



# Enduring Classics of Quality Craftmanship

Rotary Vane Compressor  
from Gardner Denver Wittig

# A strong team.



**Innovative technology requires innovative thinking. At the same time, creativity and engineering savoir-faire do not necessarily lead to set goals, but rather to goal orientated teamwork.**

What is important is not only the best use of one's own technology, but also optimum customer solutions. This marketing vision of totally focusing on the customer must in turn be translated into technological reality.

Pursuing this vision sets us apart and makes us sensitive to your requirements. Moreover, constant consultation with you provides us with creative energy.

**The result:**

Innovative concepts. Teamwork with our customers.

**Innovative thinking increasingly redefines the demands on quality.**



While technical perfection and trouble free operation of technology were once the most important criteria, customer benefit is now becoming more and more critical.

**Dependability, consulting expertise and speed are integral elements of quality.**

Personal inputs such as commitment, willingness to work and understanding shape the new definition of quality.

The main focus of our activities are your needs – the customer's requirements.

The pre-requisites for attaining the best results include being an active listener, dealing with the topic and becoming involved.

**– The right result.**

The answers to this challenge are attained through discussion. Good technology and operation of components are, of course, necessary pre-requisites.

Quality depends greatly on design.

**– The right design.**

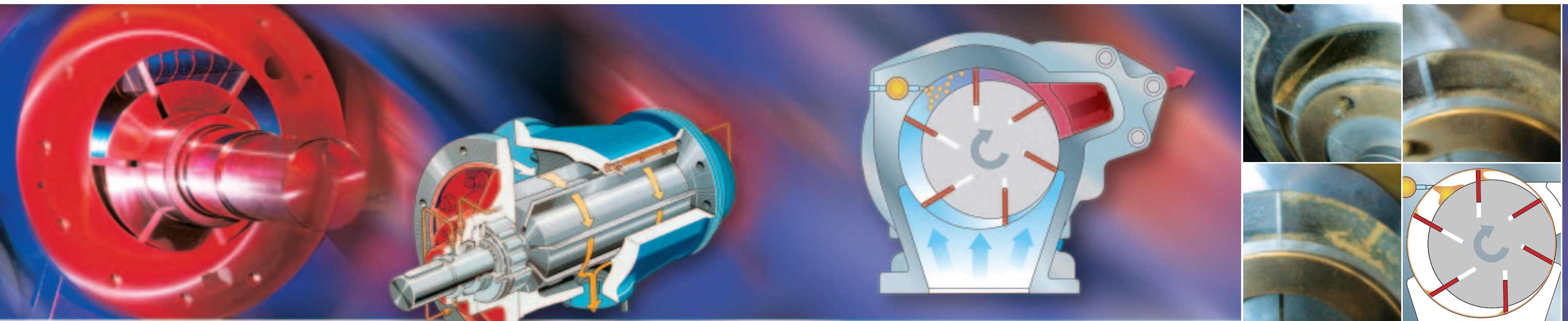


We at Gardner Denver accept the challenge enthusiastically. Our employees have been trained in this principle. They live it on a daily basis, looking after the interests of our customers and rising to the challenges.

**A good pre-requisite for meeting your requirements.**



# Rotary Vane Compressor: The principle.



Rotary vane compressors are found in all applications where large volumes of compressed air are required, where compressed air is vital to the production process and any failure of the air supply would cause serious problems. Features such as large swept volume, maximum reliability, high air quality and efficiency are closely associated with the attributes of rotary vane compressors.

Furthermore, very long life cycles can be achieved with rotary vane compressors. This positively influences the overall efficiency calculation over their normal life.

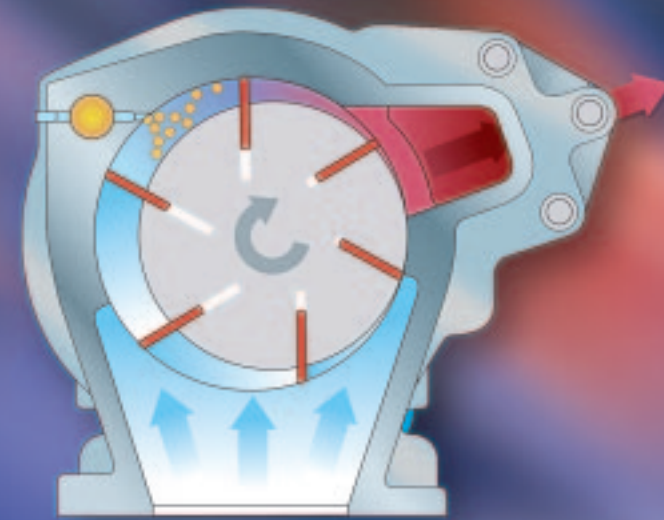
The uniquely simple principle, with a minimum number of components, very few moving parts and only two bearing points is the basis of the reliability, long life and functional stability characteristics of rotary vane compressors. Rotating vanes, which separate the crescent-shaped workspace into cavities of varying volume, are forced against the housing wall of the compression space by the air and centrifugal force. In this way, air is drawn into the rotor cavities, compressed and discharged.

In this way, the rotor vane has great importance as a sealing element at the same time. While the vane is pressed against the housing wall by centrifugal and gas forces, the pressure acting through the rotary slit under the vane is kept up by the prior cavity and acts like a continual seal.

We also refer to this as active sealing, similar to the spring pressure of a piston ring.

The essential feature of this principle is the fact that the rotary vane does not touch the wall of the compressor body. In fact, it moves on a hydrodynamic film. This effect is similar to aquaplaning, only with a much more desirable outcome.

The rotary vane compressor is the product of choice where reliability, long life and minimum maintenance are primary concerns. This compressor is extremely reliable. A standby machine is usually unnecessary, even when continuous operation and maximum availability is required.

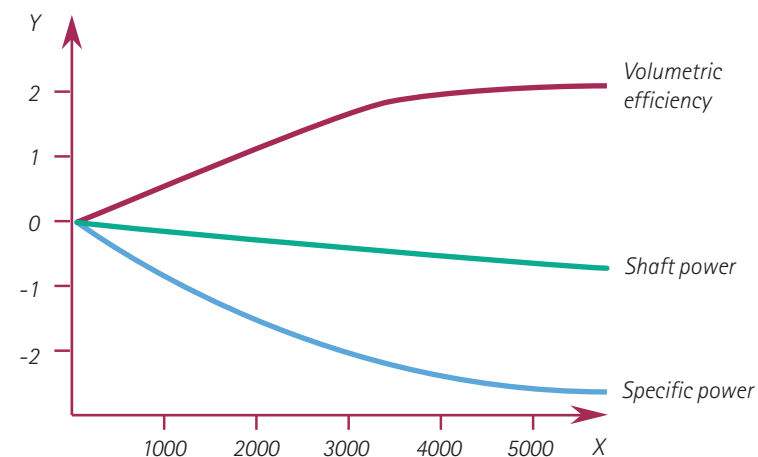


The principle of rotary vane compression is

- reliability
- economy
- safety in operation
- long life

*The injected oil is splashed to the inside wall of the housing and forms an oil cushion in front of each vane. A dynamic lubricating film is produced that effectively prevents contact between vane and housing (aquaplaning effect). This characteristic eliminates all wear to the vanes and housing.*

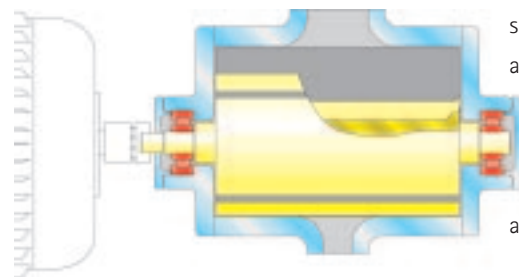
Development of operating characteristics in per cent (Y) as a function of operating hours (X)



*Whereas the efficiency of other compression systems constantly decreases after startup, the specific output (kW/m<sup>3</sup>/min) of the rotary vane compressor increases by up to 3% after 5,000 operating hours.*

## Advantages of the rotary vane compression principle in summary:

- high volumetric efficiency
- constant efficiency across the complete control range
- minimal energy costs, even with fluctuating compressed air demand
- self-centering of the rotor due to only two bearing points
- no axial forces
- pulsation free air output
- all maintenance and service activity can easily be completed on site
- direct drive – maintenance-free without loss of efficiency





# How would you like it?

The range of possible applications of pneumatic systems is so wide that it is never obvious as to which compressor type is the best option. Below we review four different compressor systems, each of which is the best option for a particular application. No car salesman would seriously try to sell a petrol engine car to someone who drives a hundred thousand kilometers a year. In the same way, we do not have a specific compressor to promote for every requirement, rather custom solutions for individual applications: always with the best return on investment (so the purchase price is only one of a long list of considerations).

## The Dependable: The Rotary Vane Compressor.

As we have shown you with the principle of rotary vane compression, this compressor type is extremely robust and practically maintenance-free. They have a high volumetric efficiency that is stable across the speed range and throughout the compressor's life. After the first 5,000 operating hours, the efficiency of a rotary vane compressor remains constant. This means that the specific power of the compressor will actually have improved by 3% at the end of the running in period. A compression system that does not know deterioration! Rotary vane compressors of this type are preferred by users requiring absolute reliability. Where maximum compressor performance is required and compressed air is an absolute necessity 24 hours a day, the typical advantages of a rotary vane compressor become very useful.

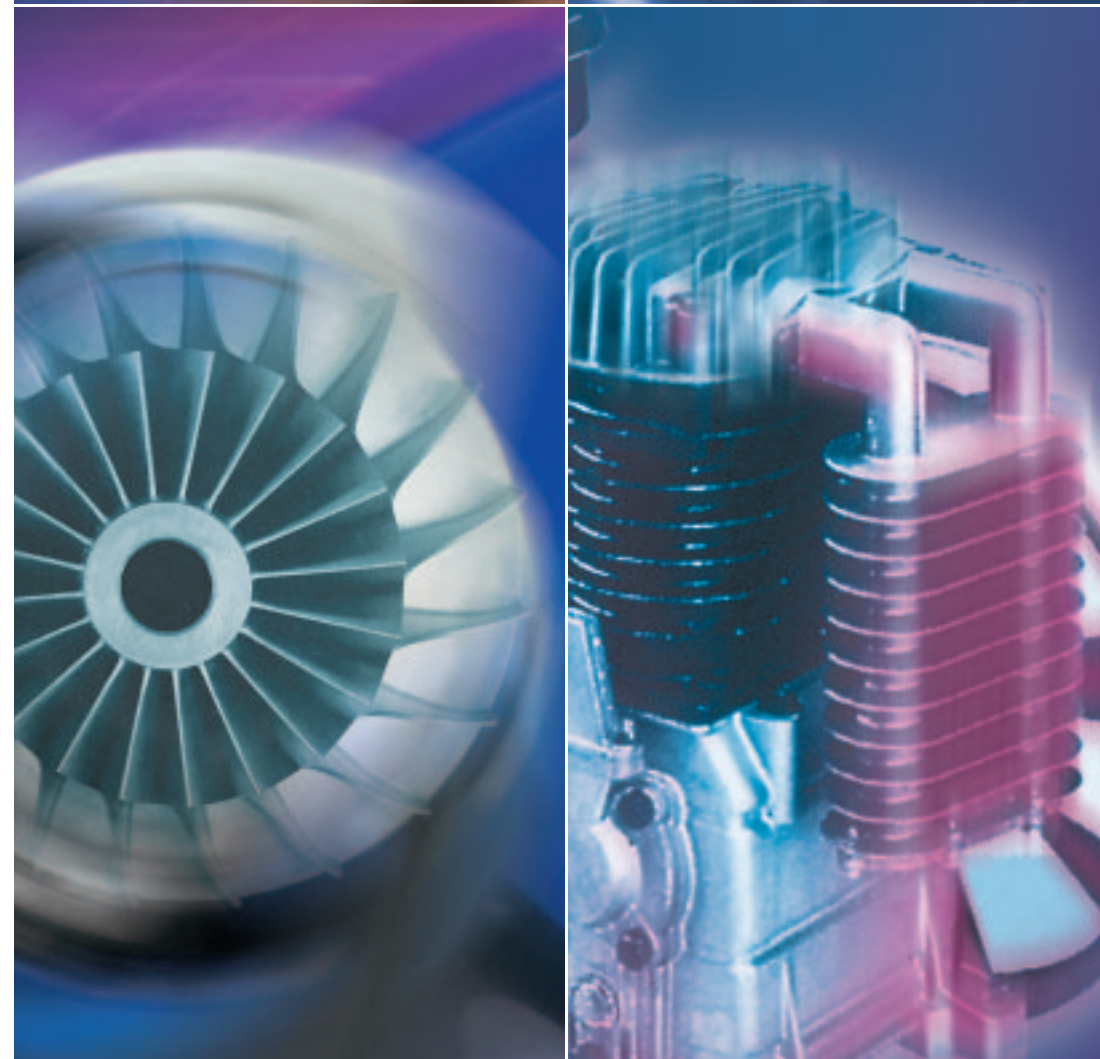
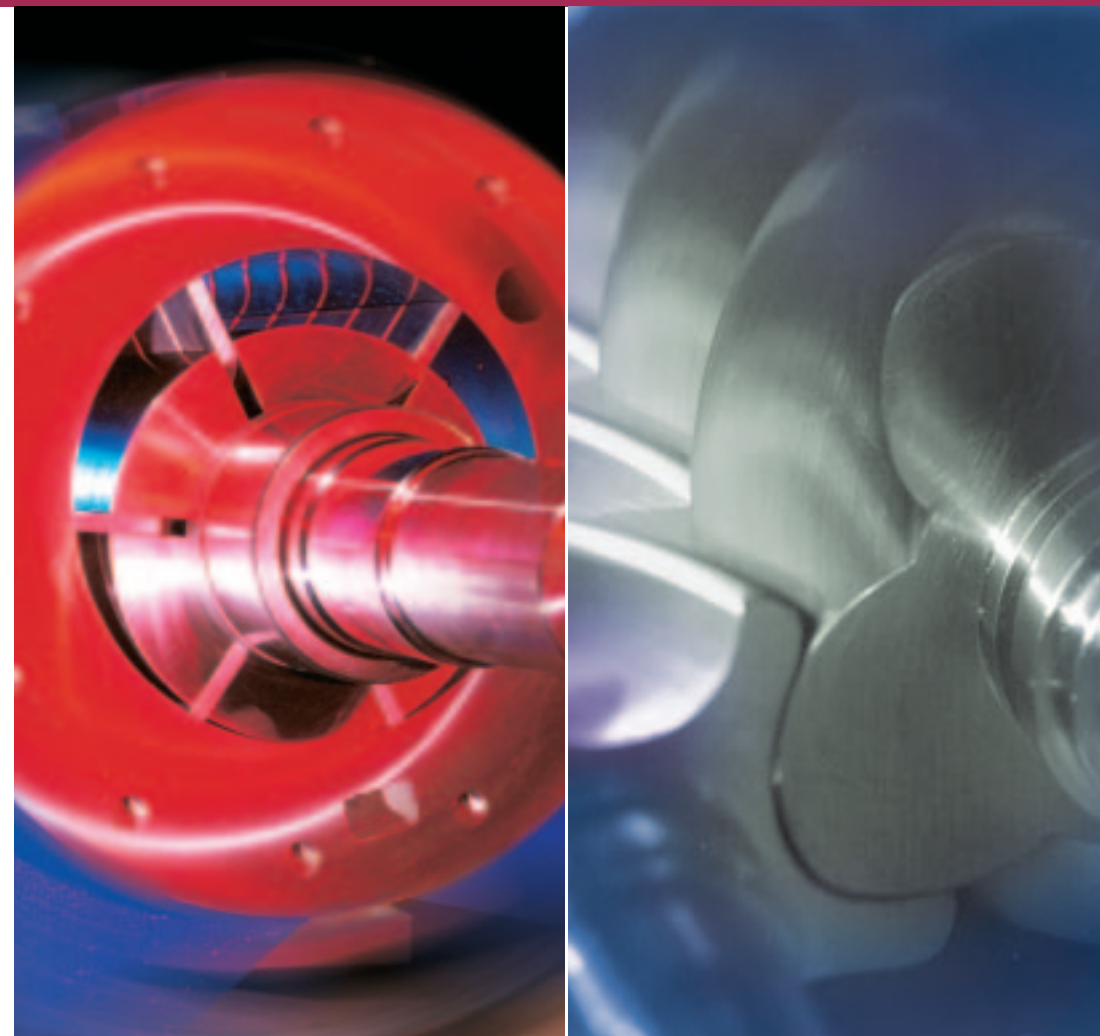
When you appreciate that you can purchase a rotary vane compressor without needing to invest in a stand-by unit because you can be sure that the product will not let you down, this low-maintenance and energy-efficient rotary vane compressor proves itself as the right choice.

## The Flexible: The Screw Compressor.

No other compressor type is as ubiquitous as the screw compressor. This makes it the type most readily accepted in the market. The main rotor powers the secondary rotor via gears, with injected oil providing a passive seal. The oil returns through the gap between the rotor OD and the housing wall. A screw compressor has at least four bearing points. Radial forces must be compensated in addition to axial loads. The design principle of the screw compressor requires preventive replacement of the compression elements after an undefined run time. An advantage of the system is the flexibility provided by the V-belt drive, which allows the speed of a stage to be specifically set.

## The High Pressure Worker: The Piston Compressor.

A specialist for specific cases: It matches a variety of applications and provides air at a very high pressure and is easy to handle. However, as far as "economy in continuous operation" is concerned, it is inferior to a rotary vane compressor. The piston compressor is therefore the best selection for occasional and varying applications.



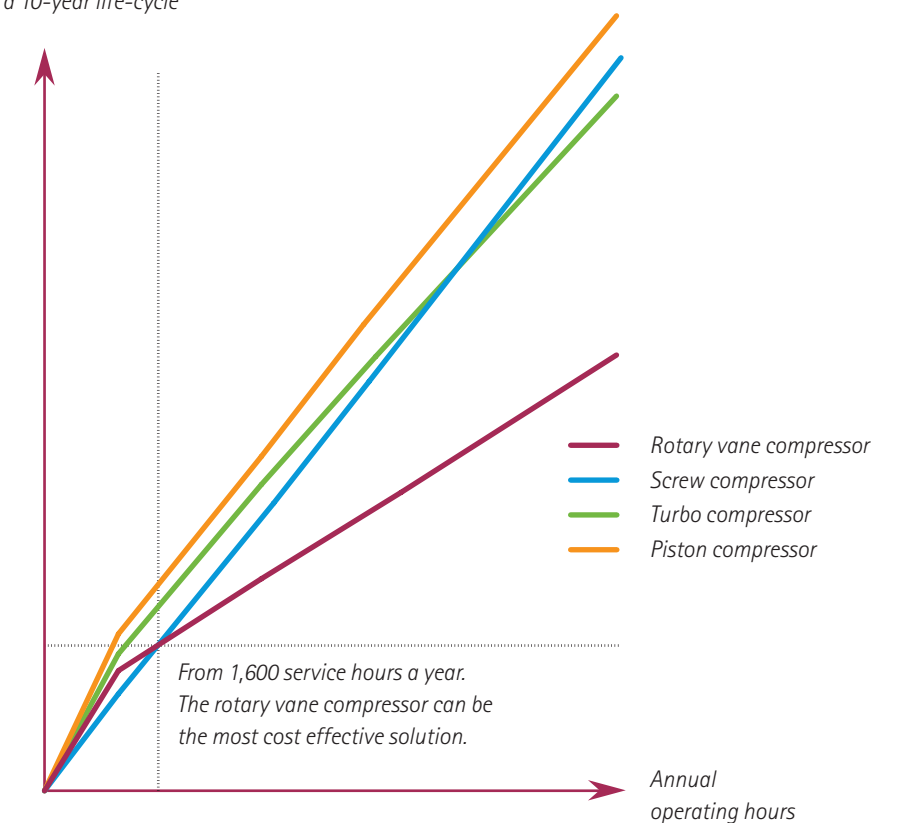
# Systems compared.

## The Top Performer: The Turbo Compressor.

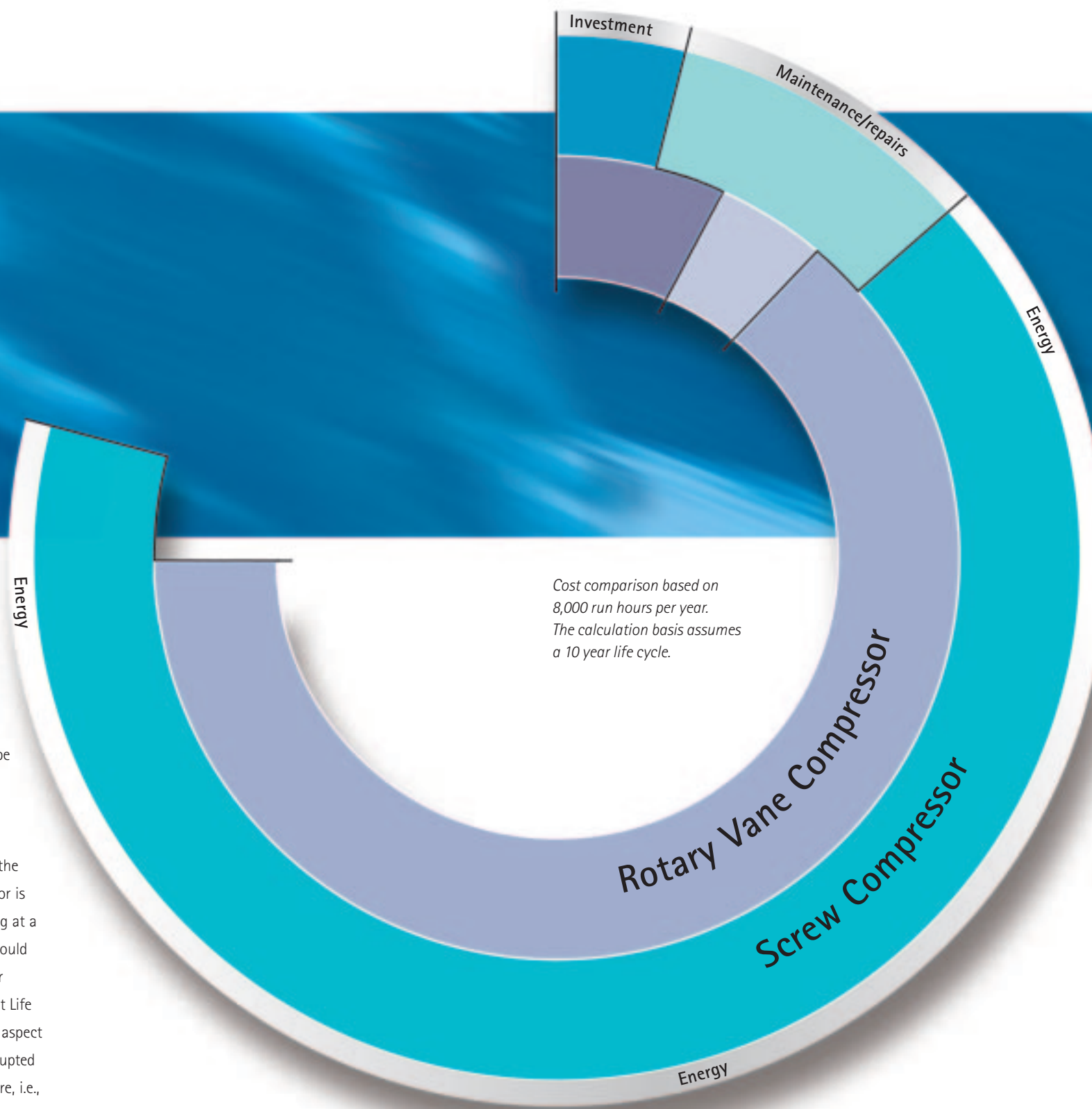
Where high flow rates are required, the turbo compressor is the ultimate choice. It supplies oil-free air and relatively good specific relative output. However, peak performance is only achieved at the design point. The engineering involved in a turbo compressor is naturally very complex, so that inspections of the compression stages and drive train must mostly be made at factory and can take several weeks to complete. On the other hand, turbo compressor service life is almost comparable to the rotary type.

There are no straightforward comparisons. A direct comparison of systems, as in the diagram below, is only possible between rotary vane and screw compression. (A comparison of piston and turbo compressors is not very meaningful as they serve different purposes and are required to meet different requirements.) From a pure running cost point of view, one can say that the rotary vane compressor is superior to the screw compressor where annual run hours reach 1,600 hours a year and above. Below this usage level, the screw compressor can be the sensible choice. We recommend that a realistic study of the comparative life-cycle costs is made.

Annual operating cost over a 10-year life-cycle

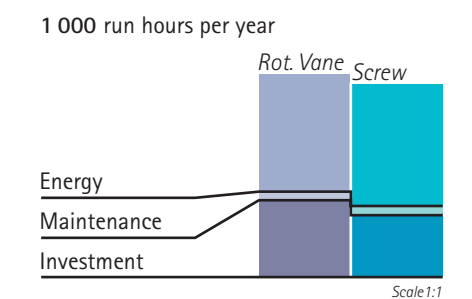
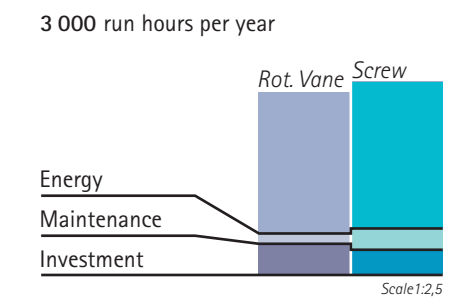
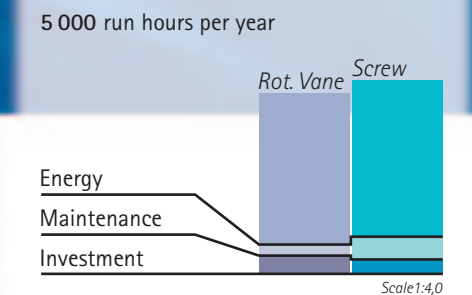
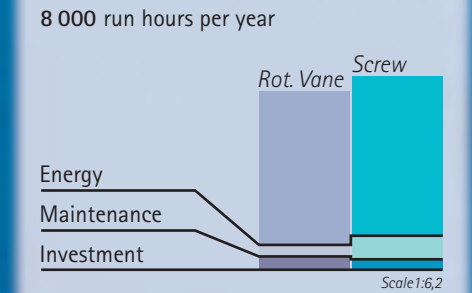


# A formula for calculating life cycle costs.



Cost comparison based on 8,000 run hours per year. The calculation basis assumes a 10 year life cycle.

Total cost of a 10-year lifecycle (Diagrams have different scales)



Investing with foresight: This table and graph will help decision-makers with vision save a good deal of money. It will be noted that the actual capital purchase of a compressor accounts for less than 10% of total life cycle cost, i.e., the cost of using the machine for a defined number of years.

Under the heading of "Life Cycle Costs", all costs incurred throughout a machine's life are brought together. For ease of comparison, due to the very varied operational circumstances of these machines, we have assumed a ten-year cycle – a period that is easily surpassed by most units.

The Life Cycle Costs of the two compressor types that are most easily compared i.e., rotary and screw types, have been placed alongside in our diagram. Based on the number of run hours per year, it can easily be seen which system type is most economic and thus the most appropriate to use.

From experience we have found that the break-even point of a good compressor is reached very quickly. If you are looking at a system for continuous service, you should also consider the cost of providing for security against failure. Remember that Life Cycle Costs express only the financial aspect of economy of service. Where uninterrupted air supply is essential, the risk of failure, i.e., the necessity of providing a standby unit, must also be considered in the cost calculation.



# Rotary Vane Compressors from Wittig: The secret of success.



They are scarcely noticed, very quiet – but perform strongly. Many of our customers keep wondering how our rotary vane compressors achieve this. These oil-injected compressors provide a constant, pulse-free stream of high quality air, which is so cool and contains so little oil – can any other match this!

The amount of oil injected in to the compression chamber varies with the operating pressure and the oil absorbs the majority of the heat of compression. Due to intensive cooling in the chamber, the air is compressed at high thermodynamic efficiency, – one reason why our rotary vane compressor are real energy savers.

The oil circulation system is another typical Wittig design feature. When the air exits the compression stage to enter the oil storage and oil separation vessel, the dramatic slowing down of the air velocity causes oil droplets to separate, the remaining oil particles collect in a fine separator. After cooling and filtering, the oil is returned to the compressor.

An oil change is only necessary after several thousand operating hours. Oil carry over at 2-3 mg/m<sup>3</sup> is negligible. A separate after-cooler is usually unnecessary.

Each rotary vane compressor is shipped from the factory as a compact unit, mounted on a robust base-frame, fully wired and with air or water-cooled after-cooler for oil and air, and electric motor. The floor need only be adequate to support the weight of the machine; the dynamic load is not a factor. A specific foundation for setting up the compressor is not needed.

Once installed, the fully automatic full load-idle-intermittent control guarantees reliable and cost-effective generation of compressed air. Your compressor will also monitor itself. Only the lubricating oil, intake filter cartridge, oil filter and fine separator elements will need replacement after long time intervals. This is the only maintenance necessary over years of compressor operation, even at full load.

Another of the maintenance saving features is the direct drive arrangement used, involving electric motors of the highest reliability – for both fluctuating and continuous demand situations.

## Wittig RO topline.

Our vertical runner: The compressor stages of this series are arranged vertically. Due to an innovative and highly flexible oil separation system, our RO topline compressors come in an extremely compact, vertical design. The result: A compressor with a 37 kW drive having a footprint of less than one square meter. These noiseless runners can even suit a wall mounting.

Drive power	30 to 90 kW
Operating pressure	3 to 10 bar(g)
Flow rate	up to 936 m <sup>3</sup> /h

## Wittig RO 170 – RO 740

These single-stage, oil injected rotary vane compressor are based on a proven principle whose technology is tailored to the latest needs of the market. For operational situations, where the user places value on reliability, durability and low maintenance costs, this perfect compressor system is the one to choose. No other compression principle offers such advantages.

Drive power:	90 to 500 kW
Operating pressure :	3 to 10 bar
Flow rate:	up to 4880 m <sup>3</sup> /h

# Compressed air of finest quality.



You expect the most of your air supply. Our quality compressors are setting new standards in this field. And that is not all. We also supply a range of optional accessories for refining the air. You configure the system you need.

## ① Air generation

Rotary vane compressor from Wittig are known for their reliable, low-maintenance and environmentally friendly operation. 24-hour a day operation is the standard routine for which they are designed and built. High quality air supply around the clock. And always technically oil-free.

## ② After-coolers

The first important stage of compressed air treatment is re-cooling of the air heated by compression. Options of both air and water-cooling are available. Depending on the coolant selected, the air temperature is reduced to between 25°C and 45°C (RO topline compressors have an after-cooler integrated in to their acoustic cover).

## ③ Cyclone separators

Condensate is a by-product of cooling. In the cyclone separator, the condensate droplets are flung against the vessel's wall under centrifugal force and collect in the bottom of the separator.

## ④ Automatic condensate drains

Safe discharge of condensed water from after-coolers, cyclone separators and other treatment components: We supply drains with float switch or electronic control. The latter comes with a display panel and optionally with a controlled heater for sub-zero sites.

## ⑤ Air dryers

There are many reasons why compressed air should be dry: outdoor piping, to avoid corrosion or failure of pneumatic systems or simply because dry air is specified. With our refrigerant or adsorption dryers you are on the safe side. The former are available with cooling by air or water (+3°C pressure dew point), the latter cold or hot-generated (pressure dew point down to -70°C).

So take your choice. Common to all air dryers from Wittig is that they give reliable, economic service and need very little maintenance. For a compressed-air system without condensate.

## ⑥ Air receivers

Air storage reservoirs for continuity: A sufficiently dimensioned air reservoir ensures flexibility of air supply, even at times of peak consumption. Please contact us to discuss the suitable size and design, plus required accessories.

## ⑦ Filters and filter combinations

Air of highest quality – looked after by filters and filter combinations specifically selected for air of optimal quality. The most important features here are high separation efficiency and durability of the filters. Ultra-fine filters remove particles down to 0.01 micron safely and reliably. All filter inserts are easy to monitor and change.

Performance options from our range:

- universal filter: 0.5 mg/m<sup>3</sup> residual oil
- fine filter: 0.1 mg/m<sup>3</sup> residual oil
- ultra-fine filter: 0.01 mg/m<sup>3</sup> residual oil
- filter combinations: 0.003 mg/m<sup>3</sup> residual oil

## ⑧ Oil-water separation systems

Environmental protection is very important to us, and we continue to be innovational. We offer various separation methods, for example, to remove even small quantities of dirt particles and compressor oil from collected condensate in order to make the resulting waste water fit for the sewer.

## ⑨ Regulation and higher-level control

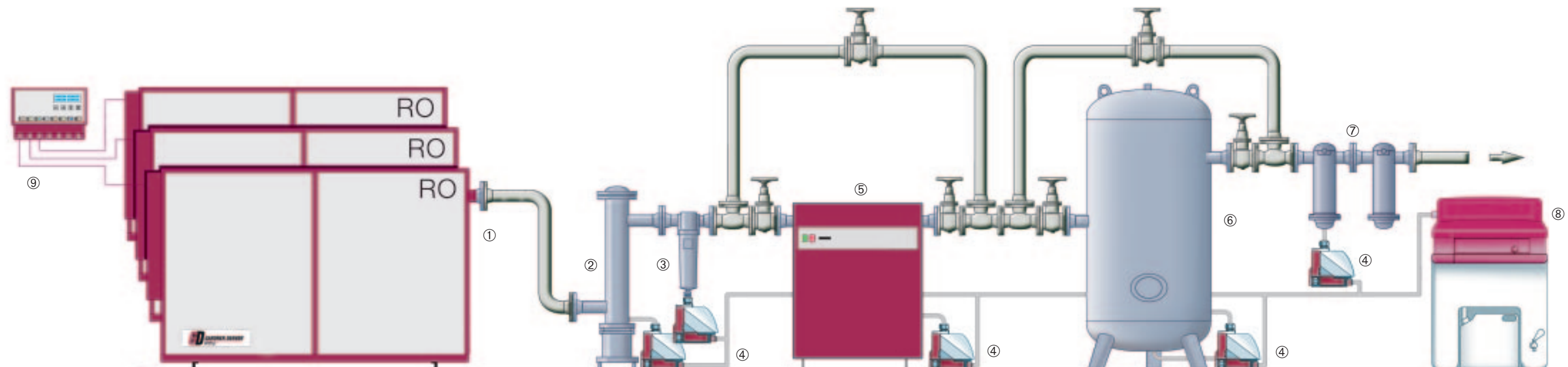
High output and low energy consumption are not a contradiction per se, where intelligent systems are at work. Take our systems for control and regulation, for example; they match energy consumption with the rate of air demand. This is why standard systems for flow control and automatic operation have been part of the basic features of all our compressor systems for a long time. An even more perfect match is possible with a frequency converter for fully variable control of compressor shaft speed.

In most cases the cost break-even point is reached after only two years. An intelligent control system can easily co-ordinate several compressors, even compressors of different ratings. In this situation we have control systems that control the units of the system from a higher hierarchy and combine them according to need. To know all parameters at any time, MPS components with parameter read functionality are available.

## Heat recovery

Save energy. A heat-recovery system recovers up to 85% of the heat of compression using a simple and reliable method.

Our oil-injected rotary vane compressor are suitable for heat recovery. Depending on the system application, the investment involved can be recovered within a year.

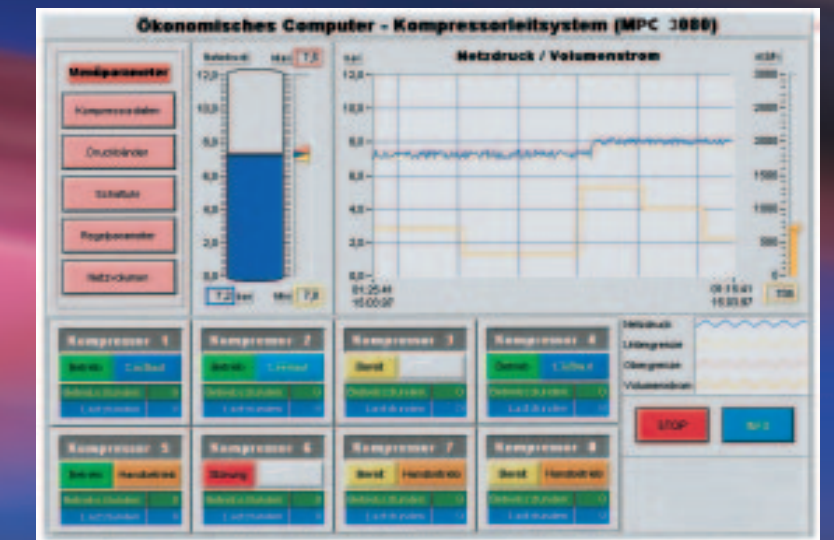




# Husbanding resources – We play our part.



Layout of the Wittig MPC 3080 intelligent integrated control system



Operators of compressors want to see the units running to capacity, without overloading them. We avoid idling as well as overload of our compressors using our microprocessor based monitoring and control systems. They have all features intelligent co-ordination needs: ease of use, maximum operational safety, unrivaled economy, simple handling and minimum maintenance.

**Monitoring center: Wittig MPC 3010.**  
If you want to know how your compressor is performing, you should consult the Wittig MPC 3010 monitoring and control system. It knows all about the compressor's state. And that is not all: This intelligent system not only keeps you abreast of things, it also takes care of continuity and maintains optimal capacity utilization. That's what will be programmed for, usually with custom parameters. Extended idle phases and stop / go operation of the compressor

are eliminated. Faults in real-time indication are displayed on the graphic display in clear and easy-to-understand language. The maintenance indicator warns you when the compressor requires maintenance, so no hard routine maintenance schedule or oil change interval is needed.

The graphic display contains up to 8 status messages. The reprogrammable EEPROM supports up to 20 different languages for direct selection. A PC or notebook programmable flash programming memory is available.

If you do not hear anything from the system, there is no need to worry. Anything you would like to know, e.g., run hours, load hours or the latest maintenance or fault message, is readily available at any time. Time switch can control the automatic start and stop of the compressor by the Wittig MPC 3010 at the beginning or end of a shift.

Optionally, operation control and monitoring are available and all operating states and analog values can be read out via profibus DP. The same applies to GLW and interconnected control.

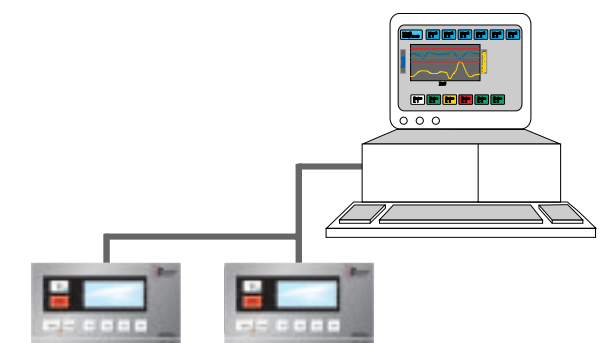
**A good combination: Make optimal use of as many as 5 compressors with MPC 3010GLW (base load change).**  
This system, which guarantees optimal capacity utilization of up to 5 compressors, is supplied with full hardware and software. The units are automatically started and stopped (by individual programming of the time switch) in varying sequence. When more air is needed, the base load change system simply starts more compressors in a cascade. If a compressor is not available, it is skipped.

**Up to 8 compressors firmly under control: with the Wittig MPC 3080 intelligent integrated control system.**  
If up to eight compressors are to operate together in a coordinated manner, the best solution is to employ the Wittig MPC 3080. It deploys the compressors according to air demand. Only one pressure band and one pressure sensor are needed for all



compressors. The Wittig MPC 3080 calculates the air consumption on the basis of the pressure profile and the delivery volume and coordinates the start and stop of each compressor if the defined pressure band goes out of range. If compressors of different rating are in the cascade, the most powerful takes care of the base load and the smaller ones cover the peaks. If all compressors are of the same rating, the Wittig MPC 3080 coordinates the run hours so that all compressors share the same work load.

**Don't worry.**  
Wittig MPC 3080 would not be termed intelligent if it could not do more for you. For example, this integrated control system can be programmed for different time windows (e.g., nighttime or weekends), priorities can even be set for individual compressors. Accessory components such as cooler, dryer or water separator can also be linked in. Even remote monitoring and control via the internet are possible. The system's display software makes any physical inspection redundant.





# Anywhere: Our solution to your application is air.



That's what we like about our job: there is no day without a new challenge from our customers. And every new solution makes us a little more popular.

Wherever industry needs air, sooner or later you will come across the name of Wittig. This is not by chance. For we are known as suppliers of even the most sophisticated custom solutions in air.

It is the same in all industries: Asked what we would use to transport this or that, we simply say: air. And if someone wants to know how fast our rotary vane compressor wear, we say: "no wear". If anyone expects us to give a concrete answer to the question of the expected lifecycle of our products, we can only shrug our shoulders – because few of us have ever witnessed such an end.

You would be completely wrong, however, if you believed we didn't care. We simply know that our products can be relied on – as well as our know-how.

And you can do the same. Any place, any time.



# For they know what they do: These customers\* have made a decision.



Remember the names of these companies? Here you find a modest selection from our list of customers. Partners who will not tolerate any compromise on quality. And therefore decided on compressors from Gardner Denver Wittig.

Confidence that is justified: Satisfied customers often tell us how glad they are to have decided on our compressors. And that on the strength of this experience, they would always buy another "Wittig" again.

Don't be mistaken, we also know what we do, most of all for whom we do what we do. And so our partners are not only full of praise for the long life and reliability of our machines, they also get our technology customized to suit their specific requirements – this also has added to our reputation the market.

As soon as we are aware of the details of a customer's needs, he knows that our engineers will find an individual solution for his application. And because they have never done anything else, the number of available application-oriented solutions has become considerable. Besides, a very agreeable communication culture has emerged. A little like among persons who have known each other for a long time.

And what can we do for you?

ABB Kraftwerke  
AEG  
Akcros Chemicals  
Alu Suisse  
Assem Audi  
Bahlsen  
Bangkok Glass Industry  
BASF  
Bosch  
Bosch Rexroth  
Braun  
BTR-Automotive  
Buderus  
Burda  
Caterpillar  
CIBA Spezialitätenchemie  
Daimler Chrysler  
DEA Mineralöl AG  
Degussa  
Deutsche Airbus  
Deutsche Shell  
Deutsche Steinkohle AG  
Duna Drava Cement Kft.  
Duravit-Hornberg

Duro Dakovic  
Enz-Caro  
E.ON  
FESTO  
FORD  
Freudenberg KG  
Gerolsteiner  
Gillette  
GKN Walterscheid  
Grohe Thermostate  
Gruner Et Jahr  
Heidelberg Cement AG  
Henkel  
Heraeus  
Heye Glasfabrik  
HOECHST  
Hoesch  
HOLCIM  
Junghans  
K+S AG  
Kolbenschmidt  
Krupp  
Labatlan Cement  
Laufen Keramik

LEICA  
LINDE  
Mauser-Werke  
MD Papier  
Merck  
Metabo  
Miele  
Mineralbrunnen AG  
Moeller  
Mohndruck  
Mobil Schmierstoff GmbH  
MOTIM Mosonmagyarovar (Ungarn)  
Naturin  
Norddeutsche Zucker  
Nestlé  
NOVARTIS  
OPEL  
Orenstein + Koppel  
OSRAM GmbH  
PCI  
Pirelli Kabel  
Procter + Gamble  
Rethmann Lippewerk GmbH  
Rheinkalk

Saint-Gobain Isover  
Schieder Möbelwerke  
Schuessler  
Schott-Zwiesel  
Sklarny Kavalier a.s.  
Stölzle Union Hermanova Hut  
Sotanco Lisboa  
Spessart Glas  
STO AG  
Stora Enzo  
Stölzle Union  
Süddeutsche Zucker  
Tettauer Glas  
TRW Automotive  
UNIROYAL  
Upat  
Vaillant  
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Wisthoff GmbH  
Vinnolith  
Weck Glaswerke  
ZF SACHS

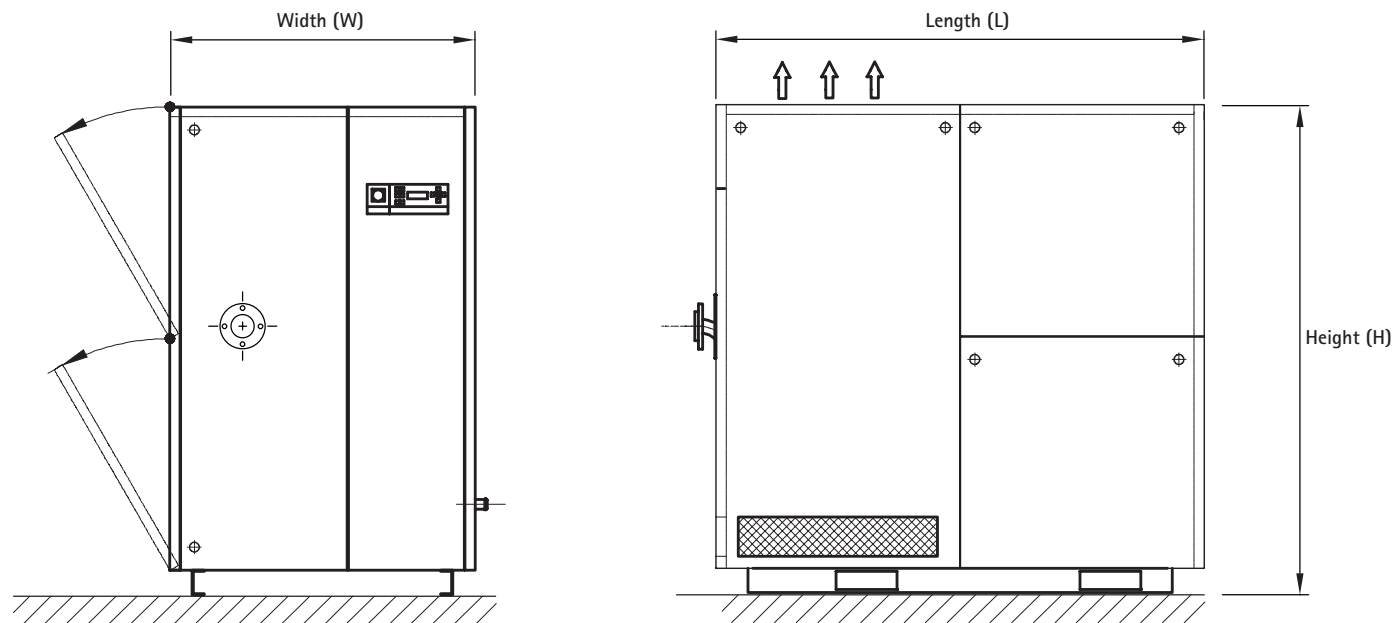
\*statement from the consumer list



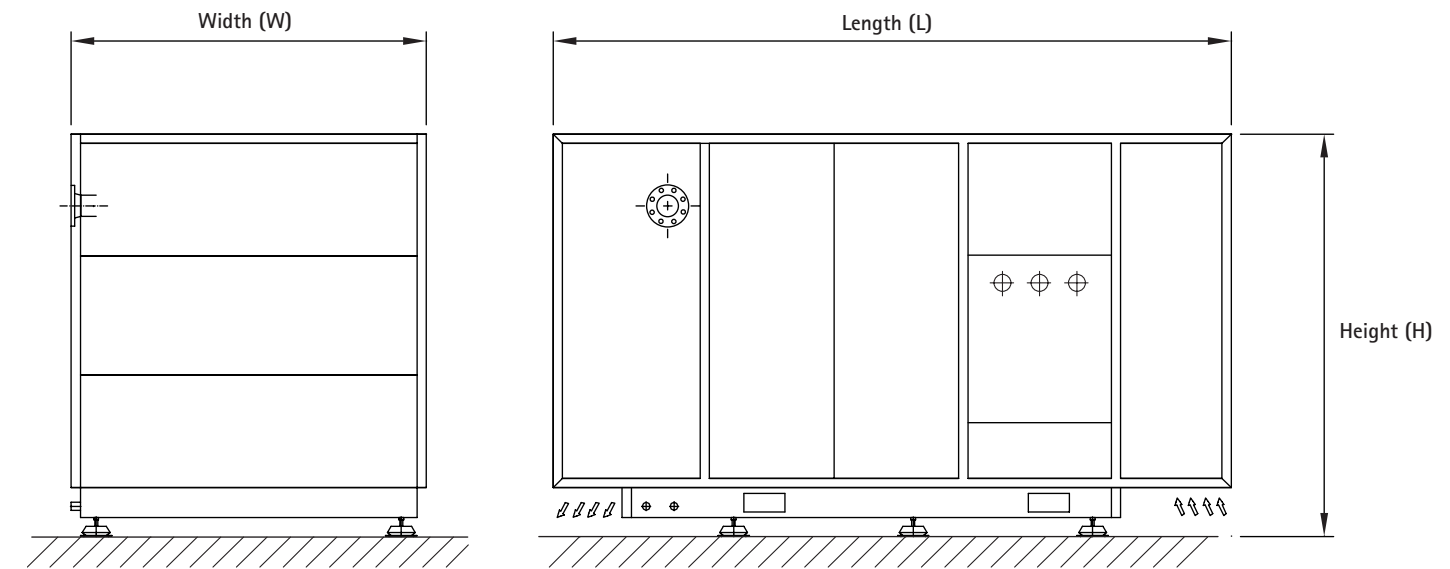
# Facts and figures.



## Wittig RO 50 topline – Wittig RO 150 topline



## Wittig RO 170–740



Type	Flow rate at discharge pressure of			Motor Rating kW	Noise level dB(A)	Dimensions LxWxH mm	Weight kg
	3 bar m³/h	7 bar m³/h	10 bar m³/h				
Wittig ROL 50 topline	295	291	253	30	74	1110x900x1800	920
Wittig ROL 65 topline	366	359	313	37	74	1110x900x1800	1040
Wittig ROL 75 topline	450	424	368	45	75	1380x980x1970	1220
Wittig ROL 85 topline	568	535	443	55	75	1380x980x1970	1310
Wittig ROL 120 topline	784	759	663	75	75	2000x1250x2000	1860
Wittig ROL 150 topline	946	916	791	90	75	2000x1250x2000	1910

ROL = air cooled type  
RO 75 topline and larger are optionally available with water cooling. Dimensions on request.

Type <sup>1</sup>	Flow rate at discharge pressure of			Motor Rating kW	Noise level <sup>2</sup> with/without acoustic cover		Dimensions LxWxH with acoustic cover mm	Dimensions LxWxH without acoustic cover mm	Weight with/without acoustic cover	
	3 bar m³/h	7 bar m³/h	10 bar m³/h		dB(A)	dB(A)			kg	kg
Wittig RO 170	1200	1195	1052	132	81	93	3150x1400x1530	2490x1320x1480	3020	2720
Wittig RO 230	1500	1482	1255	160	81	93	3150x1400x1530	2630x1320x1480	3170	2870
Wittig RO 300	1940	1885	1582	200	80	93	3250x1800x2272	3250x1800x2168	5100	4400
Wittig RO 370	2440	2350	1953	250	80	93	3250x1800x2272	3250x1800x2168	5200	4500
Wittig RO 460	3000	2920	2542	315	80	94	3250x1800x2272	3250x1800x2168	5400	4700
Wittig RO 600	3880	3770	3164	2x200	82	94	3970x2240x2130	3550x2200x2010	8550	7550
Wittig RO 740	4880	4700	3906	2x250	82	94	3970x2240x2130	3760x2200x2010	9530	8530

<sup>1</sup> Rotary vane compressor types RO 170 and RO 230 are available with water or air cooling; types RO 300 through 740 with water cooling only.

<sup>2</sup> In conformity with DIN 45635 measured at 7 bar operating pressure on the water-cooled type at 1 m distance; flow rate in accordance with Cagi Pneurop PN2CPTC2.

# Air. Worldwide. For all applications.



**Operating globally requires a local presence.**

Gardner Denver can be found wherever air is implemented for pneumatic applications – Providing a consulting service at customer locations with its sales teams and ensuring the after sales support with its service personnel.

The pioneering spirit of the US based parent company combined with the innovative strengths, perfection and long standing traditions of its European subsidiaries ensures a comprehensive international corporate structure well placed to tackle tasks and challenges worldwide. That is why it is easy for us to communicate with people from all countries on site with understanding, respect and consideration.



**The world is our market.**

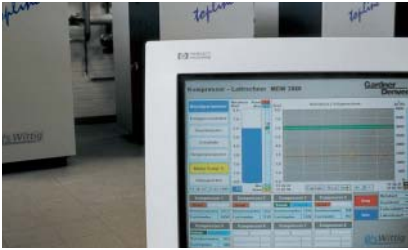
The site – the location, where we together with our regional specialists, tackle the tasks at hand.

In doing so, we always act according to first principles.

**That is, without prejudice and eager to learn. The ingredients for outstanding solutions.**







### Gardner Denver Monitoring and Control Systems

Our microprocessor-based monitoring and control systems exemplify the potential of intelligent coordination: High availability, highest possible operational safety, unsurpassed economy, simple operation and minimum maintenance.



### Gardner Denver Service

Fastness, reliability and advisory competence are part of what we understand by quality. Human components such as commitment, readiness for service and sympathy are inalienable ingredients of quality.



### Gardner Denver Original Parts

The rotary compressor earns money when it is running not when it is out of service. This supposes that if a failure does occur it is repaired in next to no time. 24-hour service, a comprehensive parts stock and the right accessories for every machine are a "must" in this context.

Contact Gardner Denver

Consultation by Gardner Denver



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