



Enclosures & Components

PCB Accessories

- Card Locks and Card Handles
- Card Holders
- Middle Parts and Protective Covers
- Spacers and Mounting Plates
- Covering Caps and Mounting Brackets

System
Platforms

Backplanes

Enclosures &
Components

Cabinets

Rotary
Switches

ELMA
Your Solution Partner

Local Service – global resources



Elma is a global manufacturer of products for housing electronic systems. The company provides everything from components such as modular enclosures, cabinets and backplanes up to complete standard or custom system platforms. Elma also manufactures precision rotary switches. The company offers fast, flexible response to customer needs and extensive practical knowledge in tailoring solutions to specific applications.

Founded in 1960, Elma is an industry innovator in the design and manufacture of electronic enclosures and passive electronic components. With vast expertise in Eurocard-based platforms, standard architectures include AdvancedTCA, CompactPCI, MicroTCA, Rugged COTS/ATR, VME, VME64x, VPX, VXI, VXS, and more. The company also tailors customised solutions to individual applications ensuring fast and cost-effective results. As a global company, Elma has production and assembly facilities in 8 countries and has representatives in over 40 countries. Elma has a broad base of customers in diverse industries such as telecommunications, industrial control, medical electronics, defense and aerospace.

We provide products superior in quality, reliability, performance, and consistently presents new, innovative designs to the market. Elma also offers design and integration services backed by responsive and knowledgeable technical support.

Our leading quality level is reached through training of all employees and following of systematic procedures per ISO 9001 standards to which Elma has been registered.

Why choose Elma?

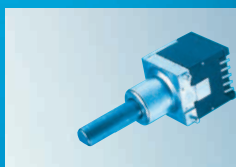
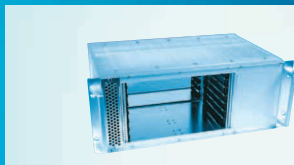
Flexibility	Elma tailors solutions to individual applications to ensure fast and cost-effective results.
Experience	Extensive practical experience in packaging electronic systems is used to minimise the time taken to develop new customised solutions without compromising system performance or reliability.
Compatibility	Because the two key electromechanical components – enclosures and backplanes – are made in-house, Elma guarantees compatibility, consistency and reliability.
Global Resources	With manufacturing in Europe, Asia and the USA, customers benefit from local service backed by global resources.

Custom Solutions

Custom Solutions

Design Capabilities

Production Capabilities



Customisation is the standard at Elma. With an extensive offering of modular standard products as a foundation, we are able to leverage existing solutions and proven design concepts to meet any custom application. This approach ensures that Elma will provide quality, compliant solutions with significantly reduced lead time, cost and risk.

Combined with our integration capability for both embedded systems and switches, we provide a single solution to your outsourcing needs.

Allow us to take your latest product from prototype to production quickly, cost effectively and with reduced risk.

Elma has been a leader in design innovation for over 45 years. We use advanced design software and equipment to perfect your design. We can utilise our vast resource of experienced designers and engineers from facilities all over the world. The result is a superb design solution, completed to your specifications in a timely and cost-efficient manner.

From base components to fully-integrated computing systems, Elma can be your solution partner each step of the way. With production and assembly facilities worldwide, we can meet nearly any need – whether prototypes or high volumes, quickturn deliveries, or highly complex custom designs.

Custom system platforms

- Over 20 years of expertise in system design with emphasis on thermal management
- Specialists in EMC, shock/vibration, system monitoring, reliability and maintainability
- Applications for industrial and rugged environment

Custom backplanes

- Modified standards for all PICMG and VITA specifications
- NSC (non standard-based custom) design
- Proven, reliable high-speed designs with data rates up to 10 Gbps per differential pair

Custom enclosures & components

- Modified standards for IEC, IEEE, ATCA, MicroTCA mechanics or proprietary solutions
- IP protection classes
- EMC security

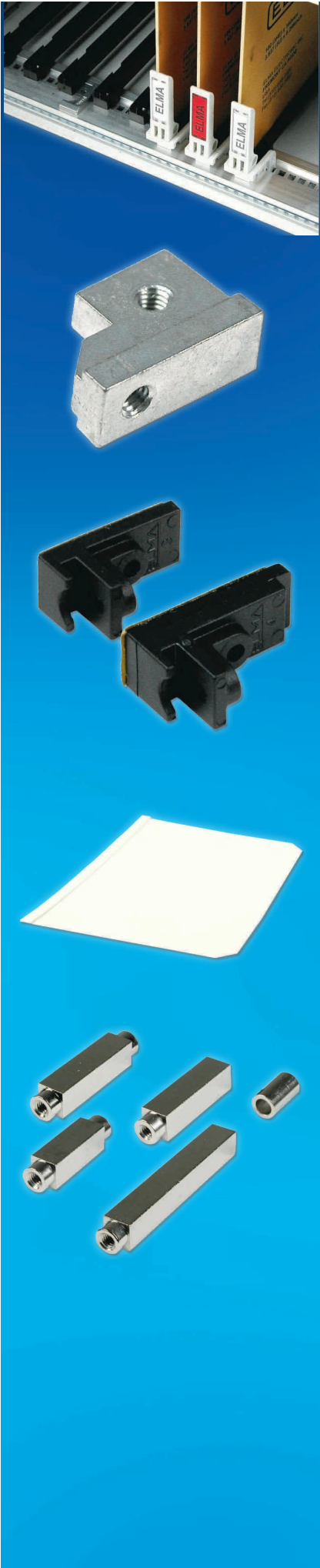
Custom cabinets

- Industrial, Rugged, Datacom/Server, or Shielded
- Highly complex or unusual configurations in any volume
- Silk screening, painting, tool making, validation testing, and agency certification

Custom rotary switches

- Modifiable switches & LEDs
- Integration of switches, panels and other components
- Custom switch bracket fabrication

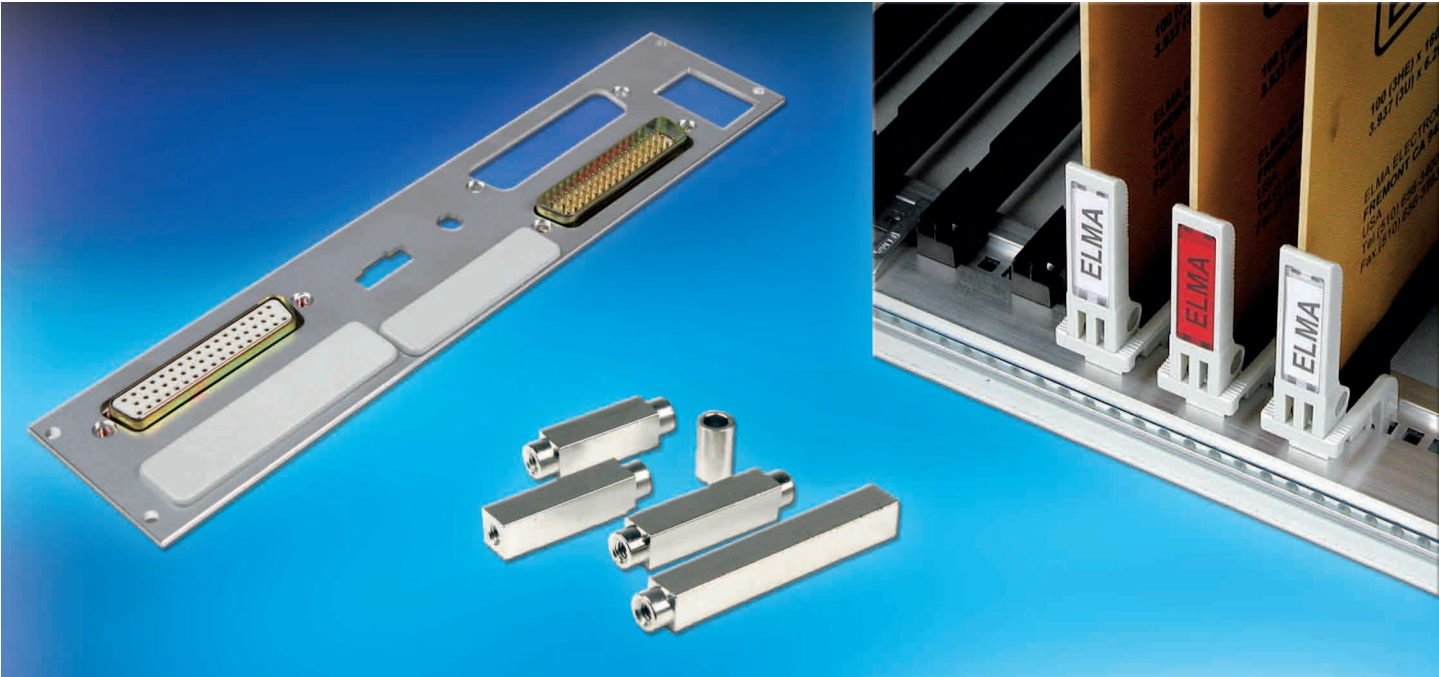
3: PCB Accessories



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A collection of various metal fasteners and hardware components, including bolts, nuts, washers, and a large L-shaped bracket, displayed against a blue background. The components are arranged in three distinct groups. The top group features three hexagonal bolts of different lengths and a hexagonal nut. The middle group consists of several white plastic or coated metal washers and spacers of various shapes and sizes. The bottom group is a single, large, L-shaped metal bracket with two circular holes for screws.

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3.1 Card Locks and Card Handles

- The card lock is easily mounted onto the upper or lower front profile
- When the PCB is pushed home, it is automatically locked into position
- The card eject mechanism can be attached to the top or bottom front edge of the PCB and is used in conjunction with the card lock
- The lever action ensures smooth and jerk-free card removal, especially useful when multi-pole connectors are being used
- Transparent windows in different colours and self-adhesive labels set into the front face of the eject mechanism make card identification easy
- The card lock and eject mechanism does not inhibit the use of front panels
- For recessed cards, a special card lock is available, suitable for use with profile 66-144
- **Scope of delivery:**
 - Card locks, eject mechanisms, windows and labels

3.1.1 Card Locks, Card Injector/Ejector Handles



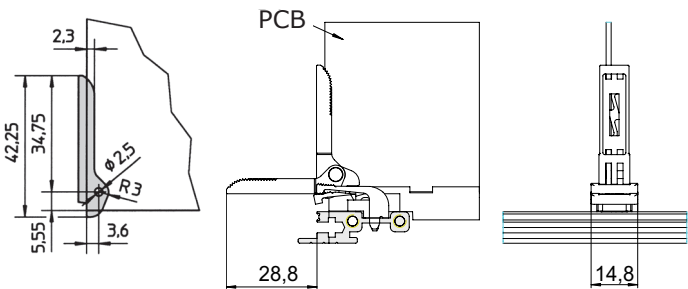
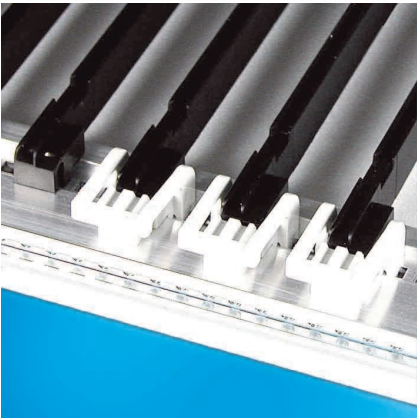
3.1.1 Card Locks, Card Injector/Ejector Handles

Description	Colour	Part-No.	
		10 pcs.	100 pcs.
Card ejector handles		63-151	63-152
Card locks		63-153	63-154
Card locks to 66-144		63-163	63-164
Transparent window	Clear	63-155-1	63-156-1
	Red	63-155-4	63-156-4

- Other colours (yellow, green, blue, orange) upon request

3.1.1.1 Labels

Description	Part-No.
1 sheet A4 of 105	63-161



3: PCB Accessories

3.1.2 Card Handles

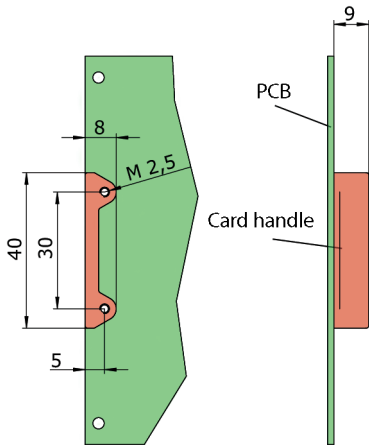


3.1.2 Card Handles

- Coloured, transparent handles which will accept labels facilitate the handling and identification of PCBs
- Scope of delivery:**
 - 1 card handle
- Two screws M2.5 x 5 are needed per handle and have to be ordered separately

Description	Colour	Part-No.	
		1 pc.	100 pcs.
Card handle	clear	1091-51	-
	red	1091-54	-
Cylindrical screw M2.5 x 5		-	1901-05
Torx cylinder head screw M2.5 x 5, size T8		5470-07	-
Labels (1 A4 sheet of 185)		1091-59	-

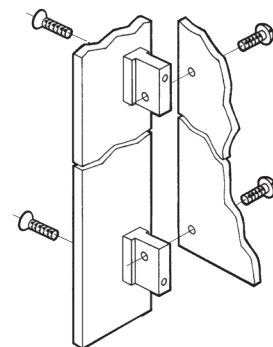
- Other colours (blue, yellow, green, orange) upon request



3: PCB Accessories

3.2 Card Holders acc. to IEC Standard

- By using the zinc die-cast card holder, flat front panels can be connected to a PC card to form a plug-in unit to IEC 60297
- The card can be mounted both in the standard position and offset 1 HP (5.08 mm)
- For better positioning of 6 U cards, there is a card holder centre piece made of nylon (see 3.3)
- The injector-/ejector handle can be used with the card holder
- Scope of delivery:**
 - 1 card holder
- Assembly material see 3.2.3

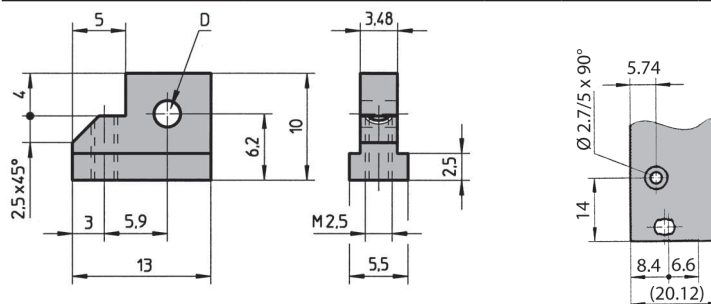


3.2.1 Card Holders without Swivel Stop



3.2.1 Card Holders without Swivel Stop

Description	Application	D	Part-No.		
			1 pc.	10 pcs.	100 pcs.
Card holder without swivel stop	Without injector/ejector handle	M2.5	61-156	63-366	63-466
Card holder without swivel stop	With injector/ejector handle	Ø 2.5	61-155	63-365	63-465

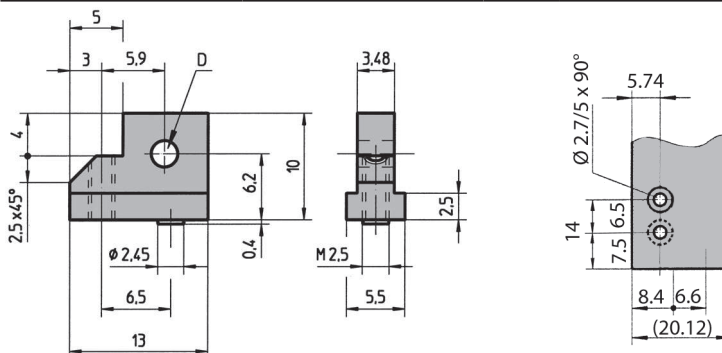


3.2.2 Card Holders with Swivel Stop



3.2.2 Card Holders with Swivel Stop

Description	Application	D	Part-No.	
			1 pc.	100 pcs.
Card holder with swivel stop	Without injector/ejector handle	M2.5	61-156-01	61-156-01-2
Card holder with swivel stop	With injector/ejector handle	Ø 2.5	61-155-01	61-155-01-2



3.2.3 Assembly Material



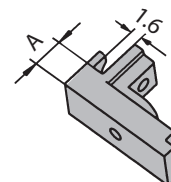
3.2.3 Assembly Material

Description	Application	Part-No.	
		1 pc.	100 pcs.
Cross recessed counter-sunk screw M2.5 x 8	For card holder	5322-08	1906-08
Torx countersunk screw M2.5 x 8, size T8	For card holder	5470-21	-
Slotted pan head screw M2.5 x 6	For printed board	5571-06	1901-06
Torx cylinder head screw M2.5 x 6, size T8	For printed board	5470-04	-

3: PCB Accessories

3.3 Middle Parts

- Usable for all front panels
- For positioning and fixing of 6 U and 9 U cards
- Card thickness 1.6 mm
- Self-adhesive, can optionally be screwed onto front panel and printed board
- Material: Plastic black UL94 V-0
- **Scope of delivery:**
 - Plastic middle part
- Assembly material, see below



3.3 Middle Parts

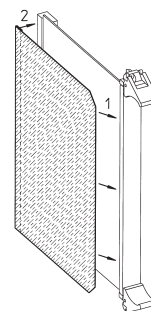
For Front Panels out of	A		Part-No.	
	mm	inch	10 pcs.	100 pcs.
Aluminium 2.5 mm	2.5	0.10	61-960-1	61-960-2
Stainless steel	4.5	0.18	61-963-1	61-963-2

Assembly Material

Description	Part-No. 1 pc.	Part-No. 100 pcs.
PT-countersunk, 2.5 x 6, cross recessed	5534-06	5534-06-2

3.4 Protective Covers for 6 U Printed Boards

1. Slide protective cover between front panel and printed board
2. Press adhesive tape on protective cover through pins of connectors to attach onto printed board



3.4 Protective Covers for 6 U Printed Board

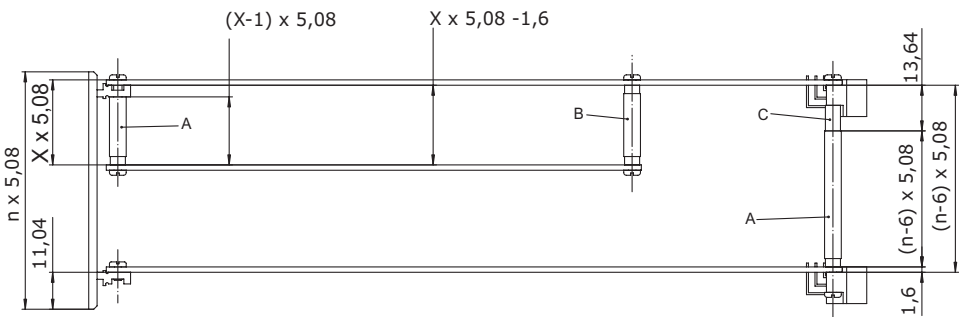
- Material: Polyester film mat, thickness 0.2 mm, UL94 VTM-2
- Mechanical protection of soldering side

For Card Depth		Part-No.
mm	inch	
80	3.15	81-010-01
160	6.30	81-010-02
220	8.66	81-010-03

3: PCB Accessories

3.5 Spacers and Mounting Plates

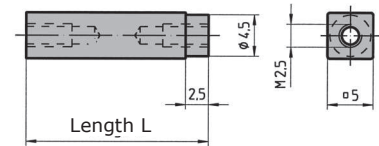
- Four-sided, nickel-plated brass spacers with M2.5 internal threads at both ends
- Using these spacers, additional PCBs may be mounted at a horizontal pitch of 5.08 mm
- Mounting plate is 1.5 mm galvanised steel with mounting holes corresponding to PCBs conforming to IEC 60297



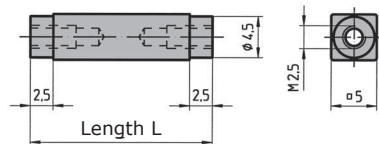
$n \times 5.08$ = theoretical width of front panel
 $x \times 5.08$ = distance of printed PCBs
 n = multiple of the 5.08 pitch of the selected front panel
 x = selected multiple of the 5.08 pitch for the distance of printed PCBs



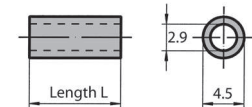
Series A



Series B



Series C



3.5.1 Spacers Series A

- Use between PCB mounting lugs and PCBs
- Gives 5.08 mm pitch

Length L		Part-No.
mm	inch	10 pcs.
5.08	0.20	63-252
10.16	0.40	63-254
15.24	0.60	63-256
20.32	0.80	63-258
25.40	1.00	63-260
30.48	1.20	63-262
35.56	1.40	63-264
81.28	3.20	63-274

3.5.2 Spacers Series B

- Use between two PCBs
- Gives 5.08 mm pitch

Length L		Part-No.
mm	inch	10 pcs.
13.64	0.53	63-275
18.72	0.73	63-277
23.80	0.93	63-279
28.88	1.13	63-281

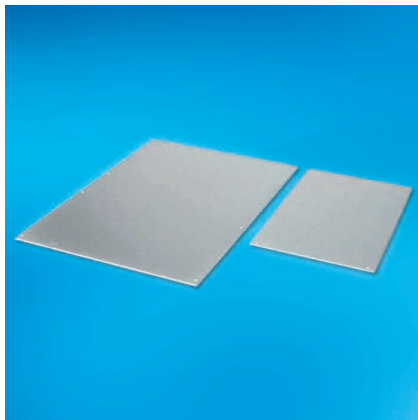
3.5.3 Spacers Series C

- Use between a PCB with connector and a second PCB

Length L		Part-No.
mm	inch	10 pcs.
7.64	0.30	63-296

3: PCB Accessories

3.5.4 Mounting Plates



3.5.4 Mounting Plates

- Dimensions identical to eurocard dimensions
- 1.5 mm galvanized sheet steel
- **Scope of delivery:**
 - 1 mounting plate
- Assembly material, see below

Height	Dimensions	Part-No.
3 U	100 x 160 mm (3.93" x 6.29")	61-350
6 U	233.35 x 160 mm (9.18" x 6.29")	61-351

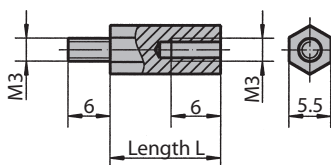
Assembly Material

Description	Part-No. 100 pcs.
Screws recessed M2.5 x 5	1901-05
Screws recessed M2.5 x 18	1901-09

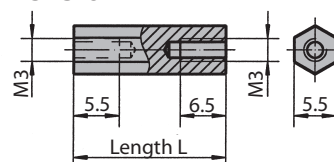
3.6 Hexagonal Spacers M3 Thread

- Galvanized steel
- Ideal for use as supports or spacers
- **Scope of delivery:**
 - 1 spacer

1922-0x



1923-0x



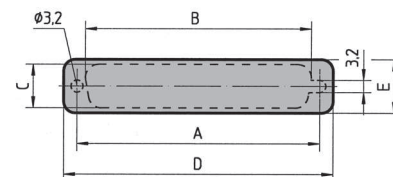
3.6 Hexagonal Spacers, M3 Thread

Length L		Part-No. 1 pc.
mm	inch	
10	0.39	1922-01
15	0.59	1922-02
20	0.78	1922-03
25	0.98	1922-04
30	1.18	1922-05
40	1.57	1922-07
50	1.96	1922-09

Length L		Part-No. 1 pc.
mm	inch	
8.5	0.33	1923-01
13.5	0.53	1923-02

3.7 Covering Caps

- The caps, fit openings for D-Sub connectors and can be fitted without special tools
- Material: ABS grey UL94 HB
- **Scope of delivery:**
 - Plastic covering caps

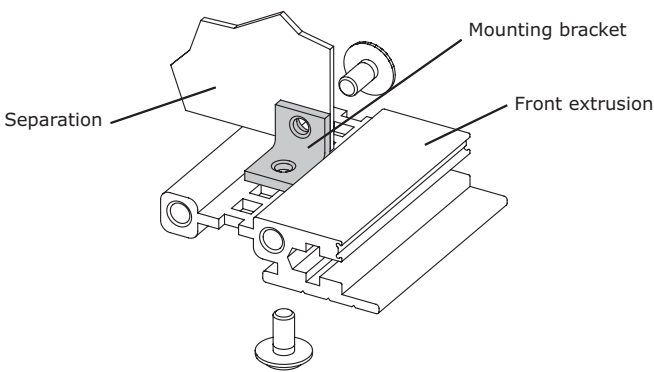


3.6 Covering Caps

Opening		A mm	B mm	C mm	D mm	E mm	Part-No. 10 pcs.	Part-No. 100 pcs.
DB9	9-poles	25.0	20.5	11.4	32.0	14.0	63-811	63-858
DB15	15-poles	33.3	28.8	11.4	40.3	14.0	63-812	63-859
DB25	25-poles	47.0	42.5	11.4	54.0	14.0	63-813	63-860
DB37	37-poles	63.5	59.1	11.4	70.5	14.0	63-814	-
DB50	50-poles	61.1	56.3	14.1	68.1	16.6	63-815	-

3.8 Mounting Brackets

- Assembly of a separation
- Separations are manufactured as required by the customer
- Sheet steel
- **Scope of delivery:**
 - 1 mounting bracket
- Assembly material, see below

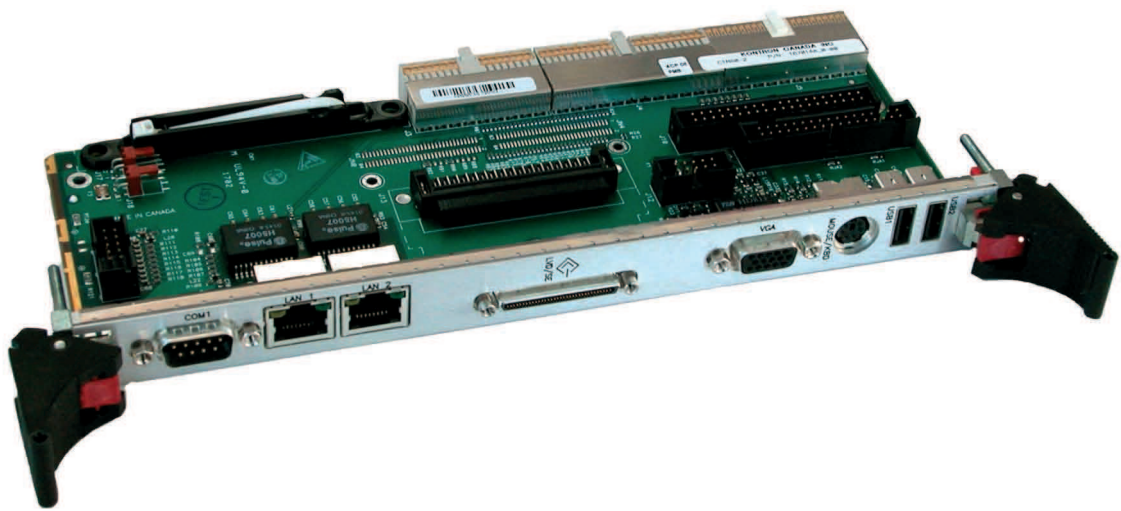


3.8 Mounting Brackets

Description	Part-No.	
	1 pc.	100 pcs.
Mounting brackets	61-416	63-656

Assembly Material

Description	Part-No.	
	1 pc.	100 pcs.
Round head screws cross recessed M3 x 6	5335-06	1912-16
Round head screws Torx M3 x 6, size T10	5473-01	-



Source: Kontron, Germany



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