



**Unique Adjustment And Function.
ISO Cylinders With Modular
Scraper System**

AVENTICS™ ISO-Cylinders

Maximum quality as standard.

Profile and tie rod cylinders – always a stroke length ahead





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

The ISO cylinders of the PRA, TRB, and ITS series can be used for all sectors. This includes automation technology, plant and manufacturing systems engineering, as well as specific sector applications. In addition to high 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.

Standardized cylinders – but far from being standard

Expertise

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.

Anyone can build standard cylinders. Emerson 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 scraper system
- Easy to integrate thanks to a comprehensive range of accessories



Series	PRA/TRB Ø 32 – 125 mm				ITS Ø 160 – 320 mm			
Version	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	150 °C
Cold-resistant up to	-20 °C**	-40 °C	-20 °C**	-20 °C**	-40 °C	-40 °C	-40 °C	-40 °C
Modular scrapers	✓	✓	✓	✓	✓	✓	✓	✓
Low friction	PRA	PRA	TRB	TRB				
Distance measuring system	✓	✓	✓	✓	✓	✓	✓	✓
Holding units, dynamic brake	✓	✓	✓	✓				
With mounted valve*	✓	✓	✓	✓	✓	✓	✓	✓

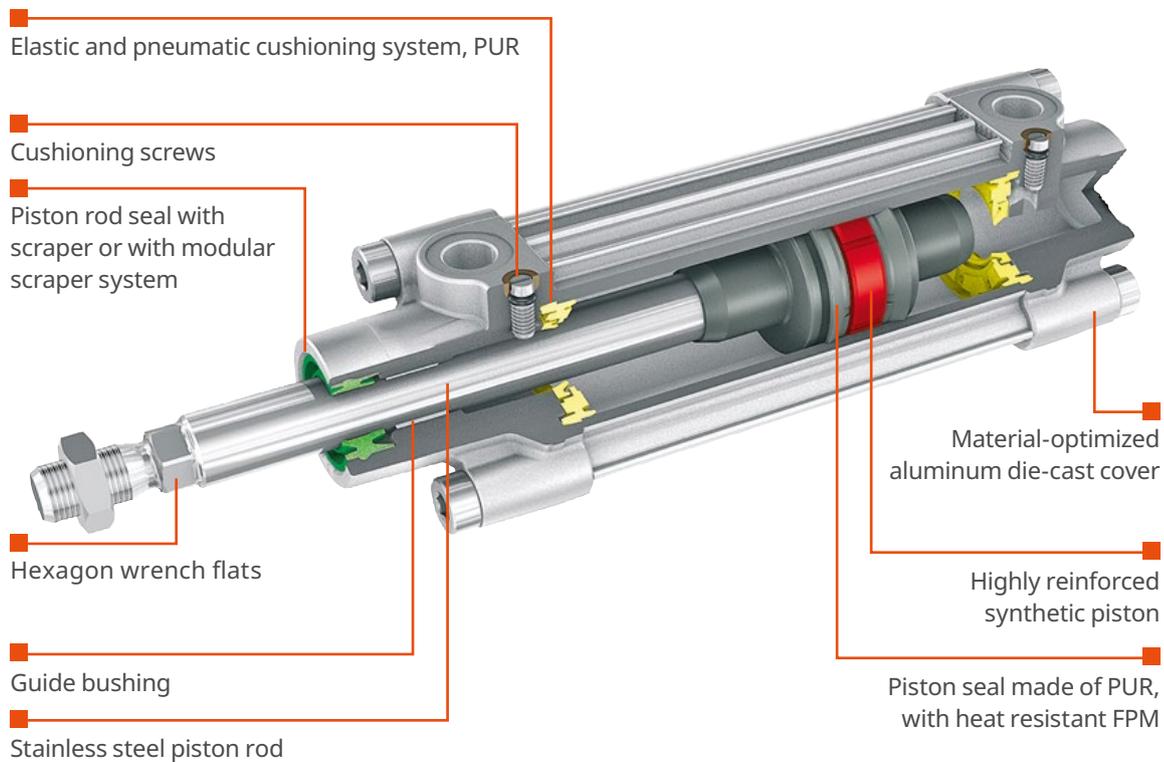
(This table shows a selection of the variations and equipment options)

* Not for order in combination with heat-resistant version

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

Advantages that pay off. PRA, TRB and ITS come with maximum quality as standard

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



- 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

PRA, TRB, and ITS highlights

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.



PRA with SM6-AL in metal cutting systems

PRA series

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



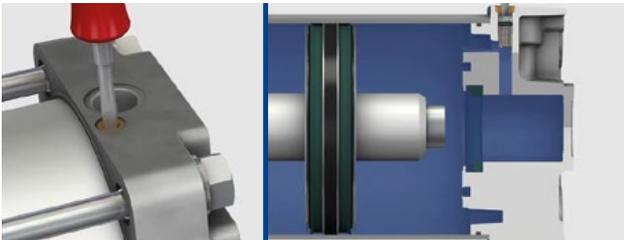
TRB series

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



ITS series

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 of the modular scraper system.



For example, cylinders of the ITS series: simple and precisely adjustable. Only a few turns of the screw are sufficient to optimally adjust the cushioning to the workpiece weight and the dynamics of the movement. Precisely adjustable pneumatic cushioning is critical for strong cylinder performance. Perfectly adjusted cushioning minimizes cycle times and reduces unwanted vibrations and noise pollution.

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 TRB	1.2 1.2	1.6 1.6	2.5 2.2	3.0 3.0	4.9 3.9	6.5 5.0	11.2 13.2	19.6	24.1	41.4	96.8
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			

Benefit from the advantages of the unique scraper 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 scraper 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 scraper program offers optimally adjusted solutions for a great variety of working environments. A program consisting of five different scraper seal combinations is available for each cylinder series.

Modular scraper system for PRA/TRB and ITS

ITS series cylinders feature the modular scraper system as an integrated standard, a USP in the market. For the PRA and TRB series, the modular scraper 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. Prepared for all application options with the modular scraper system – you can even apply a different scraper type with the same cylinder at any time if requirements change.



Ø 32 – 40 mm

Ø 50 – 125 mm

Ø 160 – 320 mm

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 scraper module in less than 5 minutes. Removal from the machine and disassembly of the cylinder is no longer needed. 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

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

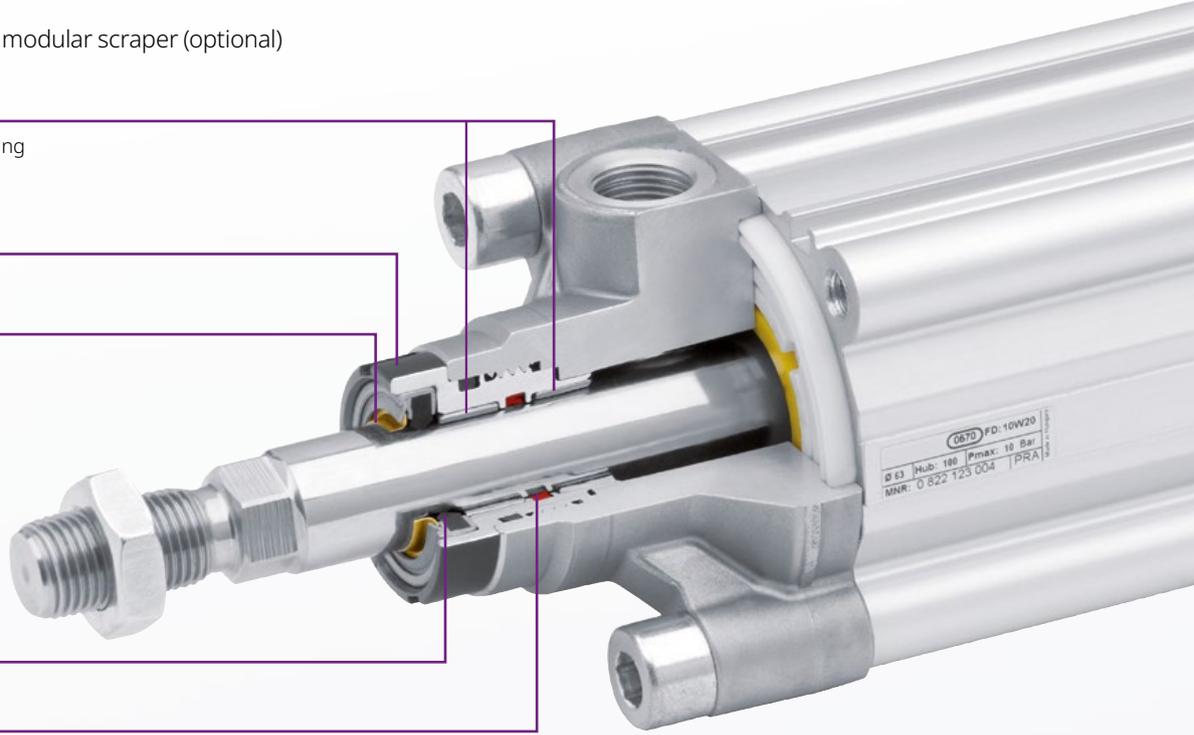
Piston rod guided by divided plain bearing

Metal housing/aluminum

Scraper 2: floating brass scraper

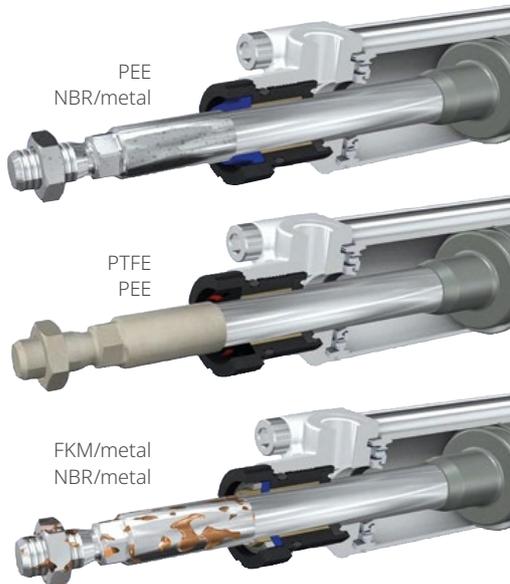
Scraper 1: PEE, FKM or PTFE

Seal: NBR, PUR or FKM

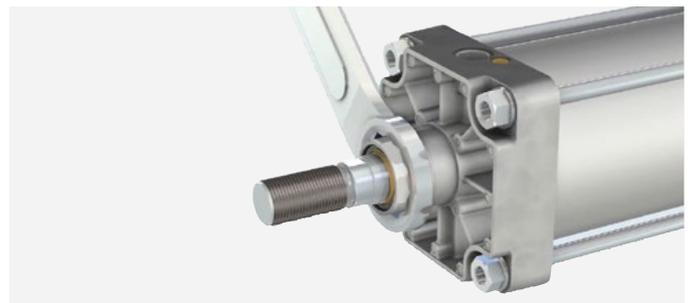


The tight tolerances between the piston rod and socket decrease radial play, ensuring optimal fit of the scraper on the piston rod. The socket is also located close to the scraper, further optimizing the scraping function.

Whether loose sediments, viscous fluids, or solid hard materials are attached to the piston rods – the various scrapers of the modular scraper 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.



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.



ITS series, Ø 160 to Ø 320 mm



PRA/TRB series, Ø 32 – 125 mm

Five different scraper modules each to comply with all requirements

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

Cylinders	ITS series, Ø 160 to Ø 320 mm
	PUR/metal
	Module with additional metal scraper and very high resistance to wear. Suitable for low temperature applications up 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.
ITS series cylinders feature the modular scraper system as an integrated standard.	

Cylinders	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
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		○	+++				++			+++

Cylinders	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
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 ■ Main application areas ■ Depend 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. Form specific mountings and matching sensors, up to individual piston rod designs – our range is comprehensive.

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

Empfohlene Sensoren für PRA, TRB und 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 | Cylinder valve combinations, CVI series



Online Fluid Control and Pneumatics Store

MyEmerson digital customer experience at Emerson.com



The online store and digital customer experience includes the entire pneumatics range and comprehensive expertise and support at one convenient location – [Emerson.com/en-us/automation/fluid-control-pneumatics](https://www.emerson.com/en-us/automation/fluid-control-pneumatics)

CAD



Objects can be issued here directly as a CAD file in various formats, as a PDF file, or for further configuration in our customers' software.

Configurators



To create customized products matching their individual requirements, customers can set their parameters in the configuration program, which then presents a product tailored to their specifications.

Calculation Programs



With transparent calculations, our customers can determine the size or durability needed for their products and can even keep an eye on energy consumption.

Cross Reference Tool



This tool shows our customers the right alternatives to competitor products from within the AVENTICS catalog.

CylinderFinder



This free online tool helps our customers find the right cylinder for their application with just a few clicks.

Smart Shopping for Professionals



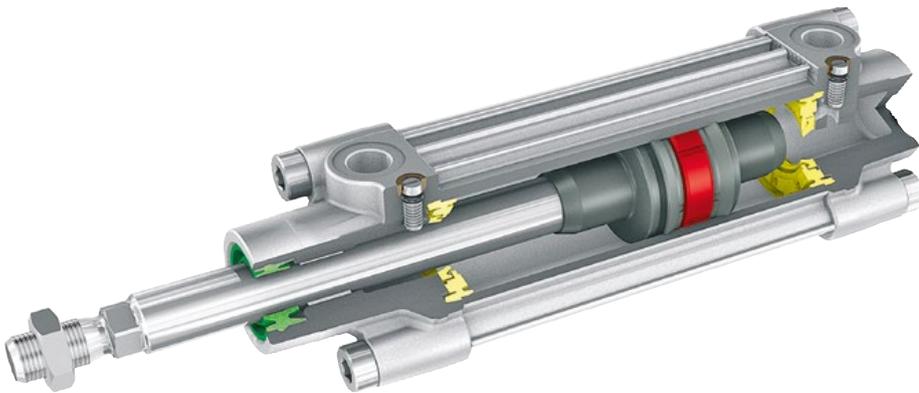
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[Emerson.com/en-us/automation/fluid-control-pneumatics](https://www.emerson.com/en-us/automation/fluid-control-pneumatics)

Your advantages:

- Intelligent search and filter functions
- Spare parts and accessories available for every product
- Track your orders online
- Transparent pricing

Advantages that pay off. PRA, TRB and ITS come with maximum quality as standard



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