



ZF Front Axle Systems – Quicker and Easier Through the Traffic

Referent | Abteilung | Division



History of the Front Axles

- 1988 RL range of wheel heads for city buses and coaches
- 1992 RL 85 E independent suspension for coaches (Bova Futura)
- 1995/96 RL 85 A steering axles for city buses (Neoplan and Nova Bus)
- 1999 RL 75 E independent suspension for coaches (Mercedes Travego and Bova Magiq)
- 2005 RL 75 EC independent suspension for city buses (2005: Citaro low-entry; 2006: Citaro full low-floor)
- 2007 RL 75 A steering axles for city buses (ADL (UK))
- 2010 RL 55 EC independent suspension for midibuses (Temsa midibuses)

1999
Mercedes Travego



1995/96
Neoplan

2005
Mercedes Citaro



1999
Bova Magiq

2010
Temsa



2007
ADL (UK)

The Most Important Products

RL 55 EC

Vehicle widths: 2,300 mm – 2,600 mm

RL 82 EC

Vehicle widths: 2,300 mm – 2,600 mm

RL 75 E

Vehicle widths: 2,500 mm – 2,600 mm

RL 75 A

Vehicle widths: 2,500 mm – 2,600 mm



Technical Data

RL 55 EC

Comfort and maneuverability with the ZF independent suspension for midibuses

Independent suspension	RL 55 EC
Vehicle width [mm]	2,300 – 2,600
Max. axle load [kg]	5,800
Spring travel [mm]	+/- 90
Max. steering angle (back-lock/front-lock)	55° / 45°
Tire size max.	285/70 R19.5
Rim size	19.5" x 7.5", hole circle 275 mm
Disk brake	Knorr SN6
Axle system weight [kg]	385*



* Axle total weight depends on customer specification

Technical Data

RL 82 EC

Comfort and maneuverability with the ZF independent suspension for city buses

Low-floor independent suspension	RL 82 EC
Vehicle width [mm]	2,300 – 2,600
Max. axle load [kg]	8,200
Spring travel [mm]	+90 / -100
Max. steering angle (back-lock/front-lock)	56° / 46°
Tire size (standard)	275/70 R22.5
Rim size (standard)	22.5" x 7.5"
Disk brake	Knorr SN7
Axle system weight [kg]	482*



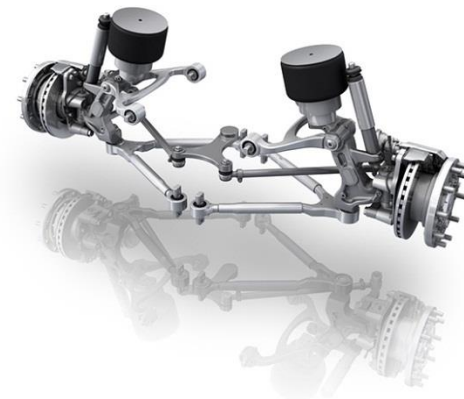
* Axle total weight depends on customer specification

Technical Data

RL 75 E

Comfort and maneuverability with the ZF independent suspension for coaches

Independent suspension	RL 75 E
Vehicle width [mm]	2,500 - 2,600
Max. axle load [kg]	7,500
Spring travel [mm]	± 100
Max. steering angle (back-lock/front-lock)	60° / 46°
Tire size (standard)	295/80 R22.5
Rim size (standard)	22.5" x 8.25"
Disk brake	Knorr SN7
Axle system weight [kg]	496*



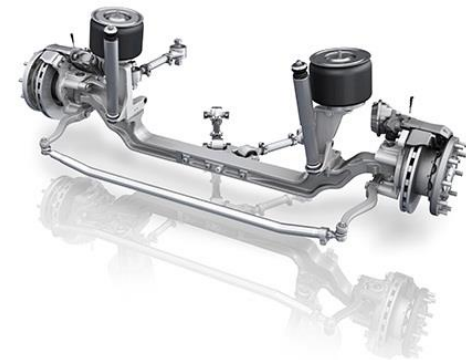
* Axle total weight depends on customer specification

Technical Data

RL 75 A

ZF solid axles – robust all-rounders

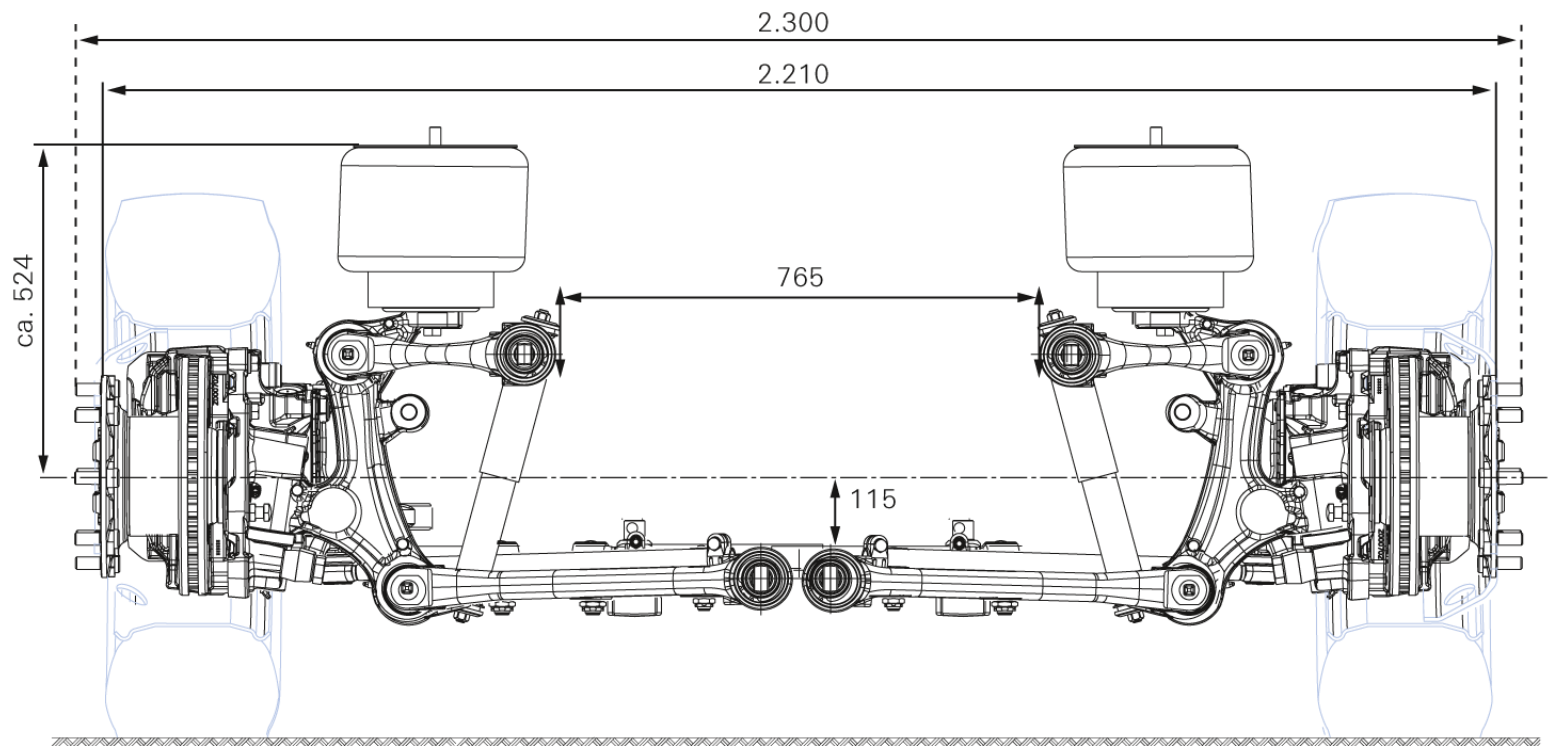
Low-floor solid axle	RL 75 A
Vehicle width [mm]	2,500 - 2,600
Max. axle load [kg]	7,500
Spring travel [mm]	± 85
Max. steering angle (back-lock/front-lock)	55° / 40°
Tire size (standard)	275/70 R22.5
Rim size (standard)	22.5" x 8.25"
Disk brake	Knorr SN7
Axle system weight from [kg]	527*



* Axle total weight depends on customer specification

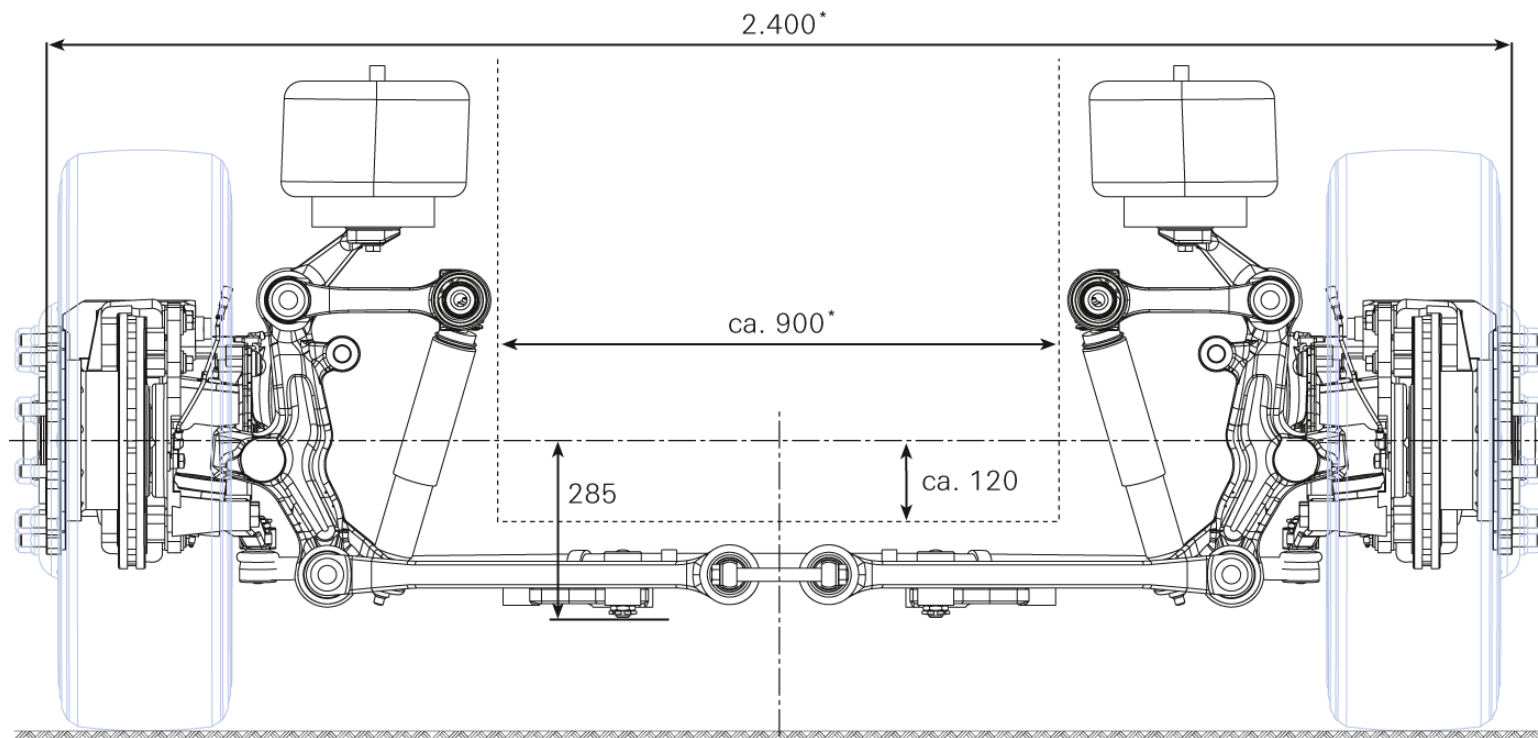
Installation Drawing

RL 55 EC



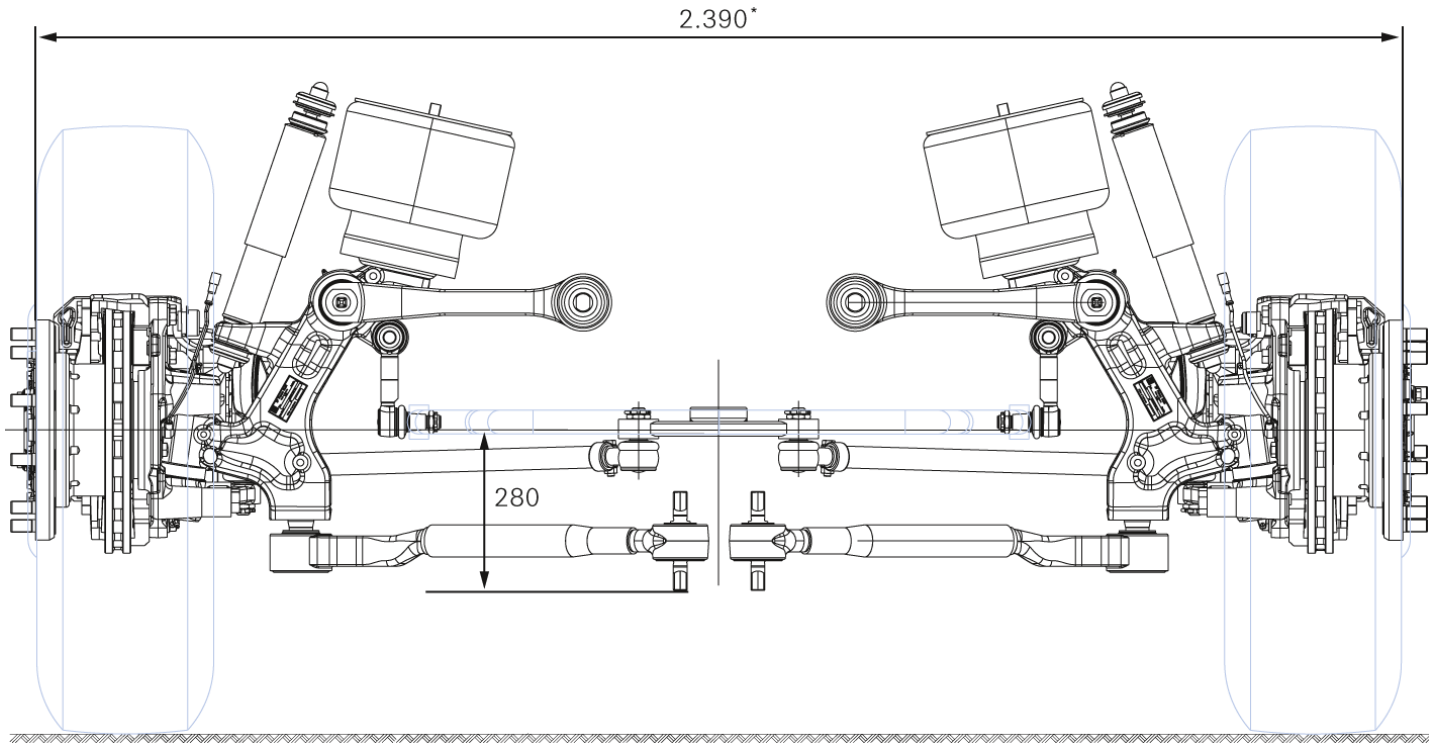
Installation Drawing

RL 82 EC



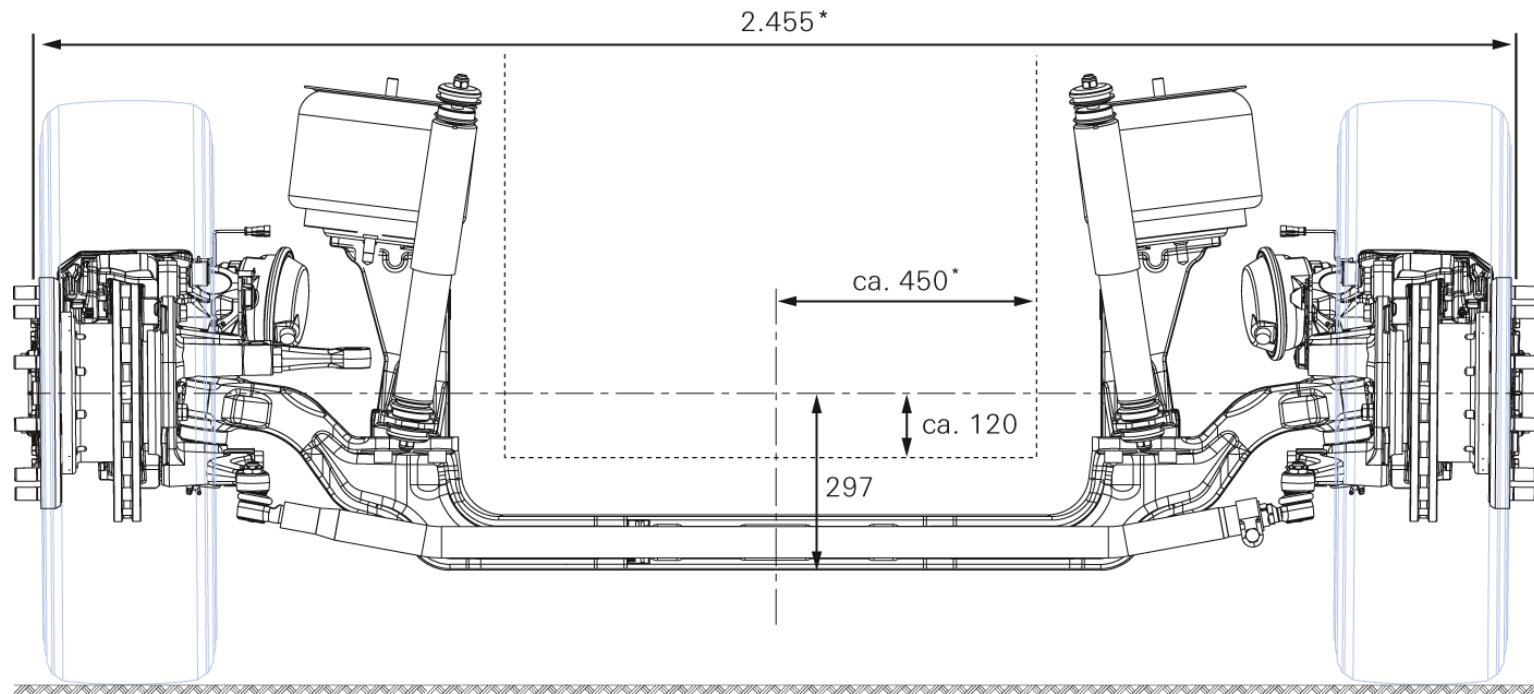
Installation Drawing

RL 75 E



Installation Drawing

RL 75 A



ZF Front Axles

The Highlights (Technology)

Bus front axle systems – faster and easier through the traffic

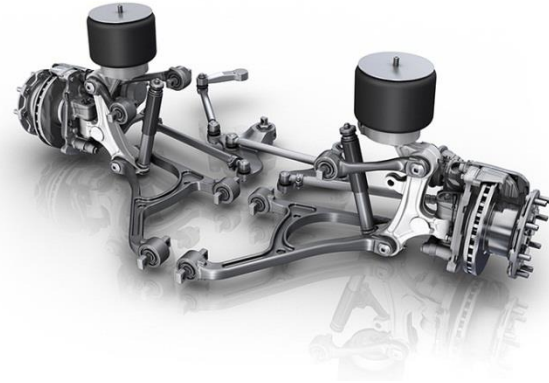
- Comfortable, step-free entry
- Great ride comfort
- Best maneuverability
- Expanded options for creative chassis design
- Optimal anti-roll support and damping
- Active driving safety



ZF Midibus Independent Suspension RL 55 EC

Advantages for customers and manufacturers in comparison to solid axles:

- Increased creative leeway for vehicle designers
- Superb active driving safety
- Optimal maneuverability
- Considerable increase in tire, steering, and driving comfort
- Improved vehicle handling
- Suitable for city bus and coach applications



ZF Low-Floor Independent Suspension RL 82 EC

Advantages for customers and manufacturers:

- Low, comfortable passenger entry
- Easy vehicle handling
- Variable design options in the vehicle
- Optimal maneuverability
- Best values in driving safety and comfort
- Excellent roll stiffness



ZF Independent Suspension RL 75 E

Advantages for customers and manufacturers:

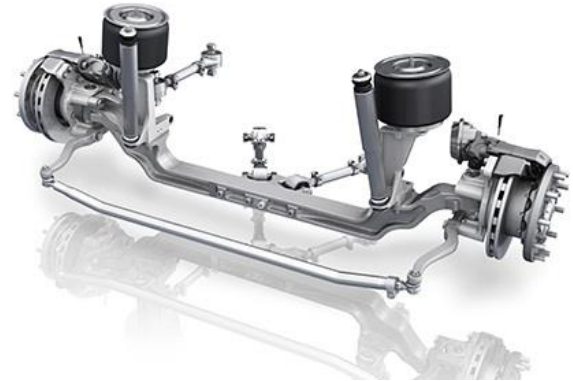
- Extreme maneuverability (steering angle of up to 60°)
- Easy vehicle handling
- Best values in driving safety and comfort
- Excellent roll stiffness
- Optimal travelling comfort



ZF Low-Floor Solid Axle RL 75 A

Advantages for customers and manufacturers:

- Low entrance height (floor level of only 350 mm above the roadway possible)
- Precise steering behavior
- Precise axle guidance in all driving conditions
- Robust and easy to service

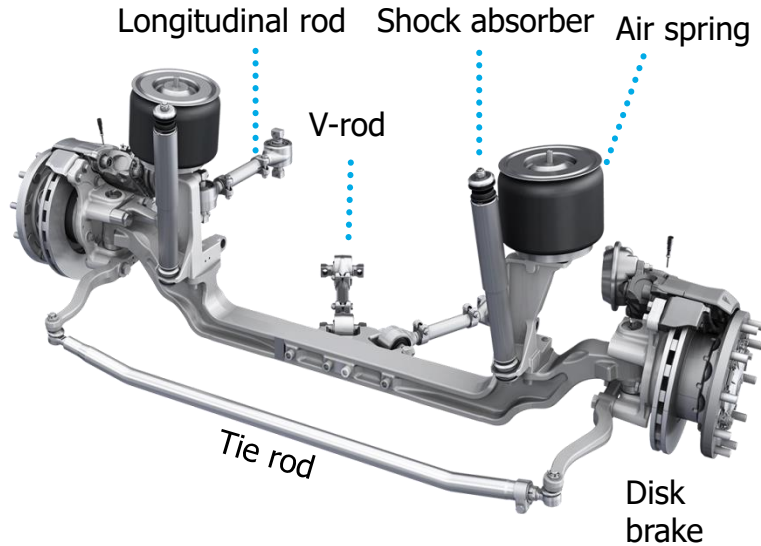


RL 75 A

Front Axles for City Buses

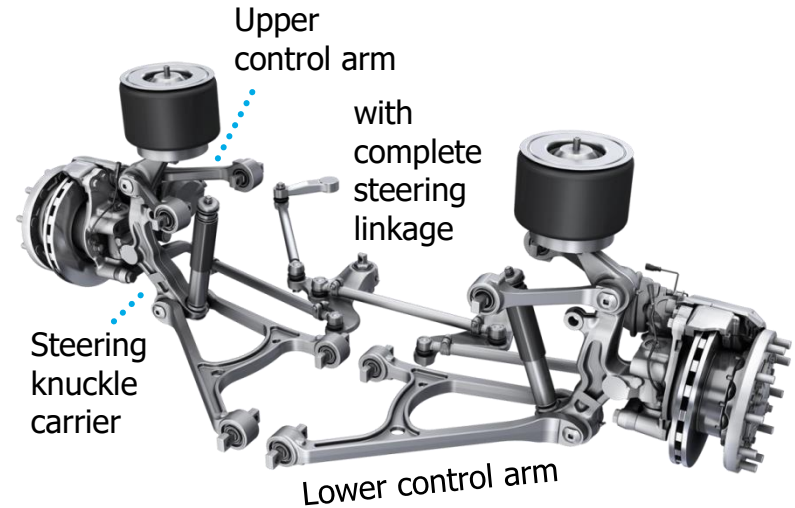
Solid axle

Example: RL 75 A



Independent suspension

Example: RL 82 EC

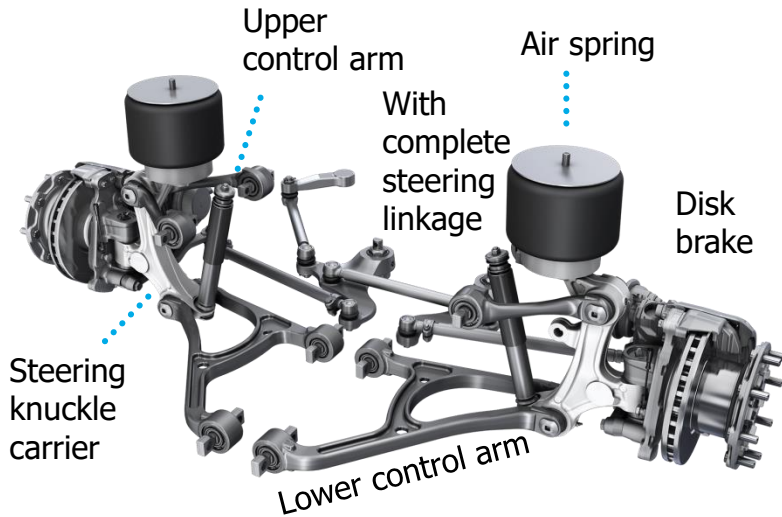


Front Axles for Midibuses

Front Axles for Coaches

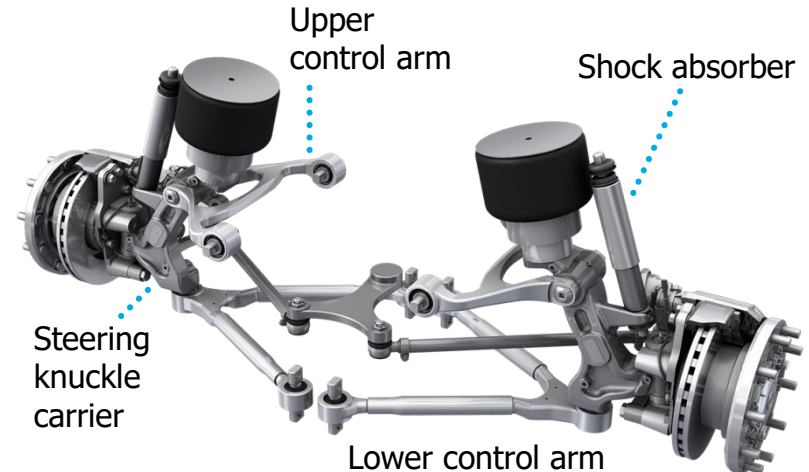
Independent suspension for midibuses

RL 55 EC



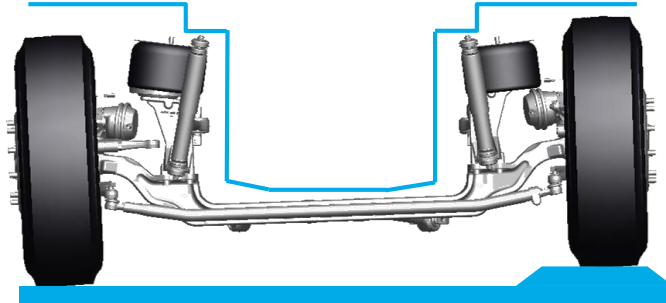
Independent Suspension for Coaches

Example: RL 75 E



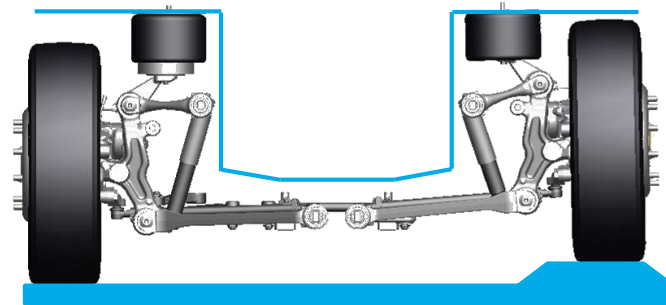
Front Axles for City Buses

Advantages of Independent Suspension Over a Solid Axle



Solid axle

- Movement of the entire axle bridge in the event of unevenness on one side

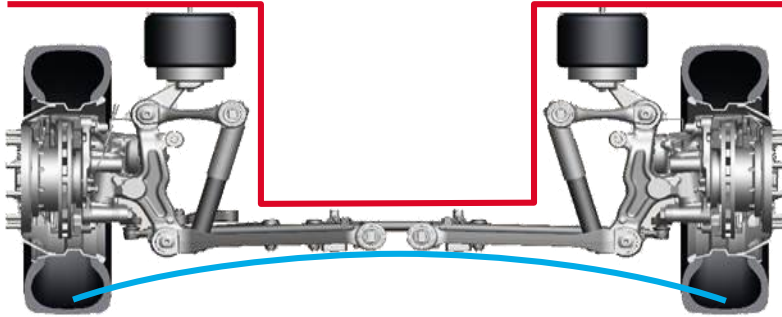


Independent suspension

- Movement on only one side

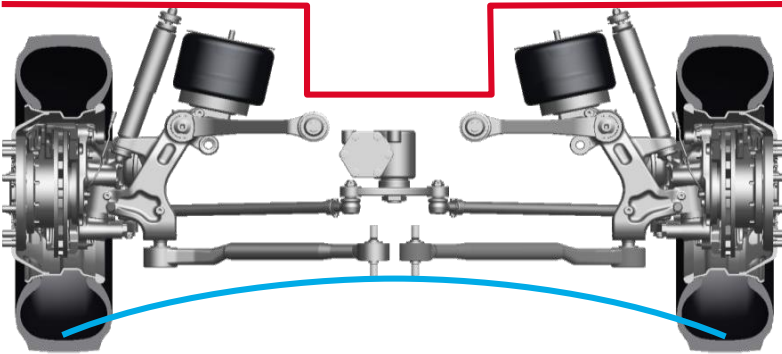
Front Axles for City Buses and Coaches

Installation Situation



Low-floor city bus

- RL 55 EC
- RL 82 EC



Coach

- RL 75 E

Low-floor bus

- Floor in the passenger cabin is continuously flat and barrier-free (except for above the wheel cases)
- Entrance height:
 - < 400 mm above the roadway (center-aisle height of 350 mm possible)
 - < 300 mm possible with kneeling

Technical Features

RL 55 EC

Comfort and maneuverability with the ZF independent suspension for midibuses



- Reduced body roll and smaller turning radius compared to steering axles with axle bridges
- Reduction of unsprung masses
- Modern, internally ventilated disk brake technology
- Wheel heads with low-maintenance wheel bearings

Technical Features

RL 82 EC

Comfort and maneuverability with the ZF independent suspension for city buses



- For full low-floor, low-entry, and double-decker buses.
- Strength-optimized and weight-optimized components
- High wheel deflection
- High roll stiffness, and thus low body roll
- Modern, internally ventilated disk brake technology
- Wheel heads with low-maintenance wheel bearings

Technical Features

RL 75 E

Comfort and maneuverability with the ZF independent suspension for coaches

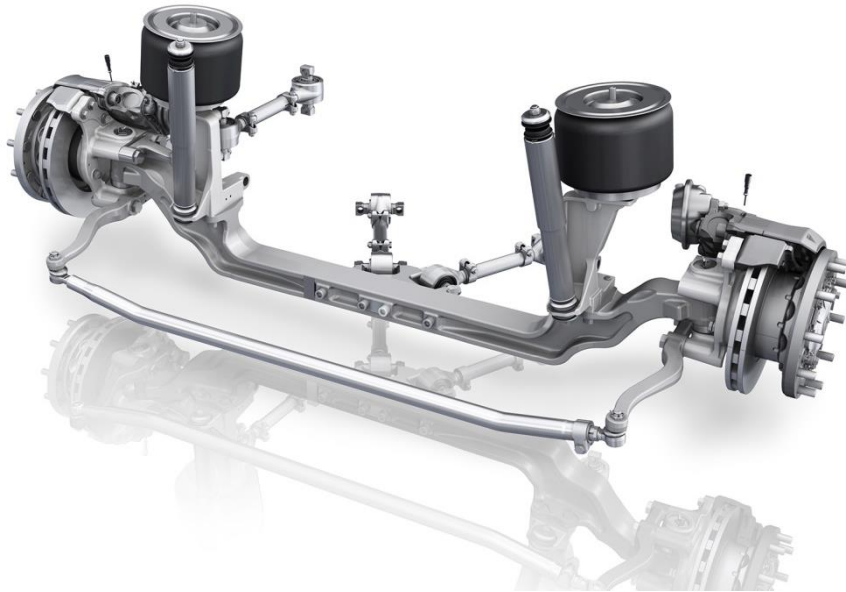


- Steering angle of up to 60°
- High roll stiffness, and thus low body roll
- Strength-optimized and weight-optimized components
- Reduction of unsprung masses
- Modern, internally ventilated disk brake technology
- Wheel heads with low-maintenance wheel bearings

Technical Features

RL 75 A

ZF solid axles – robust all-rounders



- Precise kingpin bearing and meticulously fine-tuned kingpin inclination
- Kinematically optimized arrangement of the longitudinal rods and v-rods
- Modern, internally ventilated disk brake technology
- Low-maintenance compact bearing unit
- Also available as a complete axle-suspension system.