

DRIVELINES FOR AGRICULTURE MACHINERY

 **MADE IN GERMANY**



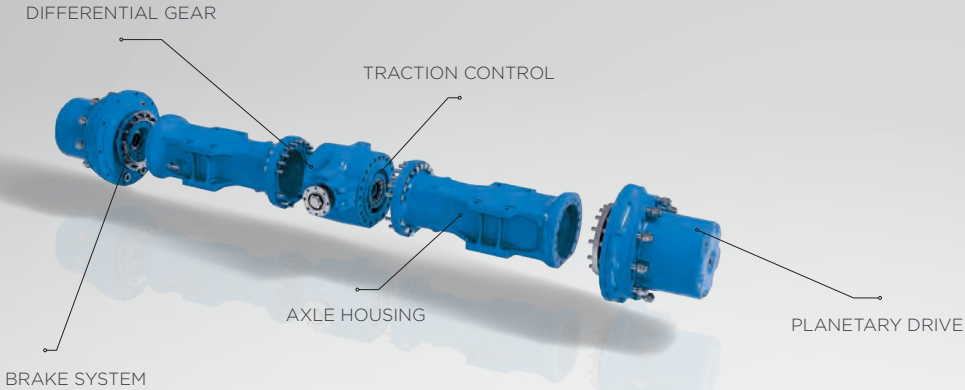
FOR YOUR HEAVY DUTY PLAYGROUNDS



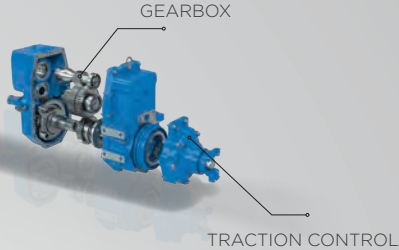
NAF • MODULAR-MINDED AXLES

NAFAXLES.COM

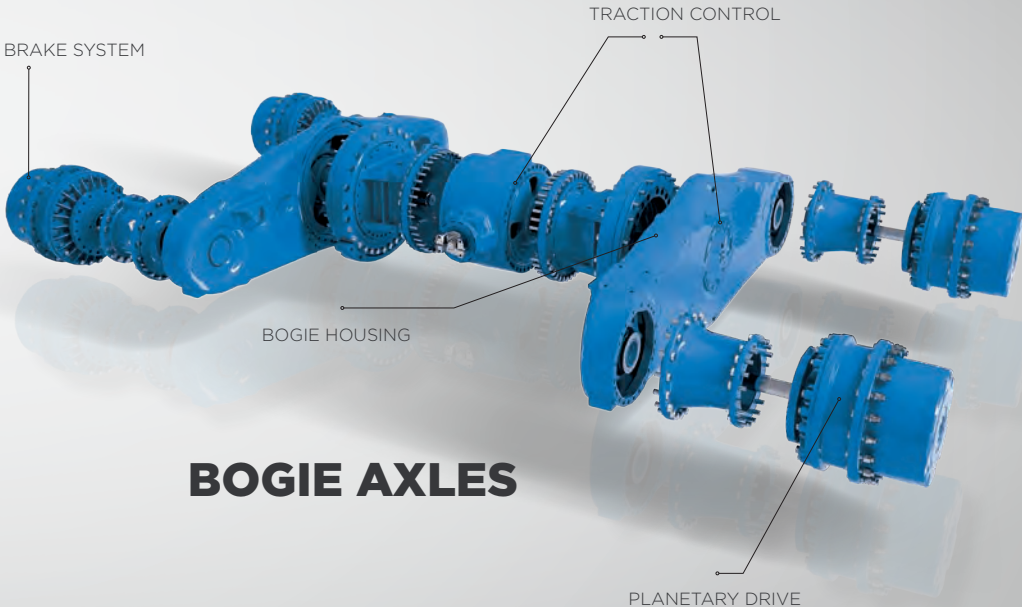
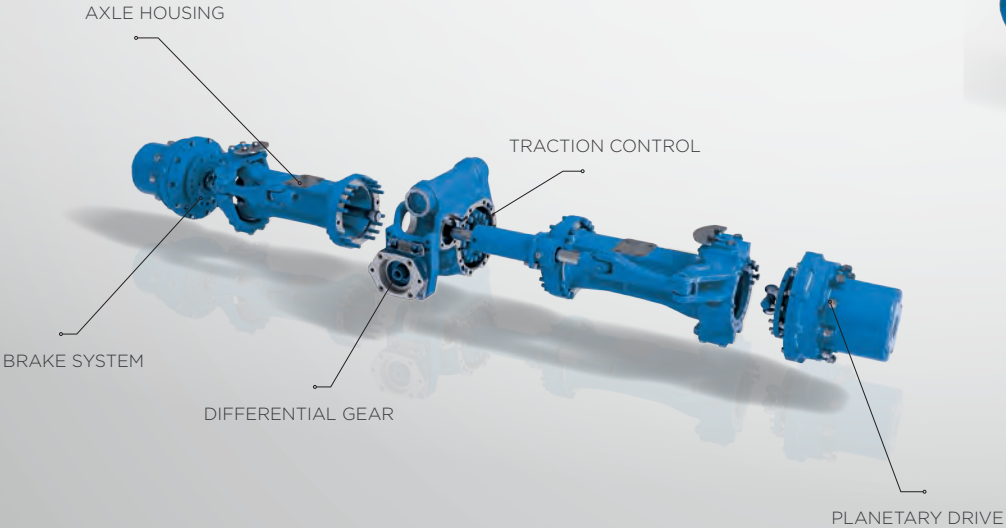
RIGID AXLES



GEARBOXES



STEERING AXLES



BOGIE AXLES

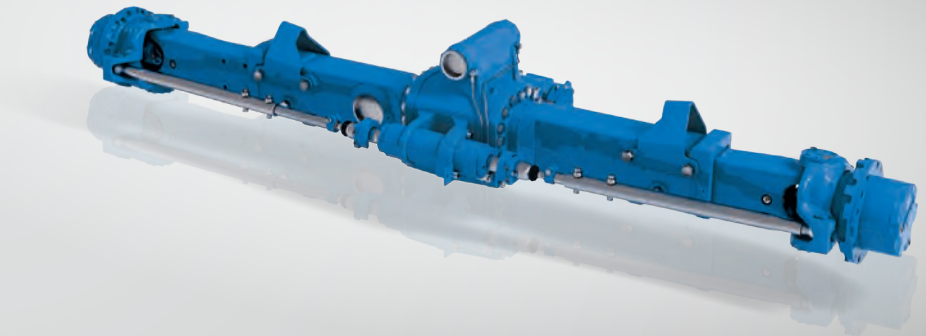


DIRECTLY DRIVEN FLEXTRAC AXLE®



Product features

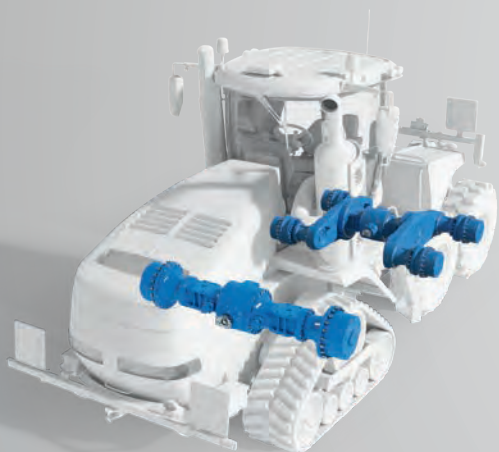
- > One or three piece axle beam
- > Modular system implementation
- > Additional integrated reduction gear
- > Efficient spur gear drive



TYPE	LAP AXLE			FORAGE HARVESTER	
	4401		5401		
No.	4401		5401		
Flange to flange	2510 mm	2470 mm	2770 - 3170 mm	2870 - 3270 mm	2870 - 3270 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)	i = 55,3	i = 59,8	i = 57,16
Speed	Up to 40 km/h		Up to 40 km/h		
Dynamic axle load	85 kN		98 kN	115 kN	140 kN
Input torque	920 Nm	905 Nm	770 Nm	790 Nm	1034 Nm
Input RPM	4000		4000		
Tractive effort	37 kN		43 kN	47 kN	36 kN

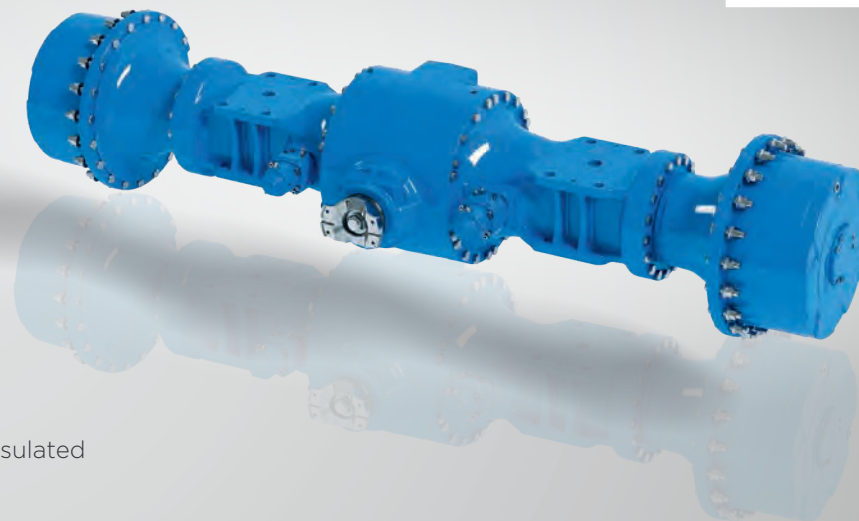


HEAVY DUTY HIGH TORQUE PLANETARY RIGID AXLES



Product features

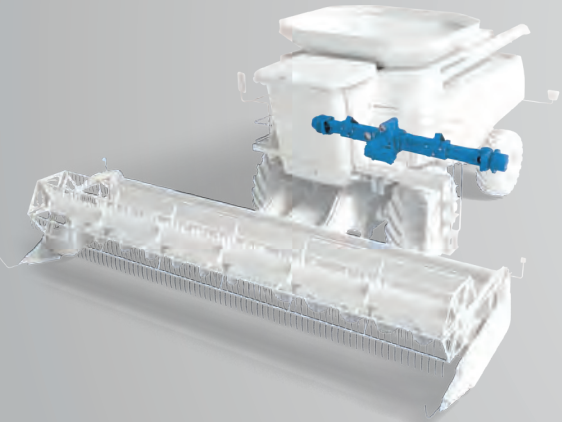
- > Modular configuration of track-proven components to meet customer needs
- > Especially designed for heavy loads and high torque
- > For use with twin tires or adaptation of track-system
- > Integrated service and parking brake - fully capsulated



TYPE	SAP 87	SAP 88	SAP 99	SCRAPER TRACTOR
Ratio	i =27,75 - 31,65*	i= 21,27 - 29,14*	i=17,18 - 27,06*	
Static axle load	Up to 300 kN	Up to 330 kN	Up to 400 kN	
Dynamic axle load	170 kN	245 kN	260 kN	
Max. speed	Up to 38 kph	Up to 60 kph	Up to 45 kph	
Brake	oil-immersed disc brake with various options such as running at wheel speed (NAF Turbo Brake), combined service + parking brake			
Input torque	Up to 5.500 Nm	Up to 7.500 Nm	Up to 8.500 Nm	
Input RPM	2.500 rpm	3.800 rpm	3.150 rpm	
Flange-to-flange	2030 - 2651 mm	2511 - 2884 mm	2320 - 2620 mm	
Bolt circle	500 mm	500 mm	605 mm	
Drive flange	DIN / Mechanics / Spicer in different sizes			
Differential locks	DIN / Mechanics / Spicer in different sizes		dog clutch/ MDDL	
* = others available				

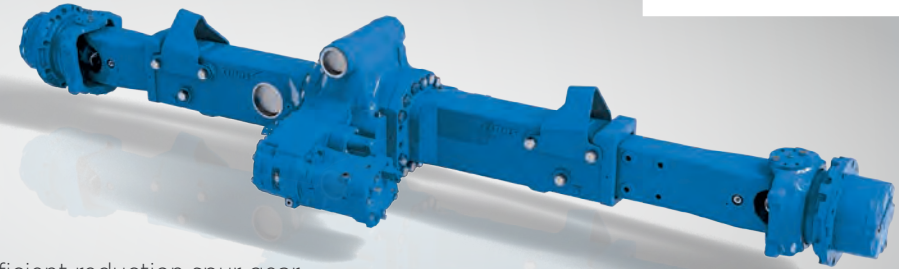



CENTRALLY DRIVEN FLEXTRAC AXLES® WITH ADJUSTABLE TRACK WIDTH



Product features

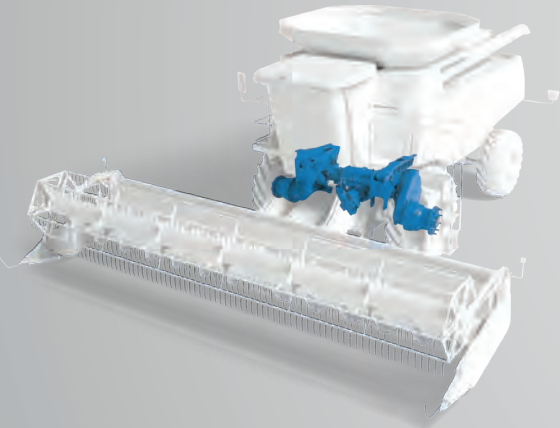
- > Weight optimised design
- > Only one central motor and differential with integrated efficient reduction spur gear
- > Tractive effort is nearly doubled in comparison to legacy systems using two wheel mounted hydraulic motors
- > Adjustable track width ensures highest performance in all conditions 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		

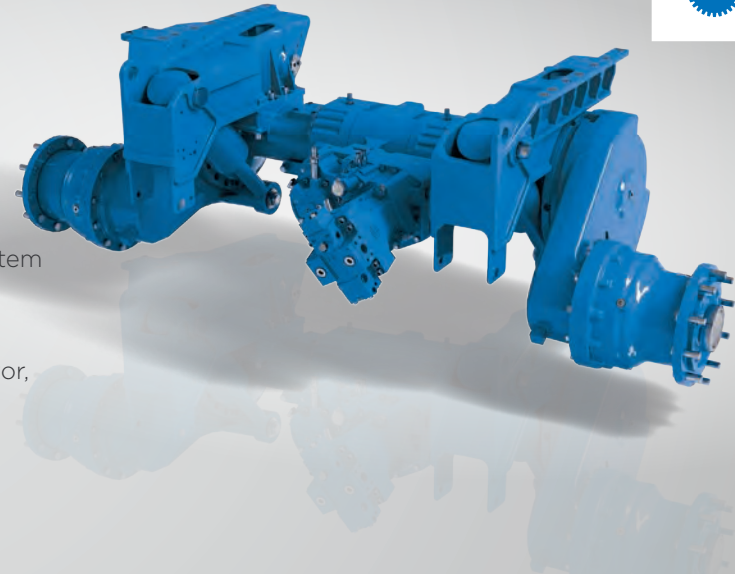



SIDE HILL LEVEL-CONTROLLED DIRECTLY DRIVEN 2-SPEED AXLE



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	

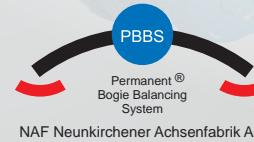


HIGH SPEED PLANETARY BOGIE AXLES



Product features

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

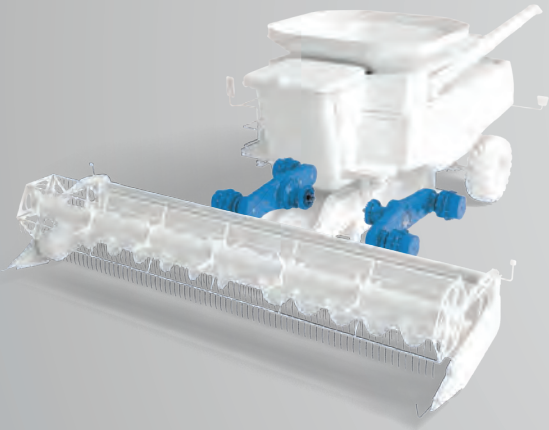


TYPE	TAP AXLE				
No.	54	75	76	77	87
Application	Various offroad applications				
Static axle load	200 kN	290 kN	360 kN	380 kN	380 kN
Dynamic axle load	100 - 140 kph @ 40 kph	160 - 220 kN @ 40 kph	255 - 300 kN @ 40 kph	255 - 300 kN @ 40 kph	300 kN @ 30 kph
Operational or loaded machine weight	Up to 22 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				
Axle width [mm]	1890 - 2335	2081 - 2798	2508 - 2884	2758 - 2862	2922 - 2966
Flange-to-flange [mm]	1450 - 1869	1860 - 2372	2130 - 2458	2380 - 2460	2468
Bolt circle [mm]	335	425	425	425	500
Differential locks	MDDL/NoSpin®/dog clutch/limited slip				
Optional	PBBS® for all sizes available				
Driven by	Flange/directly attached gearbox/hydrostatic, hydrodynamic or electric driveline				
	Wheel base:	1300 - 1980 mm			
	Offset:	0 - 200 mm			

FIELD SHUTTLE

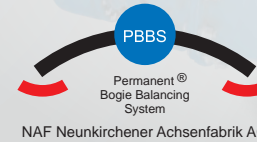
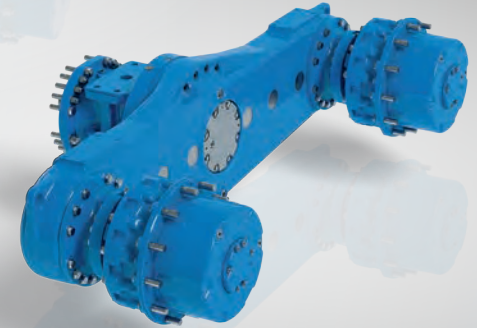



FRONT DRIVELINE (HALF) BOGIE SOLUTIONS



Product features

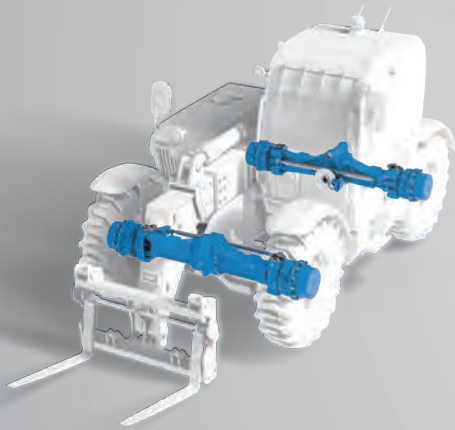
- > (Half) bogie for 4 wheel front drive
- > Significant reduction of ground pressure
- > Best tractive effort in all harvesting conditions
- > Optional Permanent Bogie Balancing System (PBBS®)
- > Fixation for bogie lift
- > Cost-efficient solution
- > Various sizes
- > Modular build system



TYPE	THP	TAP	HARVESTER
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		



HIGH SPEED PLANETARY STEERING AXLES AND HEAVY-DUTY 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



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	LAP AXLE	SAP AXLE / LAP AXLE	TELEHANDLER / SPRAYER
No.	55	75	
Application	Sprayers, multifunctional applications		
Flange to flange	1850 - 2280 mm		
Ratio	i = 16.5 - 24.0	i = 22.3 (others available)	
Speed	Up to 50 km/h		
Operational or loaded machine weight	Up to 30 metric tons	50 metric tons	
Static axle load	140 - 310 kN		
Dynamic axle load	Up to 200 kN @ 40 kph	250 kN	
Dynamic brake torque		15300 Nm	
Input torque	1000 Nm (with directly attached hydraulic motor) / 3500 Nm	3500 Nm	
Input RPM	3700	3000	
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	Oil-immersed disc brake optional: parking brake	
Driven by	Hydraulic / electric motor or directly attached gearbox		



GEARBOXES WITH HYDROSTATIC 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

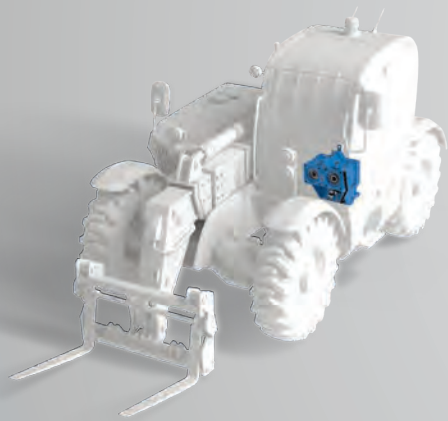
HydroSync® product features

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

TYPE	VG 250	VG 35	VG 75	HydroSync®	MULTIFUNCTIONAL APPLICATIONS
Ratio i1	4.78	1.68 - 6.31	2.64 - 6.63	3.58	
Ratio i2	1.33	0.89 - 2.13	1.06 - 2.05	1.08	
Parking brake	Optional				
Declutch system	Optional				
Differential lock	-	Optional	-	-	
Output torque [Nm]	Max. 2500	Max. 6000	Max. 8000	Max. 5000	
Hydraulic motor size 1 [max. ccm]	Up to 135	Up to 170	Up to 250	Up to 165	
Hydraulic motor size 2 [max. ccm]	-				
Output flange	DIN/MECHANICS/SPICER in different sizes				
Driven by	Directly attached hydraulic / electric motor / flange				



GEARBOXES WITH HYDROSTATIC DRIVE



DUAL MOTOR HYDROSTATIC GEARBOX / DualSync®

Product features (VGZ 75 / 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	VGZ 75	VGZ 86	DualSync®	MULTIFUNCTIONAL APPLICATIONS
Ratio i1	1.72 - 4.04	4.35 - 5.02	1.20 - 1.88	
Ratio i2	1.33 - 2.36	1.81 - 2.09	4.00 - 5.92	
Parking brake		Optional		
Declutch system		Optional		
Differential lock		-		
Output torque [Nm]	Max. 6000	Max. 10500	Max. 8900	
Hydraulic motor size 1 [max. ccm]	Up to 160	Up to 210	Up to 210	
Hydraulic motor size 2 [max. ccm]	Up to 160	Up to 210	Up to 210	
Output flange	DIN/MECHANICS/SPICER in different sizes			
Driven by	Directly attached hydraulic / electric 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



48

Supplied countries worldwide

600

Employees in total

28.000 m²

of production area

40.000

Components sold each year

18

Patents and
protected innovations

20

Employees working in
R&D/PDP

Headquarters and production

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