

Systems for Rail Vehicles



dowaldwerke



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Dowaldwerke GmbH in Dippoldiswalde and Dowaldwerke Bremen GmbH

Dowaldwerke Dippoldiswalde and Dowaldwerke Bremen are companies of Richard Grießbach Holding, an owner-managed, medium-sized group of companies with approximately 300 employees. We develop and produce vacuum toilets, gangway doors, interior doors, partition walls and entrance systems for the largest railway vehicle manufacturers in Europe.

At the beginning of 2016 we took over the business of our sister company Pneumatik/Hydraulik GmbH, thereby

expanding our product range to include pneumatic and hydraulic components. With these product groups we supply items such as coupling components for high-speed trains and level control systems.

We employ a large part of our resources in the field of development and design. This enables us to react promptly to developments on the market as well as to new customer requirements.



SANITARY SYSTEMS

Vacuum toilets with pinch valves

Connecting parameters

compressed air:	5.5 to 10 bar
water consumption:	approx. 0.5 l*
air consumption:	approx. 37 NL*
operating voltage:	24 VDC +/- 30%

* parameter is project-specific

The special thing about vacuum toilets from Dowaldwerke GmbH is the pneumatically driven pinch valve. The valve sleeves are so robust that even sharp or pointed objects do not damage them.

- shut-off function as in nature
- 8 mm-walled rubber sleeve
- high-resistance
- high reliability
- long time experience
- modular design
- intelligent bowl level detection
- diagnosis at the vacuum unit
- full-text diagnosis display
- low weight
- low number of wearing parts
- in-house product development and manufacture for customized system solutions

Electronic control concept

- in-house hardware and software
- electric concept for the complete WC cabin
- control panels and wiring looms
- interfaces to the TCMS according to customer requirements

Standards

DIN EN 15085	EN 50121
EN 50128	TSI PRM
EN 50155	DIN EN 45545



Vakuum toilet

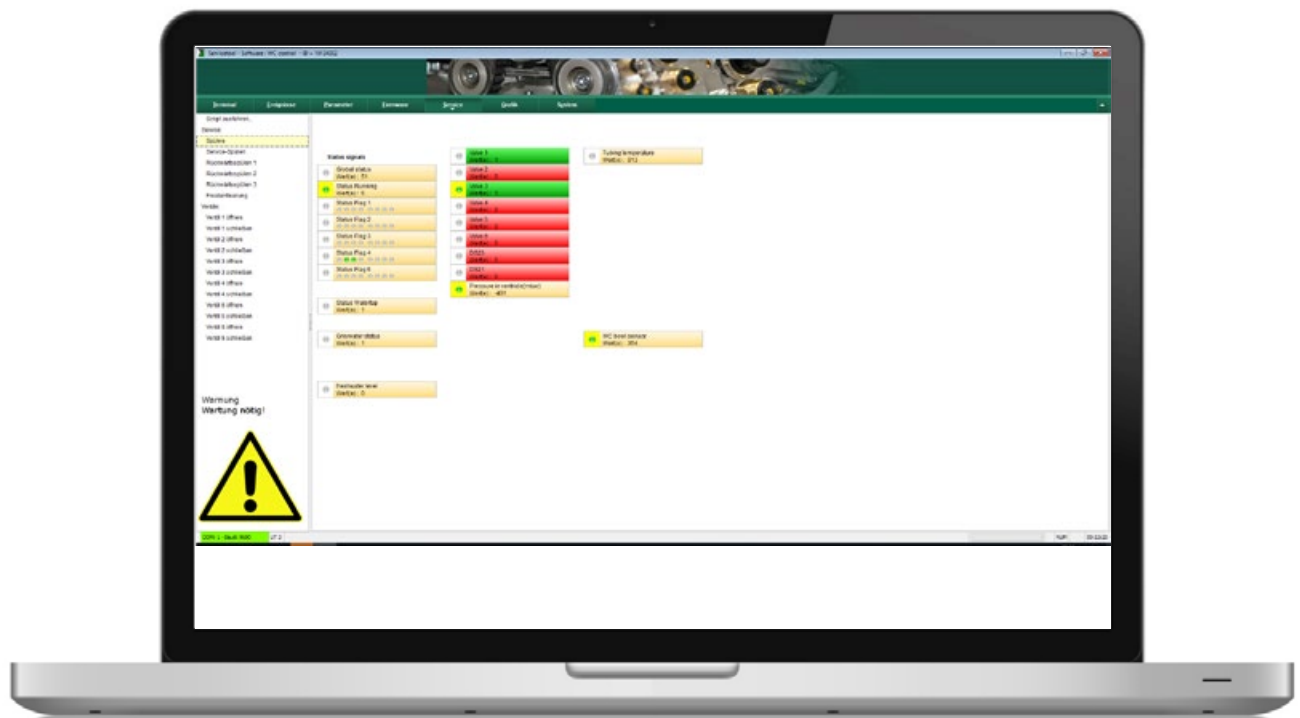
SANITARY SYSTEMS

Condition Based Maintenance

- Service independent from fixed schedule
- Significantly lower costs for maintenance over system lifetime
- Higher availability of the system by automatic preventive maintenance

NEW: Toilet System with Condition Based Maintenance

- Maintenance or service carried out dependent on real condition of critical wear parts instead of rigid service schedule
- Condition of wear of relevant components is detected by evaluating the pressure curve in the system during a special flushing procedure for diagnosis
- Diagnostic tool detects the optimum point in time for carrying out a service and recommends service in advance
- Service and exchange of wear parts only performed if really necessary



CBM Service tool

SANITARY SYSTEMS

Urinal Systems for rail vehicle

Connecting parameters

compressed air:	5.5 to 10 bar
water consumption:	approx. 0.3 ltr.
air consumption:	approx. 13 NL*
operating voltage:	24 VDC \pm 30%

* parameter is project specific

This urinal is designed for integration in a WC cubicle wall. Its function is based on pressure-supported drainage into an infloor tank or on free drainage for underfloor tanks.

The urinal operates on the basis of pressure flushing. The flushing process can be triggered automatically by the integrated bowl level sensor or by a flush button.

The control and diagnosis of the urinal system is provided by the CU of the WC cubicle (Dowaldwerke).

- 2 squeeze valves ensure protection against odour and splashback from piping or tank
- The bowl level sensor and its specific measuring method ensures the proper function of the urinal system and makes it resistant to pollution.
- low water and air consumption
- compact and robust
- low number of wear parts
- adaptable for different installations

Standards

DIN EN 15085
EN 50128
EN 50155
EN 50121
TSI PRM
DIN EN 45545



Urinal

SANITARY SYSTEMS

Grey Water Recovery System for rail vehicle

Connecting parameters

Compressed air:	5.5 to 10 bar
Water saving:	ca. 0,3 ltr./WC flushing *
Air consumption:	None **
Operating voltage:	24 VDC \pm 30%

* depends on the use cases

** for normal application without filter cleaning or frost routine

This GWRS is designed to save fresh and waste water. Grey water from hand washing is used for WC flushing. Its function is based on free drainage into an intermediate tank below the washbasin. The vacuum toilet is supplied with grey water by the intermediate tank.

The GWRS will be integrated behind the WC cubicle wall. In case of a GWRS failure the WC unit incl. vacuum toilet is still ready for usage.

The GWRS is controlled by the CU of the WC cubicle.

- the proper function of the WC system will be ensured by a filter system
- reduced water consumption of the WC cubicle
- pressure air only for cleaning or frost routines necessary
- 3 liter intermediate tank
- internal monitoring by 3 sensors
- adaptable to different installations

Standards

DIN EN 15085

EN 50128

EN 50155

EN 50121

TSI PRM

DIN EN 45545



GWRS

INTERIOR DOOR SYSTEMS

End doors with fire protection

- customized system solutions
- adjustments and new developments even for small production batches
- customer support accompanying the project and after-sales services

Operators

- roller guides with ball bearing plastic rollers
- electrical, pneumatic or manual operation
- finger protection rubbers
- in-house hardware and software
(interfaces according to the customer requirements)

Door leavs

- straight door leavs with aluminium frames and framed safety glass/laminated glass
- optionally with a blind section or a complete glass surface
- door frame in:
 - aluminium (end door E20 / W20, E20 / I15)
 - sandwich construction with steel core and aluminum cover (end door E30 / I15)
- E30 / I30 as option

Door operating devices

- switch operating, swivel handle, sensor drive or manual operation
- square-key locking devices for end doors

Standards

DIN EN 15085

DIN 6701

EN 50128

EN 50155

EN 50121

TSI PRM

DIN EN 45545



End door E20 / W20



WC door drive and door controller

COMPARTMENT PARTITIONS

Partition designs

- The frame construction is adapted to the contours of the vehicle,
- securely absorbs the car body tolerances of the vehicle,
- guarantees permanent stability and can be rapidly fitted within the modular design.

Glass partition

- compartment partition with a high level of transparency
- automatic door locking mechanism with damping
- optimised door mechanism guarantees effective pinch protection

Glass/wooden partition

- privacy shield and sound insulation
- special wood for fire protection walls
- HPL surface

Standards

DIN EN 15085
DIN 6701
EN 50128
EN 50155
EN 50121
TSI PRM
DIN EN 45545



Partition with bottom drive

FIRE PROTECTION EQUIPMENT

Fire-proof shielding in rail vehicles

Interior and end doors

- double or single doors
- resistant to fire up to 30 minutes
- fire protection glass
- automatic and manual drive
- door closes independently
- certificates for E15 / I15 (E 30 / I 30 as option)

Compartment partitions

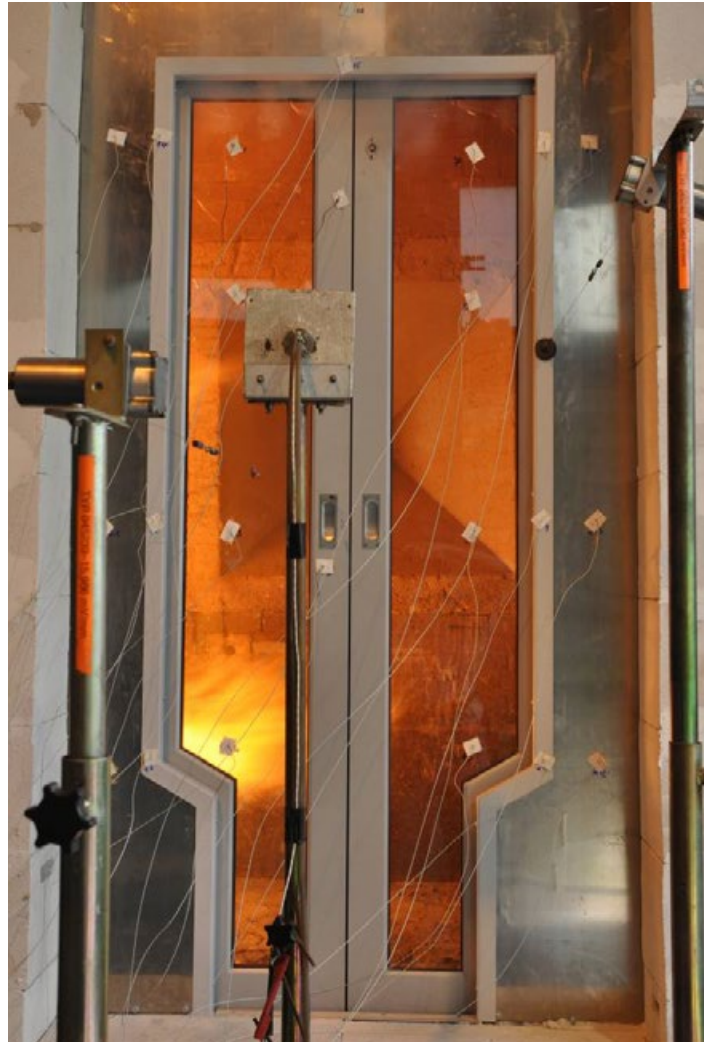
- built-in sliding door
- door closes in case of fire automatically or by remote control
- spring closing force can be manually bridged
- modular construction system with easy assembly
- certificate for E30/I30

Driver's cab partitions

- hinged door and sliding door
- low heat transmission values (E15 / W15)
- fire protection glass
- window shade on the driver's side
- modular construction system with easy assembly

Standards

DIN EN 15085
DIN 6701
EN 50128
EN 50155
EN 50121
TSI PRM
DIN EN 45545



Fire test

ENTRANCE SYSTEMS

Electrical sliding step for easys access to trains

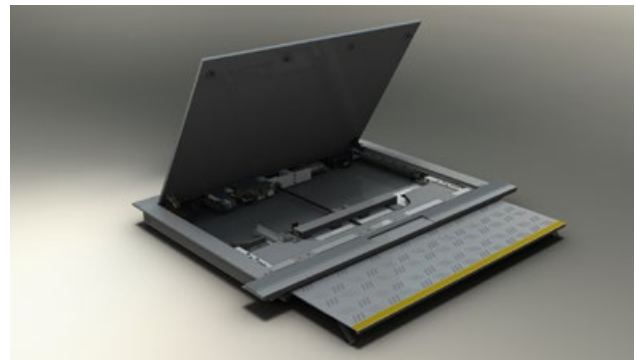
Technical data

voltage range:	24/36/110 VDC (standard)
stroke over cassette edge:	500 mm (standard)
step panel wideness:	1350 mm (standard)
extension speed:	approx. 100mm/s (nominal voltage)
temperature range:	-25 °C to 50 °C (-40 °C as option)

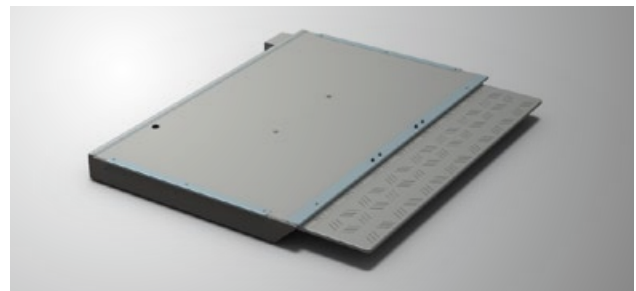
The cassette dimensions can be adapted to customer requirements.

Infloor and Underfloor System

- compact aluminum or stainless steel cassette
- adaption for special installation environment according to customer requirements
- including walkable floor panel (infloor)
- combination with all common exterior door types in practice
- uncomplicated interfaces for door and train
- diagnosis tool for parameterization and commissioning as well as search failures

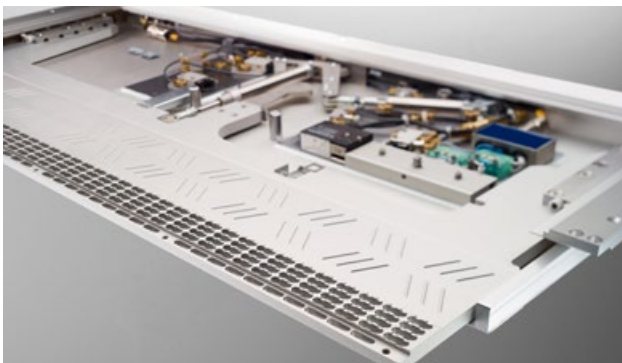


Infloor sliding step



Underfloor sliding step

Special solutions



Gap bridge, pneumatically driven

Standards

DIN EN 14752
VDV 111
DIN EN 15085
DIN 6701
EN 50128
EN 50155
EN 50121
TSI PRM
DIN EN 45545

SPARE PARTS

- Supply of spare parts for trains in serial production on base of project specific spare part lists
- After serial production supply for contractually agreed periods
- Spare parts for old rolling stock available



Spare parts for all products

Dowald scope of services

- complete project management
- design and development
- construction support, compiling of models and drawings
- industrial engineering
- testing, measuring, verification
- quality assurance
- production and logistics



Test bench



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