



BUHLMANN

Pintsch – Rolling stock



□ Rolling stock equipment from



Door Systems
Safety at every turn



Light Systems
To see and to be seen

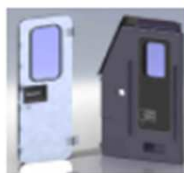


Power Supply Systems
Performance guaranteed





- The extensive product range includes **complex control systems** and **isolated components** of the **door system**, **vehicle-specific boarding systems**, interior and driver's cab doors, a proven approach to **automation of folding doors** and other **refurbishment products**. We offer our clients **customized product solutions** that are developed and manufactured according to specific customer requirements.



Driver's cab door
Safety and comfort for the driver



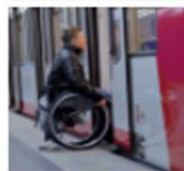
Interior doors
Assuring safe space zoning



Door control systems
Setting standards



Components
Safely in the detail



Boarding Systems
More info & products



Automated folding door
Show innovative solutions



Refurbishment
Looking into the future



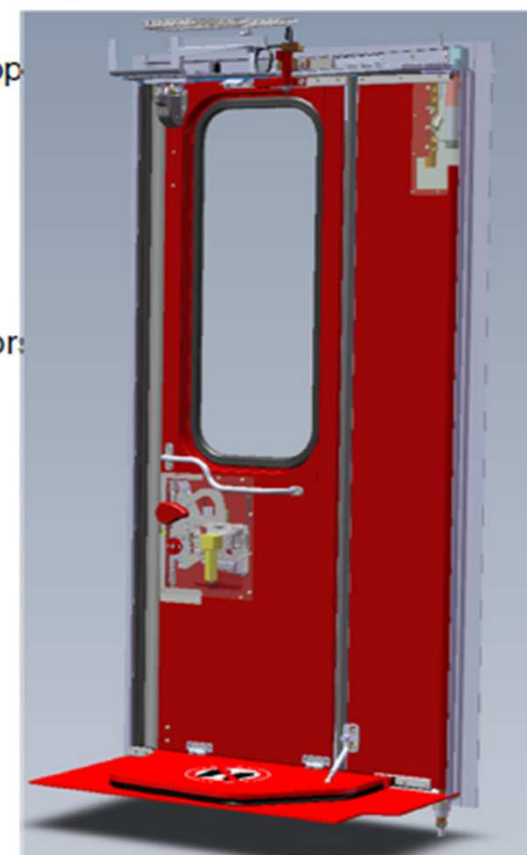


Door Systems
Safety at every turn

As a part of a vehicle refurbishment or upgrading, existing single or double leaf rotary-folding doors may be fully automated with a PINTSCH BAMAG drive showing the following characteristics:

- Automatic opening and closing with push button or remote op
- Door lock depending on speed
- Regulated electric motor drive for low-wear operation of the door mechanism
- Obstacle detection in both traversing directions
- Easily adaptable to different types of rotary-trap-doors
- Modern diagnostic system for better maintenance of the doors
- Involvement in any train control system
- Connection to various vehicle voltages, such as 24V, 36V or 110V is possible

With a controlled drive mechanism, the door is operated more gentle than with the old pneumatic closing.
The detection of creeping stiffness is made possible by monitoring the given current value and by reporting by the diagnostic system. Preventive maintenance is therefore possible.





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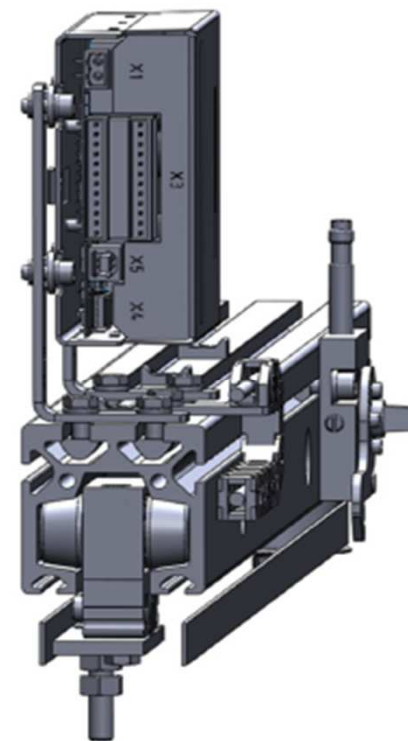
Rolling stock equipment



Door Systems
Safety at every turn

The flexible, electrical PINTSCH BAMAG interior-door drives can be used in all kind of vehicles. The module principle of all our products enables a quick integration in the different mounting spaces of new or rebuilt vehicles without a comprehensive constructional effort.

- Guiding system with compact measurements of 60 x 60 mm
- The engine control of the control unit is equipped with a processor-independent safety logic.
- The guiding system consists of a compact aluminium profile that can be connected at the body of coach via mounting slots.
- The movable part can be demounted and maintained via service cut-out without taking the bearing out of the vehicle. The plastic coated runners afford a very high life expectancy and assure an accurate and silent running.
- Different connections to the door leaf can be created with the modular interior door drive. All types can be combined with the flexible carriage, regardless of using stay bolts, T-profile or direct glass panel clamp.





Door Systems
Safety at every turn

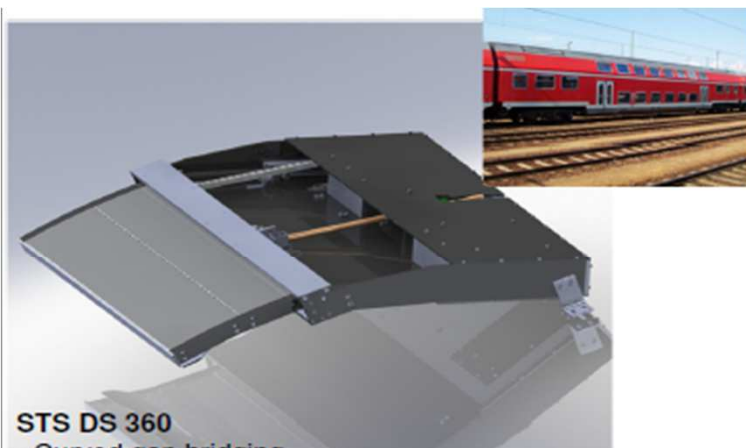
Mobility is one of the most important needs

Requirements for gap bridging systems increased for several years. Nowadays sliding steps has to do more than simply gap bridging: they offer mobility to certain population groups by making access to mass transport possible.

Facing gaps between railway doors and platforms sometimes bigger than 300 mm, the need is understandable.

PINTSCH BAMAG accepted the challenge and developed a range of individual solutions according to the wishes of our customers.

We developed a boarding aid that ensures risk-free, safe and barrier-free boarding of rail-mounted vehicles. Especially for senior citizens or wheelchairs.



STS DS 360
- Curved gap bridging
- conditional wheelchair access



RZD RIC
- gap bridging by -40° to $+70^{\circ}$ C
- Conditional wheelchair access





Door Systems
Safety at every turn

Product	Project	Customer	Period	Volume
Door controls	Desiro UK	Siemens	2001-06/2013-14	6.000 pieces
	UIC Train-Bus	Deutsche Bahn / Vossloh	-2005	1.200 coaches
	KMT St.Petersburg	RZD / KMT	2009 - 13	420 coaches
	ET 420	Deutsche Bahn	2006- ?	
	ET 481	S-Bahn Berlin	2010	500 coaches
	Chinese Metros	Metro Beijing / Shenyang	2009 – 2012	3.500 pieces
Refurbishment	ICE 2 redesign	DB	2011-13	968 doors
	rotary-folding doors	Gredelj (HR) for Trenitalia	2009	25 coaches
	DT8.x Tram Stuttgart	SSB	2007-2014	60 trains
	BPM 51 RFD	SBB (CH)	2009-2014	190 coaches
	Tram Amsterdam	GVB (NL)	2012-2014	41 trains
	HHA Hamburg	Vossloh Kiepe	2013-2014	160 doors
Driver's cabin door	Flirt ³	Stadler	2013-14	308 doors
Interior door drive	VT 612	DB Erfurt/Kassel	2011-13	105 doors
Boarding systems	Desiro Classic	DB, ÖBB, NBT, MAV,AlphaT...	2002-	>1.000 pieces
	Rubin Metro Nürnberg	Siemens	2005-2008	550 pieces
	Flirt Helsinki/Belarus	Stadler	2010-2014	270 pieces
	Avanto Paris, Mulhouse	Siemens	2004-2009	270 pieces
	RIC RZD /Proventis (RUS)		2011-2014	420 pieces
	Tram Warszawa (P)	IFE	2009-2013	190 pieces
	Dubble-Decker	DB	2012-2013	80 pieces
Emergency switches	Velaro C	IFE	since 2006	12.000 pieces



Light Systems
 To see and to be seen

- **Light technology for locomotives and traction units** PINTSCH BAMAG light systems are used worldwide in a variety of vehicles on the road: whether for **locomotives, high speed trains, subway** or **regional trains** – **PINTSCH BAMAG develops, designs and manufactures** on the basis of technical specifications and applicable standards a light system concerted with the vehicle. Special lights such as vehicle step lights and driver cabin schedule lights in various designs complete our product portfolio.

2011 Supplier of full LED solution for Siemens Desiro RUS



2009 Supplier of full LED solution for Bombardier TRAXX AC3





Power Supply Systems
Performance guaranteed

- For many years PINTSCH BAMAG has been working in the field of **power supply systems** in close contact **with train operators** and **coach building factories** worldwide. The various conditions require **individual and reliable solutions** that we offer through active research and development work and many years of experience to our customers



Power supply systems
Single- and multi-voltage UIC-Systems



Power supply components
Battery chargers Inverters and Converters



Heating Systems
More Information to the product



Quality assurance



Battery charger

Input voltages

- 55 V AC 300 V DC
- 220 V AC 500 V DC
- 400 V AC 750 V DC
- 1000 V AC
- 1500 V AC 1500 V DC
- 3000 V DC
- stationary 230V/400V AC

Output

5 / 8 / 10 / 15 / 18 kW
24 / 36 / 74 / 110 V DC





DC quick charger for e mobility

Input

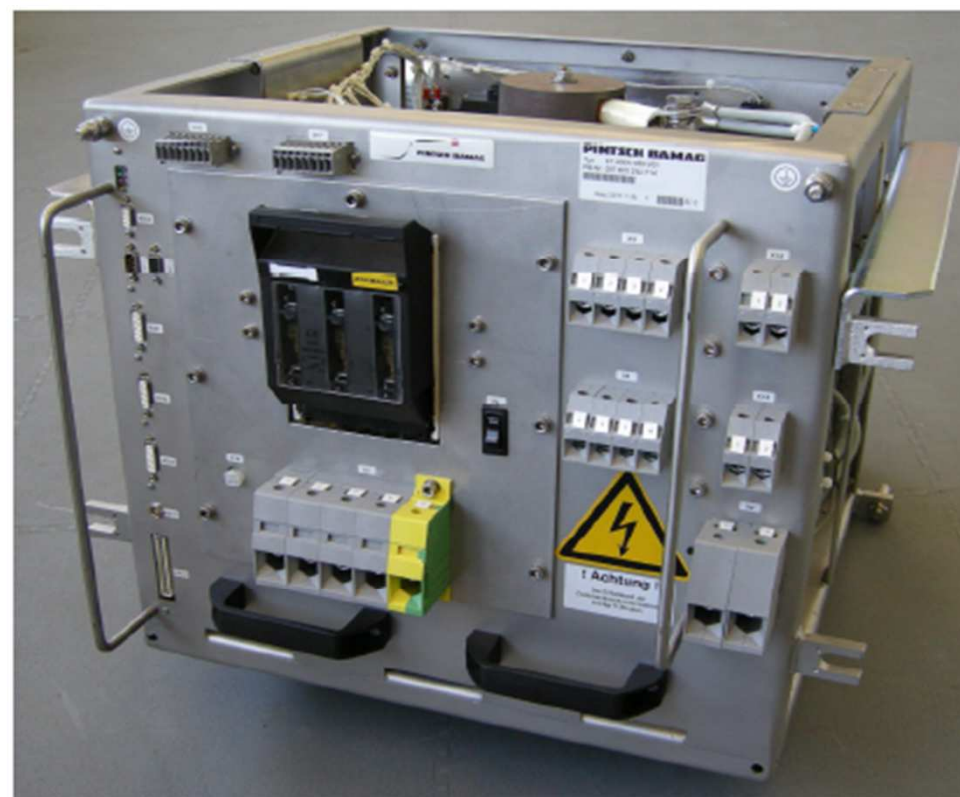
- 3 * 400V AC

Output

- 265-450V DC, 150A max
- 265-900V DC, 75 A max

under development:

500kW loader
for electrical busses





Agenda

- ❑ Heavy Rail
 - Rolling stock equipment
 - Haslerrail
 - Schwab
 - Pintsch Bamag
 - **Infrastructure**
 - Pintsch Aben
 - Pintsch Bamag
 - Pintsch Tiefenbach
- ❑ Light rail and busses
 - Infrastructure
 - Hanning & Kahl
 - VAB Berlin
- ❑ Maintenance equipment
 - Rolling stock equipment
 - Nencki
 - Hegenscheidt MFD
 - Neuero
 - Infrastructure
 - Nencki
 - Autec



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Pintsch- infrastructures





Railway signalling
technology

Platform screen Doors



Point heating system

Remote control and
monitoring



Railway signalling

Marshalling and hauling
equipment

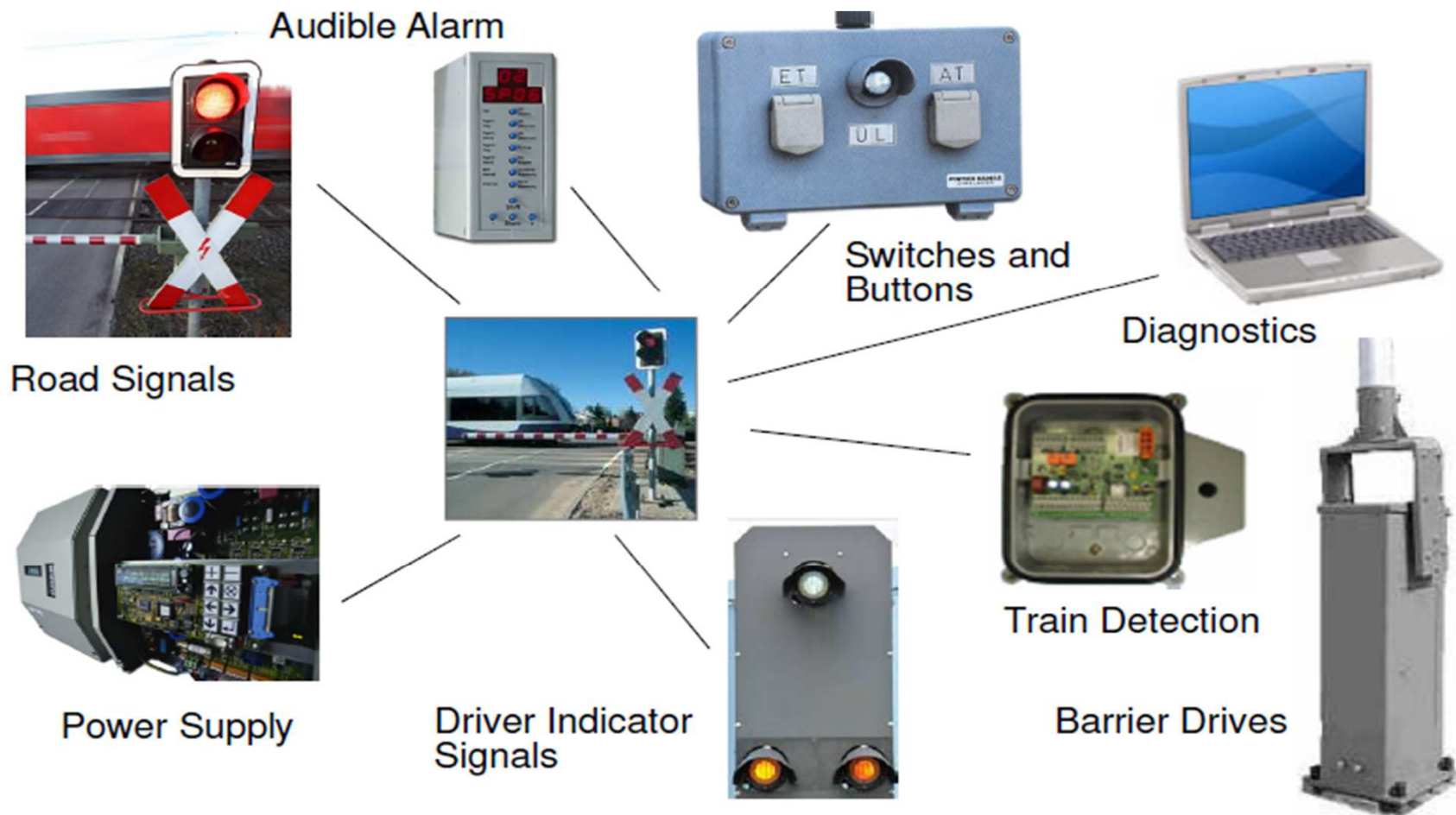
- ❑ Pintsch Bamag Level crossing technology is :
 - Safe and modular computer supported controller technology
 - Led colour signals
 - Maintenance management system using new communication technologies
 - Proven “SPK” barrier system
 - Efficient train detection system



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Product overview- Signaling





Audible Alarm



LED Trackside Signals



Speed Indicators



Train Indicator
Interlocking



Power Supply 60V



Supervision Control Desk



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Product overview- PSD Doors



The Platform Screen Door forms the interface between the platform and the track





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Product overview- PSD Doors

