FAST MOVING TECHNOLOGY

STÄUBLI

Tools and accessories

Renewable Energy | Solar Photovoltaics

EN



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ASSEMBLY TOOLS

Crimping pliers for MC4 and MC4-Evo 2



Crimping pliers for MC4 and MC4-Evo 2 (PV-CZM...)



Locator (PV-LOC-MC4-EVO 2...)



Locator (PV-LOC-MC4...)

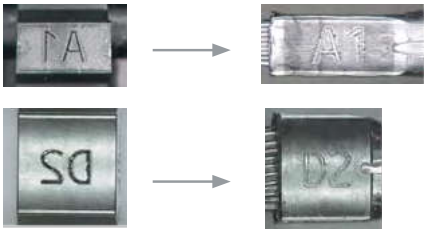


Crimping die (PV-ES-CZM...)

- One crimping pliers for crimping on both MC4 and MC4-Evo 2.
- Designed to be used for all open B-crimps (not applicable for closed crimp contacts).
- The crimping tool can process the following conductor cross-sections with one crimping die:
  - Size 1: 2.5 mm², 4 mm² and 6 mm²
  - Size 2: 4 mm², 6 mm² and 10 mm²
- TÜV and UL certified product.
- Registered design feature providing traceability information about crimping tool on each individual crimp.

How to verify that each crimp is made using the suitable tool and die?

The registered design of the crimp traceability concept is providing information about the conductor size, crimp height and crimp width. For further information about this feature please refer to assembly instruction MA704.



Crimping die

Finished crimp indent

Usage matrix

Connector type	Conductor cross section	Open crimp contacts **B-Crimp**	Closed crimp contacts* **O-Crimp**	Crimping pliers		Crimping dies		Locators			
				PV-CZM-60100 **32.6020-60100**	PV-CZM-61100 **32.6020-61100**	PV-ES-CZM-60100 **32.6021-60100**	PV-ES-CZM-61100 **32.6021-61100**	PV-LOC-MC4 **32.6081** 4 mm²; 6 mm²; 10 mm²	PV-LOC-MC4 **32.6082** 2.5 mm²; 4 mm²; 6 mm²	PV-LOC-MC4-EVO 2 **32.6083** 4 mm²; 6 mm²; 10 mm²	PV-LOC-MC4-EVO 2 **32.6084** 2.5 mm²; 4 mm²; 6 mm²
PV-KBT4/2,5...-UR PV-KST4/2,5...-UR	2.5 mm²	✓	✗		✓		✓		✓		
	14 AWG	✓	✗		✓		✓		✓		
PV-KBT4/6...-UR PV-KST4/6...-UR	4 mm²	✓	✗	✓	✓	✓	✓	✓	✓		
	12 AWG	✓	✗	✓	✓	✓	✓	✓	✓		
	6 mm²	✓	✗	✓	✓	✓	✓	✓	✓		
	10 AWG	✓	✗	✓	✓	✓	✓	✓	✓		
PV-KBT4/10... PV-KST4/10...	10 mm²	✓	✗	✓		✓		✓			
PV-KST4-EVO 2/2.5...-UR PV-KBT4-EVO 2/2.5...-UR	2.5 mm²	✓	✗		✓		✓				✓
	14 AWG	✓	✗		✓		✓				✓
PV-KST4-EVO 2/6...-UR PV-KBT4-EVO 2/6...-UR	4 mm²	✓	✗	✓	✓	✓	✓			✓	✓
	12 AWG	✓	✗	✓	✓	✓	✓			✓	✓
	6 mm²	✓	✗	✓	✓	✓	✓			✓	✓
	10 AWG	✓	✗	✓	✓	✓	✓			✓	✓
PV-KST4-EVO 2A/6... PV-KBT4-EVO 2A/6...	4 mm²	✓	✗	✓	✓	✓	✓			✓	✓
	12 AWG	✓	✗	✓	✓	✓	✓			✓	✓
	6 mm²	✓	✗	✓	✓	✓	✓			✓	✓
	10 AWG	✓	✗	✓	✓	✓	✓			✓	✓
PV-KST4-EVO 2A/10... PV-KBT4-EVO 2A/10...	10 mm²	✓	✗	✓		✓				✓	
	8 AWG	✓	✗	✓		✓				✓	

* The crimping pliers for MC4 and MC4-Evo 2 along with the available crimping dies listed in the above table do not provide any feasible crimping for closed crimps. Closed crimps will become unuseable.

Ordering information

Order-No.	Type	Designation	Crimping range
			mm^2
32.6020-61100	PV-CZM-61100	**Size 1:** Crimping pliers incl. locator for MC4 and MC4-Evo 2	2.5; 4; 6
Consisting of:			
32.6082	PV-LOC-MC4 2.5/4/6	Locator for MC4	2.5; 4; 6
32.6084	PV-LOC-MC4-EVO 2 2.5/4/6	Locator for MC4-Evo 2	
32.6021-61100	PV-ES-CZM-61100	Crimping die	
32.6020-60100	PV-CZM-60100	**Size 2:** Crimping pliers incl. locator for MC4 and MC4-Evo 2	4; 6; 10
Consisting of:			
32.6081	PV-LOC-MC4 4/6/10	Locator for MC4	4; 6; 10
32.6083	PV-LOC-MC4-EVO 2 4/6/10	Locator for MC4-Evo 2	
32.6021-60100	PV-ES-CZM-60100	Crimping die	

Further information

Assembly instructions

For assembly instructions for “Crimping pliers for MC4 and MC4-Evo 2” please consult:
www.staubli.com/re-downloads.html ➞ English ➞ Assembly info ➞ **MA704**

Crimping pliers for closed crimp contacts MC4



Crimping pliers for closed crimp contacts MC4 (PV-CZM...)

- These tools are to be used for the assembly of UL- and TÜV-approved products.
- These are suited for the processing of high numbers of pieces and can be adjusted to the product to be processed with the help of changeable locators and crimp inserts.

Usage matrix

Connector type	Conductor cross section	Open crimp contacts **B-Crimp**	Closed crimp contacts **O-Crimp**	Crimping pliers		Crimping dies		Locators	
				PV-CZM-22100 **32.6020-22100**	PV-CZM-23100 **32.6020-23100**	PV-ES-CZM-22100 **32.6021-22100**	PV-ES-CZM-23100 **32.6021-23100**	PV-LOC-B **32.6055**	PV-LOC-C **32.6074**
PV-KBT4/6…-UR PV-KST4/6…-UR	4 mm²	✓	✗	✓		✓		✓	
	12 AWG	✓	✗	✓		✓		✓	
	6 mm²	✓	✗	✓		✓		✓	
	10 AWG	✓	✗	✓		✓		✓	
PV-KBT4/5…-UR PV-KST4/5…-UR PV-KBT4/5…-P…AU PV-KST4/5…-P…AU	14 AWG	✗	✓		✓		✓		✓
	12 AWG	✗	✓		✓		✓		✓
	10 AWG	✗	✓		✓		✓		✓
PV-KBT4/8II-UR PV-KST4/8II-UR PV-KBT4/8...-P…AU PV-KST4/8…-P…AU	8 AWG	✗	✓	✓	✓	✓	✓	✓	✓

Ordering information

Order No.	Type	Designation	Connector system	Crimp range		Crimptype	
				mm^2	AWG	Open crimp AWG	Closed crimp AWG
32.6020-22100	PV-CZM-22100	Crimping pliers incl. locator and crimping die	MC4	4; 6	12; 10; 8	12; 10	8
32.6020-23100	PV-CZM-23100		MC4		14; 12; 10; 8		14; 12; 10; 8
Individual parts							
32.6021-22100	PV-ES-CZM-22100	Crimping die	MC4	4; 6	12; 10; 8	12; 10	8
32.6021-23100	PV-ES-CZM-23100	Crimping die	MC4		14; 12; 10; 8		14; 12; 10; 8
32.6055	PV-LOC-B	Locator (for use with PV-ES-CZM-22100)	MC4	4; 6	12; 10; 8	12; 10	8
32.6074	PV-LOC-D	Locator (for use with PV-ES-CZM-23100)	MC4		14; 12; 10; 8		14; 12; 10; 8

Note

Please contact us for information on pneumatic crimp station options.

Further information



Assembly instructions

For assembly instructions for “Crimping pliers for closed crimp contacts MC4 (PV-CZM...)” please consult:
www.staubli.com/re-downloads.html ➞ English ➞ Assembly info ➞ **MA251**

Crimping pliers for closed crimp contacts MC4



Crimping pliers for closed crimp contacts MC4 (PV-CZLX/6AWG...)

- Manual crimping pliers for MC4 cable couplers with 6 AWG closed crimp terminals (PV-KBT4/13II-UR and PV-KST/13II-UR).
- Locator included for correct positioning of crimp.

Ordering information

Order No.	Type	Designation	Connector system	Crimp range		Crimptype	
				mm²	AWG	Open crimp AWG	Closed crimp AWG
32.0349	PV-CZLX/6AWG	Crimping pliers, incl. locator	MC4		6		6
Individual parts							
32.0350	PV-CZL/6AWG-LOC	Locator	MC4		6		6

Note

Please contact us for information on pneumatic crimp station options.

Further information

Assembly instructions

For assembly instructions for “Crimping pliers for closed crimp contacts MC4 (PV-CZLX/6AWG)” please consult: www.staubli.com/re-downloads.html ➞ English ➞ Assembly info ➞ **MA710**

Crimping pliers for semi-professional use MC4



Crimping pliers for semi-professional use MC4 (PV-CZM-BS)

- Suitable for the assembly of products approved by TÜV in small amounts.
- Not UL certified.

Ordering information

Order No.	Type	Designation	Pliers cross sections		Connector system
			mm^2	AWG	
32.6025	PV-CZM-BS	Crimping pliers	2.5; 4; 6		MC4

Further information

Assembly instructions

For assembly instructions for “Crimping pliers for semi-professional use MC4” please consult:
www.staubli.com/re-downloads.html ➞ English ➞ Assembly info ➞ **MA289**

Stripping pliers



Stripping pliers (PV-AZM...)

- Specially adapted for the Flex-Sol-Evo PV cable.
- For stripping small leads quantities.
- With length stop.

Ordering information

Order No.	Type	Designation	Pliers cross sections	
			mm²	AWG
32.6027-156	PV-AZM-156	Stripping pliers incl. built-in stripping blades	1.5; 2.5; 4; 6	
32.6027-410	PV-AZM-410	Stripping pliers incl. built-in stripping blades	4; 6; 10	
32.6027-128	PV-AZM-128	Stripping pliers incl. built-in stripping blades		12; 10; 8
32.6027-106	PV-AZM-106	Stripping pliers incl. built-in stripping blades		10; 8; 6
32.6057-156	PV-M-AZM-156	Stripping blades set	1.5; 2.5; 4; 6	
32.6057-410	PV-M-AZM-410	Stripping blades set	4; 6; 10	
32.6057-128	PV-M-AZM-128	Stripping blades set		12; 10; 8
32.6057-106	PV-M-AZM-106	Stripping blades set		10; 8; 6

Further information

Assembly instructions

For assembly instructions for “Stripping pliers” please consult:
www.staubli.com/re-downloads.html ➞ English ➞ Assembly info ➞ **MA267**

Open-end spanner and unlocking tool



Open-end spanner set for MC4 (PV-MS)



Open-end spanner set for MC4 and MC4-Evo 2 (PV-MS-PLS)



Unlocking tool for MC4-Evo 2 (PV-MS-MC4-EVO 2)



Open-end spanner set for MC4-Evo ready (PV-MS-MC4-EVO READY)

- For pre-tightening and loosening the cable gland.
- For MC4 and MC4-Evo 2, also for releasing the locking of the plug-in connection.

Ordering information

Order No.	Type	Designation
32.6024	PV-MS	Open-end spanner set for MC4 (2 pcs.), plastic
32.6058	PV-MS-PLS	Open-end spanner set for MC4 and MC4-Evo 2 (2 pcs.), metal
32.6066	PV-MS-MC4-EVO 2	Unlocking tool for MC4-Evo 2, plastic
32.6070	PV-MS-MC4-EVO READY	Open-end spanner set for MC4-Evo ready

Further information

Assembly instructions

For assembly instructions for “Open-end spanner set for MC4 and MC4-Evo 2” please consult:
www.staubli.com/re-downloads.html ➞ English ➞ Assembly info ➞ **MA270**

Cable cutter



Cable cutter (PV-WZ-KS)

- Cable cutter with a special cutting blade geometry for easy, clean cuts with an opening spring.
- Ergonomic one-hand operation.
- No crushing or deformation of wire.
- To cut single stranded, multiple stranded, and finely stranded copper and aluminum conductors.
- Not to be used on steel wire, wire rope, and hard-drawn copper cable.

Ordering information

Order No.	Type	Designation	Max. wire diameter
32.6080	PV-WZ-KS	Cable cutter	15 mm

Further information

Assembly instructions

For assembly instructions for “Cable cutter” please consult:
www.staubli.com/re-downloads.html ➞ English ➞ Assembly info ➞ **MA705**

Torque tool set



Torque tool set (PV-WZ-TORQUE-SET)

- Adjustable torque tool set with special design: easy-in, easy-out, universal hold and one-hand use.
- For manual assembly of the original MC4 and MC4-Evo 2.
- Comes with a multi-component special pistol grip which provides a safe and comfortable fit in the hand and high-power transfer.

Technical data

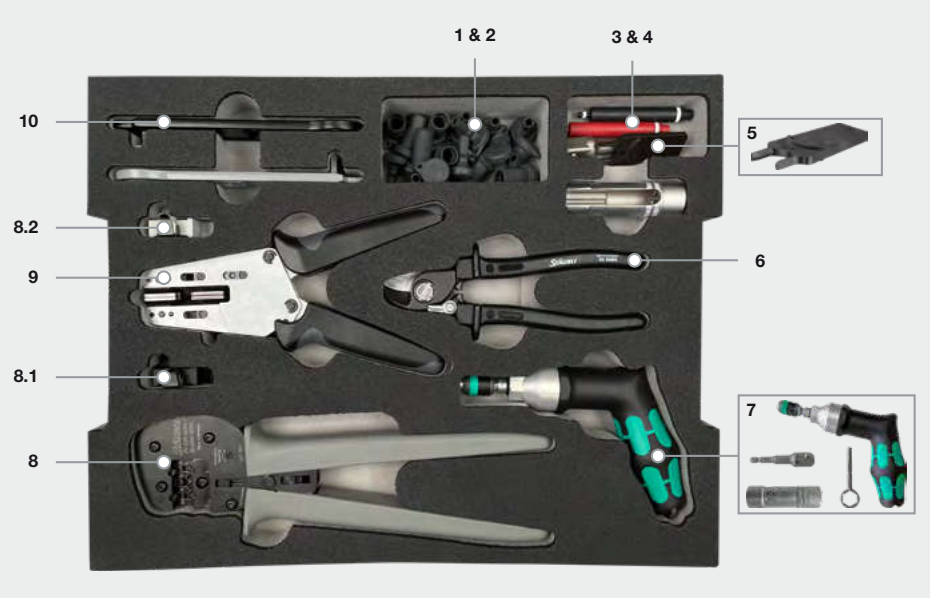
Technical data	
Range	3.0 N m – 6.0 N m
Accuracy	Accuracy: ±6 % (EN ISO 6789)
Scale	Numerical torque value scale

Ordering information

Order No.	Type	Designation
32.0065	PV-WZ-TORQUE-SET	Torque tool set: consisting of torque tool (incl. extra tool integrated in handle to set torque), adapter and socket wrench insert

TOOL CASES AND TOOL BELT

Tool case for MC4 and MC4-Evo 2



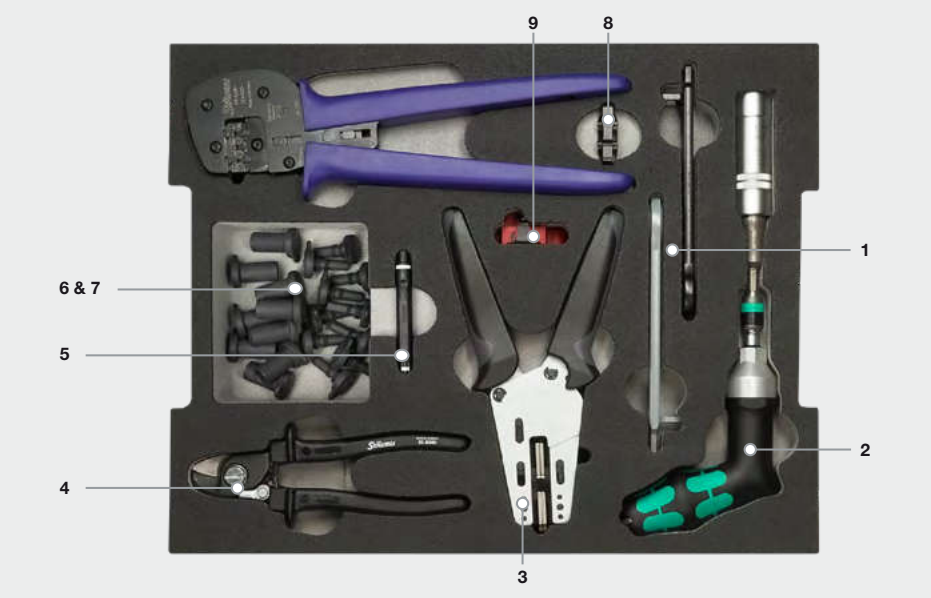
Tool case for MC4 and MC4-Evo 2

- Robust plastic case with tools for the assembly of MC4 and MC4-Evo 2.
- Configured for metric cable sizes (mm^2).
- Configured for open crimp contacts (4 mm^2, 6 mm^2, 10 mm^2).

Ordering information

Pos.	Order No.	Type	Description	Dimensions (length x width x height)
	32.6126	PV-Installer Tool Case SET	Tool case for MC4 and MC4-Evo 2	444 mm × 350 mm × 118 mm
Consisting of:				
1	**32.0716**	PV-BVK4	Sealing caps socket, 10 ×	
2	**32.0717**	PV-SVK4	Sealing caps plug, 10 ×	
3	**32.6028**	PV-PST	Test plug MC4	
4	**32.6073**	PV-EVO-PST	Test plug MC4-Evo 2	
5	**32.6066**	PV-MS-MC4-EVO 2	Unlocking tool	
6	**32.6080**	PV-WZ-KS	Cable cutter	
7	**32.0065**	PV-WZ-TORQUE-SET	Torque tool	
8	**32.6020-60100**	PV-CZM-60100	Crimping pliers for MC4, MC4-Evo 2	
8.1	**32.6081**	PV-LOC-MC4	Locator for MC4	
8.2	**32.6083**	PV-LOC-MC4-Evo 2	Locator for MC4-Evo 2	
9	**32.6027-410**	PV-AZM-410	Stripping pliers	
10	**32.6058**	PV-MS-PLS	Assembly and unlocking tool	

Tool case MC4 for North America



Tool case MC4

- Robust plastic case with tools for assembly of MC4 connectors.
- Configured for American Wire Gauge (AWG) cable sizes (14 AWG to 8 AWG).
- Available fully populated with basic content and two options for the crimping pliers.
- Also available only with basic content (no crimping plier).

Ordering information

Pos.	Order No.	Type	Designation	Dimension (length × width × height)
	32.6128-22100	PV-WZ/AWG-SET-22100	includes basic content and crimping plier PV-CZM-22100 (for open contacts 12/10 AWG, closed contacts 8 AWG)	444 mm × 350 mm × 118 mm
	32.6128-23100	PV-WZ/AWG-SET-23100	includes basic content and crimping plier PV-CZM-23100 (for closed contacts 14/12/10/8 AWG)	
	32.6128-00000	PV-WZ/AWG-SET	includes basic content (crimping plier not included)	
Basic content				
1	**32.6058**	PV-MS-PLS	Assembly and unlocking tool	
2	**32.0065**	PV-WZ-Torque-Set	Torque tool	
3	**32.6027-128**	PV-AZM-128	Stripping pliers (cable sizes 12/10/8 AWG)	
4	**32.6080**	PV-WZ-KS	Cable cutter	
5	**32.6028**	PV-PST	Test plug	
6	**32.0716**	PV-BVK4	Sealing cap for female cable couplers (10 pcs.)	
7	**32.0717**	PV-SVK4	Sealing cap for male cable couplers (10 pcs.)	
Optional content (can be ordered separately)				
8	**32.6021-22100**	PV-ES-CZM-22100	Crimping die (for open contacts 12/10 AWG, closed contacts 8 AWG)	
8	**32.6021-23100**	PV-ES-CZM-23100	Crimping die (for closed contacts 14/12/10/8 AWG)	
9	**32.6055**	PV-LOC-B	Locator (for use with crimping die PV-ES-CZM-22100)	
9	**32.6074**	PV-LOC-D	Locator (for use with crimping die PV-ES-CZM-23100)	

Tool belt for MC4 and MC4-Evo 2



Tool bag



Material bag



Tool belt for MC4 and MC4-Evo 2

- The right tool is always at hand in the tool belt for MC4 and MC4-Evo 2.
- The tool belt for MC4 and MC4-Evo 2 consists of:
  - a tool bag with leather holders, integrated elastic compartments, and D ring to keep all tools needed for on-site assembly.
  - a material bag with zipper for safe storage of connectors and other small parts. The material bag can be kept open thanks to a snap fastener.
  - a belt with quick fastener.
- Long-lasting thanks to heavy-duty, weatherproof material.
- Easy to put the tool belt on and take it off thanks to an adjustable snap fastener.
- Stable seating, the tool belt will not twist.

Note:

The tool belt for MC4 und MC4-Evo 2 is delivered without the tools and materials shown.

Ordering information

Order No.	Type	Designation	Dimensions (length x width x height)
32.0387	Installer Tool Belt SET	Tool belt for MC4 and MC4-Evo 2	
Consisting of:			
		Tool bag	26 cm × 14.5 cm × 27 cm
		Material bag	17.5 cm × 10.5 cm × 18.5 cm
		Belt with quick fastener	155 cm × 5.5 cm

ACCESSORIES

Adapter test lead MC4



Adapter test lead with female MC4
(PV-AMLB4/150)



Adapter test lead with male MC4
(PV-AMLS4/150)

- The adapter test lead MC4 is suitable for safe current and voltage measuring on PV modules and systems.

Technical data

Technical data	
Connector system	MC4
Rated voltage	1000 V
Rated current	19 A
Category	CAT III
Degree of pollution	2
Lead cross section	1 mm^2
Lead length	150 mm
Lead insulation	PVC

Ordering information

Order No.	Type	Socket	Plug	Connector system	Colour
32.1198-15021	PV-AMLB4/150	x		MC4	21
32.1198-15023	PV-AMLB4/150	x		MC4	23
32.1199-15021	PV-AMLS4/150		x	MC4	21
32.1199-15022	PV-AMLS4/150		x	MC4	22

Note

Unmated connectors must be protected from any contamination using Stäubli sealing caps. For ordering information concerning Stäubli sealing caps, please consult “Sealing caps” on page 21.

Test socket and plug MC4



Test socket MC4 (PV-KBT4II-P AU)



Test plug MC4 (PV-KST4II-P AU)

- Special construction with gold plated contacts for test and measurement to achieve higher mating cycles.
- Without locking system.

Technical data

Technical data	
Connector system	MC4
Rated voltage	DC 1000 V (IEC)
Rated current	30 A
Degree of protection, unmated	IP2X
Category	CAT III
Degree of pollution	2
Max. contact resistance of the connector	0.25 mΩ
Contact material	Copper, gold plated
Lead cross section	2.5 mm^2; 4 mm^2 (12 AWG; 14 AWG)
Insulation material	PC/PA

Ordering information

Order No.	Type	Socket	Plug	Connector system
32.0044	PV-KBT4II-P AU	x		MC4
32.0045	PV-KST4II-P AU		x	MC4

Further information

Assembly instructions

For assembly instructions for “Test socket and plug MC4” please consult:
www.staubli.com/re-downloads.html ➞ English ➞ Assembly info ➞ **MA260**

Test plug MC4



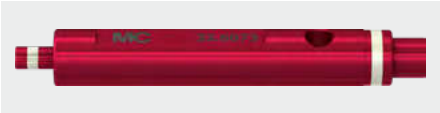
Test plug MC4 (PV-PST)

- This test plug is used to control the correct location of the MC4 contact in the insulation.

Ordering information

Order No.	Type
32.6028	PV-PST

Test plug MC4-Evo 2



Test plug MC4-Evo 2 (PV-EVO-PST)

- This test plug is used to control the correct location of the MC4-Evo 2 contact in the insulation.

Ordering information

Order No.	Type
32.6073	PV-EVO-PST

Sealing caps MC4 and MC4-Evo 2



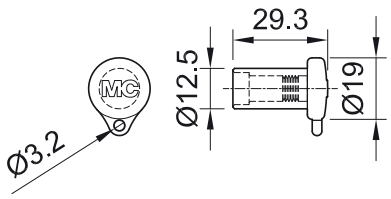
Sealing cap for female cable couplers
(PV-BVK4)



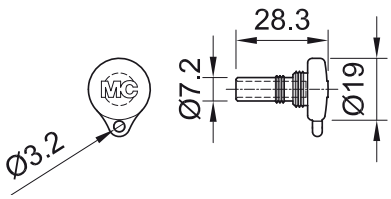
Sealing cap for male cable couplers
(PV-SVK4)

- Sealing caps for protective purpose of unplugged PV connectors.

Dimensional drawings



Sealing cap for female cable couplers
(PV-BVK4)



Sealing cap for male cable couplers
(PV-SVK4)

Ordering information

Order No.	Type	Suitable for socket side	Suitable for plug side	Material	Connector system
32.0716	PV-BVK4	x		TPE	MC4/MC4-Evo 2
32.0717	PV-SVK4		x	TPE	MC4/MC4-Evo 2

Further information

Assembly instructions

For assembly instructions for “Sealing caps MC4 and MC4-Evo 2” please consult:
www.staubli.com/re-downloads.html ➞ English ➞ Assembly info ➞ **MA258**

Safety lock clip



Safety lock clip (PV-SSH4)

- The pluggable safety lock clip secures the PV plug connection. The plug connection can only be unlocked with the open-end spanner set (PV-MS or PV-MS-PLS).
- The safety lock clip is suitable for MC4 connector systems.

Ordering information

Order No.	Type	Designation	Connector system
32.5280	PV-SSH4	Safety lock clip	MC4

Further information

Assembly instructions

For assembly instructions for “Safety lock clip” please consult:
www.staubli.com/re-downloads.html ➞ English ➞ Assembly info ➞ **MA252**

Socket wrench insert



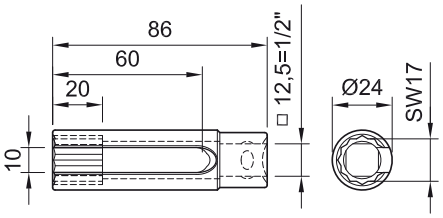
Socket wrench insert to tighten (PV-WZ-AD/GWD)



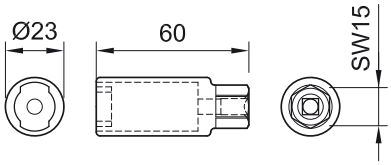
Socket wrench insert to secure (PV-SSE-AD4)

- Stäubli recommends these socket wrench inserts for a simple and safe assembly of the panel receptacles.

Dimensional drawings



Socket wrench insert to tighten (PV-WZ-AD/GWD)



Socket wrench insert to secure (PV-SSE-AD4)

Ordering information

Order No.	Type	Designation
32.6006	PV-WZ-AD/GWD	Socket wrench insert to tighten
32.6026	PV-SSE-AD4	Socket wrench insert to secure

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