

## TRANSAXLE DRIVE SYSTEMS

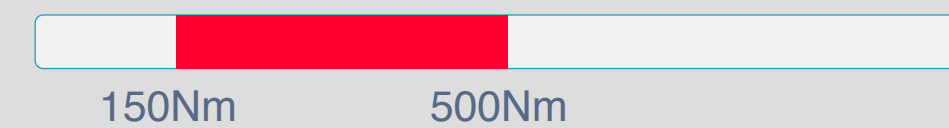
TX1 Serie is an electric drive transaxle for battery operated vehicles. These units includes a complete package comprised of electric motor, differential gearbox, rigid drive axle and braking system.

The modular system includes different type of motors, gear ratios, track-widths, wheel hubs, differential lock, mounting options, parking and service brakes.

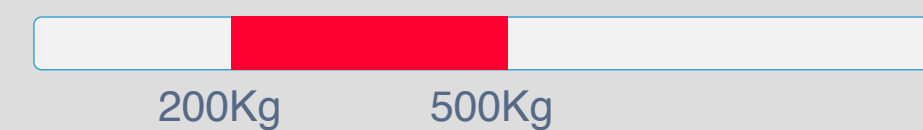
TX1 Serie is the next generation transmissions developed for eMobility market.

### OPERATION RANGE

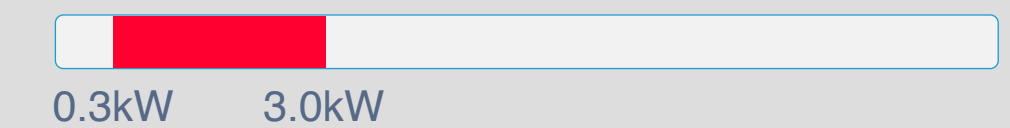
#### Output Torque



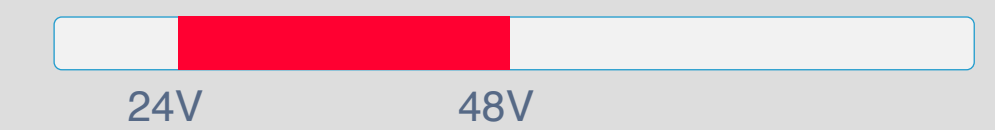
#### Payload



#### Power



#### Tension





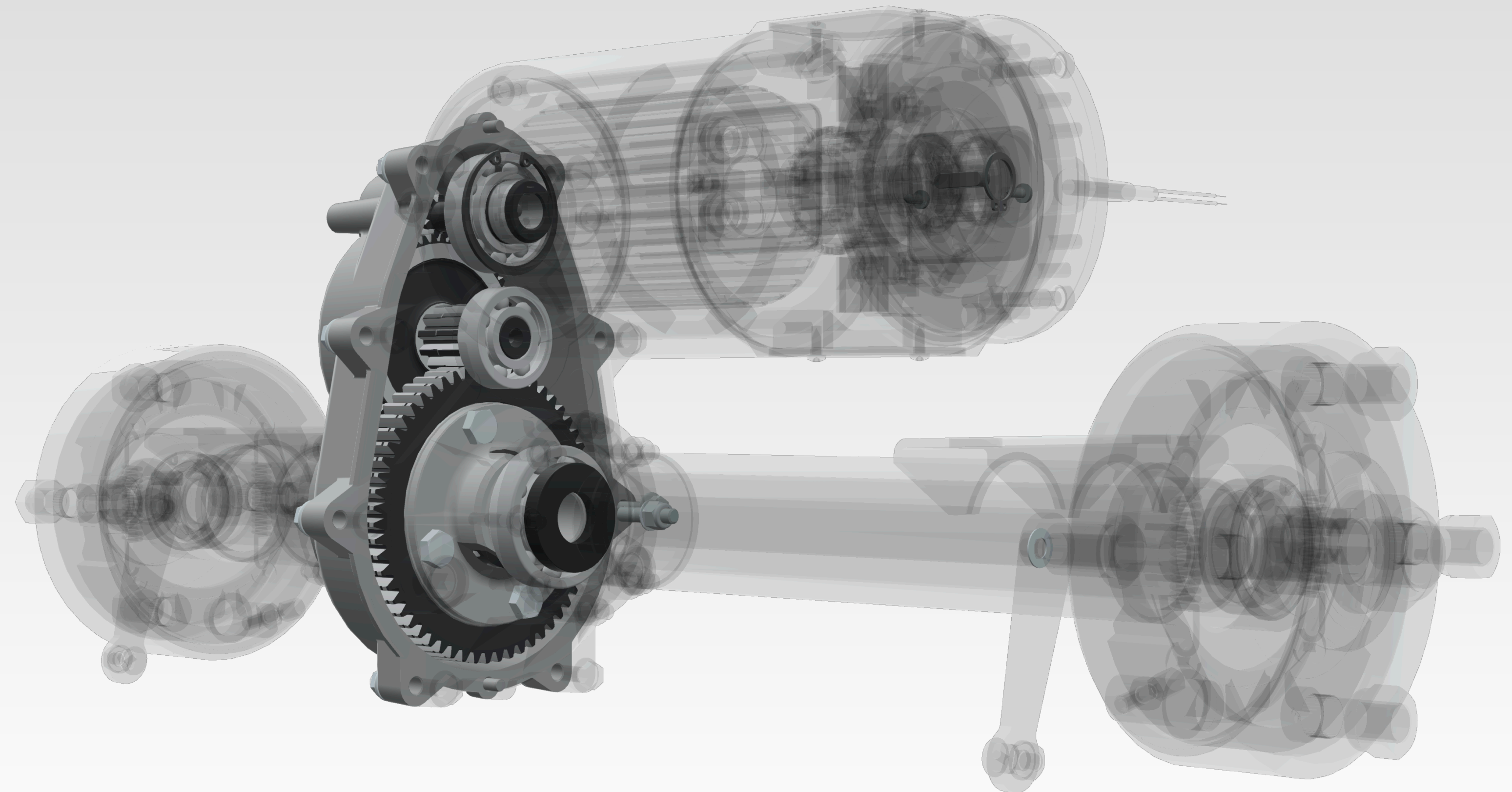
## A LOOK INSIDE

Some products can look similar externally but they hide substantial differences within them.

As we consider TX1 one of the best products in the market we are not scared to get naked it.

Reducer boxes, in durable and light alloy, retain high construction technology inside. Gears with ground profiles (Class 5) supported by **SKF** bearings guarantee high mechanical efficiencies close to 95%.

Lubricant oil, studied together with **Mobil 1**™ allows TX1 to be used even at extreme temperatures while maintaining its effectiveness.





## OUR TECHNOLOGIES FOR YOUR MOBILITY



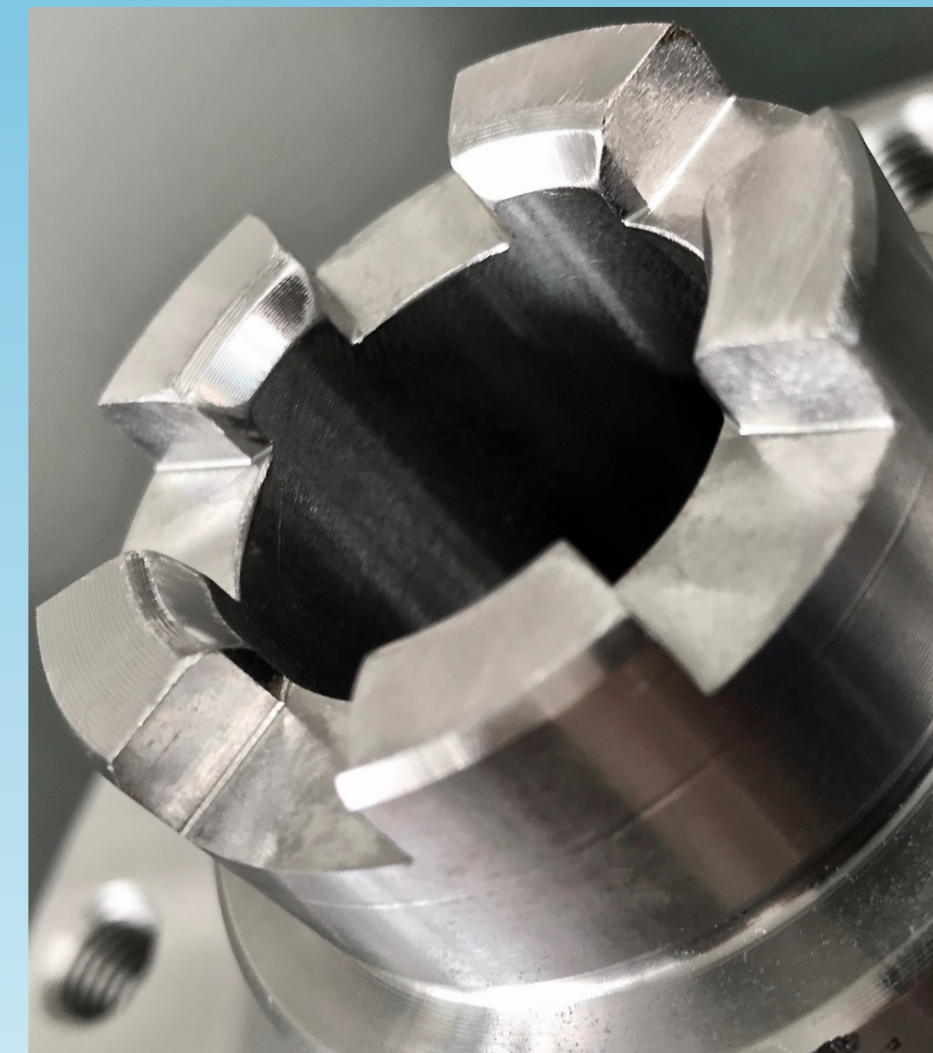
### CONSTANT DEVELOPMENT

A CONSTANT RESEARCH ON MATERIALS AND CONSTRUCTION TECHNIQUES IS BEHIND THE SUCCESS OF TX1 SERIE



### HIGH EFFICIENCY

IN OUR ELECTRIC TRANSMISSIONS YOU WILL FIND KNOW-HOW ACQUIRED IN BUILDING GEARS FOR OVER FIFTY YEARS



### DIFFERENTIAL LOCK

ALL OUR TRANSMISSIONS CAN BE EQUIPPED WITH DIFFERENTIAL LOCK MECHANISM ACTUATED MANUALLY OR ELECTRICALLY

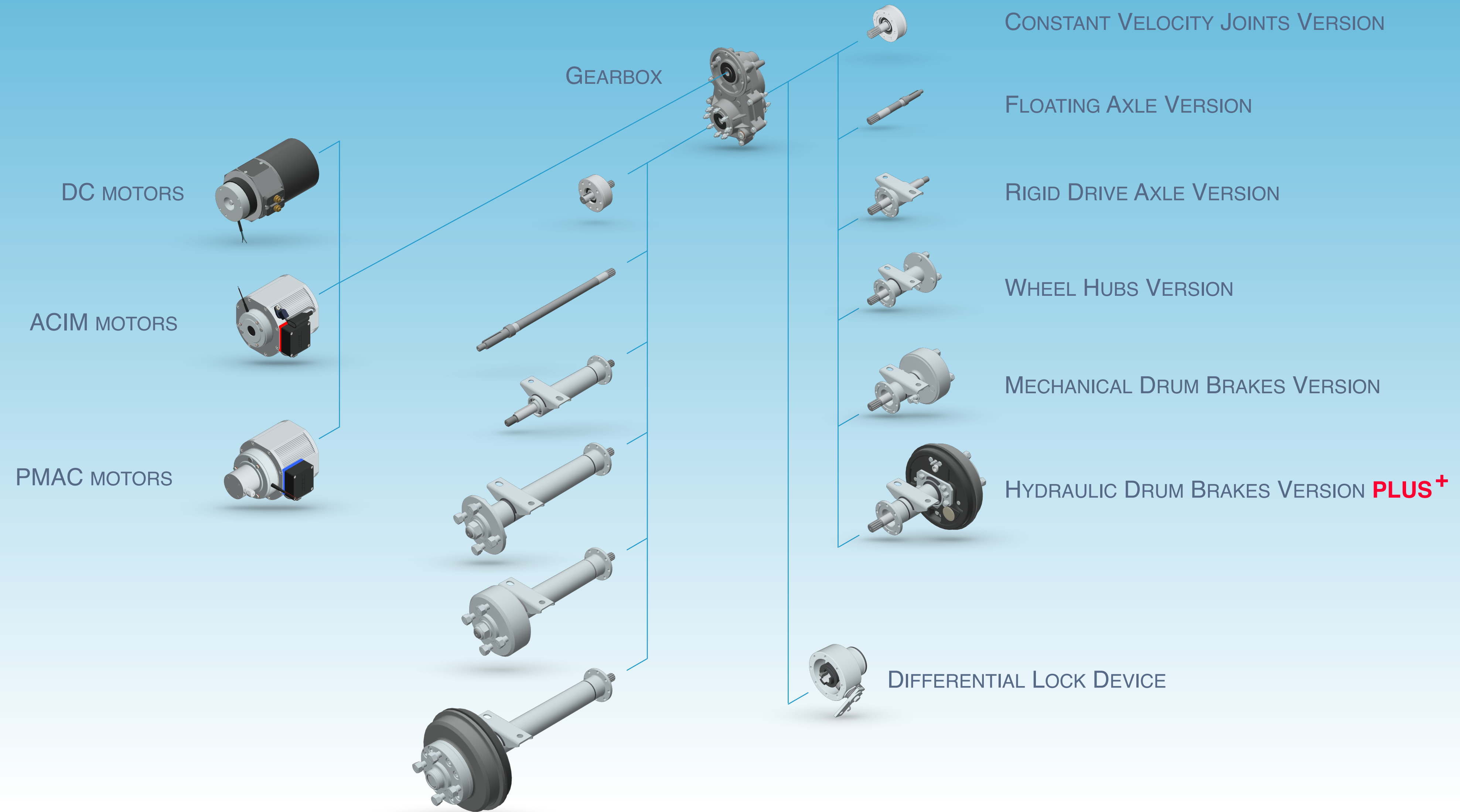


### ENERGY SAVING

OUR MOTORS MAKES A SIGNIFICANT CONTRIBUTION TO SAVING CURRENT AND EXTENDS RUNNING TIME AUTONOMY

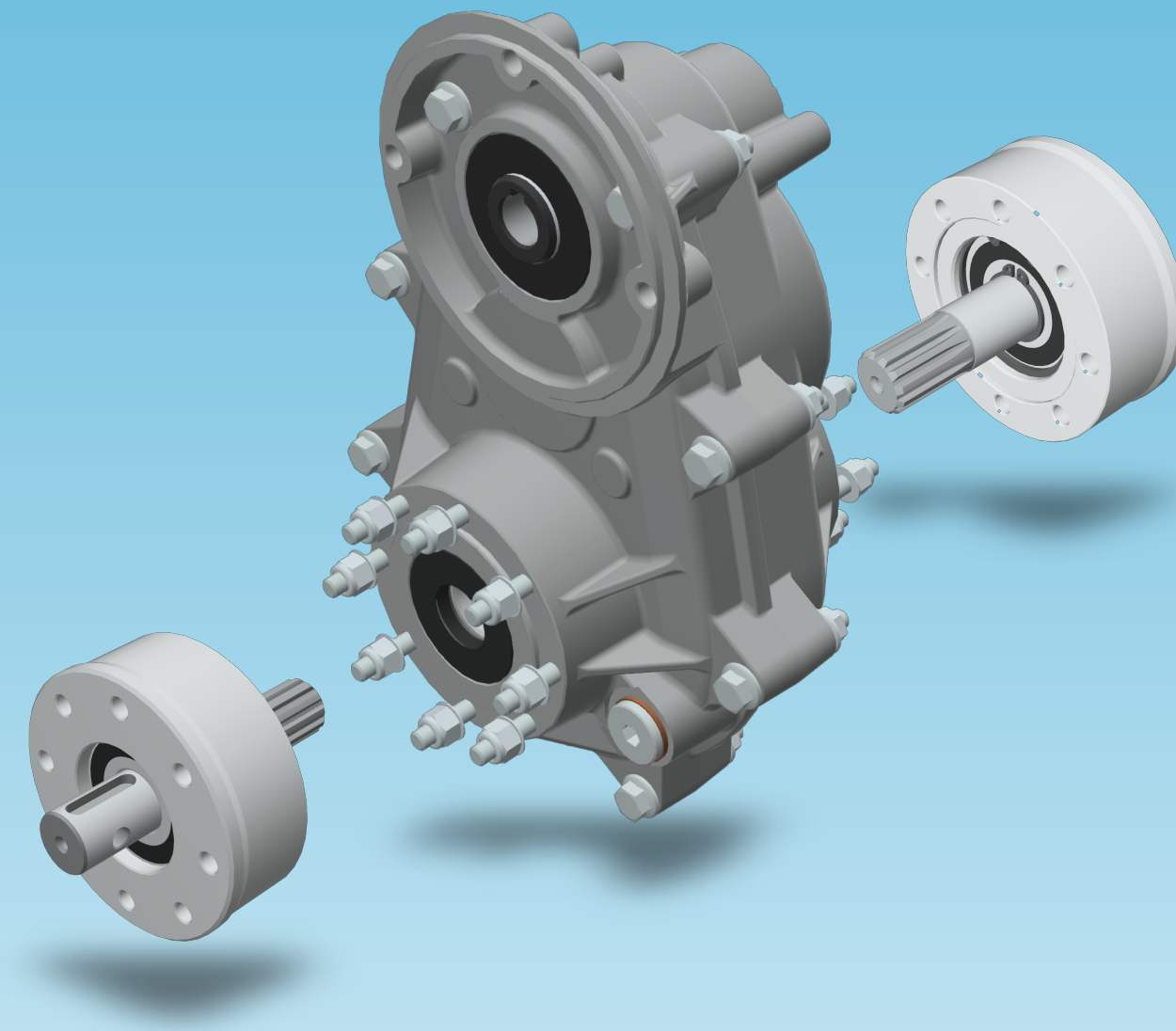


# TX1 SERIE - MODULAR DRIVE SYSTEM





# TX1 SERIE - CONSTANT VELOCITY JOINT VERSION



## TECHNICAL FEATURES

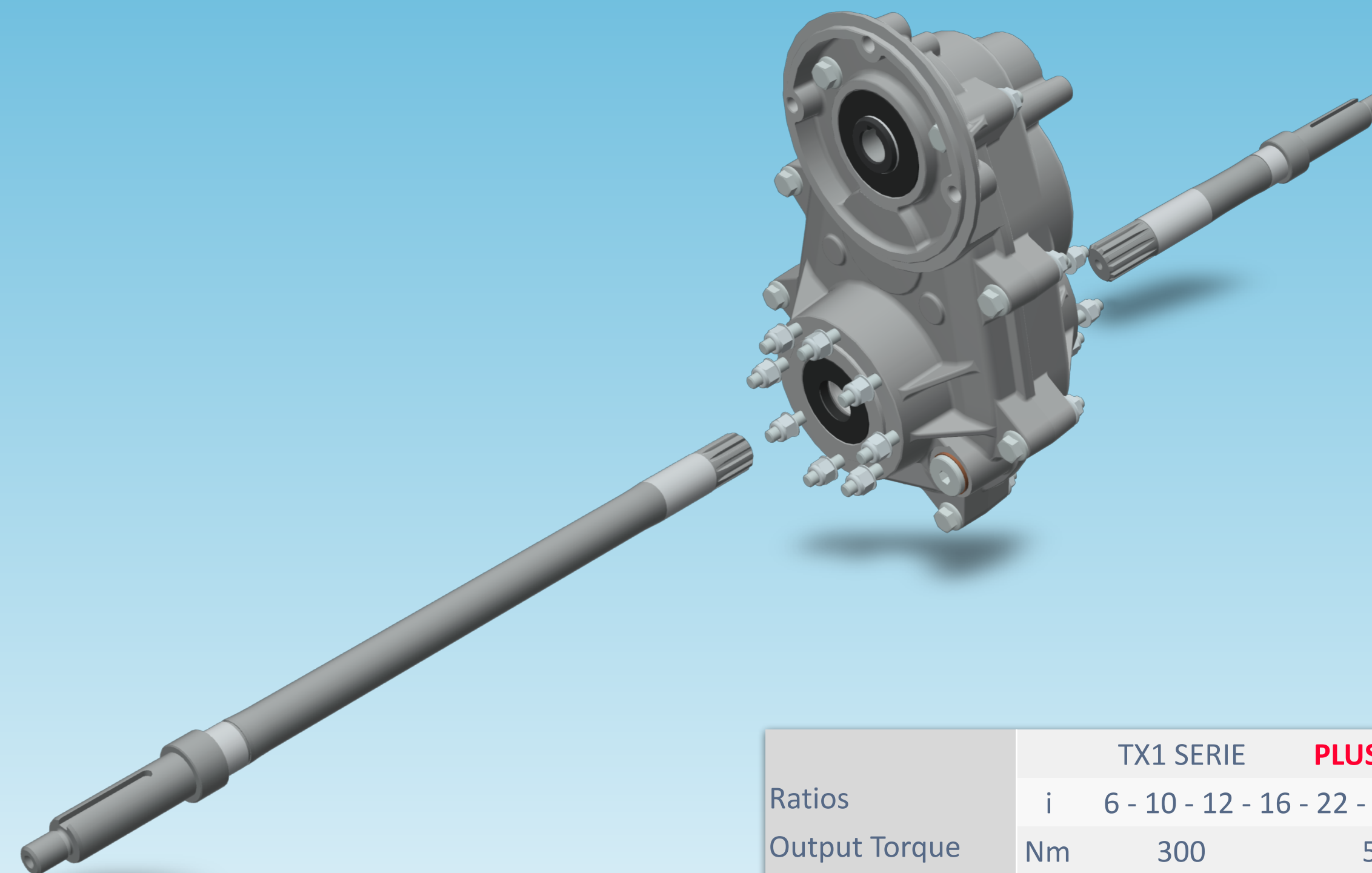
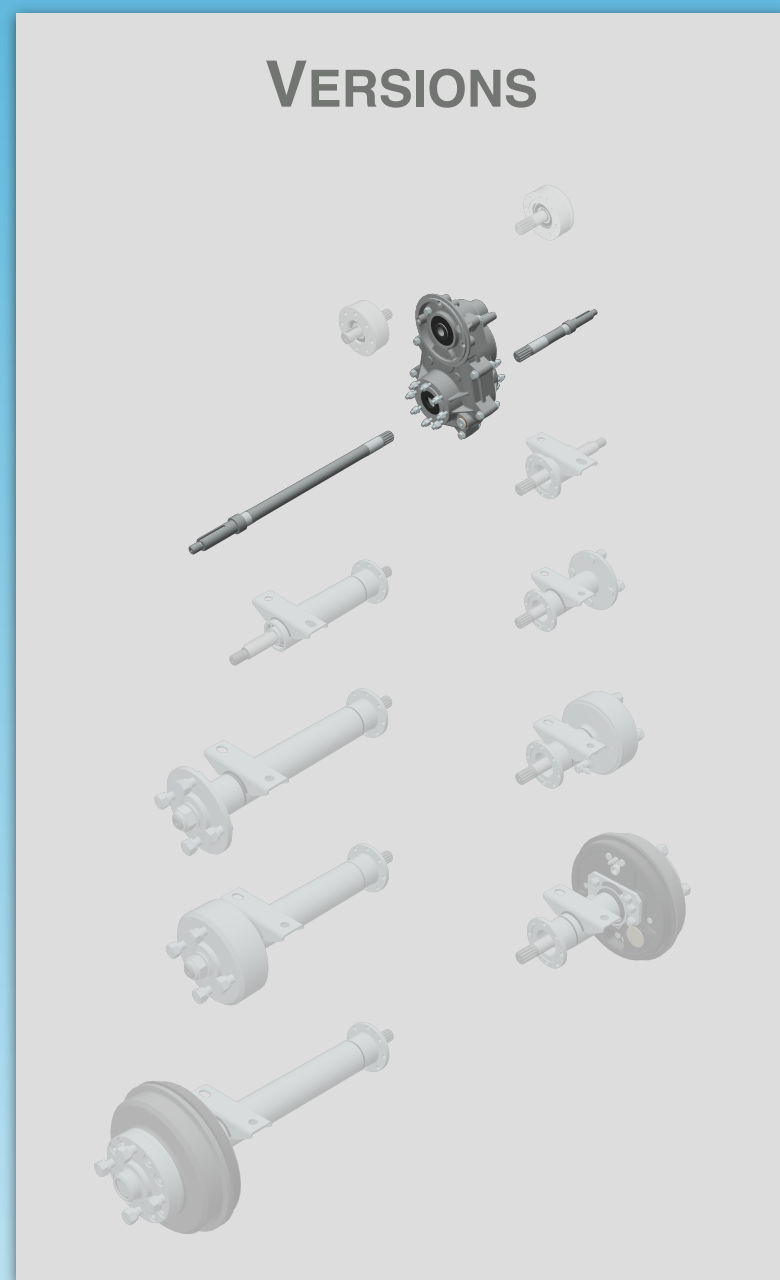
		TX1 SERIE	PLUS SERIE
Ratios	i	6 - 10 - 12 - 16 - 22 - 24 - 32	
Output Torque	Nm	300	500
Input Speed (Max)	rpm	3.500	7.200
Static Load	kg	300	500
Track Width	mm		-
Gearbox Finishing		Ground Gears	
Efficiency	%	95	
Lubrication		Synthetic Oil 75W90	
Differential Lock		Optional	

		TX1 SERIE	PLUS SERIE
Motor Type		DC - ACIM	ACIM - PMAC
Rated Power	kW	0,3 ÷ 1,7	0,6 ÷ 3,0
Rated Voltage	V	24 ÷ 48	24 ÷ 80
Insulation Class		F (155°)	
IEC 60529	IP	20 ÷ 66	
Service Braking		-	
Parking Braking		Electromagnetic - Nm 6 ÷ 20	
Manual Release		Optional	
Increm. Encoder		Optional	





# TX1 SERIE - FLOATING AXLES VERSION



## TECHNICAL FEATURES

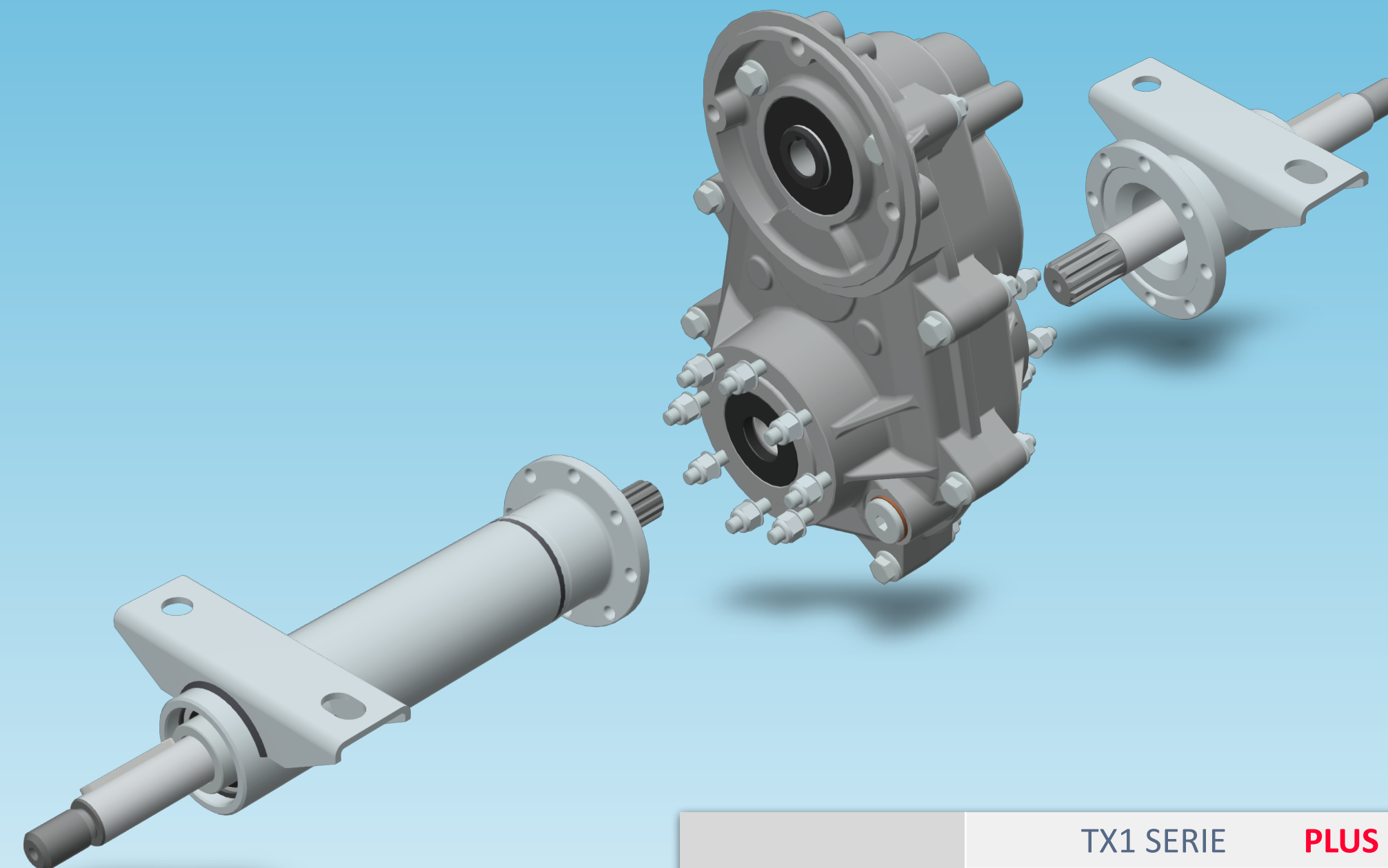
		TX1 SERIE	PLUS SERIE
Ratios	i	6 - 10 - 12 - 16 - 22 - 24 - 32	
Output Torque	Nm	300	500
Input Speed (Max)	rpm	3.500	7.200
Static Load	Kg	-	
Track Width	mm	400 ÷ 1.150	
Gearbox Finishing		Ground Gears	
Efficiency	%	95	
Lubrication		Synthetic Oil 75W90	
Differential Lock		Optional	

		TX1 SERIE	PLUS SERIE
Motor Type		DC - ACIM	ACIM - PMAC
Rated Power	kW	0,3 ÷ 1,7	0,6 ÷ 3,0
Rated Voltage	V	24 ÷ 48	24 ÷ 80
Insulation Class		F (155°)	
IEC 60529	IP	20 ÷ 66	
Service Braking		-	
Parking Braking		Electromagnetic - Nm 6 ÷ 20	
Manual Release		Optional	
Increm. Encoder		Optional	





# TX1 SERIE - RIGID DRIVE AXLES VERSION



## TECHNICAL FEATURES

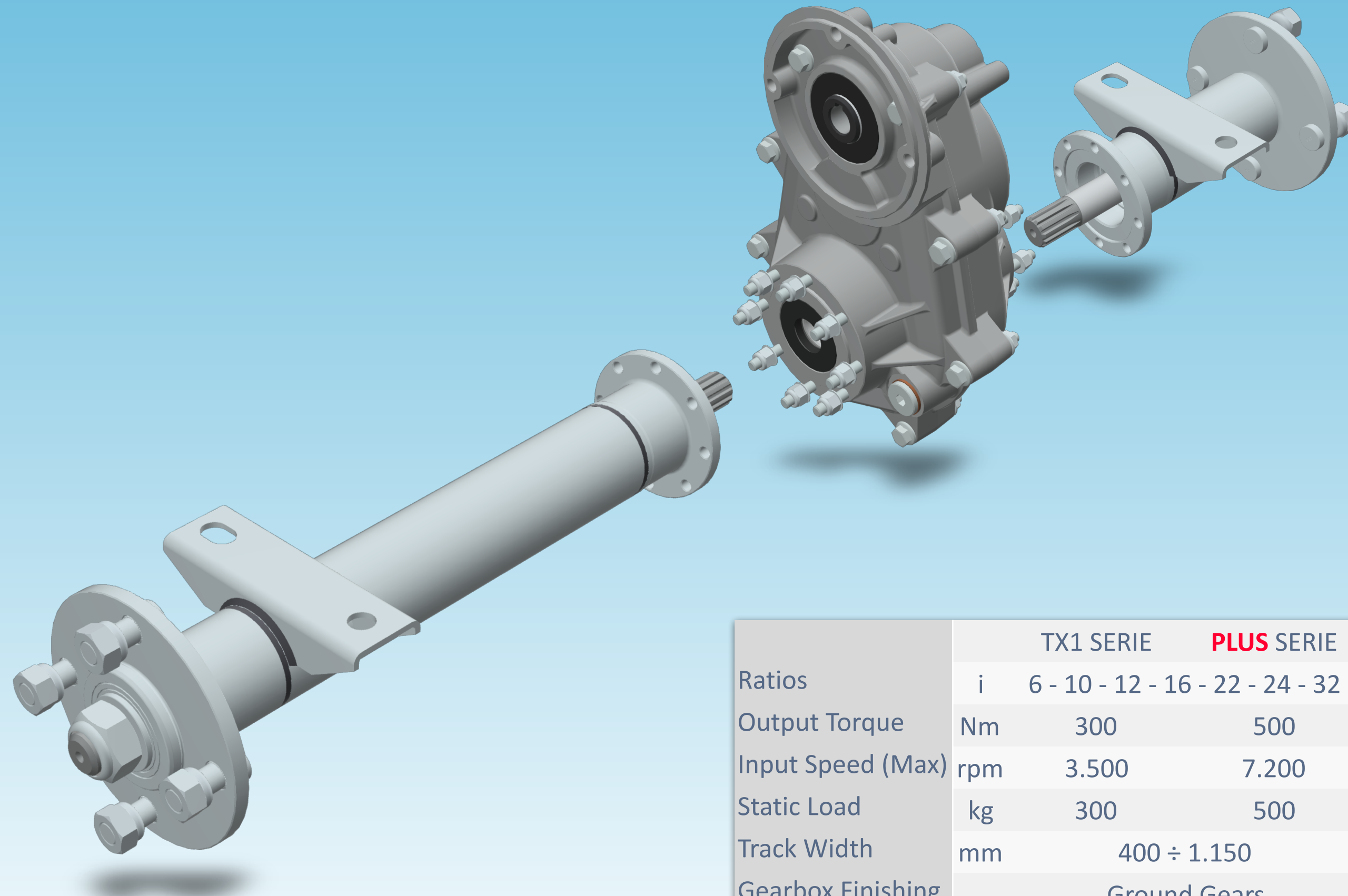
		TX1 SERIE	<b>PLUS</b> SERIE
Ratios	i	6 - 10 - 12 - 16 - 22 - 24 - 32	
Output Torque	Nm	300	500
Input Speed (Max)	rpm	3.500	7.200
Static Load	kg	300	500
Track Width	mm	400 ÷ 1.150	
Gearbox Finishing		Ground Gears	
Efficiency	%	95	
Lubrication		Synthetic Oil 75W90	
Differential Lock		Optional	

		TX1 SERIE	<b>PLUS</b> SERIE
Motor Type		DC - ACIM	ACIM - PMAC
Rated Power	kW	0,3 ÷ 1,7	0,6 ÷ 3,0
Rated Voltage	V	24 ÷ 48	24 ÷ 80
Insulation Class		F (155°)	
IEC 60529	IP	20 ÷ 66	
Service Braking		-	
Parking Braking		Electromagnetic - Nm 6 ÷ 20	
Manual Release		Optional	
Increm. Encoder		Optional	





# TX1 SERIE - WHEEL HUBS BRAKES VERSION



## TECHNICAL FEATURES

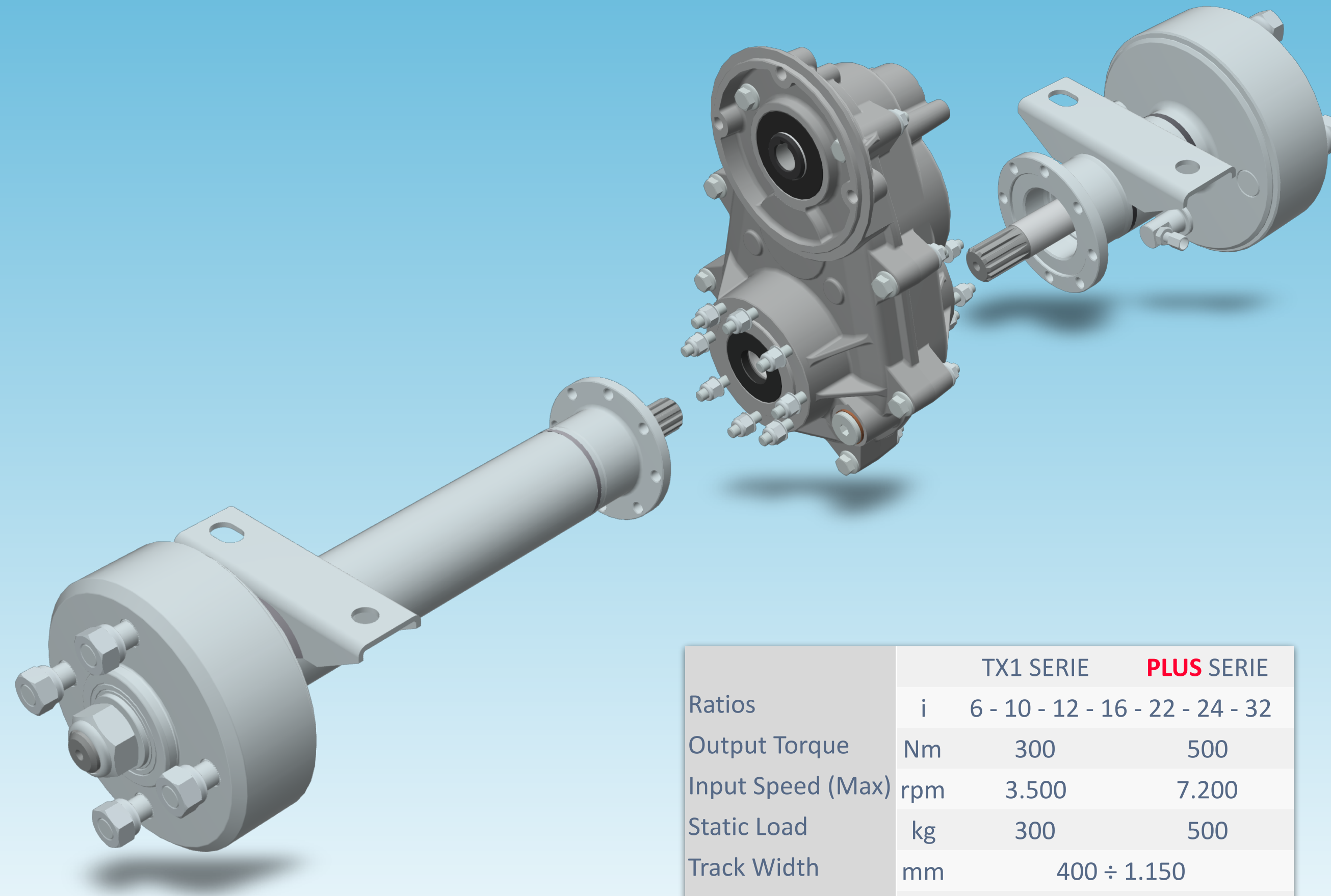
		TX1 SERIE	PLUS SERIE
Ratios	i	6 - 10 - 12 - 16 - 22 - 24 - 32	
Output Torque	Nm	300	500
Input Speed (Max)	rpm	3.500	7.200
Static Load	kg	300	500
Track Width	mm	400 ÷ 1.150	
Gearbox Finishing		Ground Gears	
Efficiency	%	95	
Lubrication		Synthetic Oil 75W90	
Differential Lock		Optional	

		TX1 SERIE	PLUS SERIE
Motor Type		DC - ACIM	ACIM - PMAC
Rated Power	kW	0,3 ÷ 1,7	0,6 ÷ 3,0
Rated Voltage	V	24 ÷ 48	24 ÷ 80
Insulation Class		F (155°)	
IEC 60529	IP	20 ÷ 66	
Service Braking		-	
Parking Braking		Electromagnetic - Nm 6 ÷ 20	
Manual Release		Optional	
Increm. Encoder		Optional	





# TX1 SERIE - MECHANICAL DRUM BRAKES VERSION



## TECHNICAL FEATURES

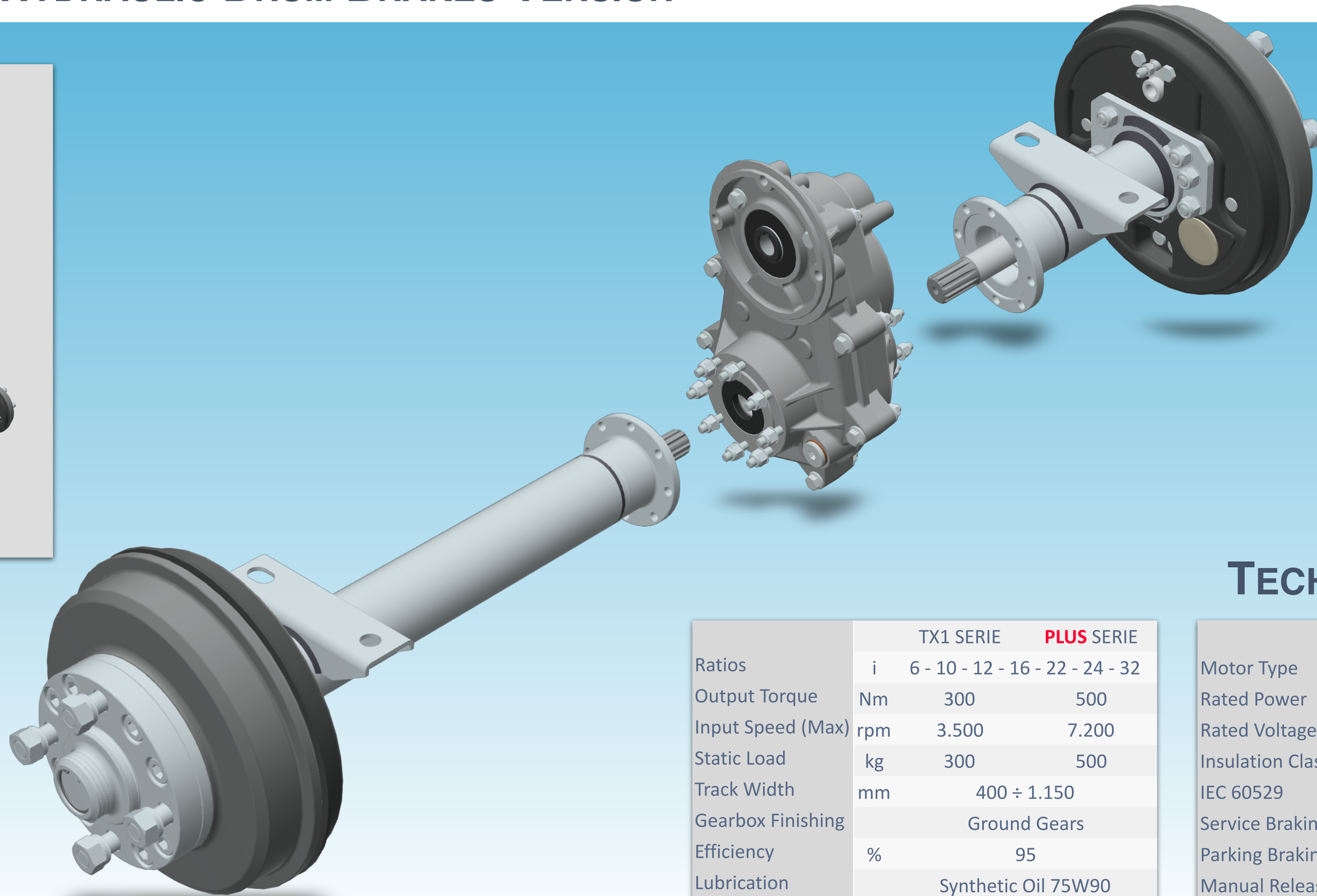
		TX1 SERIE	PLUS SERIE
Ratios	i	6 - 10 - 12 - 16 - 22 - 24 - 32	
Output Torque	Nm	300	500
Input Speed (Max)	rpm	3.500	7.200
Static Load	kg	300	500
Track Width	mm	400 ÷ 1.150	
Gearbox Finishing		Ground Gears	
Efficiency	%	95	
Lubrication		Synthetic Oil 75W90	
Differential Lock		Optional	

		TX1 SERIE	PLUS SERIE
Motor Type		DC - ACIM	ACIM - PMAC
Rated Power	kW	0,3 ÷ 1,7	0,6 ÷ 3,0
Rated Voltage	V	24 ÷ 48	24 ÷ 80
Insulation Class		F (155°)	
IEC 60529	IP	20 ÷ 66	
Service Braking		Mechanical - Nm 1.200	
Parking Braking		Electromagnetic - Nm 6 ÷ 20	
Manual Release		Optional	
Increm. Encoder		Optional	





# TX1 SERIE - HYDRAULIC DRUM BRAKES VERSION



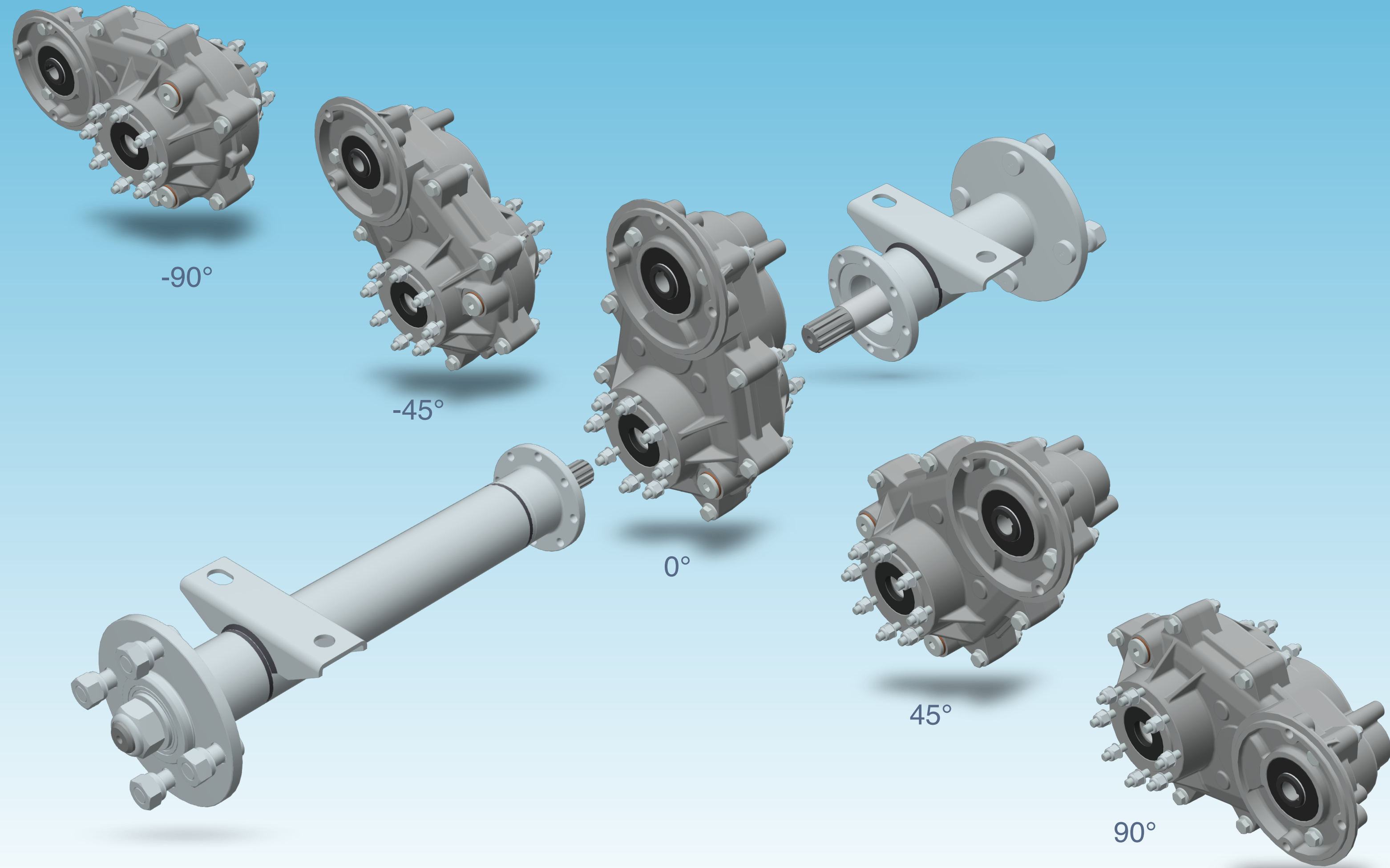
## TECHNICAL FEATURES

	TX1 SERIE	PLUS SERIE
Ratios	i	6 - 10 - 12 - 16 - 22 - 24 - 32
Output Torque	Nm	300      500
Input Speed (Max)	rpm	3.500      7.200
Static Load	kg	300      500
Track Width	mm	400 ÷ 1.150
Gearbox Finishing		Ground Gears
Efficiency	%	95
Lubrication		Synthetic Oil 75W90
Differential Lock		Optional

	TX1 SERIE	PLUS SERIE
Motor Type	DC - ACIM	ACIM - PMAC
Rated Power	kW	0,3 ÷ 1,7      0,6 ÷ 3,0
Rated Voltage	V	24 ÷ 48      24 ÷ 80
Insulation Class		F (155°)
IEC 60529	IP	20 ÷ 66
Service Braking		Hydraulic - Nm 1.200
Parking Braking		Electromagnetic - Nm 6 ÷ 20
Manual Release		Optional
Increm. Encoder		Optional



# TX1 SERIE - INSTALLATION OPTIONS



FULL MODULARITY





## MECHATRONIC SOLUTIONS

With the same philosophy that has distinguished Benevelli for 56 years, we are now able to design and build electric motors providing to customers complete mechatronic solutions.

Our motors are available in three different technologies: DC, ACIM and the newest PMAC with power from 0.3 to 3kW and voltages from 24 to 48V.

Entrust to our technicians to define what is the best choice for your vehicle, we will be able to better guide you by offering comparisons between the different available systems.

### COMPARATIVE TABLE

	DC MOTORS	ACIM MOTORS	PMAC MOTORS
EM parking brake	✓	✓	✓
Speed encoder		✓	✓
Maintenance free		✓	✓
Noise level		✓	✓
Temp °C sensor		✓	✓
UL ready		✓	✓
High efficiency			✓
Constant torque			✓
Working Temp °C			✓





# TX1 SERIE - eMOBILITY APPLICATION

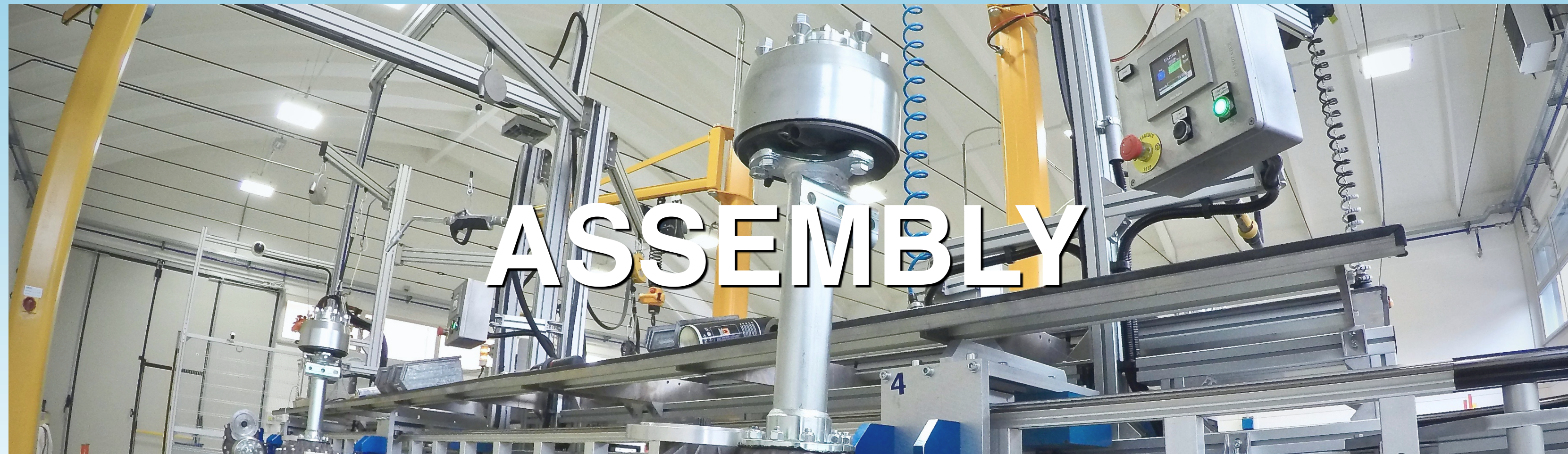
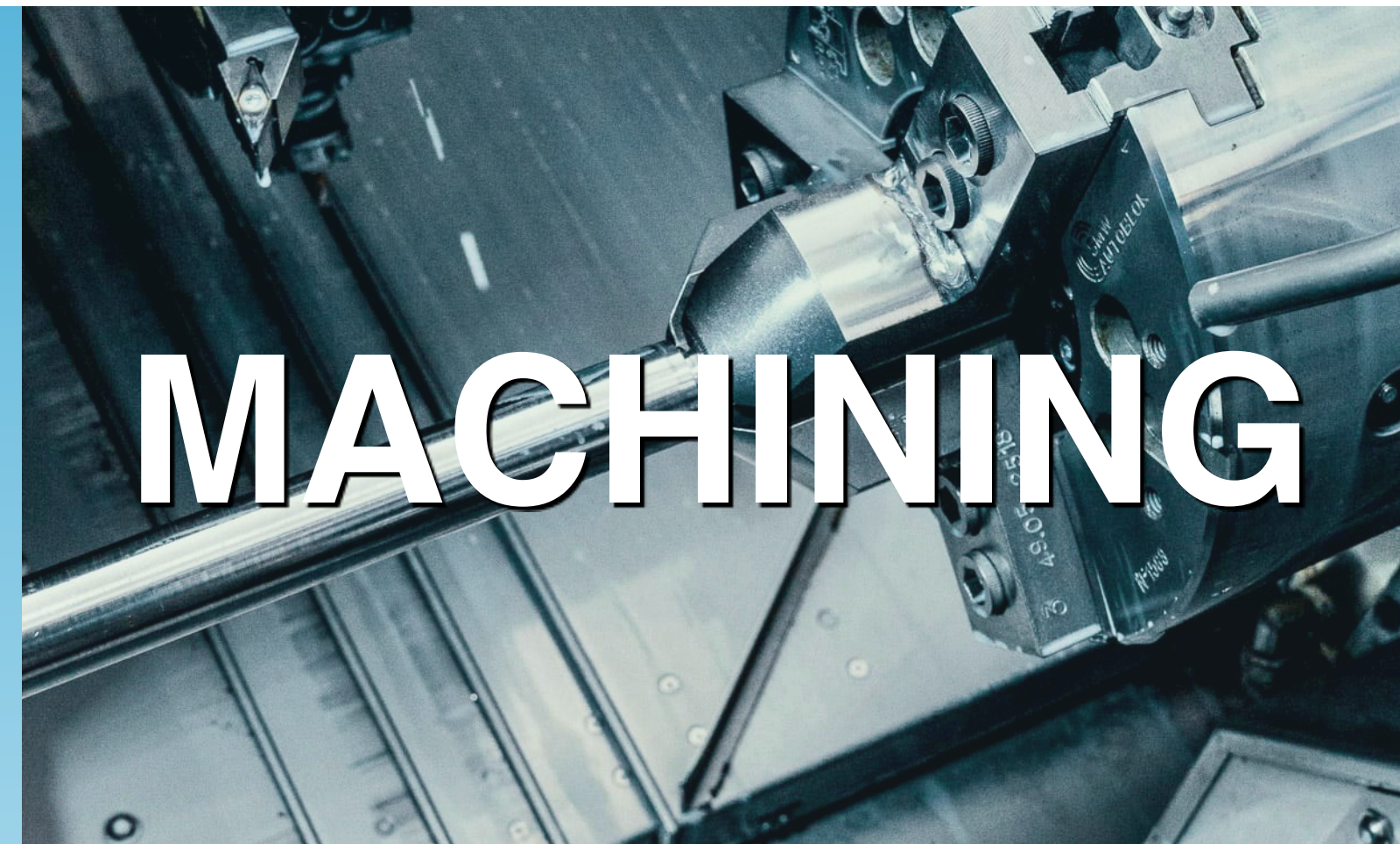


## OUR CUSTOMERS

DRIVING THE FUTURE OF ELECTRIC VEHICLES

Benevelli expertise is transferable to many industries and our projects reflect this diversity. Benevelli has experience in eMobility market and we are able to follow the electrification of your vehicles from prototype to serial production.





## ABOUT BENEVELLI

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E-MOBILITY TECHNOLOGIES PIONEERS

Benevelli has been working for more than half a century manufacturing products reliable and of superior quality, creating a competitive advantage for customers. Benevelli follow 100% of production processes maintaining total control of manufactured parts and work progress



## Our Expertise Drives Innovations

Our team of expert engineers is ready to work with you to understand the exact functionality your equipment needs to operate at optimum capacity, and then design a solution to help make it possible.

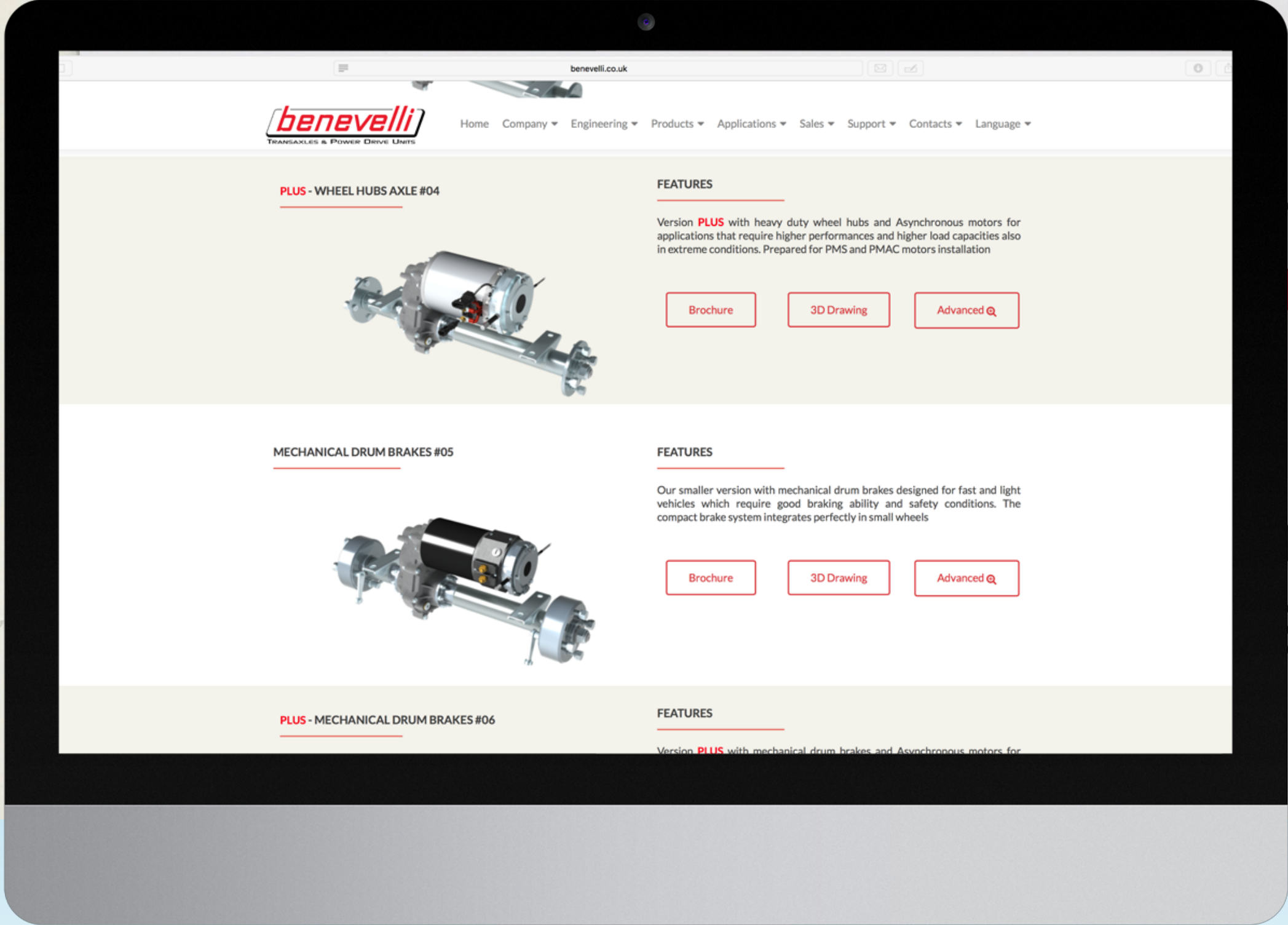


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WE ARE A COMPLETE SOLUTIONS PARTNER



# BENEVELLI - FOLLOW US



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