

We make it *possible*

# Product Range Railway



# A global customer network

### OEM



ALSTOM

BOMBARDIER  
the evolution of mobility

CAF

HYUNDAI  
Rotem

SIEMENS

vossloh

中国中车  
CRRC

### Operators



SNCF

SNCB

DB

TRENITALIA

AMTRAK®

中国中车  
CRRC

RATP

KORAIL  
한국철도공사

### Tiers One



Faiveley  
TRANSPORT

Wabtec®  
CORPORATION

ABB

GHH-BONATRANS  
Pioneers of wheelset solutions

上海电气  
SHANGHAI ELECTRIC

KNORR-BREMSE

# Product range

**Anti-vibration Systems**



**Fluid Transfert Systems**



**Precision Sealing Systems**



**Fabricated Sealing Systems**



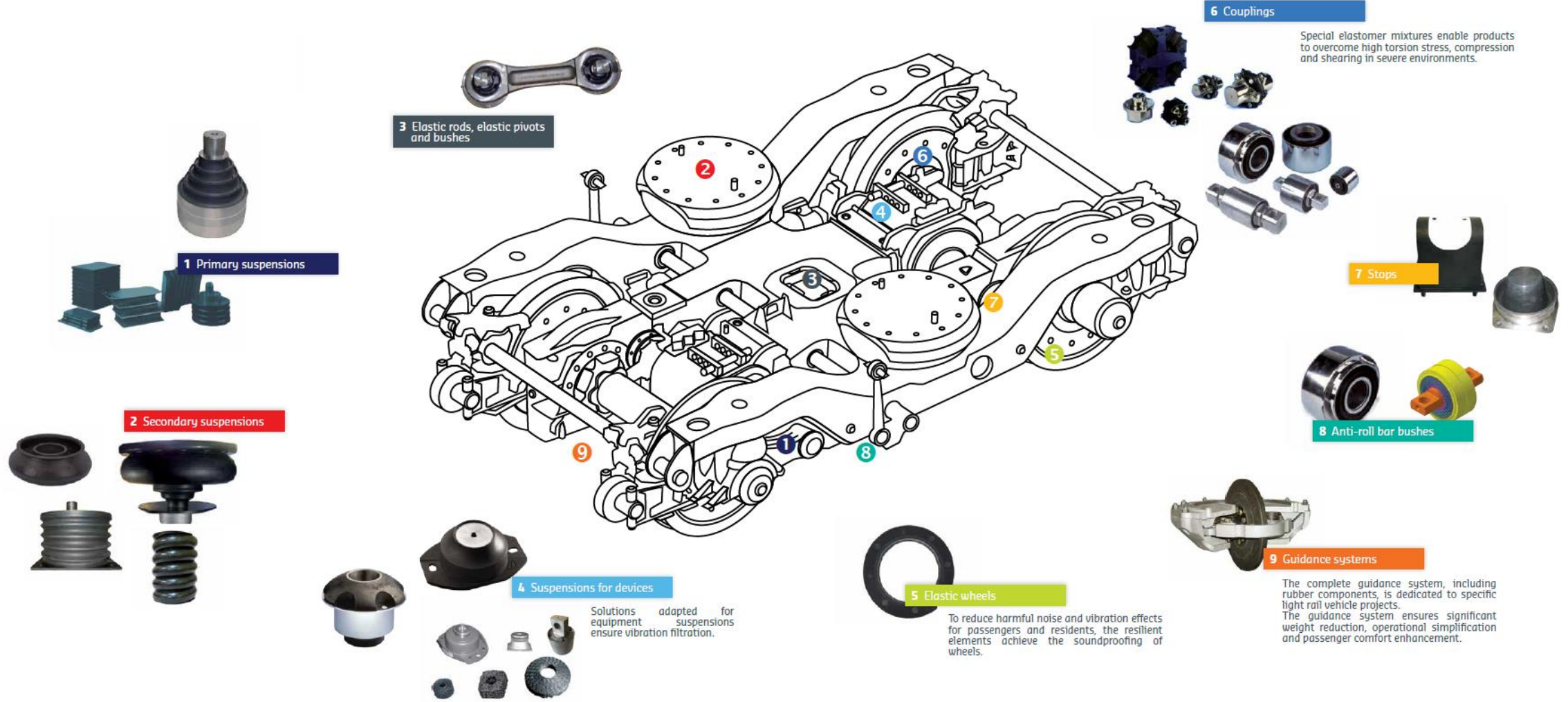
**Composite Air Ducts**



**Control and Display**



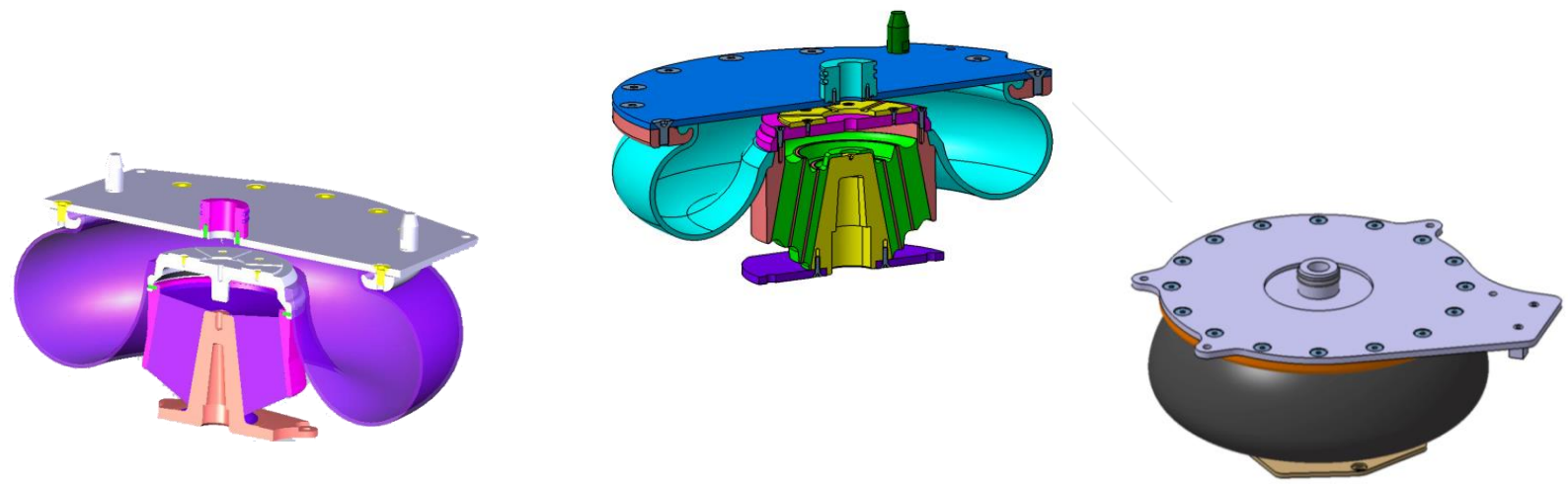
# Anti-Vibration Systems – Bogie Parts



# Anti-Vibration Systems – Bogie Parts

## ■ Secondary suspensions

- Coupled in-house pneumatic and rubber to metal conception
- EN45-545 HL2 R9 compliant
- Taylor designed counpound for low creep and extreme temperature (-40°C)
- Large product range : belted bellow, large displacement bellow, limited volume bellow
- All rolling stock family covered : high Speed, regional, light rail vehicule, and metro.

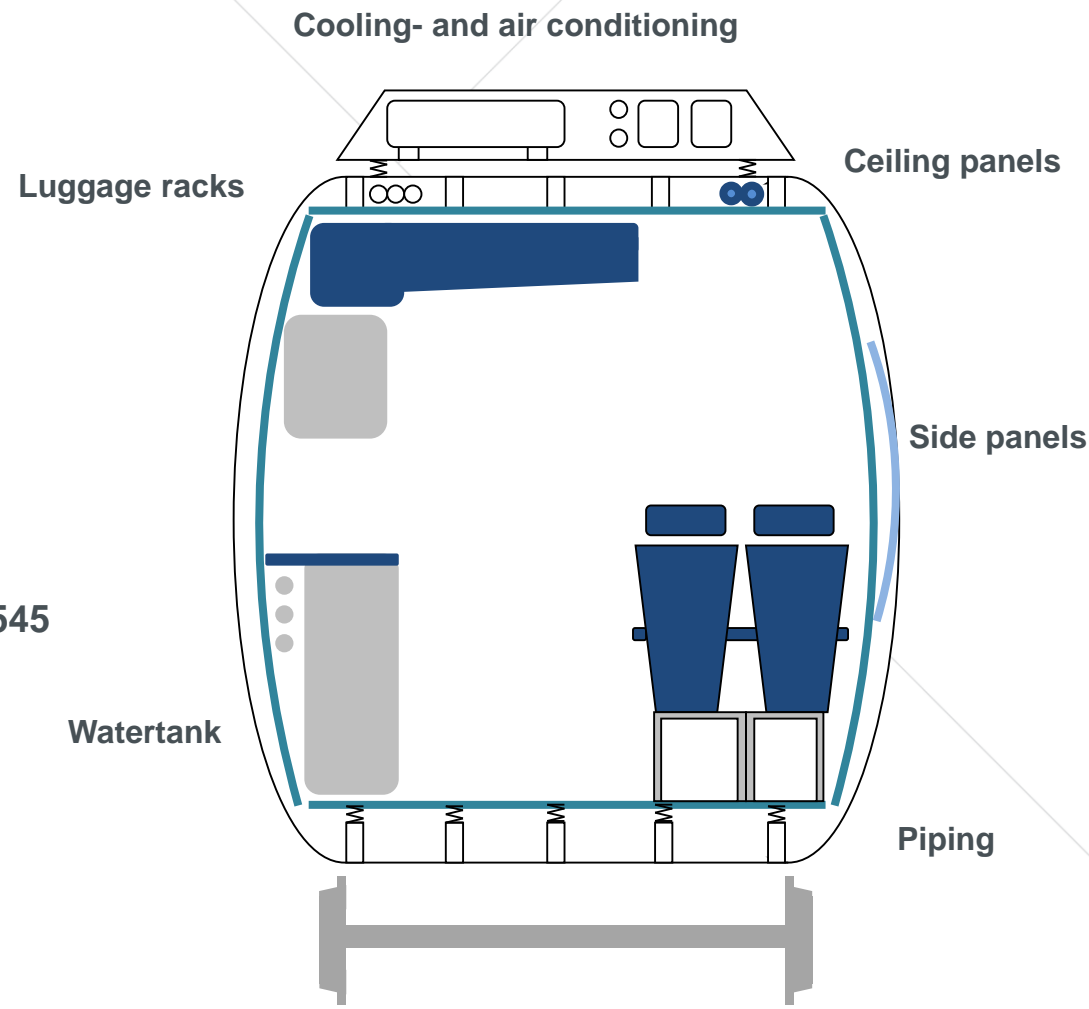




# Anti-Vibration Systems- car body parts



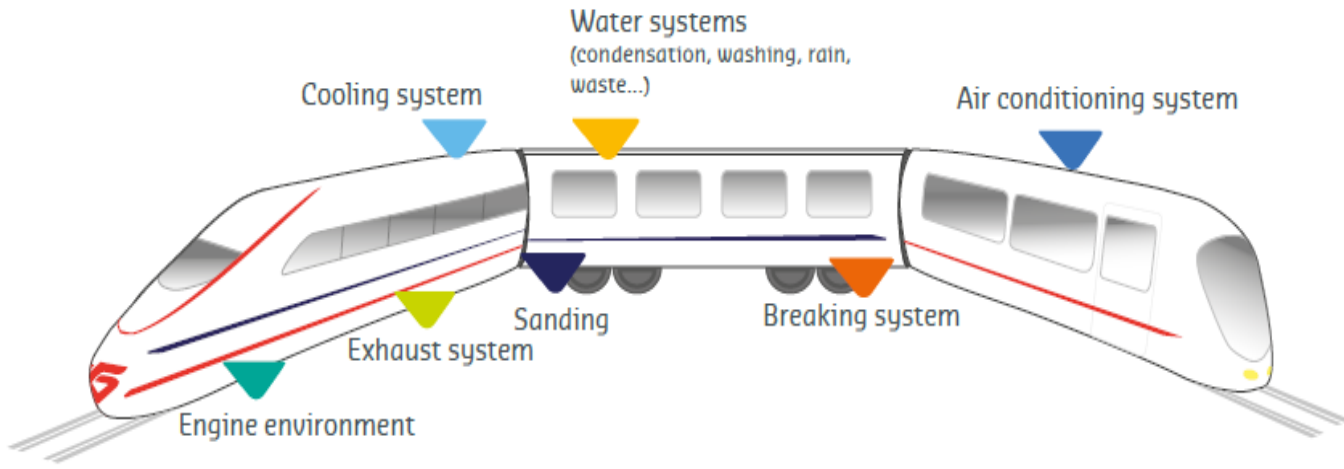
- Fully stainless steel damper
- Compliance with fire standard EN45-545



- Rubber to metal extensive range

# Fluid Transfer Systems

EUROPEAN Applications : **RAIL FIRE** hoses range certified EN 45545



Smoke fire standard NFF 16101, LUL RSE/STD/024 part 1, BSS7239, DIN5510, BS6853, ASTM-C-1166-91, EN 45545

- Braking: NFF 11380 C1 & C2 ST L-12
- Cooling: STMD802 C1 & C2
- Water: ISO 1403
- Engine
- Sand: ISO 3861 (ST275)
- Air-Conditioning
- Diesel systems: STMD803C1/C2



# Fluid Transfert Systems

## ■ Pneumatic applications

- 161 RF type for NFF11380 C2
  - 15 different diameters
- 0201 RF type for NFF11380 C1
  - 1 main diameter
  
- Glass and silicone sleeve addition for ISO 15-540



## ■ Coupling

- Technical norms NFF11380 C1
- EN 45545 compliant



## ■ Fixing collar and clamps



## ■ Quick Connectors





# Precision Sealing Systems



**Gangway & bellows  
EN45-545 HL2 R9**



**Hoses and ducts**



**Static  
sealing**



**Cellular  
blocks  
and  
sheets**



**Dynamic sealing  
Magnetic encoder**



**Rubber sealing  
Profiles**



**Molded part**

# Fabricated Sealing Systems

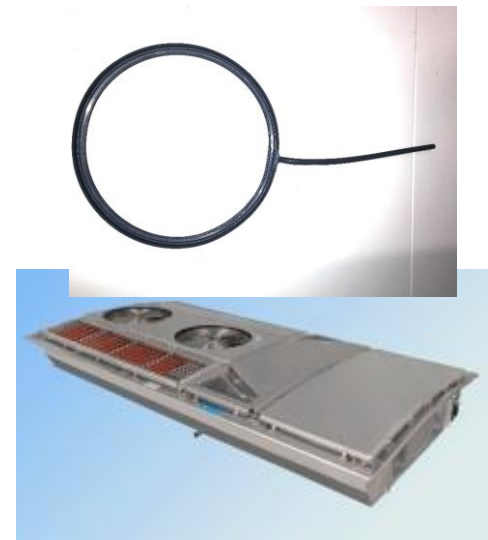
## ■ VHS Train door seal

- Handcrafted inflatable seal
- 6,5m length / Silicon made
- Fire/Smoke properties + Extinguishable



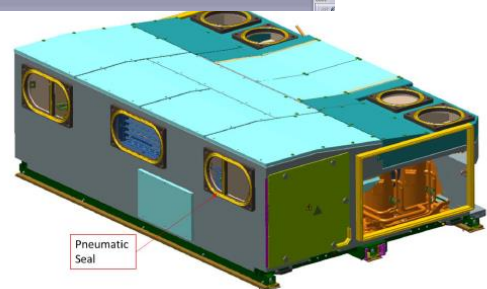
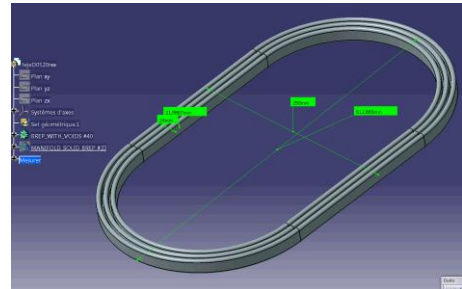
## ■ VHS Train Duplex : HVAC Seal

- Handcrafted inflatable seal
- 863cm length / Silicon made
- EN 45545 compliant



## ■ Other type of HVAC Seal

- Handcrafted inflatable
- Material Silicon + Fabrics
- EN 45545 compliant
- + Extinguishable



# Fabricated Sealing Systems

## ■ Silicon Seals

- Good flexibility
- Good temperature resistance (250 C°)
- Good elasticity
- Resistant to certain types of fluids
- Fire/smoke properties + Extinguishable (excellent in passenger environment)

→ COLOR OF MATERIAL CAN BE ADAPTED

## ■ EPDM Seals

- Excellent oil resistance
- Temperature resistance max 120C°
- Good resistance to pressure
- Good UV resistance
- Excellent qualities of resistance to mechanical compression stress



# Composite air ducts

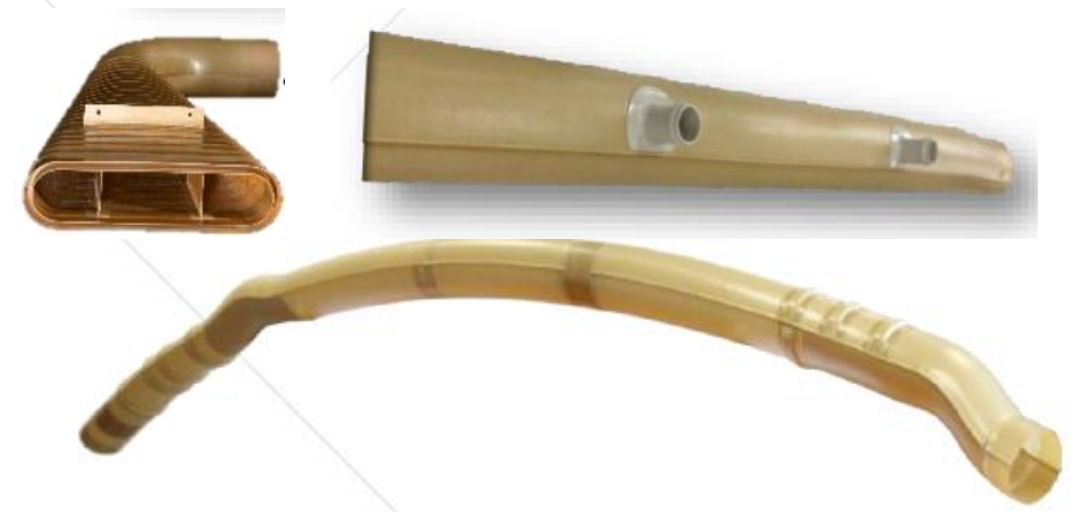
## ■ Thermoset Ducts

- Adapted to complex geometry
- Easy joining capability
- Process adapted to big parts



## ■ Thermoplastic Systems

- Single layer composite ducts
- Upt to 45% lighter compared to traditional glass/phenolic prepreg ducting
- Automated and semi-automated process
- Welded ducts – No sealant or adhesive required
- Materials : BMS 8-353



- Applications : Ceiling channels and supply air ducts

# Control and display

## ■ Control Panels

- warning panels
- braking indicator systems
- driving assistance control boxes



## ■ Displays for Passenger Information Systems (PIS) made of LCD or LED technologies

## ■ Lighting products : red tail lights, indicators and LED technology exit signs





