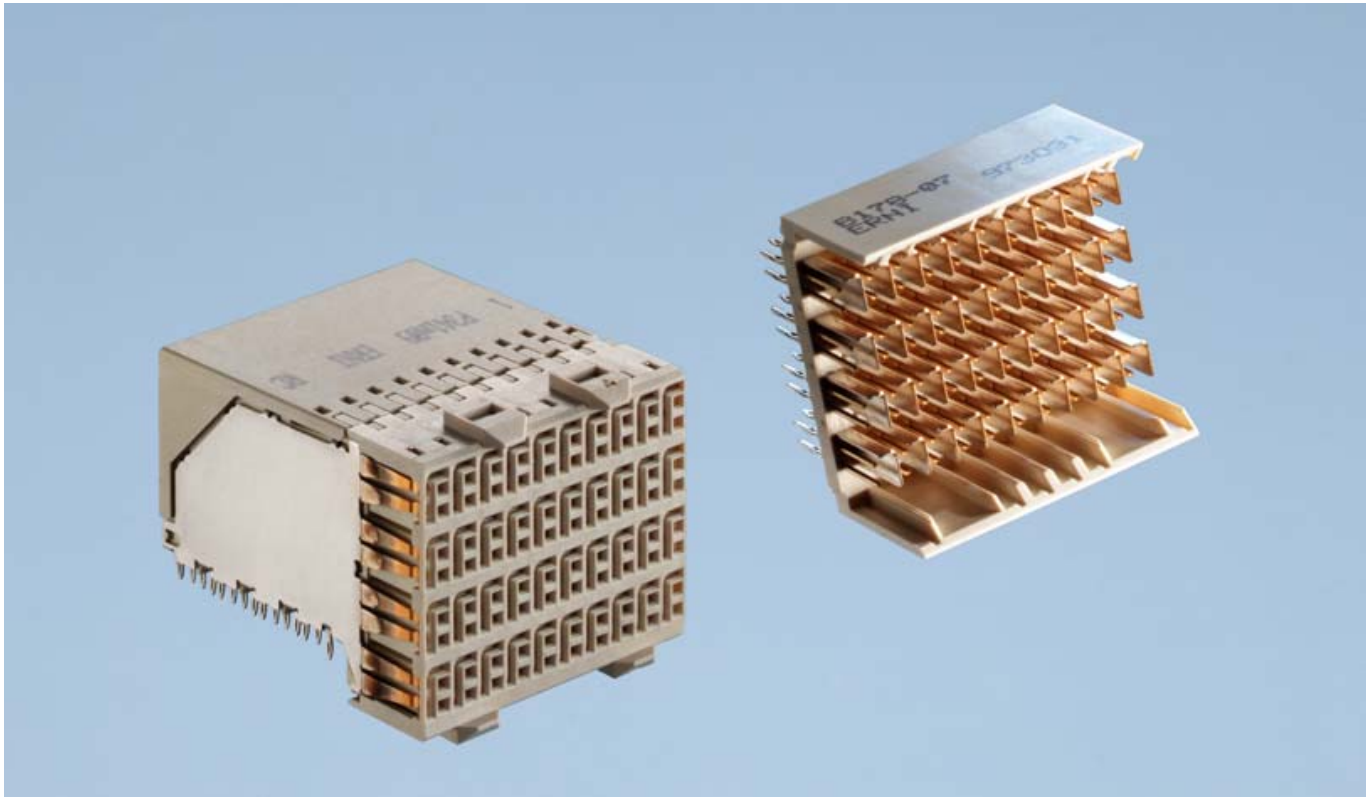


# ERmet ZDplus



# ERmet ZDplus

## High Speed Differential Hard Metric Connector System



The ERmet ZDplus connector is an enhancement of the ERmet ZD family. This high-speed differential Hard Metric connector system enables data rates of 20 Gbit+.

The ERmet ZDplus is based on the principal mechanical design of the proven ERmet ZD with the same dimensions. To enable higher data rates ERNI Electronics has optimized the signal routing and the pressfit termination of the female connector. To benefit from the maximum performance of the new ERmet ZDplus the usage of backdrilling is recommended. Decreasing via stub length and the related “stub effect” by backdrilling significantly reduces the reflections and the overall BER (Bit Error Rate) of the interconnect.

The first product of the ERmet ZD+® family is the 4-pair right angle female connector with pressfit termination. The ERmet ZDplus female connector is mating compatible to the existing ERmet ZD male connector. This means, that existing backplane designs do not need layout changes on the backplane side, if customers want to upgrade their systems. Of course the layout on the daughtercards has to be modified if using the new ERmet ZDplus female parts.

### Features

- Data rate performance per differential pair with standard ERmet ZD male connector max. 15 Gbit (optional with ERmet ZDplus male connector 20 Gbit+)
- 40 differential pairs per inch
- Mating compatible to standard ERmet ZD male connectors, backwards compatible to existing backplane systems
- Improved crosstalk behaviour
- Improved layout on daughter cards
- Meets the performance requirements of next generation processor technology

# ERmet ZDplus

## High Speed Differential Hard Metric Connector System

### Electrical And Mechanical Characteristics



	Standard	Pressfit Male- and Female
Number of pins		4-pair
<b>Technical data</b>		
Climate category	DIN EN 60068-1 test b	-55/125/56
Temperature range		-55/125 °C
Air- and creepage distance		0.5 mm
Operating voltage	IEC 60664	The permissible operating voltages depends on the customer application and on the applicable or specified safety requirements. Insulation coordination according to IEC 60664-1 has to be regarded for the complete electrical device. Therefore, the maximum creepage and clearance distances of the mated connectors are specified for consideration as a part of the whole current path. In practice, reductions in creepage or clearance distances may occur due to the conductive pattern of the printed board or the wiring used, and have to be taken into account separately. As a result the creepage and clearance distances for the application may be reduced compared to those of the connector.
Dielectric strength	IEC 60512 test 4a	contact pair - contact pair 500 V <sub>rms</sub> contact pair - shield 500 V <sub>rms</sub>
Contact resistance	IEC 60512 test 2a	< 50 mΩ (Signal) < 15 mΩ (Shield)
Insulation resistance	IEC 60512 test 3a	> 10 <sup>4</sup> 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

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## High Speed Differential Hard Metric Connector System

### Electrical And Mechanical Characteristics



	Standard	Pressfit Male- and Female
Number of pins		4-pair
<b>Signal transmission data</b>		
Differential impedance		100 $\Omega$
Data rate per pair		max. 15 Gbit/s (with standard ERmet ZD male connector) max. 25 Gbit/s (with ERmet ZDplus male connector)
<b>Housing materials</b>		
Plastic material		LCP
CTI value	IEC 112	CTI 175
UL flame rating		UL 94 V-0
UL file		E83005
<b>Contact materials</b>		
Base material		Cu alloy
Mating area		min. 0.65 $\mu\text{m}$ PdNi + 0.1 $\mu\text{m}$ Au over 2 - 3 $\mu\text{m}$ Ni
Termination area		0.5 - 2 $\mu\text{m}$ Sn matt over 1.5 - 3 $\mu\text{m}$ Ni
<b>Environment compatibility</b>		
Recycling		no flame-retardent additives, no toxic additives, allow easy recycling

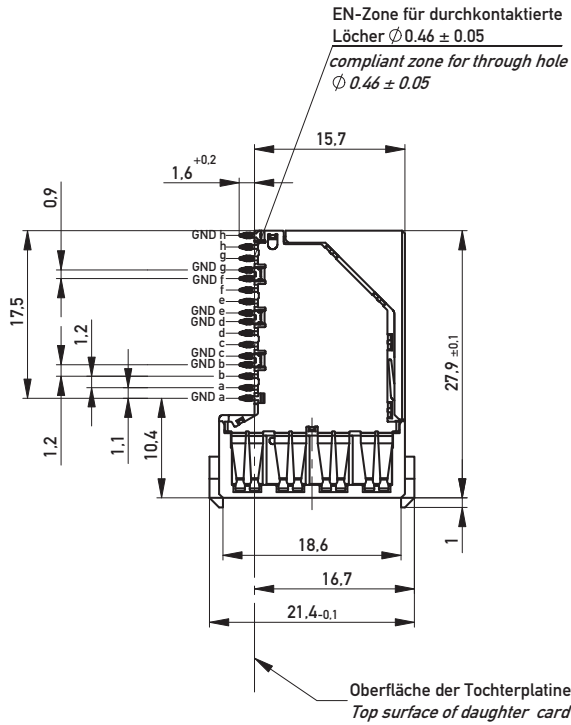
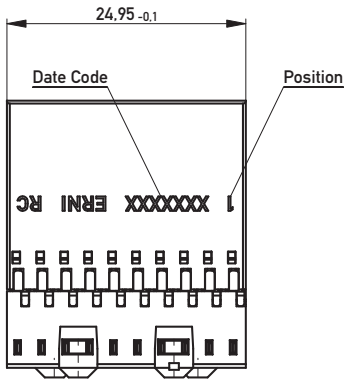
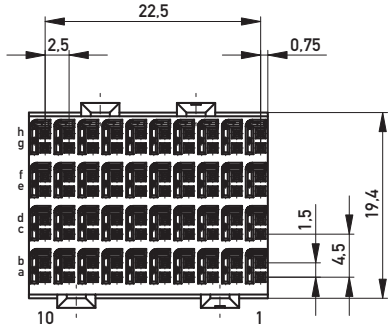
# ERmet ZDplus

## High Speed Differential Hard Metric Connector System

### Right Angle Female Connectors 4 Pair

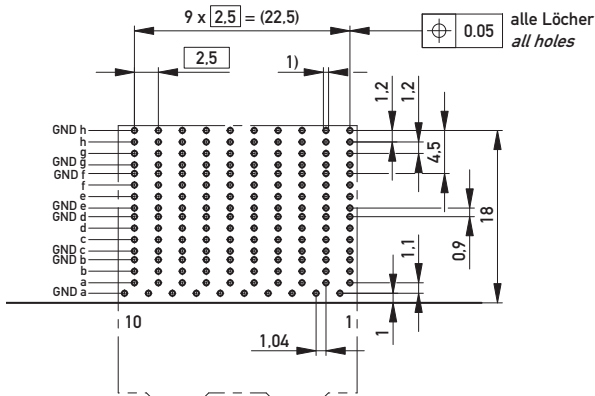


#### Dimensional Drawing



Lochbild für Leiterplatte  
(Bestückungsseite)

Board hole pattern  
(Component mounting side)



1)  $\varnothing 0.46 \pm 0.05$  Durchmesser des metallisierten Loches  
 $\varnothing 0.46 \pm 0.05$  Diameter of finished plated-through hole

$\varnothing 0.55 \pm 0.02$  Bohrdurchmesser des Loches  
 $\varnothing 0.55 \pm 0.02$  Diameter of drilled hole

Schichtaufbau im metallisierten Loch  
siehe Zeichnung 384191

Metal plating of plated-through hole  
see drawing 384191

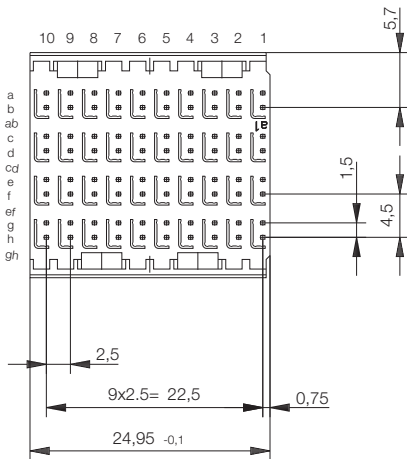
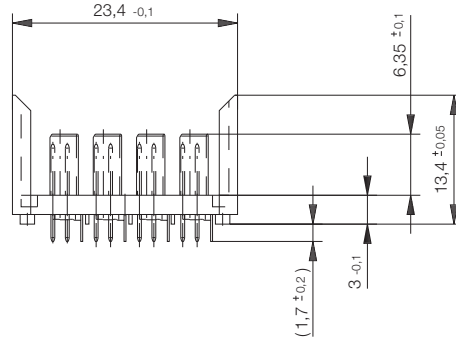
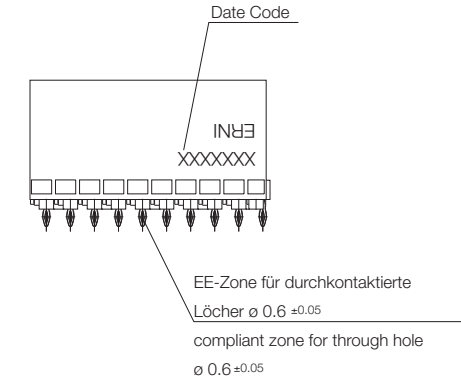
# ERmet ZDplus

## High Speed Differential Hard Metric Connector System

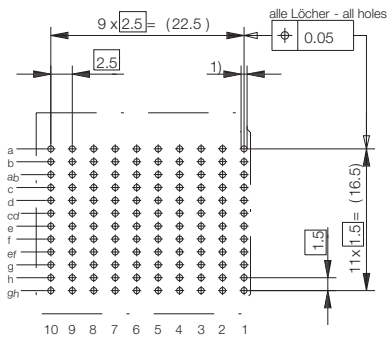
### Standard Vertical Male Connectors 4 Pair



#### Dimensional Drawing



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



- 1)  $\varnothing 0.6 \pm 0.05$  Durchmesser des metallisierten Loches
- $\varnothing 0.6 \pm 0.05$  Diameter of finished plated-through hole
- $\varnothing 0.7 \pm 0.02$  Bohrungsdurchmesser des Loches
- $\varnothing 0.7 \pm 0.02$  Diameter of drilled hole

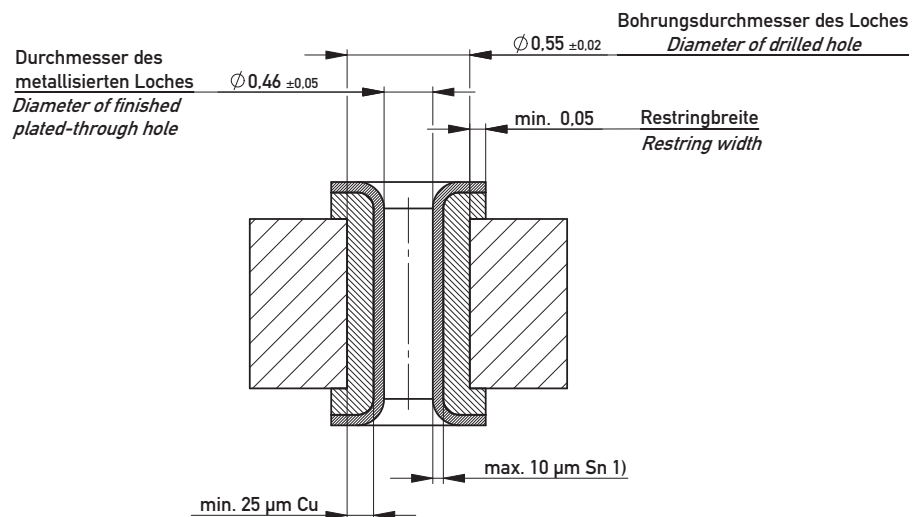
# ERmet ZDplus

## High Speed Differential Hard Metric Connector System

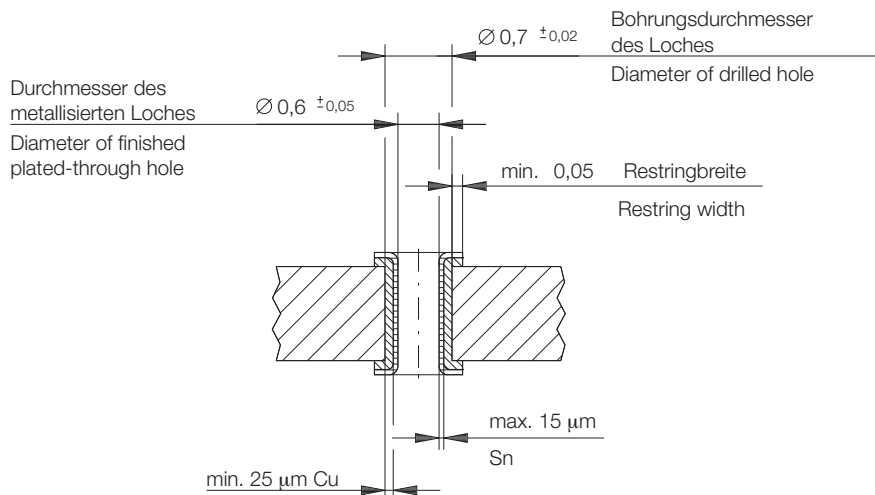
### Metal Plating of Plated Through-holes



#### Hole design $\varnothing 0.46$ mm



#### Hole design $\varnothing 0.6$ mm











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