



GBV100 SERIES

NITROGEN TANK BLANKETING VALVE



FEATURES

- Fully balanced design minimizes the effect of inlet pressure
- Rolling diaphragm pilot
- Bubble-tight shut-off
- Pilot operated
- Angle or straight-through valve body options
- Self-actuated
- High sensitivity
- Fault diagnosis port

TECHNICAL SPECIFICATIONS

Valve Body Connection Sizes & Port Connection Types

- 1 inch (DN25)
- 2 inch (DN50)

Connection Options

- 1" & 2" FNPT/Rc (Threaded connection)
- 1" CL150 & CL300 RF
- 2" CL150 & CL300 RF
- 1" PN16 / 25 / 40 RF
- 2" PN16 / 25 / 40 RF
- Other special flanges are available upon request

Outlet Configuration

- Horizontal or vertical outlet
- Flanged or threaded connections must be specified when ordering.

Operating Inlet Pressure

- Min: 2.1 bar
- Max: 13.8 bar

Maximum Emergency Outlet Pressure

- 1.4 bar

Set Pressure Range

- 1.2 to 103 mbar

Main Valve Flow Characteristic

- Linear

Pressure Sensing

- External sensing

Accuracy

- Outlet pressure deviation is typically within ± 1.2 mbar when the flow rate is between 5% and 70% of the nominal capacity.

Temperature Range

- Nitrile butadiene rubber (NBR) :
-29°C to 82°C (-20°F to 180°F)
- Fluoroelastomer (FKM) :
-18°C to 100°C (0°F to 212°F)
- Ethylene propylene diene monomer (EPDM-FDA):
-29°C to 100°C (-20°F to 212°F)
- Perfluoroelastomer (FFKM) :
-29°C to 100°C (-20°F to 212°F)

Nitrogen Blanket Valve Flow Coefficient (Cv)

Plug Opening Percentage (%)	1" (DN25)	2" (DN50)
100	11.1	48
80	-	38
75	8.3	-
60	-	29
50	5.6	-
40	-	19
25	2.8	-
20	-	10
10	1.1	-

INTRODUCTION

Tank nitrogen blanketing uses nitrogen and inert gases to sustain slight positive pressure inside sealed storage vessels.

It stops stored substances from vaporizing into air, mitigates flammability risks, and protects products against oxidation and contamination by separating them from ambient air.

This solution fits multiple media types such as adhesives, pharmaceuticals, insecticides, fertilizers, fuels, inks and food additives.

OPERATING PRINCIPLE

1

Model GBV100 blanketing valve controls vapor space pressure over stored liquid. Tank pressure drops as liquid or vapor is drawn out. A large diaphragm senses tank pressure and moves down via spring force when pressure is below setpoint.

2

When tank pressure falls below the set point, the pilot changes the loading pressure acting on the main diaphragm, causing the main valve to open and admit nitrogen into the tank.

3

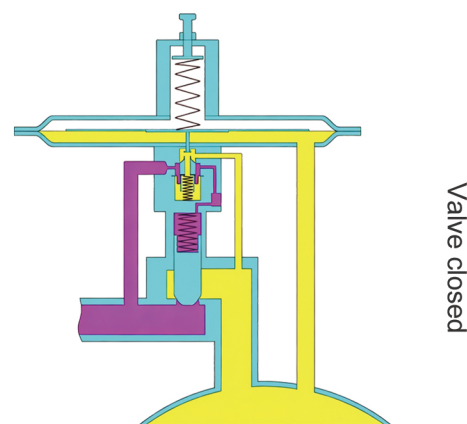
If tank pressure exceeds setpoint, the diaphragm lifts to shut the pilot valve. Load pressure matches the inlet pressure for main valve closure.

4

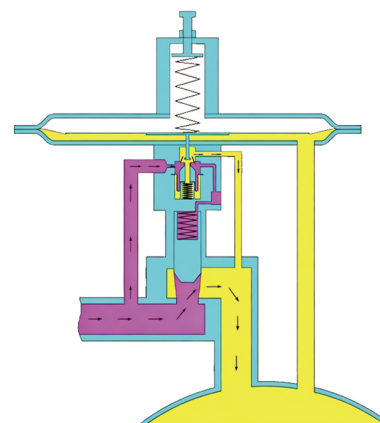
The balanced pilot valve counteracts inlet pressure forces, so outlet pressure stays stable despite upstream fluctuations.

Model GBV100 is a self-actuated, fully balanced pilot-operated valve that accurately stabilizes pressure in tank nitrogen blanketing systems.

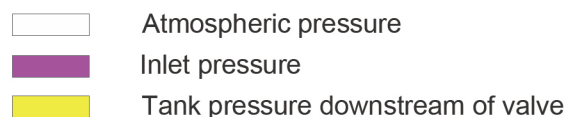
It cuts volatile emissions to avoid air pollution, sustains steady tank positive pressure, helps prevent tank deformation or vacuum damage during pump-out or thermal contraction, and stops stored media from escaping into the air.



Valve closed



Valve Open



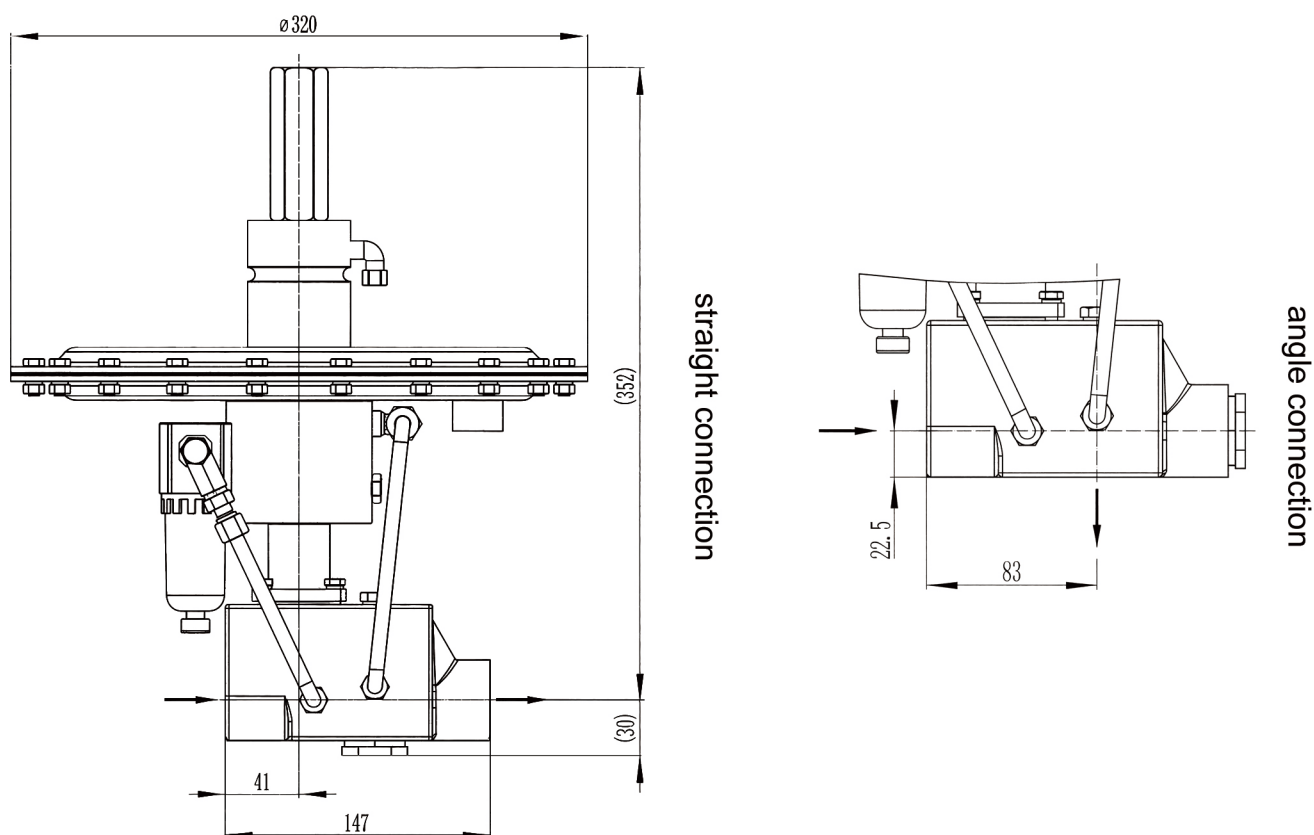
OPTIONAL PARTS & ACCESSORIES

- Inlet pressure gauge
- Control pressure gauge
- Micro flowmeter (Rotameter)
- Pressure switch
- Flow indicator
- Control pressure gauge
- Troubleshooting table
- Single-row manifold

INTRODUCTION

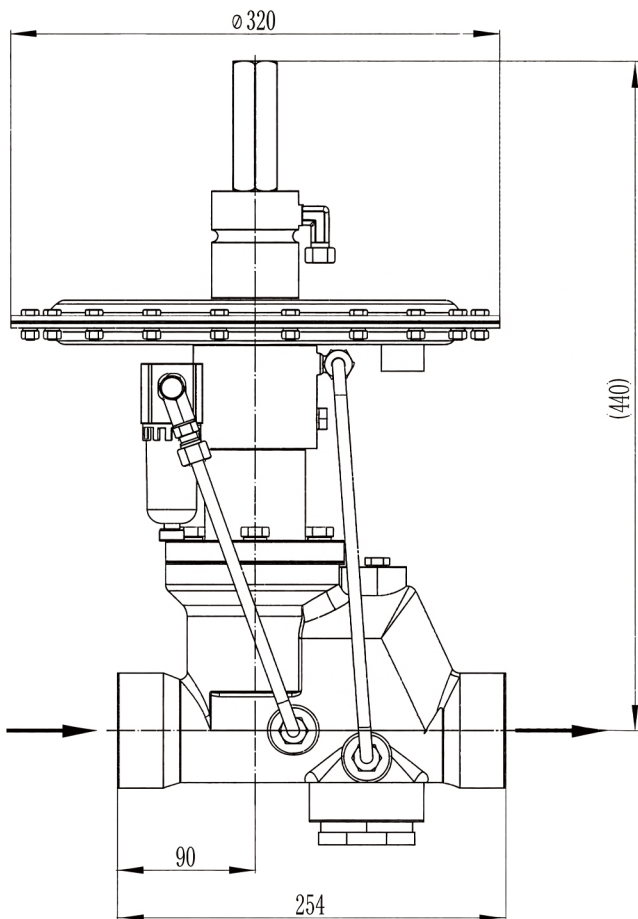
- Pilot Operated Type -** The GBV100 series valves use a pilot-operated design to deliver high-precision control.
- Fully Balanced Pilot -** Minimizes setpoint variations caused by inlet pressure fluctuations.
- Large Actuator -** The diaphragm of the large actuator improves sensitivity to changes in tank pressure.
- Rolled Diaphragm -** The rolled diaphragm balances the pilot and reduces friction and hysteresis, enabling extremely precise control.
- Fault Diagnosis Port -** On-site analysis of valve operating conditions is permitted, simplifying maintenance and reducing overhaul costs.

DIMENSIONS

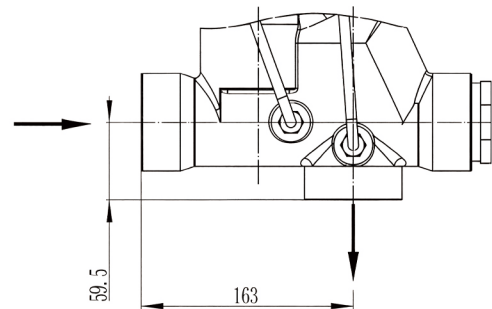


Overall Dimensions of Model GBV100 with 1 in. Threaded Connection

CONNECTION SIZE



straight connection



angle connection

Overall Dimensions of Model GBV100 with 2 in Threaded Connection

INSTALLATION GUIDE

It is recommended to install model GBV100 nitrogen blanketing valve approximately 300 mm higher than the safety relief valve to prevent liquid overflow from the tank and ingress of liquid into the nitrogen blanketing valve.

