

1.27 mm SMT Connectors for  
Board-to-Board Applications

ONE27. ■

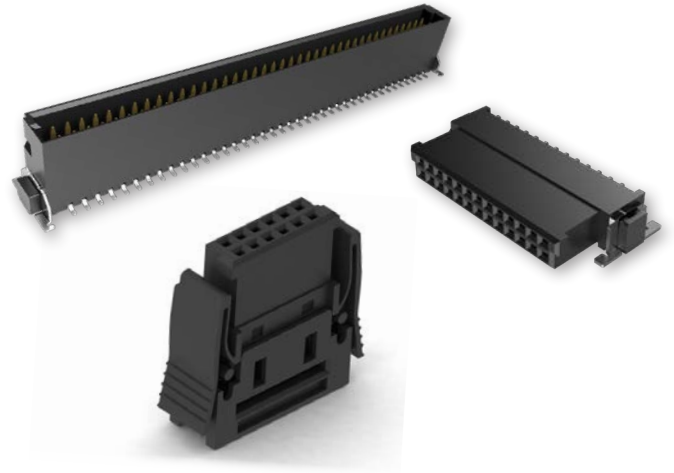


# One27® Overview

## Compact, Rugged, Versatile

The One27® range offers a high level of flexibility and at the same time reliable connectors for a number of board-to-board applications. The product family is based on a pitch of 1.27 mm, offers both straight and angled types as well as connections with ribbon cable, and is available in pin counts from 12 to 80 pins.

The connectors are compatible with currently available products and their performance in tests has been excellent.



SMT



Parallel



Horizontal



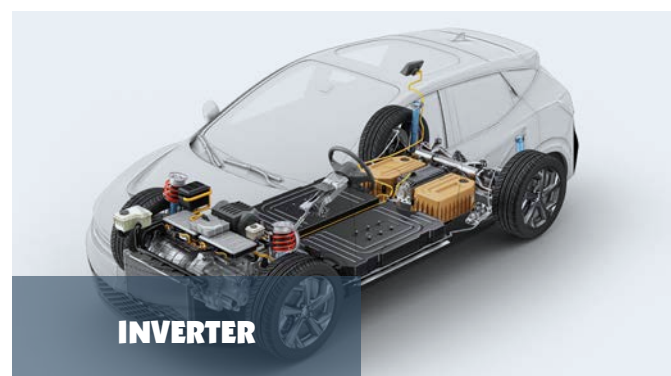
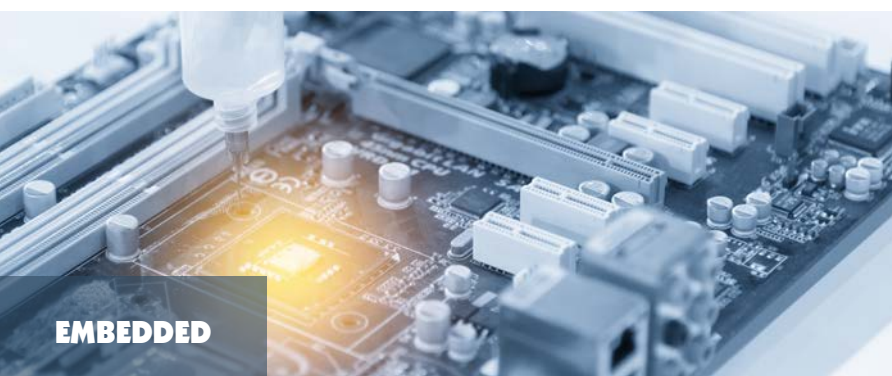
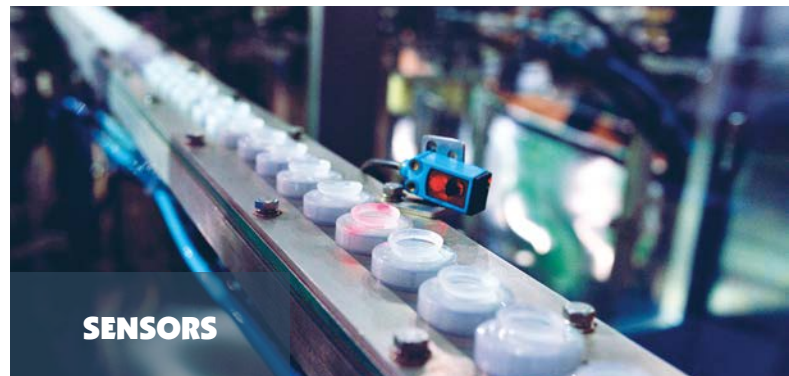
Perpendicular



Cable



High Density



## Key Features:

- 1.4 A Current carrying capacity
- 500 mating cycles
- Highest contact reliability
- Tested compatibility with other suppliers
- Female IDC available individually or assembled with cable

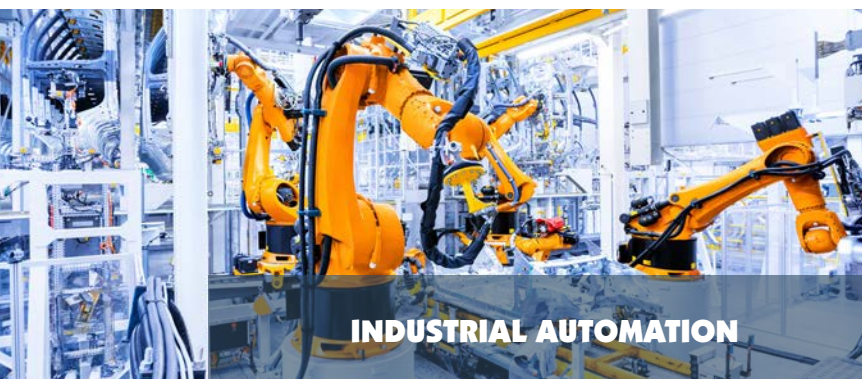
## Applications:

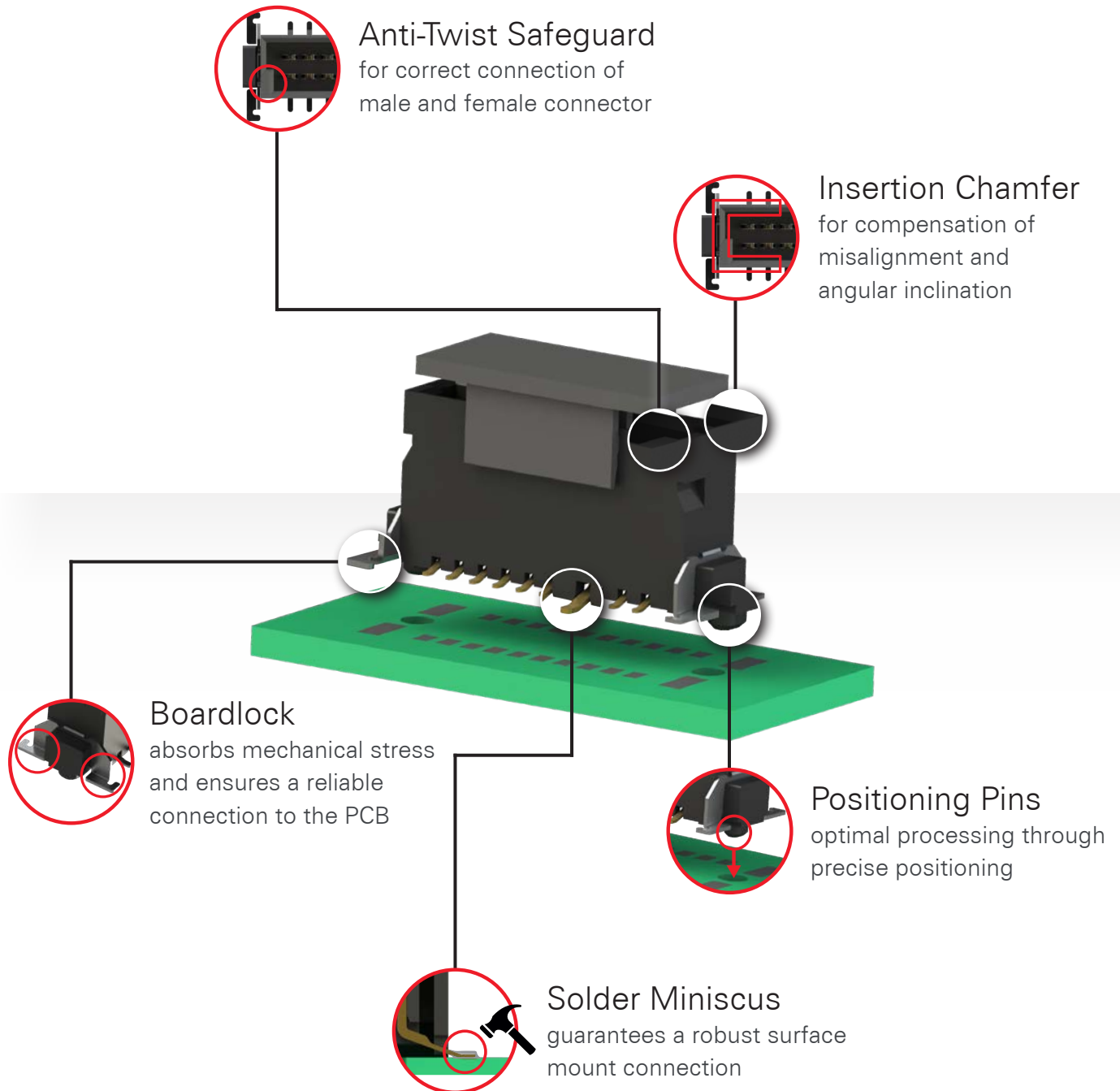
- Board-to-Board (mezzanine) from 8 mm to 20 mm
- Parallel, perpendicular and horizontal connections
- IDC connectability with ribbon cable

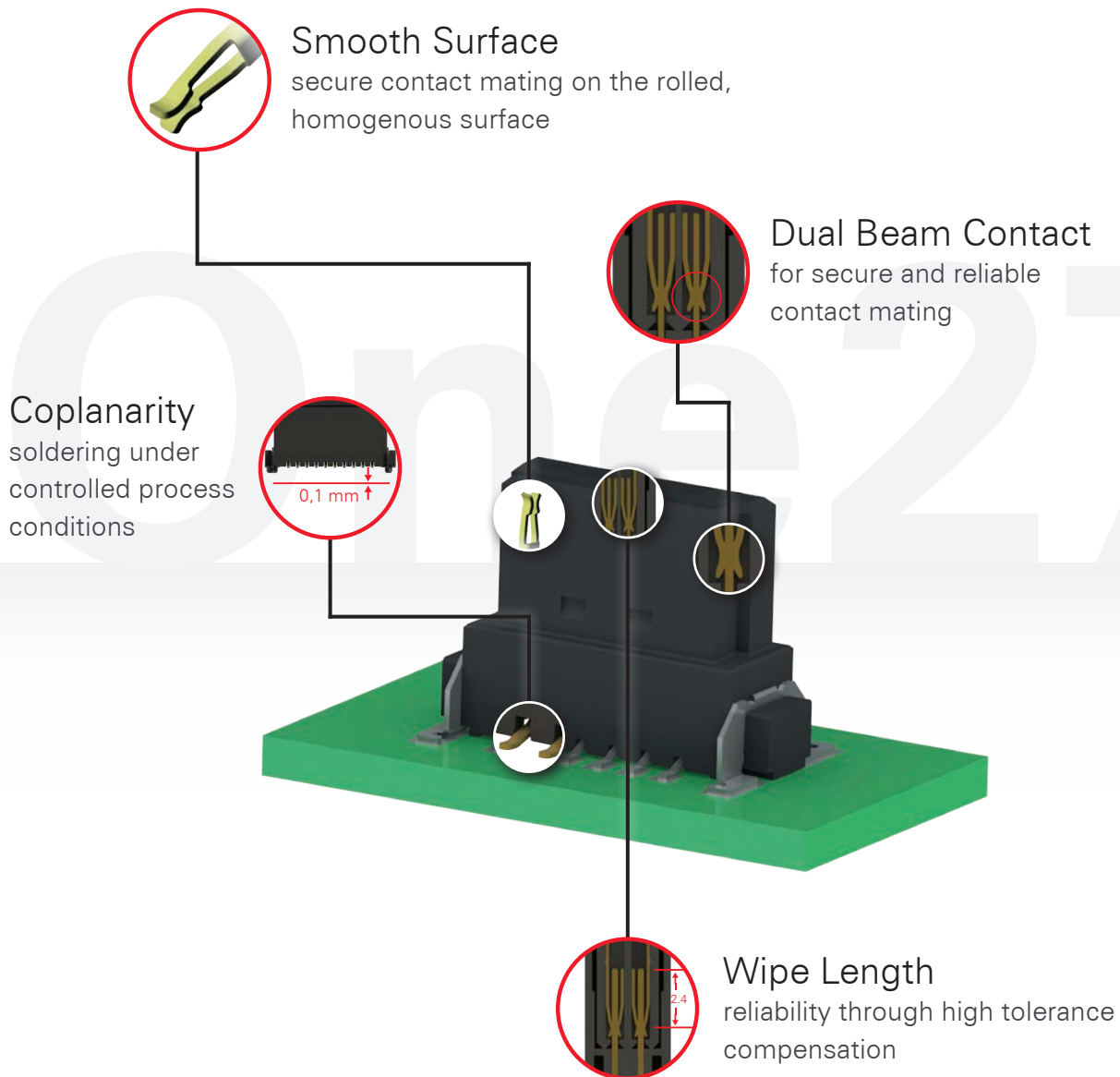
## Our One27 Video:



<https://youtu.be/6doPp-7ea88>





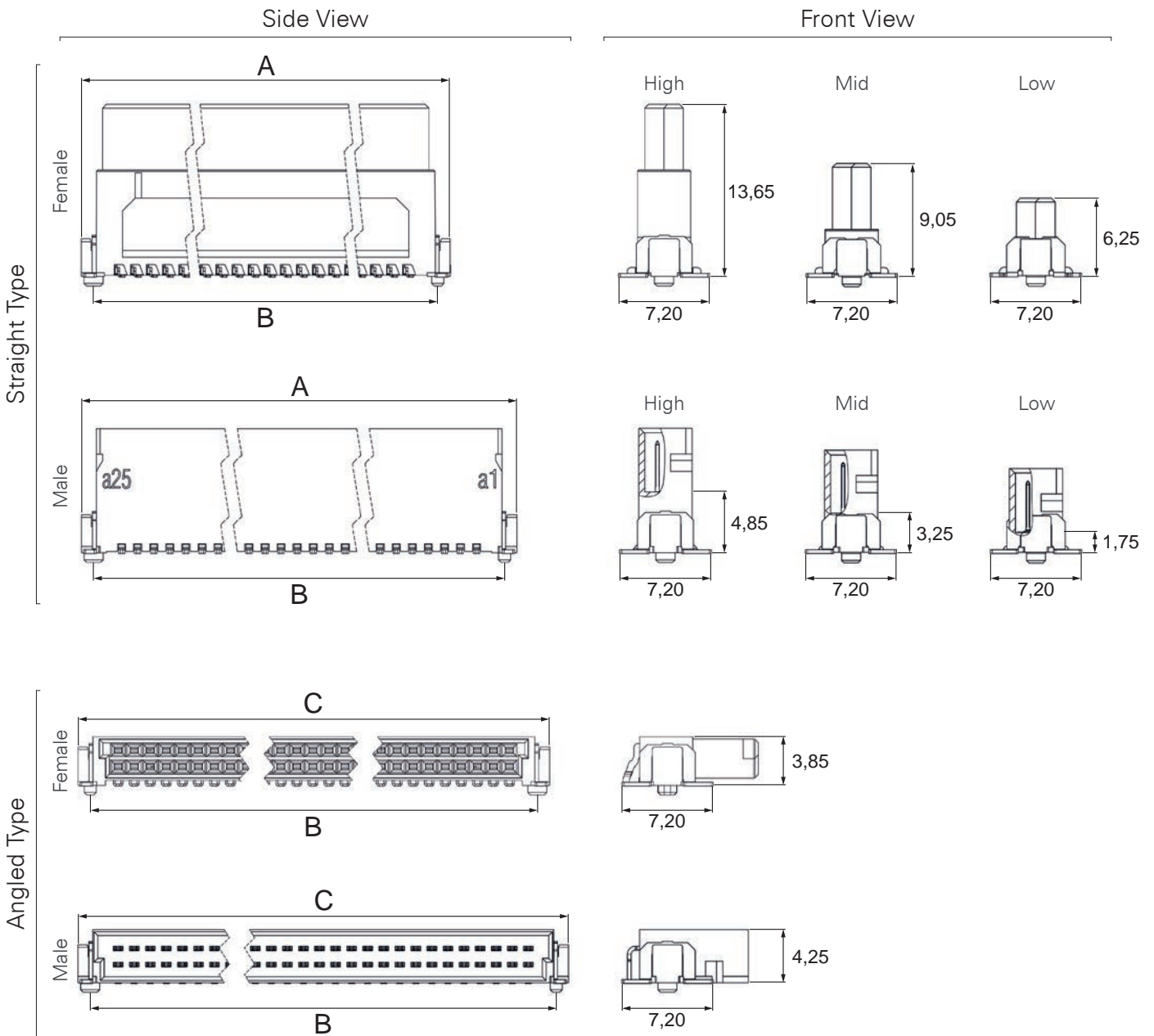


**Other features:**

- Test reports available for compatibility with other connectors on the market
- Tape & reel packaging for automated assembly
- Custom variants available on request

# One27®

## Dimensions



Connector lengths in mm:

Polzahl	A	B	C
12	12,70	10,77	12,71
16	15,24	13,31	15,25
20	17,78	15,85	17,79
26	21,59	19,66	21,60
32	25,40	23,47	25,41
40	30,48	28,55	30,49
50	36,83	34,90	36,84
68	48,26	46,33	48,27
80	55,88	53,95	55,89



Detailed drawings as well as a layout recommendation are available on [www.ept.de](http://www.ept.de) after selecting the corresponding article.

<b>Basics</b>		
Number of pins	12 / 16 / 20 / 26 / 32 / 40 / 50 / 68 / 80	
Termination	SMT	
Operating temperature range	-55°C to +125°C	

<b>Material</b>		
Insulator material	LCP	
CTI	175	IEC 60112
Contact material	Copper alloy	
Contact surface	Au over PdNi over Ni Au over NiP over Ni	
Termination area	Sn	

<b>Mechanical</b>		
Pitch	1.27 mm	
Mating force per pin	≤ 0.5 N	
Separating force per pin	≥ 0.1 N	
Durability	Performance lv. I: 500 mating cycles	IEC 60512-9-1
Coplanarity	≤ 0.1 mm	
Vibration, sinusoidal	10 - 2000 Hz, 20 g	IEC 60512-6-4
Contact mating problems if vibrations occur, sinusoidal	< 1 μs	IEC 60512-2-5
Shock, semi-sinusoidal	50 g, 11 ms	IEC 60512-6-3
Contact mating problems if shocks occur, semi-sinusoidal	< 1 μs	IEC 60512-2-5

<b>Electrical</b>		
Operational current	max. 1.4 A at 20°C (50 pins)	IEC 60512-5-2
Contact resistance	max. 25 mΩ max. 10 mΩ (female IDC + cable)	IEC 60512-2-1
Clearance and creepage	min. 0.4 mm	
Insulation resistance	max. 10 GΩ	IEC 60512-3-1
Test voltage	500 VAC	IEC 60512-4-1
Data transfer rate	3 Gbit/s	

<b>Processing</b>		
Soldering temperature	max. SMT reflow soldering temp. 20 - 40 s bei 260°C	JEDEC J-STD-020
MSL	1	JEDEC J-STD-020
Packaging	Tape & Reel, Tray (female IDC)	
Assembly	Pick and place	

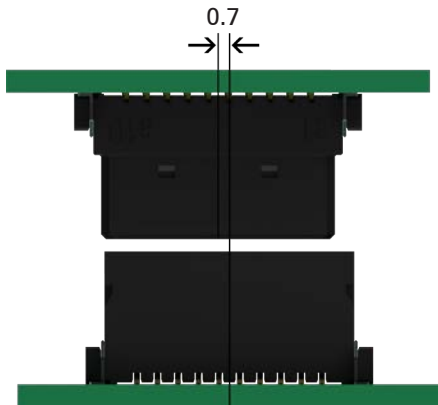
<b>Approval</b>		
UL file	E130314	
Environment	RoHS compliant	



Detailed test reports are available at [www.ept.de](http://www.ept.de) after selecting the corresponding article.

## Allowed Misalignment Tolerances

longitudinal:  $\pm 0.7$  mm

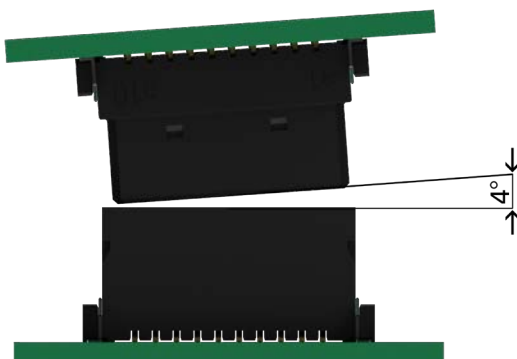


transverse:  $\pm 0.7$  mm

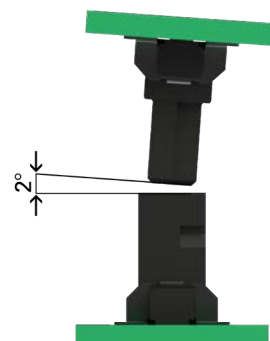


## Allowed Angular Inclination Tolerances

longitudinal:  $\pm 4^\circ$

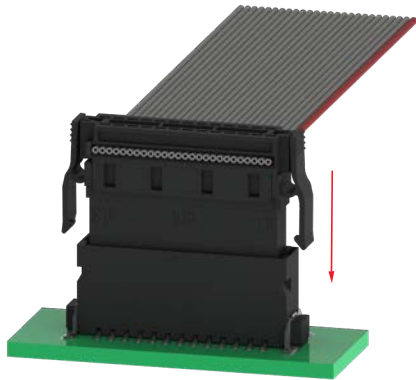


transverse:  $\pm 2^\circ$

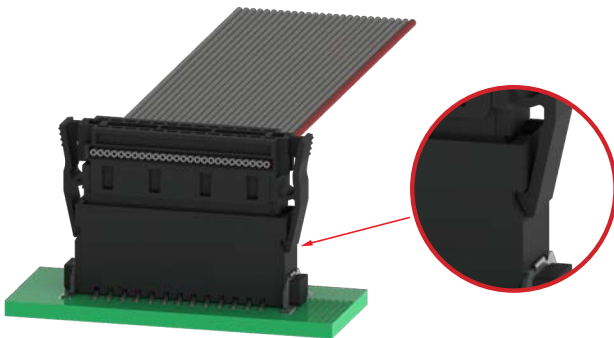




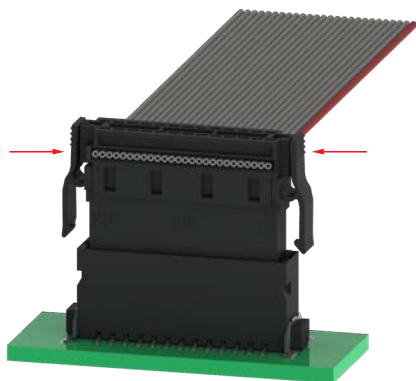
## Locking of One27 IDC-Female Connectors



While inserting the IDC-female connector into the male connector, the snap-fits lock automatically into their slots.



If the snap-fits are visibly locked into their slots, the connection between female and male connector is secured.

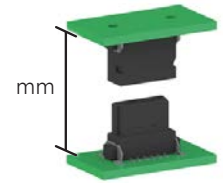


To disconnect simply press the snap-fits together.

Part Numbers for B-t-B Applications



Parallel Connector Pairs



Board-to-Board Distance in mm

8	9	10	11	12	13	14	15	16	17	18	19	20
<b>A</b> 8.0 - 9.5	<b>B</b> 9.5 - 11.0	<b>C</b> 11.1 - 12.6				<b>F</b> 13.9 - 15.4	<b>G</b> 15.4 - 16.9	<b>H</b> 16.9 - 18.4		<b>I</b> 18.5 - 20.0		
		<b>D</b> 10.8 - 12.3	<b>E</b> 12.3 - 13.8									



Please refer to the connector combinations table on page 11

Part Number Key

Type

- 403 Male
- 404 Female

Profile

- 51 Angled
- 52 Low
- 53 Mid
- 54 High













**X X X** - **X X 0** **NN** - **5 1**

**12, 16, 20, 26, 32, 40, 50, 68, 80**

Pins



Connector Combinations Table

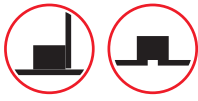
	Female		Male	
Pairing		Part number		Part number
<b>A</b>	low	 404-520NN-51	low	 403-520NN-51
<b>B</b>	low	 404-520NN-51	mid	 403-530NN-51
<b>C</b>	low	 404-520NN-51	high	 403-540NN-51
<b>D</b>	mid	 404-530NN-51	low	 403-520NN-51
<b>E</b>	mid	 404-530NN-51	mid	 403-530NN-51
<b>F</b>	mid	 404-530NN-51	high	 403-540NN-51
<b>G</b>	high	 404-540NN-51	low	 403-520NN-51
<b>H</b>	high	 404-540NN-51	mid	 403-530NN-51
<b>I</b>	high	 404-540NN-51	high	 403-540NN-51
Packaging Tape & Reel low & mid		280 pcs.		280 pcs.
Packaging Tape & Reel high		170 pcs.		250 pcs.



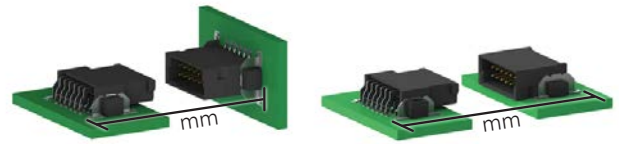
Available Options:

- Custom pin counts
- Other performance levels
- Custom variants

Part Numbers for B-t-B Applications



Angled Connector Pairs



Required Installation Space in mm

11	12	13	14	15	16	17	18	19	20
<b>A</b> 11.25 - 12.75			<b>C</b> 14.05 - 15.55		<b>E</b> 15.65 - 17.15			<b>F</b> 18.65 - 20.15	
	<b>B</b> 12.55 - 14.05		<b>D</b> 14.05 - 15.55						



Please refer to the connector combinations table on page 13

Part Number Key

Type

- 403 Male
- 404 Female

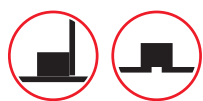
Profile

- 51 Angled
- 52 Low
- 53 Mid
- 54 High

**X X X** - **X X 0** **NN** - **5 1**













**12, 16, 20, 26, 32, 40, 50, 68, 80**



Pins



Connector Combinations Table

Female	Male
--------	------

Pairing 90°	Part number		Part number	
<b>A</b>	low	 404-520NN-51	90°	 403-510NN-51
<b>B</b>	90°	 404-510NN-51	low	 403-520NN-51
<b>C</b>	mid	 404-530NN-51	90°	 403-510NN-51
<b>D</b>	90°	 404-510NN-51	mid	 403-530NN-51
<b>E</b>	90°	 404-510NN-51	high	 403-540NN-51
<b>F</b>	high	 404-540NN-51	90°	 403-510NN-51

Pairing horizontal	Part number		Part number	
<b>Horizontal</b> 15.65 - 17.15 mm	90°	 404-510NN-51	90°	 403-510NN-51

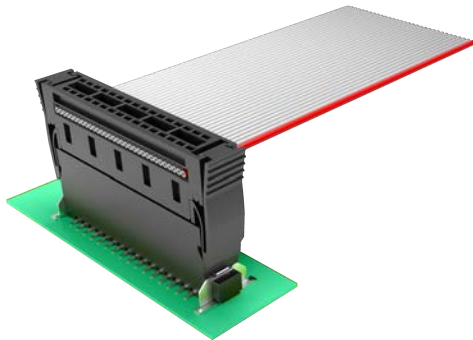
Packaging Tape & Reel low & mid	280 pcs.	280 pcs.
Packaging Tape & Reel high	170 pcs.	250 pcs.
Packaging Tape & Reel angled	560 pcs.	560 pcs.



Available Options:

- Custom pin counts
- Other performance levels
- Custom variants

One27 Female IDC Pre-Assembled with Cable

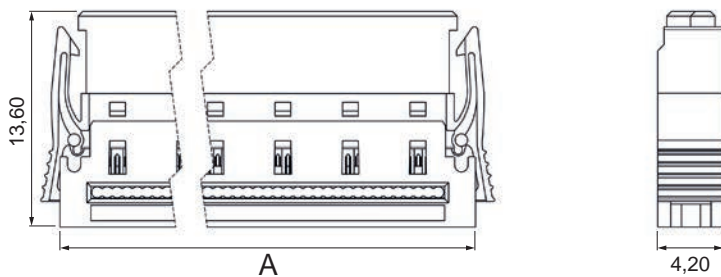


- Alignment of the connectors, pin count and cable length freely selectable
- Cable AWG 30/7 - cross section 0.06 mm<sup>2</sup>
- Insulation displacement connection technology (IDC)
- Cable type PVC: -30°C to + 105°C (at rest)
- Colored wire on a1
- IDC female connector single or with cable assembled available

Part Number Key for Cable Assembly

	<b>Cable type</b>		<b>Cable length in mm</b>	
	61 PVC 62 High temperature 66 Halogen-free		from 30 to 999 mm i.e. <b>080</b> = 80 mm <b>660</b> = 660 mm	
<b>4 0 4 -</b>	<b>X X</b>	<b>N N</b>	<b>L L L</b>	<b>C C C - 1</b>
	<b>12, 16, 20, 26, 32, 40, 50, 68, 80</b>			
	<b>Pins</b>			<b>See next page</b>

Dimensions



Connector lengths in mm:

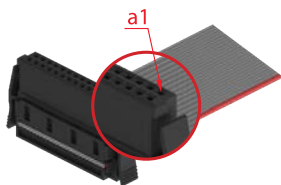
Part number	Pins	A
404-59012-61	12	5
404-59016-61	16	7
404-59020-61	20	9
404-59026-61	26	12
404-59032-61	32	15
404-59040-61	40	19
404-59050-61	50	24
404-59068-61	68	33
404-59080-61	80	39



Detailed drawings as well as a layout recommendation are available on [www.ept.de](http://www.ept.de) after selecting the corresponding article.

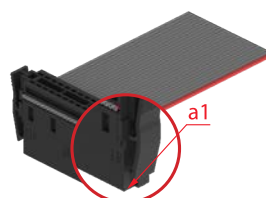
Assembled version 100

Part number  
404-6XNN-LLL-100-1



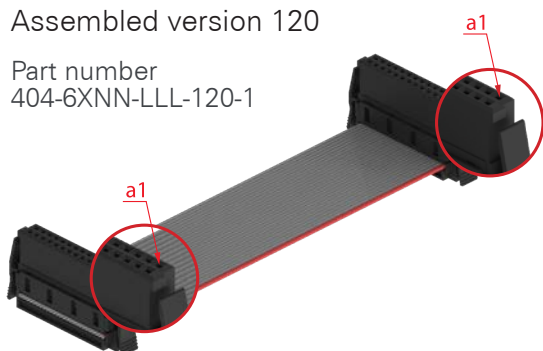
Assembled version 400

Part number  
404-6XNN-LLL-400-1



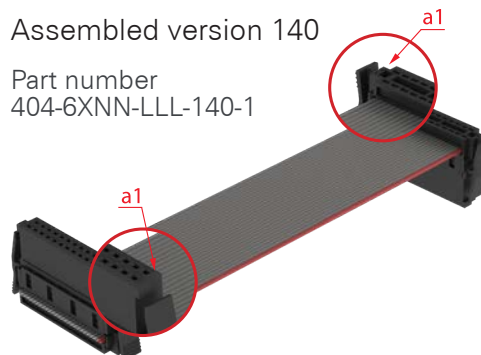
Assembled version 120

Part number  
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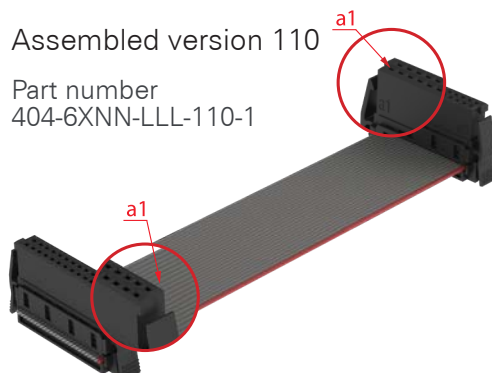
Assembled version 140

Part number  
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Assembled version 110

Part number  
404-6XNN-LLL-110-1



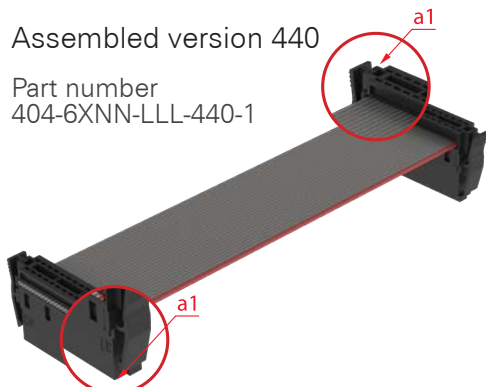
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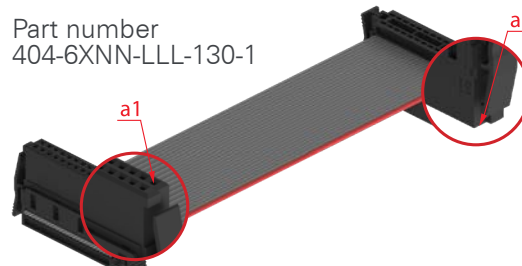
Assembled version 440

Part number  
404-6XNN-LLL-440-1



Assembled version 130

Part number  
404-6XNN-LLL-130-1



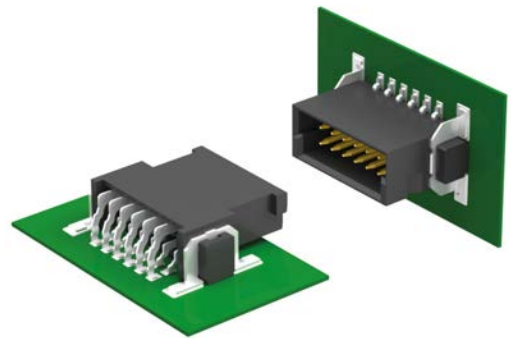
On request we can also provide other cable assemblies

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For detailed coordination as well as individual consultation, you can choose between our sales representative in your area, our service representative in Peiting or a local sales partner or distributor.

Order your product samples here:

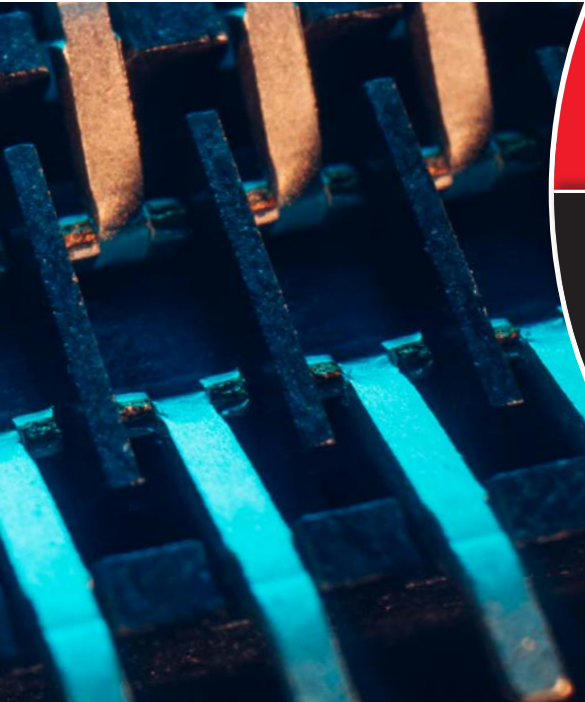




### One Stop Supplier

ept is a German quality supplier with sophisticated products in the field of electrical connectivity. Our products and capabilities are used in high-quality and demanding applications such as industrial automation, healthcare, measurement and traffic technology as well as automotive electronics.

At six locations worldwide, connectors are manufactured in-house using highly automated processes across four manufacturing steps (stamping, electroplating injection molding and assembly). Over five decades, we have formed trusting and successful partnerships with our customers, who are at the center of everything we do.





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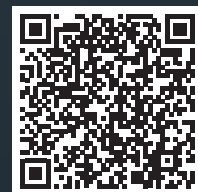
**Augsburg**, Germany

**Habartov**, Czech Republic

**South Chesterfield**, USA

**Shanghai**, China

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