



**Wittig Aqualine.  
The powerful  
Vacuum Pump.**

**The liquid-ring compressor /  
vacuum pump for vacuum  
tankers and combination  
vacuum / jetting vehicles.**

# 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.

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

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

**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 result:**

Innovative concepts. Teamwork with our customers.

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



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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.

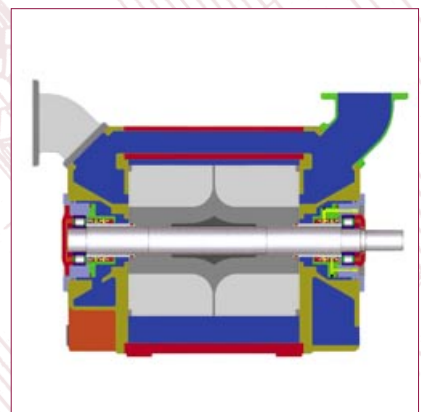
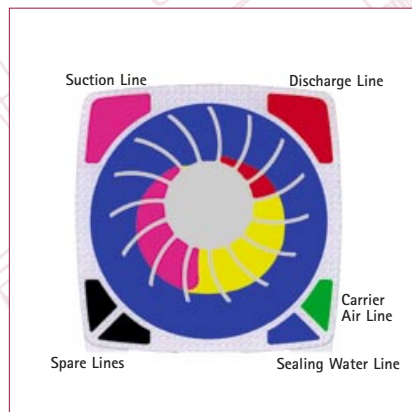
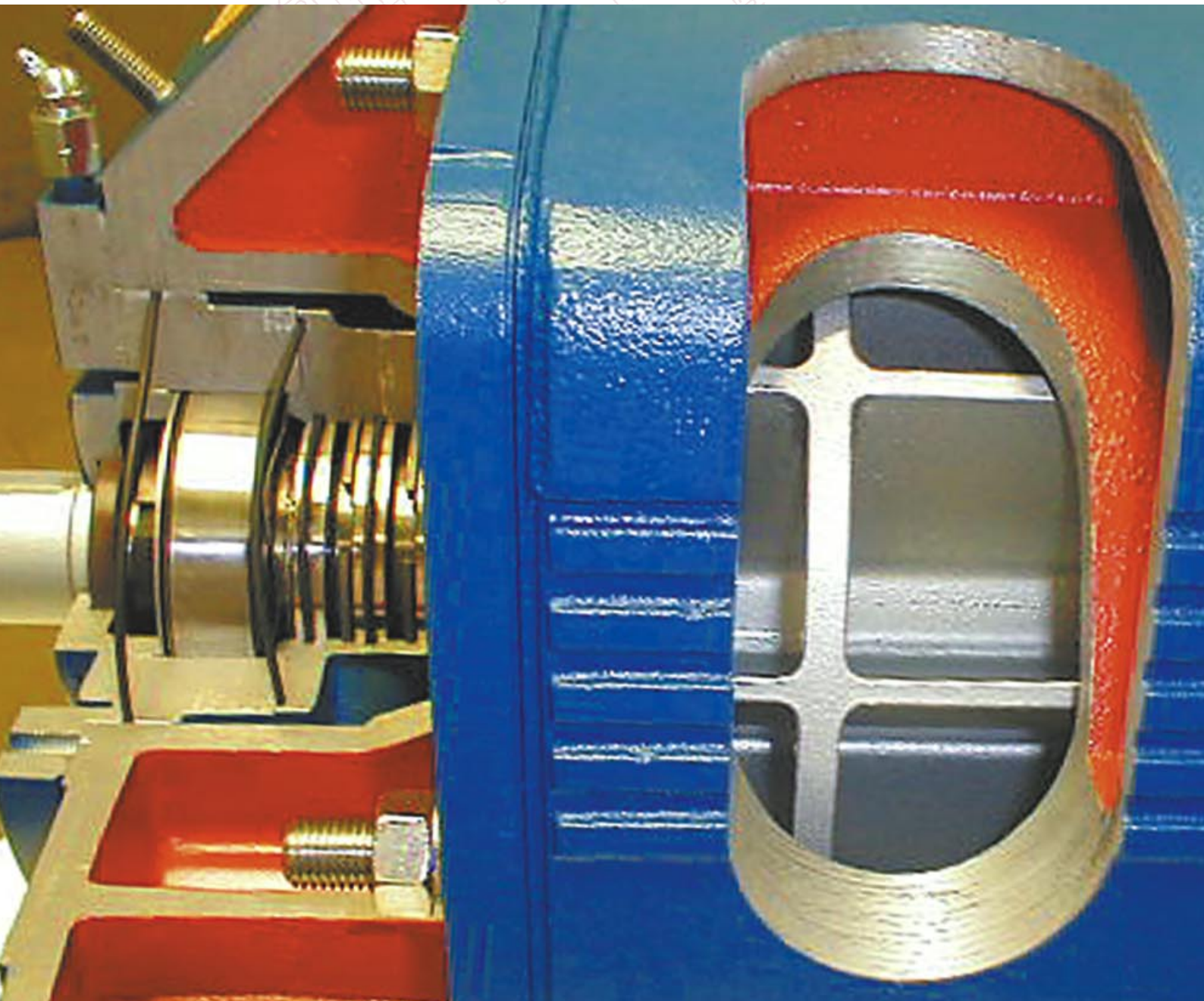
Quality depends greatly on design.

– 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.





# The trick with the liquid-ring.

With flows up to 3100 m<sup>3</sup>/h (1825 cfm) at 400 mbar absolute, the Wittig Aqualine liquid-ring compressor/vacuum pumps prove their superiority in the market place. Designed for installation in large-volume sludge suction and combined suction and jetting trucks, Wittig Aqualine proves its quality as a result of a deliberate design concept, day after day.

These liquid-ring compressor/vacuum pumps consist essentially of a cylindrical casing with an eccentrically positioned rotor. The casing also contains a liquid, which is forced against the internal wall of the casing by centrifugal force generated by rotation of the rotor. The liquid then forms a stable ring. The space between the rotor vanes and the liquid-ring expands and contracts on a regular cycle during each revolution of the rotor. Air and gas is drawn in, compressed and discharged without surging.

## The liquid-ring pump principle.

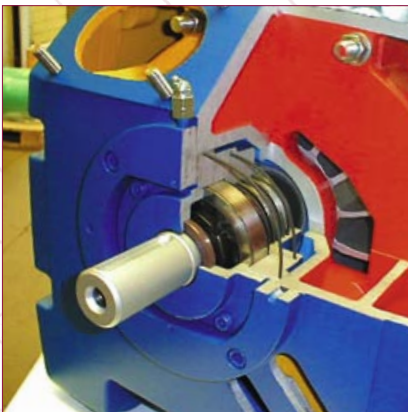
The principle of liquid-ring pumps used to have drawbacks. Cavitation forces could develop, quickly damaging the casing and rotor vanes. It required the invention of the patented carrier air principle by Gardner Denver Wittig to put an end to this problem.

Leaks at the drive shafts have become a thing of the past as a result of the special Aqualine seals.

Integral pipework and patented connection sockets save many meters of external piping and a lot of unnecessary weight on the truck.

In the Wittig Aqualine pump, Gardner Denver Wittig has developed a modern, powerful machine.

**High-tech for the benefit of our customers.**



# Power Machines. The broad Wittig Aqualine product portfolio.

## The extremely silent operation

is as a result of the use of the liquid-ring, which provides extra cooling and almost isothermal compression at high efficiency. Wittig Aqualine wear in operation is almost nil.

## The low weight

is the result of the compact design, the short length of piping and the use of light-weight material. The operator earns money with payload, not unnecessary weight of pumps, compressors or pipes.



## Innovative design

in deference to modern industry, but also as a successful combination of serviceability and aesthetic looks of our time, is no longer a luxury. Industry has changed. Attractive design has often been the precursor to new solutions. This is the case with Wittig Aqualine. The reluctance to accept awkward and clumsy piping led to Wittig Aqualine's system of integral pipe connections. Modern industrial design is today an important prime mover of technical advance.

## The innovative and maintenance-free seal system

is unique. Forget all about the obsolete types of wear-prone cord seal, etc. A low-wearing system now provides efficient sealing of the inner space. Also forget about the bucketsful of water you had to collect at the shafts.

The new seal rings can be easily and quickly renewed externally, without any need to strip the machine.

### The compact design

would not have been possible without the new, innovative design principle. This minimizes both height and depth required for installation. The patented socket service connections are positioned to make piping installation extremely simple, flexible and cost effective.

### Simplicity as principle

Simple design, simple maintenance, simple replacement of worn parts and the innovative principle of carrier air.

This simplicity has revolutionized liquid-ring compressor/vacuum pump design.

The dreaded cavitation, which occurs when liquid ring pumps are running, has been overcome since the invention of the carrier air line by Gardner Denver Wittig engineers.

An invention that extends the life of a machine many time over.



### The integrally cast connection ports

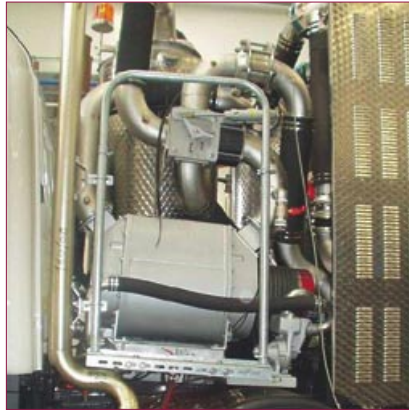
for intake and discharge lines as well as water and carrier air lines, make the innovative Wittig Aqualine concept possible.

The basic design of a water ring pump has been revolutionized by Gardner Denver Wittig. Many of the innovations have been translated directly into customer benefit.

Uniqueness. Efficiency  
and Availability.







Wittig Aqualine gives both truck builder and operator a variety of installation options.



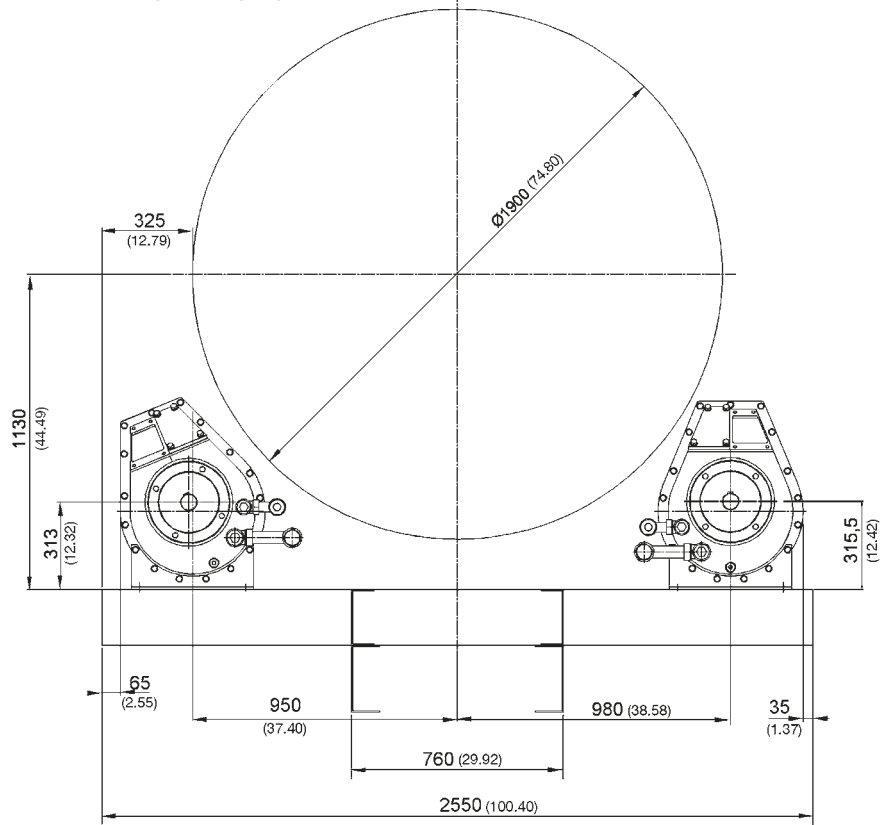
# Facts and figures.

## Liquid-ring compressor/vacuum pumps Wittig Aqualine.

The extraction and removal of various liquid and sludge-like waste materials from industrial facilities and trade premises, and also sewerage cleaning operations in general, are being performed increasingly by gully vehicles equipped with suction equipment or combination suction and flushing systems. To ensure maximum efficiency in these applications, Gardner Denver Wittig GmbH – already renowned as a leading manufacturer of rotary vane compressors and compressor/vacuum pumps – has expanded its product portfolio to include a range of liquid-ring compressor/vacuum pumps with volume flow capacities from 925 to 3200 m<sup>3</sup>/h (544 to 1882 cfm).

These machines are the result of extensive development work and once again underline the technological and innovative engineering capabilities of Gardner Denver Wittig.

Installation example Wittig Aqualine 2600 – 3800

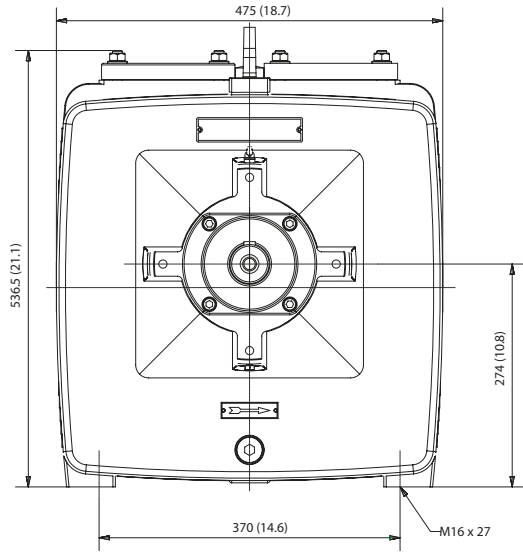


Liquid-ring compressor/vacuum pumps		Aqualine 1200	Aqualine 1600	Aqualine 2100	Aqualine 2700	Aqualine 2600	Aqualine 3200	Aqualine 3800
Volume flow at free air delivery	m <sup>3</sup> /h (cfm)	1170 (688)	1280 (753)	1680 (988)	2165 (1274)	2165 (1274)	2680 (1576)	3200 (1882)
Volume flow at residual pressure of 400 mbar 18" HG/60 % vacuum	m <sup>3</sup> /h (cfm)	1220 (718)	1300 (765)	1700 (1000)	2075 (1221)	2075 (1220)	2570 (1511)	3065 (1803)
Max. operating pressure above atm.	bar (psig)	1.5 (21.75)	1.5 (21.75)	1.5 (21.75)	0.5 (7.25)	0.5 (7.25)	0.5 (7.25)	0.5 (7.25)
Max. operating pressure above atm. with V-belt drive	bar (psig)	1.5 (21.75)	1.5 (21.75)	0.5 (7.25)	0.5 (7.25)	0.5 (7.25)	0.5 (7.25)	0.5 (7.25)
Speed*	1/min. (rev/min)	1800	1500	1500	1500	1500	1500	1500
Power requirement at shaft at 0.5 bar/7.25 psig	kw (hp)	58 (79)	50 (68)	65 (88)	84 (113)	108 (147)	134 (182)	160 (218)
Mass moment of inertia incl. liquid ring	kgm <sup>2</sup> (lbsq. ft)	0.75	1.0 (23.75)	1.3 (30.88)	1.6 (38.0)	2.9 (69)	3.5 (83)	4.2 (100)
Operating vacuum for continuous operation	mbar/% ("Hg)	200/80 (17.8)	200/80 (24)	200/80 (24)	200/80 (24)	200/80 (24)	200/80 (24)	200/80 (24)
Sound pressure level at 7 m (22 ft) and at 400 mbar/0.5 bar	dB(A)	66	68	70	72	68	70	72
Weight	kg (lb)	120 (264)	165 (363)	180 (396)	195 (430)	460 (1012)	479 (1054)	498 (1096)
<b>Dimensions</b>								
a	mm (inches)	170 (6.69)	260 (10.24)	350 (13.78)	450 (17.72)	525 (20.7)	595 (23.4)	665 (26.2)
b	mm (inches)	-	400 (15.75)	445 (17.52)	495 (19.49)	495 (19.49)	530 (20.87)	565 (22.24)
c	mm (inches)	644 (25.4)	720 (28.35)	810 (31.89)	910 (35.83)	865 (34.0)	935 (36.81)	1005 (39.57)
d	mm (inches)	-	379 (14.92)	424 (16.69)	474 (18.66)	-	-	-
e	mm (inches)	-	308 (12.13)	353 (13.90)	403 (15.87)	-	-	-
f	mm (inches)	-	418 (16.46)	463 (18.23)	513 (20.20)	-	-	-

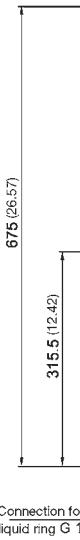
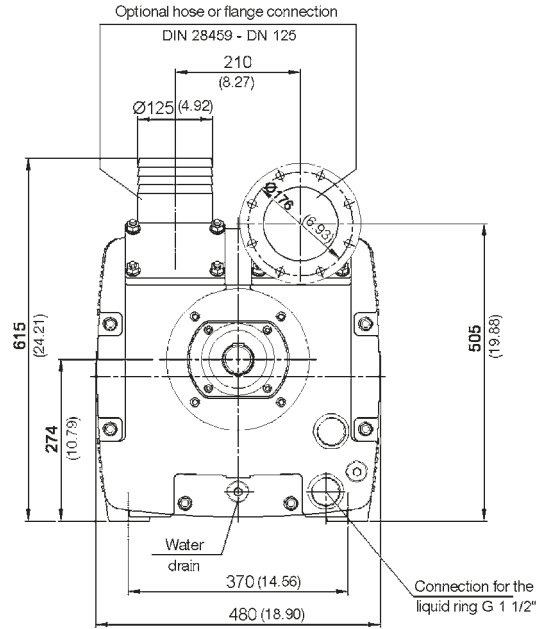
\* The minimum speed of all pumps is 1000 1/min. (rev/min).

Our technical specifications are determined and TÜV certified in accordance with DIN 28 431.

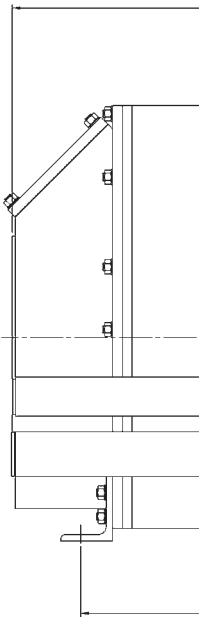
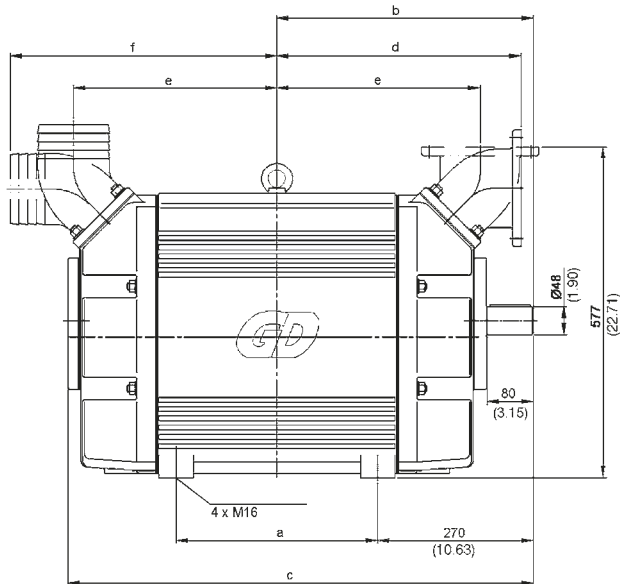
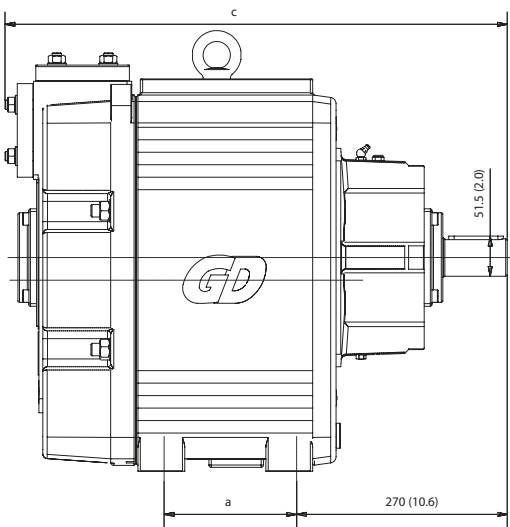
Wittig Aqualine 1200



Wittig Aqualine 1600, 2100 and 2700

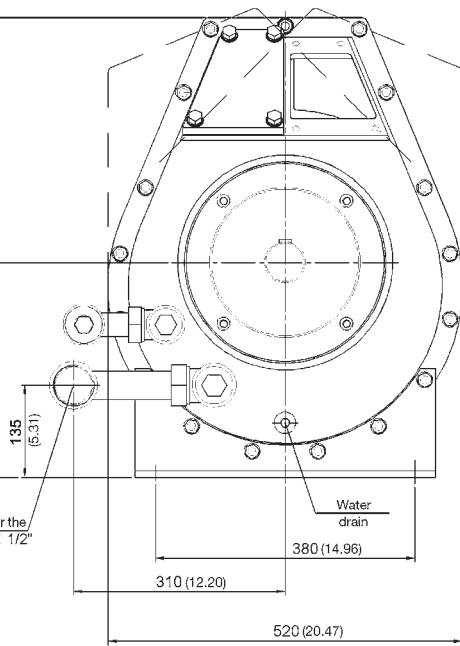


Connection for liquid ring G 1 1/2"

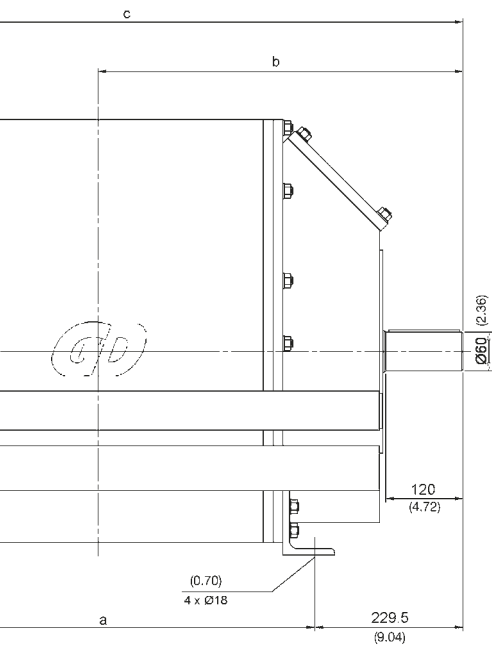


All dimensions in mm (inches).

Wittig Aqualine 2600, 3200 and 3800



# Lasche





# Lasche

The inlet and outlet manifolds are cast as an integral part of the casing, this creates a very compact unit which has an extremely low installation height. Thanks also to favourable nozzle positions, the remaining piping work required is particularly easy – and thus inexpensive – to install. Another advantage lies in the fact that

- the suction and discharge lines are fitted by means of flexible connections which can be fitted both on the drive side and on the side opposite.
- In spite of their compact design, these units are able to offer high volume flow capacities combined
- With a low weight derived from extensive use of aluminium (Aqualine 1200 – 2700)
- Wittig Aqualine 2600 only in stainless steel design
- Chamber ventilation no ventilation valve necessary

## Applications

- Installation in sludge-suction vehicles
- Installation in high-capacity jetting and suction vehicles

## Drive

(Clockwise or counter-clockwise as required) provided by vehicles engine via auxiliary PTO and universal shaft

- Via V-belt
- Via flexible coupling
- Via hydraulic motor

## Design

- Simple, flexible connection piping with integral interconnection channels for suction, discharge and process water lines

**These new liquid-ring compressor/vacuum pumps offer an impressive combination of power, performance and modern design.**



### Gardner Denver Installation Consultation and Training

We avoid mistakes done by user in the run-up: This is our device for saving of costs and operational readiness. The comprehensive consultation and a competent training of user have ever been the strength of Gardner Denver Wittig.



### Gardner Denver Service

Promptness, reliability and advisory skills become to elements of quality connotation. Human components like engagement, the willingness for service and sympathy form the service quality.



### Gardner Denver Original Service Parts

The compressor earns his money in operable – not in inoperable. This presupposes, that, in case of a failure, everything will be repaired immediately. Service by 24 hours a day, a wide stock for spare parts and applicable accessories for every single machine are the premise for this.

Contact Gardner Denver Wittig

Consultation by Gardner Denver Wittig



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