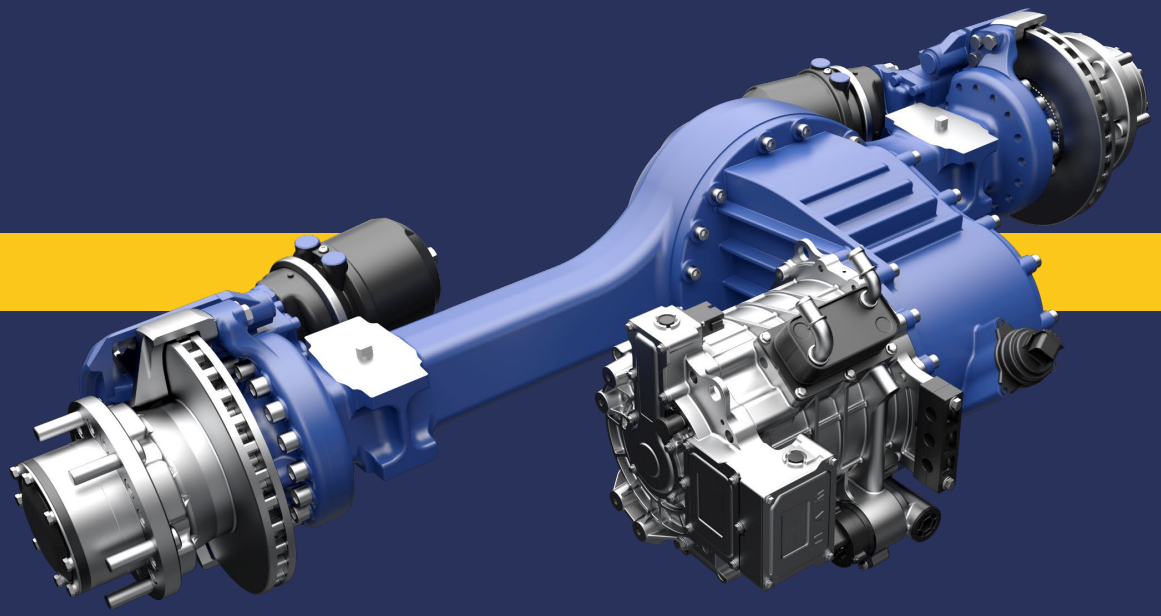
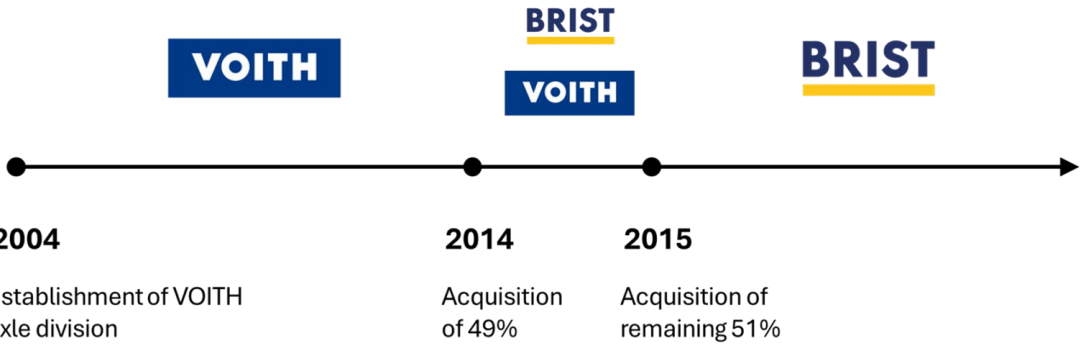
BRIST



The Company

Evolved from VOITH Origins to Agile Execution

Founded as part of the VOITH axle division in 2004, BRIST became an independent company in 2014 through a management buyout, adopting its current name.



BRIST: Your Competitive Edge.

BRIST's advanced engineering expertise and agility empower vehicle manufacturers to launch superior vehicles more quickly.

Agile execution

Agile, customer-focused and responsive

Engineering depth & flexibility

Tailored engineering solutions for demanding requirements

Competitive beyond volume

Cost-effective even for low-volume through a lean model

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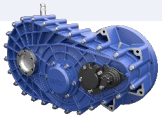
Portfolio Overview

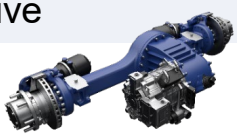
E-Axle

e-Transmission



- single speed
- two-speed

Central Drive

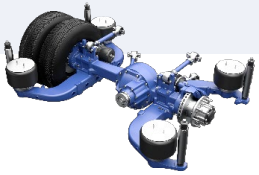


Corner Drive

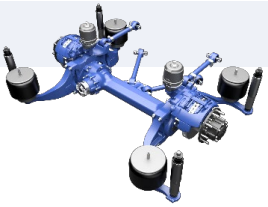
Rigid Drive Axle

Z-Drive

T-Drive



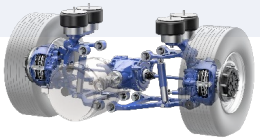
Portal



Independent Axle

Non-Drive (bus & truck)

Drive (opt. hub-reduction)



Rigid Steered Axle

Conventional

Deep Drop

maturity level ⟶ serial CAD model

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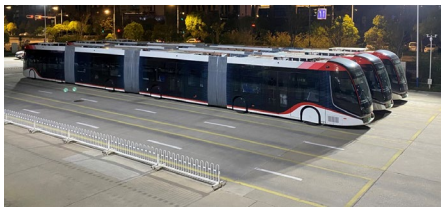
Specialist Expertise

BRIST brings sophisticated expertise from diverse vehicle applications worldwide, spanning commercial vehicles across a wide range of sizes, missions and operating environments.

Bus

Urban LCV

Specialty



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Engineering Excellence in Numbers

BRIST's engineering expertise is built on decades of field experience, rigorous validation and close collaboration with leading vehicle manufacturers.

10bn+ km

logged in the field over 20+ years

250k+ hrs

of in-house test & validation

6 months

whitepaper to on-vehicle prototype (1.5 yrs to market)

<0.5%

warranty claims cost to the revenue

87.5 out of 100

engineering & technology score in a global EV leader's assessment

20%+

of employees are R&D engineers

5

global certifications: IATF 16949, ISO 9001 / 14001 / 45001

Patented

T-Joint Carrier for IFS
Corner Drive Concept for CV

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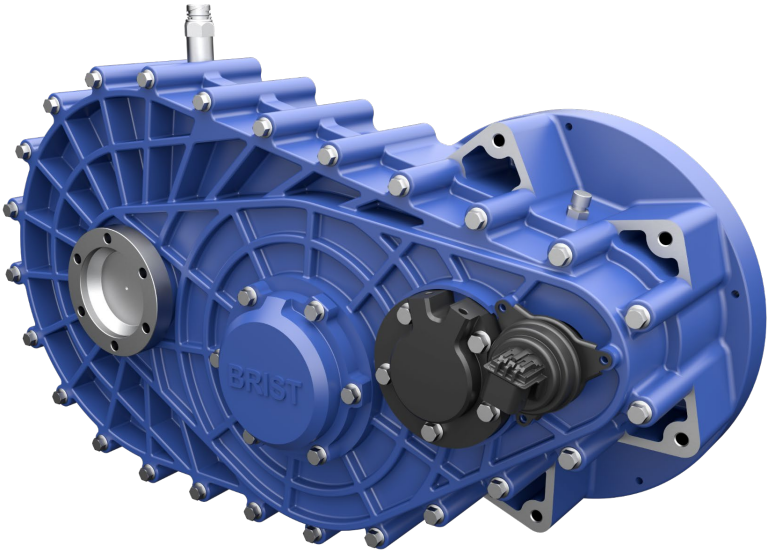
E-Axle • Electric Transmission

BRIST delivers cutting-edge electric transmission solutions, combining in-house expertise in gear design with superior performance, efficiency, and durability.

Engineered for seamless integration, BRIST transmissions offer customizable gear ratios and e-motor fittings, alongside a flexible technical and commercial approach for tailored solutions.

Building on our proven single-speed technology, we now introduce an advanced two-speed transmission with **SHIFT-ON-THE-FLY** technology—enabling smooth, dynamic gear shifts without stopping.

Experience the future of high-performance electric transmissions with BRIST—where innovation drives reliability.



SHIFT-ON-THE-FLY

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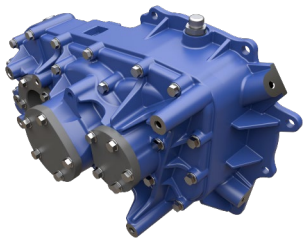
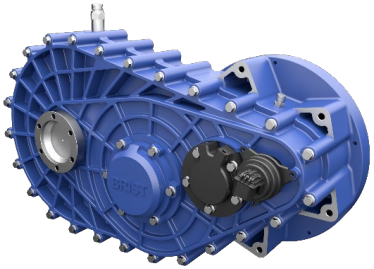
E-Axle • Electric Transmission





	SST 340	SST 580	MST 780
Peak Input Torque	340 Nm [250 ft-lbs]	580 Nm [430 ft-lbs]	780 Nm [575 ft-lbs]
Continuous Input Torque	150 Nm [111 ft-lbs]	370 Nm [270 ft-lbs]	520 Nm [384 ft-lbs]
Maximum Input Speed	12,000 rpm	12,000 rpm	12,000 rpm
Peak Power	125 kW	250 kW	370 kW
Continuous Power	75 kW	160 kW	250 kW
Transmission Weight	45 kg [99 lb]	60 kg [130 lb]	80 kg [175 lb]

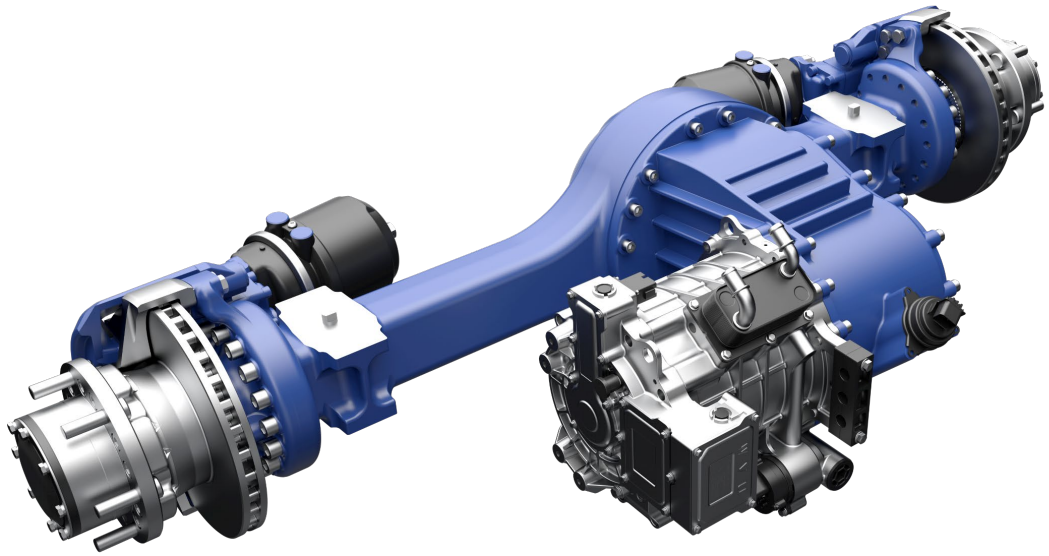
E-Axle • Central Drive

The BRIST Central Drive e-Axle redefines vehicle efficiency with its high-performance, lightweight, and compact design, offering manufacturers an advanced solution for optimizing power, range, and sustainability.

1. **Compact Design |** Space saving through integrated e-Axle concept providing wide central area for more battery backs to increase vehicle efficiency

2. **Optionally Single Speed or Two-speed |** Coupling with BRIST SST and MST alternatives with various ratio options.

3. **Top Performance |** Integration of high performance 800VDC hairpin winding motors



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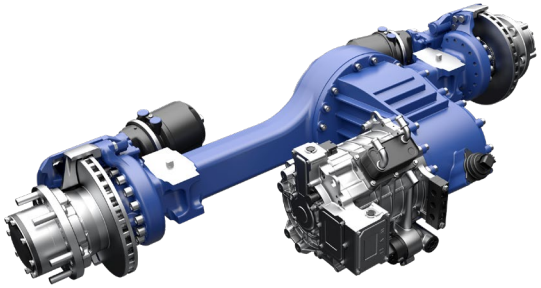
E-Axle • Central Drive



	eCEN175 LE	eCEN195 LE
Suitable GVW Range	8 to 11 t [17,000 to 24,000 lbs]	11 to 16 t [24,000 to 36,000 lbs]
Axle Load Capacity	7,500 kgf [16,500 lb]	11,000 kgf [24,500 lb]
Peak Output Torque	up to 11,500 Nm [8,600 ft-lbs]	up to 20,000 Nm [15,000 ft-lbs]
Cont. Output Torque	up to 6,500 Nm [4,800 ft-lbs]	up to 13,000 Nm [9,600 ft-lbs]
Peak Power	up to 250 kW	up to 370 kW
Cont. Power	up to 160 kW	up to 250 kW
System Weight[1]	450 kg [990 lb]	500 kg [1,100 lb]
Wheel Size	17.5”	19.5”

[1] Including electric motors (which may also vary upon customer specifications)

E-Axle • Corner Drive

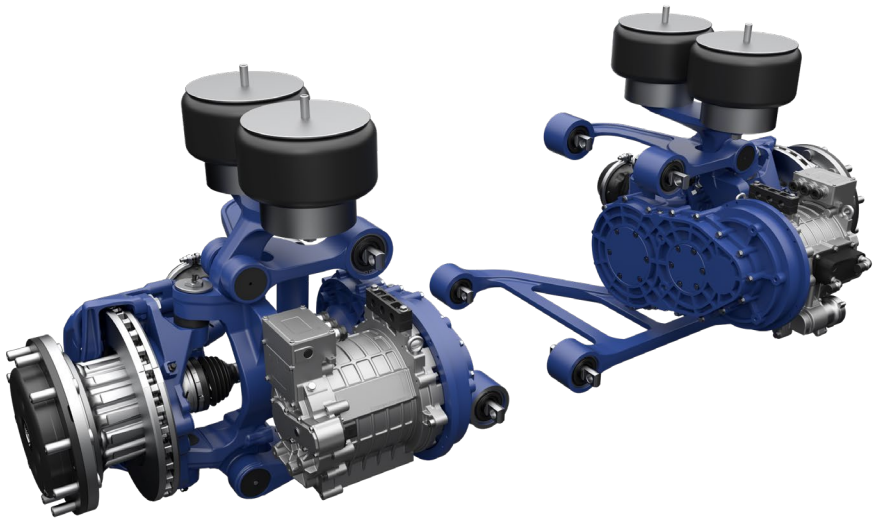
BRIST eCOR is a "Game Changer" eAxle providing powerful means to OEMs for impactful differentiation in an increasingly competitive market.

1. **Significant Weight Saving |** ~300 kg [660 lb] saving in system weight, ~700 kg [1,550 lb] saving in unsprung mass

2. **Better Thermal Management |** Large and ventilated arear reserved for e-Drive unit; bearings are saved from overheating in hot oil environment

3. **Improved Vehicle Layout |** Fully flat wide floor, space saving for batteries - improved modularity

4. **Simplified Maintenance |** Individual access to axle, motor and gears; keeping traditional way of servicing an axle



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E-Axle • Corner Drive

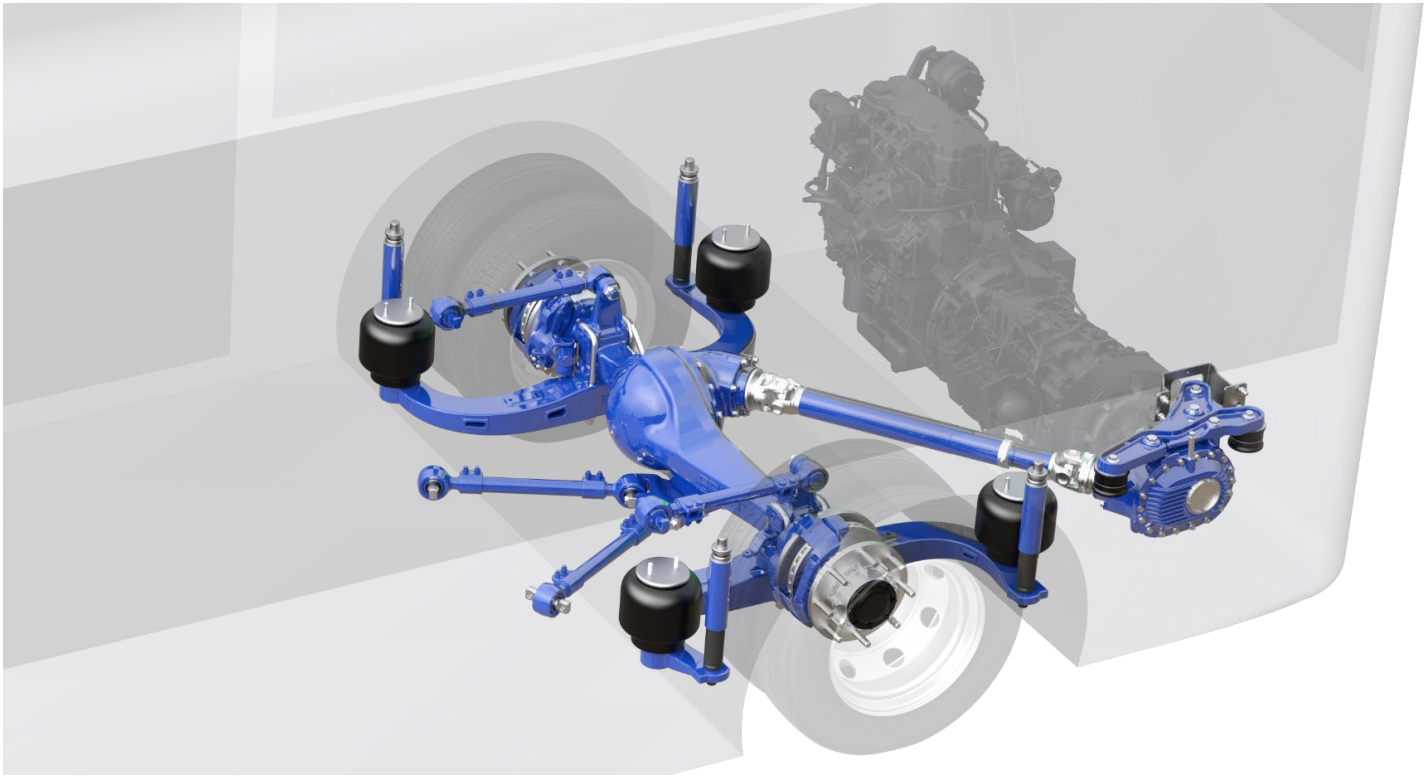
	eCOR225 LF
Axle Load Capacity	12,000 kgf [26,500 lb]
Peak Output Torque	up to 34,000 Nm [25,080 ft-lbs]
Continuous Output Torque	up to 22,000 Nm [16,226 ft-lbs]
Peak Power	up to 740 kW
Continuous Power	up to 500 kW
System Weight[1]	**950 kg** [2,093 lb]
Wheel Size	22.5”

[1] Including electric motors and inverters (which may also vary upon customer specifications)

Rear Drive Axle • Z-Drive

The BRIST Z-Drive Axle features a unique configuration designed specifically for buses with a transversal engine layout. This innovation offers several key benefits:

1. **Optimized Seat Configuration** | By accommodating the unique design, the Z-Drive allows for more efficient seating layouts within the bus.
2. **Reduced Rear Overhang** | The shortened rear overhang optimizes the weight distribution of the bus, enhancing overall performance and handling.
3. **Integrated Angle Drive Unit** | Supplied with its Angle Drive Unit at the same input flange angle of **35°**, the design ensures seamless integration and efficiency.



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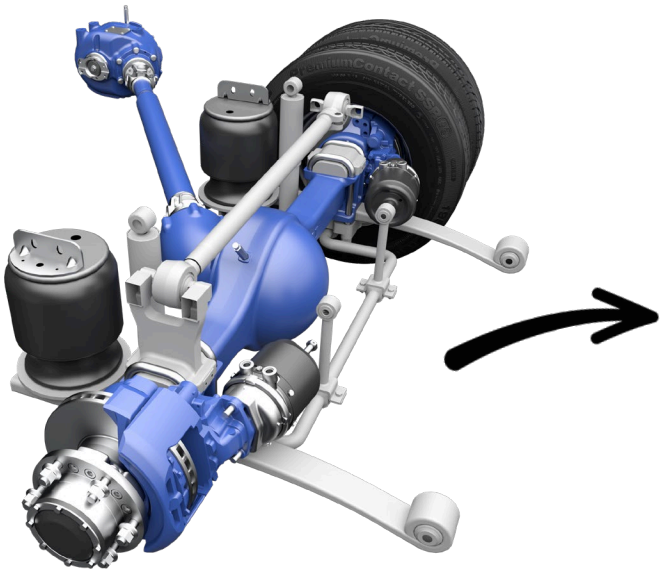
Rear Drive Axle • Z-Drive

Key Specifications

PRODUCT	LOAD CAPACITY	GEAR RATIO	AXLE WEIGHT[1]	WHEEL SIZE
RDA 65-175/A35	6,500 kgf [14,300 lb]	4.45:1 or 3.85:1	370 kg [816 lb]	17.5 ”
RDA 112-195/A35	11,200 kgf [25,000 lb]	5.5:1	556 kg [1,226 lb]	19.5"



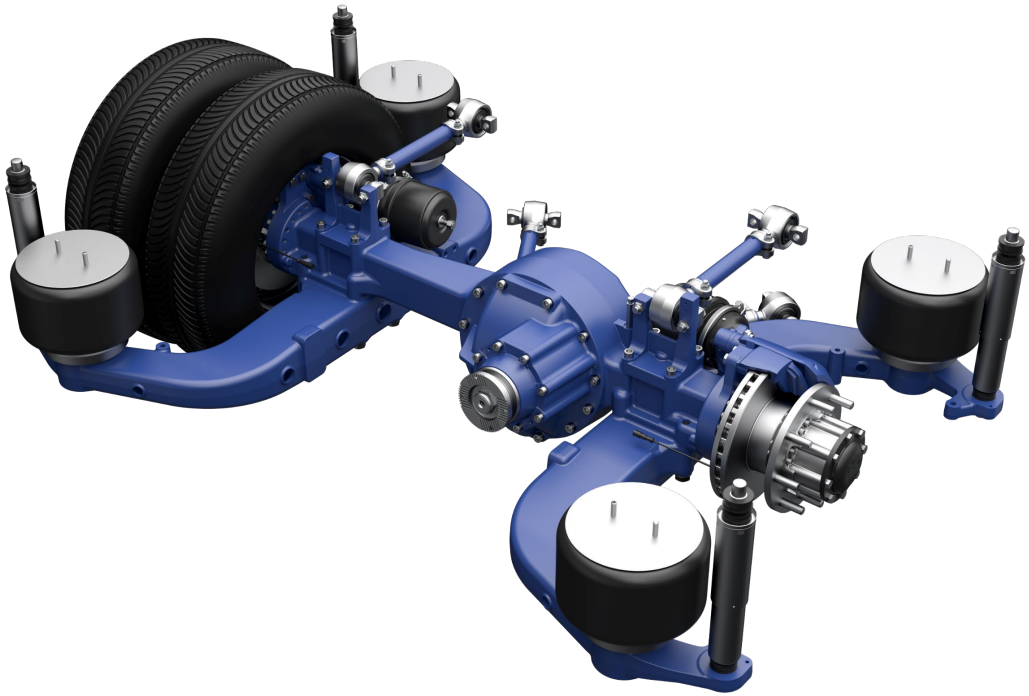
Suspension options available as 4× air bellows or 2× air bellows combined with leaf spring

[1] excluding oil ,and loose suspension elements being out of basic scope of supply, which can vary upon customer specifications.

Rear Drive Axle • T-Drive

The BRIST RDA T-Drive Axles are versatile and designed to accommodate buses with both rear and front engine configurations. Key features are as follows:

1. **EV-Dedicated Differential Carrier |** Offering higher regeneration torque, optimized gear mesh and higher drive torque, while securing improved product life with stronger gears and bigger bearings.
2. **Optional Fully Dressed Configuration |** Equipped with suspension kit; including suspension arms, air springs and dampers.



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Rear Drive Axle • T-Drive

Key Specifications

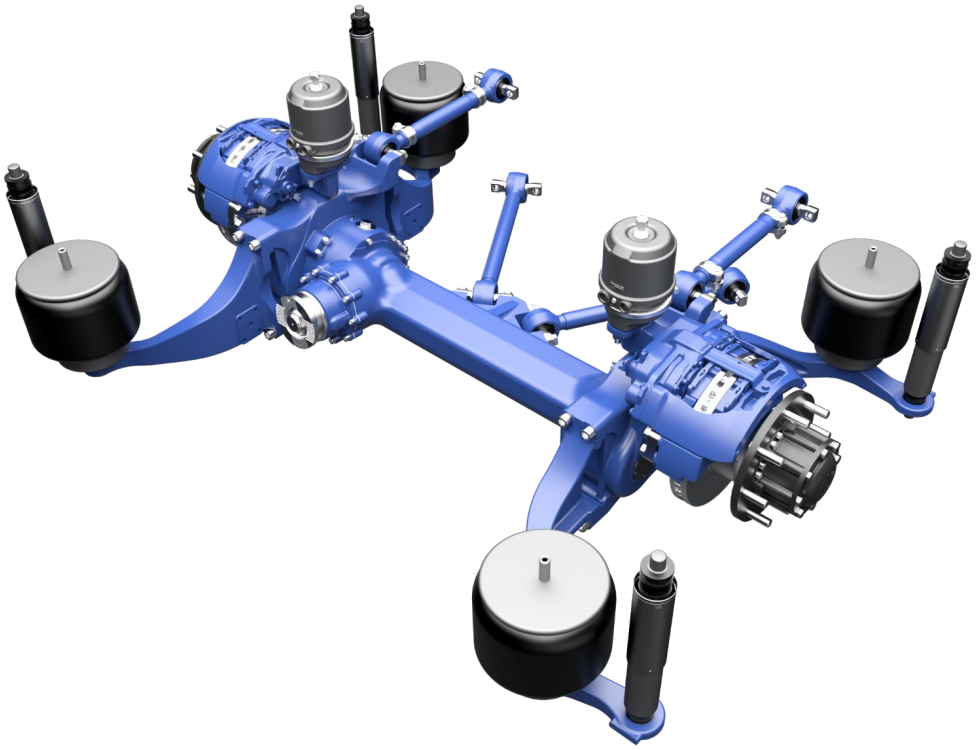
PRODUCT	LOAD CAPACITY	GEAR RATIO	AXLE WEIGHT[1]	WHEEL SIZE
RDA 65-175/A90	6,500 kgf [14,300 lb]	5.13:1	375 kg [827 lb]	17.5”
RDA 112-195/A90	11,200 kgf [25,000 lb]	5.5:1	561 kg [1,237 lb]	19.5"

[1] excluding oil ,and loose items out of basic scope of supply, which can vary upon customer specifications.

Rear Drive Axle • Inverted Portal

The BRIST Inverted Portal Axle (BRA) is specifically engineered for mid-size low-floor buses, delivering exceptional functionality and design benefits:

1. **Compact and Lightweight |** A smaller height profile and reduced system weight provide efficiency without compromising performance.
2. **Maximum Corridor Width |** Optimized design allows for increased passenger space and accessibility.
3. **Higher Ground Clearance |** Achieved with radial brakes, ensuring smoother operations on diverse terrains.



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Rear Drive Axle • Inverted Portal

Key Specifications

PRODUCT	LOAD CAPACITY	GEAR RATIO	AXLE WEIGHT[1]	INPUT ANGLE	WHEEL SIZE
BRA104-195 DC/A75	10,400 kgf [23,000 lb]	4.86:1	**602 kg** [1,327 lb]	75° / 80° / 90°	19.5”

[1] excluding oil.

Independent Suspension • Non-Drive

Independent suspension is at the core of BRIST's expertise. With over 20 years of proven experience and a portfolio of global patents, BRIST offers a comprehensive range of independent suspensions for both drive and non-drive applications.

As one of the few companies globally offering a complete range of Independent Front Suspensions (IFS) with designs specifically optimized for rim sizes 16.0″, 17.5″, 19.5″, and 22.5″, BRIST is known for establishing strong industry standards.

Independent front suspension is a leading-edge technology, increasingly favored by buses and, more recently, electric trucks. Compared to traditional rigid front suspension systems, IFS provides improved roll stability, enhanced ride comfort and handling, reduced weight, and a wider aisle corridor, making it the optimal choice for modern vehicle designs.

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Independent Suspension • Non-Drive

Key Specifications

PRODUCT	LOAD CAPACITY	STEERING	AXLE WEIGHT[1]	WHEEL SIZE
IDS BJ 30-160	3,000 kgf [6,700 lb]	53°	100 kg [220.5 lb]	16.0”
IFS TJC 45-175	4,500 kgf [10,000 lb]	54°°	278 kg [613 lb]	17.5"
IFS TJC 60-195	6,000 kgf [13,300 lb]	55°	380 kg [838 lb]	19.5"
IFS TJ 58-225	5,800 kgf [12,800 lb]	55°	469 kg [1,034 lb]	22.5"
IFS TJC 90-225	9,000 kgf [20,000 lb]	55°	460 kg [1,014 lb]	22.5"
IS TJC 120-225	12,000 kgf [26,500 lb]	upon request	572 kg [1,261 lb]	22.5"

[1] excluding loose items being out of basic scope of supply, which can vary upon customer specifications.

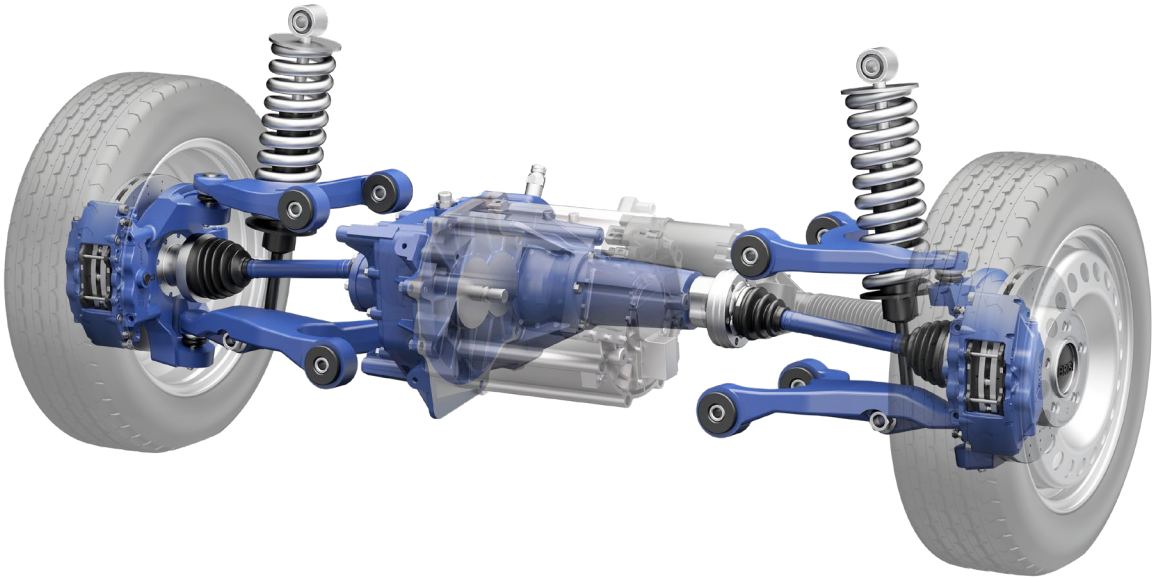
Independent Suspension • Drive

BRIST Independent Drive Suspension removes the vehicle design constraints of internal combustion engine (ICE).

1. **Optional All-Wheel Steering |** For excellent maneuverability, even with a long wheelbase, with a short rear overhang.

2. **Perfect fit for Autonomous Drive |** Enabled bi-directional movement which is making it a perfect fit for autonomous drive missions, or trackless tram applications.

3. **Enabled Front Drive & Spacious Cargo Area |** BRIST enables driving from the front through its advanced steerable drive axles. This innovative design leaves the rear area free for a wide and spacious cargo zone



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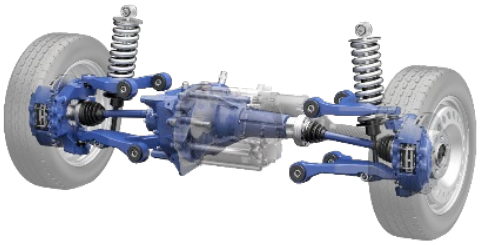
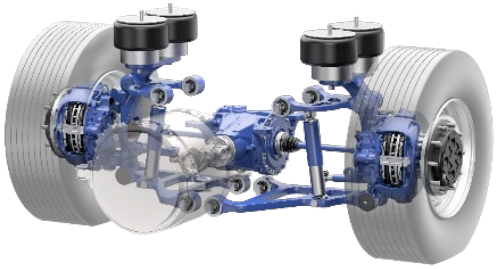
Independent Suspension • Drive





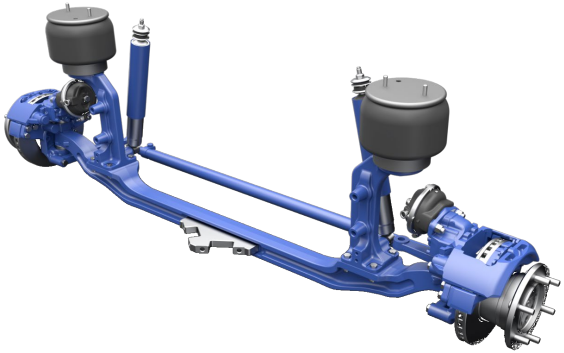
	IDS CEN160	IDS CEN175	IDS CEN225
Axle Load Capacity	3,000 kgf [6,700 lb]	4,500 kgf [10,000 lb]	12,000 kgf [26,500 lb]
Typical Vehicle Length	4-6 m [13-20 ft]	6-8 m [20-26 ft]	18-32 m [59-105 ft]
Steering Option	up to 45°	up to 47°	up to 25°
System Weight[1]	210 kg [463 lb]	435 kg [959 lb]	940 kg [2,072 lb]
Wheel Size	16.0”	17.5”	22.5”

[1] Including electric motors and inverters (which may also vary upon customer specifications)

Rigid Front Suspension • Conventional & Deep Drop

BRIST offers two types of rigid front suspension: **i) conventional** and **ii) deep drop**. The deep drop type provides a flat floor at the front, perfect for low-floor vehicles, while the conventional type works well for standard designs.

With over 20 years of proven performance, BRIST's rigid front suspensions are known for their reliability. The Company has become a trusted choice for customers worldwide, delivering high-quality solutions for various vehicle needs.



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Rigid Front Suspension • Conventional & Deep Drop

Key Specifications

PRODUCT	LOAD CAPACITY	VEHICLE WIDTH	STEERING	AXLE WEIGHT[1]	WHEEL SIZE
RFS 45-175 conventional	4,500 kgf [10,000 lb]	2,050 - 2,300 mm [80.7” – 90.6”]	50°	212 kg [467 lb]	17.5″
RDD 45-175 deep drop	4,500 kgf [10,000 lb]	2,350 - 2,400 mm [92.5” – 94.4”]	53°	255 kg [562 lb]	17.5″
RFS 60-195 conventional	6,000 kgf [13,300 lb]	2,300 - 2,400 mm [90.5” - 94.5”]	50°	303 kg [668 lb]	19.5"
RDD 60-195 deep drop	6,000 kgf [13,300 lb]	2,400 - 2,450 mm [94.4” - 96.5”]	53°	320 kg [705 lb]	19.5"

[1] excluding loose items being out of basic scope of supply, which can vary upon customer specifications.

Your competitive edge

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Montichiari, Brescia | Italy

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