GRETEC™

High Pressure Technology

Product Catalogue

Air Driven Pumps

High Performance

Measured for capability of ultimate pressure, flow & output horsepower.

High Quality

From design to construction, quality is paramount.

Complete Range

Delivering a comprehensive range of flows and pressures.

Accessories & Spares

Access all the valves, fittings and spare parts you'll need.

Systems

All pumps, boosters and amplifiers available in systems.

Guarantee

Full year warranty on all products. See Warranty page 5.

COMPANY PROFILE - GRETEC

GRETEC High Pressure Technology Inc. has more than 40 years of hydraulic and pneumatic application experience in the design and manufacture of pumps and systems for pressure testing and chemical injection.

We offer one of the most complete range of Air Driven Air Amplifiers, Liquid Pumps & Gas Boosters in the industry measured for:

- Capability of ultimate pressure, flow or output horsepower.
- Compatibility with a broad variety of liquids and gases.

With a predominately online sales channel that allows us to keep costs down, we provide full technical support for via:

- Online selection guides (liquid pumps & gas boosters) and product comparison charts
- 24/7 technical email support system
- Phone-based technical support
- Web-based technical chat facility

Our History

GRETEC High Pressure Technologies is a brand that was developed through reverse engineering, AI procedures and dedicated Offshore manufacturing to provide 10 years of quality products. This allowed a dedicated opportunity to produce similar products to those manufactured in Japan, Germany, and USA. Our suppliers provide continuous investments in new machinery and advanced technology keeping our products at the forefront of our field. Our supplier's roots go back over 10 years, mainly as a ***technical distributor*** for Haskel pumps, gas boosters, air amplifiers and HP valves.

We offer *lower cost* and *reasonable* delivery worldwide.

GRETEC roots go back over 40 years, mainly as the ***technical distributor*** for Air Driven Air Amplifiers, Liquid Pumps, Gas Boosters and High Pressure Valves and Fittings. Brand names included Teledyne Sprague (now Graco) Haskel, Maximator and Hydraulics International. Applications were designed for numerous high and low pressure hydraulic, chemical, liquid and gas booster systems, including Oxygen, CO2, and Hydrogen.

USEFUL INFORMATION

LIQUID PUMPS

PROPACKPACKAGED SYSTEMS

A Note on Ratios

All GRETEC Air Driven Air Amplifiers, Gas Boosters and Liquid Pumps operate using the RATIO principal. The ratio is that between a larger diameter (area) lower pressure compressed air drive piston (within the air drive) and a mechanically connected higher pressure but smaller diameter (area) piston or plunger within the liquid/gas section. They all reach a stall condition when the opposing forces, created between the lower pressure air drive and the higher pressure fluid outlet, become balanced. This stall pressure is the maximum that can be attained for the given actual ratio of the device and the compressed air drive pressure used. At this stall point, the pump can hold the stall pressure but delivers zero flow. The ratio referred to in the part numbering system (nominal ratio) for most liquid pumps is generally about 10% lower than the actual ratio. This allows slightly higher stall pressures to be reached and allows the unit to continue to cycle and deliver fluid past the pressure reached when the nominal ratio is multiplied by the air drive pressure.

As an example, a liquid pump driven with 8 Bar air supply and an actual ratio of 25:1 and will stall at a fluid outlet pressure of 200 Bar rather than 176 Bar as the nominal ratio implies. By using an air pressure regulator on the air drive supply line, the desired stall pressure can be set to any point less than the maximum air supply pressure multiplied by the actual ratio of the pump.

It stands to reason that the higher the nominal ratio of the device, the higher fluid *or gas* outlet pressure can be achieved. The GRETEC range includes a number of different series of pumps and boosters each having larger diameter air drives. Each series has numerous nominal ratios so that, with careful selection, the correct unit can be selected for a given flow vs pressure application.

All GRETEC Pumps consist of a lower pressure (<10 Bar) linear reciprocating air motor (air drive) directly connected to a higher pressure fluid end. In the case of most liquid pumps, the fluid ends mainly use plungers while all gas boosters use pistons.

A Note on Air Consumption & Air Quality

To obtain maximum continuous performance of our pumps and boosters, we recommend the use of an air compressor with a minimum free air delivery (FAD) to the pump that corresponds to the pressure you wish to use. The table below can be used as a guide.

Series	FAD required at the inlet of the pump
GM	30 scfm (48 nm³/hr)
GXH/GXT	45 scfm (72 nm³/hr)
GAH/GAT/GZB GGB/GGBD/GGBT	70 scfm (113 nm³/hr)
G2AH/G2AT G2GB/G2GBD/G2GBT	85 scfm (137 nm³/hr)
GGT/GGH	225 scfm (362 nm³/hr)

Air line filters are recommended and should be installed to ensure clean, dry air is supplied to the pump or booster. Additionally, air line pressure regulators should be used to ensure the air drive pressure is not higher than is recommended or required.

A Note on PRODUCT WARRANTY

WARRANTY POLICY
WARRANTY: REMEDIES:
GRETEC, GUARANTEES ITS GOODS TO BE FREE FROM DEFECTS IN WORKMANSHIP OR MATERIAL FOR A PERIOD OF ONE (1) YEAR FROM DATE OF SHIPMENT. THIS WARRANTY DOES NOT INCLUDE: PACKINGS, SEALS, NOR FAILURES CAUSED BY LACK OF PROPER MAINTENANCE; INCOMPATIBLE FLUIDS; FOREIGN MATERIALS IN THE DRIVING MEDIA OR IN THE PUMPED MEDIA; OR APPLICATION OF PRESSURES, TEMPERATURES, AND CYCLES BEYOND SPECIFICATION OR CATALOG RATINGS.
GOODS BELIEVED TO BE ORIGINALLY DEFECTIVE MAY BE RETURNED BY THE ORIGINAL BUYER, TRANSPORTATION CHARGES PREPAID, ONLY UPON RECEIPT OF A RETURNED MATERIALS AUTHORIZATION NUMBER FROM THE PROPER PERSONNEL AT GRETEC. THE RETURN SHOULD INCLUDE THE FOLLOWING: THE ORIGINAL PURCHASE DATE AND ORDER NUMBER, SERIAL NUMBER, MODEL NUMBER, AND OTHER PERTINENT DATA TO ESTABLISH WARRANTY CLAIM, AND TO EXPEDITE THE RETURN OR REPLACEMENT TO THE BUYER.
EXCEPT FOR THE WARRANTIES SPECIFICALLY SET FORTH HEREIN, THERE SHALL BE NO EXPRESS OR IMPLIED WARRANTIES OF ANY KIND, NOR SHALL THERE BE A WARRANTY OF MERCHANTABILITY WITH RESPECT TO THE GOODS. FURTHERMORE, GRETEC MAKES NO WARRANTY THAT THE GOODS ARE FIT FOR ANY PARTICULAR PURPOSE.
COMPLAINTS REGARDING DEFECTS MUST BE MADE BY BUYER WITHIN ONE (1) YEAR FROM THE DATE OF SHIPMENT. GRETEC RESERVES THE RIGHT TO ACT AS SOLE JUDGE IN DETERMINING THE NATURE AND CAUSE OF THE DEFECT AND SHALL DO SO UPON RECEIVING AND INSPECTING THE RETURNED GOODS. GRETEC IS NOT LIABLE FOR UNAUTHORIZED DISASSEMBLY, REPAIR, ALTERATION, AND DEFECTS OR DAMAGE RESULTING FROM MISUSE, NEGLECT OR MISAPPLICATION OF THE GOODS. IN ADDITION, IT IS EXPRESSLY AGREED BY BUYER, IN PURCHASING THE GOODS THAT THE LIABILITY OF GRETEC, IF ANY, SHALL BE LIMITED SOLELY TO THE REPLACEMENT AND REPAIR OF THE GOODS IN ACCORDANCE WITH THE WARRANTIES SPECIFICALLY AND EXPRESSLY SET FORTH HEREIN. THE REMEDIES OF THE BUYER ARE THE EXCLUSIVE AND SOLE REMEDIES AVAILABLE, AND, IN THE EVENT OF A BREACH OR REPUDIATION OF ANY PROVISION OF THIS AGREEMENT BY GRETEC, BUYER SHALL NOT BE ENTITLED TO RECEIVE ANY INCIDENTAL DAMAGES AS THAT TERM IS DEFINED IN SECTION 2-715 OF THE UNIFORM COMMERCIAL CODE. BUYER WAIVES THE BENEFIT OF ANY RULE THAT DISCLAIMER OF WARRANTY SHALL BE CONSTRUED AGAINST GRETEC AND AGREES THAT SUCH DISCLAIMERS HEREIN SHALL BE CONSTRUED LIBERALLY IN FAVOR OF GRETEC.

How the Air Drive Section Works

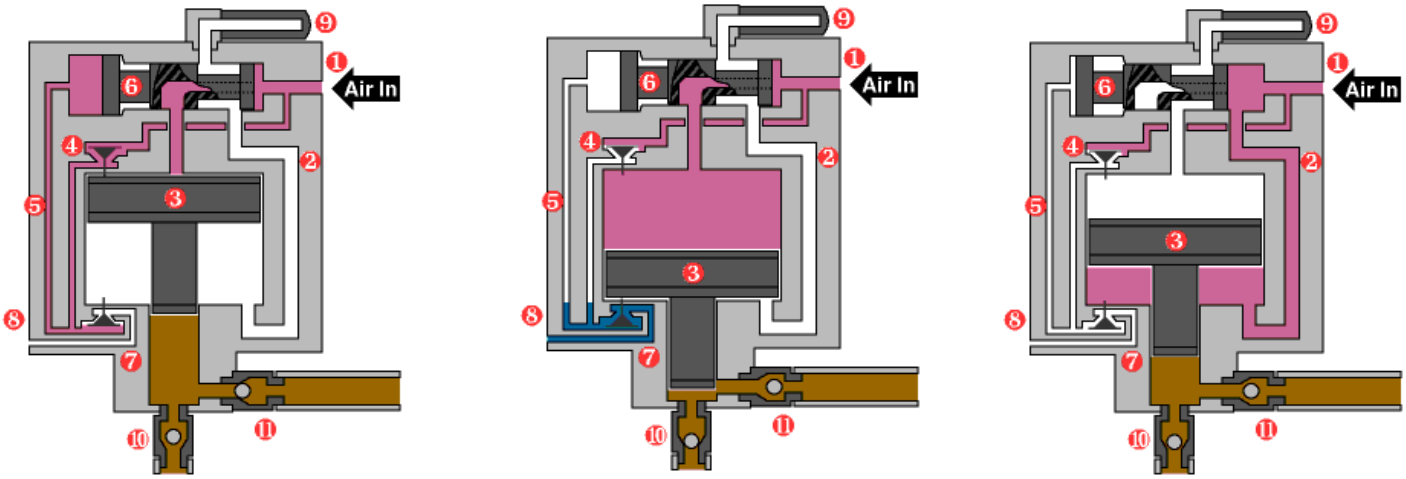
The air drive section consists of a light weight piston complete with seals running inside an aluminum barrel.

When compressed air is supplied to the pump, the air pushes the air piston (3) down on a compression stroke, which forces fluid out of the liquid end for Liquid Pumps; or gas out of the gas end for Gas Boosters and Air Amplifiers (11).

Under the control of pilot pins (7 & 4) triggered at each end of the stroke, the air is then diverted by way of a flow tube (2) to drive the air piston up on a suction stroke, which pulls fluid into the liquid end for Liquid Pumps; or gas into the gas end for Gas Boosters and Air Amplifiers (10).

The automatic cycling characteristics are enabled by use of an unbalanced, internally pilot operated spool (6) that directs the air through a 4-way cycling sleeve to either side of the air piston. The operation of the cycling spool is controlled by 2 pilot pins. The air is exhausted through the spool and then to atmosphere via the provided muffler (9).

The air drive section of the pump is pre-lubricated at assembly and as such, air line lubrication is neither required nor recommended.



How the Gas Section Works (Gas Boosters)

The gas section of a GRETEC air driven gas booster consists of 4 main pieces, the gas barrel, the piston, the check valves and the main high pressure seal. The gas piston is directly linked to the air piston and it is housed inside the gas barrel and its movement up and down creates the gas flow into and out of the booster through the check valves. The check valves are spring loaded and on the suction stroke the inlet check valve opens to the maximum allowing gas into the gas barrel and on the compression stroke the inlet check valve closes and the discharge check valve opens forcing the pumped gas into the process.

The main high pressure seal is located on the gas piston and they seal against the gas barrel during operation. There are different materials and designs of high pressure seals depending on the gas being pumped and the maximum pressures of the pump, however the standard PTFE seals are suitable for the vast majority of gases encountered.

Other materials of construction can be supplied to meet more aggressive services. The standard series of boosters are NOT suitable for underground coal mine applications. GRETEC do manufacture models of air driven gas boosters that are suitable for underground coal mine applications, please enquire with our technical staff.

The gas booster cycles automatically. As the outlet pressure increases, the resistance also increases and the cycle rate decreases until the output pressure forces are equal and the pump stops automatically. This is referred to as the stall condition. The pump will restart with a slight drop in the outlet pressure or an increase in the air drive pressure. Booster performance can be affected by a number of conditions, such as freezing of the exhaust muffler or pilot valves (which is caused by moisture in air lines), inadequate inlet air line sizes and dirty filters. When operating the boosters on a continuous basis, we recommend you use a maximum cycle rate of 50-60 cycles per minute. This will both increase service intervals and assist in preventing ice forming at the exhaust. An air supply dryer will also assist in reducing icing up.

GRETEC gas boosters have a 120mm stroke, which reduces cycle rates at any given flow and pressure when compared with most other brands. This lower respective cycle rate results in a reduction in freeze-up condition.

To obtain the best overall performance, do not reduce the indicated port sizes.

We offer complete technical and service support for all GRETEC gas boosters.

How the Hydraulic Section Works (Liquid Pumps)

The hydraulic section of a GRETEC air driven liquid pump consists of 4 main pieces, the hydraulic body, the piston/plunger, the check valves and the main high pressure seal. The hydraulic piston/plunger is directly linked to the air piston and it is housed inside the hydraulic body and its movement up and down creates the liquid flow into and out of the pump through the check valves. The check valves are spring loaded and on the suction stroke the inlet check valve opens to the maximum allowing fluid into the hydraulic body and on the compression stroke the inlet check valve closes and the discharge check valve opens forcing the pumped fluid into the process.

The main high pressure seal is located within the hydraulic body and the piston/plunger seals against this during operation. There are different materials and designs of high pressure seals depending on the fluid being pumped and the maximum pressures of the pump, however the standard seals are suitable for both water and hydraulic fluid use. All wetted materials are of stainless steel and are suitable for water and hydraulic fluid applications in their standard form.

Other materials of construction can be supplied to meet more aggressive services. The standard series of pumps are NOT suitable for underground coal mine applications. GRETEC do manufacture models of air driven liquid pumps that are suitable for underground coal mine applications including a range suitable for chemical injection, please enquire with our technical staff.

The liquid pump cycles automatically. As the outlet pressure increases, the resistance also increases and the cycle rate decreases until the output pressure forces are equal and the pump stops automatically. This is referred to as the stall condition. The pump will restart with a slight drop in the outlet pressure or an increase in the air drive pressure. Pump performance can be affected by a number of conditions, such as freezing of the exhaust muffler or pilot valves (which is caused by moisture in air lines), inadequate inlet air line sizes and dirty filters. When operating the pumps on a continuous basis, we recommend you use a maximum cycle rate of 50-60 cycles per minute. This will both increase service intervals and assist in preventing ice forming at the exhaust. An air supply dryer will also assist in reducing icing up.

GRETEC pumps have an 80mm stroke, which reduces cycle rates at any given flow and pressure when compared with most other brands. This lower respective cycle rate results in a reduction in freeze-up condition.

To obtain best overall performance, do not reduce the indicated port sizes.

We offer complete technical and service support for all GRETEC Liquid Pumps.

GRETEC Liquid Pumps

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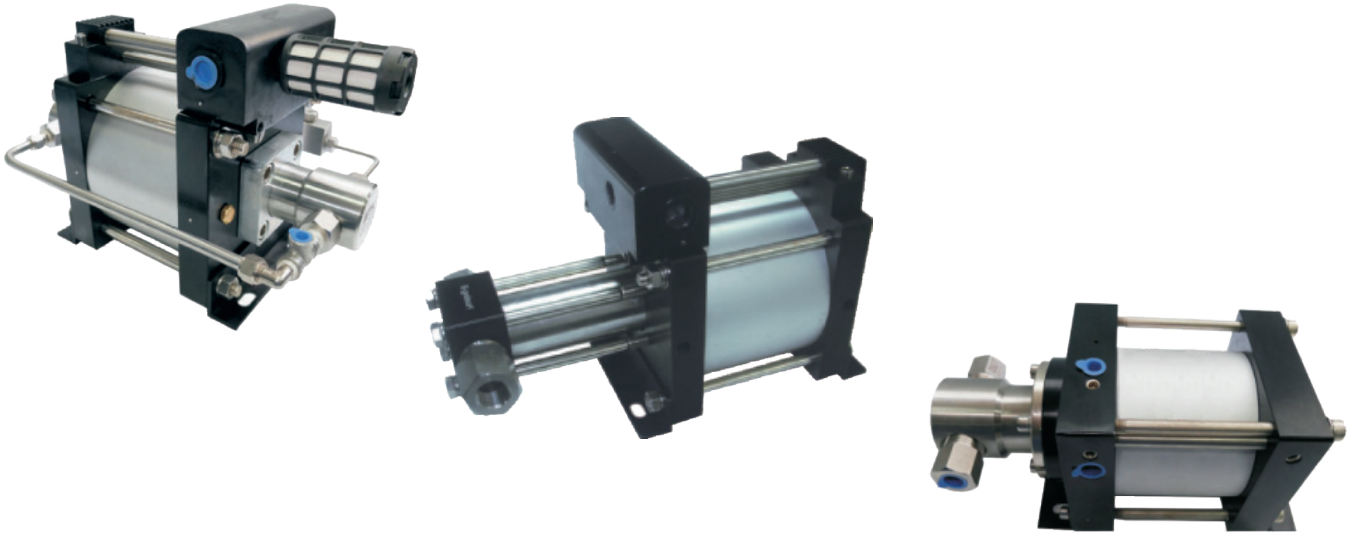
Air Driven Liquid Pumps

Our broad range of air driven liquid pumps require no airline lubrication; are reliable and easy to maintain and can achieve pressure to 6,640 barg.



Intrinsically safe - no heat, sparks of flames produced

No Contamination - complete separation between driving gas and compressed liquids

No Lubrication Required - on air/gas drive section

High Fluid Compatibility - hydraulic oil, water and corrosive gasses and liquids

Start & Stop Against Load - stall occurs when pressure balance is achieved

Driven with Air or other Gases - including nitrogen, Co2 and natural gas

Suitable for Hazardous Area - with models for underground coal mines and offshore

Industries that have Pressure Testing Applications:

- Diving Industry with requirements for certifying Divers' Air Bottles and equipment.
- LPG/CNG Industry with requirements for certifying storage bottles, tanks and associated equipment.
- Fire Fighting Industry with requirements to certify extinguishers and associated equipment.
- Industrial Gas Manufacturers and Suppliers with requirements to certify gas storage bottles, tanks and associated pipework and equipment.
- Manufacturers of Pressure Vessels that require certification and testing.
- Installers of Oil and Gas Pipelines that require testing and certification prior to use.
- Manufacturers of Tubes, Pipes and Fittings.
- Manufacturers and Suppliers of Hydraulic (and other types) Hoses.
- Defence Industries

Industries that have Fluid Transfer Applications:

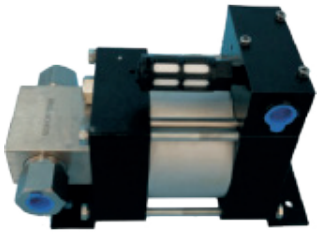
- Fire Fighting Industry with the filling of extinguishers with CO2.
- Refrigeration and Air-Conditioning Industry with the evacuating and re-filling of refrigerant systems.
- Defence Industries.

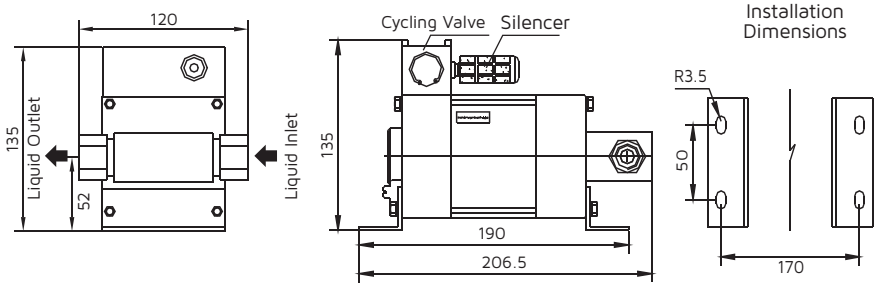
Other Applications:

- Fluid Power applications where a non-electric high pressure hydraulic source is required.
- High and very high applications for hydraulic and isostatic presses.
- Off-shore Oil and Gas Platforms for an emergency non-electric high pressure hydraulic source is required.
- To pump fluids in Hazardous Areas.
- To pump Hazardous Fluids.
- For supplying hydraulic pressure for many kinds of in-field jacking applications.
- Supplying Dust Suppressant Fluids in Open and Underground Mining
- As Chemical Injection Pumps for Upstream Oil and Gas Gathering Systems.
- As Chemical Injection Pumps in Downstream Oil and Gas Plants.

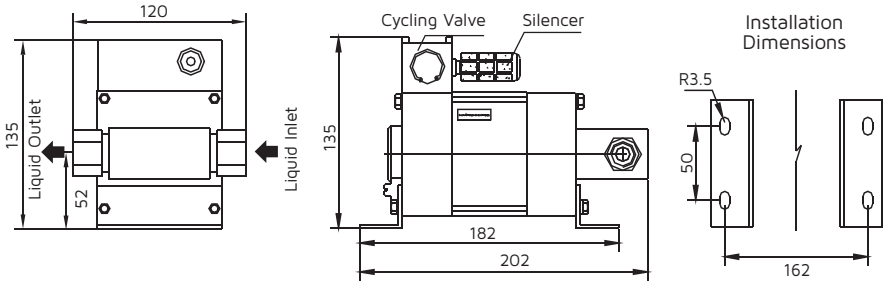
GM Series - 80mm Single Acting Liquid Pumps

The smallest of the GRETEC Air Driven Liquid Pumps, the PM Series, can fit in your hand.
Despite this it is available with nominal ratios up to 125:1 thus making it an ideal pump for pressure testing to very high pressures where the volume of test fluid is low.





GM07



GM10 | GM25 | GM45 | PM64 | PM100 | PM130

GM Series Technical Data

Model	Piston/ Rod Diameter -mm	Flow per Cycle -ml	Liquid Inlet -NPT	Liquid Outlet -NPT	Maximum Output Pressure Bar@ Drive 8.3 Bar	Output Fluid Pressure (Bar) 1 Bar=0.1 Mpa=1.019 Kg/cm²												
						0	25	50	75	100	150	175	200	250	300	350	400	700
						Flow Rate/Minute (L/min)												
GM07	30	21	3/8″	3/8″	58.1	6.36	2.97	0.85										
GM10	25	14	3/8″	3/8″	83	4.42	3.83	1.62	0.59									
GM16	20	9	3/8″	3/8″	132.8	2.83	2.45	2.07	1.41	0.57								
GM25	16	6	3/8″	3/8″	207.5	1.81	1.57	1.33	0.90	0.72	0.60	0.42	0.12					
GM45	12	3	3/8″	3/8″	373.5	1.02	0.88	0.85	0.81	0.78	0.75	0.68	0.51	0.31	0.27	0.14		
GM64	10	2	3/8″	1/4″	531.2	0.71	0.61	0.59	0.57	0.54	0.52	0.49	0.47	0.45	0.38	0.19	0.09	
GM100	8	1	1/4″	1/4″	830	0.45	0.39	0.38	0.36	0.35	0.33	0.32	0.31	0.23	0.18	0.15	0.09	0.05
GM130	7	1	1/4″	1/4″	1079	0.35	0.30	0.29	0.28	0.25	0.25	0.18	0.16	0.15	0.14	0.12	0.07	0.03

The maximum acceptable air drive pressure (**Pa**) is 8.3 Bar.

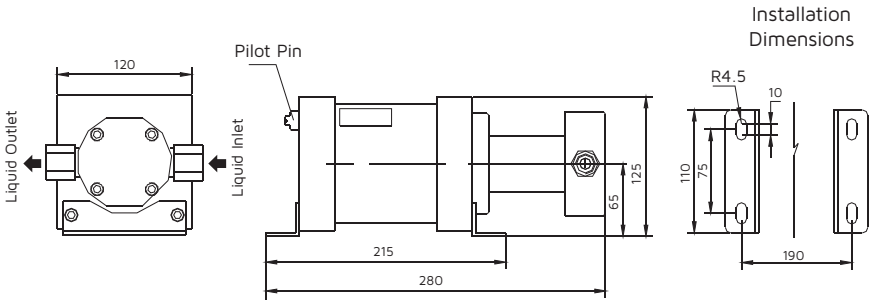
All dimensions are in mm unless otherwise stated.

GXH Series - 100mm Single Acting Liquid Pumps

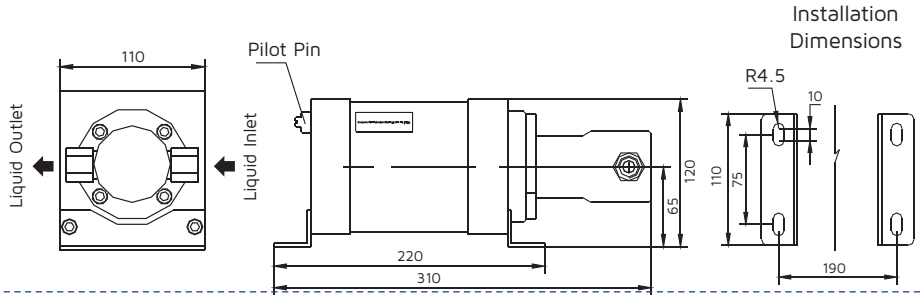
The GXH series pump is a medium sized unit, offering the next step up in flow from those available in the GM Series.

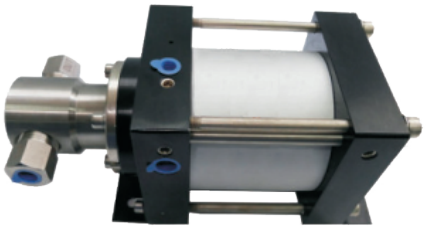
These units are inexpensive and simple to apply and are a popular choice for pressure testing and work-holding applications.

GXH02 | GXH04 | GXH06

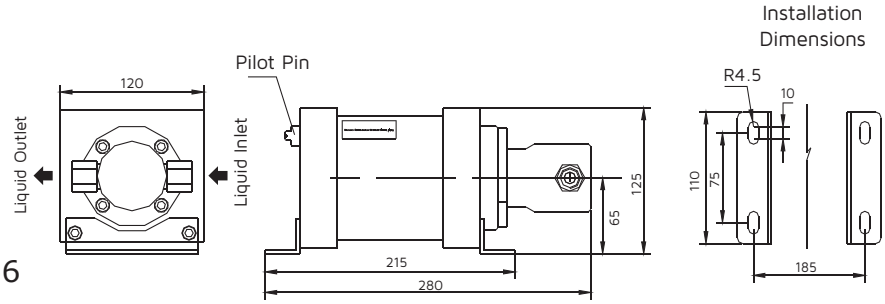


GXH10 | GXH16 | GXH25 | GXH39





GXH64 | GXH100 | GXH130 | GXH156



GXH Series Technical Data

Model	Piston/ Rod Diameter -mm	Flow per Cycle -ml	Liquid Inlet -NPT	Liquid Outlet -NPT	Maximum Output Pressure Bar@ Drive 8.3 Bar	Output Fluid Pressure (Bar) 1 Bar=0.1 Mpa=1.019 Kg/cm²												
						0	25	50	75	100	150	175	200	250	300	350	400	700
						Flow Rate/Minute (L/min)												
GXH02	63	187	3/8"	3/8"	20.7	33.67												
GXH04	50	117	3/8"	3/8"	33.2	28.27	16.49											
GXH06	40	75	3/8"	3/8"	49.6	18.1	12.82	0.00										
GXH10	30	42	3/8"	3/8"	83.0	10.18	8.48	6.36	2.12									
GXH16	25	29	3/8"	3/8"	132.8	7.07	6.48	5.89	4.42	3.53								
GXH25	20	18	3/8"	3/8"	207.5	4.52	4.15	3.77	3.39	3.02	2.64	1.89						
GXH39	16	12	3/8"	3/8"	373.5	2.89	2.65	2.41	2.17	1.93	1.69	1.45	1.33	1.21				
GXH64	12	6	3/8"	3/8"	531.2	1.63	1.49	1.36	1.29	1.22	1.15	1.09	1.02	0.95	0.88	0.81	0.34	
GXH100	10	4	3/8"	3/8"	830	1.13	1.08	1.04	0.99	0.89	0.85	0.80	0.75	0.71	0.66	0.61	0.57	0.00
GXH130	9	3	1/4"	1/4"	1079	0.92	0.88	0.84	0.80	0.73	0.69	0.65	0.61	0.57	0.53	0.50	0.46	0.31
GXH156	8	3	1/4"	1/4"	1294	0.72	0.69	0.66	0.63	0.57	0.54	0.51	0.48	0.45	0.42	0.39	0.36	0.33

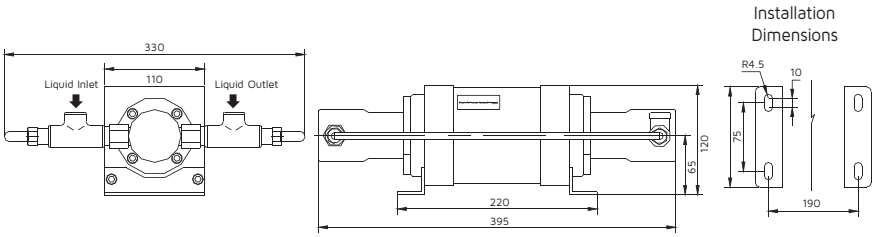
The maximum acceptable air drive pressure (**Pa**) is 8.3 Bar.

GXT Series - 100mm Double Acting Liquid Pumps

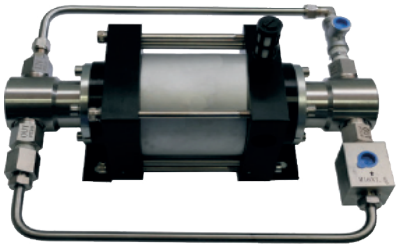
The GRETEC GXD Air Driven Pump is a medium sized unit that uses a 100 mm diameter double acting air drive with a liquid end connected to each end of the air drive. Due to the two liquid ends, the pump is double acting and delivers high pressure liquid outlet on both strokes of the reciprocating air drive. This makes the GXT series almost twice as efficient as the GXH series.

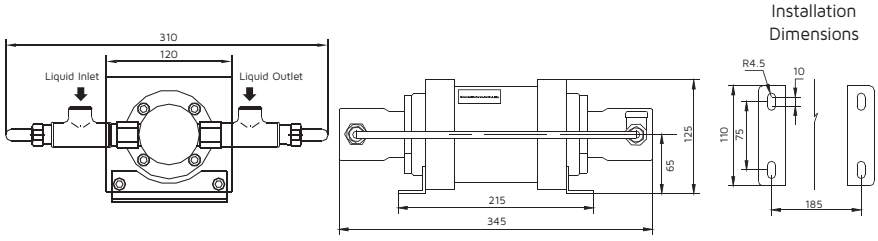
These pumps can be supplied with interconnecting tubing that connects both liquid inlets to a common port and both liquid outlets to a common port making for a simple installation.

GXT pumps are generally used when more flow is required than that delivered by it corresponding GXH unit.



GXT10 | GXT16 | GXT25 | GXT39





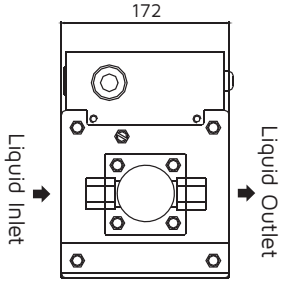
GXT64 | GXT100 | GXT130 | GXT156

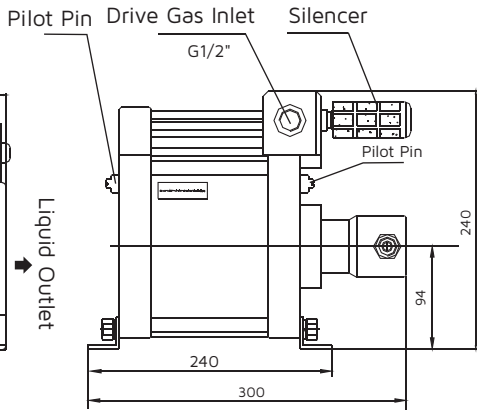
GXD Series Technical

Model	Piston/ Rod Diameter -mm	Flow per Cycle -ml	Liquid Inlet -NPT	Liquid Outlet -NPT	Maximum Output Pressure Bar@ Drive 8.3 Bar	Output Fluid Pressure (Bar) 1 Bar=0.1 Mpa=1.019 Kg/cm²												
						0	25	50	75	100	150	175	200	250	300	350	400	700
						Flow Rate/Minute (L/min)												
GXT10	30	56	3/8"	3/8"	83	13.57	11.31	8.48	2.83									
GXT16	25	54	3/8"	3/8"	132.8	12.96	11.88	10.80	8.10	6.48								
GXT25	20	34	3/8"	3/8"	207.5	8.29	7.60	6.91	6.22	5.53	4.84	3.46						
GXT39	16	22	3/8"	3/8"	323.7	5.31	4.87	4.42	3.98	3.54	3.10	2.65	2.43	2.21				
GXT64	12	12	3/8"	3/8"	531.2	2.99	2.74	2.49	2.36	2.24	2.11	1.99	1.87	1.74	1.62	1.49	0.62	
GXT100	10	8	3/8"	3/8"	830	2.07	1.99	1.90	1.81	1.64	1.56	1.47	1.38	1.30	1.21	1.21	1.04	0.00
GXT130	9	7	1/4"	1/4"	1079	1.68	1.61	1.54	1.47	1.33	1.26	1.19	1.12	1.05	0.98	0.91	0.84	0.56
GXT156	8	5	1/4"	1/4"	1294	1.33	1.27	1.22	1.16	1.05	1.00	0.94	0.88	0.83	0.77	0.72	0.66	0.61

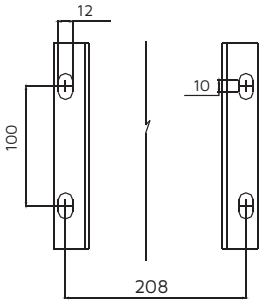
The maximum acceptable air drive pressure (**Pa**) is 8.3 Bar.

GAH Series - 160mm Single Acting Liquid Pumps





Installation Dimensions



GAH170 | GAH240 | GAH300 | GAH400

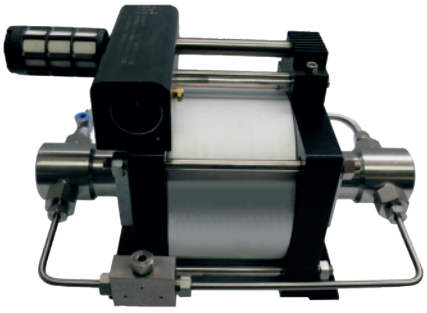
All dimensions are in mm unless otherwise stated

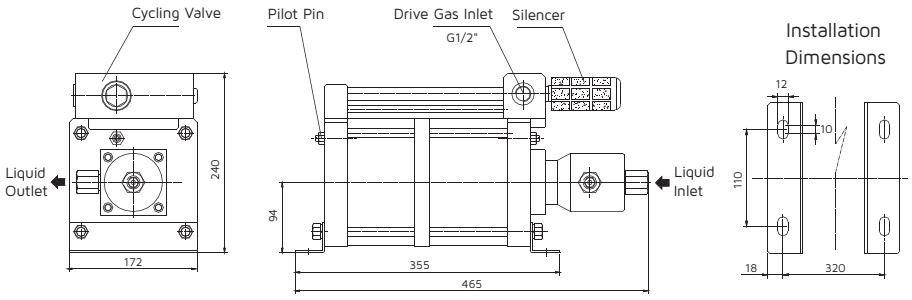
GAH Series Technical Data

Model	Piston/ Rod Diameter -mm	Flow per Cycle -ml	Liquid Inlet	Liquid Outlet	Max. Output Pressure Bar (@ Drive 8.3 Bar)	Output Fluid Pressure (Bar) 1 Bar=0.1 Mpa=1.019 Kg/cm²															
						0	20	40	70	100	150	200	300	400	500	600	700	900	1200	1700	2350
						Flow Rate/Minute (L/min)															
GAH02	100	471	NPT3/4"	NPT3/4"	16.6	56.55	0.00														
GAH04	80	402	NPT3/4"	NPT3/4"	33.2	48.25	16.08														
GAH07	63	249	NPT3/4"	NPT3/4"	58.1	29.93	9.98	4.99													
GAH10	50	157	NPT3/4"	NPT3/4"	83.0	18.85	12.57	9.42	0.00												
GAH16	40	100	NPT3/4"	NPT3/4"	132.8	12.06	9.05	7.04	6.03	4.02											
GAH20	35	76	NPT3/4"	NPT3/4"	166.0	9.24	7.70	6.93	6.16	5.39	0.00										
GAH28	30	56	NPT1/2"	NPT1/2"	232.4	6.79	5.66	5.09	4.52	3.96	3.39	0.00									
GAH40	25	39	NPT1/2"	NPT1/2"	332.0	4.71	3.93	3.53	3.14	2.75	2.36	1.96	0.00								
GAH64	20	25	NPT3/8"	NPT3/8"	498.0	3.02	2.51	2.26	2.01	2.75	1.51	1.26	1.01	0.75							
GAH80	18	20	NPT3/8"	NPT3/8"	664.0	2.44	2.04	1.83	1.63	1.43	1.22	1.02	0.81	0.71	0.61						
GAH100	16	16	NPT3/8"	NPT3/8"	830.0	1.93	1.77	1.61	1.53	1.37	1.21	0.96	0.80	0.64	0.56	0.48	0.00				
GAH130	14	12	NPT3/8"	NPT3/8"	1079.0	1.48	1.42	1.36	1.23	1.11	0.99	0.86	0.74	0.62	0.49	0.43	0.37	0.12			
GAH170	12	6	NPT3/8"	NPT3/8"	1411.0	0.81	0.78	0.75	0.71	0.68	0.61	0.54	0.48	0.41	0.34	0.27	0.24	0.22	0.17		
GAH240	10	4	NPT3/8"	NPT1/4"	1992.0	0.57	0.54	0.52	0.49	0.47	0.42	0.38	0.33	0.28	0.24	0.19	0.16	0.14	0.12	0.09	
GAH300	9	3	NPT1/4"	※HF4	2490.0	0.46	0.44	0.44	0.42	0.40	0.38	0.34	0.31	0.27	0.23	0.19	0.17	0.15	0.12	0.10	
GAH400	8	3	NPT1/4"	※HF4	3320.0	0.36	0.35	0.35	0.33	0.32	0.30	0.27	0.24	0.21	0.18	0.15	0.14	0.12	0.11	0.11	0.08

The maximum acceptable air drive pressure (**Pa**) is 8.3 Bar.

GAT Series - 160mm Double Acting Liquid Pumps





GAT170 | GAT240 | GAT300 | GAT400

All dimensions are in mm unless otherwise stated

GAT Series Technical Data

Model	Piston/ Rod Diameter -mm	Flow per Cycle -ml	Liquid Inlet	Liquid Outlet	Max. Output Pressure Bar@ Drive 8.3 Bar	Output Fluid Pressure (Bar) 1 Bar=0.1 Mpa=1.019 Kg/cm²														
						0	20	40	70	100	150	200	300	400	500	600	700	900	1200	1700	2350
						Flow Rate/Minute (L/min)															
GAT10	50	294	NPT3/4"	NPT3/4"	83	35.30	26.50	20.60	17.70	11.80											
GAT16	40	188	NPT3/4"	NPT3/4"	132.8	22.62	16.97	13.20	11.31	7.54											
GAT20	35	144	NPT3/4"	NPT3/4"	166	17.32	14.43	12.99	11.55	10.10	0.00										
GAT28	30	106	NPT1/2"	NPT1/2"	232.4	12.72	10.60	9.54	8.48	7.42	6.36	0.00									
GAT40	25	73	NPT1/2"	NPT1/2"	332	8.84	7.36	6.63	5.89	5.15	4.42	3.68	0.00								
GAT64	20	47	NPT3/8"	NPT3/8"	498	5.65	4.71	4.24	3.77	3.30	2.83	2.36	1.88	1.41							
GAT80	18	38	NPT3/8"	NPT3/8"	664	4.58	3.82	3.44	3.05	2.67	2.29	1.91	1.53	1.34	1.15						
GAT100	16	30	NPT3/8"	NPT3/8"	830	3.62	3.32	3.02	2.87	2.56	2.26	1.81	1.51	1.21	1.06	0.90	0.00				
GAT130	14	23	NPT3/8"	NPT3/8"	1079	2.77	2.66	2.54	2.31	2.08	1.85	1.62	1.39	1.15	0.92	0.81	0.69	0.23			
GAT170	12	12	NPT3/8"	NPT3/8"	1411	1.49	1.43	1.37	1.31	124	1.12	1.00	0.87	0.75	0.62	0.50	0.44	0.37	0.12		
GAT240	10	8	NPT3/8"	※HF4	1992	1.04	0.99	0.95	0.91	0.86	0.78	0.69	0.60	0.52	0.43	0.35	0.30	0.26	0.22	0.17	
GAT300	9	7	NPT1/4"	※HF4	2490	0.84	0.81	0.81	0.77	0.74	0.70	0.63	0.56	0.49	0.42	0.35	0.32	0.28	0.32	0.18	
GAT400	8	5	NPT1/4"	※HF4	3320	0.66	0.64	0.64	0.61	0.58	0.55	0.50	0.44	0.39	0.33	0.28	0.25	0.22	0.21	0.19	0.14

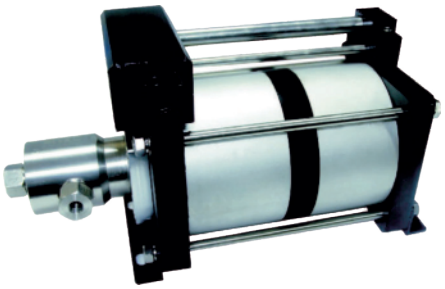
The maximum acceptable air drive pressure (**Pa**) is 8.3 Bar.

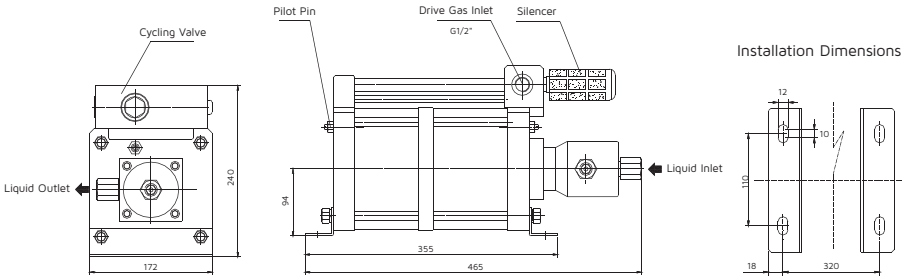
All dimensions are in mm unless otherwise stated.

G2AH Series - 160mm Single Acting Double Air Drive Liquid Pumps

The G2AH series pumps uses two 160mm **double** acting air drives connected, in series with a single liquid end. This effectively doubles the area of the air drive thus allowing for very high nominal ratios, although with the lower flow output of a single acting liquid pump.

Generally applied when extremely high pressures are required for testing or pressing applications.





G2AH512 | G2AH630 | G2AH800

G2AH Series Technical Data

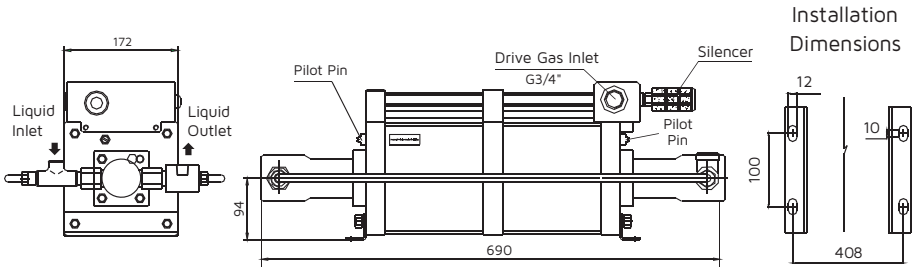
Model	Piston/ Rod Diameter -mm	Flow per Cycle -ml	Liquid Inlet -NPT	Liquid Outlet	Max. Output Pressure Bar@ Drive 8.3 Bar	Output Fluid Pressure (Bar) 1 Bar=0.1 Mpa=1.019 Kg/cm²													
						0	100	200	300	400	500	600	700	900	1200	1700	2200	2700	3600	4500
						Flow Rate/Minute (L/min)														
G2AH512	10	3	1/4"	HF4	4249	0.47	0.45	0.43	0.41	0.39	0.35	0.31	0.28	0.24	0.20	0.16	0.14	0.12	0.10
G2AH630	9	3	1/4"	HF4	5312	0.38	0.37	0.37	0.35	0.33	0.32	0.29	0.25	0.22	0.19	0.16	0.14	0.13	0.14	0.08
G2AH800	8	2	1/4"	HF4	6640	0.30	0.29	0.29	0.28	0.26	0.25	0.23	0.20	0.18	0.15	0.13	0.11	0.10	0.10	0.09	0.06

The maximum acceptable air drive pressure ( ) is 8.3 Bar.

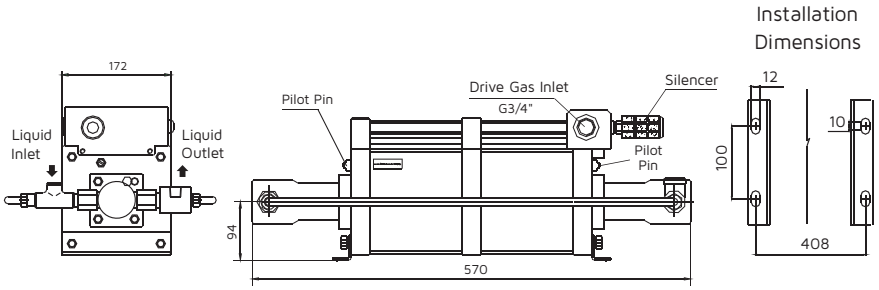
G2AT Series - 160mm Double Acting Double Air Drive Liquid Pumps

The G2AT Series pumps are larger units that have two 160mm diameter double acting air drives connected in series, with a liquid end connected to each end of the air drives. Due to the two liquid ends, the pump is double acting and delivers high pressure liquid outlet on both strokes of the reciprocating air drives. These pumps can be supplied with interconnecting tubing that connects both liquid inlets to a common port and both liquid outlets to a common port making for simple installation.

G2AT Series - 160mm Double Acting Double Air Drive Liquid Pumps



G2AT56 | G2AT80 | G2AT130 | G2AT160 | G2AT200



G2AT260 | G2AT355

G2AT Series Technical Data

Model	Piston/ Rod Diameter -mm	Flow per Cycle -ml	Liquid Inlet	Liquid Outlet	Max. Output Pressure Bar@ Drive 8.3 Bar	Output Fluid Pressure (Bar) 1 Bar=0.1 Mpa=1.019 Kg/cm²														
						0	20	40	70	100	150	200	300	400	500	600	700	900	1200	1700	2350
						Flow Rate/Minute (L/min)															
G2AT20	50	294	NPT3/4"	NPT3/4"	166	35.34	29.45	26.51	23.56	20.62	17.67	0.00									
G2AT40	40	188	NPT3/4"	NPT3/4"	265.6	22.62	18.85	16.97	15.08	13.20	11.31	9.43	0.00								
G2AT36	35	144	NPT1/2"	NPT1/2"	332	17.32	14.43	12.99	11.55	10.10	8.66	7.22	5.77	4.33							
G2AT56	30	106	NPT1/2"	NPT1/2"	464.8	12.72	10.60	9.54	8.48	7.42	6.36	5.30	4.24	3.71	3.18						
G2AT80	25	73	NPT3/8"	NPT3/8"	664	8.84	8.10	7.36	6.99	6.26	5.52	4.42	3.68	2.95	2.58	2.21	0.00				
G2AT130	20	47	NPT3/8"	NPT3/8"	1079	5.65	5.42	5.18	4.71	4.24	3.77	3.30	2.83	2.36	1.88	1.65	1.41	0.47			
G2AT160	18	38	NPT3/8"	NPT3/8"	1328	4.58	4.39	420	4.01	3.82	3.44	3.05	2.67	2.29	1.91	1.53	1.34	1.15	0.38		
G2AT200	16	30	NPT3/8"	※HF6	1660	3.62	3.47	3.32	3.17	3.02	2.71	2.41	2.11	1.81	1.51	1.21	1.06	0.90	0.75	0.60	
G2AT260	14	16	NPT3/8"	※HF4	2158	2.03	1.95	1.95	1.86	1.78	1.69	1.52	1.35	1.19	1.02	0.85	0.76	0.68	0.76	0.42	
G2AT355	12	12	NPT3/8"	※HF4	2947	1.49	1.43	1.43	1.37	1.31	1.24	1.12	1.00	0.87	0.75	0.62	0.56	0.50	0.47	0.44	0.31

The maximum acceptable air drive pressure (**Pa**) is 8.3 Bar.

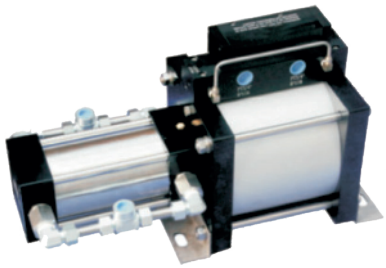
GGH Series - 250mm DRIVEN Single Acting Liquid Pumps

The pumps in the GGH Series are very high flow pumps.

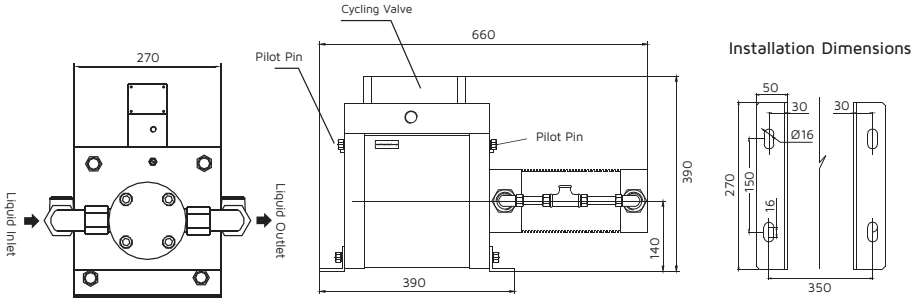
Similar in concept to the smaller GG series pump they use a 250 mm single acting air drive connected to a single liquid pump end.

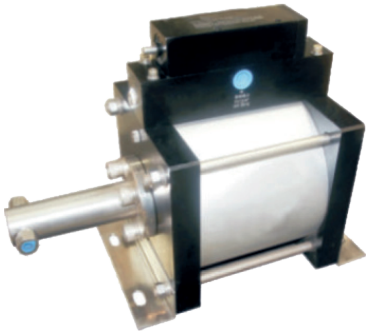
Although still very versatile, it has fewer nominal ratios available. Applications for this series include methanol injection and LPG transfer.

ProTech technical support can assist in the correct application of these very high performance pumps.



GGH04T | GGH10T
GGH25 | GGH40





GGH69 | GGH100 | GGH156 | GGH190 | PH240

GGH Series Technical Data

Model	Piston/ Rod Diameter -mm	Flow per Cycle -ml	Liquid Inlet	Liquid Outlet	Max. Output Pressure Bar@ Drive 8.3 Bar	Output Fluid Pressure (Bar) 1 Bar=0.1 Mpa=1.019 Kg/cm²														
						0	20	40	70	100	150	200	300	400	500	600	700	900	1200	1700
						Flow Rate/Minute (L/min)														
GGH10T	80	753	3/4″	3/4″	83	75.40	60.32	52.78	26.39	0.00										
GGH25	50	294	3/4″	3/4″	207	29.45	23.56	20.62	17.67	14.73	11.78	8.84	0.00							
GGH40	40	188	3/4″	3/4″	332	18.85	15.08	13.20	11.31	9.43	8.48	7.54	5.66	0.00						
GGH69	30	106	3/4″	1/2″	572	10.6	8.48	7.42	6.36	5.30	5.30	4.77	4.24	37.11	3.18	0.00				
GGH100	25	73	1/2″	1/2″	830	7.36	6.26	5.89	5.15	4.79	4.42	4.05	3.68	3.31	2.95	2.58	2.21	0.00		
GGH156	20	47	1/2″	HF6	1295	4.71	4.24	4.01	3.77	3.30	3.06	2.83	2.59	2.36	2.12	1.88	1.65	1.41	1.18	0.00
GGH190	18	27	3/8″	HF6	1577	2.80	2.52	2.38	2.24	2.10	1.96	1.82	1.68	1.54	1.40	1.26	1.12	0.98	0.84	0.00
GGH240	16	22	3/8″	HF6	2116	2.21	2.10	1.99	18.8	1.77	1.66	1.55	1.44	1.33	122	1.11	1.00	0.93	0.88	0.77

GGH04T Data Available on Request

The maximum acceptable air drive pressure ( ) is 8.3 Bar.

N.B. All dimensions are in mm unless otherwise stated.

GGT Series - 250mm Double Acting Liquid Pumps

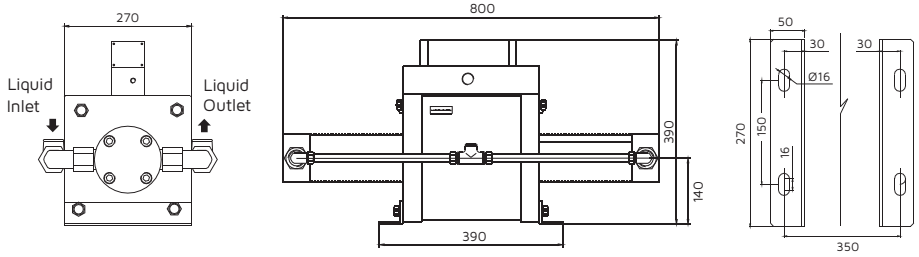
The GGT 250 series pumps are very high flow pumps. Similar in concept to the smaller GAT series pumps but using a 250mm double acting air drive with a liquid end connected to each end of the air drive.

The two liquid ends make the pump double acting by delivering high pressure liquid outlet on both strokes of the reciprocating air drive. This makes the GGT series almost twice as efficient as the GGH series. These pumps can be supplied with interconnecting tubing that connects both liquid inlets to a common port and both liquid outlets to a common port making for a simple installation. GGH pumps are generally used when more flow is required than that delivered by the corresponding GAH or GAT unit.

An important application for this series of air driven liquid pumps is methanol injection and LPG transfer.

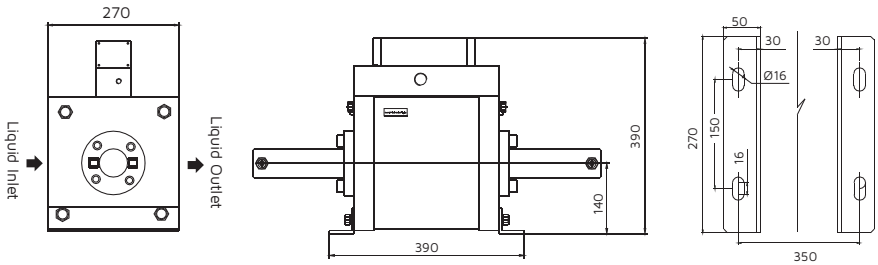
GGT25 | GGT40
GGT69 | GGT100

Installation Dimensions



GGT156 | GGT190 | GGT240

Installation Dimensions



GGT Series Technical Data

Model	Piston/ Rod Diameter -mm	Flow per Cycle -ml	Liquid Inlet	Liquid Outlet	Max. Output Pressure Bar@ Drive 8.3 Bar	Output Fluid Pressure (Bar) 1 Bar=0.1 Mpa=1.019 Kg/cm²													
						0	20	40	70	100	150	200	300	400	500	600	700	900	1200	1700
						Flow Rate/Minute (L/min)													
GGT25	50	549	NPT3/4"	NPT3/4"	207	54.98	43.98	38.48	32.99	27.49	21.99	16.49	0.00						
GGT40	40	351	NPT3/4"	NPT3/4"	332	35.19	28.15	24.63	21.11	17.59	15.83	14.07	10.56	0.00					
GGT69	30	197	NPT3/4"	NPT1/2"	572	19.79	15.83	13.85	11.88	9.90	9.90	8.91	7.92	69.27	5.94	0.00			
GGT100	25	137	NPT1/2"	NPT1/2"	830	13.74	11.68	11.00	9.62	8.93	8.25	7.56	6.87	6.18	5.50	4.81	4.12	0.00	
GGT156	20	87	NPT1/2"	※HF6	1295	8.80	7.92	7.48	7.04	6.16	5.72	5.28	4.84	4.40	3.96	3.52	3.08	2.64	2.20	0.00
GGT190	18	71	NPT3/8"	※HF6	1577	7.13	6.41	6.06	5.70	5.34	4.99	4.63	4.28	3.92	3.56	3.21	2.85	2.49	2.14	0.00
GGT240	16	56	NPT3/8"	※HF6	2116	5.63	5.35	5.07	47.86	4.50	4.22	3.94	3.66	3.38	3.10	2.82	2.53	2.36	2.25	1.97

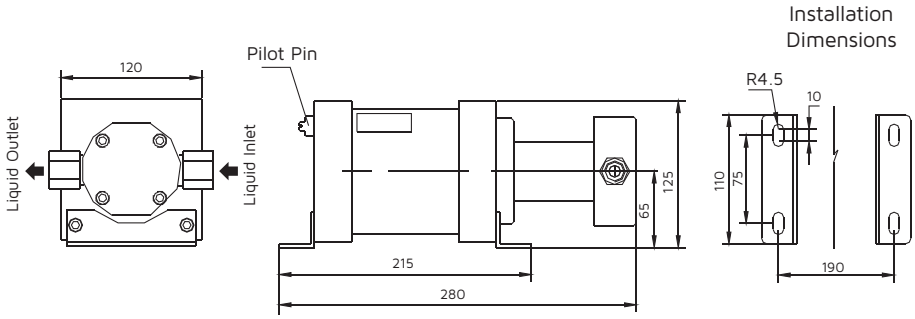
The maximum acceptable air drive pressure (**Pa**) is 8.3 Bar.

GZB Series - 160mm Liquefied Gas Pumps

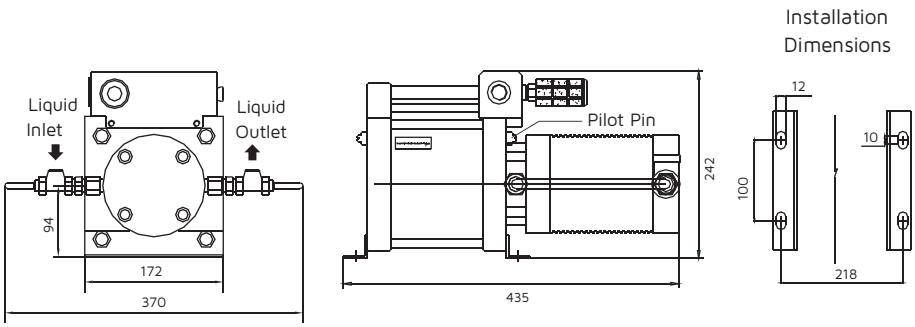
The GZB series of liquid pumps are unique in the GRETEC range as they use pistons rather than plungers in the liquid ends. This enables them to achieve high pressure outlet flows in both directions of the reciprocating pump action, making them double acting and very efficient. All GZB Series pumps are suitable for liquids, gases and vapours. They are also capable of drawing a vacuum down to 11.25 psi(absolute) in the 2-stage configuration.

Applications:

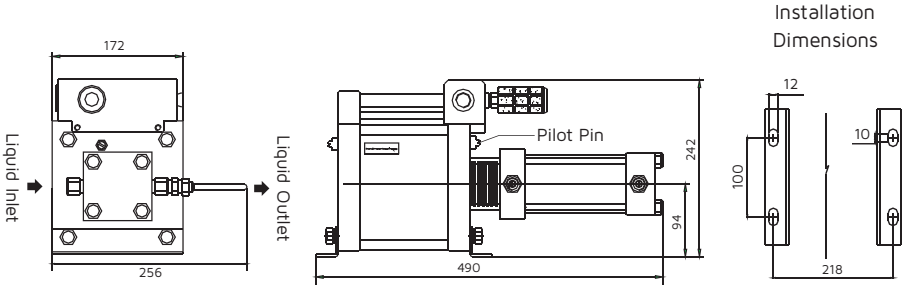
- Used in R22, R134a, R470C, R410A, CO2, Propane, Butane, LPG and other liquefied gases
- Super critical extraction including essential oils and caffeine
- Fire extinguisher pump out and charging
- Refrigerant charging or recovery of residual fluid from large tanks



GZB05 | GZB07



GZB05D | GZB07D



G4ZB06 | G4ZB10

All dimensions are in mm unless otherwise stated.

GZB Series - 160mm Liquefied Gas Pumps

GZB Series Technical Data

Model	Actual Ratio	Displacement Per Cycle -ml	Minimum Inlet Pressure **(Pi)** -Bar	Maximum Outlet Pressure **(Po)** - Bar	Refrigerant Outlet Pressure Calculation Formula **(Po)**	Inlet	Outlet
GZB05(-D)	4:1	779	0.1	33.2	4Pa+Pi	NPT3/8″	NPT3/8″
GZB07(-D)	7:1	473	3.4	56	7Pa	NPT3/8″	NPT3/8″
GZB10	10:1	402	3.4	83	10Pa	NPT3/8″	NPT3/8″
G4ZB06	6:1	1636	3.4	48	6Pa+Pi	NPT3/4″	NPT3/4″
G4ZB10	10:1	981	3.4	83	10Pa+Pi	NPT3/4″	NPT3/4″

Type D is isolated (completely isolated between the drive chamber and the boost chamber).
The maximum acceptable air drive pressure (**Pa**) is 8.3 Bar.

GZB Series Technical Data - Air Refrigerant Pump Working Medium

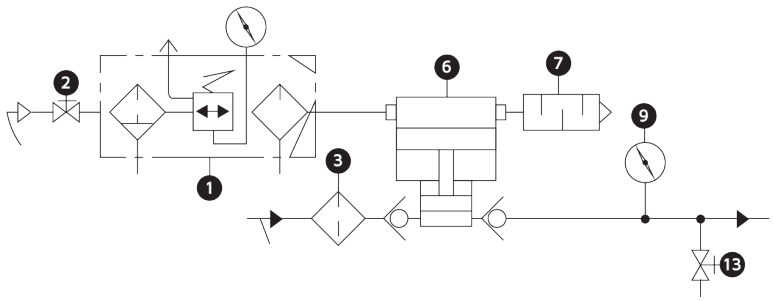
R12 - methyl chlorofluoride
R22 - monochlorodifluoromethane
R32 - difluoromethane
R134A - tetrafluoroethane
R310A - R410A
R407C - difluoromethane
R290 - propane

Critical Pressure/MPA, Critical Temperature/c, and Boiling Point /c available on request.

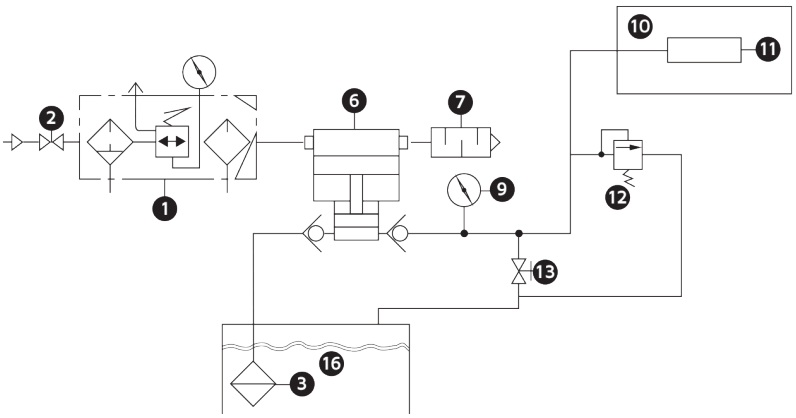
We always recommend seeking advice when using the pump on gases and liquids that are potentially explosive or toxic to ensure that proper venting is considered during design.

Typical Air Driven Liquid Pumps Typical Circuit Diagram

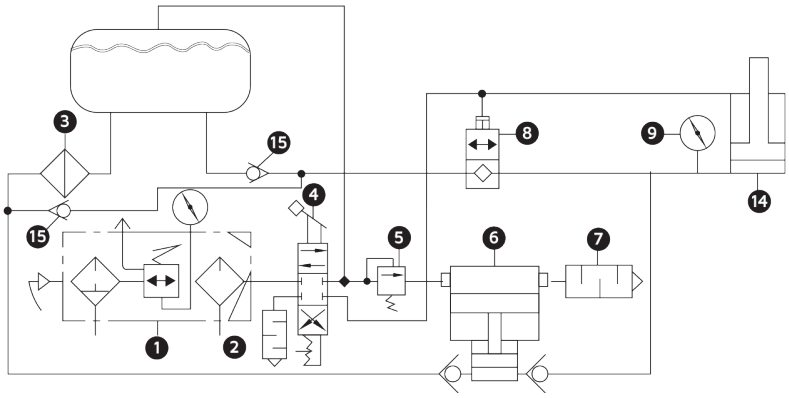
Typical Installation Circuit Diagram



Typical Static Pressure Test



Typical Hydraulic Pressure Circuit



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PROPAK PACKAGED SYSTEMS

ProPak is an off-the-shelf range of rollbar systems that include all the valves, fittings and gauges as standard. We can also customise these units to meet your application's exact requirements.

Intrinsically safe - no heat, sparks of flames produced

No Contamination - complete separation between driving gas and compressed liquids

No Lubrication Required - on air/gas drive section

High Fluid Compatibility - hydraulic oil, water and corrosive gasses and liquids

Start & Stop Against Load - stall occurs when pressure balance is achieved

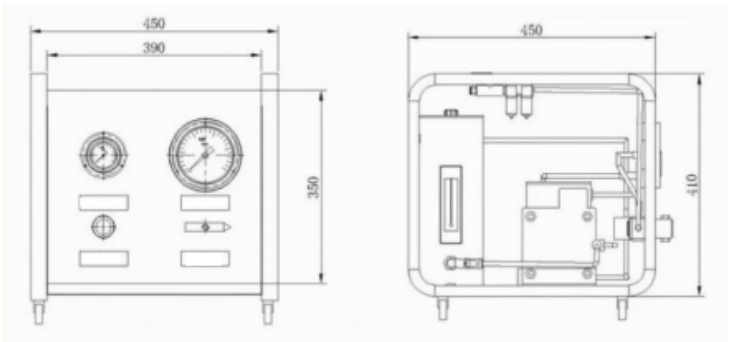
Driven with Air or other Gases - including nitrogen, Co2 and natural gas

Suitable for Hazardous Area - with models for underground coal mines and offshore

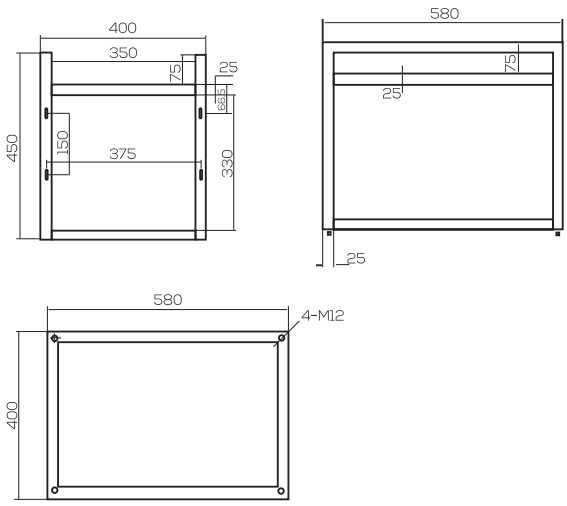
ProPaks for Liquid Pumps

Standard Inclusions:

- Air pressure regulator
- Air filter
- Air pressure gauge
- On/Off speed control valve
- GRETEC air driven liquid pump
- Stainless steel tank with suction strainer or external connection
- Sight Glass and filler/breather cap
- Outlet pressure gauge
- Return to tank valve
- Discharge outlet connection



GM Series
Tank Size: 4L
Overall Dimensions: 450x350x410



GX, GXH, GXT GAH, GAT Series
Tank Size: 10L
Overall Dimensions: 580x400x450

GT and GH series pumps are also available on request.

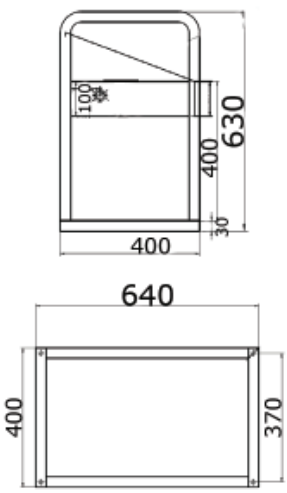
ProPaks for Gas Boosters

Standard Inclusions:

- Air pressure regulator
- Air filter
- Air pressure gauge
- On/Off speed control valve
- GRETEC air driven gas booster
- Inlet and outlet gas filter
- Inlet and outlet pressure gauge
- Safety relief valve
- Inlet and outlet isolation vslves

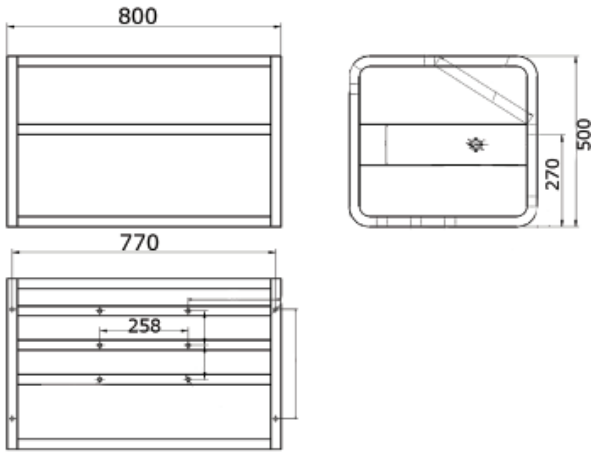
GGB Series

Tank Size: No Tank
Overall Dimensions: 640x400x630



GGBD, GGBT Series

Tank Size: No Tank
Overall Dimensions: 800x550x500

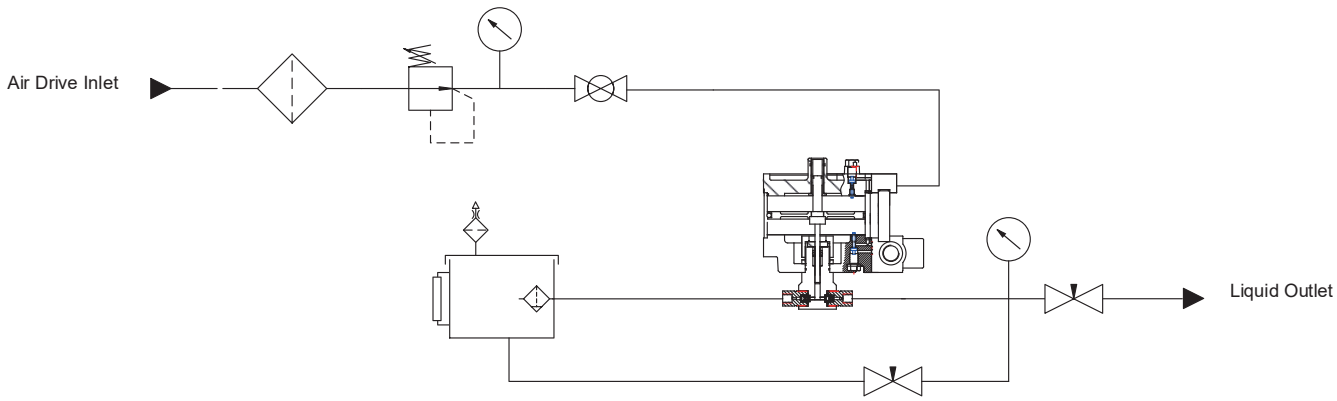


All dimensions are in mm unless otherwise stated.

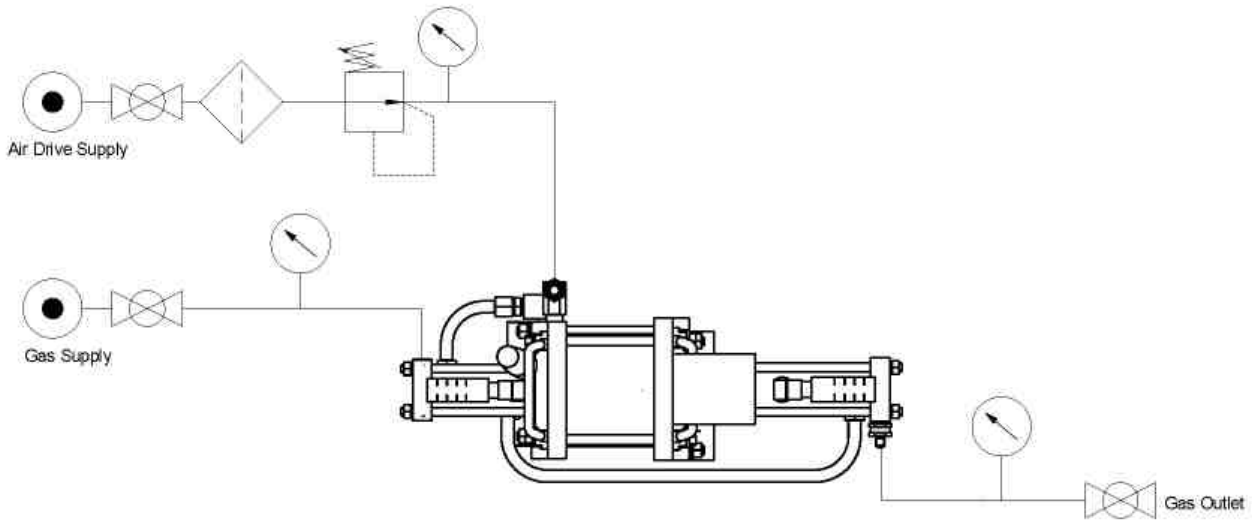
ProPaks - Customised

For more complex applications, we can design and build fully customised skids: PP6- Custom Liquid Pumps and PP7- Custom Gas Boosters.

Standard Air Driven Liquid Pump ProPak Circuit Diagram:



Standard Gas Booster ProPak Circuit Diagram:



All dimensions are in mm unless otherwise stated.

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