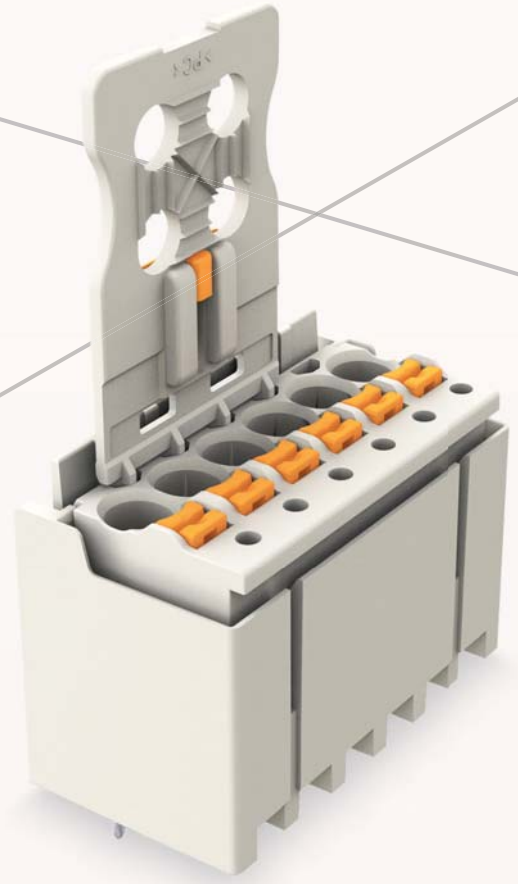
picoMAX®

The Pluggable Connection System



TECHNOLOGY THIS SPECIALIZED
CAN'T MEET ALL REQUIREMENTS.

YES IT CAN.

CONTENTS

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

Versatile Pluggable Connectors for a Wide Range of Applications

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

The Easiest Way to Make PCBs Pluggable

picoMAX®

The Pluggable Connection System

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

BUT IT ISN'T.

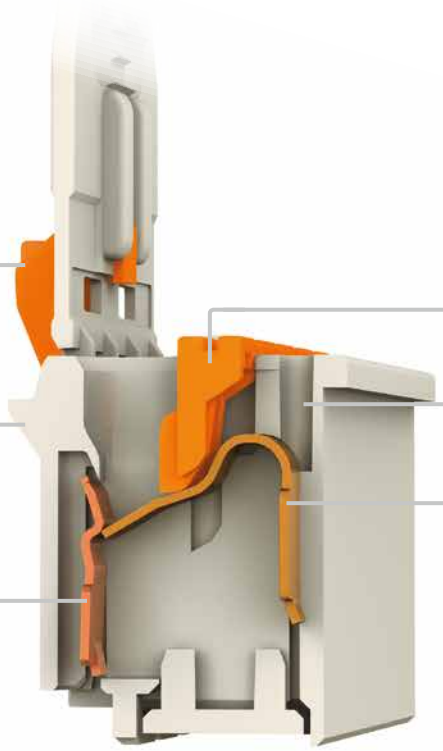
The *picoMAX®* pluggable connection system has an innovative, **highly compact** design:
- Reduces space by up to 30%
- Minimal space requirements when mated
- The female connector is fully shrouded by the male header's housing.

The *picoMAX®* design yields extremely short female connectors.
Male headers are equipped with an integrated locking latch.

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

picoMAX® is the only pluggable connection system that makes double use of the contact force of **a single stainless steel spring (CrNi)**:
For clamping the conductor **and** connecting the header pin.

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



Gripping plate with sliding connector release

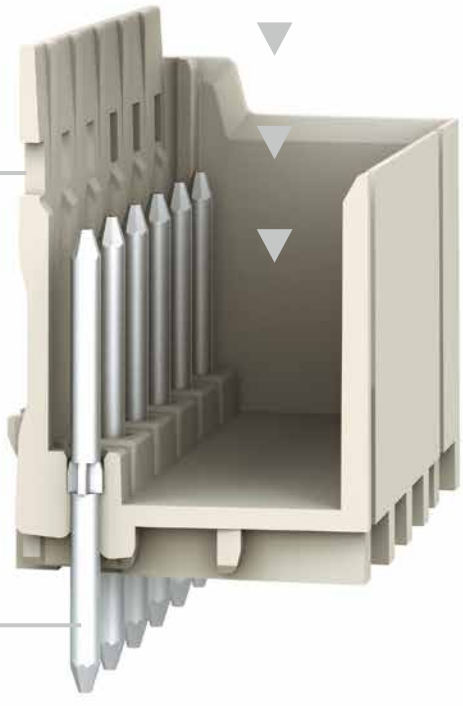
Female locking latch

Electrolytic copper (E-Cu), tin-plated contact bridge

Push-button

Test port

High-alloy, stainless steel (CrNi) clamping spring



Male locking latch

Straight or angled, E-Cu, tin-plated solder pins for both wave and THR soldering

Original size:
3.5 mm pin spacing

Protected by patent No. EP1850418A2

picoMAX®

The Pluggable Connection System

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

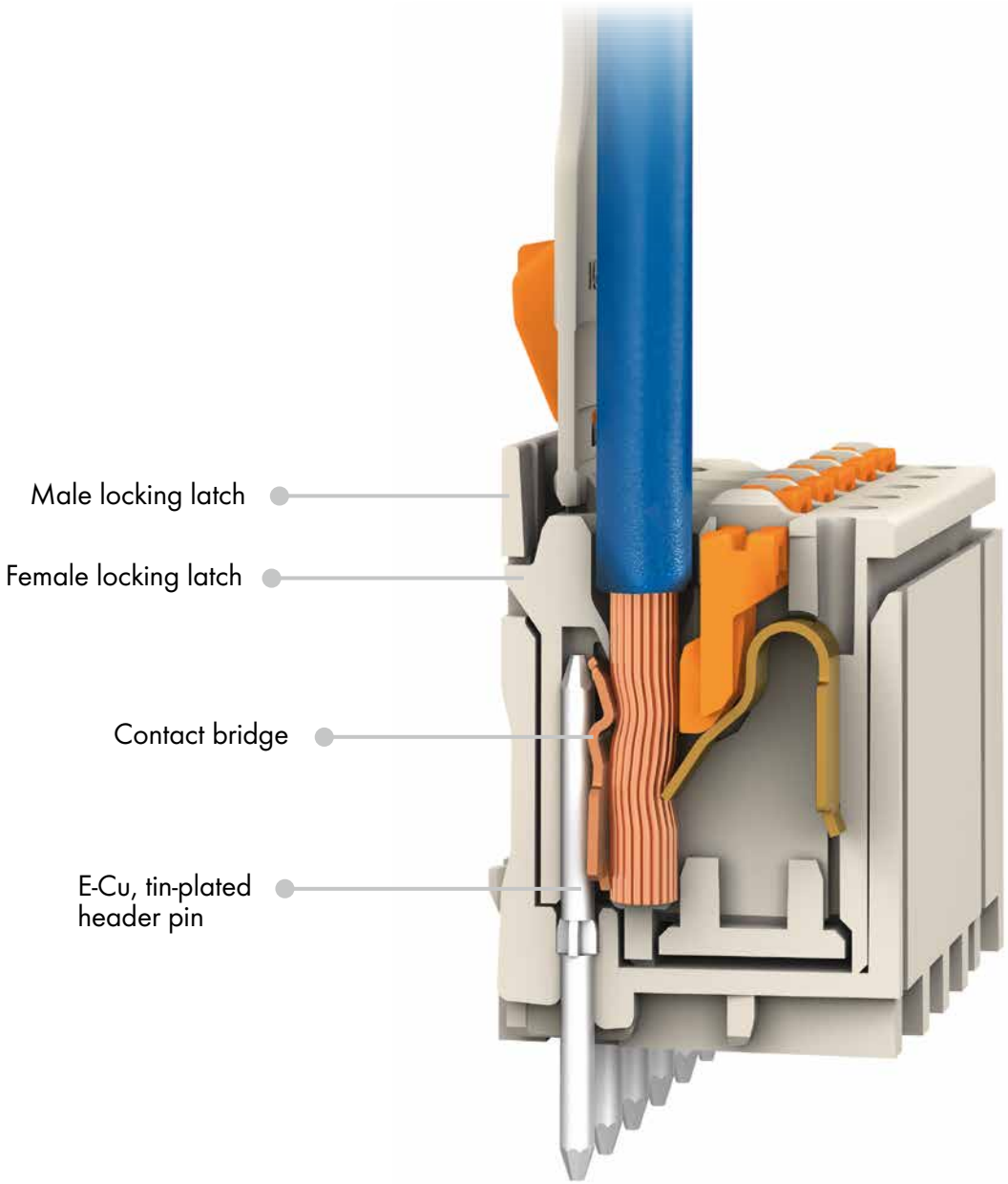
YES IT CAN.

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

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

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

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



Protected by patent No. EP1850418A2

picoMAX®
The Pluggable Connection System

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

BUT IT ISN'T.

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

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

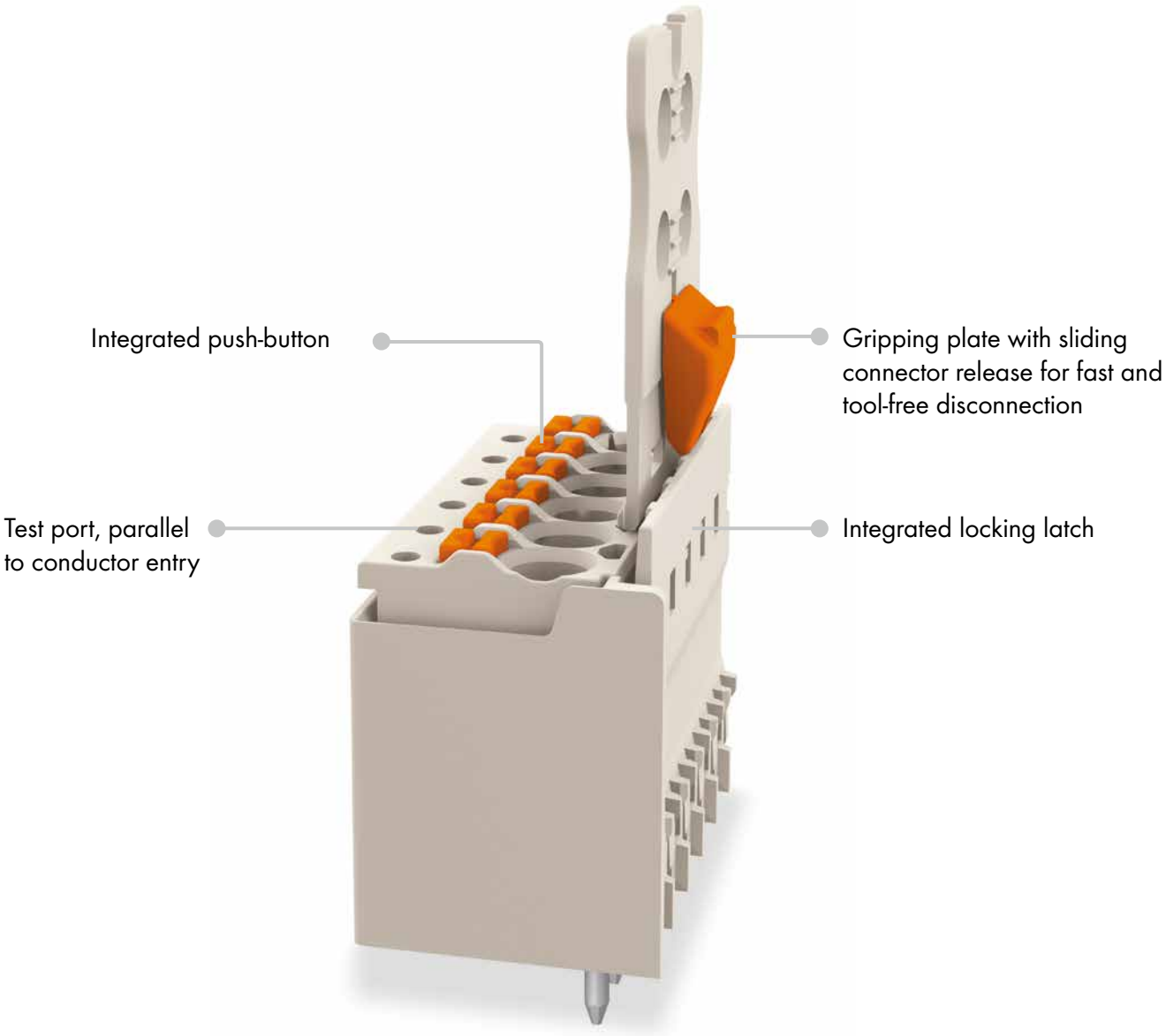
Integrated locking latches
- Prevent accidental disconnection of male header and female connector

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

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

Assembling connectors without losing any poles
- Within a male header's housing

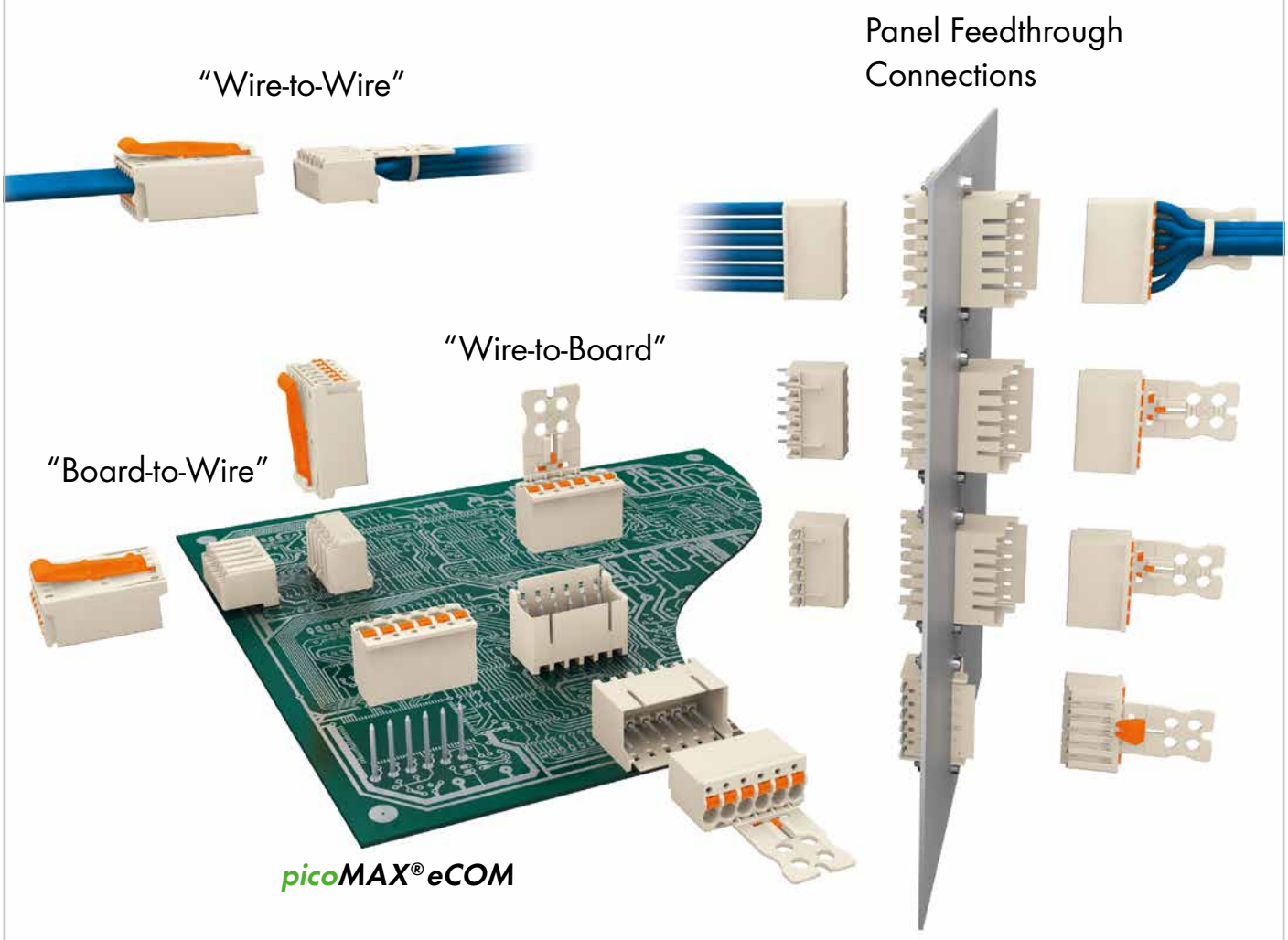
Easy panel feedthrough connections
- E.g., for extensions with plug-in option on both sides



Protected by patent No. EP1850418A2

picoMAX®

The Pluggable Connection System



picoMAX® Pluggable Connectors

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

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 	✓	✓	✓	Outside: ✓	Inside: ✓
Standard connector and gripping plate 	✓ 	✓ 	✓	Outside: ✓ 	Inside: ✓
Standard connector 	✓ 	✓ 	✓	Outside: ✓ 	Inside: ✓
Header with straight solder pins 	✗	✗	✓	Outside: ✗	Inside: ✓
Header with angled solder pins 	✗	✗	✓	Outside: ✗	Inside: ✓

 Disconnection: Open locking latches via unlocking tool.

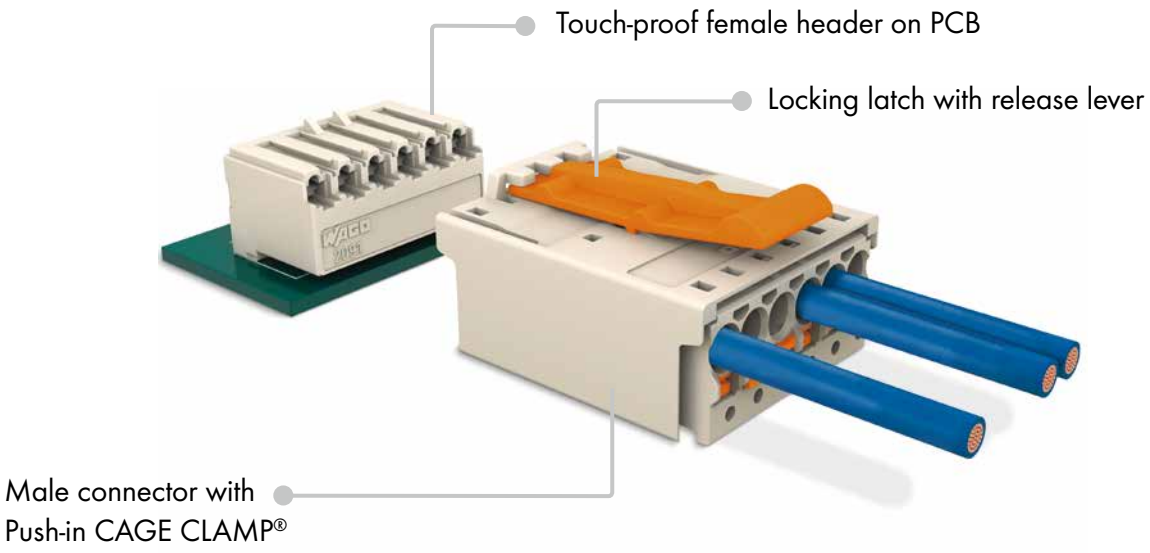
✓ This combination of male and female connectors/headers is allowed.

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

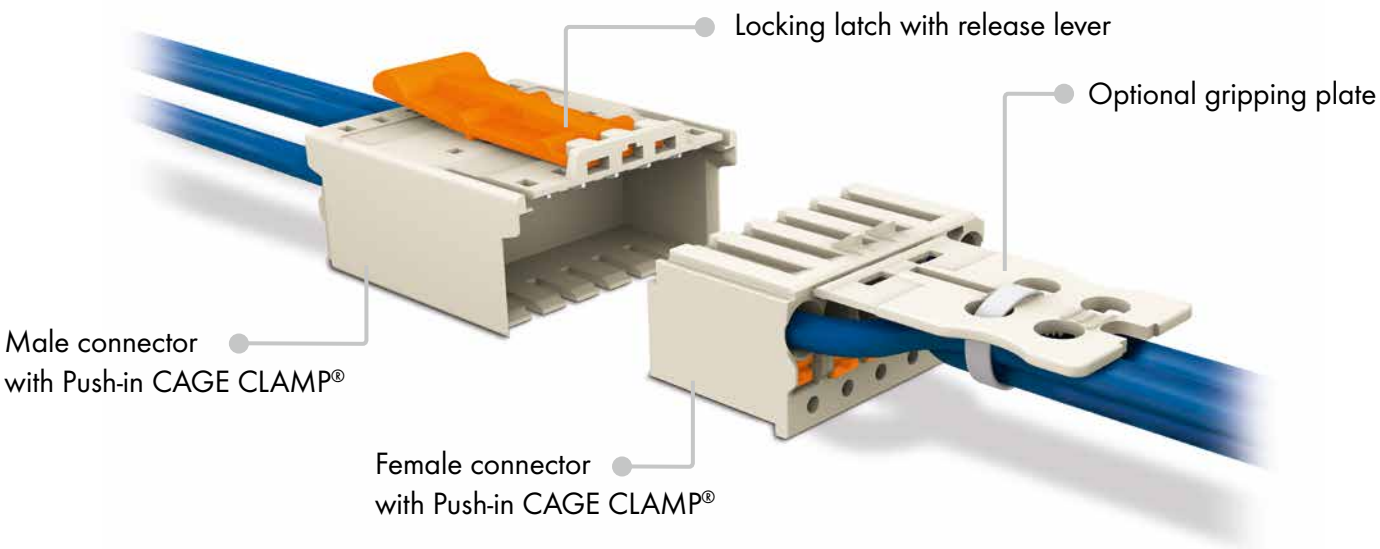
picoMAX®

The Pluggable Connection System

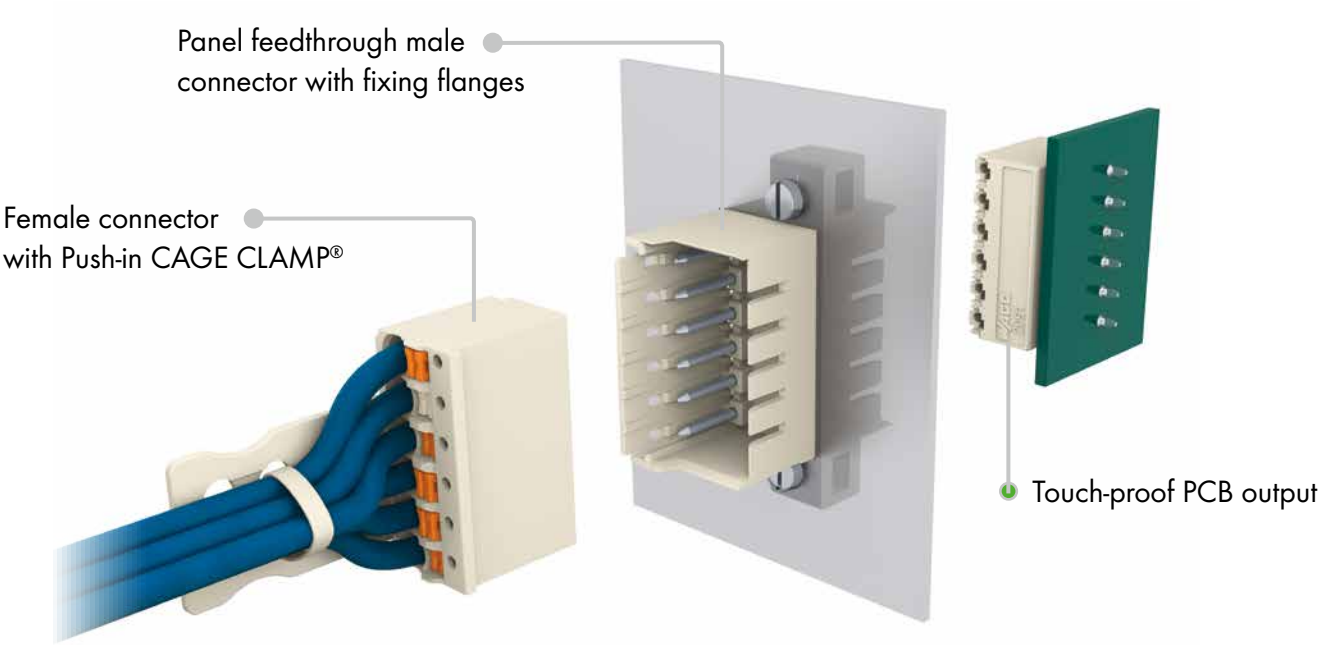
Touch-Proof PCB Output: “Board-to-Wire”



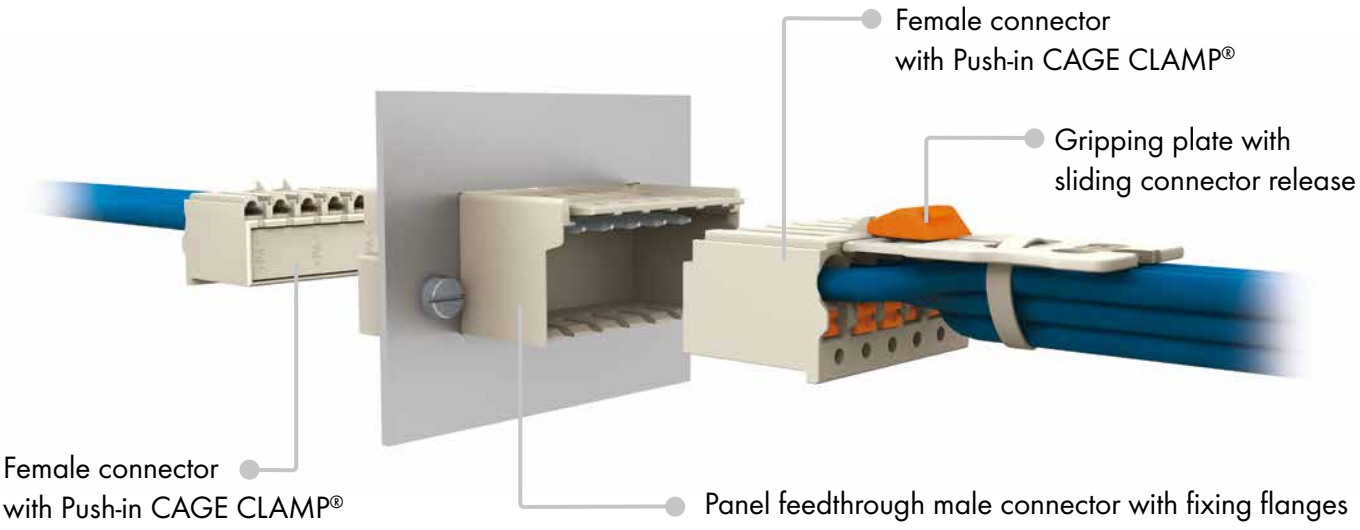
“Wire-to-Wire” Flying Lead



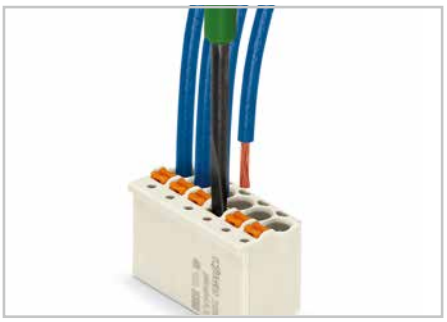
“Wire-to-Board” Panel Feedthrough



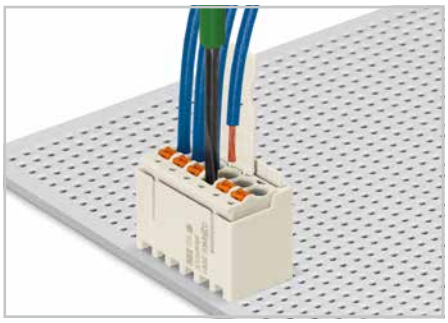
“Wire-to-Wire” Panel Feedthrough



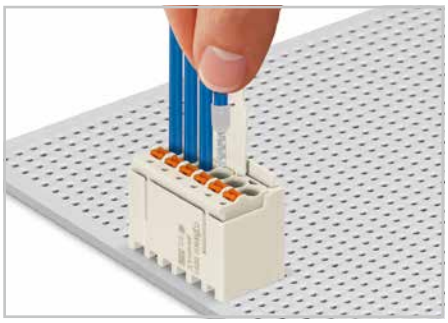
Handling *picoMAX*®
Pin Spacing: 3.5 mm/0.138 in.; 5.0 mm/0.197 in.; 7.5 mm/0.295 in.



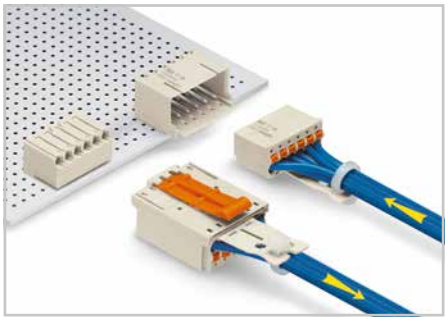
Inserting fine-stranded conductor into unmated female connector via push-button.



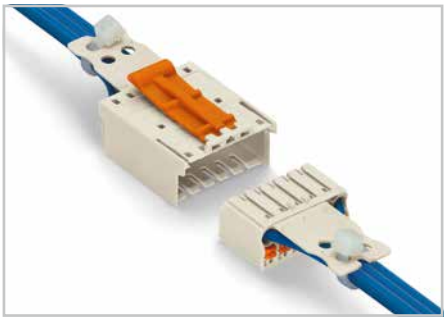
Inserting fine-stranded conductor into mated female connector via push-button.



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

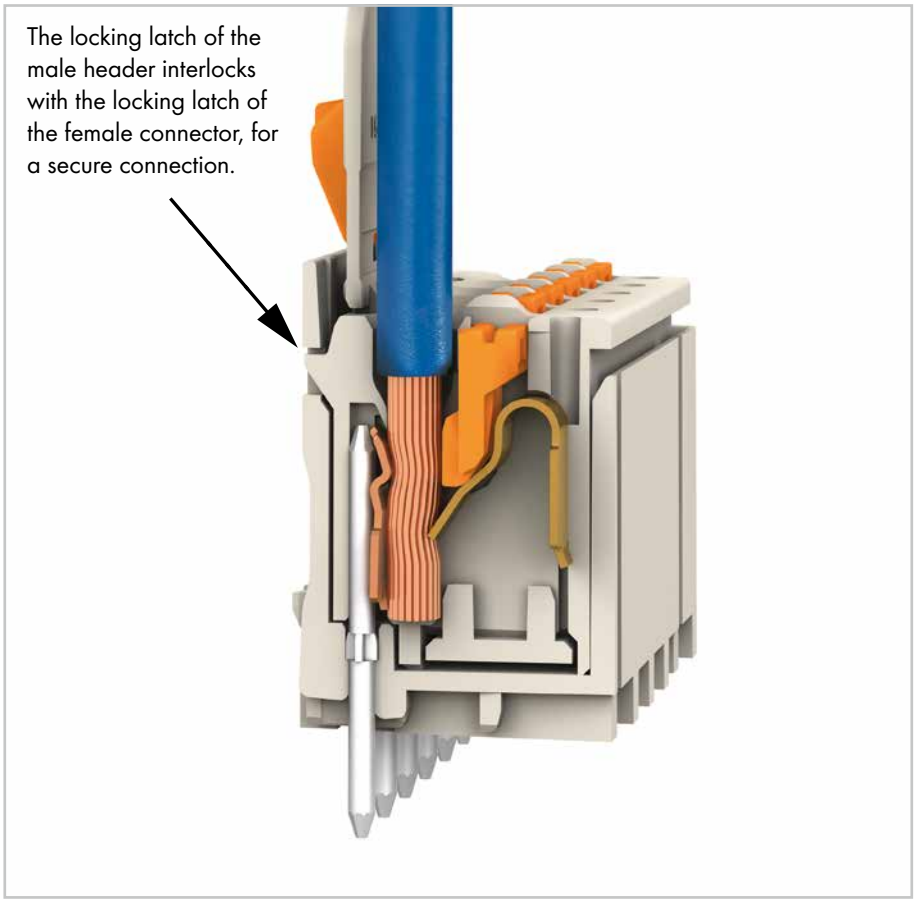


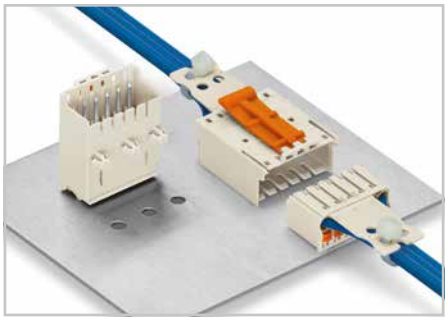
Easy-to-identify PCB inputs and outputs.



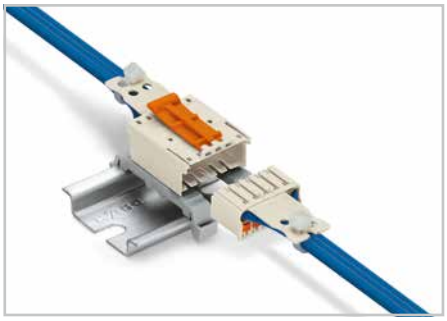
"Wire-to-wire" flying leads

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





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



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

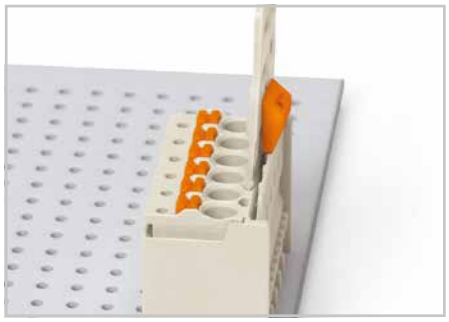
Pole marking via factory direct printing.

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

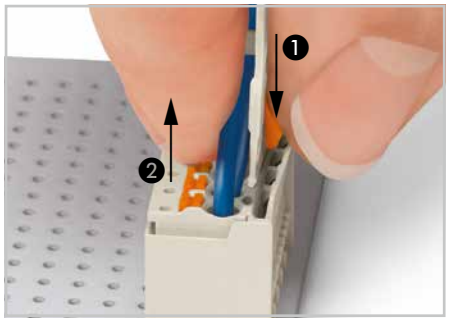
solid

stranded

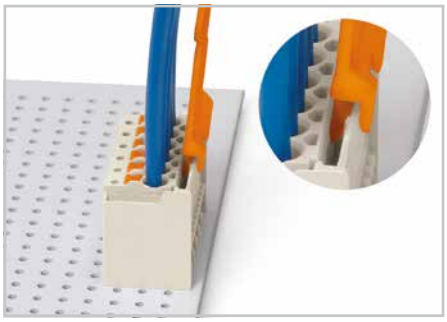
fine-stranded, also with tinned single strands



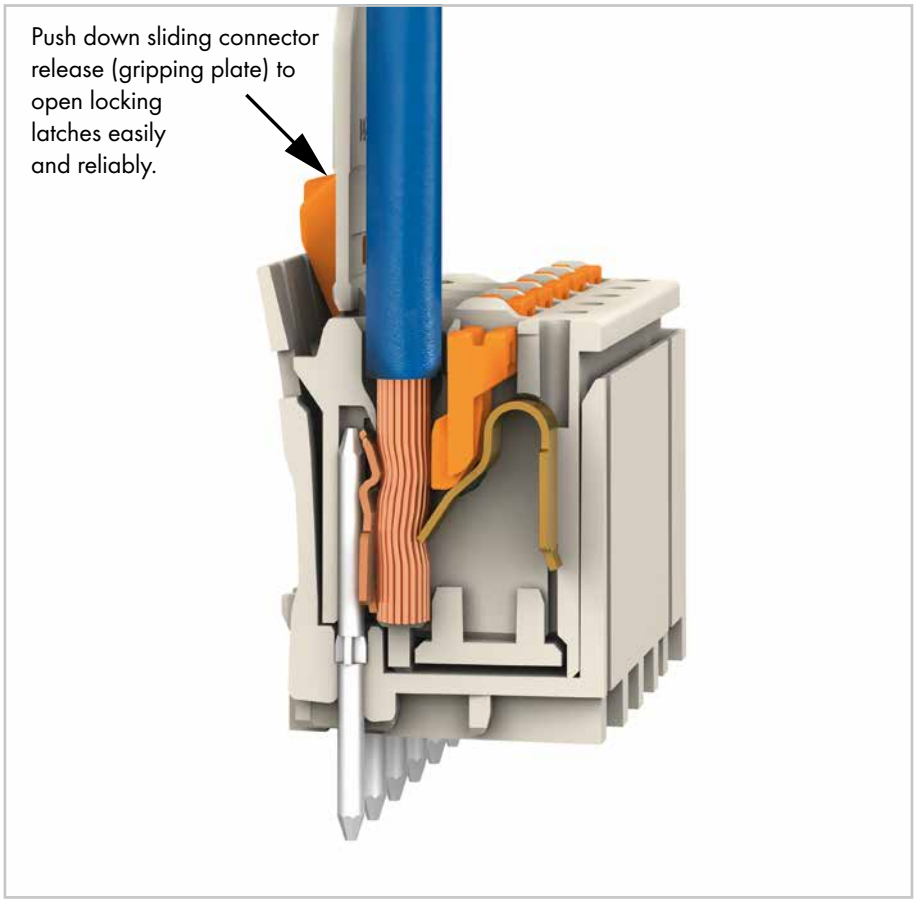
Male header mated to a female connector with gripping plate and sliding connector release.

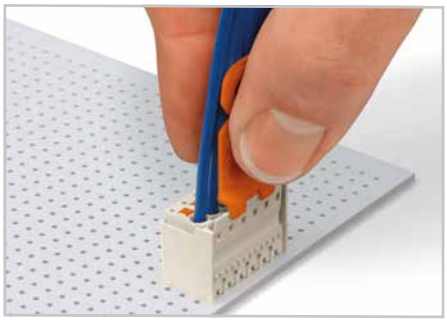


Disconnecting female connector via sliding connector release.
1. Push down sliding connector release (gripping plate) to open the locking latch.
2. Pull out female connector from male header.

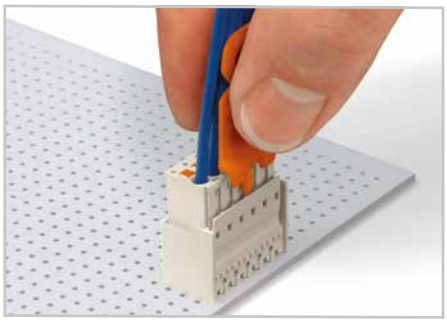


Disconnecting female connector via unlocking tool. Plug unlocking tool into the male locking latch.

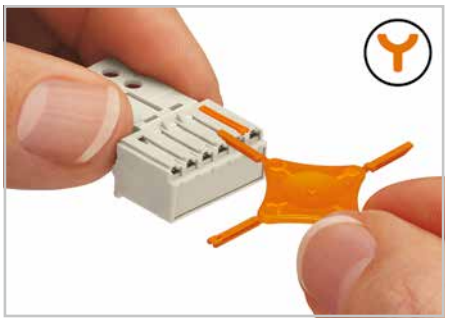




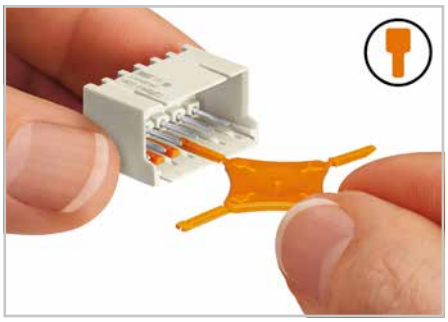
Insert unlocking tool until it hits backstop.
Wedge opens locking latches.



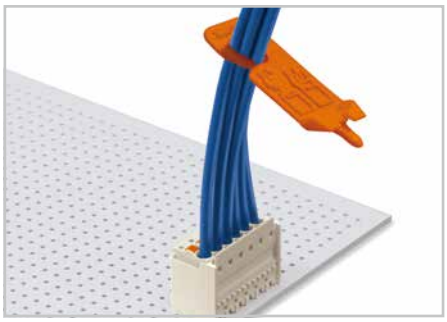
Pull on both unlocking tool and conductors to remove female connector from male header.



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



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

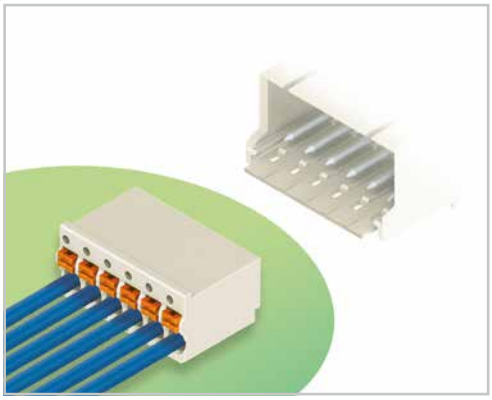


Unlocking tool may be suspended on wire harness for storage.

fine-stranded,
tip-bonded

fine-stranded,
with ferrule
(gastight crimped)

Standard Female Connectors
picoMAX® 3.5



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

Technical data:

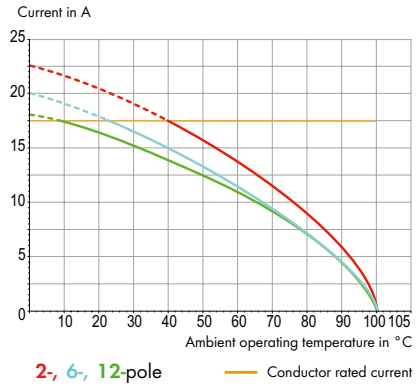
Pin Spacing	3.5 mm 0.138 in.		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A
Approvals per	UL/CSA*		
Use group UL 1059	B	C	D
Rated voltage	300 V	–	300 V
Nominal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

Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 … 1.5 mm²	
Conductor size: fine-stranded	0.2 … 1.5 mm²	
Conductor size: fine-stranded	0.25 … 0.75 mm²	(with insulated ferrule)
Conductor size: fine-stranded	0.25 … 1.5 mm²	(with uninsulated ferrule)
AWG	24 … 14	14: THHN, THWN
Strip length	8 … 9 mm / 0.31 … 0.35 in.	

Derating Curve

2091-1122 female connector
with 2091-1402 male header
Pin spacing: 3.5 mm / Conductor size: 1.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 71.

Material data:

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

Accessories for *picoMAX®*:

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.

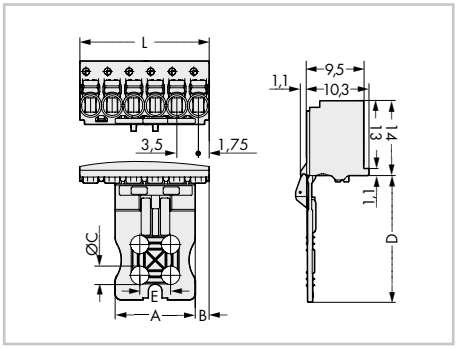

KEMA Quality

CERTIFICATE

Approvals are available online at: www.wago.com *CSA approval pending
For more technical information, see Full Line Catalog, Volume 2, Section 13

Standard Female Connectors
picoMAX® 3.5

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



L = pole no. x pin spacing

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

Gripping plate dimensions (in mm):

Pole No.	A	B	C	D	E
2	6	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

Header with straight solder pins

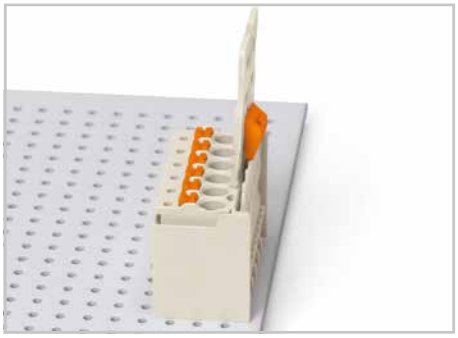
Header with angled solder pins

Standard connector

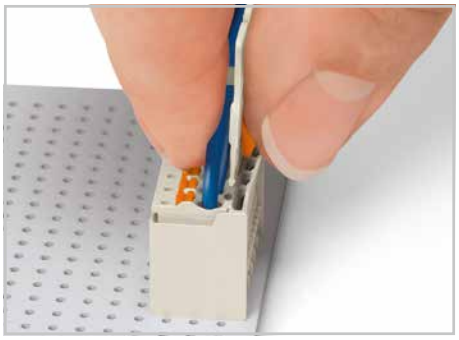
Panel feedthrough connector

Outside

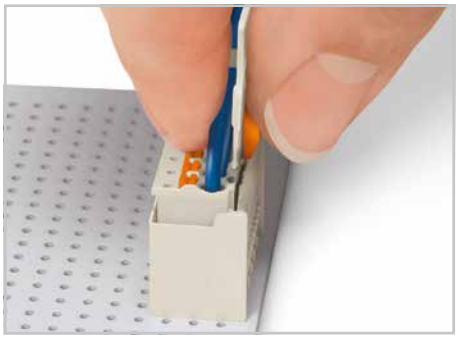
Inside



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.

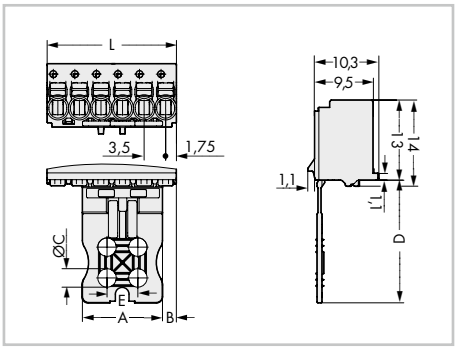


Pull out female connector with gripping plate from male header.

Standard Female Connectors
picoMAX® 3.5

CAGE CLAMP®

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



L = pole no. x pin spacing

Pole No.	Item No.	Pack. Unit
Female connector with gripping plate, light gray		
2	**2091-1102**	100
3	**2091-1103**	100
4	**2091-1104**	100
5	**2091-1105**	50
6	**2091-1106**	50
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):

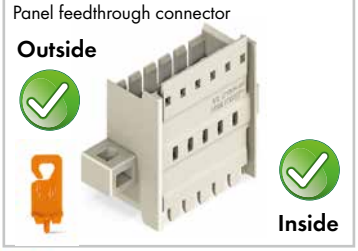
Pole No.	A	B	C	D	E
2	3	2.00	–	17	–
3	6	2.25	–	17	–
4	6	2.25	–	17	–
5	13	2.25	3.0	20	5
6	13	2.25	3.0	20	5
8	13	5.75	3.0	20	5
10	27	2.25	4.2	25	8
12	27	5.75	4.2	25	8

Header with straight solder pins

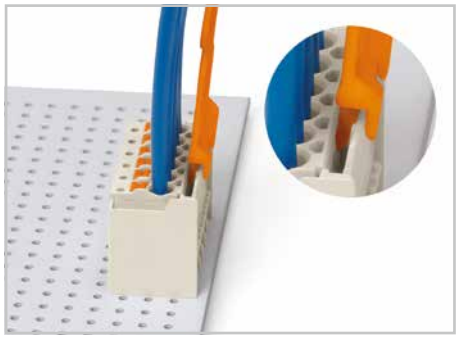
Header with angled solder pins

Standard connector

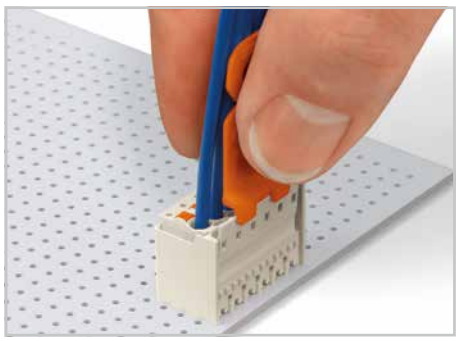
Panel feedthrough connector



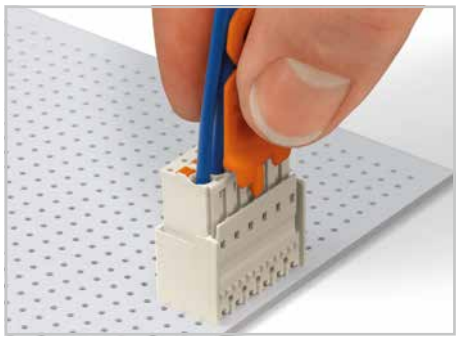
Disconnection: Open locking latches via unlocking tool.



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



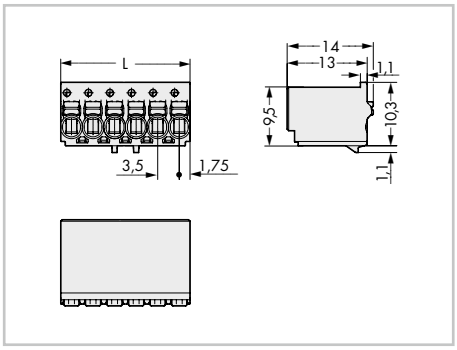
Insert unlocking tool until it hits backstop. Wedge opens locking latch.



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

Standard Female Connectors
picoMAX® 3.5

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



L = pole no. x pin spacing

Pole No.	Item No.	Pack. Unit
Female connector, light gray		
2	**2091-1122**	200
3	**2091-1123**	200
4	**2091-1124**	200
5	**2091-1125**	200
6	**2091-1126**	100
8	**2091-1128**	100
10	**2091-1130**	100
12	**2091-1132**	100

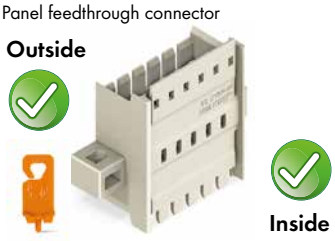
Product Accessories	Page
Unlocking tool (2092-1630)	64

Header with straight solder pins

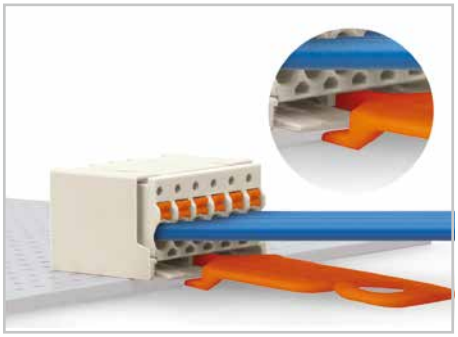
Header with angled solder pins

Standard connector

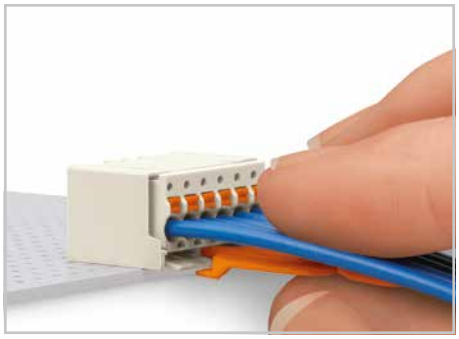
Panel feedthrough connector



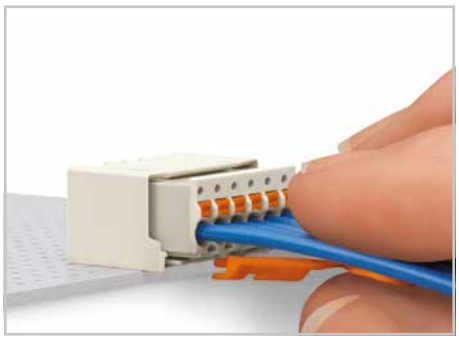
Disconnection: Open locking latches via unlocking tool.



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

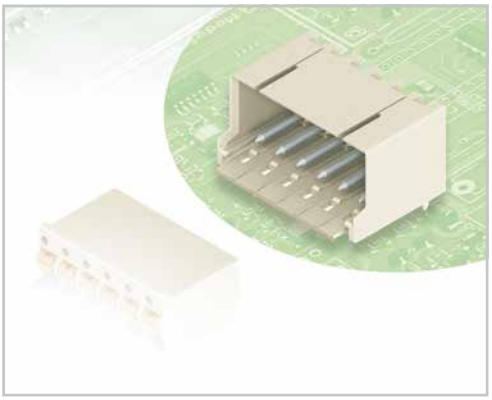


Insert unlocking tool until it hits backstop. Wedge opens locking latch.



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

Male Headers with Solder Pins
picoMAX® 3.5



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

Technical data:

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

Solder pin data for THT (wave soldering):

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

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

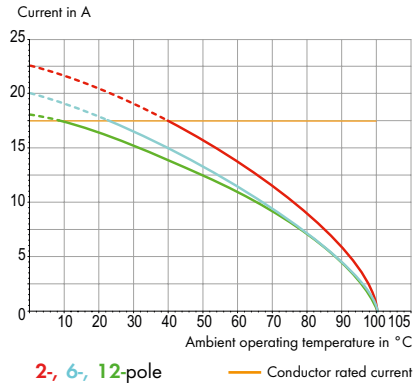
Solder pin: length/width	2.4 mm / 1.0 mm Ø
Solder pin: metal-plated hole	$1.2^{+0.1}$ mm Ø

Material data:

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

Derating Curve

2091-1122 female connector
with 2091-1402 male header
Pin spacing: 3.5 mm / Conductor size: 1.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



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.


KEMA Quality

CERTIFICATE

Number: 2134310.01

Issued to:
Applicant:

Wago-Kontakttechnik GmbH
Hansastrasse 27
32423, Minden/westfalen, Germany

Manufacturer/Licensee:
Wago-Kontakttechnik GmbH
Hansastrasse 27
32423, Minden/westfalen, Germany

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

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

KEMA Quality hereby declares that the above-mentioned product has been certified on the basis of:
– a type test according to the standard EN 61984:2009;
– an inspection of the production location according to CENELEC Operational Document CIG 021
– a certification agreement with the number 900220

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

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

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

KEMA Quality B.V.

drs. G.J. Zoetbrood
Managing Director

F.S. Strikwerda
Certification Manager

ACCREDITED BY THE DUTCH COUNCIL FOR ACCREDITATION

© Integral publication of this certificate is allowed.

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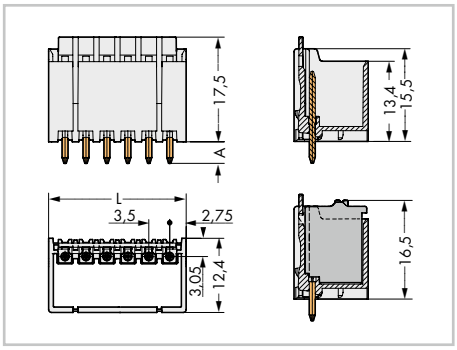
T +31 26 3 56 20 00 F +31 26 3 52 58 00 www.kemaquality.com Registered Arnhem 09085396

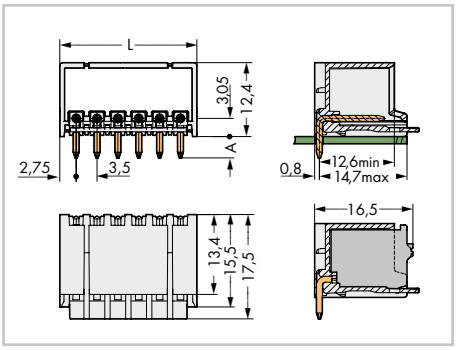
DEKRA company

For THR soldering, see page www.wago.com *Testing based on IEC 60068-2-6 **CSA approval pending
***For THR soldering, see page 69 For more technical information, see Full Line Catalog, Volume 2, Section 13

Male Headers with Solder Pins
picoMAX® 3.5

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





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

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

Item no. suffix for colored THR version:

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

Standard connector and gripping plate with sliding connector release

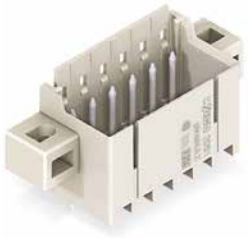
Standard connector and gripping plate

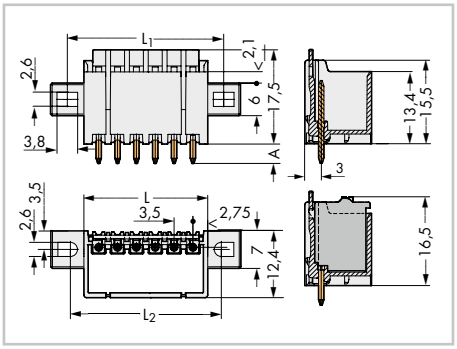
Standard connector

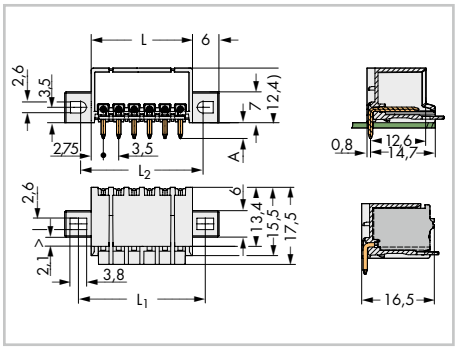
Disconnection: Open locking latches via unlocking tool.

Male Headers with Solder Pins and Fixing Flanges
picoMAX® 3.5

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







L = (pole no. x pin spacing) + 2 mm
L_1 = (pole no. x pin spacing) + 7.8 mm
L_2 = (pole no. x pin spacing) + 6.8 mm
A = 3.6 mm (THT solder pin)
A = 2.4 mm (THR solder pin)

Standard connector and gripping plate with sliding connector release

Standard connector and gripping plate

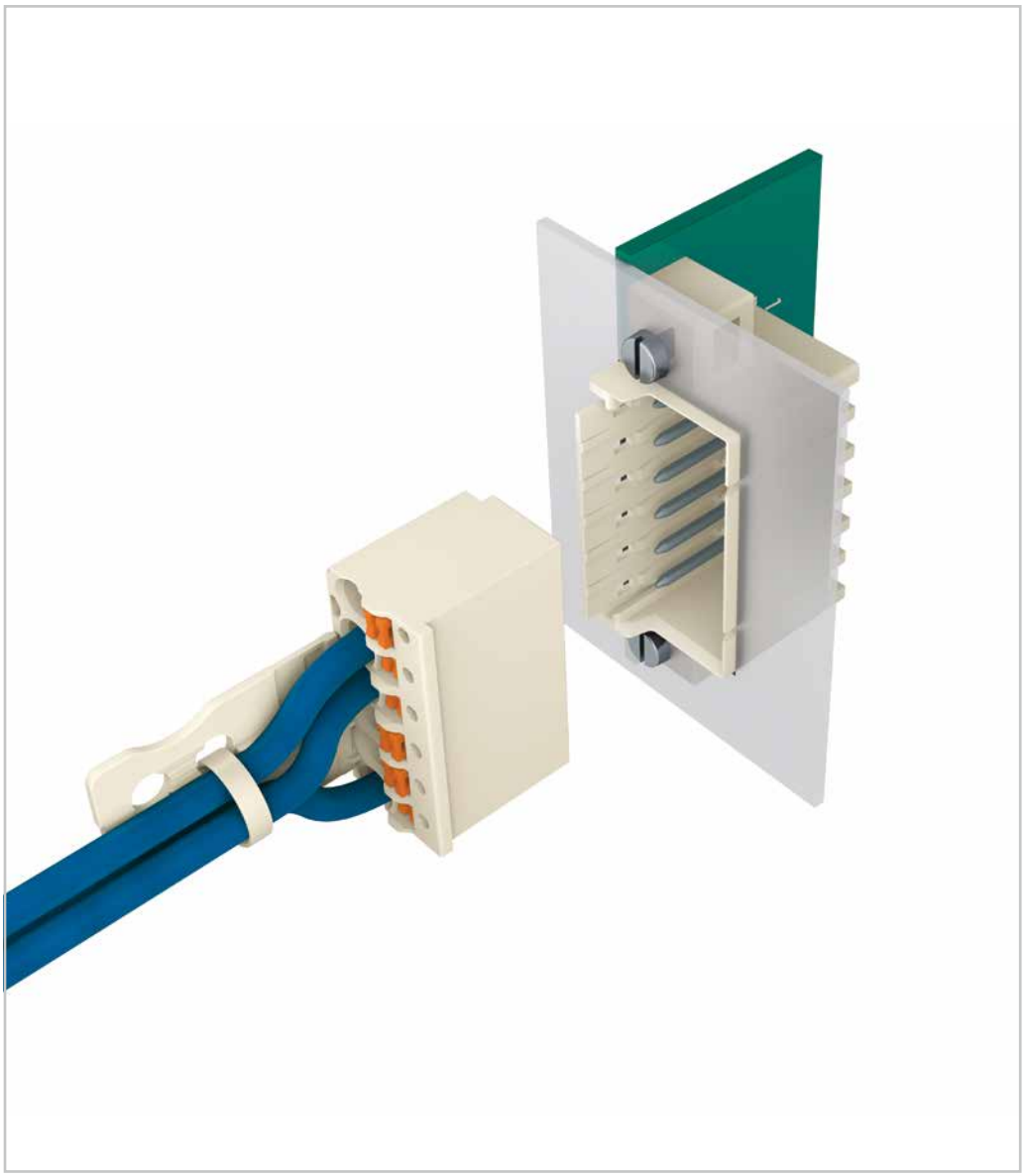
Standard connector

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

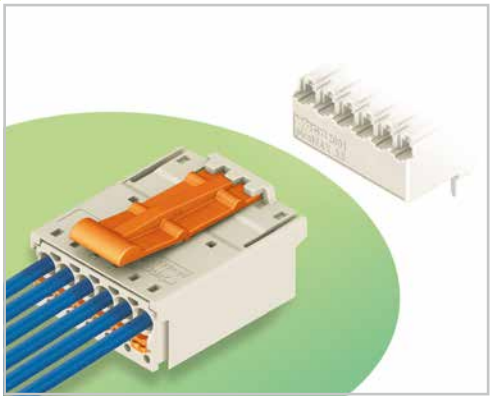
Item no. suffix for colored THR version:

◯ light gray ....-..../205-000	**Ordering example:**
	THR male header with straight solder pins
THR male headers with solder pins in tape-and-reel	and fixing flanges, 3.5 mm pin spacing,
packaging available upon request	5-pole, light gray: **2091-1405/205-000**

Disconnection: Open locking latches via unlocking tool.



Standard Male Connectors
picoMAX® 3.5



- 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		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A
Approvals per	UL/CSA*		
Use group UL 1059	B	C	D
Rated voltage	300 V	–	300 V
Nominal current UL	10 A	–	10 A
Nominal current CSA	–	–	–

Conductor data:

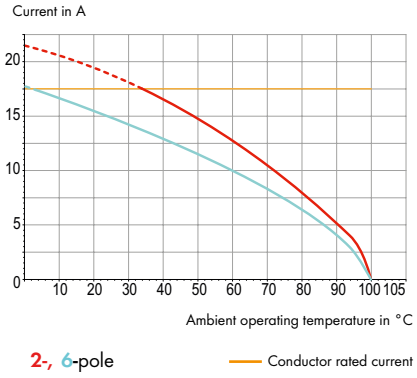
Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 … 1.5 mm²	
Conductor size: fine-stranded	0.2 … 1.5 mm²	
Conductor size: fine-stranded	0.25 … 0.75 mm²	(with insulated ferrule)
Conductor size: fine-stranded	0.25 … 1.5 mm²	(with uninsulated ferrule)
AWG	24 … 14	14: THHN, THWN
Strip length	8 … 9 mm / 0.31 … 0.35 in.	

Material data:

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

Derating Curve

2091-1126 female connector
with 2091-1526/002-000 male connector
Pin spacing: 3.5 mm / Conductor size: 1.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 71.

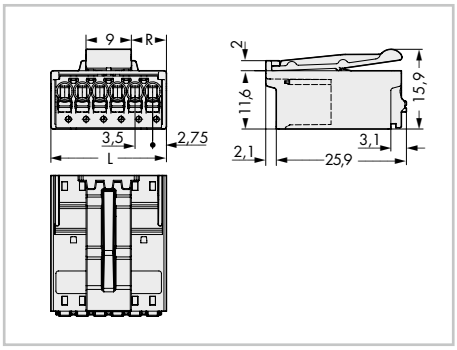
Accessories for *picoMAX®*:

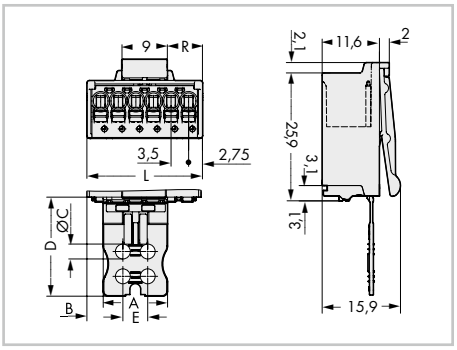
	Page:
Operating tools	64
Direct printing	68
Gripping plates	65
Coding pins	66
Test pin	64

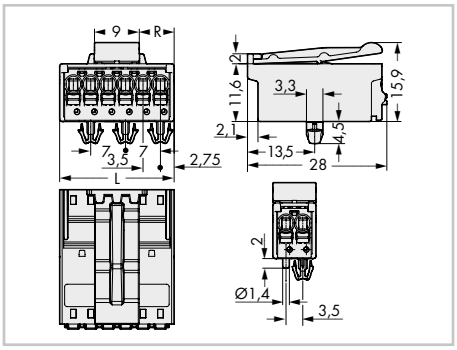
The ***picoMAX®* pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not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

Standard 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 mm²	AWG 24 ... 14	0.2 ... 1.5 mm²	AWG 24 ... 14	0.2 ... 1.5 mm²	AWG 24 ... 14
160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A	160 V/2.5 kV/2 10 A	300 V/10 A







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
Male connector, light gray		
2	**2091-1522/002-000**	200
4	**2091-1524/002-000**	200
6	**2091-1526/002-000**	100
8	**2091-1528/002-000**	100

Pole No.	Item No.	Pack. Unit
Male connector with gripping plate, light gray		
2	**2091-1502/002-000**	200
4	**2091-1504/002-000**	100
6	**2091-1506/002-000**	50
8	**2091-1508/002-000**	50

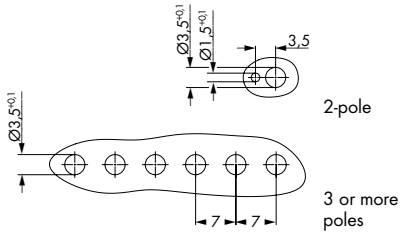
Pole No.	Item No.	Pack. Unit
Male connector with snap-in mounting feet, for 0.6 ... 1.2 mm plate thickness, light gray		
2	**2091-1522/020-000**	200
4	**2091-1524/020-000**	200
6	**2091-1526/020-000**	100
8	**2091-1528/020-000**	100

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

Gripping plate dimensions (in mm):

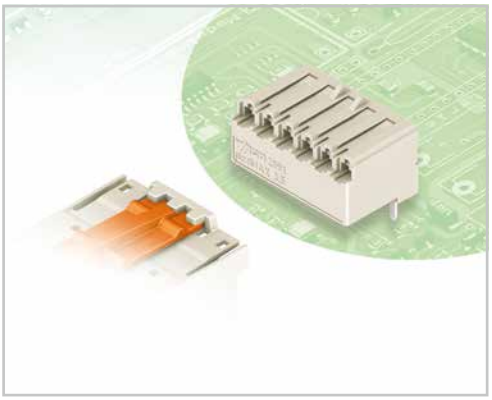
Pole No.	A	B	C	D	E
2	6	3	–	17	–
4	6	3.25	–	17	–
6	13	3.25	3	20	5
8	13	6.75	3	20	5

Drilled hole pattern for panel mounting



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		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Nominal current	10 A	10 A	10 A
Approvals per	UL/CSA*		
Use group UL 1059	B	C	D
Rated voltage	300 V	–	300 V
Nominal current UL	10 A	–	10 A
Nominal current CSA	–	–	–

Solder pin data for THT (wave soldering):

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

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

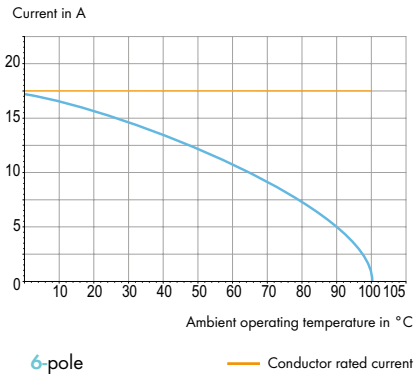
Solder pin: length/width	2.4 mm / 0.4 x 0.9 mm
Solder pin: metal-plated hole	$1.1^{+0.1}$ mm Ø

Material data:

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

Derating Curve

2091-1326 female header
with 2091-1526/002-000 male connector
Pin spacing: 3.5 mm / Conductor size: 1.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



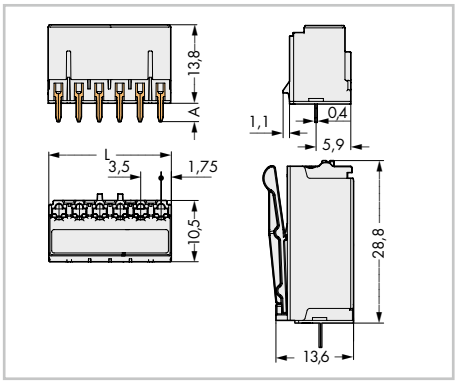
For additional derating curves, see page 71.

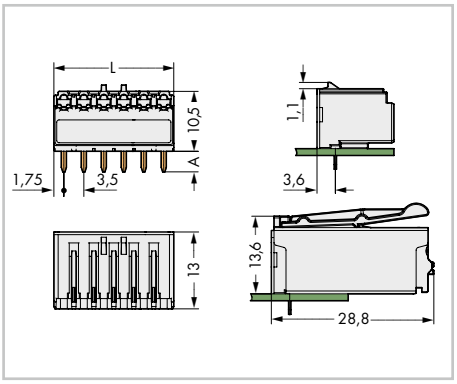
Accessories for *picoMAX®*:	Page:
Coding pins	66

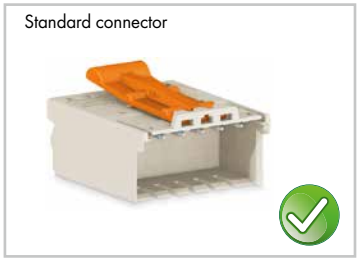
The ***picoMAX®* pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not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

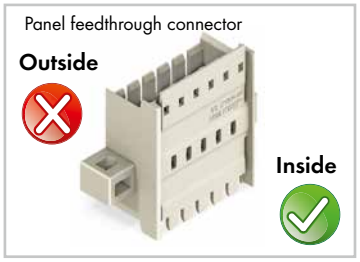
Female Headers with Solder Pins
picoMAX® 3.5

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









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

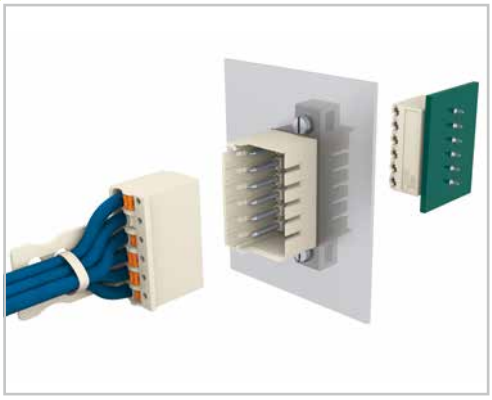
Pole No.	Item No.	Pack. Unit
Female header with straight solder pins, light gray		
2	**2091-1302**	200
4	**2091-1304**	200
6	**2091-1306**	100
8	**2091-1308**	100

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

Item no. suffix for colored THR version:

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

Panel Feedthrough Male Connectors with Fixing Flanges
picoMAX® 3.5



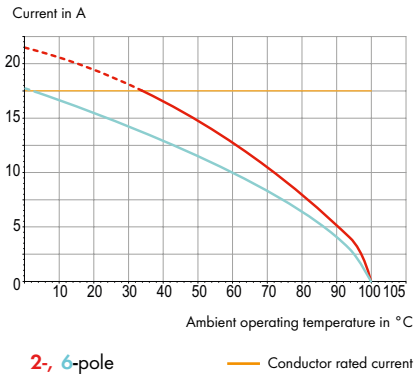
- Male connectors for screw mounting in device or enclosure panels
- External plug-in connection to standard female connector via integrated locking latches
- Internal plug-in connection to female header with solder pins or standard female connector
- Fixing flanges also suitable for panel mounting

Technical data:

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

Derating Curve

2x 2091-1126 female connector with
2091-1636/024-000 panel feedthrough male connector
Pin spacing: 3.5 mm / Conductor size: 1.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 71.

Material data:

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

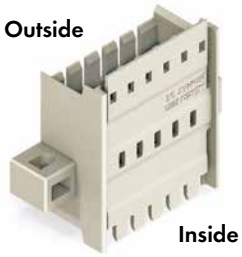
Accessories for *picoMAX®*: **Page:**

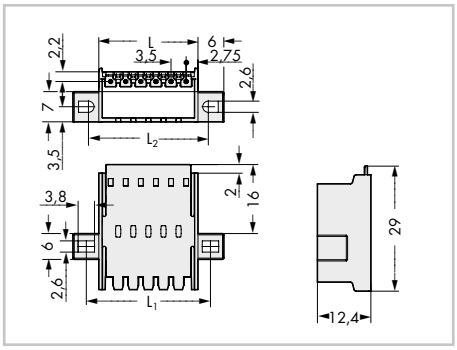
Operating tools	64
Coding pins	66
Test pin	64

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

Panel Feedthrough Male Connectors with Fixing Flanges
picoMAX® 3.5

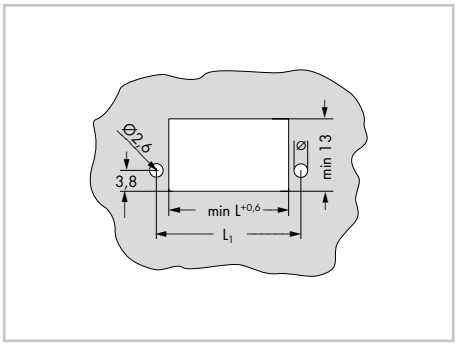
Pin spacing: 3.5 mm / 0.138 in.		Types of assembly with female connectors/headers	Applications
160 V/2.5 kV/2 10 A	300 V/10 A		





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
Panel feedthrough male connector with fixing flanges, light gray		
2	**2091-1632/024-000**	100
4	**2091-1634/024-000**	100
6	**2091-1636/024-000**	50
8	**2091-1638/024-000**	50



Cutout dimensions

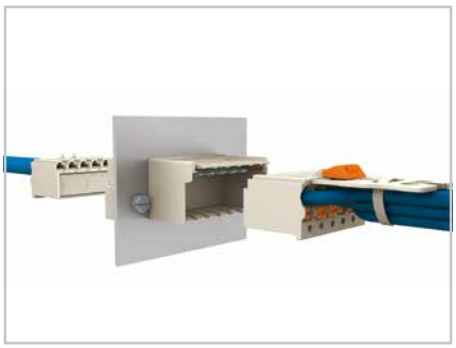
Standard connector and gripping plate with sliding connector release

Standard connector and gripping plate

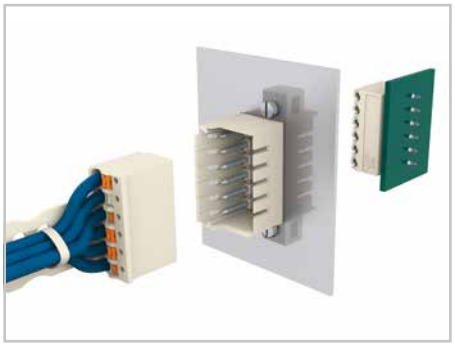
Standard connector

Header with straight or angled solder pins

Disconnection: Open locking latches via unlocking tool.

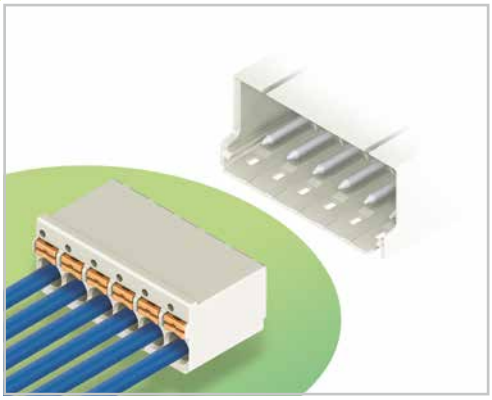


"Wire-to-wire" panel feedthrough connection
Notice: Male connectors shall not be live when disconnected!



"Wire-to-board" panel feedthrough connection

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:

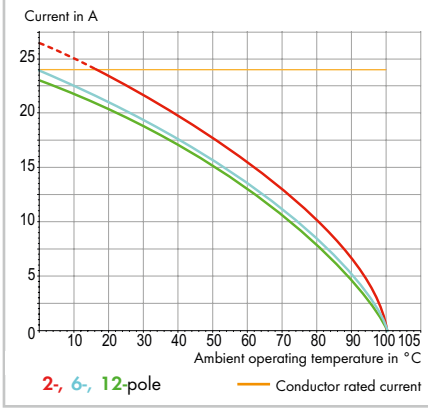
Pin Spacing	5 mm 0.197 in.			
Ratings per	IEC/EN 60664-1			
Overvoltage category	III	III	II	
Pollution degree	3	2	2	
Rated voltage	250 V	320 V	630 V	
Rated surge voltage	4 kV	4 kV	4 kV	
Nominal current	16 A	16 A	16 A	
Approvals per	UL/CSA*			
Use group UL 1059	B	C	D	
Rated voltage	300 V	–	300 V	
Nominal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

Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 … 2.5 mm²	
Conductor size: fine-stranded	0.2 … 2.5 mm²	
Conductor size: fine-stranded	0.25 … 1.5 mm²	(with insulated ferrule)
Conductor size: fine-stranded	0.25 … 2.5 mm²	(with uninsulated ferrule)
AWG	24 … 12	12: THHN, THWN
Strip length	9 … 10 mm / 0.35 … 0.39 in.	

Derating Curve

2092-1122 female connector
with 2092-1402 male header
Pin spacing: 5 mm / Conductor size: 2.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 72.

Material data:

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

Accessories for *picoMAX®*:

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.


KEMA Quality

CERTIFICATE

Number: 2134310.01

Issued to:
Applicant:

Wago-Kontakttechnik GmbH
Hansastrasse 27
32423, Minden/westfalen, Germany

Manufacturer/Licensee:
Wago-Kontakttechnik GmbH
Hansastrasse 27
32423, Minden/westfalen, Germany

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

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

KEMA Quality hereby declares that the above-mentioned product has been certified on the basis of:
– a type test according to the standard EN 61984:2009;
– an inspection of the production location according to CENELEC Operational Document CIG 021
– a certification agreement with the number 900220

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

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

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

KEMA Quality B.V.

drs. G.J. Zoetbrood
Managing Director

F.S. Strikwerda
Certification Manager

ACCREDITED BY
THE DUTCH COUNCIL
FOR ACCREDITATION

© Integral publication of this certificate is allowed

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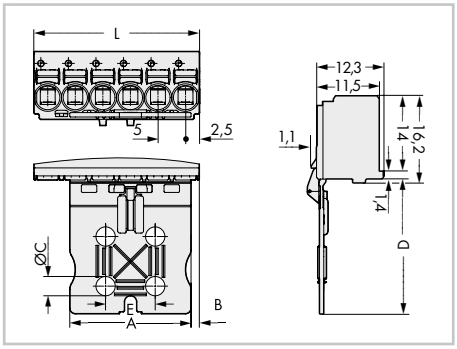
a DEKRA company

Approvals are available online at: www.wago.com *CSA approval pending
For more technical information, see Full Line Catalog, Volume 2, Section 13

Standard Female Connectors
picoMAX® 5.0

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



L = pole no. x pin spacing

Pole No.	Item No.	Pack. Unit
Female connector with gripping plate and sliding connector release, light gray		
2	**2092-1102/002-000**	100
3	**2092-1103/002-000**	100
4	**2092-1104/002-000**	100
5	**2092-1105/002-000**	50
6	**2092-1106/002-000**	50
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

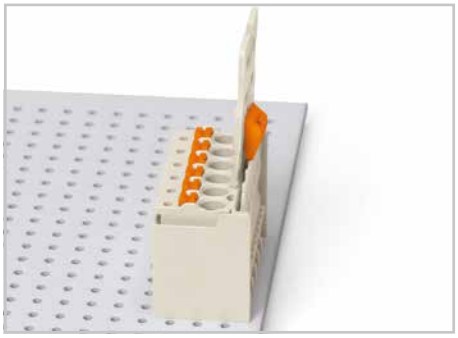
Header with angled solder pins

Standard connector

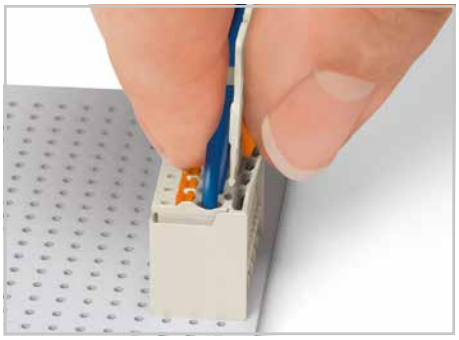
Panel feedthrough connector

Outside

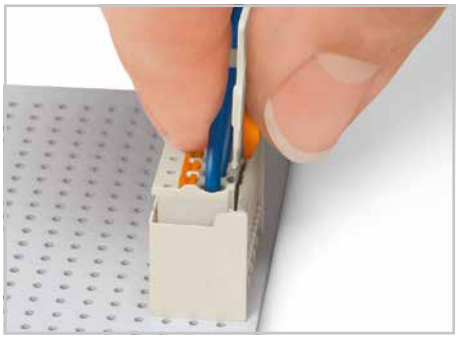
Inside



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.

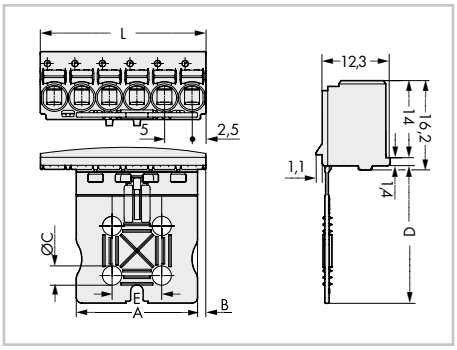


Pull out female connector with gripping plate from male header.

Standard Female Connectors
picoMAX® 5.0

CAGE CLAMP®

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



L = pole no. x pin spacing

Pole No.	Item No.	Pack. Unit
Female connector with gripping plate, light gray		
2	**2092-1102**	100
3	**2092-1103**	100
4	**2092-1104**	100
5	**2092-1105**	50
6	**2092-1106**	50
8	**2092-1108**	50
10	**2092-1110**	50
12	**2092-1112**	50

Product Accessories	Page
Unlocking tool (2092-1630)	64

Gripping plate dimensions (in mm):

Pole No.	A	B	C	D	E
2	7	1.5	–	20	–
3	12	1.5	–	20	–
4	12	1.5	–	20	–
5	22	1.5	3.5	25	9
6	22	1.5	3.5	25	9
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

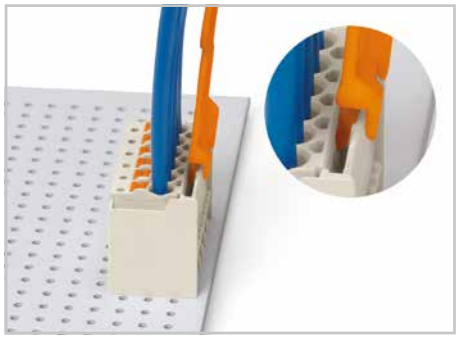
Standard connector

Panel feedthrough connector

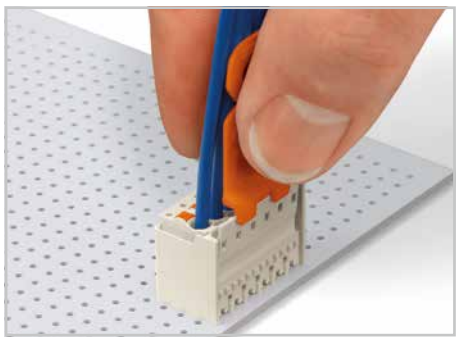
Outside

Inside

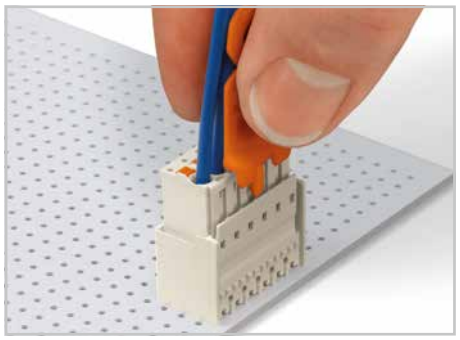
Disconnection: Open locking latches via unlocking tool.



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



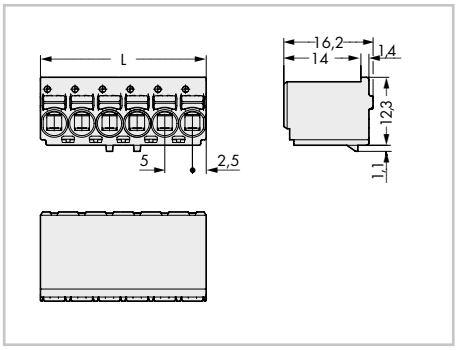
Insert unlocking tool until it hits backstop. Wedge opens locking latch.



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

Standard Female Connectors
picoMAX® 5.0

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



L = pole no. x pin spacing

Pole No.	Item No.	Pack. Unit
Female connector, light gray		
2	**2092-1122**	200
3	**2092-1123**	200
4	**2092-1124**	200
5	**2092-1125**	200
6	**2092-1126**	100
8	**2092-1128**	100
10	**2092-1130**	100
12	**2092-1132**	100

Product Accessories	Page
Unlocking tool (2092-1630)	64

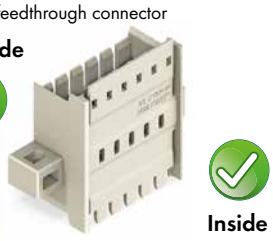
Header with straight solder pins

Header with angled solder pins

Standard connector

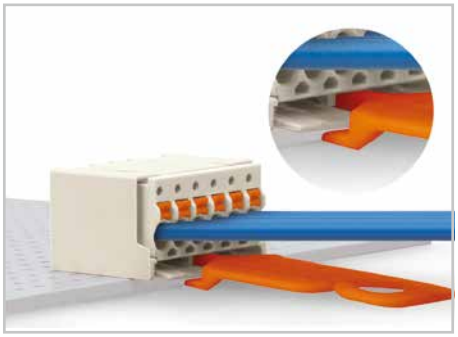
Panel feedthrough connector

Outside

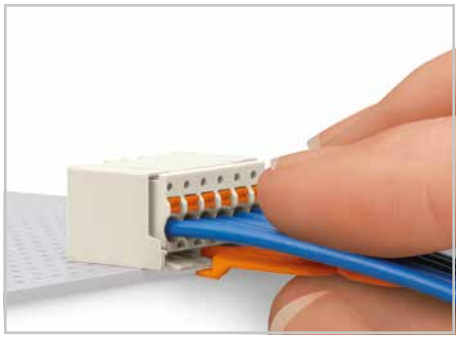


Inside

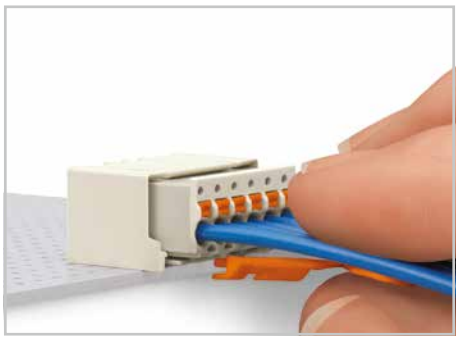
Disconnection: Open locking latches via unlocking tool.



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

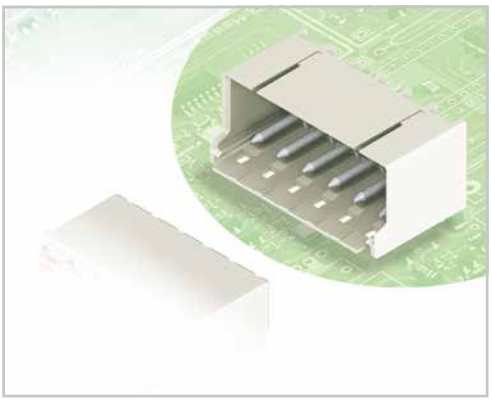


Insert unlocking tool until it hits backstop. Wedge opens locking latch.



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 mismating, allowing subsequent coding in panel feedthrough applications
- Female connector is almost fully shrouded by the male header, providing vibration-resistance up to 20 g*

Technical data:

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

Solder pin data for THT (wave soldering):

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

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

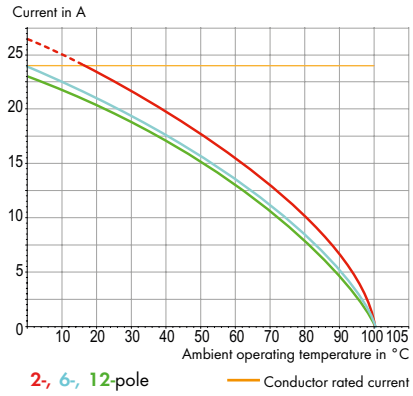
Solder pin: length/width	2.4 mm / 1.4 mm Ø
Solder pin: metal-plated hole	$1.6^{+0.1}$ mm Ø

Material data:

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

Derating Curve

2092-1122 female connector
with 2092-1402 male header
Pin spacing: 5 mm / Conductor size: 2.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 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.


KEMA Quality

CERTIFICATE

Number: 2134310.01

Issued to:
Applicant:

Wago-Kontakttechnik GmbH
Hansastrasse 27
32423, Minden/westfalen, Germany

Manufacturer/Licensee:
Wago-Kontakttechnik GmbH
Hansastrasse 27
32423, Minden/westfalen, Germany

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

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

KEMA Quality hereby declares that the above-mentioned product has been certified on the basis of:
– a type test according to the standard EN 61984:2009;
– an inspection of the production location according to CENELEC Operational Document CIG 021
– a certification agreement with the number 900220

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

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

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

KEMA Quality B.V.

drs. G.J. Zoetbrood
Managing Director

F.S. Strikwerda
Certification Manager

ACCREDITED BY
THE DUTCH COUNCIL
FOR ACCREDITATION

© Integral publication of this certificate is allowed

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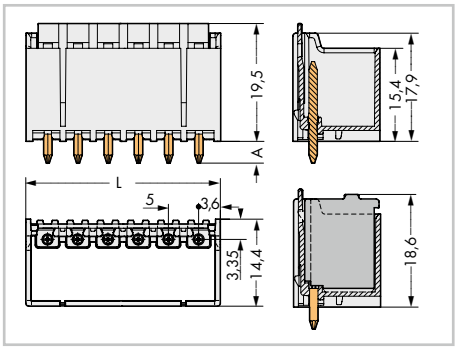
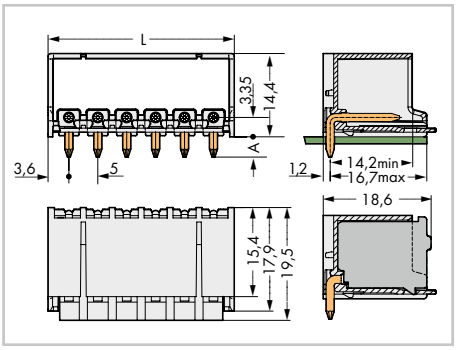
a DEKRA company

Approvals are available online at: www.wago.com *Testing based on IEC 60068-2-6 **CSA approval pending
***For THR soldering, see page 69 For more technical information, see Full Line Catalog, Volume 2, Section 13

Male Headers with Solder Pins
picoMAX® 5.0

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





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

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins, light gray			**Male header with angled solder pins,** light gray		
2	**2092-1402**	200	2	**2092-1422**	200
3	**2092-1403**	200	3	**2092-1423**	200
4	**2092-1404**	200	4	**2092-1424**	200
5	**2092-1405**	200	5	**2092-1425**	200
6	**2092-1406**	100	6	**2092-1426**	100
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	**Ordering example:**
	THR male header with straight solder pins,
THR male headers with solder pins in tape-and-reel	5 mm pin spacing, 8-pole, light gray:
packaging available upon request	**2092-1408/200-000**

Standard connector and gripping plate with sliding connector release

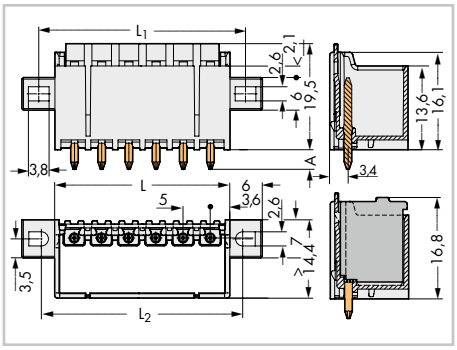
Standard connector and gripping plate

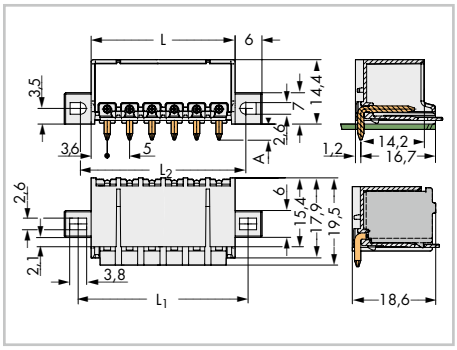
Standard connector

Disconnection: Open locking latches via unlocking tool.

Male Headers with Solder Pins and Fixing Flanges
picoMAX® 5.0

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





L = (pole no. x pin spacing) + 2.2 mm
L_1 = (pole no. x pin spacing) + 8 mm
L_2 = (pole no. x pin spacing) + 7 mm
A = 3.6 mm (THT solder pin)
A = 2.4 mm (THR solder pin)

Standard connector and gripping plate with sliding connector release

Standard connector and gripping plate

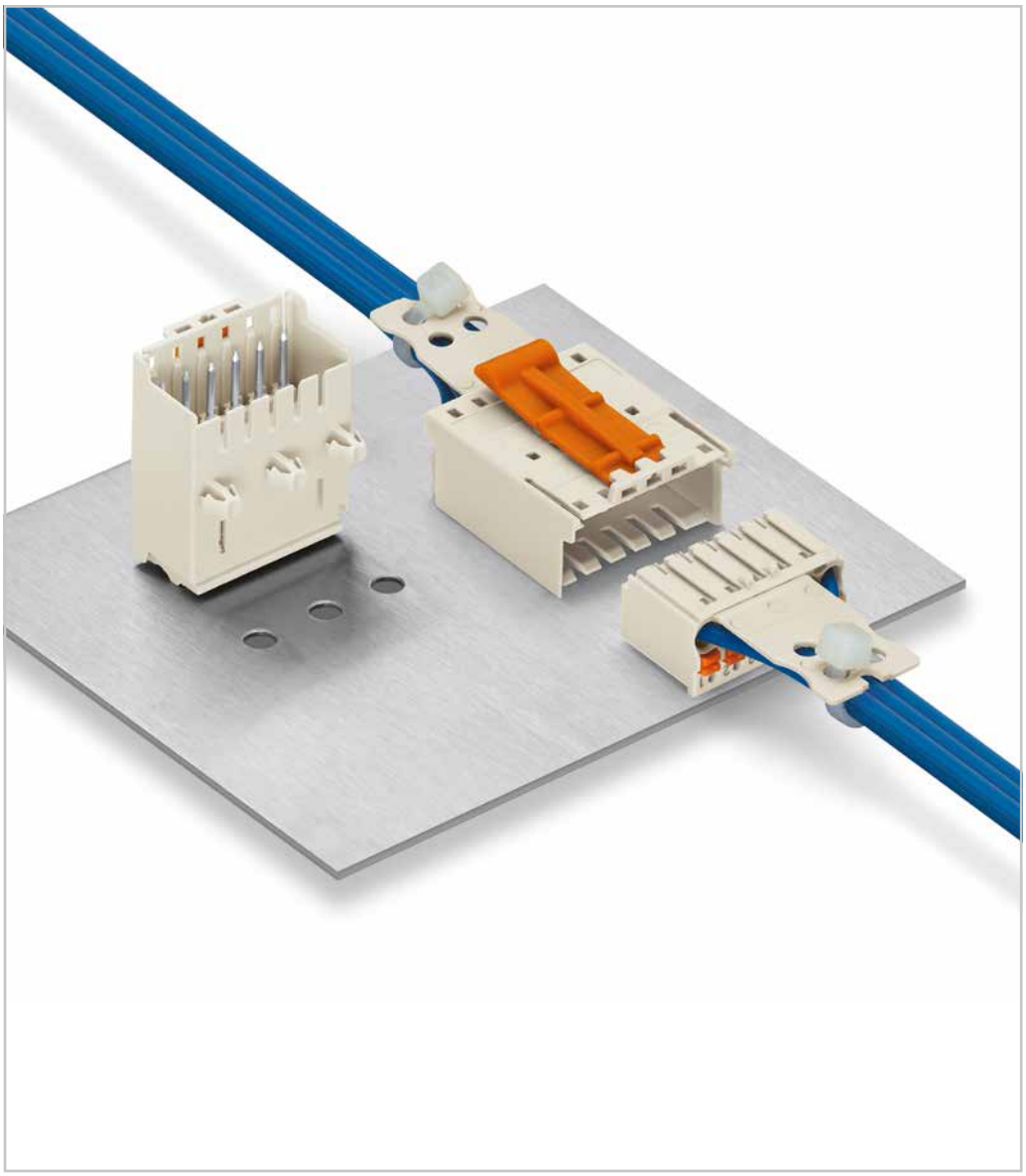
Standard connector

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

Item no. suffix for colored THR version:

◯ light gray ....-..../205-000	**Ordering example:**
	THR male header with straight solder pins
THR male headers with solder pins in tape-and-reel	and fixing flanges, 5 mm pin spacing,
packaging available upon request	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**		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	**UL/CSA***		
Use group UL 1059	B	C	D
Rated voltage	300 V	–	300 V
Nominal current UL	15 A	–	10 A
Nominal current CSA	–	–	–

Conductor data:

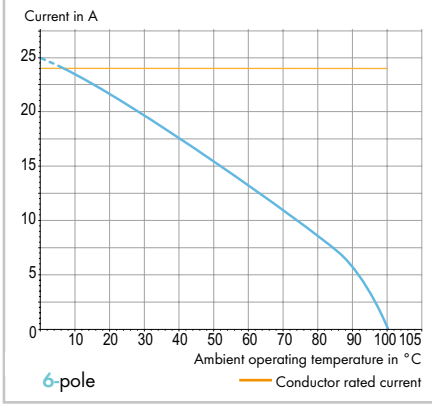
Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 … 2.5 mm²	
Conductor size: fine-stranded	0.2 … 2.5 mm²	
Conductor size: fine-stranded	0.25 … 1.5 mm²	(with insulated ferrule)
Conductor size: fine-stranded	0.25 … 2.5 mm²	(with uninsulated ferrule)
AWG	24 … 12	12: THHN, THWN
Strip length	9 … 10 mm / 0.35 … 0.39 in.	

Material data:

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

Derating Curve

2092-1126 female header
with 2092-1526/002-000 male connector
Pin spacing: 5 mm / Conductor size: 2.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 72.

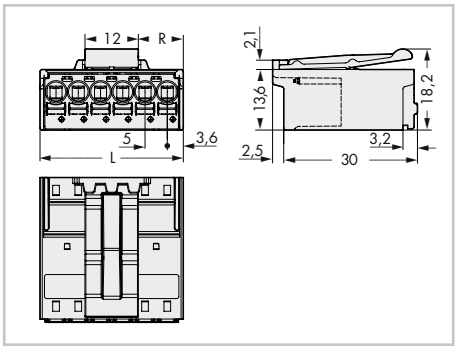
Accessories for *picoMAX®*: **Page:**

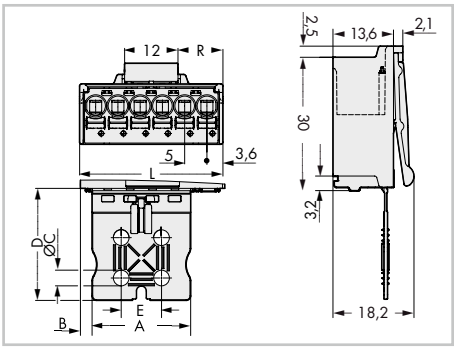
Gripping plates	65
Coding pins	66
Test pin	64

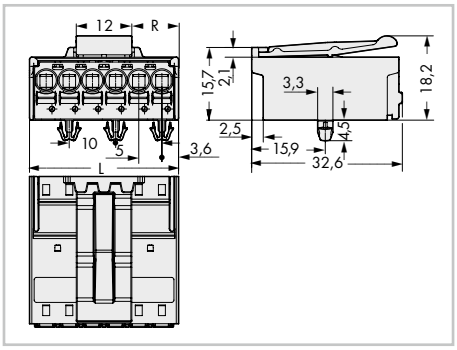
The ***picoMAX®* pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not 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 mm²	AWG 24 ... 12	0.2 ... 2.5 mm²	AWG 24 ... 12	0.2 ... 2.5 mm²	AWG 24 ... 12
320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A	320 V/4 kV/2 16 A	300 V/15 A







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

Pole No.	Item No.	Pack. Unit
Male connector, light gray		
2	**2092-1522/002-000**	200
3	**2092-1523/002-000**	100
4	**2092-1524/002-000**	100
5	**2092-1525/002-000**	100
6	**2092-1526/002-000**	100

Pole No.	Item No.	Pack. Unit
Male connector with gripping plate, light gray		
2	**2092-1502/002-000**	100
3	**2092-1503/002-000**	100
4	**2092-1504/002-000**	50
5	**2092-1505/002-000**	50
6	**2092-1506/002-000**	50

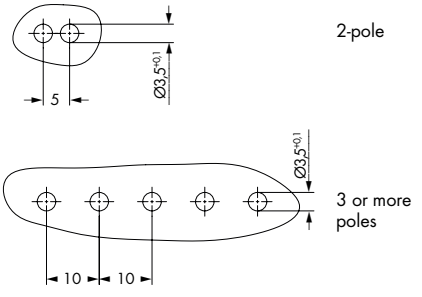
Pole No.	Item No.	Pack. Unit
Male connector with snap-in mounting feet, for 0.6 ... 1.2 mm plate thickness, light gray		
2	**2092-1522/020-000**	200
3	**2092-1523/020-000**	100
4	**2092-1524/020-000**	100
5	**2092-1525/020-000**	100
6	**2092-1526/020-000**	50

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

Gripping plate dimensions (in mm):

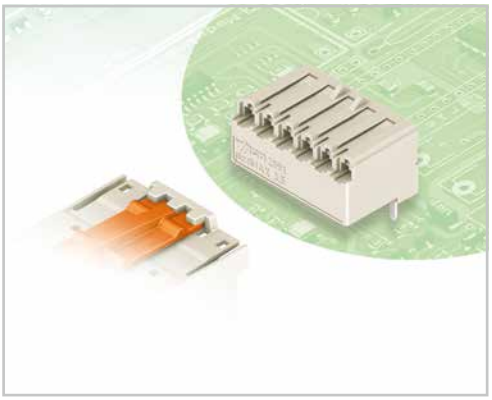
Pole No.	A	B	C	D	E
2	7	2.6	–	20	–
3	12	2.6	–	20	–
4	12	2.6	–	20	–
5	22	2.6	3.5	25	9
6	22	2.6	3.5	25	9

Drilled hole pattern for panel mounting



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		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA*		
Use group UL 1059	B	C	D
Rated voltage	300 V	–	300 V
Nominal current UL	15 A	–	10 A
Nominal current CSA	–	–	–

Solder pin data for THT (wave soldering):

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

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

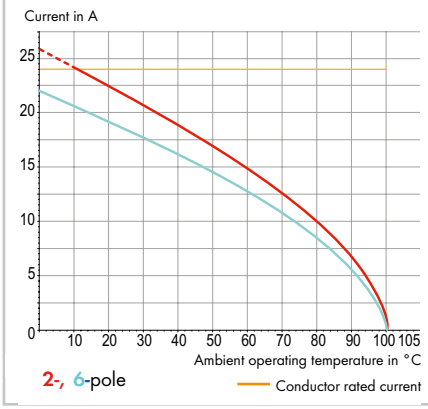
Solder pin: length/width	2.4 mm / 0.4 x 1.3 mm
Solder pin: metal-plated hole	$1.5^{+0.1}$ mm Ø

Material data:

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

Derating Curve

2092-1322 female header
with 2092-1522/002-000 male connector
Pin spacing: 5 mm / Conductor size: 2.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 72.

Accessories for *picoMAX®*: **Page:**

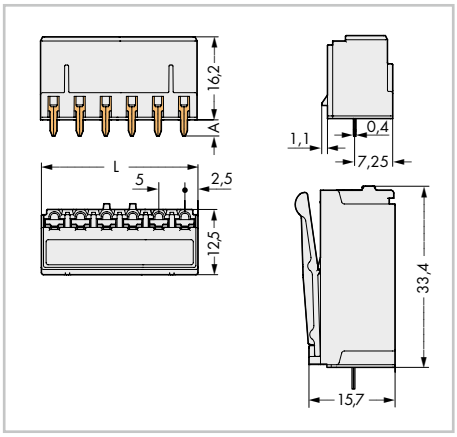
Coding pins	66

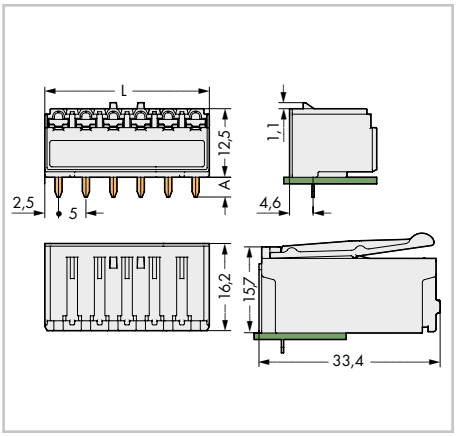
The ***picoMAX®* pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not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

Approvals are available online at: www.wago.com *CSA approval pending **For THR soldering, see page 69
For more technical information, see Full Line Catalog, Volume 2, Section 13

Female Headers with Solder Pins
picoMAX® 5.0

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





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

Standard connector

Panel feedthrough connector

Outside

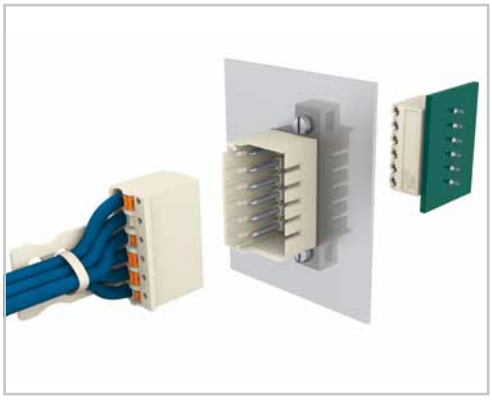
Inside

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**	**Ordering example:**
	THR female header with straight solder pins,
THR female headers with solder pins in tape-and-reel	5 mm pin spacing, 8-pole, light gray:
packaging available upon request	**2092-1308/200-000**

Panel Feedthrough Male Connectors with Fixing Flanges
picoMAX® 5.0



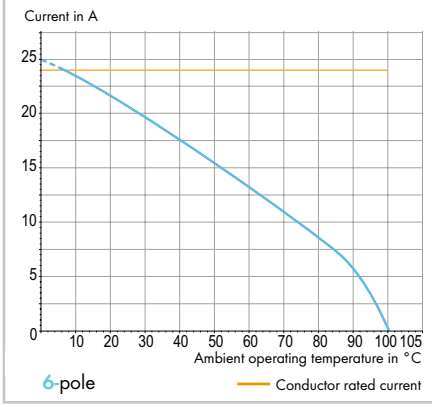
- Male connectors for screw mounting in device or enclosure panels
- External plug-in connection to standard female connector via integrated locking latches
- Internal plug-in connection to female header with solder pins or standard female connector
- Fixing flanges also suitable for panel mounting

Technical data:

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

Derating Curve

2 x 2092-1126 female connector with
2092-1636/024-000 panel feedthrough male connector
Pin spacing: 5 mm / Conductor size: 2.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 72.

Material data:

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

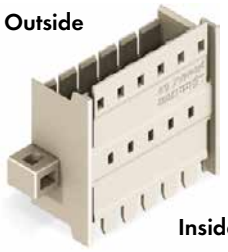
Accessories for *picoMAX®*:

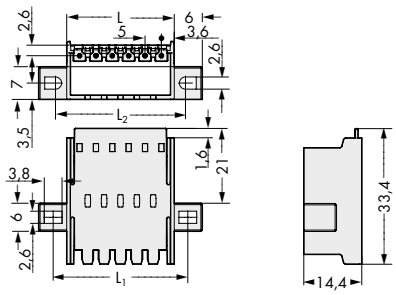
	Page:
Operating tools	64
Coding pins	66
Test pin	64

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

Panel Feedthrough Male Connectors with Fixing Flanges
picoMAX® 5.0

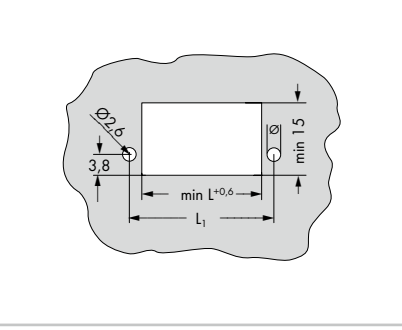
Pin spacing: 5 mm / 0.197 in.		Types of assembly with female connectors/headers	Applications
320 V/4 kV/2 16 A	300 V/15 A		





L = (pole no. x pin spacing) + 2.2 mm
L_1 = (pole no. x pin spacing) + 8 mm
L_2 = (pole no. x pin spacing) + 7 mm

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



Cutout dimensions

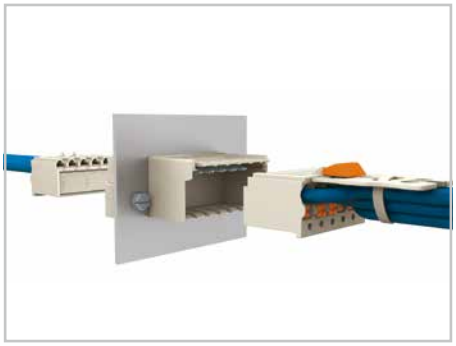
Standard connector and gripping plate with sliding connector release

Standard connector and gripping plate

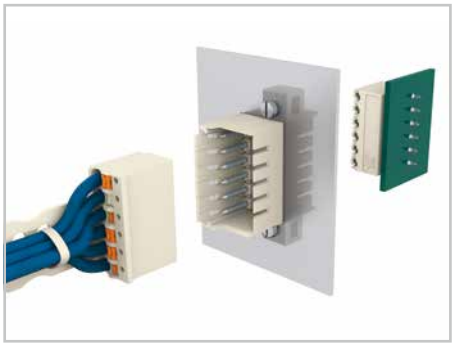
Standard connector

Header with straight or angled solder pins

Disconnection: Open locking latches via unlocking tool.

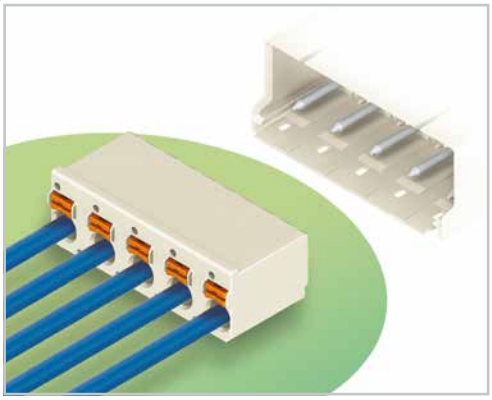


"Wire-to-wire" panel feedthrough connection
Notice: Male connectors shall not be live when disconnected!



"Wire-to-board" panel feedthrough connection

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:

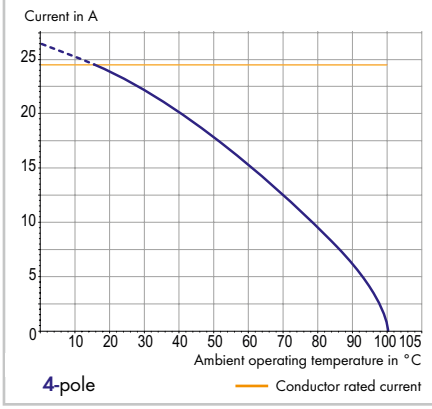
Pin Spacing	7.5 mm 0.295 in		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	400 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA*		
Use group UL 1059	B	C	D
Rated voltage	300 V	–	300 V
Nominal current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

Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 … 2.5 mm²	
Conductor size: fine-stranded	0.2 … 2.5 mm²	
Conductor size: fine-stranded	0.25 … 1.5 mm²	(with insulated ferrule)
Conductor size: fine-stranded	0.25 … 2.5 mm²	(with uninsulated ferrule)
AWG	24 … 12	12: THHN, THWN
Strip length	9 … 10 mm / 0.35 … 0.39 in.	

Derating Curve

2092-3124 female connector
with 2092-3404 male header
Pin spacing: 7.5 mm / Conductor size: 2.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 73.

Material data:

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

Accessories for *picoMAX®*: **Page:**

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.


KEMA Quality

CERTIFICATE

Number: 2134310.01

Issued to:
Applicant:

Wago-Kontakttechnik GmbH
Hansastrasse 27
32423, Minden/westfalen, Germany

Manufacturer/Licensee:
Wago-Kontakttechnik GmbH
Hansastrasse 27
32423, Minden/westfalen, Germany

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

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

KEMA Quality hereby declares that the above-mentioned product has been certified on the basis of:
– a type test according to the standard EN 61984:2009;
– an inspection of the production location according to CENELEC Operational Document CIG 021
– a certification agreement with the number 900220

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

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

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

KEMA Quality B.V.

drs. G.J. Zoetbrood
Managing Director

F.S. Strikwerda
Certification Manager

ACCREDITED BY
THE DUTCH COUNCIL
FOR ACCREDITATION

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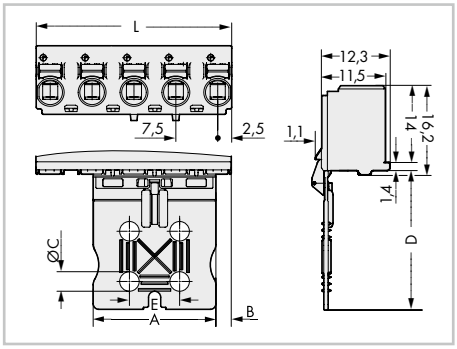
a DEKRA company

Approvals are available online at: www.wago.com *CSA approval pending
For more technical information, see Full Line Catalog, Volume 2, Section 13

Standard Female Connectors
picoMAX® 7.5

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

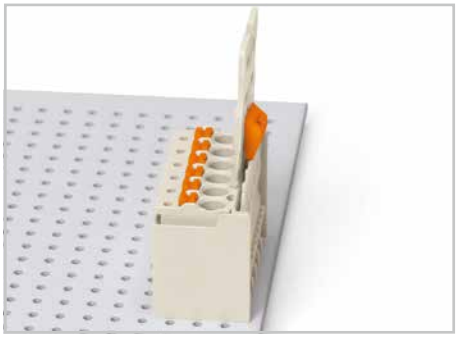


L = (pole no. – 1) x pin spacing + 5 mm

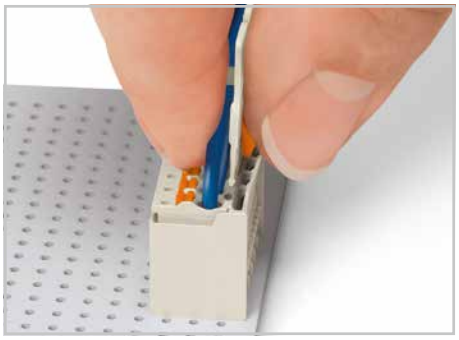
Header with straight solder pins

Header with angled solder pins

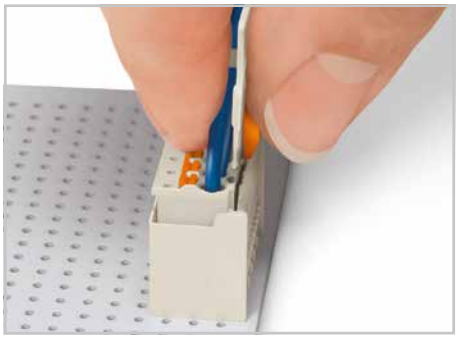
Standard connector



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



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



Pull out female connector with gripping plate from male header.

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

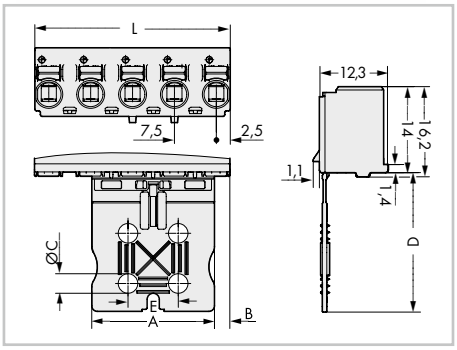
Gripping plate dimensions (in mm):

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

Standard Female Connectors
picoMAX® 7.5

CAGE CLAMP®

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



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

Pole No.	Item No.	Pack. Unit
Female connector with gripping plate, light gray		
2	**2092-3102**	100
3	**2092-3103**	100
4	**2092-3104**	100
5	**2092-3105**	100

Product Accessories	Page
Unlocking tool (2092-1630)	64

Gripping plate dimensions (in mm):

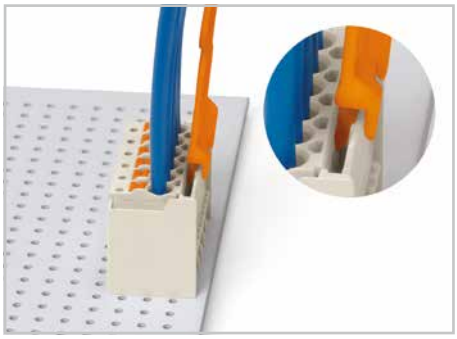
Pole No.	A	B	C	D	E
2	7	2.75	–	20	–
3	12	4	–	20	–
4 ... 5	22	2.75	3.5	25	9

Header with straight solder pins

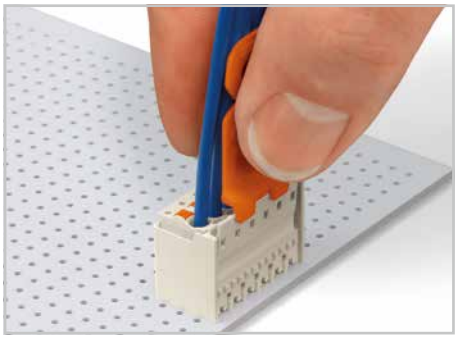
Header with angled solder pins

Standard connector

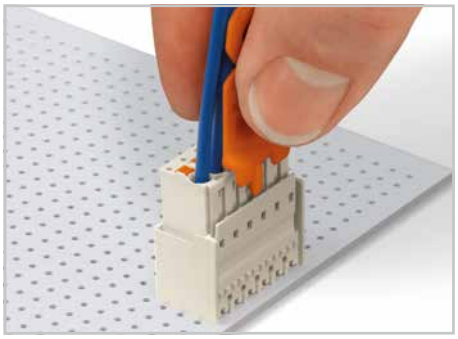
Disconnection: Open locking latches via unlocking tool.



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



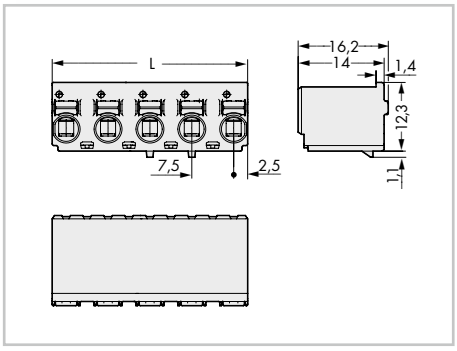
Insert unlocking tool until it hits backstop. Wedge opens locking latch.



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

Standard Female Connectors
picoMAX® 7.5

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



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

Pole No.	Item No.	Pack. Unit
Female connector, light gray		
2	**2092-3122**	100
3	**2092-3123**	100
4	**2092-3124**	100
5	**2092-3125**	100

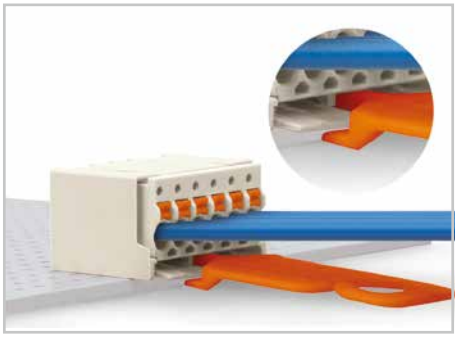
Product Accessories	Page
Unlocking tool (2092-1630)	64

Header with straight solder pins

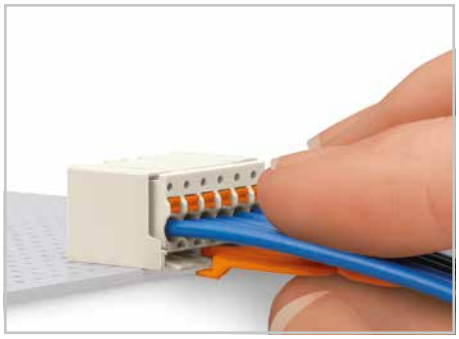
Header with angled solder pins

Standard connector

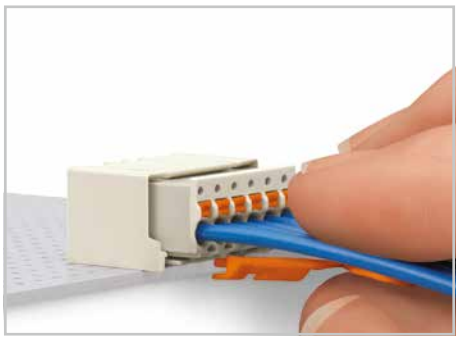
Disconnection: Open locking latches via unlocking tool.



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

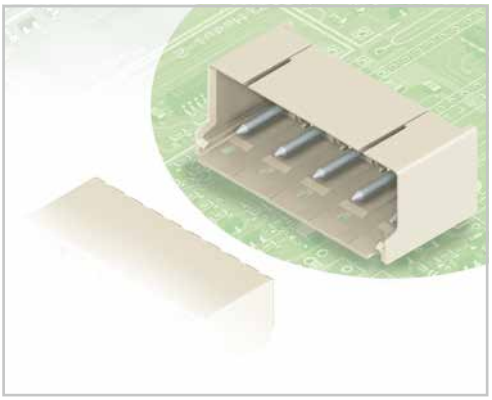


Insert unlocking tool until it hits backstop. Wedge opens locking latch.



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

Male Headers with Solder Pins
picoMAX® 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		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	400 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA**		
Use group UL 1059	B	C	D
Rated voltage	300 V	–	300 V
Nominal current UL	15 A	–	10 A
Nominal current CSA	–	–	–

Solder pin data for THT (wave soldering):

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

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

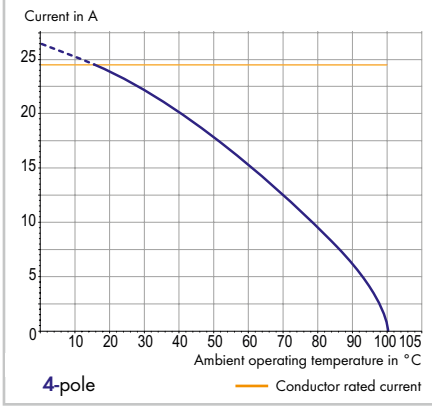
Solder pin: length/width	2.4 mm / 1.4 mm Ø
Solder pin: metal-plated hole	$1.6^{+0.1}$ mm Ø

Material data:

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

Derating Curve

2092-3124 female connector
with 2092-3404 male header
Pin spacing: 7.5 mm / Conductor size: 2.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 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.


KEMA Quality

CERTIFICATE

Number: 2134310.01

Issued to:
Applicant:

Wago-Kontakttechnik GmbH
Hansastrasse 27
32423, Minden/westfalen, Germany

Manufacturer/Licensee:
Wago-Kontakttechnik GmbH
Hansastrasse 27
32423, Minden/westfalen, Germany

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

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

KEMA Quality hereby declares that the above-mentioned product has been certified on the basis of:
– a type test according to the standard EN 61984:2009;
– an inspection of the production location according to CENELEC Operational Document CIG 021
– a certification agreement with the number 900220

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

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

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

KEMA Quality B.V.

drs. G.J. Zoetbrood
Managing Director

F.S. Strikwerda
Certification Manager

ACCREDITED BY
THE DUTCH COUNCIL
FOR ACCREDITATION

© Integral publication of this certificate is allowed

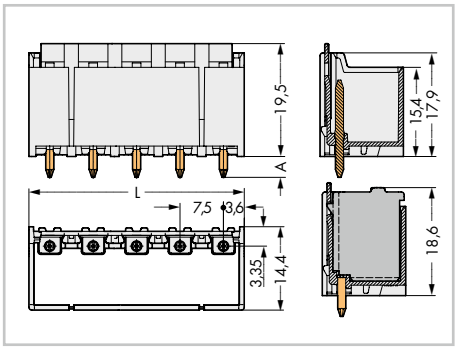
KEMA Quality B.V. Utrechtseweg 310, 6812 AR Arnhem P.O. Box 5185, 6802 ED Arnhem The Netherlands
T +31 26 3 56 20 00 F +31 26 3 52 58 00 www.kemaquality.com Registered Arnhem 09085396

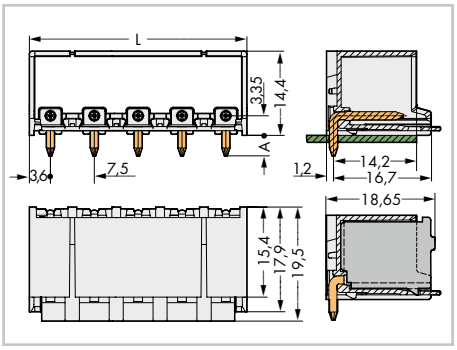
a DEKRA company

Approvals are available online at: www.wago.com *Testing based on IEC 60068-2-6 **CSA approval pending
***For THR soldering, see page 69 For more technical information, see Full Line Catalog, Volume 2, Section 13

Male Headers with Solder Pins
picoMAX® 7.5

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





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

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

Item no. suffix for colored THR version:

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

Standard connector and gripping plate with sliding connector release

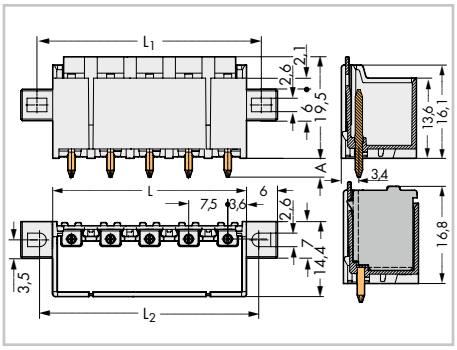
Standard connector and gripping plate

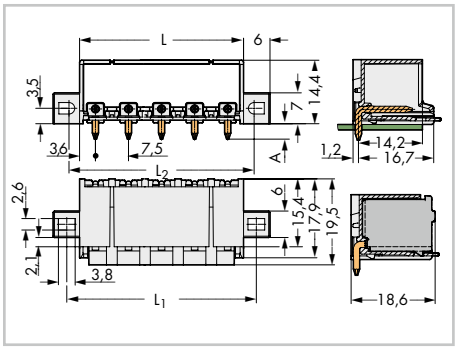
Standard connector

Disconnection: Open locking latches via unlocking tool.

Male Headers with Solder Pins and Fixing Flanges
picoMAX® 7.5

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





L = (pole no. – 1) x pin spacing + 7.2 mm
L_1 = (pole no. x pin spacing) + 5.5 mm
L_2 = (pole no. x pin spacing) + 4.5 mm
A = 3.6 mm (THT solder pin)
A = 2.4 mm (THR solder pin)

Standard connector and gripping plate with sliding connector release

Standard connector and gripping plate

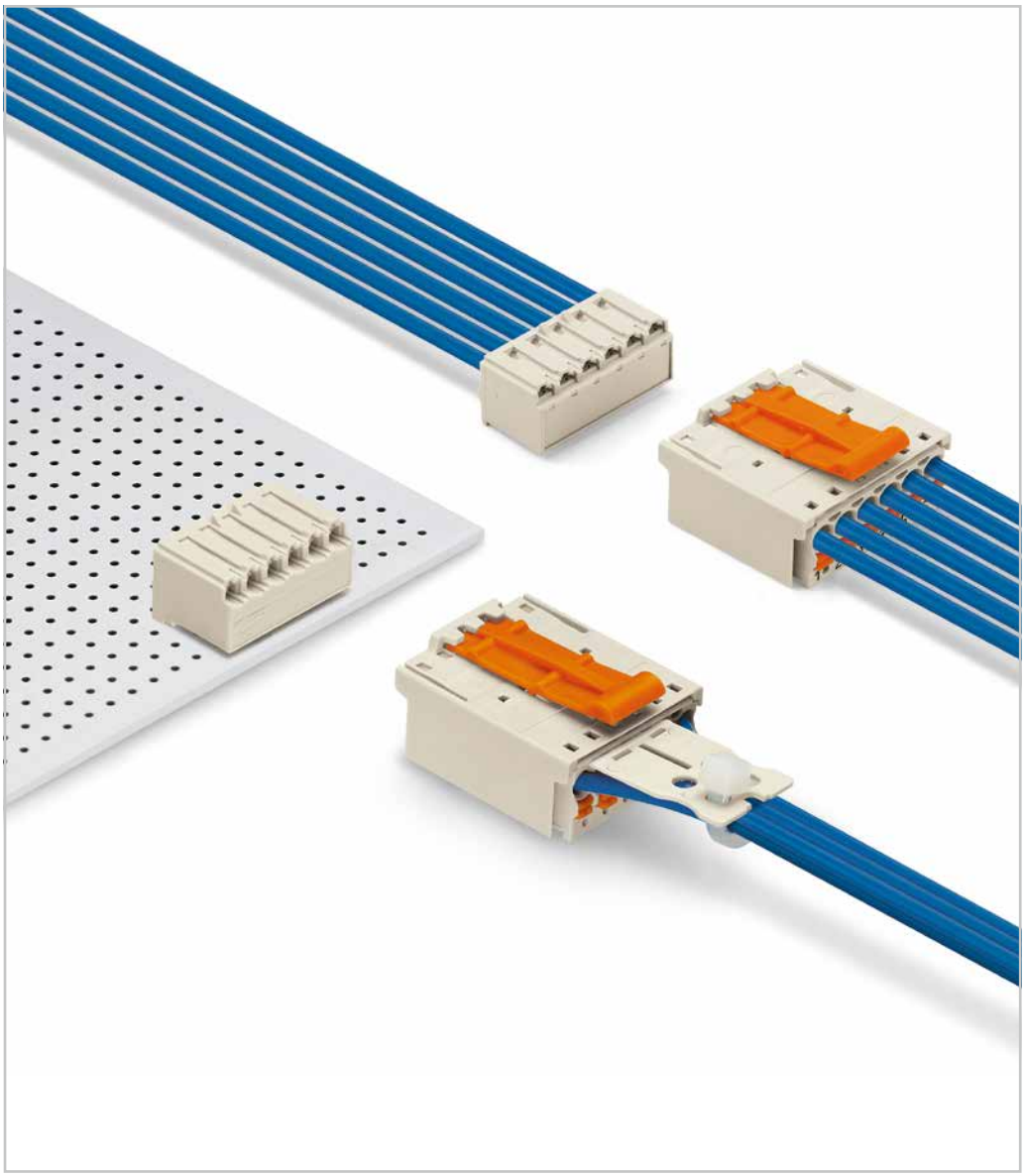
Standard connector

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
Male header with straight solder pins and fixing flanges, light gray			**Male header with angled solder pins and fixing flanges,** light gray		
2	**2092-3402/005-000**	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

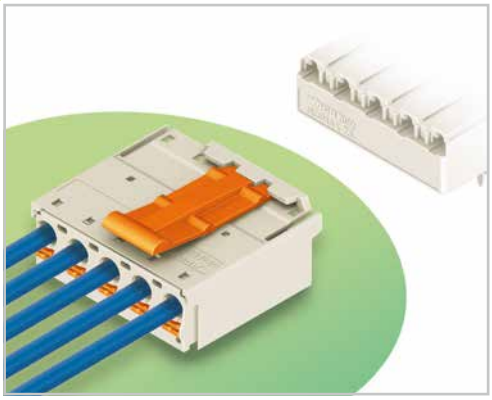
Item no. suffix for colored THR version:

◯ light gray ....-..../205-000	**Ordering example:**
	THR male header with straight solder pins
THR male headers with solder pins in tape-and-reel	and fixing flanges, 7.5 mm pin spacing,
packaging available upon request	5-pole, light gray: **2092-3405/205-000**

Disconnection: Open locking latches via unlocking tool.



Standard Male Connectors
picoMAX® 7.5



- 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		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	400 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA*		
Use group UL 1059	B	C	D
Rated voltage	300 V	–	300 V
Nominal current UL	15 A	–	10 A
Nominal current CSA	–	–	–

Conductor data:

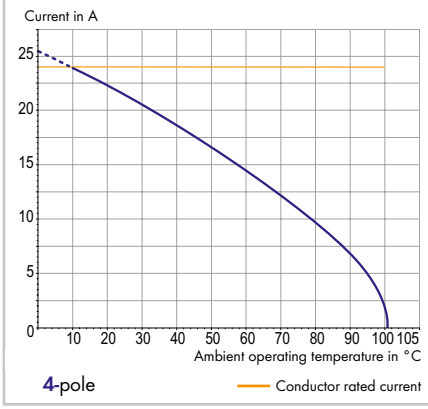
Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 … 2.5 mm²	
Conductor size: fine-stranded	0.2 … 2.5 mm²	
Conductor size: fine-stranded	0.25 … 1.5 mm²	(with insulated ferrule)
Conductor size: fine-stranded	0.25 … 2.5 mm²	(with uninsulated ferrule)
AWG	24 … 12	12: THHN, THWN
Strip length	9 … 10 mm / 0.35 … 0.39 in.	

Material data:

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

Derating Curve

2092-3124 female header
with 2092-3524/002-000 male connector
Pin spacing: 7.5 mm / Conductor size: 2.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 73.

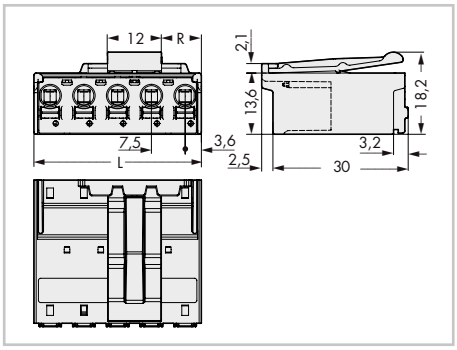
Accessories for *picoMAX®*: **Page:**

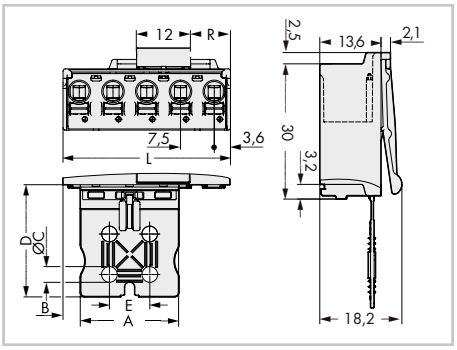
Gripping plates	65
Coding pins	66
Test pin	64

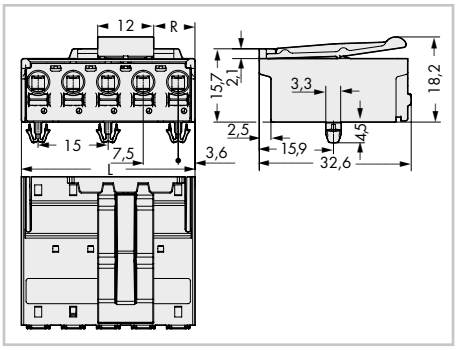
The ***picoMAX®* pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not 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 mm² 630 V/6 kV/2 16 A	AWG 24 … 12 300 V/15 A	0.2 … 2.5 mm² 630 V/6 kV/2 16 A	AWG 24 … 12 300 V/15 A	0.2 … 2.5 mm² 630 V/6 kV/2 16 A	AWG 24 … 12 300 V/15 A







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

Pole No.	Item No.	Pack. Unit
Male connector, light gray		
2	**2092-3522/002-000**	100
3	**2092-3523/002-000**	100
4	**2092-3524/002-000**	50
5	**2092-3525/002-000**	50

Pole No.	Item No.	Pack. Unit
Male connector with gripping plate, light gray		
2	**2092-3502/002-000**	100
3	**2092-3503/002-000**	100
4	**2092-3504/002-000**	50
5	**2092-3505/002-000**	50

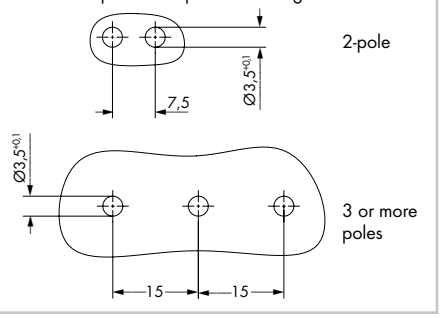
Pole No.	Item No.	Pack. Unit
Male connector with snap-in mounting feet, for 0.6 … 1.2 mm plate thickness, light gray		
2	**2092-3522/020-000**	100
3	**2092-3523/020-000**	100
4	**2092-3524/020-000**	50
5	**2092-3525/020-000**	50

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

Gripping plate dimensions (in mm):

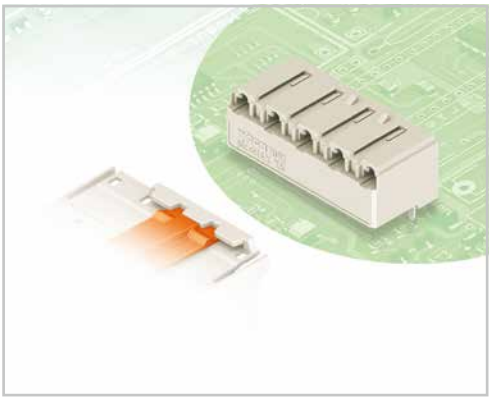
Pole No.	A	B	C	D	E
2	7	3.85	–	20	–
3	12	5.1	–	20	–
4 … 5	22	3.85	3.5	25	9

Drilled hole pattern for panel mounting



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

Female Headers with Solder Pins
picoMAX® 7.5



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

Technical data:

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

Solder pin data for THT (wave soldering):

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

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

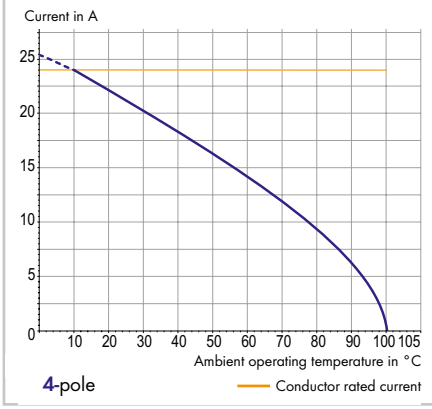
Solder pin: length/width	2.4 mm / 0.4 x 1.3 mm
Solder pin: metal-plated hole	$1.5^{+0.1}$ mm Ø

Material data:

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

Derating Curve

2092-3324 female header
with 2092-3524/002-000 male connector
Pin spacing: 7.5 mm / Conductor size: 2.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 73.

Accessories for *picoMAX®*: **Page:**

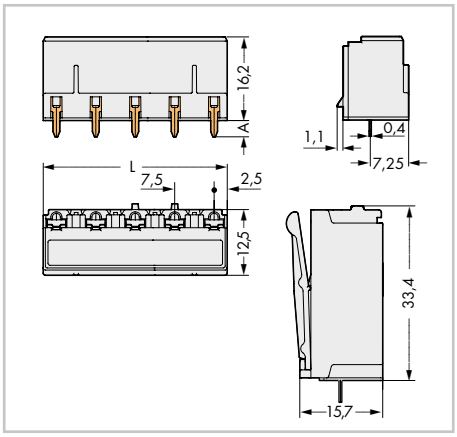
Coding pins	66

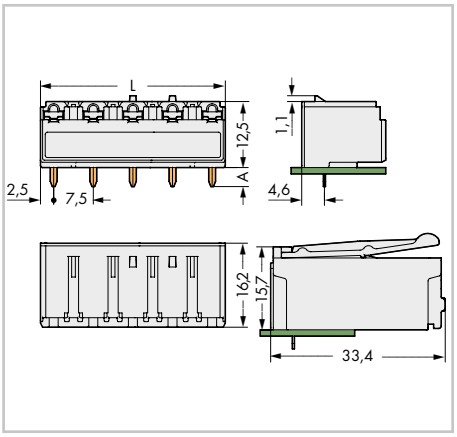
The ***picoMAX®* pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not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

Approvals are available online at: www.wago.com *CSA approval pending **For THR soldering, see page 69
For more technical information, see Full Line Catalog, Volume 2, Section 13

Female Headers with Solder Pins
picoMAX® 7.5

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





Standard connector

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**	**Ordering example:**
		THR female header with straight solder pins,
THR female headers with solder pins in tape-and-reel		5 mm pin spacing, 5-pole, light gray:
packaging available upon request		**2092-3305/200-000**

picoMAX® eCOM

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

YES IT CAN.

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

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

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

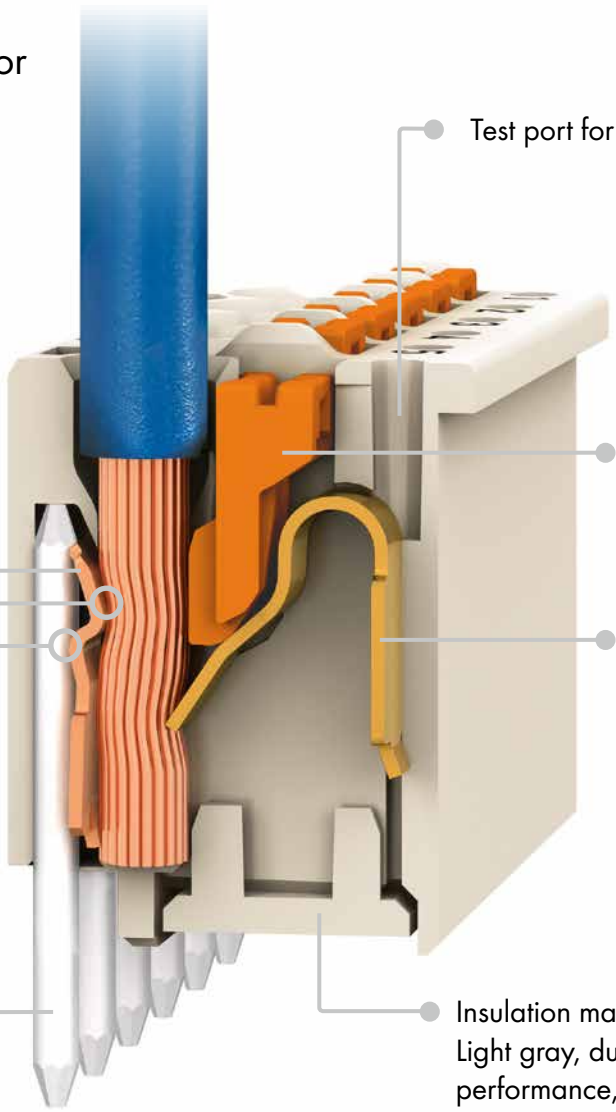
With 3.5 mm (0.138 in.), 5.0 mm (0.197 in.) and 7.5 mm (0.295 in.) pin spacing, this system of **pluggable female headers for direct soldering to PCB** is the ideal solution for **cost-efficient PCB applications**. The connectors are delivered with solder pins so they can be mounted and soldered to the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

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

These features make picoMAX® eCOM **extremely efficient, pluggable PCB terminal blocks**. picoMAX® eCOM is available as straight and angled PCB terminal block for conductors 0.2–1.5 mm² (AWG 24–14) with 3.5 mm (0.138 in.), as well as 0.2–2.5 mm² (24–12) with 5.0 mm (0.197 in.) and 7.5 mm (0.295 in.) pin spacing.

picoMAX®: Highly efficient system.

Pluggable female headers for direct soldering to PCB



Test port for 1 mm ⌀ test pin

Contact bridge, electrolytic copper (E-Cu), tin-plated

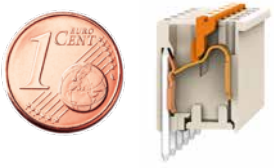
Push-button

Extremely short current path from conductor to contact pin minimizes voltage drop. The contact force between conductor, bridge and contact pin automatically adjusts to the conductor cross section.

Clamping spring, high-alloy, stainless steel (CrNi)

Straight or angled, E-Cu, tin-plated solder pins for both wave and THR soldering

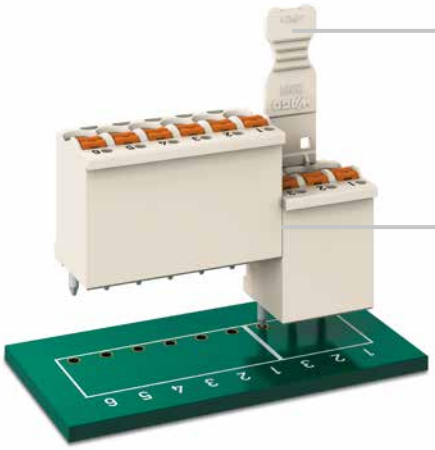
Insulation material:
Light gray, durable, high-performance, glass-fiber-reinforced and high-temperature-resistant polyphtalamide (PPA), also suitable for THR soldering.



Original size:
3.5 mm pin spacing

PCB Terminal Blocks that Double as Pluggable Connectors

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



Optional gripping plate

Female headers of different lengths can be assembled side by side without losing any poles.

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

2. Wired female headers

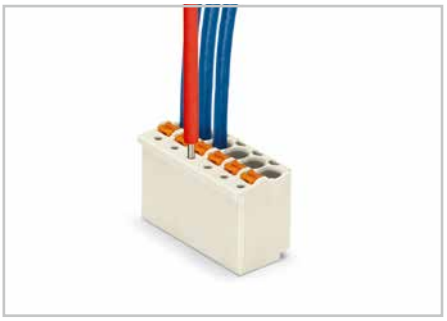
Gripping plate with cable tie

3. During maintenance

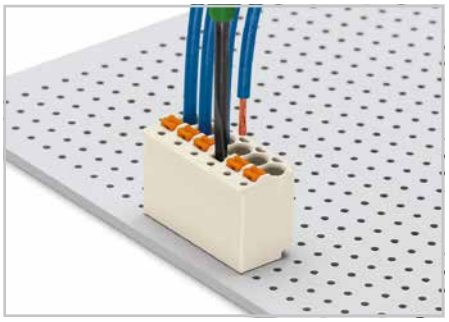
Remove the female header, replace the PCB where required, then re-plug the header.

Protected by patent No. EP1850418A2

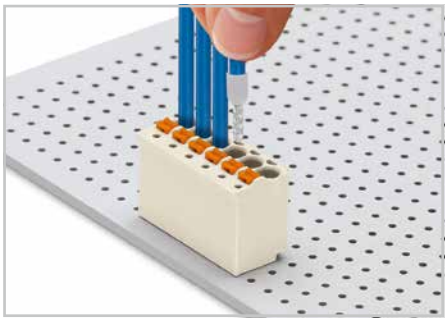
Handling *picoMAX*® *eCOM*
Pin Spacing: 3.5 mm/0.138 in., 5.0 mm/0.197 in. and 7.5 mm/0.295 in.



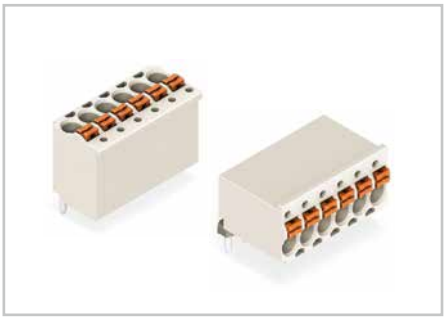
Testing with 1 mm Ø test pin, tip contact.



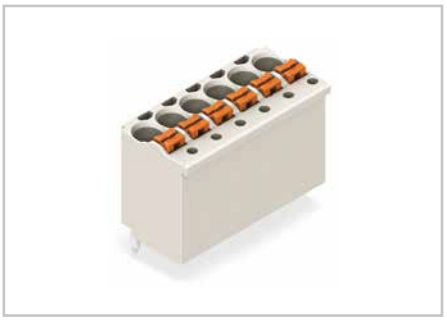
Terminating fine-stranded conductors and removing all conductor types via push-buttons.



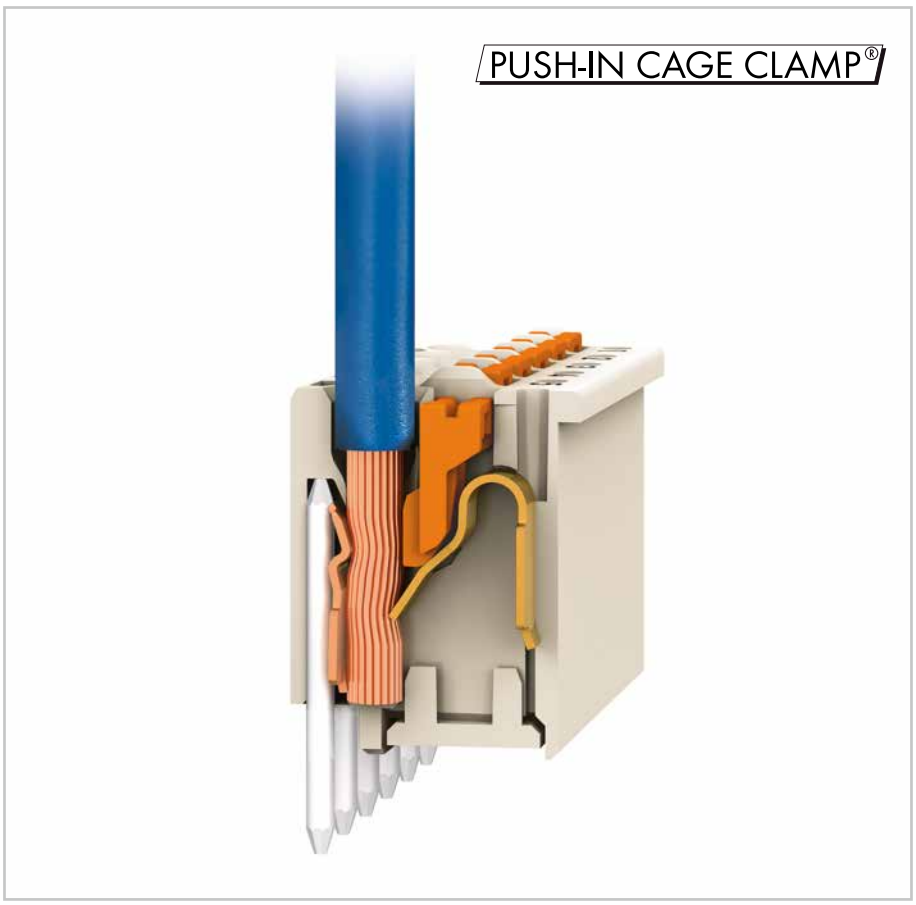
Terminating solid and ferruled conductors via push-in termination (see notes on page 75).



Horizontal or vertical PCB mounting.



THR version with shorter solder pins.

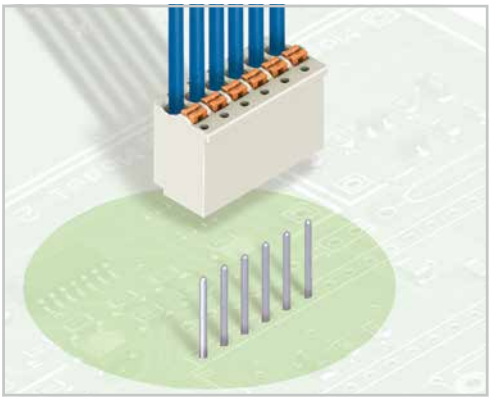


Pole marking via direct printing perpendicular to conductor entry.

Pole marking via direct printing parallel to conductor entry.

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

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



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

Technical data:

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

Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 … 1.5 mm²	
Conductor size: fine-stranded	0.2 … 1.5 mm²	
Conductor size: fine-stranded	0.25 … 0.75 mm²	(with insulated ferrule)
Conductor size: fine-stranded	0.25 … 1.5 mm²	(with uninsulated ferrule)
AWG	24 … 14	14: THHN, THWN
Strip length	8 … 9 mm / 0.31 … 0.35 in.	

Solder pin data for THT (wave soldering):

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

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

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

Material data:

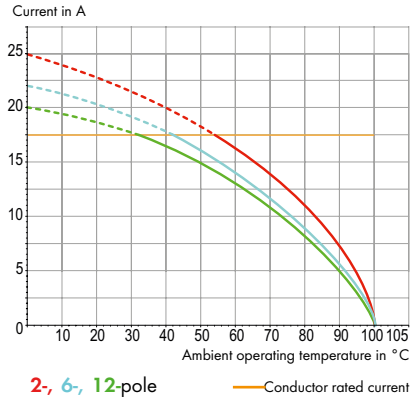
Material group	I
Insulation material	Polyphthalamide (PPA GF)
Flammability class per UL 94	V0
Lower/Upper limit temperature	–60 °C / +100 °C ***
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E_{Cu})
Contact plating	tin-plated

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

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

Derating Curve

2091-1172 eCOM pluggable female header,
Pin spacing: 3.5 mm / Conductor size: 1.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 74.

Accessories for *picoMAX*®:


KEMA Quality

CERTIFICATE

Number: 2134310.01

Issued to:
Applicant:

Wago-Kontakttechnik GmbH
Hansastrasse 27
32423, Minden/westfalen, Germany

Manufacturer/Licensee:
Wago-Kontakttechnik GmbH
Hansastrasse 27
32423, Minden/westfalen, Germany

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

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

KEMA Quality hereby declares that the above-mentioned product has been certified on the basis of:
– a type test according to the standard EN 61984:2009,
– an inspection of the production location according to CENELEC Operational Document CIG 021
– a certification agreement with the number 900220

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

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

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

KEMA Quality B.V.

drs. G.J. Zoetbrood
Managing Director

F.S. Strikwerda
Certification Manager

ACCREDITED BY THE DUTCH COUNCIL FOR ACCREDITATION

© Integral publication of this certificate is allowed

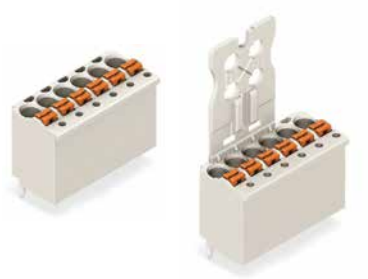
KEMA Quality B.V., Utrechtseweg 310, 6812 AR Arnhem P.O. Box 5185, 6802 ED Arnhem The Netherlands
T +31 26 3 56 20 00 F +31 26 3 52 58 00 www.kemaquality.com Registered Arnhem 09085396

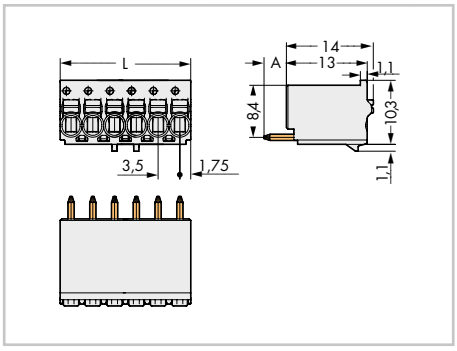
a DEKRA company

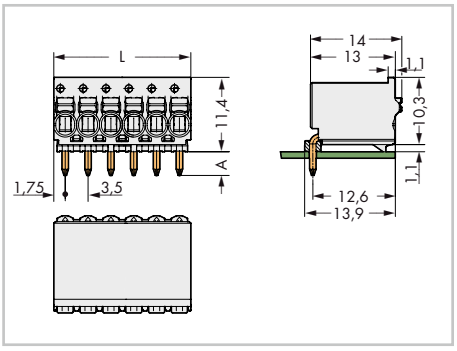
Approvals are available online at: www.wago.com *CSA approval pending ** For THR soldering, see page 69

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 mm² 160 V/2.5 kV/2 10 A	AWG 24 … 14 300 V/10 A	0.2 … 1.5 mm² 160 V/2.5 kV/2 10 A	AWG 24 … 14 300 V/10 A	







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

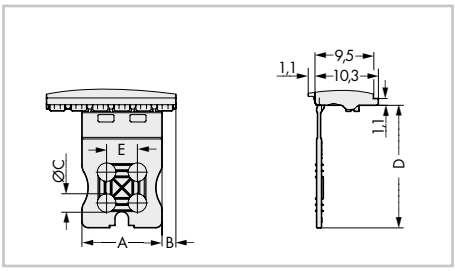
Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit
eCOM pluggable female header with straight solder pins, light gray					**eCOM pluggable female header with angled solder pins,** light gray				
	without Gripping plate		with Gripping plate			without Gripping plate		with Gripping plate	
2	**2091-1172**	200	**2091-1152**	100	2	**2091-1372**	200	**2091-1352**	100
3	**2091-1173**	200	**2091-1153**	100	3	**2091-1373**	200	**2091-1353**	100
4	**2091-1174**	200	**2091-1154**	100	4	**2091-1374**	200	**2091-1354**	100
5	**2091-1175**	200	**2091-1155**	50	5	**2091-1375**	200	**2091-1355**	50
6	**2091-1176**	100	**2091-1156**	50	6	**2091-1376**	100	**2091-1356**	50
8	**2091-1178**	100	**2091-1158**	50	8	**2091-1378**	100	**2091-1358**	50
10	**2091-1180**	100	**2091-1160**	50	10	**2091-1380**	100	**2091-1360**	50
12	**2091-1182**	100	**2091-1162**	50	12	**2091-1382**	100	**2091-1362**	50

Item no. suffix for colored THR version:

◯ light gray	**. . . . - . . . . /200-000**	**Ordering example:**
		eCOM THR pluggable female header with straight solder pins,
THR version only for female headers without gripping plate		3.5 mm pin spacing, 8-pole,
		light gray: **2091-1178/200-000**

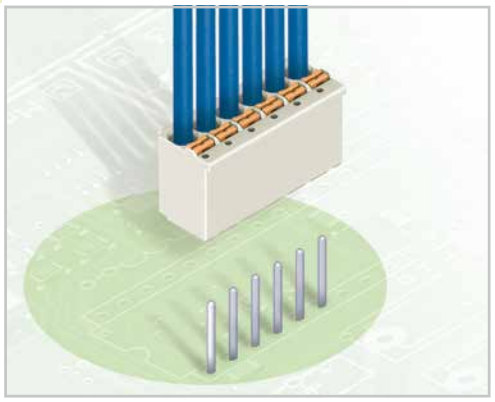
Gripping plate dimensions (in mm):

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			
Overvoltage category	III	III	II	
Pollution degree	3	2	2	
Rated voltage	250 V	320 V	630 V	
Rated surge voltage	4 kV	4 kV	4 kV	
Nominal current	16 A	16 A	16 A	
Approvals per	UL/CSA*			
Use group UL 1059	B	C	D	
Rated voltage	300 V	–	300 V	
Nominal current UL	15 A	–	10 A	
Nominal current CSA	–	–	–	

Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 … 2.5 mm²	
Conductor size: fine-stranded	0.2 … 2.5 mm²	
Conductor size: fine-stranded	0.25 … 1.5 mm²	(with insulated ferrule)
Conductor size: fine-stranded	0.25 … 2.5 mm²	(with uninsulated ferrule)
AWG	24 … 12	12: THHN, THWN
Strip length	9 … 10 mm / 0.35 … 0.39 in.	

Solder pin data for THT (wave soldering):

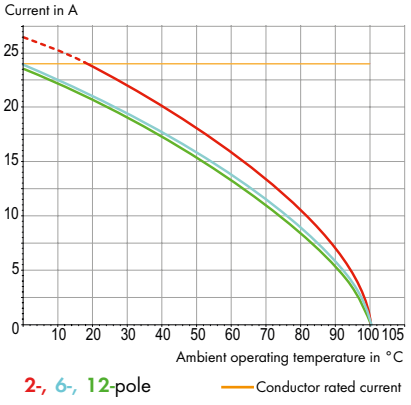
Solder pin: length/width	3.6 mm / 1.4 mm Ø
Solder pin: drilled hole diameter	$1.6^{+0.1\ mm}$

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

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

Derating Curve

2092-1172 eCOM pluggable female header,
Pin spacing: 5 mm / Conductor size: 2.5 mm² "f-st"
Based on: EN 60512-5-2 / Reduction factor: 0.8



For additional derating curves, see page 74.

Material data:

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

Accessories for *picoMAX*®:

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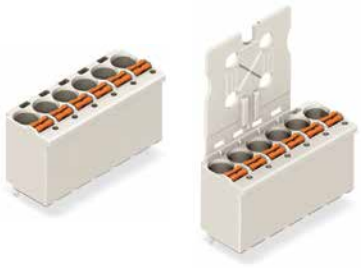
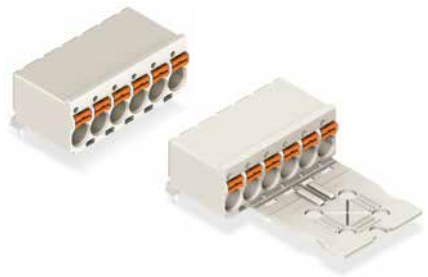
The ***picoMAX*® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984.
When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not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

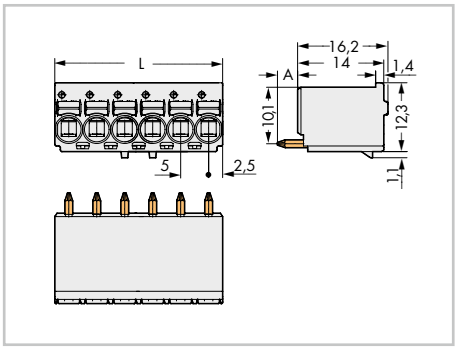
Approvals are available online at: www.wago.com *CSA approval pending ** For THR soldering, see page 69

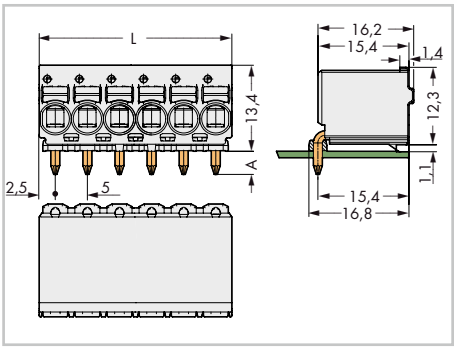
picoMAX® eCOM 5.0 – Standard Pluggable Female Headers for Direct Soldering to PCB

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 mm² 320 V/4 kV/2 16 A	AWG 24 ... 12 300 V/15 A	0.2 ... 2.5 mm² 320 V/4 kV/2 16 A	AWG 24 ... 12 300 V/15 A	









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

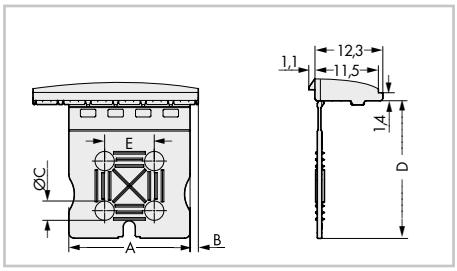
Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit
eCOM pluggable female header with straight solder pins, light gray					**eCOM pluggable female header with angled solder pins,** light gray				
	without Gripping plate		with Gripping plate			without Gripping plate		with Gripping plate	
2	**2092-1172**	200	**2092-1152**	100	2	**2092-1372**	200	**2092-1352**	100
3	**2092-1173**	200	**2092-1153**	100	3	**2092-1373**	200	**2092-1353**	100
4	**2092-1174**	200	**2092-1154**	100	4	**2092-1374**	200	**2092-1354**	100
5	**2092-1175**	200	**2092-1155**	50	5	**2092-1375**	200	**2092-1355**	50
6	**2092-1176**	100	**2092-1156**	50	6	**2092-1376**	100	**2092-1356**	50
8	**2092-1178**	100	**2092-1158**	50	8	**2092-1378**	100	**2092-1358**	50
10	**2092-1180**	100	**2092-1160**	50	10	**2092-1380**	100	**2092-1360**	50
12	**2092-1182**	100	**2092-1162**	50	12	**2092-1382**	100	**2092-1362**	50

Item no. suffix for colored THR version:

◯ light gray ....-..../200-000	**Ordering example:**
	eCOM THR pluggable female header with straight solder pins,
THR version only for female headers without gripping plate	5 mm pin spacing, 8-pole,
	light gray: **2092-1178/200-000**

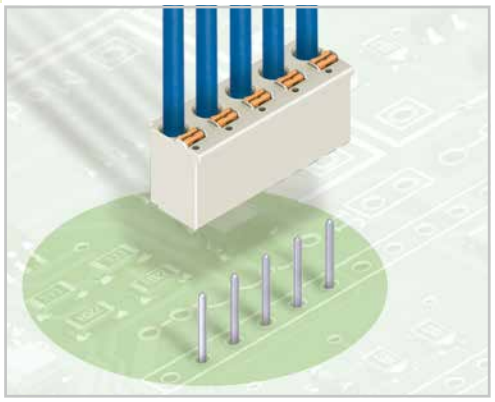
Gripping plate dimensions (in mm):

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



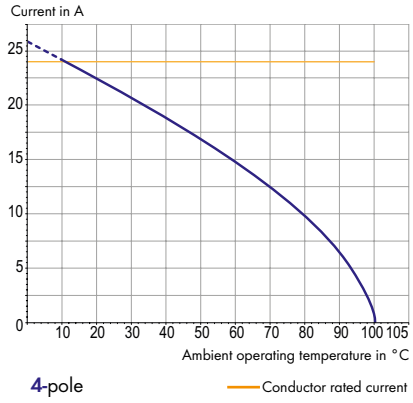
- Universal connection for all conductor types
- Simple, push-in termination of solid and ferruled conductors
- Easy-to-use design does not require specialty tools
- Ability to wire while mated or unmated
- Integrated test ports for testing parallel to conductor entry
- Factory-installed, straight or 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		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	400 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Nominal current	16 A	16 A	16 A
Approvals per	UL/CSA*		
Use group UL 1059	B	C	D
Rated voltage	300 V	–	300 V
Nominal current UL	15 A	–	10 A
Nominal current CSA	–	–	–

Derating Curve

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



For additional derating curves, see page 74.

Conductor data:

Connection technology	Push-in CAGE CLAMP®	
Conductor size: solid	0.2 … 2.5 mm²	
Conductor size: fine-stranded	0.2 … 2.5 mm²	
Conductor size: fine-stranded	0.25 … 1.5 mm²	(with insulated ferrule)
Conductor size: fine-stranded	0.25 … 2.5 mm²	(with uninsulated ferrule)
AWG	24 … 12	12: THHN, THWN
Strip length	9 … 10 mm / 0.35 … 0.39 in.	

Solder pin data for THT (wave soldering):

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

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

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

Material data:

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

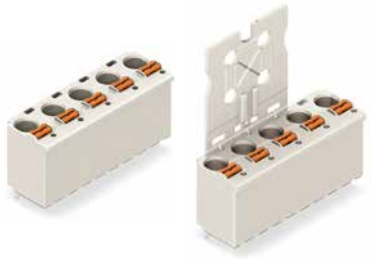
Accessories for *picoMAX*®:

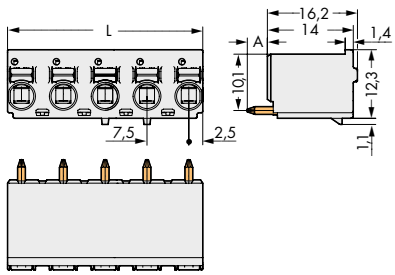
	Page:
Operating tools	64
Test pin	64
Gripping plates	65
Direct printing	68

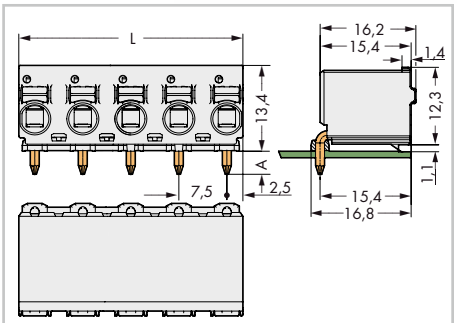
The ***picoMAX*® pluggable connection system** includes connectors without breaking capacity in accordance with DIN EN 61984.
When used as intended, these connectors shall not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not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

picoMAX® eCOM 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 mm² 630 V/6 kV/2 16 A	AWG 24 ... 12 300 V/15 A	0.2 ... 2.5 mm² 630 V/6 kV/2 16 A	AWG 24 ... 12 300 V/15 A	







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

Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit
eCOM pluggable female header with straight solder pins, light gray				
	without Gripping plate		with Gripping plate	
2	**2092-3172**	100	**2092-3152**	100
3	**2092-3173**	100	**2092-3153**	100
4	**2092-3174**	100	**2092-3154**	100
5	**2092-3175**	100	**2092-3155**	100

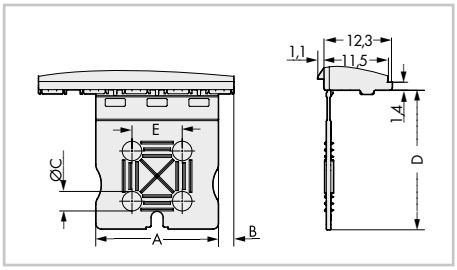
Pole No.	Item No.	Pack. Unit	Item No.	Pack. Unit
eCOM pluggable female header with angled solder pins, light gray				
	without Gripping plate		with Gripping plate	
2	**2092-3372**	100	**2092-3352**	100
3	**2092-3373**	100	**2092-3353**	100
4	**2092-3374**	100	**2092-3354**	100
5	**2092-3375**	100	**2092-3355**	100

Item no. suffix for colored THR version:

◯ light gray	....-..../200-000	**Ordering example:**
		eCOM THR pluggable female header with straight solder pins,
THR version only for female headers without gripping plate		7.5 mm pin spacing, 5-pole,
		light gray: **2092-3175/200-000**

Gripping plate dimensions (in mm):

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



For other lengths, please contact factory.

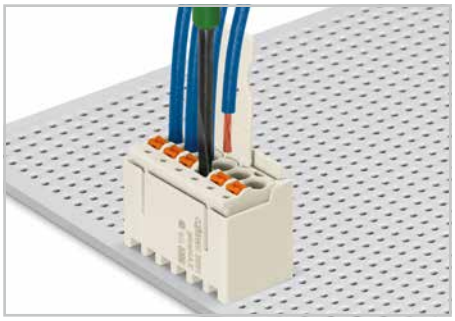
Accessories for *picoMAX*®

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

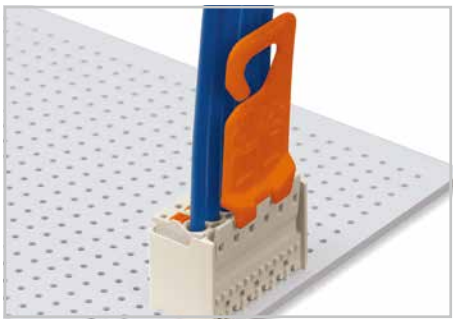
Item No.	Pack. Unit
Operating tool, with partially insulated shaft, type 1, (2.5 x 0.4) mm blade	
210-719	1

Item No.	Pack. Unit
Unlocking tool, orange	
2092-1630	100 (4 x 25)

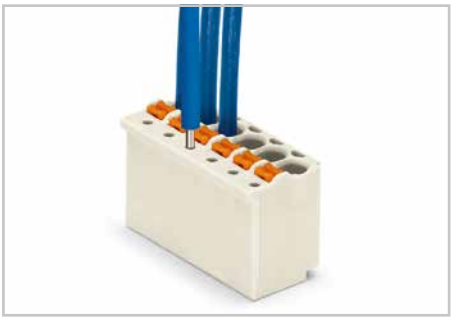
Item No.	Pack. Unit
Test pin, 1 mm Ø, with solder connection for test cable	
735-500	1



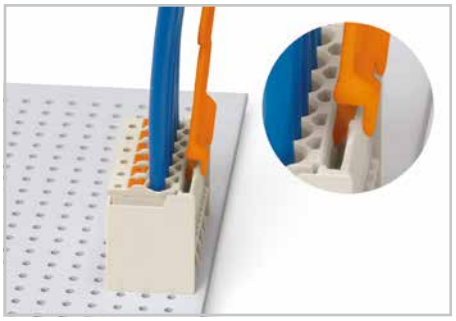
Inserting/removing conductor.



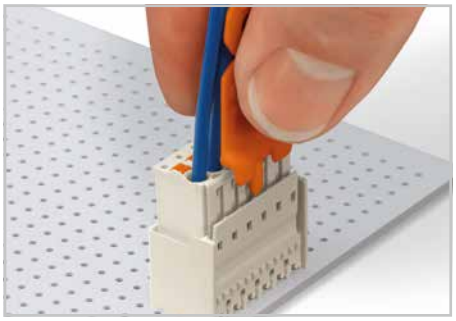
Disconnecting female connector via unlocking tool. Plug unlocking tool into the male header's locking latch.



Testing with 1 mm Ø test pin, tip contact.



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

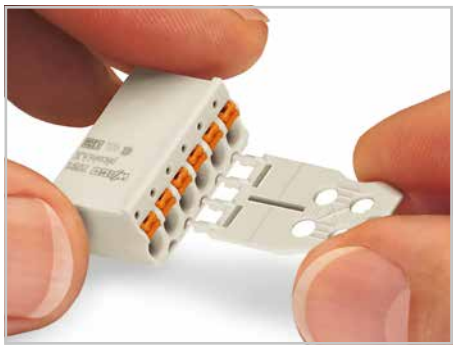


Pull on both unlocking tool and conductors to remove female connector from male header.

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

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

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

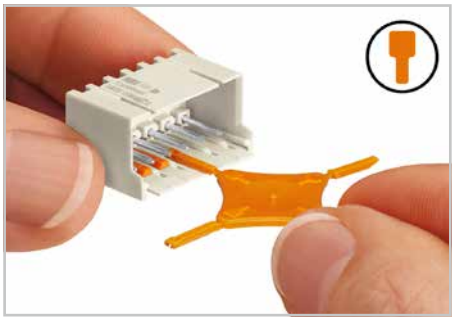


Gripping plates are suitable for factory and in-the-field assembly.

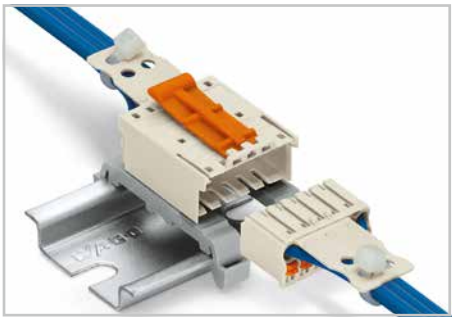
Accessories for *picoMAX*®

Coding key carrier	Mounting adapter for DIN 35 rail	
with 2 coding keys for each male header and female connector	for male connectors with snap-in mounting feet	

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



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



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

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

Ferrules

Insulated ferrules	Uninsulated ferrules	"Variocrimp 4" crimping tool
Electrolytic copper, electro tin-plated, acc. to DIN 46288, part 4/09.09	Electrolytic copper, electro tin-plated, acc. to DIN 46288, part 1/08.92	0.25 – 4 mm² / AWG 22 – 12

Item No.	Pack. Unit
Insulated ferrule for **0.25 mm²**/AWG 24, 9.5 mm strip length, L: 12 mm, **L_1: 8 mm**, D: 2.3 mm, D_1: 1.8 mm, D_2: 0.85 mm	
yellow **216-301**	1000
Insulated ferrule for **0.34 mm²**/AWG 24, 9.5 mm strip length, L: 12 mm, **L_1: 8 mm**, D: 2.5 mm, D_1: 2 mm, D_2: 0.85 mm	
green **216-302**	1000
Insulated ferrule for **0.5 mm²**/AWG 22, 9.5 mm strip length, L: 14 mm, **L_1: 8 mm**, D: 3.1 mm, D_1: 2.6 mm, D_2: 1 mm	
white **216-201**	1000
Insulated ferrule for 0.75 mm²/AWG 20, 10 mm strip length, L: 14 mm, L_1: 8 mm, D: 3.3 mm, D_1: 2.8 mm, D_2: 1.2 mm	
gray **216-202**	1000
Insulated ferrule for **1 mm²**/AWG 18, 10 mm strip length, L: 14 mm, **L_1: 8 mm**, D: 3.5 mm, D_1: 3 mm, D_2: 1.4 mm	
red **216-203**	1000
Insulated ferrule for **1.5 mm²**/AWG 16, 10 mm strip length, L: 14 mm, **L_1: 8 mm**, D: 4 mm, D_1: 3.5 mm, D_2: 1.7 mm	
black **216-204**	1000

Item No.	Pack. Unit
Uninsulated ferrule **0.25 mm²** / AWG 24 * 7.5 mm strip length, **L: 7 mm**, D: 1.7 mm, D_2: 0.75 mm	
216-131	1000
Uninsulated ferrule for **0.34 mm²** / AWG 24 * 7.5 mm strip length, **L: 7 mm**, D: 1.8 mm, D_2: 0.85 mm	
216-132	1000
Uninsulated ferrule for **0.5 mm²** / AWG 22 * 8 mm strip length, **L: 8 mm**, D: 2.1 mm, D_2: 1 mm	
216-101	1000
10 mm strip length, **L: 10 mm**, D: 2.1 mm, D_2: 1 mm	
216-141	1000
Uninsulated ferrule for **0.75 mm²** / AWG 20 8 mm strip length, **L: 8 mm**, D: 2.3 mm, D_2: 1.2 mm	
216-102	1000
10 mm strip length, **L: 10 mm**, D: 2.3 mm, D_2: 1.2 mm	
216-122	1000
Uninsulated ferrule for **1 mm²**/AWG 18 8 mm strip length **L: 8 mm**, D: 2.5 mm, D_2: 1.4 mm	
216-103	1000
10 mm strip length, **L: 10 mm**, D: 2.5 mm, D_2: 1.4 mm	
216-143	1000
Uninsulated ferrule for **1.5 mm²**/AWG 16 8 mm strip length, **L: 8 mm**, D: 2.8 mm, D_2: 1.7 mm	
216-104	1000
10 mm strip length, **L: 10 mm**, D: 2.8 mm, D_2: 1.7 mm	
216-144	1000
Uninsulated ferrule for **2.5 mm²**/AWG 14 10 mm strip length, **L: 10 mm**, D: 3.4 mm, D_2: 2.2 mm	
216-106	1000

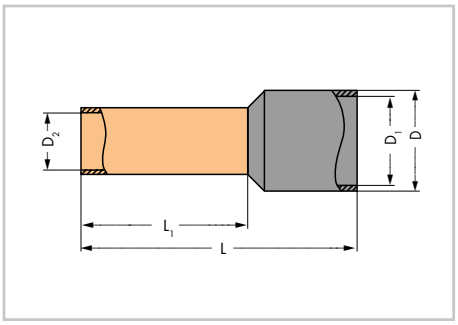
Item No.	Pack. Unit
"Variocrimp 4" crimping tool, for insulated and uninsulated ferrules, crimping range of 0.25 – 4 mm²	
206-204	1

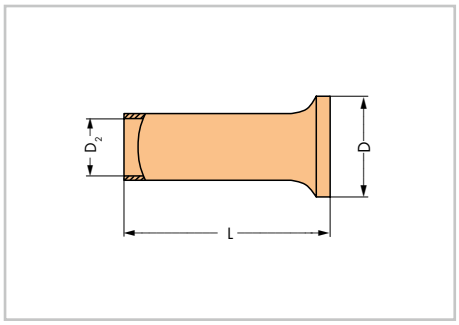
Application notes:

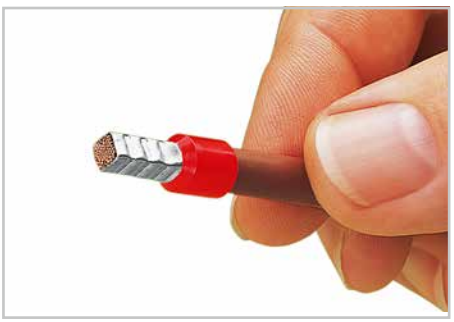
- The built-in crimping pressure control automatically adjusts force to the conductor cross section used
- A single crimping station for all conductor sizes
- Uniform, compact crimping on all four sides for high conductor retention
- No need to center the conductor into the ferrule
- Conductor and ferrule insertion possible from both sides (for left- and right-handers)
- Built-in ratchet mechanism ensures gastight crimp connection
- Crimping tools open automatically after crimping operation is complete
- Ergonomically designed handles.

* Termination via push-button actuation

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

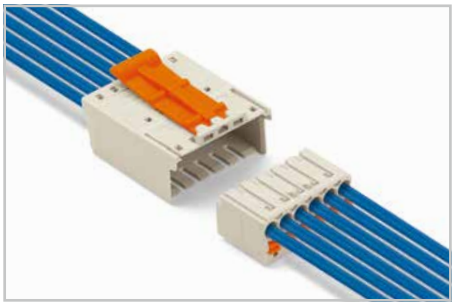
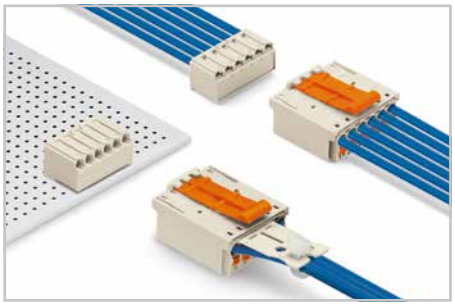






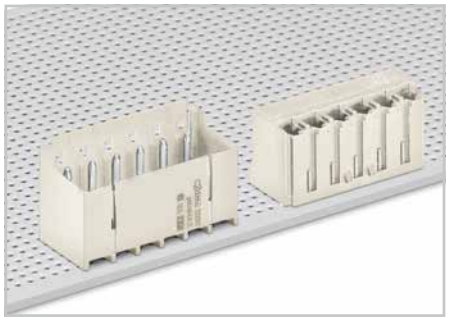
A perfect gastight crimp, both electrically and mechanically reliable.

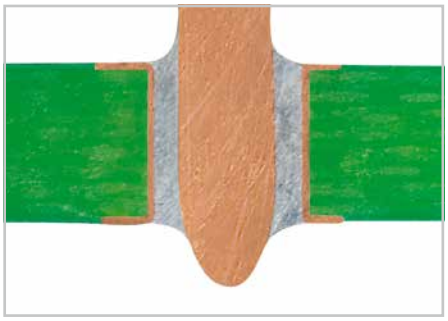
Accessories for *picoMAX*®
Printing for 2091 and 2092 Series

Direct printing on standard female connectors **"Wire-to-board"** 1 – Pole number	Direct printing on standard female connectors **"Wire-to-wire"** 1 – Pole number	Direct printing on standard male connectors **"Wire-to-board" and "wire-to-wire"** 1 – Pole number
		
		
Printing Parallel to Conductor Entry **Item No. Suffix: /. . . - 1000**	**Printing Parallel to Conductor Entry** **Item No. Suffix: /. . . - 3000**	**Printing Parallel to Conductor Entry** **Item No. Suffix: /. . . - 3000**
Ordering examples:	**Ordering examples:**	**Ordering examples:**
Female connector, 3.5 mm pin spacing, 6-pole, light gray **2091-1126/0000-1000**	**Female connector,** 3.5 mm pin spacing, 6-pole, light gray **2091-1126/0000-3000**	**Male connector,** 3.5 mm pin spacing, 6-pole, light gray **2091-1526/0002-3000**
Female connector with gripping plate, 3.5 mm pin spacing, 6-pole, light gray **2091-1106/0000-1000**	**Female connector with gripping plate,** 3.5 mm pin spacing, 6-pole, light gray **2091-1106/0000-3000**	**Male connector with gripping plate,** 3.5 mm pin spacing, 6-pole, light gray **2091-1506/0002-3000**
Female connector with gripping plate and sliding connector release, 3.5 mm pin spacing, 6-pole, light gray **2091-1106/0002-1000**	**Female connector with gripping plate and sliding connector release,** 3.5 mm pin spacing, 6-pole, light gray **2091-1106/0002-3000**	

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

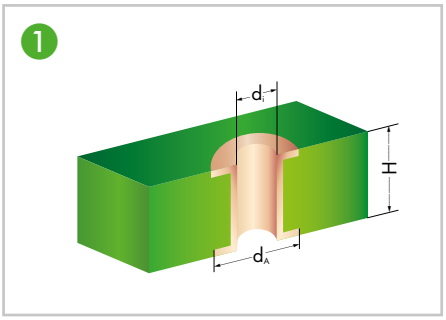
THR (Through-Hole Reflow) Soldering Process



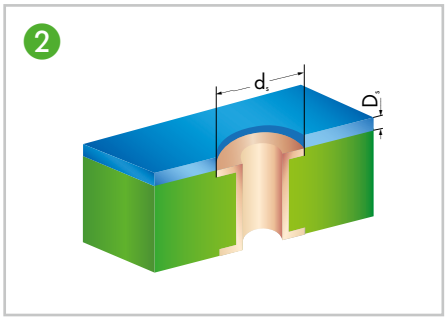


By using high-temperature-resistant plastic and a streamlined pin design, the WAGO **T**hrough-**H**ole **R**eflow headers and PCB terminal blocks meet requirements for SMT process capability while maintaining the necessary stability.
Male headers and THR PCB terminal blocks are simply pushed into the 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.

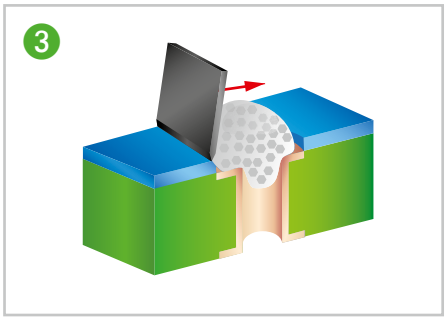
picoMAX® THR male headers in tape-and-reel packaging acc. to IEC 60286-3 are available upon request.



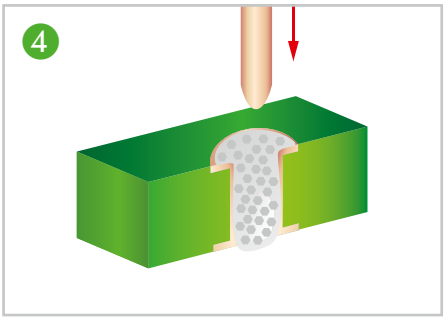
Metal-plated PCB bore hole



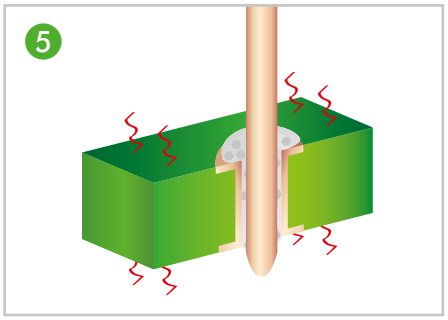
SMD positioning pattern



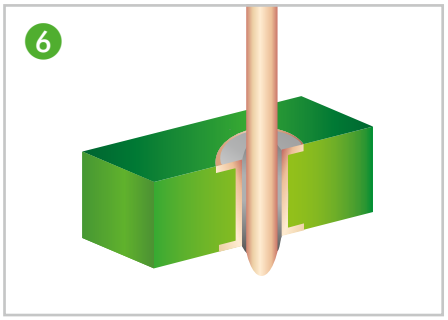
Application of solder paste



Component assembly, automatic/by hand

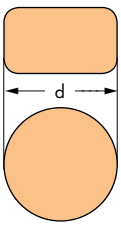


Reflow soldering process



THR soldering joint

Series	d_i(mm)	d_A(mm)	H(mm)	d_s(mm)	D_s(µm)	d(mm)	L(mm)
2091	$1.2^{+0.1}$	1.9	< 2	1.8	150	1.0 Ø	2.4
2091	$1.2^{+0.1}$	1.9	< 2	1.8	150	0.4 x 0.5	2.4
2092	$1.6^{+0.1}$	2.3	< 2	2.2	150	1.4 Ø	2.4
2092	$1.5^{+0.1}$	2.2	< 2	2.1	150	0.4 x 1.3	2.4



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

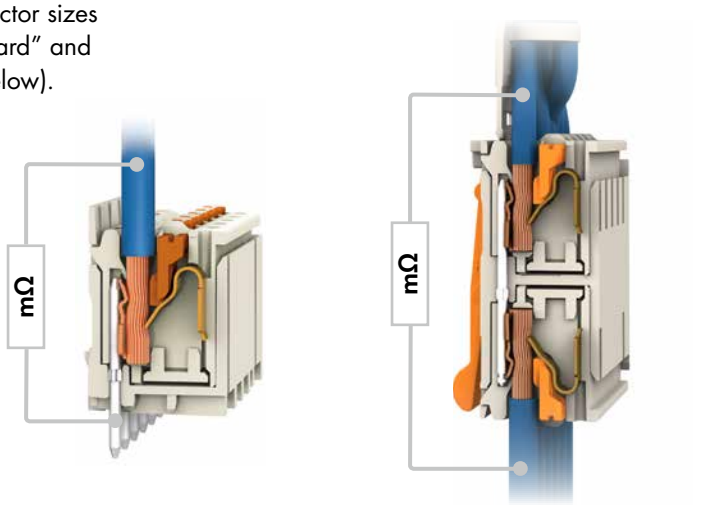
* When laying out the metal-plated bore holes, the clearance and creepage distance requirements – as specified in the equipment standards – must be considered.

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

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

• Contact Resistance

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



Conductor Size in mm²		"Wire-to-Board"		"Wire-to-Wire"	
		2091 Series	**2092 Series**	**2091 Series**	**2092 Series**
0.25	fine-stranded	1.43 mΩ	1.83 mΩ	2.58 mΩ	5.71 mΩ
0.5	fine-stranded	1.09 mΩ	1.15 mΩ	1.64 mΩ	2.28 mΩ
1.0	fine-stranded	0.99 mΩ	0.91 mΩ	1.43 mΩ	1.41 mΩ
1.5	fine-stranded	0.72 mΩ	0.71 mΩ	1.02 mΩ	1.20 mΩ
2.5	fine-stranded	–	0.60 mΩ	–	1.09 mΩ
0.25	fine-stranded, with ferrule	0.79 mΩ	0.78 mΩ	1.44 mΩ	1.40 mΩ
0.5	fine-stranded, with ferrule	0.69 mΩ	0.58 mΩ	1.10 mΩ	1.06 mΩ
1.0	fine-stranded, with ferrule	0.52 mΩ	0.46 mΩ	0.83 mΩ	0.82 mΩ
1.5	fine-stranded, with ferrule	0.51 mΩ	0.38 mΩ	0.82 mΩ	0.69 mΩ
2.5	fine-stranded, with ferrule	–	0.38 mΩ	–	0.61 mΩ

• Connecting Ferrules for 2091 and 2092 Series

Conductor Size "fine-stranded"	Ferrule Item No.		Insulated ferrules
	for 2091 Series	for 2092 Series	
0.25 mm²	216-301	216-301	
0.34 mm²	216-302	216-302	
0.5 mm²	216-201	216-201	
0.75 mm²	216-202	216-202	
1.0 mm²	–	216-203	
1.5 mm²	–	216-204	For ferrules, see page 67.

Conductor Size "fine-stranded"	Ferrule Item No.		Uninsulated ferrules
	for 2091 Series	for 2092 Series	
0.25 mm² *	216-131	216-131	
0.34 mm² *	216-132	216-132	
0.5 mm² *	216-101	216-101 216-141	
0.75 mm²	216-102	216-102 216-142	
1.0 mm²	216-103	216-103 216-143	
1.5 mm²	216-104	216-104 216-144	
2.5 mm²	–	216-106	For ferrules, see page 67.

* Termination via push-button actuation

Push-In Termination

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

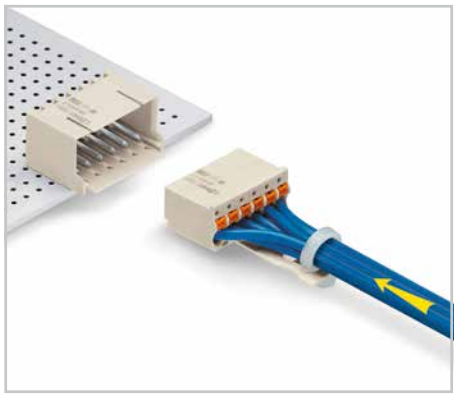
Fine-stranded conductors with uninsulated ferrules and cross-sections larger than 0.5 mm²/AWG 22 can be connected via push-in termination. Conductors of smaller cross-sections are terminated by first depressing the push-button to open the clamping unit.

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

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

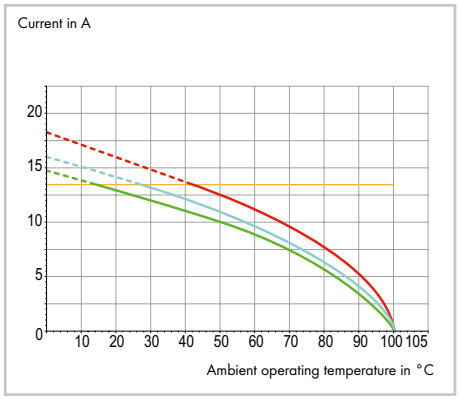
picoMAX®, 2091 Series, 3.5 mm pin spacing

"Wire-to-board" connection



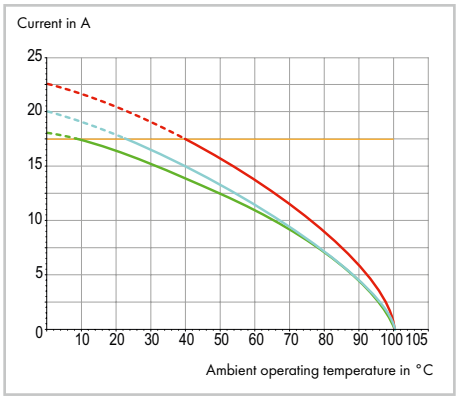
Example: Standard female connector and male header

1.0 mm² test conductor, fine-stranded

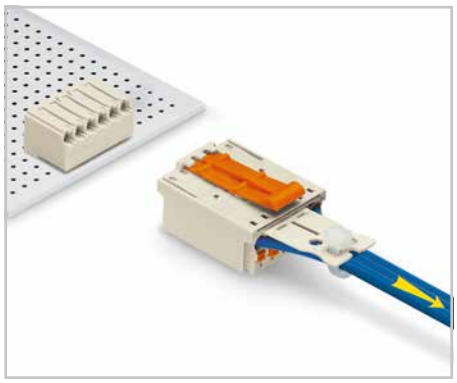


2-, 6-, 12-pole — Conductor rated current

1.5 mm² test conductor, fine-stranded

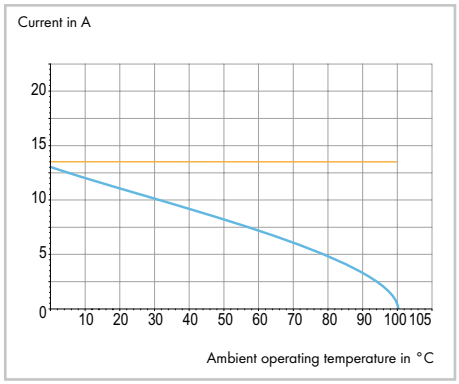


"Board-to-wire" connection



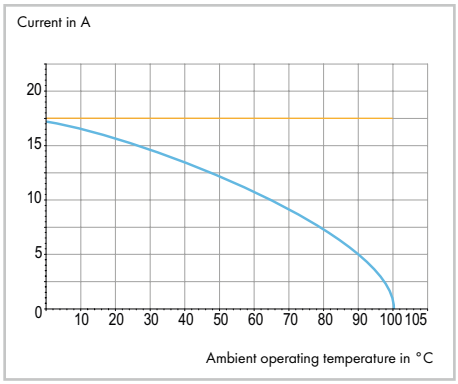
Example: Female header and standard male connector

1.0 mm² test conductor, fine-stranded

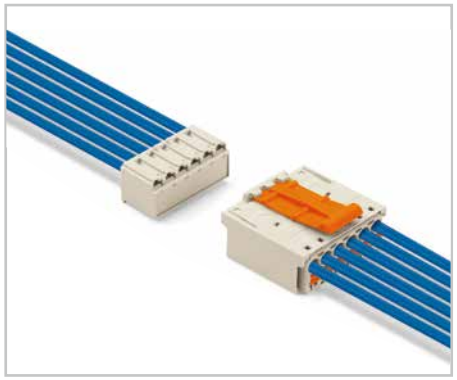


6-pole — Conductor rated current

1.5 mm² test conductor, fine-stranded

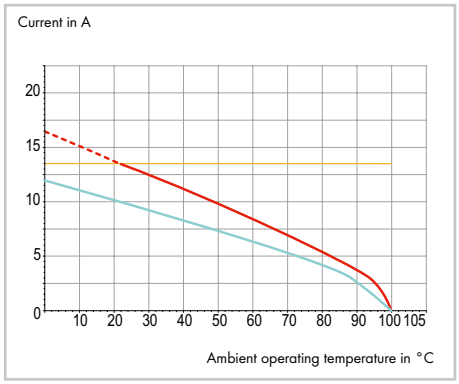


"Wire-to-wire" connection



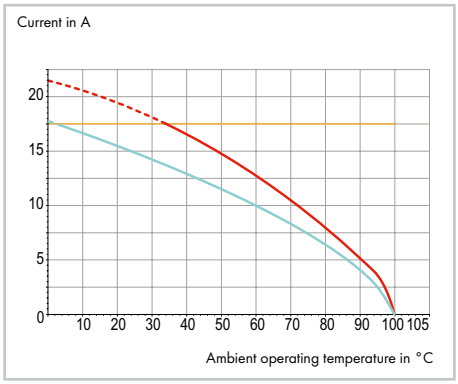
Example: Standard female and male connector

1.0 mm² test conductor, fine-stranded



2-, 6-pole — Conductor rated current

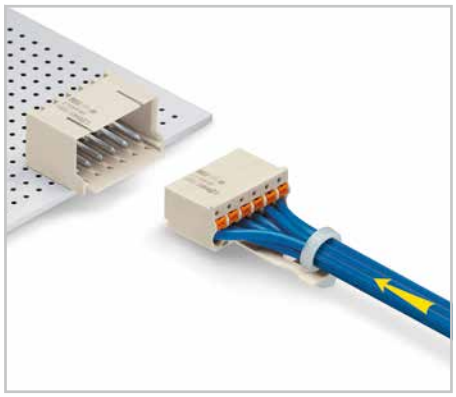
1.5 mm² test conductor, fine-stranded



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

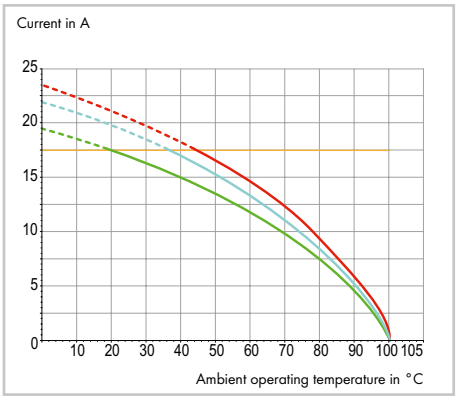
picoMAX®, 2092 Series, 5.0 mm pin spacing

"Wire-to-board" connection



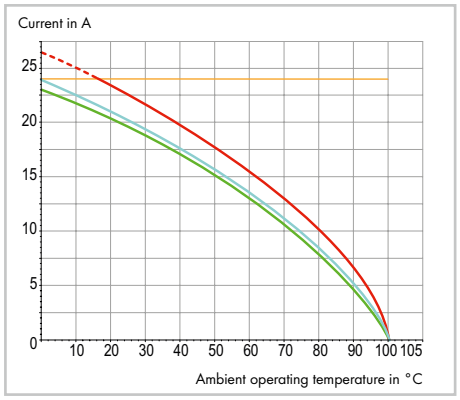
Example: Standard female connector and male header

1.5 mm² test conductor, fine-stranded



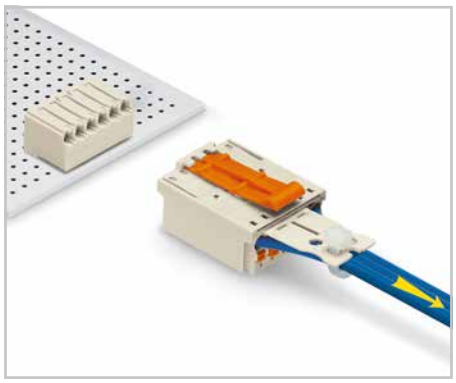
2-, 6-, 12-pole — Conductor rated current

2.5 mm² test conductor, fine-stranded



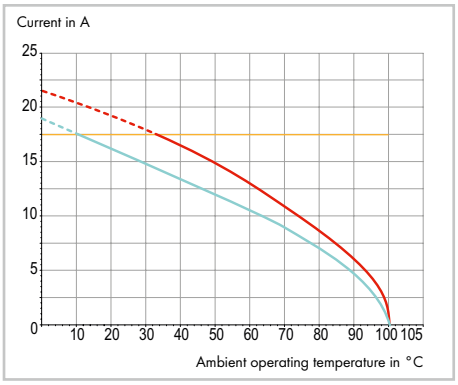
2-, 6-, 12-pole — Conductor rated current

"Board-to-wire" connection



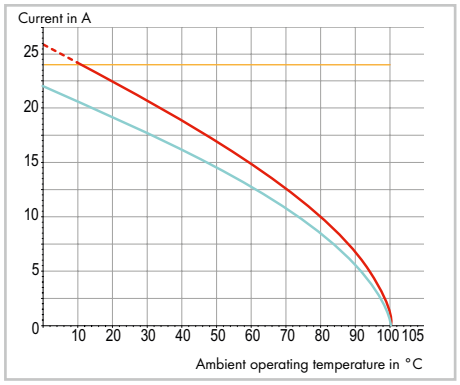
Example: Female header and standard male connector

1.5 mm² test conductor, fine-stranded



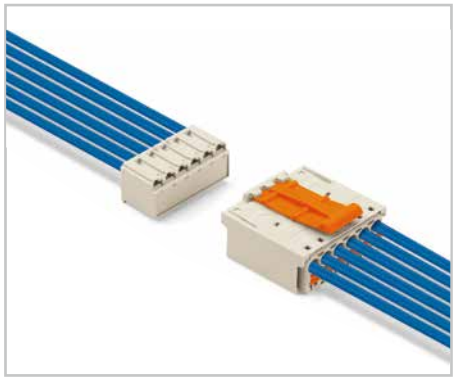
2-, 6-pole — Conductor rated current

2.5 mm² test conductor, fine-stranded



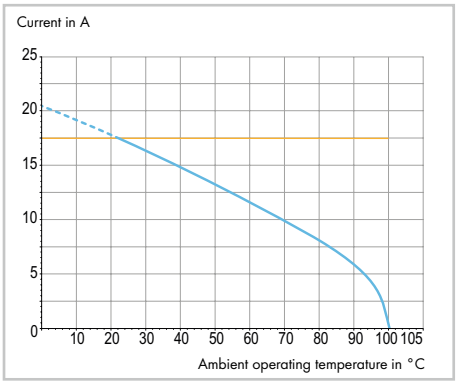
2-, 6-pole — Conductor rated current

"Wire-to-wire" connection



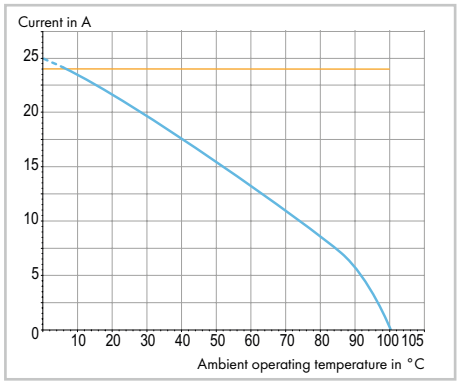
Example: Standard female and male connector

1.5 mm² test conductor, fine-stranded



6-pole — Conductor rated current

2.5 mm² test conductor, fine-stranded

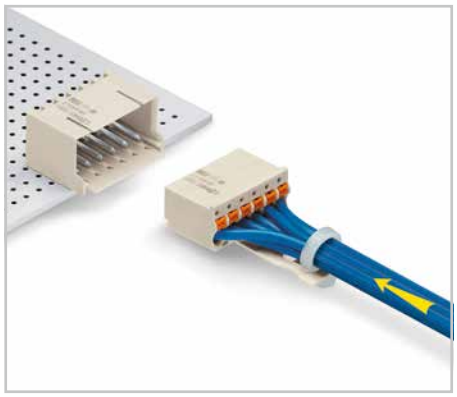


6-pole — Conductor rated current

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

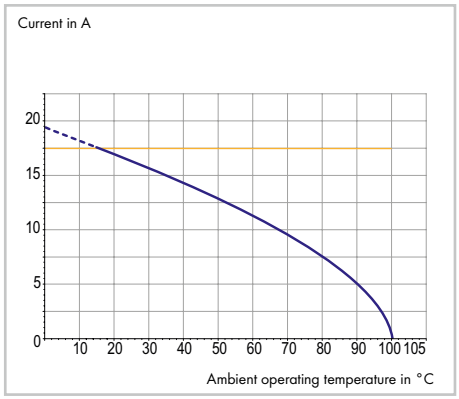
picoMAX®, 2092 Series, 7.5 mm pin spacing

"Wire-to-board" connection



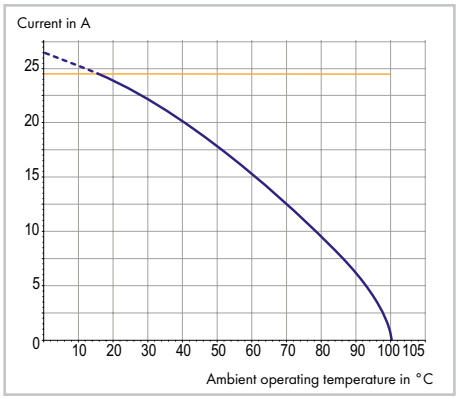
Example: Standard female connector and male header

1.5 mm² test conductor, fine-stranded



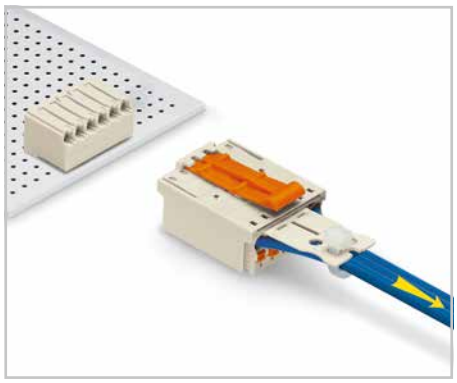
4-pole — Conductor rated current

2.5 mm² test conductor, fine-stranded



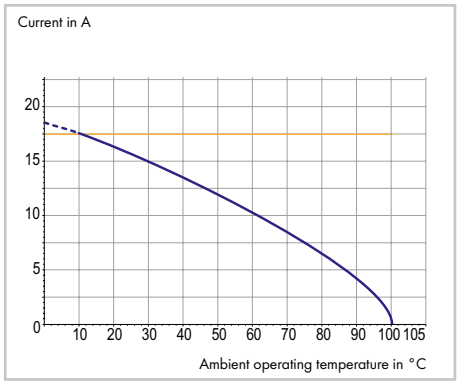
4-pole — Conductor rated current

"Board-to-wire" connection



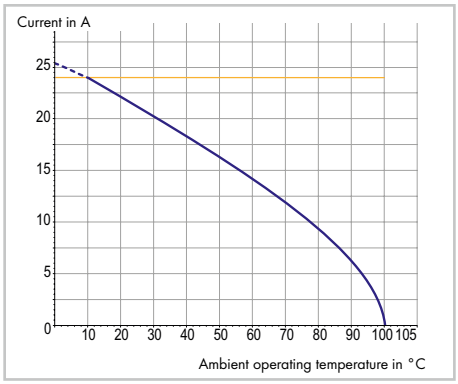
Example: Female header and standard male connector

1.5 mm² test conductor, fine-stranded



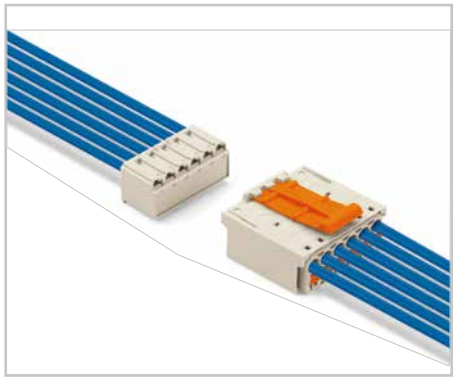
4-pole — Conductor rated current

2.5 mm² test conductor, fine-stranded



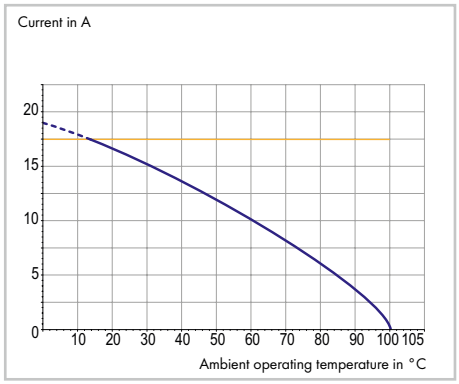
4-pole — Conductor rated current

"Wire-to-wire" connection



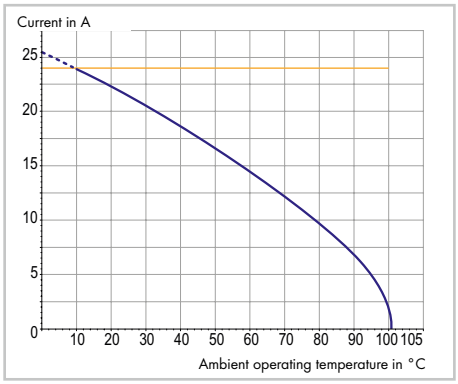
Example: Standard female and male connector

1.5 mm² test conductor, fine-stranded



4-pole — Conductor rated current

2.5 mm² test conductor, fine-stranded



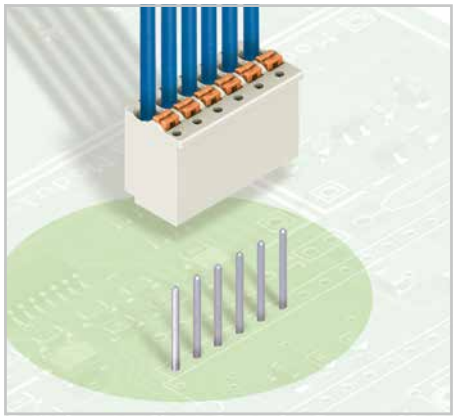
4-pole — Conductor rated current

Technical Section

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

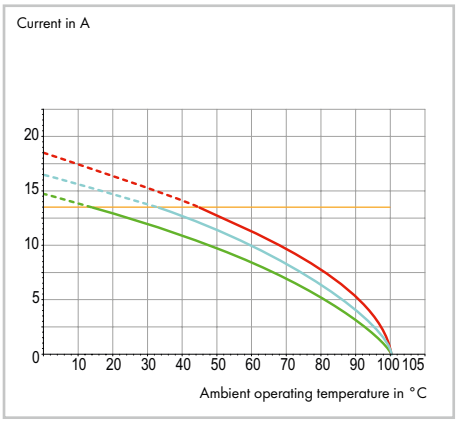
picoMAX® *eCOM*, 2091 Series, 3.5 mm pin spacing

"Wire-to-board" connection



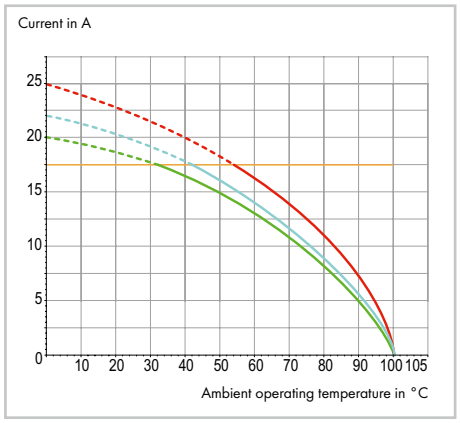
Example: 2091-1176 pluggable PCB connector

1.0 mm² test conductor, fine-stranded



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

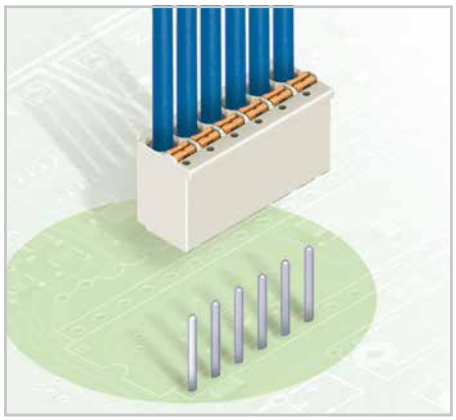
1.5 mm² test conductor, fine-stranded



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

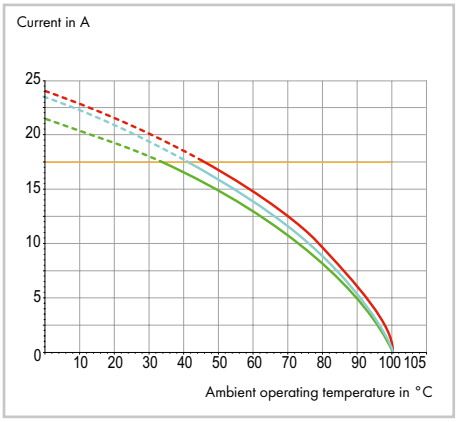
picoMAX® *eCOM*, 2092 Series, 5.0 mm pin spacing

"Wire-to-board" connection



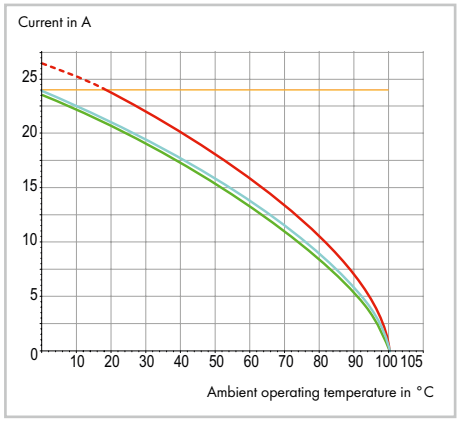
Example: 2092-1176 pluggable PCB connector

1.5 mm² test conductor, fine-stranded



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

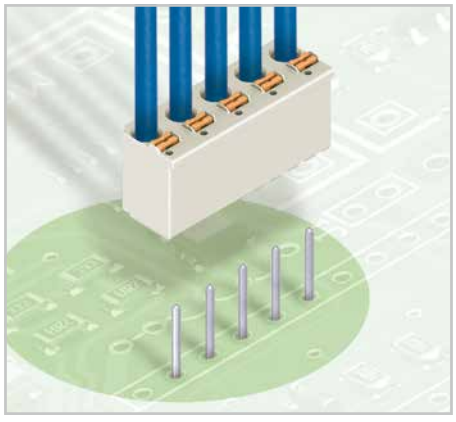
2.5 mm² test conductor, fine-stranded



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

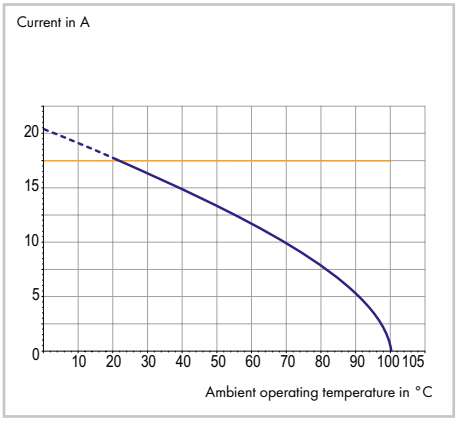
picoMAX® *eCOM*, 2092 Series, 7.5 mm pin spacing

"Wire-to-board" connection



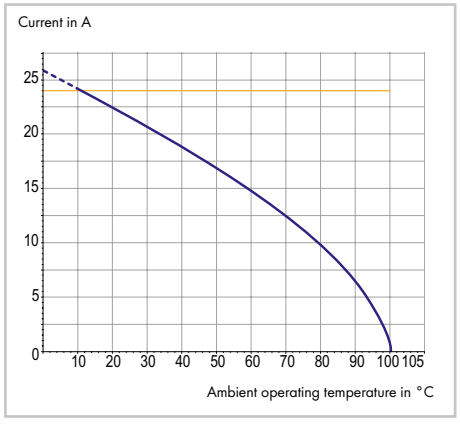
Example: 2092-3175 pluggable PCB connector

1.5 mm² test conductor, fine-stranded



4-pole — Conductor rated current

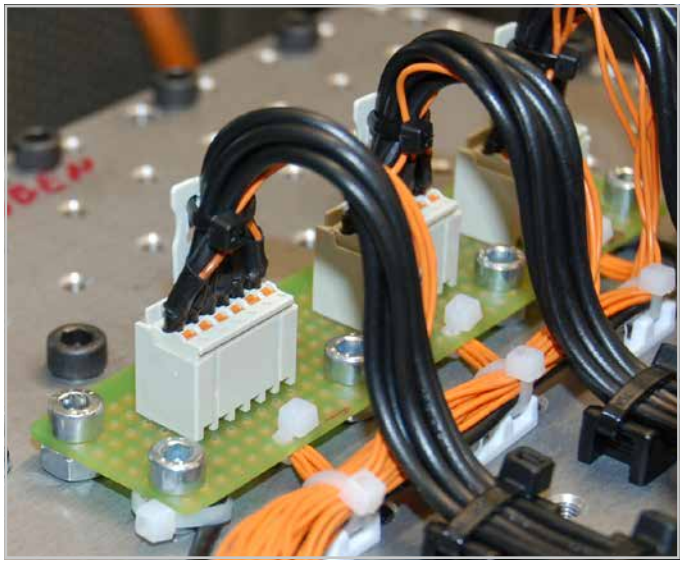
2.5 mm² test conductor, fine-stranded



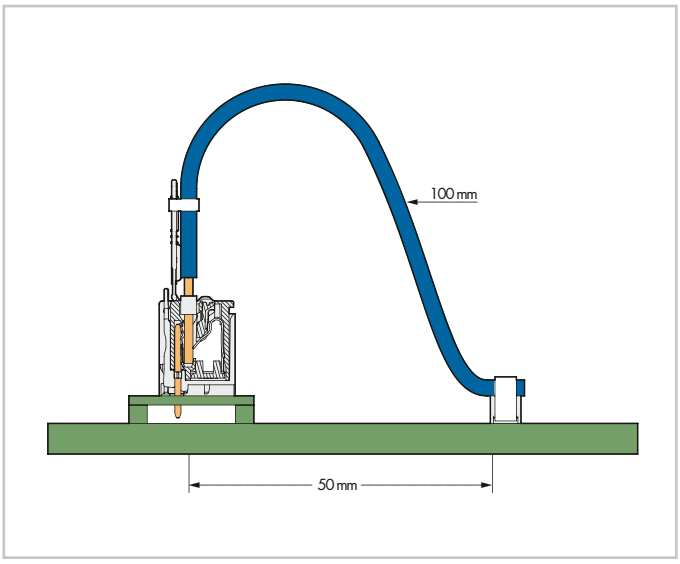
4-pole — Conductor rated current

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

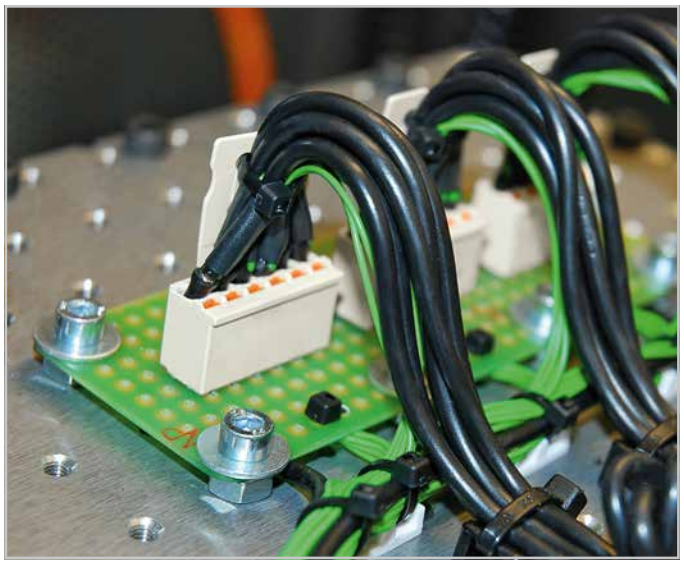
This vibration test (EN 60068-2-6) was performed on the following wire-to-board connections: 2091 Series (3.5 mm pin spacing, 6-pole) and 2092 Series (5 mm pin spacing, 6-pole and 7.5 mm pin spacing, 4-pole) *picoMAX®* male headers with straight solder pins and standard female connectors, as well as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



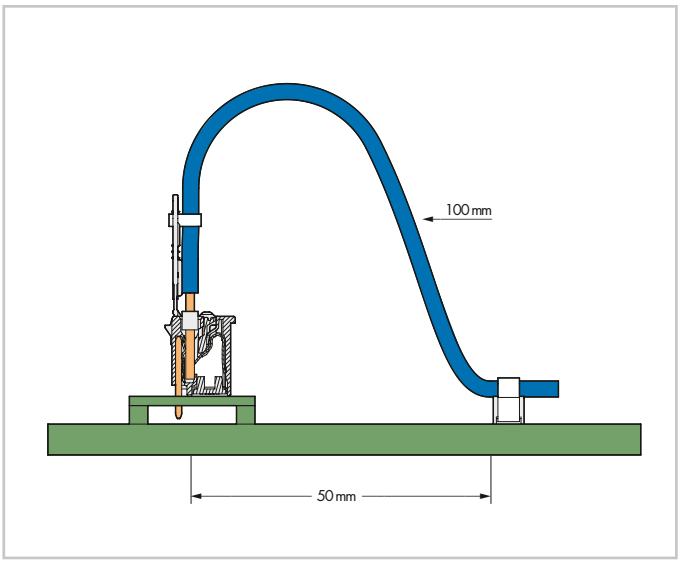
Vibration test performed on a *picoMAX®* wire-to-board connection (2091 Series)



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



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

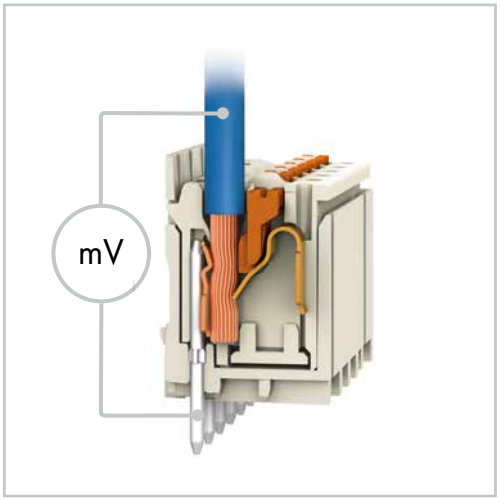


picoMAX® eCOM standard pluggable female header with straight solder pins for direct soldering to PCB

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

• Mating Cycle Test

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



Voltage drop measurement after mating cycle test

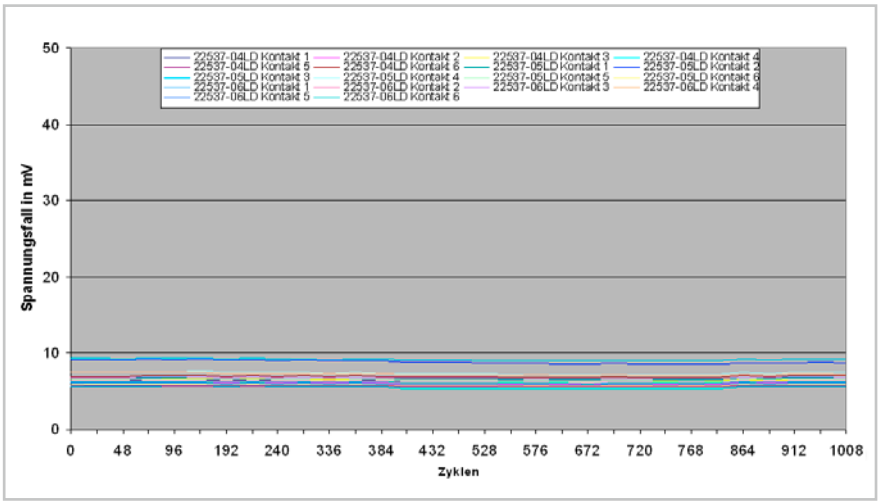
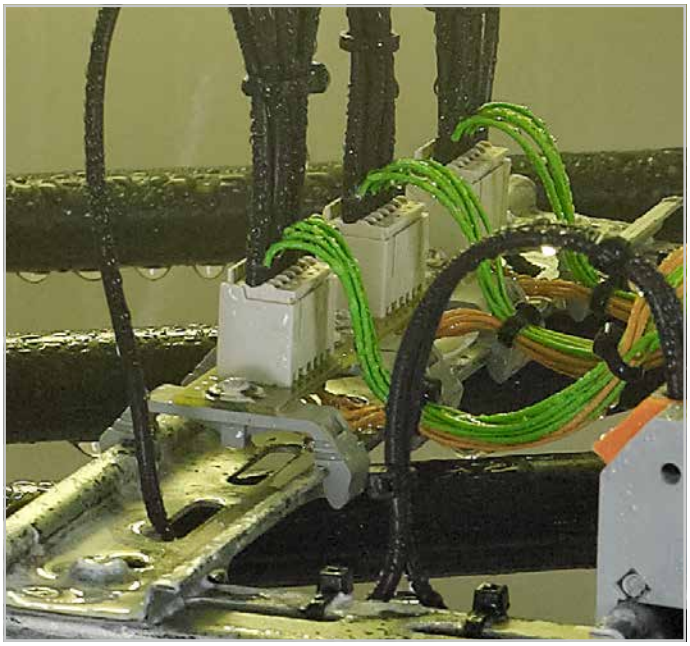


Diagram: "Current load cycle with voltage drop progression over 1000 cycles"

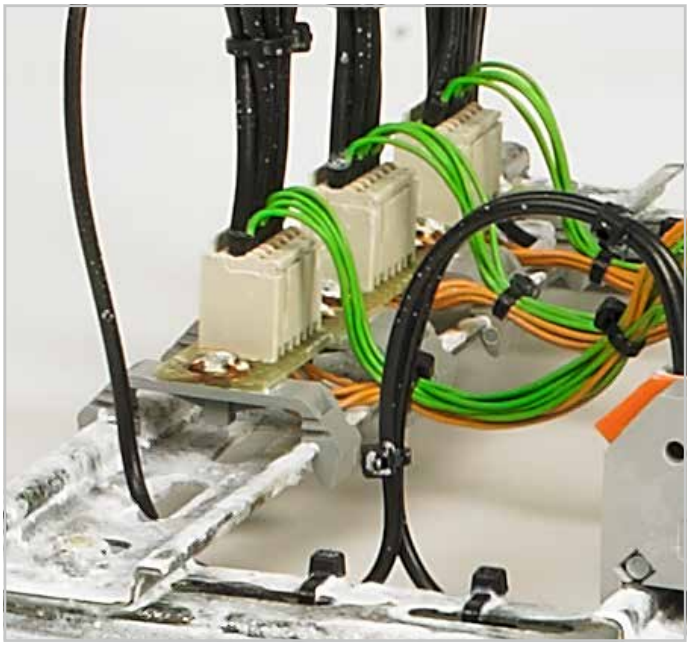
According to the cascading service life test, *picoMAX*® is suitable for up to 25 mating cycles.

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

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



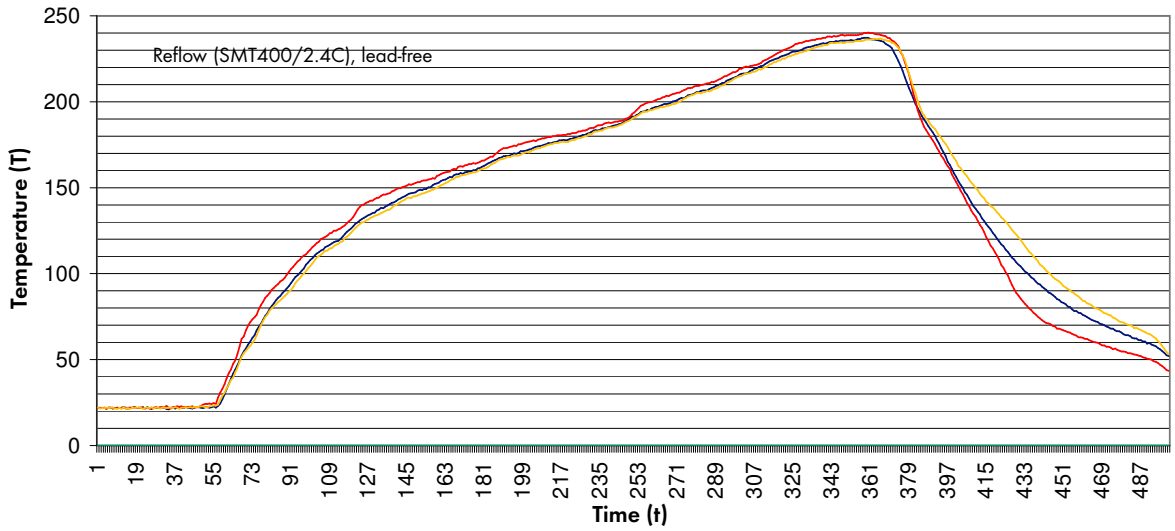
Salt spray chamber with *picoMAX*® test arrangement



picoMAX® test arrangement after the salt spray test

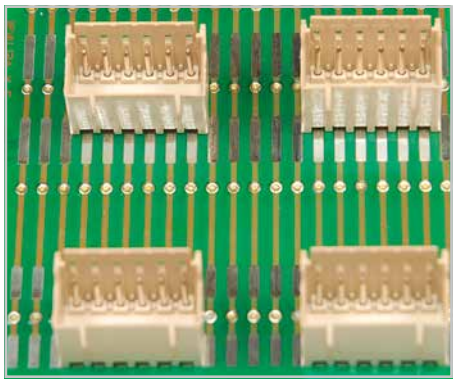
• Reflow Soldering Processing

picoMAX® male and female headers with solder pins are available in THR variants with 2.4 mm pin projection on the solder side. This pin length is ideal for THR soldering applications with PCB thickness from 1.5 to 2 mm.
With the specified solder profile for a four-zone convection reflow oven, both process capability and soldering result for *pico-MAX*® THR versions have been tested for a Sn96.5 Ag3 Cu0.5 lead-free solder.

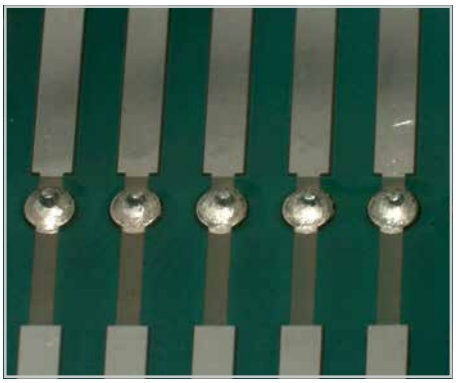


Room temperature: 21.2 °C, Humidity: 26.7 % RH, Reflow speed: 0.36 m/min

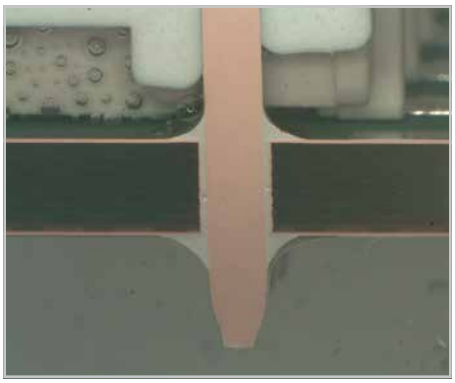
Soldering results for *picoMAX*® – Male headers with solder pins



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

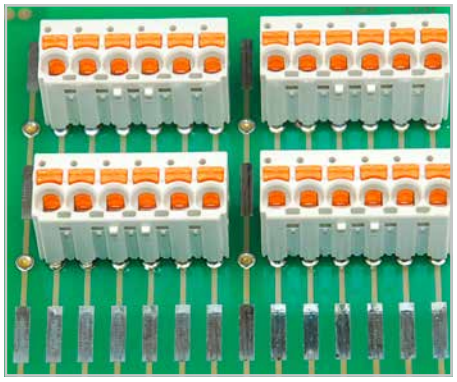


Solder joints on the bottom side of the PCB

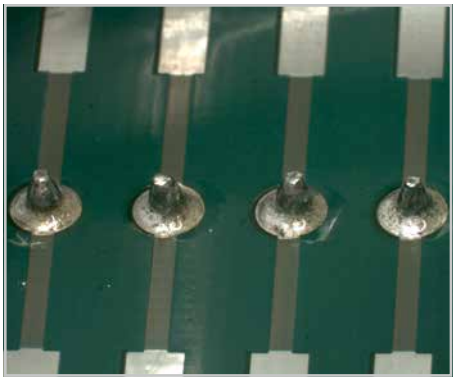


Drilled hole section

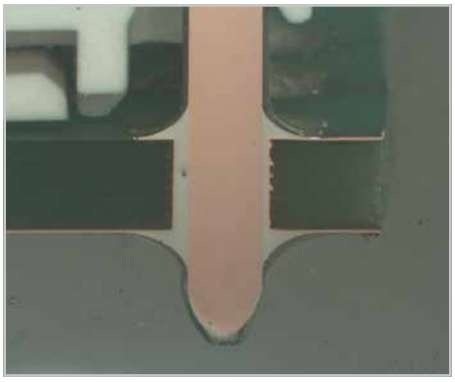
Soldering results for *picoMAX*® *eCOM* – Pluggable PCB connectors



THR sample board showing *picoMAX*® *eCOM*



Solder joints on the bottom side of the PCB



Drilled hole section

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Version: 02/2016
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0888-6006/0202-6901 - Catalog picoMAX® 2.2 2016 US - 03/2016-00 - Printed in Germany - Subject to design changes