



Bonfiglioli offshore innovative solutions

700 series with integrated inverter



MOBILITY & WIND
INDUSTRIES



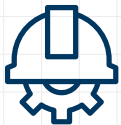


Bonfiglioli for the Wind Industry



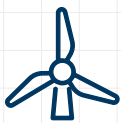
OVER 30 YEARS OF EXPERIENCE

with the world's major Wind OEM



CO-ENGINEERING

tailor made solutions

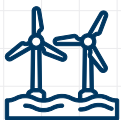


1 OUT 3 WIND TURBINE GLOBALLY

is equipped with Bonfiglioli Yaw & Pitch drive



UNIQUE FOOTPRINT



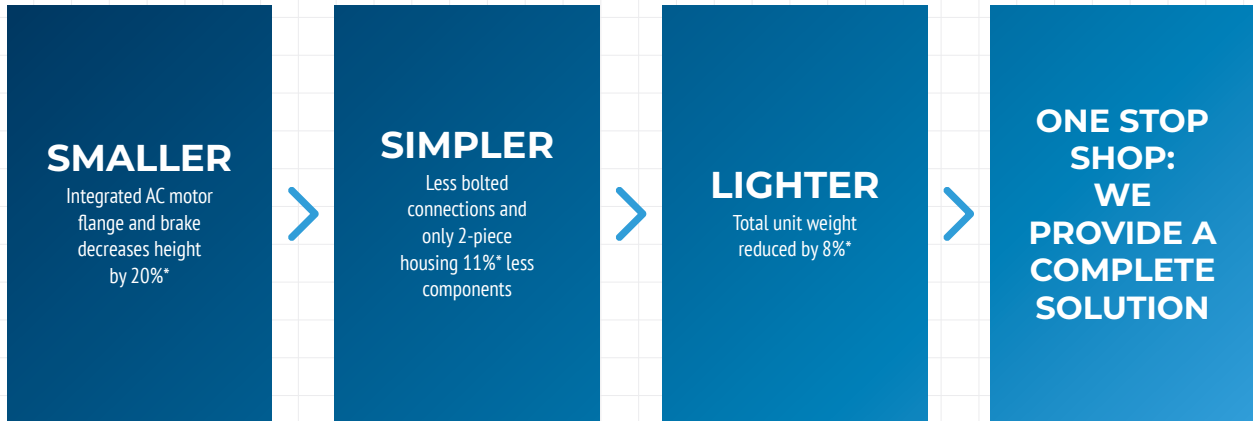
DEDICATED OFFSHORE SOLUTIONS

NEW offshore Yaw Drive with integrated moto-inverter



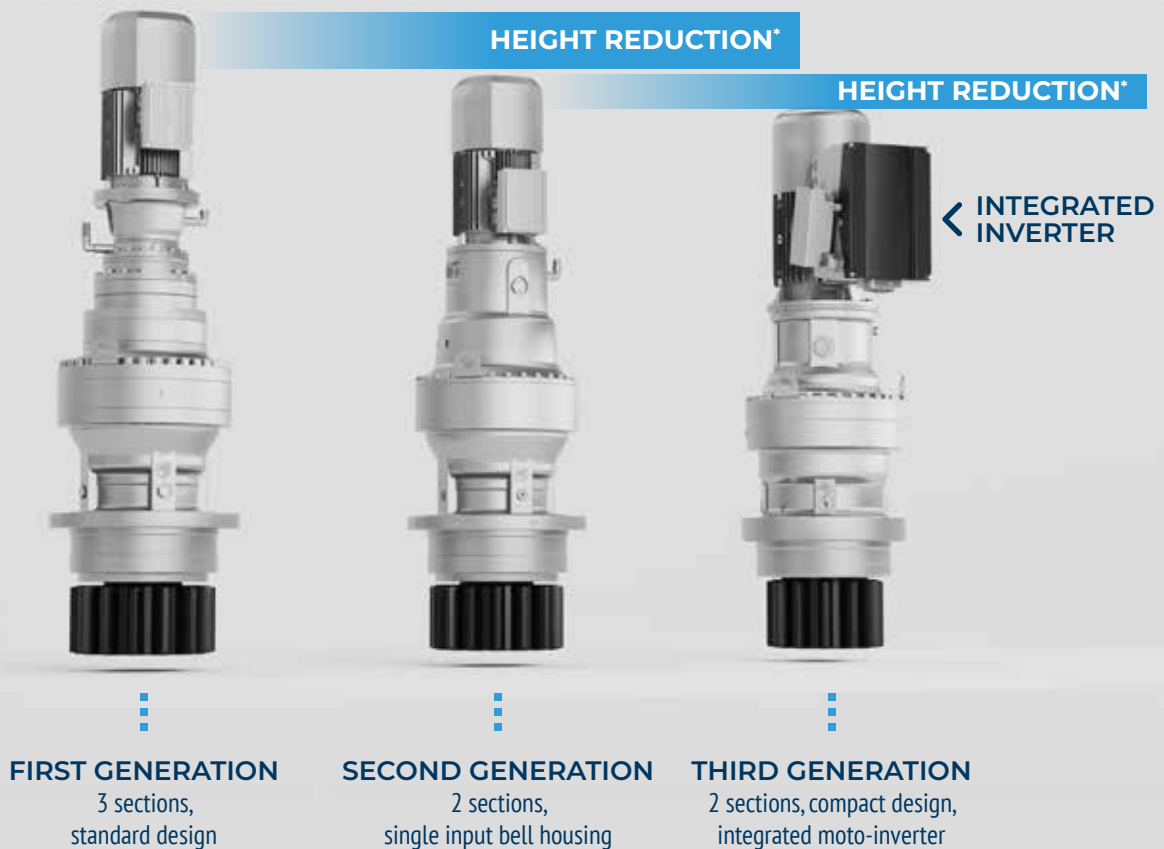
700TW Series

- **SPACE SAVING** thanks to a more compact and robust design that allow to save space inside the nacelle
- **FASTER TIME TO MARKET** thanks to a supply chain standardization
- **SIMPLER BILL OF MATERIAL**: Wind Turbine Bill of material strong simplification
- **OVERALL COST SAVING** thanks to the reduced installation cost including a reduced size of electric cabinet
- **ONE STOP SHOP**, Bonfiglioli will be accountable for the whole entire system, reducing the complexity in managing separate component at customer end.
- **IoT READY** thanks to the presence of inverter such solution is ready for the IOT implementation

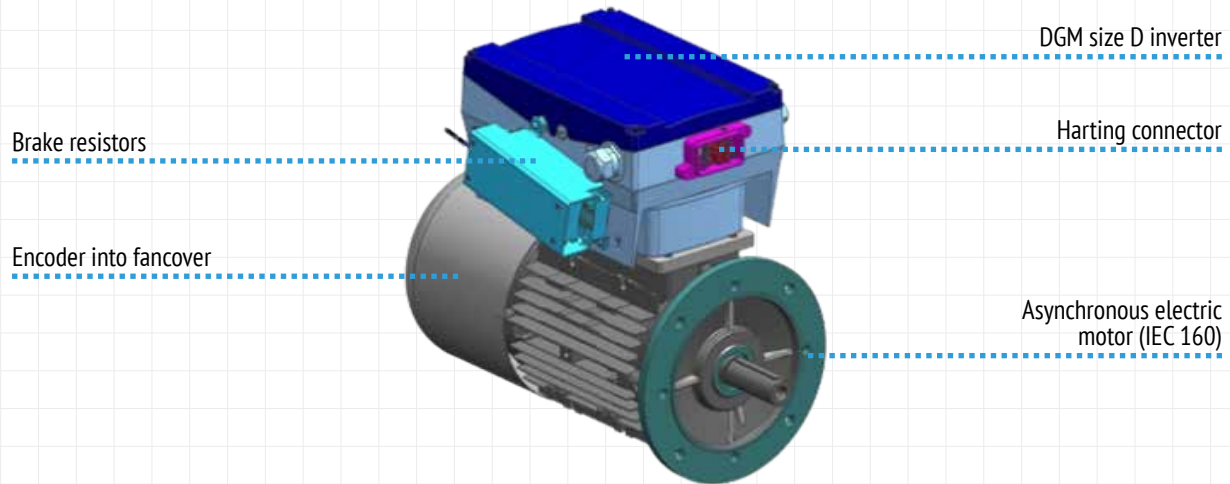


* Measures vary depending on gearbox size

Three product generations compared



IEC 160 Yaw motor with integrated DGM size D inverter



eMotor BE 160MB 6 230/400-50 IP55 CLF B5 FD 170 180 SD K1 MWS CUS

Technical specification

- Rated power: 7,5 kW 3-phase
- Voltage: 230/400 V
- Frequency: 50/60 Hz
- Frame size: IEC 160
- Rated torque: 74 Nm
- Ambient op.temp: -30°/+40°C
- Degree protection: IP55
- Cooling: IC411 (fan cooling)
- Weight: 133 kg

Key features

- IEC motor efficiency class IE2
- Delta connection winding (230V)
- UL certified
- Brake:
 - DC 180V / 170Nm / 2 Microswitch (DC3)
- Temperature sensor: PT1000
- Encoder:
 - Incremental 2048 PULSES/REV
 - Power supply 5-28 VDC
 - Installed inside the fan cover

Inverter DMG size D

Technical specification

- Rated power: 18,5 kW
- Input voltage: 380-500 Vrms
- Output voltage: 0 – 400 V
- Rated output current: 64 Arms
- Ambient op.temp: -20°/+50°C (no derating)
- Degree protection: IP55
- Weight: 21 kg

Key features

- UL certified
- Field Bus: ProfiNet
- Feedback interface: TTL 0-5V DC
- PT1000 module
- Brake chopper / Brake resistors 2X400W
- Overload monitoring (Max torque via Fieldbus)
- Harting connector

Yaw motors with integrated inverter

DGM from 0,55 to 22kW /eMotor from 0,75 to 18,5kW

PRODUCT RANGE					
eMotor BN/BE					
	IEC 90 0.75-2.2 kW	IEC 100 1.5-4 kW	IEC 112 2.2-4 kW	IEC 132 3-9.2 kW	IEC 160 11-18.5 kW
DGM					
Size A 0,55-1,5 kW					
Size B 2,2-4 kW					
Size C 5,5-7,5 kW					
Size D 11-22 kW					

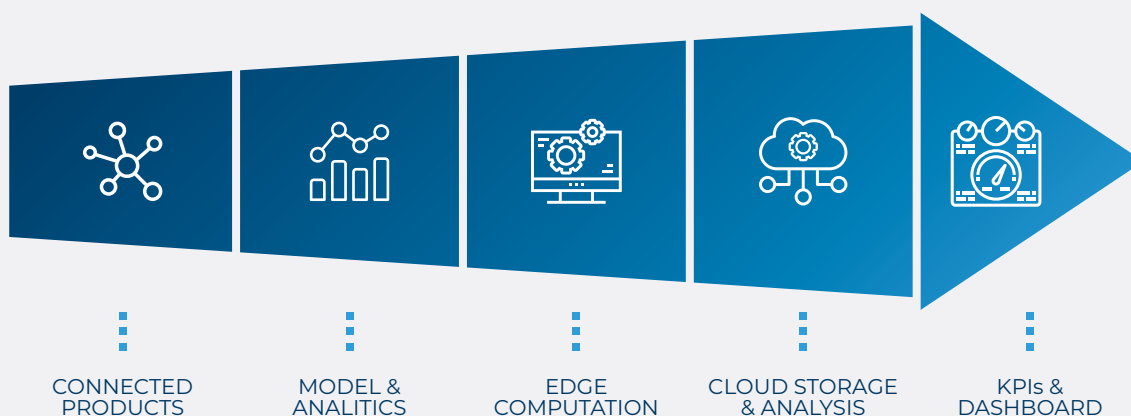
Benefits of the Bonfiglioli solution

- Single supplier for eMotor + inverter
- Simplified installation on the turbine due to reduction of cables & wires
- Direct power supply (for eMotor and brake) through inverter harting connector
- Quick inverter accessibility and maintenance available by removing only inverter top cover
- Control strategy accuracy for nacelle rotation
- Easy programming and inverter management based on WIN32 platform
- PROFINET RT standard compliance

IoT ready

How to face the LCOE from INDIRECT stand point?

Supporting our customer in their digital transformation



Value for Customer



OEE

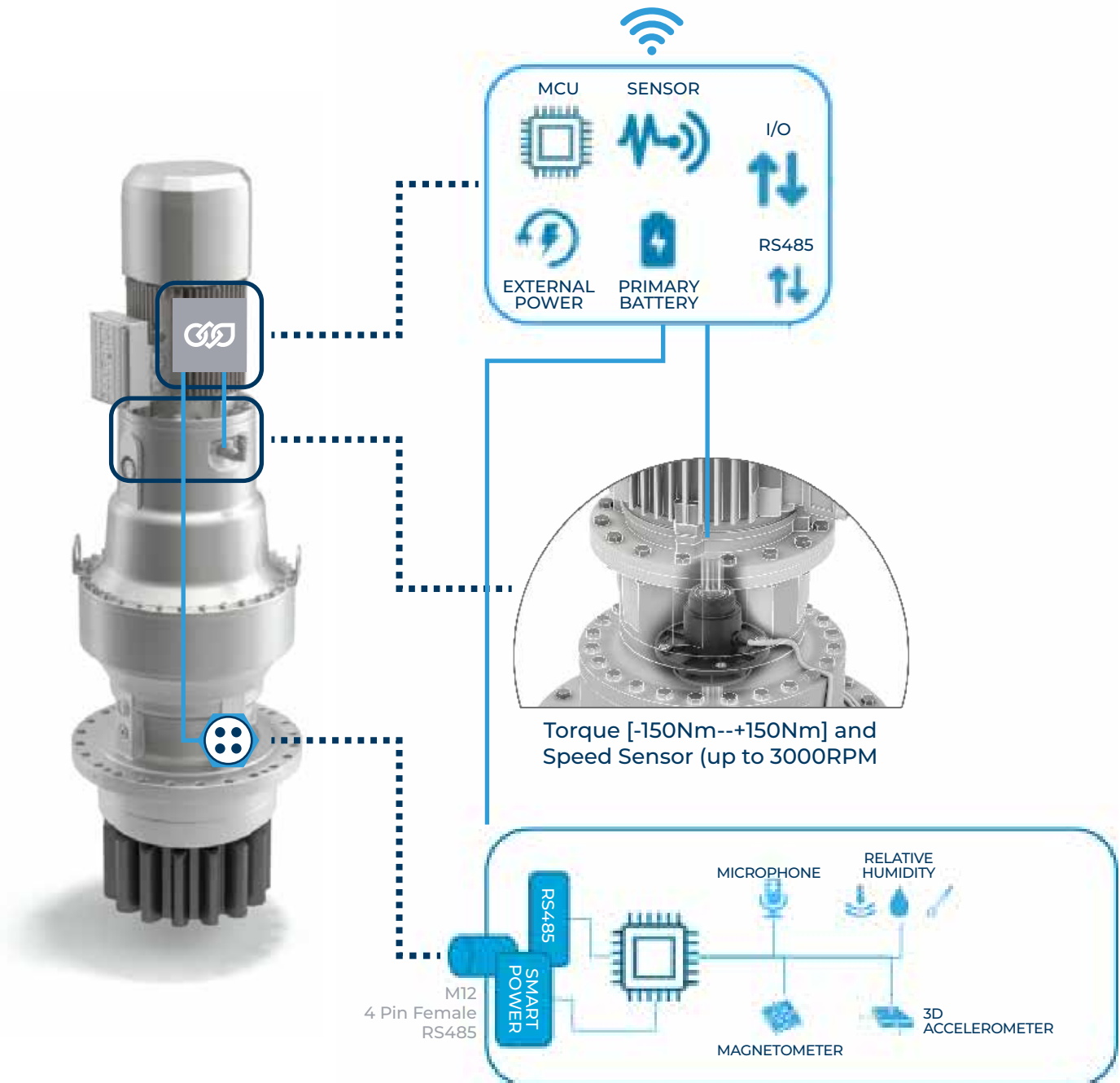


ENERGY
EFFICIENCY



TCO

A comprehensive IoT suite for Yaw Drives from Bonfiglioli



IoT ready



Bonfiglioli IoT system solutions are focused on raising productivity and improving the efficiency of our customers machines.



**STANDARD DRIVE
INVERTERS**



**INTEGRATED OR
CABLE SENSORS**



**REAL TIME DATA
ACQUISITION:**
PRESSURE
TORQUE
POWER
SPEED
VIBRATION
TEMPERATURE



**EDGE
COMPUTER**
AI BASED
ALGORITHMS

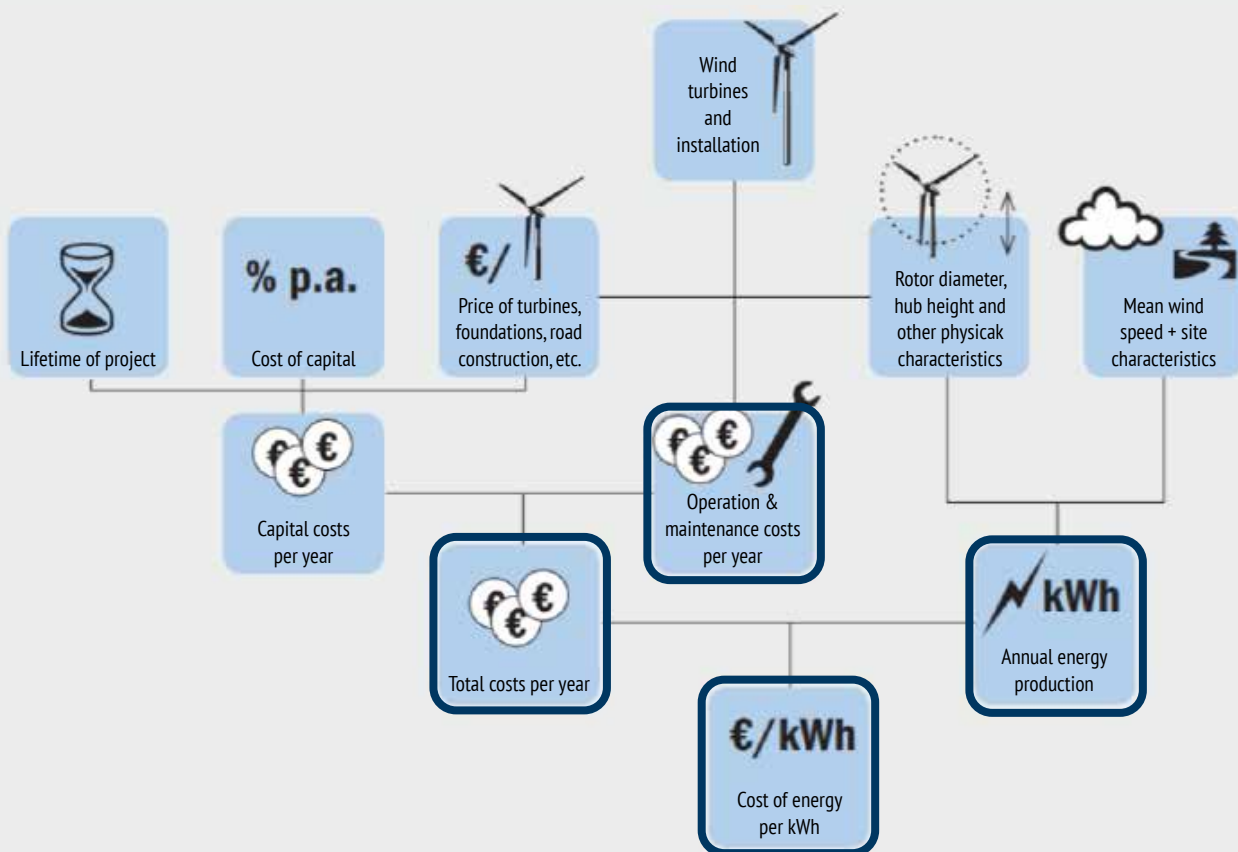


Tailor-made IIoT platform

**SMART MONITORING & MAINTENANCE
FOR YOUR FULL MOTION CONTROL CHAIN
WITH BONFIGLIOLI INVERTERS, MOTORS AND GEARBOXES**

- Device sensorization & monitoring
- Edge & cloud computing
- Bonfiglioli dashboards & customized information

BONFIGLIOLI DASHBOARD
DYNAMIC LIFECYCLE MONITORING
PREDECTIVE MAINTENANCE
HEALTH DEVICE ASSESSMENT



Cost of sensors for yaw a pitch drives are getting lower and lower.

Already today their costs are quickly repayed when we take into consideration the Total Cost of Ownership of WTG plant.

Sensors, Data & Information are positively impacting mainly on :

- **Reduction of O&M costs** as they allow to reduce maintenance interventions to minimum and avoid emergency interventions
 - **Maximize energy production** as they prevent from unexpected production interruptions and downtime
- PROFINET RT standard compliance



We have a relentless commitment to excellence, innovation & sustainability. Our team creates, distributes and services world-class power transmission & drive solutions to keep the world in motion.

HEADQUARTERS

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