

Velox
High-Speed Backplane Connectors for VPX

Introduction	3
Technical Specifications	5
Hole Specifications	6
Velox High-Speed Backplane-Connector	7
Accessories: Guidings	9

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

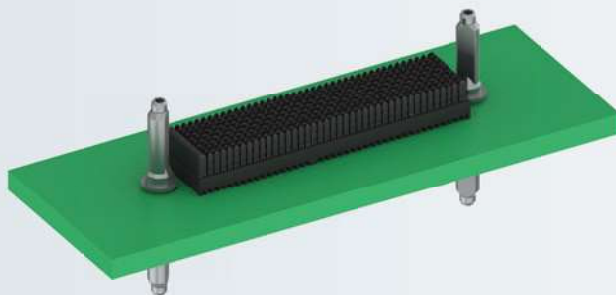


Perpendicular

Application

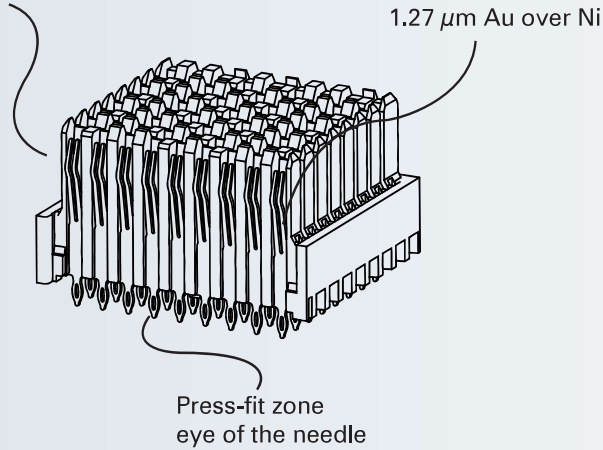


High-Speed

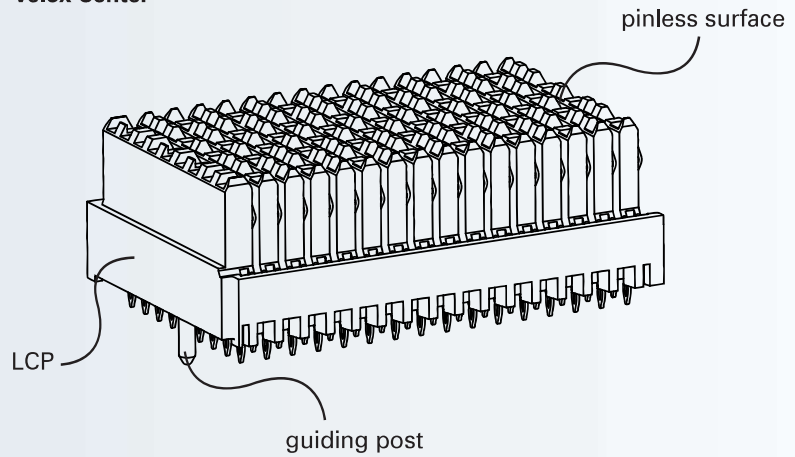


Velox 8-left

double beam contact



Velox Center



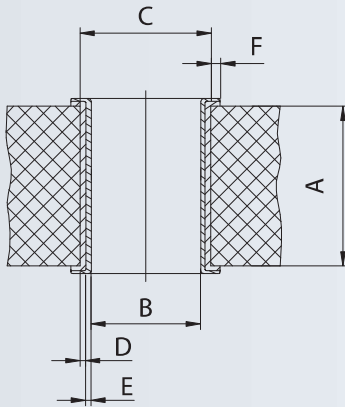
VITA46 - Specification

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 6HE and 3HE 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	
	High-speed Backplane-Connector for VPX	
Basics		
Specification		VITA 46
Number of contacts		72 / 144 / custom loaded
Termination		Press-fit
Operating temperature range		-55°C to +105°C
Material		
Insulator material		LCP, UL 94 V-0
Contact material		Phosphor Bronze
Contact surface		1.27 µm Au in contact area over Ni, Sn or SnPb on press-fit zone
Mechanical		
Pitch		1.8 mm
Mating force per pin		max. 0.75 N
Separating force per pin		min. 0.15 N
Durability		200 mating cycles
Electrical		
Operational current		max. 1.0 A (< 30°C)
Operating voltage		50 V AC peak or DC
Contact resistance		max. 80 mΩ (according to IEC 512-5)
Insulation resistance		min. 1000 MΩ (according to IEC 512-5)
Test voltage		500 V (AC/DC)
Data transfer rate		10 Gbit/s
Processing		
Packaging		Tray
Approval		
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.

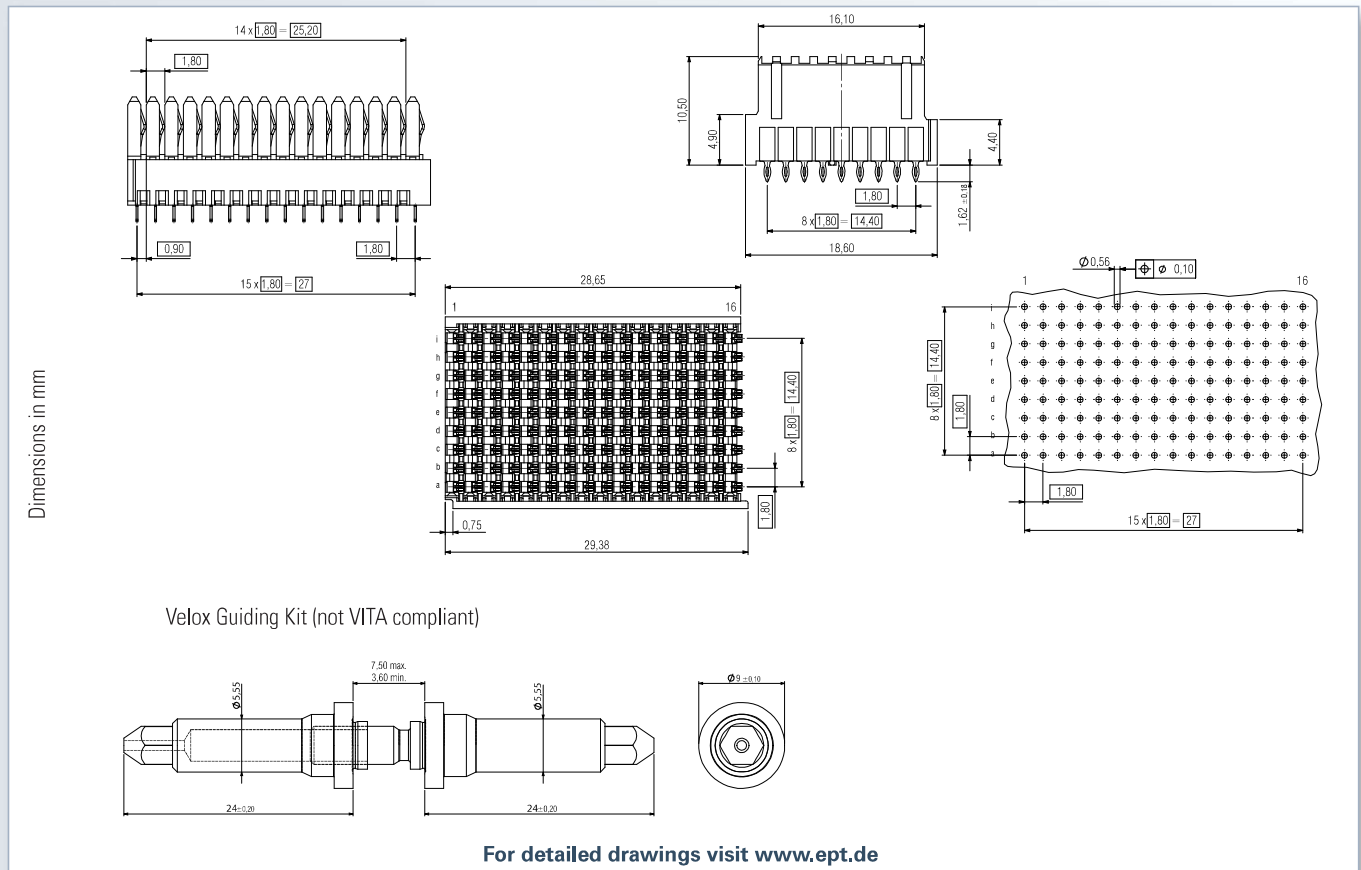
		Hole Specifications	
		Nominal Hole Ø 0.56 mm	
		imm. Sn printed circuit boards	Ni, Au printed circuit boards
A	PCB thickness	min 1.4 mm	min 1.4 mm
B	Plated hole	Ø 0.56 ± 0.05 mm	0.56 ± 0.05 mm
C	Drill hole	Ø 0.65 ± 0.02 mm	Ø 0.65 ± 0.02 mm
D	Cu plating	min. 25 µm	min. 25 µm
E	Plating	max. 1.5 µm imm.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



Accessories

- Velox Guidings p. 9
- Processing tools see catalog

Note

Please take detailed information from the customer drawing at www.ept.de



Press-fit - Performance level II

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

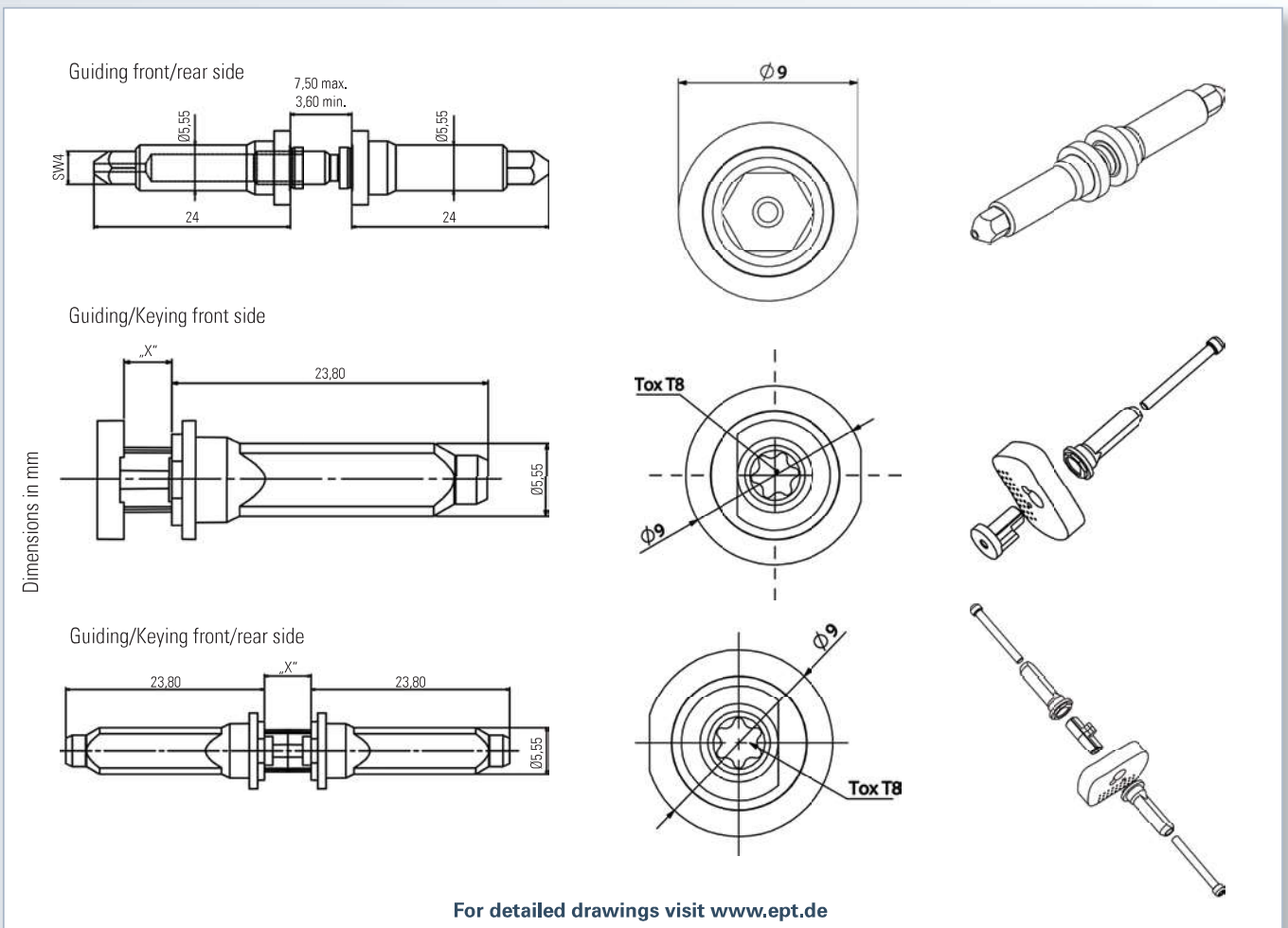
On request

- 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 5.5 - 7.5 mm



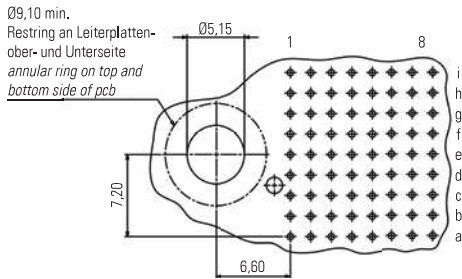
Note

Please take detailed information from the customer drawing at www.ept.de

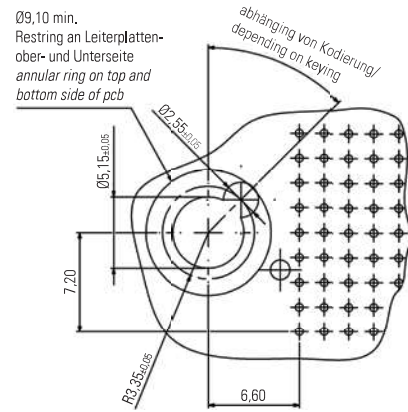
Hole pattern

Dimensions in mm

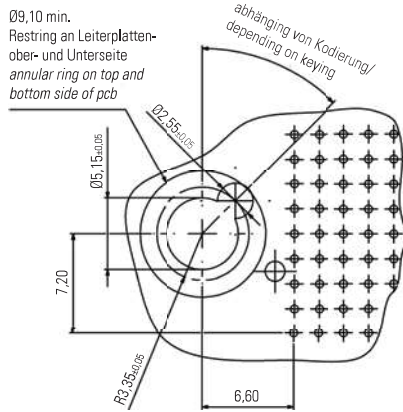
Guiding front/rear side



Guiding/Keying front side



Guiding/Keying front/rear side



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