



Precision Engineering

Engineering  
GREAT Solutions



**Mobile Pneumatics**

**Mobile Pneumatics**  
Solutions for trailers,  
body builders, buses  
and specialist vehicles



IMI NORGREN



IMI BUSCHJOST



IMI HERION



IMI MAXSEAL

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## Engineering GREAT solutions through people, products, innovation and service

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.

# Experience and Expertise in Commercial Vehicles

With over 40 years experience working directly with global commercial vehicle manufacturers, IMI Precision Engineering offer a comprehensive range of pneumatic, hydraulic, electronic and vacuum solutions covering every major vehicle system, from the front bumper to the rear.

Our range of cab, chassis and powertrain solutions deliver fuel efficiency, emissions reduction and faster assembly times for the world's leading commercial vehicle manufacturers. Acknowledged for their safe and reliable operation, our products are proven over millions of miles of reliable service. We understand the market trends, environmental challenges, emissions standards and specifications that matter to truck manufacturers and Tier 1 suppliers.



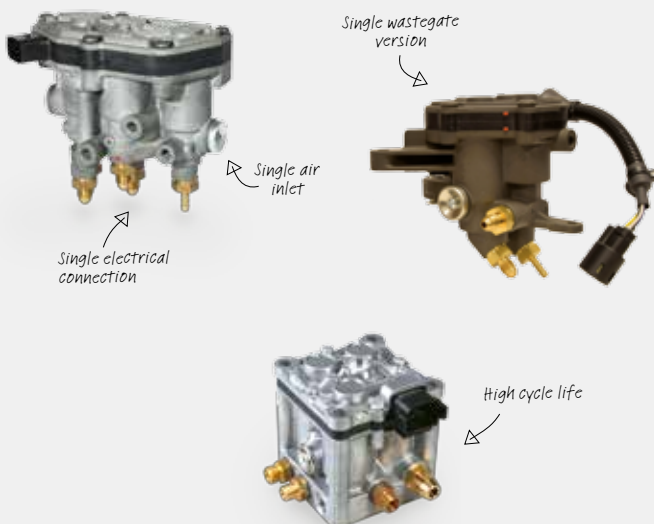
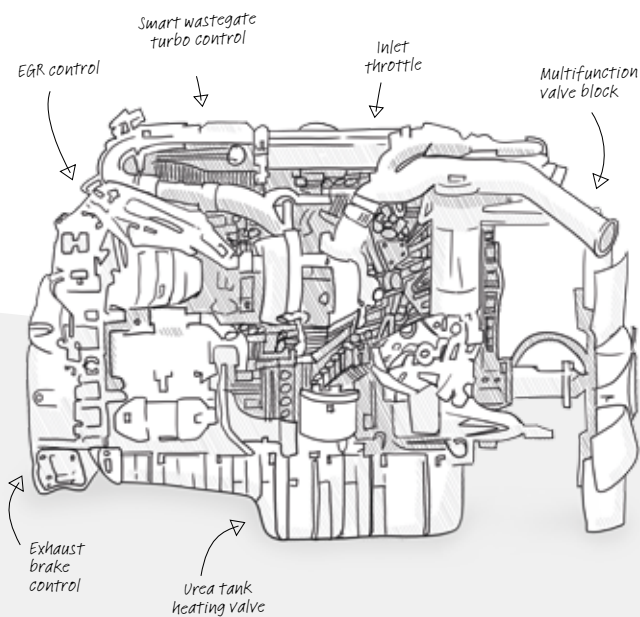


# Powertrain Engine

We provide high performance pneumatic and electric control using innovative valve and actuation technology for all current and future engine control requirements. The solutions we provide meet the challenging temperature and vibration requirements of today's heavy duty trucks and off-highway engines.

Typical Applications include:

- > Inlet Throttle
- > Variable-geometry turbocharger control
- > Engine control multifunction valve block
- > EGR Control
- > Engine exhaust brake control SCR system and blue tank heating

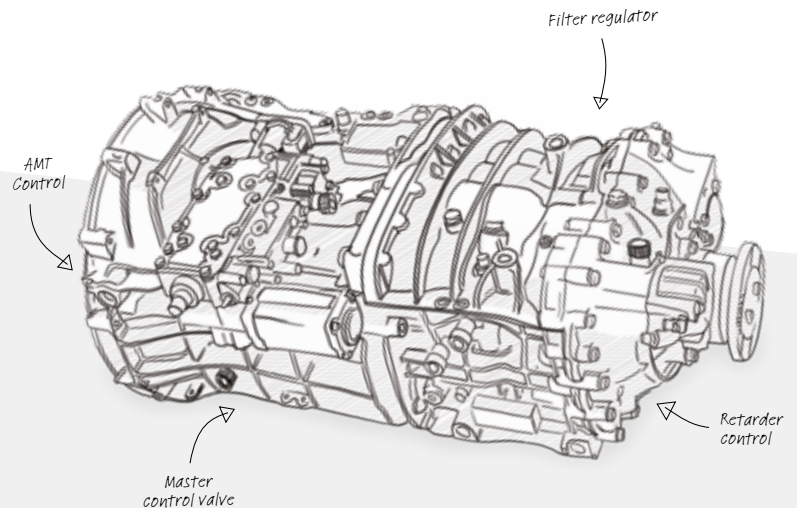


# Powertrain Transmission

Our transmission products are built to be reliable, robust and reduce weight. Solutions providing pneumatic assistance on manual transmissions and high performance solenoid valve technology for automated manual transmission (AMT).

Typical Applications include:

- > Transmission gear shifting control
- > Retarder control valves
- > Manual transmission control

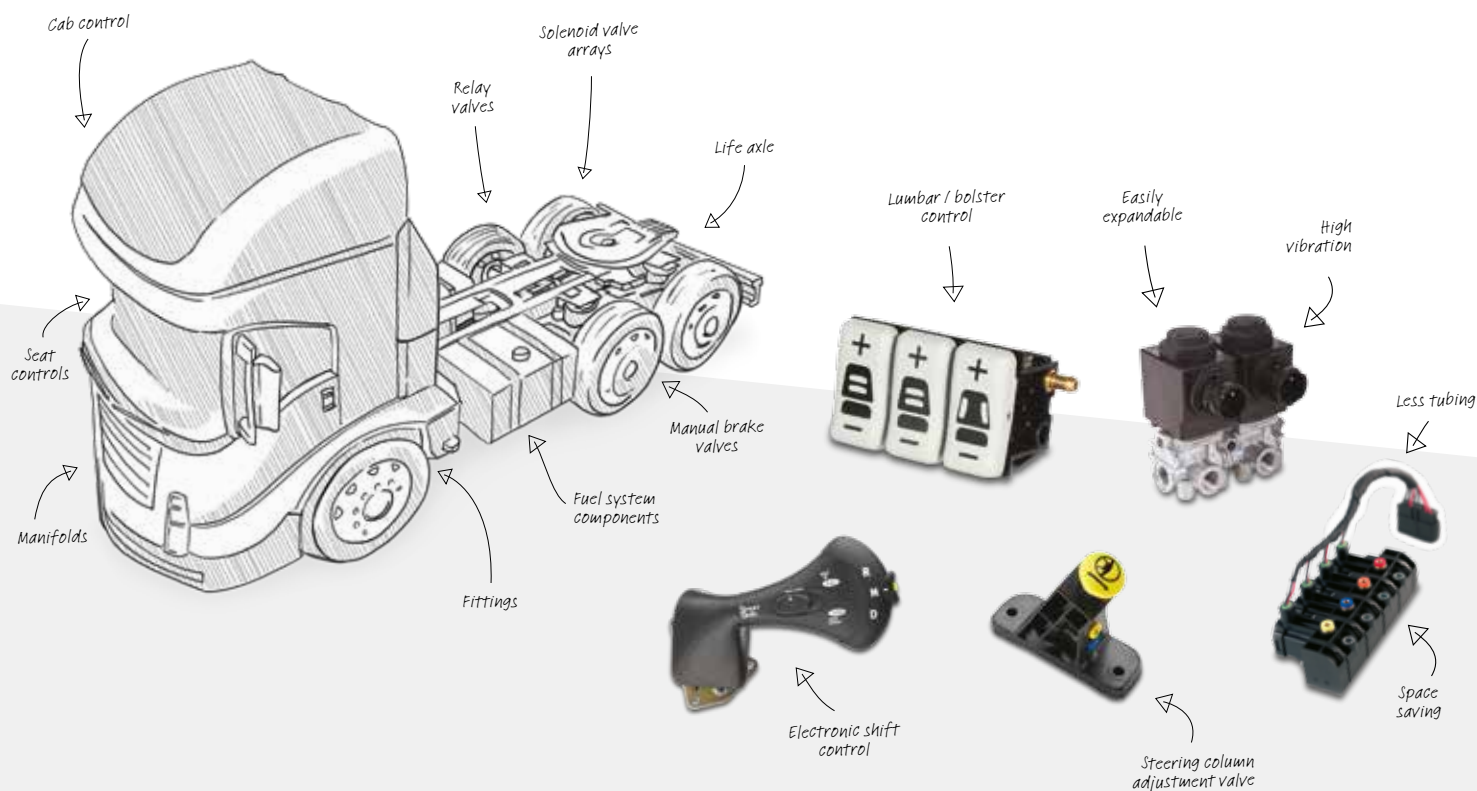


# Chassis/ CAB

We offer both standard and customised pneumatic control solutions that comply with all regulatory requirements for use in primary and auxiliary applications, reducing leakage, improving reliability and lowering total cost of ownership. Precision engineered for functionality, durability and reliability, our compact designs occupy minimal space behind the dashboard, blending with the overall design of the dashboard and interior with custom-designed graphics and lighting options available.

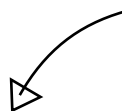
Typical Applications include:

- > Seat height and lumbar control
- > Air horns
- > Pneumatic switches
- > Axle lift control
- > Solenoid valves and valve arrays
- > Manual pneumatic control valves





*To these customers  
we provide*



# Solutions for Mobile Pneumatics

Our experience and expertise in the global Commercial Vehicle market has enabled us to work closely with a wide variety of customers who also need robust, reliable and proven solutions for pneumatic systems in their vehicles. We have been able to work with these customers to resolve challenging and critical applications across a range of industries, including:

- > Trailer manufacturers
- > Body Builders
- > Bus & Coach manufacturers
- > Specialist Vehicle manufacturers (mining, agricultural and marine)

## **Reliable, durable and proven products**

Companies who operate across global markets need systems which will work reliably through extremes of temperature and environment. Our products are specially designed to perform in these conditions, with a particular focus on climate, temperature, thermal shock, corrosion, vibration, and mechanical shock. We manufacture special filters and regulators to ensure optimum air quality to our range of valves, actuators and fittings.

## **Precise proportional control**

For applications which require precise variable control of pressure or flow in a system we have a complete range of industry-ready solutions which offer a range of low power and high accuracy options.

## **Smaller, lighter systems**

With space and weight at a premium, we continue to develop products which maximise performance and resilience while minimising weight and space-claim. Our range of cartridge valves, valve arrays and fittings manifolds are specifically designed to meet these industry needs.

## **Industry certifications**

We continue to develop products to meet and exceed industry regulations where they apply – our range of DOT FMVSS fittings for air brakes are used throughout the world. We also have secured DNVGL and BV marine certification for our proportional I/P – meaning it can be used across the world.





### Improved performance & efficiency

- > Our proportional fluid flow control products have delivered benefits to the agricultural industry by enabling more precise and responsive dispense systems.
- > Working with trailer manufacturers to develop pneumatic systems to extend the length of trailers which provide haulage companies with greater fleet flexibility.
- > Our proportional pressure control products have helped to extend the life of cleaning brushes and high pressure jets in a range of specialist municipal vehicles across the world.

### Improved safety

- > IMI Precision Engineering provide bulk liquid trailer manufacturers with pneumatic systems to control safety handrails on top of tankers to ensure operator safety.
- > Our range of in-cab pneumatic control switches and control cabinets enable operators to remain at a safe distance during tipper unloading.
- > We work with bus and coach manufacturers to supply a range of passenger door systems which include manual overrides and automatic reverse functions to ensure passenger safety.
- > We also manufacture electro-hydraulic control units to compensate for over-steering on municipal vehicles.

### Reduced emissions

- > Our marine-certified proportional pressure controllers have enabled shipbuilders and operators to reduce their emissions in line with new industry regulations.
- > Our valve arrays have been adopted by leading off-highway manufacturers due to their resilience and performance in the most demanding conditions.

### Improved comfort and ergonomics

- > We have developed a standard range of in-cab pneumatic seat-height, lumbar and suspension products to enhance operator comfort.
- > We have developed an industry-leading motorized climate control system for coaches which delivers precise and quiet operation for passengers, while also delivering operational efficiencies to coach operators.

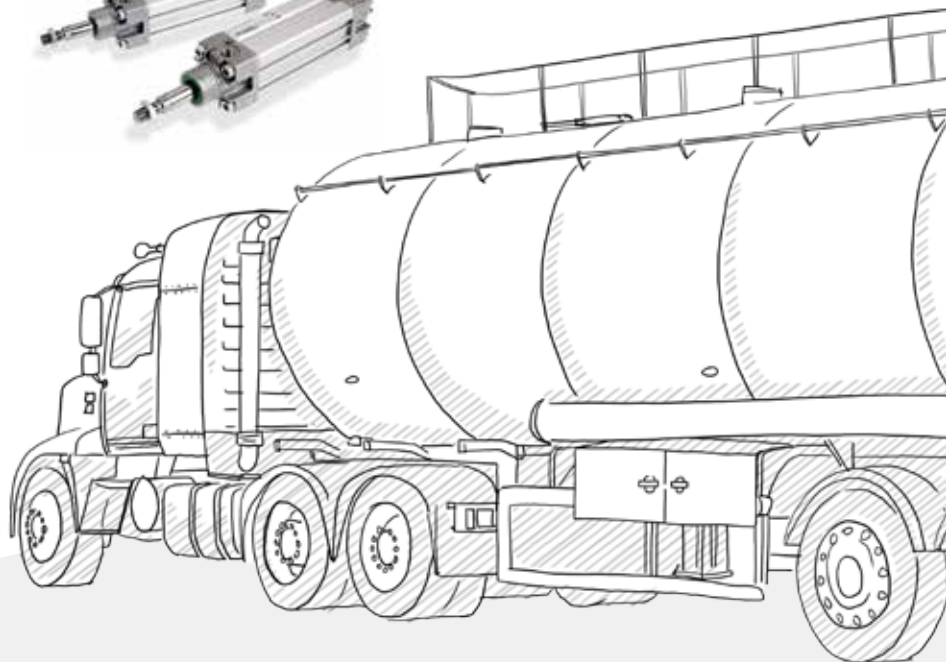
# Trailers

IMI Precision Engineering has supplied push-in fittings for brake systems into the truck and trailer market for over 35 years. As haulage requirements have become more sophisticated we have developed our pneumatic capabilities to suit a wide range of systems and applications which are now found in today's modern trailers.

Typical applications that we support today include:

- > DOT FMVSS/ DIN 74324 brake fittings
- > Fifth wheel applications
- > Control panels and cabinets
- > Pneumatic interlocks for safety critical applications
- > Extendable trailer applications
- > Safety handrail control
- > ATEX-rated process valves for tankers
- > Air preparation equipment
- > Lubrication manifold
- > Pneumatic pilot system for hydraulics
- > Load cover/ automatic sheeting control
- > Tipper and tailgate control
- > Variable tank volume and evacuation control
- > Suction control

Actuators, valves  
and auxiliary  
fittings



Control panels  
& cabinets



Fuel filler caps



Air preparation  
equipment



Push-button  
super X valves



ATEX-rated  
process valves


Specialist bulk and tipper trailers often need pneumatic control of tailgates and specialist systems.



Our valves and actuators are used as pneumatic interlocks in a variety of applications - from car transporters to safety rails on bulk liquid tankers.


Special super X  
roller bearing  
valves

DOT FMVSS/ DIN 74324  
air brake fittings


## Trailer Applications

### Bulk liquid tankers

Bulk liquid tankers have multiple applications and requirements for both pneumatic and fluid control.

Access to the top of the tanker is typically required for a variety of reasons: valve operation, measuring levels, checking and inspection.

IMI Precision Engineering have a range of valves, cylinders and accessory components used in the raising and lowering of safety rails on top of bulk liquid tankers to ensure that the driver/operator is protected when working on top of the vehicle.



### ATEX certified valves

Operation of top and bottom filling valves also require pneumatic control, for which IMI Precision Engineering have a variety of applicable products. In many situations, these valves must conform to exacting ATEX safety standards.



### Trailer length variation

Operators have developed their fleet to accommodate ever-changing demands on the loads and containers which they are hauling on our roads today. To ensure maximum efficiencies gained when operating a large fleet of trailers, extendable trailers have been developed to meet these demands.

The trailer length can be adjusted using a pneumatic system comprising cylinders and valves. Dependent on customer requirements, once the new trailer length has been achieved, it is locked into position either mechanically or pneumatically.



### DOT FMVSS Brake Fittings

IMI Precision Engineering have manufactured and supplied Push-to-connect fittings to the commercial vehicle, trailer and OEM Tier 1 suppliers for over 35 years. Our customers around the world have achieved significant production efficiencies as these fittings save huge amount of time during assembly, both providing ease of access in tight spaces as no assembly tools are required and a substantial reduction in potential air leaks associated with traditional compression fitting systems. Our fittings are available in both inch and metric tube sizes with a broad range of different threads. All conform to industry requirements of DOT FMVSS 106 for inch tube and DIN 74323 for metric.





# Body Builders

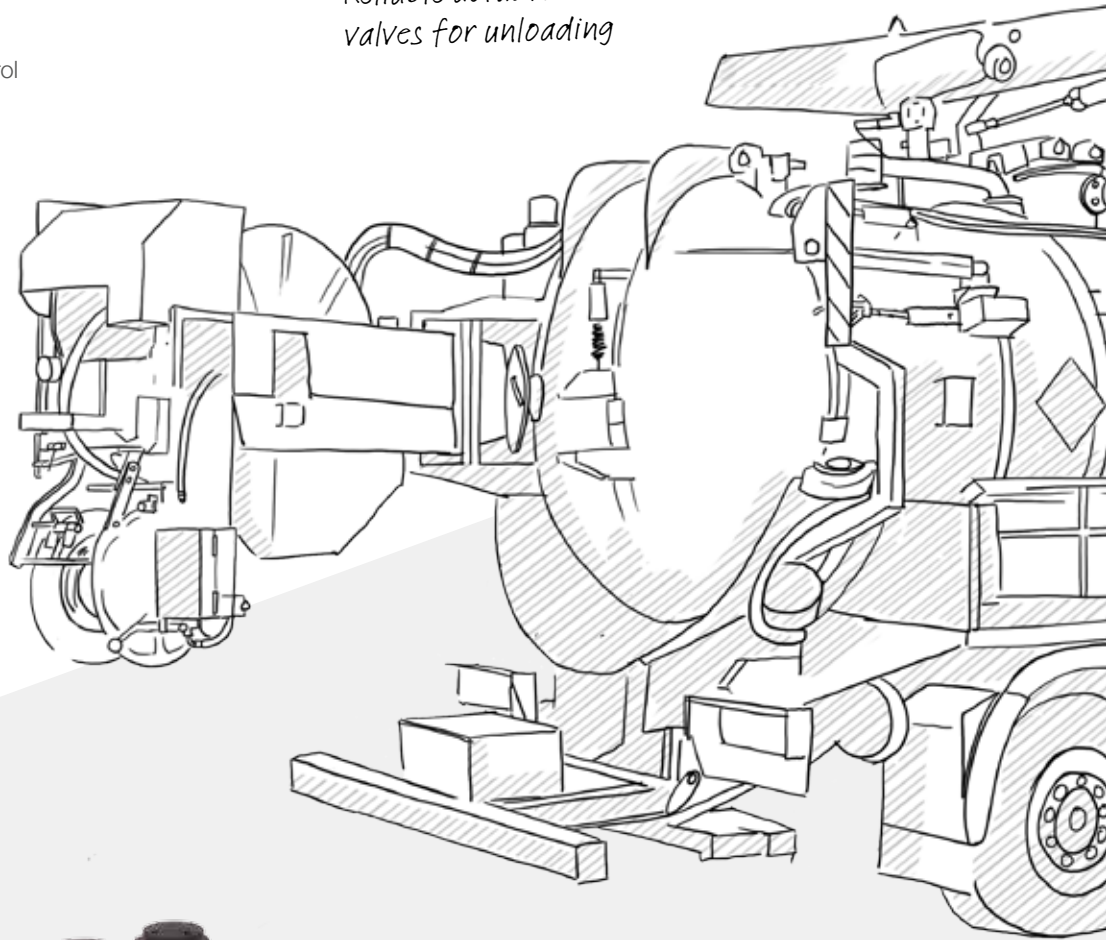
IMI Precision Engineering provide solutions for a wide variety of applications for industry OEMs and specialist body builders. We have a long history of supplying reliable, high-performance products designed to meet the challenging environments and problem-solving needs of the industry.

Typical applications that we support today include:

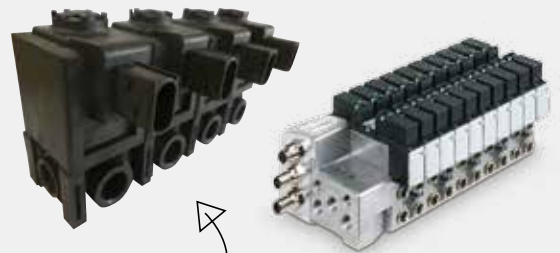
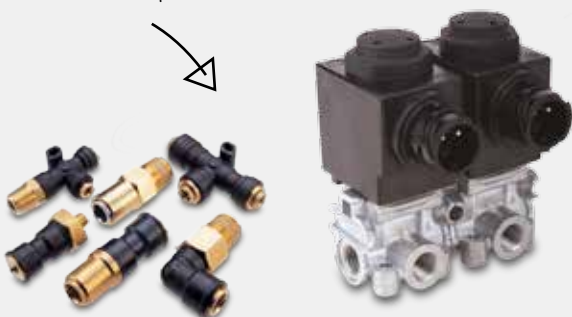
- > Tailgate and tipper control
- > Side-wall locking
- > Pneumatic hand rail actuation
- > Pneumatic pilot system for hydraulics
- > Load cover/ automatic sheeting control
- > Pneumatic interlocks
- > Boom control/ counter balance
- > High pressure jetting control
- > Wide sweep brush positioning
- > Proportional brush pressure control
- > Variable tank volume and evacuation control
- > Suction control
- > Spreading/ gritting control
- > Pneumatic trailer coupling



*Reliable actuators & valves for unloading*



*Actuators, valves and auxiliary fittings*



*Valve arrays and manifolds*

Hydraulic traction  
control valve



Proportional  
control



In-cab tipper  
control



Control panels  
& cabinets



Our special air suspension valve manifolds enable chassis height adjustment according to load and conditions for a variety of specialist bodybuilder applications, including ambulances.



Other examples of specialist applications include pneumatic control of hydraulic systems as well as suction, boom counterbalance and tank filling/ emptying.



Municipal vehicles and fuel tankers both have requirements for pneumatic control panels and cabinets to ensure driver/ operator safety at all times.



## Body Builder Applications

### Sweeper brush positioning

Municipal vehicles place extreme demands on the pneumatic components in their systems due to the harsh environments in which they operate.

Proportional control is used to ensure the most consistent positioning of the pneumatic cylinders to achieve optimum cleaning performance.

Other benefits of this proportional control are fast and accurate obstacle avoidance, needed when navigating a variety of road and pavement conditions.



### Centralised pneumatic control cabinet

Due to the tough operating conditions in and around waste-removal vehicles it is beneficial to centralise the pneumatic control in the safe, clean and protected environment of a pneumatic control cabinet.

The benefit of this solution is that it prevents potential damage from both the manual/mechanical operation of the system and the external environment.



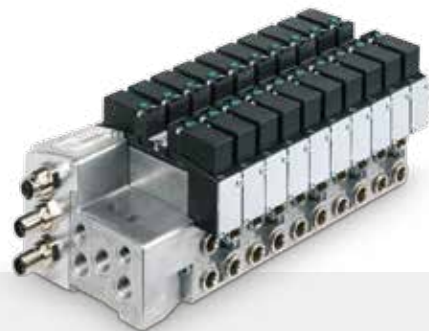


## Tipper Control

With the ever-increasing need to improve driver safety, tipper controls are now often located away from the areas of danger where the load is being emptied. This frequently results in pneumatic control being located in and around the cab environment, ensuring that the driver is out of harm's way. IMI Precision Engineering have a varied ranges of valves that have been used in these applications for many years.

## Valve Islands

Valve islands to control multiple functions in complex systems often found in fire-engines, road sweepers and other municipal vehicles.



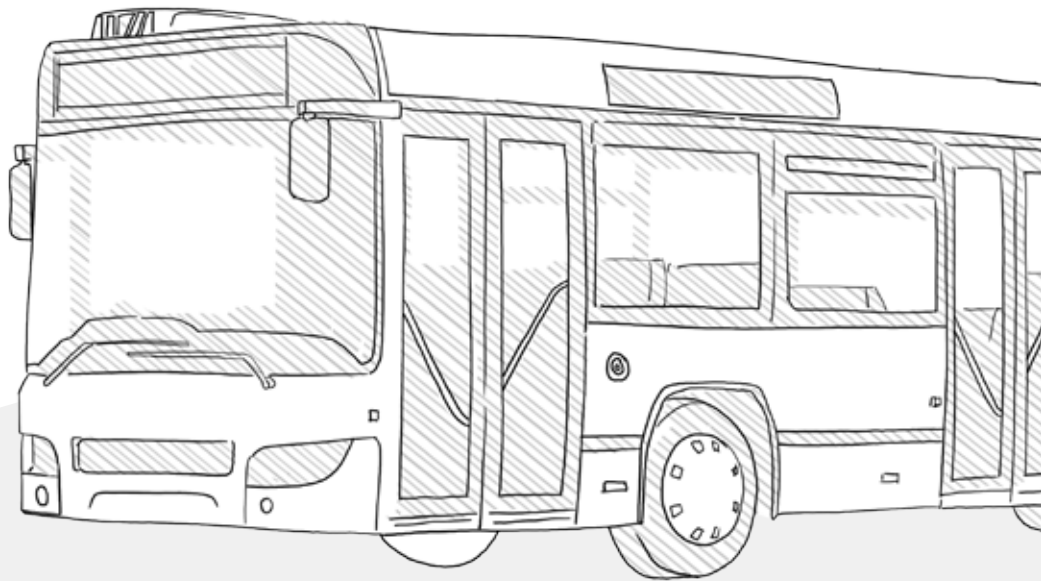
# Buses & Coaches

Passenger comfort and safety on today's modern buses and coaches remains a high priority. IMI Precision Engineering supply a range of reliable and robust control valves for climate control and door-opening systems designed to operate in extreme temperatures.

Typical applications that we support today include:

- > Climate control
- > Door open/ close system
- > Emergency door control
- > Disabled access systems
- > Articulated bus safety and damping systems
- > Battery cooling for hybrid buses
- > Urea tank heater
- > DOT FMVSS DIN 74324 brake fittings
- > Fuel filler caps (vented/ non-vented)
- > Safety systems

*PRA and IVAC  
cylinders  
for door actuation*



*Fittings &  
Accessories*



*Control  
valves*

Climate  
control  
valves

Glycol filters



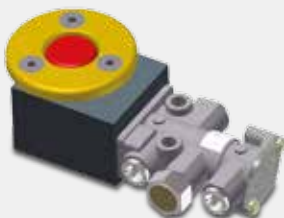
Our high flow precision regulators control the response of the pantograph system according to height variations in electric overhead lines.



IMI Precision Engineering have supplied door control systems for city buses and climate control systems for luxury coaches for many years.



Special actuators are used to maintain constant tensioning on main and auxiliary fan belts, delivering efficiency and ease of servicing.

Emergency  
door valvesDoor control  
systems





## Bus & Coach Applications

### Climate control

Our high performance range of 2 and 3-way motorized valves offer proportional and digital control of engine coolant (water glycol), enabling precise temperature control for passengers in buses and coaches.

Features & Benefits include:

- > Digital control-damping closing reduces pressure shock
- > Motorised proportional valve delivers constant flow and reduces pressure shock on the radiator, while power consumption closes off when a set point is reached.
- > Ceramic discs are resistant to dirt and variation of temperature, ensuring a more reliable performance.
- > Motor drive for flap control- EMV resistant and built to high IP classification (IP-6K9K), it includes a gold plated pin contact to deliver high torque with minimal back lash
- > Coolant control valves for the temperature control of hybrid battery packs.

*Climate  
control  
valves*

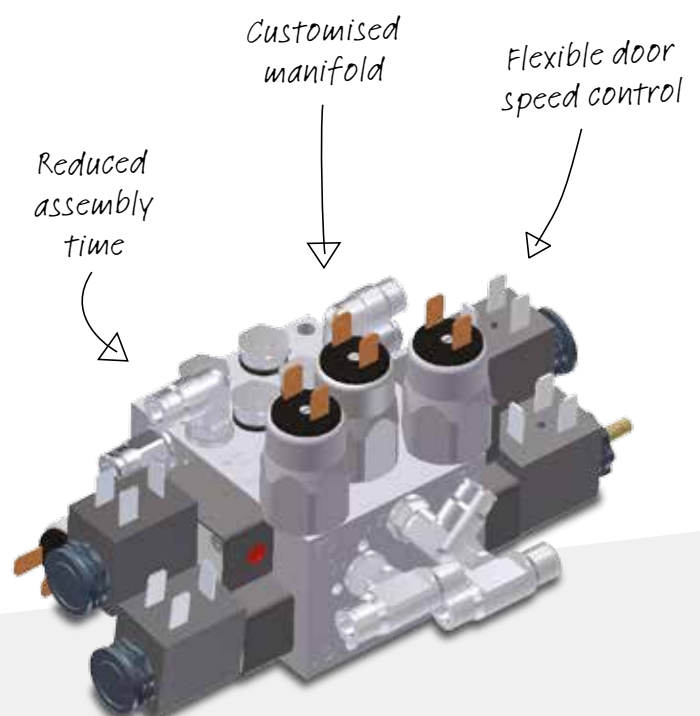
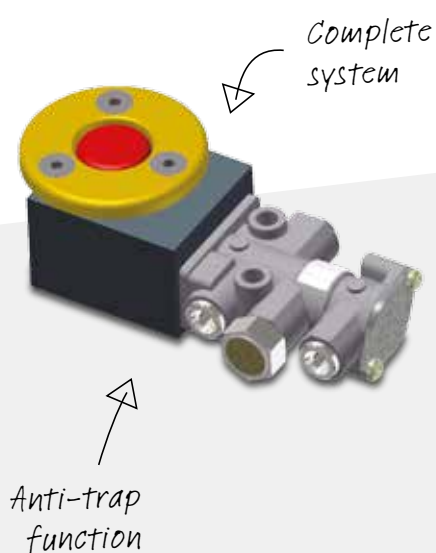




## Door opening systems

Our pioneering pneumatic control door-opening system for buses and coaches offers:

- > A complete, customised system built from two components: door opening block and pneumatic cylinders
- > Integrated safety functions, including a manual override option and an automatic reverse function for obstacle detection
- > Emergency valves



## Specialist vehicles

## Agriculture

IMI Precision Engineering works with specialist off-highway manufacturers to deliver improvements in efficiency, safety and performance for a range of agricultural vehicles.

Typical applications that we support today include:

- > Emission control
- > Power Take Off Equipment
- > Tyre inflation systems
- > Proportional spray control
- > In-cab seat controls
- > In-cab climate control
- > Crop spraying
- > Harvesting
- > Processing equipment

In-cab controls

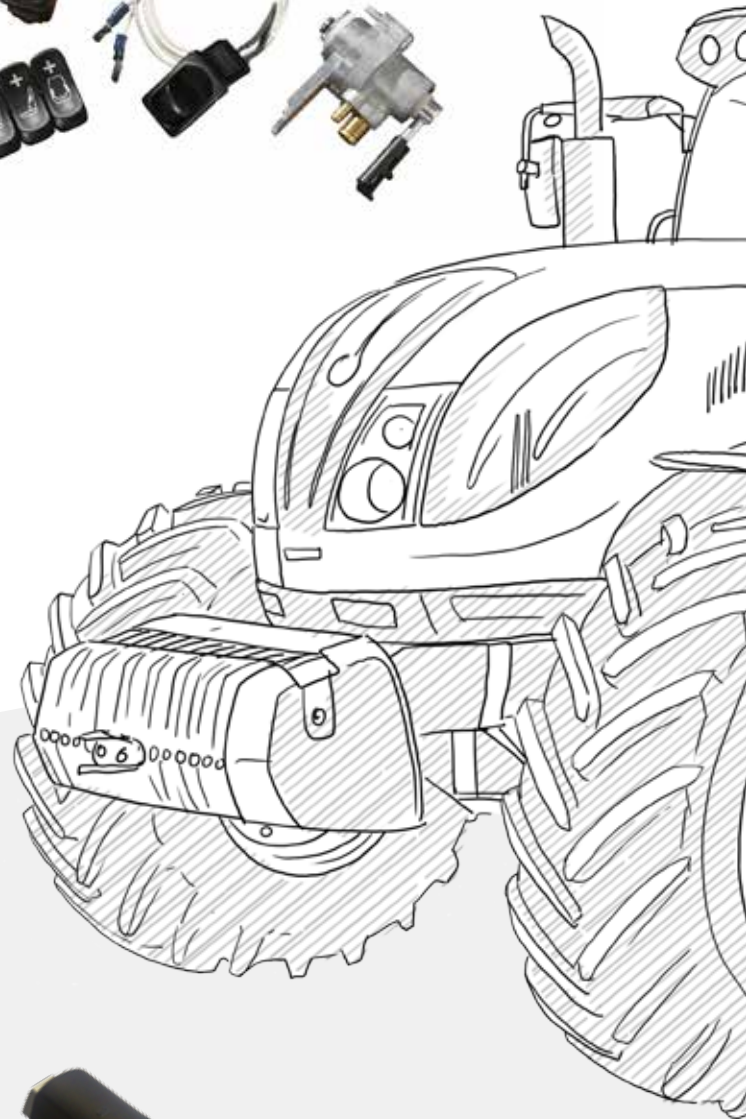


Solenoid valves  
for CNG/LNG

Urea tank  
heating valves



Proportional turbo  
wastegate control





Climate control  
valves



Proportional  
dispense valves



Off-highway  
valve arrays

### Crop spraying

Efficient and accurate crop spraying is achieved with our precise proportional control valves which vary dispense according to the changing terrain.



Our proportional pneumatic control systems enable accurate and efficient harvesting depending on the terrain and application.



## Specialist vehicles

## Mining &amp; Construction

IMI Precision Engineering works closely with mining and construction vehicle manufacturers to deliver outstanding performance in the most demanding of applications.

Typical applications that we support today include:

- > Dust filtration systems
- > Drill flushing and cooling systems
- > In-cab seat controls
- > In-cab climate control
- > Brake interlocks
- > Emergency engine shut-off
- > Traction control

*Drill, hammer,  
flushing and water  
mist control*



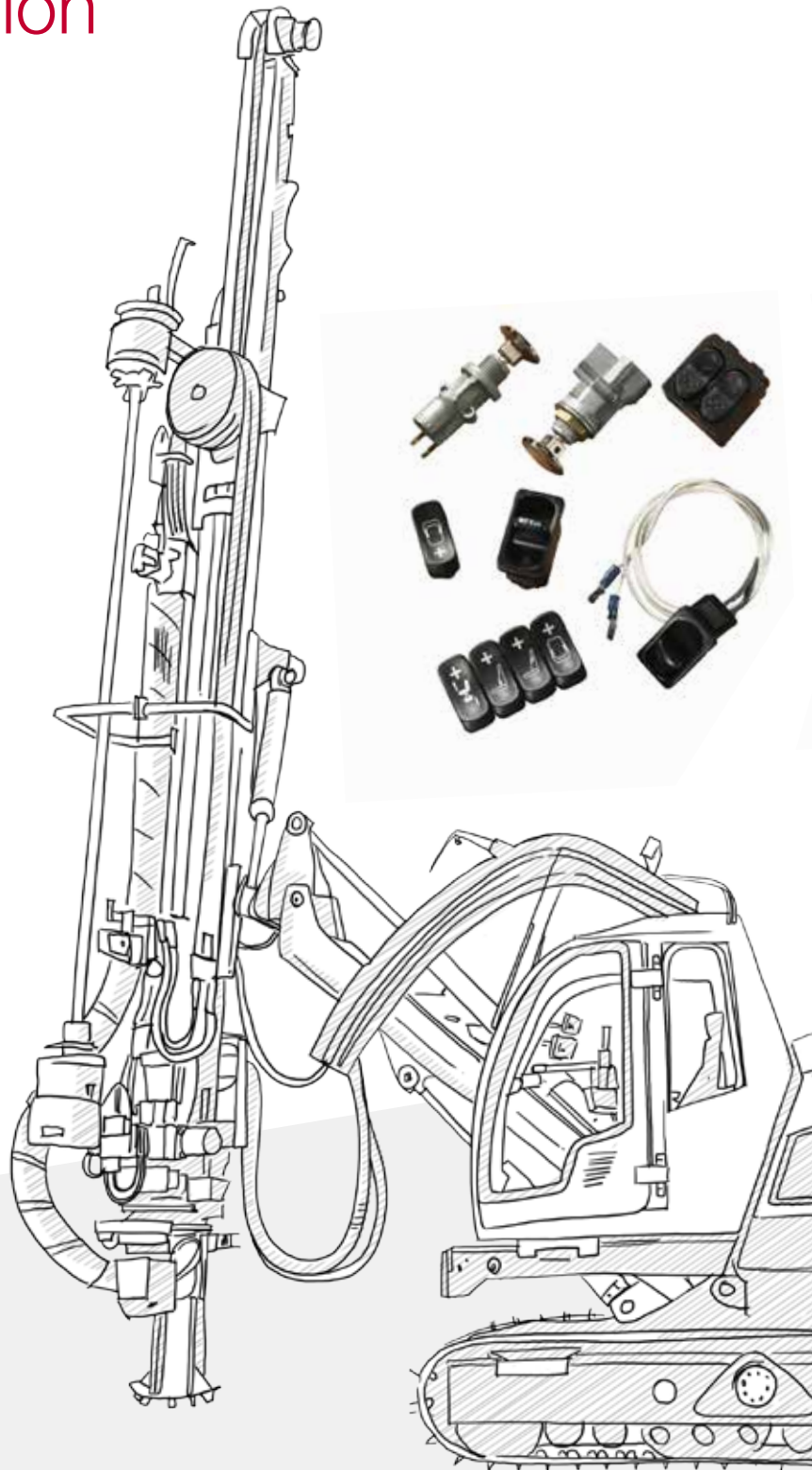
*Urea tank  
heating valves*



*Off-highway  
valve arrays*



*Hydraulic  
control  
systems*



In-cab controls



Climate control valves

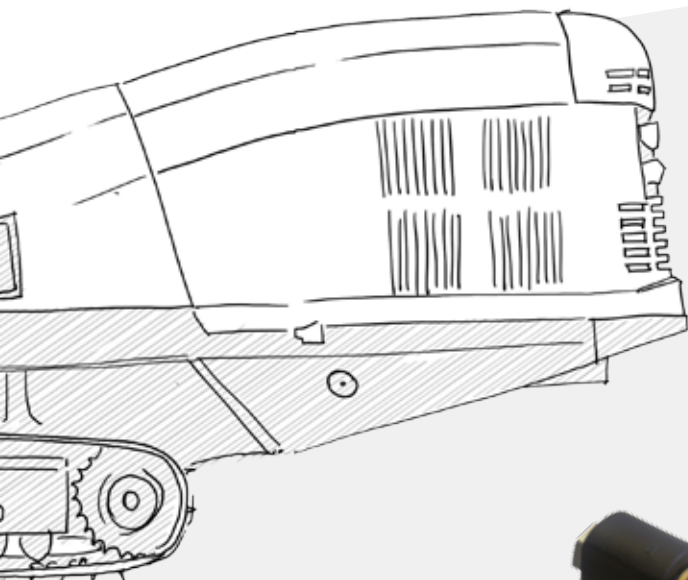


Dust filter valves



IMI Precision valves help mining vehicle manufacturers keep their dust collectors operating at peak efficiency. Our valves also reduce energy consumption, are explosion-proof up to hazardous area 1/21, and performing consistently across a temperature range from -40°F to 284°F.

We supply pneumatic systems for a variety of road construction vehicles including asphalt spreaders, road rollers and road marking equipment



Proportional turbo wastegate control





## Specialist vehicles

## Marine

IMI Precision Engineering works with marine engine manufacturers and shipbuilders to help them respond to the global industry drivers around emissions reduction and ballast water quality as well as developing bespoke solutions for specialist fishing, tanker and naval applications,

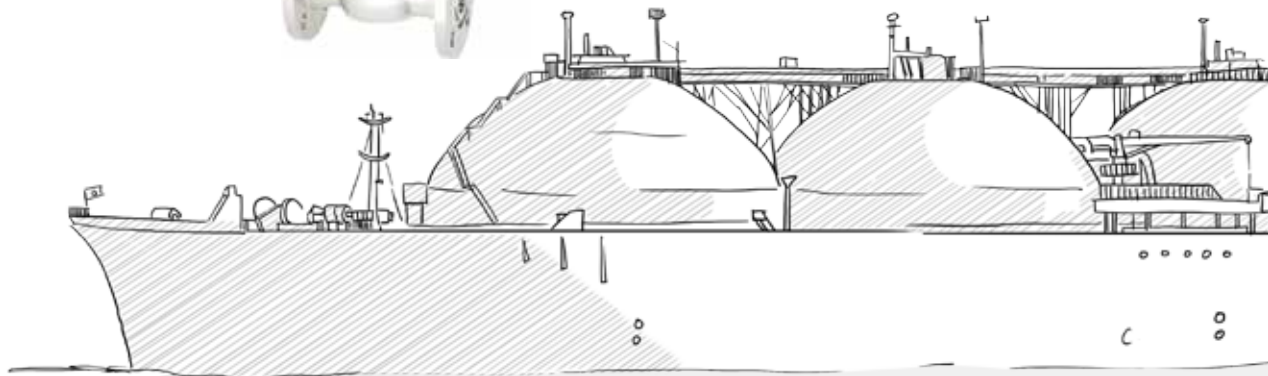
Typical applications that we support today include:

- > Proportional turbo wastegate control
- > High pressure air ignition systems
- > Air preparation equipment
- > Pneumatic pilots for hydraulic systems
- > ATEX rated process valves

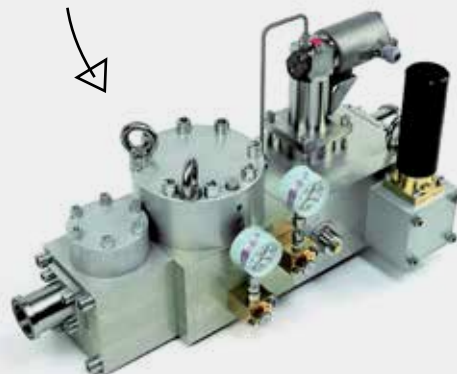
*Cryogenic valves for LNG*



*LNG process valves*



*Air start manifold for Diesel engine start applications*



*High flow FRLs*

ATEX rated  
stainless steel  
process valves



Pneumatic pilots  
for hydraulic  
systems



The Type 140 I/P delivers reliable, marine-approved proportional control to pilot the position of turbo waste gates in marine engines ensuring optimum pressure to turbo for most efficient fuel burn, helping engine manufacturers to meet the new IMO Tier III Emissions Legislation of NOx and SOx.



Proportional pilot control of hydraulic system to lift fishing nets, protecting them from damage from the sea floor



Stainless steel FRLs



Proportional turbo  
wastegate control

# Our market leading product brands

Our world-class portfolio includes IMI Norgren, IMI Buschjost, IMI FAS, IMI Herion and IMI Maxseal.

Having proven their value over years, they stand amongst the most trusted names in fluid and motion control. Bringing added value benefits to all industries, our high performance products cover valves, valve islands, proportional and pressure monitoring controls, air preparation products and a comprehensive selection of pneumatic actuators – rodless, compact, roundline and rotary. We also have the specialist technical expertise for custom cabinet, panel or manifold solutions.

## Cylinders



	<b>RA/8000 ISO/VDMA Tie Rod Cylinder</b>	<b>PRA/182000 ISO/VDMA Profile Cylinder</b>	<b>RT/57000 Roundline Cylinder</b>	<b>RA/190000 ISO Compact Cylinder</b>
<b>Material</b>	Aluminium barrel and end covers Stainless steel piston rod	Aluminium barrel and end covers Stainless steel piston rod	Aluminium end covers Stainless steel barrel and piston rod	Aluminium barrel and end covers Stainless steel piston rod
<b>Bore sizes</b>	Ø32mm to 320mm	Ø32mm to 125mm	Ø8mm to 63mm	Ø20mm to 125mm
<b>Function</b>	Double and single acting	Double and single acting	Double and single acting	Double and single acting
<b>Key Features</b>	Conforms to ISO 15552 Heavy duty applications High temperature and hydraulic options	Conforms to ISO 15552 Heavy duty applications High temperature and hydraulic options	Shorter than tie-rod cylinders Crimped barrel design Medium duty applications	Conforms to ISO21287 Medium duty applications High temperature option

## Valves



	<b>Super X Manually &amp; mechanically operated Valves</b>	<b>V60...63 Solenoid operated Valves</b>	<b>VS18/26 Valve Islands</b>	<b>VM10/15 Valve Islands</b>
<b>Material</b>	Polymer or Metal bodies	Aluminium	Aluminium	Engineered Polymer
<b>Port sizes</b>	1/8" ... 1/4"	1/8" ... 1/2"	1/8" ... 1/4"	1/8" ... 1/4"
<b>Function</b>	3/2, 5/2, 5/3	2x3/2, 3/2, 5/2, 5/3	2x2/2, 3/2, 5/2, 5/3	3/2, 5/2, 5/3
<b>Key Features</b>	Wide range of operators Lightweight & corrosion resistant High flow capacity	High performance Reliable and maintenance free Low power consumption	Glandless spool for long life Soft seal spool for high flow Field expandable with add-on stations	Compact size Lightweight design High flow to size ratio

## Air Preparation



	<b>Excelon</b>	<b>Miniature 07 Series</b>	<b>VO5 Relief Valves</b>	<b>Stainless Steel Range</b>
<b>Material</b>	Aluminium	Zinc	Brass and Polymer	Stainless Steel
<b>Port sizes</b>	1/4" ... 3/4"	1/8" ... 1/4"	1/4"	1/8" ... 1/2"
<b>Function</b>	Filters, Regulators and Lubricators	Filters, regulators and filter/regulators	Protect from system over-pressure	Filters, Regulators and Lubricators
<b>Key Features</b>	Robust and reliable Modular and flexible High efficiency filtration	Versatile and customisable Compact design with high flow Many product options	Simple effective design Very high flow Tamper resistant	Corrosion Resistant Robust and reliable NACE approved





**RM/92000  
Compact Cylinder**

Aluminium barrel and end covers  
Stainless steel piston rod

Ø12mm to 100mm

Double and single acting

One third the length of tie-rod cylinders  
Medium duty applications  
High temperature option



**M/146000  
Rodless Cylinders**

Aluminium barrel and end covers

Ø16mm to 80mm

Double acting

Stroke lengths of up to 8000mm  
Internal, external and precision  
guide options



**M/31000  
Air Bellows**

Steel, aluminium or polymer end plates  
Fabric reinforced rubber bellows

2.75" to 26"

N/A

Frictionless operation  
Short stroke high force applications  
High vibration isolation



**M/50  
Switches**

Polymer body  
Polyurethane, PVC or silicon cable

N/A

Normally open and changeover

Reed and solid state versions  
Cable and plug options  
Suitable for all cylinder models



**KIP Series 2, 3 & 6  
Direct acting  
Solenoid Valves**

Stainless Steel or Brass

1/8" ... 3/8"

2/2 & 3/2

In-line or manifold mount options  
For multi fluids, gases and liquids  
High reliability



**Angle Seat Valves**

Polymer, Stainless, Brass or Aluminium

1/4" ... 1"

2/2

For multi fluids, gases and liquids  
High fluid temp range (180°C)  
Contamination resistant



**Solenoid Operated  
Diaphragm Valves**

Brass or Stainless Steel

1/8" ... 2"

2/2

Interchangeable "Click-on" solenoids  
High flow capacity  
Robust and reliable



**VP50/50S  
Proportional Valves**

Aluminium and Polymer

1/4" or manifold

2/2 & 3/2

Closed loop pressure control  
Excellent performance characteristics  
Low power consumption

## Fittings & Accessories



	<b>Fleetfit</b>	<b>Pneufit</b>	<b>Tubing</b>	<b>Flow Controls</b>	<b>Silencers</b>
<b>Material</b>	Brass	Nickel plated brass or glass filled nylon	Nylon type PA12 or polyurethane, hardness Shore D52	Brass, PBT	Brass & sintered bronze, UHMW PE porous plastic
<b>Port sizes</b>	Metric and imperial tube sizes, BSP and NPT thread options	Metric and imperial tube sizes, BSP and NPT thread options	3mm - 16mm	Metric and imperial tube sizes, BSP and NPT thread options	M5, 1/8" - 1 "1/8" - 1" NPT
<b>Function</b>	Connector suitable for on board air brake systems	Connector	-	Flow control	Reduce noise levels of pneumatic equipment
<b>Key Features</b>	Push-in tube connection Robust and reliable Many product options Complies with DOT FMVSS 106, SAE J1131, DIN 74324 and TUV approval	Compact design with retained collets Easy tube insertion Reliable and corrosion resistant Many product options	Range of colours for ease of identification Nylon tubing conforms to DIN 74324 Polyurethanes offers excellent flexibility	Variety of products including banjo, block form, in-line and heavy duty Robust and reliable High flow performance Lockable adjustment	Variety of products Prevent dirt ingress Screw directly into exhaust port Shock and vibration resistant to EN 61373, Category 1, Class A and B

IMI Precision Engineering operates four global centres of technical excellence and a sales and service network in 75 countries, as well as manufacturing capability in the USA, Germany, China, UK, Switzerland, Czech Republic, Mexico and Brazil.

For information on all IMI Precision Engineering companies visit [www.imi-precision.com](http://www.imi-precision.com)

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Due to our policy of continuous development, IMI Precision Engineering reserve the right to change specifications without prior notice.

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