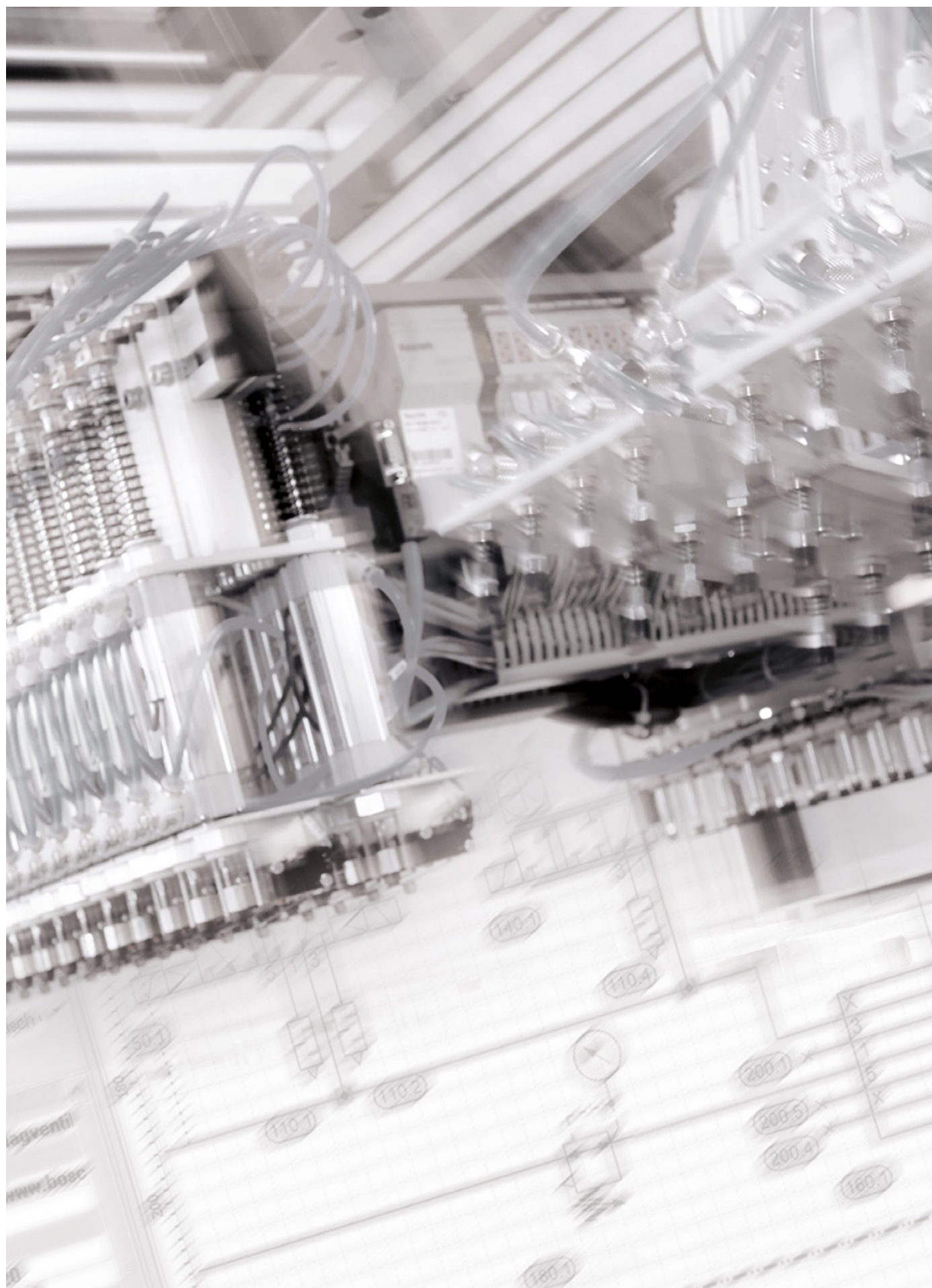




# INNOVATIVE AND FUTURE-PROOF OUR PROGRAM FOR EFFICIENT PNEUMATICS SOLUTIONS

**Pneumatics**  
It's that easy





# Next up, a pneumatics program that captivates the audience

The products in our portfolio play a major role in automation technology and have been well-received in virtually all industries. We would like to make your automation tasks the perfect platform for our program by offering a tuned ensemble of professional performers that always give it their all. Curtain!

## Our package leaves no gaps in the system

In good hands right from the start: best-in-class product quality, an extensive product portfolio, solution expertise, and target-oriented, long-term support – as an AVENTICS customer, you can take advantage of everything you need for a future-proof pneumatic solution. What we offer:

- Best-in-class products and components
- Expertise in pneumatics: systems know-how and experience in the industry
- Comprehensive automation solutions with pneumatics

Successful collaboration with you is a major building block for our innovation. Every new project and daily practical experience add to our industry expertise and provide crucial impulses. Functional integration, component reduction, and alternative material management are just some trends on the way to optimized productivity. Thanks to the targeted use of new technologies and materials, as well as integration of electronic elements, we continually optimize the function and features of our products and solutions. A special plus for you – you can be sure of that.

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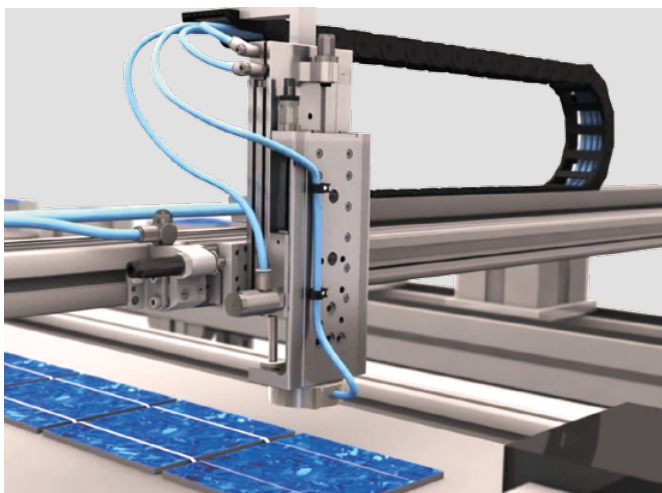
### 30 Customer-specific solutions

# A perfectly orchestrated scene equates to a successful presentation

We at AVENTICS know that in the end it's all about your satisfaction. About solutions that work safely and efficiently for you and reliably accomplish your automation tasks. Lasting and maintenance-free. Our products, components, and systems are designed for just that. And that's what we work towards every day.

## Pneumatic solutions tailor-configured to the application

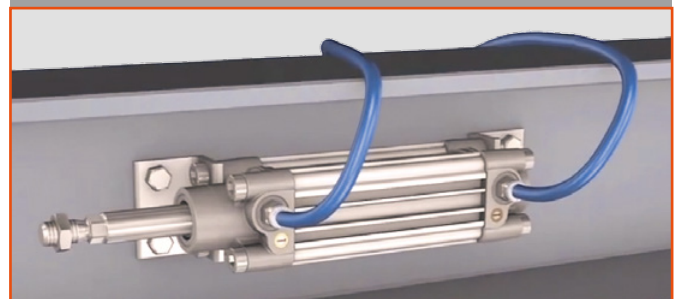
It's perfect interaction that makes an application successful. Of course, the use of individual AVENTICS products and components also offers proven quality for your machines and systems. But our mission doesn't stop there. We know that maximum efficiency requires all elements of a system to fit together perfectly, with a harmonic balance. This is why we offer you not only products, but solutions, not only functionality, but efficiency. Let's talk about it – take advantage of our expertise in pneumatics for your application tasks!



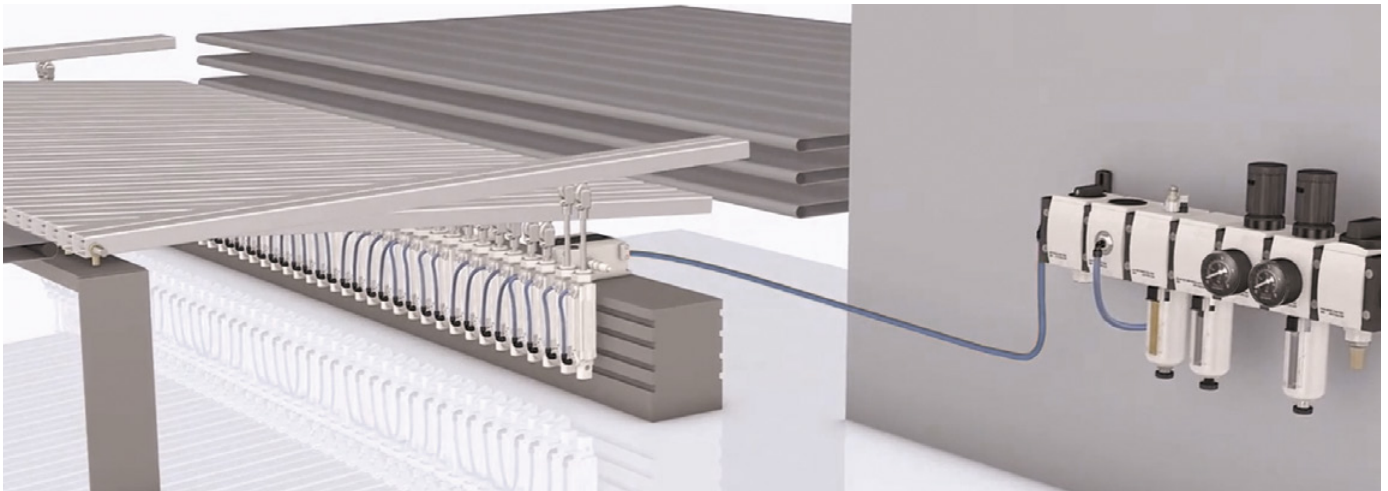
▲ Handling system in the production of solar modules with rodless cylinders, guided slide units, and a non-contact transport system NCT series.

## Actuators

### Cylinders, drives, accessories



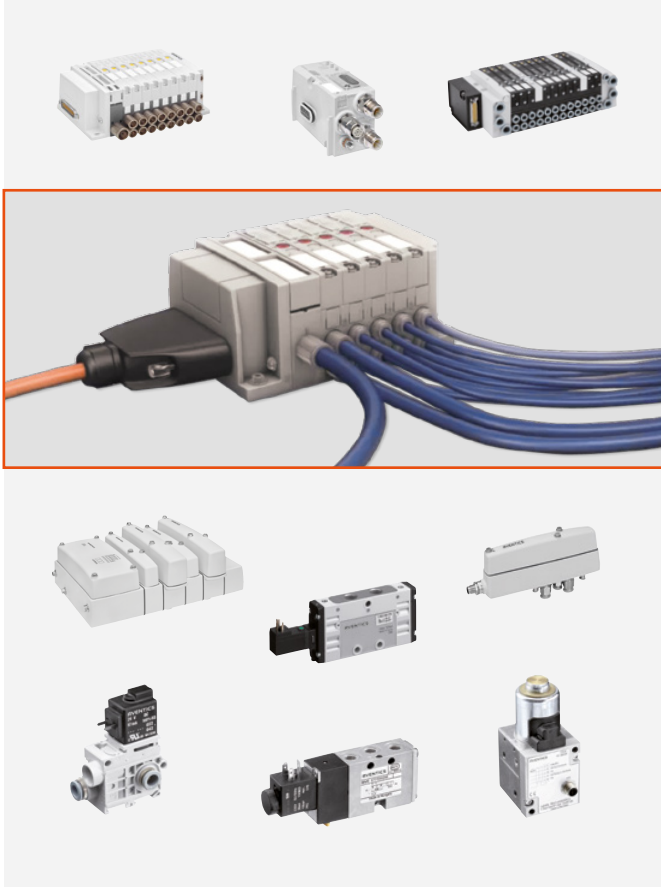




- ▲ AVENTICS across the line: A pneumatic application generally consists of compressed air supply, compressed air control, and actuators. For all areas, AVENTICS offers a comprehensive range of equally innovative and proven products that optimally complement each other in line with our product philosophy. Everything fits perfectly – down to the last fitting.

### Valve technology

Valve systems, directional valves, electrical connection technology



Pages 14 – 23

### Air supply management

Maintenance units, pressure sensors, pneumatic connection technology



Pages 24 – 27

# Here, movement is key – cylinders and drives for every scenario

Whether in extremely tight spaces, in especially tough conditions, or tasks with high hygienic demands – when it comes to our cylinders and drives, there are no unsuitable or unusual environments. Our performers master their roles and play nice in every application. For fast cycles and sensitive movements, the heaviest of loads and finely metered forces.

## Mini and round cylinders

### MNI series (ISO 6432)

Our smallest standard cylinder series for universal application in mechanical engineering. It is available in many variants and is characterized by extreme durability and a long service life.

### RPC series

The RPC series is the big brother to the MNI and offers an additional short version. The cylinders are easy to clean and are suitable for packaging applications in the food industry thanks to food-grade lubricants.

### ICM series (ISO 6432)

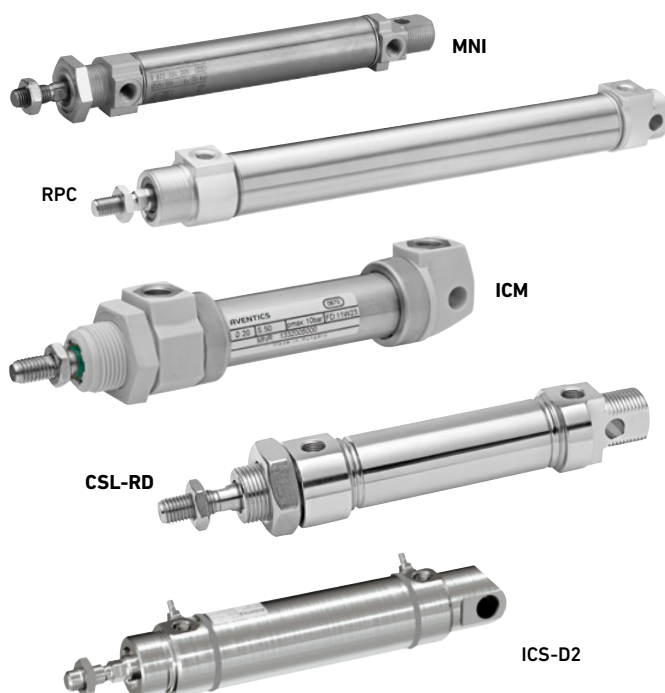
Cylinders from the ICM series are corrosion-resistant and durable. The cylinder is standardized according to ISO 6432 but also available in a more compact length. The cylinder tube and piston rod are made of stainless steel while the cover is made of high-quality plastic.

### CSL-RD series (ISO 6432)

The CSL series is available in an ISO version, a short version, and in hygienic design. The cylinders do not have any gaps, feature a low surface roughness, and work with food-grade lubricants and seals. Also available with cushioning adjusted at the factory.

### ICS-D2 series

Cylinder series in hygienic design. Stainless steel, smooth surfaces, form-fit seals, and cushioning screws ensure optimal cleaning conditions.



### Short-stroke and compact cylinders

#### CCI series (ISO 21287)

The CCI series is ideal for increased cycle and moving mass requirements. It has a compact, easy-to-clean design with integrated sensor slots on all sides and offers a wide range of variants and equipment details, e.g. an ATEX version or US version.

#### SSI series (ISO 15524)

The SSI short-stroke cylinders according to ISO standard 15524 feature a particularly short design and are up to 30% lighter than comparable cylinders thanks to material and component optimization. The 4 and 6 mm slots on all sides provide maximum flexibility for sensor installation.

#### KPZ series (NFE 49 004)

KPZ series compact cylinders can be used for a wide range of applications thanks to their dimensions based on the established standard NFE 49 004. Also available in an ATEX version.

#### KHZ series

KHZ series cylinders feature an extremely compact design and are available from a piston diameter of 8 mm. They are ideal for installation in the tightest of spaces and can be assembled anywhere, easily and securely.



CCI, non-rotating



SSI



KPZ



KHZ



- ▲ CSL-RD series: With the adjusted cushioning variant, AVENTICS offers a powerful alternative to the standard version.

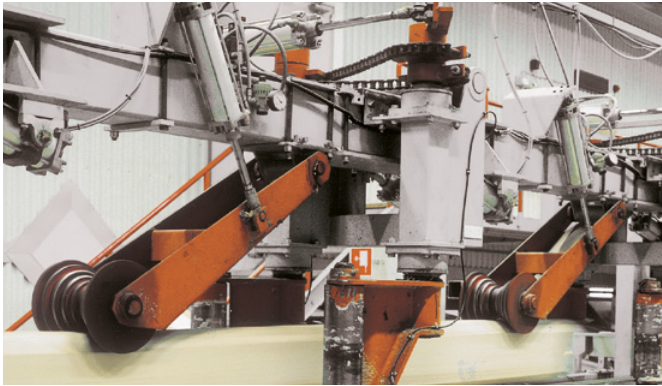


- ▲ Made out of durable plastic, the sensor holders enable easy, secure mounting. Resistant to conventional industrial cleaners.



- ◀ SSI series: With the sensors integrated in the cylinder profiles, the entire sensor program for 4 mm and 6 mm slots can be combined with any cylinder diameter.





### Profile and tie rod cylinders

#### PRA series (ISO 15552)

PRA cylinders are based on a compact aluminum profile with integrated 4 and 6 mm sensor slots for simple, space-saving installation of sensor technology.

#### TRB series (ISO 15552)

TRB cylinders with a classic design featuring smooth tubing and tie rods offer an impressive load capacity and adaptability to existing processes.

#### ITS series (ISO 15552)

ITS cylinders are used for moving masses in the ton range. As standard, they are equipped with a configurable scraper module from the modular sealing system.

#### ICL series (ISO 15552)

ICL cylinders feature a hygienic design that combines simple cleaning with easy maintenance.

#### CVI series (ISO 15552)

Custom units can also be configured online with the PRA and TRB ISO cylinder series, and five freely combinable valve series.



PRA



PRA with modular scraper (optional)



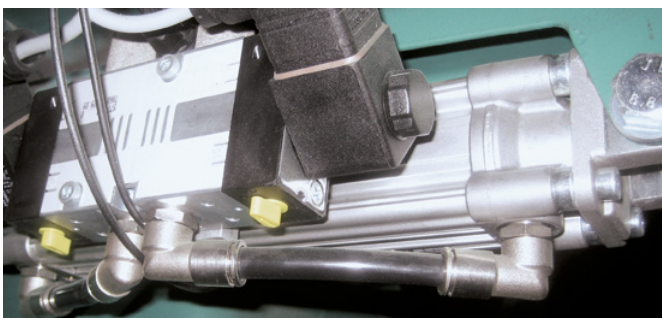
TRB



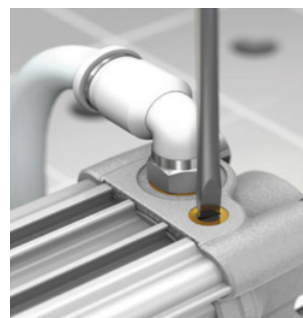
ITS with modular scraper (integrated)



ICL



▲ Cylinder valve units are especially suitable for decentralized use in large-scale systems.



◀ Adjustable pneumatic cushioning is critical for strong cylinder performance. Well-adjusted cushioning not only saves energy, but also reduces cycle times. Only a few turns of the screw are sufficient to ideally adjust the cushioning to the workpiece weight and the dynamics of the movement.





◀ Complex doesn't always mean complicated – this principle forms the basis for our Easy-2-Combine concept. Small handling components that fit together perfectly and can be combined into complete handling systems easily, quickly, and inexpensively thanks to direct assembly.

### Mini slides and guide units

#### MSC series

MSC stands for maximum rigidity for high torques and loads. Versatile configuration options make the mini slide a truly universal handling component, ensuring great flexibility in machine design.

#### GPC series

The robust design is particularly reliable and absorbs high torques and transverse forces. The E and ST variants offer users a particularly cost-efficient handling solution.



MSC



GPC



TWC



MSN

#### RCM series rotary compact module

RCM rotary compact modules can be mounted directly on mini slides. Different cushioning types, air ducts, and intermediate positions are available. Fine-adjustment of the end positions.

#### TRR series rotary cylinder

The TRR series can realize angles of rotation up to 360° and torques up to 110 Nm and offers adjustable pneumatic cushioning.

#### SWN series screw-in cylinders

Thanks to their integrated thread, SWN cylinders are compact and easy to screw into their work environment.

#### RDC series rolling diaphragm cylinders

RDC cylinders can be operated at low pressures. This allows for precise force equalization in finely tuned systems.



RCM



TRR



SWN



RDC



### Rodless cylinders and guided slide units

#### RTC series

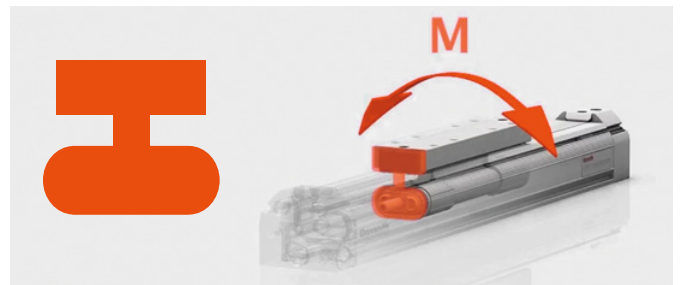
RTC offers three variants with different strengths for movement and positioning as well as a wide range of speeds. As a basic version, compact guide, and heavy duty for heavy loads.

#### CKP series

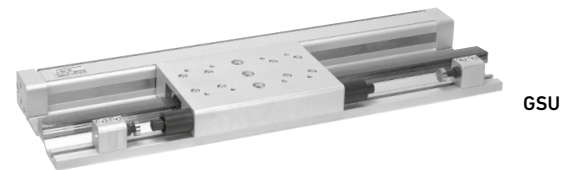
CKP is particularly suitable for applications requiring the movement of heavy loads. It provides sturdy, ultra-precise guiding with excellent repeatability.

#### GSU series

With its flat design, this high-performance guided slide unit is the ideal basis for many handling systems. Stroke length and stroke position can be set variably along the entire length – individually from both sides.



- ▲ Permanently connected to the slide, the oval piston can withstand higher loads and moments than the round piston. Users achieve the same performance with far more compact cylinders, which cuts down on weight and costs.



### BCP, BCC, BCE, BRB, BCR series bellows actuators

Our range offers five series for different areas of application. All bellows actuators enable high forces in the tightest of spaces and are virtually wear and maintenance-free. They are available in many sizes, with different versions and rubber qualities, in single, double, or triple bellows variants.



Cylinder			
Diameter	Max. stroke		Series
6 – 16 mm	15 mm		SWN
10 – 25 mm	1,300 mm		MNI ISO 6432
8 – 32 mm	400 mm		ICM ISO 6432
16 – 25 mm	1,300 mm		CSL ISO 6432
32 – 63 mm	1,200 mm		RPC
25 – 125 mm	1,500 mm		ICS
16 – 100 mm	500 mm		CCI ISO 21287
12 – 100 mm	150 mm		SSI ISO 15524
8 – 100 mm	150 mm		KHZ
16 – 100 mm	400 mm		KPZ NFE 49 004
32 – 125 mm	2,800 mm		PRA ISO 15552
32 – 125 mm	2,800 mm		TRB ISO 15552
160 – 320 mm	2,700 mm		ITS ISO 15552
25 – 125 mm	1,850 mm		ICL ISO 15552
32 – 125 mm	2,800 mm		CVI ISO 15552

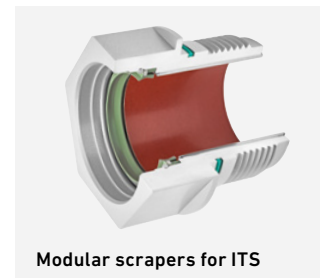
Cylinder/handling technology			
Diameter	Max. stroke		Series
16 – 80 mm	9,900 mm		RTC
16 – 32 mm	3,700 mm		CKP
16 – 25 mm	1,000 mm		GSU
145 – 640 mm	580 mm		BCP
150 – 385 mm	147 mm		BCE
80 – 435 mm	355 mm		BCC
442 – 950 mm	365 mm		BCR
60 – 173 mm	100 mm		BRB
6 – 16 mm	30 mm		MSN
8 – 25 mm	200 mm		MSC
6 – 32 mm	100 mm		TWC
10 – 100 mm	200 mm		GPC
Torque 0.17 – 6.5 Nm	–		RCM
Torque 4.5 – 110 Nm	–		TRR
52.5 – 115 mm	95 mm		RDC

- Each of the cylinder series features five scraper modules according to ISO 15552. They are available separately with fully installed seals, bushings, and metal scrapers, and can be exchanged at any time, quickly and easily, without removing the cylinder.



### Modular sealing system

The modular sealing system enables individual adaptation to the requirements of the respective application. This means maximum flexibility, optimal scraping, higher performance, and lower costs for maintenance and downtime. Standard for the ITS cylinder series and optional for PRA and TRB series cylinders.



### LU1 – LU5 locking units

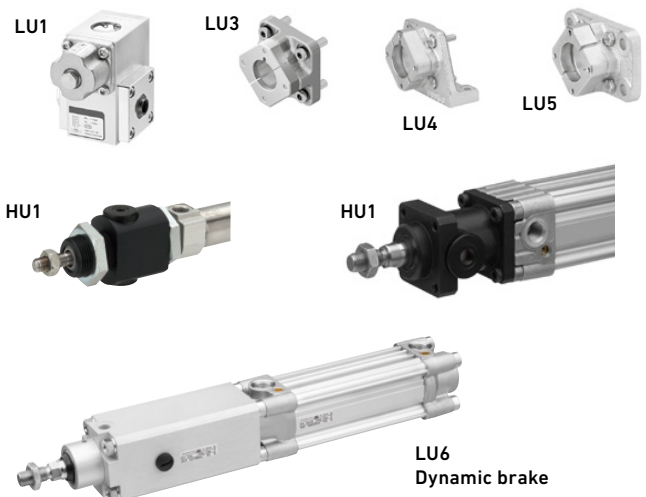
With eccentric movements, the units hold the piston rod in any position. Mounting to the cylinder is realized via a flange.

#### HU1 series holding unit

The HU1 series holds piston rods using spring force. A corresponding adapter is used for attachment to the cylinder. Holding cartridges can be exchanged in case of wear.

#### LU6 series locking unit

The LU6 is a mechanical holding unit/dynamic brake for piston rods in pneumatic cylinders according to ISO 15552 or comparable round bars. The unit can be used in safety-related controls in accordance with ISO 13849.



### CM1 series cylinder mountings, CM2 series piston rod mountings, and CG1 series guide units







### Cylinder sensors

#### SM6/SM6-AL series

SM6 and SM6-AL series sensors enable high-resolution, permanent distance measurement and are ideal for continual detection of piston movements in pneumatic cylinders within the maximum measurement range of 1,007 mm. Thanks to an intuitive teach pad, a 4-color LED display, and IO-Link communication, the SM6-AL is also easy to start up in next to no time.

#### ST4/ST4-2P series

These series offer high tech in the tightest of spaces and are ideal for pneumatic actuators in small handling. The ST4-2P sensor with two switching points also permits the measurement of any two switching points in a range of 50 mm.

#### ST6 series

The ST6 is our universal sensor for the 6 mm slot. Established in automation technology as a standard sensor, it is space-saving and can be mounted on all round cylinders, tie rod cylinders, and profile cylinders via sensor mounting.



ST9



SN2



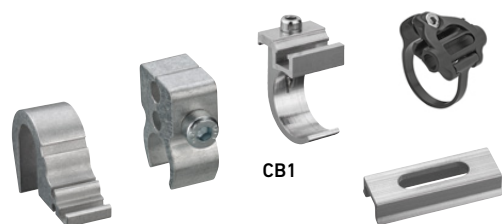
#### ST9 series

ST9 series sensors are designed specifically for short-stroke cylinders and are characterized by their robust construction and practical handling. Assembly via 9 mm dovetail slots.

#### SN2 series

As robust reed sensors, SN2 series sensors are designed for a wide voltage range up to 240 V AC.

#### CB1 series sensor mountings



# They set the rhythm of the pneumatics – our valves and valve systems

The system dances to their tune. They have the central role. And that's why no compromises are made here – only the best for our customers. Innovation and quality from AVENTICS. With precise commands, our valves and valve systems control the pneumatic players in all automation processes. Whether as a group in a system or an individual performer, we have everything for you – best in class.

## AV03/AV05 series valve system

Advanced Valve is more than just a valve system. AV is a complete automation solution that can continuously be adapted to the requirements of the application thanks to its consistent modularity. Its unique design, low weight, and optimized compact size with an increased function density offer clear product advantages.

Compared with existing products, AV:

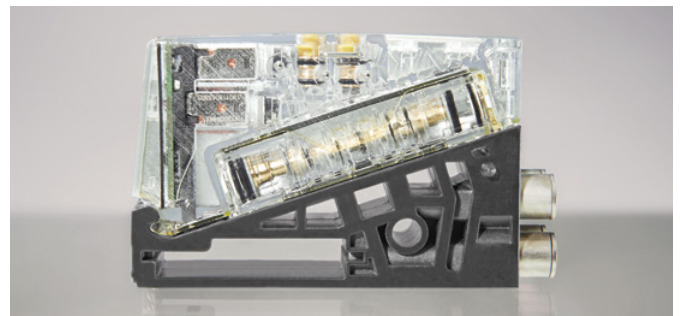
- Saves up to 45% space thanks to its diagonal design
- Is up to 40% lighter thanks to low-weight, high-performance polymers
- Up to 20% less compressed air consumption thanks to shorter distances from the actuator to the valve



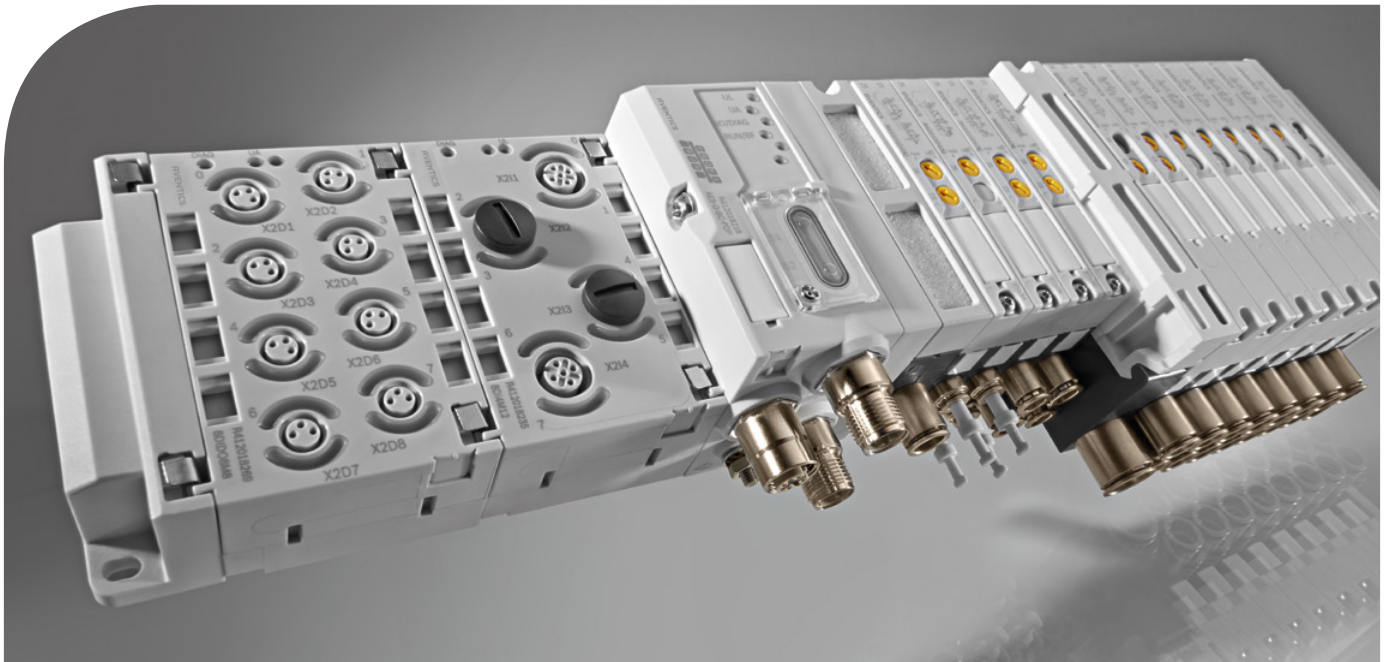
- ▲ Advanced Valves: near-record switching times and an unbelievable size-to-output ratio.



- ▲ Up to 64 double solenoid valves can be added modularly to the board and freely combined with the AV03 and AV05 sizes.



- ▲ The diagonal arrangement of the spool reduces the size of the Advanced Valves and optimizes the performance of the supply and exhaust channels. The result: convincing efficiency.



### AES electrical connection

The Advanced Electronic System (AES) is responsible for serial data exchange between the controller and the AV family components. The flexible, modular structure of the AES and its wide range of variants offer additional advantages. Modify, exchange, upgrade – quickly and easily.

- ▲ Modularity, a key feature of the AES: digital and analog I/O modules with ring LED for each plug. AES bus coupler. Simple, subsequent addition of I/O modules. Tool-free connection of I/O modules.



Stand-alone AES Profibus DP



AES bus coupler

- ◀ Fewer parts, an optimized design principle, and polymer technology have made the AES bus coupler up to 60% smaller and 70% lighter than existing products.

#### AES highlights

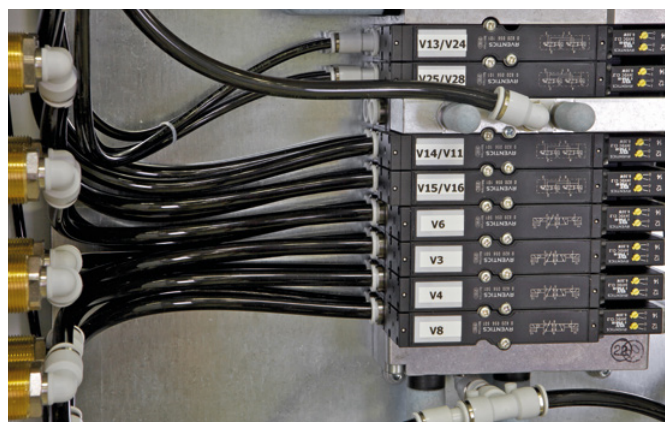
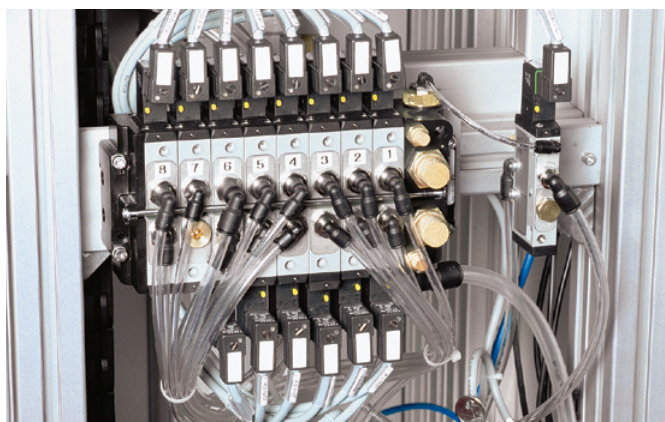
Number of valve coils	128
Max. possible I/O modules	10
Protection class	Max. IP65
I/O functionality	Digital/ analog/pn. pressure signal
Connection options	M8, M12, D-SUB, spring clamp



- ◀ AES can be used with valve technology or as a stand-alone solution, for all common fieldbus protocols or, alternatively, with IO-Link connection.







## Valve systems

### CD01 series

CD01 is the valve system for ISO standards 15407-1 and 15407-2, available in size 26 mm. The wide range of equipment features with comprehensive functionality also offers an advantage for electrical systems.

### 581 series

The 581 series is the valve system for ISO standard 5599-1 and offers all valve functions with an extensive range of accessories. It is available in sizes 1–4, has integrated throttle valves, and can be equipped with various pilot valves.

### TC08/TC15 series

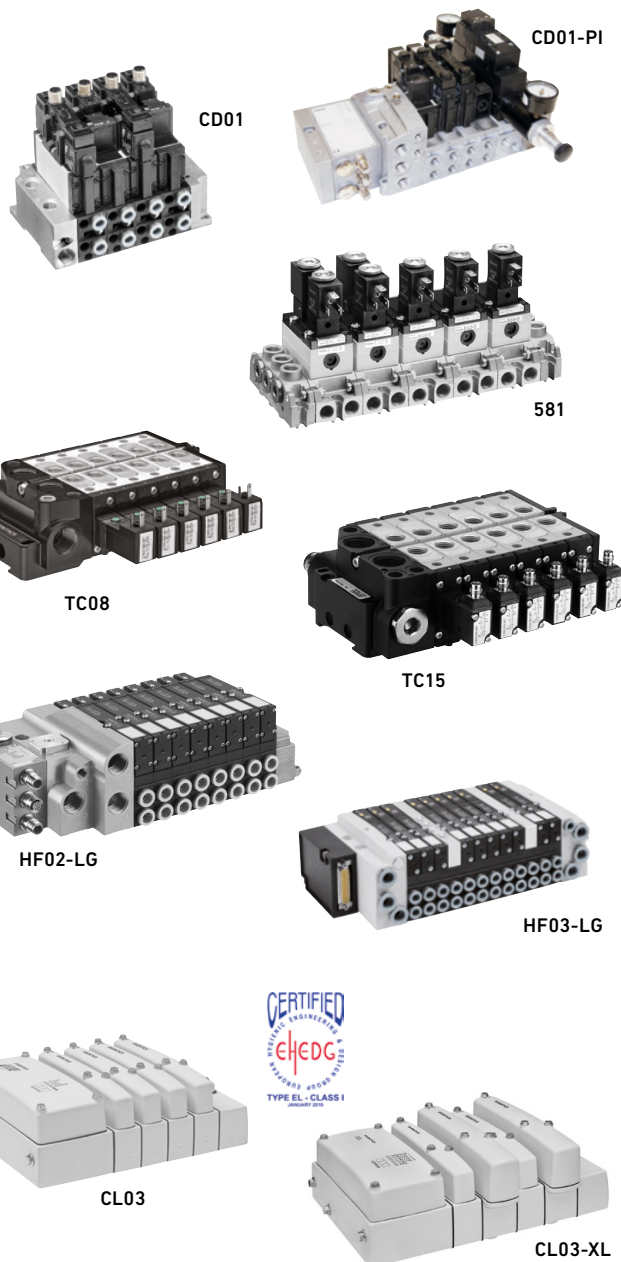
The TC series is ideal for applications requiring lightweight, high-performance valves in tight spaces. They can be expanded modularly to include up to 12 valves – valves can be installed and removed easily without dismantling the valve block.

### HF02-LG/HF03-LG series








HF means high flow and high functionality with extensive equipment options. The valve series offers flexible installation options and is particularly service-friendly thanks to easy valve exchange and excellent diagnostic strength.

### CL03/CL03-XL series

The Clean Line series features a hygienic design with a high protection class of IP69K – EHEDG certified with bus connection. CL03 is resistant to cleaning agents and aggressive chemicals and is ideal for wash-down applications, even under harsh conditions. The valve system provides maximum flexibility: all required valve functions, two combinable sizes, with integrated bus module or multipole plug, and up to 32 different pressure stages in a single system.





Valve systems					
Qn		Series	Functions	Connections	Control
300 l/min		AV03	2 x 2/2, 2 x 3/2, 5/2, 5/3 E/P	Ø 4, Ø 6, Ø 8	Multipole, AES fieldbus, single connection
700 l/min		AV05	2 x 2/2, 2 x 3/2, 5/2, 5/3 E/P	Ø 4, Ø 6, Ø 8	Multipole, AES fieldbus
700 l/min		HF03-LG	2 x 3/2, 5/2, 5/3	G1/8, Ø 8, NPTF 1/8	Multipole, BDC, CMS, and DDL fieldbus
850 – 1,100 l/min		CL03 CL03-XL	2 x 3/2, 5/2, 5/3	G1/4, Ø 5/16, Ø 10, Ø 3/8	Multipole, BDC fieldbus
800 l/min		TC08	2 x 3/2, 5/2, 5/3	G1/8, NPTF 1/8	Individual plug, pneumatic
1,010 l/min		CD01 CD01-PI	2 x 3/2, 5/2, 5/3	G1/8, G1/4, 1/4 NPT, Ø 4, Ø 6, Ø 8, Ø 10, Ø 3/8"	Individual plug, multipole, pneumatic fieldbus
1,400 l/min		HF02-LG	2 x 3/2, 5/2, 5/3	G1/4, Ø 10	Multipole, BDC, CMS, and DDL fieldbus
1,500 l/min		TC15	2 x 3/2, 5/2, 5/3	G1/4, NPTF 1/4	Individual plug, pneumatic
1,400 – 6,000 l/min		581	2 x 3/2, 5/2, 5/3	G1/8, G1/4, G3/8, G1/2, G3/4	Individual plug, multipole, pneumatic



◀ Easy cleaning, chemical resistance, and the high component protection classes are all important parameters for the food production and primary packaging industries. The CL03 series valve system features an especially high protection class of IP69K, NSF H1 lubricants, with EHEDG certification and bus connection. It is available in two sizes, and also with multipole plug.

# Directional valves for custom performances: alone or accompanied

## Ideal for decentralized applications

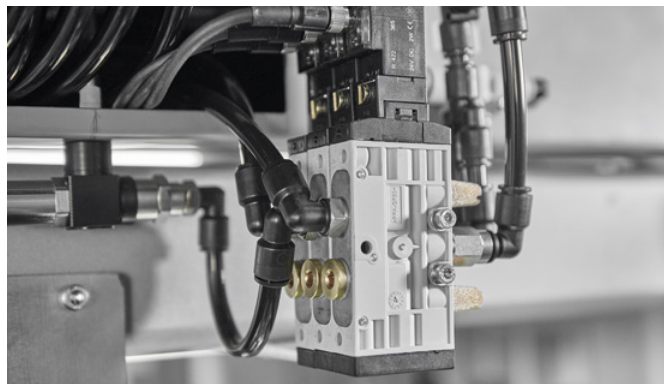
For applications indoors or outdoors, in extreme cold or heat, for delicate work or tasks demanding enormous power – our range of directional valves has the right valve solutions for every situation. From the Clean Line valve for wash-down applications in the food industry, to the special valve for use in furnaces in the aluminum industry – the single valves with flow rate performances from a minimum of 50 to a tremendous 13,620 l/m are tailored to a broad spectrum of applications with their specific characteristics.

## TC series

TC series single valves consist of two size variants, TC08 and TC15, with flow rates of 800 and 1,500 l/min respectively. The valves can be operated both pneumatically and electrically. In addition, they are extremely easy to install. They offer flexible electrical and pneumatic connection options and can be mounted to practically any level surface via through holes.

## CD series

The CD series is available in three sizes as electrically, pneumatically, and mechanically operated valves. They are extremely robust and reliable, even in harsh working environments. The valves are even designed and approved for use in declared danger zones as they are resistant to mechanical loads, extreme temperature differences, and electrical voltage fluctuations.



TC08



TC15

Electrically  
operatedPneumatically  
operated

CD04



CD07

Electrically  
operatedPneumatically  
operated

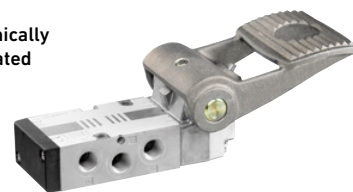
CD12



Electrically operated



Pneumatically operated

Mechanically  
operated



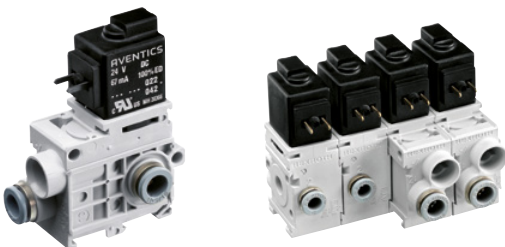
#### LS04 series

Thanks to their space-saving, lightweight design, LS04 valves are ideal for direct mounting to moving machine parts. They enable high dynamics and are optimal for applications in small handling.



#### 589 series

The 589 series offers users an especially cost-optimized 3/2 or 5/2 directional valve solution with poppet valve technology. They provide many integrated functions and can also be assembled into valve blocks.



▲ The CL03-EV single valve for decentral applications in the food industry was developed based on the proven CL03 series valve system. CL03-EV offers the maximum protection class IP69K and is one of the few single valves in the market featuring a hygienic design.

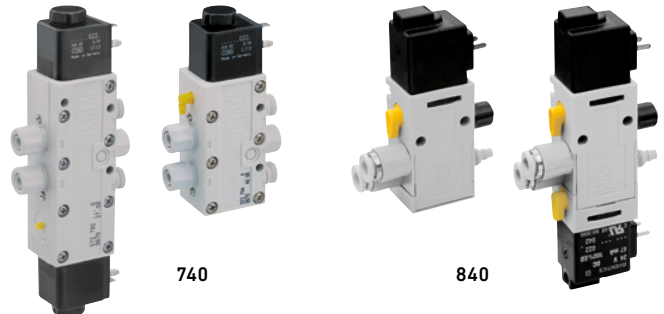
#### CL03-EV series

CL03 series single valves offer all valve functions with the maximum protection class IP69K. It features a consistent hygienic design, works with NSF H1 lubricants, and is also suitable for applications with direct contact with food products.



#### 740 series, 840 series

These series of valves are extremely robust and work without any problems, even with poor air quality and under tough conditions, thanks to their robust plastic housing and integrated diaphragm technology.





### 581 series, sizes 1,2,3,4

The 581 series single valves according to ISO standard 5599-1 are available in all sizes 1 – 4. They offer all valve functions, a comprehensive range of accessories, and integrated throttle valves.

### ST series

The ST series offers a wide range of 3/2 and 5/2 directional valves in a sturdy steel version for industrial applications in harsh working environments. They can be operated electrically, pneumatically, or mechanically and equipped with a broad spectrum of accessories.

### CERAM series

CERAM: the right choice for exceptionally harsh operating conditions. The valve plates are made of a particularly hard ceramic material that is resistant to chippings, oils, and other sources of contamination.

### 563-018 series

The manually operated 563-018 valves are available in two sizes. The robust design enables reliable opening and closing at all times – even when wearing work gloves.

### AP series

Whether you require manual operation via levers or pedals, or automated operation via rollers, special buttons, or plungers – the AP series offers a wide variety of mechanically operated single valves.



◀ In safety-relevant controls, the double valves enable safe and controlled pressurization and exhaust of machines or machine sections. They mutually monitor their function and are therefore considered intrinsically safe certified components for use in high control categories.



SV07



SV09

### SV07/SV09 series

The valves consist of two redundant 3/2 directional valves with a dirt-resistant seated design that counteracts wear. They feature fast switching and high flow rates.



581



ST



CERAM



563-018



563



565



567

### 563 series, 565 series, 567 series

In tough environmental conditions and under high working pressures up to 30 bar, the 563, 565, and 567 series valves are in their element. They are extremely reliable, extremely durable, and cover an impressive range of nominal flows from 1,350 to 13,620 l/min. The 3/2 directional valves can be operated both electrically and pneumatically.



Directional valves					
Qn		Series	Functions	Connections	Control
50 – 850 l/min		589	2/2, 3/2, 5/2	Ø 6 x 1, Ø 8 x 1	Electric, pneumatic
200 – 310 l/min		LS04	2 x 3/2, 5/2, 5/3	Ø 4 – Ø 6	Electric
600 – 800 l/min		TC08	2 x 3/2, 5/2, 5/3	G1/8, NPTF 1/8	Electric, pneumatic
900 l/min		CD04	3/2, 5/2, 5/3	G1/8, PTF 1/8	Electrical, pneumatic, mechanical
900 – 1,400 l/min		CD07	3/2, 5/2, 5/3	G1/4, M14 x 1,5	Electrical, pneumatic, mechanical
1,100 – 1,500 l/min		TC15	2 x 3/2, 5/2, 5/3	G1/4, NPTF 1/4	Electric, pneumatic
3,600 – 4,100 l/min		CD12	3/2, 5/2, 5/3	G1/2, M22 x 1,5	Electric, pneumatic
200 l/min		840	4/2	Ø 6 x 1	Electric, pneumatic
700 – 1,100 l/min		740	5/2, 5/4	Ø 8 x 1, Ø 10 x 1	Electric, pneumatic
700 l/min		CL03-EV	2 x 3/2, 5/2, 5/3	Ø 8 – G1/8	Electric
150 – 550 l/min		AP	2/2, 3/2, 4/2	G1/8, NPTF 1/8-27, G1/4, M5	Mechanical, manual
280 l/min		ST	3/2, 5/2	G 1/8	Electrical, pneumatic, mechanical, manual
1,000 – 7,000 l/min		CERAM	5/2, 5/3	G1/8, 1/4, 3/8, 1/2 NPTF 1/4, 3/8, 1/2, 3/4, 1	Electric, pneumatic
1,300 – 2,000 l/min		SV07	3/2	G1/4 – G3/8	Electric
3,000 – 8,600 l/min		SV09	3/2	G1/2	Electric
950 – 6,000 l/min		581	5/2, 5/3	ISO 5599-1	Electric, pneumatic
1,350 l/min		563	3/2	G1/4	Electric, pneumatic
4,240 l/min		565	3/2	G1/2	Electric, pneumatic
13,620 l/min		567	3/2	G1	Electric, pneumatic
300 – 1,100 l/min		563-018	4/2, 4/3	G1/8	Manual

# On-demand, continuously adjustable, and dynamic pressure control



## Electropneumatic pressure regulators

Depending on the respective task, three different control principles are applied in electropneumatic pressure regulator technology: indirect control with pilot valves, direct control by means of a proportional solenoid, and highly dynamic control via two integrated proportional solenoids. AVENTICS is a technological leader in all of these principles and has the right E/P valve solution for every application.

### ED02 series

ED02 is our compact regulator. With its performance values, it presents an optimal control solution for many applications. On top of that, it is easy to stack.

### ED05 series

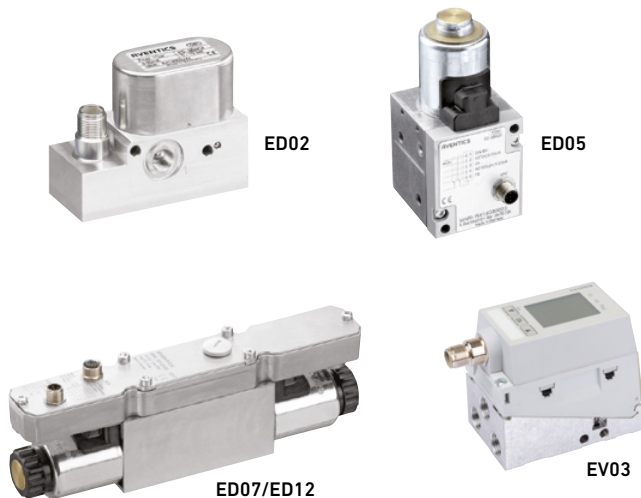
ED05 is a versatile regulator based on the principle of direct control with one proportional solenoid. It combines precision and high dynamics with a high flow.

### ED07/ED12 series

ED07 and ED12 are E/P valves for highly dynamic control. They can realize high air flow rates and offer particularly dynamic control characteristics thanks to proportional valves for pressurization and exhaust that can be controlled separately.

### EV03 series

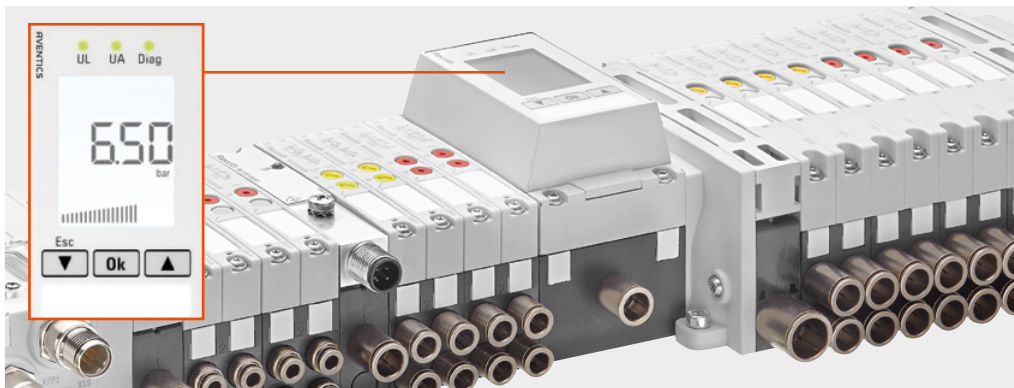
The EV03 single station control works according to the principle of indirect control with pilot valves. The E/P valves are optimal for static requirements and feature an extremely low energy consumption.



## MU1 series, PR1 series, PR2 series pressure regulators

MU1 enables the secure, reliable control of great compressed air flows of up to 50,000 l/min. PR1 and PR2 series precision pressure regulators present an alternative to the electropneumatic pressure regulators. They can be adjusted exactly and allow for extremely fast responses to the slightest fluctuation in compressed air.

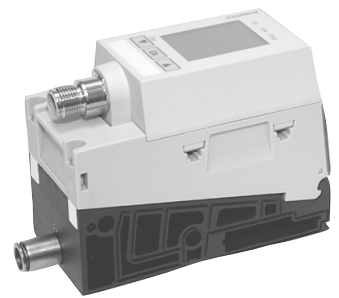














◀ Adjustment, diagnosis, or monitoring: The clearly visible and easy-to-operate system display offers a wide range of functions.

### AV-EP series

AV-EP series electropneumatic control valves are the ideal solution for the AV03/AV05 valve system. They can be fully integrated with all functions and provide the desired working pressure directly at the regulator via fittings or supply pressure to the switching valves adjacent to the regulator. The pressure can be set and controlled via the membrane keyboard and display or via multipole or fieldbus.



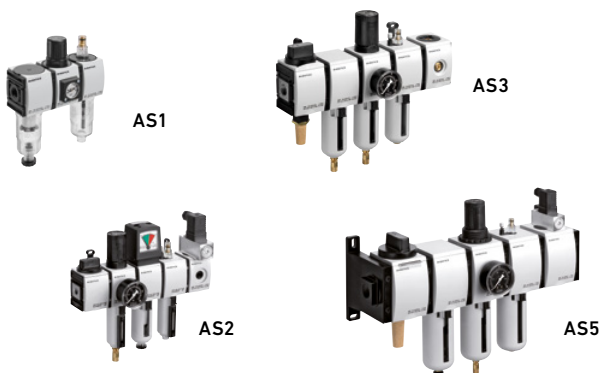
Pressure regulators					
Qn		Series	Functions	Connections	Control
120 l/min		ED02	3/3	G1/8, NPT	Electric
1,000 l/min		ED05	3/3	NPTF, G1/4	Electric
1,300 l/min		ED07	3/3	G3/8	Electric
2,600 l/min		ED12	3/3	G3/4	Electric
600 l/min		EV03	3/3	G1/4	Electric
300 l/min (single pressure) 425 l/min (pressure zone)		AV03-EP	3/3	Via valve system	Electric
430 l/min (single pressure) 500 l/min (pressure zone)		AV05-EP	3/3	Via valve system	Electric
300 – 50,000 l/min		MU1	–	G1/8 – G2	Pneumatic, mechanical
480 – 5,600 l/min		PR1	–	G1/4 – G1/2	Pneumatic, mechanical
1,350 l/min		PR2	–	G1/4	Mechanical

# We provide the power needed – with compressed air prepared exactly right and present at all times

The demands on our pneumatic solutions are high – so there is no room for shortcomings. Our Air Supply Management spoils them with the best possible air conditions. Backstage! Tailored to the application, right on target, finely filtered, and well-oiled – a guaranteed success. Our program: from maintenance units to tubing, everything is perfectly matched.

## AS series maintenance units

The modular versatility of the AS series makes it perfect for universal application. With four size variants, they cover the entire operating range up to a flow of 14,500 l/min and enable not only the standard functions of filtering, regulating, and lubricating but also the integration of all specifically required functions.



## NL series maintenance units

With a particularly robust design, the NL series offers flexibility and modularity – optionally with clear plastic reservoirs or metal reservoirs. In four size variants, they provide a complete compressed air preparation technology with all functions.







- ▲ Large display with three display zones. Display color can be switched between red or green.



### MH1 series maintenance units

MH1 series maintenance units are designed for use in food production and primary packaging. In a stainless steel version, optionally with a protective cap in the hygienic design variant, the products are resistant to corrosion, cleaning agents, and disinfectants. The materials comply with Framework Regulation (EC) No. 1935/2004. The seals are made of FDA-certified material with NSF H1 grease. Every component also complies with NACES MR0175 and ISO standard 15156.



MH1



MH1  
With microfilter



### PE series pressure sensor

The electronic pressure sensors of the PE series can be used in virtually all applications and are easy to integrate into existing compressed air preparation systems. They feature a high degree of switching precision and repeatability with optimal operating comfort.



PE2



PE5



PE6



PM1

### PM1 series pressure sensor

With PM series electromechanical pressure switches, switching points are set manually. The adjustment screw can be fixed easily and securely. The switching point is continuously adjustable, even during operation.

### AF1 series flow rate sensor

AF1 enables an ongoing comparison of actual values with the set process values in your system. This provides reliable flow rate control and early detection of leaks. The flow rate sensors ensure the energy-efficient application of pneumatic components.



AF1



### Flow and check valves

#### CC series

CC series check-choke valves are designed for nominal flows from 60 to 5,600 l/min. The different versions are available with a push-in fitting or internal thread.

CC04



CC01



#### CH series

CH series check-choke valves can be used for nominal flows up to 4,100 l/min. The series features special versions with integrated silencer and screw-in variants.

CH01



CH02



NR01



NR02



#### NR series

Thanks to an array of connection options, the NR non-return valves can be screwed in separately and are also suitable for direct installation in piping.

#### QR1 series non-return, ball, and shut-off valves

Designed for safety-relevant processes, the valves enable automatic blocking of the air supply to immediately stop the working stroke.



### Pneumatic connection technologies

#### QR series push-in fittings

The push-in connectors with easy, secure mounting are available in many versions: for tubing diameters from 3 to 16 mm, as well as in plastic, metal, and stainless steel variants. Our QR program offers the right solution for every application and industry.

QR1-S mini



QR1-S standard



QR2-S standard



QR2-S stainless steel












QR2-F heat-resistant




### Plastic tubing

#### TU series



Maintenance units						
Qn		Series	Designation	Connections	Filter porosity	ATEX
1,200 l/min		AS1	Maintenance units	G1/4	0,01 µm – 5 µm	Optional
2,700 l/min		AS2	Maintenance units	G1/4 – G3/8	0,01 – 40 µm	Optional
5,200 l/min		AS3	Maintenance units	G3/8 – G1/2	0,01 – 40 µm	Optional
14,500 l/min		AS5	Maintenance units	G3/4 – G1	0,01 – 40 µm	Optional
325 – 2,000 l/min		MH1	Maintenance units	G1/4 – G1/2	0,01 – 5 µm	
1,000 l/min		NL1	Maintenance units	G1/8 – G1/4	0,01 – 5 µm	Optional
2,000 l/min		NL2	Maintenance units	G1/4 – G3/8	0,01 – 5 µm	Optional
5,600 l/min		NL4	Maintenance units	G1/4 – G3/4	0,01 – 5 µm	Optional
12,500 l/min		NL6	Maintenance units	G3/4 – G1	0,01 – 40 µm	Optional

Flow and check valves			
Qn		Designation	Series
85 – 2,100 l/min		Check-choke valves	CC04
110 – 8,830 l/min		Check-choke valves	CC01
38 – 2,800 l/min		Throttle valves	CH01
200 – 4,100 l/min		Throttle valves	CH02
40 – 7,950 l/min		Non-return valves	NR01
300 – 5,800 l/min		Non-return valves with release	NR02
280 – 2,000 l/min		Non-return valves	QR1
500 – 2,600 l/min		Ball valve and shut-off valve	QR1

Fittings and plastic tubing			
Connections		Designation	Series
Ø 3 – 6 M3 – G1/8		Push-In fittings	QR1-S mini
Ø 4 – 16 M5 – G1/2		Push-In fittings	QR1-S standard
Ø 4 – 16 M5 – G1/2		Push-In fittings	QR2-S standard
Ø 4 – 12 M5 – G3/8		Push-In fittings	QR2-C stainless steel
Ø 4 – 12 M5 – G1/2		Push-In fittings	QR2-F heat-resistant
Ø 4 – 16		Plastic tubing, polyethylene	TU1
Ø 4 – 22		Plastic tubing, polyamide	TU1-S
Ø 3 – 16		Plastic tubing, polyurethane	TU1
Ø 4 – 10		Duo plastic tubing, polyurethane	TU2

# Vacuum components from AVENTICS: keep a safe, but gentle grip on everything



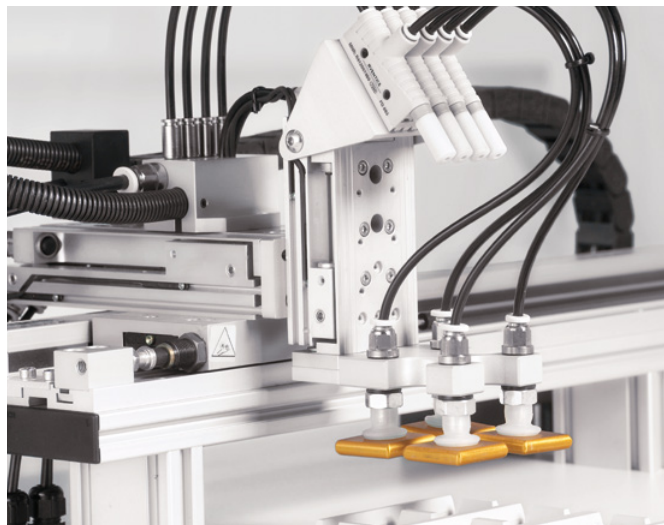
## NCT non-contact transport system

The unique, gentle NCT gripper technology is available in two material versions. NCT-AL (aluminum) is suitable for all standard applications. NCT-PK (PEEK) grippers are designed for special requirements in the food, semiconductor, and solar industries and enable direct contact with foods or silicon.



## Vacuum cups and vacuum accessories

Whether angle joints, flow valves, vacuum filters, spring-loaded plungers, the right fitting, or the entire range of vacuum cups – along with vacuum ejectors, our program offers everything required for a vacuum-based pneumatic solution.



## Vacuum ejectors

### EBS series

The ESB series features inline ejectors with axial compressed air and vacuum connections for direct installation in the vacuum line as well as compact ejectors with several integrated functions: vacuum generation, pilot valves, filters, switches, and silencers.



### ECS series

The ECS multifunctional compact ejectors can also be equipped with an AVENTICS air economizer. This conserves up to 85% of the compressed air energy!

### EBP series

The robust EBP series vacuum generators with aluminum housing are suitable for applications in harsh working environments.





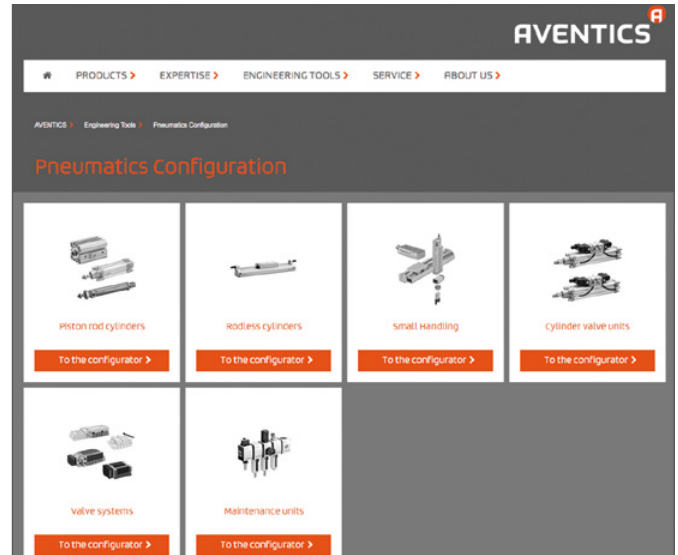
# Configuration in just a few clicks

## The unique online Engineering Tool

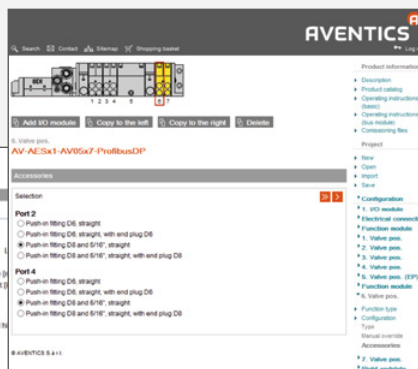
With the unique product configurator, you get results quickly and easily – online. You can configure your complete application, from compressed air preparation to valve control and handling solution with single cylinders and drives, to complex multi-axis handling systems.

- Configuration of the entire spectrum of products
- Clear, intuitive navigation
- Immediate configuration result with complete documentation

After selecting the series, functions and sizes, accessory elements and equipment details, you receive the relevant project documentation for all components: catalog price, parts list, defined application parameters, calculation results with item drawing, circuit diagram, dimensioned drawing, and assembly instructions. Furthermore, a material number is created that, depending on the user's wishes, represents the product as a kit including assembly parts or as a preassembled unit. Of course, 2D and 3D CAD data is also provided in all standard formats.



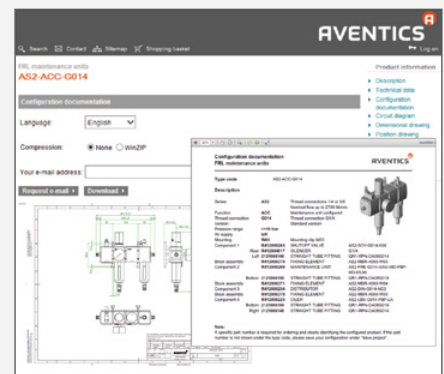
## Handling systems, cylinders, and drives



## Valves and valve systems



[www.engineering-tools.com/configurator](http://www.engineering-tools.com/configurator)

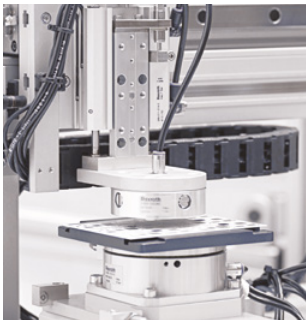


## Air supply management

# Saving the best for last!

## Encore: tailored entirely to the customer

Looking for something custom? You've come to the right place. Because customer-specific solutions have always been an AVENTICS specialty. From the script, to the premiere. If there's a suitable solution for your task, we will find it. Not because we're driven by ambition at any price, but out of conviction.



### System technology – ready-to-install pneumatic solutions

Our system engineers mainly focus on the planning, configuration and assembly of control panels, control cabinets, or handling systems. They turn your task into the right ready-to-install module solution – including compressed air preparation, valve technology, electrical control, and all accessory parts.

- Ready-to-install cylinder valve units
- Modified valve systems and maintenance units
- Configured control cabinets and panels
- Pneumatic handling systems

Save time and costs: from planning, design, and documentation, to logistics and assembly, to delivery and reliable commissioning, we do it all for you.

### Specific product development

Our product development experts realize specific product adaptations and special solutions just for you. Their tasks range from simple modification of existing products to completely new designs and product solutions for your application.

- Modification of standard components
- Integrating various functions in a single product
- Product development with additional specifications
- Integration of electrical system and pneumatics

From highly complex projects with functional integration to careful, yet effective, adjustments, the tailored components offer clear added benefits for your application.

# We're here for you – online and offline

## Based on proven expertise and a first-class product portfolio

For us, collaboration means always being there for you. Prudent and customer-oriented in all respects – from initial consultation to after-sales, for both technical and financial questions. Our comprehensive range of pneumatic products provides a solid basis for your decisions.

- Cylinders and sensors
- Valves, valve systems, fieldbus connections
- Compressed air preparation, assembly material, accessories
- Gripper and vacuum technology

For us, collaboration also means continuously outperforming ourselves through interaction. Being innovative together to arrive at tailor-made pneumatic solutions more quickly than our competition. This allows us to ensure your technological lead.



## Your homepage for non-stop service

The AVENTICS Internet portal is available day or night. Our online catalog provides you with information about our entire product assortment including all technical details, as well as our sophisticated Engineering Tools.

[www.engineering-tools.com](http://www.engineering-tools.com)



### Online catalog

The fastest point of entry is via our online catalog. Here you can start your search directly by entering a part number or keyword.



### CAD

Your desired object can be issued here directly as a CAD file in various formats, as a PDF file, or for further configuration in your software.



### Configurators

The configurator can be reached by clicking the selected product. After selecting your product, you can begin to adapt it to your own specifications.



### Calculation programs

Here you can specify the dimensions or load-bearing capacity of your components with a wide variety of calculation options. We also provide an air consumption calculator as a special feature.



### Circuit diagram software

With the D&C Scheme Editor, you can quickly and easily create circuit diagrams that are based on your component layout and linked to your catalog selection.



### eShop

The eShop is our online shop that answers your price requests and monitors the whole order process up to delivery.

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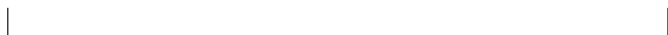
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Your contact:



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