

AirBooster



Point of Use Solutions

Custom designed air operated positive displacement air amplifier boosters provide a constant reliable supply of air pressure to point of use application.

Point of use pressure solutions



AirBooster air amplifiers are designed to boost plant air pressure or increase the supply air pressure at work stations and pneumatically operated machinery when the available working pressure is insufficient. Air operated tools become more efficient when coupled with air amplifiers. These amplifiers are capable of generating pressures from 30 psi to 4,350 psi. Air amplifiers do not need electrical power, since they use the same compressed air source for both driving and amplifying. This ensures quick installation and cost effective operation. Air amplifiers can be controlled to automatically stop once the desired end pressure has been reached. The amplifier will restart when a drop of only 1% from the stall pressure has been detected. Single stage – single acting and single stage – double acting air amplifiers are available to satisfy most pressure and flow demands. Amplifiers are ideal for intermittent pressure requirements. AirBooster offers complete turn-key systems for easy installation. In addition, technical application and service support is available for all air amplifiers and turn-key systems.

Features

- Air pressures from 30 psi to 4,350 psi
- Compact, lightweight design
- Easy installation and operation
- Single or double acting
- No electrical power required
- Stall at target pressure, automatic restart after a drop of only 1% from target pressure
- PTFE seals
- Unregulated pilot port for easy restart and better control on all IMP5, IMP64 and IMP94 models (1/8" FNPT)
- Standard and custom application designed systems

Applications

- Boost insufficient shop air or supply air
- Work benches and equipment with limited space
- High pressure air cleaning
- Drive pneumatic cylinders
- Improve efficiency of pneumatic tools and machinery
- Boost air for part removal, valve gates and /or automation equipment for injection molding
- PTFE seals
- Can be used in explosion proof areas

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How the AirBooster works

AirBoosters are intended for use in boosting existing plant air to higher pressures. Each amplifier has a spool valve that acts like a 4-way directional control valve. Plant air is supplied to this spool valve which automatically cycles back and forth. The plant air that is fed into the spool valve is alternately directed, as the spool cycles, to the main air drive piston in the air drive cylinder. This causes the piston to cycle back and forth in the amplifier. There is also a high pressure section where the air, that is to be pressurized, is supplied. The air flows into the amplifier pressure chamber, through the inlet check valve(s), on the suction stroke and is pressed out of the chamber, through the outlet check valve(s), on the discharge stroke. The reciprocating movement of the air drive section, connected directly to the high pressure section, creates a positive displacement of air through the inlet and outlet check valves. There are single and double acting models available. The

single acting amplifiers displace air once per full cycle. The double acting amplifiers displace air every stroke, or twice per full cycle, providing higher and more constant flows. These amplifiers can be installed in any position, but vertical mounting is best for longest seal life. All connections to the amplifier must be run with equal to, or greater than, the connection size in the amplifier.

Technical information amplifiers

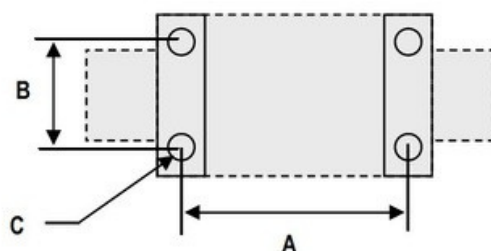
Style	Pump Model	Pressure Ratio	Compression Ratio	Supply Pressure (PSI)		Max Rated Pressure (PSI)	Stall Pressure	Connections		Max Temp ° F	Weight (lbs)
				Min	Max			Inlet	Outlet		
Single Acting	IMP1-1	5:1	15:1	30	725	725	5Pa	3/8	3/8	140	35
	IMP2-1	15:1	20:1	100	2175	2175	15Pa	1/4	1/4	210	35
	IMP3-1	30:1	20:1	220	4350	4350	30Pa	9/16-18	9/16-18	210	35
Double Acting	IMP4	2:1	-	15	125	250	2Pa	1/4	1/4	160	4
	IMP5	2:1	-	15	150	300	Pa+Ps	1/4	1/4	180	12
	IMP64	2:1	-	15	150	300	Pa+Ps	3/8	3/8	180	18
	IMP94	2:1	-	25	150	300	Pa+Ps	3/8	3/8	180	45
	IMP1	5:1	15:1	30	1450	1450	5Pa+Ps	3/8	3/8	140	48
	IMP2	15:1	20:1	100	4350	4350	15Pa+Ps	1/4	1/4	210	48

NOTE : Pa = Air Drive Pressure (PSI) Ps = Supply Pressure (PSI) Maximum air drive pressure 145 psi Maximum operating and stall pressures must not be allowed to exceed output pressure rating. The 9/16-18 is a 1/4" O.D. tubing, high pressure coned and threaded connection, all other connections are FNPT. Air drive inlet connection on IMP4 and IMP5 is 1/4" FNPT. Air drive inlet connection on all other air amplifiers is 1/2" FNPT. There is a 1/8" FNPT pilot port on all amplifiers, except IMP4 and IMP5, which must be plumbed from air source.

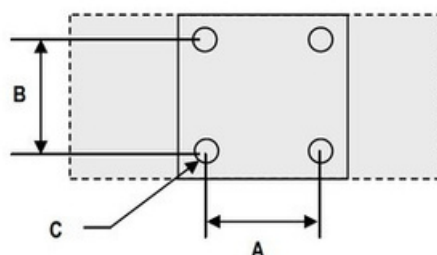
NOTE: The air to the amplifier should be filtered to between 5μ and 40μ and have a dew point between 0°F and 50°F. Very moist air can wash out the seal lubricant and very dry air may require a lubricator.

Overall amplifier dimensions (inches)

Mounting dimensions for models
IMP1-1 IMP2-1 IMP3-1 IMP5 IMP1 IMP2



Mounting dimensions for models
IMP4 IMP64 IMP94

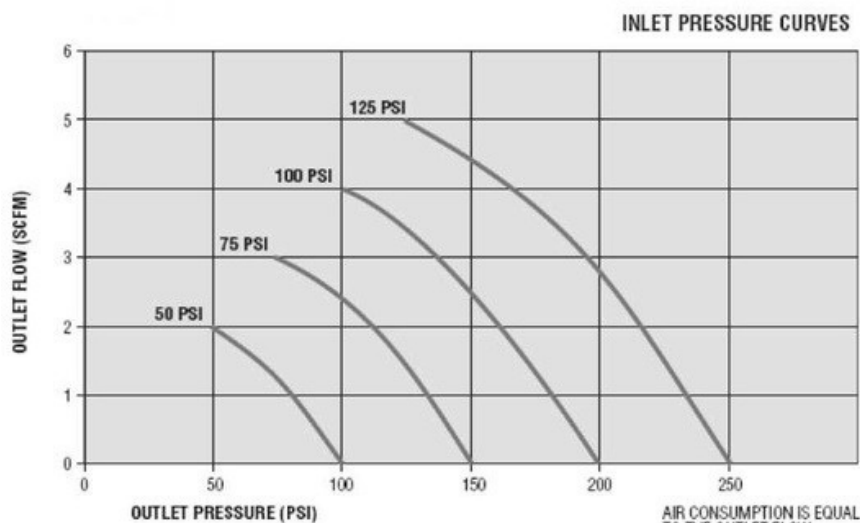


Style	Pump Model	Length	Width	Height	A	B	C
Single Acting	IMP1-1	16.63	6.75	10.75	9.00	3.13	0.44
	IMP2-1	17.00	6.75	10.75	9.00	3.13	0.44
	IMP3-1	17.00	6.75	10.75	9.00	3.13	0.44
Double Acting	IMP4	7.38	3.50	3.06	1.79	2.98	0.28
	IMP5	13.38	3.25	3.50	12.81	2.00	0.38
	IMP64	12.75	5.75	8.00	3.75	4.97	0.38
	IMP94	17.00	8.00	11.00	3.75	7.13	0.38
	IMP1	24.00	9.00	9.00	9.00	3.13	0.44
	IMP2	24.25	9.00	9.00	9.00	3.13	0.44

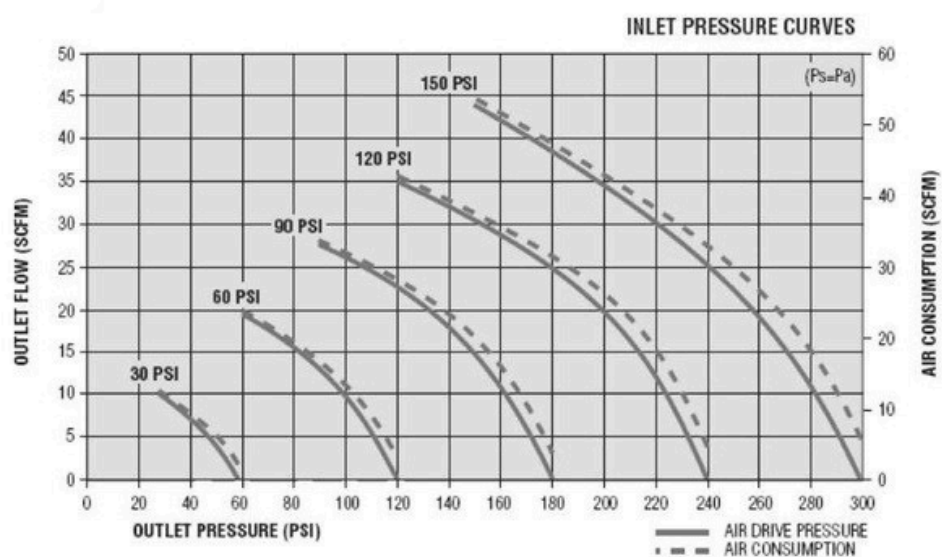
SINGLE STAGE - DOUBLE ACTING

For applications demanding a high flow rate as well as increased air pressure, AirBooster offers a variety of 2:1 ratio single stage – double acting air amplifiers to meet your flow demands. These 2:1 units include the IMP4, IMP5, IMP64 and IMP94. These air amplifiers are a safe and efficient solution to insufficient air pressures at work stations. The IMP94 can deliver twice the amount of supply pressure, up to 300 psi, with flow rates up to 125 SCFM.

IMP4 – Light Duty



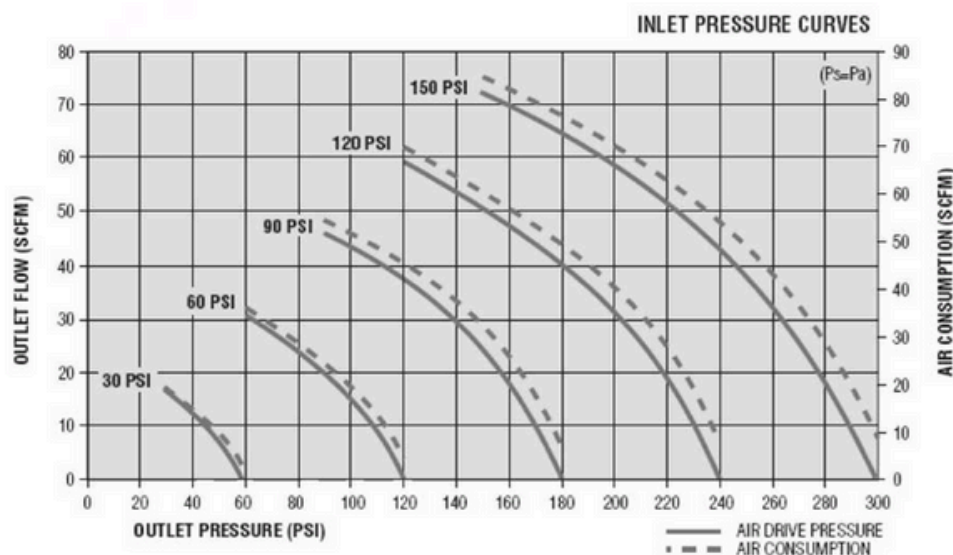
IMP5 – Medium Duty



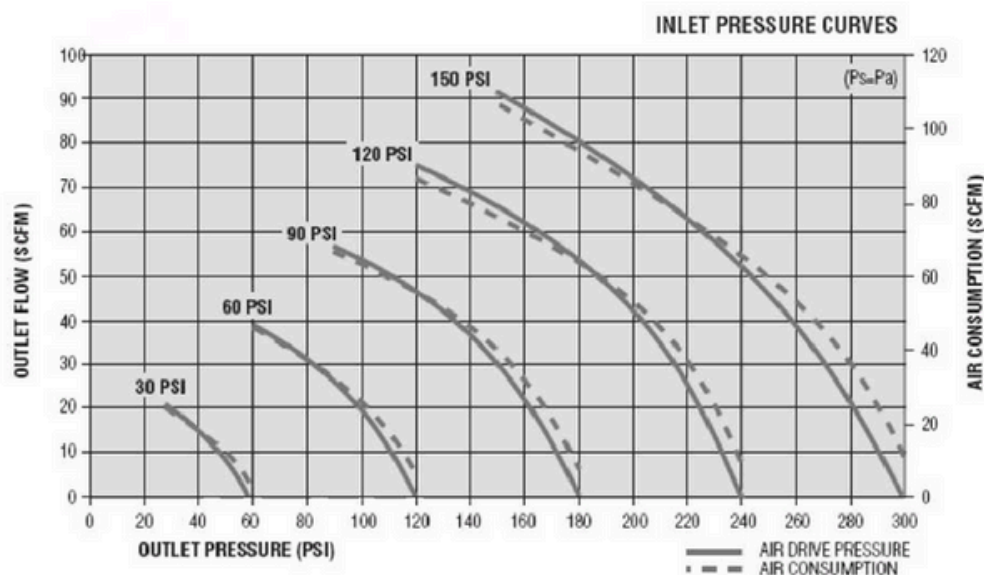
How to use the curves

To find output flow rate from graphs below, locate desired outlet pressure on bottom axis. Move vertically from that point until you intersect the solid curve for the inlet air pressure you have available. At this point, move horizontally to the left axis. That point is the value of the outlet flow rate. To obtain the air consumption value to drive the amplifier, move vertically up from the desired outlet pressure until you intersect the dashed curve for the inlet air pressure available. From this point, move horizontally to the right axis. That point is the air consumed. The total air flow required to the amplifier is the sum of the outlet flow plus the air drive flow.

IMP64 – Heavy Duty



IMP94 – Industrial Duty

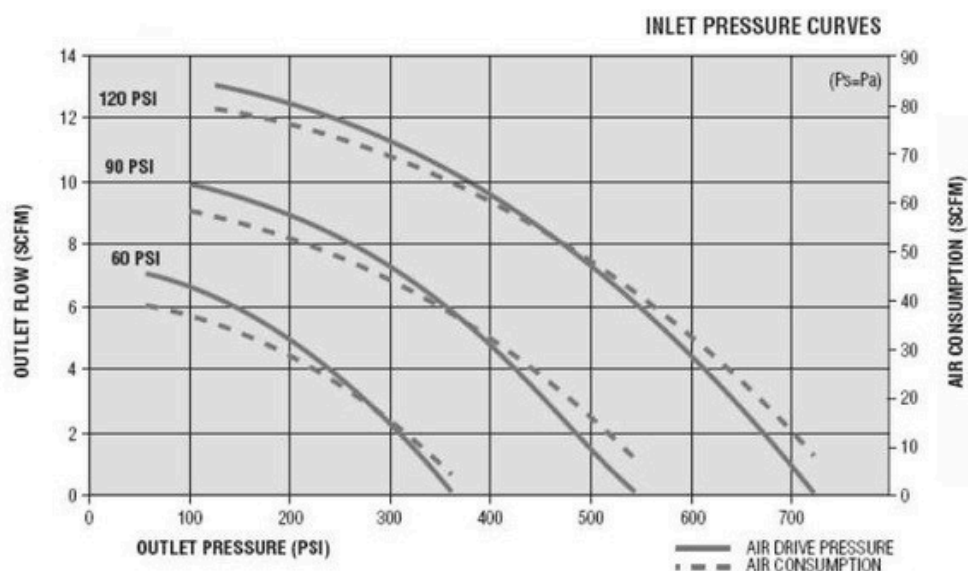


SINGLE STAGE - DOUBLE ACTING

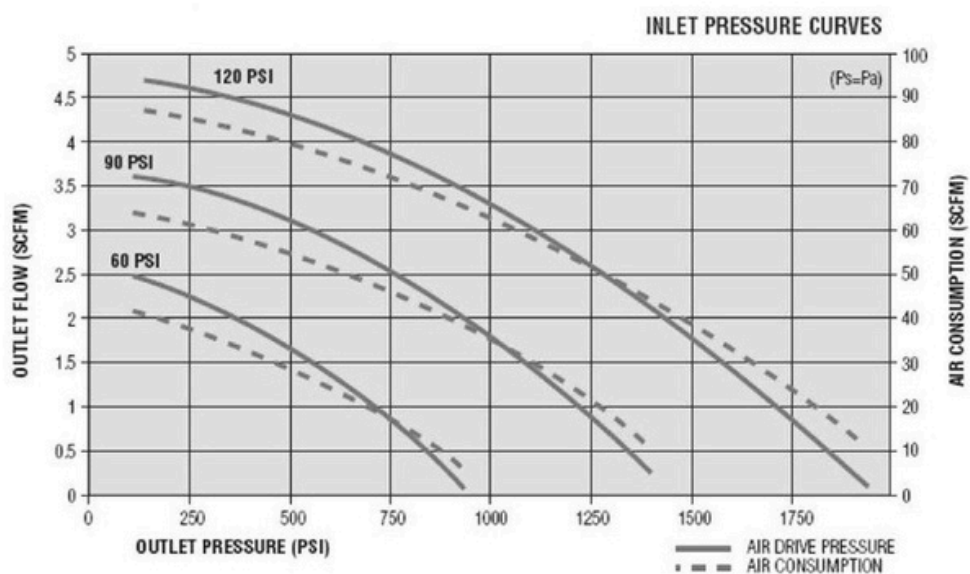
Multiple ratio

For applications demanding a high flow rate as well as increased air pressure, AirBooster offers multiple ratio single stage – double acting air amplifiers. Double acting models include the IMP1 and IMP2. These air amplifiers are a safe and efficient solution to insufficient air pressures at work stations up to 4,350 psi.

IMP1



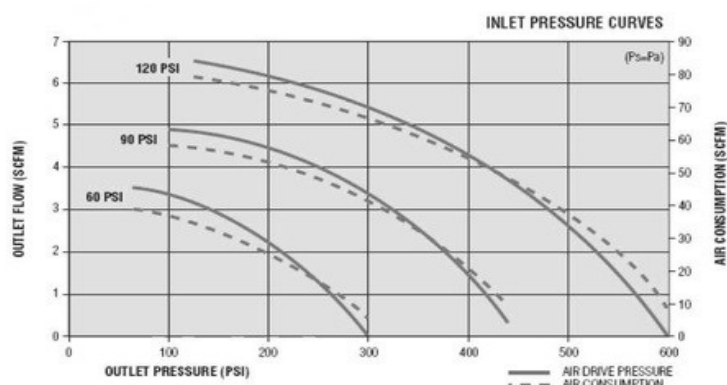
IMP2



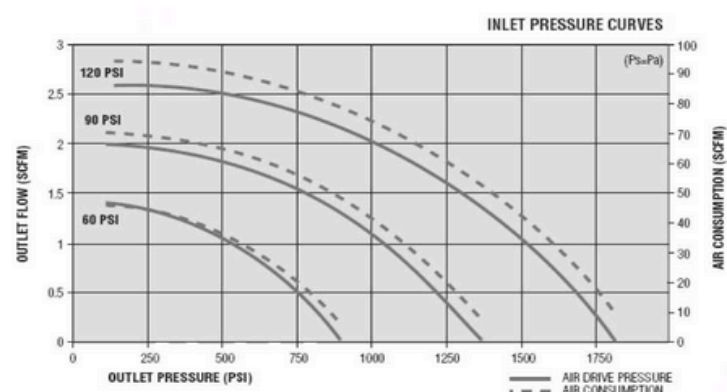
SINGLE STAGE - SINGLE ACTING

Multiple ratio

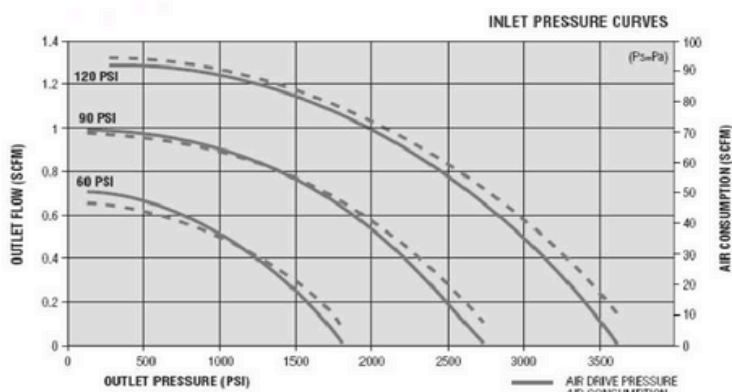
AirBooster offers three air amplifier models in a single stage – single acting configuration. Single acting models include the IMP1-1, IMP2-1 and IMP3-1. These units provide high pressure air amplification, up to 4,350 psi. Airbooster air amplifiers are compact and lightweight for easy installation and operation.



IMP1-1



IMP2-1



IMP3-1

AirBooster systems

AirBooster Air Amplifier Systems are ideal for turn-key installation at work stations or machine centers to boost plant air pressure for tools or operation of pneumatic clamps, cylinders and other equipment. These systems provide short-term high flow air or constant flow with reserve, at a constant regulated output pressure. Storage tanks are per A.S.M.E. Code, CRN code (Canada) or European PED standards and come with a safety relief valve, drain valve and liquid filled pressure gauges. Each 200 psi and 250 psi system is also equipped with an inlet air filter and outlet pressure regulator with gauge, all mounted on a common base. The 500 psi and 600 psi systems are equipped with an inlet air filter and inlet air pressure regulator with gauge. High pressure outlet regulator with gauge is available as an option (Add "-R" for a 1/4" FNPT regulator or "-1/2 R" for a 1/2" FNPT high flow regulator to system catalog number). AirBooster Systems are available in a number of arrangements and custom designed units are also available to suit your specific flow and pressure requirements. Please consult factory.

Model Number	Pump Model	Tank Size (Gallon)	System Rating (PSI)	Mounting Dimensions	Overall size LxWxH (in)	Inlet Size (in)	Discharge Size (in)	Weight (lbs)
2:1 Ratio Systems								
IMP4-S-1GV	IMP4	1.6	250	7.13x9.00x0.38	13x8x22	1/4	1/4	26
IMP5-S-1GV	IMP5	1.6	250	7.13x9.00x0.38	13x8x22	1/2	1/2	60
IMP5-S-4GH	IMP5	4	250	5.00x12.25x0.44	22x15x18	1/2	1/2	72
IMP5-S-10GH	IMP5	10	200	9.25x18.00x0.44	36x14x18	1/2	1/2	63
IMP64-S-4GH	IMP64	4	250	5.00x12.25x0.44	22x16x22	1/2	1/2	78
IMP64-S-10GH	IMP64	10	200	9.25x18.00x0.44	36x14x22	1/2	1/2	71
IMP64-S-15GH	IMP64	15	200	11.00x20.00x0.44	39x14x24	1/2	1/2	86
IMP94-S-4GH	IMP94	4	250	5.00x12.25x0.44	22x20x26	1/2	1/2	110
IMP94-S-15GH	IMP94	15	200	11.00x20.00x0.44	39x15x26	1/2	1/2	113
IMP94-S-30GH	IMP94	30	200	12.81x20.00x0.44	44x17x32	1/2	1/2	165
IMP94-D-30GH	(2) IMP94	30	200	12.81x20.00x0.44	44x18x32	(2) 1/2	1/2	215
IMP94-D-60GH	(2) IMP94	60	200	16.50x24.00x0.57	54x23x32	(2) 1/2	1/2	312
IMP94-D-80GH	(2) IMP94	80	200	16.50x32.00x0.57	70x23x32	(2) 1/2	1/2	371
IMP94-D-120GH	(2) IMP94	120	200	20.63x34.00x0.69	75x23x32	(2) 1/2	1/2	490
IMP94-T-60GH	(3) IMP94	60	200	16.50x24.00x0.57	54x23x32	1	1	367
IMP94-Q-80GH	(4) IMP94	80	200	16.50x32.00x0.57	96x23x57	1 1/2	1	968
Multiple Ratio Systems								
IMP1-S-4GH	IMP1	4	500	5.00x12.25x0.44	20x26x26	1/2	1/2	128
IMP1-1-S-4GH	IMP1-1	4	500	5.00x12.25x0.44	22x26x26	1/2	1/2	115

NOTE: See performance curves for flow rates on appropriate amplifier. Dimension are approximate and subject to change. Weight are approximate and subject to change. The table above does not reflect shipping weight or shipping dimensions.

AirBooster Systems 2:1 Ratio



IMP4-S-1GV



IMP5-S-1GV



IMP5-S-4GH



IMP5-S-10GH



IMP64-S-4GH



IMP64-S-15GH



IMP94-S-4GH



IMP94-S-15GH



IMP94-S-30GH

AirBooster Systems

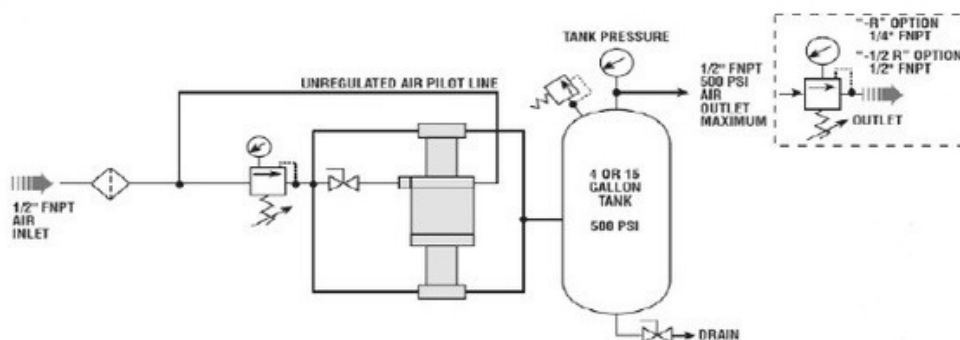
Multiple Ratio 5:1, 15:1 and 30:1



IMP1-1-S-4GH -5:1Ratio



IMP1-S-4GH - 5:1 Ratio



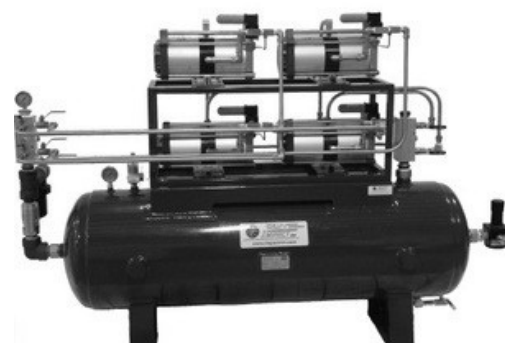
Impact RM custom high pressure boosters are suitable for oil free compression of compressed air and gases. Industrial gases like Argon, Helium, Hydrogen and Nitrogen can be compressed to operating pressures of 21,750 psi (1,500 bar), Oxygen to 5,075 psi (350 bar)

Custom Systems

AirBooster custom air amplifier systems are designed to suit your specific flow and pressure requirements. As with all custom AirBooster systems, the design may incorporate a number of options unique to your application. Specifications may include overall size, inlet or outlet size, air amplifier type, tank size and psi rating. Custom systems are capable of generating pressures from 30 psi to 4,350 psi. AirBooster custom air amplifier systems are ideal for boosting pressure to pneumatic tools, clamps and cylinders. These systems will also maintain elevated pressures to machinery and test equipment, and provide high pressure air for robotics, injection molding and general industrial applications. Please consult factory.

Quad System. This custom made booster designed with four IMP94 amplifiers on a PED Certified tank with DAS (Dry Air Spool) for longer life . Operates outdoors in an explosion proof environment.

IMP94-Q-80GH-DAS-PED



IMP94-D-60GV-DAS



Duplex Vertical System. This booster was designed with two IMP94 amplifiers on an space saving 60 gallon vertical tank. Provides air to a bearing on a production machine that runs 24 hours per day.

IMP94-T-60GH-DAS



Triplex System. This custom made booster designed with three IMP94 amplifiers on an ASME Certified tank with DAS (Dry Air Spool) for longer life

Accessories

AIR CONTROL PACKAGE - All AirBooster air amplifiers are available with an optional air control unit – ACP (except for the IMP4 and IMP5 which use an ACM). This package is shown below and consists of an air filter, regulator with gauge, shut-off valve and necessary fittings and hose for plumbing the unregulated pilot port on all IMP1-1, IMP2-1, IMP3-1, IMP1, IMP2, IMP64 and IMP94 models. AirBooster offers a wide variety of other accessories to assist the installation of your Air Amplifier, such as strainers, filters, receiver tanks, gauges, valves and fittings air dryers.



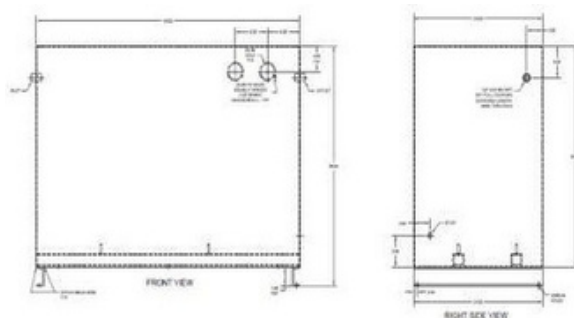
(DAS) DRY AIRSPOOL used In applications where very dry air or nitrogen is used to drive Impact RM pumps or boosters there is a new spool seal option available that provides longer duty between maintenance. This Dry Air Spool (DAS) option should be considered for extreme operating conditions involving air or gas drive mediums below 0°F. dew point, and similarly, very cold climate applications (Example: Ft. McMurray, Alberta often sees -45°C.)



AIR PILOT SWITCH can be used to shut off Airbooster pumps, air amplifiers and gas boosters, with pilot ports, by controlling the pneumatic signal to the air pilot line. Allows the pump, amplifier or booster to operate at maximum air drive pressure, achieving the desired outlet pressure as rapidly as possible with little overshoot. Ideal for use as an on/off control device for air operated actuators and pilot operated valves in process control applications. Pressure ranges from 145 to 14,500 psi.



WEATHER ENCLOSURES - Powder coated weather enclosure for extreme outdoor operating conditions. Protects the Airbooster from a harsh environment of rain or snow.



Other Impact RM products

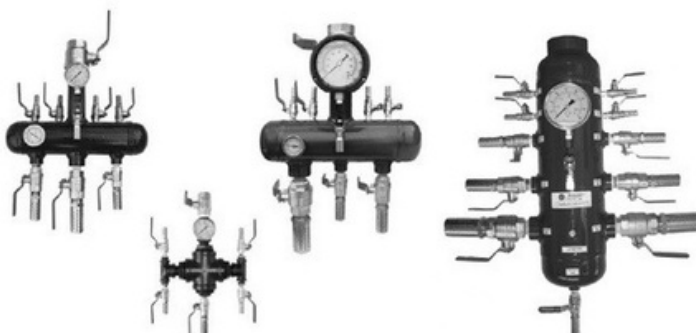
Gas Boosters Systems

Air driven to 15,000psi
Ideal for gas salvage
Requires no lubrication or electrical power
Unit is contaminant free
For use with a variety of gases
For gas reclaim and bottle filling



Compressed Air Flow Meters

Test compressor capacity
Quantify air leakage in the plant
Test plant air consumption
Standard Range 10 - 3000 CFM
Custom models available



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