cover panels and perforated sheets;

5 = slots for application of chassis plates, separating plates or PCBs



ME = front panel, profiles and rear panel natural colour anodised

SA = front panel natural colour anodised, profiles and rear panel black anodised

TP = front panel, profiles and rear panel transparent passivated

cut-out of rear panel R 1 - R 3 explanation page **available rear panels** → N 46

Profile section

art. no.	Surface	dim. [mm]	art. no.	Surface	dim. [mm]
GP 191 1000 AL	AL	1000	GP 192 1000 AL	AL	1000
GP 191 166 ME	ME	166	GP 192 166 ME	ME	166
GP 191 226 ME		226	GP 192 226 ME		226
GP 191 1000 ME		1000	GP 192 1000 ME		1000

AL = nature degreased

ME = natural colour anodised

Insert modules for 19" subracks, 3 U

Design E

- standard insert module, with T-grooves for threaded strips, slide nuts M 3 or screw heads
- external screw channels prevent short-circuiting by screw cuttings
- rear view without end plate

1 = guide ridge for 19" case; **2** = slot for Eurocard; **3** = slot for threaded rails, hexagon screws respectively screw nuts M 3;
4 = external screw channel M 3

art. no.	Surface	HP	art. no.	Surface	HP	art. no.	Surface	HP
EME 12 ...	ME	12	ESA 12 ...	SA	12	ETP 12 ...	TP	12
EME 14 ...		14	ESA 14 ...		14	ETP 14 ...		14
EME 16 ...		16	ESA 16 ...		16	ETP 16 ...		16
EME 21 ...		21	ESA 21 ...		21	ETP 21 ...		21
EME 24 ...		24	ESA 24 ...		24	ETP 24 ...		24
EME 28 ...		28	ESA 28 ...		28	ETP 28 ...		28
EME 42 ...		42	ESA 42 ...		42	ETP 42 ...		42

please indicate:

... insert depth
160 220 mm

... perforated cover panel (optional)
L

... cut-out of rear panel
R 1, R 2, R 3

... handle (optional)
KG = plastic-handle
AG = aluminium-handle

ME = front panel, profiles and rear panel natural colour anodised

SA = front panel natural colour anodised, profiles and rear panel black anodised

TP = front panel, profiles and rear panel transparent passivated

cut-out of rear panel R 1 - R 3 explanation page **available rear panels** → N 46

Profile section

art. no.	Surface	dim. [mm]
		↔
GP 193 1000 AL	AL	1000
GP 193 166 ME	ME	166
GP 193 226 ME		226
GP 193 1000 ME		1000

AL = nature degreased

ME = natural colour anodised

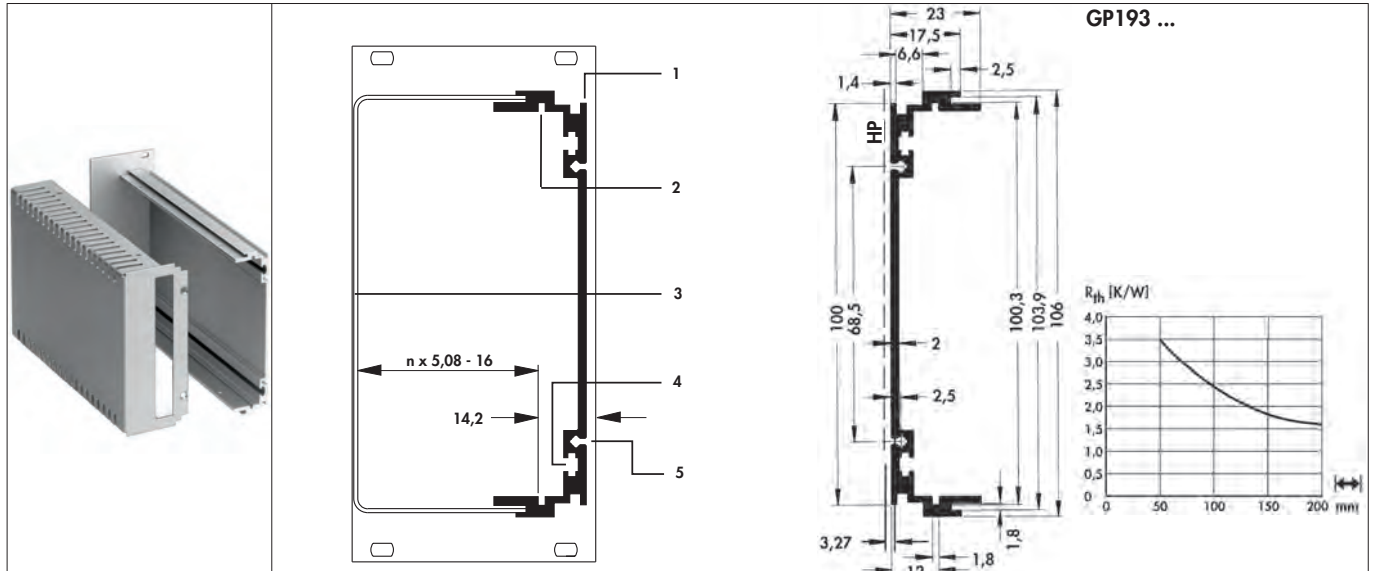
Insert modules for 19" subracks, 3 U

Design F

- with T-grooves for chassis plates, threaded rails for slide nuts or screw heads
- the insert module according to design F consists of one profile type **GP 193** (with external screw channel), one front panel and one cover plate
- the cover plate has ventilation slots
- rear view

1 = guide ridge for 19" subrack; **2** = slot for Eurocard; **3** = cover plate;

4 = slot for threaded rails, hexagon screws respectively screw nuts M 3; **5** = external screw channel M 3



art. no.	Surface	HP	art. no.	Surface	HP	art. no.	Surface	HP
FME 06 ...	ME	6	FSA 06 ...	SA	6	FTP 06 ...	TP	6
FME 07 ...		7	FSA 07 ...		7	FTP 07 ...		7
FME 08 ...		8	FSA 08 ...		8	FTP 08 ...		8
FME 10 ...		10	FSA 10 ...		10	FTP 10 ...		10
FME 12 ...		12	FSA 12 ...		12	FTP 12 ...		12
FME 14 ...		14	FSA 14 ...		14	FTP 14 ...		14

please indicate:	... insert depth 160 220 mm	... cut-out of rear panel R 1, R 2, R 3
	... perforated cover panel (optional) L	... handle (optional) KG = plastic-handle AG = aluminium-handle

ME = front panel, profiles and rear panel natural colour anodised

SA = front panel natural colour anodised, profiles and rear panel black anodised

TP = front panel, profiles and rear panel transparent passivated

cut-out of rear panel R 1 - R 3 explanation page **available rear panels** → N 46

Profile section

art. no.	Surface	dim. [mm]
GP 193 1000 AL	AL	1000
GP 193 166 ME	ME	166
GP 193 226 ME		226
GP 193 1000 ME		1000

AL = nature degreased

ME = natural colour anodised

N 37

19" case PLUSLINE
19" subracks
Extractors
Heatsink insert modules

→ N 2
→ N 20 - 62
→ N 61
→ N 48

Part front panels
19" EMC subracks
PCB holder
Profiles for 19" plug-in boxes

→ N 51 - 55
→ N 29 - 33
→ N 58 - 59
→ N 66


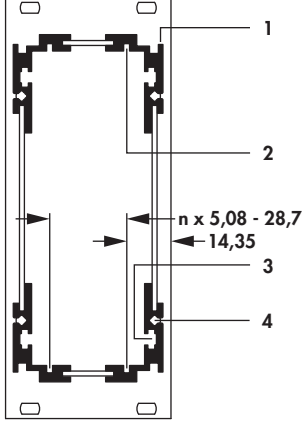
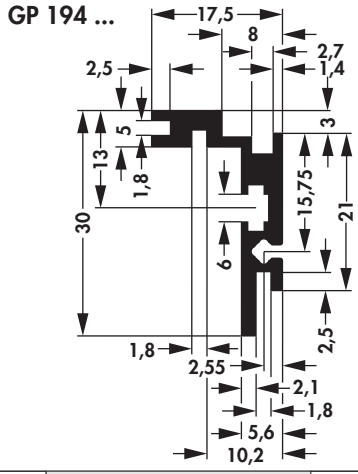
Insert modules for 19" subracks, 3 U

Design G

- insert modules made of four corner extrusions with T-grooves for threaded rails, slide nuts M 3 or screw heads
- with the corner extrusions the insert modules can be produced in any standard size and in any customer specific size
- external screw channels prevent short circuits by screw swarfs
- photo view from rear with removed back panel

1 = guide ridge for 19" case; **2** = slot for PCB guides;

3 = slot for threaded rails, hexagon screws respectively screw nuts M 3; **4** = external screw channel M 3

art. no.	Surface	HP	art. no.	Surface	HP	art. no.	Surface	HP
GME 10 ...	ME	10	GSA 10 ...	SA	10	GTP 10 ...	TP	10
GME 12 ...		12	GSA 12 ...		12	GTP 12 ...		12
GME 14 ...		14	GSA 14 ...		14	GTP 14 ...		14
GME 16 ...		16	GSA 16 ...		16	GTP 16 ...		16
GME 20 ...		20	GSA 20 ...		20	GTP 20 ...		20

please indicate:

... insert depth
160 220 mm

... perforated cover panel (optional)
L

... cut-out of rear panel
R 1, R 2, R 3

... handle (optional)
KG = plastic-handle
AG = aluminium-handle

ME = front panel, profiles and rear panel natural colour anodised

SA = front panel natural colour anodised, profiles and rear panel black anodised

TP = front panel, profiles and rear panel transparent passivated

cut-out of rear panel R 1 - R 3 explanation page **available rear panels** → N 46

Profile section

art. no.	Surface	dim. [mm]
GP 194 1000 AL	AL	1000
GP 194 166 ME	ME	166
GP 194 226 ME		226
GP 194 1000 ME		1000

AL = nature degreased

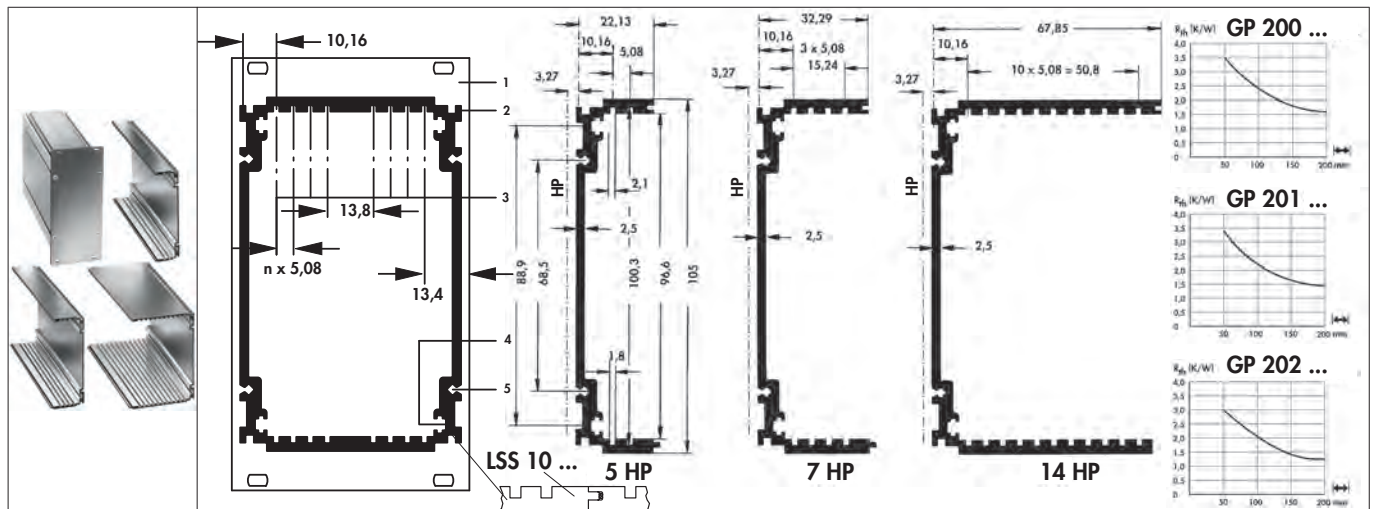
ME = natural colour anodised

Insert modules for 19" subracks, 3 U

Design HB

- HF-shielded insert module with integrated card guide
- with T-grooves for threaded strips or M 2.5 square nuts
- the insert module HB consists of two aluminium profiles, which are assembled to a tubus, as well as front panel and rear panel
- upon request the profiles of the module can be combined with the profiles of our case series **KO**
- guide grooves in the aluminium profile allow parallel placing of several Eurocards
- if **TP** (chrome-free transparent passivated) is chosen as surface treatment the module can shield high-frequency radiation
- improvement of the shielding by means of insertion of conductive silicone tubes in the longitudinal groove art. no. **LSS 10** → M 71

1 = front plate; **2** = guide ridge for 19" subrack; **3** = slot for Eurocard;
4 = slot for threaded strips, respectively square nuts M 2.5; **5** = external screw channel M 3



art. no.	Surface	HP	n	art. no.	Surface	HP	n	art. no.	Surface	HP	n
HBME 10 ...	ME	10	4	HBSA 10 ...	SA	10	4	HBTP 10 ...	TP	10	4
HBME 12 ...		12	6	HBSA 12 ...		12	6	HBTP 12 ...		12	6
HBME 14 ...		14	8	HBSA 14 ...		14	8	HBTP 14 ...		14	8
HBME 19 ...		19	13	HBSA 19 ...		19	13	HBTP 19 ...		19	13
HBME 21 ...		21	15	HBSA 21 ...		21	15	HBTP 21 ...		21	15
HBME 28 ...		28	22	HBSA 28 ...		28	22	HBTP 28 ...		28	22

please indicate:

- ... insert depth: 160 220 mm
- ... perforated cover panel (optional): L
- ... cut-out of rear panel: R 1, R 2, R 3
- ... handle (optional): KG = plastic-handle, AG = aluminium-handle

ME = front panel, profiles and rear panel natural colour anodised
SA = front panel natural colour anodised, profiles and rear panel black anodised
TP = front panel, profiles and rear panel transparent passivated
cut-out of rear panel R 1 - R 3 explanation page **available rear panels** → N 46

Profile section

art. no.	Surface	dim. [mm]	art. no.	Surface	dim. [mm]	art. no.	Surface	dim. [mm]
GP 200 1000 AL	AL	1000	GP 201 1000 AL	AL	1000	GP 202 1000 AL	AL	1000
GP 200 166 ME	ME	166	GP 201 166 ME	ME	166	GP 202 166 ME	ME	166
GP 200 226 ME		226	GP 201 226 ME		226	GP 202 1000 ME		1000
GP 200 1000 ME		1000	GP 201 1000 ME		1000	GP 202 226 ME		226


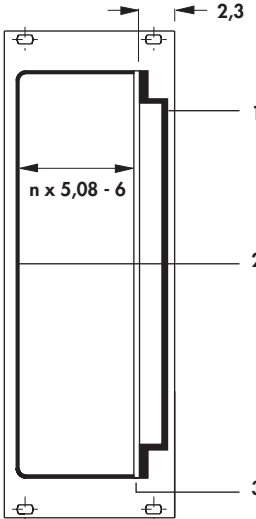
AL = nature degreased
ME = natural colour anodised

Insert modules for 19" subracks, 3 U

Design I

- shielding panel made of aluminium for your 100 x 160 mm Eurocard
- compatible PCB cover made of plastic and front panels
- rear view

1 = PCB cover LDK 3 160 → N 60; 2 = shielding panel; 3 = Eurocard

art. no.	Surface	HP	art. no.	Surface	HP	art. no.	Surface	HP
IME 04 ...	ME	4	ISA 04 ...	SA	4	ITP 04 ...	TP	4
IME 05 ...		5	ISA 05 ...		5	ITP 05 ...		5
IME 06 ...		6	ISA 06 ...		6	ITP 06 ...		6

please indicate:

... insert depth
160 220 mm

... perforated cover panel (optional)
L

... cut-out of rear panel
R 1, R 2, R 3

... handle (optional)
KG = plastic-handle
AG = aluminium-handle

ME = front panel, profiles and rear panel natural colour anodised

SA = front panel natural colour anodised, profiles and rear panel black anodised

TP = front panel, profiles and rear panel transparent passivated

cut-out of rear panel R 1 - R 3 explanation page **available rear panels** → N 46

Insert modules for 19" subracks, 3 U

Design L

- with T-grooves for threaded strips, slide nuts M 3 or screw heads
- external screw channels prevent short-circuiting by screw cuttings
- perforated cover panel for ventilation and for insertion of guide rails **FSB KW 160** → N 50
- several eurocards with mounted part front panel **TFP KG R 3** → N 55 can be put together as one functional block
- by using the rear panel **R 5** several female connectors can be mounted for the internal wiring of the cards

1 = guide ridge for 19" case; **2** = slot for Eurocard; **3** = slot for hole spacing strips, hexagon screws respectively screw nuts M 3
4 = external screw channel M 3; **5** = guide rails for mounting in the perforated cover panel

GP 190 ...

art. no.	Surface	HP	art. no.	Surface	HP	art. no.	Surface	HP
LME 14 ...	ME	14	LSA 14 ...	SA	14	LTP 14 ...	TP	14
LME 21 ...		21	LSA 21 ...		21	LTP 21 ...		21
LME 28 ...		28	LSA 28 ...		28	LTP 28 ...		28

please indicate:

- ... insert depth
160 220 mm
- ... perforated cover panel (optional)
L

- ... cut-out of rear panel
R 1, R 2, R 3, R 5
- ... handle (optional)
KG = plastic-handle
AG = aluminium-handle

ME = front panel, profiles and rear panel natural colour anodised
SA = front panel natural colour anodised, profiles and rear panel black anodised
TP = front panel, profiles and rear panel transparent passivated
cut-out of rear panel R 1 - R 3 / R 5 explanation page **available rear panels** → N 46

Profile section

art. no.	Surface	dim. [mm]
GP 190 1000 AL	AL	1000
GP 190 166 ME	ME	166
GP 190 226 ME		226
GP 190 1000 ME		1000

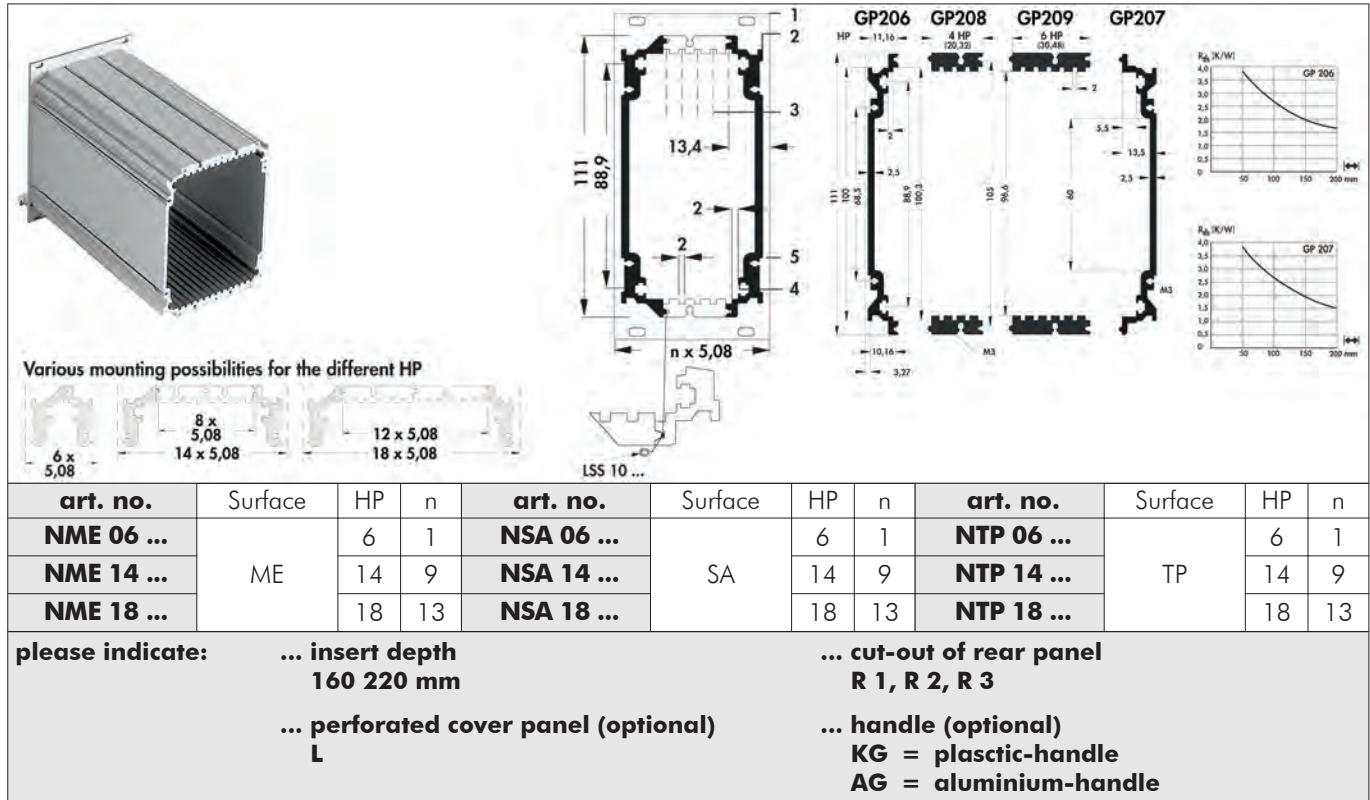
AL = nature degreased
ME = natural colour anodised

Insert modules for 19" subracks, 3 U

Design N

- grid spacing module consisting of left and right aluminium side profiles and aluminium intermediate profiles acc. to the spacing widths (HP)
- standardised insertion on the left and right side into guide rails; continuous installation grid space of 1 HP (5.08 mm)
- specially designed for BUS-PCB wiring
- good EMC screening due to narrow screw grid space to the rear and front panels as well as chrome-free transparent passivated surface
- improvement of screening features by insertion of a conductive silicon tube art. no. **LSS 10** → M 71 into the longitudinal groove
- front panel with continuous aluminium (**AG**) or plastic (**KG**) handle (≥ 16 HP = 2 plastic handles)
- rear panel cut-out **R 2 / R 3** up from 14 HP possible

1 = front panel; **2** = guide ridge for 19" subrack; **3** = slot for Eurocard guide;
4 = slot for threaded rails respectively square nut M 2.5; **5** = external screw channel M 3



ME = front panel, profiles and rear panel natural colour anodised
SA = front panel natural colour anodised, profiles and rear panel black anodised
TP = front panel, profiles and rear panel transparent passivated
cut-out of rear panel R 1 - R 3 explanation page **available rear panels** → N 46

Profile section

art. no.	Surface	dim. [mm]	art. no.	Surface	dim. [mm]	
GP 206 1000 AL	AL	1000	GP 208 1000 AL	AL	1000	
GP 206 166 ME	ME	166	GP 208 166 ME	ME	166	
GP 206 226 ME		226	GP 208 226 ME		226	
GP 206 1000 ME		1000	GP 208 1000 ME		1000	
GP 207 1000 AL	AL	1000	GP 209 1000 AL	AL	1000	
GP 207 166 ME	ME		166	GP 209 166 ME		166
GP 207 226 ME			226	GP 209 226 ME		226
GP 207 1000 ME		1000	GP 209 1000 ME		1000	

AL = nature degreased
ME = natural colour anodised

- | | | | |
|-------------------------|-------------|--------------------------------|-------------|
| 19" case PLUSLINE | → N 2 | Part front panels | → N 51 – 55 |
| 19" subracks | → N 20 – 62 | 19" EMC subracks | → N 29 – 33 |
| Extractors | → N 61 | PCB holder | → N 58 – 59 |
| Heatsink insert modules | → N 48 | Profiles for 19" plug-in boxes | → N 66 |

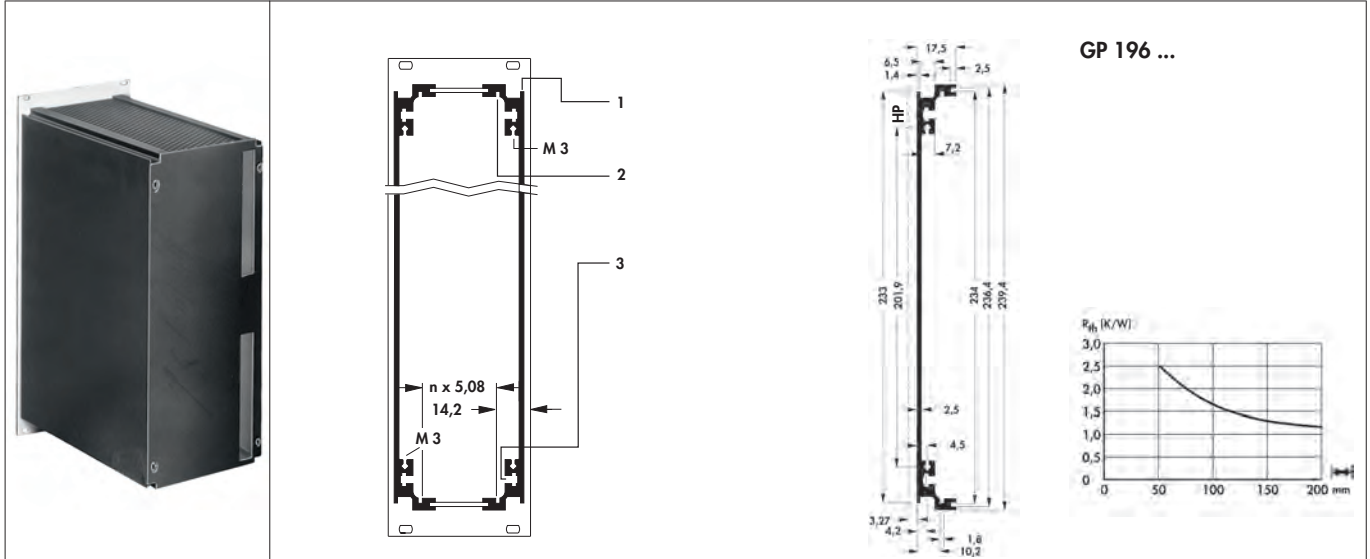
A
B
C
D
E
F
G
H
I
K
L
M
N

Insert modules for 19" subracks, 6 U

Design S

- 6 U counterpart to **design A** → N 34
- with T-grooves for threaded rails, insertion screws M 3 or screw nuts
- the rear plate consists of one continuous sheet without cutout for rear module rails
- rear view with rear plate

1 = guide ridge for 19" case; **2** = slot for Eurocard; **3** = slot for threaded rails, hexagon screws respectively screw nuts M 3



art. no.	Surface	HP	art. no.	Surface	HP	art. no.	Surface	HP	
SME 14 ...	ME	14	SSA 14 ...	SA	14	STP 14...	TP	14	
SME 21 ...		21	SSA 21 ...		21	STP 21 ...		21	
SME 28 ...		28	SSA 28 ...		28	STP 28 ...		28	
please indicate:		... insert depth 160 220 mm		... cut-out of rear panel R 1, R 2, R 3		... handle (optional) KG = plastic-handle AG = aluminium-handle			
		... perforated cover panel (optional) L							

- ME** = front panel, profiles and rear panel natural colour anodised
SA = front panel natural colour anodised, profiles and rear panel black anodised
TP = front panel, profiles and rear panel transparent passivated
cut-out of rear panel R 1 - R 3 explanation page **available rear panels** → N 46

Profile section

art. no.	Surface	dim. [mm]
GP 196 1000 AL	AL	1000
GP 196 166 ME	ME	166
GP 196 226 ME		226
GP 196 1000 ME		1000

- AL** = nature degreased
ME = natural colour anodised

Insert modules for 19" subracks, 6 U

Design V

- the design V forms the 6 U counterpart to **design F** → N 37
- with T-grooves for threaded strips, slide nuts M 3 or screw heads
- the insert module according to design V consists of one profile type **GP 195** (with external screw channel), one front panel and one cover panel
- the cover has ventilation slots
- the insert module is in correspondence to DIN 41494
- the design is provided with space for fixing elements of the subrack
- rear view with rear plate

1 = guide ridge for 19" subrack; **2** = slot for Eurocard; **3** = cover plate;
4 = slot for threaded rails, hexagon screws respectively screw nuts M 3; **5** = external screw channel M 3

art. no.	Surface	HP	art. no.	Surface	HP	art. no.	Surface	HP
VME 09 ...	ME	9	VSA 09 ...	SA	9	VTP 09 ...	TP	9
VME 10 ...		10	VSA 10 ...		10	VTP 10 ...		10

please indicate:

... insert depth
160 220 mm

... perforated cover panel (optional)
L

... cut-out of rear panel
R 1, R 2, R 3

... handle (optional)
KG = plastic-handle
AG = aluminium-handle

ME = front panel, profiles and rear panel natural colour anodised
SA = front panel natural colour anodised, profiles and rear panel black anodised
TP = front panel, profiles and rear panel transparent passivated
cut-out of rear panel R 1 - R 3 explanation page **available rear panels** → N 46

Profile section

art. no.	Surface	dim. [mm]
GP 195 1000 AL	AL	1000
GP 195 166 ME	ME	166
GP 195 226 ME		226
GP 195 1000 ME		1000

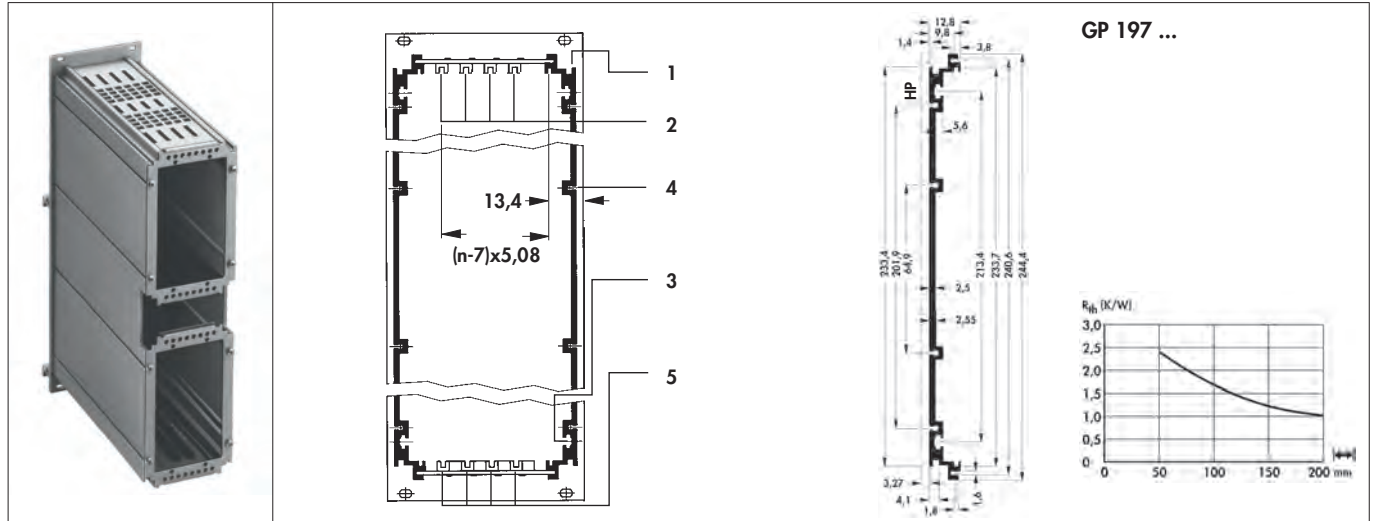
AL = nature degreased
ME = natural colour anodised

Insert modules for 19" subracks, 6 U

Design W

- external screw channels prevent short-circuiting by screw cuttings
- on one hand the perforation in the cover panels provide a vertical ventilation of the module and on the other hand for mounting additional Eurocards via guide rails **FSB KW 160** → N 50
- several female connectors can be mounted to the rear panel to enable interwiring of Eurocards
- rear view with end plate

1 = guide ridge for 19" case; **2** = slot for Eurocard; **3** = slot for hole spacing strips, hexagon screws resp. screw nuts M 3; **4** = external screw channel M 3; **5** = guide rails for mounting in the perforated cover panel



art. no.	Surface	HP	art. no.	Surface	HP	art. no.	Surface	HP
WME 14 ...	ME	14	WSA 14 ...	SA	14	WTP 14 ...	TP	14
WME 21 ...		21	WSA 21 ...		21	WTP 21 ...		21
WME 28 ...		28	WSA 28 ...		28	WTP 28 ...		28
WME 42 ...		42	WSA 42 ...		42	WTP 42 ...		42

please indicate:	... insert depth 160 220 mm	... cut-out of rear panel R 1, R 2, R 3, R 5
	... perforated cover panel (optional) L	... handle (optional) KG = plastic-handle AG = aluminium-handle

ME = front panel, profiles and rear panel natural colour anodised
SA = front panel natural colour anodised, profiles and rear panel black anodised
TP = front panel, profiles and rear panel transparent passivated
cut-out of rear panel R 1 - R 3 / R 5 explanation page **available rear panels** → N 46

Profile section

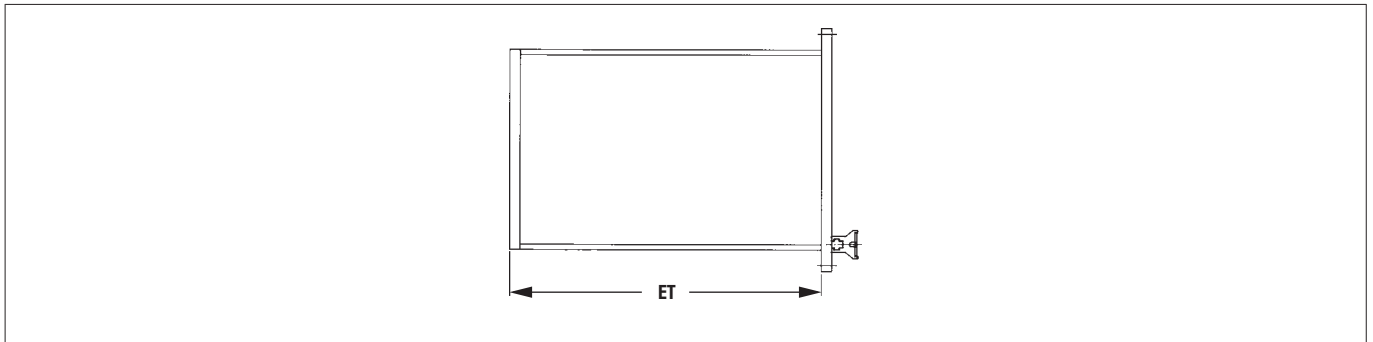
art. no.	Surface	dim. [mm]
GP 197 1000 AL	AL	1000
GP 197 166 ME	ME	166
GP 197 226 ME		226
GP 197 1000 ME		1000

AL = nature degreased
ME = natural colour anodised

Accessories for insert modules

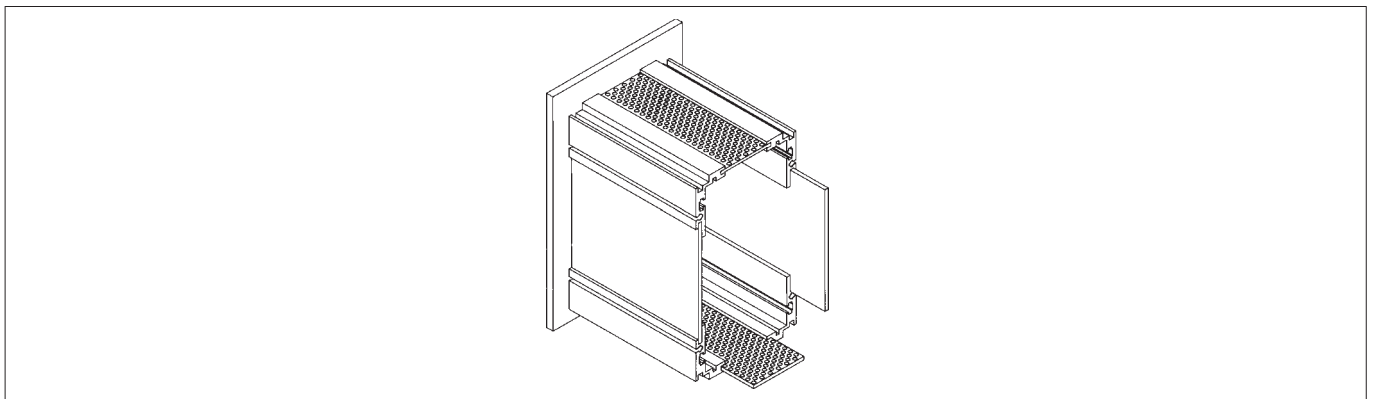
Insert depth "ET"

- **160** = insert depth $168^{+0.5}$ mm, suitable for Eurocards 100×160 mm / 233.4×160 mm
- **220** = insert depth $228^{+0.5}$ mm, suitable for Eurocards 100×220 mm / 233.4×220 mm



Perforated cover panel "L"

- hole diameter 3.2 mm only for designs **A, C, D, E, G** und **S**



Handles "AG / KG"

- **AG** = front panel with anodised aluminium-handle and fixing material
- **KG** = front panel with plastic-handle, anodised aluminium-insert strip and fixing material

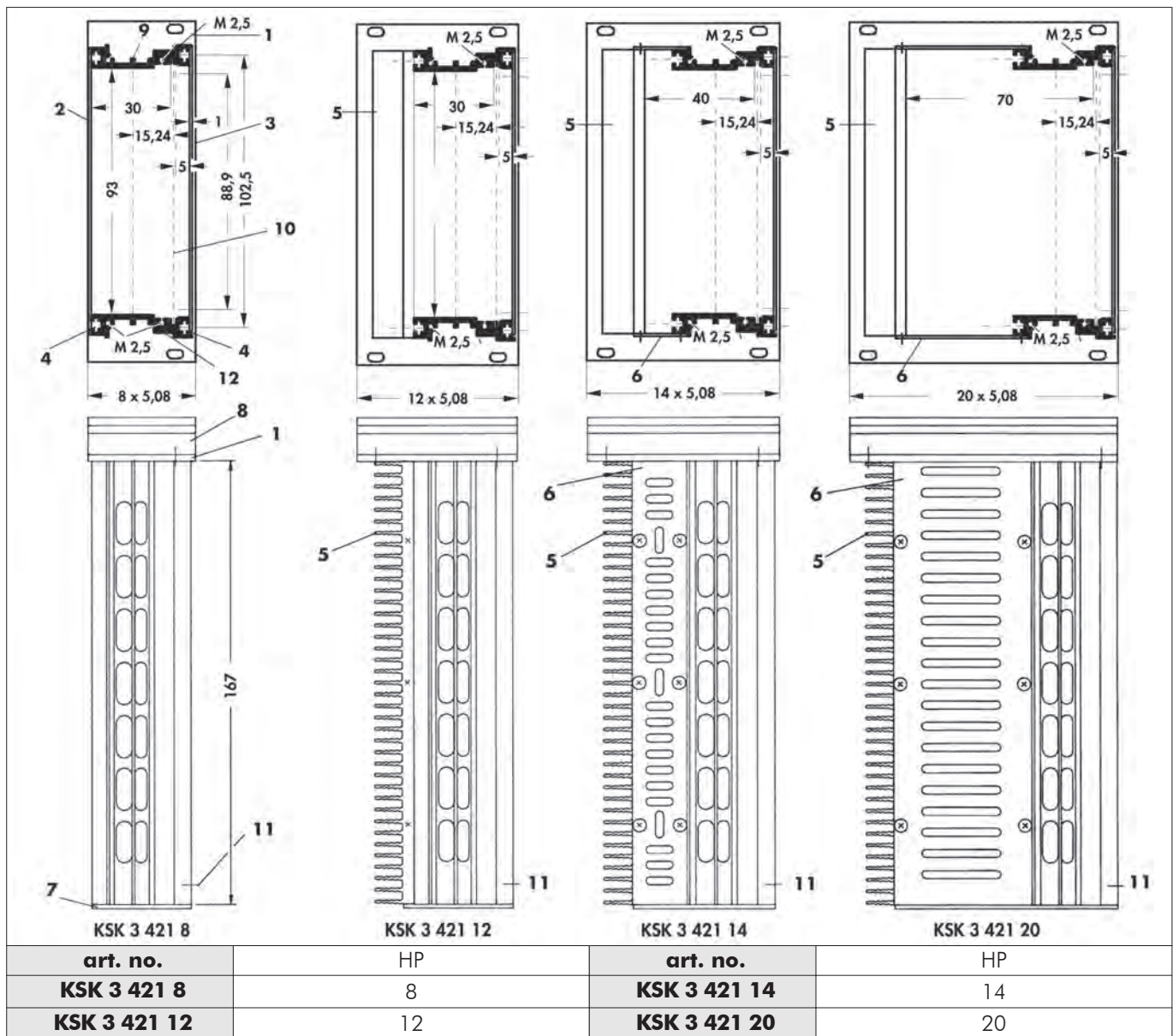


Heatsink insert modules



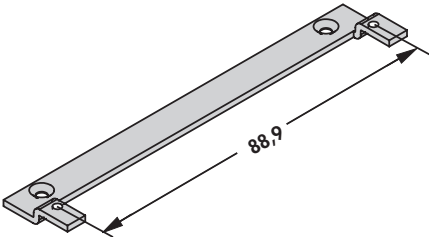
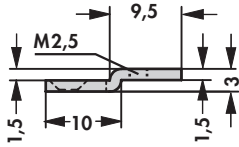
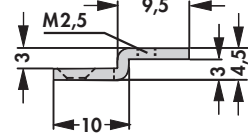
- 3 U insert modules with side panels made of heatsink profile, optimal heat dissipation due to fluted cooling fins
- profiles with ventilation slots and internal guiding ridges
- rear panel cut-out for connectors DIN 41612 designs B, C, D, F and H
- front panel treatments, further heights or HPs on request
- front panel, rear panel and profile natural colour anodised, heatsink black anodised

1 = front panel; **2** = screening plate, right side; **3** = screening plate, left side; **4** = for threaded rail or nut M 2.5; **5** = heatsink **SK 421**; **6** = tab, perforated; **7** = rear panel; **8** = plastic handle **GLK**; **9** = guiding ridge in the subrack; **10** = internal card guide; **11** = drilling for card; **12** = profile GP 199 → N 70



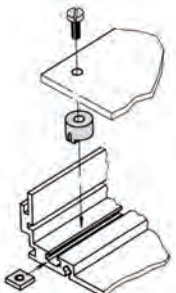
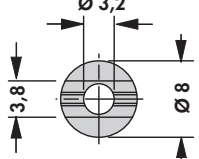
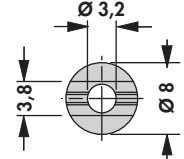
Accessories for insert modules

Fixing strap

	BFL 30	BFL 42
		
art. no.	suitable for type	
BFL 42	insert modules design E, F	

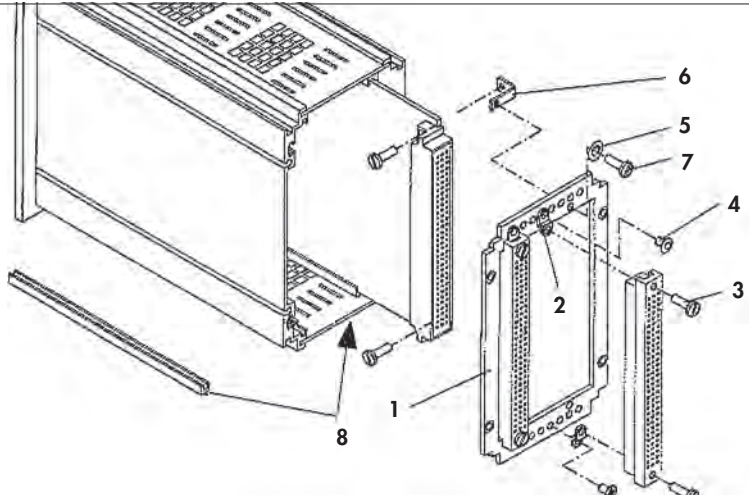
mounting set

- for vibration-free fixing of PCBs within insert modules
- a distance sleeve provides an isolation and prevents deflection
- **VPE**: packing unit

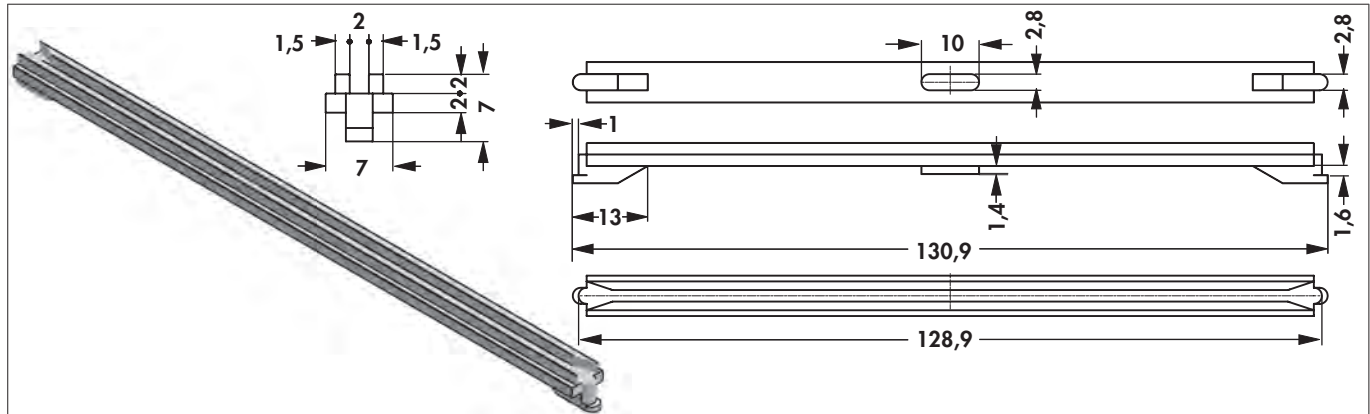
	BFS 1	BFS 2
		
art. no.	suitable for type	
BFS 1	insert modules design A, B, C, S	
BFS 2	insert modules design E, F, T, V	
		VPE
		1 set = 4 pieces

Fixing angle

1 = rear panel R 5 → N 46; **2** = fixing angle **BWF R 5**; **3** = cheese head screw M 2.5 x 5; **5** = spring washer; **6** = fixing angle **BWM R 5**; **7** = cheese head screw M 2.5 x 3; **8** = guide rail **FSB KW 160**

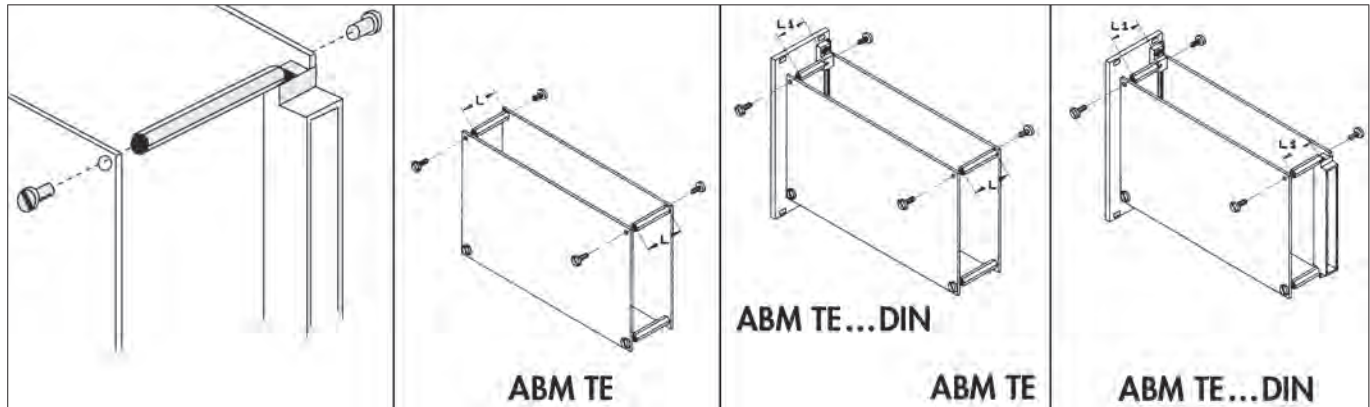
	art. no.	suitable for type
	BWF R 5	female connectors on the rear panel R 5 for the insert module design HB, L, W and X
	BWM R 5	male connectors on the rear panel R 5 for the insert module design HB, L, W and X

Guide rail



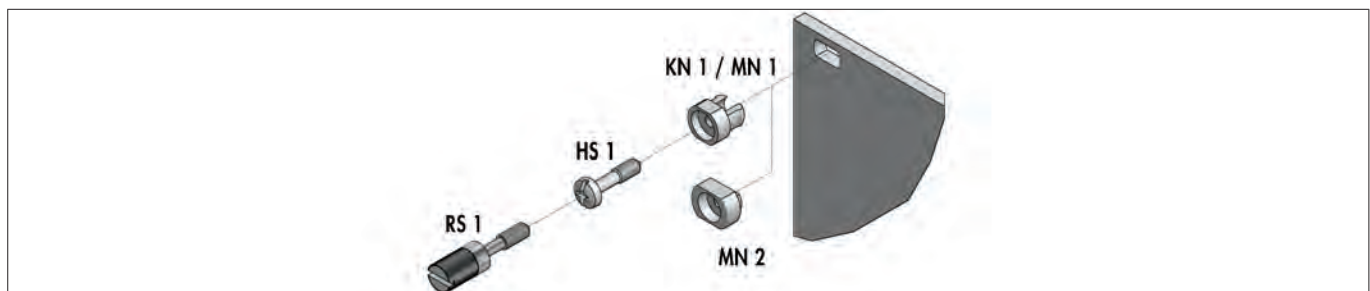
art. no.	suitable for type	dim. [mm]
FSB KW 160	the perforated cover plate of insert module designs KP, L, W and X	130
colour:	grey	
material:	PBT, self-extinguishing	

– distance sleeves for PCB's in HP grid → **f.cool ABM ...**



Mounting material

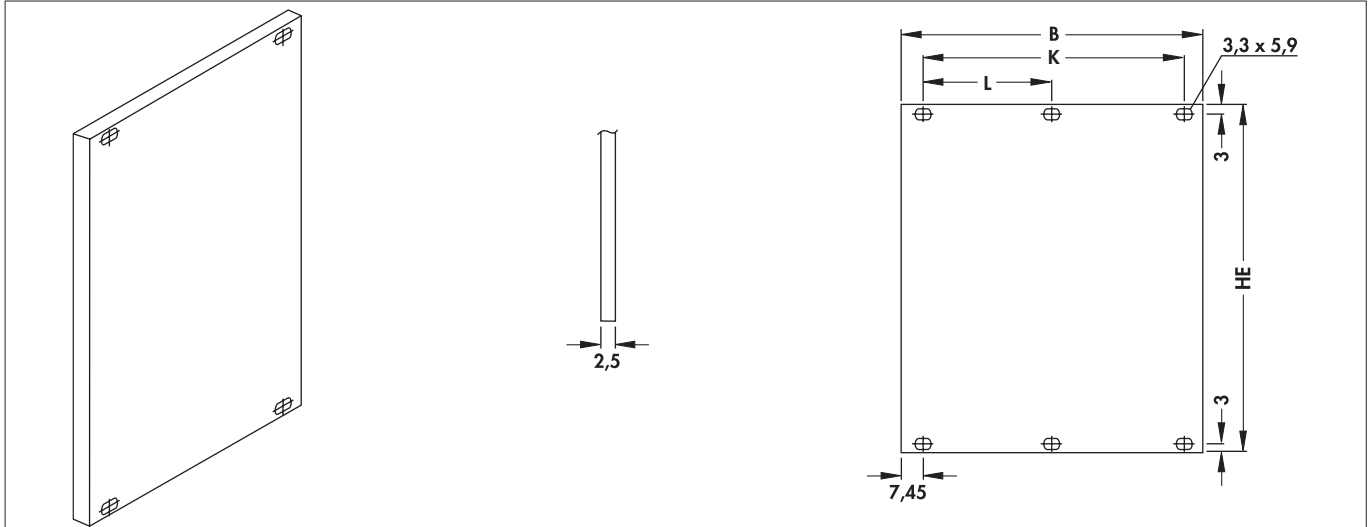
- for locking insert modules and part front panels into the subrack
- **KN 1**: plastic sleeves for clipping in
- **MN 1**: metal sleeves / **MN 2**: metal sleeves for pressing in; fixed connection to the front panel
- **HS 1**: captive screw, brass nickel plated / **RS 1**: knurled screw with slot, brass nickel plated
- **VPE**: packing unit



art. no.	VPE	art. no.	VPE	art. no.	VPE
HS 1	100 pcs./bag	MN 1	10 pcs./bag	RS 1	100 pcs./bag
KN 1		MN 2			
	HS 1 / MN 1+2 / RS 1			KN 1	
material	brass, nickel plated			polyamide	

Part front panels

- 3 HE: H = 128.4 mm
- 6 HE: H = 261.8 mm
- **HP** = width unit = 5.08 mm
- **U** = height unit = 44.45 mm



art. no.	U	HP	dim. [mm]			art. no.	U	HP	dim. [mm]				
			B	K	L				B	K	L		
TFP 3 3 ...	3	3	14.9	—	—	TFP 6 3 ...	6	3	14.9	—	—		
TFP 3 4 ...		4	20.0			TFP 6 4 ...		4	20.0				
TFP 3 5 ...		5	25.1			TFP 6 5 ...		5	25.1				
TFP 3 6 ...		6	30.2			TFP 6 6 ...		6	30.2				
TFP 3 7 ...		7	35.3			TFP 6 7 ...		7	35.3				
TFP 3 8 ...		8	40.3			TFP 6 8 ...		8	40.3				
TFP 3 9 ...		9	45.4			TFP 6 9 ...		9	45.4				
TFP 3 10 ...		10	50.5	35.6		TFP 6 10 ...		10	50.5	35.6			
TFP 3 12 ...		12	60.7	45.7		TFP 6 12 ...		12	60.7	45.7			
TFP 3 14 ...		14	70.8	55.9		TFP 6 14 ...		14	70.8	55.9			
TFP 3 16 ...		16	81.0	66.0		TFP 6 16 ...		16	81.0	66.0			
TFP 3 18 ...		18	91.1	76.2		TFP 6 18 ...		18	91.1	76.2			
TFP 3 20 ...		20	101.3	86.4		TFP 6 20 ...		20	101.3	86.4			
TFP 3 21 ...		21	106.4	91.4		TFP 6 21 ...		21	106.4	91.4			
TFP 3 24 ...		24	121.6	106.7		TFP 6 24 ...		24	121.6	106.7			
TFP 3 28 ...		28	141.9	127.0		TFP 6 28 ...		28	141.9	127.0			
TFP 3 40 ...		40	202.9	188.0		TFP 6 40 ...		40	202.9	188.0			
TFP 3 42 ...		42	213.1	198.1		101.8		TFP 6 42 ...	42	213.1		198.1	101.8
TFP 3 60 ...		60	304.5	289.6		147.3		TFP 6 60 ...	60	304.5		289.6	147.3
TFP 3 63 ...		63	319.7	304.8		152.4		TFP 6 63 ...	63	319.7		304.8	152.4
TFP 3 84 ...	84	426.4	411.5	203.2	TFP 6 84 ...	84	426.4	411.5	203.2				

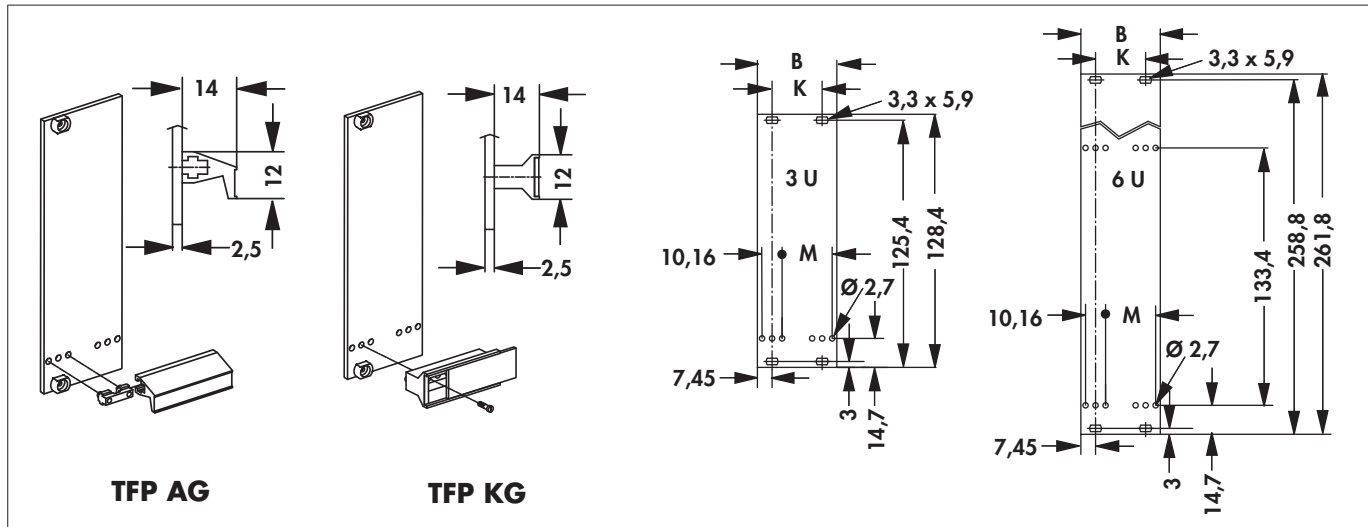
please indicate: ... metal nipples (optional)
MN 2 = pressed in

surface: natural colour anodised

Part front panels

Part front panel with handle

- **TFP OG** part front panel without handle with handle perforation
- **TFP AG** part front panel with anodised aluminium handle and fixing material
- **TFP KG** part front panel with plastic-handle, anodised insert strip and fixing material
- **TFP KG ...** only 4-8 and 10-14
- **HP** = width unit = 5.08 mm; **U** = height unit = 44.45 mm



art. no.	U	HP	dim. [mm]			art. no.	U	HP	dim. [mm]				
			B	K	M				B	K	M		
TFP ... 3 4 ...	3	4	20.0	—	5.08	TFP ... 6 4 ...	6	4	20.0	—	5.08		
TFP ... 3 5 ...		5	25.1		10.16	TFP ... 6 5 ...		5	25.1		10.16		
TFP ... 3 6 ...		6	30.2		15.24	TFP ... 6 6 ...		6	30.2		15.24		
TFP ... 3 8 ...		8	40.3		25.40	TFP ... 6 8 ...		8	40.3		25.40		
TFP ... 3 9 ...		9	45.4		30.50	TFP ... 6 9 ...		9	45.4		30.50		
TFP ... 3 10 ...		10	50.5		35.6	35.60		TFP ... 6 10 ...	10		50.5	35.6	35.60
TFP ... 3 12 ...		12	60.7		45.7	45.70		TFP ... 6 12 ...	12		60.7	45.7	45.70
TFP ... 3 14 ...		14	70.8		55.9	55.90		TFP ... 6 14 ...	14		70.8	55.9	55.90
TFP ... 3 16 ...		16	81.0		66.0	66.00		TFP ... 6 16 ...	16		81.0	66.0	66.00
TFP ... 3 20 ...		20	101.3		86.4	86.40		TFP ... 6 20 ...	20		101.3	86.4	86.40
TFP ... 3 21 ...		21	106.4		91.4	91.40		TFP ... 6 21 ...	21		106.4	91.4	91.40
TFP ... 3 24 ...		24	121.6		106.7	106.70		TFP ... 6 24 ...	24		121.6	106.7	106.70

please indicate:

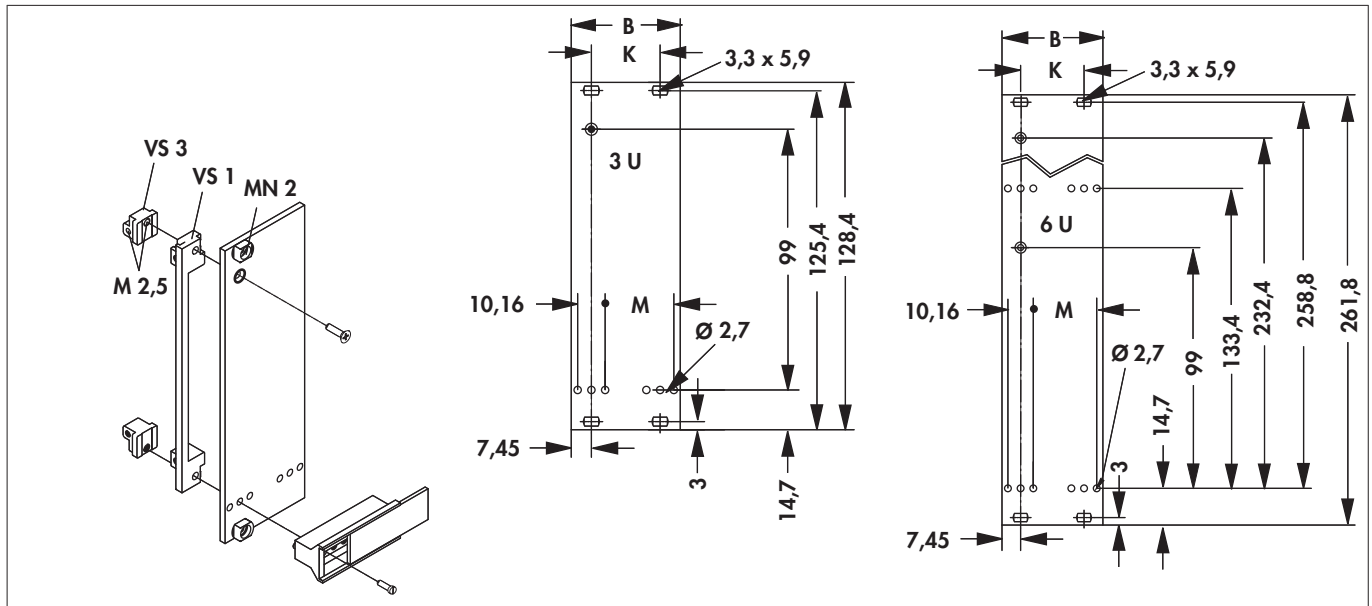
- ... part front panels (optional)**
 - KG** = with plastic-handle, anodised insert strip and fixing material
 - AG** = with anodised aluminium handle and fixing material
 - OG** = without handle with handle perforation
- ... metal nipples (optional)**
 - MN 2** = pressed in

surface: natural colour anodised

Part front panels

Part front panels with plastic handle and bracket

- HP= width unit = 5.08 mm
- U= height unit = 44.45 mm
- PCB holder **VS 1** → N 58; **VS 3** → N 58
- part front panels incl. mounting material



art. no.	U	HP	dim. [mm]			art. no.	U	HP	dim. [mm]				
			B	K	M				B	K	M		
TFP KG ... 3 4 ...	3	4	20.0	—	5.08	TFP KG ... 6 4 ...	6	4	20.0	—	5.08		
TFP KG ... 3 5 ...		5	25.1		10.16	TFP KG ... 6 5 ...		5	25.1		10.16		
TFP KG ... 3 6 ...		6	30.2		15.24	TFP KG ... 6 6 ...		6	30.2		15.24		
TFP KG ... 3 7 ...		7	35.3		20.32	TFP KG ... 6 7 ...		7	35.3		20.32		
TFP KG ... 3 8 ...		8	40.3		25.40	TFP KG ... 6 8 ...		8	40.3		25.40		
TFP KG ... 3 10 ...		10	50.5		35.6	35.60		TFP KG ... 6 10 ...	10		50.5	35.6	35.60
TFP KG ... 3 12 ...		12	60.7		45.7	45.70		TFP KG ... 6 12 ...	12		60.7	45.7	45.70
TFP KG ... 3 14 ...		14	70.8		55.9	55.90		TFP KG ... 6 14 ...	14		70.8	55.9	55.90

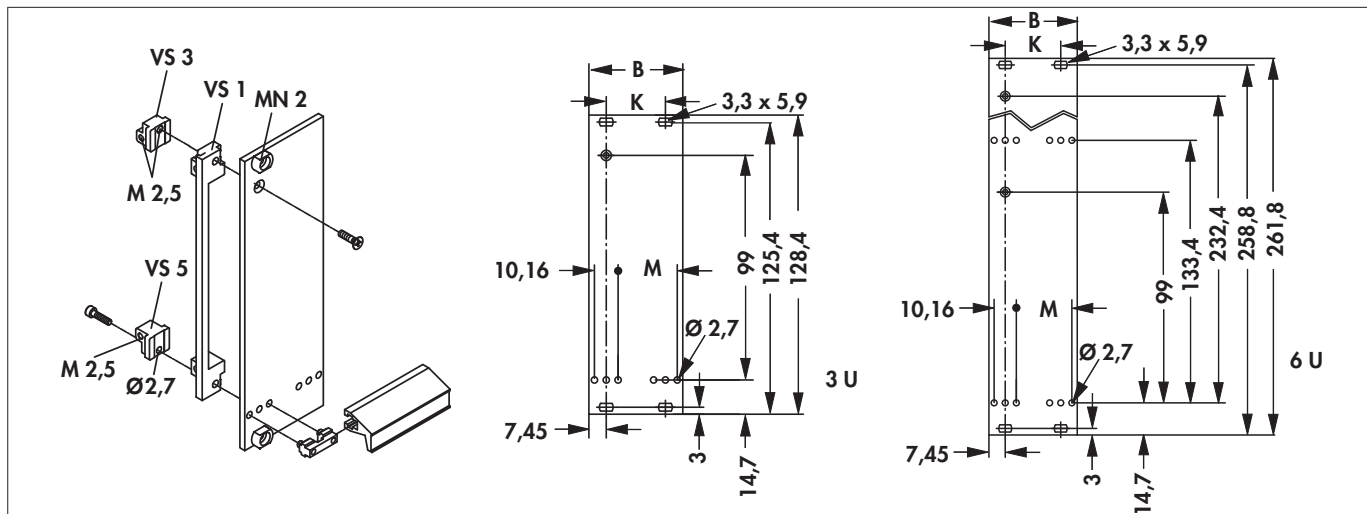
please indicate: ... PCB holder VS 1 = for 3 U Eurocards VS 3 = with M2.5 thread ... metal nipples (optional) MN 2 = pressed in

surface: natural colour anodised

Part front panels

Part front panels with aluminium handle and bracket

- HP= width unit = 5.08 mm
- U= heights unit = 44.45 mm
- PCB holder VS ... → N 58
- part front panel incl. mounting material



art. no.	U	HP	dim. [mm]			art. no.	U	HP	dim. [mm]				
			B	K	M				B	K	M		
TFP AG ... 3 4 ...	3	4	20.0	—	5.08	TFP AG ... 6 4 ...	6	4	20.0	—	5.08		
TFP AG ... 3 5 ...		5	25.1		10.16	TFP AG ... 6 5 ...		5	25.1		10.16		
TFP AG ... 3 6 ...		6	30.2		15.24	TFP AG ... 6 6 ...		6	30.2		15.24		
TFP AG ... 3 7 ...		7	35.3		20.32	TFP AG ... 6 7 ...		7	35.3		20.32		
TFP AG ... 3 8 ...		8	40.3		25.40	TFP AG ... 6 8 ...		8	40.3		25.40		
TFP AG ... 3 9 ...		9	45.4		30.50	TFP AG ... 6 9 ...		9	45.4		30.50		
TFP AG ... 3 10 ...		10	50.5		35.6	35.60		TFP AG ... 6 10 ...	10		50.5	35.6	35.60
TFP AG ... 3 12 ...		12	60.7		45.7	45.70		TFP AG ... 6 12 ...	12		60.7	45.7	45.70
TFP AG ... 3 14 ...		14	70.8		55.9	55.90		TFP AG ... 6 14 ...	14		70.8	55.9	55.90
TFP AG ... 3 16 ...		16	81.0		66.0	66.00		TFP AG ... 6 16 ...	16		81.0	66.0	66.00
TFP AG ... 3 18 ...	18	91.1	76.2	76.20	TFP AG ... 6 18 ...	18	91.1	76.2	76.20				
TFP AG ... 3 20 ...	20	101.3	86.4	86.40	TFP AG ... 6 20 ...	20	101.3	86.4	86.40				

please indicate: ... PCB holder VS 1 = for 3 U Eurocards VS 35 = (VS 3/VS 5) with M2.5 threads for front panel and circuit board mounting ... metal nipples (optional) MN 2 = pressed in

surface: natural colour anodised

- | | | | |
|-------------------------------------|-------------|-------------------------------|-------------|
| Part front panels with handle | → N 52 | Handles for part front panels | → N 57 |
| Part front panels with PCB holder | → N 53 - 54 | PCB holder | → N 58 - 59 |
| Part front panels with SMD-brackets | → N 55 | Heatsink insert modules | → N 48 |
| Insert modules 19" | → N 34 - 47 | PCB covers | → N 60 |

N 54

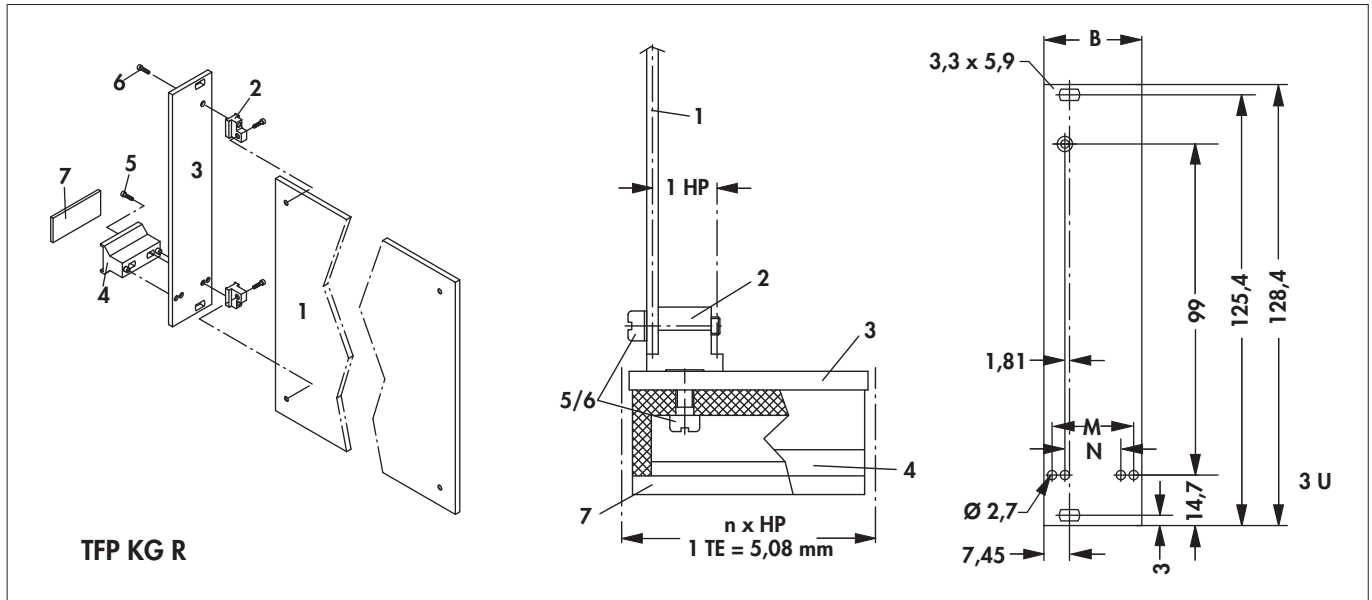
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Part front panels

Part front panels 3 U with SMD bracket

- part front panel with plastic handle, anodised insert strip, PC-board holder made of zinc diecast and mounting material
- PC-board holder for the double-sided assembly of circuit boards in grid of 1 HP
- particularly suited for SMD technique as the circuit board is usable for double-sided insertion
- **HP** = width unit = 5.08 mm
- **U** = height unit = 44.45 mm
- PCB holder VS 6/7 → N 59
- part front panel incl. mounting material

1 = circuit board; **2** = circuit board holder VS 6 (VS 7); **3** = front panel; **4** = plastic handle **GLK**;
5 = cheese head screw M 2.5 x 12; **6** = vertical lens screw M 2.5 x 8; **7** = insert strip



TFP KG R

art. no.	U	HP	dim. [mm]		
			B	M	N
TFP KG R ... 3 8 ...	3	8	40.3	35.6	29.0
TFP KG R ... 3 14 ...		14	70.8	66.0	59.5
please indicate:	... PCB holder VS 6 = with M2.5 thread VS 7 = with M2.5 thread and through-hole ... metal nipples (optional) MN 2 = pressed in				
surface:	natural colour anodised				

N 55

Part front panels with handle → N 52
 Part front panels with PCB holder → N 53 - 54
 Part front panels with SMD-brackets → N 55
 Insert modules 19" → N 34 - 47

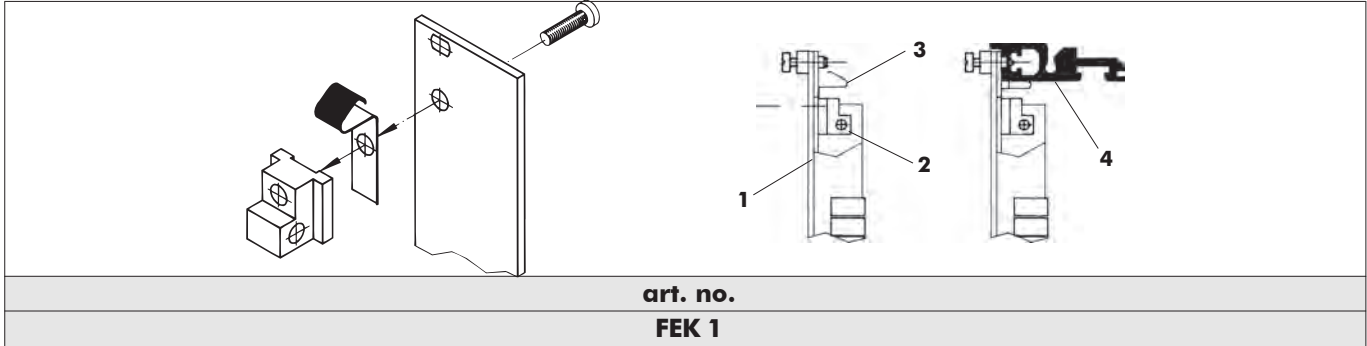
Handles for part front panels → N 57
 PCB holder → N 58 - 59
 Heatsink insert modules → N 48
 PCB covers → N 60

Accessories for part front panels

Contact spring

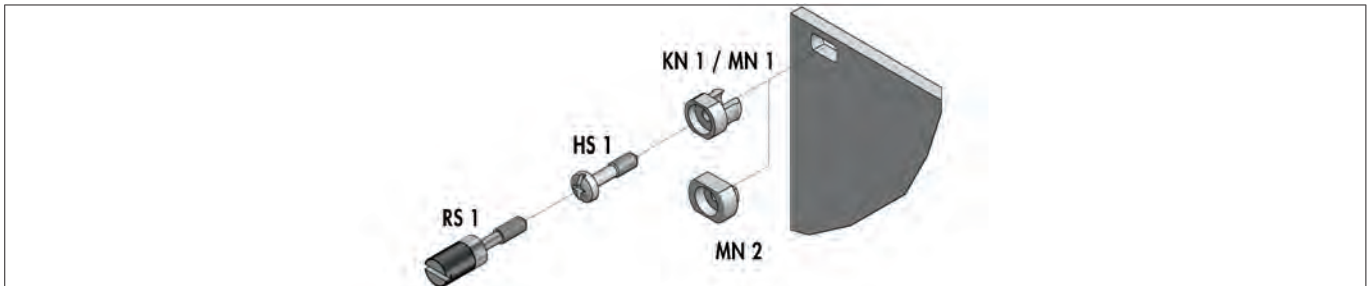
- made of phosphorus bronze is mounted between die-cast PC-bracket VS 3-7 → N 59 and electrically conductive front panel
- serves as capacitive contact as well as for electrostatic discharge **ESD**
- electrical contact is achieved by conductive (chrome-free transparent passivated) module rails

1 = front panel; 2 = bracket; 3 = contact spring; 4 = module rail



Mounting material

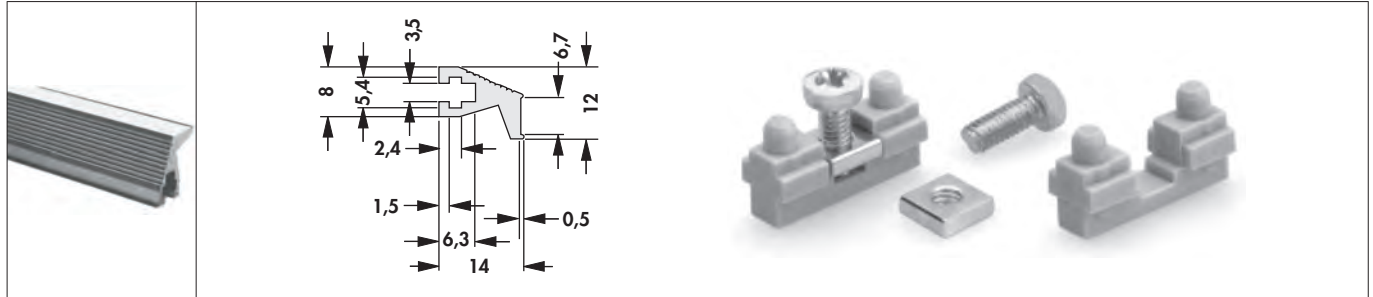
- for locking insert modules and part front panels into the subrack
- **KN 1**: plastic sleeves for clipping in
- **MN 1**: metal sleeves / **MN 2**: metal sleeves for pressing in; fixed connection to the front panel
- **HS 1**: captive screw, brass nickel plated / **RS 1**: knurled screw with slot, brass nickel plated
- **VPE**: packing unit



art. no.	VPE	
HS 1	100 pcs./bag	
KN 1	100 pcs./bag	
MN 1	10 pcs./bag	
MN 2	10 pcs./bag	
RS 1	100 pcs./bag	
	HS 1 / MN 1+2 / RS 1	KN 1
material	brass, nickel plated	polyamide

Handles for part front panels

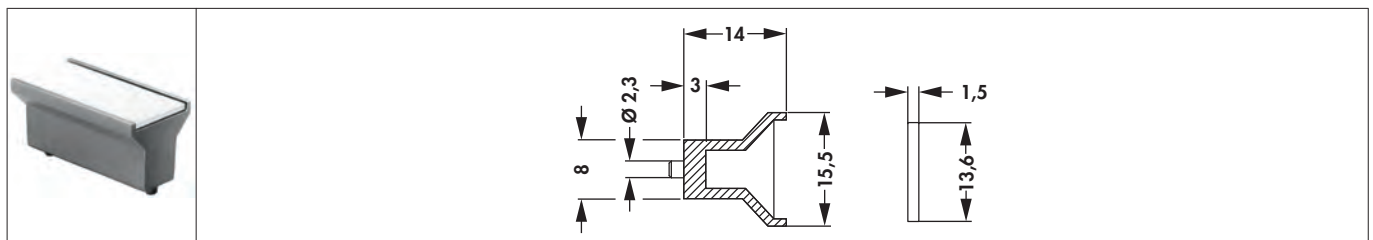
- handles made of material EN AW 6060 T66 (Al Mg Si 0.5), set of mounting material please order separately
- further colours on request
- set of fixing material consists of:
 - **GLBZ** = fixing piece, nut M 2.5 and pan-head screw
 - **GLBS** = fixing piece, nut M 2.5 and countersunk screw
 - **packing unit (VPE)**: 50 set/bag
 - dimensioned drawing of profile GL 7 → N 70



art. no.	number of fixing pieces	HP	dim. [mm]	art. no.	number of fixing pieces	HP	dim. [mm]
GLA ... 03	1	3	14.7	GLA ... 12	2	12	60.5
GLA ... 04		4	19.8	GLA ... 14		14	70.6
GLA ... 05		5	24.9	GLA ... 16		16	80.8
GLA ... 06		6	30.0	GLA ... 18		18	90.9
GLA ... 07		7	35.1	GLA ... 20		20	101.1
GLA ... 08		2	8	40.1		GLA ... 21	21
GLA ... 09	9		45.2	GLA ... 28	28	141.7	
GLA ... 10	10		50.3				

please indicate: ... surface
SA = black anodised
ME = natural colour anodised

- handles made of grey polyamide with a silvermatt anodised insert strip
- in order to ensure good fixing, the handles are made with positioning studs
- incl. mounting material
- **HP** = width unit = 5.08 mm



art. no.	HP	dim. [mm]	art. no.	HP	dim. [mm]
GLK 03	3	14.0	GLK 07	7	34.2
GLK 04	4	19.1	GLK 10	10	49.4
GLK 05	5	24.1	GLK 12	12	59.6
GLK 06	6	29.2	GLK 14	14	69.8

N 57

Part front panels with handle → N 52
 Part front panels with PCB holder → N 53 - 54
 Part front panels with SMD-brackets → N 55
 Insert modules 19" → N 34 - 47

Handles for part front panels → N 57
 PCB holder → N 58 - 59
 Heatsink insert modules → N 48
 PCB covers → N 60

PC-board holder

– for 3 U eurocards incl. mounting material

art. no.	
VS 1	
class of inflammability:	UL 94 V-0
material:	polyamid GV

– for PCBs in any size incl. mounting material
– 1 set = 2 pcs.

art. no.	
VS 2	
class of inflammability:	UL 94 V-0
material:	polyamid GV

– with M 2.5 threads for front panel and circuit board mounting

art. no.	
VS 3	
material:	zinc die-casting

Handles for part front panels
Insert modules 19"
Heatsink insert modules
19" front panels

→ N 57
→ N 34 – 47
→ N 48
→ N 63


Part front panels with handle → N 52 – 54
Part front panels with PCB holder → N 53 – 54
Part front panels with SMD-brackets → N 55
Extractors → N 61

N 58


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Circuit board holder


– with M 2.5 threads for front panel mounting and through-hole for circuit board mounting


art. no.
VS 4
material: zinc die-casting


– with M 2.5 threads for circuit board mounting and through-hole for front panel mounting (using an aluminium handle)


art. no.
VS 5
material: zinc die-casting

– for the double-sided assembly of circuit boards in grid of 1 HP
 – part front panel requires special drilling
 – with M 2.5 threads for front panel and circuit board mounting


art. no.
VS 6
material: zinc die-casting

– for the double-sided assembly of circuit boards in grid of 1 HP
 – part front panel requires special drilling
 – with M 2.5 threads for front panel mounting and through-hole for circuit board mounting

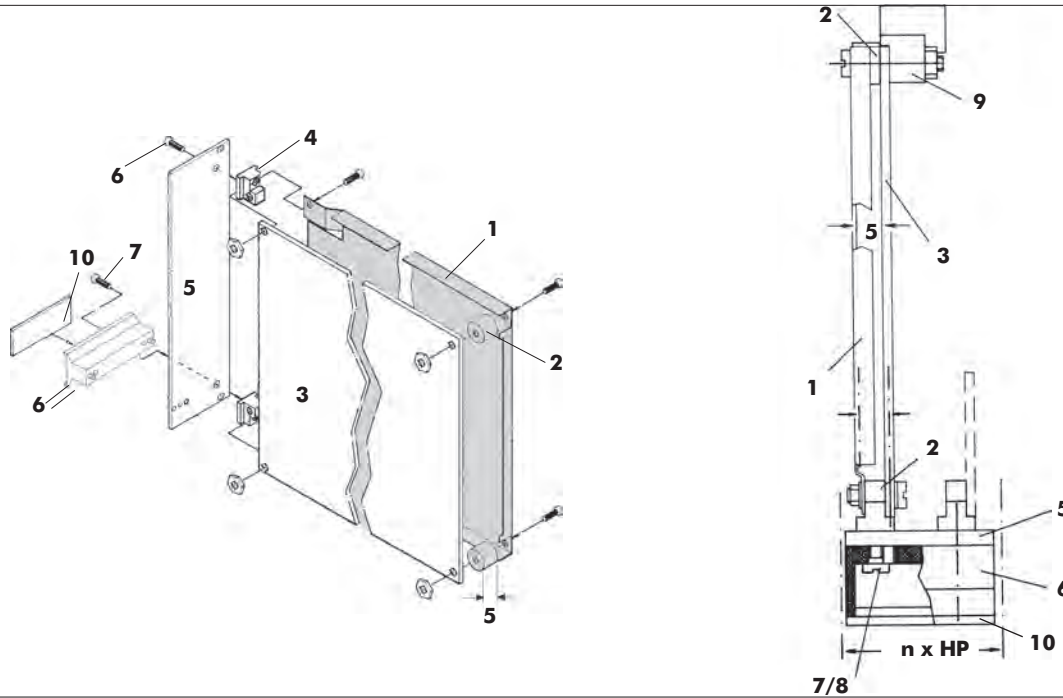

art. no.
VS 7
material: zinc die-casting

PCB cover 3 U

PCB cover made of aluminium

- suitable for part front panels with SMD card brackets **TFP KG R** and for all part front panels with printed circuit brackets **VS 7**
- for mechanical protection and electrical screening of components

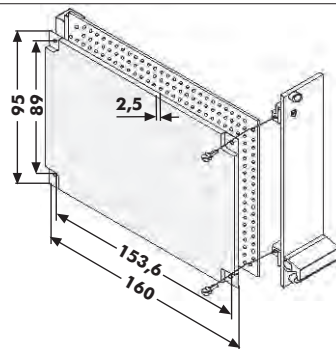
1 = circuit board cover; **2** = spacer; **3** = circuit board; **4** = circuit board holder **VS 7**; **5** = front plate; **6** = plastic handle **GLK**
7 = cheese head screw M 2.5 x 12; **8** = vertical lens screw M 2.5 x 8; **9** = connector; **10** = insert strip



art. no.	
LD 3 160	
surface:	natural colour anodised
material:	aluminium
material thickness:	1 mm

PCB cover made of plastic

- mechanical protection of soldered side
- für Eurocards 100 x 160 mm
- suitable for all brackets



art. no.	version	for Eurocards [mm]
LDK 3 160	without coating	100x160
LDK 3 160 E	with conductive outer coating	
class of inflammability:	UL 94 V-0	
dielectric strength:	20 kV	
material:	plastic	
heat disortion:	130 °C	
material thickness:	1 mm	

19" subracks
 19" EMC subracks
 Guide rail
 Heatsink insert modules

→ N 20 - 62
 → N 29 - 33
 → N 28
 → N 48

PCB holder
Part front panels
Insert modules 19"
19" front panels

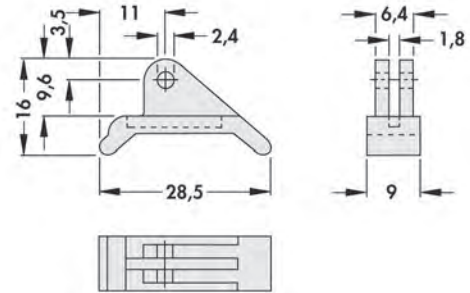
→ N 58 - 59
 → N 51 - 55
 → N 34 - 45
 → N 63

N 60

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Extractors

- the extractors allow easy removal of PCBs from subracks without damaging the connector pins
- wobbling out damages the connector
- the different colours avoid incorrect insertion
- the extractor is fastened to the PCB by using of a fixing pin
- **minimum order quantity:** 10 sets
- further packing units on request
- 1 Set of 1 pc. AHG red, 1 pc. AHG black, 2 pcs. spring pins 2 x 6 mm



art. no.

AHG 12 S

material:

PBT, self-extinguishing

N 61

19" subracks
19" EMC subracks
Guide rail
Heatsink insert modules

→ N 20 - 62
→ N 29 - 33
→ N 28
→ N 48

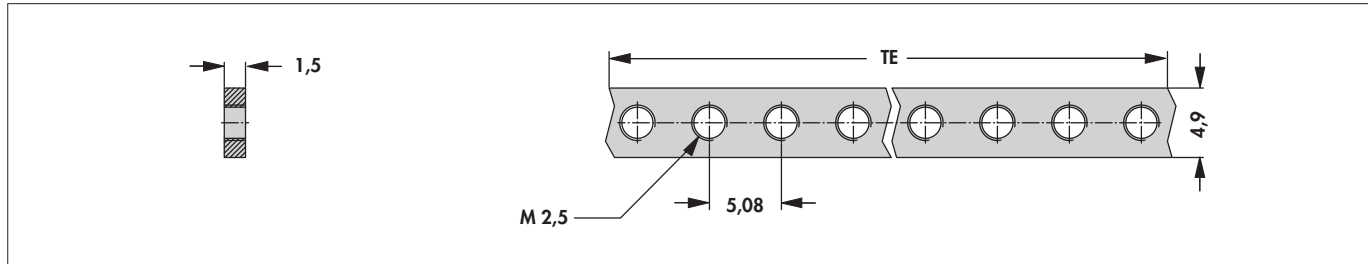
PCB holder
Part front panels
Insert modules 19"
19" front panels

→ N 58 - 59
→ N 51 - 55
→ N 34 - 45
→ N 63

Mounting accessories

Threaded rails M 2.5

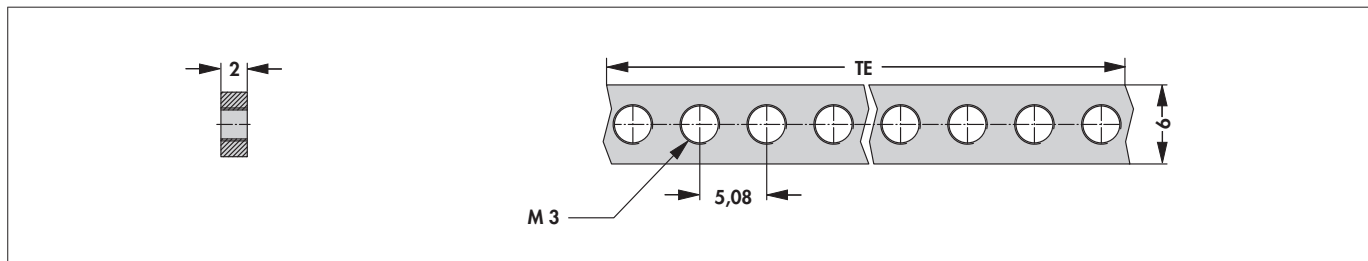
- threaded rails tapped to M 2.5 for mounting of fixing rails and front panels
- 1 set contains 4 threaded rails
- **HP** = width unit = 5.08 mm



art. no.	HP	dim. [mm]
		↔
BGT 308 2	8	40.6
BGT 318 2	18	91.4
BGT 321 2	21	106.7
BGT 328 2	28	142.2
BGT 360 2	60	304.8
BGT 363 2	63	320.0
BGT 381 2	81	411.5
BGT 384 2	84	426.7

Threaded rails M 3

- threaded rails tapped to M 3; for mounting of fixing rails and front panels
- 1 set contains 4 threaded rails
- **HP** = 5.08 mm

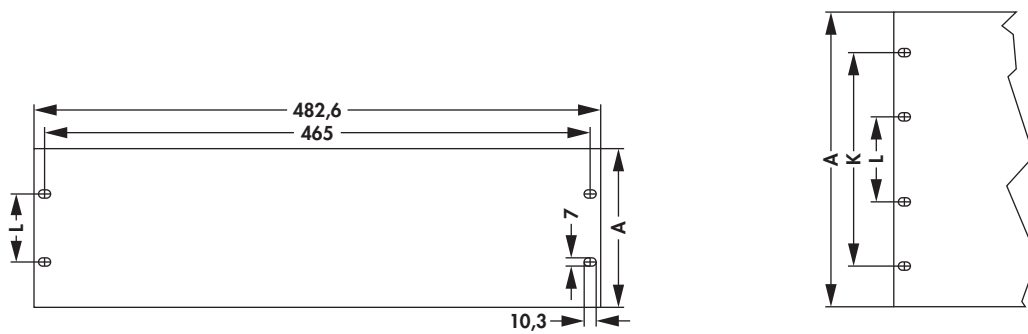


art. no.	HP	dim. [mm]
		↔
BGT 381 9	81	411.5
BGT 384 9	84	426.7

19" front panels



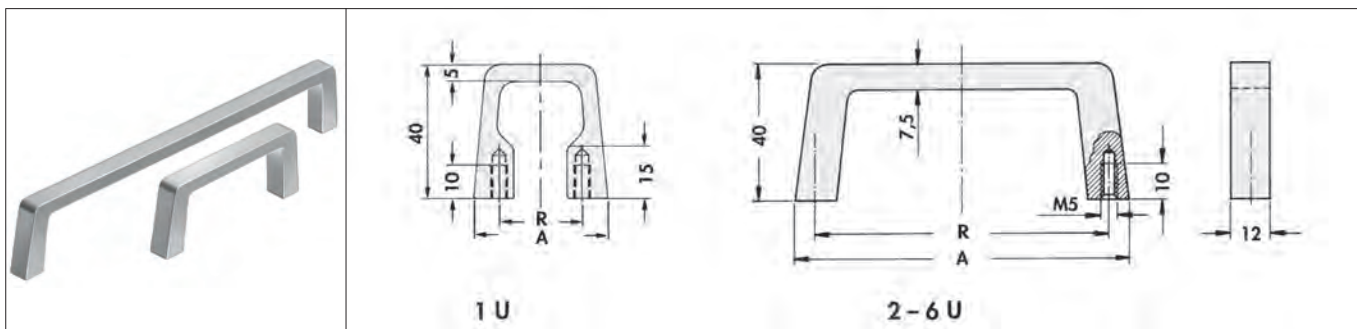
– 19" front panels without perforation for handle



art. no.	dim. [mm]		
	A	K	L
FP 01	43.6	—	31.70
FP 02	88.1		76.15
FP 03	132.5		57.15
FP 04	177.0		101.65
FP 06	265.9	190.5	76.20
FP 09	399.2	323.8	120.60
surface:	natural colour anodised		
material:	aluminium		
material thickness:	4 mm		

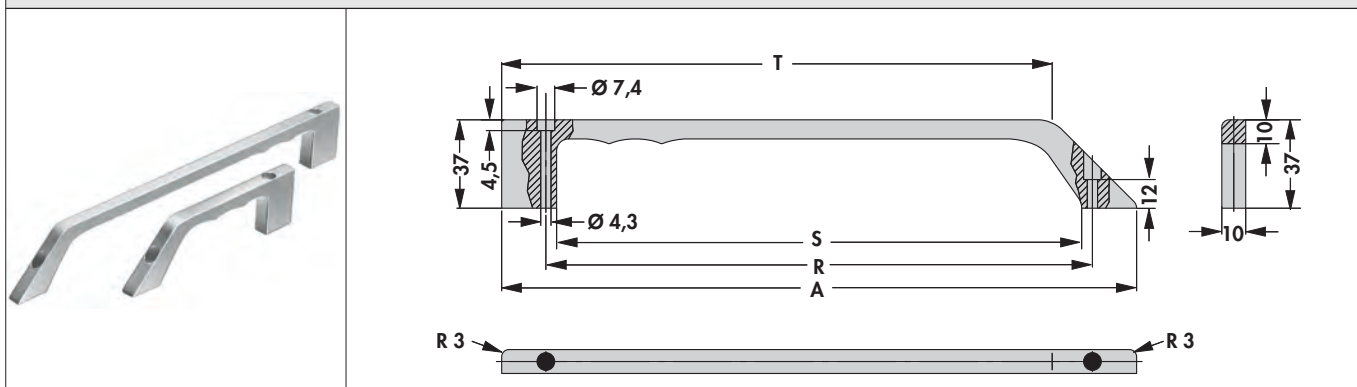
19" rack handles

- rack handles for 19" subracks, bench cases and other cases
- very robust version made of solid aluminium profile



art. no.	dim. [mm]	
	A	R
BGT 0184 7 ...	41	25
BGT 0284 7 ...	69	55
BGT 0384 7 ...	101	88
BGT 0484 7 ...	134	120
BGT 0584 7 ...	194	180
BGT 0684 7 ...	234	221

please indicate: ... surface
SA = black anodised
ME = natural colour anodised


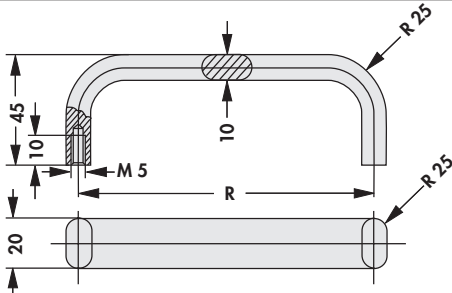


art. no.	dim. [mm]			
	A	R	S	T
RAC G 3 SA	132.5	95.5	86.5	97.2
RAC G 6 SA	265.8	228.8	219.8	230.5


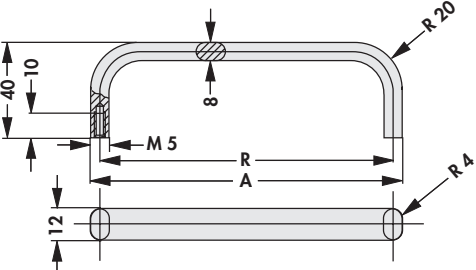
surface: black anodised
material: EN AW 6060 T66 (AlMgSi 0.5)

19" rack handles


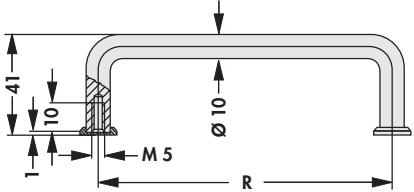
– flat oval profile aluminium EN AW 6000

		
art. no.	suitable 19" front panel	dim. [mm]
		R
GR C 4 ...	FP 4 G	120
please indicate: ... surface SA = black anodised ME = natural colour anodised		

– oval aluminium

		
art. no.	suitable 19" front panel	dim. [mm]
		A R
GR D 2 ...	FP 2 G	63 55
GR D 3 ME	FP 3 G	96 88
GR D 4 ...	FP 4 G	128 120
please indicate: ... surface SA = black anodised ME = natural colour anodised		

– round steel Ø 10 mm

		
art. no.	suitable 19" front panel	dim. [mm]
		R
GR G 2 ME	FP 2 G	55
GR G 3 ME	FP 3 G	88
GR G 4 ME	FP 4 G	120
surface:	high-gloss chromated	

N 65


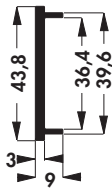

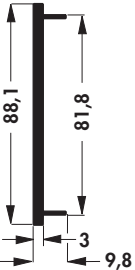


19" subracks
19" plug-in boxes
Handles for part front panels
Extractors

→ N 20 – 25
→ N 5 – 13
→ N 57
→ N 61

19" EMC subracks
Insert modules 19"
19" front panels
Part front panels

→ N 29 – 33
→ N 34 – 45
→ N 63
→ N 51 – 55

Profiles for 19" front panels and plug-in boxes

art. no.			
GB 28 ...	 1000 [mm]		
		profile for 1 U front panels, rear panel profile for insert VESA 1	
art. no.			
GB 40 ...	 1000 [mm]		
		profile for 2 U front panels, front panel profile for insert VESA 2	
art. no.			
GB 54 ...	 1000 [mm]		
		profile for 3 U front panels, front panel profile for insert VESA 3	
please indicate: ... surface SA = black anodised ME = natural colour anodised AL = raw degreased aluminium			

Profiles for 19" plug-in boxes

Profile for mechanical engineering

- robust extruded profile made of highly stressable aluminium
- for the production of basic frames for mechanical engineering
- allows the production of frames for absorption of forces and mounting of surface elements
- easy assembly with suitable accessories
- **on request:** each length up to 3000 mm, surface treatment such as anodising, lacquering etc., mechanical treatment of single components and mountings, special versions according to customer's requirement
- **tolerances:** DIN EN 12020

art. no.	
PM 4040 ...	
please indicate:	... surface SA = black anodised ME = natural colour anodised AL = raw degreased aluminium
material:	EN AW 6060 T66 (AlMgSi 0.5)

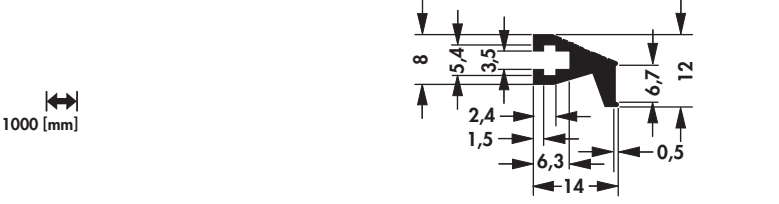
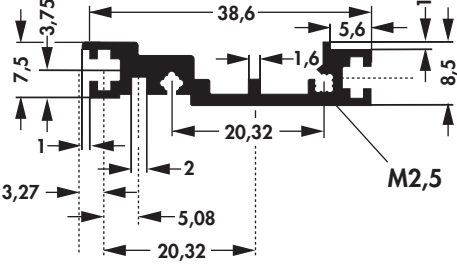
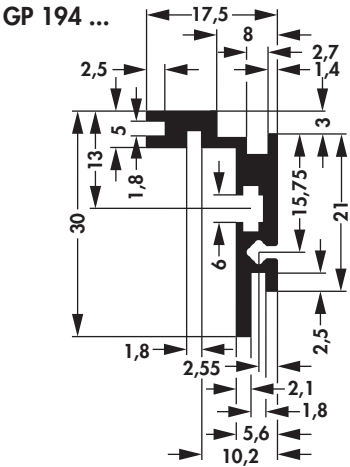
Profiles for 19" subracks

art. no.		
GB 29 L ...	front module rail, perforated	
art. no.		
GB 30 L ...	rear module rail, perforated	
art. no.		
GB 33 L ...	rear module rail with integrated Z-rail, completely perforated	
art. no.		
GB 34 L ...	front module rail for panel mounting, perforated	
art. no.		
GB 5 L ...	set Z-rails, perforated, for connector DIN 41612	
art. no.		
GB 20 L ME	set Z-rails, perforated, for connector DIN 41617	
please indicate:	... surface ME = natural colour anodised TP = transparent passivated	

– fixing angle 3 U without handle perforation

art. no.		
GB 27 3 ...		
please indicate:	... surface ME = natural colour anodised TP = transparent passivated	

Profiles for insert modules and part front panels

art. no. GL 7 ME	
GL 7 ME	handle profile
art. no. GP 199 ME	
GP 199 ME	profile for heatsink insert modules
art. no. GP 194 ...	
GP 194 ...	profile for heatsink insert modules
<p>please indicate:</p> <p>... surface</p> <p>SA = black anodised</p> <p>ME = natural colour anodised</p> <p>TP = transparent passivated</p> <p>AL = raw degreased aluminium</p>	



High quality surface treatment for electronic components



Gold-plating

properties: high resistance to wear, good corrosion resistance, temperature stability and solderability

process: drum technology

materials: non-ferrous metals

coating system: copper/nickel/gold



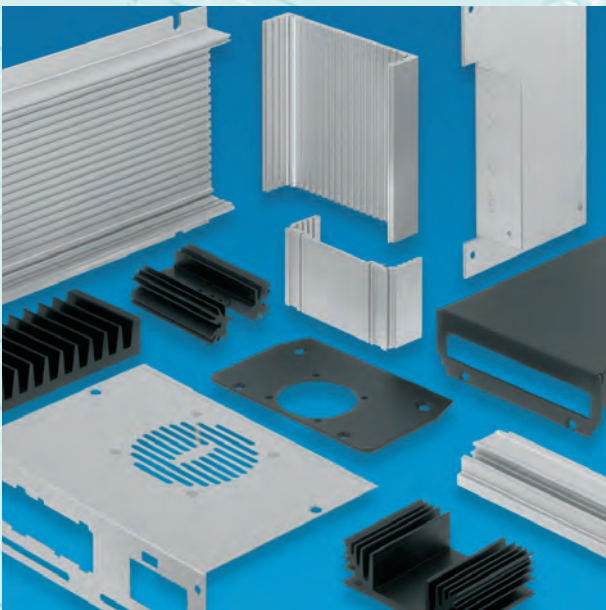
Tin-plating

properties: solderable layers with improved tarnishing and corrosion resistance

process: drum technology

materials: non-ferrous metals

coating system: copper/nickel/tin



Anodising

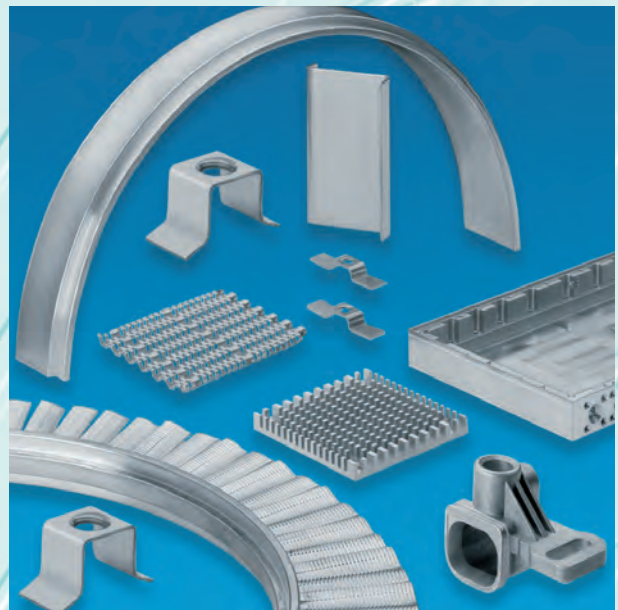
performance: fabrication of corrosion resistant, decorative oxide films

process: anodic oxidation in fully automated equipment

materials: aluminium and aluminium alloys

max. component size: 1500 x 2000 x 450 mm

colour: natural aluminium or black



Degreasing

performance: degreasing of oily or greasy metallic surfaces

process: steam degreasing using chlorinated hydro-carbons in hermetically sealed equipment

material: aluminium and aluminium alloys

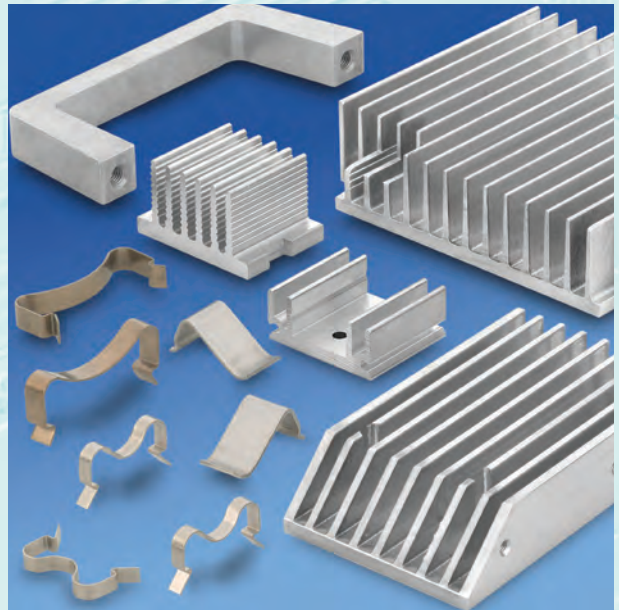
min. component size: 30 x 30 x 30 mm

max. component size: 600 x 400 x 380 mm

max. component weight: 80 kg



High quality surface treatment for electronic components



Transparent passivating (surface free from chromium)

characteristics: environmental compatibility due to chrome free passivation of the aluminium surfaces
 process: fabrication of conversion coatings by immersion process
 materials: aluminium und aluminium alloys
 max. component size: 1500 x 2000 x 450 mm
 colour: natural aluminium

Vibratory grinding (trowalization)

characteristics: deburring, removing of sharp edges, rough and fine grinding
 process: treatment using vibration technique and grinding tools (trowalization)
 materials: aluminium
 max. component size: 230 x 200 mm



Anodisation facility

- economization of water by using spray-rinsing, automatized ion exchange installation, cascade water guided system and recirculation of splash water
- reduction of electrical energy by means of current density regulation
- reduction of chemicals by recirculation of the dragged-off chemicals using a compensation of the evaporation losses
- recycling of the sulphuric acid out of the anodizing baths

Certificate

Standard **ISO 9001:2015**

Certificate Registr. No. **01 100 052055**

Certificate Holder:



Fischer Oberflächen-
veredelung GmbH
Nottebohmstr. 26
58511 Lüdenscheid
Germany

Scope:

Surfaces for electronics: goldplating, tinplating, nickelplating, anodizing, passivating, deburring

Proof has been furnished by means of an audit that the requirements of ISO 9001:2015 are met.

Validity:

The certificate is valid from 2017-12-15 until 2020-12-14.
First certification 2005

2017-12-15

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

Terms and conditions of business

1. General provisions

1.1. The present General Terms and Conditions (GTC) apply to all of our business relationships with our customers ("Purchaser"). The GTC only apply if the Purchaser is an entrepreneur (§ 14 of the German Civil Code), a legal entity of public law or a special fund under public law.

The GTC particularly apply for contracts about the sale and/or the delivery of transportable objects ("Goods"), regardless of whether we manufacture the Goods ourselves or buy them in from suppliers (§§ 433, 651 of the German Civil Code). Unless otherwise agreed, the GTC apply, in the version valid at the time of the Purchaser's order or in the version last transmitted to them, as a framework agreement for similar future contracts, without us having to refer to them each time.

1.2. Our GTC apply exclusively. Deviating, contradicting or additional General Terms and Conditions of the Purchaser are only part of the contract if we have expressly authorised their validity. This approval requirement applies in any case, also if we make deliveries to the Purchaser without reserve, in full knowledge of their Terms and Conditions. Individual, isolated agreements with the Purchaser (including ancillary agreements, additions and changes) always take priority over these GTC. The content of this type of agreement, subject to counterevidence, is to be determined according to a written contract or our written confirmation.

1.3. Legally relevant declarations and announcements of the Purchaser with regards to the contract (for example deadline agreements, defect notifications, withdrawal or reduction) are to be submitted in writing, i.e. in written or text form (for example letter, e-mail, fax). Legal form provisions and other certificates, especially in case of doubts about the legitimacy of the declaring party, remain unaffected.

1.4. References to the validity of legal provisions are only for clarification purposes. The legal provisions therefore apply even if there is no reference, unless they have been modified directly in these GTC or expressly excluded.

2. Quotations and orders

Our quotations shall be subject to change without notice and are non-binding. This applies also to information contained in price lists, leaflets etc. Delivery dates stated in our quotations or given to the purchaser by any other means are approximate, and we shall endeavour to keep to them. Delays in delivery shall give no right to claims, unless we have explicitly confirmed such delivery dates and an adequate period of grace granted to us has expired. Orders shall only be binding on us when they have been explicitly confirmed in writing, regardless of the form in which they have been placed with us. Statements made in catalogues are simply descriptions of goods and under no circumstances do they constitute warranted qualities. Furthermore, the characteristics of our samples cannot be regarded as warranted characteristics.

3. Prices

Prices shall be valid only when confirmed by us in writing. They are exclusive of VAT at the current rate and incidentals such as postage and packing, freight, insurance etc., as of storage. If delivery is made more than 4 months after the date of order, we shall be entitled to invoice the price valid at the date of despatch, even though different prices were initially confirmed. The price valid at the date of despatch shall also apply if the order was confirmed without prices being stated. When an order on call is placed, partial deliveries shall be invoiced at the price valid at the date of despatch. Any request by the purchaser for subsequent modifications shall entitle us to amend prices.

4. Conditions of payment

The invoiced sum is to be paid net within 30 days of date of invoice and delivery. If the purchaser is in default with any payment, we are entitled to claim interest for such default at the normal rate of interest charged for current accounts. If we are able to prove that we have incurred greater losses as a result of the delay, we shall be entitled to claim compensation for such damages. We are however entitled at any time, in the context of an ongoing business relationship, to execute a delivery in full or in part only against an advance deposit. We shall declare a corresponding reserve at the latest at the confirmation of the contract.

5. Set-off, right to retention

Only claims which have been recognised by us or have become legally binding may be offset against our invoices. Any right to a retention to be exercised

by the purchaser in connection with our claims is explicitly excluded. In case of defects in the delivery, the rights of the Purchaser remain unaffected, particularly with regards to point 10.3 of these GTC.

6. Delivery

The delivery is performed from the storage, wherever the place of fulfilment for the delivery and any subsequent fulfilment may be. Upon request by the Purchaser, the Goods will be sent to a different place of their choice (shipped purchase). Delivery of our goods is explicitly made on behalf of and at the risk of the purchaser. The risk shall pass over to the purchaser when the ordered goods leave our premises. The same applies if goods are collected in our premises from the point in time at which we notify the purchaser that they are ready for collection. Unless we have received instructions to the contrary from the purchaser, we shall decide at our discretion on the most economical delivery method without assuming any liability for the chosen means of delivery.

7. Specially manufactured goods

Components made according to a sample or a drawing or by special request must be taken over and paid for, unless they have a defect we are answerable for and which makes the components completely unfit for the purchaser's purposes. If their fitness for the purchaser's purposes is only reduced, the purchaser may request a reduction of payment but the contract shall not be cancelled.

8. Quantities

We are entitled to supply quantities which are above or below the ordered quantities by up to 10%. Such deviations are usual in this trade and the deliveries are deemed as being in compliance with the contract. If delivery quantities fall below the ordered quantities there shall be no right to subsequent delivery of the missing quantity.

9. Reservation of proprietary rights

9.1. All goods supplied shall remain our property until all current and future claims resulting from the Purchase contract and the business relationship with the purchaser (secured claims) have been paid in full. The purchaser is entitled to dispose of the purchased goods in the ordinary course of business transactions. Reservation of proprietary rights also applies to products resulting from processing, mixing up or combining our goods, in which case we are considered as manufacturers. In the case where our goods are processed, mixed up or combined with goods of third parties, and the proprietary rights of such third parties remain in force, we are entitled to co-ownership according to the proportion of the amount invoiced for such processed goods. In such cases such rights to co-ownership shall be safeguarded by the purchaser.

9.2. The purchaser shall transfer to us, as a security, his claims against third parties resulting from the resale of our goods in full or in the proportion of our coownership (see subparagraph 9.1). He is entitled to collect the amount of such claims on our behalf until revoked or until cessation of his payments made to us. The purchaser is not entitled to assign these claims to third parties.

9.3. The purchaser is not entitled to mortgage or transfer the goods which are subject to reservation by way of security.

9.4. The purchaser shall advise us immediately at any seizure of our goods or of any infringement of our rights by third parties.

9.5. In case of a default in payment or a deterioration in the financial situation, we are entitled to request immediate handing over of the goods which are subject to reservation. Any time limited claims shall immediately become due.

9.6. If the value of the securities exceeds our claims by more than 20%, securities to a corresponding amount will be released by us on request at our discretion.

10. Warranty

10.1. We expressly point out that all information and data is given to the best of our knowledge and belief. The user is solely responsible for the proper use of our products and he should check their suitability for the intended application.

Fischer Elektronik do not assume any warranty, whether expressed or implied, for the suitability, function or merchantability of their products in specific or general applications, and they cannot be held liable for accidental or consequential damage due to non-observance of the above.

10.2. Claims for defects can only be considered if the purchaser has complied with their obligation to check goods and submit a complaint as per Sections

377, 381 of the German Commercial Code [HGB]. If goods have a defect attributable to us, we are obliged to effect a cure, excluding the purchaser's right to withdraw from the contract or to reduce the purchase price (reduction), unless we are entitled to refuse to effect a cure by virtue of legal regulations. The purchaser shall grant us an adequate period of grace for effecting a cure. A cure may at our discretion be an elimination of the defect (rectification) or the supply of new products. We are entitled to determine the cure owed according to the payment of the purchase price due by the Purchaser. The Purchaser, however, is entitled to retain a part of the purchase price that is proportionate to the defect. The expenses incurred for the verification and cure, particularly transport, road, work and materials costs (not: expansion and installation costs) are borne by us, if there is indeed a defect. Otherwise, we can require that the Purchaser bear the costs arising from the unjustified defect rectification request (particularly examination and transport costs), unless the Purchaser could not have been aware that the defect rectification was unnecessary.

10.3. If goods have a defect attributable to us, we are obliged to provide subsequent fulfilment, excluding the purchaser's right to withdraw from the contract or to reduce the purchase price (abatement), unless we are entitled to refuse subsequent fulfilment by virtue of legal provisions. The purchaser shall grant us an adequate period of grace for subsequent fulfilment. Subsequent fulfilment may at our discretion be an elimination of the defect (rectification) or the supply of new products.

10.4. If rectification of the defect has failed, the purchaser shall be entitled to request a reduction in the purchase price (abatement) or to withdraw from the contract. Rectification shall be deemed to have failed after the second vain attempt, unless further attempts are reasonable in view of the object of the contract and can be reasonably imposed on the purchaser.

10.5. The purchaser's right to put forward further claims for damages shall remain unaffected by this.

10.6. If it becomes apparent (by the opening of an application for an insolvency procedure for example) after the conclusion of the contract that our claims to the purchase price are endangered due to lacking payment capacities of the Purchaser, we will then be entitled to refuse the delivery and – after a possible period of notice – to withdraw from the contract in accordance with the legal provisions (§ 321 of the German Civil Code). For contracts about the manufacturing of specific items (making to specification), we can declare the withdrawal immediately; the legal regulations about the dispensability of giving a period of notice remain unaffected.

11. Withdrawal

When delivery in accordance with the contract is not possible for reasons beyond our control, we are entitled to withdraw from the contract. Such withdrawal shall not entitle the purchaser to assert any right against us.

12. Export clause








We are not obliged to reimburse damages arising from delays in delivery or it being completely impossible to deliver as a result of statutory or official export restrictions, unless we act with intent or gross negligence suffered by the Customer or other persons. The Customer's duty to pay the agreed remuneration shall not be affected by disruptions in our performance as a result of export restrictions. We shall be entitled to withdraw from the contract if, after the contract is signed, our performance is disrupted as a result of export restrictions.

13. Place of performance and jurisdiction, applicable law




13.1. The place of performance and the place of venue for deliveries and payments and for any litigation arising between us and the purchaser shall be the headquarters of our company.

13.2. The relationship between the contractual parties shall be regulated solely in accordance with the law in force in the Federal Republic of Germany. The regulations of international uniform law, particularly the UN CISG, shall not apply.






art. no.	HEATSINKS SURFACES & CASES SURFACES
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AL		raw degreased aluminium
BZ		raw pickled aluminium
LP		outside black lacquered RAL 9005/transparent passivated
ME		clear anodised
MI		solderable surface
SA		black anodised
TP		chrome-free transparent passivated

art. no.	CONNECTOR CONTACT SURFACE FINISH
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G		gold-plated
S		selective gold-plated
Z		tin-plated

art. no.	RAL	COLOURS	ARTICLES
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GO	6026	 opal green	system cases "RackCase"/shell cases
NB	5022	 night blue	system cases "RackCase"/shell cases
S	9005	 deep black	TG/shell cases/system cases "RackCase"
TB	5018	 turquoise blue	system cases "RackCase"/shell cases
UL	5002	 ultramarine blue	Plusline/shell cases



Extruded heatsinks
LED heatsinks
Cooling aggregates
Thermally conductive mat.



Sockets
Connectors
Brackets



Slip-Case
for collecting
the catalogues



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