
Series

# ER 7-37C VF

## Screw Compressors with Variable Speed

BETICO®
COMPRESSORS

# EXPERIENCE

## COMMITTED TO THE ENVIRONMENT

Compressed air represents one of the highest energy costs for modern industry. As such, in the BETICO GROUP our designs are focused on coming up with new ideas according to the ECODESIGN criterion to design machines based on maximum efficiency which reduced energy consumption and are environmentally friendly.
We work with continuous improvement systems, in close collaboration with thousands of users who convey their needs and suggestions which form the basis of our designs.

## ER Series

The ER screw compressors are underpinned by 30 years of experience in the design and production of compressors using this technology. Their design, and their high quality components, achieve the maximum levels of efficiency and reliability.

# SINCE 1925
# IN THE BETICO GROUP,

WE HAVE DESIGNED AND MANUFACTURED
TOP QUALITY COMPRESSORS.

# SERVICE
# VOCATION

The maintenance performed on the compressors is just as important as their design and quality.

That is why we have the most professional technical support network which guarantees the efficient operation of your compressed air network.

BETICO®
COMPRESSORS

# THE RESPONSE

**The most important aspect of a product is that it responds to the users' requirements. That is why we have asked our clients and, based on their requirements, this new ER-CVF series has been designed, covering all the features requested.**

## WHAT DO OUR CLIENTS ASK US FOR FROM COMPRESSORS FROM 7 TO 37 KW?

Little space required and easy to mount.

+

They do not make noise.

+

Reliability.

+

Low energy consumption.

+

Simple and easy maintenance.

+

Stable pressure maintained.

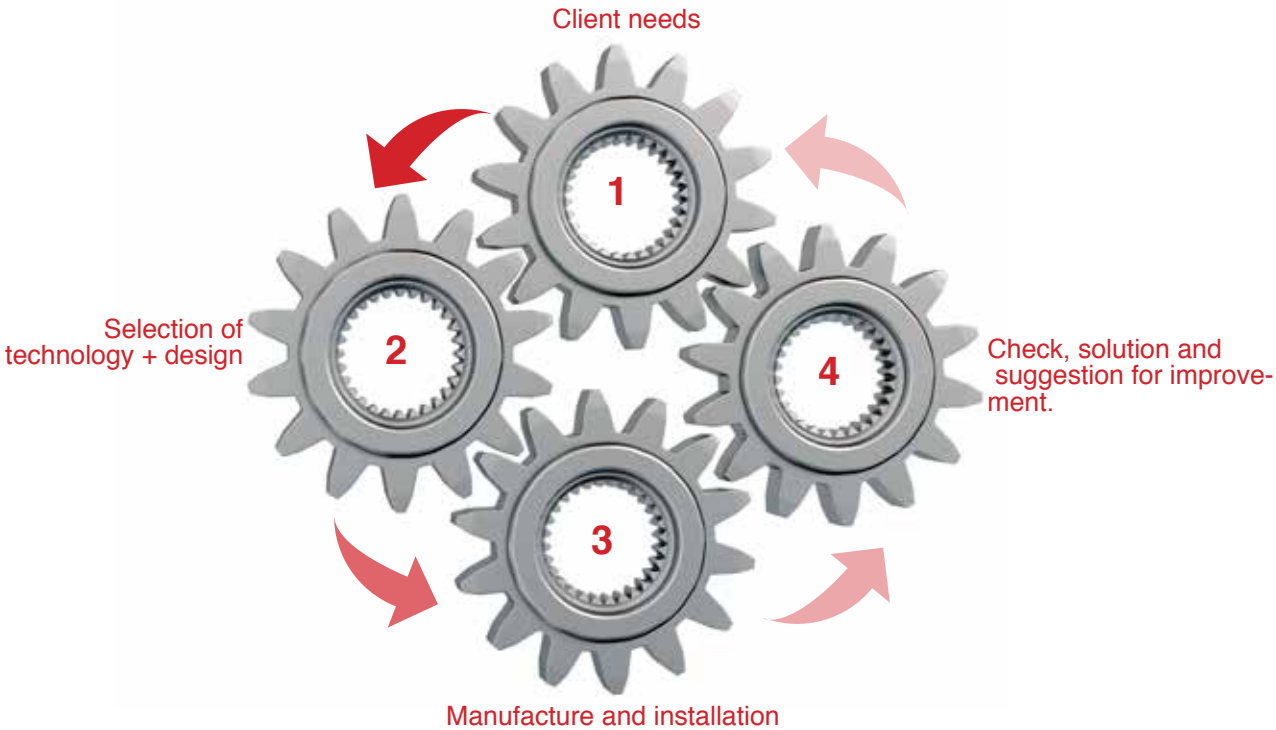
+

Compressed air supply without moisture or impurities.

In order to respond to these requirements, our engineers have designed the new **ER-C VF SERIES** which is characterised by:

## THE COMPRESSORS ER-CVF SERIES ARE THE ANSWER.

- ✓ **Compact** design (Very reduced space)
- ✓ Very **low sound level**.
- ✓ **All in one**, ready to work.
- ✓ Variable speed = up to **50% saving** in energy.
- ✓ Simple design **50% fewer parts** than in our previous series.
- ✓ Motor and fan are **highly efficient** in compliance with the standards in the European ECODESIGN Directive according to Phase 3 which comes into force in January 2017



# PLUG & PLAY

**The new ER-C series has been designed based on an innovative concept which reduces the compressor size, however applies the same solutions as the high power compressors.**
**The result is compact, highly reliable compressors which adapt to the requirements of each factory with minimum energy consumption.**

## SIZE DOES MATTER

The new range of compressors from 7 to 37 KW in the ER-CVF “COMPACT” series are primarily used in small and medium-sized industries where the available space for the production of products is scarce and very expensive.

## READY FOR

All the compressors are tested over several hours in our factory and delivered with the settings adjusted for working at 7 bar, which means that only the operating pressure has to be adjusted if it is different from 7 bar, connection to the electric power supply established and the air pipelines fitted in order to work.

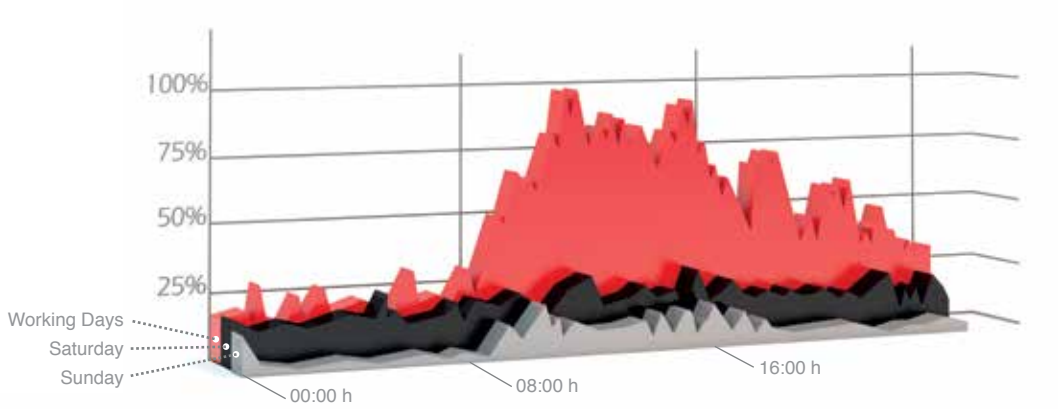
## ALL IN ONE

The special design of these compressors enables integrating all the elements required for the generation of quality compressed air in a set which occupies as little space as possible.

# ENERGY EFFICIENCY

**Energy efficiency represents more than 70% of the cost of a compressed air installation. In the majority of compressed air networks, demand varies throughout the day and week.**

## VARIABLE SPEED EFFICIENCY




### What does the compressed air network require?

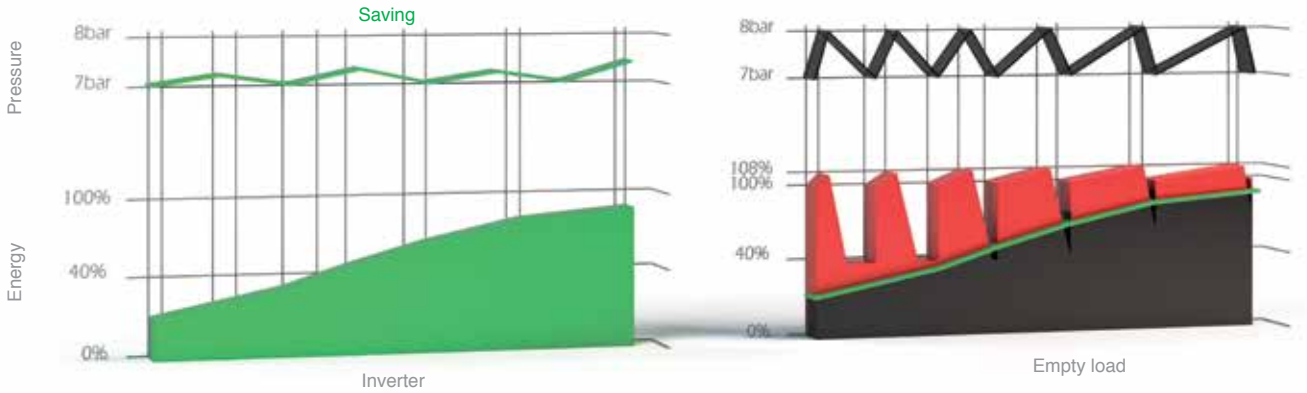
The compressed air demand from the factories' network varies constantly depending on what machines are in production, the work shifts, the day of the week, etc. as can be seen in the example in this chart.

## HOW DOES A CONVEN-

### TO THE FLOW RATE VARIATIONS REQUIRED BY THE NETWORK.

Screw compressors are machines which generate a constant volume per rotation of the rotors. In order to adjust their flow rate to the network variations the compressors work at full load up to the maximum pressure (7.5 bar) and then work without load (without generating any air at all) until the network pressure reaches the minimum value (6.5 bar), and then they start to work under load again.

When screw compressors work without load they consume an average of 40% of the power that they consume when working at full load.



HOW

# THEY SAVE ENERGY

## THE COMPRESSORS

# ER-C VF

An
ER-15C VF compressor
can achieve an annual saving of

**up to €5,000**

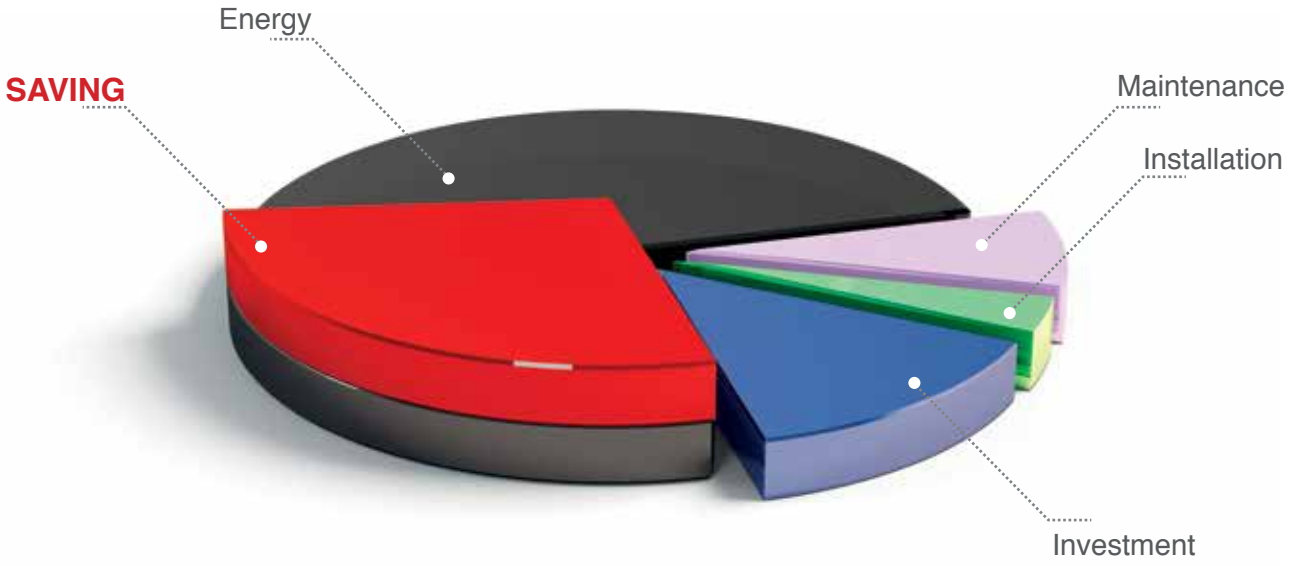
By using an inverter they constantly adjust the motor-rotor revolutions in order to adapt the flow rate generated by the compressor to the network demand, thereby ensuring that:

✓ EMPTY CYCLES ARE ELIMINATED TO ONLY WORK UNDER LOAD.
Compressors with no load consume 40% of the rated energy.

✓ THE NETWORK PRESSURE REMAINS STABLE AT +/- 0.1 BAR.
Each bar of pressure requires 7% additional energy.

✓ START-UP PEAKS ARE AVOIDED BY THE STAR-TRIANGLE STARTERS.
The star-triangle starters require a peak current 3 times that of the rated current - more energy has to be contracted.

✓ IMPROVED COS Φ.
With the inverter cos f changes from 0.85-0.9 to 0.98 which means that a bank of capacitors is not required.




# -30% > -50%

With the combination of these four improvements, the ER-CVF compressors achieve average savings of 30% of the energy consumed by an all-nothing compressor. In the most favourable cases these savings can be as much as 50%

# ER 7-37C FC

**An interior one equal to the features required by a product with these characteristics**

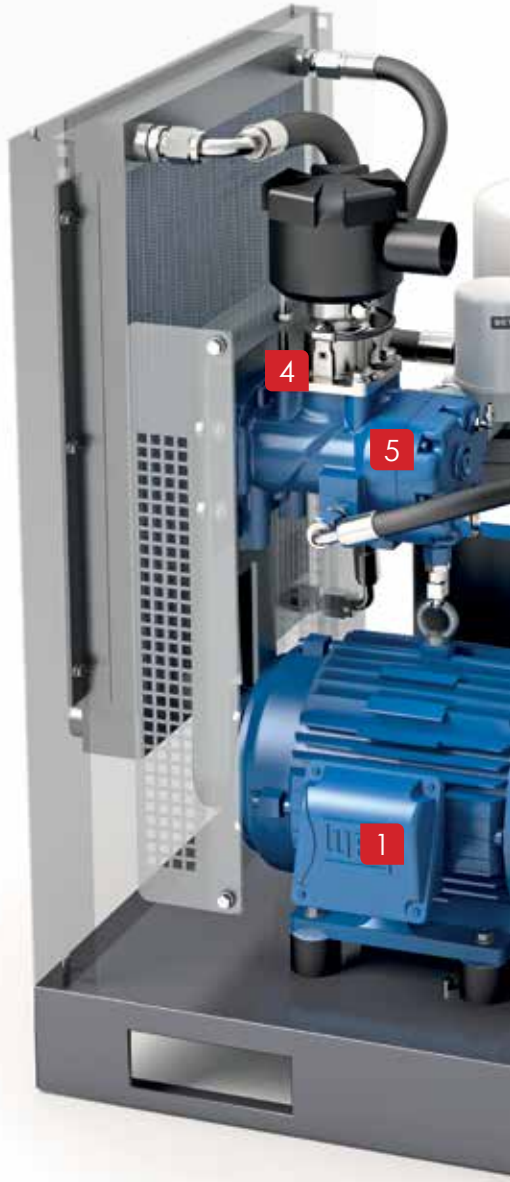
## 1 ELECTRIC MOTOR

Three-phase electric motor with cage rotor in compliance with the IEC60034-30 standards, with high energy efficiency, complying with the European Directive on efficient design “Ecodesign Directive” 2015/125/EC, in its third phase which comes into force on 1st January 2017.

## CENTRIFUGAL FAN 2

These are installed on one side of the compressor and exert pressure on the body interior, they are centrifugal fans instead of the traditional axial fans and have the following advantages:

- Lower noise level.
- Greater effective pressure.
- Greater performance.
- Easy radiator cleaning.




## SEPARATOR TANK 3

Oil separator tank with a special design, the top part has a block mounted with all the required filters and control valves, as such, leaks are prevented and unnecessary elements are eliminated.

## 4 VERY SIMPLE AND RELIABLE AIR INLET VALVE.

The special design of the air inlet valve also has the double function of acting as a non-return valve to prevent oil leaks when stopping the compressor.
Its exclusive design is very reliable by having been simplified to the maximum, eliminating the load solenoid valve.
Given that it does not have open-close regulation elements, its pass surface is far superior to the all-nothing systems by increasing the compressor's efficiency.


## 5 HIGH PERFORMANCE ROTORS

The heart of a screw compressor is the "Air End" rotor. The compressor will be as efficient as the rotor is. The new compressors in the ER-7-35C VF series have state-of-the-art newly designed profiles in the 5/6 format which considerably improve the performance of the traditional rotors with a 4/6 format.

## 6 DANFOSS INVERTER

If the compressor is decisive for mechanical efficiency, the inverter is the key part for the machine's electric efficiency which is why the DANFOSS VLT inverters are used, world leader in inverters.
The VLT inverters, apart from being outstanding due to their AEQ system (Automatic Energy Optimiser) comply with all the European ECODESIGN standards, (RoHS) and (WEEE).

# OPTIONS

## CONTROL BETRONIK III

This option is interesting when requiring advanced compressor features such as its management in a network or via the Internet.


It is a robust industrial microprocessor specially developed for compressors, able to withstand the tough conditions which can arise in compressor rooms.

The user interface is simple and intuitive using controls combined with a backlit graphical LCD screen.

The screen provides complete information with the combination of numbers with symbols which show the most relevant data indicating the statuses and possible problems.

## ENCLOSURE FOR THE HOT AIR OUTLET

Although the ER-C VF compressors are very silent, a deflector can be added to the hot air outlet which reduces the noise level even more, as well as directing the hot air flow upwards. Mounting it can be recommendable if the air is annoying for the operator working close to the machine.

## INLET FILTERING

Recommendable for atmospheres contaminated with suspended dust, reducing the inlet of dust inside the compressor thereby extending the life of the filters and reducing maintenance.

# TECHNICAL CHARACTERISTICS

## 400/480 V (50-60 Hz.)

| MODEL | FLOW RATE | PRESSURE | | RATED POWER | SOUND LEVEL | DIMENSIONS | | | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|
| | bar | m3/min | l/s | kw | dB(A) | L mm | W mm | H mm | kg |
| ER-7CVF | 6 -13 | 0.26 / 1.3 | 4.3 / 21.7 | 7 | 64 | 800 | 678 | 996 | 234 |
| ER-11CVF | 6 -13 | 0.38 / 1.9 | 6.3 / 31.7 | 11 | 65 | 800 | 678 | 996 | 237 |
| ER-15CVF | 6 -13 | 0.50 / 2.5 | 8.3 / 41.7 | 15 | 65 | 800 | 678 | 996 | 237 |
| ER-22CVF | 6 -13 | 0.82 / 4,1 | 13.7 / 68.3 | 22 | 67 | 1.100 | 800 | 1.300 | 460 |
| ER-30CVF | 6 -13 | 1,10 / 5,5 | 18.3 / 91.7 | 30 | 67 | 1.100 | 800 | 1.300 | 475 |
| ER-37CVF | 6 -13 | 1.30 / 6,5 | 21.7 / 108.3 | 37 | 67 | 1.100 | 800 | 1.300 | 490 |


Reference conditions:
- Air inlet temperature 20 ºC.
- Absolute air inlet pressure 1 bar.

- Flow rate of the unit measured according to the ISO 1217 standards.
- Sound level measured at a distance of 1 m according to the Cagi/Pneurop code.

# Series
# ER 7-37C VF

BETICO®
COMPRESSORS

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## COMMITMENT TO EFFICIENCY



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