FAST MOVING TECHNOLOGY

Tools and accessories

Renewable Energy | Solar Photovoltaics

EN



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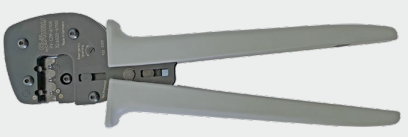


Page 15 **Accessories**

- Test plug MC4
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ASSEMBLY TOOLS

Crimping pliers for MC4 and MC4-Evo 2



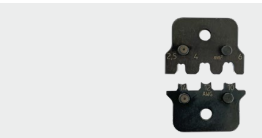
Crimping pliers for MC4 and MC4-Evo 2 (PV-CZM...)



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



Locator (PV-LOC-MC4...)

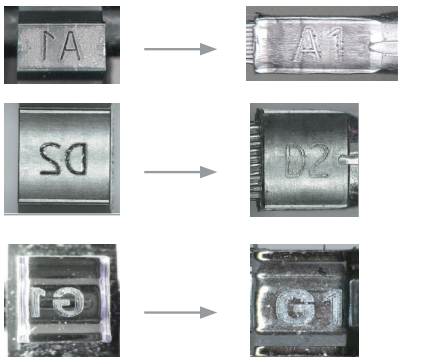


Crimping die (PV-ES-CZM...)

- PV-CZM-60100 and PV-CZM-61100 are designed to crimp open crimp contacts. Each plier comes with one crimping die and two locators for crimping MC4 and MC4-Evo 2 contacts.
- PV-CZM-63100 is designed to crimp MC4 barrel crimp contacts.
- Crimping kit PV-CZM-64100 comes with crimping die PV-ES-CZM-61100 and locator for MC4 open crimp contacts and crimping die PV-ES-CZM-63100 and locator for MC4 barrel crimp contacts.
- 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 relating this feature please refer to assembly instruction MA704.



Crimping die

Finished crimp indent

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Usage matrix

Type	Co nductor 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-CZM-63100 **32.6020-63100**	PV-ES-CZM-60100 **32.6021-60100**	PV-ES-CZM-61100 **32.6021-61100**	PV-ES-CZM-63100 **32.6021-63100**	4 mm², 6 mm², 10 mm² PV-LOC-MC4 **32.6081**	2.5 mm², 4 mm², 6 mm² PV-LOC-MC4 **32.6082**	4 mm², 6 mm², 10 mm² PV-LOC-MC4-EVO 2 **32.6083**	2.5 mm², 4 mm², 6 mm² PV-LOC-MC4-EVO 2 **32.6084**	14 AWG, 12-10 AWG, 8 AWG PV-LOC-MC4 14/12/10/8 **32.6085**
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	✓		✓			✓					✓		
PV-KBT4/5...-UR, PV-KST4/5...-UR PV-KBT4/5...UR AU PV-KST4/5...UR AU	14 AWG		✓			✓			✓					✓
	12 AWG		✓			✓			✓					✓
	10 AWG		✓			✓			✓					✓
PV-KBT4/8...-UR, PV-KST4/8...-UR PV-KBT4/8...UR AU PV-KST4/8...UR AU	8 AWG		✓			✓			✓					✓

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Ordering information

Order-No.	Type	Designation	Crimp contact type		Crimping range	
			B-Crimp	O-Crimp	mm²	AWG
32.6020-61100	PV-CZM-61100	**Size 1:** Crimping pliers incl. locator for MC4 and MC4-Evo 2	×		2.5 mm²; 4 mm²; 6 mm²	14 AWG; 12 AWG; 10 AWG
Consists of:						
32.6082	PV-LOC-MC4 2.5/4/6	Locator for MC4	×		2.5 mm²; 4 mm²; 6 mm²	14 AWG; 12 AWG; 10 AWG
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 mm²; 6 mm²; 10 mm²	12 AWG; 10 AWG; 8 AWG
Consists of:						
32.6081	PV-LOC-MC4 4/6/10	Locator for MC4	×		4 mm²; 6 mm²; 10 mm²	12 AWG; 10 AWG; 8 AWG
32.6083	PV-LOC-MC4-EVO 2 4/6/10	Locator for MC4-Evo 2	×			
32.6021-60100	PV-ES-CZM-60100	Crimping die	×			
32.6020-63100	PV-CZM-63100	**Size 3:** Crimping pliers incl. locator for MC4		×		14 AWG; 12 – 10 AWG; 8 AWG
Consists of:						
32.6085	PV-LOC-MC4 14/12-10/8	Locator for MC4		×		14 AWG; 12 – 10 AWG; 8 AWG
32.6021-63100	PV-ES-CZM-63100	Crimping die		×		
32.6020-64100	PV-CZM-64100	**Size 4:** Crimping pliers incl. locators for MC4	×	×	2.5 mm²; 4 mm²; 6 mm²	14 AWG; 12 AWG; 10 AWG; 8 AWG
Consists of:						
32.6320	PV-CZM-	Crimping pliers				
32.6082	PV-LOC-MC4 2.5/4/6	Locator for MC4	×		2.5 mm²; 4 mm²; 6 mm²	14 AWG; 12 AWG; 10 AWG
32.6021-61100	PV-ES-CZM-61100	Crimping die	×			
32.6085	PV-LOC-MC4 14/12-10/8	Locator for MC4		×		14 AWG; 12 – 10 AWG; 8 AWG
32.6021-63100	PV-ES-CZM-63100	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 AWG6



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

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, IEC only



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

- Application: For occasional field assembly of IEC certified Stäubli connectors.
- Not UL certified.

Ordering information

Order No.	Type	Designation	Pliers cross sections	Connector system
			mm^2	
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...)

- Suitable for all PV leads; in particular Flex-Sol-Evo leads.
- For stripping small amounts of lead.
- 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 sets and unlocking tool



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



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

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



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



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

Ordering information

Order No.	Type	Designation	Material
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 (2 pcs.)	Plastic

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 an easy, clean cut.
- Ergonomic one-handed operation as it is fitted with an opening spring
- No crushing or deformation of wire.
- To cut single stranded, multiple stranded, and finely stranded copper and aluminum conductors.

Ordering information

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

Note
Not to be used on steel wire, wire rope, and hard-drawn copper cable.

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 optimized design.
  Easy insertion and removal of the lead to be assembled.
- Ergonomic handle
- One-handed operation
- For manual final assembly of the cap nut with the correct torque for original MC4 and MC4-Evo 2 connectors
- 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	±6 % (EN ISO 6789)
Display of the set torque	Numerical scale

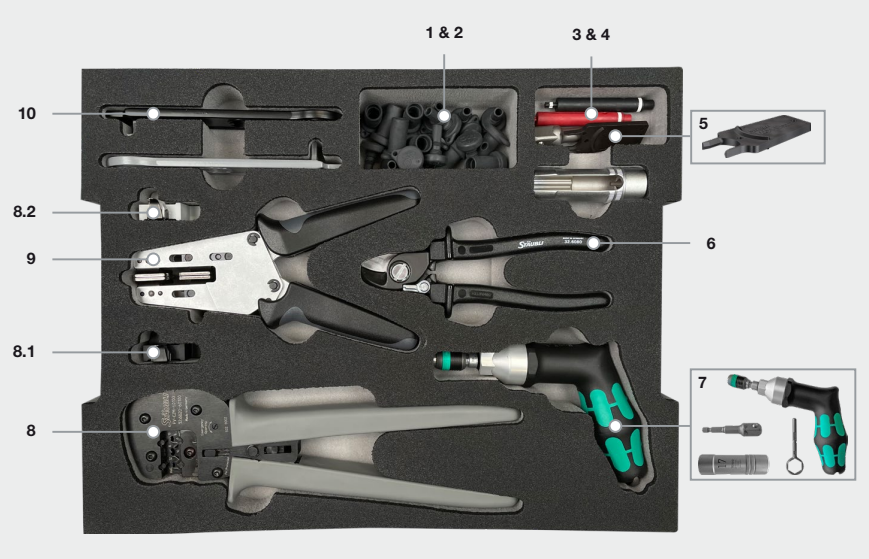
Ordering information

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

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TOOL CASES AND TOOL BELT

Tool case for MC4 and MC4-Evo 2



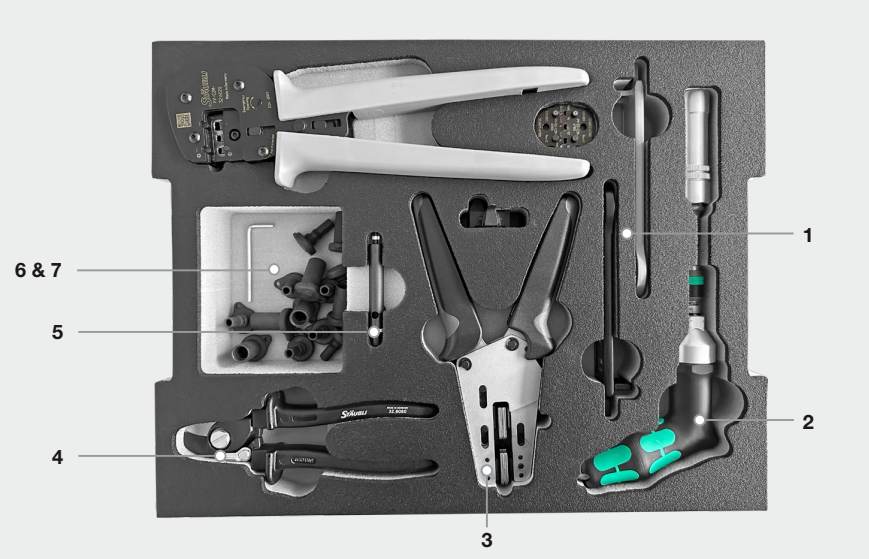
Tool case for MC4 and MC4-Evo 2

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

Ordering information

Pos.	Order No.	Type	Description	Dimensions (length × width × 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 pcs.)	
2	**32.0717**	PV-SVK4	Sealing caps plug (10 pcs.)	
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	

MC4 tool case for use in UL markets



MC4 tool case for use in UL markets

- 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 crimp tool kit PV-CZM-64100. The kit includes crimping plier PV-CZM with crimp insert PV-ES-CZM-63100 and locator PV-LOC-MC4 14/12-10/8 preinstalled for crimping of closed crimp contacts. It also includes crimp insert PV-ES-CZM-61100 and locator PV-LOC-MC4 2.5/4/6 for crimping of open crimp contacts.
- Also available only with basic content (no crimping pliers).

Ordering information

Pos.	Order No.	Type	Designation	Dimension (length × width × height)
	32.6128-64100	PV-WZ/AWG-SET-64100	includes basic content and tool kit PV-CZM-64100 (open contacts 14/12/10 AWG, closed contacts 14/12/10/8 AWG)	444 mm × 350 mm × 118 mm
	32.6128-00000	PV-WZ/AWG-SET	includes basic content (crimping pliers 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.)	

Tool belt for MC4 and MC4-Evo 2



Tool pouch



Material pouch



Tool belt for MC4 and MC4-Evo 2

- The correct 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 here.

Ordering information

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

ACCESSORIES

Test plug MC4



Test plug MC4 (PV-PST)

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

Ordering information

Order No.	Type
32.6073	PV-EVO-PST

Sealing caps MC4 and MC4-Evo 2



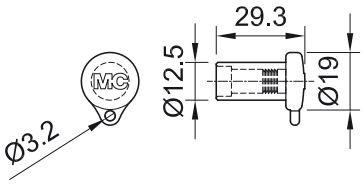
Sealing cap for female cable couplers
(PV-BVK4)



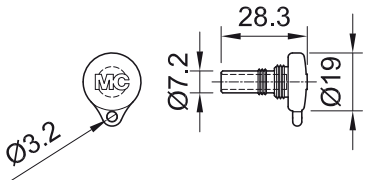
Sealing cap for male cable couplers
(PV-SVK4)

- Sealing caps for protective purpose of unplugged PV connectors.

Dimensional drawings, in mm



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	×		TPE	MC4/MC4-Evo 2
32.0717	PV-SVK4		×	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

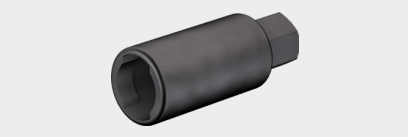
Assembly instructions

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

Socket wrench insert



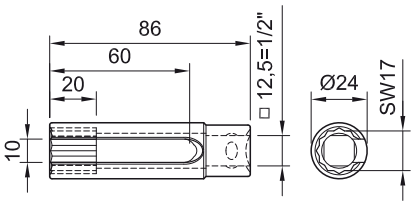
Socket wrench insert to tighten (PV-WZ-AD/GWD)



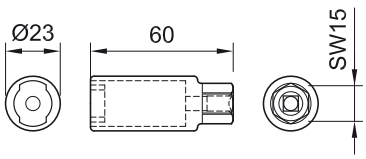
Socket wrench insert to secure (PV-SSE-AD4)

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

Dimensional drawings in mm



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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