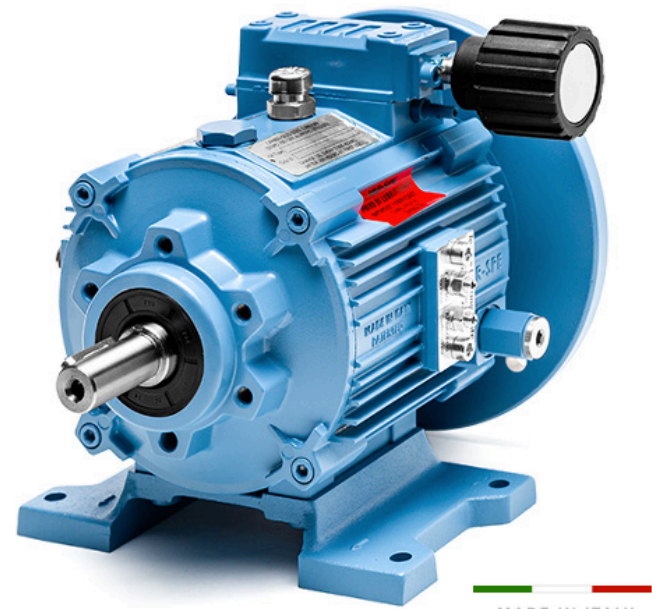




HYDRODYNAMIC SPEED VARIATION  
**BUILT TO RESIST**



MADE IN ITALY

# Company



**Var Spe** was founded in 1963 by **Giuseppe Speggorin**, who invented the very first **hydrodynamic variator**, a completely innovative product patented internationally.

Since then the company has built its own success story and today is the **world leader** in hydrodynamic variators manufacturing.

In addition to speed variators, Var Spe provides **integrated solutions** for **power transmission**: variable displacement pumps, hydraulic motors and gearmotors.

# Sales network

Var Spe exports the majority of its production through an exceptionally well organized and efficient sales network.



# Hydrodynamic Technology



The technology **invented and patented by Var-Spe** solves the need for varying the speed of an electric motor through an **innovative approach** that is completely different from that of all other alternative solutions.

**Speed is varied physically** exploiting the properties of the fluid and without electricity.

The Var-Spe technology is based on the principle of **hydrostatic transmission**: it consists of two units, i.e., a variable displacement pump and a fixed displacement hydraulic motor, both with radial pistons.

The input shaft transmits the constant speed of the upstream motor to a series of pistons that compress and expand the oil inside the cylinders. By varying the oil flow rate and pressure, the speed of rotation transmitted to the output shaft is varied as well.

# Best Quality Products

- **Top-quality materials**
- **100% Made in Italy**  
all components are designed and produced in Italy
- **100% tested**  
each variator is assembled and tested before shipping

# Product Advantages

- **High torque even at low revolution:** thanks to the high pressures that can be reached
- **Wide range of speed variation:** from zero to that of the electric motor
- **Possibility of operating in aggressive environments:** water, dust, temperature, acid
- **Long service life:** there are no friction elements and the components are less subject to wear since they are always lubricated

# Product Advantages

- **Cost-effectiveness:** long life cycle for the connected components (there is no stress on the electric motor because it is always running at the same speed)
- **Simplicity:** Adjustment is simple and intuitive, no programming is needed, and it is easy to install and start
- **Reliability:** the speed adjustment is always precise even after many years because it is done by modifying the stroke of the pistons

# When Hydro beats Inverter

- **Torque at low rpm:** when you need to have a wide range of speeds, the inverter has trouble delivering high torques for an acceptable time; in many cases, it is necessary to resort to motors with servo ventilation and other devices that increase costs and complexity (especially in switchboards). The Var-Spe variator is capable of delivering high torque at very low rpm, about 50 rpm on the variator output shaft
- **Harsh environments:** the presence of humidity, dust and soiling are critical conditions for inverters, while Var-Spe variators have no problem working under these conditions.
- **Atex environments:** the management of inverters in potentially explosive environments is complicated and very expensive. Var-Spe variators are available with Atex certification, with a very small difference in price.



# When Hydro beats Inverter

- **Power surges:** in places where the stable electrical power supply is not guaranteed (e.g. in certain geographical areas where power generators are needed), the use of the inverter is very critical, while surges are no problem at all with Var-Spe variators.
- **Level of skill of labour:** the installation, use and maintenance of an inverter requires highly skilled labour and this is not always possible. Var-Spe variators are easier to install, use and maintain.

# When Hydro beats Mechanical



- **Speed range:** mechanical variators are able to adjust speeds between 200 rpm and 1000 rpm. Var-Spe variators cover a range 0 and 1500 rpm.
- **Zero:** mechanical variators are unable to reach zero rpm with the motor running unless you use a differential, which ends up being expensive. As a standard, Var-Spe variators can go to zero with the motor running.
- **Quality:** often times mechanical variators are made in countries where raw materials of poor quality are used and assembly is not flawless. Var-Spe variators are **designed and built 100% in Italy**, with the best materials. **Each variator is individually tested** prior to shipment.
- **Wear:** mechanical variators are subject to wear, which does not guarantee a long product service life. Thanks to the always lubricated components, Var-Spe variators have a **long service life** (over 15 years).

# When Hydro beats Mechanical



- **Fine adjustment:** the very design of mechanical variators prevents fine adjustment near the values used for a long time (grooves on the clutch disk); Var-Spe variators are able to fine adjust speed even several years after installation
- **Adjustment at standstill:** with mechanical variators it is not possible to make adjustments with the handwheel with the motor off in order to set the speed before starting. This is no problem with Var-Spe variators instead.
- Mechanical variators do not reach powers over 9 kW, while Var-Spe variators **reach up to 22 kW**.

# Product Range

## Hydrodynamic Speed Variators

- K2 0.37-0.55-0.75 kW
- K4 1.1-1.5 kW
- K5 2,2-3-4 kW
- 15 3-4 kW
- 16 5.5-7.5 kW
- 16B 11 kW
- 17 15 kW
- 17B 22 kW
- ATEX certified variators
- Electronic Remote Control

# Atex-certified variators

## For potentially explosive environments.

The Var-Spe variator is the ideal solution for potentially explosive and explosion-proof environments in compliance with the Atex 95 directive (94/9/EC): simple, sturdy and reliable.

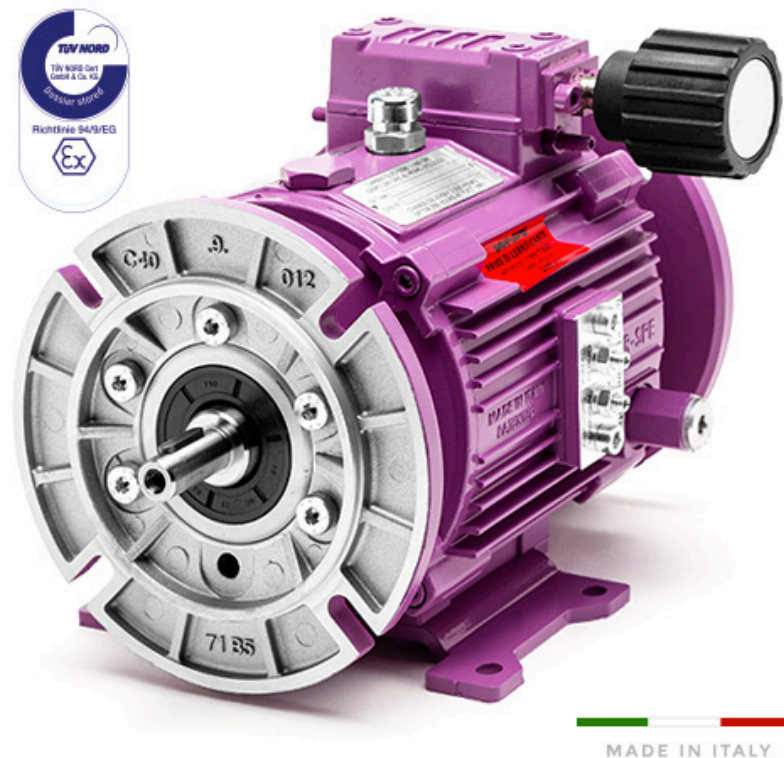
Thanks to hydrostatic technology, they need no complicated and expensive monitoring devices.

All Var-Spe products can be supplied in accordance with the ATEX directive.

For Atex Zone 1/21 or zone 2/22 environments, both gas and dust, according to the following classifications:

- Ex II 2 GDbc IP65 T135°C X
- Ex II 2 GDc IP65 T180°C
- Ex II 3 GDc IP65 T135°C
- Cost-effective installation
- Simple to use
- Extremely competitive prices
- High breakaway torques starting from zero rpm
- Wide speed range, 0-1400 rpm for both directions of rotation
- Standard adjustable torque limiter

**NEW**



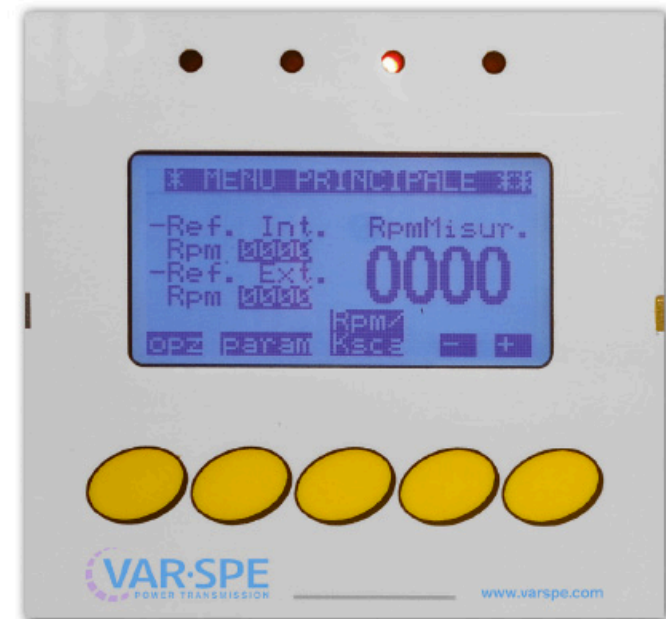
# Electronic remote control

## Advantages

- Stepless speed control
- Precise speed control, 1 rpm to 1500 rpm of the electric motor
- Closed-loop control (with feedback)
- Signal and not power electronics

## Characteristics

- Available reference signals:
- Analog: 4-20mA, 0-20mA, 0-10V, 0-5V, potentiometer
- Digital: 4 independent digital inputs with acceleration/deceleration ramps
- Keypad
- Feedback via inductive sensor installed on the variator
- Large LCD display
- Speed display through scale factor
- Dedicated software depending on the PID model
- SMD technology with 32-bit microprocessor
- Settable alarm to monitor that the set speed matches the actual speed



# K2 (0,37-0,55-0,75 kW)

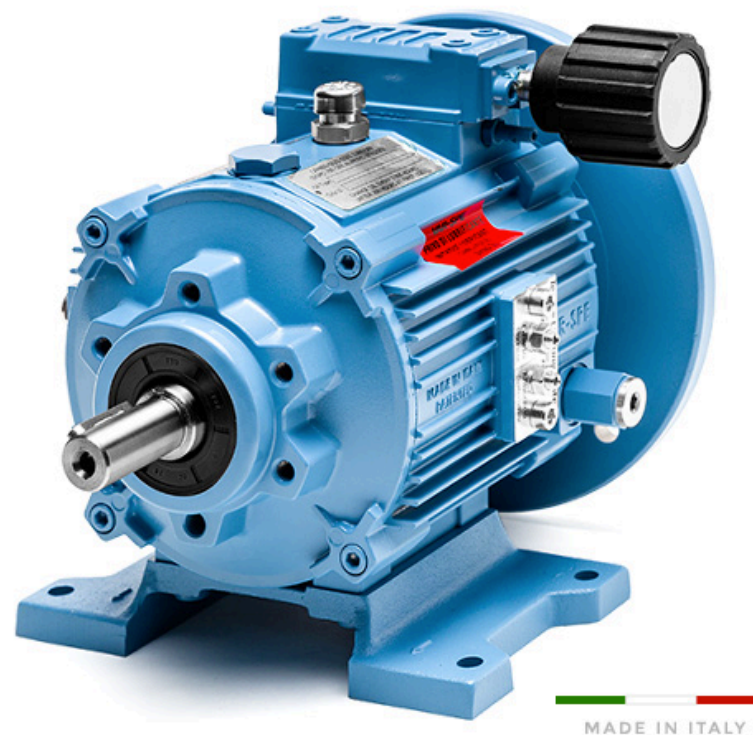
## K2 speed variator 0.37-0.55-0.75 kW

### Advantages

- Versatility: different types of feet, shafts and flanges
- Two-way input rotation (clockwise and counter-clockwise)
- Two-way output rotation (clockwise and counter-clockwise)
- Wide speed range: 0-1500 rpm
- Built-in adjustable torque limiter
- Rapid reversing of output rotation with appropriate adjustment systems
- Versatility in installation positions
- Variety of manual or remote adjustment systems

### Characteristics

- Powers: 0.37 – 0.55 – 0.75 kW
- Available as Atex version
- Available with or without feet; available in flanged version
- Input side: available with hollow shaft and flange or with cylindrical shaft
- Metric flanges available: 71B5, 71B14, 80B5, 80B14
- NEMA flanges available: 56C, 143TC





# K4 (1,1-1,5 kW)

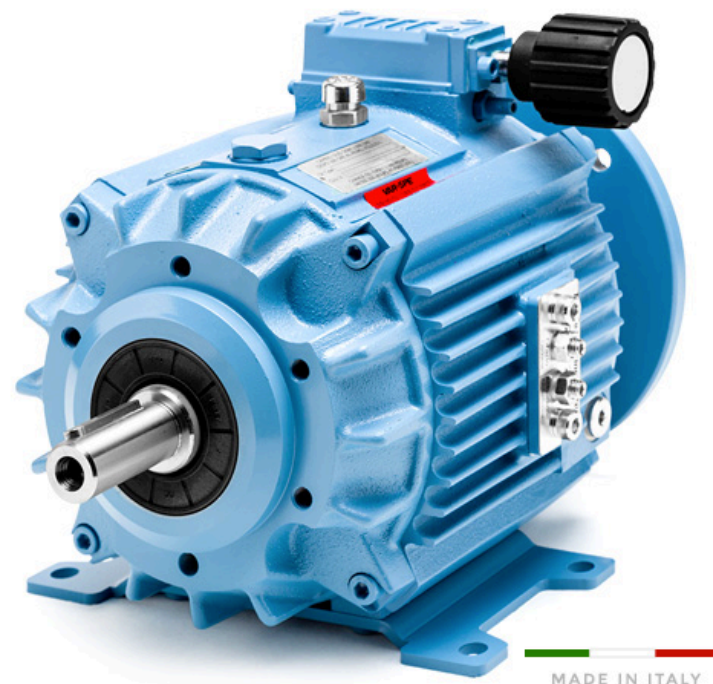
## K4 speed variator 1.1-1.5 kW

### Advantages

- Versatility: different types of feet, shafts and flanges
- Two-way input rotation (clockwise and counter-clockwise)
- Two-way output rotation (clockwise and counter-clockwise)
- Wide speed range: 0-1500 rpm
- Built-in adjustable torque limiter
- Rapid reversing of output rotation with appropriate adjustment systems
- Versatility in installation positions
- Variety of manual or remote adjustment systems

### Characteristics

- Powers: 1.1 – 1.5 kW
- Available as Atex version
- Available with or without feet; available in flanged version
- Input side: available with hollow shaft and flange or with cylindrical shaft
- Metric flanges available: 90B5, 90B14
- NEMA flanges available: 145TC





# K5 (2,2-3-4 kW)

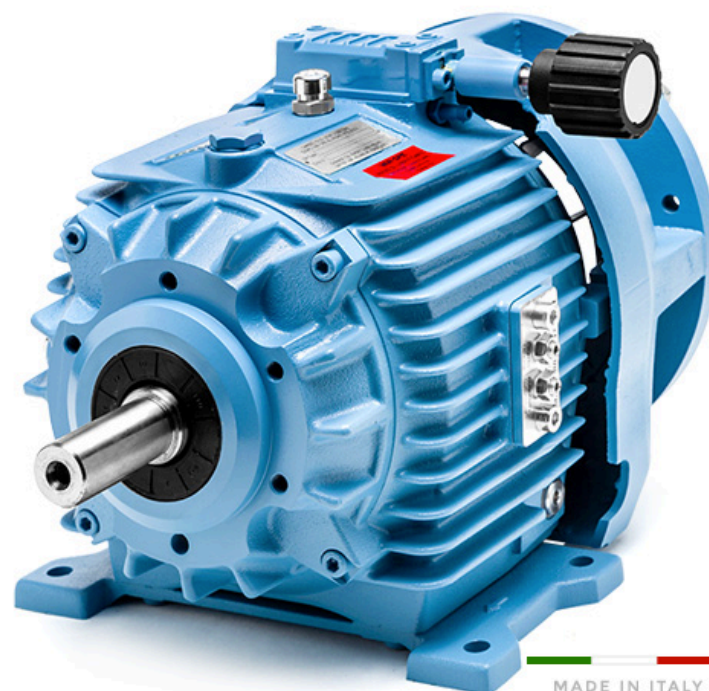
## K5 speed variator

### Advantages

- Versatility: different types of feet, shafts and flanges
- Two-way input rotation (clockwise and counter-clockwise)
- Two-way output rotation (clockwise and counter-clockwise)
- Wide speed range: 0-1500 rpm
- Built-in adjustable torque limiter
- Rapid reversing of output rotation with appropriate adjustment systems
- Versatility in installation positions
- Variety of manual or remote adjustment systems

### Characteristics

- Powers: 2.2 – 3 – 4 kW
- Available as Atex version
- Available with or without feet; available in flanged version
- Input side: available with hollow shaft and flange or with cylindrical shaft
- Metric flanges available: 100-112B5 (input and output), 90B5 (output side)
- NEMA flanges available: 182/184TC
- Equipped with ventilation system



# 15 (3-4 kW)

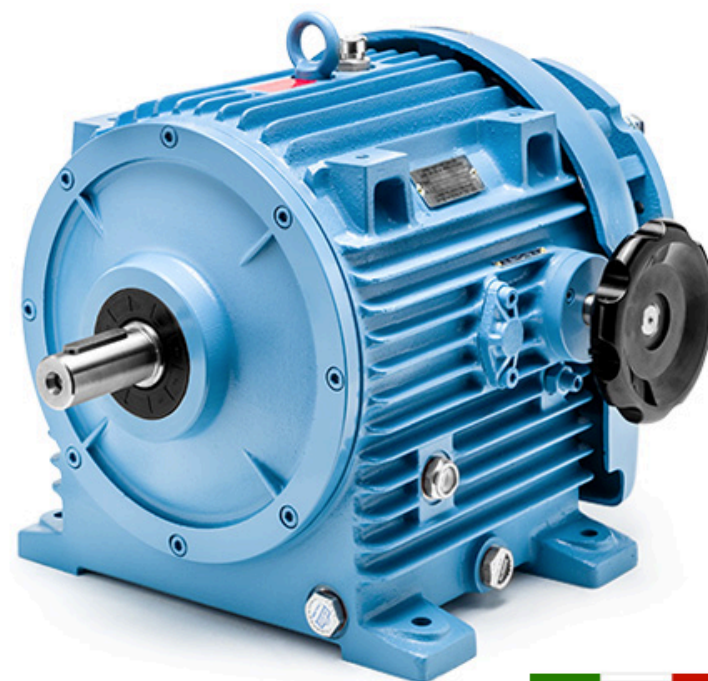
## Type 15 speed variator

### Advantages

- Designed for heavy-duty applications
- Perfect for harsh environments
- Two-way output rotation (clockwise and counter-clockwise)
- Wide speed range: 0-1500 rpm
- High breakaway torques
- Built-in torque limiter
- Rapid reversing of output rotation with appropriate adjustment systems
- Manual or remote adjustment systems

### Characteristics

- Power: 3 – 4 kW
- Available as Atex version
- Input side: available with hollow shaft and flange or with cylindrical shaft
- Flanges available: 100-112B5



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# 16 16 (5,5-7,5 kW)

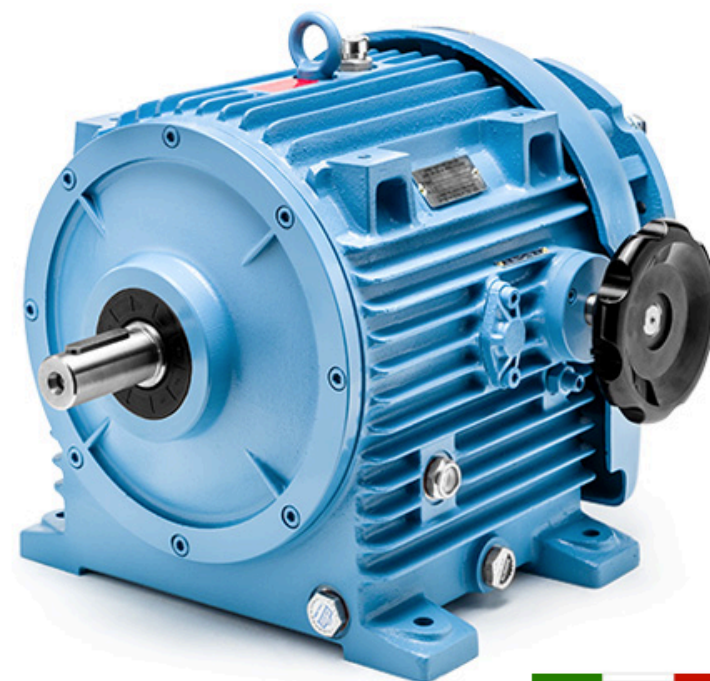
## Type 16 speed variator

### Advantages

- Designed for heavy-duty applications
- Perfect for harsh environments
- Two-way output rotation (clockwise and counter-clockwise)
- Wide speed range: 0-1500 rpm
- High breakaway torques
- Built-in torque limiter
- Rapid reversing of output rotation with appropriate adjustment systems
- Variety of manual or remote adjustment systems

### Characteristics

- Power: 5.5 – 7.5 kW
- Available as Atex version
- Input side: available with hollow shaft and flange or with cylindrical shaft
- Flanges available: 132B5



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# 16B (11 kW)

## Type 16B speed variator

### Advantages

- Designed for heavy-duty applications
- Perfect for harsh environments
- Two-way output rotation (clockwise and counter-clockwise)
- Wide speed range: 0-1500 rpm
- High breakaway torques
- Built-in torque limiter
- Rapid reversing of output rotation with appropriate adjustment systems
- Variety of manual or remote adjustment systems

### Characteristics

- Power: 9.2 – 11 kW
- Available as Atex version
- Input side: available with hollow shaft and flange or with cylindrical shaft
- Flanges available: 160B5 (input), 132B5 (output)



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# 17 (15 kW)

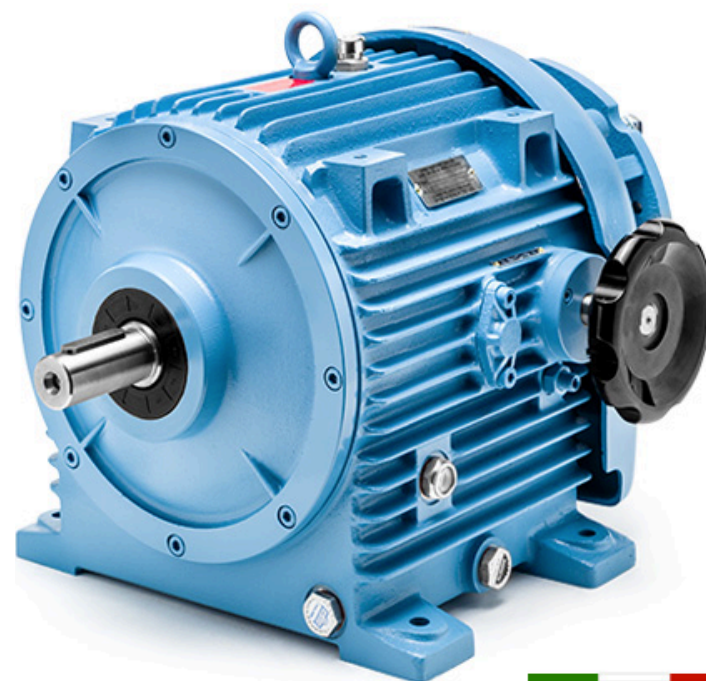
## Type 17 speed variator

### Advantages

- Designed for heavy-duty applications
- Perfect for harsh environments
- Two-way output rotation (clockwise and counter-clockwise)
- Wide speed range: 0-1500 rpm
- High breakaway torques
- Built-in torque limiter
- Rapid reversing of output rotation with appropriate adjustment systems
- Variety of manual or remote adjustment systems

### Characteristics

- Power: 11 – 15 kW
- Available as Atex version
- Input side: available with hollow shaft and flange or with cylindrical shaft
- Flanges available: 160B5



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# 17B (22 kW)

## Type 17B speed variator

### Advantages

- Designed for heavy-duty applications
- Perfect for harsh environments
- Two-way output rotation (clockwise and counter-clockwise)
- Wide speed range: 0-1500 rpm
- High breakaway torques
- Built-in torque limiter
- Rapid reversing of output rotation with appropriate adjustment systems
- Variety of manual or remote adjustment systems

### Characteristics

- Power: 18.5 – 22 kW
- Available as Atex version
- Input side: available with hollow shaft and flange or with cylindrical shaft
- Flanges available: 132B5



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# Var Spe Qualified Expert



Var-Spe created an **Academy** to certify his Sales Network as reliable partners who are able to meet customer needs, providing quality solutions to the market covered in a timely manner.

At the end of the pathway, both Sales and Technical professionals receive an attendance certificate and are entitled to be



# Free Warranty Extension



Var-Spe variators have a **very long service life**, generally over 15 years.

We are so confident about their quality that we offer you a **free additional 6-month warranty extension**.

All you need to do is go to [www.varspe.com//free-warranty-extension/](http://www.varspe.com//free-warranty-extension/) and fill out the form before the standard warranty expires.

Once checked the conformity of the request, Var-Spe will send you the pdf of the warranty extension certificate to the e-mail address specified in the form.



# Contact Us



If you think that our technology may be the right solution but feel insecure because you didn't know it before, please get in touch for a **free technical advice**

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# THANK YOU