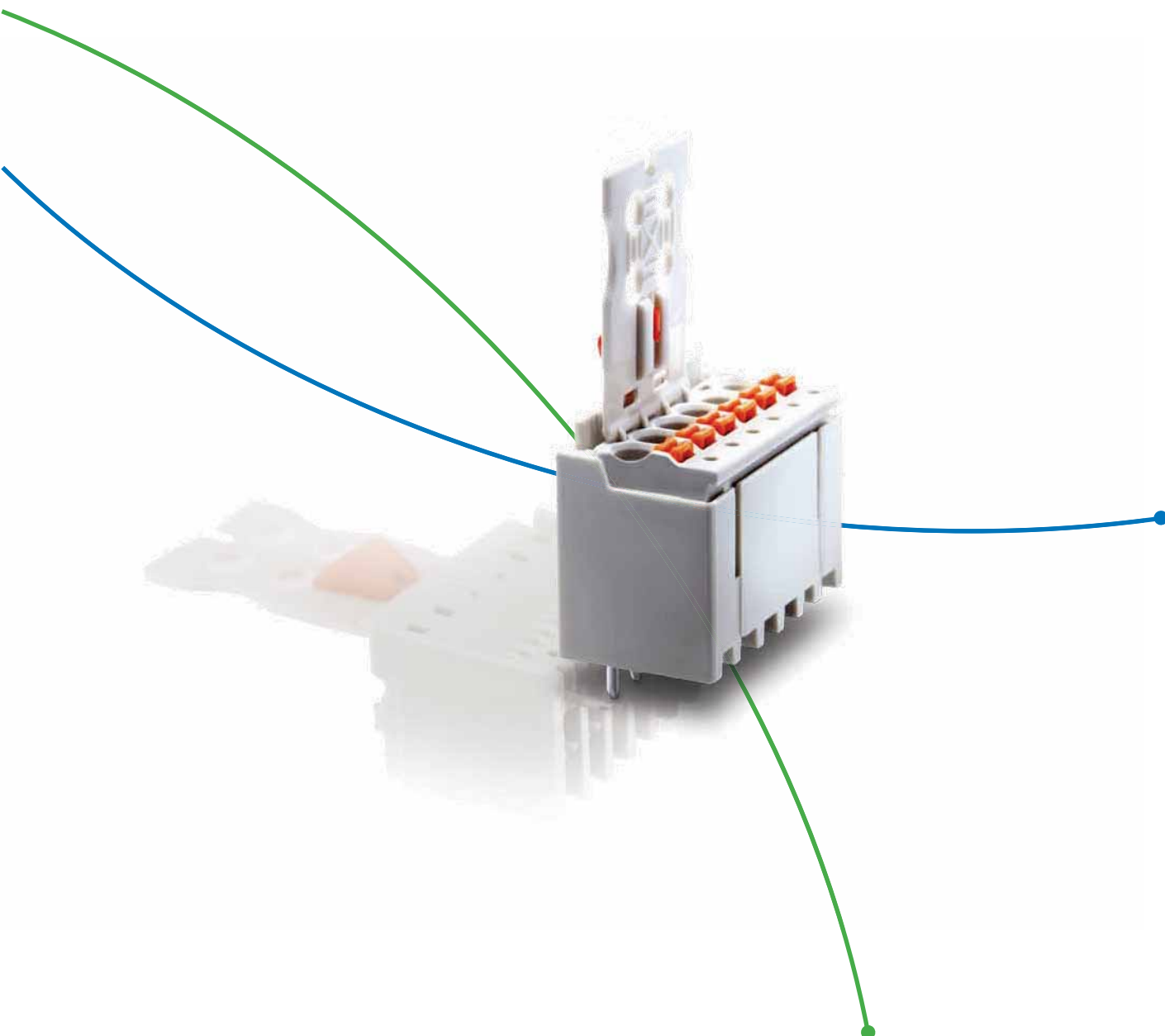


# *pico*MAX<sup>®</sup>

The Pluggable Connection System



**WAGO**<sup>®</sup>  
INNOVATIVE CONNECTIONS

TECHNOLOGY THIS SPECIALIZED  
CAN'T MEET ALL REQUIREMENTS.

**YES IT CAN.**

## **picoMAX<sup>®</sup>** 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**

	System Description	2 - 8		
	Handling	9 - 13		
<div style="border: 1px solid green; border-radius: 10px; padding: 10px; text-align: center; width: 150px; margin: 10px auto;"> <b>3.5</b> 2091 Series         </div>	Standard Female Connectors	14 - 17	3.5	
	Male Headers with Solder Pins	18 - 20		
	Standard Male Connectors	22 - 23		
	Female Headers with Solder Pins	24 - 25		
	Panel Feedthrough Male Connectors	26 - 27		
<div style="border: 1px solid green; border-radius: 10px; padding: 10px; text-align: center; width: 150px; margin: 10px auto;"> <b>5.0</b> 2092 Series         </div>	Standard Female Connectors	28 - 31	5.0	
	Male Headers with Solder Pins	32 - 34		
	Standard Male Connectors	36 - 37		
	Female Headers with Solder Pins	38 - 39		
	Panel Feedthrough Male Connectors	40 - 41		
<div style="border: 1px solid green; border-radius: 10px; padding: 10px; text-align: center; width: 150px; margin: 10px auto;"> <b>7.5</b> 2092 Series         </div>	Standard Female Connectors	42 - 45	7.5	
	Male Headers with Solder Pins	46 - 48		
	Standard Male Connectors	50 - 51		
	Female Headers with Solder Pins	52 - 53		

## **picoMAX<sup>®</sup> 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**

	Description and Handling	54 - 57	
<div style="border: 1px solid green; border-radius: 10px; padding: 10px; text-align: center; width: 150px; margin: 10px auto;"> <b>3.5</b> 2091 Series         </div>	Standard Pluggable Female Headers for Direct Soldering to PCB	58 - 59	3.5
<div style="border: 1px solid green; border-radius: 10px; padding: 10px; text-align: center; width: 150px; margin: 10px auto;"> <b>5.0</b> 2092 Series         </div>	Standard Pluggable Female Headers for Direct Soldering to PCB	60 - 61	5.0
<div style="border: 1px solid green; border-radius: 10px; padding: 10px; text-align: center; width: 150px; margin: 10px auto;"> <b>7.5</b> 2092 Series         </div>	Standard Pluggable Female Headers for Direct Soldering to PCB	62 - 63	7.5
	Accessories	64 - 68	
	Technical Section	70 - 77	
	Index of Item Numbers	78 - 79	
	WAGO Offices	80 - 83	



**PACKED WITH INNOVATION, *pico*MAX<sup>®</sup> SHOULD BE MUCH BIGGER.**

**BUT IT ISN'T.**

The *pico*MAX<sup>®</sup> 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.

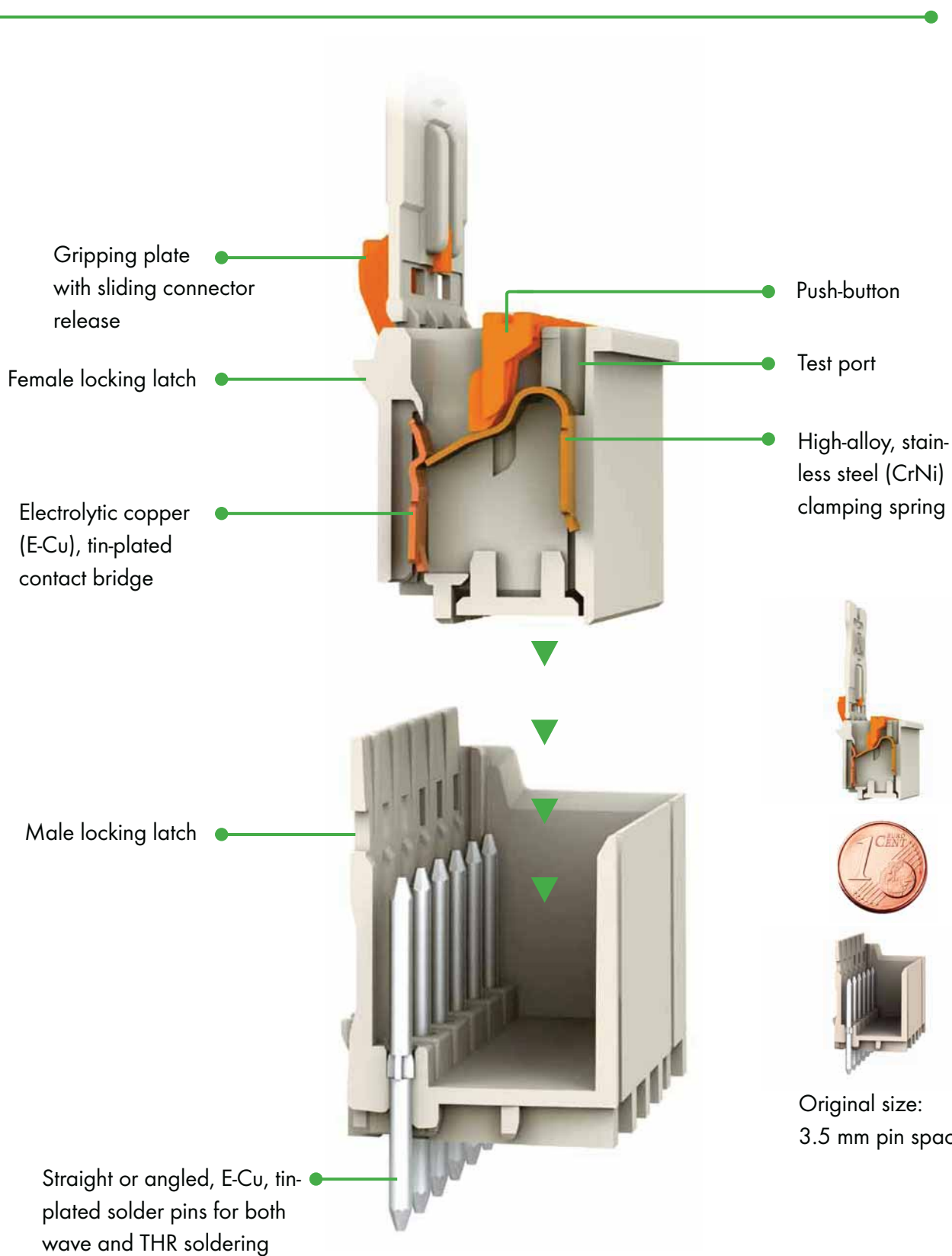
The *pico*MAX<sup>®</sup> design yields extremely short female connectors.  
Male headers are equipped with an integrated locking latch.

The **very short contact bridge** separates the termination unit from the header pin.  
This **extremely short current path** minimizes contact resistance.

*pico*MAX<sup>®</sup> 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



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

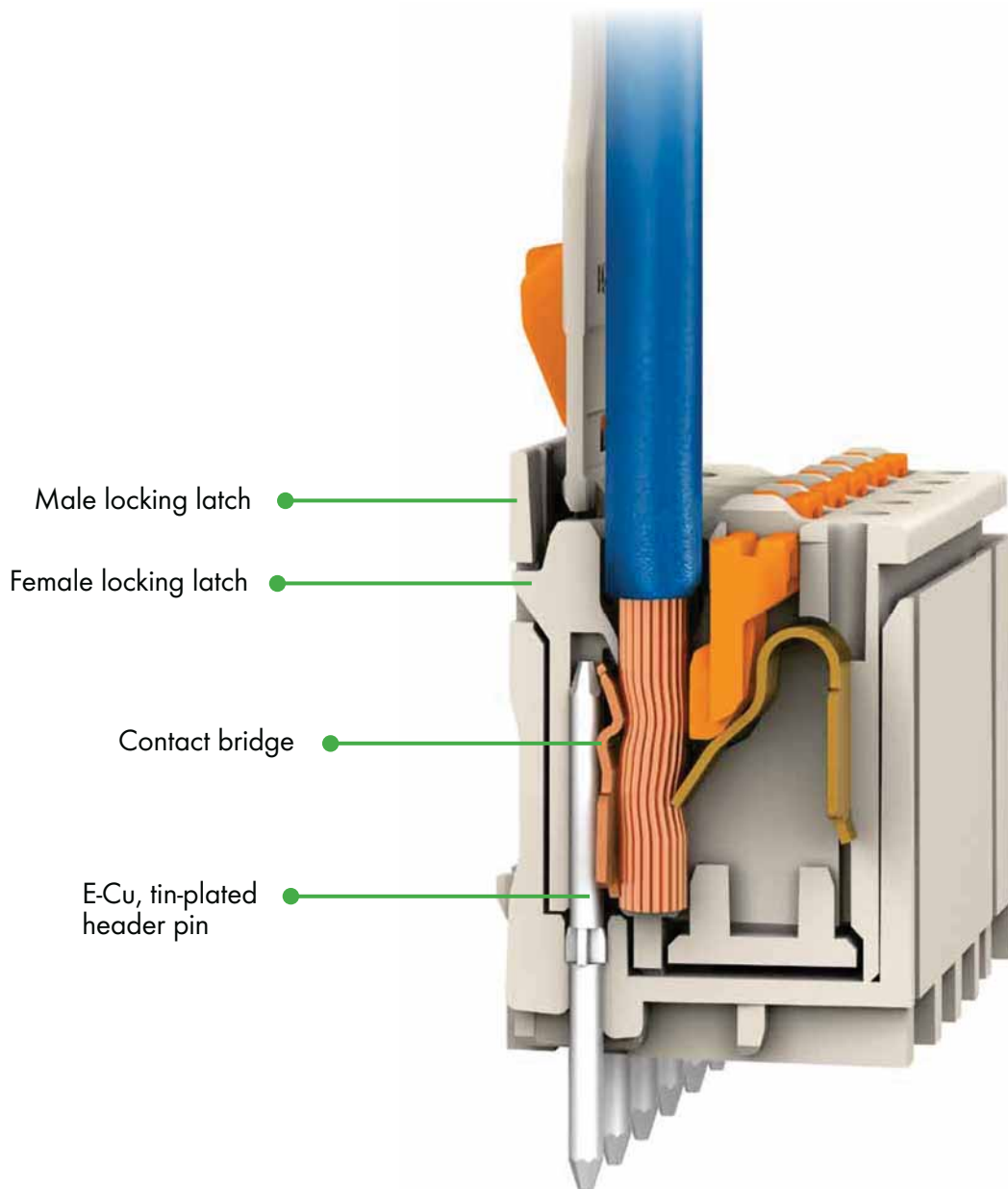
### YES IT CAN.

The *picoMAX*<sup>®</sup> 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*<sup>®</sup> connectors ideal for vibration-prone applications. Essentially, the **contact force** between conductor, contact bridge and header pin is **automatically adjusted**.

This also allows *picoMAX*<sup>®</sup> 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*<sup>®</sup> into the **new standard for vibration-proof pluggable connector systems**.



COMPACT

VIBRATION-PROOF

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UNIVERSAL

EFFICIENT  
Pages 54 - 63



**WITH SO MANY COMBINATION POSSIBILITIES, *picoMAX*<sup>®</sup> MUST BE DIFFICULT TO USE.**

**BUT IT ISN'T.**

The *picoMAX*<sup>®</sup> 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

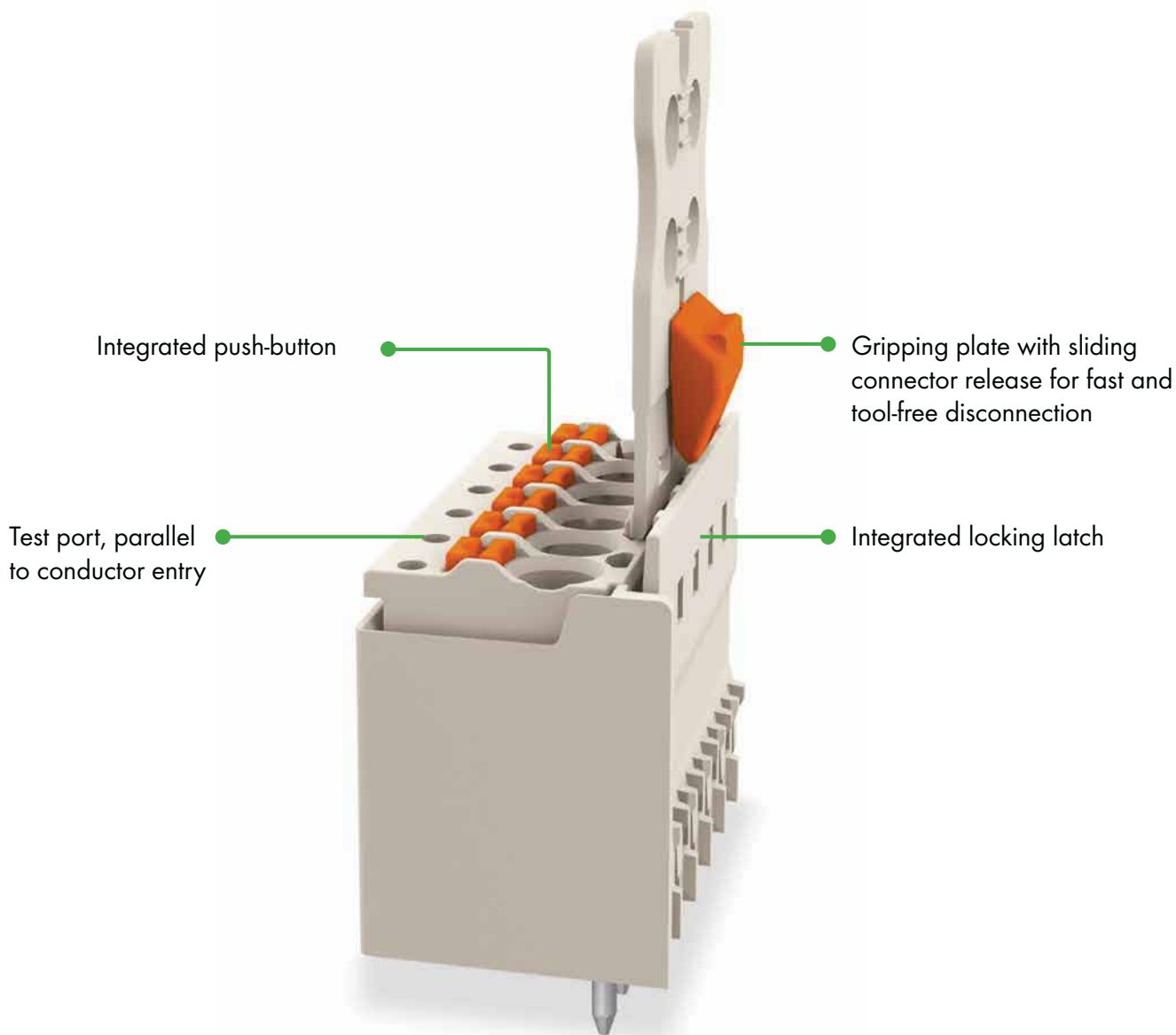
#### **Assembling connectors without losing any poles**

- Within a male header's housing

#### **Easy panel feedthrough connections**

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





COMPACT

VIBRATION-PROOF

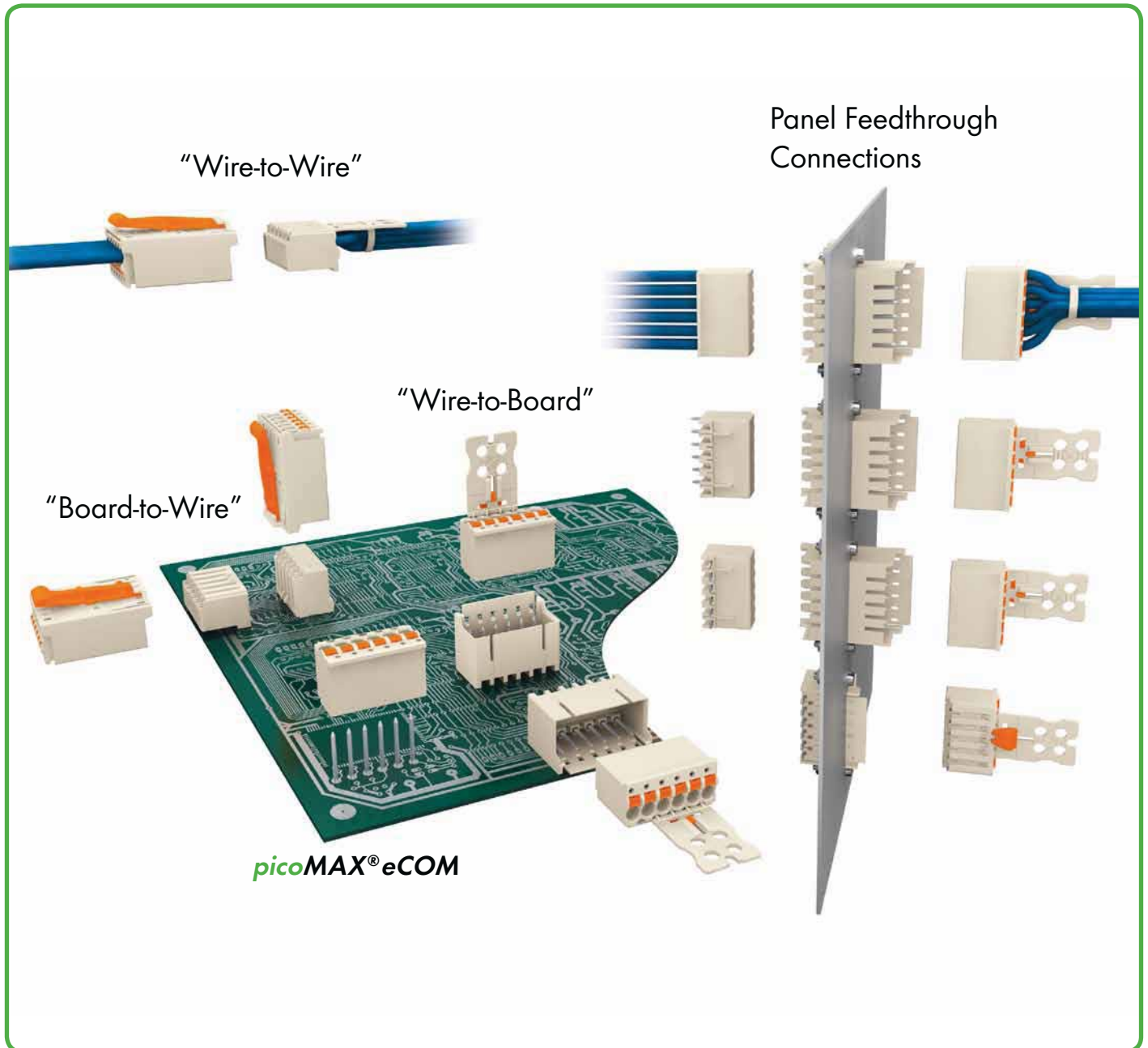
INTUITIVE

UNIVERSAL

EFFICIENT  
Pages 54 - 63





































# *pico*MAX<sup>®</sup>

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

Female Connectors/ Headers	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)	
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 						



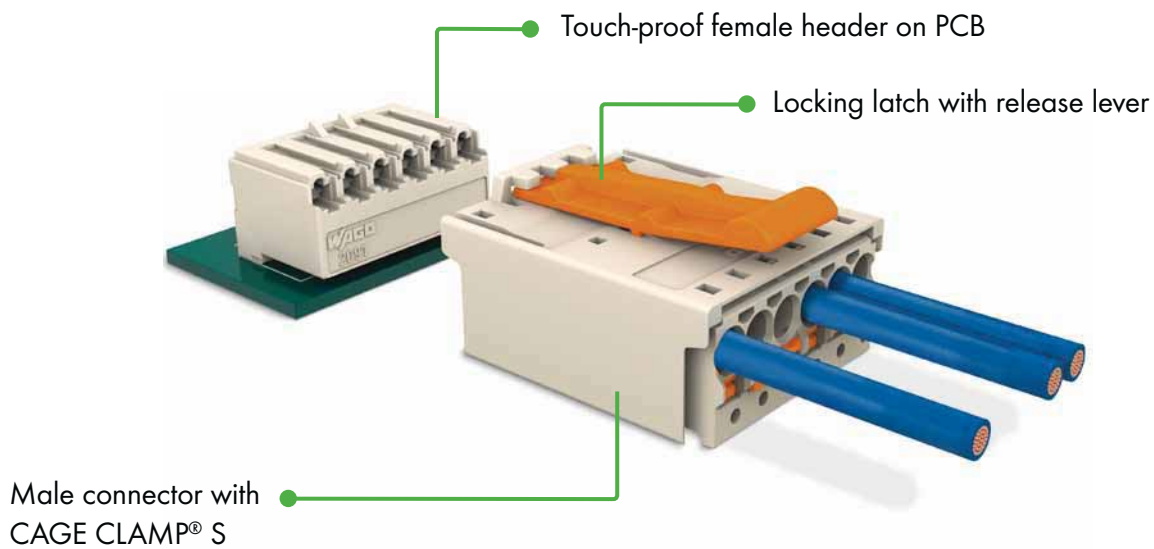
Disconnection: Open locking latches via unlocking tool.

# *pico*MAX<sup>®</sup>

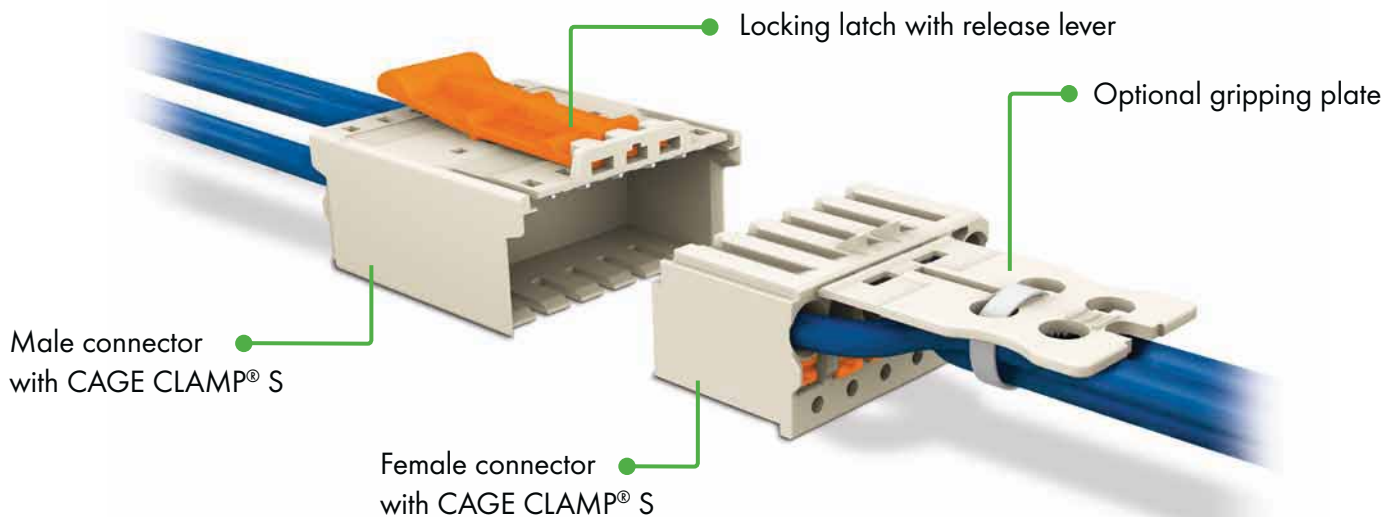
The Pluggable Connection System



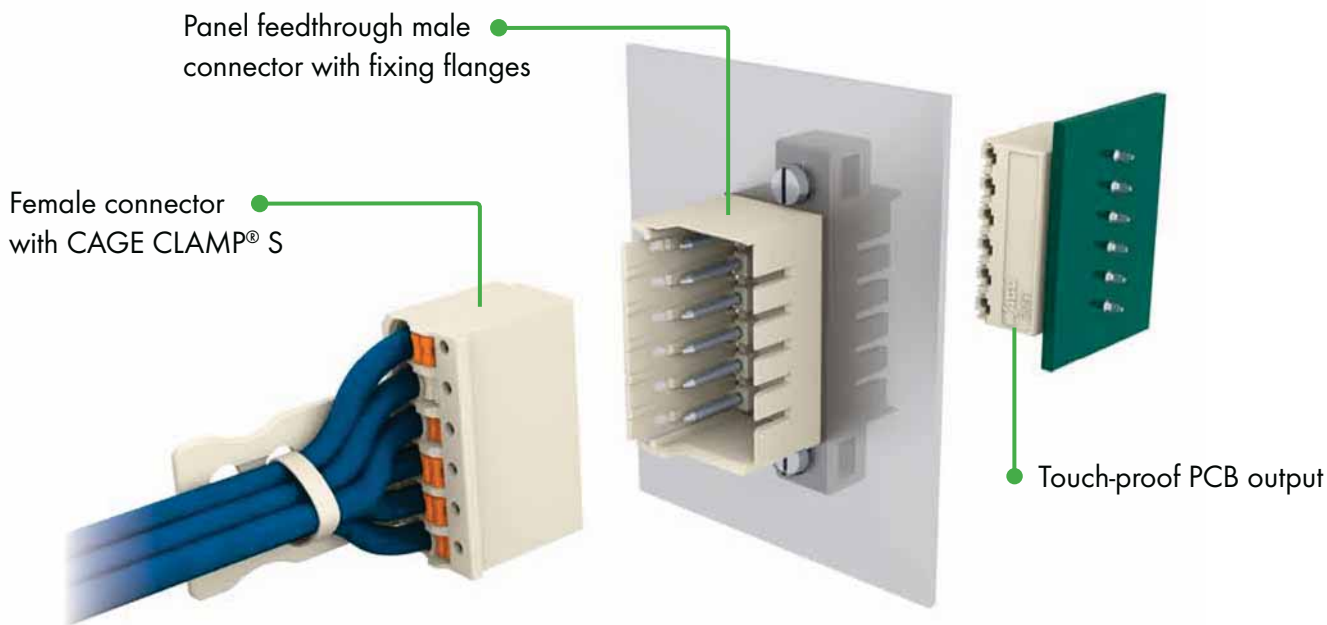
## Touch-Proof PCB Output: "Board-to-Wire"



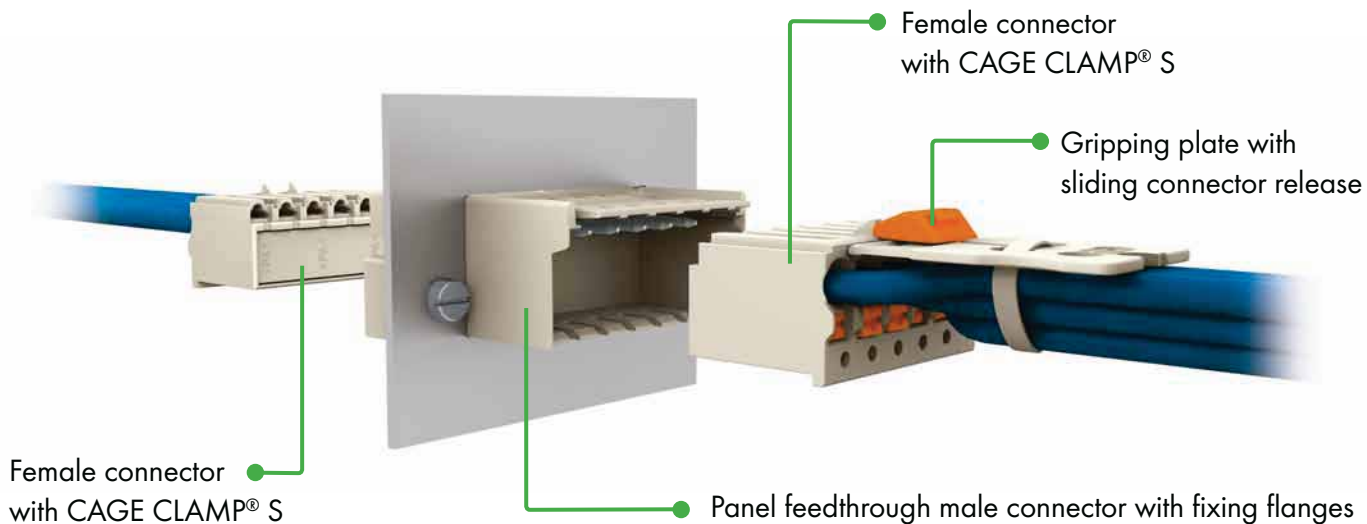
## "Wire-to-Wire" Flying Lead



## “Wire-to-Board” Panel Feedthrough

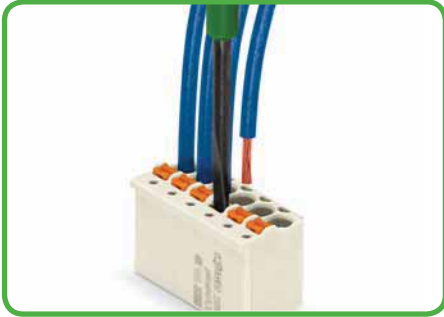


## “Wire-to-Wire” Panel Feedthrough

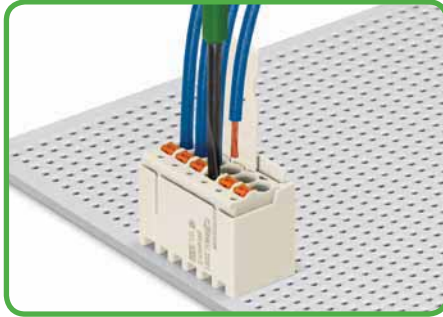


# Handling *picoMAX*<sup>®</sup>

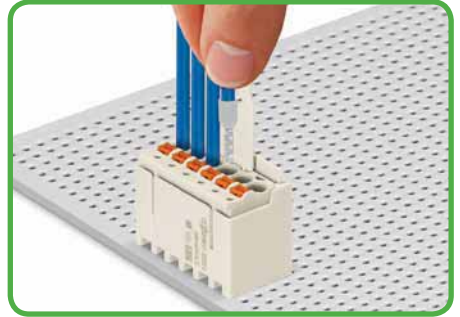
Pin Spacing: 3.5 mm/0.138 in; 5.0 mm/0.197 in; 7.5 mm/0.295 in



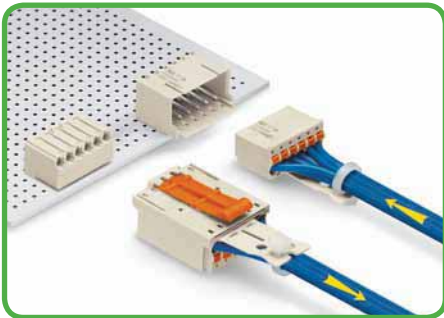
Inserting fine-stranded conductor into unmated female connector via push-button.



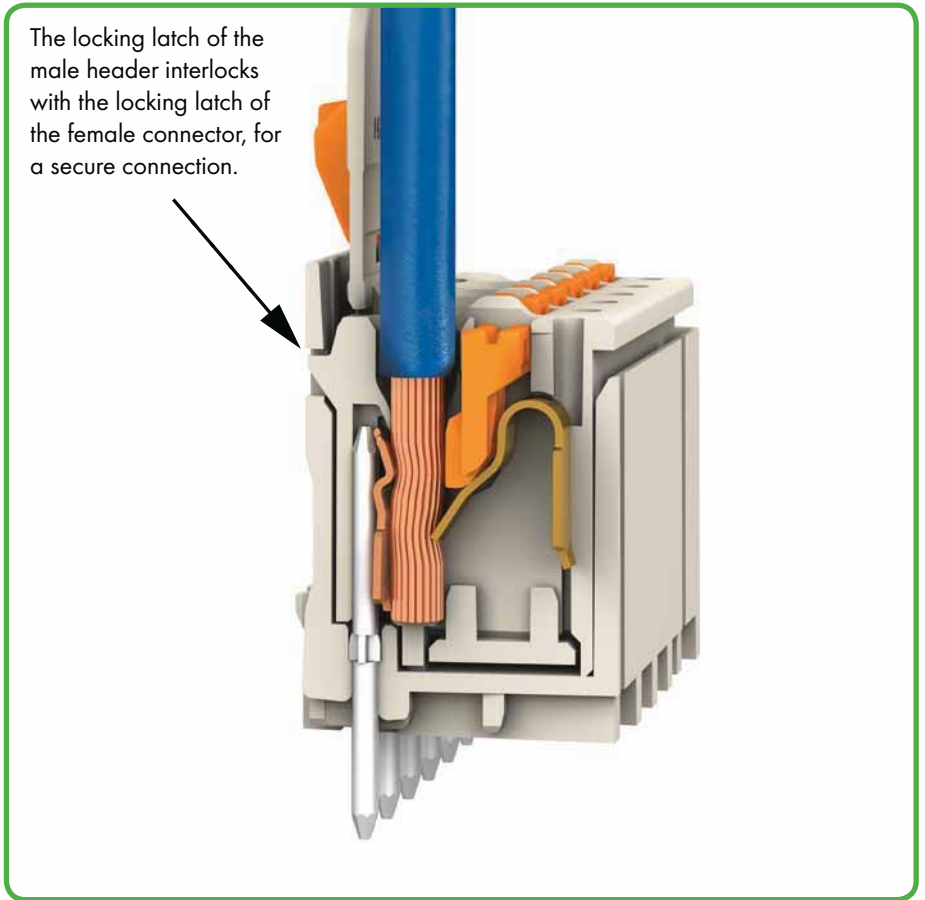
Inserting fine-stranded conductor into mated female connector via push-button.



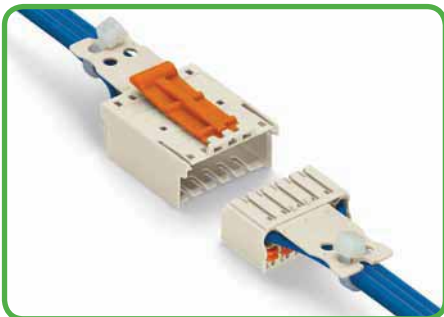
Inserting solid and ferruled conductors via push-in termination.



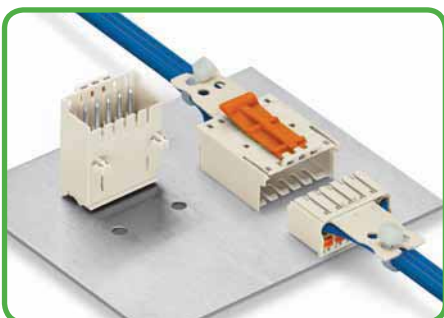
Easy-to-identify PCB inputs and outputs.



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



"Wire-to-wire" flying leads



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.



**CAGE CLAMP<sup>®</sup> S**  
clamps the following  
copper conductors:

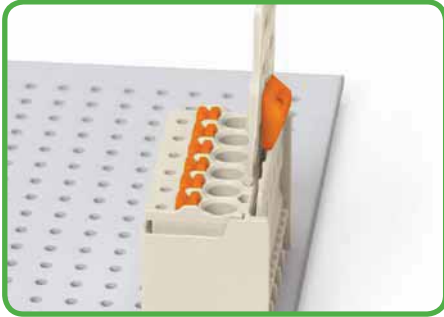
solid



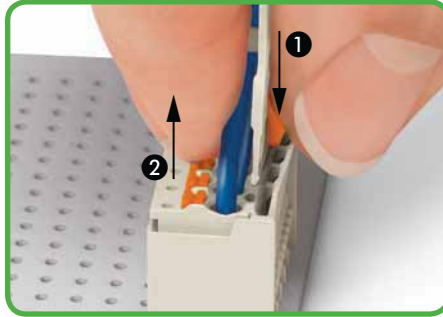
stranded



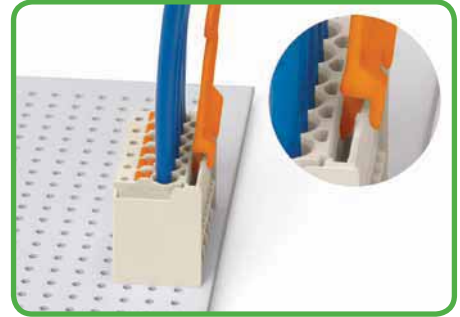
fine-stranded,  
also with tinned  
single strands



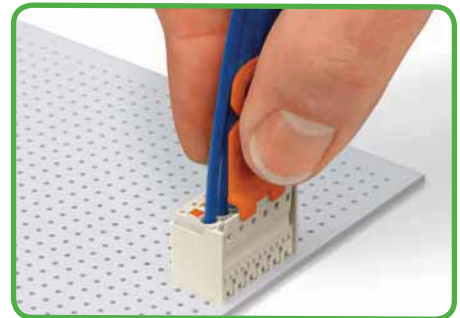
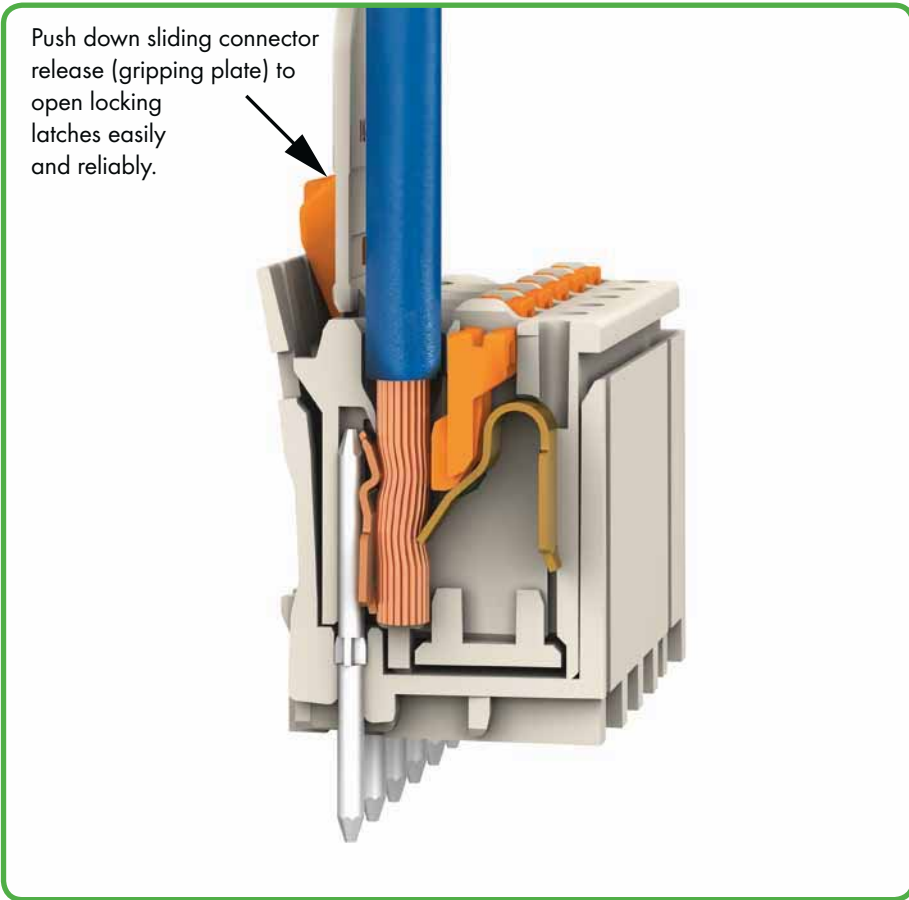
Male header mated to a female connector with gripping plate and sliding connector release.



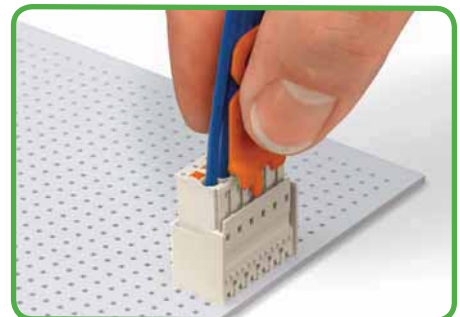
Disconnecting female connector via sliding connector release.  
 ① Push down sliding connector release (gripping plate) to open the locking latch.  
 ② Pull out female connector from male header.



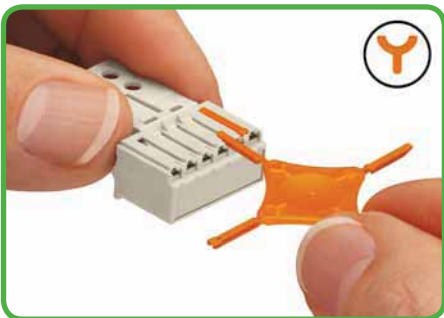
Disconnecting female connector via unlocking tool. Plug unlocking tool into the male locking latch.



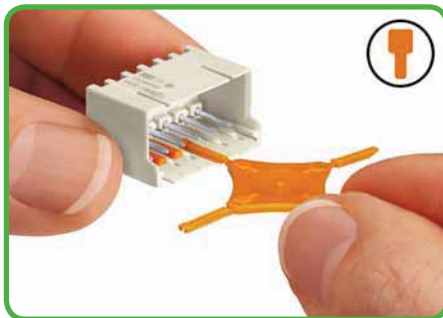
Insert unlocking tool until it hits backstop. Wedge opens locking latches.



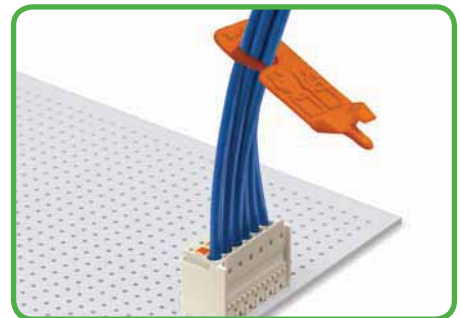
Pull on both unlocking tool and conductors to remove female connector from male header.



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.

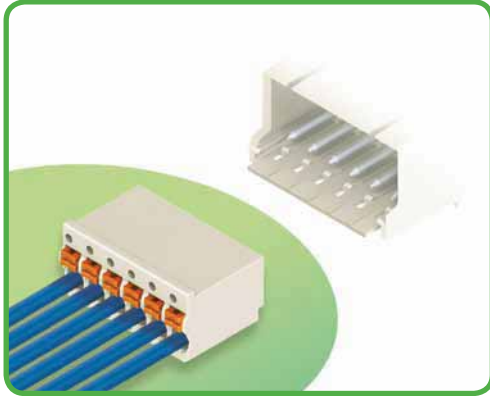


fine-stranded, tip-bonded



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:**

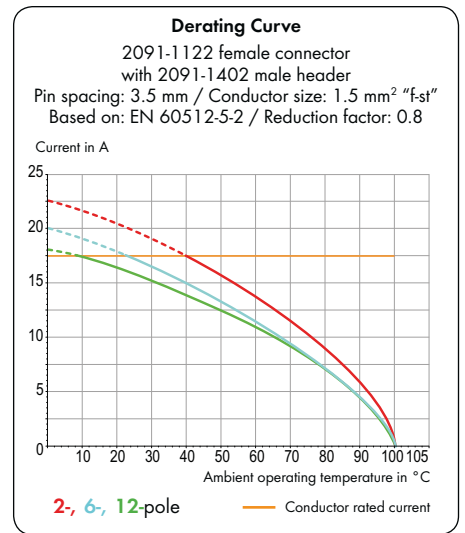
Pin Spacing	3.5 mm 0.138 in		
Ratings per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A
Approvals per	UL/CSA*		
Use group UL 1059	B	C	D
Rated voltage	-	-	-
Nominal current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

**Conductor data:**

Connection technology	CAGE CLAMP® S	
Conductor size: solid	0.2 - 1.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.2 - 1.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.25 - 0.75 mm <sup>2</sup> (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 1.5 mm <sup>2</sup> (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	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating 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 <sub>cu</sub> )
Contact plating	tin-plated



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

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.

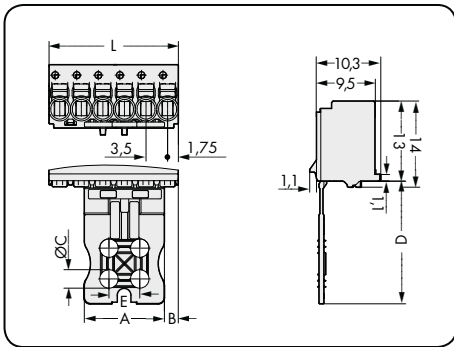






# Standard Female Connectors picoMAX® 3.5

<p><b>With gripping plate</b> Pin spacing: 3.5 mm / 0.138 in</p> <p>0.2 - 1.5 mm<sup>2</sup>   AWG 24 - 14 160 V/2.5 kV/2 10 A</p>	<p><b>Types of assembly</b> with male headers/connectors</p>
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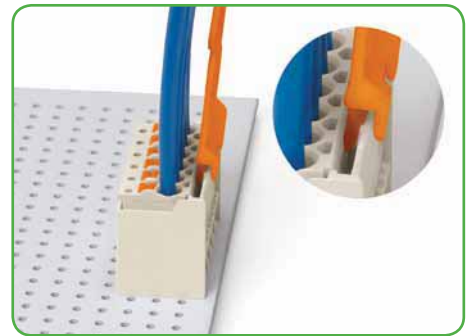
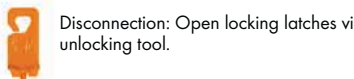
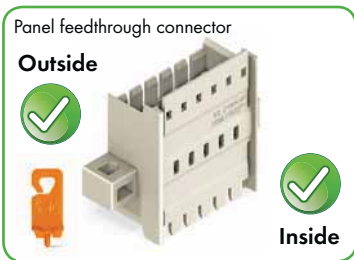
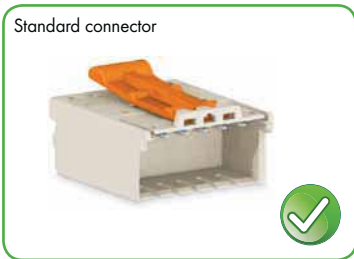
L = pole no. x pin spacing

Pole No.	Item No.	Pack. Unit
<b>Female connector with gripping plate, light gray</b>		
2	2091-1102	100
3	2091-1103	100
4	2091-1104	100
5	2091-1105	50
6	2091-1106	50
8	2091-1108	50
10	2091-1110	50
12	2091-1112	50

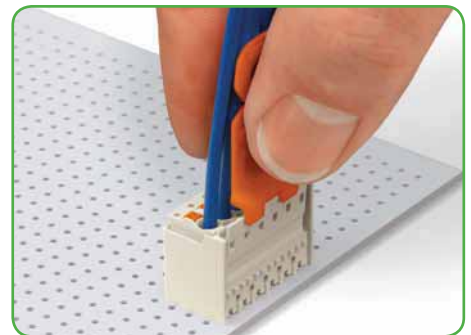
Product Accessories	Page
Unlocking tool (2092-1630)	64

**Gripping plate dimensions (in mm):**

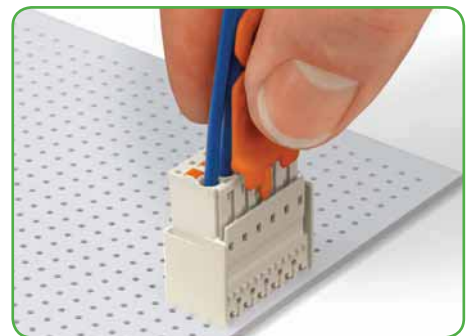
Pole No.	A	B	C	D	E
2	3	2.00	-	17	-
3	6	2.25	-	17	-
4	6	2.25	-	17	-
5	13	2.25	3.0	20	5
6	13	2.25	3.0	20	5
8	13	5.75	3.0	20	5
10	27	2.25	4.2	25	8
12	27	5.75	4.2	25	8



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



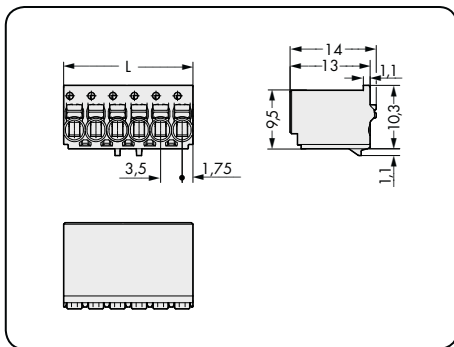
Insert unlocking tool until it hits backstop. Wedge opens locking latch.



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

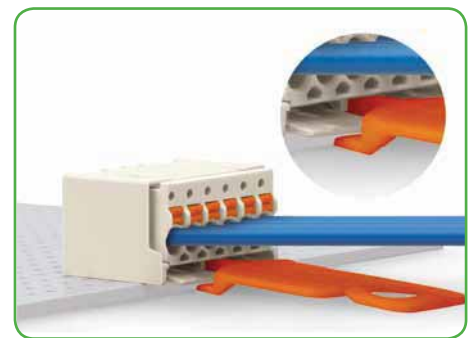
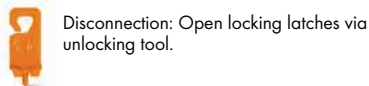
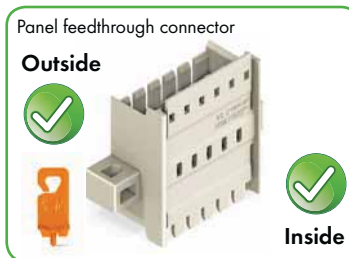
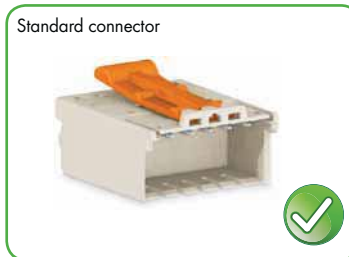
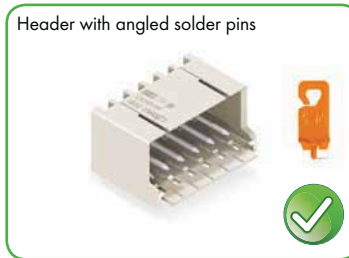
# Standard Female Connectors picoMAX® 3.5

<b>Pin spacing: 3.5 mm / 0.138 in</b>		<b>Types of assembly with male headers/connectors</b>
0.2 - 1.5 mm <sup>2</sup> 160 V/2.5 kV/2 10 A	AWG 24 - 14	

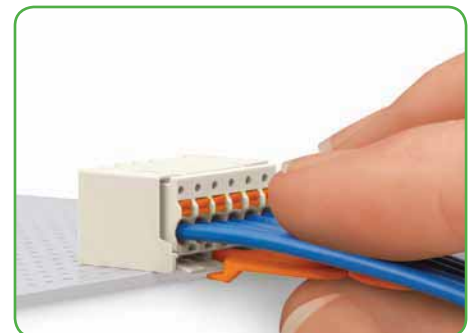


L = pole no. x pin spacing

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



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

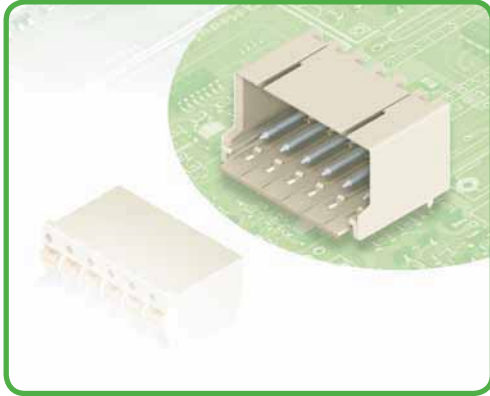


Insert unlocking tool until it hits backstop. Wedge opens locking latch.



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 mismatching, 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		
	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	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-

**Solder pin data for THT (wave soldering):**

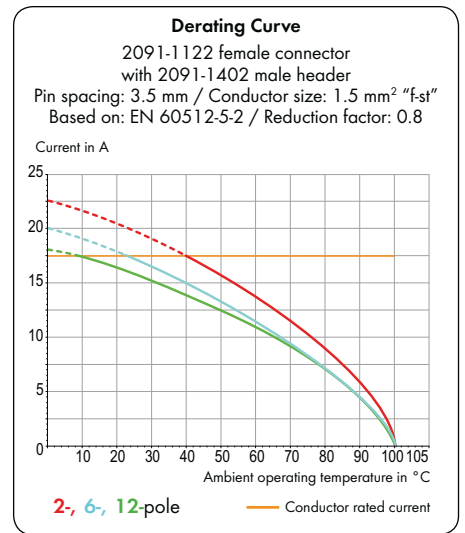
Solder pin: length/width	3.6 mm / 1.0 mm Ø
Solder pin: drilled hole diameter	1.2 <sup>+0.1</sup> mm

**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 <sup>+0.1</sup> mm Ø

**Material data:**

Material group	I
Insulation material	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Contact material	Electrolytic copper (E <sub>Cu</sub> )
Contact plating	tin-plated



For additional derating curves, see page 71.

**Accessories for picoMAX®:**

**Page:**

Coding pins	66
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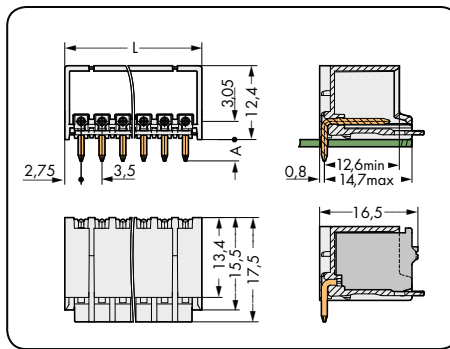
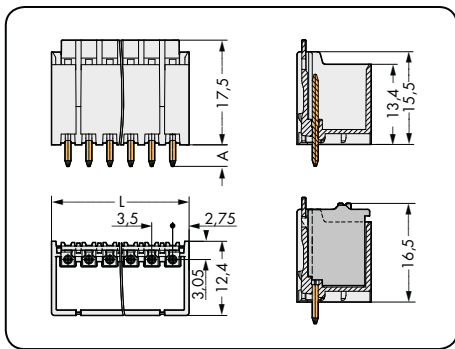
The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.



# Male Headers with Solder Pins

## picoMAX® 3.5

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

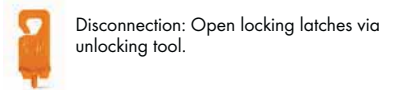
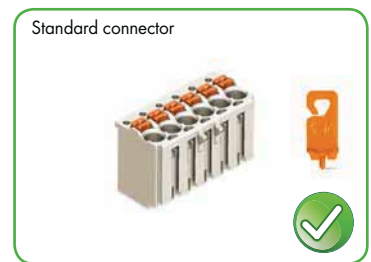
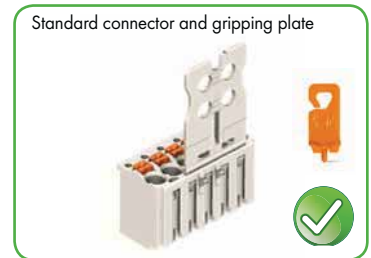


L = (pole no. x pin spacing) + 2 mm  
 A = 3.6 mm (THT solder pin)  
 A = 2.4 mm (THR solder pin)

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
8	2091-1408	100	8	2091-1428	100
10	2091-1410	100	10	2091-1430	100
12	2091-1412	100	12	2091-1432	100

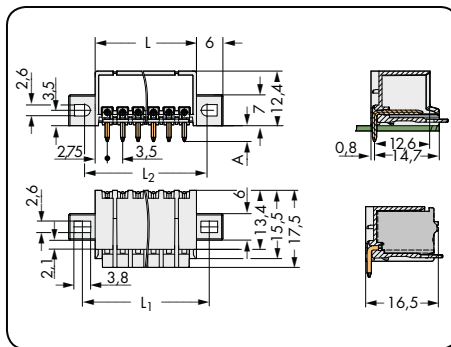
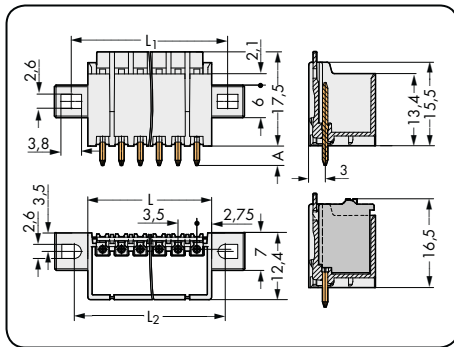
Item no. suffix for colored THR version:

○ light gray	...../200-000	<b>Ordering example:</b>
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: <b>2091-1408/200-000</b>



# Male Headers with Solder Pins and Fixing Flanges picoMAX® 3.5

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

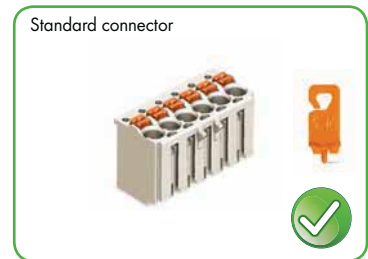


- L = (pole no. x pin spacing) + 2 mm
- L<sub>1</sub> = (pole no. x pin spacing) + 7.8 mm
- L<sub>2</sub> = (pole no. x pin spacing) + 6.8 mm
- A = 3.6 mm (THT solder pin)
- A = 2.4 mm (THR solder pin)

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
<b>Male header with straight solder pins and fixing flanges, light gray</b>			<b>Male header with angled solder pins and fixing flanges, light gray</b>		
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	<b>Ordering example:</b>
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: <b>2091-1405/205-000</b>



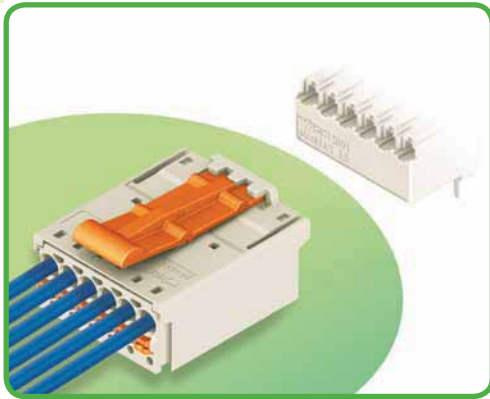
Disconnection: Open locking latches via unlocking tool.



# Standard Male Connectors

## picoMAX® 3.5

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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	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	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-

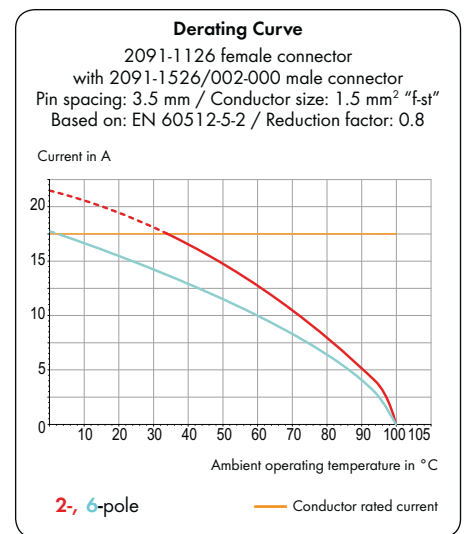
### Conductor data:

Connection technology	CAGE CLAMP® S	
Conductor size: solid	0.2 - 1.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.2 - 1.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.25 - 0.75 mm <sup>2</sup> (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 1.5 mm <sup>2</sup> (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	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating 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 <sub>cu</sub> )
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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Operating tools	64
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Coding pins	66
Test pin	64

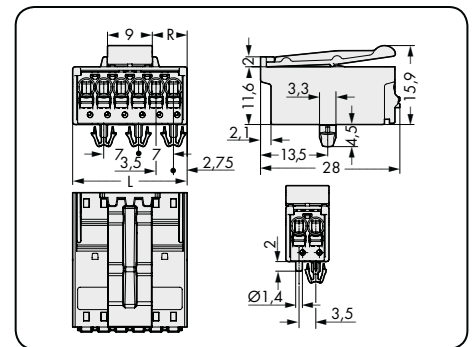
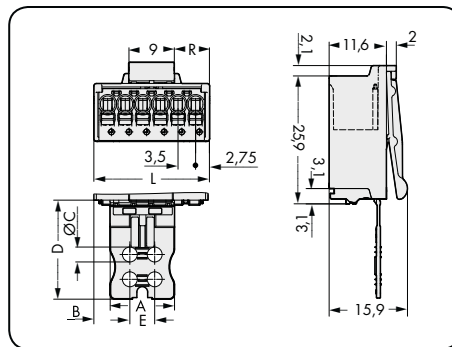
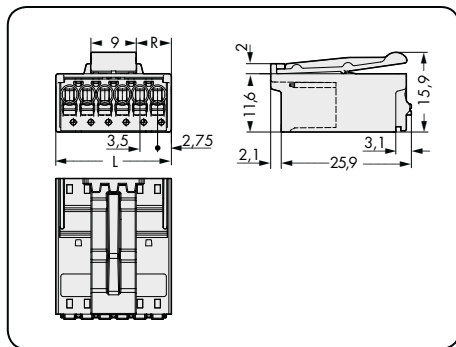


# Standard Male Connectors picoMAX® 3.5

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 <sup>2</sup>	AWG 24 - 14	0.2 - 1.5 mm <sup>2</sup>	AWG 24 - 14	0.2 - 1.5 mm <sup>2</sup>	AWG 24 - 14
160 V/2.5 kV/2 10 A		160 V/2.5 kV/2 10 A		160 V/2.5 kV/2 10 A	



3.5



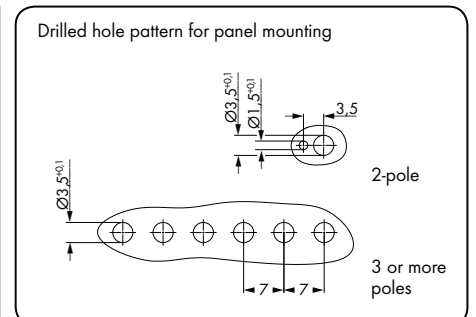
L = (pole no. x pin spacing) + 2 mm  
 Even pole number R = (L - 9 mm) : 2  
 Odd pole number R = (L - 12.5 mm) : 2

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
<b>Male connector, light gray</b>			<b>Male connector with gripping plate, light gray</b>			<b>Male connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, light gray</b>		
2	2091-1522/002-000	200	2	2091-1502/002-000	200	2	2091-1522/020-000	200
4	2091-1524/002-000	200	4	2091-1504/002-000	100	4	2091-1524/020-000	200
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

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

Gripping plate dimensions (in mm):

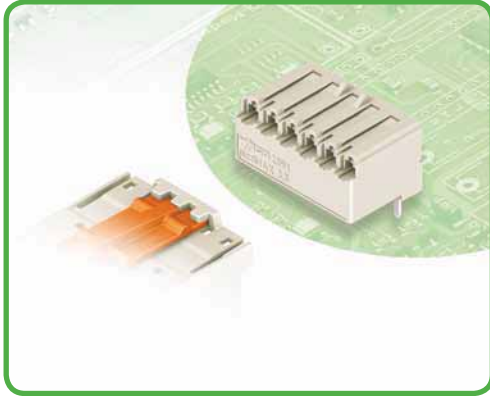
Pole No.	A	B	C	D	E
2	6	3	-	17	-
4	6	3.25	-	17	-
6	13	3.25	3	20	5
8	13	6.75	3	20	5



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

# Female Headers with Solder Pins

## picoMAX® 3.5



- 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	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	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-

**Solder pin data for THT (wave soldering):**

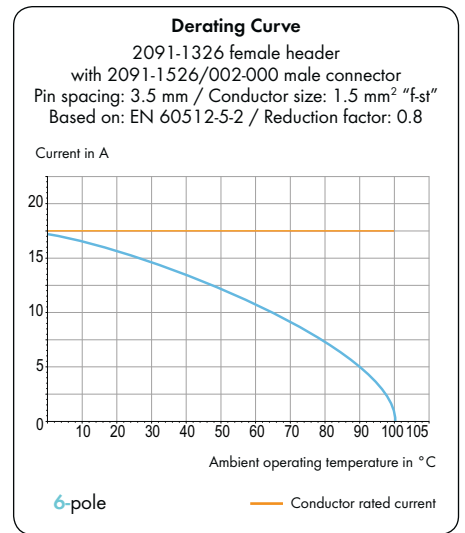
Solder pin: length/width	3.6 mm / 0.4 x 0.9 mm
Solder pin: drilled hole diameter	1.1 <sup>+0.1</sup> mm

**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 <sup>+0.1</sup> mm Ø

**Material data:**

Material group	I
Insulation material	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating 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 71.

**Accessories for picoMAX®:**

**Page:**

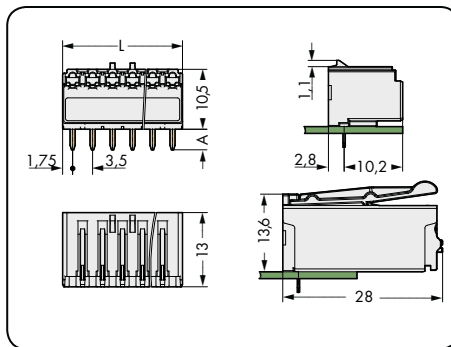
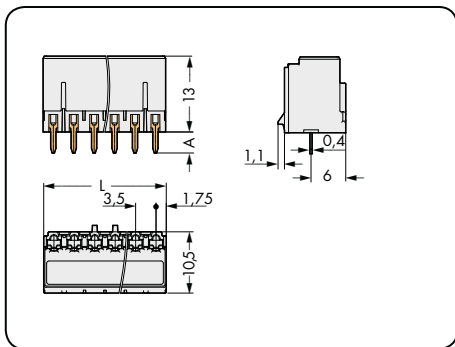
Coding pins	66

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.

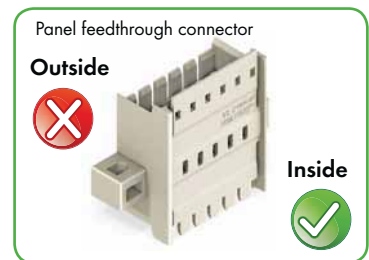
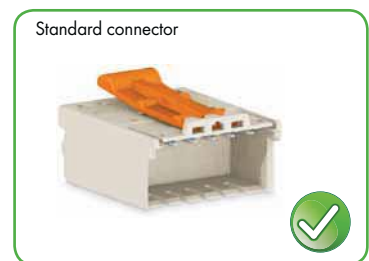
# Female Headers with Solder Pins

## picoMAX® 3.5

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

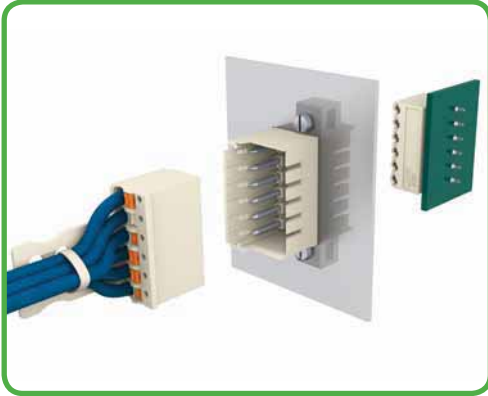
○ light gray	...../200-000	<b>Ordering example:</b>
THR female headers with solder pins in tape-and-reel packaging available upon request		THR female header with straight solder pins, 3.5 mm pin spacing, 8-pole, light gray: <b>2091-1308/200-000</b>

3.5

# Panel Feedthrough Male Connectors with Fixing Flanges

## picoMAX® 3.5

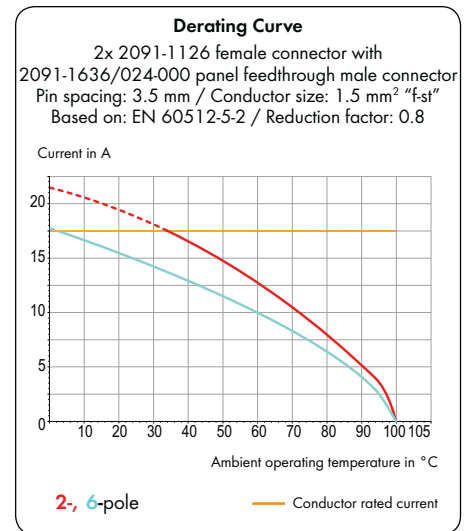
26



- 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	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-



For additional derating curves, see page 71.

### Material data:

Material group	I
Insulation material	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Contact material	Electrolytic copper (E <sub>Cu</sub> )
Contact plating	tin-plated

### Accessories for picoMAX®:

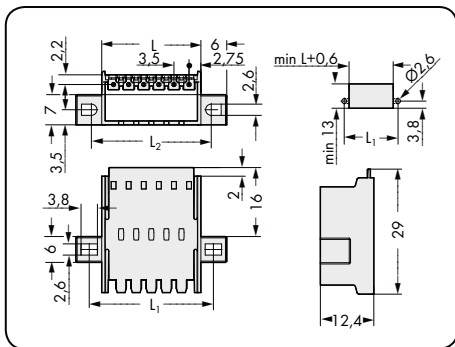
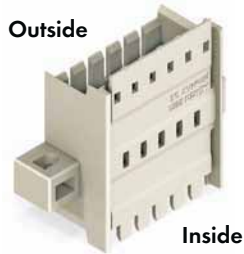
### Page:

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Coding pins	66
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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

<p>Pin spacing: 3.5 mm / 0.138 in</p> <p>160 V/2.5 kV/2 10 A</p>	<p>Types of assembly with female connectors/headers</p>	<p>Applications</p>
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L = (pole no. x pin spacing) + 2 mm  
 $L_1$  = (pole no. x pin spacing) + 7.8 mm  
 $L_2$  = (pole no. x pin spacing) + 6.8 mm

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

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

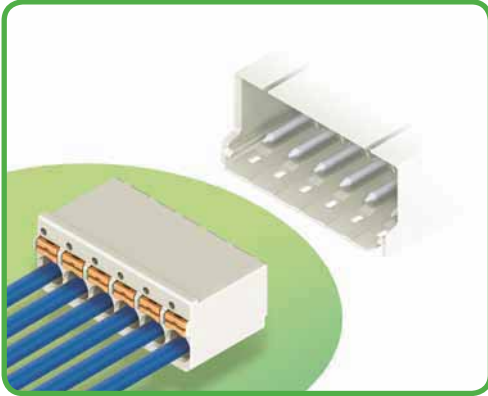
Header with straight or angled solder pins

Outside  Inside

 Disconnection: Open locking latches via unlocking tool.

3.5

# 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	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-

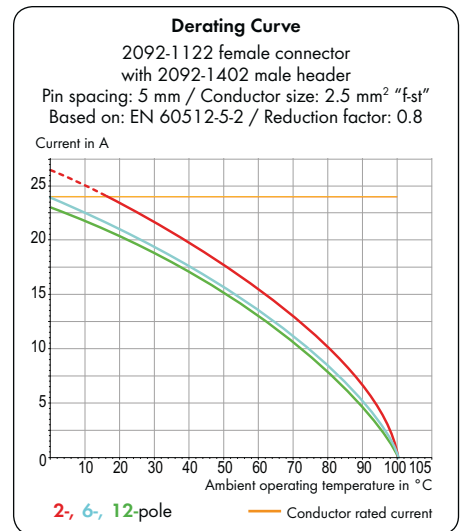
**Conductor data:**

Connection technology	CAGE CLAMP® S	
Conductor size: solid	0.2 - 2.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.2 - 2.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.25 - 1.5 mm <sup>2</sup> (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm <sup>2</sup> (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	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating 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 <sub>Cu</sub> )
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®:**

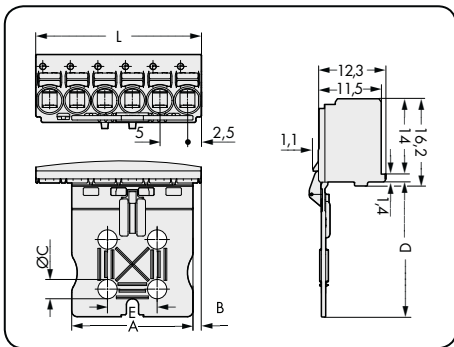
**Page:**

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# Standard Female Connectors picoMAX® 5.0

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



L = pole no. x pin spacing

Pole No.	Item No.	Pack. Unit
<b>Female connector with gripping plate and sliding connector release, light gray</b>		
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
8	2092-1108/002-000	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
8	22	6.5	3.5	25	9
10	42	1.5	5.0	35	19
12	42	6.5	5.0	35	19



Header with straight solder pins





Header with angled solder pins






Standard connector

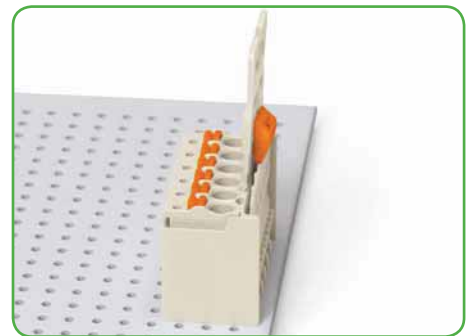



Panel feedthrough connector

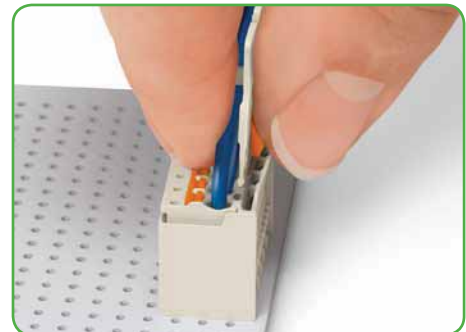
**Outside** 



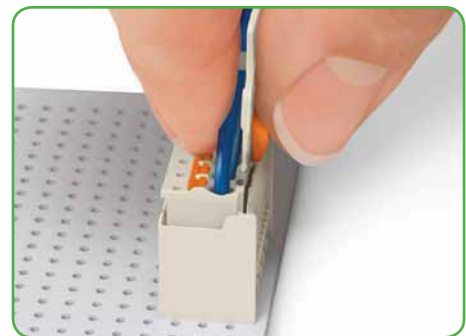
**Inside** 



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.

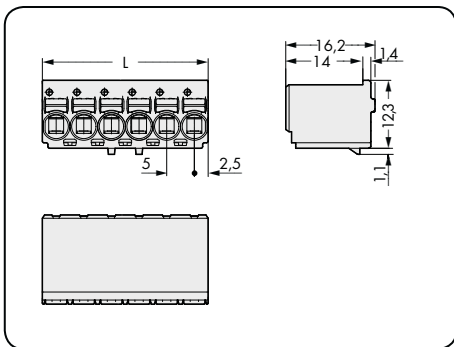
5.0





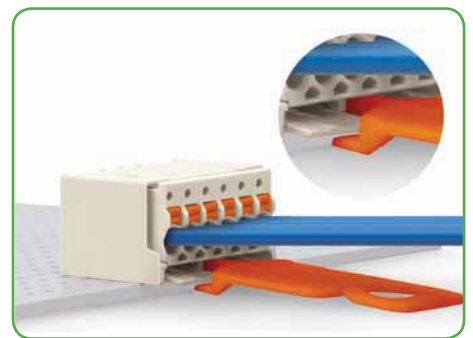
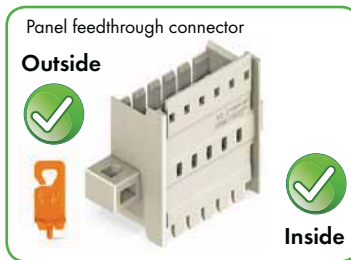
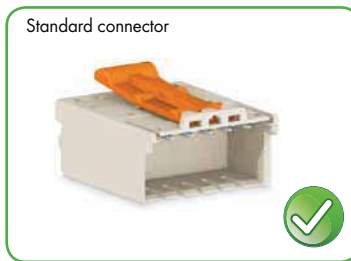
# Standard Female Connectors picoMAX® 5.0

<b>Pin spacing 5 mm / 0.197 in</b>  0.2 - 2.5 mm <sup>2</sup>   AWG 24 - 12 320 V/4 kV/2 16 A	<b>Types of assembly with male headers/connectors</b>
--	---

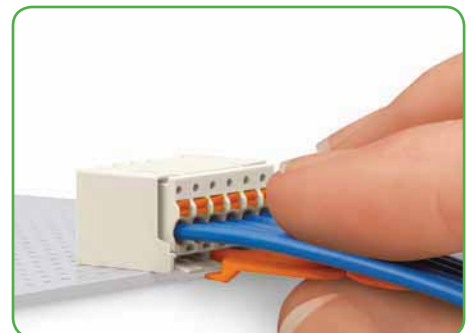


L = pole no. x pin spacing

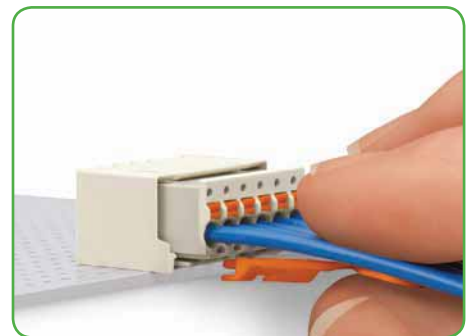
Pole No.	Item No.	Pack. Unit
<b>Female connector, light gray</b>		
2	2092-1122	200
3	2092-1123	200
4	2092-1124	200
5	2092-1125	200
6	2092-1126	100
8	2092-1128	100
10	2092-1130	100
12	2092-1132	100
<b>Product Accessories</b>		<b>Page</b>
Unlocking tool (2092-1630)		64



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

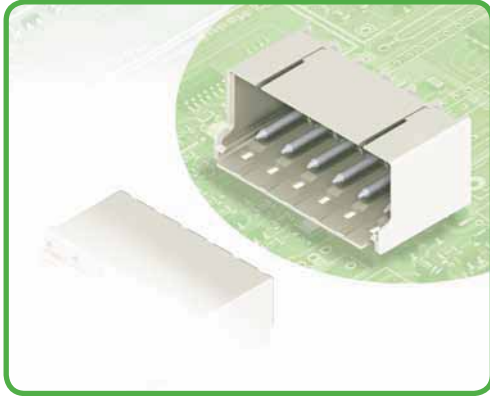


Insert unlocking tool until it hits backstop. Wedge opens locking latch.



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

# Male Headers with Solder Pins picoMAX® 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 mismatching, 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	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-

**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 <sup>+0.1</sup> mm

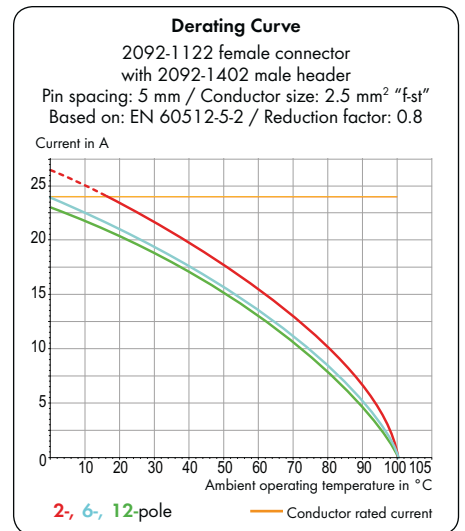
**Solder pin data for THR\*\* (reflow soldering):**

Solder pin: length/width	2.4 mm / 1.4 mm Ø
Solder pin: metal-plated hole	1.6 <sup>+0.1</sup> mm Ø

**Material data:**

Material group	I
Insulation material	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Contact material	Electrolytic copper (E <sub>Cu</sub> )
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:**

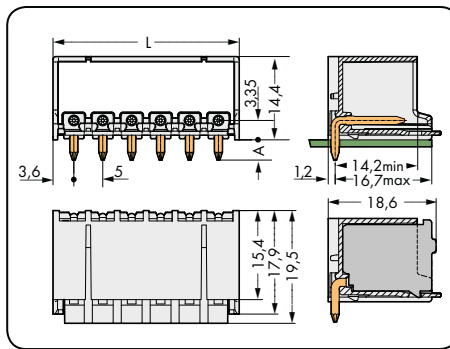
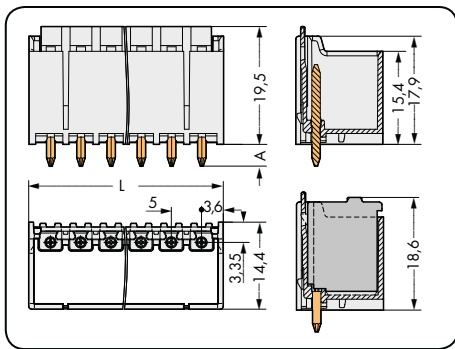
Coding pins	66
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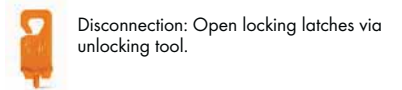
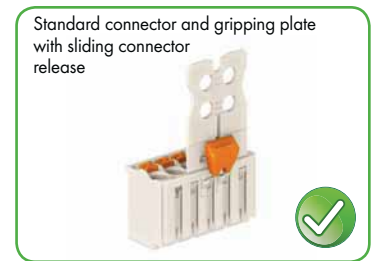
# Male Headers with Solder Pins

## picoMAX® 5.0

<b>With straight solder pins</b> <b>Pin spacing: 5 mm / 0.197 in</b>	<b>With angled solder pins</b> <b>Pin spacing: 5 mm / 0.197 in</b>	<b>Types of assembly</b> <b>with female connectors</b>
320 V/4 kV/2 16 A	320 V/4 kV/2 16 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
8	2092-1408	100	8	2092-1428	100
10	2092-1410	100	10	2092-1430	100
12	2092-1412	100	12	2092-1432	100

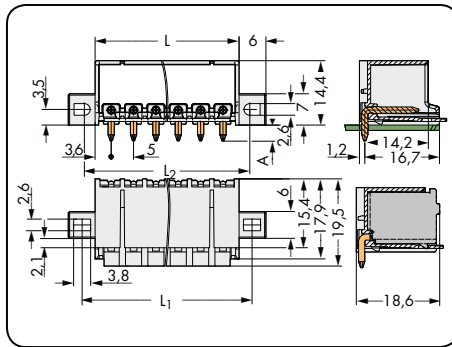
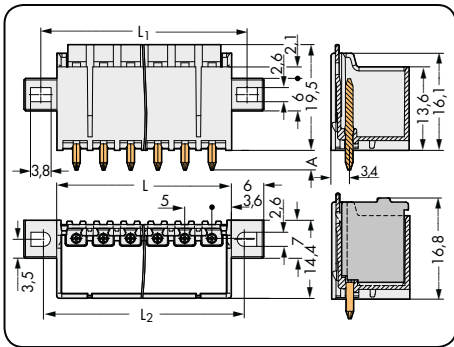
Item no. suffix for colored THR version:

○ light gray	...../200-000	<b>Ordering example:</b>
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: <b>2092-1408/200-000</b>

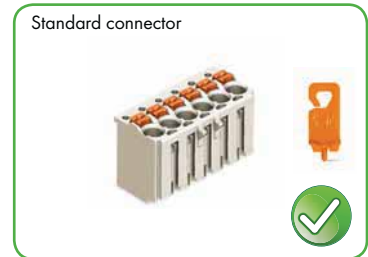
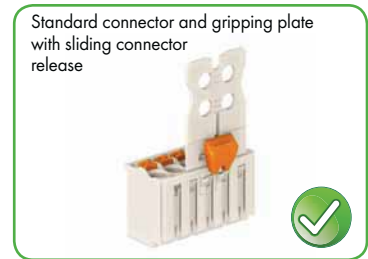


# Male Headers with Solder Pins and Fixing Flanges picoMAX® 5.0

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



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



Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
<b>Male header with straight solder pins and fixing flanges, light gray</b>			<b>Male header with angled solder pins and fixing flanges, light gray</b>		
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

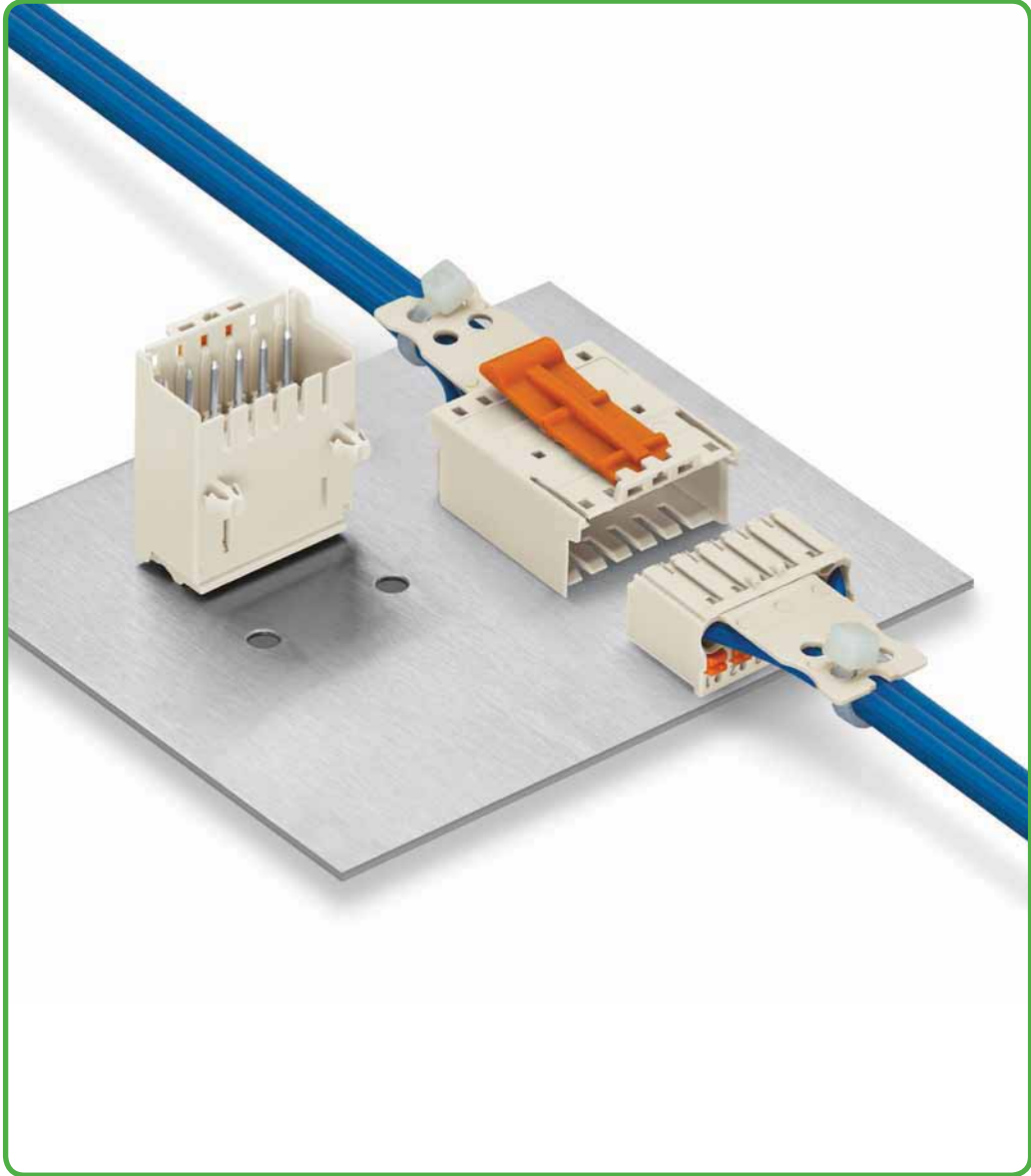
THR male headers with solder pins in tape-and-reel packaging available upon request

**Ordering example:**

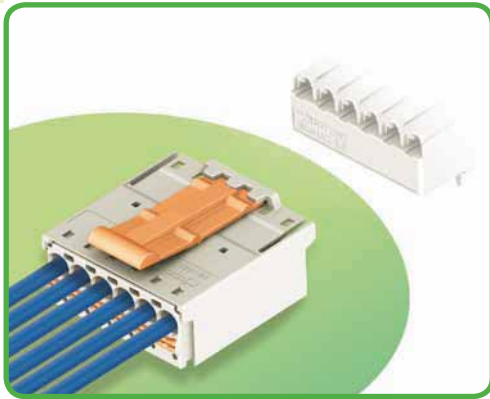
THR male header with straight solder pins and fixing flanges, 5 mm pin spacing, 5-pole, light gray: **2092-1405/205-000**



Disconnection: Open locking latches via unlocking tool.



# Standard Male Connectors picoMAX® 5.0



- 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:**

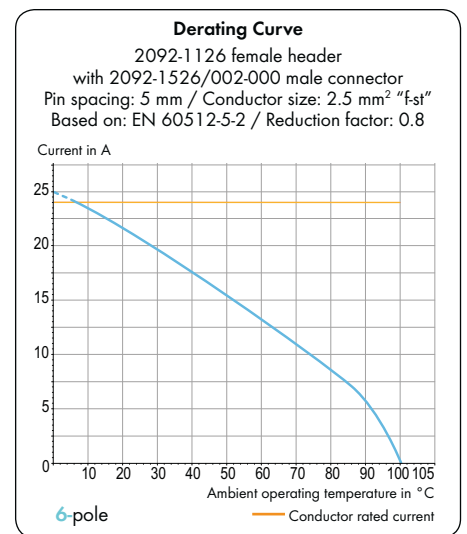
Pin Spacing	5 mm 0.197 in		
Ratings per	IEC/EN 60664-1		
Overtoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA*		
Use group UL 1059	B	C	D
Rated voltage	-	-	-
Nominal current UL	-	-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

**Conductor data:**

Connection technology	CAGE CLAMP® S	
Conductor size: solid	0.2 - 2.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.2 - 2.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.25 - 1.5 mm <sup>2</sup> (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm <sup>2</sup> (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	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating 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 <sub>cu</sub> )
Contact plating	tin-plated



For additional derating curves, see page 72.

**Accessories for picoMAX®:**

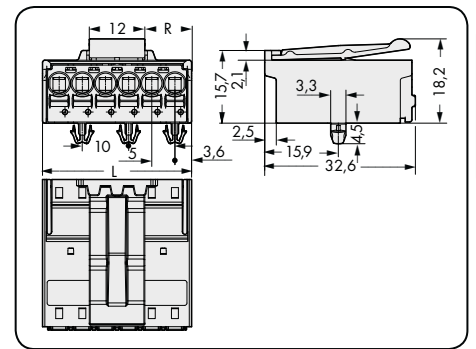
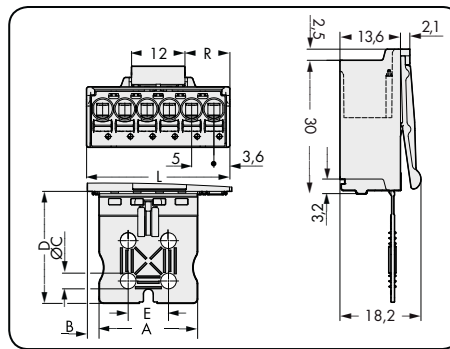
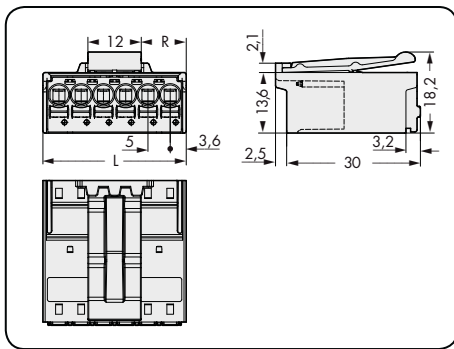
**Page:**

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® 5.0

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 <sup>2</sup> 320 V/4 kV/2 16 A	AWG 24 - 12	0.2 - 2.5 mm <sup>2</sup> 320 V/4 kV/2 16 A	AWG 24 - 12	0.2 - 2.5 mm <sup>2</sup> 320 V/4 kV/2 16 A	AWG 24 - 12



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

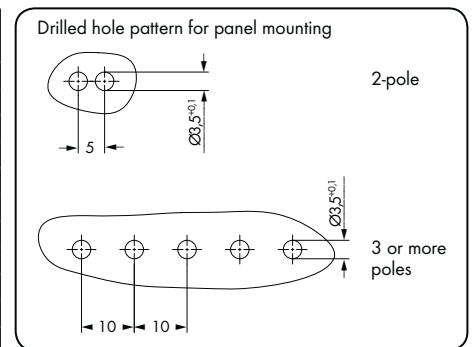
5.0

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
<b>Male connector, light gray</b>			<b>Male connector with gripping plate, light gray</b>			<b>Male connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, light gray</b>		
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):

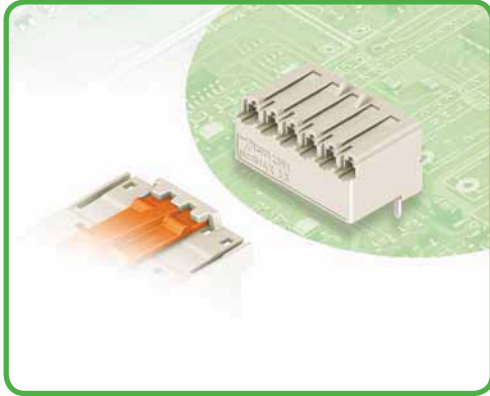
Pole No.	A	B	C	D	E
2	7	2.6	-	20	-
3	12	2.6	-	20	-
4	12	2.6	-	20	-
5	22	2.6	3.5	25	9
6	22	2.6	3.5	25	9



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		
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	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-

**Solder pin data for THT (wave soldering):**

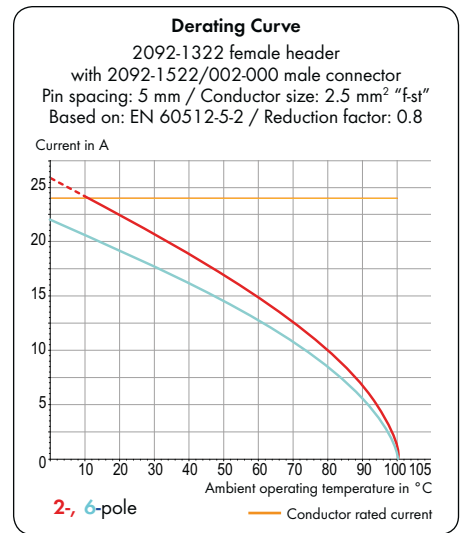
Solder pin: length/width	3.6 mm / 0.4 x 1.3 mm
Solder pin: drilled hole diameter	1.5 <sup>+0.1</sup> mm

**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 <sup>+0.1</sup> mm Ø

**Material data:**

Material group	I
Insulation material	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating 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

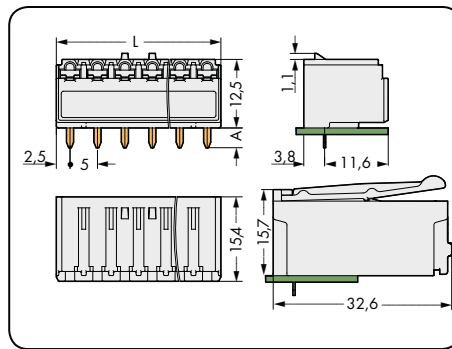
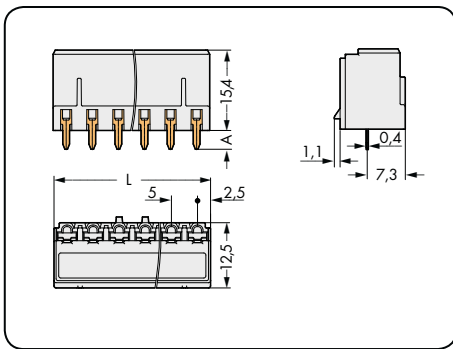
The **picoMAX® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not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



# Female Headers with Solder Pins

## picoMAX® 5.0

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

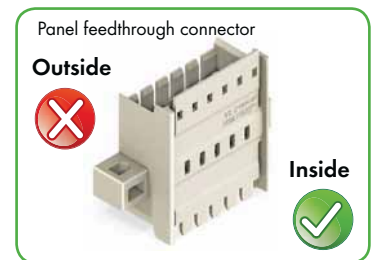
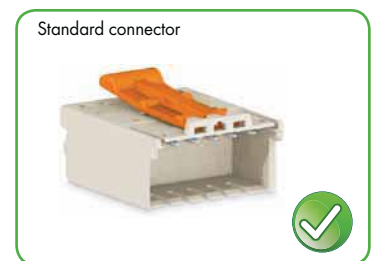


L = pole no. x pin spacing  
 A = 3.6 mm (THT solder pin)  
 A = 2.4 mm (THR solder pin)

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:**

○ light gray	...../200-000	<b>Ordering example:</b>
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: <b>2092-1308/200-000</b>

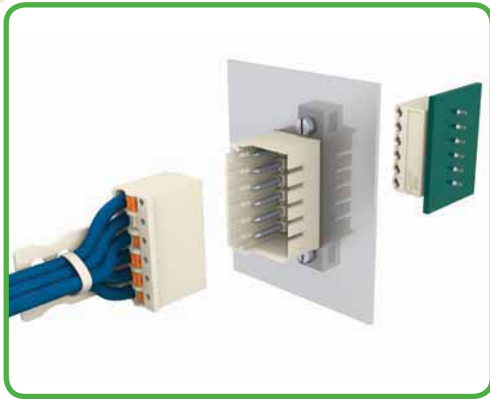


5.0

# Panel Feedthrough Male Connectors with Fixing Flanges

## picoMAX® 5.0

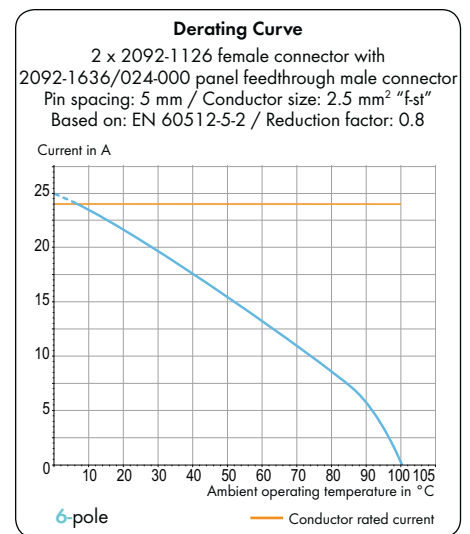
40



- 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		
	IEC/EN 60664-1		
Ratings per	III	III	II
Overtoltage category	3	2	2
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	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-



For additional derating curves, see page 72.

### Material data:

Material group	I
Insulation material	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Contact material	Electrolytic copper (E <sub>Cu</sub> )
Contact plating	tin-plated

### Accessories for picoMAX®:

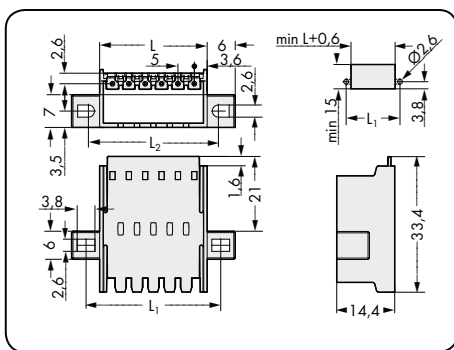
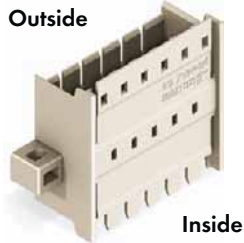
Page:

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

<b>Pin spacing: 5 mm / 0.197 in</b>  320 V/4 kV/2 16 A	<b>Types of assembly with female connectors/headers</b>	<b>Applications</b>
--	---	---------------------

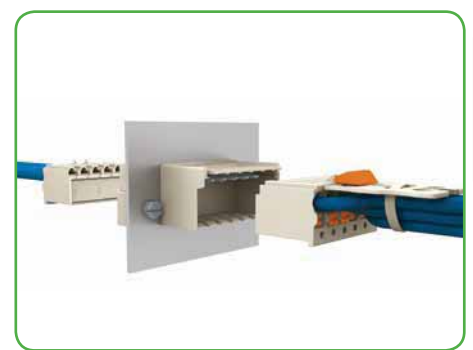


$L = (\text{pole no.} \times \text{pin spacing}) + 2.2 \text{ mm}$   
 $L_1 = (\text{pole no.} \times \text{pin spacing}) + 8 \text{ mm}$   
 $L_2 = (\text{pole no.} \times \text{pin spacing}) + 7 \text{ mm}$

Pole No.	Item No.	Pack. Unit
<b>Panel feedthrough male connector with fixing flanges, light gray</b>		
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

Standard connector and gripping plate with sliding connector release

Outside Inside

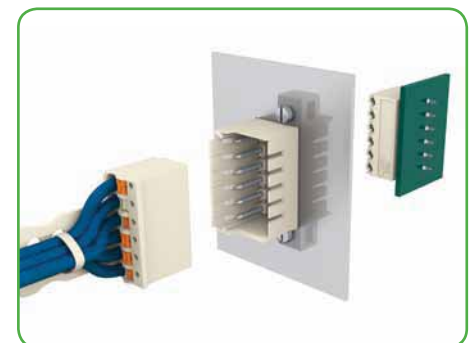


5.0

"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

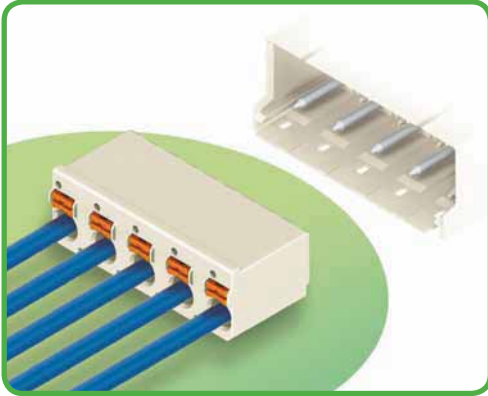
Outside Inside

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	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-

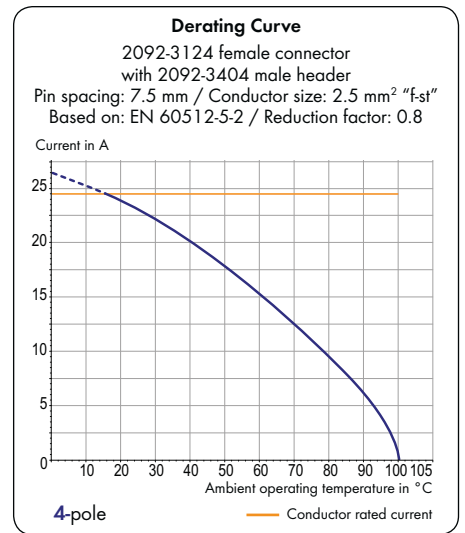
**Conductor data:**

Connection technology	CAGE CLAMP® S	
Conductor size: solid	0.2 - 2.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.2 - 2.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.25 - 1.5 mm <sup>2</sup> (with insulated ferrule)	
Conductor size: fine-stranded	0.25 - 2.5 mm <sup>2</sup> (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	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating 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 <sub>cu</sub> )
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®:**

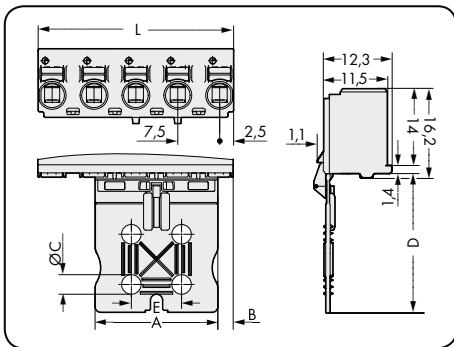
**Page:**

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



# Standard Female Connectors picoMAX® 7.5

<p><b>With gripping plate and sliding connector release</b>  <b>Pin spacing: 7.5 mm / 0.295 in</b></p> <p>0.2 - 2.5 mm<sup>2</sup>   AWG 24 - 12          630 V/6 kV/2 16 A</p>	<p><b>Types of assembly with male headers/connectors</b></p>	
---	--	--



L = (pole no. - 1) x pin spacing + 5 mm

Pole No.	Item No.	Pack. Unit
<b>Female connector with gripping plate and sliding connector release, light gray</b>		
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

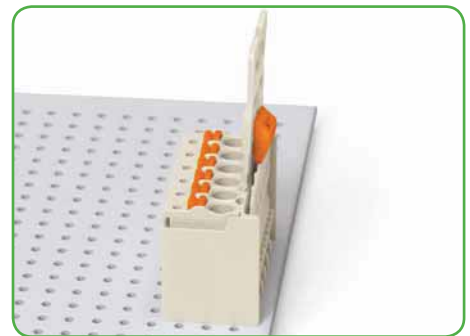
Header with straight solder pins

Header with angled solder pins

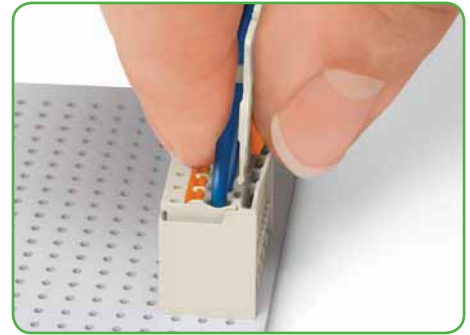
Standard connector

Panel feedthrough connector

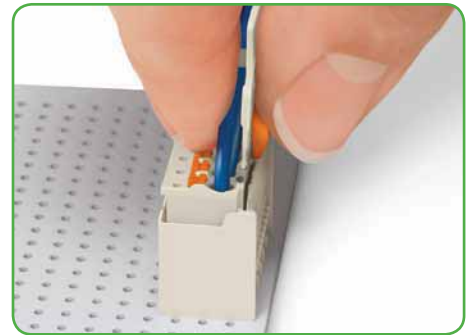
**Outside** **Inside**



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.

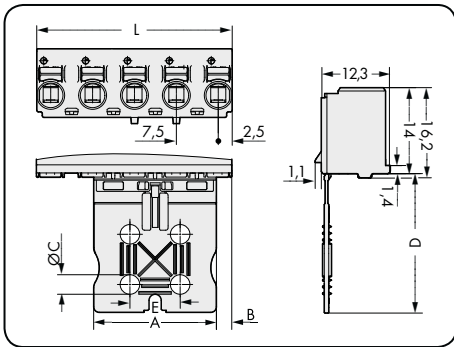
7.5

# Standard Female Connectors picoMAX® 7.5

With gripping plate  
Pin spacing: 7.5 mm / 0.295 in

0.2 - 2.5 mm<sup>2</sup> | AWG 24 - 12  
630 V/6 kV/2 16 A

Types of assembly  
with male headers/connectors

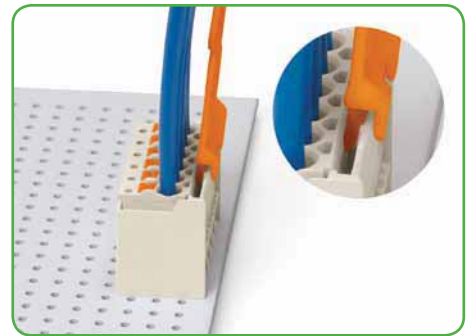
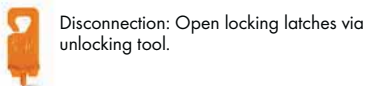
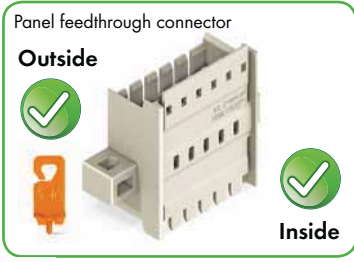
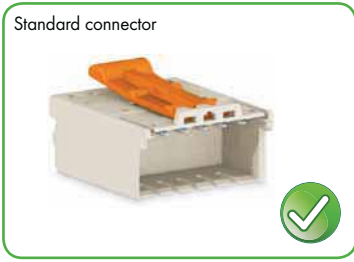


$L = (\text{pole no.} - 1) \times \text{pin spacing} + 5 \text{ mm}$

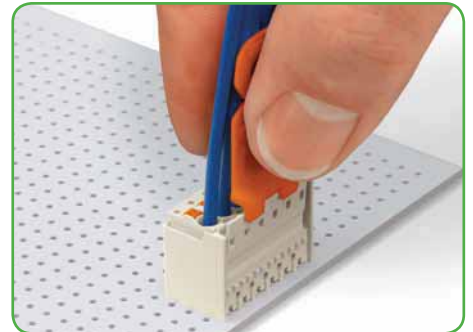
Pole No.	Item No.	Pack.	Unit
<b>Female connector with gripping plate, light gray</b>			
2	2092-3102	100	
3	2092-3103	100	
4	2092-3104	100	
5	2092-3105	100	
<b>Product Accessories</b>			
Unlocking tool (2092-1630)			64

**Gripping plate dimensions (in mm):**

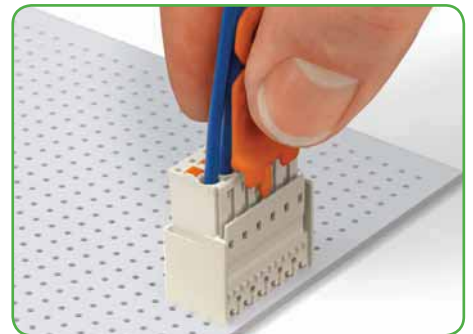
Pole No.	A	B	C	D	E
2	7	2.75	-	20	-
3	12	4	-	20	-
4 - 5	22	2.75	3.5	25	9



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



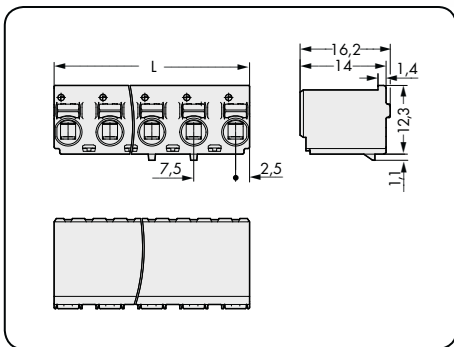
Insert unlocking tool until it hits backstop. Wedge opens locking latch.



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

# Standard Female Connectors picoMAX® 7.5

<b>Pin spacing: 7.5 mm / 0.295 in</b>		<b>Types of assembly with male headers/connectors</b>
0.2 - 2.5 mm <sup>2</sup> 630 V/6 kV/2 16 A	AWG 24 - 12	



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

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

Header with straight solder pins

✓

Header with angled solder pins

✓

Standard connector

✓

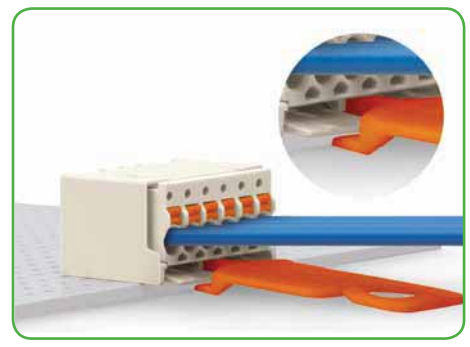
Panel feedthrough connector

**Outside**

**Inside**

✓

Disconnection: Open locking latches via unlocking tool.



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

7.5

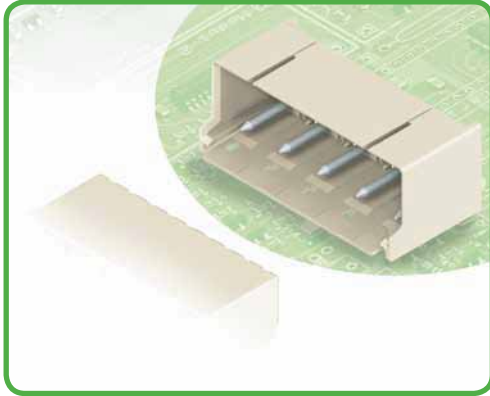


Insert unlocking tool until it hits backstop. Wedge opens locking latch.



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

# Male Headers with Solder Pins picoMAX® 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	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-

**Solder pin data for THT (wave soldering):**

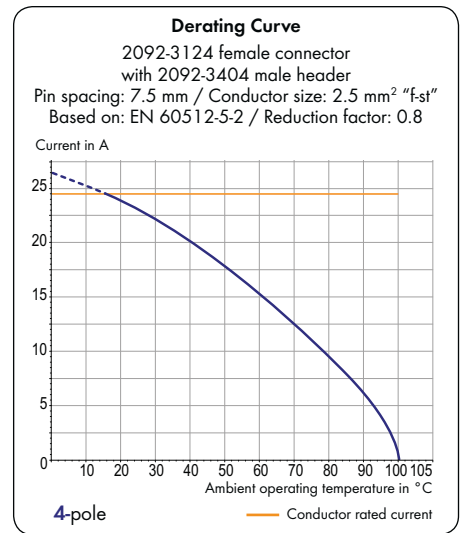
Solder pin: length/width	3.6 mm / 1.4 mm Ø
Solder pin: drilled hole diameter	1.6 <sup>+0.1</sup> mm

**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 <sup>+0.1</sup> mm Ø

**Material data:**

Material group	I
Insulation material/Insulation material	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Contact material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	tin-plated



For additional derating curves, see page 73.

**Accessories for picoMAX®:**

**Page:**

Coding pins	66
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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.

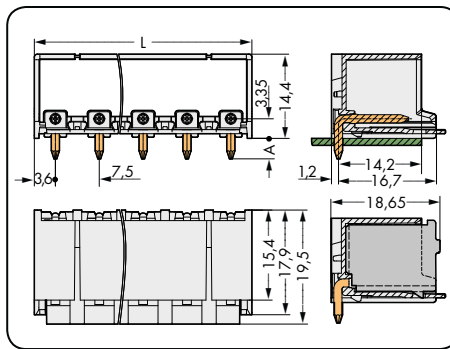
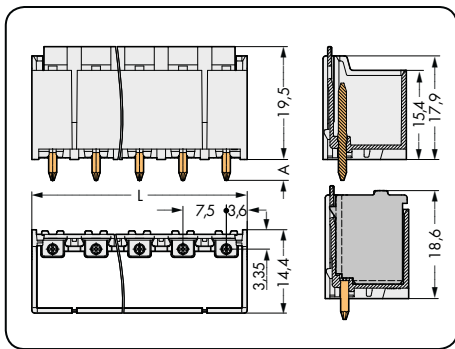




# Male Headers with Solder Pins

## picoMAX® 7.5

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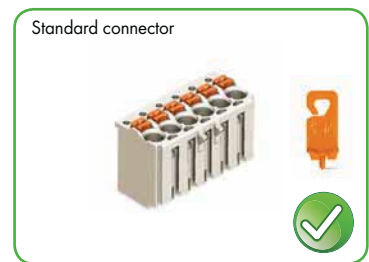



L = (pole no. - 1) x pin spacing + 7.2 mm  
 A = 3.6 mm (THT solder pin)  
 A = 2.4 mm (THR solder pin)

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:

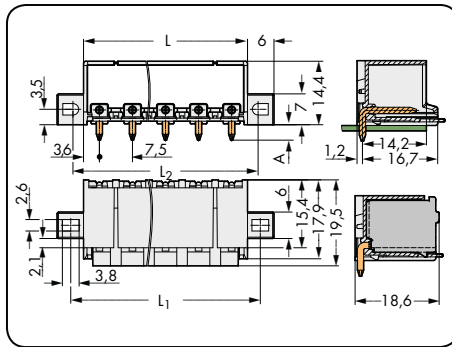
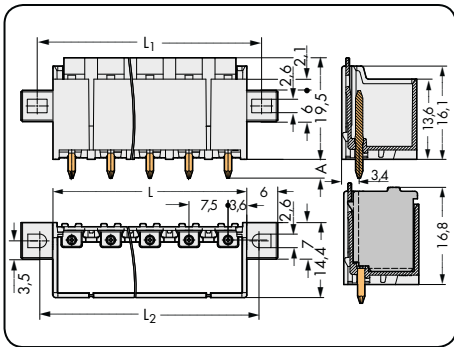
○ light gray	...../200-000	<b>Ordering example:</b>
THR male headers with solder pins in tape-and-reel packaging available upon request		THR male header with straight solder pins, 7.5 mm pin spacing, 8-pole, light gray: <b>2092-3408/200-000</b>



 Disconnection: Open locking latches via unlocking tool.

# Male Headers with Solder Pins and Fixing Flanges picoMAX® 7.5

<p><b>With straight solder pins and fixing flanges</b> Pin spacing: 7.5 mm / 0.295 in</p> <p>630 V/6 kV/2 16 A</p>	<p><b>With angled solder pins and fixing flanges</b> Pin spacing: 7.5 mm / 0.295 in</p> <p>630 V/6 kV/2 16 A</p>	<p><b>Types of assembly with female connectors</b></p>
--	--	--



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

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
<b>Male header with straight solder pins and fixing flanges, light gray</b>			<b>Male header with angled solder pins and fixing flanges, light gray</b>		
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

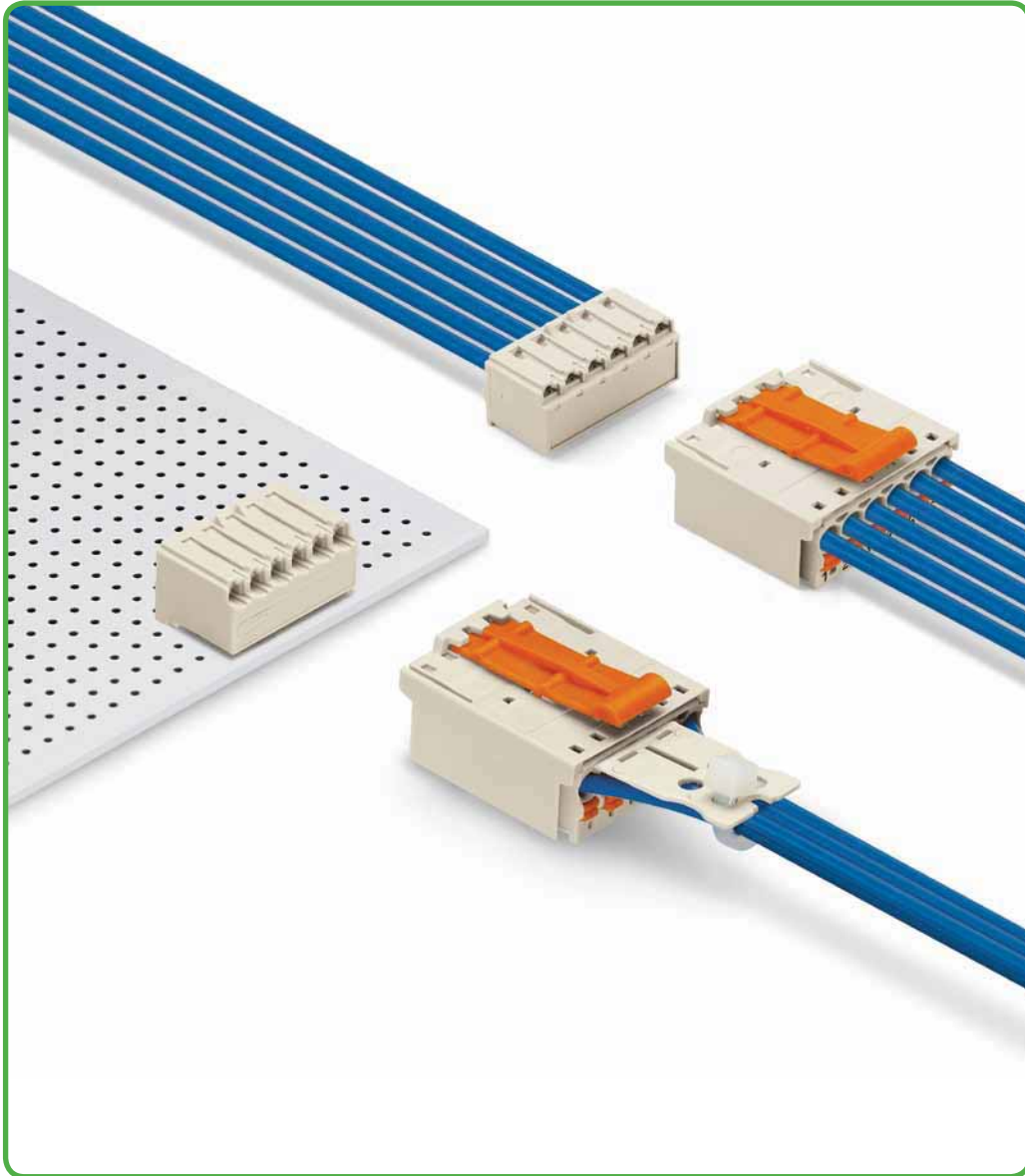
**Ordering example:**

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

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



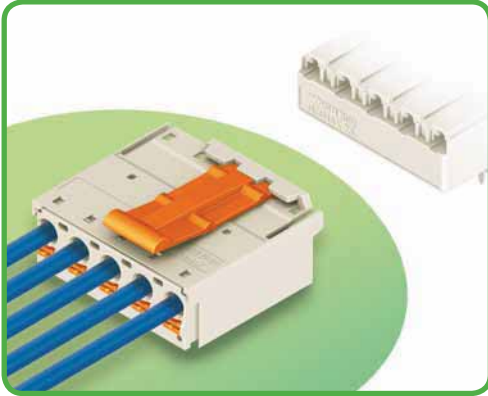
Disconnection: Open locking latches via unlocking tool.



# 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:

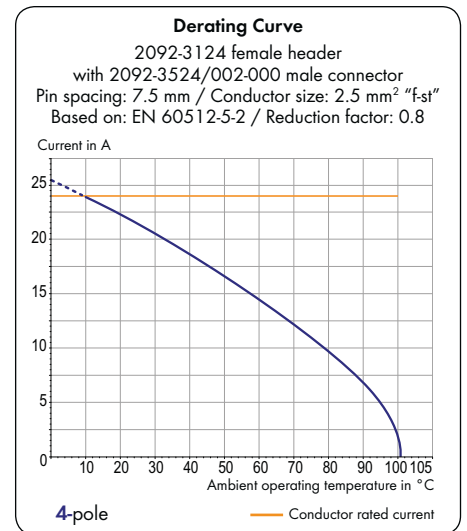
Pin Spacing	7.5 mm 0.295 in		
Ratings per	IEC/EN 60664-1		
Overtension category	III	III	II
Pollution degree	3	2	2
Rated voltage	400 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA*		
Use group UL 1059	B	C	D
Rated voltage	-	-	-
Nominal current UL	-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

### Conductor data:

Connection technology	CAGE CLAMP® S	
Conductor size: solid	0.2 - 2.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.2 - 2.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.25 - 1.5 mm <sup>2</sup>	(with insulated ferrule)
Conductor size: fine-stranded	0.25 - 2.5 mm <sup>2</sup>	(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	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating 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 <sub>cu</sub> )
Contact plating	tin-plated



For additional derating curves, see page 73.

### Accessories for picoMAX®:

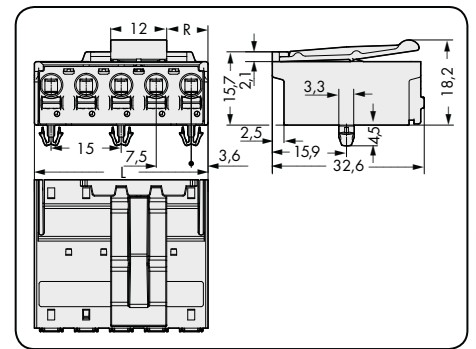
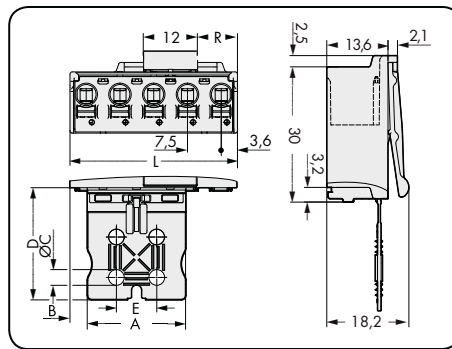
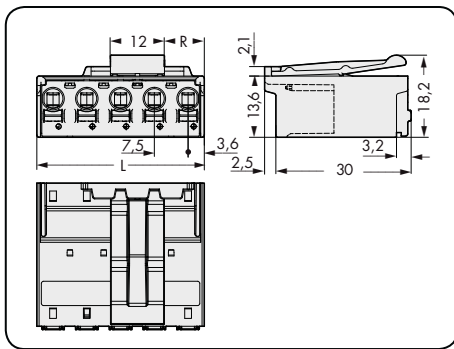
### Page:

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

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 <sup>2</sup>	AWG 24 - 12	0.2 - 2.5 mm <sup>2</sup>	AWG 24 - 12	0.2 - 2.5 mm <sup>2</sup>	AWG 24 - 12
630 V/6 kV/2 16 A		630 V/6 kV/2 16 A		630 V/6 kV/2 16 A	



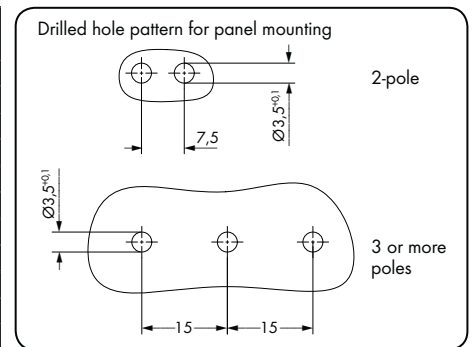
L = (pole no. - 1) x pin spacing + 7.2 mm  
 Even pole number R = (L - 12 mm) : 2  
 Odd pole number R = (L - 19.5 mm) : 2

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
<b>Male connector, light gray</b>			<b>Male connector with gripping plate, light gray</b>			<b>Male connector with snap-in mounting feet, for 0.6 - 1.2 mm plate thickness, light gray</b>		
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

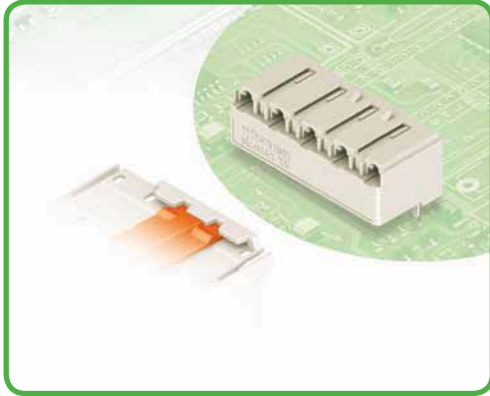


Standard male connectors can be combined with any female connectors/headers.



# 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		
	IEC/EN 60664-1		
Ratings per	III	III	II
Overvoltage 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	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-

**Solder pin data for THT (wave soldering):**

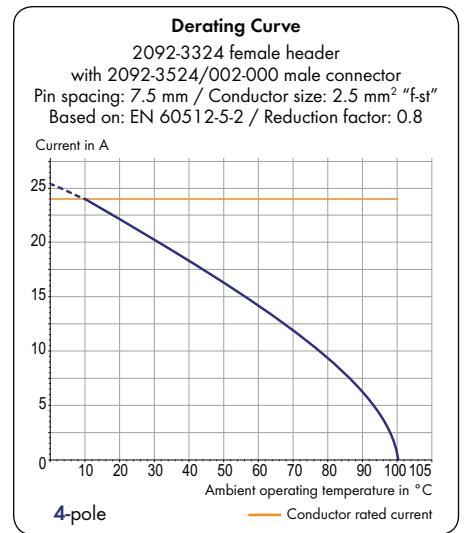
Solder pin: length/width	3.6 mm / 0.4 x 1.3 mm
Solder pin: drilled hole diameter	1.5 <sup>+0.1</sup> mm

**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 <sup>+0.1</sup> mm Ø

**Material data:**

Material group	I
Insulation material	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating 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:**

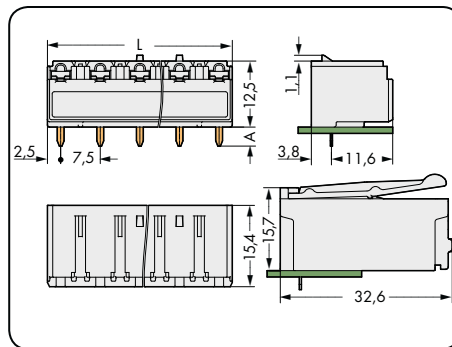
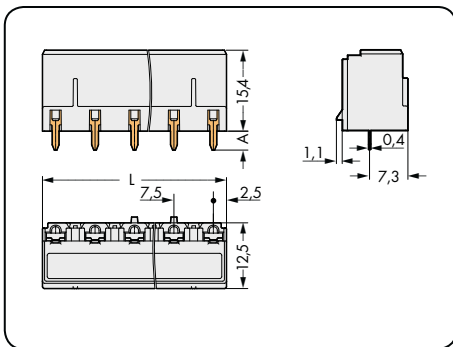
Coding pins	66

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.

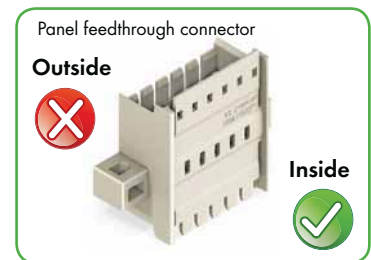
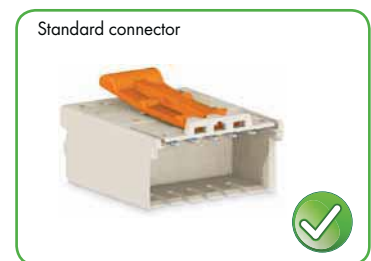
# Female Headers with Solder Pins

## picoMAX® 7.5

<b>With straight solder pins</b> Pin spacing: 7.5 mm / 0.295 in	<b>With angled solder pins</b> Pin spacing: 7.5 mm / 0.295 in	<b>Types of assembly with male connectors</b>
630 V/6 kV/2 16 A	630 V/6 kV/2 16 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:**

○ light gray	...../200-000	<b>Ordering example:</b>
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: <b>2092-3305/200-000</b>

7.5

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

**YES IT CAN.**

**picoMAX<sup>®</sup> eCOM – It doesn't get any easier!**

picoMAX<sup>®</sup> eCOM is the easiest way to make PCBs pluggable.

If you don't need all picoMAX<sup>®</sup> functionalities, opt for an **even more efficient and compact version** without pin housing – **picoMAX<sup>®</sup> 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<sup>®</sup> eCOM is suitable for all conductor types via CAGE CLAMP<sup>®</sup> S universal connection. Furthermore, solid and ferruled conductors are connected by simply pushing them into unit.

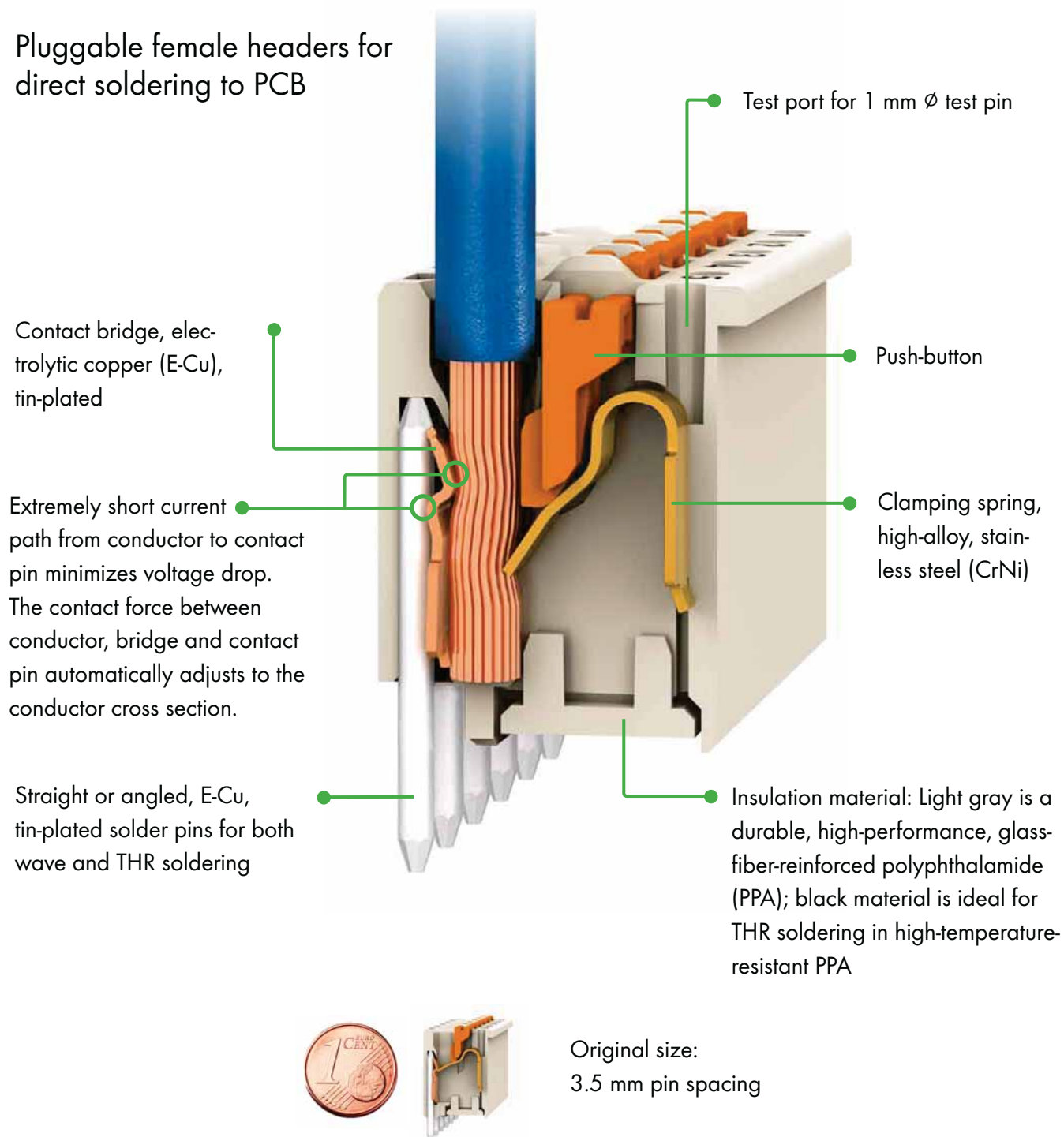
During maintenance, **picoMAX<sup>®</sup> eCOM can be removed from the circuit board like a pluggable connector**. This allows PCB or components to be replaced without costly rewiring. Connectors of different lengths can be arranged side by side without loss of poles, **maximizing space savings** on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

These features make picoMAX<sup>®</sup> eCOM **extremely efficient, pluggable PCB terminal blocks**. picoMAX<sup>®</sup> eCOM is available as straight and angled PCB terminal block for conductors 0.2–1.5 mm<sup>2</sup> (AWG 24–14) with 3.5 mm (0.138 in), as well as 0.2–2.5 mm<sup>2</sup> (24–12) with 5.0 mm (0.197 in) and 7.5 mm (0.295 in) pin spacing.

**picoMAX<sup>®</sup>: Highly efficient system.**



## Pluggable female headers for direct soldering to PCB



COMPACT

VIBRATION-PROOF

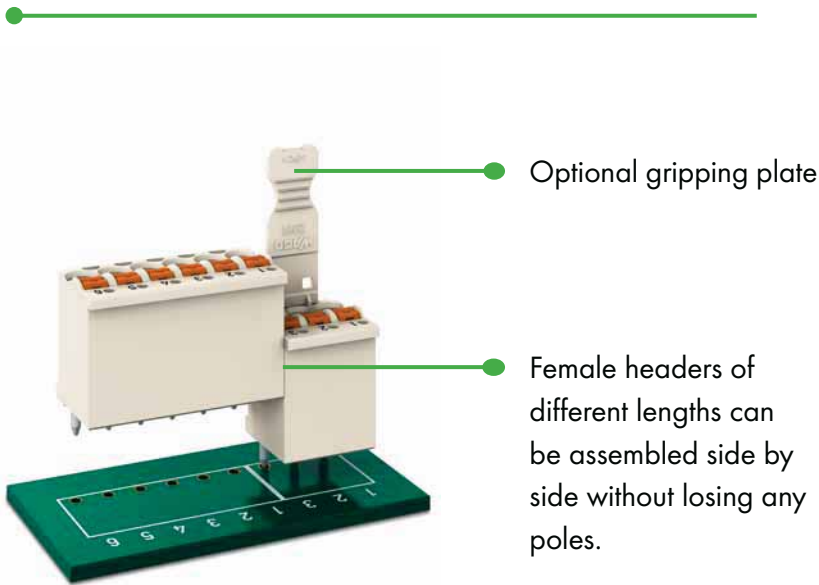
INTUITIVE

UNIVERSAL

EFFICIENT

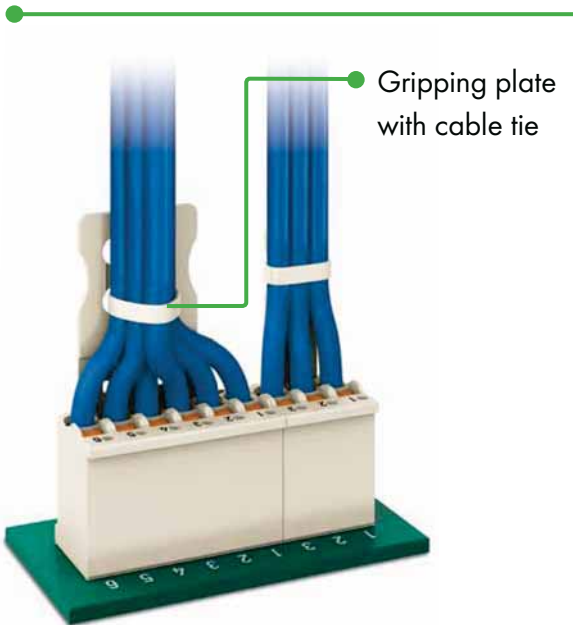
# PCB Terminal Blocks that Double as Pluggable Connectors

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

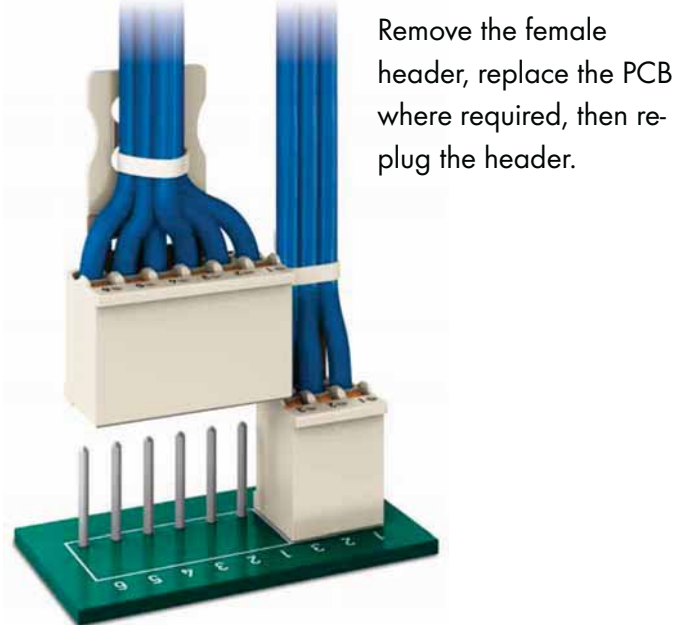


*picoMAX*<sup>®</sup> *eCOM* pluggable female headers are delivered with solder pins so they can be directly soldered to a PCB and then wired just as terminal blocks are. *CAGE CLAMP*<sup>®</sup> S allows solid, stranded and fine-stranded conductors to be terminated via push-buttons. Solid and feruled 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.

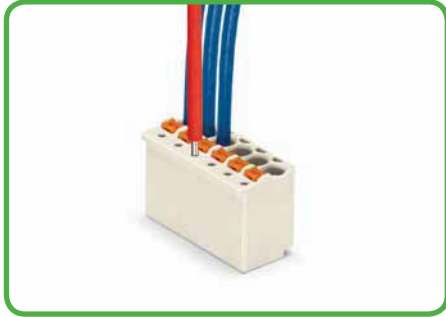
## 2. Wired female headers



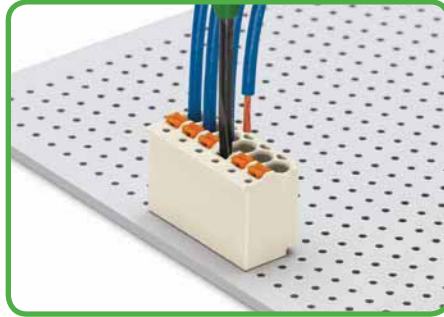
## 3. During maintenance



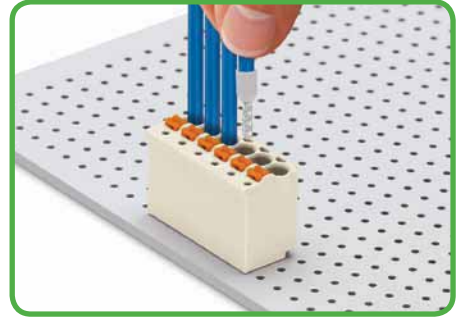
# Handling *picoMAX*<sup>®</sup> eCOM Pin Spacing: 3.5 mm/0.138 in, 5.0 mm/0.197 in and 7.5 mm/0.295 in



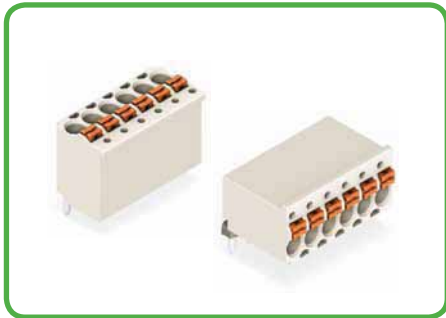
Testing with 1 mm Ø test pin, tip contact.



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



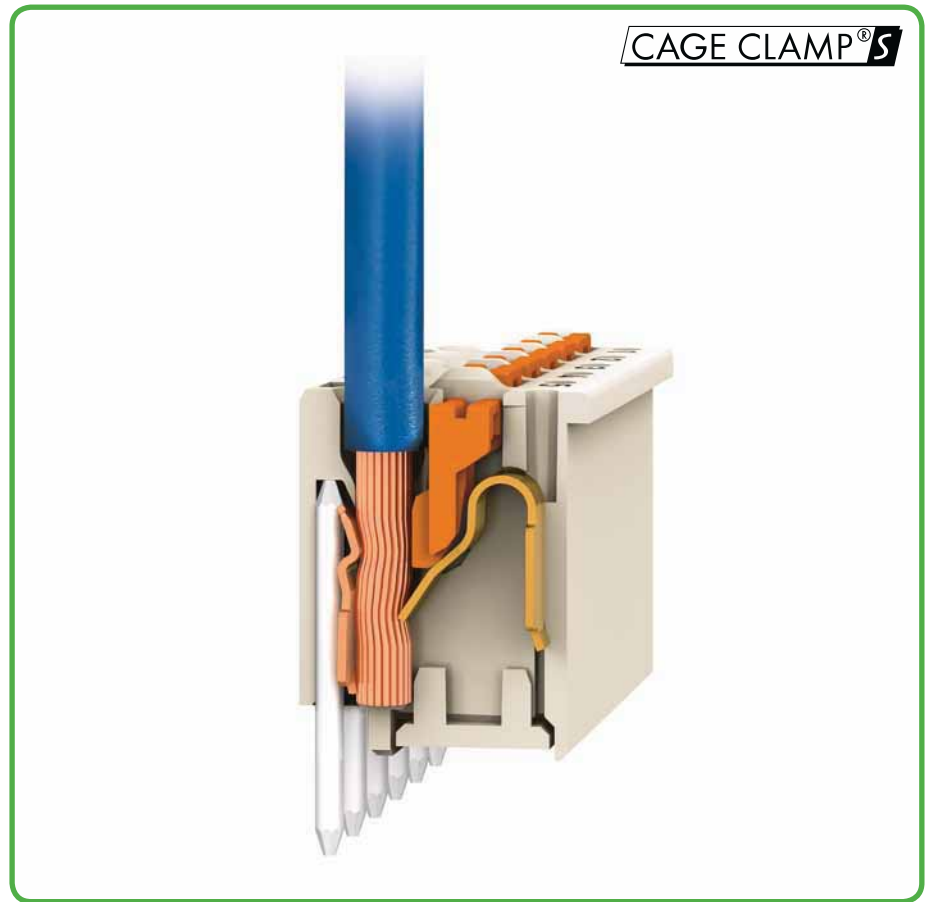
Terminating solid and ferruled conductors via push-in termination.



Horizontal or vertical PCB mounting.



THR version with shorter solder pins.



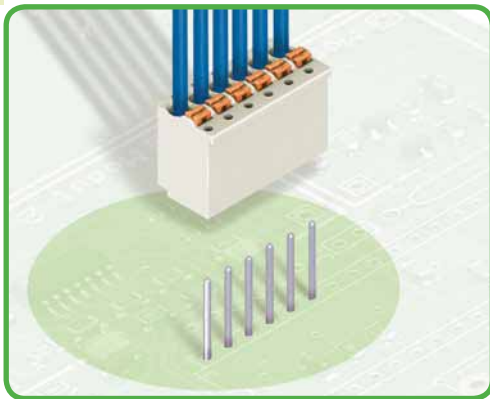
Pole marking via direct printing perpendicular to conductor entry.



Pole marking via direct printing parallel to conductor entry.

**Notice:**  
*picoMAX*<sup>®</sup> 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
Overtension 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	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-

**Conductor data:**

Connection technology	CAGE CLAMP® S
Conductor size: solid	0.2 – 1.5 mm <sup>2</sup>
Conductor size: fine-stranded	0.2 – 1.5 mm <sup>2</sup>
Conductor size: fine-stranded	0.25 – 0.75 mm <sup>2</sup> (with insulated ferrule)
Conductor size: fine-stranded	0.25 – 1.5 mm <sup>2</sup> (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 <sup>+0.1</sup> mm

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

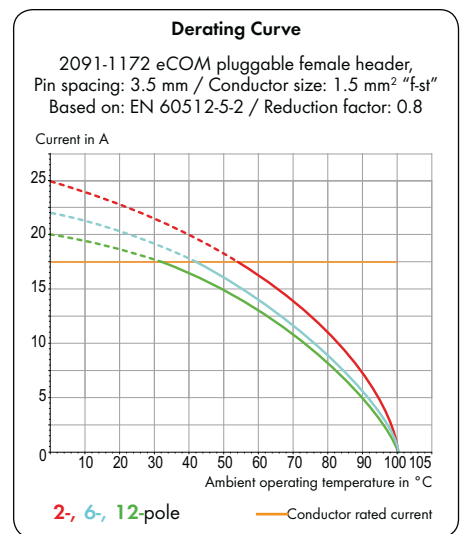
Solder pin: length/width	2.4 mm / 1.0 mm Ø
Solder pin: metal-plated hole	1.2 <sup>+0.1</sup> mm Ø

**Material data:**

Material group	I
Insulation material	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating 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 <sub>C</sub> )
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®:**

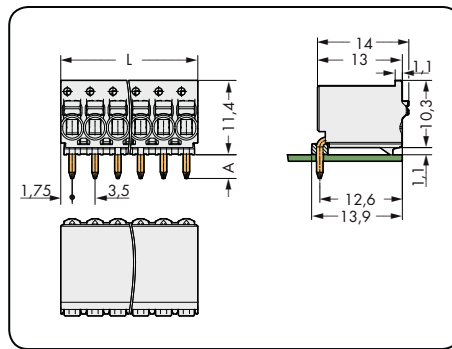
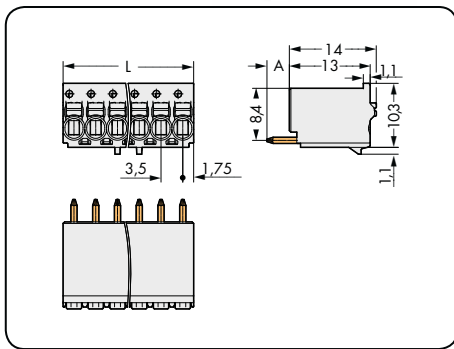
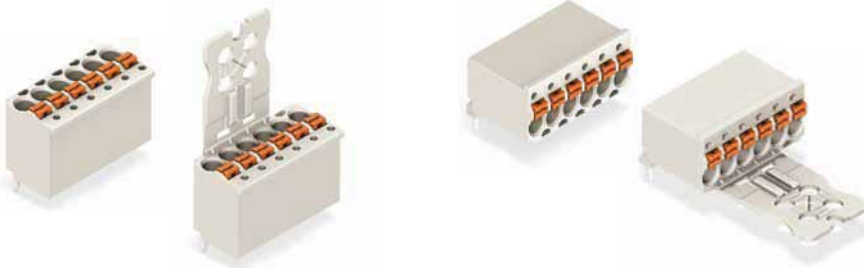
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# picoMAX® eCOM 3.5 – Standard Pluggable Female Headers for Direct Soldering to PCB

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 <sup>2</sup>	AWG 24 – 14	0.2 – 1.5 mm <sup>2</sup>	AWG 24 – 14
160 V/2.5 kV/2 10 A		160 V/2.5 kV/2 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.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit
<b>eCOM pluggable female header with straight solder pins, light gray</b>				<b>eCOM pluggable female header with angled solder pins, light gray</b>			
Gripping plate:				Gripping plate:			
	without	with			without	with	
2	2091-1172	2091-1152		2	2091-1372	2091-1352	
3	2091-1173	2091-1153		3	2091-1373	2091-1353	
4	2091-1174	2091-1154		4	2091-1374	2091-1354	
5	2091-1175	2091-1155		5	2091-1375	2091-1355	
6	2091-1176	2091-1156		6	2091-1376	2091-1356	
8	2091-1178	2091-1158		8	2091-1378	2091-1358	
10	2091-1180	2091-1160		10	2091-1380	2091-1360	
12	2091-1182	2091-1162		12	2091-1382	2091-1362	

Item no. suffix for colored THR version:

○ light gray ...../200-000

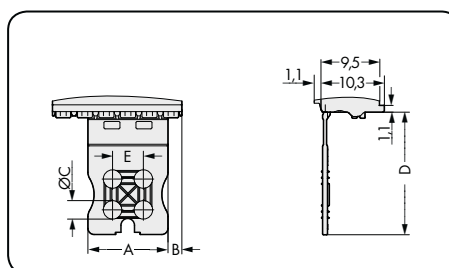
THR version only for female headers without gripping plate

Ordering example:

eCOM THR pluggable female header with straight solder pins,  
 3.5 mm pin spacing, 8-pole,  
 black: **2091-1178/200-000**

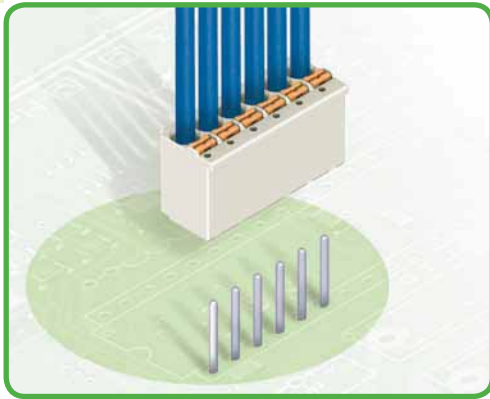
Gripping plate dimensions (in mm):

Pole No.	A	B	C	D	E
2	3	2	-	17	-
3	6	2.25	-	17	-
4	6	2.25	-	17	-
5	13	2.25	3	20	5
6	13	2.25	3	20	5
8	13	5.75	3	20	5
10	27	2.25	4.2	25	8
12	27	5.75	4.2	25	8



For other lengths, please contact factory.

# 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		
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	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-

**Conductor data:**

Connection technology	CAGE CLAMP® S	
Conductor size: solid	0.2 – 2.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.2 – 2.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.25 – 1.5 mm <sup>2</sup> (with insulated ferrule)	
Conductor size: fine-stranded	0.25 – 2.5 mm <sup>2</sup> (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 <sup>+0.1</sup> mm

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

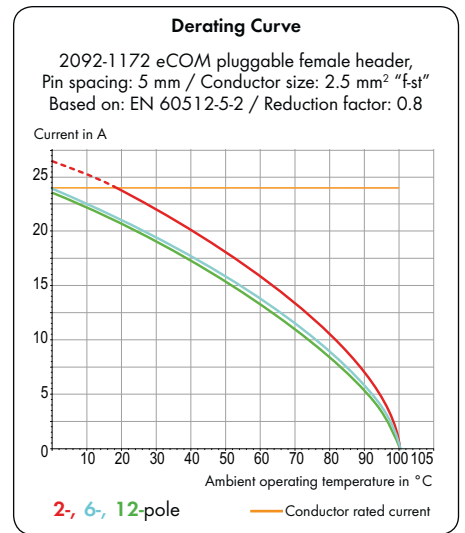
Solder pin: length/width	2.4 mm / 1.4 mm Ø
Solder pin: metal-plated hole	1.6 <sup>+0.1</sup> mm Ø

**Material data:**

Material group	I
Insulation material	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating 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 <sub>cu</sub> )
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.

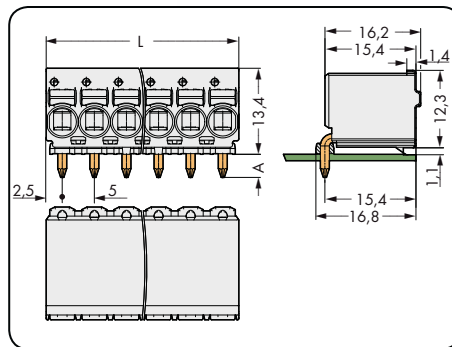
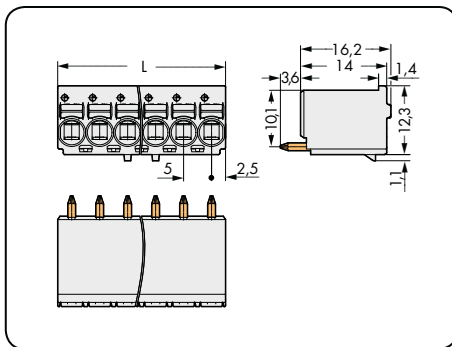
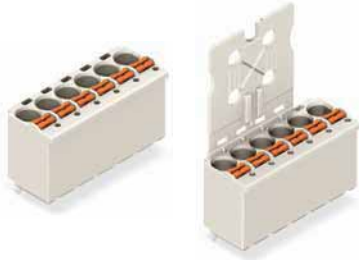
**Accessories for picoMAX®:**

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

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 <sup>2</sup>	AWG 24 – 12	0.2 – 2.5 mm <sup>2</sup>	AWG 24 – 12
320 V/4 kV/2 16 A		320 V/4 kV/2 16 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.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit
<b>eCOM pluggable female header with straight solder pins, light gray</b>				<b>eCOM pluggable female header with angled solder pins, light gray</b>			
Gripping plate:				Gripping plate:			
	without	with			without	with	
2	2092-1172	2092-1152		2	2092-1372	2092-1352	
3	2092-1173	2092-1153		3	2092-1373	2092-1353	
4	2092-1174	2092-1154		4	2092-1374	2092-1354	
5	2092-1175	2092-1155		5	2092-1375	2092-1355	
6	2092-1176	2092-1156		6	2092-1376	2092-1356	
8	2092-1178	2092-1158		8	2092-1378	2092-1358	
10	2092-1180	2092-1160		10	2092-1380	2092-1360	
12	2092-1182	2092-1162		12	2092-1382	2092-1362	

Item no. suffix for colored THR version:

○ light gray      ...../200-000

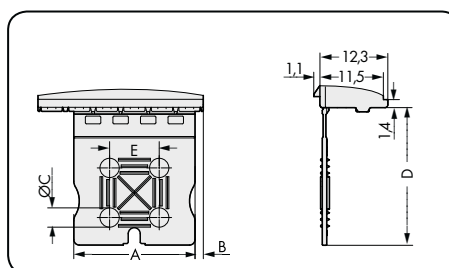
THR version only for female headers without gripping plate

Ordering example:

eCOM THR pluggable female header with straight solder pins,  
 5 mm pin spacing, 8-pole,  
 black: **2092-1178/200-000**

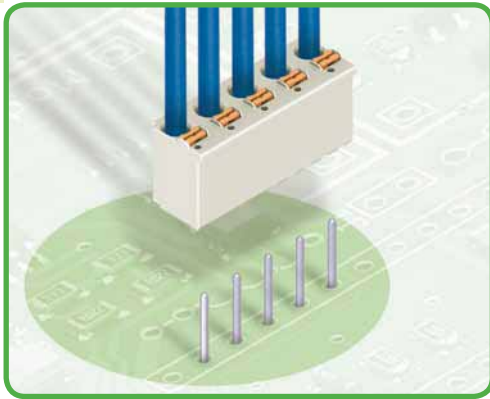
Gripping plate dimensions (in mm):

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
8	22	6.5	3.5	25	9
10	42	1.5	5	35	19
12	42	6.5	5	35	19



For other lengths, please contact factory.

# picoMAX® eCOM 7.5 – 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	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	-	-	-
Nominal current UL	-	-	-
Nominal current CSA	-	-	-

**Conductor data:**

Connection technology	CAGE CLAMP® S	
Conductor size: solid	0.2 – 2.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.2 – 2.5 mm <sup>2</sup>	
Conductor size: fine-stranded	0.25 – 1.5 mm <sup>2</sup> (with insulated ferrule)	
Conductor size: fine-stranded	0.25 – 2.5 mm <sup>2</sup> (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 <sup>+0.1</sup> 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 <sup>+0.1</sup> mm Ø

**Material data:**

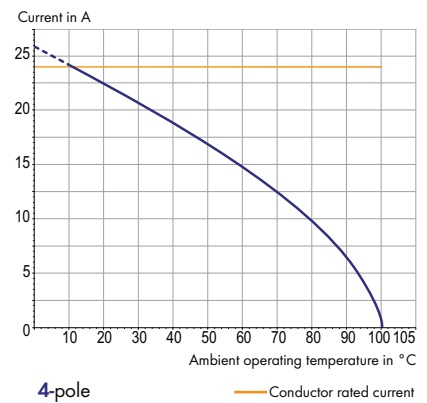
Material group	I
Insulation material	Glass-fiber-reinforced polyphthalamide (PPA-GF)
Flammability rating per UL 94	V0
Lower/Upper limit temperature	-60 °C / +100 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	tin-plated

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 mm<sup>2</sup> "f-st"  
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 74.

**Accessories for picoMAX®:**

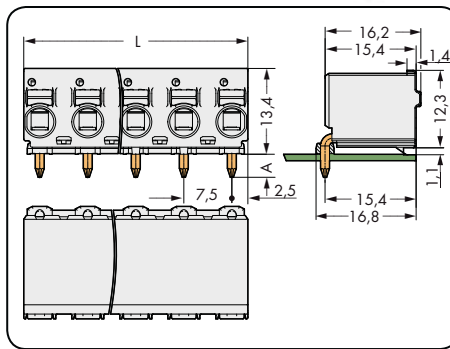
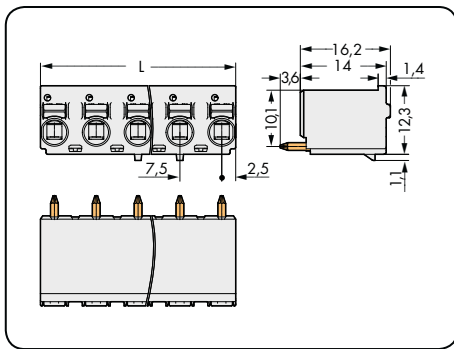
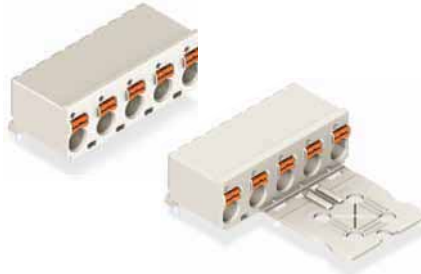
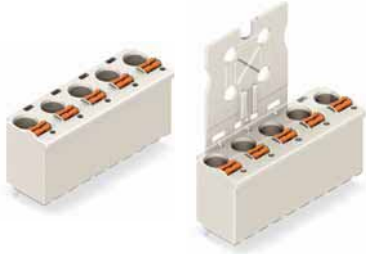
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# picoMAX® eCOM 7.5 – Standard Pluggable Female Headers for Direct Soldering to PCB

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 <sup>2</sup>	AWG 24 – 12	0.2 – 2.5 mm <sup>2</sup>	AWG 24 – 12
630 V/6 kV/2 16 A		630 V/6 kV/2 16 A	



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

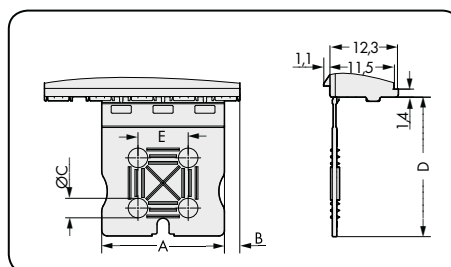
Pole No.	Item No.	Item No.	Pack. Unit	Pole No.	Item No.	Item No.	Pack. Unit
<b>eCOM pluggable female header with straight solder pins, light gray</b>				<b>eCOM pluggable female header with angled solder pins, light gray</b>			
Gripping plate:				Gripping plate:			
without				without			
with				with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

Item no. suffix for colored THR version:

<input type="radio"/> light gray	...../200-000	<b>Ordering example:</b>
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,
		black: <b>2092-3175/200-000</b>

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

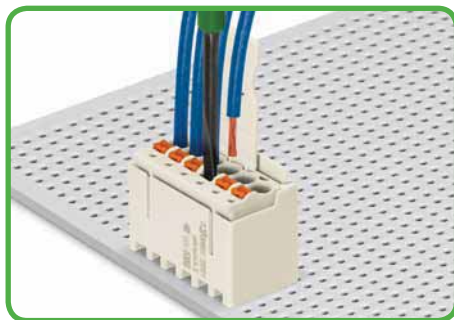


For other lengths, please contact factory.

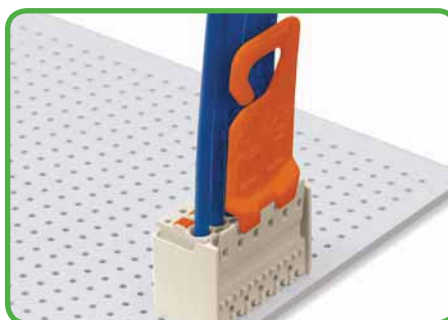
<b>Operating tool</b> with partially insulated shaft Type 1	<b>Unlocking tool</b> for female connectors without gripping plate or sliding connector release	<b>Test pin</b>
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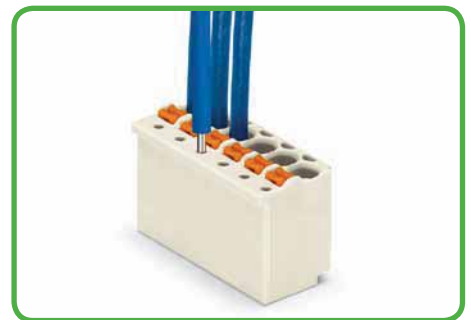
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
<b>Operating tool</b> , with partially insulated shaft, type 1, (2.5 x 0.4) mm blade		<b>Unlocking tool</b> , orange		<b>Test pin</b> , 1 mm Ø, with solder connection for test cable	
210-719	1	2092-1630	100 (4 x 25)	735-500	1



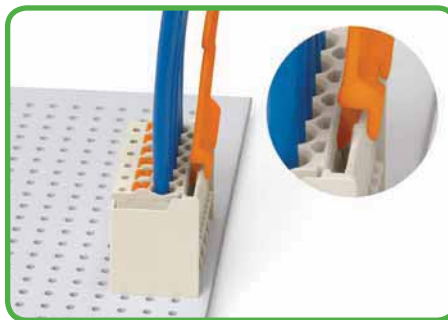
Inserting/removing conductor.



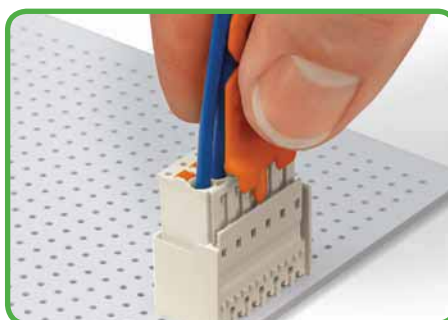
Disconnecting female connector via unlocking tool. Plug unlocking tool into the male header's locking latch.



Testing with 1 mm Ø test pin, tip contact.



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

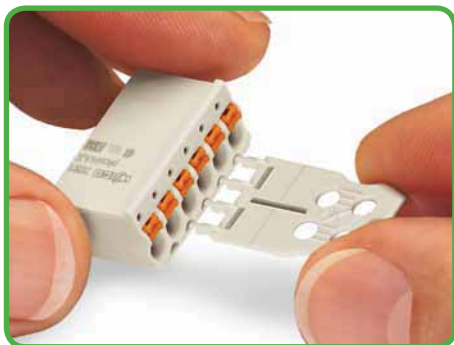


Pull on both unlocking tool and conductors to remove female connector from male header.

<b>Gripping plates,</b> pluggable	<b>Gripping plates with sliding connector release,</b> pluggable	
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Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
<b>Gripping plate,</b> light gray			<b>Gripping plate with sliding connector release,</b> light gray		
Pin spacing: 3.5 mm			Pin spacing: 3.5 mm		
2	<b>2091-1600</b>	100 (4 x 25)	2	<b>2091-1600/002-000</b>	100 (4 x 25)
3- 4	<b>2091-1601</b>	100 (4 x 25)	3- 4	<b>2091-1601/002-000</b>	100 (4 x 25)
5- 8	<b>2091-1602</b>	100 (4 x 25)	5- 8	<b>2091-1602/002-000</b>	100 (4 x 25)
9-12	<b>2091-1603</b>	100 (4 x 25)	9-12	<b>2091-1603/002-000</b>	100 (4 x 25)
Pin spacing: 5 mm			Pin spacing: 5 mm		
2	<b>2092-1600</b>	100 (4 x 25)	2	<b>2092-1600/002-000</b>	100 (4 x 25)
3- 4	<b>2092-1601</b>	100 (4 x 25)	3- 4	<b>2092-1601/002-000</b>	100 (4 x 25)
5- 8	<b>2092-1602</b>	100 (4 x 25)	5- 8	<b>2092-1602/002-000</b>	100 (4 x 25)
9-12	<b>2092-1603</b>	100 (4 x 25)	9-12	<b>2092-1603/002-000</b>	100 (4 x 25)
Pin spacing: 7.5 mm			Pin spacing: 7.5 mm		
2	<b>2092-3600</b>	100 (4 x 25)	2	<b>2092-3600/002-000</b>	100 (4 x 25)
3- 4	<b>2092-3601</b>	100 (4 x 25)	3- 4	<b>2092-3601/002-000</b>	100 (4 x 25)
5	<b>2092-3602</b>	100 (4 x 25)	5	<b>2092-3602/002-000</b>	100 (4 x 25)
6	<b>2092-3603</b>	100 (4 x 25)	6	<b>2092-3603/002-000</b>	100 (4 x 25)



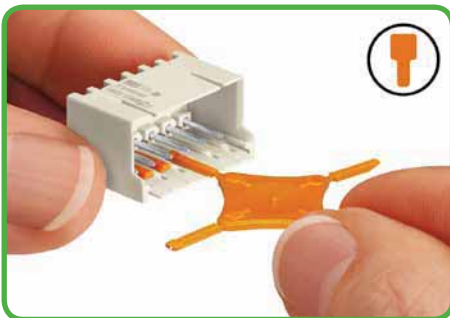
Gripping plates are suitable for factory and in-the-field assembly.

# Accessories for picoMAX®

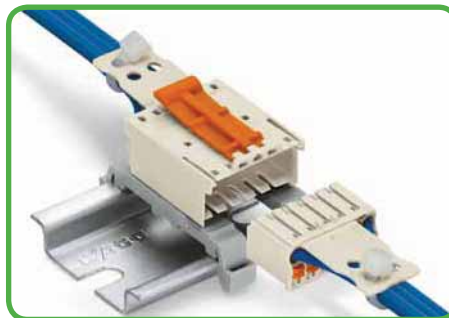
<p><b>Coding key carrier</b></p> <p>with 2 coding keys for each male header and female connector</p>	<p><b>Mounting adapter for DIN 35 rail</b></p> <p>for male connectors with snap-in mounting feet</p>	
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Item No.	Pack. Unit	Item No.	Pack. Unit
<b>Coding key carrier</b> , with 2 coding keys for each male header and female connector, orange		<b>Mounting adapter</b> , for male connectors with snap-in mounting feet, gray	
Pin spacing: 3.5 mm			
<b>2091-1610</b>	100 (4 x 25)	<b>209-189</b>	25
Pin spacing: 5 mm and 7.5 mm			
<b>2092-1610</b>	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

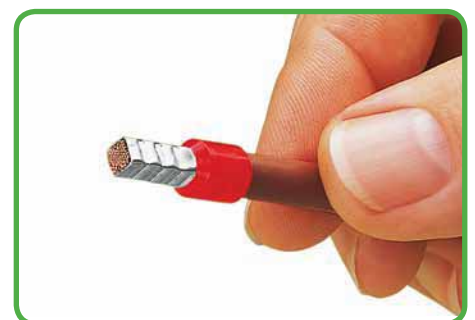
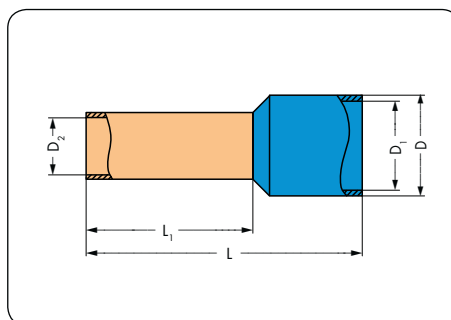
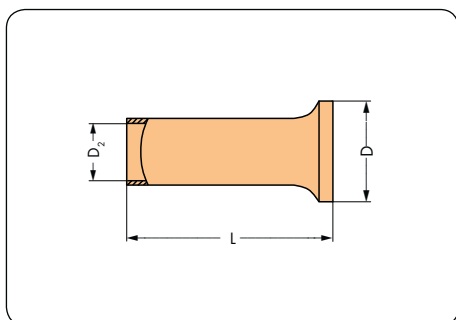
<b>Uninsulated ferrules</b>  Electrolytic copper, electro tin-plated, acc. to DIN 46288, part 1/08.92	<b>Insulated ferrules</b>  Electrolytic copper, electro tin-plated, acc. to DIN 46288, part 4/09.09	<b>"Variocrimp 4" crimping tool</b>  0.25 – 4 mm <sup>2</sup> / AWG 22 – 12
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Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Uninsulated ferrule for <b>0.25 mm<sup>2</sup>/AWG 24</b> <b>L: 5 mm</b> , D: 1.7 mm, D <sub>2</sub> : 0.75 mm, 5 mm strip length <b>216-151</b>	1000	Insulated ferrule for <b>0.25 mm<sup>2</sup>/AWG 24</b> , 7.5 mm strip length, L: 10 mm, L <sub>1</sub> : <b>6 mm</b> , D: 2.3 mm, D <sub>1</sub> : 1.8 mm, D <sub>2</sub> : 0.85 mm yellow <b>216-321</b>	1000	<b>"Variocrimp 4" crimping tool</b> , for insulated and uninsulated ferrules, crimping range of 0.25 – 4 mm <sup>2</sup>  <b>206-204</b>	<b>1</b>
<b>L: 7 mm</b> , D: 1.7 mm, D <sub>2</sub> : 0.75 mm, 7 mm strip length <b>216-131</b>	1000	yellow L: 12 mm, L <sub>1</sub> : <b>8 mm</b> , 9.5 mm strip length <b>216-301</b>	1000		
Uninsulated ferrule for <b>0.34 mm<sup>2</sup>/AWG 24</b> <b>L: 5 mm</b> , D: 1.8 mm, D <sub>2</sub> : 0.75 mm, 5 mm strip length <b>216-152</b>	1000	Insulated ferrule for <b>0.34 mm<sup>2</sup>/AWG 24</b> , 7.5 mm strip length, L: 10 mm, L <sub>1</sub> : <b>6 mm</b> , D: 2.5 mm, D <sub>1</sub> : 2 mm, D <sub>2</sub> : 0.85 mm green <b>216-322</b>	1000		
<b>L: 7 mm</b> , D: 1.8 mm, D <sub>2</sub> : 0.85 mm, 7 mm strip length <b>216-132</b>	1000	green L: 12 mm, L <sub>1</sub> : <b>8 mm</b> , 9.5 mm strip length <b>216-302</b>	1000		
Uninsulated ferrule for <b>0.5 mm<sup>2</sup>/AWG 22</b> <b>L: 6 mm</b> , D: 2.1 mm, D <sub>2</sub> : 1 mm, 6 mm strip length <b>216-121</b>	1000	Insulated ferrule for <b>0.5 mm<sup>2</sup>/AWG 22</b> , 7.5 mm strip length, L: 12 mm, L <sub>1</sub> : <b>6 mm</b> , D: 3.1 mm, D <sub>1</sub> : 2.6 mm, D <sub>2</sub> : 1 mm white <b>216-221</b>	1000		
<b>L: 8 mm</b> , D: 2.1 mm, D <sub>2</sub> : 1 mm, 8 mm strip length <b>216-101</b>	1000	white L: 14 mm, L <sub>1</sub> : <b>8 mm</b> , 9.5 mm strip length <b>216-201</b>	1000		
Uninsulated ferrule for <b>0.75 mm<sup>2</sup>/AWG 20</b> <b>L: 6 mm</b> , D: 2.3 mm, D <sub>2</sub> : 1.2 mm, 6 mm strip length <b>216-122</b>	1000	Insulated ferrule for <b>0.75 mm<sup>2</sup>/AWG 20</b> , 8 mm strip length, L: 12 mm, L <sub>1</sub> : <b>6 mm</b> , D: 3.3 mm, D <sub>1</sub> : 2.8 mm, D <sub>2</sub> : 1.2 mm gray <b>216-222</b>	1000		
<b>L: 8 mm</b> , D: 2.3 mm, D <sub>2</sub> : 1.2 mm, 8 mm strip length <b>216-102</b>	1000	gray L: 14 mm, L <sub>1</sub> : <b>8 mm</b> , 10 mm strip length <b>216-202</b>	1000		
Uninsulated ferrule for <b>1 mm<sup>2</sup>/AWG 18</b> <b>L: 6 mm</b> , D: 2.5 mm, D <sub>2</sub> : 1.4 mm, 6 mm strip length <b>216-123</b>	1000	Insulated ferrule for <b>1 mm<sup>2</sup>/AWG 18</b> , 8 mm strip length, L: 12 mm, L <sub>1</sub> : <b>6 mm</b> , D: 3.5 mm, D <sub>1</sub> : 3 mm, D <sub>2</sub> : 1.4 mm red <b>216-223</b>	1000		
<b>L: 8 mm</b> , D: 2.5 mm, D <sub>2</sub> : 1.4 mm, 8 mm strip length <b>216-103</b>	1000	red L: 14 mm, L <sub>1</sub> : <b>8 mm</b> , 10 mm strip length <b>216-203</b>	1000		
Uninsulated ferrule for <b>1.5 mm<sup>2</sup>/AWG 16</b> <b>L: 6 mm</b> , D: 2.8 mm, D <sub>2</sub> : 1.7 mm, 6 mm strip length <b>216-124</b>	1000	Insulated ferrule for <b>1.5 mm<sup>2</sup>/AWG 16</b> , 8 mm strip length, L: 12 mm, L <sub>1</sub> : <b>6 mm</b> , D: 4 mm, D <sub>1</sub> : 3.5 mm, D <sub>2</sub> : 1.7 mm black <b>216-224</b>	1000		
<b>L: 8 mm</b> , D: 2.8 mm, D <sub>2</sub> : 1.7 mm, 8 mm strip length <b>216-104</b>	1000	black L: 14 mm, L <sub>1</sub> : <b>8 mm</b> , 10 mm strip length <b>216-204</b>	1000		
Uninsulated ferrule for <b>2.5 mm<sup>2</sup>/AWG 14</b> <b>L: 8 mm</b> , D: 3.4 mm, D <sub>2</sub> : 2.2 mm, 8 mm strip length <b>216-105</b>	1000				
<b>L: 10 mm</b> , D: 3.4 mm, D <sub>2</sub> : 2.2 mm, 10 mm strip length <b>216-106</b>	1000				

**Application notes:**

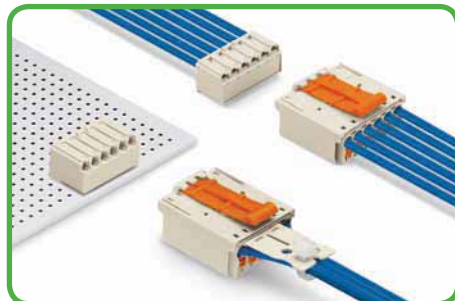
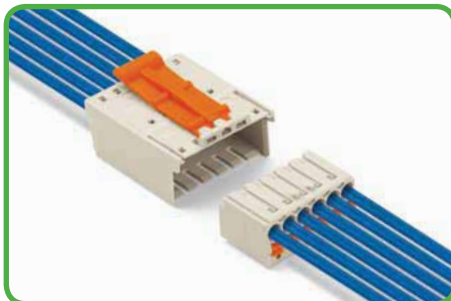
- With "Variocrimp 4," the built-in crimping pressure control automatically adjusts force to the conductor cross section used. With "Variocrimp 16," it is necessary to select the wire gauge on the tool before crimping.
- Only one crimping station is needed to handle the specified conductor size range.
- 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.



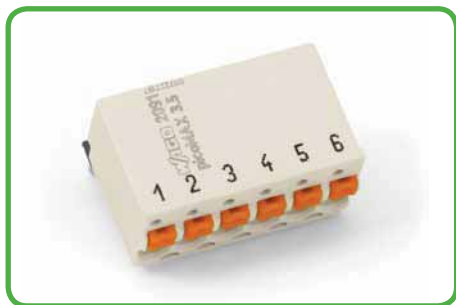
A perfect gastight crimp, both electrically and mechanically reliable.

# Accessories for picoMAX® Printing for 2091 and 2092 Series

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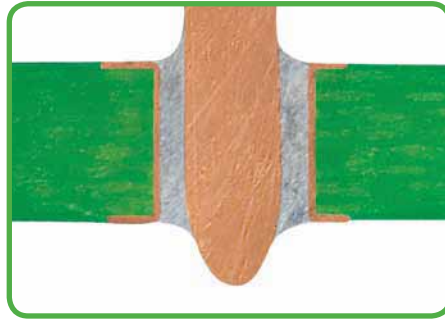
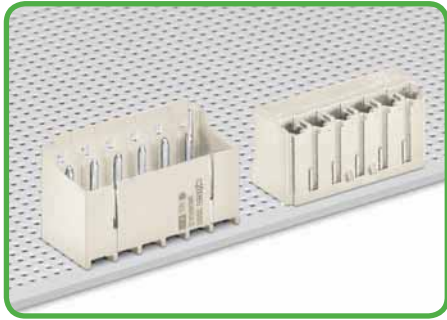


<p>Printing Parallel to Conductor Entry Item No. Suffix: /... - 1000</p> <p>Ordering examples:</p> <p><b>Female connector,</b> 3.5 mm pin spacing, 6-pole, light gray 2091-1126/0000-1000</p> <p><b>Female connector with gripping plate,</b> 3.5 mm pin spacing, 6-pole, light gray 2091-1106/0000-1000</p> <p><b>Female connector with gripping plate and sliding connector release,</b> 3.5 mm pin spacing, 6-pole, light gray 2091-1106/0002-1000</p>	<p>Printing Parallel to Conductor Entry Item No. Suffix: /... - 3000</p> <p>Ordering examples:</p> <p><b>Female connector,</b> 3.5 mm pin spacing, 6-pole, light gray 2091-1126/0000-3000</p> <p><b>Female connector with gripping plate,</b> 3.5 mm pin spacing, 6-pole, light gray 2091-1106/0000-3000</p> <p><b>Female connector with gripping plate and sliding connector release,</b> 3.5 mm pin spacing, 6-pole, light gray 2091-1106/0002-3000</p>	<p>Printing Parallel to Conductor Entry Item No. Suffix: /... - 3000</p> <p>Ordering examples:</p> <p><b>Male connector,</b> 3.5 mm pin spacing, 6-pole, light gray 2091-1526/0002-3000</p> <p><b>Male connector with gripping plate,</b> 3.5 mm pin spacing, 6-pole, light gray 2091-1506/0002-3000</p>
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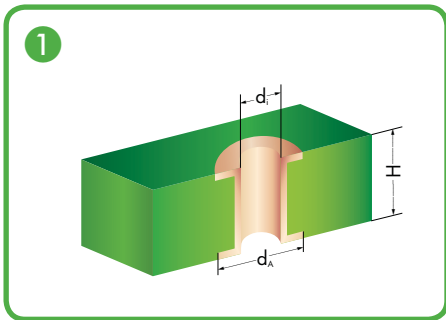
<p>Printing Perpendicular to Conductor Entry Item no. suffix: /... - 5000</p> <p>Ordering examples:</p> <p><b>Female connector,</b> 3.5 mm pin spacing, 6-pole, light gray 2091-1376/0000-5000</p> <p><b>Female connector with gripping plate,</b> 3.5 mm pin spacing, 6-pole, light gray 2091-1356/0000-5000</p>
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# THR (Through-Hole Reflow) Soldering Process

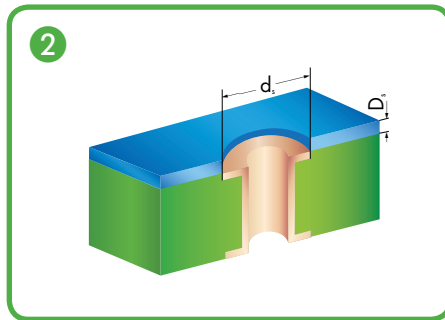


By using high-temperature-resistant plastic and a streamlined pin design, the WAGO Through-Hole Reflow headers and PCB terminal blocks meet requirements for SMT process capability while maintaining the necessary stability. Male headers and THR PCB terminal blocks are simply pushed into the solder paste-filled 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.

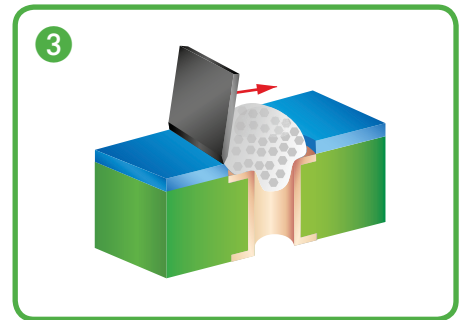
picoMAX® THR male headers in tape-and-reel packaging acc. to IEC 60286-3 are available upon request.



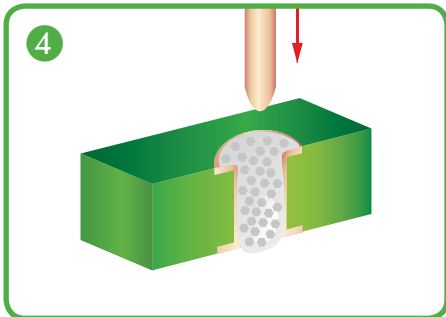
Metal-plated PCB bore hole



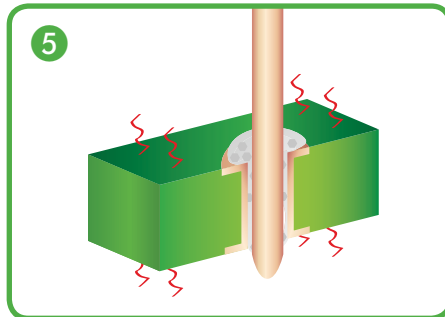
SMD positioning pattern



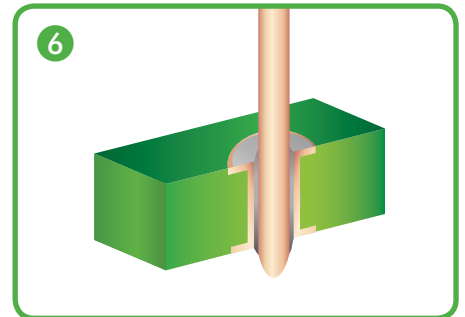
Application of solder paste



Component assembly, automatic/by hand

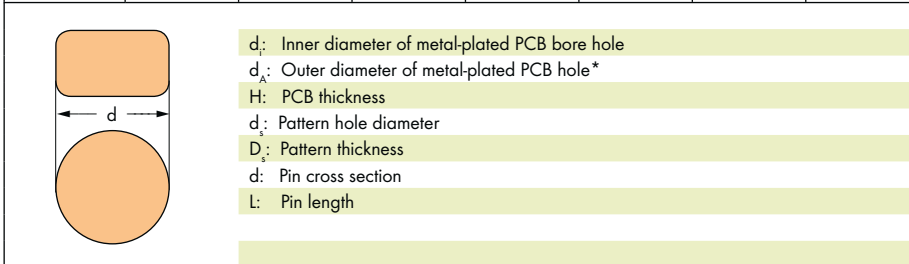


Reflow soldering process



THR soldering joint

Series	d <sub>i</sub> (mm)	d <sub>A</sub> (mm)	H(mm)	d <sub>s</sub> (mm)	D <sub>s</sub> (µm)	d(mm)	L(mm)
2091	1.2 <sup>+0.1</sup>	1.9	< 2	1.8	150	1.0 Ø	2.4
2091	1.2 <sup>+0.1</sup>	1.9	< 2	1.8	150	0.4 x 0.5	2.4
2092	1.6 <sup>+0.1</sup>	2.3	< 2	2.2	150	1.4 Ø	2.4
2092	1.5 <sup>+0.1</sup>	2.2	< 2	2.1	150	0.4 x 1.3	2.4



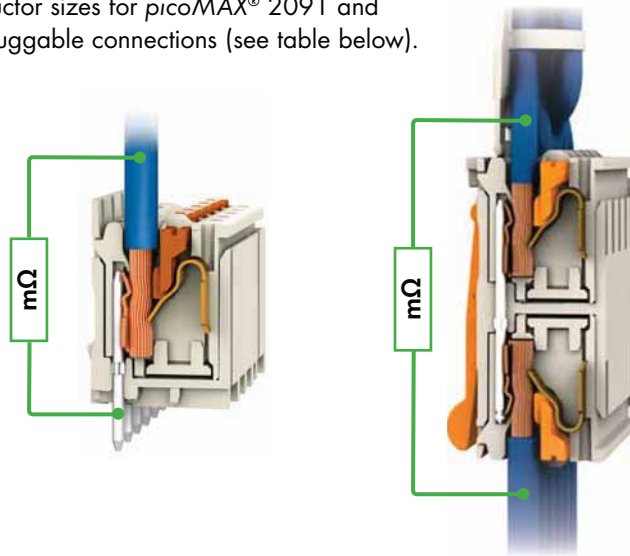
\* When laying out the metal-plated bore holes, the clearance and creepage distance requirements – as specified in the equipment standards – must be considered.

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 <sup>2</sup>		“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 in mm <sup>2</sup>		Ferrule Item No.	
		2091 Series	2092 Series
0.25	fine-stranded, with insulated ferrule	216-301	216-301
0.34	fine-stranded, with insulated ferrule	216-302	216-302
0.5	fine-stranded, with insulated ferrule	216-201	216-201
0.75	fine-stranded, with insulated ferrule	216-202	216-202
1.0	fine-stranded, with insulated ferrule	-	216-203
1.5	fine-stranded, with insulated ferrule	-	216-204
0.25	fine-stranded, with ferrule	216-131	216-131
0.34	fine-stranded, with ferrule	216-132	216-132
0.5	fine-stranded, with ferrule	216-101	216-101 216-141
0.75	fine-stranded, with ferrule	216-102	216-102 216-142
1.0	fine-stranded, with ferrule	216-103	216-103 216-143
1.5	fine-stranded, with ferrule	216-104	216-104 216-144
2.5	fine-stranded, with ferrule	-	216-106

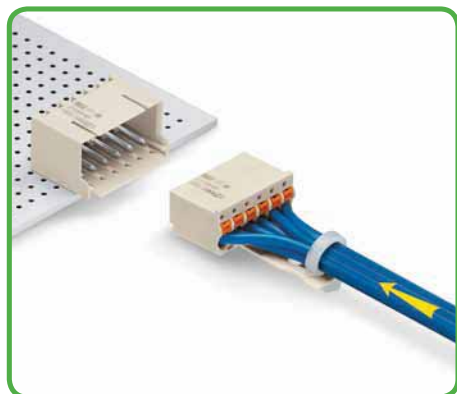
For ferrules, see page 67.



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

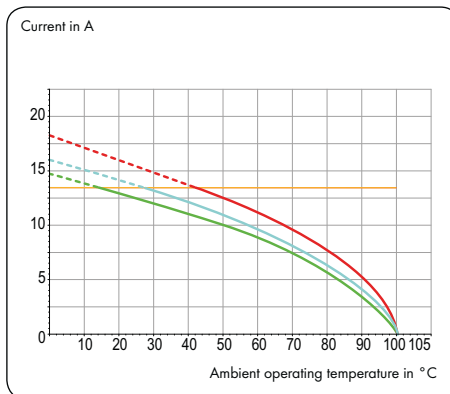
**picoMAX®**, 2091 Series, 3.5 mm pin spacing

**“Wire-to-board”** connection



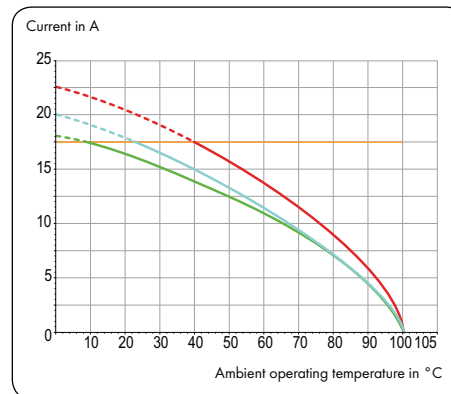
Example: Standard female connector and male header

1.0 mm<sup>2</sup> test conductor, fine-stranded

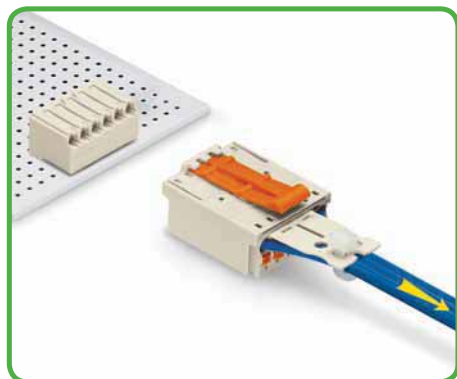


2-, 6-, 12-pole — Conductor rated current

1.5 mm<sup>2</sup> test conductor, fine-stranded

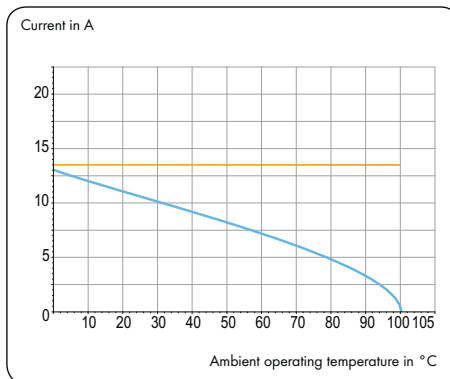


**“Board-to-wire”** connection



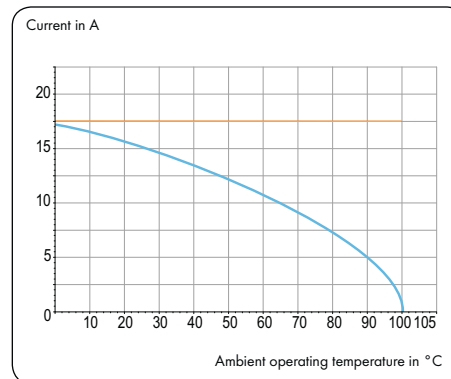
Example: Female header and standard male connector

1.0 mm<sup>2</sup> test conductor, fine-stranded

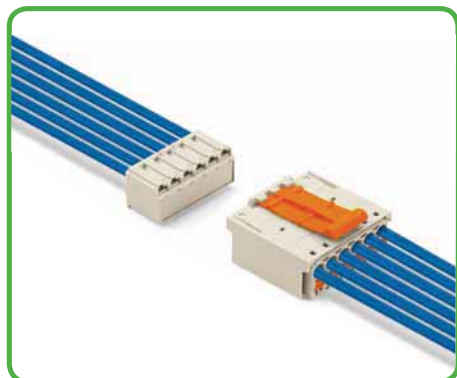


6-pole — Conductor rated current

1.5 mm<sup>2</sup> test conductor, fine-stranded

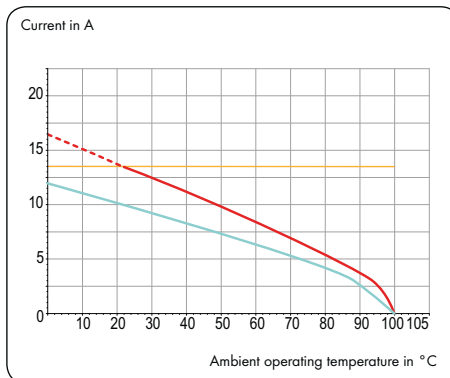


**“Wire-to-wire”** connection



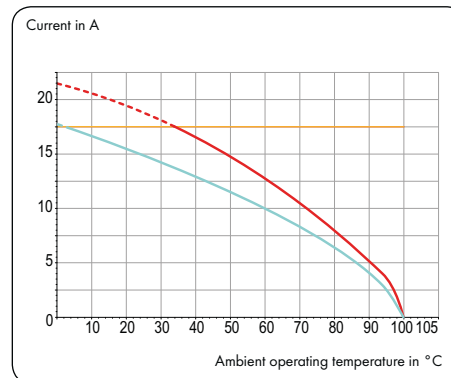
Example: Standard female and male connector

1.0 mm<sup>2</sup> test conductor, fine-stranded



2-, 6-pole — Conductor rated current

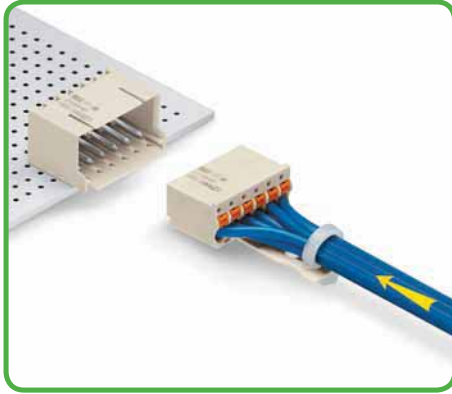
1.5 mm<sup>2</sup> test conductor, fine-stranded



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

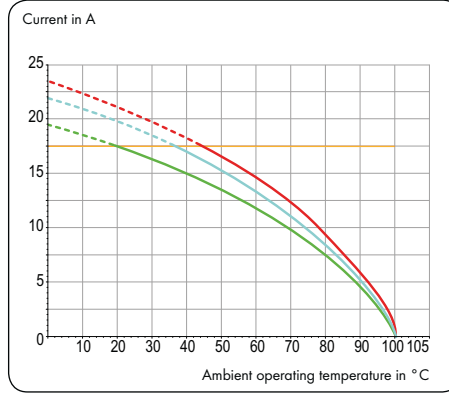
**picoMAX<sup>®</sup>, 2092 Series, 5.0 mm pin spacing**

**“Wire-to-board” connection**



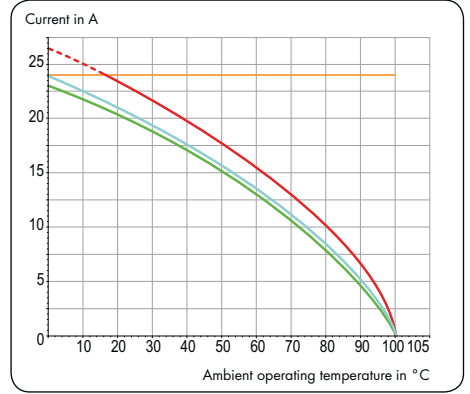
Example: Standard female connector and male header

1.5 mm<sup>2</sup> test conductor, fine-stranded



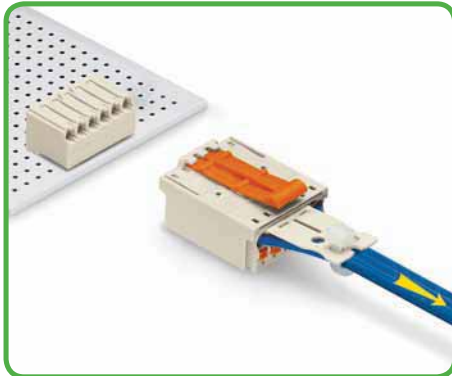
2-, 6-, 12-pole — Conductor rated current

2.5 mm<sup>2</sup> test conductor, fine-stranded



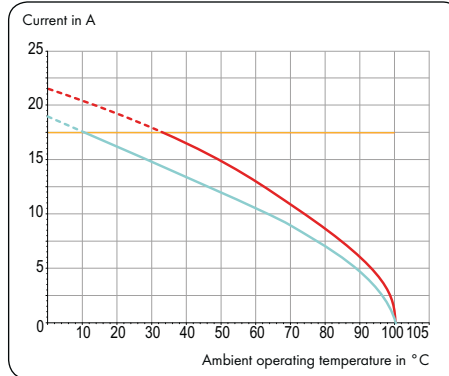
2-, 6-, 12-pole — Conductor rated current

**“Board-to-wire” connection**



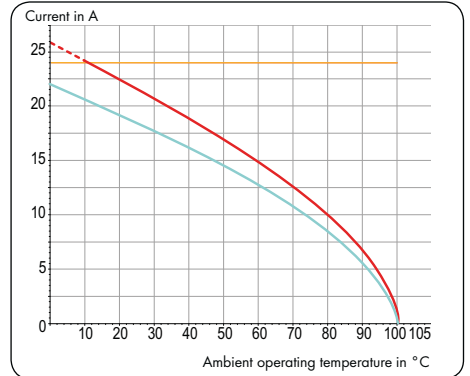
Example: Female header and standard male connector

1.5 mm<sup>2</sup> test conductor, fine-stranded



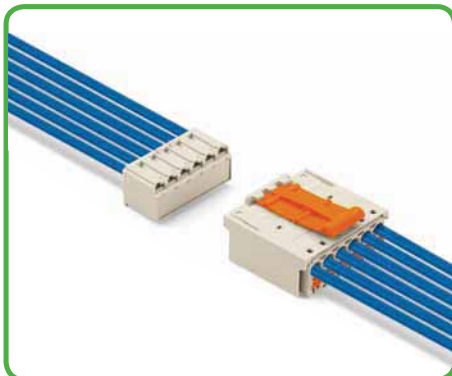
2-, 6-pole — Conductor rated current

2.5 mm<sup>2</sup> test conductor, fine-stranded



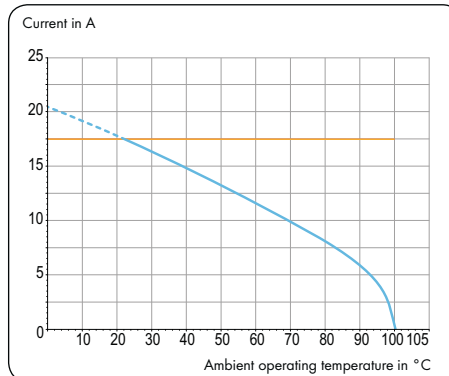
2-, 6-pole — Conductor rated current

**“Wire-to-wire” connection**



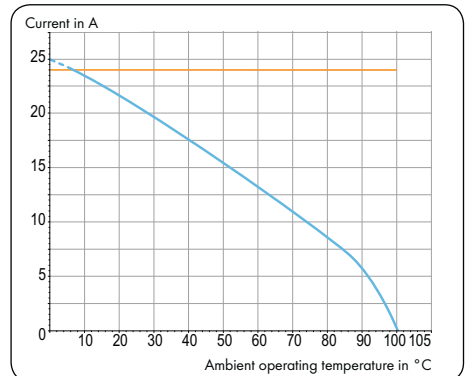
Example: Standard female and male connector

1.5 mm<sup>2</sup> test conductor, fine-stranded



6-pole — Conductor rated current

2.5 mm<sup>2</sup> test conductor, fine-stranded

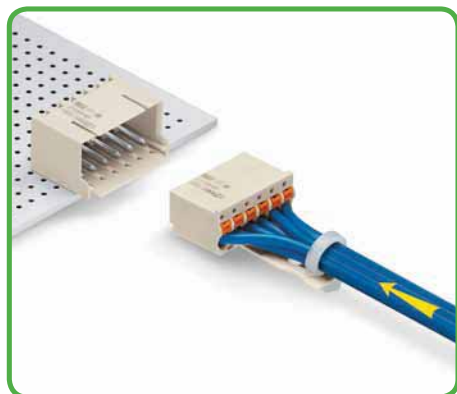


6-pole — Conductor rated current

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

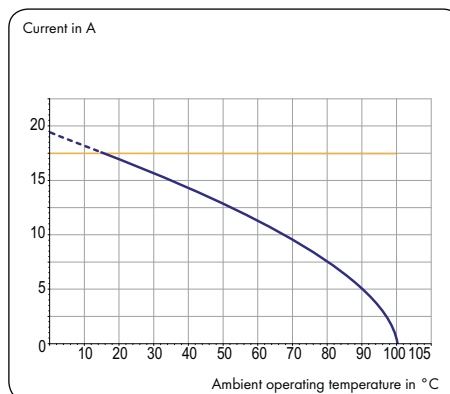
### picoMAX<sup>®</sup>, 2092 Series, 7.5 mm pin spacing

#### “Wire-to-board” connection

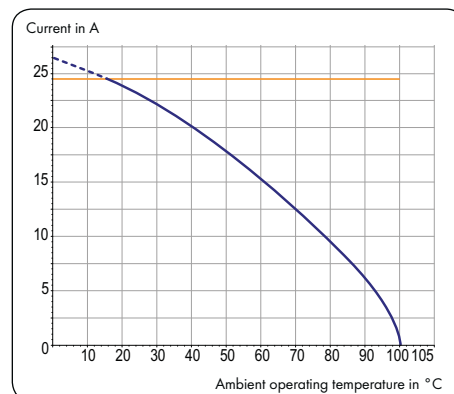


Example: Standard female connector and male header

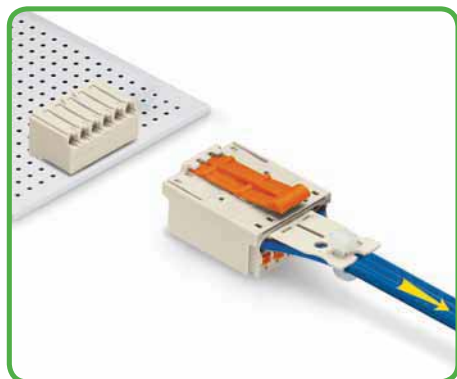
#### 1.5 mm<sup>2</sup> test conductor, fine-stranded



#### 2.5 mm<sup>2</sup> test conductor, fine-stranded

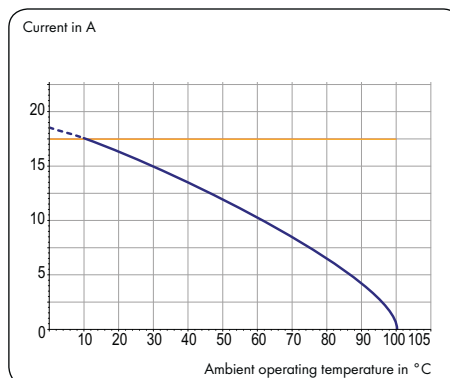


#### “Board-to-wire” connection

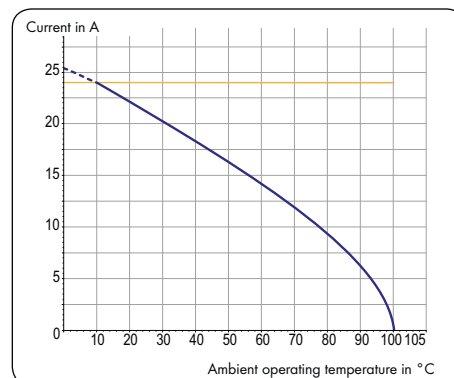


Example: Female header and standard male connector

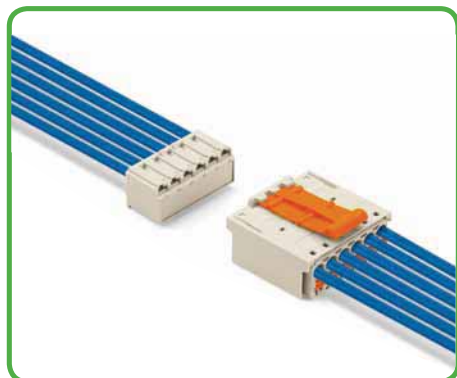
#### 1.5 mm<sup>2</sup> test conductor, fine-stranded



#### 2.5 mm<sup>2</sup> test conductor, fine-stranded

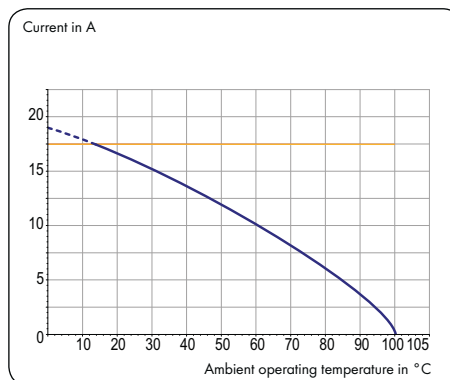


#### “Wire-to-wire” connection

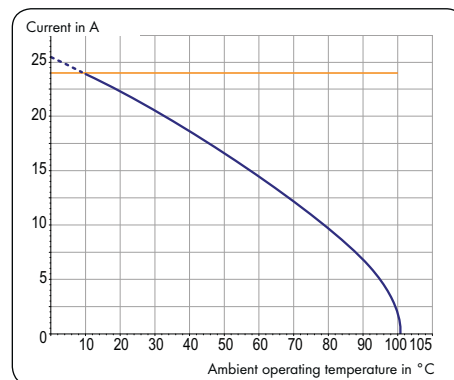


Example: Standard female and male connector

#### 1.5 mm<sup>2</sup> test conductor, fine-stranded



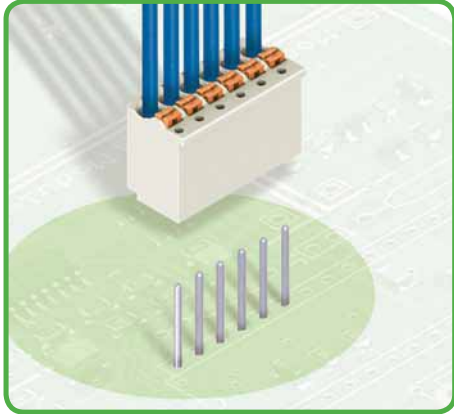
#### 2.5 mm<sup>2</sup> test conductor, fine-stranded



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

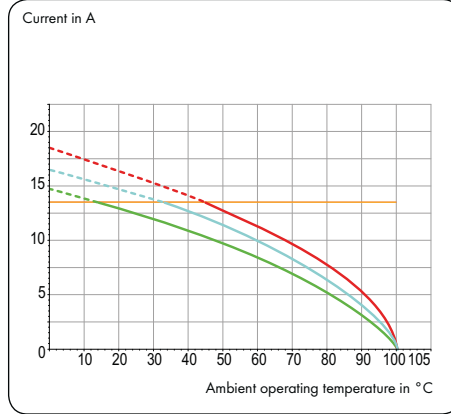
## picoMAX® eCOM, 2091 Series, 3.5 mm pin spacing

“Wire-to-board” connection



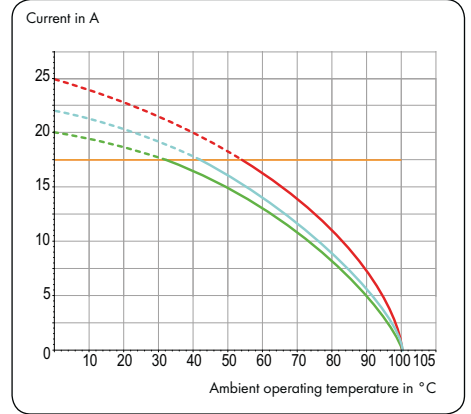
Example: 2091-1176 pluggable PCB connector

1.0 mm<sup>2</sup> test conductor, fine-stranded



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

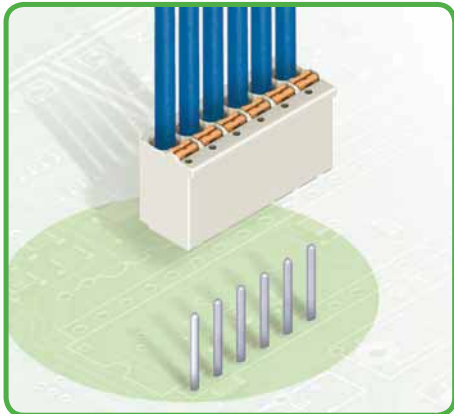
1.5 mm<sup>2</sup> test conductor, fine-stranded



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

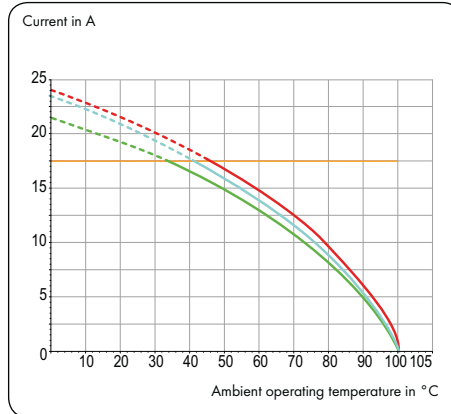
## picoMAX® eCOM, 2092 Series, 5.0 mm pin spacing

“Wire-to-board” connection



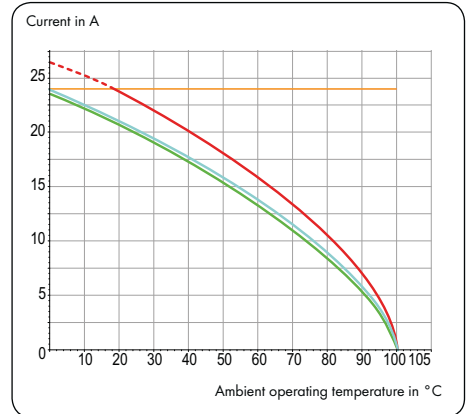
Example: 2092-1176 pluggable PCB connector

1.5 mm<sup>2</sup> test conductor, fine-stranded



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

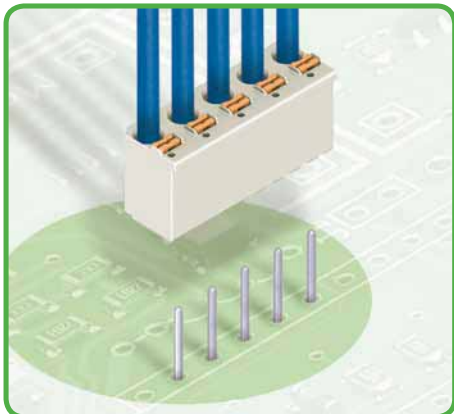
2.5 mm<sup>2</sup> test conductor, fine-stranded



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

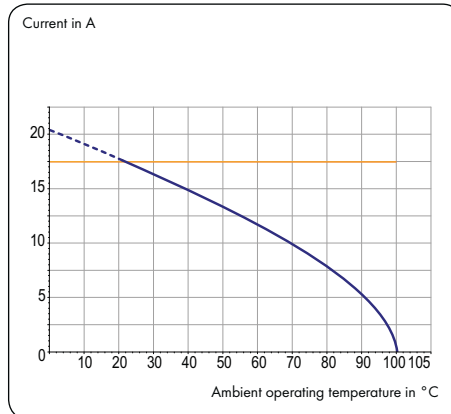
## picoMAX® eCOM, 2092 Series, 7.5 mm pin spacing

“Wire-to-board” connection



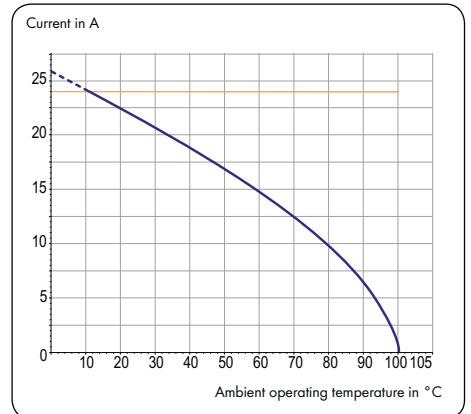
Example: 2092-3175 pluggable PCB connector

1.5 mm<sup>2</sup> test conductor, fine-stranded



4-pole — Conductor rated current

2.5 mm<sup>2</sup> test conductor, fine-stranded

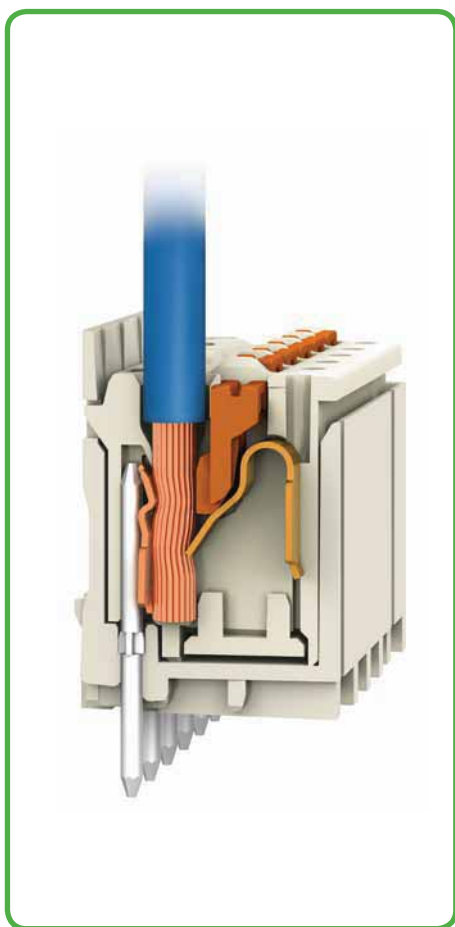


4-pole — Conductor rated current

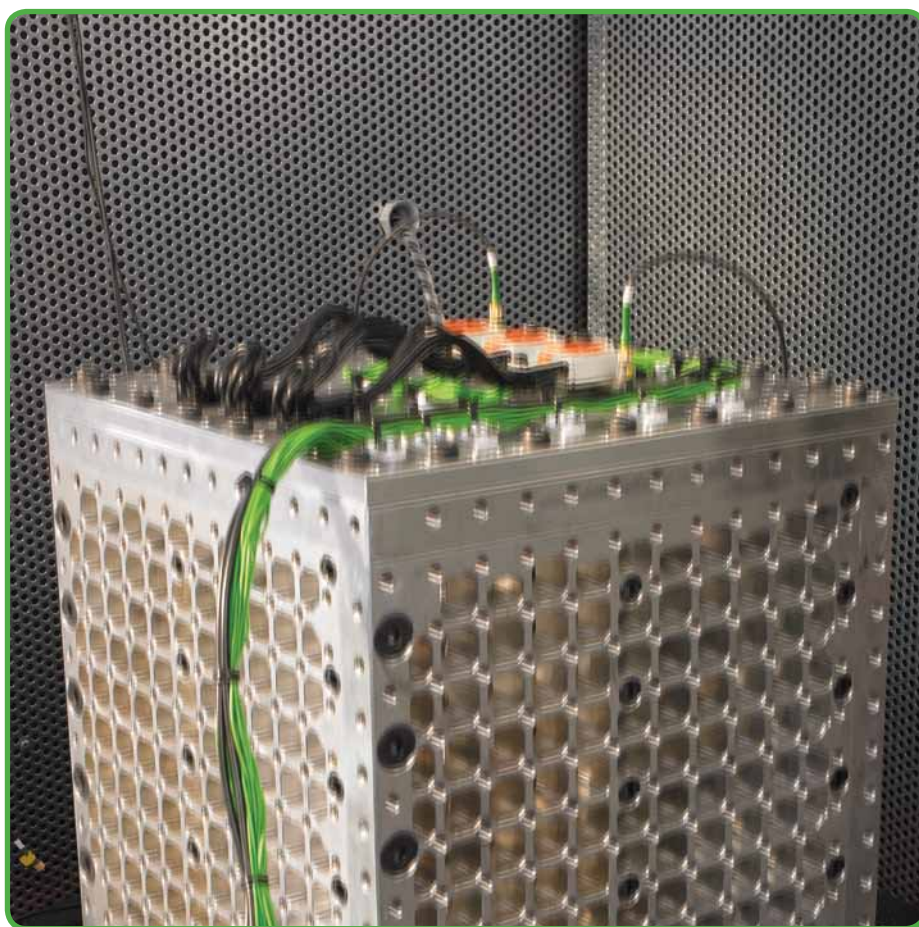
- Vibration Test to EN 60068-2-6 for *picoMAX*<sup>®</sup> “Wire-to-Board” Connection

In the vibration test based on EN 60068-2-6, the *picoMAX*<sup>®</sup> “wire-to-board” connection (male header with solder pins and standard female connector) is tested in a frequency range of 5 to 2,000 Hz with 10 frequency cycles of 17.3 minutes per axis. Acceleration starts with 10 g along all 3 axes and is then gradually increased from 14 g to 16 g, and finally 20 g. A failure occurs when the contact resistance increases by more than 50% of its initial value, or when a contact interruption of more than 20ns is detected.

The test is performed in a cascading manner. This means that every pluggable connector is subjected to all acceleration values up to the maximum acceleration. In this test, the above-mentioned *picoMAX*<sup>®</sup> 2091 Series “wire-to-board” pluggable connection (terminated with 1.5 mm<sup>2</sup>/AWG 14 fine-stranded conductors) achieved an acceleration of 20 g without failure. This value reflects the high vibration-resistance of *picoMAX*<sup>®</sup>. The termination of smaller conductor sizes, as well as both “wire-to-wire” and “board-to-wire” connections, achieve lower acceleration values. The *picoMAX*<sup>®</sup> eCOM pluggable connection, however, is only partly suitable for shock- and vibration-prone environments.



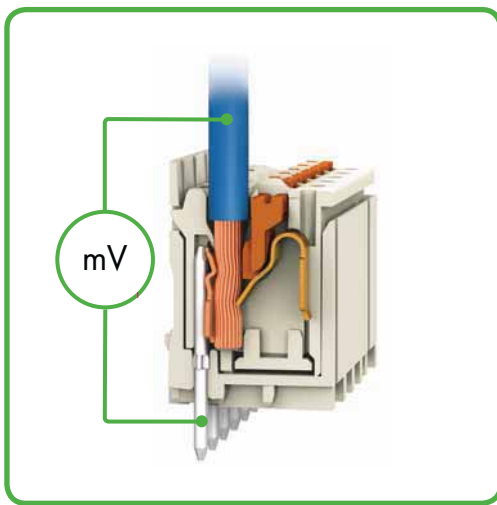
The *picoMAX*<sup>®</sup> female connector is fully shrouded by the male header’s housing, reducing overall connector height. This significantly increases vibration- and shock-resistance via integrated locking latches.



Vibration test performed on a 2091 Series “wire-to-board” connection

## • Mating Cycle Test

A cascading test sequence is used to determine the mating cycle number of *picoMAX*<sup>®</sup> 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*<sup>®</sup> pluggable connection system. More information about connection and disconnection forces are available upon request.



Voltage drop measurement after mating cycle test

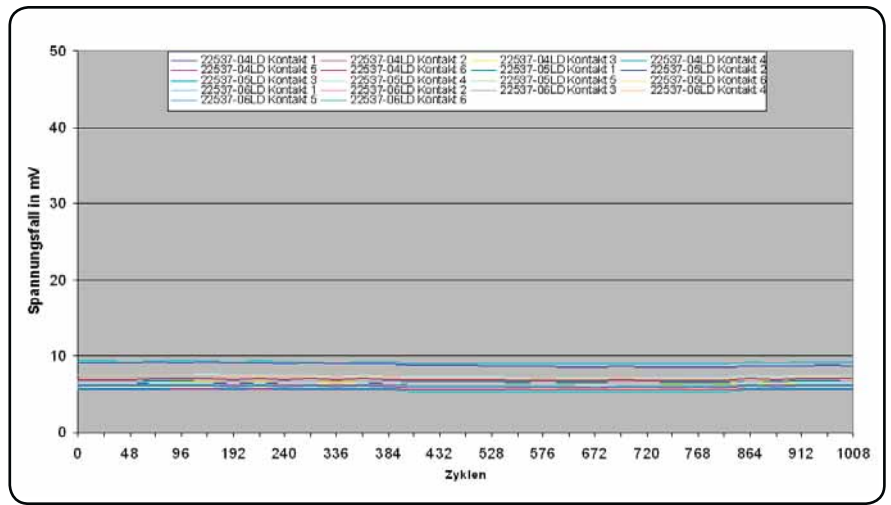
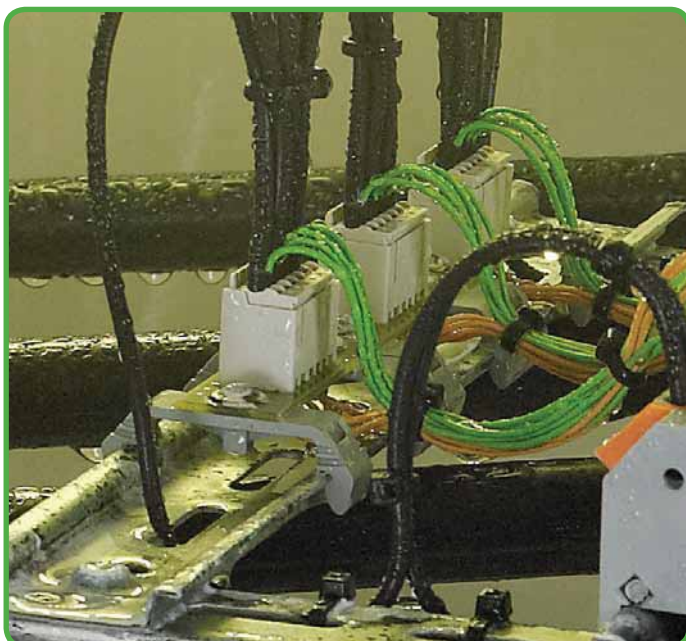


Diagram: "Current load cycle with voltage drop progression over 1000 cycles"

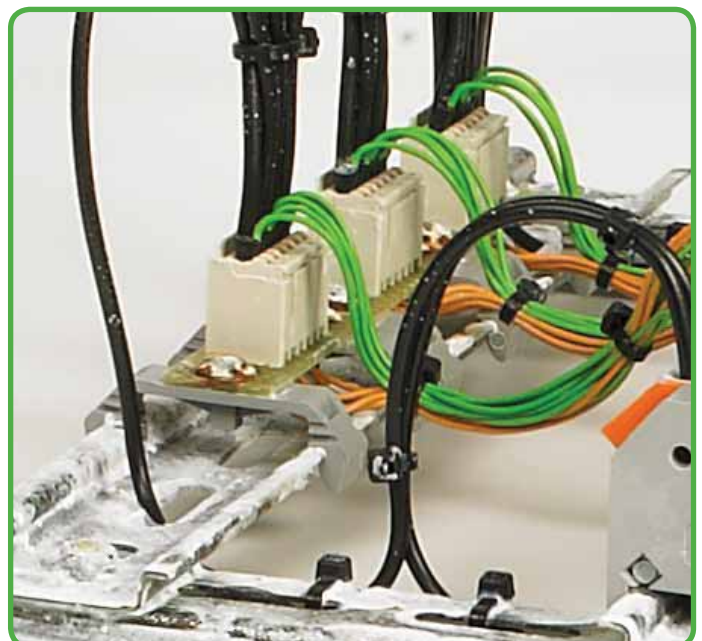
According to the cascading service life test, *picoMAX*<sup>®</sup> is suitable for up to 25 mating cycles.

## • 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*<sup>®</sup> test arrangement

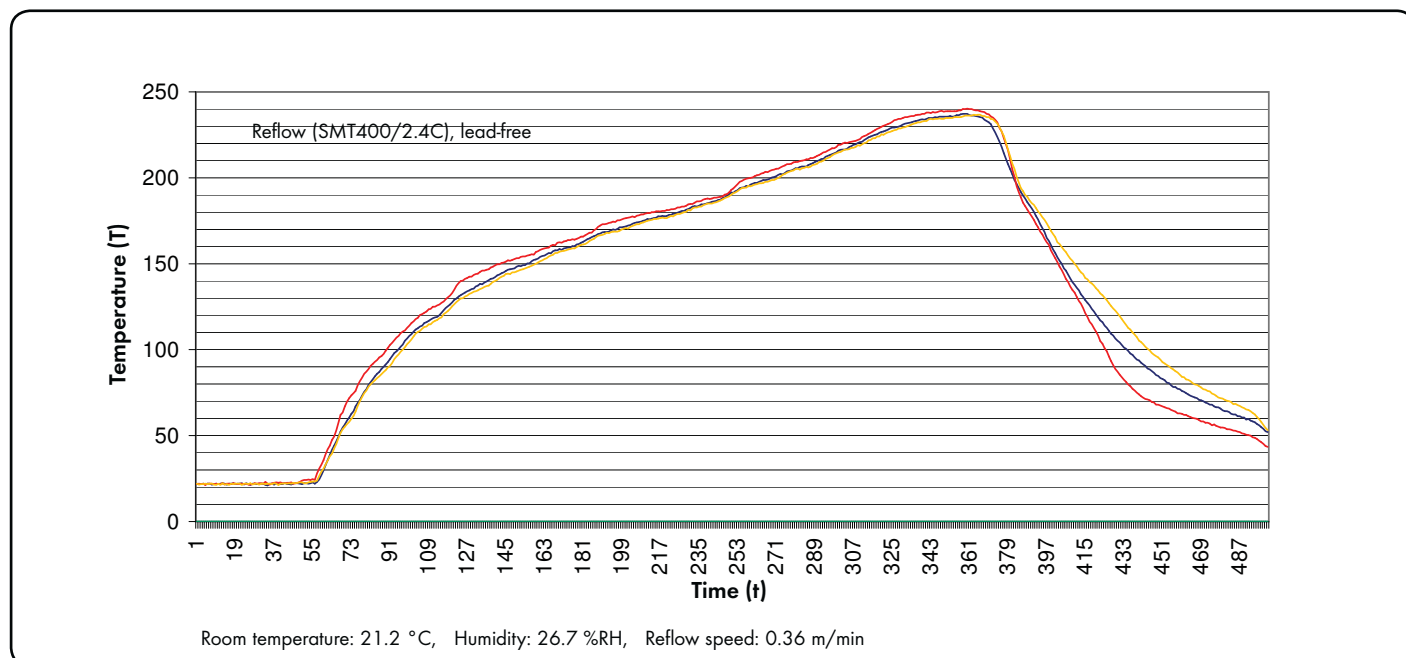


*picoMAX*<sup>®</sup> test arrangement after the salt spray test

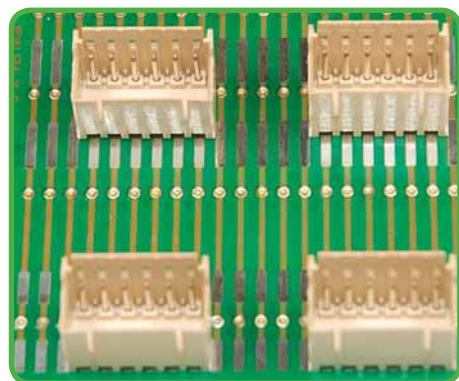
## • Reflow Soldering Processing

*picoMAX*<sup>®</sup> 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.

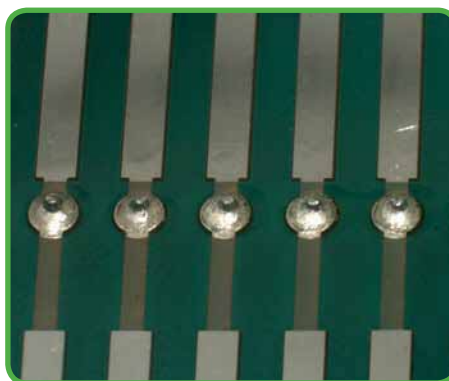
With the specified solder profile for a four-zone convection reflow oven, both process capability and soldering result for *picoMAX*<sup>®</sup> THR versions have been tested for a Sn96.5 Ag3 Cu0.5 lead-free solder.



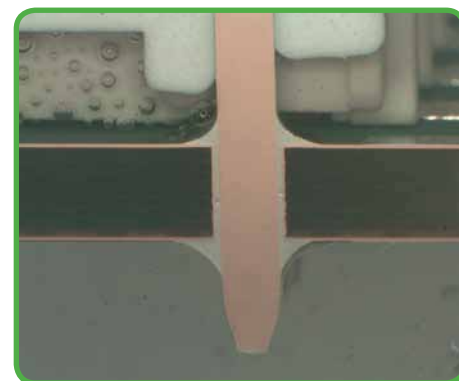
### Soldering results for *picoMAX*<sup>®</sup> – Male headers with solder pins



THR sample board showing *picoMAX*<sup>®</sup> male headers with solder pins

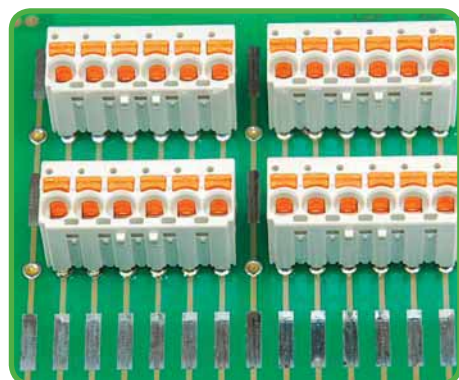


Solder joints on the bottom side of the PCB

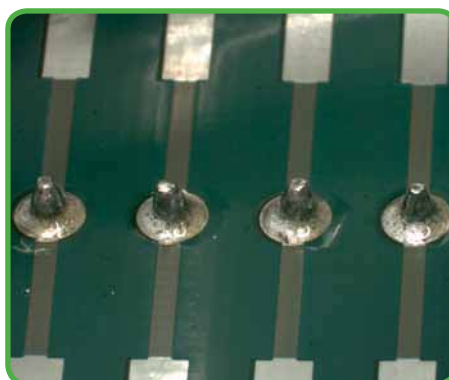


Drilled hole section

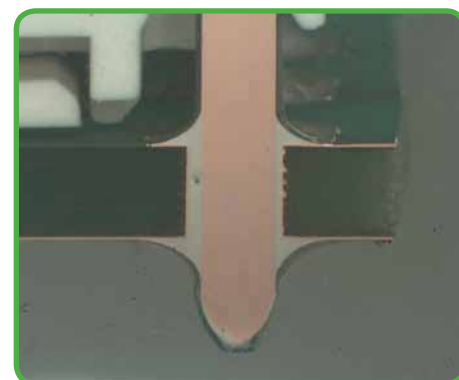
### Soldering results for *picoMAX*<sup>®</sup> eCOM – Pluggable PCB connectors



THR sample board showing *picoMAX*<sup>®</sup> eCOM



Solder joints on the bottom side of the PCB



Drilled hole section

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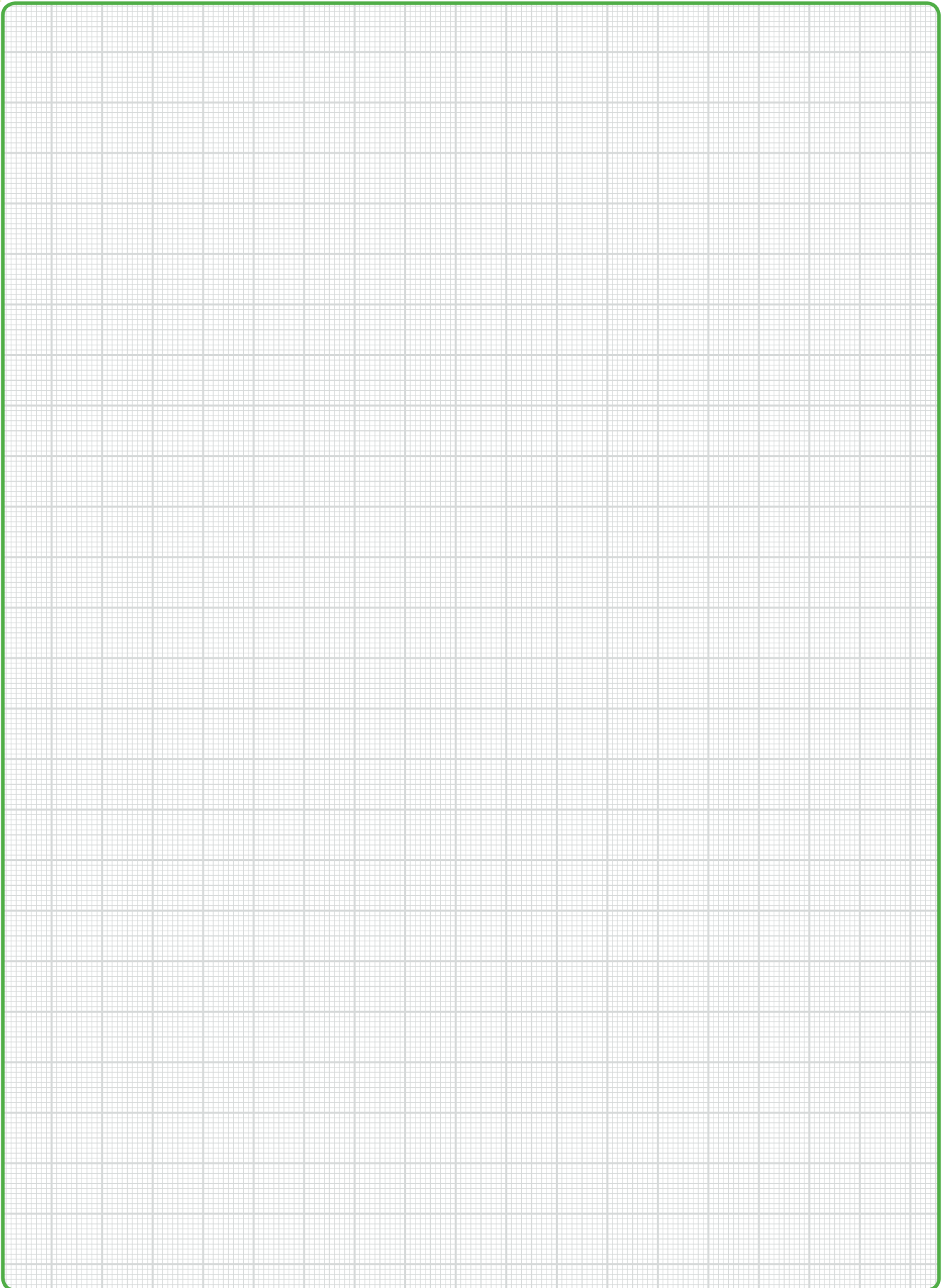
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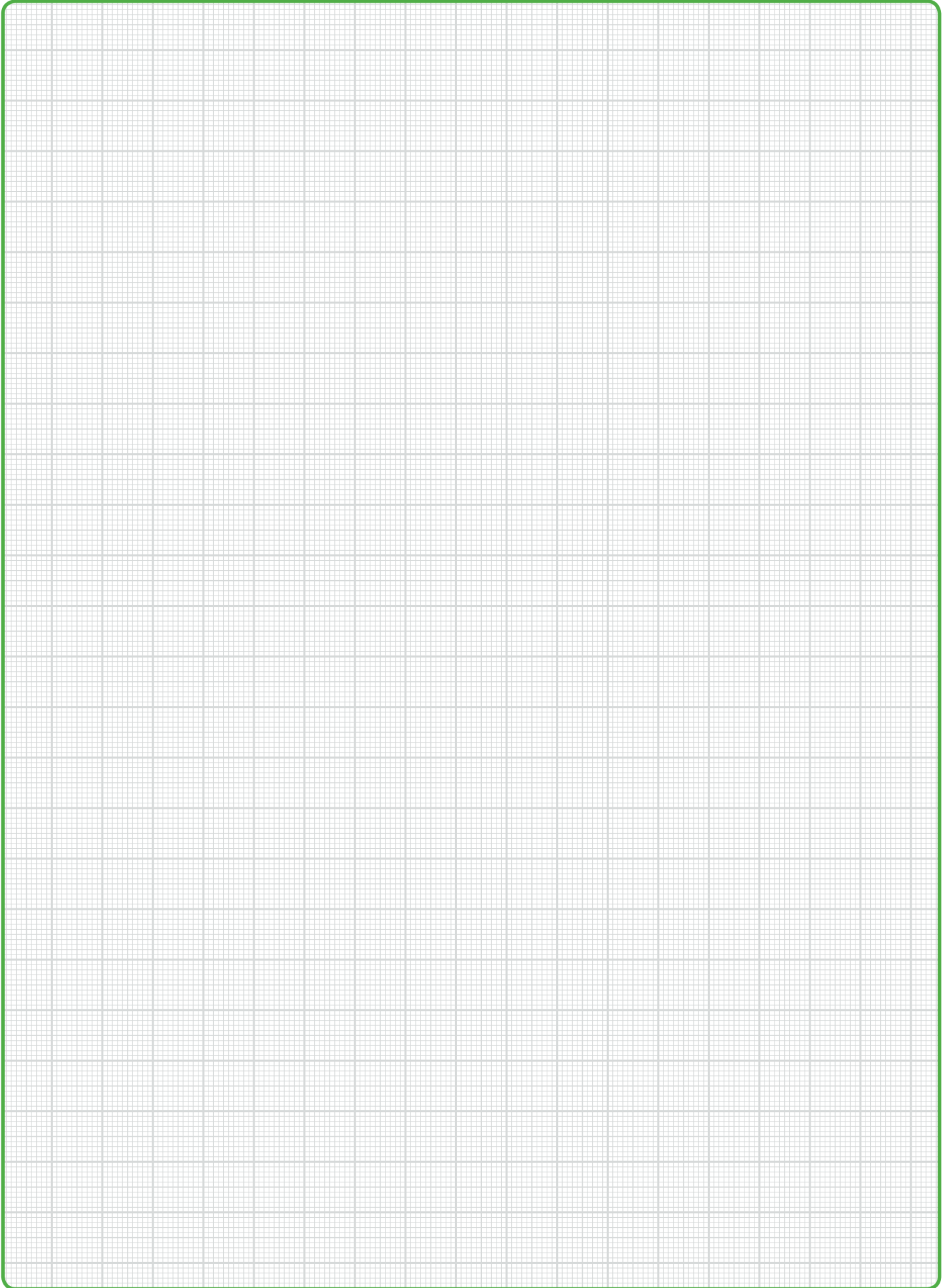
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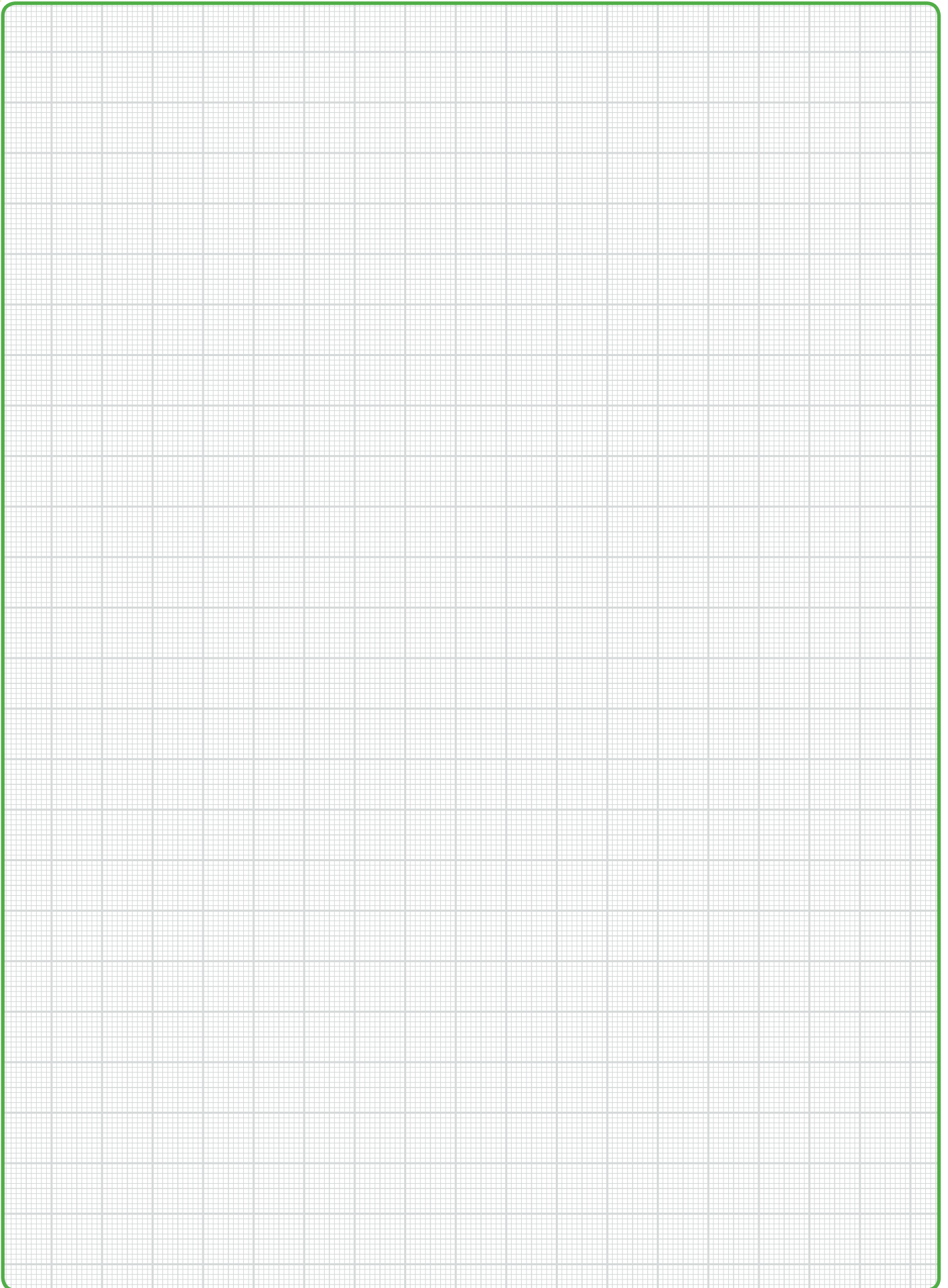
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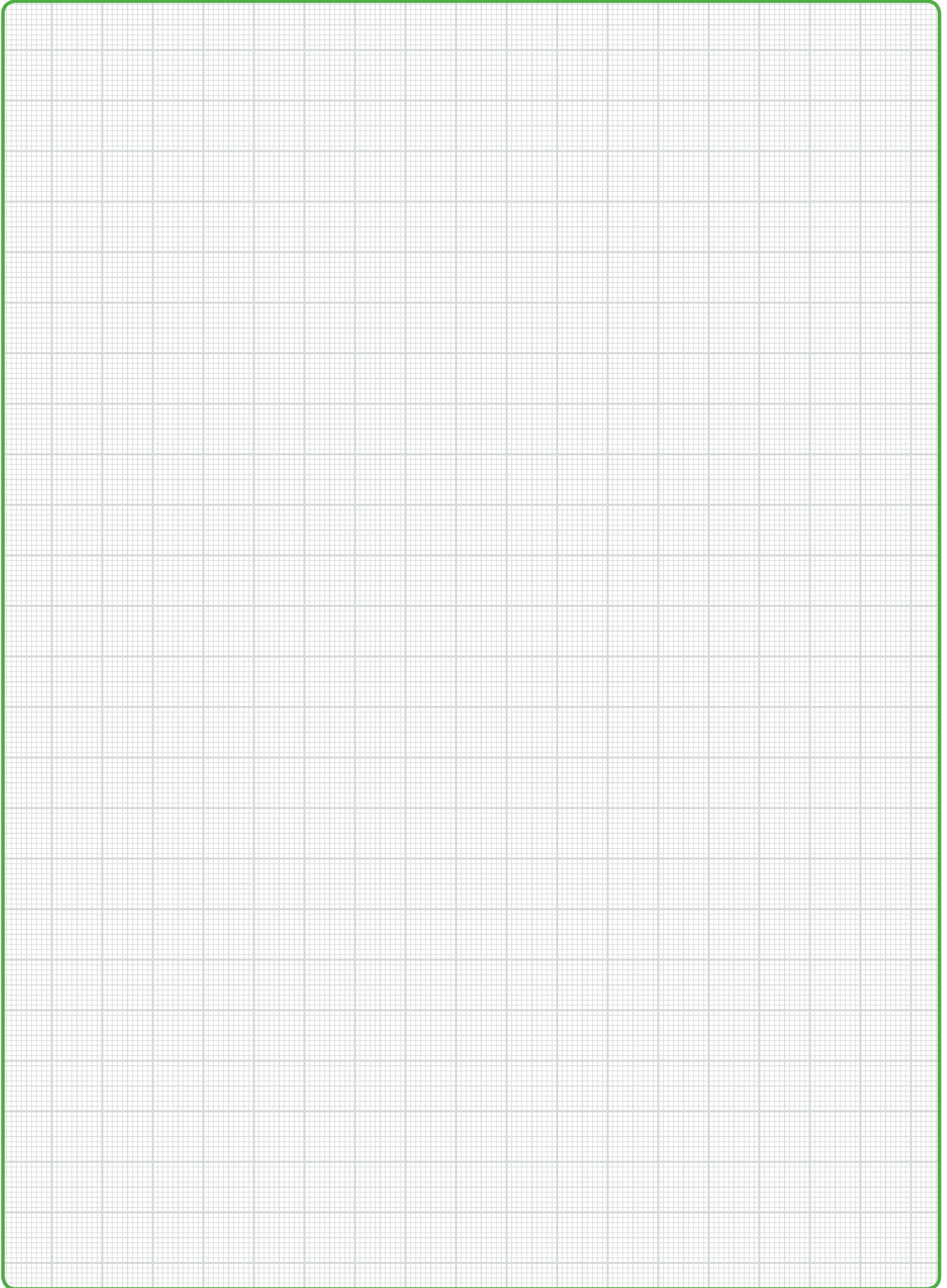
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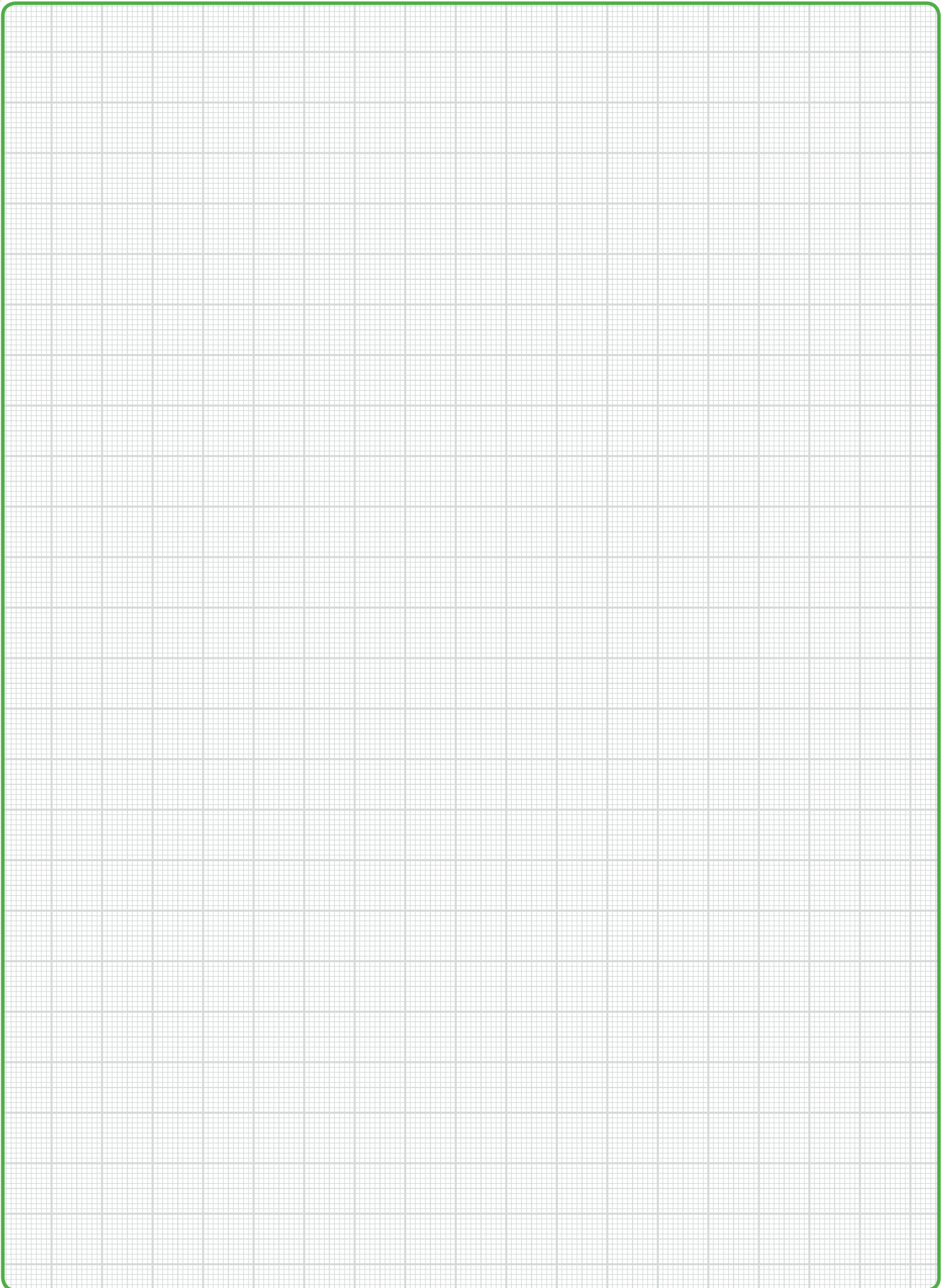
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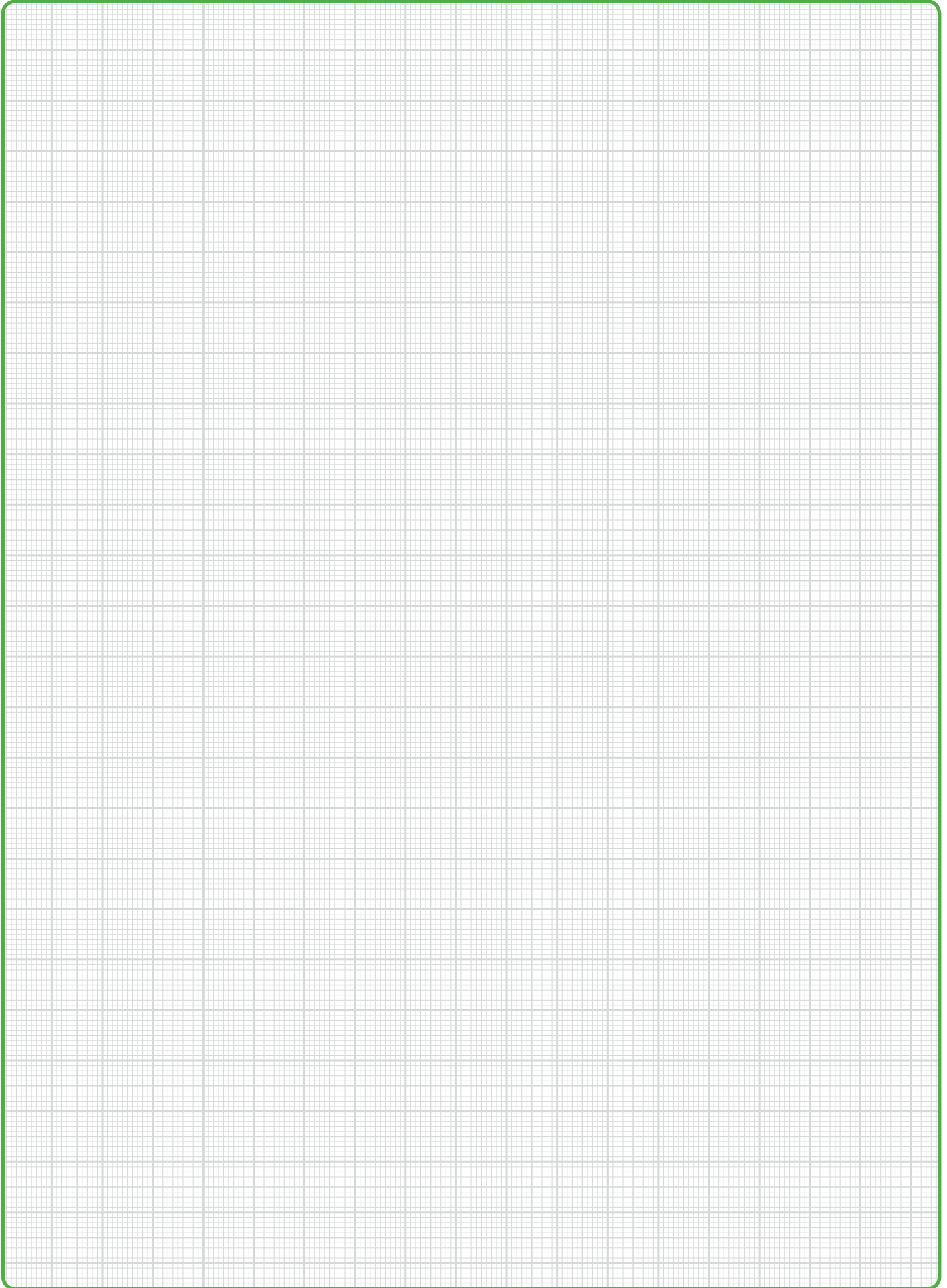


















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