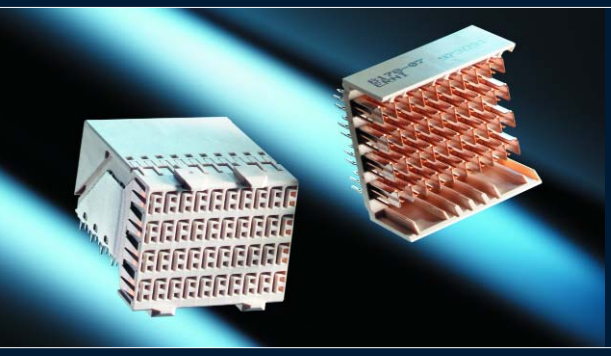

ERmet® ZD

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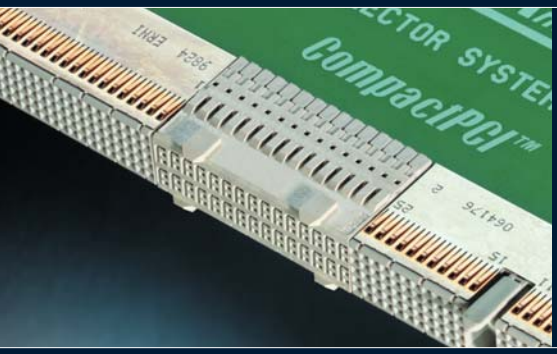
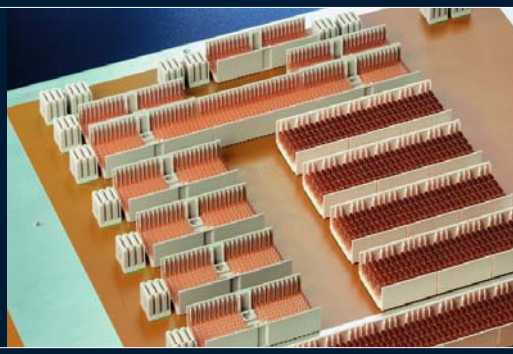
| Catalog E 074505 | 04/07 | Edition 7 |





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ERmet ZD
High Speed Differential Hard Metric Connector System
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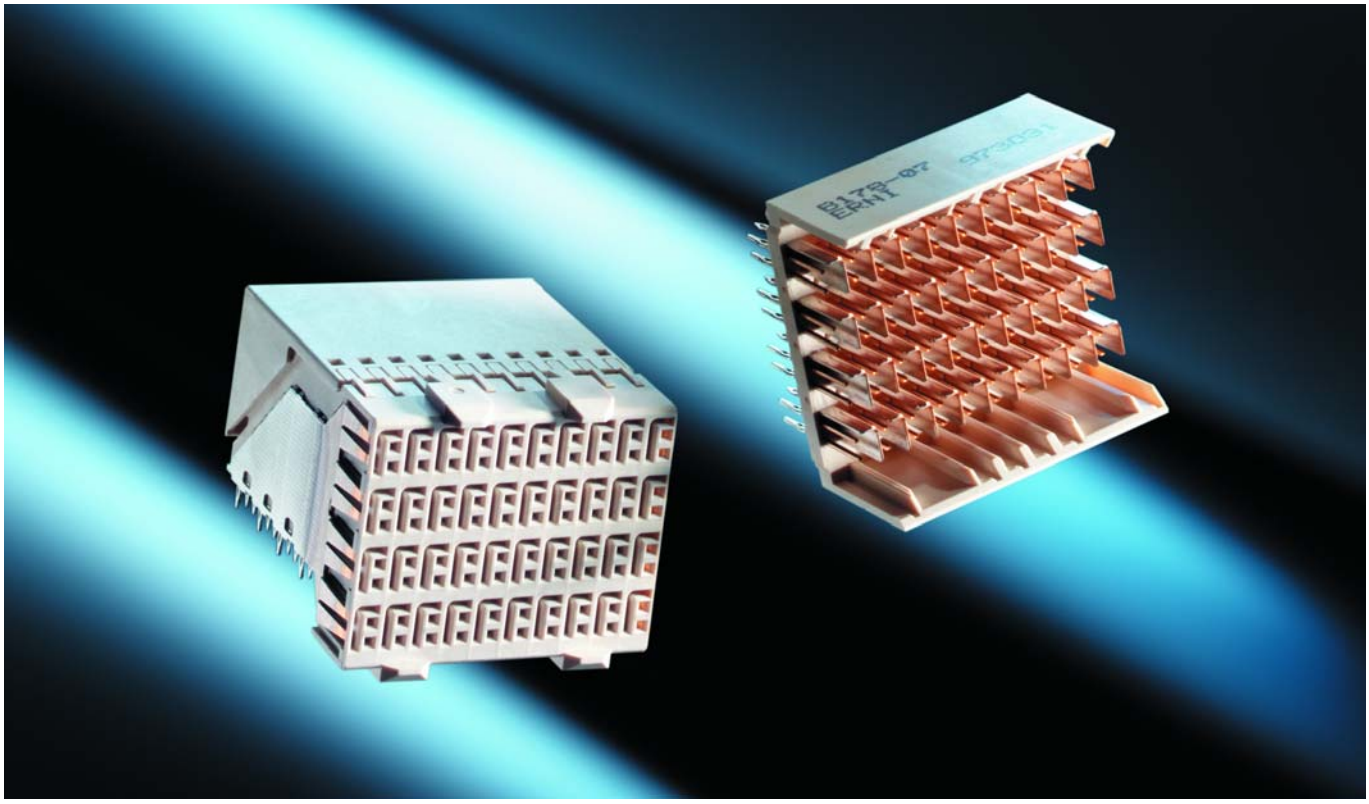
ERmet ZD
High Speed Differential Hard Metric Connector System



ERmet ZD Male and Female Module with Pressfit Termination

Description

The ERmet ZD is specifically designed for high speed differential signaling in telecom applications at data rates of up to 5 Gbits/second. This robust, high performance, modular connector system is also designed to be used in conjunction with the 2 mm Hard Metric (IEC 61076-4-101) family of connectors. It shares the chassis and board design features along with common layout references.
The connector meets the electrical performance requirements of high speed, low voltage differential signaling. The ERmet ZD connector family is available in pressfit versions. The back-plane module is a male pin header that has three mating levels. The ground shield and signal pins mate sequentially at 1.5 mm intervals.
The robust mechanical design and excellent signal integrity are a result of the internal differential shielding scheme and the "L" shaped male shield blades. The inherently rigid male shields stand higher than the signal pins and surround each pair. An improved guidance feature completes the rugged mechanical design.
Optimized grid design to improve the RF characteristics.
Easy and economical trace routing achieved by in line-design of signal and ground pins.
Simulation models available upon request.

Technical Features

- Design: Wafers with individually shielded pairs of contacts.
- Contacts: Low noise, dual beam, leaf contacts with one ground blade for every pair of signals.
- Wafer pitch: 2.5 mm from wafer to wafer.
- Pitch between signal pins: 1.5 mm between pairs (within wafer).
- Pitch between pairs: 4.5 mm (within wafer).
- Ground arrangement: In line with signals at termination and surrounding shield.
- Multiline Crosstalk < 3% at 100 ps
- Differential Impedance: 100 Ω ±10%
- Power Modules: Closed entry, vertical female backplane modules with stamped blades.
- Alignment Features: Improved pre-alignment guide and polarizing features, 4 rigid blades for all modules.
- Modularity: Modules are available in two widths and a variety of lengths to integrate within typical Eurocard designs utilizing 5 and 8 row, 2 mm HM connectors to IEC 61076-4-101.

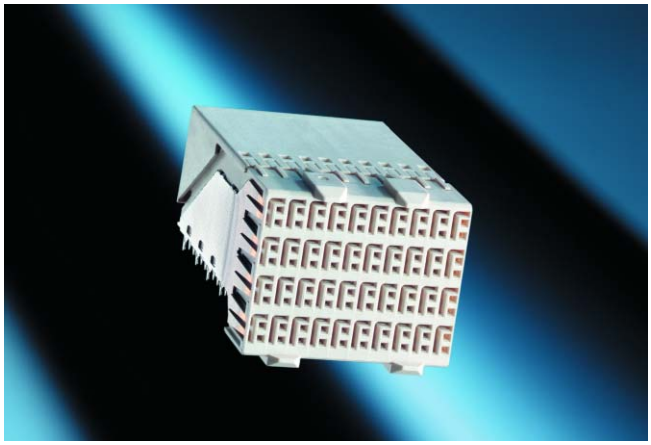
ERmet ZD
High Speed Differential Hard Metric Connector System
Electrical and Mechanical Characteristics

	Standard	Pressfit Male- and Female
Number of pins		2-, 3- and 4-pair
Technical data		
Climate category	DIN EN 60068-1 test b	-55/125/56
Temperature range		-55/125 °C
Current rating	IEC60512 test 5b	By ambient temperature: 20 °C 0.9 A 70 °C 0.7 A 100 °C 0.4 A
Clearance and creepage distance		0.5 mm
Voltage rating	IEC 60664	Has to be determined according to client-specific using case (degree of environmental pollution) according to IEC 60664
Dielectric strength	IEC 60512 test 4a	contact pair - contact pair 500 V_{rms} contact pair - shield 500 V_{rms}
Contact resistance	IEC 60512 test 2a	< 50 mΩ (Signal) < 15 mΩ (Shield)
Insulation resistance	IEC 60512 test 3a	> 10^4 MΩ
Vibration, sine	IEC 60512 test 6d	10 – 2000 Hz 20 g
Contact interruption (while vibration test)	IEC 60512 test 2e	< 1 µs
Shock, halfsine	IEC 60512 test 6c	50 g 11 ms
Contact interruption (while shock test)	IEC 60512 test 2e	< 1 µs
Mechanical operation (mating cycles)	IEC 60512 test 9a	> 250 mating cycles
Insertion and withdrawal force	IEC 60512 test 13b	Insertion force: max. 0.7 N/pin (Signal) max. 0.9 N/pin (Shield) Withdrawal force: min. 0.15 N/pin
Gauge retention force	IEC 60512 test 16e	> 0.2 N

ERmet ZD
High Speed Differential Hard Metric Connector System
Electrical and Mechanical Characteristics

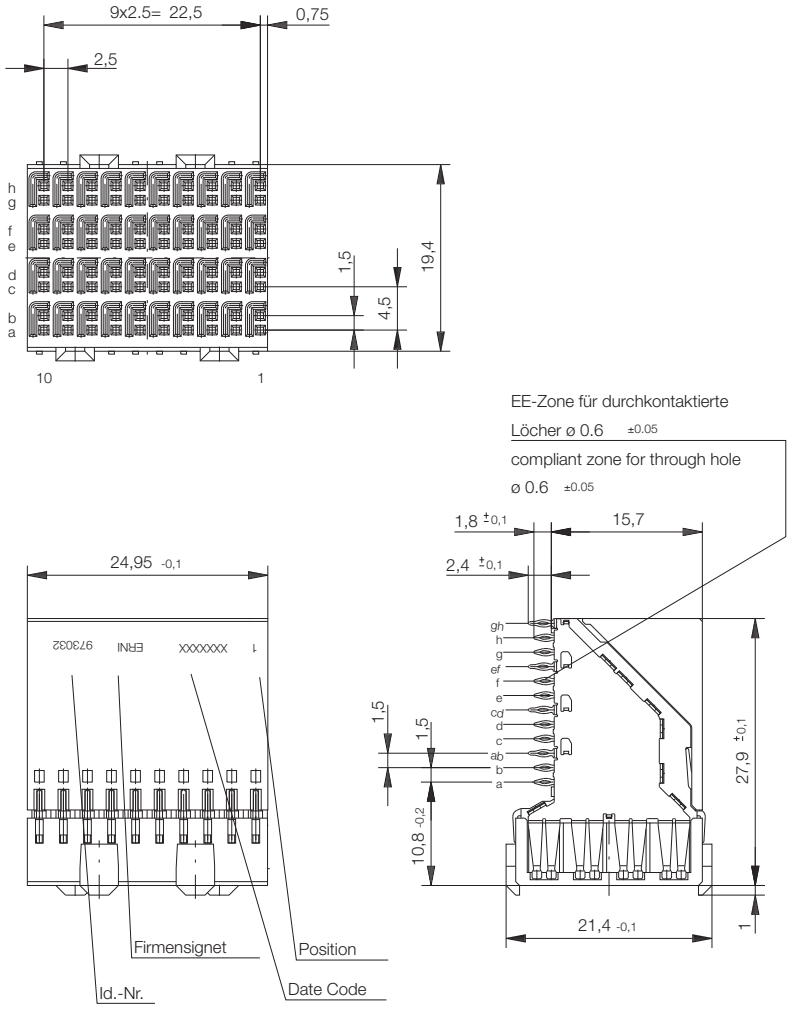
	Standard	Pressfit Male- and Female
Number of pins		2-, 3- and 4-pair
Signal transmission data		
Multiline Crosstalk		< 3% at 100 ps
Insertion Loss		< 1 dB up to 3 GHz
Differential impedance		100 Ω ±10%
Propagation delay		A pin 97 ±10 ps B pin 107 ±10 ps C pin 125 ±10 ps D pin 134 ±10 ps E pin 157 ±10 ps F pin 166 ±10 ps G pin 187 ±10 ps H pin 199 ±10 ps
Process-conditions		
Press-in force		36 N/pin
Warning		Soldering of pressfit connectors not recommended.
Materials		
Housing: Plastic material (symbol)		LCP
CTI value	IEC 112	CTI 175
UL flame rating		UL 94 V-0
UL file		E83005
Contact and mating area		
Base material		Cu alloy
Plating		min. 0.65 µm PdNi + 0.1 µm Au over 2 - 3 µm Ni 0.76 µm Au over 1.27 µm Ni (Right Angle Male RoHS 5/6)
Termination area		
Base material		Cu alloy
Plating		0.5 - 2 µm Sn matt over 2 - 3 µm Ni 0.5 µm SnPb over 1.27 µm Ni (Right Angle Male RoHS 5/6)
Environment compatibility		
Recycling		no flame-retardent additives, no toxic additives, allow easy recycling
Product-approval		
UL		E84703

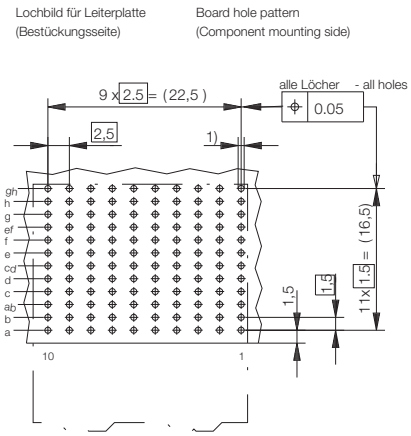
ERmet ZD
High Speed Differential Hard Metric Connector System
Right Angle Female Connectors 4 Pair



The ERmet ZD 4 pair female connector provides in the 10 wafer version 40 contact pairs (80 signal contacts and 40 ground contacts).
The female pair 4 is available with pressfit termination.
Additionally, the ERmet ZD 4 pair female connector has four pre-alignment pegs which provide easier alignment, improved rigidity and reliable polarisation. The layout grid facilitates integration with conventional 2 mm HM (IEC 061076-4-101) connectors.

Dimensional Drawing





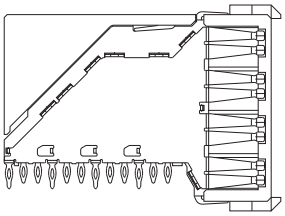
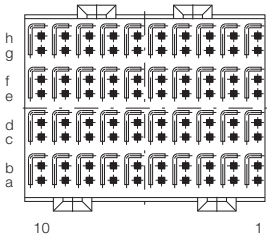
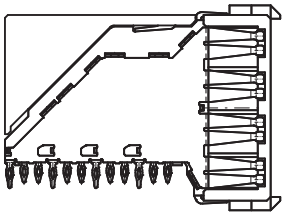
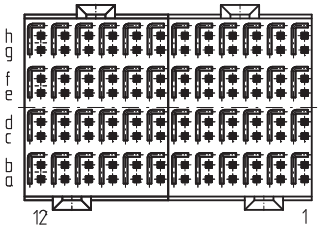
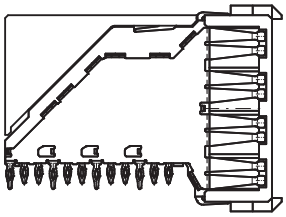
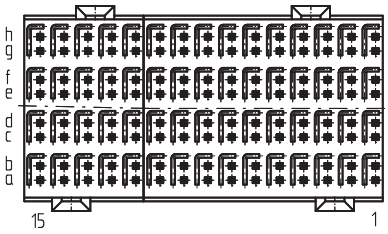
1) ø0.6±0.05 Durchmesser des metallisierten Loches
ø0.6 ±0.05 Diameter of finished plated-through hole

ø0.7 ±0.02 Bohrungsdurchmesser des Loches
ø0.7 ±0.02 Diameter of drilled hole

All dimensions in mm

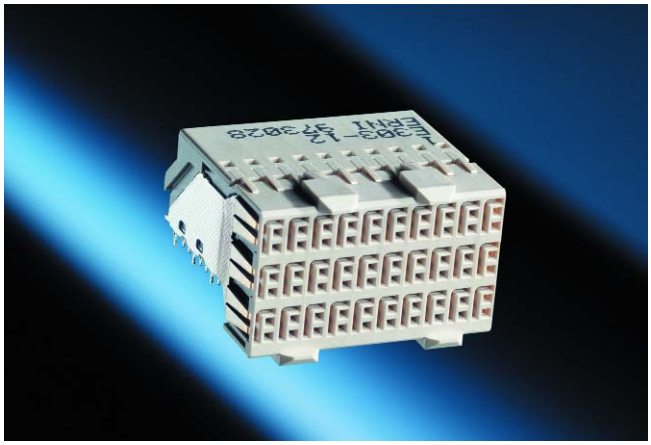
ERmet ZD
High Speed Differential Hard Metric Connector System
Right Angle Female Connectors 4 Pair

Ordering Information

Configuration	Length	Pin Configuration	Termination	Termination Tail Length	Used For	No. of Pins	Part Number
			AdvancedTCA®				
4 Pair / 10 wafers	25 mm	40 pairs - 80 signals / 40 grounds	Pressfit	1.8 mm	Zone 2	120	**973032**
							
4 Pair / 12 wafers	30 mm	48 pairs - 96 signals / 48 grounds	Pressfit	1.8 mm	–	144	**973099***
							
4 Pair / 15 wafers	37.5 mm	60 pairs - 120 signals / 60 grounds	Pressfit	1.8 mm		180	**973024***

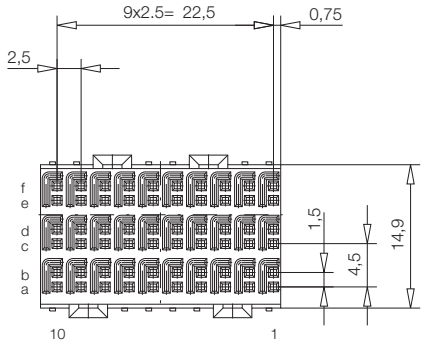
***** Parts available as kit**.**

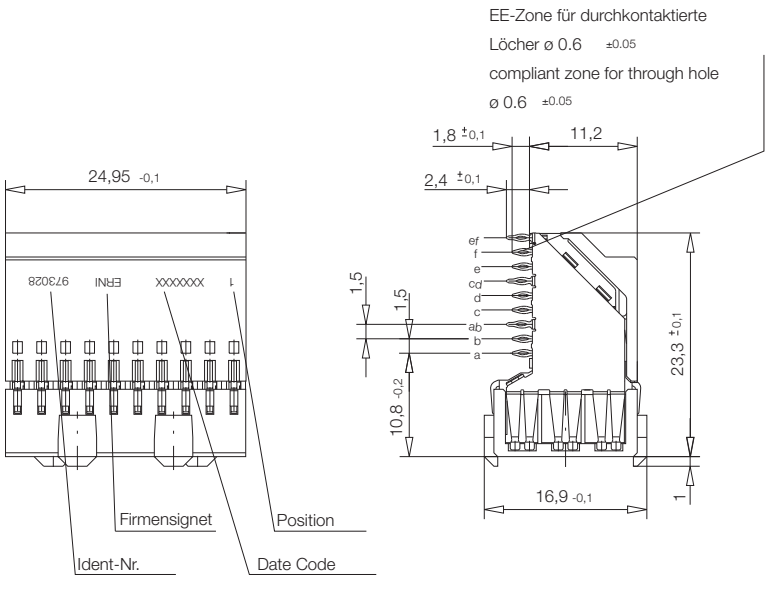
ERmet ZD
High Speed Differential Hard Metric Connector System
Right Angle Female Connectors 3 Pair

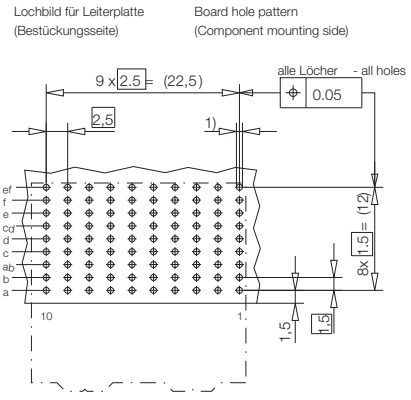


The ERmet ZD 3 pair female connector provides in the 10 wafer version 30 contact pairs (60 signal contacts and 30 ground contacts).
The female 3 pair is available with pressfit termination.
Additionally, the ERmet ZD 3 pair female connector has four pre-alignment pegs which provide easier alignment, improved rigidity and reliable polarisation. The layout grid facilitates integration with conventional 2 mm HM (IEC 061076-4-101) connectors.

Dimensional Drawing







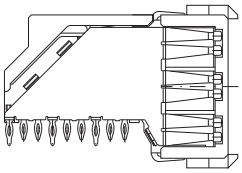
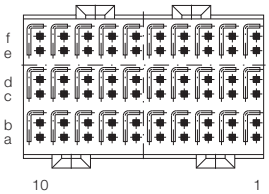
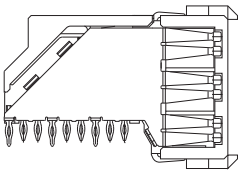
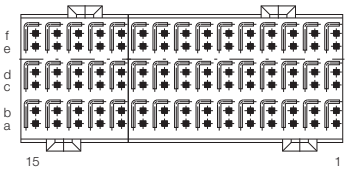
1) ø0.6 ±0.05 Durchmesser des metallisierten Loches
ø0.6 ±0.05 Diameter of finished plated-through hole

ø0.7 ±0.02 Bohrungsdurchmesser des Loches
ø0.7 ±0.02 Diameter of drilled hole

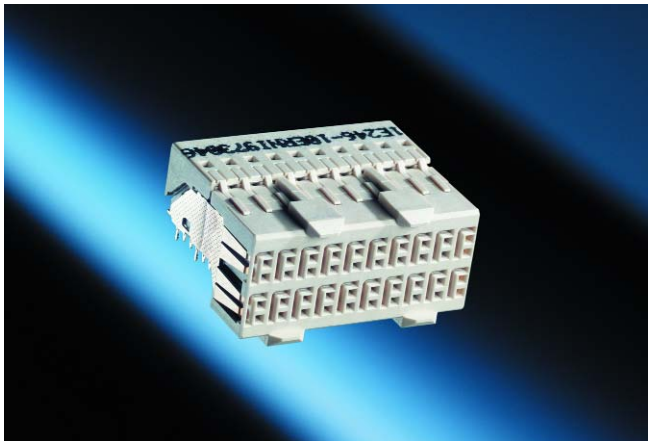
All dimensions in mm

ERmet ZD
High Speed Differential Hard Metric Connector System
Right Angle Female Connectors 3 Pair

Ordering Information

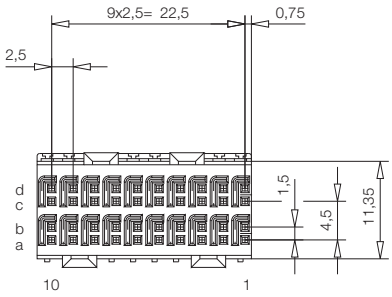
Configuration	Length	Pin Configuration	Termination	Termination Tail Length	Used For	No. of Pins	Part Number
			PCI EXPRESS				
3 Pair / 10 wafers	25 mm	30 pairs - 60 signals / 30 grounds	Pressfit	1.8 mm	ADF	90	**973028**
							
3 Pair / 15 wafers	37.5 mm	45 pairs - 90 signals / 45 grounds	Pressfit	1.8 mm	–	135	**973020**

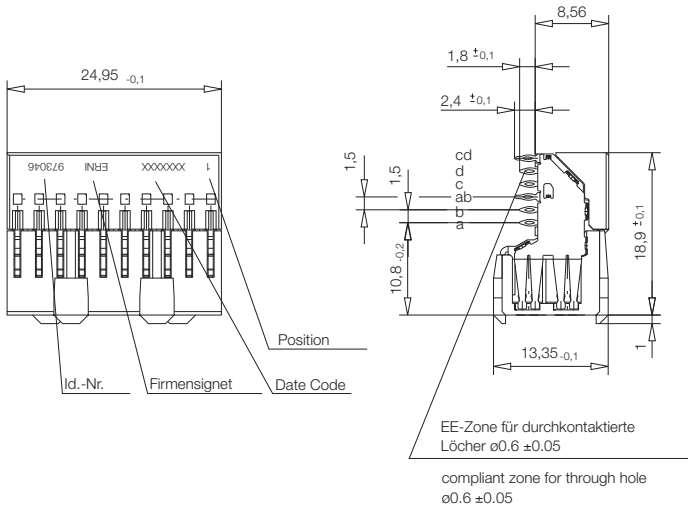
ERmet ZD
High Speed Differential Hard Metric Connector System
Right Angle Female Connectors 2 Pair

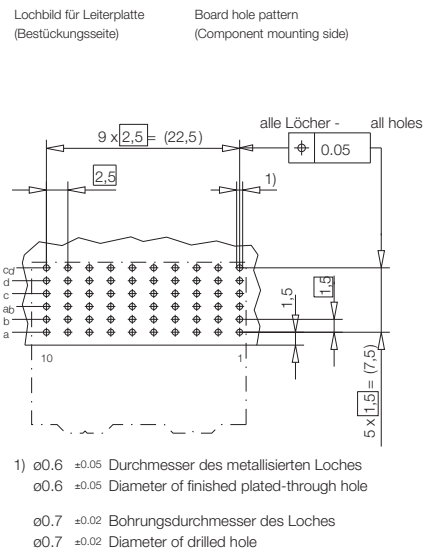


The ERmet ZD 2 pair female connector provides in the 10 wafer version 20 contact pairs (40 signal contacts and 20 ground contacts).
The female 2 pair is available with pressfit termination. Additionally, the ERmet ZD 2 pair female connector has four pre-alignment pegs which provide easier alignment, improved rigidity and reliable polarisation. The layout grid facilitates integration with conventional 2 mm HM (IEC 061076-4-101) connectors.

Dimensional Drawing







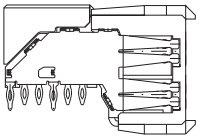
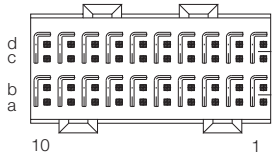
1) ø0.6 ±0.05 Durchmesser des metallisierten Loches
ø0.6 ±0.05 Diameter of finished plated-through hole

ø0.7 ±0.02 Bohrungsdurchmesser des Loches
ø0.7 ±0.02 Diameter of drilled hole

All dimensions in mm

ERmet ZD
High Speed Differential Hard Metric Connector System
Right Angle Female Connectors 2 Pair

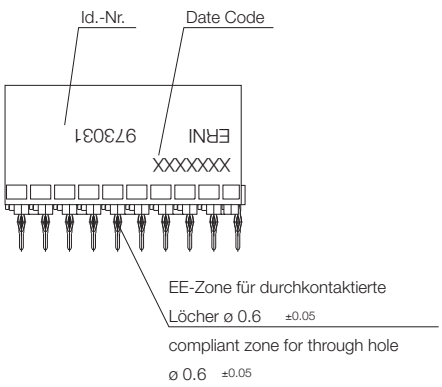
Ordering Information

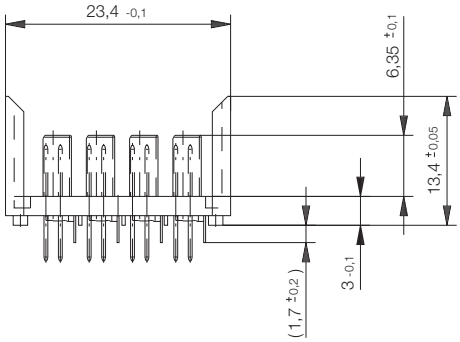
Configuration	Length	Pin Configuration	Termination	Termination Tail Length	Used For	No. of Pins	Part Number
							
2 pair / 10 wafers	25 mm	20 pairs - 40 signals / 20 grounds	Pressfit	1.8 mm	–	60	**973046**

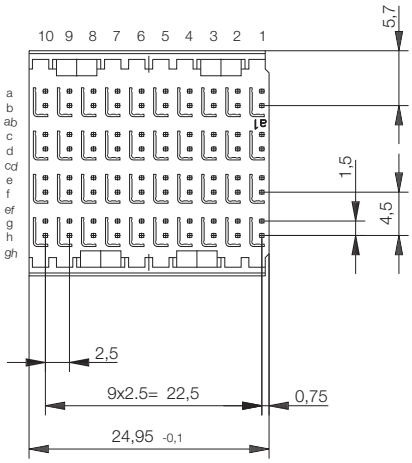
ERmet ZD
High Speed Differential Hard Metric Connector System
Vertical Male Connectors 4 Pair

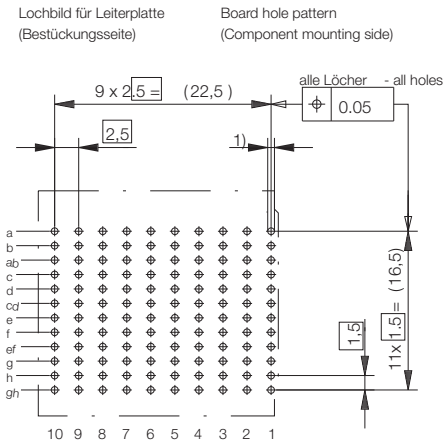
The ERmet ZD 4 pair male connector provides in the 10 wafer version 40 contact pairs (80 signal contacts and 40 ground contacts). This series supports three levels of sequential mating.
The male 4 pair is available with pressfit termination. The "L" shaped shields are robust mechanical structures that provide an ideal differential environment as well as protecting the signal pins and resisting deflection that could cause stubbing. Various module length are offered in four pair wide configuration. The layout grid facilitates integration with conventional 2 mm HM (IEC 061076-4-101) connectors.

Dimensional Drawing









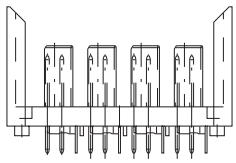
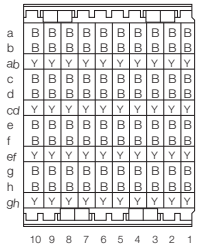
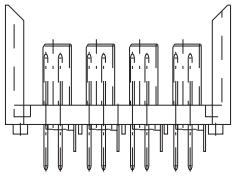
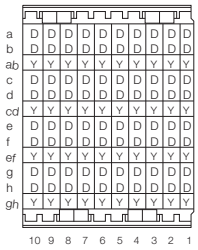
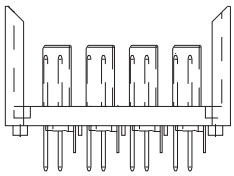
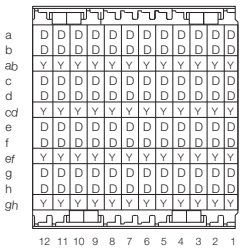
1) ø0.6 ±0.05 Durchmesser des metallisierten Loches
ø0.6 ±0.05 Diameter of finished plated-through hole

ø0.7 ±0.02 Bohrungsdurchmesser des Loches
ø0.7 ±0.02 Diameter of drilled hole

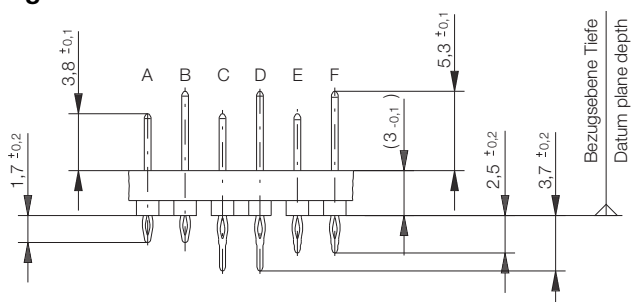
All dimensions in mm

ERmet ZD
High Speed Differential Hard Metric Connector System
Vertical Male Connectors 4 Pair

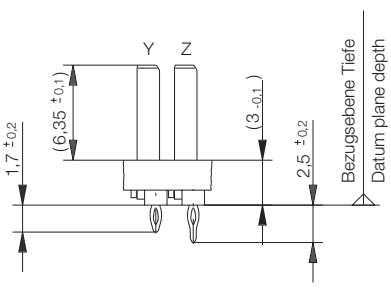
Ordering Information

Configuration	Length	Pin Configuration	Termination	Termination Tail Length	Used For	No. of Pins ERmet	Part Number
							
4 Pair / 10 wafers	25 mm	40 pairs - 80 signals / 40 grounds	Pressfit	1.7 mm	–	120	**973061**
			AdvancedTCA®				
4 Pair / 10 wafers	25 mm	40 pairs - 80 signals / 40 grounds	Pressfit	3.7 mm	Zone 2	120	**973031**
							
4 Pair / 12 wafers	30 mm	48 pairs - 96 signals / 48 grounds	Pressfit	3.7 mm	–	144	**973096**

Signal Pins

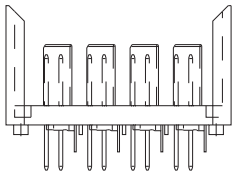
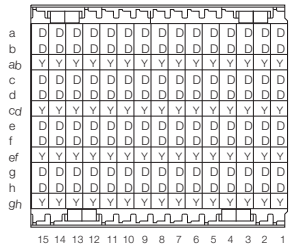


Shielding Pins

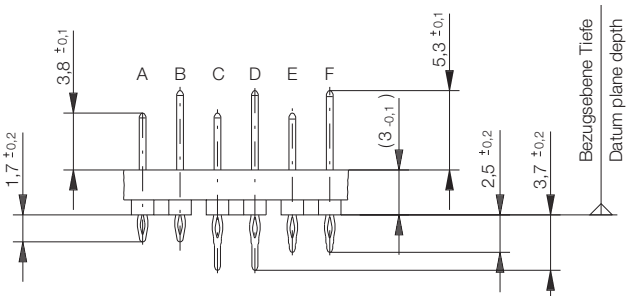


ERmet ZD
High Speed Differential Hard Metric Connector System
Vertical Male Connectors 4 Pair

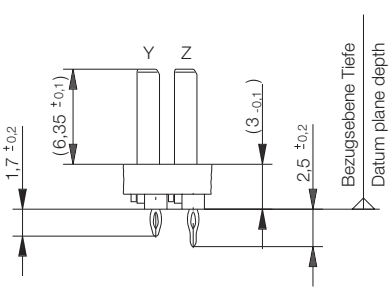
Ordering Information

Configuration	Length	Pin Configuration	Termination	Termination Tail Length	Used For	No. of Pins	Part Number
							
4 Pair / 15 wafers	37.5 mm	60 pairs - 120 signals / 60 grounds	Pressfit	3.7 mm	–	180	**973023**

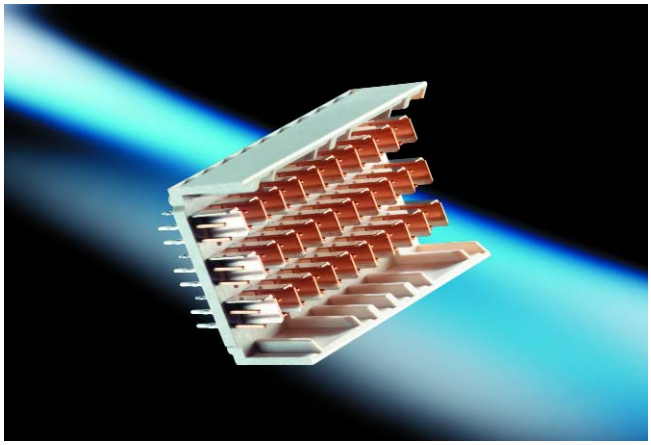
Signal Pins



Shielding Pins

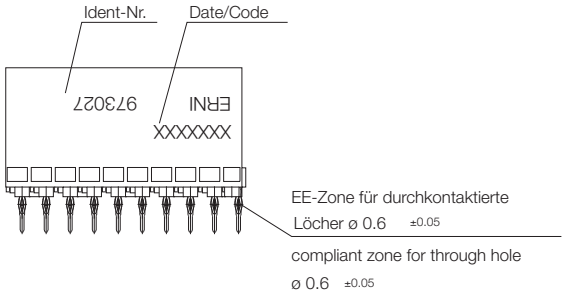


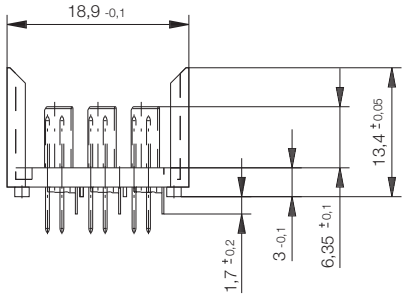
ERmet ZD
High Speed Differential Hard Metric Connector System
Vertical Male Connectors 3 Pair

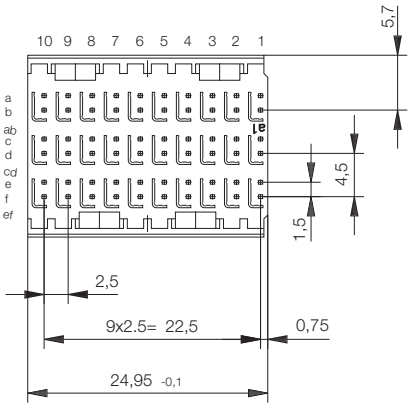


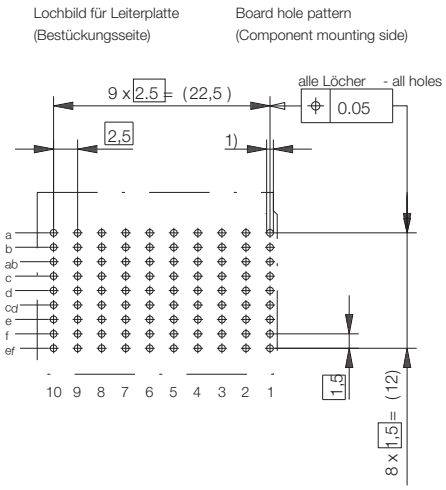
The ERmet ZD 3 pair male connector provides in the 10 wafer version 30 contact pairs (60 signal contacts and 30 ground contacts). This series supports three levels of sequential mating.
The male 3 pair is available with pressfit termination. The "L" shaped shields are robust mechanical structures that provide an ideal differential environment as well as protecting the signal pins and resisting deflection that could cause stubbing. Various module length are offered in three pair wide configuration. The three pair wide version is ideal for Eurocard backplane designs with 2 mm card spacing.

Dimensional Drawing









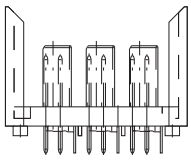
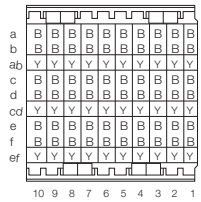
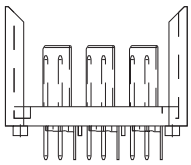
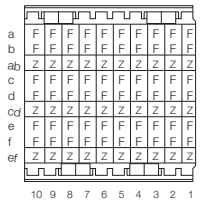
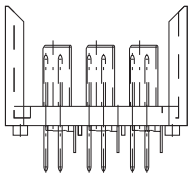
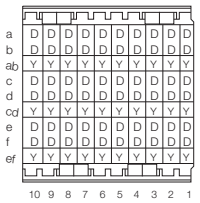
1) ø0.6 ±0.05 Durchmesser des metallisierten Loches
ø0.6 ±0.05 Diameter of finished plated-through hole

ø0.7 ±0.02 Bohrungsdurchmesser des Loches
ø0.7 ±0.02 Diameter of drilled hole

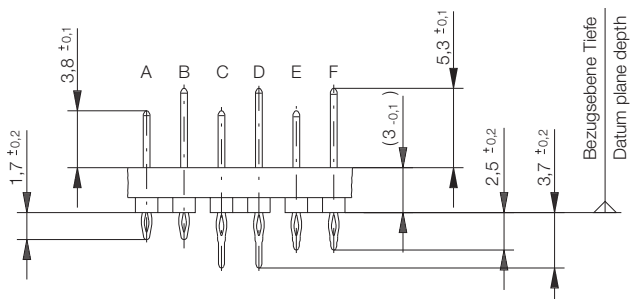
All dimensions in mm

ERmet ZD
High Speed Differential Hard Metric Connector System
Vertical Male Connectors 3 Pair

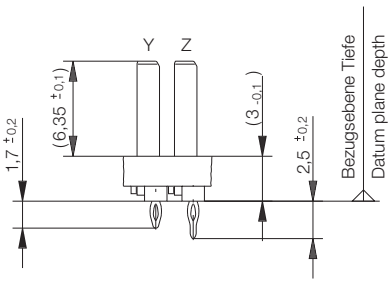
Ordering Information

Configuration	Length	Pin Configuration	Termination	Termination Tail Length	Used For	No. of Pins	Part Number
							
3 Pair / 10 wafers	25 mm	30 pairs - 60 signals / 30 grounds	Pressfit	1.7 mm	–	90	**973062**
							
3 Pair / 10 wafers	25 mm	30 pairs - 60 signals / 30 grounds	Pressfit	2.5 mm	–	90	**223396**
							
3 Pair / 10 wafers	25 mm	30 pairs - 60 signals / 30 grounds	Pressfit	3.7 mm	–	90	**973027**

Signal Pins

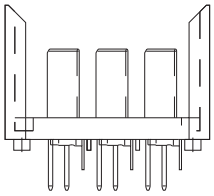
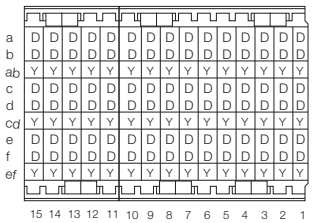


Shielding Pins

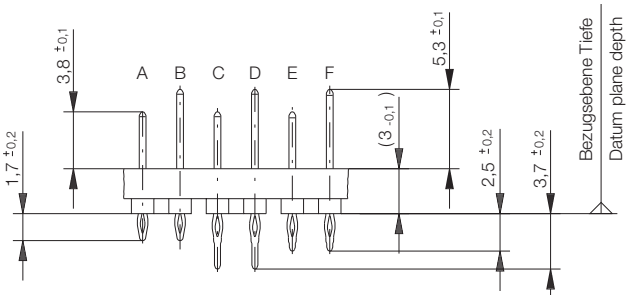


ERmet ZD
High Speed Differential Hard Metric Connector System
Vertical Male Connectors 3 Pair

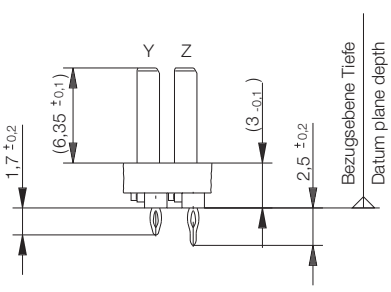
Ordering Information

Configuration	Length	Pin Configuration	Termination	Termination Tail Length	Used For	No. of Pins	Part Number
							
3 Pair / 15 wafers	37.5 mm	45 pairs - 90 signals / 45 grounds	Pressfit	3.7 mm	–	135	**973019**

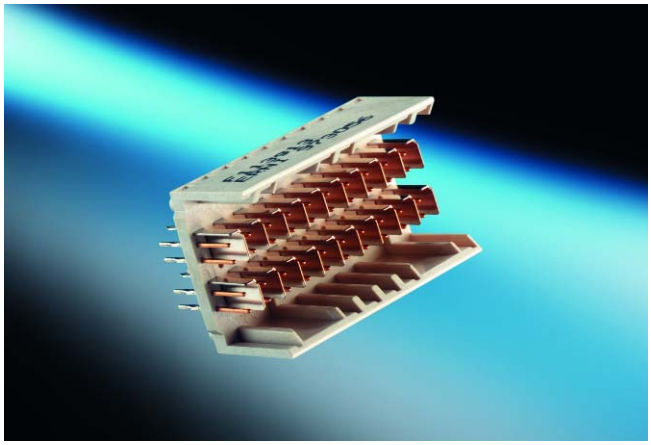
Signal Pins



Shielding Pins

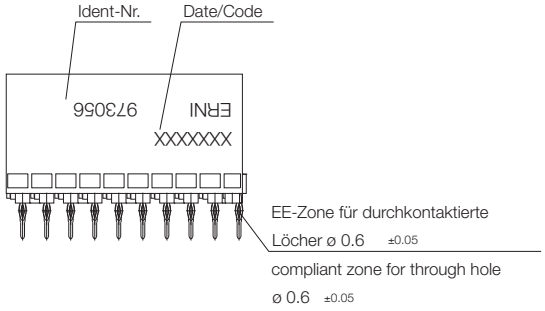


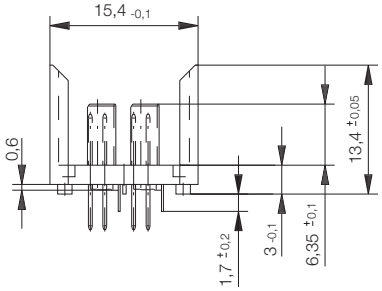
ERmet ZD
High Speed Differential Hard Metric Connector System
Vertical Male Connectors 2 Pair

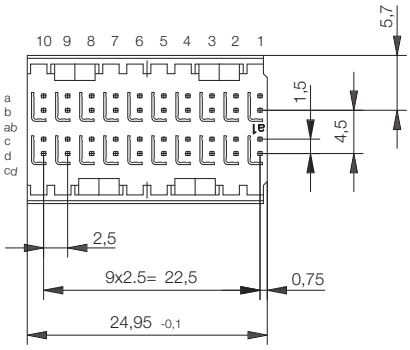


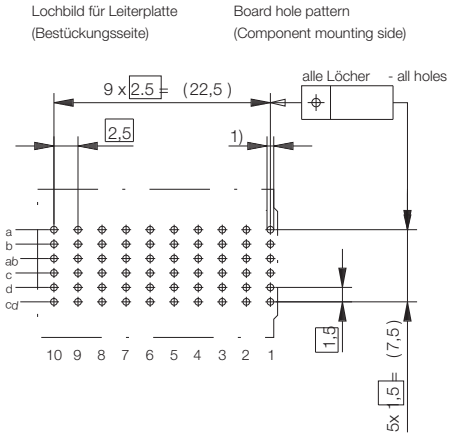
The ERmet ZD 2 pair male connector provides in the 10 wafer version 20 contact pairs (40 signal contacts and 20 ground contacts). This series supports three levels of sequential mating.
The male 2 pair is available with pressfit termination. The "L" shaped shields are robust mechanical structures that provide an ideal differential environment as well as protecting the signal pins and resisting deflection that could cause stubbing. Various module length are offered in two pair wide configuration. The two pair wide version is ideal for applications in combination with ERmet 5+2 connectors because of the same width of 15.4 mm.

Dimensional Drawing









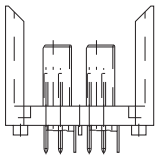
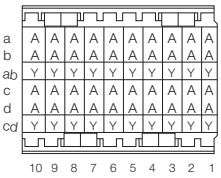
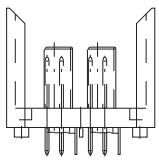
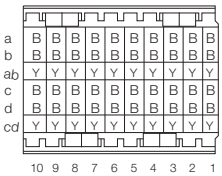
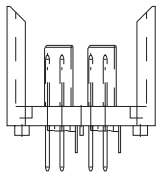
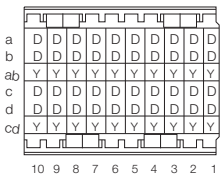
1) ø0.6 ±0.05 Durchmesser des metallisierten Loches
ø0.6 ±0.05 Diameter of finished plated-through hole

ø0.7 ±0.02 Bohrungsdurchmesser des Loches
ø0.7 ±0.02 Diameter of drilled hole

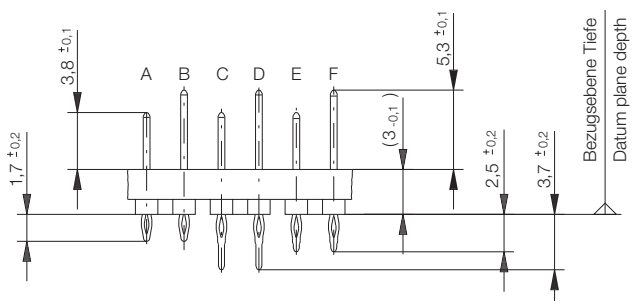
All dimensions in mm

ERmet ZD
High Speed Differential Hard Metric Connector System
Vertical Male Connectors 2 Pair

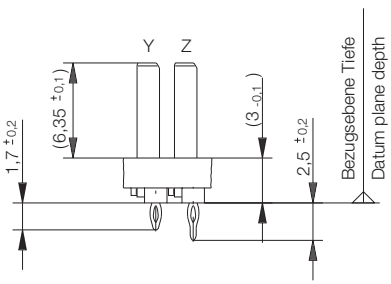
Ordering Information

Configuration	Length	Pin Configuration	Termination	Termination Tail Length	Used For	No. of Pins	Part Number
							
2 pair / 10 wafers	25 mm	20 pairs - 40 signals / 20 grounds	Pressfit	1.7 mm	–	60	**973080**
							
2 pair / 10 wafers	25 mm	20 pairs - 40 signals / 20 grounds	Pressfit	1.7 mm	–	60	**973063**
							
2 pair / 10 wafers	25 mm	20 pairs - 40 signals / 20 grounds	Pressfit	3.7 mm	–	60	**973056**

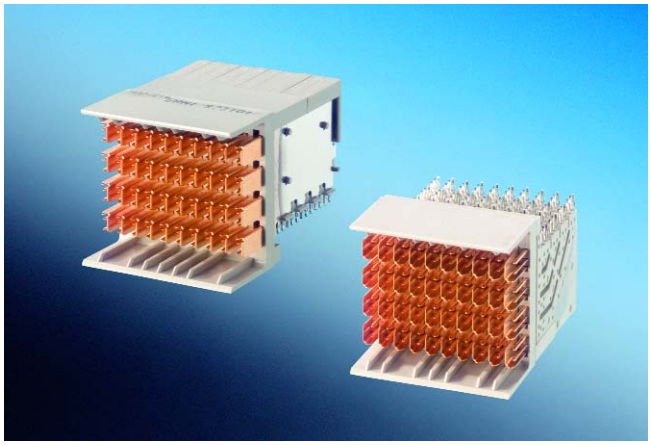
Signal Pins



Shielding Pins

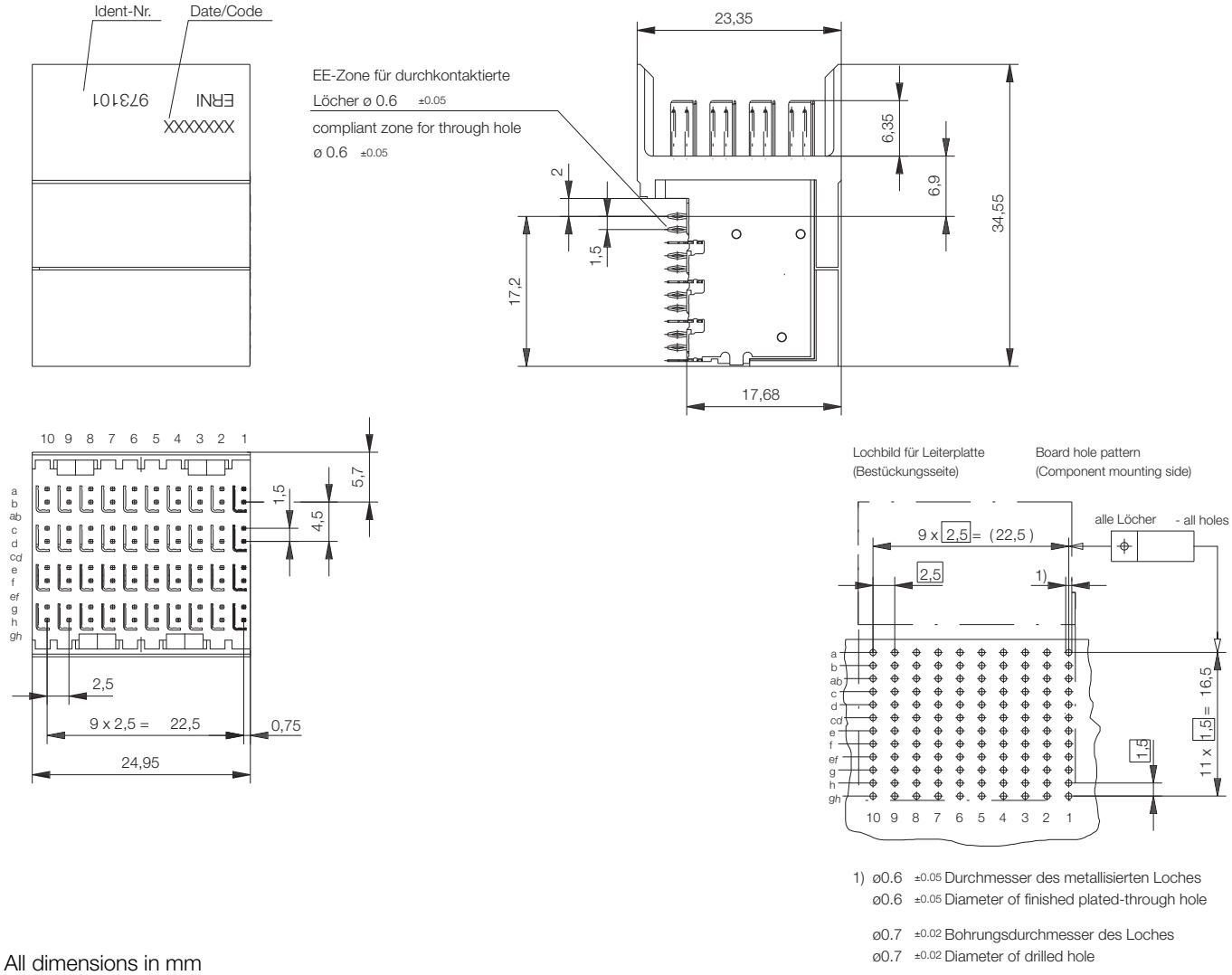


ERmet ZD
High Speed Differential Hard Metric Connector System
Right Angle Male Connectors 4 Pair



The ERmet ZD 4 pair right angle male connector provides in the 10 wafer version 40 contact pairs and is available with pressfit termination. The connector is designed for high speed differential applications and is an extension of the ERmet 2 mm HM product line.
The 4 pair right angle male connector can be used as an AdvancedTCA® Zone 3 connector in conjunction with the Zone 2 right angle female connector.

Dimensional Drawing



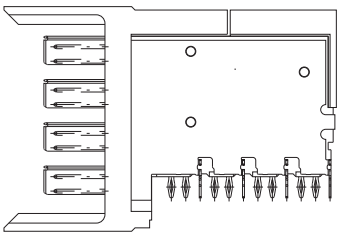
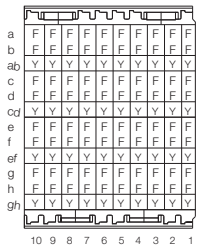
1) ø0.6 ±0.05 Durchmesser des metallisierten Loches
ø0.6 ±0.05 Diameter of finished plated-through hole

ø0.7 ±0.02 Bohrungsdurchmesser des Loches
ø0.7 ±0.02 Diameter of drilled hole

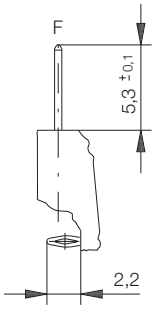
All dimensions in mm

ERmet ZD
High Speed Differential Hard Metric Connector System
Right Angle Male Connectors 4 Pair

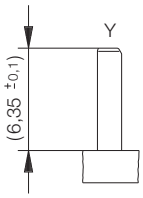
Ordering Information

Configuration	Length	Pin Configuration	Termination	Termination Tail Length	Used For	No. of Pins	Part Number
							
4 Pair / 10 wafers	25 mm	40 pairs - 80 signals / 40 grounds	Pressfit	–	–	120	**973101**

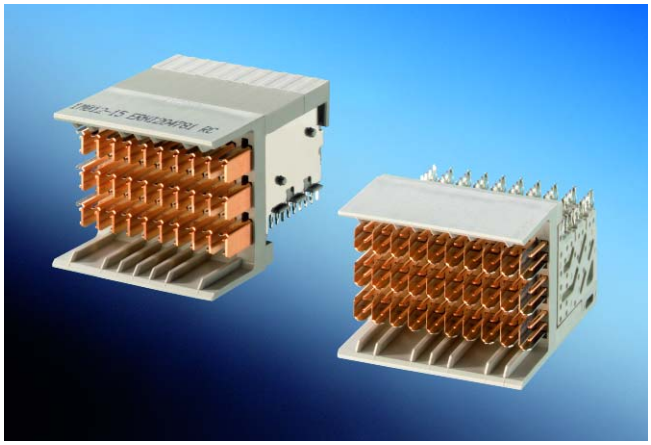
Signal Pins



Shielding Pins

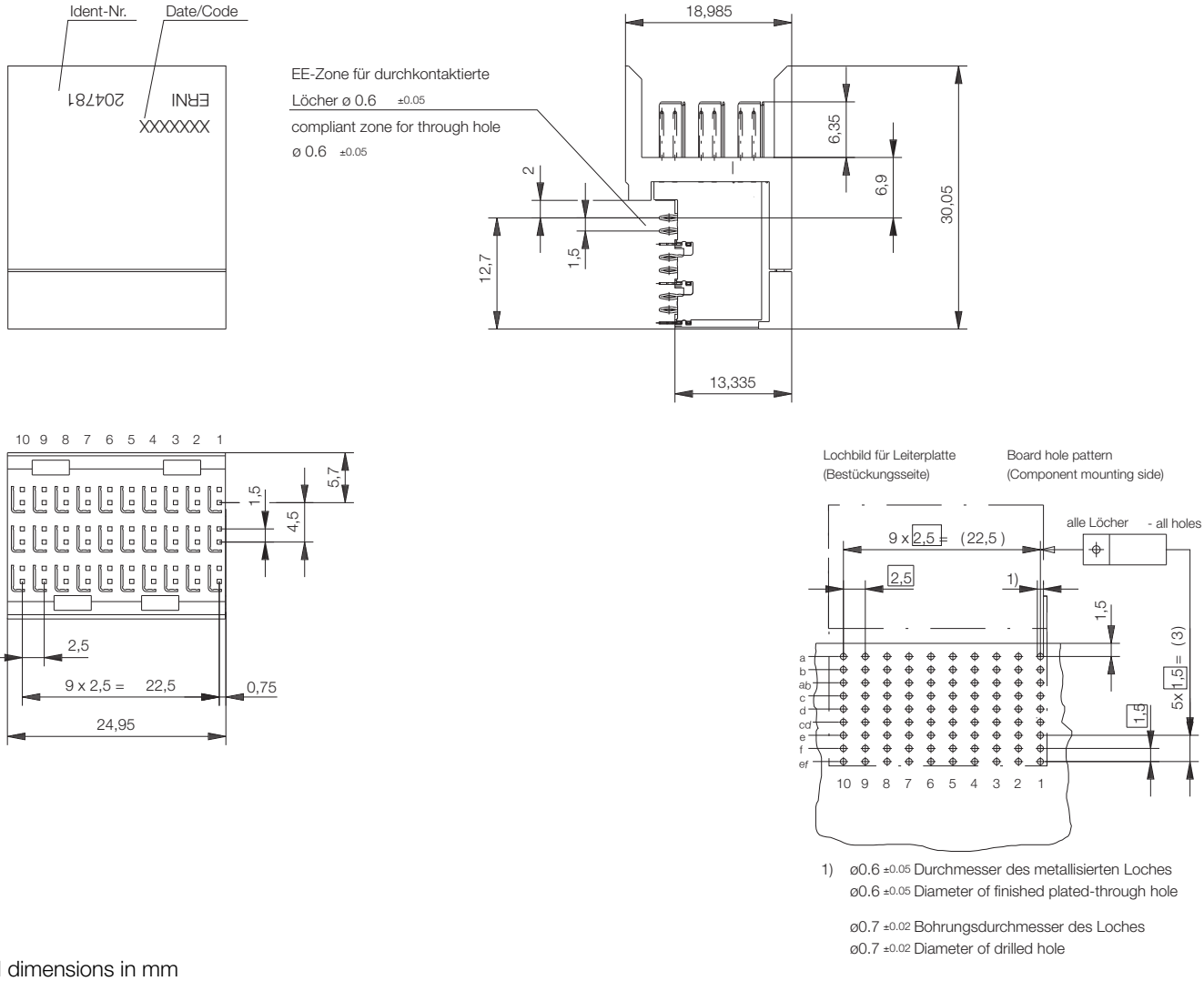


ERmet ZD
High Speed Differential Hard Metric Connector System
Right Angle Male Connectors 3 Pair



The ERmet ZD 3 pair right angle male connector provides in the 10 wafer version 30 contact pairs and is available with pressfit termination. The connector is designed for high speed differential applications and is an extension of the ERmet 2 mm HM product line.

Dimensional drawings and board hole pattern



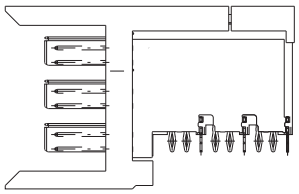
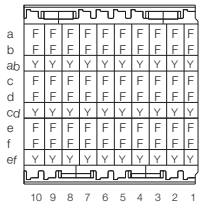
1) ø0.6 ±0.05 Durchmesser des metallisierten Loches
ø0.6 ±0.05 Diameter of finished plated-through hole

ø0.7 ±0.02 Bohrungsdurchmesser des Loches
ø0.7 ±0.02 Diameter of drilled hole

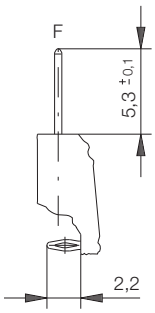
All dimensions in mm

ERmet ZD
High Speed Differential Hard Metric Connector System
Right Angle Male Connectors 3 Pair

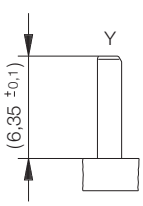
Ordering Information

Configuration	Length	Pin Configuration	Termination	Termination Tail Length	Used For	No. of Pins	Part Number
							
3 Pair / 10 wafers	25 mm	30 pairs - 60 signals / 30 grounds	Pressfit	–	–	90	**204781**

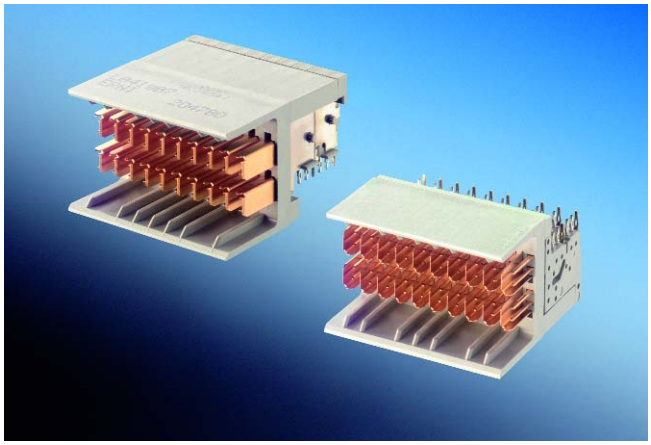
Signal Pins



Shielding Pins

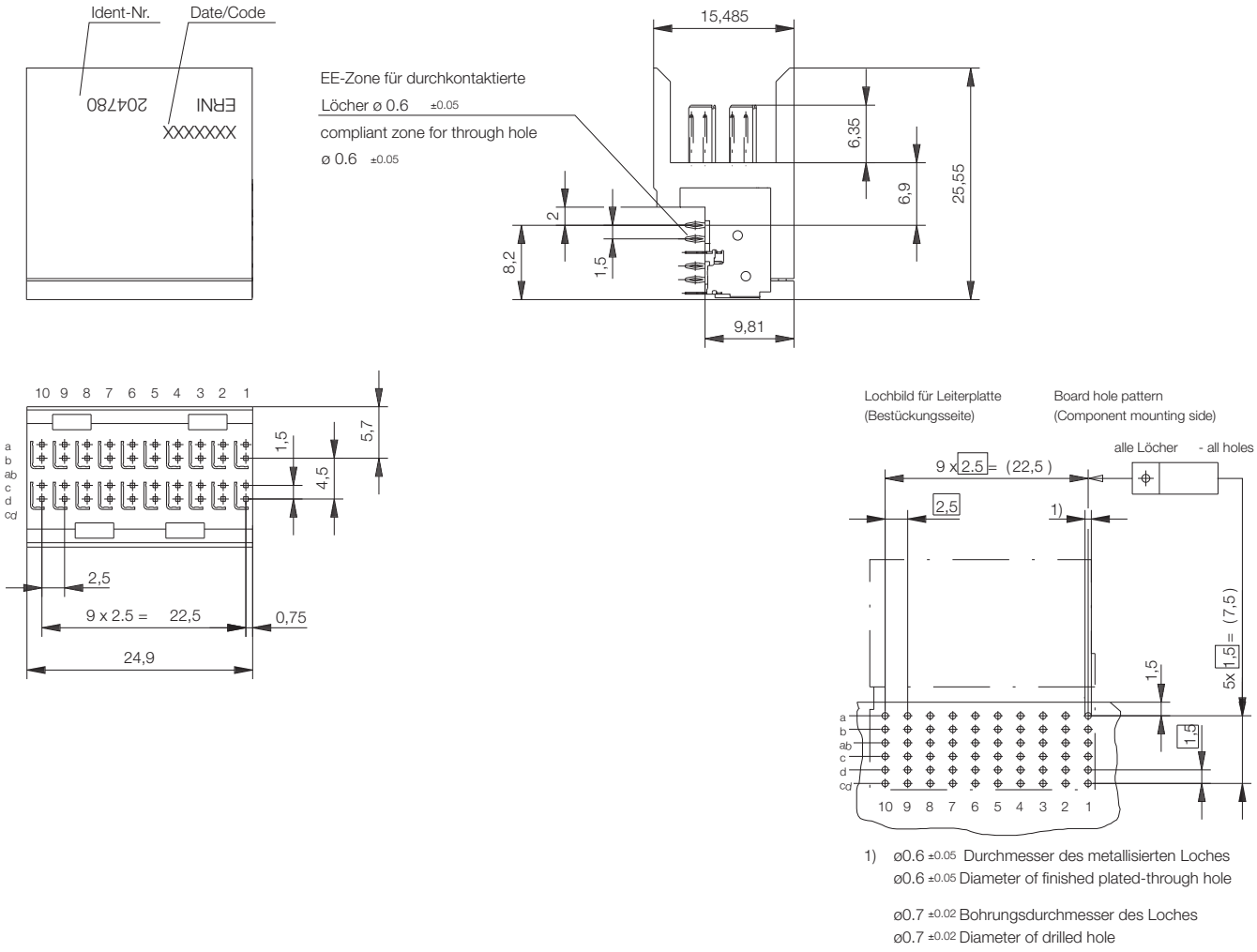


ERmet ZD
High Speed Differential Hard Metric Connector System
Right Angle Male Connectors 2 Pair



The ERmet ZD 2 pair right angle male connector provides in the 10 wafer version 20 contact pairs and is available with pressfit termination. The connector is designed for high speed differential applications and is an extension of the ERmet 2 mm HM product line.

Dimensional Drawing



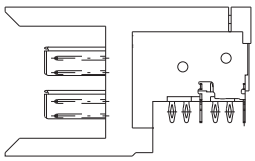
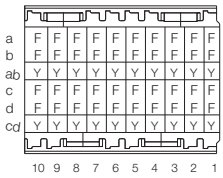
1) ø0.6 ±0.05 Durchmesser des metallisierten Loches
ø0.6 ±0.05 Diameter of finished plated-through hole

ø0.7 ±0.02 Bohrungsdurchmesser des Loches
ø0.7 ±0.02 Diameter of drilled hole

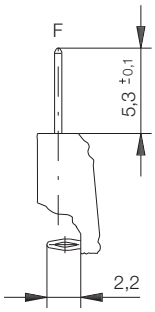
All dimensions in mm

ERmet ZD
High Speed Differential Hard Metric Connector System
Right Angle Male Connectors 2 Pair

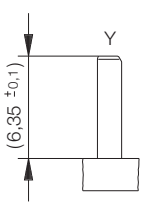
Ordering Information

Configuration	Length	Pin Configuration	Termination	Termination Tail Length	Used For	No. of Pins	Part Number
							
2 pair / 10 wafers	25 mm	20 pairs - 40 signals / 20 grounds	Pressfit	–	–	60	**204780**

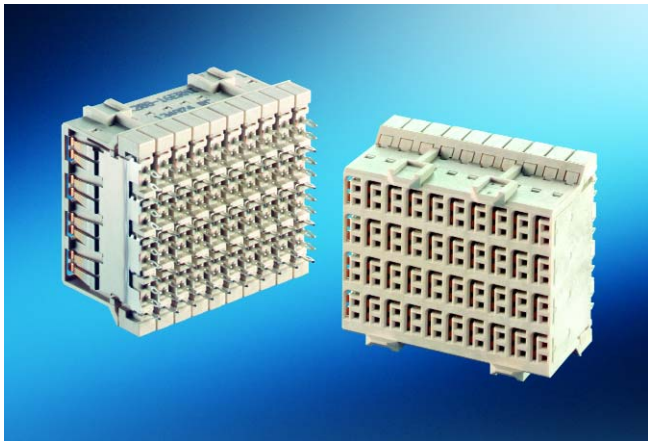
Signal Pins



Shielding Pins

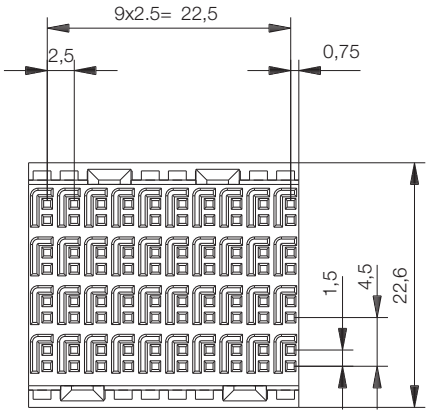


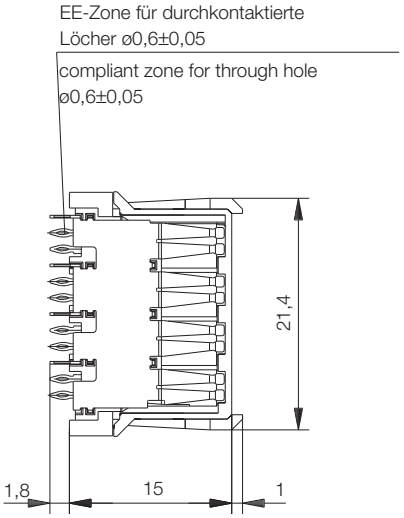
ERmet ZD
High Speed Differential Hard Metric Connector System
Vertical Female Connectors 4 Pair

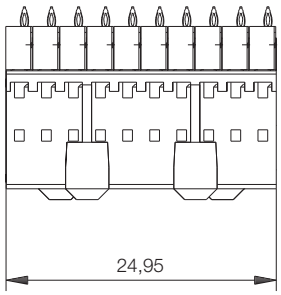


In addition to the four-pair connector modules specified for use in AdvancedTCA® Zone 2, the product line includes two-pair and three-pair signal modules and coplanar connectors. A mezzanine style connector is also available in a four-pair version (vertical female pressfit).

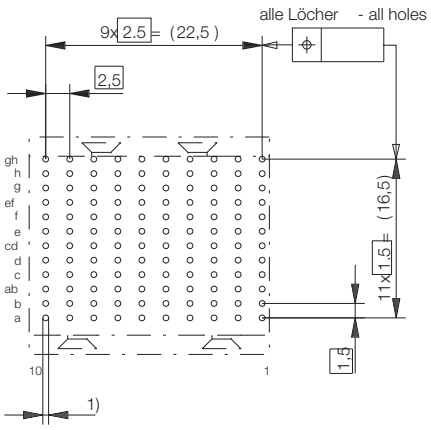
Dimensional Drawing







Lochbild für Leiterplatte (Bestückungsseite)
Board hole pattern (component mounting side)



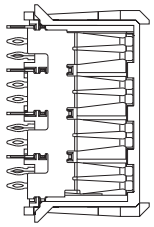
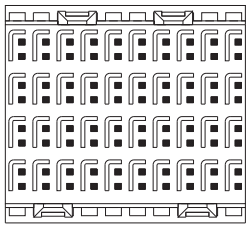
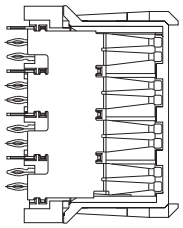
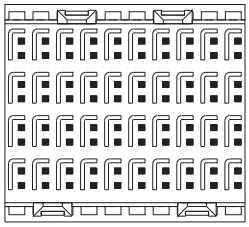
1) ø0,6±0,05 Durchmesser des metallisierten Loches
ø0,6±0,05 diameter of finished plated-through hole

ø0,7±0,02 Bohrungsdurchmesser des Loches
ø0,7±0,02 diameter of drilled hole

All dimensions in mm

ERmet ZD
High Speed Differential Hard Metric Connector System
Vertical Female Connectors 4 Pair

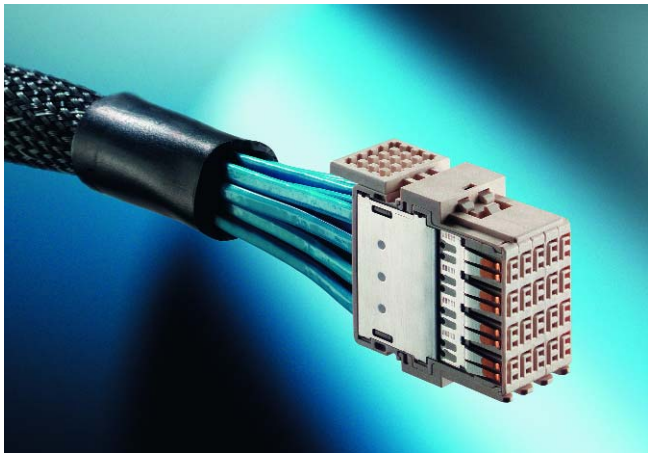
Ordering Information

Configuration	Length	Pin Configuration	Termination	Termination Tail Length	Connector Height *	No. of Pins	Part Number
							
4 Pair / 10 wafers	25 mm	40 pairs - 80 signals / 40 grounds	Pressfit	1.8 mm	12 mm	120	**134883**
							
4 Pair / 10 wafers	25 mm	40 pairs - 80 signals / 40 grounds	Pressfit	1.8 mm	15 mm	120	**134974**

***** Board-toBoard Distance:

Female Connector Height	+ Male Connector Height	= Board-to-Board Distance
12 mm	+ 3 mm	= 15 mm
15 mm	+ 3 mm	= 18 mm

ERmet ZD
High Speed Differential Hard Metric Connector System
Cable System



Conncector Specifications

- Mating pin length: 3.8 - 5.3 mm
- Operating temperature: -55 °C - +105 °C
- Connector body: Glass filled LCP, UL 94 V-O
- Contacts and Shield: Phosphor Bronze

Mechanical Data

- Mating force: Signal 0.7 N/pin (max.)
  Shield 0.9 N/pin (max.)
- Withdrawal force: Signal 0.2 N/pin (max.)
  Shield 0.2 N/pin (max.)

General Information

ERmet ZD Cable Assemblies allow high speed digital signals to be transmitted further and with superior signal fidelity. This connector system has been optimized to transmit high speed differential signals between 2.5 to 10 Gbit/s.
ERmet ZD Cable Assemblies come in a variety of different cable sizes, custom pin-out configurations, and are available in either cable or backplane header compatible versions. EMI backshells can also be incorporated to provide a complete interconnect solution for external cabling requirements. This modular interconnect product family has been designated a common platform for interoperability testing by the 10 Gigabit Ethernet Alliance XAUI Interoperability Group and 10 Gigabit Ethernet Consortium. The connector has also been selected as the backplane interconnect for the PICMG 3.X (ATCA) industry standard.

Electrical Data

- Current rating: 1.0 A @ 70 °C
- Insulation resistance:
  Contact pair/Contact pair: 3000 MΩ (min.)
  Contact pair/Shield: 4000 MΩ (min.)
- Withstanding voltage: 500 V
- Connector impedance: 100 Ω ±5 Ω @ 100 ps rise time

Performance level

- Multiline crosstalk: < 5% @ 100 ps rise time, 250 mV swing

Features

- Low loss, low crosstalk, low skew
- Controlled impedance through connector
- Optimized grid design for enhanced electrical performance and trace routing
- Integrated polarization, guidance and mechanical latching
- Available versions:
  4 pair cable header with latch for 5 wafer cable system
  4 pair cable header without latch for 10 wafer cable system

ERmet ZD
High Speed Differential Hard Metric Connector System
Application Tooling, Equipment and Testing

Modular Pressfit Tools

ERmet ZD connectors can be end to end mounted in modular layout. To be able to pressfit the selected connector layout for your application in a rationalized way, we have designed the necessary pressfit tools to be modular too. This is true of the tools both for male connectors and for female connectors. The tool bases, also termed anvils, are fixed in a tool holder. Each connector module requires an appropriately sized tool module.

Ordering Information

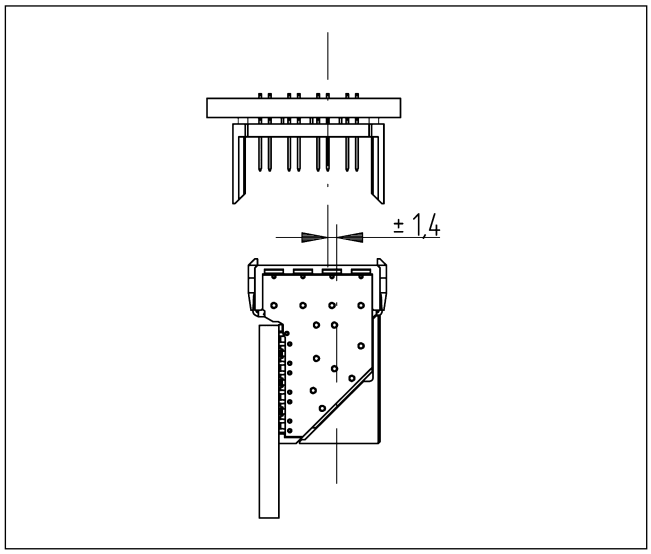
Connector Type	Wafer	Part Number Upper Tool	Part Number Lower Tool
Right Angle Female Connectors 4 Pair	10	**220629**	**220630**
Right Angle Female Connectors 3 Pair	10	**220634**	**220635**
Right Angle Female Connectors 2 Pair	10	**220637**	**220638**
Verticale Male Connectors 4 Pair	10	**220627**	**220628**
Verticale Male Connectors 3 Pair	10	**220633**	**220640**
Verticale Male Connectors 2 Pair	10	**220636**	**220639**
Right Angle Male Connectors 4 Pair	10	**220880**	**220630**
Right Angle Male Connectors 3 Pair	10	**220879**	**220635**
Right Angle Male Connectors 2 Pair	10	**220895**	**220638**
Verticale Female Connectors 4 Pair	10	**220806**	**220628**

Repair Instructions

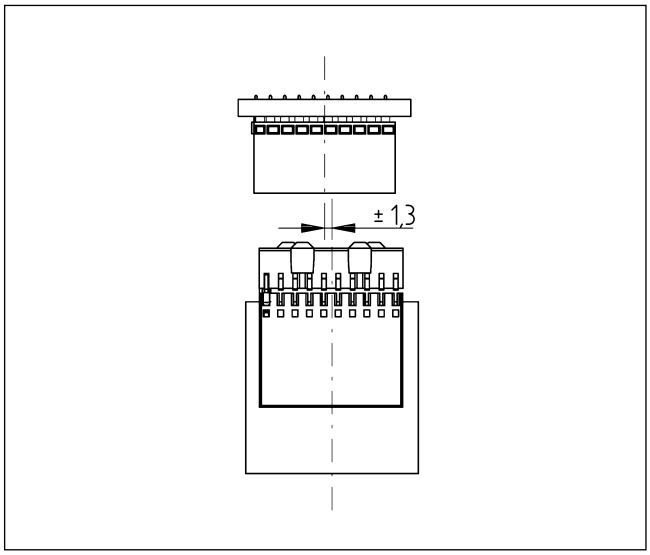
Repair Instructions for male and female connectors available for download under www.erni.com/ERmetZD.

Mating Conditions

Misalignment Parameters

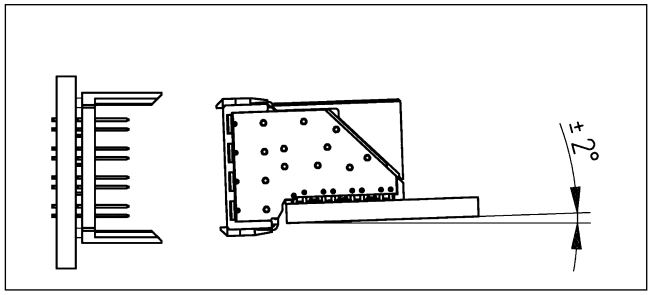


Transverse axis

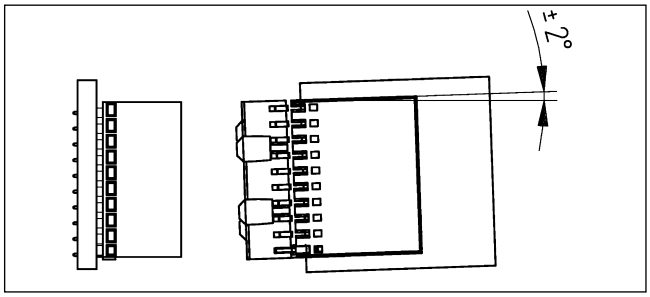


Longitudinal axis

Inclination Parameters



Transverse axis

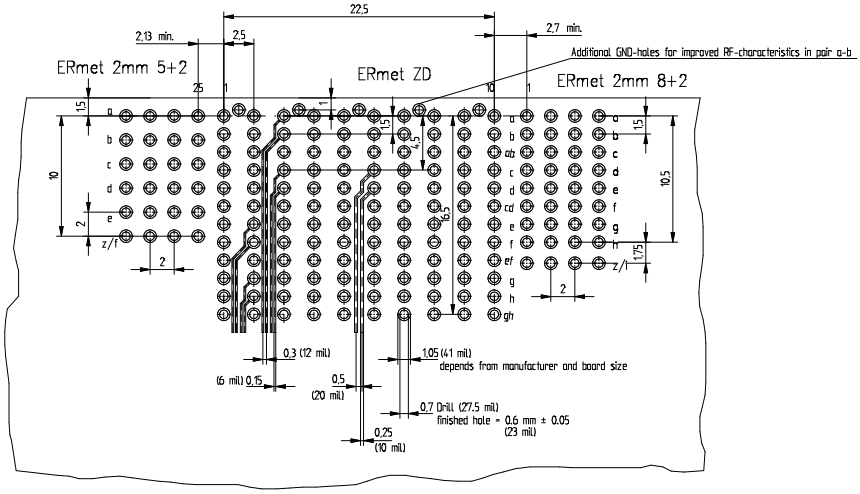


Longitudinal axis

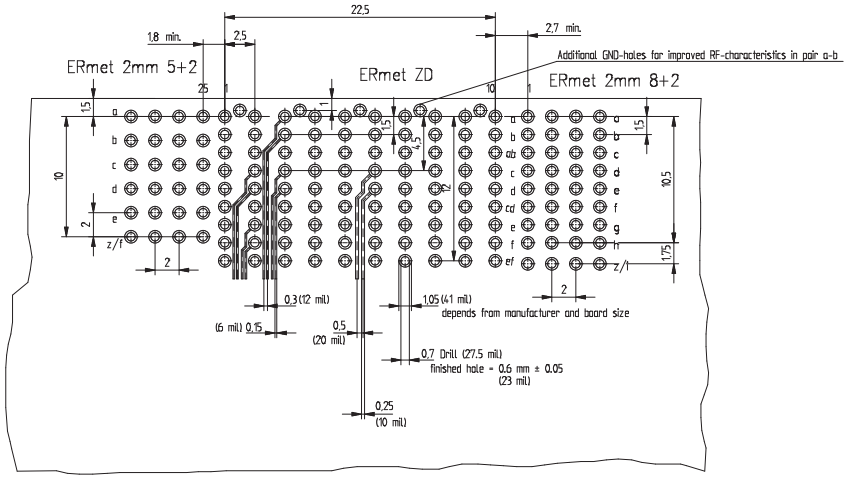
Recommended PCB Layout

ERmet ZD Daughtercard and 2 mm HM Connectors

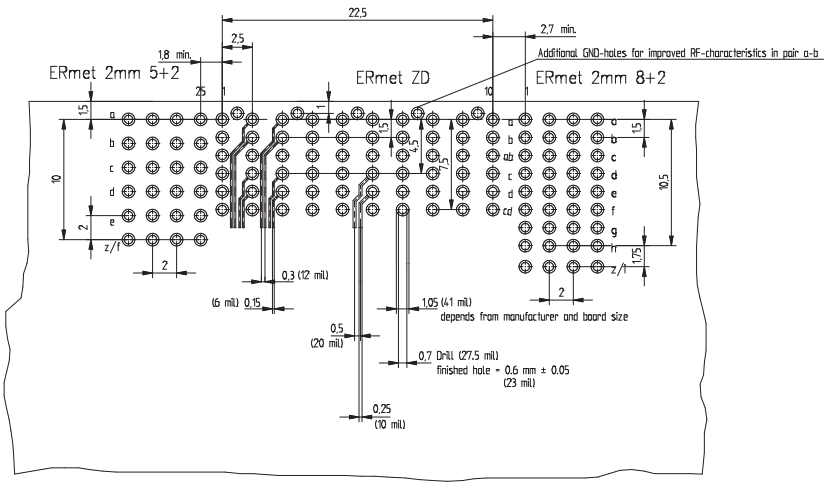
4 Pair



3 Pair



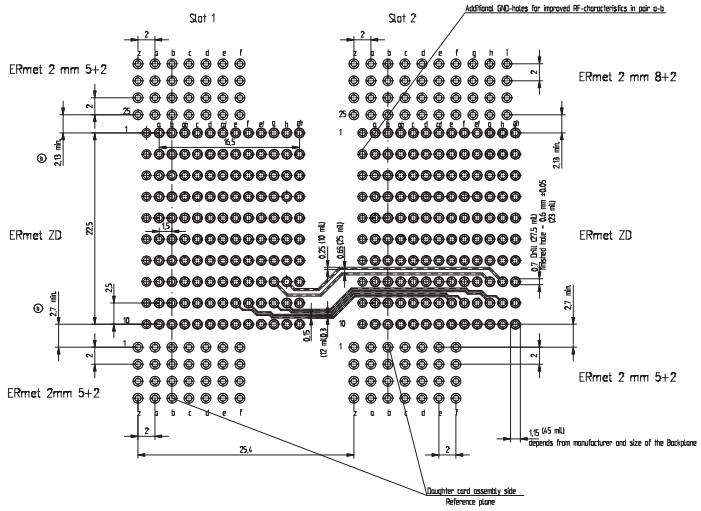
2 Pair



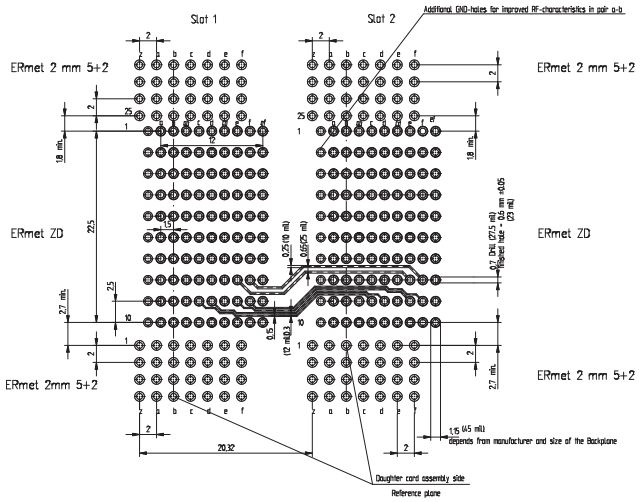
Recommended PCB Layout

ERmet ZD Backplane and 2 mm HM Connectors

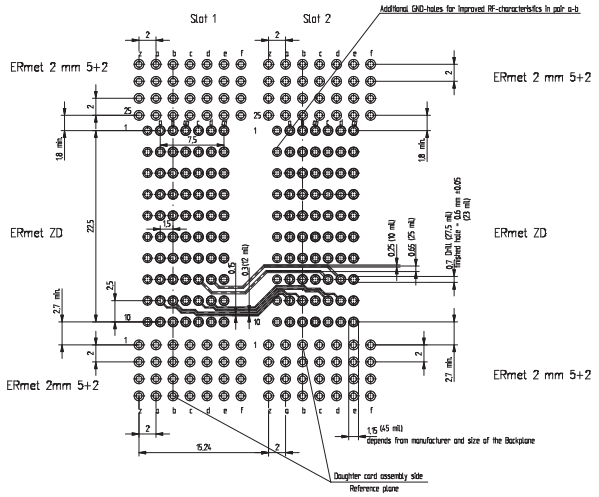
4 Pair



3 Pair

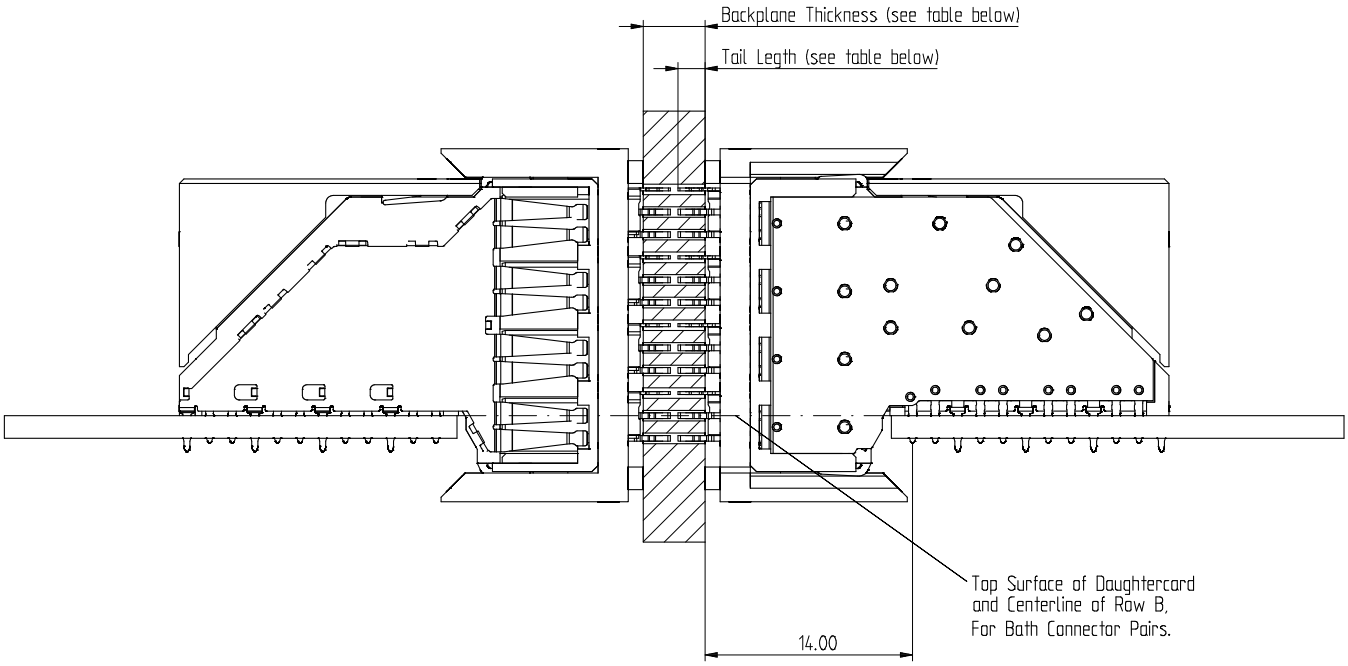


2 Pair

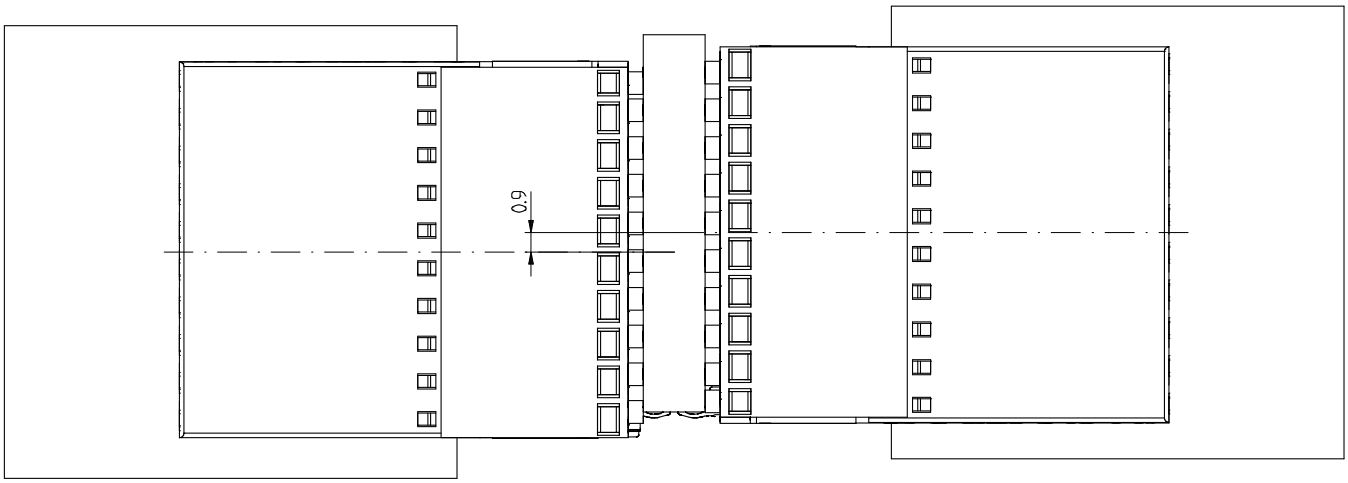


Recommended PCB Layout

Midplane Layout

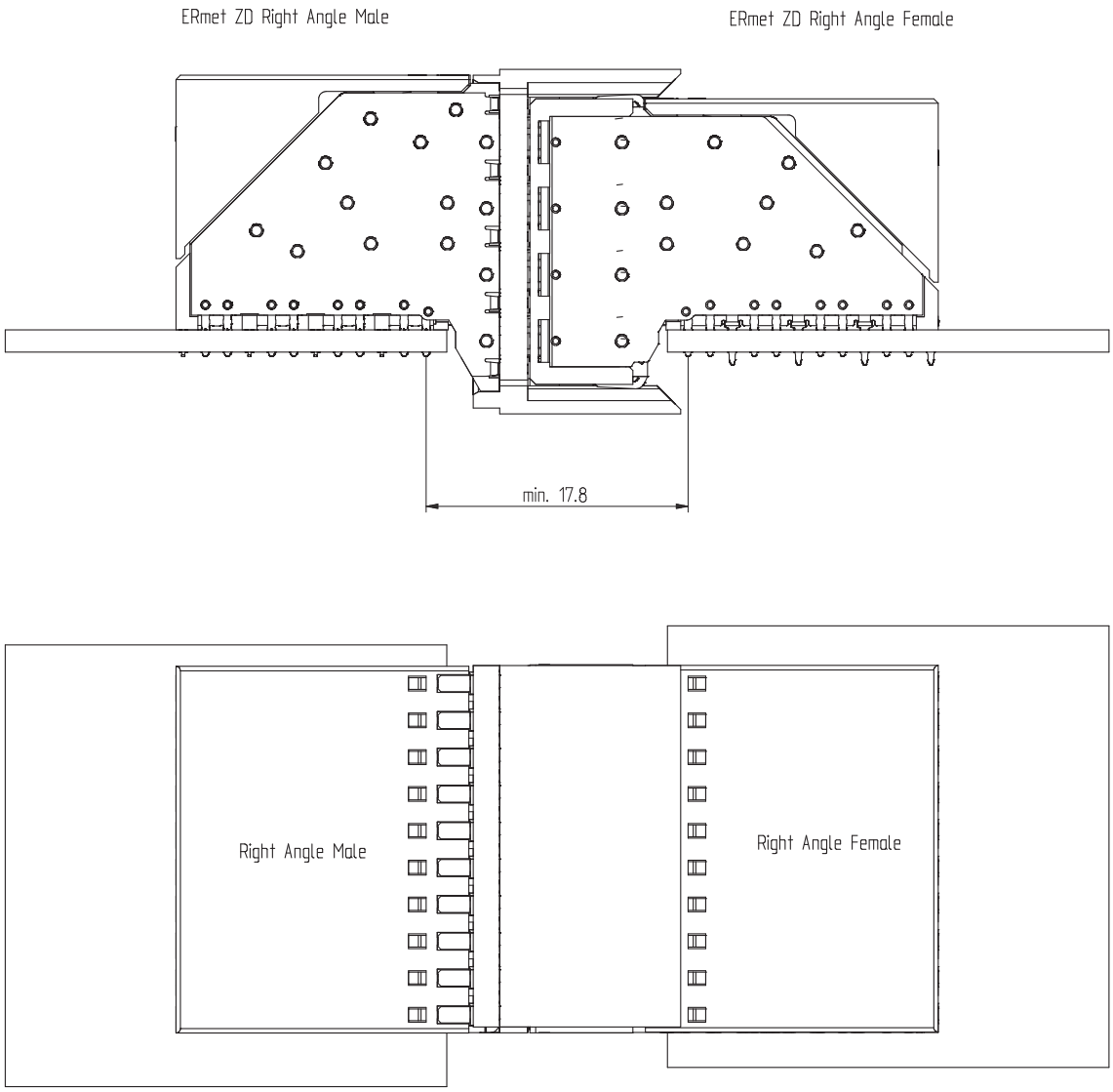


Tail Length	Min. Recmmended Backplane Thickness
1.80	4.00
2.50	5.40

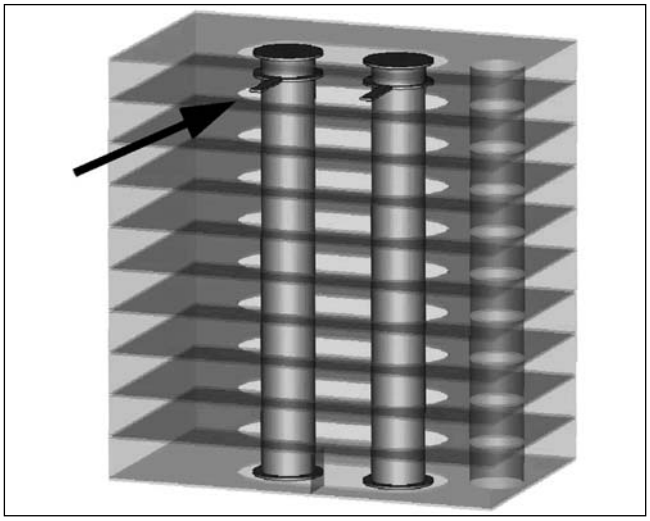


Recommended PCB Layout

ERmet ZD Connector Coplanar

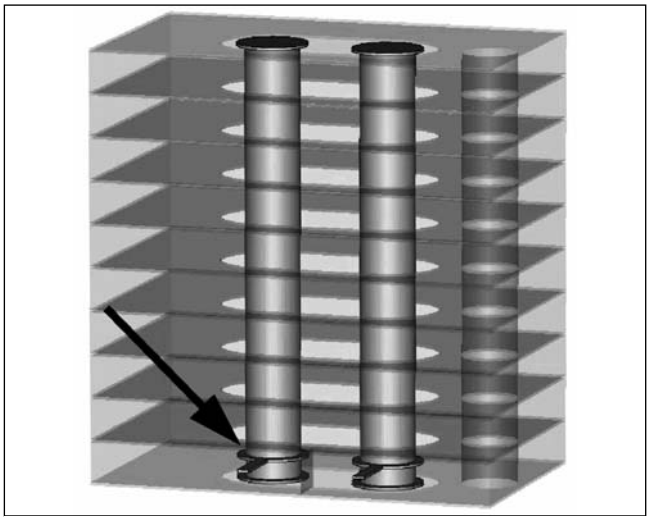


Stubbing Effect



Top of pcb (connecor side)

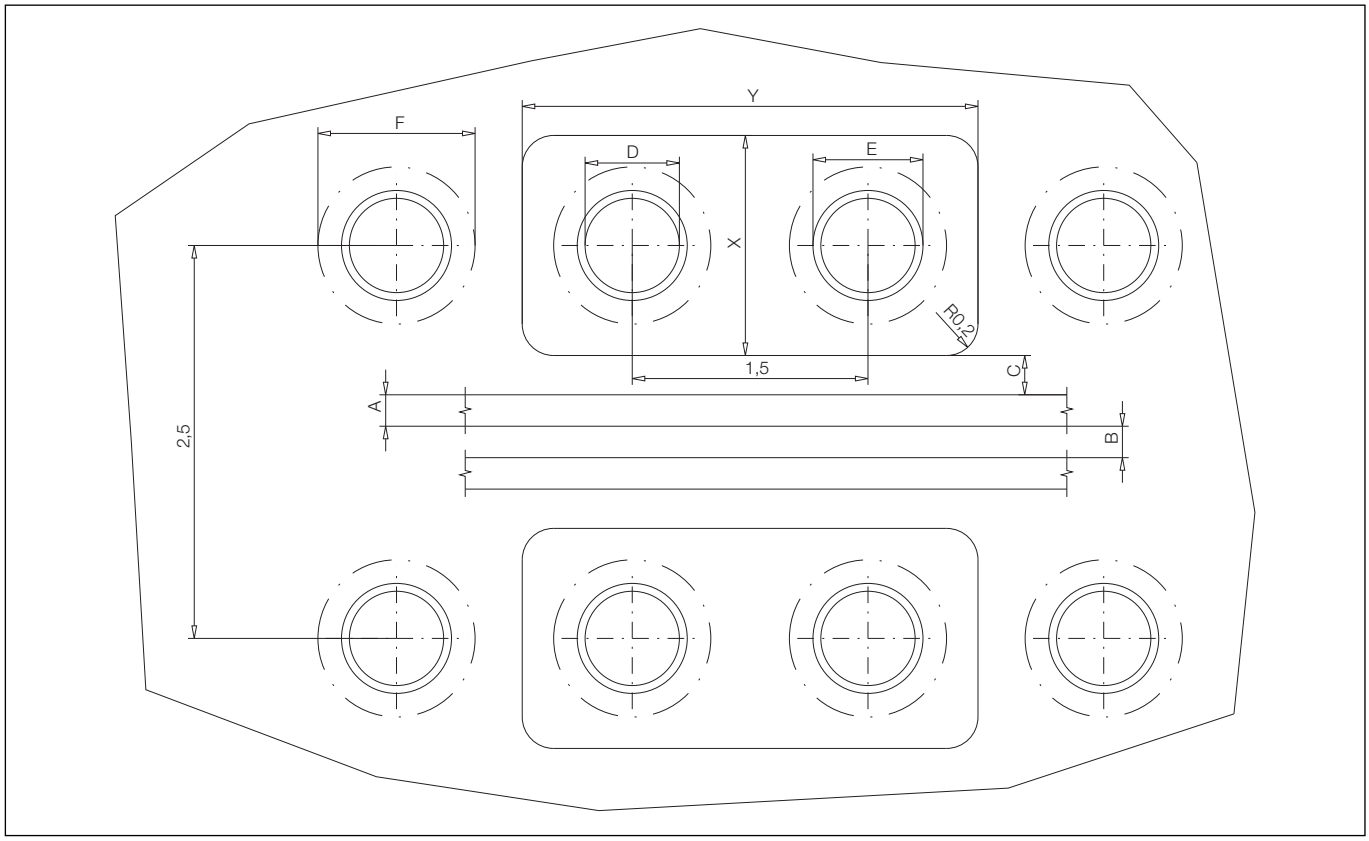
Traces near the connector layer result in via stubs which cause undesirable reflections.



Top of pcb (connector side)

Traces near the bottom layer improve the reflection behaviour.

ERmet ZD
High Speed Differential Hard Metric Connector System
Antipad Size



Drawing shows one differential track pair

A = trackwidth
B = space between tracks
C = space
D = plated hole
E = drill hole
F = pad diameter
X x Y = antipad size

The table below shows two examples for the antipad size

No. of Track-Pairs	Pad-Diameter	Antipad Size X x Y	Space C	Trackwidth A.	Space between Tracks B
2	1.0mm	1.3 x 2.8mm	0.075mm*	0.15mm	0.15mm
1	1.0mm	1.3 x 2.9mm	0.1mm*	0.25mm	0.4mm

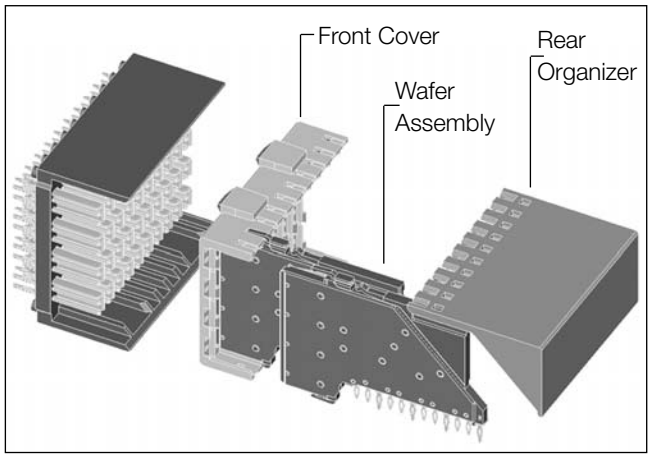
(*) overlapping is necessary because of impedance control

Note:

To improve the high speed characteristics, remove all pads on unconnected layers!
Smaller padsizes also improves the electrical characteristics!
Antipad size as large as possible also improves the electrical characteristics!

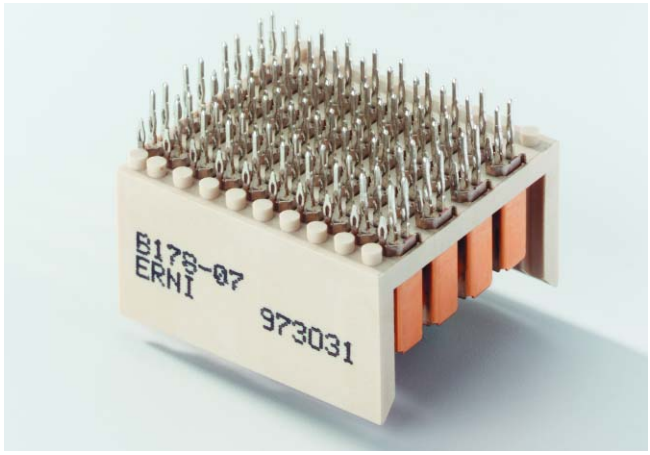
ERmet ZD
High Speed Differential Hard Metric Connector System
Additional Mechanical Features

Termination Details



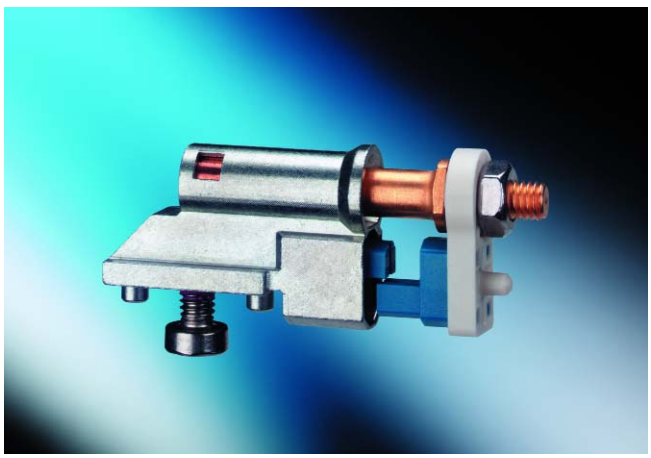
ERmetZD backplane and daughter card modules are available in pressfit versions. The parts are fully intermateable and differ physically only in their printed circuit board layout requirements.

The pressfit versions utilize the same eye of the needle compliant pin design for both the signal and ground terminals. The finished plated through-hole requirements are 0.55mm to 0.65mm which is the same hole specified by IEC 61076-4-101 for all 2mm HM connectors.



All ERmetZD modules are designed with an air gap between the connector and the board to facilitate convection reflow soldering methods. Additionally, the housing materials are comprised of a thermally stable polymer made to withstand higher temperatures.

Alignment Modules

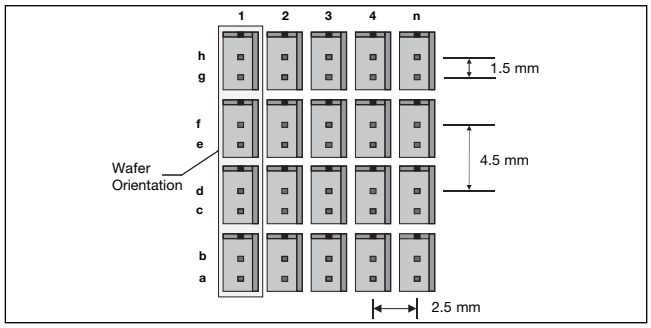


Optional Allignment Module

The solid alignment modules secure correct mating of large size daughter cards. To prevent damage to a system resulting from incorrect insertion of cards with different logic, coding keys can be snapped into the optional alignment modules. These are the same color coded keys defined within the IEC 61076-4-101 standard. The IEC standard defines a unique configuration and color for more than 70 different coding keys.

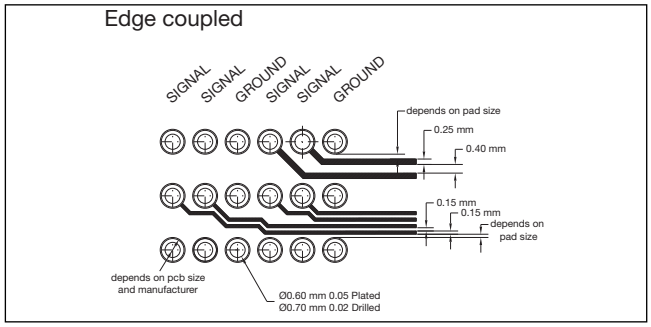
ERmet ZD
High Speed Differential Hard Metric Connector System
Additional Mechanical Features

Basic Grid Design



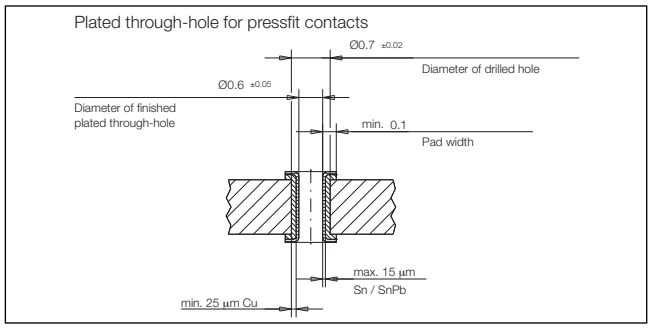
The design of today´s high speed differential connectors is limited orimarily by the electrical characteristics of the termination via geometry. The ERmetZD utilizes an optimum grid design which significantly reduces noise within the pattern and allows generous clearance for easier routing.

Trace Density



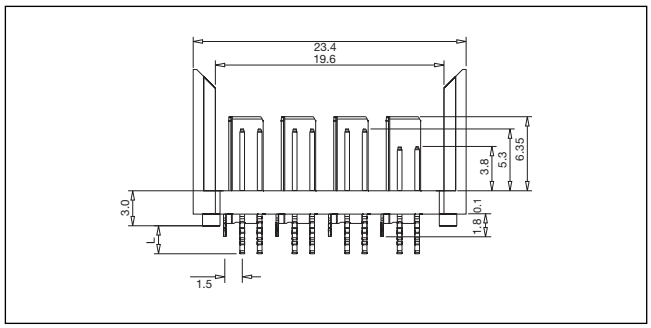
The grid pattern allows wide traces for long runs without ever having to separate two differential pairs to negotiate via holes, as shown in the proposed layouts.

Plated Through-Holes for Pressfit Terminals



All ERmetZD, ERmet 5+2, ERmet 8+2 and ERmet Power Module pressfit terminals share plated through-hole requirements. These pressfit terminals have been used successfully with reflowed tin-lead, plated tin-lead, immersion tin, organic coatings over bare copper and immersion gold hole plating regimes. The hole recommendations and press in force information shown in this catalog are for reflowed tin-lead and plated tin-lead. Additional test data for other hole plating regimes are available through customer service.

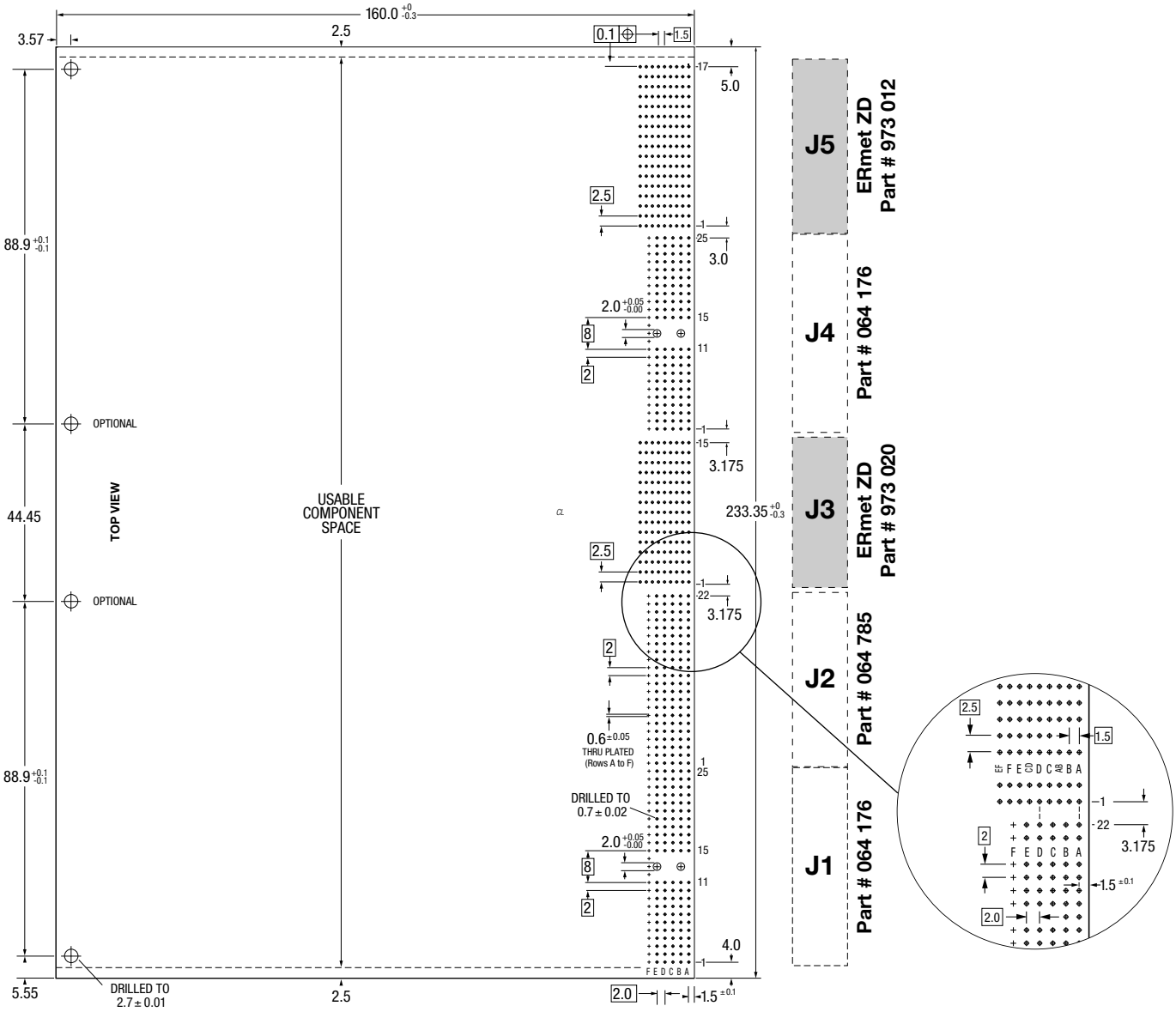
Short Termination Pins of the Shield at the Male Pressfit Connectors.



Note that the pressfit shield terminals are shorter than the pressfit terminals of the signal pins. This allows the standard shields to be used with signal terminals that are either 3.7mm or 1.8mm long.

ERmetZD
High Speed Differential Hard Metric Connector System
Daughter Card Layout

The ERmetZD connectors are available in module lengths suitable for use in the J3/P3, J5/P5 positions on 6U-160mm daughter cards designed in accordance with VITA 30.1 for CompactPCI® and other Eurocard applications. The use of ERmetZD high speed differential connectors may also prove to be popular for new high speed, differential I/O requirements.
The drawin below is a preliminary recommendation from ERNI and has not yet been considered by any standards group.



The 6U-160mm layout shown above is a suggested layout showing how ERmetZD modules in J3 and J5 are to be positioned adjacent to standard 2mm Hm modules in positions J1, J2 and J4.

Note that the daughtercard is numbered in accordance with the CompactPCI® specification. The numbering on the connectors themselves is different and in accordance with the IEC 61076-4-101 standard.

ERmet ZD
High Speed Differential Hard Metric Connector System
Part Number Index

ERNI

PICMG® Member

PROFI BUS PROCESS FIELD BUS

VITA VMEbus INTERNATIONAL TRADE ASSOCIATION

ISO 9001 CERTIFIED

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| Catalog E 074505 | 04/07 | Edition 7 |

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| Catalog E 074505 | 04/07 | Edition 7 |

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