

Hand in hand for tomorrow



SCHUNK e-mobility

Automation solutions for the
production of electric drives and
battery systems

SCHUNK – your partner for the switch to e-mobility

The change towards e-mobility is in full swing. It is time for the automotive industry to change lanes: from fossil fuels and combustion engines with crankshafts, pistons and injector nozzles to batteries, and e-drives with hairpin stators, shafts, and rotors. The challenge here lies in the fast and safe conversion of the manufacturing and assembly processes for the required components.

SCHUNK is your reliable partner for this changeover. We are an automation specialist and competence leader for toolholding and workholding, gripping technology and automation technology and supply you with everything from axis systems to robot accessories from a single source.

Through the clever combination of our standard products, we always find an individually suitable solution for you. You will benefit from our many years of engineering know-how in the industry. SCHUNK products are already known by all well-known automotive manufacturers and their suppliers. This accelerates integration into new process chains enormously and keeps you in the fast lane from the very beginning when switching to e-mobility.

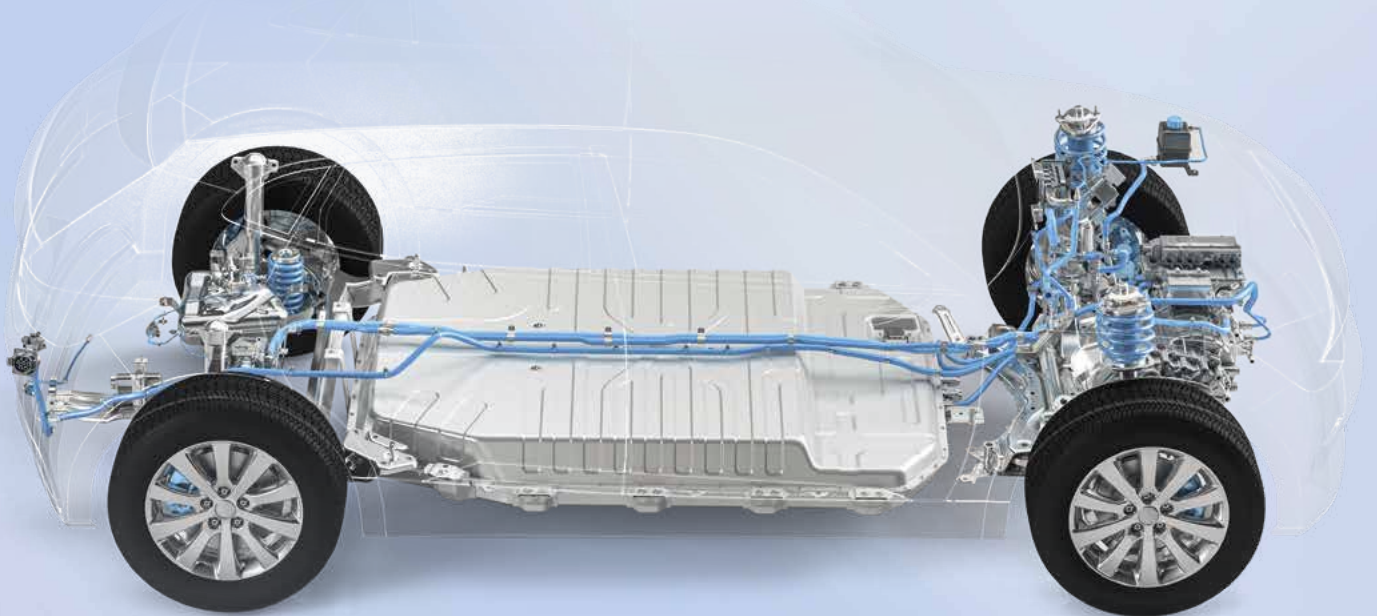
SCHUNK offers this added value:

Extensive standard portfolio in the areas of

- Automation technology
- Clamping technology
- Axis systems
- Robot accessories

Expertise in a wide range of applications

- 12,000 customized gripping technology solutions implemented
- 5,000 clamping technology solutions implemented



The e-mobility portfolio from SCHUNK



schunk.com/e-mobility

SCHUNK offers a complete solution, whether as a single component or an entire system.

Interested? Tell us more about the application you want to automate. Our application experts will find the right solution together with you.

Tel.: +49-7133-103-3014, E-Mobility@de.schunk.com

SCHUNK has the solution for your e-drives

We are at the forefront of every step in the production and assembly of e-drives. Regardless of whether it concerns the specific setting of the hairpins, the handling of the sheet metal packages, or the assembly of the components to the finished e-axis – SCHUNK can support you. Thereby we take into account special process requirements such as flexibility due to the many different hairpins, precision and dynamics for very short cycle times, and maximum reliability for a long service life of the system.

With our comprehensive portfolio of standard components and special solutions, we support you throughout the entire production process.



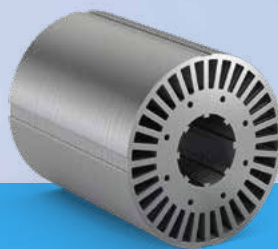
E-drive

The new generation of highly integrated electric motors places the highest demands on automation. We help you make your processes secure, effective and robust.



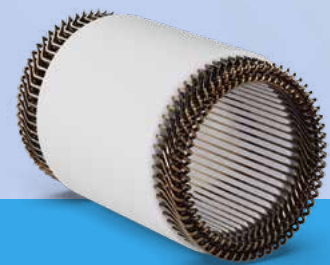
Hairpin

Hairpin applications have high demands when it comes to flexibility, dynamics and precision.



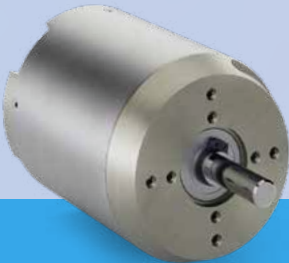
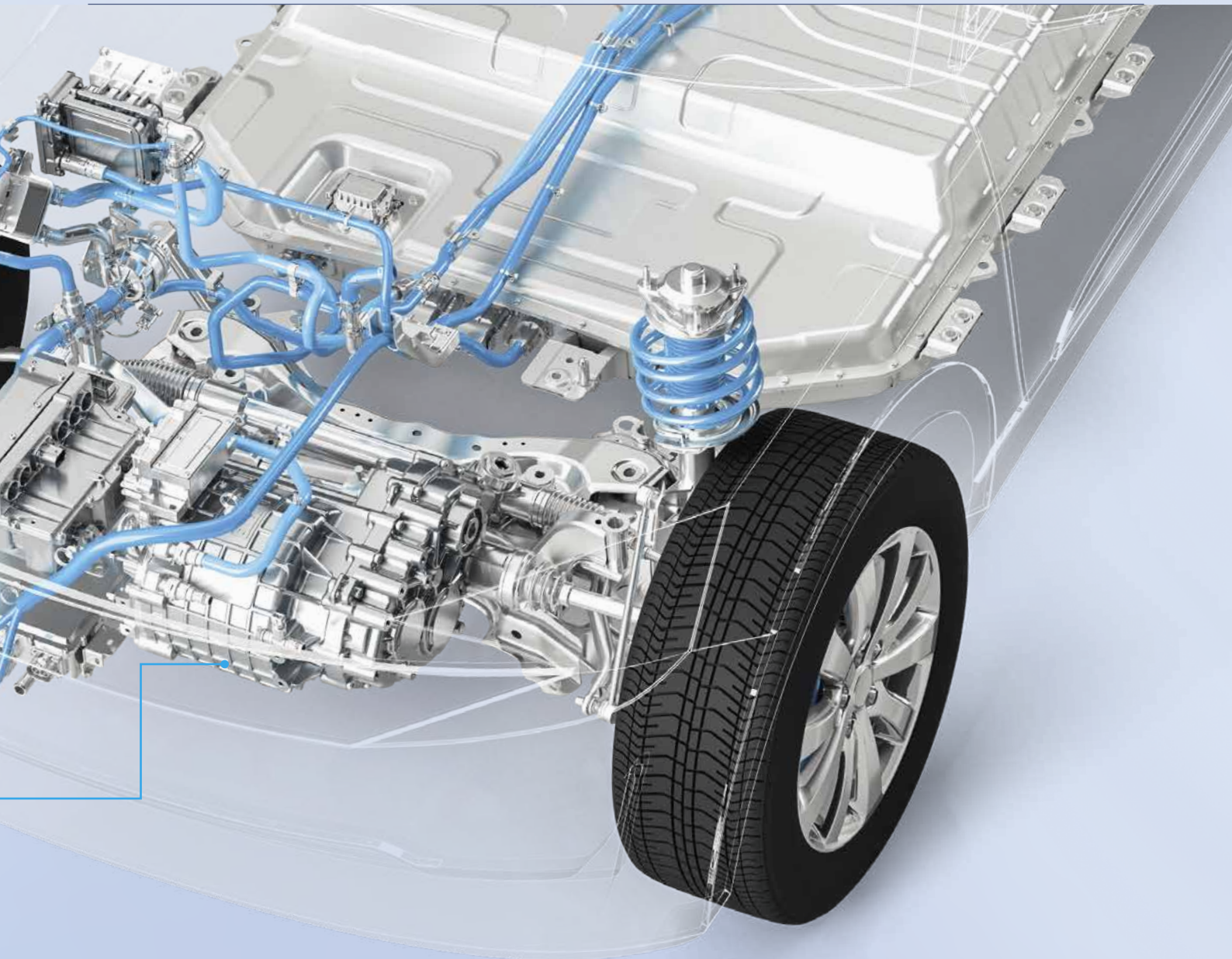
Electrical sheet

Sheet packages are used in both the stator and the rotor. The processes place high demands when it comes to precision, gripping forces and flexibility.



Stator

The processes step requires that the stator is involved in the handling to hold safely, move large masses, and resist high temperatures in certain application steps.



Shafts & rotors

High clamping forces and high precision are required for mounting the shaft in the rotor.



Stator housing

When machining and handling the stator housing, high demands are placed on precise machining and low-deformation clamping.



Housing

In the final assembly, all components are assembled and form the finished e-drive in the housing. This is completed by the control unit.

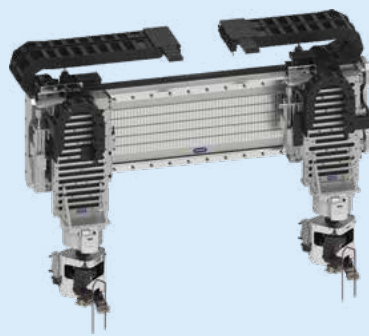
Step by step to the e-drive: quick and easy with SCHUNK

Hairpins



**Patented hairpin gripper –
gripping and handling of
more than six different
hairpin geometries with one
gripper**

Complete filling of all hairpins
in any stator



**Handling unit with two Z-axes
and two hairpin grippers for
placing hairpins in less than
one second**

Ideal for fast and precise
placing of all hairpins of a
stator

Stators



**Stator clamping using SCHUNK
hydraulic expansion technology**

Highly precise and
deformation-free clamping

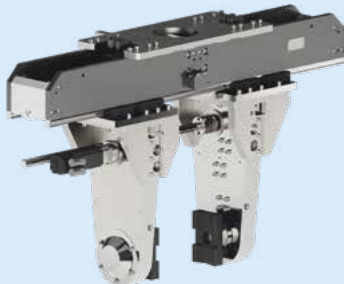
Stator housing and electrical sheets



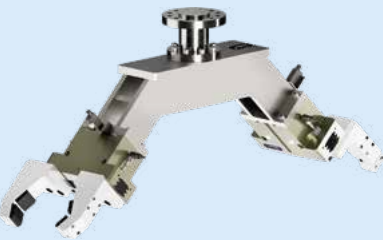
Shafts and rotors



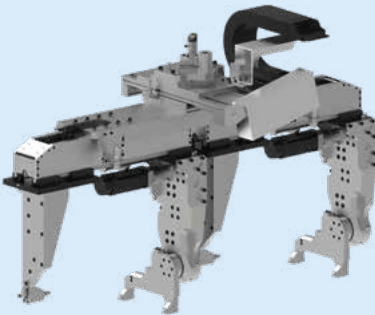
E-drive



Special solution for handling a wide variety of components
Ideal for gripping and turning stator housings, rotors and electrical sheets, for example, in various process steps.



Special solution for handling shafts & rotors with PGN-plus-P
Ideal for loading and unloading individual stators via the various process steps



Double gripping unit with long stroke and integrated turning station based on the electrical long-stroke gripper ELG
For gripping and turning of large and heavy workpieces

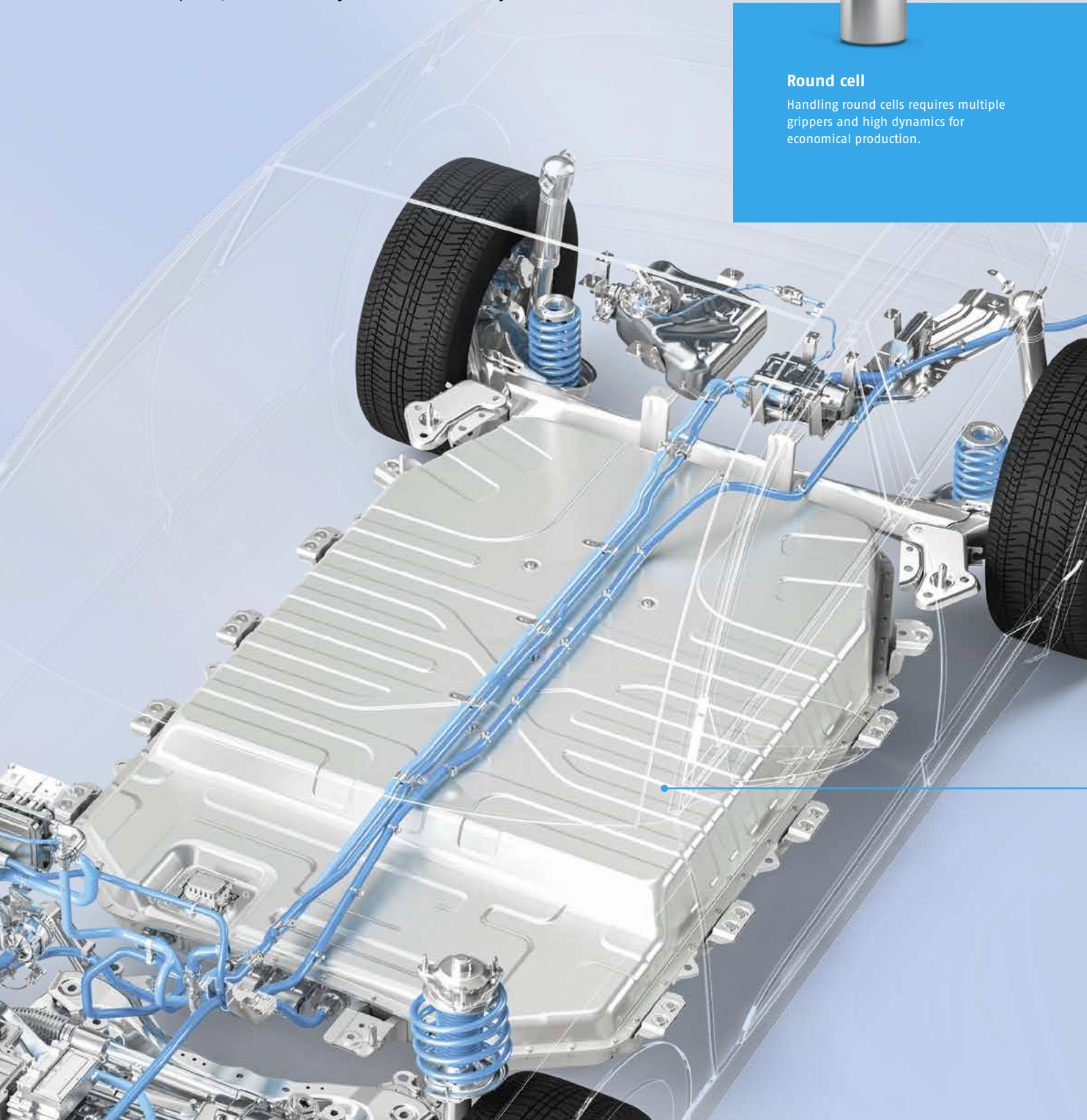
SCHUNK – your pacesetter when it comes to batteries

Using batteries brings new challenges to the automotive industry. SCHUNK supports you every step of the way. Starting with cell production with requirements for cleanroom and dry room environments as well as short cycle times, then on to handling sensitive components during assembly into battery modules and packs, and all the way the to final assembly in the vehicle.



Round cell

Handling round cells requires multiple grippers and high dynamics for economical production.





Prismatic cell

Transport of the cell and the assembly of modules requires flexible and modular handling.



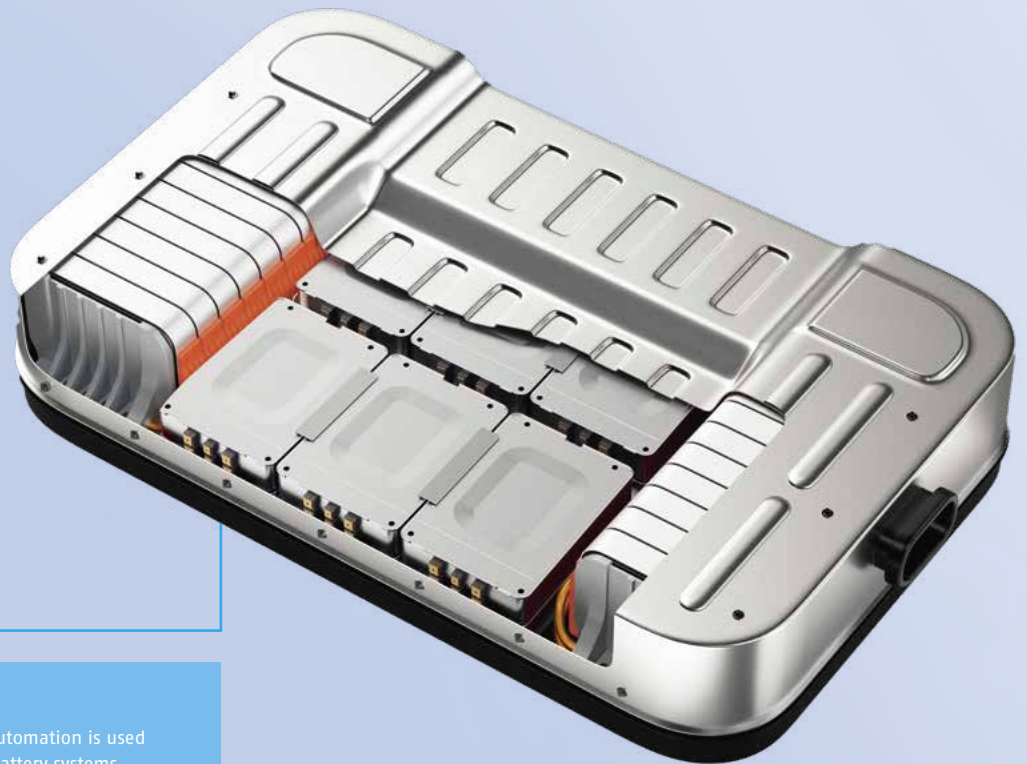
Pouch cell

Separating and stacking pouch cells requires the highest dynamics and accuracy.



Battery modules

Several cells connected to each other form what is called a battery module. Combining several modules with a control unit and a cooling system results in a battery pack.

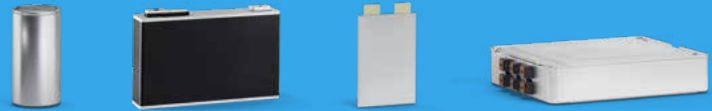


Battery pack

The entire range of automation is used to manufacture the battery systems. This applies to high-speed handling of individual cells to handling the highest masses of battery modules and packs.

Efficient processes for battery systems: with solutions from SCHUNK

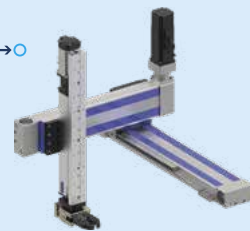
Batteries



Mixing slurry using SCHUNK hydraulic expansion technology
For precise clamping with repeat accuracy



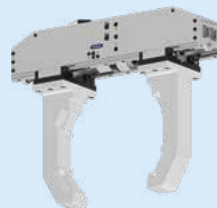
Calandering & Slitting using a hydraulic expansion arbor
High-precision clamping with short downtimes during tool changes



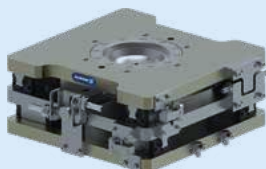
Transport solutions based on spindle and belt axes
Flexible transport solutions for a wide variety of system concepts using axis systems, rotary modules and gripping technology from SCHUNK



Handling battery foils and batteries with ADHESO
Adhesion gripper for media arm handling



Flexible handling of battery modules and battery packs as well as flexible assembly tasks
using the SCHUNK long-stroke gripper



Special balancing unit for assembly of modules and battery modules
for large loads



Compensation unit for screw applications
for customized compensation



Mixing



Calandring



Slitting



Winding



Stacking




Transport




Assembly


Round cells



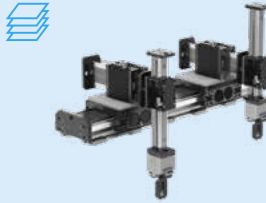
Prismatic cells



Pouch cells




Winding & transport tasks using ERT/ERD, but also a rotary indexing table, for example
Highly dynamic rotary modules with media feed-through for dynamic applications with high repeat accuracy



Stacking pouch cells using linear handling
Linear direct drives for highly dynamic applications with high repeat accuracy



Cell spacing & transport unit for round cells
available in different formats



Media-free transport solution for prismatic cells
Safe handling with repeat accuracy during the complete process



Process-safe handling of round cells
using SCHUNK magnetic grippers

We print sustainably



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