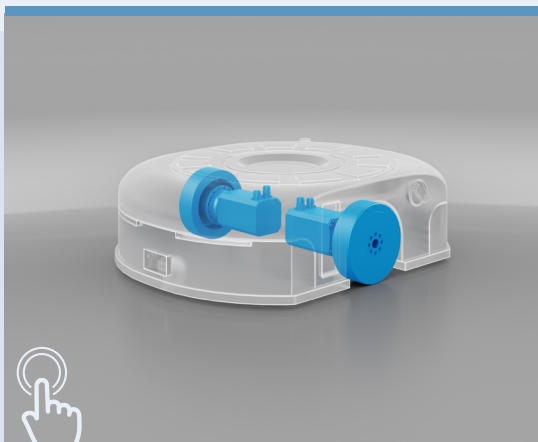


*Solutions for*

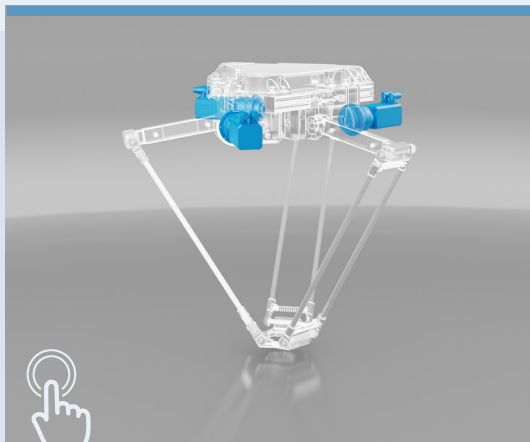
# MOBILE & INDUSTRIAL ROBOTICS



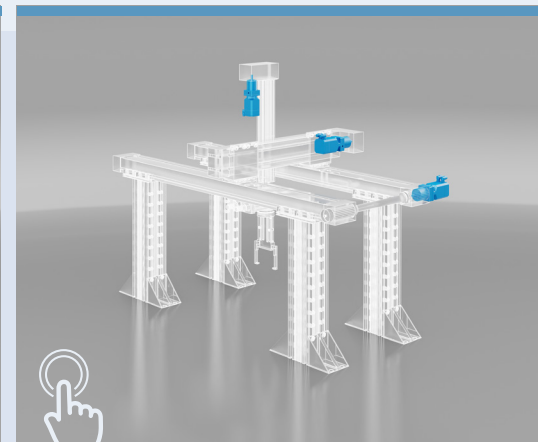
**BLUEROLL**



**ARTICULATED  
ROBOT**



**DELTA  
ROBOT**



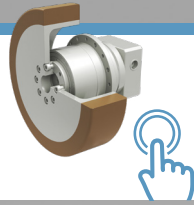
**CARTESIAN  
ROBOT**





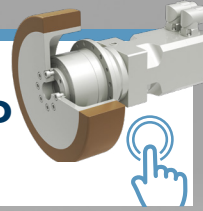
1

**BLUEROLL BASIC**  
TQW SERIES



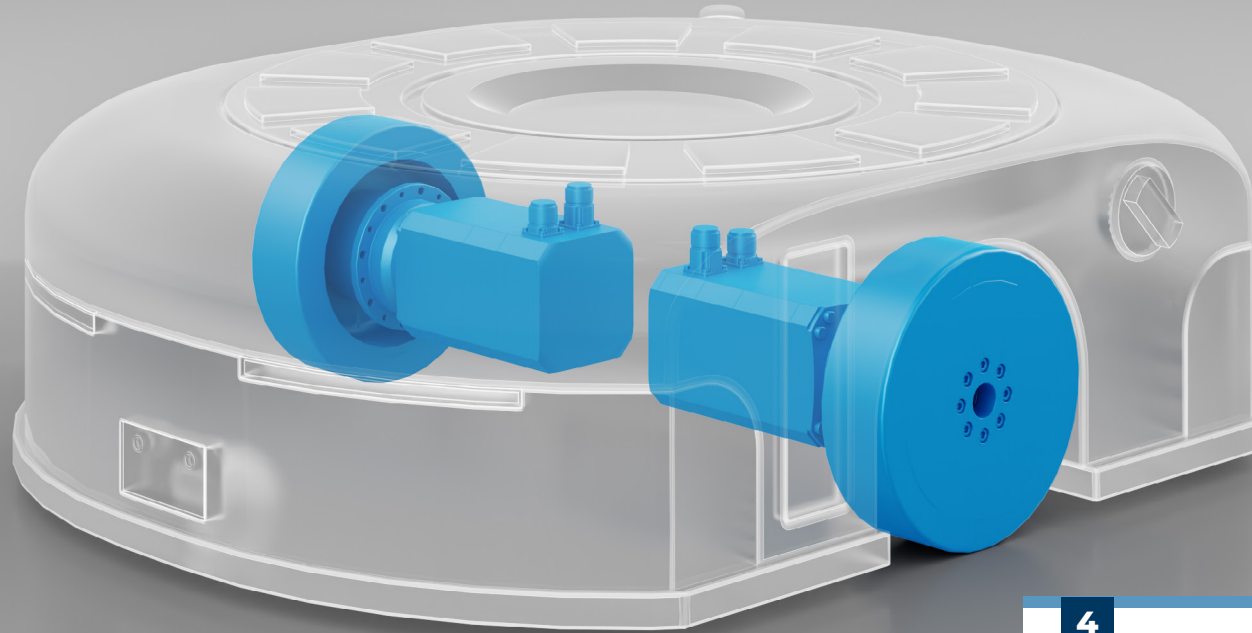
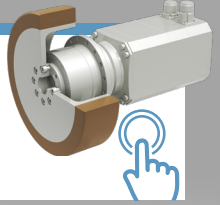
2

**BLUEROLL ADVANCED**  
TQW+BMD SERIES



3

**BLUEROLL COMPACT**  
CUSTOM SERIES



4

**OTHER BONFIGLIOLI  
SOLUTIONS FOR AGVS**  
EL SERIES



## BLUEROLL PLATFORM

THE BONFIGLIOLI PLATFORM FOR MOBILE ROBOTS AND LOGISTIC SYSTEMS



# BLUEROLL PLATFORM

THE BONFIGLIOLI PLATFORM FOR MOBILE ROBOTS AND LOGISTIC SYSTEMS

FULL CUSTOMIZATION FOR RELIABLE PERFORMANCE AND HIGH POWER DENSITY



EXPERTISE FOR  
CUSTOMIZED  
SOLUTIONS



COMPLEXITY  
REDUCTION



SECTOR  
SPECIFIC  
REQUIREMENTS

THE HIGHLY FLEXIBLE AND MODULAR PLATFORM FOR A WIDE SPECTRUM OF APPLICATIONS



WAREHOUSE &  
LOGISTICS



MATERIAL  
HANDLING



PHARMACEUTICAL



FOOD &  
BEVERAGE

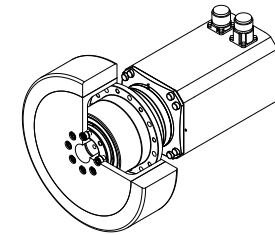
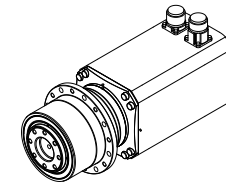


E-COMMERCE

CUSTOMIZED LEVELS OF INTEGRATION

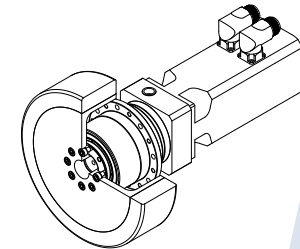
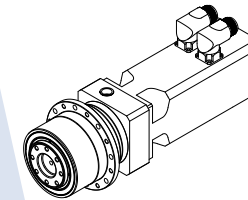
## BLUEROLL COMPACT

Extra compact  
Servo geared motors



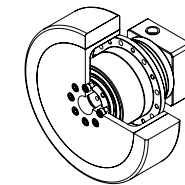
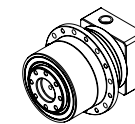
## BLUEROLL ADVANCED

Servo geared motors



## BLUEROLL BASIC

Precision Planetary Gearboxes



Each version of BlueRoll is available both with and without the wheel.



1

## BLUEROLL BASIC

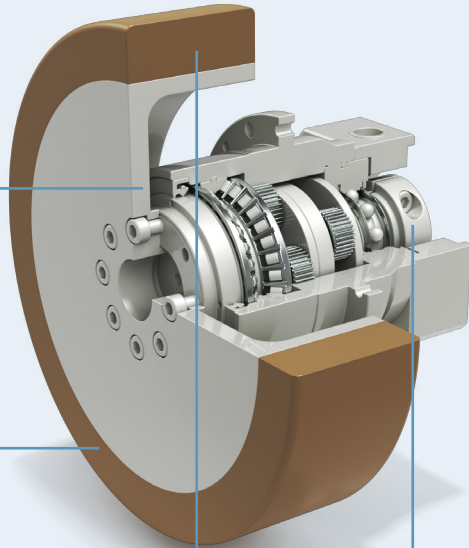
### TQW SERIES

#### High energy efficiency

Compared to other technologies, planetary gearboxes allow to reduce energy consumption at any load condition, hence extending battery life.

#### Minimized installation space

Since the gearbox is almost completely enclosed by the wheel, the required installation space is reduced to the minimum

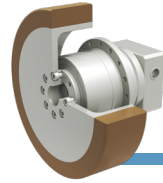


#### Easy installation

Thanks to its fixing flange design, the gearbox can be fitted directly to the chassis of the vehicle

#### Heavy loads capability

The integrated wheel is supported directly by the reinforced gearbox bearings, which permit ultra-high radial forces



#### GEAR RATIOS

- 9 ... 100

#### DEGREE OF PROTECTION

- IP65

#### BACKLASH

- Less than 10 arcmin

#### MAX RADIAL FORCE

- 2300 ... 5200 N

#### MAXIMUM INPUT SPEED

- 4000 ... 6000 rpm

#### MAXIMUM LOAD CAPACITY

- 360 ... 1020 kg

#### MAXIMUM SPEED

- <2m/s

#### POSITION PRECISION

- 0.2 ... 0.3 mm

#### WEIGHT (WHEEL INCLUDED)

- 4,2 ... 18,1 kg

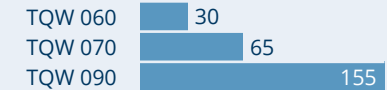
#### KEY FEATURES

- Extremely compact
- High energy efficiency
- Output shaft supported by heavy load capacity bearings
- Highly reliable
- Life lubricated
- Designed for continuous and intermittence duty

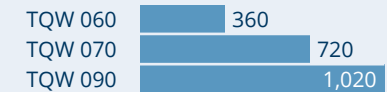
## TQW SERIES

### PRECISION PLANETARY GEARBOX

#### NOMINAL TORQUE (Nm)



#### MAX LOAD CAPACITY (kg)



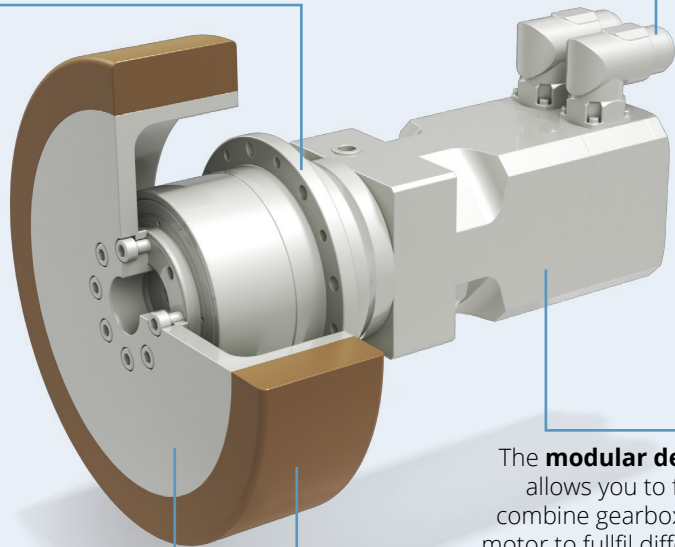


2

## BLUEROLL ADVANCED TQW+BMD SERIES

Embeds all the benefits of TQW gearbox from BlueRoll Basic

**Tailored** for your mobile robot thanks to a wide range of sector-specific features, i.e.: low voltage supply, special feedbacks including safety encoders, holding brakes

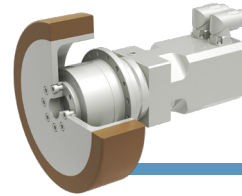


The **modular design** allows you to freely combine gearbox and motor to fulfill different application requirements

### Extensive customization

possibilities to meet any application requirement, including environmental constraints (e.g. low temperature)

**High energy efficiency** thanks to the optimized combination of servo motor and gearbox



### POWER SUPPLY

- Customized winding for low voltage supply (i.e. 48Vdc)

### RATED SPEED

- 1600, 3000, 4500, 6000 rpm

### SIZES

- 3 gearbox sizes
- 4 motor frames

### BACKLASH

- Less than 10 arcmin

### BRAKE

- Holding brake
- Safety brake

### DEGREE OF PROTECTION

- IP 65, IP 67 possible

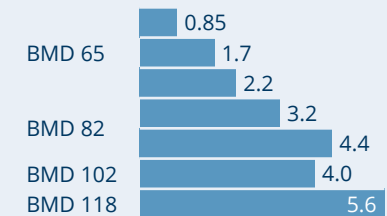
### KEY FEATURES

- Highly customizable solution
- Specific matching between the individual application demands and the gearmotor's operating area
- Wide range of encoders and protocols suitable for functional safety
- Various connectors options or flying cable

## TQW+BMD SERIES

### PERMANENT MAGNET SERVO GEARMOTORS

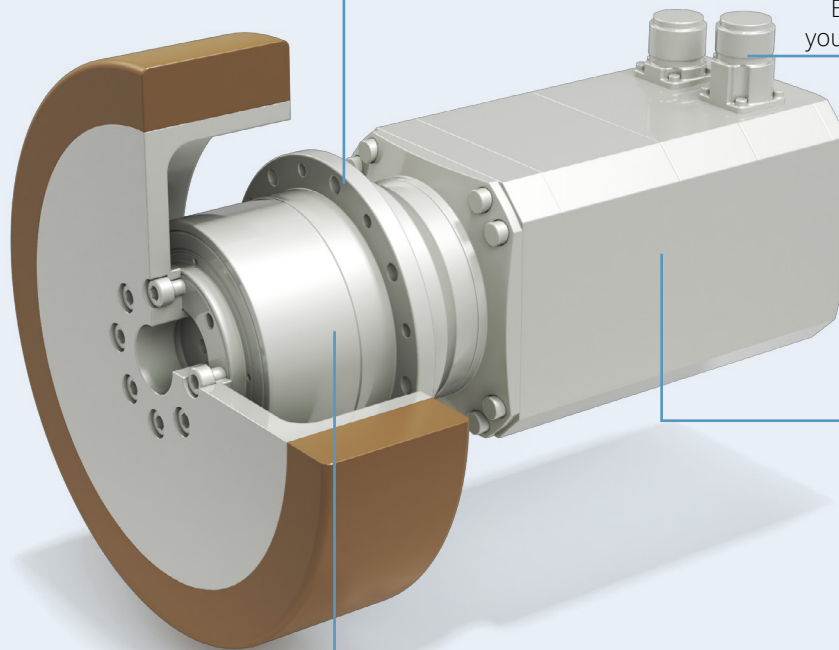
### BMD SERIES MOTOR TORQUE (Nm)



3

## BLUEROLL COMPACT CUSTOM SERIES

Embeds all the benefits of TQW gearbox from BlueRoll Basic



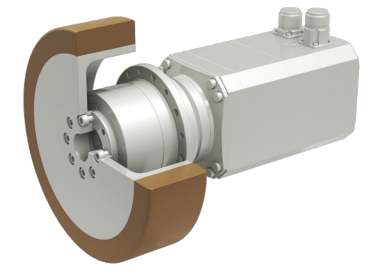
**Choose the best configuration:** thanks to its wide range of gearbox ratios, feedback systems (including safety encoders), and motor options, BlueRoll is the most versatile platform on the market.

**Make the battery last longer:** the combination of low voltage PMSM and a planetary gearbox in a compact design, makes BlueRoll the right choice for your battery-powered system.

**Simplify your AGV design:** the Compact version is **25% shorter** than the Advanced version, maximizing space-saving and preserving high-level performance.

## CUSTOM SERIES

### EXTRA COMPACT SERVO GEARMOTORS



### THE TOP-LEVEL INTEGRATION

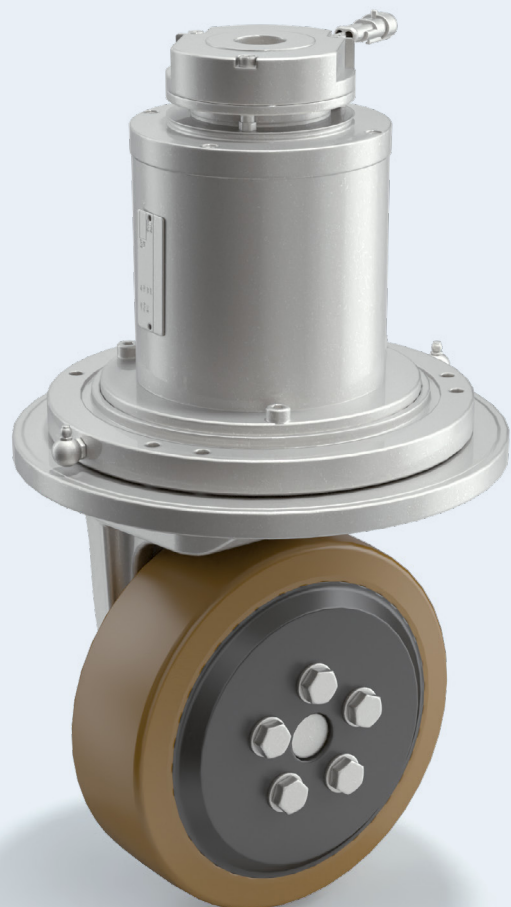
Reach the **highest level of customization and compactness** with our **complete solution**, characterized by **fully tested** and **validated dimensioning** tailored to your specific requirements. Developed to respond to customer's requests, the extreme compactness of this solution allows **greater flexibility in the design** of your AMR application.



4

## OTHER BONFIGLIOLI SOLUTIONS FOR AGVS

EL SERIES



### GEAR RATIOS

- 13 ... 32

### POWER RANGE

- 2 ... 7 kW

### MAIN OPTIONS

- Cold environment versions
- Integrated tiller or castor wheel supports

### KEY FEATURES

- Two-stage helical & bevel gearboxes
- Manual steer and power steer versions
- Optimized gear design for efficiency and noise
- Integrated low-voltage electric motor
- Integrated parking brake
- Complete system with tyres

## EL SERIES

### TORQUE (Nm)

EL100	450
EL09 V	500
EL96	500
EL10 V	900
EL300	1,100
EL92	1,500
EL93	1,500
EL94	1,500
EL14 V	1,900

### MAX WHEEL LOAD (kg)

EL100	1,200
EL09 V	1,200
EL96	1,500
EL10 V	1,500
EL300	2,200
EL92	3,000
EL93	3,000
EL94	3,000
EL14 V	3,400



MATERIAL  
HANDLING  
VEHICLES



REACH  
TRUCKS



TOW  
TRACTORS





1

## CUSTOMIZED GEARBOXES

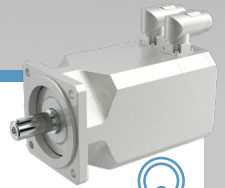
PRECISION CUSTOMIZED AND  
CO-DESIGNED GEARBOXES



2

## BMD SERIES

SYNCHRONOUS MOTORS



3

## CUSTOMIZED GEARS

HIGH QUALITY BEVEL  
AND CYLINDRICAL GEARS



# ARTICULATED ROBOT

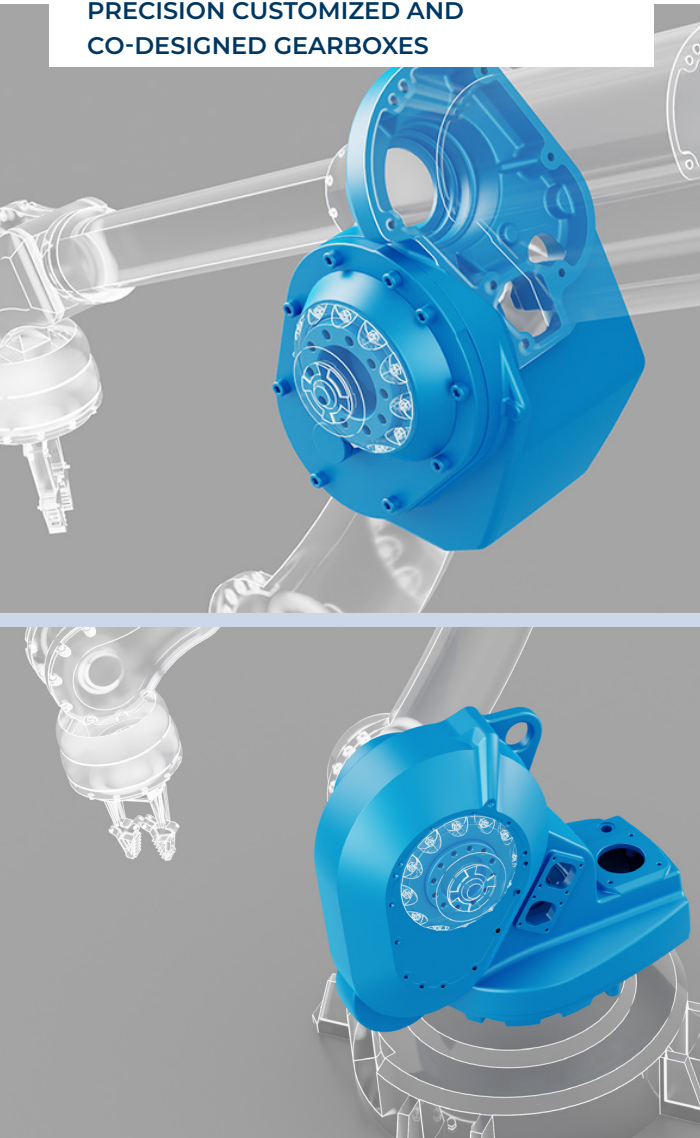




1

## CUSTOMIZED GEARBOXES

PRECISION CUSTOMIZED AND  
CO-DESIGNED GEARBOXES



### TECHNICAL FEATURES

- Nominal Torque ranges: from 180 up to 800 Nm
- Maximum Torque ranges: from 650 to 4.000 Nm
- Lost motion < 1.5 armin

### APPLICATION RANGE

- Suitable for robotic duty cycles

### LUBRICATION

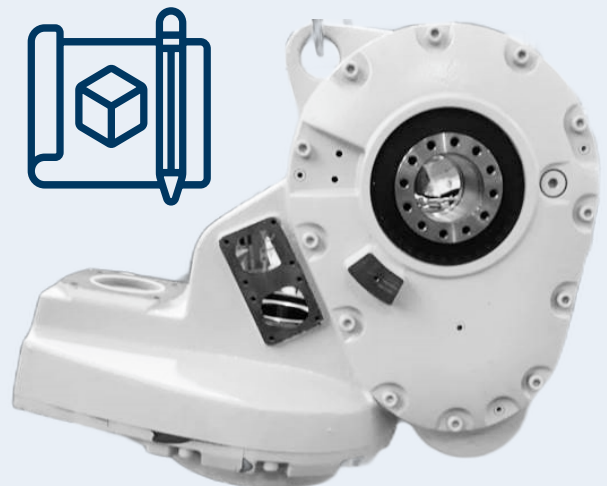
- Sealed & lubricated or open gearbox

### GEARS CAPABILITIES

- Grinded Cylindrical Helical Gears (up to DIN 4 Class) – Module 1 ÷ 9 mm
- Lapped and Grinded Bevel Spiral & Hypoid Gears (up to DIN 6 Class) – Module 1 ÷ 12 mm

### KEY FEATURES

- Gearbox co-design and in-house engineering
- Low noise and High Precision
- Low weight design
- Application on all 6 axis of robot
- Full 100% final quality testing
- Long term maintenance support





2

## BMD SERIES

### SYNCHRONOUS MOTORS



#### SYSTEM VOLTAGE

- 230, 400 Vac

#### RATED SPEED

- 1600, 3000, 4500, 5500, 6000 rpm

#### FEEDBACKS

- Resolver 2poles, 8-10kHz
- EnDat optical encoders, absolute , single and multi-turn
- EnDat inductive encoder, absolute , multi-turn
- SinCos optical encoder
- Hiperface optical encoders, absolute, single and multi-turn
- Hiperface DSL optical Safety encoder , absolute, single and multi-turn,
- Hiperface capacitive encoders, absolute, single and multi-turn
- Hiperface DSL capacitive encoders, absolute multi-turn, standard and Safety version

#### CONNECTION TYPE:

- Straight and rotatable connectors

- Cable with flying leads or with SubD connector
- Single hybrid connector or single cable for Hiperface DSL and EnDat

#### TEMPERATURE SENSOR

- PTC
- KTY 84-130
- PT1000

#### DEGREE OF PROTECTION

- IP65
- IP67 (optional)

#### INERTIA

- 0. 2 ... 47 (kgm<sup>2</sup> x 10<sup>-4</sup>)

#### HOLDING BRAKE (OPTIONAL)

- 24 Vdc

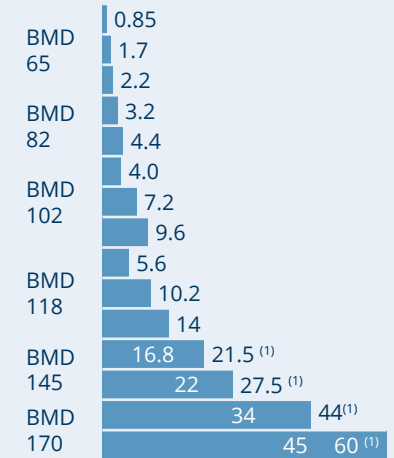
#### ADDITIONAL FLYWHEEL (OPTIONAL)

- 0. 5 ... 70 (Kgm<sup>2</sup> x 10<sup>-4</sup>)

#### FORCED VENTILATION (OPTIONAL)

- 24 Vdc
- 230 Vac

#### TORQUE (Nm)



(1) Motor with forced ventilation option





3

## CUSTOMIZED GEARS

HIGH QUALITY BEVEL  
AND CYLINDRICAL GEARS



### CYLINDRICAL GEARS FEATURES

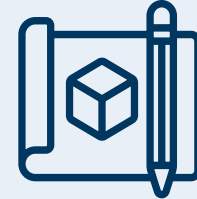
- Helical gears set
- Grinded machining
- Quality up to DIN 4 Class
- Module from 1 to 9 mm

### BEVEL GEARS FEATURES

- Spiral & Hypoid Gears set
- Lapped or Grinded solution
- Quality up to DIN 6 Class
- Module from 1 to 12 mm

### KEY FEATURES

- Gears co-design and in-house engineering
- Low noise and High Precision
- Low weight design
- Additional treatments and machining available on request

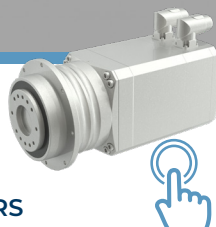




1

## BMS SERIES

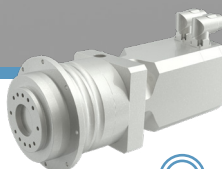
PRECISION PLANETARY  
IN-LINE SERVO GEARMOTORS



2

## TQF+BMD SERIES

SERVO MOTORS AND PRECISION  
GEARBOXES



3

## ANG SERIES

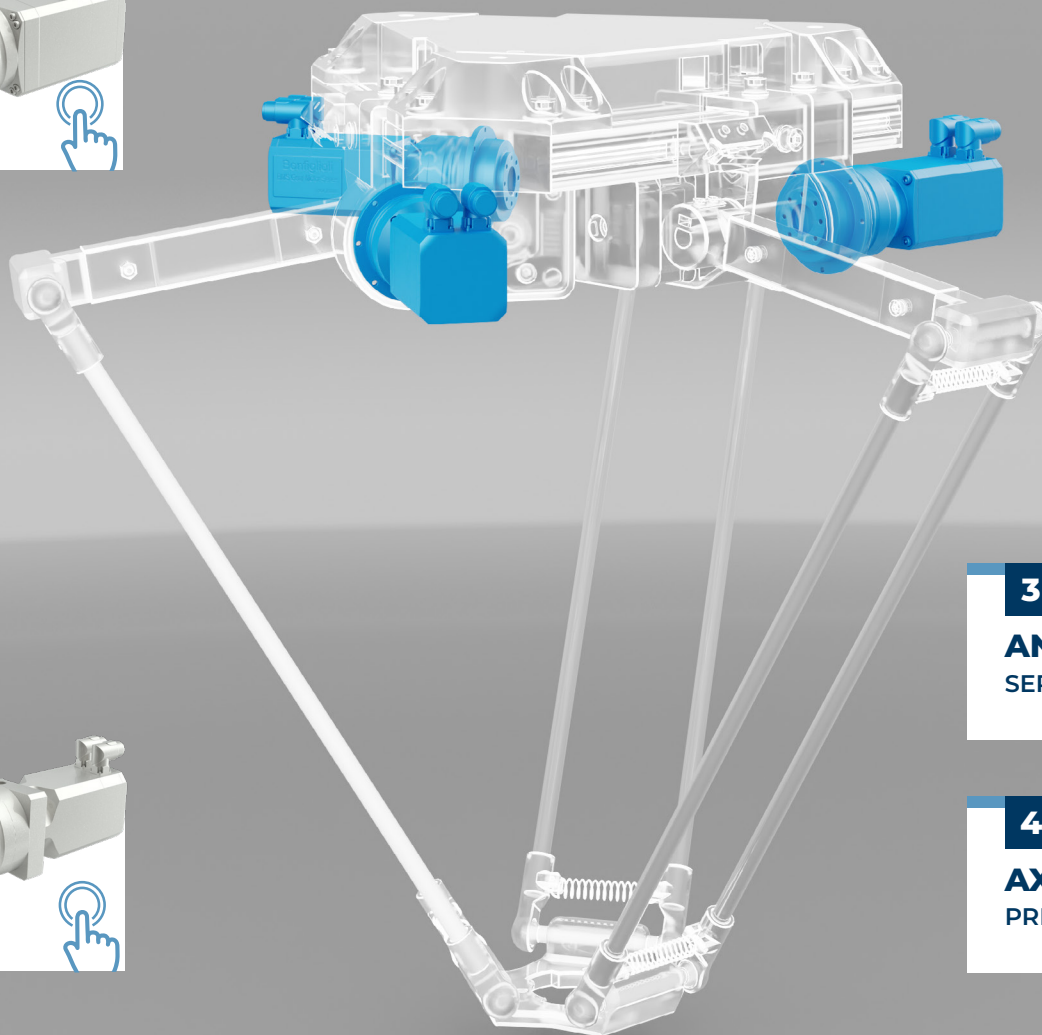
SERVO DRIVES



4

## AXIAVERT SERIES

PREMIUM INVERTERS



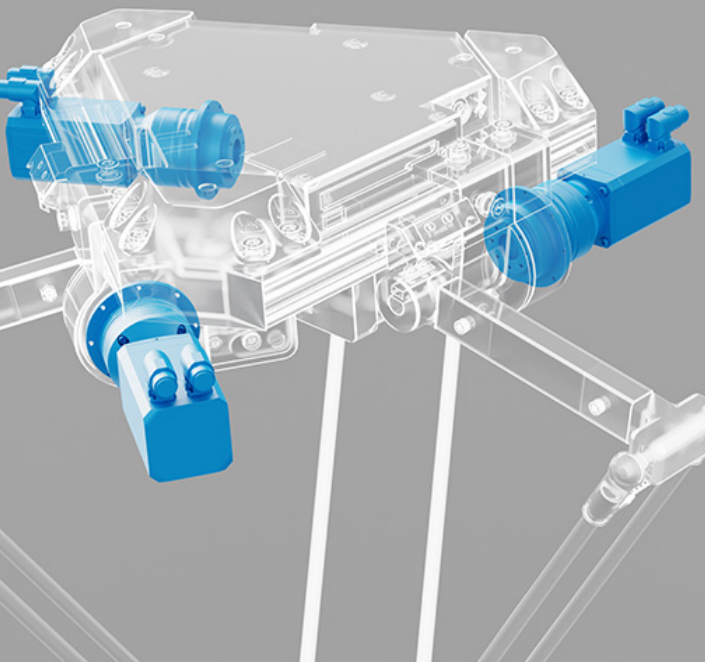
# DELTA ROBOT



1

## BMS SERIES

PRECISION PLANETARY  
IN-LINE SERVO GEARMOTORS



### RATED SPEED

- 60 up to 875 rpm

### TECHNICAL FEATURES

- 5 gearbox sizes: 060, 070, 090, 130, 160
- 3 overspeed variants: Base, Medium and High
- 6 motor frames and 14 motor sizes

### BACKLASH

- stage: less than 3 arcmin
- stages: less than 5 arcmin

### OPERATION

- Continuous duty Cyclic operation

### LUBRICATION

- Life-lubricated Optionally food grade oil

### FEEDBACK

- 2-pole resolver 8kHz & 10 kHz Optical single & multi turn EnDat encoder
- Optical single & multi-turn Hiperface encoder
- Capacitive single & multi-turn Hiperface encoder

### TEMPERATURE SENSOR

- PTC
- KTY 84-130 PT1000
- Brake options
- Holding brake (optional) 24 Vdc

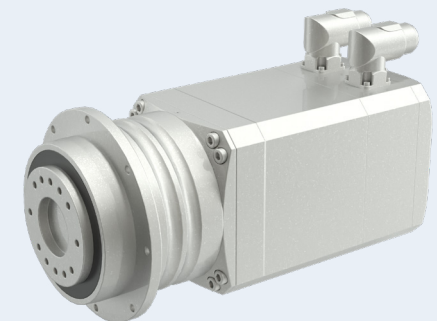
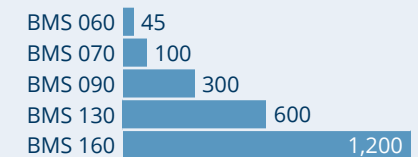
### DEGREE OF PROTECTION

- IP65

### KEY FEATURES

- Compact design
- High precision and dynamics Matching application demands and geared motor operating area, with a smaller servopackage
- Very flexible options

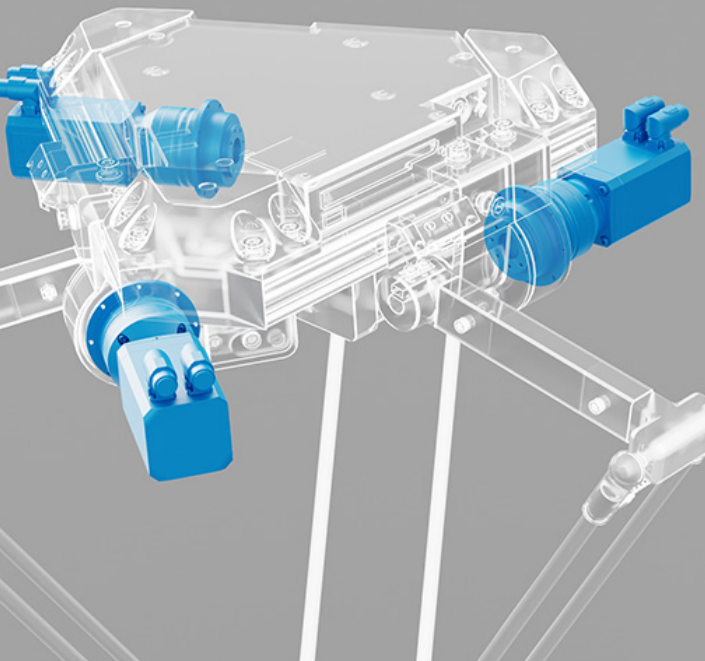
### MAXIMUM ACCELERATION TORQUE (Nm)







2

**TQF+BMD SERIES**SERVO MOTORS AND PRECISION  
GEARBOXES**TQF SERIES****GEAR RATIOS**

- 1 stage: 3 ... 10
- 2 stages: 16 ... 100

**DEGREE OF PROTECTION**

- IP65

**BACKLASH**

- stage: less than 3 arcmin
- stages: less than 5 arcmin

**MAX RADIAL FORCE**

- 2,400 ... 29,000 N

**INPUT SPEED**

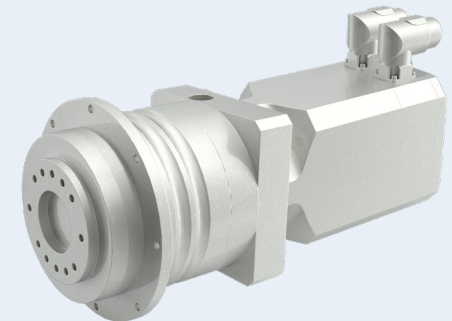
- Up to 6,000 min<sup>-1</sup>

**KEY FEATURES**

- High torsional stiffness High tilting moment Reduced backlash
- Designed for continuous duty & cyclic operation
- Life-lubricated Optionally food grade oil Quiet operation
- Universal design allows any mounting orientation

**BMD SERIES****PRODUCT FEATURES**

- Output Torque: 0.85 ... 45 Nm with natural cooling and up to 60 Nm with forced ventilation
- Output speed: 1600, 3000, 4500, 5500, 6000 rpm
- Three phase power supply, 230Vac and 400Vac
- 6 sizes available
- 2 degree of protection IP65 (standard) and IP67 (optional)
- Class F insulation materials 8 Poles
- Options available for brake 24 Vdc and additional flywheel / inertia
- UL certified



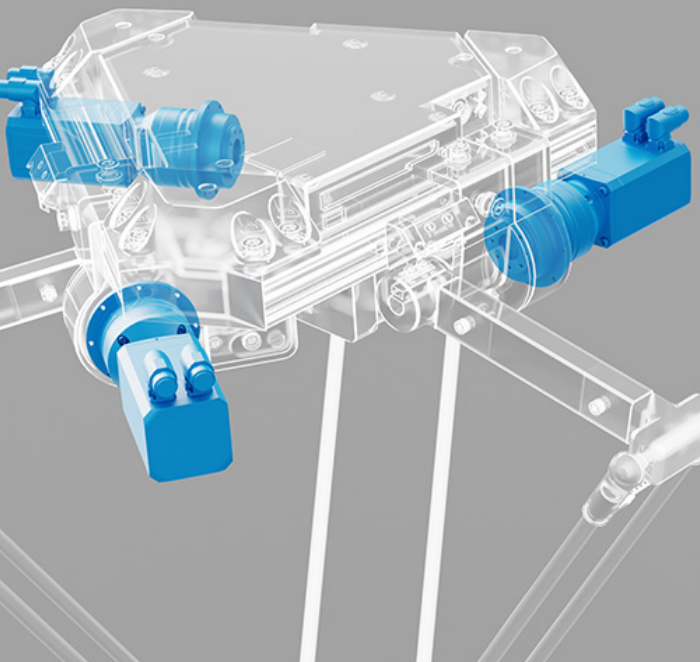




3

## ANG SERIES

### SERVO DRIVES



### POWER SUPPLY & POWER RANGE

- ANG210: 0.25 - 9.2 kW
- ANG410: 0.25 - 400 kW
- Parallel connection up to 1200 kW ANG510: 160 - 400 kW
- Parallel connection up to 1200 kW
- ANG610: 160 - 400 kW
- Parallel connection up to 1200 kW

### MOTOR CONTROL (open loop or optional closed loop):

- Asynchronous AC motors
- Permanent magnet synchronous (brushless) motors

### MOUNTING OPTIONS

- Cabinet mounting for all sizes
- Optional feed-through mounting
- Optional DIN rail mounting
- frame size 1
- Optional ColdPlate (sizes 1 to 5)
- Optional liquid cooling (sizes 5 to 8)

### OVERLOAD CAPACITY

- up to 150% for 60 seconds
- up to 200% for 1 second

### KEY FEATURES

- Different variants include field bus connection and encoder evaluation Plug-in power terminals
- Plug-in and programmable control terminals
- DC link connection
- Integrated brake chopper
- Positioning function via field bus (Motion control compatible with CiA 402)
- Cubic interpolation
- Integrated VPLC
- Master/slave function with electronic gear
- Power failure control
- Integrated safe torque off STO (SIL 3 / PL e) function
- Output frequency 0...599 Hz, higher frequencies on request
- Diagnosis and setup via optional keypad or PC software

### VARIANTS AUTOMATION INTERFACE:

- EM-AUT-01: EtherCAT® and Encoder evaluation (TTL, HTL, Resolver, Hiperface, EnDat 2.1)
- EM-AUT-04: EtherCAT®
- EM-AUT-11: PROFINET and Encoder evaluation (TTL, HTL, Resolver, Hiperface, EnDat 2.1)
- EM-AUT-21: Ethernet/IP and Encoder evaluation (TTL, HTL, Resolver, Hiperface, EnDat 2.1)
- EM-AUT-31: Varan and Encoder evaluation (TTL, HTL, Resolver, Hiperface, EnDat 2.1)

### OPTIONS

- Optional keypad for diagnosis and parameter setup
- Optional PC interface
- Optional accessories like brake resistor, mains chokes, mains filters

### ENCLOSURE

- IP20 (EN 60529) (up to 3kW)





4

## AXIAVERT SERIES

### PREMIUM INVERTERS

#### POWER SUPPLY & POWER RANGE

- 3 phase 400V mains: 0.25 - 15 kW
- 3 phase 230V mains: 0.25 - 9.2 kW
- 1 phase 230V mains: 0.25 - 3 kW

#### MOTOR CONTROL (open loop or optional closed loop):

- Asynchronous AC motors
- Synchronous Reluctance motors
- Permanent magnet synchronous (brushless) motors

#### MOUNTING OPTIONS

- Cabinet mounting for all sizes
- Optional feed-through mounting
- Optional ColdPlate
- Vibration resilient mounting kit for Air Cooling devices

#### OVERLOAD CAPACITY

- up to 150 % overload for 60 s
- up to 300 % overload for 2 s

#### FUNCTIONAL SAFETY

##### VARIANTS

- STO, SBC (SIL 3 / PL e) STO, SBC, SS1 (SIL 3 / PL e)
- STO, SBC, SS1, SS2, SLS\*, SSM\*, SDI\*, SLP\*, SOS\* (SIL3 / PL e)
- \* with motor encoder: SIL3 / PL e
- without encoder: SIL 2 / PL d

#### KEY FEATURES

- Support for FSoE and Functional

- Safety encoders
- IIoT ready
- CiA402 Motion Control
- Electronic gear function
- Functions for lift, crane and winch applications
- Power failure management
- Motor supervision functions (Temperature, I<sup>2</sup>t, Software Motor switch, Encoder supervision,...)
- Position, Speed or Torque Control
- Programmable S curve data sets PID controller
- Jerkfree torque/speed changeover
- DC link connection
- Standard HTL encoder interface
- Integrated brake chopper
- Brake control output (DC 24 V / 3 A)
- Plug-in power terminals (up to 15 kW)
- Plug-in and programmable control terminals
- 5 digital inputs, 1 digital input/output, 1 multifunction input, 1 analogue output, 1 analogue input, 1 relay output (changeover contact)
- DC 24 V input (double pin connector for easy wiring)

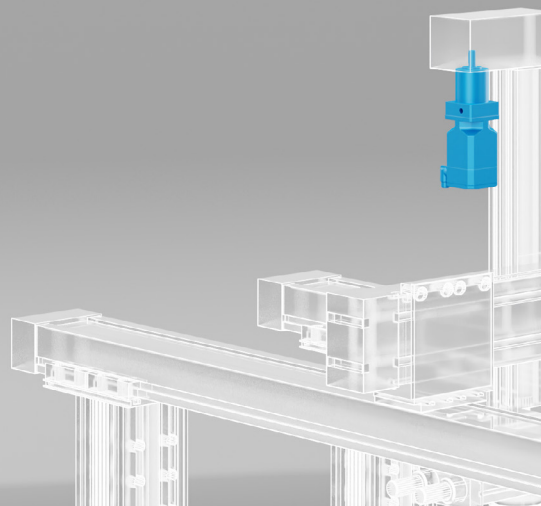
- DC 24 V output
- Jumper to switch easily between TN mains and IT mains (up to 15 kW)
- Drive commissioning, diagnosis and tuning with user friendly options including Keypad, PC connection, Mobile App

#### OPTIONS

- Different Fieldbus options, such as CANopen, EtherCAT, PROFINET,
- Encoder support with Expansion modules: TTL, Resolver, SinCos, Hiperface, Hiperface DSL, EnDat 2.2, SSI
- Commissioning and Diagnosis via optional graphical keypad
- Optional Remote Access Module for the connection to a PC or a mobile phone via Bluetooth
- Accessories like brake resistor, line chokes and EMC filters available

#### ENCLOSURE

- IP20 (EN 60529)

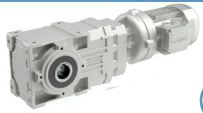




1

## A SERIES

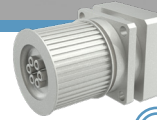
RIGHT-ANGLE GEAR UNIT



3

## SL SERIES

PRECISION PLANETARY IN-LINE



4

## TQ SERIES

PRECISION PLANETARY IN-LINE



5

## BMD SERIES

SYNCHRONOUS MOTORS



2

## MP SERIES

PRECISION PLANETARY IN-LINE



6

## ANG SERIES

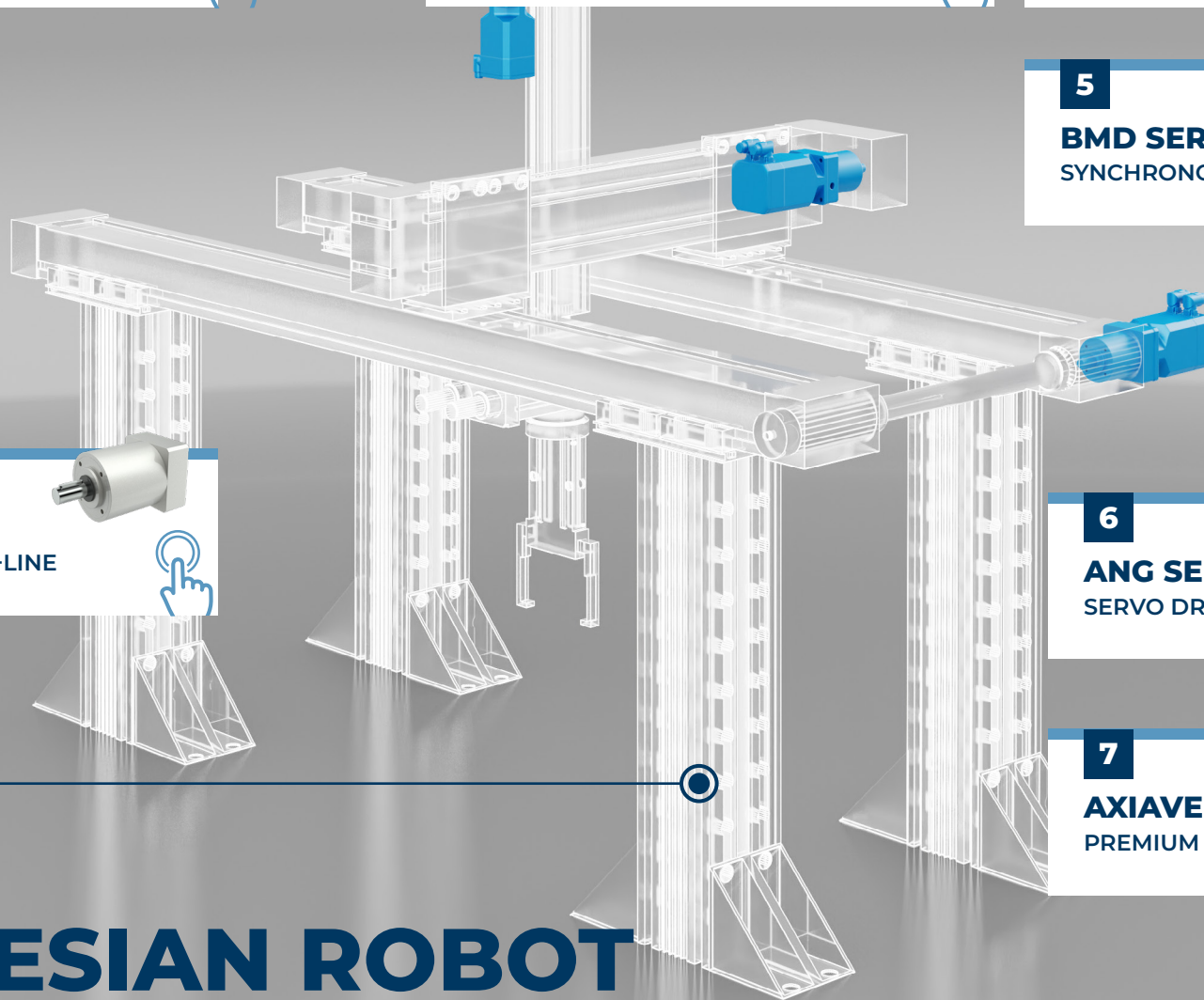
SERVO DRIVES



7

## AXIAVERT GEARS

PREMIUM INVERTERS

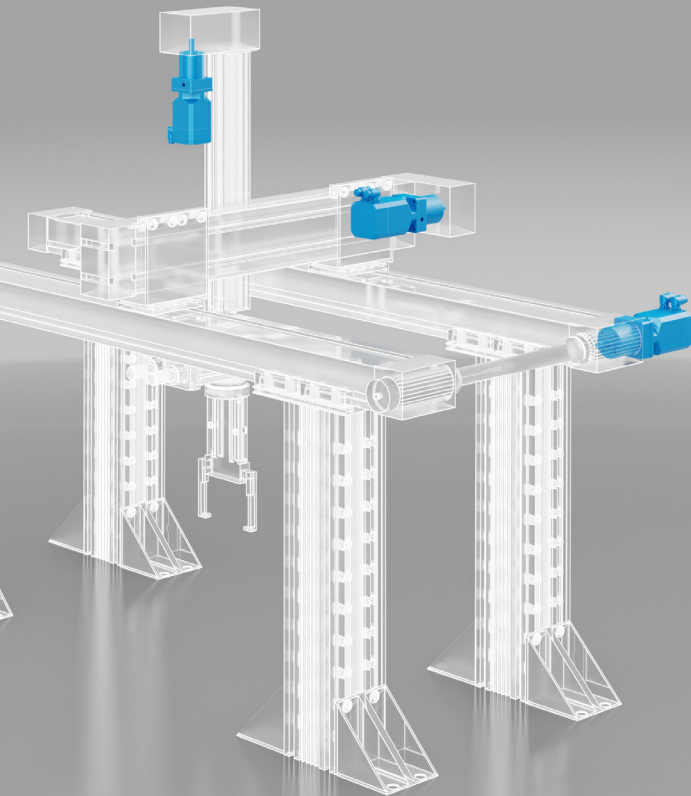


# CARTESIAN ROBOT





1

**A SERIES****RIGHT-ANGLE GEAR UNIT****GEAR RATIOS**

- 4.9 ... 1,715

**MECHANICAL RATING**

- 0.22 ...150 kW

**MOTORS**

- Input with solid shaft
- Input with e-motor coupling:
  - M, ME, MX, MXN, MNN (compact asynchronous)
  - BMD (servo permanent magnet)
  - BSR (IEC reluctance)
  - BN, BE, BX, BXN (IEC asynchronous)
  - BS (IEC single phase)

**MOTOR OPTIONS**

- Thermistors and thermostat sensors
- Independent forced cooling
- Incremental, sin/cos absolute single/multi-turn encoders
- Tropicalization

- Anti-condensation heaters
- Backstop

**MAIN OPTIONS**

- Surface protection up to C5
- Reinforced bearings
- Reduced backlash
- Torque arm
- Fluoroelastomer oil seals
- Double oil seasonal input
- Taconite seals

**KEY BENEFITS**

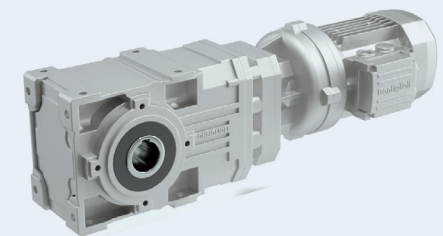
- Minimized mounting space
- Reduced installation space and wide output speed selection range
- Reduced standard backlash
- Highly dynamic, energy-saving solution
- Wide output speed selection range
- Gearboxes can operate safely in explosive environments

**KEY FEATURES**

- Right-angle input-output
- Compact motor coupling
- Forced gears-shafts coupling
- Servomotor coupling
- Wide ratio range (4 stages)
- Atex - gearbox for explosive environments 2G/2D

**TORQUE (Nm)**

A 05	100
A 10	150
A 20	250
A 30	410
A 35	600
A 41	850
A 50	1,500
A 55	2,000
A 60	2,800
A 70	5,000
A 80	8,000
A 90	14,000

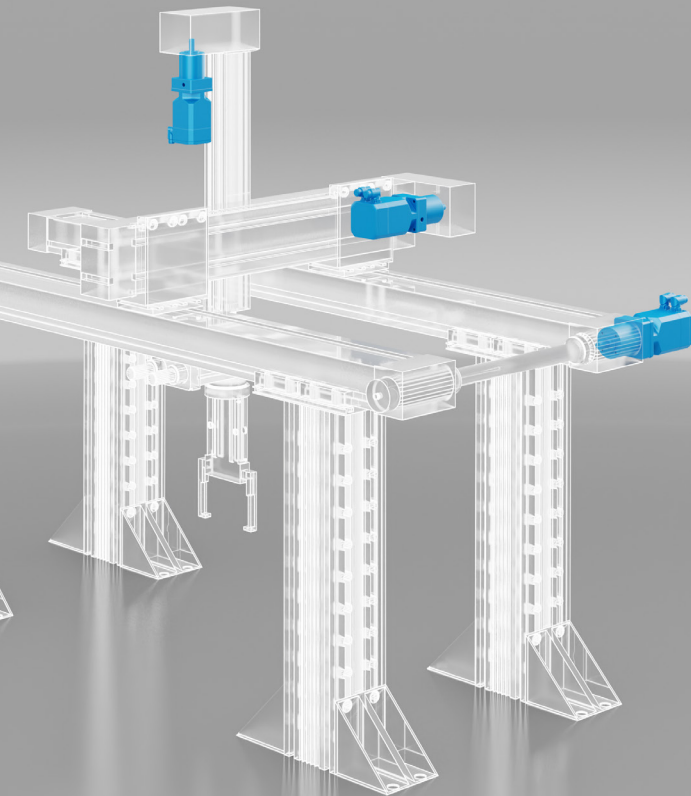




2

**MP SERIES**

PRECISION PLANETARY IN-LINE

**GEAR RATIOS**

- 3 ... 1000

**DEGREE OF PROTECTION**

- IP65

**BACKLASH**

- 1 stage: less than 10 arcmin
- 2 stages: less than 10 arcmin
- 3 stages: less than 12 arcmin
- 4 stages: less than 12 arcmin

**INPUT SPEED**

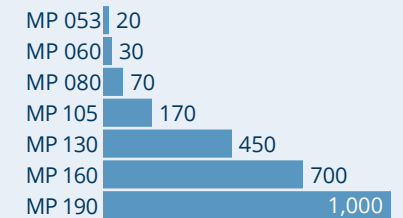
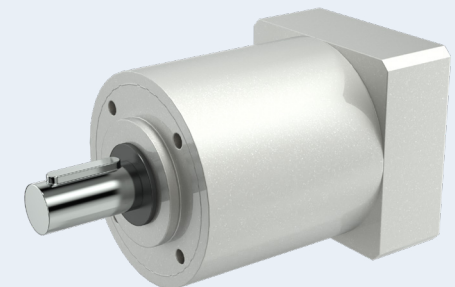
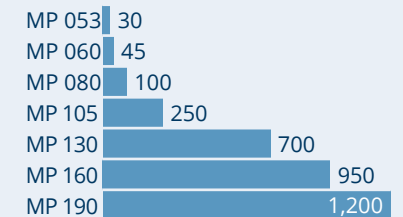
- Up to 6,000 min<sup>-1</sup>

**MAXIMUM RADIAL FORCE**

- 200 - 14000 N

**KEY FEATURES**

- Designed for continuous duty & cyclic operation
- Life-lubricated
- Optionally food grade oil
- Quiet operation
- Universal design allows any mounting orientation

**NOMINAL TORQUE (Nm)****ACCELERATION TORQUE (Nm)**

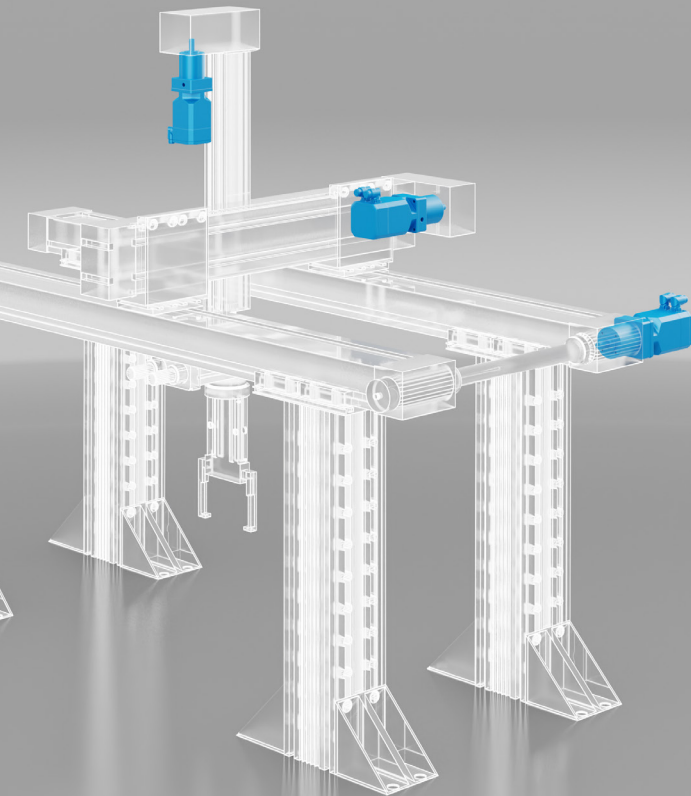




3

**SL SERIES**

PRECISION PLANETARY IN-LINE

**GEAR RATIOS**

- 1 stage: 3 ... 10
- 2 stages: 9 ... 100

**DEGREE OF PROTECTION**

- IP54

**BACKLASH**

- 1 stage: less than 6 arcmin
- 2 stages: less than 8 arcmin

**MAX RADIAL FORCE**

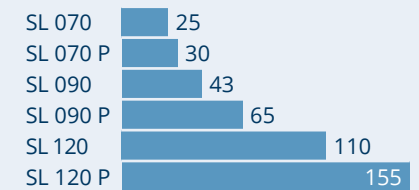
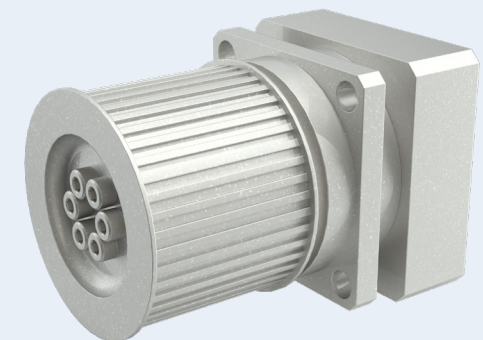
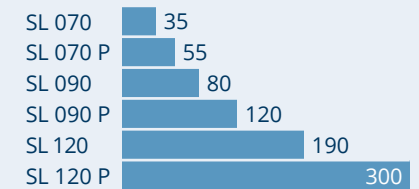
- 6,000 ... 15,000 N

**INPUT SPEED**

- Up to 6,000 min<sup>-1</sup>

**KEY FEATURES**

- Designed for continuous duty & cyclic operation
- Life-lubricated
- Optionally food grade oil
- Universal design that allows any mounting orientation

**NOMINAL TORQUE (Nm)****ACCELERATION TORQUE (Nm)**

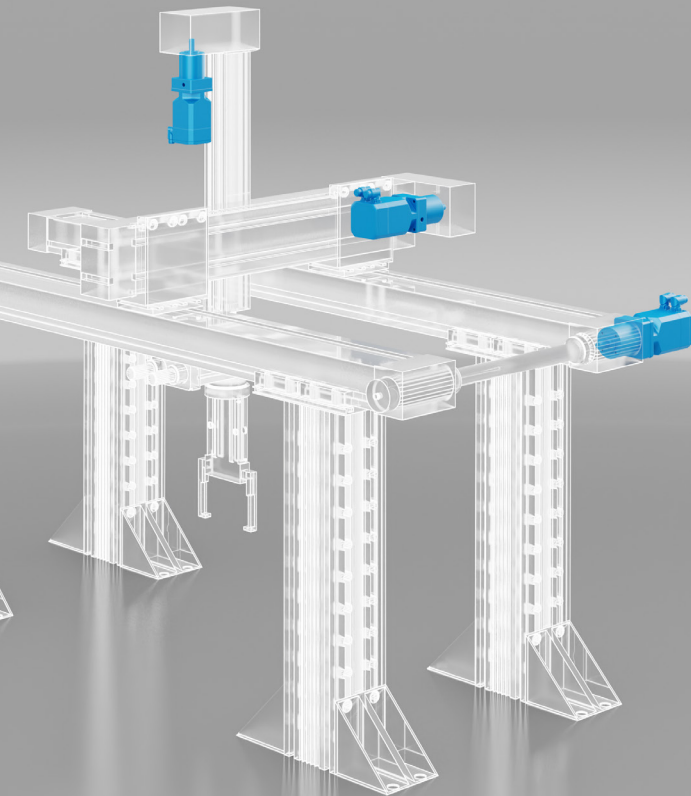




4

## TQ SERIES

PRECISION PLANETARY IN-LINE



### GEAR RATIOS

- 1 stage: 3 ... 10
- 2 stages: 16 ... 100

### DEGREE OF PROTECTION

- IP65

### BACKLASH

- 1 stage: less than 2 arcmin
- 2 stages: less than 3 arcmin

### MAX RADIAL FORCE

- 1,850 ... 15,000 N

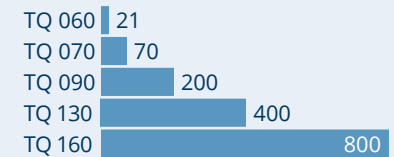
### INPUT SPEED

- Up to 6,000 min<sup>-1</sup>

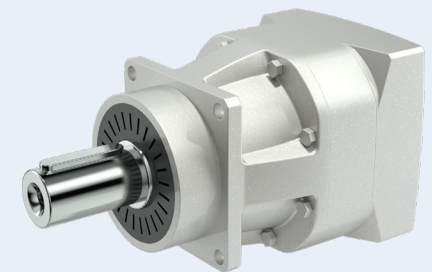
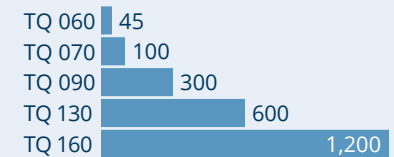
### KEY FEATURES

- Designed for continuous duty & cyclic operation
- Life-lubricated
- Optionally food grade oil
- Quiet operation
- Universal design allows any mounting orientation

### NOMINAL TORQUE (Nm)



### ACCELERATION TORQUE (Nm)

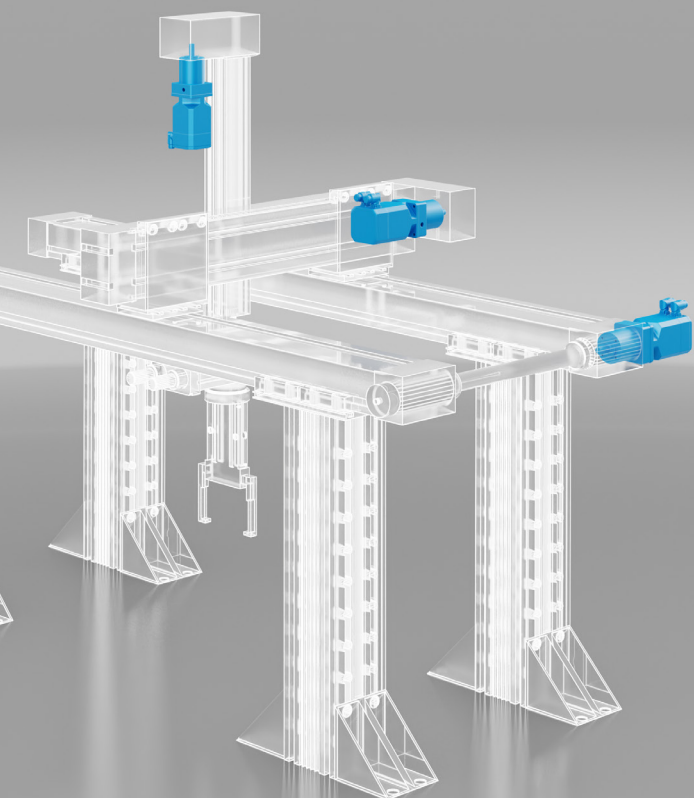




5

## BMD SERIES

### SYNCHRONOUS MOTORS



## CONTROLLARE CONTENUTI NON AVEVO NULLA NEL VOSTRO PDF HO PRESO DATI DA UN'ALTRO

### SYSTEM VOLTAGE

- 230, 400 Vac

### RATED SPEED

- 1600, 3000, 4500, 5500, 6000 rpm

### FEEDBACKS

- Resolver 2poles, 8-10kHz
- EnDat optical encoders, absolute , single and multi-turn
- EnDat inductive encoder, absolute , multi-turn
- SinCos optical encoder
- Hiperface optical encoders, absolute, single and multi-turn
- Hiperface DSL optical Safety encoder , absolute, single and multi-turn,
- Hiperface capacitive encoders, absolute, single and multi-turn
- Hiperface DSL capacitive encoders, absolute multi-turn, standard and Safety version

### CONNECTION TYPE:

- Straight and rotatable connectors

- Cable with flying leads or with SubD connector
- Single hybrid connector or single cable for Hiperface DSL and EnDat

### TEMPERATURE SENSOR

- PTC
- KTY 84-130
- PT1000

### DEGREE OF PROTECTION

- IP65
- IP67 (optional)

### INERTIA

- 0. 2 ... 47 (kgm<sup>2</sup> x 10<sup>-4</sup>)

### HOLDING BRAKE (OPTIONAL)

- 24 Vdc

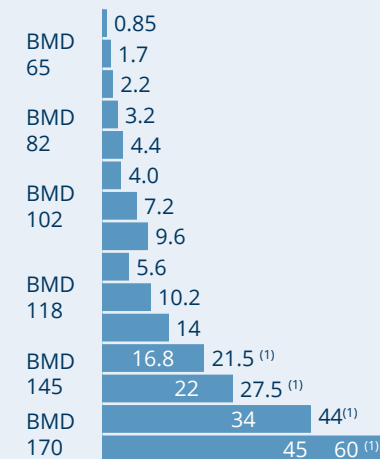
### ADDITIONAL FLYWHEEL (OPTIONAL)

- 0. 5 ... 70 (Kg<sup>m</sup>2 x 10<sup>-4</sup>)

### FORCED VENTILATION (OPTIONAL)

- 24 Vdc
- 230 Vac

### TORQUE (Nm)



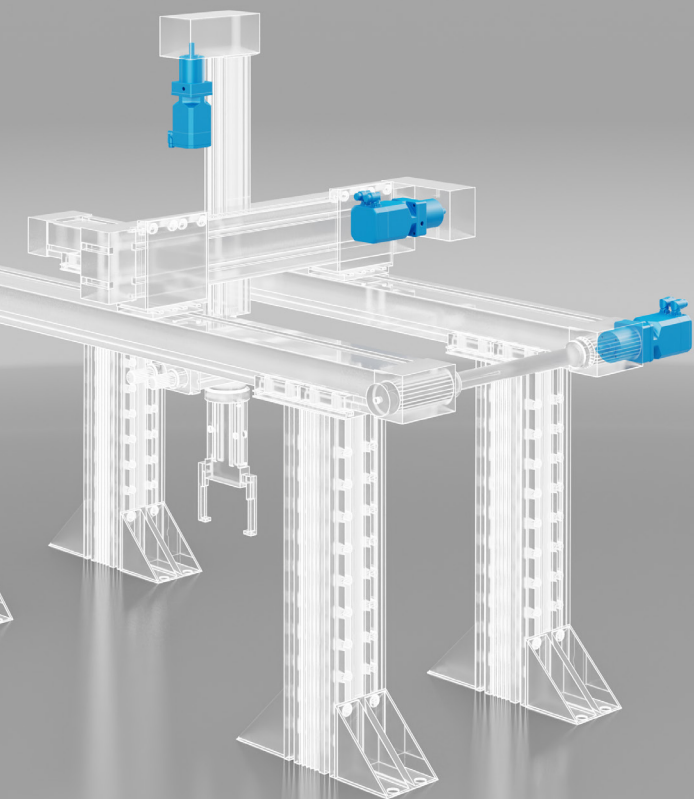
(1) Motor with forced ventilation option





6

## ANG SERIES SERVO DRIVES



### POWER SUPPLY & POWER RANGE

- ANG210: 0.25 - 9.2 kW
- ANG410: 0.25 - 400 kW
- Parallel connection up to 1200 kW ANG510: 160 - 400 kW
- Parallel connection up to 1200 kW
- ANG610: 160 - 400 kW
- Parallel connection up to 1200 kW

### MOTOR CONTROL (open loop or optional closed loop):

- Asynchronous AC motors
- Permanent magnet synchronous (brushless) motors

### MOUNTING OPTIONS

- Cabinet mounting for all sizes
- Optional feed-through mounting
- Optional DIN rail mounting
- frame size 1 Optional ColdPlate (sizes 1 to 5) Optional liquid cooling (sizes 5 to 8)

### OVERLOAD CAPACITY

- up to 150% for 60 seconds
- up to 200% for 1 second

### KEY FEATURES

- Different variants include field bus connection and encoder evaluation Plug-in power terminals
- Plug-in and programmable control terminals
- DC link connection
- Integrated brake chopper
- Positioning function via field bus (Motion control compatible with CiA 402)
- Cubic interpolation
- Integrated VPLC
- Master/slave function with electronic gear
- Power failure control
- Integrated safe torque off STO (SiL 3 / PL e) function
- Output frequency 0...599 Hz, higher frequencies on request
- Diagnosis and setup via optional keypad or PC software

### VARIANTS AUTOMATION INTERFACE:

- EM-AUT-01: EtherCAT® and Encoder evaluation (TTL, HTL, Resolver, Hiperface, EnDat 2.1)
- EM-AUT-04: EtherCAT®
- EM-AUT-11: PROFINET and Encoder evaluation (TTL, HTL, Resolver, Hiperface, EnDat 2.1)
- EM-AUT-21: Ethernet/IP and Encoder evaluation (TTL, HTL, Resolver, Hiperface, EnDat 2.1)
- EM-AUT-31: Varan and Encoder evaluation (TTL, HTL, Resolver, Hiperface, EnDat 2.1)

### OPTIONS

- Optional keypad for diagnosis and parameter setup Optional PC interface
- Optional accessories like brake resistor, mains chokes, mains filters

### ENCLOSURE

- IP20 (EN 60529) (up to 3kW)

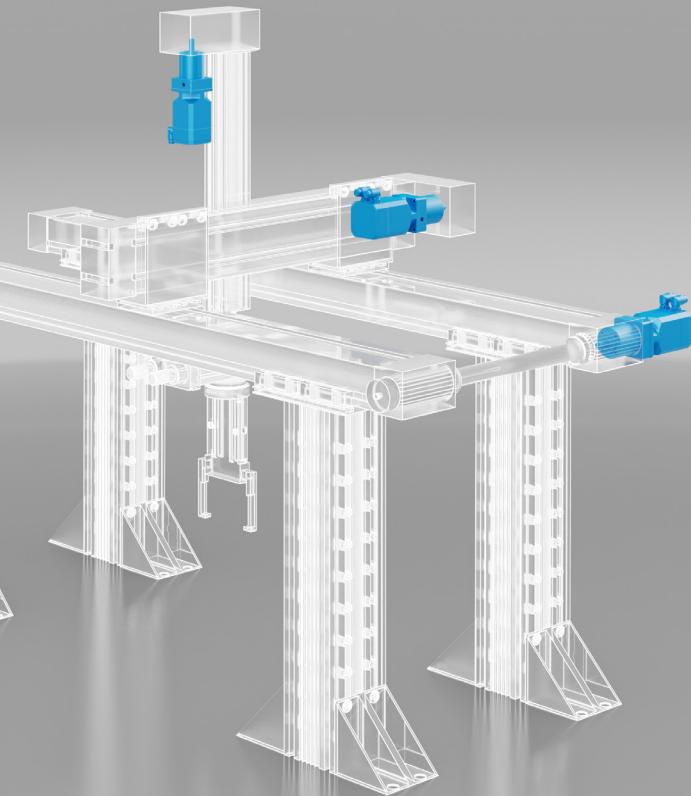




7

## AXIAVERT SERIES

### PREMIUM INVERTERS



### POWER SUPPLY & POWER RANGE

- 3 phase 400V mains: 0.25 - 15 kW
- 3 phase 230V mains: 0.25 - 9.2 kW
- 1 phase 230V mains: 0.25 - 3 kW

### MOTOR CONTROL (open loop or optional closed loop):

- Asynchronous AC motors
- Synchronous Reluctance motors
- Permanent magnet synchronous (brushless) motors

### MOUNTING OPTIONS

- Cabinet mounting for all sizes
- Optional feed-through mounting
- Optional ColdPlate
- Vibration resilient mounting kit for Air Cooling devices

### OVERLOAD CAPACITY

- up to 150 % overload for 60 s
- up to 300 % overload for 2 s

### FUNCTIONAL SAFETY

#### VARIANTS

- STO, SBC (SIL 3 / PL e) STO, SBC, SS1 (SIL 3 / PL e)
- STO, SBC, SS1, SS2, SLS\*, SSM\*, SDI\*, SLP\*, SOS\* (SIL3 / PL e)
- \* with motor encoder: SIL3 / PL e
- without encoder: SIL 2 / PL d

### KEY FEATURES

- Support for FSoE and Functional

### Safety encoders

- IIoT ready
- CiA402 Motion Control
- Electronic gear function
- Functions for lift, crane and winch applications
- Power failure management
- Motor supervision functions (Temperature, I<sup>2</sup>t, Software Motor switch, Encoder supervision,...)
- Position, Speed or Torque Control
- Programmable S curve data sets PID controller
- Jerkfree torque/speed changeover
- DC link connection
- Standard HTL encoder interface
- Integrated brake chopper
- Brake control output (DC 24 V / 3 A)
- Plug-in power terminals (up to 15 kW)
- Plug-in and programmable control terminals
- 5 digital inputs, 1 digital input/output, 1 multifunction input, 1 analogue output, 1 analogue input, 1 relay output (changeover contact)
- DC 24 V input (double pin connector for easy wiring)

- DC 24 V output
- Jumper to switch easily between TN mains and IT mains (up to 15 kW)
- Drive commissioning, diagnosis and tuning with user friendly options including Keypad, PC connection, Mobile App

### OPTIONS

- Different Fieldbus options, such as CANopen, EtherCAT, PROFINET,
- Encoder support with Expansion modules: TTL, Resolver, SinCos, Hiperface, Hiperface DSL, EnDat 2.2, SSI
- Commissioning and Diagnosis via optional graphical keypad
- Optional Remote Access Module for the connection to a PC or a mobile phone via Bluetooth
- Accessories like brake resistor, line chokes and EMC filters available

### ENCLOSURE

- IP20 (EN 60529)

