

Haskel®

Pressure on Demand

*Pneumatic and Hydraulic Driven
Gas Boosters*



Why Use a Haskel Gas Booster

Haskel pneumatic and hydraulic driven gas boosters offer a flexible and efficient source for delivering high pressure gases.

Oxygen or High Purity Cleaning: Haskel boosters are noted for their cleanliness and can handle pure gases such as oxygen without risk of any contamination. (Special cleaning required – advise factory.) Haskel's oxygen cleaned products are certified per Mil Spec 1330. Refer to the Knowledge Library Link on the Haskel website, www.haskel.com, for the Oxygen Usage - Best Practice Guide.

Multi-Staging Capability: For higher flow rates and pressures, beyond the capability of a single gas booster, one or more boosters of the same ratio may be plumbed in parallel and then in series with one or more boosters of the same ratio.

High Flow Rates at High Pressures: When high flow rates at high pressures are needed, the booster can charge a receiver to an even higher pressure level, thus storing a volume of gas available for rapid release at a constant pressure through a pressure reducing valve.

Cost Savings: Most industrial gases are commonly delivered at pressures of 2,000 – 2,600 psi in steel cylinders. If the gas is to be used well below the supply pressure, the pressurized supply is easily piped and controlled to the point of use with simple valving. However, if the end use requires the gas to be used at higher pressures than the supply it will have to be boosted. Gas Boosters can utilize all the gas from a supply source such as cylinders, and boost the gas to whatever pressures (and flows) are required by the application; thus utilizing all the gas volume from the supply source.

If the application requires a pressure greater than common supply cylinder pressures, a booster can often be justified not only because of utilization of the gas, but also because it will eliminate the need to purchase the gas in special higher pressure more costly supply cylinders such as 3,600 or 6,000 psi.



Pneumatic Driven Gas Booster Features

- Reliable, easy to maintain, compact and robust
- No heat, flame or spark risk
- Infinitely variable cycling speed and output
- Pneumatic driven models do not require electrical connection
- Easy to apply automatic controls
- No limit or adverse affect to continuous stop/start applications
- Seal systems designed for long working life
- No airline lubricator required
- Hydrocarbon free – separation between air and gas sections
- Pressures to 39,000 psi (2690 bar)
- Built-in cooling (most models)
- Standard & custom systems available
- Suitable for most gases
- Single, double acting, and two-stage models
- Ability to stall at any predetermined pressure and hold the fixed pressure without consuming power or generating heat

Introduction to Pneumatic Driven Gas Boosters

Theory of Operation

Haskel Gas Boosters consist of a large area reciprocating air drive piston directly coupled by a connecting rod to a small area gas piston. The gas piston operates in a high pressure gas barrel section. Each gas barrel end cap contains high pressure inlet and outlet check valves. Varying applications require many different booster and horse power (HP) combinations. Haskel can assist with HP and Cooling requirements and provide circuitry assistance on the following issues: PID Control - review and advisement, electrical control, and heat exchanger recommendations. General HPU recommendations and guidelines are available from Haskel drawing 87100-TAB. The air drive section includes a cycling spool and pilot valves that provide continuous reciprocating action when air is supplied to the air drive inlet. The ratio between the area of the air drive piston and the gas driven piston is indicated by the number in the model description and approximates the maximum pressure the gas booster is capable of generating.

Isolation of the gas compression chambers from the air drive section is provided by three sets of dynamic seals. The intervening two chambers are vented to atmosphere. This design prevents air drive contamination from entering the gas stream.

Haskel gas boosters are used for boosting most all commonly available industrial gases. However, the gas should be "Dry Gas", (no moisture content.) Some gases cannot be pumped with standard boosters, e.g. pure Oxygen or Hydrogen. Depending on the gas and application, e.g. Dry Gas Seal applications, some boosters will require special seals, materials of construction, venting, special cleaning and other considerations. Knowing the specific gas is also necessary to determine gas compressibility at the desired pressure. Compressibility is a factor used in calculating flow rates at different pressures or filling times into a vessel.

Gas booster compressors are suitable for transfer and pressurization of:

1. Nitrogen (N2)
2. Helium (He)
3. Breathing Air (N2O2)
4. Nitrous Oxide (N2O)
5. Carbon Dioxide (CO2)

6. Neon (Ne)
7. Argon (Ar)
8. Sulphur Hexafluoride (SF6)
9. Oxygen (O2)**
10. Carbon Monoxide (C)**

11. Hydrogen (H2)**
12. Methane (CH4)**
13. Ethylene (C2H4)**
14. Deuterium (D2)**
15. Natural Gas (CH4)**
(often contains high proportion of CO2 & N2)

Note: Liquefied gases (propane, CO2, nitrous oxide, halons, etc.) can be boosted as a liquid or gas in controlled applications.

* Oxygen (O2)- maximum safe working pressure 345 bar (5000 psi).

** For these gases (10-15), the gas booster must be operated in a safe and well ventilated area and vent(s) piped to controlled environment.

Cooling is provided by routing the cold exhausted drive air through an individual jacket surrounding the gas barrel.

Check valves also allow for the equalization of upstream and downstream pressure prior to boosting, therefore the gas booster only needs to "raise" the upstream pressure to the required pressure and does not have to raise it from atmospheric pressure.

Operating temperatures for Gas Booster

There are two distinct sections: the air drive section and the gas barrel section.

Air Drive Section- Standard Air Drive Seals should perform reliably within a temperature range of (25°F to 150°F) (-4°C to 65°C). Lower temperatures will cause air/gas leakage; higher temperatures reduce seal life. Haskel recommends a minimum Class 4 air quality per ISO 8573.1 standards. For operation at extremely low temperatures, consult factory.

Gas Barrel Section- Low temperatures normally have little effect on the operation of standard parts and seals. The heat from the compressing gas helps to balance out an acceptable temperature.

Maximum average acceptable temperature 115°C (240°F).

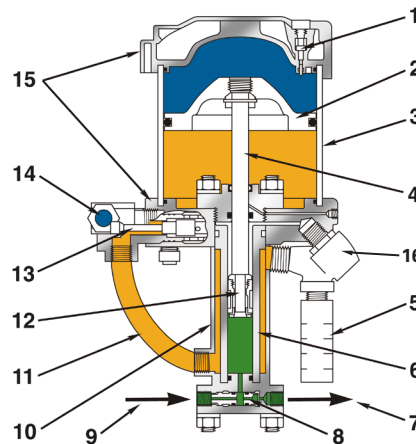


Figure 1

Figure 1: Example of Single Stage, Single acting Booster

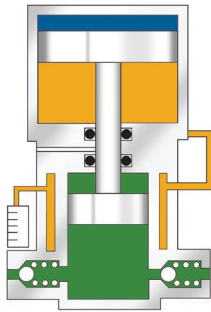
1. Pilot Valve
2. Air Piston
3. Air Drive Barrel
4. Connecting Rod
5. Exhaust Muffler
6. High Pressure Barrel
7. Booster Outlet
8. Check Valves
9. Booster Inlet
10. Cooling Jacket
11. Air Exhaust Tube
12. Gas Piston
13. Air Cycling Valve
14. Air Drive Inlet Port
15. Upper & Lower Caps
16. Vent Port Breather

Pneumatic Driven Gas Booster Configurations

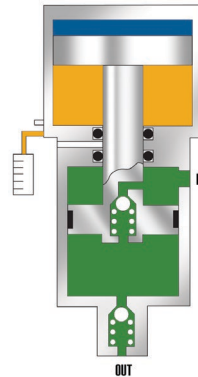
Single acting, single stage boosters are the smallest and lightest with pressures to 39,000 psi.

Double acting, single stage provides twice the delivery of a single acting single stage booster.

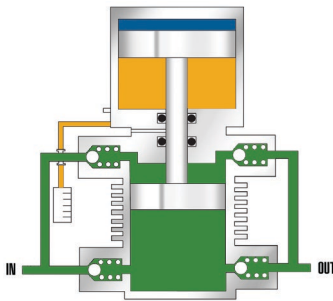
Two stage models are used for high gas compression ratios.



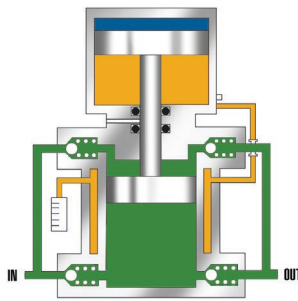
Model AG
Single Stage, Single Acting



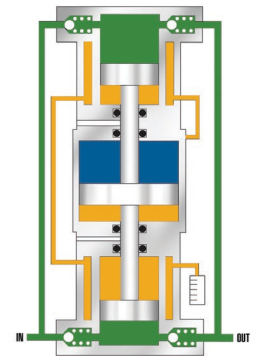
Model AG
Single Stage, Single Acting,
Flow Thru Piston



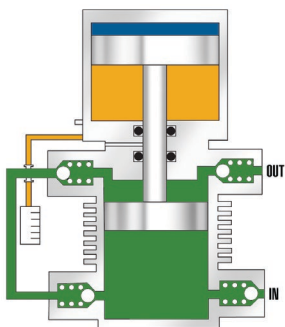
Model AGD
Single Stage, Double Acting,
Cooling Fins



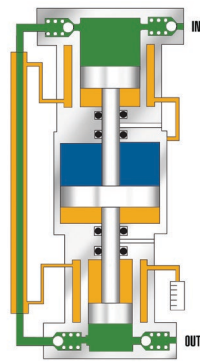
Model AGD-4 (only)
Single Stage, Double Acting,
Cooling Jacket



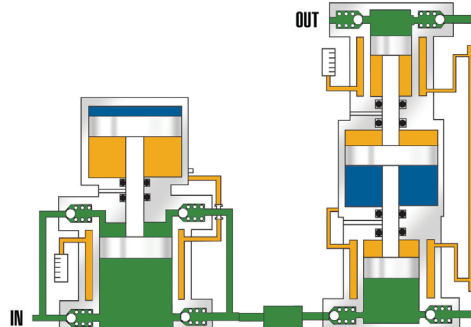
Model AGD
Single Stage, Double Acting,
Cooling Jackets



Model AGT
Two Stage, Cooling Fins



Model AGT
Two Stage, Cooling Jackets



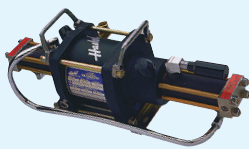
Model AGD-4 feeding into Model AGT-x/x

Multi stage - Two boosters.
More than one booster
of the same ratio
may be used for each stage.

Blue=Compressed Air Yellow=Exhaust Drive Air Green=Gas Media



AG-50 High-ratio gas
booster, single stage,
single acting



AGD-30 - Medium-ratio
gas booster, single
stage double acting,
single air head



AGT-30/75- Two stage
gas booster single air head,
cooling jacket

Metric Conversion Table

Multiply	By	To Obtain
PSI	0.0703	Kg/Cm2
SCFM	0.0283	Cu. Meters/min.
Inches	25.4	Millimeters
Pounds	0.453	Kilograms

Selecting a Pneumatic Driven Gas Booster

Air driven gas boosters have seven significant operating parameters that determine their selection for any application. These are as follows:

1. Maximum discharge pressure?
2. Flowrate
 - a. Is it constant?
 - i. What is flowrate required?
 - b. Is it filling a vessel?
 - i. What is vessel size (water volume)?
 - ii. What is fill time required?
3. Supply
 - a. Is it at constant pressure?
 - b. Is it decreasing?
 - i. What is initial pressure?
 - ii. What is the minimum pressure?
4. Air drive pressure available?
5. Air drive volume available?
6. What is the gas?
7. What is the application?

The selection of the proper booster for any application starts with determining which booster "series" will provide the amount of flow and pressure required. The ability of the booster to *generate pressure* is a function of the drive pressure, multiplied by the nominal booster ratio. The ability to *generate flow* is a function of the quantity of air available to drive it, the displacement per cycle of the booster, and volumetric efficiency.

Within each booster series, there are standard materials of construction available. For applications involving aggressive gases, such as Hydrogen, Helium and CO₂, some material substitutions are required.

Single Acting Single Stage "AG" boosters provide economical

means of boosting pressure for testing or small components and similar applications where volume is small and efficiency is not important. Control of maximum outlet pressure is accomplished with the use of an air drive pressure regulator. Maximum outlet pressure is drive area ratio multiplied by air pressure.

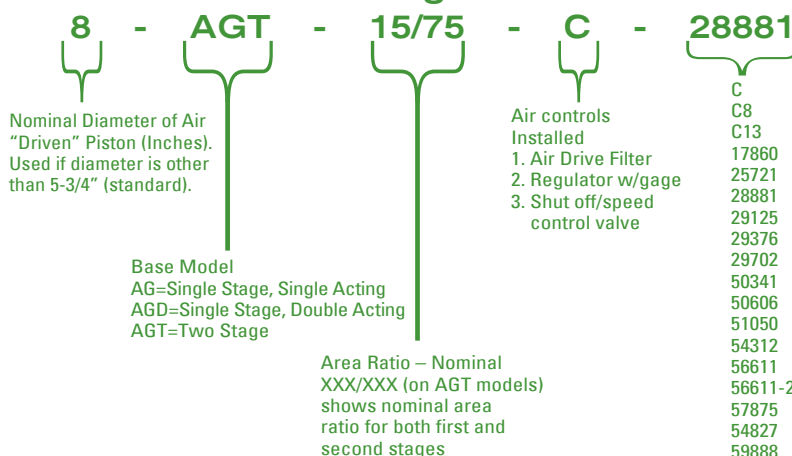
Double Acting Single Stage "AGD" boosters not only pump twice the volume of a Single Acting, Single Stage Booster per cycle, but also require less air drive since the inlet gas pressure is assisting the air drive in each direction, providing a substantial portion of the required driving force. These models provide efficient means of boosting large volumes of gas at low to medium compression ratios. Maximum outlet pressure is drive area ratio times air drive pressure PLUS gas supply pressure.

Two-Stage "AGT" boosters provide efficient means of boosting to a high gas compression ratio since the ratio per stage is low. Maximum outlet pressure with these models is drive area ratio multiplied by air drive pressure plus supply pressure multiplied by the area ratio of the two gas pistons.

Since these models have interconnected gas pistons, they multiply supply pressure during the "interstage" stroke by the area ratio of the two gas pistons. If supply pressure is too high, the booster may have "interstage stall" at an outlet pressure substantially less than that obtainable on the "output" stroke. This limitation does not apply if outlet pressure is less than the "maximum supply" times the area ratio of the two gas pistons. Remember, this condition only applies to two stage models.

Specific performance information for your application may be obtained by referring to the **Sample Performance Chart** on page 8 of this catalog, or from a Haskel distributor. To locate a Haskel distributor near you, view the Distribution link on our website at www.haskel.com, or contact Haskel direct.

Model Number Configuration



- C Controls: airline filter, reg w/gauge and manual start/stop
- C8 On 5-3/4" drive 1/2 NPT
- C13 On 8" or 14" drive 3/4 NPT
- 17860 Electrical stroke counter provision (Includes BZE6-2RQ) micro switch
- 25721 Mechanical stroke counter-installed (6 digit)
- 28881 External pilot modification - for 5-3/4" series
- 29125 External pilot modification - for 8" or 14" series
- 29376 Three way cycling spool for 5-3/4" series and 14" series
- 29702 Single stroke modification for 5-3/4" series and 14" series pump
- 50341 5-3/4" low permeability seals for CO₂ gas service
- 50606 8" low permeability seals for CO₂ gas service
- 51050 Extreme service cycling modification for 5-3/4" series pump
- 54312 Extreme service cycling modification for 8" or 14" series
- 56611 Vent purge with 15 psi relief - single end models
- 56611-2 Vent purge with 15 psi relief for 5-3/4", 8" or 14" series
- 57875 Panel with regulator for mounting remote APS
- 54827 Level II cleaning and certification of gas sections.
- 59888 Cycle Timer
- 80862 Viton air drive
- 86337 Extended life air drive seals
- 82500 ATEX Modification

Model Selection Chart

LEGEND: Ps = Gas Supply Pressure, Pa = Drive Pressure, Po = Outlet Pressure

	Model Number	Maximum Rated Gas Supply		Min. Gas Supply Pressure		Maximum Rated Gas Outlet						Static Outlet Stall Pressure Formula	Piston Displacement Per Cycle		Gas Inlet/Outlet Connections	Weight	
						Inert Gas		Oxygen		Hydrogen			Cu. In.	ML			
		PSIG	BAR	PSIG	BAR	PSIG	BAR	PSIG	BAR	PSIG	BAR						
Single Acting Single Stage Model / AG	4AG-25	4500	310	25	1.7	4500	310	4500	310	N/A	N/A	25 Pa	1.23	20.2	3/8" SAE Both Ports	12 (5)	
	AG-4	1250	86	ATM	ATM	1250	86	1250	86	N/A	N/A	4 Pa	10	163.9	3/8" NPT Both Ports	25 (11)	
	AG-7	1050	72	25	1.7	1050	72	1050	72	N/A	N/A	7 Pa	13.2	216.3	3/8" NPT Both Ports	30 (14)	
	AG-15	2250	155	50	3.5	2250	155	2250	155	N/A	N/A	15 Pa	6.2	101.6	Interchangeable 3-3/8" SAE or 1/4" - H/P (BuTech) Both Ports	27 (12)	
	AG-30	4500	310	100	7	4500	310	4500	310	4500	310	30 Pa	3.1	50.8	Interchangeable 3-3/8" SAE or 1/4" - H/P (BuTech) Both Ports	27 (12)	
	AG-50	7500	517	100	7	7500	517	5000	345	N/A	N/A	50 Pa	1.96	32.1	Interchangeable 3-3/8" SAE or 1/4" - H/P (BuTech) Both Ports	27 (12)	
	AG-62	9000	620	200	14	9000	620	5000	345	9000	620	60 Pa	3.1	50.8	Interchangeable 3-3/8" SAE or 1/4" - H/P (BuTech) Both Ports	35 (16)	
	AG-75	11250	775	250	17	11250	775	5000	345	11250	775	75 Pa	1.2	19.6	Interchangeable 3-3/8" SAE or 1/4" - H/P (BuTech) Both Ports	27 (12)	
	AG-102	7500	517	100	7	15000	1034	5000	345	N/A	N/A	100 Pa	1.96	32.1	Interchangeable 3-3/8" SAE or 1/4" - H/P (BuTech) Both Ports	35 (16)	
	AG-152	20000	1380	250	17	20000	1380	5000	345	15000	1034	150 Pa	1.2	19.6	Interchangeable 3-3/8" SAE or 1/4" - H/P (BuTech) Both Ports	27 (12)	
	AG-233	22500	1551	250	17	22500	1551	N/A	N/A	N/A	N/A	225 Pa	1.2	19.6	Interchangeable 3-3/8" SAE or 1/4" - H/P (BuTech) Both Ports	40 (18)	
	AG-303	39000	2690	500	34	39000	2690	N/A	N/A	N/A	N/A	300 Pa	0.89	14.6	1/4" - H/P (BuTech) both ports	44 (20)	
Double Acting Single Stage Model AGD	AGD-1.5	300	21	ATM	ATM	300	21	300	21	N/A	N/A	1.5 Pa+Ps	60	983.2	Inlet Port 3/4" NPT Outlet Port 1/2" NPT	44 (20)	
	AGD-4	1250	86	ATM	ATM	1250	86	1250	86	N/A	N/A	4 Pa+Ps	19.3	316.3	3/8" NPT Both Ports	31 (14)	
	AGD-7	2500	172	25	1.7	2500	172	2500	172	2500	172	7 Pa+Ps	26.4	432.6	Inlet Port: 3/8" NPT Outlet Port: 3/8" NPT 2 ea./ inlet & outlet	35 (16)	
	AGD-14	5000	345	25	1.7	5000	345	5000	345	N/A	N/A	14 Pa+Ps	26.4	432.6	Inlet Port: 3/8" NPT Outlet Port: 3/8" NPT	49 (22)	
	AGD-15	5000	345	50	3.5	5000	345	5000	345	4000	276	15 Pa+Ps	12.4	203.2	Interchangeable 3-3/8" SAE or 1/4" - H/P both Ports. 2 ea. inlet & outlet	35 (16)	
	AGD-30	9000	620	100	7	9000	620	5000	345	9000	620	30 Pa+Ps	6.2	101.6	Interchangeable 3-3/8" SAE or 1/4" - H/P both Ports. 2 ea. inlet & outlet	38 (17)	
	AGD-32	5000	345	50	3.5	5000	345	5000	345	4000	276	30 Pa+Ps	12.4	203.2	Interchangeable 3-3/8" SAE or 1/4" - H/P both Ports. 2 ea. inlet & outlet	49 (22)	
	AGD-50	15000	1034	100	7	15000	1034	5000	345	N/A	N/A	50 Pa+Ps	3.9	63.9	Interchangeable 3-3/8" SAE or 1/4" - H/P both Ports. 2 ea. inlet & outlet	39 (18)	
	AGD-62	5000	345	200	14	9000	620	5000	345	9000	620	60 Pa+Ps	6.2	101.6	Interchangeable 3-3/8" SAE or 1/4" - H/P both Ports. 2 ea. inlet & outlet	49 (22)	
	AGD-75	12000	827	250	17	12000	827	5000	345	15000	1034	75 Pa+Ps	2.4	39.3	Interchangeable 3-3/8" SAE or 1/4" - H/P both Ports. 2 ea. inlet & outlet	39 (18)	
	AGD-102	15000	1034	100	7	15000	1034	5000	345	15000	1034	100 Pa+Ps	3.9	63.9	Interchangeable 3-3/8" SAE or 1/4" - H/P both Ports. 2 ea. inlet & outlet	49 (22)	
	AGD-152	25000	1724	250	17	25000	1724	N/A		15000	1034	150 Pa+Ps	2.4	39.3	Interchangeable 3-3/8" SAE or 1/4" - H/P both Ports. 2 ea. inlet & outlet	49 (22)	
Two Stage Model / AGT	AGT-4	1250	86	1/4 ATM	1/4 ATM	1250	86	1250	86	N/A		4 Pa+Ps	10	164	3/8" NPT Both Ports	25 (11)	
	AGT-7/15	6 Pa to 2500 ¹	6 Pa to 172 ²	25	1.7	5000	345	5000	345	4000	276	15 Pa+2 Ps	13.2	216.3	Inlet Port: 3/8" NPT Outlet Port: 3/8" SAE or 1/4" H/P (BuTech)	40 (18)	
	AGT-7/30	2 Pa to 2500 ¹	2 Pa to 172 ²	25	1.7	9000	620	5000	345	9000	620	30 Pa+4 Ps	13.2	216.3	Inlet Port: 3/8" NPT Outlet Port: 3/8" SAE or 1/4" H/P (BuTech)	41 (19)	
	AGT-14/32	12 Pa to 2500 ¹	12 Pa to 172 ²	25	1.7	5000	345	5000	345	4000	276	30 Pa+2 Ps	13.2	216.3	Inlet Port: 3/8" NPT Outlet Port: 3/8" SAE or 1/4" H/P (BuTech)	46 (21)	
	AGT-14/62	4 Pa to 2500 ¹	4 Pa to 172 ²	25	1.7	9000	620	5000	345	9000	620	60 Pa+4 Ps	13.2	216.3	Inlet Port: 3/8" NPT Outlet Port: 3/8" SAE or 1/4" H/P (BuTech)	41 (19)	
	AGT-15/30	15 Pa to 2500 ¹	15 Pa to 172 ²	50	3.5	9000	620	5000	345	9000	620	30 Pa+2 Ps	6.2	101.6	Interchangeable 3/8" SAE or 1/4" H/P (BuTech) Both Ports	39 (18)	
	AGT-15/50	6.5 Pa to 5000 ¹	6.5 Pa to 345 ¹	100	7	15000	1034	5000	345	15000	1034	50 Pa+3.3 Ps	6.2	102	Interchangeable 3-3/8" SAE or 1/4" - H/P (BuTech) Both Ports	38 (17)	

	Model Number	Maximum Rated Gas Supply		Min. Gas Supply Pressure		Maximum Rated Gas Outlet						Static Outlet Stall Pressure Formula	Piston Displacement Per Cycle		Gas Inlet/Outlet Connections	Weight LB (KG)
						Inert Gas		Oxygen		Hydrogen			Cu. In.	ML		
		PSIG	BAR	PSIG	BAR	PSIG	BAR	PSIG	BAR	PSIG	BAR					
Two Stage Model AGT	AGT-15/75	3.5 Pa to 5000 ¹	3.5 Pa to 345 ¹	100	7	15000	1034	5000	345	15000	1034	75 Pa+5 Ps	6.2	101.6	Interchangeable 3/8" SAE or 1/4" H/P (BuTech) Both Ports	39 (18)
	AGT-30/50	45 Pa to 9000 ¹	45 Pa to 620 ¹	100	7	15000	1034	5000	345	15000	1034	50 Pa+1.6 Ps	3.1	50.8	Interchangeable 3-3/8" SAE or 1/4" - H/P (BuTech) Both Ports	38 (17)
	AGT-30/75	20 Pa to 9000 ¹	20 Pa to 620 ¹	100	7	15000	1034	5000	345	15000	1034	75 Pa+2.5 Ps	3.1	50.8	Interchangeable 3-3/8" SAE or 1/4" - H/P (BuTech) Both Ports	39 (18)
	AGT-32/62	30 Pa to 2500 ¹ 5000 ²	30 Pa to 172 ¹ (345)	100	7	9000 5000 ²	620 (345)	5000	345	9000	620	60 Pa+2 Ps	6.2	101.6	Interchangeable 3/8" SAE or 1/4" H/P (BuTech) Both Ports	49 (22)
	AGT-32/102	13 Pa to 9000 ¹	13 Pa to 620 ¹	100	7	15000	1034	5000	345	15000	1034	75 Pa+3.3 Ps	6.2	101.6	Interchangeable 3/8" SAE or 1/4" H/P (BuTech) Both Ports	49 (22)
	AGT-32/152	7 Pa to 5000 ¹	7 Pa to 345 ¹	100	7	15000	1034	5000	345	15000	1034	150 Pa+5 Ps	6.2	101.6	Interchangeable 3/8" SAE or 1/4" H/P (BuTech) Both Ports	39 (18)
	AGT-62/102	90 Pa to 9000 ¹	90 Pa to 620 ¹	100	7	15000	1034	5000	345	15000	1034	100 Pa+1.6 Ps	3.1	50.8	Interchangeable 3/8" SAE or 1/4" H/P (BuTech) Both Ports	39 (18)
	AGT-62/152	40 Pa to 3600 ¹ 9000 ²	40 Pa to 248 ¹ (621)	100	7	20000 9000 ²	1379 (621)	N/A	N/A	15000	1034	150 Pa+2.5 Ps	3.1	50.8	Interchangeable 3/8" SAE or 1/4" H/P (BuTech) Both Ports	49 (22)
	AGT-62/152H	40 Pa to 3600 ¹ 9000 ²	40 Pa to 248 ¹ (621)	100	7	25000 9000 ²	1723 (621)	N/A	N/A	N/A	N/A	150 Pa+2.5 Ps	3.1	50.8	Interchangeable 3/8" SAE or 1/4" H/P (BuTech) Both Ports	51 (23)
Double Acting Single Stage 8" Model AGD	8AGD-1	300	21	ATM	ATM	300	21	300	21	N/A	N/A	1.5 Pa+Ps	400	6554.8	3/4" NPT Both Ports	121 (55)
	8AGD-2	300	21	ATM	ATM	300	21	300	21	N/A	N/A	2 Pa+Ps	200	3277	3/4" NPT Both Ports	121 (55)
	8AGD-2.8	800	55	ATM	ATM	800	55	800	55	N/A	N/A	2.8 Pa+Ps	125	2048	1/2" NPT (2 ea) Inlet/Outlet Ports	121 (55)
	8AGD2-2.8	800	55	ATM	ATM	800	55	800	55	N/A	N/A	2.8 Pa+Ps	125	2048	1/2" NPT (2 ea) Inlet/Outlet Ports	156 (71)
	8AGD-5	2500	172	50	3.5	2500	172	2500	172	N/A	N/A	5 Pa+Ps	71.4	1170	Inlet Port 3/4" NPT Outlet Port 1/2" NPT	121 (55)
	8AGD-14	5000	345	50	3.5	5000	345	5000	345	5000	345	14 Pa+Ps	26.7	437.5	Inlet Port 3/4" NPT Outlet Port 1/2" NPT	121 (55)
	8AGD-30	5000	345	50	3.5	5000	345	5000	345	5000	345	30 Pa+Ps	12.4	203.2	1/4" NPT Both Ports	121 (55)
	8AGD-60	9000	620	50	3.5	9000	620	5000	345	9000	345	60 Pa+Ps	6.2	101.6	1/4" NPT Inlet Port, 1/4" HP (BuTech) Port Outlet	121 (55)
	8AGD-150	20000	1378	50	3.5	20000	1378	5000	345	N/A	N/A	150 Pa+Ps	2.4	39.3	1/4" -H/P (BuTech) Both Ports	121 (55)
Two Stage AGT Series 8" & 14" Model AGT	8AGT-5/14	2.8 Pa to 2500 ¹	2.8 Pa to 172 ¹	25	1.7	2500	172	2500	172	N/A	N/A	14 Pa+2.8 Ps	35.7	585	Inlet Port 1/2" NPT Outlet Port 1/4" NPT	121 (55)
	8AGT-5/30	1 Pa to 2500 ¹	1 Pa to 172 ¹	25	1.7	5000	345	5000	345	N/A	N/A	30 Pa+6 Ps	35.7	585	Inlet Port 1/2" NPT Outlet Port 1/4" NPT	121 (55)
	8AGT-14/30	12 Pa to 1190 ¹ 2500 ²	12 Pa to 82 ¹ (172)	25	1.7	5000 2500 ²	345 (172)	5000	345	4000	276	30 Pa+2.1 Ps	13.2	216.3	Inlet Port 3/8" NPT Outlet Port 1/4" NPT	121 (55)
	8AGT-14/60	4.3 Pa to 2500 ¹	4.3 Pa to 172 ¹	25	1.7	9000	620	5000	345	N/A	N/A	60 Pa+4.3 Ps	13.2	216.3	3/8" NPT Inlet Port 1/4" -HP (BuTech) Port Outlet	121 (55)
	8AGT-30/60	30 Pa to 2500 ¹ 5000 ²	30 Pa to 172 ¹ (345)	25	1.7	9000 5000 ²	620 (345)	5000	345	9000	620	60 Pa+2 Ps	6.2	101.6	1/4" NPT Inlet Port 1/4" -HP (BuTech) Port Outlet	121 (55)
	8AGT-60/150	40 Pa to 3600 ¹ 9000 ²	40 Pa to 248 ¹ (621)	25	1.7	20000 9000 ²	1378 (621)	N/A	N/A	N/A	N/A	150 Pa+2.5 Ps	3.1	50.8	1/4" NPT Inlet Port 1/4" -HP (BuTech) Port Outlet	121 (55)
	14AGT-125/315	82 Pa to 6000 ¹ 15000 ²	82 Pa to 414 (1034)	1000	6.9	35000 15000 ²	2413 (1034)	N/A	N/A	N/A	N/A	315 Pa+2.5 Ps	4.44	72.8	3/8" -H/P (BuTech) Both Ports	154 (70)
Double Acting Single Stage 14" AGT	14AGD-315	35000	2413	1000	6.9	35000	2413	N/A	N/A	N/A	N/A	315 Pa+Ps	3.53	57.	3/8" -H/P (BuTech) Both Ports	154 (70)

1. Two-stage model: Supply pressure also limited by factor x air drive (Pa) to avoid interstage stall

2. If outlet pressure exceeds Maximum 1st stage pressure and supply pressure simultaneously exceeds pressure limit above the line, install interstage relief valve set at this pressure.

Port Information and Additional Notes

- Air Drive Inlet Port = 1/2" FNPT all 4" & 5 3/4" Models
- Air Drive Inlet Port = 3/4" FNPT all 8" & 14" Models
- Refer to pages 19-32 for dimensional drawings of all models
- 20 psi minimum air drive pressure for all units
- Maximum air drive is 150 psig all models except AG-233, AG-303, AGD-1.5(130 psig)
- 130 psig maximum drive pressure for all 8" and 14" models.
- Gas Boosters for Hydrogen applications must be specifically certified for use in Hydrogen Application
- Each two stage Gas Booster has a maximum allowable inlet gas pressure to avoid a condition known as "Interstage Stall." Refer to the Knowledge Library link on the Haskel website, www.haskel.com for a detailed explanation.

Suggested Cycling Speeds for Maximizing Seal Life

AG, AGD, AGT Series	60 CPM
8AG, 8AGT Series	50 CPM
14AGD, 14AGT Series	40 CPM

Refer to pages 18-32 for dimensional drawings of all models.

Sample Gas Booster Flow Rate Performance (SCFM)

Flow and Pressure Performance:

Sample performance shown below is used for general reference only; consult Haskel Technical Sales or your Haskel Representative for specific performance information.

Cubic Meters Per Minute = SCFM x 0.0283

Catalog Number	PA=90 psi			
	Qa	Ps	Po	Q
AG-4	25	200	300	6.2
	25	120	300	3.6
	25	80	300	2.3
	25	40	300	1
AG-7	21	240	600	3.4
	21	180	600	2.5
	21	120	600	1.6
	21	60	600	0.7
AG-15	30	600	1200	6.2
	30	500	1200	5.1
	30	400	1200	4
	30	300	1200	3
AG-30	40	1300	2000	9.4
	40	1000	2000	7.2
	40	700	2000	4.9
	40	400	2000	2.6
AG-50	35	1700	4000	6
	35	1300	4000	4.5
	35	900	4000	3
	35	500	4000	1.7
AG-62	25	2000	5000	5.2
	25	1500	5000	3.9
	25	1000	5000	2.5
	25	500	5000	1.1
AG-75	30	2000	6000	3.8
	30	1500	6000	2.9
	30	1000	6000	1.8
	30	500	6000	0.8
AG-102	32	4000	8000	8.5
	32	3000	8000	8
	32	2000	8000	4
	32	1000	8000	2
AG-152	20	6500	13000	3.6
	20	5000	13000	3
	20	3500	13000	2.3
	20	2000	13000	1.3
AG-233	20	10000	20000	3.2
	20	8000	20000	2.8
	20	6000	20000	2.4
	20	4000	20000	1.8
AG-303	40	12500	24000	6
	40	10000	24000	5
	40	7500	24000	3.5
	40	5000	24000	2.5
AGD-1.5	30	100	200	18.2
	30	75	160	15.1
	30	50	140	10
	30	25	100	6.2
AGD-4	30	500	800	33
	30	350	600	25.4
	30	200	400	16
	30	50	200	4.5
AGD-7	30	700	1300	16
	30	500	1000	18.8
	30	300	800	11.2
	30	100	500	4
AGD-14	48	2100	3000	80
	40	1500	2500	48.4
	32	900	2000	22.5
	40	300	1000	10.4
AGD-15	40	2100	3000	50.3
	40	1500	2400	36.1
	40	900	1800	21.5
	40	300	1200	6.7
AGD-30	40	2850	4200	35.6
	40	2250	4200	25.5
	40	1550	3200	19
	40	850	2800	9.6
AGD-32	50	2950	4400	57.7
	40	2250	4400	33.2
	28	1550	4000	15.4
	33	850	3200	9.7
AGD-50	50	3000	6000	24
	50	2300	6000	12
	45	1600	5000	10
	30	900	5000	4

Catalog Number	PA=90 psi			
	Qa	Ps	Po	Q
AGD-62	50	4000	7500	35.6
	41	3250	7500	23.6
	25	2500	7500	11
	45	1000	5000	8
AGD-75	45	5000	10000	21.5
	45	3000	8000	14.3
	50	2000	6000	11.3
	50	1000	5000	5.5
AGD-102	52	8000	12000	26
	52	6000	12000	20
	52	4000	10000	16
	35	2000	10000	6
AGD-152	40	11000	22000	19.1
	25	7000	20000	6.6
	40	5000	16000	12.1
	52	3000	12000	10.7
AGD-152H	30	12000	24000	15.5
	40	10000	21000	18.3
	40	7000	18000	15
	40	5000	16000	12.1
AGT-4	20	100	400	2.7
	20	75	400	2
	20	25	200	1.2
	20	5	200	0.55
AGT-7/15	35	200	1500	4.4
	25	120	1500	1.8
	35	80	1000	2.1
	35	40	1000	1.1
AGT-7/30	32	150	3000	2.6
	40	100	2500	2.3
	40	75	2000	1.9
	40	50	2000	1.2
AGT-14/32	54	400	3000	5.8
	56	240	3000	3.7
	54	200	2400	3
	58	160	2000	2.6
AGT-14/62	54	350	6000	5.0
	56	275	5000	4.2
	54	175	4000	2.6
	58	125	4000	2.4
AGT-15/30	40	900	4000	9.7
	40	500	3000	5.8
	40	300	2000	3.9
	40	100	2000	1.2
AGT-15/50	42	400	5000	3.7
	42	250	5000	2.3
	55	150	4000	2
	55	100	4000	1.2
AGT-15/75	48	230	6000	2.7
	42	150	6000	1.4
	55	110	4000	1.5
	55	70	4000	0.8
AGT-30/50	50	850	5000	6
	50	600	5000	3.5
	62	350	4000	2
	62	100	4000	0.8
AGT-30/75	48	1300	8000	8.4
	25	700	8000	2.3
	45	400	6000	2.4
	55	100	4000	0.69
AGT-32/62	45	1700	7500	14.3
	28	1300	7500	6.7
	56	900	5000	9.8
	45	500	5000	4.3
AGT-32/102	35	1200	9500	5.1
	45	600	9500	3.3
	48	550	6500	3.3
	56	375	6500	2.6
AGT-32/152	23	450	15000	1.6
	52	250	10000	2.1
	50	150	10000	1
	55	50	3000	0.46
AGT-62/102	55	1600	10000	6
	55	1200	10000	4.5
	50	800	10000	3
	60	400	9000	1.5

Catalog Number	PA=90 psi			
	Qa	Ps	Po	Q
AGT-62/152	30	2400	18000	6.6
	35	1400	15000	4.6
	47	900	12000	4
	51	400	10000	1.8
AGT-62/152H	23	2500	19000	4.8
	25	1800	17000	4.1
	20	1200	16000	2
	20	800	15000	1.3
8AGD-1	75	130	180	128
	75	110	180	91
	75	90	160	76
	75	70	140	60
8AGD-2	75	130	250	56
	75	110	200	55
	75	90	200	41
	75	70	200	29
8AGD-2.8	70	500	700	109
	70	300	500	65
	90	200	400	55
	90	100	300	28
8AGD2-2.8	100	500	700	215
	100	300	500	131
	125	200	400	106
	125	100	300	54
8AGD-5	70	600	900	96
	70	450	800	66
	65	300	700	37
	65	100	500	12
8AGD-14	75	1000	2000	55
	75	800	1800	44
	75	500	1200	33
	75	200	1000	11
8AGD-30	75	2500	4000	76
	75	1800	3500	52
	75	1200	2800	36
	65	600	1800	18
8AGD-60	75	4000	7500	53
	75	2800	6800	36
	75	1800	5200	26
	65	1000	3800	14
8AGD-150	75	10000	18000	38
	75	8000	16000	33
	75	6000	14000	28
	65	4000	12000	20
8AGT-5/14	75	150	1200	12
	70	90	1000	8
	50	60	600	6
	40	30	400	3
8AGT-5/30	60	60	2800	1.4
	75	40	2400	0.7
	75	30	1800	0.9
	75	20	1500	0.5
8AGT-14/30	75	700	3500	19.7
	75	400	3000	10.4
	75	250	2500	6.6
	75	100	1800	2.7
8AGT-14/60	57	250	6000	3.7
	75	200	5500	3.5
	75	100	4500	1.2
	75	50	3000	0.31
8AGT-30/60	75	1700	7500	23
	75	1300	6800	17
	75	900	5000	13.8
	75	500	4000	7.8
8AGT-60/150	71	2500	18000	14.2
	75	1500	15000	9.4
	75	1000	12000	7
	75	500	8000	4
14AGD-315	150	16000	32000	25.3
	150	13000	28000	23
	150	9000	24000	18.1
	150	5000	18000	10.2
14AGT-125/315	115	4100	32000	14.9
	133	3100	28000	13
	150	2200	24000	10
	150	1000	18000	4.2
4AG-25	2	2000	2250	0.75
	2	1500	2250	0.6
	2	1000	2250	0.5
	2	500	2250	0.2

LEGEND
 Pa = Air Drive Pressure Qa = Air Drive Quantity
 Ps = Air Drive Pressure Po = Gas Outlet Pressure
 Po = Gas Outlet Pressure Q = Gas Outlet Flow Rate

Alternative Gas Booster and System Models

Specialty Gas Booster Models

Standard Model Number	Oxygen Booster Model Number	Hydrogen Booster Model Number	Standard Model Number	Oxygen Booster Model Number	Hydrogen Booster Model Number
4AG-25	86921		AGT-15/50		
AG-4	28596		AGT-15/75	28595	86993
AG-7	29818		AGT-30/50	86915	
AG-15	28598		AGT-30/75	17599	86994
AG-30	17445	87083	AGT-32/62	27267	86995
AG-50	86911		AGT-32/102		
AG-62	17436	86979	AGT-32/152		
AG-75	17418	86980	AGT-62/102		
AG-102	86912		AGT-62/152		
AG-152	29877	86981	AGT-62/152H	26180	
AG-233			8AGD-1	58808	
AG-303			8AGD-2	58675	59060
AGD-1.5	52618		8AGD-2.8	80642	
AGD-4	26266		8AGD2-2.8		
AGD-7	51147	86982	8AGD-5	52623	
AGD-14	83008		8AGD-14	52612	87218
AGD-15	27962	86983	8AGD-30	52619	87201
AGD-30	17495	86984	8AGD-60	80867	87185
AGD-32	52570	86985	8AGD-150		
AGD-50	86913		8AGT-5/14	52624	
AGD-62	27961	86986	8AGT-5/30	52630	
AGD-75	51269	86987	8AGT-14/30	52622	
AGD-102	86914		8AGT-14/60		
AGD-152		86988	8AGT-30/60	58979	
AGT-4	28597		8AGT-60/150		
AGT-7/15	51308	86989	14AGD-315		
AGT-7/30	52065	86990	14AGT-125/315		
AGT-14/32					
AGT-14/62		83007			
AGT-15/30	28007	86992			

Inert Gas Booster System Models

Standard Model Number	Standard System Model Number	Oxygen System Model Number	Standard Model Number	Standard System Model Number	Oxygen System Model Number
4AG-25	87114	82880	AGT-15/50		
AG-4			AGT-15/75	53748	53796
AG-7			AGT-30/50		
AG-15			AGT-30/75	52031	53742
AG-30			AGT-32/62	29498	53150
AG-50			AGT-32/102		
AG-62			AGT-32/152	80509	
AG-75			AGT-62/102		
AG-102			AGT-62/152	80511	
AG-152			AGT-62/152H	80512	
AG-233			8AGD-1		
AG-303			8AGD-2	80413	80533
AGD-1.5	80501	80523	8AGD-2.8	80414	80534
AGD-4	59933	80524	8AGD2-2.8		
AGD-7	82101	80525	8AGD-5	80515	80535
AGD-14	80502	80526	8AGD-14	80516	80536
AGD-15	80503	80527	8AGD-30	80517	80537
AGD-30	80504	52341	8AGD-60	81266	
AGD-32	80505	80528	8AGD-150		
AGD-50			8AGT-5/14	80518	80538
AGD-62	80506	80529	8AGT-5/30	80519	80539
AGD-75	80507	80530	8AGT-14/30	54895	53398
AGD-102			8AGT-14/60	80520	80540
AGD-152	80508		8AGT-30/60	56131	80541
AGT-4	80004	80531	8AGT-60/150		
AGT-7/15	54961	80532	14AGD-315		
AGT-7/30	53353	53343	14AGT-125/315		
AGT-14/32					
AGT-14/62	85431				
AGT-15/30	29068	26968			