



aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



# Components and system solutions for rail vehicle applications



ENGINEERING YOUR SUCCESS.

# Save time and costs.

With components and system solutions from Parker.  
Everything from just a single source.

## Good advice is worth hard cash

At the design phase, too, Parker engineers are ready to work beside you and offer their advice. They will recommend to you suitable products for your application and show you how, through specific design actions, you can make cost savings you would not have imagined possible previously.

## Specific stainless steel version - top quality at an advantageous price

An economic alternative to Cr(VI)-free steel is the stainless steel version that was specially developed for railway transportation.

This acid-resistant stainless steel has the same properties as standard stainless steel but is substantially more economic! Easy formability just as well as easy machining are further characteristics. When welded this material remains constant and wear-resistant. Corrosion resistance actually increases.

This means that it is not only in railway vehicle construction that this stainless steel version is an attractive alternative material.

## Components with Cr(VI)-free surfaces offer excellent resistance!

With the coming into force of the EU End-of-life Vehicle (ELV) Directive on 01.07.2007 the employment of products with surfaces containing Cr(VI) is strictly prohibited.

Since 2001 Parker has been offering its complete product programme – from tube and hose fittings through to tubing, flanges and diagnostic connectors – with Cr(VI)-free surfaces. This type of material is substantially more environment-friendly and offers up to 400% greater corrosion resistance.

All components are from a single source and are available world-wide.




Products with document number for further information		Tube Fittings								Hoses				Quick Connect Couplings			Accessories			Measuring		Machines		
		EO-Plus	EO2-Plus	EO2-FORM	Prestolok & Prestolok 2	Metrulok	Pneumatic Instant Function Fittings	Pneumatic Adaptors	372RH No-Sliver Compact Hose	421RH No-Sliver Hose	441RH No-Sliver Compact Hose	681DB No-Sliver Hose	Dry-Break Design	Stainless Steel Couplings	Double Shut-off	Aluminium Ball Valves	Non-return Valves	Tube Clamps	Tubes	The Parker Service Master Easy	TestPoints	Sensors	Tube assembly machines	Hose assembly machines
Hydraulics	Cooling	■	■	■				■	■	■		■	■	■		■	■	■	■		■	■	■	■
	Hydraulic Brake System	■	■	■				■	■	■		■	■	■		■	■	■	■		■	■	■	■
	Hydrostatic	■	■	■				■	■	■						■	■	■	■		■	■	■	■
Pneumatics	Door System	■	■	■	■		■	■			■	■	■	■		■	■	■	■		■	■	■	■
	Pneumatic Brake System	■	■	■							■				■	■	■	■	■		■	■	■	■
	Auxiliaries	■	■	■	■	■	■	■			■	■	■	■	■	■	■	■	■		■	■	■	■
Cooling	Water Cooling	■	■	■	■	■	■			■	■	■	■	■	■	■	■	■	■		■	■	■	■
	Air conditioning	■	■	■	■	■				■	■	■	■	■	■	■	■	■	■		■	■	■	■
Fuel	Diesel	■	■	■						■			■	■	■			■	■		■	■	■	■
Drinking Water	Sanitary Facilities	■	■	■	■	■					■	■	■	■		■	■	■	■		■	■	■	■
Heating	Water	■	■	■		■					■	■	■	■			■	■	■		■	■	■	■

■ Water ■ Oil ■ Air


# The right answer for any application.

Every Parker component is a quality product. The best-matched components when in combination with each other.




**E0-Plus**

- For metallic sealed connections
- Leak-free, quick and easy assembly
- Cr(VI)-free surface coating with high corrosion resistance




**E02-Plus**

- Soft seal bite type with high vibration resistance
- Cr(VI)-free surface coating with high corrosion resistance
- Leak-free in extreme long term use




**E02-FORM**

- High pressure formed tube generation based on the proven EO-2 technology
- Extreme rigidity and low tightening torques due to cold forming process
- Time-saving and easy to use in comparison to welding or brazing



**421RH No-Skive Hose**

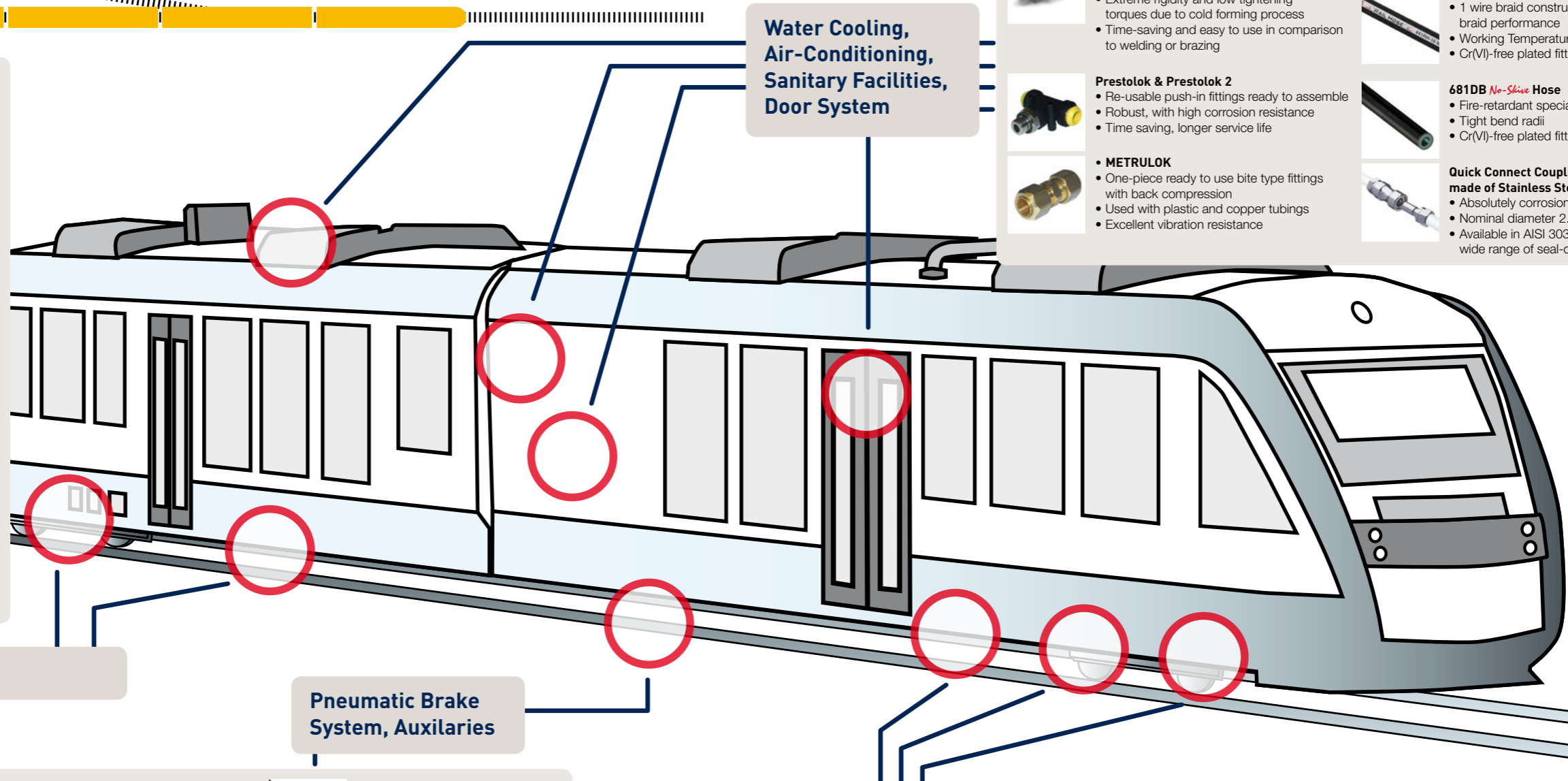
- Nitrile inner tube with high chemical resistance
- Pressure range up to 63 bar
- Cr(VI)-free plated fittings




**Quick Connect Couplings Dry-Break Design**

- Valve in coupler and plug
- Absolutely drop-free operation for sensible applications
- Pressure is held constant and not released after disconnection

**Diesel**




**Pneumatic Brake System, Auxiliaries**




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- Cr(VI)-free surface coating with high corrosion resistance




**E02-Plus**

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- Cr(VI)-free surface coating with high corrosion resistance
- Leak-free in extreme long term use




**E02-FORM**

- High pressure formed tube generation based on the proven EO-2 technology
- Extreme rigidity and low tightening torques due to cold forming process
- Time-saving and easy to use in comparison to welding or brazing



**681DB No-Skive Hose**


- Fire-retardant special rubber cover
- Tight bend radii
- Cr(VI)-free plated fittings



**Quick Connect Couplings Double Shut-off**


- Valve in coupler and plug
- Single handed operation - safe handling
- High flow rate - low pressure drop

**Cooling, Hydraulic Brake System, Hydrostatic**




**E0-Plus**

- For metallic sealed connections
- Leak-free, quick and easy assembly
- Cr(VI)-free surface coating with high corrosion resistance




**E02-Plus**

- Soft seal bite type with high vibration resistance
- Cr(VI)-free surface coating with high corrosion resistance
- Leak-free in extreme long term use




**E02-FORM**

- High pressure formed tube generation based on the proven EO-2 technology
- Extreme rigidity and low tightening torques due to cold forming process
- Time-saving and easy to use in comparison to welding or brazing




**372RH No-Skive Compact Hose**

- 3 Wire Braids with 4SP-WP and nitrile inner tube
- Tight Bend radii
- Cr(VI)-free plated fittings



**421RH No-Skive Hose**

- Nitrile inner tube with high chemical resistance
- Pressure range up to 63 bar
- Cr(VI)-free plated fittings



**441RH No-Skive Compact Hose**

- 1 wire braid construction - 2 wire braid performance
- Working Temperature up to +125 °C
- Cr(VI)-free plated fittings



**E0-Plus**

- For metallic sealed connections
- Leak-free, quick and easy assembly
- Cr(VI)-free surface coating with high corrosion resistance



**E02-Plus**

- Soft seal bite type with high vibration resistance
- Cr(VI)-free surface coating with high corrosion resistance
- Leak-free in extreme long term use



**E02-FORM**

- High pressure formed tube generation based on the proven EO-2 technology
- Extreme rigidity and low tightening torques due to cold forming process
- Time-saving and easy to use in comparison to welding or brazing



**Prestolok & Prestolok 2**

- Re-usable push-in fittings ready to assemble
- Robust, with high corrosion resistance
- Time saving, longer service life



**METRULOK**

- One-piece ready to use bite type fittings with back compression
- Used with plastic and copper tubings
- Excellent vibration resistance



**Pneumatic Instant Function Fittings**

- Flow regulator in high resistance polyamide
- Directly used in compressed air line



**Pneumatic Adaptors**

- Nickel plated brass adaptors
- Robust, with high corrosion and shock resistance
- Weight saving, compact dimensions



**421RH No-Skive Hose**

- Nitrile inner tube with high chemical resistance
- Pressure range up to 63 bar
- Cr(VI)-free plated fittings



**441RH No-Skive Compact Hose**

- 1 wire braid construction - 2 wire braid performance
- Working Temperature up to +125 °C
- Cr(VI)-free plated fittings



**681DB No-Skive Hose**

- Fire-retardant special rubber cover
- Tight bend radii
- Cr(VI)-free plated fittings



**Quick Connect Couplings made of Stainless Steel**

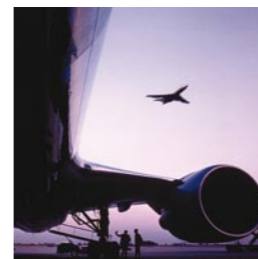
- Absolutely corrosion-resistant
- Nominal diameter 2.7 up to 20
- Available in AISI 303 and AISI 316L, wide range of seal-compounds

# Parker's Motion & Control Technologies

## Parker – the acknowledged partner for the railway vehicle construction industry.

With its products in many companies in the railway vehicle construction industry Parker is a certified partner. Could there be better proof of trust in its quality and reliability?

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion or control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further information call 00800 27 27 5374



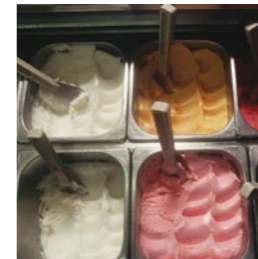
### AEROSPACE

#### Key Markets

- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

#### Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



### CLIMATE CONTROL

#### Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

#### Key Products

- CO<sup>2</sup> controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



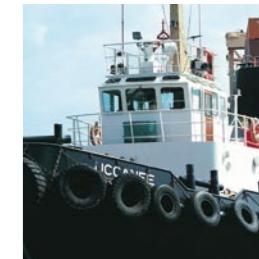
### ELECTROMECHANICAL

#### Key Markets

- Aerospace
- Factory automation
- Life science & medical
- Life sciences
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

#### Key Products

- AC/DC drives & systems
- Electric actuators, gantry robots & slides
- Electrohydraulic actuation systems
- Electromechanical actuation systems
- Human machine interface
- Linear motors
- Stepper motors, servo motors, drives & controls
- Structural extrusions



### FILTRATION

#### Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

#### Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



### FLUID & GAS HANDLING

#### Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

#### Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



### HYDRAULICS

#### Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

#### Key Products

- Diagnostic equipment
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



### PNEUMATICS

#### Key Markets

- Aerospace
- Conveyor & material handling
- Factory automation
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

#### Key Products

- Air preparation
- Brass fittings & valves
- Manifolds
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves & controls
- Quick disconnects
- Rotary actuators
- Rubber & thermoplastic hose & couplings
- Structural extrusions
- Thermoplastic tubing & fittings
- Vacuum generators, cups & sensors



### PROCESS CONTROL

#### Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

#### Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



### SEALING & SHIELDING

#### Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

#### Key Products

- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management

Even today, rail transportation manufacturers have to consider the various national safety requirements of their European customers.

As a pan-European standard may not be expected in the foreseeable future, the nationally applicable standards will remain in force. The three most requested standards in Europe are the German, the French and the British standards.

The new Parker RH hose range meets and is certified by all three of these standards.

**No-Skive hose approvals:**  
Deutsche Bahn – DIN 5510  
SNCF – NF F 16-101  
British Rail – BS 6853

### Reference customers:

- ALSTOM
- BEHR
- Bombardier Transportation
- Deutsche Bahn
- Knorr Bremse
- Siemens Transportation
- SNCF
- Stadler (Switzerland)
- Voith Turbo
- Vossloh
- etc.

### German Standard DIN 5510 Part 2

Tests the fire behaviour and fire effluents of the hose assemblies. Test item: The smallest and largest nominal width of a specific hose type

- Inflammability class S4 (S3)
- Smoke development class SR2
- Drop-forming class ST2

### French Standard NFF-16-101/102

Tests the fire behaviour and fire effluents of the hose cover material. Test item: Rubber material of the hose cover

- Flame resistance class I2
- Smoke toxicity class F3

### British Standard BS 6853

Tests the fire behaviour and fire effluents of the hose cover material. Test item: Rubber material of the hose cover

- Smoke behaviour
- Release of toxins

meet the limit values in table 4 of the declaration.

### IRIS (International Railway Industry Standard)

is a globally recognized standard unique to the railway industries for the evaluation of management systems. IRIS intends to complement the internationally recognized ISO 9001 quality standard.

#### IRIS benefits:

- Quality will increase across the entire supply chain
  - Evaluation and approval of equipment manufacturers will become more efficient
  - Costs for manufacturers and suppliers will decrease
  - Comprehensive data and its accessibility will improve
- Implementation of IRIS standard: probably by May 2009



The collage shows various certification documents. At the top left is a document from 'Die Bahn' (German Rail) regarding fire safety tests. Below it is a document from 'SNCF' (French Rail) regarding fire safety tests. To the right is a document from 'British Rail' regarding fire safety tests. At the bottom is a document from 'LAPI' (Laboratory for Applied Polymer Investigation) regarding fire safety tests. On the far right is the 'IRIS Certification' logo.



ENGINEERING YOUR SUCCESS.

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