



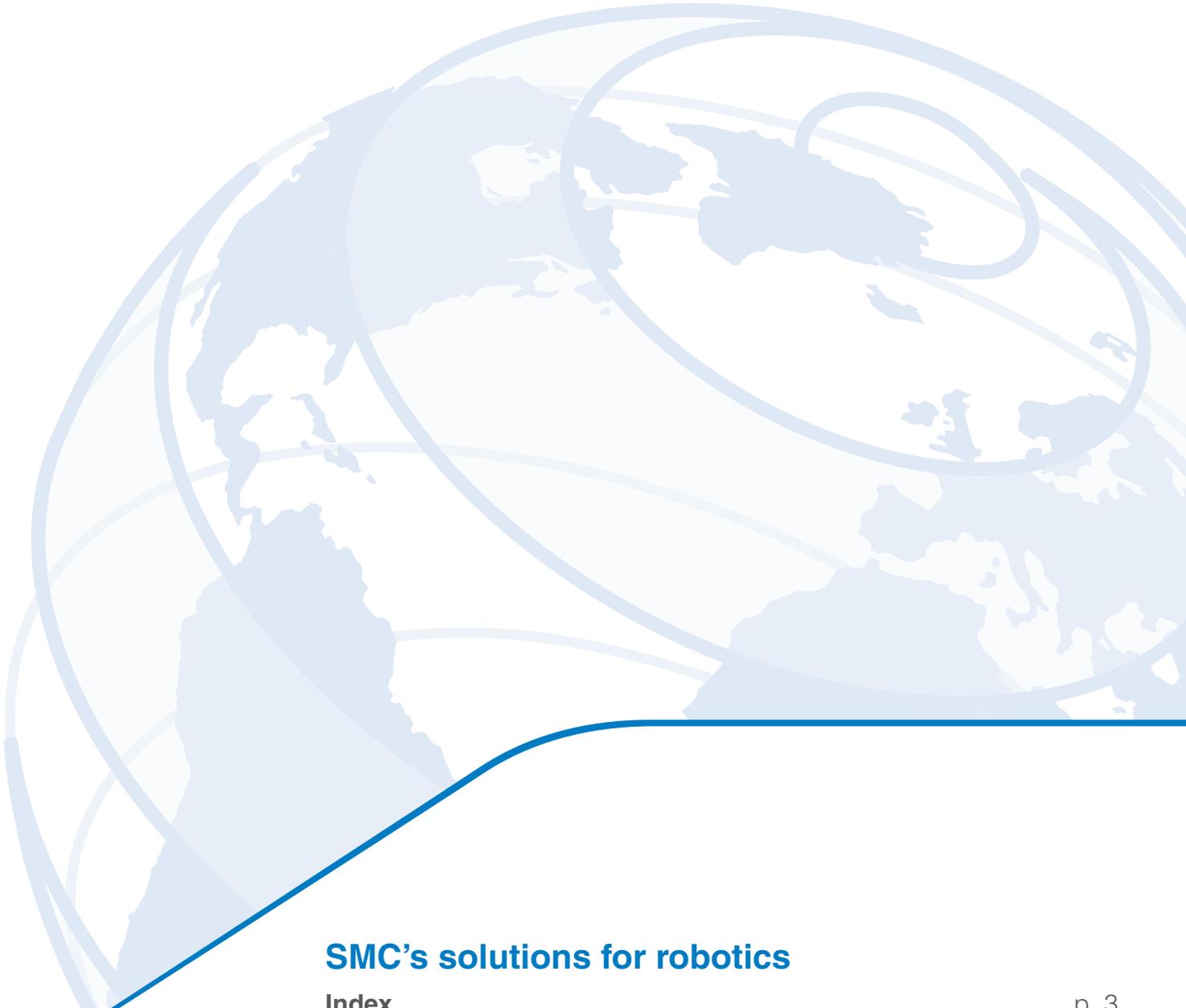
Expertise – Passion – Automation



Your right arm
SMC's solutions for robotics



SMC, your global single supplier



SMC's solutions for robotics

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Industrial robots are no replacement for human creativity

As the rise of industrial robots continue to gather space around the world, with 15 % year on year growth (source: International Federation of Robotics), there is a growing need to find suppliers that can keep up with the changing manufacturing landscape.

By 2020 it's estimated that 1.7 million additional robots will be running production plants. And Europe is at the heart of this, boasting the highest number globally, with the latest statistics suggesting there are 106 per 10,000 people, as manufacturers look to stay competitive and keep production within the continent.

However, robots will never replace the human ability for strategic thinking, invention and detail, and yet the two can work hand in hand.

Our customers, our inspiration

We enjoy a close working relationship with our customers, who inspire us every day as they harness their creative genius using SMC products to find and create solutions that were not previously thought possible. A great example of this in action, is when our LAT3 card motor was mounted on a robot head to perform quality checking tasks, while the robot was continuing to handle the workpiece.

Your right arm

Understanding the needs of our customers and the type of components they require, means we have created a range of solutions that are compact, lightweight and energy efficient. This is supported by our global infrastructure with offices in 83 countries and 2,000 engineers committed to delivering exceptional levels of service. This international coverage gives our customers the confidence and trust to access parts or technical support, wherever they are in the world.

Read on to find out more about SMC's solutions designed to meet the age of industrial robotics.

“Understanding the needs of our customers and the type of components they require, means we have created a range of solutions that are compact, lightweight and energy efficient.”



MR. ANDREAS CZEATKE EXPERT IN ROBOTICS – SMC AUSTRIA
GLOBAL COBOT PROJECT LEADER CEE

Key solutions

Avoid the hassle of cables with your robot

With the world's first integrated Wireless valve system, any robotic application can benefit from both reduced installation time and costly production downtime. Easier and cost-effective with no industrial communication cables.



Wireless system

 EX600-W Series

- Less cables & connectors, less installation & maintenance, less breakage & disconnection risk – Increase machine availability (OEE improvement)
- Achieve totally reliable, noise-resistant communication – Frequency hopping and data encryption in the 2.4 GHz ISM band.

less

If you choose a wired solution, we have a range of Fieldbus systems compatible with your communication protocols, including IO-Link.

Integrated fieldbus system type

 EX260 Series

- Mount it directly on your robot arm – Minor footprint and cabling with daisy-chain topology
- Avoid a long connection time – Quick connection Speedcon connectors.



Fieldbus system for input/output

 EX245 Series

- Reduce your assembly time & wiring – Plug & Play AIDA push-pull connectors
- Robust and noise-resistant – Fibre-optic communication
- Speed up your robot tool change – Fast start-up function.



The space saving 3-in-1 electric solution your robot needed

Miniaturisation is a key factor to increasing the productivity of your robot application and that is why we have designed an ultra-compact solution integrating a linear motor, a linear guide and a displacement sensor.

Card motor

 LAT3 Series



- Transport, push or measure length with this miniaturised linear motor
- Place it virtually anywhere – The size of a credit card & 9 mm high
- Secure your cycle times – High-speed response and operation.



miniature



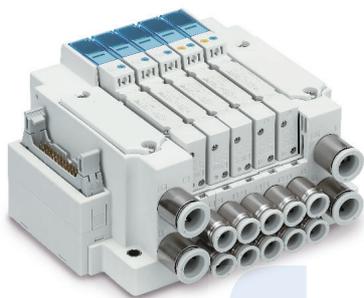
Let your robot move faster; push your productivity

Our J Series includes a range of pneumatic solutions specially designed under a weight & dimensions optimisation concept. This will enable your robot arm to move faster as the inertia loads are reduced, being more productive thanks to greatly enhanced cycle times.

5-port solenoid valve

JSY Series

- The smallest width 5-port solenoid valve (6.4 mm) on the market
- Better flow characteristics and faster response time compared with other valve series with a similar valve width.



Speed controller with one-touch fitting

JAS Series

- Suitable for confined spaces – Height reduction up to 43.3 %
- Easy to install and easy to operate – Needle adjustment by manual push-lock or with a flat blade screwdriver.



faster

Parallel style air gripper

JMHZ2 Series



- Minimise the moments of inertia in your robot – Overall length shortened up to 21% ¹⁾ and weight reduced up to 43 % ¹⁾
- Enhance your performance – Higher opening/closing stroke and longer gripping point is possible in cylinder one bore smaller
- Achieve precise handling – Precision repeatability as low as ± 0.01 mm.



Cylinders

JCQ/JMGP/JCM/JMB Series

- Suitable for robot manipulation – Up to 69 % lighter with overall length shortened. Improved cycle times
- Better utilisation – Compact, guide, tie-rod and round types
Tie-rod type allows intermediate bore sizes for an even greater optimisation.



1) All comparisons are done with alike models in the market.

Designed to endure your robot's movements

Robot applications usually need to withstand fast and complex movements. Here you have our proposal to increase the life of your products forgetting about being continually on the lookout for maintenance.



Wear-resistant tubing

 TUZ Series

- Avoid sliding motion abrasion with this special polyurethane tubing
- Be sure it will last – Maximum abrasion 0.16 mm after 10 million cycles
- Fit it in narrow piping spaces – Small bending radius.

Rotary one-touch fittings

 KS/KX Series

- Ideal for oscillating or rotating sections in robots – Ball race bearing
- Eliminate wear at fitting and tubing – Tube rotation prevention mechanism
- Specific version for high-speed applications (KX Series).

Rotary joint

 MQR Series

- Makes it possible to supply air to rotating and sliding components (up to 16 circuits)
- It will keep up your robot's rhythm: allowable rpm: 200 to 3000
- Long service life: Up to 1 billion rotations.

Changing your robot's tools has never been easier

When several tools have to be used in the same robot application, don't hesitate, take a look at our next product.

Auto hand changing system

 MA Series



- Automatic exchange of robot hand tools without requiring adjustments or teaching
- Integrate it into a Flexible Manufacturing System (FMS)
- Taking into account safety – Built-in failsafe mechanism for drop prevention when there is air pressure loss.

exchange

Specific for

Do you have a gripping challenge? We are up for it!

Pneumatic, electric or what you never imagined, a great variety of options with which SMC allows you to handle whatever you want with your robot.

Pneumatic grippers

 MH Series

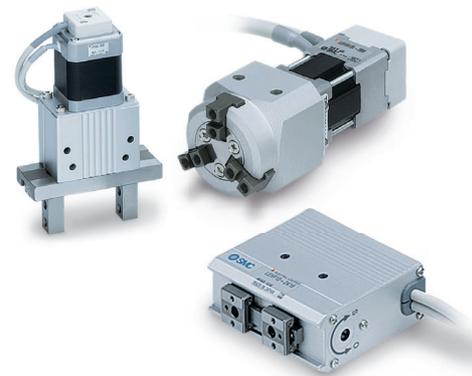
- Pick up whatever – Available in parallel style with 2, 3 and 4 fingers, in angular style
- Mount them wherever, however – High degree of mounting flexibility plus a variety of dust covers
- Achieve precise handling – Precision repeatability as low as ± 0.01 mm.



Electric grippers

 LEH Series

- Great variety of mechanics to choose from – Tailored electrical solution
- Total speed, force & position control – Digital I/Os or fieldbus commands, including IO-Link
- Ensuring you grip what you need to – Gripping check function to identify workpieces with different dimensions
- Always with safety in mind – Workpiece drop prevention function.



gripping

Magnetic gripper

 MHM Series



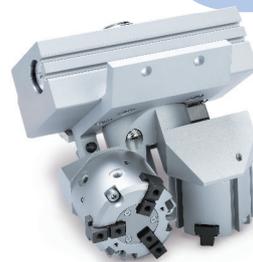
- Performs optimally, where others don't – Holds ferromagnetic workpieces with holes and uneven surfaces
- Handle with reliability and safety – Holding force up to 120 N, plus it guarantees gripping the workpiece even when the air is shut off
- Increase your productivity – Reduce your cycle times.



Double gripper reversing unit

 MHS Series

- Mount our 3-finger air grippers on the reversing unit to operate in limited spaces – Reduction of the turning diameter required by mounting the air grippers in parallel
- Downsize your machines – The stroke of the equipment shutters can be reduced.



Build up your complete vacuum solution

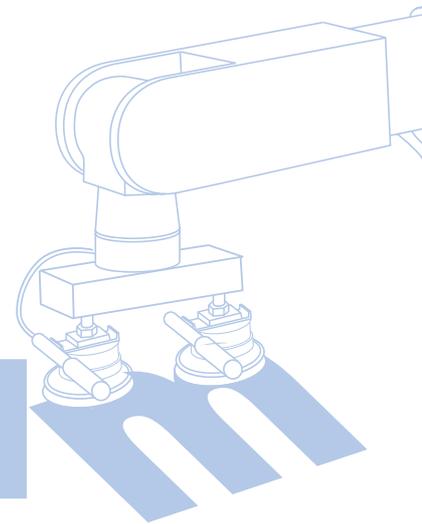
If vacuum is a must for your robot application, we have a great offer: lightness, reduced response times, integration or a variety of materials and shapes, everything you could need can be found in our vacuum section.



Vacuum pads

 ZP Series

- High flexibility to handle workpieces of different sizes, shapes, weights and/ or materials – Wide portfolio of pad types plus a selection of mark-free, antistatic, FDA compliant and for disk adsorption or panel holding
- Easy mounting – Very short overall length, compact buffer body, wide selection of piping and disassembly.



vacuum



Vacuum ejectors

 ZU/ZH/ZK2/ZL Series



- Improve your cycle time – Great variety of light and compact vacuum generators
- Handle anything – different sizes, shapes, weights and/ or materials
- Flexibility of use – Available with control valves, silencers, filters, digital pressure switches and/ or even energy saving function.



Vacuum pad with ejector

 ZHP Series

- Place it easily in confined spaces – Vacuum ejector and pad are integrated
- Simplify the mounting and reduce your maintenance – Daisy-chain piping and lock-plate structure
- Ease the separation and disposal of workpieces – Shot-blasted pads with groove on the adsorption surface.



Vacuum saving valve

 ZP2V Series

- Avoid switching operations and simplify your control circuit – Closes the suction line of the pad when there is no workpiece
- Save energy – Almost no loss associated with pads sucking no object or sucking irregularly.



handling



Vacuum sensors

 ISE20/ZSE20 Series

- Gain control of your process without adding weight – Sensor as little as 30 mm x 30 mm x 31.5 mm
- Fast and flexible – Easy setting and short delay time
- Increase process efficiency and improve machine availability – IO-Link compatible.



Non-contact grippers

 XT661 Series

- Transfer and leave no marks – No physical contact with the workpiece
- Handle different sizes, materials & shapes gently – Cyclone and Bernoulli grippers
- Minimise installation & maintenance efforts – Possible to be disassembled and cleaned on the inside.

Our withstanding solutions for your welding robot

We have current-resistant solutions at your disposal for the fixing and positioning of the material to be welded, as well as a wide range of tubes suitable for the welding sector where the environments are exposed to harsh spatters.

Power clamp cylinder

 CKZT Series

- Ensure your clamping operations in welding environments – Spatter-proof construction. Rounded cover design and release button with minimal protrusion reduces weld spatter accumulation
- Do you need to clamp small workpieces? Light and compact specific model – As light as 580 g and as little as 34 mm wide and 192.4 mm high.



Pin clamp cylinder

 CKQ Series

- Positioning and clamping at the one time in environments exposed to magnetic fields
- Welding-friendly, but still light and compact for use in robot arms
- Guarantee safety – Lock mechanism to prevent the dropping of workpieces during emergency stops.



Flame-resistant tubing

 TRS/TRBU/TRTU Series

- Suited for arc and spot welding – Flame-resistant resin tubing (equivalent to UL-94 Standard V-0)
- Wide variety of flame-resistant tubing:
 - **TRS Series:** the simplest SMC flame-resistant tube
 - **TRBU Series:** double layer design with outer polyurethane flame-resistant tube
 - **TRTU Series:** the three-layer polyurethane tubing that improves spatter resistance by inserting an aluminium layer between the outer layer and the inner tube. TRTU performs best in the harshest environments.

When quality in painting is a must

We make your painting application easier with a variety of silicone-free products, a suitable choice for automotive and paint industries to avoid detrimental effects on paint adhesion.

Valve for water and chemical base fluids

 VCC Series



- Perfectly designed for your robot arm – space-saving & light valves through a resin body with reduced paint deposit
- Antistatic manifold applicable for water/chemical base paint and cleaning with solvent/air
- High reliability and long service life (2 million cycles).



VCC Ideal match – Stainless steel fitting

 VCK Series



- Resists painting chemicals – SUS316L stainless steel
- Assures reduced residual liquids – Resin surface sealing
- Easy installation and removal in tight spaces, piping volume reduced – 40° swivel elbow.



painting



Fluoropolymer tubing

 TH Series

Perfect to use in extreme conditions – Highly resistant to harsh fluids and solvents up to 200 °C, as well as the possibility of being used at high operating pressures.

High purity fluoropolymer fitting

 LQ Series

- Avoids impurities within painting circuits for car bodies on painting lines in car industries – New PFA material virtually eliminates particle generation and TOC (total organic carbon) allowing confident use in the most demanding applications
- Resistant to harsh fluids and solvents up to 200 °C
- Strong resistance to tube bending and deformation.

Another solutions for you

Thermo-chiller

 HRS/HRSE/HRSH Series

Get peace of mind with your welding applications by installing the best thermo-chiller for them. By maintaining the temperature within strict limits you will boost weld quality, reducing spatter and extending the life of the tips.

Improve cooling by adding

Directly operated 2-port solenoid valve

VXZ Series

Digital flow switch for water

PF3W Series



tranquility

Air dryer combination

 AF + AFM/AFD + IDG Series

Ensure quality painting by supplying quality air into the robot, combined with an air filter, mist separator and dryer.



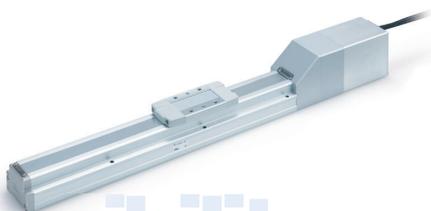
paint quality

Electric actuators

 LE Series

Motion in your power with SMC's Electric Actuators that adapt to you and provide the flexibility your robot needs.

Give your portal robot freedom to move in three linear directions by controlling it in the best, most appropriate way, also via Fieldbus or IO-link.



flexibility

Digital gap checker

 ISA3 Series

Use it for presence, placement and proximity confirmation of raw materials before welding, reducing breakdowns due to precision errors.



accuracy

Safety valve

 VP-X555 Series

Introduce safety in your application (especially relevant in handling operations) – Residual pressure release in the event of an emergency.



safety

Pulse blowing valve

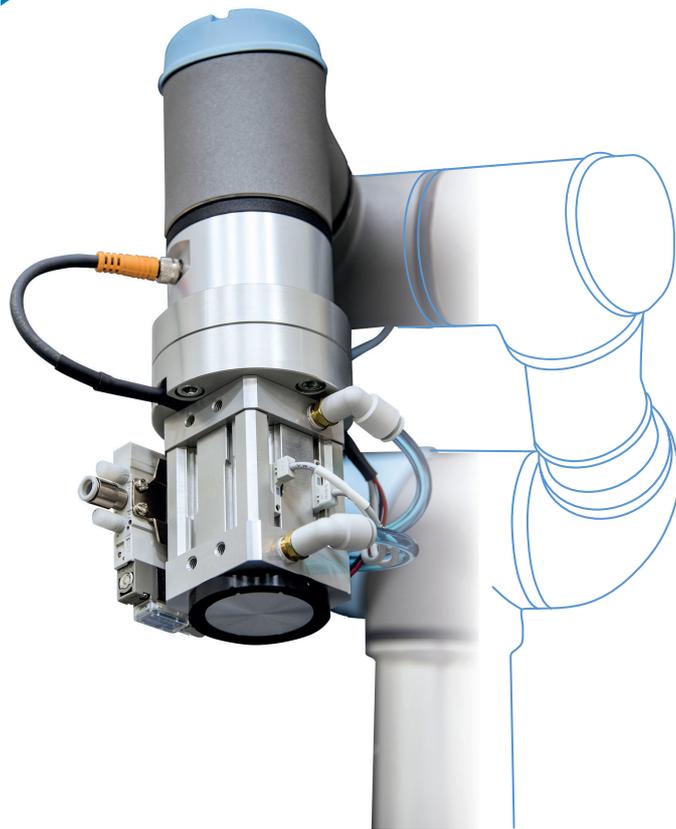
 AXTS Series

Improve your energy efficiency in your robot's blowing applications – Automatically turning on/off air flow.



energy efficiency

UR + certified MHM magnetic gripper kit



Flexibility, easy integration and fast operation are 3 requirements that industry increasingly demands for automation, the same 3 features that collaborative robots – or cobots – achieve.

UR wants to drive production into the future by designing cobots for direct interaction with humans at a shared workspace for businesses of all sizes. By certifying products as UR+, they are verified to work plug-and-play with such cobots.

SMC graduated as UR+ developer with the magnetic gripper, MHM series. Like the rest of UR+ certified products, MHM offers you the benefits of this exclusive qualification:

- Easy programming & fast setup – Highly reduced deployment time and quick operation
- Flexible automation – Lightweight, space-saving, and easy and fast re-deployment without changing production layout
- Collaborative and safe – Operation with no safety guard after risk assessment.

Performs optimally, where others don't

When traditional methods of vacuum systems or mechanical grippers are not viable solutions this gripper, that absorbs and holds with a magnet, is the best option for transferring workpieces that have an uneven surface, are porous or susceptible to damage.



Its design prevents deformation of workpieces and accidental adsorption of a second workpiece, plus a varying bumper thickness that allows an easy adjustment of the holding force.

Other interesting features include a reduced cycle time with minimum residual holding force when the workpiece is released and safe handling of pieces even when the air is shut off.

MHM, being UR+ certified and including an URcap plug-in, it is easy to integrate and programme.

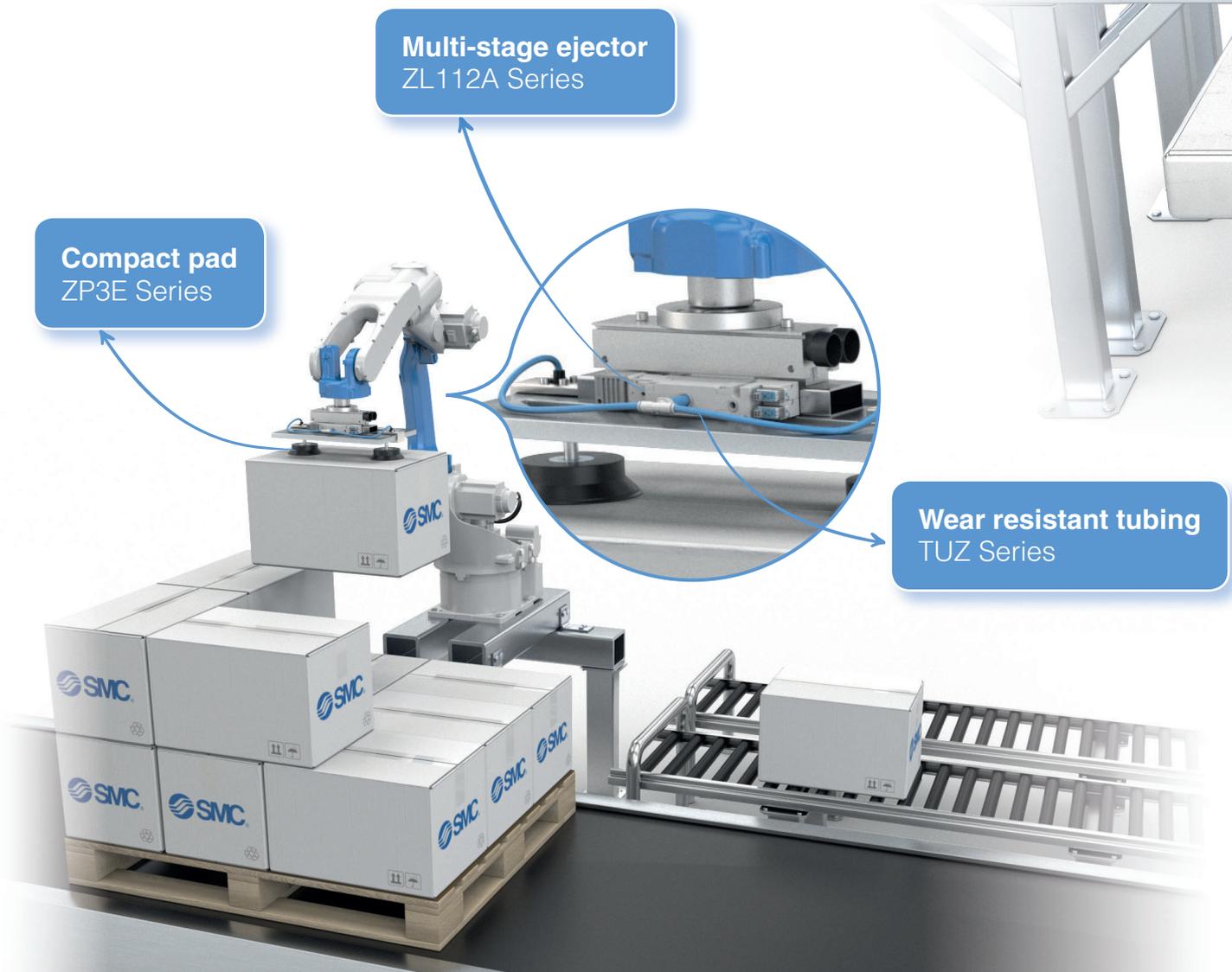
Applications

- Packaging
- Assembly
- Pick & Place
- CNC
- Machine tending.

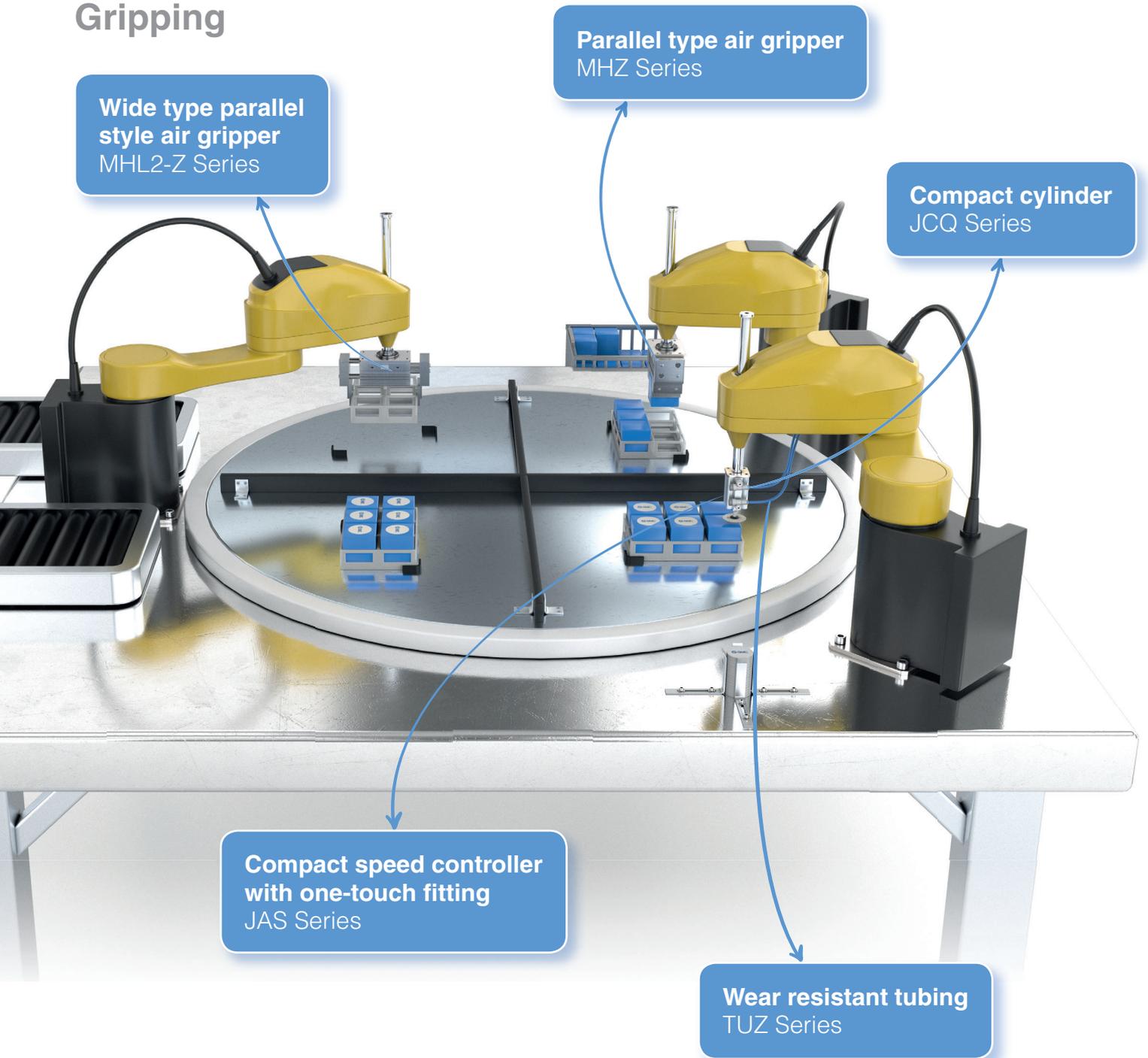
Applications

Thanks to many years of experience, we can optimally adapt our solutions and thus deliver an excellent product to meet your specific requirements. Benefit from our high speed and frequency, compact, light and reliable solutions for the most common applications such as pick & place, boxing, casing, cartoning or palletising.

Vacuum handling

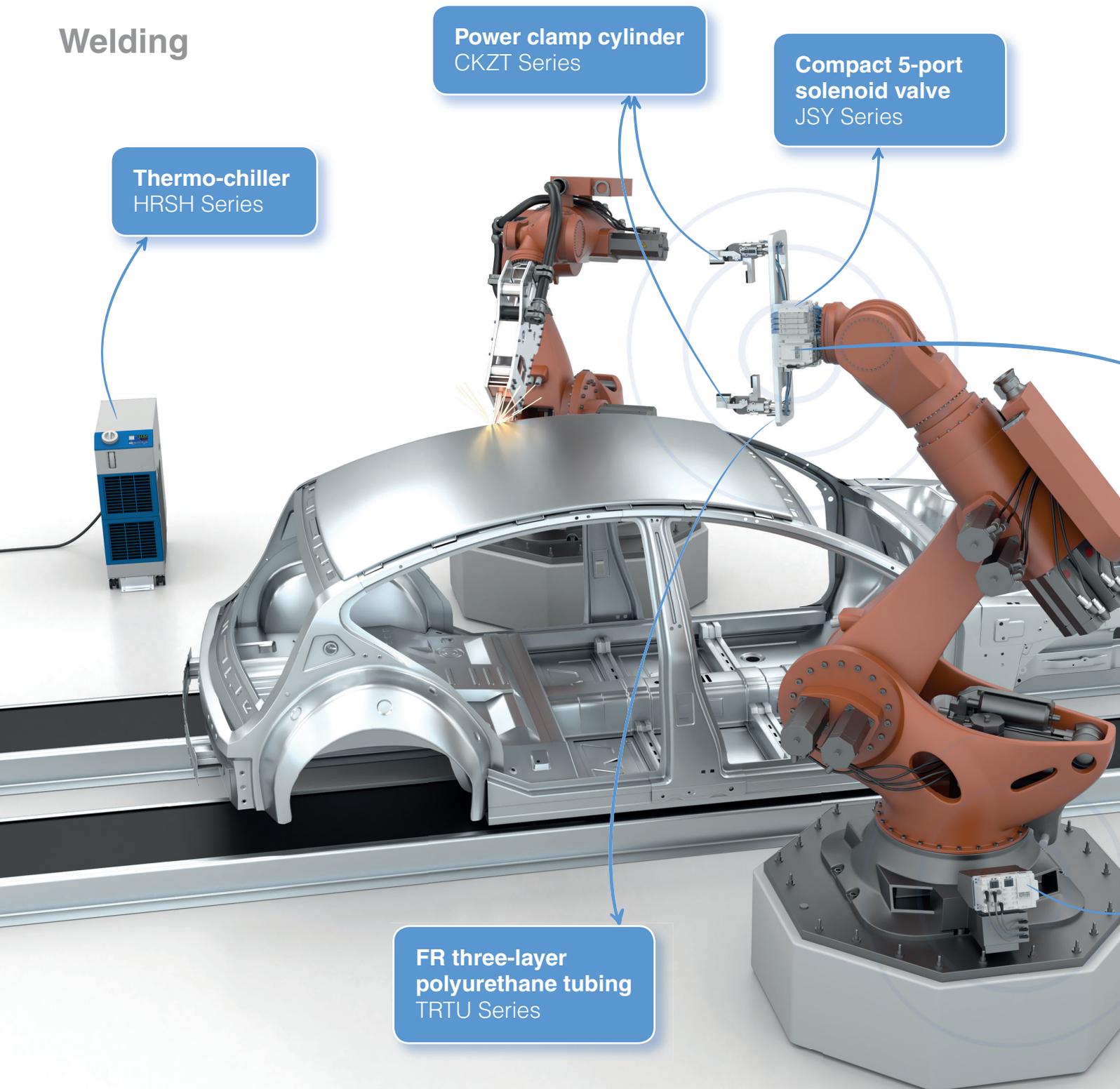


Gripping



Take advantage of our specialised solutions for robots in vehicle production. From among several processes, we can highlight our products for welding, improving weld quality and avoiding breaks in production. Whilst with painting we ensure a reliable and quick application of the paint to produce high product quality.

Welding



Thermo-chiller
HRSR Series

Power clamp cylinder
CKZT Series

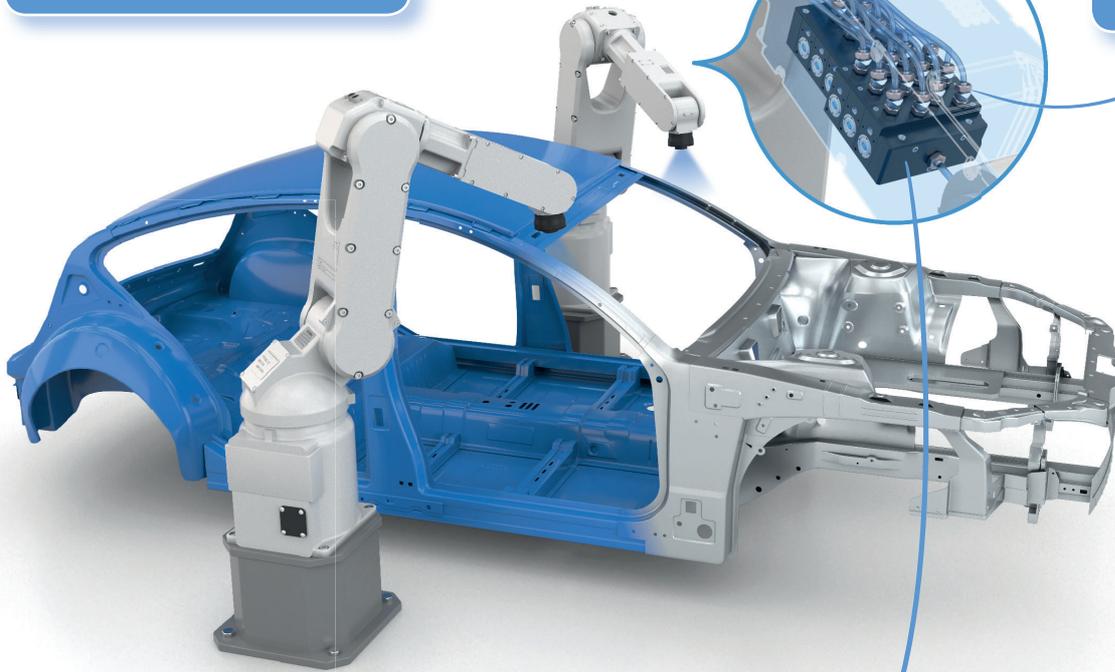
**Compact 5-port
solenoid valve**
JSY Series

**FR three-layer
polyurethane tubing**
TRTU Series

Painting

Fluoropolymer tubing
TH Series

Stainless steel fitting
VCK Series



Wireless remote
EX600-W Series

Valve for water and chemical base fluids
VCC Series



Wireless base
EX600-W Series



glass handling



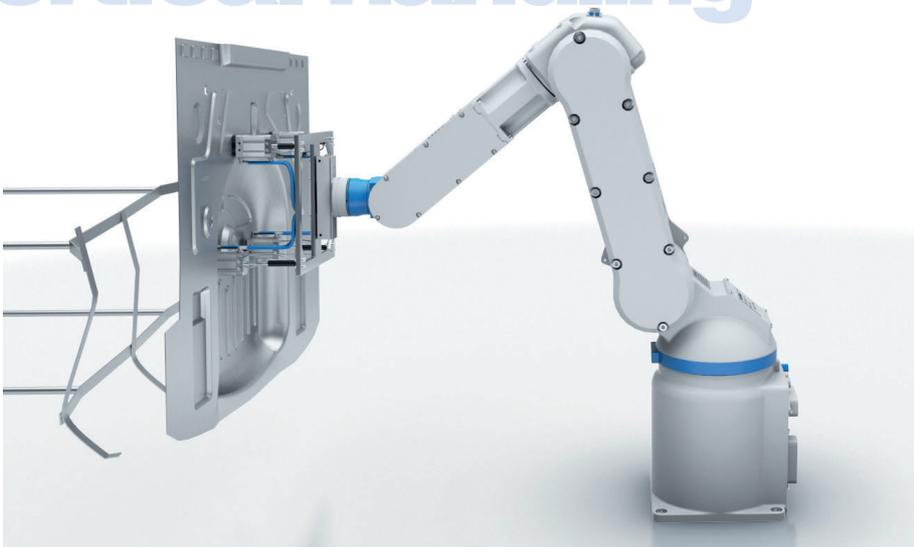
Adsorption marks must not be left on workpieces in glass handling applications. To this end, use our mark-free vacuum pads – [ZP2 series](#)

vacuum manipulation



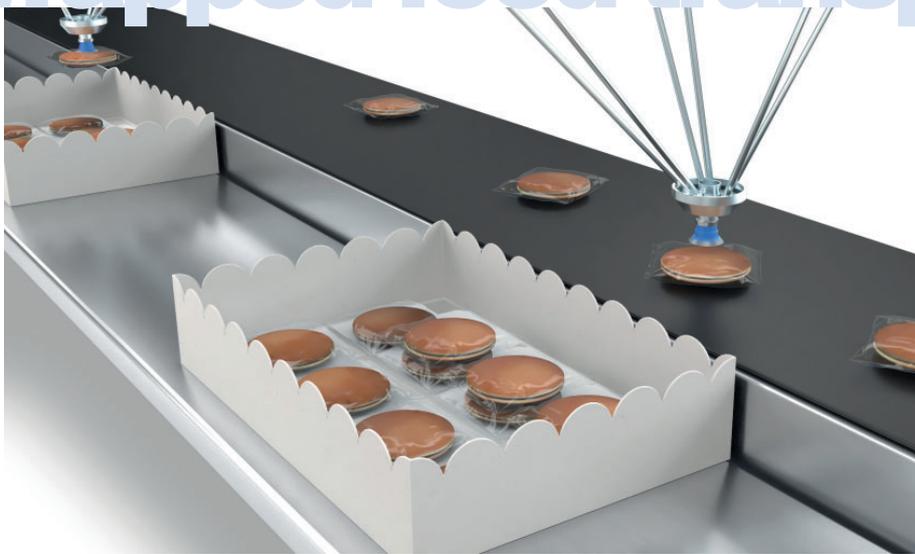
Space is a must for vacuum generation assistance. Benefit from daisy-chain piping with our vacuum pad with ejector – [ZHP Series](#)

vertical handling



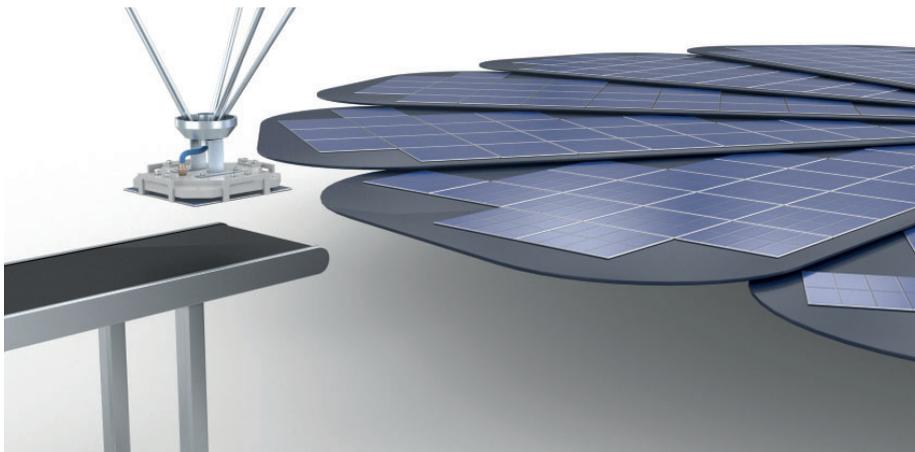
Vacuum pads cannot be used to support ferromagnetic workpiece with holes and uneven surfaces. Instead, use our magnetic gripper – [MHM Series](#)

wrapped food transportation



Adsorbing unstable, soft film-wrapped workpieces with high speed spider robots in the food industry require a highly adaptable pad skirt. To this end, use our FDA compliant blue vacuum pads – [ZP3P Series](#)

semi-conductor & electronics transfer



Scars or suction traces must not be left on workpieces in electronics or semi-conductor industries. Alternatively, use our non-contact pads – [XT661 Series](#)

energy-efficient packing



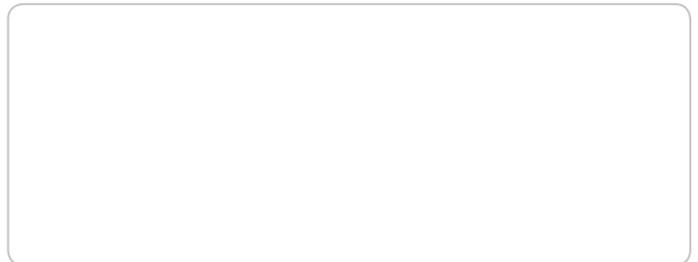
Energy efficiency is a must in continuous packaging processes. As such, obtain the most efficient results thanks to the energy saving function of our all-in-one vacuum ejector – [ZK2 Series](#)



Expertise – Passion – Automation

SMC Corporation

Akihabara UDX 15F, 4-14-1
Sotokanda, Chiyoda-ku, Tokyo 101-0021, JAPAN
Phone: 03-5207-8249
Fax: 03-5298-5362



Austria	+43 (0)2262622800	www.smc.at	office@smc.at
Belgium	+32 (0)33551464	www.smc.be	info@smc.be
Bulgaria	+359 (0)2807670	www.smc.bg	office@smc.bg
Croatia	+385 (0)13707288	www.smc.hr	office@smc.hr
Czech Republic	+420 541424611	www.smc.cz	office@smc.cz
Denmark	+45 70252900	www.smc.dk.com	smc@smc.dk.com
Estonia	+372 6510370	www.smc.ee	smc@info@smc.ee
Finland	+358 207513513	www.smc.fi	smc@info@smc.fi
France	+33 (0)164761000	www.smc-france.fr	info@smc-france.fr
Germany	+49 (0)61034020	www.smc.de	info@smc.de
Greece	+30 210 2717265	www.smc.gr	sales@smc.gr
Hungary	+36 23513000	www.smc.hu	office@smc.hu
Ireland	+353 (0)14039000	www.smc.ie	sales@smc.ie
Italy	+39 0292711	www.smc.it	mailbox@smc.it
Latvia	+371 67817700	www.smc.lv	info@smc.lv

Lithuania	+370 5 2308118	www.smc.lt	info@smc.lt
Netherlands	+31 (0)205318888	www.smc.nl	info@smc.nl
Norway	+47 67129020	www.smc-norge.no	post@smc-norge.no
Poland	+48 222119600	www.smc.pl	office@smc.pl
Portugal	+351 214724500	www.smc.pt	apoiocliente@smc.pt
Romania	+40 213205111	www.smcromania.ro	smcromania@smcromania.ro
Russia	+7 8123036600	www.smc.ru	sales@smc.ru
Slovakia	+421 (0)413213212	www.smc.sk	office@smc.sk
Slovenia	+386 (0)73885412	www.smc.si	office@smc.si
Spain	+34 945184100	www.smc.es	post@smc.es
Sweden	+46 (0)86031200	www.smc.se	smc@smc.se
Switzerland	+41 (0)523963131	www.smc.ch	helpcenter@smc.ch
Turkey	+90 212 489 0 440	www.smc-pnomatic.com.tr	info@smc-pnomatic.com.tr
UK	+44 (0)845 121 5122	www.smc.uk	sales@smc.uk