

# **Gardner Denver**

## Next Generation Efficiency & Reliability

Oil Lubricated Rotary Screw Compressors

featuring FourCore Technology

ESM 110FC - 290FC Fixed Speed

VS 110FC - 290FC Variable Speed



Premium compressor design  
& industry leading warranty



## State-of-the-art new technology

### The ESM and VS Series from Gardner Denver

Well known in the industry for quality and reliability Gardner Denver continuously develops the ESM/VS Series achieving cutting edge performance and efficiency. The new high power range ESM/VS 110FC - 290FC of lubricated screw compressors comprises of fixed speed and variable speed (VS) models. The design features brand new, innovative technology engineered to provide next level performance and efficiency for customers across a wide variety of industries.

► **Pressure range**  
5 to 10 bar

► **Volume flow**  
9.16 - 47.9 m<sup>3</sup>/min

► **Motor power**  
110 to 250 kW

### Engineering excellence

Compressors are more than just a financial investment, they are a key component in ensuring that manufacturers, processors and operators receive consistent, high quality low cost air.

The screw compression element is the heart of the compressor and therefore Gardner Denver keeps the design and manufacture in-house, using the latest CNC rotor grinding machinery, coupled with online laser technology.

The resulting reliability and performance ensures that operating costs will remain low throughout the compressor's life.




### FourCore technology – the power of 4!

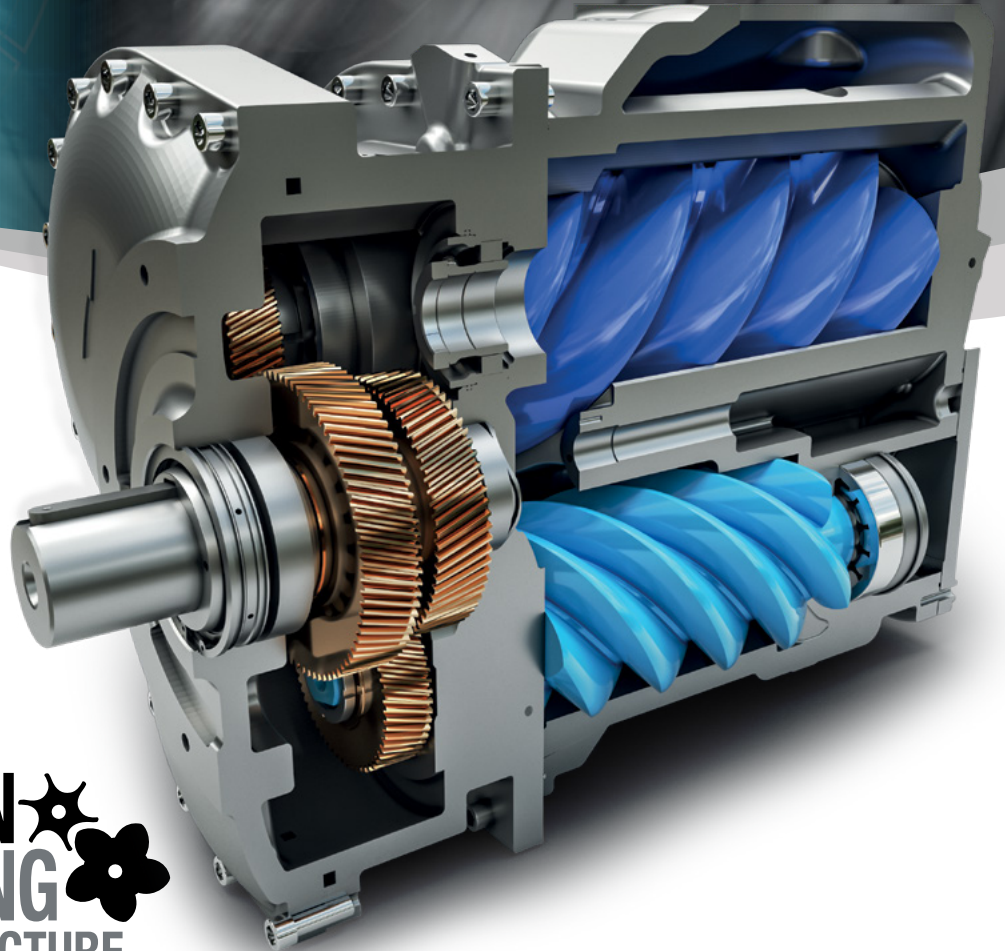
Gardner Denver's centre of excellence at its Simmern production site in Germany, home to the Gardner Denver ranges of compressors, has designed and engineered a brand new, patented technology that offers best-in-class energy efficiency.

Our application engineering team have developed a premium efficiency 2-stage model for fixed and regulated speed compressors using the new technology of the compact double stage airend. What's unique about this design is that the airend has 1 motor and 4 rotors located in a single, semi-integrated casting. This differs from traditional 2-stage compressors, providing a compact package with high energy savings. In fact, these machines are the same size as a 1 stage machine due to new airend technology.





“Gardner Denver lubricated rotary screw compressors incorporate the very **latest technological advances** and guarantee a continuous supply of high quality compressed air.”



## GERMAN ENGINEERING DESIGN&MANUFACTURE

### **Premium** efficiency airend

The new airend design features our highly efficient airend which delivers the highest quality compressed air at a low rotational speed to help minimise the unit's energy consumption and achieve excellent performance.

The semi integrated airend design with integrated oil filter and oil regulation valve means fewer external components and pipework, taking less physical space, eliminating the risk of leakage and offering simplified maintenance.

The innovative design of the fail safe shaft seal, ensures the highest levels of quality and reliability are achieved, minimising the down time of the compressor. Our top quality airends are covered by the new 10 year warranty and up to 44,000 hours.\*

\*Whichever is soonest

► **Delivers  
best-in-class  
efficiency**

► **10 year, up to  
44,000 hours  
warranty coverage**



## Best-in-class efficiency & energy savings

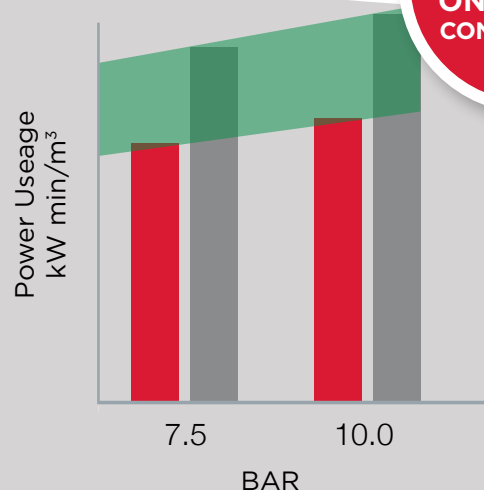
### New generation FourCore airend technology

- ✓ Very compact & very low weight
- ✓ Highest efficiency
- ✓ Semi-Integration of the oil filter, oil stop valve, oil distribution system, and oil temperature valve:
  - less hoses and hydraulic pipes → less costs
  - no leakages
- ✓ High flexibility by a 2-step drive gear configuration → **UNIQUE** to Gardner Denver
  - constant interstage pressure → better efficiency
  - compact design
- ✓ Designed to implement in current ESM/VS Series → **UNIQUE** to Gardner Denver
- ✓ Fixed and variable speed versions possible
- ✓ 10 years warranty



### Improved efficiency by 8-10% compared to a conventional single stage

Gardner Denver's innovative new FourCore technology delivers greater efficiency in a low weight and compact size. The series comprises of best-in-class premium efficiency 2-stage oil lubricated compressors across the range of 110-250kW. In some cases, payback times can be less than a year, delivering a fantastic return on investment and incredible energy savings to the user.



**8-10%  
SAVINGS  
ON ENERGY  
CONSUMPTION**

- New Gardner Denver FourCore Technology
- Comparable Single Stage Technology





## One of the smallest footprints in the market of 2 stage oil lubricated units

The core benefit of the new ESM/VS 110FC to ESM/VS 290FC range is that it delivers much greater efficiency than 1 stage compressors but comes in a German engineered package that is the same size as it! Users in a variety industries benefit from an amazing, space-saving design that offer next level efficiency and performance.

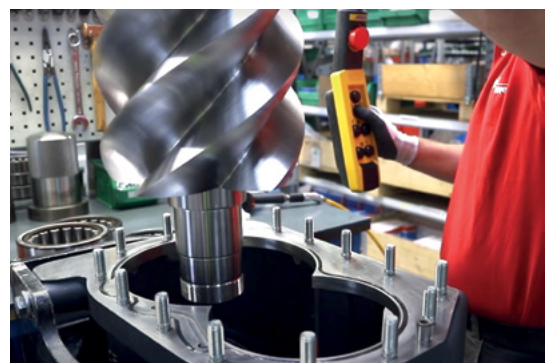


## A profitable investment

- Best-in-class compressed air efficiency
- Small footprint and sustainable compact design
- Semi-integrated "FourCore" airend delivers the best possible performance
- Less connections and pipework, minimises possibility of leaks and enables simple servicing

## Unique in-house design & manufacture

2 stage compressors are not only expensive, they also take up valuable (and unnecessary) space due to their large footprint. Incorporating all of the benefits of the 2 stage compression in the same size package as a single stage unit, Gardner Denver have developed in-house, a unique and optimised, ultra-efficient airend technology in FourCore.



# Advanced design concept

## Engineered to perform

### Large surface after cooler

Optimum cooling of the air and oil circuit is achieved by drawing the coolest possible air into the coolers from the outside. The coolers are offset and cooled independently by separate radial fans and exhaust chambers which ensures optimum oil temperature and lowest achievable air discharge temperature. This results in longer component life and lower downstream air treatment running costs.

### High performance separator filter

Two-stage filtration ensures the highest quality air is delivered to your air treatment, resulting in lower pressure drops and reduced overall system running costs.

### High efficiency electric motor

Premium efficiency motor fitted as standard.

### Thermostatically controlled radial fans

High efficiency, high thrust, very low noise fans fitted on both air and oil coolers.

### Automatic motor lubrication

Correct charge of lubricant to the bearings at all times delivers unrivalled reliability and reduced motor life costs.

### Viton vitaulic couplings

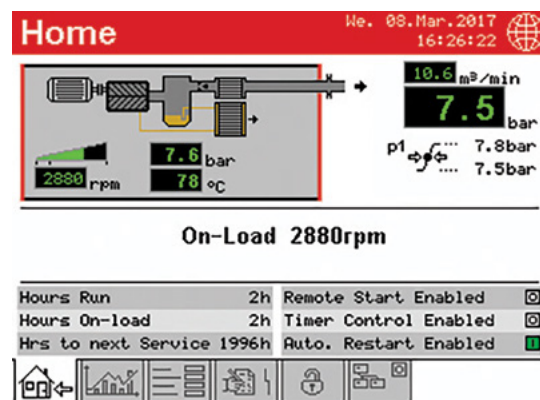
High quality solid hose and pipe connections ensure leak free connections keeping your compressor clean and service friendly.

### Zero loss autodrain

Fitted to the air aftercooler to remove bulk water allowing greater flexibility of installation options.

## GD Pilot TS innovative touch screen compressor controller

The GD Pilot TS with its high resolution touch screen display is extremely user-friendly and self-explanatory. All functions are clearly structured in five main menus and are intuitively visual. The multilingual GD Pilot TS control system ensures reliable operation and protects your investment by continuously monitoring the operational parameters, which is essential for reducing your running costs.







“FourCore technology incorporates all of the benefits of 2 stage compression **in the same size package as a single stage unit** – unique, ultra-efficient and small.”



## iConn Compressed Air Service 4.0

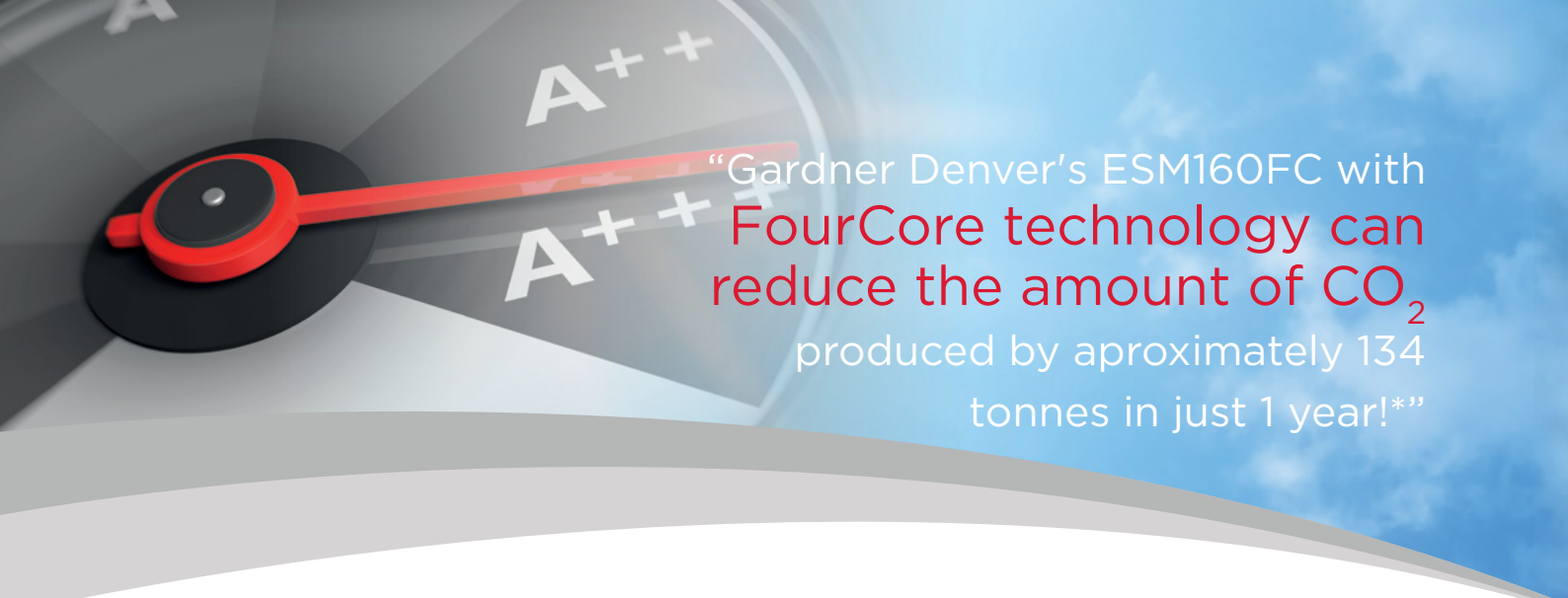
The ESM/VS Series is equipped with iConn as standard. iConn is the smart, proactive real-time monitoring service that delivers in-depth and real-time knowledge on the system to our compressed air users. It enables accurate production planning and total peace-of-mind, generating insight and statistics that keep users informed on performance, and at the same time highlighting potential issues before they become a problem.



- ✓ Advanced remote analysis
- ✓ Predictive – evaluates historic data
- ✓ Maximises energy efficiency
- ✓ Optimises compressor performance
- ✓ Reduces downtime
- ✓ Works as an open standard
- ✓ Free on new compressors – can be retrofitted
- ✓ Proactive maintenance

**...why you cannot ignore iConn!**





“Gardner Denver’s ESM160FC with  
**FourCore technology can**  
**reduce the amount of CO<sub>2</sub>**  
produced by approximately 134  
tonnes in just 1 year!\*

## The environmentally conscious solution

### Reduce energy waste

In today’s climate, all businesses must ensure they are doing what they can to enhance their green credentials and actively ensure their production process is as environmentally friendly as possible. Gardner Denver are committed to creating products that have less impact on the planet, providing greener solutions for our partners in all industries.

We create solutions that help our customers save energy –including products that are fuel-efficient, aid in heat recovery, and reduce waste wherever possible. The new ESM/VS 110FC to 290FC range delivers a major breakthrough in compressor technology and provides enhanced levels of efficiency to offer even more energy savings, reducing CO<sub>2</sub> waste.

Investing in energy saving machines shows corporate responsibility and a future-proofing mentality that will help your business to tackle the challenges that industrial businesses are likely to face in the future when it comes to the environment.

### Save more energy by matching output with demand

A vast amount of the energy lost in a factory or plant is due to wastage in an air compressor installation. Variable speed (VS) technology ensures that compressed air systems perform as efficiently as possible.

Gardner Denver's VS compressors efficiently and reliably handle the varying air demand found in most air systems which can significantly reduce the annual cost of ownership.

### Total potential CO<sub>2</sub> reduction of 1,500 tonnes in 10 years

FourCore Technology from Gardner Denver offers a reduced environmental footprint, cutting tonnes of CO<sub>2</sub> during manufacture, use and disposal, increasing your "green" credentials and market appeal.

### Reduced greenhouse gas emissions\*

Gardner Denver's ESM160FC running 8,000 hours per year, compared to a conventional single stage 160kW compressor can reduce the amount of CO<sub>2</sub> produced by 134 tonnes – equivalent to 29 family cars or 337,700 miles driven by a passenger car in 1 year! That's the same as planting 165 acres of forest!

\*<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

### Tried and tested inverter concept

- Integrated in the electric cabinet
- Protected from dust by replaceable inlet filters
- Maximum reliability from optimised cooling system
- Ensures high availability and long-life

### Regulated speed radial fan

This range can be optionally equipped with inverter driven radial fan on the oil after cooler.

- Optimises oil temperature regulation
- Saves energy costs





## Gardner Denver VS features are your benefits

The VS Series products are designed to obtain the greatest efficiency across the entire operating range.

### Wide regulation range

No cycles means substantial energy savings.

### Perfect motor - drive - airend design

High efficiency across broad flow range.

## How to add further value



Hot Water



Industrial Process



Heating



Hot Air Blast

### Heat recovery

The heat generated during compression is paid for as part of the process, then paid for again during removal by way of cooling fans. Instead of simply removing the heat, it can be used to generate free hot process water or hot water heating systems by utilising a high efficiency, factory fitted oil to water heat exchanger.

### Upgrade your compressed air system with heat recovery

- Significant cost savings
- Lower CO<sub>2</sub> emissions
- Low investment costs

## Compressed air purification

Modern production systems and processes demand increasing levels of air quality. Air treatment products **manufactured by Gardner Denver**, utilise the latest technology and provide an energy-efficient solution at the lowest life cycle costs.

The new downstream portfolio manufactured by Gardner Denver utilising the latest technology, provides an energy efficient solution at lowest life cycle costs. The same quality, performance and efficiency standards delivered by the compressors can now be enjoyed from the air treatment range.

Investment in a manufacturing site in addition to the support teams, ensures that compressed air operators don't need to worry about the quality of their compressed air – quality that is key to ensuring maximum production efficiency and investment protection.

- Water Cyclone Separators
- Compressed Air Filters
- Condensate Drain System
- Compressed Air Refrigerant Dryer
- Heatless Desiccant Dryers
- Heat Regenerative Desiccant Dryers
- Nitrogen Generator
- GD Connect 12 Plus Multi Compressor Controllers



## The **best investment protection** you can get



### 10 Years Warranty!

The Gardner Denver Protect 10 Warranty and Service programmes will protect you up to 44,000 hours/10 years <sup>1</sup>. It is one of the most generous warranties available in the industry affording you total piece of mind.

### Your benefits:

- The Protect 10 warranty is totally free to the compressor owner <sup>2</sup>
- The Gardner Denver authorised service provider will deliver a guaranteed quality of service
- The Protect 10 service agreement underpinning the warranty will enable accurate maintenance, budgeting and cost of ownership
- The use of genuine Gardner Denver parts and lubricants will maximise compressor life and efficiency

<sup>1</sup> Warranty duration is limited to 6 years/44,000 hours on the whole package, 10 years/44,000 hours on the air end. Whichever is the soonest.

<sup>2</sup> subject to Terms & Conditions

### Compact design – easy installation

The small footprint reduces the space required for installation.

### Easy servicing

The design of these packages ensures that the service points are readily accessible. The enclosure side doors are hinged and removable to allow complete access to all service points. The reduced number of moving parts further lowers the maintenance costs.

### Gardner Denver genuine spare parts

#### Enjoy complete peace of mind.

Genuine Gardner Denver parts and lubricants ensure that compressed air plant reliability and efficiency is maintained at the highest standards. Gardner Denver spare parts and lubricants are distinguished by:

- Long service life, even under harshest conditions
- Minimum losses contributing to energy savings
- High reliability improves plant up-time
- Products manufactured with the strictest Quality Assurance Systems







## Technical data

### ESM 110FC-290FC Fixed Speed Screw Compressors

Gardner Denver model	Nominal Pressure	Drive Motor	FAD <sup>1)</sup>	Noise Level <sup>2)</sup>	Weight	Dimensions L x W x H
	bar g	kW	m <sup>3</sup> /min	dB(A)	kg	mm
ESM110FC	7.5	110	24.05	72	4483	2907 x 2071 x 2193
	8.5		22.56			
	10		21.21			
ESM132FC	7.5	132	28.79	73	4498	2907 x 2071 x 2193
	8.5		25.27			
	10		25.24			
ESM160FC	7.5	160	33.67	75	4542	2907 x 2071 x 2193
	10	160	29.14	75	4542	2907 x 2071 x 2193
ESM200FC	7.5	200	40.09	76	4765	2907 x 2071 x 2193
	10	200	35.64	76	4765	2907 x 2071 x 2193
ESM250FC	7.5	250	42.62	77	4975	2907 x 2071 x 2193
	10	250	38.69	77	4675	2907 x 2071 x 2193
ESM290FC	7.5	250	47.84	78	5000	2907 x 2071 x 2193
	10	250	45.08	78	5000	2907 x 2071 x 2193

### VS 110FC-290FC Variable Speed Screw Compressors

Gardner Denver model	Nominal Pressure	Drive Motor	FAD <sup>1)</sup>	Noise Level <sup>2)</sup>	Weight	Dimensions L x W x H
	bar g	kW	Min - Max m <sup>3</sup> /min	at 70% Load dB(A)	kg	mm
VS110FC	6 - 10	110	9.16 - 24.69	72	4672	2907 x 2071 x 2193
VS132FC	6 - 10	132	9.16 - 29.39	72	4736	2907 x 2071 x 2193
VS160FC	5 - 10	160	9.61 - 32.07	74	4783	2907 x 2071 x 2193
VS200FC	5 - 10	200	9.37 - 39.14	76	5083	2907 x 2071 x 2193
VS250FC	5 - 10	250	9.37 - 42.97	77	5253	2907 x 2071 x 2193
VS290FC	5 - 10	250	9.37 - 47.98	78	5268	2907 x 2071 x 2193

All models are also available as WATER COOLED versions, for technical specifications please refer to the water cooled technical information sheets.

<sup>1)</sup> Data measured and stated in accordance with ISO 1217, Edition 4, Annex C and Annex E and the following conditions:

Air Intake Pressure 1 bar a, Air Intake Temperature 20°C, Humidity 0 % (Dry).

<sup>2)</sup> Measured in free field conditions in accordance with ISO 2151, tolerance ± 3dB (A).

## Global Expertise

The GD rotary screw compressor range from 2.2 – 500 kW, available in both variable and fixed speed compression technologies, are designed to meet the highest requirements which the modern work environment and machine operators place on them.



The oil-free EnviroAire range from 15 – 355 kW provides high quality and energy efficient compressed air for use in a wide range of applications. The totally oil-free design eliminates the issue of contaminated air, reducing the risk and associated cost of product spoilage and rework.



A modern production system and process demands increasing levels of air quality. Our complete **Air Treatment Range** ensures the highest product quality and efficient operation.



Compressor systems are typically comprised of multiple compressors delivering air to a common header. The combined capacity of these machines is generally greater than the maximum site demand. To ensure the system is operated to the highest levels of efficiency, the **GD Connect** air management system is essential.



[gdcompressors.eu@gardnerdenver.com](mailto:gdcompressors.eu@gardnerdenver.com)  
[www.gardnerdenver.com](http://www.gardnerdenver.com)

For additional information please contact  
Gardner Denver or your local representative.

Specifications subject to change without notice.