

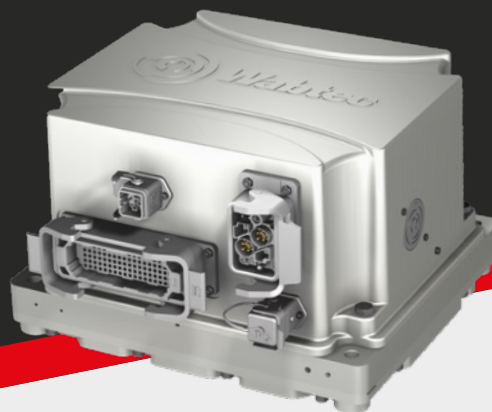


# THE FLEXX FAMILY

## METROFLEXX & REGIOFLEXX

*Advanced Integrated brake control*

**Brake control for single & double pipe systems for mass transit & mainline trains**



### METROFLEXX & REGIOFLEXX

#### METROFLEXX

- Single pipe brake system
- Service brake (SIL2), remote release per channel
- Emergency brake
- 4 configurations available to reach efficiently GEBC targets (EB per axle, per bogie or per car)
- Wheel slide protection with DM-Adaptive WSP & DM-SmartSanding avail
- Deceleration compensation (SIL2)
- Low integration cost with dual homing (minimal cabling)
- Advanced diagnostic functions (incl. CBM)
- Fast & stable overtime response time
- 10 years (mass transit operation), or 15 years (mainline operation) MTBO
- Safety targets certified by TÜV SÜD
- Compliant to cybersecurity standards

#### REGIOFLEXX

- Same as Metroflex, with...
- Double pipe brake system, regional, commuters & VHST
- One unit per bogie, optionally one unit per car\*
- DM-Control+ (Deceleration compensation SIL4)
- Wheel rotation monitoring, EN15595 DNRA
- Dynamic WSP monitoring
- High integrity brake: Electro-dynamic brake can be safety used in emergency brake
- UIC 540 / EN15355 compliant distributor emulation
- High integrity (SIL4) speed & deceleration
- External distributor input (for towing with no battery)
- EN/TSI compliance certified by DB Systemtechnik

\* with external dump valve control board for Regioflex



#### THE CONCEPT

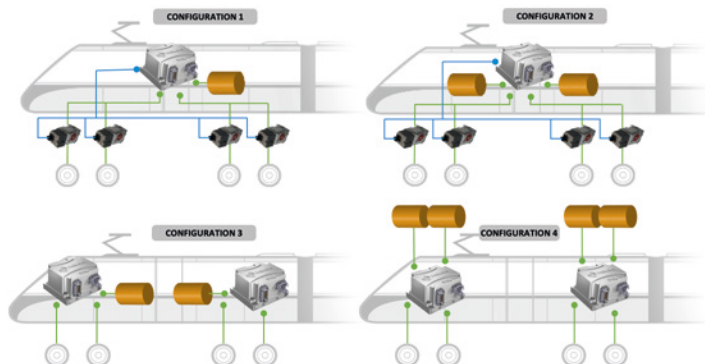
- Replacing pneumatic components where possible with software modules with same safety level (up to SIL4)
- Redesign remaining pneumatic components using new material to improve reliability, performance & service life
- Develop a new generation of algorithms to improve component performance & service life



#### THE RESULT

- An integrated brake control, a 10 kg LRU
- Train interfaces via traditional wires or network
- Guaranteed high GEBC thanks to native control per axle. A single failure cannot affect more than 50% of local emergency brake effort.
- Extended MTBO (10 years mass transit, 15 years mainline applications)
- Safety targets certified by TÜV SÜD
- TSI/EN compliance certified by DB Systemtechnik (Regioflex / mainline)
- Metroflex & Regioflex: More than 85% carry over

## CONFIGURATIONS



- **Configuration 1:** Emergency brake per car, service brake per bogie\*
- **Configuration 2:** Emergency brake per bogie, service brake per bogie\*
- **Configuration 3:** Emergency brake per bogie, service brake per axle
- **Configuration 4:** Emergency brake per axle, service brake per axle
- **In all configurations WSP is per axle**

\* with external dump valve control board for Regioflexx

## CUSTOMER BENEFITS

## TRAIN OPERATOR &amp; MAINTAINER

- **Native control per axle**, for best safe deceleration
- **Train availability:** Thanks to remote isolation per channel, a single failure affecting SB cannot immobilize the train unduly. In the event of a forced isolation, emergency brake remains available, no GEBR impact.
- **Best Guaranteed Emergency Brake Rate:** A single failure cannot impact more than 50% of the local emergency brake effort.
- **SIL4 holding brake**, to guarantee safe stopping in station.
- **Predictable braking distance:** DistanceMaster embedded guarantees up to -50% braking distance extension in case of low adhesion vs traditional WSP.
- **Light weight:** At 10 kg each, it can be replaced in less than 20 minutes by a single operator, reducing downtime.
- **Extended MTBO** thanks to pressure control algorithms, leads to -45% on TCO vs traditional brake control equipment.
- **One part # per fleet:** A SIL4 optical reader recognizes train position, locally required braking performance is set automatically, for easy asset & spares management.
- Simple design enables train maintainer to perform maintenance in house.
- **CBM ready:** Also provides remaining time prior to overhaul and request for inspection based on performance drift detection. Latent failures are detected before impacting train operation.
- **DistanceMaster** embedded drastically improves very low adhesion conditions, with up to -80% wheel flats.

## CUSTOMER BENEFITS

## CAR BUILDERS

- **Simplified interfaces:** One single box instead of separate elements.
- **Simplified piping:** LRU concept, pneumatic components replaced by software emulations.
- **Optimized system:** Regioflexx SIL4 architecture enables the safe use of ED brake in emergency without exporting safety constraints to other train systems. This leads to weight & cost reduction.
- **Wiring simplification:** can be wired either the traditional way or through dual ethernet (Dual homing). Up to 300 m wire saving per car.
- **Light weight:** 10 kg per unit, up to 60 kg per bogie saving vs traditional EMU brake system.
- **Versatile:** multiple brake control configurations upon GEBR needs. Regioflexx natively features all requirements for VHST applications. One product for all platforms.
- **Commissioning time:** DM-Adaptive WSP embedded does not need setting, save up to 2 weeks commissioning in new trains.

## CONTACT

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