

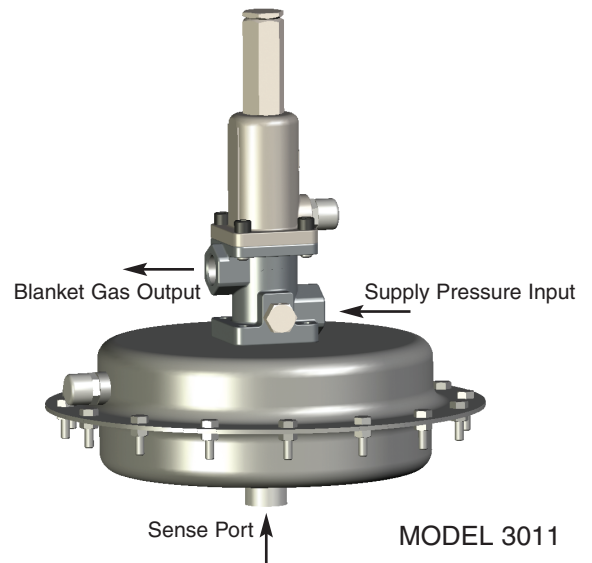
Model 3011 / 3041

- **NOW AVAILABLE IN 1/2" (DN15) AND 1" (DN25) SIZES**
- **Available in stainless steel or other materials by request**
- **Field-adjustable flow capacity**
- **Single-stage regulation from 200 psig to 0.5" WC**
- **Bubble-tight shut-off**
- **Settings from 0.5" WC to 8" WC**
- **Modulating design**
- **Reliability tested to 5,000 cycles**
- **Spring-loaded "push-push" balanced piston design**
- **Low maintenance costs**

WHY BLANKET GAS REGULATORS?

Blanket gas regulators from Groth Corporation ensure that a constant gas pressure is maintained in the vapor space of a storage tank. A blanket gas regulator supplies an inert gas to prevent a vacuum from developing when liquid is removed from a tank, to maintain the desired blanket pressure when the temperature drops, and to prevent outside air from contaminating the tank or creating a flammable or explosive environment. A blanket gas pressure as low as 0.5" water column prevents outside air and moisture from entering the storage vessel and reduces the evaporation of the stored product to a negligible amount. The result is conserved product, great reduction in emissions, and prevention of internal tank corrosion.

The simple design of a Groth blanket gas regulator eliminates the need for a multiple regulator system or for complicated pilot operated blanketing valves. Groth units have totally balanced chambers to offer high accuracy and reliability, and ensure a leak-tight design without the need for a pilot valve to operate the unit, thus reducing maintenance costs.



APPLICATIONS

Groth blanket gas regulators provide a controlled gas environment in storage tanks for various applications:

- Refineries
- Liquid Bulk Storage Terminals
- Pulp & Paper Plants
- Food & Beverage Storage
- Chemical & Petrochemical Plants

FEATURES

Groth blanket gas regulators include these features:

- Direct acting, modulating valves with a patented force multiplying linkage
- Balanced forces acting on piston (regulator pressure setting is not affected by supply pressure)
- Compact size and weight
- Setting range is from 0.5" to 8" WC (Model 3011) or -0.5" to -8" WC (Model 3041 – Consult the factory for other settings)
- Molded Teflon^{®1} (FEP) Actuator Diaphragm
- Available with NPT or flanged connections for both sizes, with optional sanitary fitting or quick disconnect connections for the 1/2" size
- Wide selection of elastomer seal materials
- Field adjustable flow capacity (25% – 100% for 1/2", 5% – 100% for 1")
- Remote installation configuration available
- Available for vacuum service (Model 3041)
- Optional upstream filter available (1/2" only)

¹ Teflon is a registered trademark of E.I. du Pont de Nemours and Company, used under license.

BLANKET GAS REGULATORS

OPTIMUM PROTECTION

For optimum protection of a tank and to meet regulatory requirements, each tank should be protected by 1) a properly-sized blanket gas regulator, to maintain the vapor pressure in the tank, 2) a properly-sized pressure/vacuum relief valve or pilot operated valve, to release the vapor during pump-in or thermal expansion, and 3) a properly-sized emergency relief valve to protect against pressure rise due to external fire. Tank protection systems can be combined across multiple tanks, but careful consideration must be given to provide adequate relief and input capacity and to prevent fouling or clogging of system piping. Consult Groth Corporation for assistance in these situations.

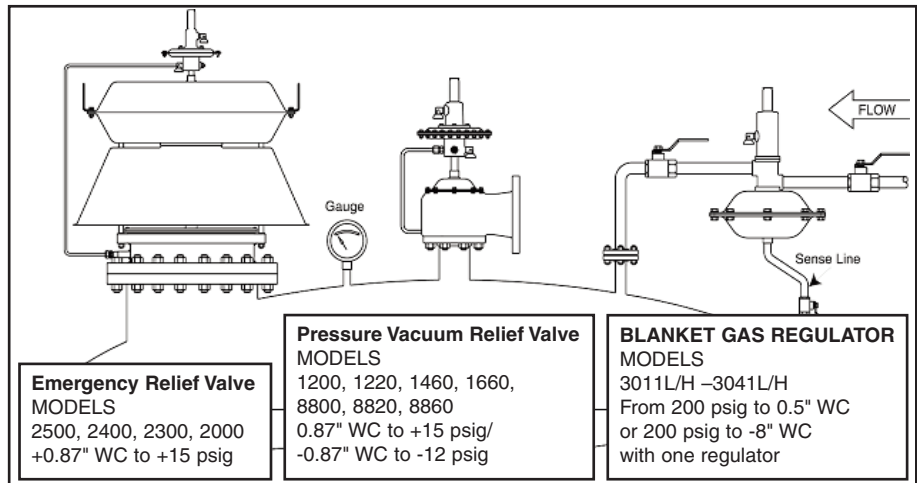
A Groth blanket gas regulator prevents evaporation or contamination in a tank and prevents a flammable or explosive environment in the tank vapor space. A Groth pressure/ vacuum relief valve or pilot operated valve with vacuum relief will maintain a bubble-tight seal to prevent vapor from escaping into the atmosphere until the set pressure is exceeded, and provide vacuum protection in case of a gas supply failure. The emergency relief valve will provide vessel protection under control system failure or external fire conditions.

Benefits of storage tank blanketing are recognized by the following government regulations and industrial standards:

- API Standard 2000
- EPA Publication AP-42
- NFPA 69 - Standard on Explosion Prevention Systems
- OSHA Part 1910.10

How to Select a BGR

Based on your system requirements, use the information in the following tables to select the proper



blanket gas regulator models and specifications.

1. Determine the set pressure of the tank
2. Determine the pressure of the blanket gas supply
3. Select the appropriate model number from Table 1, *Product Selection Guide*
4. Determine the flow capacity from Table 2, *Flow Capacity*
5. Select the appropriate spring range from Table 3, *Spring Ranges*
6. Configure the proper model number and select soft goods and connection type from *How to Order Standard Blanket Gas Regulators* on page 4.

Flow Capacity

Required flow capacity should be determined by using API 2000 or the relevant sizing standard. Groth Corporation's "Cal-Q-Size" will size your valve and regulator applications in accordance with API 2000. To find the rated capacity for your application, please refer to Table 2, *Flow Capacity*. Capacity is listed as a function of supply pressure for four typical blanket gases: carbon dioxide, nitrogen, natural gas, and air.

Table 1 — PRODUCT SELECTION GUIDE

1" 3011/3041 BGR

1/2" 3011/3041 BGR

Set Pressure	Supply Pressure psig / barg			
	5 – 50 0.3 – 3.4	>51 – 100 3.5 – 6.9	>101 – 150 7.0 – 10.3	>151 – 200 10.4 – 13.8
-2.0" – -8.0" WC -5.0 – -20 mbar	<div style="display: flex; justify-content: center; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">3041H</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">3041L</div> </div>			
-1.5" – -1.9" WC -3.7 – -5.0 mbar				
-1.0" – -1.4" WC -2.5 – -3.7 mbar				
-0.5" – -0.9" WC -1.2 – -2.5 mbar				
0.5" – 0.9" WC 1.2 – 2.5 mbar	<div style="display: flex; justify-content: center; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">3011H</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">3011L</div> </div>			
1.0" – 1.4" WC 2.5 – 3.7 mbar				
1.5" – 1.9" WC 3.7 – 5.0 mbar				
2.0" – 8.0" WC 5.0 – 20 mbar				

Set Pressure	Supply Pressure psig / barg			
	5 – 50 0.3 – 3.4	>51 – 100 3.5 – 6.9	>101 – 150 7.0 – 10.3	>151 – 200 10.4 – 13.8
-2.0" – -8.0" WC -5.0 – -20 mbar	<div style="display: flex; justify-content: center; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">3041H</div> </div>			
-1.5" – -1.9" WC -3.7 – -5.0 mbar				
-1.0" – -1.4" WC -2.5 – -3.7 mbar				
-0.5" – -0.9" WC -1.2 – -2.5 mbar				
0.5" – 0.9" WC 1.2 – 2.5 mbar	<div style="display: flex; justify-content: center; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">3011H</div> </div>			
1.0" – 1.4" WC 2.5 – 3.7 mbar				
1.5" – 1.9" WC 3.7 – 5.0 mbar				
2.0" – 8.0" WC 5.0 – 20 mbar				

Table 2 — FLOW CAPACITY

Supply Pressure		Flow Capacity (SCFH)							
		Carbon Dioxide		Nitrogen		Natural Gas 0.55 SG		Air	
psig	barg	1/2"	1"	1/2"	1"	1/2"	1"	1/2"	1"
5	0.34	2160	4600	2810	5800	3660	7400	2800	5700
10	0.69	3250	7100	4230	8800	5490	11300	4190	8700
15	1.03	4370	9200	5690	11500	7390	14600	5630	11300
20	1.38	5130	11200	6680	14000	8680	17900	6610	13800
30	2.07	6630	15100	8630	18900	11210	24000	8540	18600
40	2.76	8140	18800	10590	23600	13760	30000	10480	23200
50	3.45	9650	22500	12560	28200	16320	35800	12430	27700
60	4.14	11160	26000	14520	32600	18860	41500	14370	32100
80	5.52	14180	33000	18440	41300	23950	52600	18250	40700
100	6.89	17200	40000	22370	50100	29060	63700	22140	49300
120	8.27	20210	47000	26290	58800	34150	74800	26020	57900
140	9.65	23230	53900	30220	67500	39250	85900	29910	66500
160	11.0	26240	60900	34140	76300	44340	97000	33790	75100
180	12.4	29260	67900	38060	85000	49440	108100	37680	83700
200	13.8	32280	74900	41990	93700	54540	119200	41560	92300

Notes:

- 1) Flow capacity values are in SCFH. For NCMH, multiply the listed capacities by 0.029.
- 2) Capacities listed are with the orifice selector sleeve set at 100%.
- 3) Consult factory for optional upstream filter and capacity.
- 4) For reduced capacities, multiply the table values by the appropriate percentage listed on the "Orifice Selector Position" column listed on page 4.

Table 3 — SPRING RANGES
1" Blanket Gas Regulator

Model No.	Max Supply	Min Setting	Max Setting	Spring Range
	psig barg	in WC mbarg	in WC mbarg	
3011L/(3041L)	200	0.5	0.7	3
	13.8	1.2	1.7	
	200	0.8	1.0	
3011H/(3041H)	50	0.5	1.0	1
	3.4	1.2	2.5	
	100	1.0	1.5	
3011L/(3041L)	200	1.0	2.0	5
	13.8	2.5	5.0	
	150	1.5	2.0	
3011H/(3041H)	200	2.0	3.5	4
	13.8	5.0	8.7	
	200	3.5	6.5	
3011H/(3041H)	200	6.5	8.0	6
	13.8	16.2	20.0	

Notes:

- * Minimum set pressure for 3011H with 200 PSIG supply pressure is 1" WC.
- When spring ranges overlap, select the lighter spring.

1/2" Blanket Gas Regulator

Model No.	Max Supply	Min Setting	Max Setting	Spring Range
	psig barg	in WC mbarg	in WC mbarg	
3011L/(3041L)	200	0.5	0.8	2
	13.8	1.2	2.0	
	200	0.8	1.0	
3011H/(3041H)	50	0.5	0.7	1
	3.4	1.2	1.7	
	200*	0.7	1.7	
3011H/(3041H)	200	1.7	3.0	3
	13.8	4.2	7.5	
	200	3.0	4.5	
3011H/(3041H)	200	4.5	8.0	5
	13.8	11.2	20.0	

PRODUCT LIMITED WARRANTY

A. Seller warrants that products that are manufactured by Seller are manufactured in accordance with published specifications and free from defects in materials and/or workmanship for a period of (12) twelve months. Seller, at its option, will repair or replace any products returned intact to the factory, transportation charges prepaid, which Seller, upon inspection, determines to be defective in material and/or workmanship. The foregoing shall constitute the sole remedy for any breach of Seller's warranty.

B. THERE ARE NO UNDERSTANDINGS, AGREEMENTS, REPRESENTATIONS, OR WARRANTIES, EXPRESS OR IMPLIED (INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE REGARDING PRODUCTS) UNLESS SPECIFIED IN THE SALES CONTRACT. THIS CONTRACT STATES THE ENTIRE OBLIGATION OF SELLER.

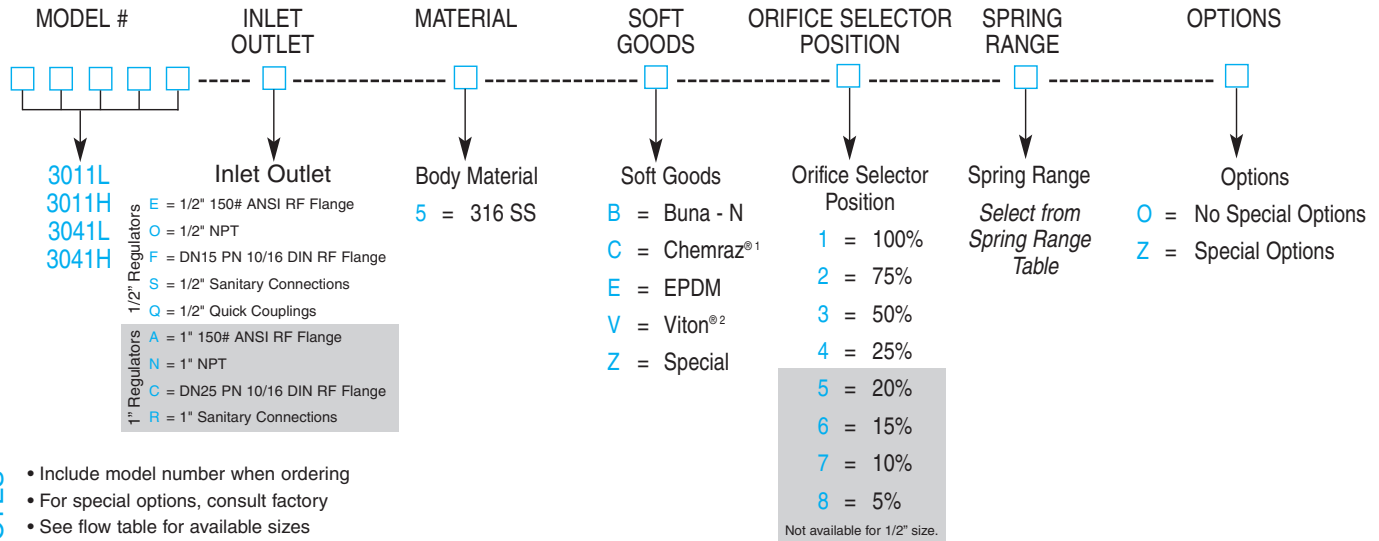
Seller makes no warranties, either express or implied, except as provided herein, including without limitation thereof, warranties as to marketability, merchantability, for a particular purpose or use, or against infringement of any patent of products. In no event shall Seller be liable for any direct, incidental or consequential damages of any nature, or losses or expenses resulting from any defective new product or the use of any such product, including any damages for loss of time, inconvenience, or loss of use of any such product.

C. The original Manufacturer shall be solely responsible for the design, development, supply, production, and performance of its products hereunder, and the protection of its trade name or names, if any. It assumes no responsibility, for products modified or changed by its agent or customer, or any other third party. Any such modifications or changes to products sold by Seller hereunder shall make the product limited warranty null and void.

D. Groth assumes no responsibility for products modified or changed by Customer or any other third party. Any such modifications or changes to products sold by Groth hereunder shall make the product limited warranty null and void. Groth shall be under no obligation to manufacture, sell or supply, or to continue to manufacture, sell, or supply any of the products.

How to Order Standard Blanket Gas Regulators

For easy ordering, select proper model number



- NOTES**
- Include model number when ordering
 - For special options, consult factory
 - See flow table for available sizes
 - Actuator diaphragm is only available in Teflon[®] FEP

EXAMPLE

3 0 1 1 H - N - 5 - V - 1 - 2 - O

Indicates a Model 3011H Regulator with 1" NPT body connections, 316 SS construction, Viton[®] elastomers, full capacity orifice, set pressure range from 1.0" WC to 1.5" WC and no special requirements.

¹Chemraz is a registered trademark of Greene, Tweed of Delaware, Inc.
²Viton is a registered trademark of E.I. du Pont de Nemours and Company, used under license.
^{*}Model 3011 and 3041 blanket gas regulators incorporate U.S. patent no. 5931188.



Pressure Equipment Directive
 Available When Specified

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