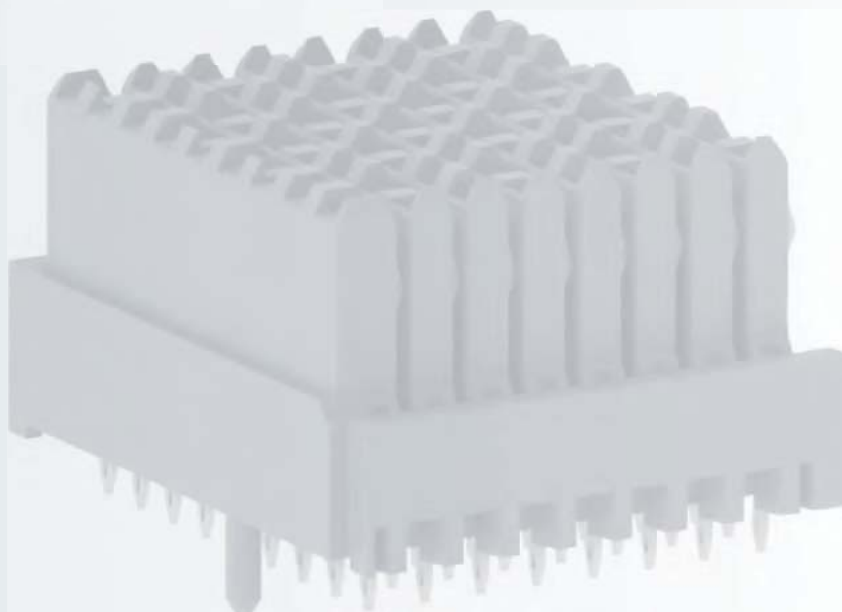
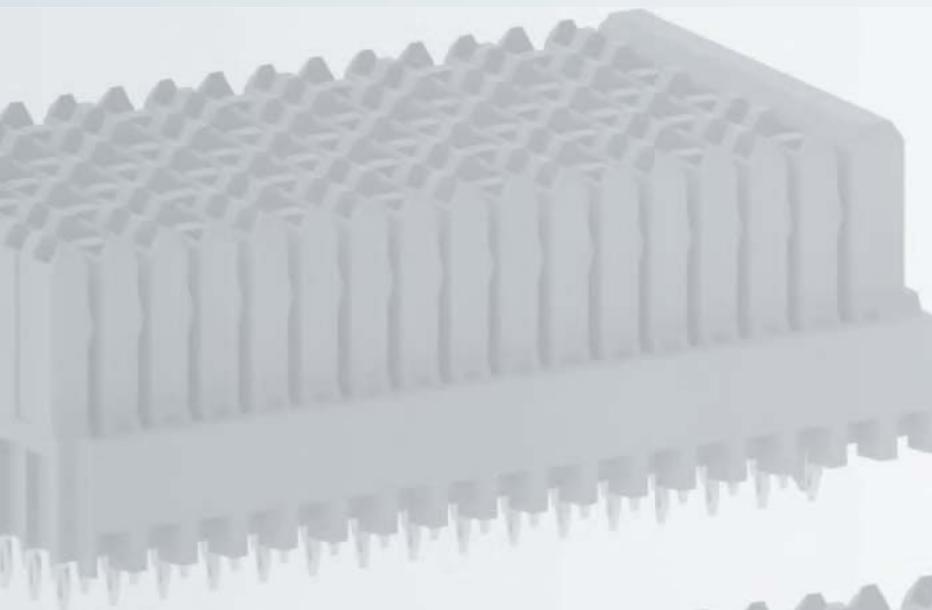




## *Velox*

High-Speed Connector for VPX



In2Connect UK Ltd  
Unit L, Tyson Courtyard  
Weldon South Industrial Estate  
Corby  
Northants  
NN18 8AZ  
Tel: 01962 773004  
[sales@in2connect.uk.com](mailto:sales@in2connect.uk.com)

Introduction	308
Technical Specifications	310
Hole Specifications	311
<b>Velox High-Speed Backplane-Connector</b>	312
Accessories: Guidings	314

## Velox – High-Speed for VPX

### Modular Backplane-Connector System

ept's Velox is a modular connector system for high-speed backplane applications. The connectors are used specifically for high requirements in demanding environments.

Velox is designed to meet the harsh requirements of VITA 46 systems. The product series is available in four different types with the flexibility for customized pin assembly allowing designers to create a flexible backplane design.

The 1.27 µm (50 micro inch) heavy gold plating ensure a high-speed signal transmission during the entire lifetime of a system.

### Key Features:

- 10 Gbit/s
- rugged design
- tested in accordance to VITA46
- durability: 200 mating cycles
- „Heavy Gold“ plating
- pinless interface
- modular connector system
- custom loaded designs

### Applications:

- military
- aerospace
- ruggedized systems
- telecom / datacom



### Termination



Press-fit

### Mating Configuration



Perpendicular

### Application

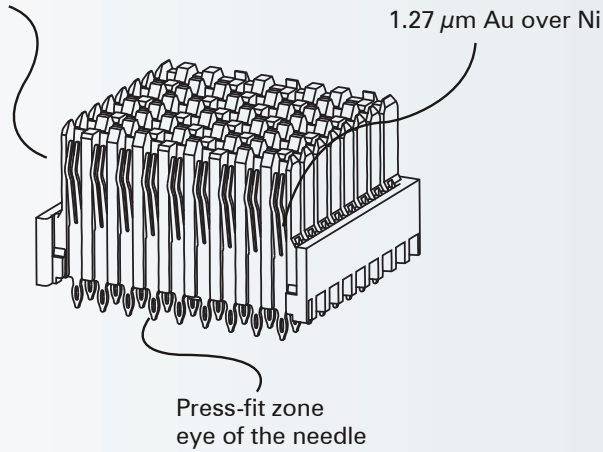


High-Speed

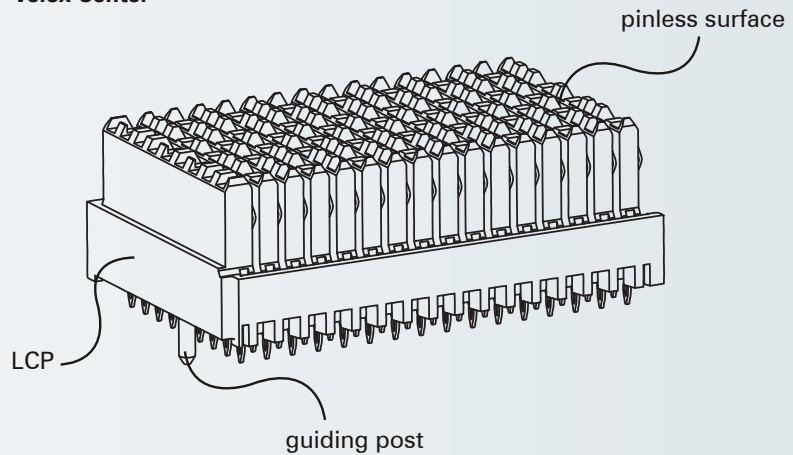


### Velox 8-left

double beam contact



### Velox Center



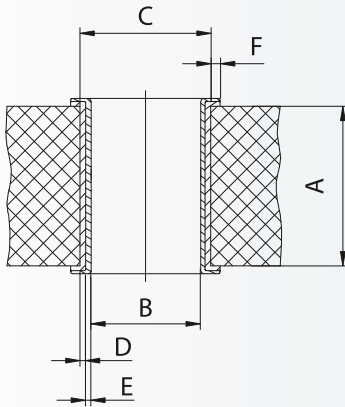
## VITA46 - Specification

The Vita46 specification, also known as VPX, describes a new high-speed connector system. It transfers Gigabit Ethernet, PCI Express, Serial RapidIO, and InfiniBand, among others. The well-known 6U and 3U European PCB form factors from VMEbus are supported in order to ensure maximum compatibility. This also makes hybrid systems a possibility. The VITA 46 standard was developed by VITA mainly for computer systems that need to be able to withstand high stresses, for example military applications.

The four different types of Velox can be combined in a modular way. You get even more flexibility by combining the fully loaded Velox connectors with individually loaded versions.

## Technical Specifications

Technical Specifications	Velox	
	Testing Standard	High-speed Backplane-Connector for VPX
<b>Basics</b>		
Specification		VITA 46
Number of contacts		72 / 144 / custom loaded
Termination		Press-fit
Operating temperature range		-55°C to +105°C
<b>Material</b>		
Insulator material		LCP
Contact material		Phosphor Bronze
Contact surface		1.27 µm Au in contact area over Ni, Sn or SnPb on press-fit zone
<b>Mechanical</b>		
Pitch		1.8 mm
Mating force per pin		max. 0.75 N
Separating force per pin		min. 0.15 N
Durability	IEC 60512-9-1:2010	200 mating cycles
<b>Electrical</b>		
Operational current	IEC 60512-5-2:2002	max. 1.0 A (< 30°C)
Operating voltage		50 V AC peak or DC
Contact resistance	IEC 60512-2-1:2002	max. 80 mΩ (according to IEC 512-5)
Insulation resistance	IEC 60512-3-1:2002	min. 1000 MΩ (according to IEC 512-5)
Test voltage	IEC 60512-4-1:2003	500 V (AC/DC)
Data transfer rate		10 Gbit/s
<b>Processing</b>		
Packaging		Tray
<b>Approval</b>		
Flammability		UL (file: E130314)
Environment	RoHS compliant (except with SnPb-surface on press-fit zone)	



## Hole Specifications Press-fit

### Plated through-hole according to IEC 60352-5

ept offers adapted press-fit zones for many PCB surfaces.

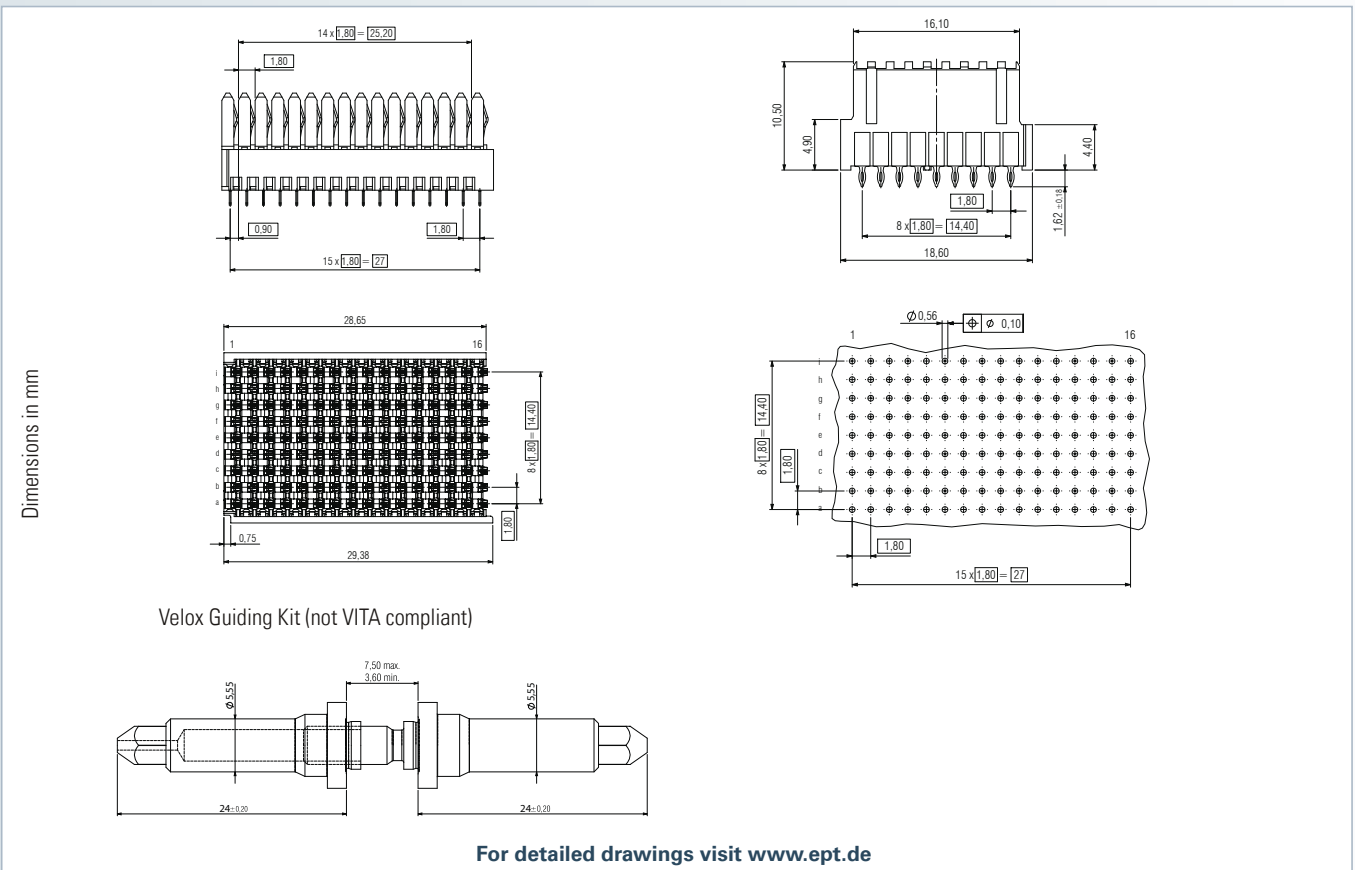
		Hole Specifications	
		Nominal Hole Ø 0.56 mm	
		imm. Sn printed circuit boards	Ni, Au printed circuit boards
<b>A</b>	<b>PCB thickness</b>	min 1.4 mm	min 1.4 mm
<b>B</b>	<b>Plated hole</b>	Ø 0.56 ± 0.05 mm	0.56 ± 0.05 mm
<b>C</b>	<b>Drill hole</b>	Ø 0.65 ± 0.02 mm	Ø 0.65 ± 0.02 mm
<b>D</b>	<b>Cu plating</b>	min. 25 µm	min. 25 µm
<b>E</b>	<b>Plating</b>	max. 1.5 µm imm. Sn	0.05 - 0.2 µm Au; over 2.5 - 5 µm Ni
<b>F</b>	<b>Annular ring</b>	min. 0.1 mm	min. 0.1 mm



**Type:** Female connector straight  
**Termination:** Press-fit  
**Number of contacts:** 71, 72, 80, 135, 144  
**Pitch:** 1.8 mm  
**Data transfer rate:** 10 Gbit/s  
**Packaging:** Tray  
**Standard:** VITA 46



Technical Specifications on page 310



**Accessories**

- Velox Guidings p. 314
- Processing tools p. 356

**Note**

Please take detailed information from the customer drawing at [www.ept.de](http://www.ept.de)



**Press-fit**

		Velox High-speed Backplane-Connector						
		8-left		center	16-right		16-left	
	Surface	Part number	PU (Tray)		Part number		PU (Tray)	
fully loaded (Number of contacts)	<b>Sn</b> (RoHS compliant)	308-52200-42 <i>(72 contacts)</i>	28/280	308-50100-42 <i>(144 contacts)</i>	308-51100-42 <i>(144 contacts)</i>	308-52100-42 <i>(144 contacts)</i>	20/200	
	<b>SnPb</b>	308-52200-41 <i>(72 contacts)</i>		308-50100-41 <i>(144 contacts)</i>	308-51100-41 <i>(144 contacts)</i>	308-52100-41 <i>(144 contacts)</i>		
custom loaded (Number of contacts)	<b>Sn</b> (RoHS compliant)	on request		308-50101-42 <i>(135 contacts)</i>	on request	on request		on request
				308-50102-42 <i>(71 contacts)</i>				
				308-50103-42 <i>(80 contacts)</i>				
	<b>SnPb</b>	on request		308-50101-41 <i>(135 contacts)</i>	on request	on request		on request
			308-50102-41 <i>(71 contacts)</i>					
			308-50103-41 <i>(80 contacts)</i>					

### On request

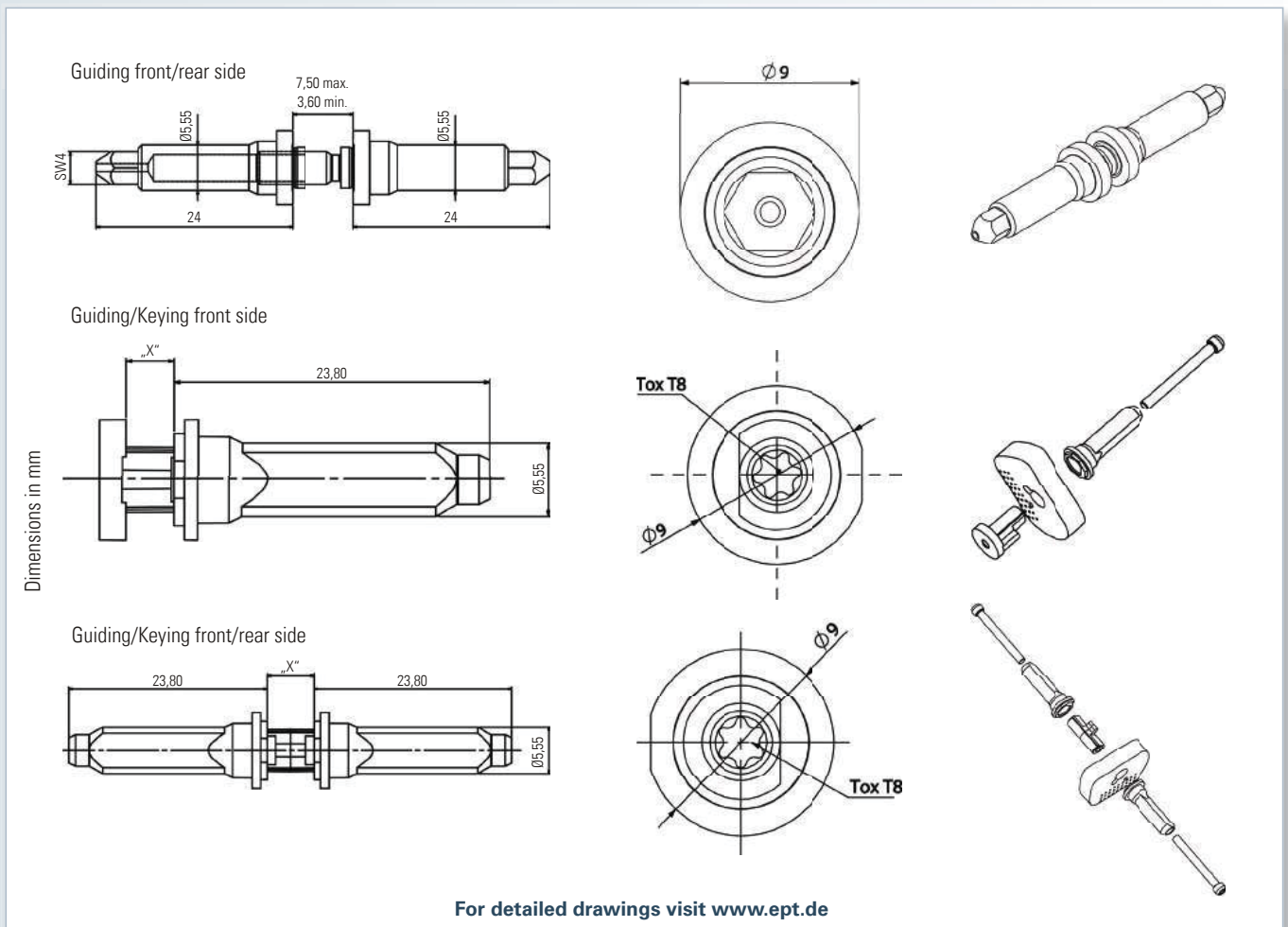
- different custom loaded versions





**Key Features:**

- for alignment of the daughtercard connector with the backplane connector
- zinc or copper alloy, silver plated
- compatible with available systems in the market
- meets the requirements of VITA46
- available for use with front side and rear I/O
- for PCB thickness 3.6 - 7.5 mm

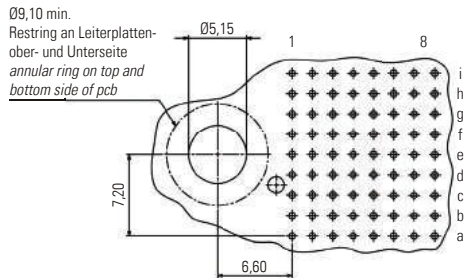


**Note**

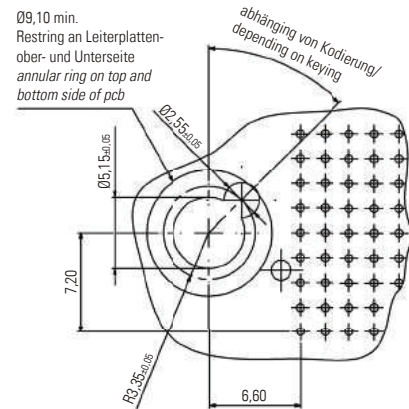
Please take detailed information from the customer drawing at [www.ept.de](http://www.ept.de)

**Hole pattern**

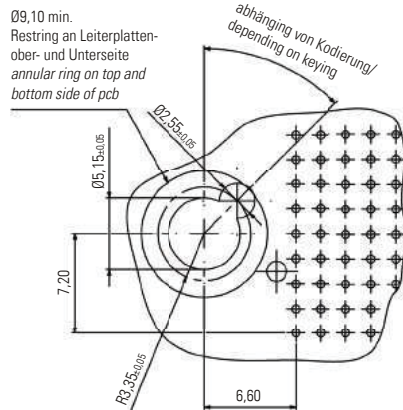
Guiding front/rear side



Guiding/Keying front side



Guiding/Keying front/rear side



Maße in mm

	Velox Guidings			PU (Bulk)
	Guiding front/rear side	Guiding/Keying front side	Guiding/Keying front/rear side	
PCB thickness	Part number			
3.6 - 5.5 mm		308-62113	308-62213	10
3.6 - 7.5 mm	308-61013	-	-	
5.5 - 7.5 mm		308-62123	308-62223	