

DESIGNER AND MANUFACTURER OF HYDRAULIC AND PNEUMATIC EQUIPMENT

**SC HYDRAULIC ENGINEERING CORPORATION**



# AIR OPERATED GAS BOOSTERS



## *A "High Pressure" History...*

An innovator and pioneer in the field of hydraulic engineering, SC Hydraulic has been manufacturing air-driven liquid pumps for more than a half of a century.

Founded in 1953 by Bob Vedder and Willie Mohler, the company started with only a few core products. Basically air-driven liquid pumps. Today, SC Hydraulics' product line has expanded to include an extensive collection of air and gas boosters, power units, systems and selected high-pressure valves.



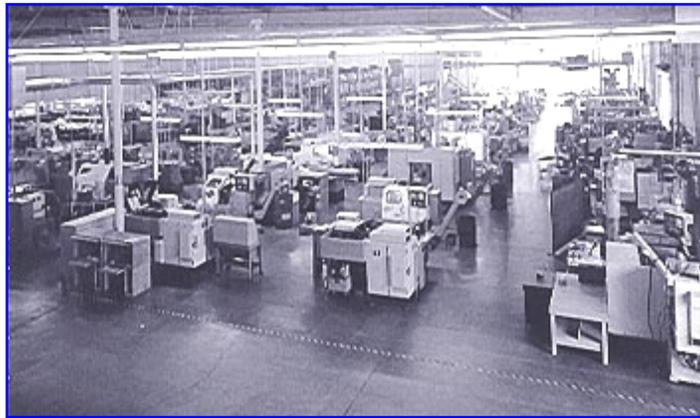
The product line remained stable through the 1980's seeing successful operation in an ever-increasing number of installations and applications, while sales grew through an expansion of distribution.

Under the leadership of Bob Vedder's daughter, Donna Perez, SC Hydraulic operates a state-of-the-art 65,000 square-foot facility in Brea, California, and is well prepared for future growth and innovation.

## *Where Hydraulic Force Meets Custom Engineering*

With products capable of achieving pressures exceeding 70,000 psig, SC Hydraulic Engineering Corp. is a force to be reckoned with in the field of hydraulic engineering.

SC Hydraulic manufactures a vast array of air-operated hydraulic pumps and boosters for a variety of industries. In addition to our current line of hydraulic products, we can work with you to custom design products to fit the exact specifications of your applications.



*In a 65,000 square foot facility, SC Hydraulic is capable of setting the industry's highest standard while maintaining the best delivery times*

An international leader in hydraulic engineering, SC Hydraulic is continually developing new products which are in sync with newly emerging applications, both in the United States and abroad.

## *For Fluid Power...*

Contact SC Hydraulic today, to find out more about our capabilities or for a technical data sheet.

# AIR DRIVEN GAS BOOSTERS

**SC** air driven gas boosters are self-contained units, using a cycling spool and pilot valve to provide automatic reciprocating action when air or gas is supplied to the air drive inlet.

The drive consists of a large piston and valve assembly directly connected to a *hydrocarbon-free pumping piston* with self lubricating seals cycling in a stainless barrel that has an integral check valve.

The working surface area of the drive piston exceeds the working surface area of the pump piston, thereby providing the pressure BOOST. This is accomplished by using relatively low pressure air or gas to the drive inlet. The air drive section is pre-lubricated (thus eliminating the need for an air line lubricator), easy to install, and can be mounted in any position eliminating additional floor space. No electrical connections are required.

**SC** gas boosters are typically used to boost low pressure gas/air to a higher pressure required at the process or test station. Most industrial gases (nitrogen, helium,



hydrogen, argon, etc.) are commonly delivered under pressure in steel cylinders. If gas is to be used at low pressures, e.g., welding, the pressurized supply is easily piped and controlled to the point of use with simple valving. However, if the end use requires the gas under pressure, the supply cylinder pressure cannot be utilized after it has fallen to the level of the end use pressure. Therefore, the gas remaining will be wasted unless it is boosted.

If the application requires a pressure greater than the common supply cylinder pressure, a gas booster **must** be used. Depending on the unit selected, you can boost gas pressure from 300 psi and up to 25,000 psi.



**SC** gas boosters are suitable for other applications such as bottle filling from nitrogen generators and dewars, hydrogas suspension systems, automotive air gas storage systems, aircraft slide chute gas storage; sulfur hexafluoride (SF6) transfer for arc suppression and insulation of circuit breakers commonly found in the utility industry, breathing air for scuba diving, gas injection molding, etc.

In addition to our complete line of gas boosters, **SC** also fabricates custom gas booster systems for individual applications. These units are manufactured to customer specifications and can include filters, gauges, pilot switches, panel controls, tubular frames, etc. Contact your distributor or our sales department for more information.



To assist in selecting the best gas booster for your application **SC** offers a free service for sizing units. Just fill out the data worksheet located in the back of our catalog and fax to 714-257-4810 or e-mail to [service@schydraulic.com](mailto:service@schydraulic.com). Please make sure to fill out the form completely as all the information is important.

# GAS BOOSTER MODEL SELECTION CHART

Model No.	Maximum Rated Gas Supply (Ps)	Maximum Rated Gas Outlet (Po)	Inlet Port Outlet Port	Static Outlet Stall Pressure	Min. Inlet Gas Pressure (Ps) Max. Outlet Gas Pressure (Po)	Maximum Compression Ratio	Displacement Per Stroke (in <sup>3</sup> per cycle)
GB-15	2,250 psig 155 bar	2,250 psig 155 bar	1/4" NPT 1/4" NPT	15 Pa	50 psi (3.5 bar) 2,250 psig (155 bar)	20:1	7.05
GB-30	4,500 psig 310 bar	4,500 psig 310 bar	1/4" NPT 1/4" NPT	30 Pa	100 psig (7 bar) 4500 psig (310 bar)	25:1	3.1
GB-75	11,250 psig 775 bar	11,250 psig 775 bar	9/16"-18 <sup>(1)</sup> 9/16"-18 <sup>(1)</sup>	75 Pa	250 psig (17 bar) 11,250 psig (775 bar)	25:1	1.2
GBD-5	1,500 psig 103 bar	1,500 psig 103 bar	1/2" NPT 1/2" NPT	4.7 Pa + Ps	25 psig (3.5 bar) 1,500 psig (103 bar)	10:1	28.2
GBD-15	5,000 psig 345 bar	5,000 psig 345 bar	1/4" NPT 1/4" NPT	15 Pa + Ps	50 psi (3.5 bar) 5,000 psig (345 bar)	20:1	14.1
GBD-30	9,000 psig 620 bar	9,000 psig 620 bar	1/4" NPT 1/4" NPT	30 Pa + Ps	100 psig (7 bar) 9,000 psig (620 bar)	25:1	6.3
GBD-75	20,000 psig 1,380 bar	20,000 psig 1,380 bar	9/16"-18 <sup>(1)</sup> 9/16"-18 <sup>(1)</sup>	75 Pa + Ps	250 psig (17 bar) 20,000 psig (1,380 bar)	25:1	2.4
GBD-D15	5,000 psig 345 bar	5,000 psig 345 bar	1/4" NPT 1/4" NPT	30 Pa + Ps	50 psi (3.5 bar) 5,000 psig (345 bar)	20:1	14.1
GBD-D30	9,000 psig 620 bar	9,000 psig 620 bar	1/4" NPT 1/4" NPT	60 Pa + Ps	200 psig (14 bar) 9,000 psig (620 bar)	25:1	6.3
GBD-D75	25,000 psig 1,725 bar	25,000 psig 1,725 bar	9/16"-18 <sup>(1)</sup> 9/16"-18 <sup>(1)</sup>	150 Pa + Ps	250 psig (17 bar) 25,000 psig (1,725 bar)	25:1	2.4
GBT-15/30	15 Pa to 2,500 psig <sup>(2)</sup> 172 bar	9,000 psig 620 bar	1/4" NPT 1/4" NPT	30 Pa + 2 Ps	50 psi (3.5 bar) 8,500 psig (586 bar)	50:1	7.05
GBT-15/75	3.5 Pa to 5,000 psig <sup>(2)</sup> 345 bar	20,000 psig 1,380 bar	9/16"-18 <sup>(1)</sup> 9/16"-18 <sup>(1)</sup>	75 Pa + 5 Ps	50 psi (3.5 bar) 31,000 psig	100:1	7.05
GBT-30/75	20 Pa to 9,000 psig <sup>(2)</sup> 620 bar	20,000 psig 1,380 bar	9/16"-18 <sup>(1)</sup> 9/16"-18 <sup>(1)</sup>	75 Pa + 2.5 Ps	100 psig (7 bar) 16,000 psig (1103 bar)	60:1	3.1
GBT-D15/30	30 Pa + 2,500 psig <sup>(2)</sup> 172 bar	9,000 psig 620 bar	1/4" NPT 1/4" NPT	60 Pa + 2 Ps	100 psig (7 bar) 9,000 psig (620 bar)	50:1	7.05
GBT-D15/75	7 Pa to 5,000 psig <sup>(2)</sup> 345 bar	25,000 psig 1,725 bar	9/16"-18 <sup>(1)</sup> 9/16"-18 <sup>(1)</sup>	150 Pa + 5 Ps	100 psig (7 bar) 25,000 psig (1,725 bar)	100:1	6.3
GBT-D30/75	40 Pa + 9,000 psig <sup>(2)</sup> 620 bar	25,000 psig 1,725 bar	9/16"-18 <sup>(1)</sup> 9/16"-18 <sup>(1)</sup>	150 Pa + 2.5 Ps	100 psig (7 bar) 25,000 psig (1,725 bar)	60:1	3.1

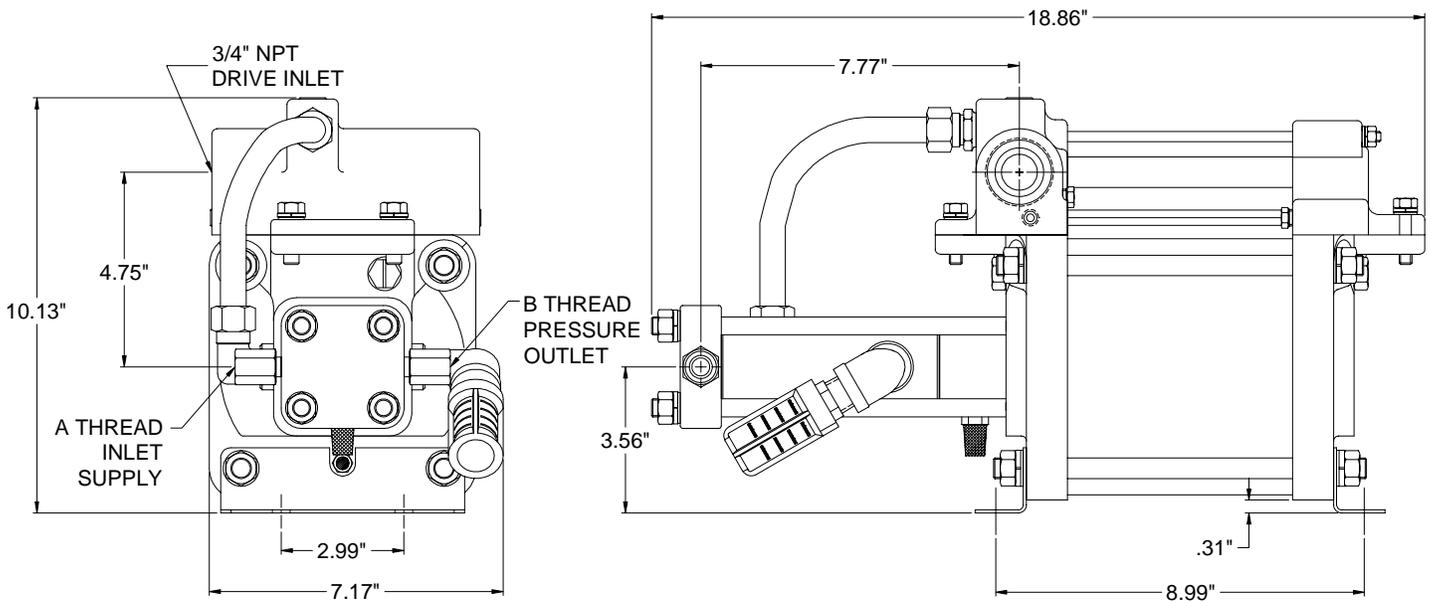
- (1) Coned and threaded high pressure connection for 1/4" O.D. tubing.  
(2) In order to prevent interstage stall, limit supply pressure air drive pressure (Pa) times the formula factor.

Legend
Pa = Drive Pressure
Ps = Gas Inlet Pressure
Po = Gas Outlet Pressure

# GB SERIES

## Single Stage-Single Acting Booster

The GB series is the most economical of the SC Hydraulic Gas Boosters and is ideal for applications not requiring much volume such as pressure testing small vessels or components. Pressures can be boosted from as low as 300 psig and up to over 11,000 psig.



Model No.	Maximum Rated Gas Supply (Ps)	Maximum Rated Gas Outlet (Po)	A Inlet Port B Outlet Port	Static Outlet Stall Pressure	Min. Inlet Gas Pressure (Ps) Max. Outlet Gas Pressure (Po)	Maximum Compression Ratio	Displacement Per Stroke (in <sup>3</sup> per cycle)
GB-15	2,250 psig 155 bar	2,250 psig 155 bar	1/4" NPT 1/4" NPT	15 Pa	50 psig (3.5 bar) 2,250 psig (155 bar)	20:1	7.05
GB-30	4,500 psig 310 bar	4,500 psig 310 bar	1/4" NPT 1/4" NPT	30 Pa	100 psig (7 bar) 4500 psig (310 bar)	25:1	3.1
GB-75	11,250 psig 775 bar	11,250 psig 775 bar	9/16"-18* 9/16"-18*	75 Pa	250 psig (17 bar) 11,250 psig (775 bar)	25:1	1.2

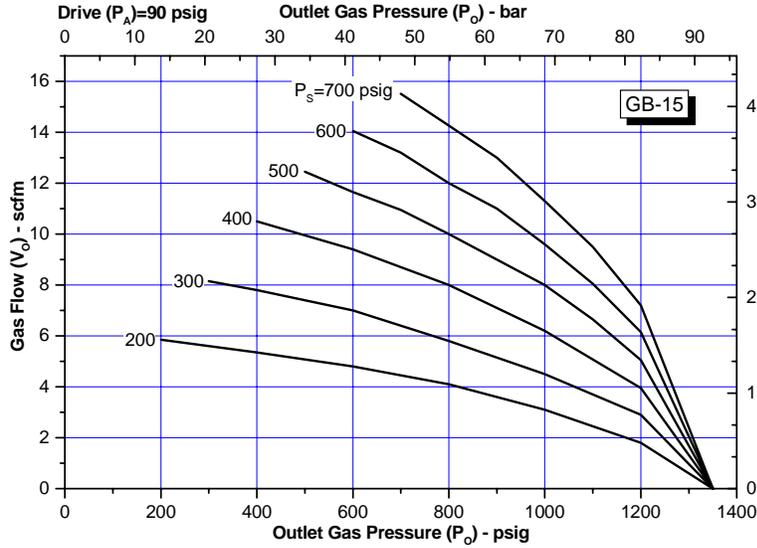
\*Coned and Threaded High Pressure Connection for 1/4" O.D. Tubing

For assistance in selecting the proper Gas Booster complete and fax the data work sheet at the end of the catalog or e-mail inquiries to [service@schydraulic.com](mailto:service@schydraulic.com)

# GB SERIES

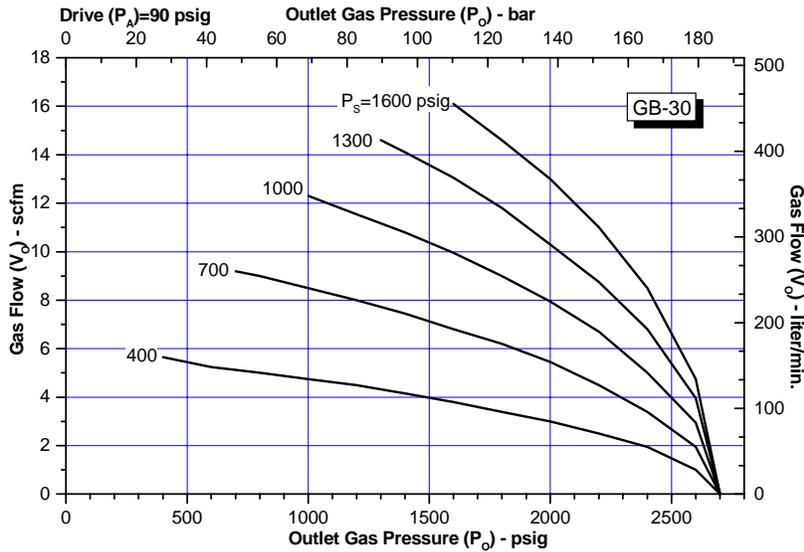
## Single Stage-Single Acting Booster

**GB-15**

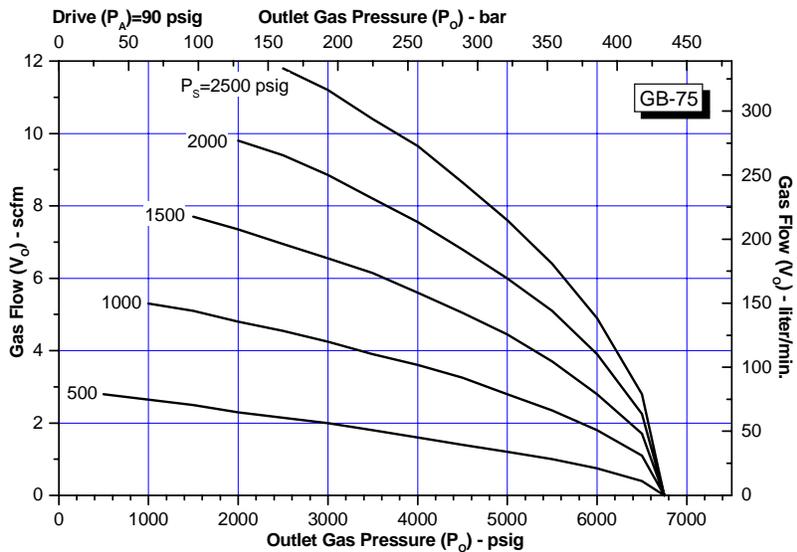


**Legend**  
 PA = Drive Pressure  
 PO = Gas Outlet Pressure  
 Pressure  
 PS = Gas Inlet Pressure  
 VO = Output Gas Flow

**GB-30**



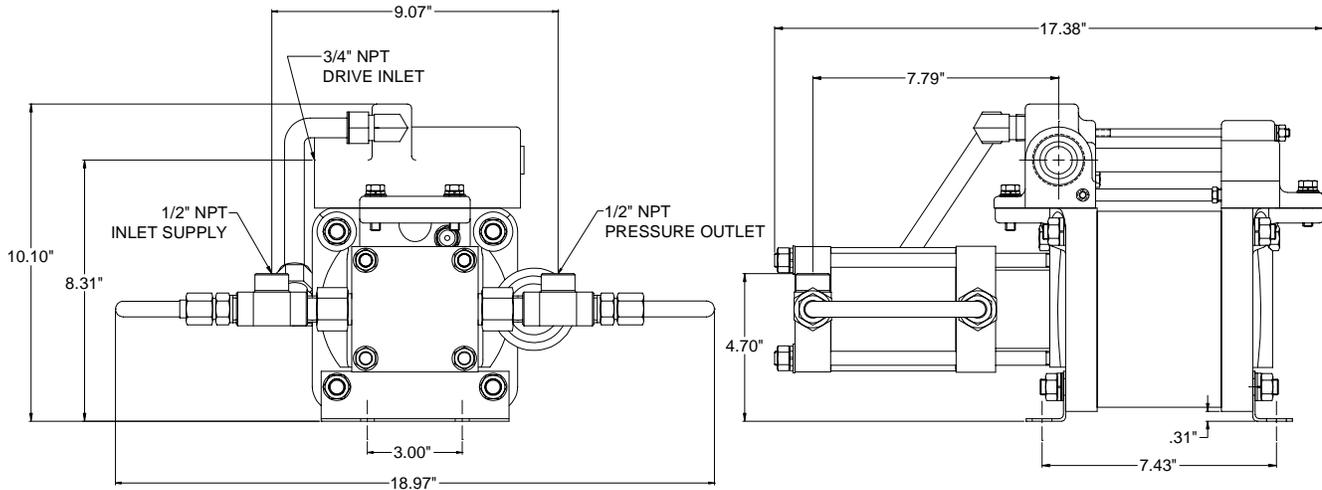
**GB-75**



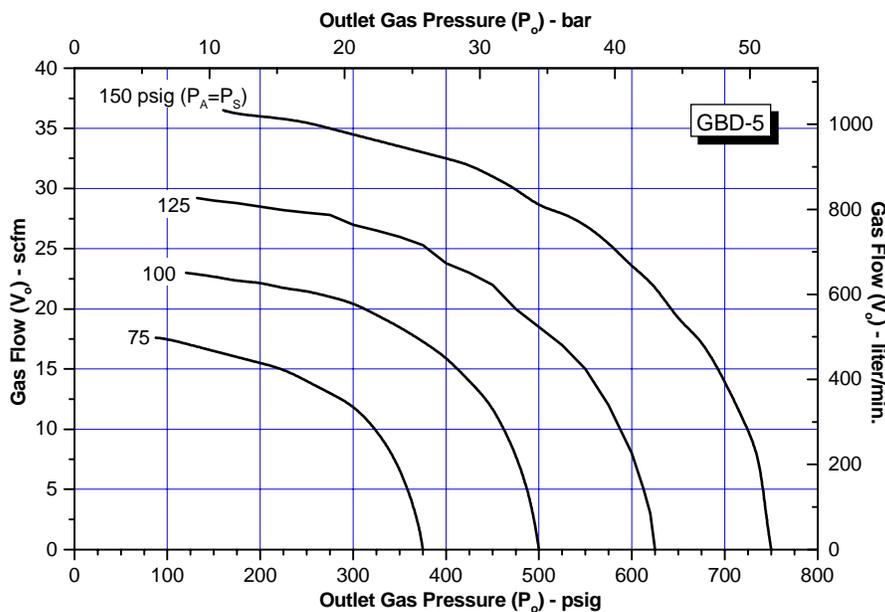
# GBD-5

## Single Stage-Double Acting Booster

This gas booster is a modified version of our popular ABD air booster. It is used to boost gas pressures up to 1,500 psig. The booster is able to move large volumes of gas efficiently when lower pressures are suitable. For convenience, the graph illustrates various inlet gas supplies with matching air drive pressures.



Model No.	Maximum Rated Gas Supply (Ps)	Maximum Rated Gas Outlet (Po)	A Inlet Port B Outlet Port	Static Outlet Stall Pressure	Min. Inlet Gas Pressure (Ps) Max. Outlet Gas Pressure (Po)	Maximum Compression Ratio	Displacement Per Stroke (in <sup>3</sup> per cycle)
GBD-5	1,500 psig 103 bar	1,500 psig 103 bar	1/2" NPT 1/2" NPT	4.7 Pa + Ps	25 psig (3.5 bar) 1,500 psig (103 bar)	10:1	28.2



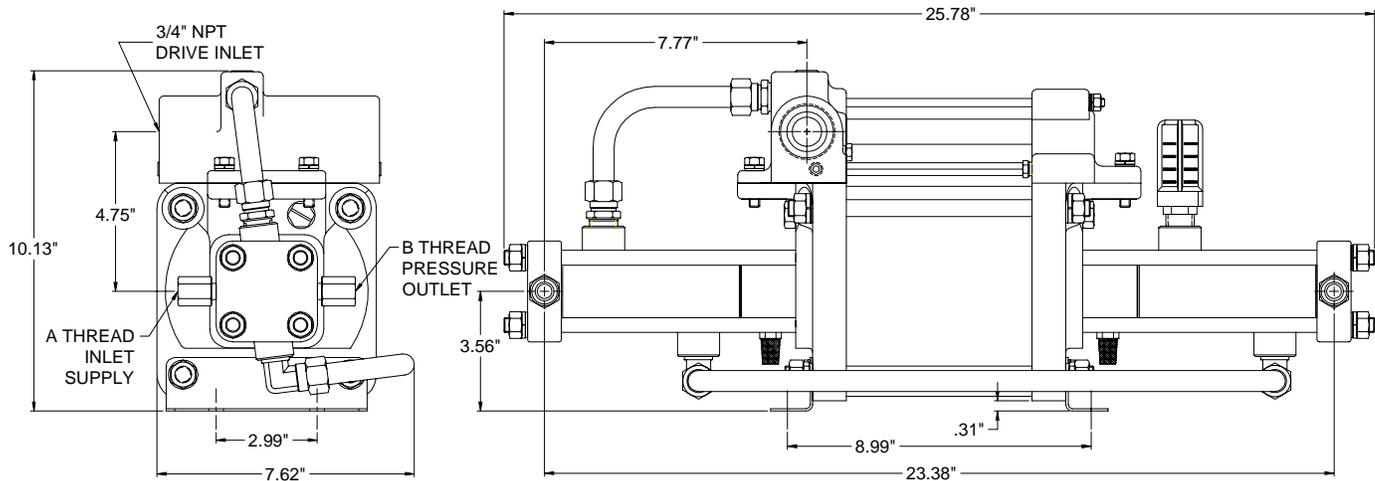
**Legend**  
 $P_A$  = Drive Pressure  
 $P_O$  = Gas Outlet Pressure  
 $P_S$  = Gas Inlet Pressure  
 $V_O$  = Output Gas Flow

For assistance in selecting the proper Gas Booster complete and fax the data work sheet at the end of the catalog or e-mail inquires to [service@schydraulic.com](mailto:service@schydraulic.com)

# GBD SERIES

## Single Stage-Double Acting Booster

This series of boosters doubles the volume of output gas per cycle and is a good choice for moving relatively high volumes at pressures up to 20,000 psig. Supply pressure is added to the maximum outlet pressure.



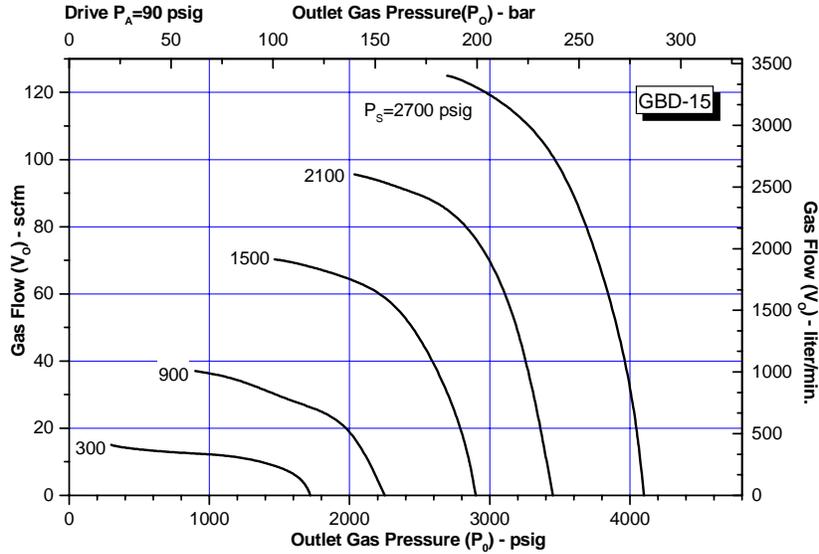
Model No.	Maximum Rated Gas Supply (Ps)	Maximum Rated Gas Outlet (Po)	A Inlet Port B Outlet Port	Static Outlet Stall Pressure	Min. Inlet Gas Pressure (Ps) Max. Outlet Gas Pressure (Po)	Maximum Compression Ratio	Displacement Per Stroke (in <sup>3</sup> per cycle)
GBD-15	5,000 psig 345 bar	5,000 psig 345 bar	1/4" NPT 1/4" NPT	15 Pa + Ps	50 psig (3.5 bar) 5,000 psig (345 bar)	20:1	14.1
GBD-30	9,000 psig 620 bar	9,000 psig 620 bar	1/4" NPT 1/4" NPT	30 Pa + Ps	100 psig (7 bar) 9,000 psig (620 bar)	25:1	6.3
GBD-75	20,000 psig 1,380 bar	20,000 psig 1,380 bar	9/16"-18* 9/16"-18*	75 Pa + Ps	250 psig (17 bar) 20,000 psig (1,380 bar)	25:1	2.4

\*Coned and Threaded High Pressure Connection for 1/4" O.D. Tubing

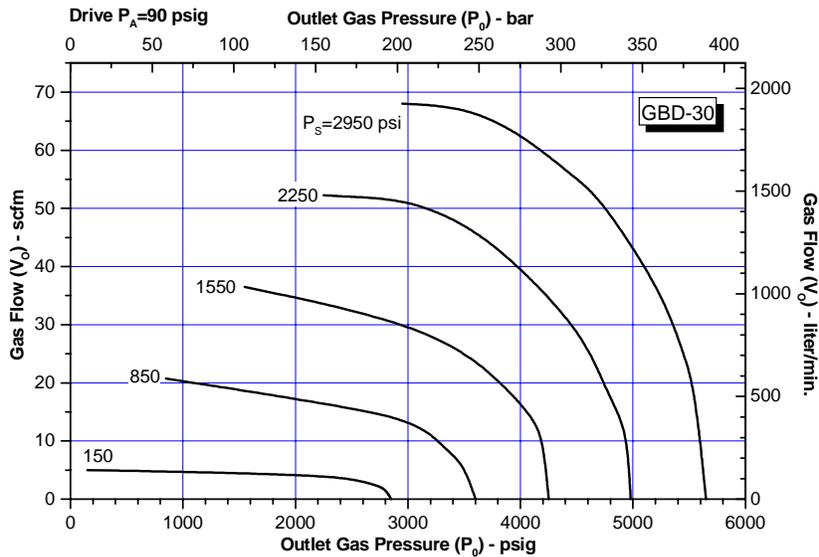
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## Single Stage-Double Acting Booster

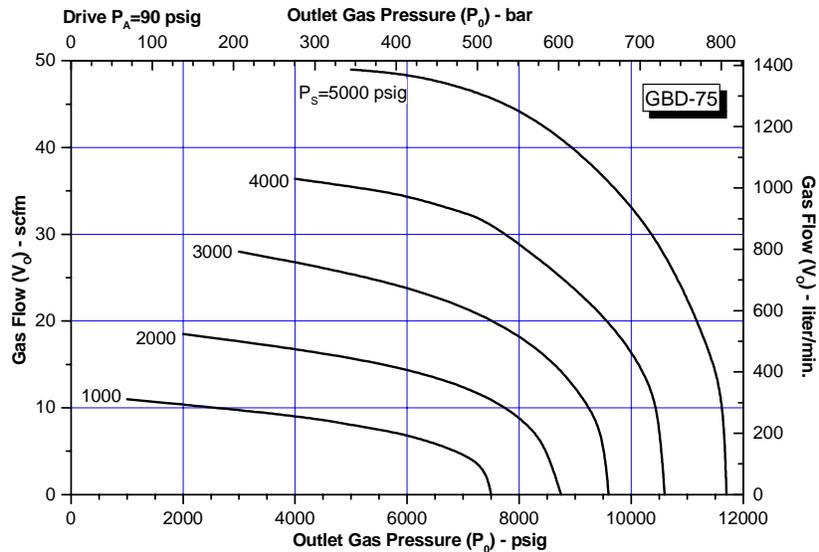
**Legend**  
 PA = Drive Pressure  
 PO = Gas Outlet Pressure  
 Ps = Gas Inlet Pressure  
 VO = Output Gas Flow



**GBD-15**



**GBD-30**

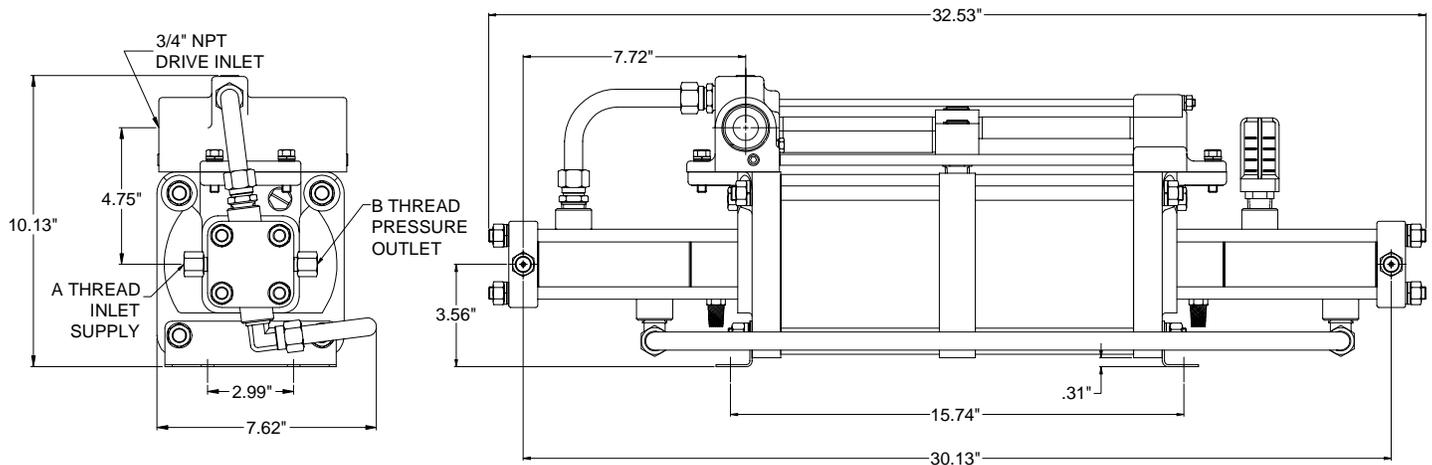


**GBD-75**

# GBD-D SERIES

## Double Acting-Double Head Booster

This series has the same characteristics of the standard GBD however the double head allows half the input pressure to achieve the same outlet pressure.



Model No.	Maximum Rated Gas Supply (Ps)	Maximum Rated Gas Outlet (Po)	Inlet Port Outlet Port	Static Outlet Stall Pressure	Min. Inlet Gas Pressure (Ps) Max. Outlet Gas Pressure (Po)	Maximum Compression Ratio	Displacement Per Stroke (in <sup>3</sup> per cycle)
GBD-D15	5,000 psig 345 bar	5,000 psig 345 bar	1/4" NPT 1/4" NPT	30 Pa + Ps	50 psig (3.5 bar) 5,000 psig (345 bar)	20:1	14.1
GBD-D30	9,000 psig 620 bar	9,000 psig 620 bar	1/4" NPT 1/4" NPT	60 Pa + Ps	200 psig (14 bar) 9,000 psig (620 bar)	25:1	6.3
GBD-D75	25,000 psig 1,725 bar	25,000 psig 1,725 bar	9/16"-18* 9/16"-18*	150 Pa + Ps	250 psig (17 bar) 25,000 psig (1,725 bar)	25:1	2.4

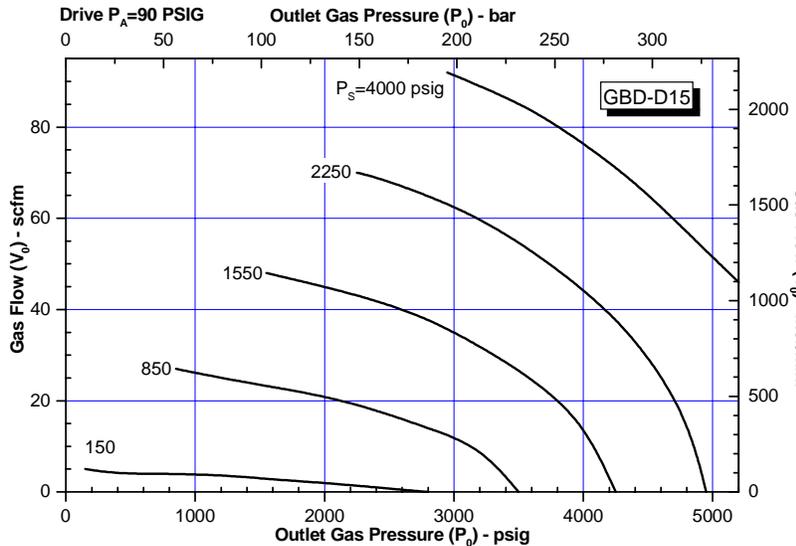
\*Coned and Threaded High Pressure Connection for 1/4" O.D. Tubing

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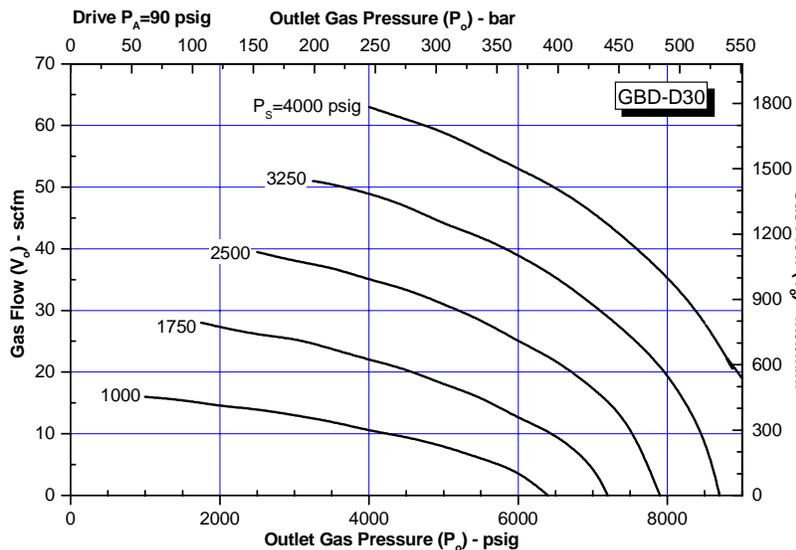
# GBD-D SERIES

## Double Acting-Double Head Booster

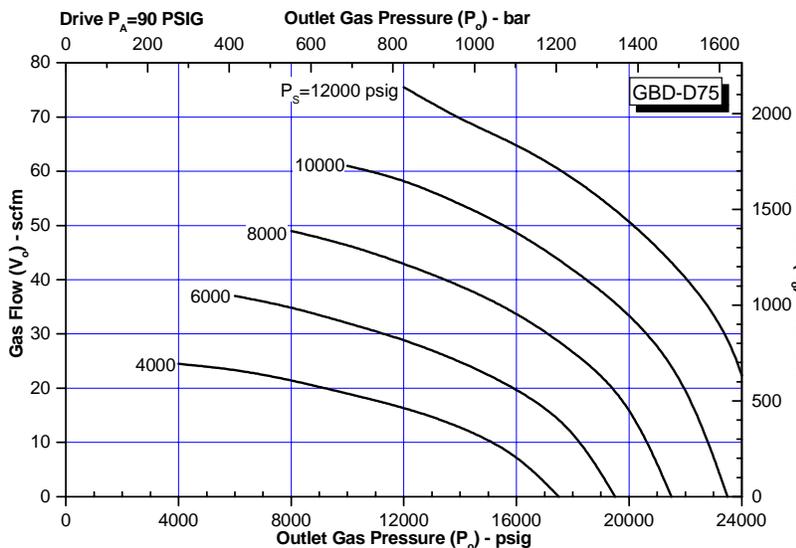
**Legend**  
 PA = Drive Pressure  
 PO = Gas Outlet Pressure  
 Ps = Gas Inlet Pressure  
 VO = Output Gas Flow



**GBD-D15**



**GBD-D30**

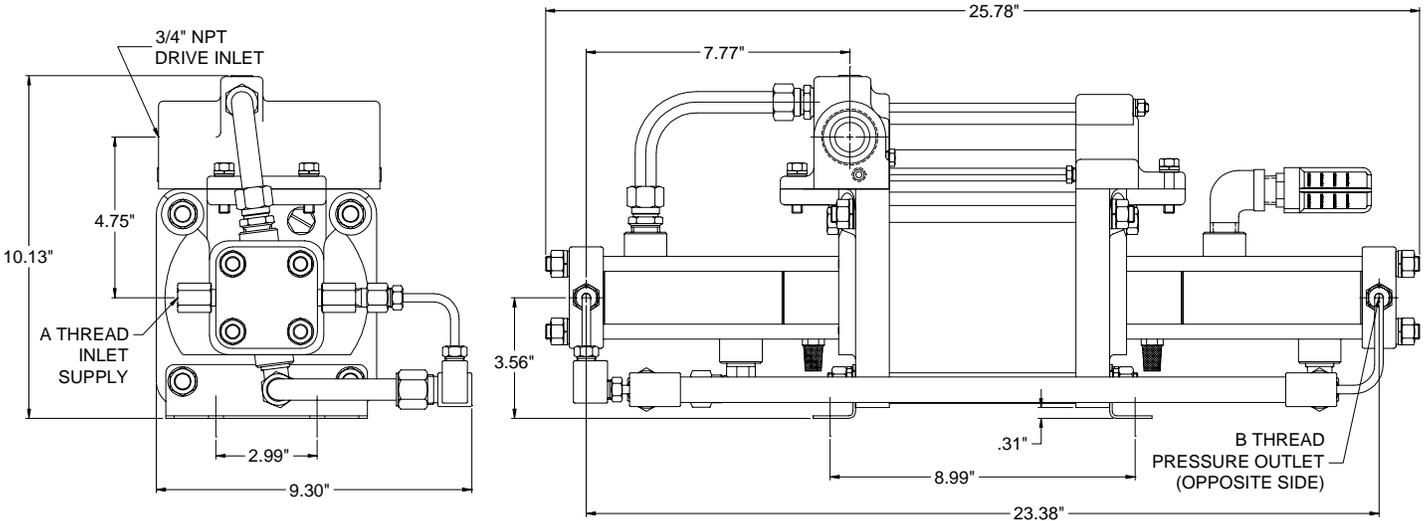


**GBD-D75**

# GBT SERIES

## Two Stage-Double Acting Booster

The GBT series is able to achieve higher compression ratios by combining the first and second stage with an interconnected hydraulic (gas) piston. Maximum outlet pressure is the supply pressure plus the drive area ratio times the area ratio of both hydraulic (gas) pistons.



Model No.	Maximum Rated Gas Supply (Ps)	Maximum Rated Gas Outlet (Po)	Inlet Port Outlet Port	Static Outlet Stall Pressure	Min. Inlet Gas Pressure (Ps) Max. Outlet Gas Pressure (Po)	Maximum Compression Ratio	Displacement Per Stroke (in <sup>3</sup> per cycle)
GBT-15/30	15 Pa to 2,500 psig <sup>(2)</sup> 172 bar	9,000 psig 620 bar	1/4" NPT 1/4" NPT	30 Pa +2 Ps	50 psig (3.5 bar) 8,500 psig (586 bar)	50:1	7.05
GBT-15/75	3.5 Pa to 5,000 psig <sup>(2)</sup> 345 bar	20,000 psig 1,380 bar	9/16"-18* 9/16"-18*	75 Pa + 5 Ps	50 psig (3.5 bar) 31,000 psig	100:1	7.05
GBT-30/75	20 Pa to 9,000 psig <sup>(2)</sup> 620 bar	20,000 psig 1,380 bar	9/16"-18* 9/16"-18*	75 Pa + 2.5 Ps	100 psig (7 bar) 16,000 psig (1103 bar)	60:1	3.1

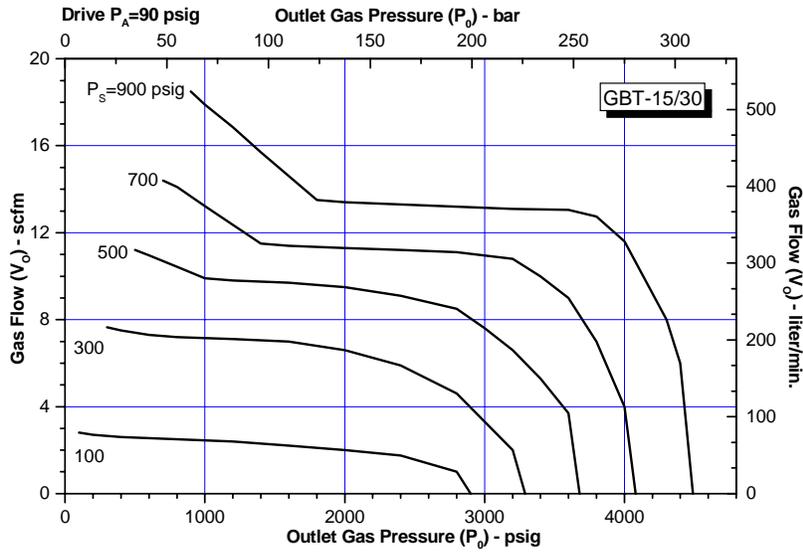
\*Coned and Threaded High Pressure Connection for 1/4" O.D. Tubing

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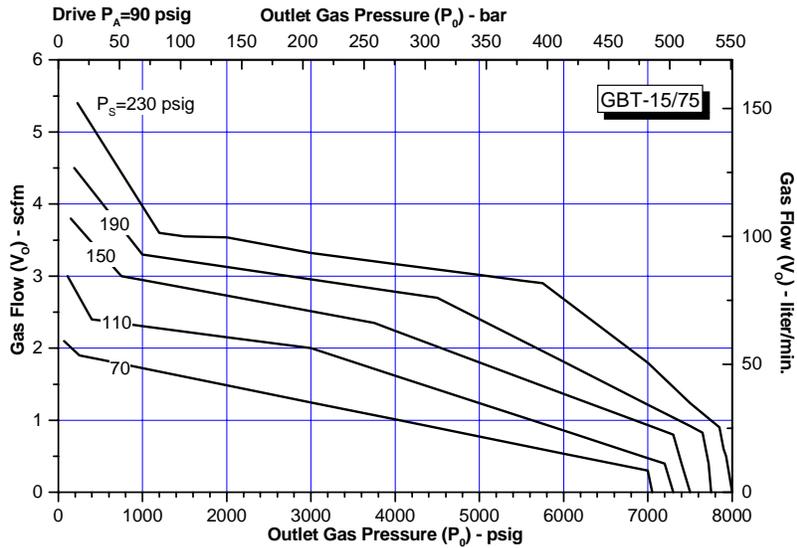
# GBT SERIES

## Two Stage Booster

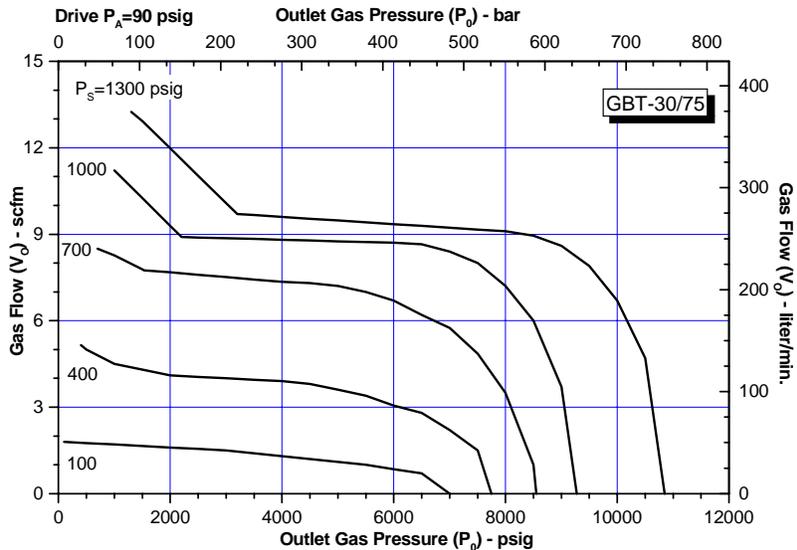
**Legend**  
 PA = Drive Pressure  
 PO = Gas Outlet Pressure  
 Ps = Gas Inlet Pressure  
 VO = Output Gas Flow



GBT-15/30



GBT-15/75

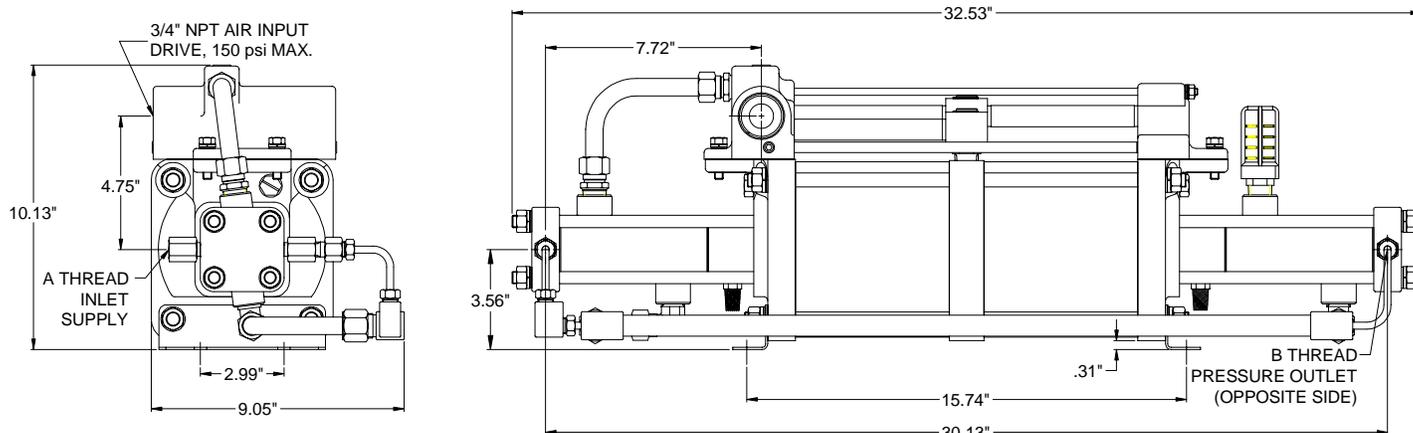


GBT-30/75

# GBT-D SERIES

## Two Stage-Double Head Booster

This series has the same characteristics of the standard GBT however the double head allows half the input pressure to achieve the same outlet pressure.



Model No.	Maximum Rated Gas Supply (Ps)	Maximum Rated Gas Outlet (Po)	Inlet Port Outlet Port	Static Outlet Stall Pressure	Min. Inlet Gas Pressure (Ps) Max. Outlet Gas Pressure (Po)	Maximum Compression Ratio	Displacement Per Stroke (in <sup>3</sup> per cycle)
GBT-D15/30	30 Pa + 2,500 psig <sup>(2)</sup> 172 bar	9,000 psig 620 bar	1/4" NPT 1/4" NPT	60 Pa + 2 Ps	100 psig (7 bar) 9,000 psig (620 bar)	50:1	7.05
GBT-D15/75	7 Pa to 5,000 psig <sup>(2)</sup> 345 bar	25,000 psig 1,725 bar	9/16"-18* 9/16"-18*	150 Pa + 5 Ps	100 psig (7 bar) 25,000 psig (1,725 bar)	100:1	6.3
GBT-D30/75	40 Pa + 3,600 psig <sup>(2)(3)</sup>	25,000 psig 1,725 bar	9/16"-18* 9/16"-18*	150 Pa + 2.5 Ps	100 psig (7 bar) 25,000 psig (1,725 bar)	60:1	3.1

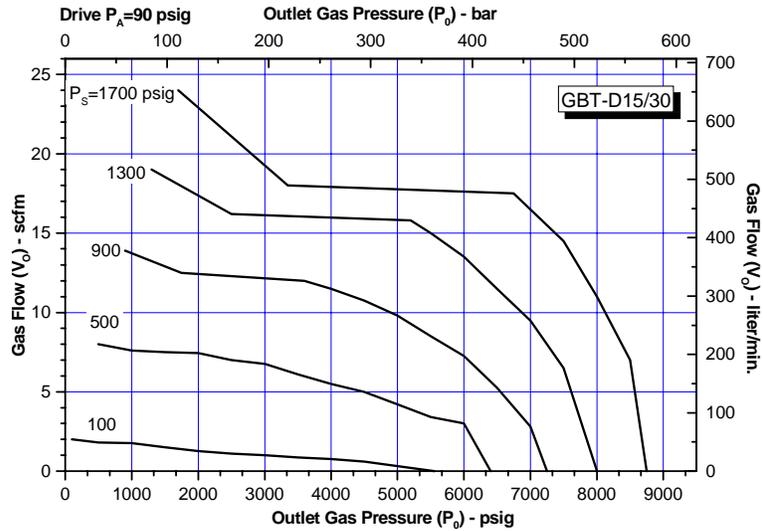
**\*Coned and Threaded High Pressure Connection for 1/4" O.D. Tubing**

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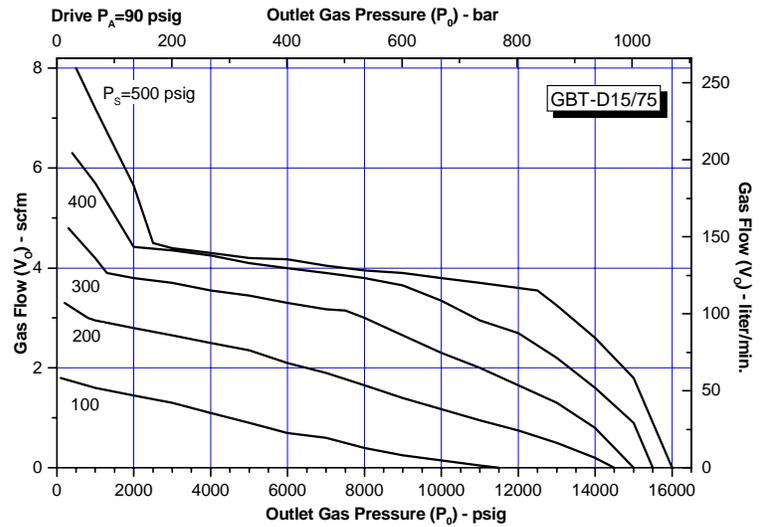
# GBT-D SERIES

## Two Stage-Double Head Booster

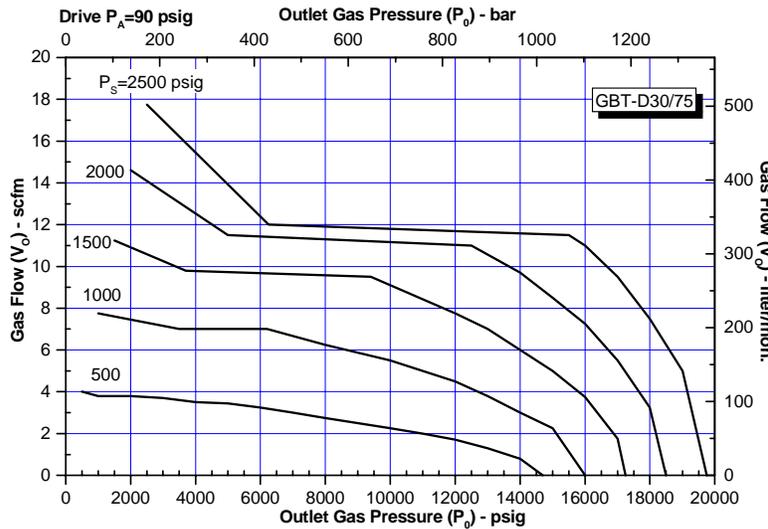
**Legend**  
 PA = Drive Pressure  
 PO = Gas Outlet Pressure  
 PS = Gas Inlet Pressure  
 VO = Output Gas Flow



**GBT-D15/30**



**GBT-D15/75**



**GBT-D30/75**



# HOW TO ORDER TABLE

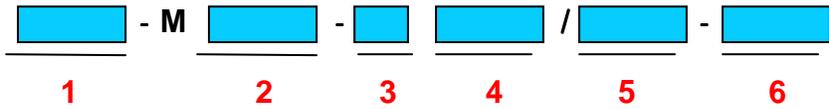
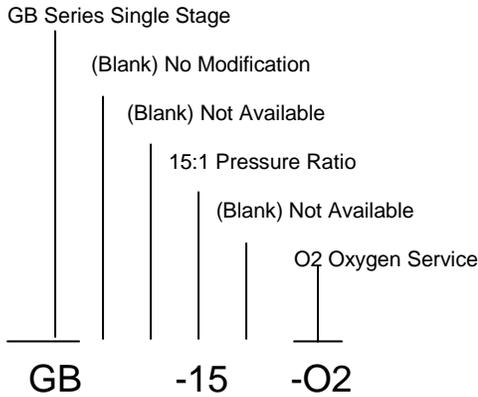
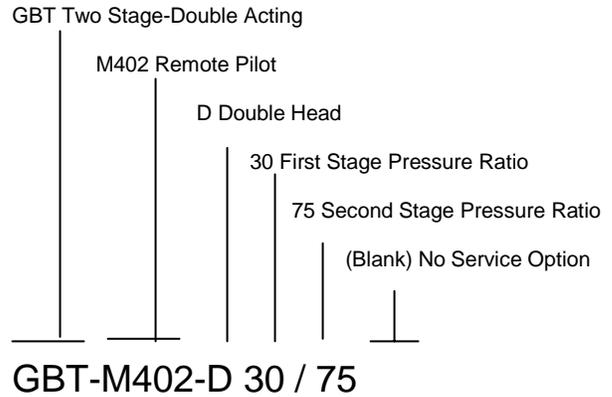


Table Reference

## Example #1 Pump Selection GB-15-O2



## Example #2 Pump Selection GBT-M402-D 30/75



**TABLE 1** <sup>(1)</sup> **Gas Booster Series Series De**

<b>GB</b>	Single Stage
<b>GBD</b>	Single Stage Double Acting
<b>GBT</b>	Two Stage Double Acting

**TABLE 2** **Modification**

<b>Blank</b>	No Modification
<b>401</b>	No Inlet/No Outlet
<b>402</b>	Remote Pilot
<b>403</b>	Plumbing for Single Inlet/Outlet <sup>(2)</sup>

**TABLE 3** **Cylinder Modification**

<b>Blank</b>	Single Head
<b>D</b>	Double Head

**TABLE 4** **Pressure Ratio Single or First Stage**

<b>5</b>	GB, GBD, GBT
<b>15</b>	GB, GBD, GBT
<b>30</b>	GB, GBD, GBT
<b>75</b>	GB, GBD, GBT

**TABLE 5** **Pressure Ratio Second Stage**

<b>Blank</b>	GBT
<b>30</b>	GBT
<b>75</b>	GBT

**TABLE 6** **Service Option**

<b>Blank</b>	Standard
<b>O2</b>	Oxygen Service
<b>H2</b>	Hydrogen Service

Notes:  
 (1) Do not fill gap on a two digit description.  
 (2) Available on GBD, GBD-D only



DESIGNER AND MANUFACTURER OF HYDRAULIC AND PNEUMATIC EQUIPMENT

# SC HYDRAULIC ENGINEERING CORPORATION

1130 Columbia Street, Brea, CA 92821 USA - (714) 257-4800 – Fax (714) 257-4810



## DATA WORKSHEET AIR/GAS BOOSTER

DATE

CUSTOMER

CONTACT

ADDRESS

PHONE

CITY, STATE, ZIP

FAX

### AIR DRIVE INFORMATION

AIR DRIVE SOURCE: AIR <input type="checkbox"/>	PRESSURE MAXIMUM <input type="text"/>	MINIMUM <input type="text"/>
NITROGEN <input type="checkbox"/>	MINIMUM FLOW AVAILABLE SCFM <input type="text"/>	

### GAS SUPPLY INLET

TYPE OF GAS <input type="text"/>	MAX SUPPLY PRESS <input type="text"/> PSI	MIN SUPPLY PRESS <input type="text"/> PSI
ACTUAL SUPPLY VOLUME <input type="text"/>	OR	GENERATOR DELIVERY <input type="text"/> SCFM

### GAS HIGH PRESSURE OUTLET

OUTLET PRESS REQUIRED <input type="text"/>	TIME REQUESTED TO FILL <input type="text"/>
ACTUAL VESSEL VOLUME TO FILL <input type="text"/>	OR FLOW RATE SCFM <input type="text"/>

### DIAGRAM OF APPLICATION



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	NITROGEN <input type="checkbox"/>				
		MINIMUM FLOW AVAILABLE SCFM	<input type="text"/>		

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ACTUAL SUPPLY VOLUME	<input type="text"/>	OR	GENERATOR DELIVERY	<input type="text"/>	SCFM		

### GAS HIGH PRESSURE OUTLET

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ACTUAL VESSEL VOLUME TO FILL	<input type="text"/>	OR FLOW RATE SCFM	<input type="text"/>

### DIAGRAM OF APPLICATION

## LIMITED WARRANTY

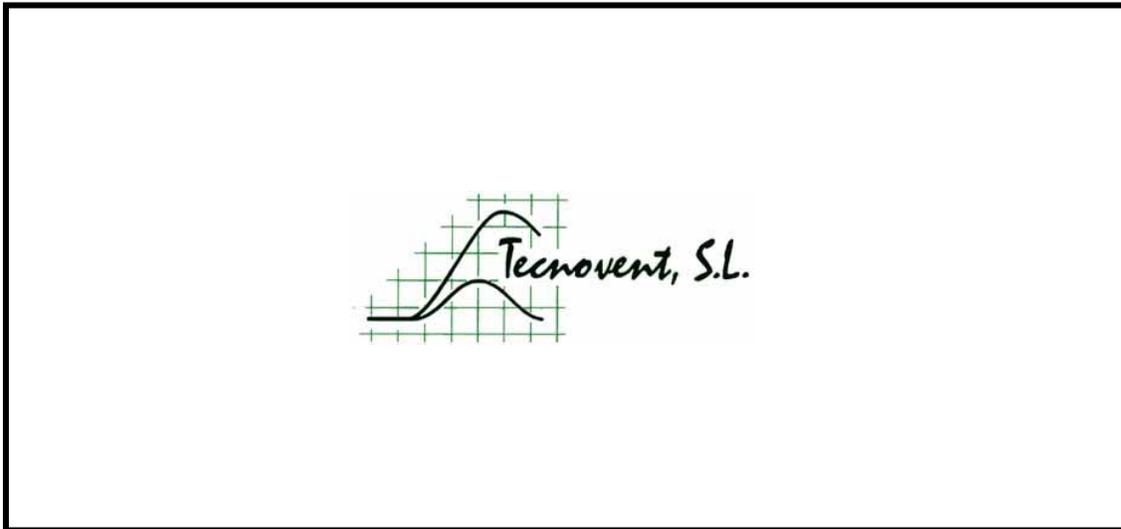
SC manufactured products are warranted free of original defects in material and workmanship for a period of one year from date of purchase to first user. This warranty does not include packing, seals or failures caused by lack of proper maintenance, incompatible fluids, foreign materials in the air media, in the fluid media or application of pressures beyond catalog ratings. Products believed to be originally defective may be returned, freight prepaid, for repair and/or replacement to the distributor, authorized service representative or to the factory. If upon inspection by the factory or authorized service representative and the problem is found to be originally defective material or workmanship, repair or replacement will be made at no charge for labor and materials, F.O.B. the point of repair or replacement. Permission to return under warranty should be requested prior to shipment. A Return Material Authorization Number (RMA), the original purchase date, purchase order number, serial number, model number, reason for return or other pertinent data to establish warranty claim must be included in the documentation to expedite the return or replacement to the owner.

If the unit has been disassembled, misused, or altered without prior **written** authorization, warranty is void. If it has been improperly reassembled or substitute parts have been used in place of factory manufactured parts, warranty is void.

Any modification to any SC product which you have made or may make in the future will void warranty. SC disclaims any and all liability obligation, or responsibility for the modified product, and for any claims, demands or causes of action for damage or for personal injuries resulting from the modification and/or use of such a modified SC product.

**SC's obligation with respect to its products shall be limited to replacement, and in no event shall SC be liable for any loss or damage, consequential or special, of whatever kind or nature, or any other expense which may arise in connection with or as a result of such products or the use or incorporation thereof in a job. This warranty is expressly made in lieu of all other warranties of merchantability and fitness for a particular purpose. No express warranty and no implied warranties whether of merchantability or fitness for a particular purpose or otherwise, other than those expressly set forth above, shall apply to SC products.**

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Designers and Manufacturers of Hydraulic and Pneumatic Equipment

***SC HYDRAULIC ENGINEERING CORPORATION***

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