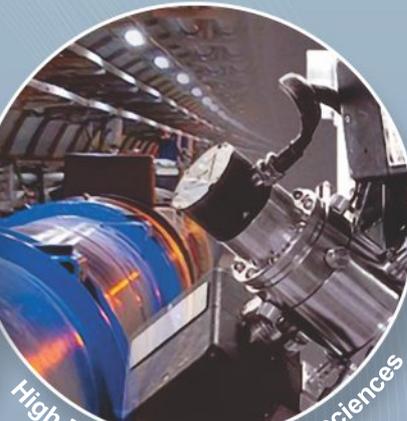


Vacuum and Air Engineers Pumps and Systems

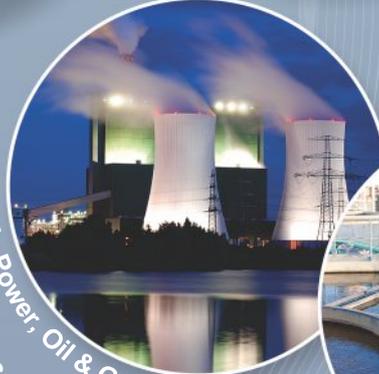
Medical & Clinical Services



High Energy Physics & Biosciences



Industrial Processing & Manufacturing



Electric power, Oil & Gas Production



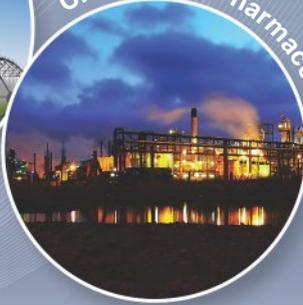
Water & Environmental Treatment



Mineral Processing



Food Production & Bio-Fuels



Chemical & Pharmaceutical

Our Experience Counts

Since our inception in 1981, Dynapumps' mission has been to supply high quality, recognised brands as a packaged product to our client's specifications and to provide excellent after sales service and spares.

Dynavac, our vacuum and air blower division, provides solutions for all applications. We engineer and build packages to suit the one-off needs of our customers, as well as the supply of individual components.

Once built, we can perform full functional testing to ensure you are happy with the job.



Australia Wide



We operate from four locations, Perth, Melbourne, Sydney and Brisbane.

All offices specialise in the full range of vacuum products.

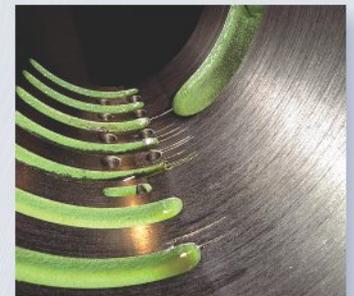
Our large manufacturing base provides value adding for standard pump products and packaged systems and our national engineering team provides technical support.

Programmed Maintenance

Our service staff can arrange fixed price programs for service and maintenance calls to your site to take the worry out of maintaining your equipment.

We are able to monitor the condition of your pumps and provide you with a report that notes any problems that are evident or that might be expected in the future.

Call us to arrange a free pump audit so you can assess your pumping plant status.



Guaranteed Repairs & Hire Pumps

When you send your pumps to us for repair we know you want them to be "just like new" so we repair them to the manufacturer's standards before we return them to you.

If we can't repair them to "like new" condition we will let you know what options you have and provide a full report on their condition.

We have a range of hire pumps available so your plant can continue to operate.

DISCLAIMER

All the products and services depicted in this brochure were available at the time of printing however please consult Dynapumps for the latest information.

Data shown on the following pages indicates the maximum flows and pressures and are only meant as a guide.

For details specific to your applications please consult Dynapumps.

Central Vacuum Systems



- Hospitals & Day Surgeries
- Medical Centres
- Dental Hospitals & Surgeries
- Veterinary Hospitals & Surgeries
- Universities
- General Industry

Dynavac pumps are installed in many Hospitals, Medical Centres and Universities around Australia.

W.A. – Fiona Stanley Hospital, Murdoch University Veterinary Hospital, Denmark Hospital, Swan Districts Hospital, Bunbury Hospital, Princess Margaret Hospital, Sir Charles Gardner Hospital, University of WA and Curtin University.

NSW – Prince Of Wales Hospital, Albury Day Surgery, St. Leonards Medical Oncology, Charles Sturt University, North Shore Private Hospital and Sydney University.

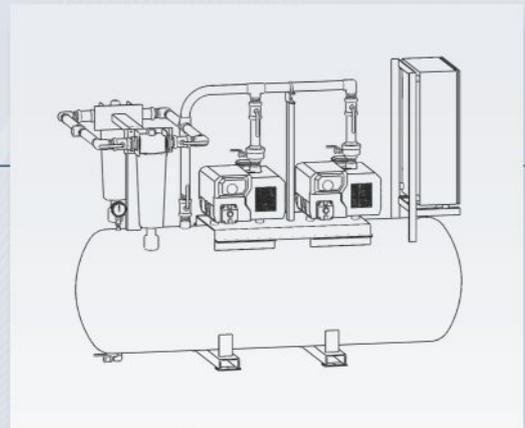
QLD – Suncoast University Hospital, and Queensland University of Technology.



Dynavac Central Vacuum Systems comply with the "AS 2896 Medical Vacuum Systems" standard and are manufactured and tested in Australia.

3D drawings

We supply 3D drawings to ensure easy visualisation and accurate dimensioning for the installation of your finished Dynavac system.



Vacuum System Service and Repairs

Dynapumps can provide service and repairs for your vacuum systems on site or in our workshop.

Hire pumps are available if required.



Dual bacterial filters complying with AS 2896 can be fitted to the system or supplied separately for remote installation

A second check valve, with vacuum pressure test cock, backs up the internal check valve to prevent reverse rotation. A gas ballast valve is fitted as standard to remove contaminants.

AS 3000 electrical control panel with reliable, digital vacuum transducers

Removable power plugs (optional) eliminates the need for an electrician to attend, saving time & money



Liquid filled gauge with isolating valve for easy replacement



Removable spin off oil filter for quick servicing



Receiver isolation valve allows for servicing of the vessel without interrupting vacuum supply.

Receiver complies with AS 1210

Can be supplied in horizontal or vertical position. Finish can be painted, powder coated or galvanised.

Multiple Pump configurations

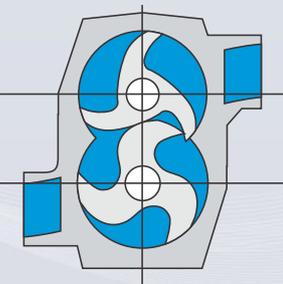
Also available as stacked modules to allow for easy expansion as you grow.



Low level oil switch indicates when oil is low. Pressure gauge indicates when filters need replacement.

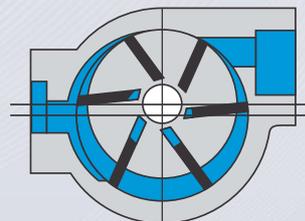
Two Pump Options

A Choice of Oil Free Claw or Oil Lubricated Rotary Vane Pumps



Oil Free Claw

- Latest technology
- 30%- 60%* power saving
- Non contacting rotors
- Very low maintenance
- Low running costs



Oil Lubricated Rotary Vane

- Traditional technology
- Higher running costs
- Low capital cost
- Maintenance required

*Further power savings can be made when a Dynavac variable speed controller is utilised. The Dynavac VS control system varies the pump speed to match actual vacuum demand. Energy is not wasted in exceeding the required vacuum level to meet switching set-points. Starts per hour are dramatically reduced and storage vessel volumes can be reduced.

NB: Only available with oil-free claw vacuum pump.

DYNAVAC Rotary Vane vacuum pumps are found in most industrial applications. They can be used in food processing and packaging, vacuum forming, medical vacuum systems and printing press applications.

Dynavac's dry rotary vane models can also be used as a blower.

DYNAVAC WOVP SERIES Oil Sealed Rotary Vane Vacuum Pump

Model	Suction Capacity (m ³ /h)	Ultimate Vacuum (mbar abs)	Motor Power (kW)
WOVP-020	10	2	0.37
WOVP-030	15	2	0.75
WOVP-040	20	2	0.9
WOVP-060	30	<0.5	1.5
WOVP-080 *	40	<0.5	1.5
WOVP-130 *	65	<0.5	2.2
WOVP-200 *	100	<0.5	3
WOVP-320	160	<0.5	4
WOVP-350	175	<0.5	5.5
WOVP-430	215	<0.5	5.5
WOVP-500 *	250	<0.5	7.5
WOVP-600	300	<0.5	7.5
WOVP-800 *	400	<0.5	11
WOVP-1000 *	500	<0.5	11
WOVP-1200 *	630	<0.5	15
WOVP-1500 *	750	<0.5	18.5

*Models also available in "AQUA" water-resistant versions

- Compact Design - Reliable & Durable
- Easy to Maintain and Operate
- Simple Installation
- Air Cooled, No Water Required
- Direct Drive requires no belts
- Integral Exhaust Filter
- Discharge Air 99.9% Oil Free
- Quiet Operation



Single stage, oil re-circulating, air cooled and direct driven

Spare inlet and exhaust filters, oil filters, repair kits and vacuum gauges are available off the shelf.



DYNAVAC WVS SERIES Dry Rotary Vane Vacuum Pump or Compressor

Model	Suction Capacity (m ³ /h)	Ultimate Vacuum/Pressure (kPa g)	Motor Power (kW)
WVS - 3	14	-81 / +60	0.38
WVS - 5	24	-85 / +60	0.75
WVS - 6	34	-85 / +60	1.5
WVS - 8	56	-85 / +60	1.5
WVS - 9	68	-85 / +60	2.2
WVS - 10	132	-85 / +60	3.8

- Compact Design - Reliable & Durable
- Easy to Maintain and Operate
- Simple Installation
- Air Cooled, No Water Required
- Oil Free
- Quiet Operation
- Ideal for Vacuum and Blower Operation



Single stage, dry rotary, carbon vane, air cooled design

State-of-the-art dry-type pumps have become the preferred option in a diverse range of high and medium vacuum applications. Due to their friction-less design and lubricant-free pumping chamber, dry pumps provide higher energy efficiency with minimal maintenance expense. Gases being pumped are discharged free of contamination. Degradation of vacuum pump lubricant is eliminated along with routine service expense. Energy savings of >30% are easily achieved with dry technology.

DYNAVAC VCX SERIES Dry Running Claw Vacuum Pumps

Model	Suction Capacity (m ³ /h)	Ultimate Vacuum (kPa g)	Motor Power (kW)
VCX 60	60	-95	1.1
VCX 100	100	-85	2.2
VCX 150	150	-90	3
VCX 250	235	-82	4
VCX 300	300	-81	5.5
VCX 400	385	-77	7.5
VCX 505	500	-77	9

- Simple Modular Construction
- Air Cooled & Direct Driven
- Low Maintenance – No Wear
- High Efficiency – Continuous Duty
- Relief Valves included



Dry Running - Oil Free – Contact Free Design

DYNAVAC PCX SERIES Dry Running Claw Compressors

Model	Discharge Capacity (m ³ /h)	Ultimate Pressure (kPa g)	Motor Power (kW)
PCX 60	56	200	3
PCX 100	100	80	3
PCX 100	100	140	4
PCX 100	100	220	5.5
PCX 150	150	120	5.5
PCX 150	150	200	7.5
PCX 250	235	100	7.5
PCX 250	235	200	11
PCX 300	300	60	7.5
PCX 300	300	140	11
PCX 300	300	220	15
PCX 400	385	80	11
PCX 400	385	120	15
PCX 400	385	180	18.5
PCX 400	385	200	22
PCX 505	500	80	15
PCX 505	500	120	18.5
PCX 505	500	160	22
PCX 505	500	200	30

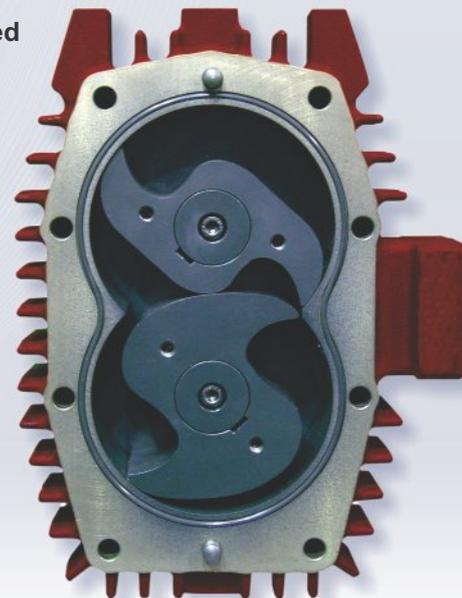
Dynavac Claw-type pumps

Claw pumps are available for processes requiring both vacuum and positive pressure and are an ideal replacement for liquid ring and rotary vane pumps in many applications.

VCX Series claw pumps are available for vacuum applications up to -95kPa.

PCX Series claw pumps are suitable for pressure applications up to 220 kPa.

Using a variable speed drive with a Dynavac claw pump can save up to 60% power consumption over lead-lag systems and the number of starts/hour are dramatically reduced which extends the life of the pumps.



Side Channel blowers are ideal where high suction and delivery rates are required at an economical price.

Side Channel blowers are commonly found in aeration, dental, pneumatic and vacuum conveying, vacuum holding and cleaning applications.

The Dynapumps range is extensive, offering you the best selection possible.

2RB 1-Stage Range

Model sizes	36
Suction Capacity (m ³ /h)	40 - 1050
Max Δ Pressure/ Vacuum (kPa)	+ 40 /- 30
Motor Power (kW)	0.2 - 18.5

2RB 2-Stage Range

Model sizes	35
Suction Capacity (m ³ /h)	88 - 2050
Max Δ Pressure/ Vacuum (kPa)	+ 55 /- 45
Motor Power (kW)	0.7 - 25

4RB High Pressure Range

Model sizes	24
Suction Capacity (m ³ /h)	47 - 170
Max Δ Pressure/ Vacuum (kPa)	+ 100 /- 60
Motor Power (kW)	0.55 - 7.5

Side channel blowers can be utilised for either a suction or blower application. Performance curves are available to ensure the most efficient selection is made.



Single Stage Side Channel Blower

IMPORTANT

Dynapumps supply vacuum & pressure relief valves with all blowers to protect the motors from overloading.



Two Stage Side Channel Blower



Relief Valve



DENTAL VACUUM SYSTEMS

Dynavac supplies pumps or side channel blowers and manufactures centralised vacuum systems for small surgeries and larger dental hospitals. These can be custom built with amalgam traps, control panels and vacuum receivers.

Dry Screw pumps are available for most high vacuum applications and are an ideal alternative to liquid ring and rotary vane pumps. Due to their dry operation, screw pumps are particularly suitable in wet and dusty applications that are the cause of high running costs of traditional pumps. They are environmentally clean with no waste oil or water to dispose of.

KDPH Model dry pumps feature increased performance with higher pumping speeds and a lower ultimate pressure. They have a low vibration direct drive that is easy to replace and saves space and they are fitted with an oil free, high reliability, bellows type mechanical seal.

Model	Suction Capacity (m ³ /h @50/60 Hz)	Ultimate Vacuum (mbar abs)	Motor Power (Kw @ 50Hz)
KDPH120	100/120	0.02	2.2
KDPH200	157/187	0.02	5.5
KDPH320	267/320	0.02	7.5
KDPH430	358/430	0.02	11
KDPH800	625/750	0.01	15
KDPH1500	1300/1500	0.1	37
KDPH2700	2250/2700	0.1	55

NEOVAC SS50	43/54	6 x 10 ⁻²	3
NEOVAC SS120	69/73	2 x 10 ⁻²	4
NEOVAC SS200	125/169	1 x 10 ⁻²	5.5
NEOVAC SS300	236/273	9 x 10 ⁻³	7.5
NEOVAC SS600W	504/660	6 x 10 ⁻⁴	8
NEOVAC SS1200W	830/970	6 x 10 ⁻⁴	13
NEOVAC SS1800W	2026/2432	6 x 10 ⁻⁴	18.5
NEOVAC SS3000W	3000	6 x 10 ⁻⁴	18.5

EG120	100/120	0.02	3.7
EG200	158/190	0.02	5.5
EG320	250/300	0.02	7.5
EG430	333/400	0.02	11
EG800	583/700	0.01	15

EG Model Advantages

No cooling water and water supply piping is required.

The pumps use a self-cooling system which supplies a stable cooling water supply, pressure and temperature.

EG Model pumps are portable and easy to install.

NEO-VAC Features

NEO-VAC features a compact design within an acoustic enclosure for low noise.

NEO-VAC units can be supplied with on-board controllers as well as built-in variable speed control for increased performance and process control.



Typical Applications

- Vapour Recovery Units (VRU)
- Melting, Casting Metallurgy
- Coating Processes
- Cleaning & Drying Processes
- Food Processing & Packaging
- General Industrial
- Drying & Impregnation
- Gas Recovery, Recirculation
- Degassing

Dry scroll vacuum pumps create vacuum using a dual scroll mechanism in both single and two stage configurations. Scroll pumps are an economical solution where a low noise pump with minimal maintenance is required.

Model	Stages	Suction Capacity (m ³ /h)	Ultimate Vacuum (mbar abs)	Motor Power (kW)
IDP2	1	1.8	1	0.12
IDP3	1	3	3.3 x 10 ⁻¹	0.12
SH110	1	5.4	6.6 x 10 ⁻²	0.19
Triscroll 300	2	12.6	1.3 x 10 ⁻²	0.56
TriScroll 600	2	25.2	9.3 x 10 ⁻³	0.76



Typical Applications

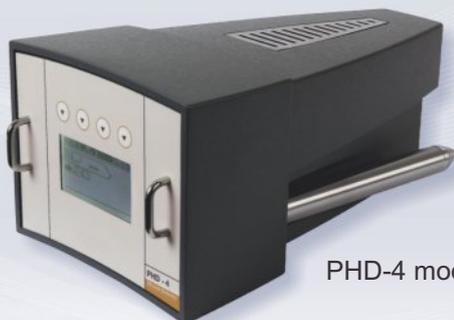
- Scanning Electron Microscopes
- Beam Lines
- Load Locks
- Glove Boxes
- Leak Detection
- Backing Turbomolecular Pumps
- General Purpose Laboratory Vacuum

Leak Detection

Our range of leak detection technology offers comprehensive solutions to end users through industry leading global support and high performance instruments. With a range extending from the portable PHD-4 through to the class leading VS series. We can provide a customised solution for high precision applications such as high energy physics, R & D, manufacturing and semiconductors, through to industrial applications including the power generation industry where dependable, portable and robust design is essential.



VS series



PHD-4 model

Typical Applications

- Vacuum Furnaces
- Coating Systems
- High Energy Physics
- Semiconductor Production
- Small Parts Manufacturing
- Research & Development
- Industrial Processes

Our ion pump range, and our depth of ion pump technology, covers diode and noble diode configurations, through to the class leading Starcell ion pump, our engineers are able to provide pumps and controllers for many applications.

Model	Suction Capacity (l/s)*	Ultimate Vacuum (mbar abs)	Configurations Available
Miniature	0.2	below 10^{-11}	Diode
2 l/s	2	below 10^{-11}	Diode
10 l/s	10	below 10^{-11}	Diode
Vaclon Plus 20	27	below 10^{-11}	Diode, Noble Diode, Starcell
Vaclon Plus 40	40	below 10^{-11}	Diode, Noble Diode, Starcell
Vaclon Plus 55	55	below 10^{-11}	Diode, Noble Diode, Starcell
Vaclon Plus 75	75	below 10^{-11}	Diode, Noble Diode, Starcell
Vaclon Plus 150	150	below 10^{-11}	Diode, Noble Diode, Starcell
Vaclon Plus 300	300	below 10^{-11}	Diode, Noble Diode, Starcell
Vaclon Plus 500	500	below 10^{-11}	Diode, Noble Diode, Starcell



Typical Applications

- Research & Development
- Mass Spectrometry
- Particle Physics
- Nanotechnology
- Industrial Vacuum

* Pumping speed based on Nitrogen with Diode configuration

Turbo Pumping Systems

The new range of Turbo Pumping Systems (TPS) provide portable and fully integrated vacuum solutions for applications requiring a wide range of pumping capacity and vacuum levels. Available in both bench top and custom designed cart versions, TPS units are a synergy between the world class Twistorr turbo pumps, the class leading scroll and vane pump products, and our range of active pressure measurement equipment.

Model	Suction Capacity (l/s)*	Ultimate Vacuum (mbar abs)#	Inlet Flange Options
Mini-Task AG81	60	5×10^{-8}	KF40 ISO63 CFF 4.5
TPS – TV81M	77	1×10^{-9}	KF40 CFF2.75 ISO63 CFF 4.5
TPS – TV301	240	1×10^{-9}	ISO100 CFF 6.0 ISO160 CFF 8.0



* Pumping speed based on Nitrogen with CFF flange
Ultimate vacuum based on CFF flange

Our range of turbo molecular pumps are designed for real world applications and are available with integrated, on-board controllers or rack mounted controllers. The range includes traditional molecular drag stages as well as the revolutionary Twistorr® models that provide class leading compression ratios and pumping speeds for light gases.

Model	Suction Capacity (l/s)*	Ultimate Vacuum (mbar abs)	Compression Ratio (Nitrogen)
V81-M	77	5.0×10^{-10}	3×10^8
V301	280	5.0×10^{-10}	7×10^8
V1001	790	1.0×10^{-10}	1×10^9
Twistorr 750	700	1.0×10^{-10}	1×10^{11}
Twistorr 850	750	1.0×10^{-10}	1×10^{11}
Twistorr 2300	2050	1.0×10^{-10}	8×10^8

Typical Applications

- Mass Spectrometry
- Industrial Vacuum Processing
- Particle Accelerators
- Nanotechnologies
- Research & Development

* Pumping speed based on Nitrogen with CFF flange



Vacuum Controllers, Gauging, Valves and Fittings

Dynapumps can supply a complete range of controllers, valves, gauges and fittings so you can assemble your vacuum system to your exact needs.



2-Stage Vacuum Pumps

Dynavac's VRD range of 2-stage vacuum pumps represents the most cost efficient, high performance product on the market today. Available in a wide range of pumping speeds, the VRD range of pumps come complete with anti suck-back valves, force feed lubrication, 2 stage gas ballast and TEFC motors in both single and three phase as standard.

Model	Suction Capacity (m ³ /h)	Ultimate Vacuum (mbar abs)	Motor Power (kW)
VRD 4	4	4 x 10 ⁻⁴	0.37
VRD 8	8	4 x 10 ⁻⁴	0.37
VRD 16	16	4 x 10 ⁻⁴	0.55
VRD 24	24	4 x 10 ⁻⁴	0.75
VRD 30	30	4 x 10 ⁻⁴	1.1
VRD 48	48	4 x 10 ⁻⁴	1.5
VRD 65	65	4 x 10 ⁻⁴	2.2



Typical Applications

- Analytical instruments
- Industrial Vacuum Processes
- Laboratory applications
- Leak detection
- Freeze dryers
- Glove boxes
- Research & Development

2-Stage Refrigeration Vacuum Pumps

Dynavac's VP range of 2-stage vacuum pumps have been designed specifically for the commercial refrigeration industry. Built upon the VRD pump platform, the VP series incorporates all the features of the VRD pump and includes an on-board vacuum gauge, multi-ported inlet manifold and trolley as standard.

Model	Suction Capacity (m ³ /h)	Ultimate Vacuum (mbar abs)	Motor Power (kW)
VP 2120	16	4 x 10 ⁻⁴	0.37
VP 2200	30	4 x 10 ⁻⁴	0.37



- High capacity for large refrigeration installation including chillers
- Reduced down time and improved vacuum performance
- Robust and easy to use
- Trolley design with improved safety

Large 2-Stage Vacuum Pumps

Dynavac's MVP range of industrial 2-stage vacuum pumps are supplied complete with gas ballast valves, inlet anti-suck back valves and TEFC motors. The MVP series vacuum pump range has the widest range of suction capacities available in the market.



Larger Units

Model	MVP6	MVP12	MVP24	MVP36	MVP60	MVP90	MVP144-540
Suction Capacity (m ³ /h)	5	10	20	30	50	75	120- 450
Ultimate Vacuum (mbar abs)	8.5 x 10 ⁻⁴						8.5 x 10 ⁻⁴
Motor Power (kW)	0.4	0.4	0.75	0.75	1.5	2.2	3.7 - 15.0
Noise Level (dBA)	50	50	52	52	56	56	50
Weight (kg)	21.0	22.5	38.0	41.0	68.0	84.0	172-668
Inlet/Outlet Port	KF25			KF40			ISO 63-100

Claw Type Gas Compressors

Dynavac's hook & claw compressor has contra-rotating rotors, which do not touch so there is no wear between the components and no need for lubrication. No oil means no contamination of the process gas. It is truly oil-free in operation.

Rotors and bodies are machined to very close tolerances from solid billet or castings. Every casting is pressure tested to a minimum of 5 barg and every completed compressor or vacuum pump undergoes extensive performance and reliability testing before leaving the works.

ATEX version available for the oil and gas industry.



Compressor in Biogas (Methane) Digester Plant

Model	Speed (rpm)	Discharge Capacity (m ³ /h)	Maximum Pressure (bar g)	Motor Power (kW)
3650 CWD	960	340	2.4	33
	1150	420	2.4	40
3670 CWD	960	560	2.4	50
	1150	680	2.4	60
3610 CWD	960	730	2.4	62
	1150	860	2.4	75

Typical Applications

- Waste Treatment Bio-gas (Methane)
- Flare Gas Recovery
- Chemical Industry (Reactors)
- Vapour Recovery Units
- Air Blending (Food & Beverage)
- Gas Production (Argon, Helium)

MODEL	VC-701	AS-1001	TC-501	TC-2000	TC-63
Motor Power (Watts @ 240/250V)	60	90	100	95	155
Suction Capacity (l/min)	20	38	25	32	53
Ultimate Vacuum (mbar abs)	120	240	145	120	145
Outlet Connection (Hose Barb)	5/16"	5/16"	5/16"	5/16"	5/16"
Noise Level (dBA)	48	52	54	50	61
Weight (kg)	3.6	5.6	5.2	4.9	8.5
Accessories	Inlet receiver with auto shut off valve, in-line hydrophobic filter, vacuum regulator valve & vacuum gauge	Inlet receiver with auto shut off valve, in-line hydrophobic filter, vacuum regulator valve & vacuum gauge	Inlet filter, moisture trap, vacuum regulator valve & vacuum gauge	Inlet filter, moisture trap, vacuum regulator valve & vacuum gauge	Inlet filter, moisture trap, vacuum regulator valve & vacuum gauge
Photo					

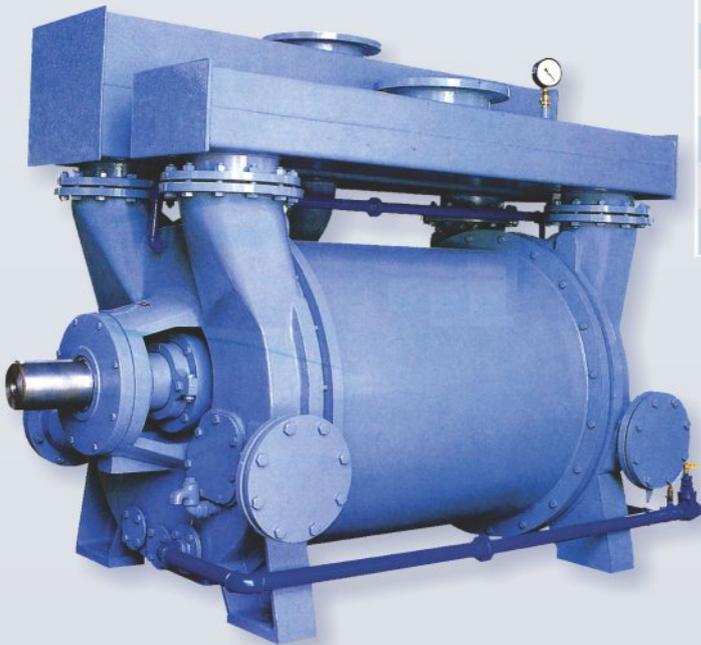
Vacuum Lifting

Dynapumps can supply a full range of vacuum lifting equipment, from suction cups and vacuum cups, vacuum pumps and generators, and ergonomic vacuum lifters, to complete vacuum lifting systems.



Dynavac is able to manufacture complete engineered vacuum systems comprising single or two stage units with vacuum vessels, piping valves and instrumentation. Liquid ring pumps and compressors offer advantages for wet processing such as in the industries listed below.

Major Australian Market Segments	Mining	Chemical Processes	Power Generation	Sugar Industry
Filtration	★		★	★
Distillation		★		★
Solvent Recovery	★	★		
Dewatering		★		
Condenser Evacuation			★	★
Evaporation		★		★
De-aeration		★		★



Type of Liquid Ring Vacuum Pump	Suction Capacity (m ³ /h @ 50Hz)	Ultimate Vacuum (mbar abs)
Close Coupled Pumps	9 ~ 480	33
Bare Shaft Pumps	400 ~ 1950	33
Large Bare Shaft Pumps	2,500 ~ 30,000	33
Two Stage Pumps	18 ~ 3150	25
Lined Chemical Pumps	20 ~ 400	33

Liquid Ring Compressor	Discharge Capacity (m ³ /h @ 50Hz)	Maximum Pressure (bar g)
Compressors	18 ~ 325	1.3



315 kW, 4,000 Nm³/h Pumps for Alumina Seed Filters – West Australia



Duplex liquid ring pumps used to extract air from a steam condenser for the power generation industry – Queensland

Handy Vacuum & Pressure Conversions

Pressure

	Pa (N/m ²)	kpa	bar	mbar	Torr (mm/hg)	psi
1 Pa (N/m²)	1	0.001	1x10 ⁻⁵	0.01	7.5x10 ⁻³	1.45x10 ⁻⁴
1 kpa	1000	1	0.01	10	7.5	0.145
1 bar	1x10 ⁵	100	1	1000	7.5x10 ²	14.5
1 mbar	100	0.1	0.001	1	0.75	0.0145
1 Torr (mm/hg)	133.3	0.1333	0.00133	1.333	1	0.01934
1 psi	6895	6.895	0.06895	68.95	51.71	1

Pumping Speed

	m ³ /h	l/min	l/sec	cfm
1 m³/h	1	16.667	0.278	0.589
1 l/min	0.060	1	0.0167	0.0353
1 l/sec	3.60	60	1	2.119
1 cfm	1.699	28.32	0.472	1

Ranges of Vacuum

	mbar	Pa
Low Vacuum	1013~1mbar	100 kPa~100pa
Medium Vacuum	1mbar~10 ⁻³ mbar	100pa~0.1pa
High Vacuum	10 ⁻³ mbar~10 ⁻⁷ mbar	0.1pa~10upa
Ultra High Vacuum	10 ⁻⁷ mbar~Less	10upa~Less

Pressure Terms

Absolute Pressure

Is the pressure above absolute zero, and equal to the barometric pressure plus the gauge pressure.

Barometric Pressure

Is the atmospheric pressure at the altitude where it is measured.

Gauge Pressure

Is the pressure measured by a gauge above or below atmospheric pressure.

Partial Vacuum

Is any pressure below atmospheric, i.e. a negative gauge pressure.