



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



# FCDE Transportation Overview

Truck, Bus, Railway & Marine Control Solutions



ENGINEERING YOUR SUCCESS.

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# Truck & Bus

## SCR: Urea Heating 2/2 Way Valve, NC Type

### Use:

SCR (Selective Catalytic Reduction) for buses and trucks.

### Benefits:

- Solenoid valves and electrical components customised according to the technical specifications of transport industry customers
- Solutions adapted to international anti-pollution standards Euro4/Euro5/US10 for NOX reduction
- Compact solutions

### Product solutions:

- 2-way valve, brass material, integrated fittings, normally closed
- Pilot operated
- EPDM seal material
- Ambient temperature: - 40°C / + 120°C
- Various possible fluid connection types (Bump, SAE-J2044, 1/2" BSP)
- ISO 15170 electrical connection (IP69K)



## SCR: Air control - 3/2 Way Valve, NC Type

### Use:

SCR (Selective Catalytic Reduction) for buses and trucks, delivers a preset airflow to the urea doser.

### Benefits:

- Solenoid valves and electrical components customised according to the technical specifications of transport industry customers
- Solutions designed to comply with international anti-pollution standards Euro4/Euro5/US10 for NOX reduction
- Compact solutions

### Product solutions:

- Assembly: 3-way valve, normally closed
- Integrated pressure regulator, aluminium body
- Exhaust muffler
- Inlet pressure: 6...12.5 bar
- Regulated pressure: 4 bar +/- 0.6 bar
- Ambient temperature: - 40°C / + 80°C
- ISO 15170 electrical connection (IP69K)



## Cabin Heating/Engine Pre-Heating - 2/2 Way Valve, NC or NO Type

### Use:

Cabin heating and engine preheating for trucks.

### Benefits:

- Solenoid valves and electrical components customised according to the technical specification of transport industrial customers
- Large flow vs compact solutions
- Low electrical consumption (9 W)
- 0 bar drop pressure operating (direct operated valve)

### Product solutions:

- 2-way servo or direct operated valve, normally closed, normally open
- Various fluid connection sizes
- ISO 15170 electrical connection (IP 69K)



## After Treatment Hydrocarbon Injector

### Use:

Diesel Oxidation Catalyst (DOC) for trucks.

### Benefits:

- Customised dosing systems for transport industry customers
- Adapted solutions to international anti-pollution standards Euro5/US10 for PM (particle matter) reduction
- No moving parts, no electrical parts on the exhaust
- No coolant lines required

### Product solutions:

- 2-way solenoid valves (ON-OFF and PWM)
- Pressure transducer, air diesel electrical connection
- Nozzle



## EGR: Exhaust Gas Recirculation - 3-Way Valve NC Type

### Use:

EGR for trucks and bus.

### Benefits:

- Customised solutions for transport industry customers
- Take part in the NOX reduction, to meet Euro5, US10 standards
- Efficient solutions with proportional air flow control

### Product solutions:

- Long life cycle
- 3-way PWM valve, normally closed
- Pressure regulation: 0-10 bar
- Ambient temperature: -40°C / +120°C
- ISO 15170 electrical connection (IP 69K)



## Engine break - 2-Way Valve NC Type

### Use:

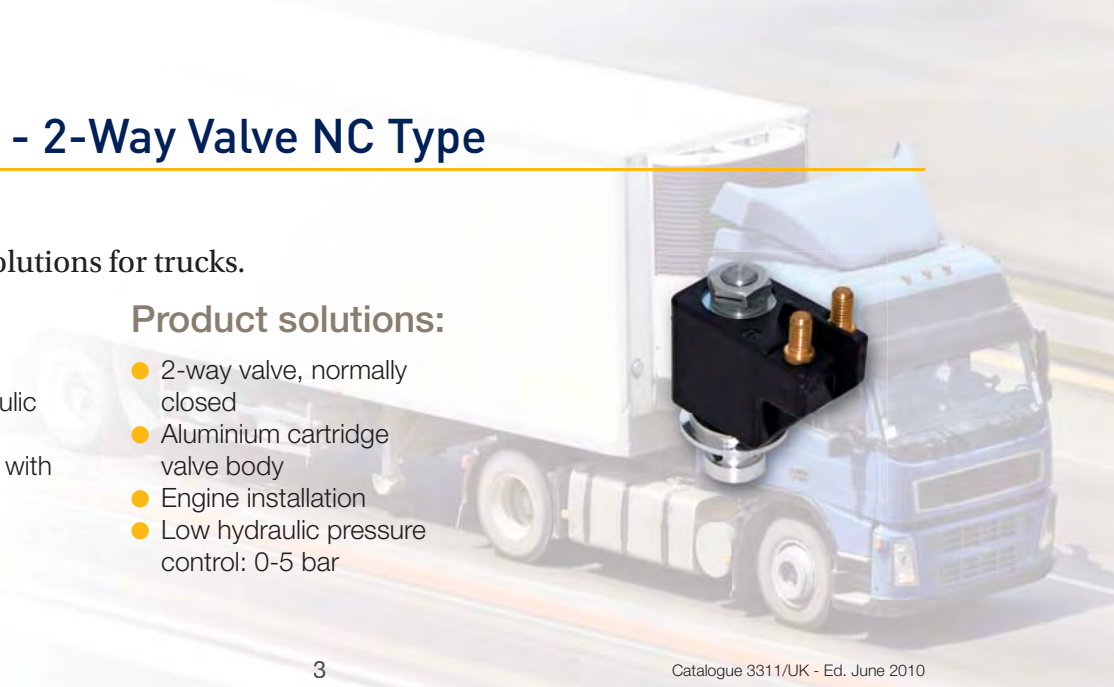
Additional braking solutions for trucks.

### Benefits:

- Very compact solution
- Easy installation hydraulic cartridge valve
- PVDF seal compatible with bio-fuel

### Product solutions:

- 2-way valve, normally closed
- Aluminium cartridge valve body
- Engine installation
- Low hydraulic pressure control: 0-5 bar





# Railway

## Tilting Application Pneumatic Control Unit

### Use:

Fitted system on Pendolino trains, used to center the wagons on the tracks when it enters a curve.

### Benefits:

- Complete system, easy to install and remove
- Long life cycle PWM valve
- Low consumption (6 W)
- Integrated exhaust valve for safety functioning
- No air consumption once the wagon position is set
- EMC (electromagnetic compatibility)
- Conformity with EN50155, EN 50121-3-2
- Operating in harsh environment

### Product solutions:

- EPP3 pressure regulator, 0-10 bar, 4-20 mA (other calibration available)
- Pressure sensor, filter, ball valve
- Female electrical connector, tubing
- Low operating temperature: -40°C



## Pantograph Application Electronic Pressure Regulator

### Use:

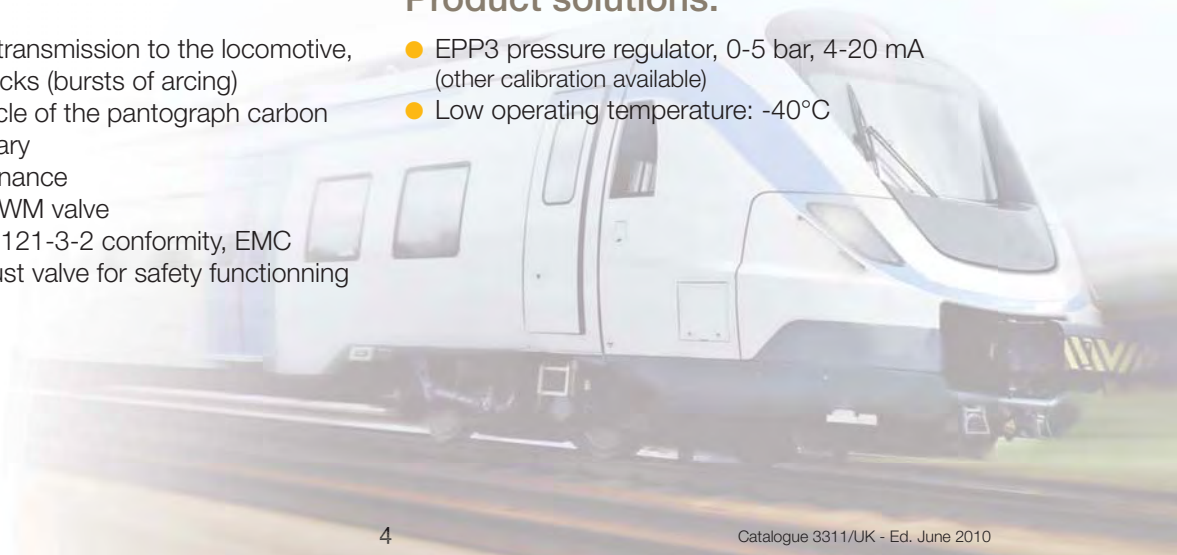
High speed trains to control the contact force between the pantograph and the catenary.

### Benefits:

- Better electrical transmission to the locomotive, reduced drawbacks (bursts of arcing)
- Increased life cycle of the pantograph carbon strips and catenary
- Reduces maintenance
- Long life cycle PWM valve
- EN50155/ EN50121-3-2 conformity, EMC
- Integrated exhaust valve for safety functioning

### Product solutions:

- EPP3 pressure regulator, 0-5 bar, 4-20 mA (other calibration available)
- Low operating temperature: -40°C



## Sanding Application 3/2-Way Valve NC, NO, Universal

### Use:

Solenoid valves controlling cylinder on sanding process.



### Benefits:

- Very compact valves
- Easy connected (flange version)
- Low consumption (3 W)
- Large operating voltage range (+or -30%)

### Product solutions:

- 3/2 way valves, 0-5 bar
- Ambient temperature : -30°C/+80°C

## Other applications

- Compressors (venting, purging)
- Airdryers,...

## Marine

### Fuel Selector Valves 2 Way Valve System, NC

### Use:

Typically fitted on yachts 30' - 70' in length, allows remote selection of desired fuel tank.

### Benefits:

- Eliminates the need to leave the helm to select fuel tanks
- No need to shut down the engine
- Can be manually operated in case of power loss
- Balance fuel levels, increasing stability of the boat

### Product solutions:

- 2 way valves, normally closed, on aluminium block
- Petrol tank: 2 solenoid valves
- Diesel tank: 4 solenoid valves
- Manual override
- Pressure relief valve (5 psi)
- KV factor: 1.93m³/h
- MOPD: 0.2 bar
- UL Marine listed (petrol selection)





## Intercooler Water Cooling 2/2 Way Valve, NO Type



### Use:

Solenoid valve fitted on diesel marine engines to avoid intercooler overheating.

### Benefits:

- Normally open function, provides cooling water in case of power loss, risk of intercooler damage/destruction
- Large flow vs compact valve
- Easy installation (bayonet connection, barb fittings)

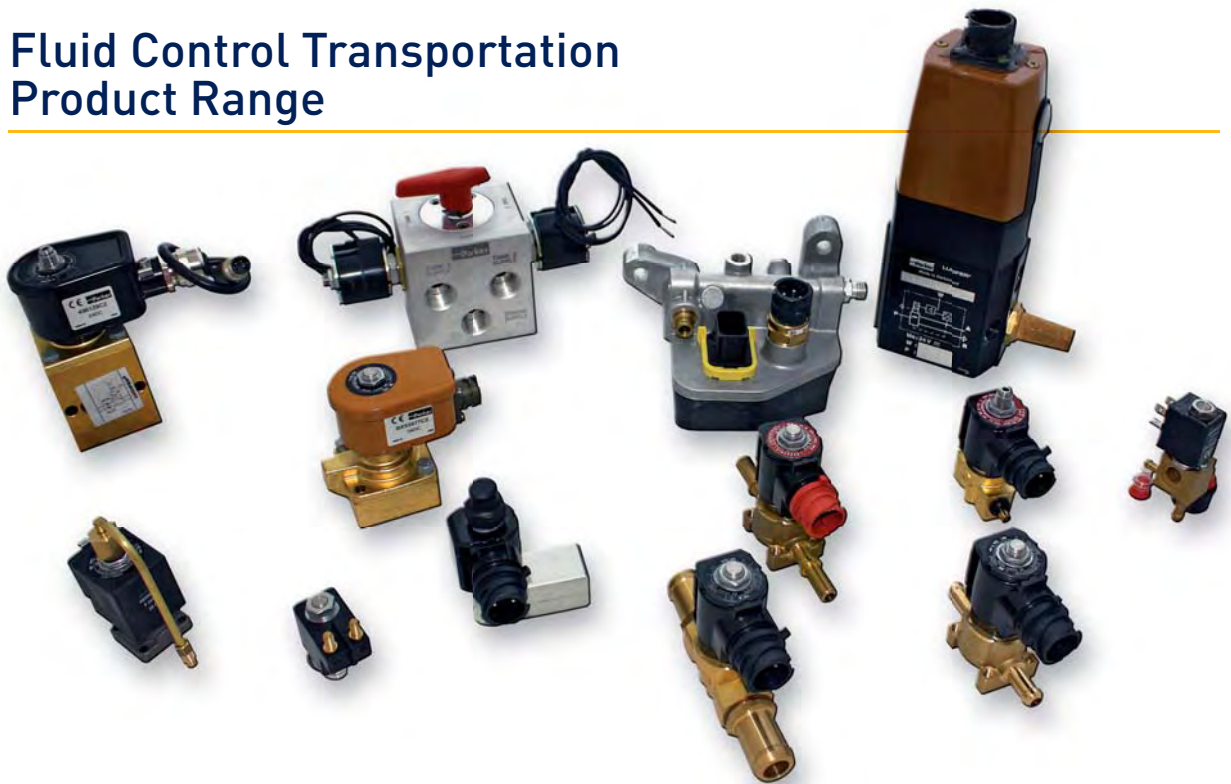
### Product solutions:

- 2-way valve, NC, servo operated
- Ambient temperature: -40°C / +60°C
- ISO15170 electrical connection (IP 69K)
- Working pressure: 0.5 bar

## Other Applications

- Oil cut off valve:  
2 way magnalift valve, normally open
- Lubricating control valve:  
2 way direct acting valve, normally closed

## Fluid Control Transportation Product Range



### WARNING - USER RESPONSIBILITY

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

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## 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<sub>2</sub> 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
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

### Key Products

- AC/DC drives & systems
- Electric actuators
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- 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
- 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
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

### Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- 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
- ENI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management



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