

AXLES

- Modular design
- Low noise
- Resistance to corrosion
- Ultra-high efficiency
- Many options available
- Many versions available
- Wide ratio range
- Parking brake available
- Easy installation
- Easy maintenance
- Amazing battery autonomy

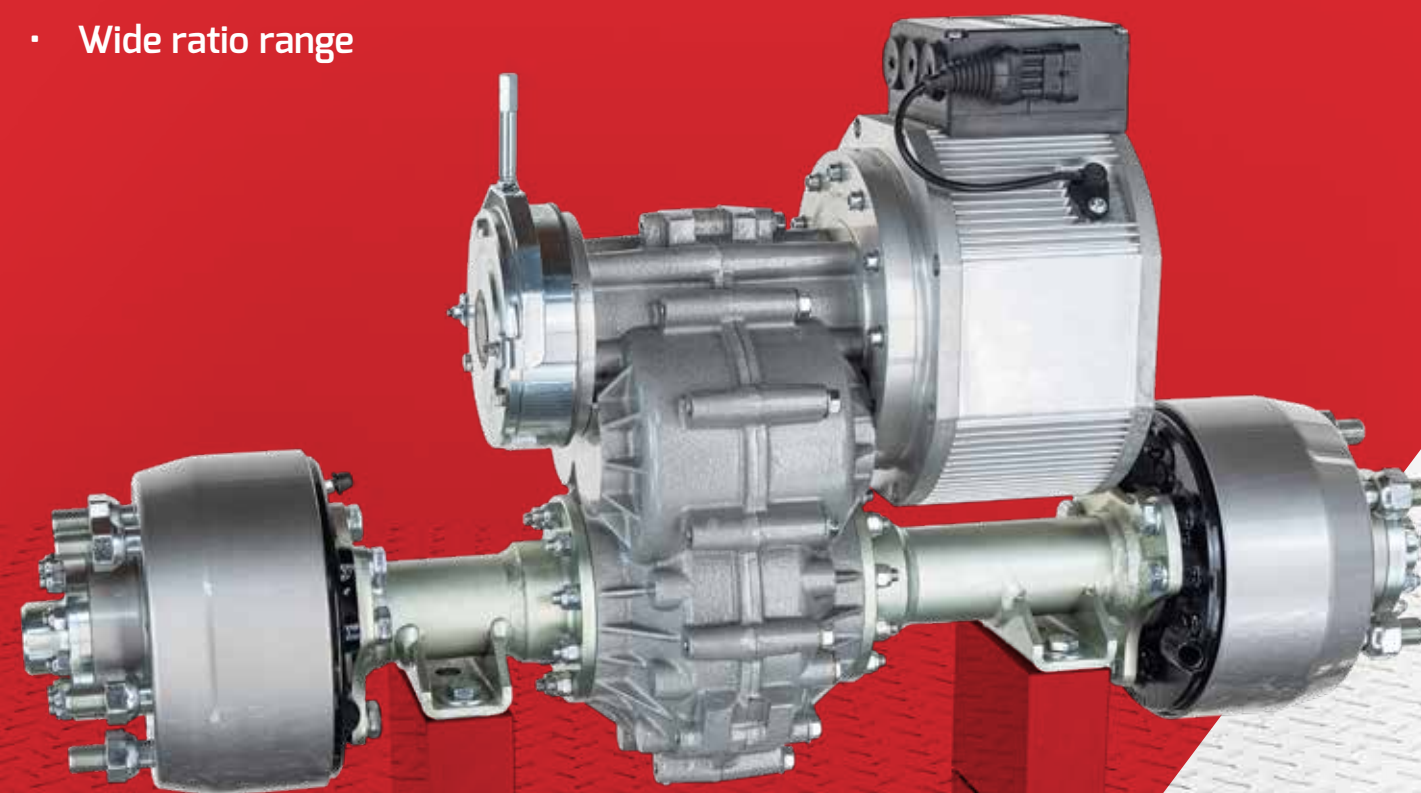


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DRIVE AXLES – COMER

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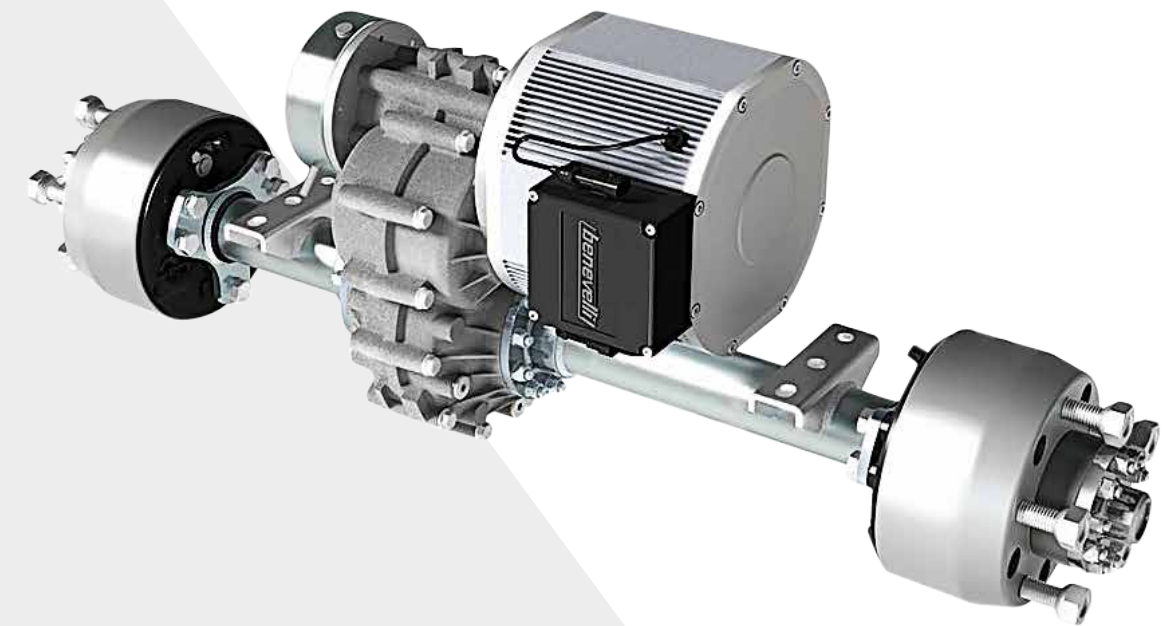
ELECTRIC WHEEL DRIVES – E-COMER

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ELECTRIC DRIVE AXLES



- Various standard mounting possibilities tilting from 0 to 180°
- Includes various types of wheel hub or mechanical-hydraulic drum brakes
- All models are also available with mechanical locking differential
- Many different track width configurations
- Welding operations performed by robotic systems certified ISO 15614:2012



ELECTRIC DRIVE AXLES

DRIVE AXLES

- Modular design that allows many different track width configurations
- Hardened steel gears with involute grinding profile ensure constant low noise level
- Gear housing in heavy-duty aluminum alloy to minimize weight and add strength
- Built-in studs on gearbox housing
- Metallic parts subjected to Chromiting® zinc coating to withstand corrosive agents
- Benevelli solutions ensure more energy-efficient operations and greater battery autonomy with optimized profile gears
- Easy to install thanks to six standard mounting positions tilting from 0° to 180°
- Designed for complete protection up to IP67 under IEC standard 60529



WHY ELECTRIC ?

Electric powertrains provide instant low-speed torque, with the benefit of zero emissions; they also significantly reduce downtime and operating costs. Battery-powered vehicles are more efficient than with any other technology, allowing peak efficiency of up to 95% compared to 35% for an internal combustion engine.



ELECTRIC DRIVE AXLES

TX1 SERIES

- Parallel configuration and precise gear machining allowing:
 - Ultra-high efficiency of up to 95%
 - Battery autonomy increased by as much as 30%
 - Easy maintenance
 - Compact design
 - Low noise
- SKF bearings for improved efficiency
- Wide ratio range – 8 ratios available from 6 to 32
- Many options available (mechanical brakes, no brake, parking brake, differential lock...)
- Three versions: Standard, Plus and Max
- Fully customizable (track width, bracket position, CV joints version, motor...)
- Power/volume ratio higher than competition
- High resistance to corrosion
- Highest ground clearance in the industry
- Parking brake available on all models

| Series | Version | GEARBOX FEATURES | | | | MOTOR FEATURES | | | | Service brake |
|----------|---------------------|---------------------|-------------------------|-------------------|-------------------|----------------|-------------------|--------------------|----------------------|---------------------------------|
| | | Output torque Nm | Max. input speed RPM | Static load kg | Track-width mm | Motor type | Rated power kW | Rated voltage V | Prot. degree IP | |
| TX1 | CV joints | 300 | 7000 | --- | --- | PMDC - AMAC | 0.3 - 1.7 | 24 - 120 | 54/67 | --- |
| | Floating driveshaft | 300 | 7000 | --- | --- | | 0.3 - 1.7 | 24 - 120 | 54/67 | --- |
| | Rigid axle | 300 | 7000 | 400 | 400 to 1150 | | 0.3 - 1.7 | 24 - 120 | 54/67 | --- |
| | Wheel hubs | 300 | 7000 | 400 | 400 to 1150 | | 0.3 - 1.7 | 24 - 120 | 54/67 | --- |
| | Drum brakes | 300 | 7000 | 400 | 400 to 1150 | | 0.3 - 1.7 | 24 - 120 | 54/67 | Mechanical 500 Nm |
| TX1 PLUS | CV joints | 500 | 7000 | --- | --- | AMAC - SMAC | 0.6 - 3.0 | 24 - 120 | 54/67 | --- |
| | Rigid axle | 500 | 7000 | 500 | 400 to 1150 | | 0.6 - 3.0 | 24 - 120 | 54/67 | --- |
| | Wheel hubs | 500 | 7000 | 500 | 400 to 1150 | | 0.6 - 3.0 | 24 - 120 | 54/67 | --- |
| TX1 MAX | Drum brakes | 500 | 7000 | 500 | 400 to 1150 | 0.6 - 3.0 | 24 - 120 | 54/67 | Mechanical 500 Nm | |
| | Wheel hubs | 600 | 7000 | 700 | 400 to 1150 | AMAC - SMAC | 0.6 - 3.0 | 24 - 120 | 54/67 | --- |
| | Drum brakes | 600 | 7000 | 700 | 400 to 1150 | AMAC - SMAC | 0.6 - 3.0 | 24 - 120 | 54/67 | Hydraulic/mechanical 1200 Nm |

TX1 series available ratios: 1:6 1:10 1:12 1:16 1:22 1:24 1:28 1:32

Please refer to the SMAC-AMAC subsection of the Electrical group section in this catalog



ELECTRIC DRIVE AXLES

TX2 SERIES

- Parallel configuration and precise gear machining allowing:
 - Ultra-high efficiency of up to 95%
 - Battery autonomy increased by as much as 30%
 - Easy maintenance
 - Compact design
 - Low noise
- SKF bearings for improved efficiency + tapered roller bearing at wheel hubs for increased safety
- Full floating axle for increased torque, load and safety
- Wide ratio range – 13 ratios available from 3 to 80
- Two versions: Standard and Plus
- Fully customizable (track width, bracket position, CV joints version, motor, etc)
- Power/volume ratio higher than competition
- High resistance to corrosion
- Ground clearance highest in the industry
- Parking brake available on all models

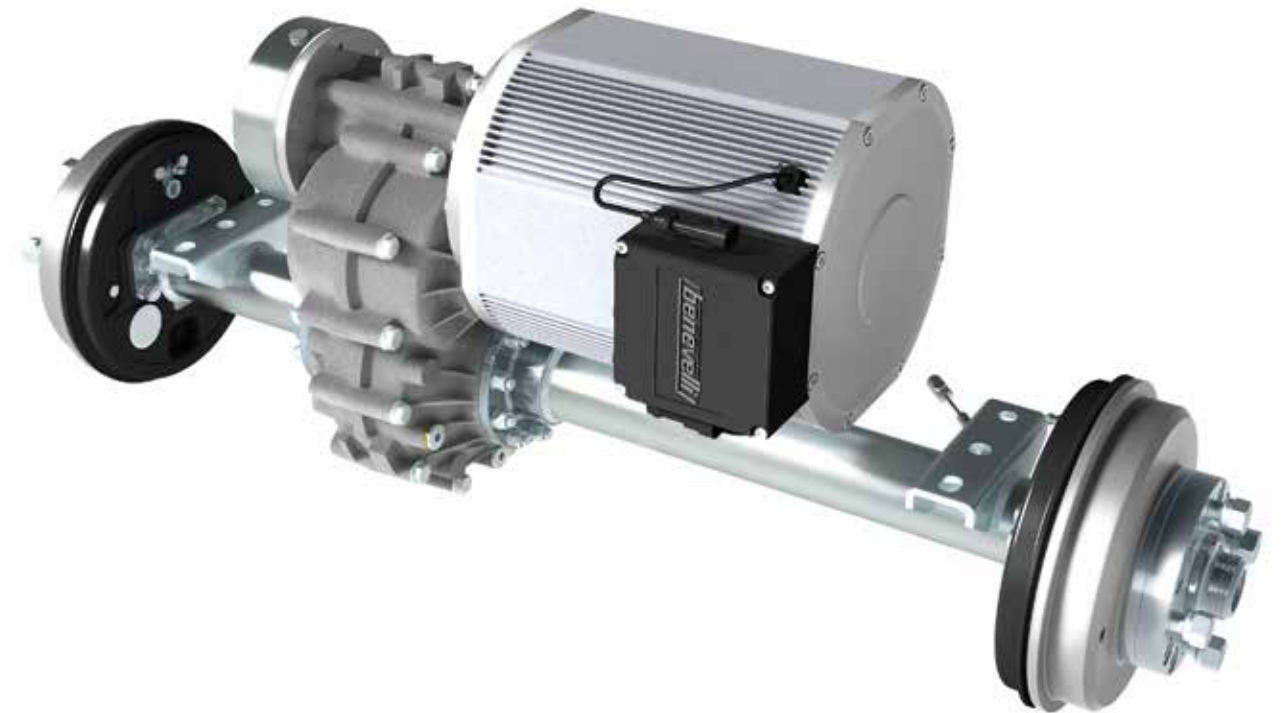
| Series | Version | GEARBOX FEATURES | | | | MOTOR FEATURES | | | | Service brake |
|----------|-------------------|---------------------|-------------------------|-------------------|-------------------|----------------|-------------------|--------------------|--------------------|---------------------------------|
| | | Output torque Nm | Max. input speed RPM | Static load kg | Track-width mm | Motor type | Rated power kW | Rated voltage V | Prot. degree IP | |
| TX2 | CV joints | 1000 | 7200 | --- | --- | AMAC - SMAC | 3.0 - 20.0 | 24 - 120 | 54/67 | --- |
| | 4WD transfer case | 1000 | 7200 | --- | --- | | 3.0 - 20.0 | 24 - 120 | 54/67 | --- |
| | Wheel hubs | 1000 | 7200 | 1000 | 560 to 1988 | | 3.0 - 6.5 | 24 - 120 | 54/67 | --- |
| | Drum brakes | 1000 | 7200 | 1000 | 560 to 1988 | | 3.0 - 10.0 | 24 - 120 | 54/67 | Mechanical 500 Nm |
| TX2 PLUS | CV joints | 1600 | 7200 | --- | --- | AMAC - SMAC | 3.0 - 20.0 | 24 - 120 | 54/67 | --- |
| | 4WD transfer case | 1600 | 7200 | --- | --- | | 3.0 - 20.0 | 24 - 120 | 54/67 | --- |
| | Wheel hubs | 1600 | 7200 | 1600 | 560 to 1988 | | 3.0 - 20.0 | 24 - 120 | 54/67 | --- |
| | Drum brakes | 1600 | 7200 | 1600 | 560 to 1988 | | 3.0 - 20.0 | 24 - 120 | 54/67 | Hydraulic/mechanical 3400 Nm |

TX2 series available ratios: 1:3 1:5 1:7 1:9 1:10 1:12 1:16 1:22 1:27 1:35 1:43 1:56 1:80

Please refer to the SMAC-AMAC subsection of the Electrical group section in this catalog

| | MOTOR SERIES | | |
|------------------|--------------|------|------|
| | PMDC | AMAC | SMAC |
| EM parking brake | X | X | X |
| Speed encoder | - | X | X |
| Maintenance free | - | X | X |
| Noise level | - | X | X |
| Temp sensor | - | X | X |
| UL ready | - | X | X |
| High efficiency | - | X | X |
| Constant torque | - | - | X |

Please refer to the SMAC-AMAC subsection of the Electrical group section in this catalog

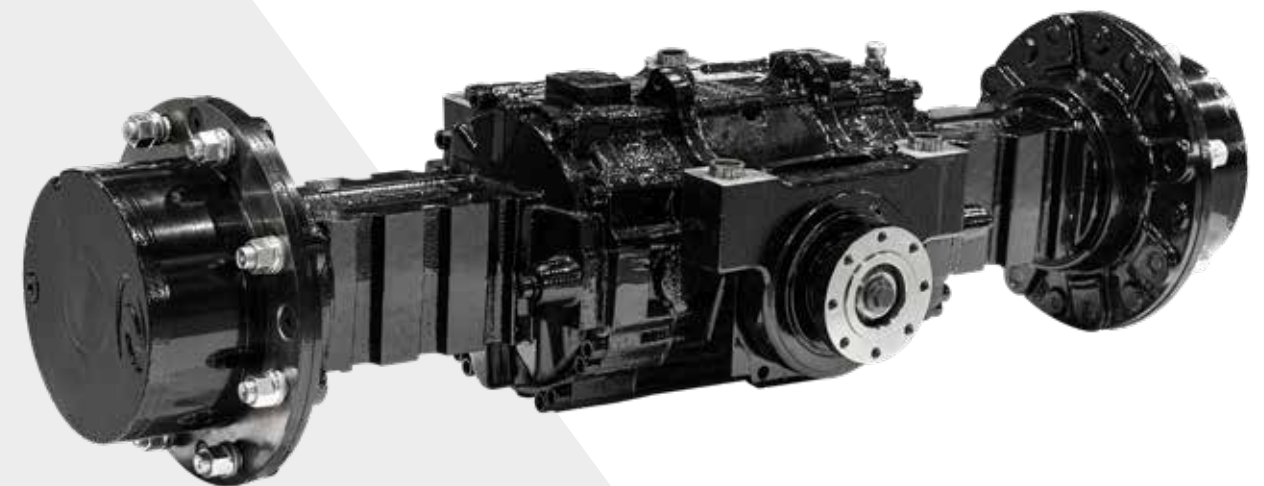




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DRIVE AXLES

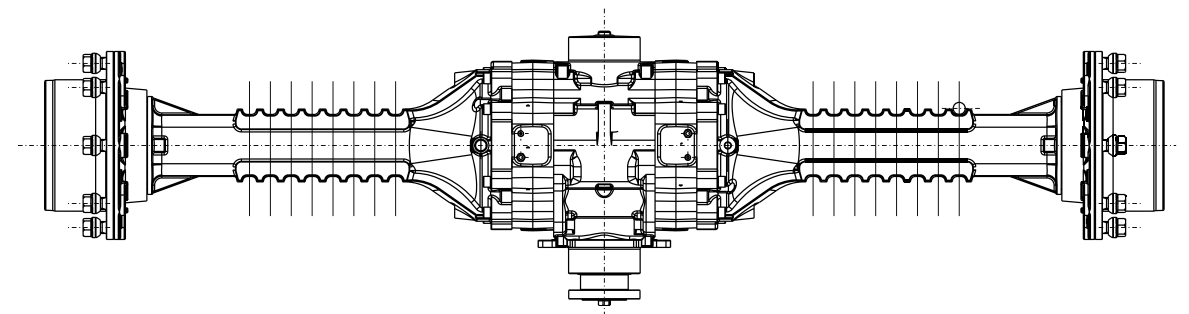
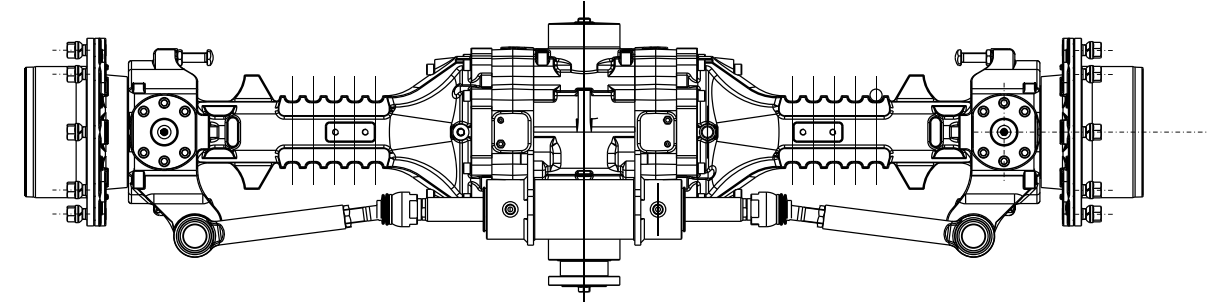
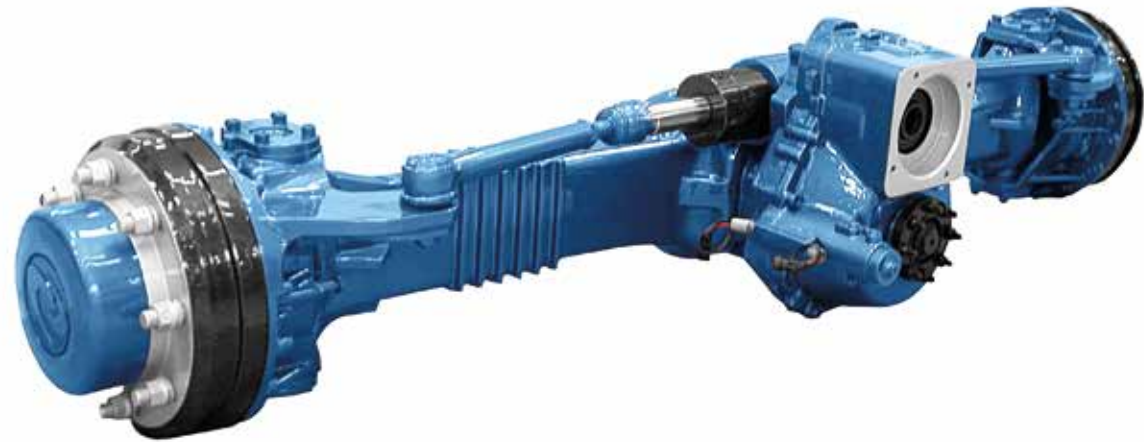
- Rigid and steering axles (off-road)
- Axles with rigid or oscillating mounting
- Open, limited slip or locking differential
- Spring applied hydraulically released brakes (SAHR)
- Optional central or top pivot mounting
- Single-stage and two-stage reduction



DRIVE AXLES

AVAILABLE OPTIONS

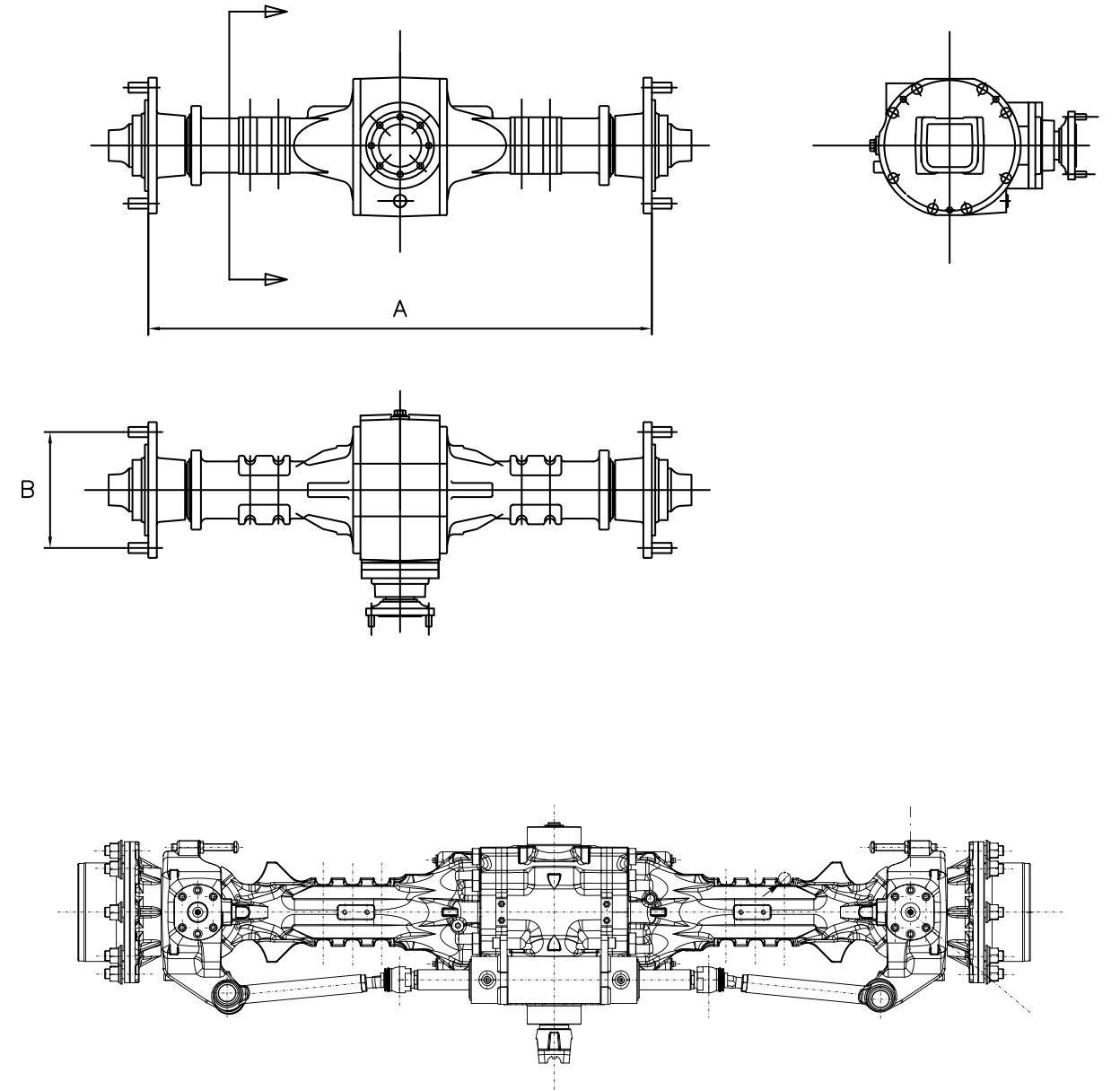
- Open, limited slip or locking differential
- Reduction at the wheel hub
- Spring applied hydraulically released brakes (SAHR)
- Central or upper pivot mounting option
- Four-wheel drive
- Hydraulic motor flange



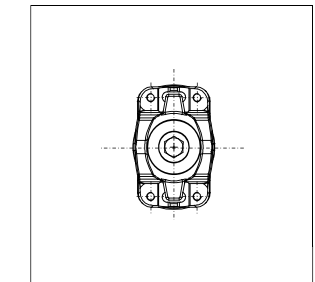
DRIVE AXLES

RIGID AND STEERING DRIVE AXLES

| Series | Type | Max. dynamic load | Max. static load | Max. output torque | Reduction ratio (wheel hub) | Total reduction | Flange to flange (A) | Wheel hub bolt circle diameter (B) |
|--------|----------|-------------------|------------------|--------------------|-----------------------------|-------------------|----------------------|------------------------------------|
| | | daN | daN | daN.m | | | mm | mm |
| 046 | Rigid | 2500 | 4500 | 440 | - | 2.23:1 ÷ 5.57:1 | 750 ÷ 890 | 205 |
| 068 | Rigid | 2700 | 6600 | 850 | 4.31:1 | 9.63:1 ÷ 24.00:1 | 806 ÷ 1263 | 205 |
| | Steering | | | | | | | |
| 080 | Rigid | 4800 | 9000 | 2100 | 4.80:1 | 10.73:1 ÷ 26.74 | 850 ÷ 1575 | 205 |
| | Steering | 2700 | | | | | 1272 ÷ 1810 | |
| 128 | Rigid | 5800 | 12000 | 2400 | 6.00:1 | 13.41:1 ÷ 24.66:1 | 1010 ÷ 1810 | 275 |
| | Steering | | | | | | 1530 ÷ 1810 | |
| 228 | Rigid | 8000 | 20000 | 3400 | 6.00:1 | 13.41:1 ÷ 24.66:1 | 1660 ÷ 2050 | 275 |
| | Steering | | | | | | 2050 | 335 |
| 238 | Rigid | 9300 | 22000 | 3400 | 6.00:1 | 13.41:1 ÷ 24.66:1 | 1660 ÷ 2050 | 275 |
| | Steering | | | | | | 2050 | 335 |
| 258 | Rigid | 9300 | - | 4200 | 6.40:1 | 14.28:1 ÷ 26.30:1 | 1660 ÷ 2050 | 335 |
| | Steering | | | | | | 2050 | |



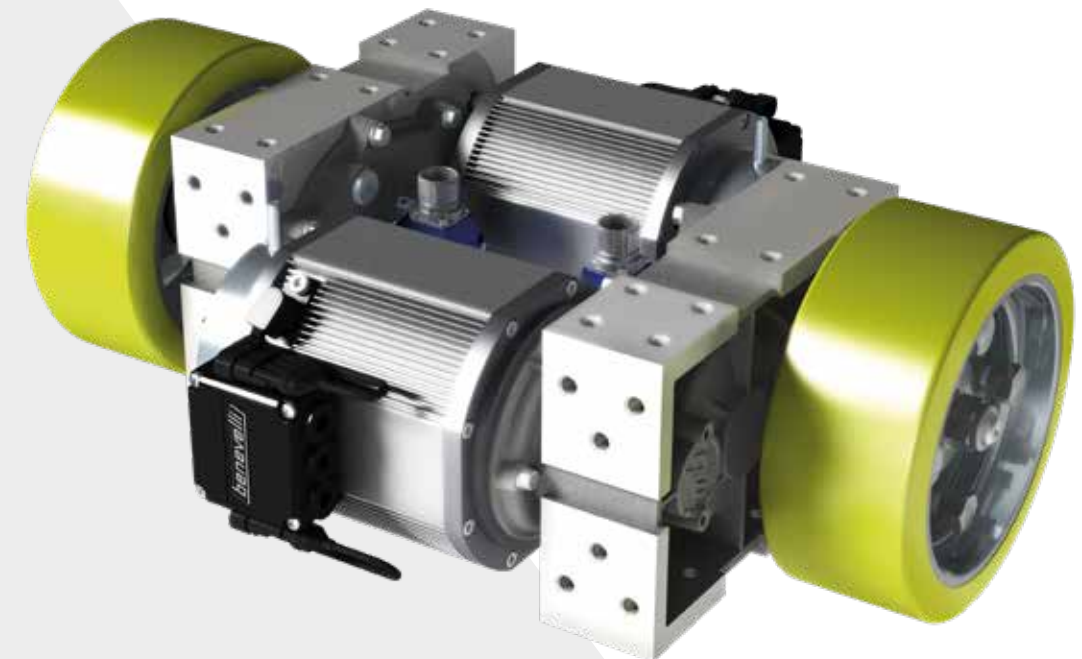
FLANGED END YOKE 1410



ELECTRIC WHEEL DRIVES



- Compact design
- Easy maintenance
- Low noise
- Ultra-high efficiency up to 95%
- Parking brake available on all models
- Easy installation without bracket increasing assembly stiffness
- High resistance to corrosion
- Many options available



ELECTRIC WHEEL DRIVES

DD1 SERIES

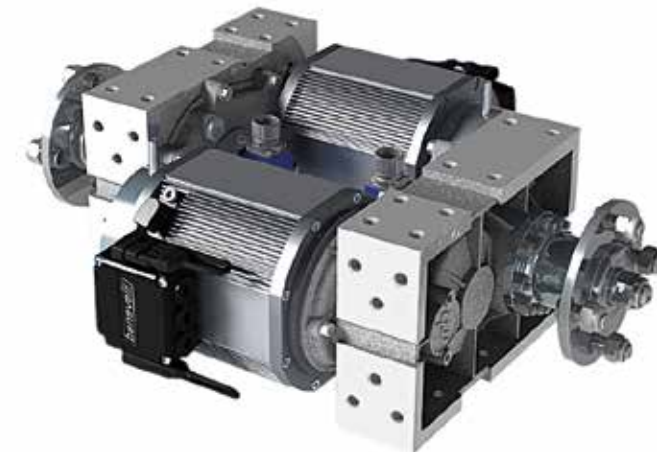
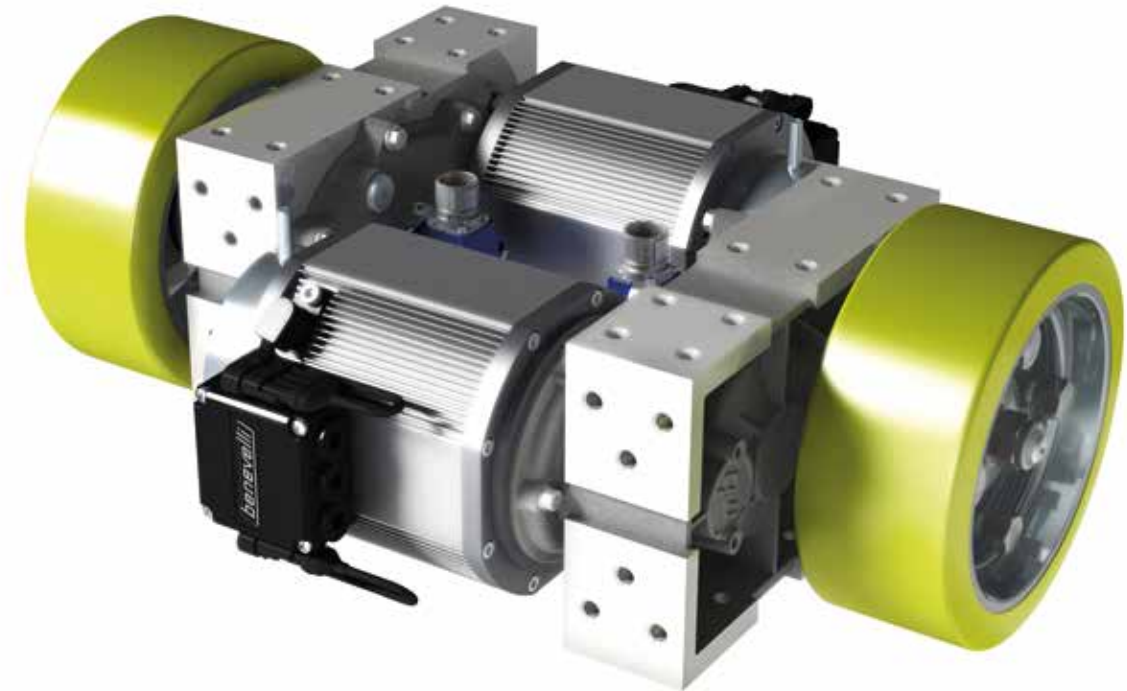
- Parallel configuration and precise gear machining allowing:
 - Ultra-high efficiency of up to 95%
 - Battery autonomy increased by as much as 30%
 - Easy maintenance
 - Compact design
 - Low noise
- SKF bearings for improved efficiency
- Wide ratio range – 8 ratios available from 6 to 32
- Many options available (mechanical brakes, no brake)
- Adaptable to different types of wheels
- Power/volume ratio higher than competition
- High resistance to corrosion
- Easy installation without brackets to increase assembly stiffness
- Parking brake available on all models

| Series | Version | GEARBOX FEATURES | | | | MOTOR FEATURES | | | Service brake |
|----------|------------------------|----------------------|-------------------------|--------------------|-----------------------------|----------------|--------------------|--------------------|------------------------------|
| | | Output torque* Nm | Max. input speed RPM | Static load* kg | Wheel diameter (min.) mm | Motor type | Rated power* kW | Rated voltage V | |
| DD1 | Polyurethane wheels | 800 | 3500 | 800 | 200 | PMDC – AMAC | 0.6 - 1.6 | 24 - 120 | --- |
| | Wheel hubs | 800 | 3500 | 800 | 200 | | 0.6 - 1.6 | 24 - 120 | --- |
| | Mechanical drum brakes | 800 | 3500 | 800 | 200 | | 0.6 - 1.6 | 24 - 120 | Mechanical 500 Nm |
| DD1 PLUS | Polyurethane wheels | 1000 | 7200 | 1000 | 200 | AMAC – SMAC | 1.2 - 6.0 | 24 - 120 | --- |
| | Wheel hubs | 1000 | 7200 | 1000 | 200 | | 1.2 - 6.0 | 24 - 120 | --- |
| | Mechanical drum brakes | 1000 | 7200 | 1000 | 200 | | 1.2 - 6.0 | 24 - 120 | Mechanical 500 Nm |
| | Drum brakes | 1000 | 7200 | 1000 | 200 | | 1.2 - 6.0 | 24 - 120 | Hydraulic/mechanical 1200 Nm |

DD1 Series available ratios: 1:6 1:10 1:12 1:16 1:22 1:24 1:28 1:32

Please refer to the SMAC - AMAC subsection of the Electrical group section in this catalog

* For a pair of DD1



AXLES

AXLES

ELECTRIC WHEEL DRIVES

TR1 SERIES

- Parallel configuration and precise gear machining allowing:
 - Ultra-high efficiency of up to 95%
 - Battery autonomy increased by as much as 30%
 - Easy maintenance
 - Compact design
 - Low noise
- Designed for a complete protection up to IP67 under IEC standard 60529
- Wide ratio range – 8 ratios available from 6 to 32
- Minimized backlash guarantees a precise positioning of the machine
- High resistance to corrosion
- Easy installation without brackets to increase assembly stiffness
- Parking brake available on all models

| Series | Version | GEARBOX FEATURES | | | | MOTOR FEATURES | | | |
|----------|------------------------|---------------------|---------------------------|-------------------|------------|----------------|-------------------|--------------------|------------------------------|
| | | Output torque Nm | Input speed (max.) RPM | Static load kg | Diff. lock | Motor type | Rated power kW | Rated voltage V | Service brake |
| TR1 | Single unit | 300 | 3500 | 300 | --- | PMDC – AMAC | 0.3 - 0.8 | 24 - 120 | --- |
| | Dual units | 600 | 3500 | 600 | Electronic | | 0.6 - 1.6 | 24 - 120 | --- |
| | Wheel hubs | 600 | 3500 | 600 | Electronic | | 0.6 - 1.6 | 24 - 120 | --- |
| | Drum brakes | 600 | 3500 | 600 | Electronic | | 0.6 - 1.6 | 24 - 120 | Mechanical 500 Nm |
| TR1 PLUS | Single unit | 400 | 7200 | 300 | --- | AMAC – SMAC | 0.6 - 3.0 | 24 - 120 | --- |
| | Dual units | 800 | 7200 | 800 | Electronic | | 1.2 - 6.0 | 24 - 120 | --- |
| | Wheel hubs | 800 | 7200 | 800 | Electronic | | 1.2 - 6.0 | 24 - 120 | --- |
| | Mechanical drum brakes | 800 | 7200 | 800 | Electronic | | 1.2 - 6.0 | 24 - 120 | Mechanical 500 Nm |
| | Drum brakes | 800 | 7200 | 800 | Electronic | | 1.2 - 6.0 | 24 - 120 | Hydraulic/mechanical 1200 Nm |

TR1 series ratios: 1:6 1:10 1:12 1:16 1:22 1:24 1:28 1:32

Motor type: please refer to the SMAC-AMAC subsection of the Electrical group section in this catalog

| | MOTOR SERIES | | |
|------------------|--------------|------|------|
| | PMDC | AMAC | SMAC |
| EM parking brake | X | X | X |
| Speed encoder | - | X | X |
| Maintenance Free | - | X | X |
| Noise level | - | X | X |
| Temp sensor | - | X | X |
| UL ready | - | X | X |
| High efficiency | - | X | X |
| Constant torque | - | - | X |

Learn more about the CNX series that offers a range of complementary products for Benevelli axles. Contact your representative for more information.



AXLES

AXLES

ELECTRIC WHEEL DRIVES

WD220 SERIES

- Parallel configuration and precise gear machining allowing:
 - Compact and scalable design
 - Ultra-high efficiency of up to 95%
 - Lightweight
 - Battery autonomy increased by as much as 30%
 - Low noise
 - Integrated safety brake
- Easy maintenance
- High radial loads
- High power density
- High resistance to corrosion
- Adaptable to different types of wheels
- Easy installation without brackets to increase assembly stiffness
- Parking brake available



| Series | Version | GEARBOX FEATURES | | | | MOTOR FEATURES | | | Service brake |
|--------|------------|---------------------|--------------------|-------------------|--------------------------|----------------|-------------------|--------------------|---------------|
| | | Output torque Nm | Input speed RPM | Static load kg | Wheel diameter (min.) | Motor type | Rated power kW | Rated voltage V | |
| WD220 | Wheel hubs | ≥500 | --- | ≥1000 | --- | SMAC | 1.5 - 3 | 24 - 600 | Optional |

Ratio available: 1:41



CONTRIBUTING TO PEOPLE'S QUALITY OF LIFE, EVERY DAY.



AXLES

AXLES