

SHERWOOD VALVE COMPRESSED GAS PRODUCTS





A History of Quality and Innovation

For nearly a century, Sherwood has been the world's leading provider of system-critical compressed gas solutions serving blue-chip bulk and specialty gas manufacturers, distributors and storage & delivery system providers (OEMs).

Sherwood had its beginnings in Buffalo, NY in 1923. Over the last 90 years, we have earned a reputation for products that not only keep pace with customer requirements, but also anticipate their changing needs. Our expert engineering and product development teams continuously work to improve Sherwood's core competencies and create new, innovative products to meet the industry's ever-changing standards and demands.

Today Sherwood Valve has three manufacturing facilities near Pittsburgh, PA and Cleveland, OH.

Manufacturing Quality, Safety and Reliability

Automated manufacturing processes throughout Sherwood's operations are set up to eliminate 97% of all touch labor, resulting in consistently higher-quality products. We've added many new advanced process controls, including infrared thermal imaging to ensure optimization at every stage in the manufacturing process, and helium leak checking for quality, safety and reliability.

We're using the latest technology available to lower costs and increase quality. For example, Sherwood's Industrial Automation Center produces up to 6500 assembled and tested valves per shift. And to help ensure quality for our customers, this equipment features automated self-diagnostic and maintenance procedures that increase manufacturing efficiency and output.

Sherwood is a totally integrated brass valve manufacturer. We manufacture our own rod and raw forgings at our foundry. These forgings are then machined into the bodies that we use in our valves. Because we manufacture our own brass rod, we can control the alloy components more closely, resulting in a more durable forging.

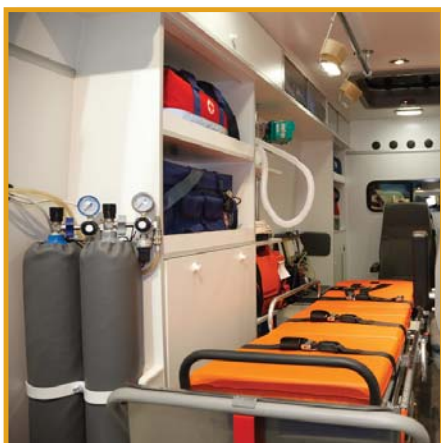
All Sherwood products are designed to meet the highest standards, and only quality materials are used. For example, Sherwood's specialty gas products for medical and breathing apparatuses are cleaned and assembled in a strictly controlled, clean environment. Careful assembly and detailed inspection of every part ensure top performance and durability. Sherwood is fully certified to the stringent requirements of ISO 9001, which increase manufacturing efficiency and reliability.

Your Valve Partner

Sherwood's diverse product lines of specialty gas, compressed gas, HVACR, alternative energy, cryogenics, and life-support equipment have enabled us to develop varied and diverse technical expertise. Our engineering team includes experts in product design and development as well as experts in the quality and compliance testing requirements needed to create custom valves to meet your unique applications.

Sherwood is partnered with a solid network of worldwide industry leaders, distributors, manufacturing representatives and customers supporting continuous improvement. Sherwood is your partner for the best quality valves, delivered on time, at the best possible price!

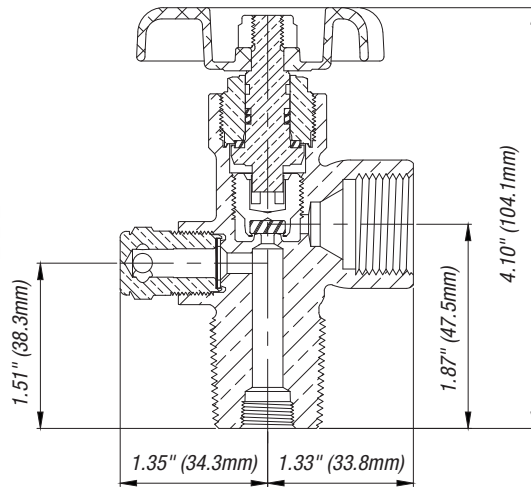




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Industrial Gas Valves

GV & GVHM Series
Global Industrial Gas Valves

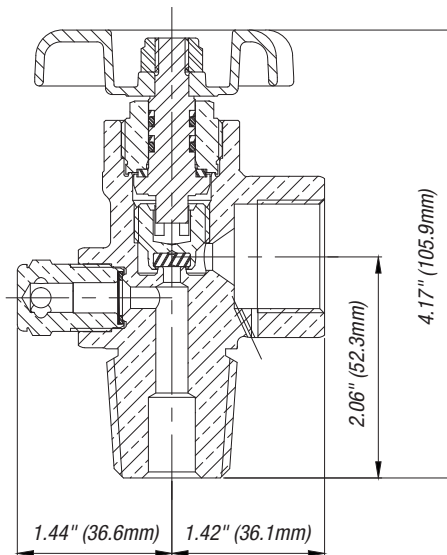


GV Series
Up to 3000 PSI Working Pressure

Designed for use in every country around the world. For use in cylinders containing oxygen, argon, carbon dioxide, nitrogen, helium and hydrogen, as well as welding gas mixtures.

Key Features & Benefits

- Automated assembly and testing processes ensure exceptional quality
- 100% helium leak tested
- Heavy-duty forged brass body for durability and high pressure
- Precisely machined internal components meet the most stringent international valve performance standards
- Pressure Relief Device (PRD) is a unitized plug design that provides excellent flow characteristics, ensures proper assembly and tamper resistance
- Metal-to-metal seal below bonnet threads prevents pressure in the threads at top of valve body
- Direct-drive stem design with optimized O-ring (GV) or double O-ring (GVHM) seal reduces friction and operates at exceptionally low torque levels
- Inlet and outlet thread configurations are available for a broad spectrum of customer, country and code specifications
- Tapped for dip tube as required



GVHM Series
3000 PSI and Above Working Pressure

For Product Markings Reference, see **A** on page 66.

GV & GVHM Series

Global Industrial Gas Valves

Design Specifications		
	English	Metric
Maximum Working Pressure	GV: 3500 PSI GVHM: 6000 PSI	GV: 241 Bar GVHM: 413 Bar
Burst Pressure	GV: 10,000 PSI GVHM: 13,500 PSI	GV: 689 Bar GVHM: 931 Bar
Operating Temperature Range	-50° F → +149° F	-45° C → +65° C
Storage Temperature Range	-65° F → +155° F	-54° C → +68° C
Leak Rate Internal/External	GV: 1x10 ⁻³ atm cc/sec. GVHM: 1x10 ⁻⁴ atm cc/sec.	GV: 1x10 ⁻³ Bar mL/sec. GVHM: 1x10 ⁻⁴ Bar mL/sec.
Minimum Cycle Life	2000 Cycles	
Cv Flow Factor	Standard: .690 CO ₂ /Manifold: 1.23	
Closing Torque	20–30 in.-lbs.	2.2–3.3 N-m
Operating Torque	10–20 in.-lbs.	1.1–2.2 N-m
Bonnet Installation Torque	GV: 50–60 ft.-lbs. GVHM: 60–70 ft.-lbs.	GV: 68–81 N-m GVHM: 81–95 N-m
Handwheel Nut Installation Torque	15–35 in.-lbs.	1.7–3.9 N-m
PRD Installation Torque	GV: 25–35 ft.-lbs. GVHM: 40–50 ft.-lbs.	GV: 34–47 N-m GVHM: 54–68 N-m
PRD Flow Capacity	60 cfm @ 100 PSI	1700 L/min. @ 6.9 Bar

Materials of Construction		
Sherwood Part Number	Part Description	Materials of Construction
<i>GV & GVHM Series Industrial and Chrome-Plated Valves</i>		
N/A	Body	Forged Brass C37700; Chrome Plating When Applicable
N/A	Bonnet	Brass C36000; Chrome Plating When Applicable
1919A	Handwheel	Aluminum A380
1251-6	Handwheel Nut	Steel Class 8, Zinc Plating
N/A	Lower Plug	Brass C48500
N/A	Lower Plug Seat	Nylon Zytel 101
See Chart on Page 62	PRD	Plug: Brass C36000; Chrome Plating When Applicable Rupture Disc: Nickel Alloy 201; Copper C22000 Webbed Seal Gasket: Copper Dead Soft C11000
N/A	Stem	Brass C36000
G011EP	O-Ring	Ethylene Propylene (EPDM)
N/A	Back-up O-Ring	Ethylene Propylene (EPDM)
N/A	Thrust Washer	Delrin® 500 AF

Standards Conformance	
CGA V-9	Standard for Gas Cylinder Valves
CGA S1.1	Standard for Pressure Relief Devices
CGA V-1	Compressed Gas Cylinder Valve Outlet and Inlet Specifications
ISO 10297	International Standard for Cylinder Valves Design Specifications
ISO 11363-1	25E Inlet Thread Specifications
AS2473	Australian Standard for Compressed Gas Cylinder Valves
A-A-59860	U.S. General Services Administration Standards for Gas Cylinder Valves

Inlet O-Ring for Straight Threaded GV Valves		
Sherwood Part Number	Size	Material
G907A	.625 UNF	Buna-N
G210A-9	.750 UNF	Buna-N
G216B	1.125 UNF	Buna-N
G016T	.625 UNF	PTFE
G210T	.750 UNF	PTFE
P1100X15-20T	1.125 UNF	PTFE

Lubricants	
Christo-Lube	Used in Valves for All Industrial Gas Applications
Turmoxygen	Used in GVHM Valves for Oxygen Service

NOTE: GV & GVHM Series valves are not for use with CNG applications. For CNG Service, see NGV and NGVHM Series on pages 45-47. No mechanical addition of force is to be used with handwheel-style valves without the use of controlled torque.

Industrial Gas Valves

GV & GVHM Series

Global Industrial Gas Valves

For further ordering information, refer to the Selection of Pressure Relief Devices on page 62, the Pressure Relief Device Numbering Matrix on page 65, the Product Markings Reference on page 66 and the Valve Part Numbering Matrix on page 70.

Ordering Information				
Sherwood Part Number	Gas Service @ 70° F	CGA Outlet	Outlet Thread Size	Inlet Thread Size
<i>Carbon Dioxide</i>				
GV32041-XX	0 PSI–3000 PSI	320	.825–14 NGO RH Ext.	½"–14 NGT
GV32061-XX	0 PSI–3000 PSI	320	.825–14 NGO RH Ext.	¾"–14 NGT
GV32081-XX	0 PSI–3000 PSI	320	.825–14 NGO RH Ext.	1"–11½ NGT
GV32025E1-XX	0 PSI–3000 PSI	320	.825–14 NGO RH Ext.	25E ISO
GV32051-XX-75	0 PSI–3000 PSI	320	.825–14 NGO RH Ext.	.750–16 UNF
GV32051-XX	0 PSI–3000 PSI	320	.825–14 NGO RH Ext.	1.125–12 UNF
<i>Nitrous Oxide</i>				
GV32641-XX	0 PSI–3000 PSI	326	.825–14 NGO RH Ext.	½"–14 NGT
GV32661-XX	0 PSI–3000 PSI	326	.825–14 NGO RH Ext.	¾"–14 NGT
GV32681-XX	0 PSI–3000 PSI	326	.825–14 NGO RH Ext.	1"–11½ NGT
GV32625E1-XX	0 PSI–3000 PSI	326	.825–14 NGO RH Ext.	25E ISO
GV32651-XX-75	0 PSI–3000 PSI	326	.825–14 NGO RH Ext.	.750–16 UNF
GV32651-XX	0 PSI–3000 PSI	326	.825–14 NGO RH Ext.	1.125–12 UNF
<i>Air</i>				
GV34641-XX	0 PSI–3000 PSI	346	.825–14 NGO RH Ext.	½"–14 NGT
GV34661-XX	0 PSI–3000 PSI	346	.825–14 NGO RH Ext.	¾"–14 NGT
GV34681-XX	0 PSI–3000 PSI	346	.825–14 NGO RH Ext.	1"–11½ NGT
GV34625E1-XX	0 PSI–3000 PSI	346	.825–14 NGO RH Ext.	25E ISO
GV34651-XX-75	0 PSI–3000 PSI	346	.825–14 NGO RH Ext.	.750–16 UNF
GV34651-XX	0 PSI–3000 PSI	346	.825–14 NGO RH Ext.	1.125–12 UNF
GVHM34761-XX	3001 PSI–4700 PSI	347	.825–14 NGO RH Ext.	¾"–14 NGT
GVHM70261-XX	4701 PSI–6400 PSI	702	1.125–14 NGO RH Int.	¾"–14 NGT
<i>Carbon Monoxide and Hydrogen</i>				
GV35045-XX	0 PSI–3000 PSI	350	.825–14 NGO LH Ext.	½"–14 NGT
GV35065-XX	0 PSI–3000 PSI	350	.825–14 NGO LH Ext.	¾"–14 NGT
GV35085-XX	0 PSI–3000 PSI	350	.825–14 NGO LH Ext.	1"–11½ NGT
GV35025E5-XX	0 PSI–3000 PSI	350	.825–14 NGO LH Ext.	25E ISO
GV35055-XX-75	0 PSI–3000 PSI	350	.825–14 NGO LH Ext.	.750–16 UNF
GV35055-XX	0 PSI–3000 PSI	350	.825–14 NGO LH Ext.	1.125–12 UNF
GVHM69565-XX	3001 PSI–4700 PSI	695	1.045–14 NGO LH Int.	¾"–14 NGT
GVHM70365-XX	4701 PSI–6400 PSI	703	1.125–14 NGO LH Int.	¾"–14 NGT
<i>Oxygen</i>				
GV54041-XX	0 PSI–3000 PSI	540	.903–14 NGO RH Ext.	½"–14 NGT
GV54061-XX	0 PSI–3000 PSI	540	.903–14 NGO RH Ext.	¾"–14 NGT
GV54081-XX	0 PSI–3000 PSI	540	.903–14 NGO RH Ext.	1"–11½ NGT
GV54051-XX-75	0 PSI–3000 PSI	540	.903–14 NGO RH Ext.	.750–16 UNF
GV54051-XX	0 PSI–3000 PSI	540	.903–14 NGO RH Ext.	1.125–12 UNF
GVHM57761-XX	3001 PSI–3500 PSI	577	.960–14 NGO RH Ext.	¾"–14 NGT
GVHM70161-XX	3501 PSI–4700 PSI	701	1.103–14 NGO RH Ext.	¾"–14 NGT
<i>Argon, Helium, Krypton, Neon, Nitrogen and Xenon</i>				
GV58041-XX	0 PSI–3000 PSI	580	.965–14 NGO RH Int.	½"–14 NGT
GV58061-XX	0 PSI–3000 PSI	580	.965–14 NGO RH Int.	¾"–14 NGT
GV58081-XX	0 PSI–3000 PSI	580	.965–14 NGO RH Int.	1"–11½ NGT
GV58025E1-XX	0 PSI–3000 PSI	580	.965–14 NGO RH Int.	25E ISO
GV58051-XX-75	0 PSI–3000 PSI	580	.965–14 NGO RH Int.	.750–16 UNF
GV58051-XX	0 PSI–3000 PSI	580	.965–14 NGO RH Int.	1.125–12 UNF
GVHM68061-XX	3001 PSI–4700 PSI	680	1.045–14 NGO RH Int.	¾"–14 NGT
GVHM67761-XX	4701 PSI–6400 PSI	677	1.030–14 NGO LH Ext.	¾"–14 NGT
<i>Sulfur Hexafluoride</i>				
GV59041-XX	0 PSI–3000 PSI	590	.965–14 NGO LH Int.	½"–14 NGT
GV59061-XX	0 PSI–3000 PSI	590	.965–14 NGO LH Int.	¾"–14 NGT
GV59081-XX	0 PSI–3000 PSI	590	.965–14 NGO LH Int.	1"–11½ NGT
GV59025E1-XX	0 PSI–3000 PSI	590	.965–14 NGO LH Int.	25E ISO
GV59051-XX-75	0 PSI–3000 PSI	590	.965–14 NGO LH Int.	.750–16 UNF
GV59051-XX	0 PSI–3000 PSI	590	.965–14 NGO LH Int.	1.125–12 UNF

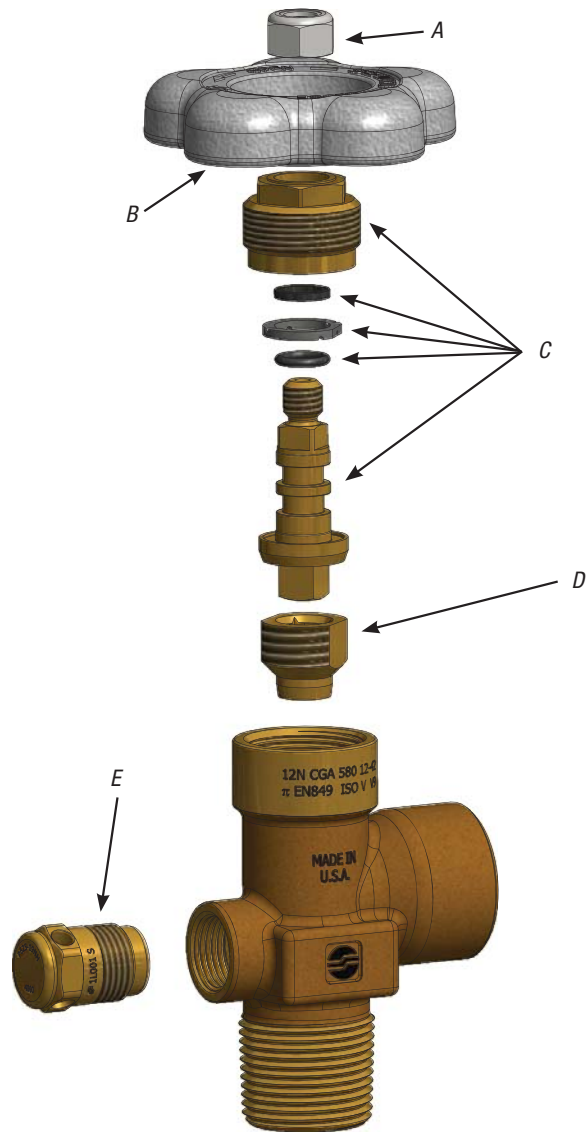
NOTE: For GV and GVHM Series options, see following page.

Parts Breakdown for GV or GVHM Series Industrial and Chrome-Plated Valves

- A. Handwheel Nut** **1251-6**
- B. Handwheel** **1919A**
- C. Bonnet and Stem Assembly Includes:** **1400-30-XXX (GV)**
1400-32GVH-XXX (GVHM)**
 Bonnet, Back-Up O-Ring*, O-Ring*, Thrust Washer, Stem
- D. Lower Plug and Seat Assembly Includes:** **1400-40 (Standard)**
1400-40A (CO₂ /Manifold)
 Lower Plug and Seat
- E. Pressure Relief Device Unitized Assembly Includes:** **P625-19X9-XX (GV)**
P625-19X9H-XX (GVHM)
 Plug, Rupture Disc and Webbed Seal Washer

* GVHM has two O-rings.
 ** For XXX options, see kits below.

For further ordering information, refer to the Selection of Pressure Relief Devices on **page 62**, the Pressure Relief Device Numbering Matrix on **page 65**, the Product Markings Reference on **page 66** and the Valve Part Numbering Matrix on **page 70**.



GV Key Replacement Parts	
Sherwood Part Number	Description
<i>GV Kits, Brass</i>	
1400-30-101KIT	Each kit includes 25 Bonnet and Stem Assemblies, Christo-Lube
<i>GV Kits, Plated</i>	
1-1400-30-101KIT	Each kit includes 25 Bonnet and Stem Assemblies, Christo-Lube

GVHM Key Replacement Parts	
Sherwood Part Number	Description
<i>GVHM Kits, Brass</i>	
1400-32GVH-100KIT	Each kit includes 25 Bonnet and Stem Assemblies, Turmoxygen
1400-32-GVH-101KIT	Each kit includes 25 Bonnet and Stem Assemblies, Christo-Lube
<i>GVHM Kits, Plated</i>	
1-1400-32GVH-100KIT	Each kit includes 25 Bonnet and Stem Assemblies, Turmoxygen
1-1400-32-GVH-101KIT	Each kit includes 25 Bonnet and Stem Assemblies, Christo-Lube

Ordering Options (Refer to Ordering Information on previous page for base part numbers.)

Oversize Inlets: 4 and 7 (low-pressure) and 24 (high-pressure only) threads oversize inlets: To order, add -4, -7 or -24 to the end of the Part Number. For example, GV34661-XX becomes GV34661-XX-7.

Chrome plating: To order, add letter "A" after letters GV or GVHM in the Part Number. For example, GV34661-XX becomes GVA34661-XX.

Lexan® polycarbonate handwheels: To order, add suffix LX to the end of the Part Number. For example, GV34661-XX becomes GV34661-XXLX.

Fusible backed Pressure Relief Devices in 165° F or 212° F nominal melting temperatures:

NOTE: For CNG service valves, see NGV & NGVHM Series on pages 45–47.