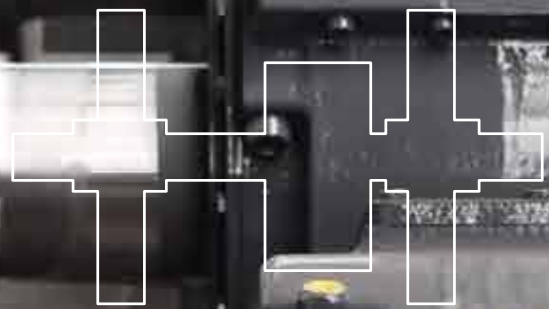
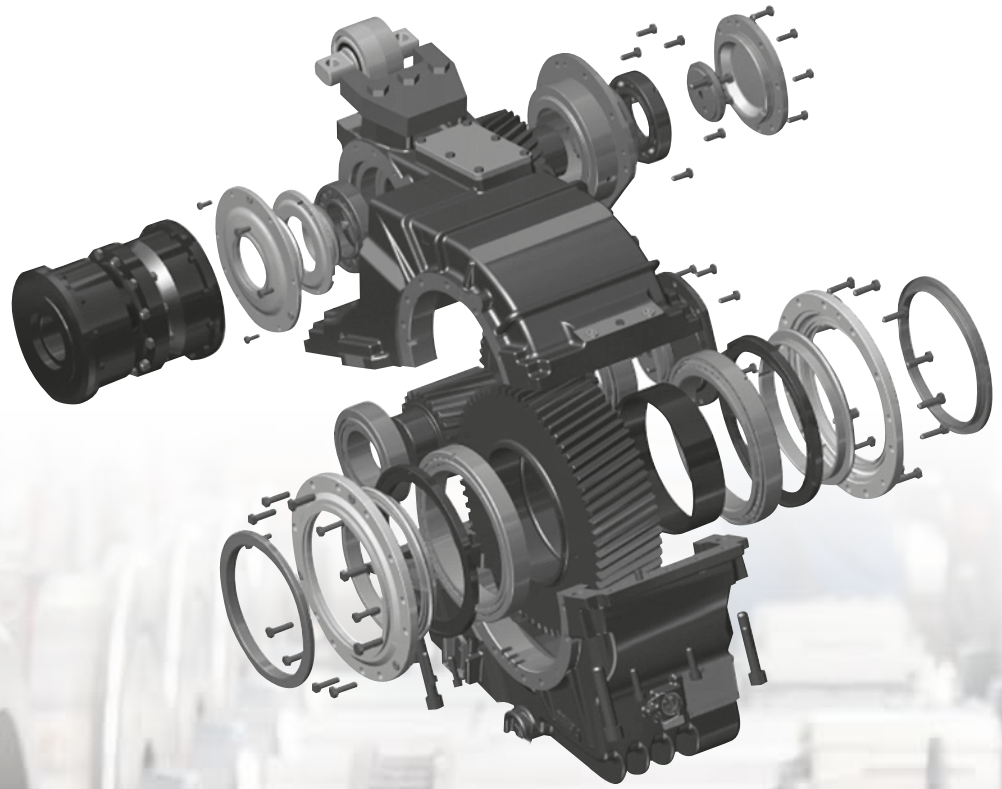


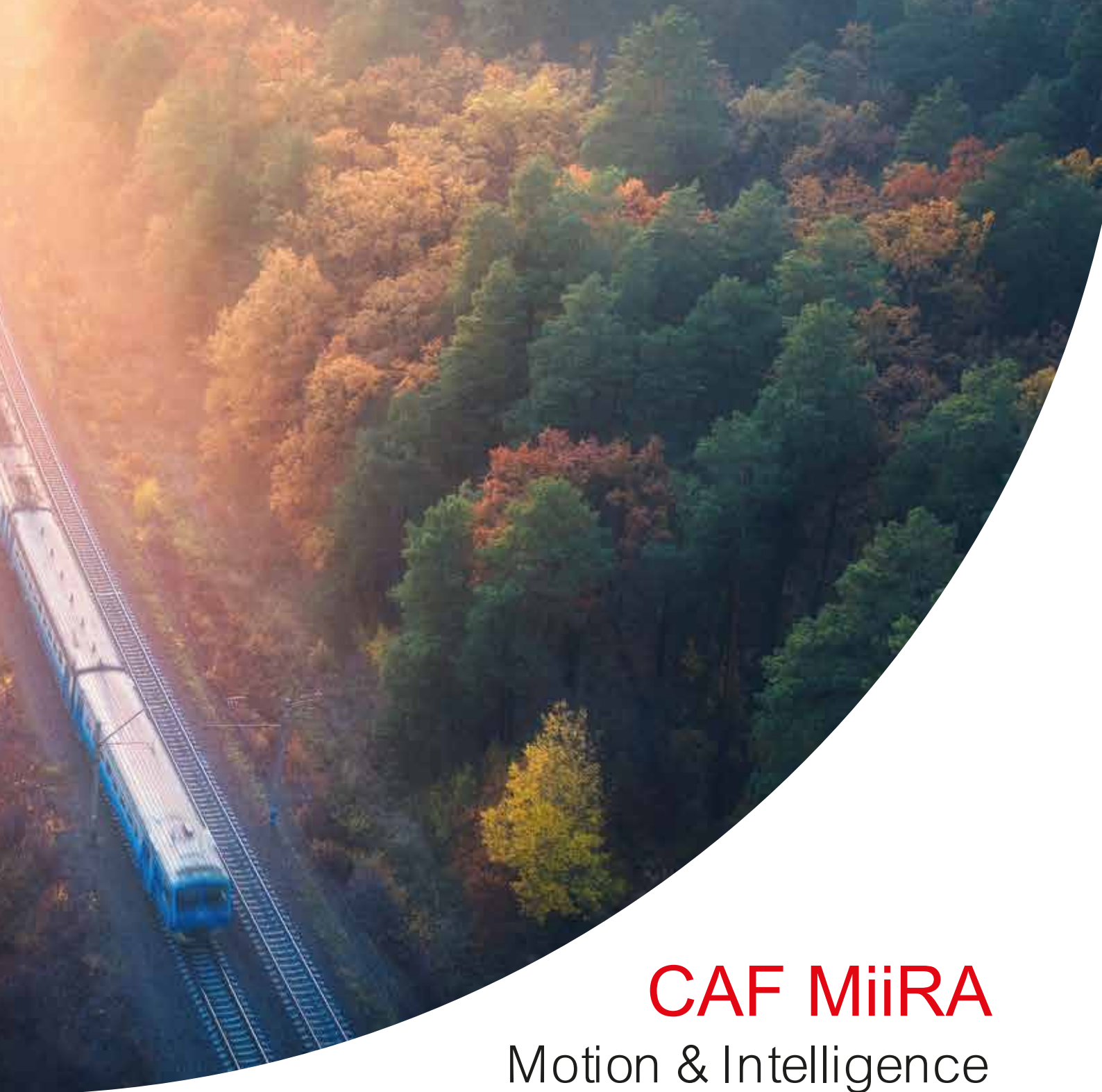
Gearboxes





index

• About CAF MiiRA	3
• Portfolio	4
• Green Future	6
• Quality Certifications	8
• Gearboxes	10
• Gearbox Technical Specifications	14
• References	60



CAF MiIRA

Motion & Intelligence in Railways

Almost a century of experience and state-of-the-art technology have made us world leaders in manufacturing railway wheels, axles, gearboxes, resilient wheels and complete wheelsets.

Portfolio

Products & Services



ENGINEERING

Products' & materials' design

Modernizations

ECO Design

SUPPLY

Products | Wheels
Axles
Wheelsets
Resilient wheels
Gearboxes

Green Steel
Green e-Energy

Value added elements | Protection systems
Noise reduction solutions

Integration on supply chain

ECOconsumption

SERVICE

ECOmmited

Technological assessment | Maintenance plans' optimization
Failure analysis
Service inspections

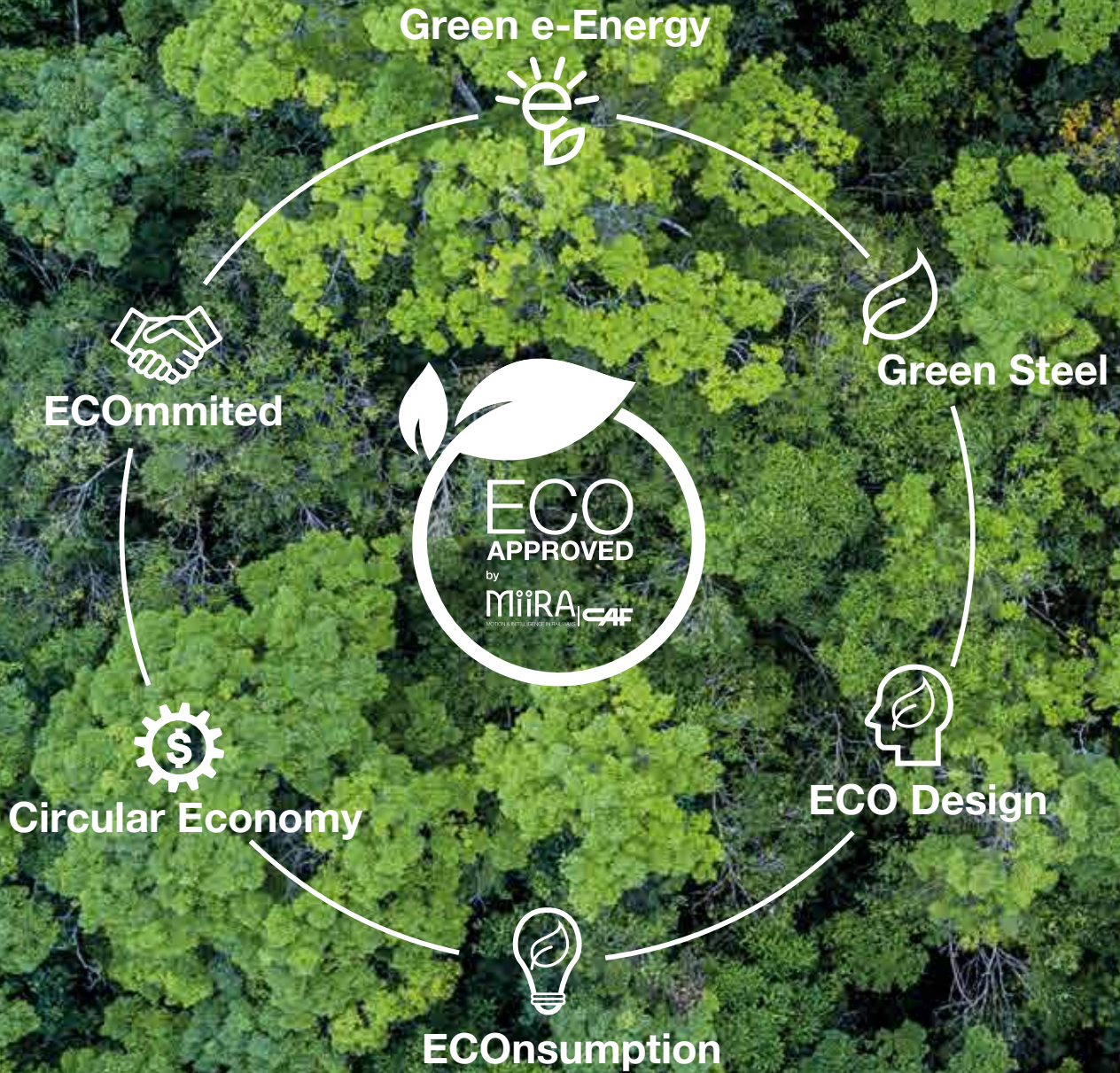
Integral maintenance management

Life cycle optimization

Circular ECOconomy

Green future

Time for action



Green e-Energy

100% renewable certified e-Energy, produced by wind turbines.

Sustainable. Infinite.

Green Steel

Green Steel wheels and axles.

Our steel is below European Standards in terms of generated GHG intensity and below industry average.

Responsible. Green.

ECO design

More efficient designs that are lighter, require less maintenance and offer longer lifetimes.

Complete wheelset and gearbox designs that eliminate compatibility related problems, maximizing the reduction of total weight.

Efficient. Lightweight.

ECOconsumption

Lightweight designs that require less material and generate less waste.

Production and supply of complete wheelsets generate less carbon footprint: we avoid unnecessary operations and transports.

Integral. Clean.

Circular ECOconomy

100% of the scrap generated by our products is used to produce the steel we use. No additional external resources needed.

Reusable packaging system.

Recyclable.

ECOmmited

Part of SBTI ((Science based targets initiative) and Race to Zero, European initiatives against climate change aligned with the Paris Agreement.

Focus on continuous improvement to reduce carbon footprint throughout the entire life cycle of our products.

Endless improvement.

Certificates

Quality Standards:

CAF MiiRA Certifications

- ISO 14001
- ISO 9001
- OSHAS 18001
- ISO-IEC-17025 certified metallurgical Laboratory
- ISO / IEC 27001

Railway Certifications

- IRIS
- AAR
- RISAS
- GOST
- VPI
- HPQ



Gearboxes

With more than 50 years experience in gearbox design, manufacture and supply, CAF MiiRA faces rolling stock upcoming challenges with a tailor-made customer approach, supported by a vaste list of proven references.

Supported by unrivalled design, test and manufacturing capabilities, and our knowledge in complete wheelset systems, CAF MiiRA gearboxes optimize life cycle cost, by means of light, reliabale and low noise solutions.

Backed by a strong Rolling Stock Group, a worldwide service network gets us closer from customers.



CAF MiiRA's Applications

CAF MiiRA's Gearbox solutions cover a wide range of applications for locomotives, metros, high speed, regional and trams. All of them could be served as part of a complete wheelset solution



gear box
Reductoras
MiIRA | **CAF**
MOTION & INTELLIGENCE IN RAILWAYS
 MiIRA CAF

114.00.4

A. LINEA
LINE A
 LINEA A



	CONFIGURATION	GEARING	NUMBER OF STAGES
Metro/D-EMU/HS	Semi suspended	Bevel-Helical Bevel-Helical	1&2
	Fully suspended	Bevel-Helical Bevel	1&2 1
Locomotive	Semi suspended	Helical	1&2
	Fully suspended	Helical	1&2
	Cannon-box	Helical	1&2
Trams / LRV	Semi suspended	Helical	1&2
	Fully suspended	Bevel	1
		Bevel-Helical	2

Testing & Manufacturing

CAF MiiRA's gearboxes are manufactured in our flexible production cells. Highly trained workforce accompanies the gearbox along the whole assembly process, under LEAN manufacturing philosophy and KAIZEN methodology.

Quality Assurance team works daily hand in hand with our in-house Laboratory of Materials and Metrology in order to assess the highest levels of quality of our supply chain.

Type tests are carried out in our in-house laboratory, while our end-of-line test bench and quality control routines, strictly defined for market highest standards and requirements, guarantee a flawless performance and reliability for gearboxes life cycle.

This rigorously standardized testing and manufacturing procedure allows us to supply best "fit-to-customer" gearboxes.



Design & Engineering

When expertise, experience and innovation merge

Reliability, performance, and life of CAF MiiRA gearboxes lay on a rigorous and optimized design.

A flawless understanding of customer requirements, preferences and expectations is the key factors when starting a new project, and co-development with customer and key components suppliers becomes crucial at this stage. As a part of a Rolling Stock Group, CAF MiiRA has a huge return of experience, and to apply it systematically in the development of next generation gearboxes.

The aim being to achieve a light but robust, competitive, efficient and low-noise product, we use latest engineering software and simulation tools.

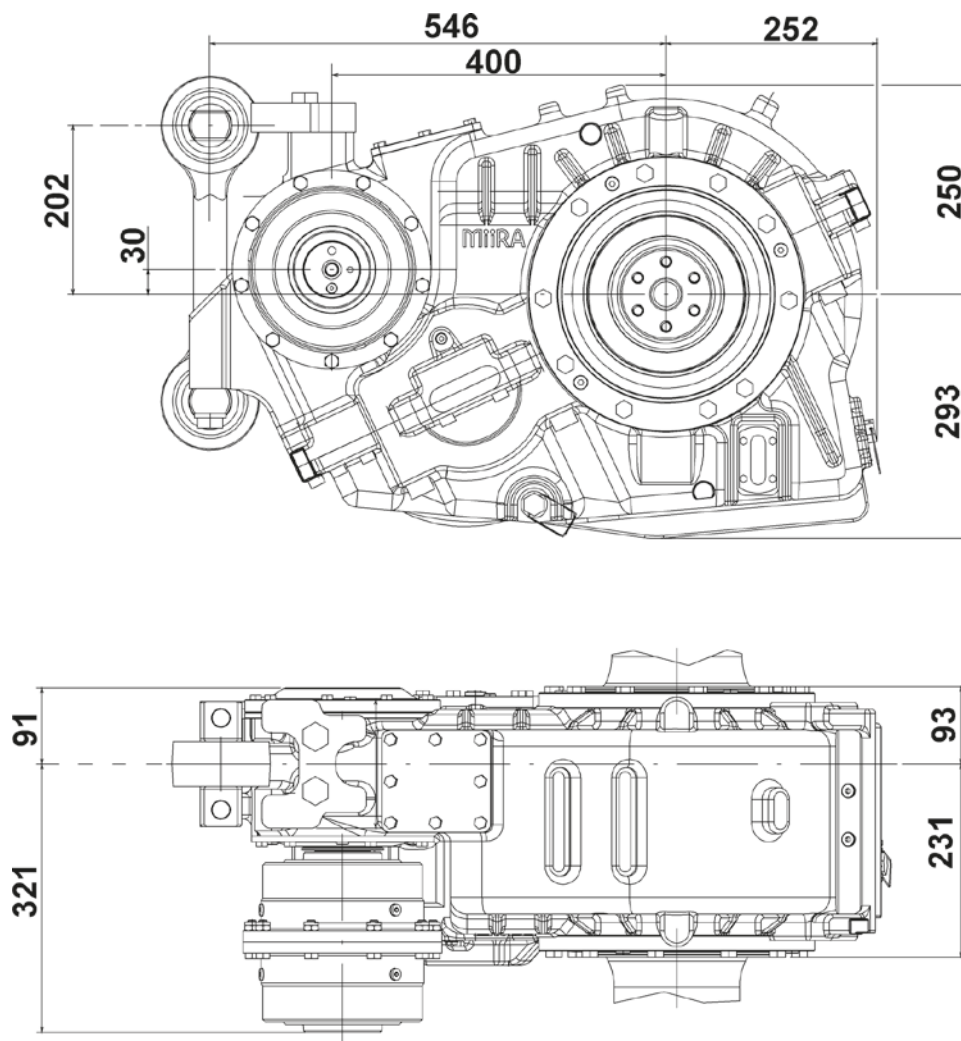
Our engineering resources and capabilities provide with a continuous communication and support to our customers at every stage of the project, so engineering never ends, as there is always room for improvement.

Technical Specifications

AHHD-400-7.84-1



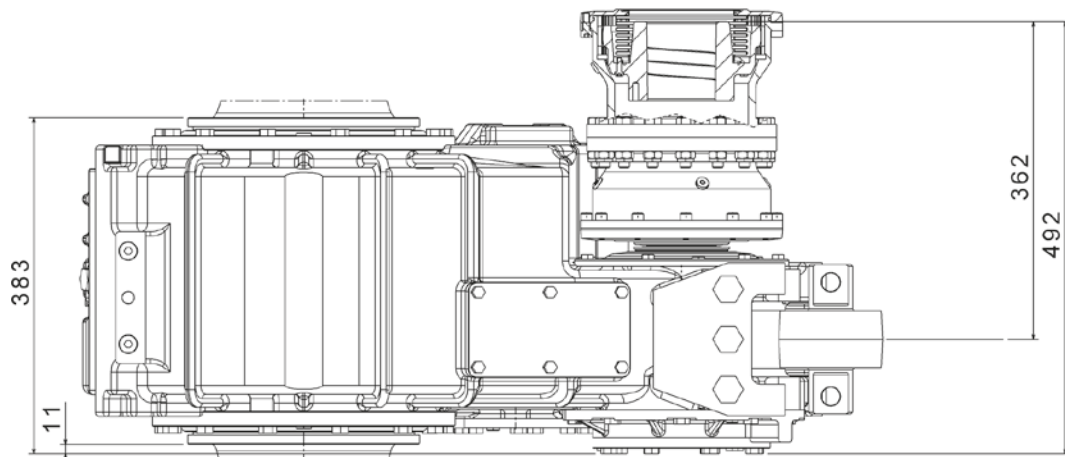
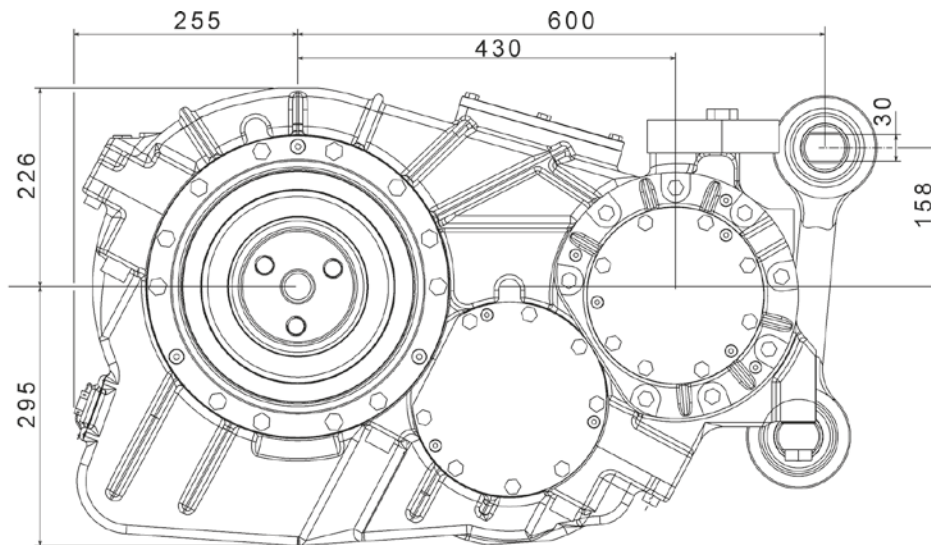
Gearbox type		AHHD-400-7.84-1
Maximum axle load	13.500	kg
Ratio	7,84	
Maximum service speed	90	Km/h
Wheel diameter (worn/new)	850/750	mm
Maximum tractive torque	1452	Nm
Nominal power	220	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	METRO NÁPOLES	



AHHD-430-4.822-1



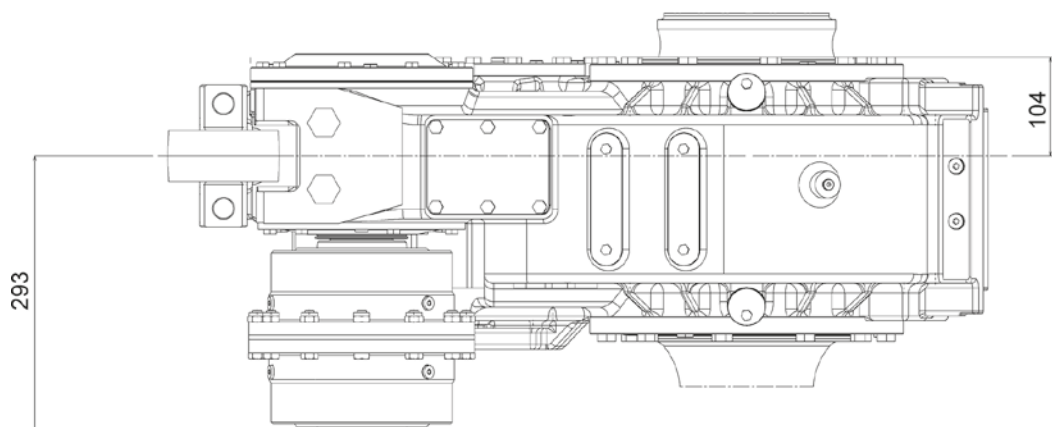
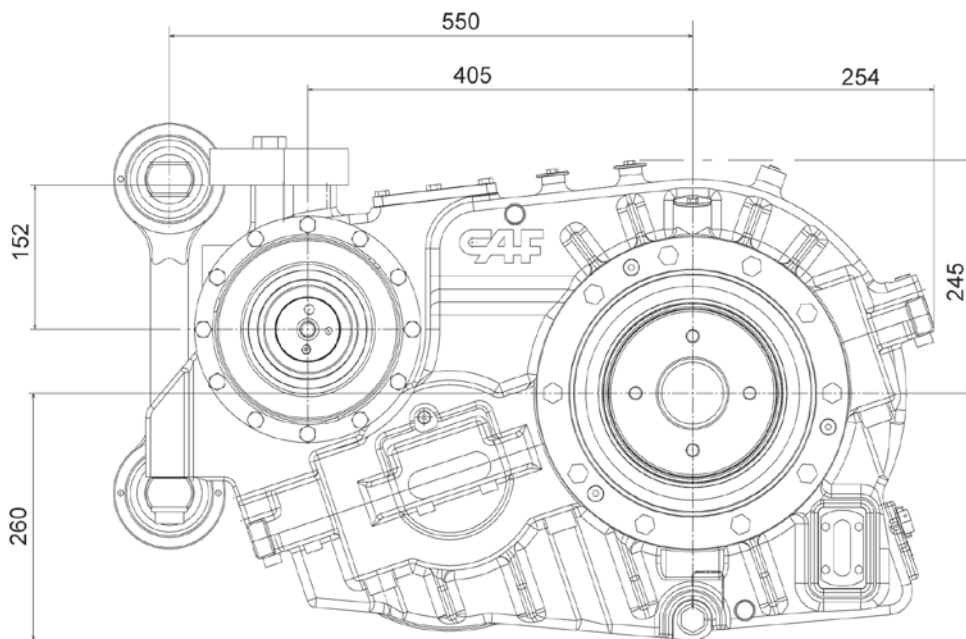
Gearbox type	AHHD-430-4.822-1	
Maximum axle load	15.000	kg
Ratio	4.82	
Maximum service speed	160	Km/h
Wheel diameter (worn/new)	780/710	mm
Maximum tractive torque	2192	Nm
Nominal power	220	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	NS SPRINTER TOLUCA	



AHHD-405-4.71-1



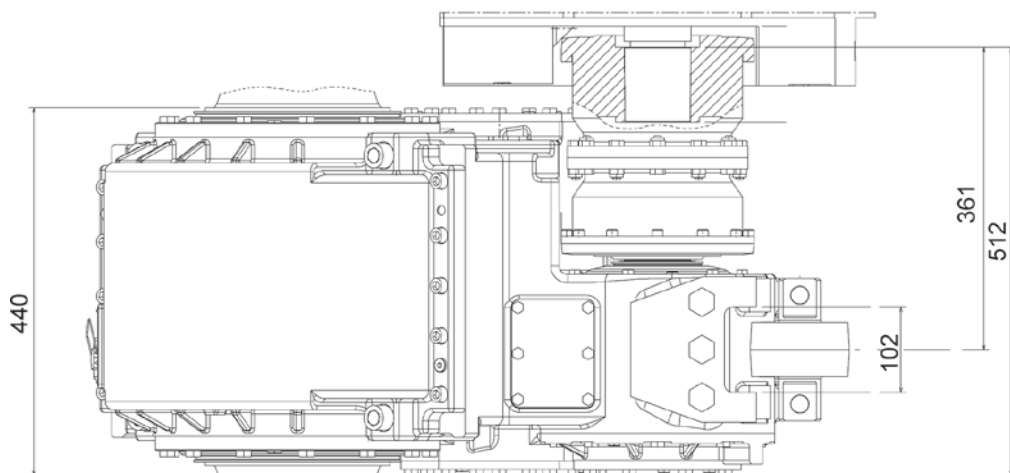
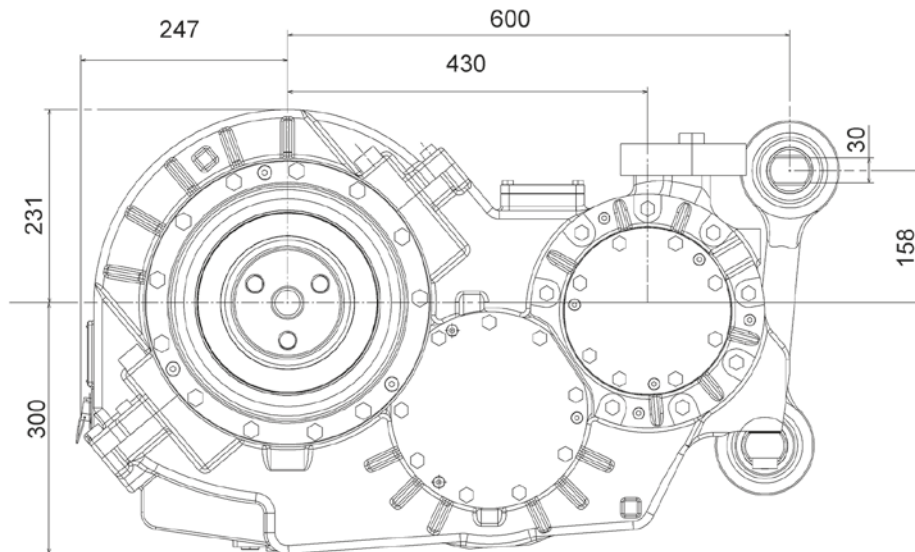
Gearbox type	AHHD-405-4.71-1	
Maximum axle load	15.000	kg
Ratio	4.707	
Maximum service speed	160	Km/h
Wheel diameter (worn/new)	780/710	mm
Maximum tractive torque	2192	Nm
Nominal power	220	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	ARRIVA TRANSPENNINE	



AHHD-430-4.82-1



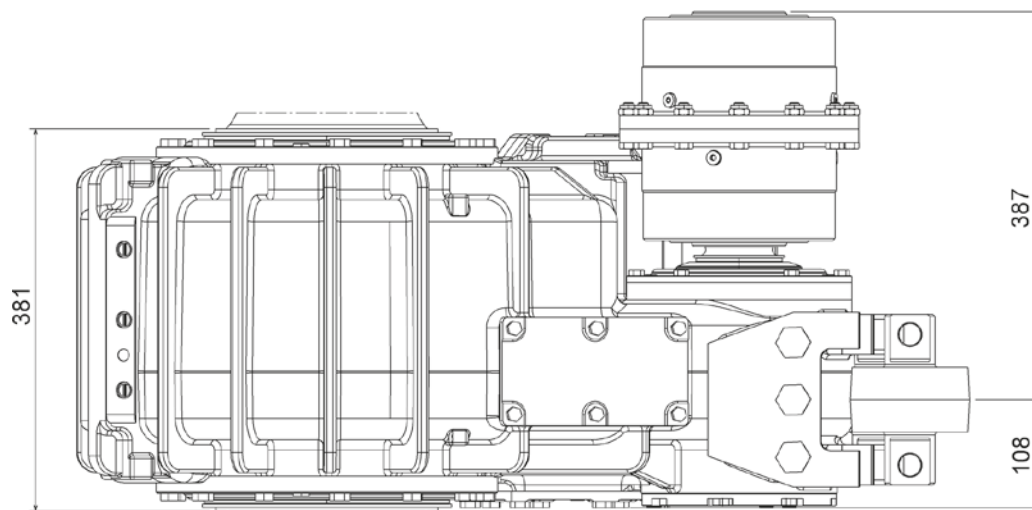
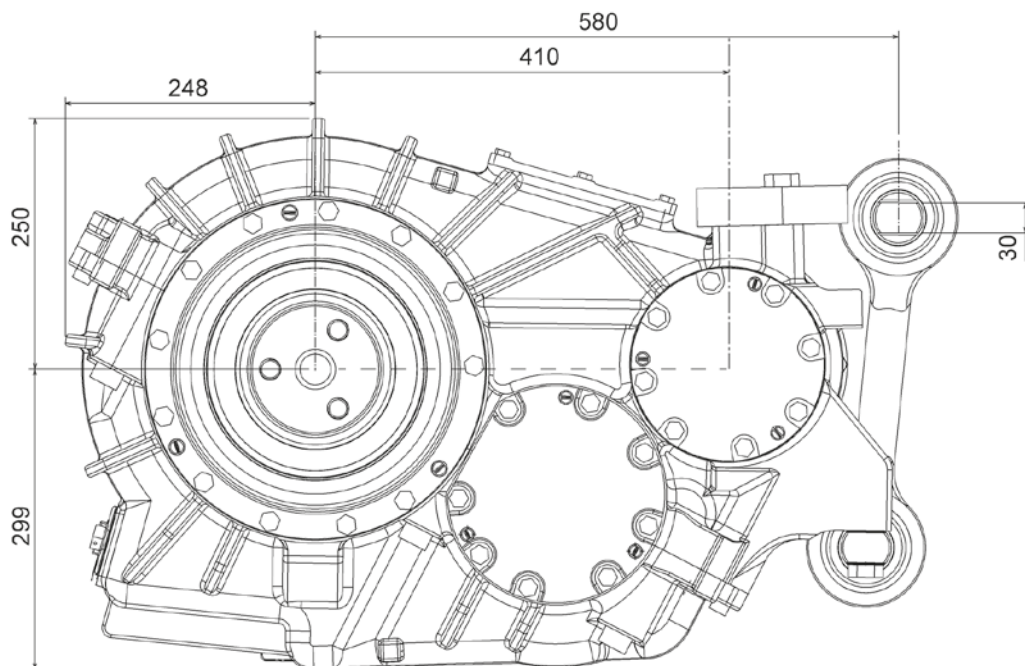
Gearbox type	AHHD-430-4.82-1	
Maximum axle load	21.000	kg
Ratio	4.82	
Maximum service speed	160	Km/h
Wheel diameter (worn/new)	750/780	mm
Maximum tractive torque	4543	Nm
Nominal power	537	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	TRIESTE MONTENEGRO AUSTRIA BARI	



AHHD-410-7.52-2



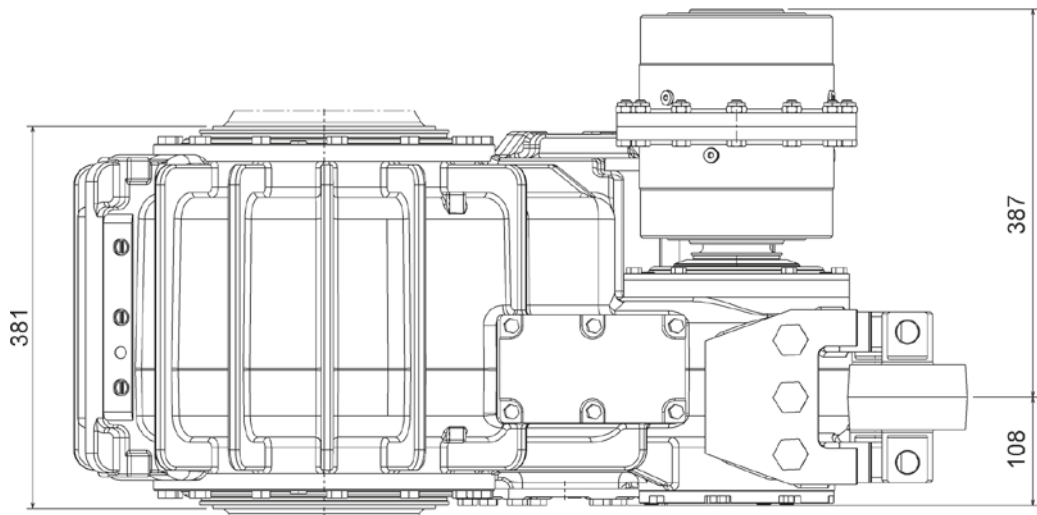
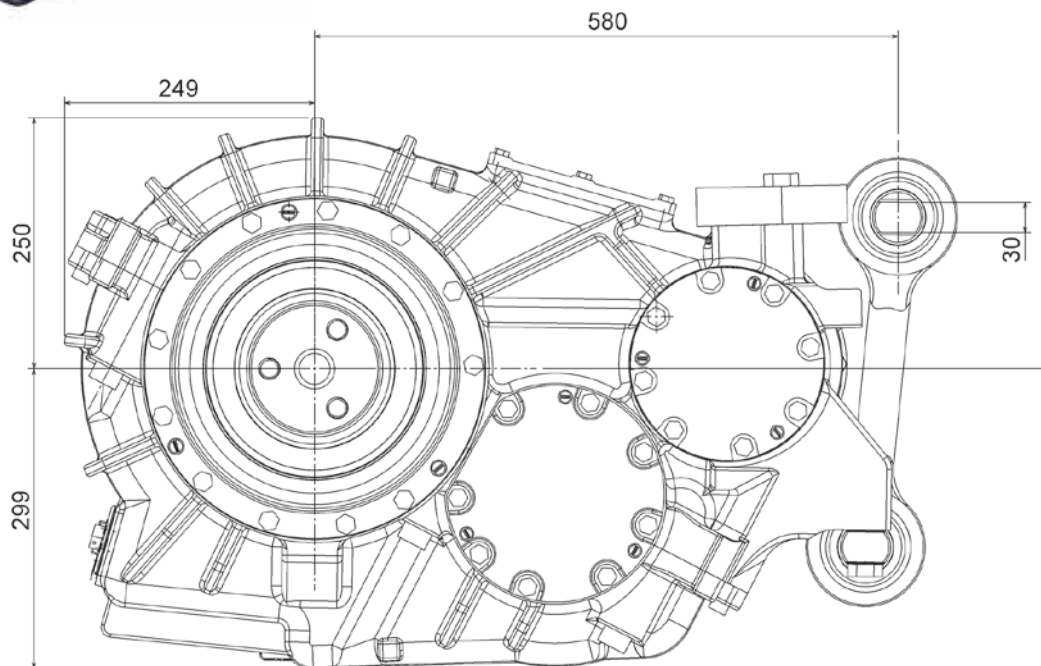
Gearbox type	AHHD-410-7.52-2	
Maximum axle load	16.000	kg
Ratio	7.52	
Maximum service speed	80	Km/h
Wheel diameter (worn/new)	780/870	mm
Maximum tractive torque	1319	Nm
Nominal power	185	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	METRO SAO PAULO	



AHHD-410-5.17-1



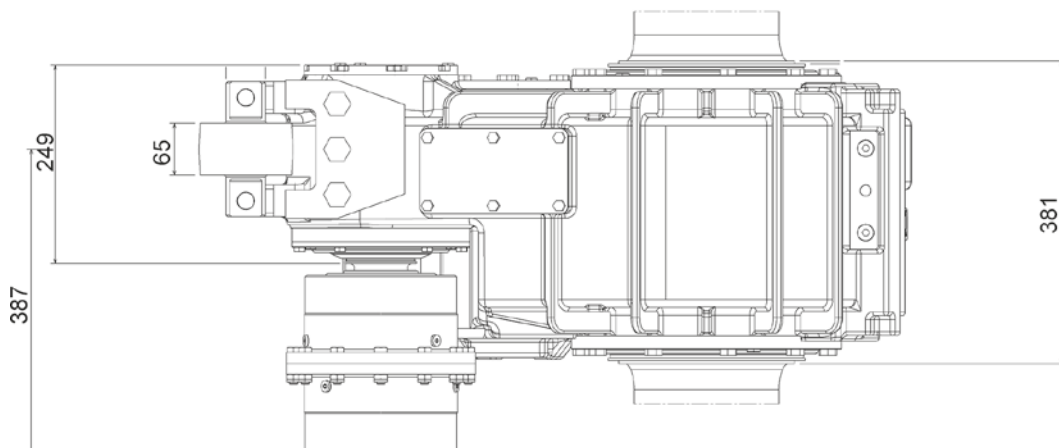
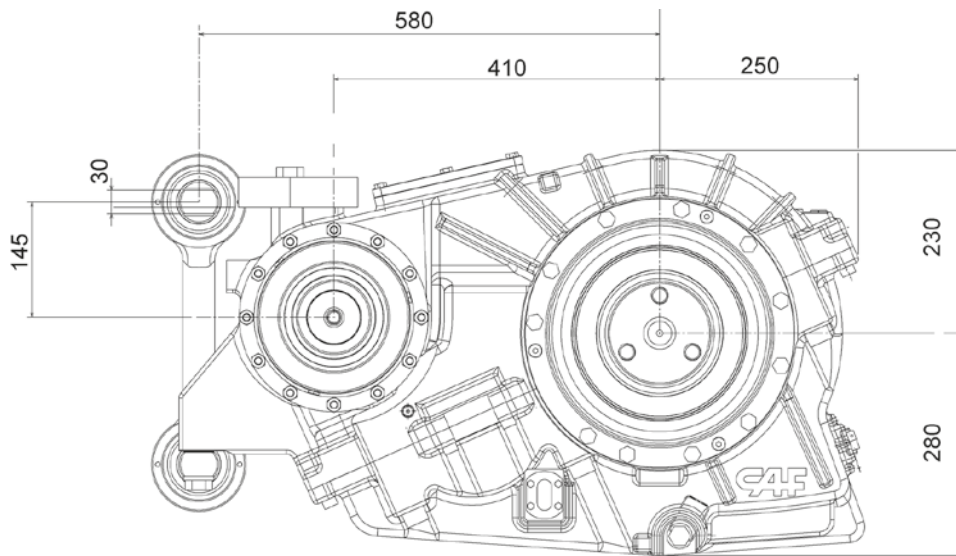
Gearbox type		AHHD-410-5.17-1	
Maximum axle load	18.000	kg	
Ratio	6.312		
Maximum service speed	140	Km/h	
Wheel diameter (worn/new)	860/780	mm	
Maximum tractive torque	2.320	Nm	
Nominal power	300	kW	
Motor-Gearbox Coupling	TEETH		
Reference projects	IZMIR		



AHHD-410-4.37-1



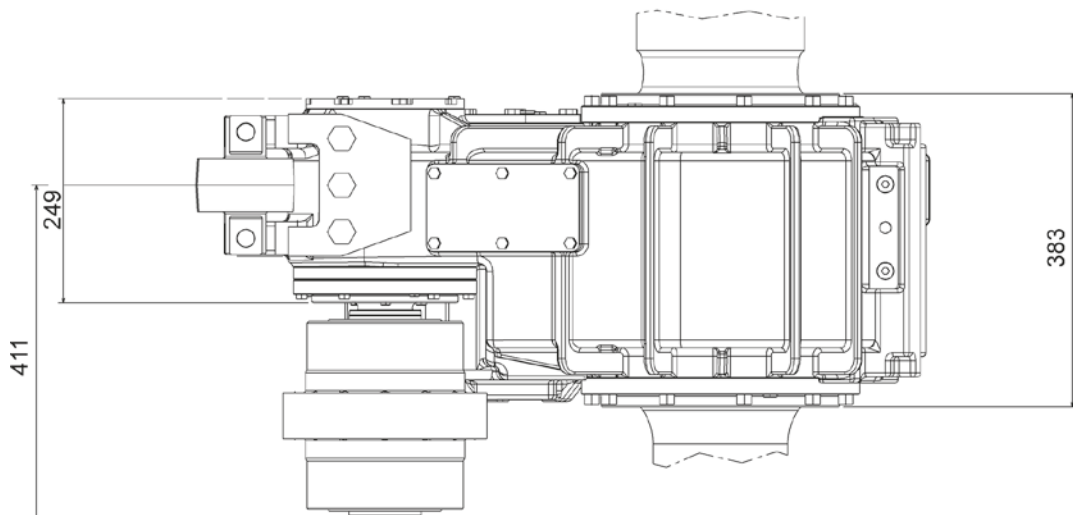
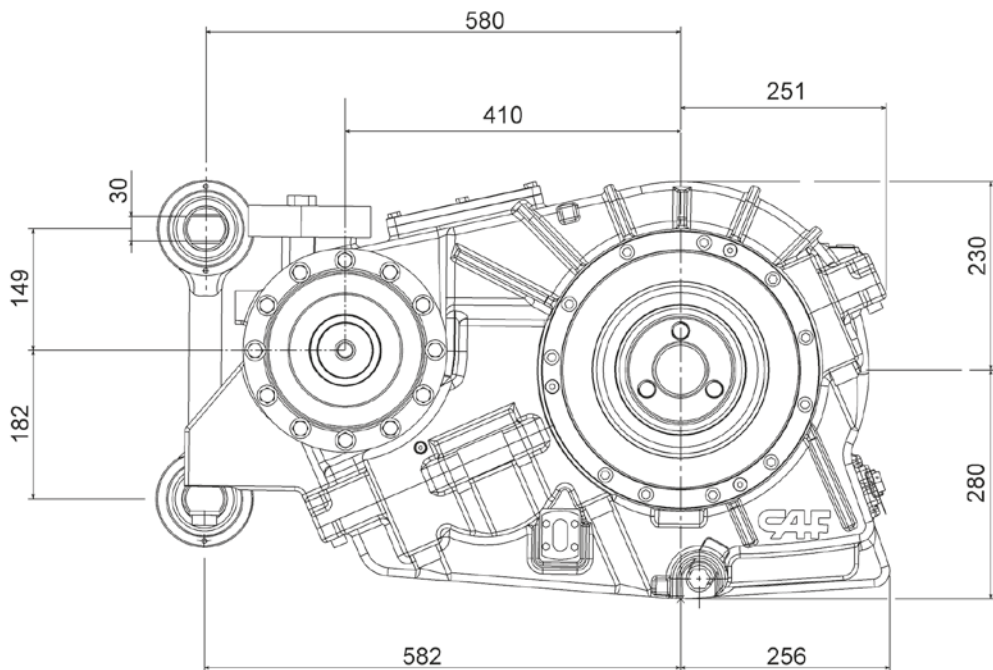
Gearbox type	AHHD-410-4.37-1	
Maximum axle load	18.000	kg
Ratio	4.365	
Maximum service speed	160	Km/h
Wheel diameter (worn/new)	800/740	mm
Maximum tractive torque	2001	Nm
Nominal power	300	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	ASTRA	



AHHD-410-4.37-2



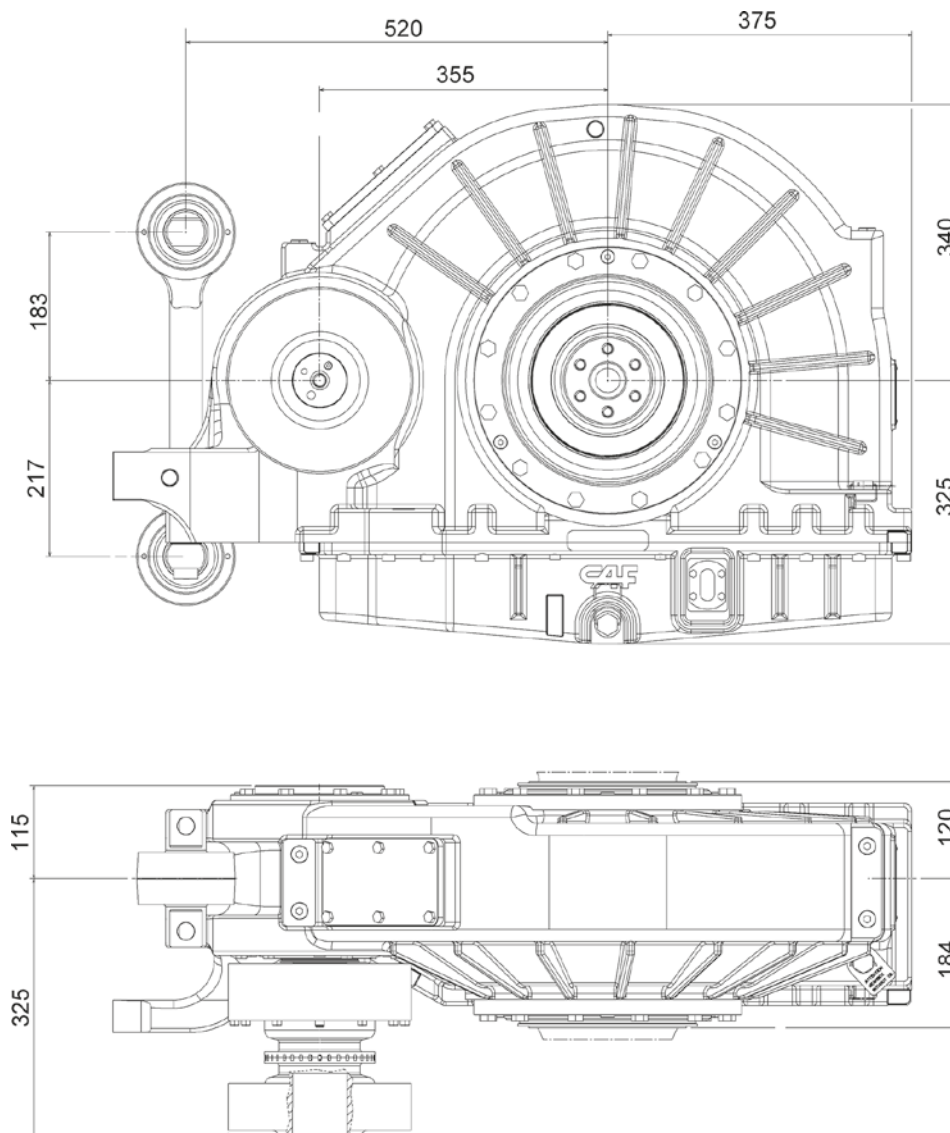
Gearbox type	AHHD-410-4.37-2	
Maximum axle load	17.750	kg
Ratio	4.365	
Maximum service speed	160	Km/h
Wheel diameter (worn/new)	850/780	mm
Maximum tractive torque	2459	Nm
Nominal power	220	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	NEW SOUTH WALES	



AHM-355-7.44-1



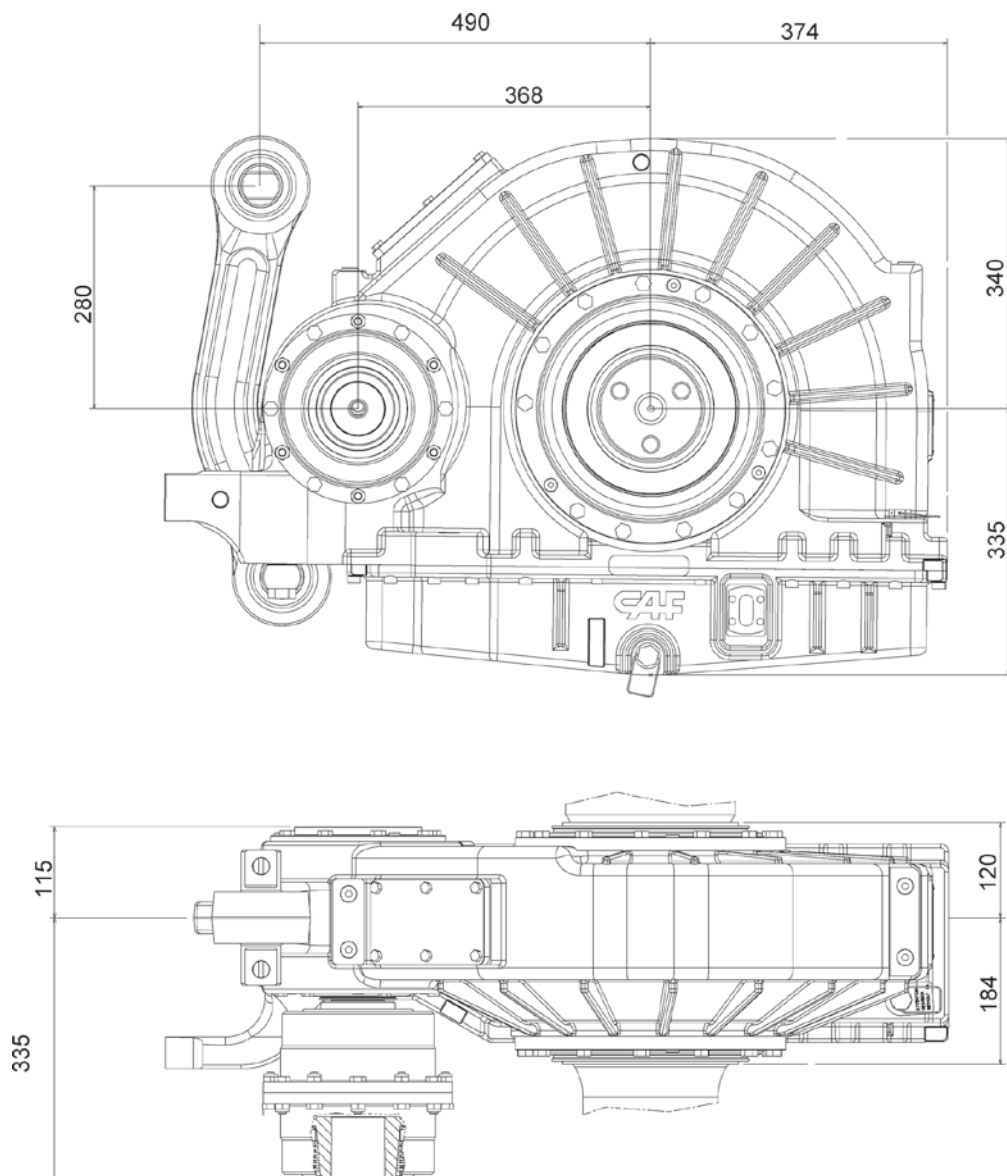
Gearbox type	AHM-355-7.44-1	
Maximum axle load	14.000	kg
Ratio	7.44	
Maximum service speed	80	Km/h
Wheel diameter (worn/new)	880/830	mm
Maximum tractive torque	1486	Nm
Nominal power	175	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	BUCAREST	



AHM-368-6.8-1



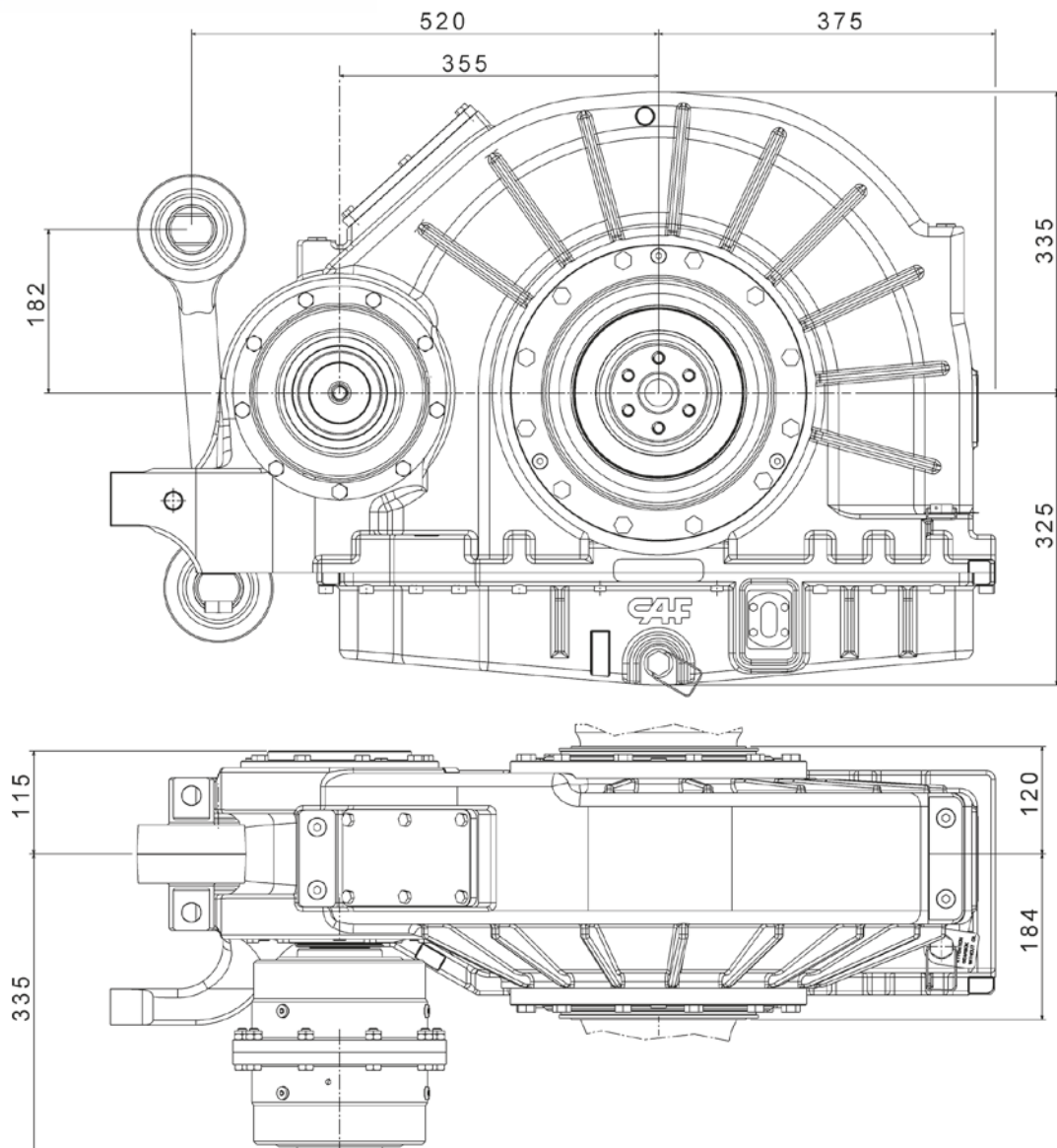
Gearbox type	AHM-368-6.8-1	
Maximum axle load	16.500	kg
Ratio	6.8	
Maximum service speed	80/110	Km/h
Wheel diameter (worn/new)	860/790	mm
Maximum tractive torque	1467	Nm
Nominal power	232	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	AUCKLAND	



AHM-355-7.44-2



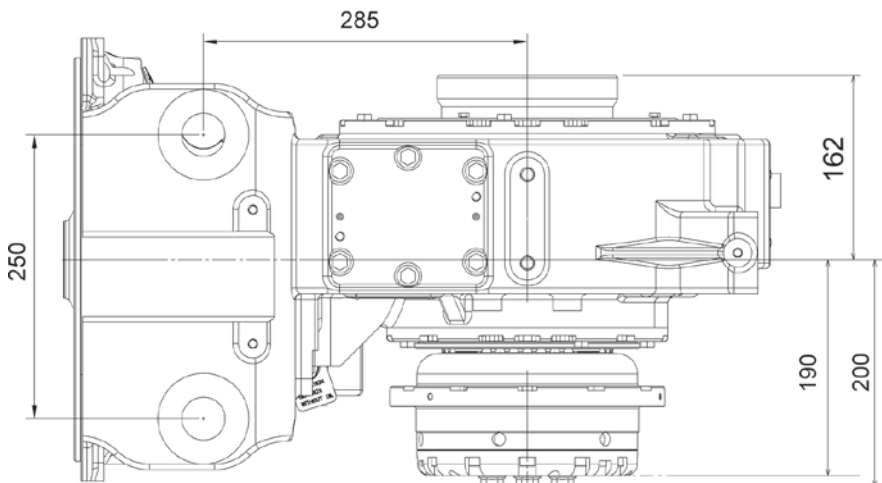
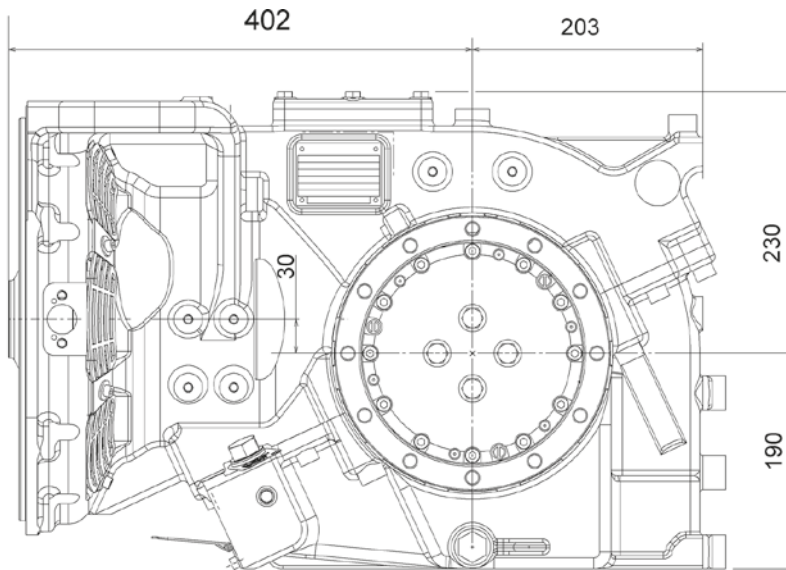
Gearbox type		AHM-355-7.44-2	
Maximum axle load	14.820	kg	
Ratio	7.44		
Maximum service speed	80	Km/h	
Wheel diameter (worn/new)	840/760	mm	
Maximum tractive torque	1326	Nm	
Nominal power	229	kW	
Motor-Gearbox Coupling	TEETH		
Reference projects	ESTAMBUL QUITO		



FBD-361-5.44-2



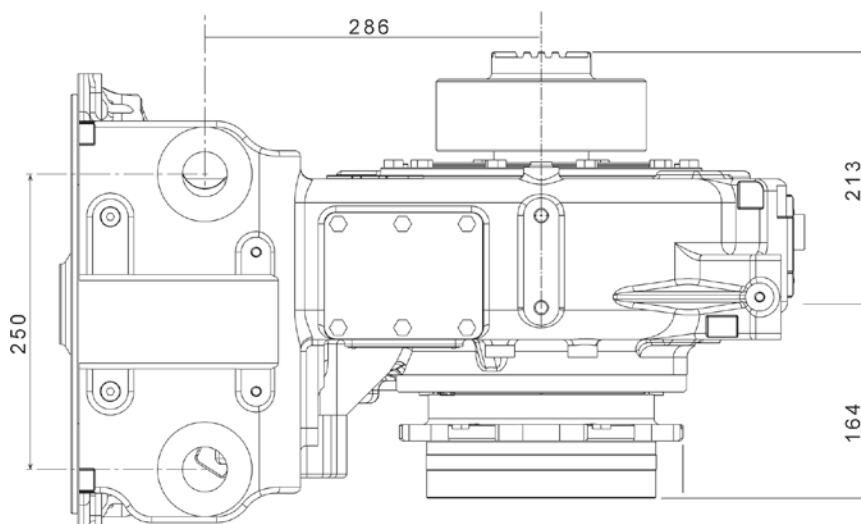
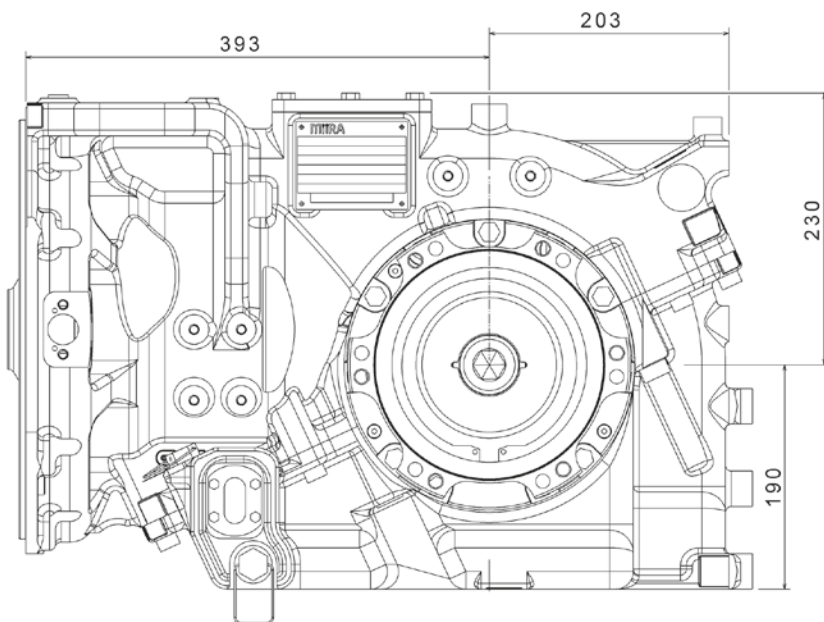
Gearbox type		FBD-361-5.44-2
Maximum axle load	12.640	kg
Ratio	5.44	
Maximum service speed	70	Km/h
Wheel diameter (worn/new)	590/510	mm
Maximum tractive torque	600	Nm
Nominal power	70	kW
Motor-Gearbox Coupling	ROTEX® 65	
Gearbox-Axle Coupling	TEETH COUPLING	
Reference projects	BUDAPEST GRANADA KAOHSIUNG CINCINNATI SIDNEY CUIABA BIRMINGHAM BESANCON DEBRECEN NANTES BELGRADO	



FBD-361-5.44-3



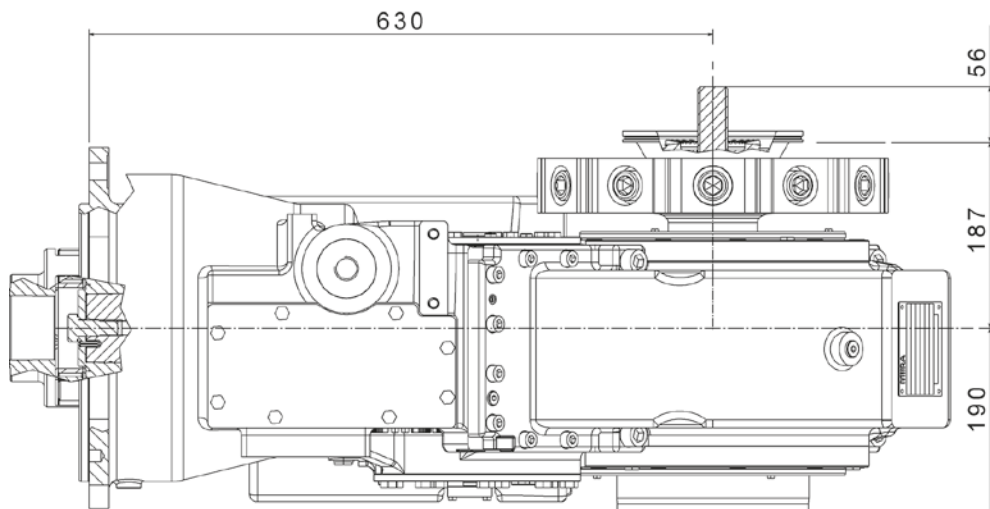
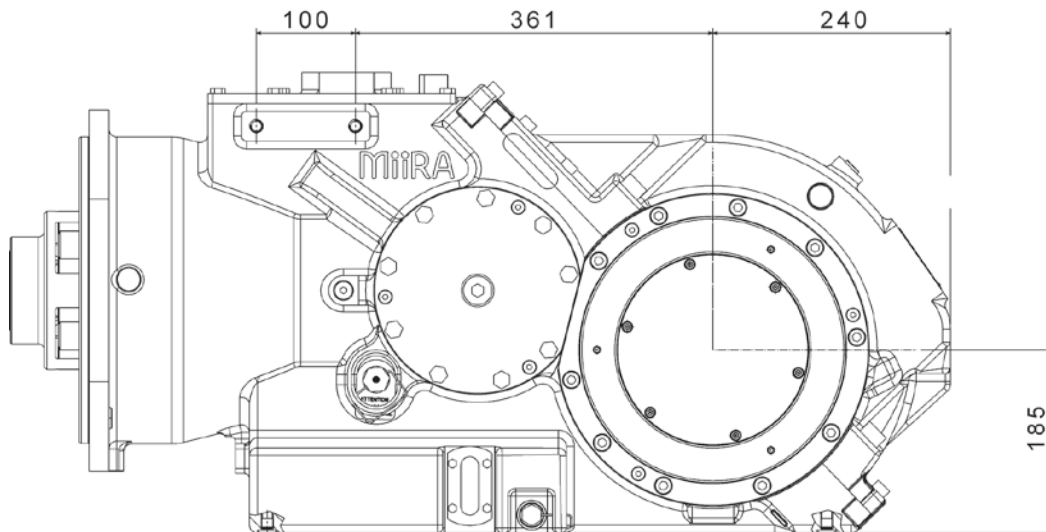
Gearbox type		FBD-361-5.44-3
Maximum axle load	12.600	kg
Ratio	5.44	
Maximum service speed	70	Km/h
Wheel diameter (worn/new)	590/510	mm
Maximum tractive torque	600	Nm
Nominal power	70	kW
Motor-Gearbox Coupling	EZK 65-2	
Gearbox-Axle Coupling	TEETH COUPLING	
Reference projects	FRIBURGO CAGLIARI KANSAS SAINT ETIENNE UTRECHT LUXEMBURGO CANBERRA NEWCASTLE MARYLAND AMSTERDAM KANSAS MAURICIO VITORIA LUND LIEJA PARRAMATTA BIRMINGHAM JERUSALEM	



FBHD-381.1-6.253-1



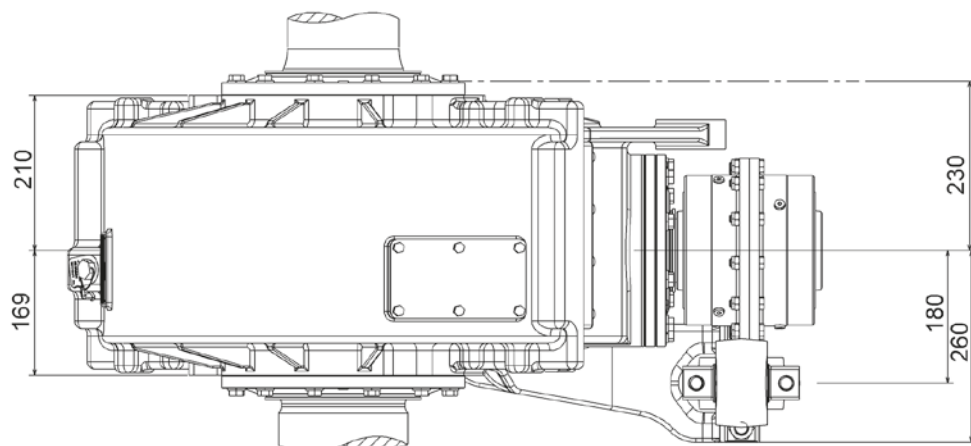
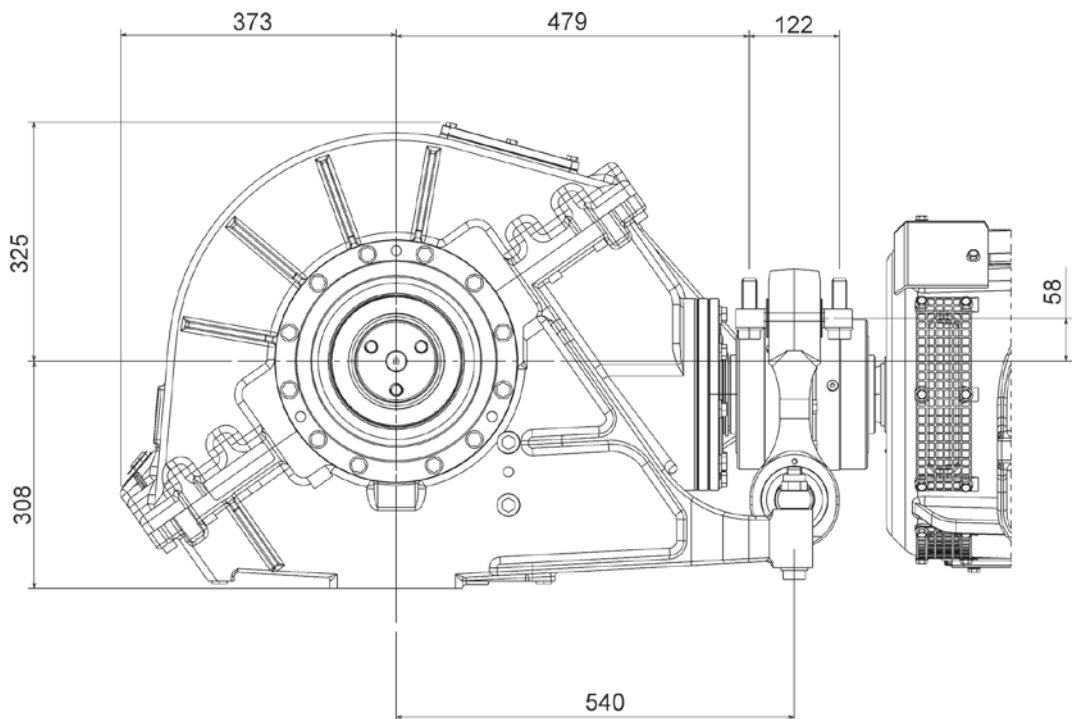
Gearbox type		FBHD-381.1-6.253-1	
Maximum axle load	360	kg	
Ratio	6.253		
Maximum service speed	70	Km/h	
Wheel diameter (worn/new)	640/580	mm	
Maximum tractive torque	1174	Nm	
Nominal power	140	kW	
Motor-Gearbox Coupling	FLEXIBLE JAW		
Gearbox-Axle Coupling	TEETH-RUBBER WEDGE COMBINATION		
Reference projects	LIJN AMBERES		



ABD-570-5.9-1



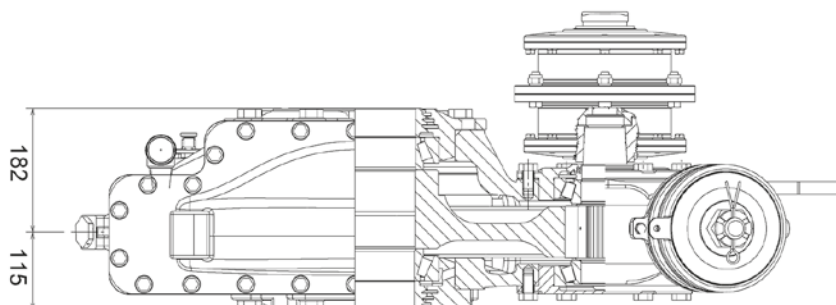
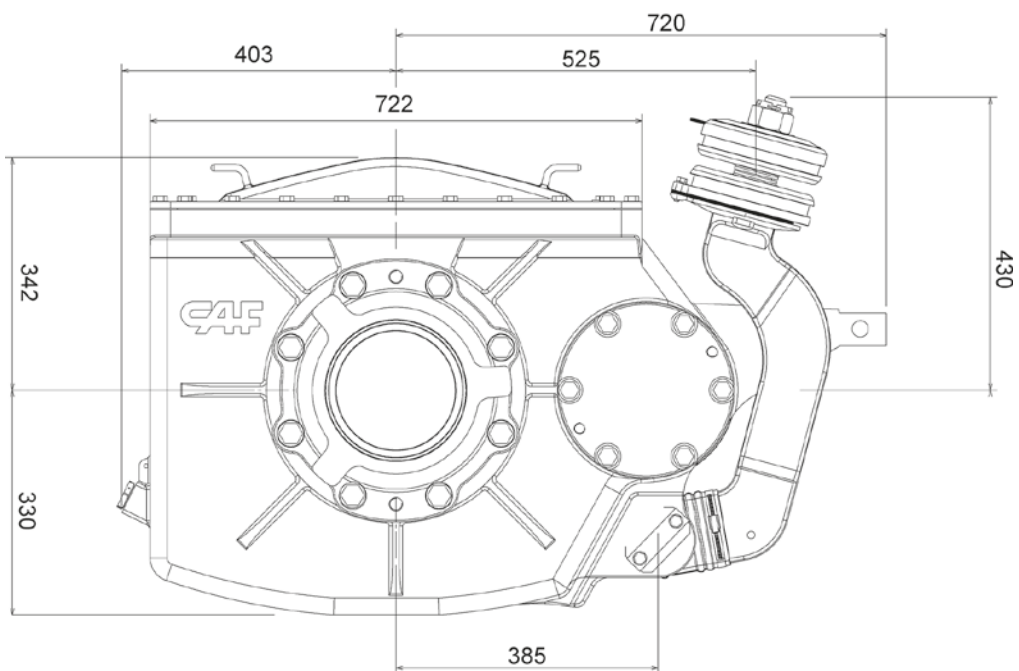
Gearbox type	ABD-570-5.9-1	
Maximum axle load	12.000	kg
Ratio	5.9	
Maximum service speed	90	Km/h
Wheel diameter (worn/new)	850/790	mm
Maximum tractive torque	1976	Nm
Nominal power	312.25	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	EUSKOTREN	



RCP1-367/01



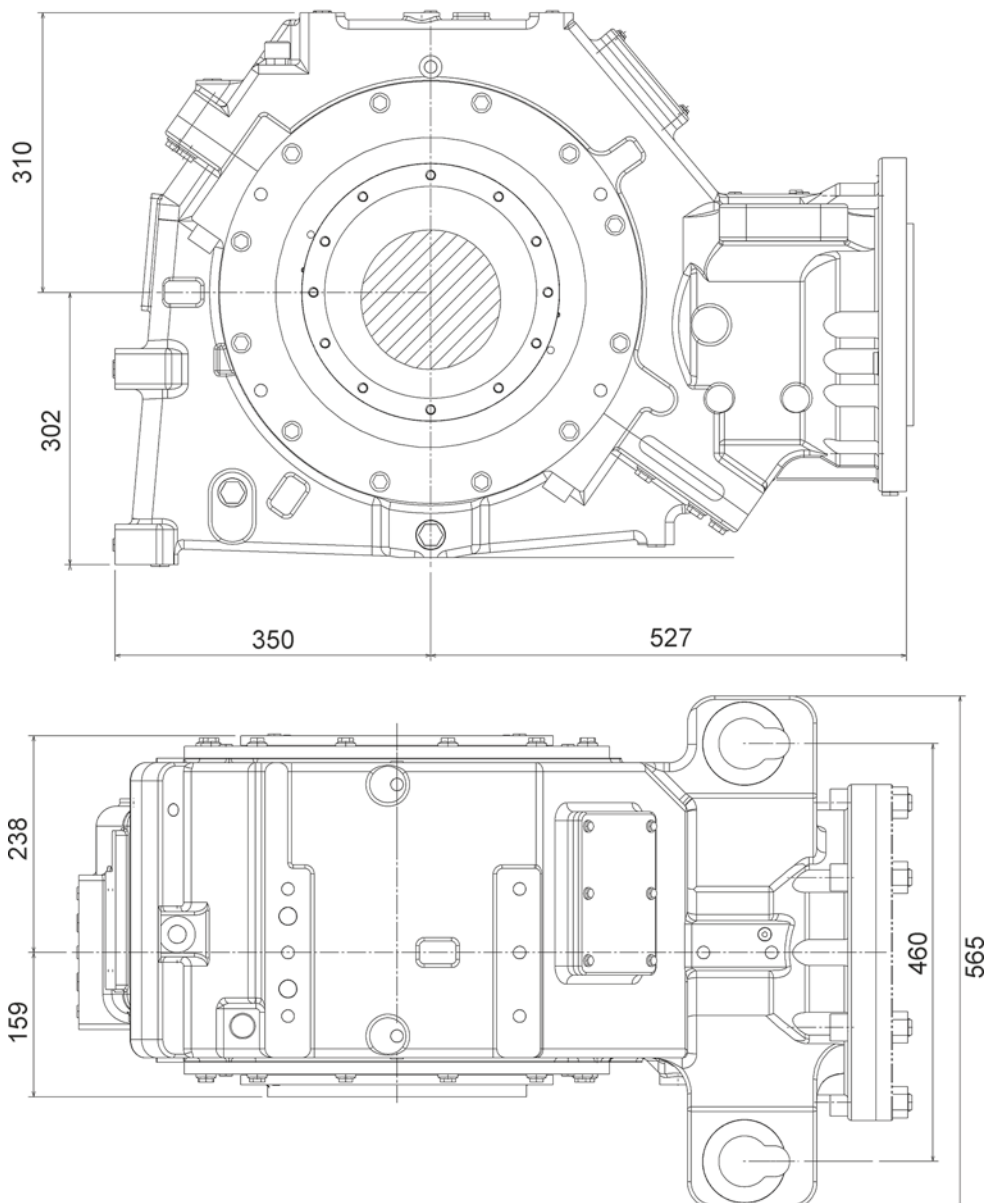
Gearbox type	RCP1-367/01	
Maximum axle load	10.440	kg
Ratio	6.188	
Maximum service speed	100	Km/h
Wheel diameter (worn/new)	860/796	mm
Maximum tractive torque	1300	Nm
Nominal power	211	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	MEXICO LINEA A	



FBD-565-6.125-1



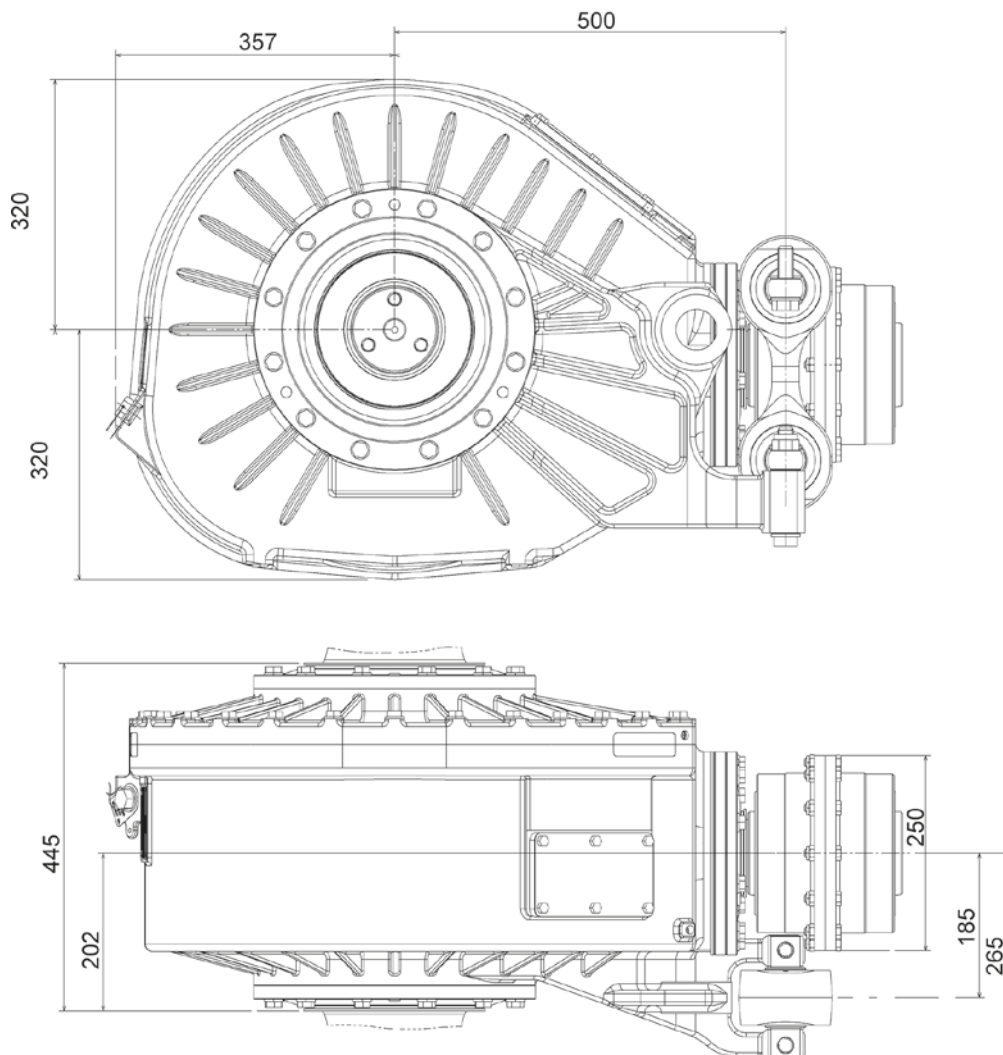
Gearbox type		FBD-565-6.125-1	
Maximum axle load	14.375	kg	
Ratio	6.125		
Maximum service speed	110	Km/h	
Wheel diameter (worn/new)	860/790	mm	
Maximum tractive torque	1800	Nm	
Nominal power	210	kW	
Motor-Gearbox Coupling	FLEXIBLE JAW COUPLING		
Gearbox-Axle Coupling	LINK COUPLING		
Reference projects	MADRID S.8000		



ABV-570-5.9-1



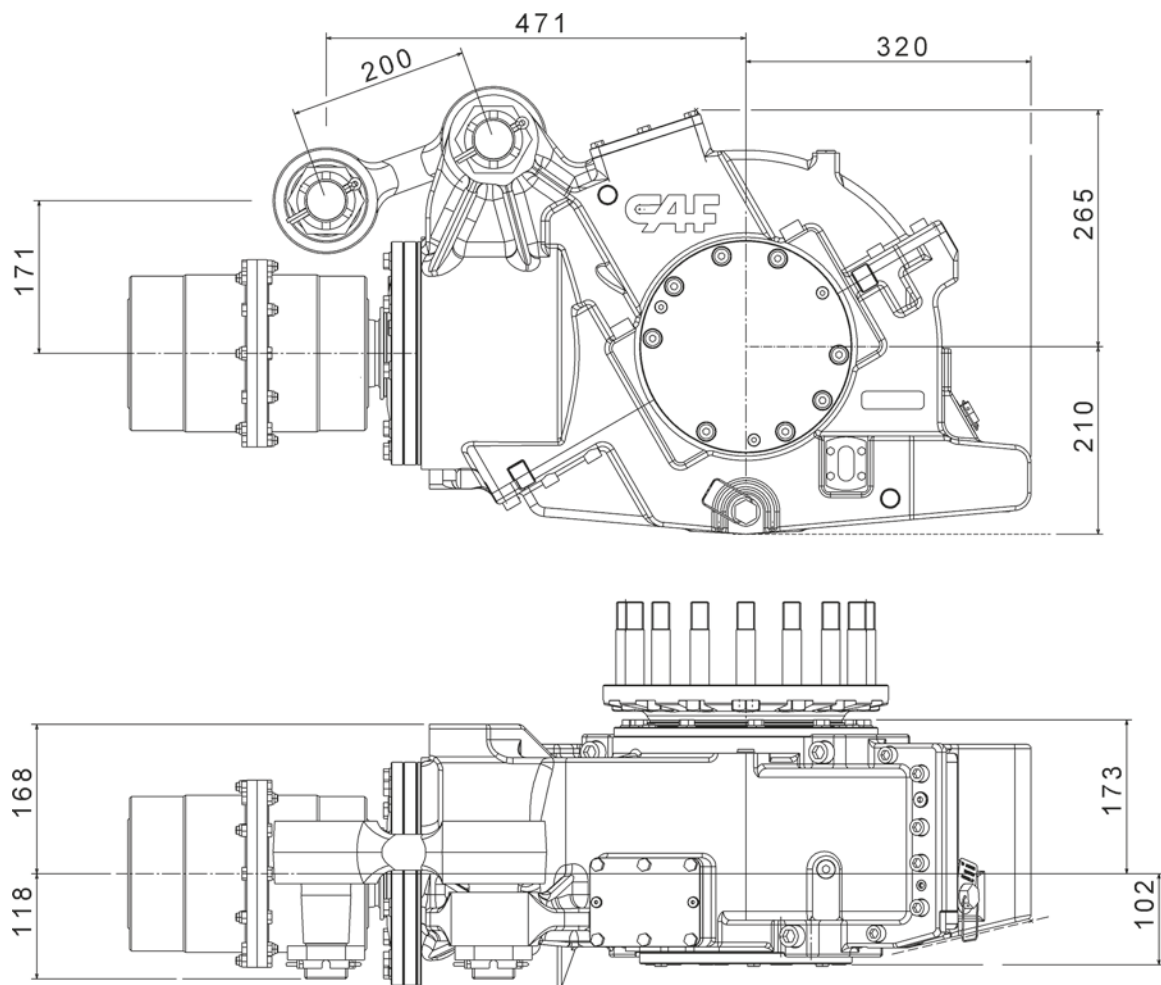
Gearbox type		ABV-570-5.9-1
Maximum axle load	15.000	kg
Ratio	5.9	
Maximum service speed	90	Km/h
Wheel diameter (worn/new)	840/780	mm
Maximum tractive torque	1541	Nm
Nominal power	150	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	FGC	



ABD-400-5.43-1



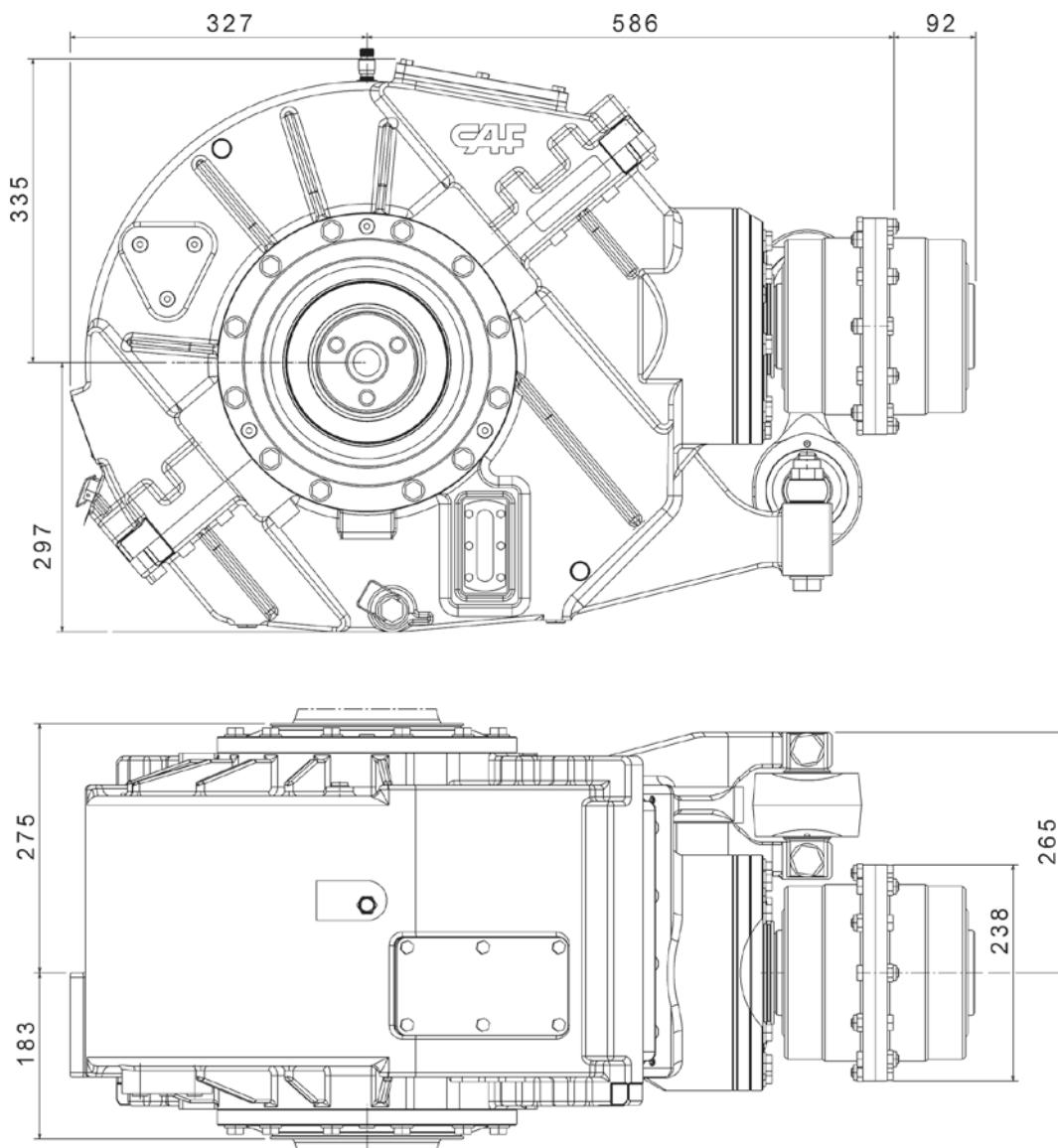
Gearbox type		ABD-400-5.43-1
Maximum axle load	10.000	kg
Ratio	5.444	
Maximum service speed	100	Km/h
Wheel diameter (worn/new)	680/550	mm
Maximum tractive torque	789	Nm
Nominal power	105	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	STOCKHOLM	



ABD-560-4.615-1



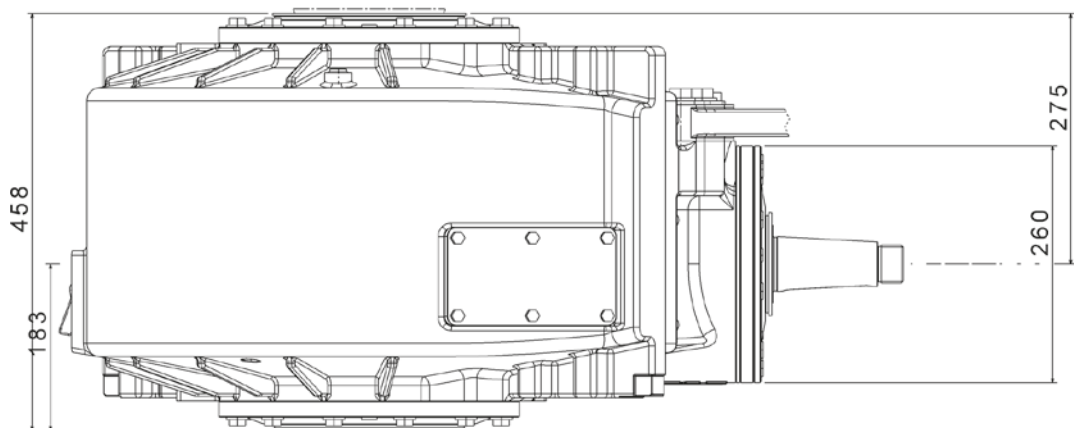
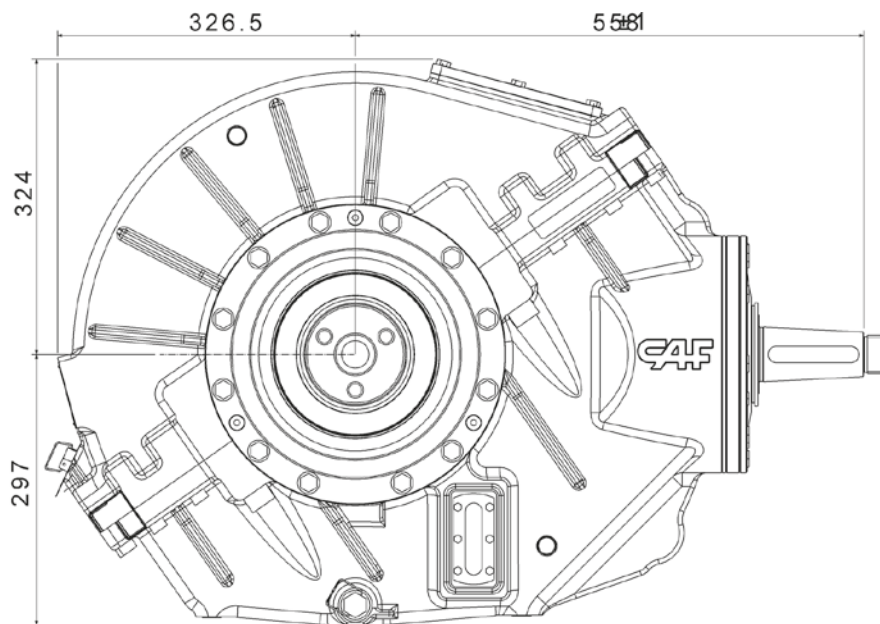
Gearbox type		ABD-560-4.615-1	
Maximum axle load	12.500	kg	
Ratio	4.615		
Maximum service speed	85	Km/h	
Wheel diameter (worn/new)	820/760	mm	
Maximum tractive torque	1923	Nm	
Nominal power	110	kW	
Motor-Gearbox Coupling	TEETH		
Reference projects	MILAN		



ABD-570-5.538-1



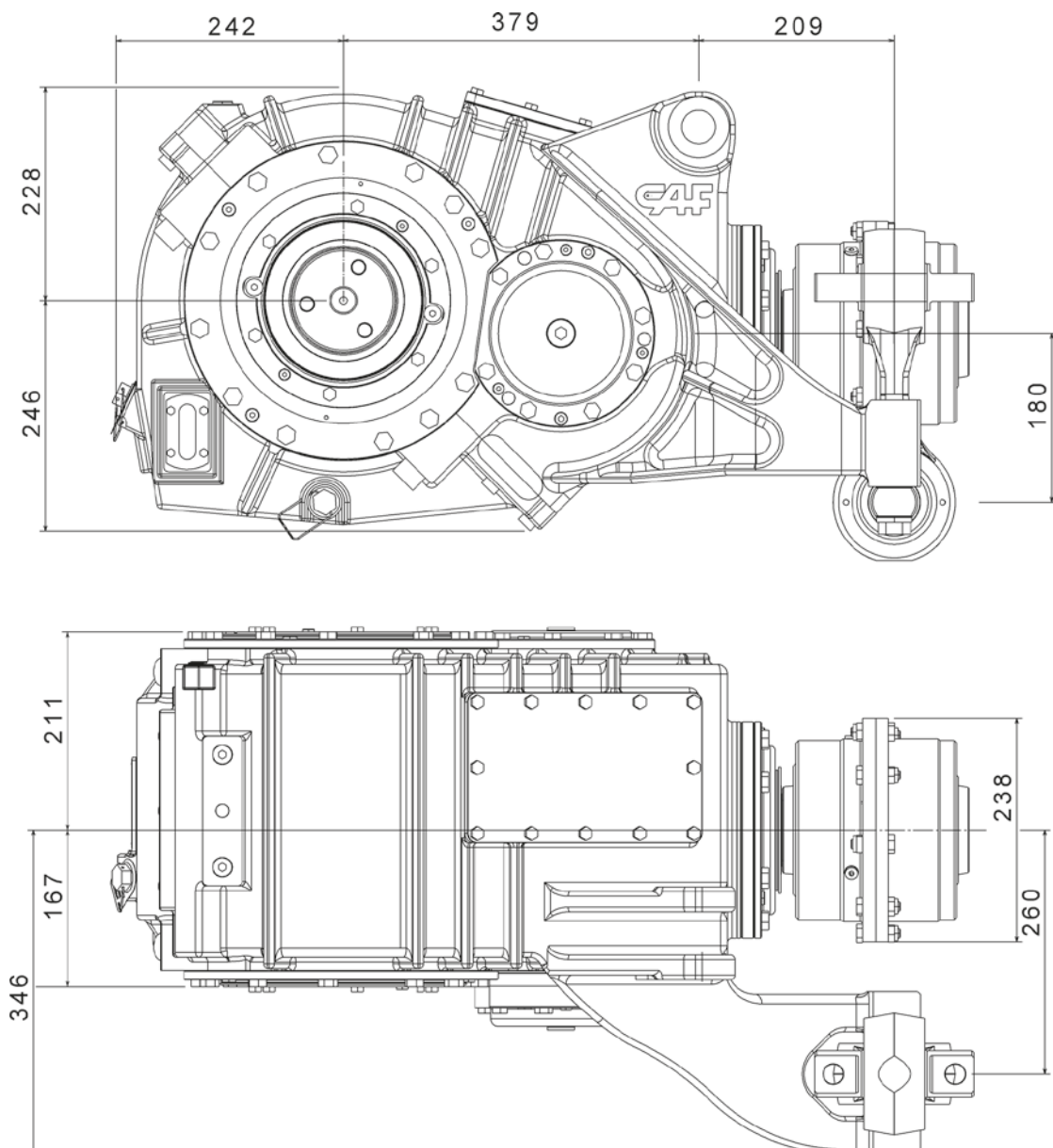
Gearbox type		ABD-570-5.538-1	
Maximum axle load	12.500	kg	
Ratio	5.54		
Maximum service speed	85	Km/h	
Wheel diameter (worn/new)	820/760	mm	
Maximum tractive torque	1410	Nm	
Nominal power	90	kW	
Reference projects	MILAN		



ABHD-363.9-7.42-1



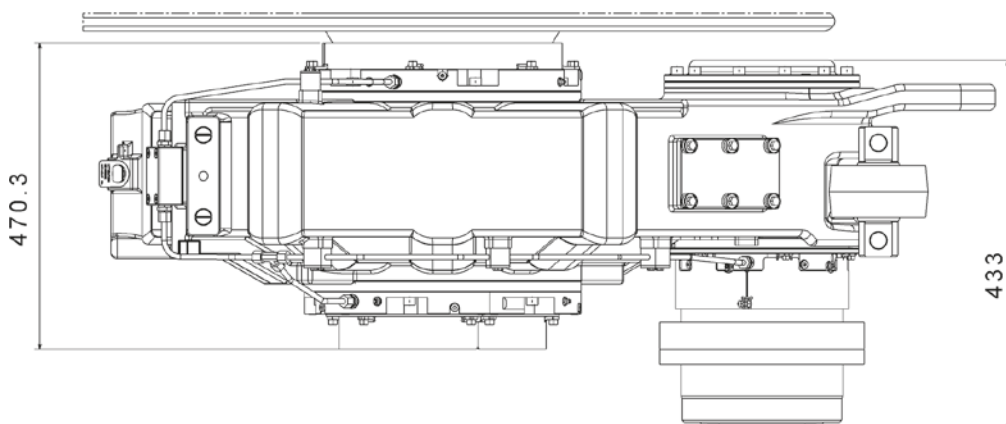
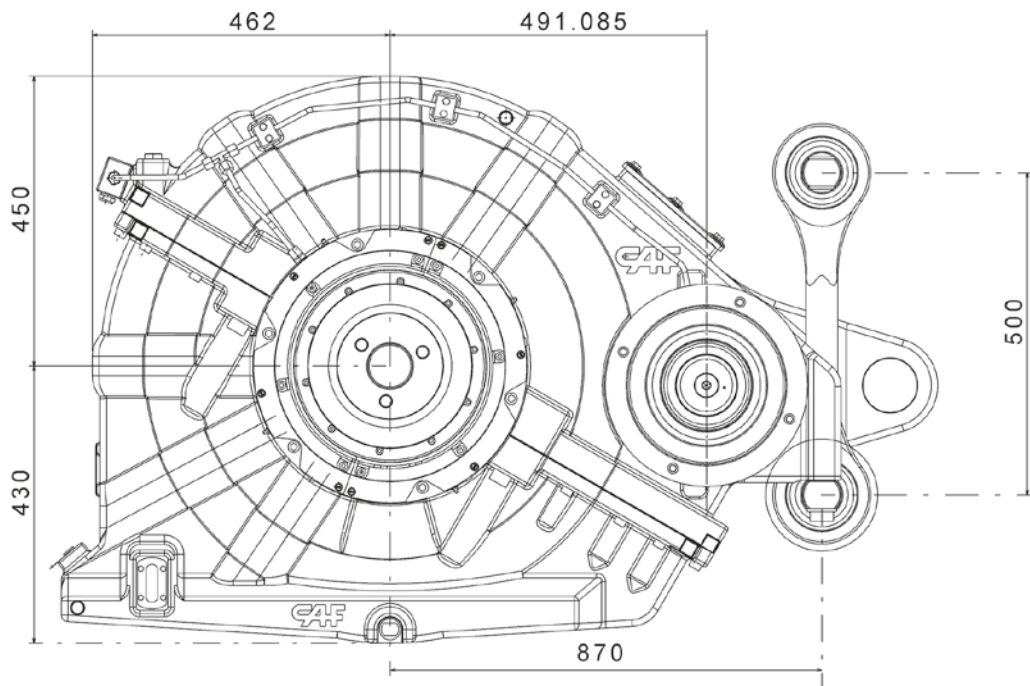
Gearbox type		ABHD-363.9-7.42-1	
Maximum axle load	12.000	kg	
Ratio	7,42		
Maximum service speed	90	Km/h	
Wheel diameter (worn/new)	840/780	mm	
Maximum tractive torque	1140	Nm	
Nominal power	175	kW	
Motor-Gearbox Coupling	TEETH		
Reference projects	ROMA		



AHD-490-4.565-1



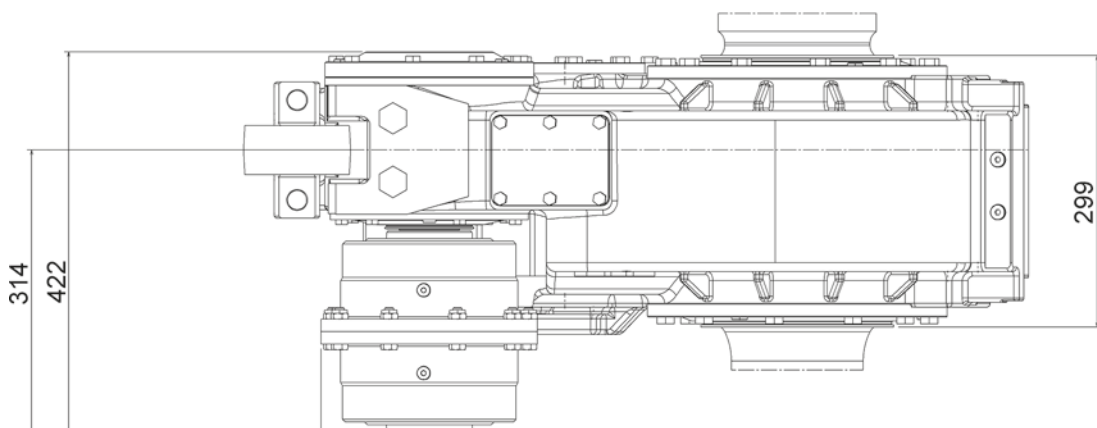
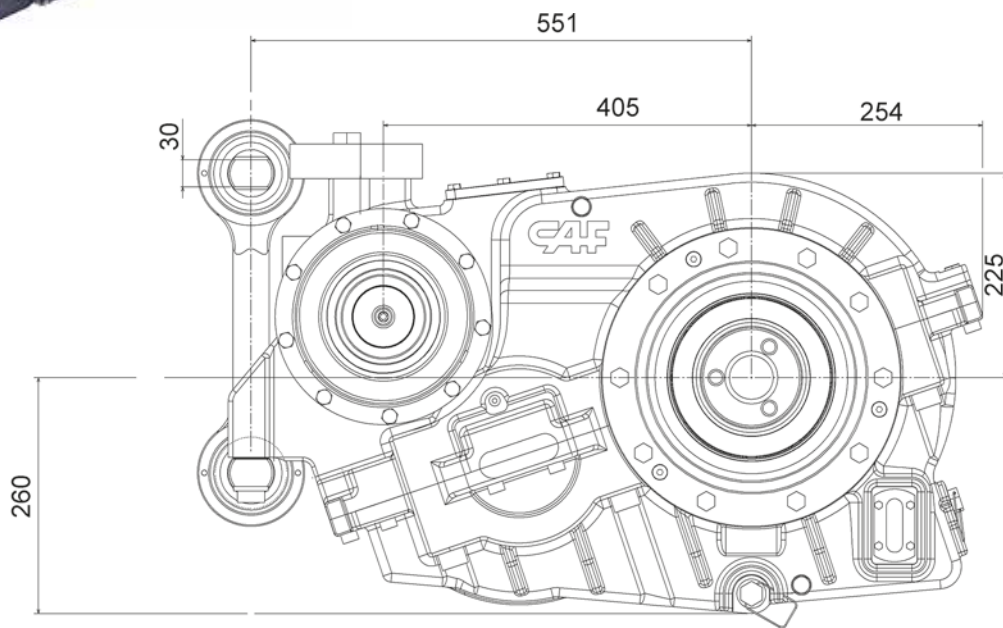
Gearbox type		AHD-490-4.565-1	
Maximum axle load	27.637	kg	
Ratio	4.565		
Maximum service speed	200	Km/h	
Wheel diameter (worn/new)	1150/1070	mm	
Maximum tractive torque	5953	Nm	
Nominal power	683	kW	
Motor-Gearbox Coupling	TEETH		
Reference projects	ARABIA SAR		



AHHD-405-6.79-1



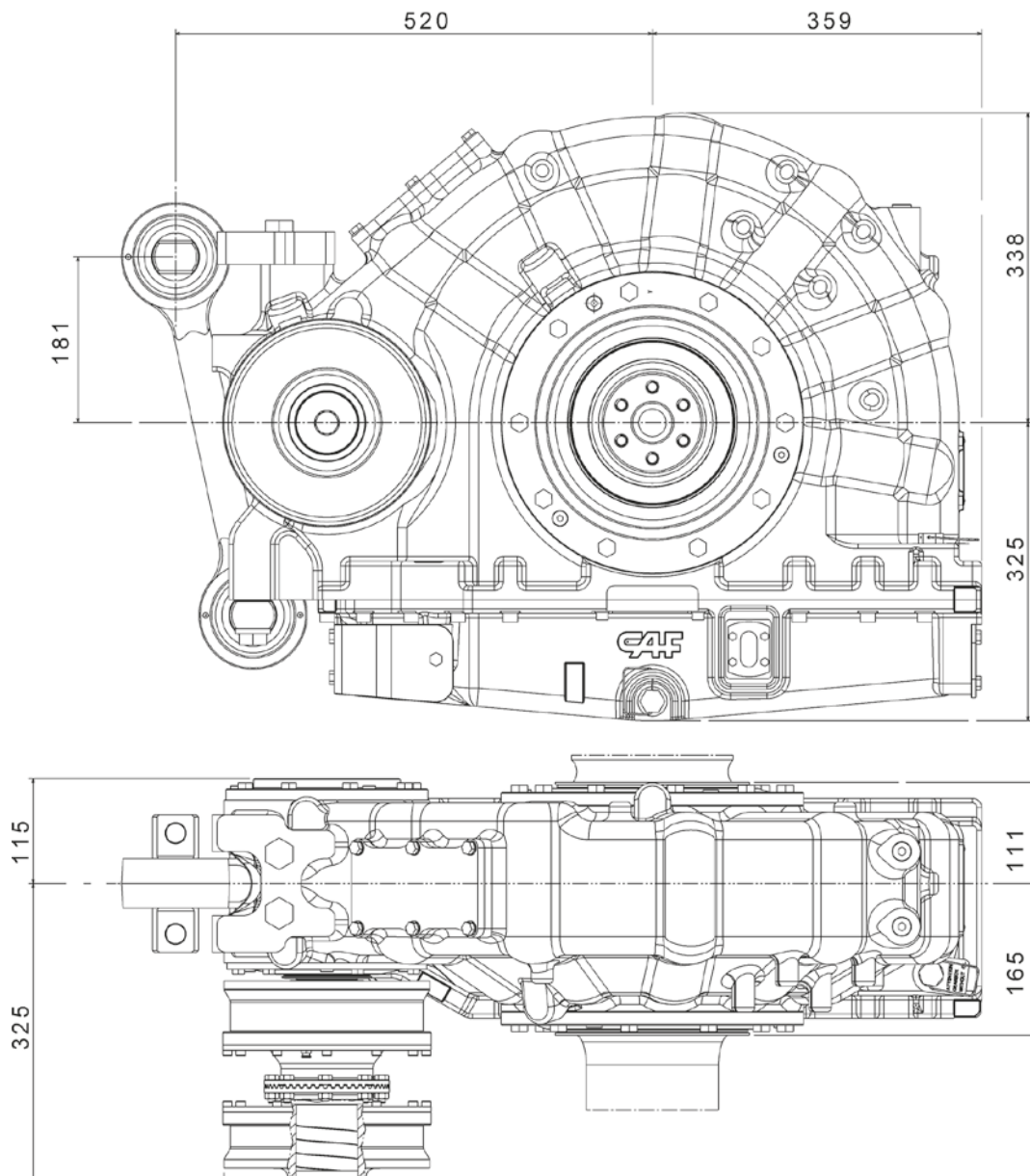
Gearbox type	AHHD-405-6.79-1	
Maximum axle load	11.500	kg
Ratio	6.795	
Maximum service speed	80	Km/h
Wheel diameter (worn/new)	711.2/660,4	mm
Maximum tractive torque	1320	Nm
Nominal power	220	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	VALENCIA	



AHM-355-7.44-1



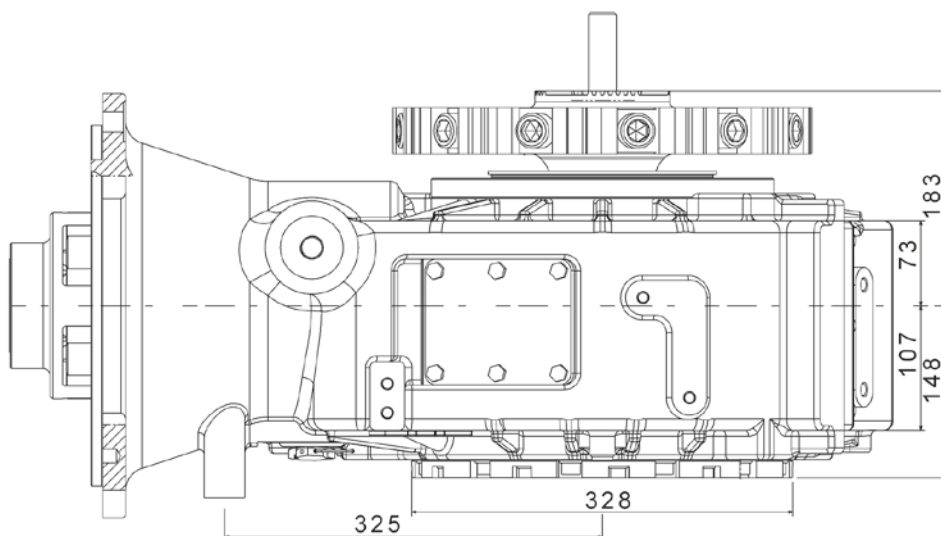
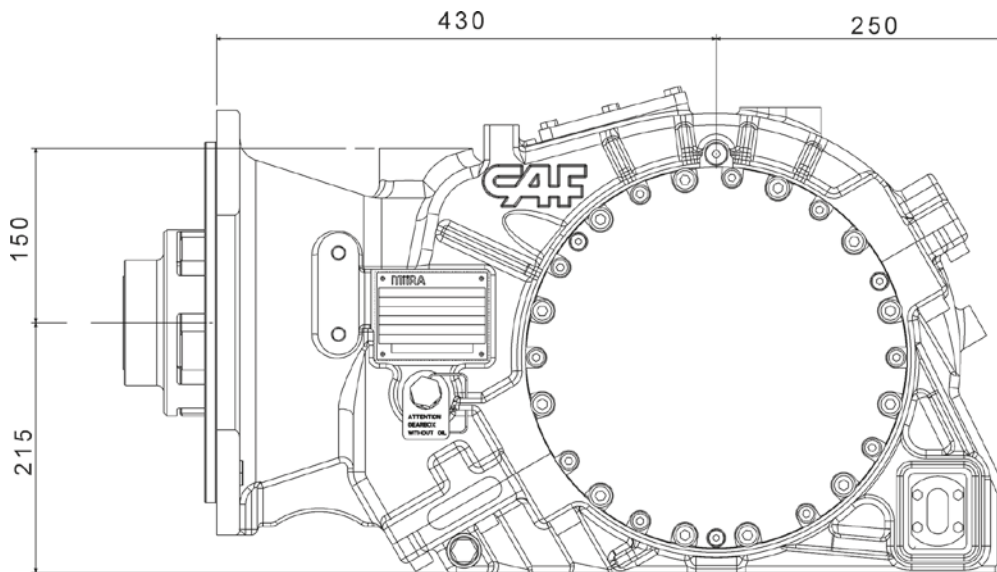
Gearbox type	AHM-355-7.44-1	
Maximum axle load	13.000	kg
Ratio	7.44	
Maximum service speed	90	Km/h
Wheel diameter (worn/new)	850/760	mm
Maximum tractive torque	1342	Nm
Nominal power	200	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	HELSINKI AMSTERDAM	



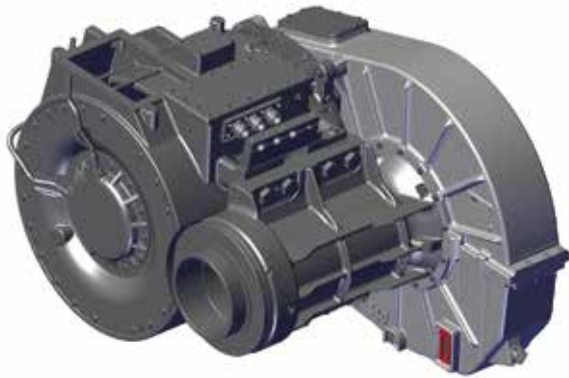
FBD-355-5.4-1



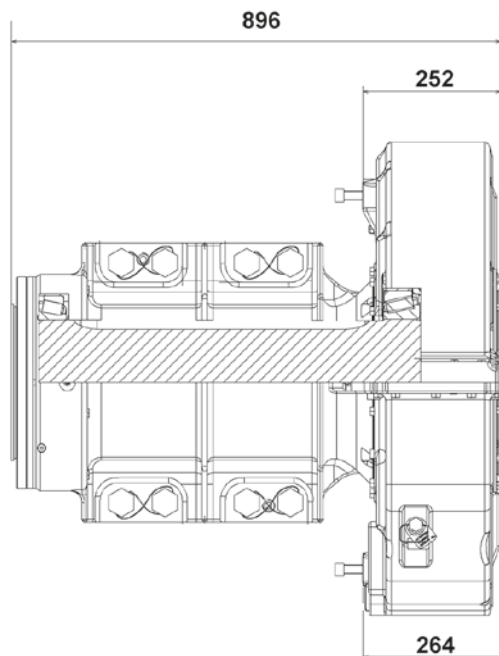
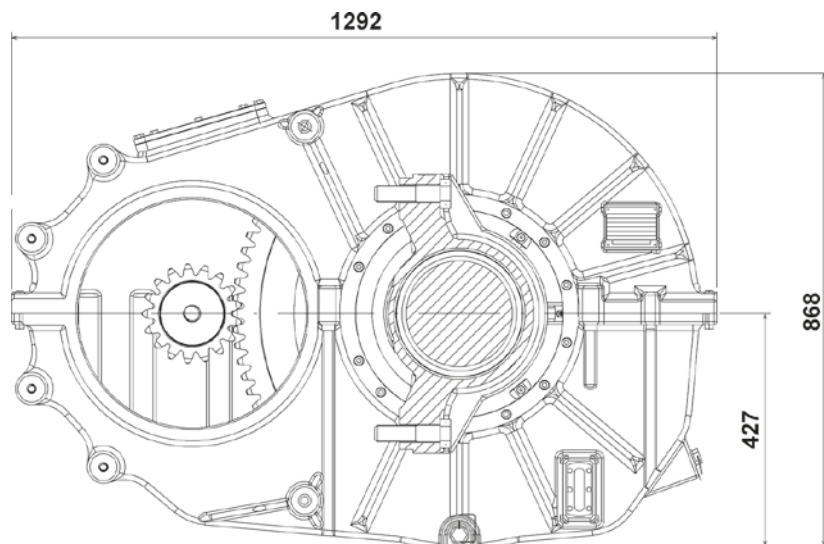
Gearbox type	FBD-355-5.4-1	
Maximum axle load	10.800	kg
Ratio	5.44	
Maximum service speed	70	Km/h
Wheel diameter (worn/new)	630/570	mm
Maximum tractive torque	696	Nm
Nominal power	54	kW
Motor-Gearbox Coupling	FLEXIBLE JAW	
Gearbox-Axle Coupling	TEETH-RUBBER WEDGE COMBINATION	
Reference projects	TALLIN	



CHD-490-5.17-1



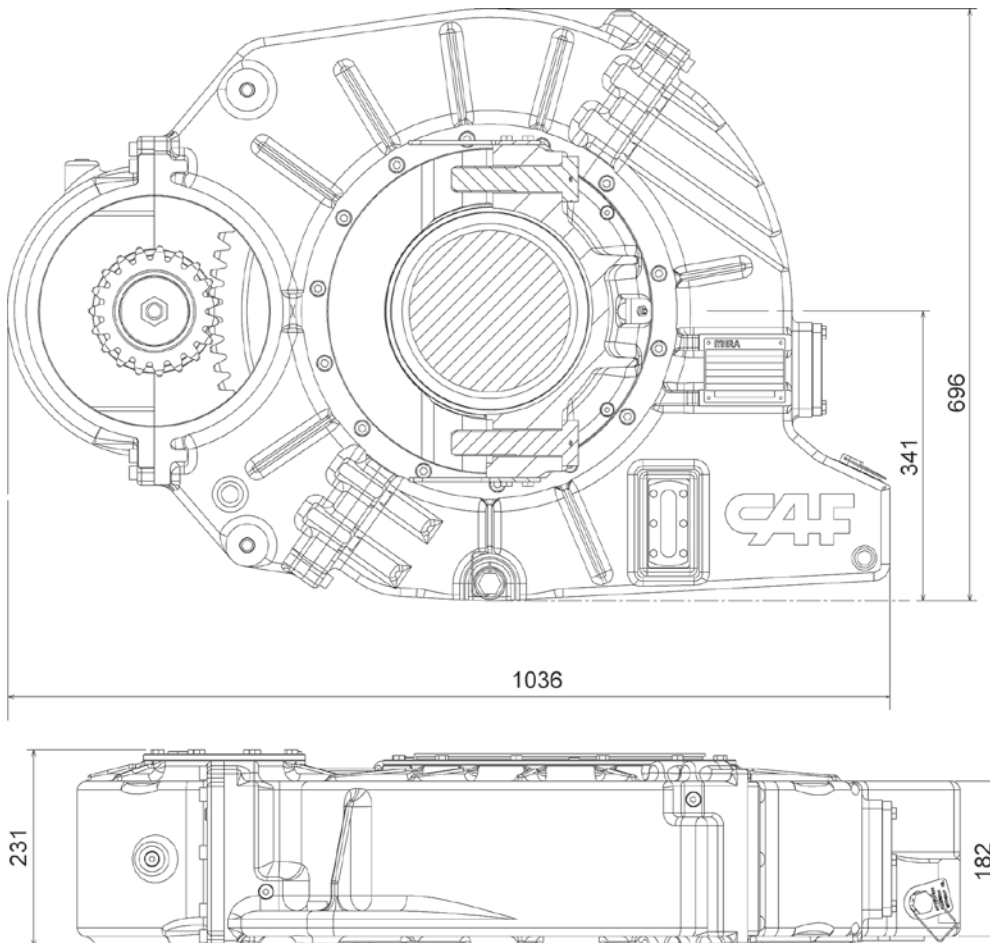
CHD-490-5.17-1		
Maximum axle load	19.000	kg
Ratio	5.17	
Maximum service speed	100	Km/h
Wheel diameter (worn/new)	1067/1003	mm
Maximum tractive torque	8853	Nm
Nominal power	400	kW
Reference projects	GRINDROD-RL30SCM	



CBH-394-4.842-1



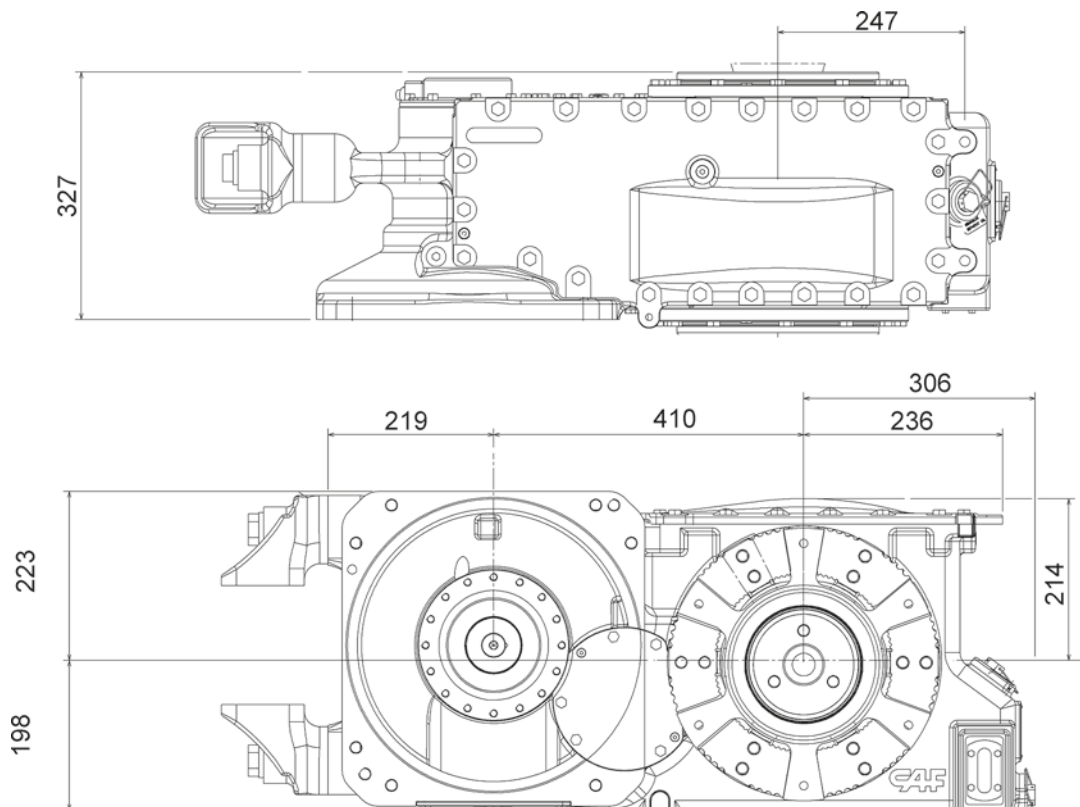
Gearbox type	CBH-394-4.842-1	
Maximum axle load	18.000	kg
Ratio	4.845	
Maximum service speed	100	Km/h
Wheel diameter (worn/new)	915/831	mm
Maximum tractive torque	6883	Nm
Nominal power	310	kW
Reference projects	TRASNET	



FHHM-410-6.489



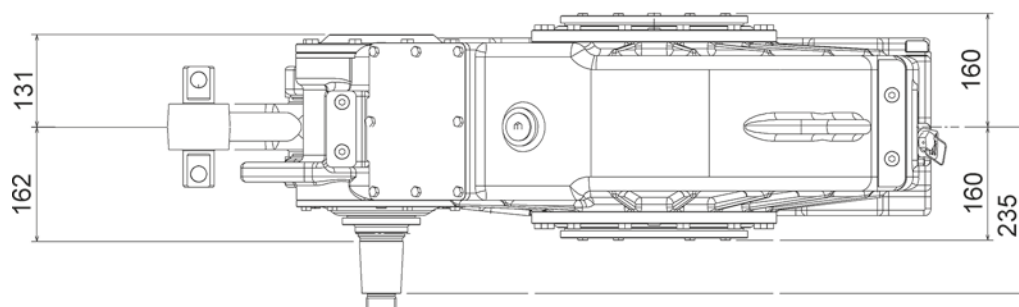
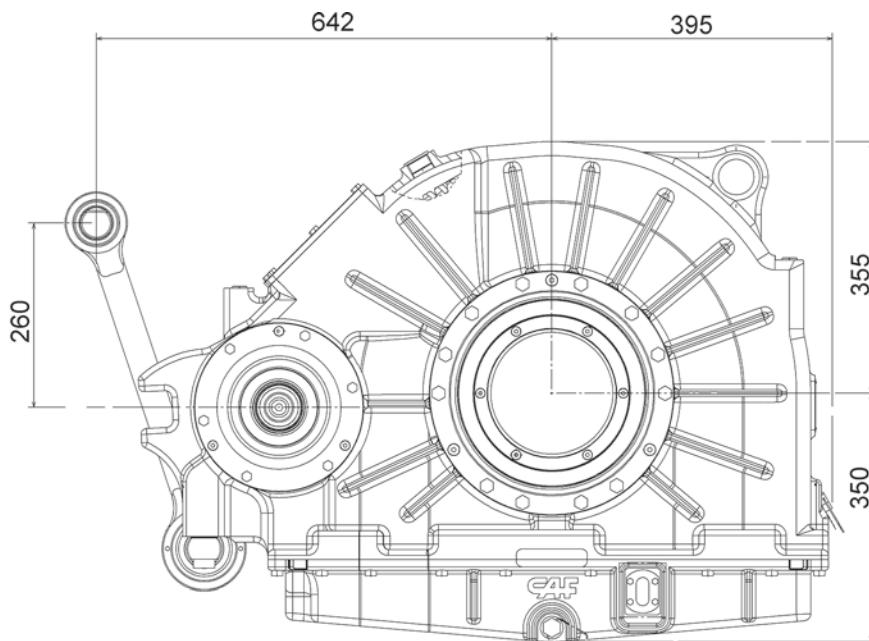
Gearbox type		FHHM-410-6.489	
Maximum axle load	11.900	kg	
Ratio	6.489		
Maximum service speed	88.55	Km/h	
Wheel diameter (worn/new)	660/580	mm	
Maximum tractive torque	945	Nm	
Nominal power	166	kW	
Gearbox-Axle Coupling	RUBBER WEDGE COUPLING		
Reference projects	BOSTON		



AHM-384.48-5.737-3



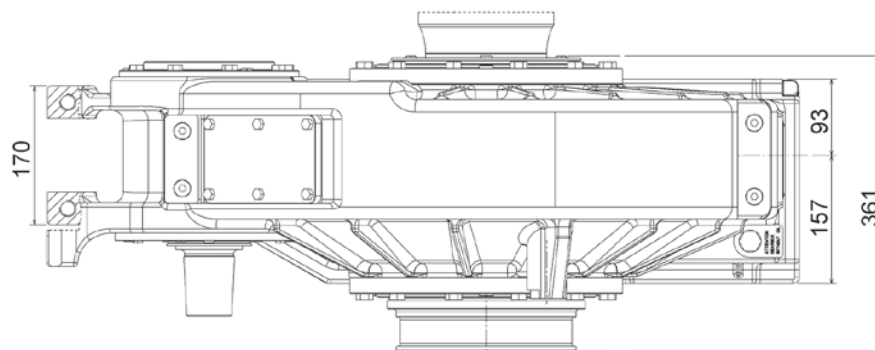
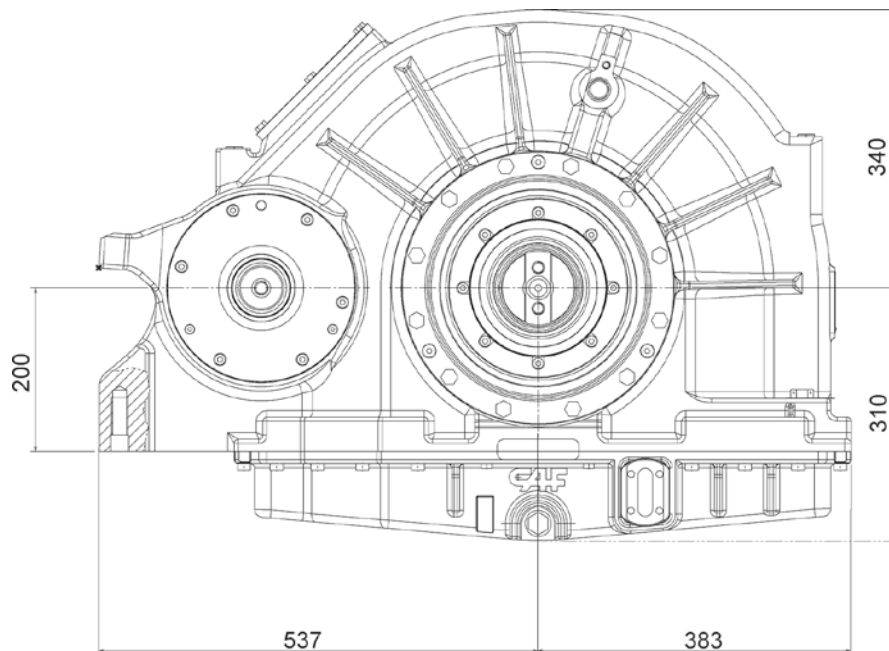
Gearbox type		AHM-384.48-5.737-3
Maximum axle load	15.000	kg
Ratio	5.737	
Maximum service speed	85	Km/h
Wheel diameter (worn/new)	860/810	mm
Maximum tractive torque	1700	Nm
Nominal power	170	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	METRO MOSCÚ	



FBD-361-5.44-2



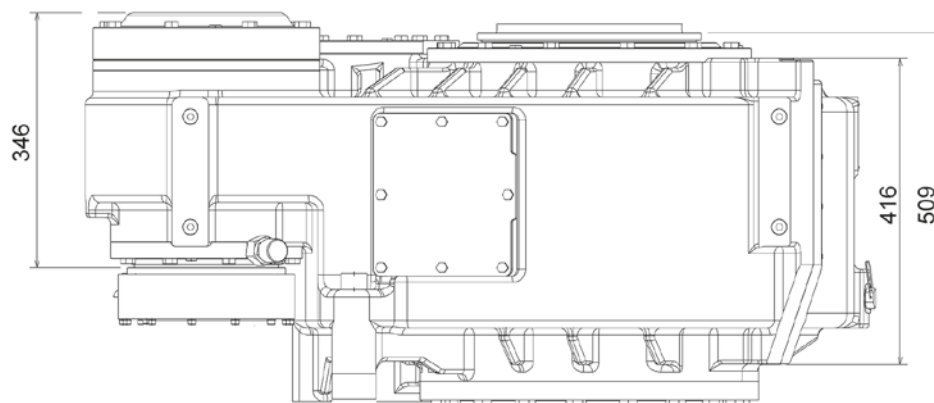
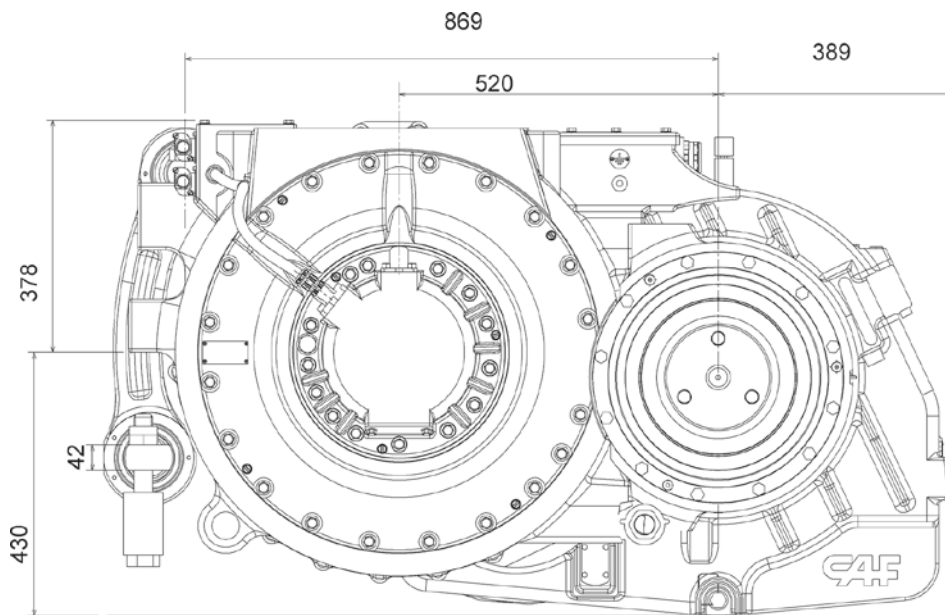
Gearbox type		FBD-361-5.44-2	
Maximum axle load	13.761	kg	
Ratio	5.44		
Maximum service speed	70	Km/h	
Wheel diameter (worn/new)	590/510	mm	
Maximum tractive torque	600	Nm	
Nominal power	70	kW	
Reference projects	METRO BUDAPEST		



CHHD-520-6.984-1



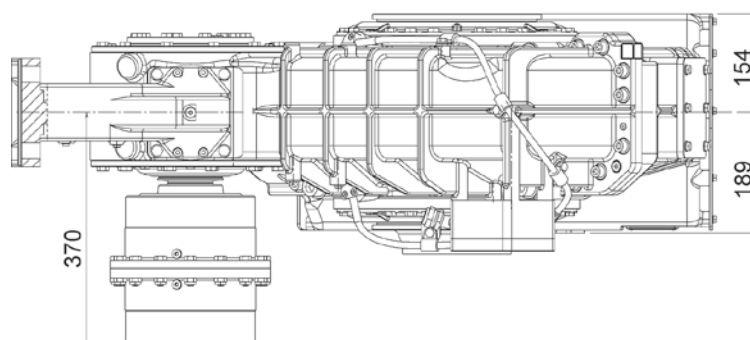
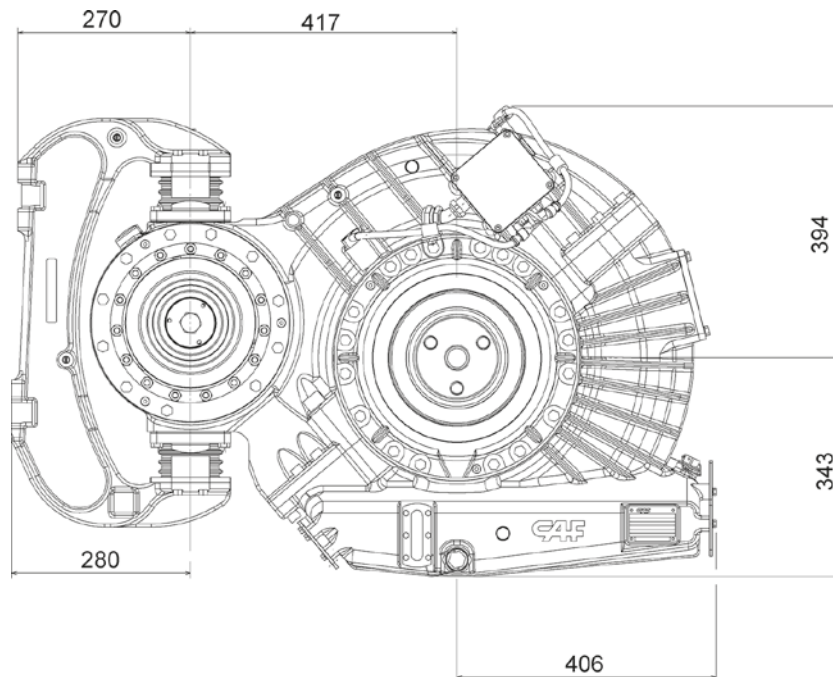
Gearbox type		CHHD-520-6.984-1	
Maximum axle load	32.658	kg	
Ratio	6.984		
Maximum service speed	113	Km/h	
Wheel diameter (worn/new)	1092 / 965	mm	
	1067 / 925		
Maximum tractive torque	11955	Nm	
Nominal power	445	kW	
Motor-Gearbox Coupling	TEETH		
Reference projects	DASH 9		



AHD-417-3.464-1



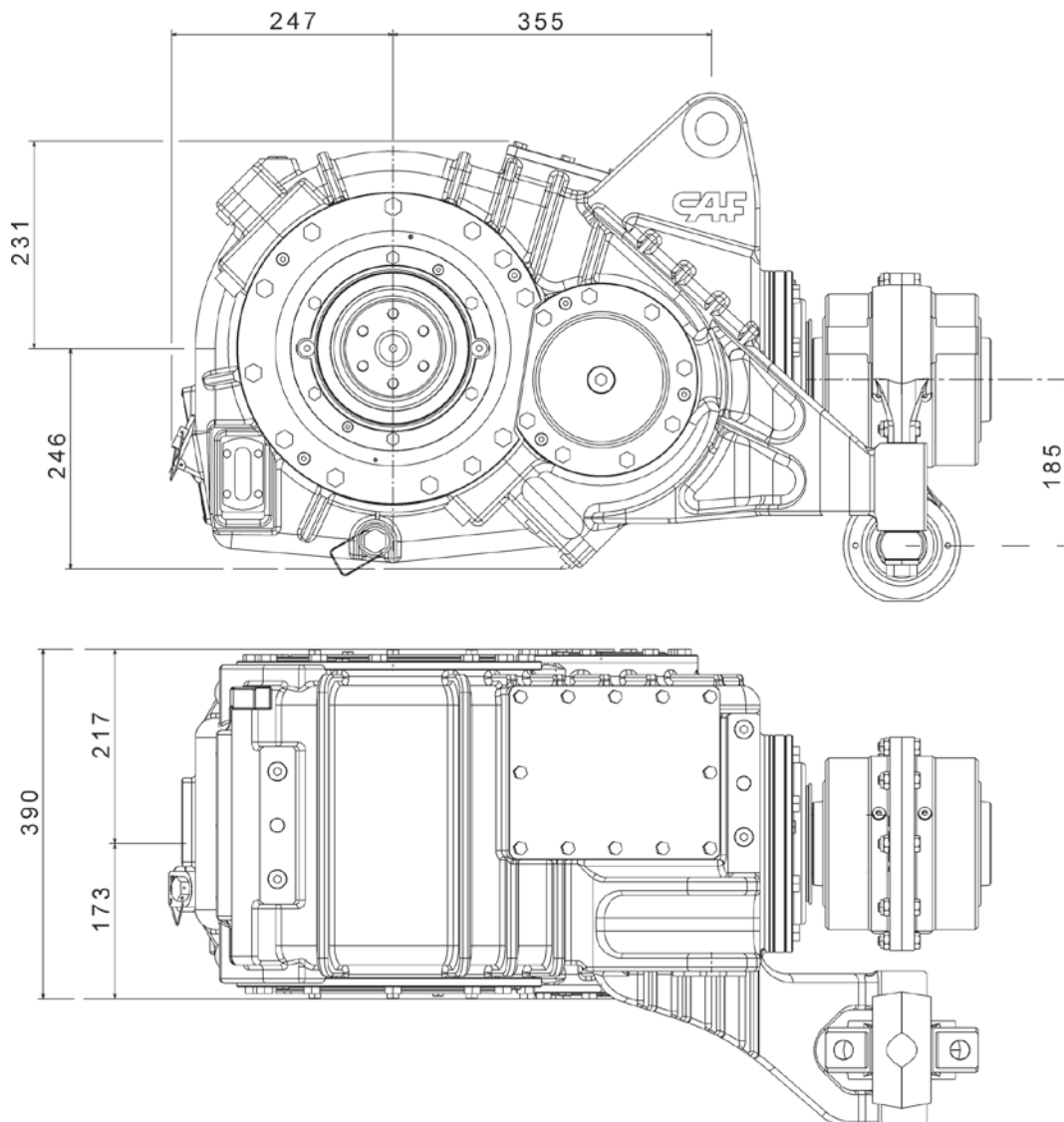
Gearbox type	AHD-417-3.464-1	
Maximum axle load	18.500	kg
Ratio	2.912	
Maximum service speed	250	Km/h
Wheel diameter (worn/new)	920/850	mm
Maximum tractive torque	4998	Nm
Nominal power	459	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	OSLO Airport	



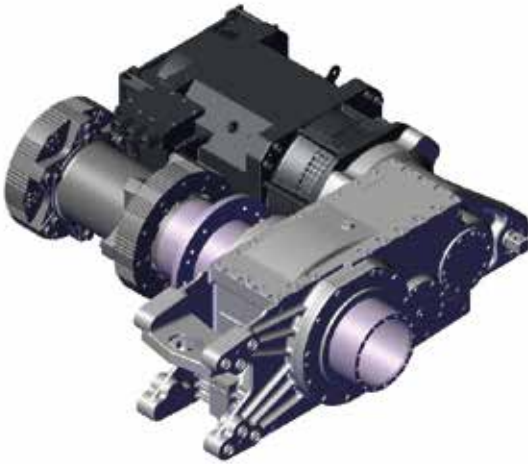
ABHD-363.9-7.42-1



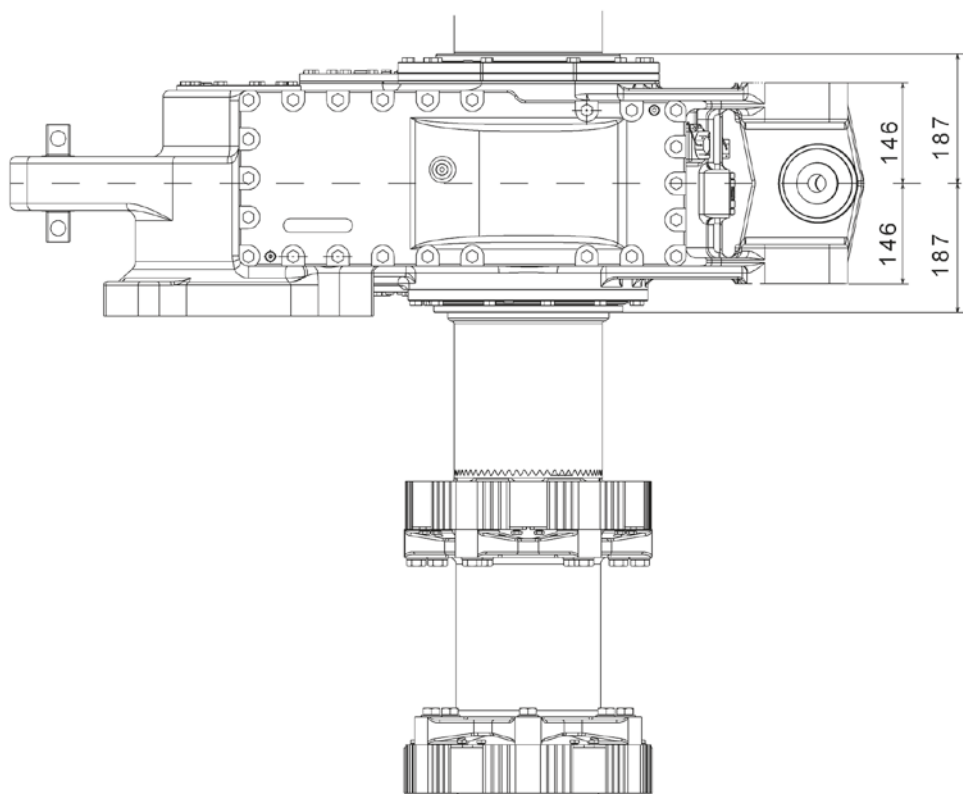
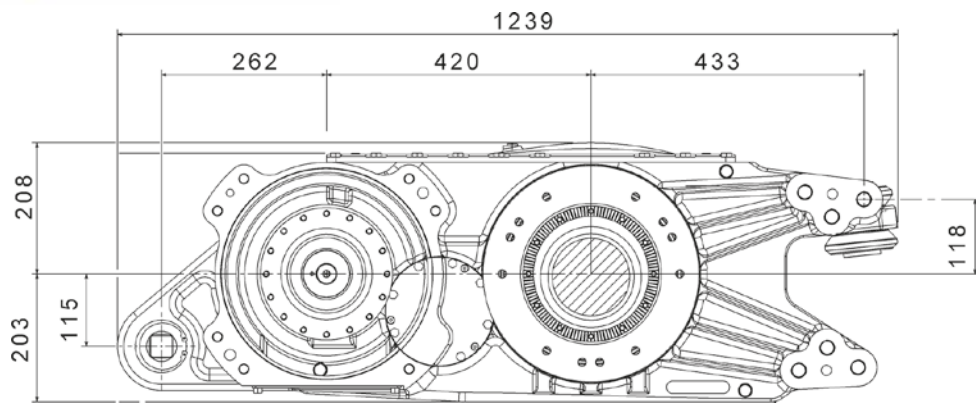
Gearbox type	ABHD-363.9-7.42-1	
Maximum axle load	12.000	kg
Ratio	7.42	
Maximum service speed	72	Km/h
Wheel diameter (worn/new)	830/760	mm
Maximum tractive torque	1167	Nm
Nominal power	135	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	BRUSSELS	



FHHM-420-6.286-1



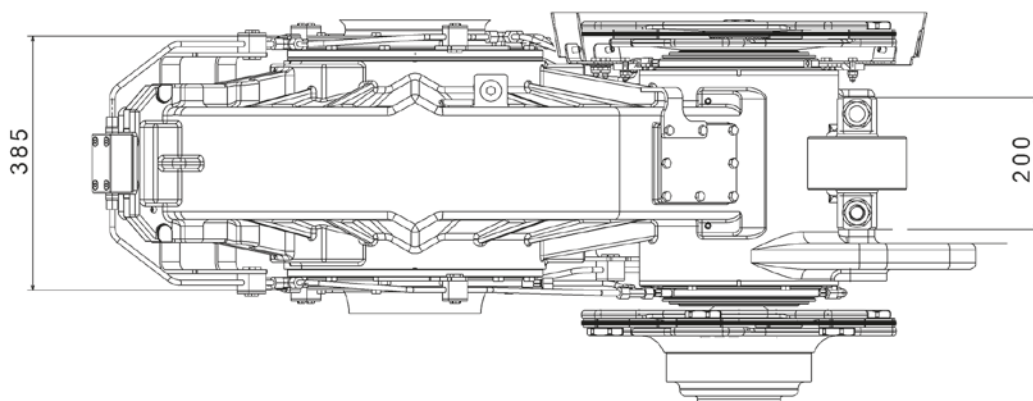
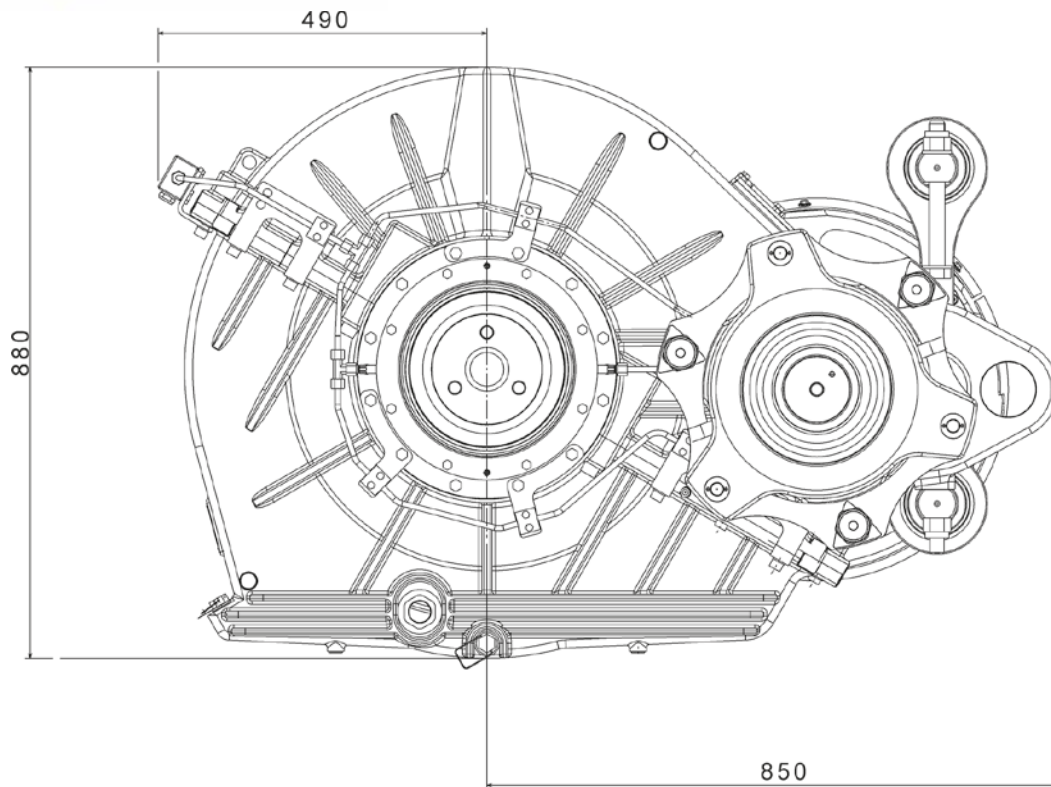
Gearbox type		FHHM-420-6.286-1	
Maximum axle load	11.354	kg	
Ratio	6.283		
Maximum service speed	80.5	Km/h	
Wheel diameter (worn/new)	830/760	mm	
Maximum tractive torque	1217	Nm	
Nominal power	160	kW	
Motor-Gearbox Coupling	MEMBRANE COUPLING		
Gearbox-Axle Coupling	RUBBER-WEDGE		
Reference projects	MARYLAND		



AHD-492-5.09-1



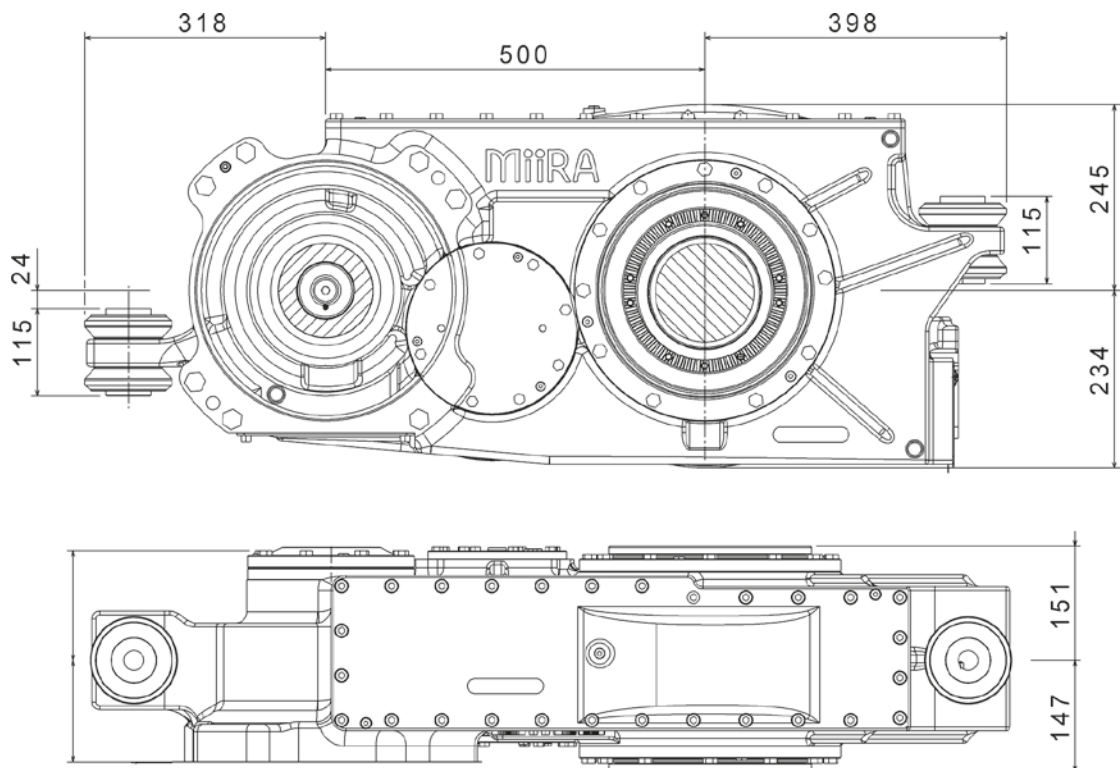
Gearbox type	AHD-492-5.09-1	
Maximum axle load	22.500	kg
Ratio	5.09	
Maximum service speed	180	Km/h
Wheel diameter (worn/new)	1150/1070	mm
Maximum tractive torque	6956	Nm
Nominal power	709	kW
Motor-Gearbox Coupling	FLEXIBLE DISC COUPLING	
Reference projects	SRO	



FHHM-500-7.143-1



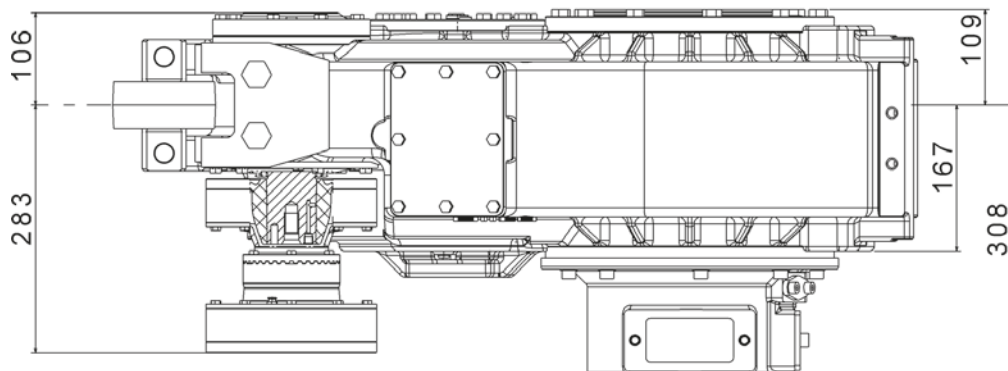
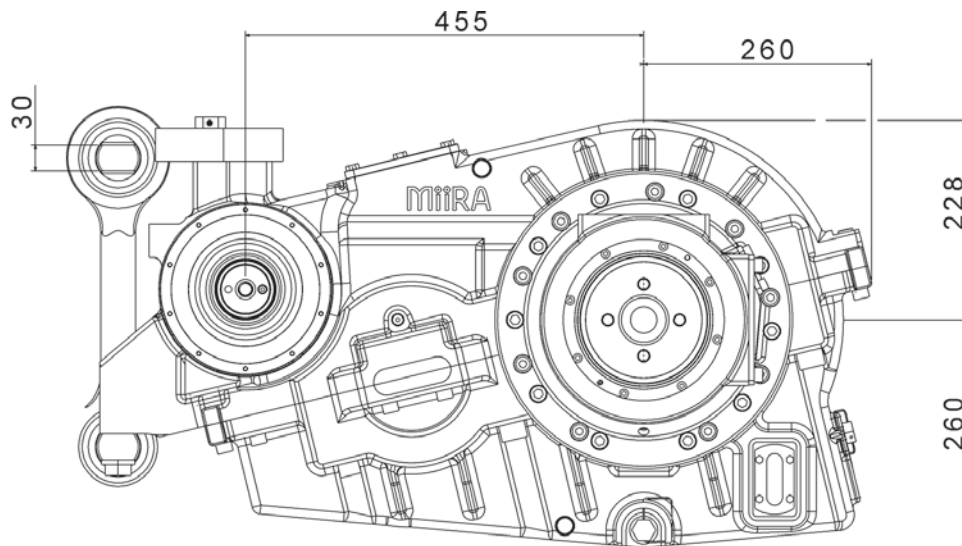
Gearbox type	FHHM-500-7.143-1	
Maximum axle load	12.000	kg
Ratio	7.143	
Maximum service speed	80	Km/h
Wheel diameter (worn/new)	780/700	mm
Maximum tractive torque	966	Nm
Nominal power	100	kW
Motor-Gearbox Coupling	MEMBRANE COUPLING	
Gearbox-Axle Coupling	CARDAN JOINT COUPLING	
Reference projects	JABODEBEK	



AHHD-455-7.48-1



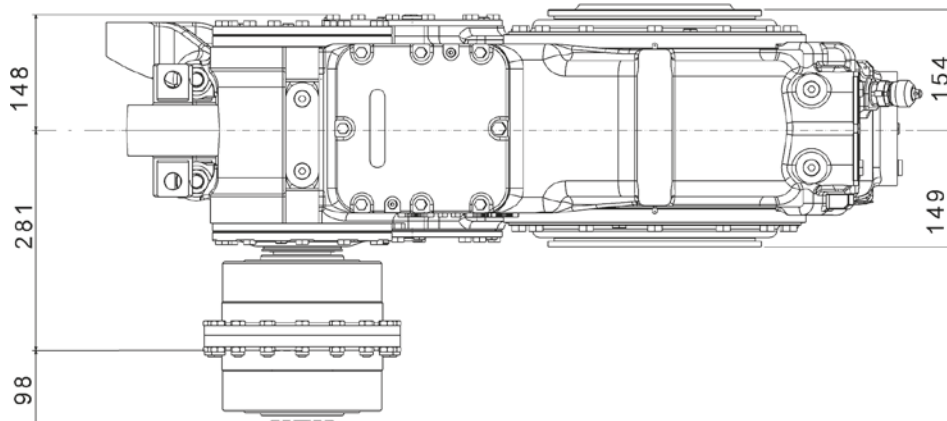
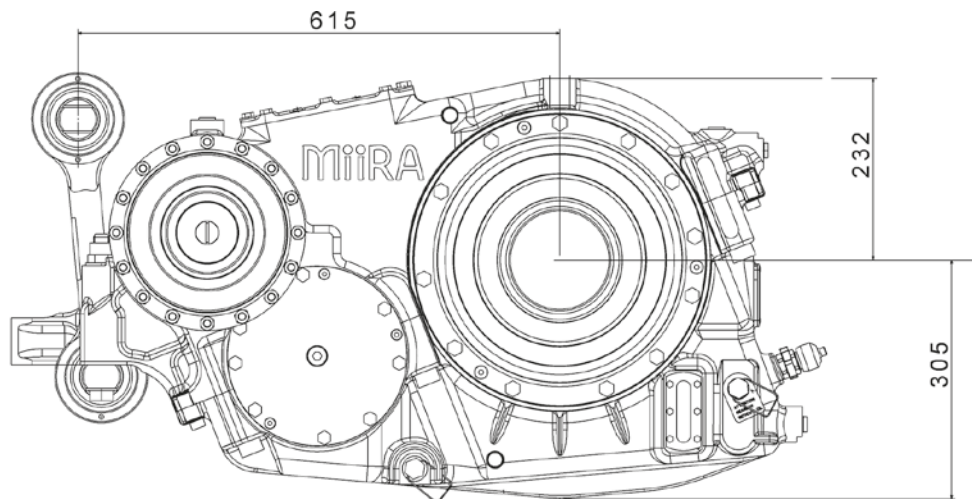
Gearbox type	AHHD-455-7.48-1	
Maximum axle load	10.500	kg
Ratio	7.48	
Maximum service speed	60	Km/h
Wheel diameter (worn/new)	660/600	mm
Maximum tractive torque	3968	Nm
Nominal power	105	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	METRO MANILA	



AHBM-510-6.8-1



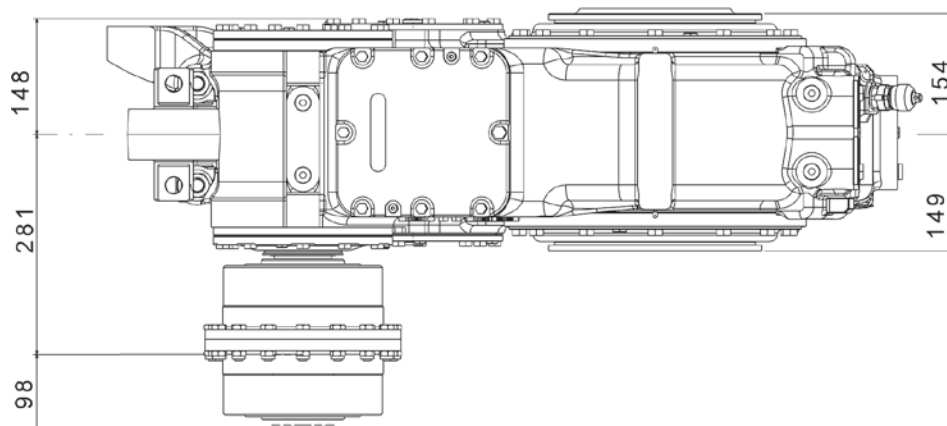
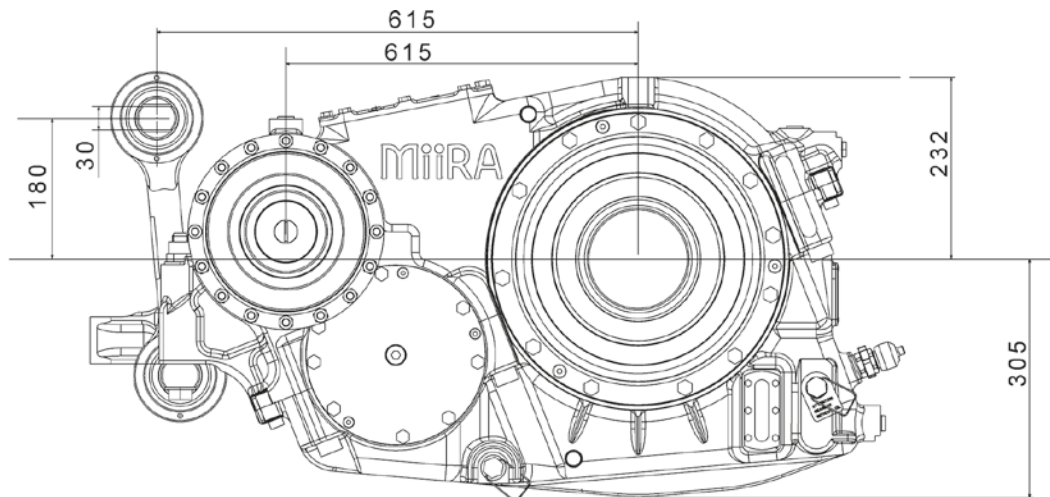
Gearbox type	AHBM-510-6.8-1	
Maximum axle load	10.500	kg
Ratio	6.8	
Maximum service speed	80	Km/h
Wheel diameter (worn/new)	740/660	mm
Maximum tractive torque	1359	Nm
Nominal power	170	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	DOCKLANDS	



AHD-450-2.571-1



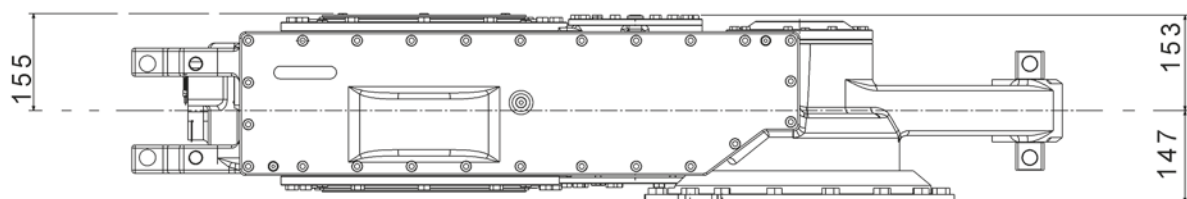
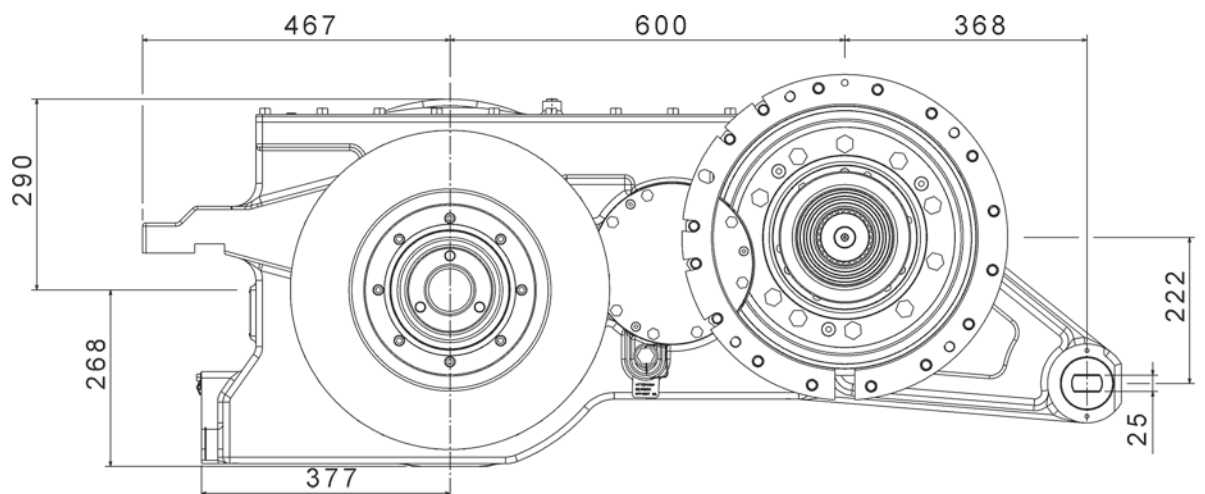
Gearbox type	AHD-450-2.571-1	
Maximum axle load	18.500	kg
Ratio	2.571	
Maximum service speed	200	Km/h
Wheel diameter (worn/new)	840/770	mm
Maximum tractive torque	5036	Nm
Nominal power	335	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	SNCF AMLD	



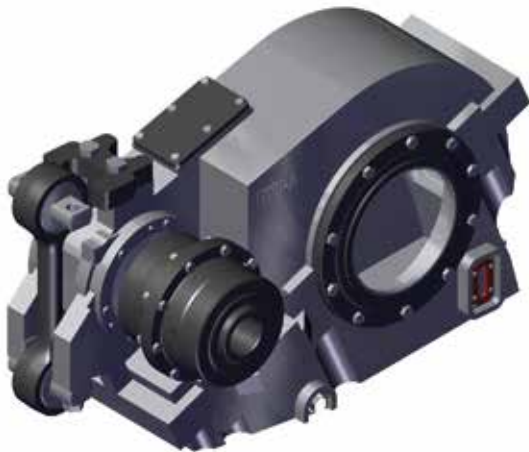
FHHM-600-6.57-1



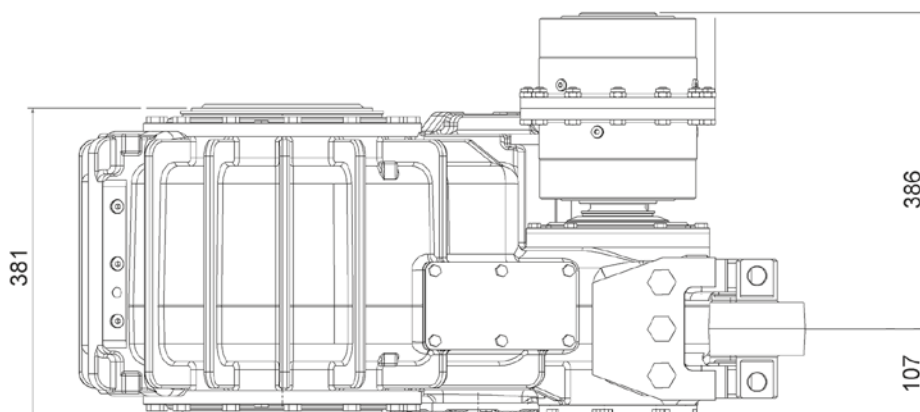
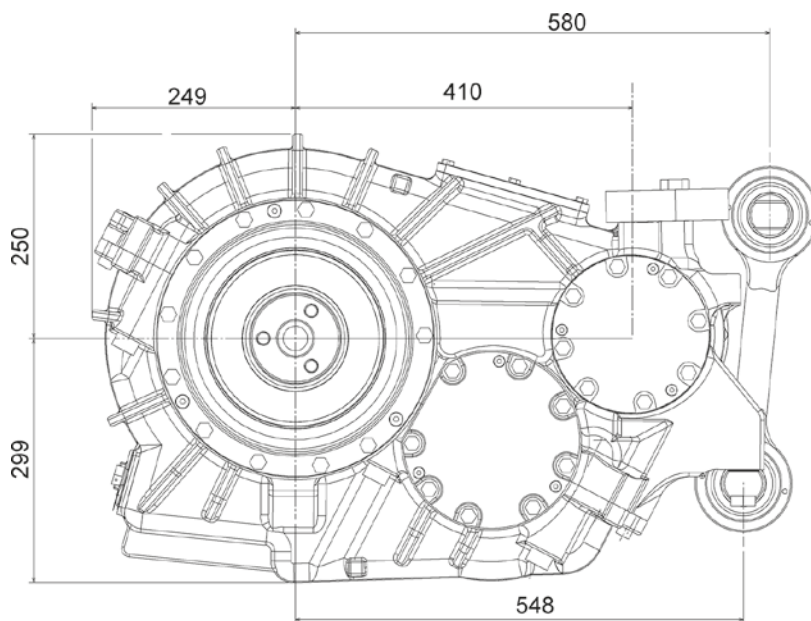
Gearbox type	FHHM-600-6.57-1	
Maximum axle load	16.000	kg
Ratio	6.57	
Maximum service speed	90	Km/h
Wheel diameter (worn/new)	850/790	mm
Maximum tractive torque	1318	Nm
Nominal power	300	kW
Motor-Gearbox Coupling	FLEXIBLE JAW	
Gearbox-Axle Coupling	RUBBER WEDGE	
Reference projects	METRO CATANIA	



AHHD-430-7.84-1



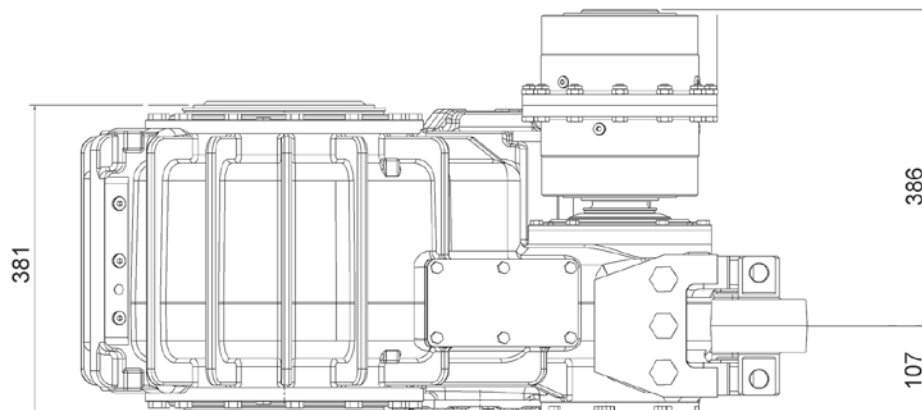
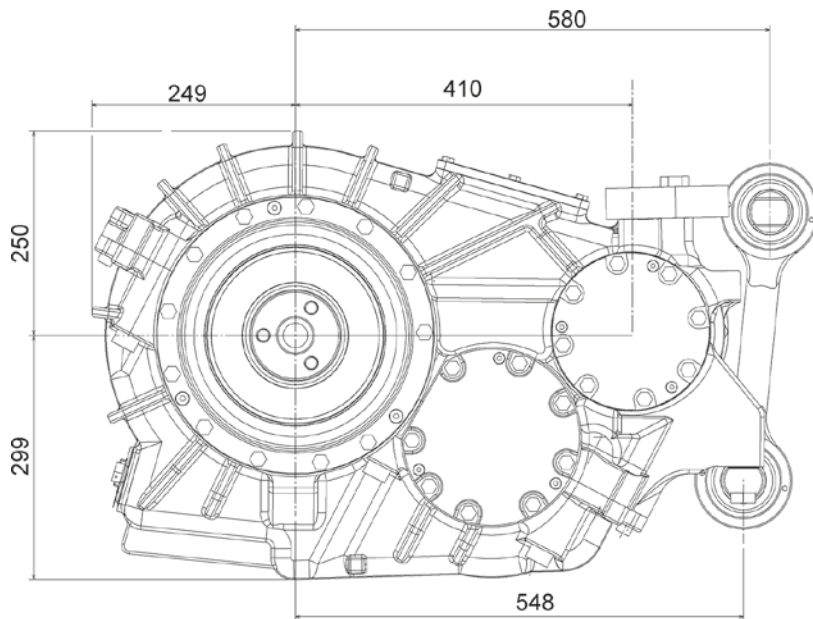
Gearbox type	AHHD-430-7.84-1	
Maximum axle load	14.500	kg
Ratio	7.839	
Maximum service speed	100	Km/h
Wheel diameter (worn/new)	850/780	mm
Maximum tractive torque	1433	Nm
Nominal power	244	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	RENFE ANCHO METRICO Y ALPINO	



AHHD-410-7.52-3



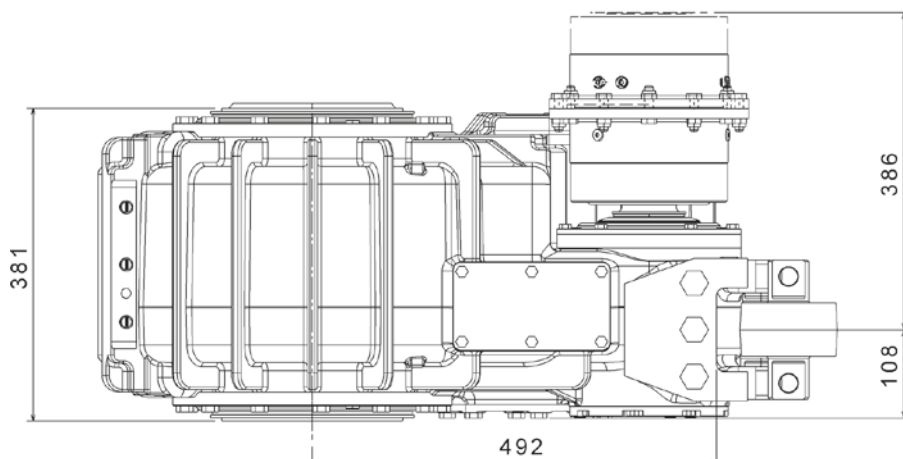
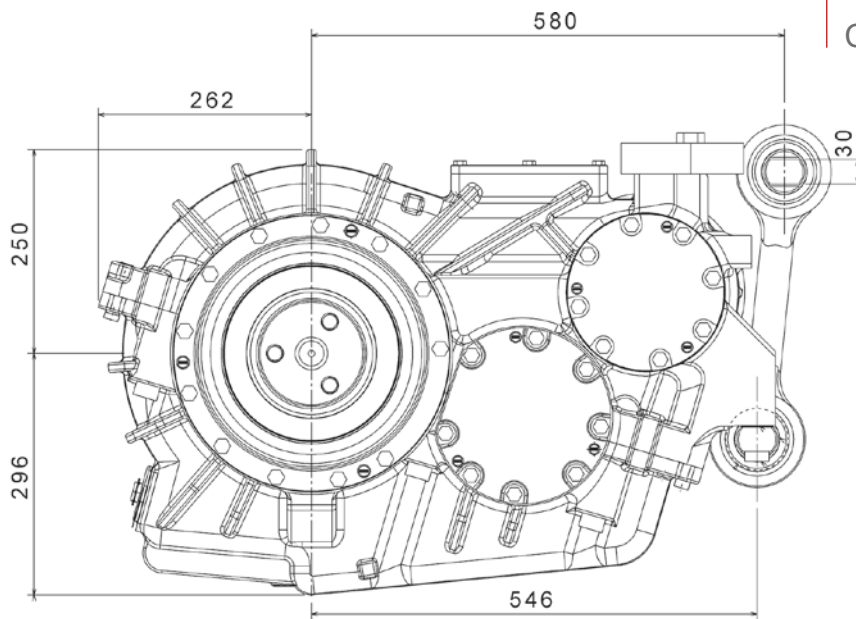
Gearbox type	AHHD-430-4.82-1	
Maximum axle load	15.000	kg
Ratio	7.512	
Maximum service speed	80	Km/h
Wheel diameter (worn/new)	860/790	mm
Maximum tractive torque	2070	Nm
Nominal power	246	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	CHILE PORTO ALEGRE DELHI	

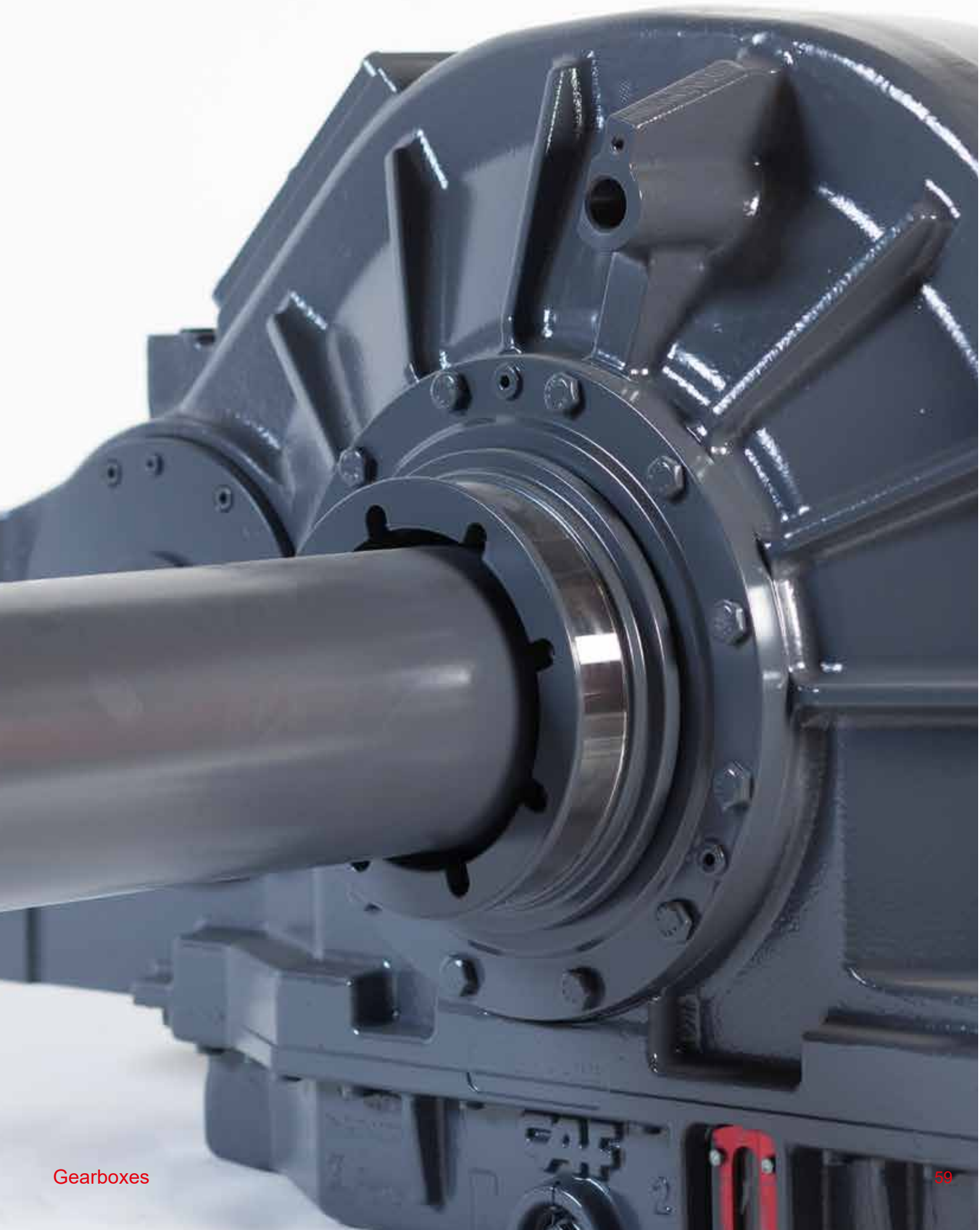


AHHD-410-7.52-1



Gearbox type	AHHD-410-7.52-1	
Maximum axle load	18.500	kg
Ratio	7.512	
Maximum service speed	90	Km/h
Wheel diameter (worn/new)	915/825	mm
Maximum tractive torque	1500.5	Nm
Nominal power	410	kW
Motor-Gearbox Coupling	TEETH	
Reference projects	RECIFE BELO HORIZONTE CPTM S8500	





References

Satisfied clients

- Locomotives



DASH-9

Northfolk Southern
USA



Trans Africa

Transnet
South Africa





RL30SCM
Grindrod
South Africa



KLW
Usa



References

Satisfied clients

- High Speed



CAF High
Speed Platform
Flytoget – Norway



High Speed
SAR
Saudi Arabia



◦ Regional and Suburban



EMU
Civity Platform
Trieste – Italy



Metro Helsinki
Finland



Metro Catania
Titagarh-Italy



◦ LRV



LRV Maryland
USA

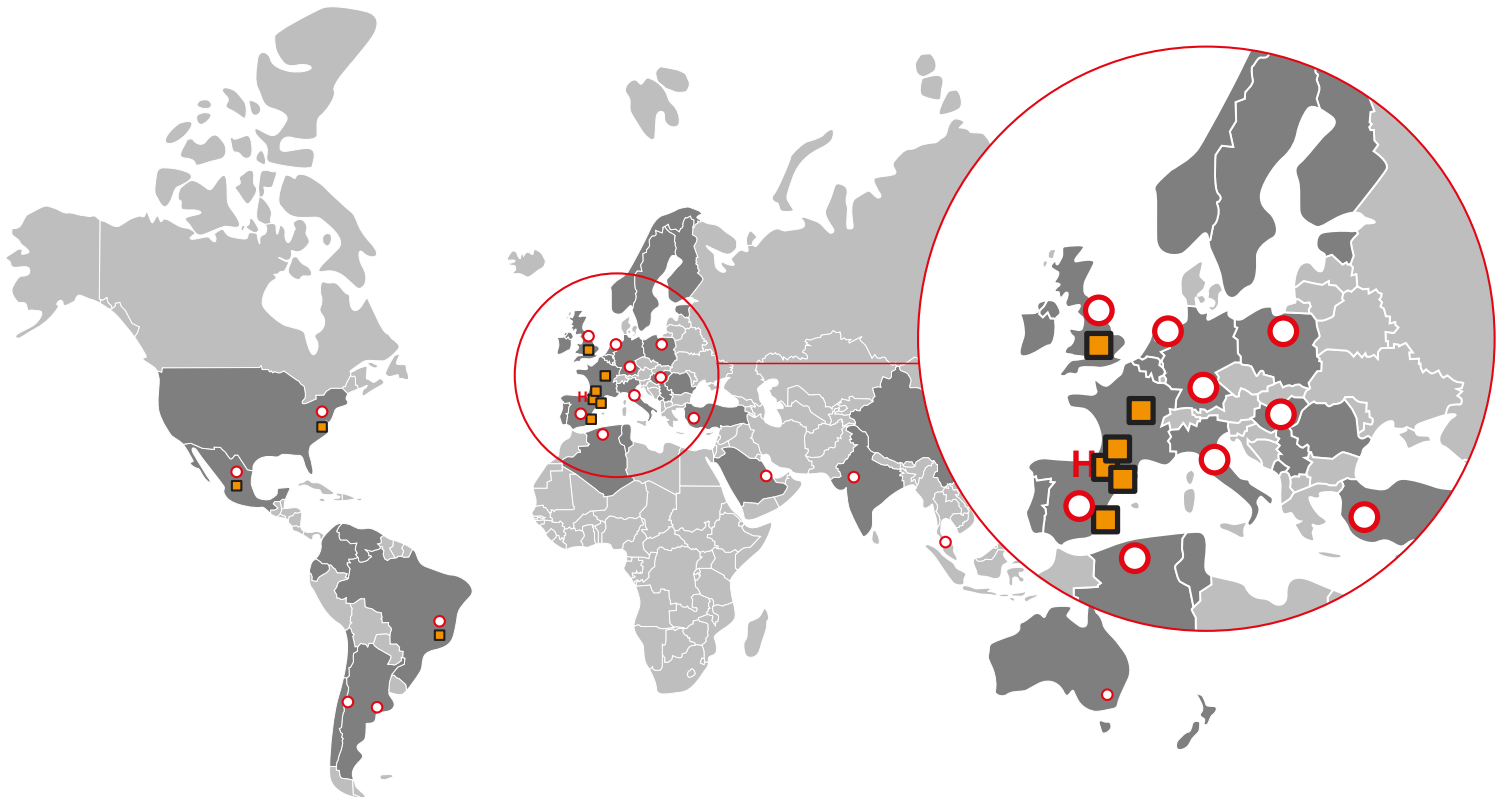


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