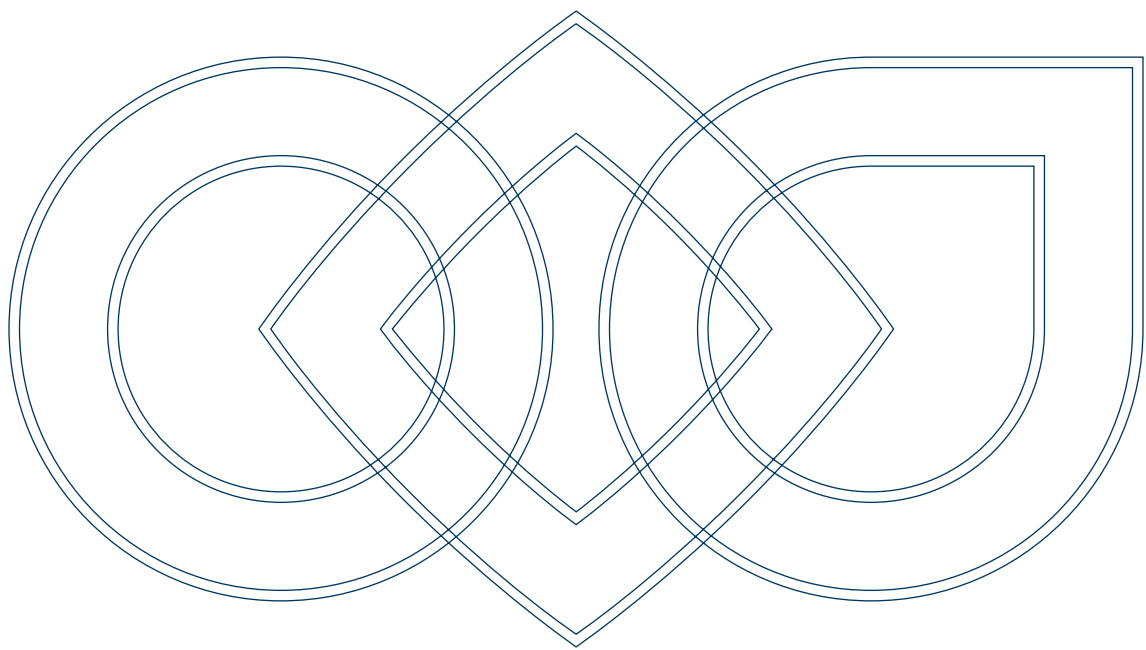


## Solutions for **Sugar Cane Mill Plants**



APPLICATION



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## Solutions for **Sugar Cane Mill Plants**

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Sugar cane is becoming more and more important and the industry attracting ever greater interest as a result of increased global demand for food grade sugar and the growing use of ethanol as an alternative to fossil fuels.

Sugar producers will soon find themselves obliged to improve the productivity and energy efficiency of their processes in order to satisfy rising demand and survive in a more competitive market.

Power transmission is destined to play a key role in the renewal of production processes.

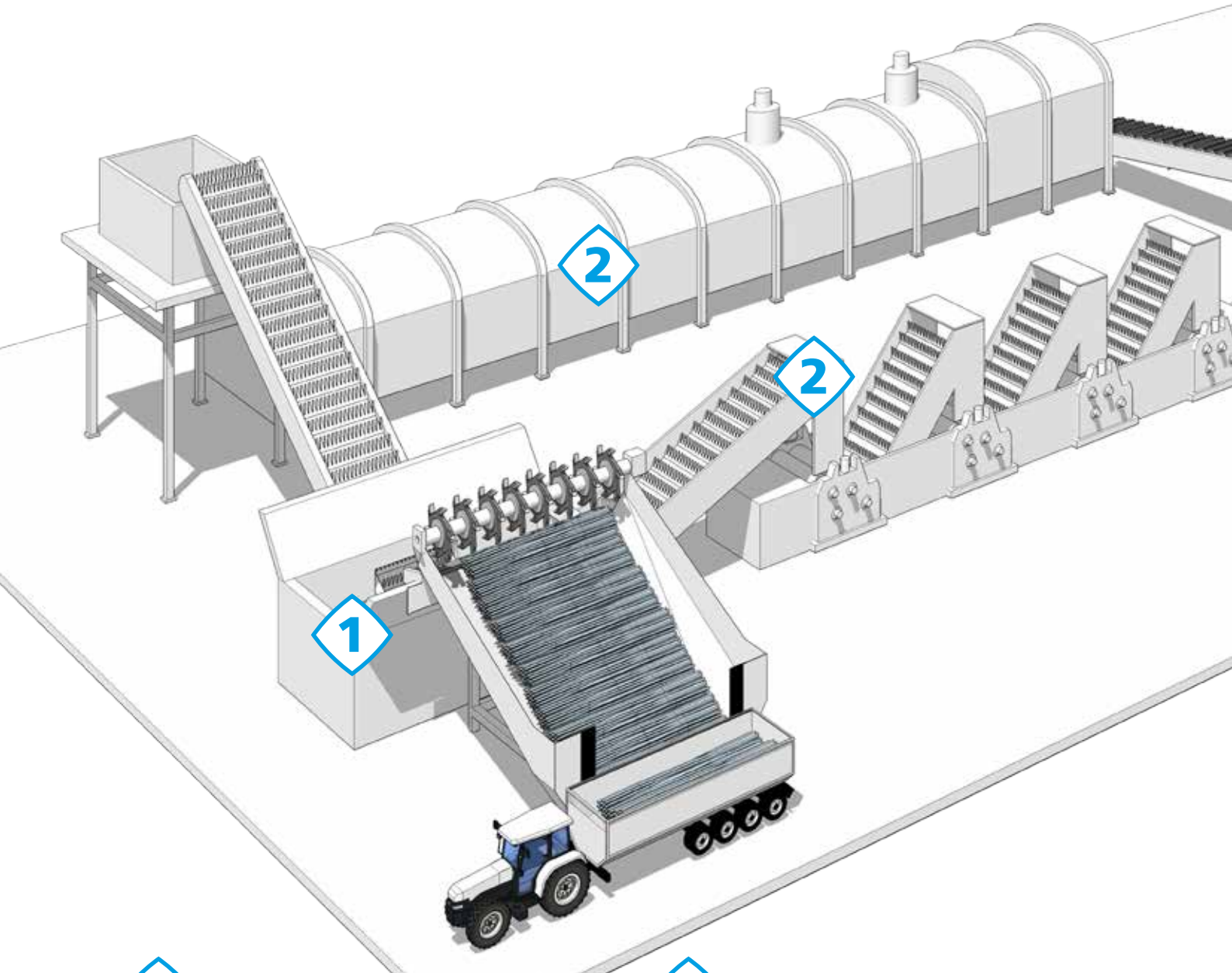
Bonfiglioli offers customers a vast amount of experience acquired from sugar cane processing plants around the world. This makes us the perfect partner for investments aimed at boosting production capacity and optimising energy efficiency, whether through modernisation projects or new installations.

Our extensive catalogue of mechanical gearboxes is complemented by a complete range of inverters for optimised power transmission and control. Our specific solutions for sugar cane processing include high power, compact gearmotors, planetary and combined gearboxes, and multi-drive solutions complete with inverters for speed control and synchronisation.

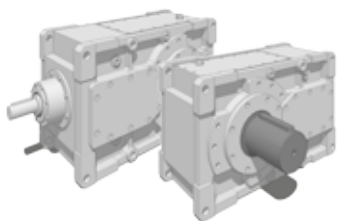
Over 60 years of experience in managing and serving key accounts and global partners in a wide range of heavy duty sectors represent a real guarantee of competence, reliability and service.

Our team of application engineers is at your service to examine the requirements of your own plant and propose modern and innovative solutions for improving the productivity, reliability and energy efficiency of your production processes.

# Solutions for Sugar Cane Mill Plants

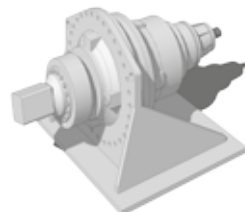


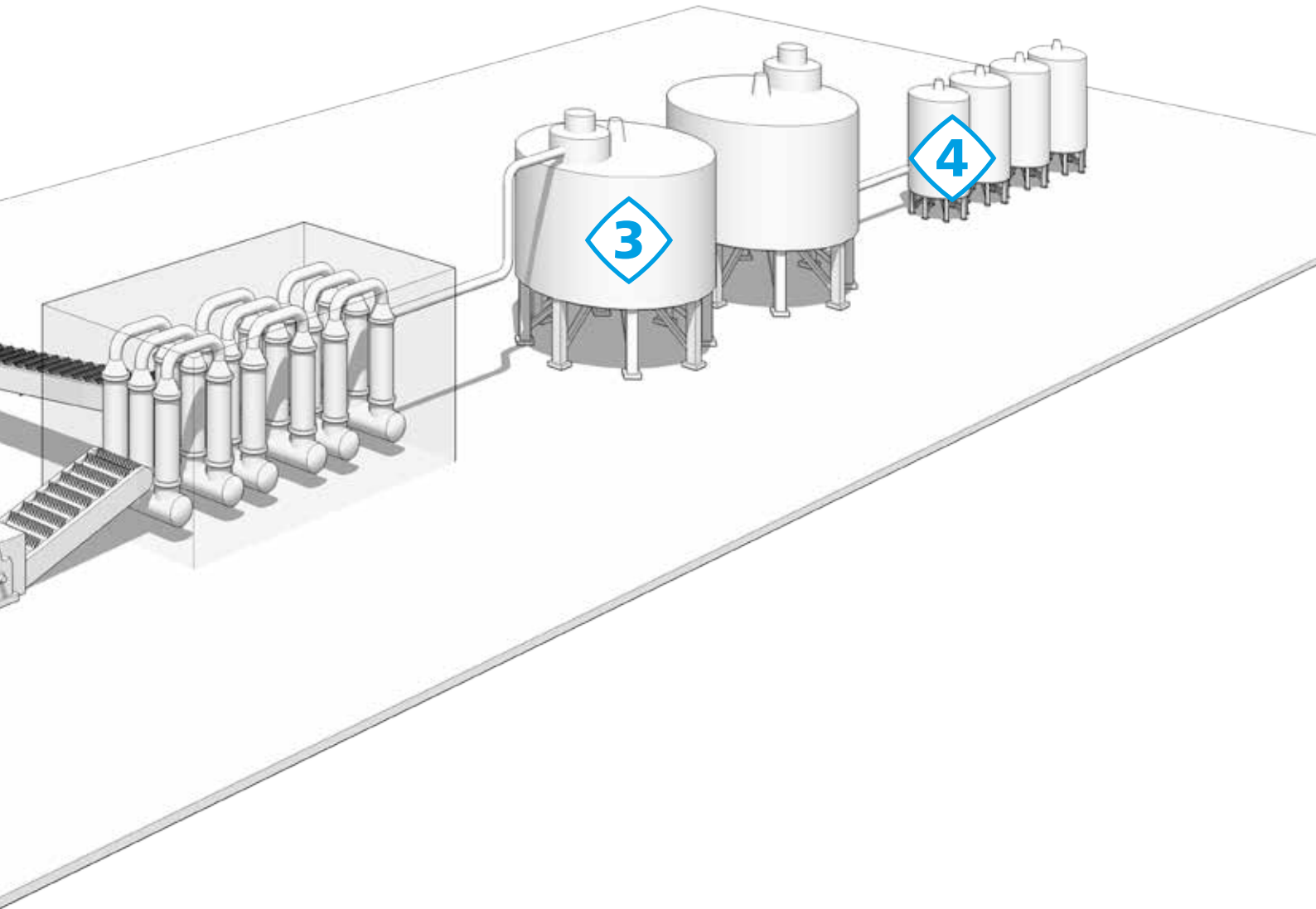
**1** CANE CARRIER



**2** MILLS

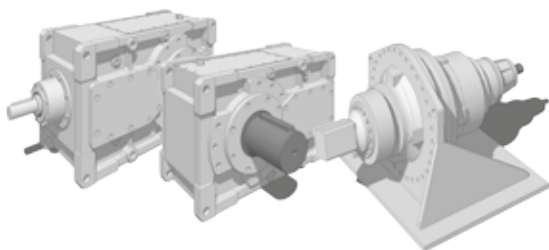
DIFFUSER





3

DECANTER / CLARIFICATION



4

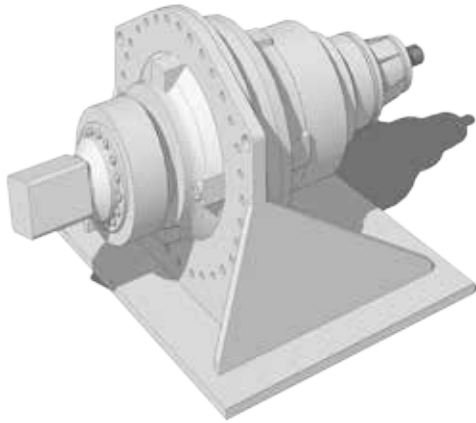
CRYSTALLIZER



# Bonfiglioli Heavy Duty Solutions

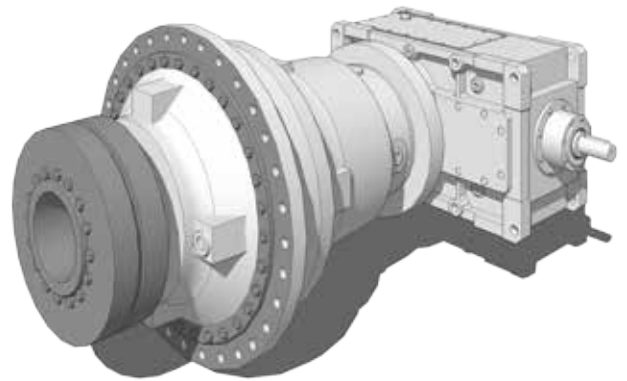
## 300 series

Planetary gearmotors



## 3/H combined series

Planetary / Bevel gearmotors



Size	Nominal torque [Nm]
316	140000
317	208000
318	280000
319	480000
321	660000
323	890000
325	1280000
327	1800000
329	2500000

Size	Nominal torque [Nm]
3/HDO16	140000
3/HDO17	208000
3/HDO18	280000
3/HDO19	480000
3/HDO21	660000
3/HDO23	890000
3/HDO25	1280000
3/HDO27	1800000
3/HDO29	2500000

## Accessories



**OUTPUT SQUARED SHAFT**



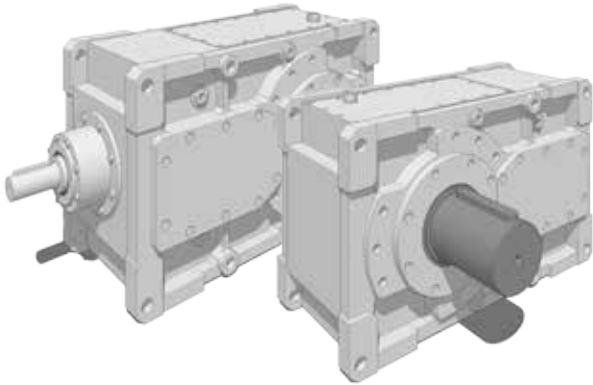
**FLANGE COUPLING**



**MOUNTING FEET**

### HD series

Parallel & Bevel gear units



Size	Nominal torque [Nm]
100	25000
110	31000
120	40000
125	48000
130	65000
140	83000
150	114000
160	146000
170	190000
180	205000

### Active Cube series

Our solution for Sugar Cane application speed control



**Additional benefits:**

- Energy saving functions embedded into control algorithm
- Highest power density in the market

Size	Power kW (Rated voltage 400V)
ACU401-51	160
ACU401-53	200
ACU401-55	250
ACU401-57	315
ACU401-59	355
ACU401-61	400
2xACU401-61	800
3xACU401-61	1200

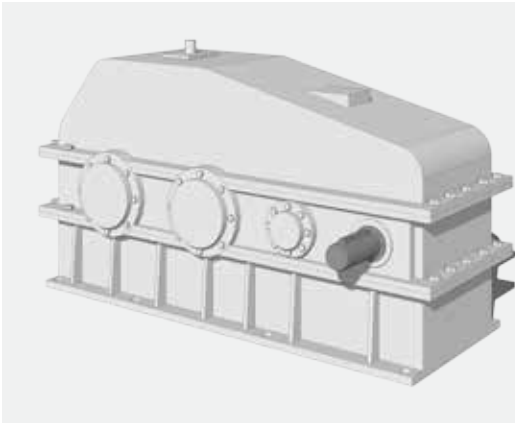


**SPECIAL COOLING UNIT ON BOARD**



Bonfiglioli inverters are produced at the Bonfiglioli Vectron centre of excellence, located in Krefeld, Germany.

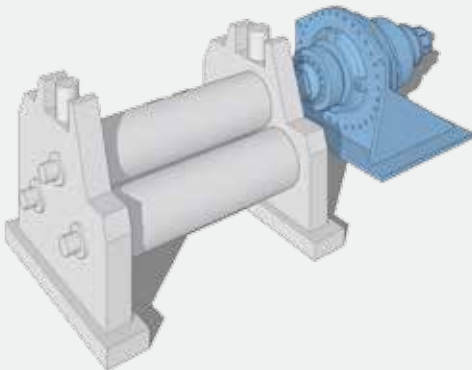
## Rolling Mills Current Operating Solution



- A big single parallel shaft gearbox
- Wide footprint
- Significant maintenance activities required

## Our Solutions

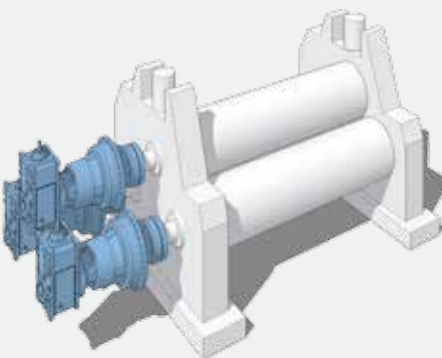
**Solution A:** Single drive system with planetary gearbox and inverter speed control



**Advantages over conventional solutions:**

- Reduced footprint
- Reduced maintenance
- Low installation costs
- From 12% to 15% greater efficiency
- Reduced plant downtimes
- Variable speed control by inverters up to 1200 kW (parallel inverter connections)

**Solution B:** Multi-drive system with planetary or combined planetary/bevel gearboxes and inverter speed and synchronisation control



**Advantages over conventional solutions:**

- Zero footprint
- Reduced maintenance
- Dramatically low installation costs
- Not more external transmission through open gears for rollers connection
- From 20% to 22% greater efficiency
- Modular design based on standard components that guarantee:
  - Dramatically reduced plant downtimes
  - Reduced spare parts stock
  - Greater autonomy in replacement of the transmission components
- Variable speed control by inverters up to 400 kW (single inverter)
- Individual roller mills speed control and synchronisation with other rollers for an improved milling action.



# Rolling Mills Average Operating Efficiency

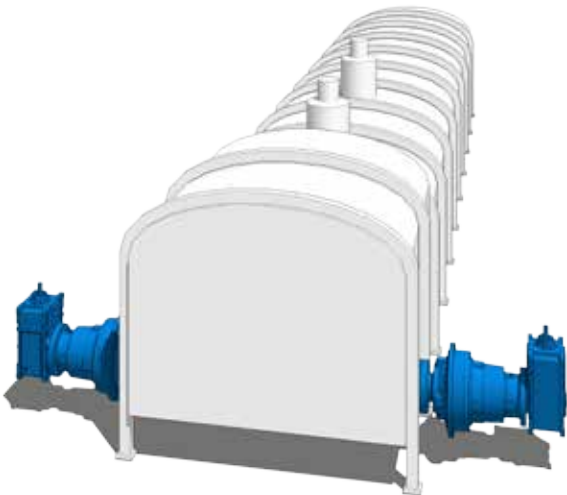
Gear boxes average efficiency comparison of the three operating systems			
	Conventional Solution	Our Solution (A)	Our Solution (B)
3-phase motor	98%	98%	98%
Gearbox	85%	90%	90%
Coupling	Rope type 95%	Squared type 98%	Direct 0%
Coupling	Squared type 98%	Squared type 98%	Direct 0%
Crown pinion	90%	90%	0
<b>Total efficiency with rope coupling</b>	<b>71%</b>	<b>78%</b>	<b>88%</b>
<b>Total efficiency with squared coupling</b>	<b>73%</b>	<b>78%</b>	<b>88%</b>

Comparison based on installed power of 1000 kW.

- **Conventional Solution:** power actually available to the plant: **710 - 730 kW**
- **Solution A:** power actually available to the plant: **780 kW**
- **Solution B:** power actually available to the plant: **880 kW**

## Diffuser Plant

**Solution:** Double motorised drive shaft with electronic control of torque distribution.



- Greater efficiency than in conventional systems with single, parallel shaft gearbox.
- Significantly smaller footprint and installation costs.
- Shorter repair times in the event of failure.
- Possibility of continuous cycle operation at reduced load using only one gearbox.
- Variable speed control by inverters up to 1200 kW (parallel inverter connections).

### 300 series

Planetary gearmotors

Size	Nominal torque [Nm]
323	890000
325	1280000
327	1800000
329	2500000
2x323	1780000
2x325	2560000
2x327	3600000
2x329	5000000



LIFTING SCREW DRIVES

# Sugar Cane Applications



# Bonfiglioli Worldwide Locations

## **Bonfiglioli Australia**

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



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