Flexible Gangway and Coupler of Trainset

-T DILIP KUMAR

DyCME/FIII/ICF

GANGWAY

- The gangway is the flexible part of the train, allowing the relative movements between the coaches and offering passengers a secure and comfortable passageway.

INTERCAR RUBBER TUBES

Intercar Rubber Tubes

Advantages:

- Easy coupling
- For coaches with buffers and hook coupler or other couplers
- Low costs

Disadvantages:

- No water tightness
- No air tightness
- No dust tightness
- No pressure tightness
- No sound insulation
- Limited weather proofness
- No heat insulation
- Safety
- Limited life time
- Limited fire behaviour

UIC-COMFORT GANGWAYS

Advantages:

- Easy coupling
- For coaches with buffers and hook coupler or other couplers
- Almost water tight
- Improved air tightness
- Improved dust tightness
- Improved pressure tightness
- Good sound insulation
- Good weather proofness
- Good heat insulation
- Safe
- Service life about 12 – 15 years
- Fire behaviour acc. NFF 16101 and DIN 5510

GANGWAYS WITH BELLOWS SYSTEM

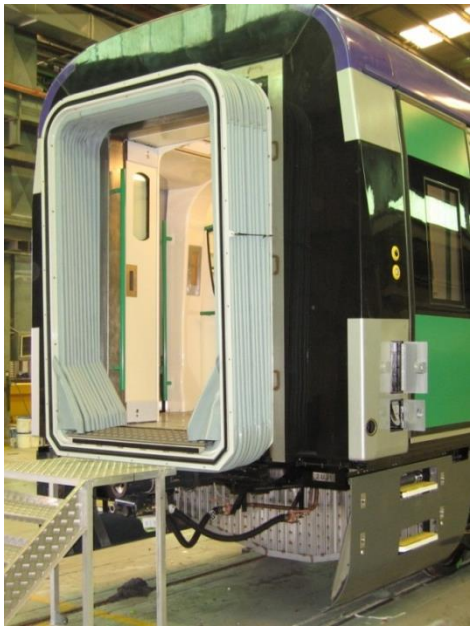
Advantages:

- Gangways for EMU's, DMU's, High Speed Trains, Metros, LRV's, Trams with central coupler and articulation systems
- Also for trains with Jacobs-Boogie and for coaches with buffers under conditions
- Split type Gangways and single piece gangways
- Quick coupling and semi-permanent types
- Fully water tight
- Fully air tight
- Dust tight
- Pressure tight
- Good sound insulation, and high sound insulation with double bellows
- Weather proof
- Good heat insulation
- Safe
- Reliable product with service life up to 15 years

GANGWAYS WITH BELLOWS SYSTEM

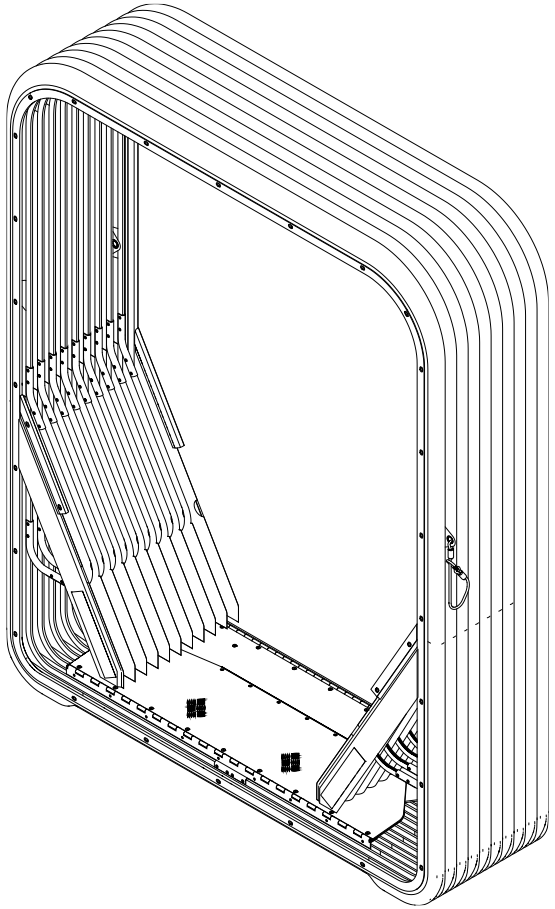
Advantages:

- Fire behaviour acc. NFF, DIN, BS, EN and others
- Low maintenance
- High passenger comfort and large clear passage width from approx. 700 mm – 1400 mm
- Distance between wagon-interfaces (= Normal position) between min. 650 mm – 900 mm
- Vandal resistant comfort-gangways with inner panels

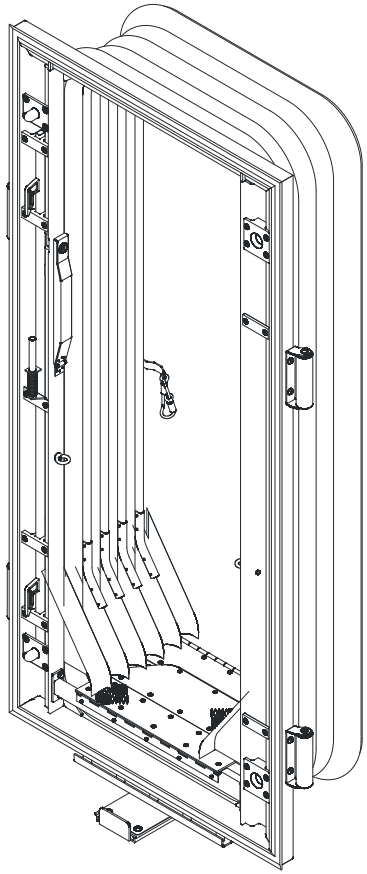


GANGWAYS WITH BELLOWS SYSTEM

- **Single bellows**
- **Semipermanent**



- **Single bellows**
- **Split type**



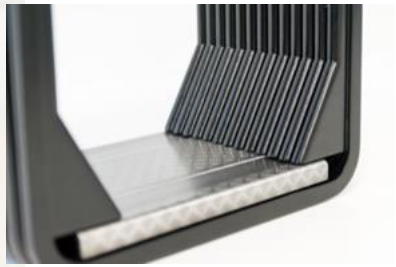
REGIONAL – SINGLE BELLOWS SEMIPERMANENT

- Double corrugated bellows
- Combi-Bridge

HÜBNER-GANGWAY SYSTEMS

Regional – EMU / DMU

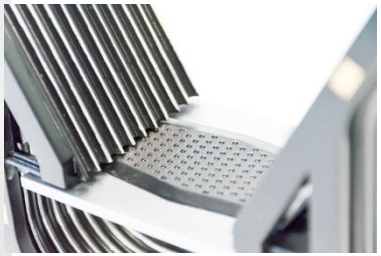
- Double corrugated bellows
- Semipermanent
- Combi-Bridge
- Sound insulation > 34 dB



HÜBNER-GANGWAY SYSTEMS

Regional – Jacobs-bogie

- Double corrugated bellows
- Quick coupling system
- Sound insulation approx. 36 dB



GANGWAYS WITH BELLOWS SYSTEM- HIGH SPEED WITH AERODYNAMIC FAIRING

Advantages:

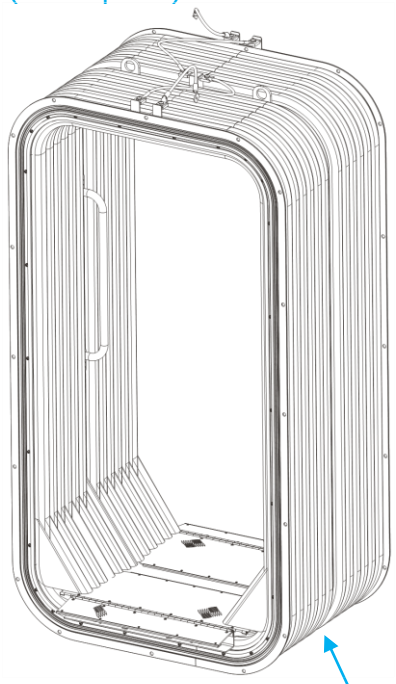
- Reduction of aerodynamic resistance
- High energy savings
- Cost savings
- Operating power saving
- Environment friendly
- Reduced operating noises inside
- Aesthetical upgrade

-

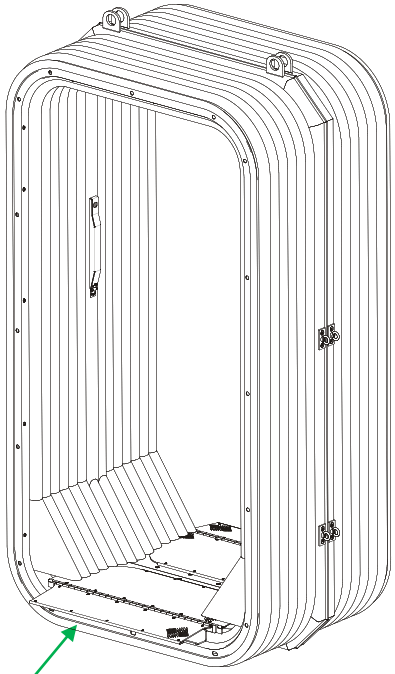
GANGWAYS WITH BELLOWS SYSTEM

Passage width:	600 mm – 1500 mm
Distance between wagon-interfaces:	approx. 500 – 1000 mm (common 600 mm – 900 mm)
Locking/Unlocking:	manually with single operation levers in less than 5 min.
Service life expectation:	10 - 15 years (depending on used fabric)
Sound insulation:	sufficient thermal and acoustic insulation (Rw = 23 – 38 acc. to EN16286-2)

Gangway (= one-piece)

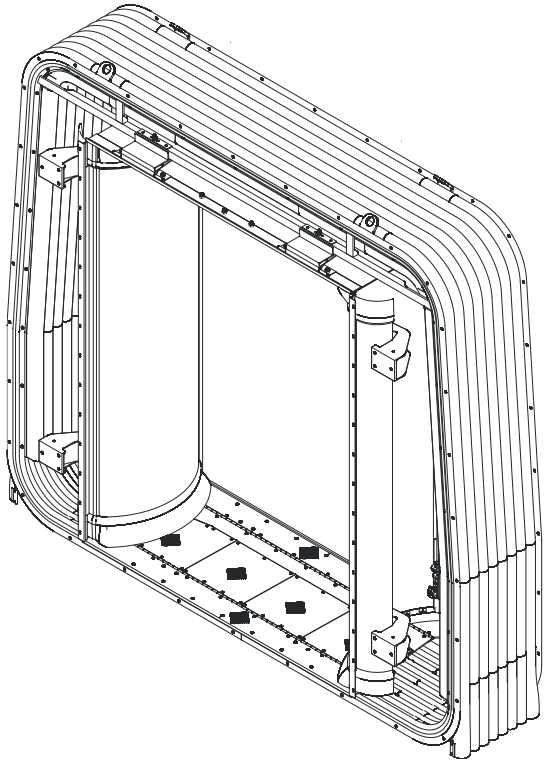


Gangway half (= two pieces)

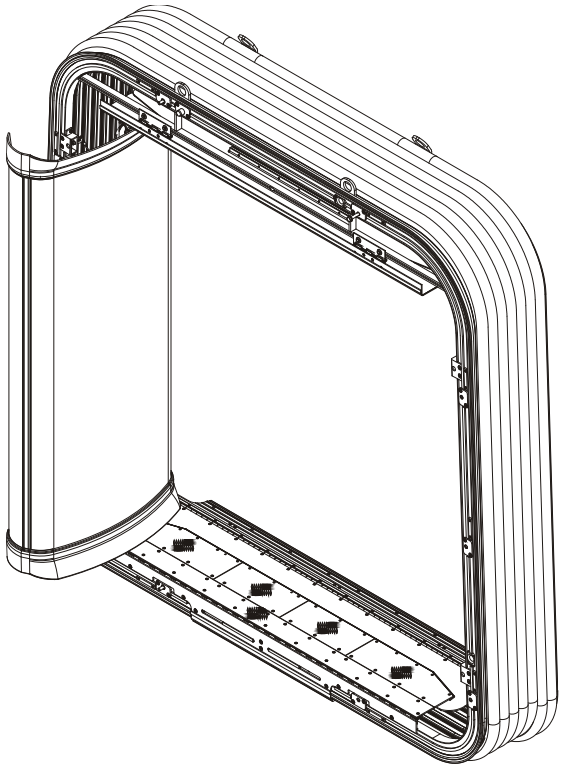


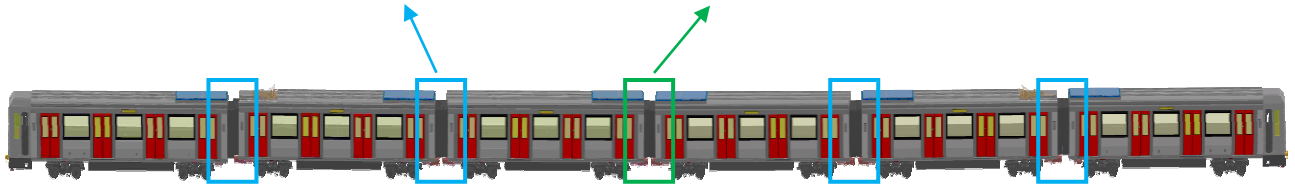
GANGWAYS WITH BELLOWS SYSTEM – COMFORT-GANGWAYS WITH INNER COVERINGS

Gangway (= one-piece)



Gangway half (= two pieces)



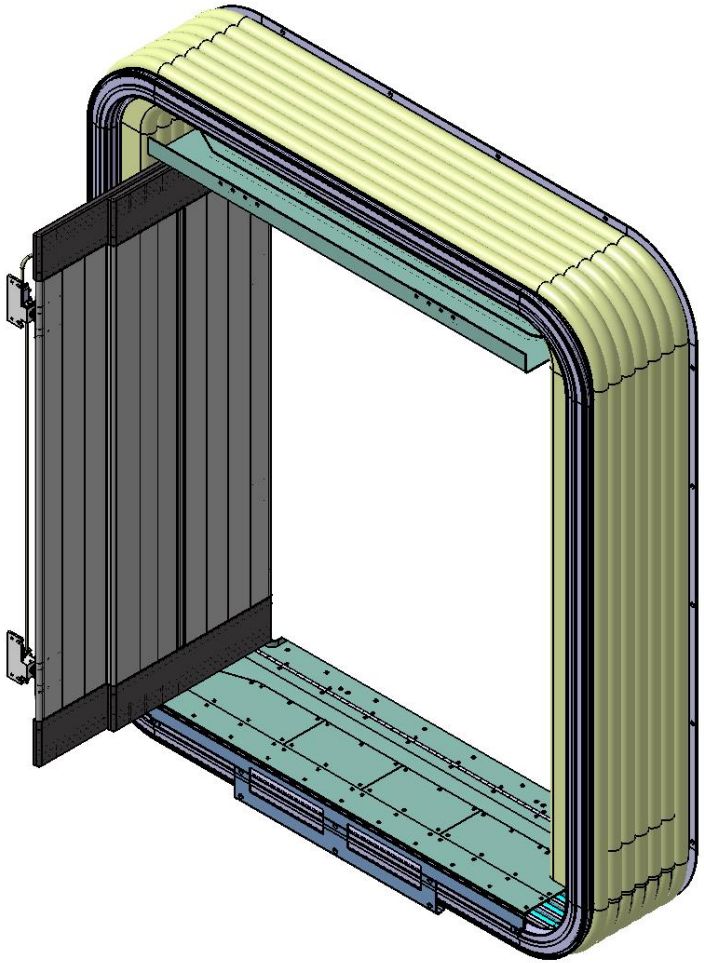


GANGWAY SYSTEMS

India:

- Metro Bangalore
- Metro Delhi RS2, RS5, RS7 & RS11
- Metro Delhi RS3, RS8 (Jaipur) & RS9
- Metro Delhi Airport Express
- Metro Kolkata
- Metro Chennai
- Passenger Coaches India

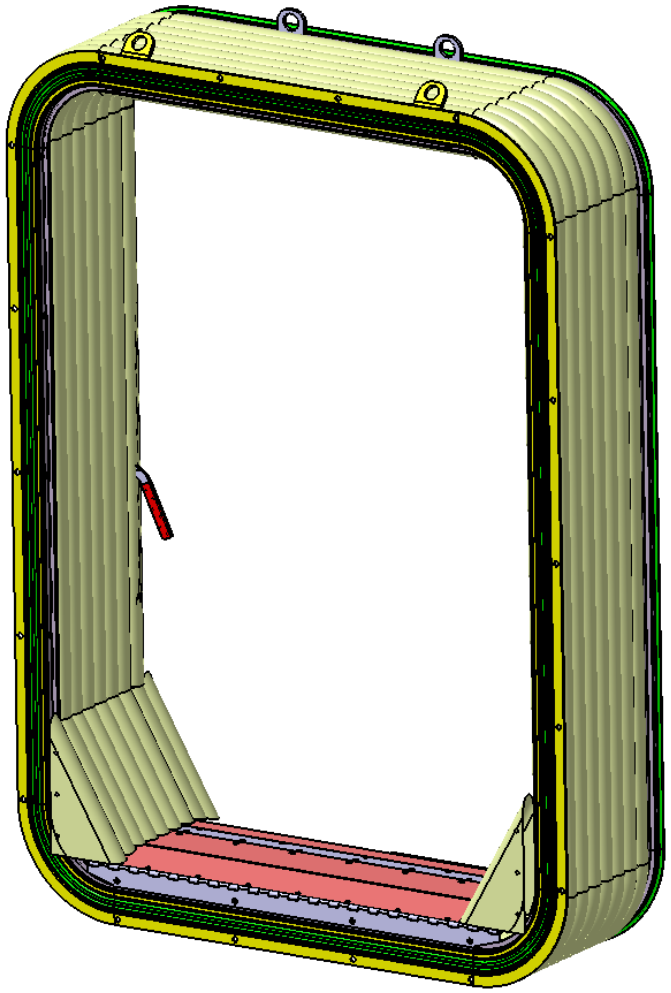
BANGALORE METRO



Manufacturer:	**Rotem / BEML**
Normal distance:	**(2x) 450 mm**
Clear passage width: 1400 mm	
Fire Standard:	**BS 6853**
Noise Insulation:	**40 dB**
Weight:	**approx. (2x) 290 kg**

- Split-type gangway with inner lining (sliding walls)
- Double bellows
- Bridge plates

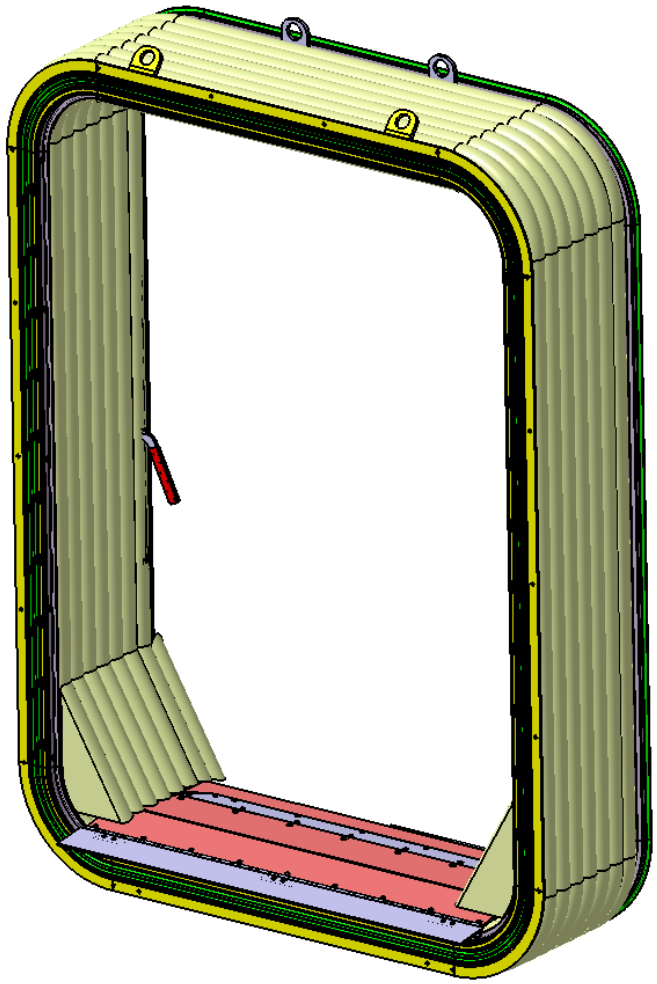
Metro Delhi RS2



Normal distance:	**(2x) 450 mm**
Clear passage width: 1400 mm	
Fire Standard:	**BS 6853**
Noise Insulation:	**39 dB**
Weight:	**approx. (2x) 160 kg**
Delivery started:	**2008**

- **Split-type gangway without inner lining**
- **Double bellows**
- **Bridge plates**

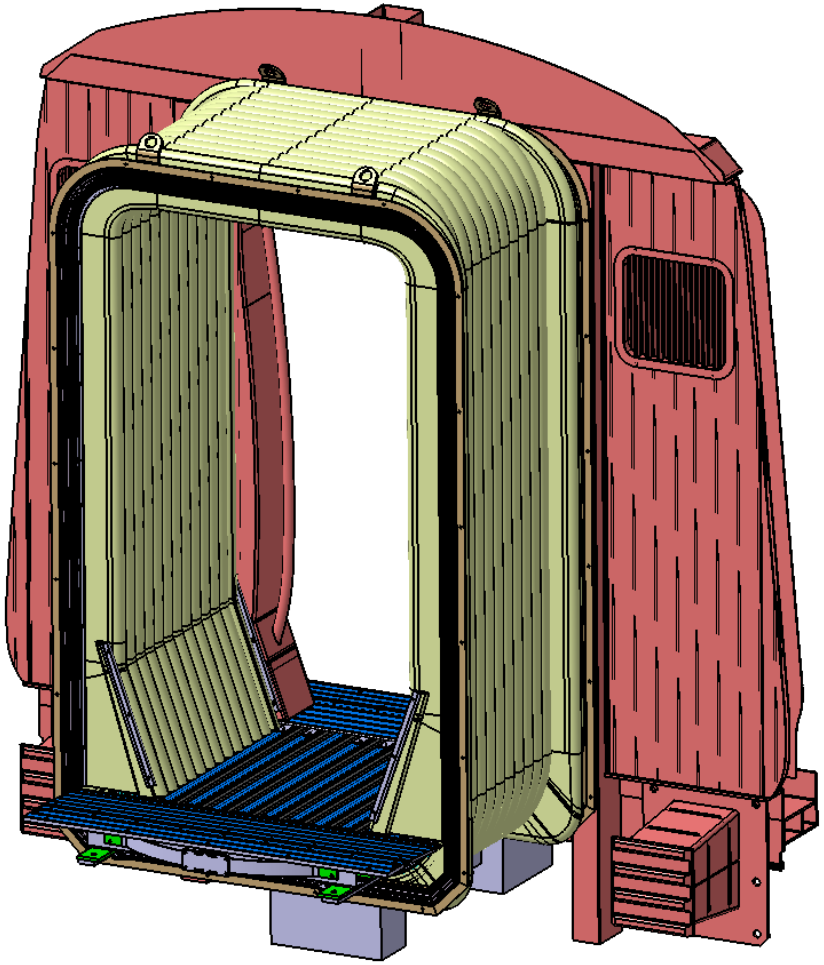
METRO DELHI RS3



Customer:	**Rotem / BEML**
Normal distance:	**(2x) 450 mm**
Clear passage width:	**1400 mm**
Fire Standard:	**BS 6853**
Noise Insulation:	**38 dB**
Weight:	**approx. (2x) 160 kg**
Delivery started:	**2009**

- **Split-type gangway without inner lining**
- **Double bellows**
- **Bridge plates**

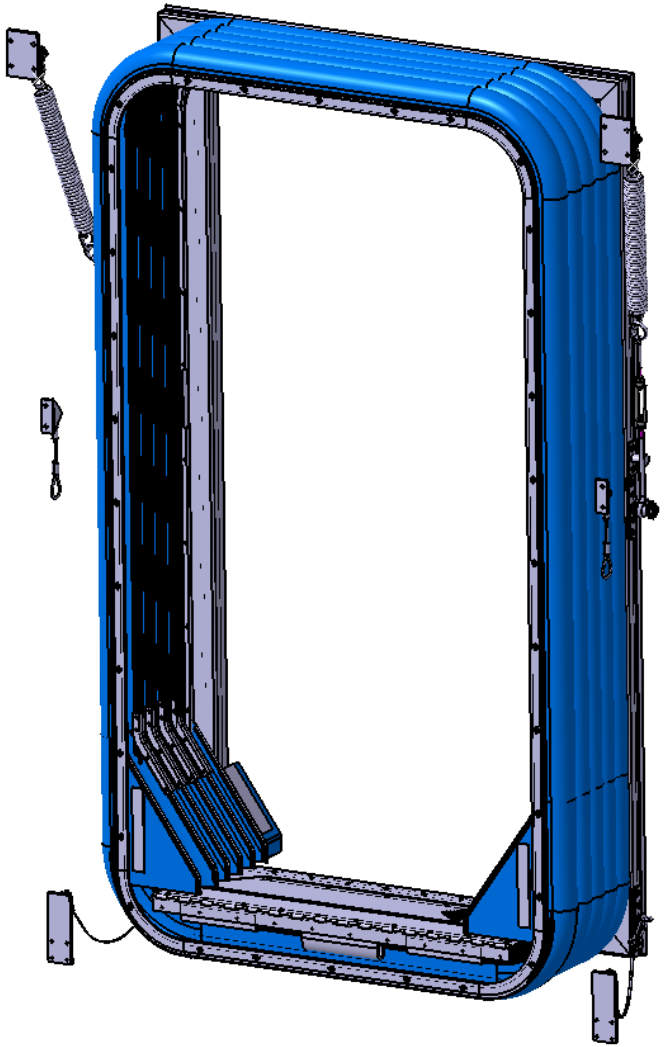
METRO DELHI AIRPORT EXPRESS



Manufacturer:	**CAF**
Normal distance:	**900 mm**
Clear passage width:	**1064 mm**
Fire Standard:	**NF F 16-101**
Noise Insulation:	**30 dB**
Weight:	**approx. 280 kg**
Started:	**2009**

- One-piece gangway without inner lining
- Double bellows (on bottom only doubled-up)
- Linking bridge

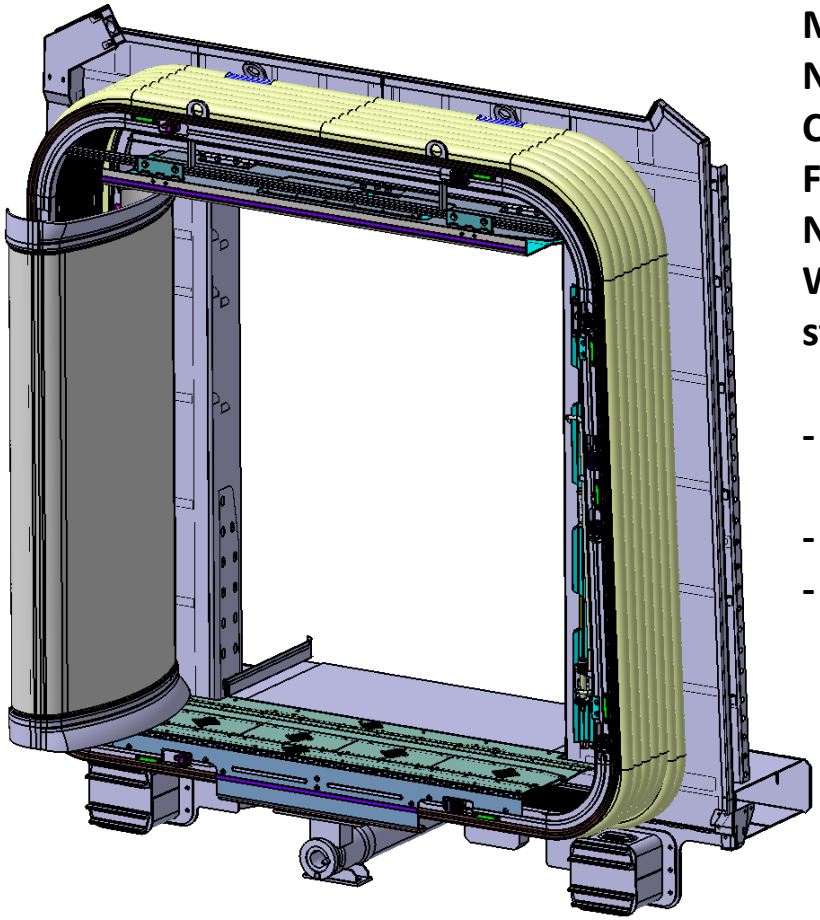
METRO KOLKATA



Manufacturer:	**ICF**
Normal distance:	**(2x) 370 mm**
Clear passage width: 1064 mm	
Fire Standard:	**BS 6853**
Noise Insulation:	**23 dB**
Weight:	**approx. (2x) 100 kg**
Started:	**2010**

- **Split-type gangway without inner lining**
- **Single bellows**
- **Bridge plates**

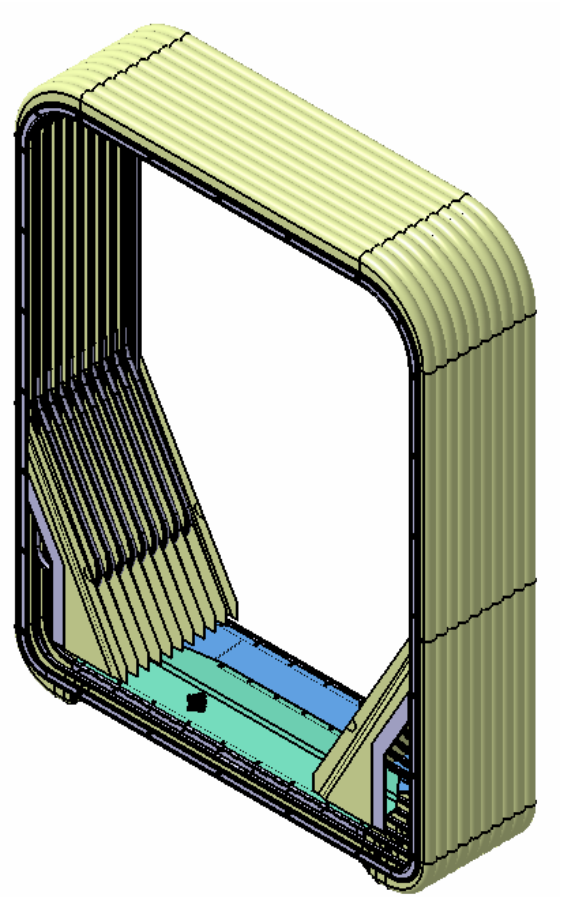
METRO CHENNAI



Manufacturer:	**ALSTOM**
Normal distance:	**(2x) 450 mm**
Clear passage width: 1360 mm	
Fire Standard:	**NF F16-101**
Noise Insulation:	**29 dB**
Weight:	**approx. (2x) 240 kg**
started:	**2012**

- **Split-type gangway with inner lining (flexible side walls)**
- **Single bellows**
- **Bridge plates**

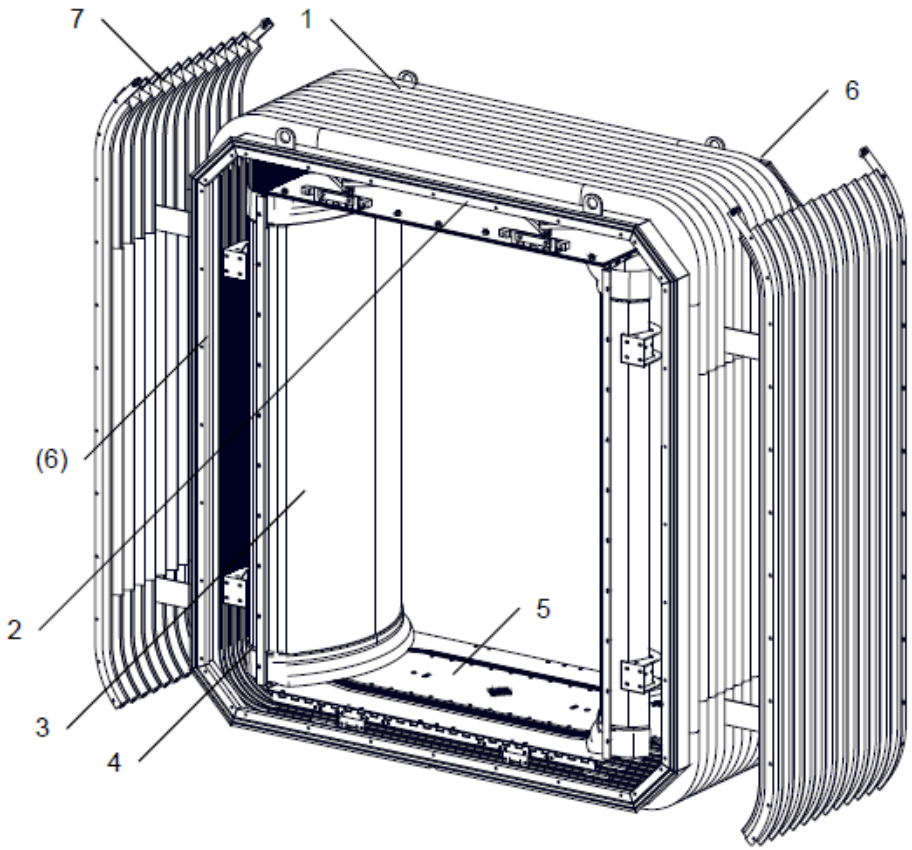
PASSENGER COACHES INDIA



Manufacturer:	**RCF**
Normal distance:	**460 mm**
Clear passage width:	**750 mm (1550 mm)**
Fire Standard:	**BS 6853**
Noise Insulation:	**23 dB**
Weight:	**107 kg**
Delivery started:	**2015**

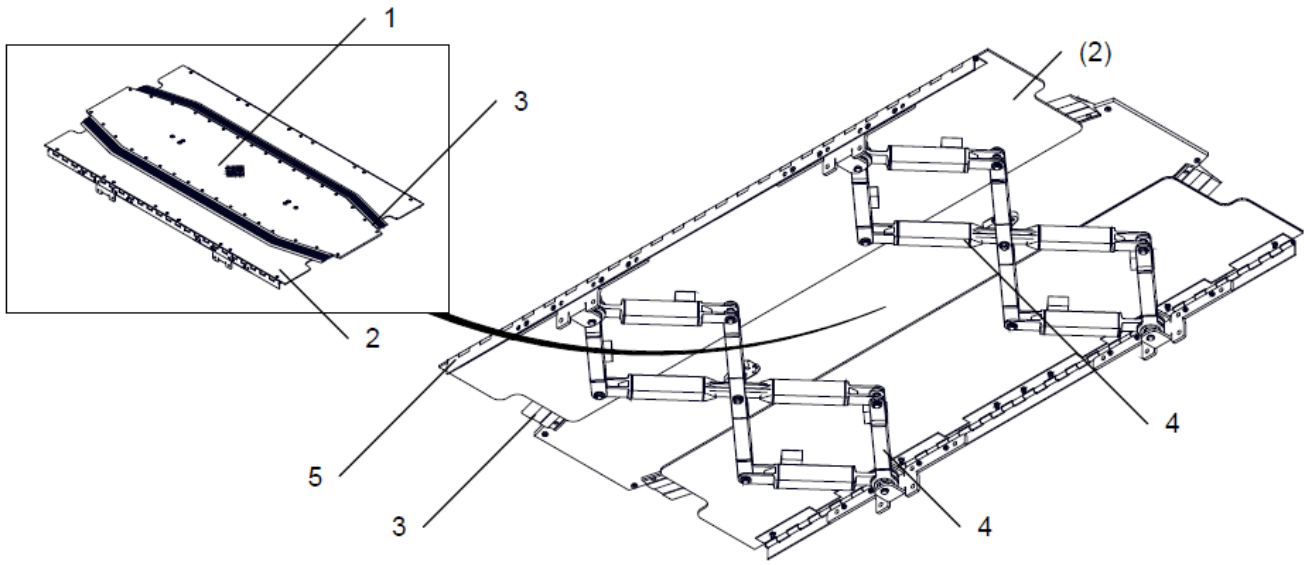
- One-part gangway
- Single bellows
- Bridge plates (2-parted)

TRAINSET GANGWAY



1	*Corrugated bellows, assy., mounted*	2	*Linking ceiling, assy.*
3	*Side wall, assy. inner covering*	4	*Covering brush, assy.*
5	*Combination bridge, assy:*	6	*Screw-on frame*
7	*Folding wall, assy.*		

COMBINATION BRIDGE ASSEMBLY



1	*Tread plate*	2	*Bridge plate*
3	*Sliding ledge*	4	*Scissors system*
5	*Hinge*		