



Atlas Copco



# Isolated and insulated assembly solutions

Safety is top priority when operating on live electrical vehicle batteries!



## Tightening on live EV batteries

*There has been a big push towards e-mobility lately. Bloomberg estimates that by 2025, 10 million EV cars will have been sold worldwide. An average electric vehicle has battery packs with voltage levels between 500 V and 1000 V, which are often tightened on live terminals. Safety needs to be top priority.*

*To avoid dangers such as electric shocks from short circuits in live components, special procedures and safety precautions need to be observed for anyone working on electric vehicle batteries.*



### Isolated and insulated solutions

The safety of your assembly personnel must be first priority. Saltus has developed isolated sockets and Quick Change Adapters (QCAs), that should be combined with Atlas Copco's insulated tool covers for Atlas Copco power tools. These solutions prevent direct contact with live components, short circuits (high electrical currents, electric arcs, exploding batteries), and short circuiting of battery modules with grounded tools.

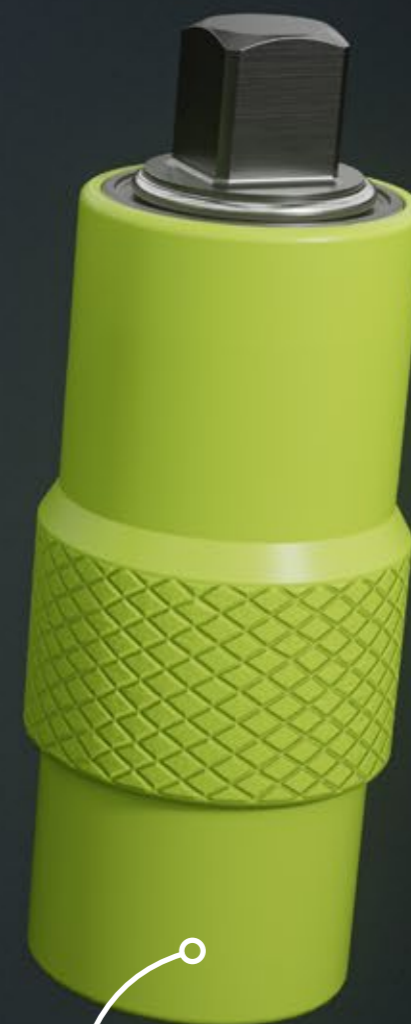
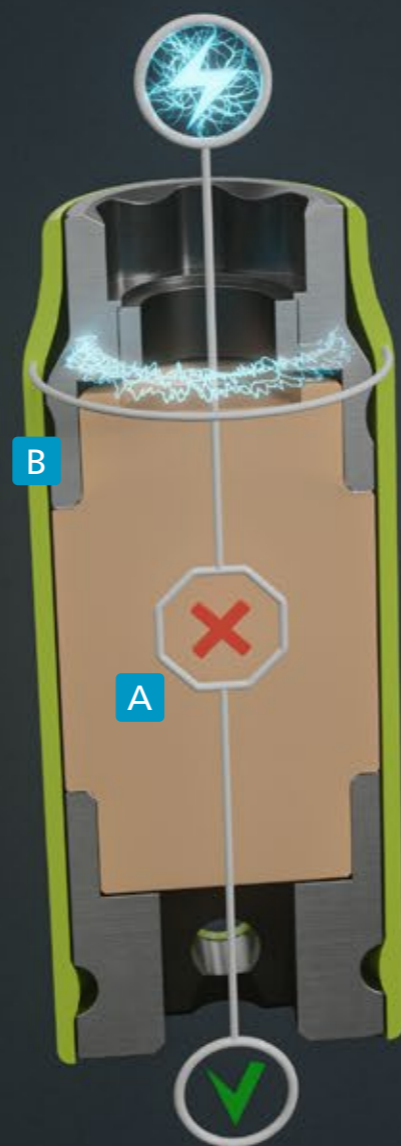
# Non conductive materials protect your operators

## This is how we isolate the sockets and Quick Change Adapters (QCA)

An insulating core that completely cuts off electrical conductivity between the bolt and the tool provides isolation in the axial direction.

The freely rotating outer sleeve provides radial insulation. Combined together our sockets are isolated in both directions, providing an insulated EV-assembly solution.

A highly modular system – with full compatibility – to be used with your standard ROTACTION sockets, bits and extensions.



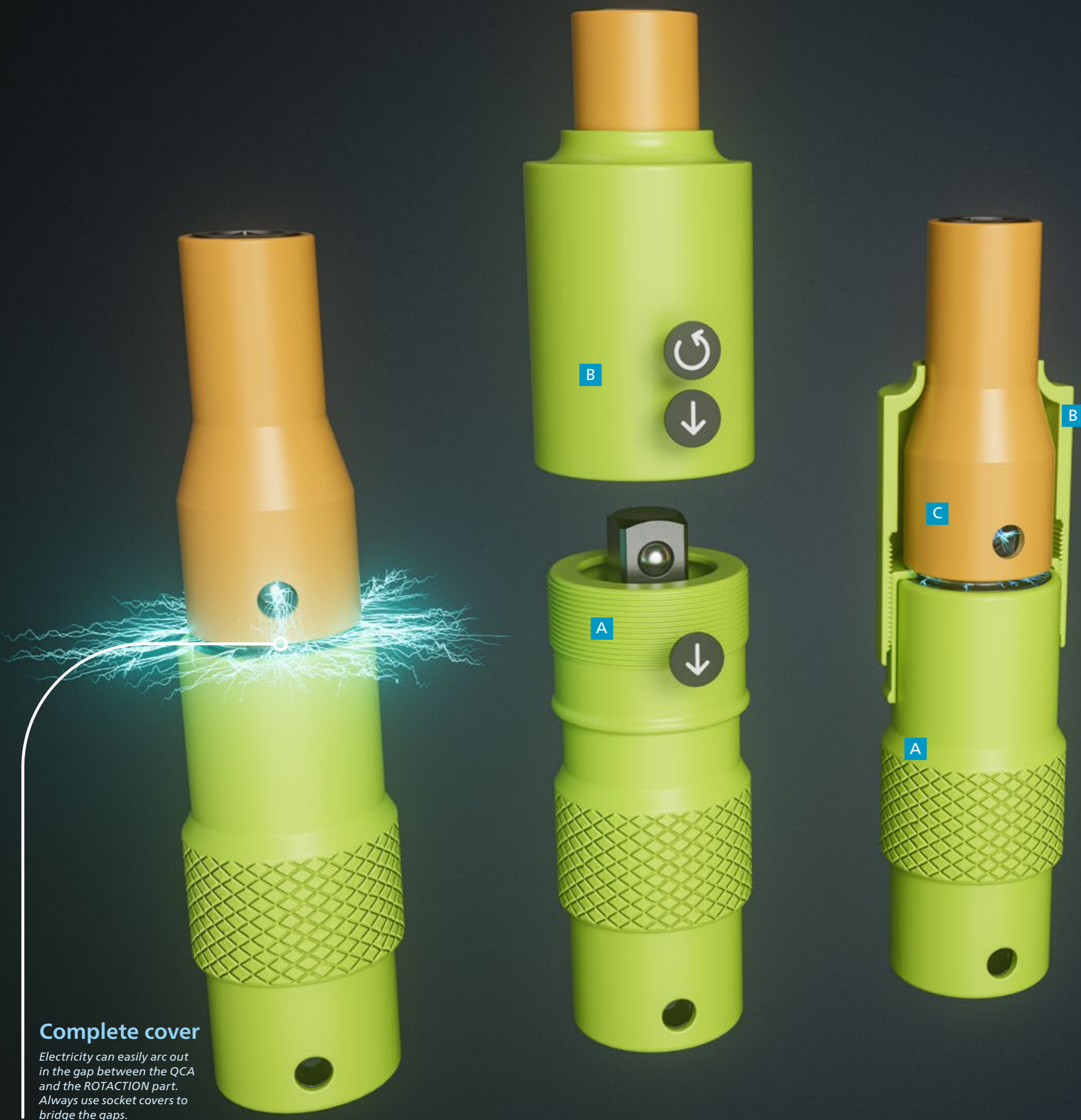
- A** Axial isolation with non conductive material in the middle of the socket/QCA
- B** Radial insulation with non conductive cover  
Note that on the QCA there is an overlap over the gap between top and bottom sleeves to enable complete radial insulation.

## Tested and approved

A single applicable standard for isolated sockets used with power tools is not yet available. But the mechanical strength and isolating properties of the sockets were tested and ensured by the applicable sections of IEC 60900:2018. And the dielectric test was carried out and confirmed by both VDE (Verband der Elektrotechnik Elektronik Informationstechnik e.V.) and the Intertek laboratory.

## Enabling a modular system

The isolated QCAs are the core part of a modular system. They allow you to utilize our ROTACTION products. With the QCA providing axial isolation you can attach your existing ROTACTION sockets, which are radially insulated thanks to their yellow sleeve. This solution is also implemented in our isolated extensions.



### Complete cover

Electricity can easily arc out in the gap between the QCA and the ROTACTION part. Always use socket covers to bridge the gaps.

## Socket covers seal the deal

The third, equally important part, in this modular system is the insulated socket covers. They provide insulation around the gaps between the different parts.

When isolated QCAs/extensions are used in combination with Saltus ROTACTION products, insulated socket covers must be used to close the gap between the different parts. This is vital to ensure radial insulation and to fulfill applicable parts of the IEC 60900 standard.

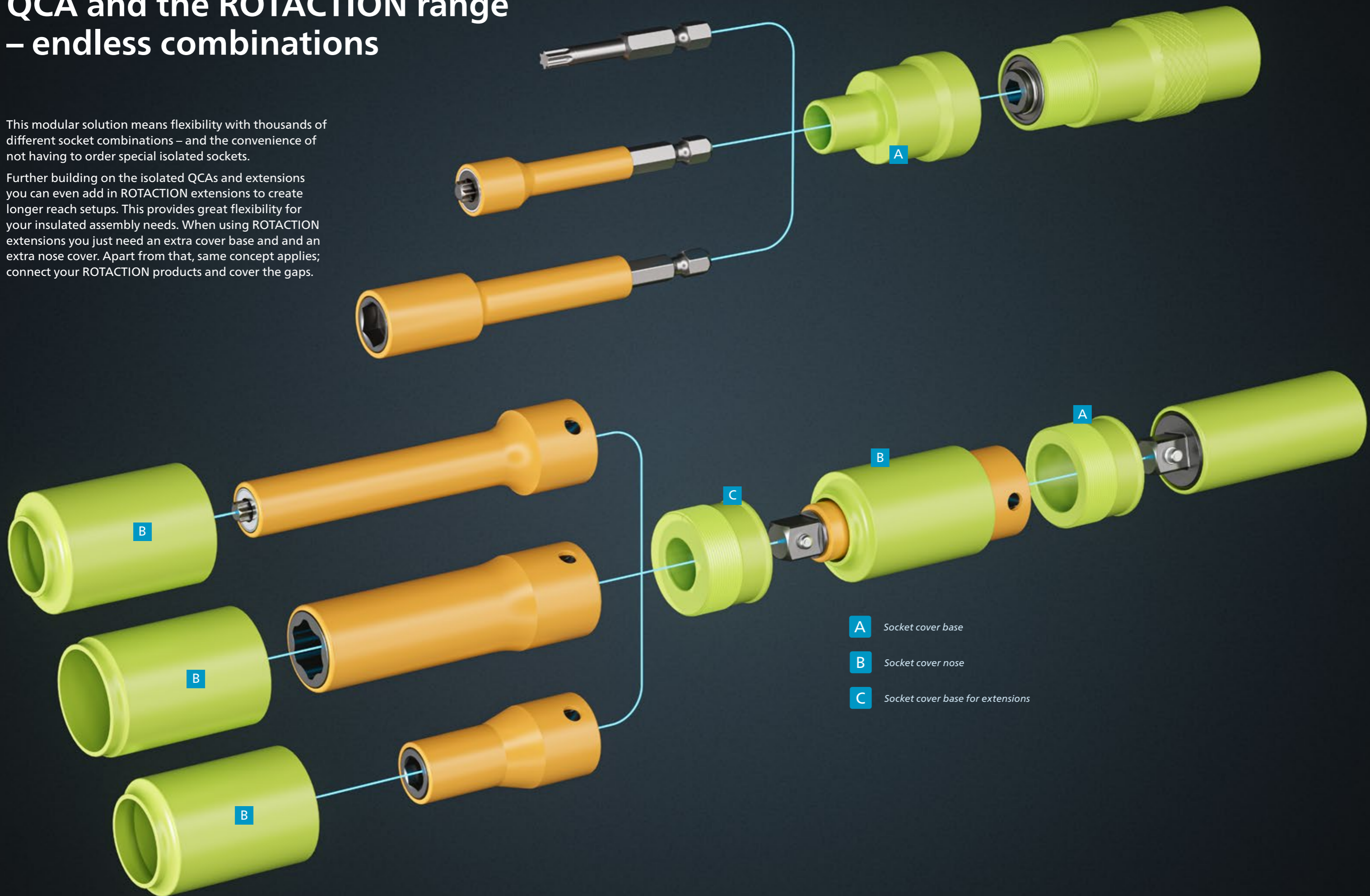
It is highly important that the correct insulated socket cover is used for the chosen combination of parts.

- A** A socket cover base fits snugly around the base of the QCA/extension
- B** The second part, the socket cover nose, is threaded on counter clockwise on top of the socket cover base, completing the solution
- C** ROTACTION socket sits inside the radially isolating socket cover nose.

# QCA and the ROTACTION range – endless combinations


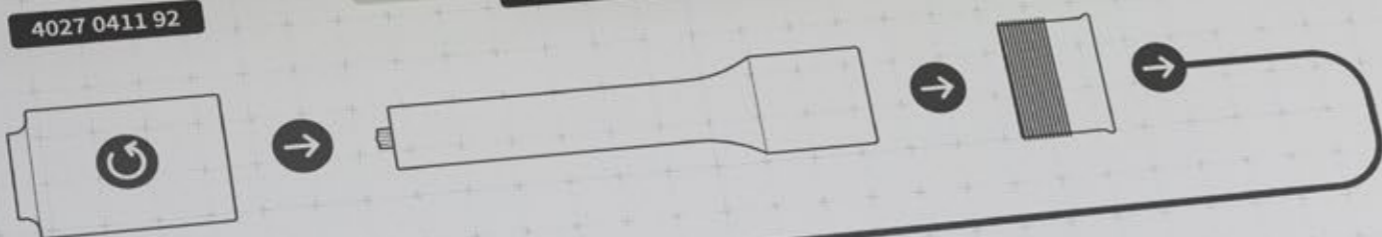

This modular solution means flexibility with thousands of different socket combinations – and the convenience of not having to order special isolated sockets.

Further building on the isolated QCAs and extensions you can even add in ROTACTION extensions to create longer reach setups. This provides great flexibility for your insulated assembly needs. When using ROTACTION extensions you just need an extra cover base and an extra nose cover. Apart from that, same concept applies; connect your ROTACTION products and cover the gaps.



# User case examples with ROTACTION


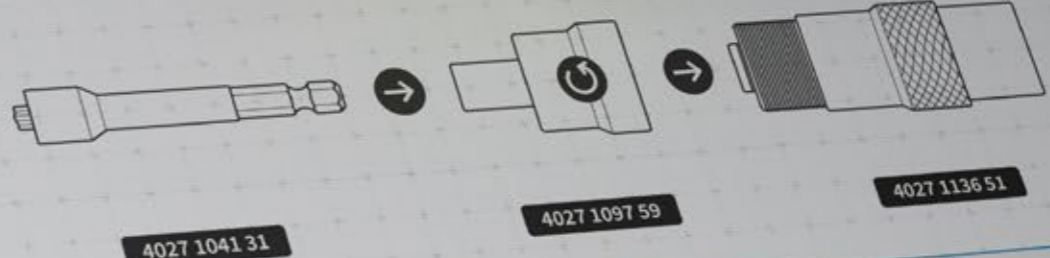
The possibilities are almost endless when combining our isolated system with ROTACTION products. Below are three common user cases where ROTACTION serves as the interface and our isolated products deliver radial and axial isolation. What would your rig look like? Use our selection guides on pages 20-22.

4027 0411 92      4027 1227 26      4027 0411 84



4027 0411 92      4027 1234 32      4027 0411 84      4027 1236 40

Isolated QCA for 3/8" Sq Dr - output male 3/8" Sq Dr in combination with a ROTACTION extension and ROTACTION socket or bit socket.

4027 1041 31      4027 1097 59      4027 1136 51

Insulated socket cover for isolated QCA with output female 1/4" Hex style E drive in combination with ROTACTION bits, nut setters or standard bits style E.

4027 0411 92      4027 1262 08      4027 0411 84      4027 0351 29

Insulated socket covers for isolated extension with Sq Dr 3/8" output in combination with ROTACTION socket or bit socket.

## Challenge us!

Apart from our stock items, we also have a strong team of designers that can handle any type of custom need you might have. Please challenge us with your specific needs!

# Insulated Tool Covers – Providing electrical insulation

With a non conductive plastic, the range of Atlas Copco Tool Covers are designed to insulate the conductive parts of handheld electrical tools from Atlas Copco. When used together with insulated Saltus sockets, they provide insulation of tools in close proximity of high voltage areas. Such as work on and around EV batteries.



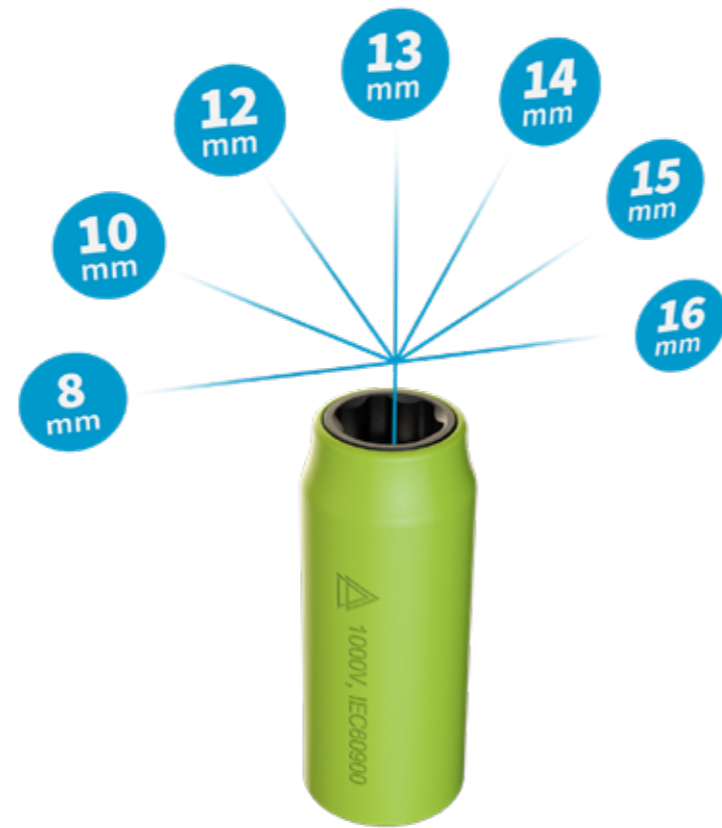
- A** Two-part cover attaches around tool with a click from the clasps
- B** The Cover nut tightens to secure top and bottom covers
- C** Front cover for pistol grip tools
- D** Reverse ring rubber cover
- E** Rubber ring clamps the sides together
- F** Battery foot cover

## Available for multiple tools

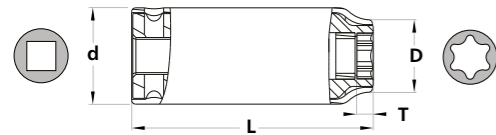
ITB-A61-50-10, ITB-A61-30-10, ITB-A31-15-10, ETV STR61-50-10,  
ETV STR61-30-10, ETV STR61-15-10, ETV STR61-10-10,  
ETV STR61-05-10, ETV STB34-30-10, ETV STB34-15-10,  
ETV STB34-10-10.

# Sockets



Our standalone isolated sockets currently come in seven sizes. They connect directly to your 3/8" square drive output.



## Isolated Sockets Surface Drive with Magnet



Now up to 80 Nm

			Length-L mm	Ø-d mm	Ø-D mm	Depth-T mm	Weight g	max. Torque Nm	Ordering No.
	in	mm							
	3/8	SD8	62.5	25	16.3	3.5	84	30	4027 1294 08
	3/8	SD8	62.5	25	16.3	3.5	110	80	4027 3294 08
	3/8	SD10	62.5	25	18.8	4.2	75	30	4027 1294 10
	3/8	SD10	62.5	25	18.8	4.2	112	80	4027 3294 10
	3/8	SD12	62.5	25	21.3	5.6	86	30	4027 1294 12
	3/8	SD12	62.5	25	21.3	5.6	112	80	4027 3294 12
	3/8	SD13	62.5	25	21.5	6	85	30	4027 1294 13
	3/8	SD13	62.5	25	21.5	6	112	80	4027 3294 13
	3/8	SD14	62.5	25	23.8	5.6	90	30	4027 1294 14
	3/8	SD14	62.5	25	23.8	5.6	116	80	4027 3294 14
	3/8	SD15	62.5	25	25.0	6.8	90	30	4027 1294 15
	3/8	SD15	62.5	25	25.0	6.8	116	80	4027 3294 15
	3/8	SD16	62.5	25	26.3	7	91	30	4027 1294 16
	3/8	SD16	62.5	25	26.3	7	117	80	4027 3294 16

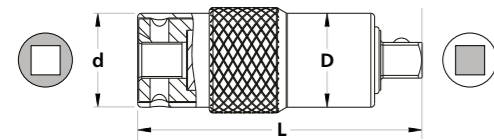






# QCA – Quick Change Adapter

The isolated QCA is a solution that enables your ROTACTION sockets, bit sockets and extensions to be a part of your insulated assembly equipment. Available in square drive and hex drive outputs in various configurations.

## Isolated Quick Change Adapters for Square Drives

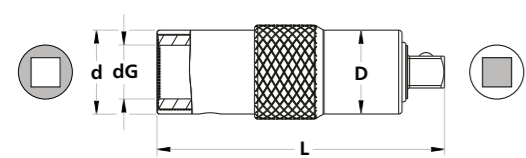




		Length-L mm	Ø-D mm	Ø-d mm	Weight g	max. Torque Nm	Ordering No.
in	in						
3/8	3/8	76	25	25	102	30	4027 1236 40
3/8	3/8	76	25	25	127	80	4027 1236 41
1/2	3/8	80	25	29	122	30	4027 1336 45
1/2	3/8	80	25	29	146	80	4027 1336 46

Now up to 80 Nm



## Isolated Quick Change Adapters for Square Drives Guided

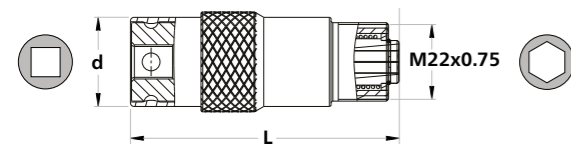




		Length-L mm	Ø-dG mm	Ø-d mm	Ø-D mm	Weight g	max. Torque Nm	Ordering No.
in	in							
3/8	3/8	86	16	25	25	118	30	4027 1236 60
3/8	3/8	86	16	25	25	143	80	4027 1236 61
1/2	3/8	114	16	29	25	207	30	4027 0364 68
1/2	3/8	114	16	29	25	232	80	4027 1336 48

Now up to 80 Nm



## Isolated Quick Change Adapters for Hex Drive Style E

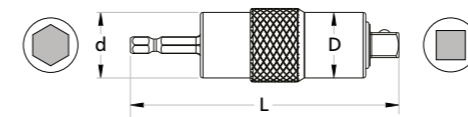




		Length-L mm	Ø-d mm	Weight g	max. Torque Nm	Ordering No.
in	in					
1/4	1/4	75	25	112	30	4027 1136 51
1/4	1/4	75	25	139	80	4027 1136 56
3/8	1/4	75	25	104	30	4027 1236 51
3/8	1/4	75	25	131	80	4027 1236 56
1/2	1/4	80	29	125	30	4027 0375 15
1/2	1/4	80	29	152	80	4027 1336 56

Now up to 80 Nm



## Isolated Quick Change Adapters with Hex Drive Style E for Square Drives

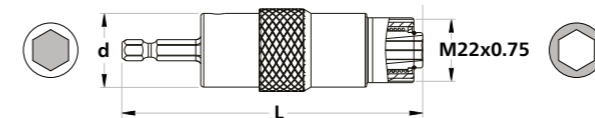




		Length-L mm	Ø-d mm	Ø-D mm	Weight g	max. Torque Nm	Ordering No.
in	in						
1/4	3/8	102	28	25	120	30	4027 1062 15
1/4	3/8	102	28	25	145	50	4027 1062 25

Now up to 80 Nm



## Isolated Quick Change Adapters with and for Hex Drive Style E



		Length-L mm	Ø-d mm	Weight g	max. Torque Nm	Ordering No.
in	in					
1/4	1/4	102	25	122	30	4027 1062 11
1/4	1/4	102	25	148	80	4027 1062 21

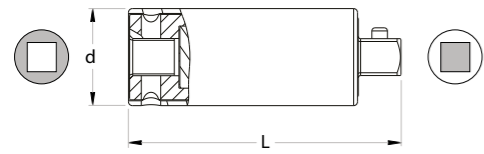
Now up to 80 Nm



# Extensions

The isolated extension is a solution that enables your ROTACTION sockets, bit sockets and extensions to be a part of your insulated assembly equipment. Available in 3/8" square drive input and output.

## Isolated Extensions Male Square with Pin

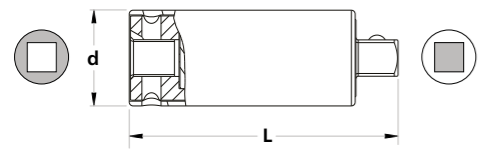


Now up to 80 Nm



in	in	Length-L mm	Ø-d mm	Weight g	max. Torque Nm	Ordering No.
3/8	3/8	70	25	101	30	4027 0351 29
3/8	3/8	70	25	126	80	4027 3234 80
3/8	3/8	75	25	116	30	4027 1234 81
3/8	3/8	75	25	140	80	4027 3234 81
3/8	3/8	100	25	194	30	4027 1234 82
3/8	3/8	100	25	218	80	4027 3234 82
3/8	3/8	150	25	349	30	4027 1234 84
3/8	3/8	150	25	373	80	4027 3234 84
3/8	3/8	200	25	504	30	4027 1234 86
3/8	3/8	200	25	528	80	4027 3234 86

## Isolated Extensions Male Square with Ball

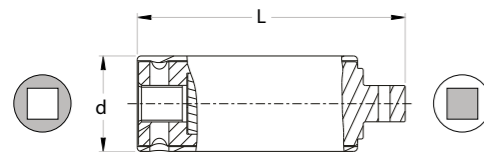


Now up to 80 Nm



in	in	Length-L mm	Ø-d mm	Weight g	max. Torque Nm	Ordering No.
3/8	3/8	70	25	101	30	4027 0369 74
3/8	3/8	70	25	126	80	4027 3234 90

## Isolated Extensions Male Square with Magnets (for quick exchange)



Now up to 80 Nm



in	in	Length-L mm	Ø-d mm	Weight g	max. Torque Nm	Ordering No.
3/8	3/8	70	25	100	30	4027 0385 25
3/8	3/8	70	25	126	80	4027 1236 90



# Socket covers 3/8" output

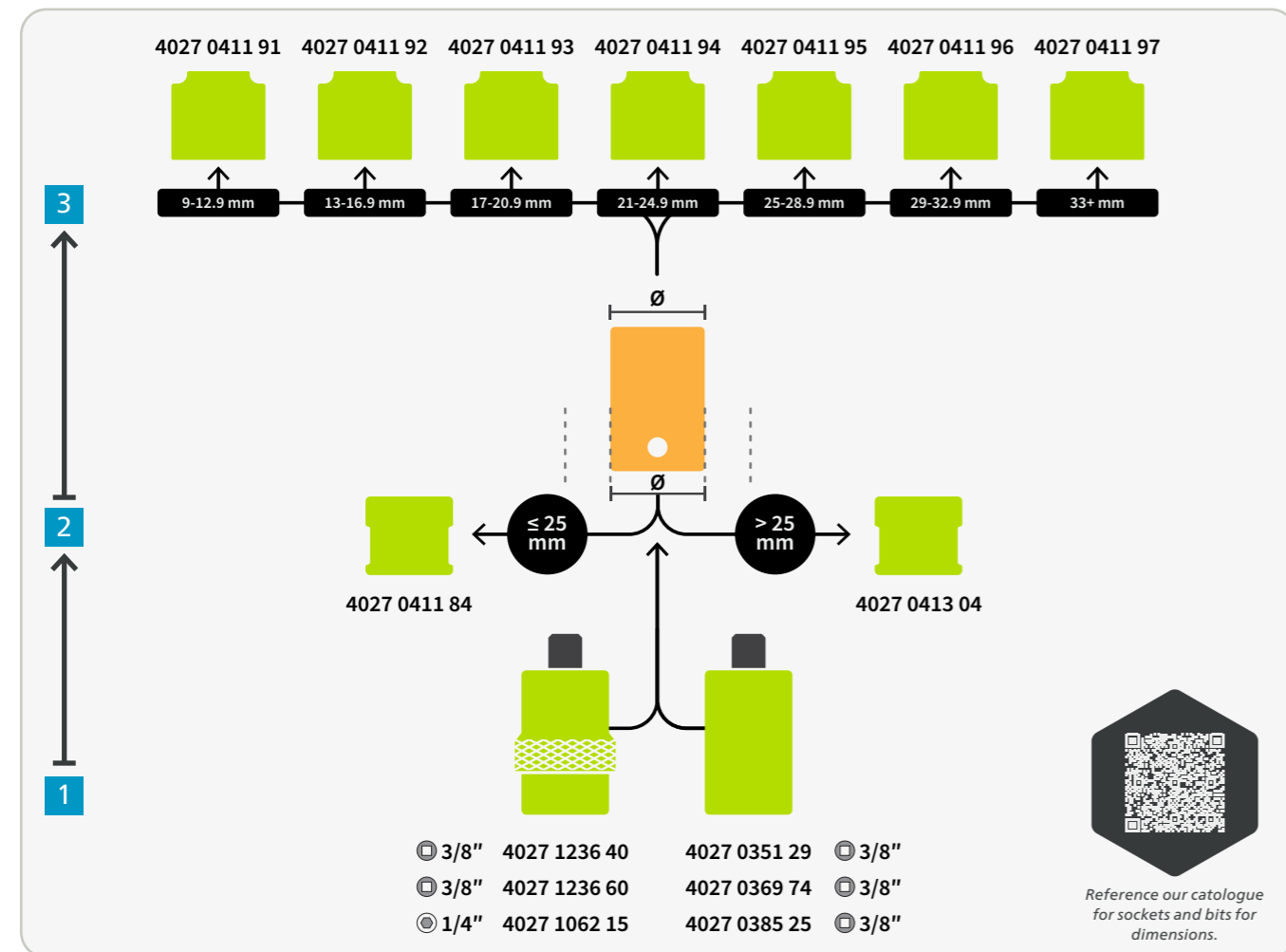
The insulated socket covers cover the gaps between sockets and isolated QCA/ extension. They are vital for maintaining the IEC 60900 standard. For ease of use and commonality they are designed to have as few different parts as possible.

Use below flow charts to identify your part numbers.

**Exception to the matrix 1:** Only use ROTACTION Extensions that are 75 mm or longer in combination with our isolated QCA and extensions. If you use a shorter ROTACTION extension shorter than 75 mm then you need to make a special request.

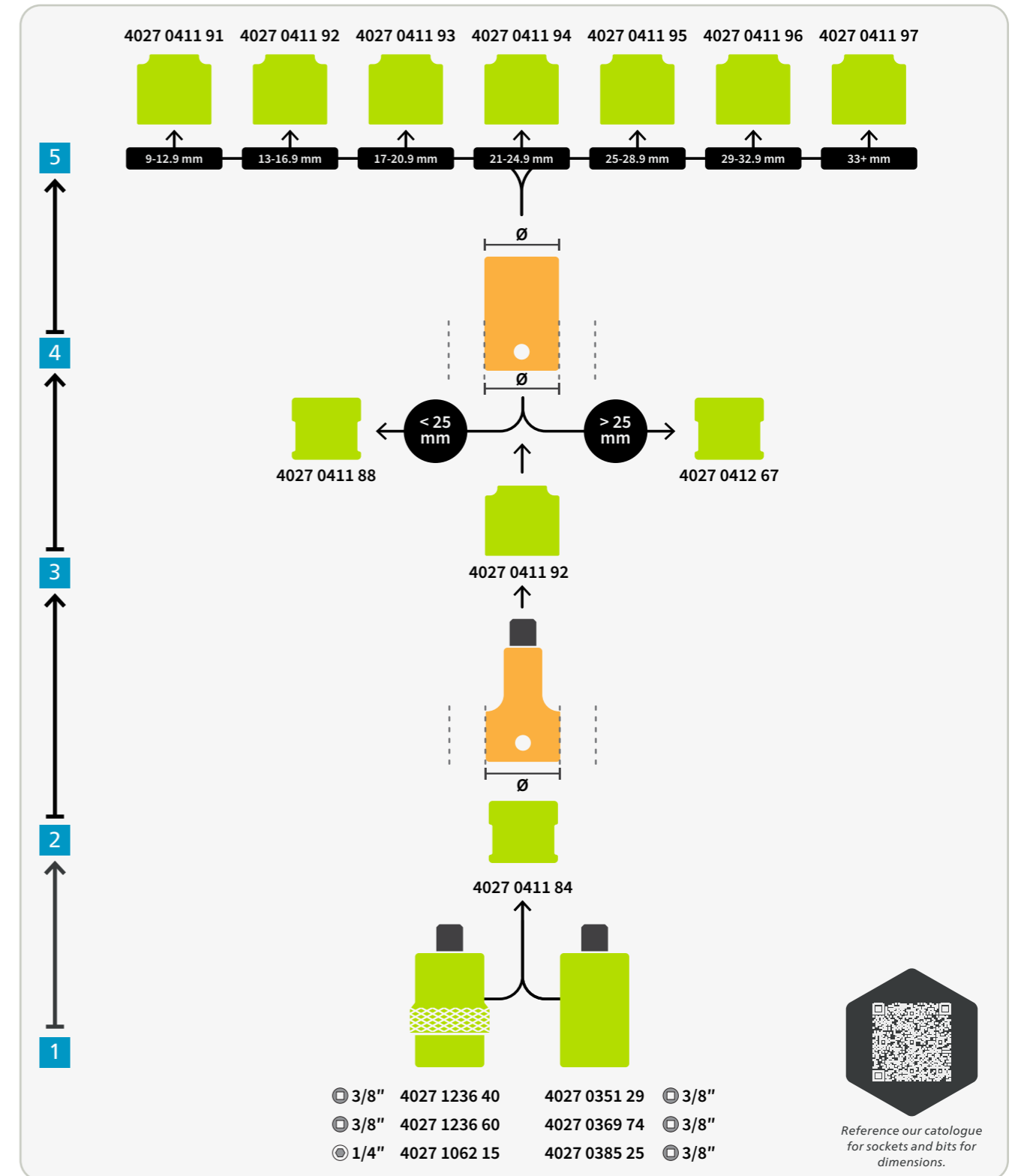
**Exception to the matrix 2:** For our range of short ROTACTION sockets (L=32 mm), with an output diameter between 14.2-16.3 mm, you must choose a socket cover that is one size larger.

**Example:** ROTACTION socket 4027 1263 07 in combination with the isolated QCA 4027 1236 40, should not be used with the suggestion in the matrix (4027 0411 92). As this ROTACTION socket has a length of 32 mm and an output diameter of 15 mm, the correct nose cover would be 4027 0411 93.



**Example:** 100 mm long Torx T30 Bit Socket with ring-magnet. 3/8" square drive.(4027 1227 31)

- We build from the tool and outwards. First select QCA or extension. We go with 4027 1236 40.
- Select base by checking the Output diameter of your ROTACTION part. In this case that is 13.7 mm which is smaller than 25 mm, so we go with 4027 0411 84 as our base.
- The Output diameter of our ROTACTION part is also used when selecting the socket nose. With 13.7 mm, 4027 0411 92 is the correct nose for this build.



**Example:** 100 mm long extension(4027 1234 21) and a socket with output 10 3/8" square drive.(4027 1285 10)

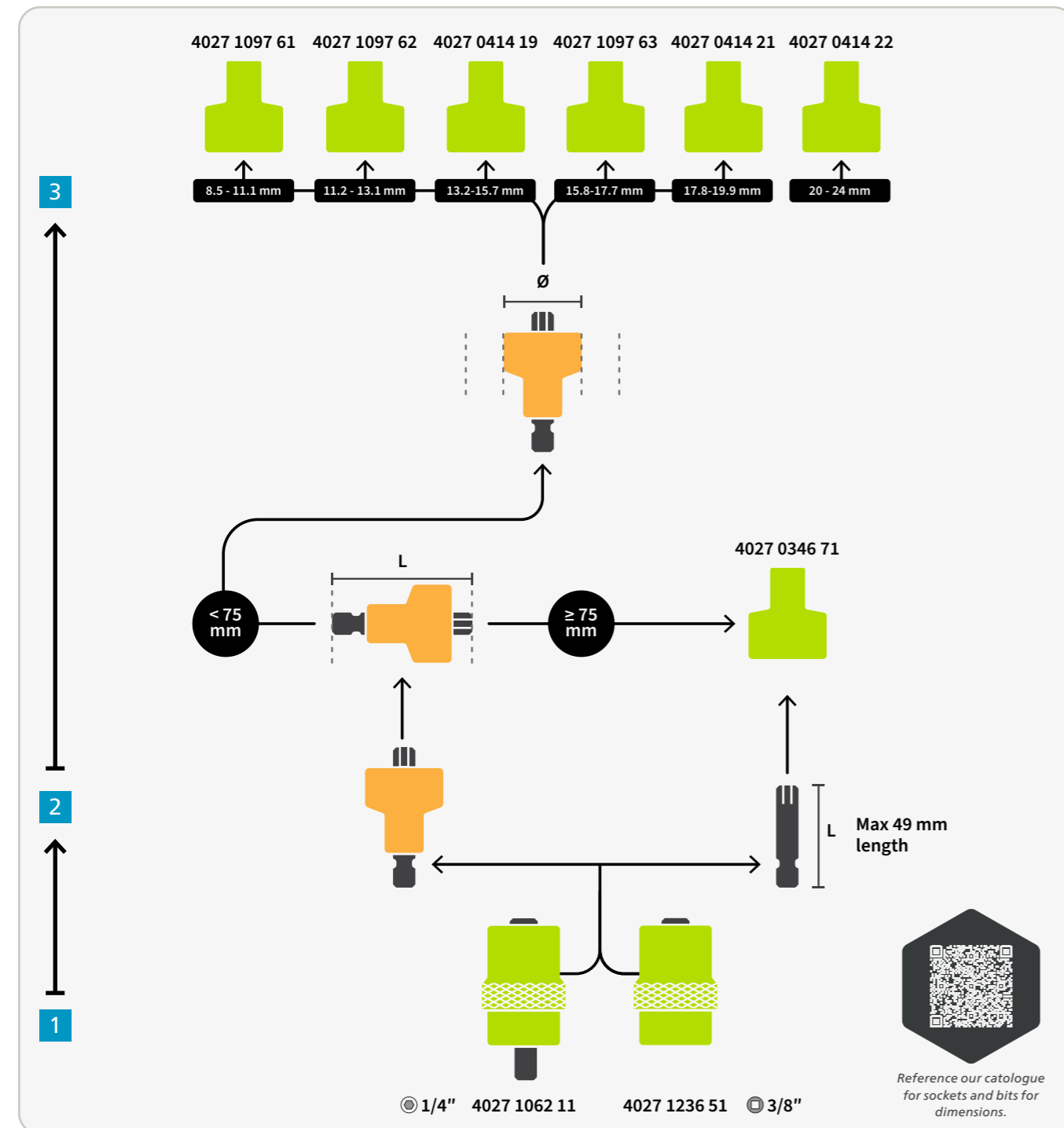
- We build from the tool and outwards. First select QCA or extension. We go with 4027 0369 74.
- All ROTACTION extensions are 25 mm in the base so 4027 0411 84 will always be the base.
- Rotaction extensions are all 16 mm at the output so 4027 0411 92 is the correct nose for this build.
- Next we select a socket cover base. Our socket Output diameter is less than 25 mm so we go with 4027 0411 88.
- Finally we check our ROTACTION parts' Output diameter. In this case that is 17.8 mm, 4027 0411 93 is the correct nose for this build.

# Socket covers 1/4" Style E hex output

Insulated socket covers for the 1/4" output that handle the gaps in your 1/4" hex setups. They are vital for maintaining safety and maintaining the IEC 60900 standard.

Use below flow chart to identify your part numbers.

Exception to the matrix:  
For non-ROTACTION bits thicker than 11.2 mm  
choose 4027 1097 62



**Example 1:** Bit for Torx Plus®-screws 49 mm .(4023 0002 20)

- 1 We build from the tool and outwards. First we select 4027 1062 11 as our QCA.
- 2 Since this is a non-ROTACTION bit we directly choose 4027 1097 61.

**Example 2:** Hexagon nut setter, ROTACTION.(4027 1077 08)

- 1 We build from the tool and outwards. First we select 4027 1236 51 as our QCA.
- 2 Since this is a ROTACTION part we first check if length is shorter than 75mm. In this case it's 50mm so we check the Output diameter.
- 3 Our Output diameter is 14.8 mm so we pick 4027 0414 19.

Torx®, Torx Plus® are registered trademarks of Acument Intellectual Properties, LLC.

# Didn't find an isolated solution for your application?

We have a wide range of sockets in stock. However, for complex tightening applications such as those for EV battery assembly, we have a strong team of designers that can handle any customized needs in isolated assembly.



# Isolated tool covers

Tool Covers for the Atlas Copco handheld electrical tools come in 5 designs to fit a full range of angle and pistol tools. The covers are designed in a non conductive plastic material tested for impact, strength, flame retardant and electrical insulation capability according to the IEC/EN 60900 standard. The green color coding ensures quick identification of tools that have been insulated.

Use below chart to identify the right tool cover for your tools.

## ITB Tools

Tool	Tool Part No.	Cover	Cover Part No.
ITB-A61-50-10	8436 0060 50	Ins Cover ITB	4220 3888 82
ITB-A61-30-10	8436 0060 30	Ins Cover ITB	4220 3888 82
ITB-A31-15-10	8436 0030 15	Ins Cover ITB	4220 3888 82

## Angle Cable Tools

Tool	Tool Part No.	Cover	Cover Part No.
ETV STR61-50-10	8436 6160 50	Ins Cover ETV STR50	4220 2744 57
ETV STR61-30-10	8436 6160 30	Ins Cover ETV STR30	4220 2744 51
ETV STR31-15-10	8436 6130 15	Ins Cover ETV STR15	4220 2744 53
ETV STR31-10-10	8436 6130 10	Ins Cover ETV STR15	4220 2744 53
ETV STR31-05-10	8436 6130 05	Ins Cover ETV STR15	4220 2744 53

## Angle Battery Tools

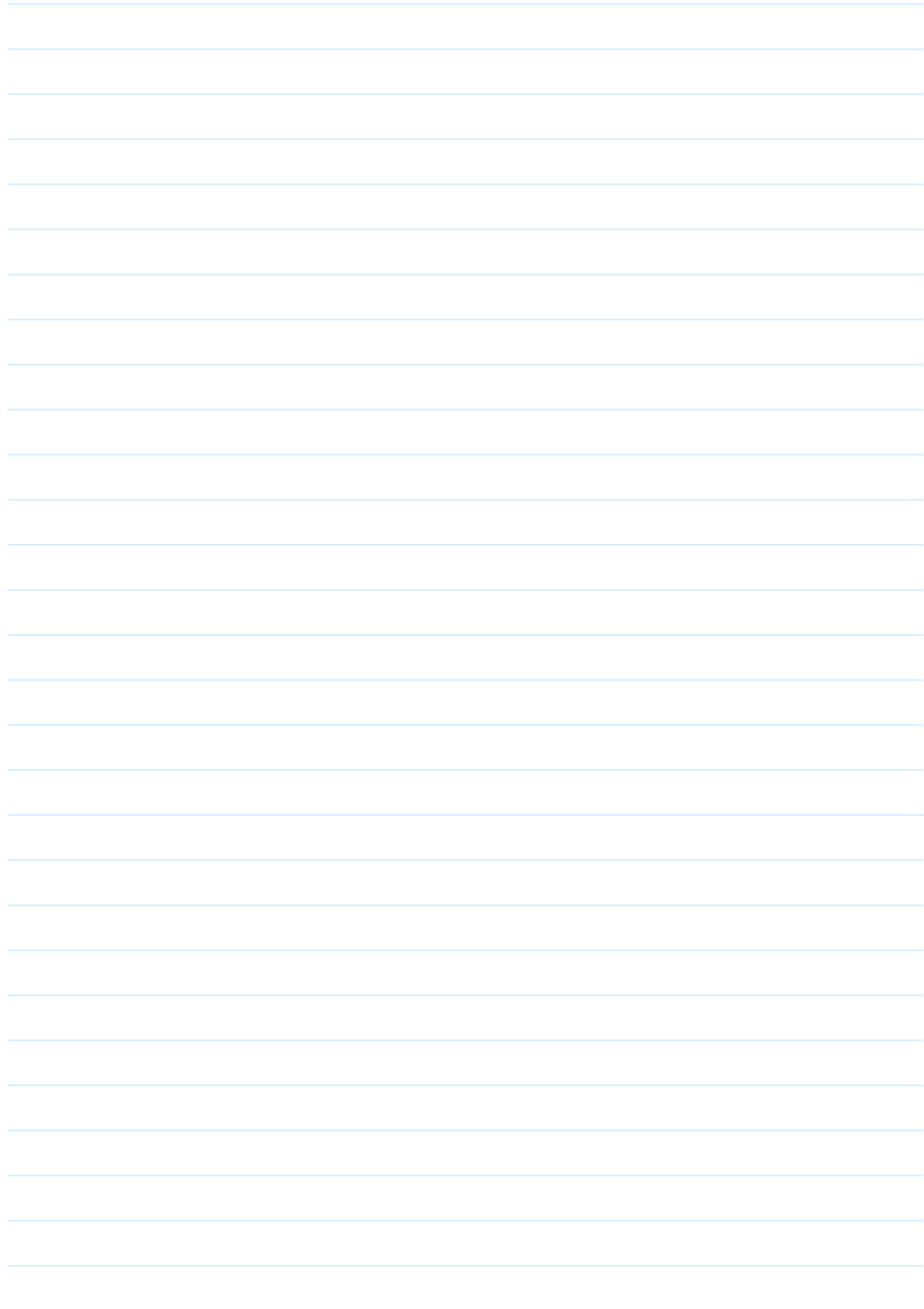
Tool	Tool Part No.	Cover	Cover Part No.
ETV STB34-30-10	8433 3023 35	Ins Cover ETV STB30	4220 2744 54
ETV STB34-15-10	8433 3023 15	Ins Cover ETV STB15	4220 2744 55
ETV STB34-10-10	8433 3023 01	Ins Cover ETV STB15	4220 2744 55
ITB-A61-50-10*	8436 0060 50	Ins Cover ETV STR50	4220 2744 57
ITB-A61-30-10*	8436 0060 30	Ins Cover ETV STR30	4220 2744 51
ITB-A31-15-10*	8436 0030 15	Ins Cover ETV STR15	4220 2744 53

## Pistol Tools

Tool	Tool Part No.	Cover	Cover Part No.
ETP SR31-25-10	8436 4300 20	Ins Cover ETP SR25	4220 2744 71
ETP ST32-10-10	8433 2213 48	Ins Cover ETP SR25	4220 2744 71
ETP SRB 31-20-10	8433 3270 30	Ins Cover ETP SR25	4220 2744 71
ETP STB34/SB33-12-10	8433302397	Ins Cover ETP STB 12	4220 2744 73

\*Tool Cover also fits the -H and -I06 version







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