ISO Standard Cylinders
High performance cylinders for any application

Engineering GREAT Solutions
IMI Precision Engineering is a world-leader in fluid and motion control. Building close, collaborative relationships with our customers, we gain a deep understanding of their engineering needs and then mobilise our resources and expertise to deliver distinctive products and solutions. Wherever precision, speed and engineering reliability are essential, our global footprint, problem-solving capability and portfolio of high performance products enables us to deliver GREAT solutions which help customers tackle the world’s most demanding engineering challenges.

> **Reliability**
We deliver and support our high quality products through our global service network.

> **High performance products**
Calling on a world-class portfolio of fluid and motion control products including IMI Norgren, IMI Buschjost, IMI FAS, IMI Herion and IMI Maxseal. We can supply these singly, or combined in powerful customised solutions to improve performance and productivity.

> **Partnership & Problem Solving**
We get closer to our customers to understand their exact challenges.
ISO Standard Cylinders

Our market leading range of ISO standard cylinders has been proven in the market over many years and in the most challenging environments. Backed by our standard warranty the range comes in 11 different bore sizes and offers stroke lengths of up to 3 metres. Running costs and total cost of ownership can be optimised using our low friction levels to operate at lower air pressures. In addition to our standard range, we offer up to 28 variants such as non-rotating, four position and alternative seal materials. Our extensive range of accessories includes reed and solid state switches and one of the largest ranges of mountings on the market. Standard cylinders and mountings are available for immediate dispatch with many of the non-standard options manufactured within 24 hours.

Our ISO standard cylinder ranges conform to the following international standards:
- ISO 15552
- ISO 6431
- VDMA 24562
- NFE 49-003-1

> RELIABILITY – our ISO standard cylinders have been proven over many years and in the most challenging environments. To demonstrate our confidence in our products, they are backed by IMI Precision Engineering’s standard warranty.

> CHOICE – our range comes in bore sizes of Ø32 to 320mm and in strokes of up to 3 metres. This gives more scope for using the products in the widest range of applications.

> OPTIONS – we are able to offer up to 28 variants including non-rotating, four position and alternative seal materials. These options allow customisation to solve the most difficult actuation problems.

> ACCESSORIES – includes reed and solid state switches, one of the widest range of mountings on the market and a choice of functional fittings. Solutions can be configured to give additional functionality and efficient operation.

> AVAILABILITY – standard cylinders and mountings are available for immediate dispatch with many of the non-standard options manufactured within 24 hours. Essential for breakdowns or where customers require short lead times to meet their own delivery requirements.
Introducing ISOLine™

Introducing the IMI Norgren Adaptive Cushioning System (ACS)

Our cushioning system will automatically adapt to an application without the need for any adjustment of the cushion screw. This removes the need for specialist knowledge for set-up and simplifies installation. Also, the ACS will adjust to any changes in the application, such as varying loads, which may occur over a cylinder cycle, a working shift or the life of the machine. This will help to ensure the application always runs efficiently and potentially extend the servicing period of the machine.

For extreme applications involving high speeds or heavy loads, a cushion screw is included for manual adjustment if required.

Adaptive Cushioning System (ACS)

- No cushioning setting required, cylinder auto-adapts to application
- Fit & Forget

Improved performance

- Operates at low pressures with very low leakage

Modern appearance

- Looks great
- Smooth end covers contoured to barrel for easy cleaning

Reduced weight

- Lower overall weight of machine
- Reduced transport costs

Additional switch mounting

- Great flexibility for machine designers

Wide range of applications

- Heavy industrial to clean food & beverage to rail and truck

ISOLine™ P
PRA/802000
- Ø32 - 125mm
- Profile barrel
- Clean appearance
- Protection against ingress
- Flush mounted reed and solid state switches available for position sensing

ISOLine™ R
RA/802000
- Ø32 - 125mm
- Robust construction
- Suitable for more aggressive environments
- Reed and solid state switches available for position sensing
- External tie rod construction

Comprehensive range for the utmost versatility
Cylinders and mountings that conform to ISO 15552
All sizes supplied magnetic as standard
Polyurethane seals ensure efficient low friction operation and long life

Adaptive Cushioning System (ACS)

• No cushioning setting required, cylinder auto-adapts to application
• Fit & Forget

Improved performance

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The ISO Standard Range

Our full range of ISO standard cylinders offers a cylinder for any application:

**Industrial Cylinders**

- **ISOLine™ P**
  - PRA/802000
  - This cylinder’s shaped profile barrel provides a clean appearance and enables direct assembly for flush-mounted switches.

- **ISOLine™ R**
  - RA/802000
  - This cylinder is of robust tie-rod construction, ideal for industrial applications.

- **IVAC Industrial**
  - PRA/802000
  - IVAC incorporates proven valve and flow regulation technologies to reduce energy consumption, weight and installation space.

- **Anodised end covers give additional environmental protection, and ATEX versions are available for hazardous applications.**

**Cleanline Cylinders**

- **Smoothline**
  - PRA/822000
  - The anodised barrel and end covers, and option of single rear air connection, give this cylinder its smooth profile. Switches can be directly flush-mounted to maintain its appearance.

- **Cleanline**
  - PRA/842000
  - This cylinder is hygienically designed according to EN1672-2 with an IP67 protection class for washdown in packaging and food applications.

- **Cleanline Stainless Steel**
  - KA/8000
  - The most rugged and reliable cylinder for applications in harsh environments and where contact with food requires heavy washdown.

**Industrial Cylinders**

- > From heavy industrial to clean food and beverage to corrosive environments
- > From -40°C to -150°C
- > From 5mm to 2800mm stroke
- > From 32mm to 320mm bore
- > From 0.1mm/second to 3000mm/second

**Cleanline Cylinders**

- > From heavy industrial to clean food and beverage to corrosive environments
- > From -40°C to -150°C
- > From 5mm to 2800mm stroke
- > From 32mm to 320mm bore
- > From 0.1mm/second to 3000mm/second
ISO Standard Cylinders

ISO Standard Cylinder Variants

ISO standard cylinders offer complete flexibility for many industrial applications. We are able to offer up to 28 different variants, including:

- **Female Thread**: Female threaded option available where space is a premium.
- **Non-rotating**: A non-rotating piston rod ensures external load is guided.
- **Bellows**: Bellows protect the piston rod from aggressive materials and environments.
- **Double Ended**: Two rodded cylinder allows movement of two loads in one stroke.
- **Four-Position**: Back to back mounted cylinders provide multiple positioning.
- **Locking Unit**: A passive locking unit will retain the piston rod in position until released by an air signal.
- **Guide Blocks**: Guide blocks allow external loads to be supported and moved at higher speeds and greater accuracy.

### Specifications

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<td><em>32 … 125mm</em></td>
<td><em>32 … 125mm</em></td>
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<td>Standard strokes</td>
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<td><em>25 … 500mm</em></td>
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<td><em>25 … 125mm</em></td>
<td><em>25 … 125mm</em></td>
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<td>Operating pressure</td>
<td>All cylinder diameters</td>
<td><em>1 … 16bar</em></td>
<td><em>1 … 10bar</em></td>
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<td>Operating range</td>
<td>All cylinder diameters</td>
<td><em>-20 … +80°C</em></td>
<td><em>-20 … +80°C</em></td>
</tr>
</tbody>
</table>

**Materials**

- **Barrel**: Anodised aluminium
- **End covers**: Stainless steel (austenitic)
- **Piston rod**: Stainless steel (martensitic)
- **Piston rod seals**: Ø32 … 125mm PUR
- **Piston rod seal**: Non-magnetic
- **Piston rod bellows**: Without cushioning
- **Double ended piston rod**:
- **Four position cylinder**:
- **Non-rotating piston rod**:

### Variants

- **Piston rod seals**: Hard chrome plated
- **Non-rotating piston rod**: Stainless steel (austenitic)
- **Four position cylinder**: Stainless steel (austenitic) hard chrome plated
- **Non-magnetic piston rod**: Stainless steel (austenitic) hard chrome plated
- **Magnetic piston rod**: Stainless steel (austenitic) hard chrome plated
- **Hydraulic**: Ø32 … 100mm

*160, 200, 250, and 320mm bore sizes are also available in tie-rod version – refer to RA/8000 data sheet N/el 1.5 (ISO)*
IVAC Innovation to Reduce Energy Usage and Operating Costs

A unique & sustainable energy improvement

> Reduce components
> Reduce operating costs
> Faster actuator response times
> Simplify ordering, installation and maintenance
> Cleanline versions
> Reduce machine downtime

**Saves Energy**
By reducing CO₂ emissions and KW Hrs, IVAC helps towards Energy targets & KPI’s

**Saves Cost**
Reduced air means the cost per mm of stroke is significantly reduced (the air savings effectively pay for replacements)

**Saves Air**
Consolidation of parts and patent protected design reduces energy consumption by minimising dead volume (it only uses the air in the cylinder, NOT the air in the tubing)

**Saves Time**
Simple selection and ordering with reduced installation and commissioning time

**Saves Space**
Optimises space usage and improves machine aesthetics

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Integrated valve actuator control

Cut energy consumption by up to...50%

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**IVAC Cleanline**
IP67, integrated valve, switches & flow controls for fast installation and easy washdown

**IVAC Industrial**
IP65, integrated valve & flow controls for fast installation

> Adjustable & buffer cushioning for end of stroke damping
> Fully integrated sensor adjustment
> 1 single M12 connection (IVAC Cleanline)
> Fully integrated flow controls
> 1 single air connection, 1 single exhaust port
> Integrated pressure protection
> Long life glandless valve technology
> ISO/VDMA footprint

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Cylinder Mounting and Accessories

Our ISO standard cylinders are complemented by one of the largest ranges of accessories on the market, including mountings, switches and cables.

Mountings
A comprehensive range of mountings for each cylinder range conforming to ISO15552 for front end cover, rear end cover and piston rod mounting.

Switches
Reed and solid state switches are available which are suitable for all cylinder ranges with magnetic pistons. Switches can be mounted flush on profile cylinders, or with the delivered adapter for tie-rod versions.

Connectors & cables
15mm Form C connectors are available for connecting to IVAC Industrial pilot solenoids. M12 connector cables are available for connecting to Cleanline and IVAC Cleanline cylinders. A Y-connection cable is also available for configuring the cylinder to an I/O module.

Functional fittings
Suitable for use on all actuator ranges. Function fittings can be used to achieve optimum actuator control.

- Pneufit C fittings – a range of composite push-in fittings for nylon and polyurethane tubing incorporating a releasable stainless steel grab ring for quick tube removal and nickel plated brass components for corrosion resistance and extended life.

- Flow regulators – a choice of adjustable general purpose and precision flow regulators can be directly connected to the actuator and provide speed control over the entire stroke length.

- Functional fittings – part of the Pneufit family, the range includes pilot operated check valves, which allow flow in one direction only when the pilot signal is removed; pressure reducing fittings, to provide secondary reduced pressure and prevent pressure build-up, and pneumatic sensor fittings, which produce an air signal when end of travel is reached.

Data Sheets

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<thead>
<tr>
<th>Range</th>
<th>Product</th>
<th>Data sheets</th>
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<tr>
<td>Industrial Cylinders</td>
<td>ISOLine™ P RMA00200</td>
<td>N025 1.1.250 01</td>
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<td>ISOLine™ R RMA00200</td>
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<td></td>
<td>M/50 solid state switches N/en 4.3.027.01</td>
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www.imi-precision.com

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