

AVENTICS 

**UNIQUE ADJUSTMENT
AND FUNCTION**
ISO CYLINDERS WITH
MODULAR SEALING SYSTEM

Pneumatics
It's that easy





The ISO cylinders of the PRA, TRB, and ITS series can be used for all sectors. This includes automation technology, machine and systems construction, as well as specific sector applications. In addition to absolute reliability, the comprehensive range of variations and optional equipment details offer great application flexibility. This makes it easy for you to find the optimal cylinder solution for your specific application.

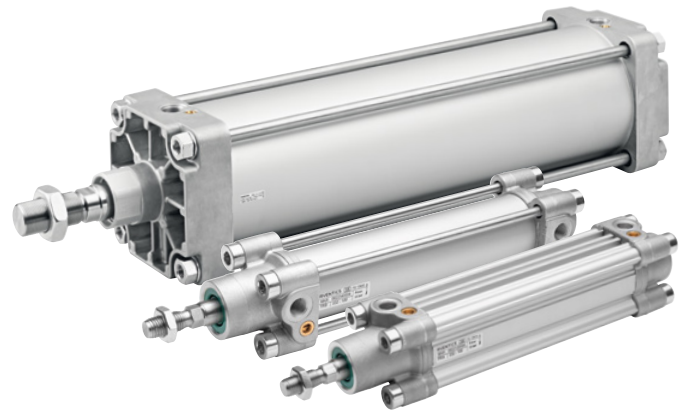
AVENTICS profile and tie rod cylinders according to ISO 15552 – always a stroke length ahead

Even more silent, fewer vibrations, and smooth operation for an extended service life. Faster cycle times and minimized maintenance intervals ensure even greater efficiency. Custom-configured cylinder solutions allow you to optimize the performance of your application.

Standardized cylinders – but far from being standard

Anyone can build standard cylinders. AVENTICS products are different because even for standard cylinders we search for innovative solutions that make your application faster, better, and easier to handle.

- Faster thanks to optimized cushioning
- Better thanks to our unique modular sealing system
- Easy to integrate thanks to a comprehensive range of accessories



Series	PRA/TRB Ø 32 – 125 mm				ITS Ø 160 – 320 mm			
	With magnetic piston		Without magnetic piston		With magnetic piston		Without magnetic piston	
- With elastic cushioning								
- With pneumatic cushioning								
Heat-resistant up to	120°C	120°C	150°C	150°C	120°C	120°C	150°C	120°C
Cold-resistant up to	-20°C**	-20°C**	-20°C**	-20°C**	-40°C	-40°C	-40°C	-40°C
Modular scrapers	✓	✓	✓	✓	✓	✓	✓	✓
Smooth-running	PRA	PRA	TRB	TRB	-	-	-	-
Distance measuring system	✓	✓	✓	✓	✓	✓	✓	✓
Holding units, dynamic brake	✓	✓	✓	✓	-	-	-	-
With mounted valve*	✓	✓	✓	✓	✓	✓	✓	✓

(This table shows a selection of the variations and equipment options)

* Not for order in combination with heat-resistant version.

** Cold-resistant up to -40°C on request

PRA, TRB and ITS come with maximum quality as standard

Robust, reliable and multi-talented

Our profile and tie rod cylinders according to ISO 15552 have been proven in decades of user-oriented application and have become firmly established in professional pneumatic systems. Featuring a great scope of variations coupled with a complete set of fittings and sensors, as well as high-performance pneumatic cushioning, our cylinders can be adjusted to any mounting situation.

Series PRA is based on an aluminum profile with integrated 4 and 6 mm sensor slots for easy and space-saving sensor assembly and offers unsurpassed variety.

Series TRB with a classic design featuring smooth tubing and tie rods offers impressive load capacity and adaptability to existing processes.

Series ITS is used for moving masses in the ton range efficiently and quickly. The ITS cylinder is already equipped as standard with a configured scraper module from the modular sealing system.



▲ From consulting to turn-key solutions – AVENTICS customer support



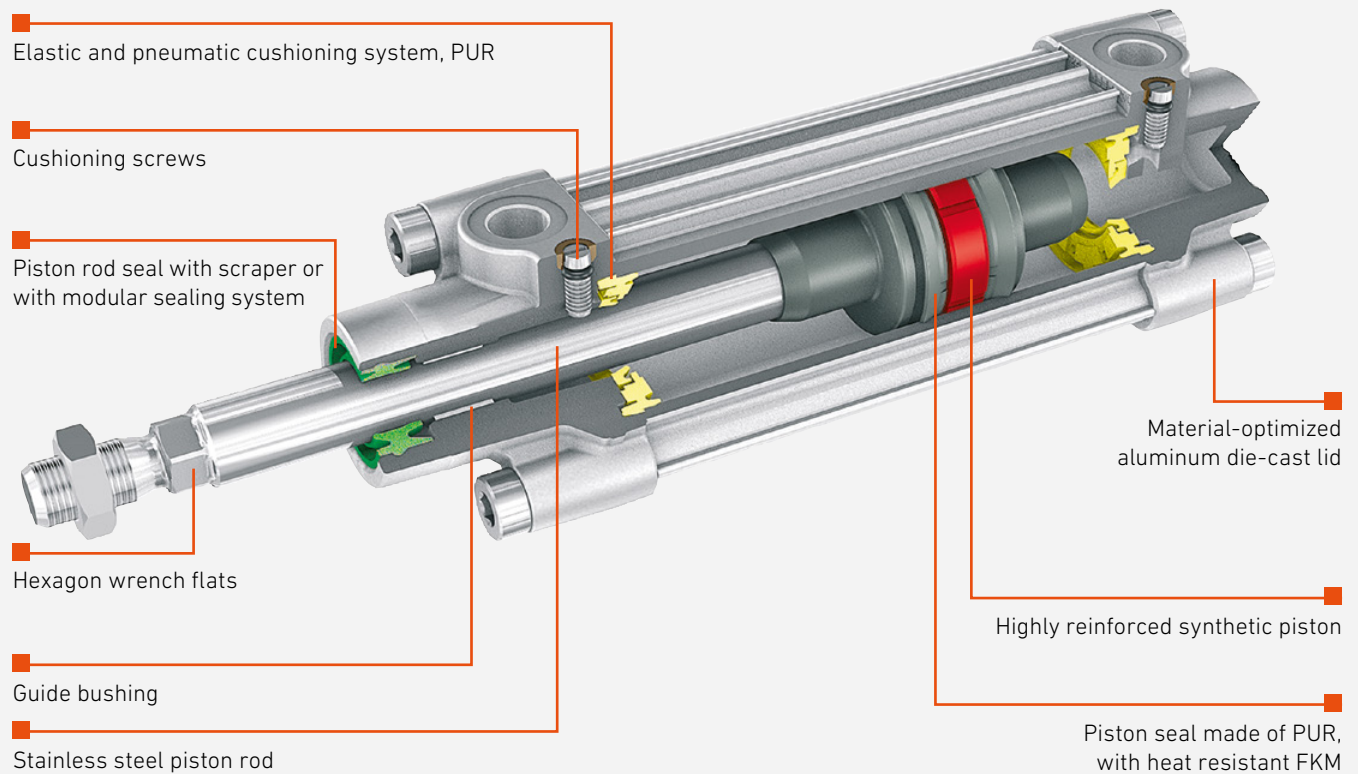
▲ PRA with SM6-AL in metal cutting systems

Dimension-based specifications

Series	PRA/TRB								ITS				
	Piston Ø [mm]	32	40	50	63	80	100	125	160	200	250	320	
Max. stroke		1,600	1,900	2,100	2,500	2,800	2,800	2,750	2,700	2,700	2,500	2,500	
Retracting piston force [N]		435	660	1,035	1,765	2,855	4,635	7,220	11,630	18,650	29,124	47,778	
Extending piston force [N]		505	790	1,235	1,960	3,165	4,945	7,725	12,436	19,416	30,337	49,705	
Total weight [kg] (Example 300 mm stroke)	PRA	1.2	1.6	2.5	3.0	4.9	6.5	11.2	19.6	24.1	41.4	96.8	
	TRB	1.2	1.6	2.2	3.0	3.9	5.0	13.2					
Connections		G1/8	G1/4	1/4	G3/8	G3/8	G1/2	G1/2	G3/4	G3/4	G1	G1	
Operating pressure		1.5 bar to 10 bar								1.5 bar to 10 bar			

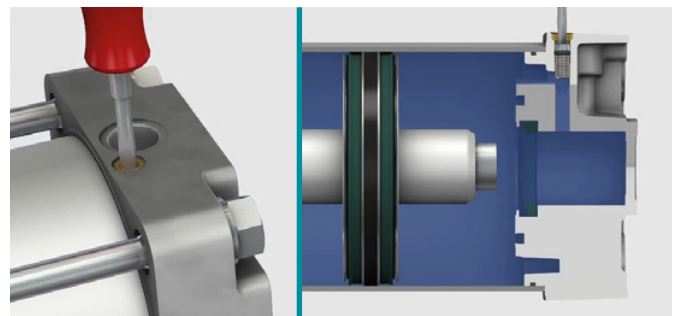
Advantages that pay off

Example: ISO cylinder series PRA. Special characteristics, features, materials, equipment details



Precisely adjustable pneumatic cushioning is critical for strong cylinder performance. Perfectly adjusted cushioning minimizes cycle times and reduces unwanted vibrations and noise pollution.

- Good corrosion resistance thanks to aluminum and stainless steel as standard materials
- Material-optimized design for low cylinder weight and lighter machines and systems
- Better control performance and shorter cycle times thanks to optimized pneumatic cushioning
- Reinforced synthetic pistons for high performance with consistent quality
- Improved absorption of the residual energy by elastic cushioning elements for less vibrations and decreased noise level



- ▲ For example, cylinders of the ITS series: simple and precisely adjustable. Only a few turns of the screw are sufficient to ideally adjust the cushioning to the workpiece weight and the dynamics of the movement.

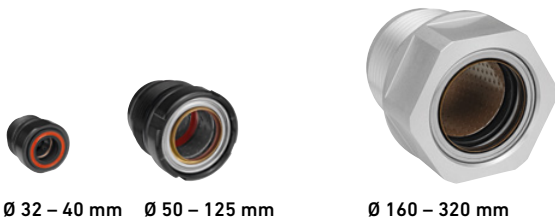
Benefit from the advantages of the unique sealing system for your application!

Maximum flexibility – adjust the cylinder to your application and not vice versa

When it comes to wear and tear, the piston rod seal is the critical area of every cylinder. If your application creates chips or grains, or resinous substances or chemicals are used, unsuitable scraper sealing results in premature failure and thus machine downtime. To prevent this problem, our modular sealing program offers optimally adjusted solutions for a great variety of working environments. A program consisting of five different seal scraper combinations is available for each cylinder series.

Modular sealing system for PRA/TRB and ITS

ITS series cylinders feature the modular sealing system as an integrated standard, a USP in the market. For the PRA and TRB series, the modular sealing system is available as optional equipment.

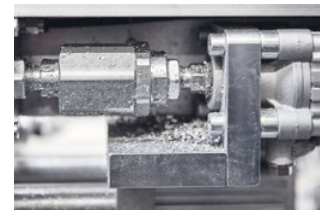


▲ Five scraper modules are available for each of the cylinder series and all sizes. They are also available separately as spare parts.

Maintenance made easy

No seal lasts forever. To save you time, effort, and costs during maintenance, the piston rod can be released to allow replacement of the seal module in less than 5 minutes. Removal from the machine and disassembly of the cylinder is no longer needed – a definite bonus, considering that an ITS Ø 320 with a 500 mm stroke weighs more than 110 kg.

- Simple replacement without removal of the cylinder
- Maintenance in less than 5 minutes
- Minimal maintenance costs, low downtimes

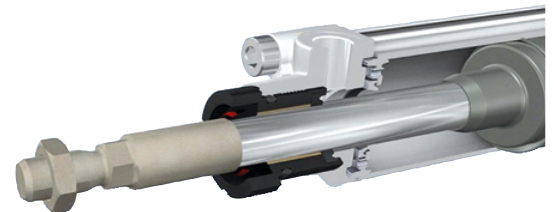


▲ Whether loose sediments, viscous fluids, or solid hard materials are attached to the piston rods – the various scrapers of the modular sealing system offer an optimally suited version for all tasks and application environments. You are free to decide which scrapers mean the greatest benefits for your application and industry.

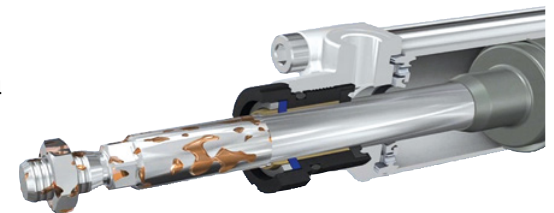
PEE
NBR/metal



PTFE
PEE



FKM/metal
NBR/metal



▲ Prepared for all application options with the modular sealing system – you can even apply a different scraper type with the same cylinder at any time if requirements change.

Every detail matters

Example:
ISO cylinder series PRA/TRB with modular scraper (optional)

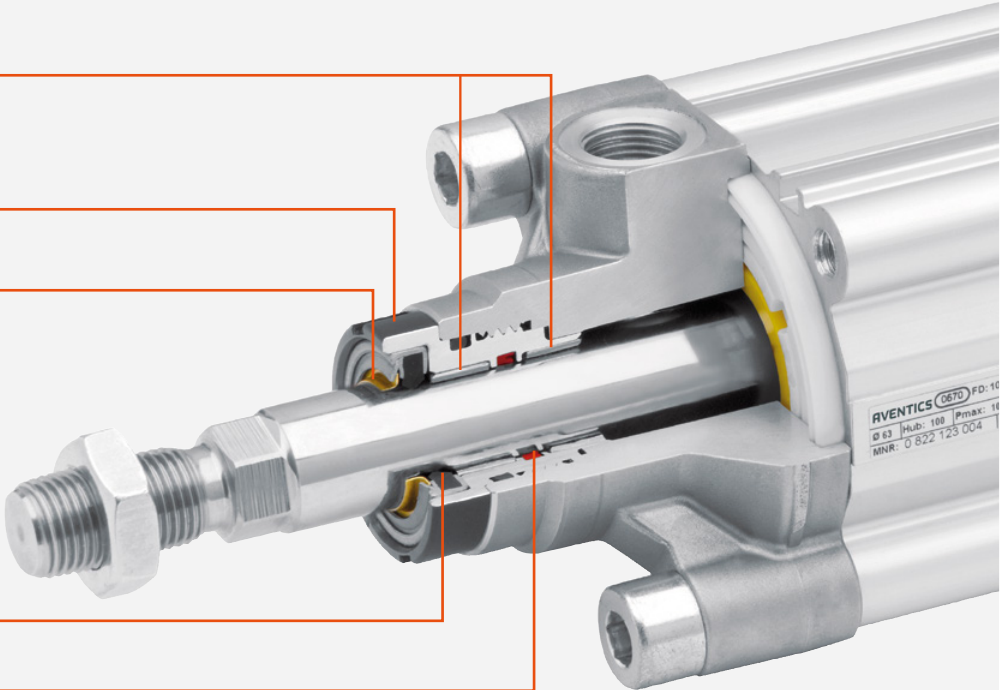
■ Piston rod guided by divided plain bearing

■ Metal housing/aluminum

■ Scraper 2: floating brass scraper

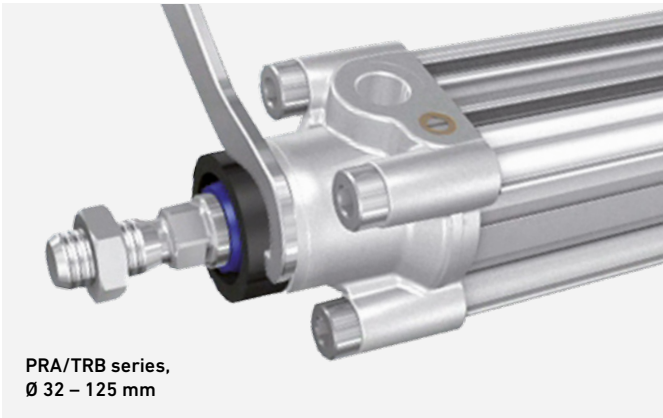
■ Scraper 1: PEE, FKM or PTFE

■ Seal: NBR, PUR or FKM

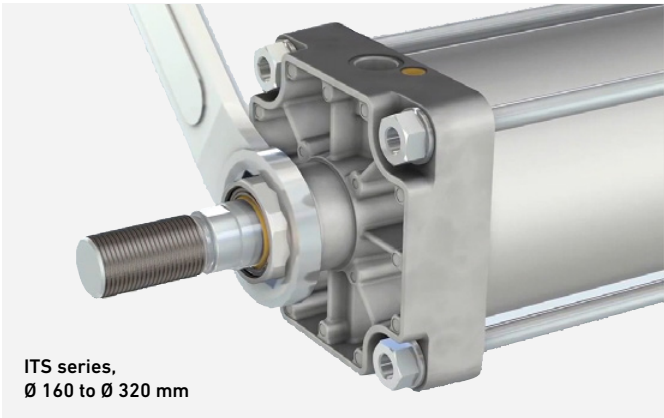


▲ The limited tolerances between the piston rod and socket decrease radial play, ensuring optimal fit of the scraper on the piston rod. The socket is also located close to the scraper, further optimizing the scraping function.

▼ A standard wrench can be used to release, unscrew and screw the modules in again without having to dismount the cylinder or remove it as a unit.



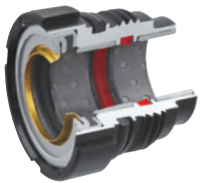
PRA/TRB series,
Ø 32 – 125 mm



ITS series,
Ø 160 to Ø 320 mm

Five different scraper modules each to comply with all requirements

Cylinder PRA/TRB series, Ø 32 to Ø 125 mm
PUR/metal



Module with additional brass scraper and high resistance to wear. Suitable for scraping off chips, dirt, ice crystals, resins or welding residues.

FKM/metal



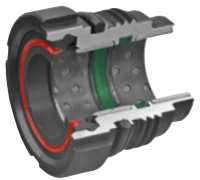
Module with additional metal scraper for high temperature applications up to 150°C.

NBR/PEE



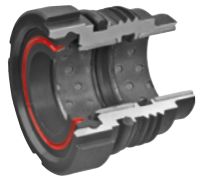
Scraper with very high resistance to wear. The PEE hard scraper is ideally suited for dusty environments.

FKM/PTFE



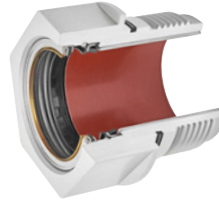
Ideal for high temperature applications up to 150°C and whenever very high resistance to chemicals is required.

NBR/PTFE



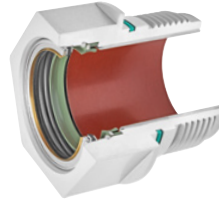
Scraper with high resistance to wear and good resistance to chemicals.

Cylinder Series ITS, Ø 160 to Ø 320 mm
PUR/metal



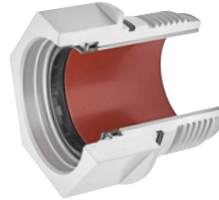
Module with additional metal scraper and very high resistance to wear. Suitable for low temperature applications down to -40°C.

FKM/metal



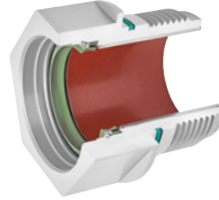
Module with additional metal scraper for high temperature applications up to 150°C.

NBR



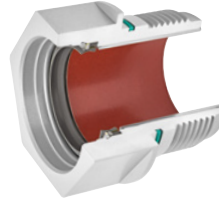
The ITS standard scraper module with good resistance to wear and good resistance to chemicals.

FKM



Scraper module for temperature ranges up to 150°C. High resistance to chemicals.

PTFE



Scraper with high resistance to wear and very high resistance to chemicals. Suitable for high temperatures up to 150°C.

For the PRA and TRB series, the modular sealing system is available as optional equipment.

ITS series cylinders feature the modular sealing system as an integrated standard.

Cylinder	PRA/TRB series, Ø 32 to Ø 125 mm					ITS series, Ø 160 to Ø 320 mm				
Modular scrapers	NBR/PEE	NBR/PTFE	FKM/PTFE	PUR/metal	FKM/metal	NBR	FKM	PUR/metal	FKM/metal	PTFE
Seal	NBR	NBR	FKM	PUR	FKM	NBR	FKM	PUR	FKM	PTFE
Scraper 1	PEE	PTFE	PTFE	FKM	FKM	NBR	FKM	PUR	FKM	PTFE
Scraper 2				Metal	Metal			Metal	Metal	
Temperature resistance	-20 to +80 °C	-20 to +80 °C	-10 to +150 °C	-20 to +80 °C	-10 to +150 °C	-20 to +80 °C	-10 to +150 °C	-40 to +80 °C	-10 to +150 °C	-10 to +150 °C
Hard scraper	✓			✓	✓			✓	✓	
High resistance to wear	+++	++	+	++	+	+	○	+++	○	++
High sliding speed	+	+	-	○	-	+	-	++	-	+++
Suited for dry running	-	○	○	-	-	-	-	+	-	+++
Resistant to the weather effects of UV and ozone	++	+++	+++	+	+	○	+++	+	+	+++
Hot water/steam	+++	+++	+++	○	○	+	-	-	○	+++
Mineral oil	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
Nonpolar solvents	+++	+++	+++	+++	+++	+++	+++	++	+++	+++
Polar solvents	+++	○	+	-	-	-	○	-	-	+++
Organic acids	○	+++	++	-	-	+++	+	-	-	+++
Inorganic acids	○	++	+++	-	-	-	++	-	-	+++
Bases	-	+++	+++	-	-	++	++	-	-	+++
Hydrogen peroxide	-	○	+++	-	-	-	++	-	-	+++

Cylinder	PRA/TRB series, Ø 32 to Ø 125 mm					ITS series, Ø 160 to Ø 320 mm				
Modular scrapers	NBR/PEE	NBR/PTFE	FKM/PTFE	PUR/metal	FKM/metal	NBR	FKM	PUR/metal	FKM/metal	PTFE
Woodworking industry (chips)				■	■			■	■	
Printing industry (solvents)	■	■	■			■	■			■
Railway industry (dust/dirt/abrasion)				■				■		
Chemical industry	■	■	■				■			■
Textile industry	■	■	■			■				■
Aluminum manufacturing					■				■	
Steel manufacturing									■	
Welding beads				■	■			■	■	
Hot wax applications, sticky residues (sugar)				■	■			■	■	
Iced piston rods (ice crystals)				■				■		
Dusty environment	■									
Chips				■						
Applications higher than +80 °C			■		■		■		■	■

+++ Extremely suitable ++ Very suitable + suitable ○ Suitable in a limited way - Not suitable ■ Main application areas ■ Dependent on the chemicals

The right accessories for all application situations

Everything covered

As the correct accessories are crucial for efficient and trouble-free continuous operation of machines and systems, we have always placed great emphasis on the quality of our range of accessories. Every detail is based on the practical experience gained over several decades of user-oriented engineering. From specific mountings and matching sensors, up to individual piston rod designs – our range is comprehensive.

- Perfectly adjusted to the cylinder program
- Stable mounting according to ISO standard 15552
- Best material and manufacturing quality
- Intuitive configuration with our Engineering Tools

Recommended sensors for PRA, TRB, and ITS

Mounting on the cylinder:

- via slots: ●

- with sensor mountings: ○

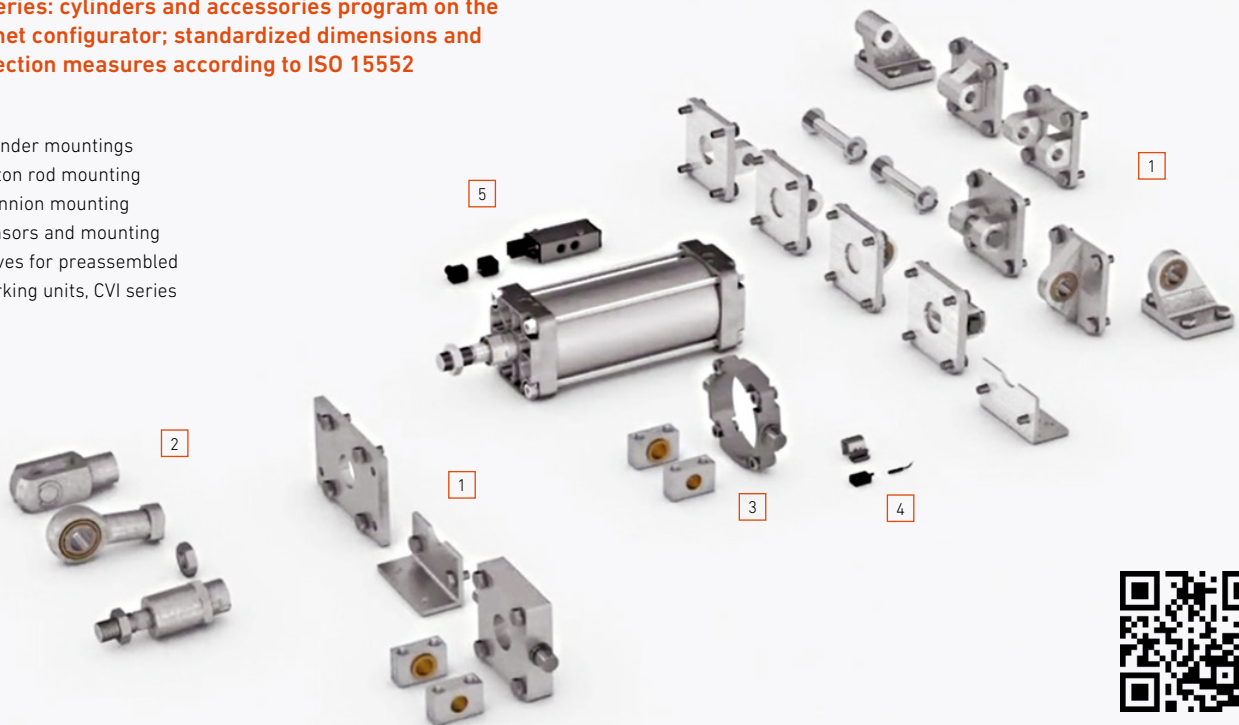


	SM6 series	SM6-AL series	ST6 series
PRA	●	○	○ ●
TRB	○		○
ITS	○	○	○

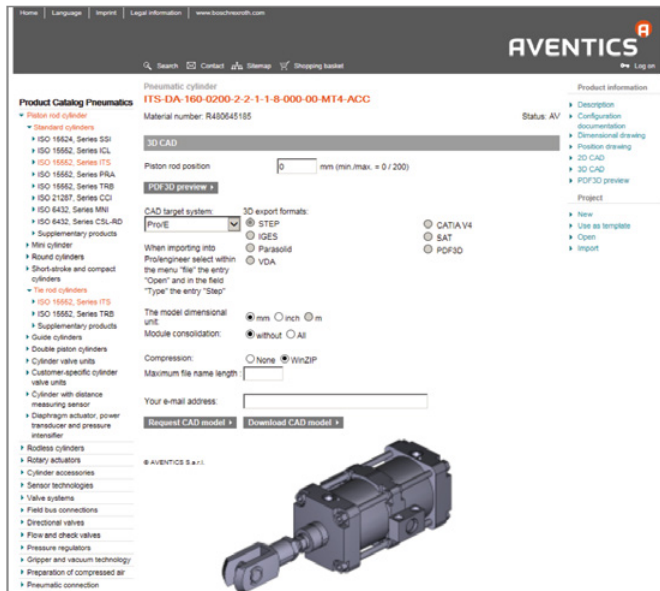
▲ All sensors with 6 mm slots can be used with the cylinders. For all cylinders, analog distance measurement with sensor series SM6 or SM6-AL is also possible. Mounting is possible via the integrated sensor slots (PRA) or via sensor mounting that is identical across all types (TRB and ITS).

ITS series: cylinders and accessories program on the Internet configurator; standardized dimensions and connection measures according to ISO 15552

- 1 | Cylinder mountings
- 2 | Piston rod mounting
- 3 | Trunnion mounting
- 4 | Sensors and mounting
- 5 | Valves for preassembled working units, CVI series



Interactive tools save you time and money



The unique AVENTICS product configurator takes you intuitively, simply and easily to your solution. The result is a complete documentation that also includes a list of cylinder sensors and fittings. We offer detailed documents for your engineering: CAD data, specified application parameters, calculation results, and complete assembly instructions. As we said before: unique.

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 range of ISO cylinders including all technical details, as well as our sophisticated Engineering Tools.



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 loadbearing 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.

AVENTICS

www.aventics.com
info@aventics.com

Follow us:



Germany

AVENTICS GmbH
Ulmer Straße 4
30880 Laatzen, Germany
Tel +49 511 2136-522
Fax +49 511 2136-163
www.aventics.de

USA

AVENTICS Corporation
PO Box 13597
1953 Mercer Road (40511)
Lexington, KY 40512
Tel +1 859 254-8031
www.aventics.us

China

AVENTICS Group
2002 Unit, Asdendas Plaza, No 333
Tianyaoqiao Road, Xuhui district
Shanghai, China, 200030
Tel +86 21 2426 9666
www.aventics.cn

Further contacts

www.aventics.com/contact

Your contact:



The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.