

DRIVELINES FOR AGRICULTURE MACHINERY

 **MADE IN GERMANY**



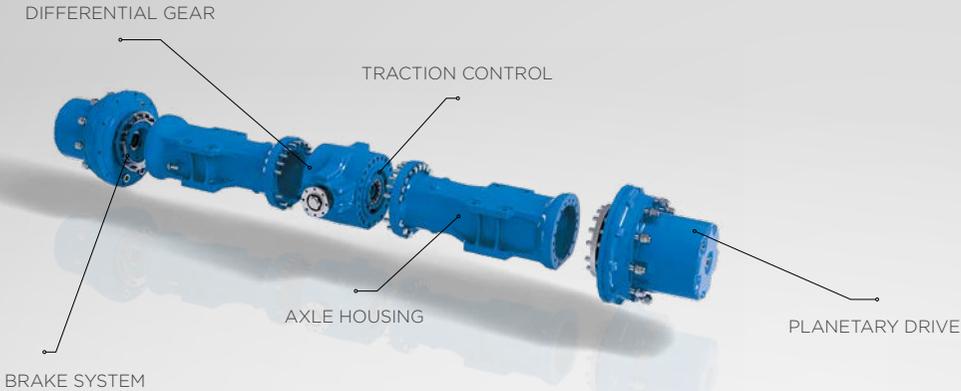
FOR YOUR HEAVY DUTY PLAYGROUNDS



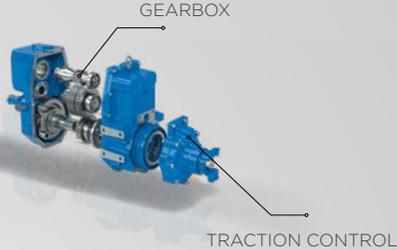
NAF • MODULAR-MINDED AXLES

NAFAXLES.COM

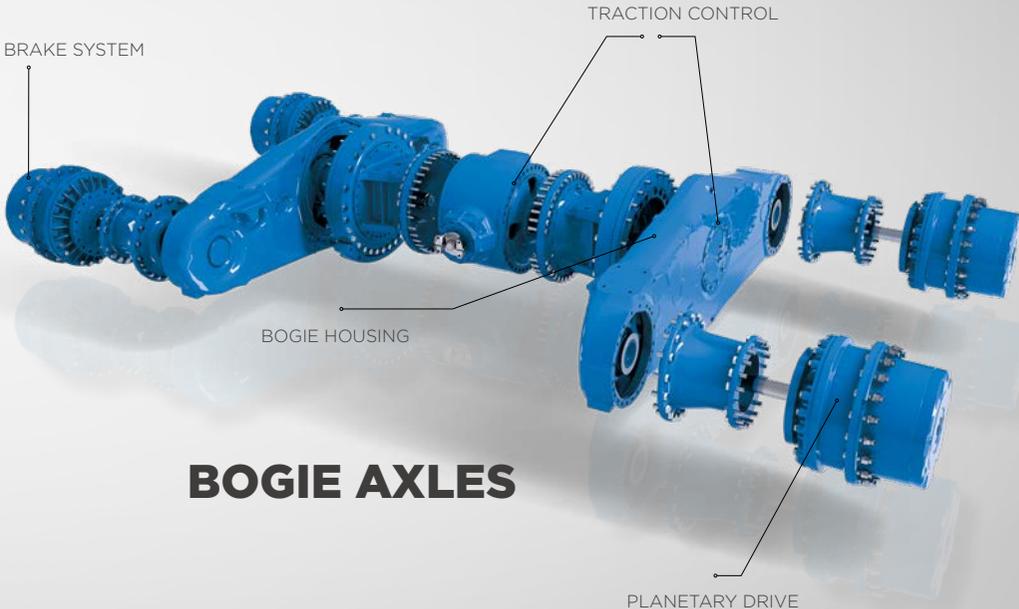
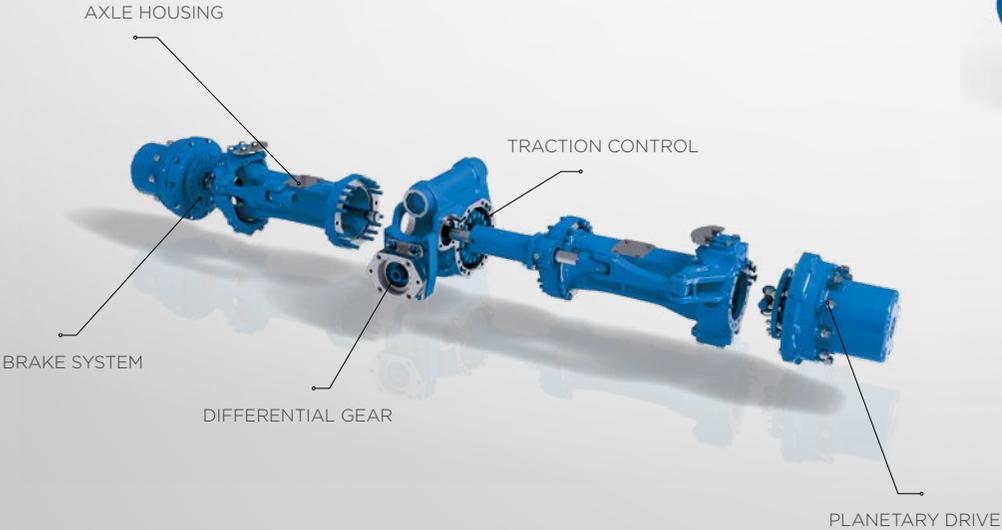
RIGID AXLES



GEARBOXES



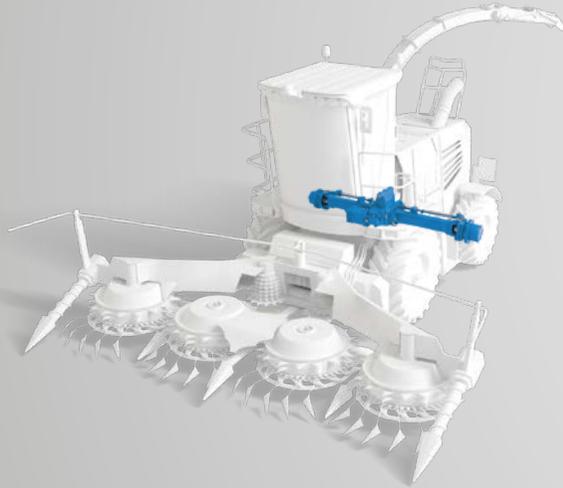
STEERING AXLES



BOGIE AXLES



DIRECTLY DRIVEN FLEXTRAC AXLE®



Product features

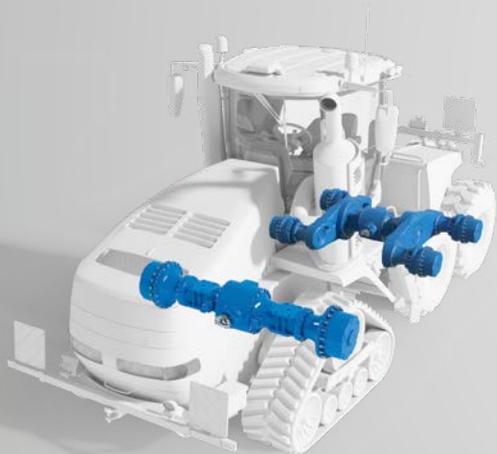
- > One or three piece axle beam
- > Modular system implementation
- > Additional integrated reduction gear
- > Efficient spur gear drive



| 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 | |
| | | | | | | |

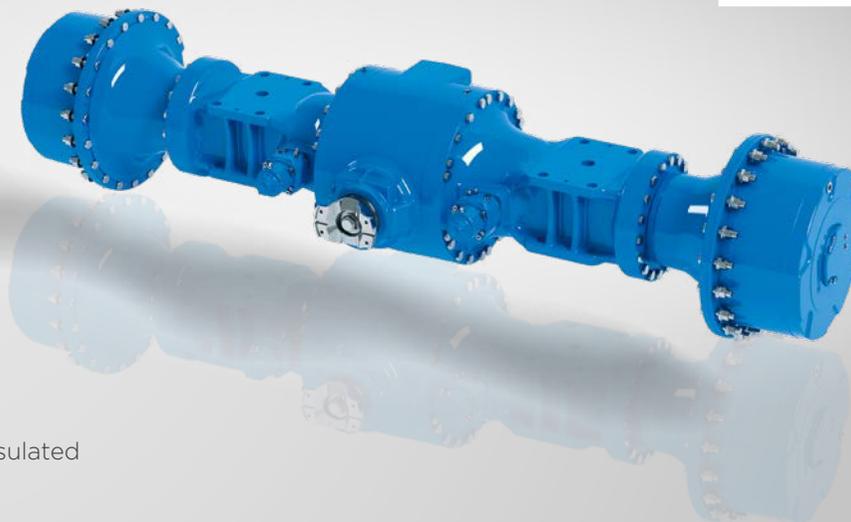


HEAVY DUTY HIGH TORQUE PLANETARY RIGID AXLES



Product features

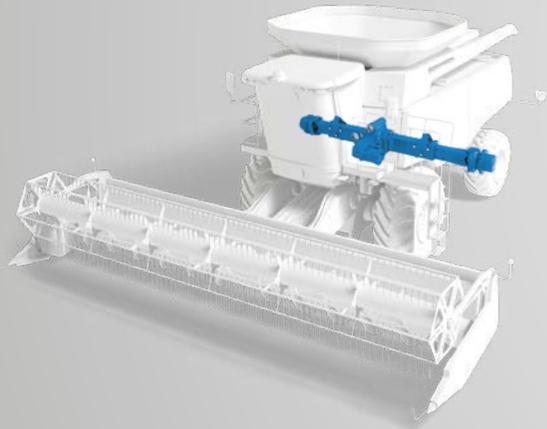
- > Modular configuration of track-proven components to meet customer needs
- > Especially designed for heavy loads and high torque
- > For use with twin tires or adaptation of track-system
- > Integrated service and parking brake - fully capsulated



| 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 | | | | |

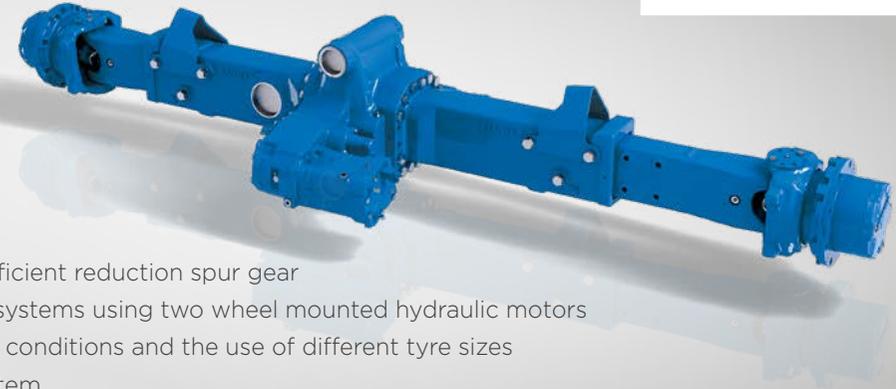


CENTRALLY DRIVEN FLEXTRAC AXLES® WITH ADJUSTABLE TRACK WIDTH



Product features

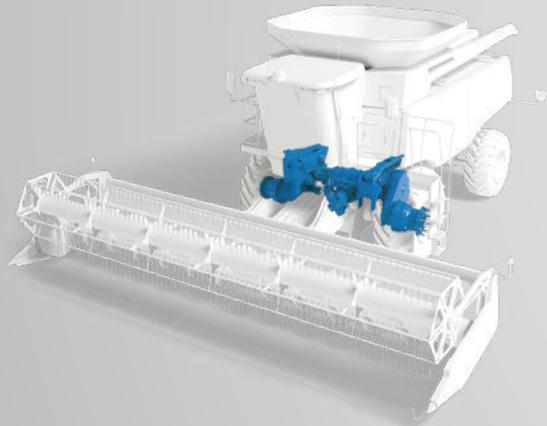
- > Weight optimised design
- > Only one central motor and differential with integrated efficient reduction spur gear
- > Tractive effort is nearly doubled in comparison to legacy systems using two wheel mounted hydraulic motors
- > Adjustable track width ensures highest performance in all conditions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

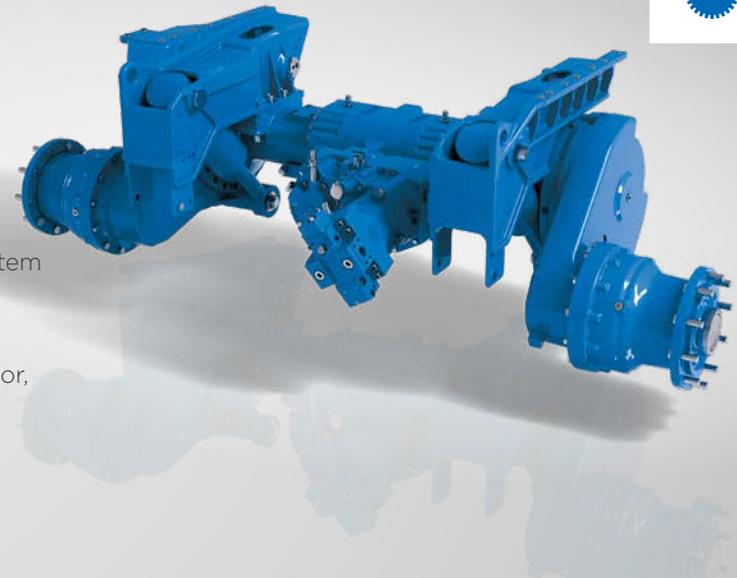


SIDE HILL LEVEL-CONTROLLED DIRECTLY DRIVEN 2-SPEED AXLE



Product features

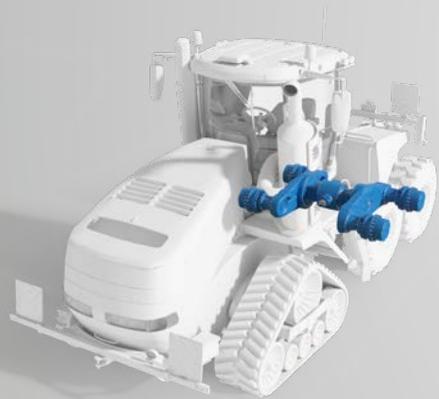
- > Self-levelling with integrated sensor and hydraulic system
- > Side levelling up to 16° slope
- > Integrated service and parking brake
- > 2-speed gearbox with directly attached hydraulic motor, combined with efficient spur gear drive
- > Optional: - 100% dog clutch differential lock
- MDDL



| 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

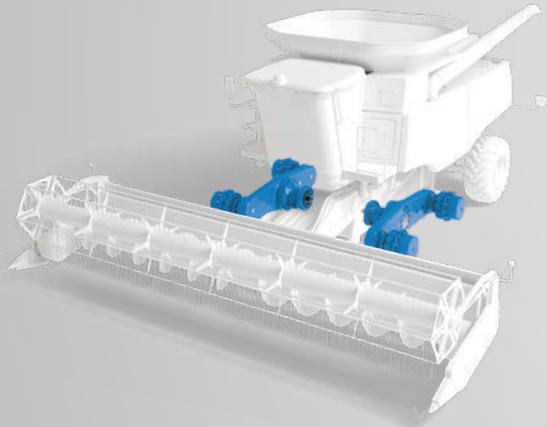


| TYPE | TAP AXLE | | | | |
|--------------------------------------|--|-----------------------|-----------------------|-----------------------|----------------------|
| No. | 54 | 75 | 76 | 77 | 87 |
| Application | Various offroad applications | | | | |
| Static axle load | 200 kN | 290 kN | 360 kN | 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

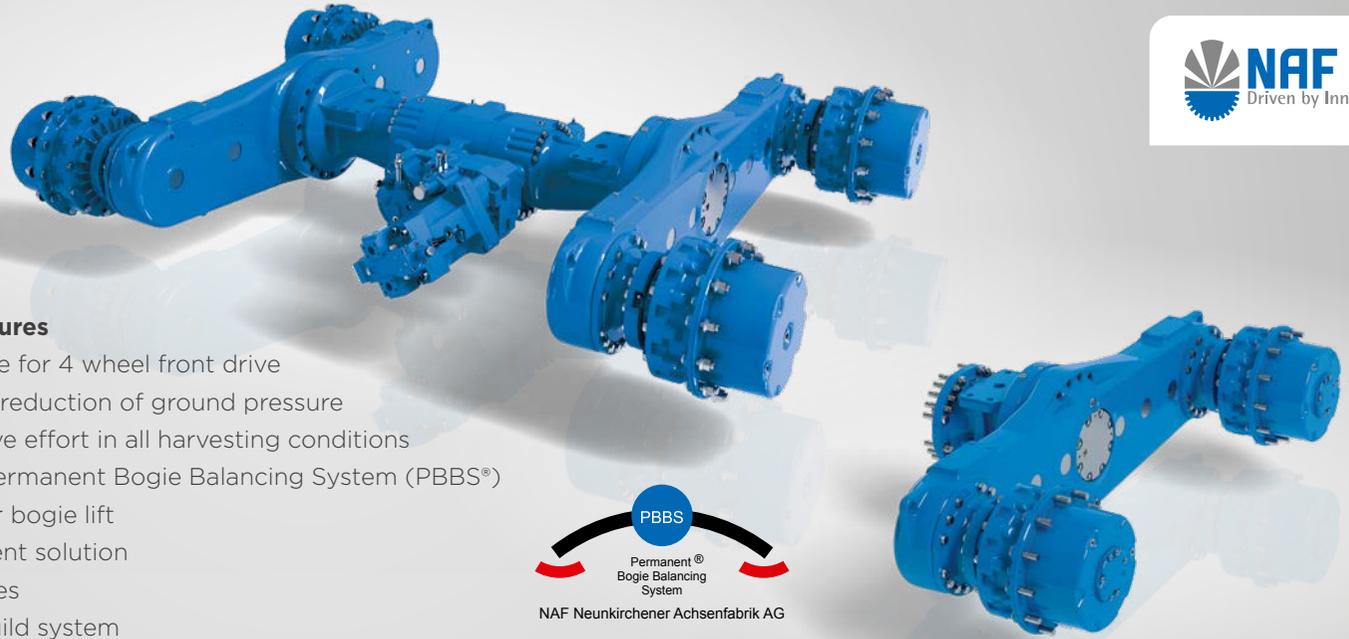


FRONT DRIVELINE (HALF) BOGIE SOLUTIONS



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

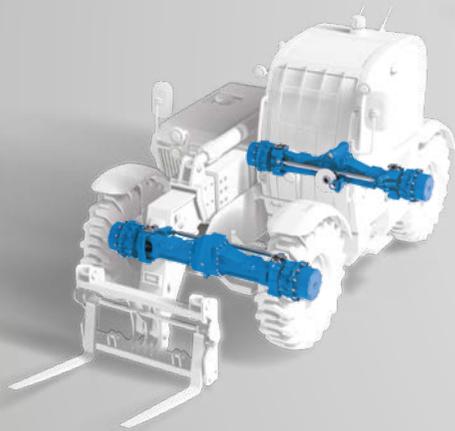


| TYPE | THP | TAP |
|--------------------|---|---|
| No. | 7001 (Half bogie) | 7506 |
| Axle load | 123 kN per bogie | 250 kN |
| Max. input torque | 15000 Nm (both bogies) 11500 Nm (Peak input torque for one bogie) | 4000 Nm to differential with directly attached 2-speed gearbox |
| Brake | Oil-immersed 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 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

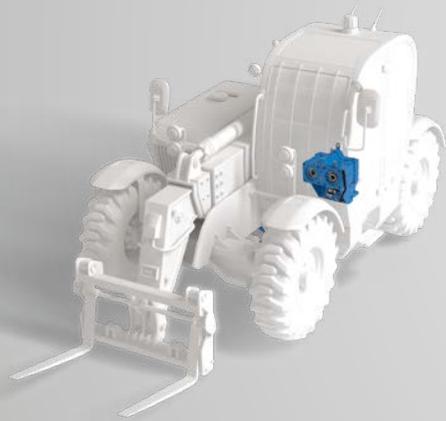
HydroSync® product features

- > 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

More than 650

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

NAF Neunkirchener Achsenfabrik AG
Weyhausenstrasse 2
91077 Neunkirchen am Brand
Germany
T: +49 9134 702-0
F: +49 9134 702-653
info@nafaxles.com

For more information about our
branches in North America, France,
Germany (HQ), Russia & China visit:



NAF • MODULAR-MINDED AXLES

NAFAXLES.COM