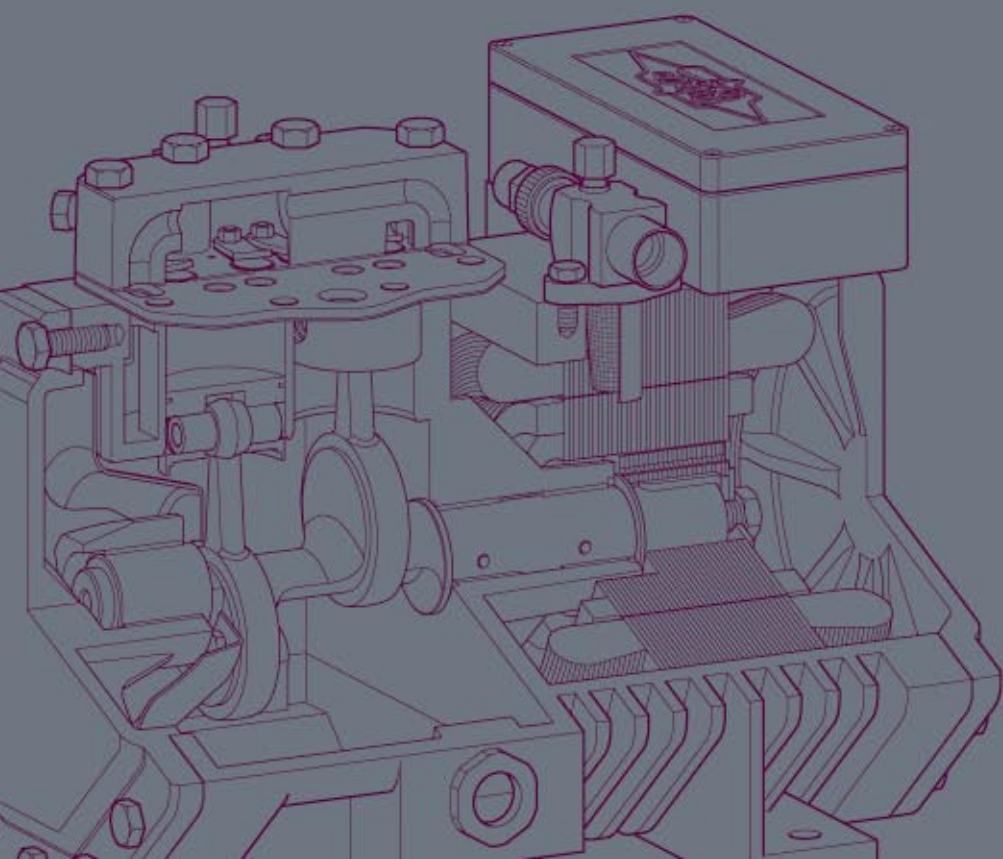




BITZER
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Contents

3	Contents
4	A Company with Vision
6	Research and Development
8	Made by Bitzer
10	Consistent Quality
12	Bitzer Reciprocating Compressors
14	Bitzer Screw Compressors
16	Bitzer EuroScroll Compressors
17	Bitzer Pressure Vessels
18	Worldwide Communication
20	Bitzer International
22	The History of Refrigeration



Bitzer Kühlmaschinenbau – a Company with Vision

The sole managing director of today's company group Bitzer Kühlmaschinenbau GmbH & Co. Holding KG is Peter Schaufler, Senator h.c.

In 1979, following the death of his father, he took over this medium-sized company in Sindelfingen (Germany), where refrigeration components had been produced ever since the company was founded in 1934.

The main sales markets were Germany and its European neighbours. Apart from a minority holding and a license in Brazil, there were no other subsidiaries.

With common sense, clarity and the readiness to take calculated risks, the young entrepreneur Peter Schaufler took his company into the front rank of international suppliers. He spotted early on the opportunities offered by the European market.

He expanded the company into other countries, and within a short time made it the largest independent manufacturer of refrigeration compressors in Europe. Keeping pace with that, the overseas markets were systematically developed. Today, Bitzer is represented worldwide by its own subsidiaries in the most important regions.





A milestone in the recent history of the company was the takeover in 1991 of the compressor plant of the former company MAB in Schkeuditz near Leipzig (Germany). In several expansion stages, and with an investment sum of over 50 million Euros, the plant was completely modernised. Within the Bitzer Group, Schkeuditz – with its 500-plus workforce and 13,000 square metres of production area – is one of the largest production locations and at the same time a centre of competence for reciprocating compressors.

The company's commitment in China, which began in 1995 with a joint venture production location in Beijing, also progressed very well and was supplemented in 2001 by a 100%-owned production facility, also located in Beijing. Together with its sales subsidiary in Hong Kong, Bitzer is now much closer to its Asian customers.

The trend towards screw compressors resulted in an annual two-digit growth rate for Bitzer. The forecasts indicate that similar development leaps can be expected in the future.

To ensure continuity of supply, a 50,000 square metre site was purchased in Rottenburg (Germany) for a new screw compressor production facility. Production at the newly built plant began in October 2003.

In a second building phase, work started early in 2004 establishing the new technology centre in Rottenburg and was completed in time for the company's 70th anniversary on 3 December 2004.

At the same time, the manufacturing location at Castelo Branco, Portugal, was expanded, and the additional production of Octagon® compressors was initiated.

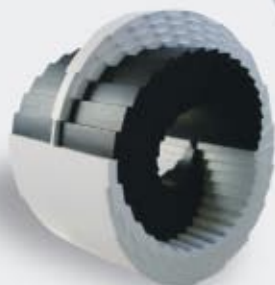
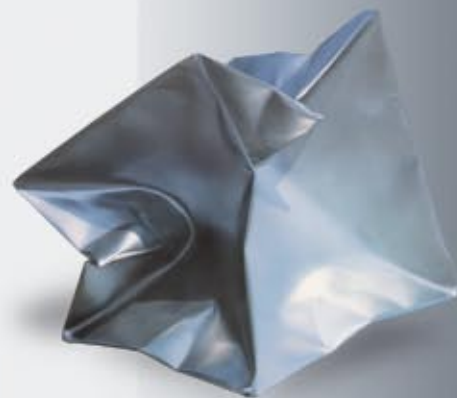


Dear business friends and employees,

When I took over this company in 1979, I had a vision: It was to make the company Europe's leading manufacturer for refrigeration compressors, to achieve a strong global presence, to be both technologically in the lead and independent, and to build up the company by controlled growth. This also involved my assuming responsibility for preserving the jobs of my employees in the long term. Looking back, I succeeded in doing so – together with all of you. I will continue to devote all my creative energies to the company, and am gratified every day by our successes all over the world. I concentrate on essentials, and draw energy from my love of contemporary art. In many Bitzer companies, art is ever present, and so I extend an invitation to you to share in my hobby. Art has always inspired people – and perhaps that's one of the reasons why Bitzer is so successful.

I'd like to thank you all, and I look to the future with optimism.

Peter Schaufler, Senator h.c.



Research and Development

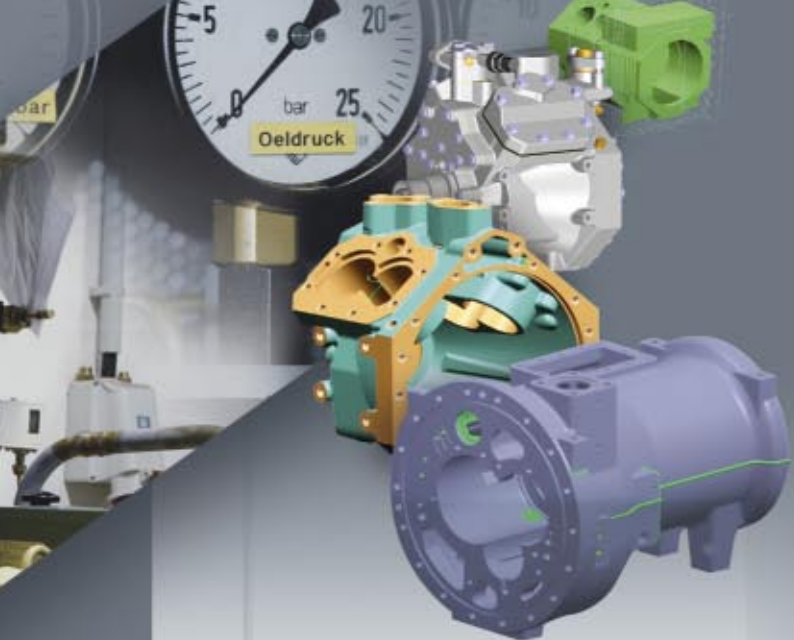
At its two research and development centres in Rottenburg and Schkeuditz, Bitzer is already working on the compressors and applications of the future.

In the field of screw, scroll and reciprocating compressors, development work is continuing on new and existing air-conditioning and refrigeration equipment for stationary and mobile applications. In all these developments, the benefits to the customer take top priority.

These include: high efficiency, reliability and durability – in conjunction with low energy consumption and lowest possible emission values, plus environmental friendliness all the way through from manufacture to disposal.

In response to its ongoing dialogue with customers from all over the world, Bitzer orientates its development work accordingly. Bitzer's engineers develop not only products for HFC refrigerants, but also compressors and other components for natural refrigerants such as ammonia, CO₂ and hydrocarbons.





- 1940** Start of production of the open drive 2-cylinder series
- 1950** The first shell and tube condensers are launched on the market
- 1960** Introduction of the semi-hermetic BH/BHS series
- 1977** Market launch of compressors for ammonia as refrigerant
- 1983** Introduction of two-rotor screw compressors
- 1986** Introduction of the .2 Generation reciprocating compressors
Introduction of the world's first compact screw VSK31, optimised for use in railway air-conditioning systems (at this time the first prototypes were already being tested in German high speed ICE trains)
- 1990** First field tests with new chlorine-free refrigerants
- 1992** Market launch of semi-hermetic reciprocating and screw compressors for chlorine-free refrigerants
Introduction of HSKC compact screw compressors with integrated oil separator and oil management
- 1993** Entry into supermarket business in the USA with the introduction of the HS53 screw compressors
- 1994** Active participation in research projects of the German Research and Technology Ministry (new technologies with ammonia and hydrocarbons)
- 1995** Certification of all European Bitzer plants to EN ISO 9001 or 9002
- 1996** Market launch of compressors for hydrocarbons as refrigerant

- 1997** European EMAS certification for the Bitzer plants in Sindelfingen and Hailfingen (EEC Regulation No. 1836/93)
- 1998** The first series of Octagon® reciprocating compressors is launched: new and compact semi-hermetics with improved price/performance ratio
- 1999** Market launch of the CSH series, an independently designed series of compact screw compressors with new profile geometry, auto-economiser and infinite capacity control
- 2000** Market launch of a new series of compressors for air-conditioning applications in buses and coaches, with four capacity sizes. This sets new standards in compactness, reliability and speed range
- 2001** Expansion of the Octagon® series, setting new standards for quiet operating and high efficiency
- 2003** For the first time a standard series of compressors of the Octagon® range is offered for cascade use with CO₂
- Today** The CSH95, the most powerful Bitzer compressor yet, completes the compact screw range, which so far comprises four series with 35 to 300 kW of motor power and up to 1 MW cooling capacity.

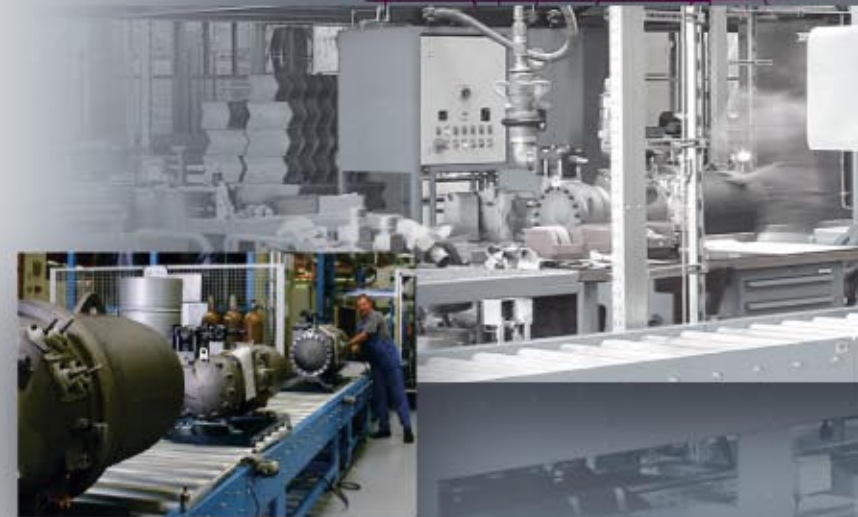
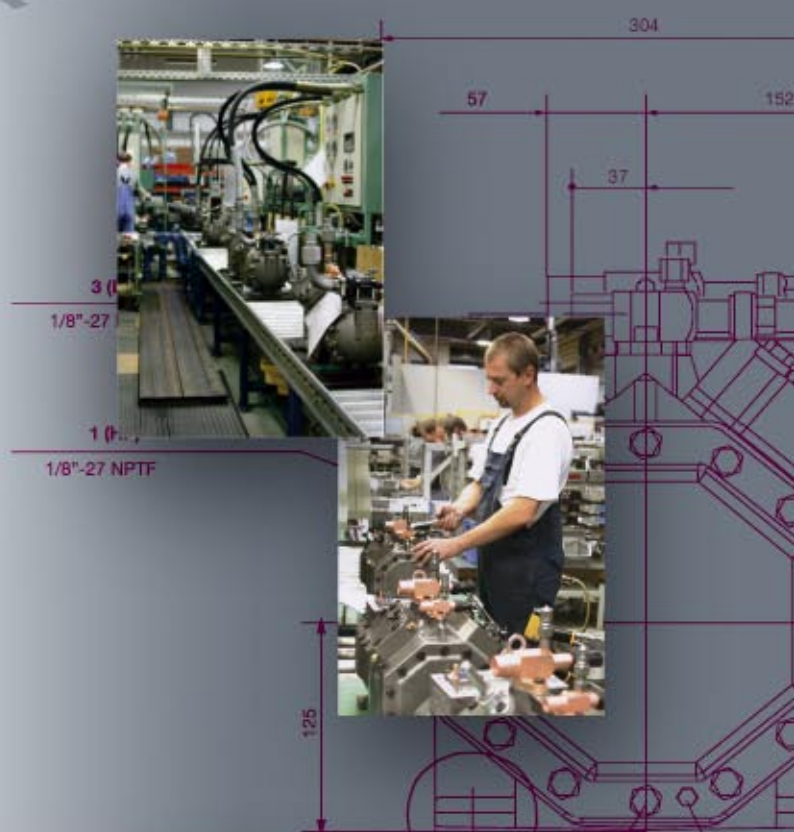


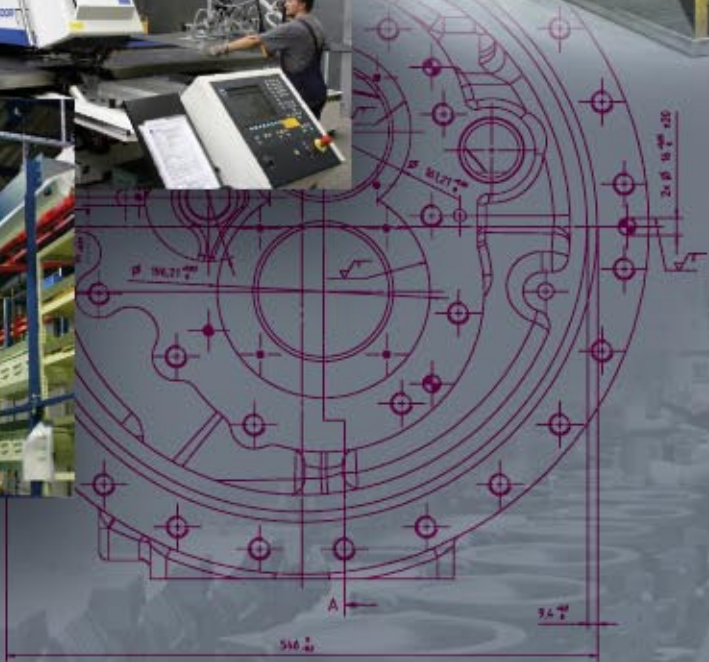
Made by Bitzer

The competitive advantage of Bitzer is based in large part on its forward-looking corporate policy. That includes, for example, concentrating production not just at one location. With production plants in Europe, Africa, America, Asia and Australia, Bitzer uses the advantages specific to the location and combines these with its own knowledge and experience into a global grouping with a „Made by Bitzer“ quality standard across the board.

Automated processes with the very latest in high-precision CNC machinery and flexible manufacturing systems – a guarantee of Bitzer’s worldwide and outstanding product quality.

Order-specific assembly and final painting in a closed system, with units being conveyed using a Power & Free system, plus sophisticated logistics, ensure for Bitzer’s customers tailored products with short delivery times.





Consistent Quality

Maximum reliability is called for in every application for refrigeration and air-conditioning. Our uncompromising quality management starts early on – in the development stage, in decisions on materials, and in the selection of suppliers.

In the production processes, several stages for quality assurance are a permanent feature. The compressors, units and pressure vessels are checked on the basis of strict quality standards. All compressors are subjected to tests for pressure and tightness with helium and state of the art equipment automatically operates the compressor to check all functions.

By complying with certification as per EN ISO 9001/2000, Bitzer provides its customers with documentary proof of its consistently high quality. It goes without saying that environmental certification as per EN ISO 14001 and EMAS is also an integral part of Bitzer's quality management system.

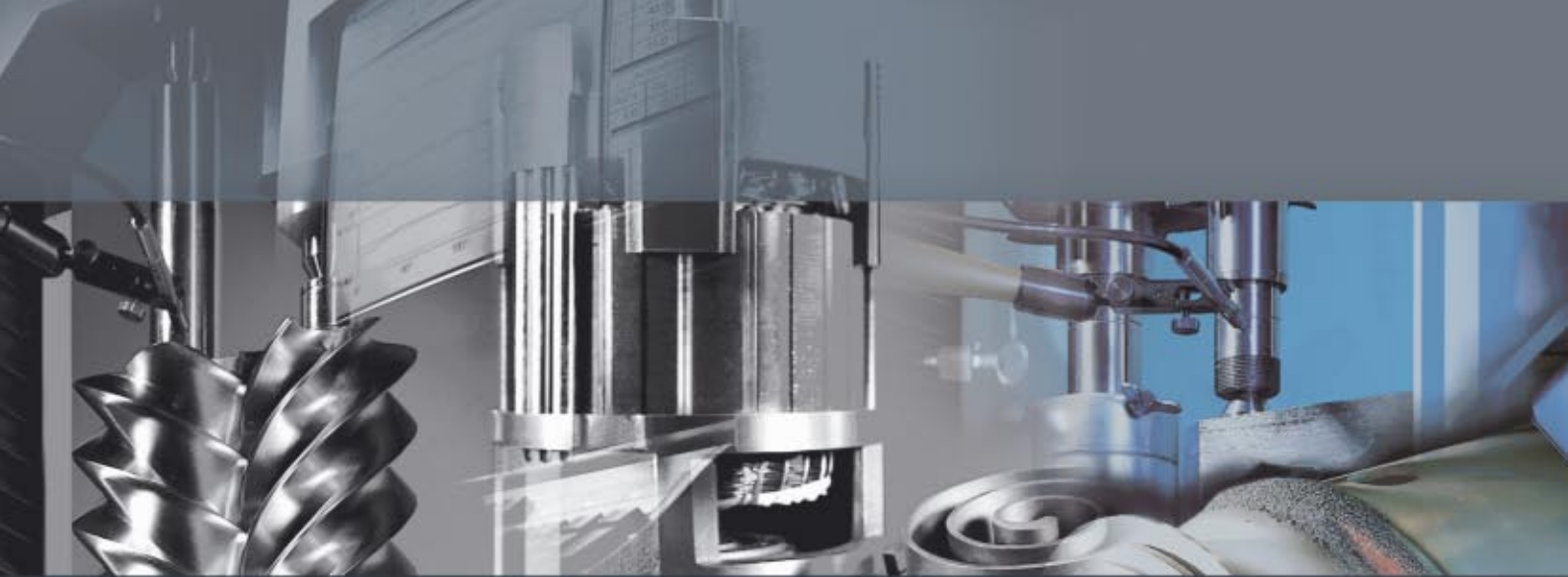


DIN EN ISO 14001

angewandt haben und anwenden. Es wurde der Nachweis erbracht, dass das Umweltmanagement konform mit der Norm entspricht.

zum 18.06.2006

Perl, 03.07.2003



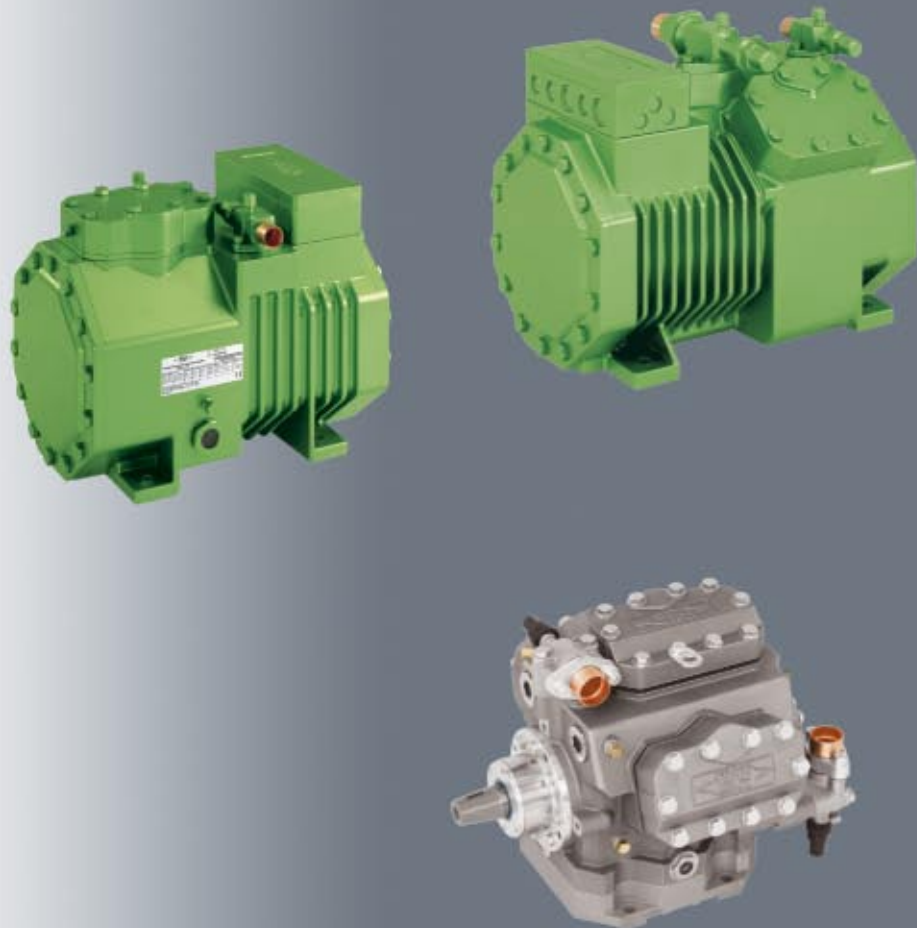
Bitzer Reciprocating Compressors

Bitzer began production of open drive reciprocating compressors in 1940. Nowadays the latest model compressors are made at locations in Schkeuditz (Germany), Portugal, Brazil and China. They are used in transport refrigeration as well as – for example – air-conditioning for coaches or trains.

A major technological leap by Bitzer was its development of semi-hermetics of the .2 Generation. Based on one unique technical concept the entire range of the applications could be covered. The particularly efficient 2-stage reciprocating compressors were developed for the extreme low-temperature range.

The compressors of the Octagon® series are the latest product innovation. In this series, Bitzer has combined the universal functionality of the reciprocating principle with the benefits of extremely quiet operation, compactness and low weight.

For customers preferring packaged solutions, air-cooled and water-cooled condensing units in a vast variety of designs are available.





Bitzer Screw Compressors

Since their market introduction in 1983, Bitzer screw compressors have been a success story worldwide. They are acclaimed for their compact shape, generously dimensioned motors and bearings, plus maximum profile accuracy thanks to a patented rotor manufacturing process. Additional features are high efficiency due to an optional economiser mode, robust engineering, fewer moving parts. Very quiet operation due to rotating masses only and direct drive without gears.

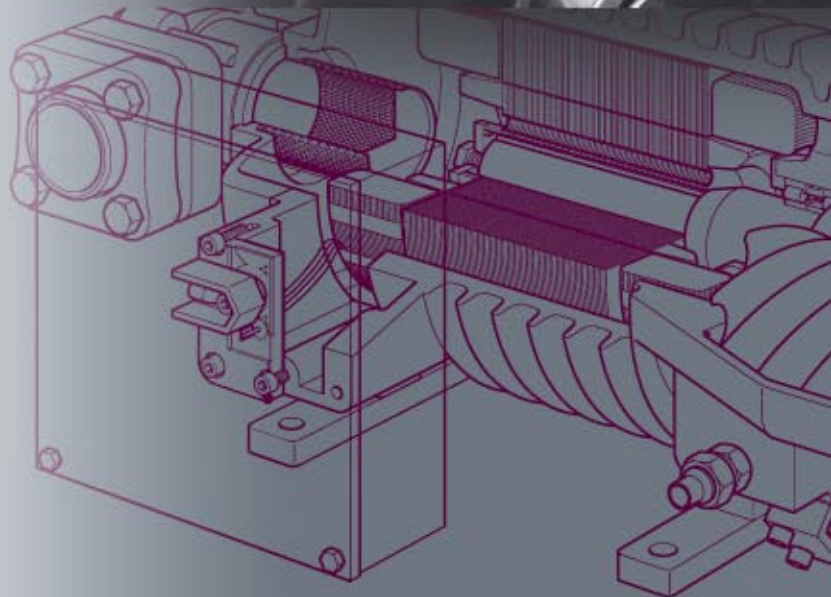
The semi-hermetic screw compressors of the HS series are particularly suitable for medium and low temperature applications and especially for use in parallel compound systems. The compact screw compressors of the CSH series with 35 to 300 kW motor power and up to 1 MW cooling capacity have infinite or stepped capacity control.

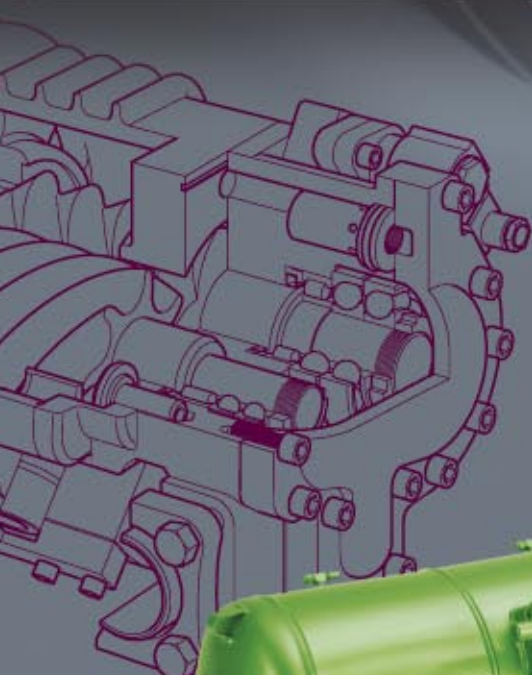
In these versions the economiser mode is also possible at part load as well.

The hermetic screw compressors of the VSK series are tailored to the specific requirements of railway air-conditioning. They are distinguished by their wide speed ranges and their low height thanks to horizontal construction.

The open drive screw compressors of the OS series can be flanged directly onto the motor. In addition to its classic stationary application, this compressor series is also used for marine refrigeration systems. For ammonia or for use in explosion protection areas, special compressor designs and suitable accessories are available.

Since early 2004 all Bitzer screw compressors have been manufactured and developed at the two newest Bitzer production facilities in Rottenburg (Germany) and Beijing (China).



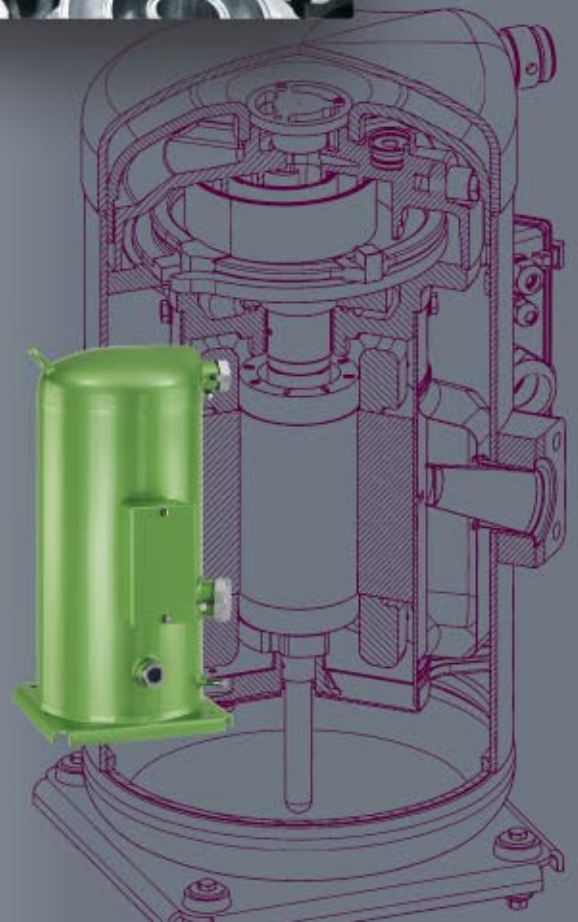


Bitzer EUROSCROLL Compressors

The Bitzer EuroScroll compressors have completed the available product range with further innovative technology. They are a supplement for the related rotating technology of screw compressors in the lower capacity range.

EuroScroll compressors are used mainly for air-conditioning. One of their outstanding features is the patented suction gas cooling of the spirals, providing a thermal balance between orbiting and fixed scrolls. This results in a better sealing of the compression chambers, leading to higher efficiencies and quieter operation. In addition, the EuroScroll compressors have a sophisticated but simple system of radial „compliance“, an intelligent solution for obtaining flexibility in the interaction of both scrolls: controlled surface pressure in the radial direction achieves optimum sealing between the chambers. Furthermore, this concept ensures flexible reaction against penetration of liquid or debris.

The Bitzer EuroScroll compressors are distinguished by their high cooling capacity under all operating conditions, high operating reliability and low vibration levels.





Bitzer Pressure Vessels

The modern production systems for pressure vessels meet the requirements of the pressure equipment directive 97/23/EC as well as the regulations of all principal approval organisations.

The product range comprises the following groups:

- water-cooled shell and tube condensers and discharge gas de-superheaters with high efficiency finned tubes – also in seawater-resistant version
- vertical and horizontal liquid receivers
- oil separators for screw and reciprocating compressors
- water-cooled oil coolers for screw compressors

Of course they can be used with all current HFC refrigerants.

In reply to increasing demand for NH_3 and CO_2 equipment, special receivers and oil separators are available.





Worldwide Communication

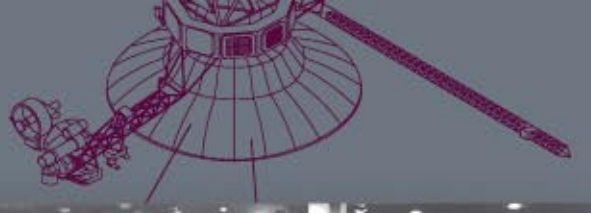
Bitzer thinks and acts with a customer orientation on a global scale. Employees all over the world are on standby with their comprehensive expertise. This knowledge of the employees is continually expanded in regular training sessions and passed on to Bitzer's customers.

Bitzer is present at important international trade shows as well as on the Internet under www.bitzer.de and www.bitzer-corp.com

The „Info-Tour“ in the German speaking countries has evolved into an outstanding platform for the exchange of experiences. This prestigious series of technical presentations has been successfully expanded into other countries.

With its annual Refrigerant Report, Bitzer has created a medium that is now essential reading for all experts in the entire refrigeration and air-conditioning industry. Numerous brochures, data sheets and drawings inform the customer in up to ten different languages. Much of this information – for example the selection software and the spare parts software eP@rts, greatly appreciated for its ease of use – can be downloaded directly from our home page. Thanks to its newly introduced SAP operating system, Bitzer worldwide has the same level of information at all times, ensuring more flexible, faster and better service.





Bitzer International

Global thinking and activity started at Bitzer at a very early stage. Today, Bitzer has its own subsidiaries on every continent. They are backed up by representatives and service centres in all major countries. Easy data transmission and a world-spanning logistics system help to facilitate that work.

Bitzer stands for identical standards world-wide when it comes to quality, service and dependability of supply.

With short decision-making channels for long-term objectives, Bitzer has not only preserved jobs in Germany, but more than doubled their number over the past ten years.

With confidence and a clear orientation to its customers' needs, Bitzer will continue in the course it has mapped out.

- Sales
- Production
- Companies and Agencies





Short Excursion into the History of Refrigeration

Even in ancient times the Egyptians used the evaporative cooling method. They filled porous clay dishes with beverages, covered these vessels, and sprayed water onto them from the outside. Then the dishes were fanned with palm leaves to make the water on the outside evaporate. The resultant evaporation thus cooled the contents of the dishes.

In more recent times, about two hundred years ago, scientists discovered that at temperatures below 10°C the growth of micro-organisms is greatly reduced. From that time on, natural ice was used to cool perishable goods. In 1877 Carl von Linde presented his first refrigerating machine using ammonia as a refrigerant. The triumphal progress of refrigeration and air-conditioning technologies that began then and continues today took place over a period of less than 130 years.

In Germany alone, millions of refrigeration systems are in use today. About 14% of all the power consumed in Germany is needed just for refrigeration and air-conditioning systems. That figure clearly shows even more how large the market is and how pervasive this industry has become.



Without artificial refrigeration, our present way of life wouldn't be sustainable. After all, we're used to going to the fridge to get a cool drink. In the kitchen, it's taken for granted that we can cook a salmon steak taken out of the freezer that smells as good as if the fish had just been caught. In reality, however, it has arrived at the supermarket after a journey of many months and over thousands of kilometres, all the way from Alaska, along a perfectly organised cooling chain. Fresh fruit in winter, ice-cream in summer – just a few decades ago unthinkable – is today quite natural for us. If we also consider that even today 40% of the world's food spoils because not enough cooling systems are available, then we get some idea of the sheer potential for expansion and development that the refrigeration industry still has.

We use the same technology to outsmart nature. Using the latest air-conditioning systems, we can achieve “icy” conditions in the middle of summer and create a feel-good climate inside buildings. This technology has made it possible to open up desert and tropical zones and to incorporate even the remotest areas into the economic cycle.

And in more temperate climatic zones too, whole industries would barely be able to function – for example the paper industry, microchip production, printing companies, textile factories, department stores, hotels and many more.

The coach tour industry in particular enjoyed an unexpected renaissance thanks to air-conditioning. After all, nearly every coach nowadays is provided with a comfortable air-conditioning system that permits trips to every corner of the earth.

In all markets, Bitzer is playing an outstanding part. The company is developing and producing the necessary compressors to do so. These are the driving force in every refrigeration or air-conditioning system, and they are also considered to be the „heart“ of the system.





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