

# DRIVELINES FOR AGRICULTURE MACHINERY

 **MADE IN GERMANY**



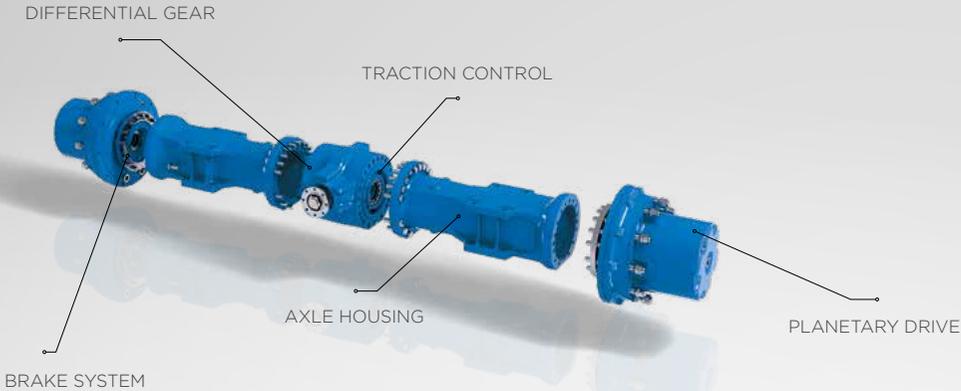
## FOR YOUR HEAVY DUTY PLAYGROUNDS



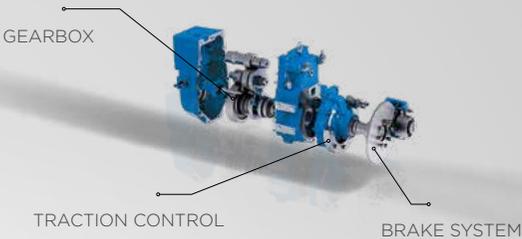
**NAF • MODULAR-MINDED AXLES**

**NAFAXLES.COM**

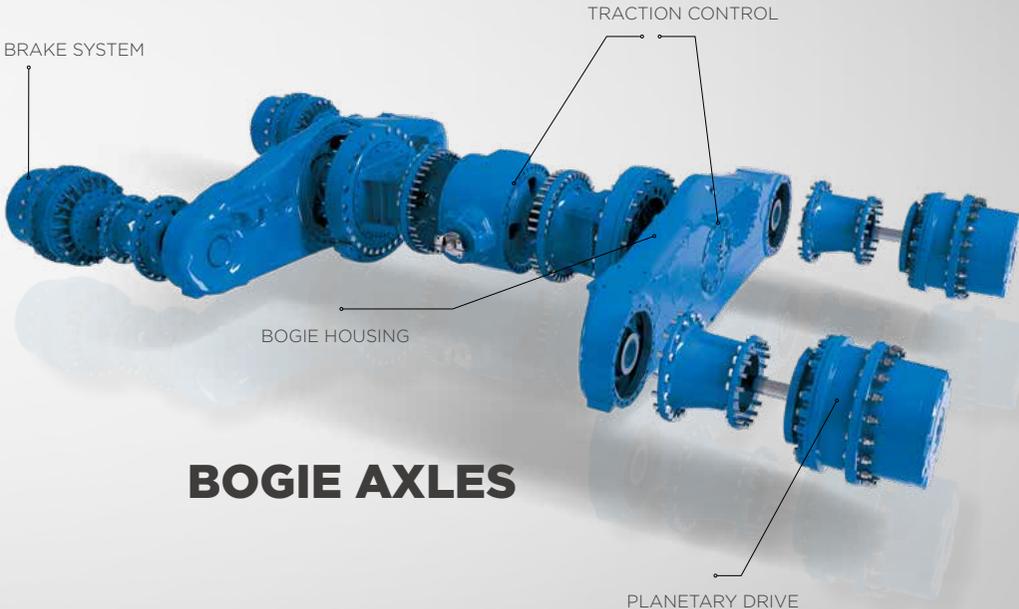
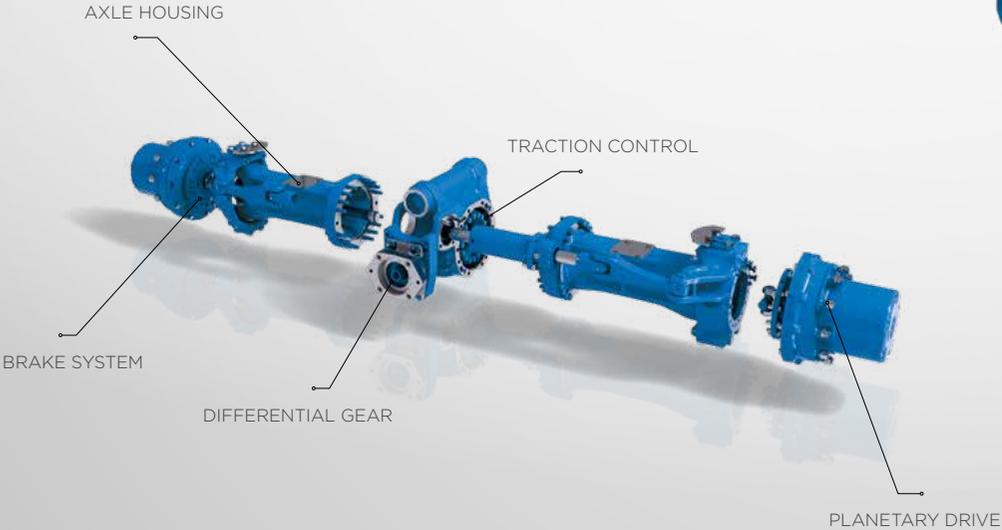
# RIGID AXLES



# GEARBOXES



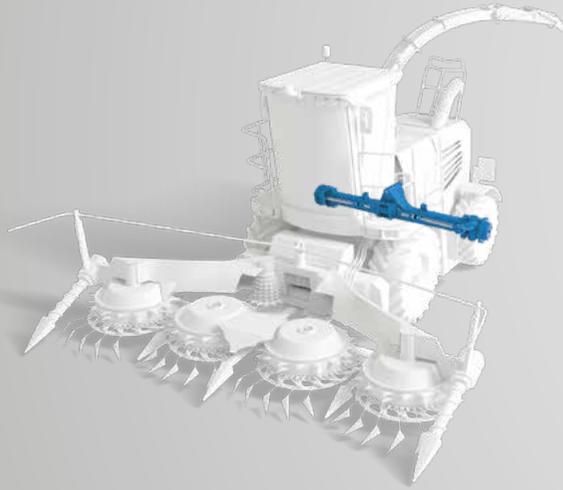
# STEERING AXLES



# BOGIE AXLES



# NON-DRIVEN STEERING AXLES



## Product features

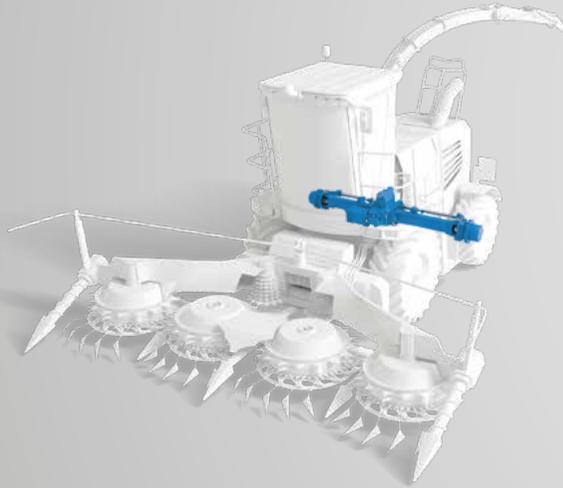
- > One or three piece axle beam
- > Spacer for cost efficient width adjustment
- > Modular system implementation



TYPE	LU AXLE	FORAGE HARVESTER
No.	4000	
Flange to flange	2510 - 3870 mm	
Speed	Up to 40 km/h	
Dynamic axle load	70 - 140 kN	
Weight	350 - 580 kg	

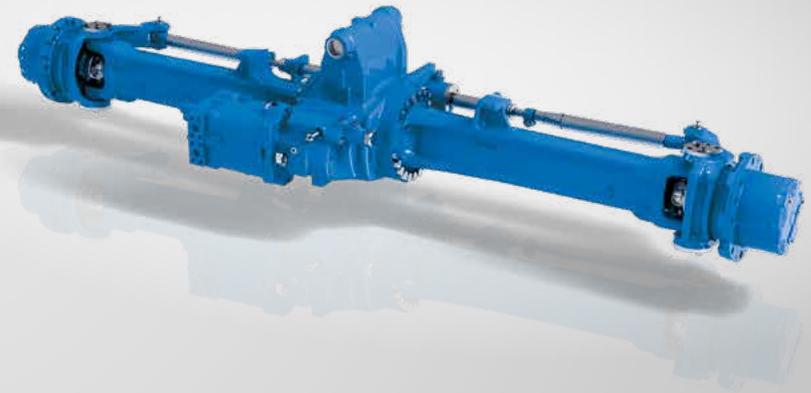


# DIRECTLY DRIVEN STEERING AXLES



## Product features

- > One or three piece axle beam
- > Modular system implementation
- > Additional integrated reduction gear
- > Efficient spur gear drive



TYPE	LAP AXLE	
No.	4401	
Flange to flange	2510 mm	2470 mm
Ratio	i = 43.8 (Reduction gear 2.611; Differential 3.357; Planetary 5.0)	i = 39.73 (Reduction gear 2.27; Differential 3.5; Planetary 5.0)
Speed	Up to 40 km/h	
Dynamic axle load	85 kN	
Input torque	920 Nm	905 Nm
Input RPM	4000	
Tractive effort	37 kN	

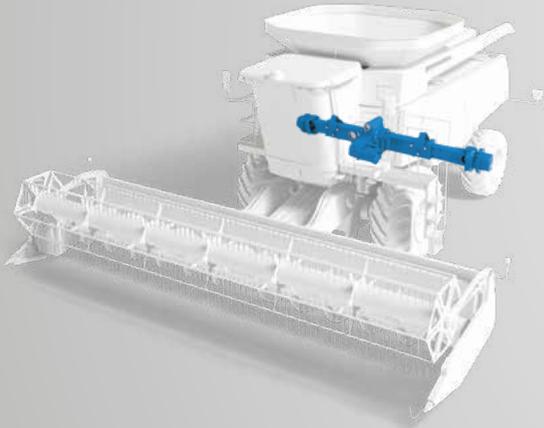
FORAGE HARVESTER



# CENTRALLY DRIVEN STEERING AXLES WITH ADJUSTABLE TRACK WIDTH

## Product features

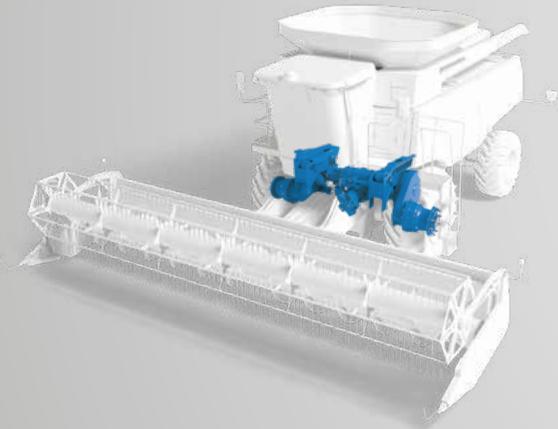
- > Weight optimised design
- > Only one central motor and differential with integrated efficient reduction spur gear
- > Tractive effort is nearly doubled in comparison to legacy systems using two wheel mounted hydraulic motors
- > Adjustable track width ensures highest performance in all conditions and the use of different tyre sizes
- > Easy and simplified hydraulic control and regulation system
- > Optional:
  - Tyre pressure regulation system
  - Central grease system
  - Sensors and protectors



TYPE	LAP AXLE adjustable for different tyre sizes		COMBINE HARVESTER
No.	4401	5401	
Application	Combine and forage harvesters		
Flange to flange	2350 - 3270 mm	2950 - 3870 mm	
Ratio	57.1 - 59.8	55.3 - 56.9	
Speed	Up to 40 km/h		
Dynamic axle load	95 - 110 kN	125 - 140 kN	
Operational or loaded machine weight	Up to 36 metric tons		
Input torque	510 Nm	1040 Nm	
Input RPM	3500	3700	
Driven by	Different solutions for direct drive: integrated drive with hydromotor and gearbox		
Mounting	Oscillating		

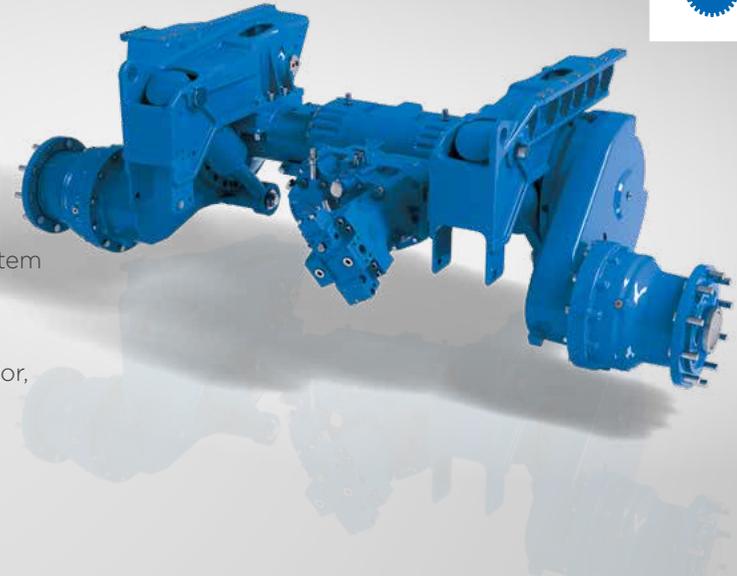


# SIDE HILL LEVEL-CONTROLLED DIRECTLY DRIVEN 2-SPEED AXLE



## Product features

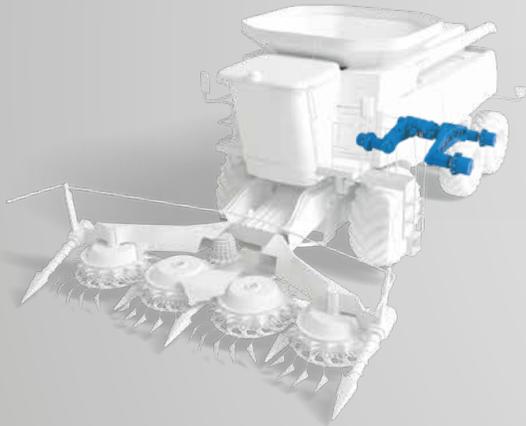
- > Self-levelling with integrated sensor and hydraulic system
- > Side levelling up to 16° slope
- > Integrated service and parking brake
- > 2-speed gearbox with directly attached hydraulic motor, combined with efficient spur gear drive
- > Optional: - 100% dog clutch differential lock  
- MDDL



TYPE	THP AXLE	COMBINE HARVESTER
No.	5505	
Flange to flange	2620 / 2900 mm	
Ratio	i1 = 105.24 i2 = 31.77	
Speed	Up to 30 km/h	
Dynamic axle load	231 kN	
Levelling height	460 mm	
Input RPM	3700	

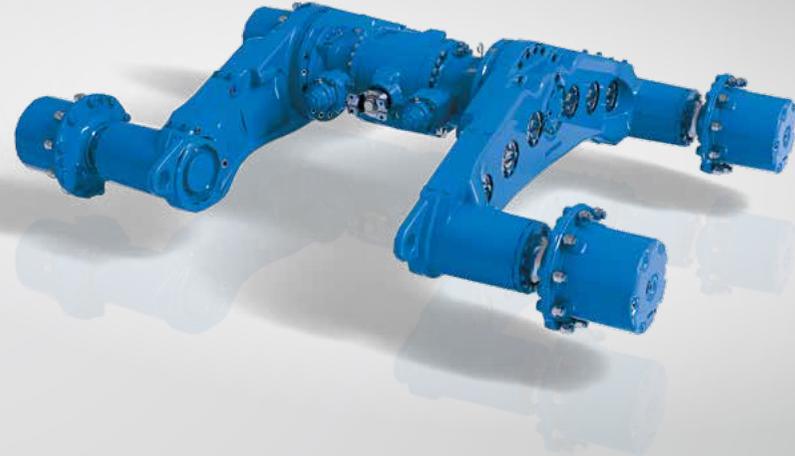


# HIGH SPEED PLANETARY BOGIE AXLES



## Product features

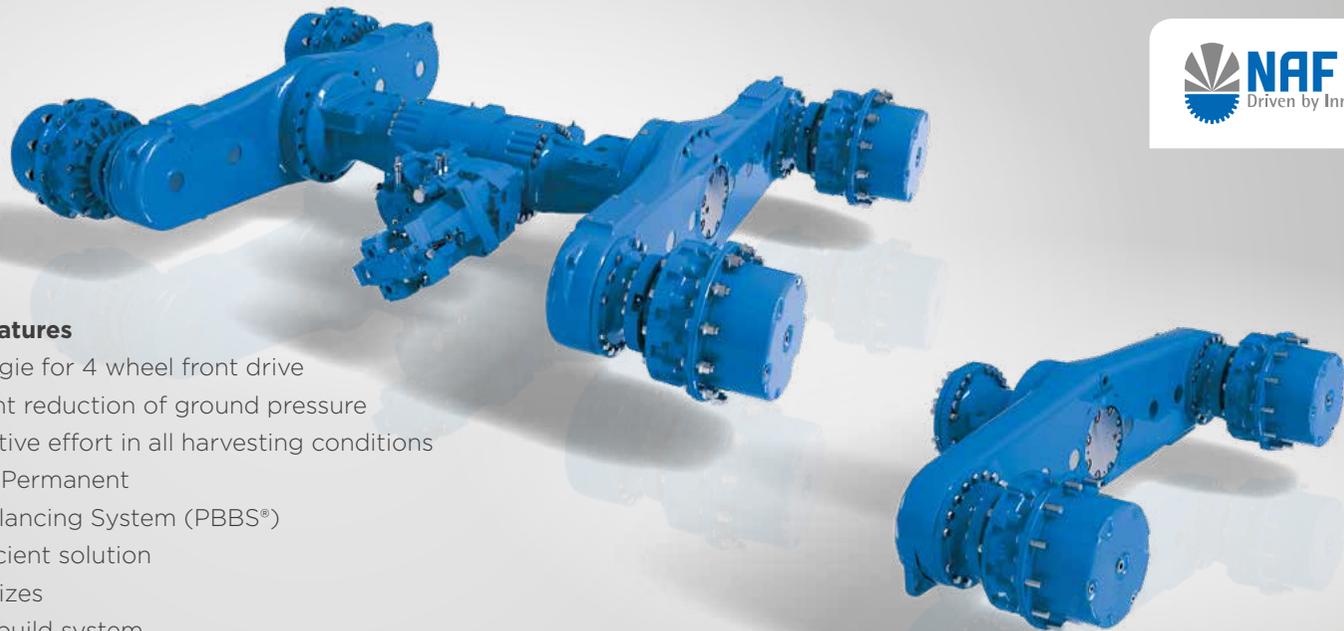
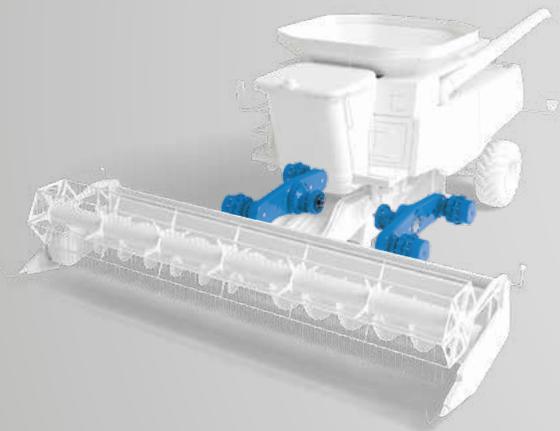
- > Offset from 0 - 200 mm
- > Optional Permanent Bogie Balancing System (PBBS®)
- > Wide product range with regard to size and load



TYPE	TAP AXLE					FIELD SHUTTLE
No.	54xx	75xx	76xx	77xx	87xx	
Application	Various offroad applications					
Static axle load	170 - 200 kN	180 - 280 kN	220 - 380 kN	280 - 360 kN	360 kN	
Dynamic axle load	Up to 140 kN @ 40 kph	Up to 220 kN @ 30 kph	Up to 270 kN @ 25 kph	Up to 275 kN @ 25 kph	Up to 345 kN @ 25 kph	
Operational or loaded machine weight	Up to 22 metric tons	Up to 28 metric tons	Up to 40 metric tons	Up to 50 metric tons	Up to 70 metric tons	
Drive flange	DIN/MECHANICS/SPICER in different sizes					
Brake	Versatile brake solutions with regard to function and point of installation					
Differential locks	MDDL/NoSpin®/dog clutch					
Balanced bogie system	Optional					
Driven by	Prop shaft, hydraulic motor or directly attached gearbox					
Axle width:	1890 - 2980 mm	Wheel base:	1300 - 1980 mm			
Flange-to-flange:	1450 - 2526 mm	Offset:	0 - 200 mm			
Bolt circle:	335 - 500 mm					



# FRONT DRIVELINE (HALF) BOGIE SOLUTIONS



## Product features

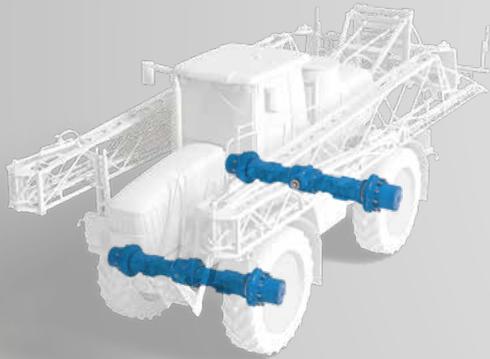
- > (Half) bogie for 4 wheel front drive
- > Significant reduction of ground pressure
- > Best tractive effort in all harvesting conditions
- > Optional Permanent Bogie Balancing System (PBBS®)
- > Cost-efficient solution
- > Various sizes
- > Modular build system

TYPE	THP	TAP
No.	7001 (Half bogie)	7506
Axle load	123 kN per bogie	250 kN
Max. input torque	15000 Nm (both bogies) 11500 Nm (Peak input torque for one bogie)	4000 Nm to differential with directly attached 2-speed gearbox
Brake	Oil-immersed disc brake with various options such as running at wheel speed (NAF Turbo Brake), combined service+parking brake	
Differential locks	Dog clutch / MDDL	

## HARVESTER

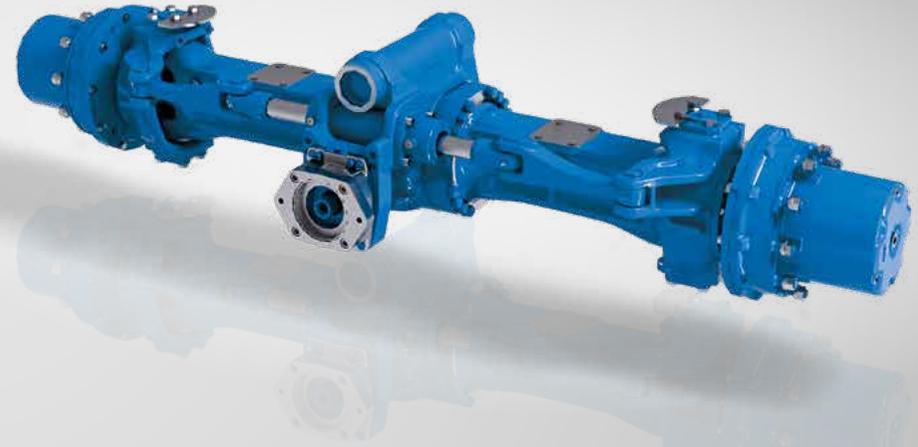


# HIGH SPEED PLANETARY STEERING AXLES



## Product features

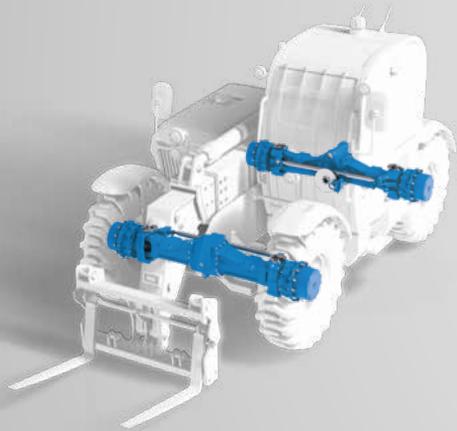
- > Especially designed for high speed
- > Versatile brake solutions with regard to function and point of installation
- > NAF's patented Turbo Brake
- > Optional differential lock systems
- > Various installation/mounting options
- > Wide range of axle loads and sizes
- > Several drive line systems



TYPE	LAP AXLE		SPRAYER
	54xx	55xx	
No.	54xx	55xx	
Application	Sprayers, multifunctional applications		
Flange to flange	1850 - 2280 mm		
Ratio	i = 16.5 - 24.0		
Speed	Up to 50 km/h		
Operational or loaded machine weight	Up to 30 metric tons		
Static axle load	140 - 310 kN		
Dynamic axle load	Up to 200 kN @ 40 kph		
Input torque	1000 Nm (with directly attached hydraulic motor) / 3500 Nm		
Input RPM	3700		
Drive flange	DIN/MECHANICS/SPICER in different sizes		
Differential locks	NoSpin® / dog clutch / MDDL		
Brake	Oil-immersed disc brake with various options such as running at wheel speed (NAF Turbo Brake), combined service+parking brake		
Driven by	Directly attached gearbox or hydraulic motor		

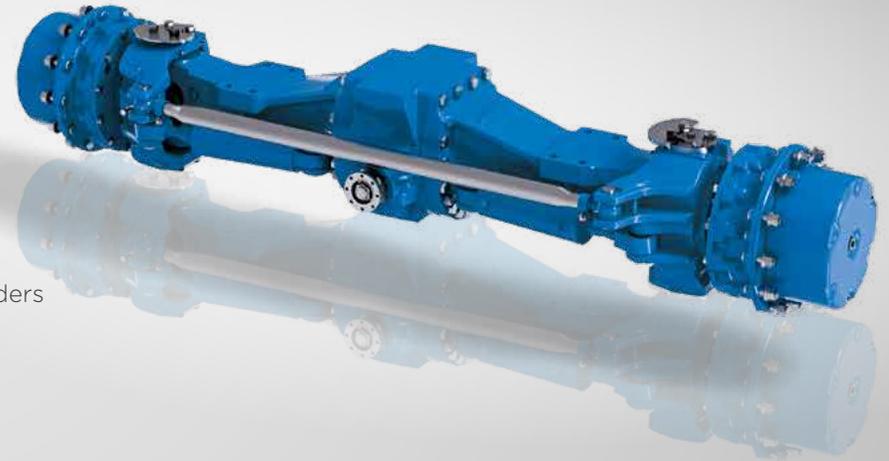


# HEAVY-DUTY STEERING AXLES



## Product features

- > Especially designed for heavy loads
- > Versatile brake solutions with regard to function and point of installation
- > NAF's patented Turbo Brake
- > Optional parking brake
- > Optional differential lock systems
- > Different installation versions for steering cylinders
- > Various installation/mounting options
- > Wide range of axle loads and sizes
- > Several driveline systems



TYPE	SAP AXLE	LAP AXLE
No.	75xx	
Ratio	i = 22.3 (others available)	
Dynamic brake torque	15300 Nm	
Input torque	3500 Nm	
Input RPM	3000	
Dynamic axle load	250 kN	
Operational or loaded machine weight	50 metric tons	
Drive flange	DIN/MECHANICS/SPICER in different sizes	
Brake	Oil-immersed disc brake optional: parking brake	
Differential locks	NoSpin® / Dog clutch / MDDL	
Driven by	Directly attached gearbox or hydraulic motor	

## TELEHANDLER



# GEARBOXES WITH HYDRO-STATIC DRIVE



## SINGLE MOTOR HYDROSTATIC GEARBOX / HydroSync®

### Product features (VG 35/VG 75/VG 250)

- > Wide range of standard gearboxes shiftable in standstill
- > Various single and two speed ratios available
- > Optional parking brake and rear axle disconnect

### HydroSync® product features

- > Load-free shifting procedure thanks to electro-hydraulically synchronised gears
- > Shifting procedure can be triggered on demand or automatically
- > Highly cost-efficient HydroSync® solution



## DUAL MOTOR HYDROSTATIC GEARBOX / DualSync®

### Product features (VGZ 75/VGZ 76/VGZ 86)

- > Wide range of standard gearboxes shiftable in standstill
- > Various motor positions possible: side by side, face to face, back to back
- > Various single and two speed ratios available
- > Optional parking brake and rear axle disconnect

### DualSync® product features

- > Dual motor gearbox with hydrostatic CVT functionality
- > 2 operating modes
  - Simultaneous use of both motors for high tractive effort
  - High driving speeds with one motor drive
- > Different ratios are available for each motor
- > Diesel engine operates at most efficient rpm range
- > Fuel savings of up to 20%



TYPE	VG 250	VG 35	VG 75	HydroSync®	VGZ 75	VGZ 76	VGZ 86	DualSync®	MULTIFUNCTIONAL APPLICATIONS	
Ratio i1	4.78	1.68 - 6.31	2.64 - 6.63	3.58	1.72 - 4.04	3.27 - 4.03	4.35 - 5.02	1.20 - 1.88		
Ratio i2	1.33	0.89 - 2.13	1.06 - 2.05	1.08	1.33 - 2.36	1.07 - 1.68	1.81 - 2.09	4.00 - 5.92		
Parking brake	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional		
Declutch system	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional		
Differential lock	-	Optional	-	-	-	-	-	-		
Output torque [Nm]	Max. 2500	Max. 6000	Max. 8000	Max. 5000	Max. 6000	Max. 8200	Max. 10500	Max. 8900		
Hydraulic motor size 1 [max. ccm]	Up to 135	Up to 170	Up to 250	Up to 165	Up to 160	Up to 170	Up to 210	Up to 210		
Hydraulic motor size 2 [max. ccm]	-	-	-	-	Up to 160	Up to 170	Up to 210	Up to 210		
Output flange	DIN / MECHANICS / SPICER / in different sizes									
Driven by	Directly attached hydraulic motor / flange									



NAF is the expert for power transmission, traction and load capacity on mobile working machines. Our gears and axles create a substantial competitive advantage in the heavy-duty off-highway industry. As a system partner we have been mastering the tasks of our market-leading customers since 1960 and invest 5% of our annual turnover into research and development.

As our customer you benefit directly from our passion for innovation that guarantees your success.



# AT HOME ON 3 CONTINENTS



**46**

Supplied countries worldwide

**620**

Employees in total

**35.000 m<sup>2</sup>**

of production space in 17 halls

**38.000**

Components sold each year

**15**

Patents and  
protected innovations

**35**

Employees working in  
R&D/PDP

## Headquarters and production

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