



WAGO Pluggable Connection System *picoMAX*®



TECHNOLOGY THIS SPECIALIZED
CAN'T MEET ALL REQUIREMENTS.

YES IT CAN.

CONTENTS

picoMAX[®] Pin spacing: 3.5 mm/0.138 in.; 5.0 mm/0.197 in.; 7.5 mm/0.295 in.

Versatile Pluggable Connectors for a Wide Range of Applications

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picoMAX[®] eCOM Pin spacing: 3.5 mm/0.138 in.; 5.0 mm/0.197 in.; 7.5 mm/0.295 in.

The Easiest Way to Make PCBs Pluggable

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picoMAX[®]

The Pluggable Connection System

PACKED WITH INNOVATION, *picoMAX[®]* SHOULD BE MUCH BIGGER.

BUT IT ISN'T.

The *picoMAX[®]* pluggable connection system has an innovative, **highly compact** design:

- Reduces space by up to 30%
- Minimal space requirements when mated
- The female connector is fully shrouded by the male header's housing.

The *picoMAX[®]* design yields extremely short female connectors.

Male headers are equipped with an integrated locking latch.

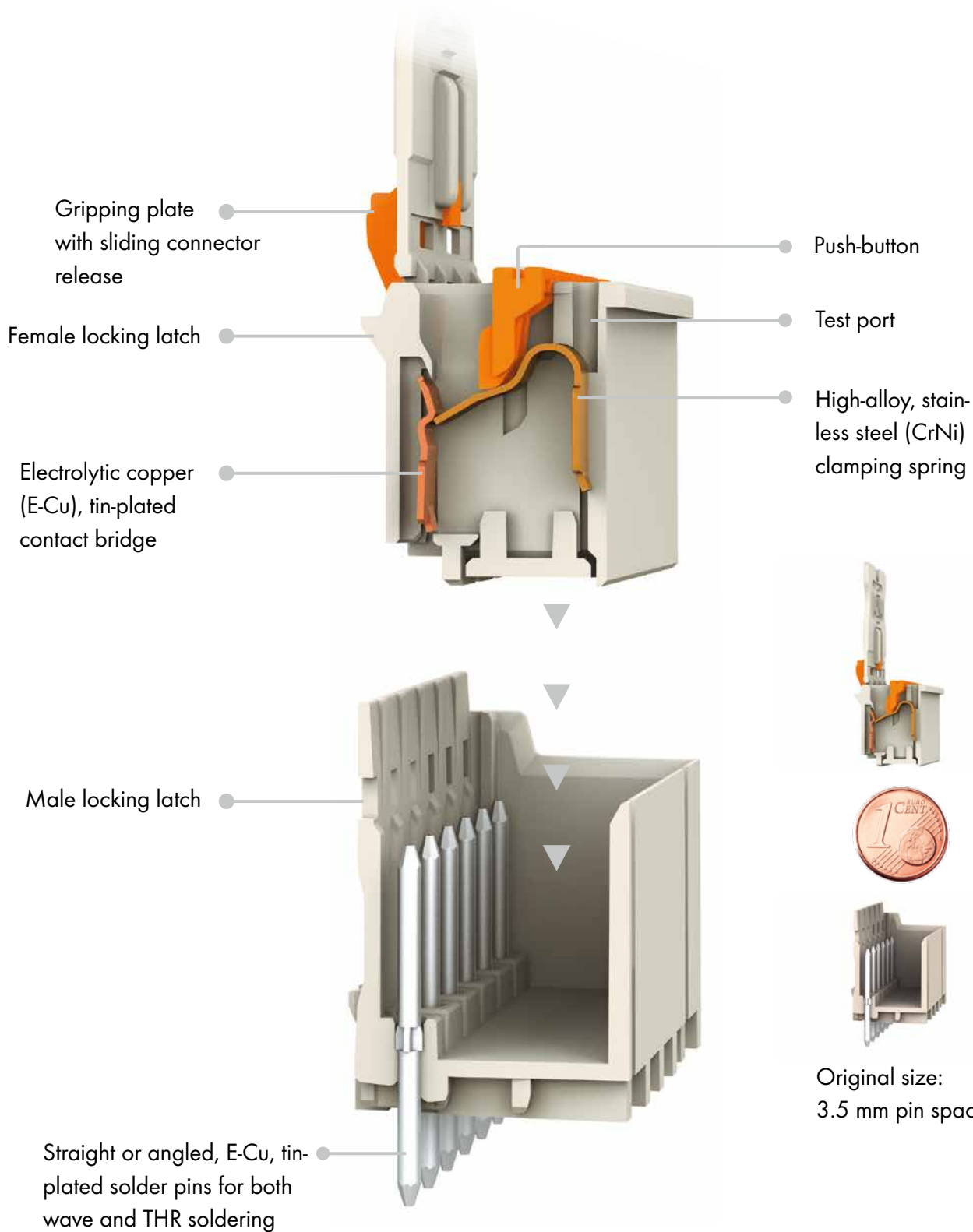
The **very short contact bridge** separates the termination unit from the header pin.

This **extremely short current path** minimizes contact resistance.

picoMAX[®] is the only pluggable connection system that makes double use of the contact force of **a single stainless steel spring (CrNi)**:

For clamping the conductor **and** connecting the header pin.

The combination of our special design, the **innovative Spring Pressure Connection Technology** and **new insulation material** guarantees **absolute contact reliability** even at high temperatures.



COMPACT

VIBRATION-PROOF

INTUITIVE

UNIVERSAL

EFFICIENT

Pages 54 ... 63

picoMAX[®]

The Pluggable Connection System

VIBRATION-PROOF UP TO 20 g. NO PLUGGABLE CONNECTOR CAN BE SO SAFE.

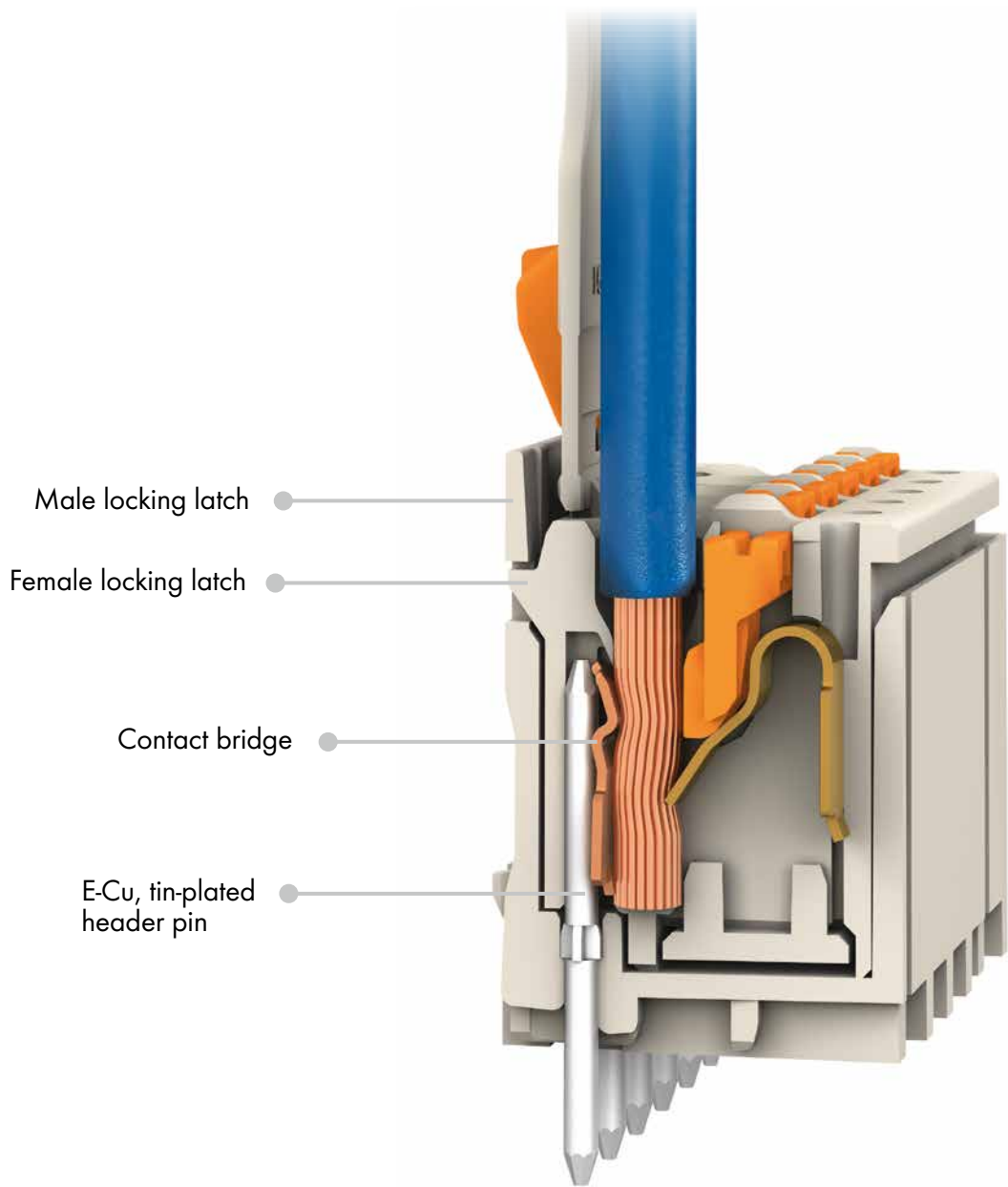
YES IT CAN.

The *picoMAX[®]* pluggable connection system has an innovative, **extremely vibration-proof** design: The protruding **locking latch** of the male header **interlocks** with the **locking latch** of the female connector, for a secure connection. This allows the female connector to be **automatically locked in place**, while being almost fully shrouded by the male header.

The clamping point of the terminated conductor and the contact point of the inserted header pin are virtually opposite each other. This unique configuration provides **uniform mass distribution**, making *picoMAX[®]* connectors ideal for vibration-prone applications. Essentially, the **contact force** between conductor, contact bridge and header pin is **automatically adjusted**.

This also allows *picoMAX[®]* wire-to-board connections to achieve high contact reliability when subjected to vibrations of **up to 20 g** based on IEC 60068-2-6.

Mass concentration of conductor, contact bridge and header pin within the pin housing turns *picoMAX[®]* into the **new standard for vibration-proof pluggable connector systems**.



COMPACT

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Pages 54 ... 63

picoMAX[®]

The Pluggable Connection System

WITH SO MANY COMBINATION POSSIBILITIES, *picoMAX*[®] MUST BE DIFFICULT TO USE.

BUT IT ISN'T.

The *picoMAX*[®] pluggable connection system is intuitive and easy to use – worldwide:

Fast conductor termination

- Push-in termination of solid or ferruled conductors
- Easy push-button actuation

Integrated locking latches

- Prevent accidental disconnection of male header and female connector

Easy disconnection

- Using convenient unlocking tool for applications without gripping plate
- Via easy-to-use sliding connector release on gripping plate

Efficient testing

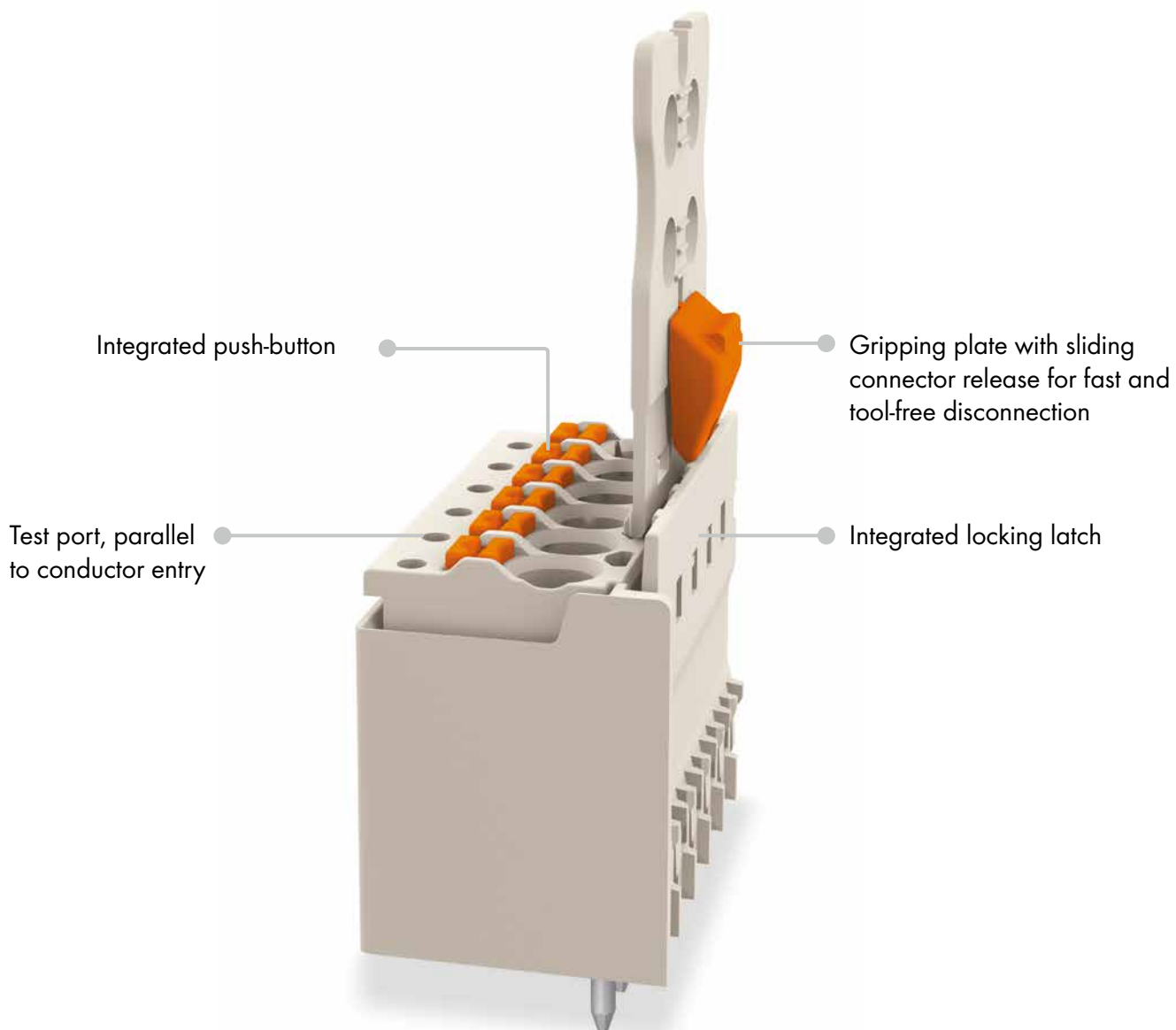
- Via test port, parallel to conductor entry
- Even when mated

Assembling connectors without losing any poles

- Within a male header's housing

Easy panel feedthrough connections

- E.g., for extensions with plug-in option on both sides



COMPACT

VIBRATION-PROOF

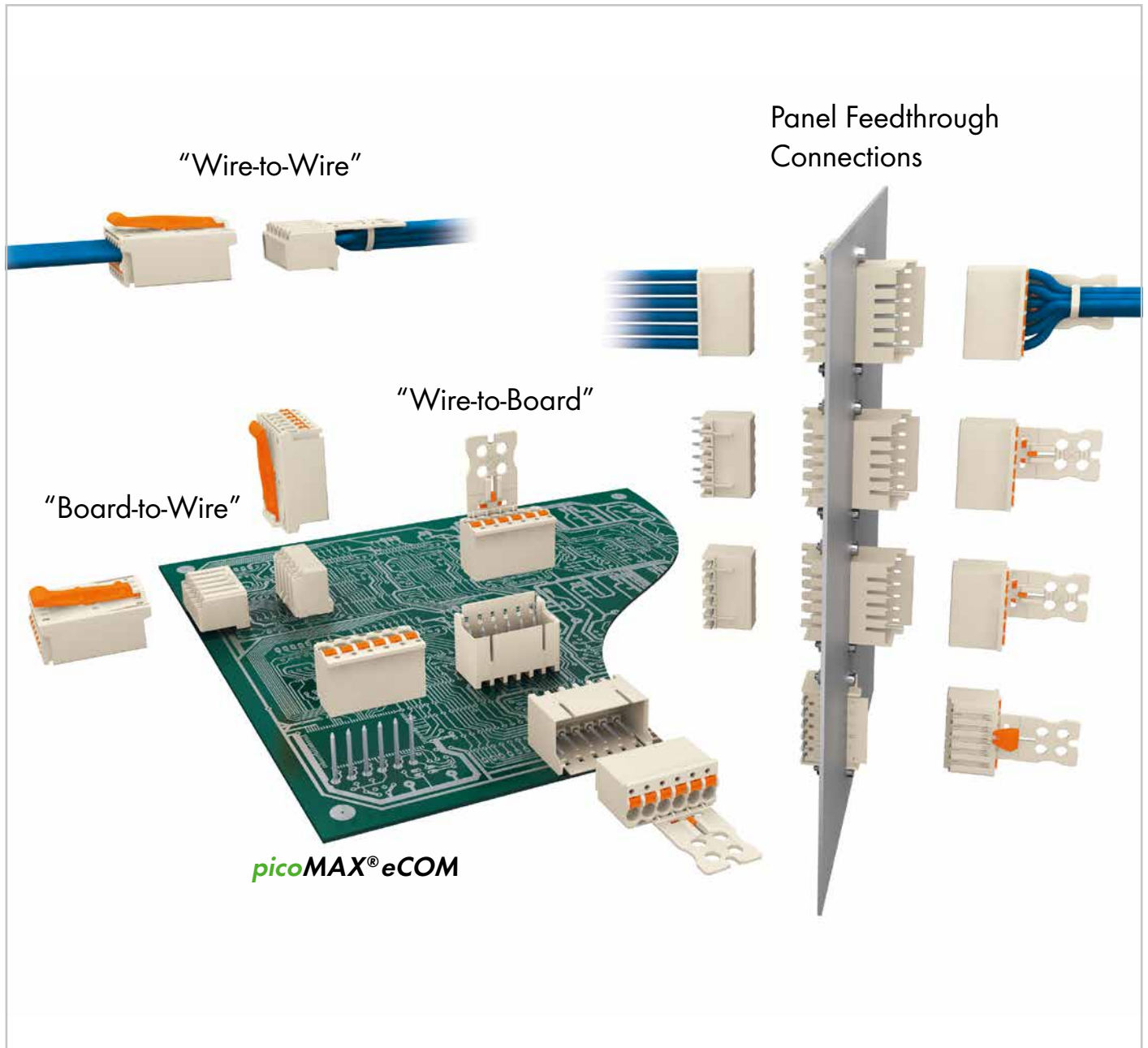
INTUITIVE

UNIVERSAL

EFFICIENT
Pages 54 ... 63














































picoMAX[®]

The Pluggable Connection System



picoMAX® Pluggable Connectors

Combination Overview for Male and Female Connectors/Headers
 Pin Spacing: 3.5 mm/0.138 in.; 5.0 mm/0.197 in.; 7.5 mm/0.295 in.

		Male Connectors/Headers					
		Header with straight solder pins	Header with angled solder pins	Standard connector and integrated release lever	Panel feedthrough connector		
					Outside 	Inside (unlocked) 	
Female Connectors/Headers	Standard connector and gripping plate with sliding connector release 						
	Standard connector and gripping plate 	 	 	 	 	 	
	Standard connector 	 	 	 	 	 	
	Header with straight solder pins 						
	Header with angled solder pins 						



Disconnection: Open locking latches via unlocking tool.



This combination of male and female connectors/headers is allowed.

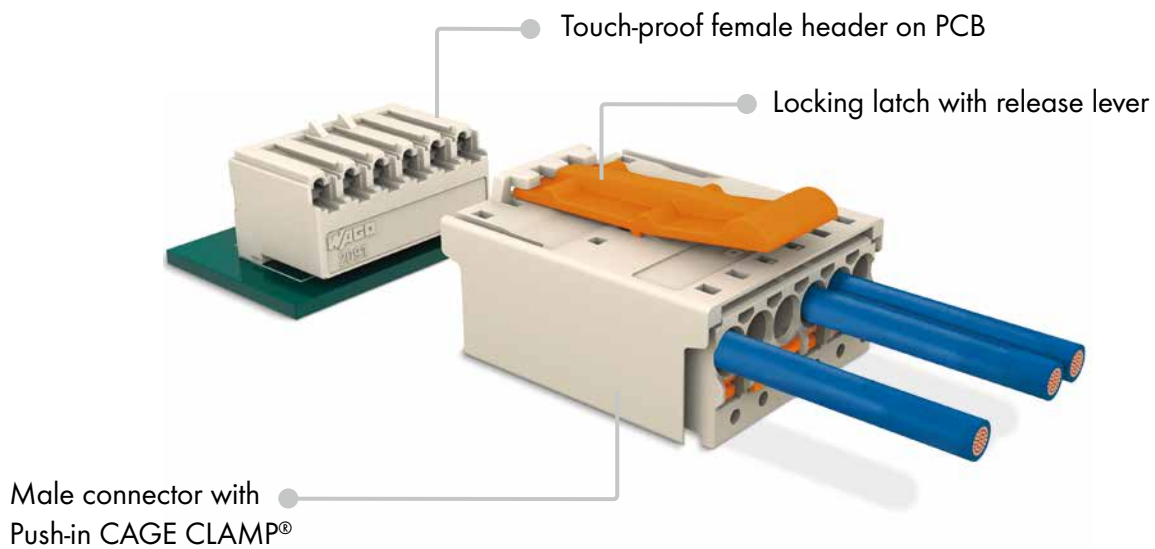


This combination of male and female connectors/headers is not allowed.

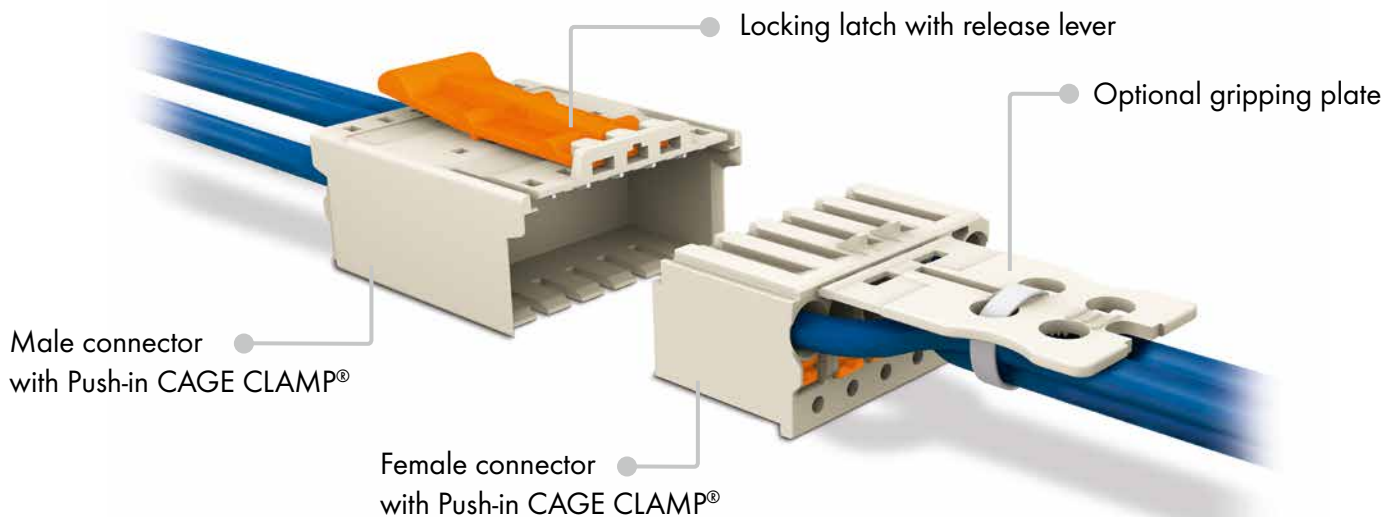
*pico*MAX[®]

The Pluggable Connection System

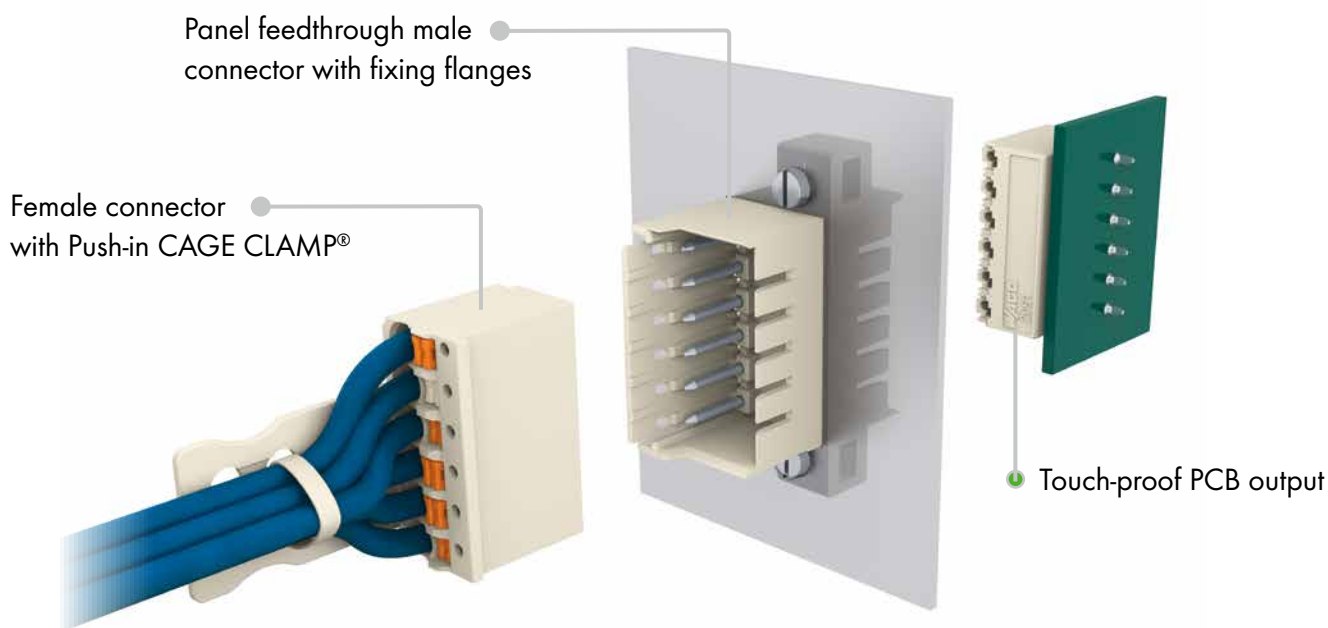
Touch-Proof PCB Output: "Board-to-Wire"



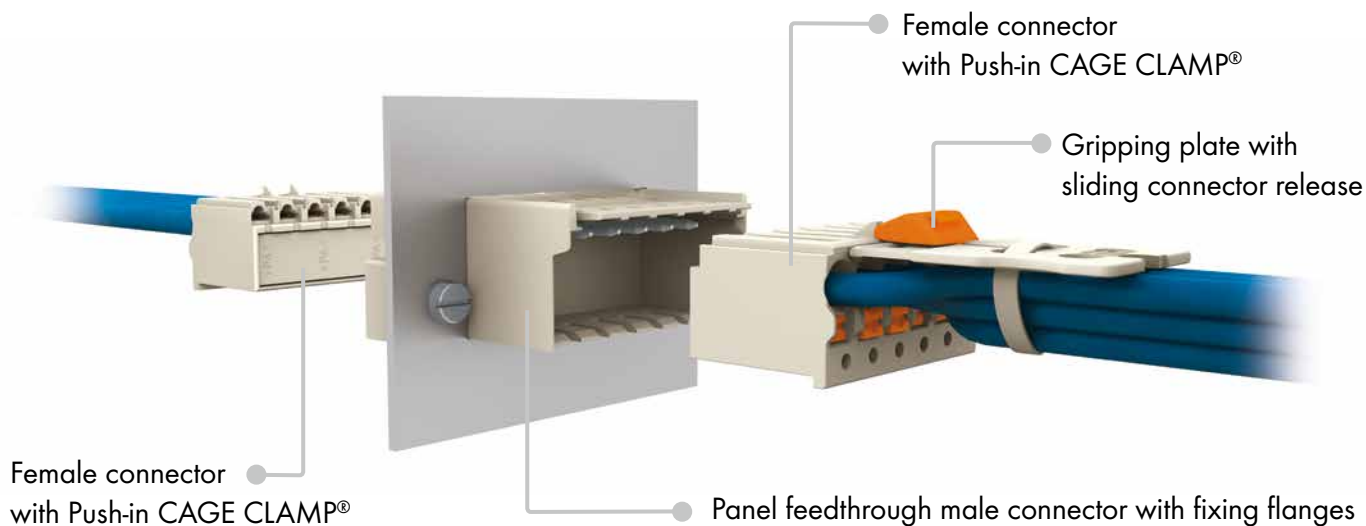
"Wire-to-Wire" Flying Lead



“Wire-to-Board” Panel Feedthrough

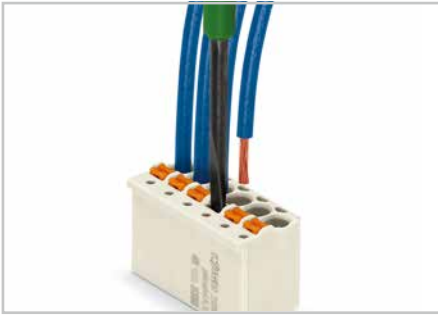


“Wire-to-Wire” Panel Feedthrough

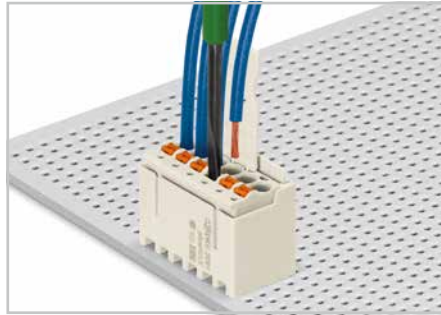


Handling *picoMAX*[®]

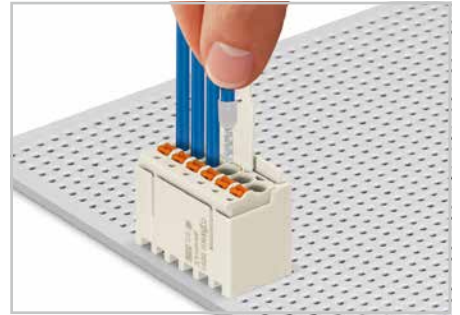
Pin Spacing: 3.5 mm/0.138 in.; 5.0 mm/0.197 in.; 7.5 mm/0.295 in.



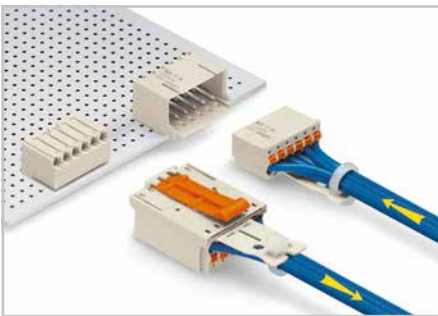
Inserting fine-stranded conductor into unmated female connector via push-button.



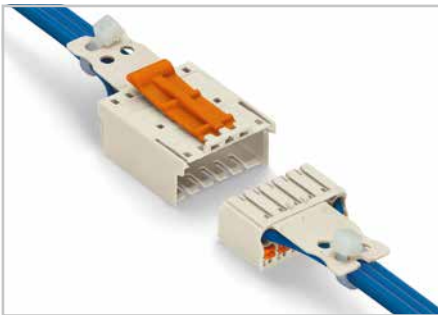
Inserting fine-stranded conductor into mated female connector via push-button.



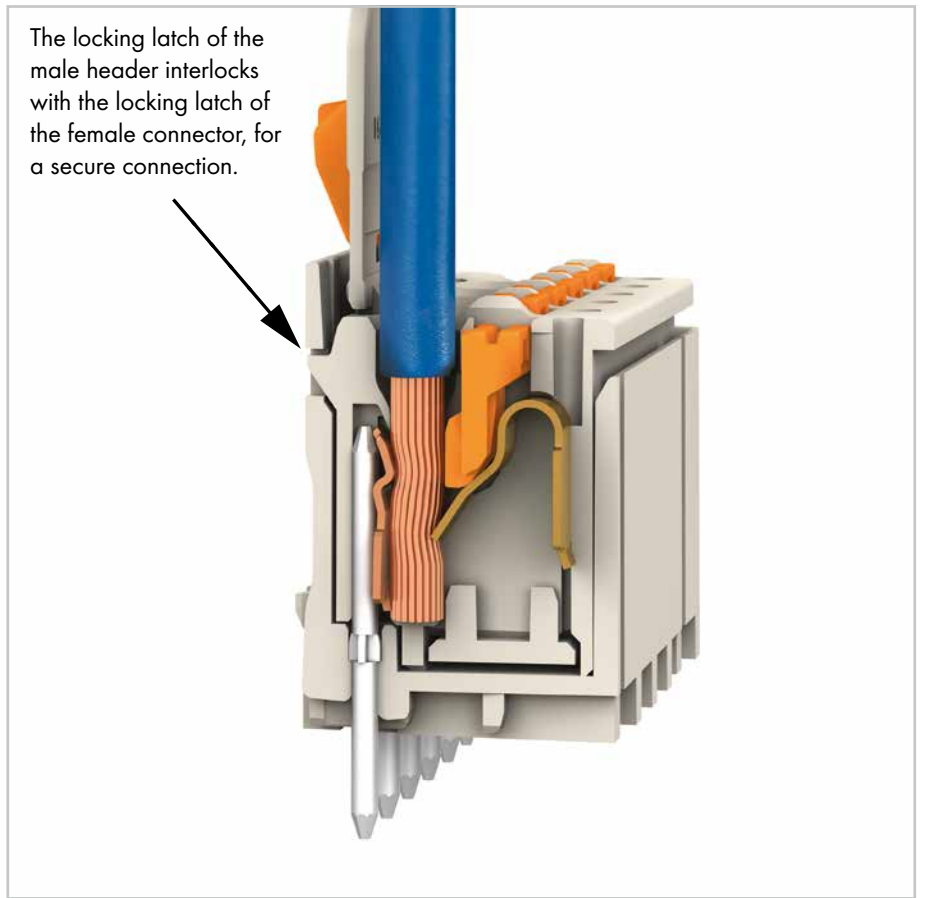
Inserting solid and ferruled conductors via push-in termination (see notes on page 75).



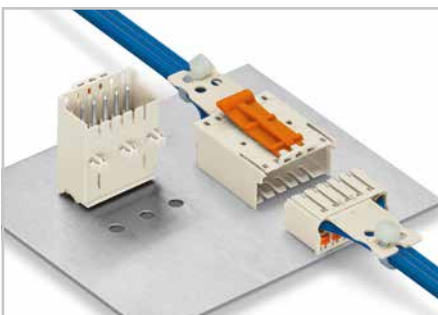
Easy-to-identify PCB inputs and outputs.



"Wire-to-wire" flying leads



The locking latch of the male header interlocks with the locking latch of the female connector, for a secure connection.



Male connectors with snap-in mounting feet for panel mounting.



Male connector with snap-in mounting feet on mounting adapter for DIN 35 rail.



Pole marking via factory direct printing.



Push-in CAGE CLAMP[®] clamps the following copper conductors:

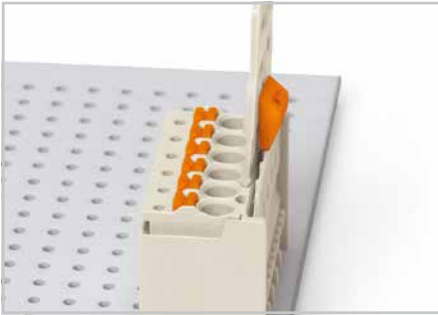
solid



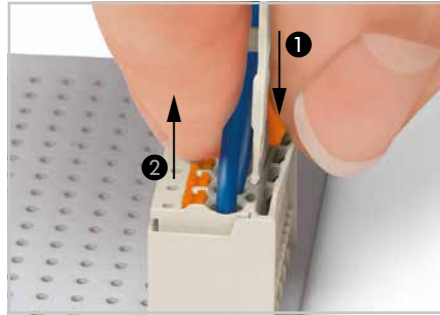
stranded



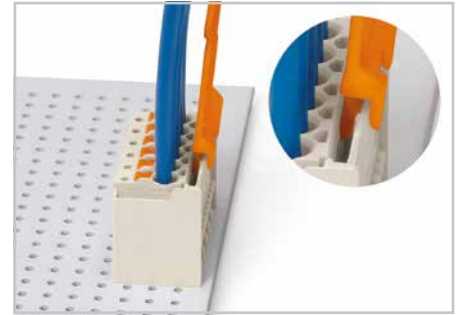
fine-stranded, also with tinned single strands



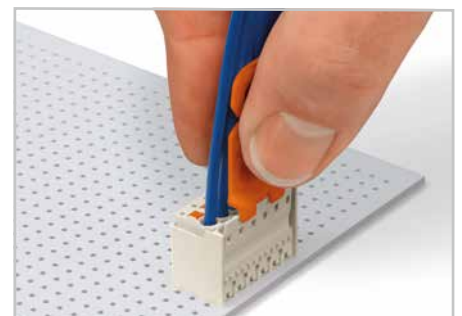
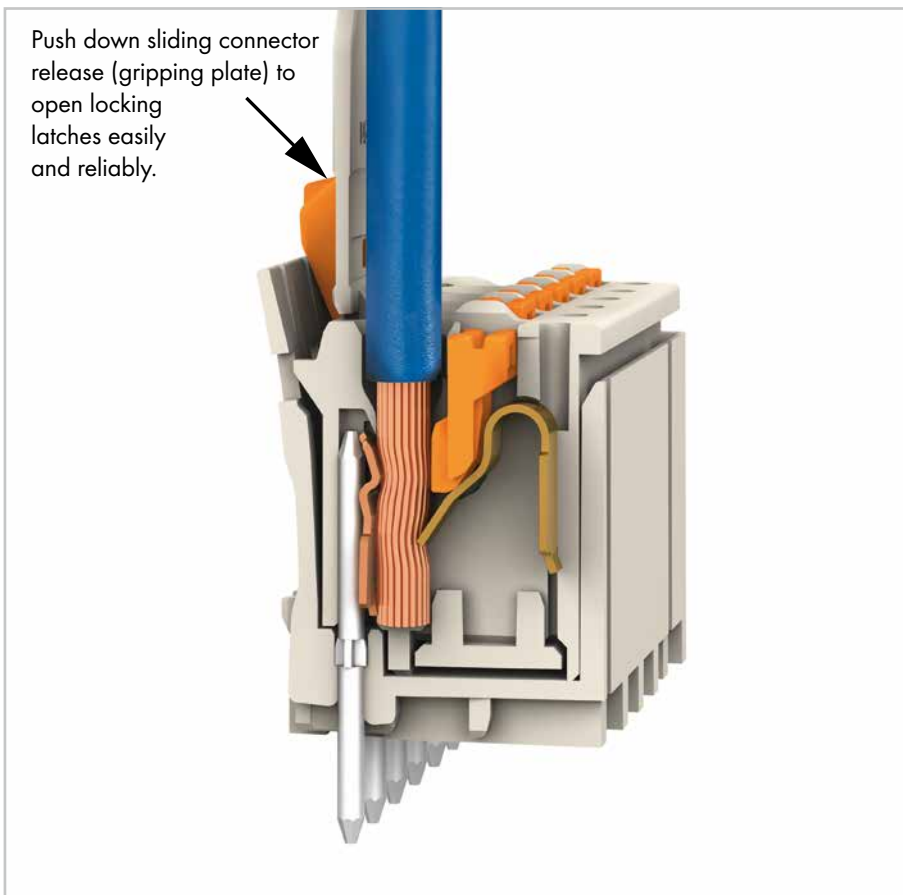
Male header mated to a female connector with gripping plate and sliding connector release.



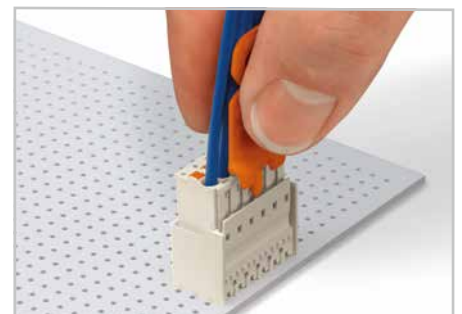
Disconnecting female connector via sliding connector release.
1 Push down sliding connector release (gripping plate) to open the locking latch.
2 Pull out female connector from male header.



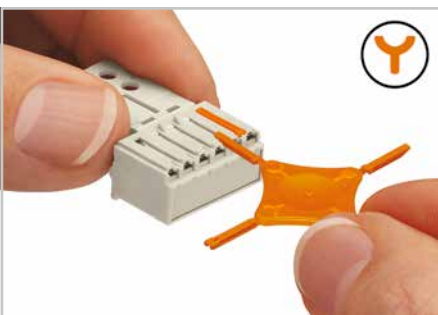
Disconnecting female connector via unlocking tool. Plug unlocking tool into the male locking latch.



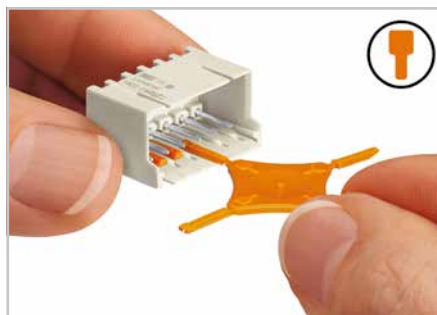
Insert unlocking tool until it hits backstop. Wedge opens locking latches.



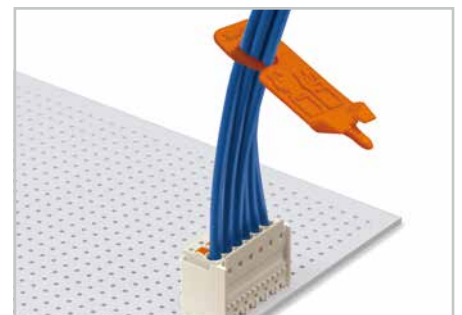
Pull on both unlocking tool and conductors to remove female connector from male header.



Coding a female connector (via coding key carrier and two keys for female connector, see symbol).



Coding a male header (via coding key carrier and two keys for male header, see symbol).



Unlocking tool may be suspended on wire harness for storage.

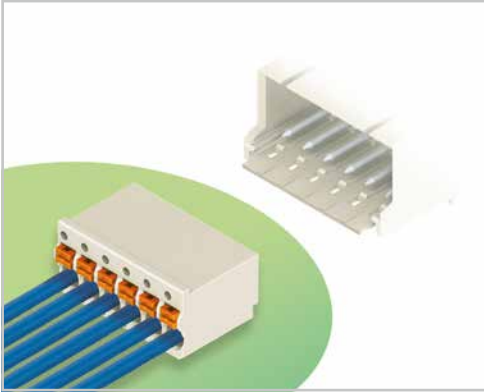


fine-stranded, tip-bonded



fine-stranded, with ferrule (gastight crimped)

Standard Female Connectors picoMAX® 3.5



- Universal connection for all conductor types
- Simple, push-in termination of solid and ferruled conductors
- Ability to wire while mated or unmated
- Testing port parallel to conductor entry – tip contact
- Integrated locking latches prevent accidental disconnection

Technical data:

Pin Spacing	3.5 mm 0.138 in.		
Ratings per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	10 A	-	10 A
Nominal current CSA	10 A	-	10 A

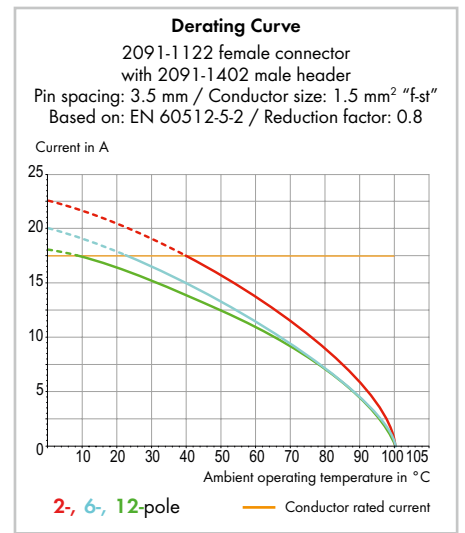
Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 ... 1.5 mm ²	
Conductor size: fine-stranded	0.2 ... 1.5 mm ²	
Conductor size: fine-stranded	0.25 ... 0.75 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 ... 1.5 mm ² (with uninsulated ferrule)	
AWG	24 ... 14	14: THHN, THWN
Strip length	8 ... 9 mm / 0.31 ... 0.35 in.	

Material data:

Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.



For additional derating curves, see page 71.

Accessories for picoMAX®:

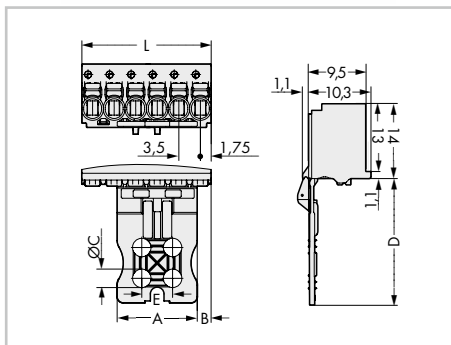
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Coding pins	66
Test pin	64



Standard Female Connectors picoMAX® 3.5

With gripping plate and sliding connector release Pin spacing: 3.5 mm / 0.138 in. 0.2 ... 1.5 mm ² AWG 24 ... 14 160 V/2.5 kV/2 10 A 300 V/10 A		Types of assembly with male headers/connectors
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	-------------------------------------------------------

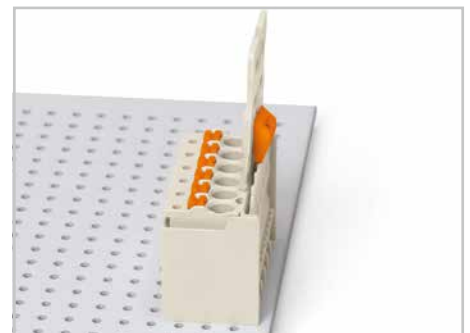


L = pole no. x pin spacing

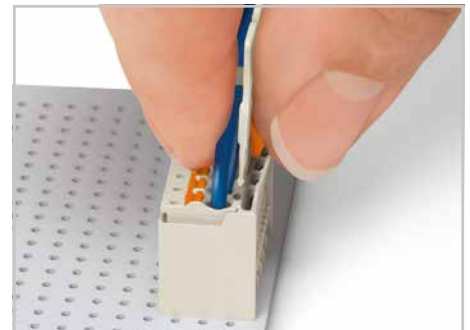
Pole No.	Item No.	Pack. Unit
Female connector with gripping plate and sliding connector release, light gray		
2	2091-1102/002-000	100
3	2091-1103/002-000	100
4	2091-1104/002-000	100
5	2091-1105/002-000	50
6	2091-1106/002-000	50
7	2091-1107/002-000	50
8	2091-1108/002-000	50
10	2091-1110/002-000	50
12	2091-1112/002-000	50

Gripping plate dimensions (in mm):

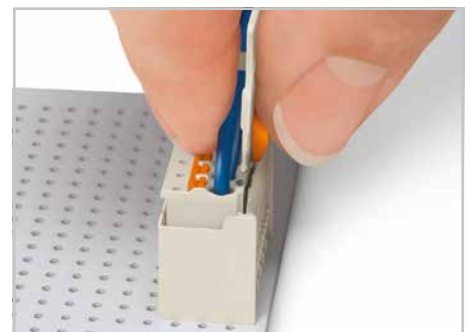
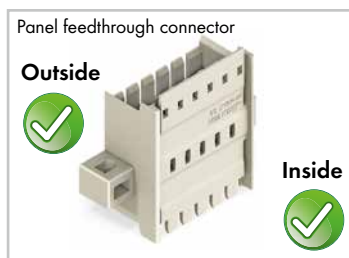
Pole No.	A	B	C	D	E
2	6	0,45	-	17	-
3	6	2,20	-	17	-
4	6	2,20	-	17	-
5	13	2,25	3,0	20	5
6	13	2,25	3,0	20	5
7	13	5,75	3,0	20	5
8	13	5,75	3,0	20	5
10	27	2,25	4,2	25	8
12	27	5,75	4,2	25	8
12	27	5,75	4,2	25	8



Male header mated to a female connector with gripping plate and sliding connector release.



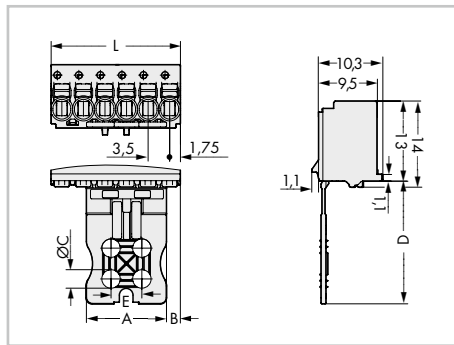
Push down sliding connector release (gripping plate) to open the locking latch.



Pull out female connector with gripping plate from male header.

Standard Female Connectors picoMAX® 3.5

<p>With gripping plate Pin spacing: 3.5 mm / 0.138 in.</p>		<p>Types of assembly with male headers/connectors</p>
<p>0.2 ... 1.5 mm² 160 V/2.5 kV/2 10 A</p>	<p>AWG 24 ... 14 300 V/10 A</p>	

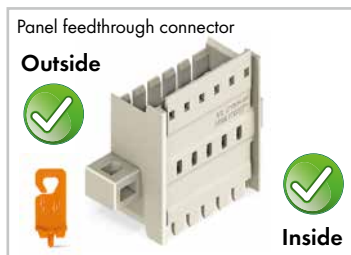
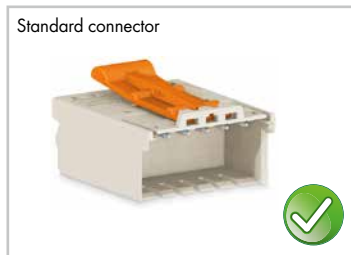


L = pole no. x pin spacing

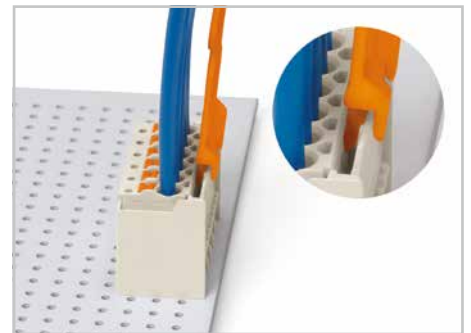
Pole No.	Item No.	Pack. Unit
Female connector with gripping plate, light gray		
2	2091-1102	100
3	2091-1103	100
4	2091-1104	100
5	2091-1105	50
6	2091-1106	50
7	2091-1107	50
8	2091-1108	50
10	2091-1110	50
12	2091-1112	50
Product Accessories		Page
Unlocking tool (2092-1630)		64

Gripping plate dimensions (in mm):

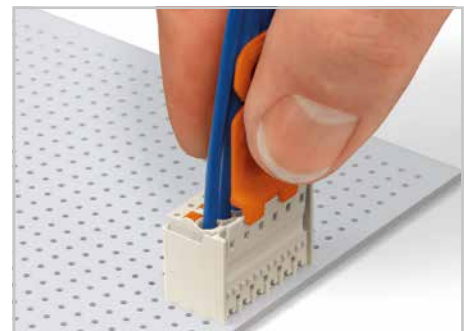
Pole No.	A	B	C	D	E
2	6	0,45	-	17	-
3	6	2,20	-	17	-
4	6	2,20	-	17	-
5	13	2,25	3,0	20	5
6	13	2,25	3,0	20	5
7	13	5,75	3,0	20	5
8	13	5,75	3,0	20	5
10	27	2,25	4,2	25	8
12	27	5,75	4,2	25	8
12	27	5,75	4,2	25	8



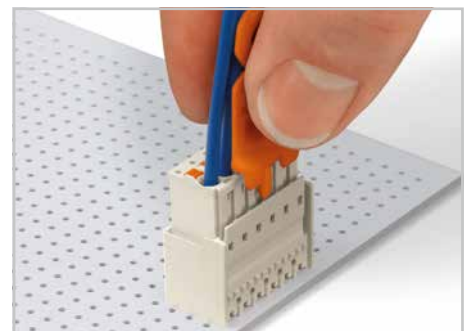
Disconnection: Open locking latches via unlocking tool.



Disconnecting female connector via unlocking tool. Plug unlocking tool into the male header's locking latch.



Insert unlocking tool until it hits backstop. Wedge opens locking latch.

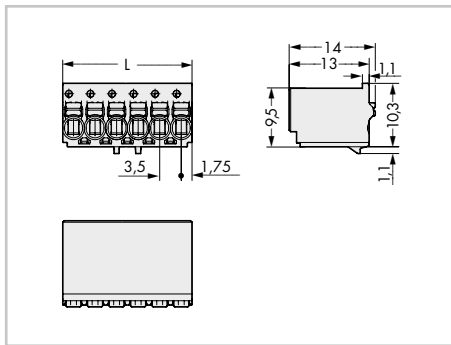


Pull on both unlocking tool and conductors to remove female connector from male header.

Standard Female Connectors picoMAX® 3.5

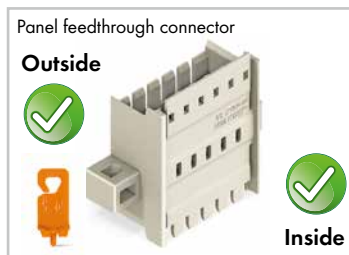
PUSH-IN CAGE CLAMP®

Pin spacing: 3.5 mm / 0.138 in.		Types of assembly with male headers/connectors
0.2 ... 1.5 mm ² 160 V/2.5 kV/2 10 A	AWG 24 ... 14 300 V/10 A	



L = pole no. x pin spacing

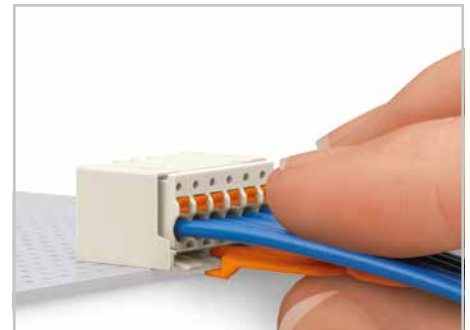
Pole No.	Item No.	Pack. Unit
Female connector, light gray		
2	2091-1122	200
3	2091-1123	200
4	2091-1124	200
5	2091-1125	200
6	2091-1126	100
7	2091-1127	50
8	2091-1128	100
10	2091-1130	100
12	2091-1132	100
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Unlocking tool (2092-1630)		64



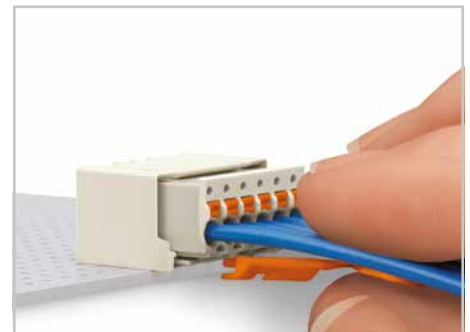
Disconnection: Open locking latches via unlocking tool.



Disconnecting female connector via unlocking tool. Plug unlocking tool into the male header's locking latch.



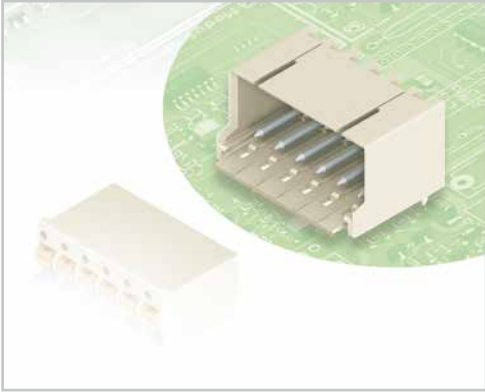
Insert unlocking tool until it hits backstop. Wedge opens locking latch.



Pull on both unlocking tool and conductors to remove female connector from male header.

Male Headers with Solder Pins

picoMAX® 3.5



- Horizontal or vertical PCB mounting via straight or angled solder pins
- Assembly of female connectors without loss of poles, allowing different functions to be divided within one male header
- Coding pins inserted into the header interface prevent mismating, allowing subsequent coding in panel feedthrough applications
- Female connector is almost fully shrouded by the male header, providing vibration-resistance up to 20 g*

Technical data:

Pin Spacing	3.5 mm 0.138 in.		
Ratings per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	10 A	-	10 A
Nominal current CSA	10 A	-	10 A

Solder pin data for THT (wave soldering):

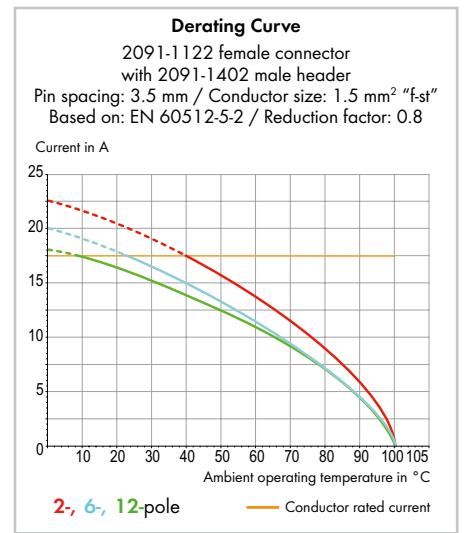
Solder pin: length/width	3.6 mm / 1.0 mm Ø
Solder pin: drilled hole diameter	1.2 ^{+0.1} mm

Solder pin data for THR(reflow soldering):**

Solder pin: length/width	2.4 mm / 1.0 mm Ø
Solder pin: metal-plated hole	1.2 ^{+0.1} mm Ø

Material data:

Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Contact material	Electrolytic copper (E _{CU})
Contact plating	tin-plated



For additional derating curves, see page 71.

Accessories for picoMAX®:

Page:

Coding pins	66
-------------	----

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.



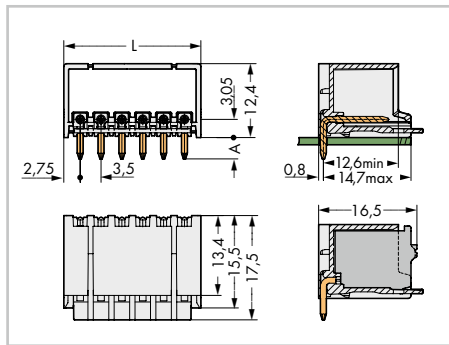
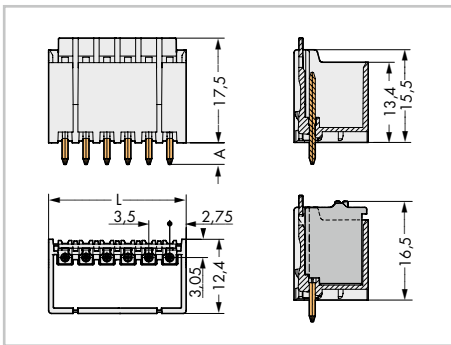
For THR soldering, see page www.wago.com *Testing based on IEC 60068-2-6

**For THR soldering, see page 69 For more technical information, see Full Line Catalog, Volume 2, Section 13

Male Headers with Solder Pins

picoMAX® 3.5

With straight solder pins Pin spacing: 3.5 mm / 0.138 in.		With angled solder pins Pin spacing: 3.5 mm / 0.138 in.		Types of assembly with female connectors
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A	

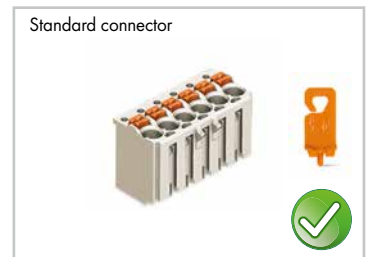
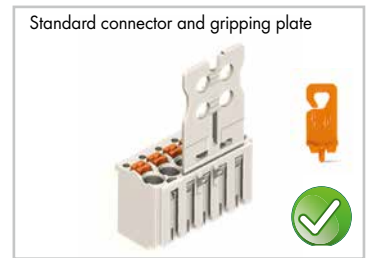
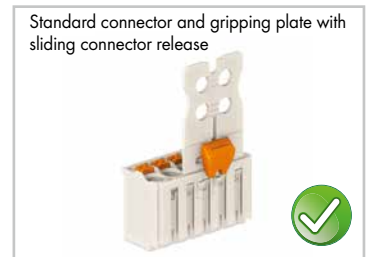



L = (pole no. x pin spacing) + 2 mm
 A = 3.6 mm (THT solder pin)
 A = 2.4 mm (THR solder pin)

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins, light gray			Male header with angled solder pins, light gray		
2	2091-1402	200	2	2091-1422	200
3	2091-1403	200	3	2091-1423	200
4	2091-1404	200	4	2091-1424	200
5	2091-1405	200	5	2091-1425	200
6	2091-1406	100	6	2091-1426	100
7	2091-1407	100	7	2091-1427	100
8	2091-1408	100	8	2091-1428	100
10	2091-1410	100	10	2091-1430	100
12	2091-1412	100	12	2091-1432	100

Item no. suffix for colored THR version:

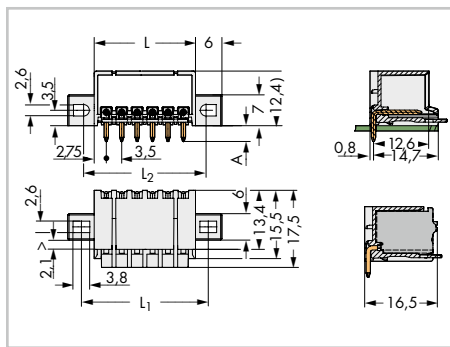
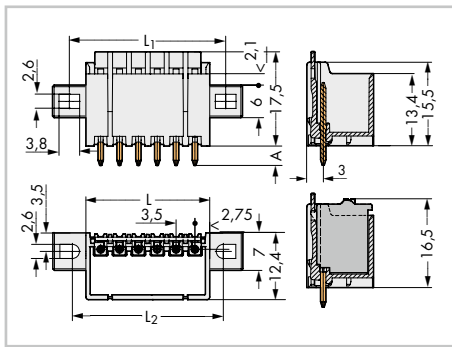
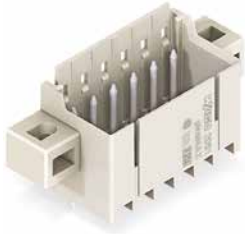
○ light gray	...../200-000	Ordering example:
THR male headers with solder pins in tape-and-reel packaging available upon request		THR male header with straight solder pins, 3.5 mm pin spacing, 8-pole, light gray: 2091-1408/200-000



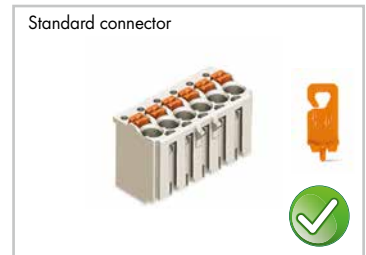
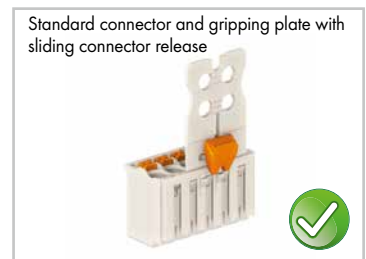
 Disconnection: Open locking latches via unlocking tool.

Male Headers with Solder Pins and Fixing Flanges picoMAX® 3.5

With straight solder pins and fixing flanges Pin spacing: 3.5 mm / 0.138 in.		With angled solder pins and fixing flanges Pin spacing: 3.5 mm / 0.138 in.		Types of assembly with female connectors
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A	



- L = (pole no. x pin spacing) + 2 mm
- L₁ = (pole no. x pin spacing) + 7.8 mm
- L₂ = (pole no. x pin spacing) + 6.8 mm
- A = 3.6 mm (THT solder pin)
- A = 2.4 mm (THR solder pin)



Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins and fixing flanges, light gray			Male header with angled solder pins and fixing flanges, light gray		
2	2091-1402/005-000	200	2	2091-1422/005-000	200
3	2091-1403/005-000	200	3	2091-1423/005-000	200
4	2091-1404/005-000	200	4	2091-1424/005-000	200
5	2091-1405/005-000	200	5	2091-1425/005-000	200

Item no. suffix for colored THR version:

○ light gray -...../205-000

Ordering example:

THR male headers with solder pins in tape-and-reel packaging available upon request

THR male header with straight solder pins and fixing flanges, 3.5 mm pin spacing, 5-pole, light gray: **2091-1405/205-000**



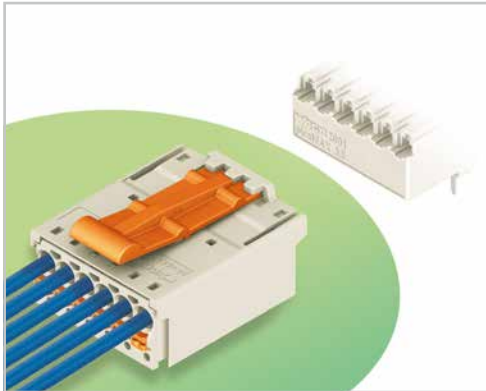
Disconnection: Open locking latches via unlocking tool.



Standard Male Connectors

picoMAX® 3.5

22



- Universal connection for all conductor types
- Simple, push-in termination of solid and ferruled conductors
- Easy-to-use design does not require specialty tools
- Testing port parallel to conductor entry – tip contact
- For “wire-to-wire” and “board-to-wire” connections
- Integrated release lever
- Also available with gripping plates

Technical data:

Pin Spacing	3.5 mm 0.138 in.		
Ratings per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	10 A	-	10 A
Nominal current CSA	10 A	-	10 A

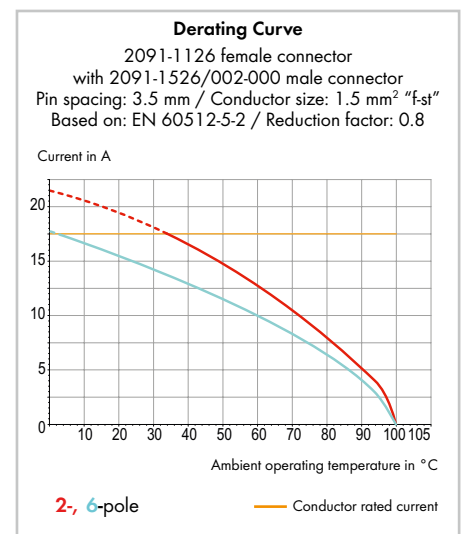
Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 ... 1.5 mm ²	
Conductor size: fine-stranded	0.2 ... 1.5 mm ²	
Conductor size: fine-stranded	0.25 ... 0.75 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 ... 1.5 mm ² (with uninsulated ferrule)	
AWG	24 ... 14	14: THHN, THWN
Strip length	8 ... 9 mm / 0.31 ... 0.35 in.	

Material data:

Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.



For additional derating curves, see page 71.

Accessories for picoMAX®:

Page:

Operating tools	64
Direct printing	68
Gripping plates	65
Coding pins	66
Test pin	64

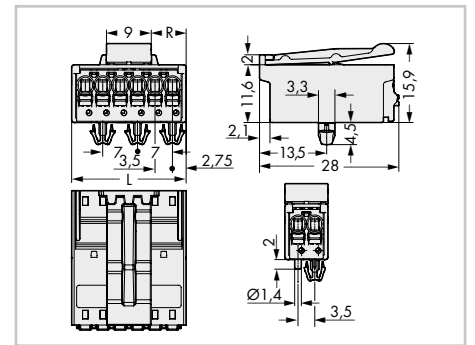
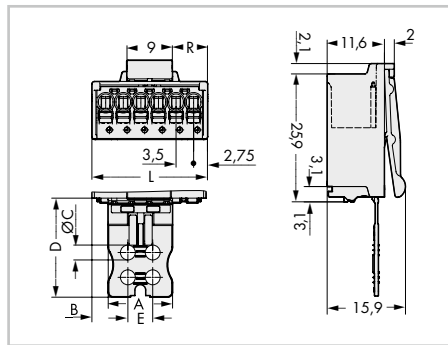
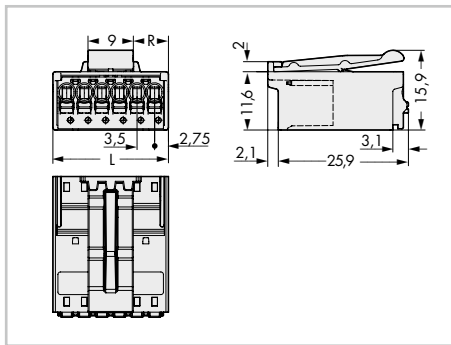
Standard Male Connectors picoMAX® 3.5

PUSH-IN CAGE CLAMP®

Pin spacing: 3.5 mm / 0.138 in.		With gripping plate Pin spacing: 3.5 mm / 0.138 in.		With snap-in mounting feet Pin spacing: 3.5 mm / 0.138 in.	
0.2 ... 1.5 mm ²	AWG 24 ... 14	0.2 ... 1.5 mm ²	AWG 24 ... 14	0.2 ... 1.5 mm ²	AWG 24 ... 14
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A



3.5



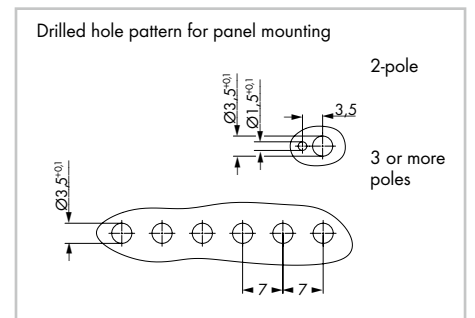
L = (pole no. x pin spacing) + 2 mm
 Even pole number R = (L - 9 mm) : 2
 Odd pole number R = (L - 12.5 mm) : 2

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male connector, light gray			Male connector with gripping plate, light gray			Male connector with snap-in mounting feet, for 0.6 ... 1.2 mm plate thickness, light gray		
2	2091-1522/002-000	200	2	2091-1502/002-000	200	2	2091-1522/020-000	200
3	2091-1523/002-000	200	3	2091-1503/002-000	100	3	2091-1523/020-000	200
4	2091-1524/002-000	200	4	2091-1504/002-000	100	4	2091-1524/020-000	200
5	2091-1525/002-000	100	5	2091-1505/002-000	50	5	2091-1525/020-000	100
6	2091-1526/002-000	100	6	2091-1506/002-000	50	6	2091-1526/020-000	100
8	2091-1528/002-000	100	8	2091-1508/002-000	50	8	2091-1528/020-000	100
10	2091-1530/002-000	50	10	2091-1510/002-000	50	10	2091-1530/020-000	50
12	2091-1532/002-000	50	12	2091-1512/002-000	50	12	2091-1532/020-000	50

Product Accessories	Page
Mounting adapter for DIN 35 rail, 3 or more poles (209-189)	66

Gripping plate dimensions (in mm):

Pole No.	A	B	C	D	E
2	6	1,45	-	17	-
3	6	3,20	-	17	-
4	6	3,20	-	17	-
5	13	3,25	3	20	5
6	13	3,25	3	20	5
8	13	6,75	3	20	5
10	27	3,25	4,2	25	8
12	27	6,75	4,2	25	8



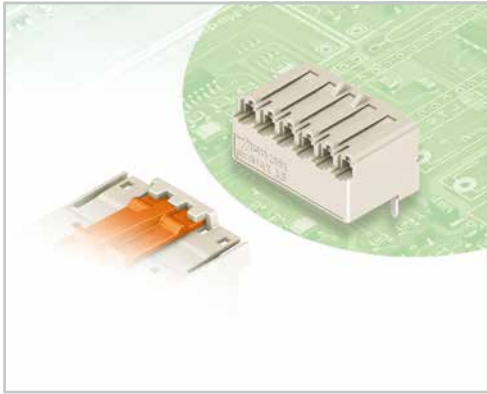
Standard male connectors can be combined with any female connectors/headers.



Female Headers with Solder Pins

picoMAX® 3.5

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- Horizontal or vertical PCB mounting via straight or angled solder pins
- Touch-proof PCB outputs
- Easy-to-identify PCB inputs and outputs
- Coding pins available

Technical data:

Pin Spacing	3.5 mm 0.138 in.		
Ratings per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	10 A	-	10 A
Nominal current CSA	10 A	-	10 A

Solder pin data for THT (wave soldering):

Solder pin: length/width	3.6 mm / 0.4 x 0.9 mm
Solder pin: drilled hole diameter	1.1 ^{+0.1} mm

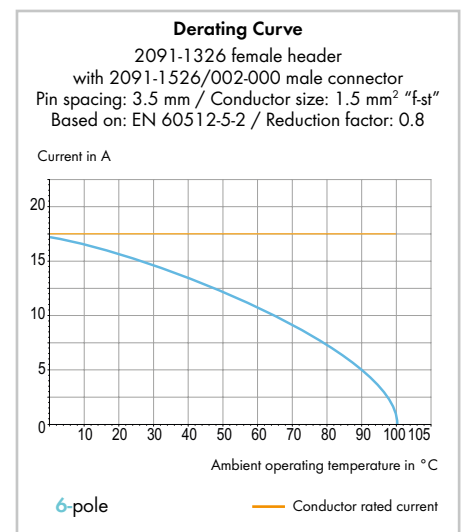
Solder pin data for THR* (reflow soldering):

Solder pin: length/width	2.4 mm / 0.4 x 0.9 mm
Solder pin: metal-plated hole	1.1 ^{+0.1} mm Ø

Material data:

Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Contact material	Copper alloy
Contact plating	tin-plated

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.



For additional derating curves, see page 71.

Accessories for picoMAX®:

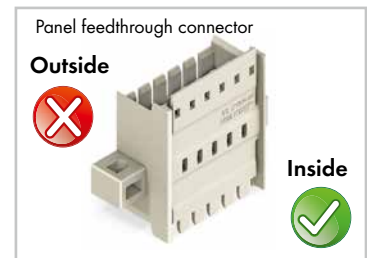
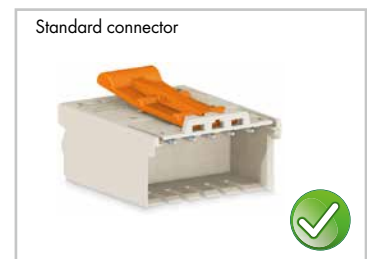
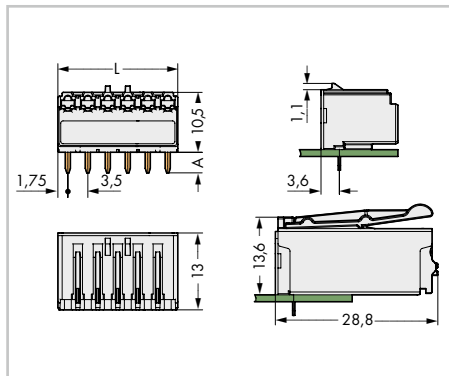
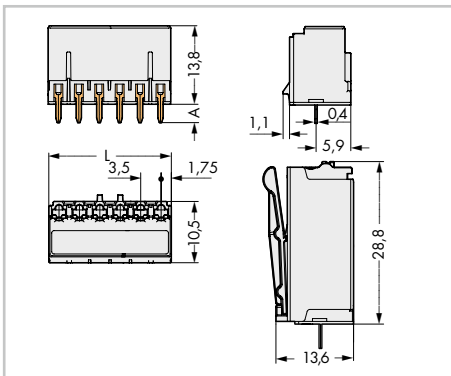
Page:

Coding pins	66

Female Headers with Solder Pins

picoMAX® 3.5

With straight solder pins Pin spacing: 3.5 mm / 0.138 in.		With angled solder pins Pin spacing: 3.5 mm / 0.138 in.		Types of assembly with male connectors
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A	



L = pole no. x pin spacing
 A = 3.6 mm (THT solder pin)
 A = 2.4 mm (THR solder pin)

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins, light gray			Female header with angled solder pins, light gray		
2	2091-1302	200	2	2091-1322	200
4	2091-1304	200	4	2091-1324	200
6	2091-1306	100	6	2091-1326	100
8	2091-1308	100	8	2091-1328	100

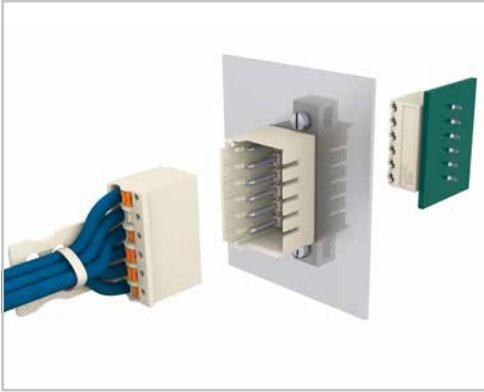
Item no. suffix for colored THR version:

○ light gray	...../200-000	Ordering example:
THR female headers with solder pins in tape-and-reel packaging available upon request		THR female header with straight solder pins, 3.5 mm pin spacing, 8-pole, light gray: 2091-1308/200-000

Panel Feedthrough Male Connectors with Fixing Flanges

picoMAX® 3.5

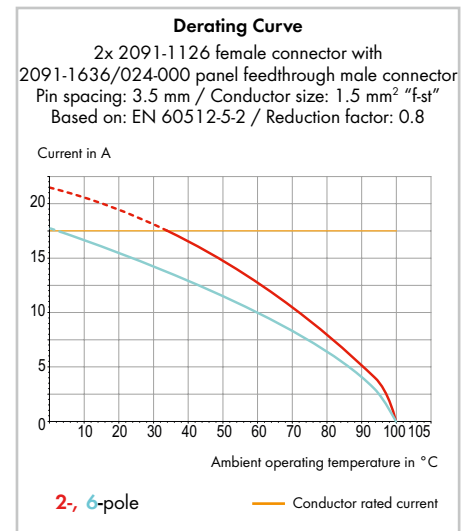
26



- Male connectors for screw mounting in device or enclosure panels
- External plug-in connection to standard female connector via integrated locking latches
- Internal plug-in connection to female header with solder pins or standard female connector
- Fixing flanges also suitable for panel mounting

Technical data:

Pin Spacing	3.5 mm 0.138 in.		
	IEC/EN 60664-1		
Ratings per	III	III	II
Overtoltage category	3	2	2
Pollution degree	3	2	2
Rated voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	10 A	-	10 A
Nominal current CSA	10 A	-	10 A



For additional derating curves, see page 71.

Material data:

Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

Accessories for picoMAX®:

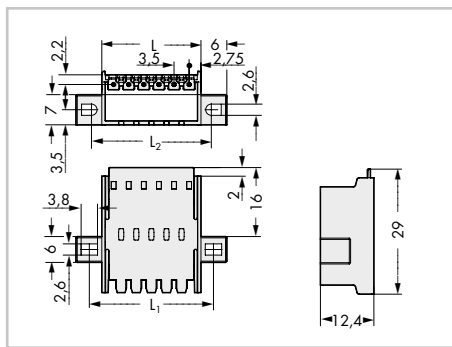
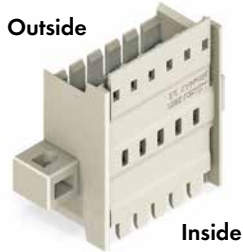
Page:

Operating tools	64
Coding pins	66
Test pin	64

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.

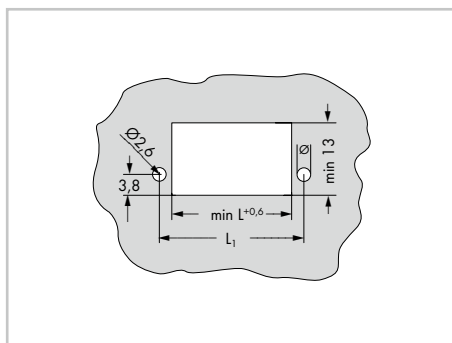
Panel Feedthrough Male Connectors with Fixing Flanges picoMAX® 3.5

Pin spacing: 3.5 mm / 0.138 in. 160 V/2.5 kV/2 10 A 300 V/10 A	Types of assembly with female connectors/headers	Applications
-----------------------------------------------------------------------------------	-------------------------------------------------------------	---------------------



$L = (\text{pole no.} \times \text{pin spacing}) + 2 \text{ mm}$
 $L_1 = (\text{pole no.} \times \text{pin spacing}) + 7.8 \text{ mm}$
 $L_2 = (\text{pole no.} \times \text{pin spacing}) + 6.8 \text{ mm}$

Pole No.	Item No.	Pack. Unit
Panel feedthrough male connector with fixing flanges, light gray		
2	2091-1632/024-000	100
4	2091-1634/024-000	100
6	2091-1636/024-000	50
8	2091-1638/024-000	50

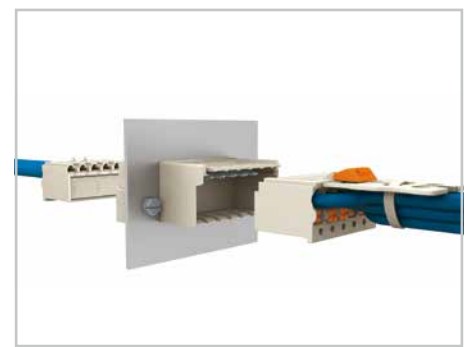


Cutout dimensions

Standard connector and gripping plate with sliding connector release

Outside

Inside



"Wire-to-wire" panel feedthrough connection
Notice: Male connectors shall not be live when disconnected!

Standard connector and gripping plate

Outside

Inside



"Wire-to-board" panel feedthrough connection

Standard connector

Outside

Inside

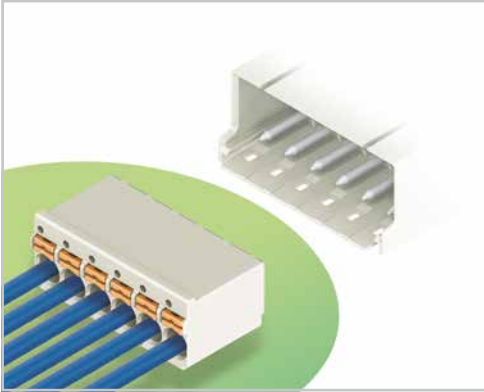
Header with straight or angled solder pins

Outside

Inside

Disconnection: Open locking latches via unlocking tool.

Standard Female Connectors picoMAX® 5.0



- Universal connection for all conductor types
- Simple, push-in termination of solid and ferruled conductors
- Ability to wire while mated or unmated
- Testing port parallel to conductor entry – tip contact
- Integrated locking latches prevent accidental disconnection

Technical data:

Pin Spacing	5 mm 0.197 in.		
Ratings per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

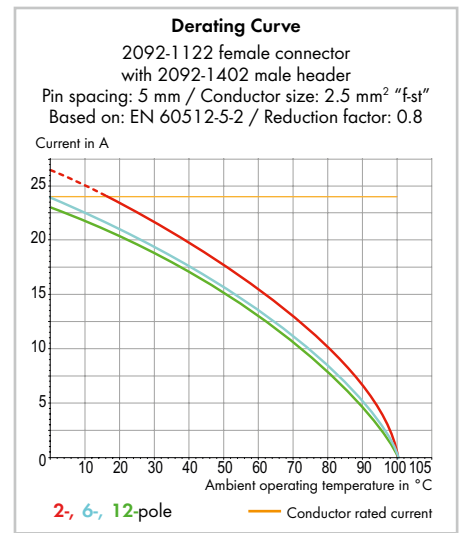
Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 ... 2.5 mm ²	
Conductor size: fine-stranded	0.2 ... 2.5 mm ²	
Conductor size: fine-stranded	0.25 ... 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 ... 2.5 mm ² (with uninsulated ferrule)	
AWG	24 ... 12	12: THHN, THWN
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.	

Material data:

Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.



For additional derating curves, see page 72.

Accessories for picoMAX®:

Page:

Operating tools	64
Direct printing	68
Gripping plates	65
Coding pins	66
Test pin	64

KEMA Quality

CERTIFICATE

Number: 2154310.01

Issued to:
Applicant:
Wago-Kontakttechnik GmbH
Hanselstraße 27
32423, Minden/Weesfelen, Germany

Manufacturer/ licensee:
Wago-Kontakttechnik GmbH
Hanselstraße 27
32423, Minden/Weesfelen, Germany

Product(s) : appliance connectors
Trade name(s) : WAGO
Type(s)/model(s) : 2091

The product and any acceptable variation thereto is specified in the Annex to this certificate and the documents therein referred to.

KEMA Quality hereby declares that the above-mentioned product has been certified on the basis of:
- a type test according to the standard EN 61984-2006,
- an inspection of the production location according to CENELEC Operational Document CIG 021
- a certification agreement with the number 990202

KEMA Quality hereby grants the right to use the KEMA-KEUR certification mark.

The KEMA-KEUR certification mark may be applied to the product as specified in the certificate for the duration of the KEMA-KEUR certification agreement and under the conditions of the KEMA-KEUR certification agreement.

This certificate is issued on: 8 April 2010 and expires upon withdrawal of one of the above mentioned standards.

KEMA Quality B.V.

Mr. G.J. Zwieltrod
Managing Director

F.S. Strikwerda
Certification Manager

ACCREDITED BY
THE DUTCH COUNCIL
FOR ACCREDITATION

© Integral publication of this certificate is allowed

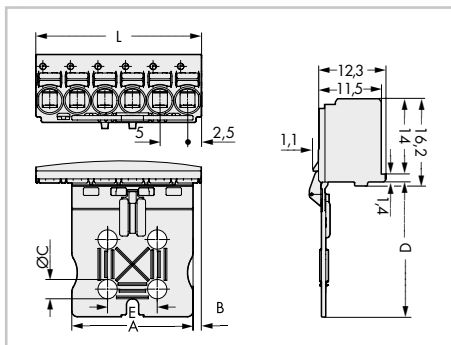
KEMA Quality B.V., Linthoutweg 310, 6812 AR Arnhem, P.O. Box 5185, 6802 ED Arnhem, The Netherlands
T +31 26 1 56 20 00 F +31 26 1 52 38 00 www.kemaquality.com Registered Arnhem 0906399

DEKRA company

Standard Female Connectors picoMAX® 5.0

PUSH-IN CAGE CLAMP®

<p>With gripping plate and sliding connector release Pin spacing: 5 mm / 0.197 in.</p> <p>0.2 ... 2.5 mm² | AWG 24 ... 12 320 V/4 kV/2 16 A | 300 V/15 A</p>	<p>Types of assembly with male headers/connectors</p>	
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------	--

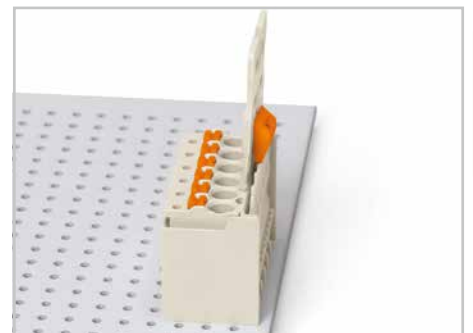
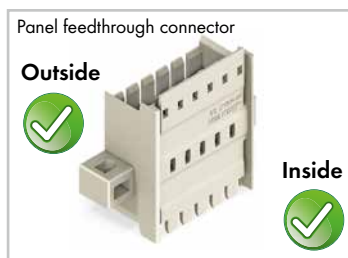


L = pole no. x pin spacing

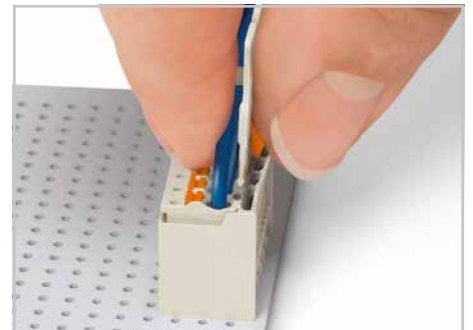
Pole No.	Item No.	Pack. Unit
Female connector with gripping plate and sliding connector release, light gray		
2	2092-1102/002-000	100
3	2092-1103/002-000	100
4	2092-1104/002-000	100
5	2092-1105/002-000	50
6	2092-1106/002-000	50
7	2092-1107/002-000	50
8	2092-1108/002-000	50
9	2092-1109/002-000	50
10	2092-1110/002-000	50
12	2092-1112/002-000	50

Gripping plate dimensions (in mm):

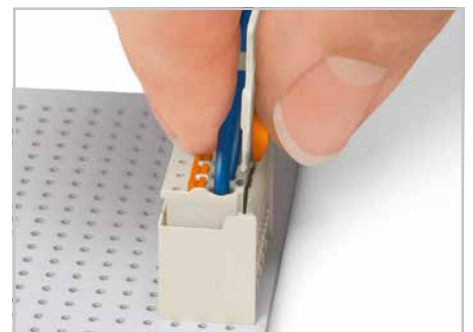
Pole No.	A	B	C	D	E
2	7	1,5	-	20	-
3	12	1,5	-	20	-
4	12	1,5	-	20	-
5	22	1,5	3,5	25	9
6	22	1,5	3,5	25	9
7	22	6,5	3,5	25	9
8	22	6,5	3,5	25	9
9	42	1,5	5,0	35	19
10	42	1,5	5,0	35	19
12	42	6,5	5,0	35	19



Male header mated to a female connector with gripping plate and sliding connector release.



Push down sliding connector release (gripping plate) to open the locking latch.

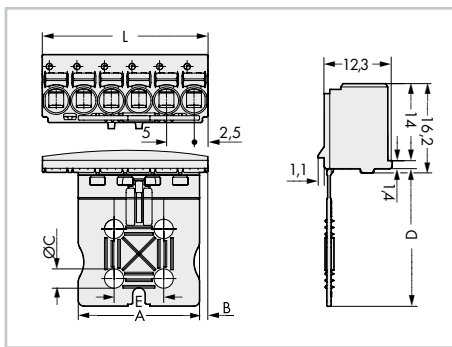


Pull out female connector with gripping plate from male header.

5.0

Standard Female Connectors picoMAX® 5.0

<p>With gripping plate Pin spacing: 5 mm / 0.197 in.</p>		<p>Types of assembly with male headers/connectors</p>
<p>0.2 ... 2.5 mm² 320 V/4 kV/2 16 A</p>	<p>AWG 24 ... 12 300 V/15 A</p>	

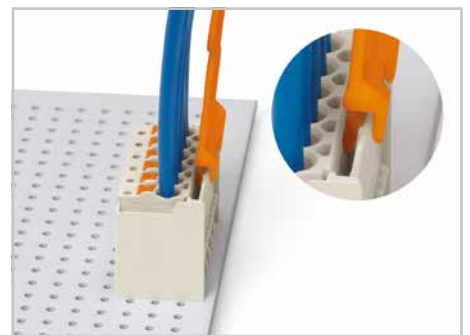
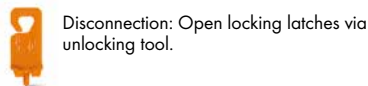
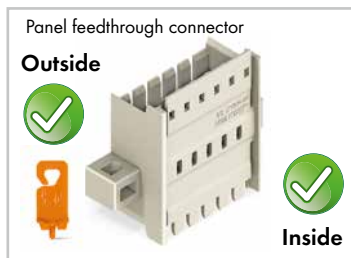


L = pole no. x pin spacing

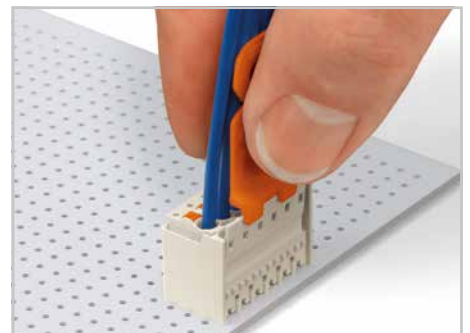
Pole No.	Item No.	Pack. Unit
Female connector with gripping plate, light gray		
2	2092-1102	100
3	2092-1103	100
4	2092-1104	100
5	2092-1105	50
6	2092-1106	50
7	2092-1107	50
8	2092-1108	50
9	2092-1109	50
10	2092-1110	50
12	2092-1112	50
Product Accessories		Page
Unlocking tool (2092-1630)		64

Gripping plate dimensions (in mm):

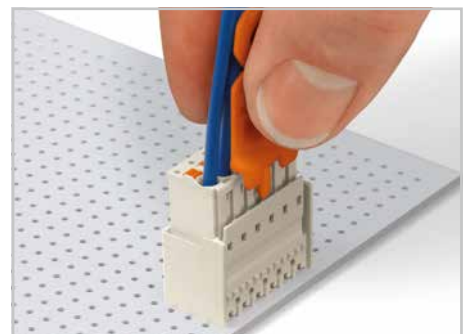
Pole No.	A	B	C	D	E
2	7	1,5	-	20	-
3	12	1,5	-	20	-
4	12	1,5	-	20	-
5	22	1,5	3,5	25	9
6	22	1,5	3,5	25	9
7	22	6,5	3,5	25	9
8	22	6,5	3,5	25	9
9	42	1,5	5	35	19
10	42	1,5	5,0	35	19
12	42	6,5	5,0	35	19



Disconnecting female connector via unlocking tool. Plug unlocking tool into the male header's locking latch.



Insert unlocking tool until it hits backstop. Wedge opens locking latch.

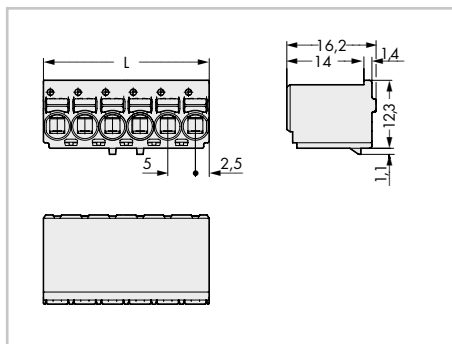


Pull on both unlocking tool and conductors to remove female connector from male header.

Standard Female Connectors picoMAX® 5.0

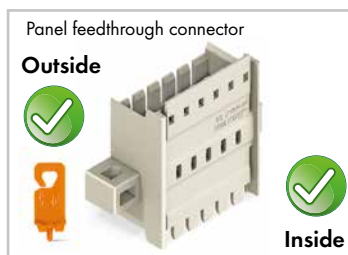
PUSH-IN CAGE CLAMP®

<p>Pin spacing 5 mm / 0.197 in.</p>		<p>Types of assembly with male headers/connectors</p>
<p>0.2 ... 2.5 mm² 320 V/4 kV/2 16 A</p>	<p>AWG 24 ... 12 300 V/15 A</p>	



L = pole no. x pin spacing

Pole No.	Item No.	Pack. Unit
Female connector, light gray		
2	2092-1122	200
3	2092-1123	200
4	2092-1124	200
5	2092-1125	200
6	2092-1126	100
7	2092-1127	100
8	2092-1128	100
9	2092-1129	100
10	2092-1130	100
12	2092-1132	100
Product Accessories		Page
Unlocking tool (2092-1630)		64



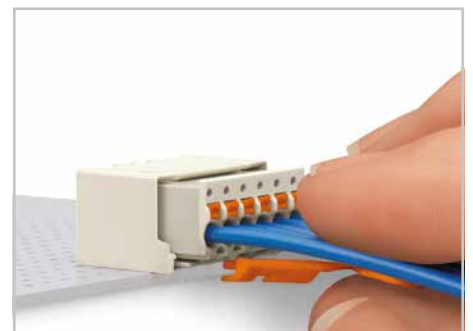
Disconnection: Open locking latches via unlocking tool.



Disconnecting female connector via unlocking tool. Plug unlocking tool into the male header's locking latch.



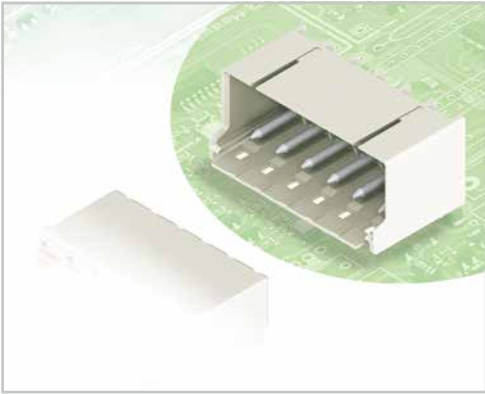
Insert unlocking tool until it hits backstop. Wedge opens locking latch.



Pull on both unlocking tool and conductors to remove female connector from male header.

5.0

Male Headers with Solder Pins picoMAX® 5.0



- Horizontal or vertical PCB mounting via straight or angled solder pins
- Assembly of female connectors without loss of poles, allowing different functions to be divided within one male header
- Coding pins inserted into the header interface prevent mismating, allowing subsequent coding in panel feedthrough applications
- Female connector is almost fully shrouded by the male header, providing vibration-resistance up to 20 g*

Technical data:

Pin Spacing	5 mm 0.197 in.		
Ratings per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

Solder pin data for THT (wave soldering):

Solder pin: length/width	3.6 mm / 1.4 mm Ø
Solder pin: drilled hole diameter	1.6 ^{+0.1} mm

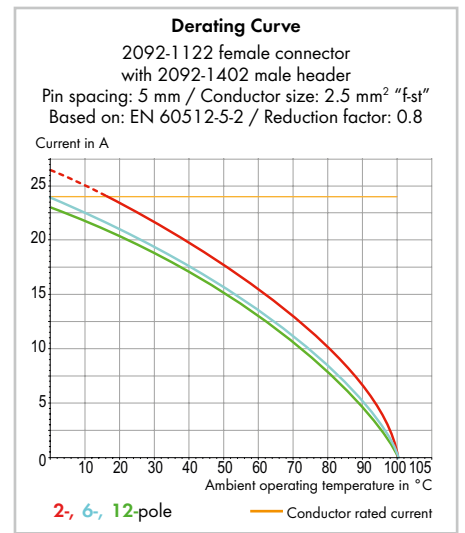
Solder pin data for THR (reflow soldering):**

Solder pin: length/width	2.4 mm / 1.4 mm Ø
Solder pin: metal-plated hole	1.6 ^{+0.1} mm Ø

Material data:

Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.



For additional derating curves, see page 72.

Accessories for picoMAX®:

Page:

Coding pins	66
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KEMA Quality
CERTIFICATE

Number: 2154310.01
Issued to:
Applicant:
Wago-Kontakttechnik GmbH
Hanselstraße 27
32423, Minden/Weestfalen, Germany
Manufacturer/ licensee:
Wago-Kontakttechnik GmbH
Hanselstraße 27
32423, Minden/Weestfalen, Germany
Product(s): appliance connectors
Trade name(s): WAGO
Type(s)/model(s): 2091

The product and any acceptable variation thereto is specified in the Annex to this certificate and the documents therein referred to.

KEMA Quality hereby declares that the above-mentioned product has been certified on the basis of:
- a type test according to the standard EN 61984-2006,
- an inspection of the production location according to CENELEC Operational Document CIG 021
- a certification agreement with the number 990202

KEMA Quality hereby grants the right to use the KEMA-KEUR certification mark.

The KEMA-KEUR certification mark may be applied to the product as specified in the certificate for the duration of the KEMA-KEUR certification agreement and under the conditions of the KEMA-KEUR certification agreement.

This certificate is issued on: 8 April 2010 and expires upon withdrawal of one of the above mentioned standards.
KEMA Quality B.V.

Mr. G.J. Zelfbrood
Managing Director
F.S. Srikewita
Certification Manager
ACCREDITED BY
THE DUTCH COUNCIL
FOR ACCREDITATION

© Integral publication of this certificate is allowed

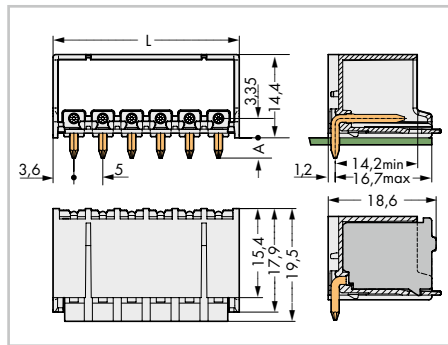
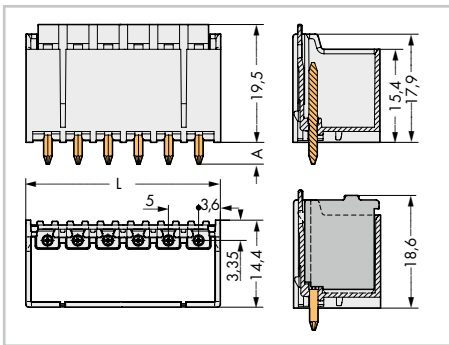
KEMA Quality B.V., Lindehofweg 310, 6812 AR Arnhem, P.O. Box 5185, 6802 ED Arnhem, The Netherlands
T +31 26 3 16 20 00 F +31 26 3 50 38 00 www.kemaquality.com Registered Arnhem 9906399

DEKRA company

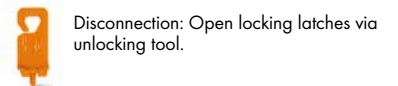
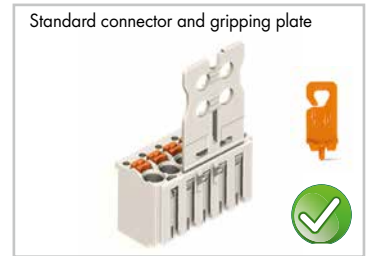
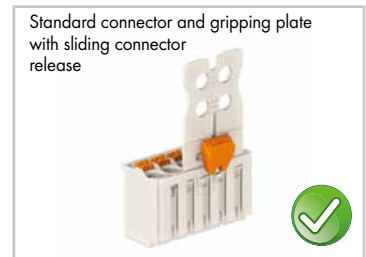
Male Headers with Solder Pins

picoMAX® 5.0

With straight solder pins Pin spacing: 5 mm / 0.197 in.		With angled solder pins Pin spacing: 5 mm / 0.197 in.		Types of assembly with female connectors
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A	



L = (pole no. x pin spacing) + 2.2 mm
 A = 3.6 mm (THT solder pin)
 A = 2.4 mm (THR solder pin)



Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins, light gray			Male header with angled solder pins, light gray		
2	2092-1402	200	2	2092-1422	200
3	2092-1403	200	3	2092-1423	200
4	2092-1404	200	4	2092-1424	200
5	2092-1405	200	5	2092-1425	200
6	2092-1406	100	6	2092-1426	100
7	2092-1407	100	7	2092-1427	100
8	2092-1408	100	8	2092-1428	100
9	2092-1409	100	9	2092-1429	100
10	2092-1410	100	10	2092-1430	100
12	2092-1412	100	12	2092-1432	100

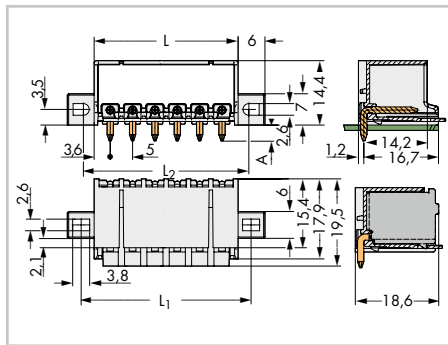
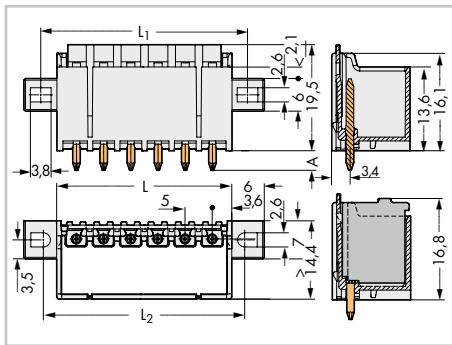
Item no. suffix for colored THR version:

○ light gray	...../200-000	Ordering example:
THR male headers with solder pins in tape-and-reel packaging available upon request		THR male header with straight solder pins, 5 mm pin spacing, 8-pole, light gray: 2092-1408/200-000



Male Headers with Solder Pins and Fixing Flanges picoMAX® 5.0

With straight solder pins and fixing flanges Pin spacing: 5 mm / 0.197 in.		With angled solder pins and fixing flanges Pin spacing: 5 mm / 0.197 in.		Types of assembly with female connectors
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A	



$L = (\text{pole no.} \times \text{pin spacing}) + 2.2 \text{ mm}$
 $L_1 = (\text{pole no.} \times \text{pin spacing}) + 8 \text{ mm}$
 $L_2 = (\text{pole no.} \times \text{pin spacing}) + 7 \text{ mm}$
 $A = 3.6 \text{ mm (THT solder pin)}$
 $A = 2.4 \text{ mm (THR solder pin)}$

Standard connector and gripping plate with sliding connector release

Standard connector and gripping plate

Standard connector

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins and fixing flanges, light gray			Male header with angled solder pins and fixing flanges, light gray		
2	2092-1402/005-000	200	2	2092-1422/005-000	200
3	2092-1403/005-000	200	3	2092-1423/005-000	200
4	2092-1404/005-000	200	4	2092-1424/005-000	200
5	2092-1405/005-000	200	5	2092-1425/005-000	200

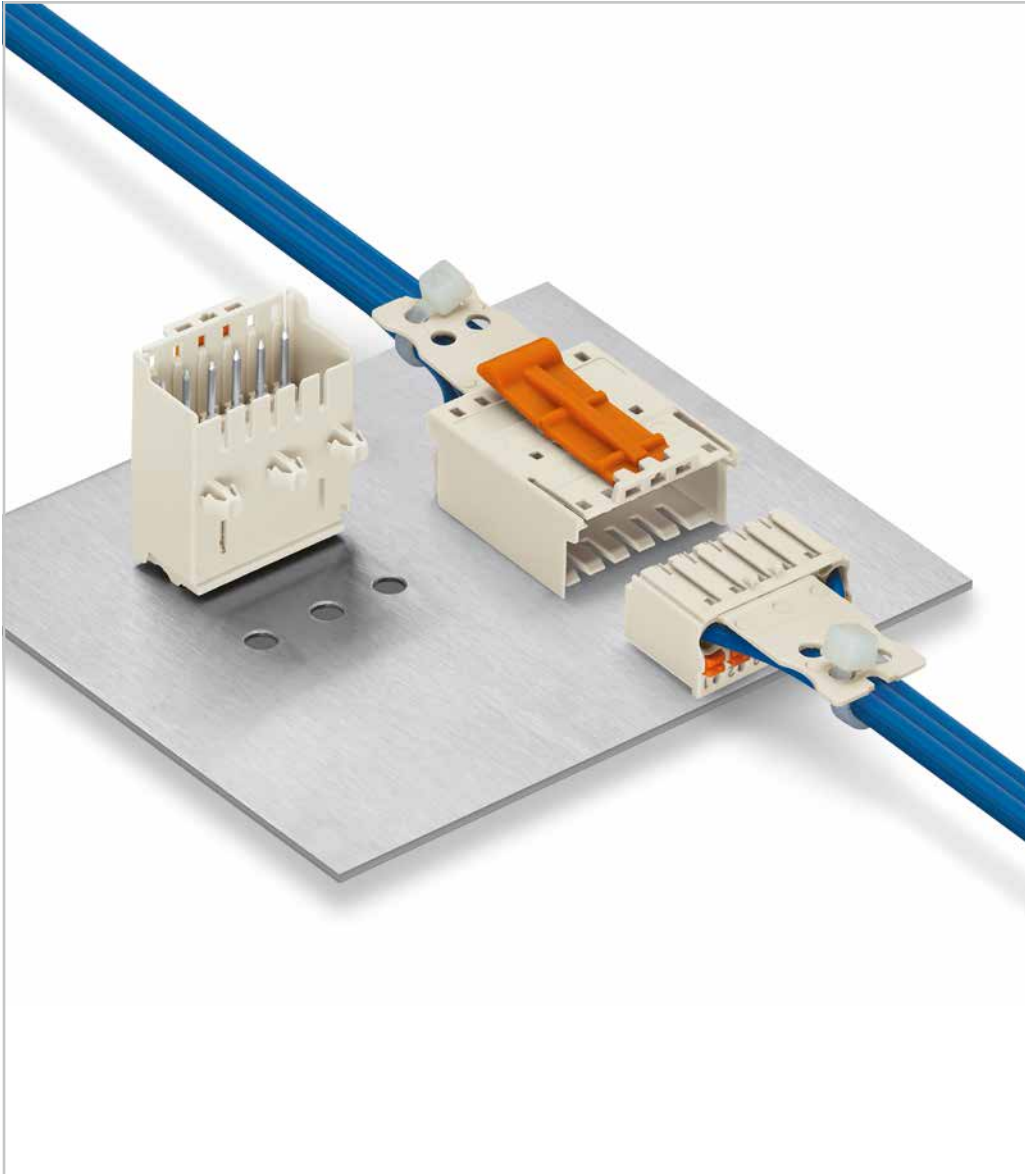
Item no. suffix for colored THR version:

○ light gray /205-000

THR male headers with solder pins in tape-and-reel packaging available upon request

Ordering example:
 THR male header with straight solder pins and fixing flanges, 5 mm pin spacing, 5-pole, light gray: **2092-1405/205-000**

Disconnection: Open locking latches via unlocking tool.



Standard Male Connectors

picoMAX® 5.0

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- Universal connection for all conductor types
- Simple, push-in termination of solid and ferruled conductors
- Easy-to-use design does not require specialty tools
- Testing port parallel to conductor entry – tip contact
- For “wire-to-wire” and “board-to-wire” connections
- Integrated release lever
- Also available with gripping plates

Technical data:

Pin Spacing	5 mm 0.197 in.		
Ratings per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

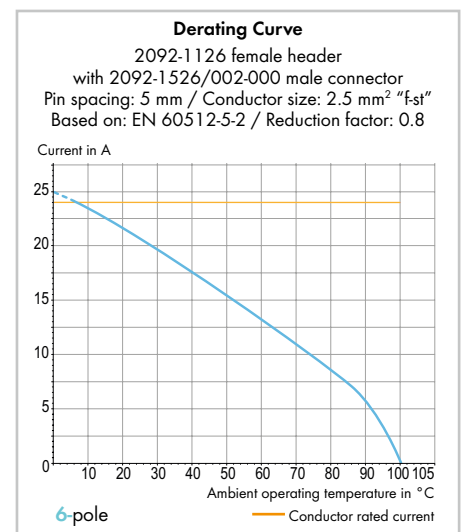
Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 ... 2.5 mm ²	
Conductor size: fine-stranded	0.2 ... 2.5 mm ²	
Conductor size: fine-stranded	0.25 ... 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 ... 2.5 mm ² (with uninsulated ferrule)	
AWG	24 ... 12	12: THHN, THWN
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.	

Material data:

Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.



For additional derating curves, see page 72.

Accessories for picoMAX®:

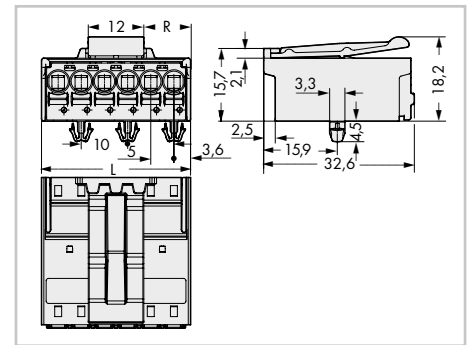
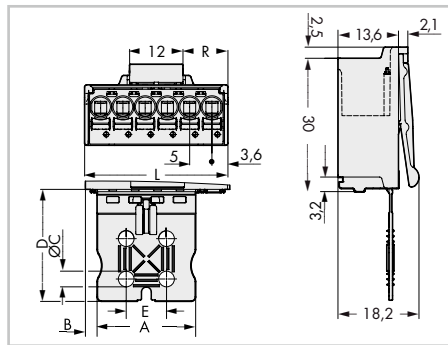
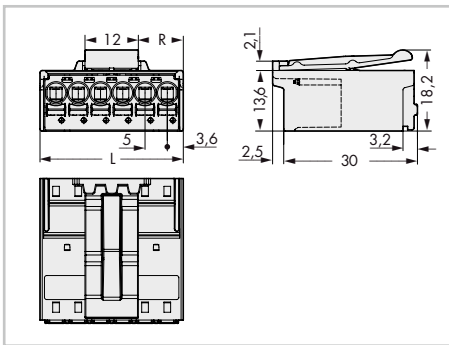
Page:

Gripping plates	65
Coding pins	66
Test pin	64

Standard Male Connectors picoMAX® 5.0

PUSH-IN CAGE CLAMP®

Pin spacing: 5 mm / 0.197 in.		With gripping plate Pin spacing: 5 mm / 0.197 in.		With snap-in mounting feet Pin spacing: 5 mm / 0.197 in.	
0.2 ... 2.5 mm ²	AWG 24 ... 12	0.2 ... 2.5 mm ²	AWG 24 ... 12	0.2 ... 2.5 mm ²	AWG 24 ... 12
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A



L = (pole no. x pin spacing) + 2.2 mm
 Even pole number R = (L - 12 mm) : 2
 Odd pole number R = (L - 17 mm) : 2

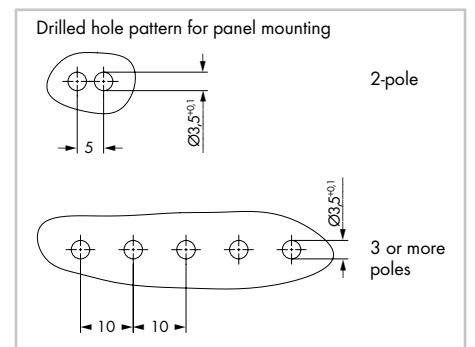
5.0

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male connector, light gray			Male connector with gripping plate, light gray			Male connector with snap-in mounting feet, for 0.6 ... 1.2 mm plate thickness, light gray		
2	2092-1522/002-000	200	2	2092-1502/002-000	100	2	2092-1522/020-000	200
3	2092-1523/002-000	100	3	2092-1503/002-000	100	3	2092-1523/020-000	100
4	2092-1524/002-000	100	4	2092-1504/002-000	50	4	2092-1524/020-000	100
5	2092-1525/002-000	100	5	2092-1505/002-000	50	5	2092-1525/020-000	100
6	2092-1526/002-000	100	6	2092-1506/002-000	50	6	2092-1526/020-000	50

Product Accessories	Page
Mounting adapter for DIN 35 rail, 3 or more poles (209-189)	66

Gripping plate dimensions (in mm):

Pole No.	A	B	C	D	E
2	7	2.6	-	20	-
3	12	2.6	-	20	-
4	12	2.6	-	20	-
5	22	2.6	3.5	25	9
6	22	2.6	3.5	25	9

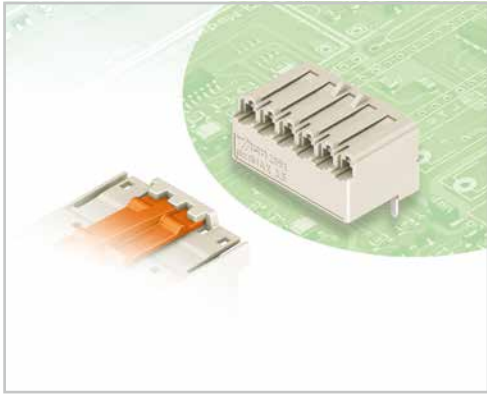


Standard male connectors can be combined with any female connectors/headers.



Female Headers with Solder Pins

picoMAX® 5.0



- Horizontal or vertical PCB mounting via straight or angled solder pins
- Touch-proof PCB outputs
- Easy-to-identify PCB inputs and outputs
- Coding pins available

Technical data:

Pin Spacing	5 mm 0.197 in.		
Ratings per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

Solder pin data for THT (wave soldering):

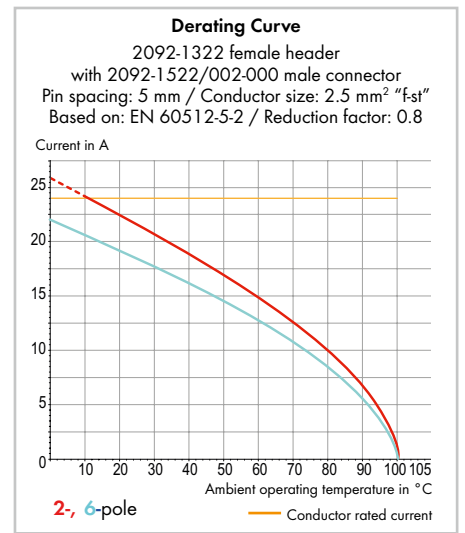
Solder pin: length/width	3.6 mm / 0.4 x 1.3 mm
Solder pin: drilled hole diameter	1.5 ^{+0.1} mm

Solder pin data for THR* (reflow soldering):

Solder pin: length/width	2.4 mm / 0.4 x 1.3 mm
Solder pin: metal-plated hole	1.5 ^{+0.1} mm Ø

Material data:

Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Contact material	Copper alloy
Contact plating	tin-plated



For additional derating curves, see page 72.

Accessories for picoMAX®:

Page:

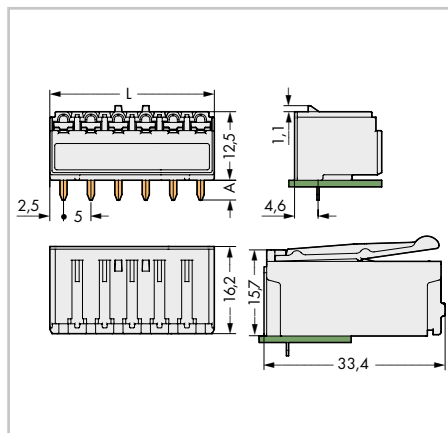
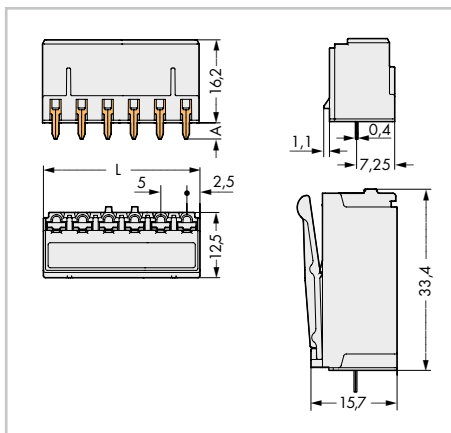
Coding pins	66

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.

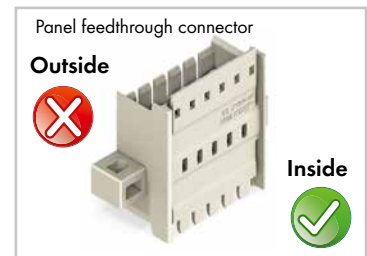
Female Headers with Solder Pins

picoMAX® 5.0

With straight solder pins Pin spacing: 5 mm / 0.197 in.		With angled solder pins Pin spacing: 5 mm / 0.197 in.		Types of assembly with male connectors
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A	



L = pole no. x pin spacing
 A = 3.6 mm (THT solder pin)
 A = 2.4 mm (THR solder pin)



Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins, light gray			Female header with angled solder pins, light gray		
2	2092-1302	200	2	2092-1322	200
3	2092-1303	200	3	2092-1323	200
4	2092-1304	200	4	2092-1324	200
5	2092-1305	100	5	2092-1325	100
6	2092-1306	100	6	2092-1326	100

Item no. suffix for colored THR version:

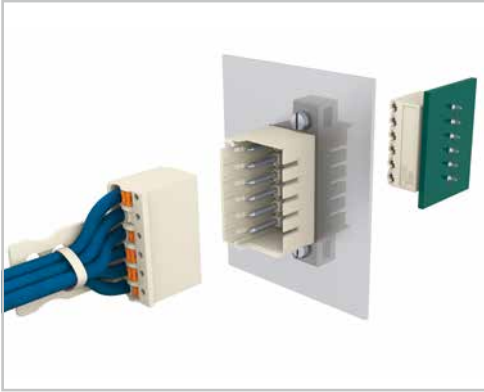
<input type="radio"/> light gray	...../200-000	Ordering example:
THR female headers with solder pins in tape-and-reel packaging available upon request		THR female header with straight solder pins, 5 mm pin spacing, 8-pole, light gray:
		2092-1308/200-000

5.0

Panel Feedthrough Male Connectors with Fixing Flanges

picoMAX® 5.0

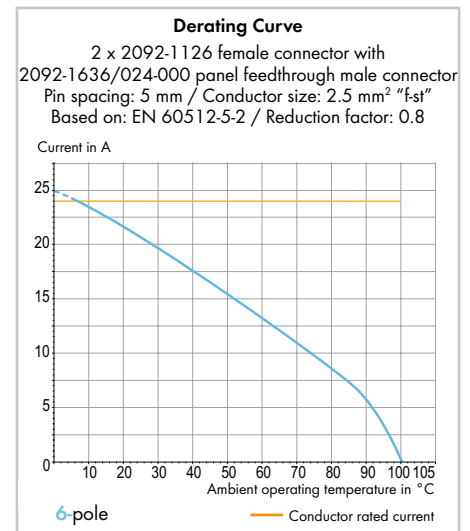
40



- Male connectors for screw mounting in device or enclosure panels
- External plug-in connection to standard female connector via integrated locking latches
- Internal plug-in connection to female header with solder pins or standard female connector
- Fixing flanges also suitable for panel mounting

Technical data:

Pin Spacing	5 mm 0.197 in.		
Ratings per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A



For additional derating curves, see page 72.

Material data:

Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

Accessories for picoMAX®:

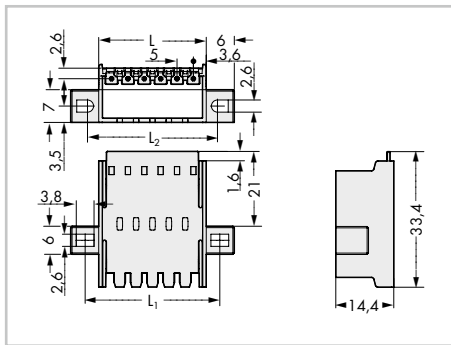
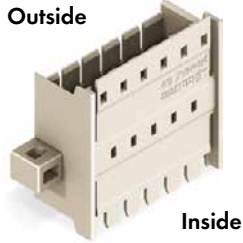
Page:

Operating tools	64
Coding pins	66
Test pin	64

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.

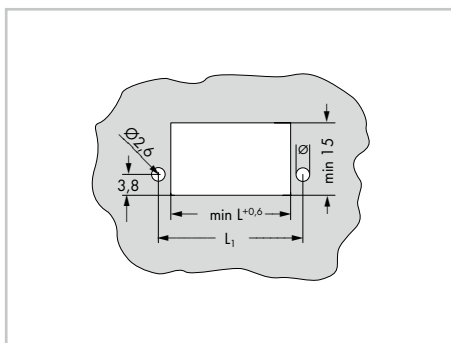
Panel Feedthrough Male Connectors with Fixing Flanges picoMAX® 5.0

Pin spacing: 5 mm / 0.197 in.		Types of assembly with female connectors/headers	Applications
320 V/4 kV/2 16 A	300 V/15 A		



$L = (\text{pole no.} \times \text{pin spacing}) + 2.2 \text{ mm}$
 $L_1 = (\text{pole no.} \times \text{pin spacing}) + 8 \text{ mm}$
 $L_2 = (\text{pole no.} \times \text{pin spacing}) + 7 \text{ mm}$

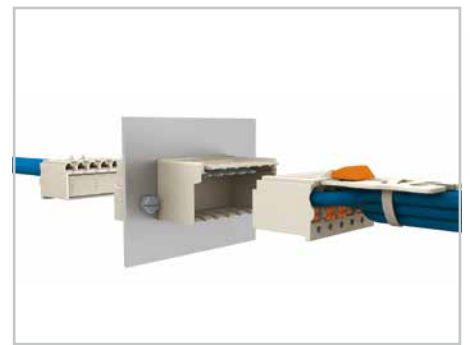
Pole No.	Item No.	Pack. Unit
Panel feedthrough male connector with fixing flanges, light gray		
2	2092-1632/024-000	100
3	2092-1633/024-000	100
4	2092-1634/024-000	50
5	2092-1635/024-000	50
6	2092-1636/024-000	50



Cutout dimensions

Standard connector and gripping plate with sliding connector release

Outside **Inside**



"Wire-to-wire" panel feedthrough connection
 Notice: Male connectors shall not be live when disconnected!

Standard connector and gripping plate

Outside **Inside**



"Wire-to-board" panel feedthrough connection

Standard connector

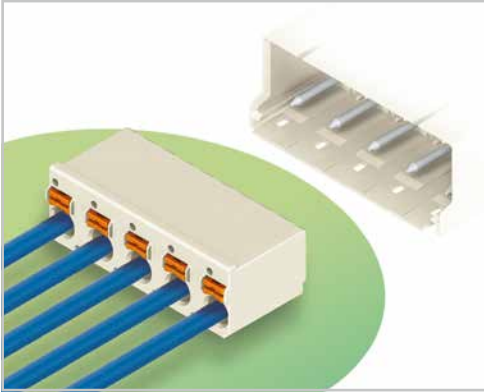
Outside **Inside**

Header with straight or angled solder pins

Outside **Inside**

Disconnection: Open locking latches via unlocking tool.

Standard Female Connectors picoMAX® 7.5



- Universal connection for all conductor types
- Simple, push-in termination of solid and ferruled conductors
- Ability to wire while mated or unmated
- Testing port parallel to conductor entry – tip contact
- Integrated locking latches prevent accidental disconnection

Technical data:

Pin Spacing	7.5 mm 0.295 in		
Ratings per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	400 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

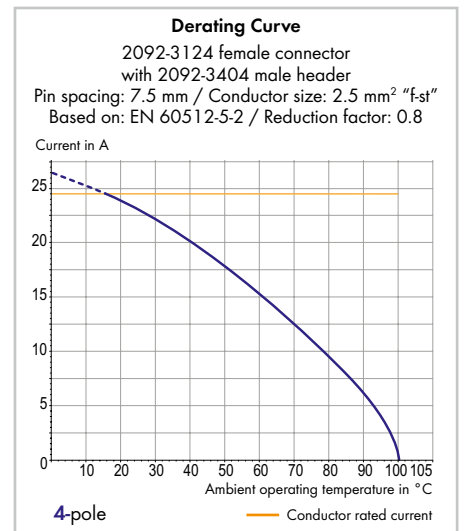
Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 ... 2.5 mm ²	
Conductor size: fine-stranded	0.2 ... 2.5 mm ²	
Conductor size: fine-stranded	0.25 ... 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 ... 2.5 mm ² (with uninsulated ferrule)	
AWG	24 ... 12	12: THHN, THWN
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.	

Material data:

Material group	I
Insulation material/Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.



For additional derating curves, see page 73.

Accessories for picoMAX®:

Page:

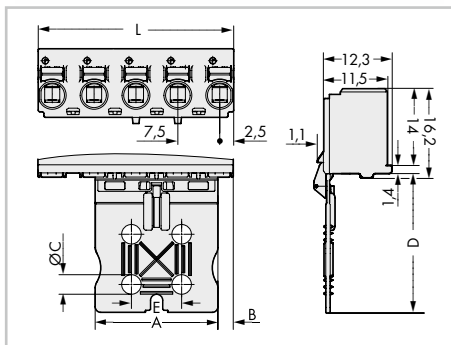
Operating tools	64
Direct printing	68
Gripping plates	65
Coding pins	66
Test pin	64



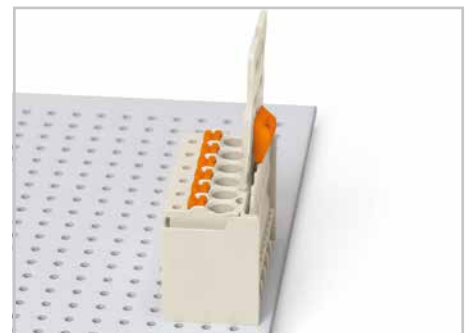
Standard Female Connectors picoMAX® 7.5

PUSH-IN CAGE CLAMP®

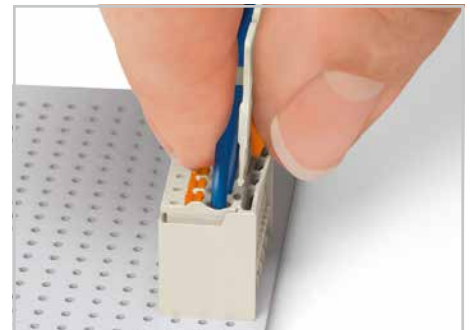
With gripping plate and sliding connector release Pin spacing: 7.5 mm / 0.295 in. 0.2 ... 2.5 mm ² | AWG 24 ... 12 630 V/6 kV/2 16 A | 300 V/15 A		Types of assembly with male headers/connectors
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	-------------------------------------------------------



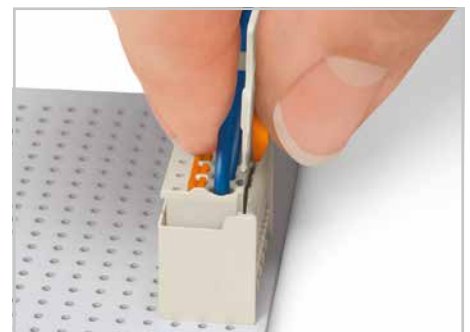
$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$



Male header mated to a female connector with gripping plate and sliding connector release.



Push down sliding connector release (gripping plate) to open the locking latch.



Pull out female connector with gripping plate from male header.

Pole No.	Item No.	Pack. Unit
Female connector with gripping plate and sliding connector release, light gray		
2	2092-3102/002-000	100
3	2092-3103/002-000	100
4	2092-3104/002-000	100
5	2092-3105/002-000	100

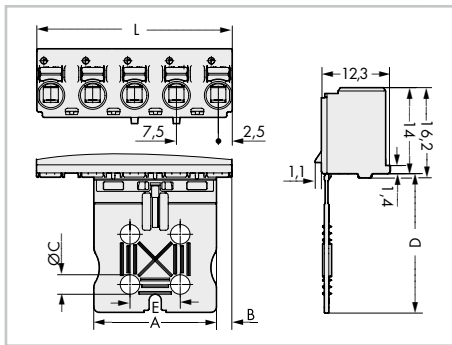
Gripping plate dimensions (in mm):

Pole No.	A	B	C	D	E
2	7	2.75	-	20	-
3	12	4	-	20	-
4 ... 5	22	2.75	3.5	25	9

7.5

Standard Female Connectors picoMAX® 7.5

<p>With gripping plate Pin spacing: 7.5 mm / 0.295 in.</p>		<p>Types of assembly with male headers/connectors</p>
<p>0.2 ... 2.5 mm² 630 V/6 kV/2 16 A</p>	<p>AWG 24 ... 12 300 V/15 A</p>	

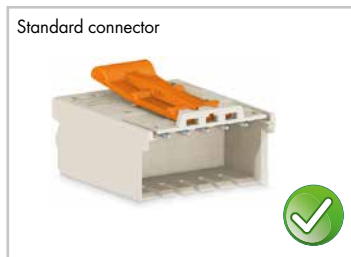


$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$

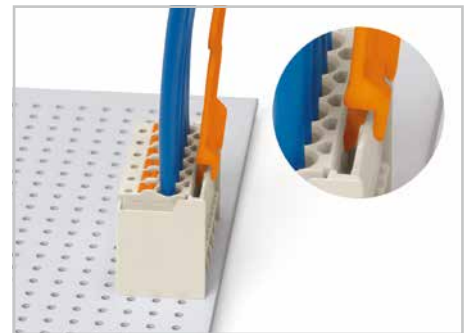
Pole No.	Item No.	Pack. Unit
Female connector with gripping plate, light gray		
2	2092-3102	100
3	2092-3103	100
4	2092-3104	100
5	2092-3105	100
Product Accessories		
Unlocking tool (2092-1630)		64

Gripping plate dimensions (in mm):

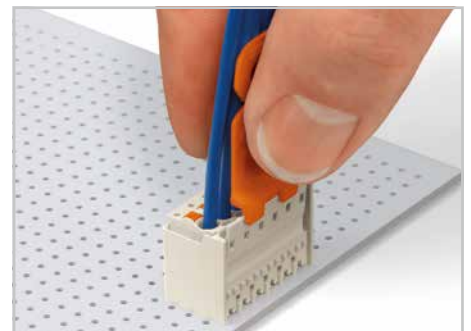
Pole No.	A	B	C	D	E
2	7	2.75	-	20	-
3	12	4	-	20	-
4 ... 5	22	2.75	3.5	25	9



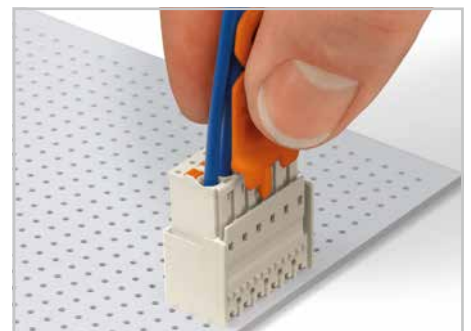
Disconnection: Open locking latches via unlocking tool.



Disconnecting female connector via unlocking tool. Plug unlocking tool into the male header's locking latch.



Insert unlocking tool until it hits backstop. Wedge opens locking latch.

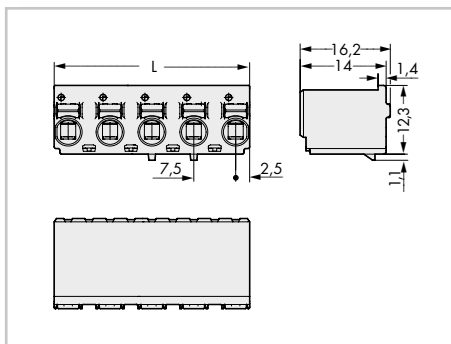


Pull on both unlocking tool and conductors to remove female connector from male header.

Standard Female Connectors picoMAX® 7.5

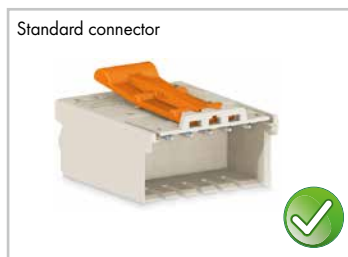
PUSH-IN CAGE CLAMP®


<p>Pin spacing: 7.5 mm / 0.295 in.</p>		<p>Types of assembly with male headers/connectors</p>
<p>0.2 ... 2.5 mm² 630 V/6 kV/2 16 A</p>	<p>AWG 24 ... 12 300 V/15 A</p>	



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$

Pole No.	Item No.	Pack. Unit
Female connector, light gray		
2	2092-3122	100
3	2092-3123	100
4	2092-3124	100
5	2092-3125	100
Product Accessories		
Unlocking tool (2092-1630)		64



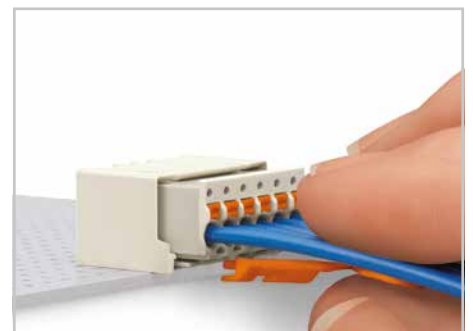
 Disconnection: Open locking latches via unlocking tool.



Disconnecting female connector via unlocking tool. Plug unlocking tool into the male header's locking latch.



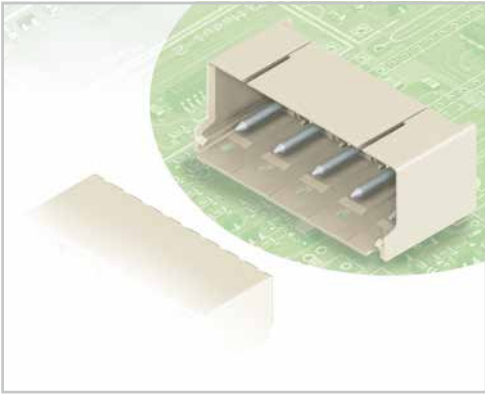
Insert unlocking tool until it hits backstop. Wedge opens locking latch.



Pull on both unlocking tool and conductors to remove female connector from male header.

7.5

Male Headers with Solder Pins picoMAX® 7.5



- Horizontal or vertical PCB mounting via straight or angled solder pins
- Assembly of female connectors without loss of poles, allowing different functions to be divided within one male header
- Coding pins inserted into the header interface prevent mismating, allowing subsequent coding in panel feedthrough applications
- Female connector is almost fully shrouded by the male header, providing vibration-resistance up to 20 g*

Technical data:

Pin Spacing	7.5 mm 0.295 in.		
Ratings per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	400 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

Solder pin data for THT (wave soldering):

Solder pin: length/width	3.6 mm / 1.4 mm Ø
Solder pin: drilled hole diameter	1.6 ^{+0.1} mm

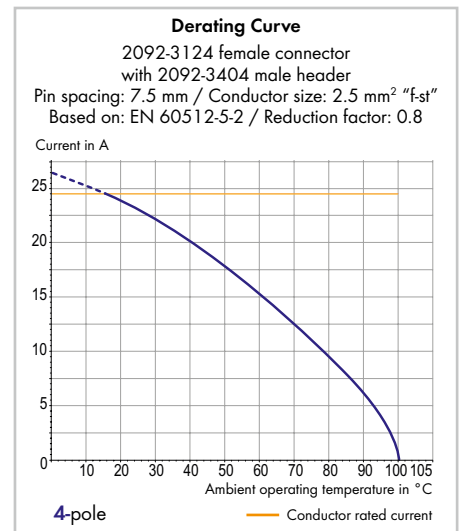
Solder pin data for THR (reflow soldering):**

Solder pin: length/width	2.4 mm / 1.4 mm Ø
Solder pin: metal-plated hole	1.6 ^{+0.1} mm Ø

Material data:

Material group	I
Insulation material/Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.



For additional derating curves, see page 73.

Accessories for picoMAX®:

Page:

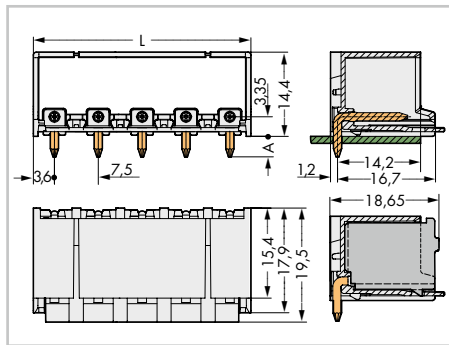
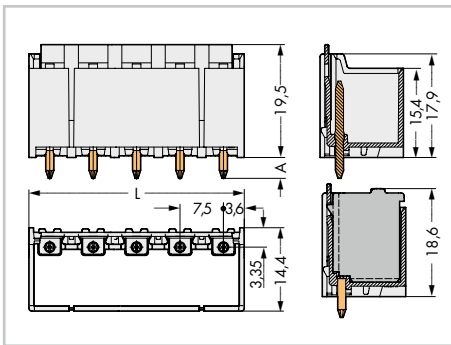
Coding pins	66
-------------	----



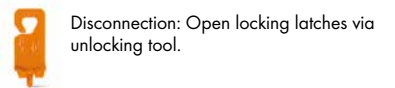
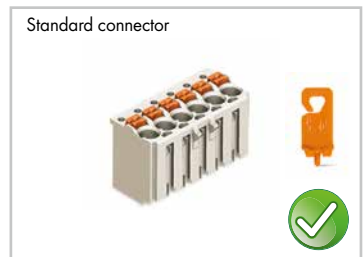
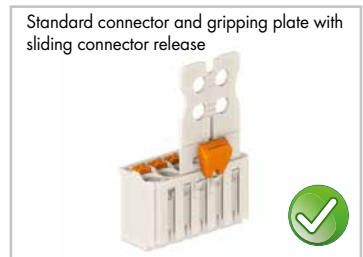
Male Headers with Solder Pins

picoMAX® 7.5

With straight solder pins Pin spacing: 7.5 mm / 0.295 in.		With angled solder pins Pin spacing: 7.5 mm / 0.295 in.		Types of assembly with female connectors
630 V/6 kV/2 16 A	300 V/15 A	630 V/6 kV/2 16 A	300 V/15 A	



L = (pole no. - 1) x pin spacing + 7.2 mm
 A = 3.6 mm (THT solder pin)
 A = 2.4 mm (THR solder pin)



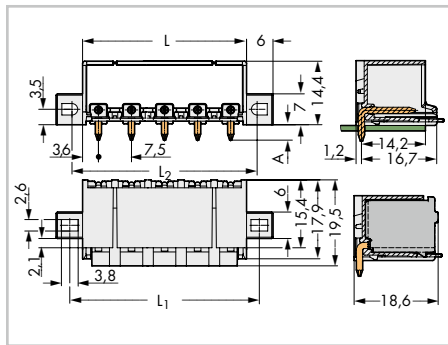
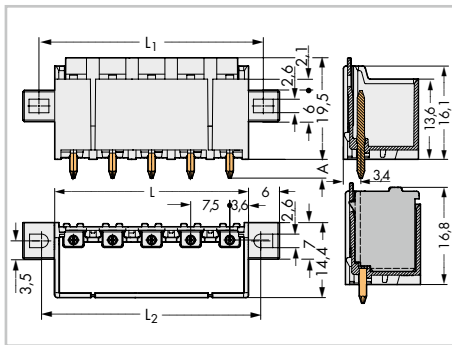
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins, light gray			Male header with angled solder pins, light gray		
2	2092-3402	100	2	2092-3422	100
3	2092-3403	100	3	2092-3423	100
4	2092-3404	100	4	2092-3424	100
5	2092-3405	100	5	2092-3425	100

Item no. suffix for colored THR version:

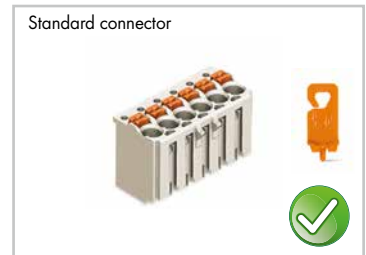
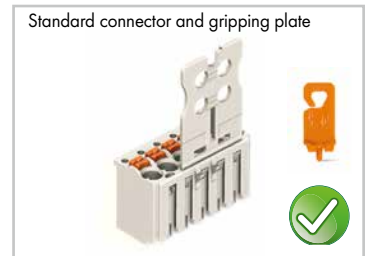
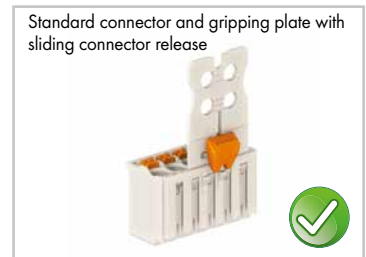
○ light gray	...../200-000	Ordering example:
THR male headers with solder pins in tape-and-reel packaging available upon request		THR male header with straight solder pins, 7.5 mm pin spacing, 8-pole, light gray: 2092-3408/200-000

Male Headers with Solder Pins and Fixing Flanges picoMAX® 7.5

With straight solder pins and fixing flanges Pin spacing: 7.5 mm / 0.295 in.		With angled solder pins and fixing flanges Pin spacing: 7.5 mm / 0.295 in.		Types of assembly with female connectors
630 V/6 kV/2 16 A	300 V/15 A	630 V/6 kV/2 16 A	300 V/15 A	



$L = (\text{pole no.} - 1) \times \text{pin spacing} + 7.2 \text{ mm}$
 $L_1 = (\text{pole no.} \times \text{pin spacing}) + 5.5 \text{ mm}$
 $L_2 = (\text{pole no.} \times \text{pin spacing}) + 4.5 \text{ mm}$
 $A = 3.6 \text{ mm (THT solder pin)}$
 $A = 2.4 \text{ mm (THR solder pin)}$



Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins and fixing flanges, light gray			Male header with angled solder pins and fixing flanges, light gray		
2	2092-3402/005-000	100	2	2092-3422/005-000	100
3	2092-3403/005-000	100	3	2092-3423/005-000	100
4	2092-3404/005-000	100	4	2092-3424/005-000	100
5	2092-3405/005-000	100	5	2092-3425/005-000	100

Item no. suffix for colored THR version:

○ light gray -..../205-000

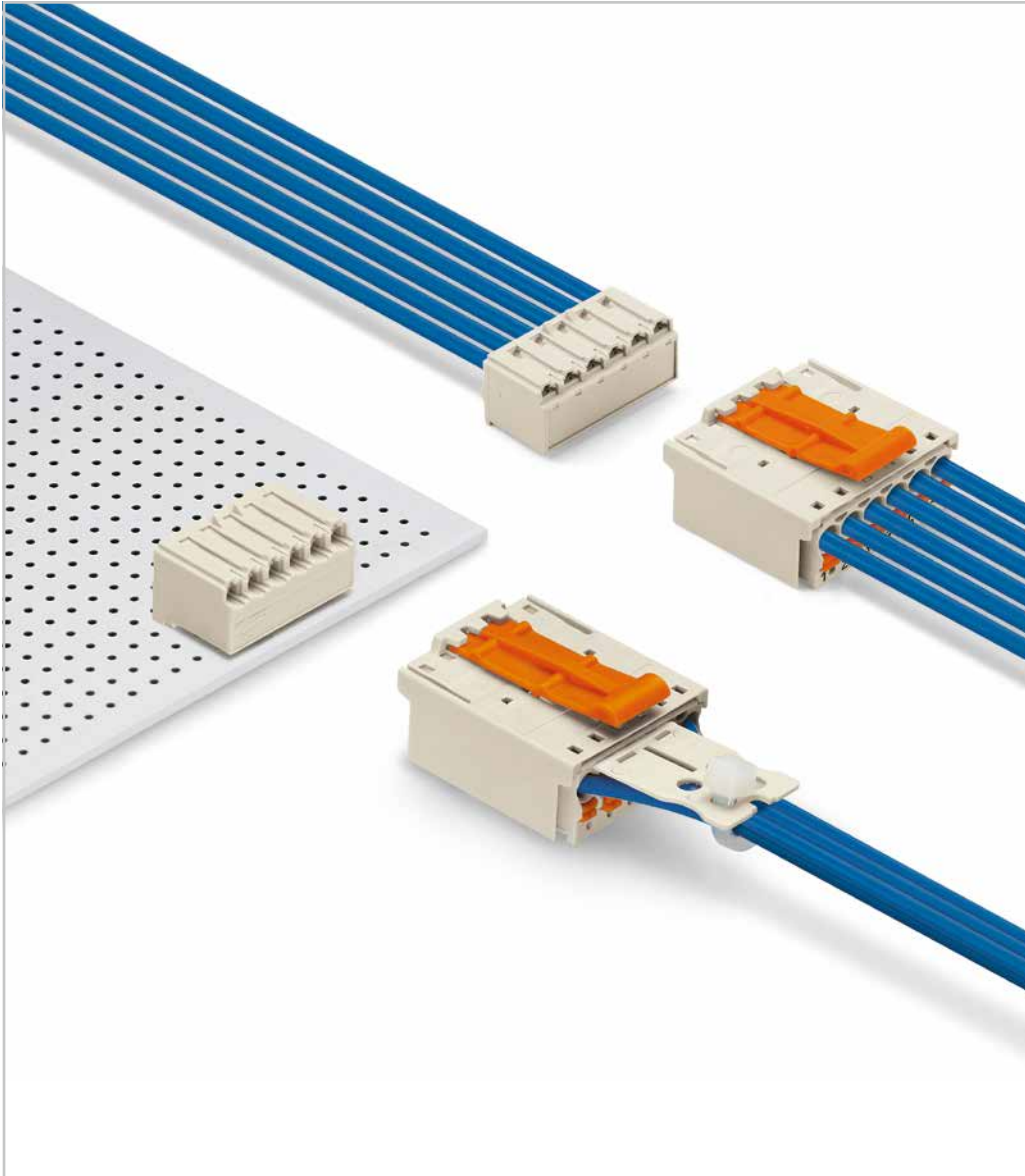
THR male headers with solder pins in tape-and-reel packaging available upon request

Ordering example:

THR male header with straight solder pins and fixing flanges, 7.5 mm pin spacing, 5-pole, light gray: **2092-3405/205-000**



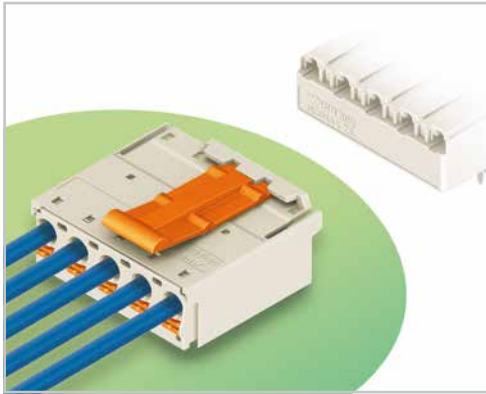
Disconnection: Open locking latches via unlocking tool.



Standard Male Connectors

picoMAX® 7.5

50



- Universal connection for all conductor types
- Simple, push-in termination of solid and ferruled conductors
- Easy-to-use design does not require specialty tools
- Testing port parallel to conductor entry – tip contact
- For “wire-to-wire” and “board-to-wire” connections
- Integrated release lever
- Also available with gripping plates

Technical data:

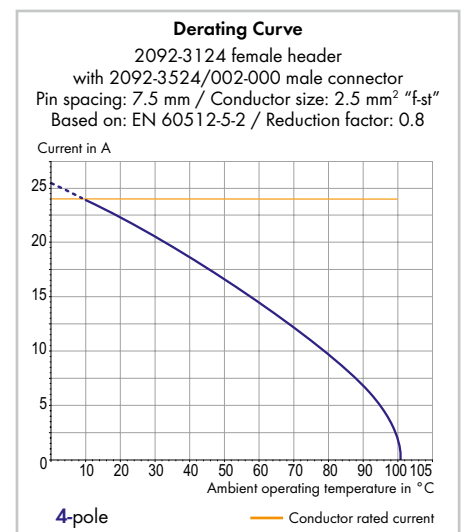
Pin Spacing	7.5 mm 0.295 in.		
Ratings per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	400 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 ... 2.5 mm ²	
Conductor size: fine-stranded	0.2 ... 2.5 mm ²	
Conductor size: fine-stranded	0.25 ... 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 ... 2.5 mm ² (with uninsulated ferrule)	
AWG	24 ... 12	12: THHN, THWN
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.	

Material data:

Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{cu})
Contact plating	tin-plated



For additional derating curves, see page 73.

Accessories for picoMAX®:

Page:

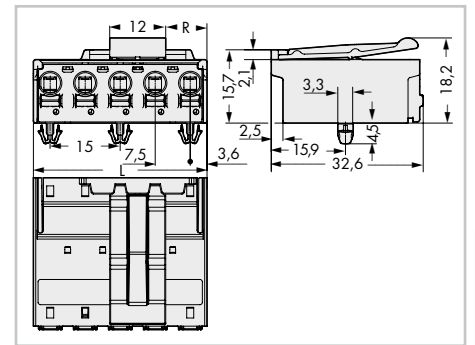
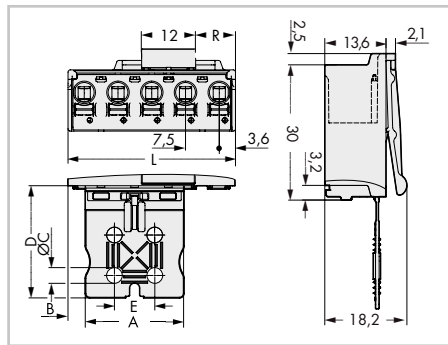
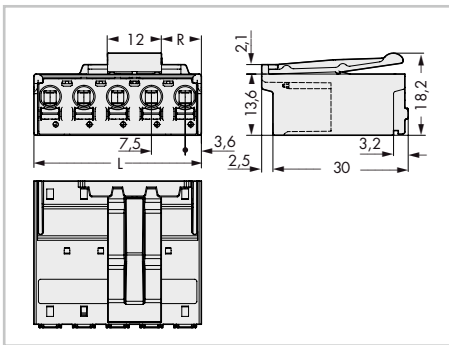
Gripping plates	65
Coding pins	66
Test pin	64

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.

Standard Male Connectors picoMAX® 7.5

PUSH-IN CAGE CLAMP®

Pin spacing: 7.5 mm / 0.295 in.		With gripping plate Pin spacing: 7.5 mm / 0.295 in.		With snap-in mounting feet Pin spacing: 7.5 mm / 0.295 in.	
0.2 ... 2.5 mm ² 630 V/6 kV/2 16 A	AWG 24 ... 12 300 V/15 A	0.2 ... 2.5 mm ² 630 V/6 kV/2 16 A	AWG 24 ... 12 300 V/15 A	0.2 ... 2.5 mm ² 630 V/6 kV/2 16 A	AWG 24 ... 12 300 V/15 A



L = (pole no. - 1) x pin spacing + 7.2 mm
 Even pole number R = (L - 12 mm) : 2
 Odd pole number R = (L - 19.5 mm) : 2

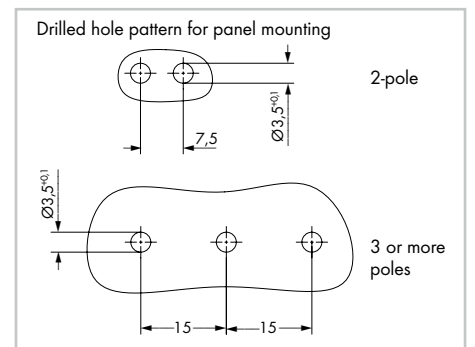
7.5

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male connector, light gray			Male connector with gripping plate, light gray			Male connector with snap-in mounting feet, for 0.6 ... 1.2 mm plate thickness, light gray		
2	2092-3522/002-000	100	2	2092-3502/002-000	100	2	2092-3522/020-000	100
3	2092-3523/002-000	100	3	2092-3503/002-000	100	3	2092-3523/020-000	100
4	2092-3524/002-000	50	4	2092-3504/002-000	50	4	2092-3524/020-000	50
5	2092-3525/002-000	50	5	2092-3505/002-000	50	5	2092-3525/020-000	50

Product Accessories	Page
Mounting adapter for DIN 35 rail, 3 or more poles (209-189)	66

Gripping plate dimensions (in mm):

Pole No.	A	B	C	D	E
2	7	3.85	-	20	-
3	12	5.1	-	20	-
4 ... 5	22	3.85	3.5	25	9



Standard male connectors can be combined with any female connectors/headers.



Female Headers with Solder Pins

picoMAX® 7.5



- Horizontal or vertical PCB mounting via straight or angled solder pins
- Touch-proof PCB outputs
- Easy-to-identify PCB inputs and outputs
- Coding pins available

Technical data:

Pin Spacing	7.5 mm 0.295 in.		
Ratings per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	400 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

Solder pin data for THT (wave soldering):

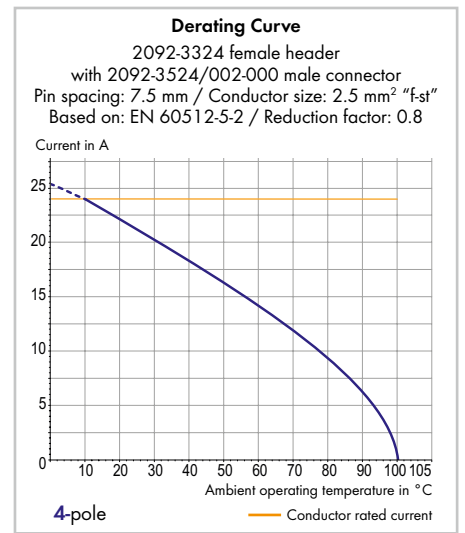
Solder pin: length/width	3.6 mm / 0.4 x 1.3 mm
Solder pin: drilled hole diameter	1.5 ^{+0.1} mm

Solder pin data for THR* (reflow soldering):

Solder pin: length/width	2.4 mm / 0.4 x 1.3 mm
Solder pin: metal-plated hole	1.5 ^{+0.1} mm Ø

Material data:

Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Contact material	Copper alloy
Contact plating	tin-plated



For additional derating curves, see page 73.

Accessories for picoMAX®:

Page:

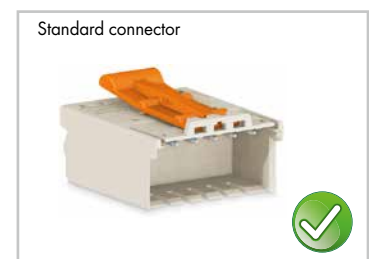
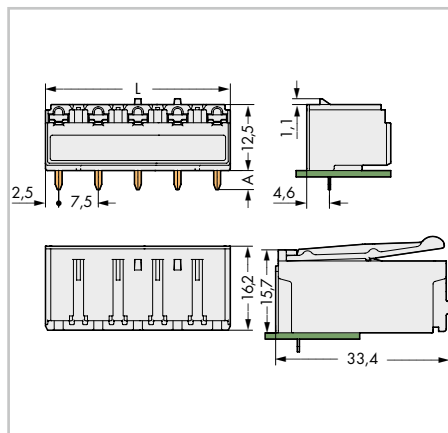
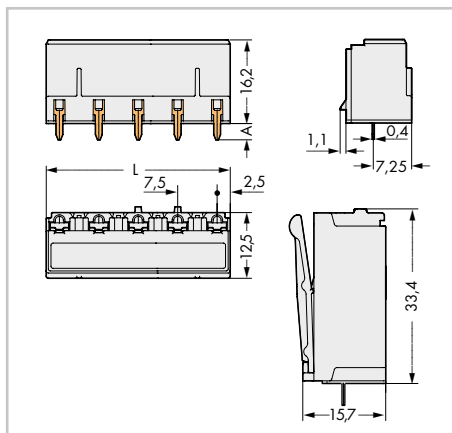
Coding pins	66

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.

Female Headers with Solder Pins

picoMAX® 7.5

With straight solder pins Pin spacing: 7.5 mm / 0.295 in.		With angled solder pins Pin spacing: 7.5 mm / 0.295 in.		Types of assembly with male connectors
630 V/6 kV/2 16 A	300 V/15 A	630 V/6 kV/2 16 A	300 V/15 A	



L = (pole no. - 1) x pin spacing + 5 mm
 A = 3.6 mm (THT solder pin)
 A = 2.4 mm (THR solder pin)

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Female header with straight solder pins, light gray			Female header with angled solder pins, light gray		
2	2092-3302	100	2	2092-3322	100
3	2092-3303	100	3	2092-3323	100
4	2092-3304	100	4	2092-3324	100
5	2092-3305	100	5	2092-3325	100

Item no. suffix for colored THR version:

<input type="radio"/> light gray	...../200-000	Ordering example:
THR female headers with solder pins in tape-and-reel packaging available upon request		THR female header with straight solder pins, 5 mm pin spacing, 5-pole, light gray: 2092-3305/200-000

picoMAX[®] eCOM

A RADICALLY SIMPLIFIED CONNECTOR CAN'T POSSIBLY HAVE WHAT IT TAKES.

YES IT CAN.

picoMAX[®] eCOM – It doesn't get any easier!

picoMAX[®] eCOM is the easiest way to make PCBs pluggable.

If you don't need all picoMAX[®] functionalities, opt for an **even more efficient and compact version** without pin housing – **picoMAX[®] eCOM**.

With 3.5 mm (0.138 in.), 5.0 mm (0.197 in.) and 7.5 mm (0.295 in.) pin spacing, this system of **pluggable female headers for direct soldering to PCB** is the ideal solution for **cost-efficient PCB applications**. The connectors are delivered with solder pins so they can be mounted and soldered to the PCB just as you would for a conventional PCB component. picoMAX[®] eCOM is suitable for all conductor types via Push-in CAGE CLAMP[®] universal connection. Furthermore, solid and ferruled conductors are connected by simply pushing them into unit.

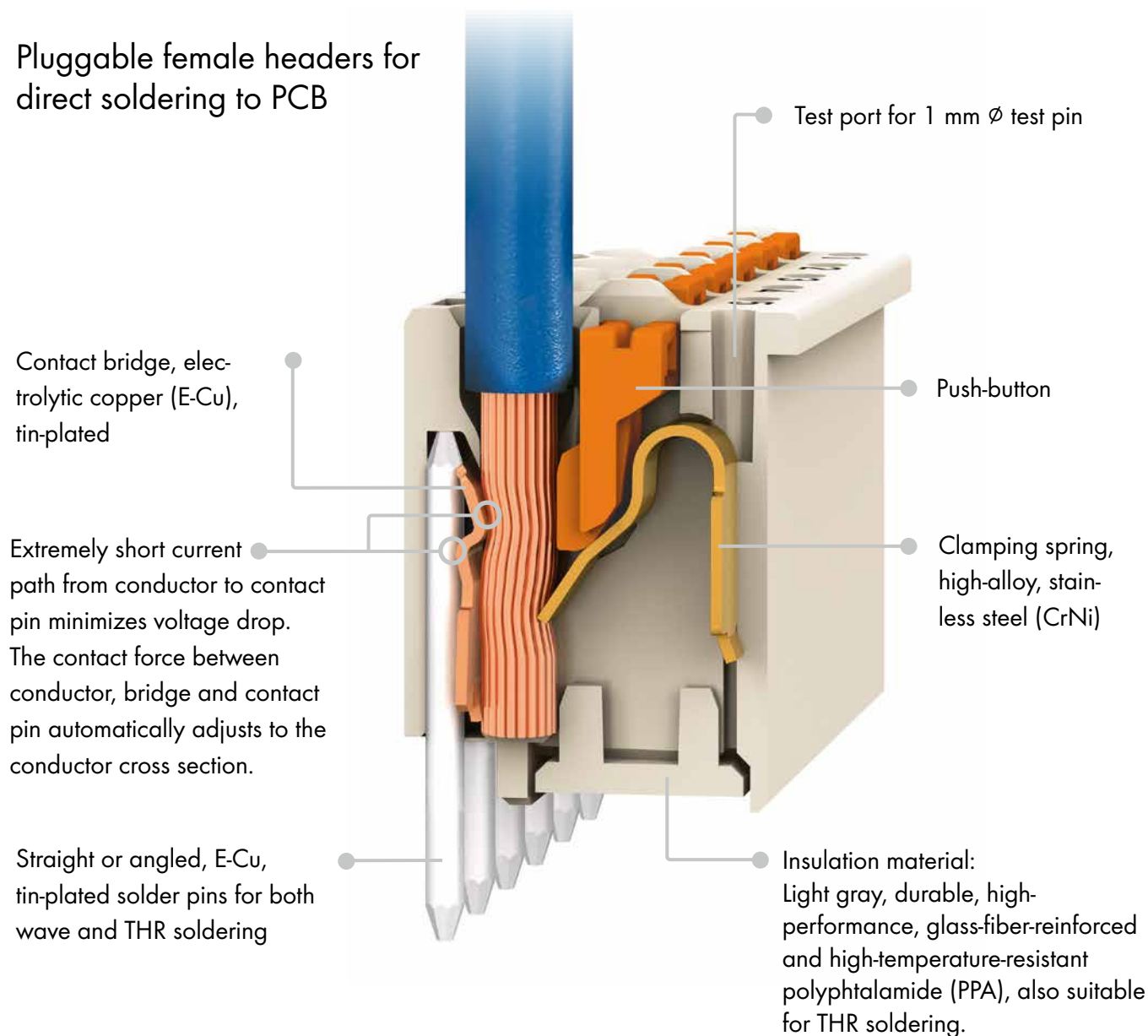
During maintenance, **picoMAX[®] eCOM can be removed from the circuit board like a pluggable connector**. This allows PCB or components to be replaced without costly rewiring. Connectors of different lengths can be arranged side by side without loss of poles, **maximizing space savings** on the PCB! The pluggable PCB terminal blocks are also available as versions for THR soldering!

These features make picoMAX[®] eCOM **extremely efficient, pluggable PCB terminal blocks**.

picoMAX[®] eCOM is available as straight and angled PCB terminal block for conductors 0.2–1.5 mm² (AWG 24–14) with 3.5 mm (0.138 in.), as well as 0.2–2.5 mm² (24–12) with 5.0 mm (0.197 in.) and 7.5 mm (0.295 in.) pin spacing.

picoMAX[®]: Highly efficient system.

Pluggable female headers for direct soldering to PCB



Original size:
3.5 mm pin spacing

COMPACT

VIBRATION-PROOF

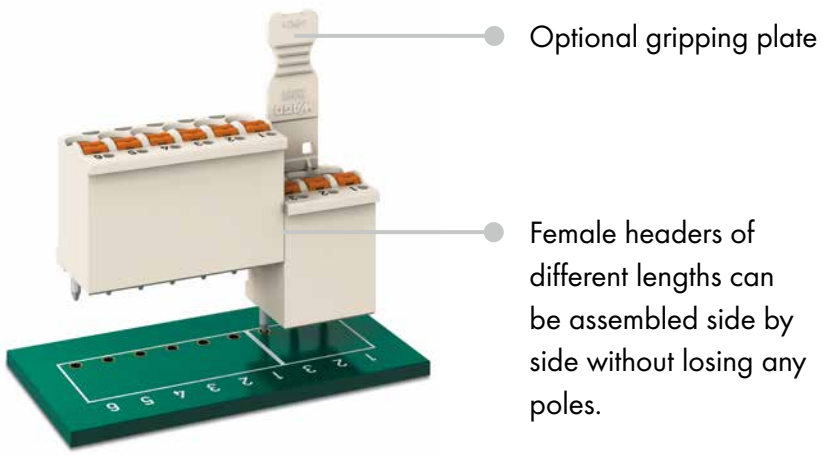
INTUITIVE

UNIVERSAL

EFFICIENT

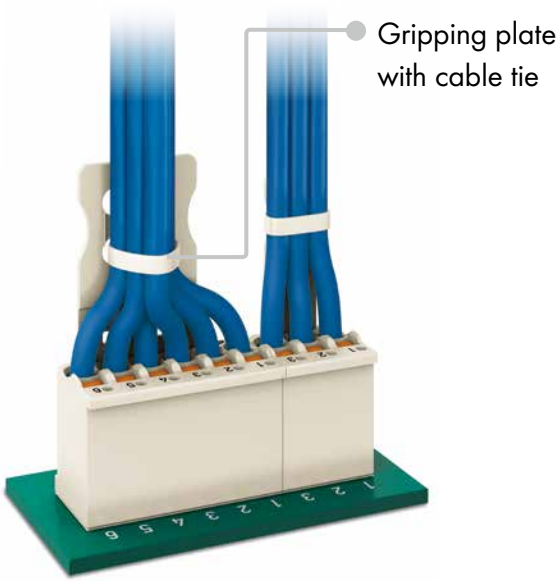
PCB Terminal Blocks that Double as Pluggable Connectors

1. Place and solder the pluggable female headers as marked on the PCB

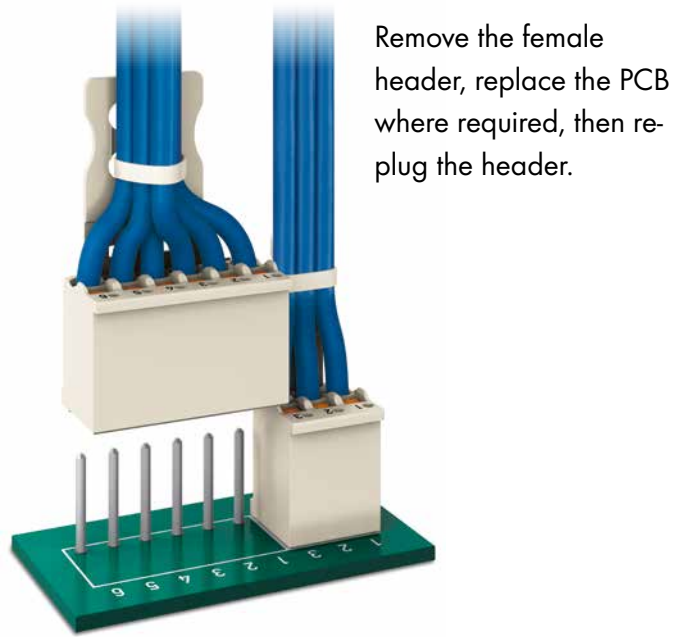


picoMAX® eCOM pluggable female headers are delivered with solder pins so they can be directly soldered to a PCB and then wired just as terminal blocks are. Push-in CAGE CLAMP® allows solid, stranded and fine-stranded conductors to be terminated via push-buttons. Solid and ferruled conductors are terminated by simply pushing them into unit. For ease of maintenance, the pluggable female headers can be removed without altering the wiring and then plugged onto the spare PCB.

2. Wired female headers

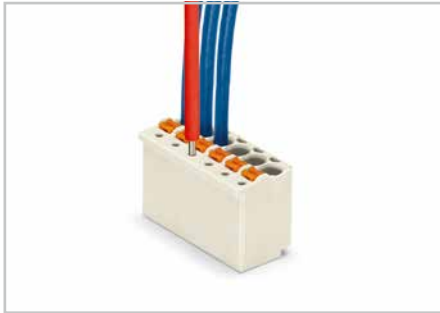


3. During maintenance

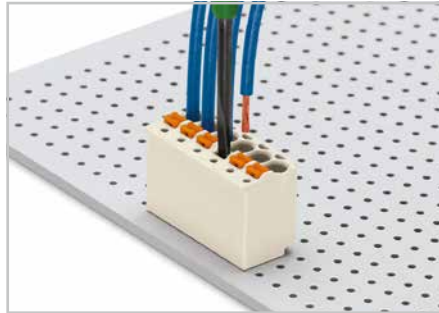


Handling *picoMAX*[®] eCOM

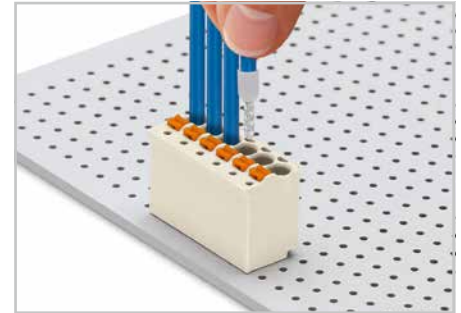
Pin Spacing: 3.5 mm/0.138 in., 5.0 mm/0.197 in. and 7.5 mm/0.295 in.



Testing with 1 mm Ø test pin, tip contact.



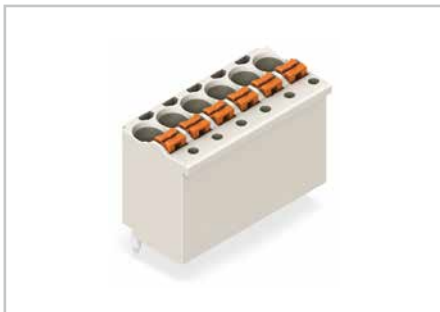
Terminating fine-stranded conductors and removing all conductor types via push-buttons.



Terminating solid and ferruled conductors via push-in termination (see notes on page 75).



Horizontal or vertical PCB mounting.



THR version with shorter solder pins.



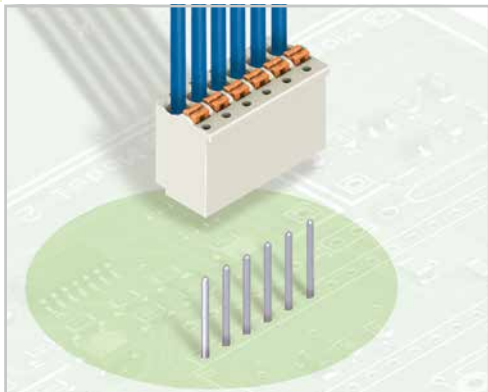
Pole marking via direct printing perpendicular to conductor entry.



Pole marking via direct printing parallel to conductor entry.

Notice:
picoMAX[®] eCOM shall only be used with factory-installed solder pins!

picoMAX® eCOM 3.5 – Standard Pluggable Female Headers for Direct Soldering to PCB



- Universal connection for all conductor types
- Simple, push-in termination of solid and ferruled conductors
- Easy-to-use design does not require specialty tools
- Ability to wire while mated or unmated
- Integrated test ports for testing parallel to conductor entry
- Factory-installed, straight or angled solder pins allow horizontal or vertical mounting to the PCB

Technical data:

Pin Spacing	3.5 mm 0.138 in.		
	IEC/EN 60664-1		
Ratings per	III	III	II
Overtoltage category	3	2	2
Pollution degree	3	2	2
Rated voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	10 A	-	10 A
Nominal current CSA	10 A	-	10 A

Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 ... 1.5 mm ²	
Conductor size: fine-stranded	0.2 ... 1.5 mm ²	
Conductor size: fine-stranded	0.25 ... 0.75 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 ... 1.5 mm ² (with uninsulated ferrule)	
AWG	24 ... 14	14: THHN, THWN
Strip length	8 ... 9 mm / 0.31 ... 0.35 in.	

Solder pin data for THT (wave soldering):

Solder pin: length/width	3.6 mm / 1.0 mm Ø
Solder pin: drilled hole diameter	1.2 ^{+0.1} mm

Solder pin data for THR* (reflow soldering):

Solder pin: length/width	2.4 mm / 1.0 mm Ø
Solder pin: metal-plated hole	1.2 ^{+0.1} mm Ø

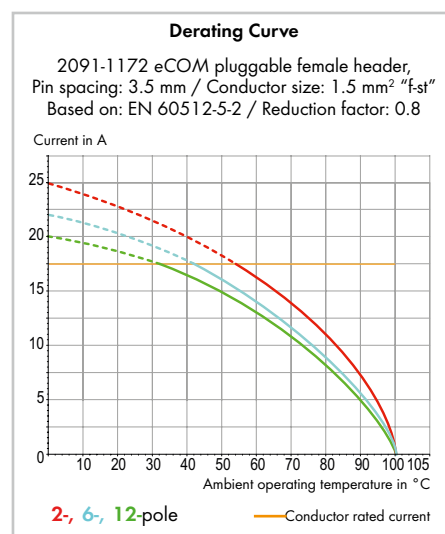
Material data:

Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C **
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _C)
Contact plating	tin-plated

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984.

When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.

* picoMAX® eCOM 3.5 is suitable for applications up to 65 °C according to UL 1059.



For additional derating curves, see page 74.

Accessories for picoMAX®: Page:

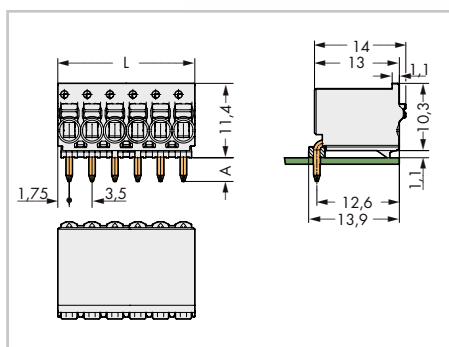
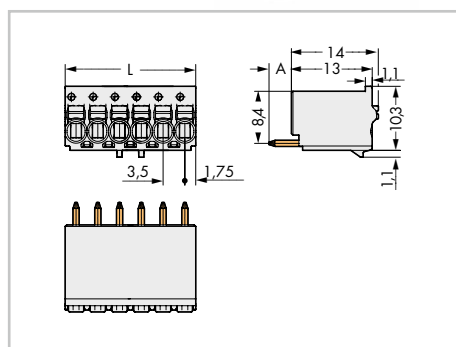
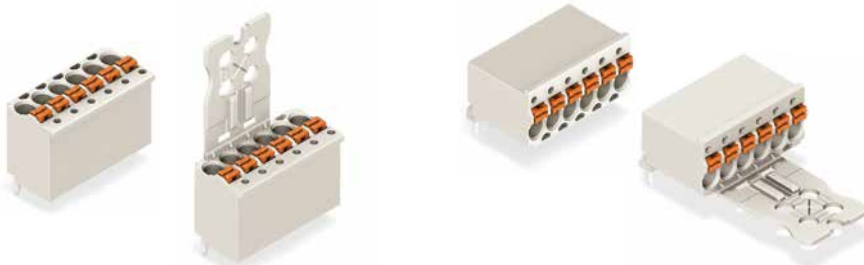
Operating tools	64
Test pin	64
Gripping plates	65
Direct printing	68



picoMAX® eCOM 3.5 – Standard Pluggable Female Headers for Direct Soldering to PCB

PUSH-IN CAGE CLAMP®

With straight solder pins Pin spacing: 3.5 mm / 0.138 in.		With angled solder pins Pin spacing: 3.5 mm / 0.138 in.	
0.2 ... 1.5 mm ²	AWG 24 ... 14	0.2 ... 1.5 mm ²	AWG 24 ... 14
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A



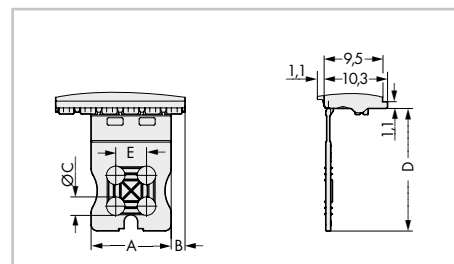
L = pole no. x pin spacing
A = 3.6 mm (THT solder pin)
A = 2.4 mm (THR solder pin)

Gripping plate dimensions (in mm):

Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit	Pole No.	A	B	C	D	E
eCOM pluggable female header with straight solder pins, light gray					eCOM pluggable female header with angled solder pins, light gray					2	6	0,45	-	17	-
	without Gripping plate		with Gripping plate			3	6	2,20	-	17	-				
						4	6	2,20	-	17	-				
2	2091-1172	200	2091-1152	100	2	2091-1372	200	2091-1352	100	5	13	2,25	3,0	20	5
3	2091-1173	200	2091-1153	100	3	2091-1373	200	2091-1353	100	6	13	2,25	3,0	20	5
4	2091-1174	200	2091-1154	100	4	2091-1374	200	2091-1354	100	7	13	5,75	3,0	20	5
5	2091-1175	200	2091-1155	50	5	2091-1375	200	2091-1355	50	8	13	5,75	3,0	20	5
6	2091-1176	100	2091-1156	50	6	2091-1376	100	2091-1356	50	10	27	2,25	4,2	25	8
7	2091-1177	100	2091-1157	50	7	2091-1377	100	2091-1357	50	12	27	5,75	4,2	25	8
8	2091-1178	100	2091-1158	50	8	2091-1378	100	2091-1358	50						
10	2091-1180	100	2091-1160	50	10	2091-1380	100	2091-1360	50						
12	2091-1182	100	2091-1162	50	12	2091-1382	100	2091-1362	50						

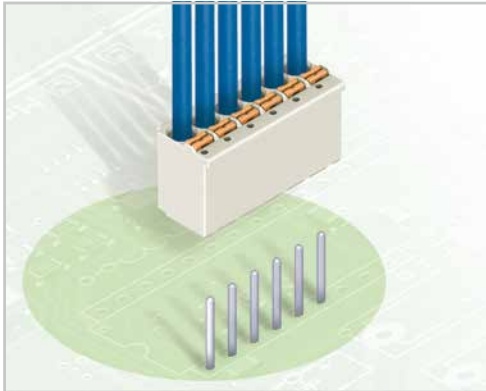
Item no. suffix for colored THR version:

○ light gray	...../200-000	Ordering example:
		eCOM THR pluggable female header with straight solder pins,
		3.5 mm pin spacing, 8-pole,
		light gray: 2091-1178/200-000



3.5

picoMAX® eCOM 5.0 – Standard Pluggable Female Headers for Direct Soldering to PCB



- Universal connection for all conductor types
- Simple, push-in termination of solid and ferruled conductors
- Easy-to-use design does not require specialty tools
- Ability to wire while mated or unmated
- Integrated test ports for testing parallel to conductor entry
- Factory-installed, straight or angled solder pins allow horizontal or vertical mounting to the PCB

Technical data:

Pin Spacing	5 mm 0.197 in.		
Ratings per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 ... 2.5 mm ²	
Conductor size: fine-stranded	0.2 ... 2.5 mm ²	
Conductor size: fine-stranded	0.25 ... 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 ... 2.5 mm ² (with uninsulated ferrule)	
AWG	24 ... 12	12: THHN, THWN
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.	

Solder pin data for THT (wave soldering):

Solder pin: length/width	3.6 mm / 1.4 mm Ø
Solder pin: drilled hole diameter	1.6 ^{+0.1} mm

Solder pin data for THR* (reflow soldering):

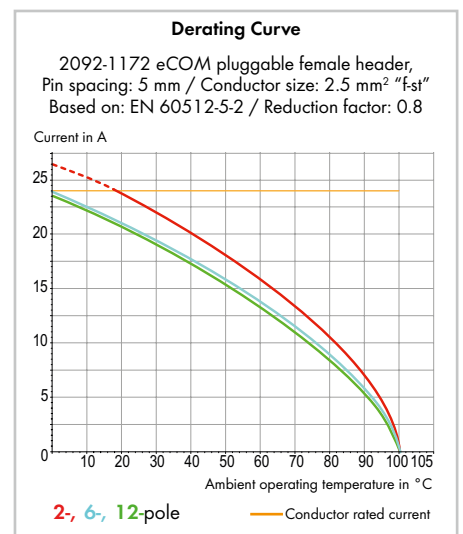
Solder pin: length/width	2.4 mm / 1.4 mm Ø
Solder pin: metal-plated hole	1.6 ^{+0.1} mm Ø

Material data:

Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984.

When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.



For additional derating curves, see page 74.

Accessories for picoMAX®:

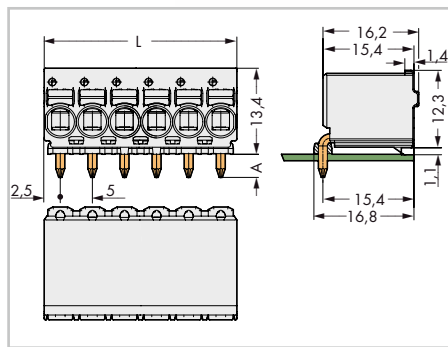
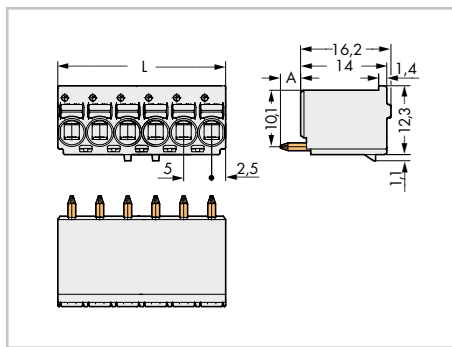
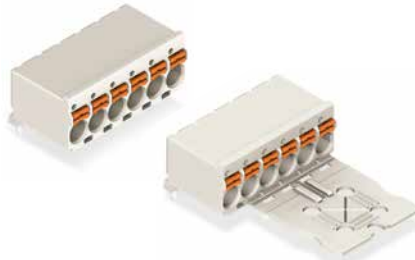
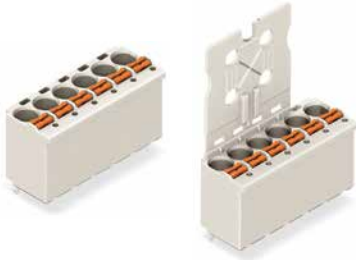
Page:

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picoMAX® eCOM 5.0 – Standard Pluggable Female Headers for Direct Soldering to PCB

PUSH-IN CAGE CLAMP®

With straight solder pins Pin spacing: 5 mm / 0.197 in.		With angled solder pins Pin spacing: 5 mm / 0.197 in.	
0.2 ... 2.5 mm ²	AWG 24 ... 12	0.2 ... 2.5 mm ²	AWG 24 ... 12
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A



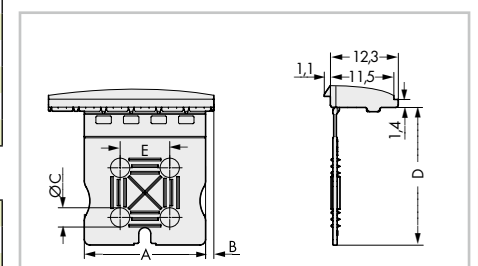
L = pole no. x pin spacing
 A = 3.6 mm (THT solder pin)
 A = 2.4 mm (THR solder pin)

Gripping plate dimensions (in mm):

Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit	Pole No.	A	B	C	D	E
eCOM pluggable female header with straight solder pins, light gray					eCOM pluggable female header with angled solder pins, light gray					2	7	1,5	-	20	-
without Gripping plate			with Gripping plate		without Gripping plate			with Gripping plate		3	12	1,5	-	20	-
2	2092-1172	200	2092-1152	100	2	2092-1372	200	2092-1352	100	4	12	1,5	-	20	-
3	2092-1173	200	2092-1153	100	3	2092-1373	200	2092-1353	100	5	22	1,5	3,5	25	9
4	2092-1174	200	2092-1154	100	4	2092-1374	200	2092-1354	100	6	22	1,5	3,5	25	9
5	2092-1175	200	2092-1155	50	5	2092-1375	200	2092-1355	50	7	22	6,5	3,5	25	9
6	2092-1176	100	2092-1156	50	6	2092-1376	100	2092-1356	50	8	22	6,5	3,5	25	9
7	2092-1177	200	2092-1157	50	7	2092-1377	200	2092-1357	50	9	22	1,5	5,0	25	9
8	2092-1178	100	2092-1158	50	8	2092-1378	100	2092-1358	50	10	42	1,5	5,0	35	19
9	2092-1179	200	2092-1159	50	9	2092-1379	200	2092-1359	50	12	42	6,5	5,0	35	19
10	2092-1180	100	2092-1160	50	10	2092-1380	100	2092-1360	50						
12	2092-1182	100	2092-1162	50	12	2092-1382	100	2092-1362	50						

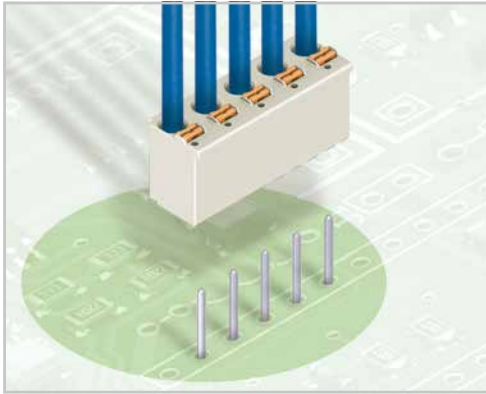
Item no. suffix for colored THR version:

<input type="radio"/> light gray	...../200-000	Ordering example:
<input type="radio"/> THR version only for female headers <u>without</u> gripping plate		eCOM THR pluggable female header with straight solder pins, 5 mm pin spacing, 8-pole, light gray: 2092-1178/200-000



picoMAX® eCOM 7.5 – Standard Pluggable Female Headers for Direct Soldering to PCB

62



- Universal connection for all conductor types
- Simple, push-in termination of solid and ferruled conductors
- Easy-to-use design does not require specialty tools
- Ability to wire while mated or unmated
- Integrated test ports for testing parallel to conductor entry
- Factory-installed, straight or angled solder pins allow horizontal or vertical mounting to the PCB

Technical data:

Pin Spacing	7.5 mm 0.295 in.		
	IEC/EN 60664-1		
Ratings per	III	III	II
Overtension category	3	2	2
Pollution degree	3	2	2
Rated voltage	400 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA		
Use group UL 1059	B	C	D
Rated voltage	300 V	-	300 V
Nominal current UL	15 A	-	10 A
Nominal current CSA	15 A	-	10 A

Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 ... 2.5 mm ²	
Conductor size: fine-stranded	0.2 ... 2.5 mm ²	
Conductor size: fine-stranded	0.25 ... 1.5 mm ² (with insulated ferrule)	
Conductor size: fine-stranded	0.25 ... 2.5 mm ² (with uninsulated ferrule)	
AWG	24 ... 12	12: THHN, THWN
Strip length	9 ... 10 mm / 0.35 ... 0.39 in.	

Solder pin data for THT (wave soldering):

Solder pin: length/width	3.6 mm / 1.4 mm Ø
Solder pin: drilled hole diameter	1.6 ^{+0.1} mm

Solder pin data for THR* (reflow soldering):

Solder pin: length/width	2.4 mm / 1.4 mm Ø
Solder pin: metal-plated hole	1.6 ^{+0.1} mm Ø

Material data:

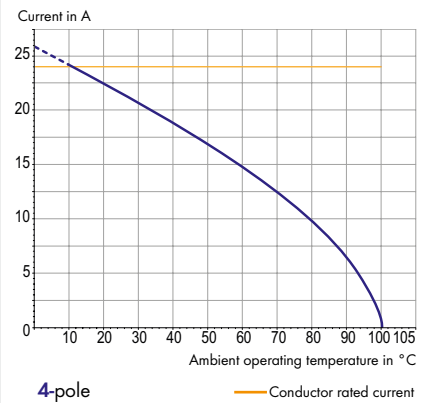
Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated

The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984.

When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.

Derating Curve

2092-3174 eCOM pluggable female header,
Pin spacing: 7.5 mm / Conductor size: 2.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 74.

Accessories for picoMAX®:

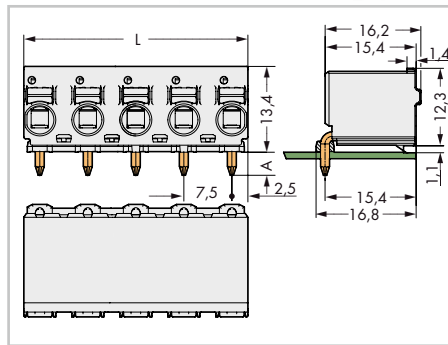
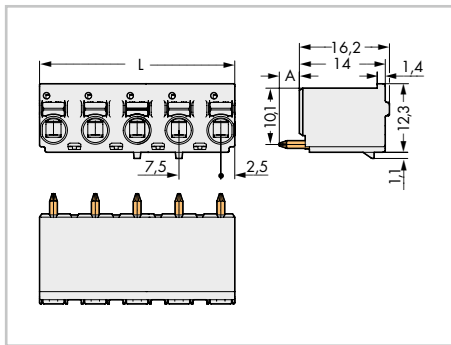
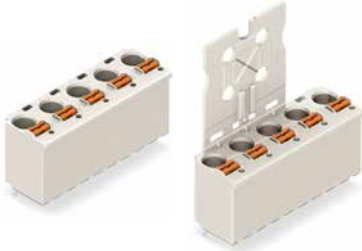
Page:

Operating tools	64
Test pin	64
Gripping plates	65
Direct printing	68

picoMAX® eCOM 7.5 – Standard Pluggable Female Headers for Direct Soldering to PCB

PUSH-IN CAGE CLAMP®

With straight solder pins Pin spacing: 7.5 mm / 0.295 in.		With angled solder pins Pin spacing: 7.5 mm / 0.295 in.	
0.2 ... 2.5 mm ²	AWG 24 ... 12	0.2 ... 2.5 mm ²	AWG 24 ... 12
630 V/6 kV/2 16 A	300 V/15 A	630 V/6 kV/2 16 A	300 V/15 A



L = (pole no. - 1) x pin spacing + 5 mm
 A = 3.6 mm (THT solder pin)
 A = 2.4 mm (THR solder pin)

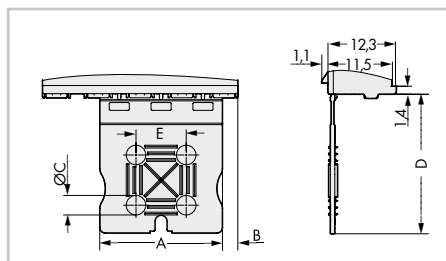
Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit
eCOM pluggable female header with straight solder pins, light gray					eCOM pluggable female header with angled solder pins, light gray				
	without Gripping plate		with Gripping plate			without Gripping plate		with Gripping plate	
2	2092-3172	100	2092-3152	100	2	2092-3372	100	2092-3352	100
3	2092-3173	100	2092-3153	100	3	2092-3373	100	2092-3353	100
4	2092-3174	100	2092-3154	100	4	2092-3374	100	2092-3354	100
5	2092-3175	100	2092-3155	100	5	2092-3375	100	2092-3355	100

Item no. suffix for colored THR version:

<input type="radio"/> light gray	...../200-000	Ordering example:
THR version only for female headers <u>without</u> gripping plate		eCOM THR pluggable female header with straight solder pins, 7.5 mm pin spacing, 5-pole, light gray: 2092-3175/200-000

Gripping plate dimensions (in mm):

Pole No.	A	B	C	D	E
2	7	2.75	-	20	-
3	12	4	-	20	-
4 ... 5	22	2.75	3.5	25	9

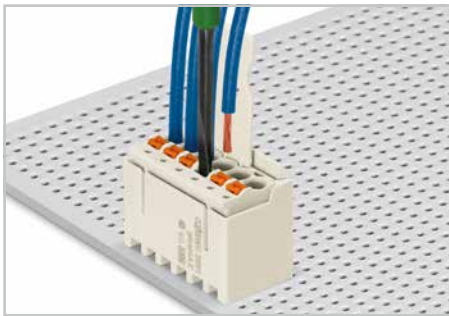


For other lengths, please contact factory.

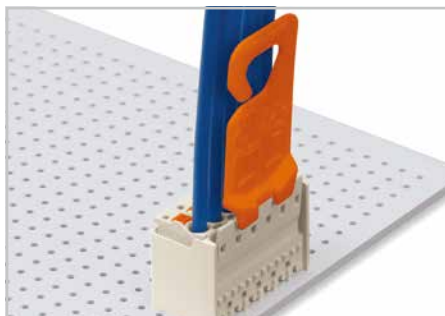
Operating tool with partially insulated shaft Type 1	Unlocking tool for female connectors without gripping plate or sliding connector release	Test pin
-------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------	-----------------



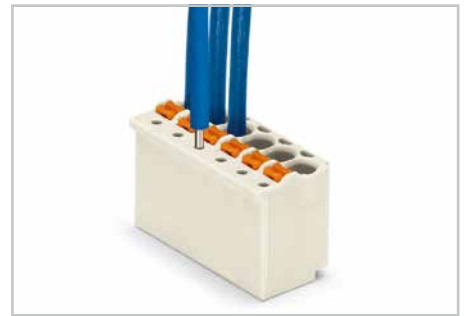
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Operating tool, with partially insulated shaft, type 1, (2.5 x 0.4) mm blade		Unlocking tool, orange		Test pin, 1 mm Ø, with solder connection for test cable	
210-719	1	2092-1630	100 (4 x 25)	735-500	1



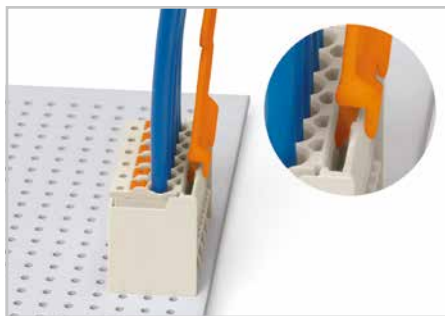
Inserting/removing conductor.



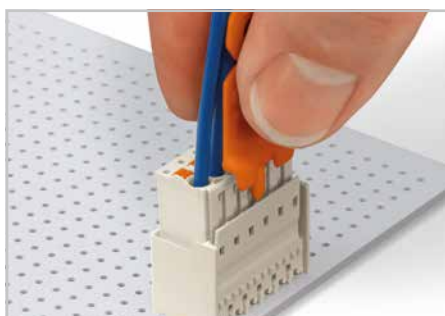
Disconnecting female connector via unlocking tool. Plug unlocking tool into the male header's locking latch.



Testing with 1 mm Ø test pin, tip contact.



Insert unlocking tool until it hits backstop. Wedge opens locking latch.

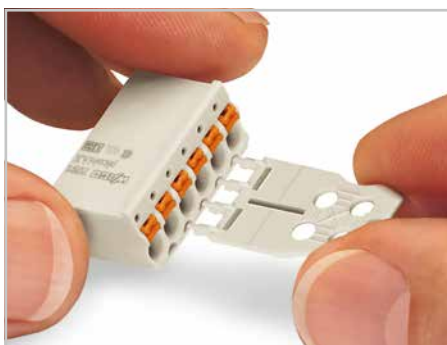


Pull on both unlocking tool and conductors to remove female connector from male header.

Gripping plates, pluggable	Gripping plates with sliding connector release, pluggable	
--------------------------------------	---------------------------------------------------------------------	--



Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Gripping plate, light gray			Gripping plate with sliding connector release, light gray		
Pin spacing: 3.5 mm			Pin spacing: 3.5 mm		
2	2091-1600	100 (4 x 25)	2	2091-1600/002-000	100 (4 x 25)
3- 4	2091-1601	100 (4 x 25)	3- 4	2091-1601/002-000	100 (4 x 25)
5- 8	2091-1602	100 (4 x 25)	5- 8	2091-1602/002-000	100 (4 x 25)
9-12	2091-1603	100 (4 x 25)	9-12	2091-1603/002-000	100 (4 x 25)
Pin spacing: 5 mm			Pin spacing: 5 mm		
2	2092-1600	100 (4 x 25)	2	2092-1600/002-000	100 (4 x 25)
3- 4	2092-1601	100 (4 x 25)	3- 4	2092-1601/002-000	100 (4 x 25)
5- 8	2092-1602	100 (4 x 25)	5- 8	2092-1602/002-000	100 (4 x 25)
9-12	2092-1603	100 (4 x 25)	9-12	2092-1603/002-000	100 (4 x 25)
Pin spacing: 7.5 mm			Pin spacing: 7.5 mm		
2	2092-3600	100 (4 x 25)	2	2092-3600/002-000	100 (4 x 25)
3	2092-3601	100 (4 x 25)	3	2092-3601/002-000	100 (4 x 25)
4- 5	2092-3602	100 (4 x 25)	4- 5	2092-3602/002-000	100 (4 x 25)



Gripping plates are suitable for factory and in-the-field assembly.

Coding key carrier

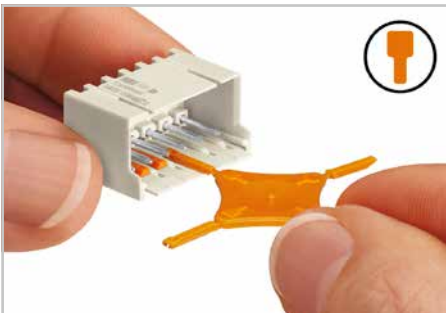
with 2 coding keys for each male header and female connector

Mounting adapter for DIN 35 rail

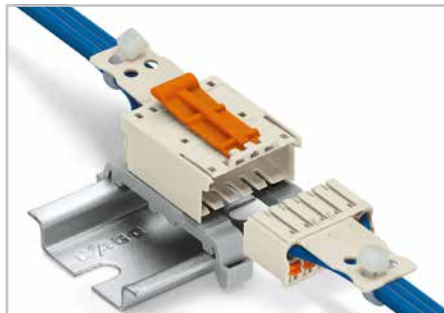
for male connectors with snap-in mounting feet



Item No.	Pack. Unit	Item No.	Pack. Unit
Coding key carrier , with 2 coding keys for each male header and female connector, orange		Mounting adapter , for male connectors with snap-in mounting feet, gray	
Pin spacing: 3.5 mm			
2091-1610	100 (4 x 25)	209-189	25
Pin spacing: 5 mm and 7.5 mm			
2092-1610	100 (4 x 25)		



Coding a male header (via coding key carrier and two keys for male header, see symbol).



Male connector with snap-in mounting feet and 209-189 mounting adapter on DIN 35 rail.



Coding a female connector (via coding key carrier and two keys for female connector, see symbol).

Ferrules

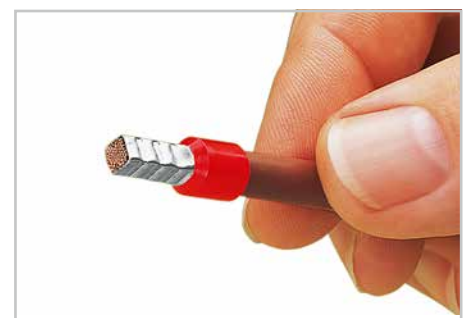
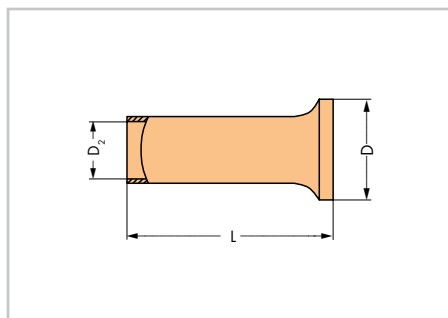
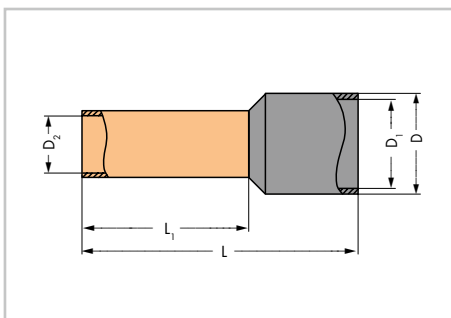
Insulated ferrules Electrolytic copper, electro tin-plated, acc. to DIN 46288, part 4/09.09	Uninsulated ferrules Electrolytic copper, electro tin-plated, acc. to DIN 46288, part 1/08.92	“Variocrimp 4” crimping tool 0.25 ... 4 mm ² / AWG 22 ... 12
--------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------



Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Insulated ferrule for 0.25 mm² /AWG 24, 9.5 mm strip length, L: 12 mm, L ₁ : 8 mm , D: 2.3 mm, D ₁ : 1.8 mm, D ₂ : 0.85 mm yellow 216-301	1000	Uninsulated ferrule 0.25 mm² / AWG 24 * 7.5 mm strip length, L: 7 mm , D: 1.7 mm, D ₂ : 0.75 mm 216-131	1000	“Variocrimp 4” crimping tool, for insulated and un-insulated ferrules, crimping range of 0.25 ... 4 mm ² 206-204	1
Insulated ferrule for 0.34 mm² /AWG 24, 9.5 mm strip length, L: 12 mm, L ₁ : 8 mm , D: 2.5 mm, D ₁ : 2 mm, D ₂ : 0.85 mm green 216-302	1000	Uninsulated ferrule for 0.34 mm² / AWG 24 * 7.5 mm strip length, L: 7 mm , D: 1.8 mm, D ₂ : 0.85 mm 216-132	1000		
Insulated ferrule for 0.5 mm² /AWG 22, 9.5 mm strip length, L: 14 mm, L ₁ : 8 mm , D: 3.1 mm, D ₁ : 2.6 mm, D ₂ : 1 mm white 216-201	1000	Uninsulated ferrule for 0.5 mm² / AWG 22 * 8 mm strip length, L: 8 mm , D: 2.1 mm, D ₂ : 1 mm 216-101	1000	Application notes: <ul style="list-style-type: none"> • The built-in crimping pressure control automatically adjusts force to the conductor cross section used • A single crimping station for all conductor sizes • Uniform, compact crimping on all four sides for high conductor retention • No need to center the conductor into the ferrule • Conductor and ferrule insertion possible from both sides (for left- and right-handers) • Built-in ratchet mechanism ensures gastight crimp connection • Crimping tools open automatically after crimping operation is complete • Ergonomically designed handles. 	
		10 mm strip length, L: 10 mm , D: 2.1 mm, D ₂ : 1 mm 216-141	1000		
Insulated ferrule for 0.75 mm² /AWG 20, 10 mm strip length, L: 14 mm, L ₁ : 8 mm , D: 3.3 mm, D ₁ : 2.8 mm, D ₂ : 1.2 mm gray 216-202	1000	Uninsulated ferrule for 0.75 mm² / AWG 20 8 mm strip length, L: 8 mm , D: 2.3 mm, D ₂ : 1.2 mm 216-102	1000		
		10 mm strip length, L: 10 mm , D: 2.3 mm, D ₂ : 1.2 mm 216-122	1000		
Insulated ferrule for 1 mm² /AWG 18, 10 mm strip length, L: 14 mm, L ₁ : 8 mm , D: 3.5 mm, D ₁ : 3 mm, D ₂ : 1.4 mm red 216-203	1000	Uninsulated ferrule for 1 mm² /AWG 18 8 mm strip length L: 8 mm , D: 2.5 mm, D ₂ : 1.4 mm 216-103	1000		
		10 mm strip length, L: 10 mm , D: 2.5 mm, D ₂ : 1.4 mm 216-143	1000		
Insulated ferrule for 1.5 mm² /AWG 16, 10 mm strip length, L: 14 mm, L ₁ : 8 mm , D: 4 mm, D ₁ : 3.5 mm, D ₂ : 1.7 mm black 216-204	1000	Uninsulated ferrule for 1.5 mm² /AWG 16 8 mm strip length, L: 8 mm , D: 2.8 mm, D ₂ : 1.7 mm 216-104	1000		
		10 mm strip length, L: 10 mm , D: 2.8 mm, D ₂ : 1.7 mm 216-144	1000		
		Uninsulated ferrule for 2.5 mm² /AWG 14 10 mm strip length, L: 10 mm , D: 3.4 mm, D ₂ : 2.2 mm 216-106	1000		

* Termination via push-button actuation

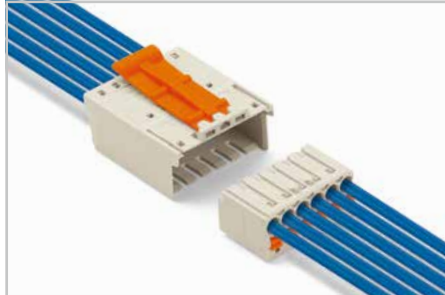
Application notes on ferrules for 2091 and 2092 Series, see page 70



A perfect gastight crimp, both electrically and mechanically reliable.

Accessories for picoMAX® Printing for 2091 and 2092 Series

<p>Direct printing on standard female connectors</p> <p>"Wire-to-board"</p> <p>1 - Pole number</p>	<p>Direct printing on standard female connectors</p> <p>"Wire-to-wire"</p> <p>1 - Pole number</p>	<p>Direct printing on standard male connectors</p> <p>"Wire-to-board" and "wire-to-wire"</p> <p>1 - Pole number</p>
---------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------

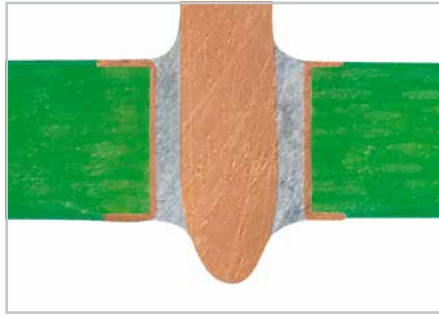
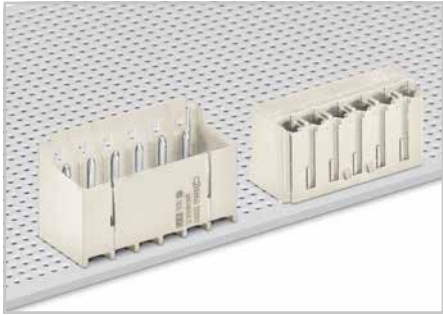


Printing Parallel to Conductor Entry Item No. Suffix: /... - 1000	Printing Parallel to Conductor Entry Item No. Suffix: /... - 3000	Printing Parallel to Conductor Entry Item No. Suffix: /... - 3000
Ordering examples:	Ordering examples:	Ordering examples:
<p>Female connector, 3.5 mm pin spacing, 6-pole, light gray 2091-1126/0000-1000</p>	<p>Female connector, 3.5 mm pin spacing, 6-pole, light gray 2091-1126/0000-3000</p>	<p>Male connector, 3.5 mm pin spacing, 6-pole, light gray 2091-1526/0002-3000</p>
<p>Female connector with gripping plate, 3.5 mm pin spacing, 6-pole, light gray 2091-1106/0000-1000</p>	<p>Female connector with gripping plate, 3.5 mm pin spacing, 6-pole, light gray 2091-1106/0000-3000</p>	<p>Male connector with gripping plate, 3.5 mm pin spacing, 6-pole, light gray 2091-1506/0002-3000</p>
<p>Female connector with gripping plate and sliding connector release, 3.5 mm pin spacing, 6-pole, light gray 2091-1106/0002-1000</p>	<p>Female connector with gripping plate and sliding connector release, 3.5 mm pin spacing, 6-pole, light gray 2091-1106/0002-3000</p>	



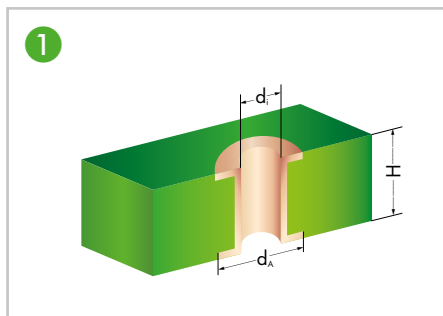
Printing Perpendicular to Conductor Entry Item no. suffix: /... - 5000
Ordering examples:
<p>Female connector, 3.5 mm pin spacing, 6-pole, light gray 2091-1376/0000-5000</p>
<p>Female connector with gripping plate, 3.5 mm pin spacing, 6-pole, light gray 2091-1356/0000-5000</p>

THR (Through-Hole Reflow) Soldering Process

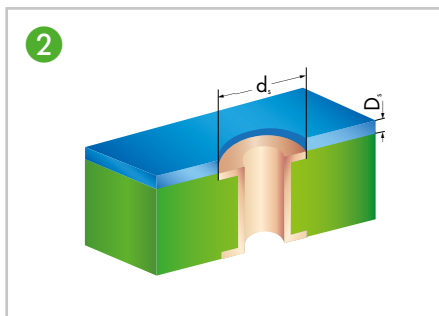


By using high-temperature-resistant plastic and a streamlined pin design, the WAGO Through-Hole Reflow headers and PCB terminal blocks meet requirements for SMT process capability while maintaining the necessary stability. Male headers and THR PCB terminal blocks are simply pushed into the solder paste-filled PCB holes and then soldered along with the SMT components via reflow soldering. The previous wave soldering process is no longer necessary. The result is a perfect connection – both mechanically and electrically.

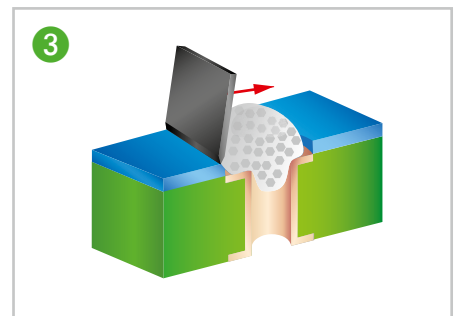
picoMAX® THR male headers in tape-and-reel packaging acc. to IEC 60286-3 are available upon request.



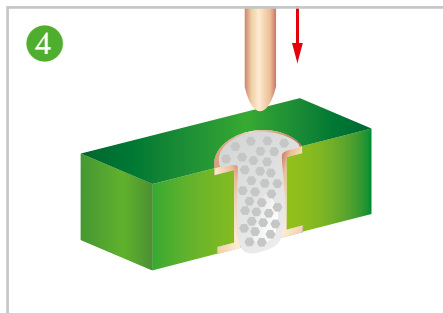
1 Metal-plated PCB bore hole



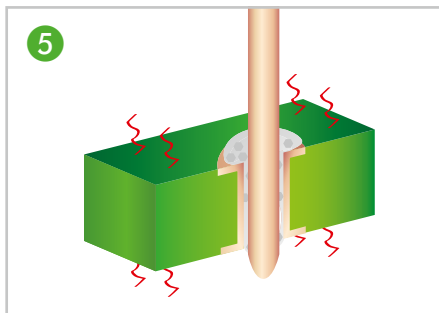
2 SMD positioning pattern



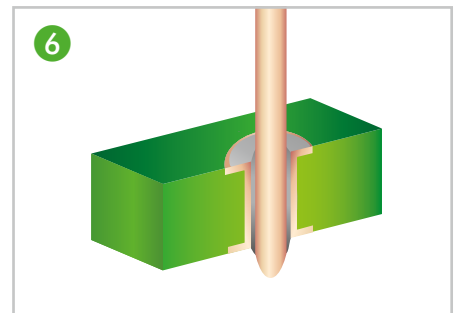
3 Application of solder paste



4 Component assembly, automatic/by hand

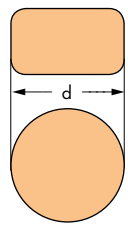


5 Reflow soldering process



6 THR soldering joint

Series	d _i (mm)	d _A (mm)	H(mm)	d _s (mm)	D _s (µm)	d(mm)	L(mm)
2091	1.2 ^{+0.1}	1.9	< 2	1.8	150	1.0 Ø	2.4
2091	1.2 ^{+0.1}	1.9	< 2	1.8	150	0.4 x 0.5	2.4
2092	1.6 ^{+0.1}	2.3	< 2	2.2	150	1.4 Ø	2.4
2092	1.5 ^{+0.1}	2.2	< 2	2.1	150	0.4 x 1.3	2.4



- d_i: Inner diameter of metal-plated PCB bore hole
- d_A: Outer diameter of metal-plated PCB hole*
- H: PCB thickness
- d_s: Pattern hole diameter
- D_s: Pattern thickness
- d: Pin cross section
- L: Pin length

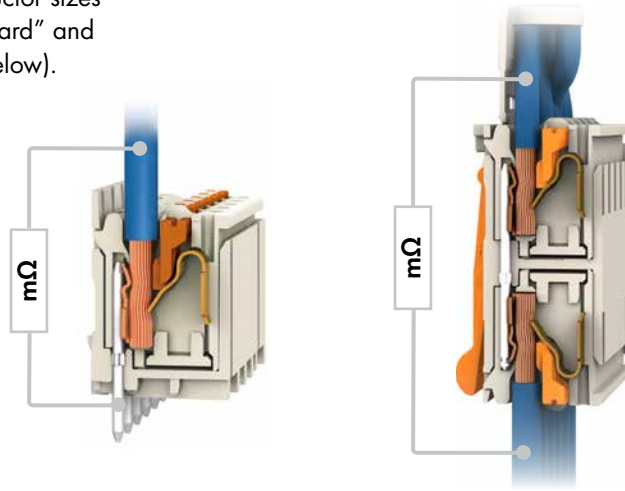
* When laying out the metal-plated bore holes, the clearance and creepage distance requirements – as specified in the equipment standards – must be considered.

WAGO recommends a temperature profile for processing THR components (see "Technical Section").

Depending on reflow soldering temperatures and times, color deviations may occur for light gray connectors. These deviations will have no impact on functionality.


• Contact Resistance


Typical contact resistance values for various conductor sizes for picoMAX® 2091 and 2092 Series “wire-to-board” and “wire-to-wire” pluggable connections (see table below).



Conductor Size in mm ²		“Wire-to-Board”		“Wire-to-Wire”	
		2091 Series	2092 Series	2091 Series	2092 Series
0.25	fine-stranded	1.43 mΩ	1.83 mΩ	2.58 mΩ	5.71 mΩ
0.5	fine-stranded	1.09 mΩ	1.15 mΩ	1.64 mΩ	2.28 mΩ
1.0	fine-stranded	0.99 mΩ	0.91 mΩ	1.43 mΩ	1.41 mΩ
1.5	fine-stranded	0.72 mΩ	0.71 mΩ	1.02 mΩ	1.20 mΩ
2.5	fine-stranded	-	0.60 mΩ	-	1.09 mΩ
0.25	fine-stranded, with ferrule	0.79 mΩ	0.78 mΩ	1.44 mΩ	1.40 mΩ
0.5	fine-stranded, with ferrule	0.69 mΩ	0.58 mΩ	1.10 mΩ	1.06 mΩ
1.0	fine-stranded, with ferrule	0.52 mΩ	0.46 mΩ	0.83 mΩ	0.82 mΩ
1.5	fine-stranded, with ferrule	0.51 mΩ	0.38 mΩ	0.82 mΩ	0.69 mΩ
2.5	fine-stranded, with ferrule	-	0.38 mΩ	-	0.61 mΩ

• Connecting Ferrules for 2091 and 2092 Series

Conductor Size “fine-stranded”	Ferrule Item No.		Insulated ferrules
	for 2091 Series	for 2092 Series	
0.25 mm ²	216-301	216-301	 <p>For ferrules, see page 67.</p>
0.34 mm ²	216-302	216-302	
0.5 mm ²	216-201	216-201	
0.75 mm ²	216-202	216-202	
1.0 mm ²	-	216-203	
1.5 mm ²	-	216-204	

Conductor Size “fine-stranded”	Ferrule Item No.		Uninsulated ferrules
	for 2091 Series	for 2092 Series	
0.25 mm ² *	216-131	216-131	 <p>For ferrules, see page 67.</p>
0.34 mm ² *	216-132	216-132	
0.5 mm ² *	216-101	216-101 216-141	
0.75 mm ²	216-102	216-102 216-142	
1.0 mm ²	216-103	216-103 216-143	
1.5 mm ²	216-104	216-104 216-144	
2.5 mm ²	-	216-106	

Push-In Termination

Fine-stranded conductors with insulated ferrules can be connected via push-in termination for all cross-sections.

Fine-stranded conductors with uninsulated ferrules and cross-sections larger than 0.5 mm²/AWG 22 can be connected via push-in termination. Conductors of smaller cross-sections are terminated by first depressing the push-button to open the clamping unit.

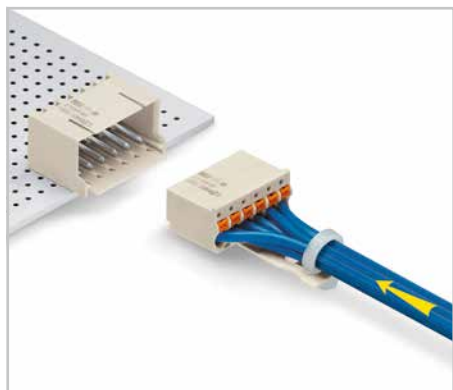
Solid conductors larger than 0.25 mm²/AWG 24 can be terminated by simply pushing them into unit.

* Termination via push-button actuation

- Current-Carrying Capacity Curve (Derating Curve) to EN 60512-5-2 / Reduction Factor: 0.8

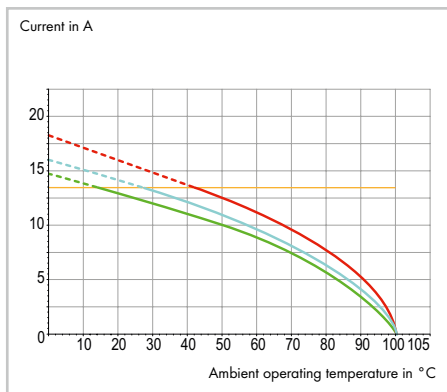
picoMAX®, 2091 Series, 3.5 mm pin spacing

“Wire-to-board” connection



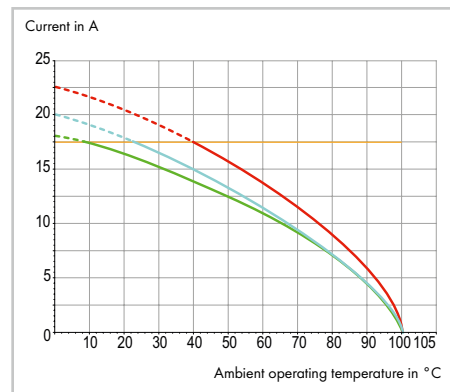
Example: Standard female connector and male header

1.0 mm² test conductor, fine-stranded

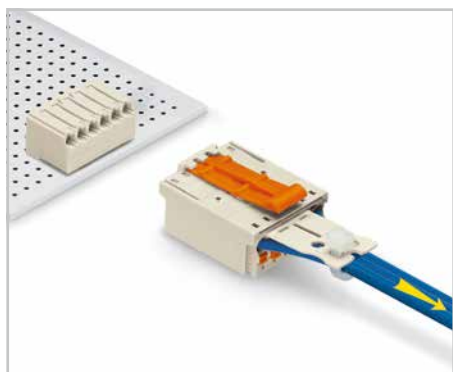


2-, 6-, 12-pole — Conductor rated current

1.5 mm² test conductor, fine-stranded

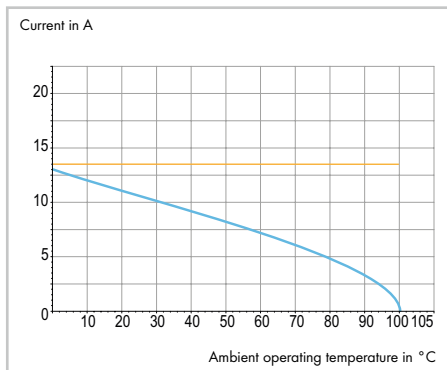


“Board-to-wire” connection



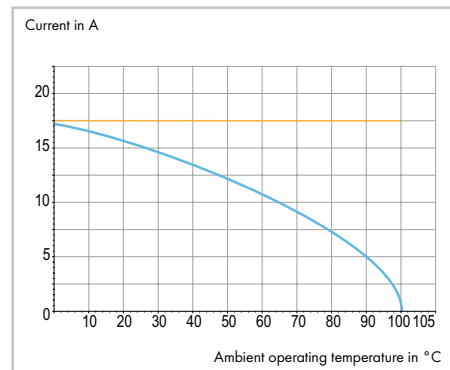
Example: Female header and standard male connector

1.0 mm² test conductor, fine-stranded

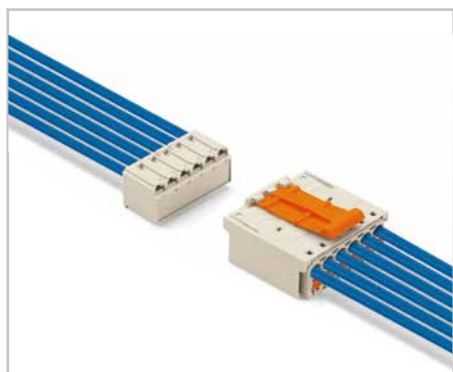


6-pole — Conductor rated current

1.5 mm² test conductor, fine-stranded

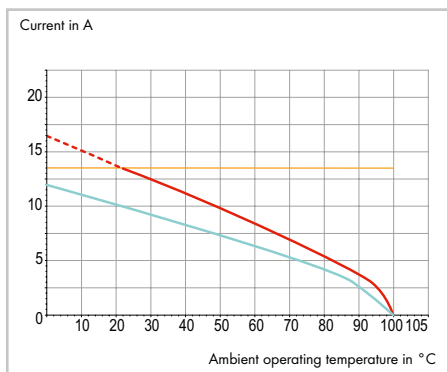


“Wire-to-wire” connection



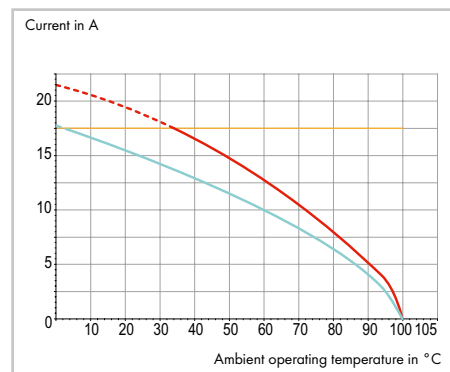
Example: Standard female and male connector

1.0 mm² test conductor, fine-stranded



2-, 6-pole — Conductor rated current

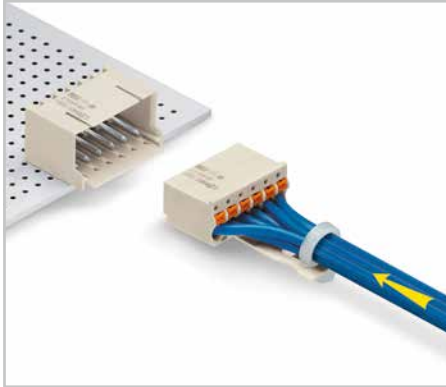
1.5 mm² test conductor, fine-stranded



• Current-Carrying Capacity Curve (Derating Curve) to EN 60512-5-2 / Reduction Factor: 0.8

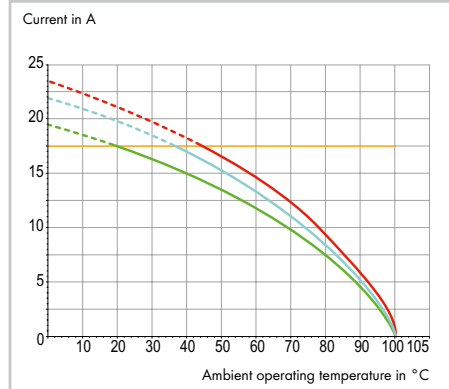
picoMAX®, 2092 Series, 5.0 mm pin spacing

“Wire-to-board” connection



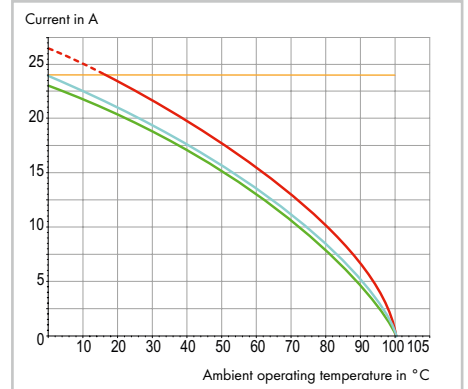
Example: Standard female connector and male header

1.5 mm² test conductor, fine-stranded



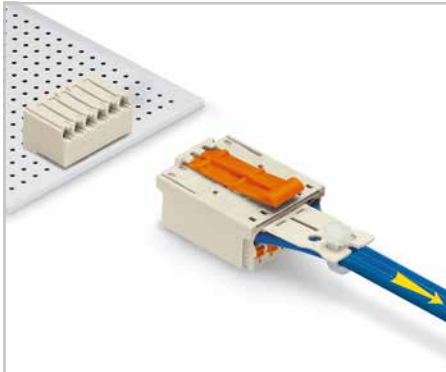
2-, 6-, 12-pole — Conductor rated current

2.5 mm² test conductor, fine-stranded



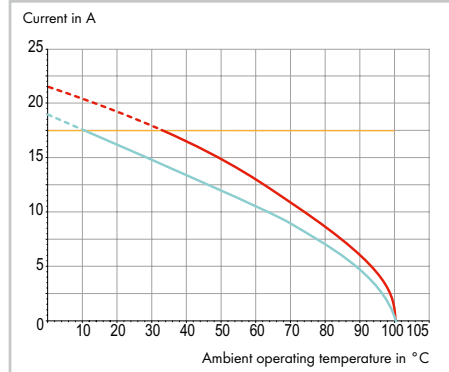
2-, 6-, 12-pole — Conductor rated current

“Board-to-wire” connection



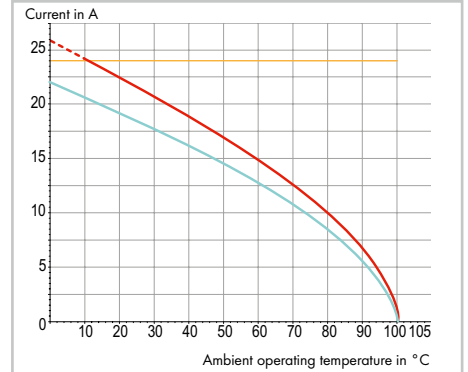
Example: Female header and standard male connector

1.5 mm² test conductor, fine-stranded



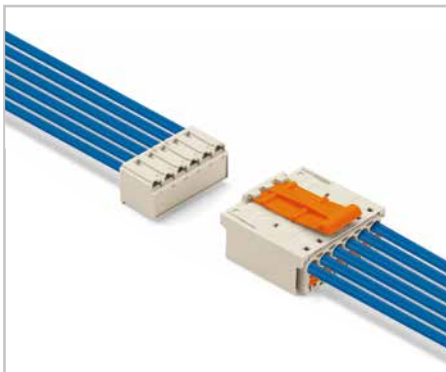
2-, 6-pole — Conductor rated current

2.5 mm² test conductor, fine-stranded



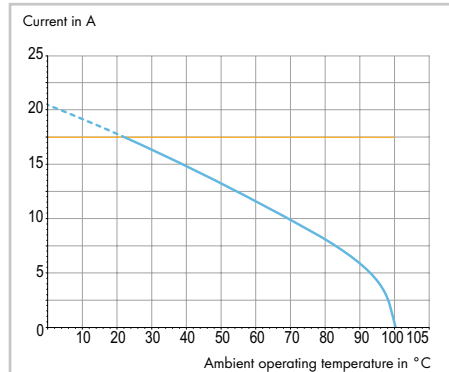
2-, 6-pole — Conductor rated current

“Wire-to-wire” connection



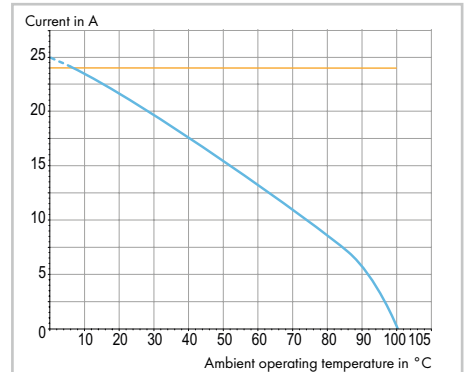
Example: Standard female and male connector

1.5 mm² test conductor, fine-stranded



6-pole — Conductor rated current

2.5 mm² test conductor, fine-stranded

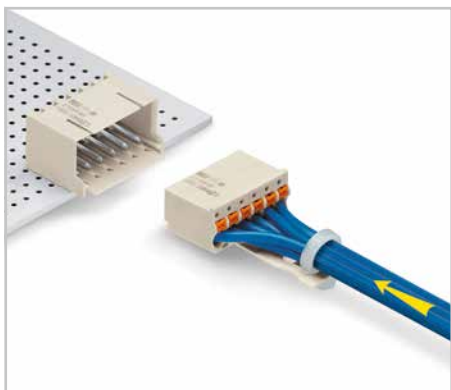


6-pole — Conductor rated current

- Current-Carrying Capacity Curve (Derating Curve) to EN 60512-5-2 / Reduction Factor: 0.8

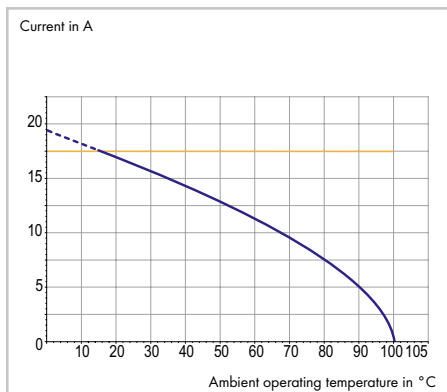
picoMAX®, 2092 Series, 7.5 mm pin spacing

“Wire-to-board” connection



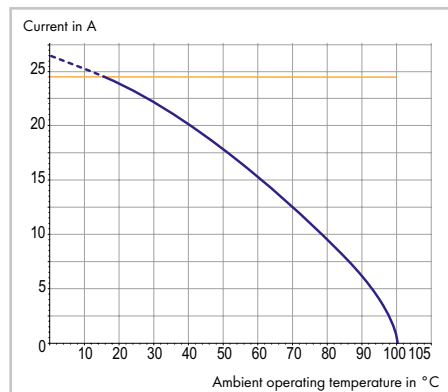
Example: Standard female connector and male header

1.5 mm² test conductor, fine-stranded



4-pole — Conductor rated current

2.5 mm² test conductor, fine-stranded



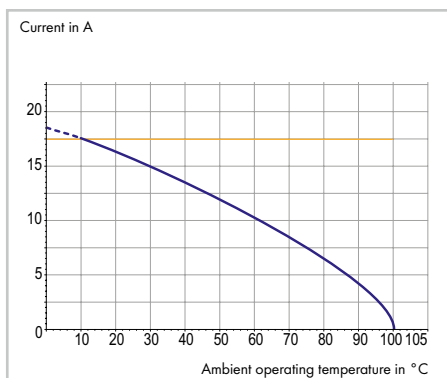
4-pole — Conductor rated current

“Board-to-wire” connection



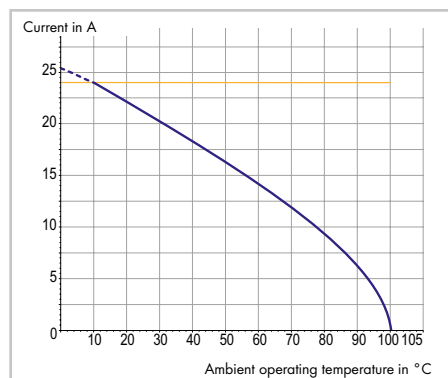
Example: Female header and standard male connector

1.5 mm² test conductor, fine-stranded



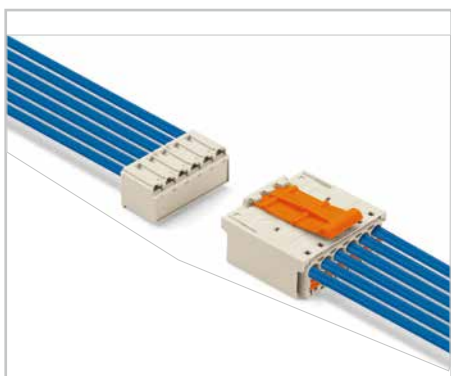
4-pole — Conductor rated current

2.5 mm² test conductor, fine-stranded



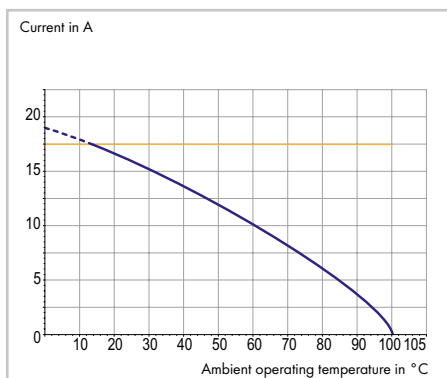
4-pole — Conductor rated current

“Wire-to-wire” connection



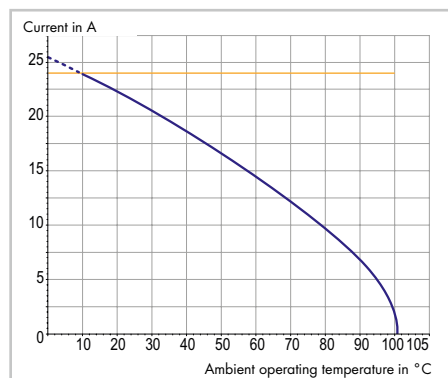
Example: Standard female and male connector

1.5 mm² test conductor, fine-stranded



4-pole — Conductor rated current

2.5 mm² test conductor, fine-stranded

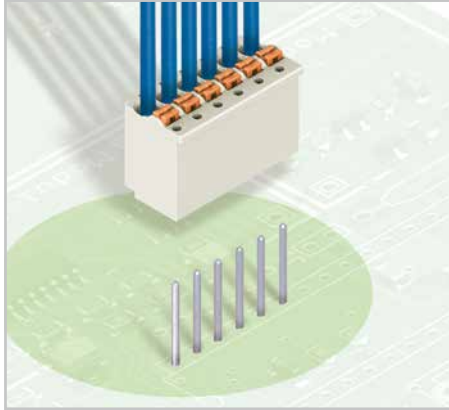


4-pole — Conductor rated current

• Current-Carrying Capacity Curve (Derating Curve) to EN 60512-5-2 / Reduction Factor: 0.8

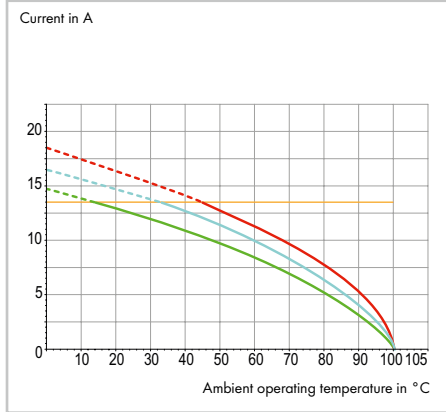
picoMAX® eCOM, 2091 Series, 3.5 mm pin spacing

“Wire-to-board” connection



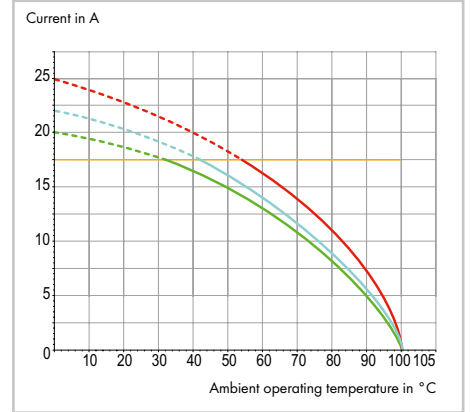
Example: 2091-1176 pluggable PCB connector

1.0 mm² test conductor, fine-stranded



2-, 6-, 12-pole — Conductor rated current

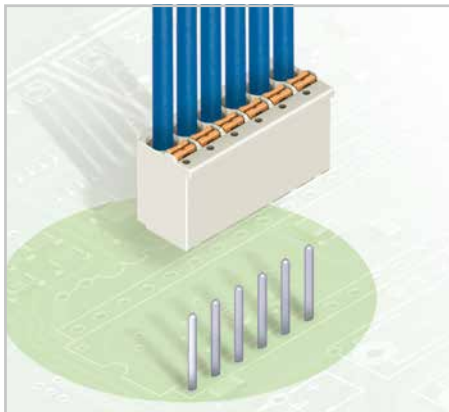
1.5 mm² test conductor, fine-stranded



2-, 6-, 12-pole — Conductor rated current

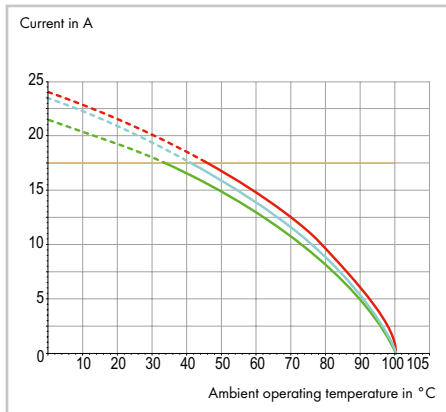
picoMAX® eCOM, 2092 Series, 5.0 mm pin spacing

“Wire-to-board” connection



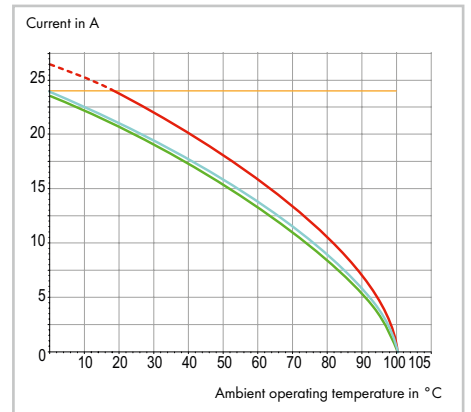
Example: 2092-1176 pluggable PCB connector

1.5 mm² test conductor, fine-stranded



2-, 6-, 12-pole — Conductor rated current

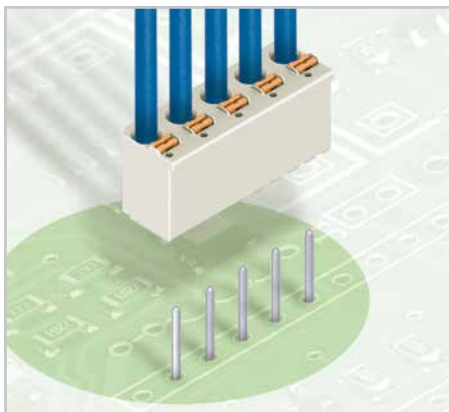
2.5 mm² test conductor, fine-stranded



2-, 6-, 12-pole — Conductor rated current

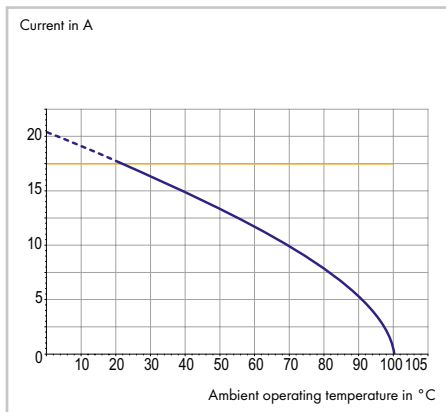
picoMAX® eCOM, 2092 Series, 7.5 mm pin spacing

“Wire-to-board” connection



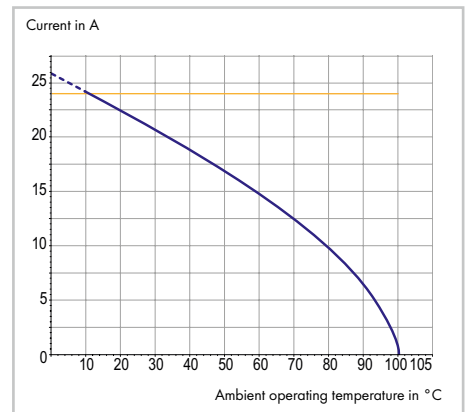
Example: 2092-3175 pluggable PCB connector

1.5 mm² test conductor, fine-stranded



4-pole — Conductor rated current

2.5 mm² test conductor, fine-stranded



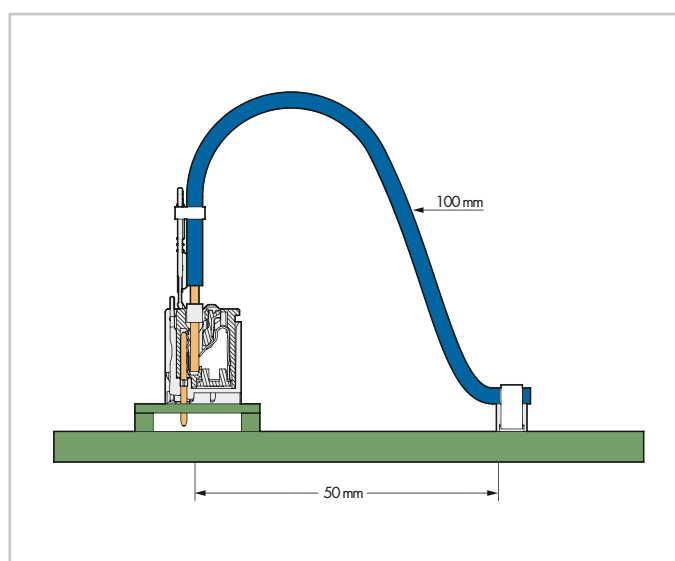
4-pole — Conductor rated current

• Vibration Test to EN 60068-2-6 for **picoMAX®** / **picoMAX® eCOM** Wire-to-Board Connection

This vibration test (EN 60068-2-6) was performed on the following wire-to-board connections: 2091 Series (3.5 mm pin spacing, 6-pole) and 2092 Series (5 mm pin spacing, 6-pole and 7.5 mm pin spacing, 4-pole) **picoMAX®** male headers with straight solder pins and standard female connectors, as well as **picoMAX® eCOM** standard pluggable female headers with straight solder pins. The connections were subjected to frequencies ranging from 5 to 2000 Hz in 10 frequency cycles of 17.3 minutes per axis. Acceleration started with 10 g along all 3 axes and was then increased from 14 g to 16 g, and finally 20 g. This means that every pluggable connector was subjected to all acceleration values up to the maximum acceleration. A failure occurs when the contact resistance increases by more than 50% of its reference value, or more than 5 mΩ. Higher values are allowed as long as one of these maximum values is not exceeded. No contact disruptions higher than 20 ns shall occur during the test. The above-mentioned **picoMAX®** and **picoMAX® eCOM** wire-to-board pluggable connections (2091, 2092 Series) were terminated with 1.5 mm² (AWG 14) or 2.5 mm² (AWG 12) conductors and achieved an acceleration of 20 g without failure. This value reflects the high vibration-resistance of both **picoMAX®** and **picoMAX® eCOM**.



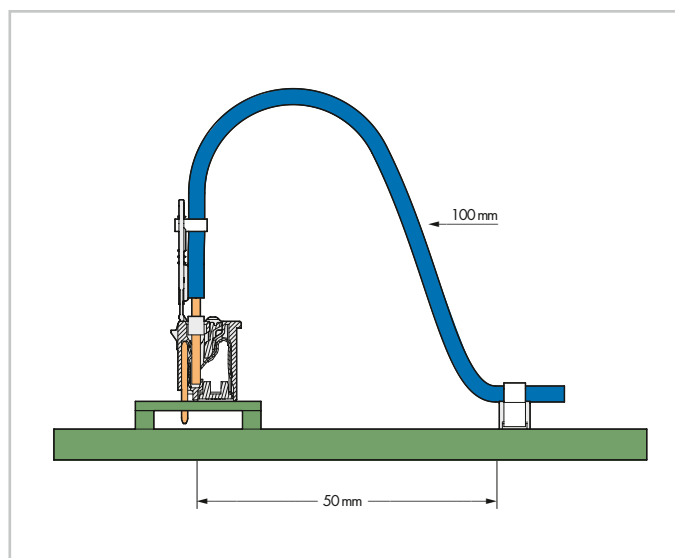
Vibration test performed on a **picoMAX®** wire-to-board connection (2091 Series)



picoMAX® male header with straight solder pins and standard female connector



Vibration test performed on a **picoMAX® eCOM** wire-to-board connection (2091 Series)

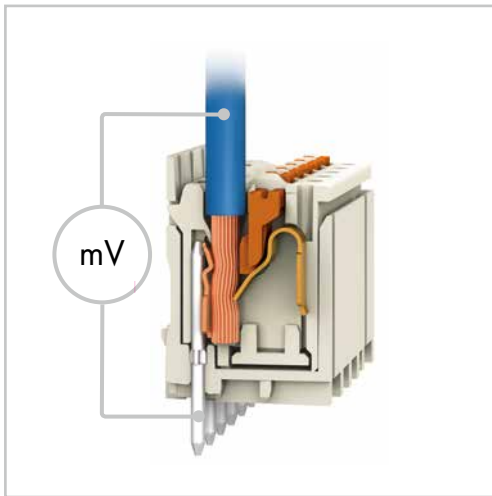


picoMAX® eCOM standard pluggable female header with straight solder pins for direct soldering to PCB

The "open length" of the conductor up to the point where the conductor is attached in the application shall be kept as short as possible. The vibration tests on wire-to-board connections were performed using the lengths shown above.

• Mating Cycle Test

A cascading test sequence is used to determine the mating cycle number of *picoMAX*[®] pluggable connectors. First, a service life test is performed based on IEC/EN 61984, in which the contact surfaces of the pluggable connectors are exposed to mechanical abrasion via mating cycles (i.e., connection and disconnection). Then, an accelerated aging test is performed in industrial atmospheres according to EN ISO 6988. Finally, the pluggable connectors are submitted to a current load cycle test with rated current. A test cycle runs for 30 minutes with current and for 30 minutes without current. Both contact resistance and voltage drop values are determined at the beginning and then continuously monitored during the test. These values have to be within the specified limits. Due to the cascading service life test performed above, up to 25 mating cycles are outlined for practical applications of the *picoMAX*[®] pluggable connection system. More information about connection and disconnection forces are available upon request.



Voltage drop measurement after mating cycle test

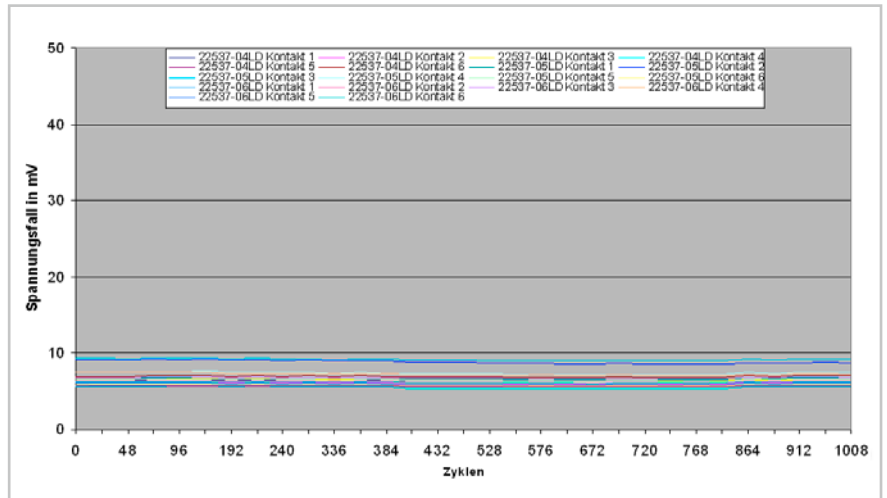
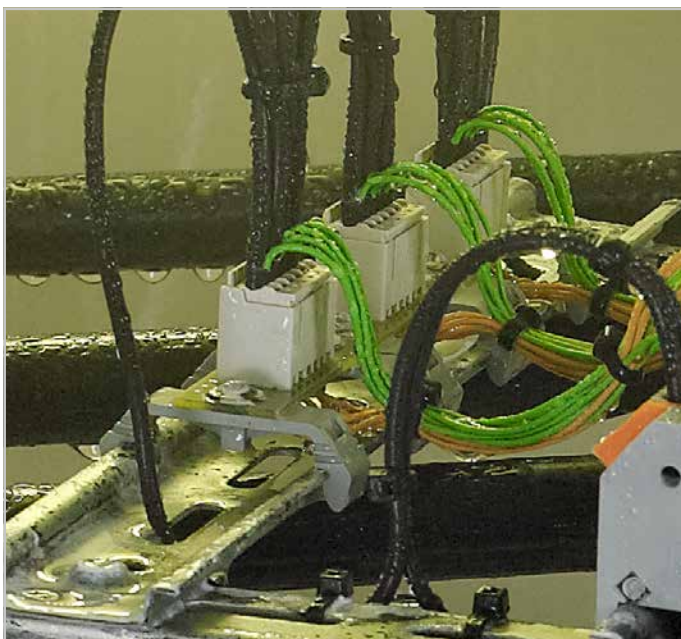


Diagram: "Current load cycle with voltage drop progression over 1000 cycles"

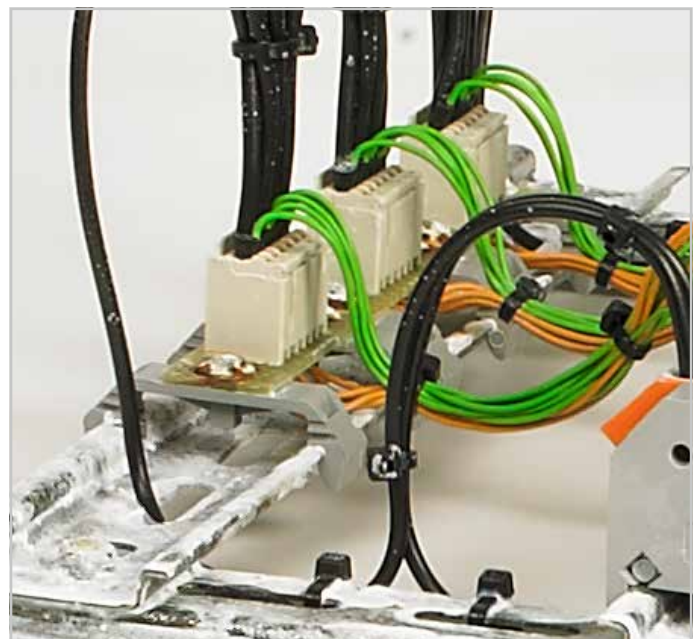
According to the cascading service life test, *picoMAX*[®] is suitable for up to 25 mating cycles.

• Salt Spray Test to IEC/EN 60068-2-11

Ferrules are used to terminate fine-stranded conductors in extremely harsh environmental conditions. Salt spray tests per IEC/EN 60068-2-11 show positive results even after 96 hours in a salt spray chamber.



Salt spray chamber with *picoMAX*[®] test arrangement

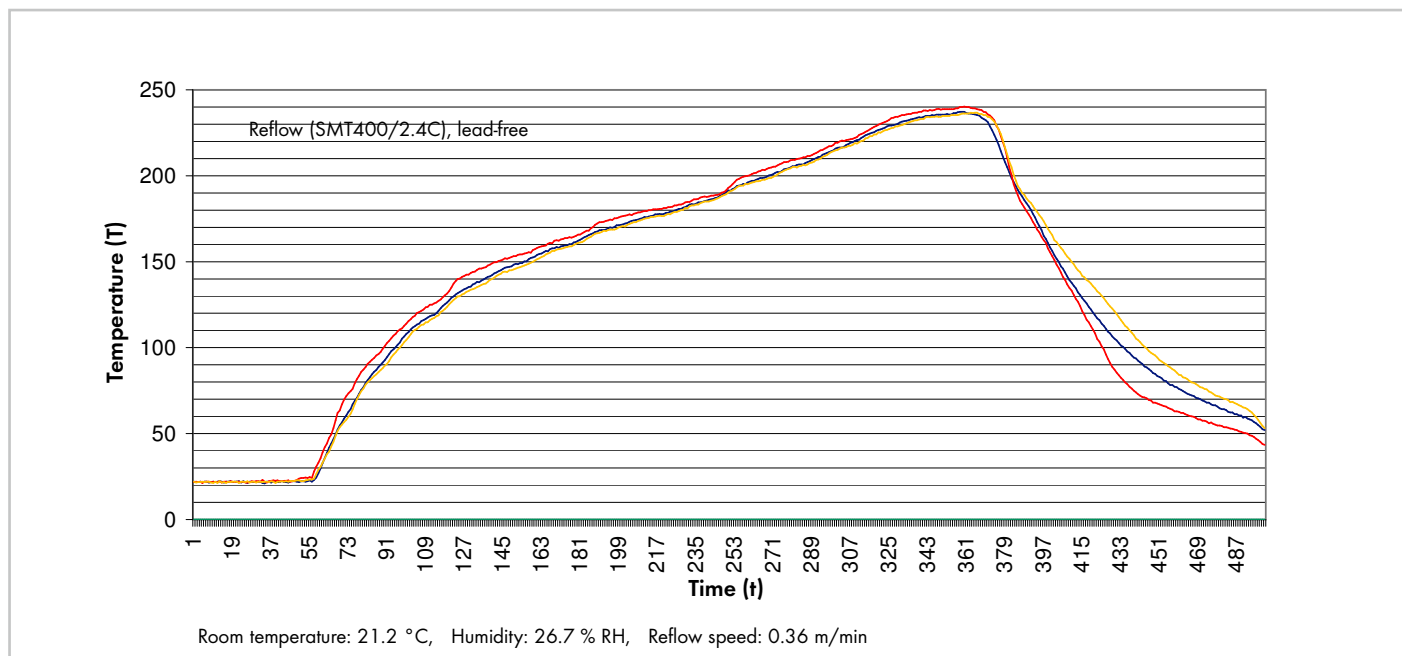


picoMAX[®] test arrangement after the salt spray test

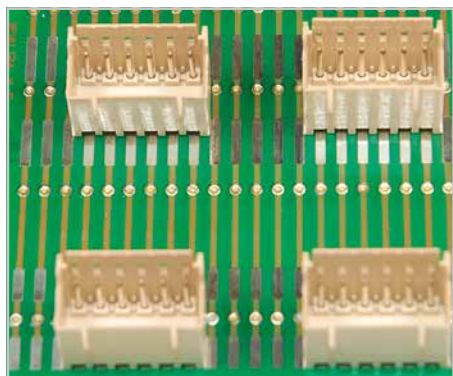
• Reflow Soldering Processing

picoMAX[®] male and female headers with solder pins are available in THR variants with 2.4 mm pin projection on the solder side. This pin length is ideal for THR soldering applications with PCB thickness from 1.5 to 2 mm.

With the specified solder profile for a four-zone convection reflow oven, both process capability and soldering result for *picoMAX*[®] THR versions have been tested for a Sn96.5 Ag3 Cu0.5 lead-free solder.



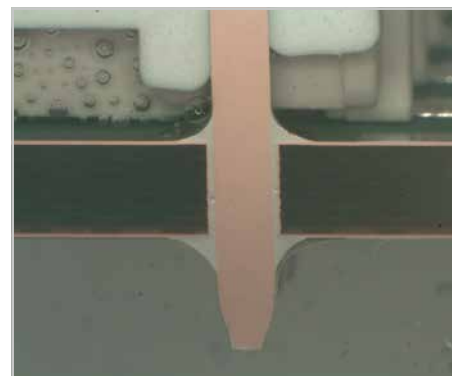
Soldering results for *picoMAX*[®] – Male headers with solder pins



THR sample board showing *picoMAX*[®] male headers with solder pins

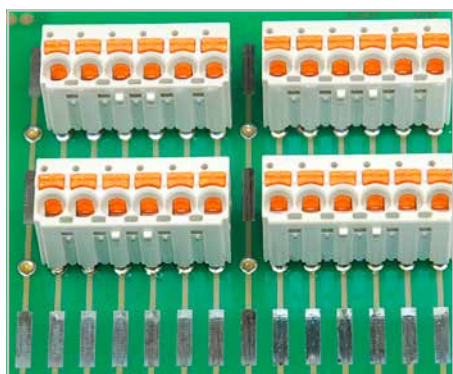


Solder joints on the bottom side of the PCB

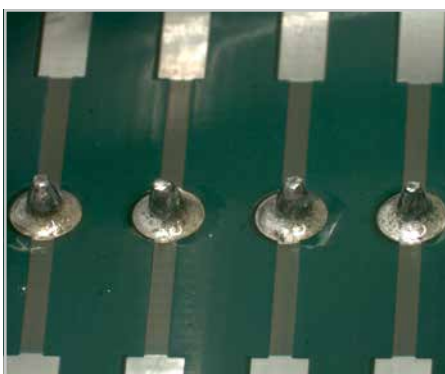


Drilled hole section

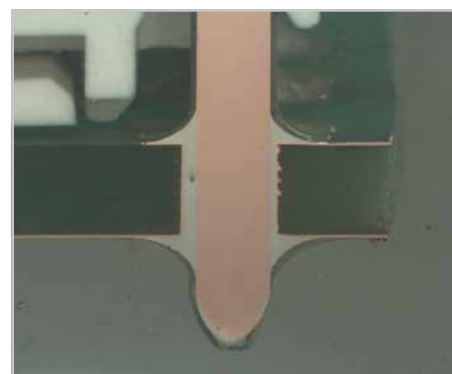
Soldering results for *picoMAX*[®] eCOM – Pluggable PCB connectors



THR sample board showing *picoMAX*[®] eCOM



Solder joints on the bottom side of the PCB



Drilled hole section

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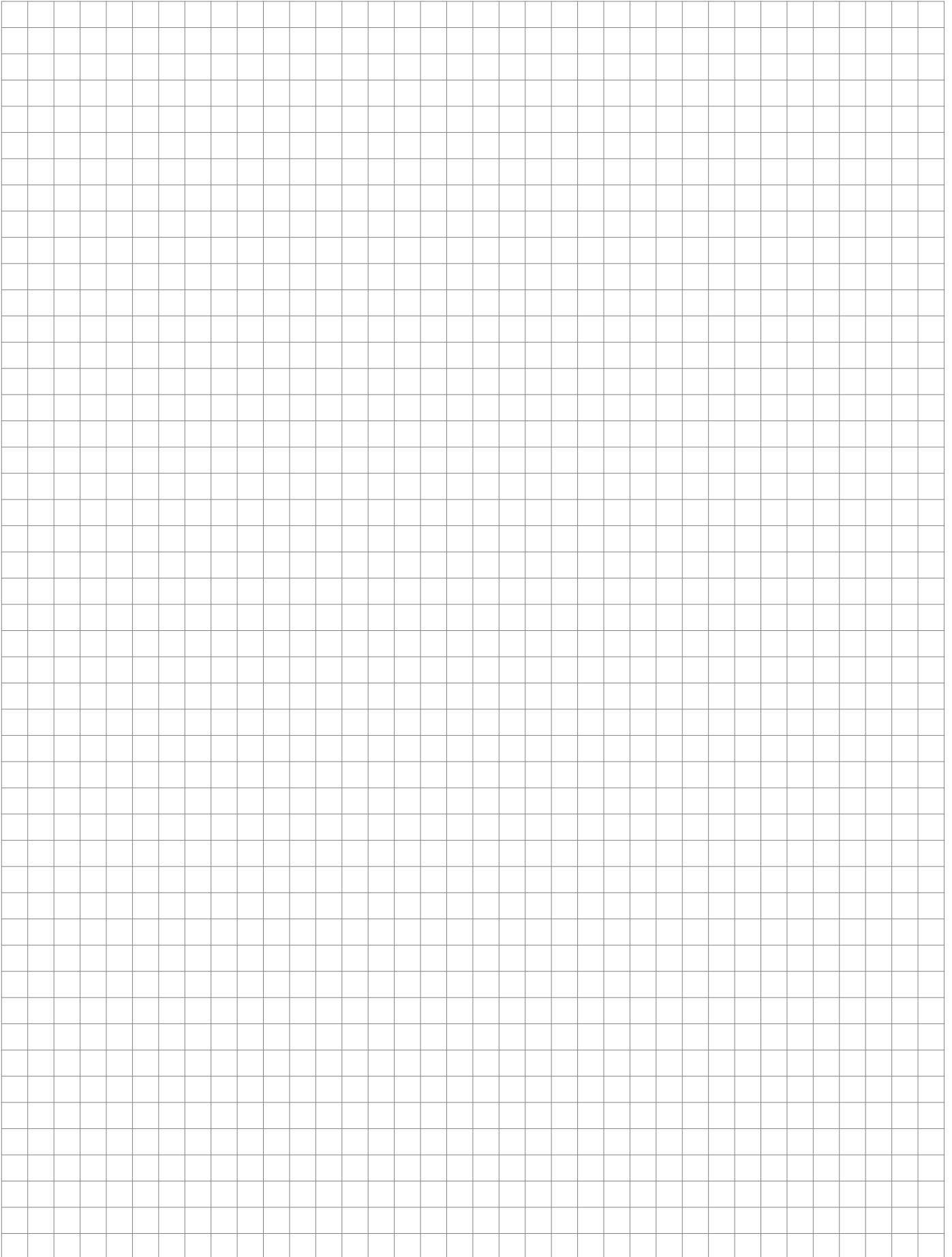
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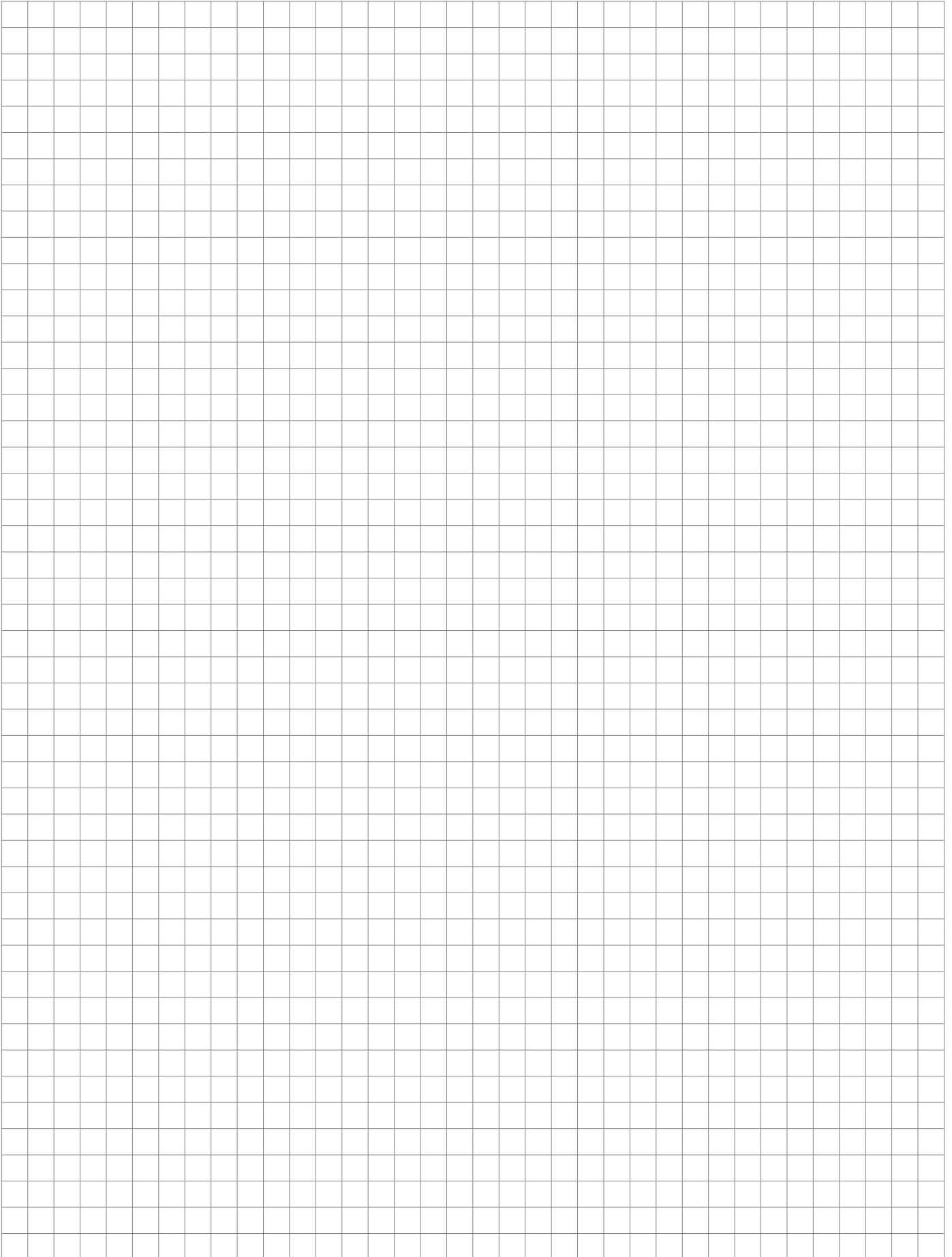
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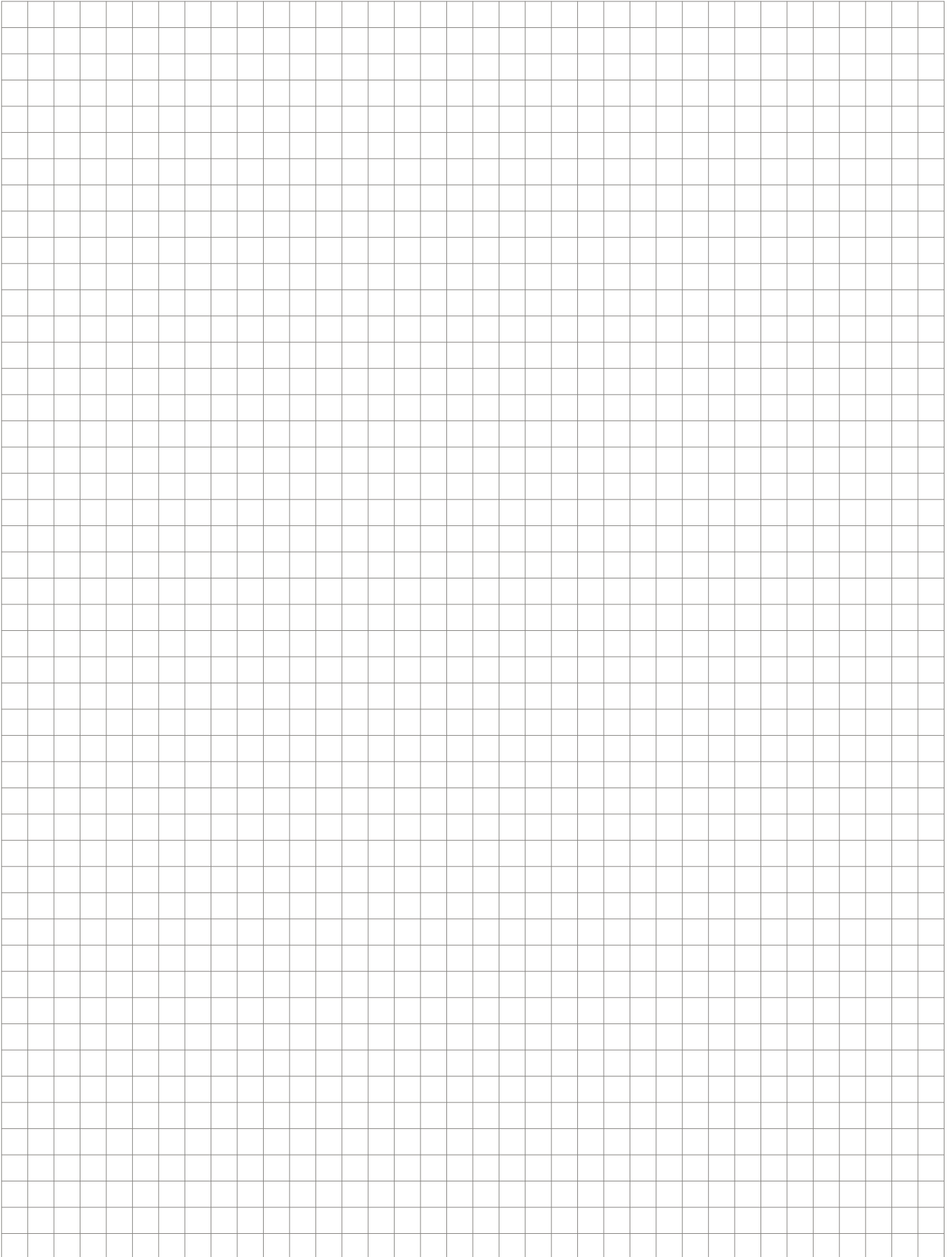
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