HARRIS®
SPECIALTY GAS
Equipment





Pressure Regulation and Flow Control Equipment Catalog













HARRIS SPECIALTY GAS Equipment

2-7
High Purity Stainless Steel Barstock



Model HP741 Single Stage Regulator 2
Model HP742 Two Stage Regulator 4
Model HP743 Line Regulator 6

10-14
High Purity Stainless Steel Barstock



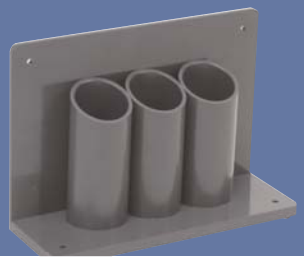
Model HP721 Single Stage Regulator 8
Model HP722 Two Stage Regulator 10
Model HP723 Line Regulator 12

32-35
Flowmeters



SG1050 Flowmeter 32
SG1000 Flowmeter 33
SG1100, 1127 Flowmeter 34
SG7300, 7400 Flowmeter 35

36-43
Accessories





Diaphragm Valves, Needle Valves 36
Relief Valves 37
Gauges 37
Fittings 38
Flash Arrestors 38
Purge Assemblies 39
Cylinder Brackets & Holders 40-43

Harris Calorific, Inc., A Lincoln Electric Company is one of the largest independent manufacturers of gas apparatus equipment in the world.

Harris Calorific products are sold and used in over 85 countries.

INDEX

14-19
High Purity Chrome Plated Brass



Model HP701 Single Stage Regulator 14
Model HP702 Two Stage Regulator 16
Model HP703 Line Regulator 18

20-31
General Purpose Brass



Model GP401 Single Stage Regulator 20
Model GP402 Two Stage Regulator 22
Model GP403 Line Regulator 24
Model GP404 Lecture Bottle Regulator 26
Model GP405 Liquid Cylinder Regulator 28
Model 8700 High Pressure Regulator 30

44-55
Manifolds



SG900 Semi-Automatic 44
SG910 Protocol Station 45
SG920 Pressure Differential Switchover 46
SG930 Pressure Differential Switchover 48
SG940 SS Pressure Differential Switchover 50
SG950 Fully Automatic Switchover 52

54-59
Traps



Moisture Traps 54-55
Oxygen Traps 56-57
Hydrocarbon Traps 56-57
Replacement Filters 58-59

HP 741

High Purity - Stainless Steel Barstock



* Model HP 741-015-580-A-4 shown

A single stage stainless steel cylinder regulator for applications where a slight rise in delivery pressure from full to empty cylinder can be tolerated. The Model HP 741 is suitable for:

- Corrosive gas applications
- High purity gas applications
- Research sample systems gases
- Process analyzers gases
- Gas chromatography gases
- EPA protocol mixer gases
- Laser gas systems
- Emission monitoring systems gases

Recommended for corrosive gases or purity levels of Grade 6.0 (99.9999) and higher.

MATERIALS

Body	316L Stainless Steel Barstock
Bonnet	Chrome Plated Brass Barstock
Diaphragm	316L Stainless Steel
Nozzle	316L Stainless Steel
Seat	PTFE Teflon
Seals	PTFE Teflon
Filter	Sintered Stainless Steel - 10 Micron
Seat Return Spring	316L Stainless Steel
Adjusting Knob	ABS Plastic

FEATURES

- ☑ 1-11/16" 316L stainless steel diaphragm eliminates contamination from diffusion or out gassing
- ☑ One piece encapsulated seat design includes a sintered filter to protect the seat from particulate contamination
- ☑ Chrome plated bonnet, 316L body and fittings
- ☑ 2" stainless steel dual scale gauges (psi/bar)
- ☑ 1 x 10^{-9} cc/sec. inboard helium leak rate maintains gas purity levels
- ☑ Front or back panel mountable
- ☑ Maximum inlet 3000 PSIG

RELATED OPTIONS

Captured Vent Kit P/N: 9100875
Front Panel Mount Kit P/N: 9100871

HP 741 ORDERING INFORMATION

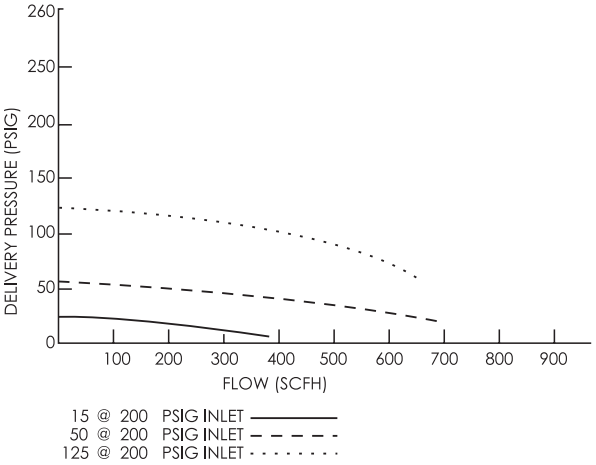
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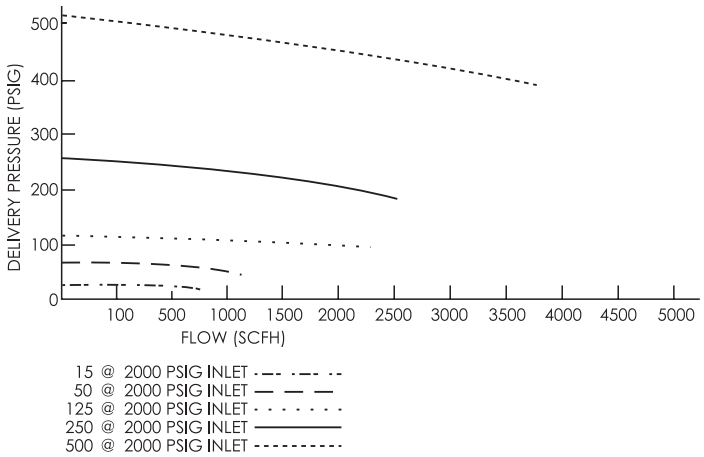
MODEL NUMBER	DELIVERY PRESSURE DELIVERY	(OUTLET GAUGE)	CGA INLET FITTING		OUTLET FITTING	ASSEMBLY/OPTIONS
HP 741	0-15 psi	(30" Hg Vac-30 psi/14 bar)	240	346	A) Diaph. Valve (F) 1/4"	2) He Leak Cert. (Inboard)
	0-50 psi	(30" Hg Vac-100 psi/28 bar)	330	350	B) 1/4" MNPT	3) No Gauges
	0-125 psi	(30" Hg Vac-200 psi/35 bar)	660	540	C) 1/4" FNPT Port	4) With Relief Valve
	0-250 psi	(400 psi/28 bar)	705	580	D) 1/4" Tube Fitting	5) He Leak Cert. (Outboard)
	0-500 psi	(1000 psi/70bar)	320	590	E) 1/8" Tube Fitting	
			326			
			000 (1/4" FNPT)			
			001 (1/4" MNPT)			

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HP 741 TECHNICAL SPECIFICATIONS

FLOW DATA

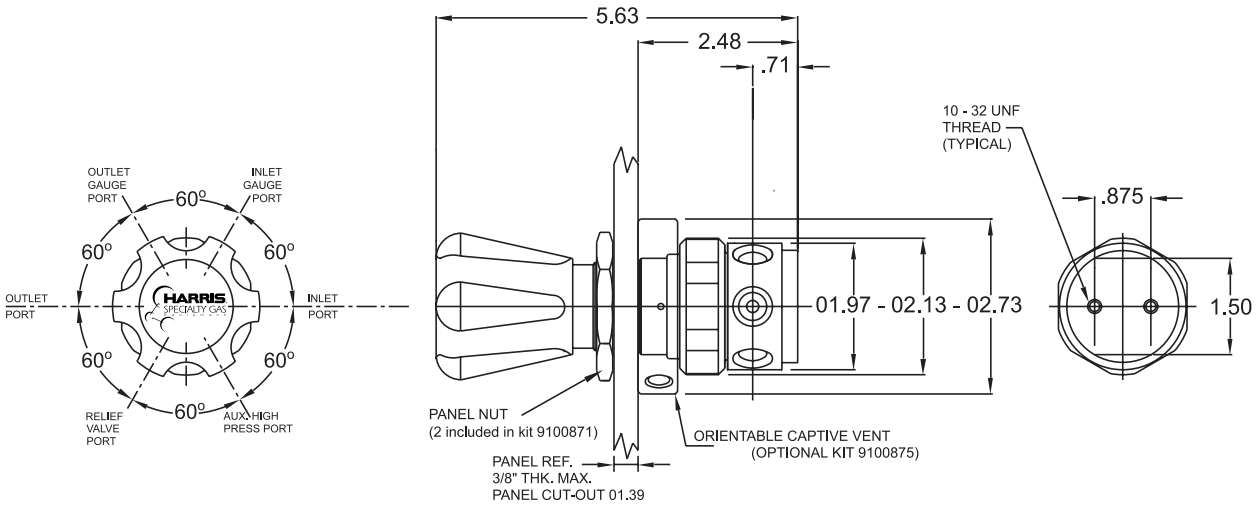




SPECIFICATIONS

- C_V: .08
- Pressure Regulation: 1.8 PSIG/100 PSIG
- Weight: 2.92 Lbs.

DIMENSIONS



HP 742

High Purity - Stainless Steel Barstock



* Model HP 742-125-580-A-4 shown

A two stage stainless steel cylinder regulator for constant delivery pressure from full to near empty cylinder conditions. The HP 742 is suitable for:

- Corrosive gas applications
- High purity gas applications
- Research sample systems gases
- Process analyzers gases
- Gas chromatography gases
- EPA protocol mix gases
- Laser gas systems
- Emission monitoring systems gases

Recommended for corrosive gases or purity levels of Grade 6.0 (99.9999) and higher.

MATERIALS

Body	316L Stainless Steel Barstock
Bonnet	Chrome Plated Brass Barstock
Diaphragm	316L Stainless Steel
Nozzle	316L Stainless Steel
Seat	PTFE Teflon
Seals	PTFE Teflon
Filter	Sintered Stainless Steel - 10 Micron
Seat Return Spring	316L Stainless Steel
Adjusting Knob	ABS Plastic

FEATURES

- ☑ 1-11/16" 316L stainless steel diaphragm eliminates contamination from diffusion or outgassing
- ☑ One piece encapsulated seat design includes a sintered filter to protect the seat from particulate contamination
- ☑ Chrome plated bonnet, 316L body and fittings
- ☑ 2" stainless steel dual scale gauges (psi/bar)
- ☑ 1 x 10^{-9} cc/sec. inboard helium leak rate maintains gas purity levels
- ☑ Maximum inlet 3000 PSIG
- ☑ Front panel mountable

RELATED OPTIONS

Captured Vent Kit P/N: 9100875
Front Panel Mount Kit P/N: 9100871

HP 742 ORDERING INFORMATION

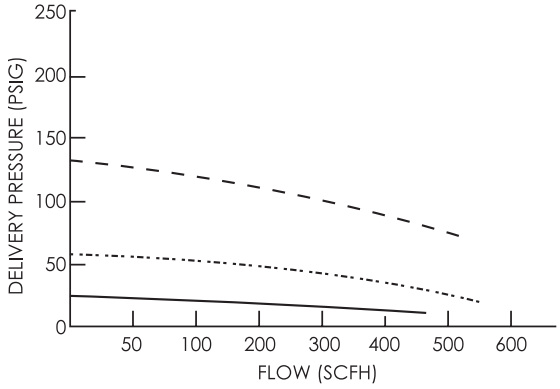
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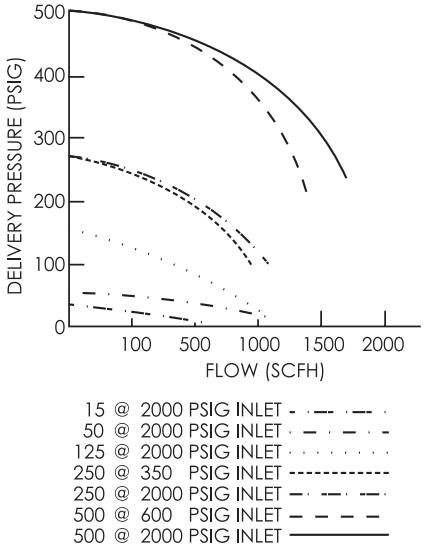
MODEL NUMBER	DELIVERY PRESSURE DELIVERY	(OUTLET GAUGE)	CGA INLET FITTING		OUTLET FITTING	OPTIONS
HP 742	0-15 psi	(30" Hg Vac-30 psi/14 bar)	240	346	A) Diaph. Valve (F) 1/4"	2) He Leak Cert. (Inboard)
	0-50 psi	(30" Hg Vac-100 psi/28 bar)	330	350	B) 1/4" MNPT	3) No Gauges
	0-125 psi	(30" Hg Vac-200 psi/35 bar)	660	540	C) 1/4" FNPT Port	4) With Relief Valve
	0-250 psi	(400 psi/28 bar)	705	580	D) 1/4" Tube Fitting	5) He Leak Cert. (Outboard)
	0-500 psi	(1000 psi/70 bar)	320	590	E) 1/8" Tube Fitting	
			326			
			000 (1/4" FNPT)			
			001 (1/4" MNPT)			

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HP 742 TECHNICAL SPECIFICATIONS

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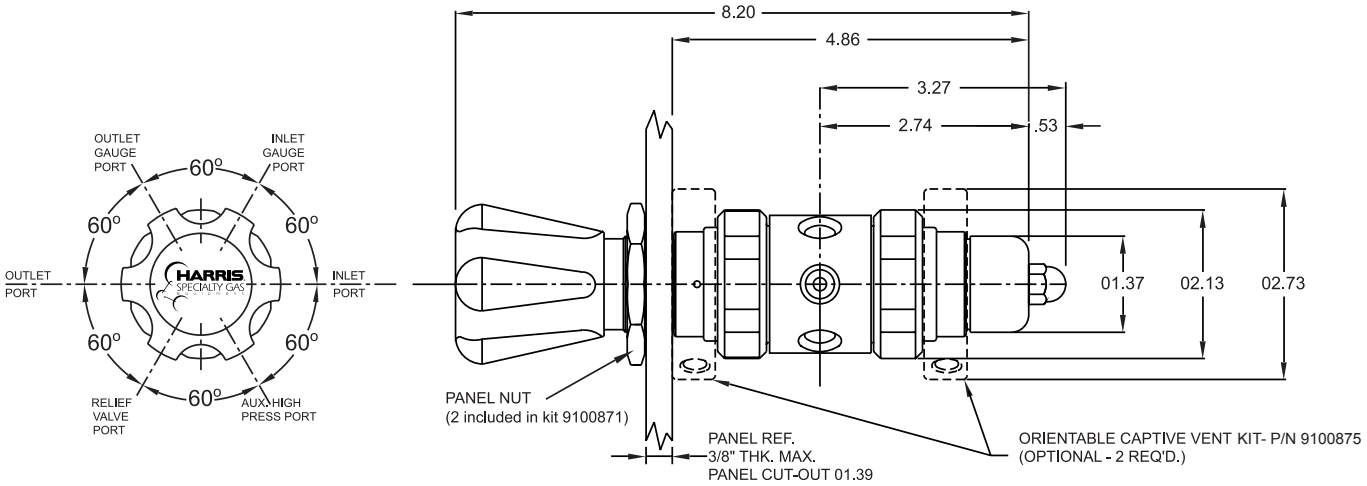




SPECIFICATIONS

- C_V: .06
- Pressure Regulation: .05 PSIG/100 PSIG
- Weight: 4.43 Lbs.

DIMENSIONS



HP 743

High Purity - Stainless Steel Barstock



* Model HP 743-250-000-C-4 shown

A stainless steel pipeline regulator for pipeline and other applications up to 3000 PSIG inlet pressure. The Model HP 743 is suitable for:

- Corrosive gas applications
- High purity gas applications
- Research sample systems gases
- Process analyzers gases
- Gas chromatography gases
- EPA protocol mix gases
- Laser gas systems
- Emission monitoring systems gases

Recommended for corrosive gases or purity levels of Grade 6.0 (99.9999) and higher.

MATERIALS

Body	316L Stainless Steel Barstock
Bonnet	Chrome Plated Brass Barstock
Diaphragm	316L Stainless Steel
Nozzle	316L Stainless Steel
Seat	PTFE Teflon
Seals	PTFE Teflon
Filter	Sintered Stainless Steel - 10 Micron
Seat Return Spring	316L Stainless Steel
Adjusting Knob	ABS Plastic

FEATURES

- ☑ 1-11/16" 316L stainless steel diaphragm eliminates contamination from diffusion or outgassing
- ☑ One piece encapsulated seat design includes a sintered filter to protect the seat from particulate contamination
- ☑ Chrome plated bonnet, 316L body and fittings
- ☑ 2" stainless steel dual scale gauges (psi/bar)
- ☑ 1 x 10^{-9} cc/sec. inboard helium leak rate maintains gas purity levels
- ☑ Maximum inlet 3000 PSIG
- ☑ Front or back panel mountable

RELATED OPTIONS

Captured Vent Kit P/N: 9100875
Front Panel Mount Kit P/N: 9100871

HP 743 ORDERING INFORMATION

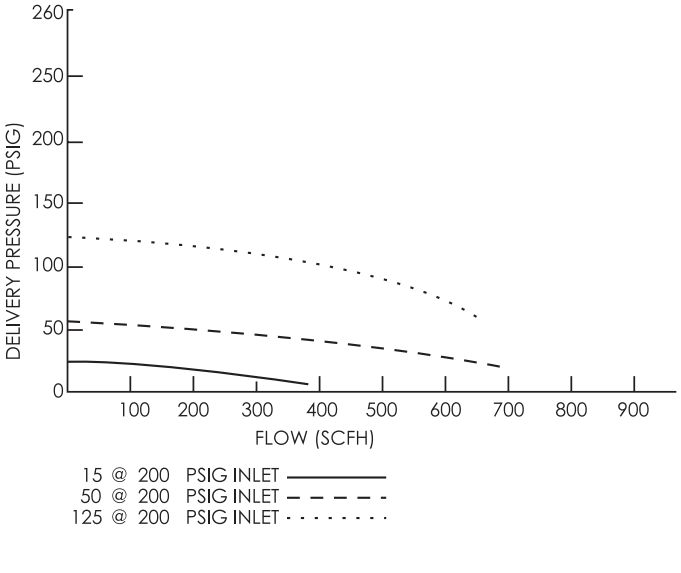
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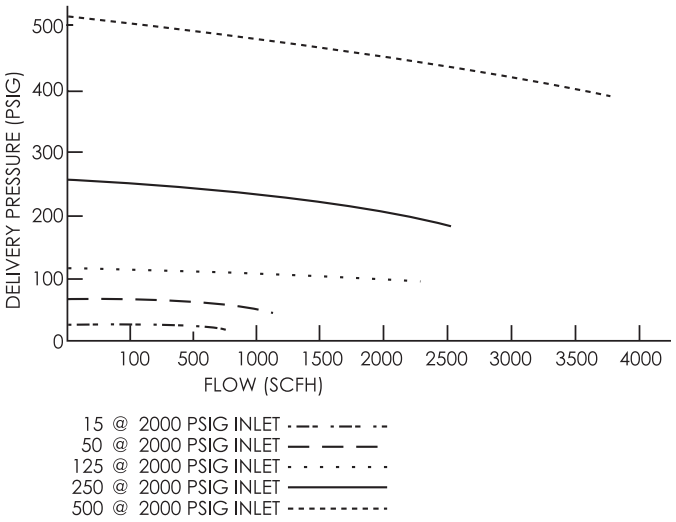
MODEL NUMBER	DELIVERY PRESSURE DELIVERY	(OUTLET GAUGE)	INLET	OUTLET FITTING	OPTIONS
HP 743	0-15 psi	(30" Hg Vac-30 psi/14 bar)	000 (1/4" FNPT)	A) Diaph. Valve (F) 1/4"	2) He Leak Cert. (Inboard)
	0-50 psi	(30" Hg Vac-100 psi/28 bar)	001 (1/4" MNPT)	B) 1/4" MNPT	3) No Gauges
	0-125 psi	(30" Hg Vac-200 psi/35 bar)		C) 1/4" FNPT Port	4) With Relief Valve
	0-250 psi	(400 psi/28 bar)		D) 1/4" Tube Fitting	5) He Leak Cert. (Outboard)
	0-500 psi	(1000 psi/70 bar)		E) 1/8" Tube Fitting	

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HP 743 TECHNICAL SPECIFICATIONS

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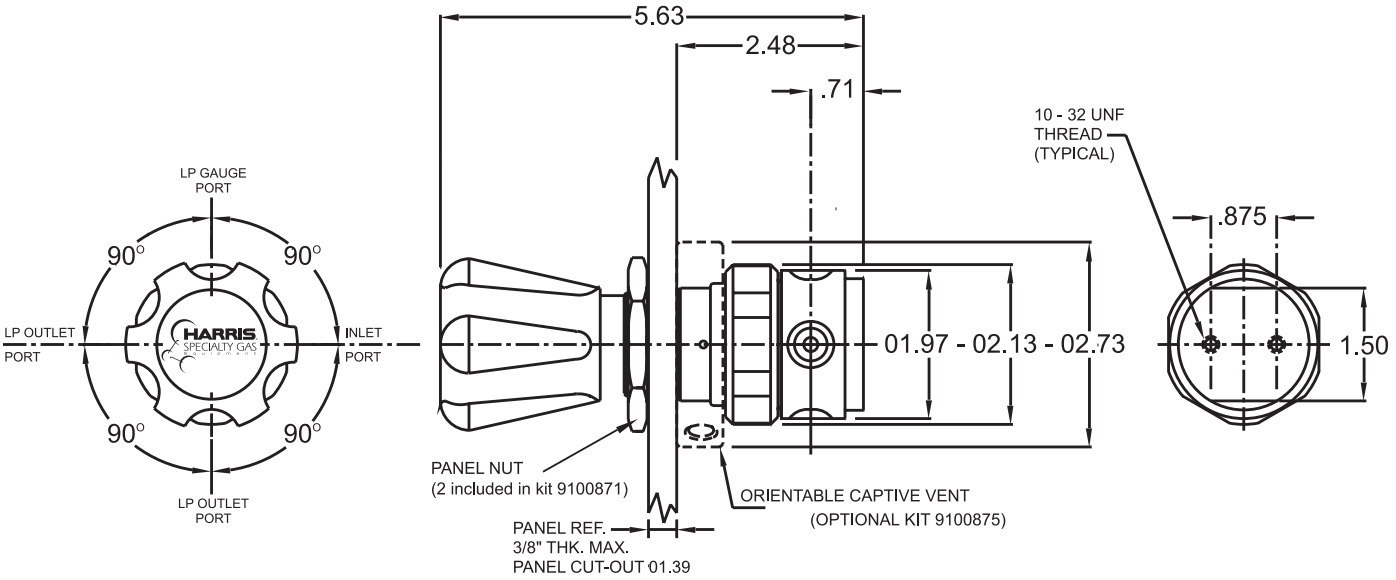




SPECIFICATIONS

- C_V: .08
- Pressure Regulation: 1.8 PSIG/100 PSIG
- Weight: 2.68 Lbs.

DIMENSIONS



HP 721

High Purity - Stainless Steel Barstock



* Model HP 721-015-580-B shown

A single stage cylinder regulator available in brass (HP 721) or chrome plated brass (HP 721C) barstock for pressure control of non corrosive gases when pressure rise is not critical. The HP 721 is suitable for:

- High purity gas applications
- Research sample systems gases
- Process analyzers gases
- Gas chromatography gases
- EPA protocol mix gases
- Laser gas systems
- Emission monitoring systems gases

Recommended for gas purity levels of Grade 5.0 (99.999) and higher.

MATERIALS

Body/Bonnet	Brass Barstock (HP 721)
Diaphragm	316L Stainless Steel
Nozzle	Brass
Seat	PTFE Teflon
Seals	PTFE Teflon
Filter	Nickel-Plated Sintered Bronze - 10 Micron
Seat Return Spring	PH17-7 Stainless Steel
Adjusting Knob	ABS Plastic

FEATURES

- ☑ 1-11/16" 316L stainless steel diaphragm eliminates contamination from diffusion or outgassing
- ☑ One piece encapsulated seat design includes a sintered filter to protect the seat from particulate contamination
- ☑ 2" dual scale gauges (psi/bar)
- ☑ 1 x 10^{-9} cc/sec. inboard helium leak rate maintains gas purity levels
- ☑ Front or back panel mountable
- ☑ Maximum inlet 3000 PSIG except for CGA 300 and 510 models which have a maximum inlet of 500 PSIG
- ☑ External relief valve standard

RELATED OPTIONS

Captured Vent Kit P/N: 9100875
Front Panel Mount Kit P/N: 9100871

HP 721 ORDERING INFORMATION

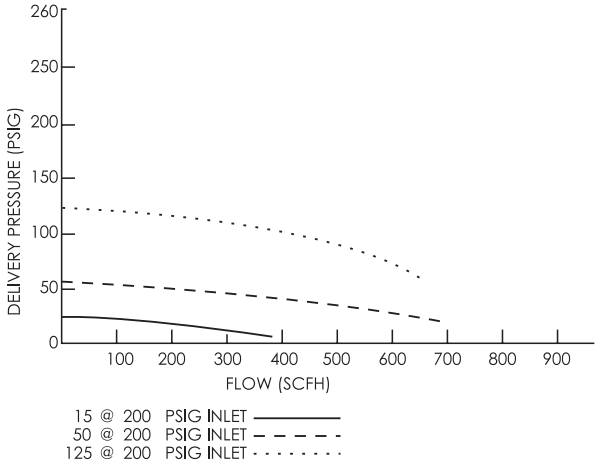
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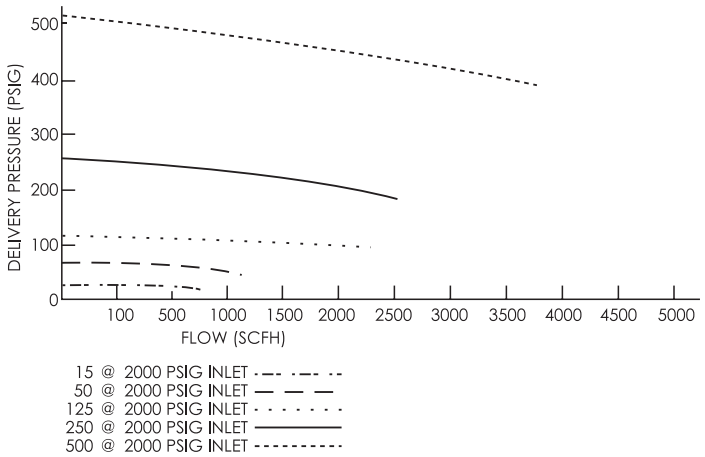
MODEL NUMBER	DELIVERY PRESSURE DELIVERY	DELIVERY PRESSURE (OUTLET GAUGE)	CGA INLET FITTING		OUTLET FITTING	OPTIONS
HP 721	0-15 psi	(30" Hg Vac-30 psi/14 bar)	320	510	A) Needle Valve (M) 1/4"	1) Without Relief Valve
HP 721C	0-50 psi	(30" Hg Vac-100 psi/28 bar)	326	540	B) Diaph. Valve (F) 1/4"	2) He Leak Cert. (Inboard)
(chrome plated)	0-125 psi	(30" Hg Vac-200 psi/35 bar)	346	580	C) 1/4" MNPT	3) No Gauges
	0-250 psi	(400 psi/28 bar)	350	590	D) 1/4" FNPT port	5) He Leak Cert. (Outboard)
	0-500 psi	(1000 psi/70 bar)	300		E) 1/4" Tube Fitting	
			000 (1/4" FNPT)		F) 1/8" Tube Fitting	
			001 (1/4" MNPT)			

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HP 721 TECHNICAL SPECIFICATIONS

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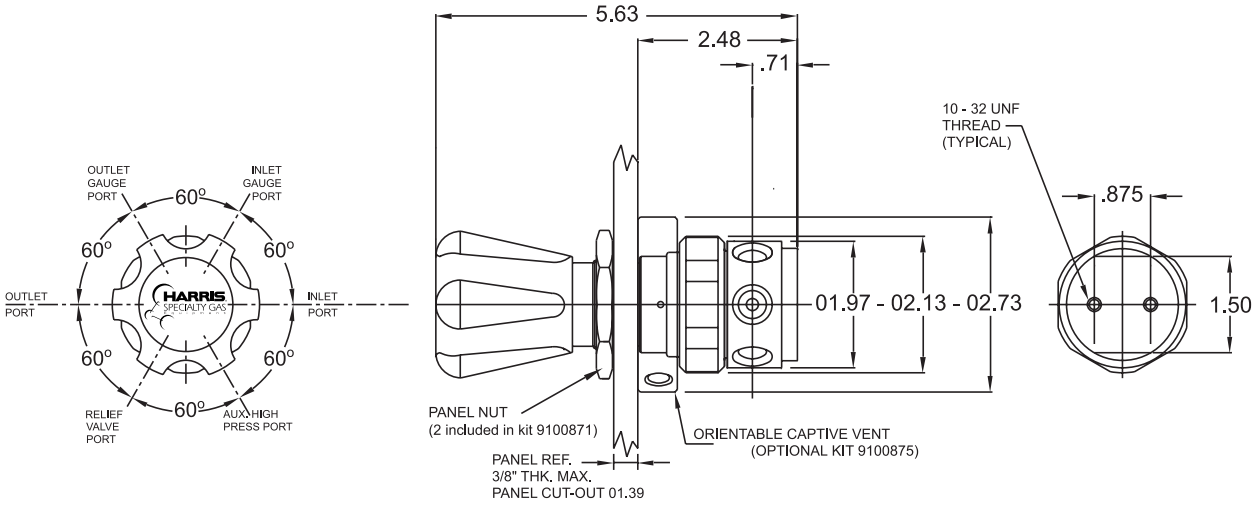




SPECIFICATIONS

- C_V: .08
- Pressure Regulation: 1.8 PSIG/100 PSIG
- Weight: 2.92 Lbs.

DIMENSIONS



HP 722

High Purity - Brass Barstock



* Model HP 722-125-580-B shown

A two stage cylinder regulator available in brass (HP 722) or chrome plated brass (HP 722C) barstock for constant delivery pressure from full to near empty cylinder conditions. The HP 722 is suitable for:

- High purity gas applications
- Research sample systems gases
- Process analyzers gases
- Gas chromatography gases
- EPA protocol mix gases
- Laser gas systems
- Emission monitoring systems gases

Recommended for gas purity levels of Grade 5.0 (99.999) and higher.

MATERIALS

Body/Bonnet . . . . . .Brass Barstock (HP 722)
Diaphragm . . . . . .316L Stainless Steel
Nozzle . . . . . .Brass
Seat . . . . . .PTFE Teflon
Seals . . . . . .PTFE Teflon
Filter . . . . . .Nickel-Plated Sintered Bronze - 10 Micron
Seat Return Spring . . . . . .PH17-7 Stainless Steel
Adjusting Knob . . . . . .ABS Plastic

FEATURES

- ☑ 1-11/16" 316L stainless steel diaphragm eliminates contamination from diffusion or outgassing
- ☑ One piece encapsulated seat design includes a sintered filter to protect the seat from particulate contamination
- ☑ 2" dual scale gauges (psi/bar)
- ☑ 1 x 10^{-9} cc/sec. inboard helium leak rate maintains gas purity levels
- ☑ Front panel mountable
- ☑ Maximum inlet 3000 PSIG except for CGA 300 and 510 models which have a maximum inlet of 500 PSIG
- ☑ External relief valve standard

RELATED OPTIONS

Captured Vent Kit P/N: 9100875
Front Panel Mount Kit P/N: 9100871

HP 722 ORDERING INFORMATION

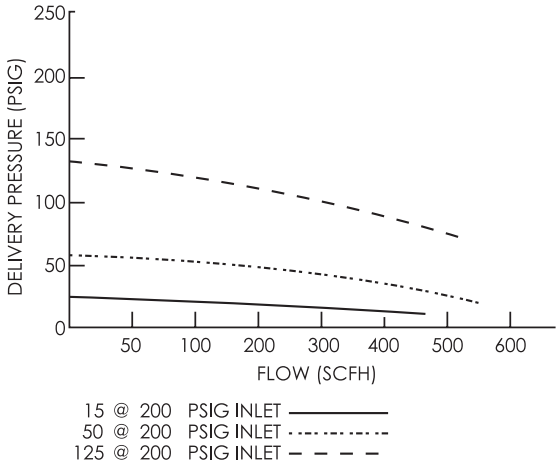
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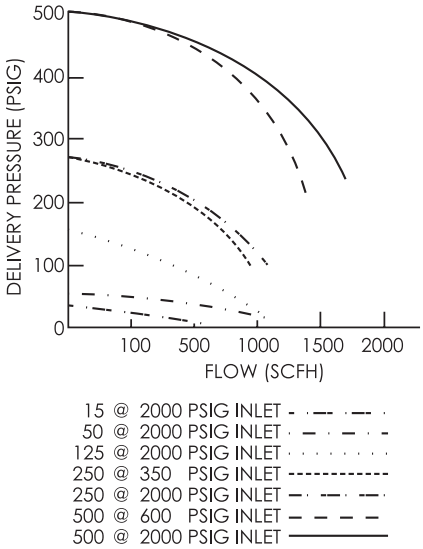
MODEL NUMBER	DELIVERY PRESSURE DELIVERY	(OUTLET GAUGE)	CGA INLET FITTING		OUTLET FITTING	OPTIONS
HP 722	0-15 psi	(30" Hg Vac-30 psi/14 bar)	320	510	A) Needle Valve (M) 1/4"	1) Without Relief Valve
HP 722C	0-50 psi	(30" Hg Vac-100 psi/28 bar)	326	540	B) Diaph. Valve (F) 1/4"	2) He Leak Cert. (Inboard)
(chrome plated)	0-125 psi	(30" Hg Vac-200 psi/35 bar)	346	580	C) 1/4" MNPT	3) No Gauges
	0-250 psi	(400 psi/28 bar)	350	590	D) 1/4" FNPT Port	5) He Leak Cert. (Outboard)
	0-500 psi	(1000 psi/70bar)	300		E) 1/4" Tube Fitting	
			000 (1/4" FNPT)		F) 1/8" Tube Fitting	
			001 (1/4" MNPT)			

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HP 722 TECHNICAL SPECIFICATIONS

FLOW DATA

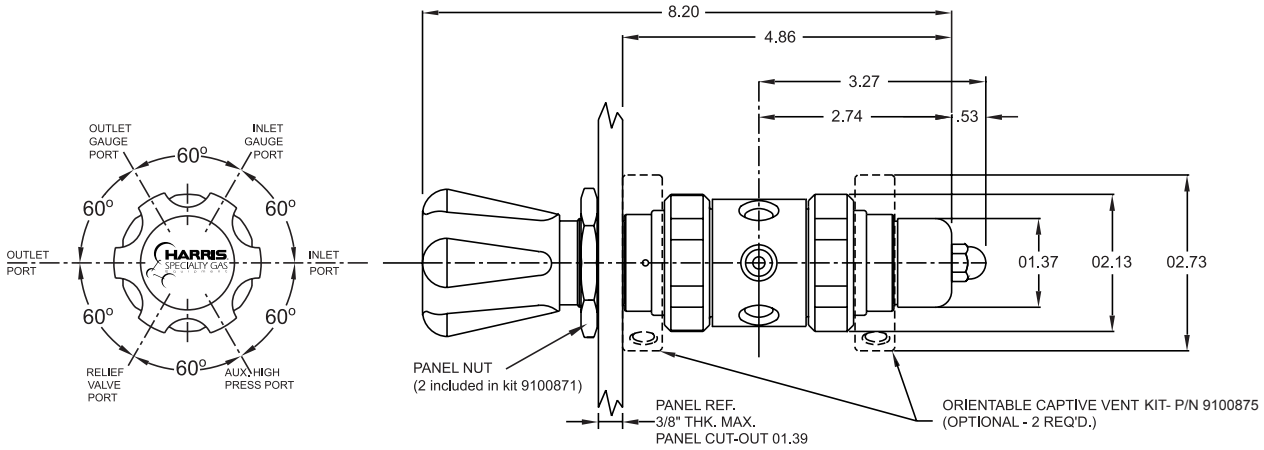




SPECIFICATIONS

- C_V: .06
- Pressure Regulation: .05 PSIG/100 PSIG
- Weight: 4.43 Lbs.

DIMENSIONS



HP 723

High Purity - Brass Barstock



* Model HP 723-050-000-D shown

A single stage pipeline regulator available in brass (HP 723) or chrome plated brass (HP 723C) barstock for:

- High purity gas applications
- Research sample systems gases
- Process analyzers gases
- Gas chromatography gases
- EPA protocol mix gases
- Laser gas systems
- Emission monitoring systems gases

Recommended for gas purity levels of Grade 5.0 (99.999) and higher.

MATERIALS

Body/Bonnet . . . . . .Brass Barstock (HP 723)
Diaphragm . . . . . .316L Stainless Steel
Nozzle . . . . . .Brass
Seat . . . . . .PTFE Teflon
Seals . . . . . .PTFE Teflon
Filter . . . . . .Nickel-Plated Sintered Bronze - 10 Micron
Seat Return Spring . . . . . .PH 17-7 Stainless Steel
Adjusting Knob . . . . . .ABS Plastic

FEATURES

- ⊡ 1-11/16" 316L stainless steel diaphragm eliminates contamination from diffusion or outgassing
- ⊡ One piece encapsulated seat design includes a sintered filter to protect the seat from particulate contamination
- ⊡ 2" dual scale gauges (psi/bar)
- ⊡ 1 x 10^{-9} cc/sec. inboard helium leak rate maintains gas purity levels
- ⊡ Front or back panel mountable
- ⊡ External relief valve standard

RELATED OPTIONS

Captured Vent Kit P/N: 9100875
Front Panel Mount Kit P/N: 9100871

HP 723 ORDERING INFORMATION

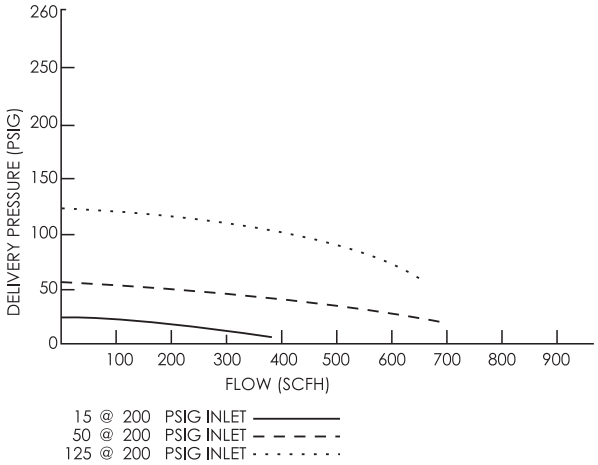
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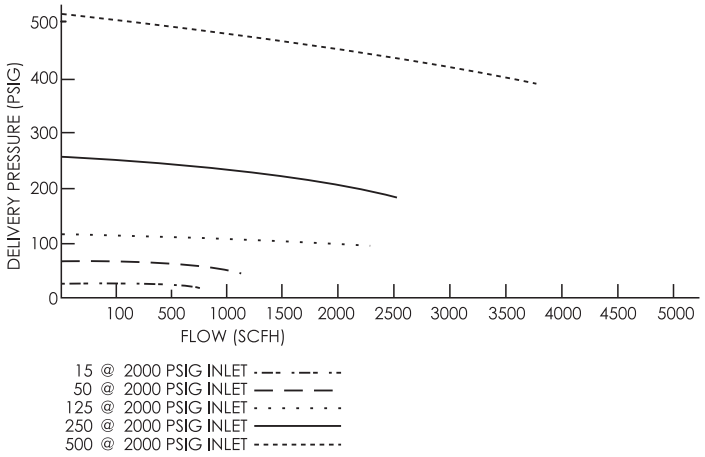
MODEL NUMBER	DELIVERY PRESSURE DELIVERY	DELIVERY PRESSURE (OUTLET GAUGE)	INLET	OUTLET FITTING	OPTIONS
HP 723 HP 723C (chrome plated)	0-15 psi 0-50 psi 0-125 psi 0-250 psi 0-500 psi	(30" Hg Vac-30 psi/14 bar) (30" Hg Vac-100 psi/28 bar) (30" Hg Vac-200 psi/35 bar) (400 psi/28 bar) (1000 psi/70 bar)	000 (1/4" FNPT) 001 (1/4" MNPT)	A) Needle Valve (M) 1/4" B) Diaph. Valve (F) 1/4" C) 1/4" MNPT Port D) 1/4" FNPT Port E) 1/4" Tube Fitting F) 1/8" Tube Fitting	1) Without Relief Valve 2) He Leak Cert. (Inboard) 3) No Gauges 5) He Leak Cert. (Outboard)

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HP 723 TECHNICAL SPECIFICATIONS

FLOW DATA

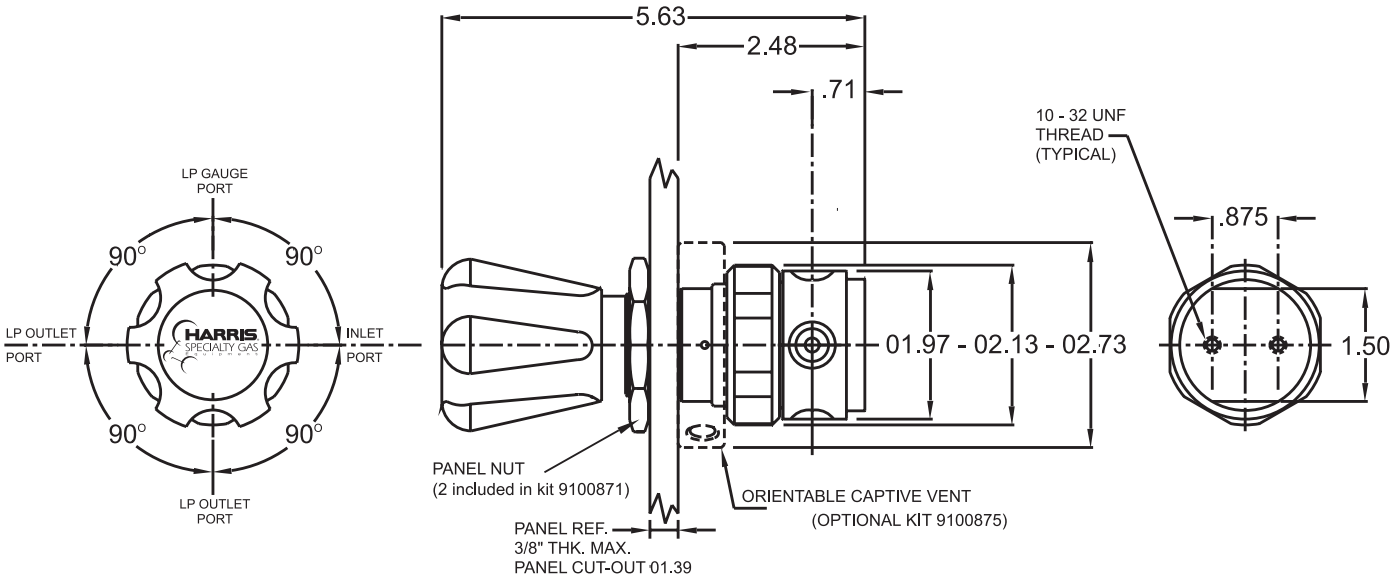




SPECIFICATIONS

- C_V: .08
- Pressure Regulation: 1.8 PSIG/100 PSIG
- Weight: 2.68 Lbs.

DIMENSIONS



HP 701

High Purity - Brass Barstock



* Model HP 701-050-580-BE shown

A chrome plated single stage cylinder regulator with a stainless steel diaphragm for general laboratory use. The HP 701 can be used when a slight pressure rise from full to empty cylinder can be tolerated. The HP 701 is suitable for:

- Non-corrosive gases
- Purging
- Pressure testing
- Blanketing

Recommended for gas purity up to Grade 5.0 (99.999).

MATERIALS

Body . . . . . .Chrome Plated Brass
Bonnet . . . . . .Chrome Plated Die Cast
Diaphragm . . . . . .302 Stainless Steel
Nozzle . . . . . .Brass
Seat . . . . . .PTFE Teflon
Seals . . . . . .PTFE Teflon
Filter . . . . . .Nickel-Plated Sintered Bronze - 10 Micron
Seat Return Spring . . . . . .PH-17 Stainless Steel
Adjusting Knob . . . . . .ABS Plastic

FEATURES

- ☑ 2-1/8" 302 stainless steel diaphragm eliminates contamination from diffusion or outgassing
- ☑ One-piece encapsulated seat design to protect seat from particulate contamination
- ☑ Chrome plated bonnet, body and fittings
- ☑ 2" Chrome plated dual scale gauges (psi/bar)
- ☑ External relief valve standard
- ☑ 1 x 10^{-8} cc/sec. inboard helium leak rate maintains gas purity levels
- ☑ Maximum inlet 3000 PSIG except for CGA 300 and 510 models which have a maximum inlet of 500 PSIG
- ☑ External relief valve standard

HP 701 ORDERING INFORMATION

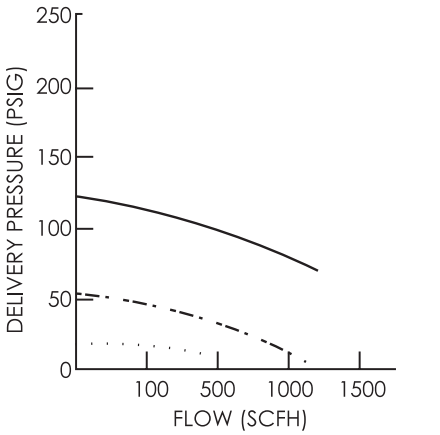
HP 701 - xxx - xxx - xx - xxx

MODEL NUMBER	DELIVERY PRESSURE DELIVERY	(OUTLET GAUGE)	CGA INLET FITTING		OUTLET FITTING	OPTIONS
HP 701	0-15 psi	(30" Hg Vac-30 psi/14 bar)	280	350	A) Needle Valve (M) 1/4"	1) Without Relief Valve
	0-50 psi	(30" Hg Vac-100 psi/28 bar)	296	500	B) Diaph. Valve (F) 1/4"	2) No Gauges
	0-125 psi	(30" Hg Vac-200 psi/35 bar)	300	510	C) 1/4" MNPT	
	0-250 psi	(400 psi/28 bar)	320	540	D) 1/4" FNPT Port	
			326	580	E) 1/4" Tube Fitting	
			346	590	F) 1/8" Tube Fitting	
			000 (1/4" FNPT)		G) 1/4" Hose Barb (MNPT)	
			001 (1/4" MNPT)		H) 1/8" Hose Barb (MNPT)	
					I) 1/4" Hose Barb (FNPT)	

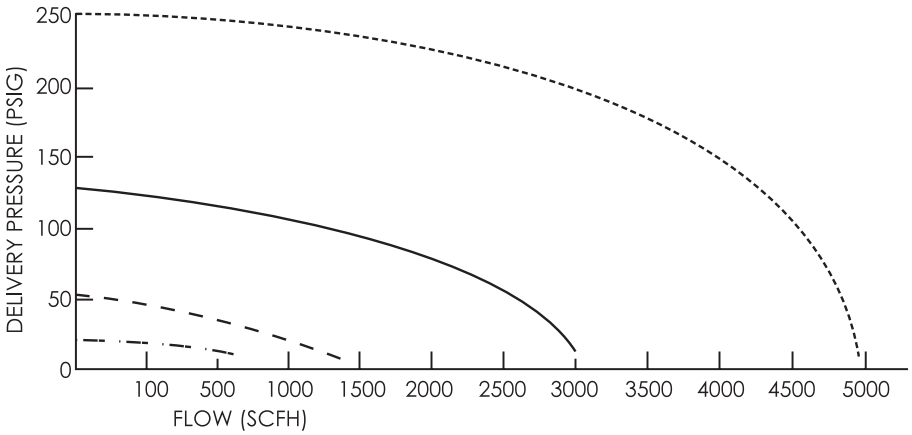
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HP 701 TECHNICAL SPECIFICATIONS

FLOW DATA



15 @ 200 PSIG INLET
50 @ 200 PSIG INLET
125 @ 200 PSIG INLET

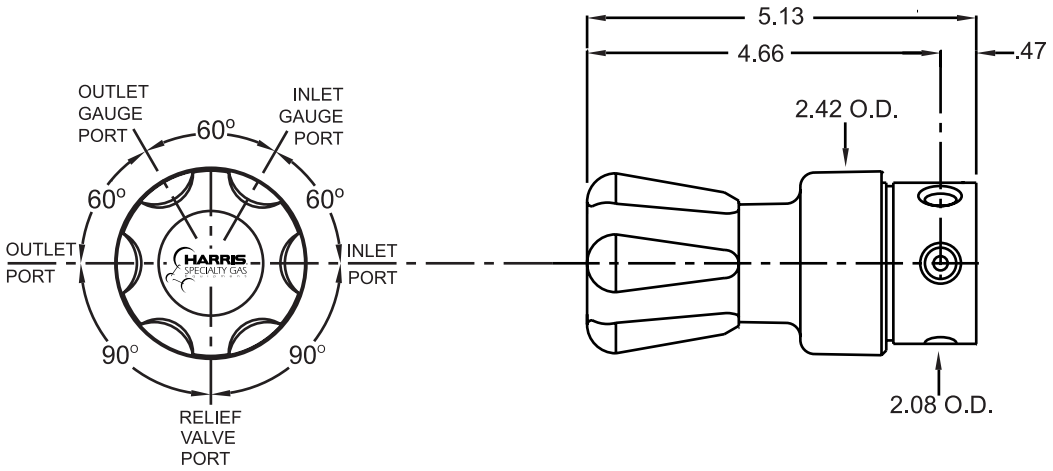


15 @ 2000 PSIG INLET
50 @ 2000 PSIG INLET
125 @ 2000 PSIG INLET
250 @ 2000 PSIG INLET

SPECIFICATIONS

- C_V: .17
- Pressure Regulation: 1.3 PSIG/100 PSIG
- Weight: 3.5 Lbs.

DIMENSIONS



HP 702

High Purity - Chrome Plated Brass



* Model HP 702-125-580-B shown

A chrome plated brass two stage cylinder regulator with a stainless steel diaphragm for general laboratory use. The HP 702 provides constant delivery pressure from full to near empty cylinder conditions. The HP 702 is suitable for:

- Non-corrosive gases
- Purging
- Pressure testing
- Blanketing

Recommended for gas purity up to Grade 5.0 (99.999).

MATERIALS

Body	Chrome Plated Forged Brass
Bonnets	Chrome Plated Die Cast
Diaphragms	302 Stainless Steel
Nozzles	Brass
Seat	PTFE Teflon
Seals	PTFE Teflon
Filter	Nickel-Plated Sintered Bronze - 10 Micron
Seat Return Spring	PH-17 Stainless Steel
Adjusting Knob	ABS Plastic

FEATURES

- ☑ 2-1/8" 302 stainless steel diaphragm eliminates contamination from diffusion or outgassing
- ☑ One-piece encapsulated seat design to protect seat from particulate contamination
- ☑ Chrome plated bonnet, body and fittings
- ☑ 2" Chrome plated dual scale gauges (psi/bar)
- ☑ External relief valve standard
- ☑ 1 x 10^{-8} cc/sec. inboard helium leak rate maintains gas purity levels
- ☑ Maximum inlet 3000 PSIG except for CGA 300 and 510 models which have a maximum inlet of 500 PSIG
- ☑ External relief valve standard

HP 702 ORDERING INFORMATION

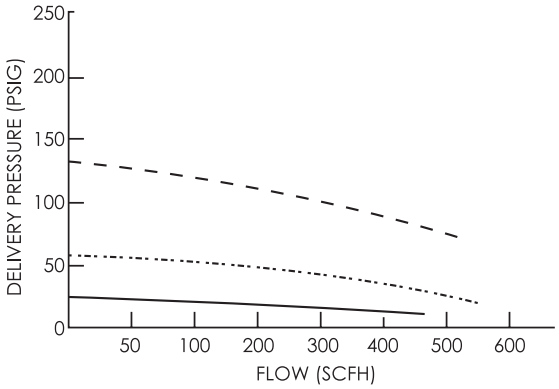
HP 702 - xxx - xxx - xx - xxx

MODEL NUMBER	DELIVERY PRESSURE DELIVERY	(OUTLET GAUGE)	CGA INLET FITTING		OUTLET FITTING	OPTIONS
HP 702	0-15 psi	(30" Hg Vac-30 psi/14 bar)	280	350	A) Needle Valve (M) 1/4"	1) Without Relief Valve
	0-50 psi	(30" Hg Vac-100 psi/28 bar)	296	500	B) Diaph. Valve (F) 1/4"	2) No Gauges
	0-125 psi	(30" Hg Vac-200 psi/35 bar)	300	510	C) 1/4" MNPT	
	0-250 psi	(400 psi/28 bar)	320	540	D) 1/4" FNPT Port	
			326	580	E) 1/4" Tube Fitting	
			346	590	F) 1/8" Tube Fitting	
			000 (1/4" FNPT)		G) 1/4" Hose Barb (MNPT)	
			001 (1/4" MNPT)		H) 1/8" Hose Barb (MNPT)	
					I) 1/4" Hose Barb (FNPT)	

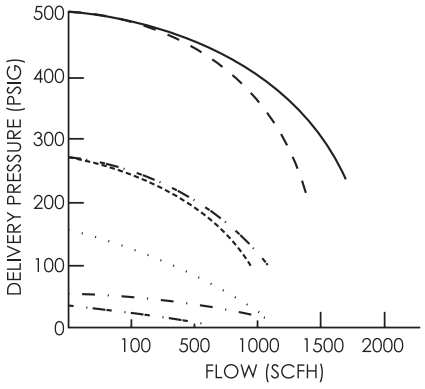
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HP 702 TECHNICAL SPECIFICATIONS

FLOW DATA



15 @ 200 PSIG INLET
50 @ 200 PSIG INLET
125 @ 200 PSIG INLET

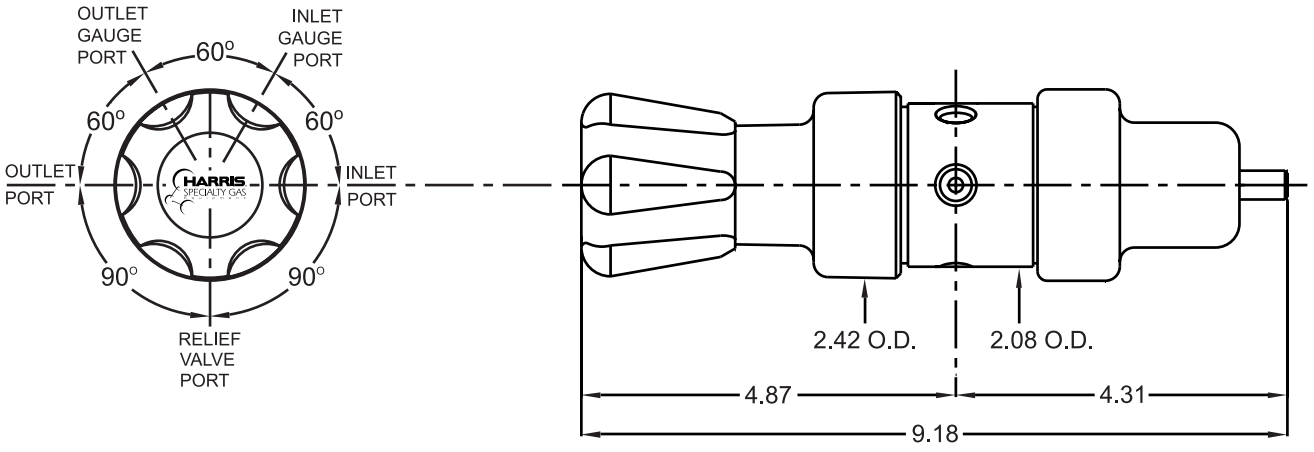


15 @ 2000 PSIG INLET
50 @ 2000 PSIG INLET
125 @ 2000 PSIG INLET
250 @ 350 PSIG INLET
250 @ 2000 PSIG INLET
500 @ 600 PSIG INLET
500 @ 2000 PSIG INLET

SPECIFICATIONS

- C_V: .15
- Pressure Regulation: 0.9 PSIG/100 PSIG
- Weight:: 4.48 Lbs.

DIMENSIONS



HP 703

High Purity - Chrome Plated Brass



* Model HP 703-125-000-D shown

A chrome plated brass single stage pipeline regulator with a stainless steel diaphragm for general laboratory use. The HP 703 is suitable for:

- Non-corrosive gases
- Purging
- Pressure testing
- Blanketing

Recommended for gas purity up to Grade 5.0 (99.999).

MATERIALS

Body	Chrome Plated Brass
Bonnet	Chrome Plated Die Cast
Diaphragm	302 Stainless Steel
Nozzle	Brass
Seat	PTFE Teflon
Seals	PTFE Teflon
Filter	Nickel-Plated Sintered Bronze - 10 Micron
Seat Return Spring	PH-17 Stainless Steel
Adjusting Knob	ABS Plastic

FEATURES

- ☑ 2-1/8" 302 stainless steel diaphragm eliminates contamination from diffusion or outgassing
- ☑ One-piece encapsulated seat design to protect seat from particulate contamination
- ☑ Chrome plated bonnet, body and fittings
- ☑ 2" Chrome plated dual scale gauges (psi/bar)
- ☑ External relief valve standard
- ☑ 1 x 10^{-8} cc/sec. inboard helium leak rate maintains gas purity levels

HP 703 ORDERING INFORMATION

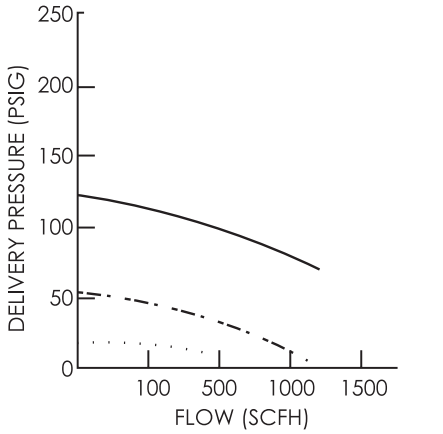
HP 703 - xxx - xxx - x - xxx

MODEL NUMBER	DELIVERY PRESSURE DELIVERY	(OUTLET GAUGE)	INLET	OUTLET FITTING	OPTIONS
HP 703	0-15 psi 0-50 psi 0-125 psi 0-250 psi	(30" Hg Vac-30 psi/14 bar) (30" Hg Vac-100 psi/28 bar) (30" Hg Vac-200 psi/35 bar) (400 psi/28 bar)	000 (1/4" FNPT) 001 (1/4" MNPT)	A) Needle Valve (M) 1/4" B) Diaph. Valve (F) 1/4" C) 1/4" MNPT D) 1/4" FNPT Port E) 1/4" Tube Fitting F) 1/8" Tube Fitting G) 1/4" Hose Barb (MNPT) H) 1/8" Hose Barb (MNPT) I) 1/4" Hose Barb (FNPT)	1) Without Relief Valve 2) No Gauges

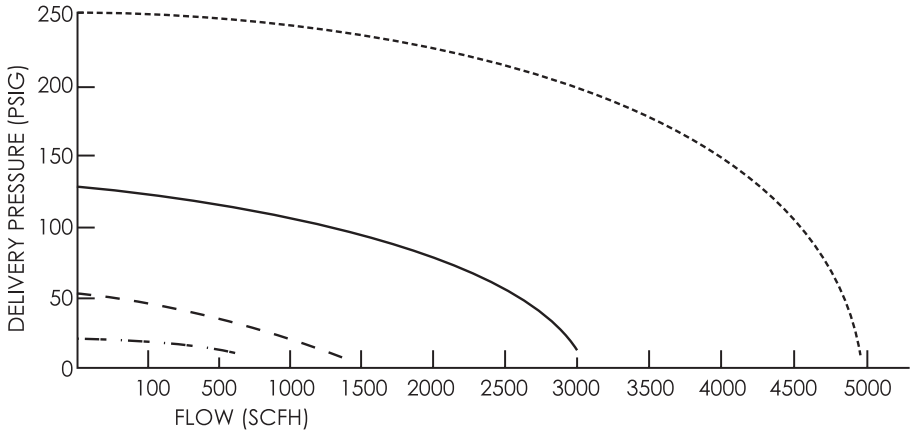
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HP 703 TECHNICAL SPECIFICATIONS

FLOW DATA



15 @ 200 PSIG INLET
50 @ 200 PSIG INLET
125 @ 200 PSIG INLET

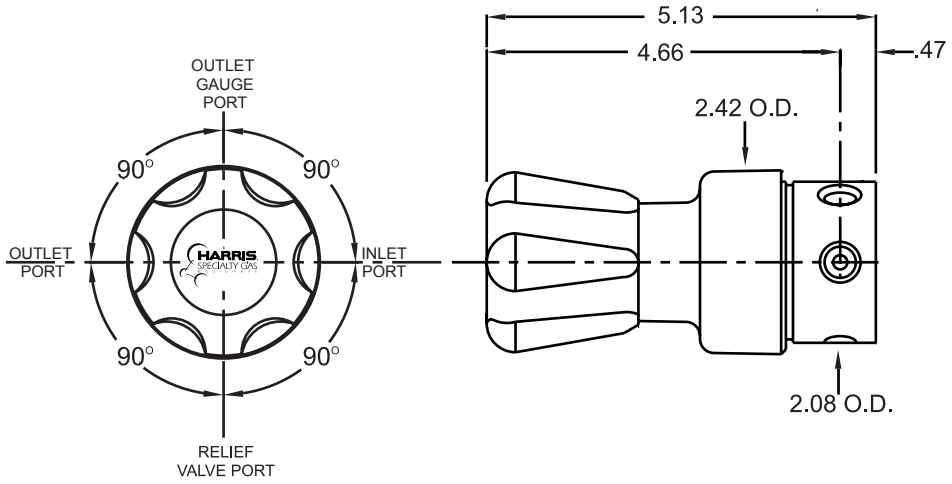


15 @ 2000 PSIG INLET
50 @ 2000 PSIG INLET
125 @ 2000 PSIG INLET
250 @ 2000 PSIG INLET

SPECIFICATIONS

- C_V: .08
- Pressure Regulation: 1.8 PSIG/100 PSIG
- Weight: 2.92 Lbs.

DIMENSIONS



GP 401

General Purpose - Brass



* Model GP 401-125-540 shown (P/N 3001323)

A brass single stage regulator with a neoprene diaphragm for general purpose laboratory applications where a slight rise in delivery pressures from full to near empty cylinder can be tolerated. The GP 401 is not recommended for applications sensitive to contamination due to its elastomeric components. The Model GP 401 is suitable for:

- Non-corrosive industrial grade gases
- Purging
- Pressure testing
- Gas shielding

MATERIALS

Body	Brass
Bonnet	Painted Die Cast
Diaphragm	Neoprene
Nozzle	Brass
Seat	PTFE Teflon
Filter	Nickel-Plated Sintered Bronze - 10 Micron
Seat Return Spring	PH 17-7 Stainless Steel
Adjusting Knob	ABS Plastic
Outlet	1/4" MNPT Brass

FEATURES

- 0-15, 0-50, 0-125 and 0-250 PSIG delivery pressure
- Neoprene diaphragm for greater sensitivity
- One-piece encapsulated seat design, to protect the seat from particulate contamination
- Tamper-proof, self reseating internal safety valve
- 2" dual scale gauges (psi/kPa)
- Conforms to CGA E-4 Standard for Gas Pressure Regulators

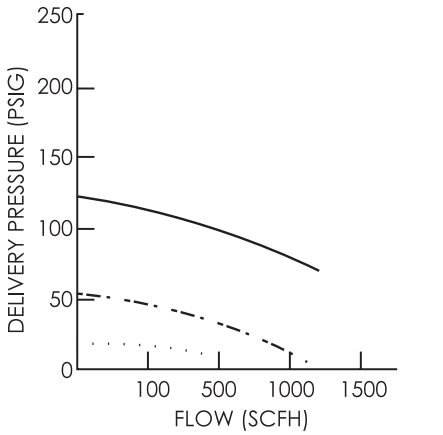
GP 401 ORDERING INFORMATION (Other CGA options available)

PART NO.	MODEL NO.	GAS	MAX. INLET PSIG	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	SUPPLY PRESSURE GAUGE PSIG
3001319	GP401-15-300	Acetylene	500	0-15	30	400
3001320	GP401-15-510	Acet./Fuel Gas	500	0-15	30	400
3001321	GP401-50-510P	Propane	500	0-50	60	400
3001322	GP401-50-540		3000	0-50	60	4000
3001323	GP401-125-540	Oxygen	3000	0-125	150	4000
3001324	GP401-250-540		3000	0-250	400	4000
3001325	GP401-15-580		3000	0-15	30	4000
3001326	GP401-50-580	Ar, He, N_2	3000	0-50	60	4000
3001327	GP401-125-580		3000	0-125	150	4000
3001328	GP401-250-580		3000	0-250	400	4000
3001329	GP401-50-320		3000	0-50	60	4000
3001330	GP401-125-320	Carbon Dioxide	3000	0-125	150	4000
3001331	GP401-250-320		3000	0-250	400	4000
3001332	GP401-15-350		3000	0-15	30	4000
3001333	GP401-50-350		3000	0-50	60	4000
3001334	GP401-125-350	H_2, Methane	3000	0-125	150	4000
3001335	GP401-250-350		3000	0-250	400	4000

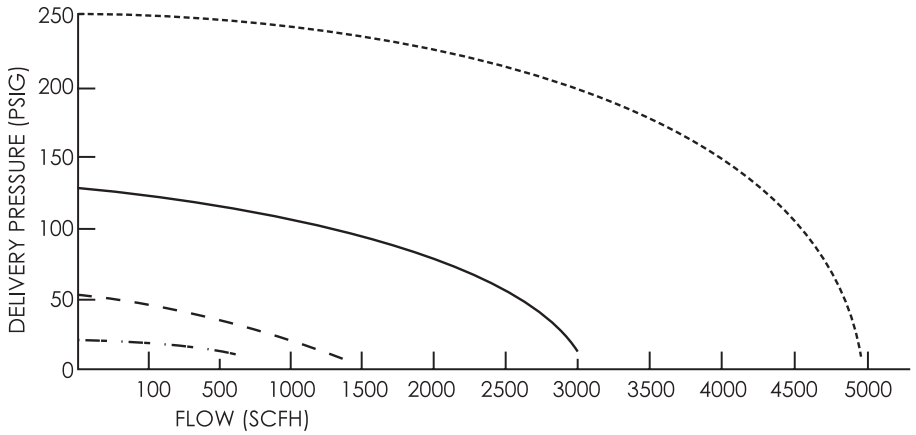
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GP 401 TECHNICAL SPECIFICATIONS

FLOW DATA



15 @ 200 PSIG INLET
50 @ 200 PSIG INLET
125 @ 200 PSIG INLET

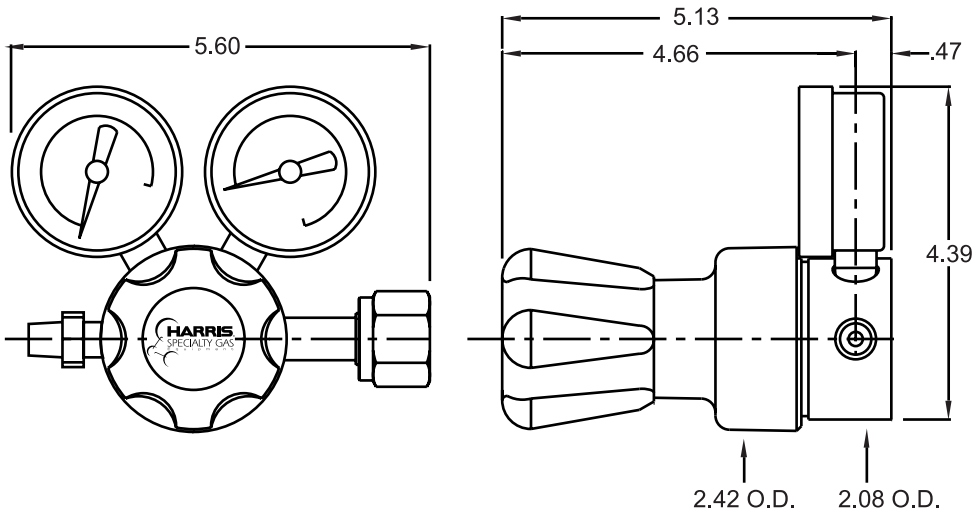


15 @ 2000 PSIG INLET
50 @ 2000 PSIG INLET
125 @ 2000 PSIG INLET
250 @ 2000 PSIG INLET

SPECIFICATIONS

- C_V: .17
- Pressure Regulation: 1.3 PSIG/100 PSIG
- Weight: 3.5 Lbs.

DIMENSIONS



GP 402

General Purpose - Brass



* Model GP 402-050-580 shown (P/N 3301257)

A brass two stage regulator with neoprene diaphragms for general purpose laboratory applications. The GP 402 maintains a constant delivery pressure from full to near empty cylinder conditions. The GP 402 is not recommended for applications sensitive to contamination due to its elastomeric components. The Model GP 402 is suitable for:

- Non-corrosive industrial grade gases
- Purging
- Pressure testing
- Gas shielding

MATERIALS

Body . . . . . .Brass
Bonnets . . . . . .Die Cast
Diaphragms . . . . . .Neoprene
Nozzles . . . . . .Brass
Seats . . . . . .PTFE Teflon
Filters . . . . . .Nickel-Plated Sintered Bronze - 10 Micron
Seat Return Springs . . . . . .PH 17-7 Stainless Steel
Adjusting Knob . . . . . .ABS Plastic
Outlet . . . . . .1/4" MNPT Brass

FEATURES

- ☑ 0-15, 0-50, 0-125 and 0-250 PSIG delivery pressure
- ☑ Neoprene diaphragms for greater sensitivity
- ☑ One-piece encapsulated seat design to protect the seat from particulate contamination
- ☑ Tamper-proof, self reseating internal safety valve
- ☑ 2" dual scale gauges (psi/kPa)
- ☑ Conforms to CGA E-4 Standard for Gas Pressure Regulators

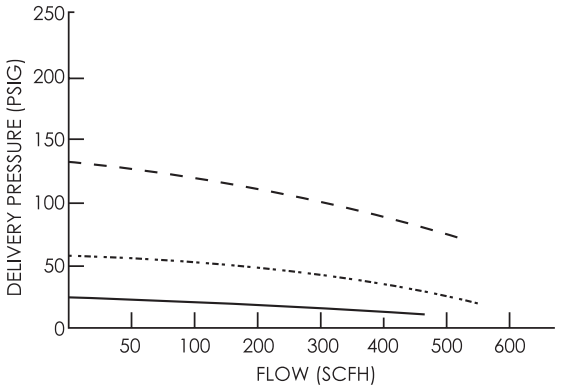
GP 402 ORDERING INFORMATION (Other CGA options available)

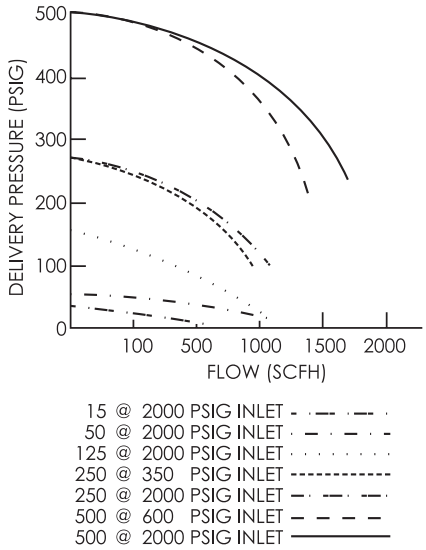
PART NO.	MODEL NO.	GAS	MAX. INLET PSIG	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	SUPPLY PRESSURE GAUGE PSIG
3301250	GP402-15-300	Acetylene	500	0-15	30	400
3301251	GP402-15-510	Acet./Fuel Gas	500	0-15	30	400
3301252	GP402-50-510P	Propane	500	0-50	60	400
3301253	GP402-50-540		3000	0-50	60	4000
3301254	GP402-125-540	Oxygen	3000	0-125	150	4000
3301255	GP402-250-540		3000	0-250	400	4000
3301256	GP402-15-580		3000	0-15	30	4000
3301257	GP402-50-580	Ar, He, N_2	3000	0-50	60	4000
3301258	GP402-125-580		3000	0-125	150	4000
3301259	GP402-250-580		3000	0-250	400	4000
3301260	GP402-50-320		3000	0-50	60	4000
3301261	GP402-125-320	Carbon Dioxide	3000	0-125	150	4000
3301262	GP402-250-320		3000	0-250	400	4000
3301263	GP402-15-350		3000	0-15	30	4000
3301264	GP402-50-350		3000	0-50	60	4000
3301265	GP402-125-350	H_2, Methane	3000	0-125	150	4000
3301266	GP402-250-350		3000	0-250	400	4000

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GP 402 TECHNICAL SPECIFICATIONS

FLOW DATA

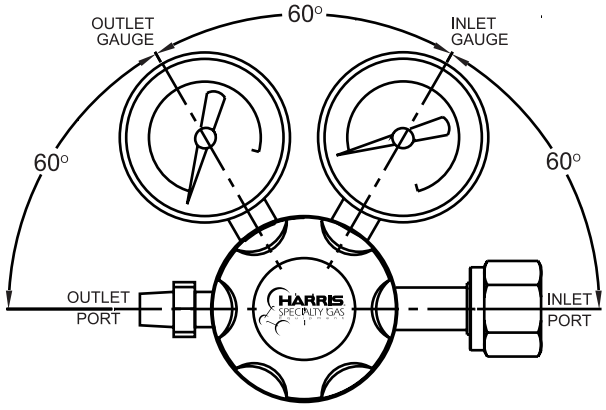


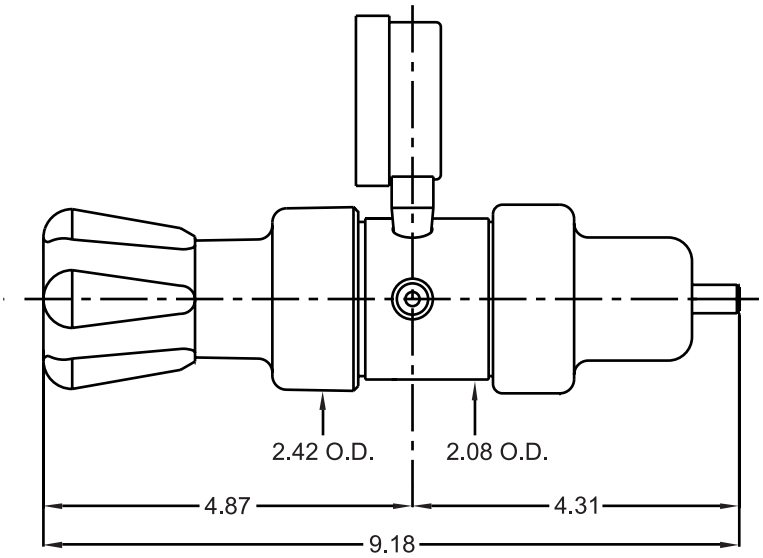


SPECIFICATIONS

- C_V: .15
- Pressure Regulation: .04 PSIG/100 PSIG
- Weight: 4.48 Lbs.

DIMENSIONS





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GP 403

General Purpose - Brass



A brass single stage pipeline regulator with a neoprene diaphragm for general purpose laboratory applications. The GP 403 is not recommended for applications sensitive to contamination due to its elastomeric components. The GP 403 is suitable for:

- Non-corrosive industrial grade gases
- Purging
- Pressure testing
- Blanketing

MATERIALS

Body	Brass
Bonnet	Die Cast
Diaphragm	Neoprene
Nozzle	Brass
Seat	PTFE Teflon
Filter	Nickel-Plated Sintered Bronze - 10 Micron
Seat Return Spring	PH 17-7 Stainless Steel
Adjusting Knob	ABS Plastic
Outlet	1/4" FNPT Brass

FEATURES

- ▣ 0-15, 0-50, 0-125 and 0-250 PSIG delivery pressure
- ▣ Neoprene diaphragm for greater sensitivity
- ▣ One-piece encapsulated seat design to protect the seat from particulate contamination
- ▣ Tamper-proof, self reseating internal safety valve
- ▣ 2" dual scale gauges (psi/kPa)
- ▣ Conforms to CGA E-4 Standard for Gas Pressure Regulators

GP 403 ORDERING INFORMATION

HP 403 - xxx - xxx - x - xxx

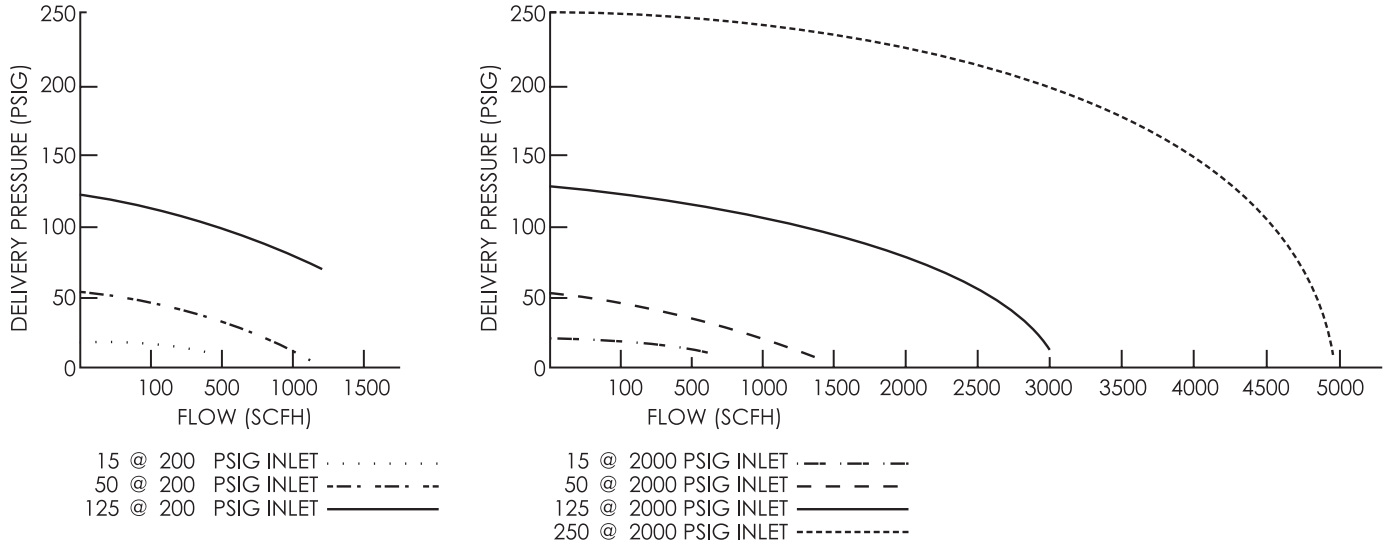
PART NO.	MODEL NO.	MAX. INLET PSIG	DELIVERY* PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG
3001315	GP403-15	3000	0-15	30
3001316	GP403-50	3000	0-50	60
3001317	GP403-125	3000	0-125	150
3001318	GP403-250	3000	0-250	400

*NOTE: Regulators with delivery pressure above 15 PSIG should not be used with acetylene.

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GP 403 TECHNICAL SPECIFICATIONS

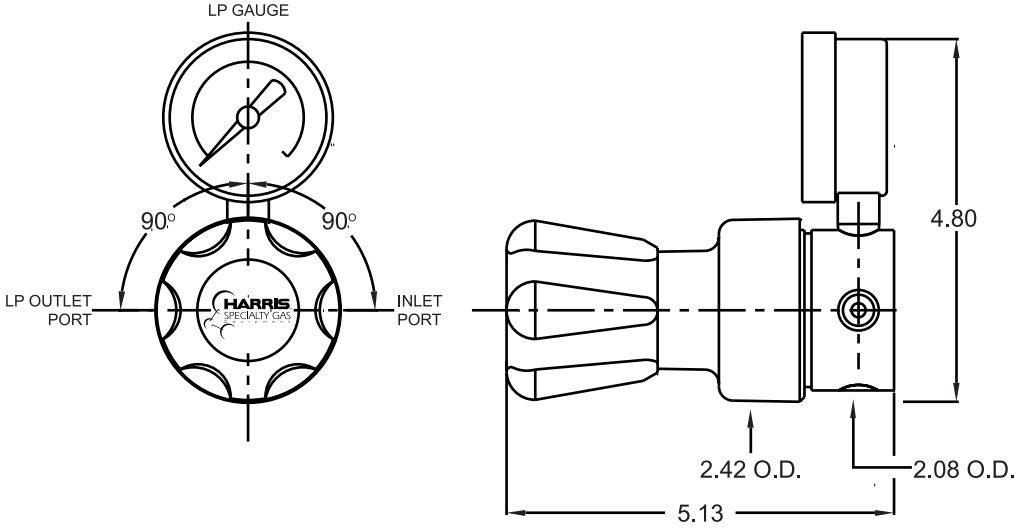
FLOW DATA



SPECIFICATIONS

- C_V: .08
- Pressure Regulation: 1.8 PSIG/100 PSIG
- Weight: 2.92 Lbs.

DIMENSIONS



GP 404

General Purpose - Brass



A brass single stage regulator for non-corrosive gases in lecture bottle cylinders. The Model GP 404 is suitable for:

- Non-corrosive gases
- EPA protocol
- Calibration gases
- Sampling

MATERIALS

Body	Brass Barstock
Bonnet	Painted Zinc
Diaphragm	Neoprene
Nozzle	Brass
Seat	PTFE Teflon
Filter	Nickel-Plated Sintered Bronze - 10 Micron
Seat Return Spring	PH-17 Stainless Steel
Adjusting Knob	ABS Plastic

FEATURES

- ☑ Neoprene diaphragm for greater sensitivity
- ☑ One-piece encapsulated seat design to protect seat from particulate contamination
- ☑ 1 1/2" dual scale gauges (psi/kPa)
- ☑ Conforms to CGA E-4 Standard for Gas Pressure Regulators

GP 404 ORDERING INFORMATION

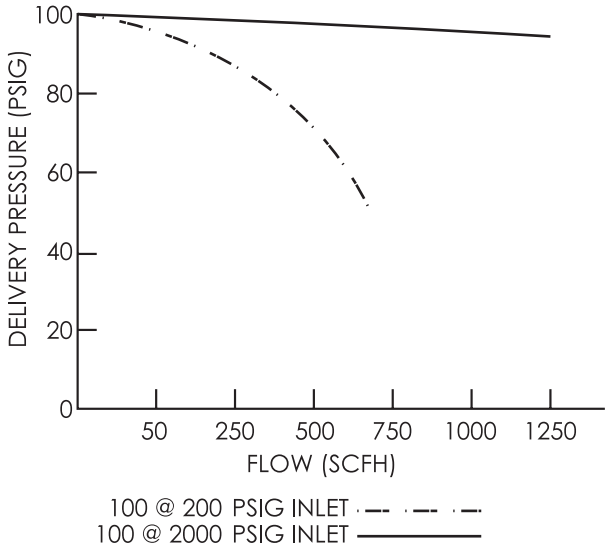
GP 404 - xxx - xxx - xx

MODEL NUMBER	DELIVERY PRESSURE DELIVERY	(OUTLET GAUGE)	CGA INLET FITTING	OUTLET FITTING
GP 404	0-100 psi	(0-150 psi/1000 kPa)	170 180	A) Needle Valve (M) 1/8" (P/N: 9100415) B) 1/8" FNPT Port

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GP 404 TECHNICAL SPECIFICATIONS

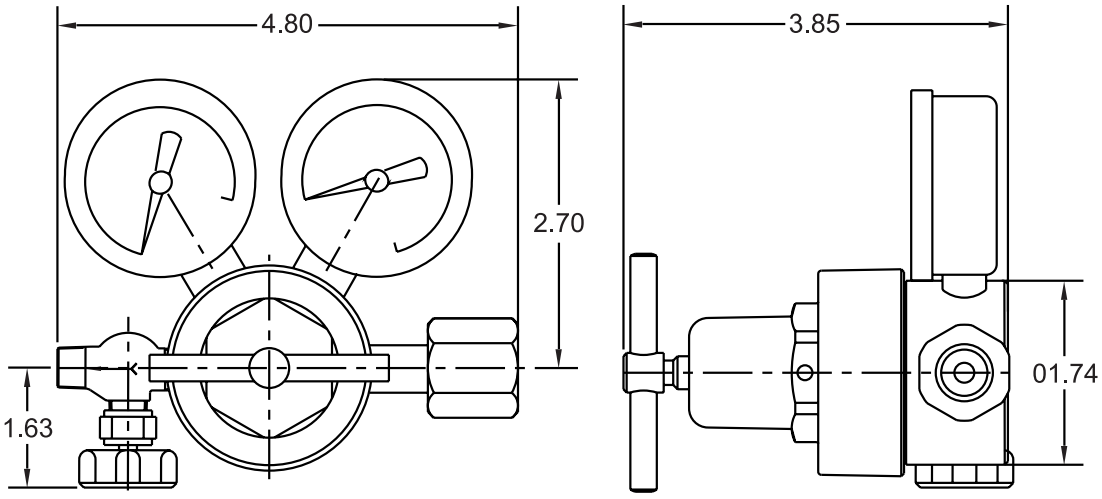
FLOW DATA



SPECIFICATIONS

- C_V: .017 w/valve
- Pressure Regulation: .4 PSIG/100 PSIG
- Weight: 1.8 Lbs.

DIMENSIONS



GP 405

General Purpose - Brass



A chrome plated brass single stage regulator for gaseous withdrawal from liquid cylinders. The GP 405 can also be used on high pressure cylinders and for general pipeline applications. The Model GP 405 is suitable for:

- Laser, assist gas
- Purging
- Pressure testing
- Blanketing
- Industrial grade gases
- Gas withdrawal from liquid cylinders

MATERIALS

Body . . . . . .Chrome Plated Brass Forging
Bonnet . . . . . .Chrome Plated Brass Forging
Diaphragm . . . . . .302 Stainless Steel
Nozzle . . . . . .Brass
Seat . . . . . .PTFE Teflon
Seals . . . . . .PTFE Teflon
Filter . . . . . .Nickel-Plated Sintered Bronze - 10 Micron
Seat Return Spring . . . . . .PH 17-7 Stainless Steel

FEATURES

- ⊡ 0-125, 0-350 and 0-500 PSIG delivery pressure
- ⊡ One-piece encapsulated seat design to protect seat from particulate contamination
- ⊡ Chrome plated bonnet, body and fittings
- ⊡ 2" chrome plated dual scale gauges (psi/bar)
- ⊡ Conforms to CGA E-4 Standard for Gas Pressure Regulators
- ⊡ Maximum inlet 3000 PSIG
- ⊡ Tamper-proof, self reseating internal safety value

GP 405 ORDERING INFORMATION

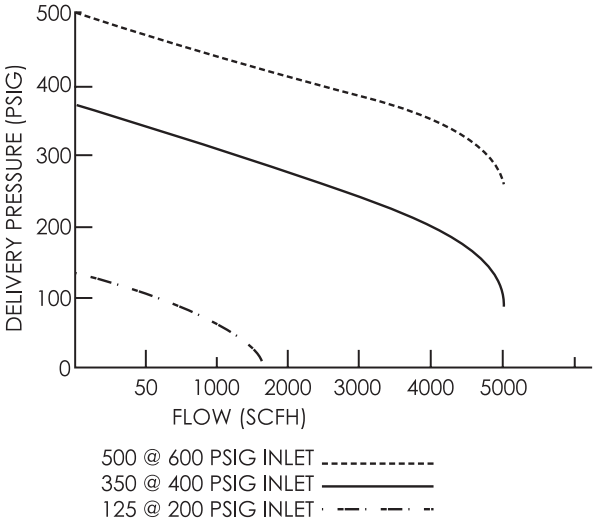
GP 405 - xxx - xxx - x

MODEL NUMBER	DELIVERY PRESSURE DELIVERY	(OUTLET GAUGE)	CGA INLET FITTING	OUTLET FITTING
GP 405	0-125 psi	(0-200 psi/14 bar)	540	A) 1/4" Tube Fitting (chrome-plated)
	0-350 psi	(0-400 psi/28 bar)	580	B) 1/4" FNPT Port
	0-500 psi	(0-500 psi/35 bar)	320	

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GP 405 TECHNICAL SPECIFICATIONS

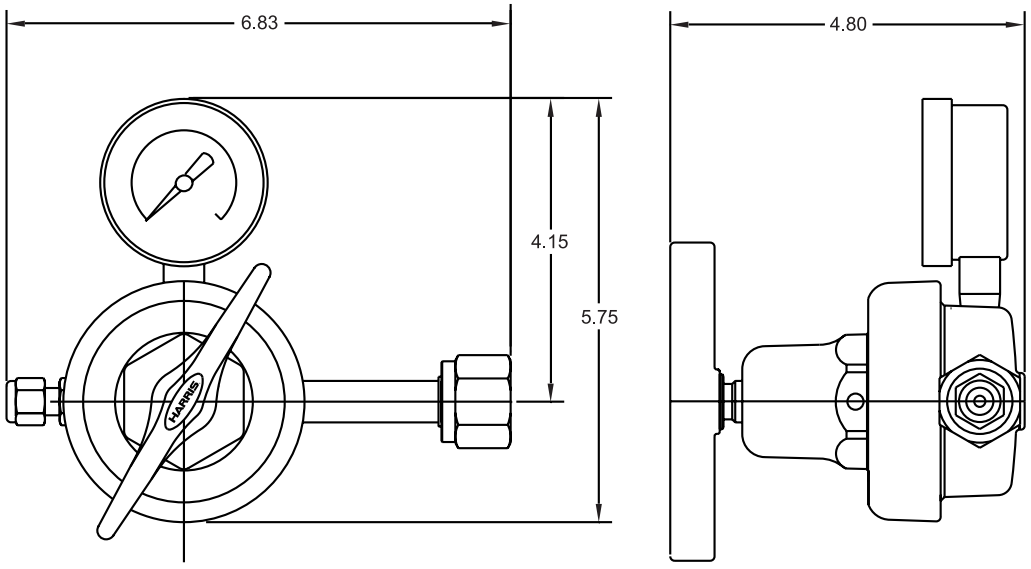
FLOW DATA



SPECIFICATIONS

- C_V: .37
- Pressure Regulation: .9 PSIG/100 PSIG
- Weight: 3.1 Lbs.

DIMENSIONS



8700

General Purpose - Brass



The Model 8700 High Pressure Regulator is designed to operate on high pressure cylinders up to 7500 PSIG. Typical applications include high pressure testing, charging accumulators and pressurizing aircraft struts. **All inert gas and air models are self-relieving.**

FEATURES

- 0-1500, 2500, 3000, 4500 and 6000 PSIG delivery available
- One piece encapsulated valve design with CTFE seats and an internal filter
- Elastomeric diaphragm for longer life
- Ergonomic knob for improved grip
- 1/4" NPT outlet with stainless steel 1/4" tube fitting
- 2 ½" dual scale gauges (psi/bar)
- Meets CGA E-4 Standard for Gas Pressure Regulators

MATERIALS

Body . . . . . .Brass Barstock
Bonnet . . . . . .Brass Barstock
Diaphragm . . . . . .Neoprene (02 models) & Polyurethane
Nozzle . . . . . .Brass
Seat . . . . . .PTFE Teflon
Filter . . . . . .Nickel-Plated Sintered Bronze - 10 Micron
Seat Return Spring . . . . . .PH 17-7 Stainless Steel
Adjusting Knob . . . . . .ABS Plastic
Outlet . . . . . .1/4" Stainless Steel Tube Fitting

RELATED OPTIONS

Panel Mount Kit P/N: 9100887

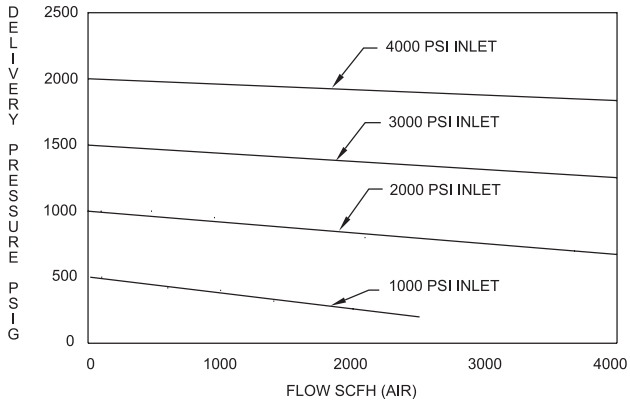
8700 ORDERING INFORMATION

PART NO.	MODEL NO.	GAS	MAX. INLET PSIG	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	SUPPLY PRESSURE GAUGE PSIG
3200310	8700-1500-346		3000	0-1500	3,000	4,000
3200311	8700-2500-346		3000	0-2500	3,000	4,000
3200312	8700-1500-347	Medical Air	5,500	0-1500	3,000	6,000
3200314	8700-3000-347		5,500	0-3000	4,000	6,000
3200315	8700-4500-347		5,500	0-4500	6,000	6,000
3200302	8700-1500-350		3,000	0-1500	3,000	4,000
3200303	8700-2500-350		3,000	0-2500	4,000	4,000
3200316	8700-1500-695	H_2 , Me	5,500	0-1500	3,000	6,000
3200318	8700-3000-695		5,500	0-3000	4,000	6,000
3200319	8700-4500-695		5,500	0-4500	6,000	6,000
3200304	8700-1500-590		3,000	0-1500	3,000	4,000
3200305	8700-2500-590	Industrial Air	3,000	0-2500	4,000	4,000
3200306	8700-1500-540		3,000	0-1500	3,000	4,000
3200307	8700-2500-540	Oxygen	3,000	0-2500	4,000	4,000
3200308	8700-1500-540SG		3,000	0-1500	3,000	4,000
3200309	8700-2500-540SG		3,000	0-2500	4,000	4,000
3200300	8700-1500-580		3,000	0-1500	3,000	3,000
3200301	8700-2500-580		3,000	0-2500	4,000	4,000
3200320	8700-1500-677		7,500	0-1500	3,000	10,000
3200321	8700-3000-677		7,500	0-3000	4,000	10,000
3200322	8700-4500-677	N_2 , Ar, He	7,500	0-4500	6,000	10,000
3200323	8700-6000-677		7,500	0-6000	10,000	10,000
3200324	8700-1500-680		5,500	0-1500	3,000	6,000
3200326	8700-3000-680		5,500	0-3000	4,000	6,000
3200327	8700-4500-680		5,500	0-4500	6,000	6,000

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8700 TECHNICAL SPECIFICATIONS

FLOW DATA



SPECIFICATIONS

Non-Self Relieving Models

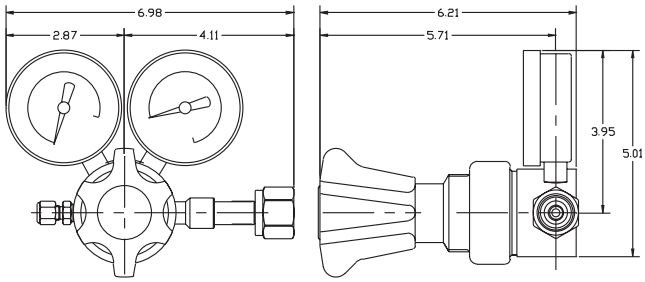
Regulator Weight: 5.8 lbs.
Pressure Rise: 3.3 PSIG per 100 PSIG
C_V: .08

Self-Relieving Models

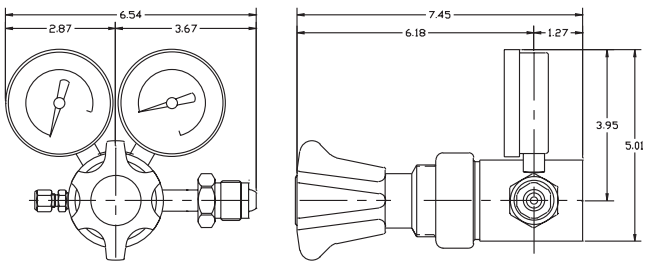
Regulator Weight: 7.0 lbs.
Pressure Rise: 3.3 PSIG per 100 PSIG
C_V: .08

DIMENSIONS

Non-Self Relieving Models



Self-Relieving Models



SG 1050

Flowmeters



* Shown with Base Plate Assembly

The SG 1050 Series Flowmeters provide the most accurate indication and precise control of fluids available for a wide range of applications.

All SG 1050 Series glass metering tubes have integral float guides to ensure a guaranteed ±5% of full scale accuracy. The meters are available in a range of 150mm reference indicating scales.

FEATURES

- ☑ High resolution 150mm scale length
- ☑ Precision tapered, fluted metering tube
- ☑ Standard front panel mounting requires minimum hardware easy installation, quick access
- ☑ Simplified, direct acting, nonrotating compression plug for quick and easy tube sealing
- ☑ Single tube unit

MATERIALS

Wetted End Blocks,
Fittings and Internal Parts . . . . . .Brass, 316 stainless steel

Seal Materials . . . . . .Buna-N or Viton – standard

Metering Tube . . . . . .Borosilicate glass enclosed

Float Materials . . . . . .Black glass and 316 stainless steel – standard

SPECIFICATIONS

Pressure Rating:
250 PSIG maximum
Temperature Rating:
250°F maximum
Accuracy:
±5% of full scale flow rate
Optional Accuracies:
±1% and 3% of full scale for reference scales only
Repeatability:
0.25% of scale reading
Range:
10 to 1, i.e., 100% to 10% of full scale mm or linear flow with conversion curves and/or factors
Shipping Weight:
1 lb

ORDERING INFORMATION

SG 1050 - xx(xx) - xx(xx) - xxx - xx - xxx

MODEL SERIES	END BLOCKS/ SEAL MATERIAL	VALVE TYPES	INLET/OUTLET CONNECTIONS	FLOW TUBE (CAPACITIES) AIR	OPTIONS
SG 1050	1) Aluminum with Buna-N Seals 2) Stainless Steel Brass with Viton Seals	1) Utility Valve on Inlet 2) Utility Valve on Outlet 3) High Accuracy Valve on Inlet 4) High Accuracy Valve on outlet	1) 1/8" NPT Female 2) 1/4" NPT Female 3) 1/8" Tube 4) 1/4" Tube	1) 6-150 SCCM 2) 10-270 SCCM 3) 38-840 SCCM 4) 88-1800 SCCM 5) .23-4.6 SLPM 6) .4-7.6 SLPM 7) .88-16 SLPM 8) 2.4-44 SLPM	1) Base Plate Assembly

* Be sure to request calibration data for the gas(es) you will be measuring.

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SG 1000
Flowmeters

The SG 1000 Series Flowmeters incorporate the innovative design of the SG 1050 in a more compact unit without reducing standards of accuracy. The same ±5% full scale accuracy is guaranteed for the 65mm scale length of these flowmeters.

The SG 1000 Series flowmeters are direct reading for air. These flow tubes are fluted to provide better float stability.



* Shown with Base Plate Assembly

FEATURES

- ⊡ Precision tapered, fluted metering tube
- ⊡ Reflective plastic background and 1.5 X magnification lens for excellent readability
- ⊡ Safety blow-out back panel
- ⊡ Full 10 to 1 (100% to 10% full scale) metering range
- ⊡ Low pressure drop for increased flow rates at low feed pressures

SPECIFICATIONS

Pressure Rating:
250 PSIG maximum operating pressure
Temperature Rating:
250°F maximum operating temperature
Accuracy:
±5% of full scale flow rate- consult factory for higher accuracies
Repeatability:
0.25% of scale reading
Range:
10 to 1, i.e., 100% to 10% of full scale
Scale Reading:
Direct reading air
Shipping Weight:
1 lb

MATERIALS

Wetted End Blocks,
Fittings and Internal Parts . . . . . .Brass, 316 stainless steel

Seal Materials . . . . . .Buna-N or Viton – standard

Metering Tube . . . . . .Borosilicate glass enclosed

Float Materials . . . . . .Black glass and 316 stainless steel – standard

ORDERING INFORMATION

SG 1000 - xx - xx(xx) - xx(xx) - xxx - xxx

MODEL SERIES	END BLOCKS/ SEAL MATERIAL	VALVE TYPES	INLET/OUTLET CONNECTIONS	FLOW TUBE (CAPACITIES) AIR	OPTIONS
SG 1000	1) Aluminum with Buna-N Seals 2) Stainless Steel with Viton Seals	1) Utility Valve on Inlet 2) Utility Valve on Outlet 3) High Accuracy Valve on Inlet 4) High Accuracy Valve on Outlet	1) 1/8" NPT Female 2) 1/4" NPT Female 3) 1/8" Tube 4) 1/4" Tube	1) .02-.24 SCFH 2) .05-.65 SCFH 3) .2-1.1 SCFH 4) .4-2.2 SCFH 5) .2-2.8 SCFH 6) .2-4.4 SCFH 7) 1-11 SCFH 8) 2-20 SCFH 9) 5-55 SCFH 10) 10-100 SCFH 11) 10-150 SCFH	1) Base Plate Assembly

* Be sure to request calibration data for the gas(es) you will be measuring.

SG 1100, SG 1127



The Model SG 1100 and SG 1127 Series Flowmeters are offered as a simplified solution to the problem of fluid flow indication at higher capacity levels than the SG 1050 and SG 1000 Series Flowmeters. These meters are designed to withstand the physical abuse and environmental corrosion of industrial applications.

The SG 1100 is available in several ranges of 70mm direct reading scales, and the SG 1127 is available in 127mm direct reading scales.

MATERIALS

Wetted End Blocks,
Fittings and Internal Parts . . . . . .Brass or 316 stainless steel

Seal Materials . . . . . .Buna-N or Viton – standard

Metering Tube . . . . . .Borosilicate glass

Float Material . . . . . .316 stainless steel

FEATURES

- ⊡ Precision tapered, fluted metering tube
- ⊡ Fully protected assembly using aluminum meter case
- ⊡ Unobstructed flow path area for low pressure drop increases available flow rates at low feed pressures
- ⊡ Precision machined float
- ⊡ Spring float stops absorb line shock
- ⊡ Float/Scale correlation symbol and float reading edge instructions permanently screened on meter window
- ⊡ Corrosion resistant option: all wetted parts of 316 stainless steel with Viton or EPR seals

SPECIFICATIONS

Pressure Rating:
200 PSIG maximum operating pressure @ 200°F
Temperature Rating:
250°F maximum operating temperature
Accuracy:
±10% of full scale flow rate
Range:
10 to 1, i.e., 100% to 10% of full scale
Shipping Weight:
2 lb

ORDERING INFORMATION

SG 1100 - xx(xx) - xx(xx) - xxx - xx
SG 1127

MODEL SERIES	END BLOCKS/ SEAL MATERIAL	VALVE TYPES	INLET/OUTLET CONNECTIONS	1100 or 1127 FLOW TUBE (CAPACITIES) AIR	
SG 1100	1) Brass with Buna-N Seals	1) Utility Valve on Inlet 2) Utility Valve on Outlet	1) 1/4" NPT Female 2) 3/8" NPT Female 3) 1/2" Female	1) 0.5-4 SCFM 2) 1-9 SCFM 3) 1-12 SCFM 4) 1-15 SCFM	1) 0.2-4 SCFM 2) 0.5-9 SCFM 3) 0.5-11 SCFM 4) 1-16 SCFM
SG 1127	2) Stainless Steel Brass with Viton Seals				

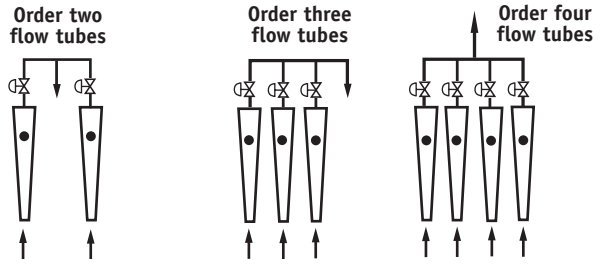
* Be sure to request calibration data for the gas(es) you will be measuring.

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SG 7300, SG 7400

The Model SG 7300 and SG 7400 Series Flowmeters are 150mm multi-tube flowmeter manifolds used for proportioning or mixing multiple gas streams. They are available in three basic configurations.

- Two gases in - One stream out (proportioner)
- Three gases in - One stream out (mixer)
- Four gases in - One stream out (mixer)



Model 7300 Model 7400



FEATURES

- ☑ High resolution 150mm scale length
- ☑ Precision tapered, fluted metering tube
- ☑ Standard front panel mounting requires minimum hardware for easy installation and quick access
- ☑ Simplified, direct acting, nonrotating compression plug for quick and easy tube sealing
- ☑ Single tube unit

SPECIFICATIONS

Maximum Pressure:
200 PSIG
Temperature Ranges:
20° to 250°F (-30° to 120°C)

MATERIALS

Wetted End Blocks,
Fittings and Internal Parts . . . . . .Brass, 316 stainless steel

Seal Materials . . . . . .Buna-N or Viton – standard

Metering Tube . . . . . .Borosilicate glass enclosed

Float Materials . . . . . .Black glass and 316 stainless steel – standard

ORDERING INFORMATION

SG 7300 - x - x - xx - xxxx - xxx
SG 7400

MODEL SERIES	END BLOCKS/ SEAL MATERIAL	VALVE TYPES	INLET/OUTLET CONNECTIONS	FLOW TUBE (CAPACITIES) AIR	OPTIONS
SG 7300	1) Aluminum with Buna-N Seals	1) Utility Valve on Inlet 2) Utility Valve on Outlet 3) High Accuracy Valve on Inlet	1) 1/8" NPT Female 2) 1/4" NPT Female 3) 1/8" Tube	1) 0.13-104 SCCM* 2) 6-60 SCCM* 3) 10-100 SCCM*	1) Base Plate Assembly
SG 7400	2) Stainless Steel Brass with Viton Seals	4) High Accuracy Valve on outlet	4) 1/4" Tube	4) 38-380 SCCM* 5) 88-880 SCCM*	

* Order one flow tube for each gas in (reference diagram above)

Note: To ensure that you receive the correct model for your application, please specify: Pressure (20 or 50 PSIG), Total Flow Rate, Percent of Each Gas, Special Calibration

ACCESSORIES



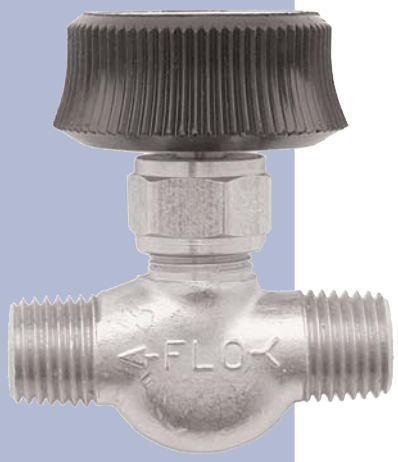
Diaphragm Valves

These valves are used in high purity systems where gas leakage and in-board diffusion of air or moisture must be kept to a minimum. The packless design has an inboard Helium leak rate of 1 x 10^{-9} cc/sec.

SPECIFICATIONS

Inlet: 1/4 MNPT or 1/4 FNPT
Outlet: 1/4 FNPT
Max. Inlet Pressure: 3000 PSIG
Seat Material: PCTFE (kel-f)

PART NO.	DESCRIPTION	INLET/OUTLET CONNECTION	BODY MATERIAL	DIAPHRAGM MATERIAL	FLOW COEFFICIENT (C_V)
9107069	Regulator Outlet Valve	1/4 NPT male / 1/4 NPT female	Brass	316 SS	0.17
9107071	Regulator Outlet Valve	1/4 NPT male / 1/4 NPT female	Chrome Plated Brass	316 SS	0.17
9107073	Regulator Outlet Valve	1/4 NPT male / 1/4 NPT female	316 SS	316 SS	0.17
9107070	Instrument Valve	1/4 NPT female / 1/4 NPT female	Brass	316 SS	0.17
9107072	Instrument Valve	1/4 NPT female / 1/4 NPT female	Chrome Plated Brass	316 SS	0.17
9107074	Instrument Valve	1/4 NPT female / 1/4 NPT female	316 SS	316 SS	0.17



Needle Valves

These valves are used where a shut off feature or some degree of throttling is required.

SPECIFICATIONS

Inlet: 1/4 MNPT
Max. Inlet Pressure: 3000 PSIG
Seat Material: 316 SS
Packing Material: PTFE
Body Material: Brass

PART NO.	BODY MATERIAL	OUTLET
9100412	Brass	1/4" M
9100827	Chrome Plated Brass	1/4" M
9100927	Chrome Plated Brass	1/4" F

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ACCESSORIES

Adjustable Relief Valves

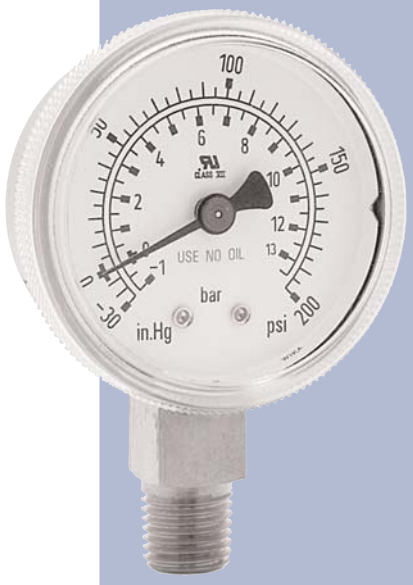
These relief valves may be used as an integral part of a pressure regulator or on equipment downstream of a regulator. The relief valves have a 1/4" NPT inlet and outlet thread to vent gases externally or remotely.



STAINLESS STEEL			BRASS			CHROME-PLATED BRASS		
PART NO.	MODEL NO.	PSIG	PART NO.	MODEL NO.	PSIG	PART NO.	MODEL NO.	PSIG
9100856	RV-7050-SS	0-50	9100852	RV-7050-B	0-50	9100861	RV-7050-CHR	0-50
9100857	RV-7100-SS	0-100	9100853	RV-7100-B	0-100	9100863	RV-7100-CHR	0-100
9100858	RV-7250-SS	0-250	9100854	RV-7250-B	0-250	9100864	RV-7250-CHR	0-250
9100859	RV-7500-SS	0-500	9100855	RV-7500-B	0-500	9100865	RV-7500-CHR	0-500
9100877	RV-7800-SS	0-800	9100876	RV-7800-B	0-800	9100878	RV-7800-CHR	0-800

Pressure Gauges

Two-inch pressure gauges are available in brass, chrome-plated brass and 316 stainless steel. All gauges have a bottom mount 1/4 NPT male connection. All gauges have an accuracy of ±3-2-3% of full scale.



Chrome-Plated Brass Gauges

PART NO.	RANGE	INCREMENTS
9006270	*30" Hg-0-30psi/2bar	1 PSIG
9006271	*30" Hg-0-100psi/7bar	2 PSIG
9006272	*30" Hg-0-200psi/14bar	5 PSIG
9006273	400psi/28bar	10 PSIG
9006274	1000psi/70bar	20 PSIG
9006275	4000psi/280bar	100 PSIG

* Compound gauge 30" Hg VAC to psi/bar

316 Stainless Steel Gauges

PART NO.	RANGE	INCREMENTS
9006282	*30" Hg-0-30psi/2bar	1 PSIG
9006283	*30" Hg-0-100psi/7bar	2 PSIG
9006284	*30" Hg-0-200psi/14bar	5 PSIG
9006285	400psi/28bar	10 PSIG
9006286	1000psi/70bar	20 PSIG
9006287	4000psi/280bar	100 PSIG

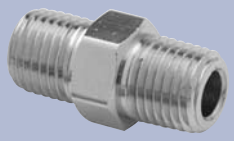
* Compound gauge 30" Hg VAC to psi/bar

Brass Gauges

PART NO.	RANGE	INCREMENTS
9006276	*30" Hg-0-30psi/2bar	1 PSIG
9006277	*30" Hg-0-100psi/7bar	2 PSIG
9006278	*30" Hg-0-200psi/14bar	5 PSIG
9006279	400psi/28bar	10 PSIG
9006280	1000psi/70bar	20 PSIG
9006281	4000psi/280bar	100 PSIG

* Compound gauge 30" Hg VAC to psi/bar

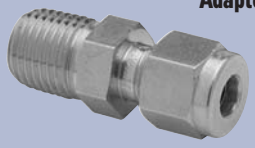
ACCESSORIES



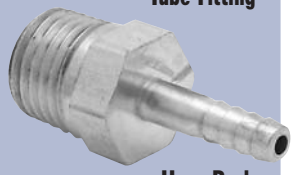
Male Hex Coupling



Adaptor



Tube Fitting



Hose Barb

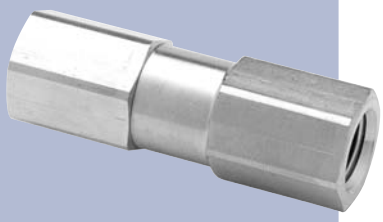
PART NO.	TYPE	DESCRIPTION	MATERIAL
9000200		1/4 NPT X 1/4 NPT	Brass
9009247		1/4 NPT X 1/4 NPT	Chrome Plated
9007056	Male Hex Coupling	1/4 NPT X 1/4 NPT	316 Stainless Steel
9005724		1/4 NPT X 4"	316 Stainless Steel
9005707		1/2 NPT X 2"	Brass
9005704		1/2 NPT X 4"	Brass
9005752	Adaptors	1/2 MNPT x 1/4 FNPT	Stainless Steel
9005753		1/2 MNPT x 1/4 MNPT	Stainless Steel
9007049		1/4 x 1/4 MNPT	Stainless Steel
9007051	Tube Fittings	1/4 x 1/4 MNPT	Brass
9007050		1/8 x 1/4 MNPT	Stainless Steel
9007052		1/8 x 1/4 MNPT	Brass
9007055		1/4 x 1/4 MNPT	Brass
9007054	Hose Barbs	1/8 x 1/4 MNPT	Brass
9510501		1/4 x 1/4 FNPT	Brass



Flashback Arrestors

Stainless steel flashback arrestors are designed for oxygen, hydrogen and other flammable or fuel gases. Standard with 1/4" NPT female inlet and 1/4" NPT male outlet connections make it easy to adapt in various lab applications. UL listed.

PART NO.	DESCRIPTION	WORKING PRESSURE	ELASTOMERS
4301637	Hydrogen	50 PSIG	
	LPG/Methane	50 PSIG	Neoprene
	Acetylene	15 PSIG	
4301638	Oxygen	143 PSIG	Viton



Check Valves

Check valves insure unidirectional flow. They provide a simple, but effective, leak tight closure with minimal flow resistance. Check valves are available in brass and 316 stainless steel.

SPECIFICATIONS

Cracking pressure: 1 PSIG
Max. working pressure: 3000 PSIG
Operating temperature range: -20F to +300F
C_V: 0.36

PART NO.	CONNECTIONS	MATERIAL	SEAT
4300379	1/4" FNPT	Brass	Viton
4300380	1/4" FNPT	316SS	Viton

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Purge Assemblies

Purging should be performed before system start-ups to remove contaminants such as air and water vapor from the gas delivery system. Also, purging should be done before changing out toxic and corrosive gas cylinders.

Straight Purge Assemblies

The straight purge assembly is connected to the regulator body via an auxiliary high pressure port. The gas is vented through the body to a downstream location.



PART NO.	MATERIAL
4300376	Brass
4300373	Stainless Steel

Tee Purge Assemblies

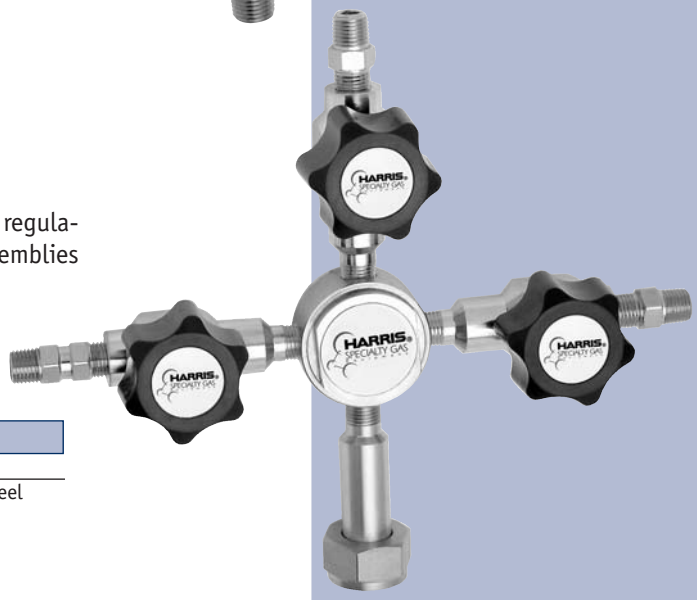
The tee purge is normally connected between the cylinder and the regulator. The system can be flushed with the purging gas to remove contaminants prior to start-up or after a cylinder change.



PART NO.	MATERIAL
4300375	Brass
4300372	Stainless Steel

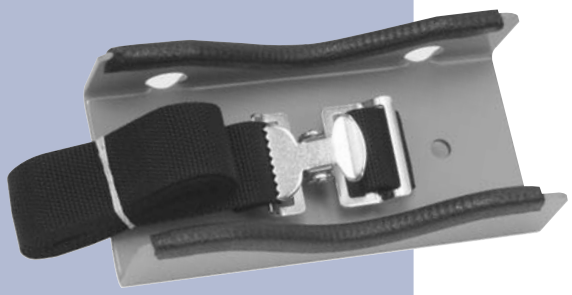
Cross Purge Assemblies

The cross purge assembly is also used between the cylinder and the regulator. In addition to the features on the tee purge, the deep purge assemblies have an inlet isolation valve and a vent valve.



PART NO.	MATERIAL
4300377	Brass
4300374	Stainless Steel

ACCESSORIES



G 100 Single Cylinder Wall Bracket

The G 100 is an all steel construction bracket with many quality construction features. The edges are protected with steel reinforced vinyl edge guarding to maintain and protect your cylinders and provide extra grip. Steel parts are sealed with epoxy powder paint to assure long service life and chemical resistance. Straps and cinch style buckles are chosen as primary means of support as they enable the cylinders to be held tight and secure against the brackets. Support straps are 1.5 inch wide by 54 inch long polypropylene with steel cinch buckle and rate a robust 1200 psi strength. Supports hold cylinders from 4.0 to 12.0 inch diameter.

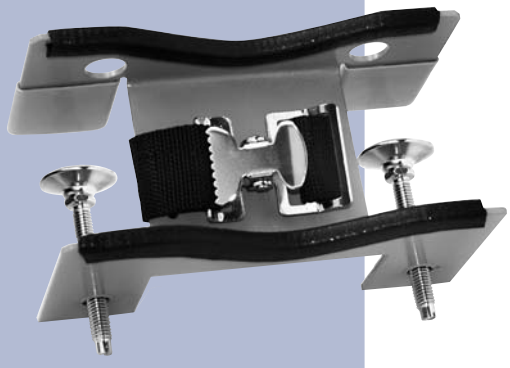
PART NO.	SIZE	WEIGHT
4302650	4.25"x8"x2.25"	3 lb.



G 110 Single Cylinder Adjustable Bracket

Molded from reinforced polypropylene, the G 110 bracket can be adjusted to snugly support any cylinder from 4.0 to 14.0 inch diameter. Unit is first set to designated cylinder diameter with recessed set screws locking in width position. Permanently mounts to wall using fasteners (not included). Strap and security chain sets included.

PART NO.	SIZE	WEIGHT
4302653	9"x4"x5"	2 lb.



G 150 Single Cylinder Bench Mount Bracket

Bench cylinder bracket G-150: This bench mount single cylinder bracket uses dual mounting posts with swivel feet and non-slip pads to clamp to bench or table tops from 3/8 inch to 1 3/4 inch thick. Standard strap set and optional chain set (G-105) secure cylinders 4 to 14 inch diameter. Especially useful where walls are not accessible to attach brackets or when temporary, safe cylinder supports are required.

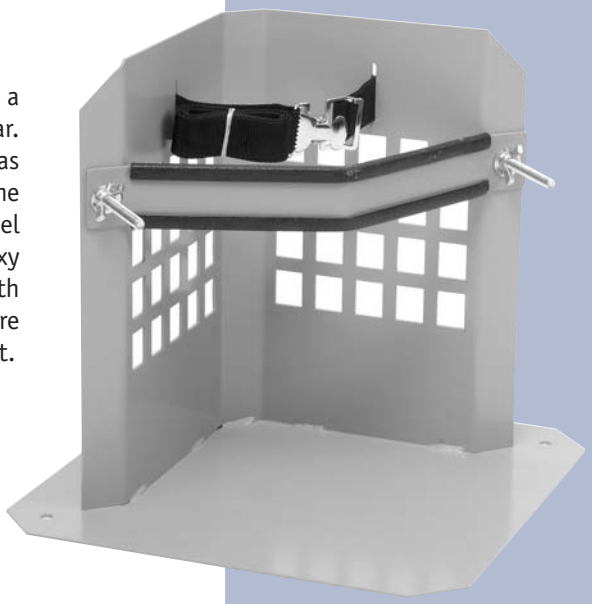
PART NO.	SIZE	WEIGHT
4302654	4.25"x8"x4.25"	4.5 lb.

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ACCESSORIES

G 181 Single Cylinder Floor Stand

The G-181, safely supports 4 inch through 10-inch diameter cylinders using a combination of cinch buckle, polypropylene strap, and 10 gauge steel bar. Designed and built for the safe storage of industrial and commercial use gas cylinders, this stationary rack is constructed from cold rolled steel. One cylinder capacity stands share the 1½ - inch polypropylene straps and steel cinch buckles used in our brackets. All welded construction and quality epoxy powder paint finishes provide structural integrity and long service life. As with our cylinder brackets, surfaces coming into direct contact with the cylinders are protected with steel reinforced vinyl edge guards, protecting your equipment.

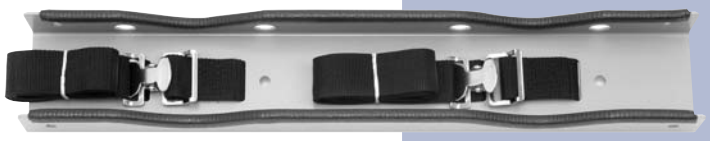


PART NO.	SIZE	WEIGHT
4302655	16"x16"x15"	21 lb.

Wall Mounted Cylinder Brackets

All steel construction brackets and racks share many quality construction features. 11 gauge hot rolled steel form the foundation. Edges are protected with steel reinforced vinyl edge guarding to help maintain your cylinders and provide extra grip. Steel parts are sealed with epoxy powder paint to assure long service life and chemical resistance. Straps and cinch style buckles are chosen as primary means of support as they enable the cylinders to be held tight and secure against the brackets. Support straps are 1.5 inch wide by 54 inch long polypropylene with steel cinch buckle and rate a robust 1200 psi strength. Supports hold cylinders from 4.0 to 12.0 inch diameter.

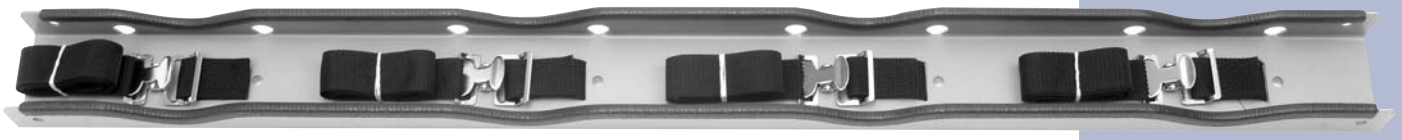
PART NO.	MODEL NO.	SIZE	WEIGHT
4302656	G200	24"x2"x4"	8 lb.
4302659	G300	4.25"x36"x2.25"	11 lb.
4302662	G401	4.25"x48"x2.25"	14 lb.



G 200 Double Cylinder Wall Bracket



G 300 Triple Cylinder Wall Bracket



G 401 Four Cylinder Wall Bracket

ACCESSORIES

Cylinder Racks & Process Stations

The Stationary Cylinder Floor Stands and Process Stations are designed and built for the safe storage of industrial and commercial use gas cylinders up to 12 inch diameter, these stationary racks are constructed from 11 gauge and heavier plate steel. The cylinder capacity racks share the 1.5 inch polypropylene straps and steel cinch buckles used in our brackets. Fully welded construction and quality epoxy powder paint finishes provide structural integrity and long service life. As with our cylinder brackets, surfaces coming into direct contact with the cylinders are protected with steel reinforced vinyl edge guards, protecting your equipment. Units ship partially disassembled for freight savings.



G 400 Four Cylinder Floor Stand



G 600 Six Cylinder Floor Stand

PART NO.	MODEL NO.	SIZE	WEIGHT
4302661	G400	24"x36.5"x30"	65 lb.
4302665	G600	24"x48.5"x30"	81 lb.



G 277 Two Cylinder Process Station Rack



G 400P Four Cylinder Process Station



G 600P Six Cylinder Process Station

PART NO.	MODEL NO.	SIZE	WEIGHT
4302673	G277	12"x28"x72"	56 lb.
4302675	G400P	24"x36.5"x72"	98 lb.
4302676	G600P	24"x48.5"x30"	119 lb.

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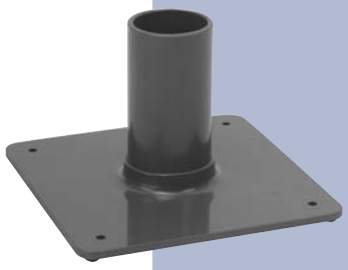
ACCESSORIES

Bottle Holders

G 700 Laboratory Lecture Bottle Holder

PVC construction units are durable and chemical resistant. Formed heavy PVC walls chemically welded. Sized to fit lb. style (2.0 inch diameter) bottles. Stand (P/N G 700) has four bench mounting holes for optional permanent installation.

PART NO.	SIZE	WEIGHT
4302677	5"x8"x8"	1.5 lb.



G 710 Laboratory Lecture Bottle Holder

Formed heavy PVC walls chemically welded. Sized to fit lb. style (2.0 inch diameter) bottles. The G 710 features wall or bench mounting holes for 1 bottle.

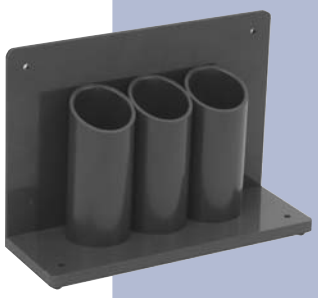
PART NO.	SIZE	WEIGHT
4302678	8"x5"x4"	1.5 lb.



G 730 Triple Laboratory Lecture Bottle Holder

Formed heavy PVC walls chemically welded. Sized to fit lb. style (2.0 inch diameter) bottles. P/N G 730 features wall or bench mounting holes for 3 bottles.

PART NO.	SIZE	WEIGHT
4302679	7.5"x11"x4"	4 lb.



G 760 Lecture Bottle Carrier

Formed heavy PVC walls chemically welded. The G 760 features loop carry handle. To store or transport six lb. style bottles.

PART NO.	SIZE	WEIGHT
4302680	9"x6"x19"	6 lb.



SG 900

Manifolds

The outlet regulator is ordered separately.
See regulator ordering information.



The SG 900 Semi-Automatic Manifold prevents down-time by automatically switching gas supply from the primary cylinder bank to the reserve cylinder bank. The user resets the primary bank by turning the lever. Manual adjustment of the individual regulators is not required.

The SG 900 series is available in chrome-plated brass or stainless steel. The ½" brass or stainless steel headers are available in left and right configurations.

FEATURES

- ⊡ Wall mounting panel and brackets included
- ⊡ Maximum inlet pressure 3000 psig
- ⊡ Switchover pressure:

GAS	RIGHT TO LEFT	LEFT TO RIGHT
Acetylene	15 PSIG	12 PSIG
LPG	30 PSIG	25 PSIG
Other	180 PSIG	160 PSIG

- ⊡ Inlet/outlet - 1/4" NPT
- ⊡ Headers include: Stainless steel pigtails, check valves and diaphragm valves. All systems include stainless steel pigtails with a stainless steel inner core
- ⊡ Acetylene (CGA 510A) includes dry type flash arrestors on pigtail end



OUTLET REGULATOR ORDERING INFORMATION

- Brass or stainless steel barstock bodies
- One-piece encapsulated seat design
- Stainless steel diaphragm
- C_V = .08

Model 743 Stainless Steel

Description	Part Number
Model 743-15	3003114
Model 743-50	3003113
Model 743-125	3003112

Model 723C Chrome-Plated Brass

Description	Part Number
Model 723C-15	3003109
Model 723C-50	3003108
Model 723C-125	3003107

ORDERING INFORMATION

SG 900	xx	xx(xx)	xx(xx)	xxx
SERIES	**MATERIAL**	**RIGHT HEADER (# CYLINDERS)**	**LEFT HEADER (# CYLINDERS)**	**GAS SERVICE**
SG 900	SS-Stainless	**24" Pigtails**	**24" Pigtails**	320-Carbon Dioxide
	BR-Brass	1R	1L	346-Air
SG 900 A*		2R	2L	350-Hydrogen
		3R	3L	510A-Acetylene (BR only)
		4R	4L	510P-LPG (BR only)
		36" Pigtails	**36" Pigtails**	540-Oxygen
		1R36	1L36	580-N_2/He/Ar
		2R36	2L36	590-Industrial Air
		3R36	3L36	660-(SS only)
		4R36	4L36	330-(SS only)

*A= Remote Alarm
includes 12V DC power supply and A/V alarm

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SG 910
Manifolds

The SG 910 Protocol Station is available in brass or stainless steel. The SG 910 can be ordered for one or two cylinder connections. A variety of outlet regulators are available based on delivery pressure and material requirements.

The outlet regulator is ordered separately.
See regulator ordering information.



* Shown with Model 721 Regulator Attached

FEATURES

- ⊡ Wall bracket included
- ⊡ Maximum inlet pressure 3000 psig
- ⊡ Includes 36" stainless steel lined stainless steel pigtail
- ⊡ Select regulator from list below

ORDERING INFORMATION

SG 910 - xx - x - xxx

SERIES	BLOCK MATERIAL	CYLINDERS	GAS SERVICE
SG 910	BR-Brass	1 - 1 Cylinder	320-Carbon Dioxide
	SS-Stainless	2 - 2 Cylinder	346-Air
			350-Hydrogen
			510A-Acetylene (BR only)
			510P-LPG (BR only)
			540-Oxygen
			580-N_2/He/Ar
			590-Industrial Air
			660-(SS only)
			330-(SS only)

RELATED OPTIONS

Purge Assembly
Brass P/N: 4300375
Stainless Steel P/N: 4300372
Venting Kit P/N: 9100875

OUTLET REGULATOR ORDERING INFORMATION

High Purity - Brass Barstock Regulators

- Brass barstock bodies
- One-piece encapsulated seat
- Stainless steel diaphragm
- External relief valve
- C_V = Single stage .08 - Two stage .06

High Purity - Stainless Steel Regulators

- Stainless steel barstock bodies
- One-piece encapsulated seat
- Stainless steel diaphragm
- C_V = Single stage .08 - Two stage .06

Model 721
Single Stage Regulator

Delivery PSIG	Part Number
0-15	721-015-CGA-B
0-50	721-050-CGA-B
0-125	721-125-CGA-B
0-250	721-250-CGA-B
0-500	721-500-CGA-B



Model 741
Single Stage Regulator

Delivery PSIG	Part Number
0-15	741-015-CGA-A
0-50	741-050-CGA-A
0-125	741-125-CGA-A
0-250	741-250-CGA-A
0-500	741-500-CGA-A

Model 722
Two-Stage Regulator

Delivery PSIG	Part Number
0-15	722-015-CGA-B
0-50	722-050-CGA-B
0-125	722-125-CGA-B
0-250	722-250-CGA-B
0-500	722-500-CGA-B



Model 742
Two-Stage Regulator

Delivery PSIG	Part Number
0-15	742-015-CGA-A
0-50	742-050-CGA-A
0-125	742-125-CGA-A
0-250	742-250-CGA-A
0-500	742-500-CGA-A

SG 920
Pressure Differential Switchover

The SG 920 Series Manifold provides uninterrupted gas supply for non-corrosive high purity applications. The end user resets the primary bank by turning the control knob.

APPLICATIONS

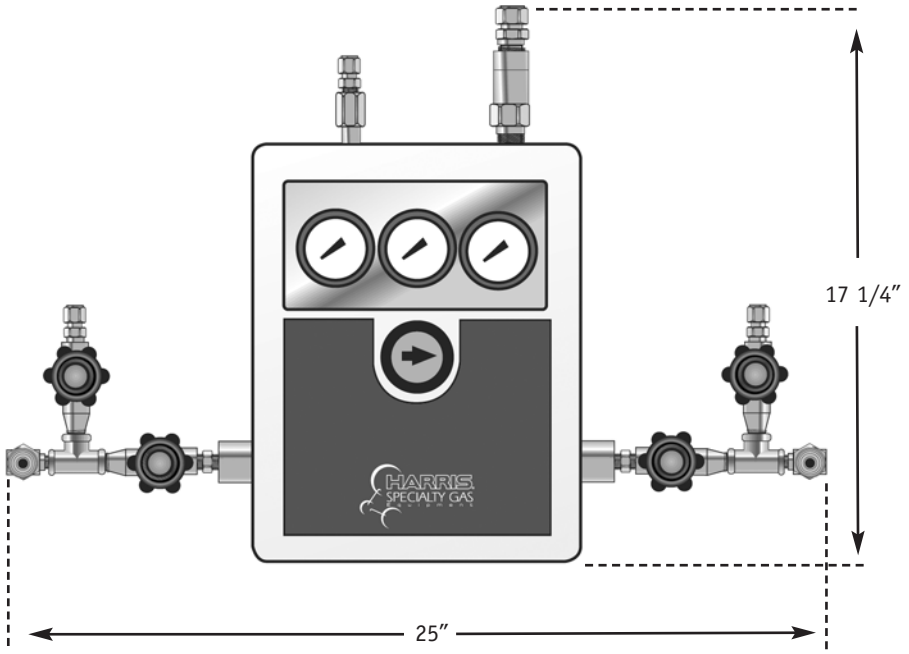
- High purity gas applications
- Research sample systems gases
- Process analyzers gases
- Gas chromatography gases
- EPA protocol mix gases
- Laser gas systems
- Emission monitoring systems gases



FEATURES

- ⊡ Stainless steel diaphragm regulators
- ⊡ Packless diaphragm valve tee purge inlet
- ⊡ Maximum inlet pressure 3000 PSIG (2000 psi for CO_2 & N_2O systems)
- ⊡ **Maximum flow rate:**
  - Most gases . . . . . .250 SCFH
  - CO_2 . . . . . .35 SCFH
  - N_2O . . . . . .35 SCFH
- ⊡ **Delivery pressure range:**
  - SG 920 . . . . . .30-100 PSIG
  - SG 920 (Acetylene) . . . . .0-15 PSIG
  - SG 920 HP . . . . . .50-200 PSIG
- ⊡ Manifold outlet: 1/4" OD tube
- ⊡ Relief valve outlet: 1/2" OD tube
- ⊡ Acetylene systems include pigtails with individual flashback arrestors and check valves
- ⊡ Stainless steel lined pigtails

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Manifold Depth: 8"
Cabinet Weight: 35 lb.

ORDERING INFORMATION

SG 920	xx(xx)	xx(xx)	xxx
SERIES	**RIGHT HEADER (# cylinders)**	**LEFT HEADER (# cylinders)**	**GAS SERVICE**
SG 920 (30-100 PSIG)	**24" PIGTAILS**	**24" PIGTAILS**	320-Carbon Dioxide
	1R	1L	326-Nitrous Oxide
SG 920 - Acetylene (0-15 PSIG)	2R	2L	346-Air
	3R	3L	510A-Acetylene
SG 920 HP (50-200 PSIG)	4R	4L	510-Propane, LPG, Fuel Gases
	36" PIGTAILS	**36" PIGTAILS**	300-Acetylene
	1R36	1L36	540-Oxygen
	2R36	2L36	590-Air(Industrial)
	3R36	3L36	580H-Helium
	4R36	4L36	580-Argon/Nitrogen
			350H-Hydrogen
			350-Fuel Gases (Methane)

SG 930
Pressure Differential Switchover

The SG 930 Series Manifolds are designed and manufactured for high-purity gas delivery applications requiring uninterrupted gas flow and greater cylinder capacities. User friendly and easy to operate, a simple rotation of the control knob resets the unit.

Factory-set functional components are protected inside a tamper-resistant case. The self-contained alarm system clearly indicates the system status. A green light means the service bank is functioning and the reserve bank is ready for service. A red light alerts the user that the unit has changed over and one or both banks are depleted. Dry contacts in the unit's power supply box allow connection to remote alarm systems. (Up to 3 amps 30 VDC or 2 amps 250VAC).

APPLICATIONS

- High purity gas applications
- Research sample systems gases
- Process analyzers gases
- Gas chromatography gases
- EPA protocol mix gases
- Laser gas systems
- Emission monitoring systems gases

FEATURES

- ⊡ Connects to remote alarm systems.
  Up to 3 amps 30 volts (DC) or 2 amps 250 volts (AC)
  Visual remote alarm is standard (P/N 4300340).
  Audio/Visual alarm optional (P/N: 4300341).
- ⊡ Electrical - 115 volts (AC)
- ⊡ Stainless steel diaphragm regulators
- ⊡ Helium leak rate integrity
  $2x10^{-6}$ scc/sec.
- ⊡ Maximum inlet pressure 3000 PSIG
  (2000 psi for CO_2 & N_2O systems)
- ⊡ **Maximum flow rate:**
  SG 930 . . . . . .250 SCFH
  SG 930 (Acetylene) . . . . . .20 SCFH
- ⊡ **Delivery pressure range:**
  SG 930 . . . . . .30-100 PSIG
  SG 930 (Acetylene) . . . . .0-15 PSIG
  SG 930 HP . . . . . .50-200 PSIG
- ⊡ Manifold outlet: 1/4" OD tube
- ⊡ 1/2" brass, silver brazed headers
- ⊡ 24" or 36" flexible stainless steel lined pigtails with check valves. Acetylene systems include pigtails with individual flashback arrestors and check valves.

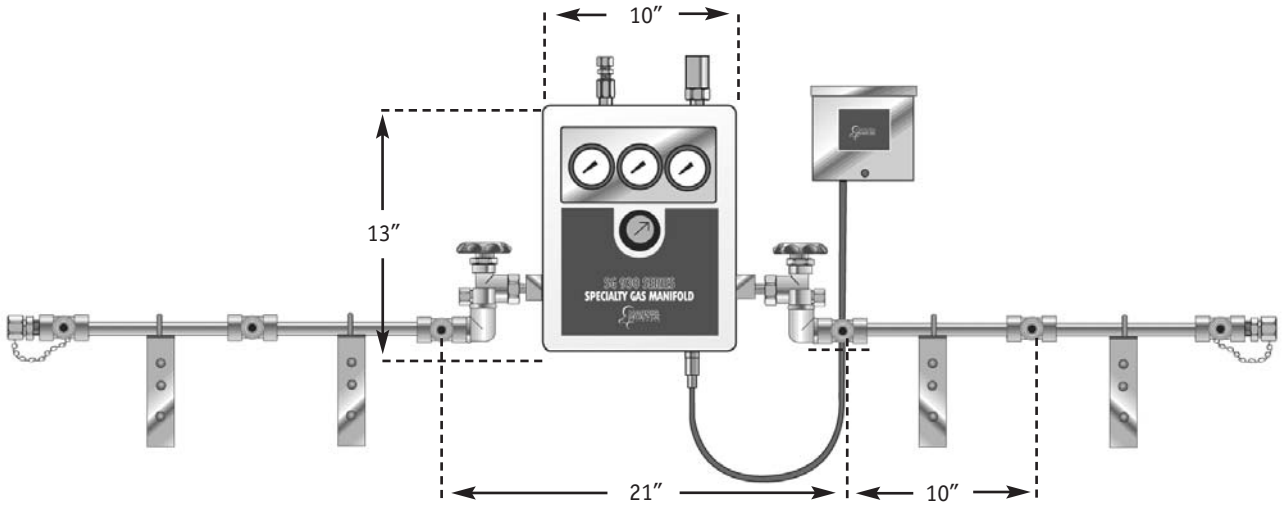


RELATED OPTIONS

Remote Alarm Kits Not For Fuel Gas Service
P/N: 4300341 - Visual and Audio

Remote Alarm Kits For Fuel Gas Service
P/N: 4300343 Acetylene - Visual and Audio
P/N: 4300344 Hydrogen - Visual and Audio
P/N: 4300345 LPG Gases - Visual and Audio

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Manifold Depth: 8″
Cabinet Weight: 35 lb.

ORDERING INFORMATION

SG 930	xx(xx)	xx(xx)	xxx
SERIES	**RIGHT HEADER (# cylinders)**	**LEFT HEADER (# cylinders)**	**GAS SERVICE**
	24″ PIGTAILS	**24″ PIGTAILS**	320-Carbon Dioxide
SG 930 (30-100 PSIG)	1R	1L	326-Nitrous Oxide
	2R	2L	346-Air
SG 930 - Acetylene (0-15 PSIG)	3R	3L	510A-Acetylene
	4R	4L	510-Propane, LPG, Fuel Gases
SG 930 HL (includes 250 SCFH heater)	**36″ PIGTAILS**	**36″ PIGTAILS**	300-Acetylene
	1R36	1L36	540-Oxygen
SG 930 HP (50-200 PSIG)	2R36	2L36	590-Air(Industrial)
	3R36	3L36	580H-Helium
	4R36	4L36	580-Argon/Nitrogen
			350H-Hydrogen
			350-Fuel Gases (Methane)

SG 940 Stainless Steel Pressure Differential Switchover

The SG 940 Series Manifolds are designed and manufactured for high-purity gas delivery applications requiring uninterrupted gas flow and greater cylinder capacities. User friendly and easy to operate, a simple rotation of the control knob resets the unit following the system's automatic changeover.

Factory-set functional components are protected inside a tamper-resistant case. A self-contained alarm system clearly indicates the system status. A green light shows the service bank is functioning and the reserve bank is ready for service. A red light alerts the user that the unit has changed over and one or both banks are depleted. Dry contacts in the unit's power supply box allow connection to remote alarm systems.

APPLICATIONS

- High purity gas applications
- Research sample systems gases
- Process analyzers gases
- Gas chromatography gases
- EPA protocol mix gases
- Laser gas systems
- Emission monitoring systems gases



FEATURES

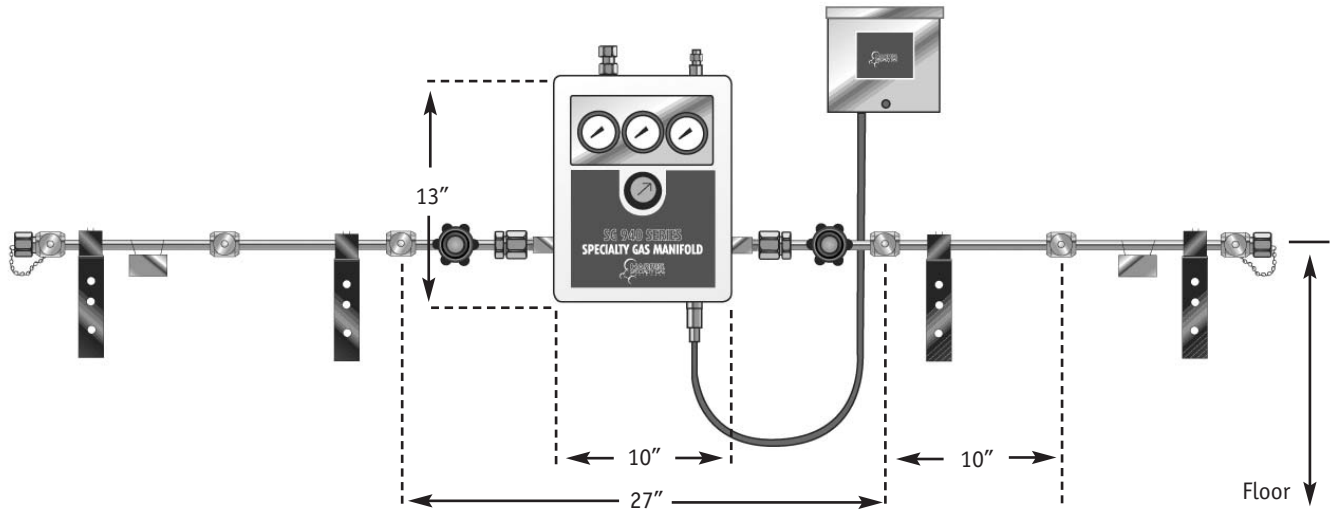
- ⊡ Connects to remote alarm systems.
  Up to 3 amps 30 volts (DC) or 2 amps 250 volts (AC)
  Visual remote alarm is standard (P/N 4300340).
- ⊡ Electrical - 115 volts (AC)
- ⊡ Stainless steel diaphragm regulators
- ⊡ Helium leak rate integrity
  $2x10^{-6}$ scc/sec.
- ⊡ Maximum inlet pressure 3000 PSIG
  (2000 psi for CO_2 & N_2O systems)
- ⊡ Maximum flow rate 95 SCFH:
  (35 SCFH for CO_2 & N_2O systems)
- ⊡ **Delivery pressure range:**
  SG 940 . . . . . .30-100 PSIG
  SG 940 HP . . . . . .50-200 PSIG
- ⊡ Manifold outlet: 1/4" OD tube
- ⊡ Stainless steel orbital welded headers
- ⊡ 24" or 36" flexible stainless steel lined pigtails with check valves. Acetylene systems include pigtails with individual flashback arrestors and check valves.

RELATED OPTIONS

P/N: 4300341 Audio/Visual alarm

Remote Alarm Kits For Fuel Gas Service
P/N: 4300344 Hydrogen - Visual and Audio
P/N: 4300345 LPG Gases - Visual and Audio

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Manifold Depth: 8″
Cabinet Weight: 35 lb.

ORDERING INFORMATION

SG 940	xx(xx)	xx(xx)	xxx
SERIES	**RIGHT HEADER (# cylinders)**	**LEFT HEADER (# cylinders)**	**GAS SERVICE**
	24″ PIGTAILS	**24″ PIGTAILS**	320-Carbon Dioxide
SG 940 (30-100 PSIG)	1R	1L	326-Nitrous Oxide
	2R	2L	346-Air
SG 940 HP (50-200 PSIG)	3R	3L	590-Air(Industrial)
	4R	4L	580H-Helium
	36″ PIGTAILS	**36″ PIGTAILS**	580-Argon/Nitrogen
	1R36	1L36	350H-Hydrogen
	2R36	2L36	350-Fuel Gases (Methane)
	3R36	3L36	
	4R36	4L36	

SG 950
Fully Automatic Switchover

The SG 950 Manifold provides fully automatic system control. An integrated circuit board monitors cylinder bank pressure electronically, controlling changeover and eliminating the need to manually reset levers or valves. Easy-to-read digital displays show the line and individual bank pressures.

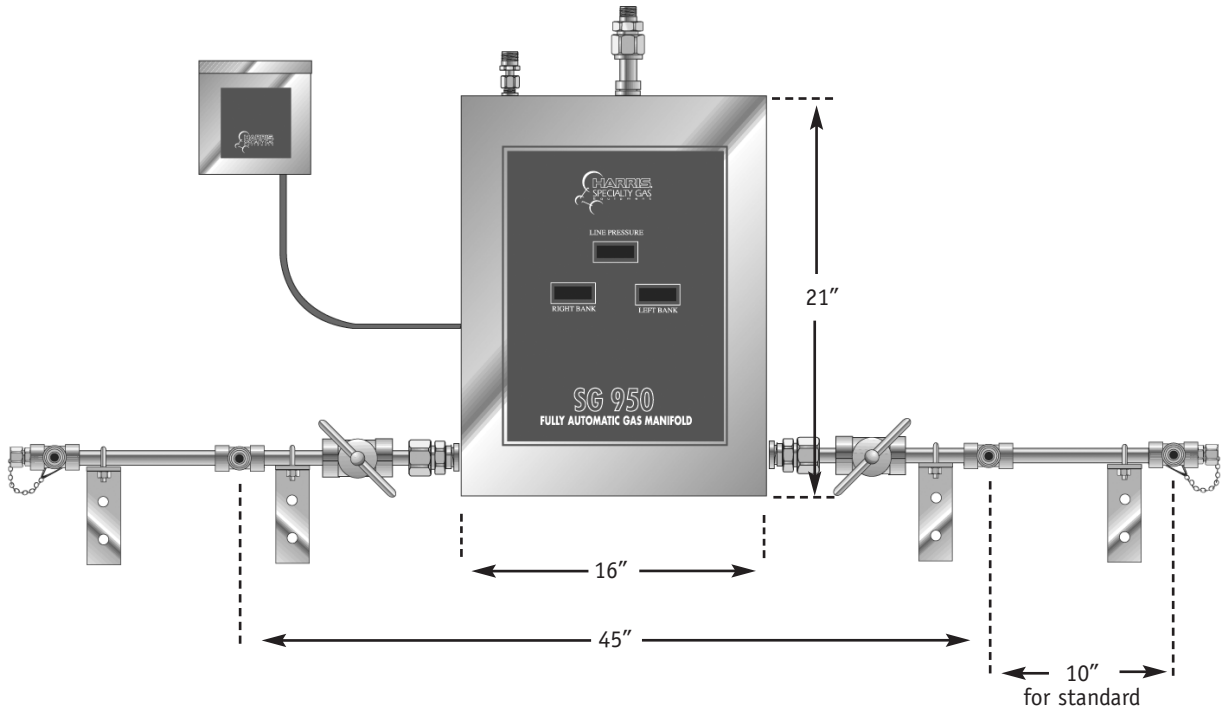
- ⊡ Connects to remote alarm systems. Up to 3 amps 30 volts (DC) or 2 amps 250 volts (AC) **Visual remote alarm is standard (P/N 4300340). Optional Audio/Visual alarm (P/N 4300341).**
- ⊡ Electrical - 115 volts (AC)
- ⊡ Fully automatic changeover - no levers to reset. Continuous, uninterrupted gas flow. The only manual function is to replace depleted cylinders.
- ⊡ LED indicators provide system status for each bank. Lights will indicate "in service", "ready for use" or "bank depleted".
- ⊡ Large digital display provides constant read out of bank pressure and delivery pressure
- ⊡ Displays readout in PSIG, kPa or bar
- ⊡ Micro controller monitors all functions and controls changeover
- ⊡ Built to accommodate future cylinder expansion by adding header extensions
- ⊡ Special header configurations available upon request
- ⊡ Available for the following gases: Air, Argon, Carbon Dioxide, Helium, Nitrogen, Nitrous Oxide, and Oxygen



SPECIFICATIONS

- Maximum inlet pressure 3000 PSIG (2000 PSIG for CO_2 & N_2O)
- **Delivery Pressure:**
  950 . . . . . .40-100 PSIG
  950 HL . . . . . .40-100 PSIG
- **Maximum Flow Rate:**
  950 . . . . . .300 SCFH
  950 . . . . . .35 SCFH
  (CO_2 & N_2O)
  950 HL . . . . . .300 SCFH
  (CO_2 & N_2O with heater)
- Manifold outlet: 1/2" MNPT
- Relief valve outlet: 1/2" MNPT
- 24" or 36" flexible stainless steel pigtails with check valves
- 1/2" brass, silver brazed headers

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Manifold Depth: 10″
Cabinet Weight: 55 lbs

ORDERING INFORMATION

SG 950	xx(xx)	xx(xx)	xxx
SERIES	**RIGHT HEADER (# cylinders)**	**LEFT HEADER (# cylinders)**	**GAS SERVICE**
SG 950 (40-100 PSIG)	**24″ PIGTAILS**	**24″ PIGTAILS**	320-Carbon Dioxide
	1R	1L	326-Nitrous Oxide
SG 950 HL (40-100 PSIG) For CO_2 and N_2O 300 SCFH heater included	2R	2L	346-Air
	3R	3L	540-Oxygen
	4R	4L	580-Argon/Nitrogen
	36″ PIGTAILS	**36″ PIGTAILS**	580H-Helium
	1R36	1L36	590-Air (Industrial)
	2R36	2L36	
	3R36	3L36	
	4R36	4L36	

TRAPS

Moisture Removal Traps- Economy Indicating Refillable Moisture Traps







Indicating moisture traps are designed to remove water, oil, and organics from gases employed in, but not limited to, gas chromatography. Refillable moisture traps are constructed from Lexan brand polycarbonate tubing. Lightweight, chemically resistant and of superior strength when compared to traps manufactured from acrylic.

- Available in three refillable sizes and three different packings
- Both inlet and outlet connectors are equipped with stainless steel frits to prevent particulates from entering the gas stream
- Mixed packing bed makes improper installation impossible
- Easy refillable
- Tested to 150 psi (helium)

Molecular Sieve 13X and Indicating 4Å
The preferred adsorbent for GC gas drying. Blue indicating sieve turn buff at 20% relative humidity.

Refillable Moisture Trap

MT PART NO.	MTD PART NO.	MTS PART NO.	SIZE (cc)	FITTING (in.)	MT & MTD MOISTURE REMOVAL CAPACITY (g)	MTS MOISTURE REMOVAL CAPACITY (g)	MAXIMUM EFFLUENT H_2O CONCENTRATION (ppb)		
4302730	4302731	4302732	120	1/8	21.6	31.5	20	22	40
4302733	4302734	4302735	120	1/4	21.6	31.5	20	22	40
4302737	4302738	4302739	200	1/8	36.0	52.5	18	20	39
4302741	4302742	4302743	200	1/4	36.0	52.5	18	20	39
4302746	4302747	4302748	400	1/8	72.0	105.0	14	16	39
4302750	4302751	4302752	400	1/4	72.0	105.0	14	16	39
4302727	4302728	4302782	Adsorbent Refill (1 pint)						
4302726	4302726	4302726	Mounting Clip for 120 & 200cc Traps						
4302788	4302788	4302788	Universal Mounting Clip for 400cc Traps						
4302791	4302791	4302791	Trap Mounting Panel						



Molecular Sieve 5Å and Indicating Drierite
High moisture capacity and simultaneously removes hydrogen sulfide and oil. Indicating Drierite changes dramatically from bright blue to pink as the gas stream approaches 40% relative humidity.

Silica Gel, Grade 40, and indicating Silica Gel, Grade 42
Highest moisture capacity adsorbent. Adsorbs as 40% of its weight in water. High affinity for hydrocarbons. Blue indicating gel turns from a deep blue to a pale pink at 40% relative humidity.

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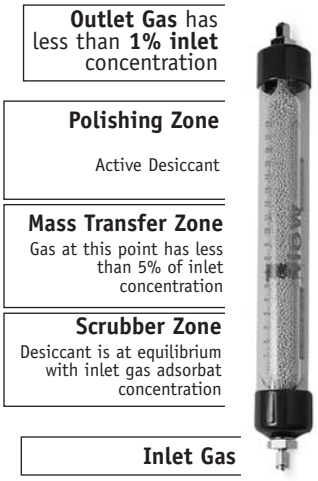
Glass Indicating Moisture Traps

Ideal for GC/MS Systems, Electron Capture Detectors, and Electrolytic Conductivity Detectors

- Molecular Sieve 13X and a band of indicating Molecular Sieve 4Å
- Available in 70 cc, 100 cc and 250 cc sizes
- Heavy wall borosilicate glass tube—no moisture diffusion

Capacity and Efficiency

The 100 cc unit will treat 10 standard "A" cylinders with up to 30 ppm water or 16.3 grams to less than 10 ppb. Molecular sieves differ from all other commercially available adsorbents, as they have an extremely high adsorption capacity for water and polar compounds even at relatively low concentrations. The color change takes place in the middle of the trap bed, giving ample warning. In addition to the inherent qualities of the sieve material, we treat the bed material under high vacuum and heat to insure maximum scrubbing efficiency and capacity.





Refillable Glass Moisture Trap

Glass Indicating Moisture Traps (GMT and LGMT Series)

PART NO.	DESCRIPTION	SIZE (cc)	FITTING (in.)	MOISTURE REMOVAL CAPACITY (g)	MAXIMUM EFFLUENT H_2O CONCENTRATION (ppb)
4302701	Glass Indicating Moisture Trap	70	1/8	11.4	7
4302703	Glass Indicating Moisture Trap	70	1/4	11.4	7
4302702	Glass Indicating Moisture Trap	100	1/8	16.3	6
4302704	Glass Indicating Moisture Trap	100	1/4	16.3	6
4302722	Glass Indicating Moisture Trap	250	1/8	40.09	6
4302723	Glass Indicating Moisture Trap	250	1/4	40.09	6
4302700	Molecular Sieve Refill	250			
4302787	Mounting Clip for 70 & 100 cc Traps				
4302788	Mounting Clip for 250 cc Trap				



Big Moisture Traps (BMT Series)

PART NO.	DESCRIPTION	SIZE (cc)	FITTING (in.)
4302691	Big Moisture Trap	750	1/8
4302692	Big Moisture Trap	750	1/4
4302690	Refill for Big Moisture Trap		
4302790	Big Mounting Clip, 2pk		

Big Moisture Traps

- Capacity: 130 grams H_20
- Pressure: Up to 250 PSIG
- Efficiency: reduction of H_20 to less than 5 ppb
- Ideal for bulk purification applications or where several instruments are plumbed from a single gas source
- One piece of heavy-walled aluminum tube. This one-piece design eliminates potential leaks.
- Equipped with sintered stainless steel frits to prevent particulate contamination
- Refillable

TRAPS

Oxygen Removal Traps
Indicating Oxygen Traps

This trap actually removes the oxygen rather than converting it to another form of contamination.

- Reduces oxygen to less than 1 ppb
- Environmentally safe
- Available in two sizes, standard and large



Indicating Oxygen Traps (IOT and LIOT Series)

PART NO.	DESCRIPTION	SIZE (cc)	FITTING (in.)
4302718	Indicating 0_2 Trap (IOT)	30	1/8
4302720	Indicating 0_2 Trap	30	1/4
4302724	Indicating 0_2 Trap	150	1/8
4302725	Indicating 0_2 Trap	150	1/4
4302786	Mounting Clip for IOT Trap		
4302787	Mounting Clip for LIOT Trap		



Economy Non-Indicating Oxygen Trap (OT1 Series)

PART NO.	DESCRIPTION	SIZE (cc)	FITTING (in.)
4302755	Oxygen Trap	70	1/8
4302756	Oxygen Trap	70	1/4
4302726	Mounting Clip for OT1 Trap		
4302726	Mounting Clip for OT1 Trap		
4302791	Trap Mounting Panel		

Big Oxygen Traps

- Capacity: 3 liters 0_2 or 3,200 mg
- Pressure: Up to 250 PSIG
- Efficiency: Reduction of 0_2 to less than 1 ppb
- 750 cubic centimeter gas purifiers
- Ideal for bulk purification applications or where several instruments are plumbed from a single gas source
- One piece of heavy-walled aluminum tube. This one-piece design eliminates potential leaks.
- Equipped with sintered stainless steel frits to prevent particulate contamination



Big Oxygen Traps (BOT Series)

PART NO.	DESCRIPTION	SIZE (cc)	FITTING (in.)
4302693	Big Oxygen Trap	750 cc	1/8
4302694	Big Oxygen Trap	750 cc	1/4
4302789	Big Mounting Clip, 2pk		

Combination Traps-
Oxygen/Moisture Traps

Oxygen/moisture adsorbents team up to give you two functionalities in the same trap. Unlike some oxygen/moisture traps, these traps are disposable.

- Optimized for maximum surface area and capacity
- Leak-free, one-piece design—(tested to 2000 psi)
- Bed material treated with ultra-high purity helium
- Filter design: prevents channeling, promotes efficient scrubbing



Oxygen/Moisture Traps (OT3 Series)

PART NO.	DESCRIPTION	SIZE (cc)	FITTING (in.)
4302758	Agilent OT3 Trap	100 cc	1/8
4302760	Agilent OT3 Trap	100 cc	1/4
4302726	Mounting Clip		

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TRAPS

Big Hydrocarbon Trap

- Capacity: 80 grams of medium to heavy molecular weight hydrocarbons
- Pressure: Up to 250 PSIG
- Efficiency: Reduction of c4 hydrocarbons to less than 15 ppb
- 750 cubic centimeter gas purifiers
- Ideal for bulk purification applications or where several instruments are plumbed from a single gas source
- One piece of heavy-walled aluminum tube. This one-piece design eliminates potential leaks.
- Refillable



Big Hydrocarbon Traps

PART NO.	DESCRIPTION	SIZE (cc)	FITTING (in.)
4302688	Big Hydrocarbon Trap	750 cc	1/8
4302689	Big Hydrocarbon Trap	750 cc	1/4
4302687	Refill for Big Hydrocarbon Trap (enough for 2 refills)		
4302789	Big Mounting Clip, 2pk		

Hydrocarbon Removal Traps

Our Hydrocarbon Traps offer you flexibility: refill your trap and remove extremely low levels of hydrocarbons.

- Remove organics from carrier gases, air and hydrogen
- High capacity—200 cc of filtering media
- Impregnated carbon filter media
- Refillable



Hydrocarbon Traps (HT Series)

PART NO.	DESCRIPTION	SIZE (cc)	FITTING (in.)
4702715	Refillable Hydrocarbon Trap	100 cc	1/8
4302713	Refillable Hydrocarbon Trap	100 cc	1/4
4302726	Mounting Clip for HT200 Series		
4302686	Adsorbent Refill (1 pint) 2 Recharges for Hydrocarbon Trap		

Capillary Grade Hydrocarbon Traps

- Extremely high surface area, coconut shell-based, activated carbon
- 100 cc of filtering media
- Refillable

Capillary Grade Hydrocarbon Traps

PART NO.	DESCRIPTION	SIZE (cc)	FITTING (in.)
4302711	Capillary Grade Hydrocarbon Trap	100 cc	1/8
4302716	Capillary Grade Hydrocarbon Trap	100 cc	1/4
4302726	Mounting Clip		
4302686	Adsorbent Refill (1 pint) 3 Recharges for Capillary Grade Hydrocarbon Trap		

Hydrocarbon/Moisture Traps (HMT Series)

Our hydrocarbon/moisture traps offer you flexibility; refill your trap and remove extremely low levels of both moisture and hydrocarbons.

- Replace most mixed bed traps supplied by GC manufacturers
- Refillable



Hydrocarbon/Moisture Traps (HMT Series)

PART NO.	DESCRIPTION	SIZE (cc)	FITTING (in.)
4302708	Refillable Hydro-Moisture Trap	200 cc	1/8
4302709	Refillable Hydro-Moisture Trap	200 cc	1/4
4302726	Mounting Clip		
4302707	Adsorbent Refill (1 pint) 2 Recharges for Hydrocarbon Moisture Trap		

TRAPS



Big Universal Traps—Superior Gas Purifiers

Big Universal Traps utilize a layered, multi-adsorbent bed packing of the most effective, highest capacity adsorbent materials available today for the removal of oxygen, moisture, hydrocarbons, carbon dioxide and carbon monoxide from helium gas streams. The volume of the various adsorbent materials in the Big Universal Trap was developed through rigorous testing and evaluation in order to assure that breakthrough of the five major contaminant groups occurs as simultaneously as possible as each material achieves complete saturation.

Big Universal Traps (RMS Series)

PART NO.	GAS TYPE	FITTING
4302775	Hydrogen	1/8"
4302776	Hydrogen	1/4"
4302773	Helium (Ar/Me)+	1/8"
4302774	Helium (Ar/Me)+	1/4"
4302777	Nitrogen	1/8"
4302778	Nitrogen	1/4"
4302790	Big Mounting Clip, 2/pk	

Universal/External Split Vent Trap

Split vent trap stops environmental pollution. The vent was designed to protect the lab environment from the contaminants released by split injection systems. A replaceable, impregnated carbon filter media traps and eliminates a broad range of contaminants. The traps come with three packs of replacement cartridges each.



PART NO.	DESCRIPTION
4302771	Universal/External Split Vent Trap W/ 3 Cartridges (1/8 in. swagelok fitting)
4302772	Replacement Cartridges (3/pk)

QC + Point of Operation Panel

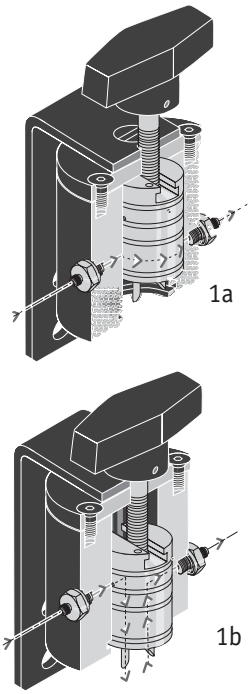
The QC+ Point of Operation Panel contains purifier cartridges that can be quickly changed. The cartridges are removed from the panel without interruption of gas flow to the system, drastically minimizing costly instrument downtime.

Filter cartridges are of all metal or glass construction, eliminating infusion and resultant signal noise associated with filters constructed from plastics. Cartridges are quickly installed via a simple knurled retaining nut. No wrenches are needed! As many as four cartridges can be replaced in a matter of seconds, and because there is low dead volume, a minimal amount of gas system purge is required after installation.

Each QC+ filter head is equipped with an internal flow valve. This valve serves two functions. In the "down" position, gas is passed through adsorbent filter cartridges for purification. In the "up" position, the gas is diverted through the filter head. With the valve up, the filter can then be easily replaced with a fresh cartridge. But, because the gas continues to flow through the bypass valve, the need to shut down instruments is eliminated while the filter cartridges are removed. QC+ is the only GC purification system with this revolutionary "flow through/bypass" feature.

The QC+ system has a unique D-shaped cartridge top that is self-aligning into the matching slotted filter head, assuring trouble-free installations. As many as four cartridges can be replaced in a matter of seconds without exposing downstream plumbing to atmospheric contaminants.

QC+ systems are available in single-head kits or 2-,3- and 4-head panel configurations, available exclusively with 1/8 in. Swagelok fittings. QC+ panels can be wall mounted or used "freestanding." Oxygen, water, hydrocarbons and other organics are reduced to low part per billion levels.



Figures 1a and 1b. The "plus" valve (a) features a closed gas path when changing cartridges. When placed in the down position (b), the "plus" valve shifts gas through the cartridge.

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TRAPS

Replacement Cartridges-

High Capacity Oxygen

The GC-1 oxygen cartridge is an all metal assembly that contains a highly active metal catalyst, supported on an alumina silicate substrate. Oxygen removal efficiency to less than 15 ppb.
P/N: 4302695; Capacity: 396 mg

High Capacity Moisture

The GC-2 moisture cartridge is an all metal assembly that contains 13X molecular sieve, 16-20 mesh sphere size. Water removal efficiency to less than 9 ppb.
P/N: 4302696; Capacity: 15 g

Indicating Moisture

The GC-2-1 indicating moisture cartridge is a glass assembly that contains a combination of 5A molecular sieve and indicating Drierite. This cartridge provides a visual indicator of adsorbent saturation. Water removal efficiency to less than 9ppb.
P/N: 4302697; Capacity: 7 g

Hydrocarbon

The GC-3 hydrocarbon cartridge is an all metal assembly that contains a high surface area and coconut shell-based, activated carbon medium. Efficiencies to low ppb levels for C_2 and heavier compounds. Hydrocarbon removal efficiency to less than 30 ppb.
P/N: 4302698; Capacity: 8 g

Indicating Oxygen

The GC-4 indicating oxygen cartridge is constructed from glass. It contains a manganese oxide adsorbent that experiences a dramatic and progressive color change during adsorption. Oxygen removal efficiency to less than 2 ppb.
P/N: 4302699; Capacity: 40 mg

Replacement Cartridges

PART NO.	DESCRIPTION
4302695	High Capacity Oxygen
4302696	High Capacity Moisture
4302697	Indicating Moisture
4302698	Hydrocarbon
4302699	Indicating Oxygen
4302765	Replacement O-Ring Set



4302770



4302780



4302779

Quick Change Plus (QC+) - Point of Operation Panels

PART NO.	DESCRIPTION	FITTING (in.)
1-head		
4302766	High Capacity Oxygen	1/8
4302764	Indicating Oxygen	1/8
2-head		
4302770	High Capacity Oxygen, Ind. Oxygen	1/8
4302767	Moisture, Hydrocarbon	1/8
4302768	Indicating Moisture & Hydrocarbon	1/8
4302769	Moisture & Indicating Moisture	1/8
3-head		
4302781	Oxygen, Moisture, Hydrocarbon	1/8
4302780	Moisture, Oxygen, Ind. Oxygen	1/8
4-head		
4302779	0_2, Indicating 0_2, HC, H_20	1/8

MATERIALS COMPATIBILITY

GAS	Aluminum	Brass	Copper	Monel	Stainless Steel	Carbon Steel	Butyl	Neoprene	Kel-F	Viton	Polyethelene	PVC	Teflon
Acetylene	□	●	●	□	□	□	□	□	□	□	□	●	□
Air	□	□	□	□	□	□	□	□	□	□	□	□	□
Ammonia	□	●	●	▲	□	●	□	□	□	●	●	□	□
Argon	□	□	□	□	□	□	□	□	□	□	□	□	□
Arsine	●	□	●	□	□	□	●	□	□	□	□	□	□
Butane	□	□	□	□	□	□	●	□	□	□	●	□	□
Carbon Dioxide	□	□	□	□	□	□	□	□	□	□	□	□	□
Carbon Monoxide	□	□	□	□	□	□	●	●	□	□	□	□	□
Chlorine	●	●	●	□	▲	□	●	●	□	□	□		□
Cyclopropane	□	□	□	□	□	□	●	□	□	□	□	□	□
Diborane	□	□	□	□	□	□	●	●	□	□	●	●	□
Ethane	□	□	□	□	□	□	●	□	□	□	□	□	□
Ethylene	□	□	□	□	□	□	●	□	□	□	□	●	□
Ethylene Oxide	●	●	●	□	□	□	●	●	□	●	●	●	□
Helium	□	□	□	□	□	□	□	□	□	□	□	□	□
Hydrogen	□	□	□	□	□	□	□	□	□	□	□	□	□
Hydrogen Chloride	●	●	●	□	▲	□	●	□	□	□	□	□	□
Hydrogen Sulfide	▲	●	●	▲	□	●	●	●	□	□	□	□	□
Isobutane	□	□	□	□	□	□	●	□	□	□	□	□	□
Krypton	□	□	□	□	□	□	□	□	□	□	□	□	□
Methane	□	□	□	□	□	□	●	□	□	□	□	□	□
Methyl Chloride	●	●	▲	□	□	□	□	□	□	□	□	●	□
Neon	□	□	□	□	□	□	□	□	□	□	□	□	□
Nitric Oxide	□	●	●	●	□	▲	●	●	□	□	□	□	□
Nitrogen	□	□	□	□	□	□	□	□	□	□	□	□	□
Nitrous Oxide	□	□	□	□	□	□	□	□	□	□	□	□	□
Oxygen	□	□	□	□	□	□	●	●	□	□	●	●	□
Phosphine	□	●	●	□	□	□	●	●	□	□	□	□	□
Propane	□	□	□	□	□	□	●	□	□	□	□	□	□
Silane	□	□	□	□	□	□	□	□	□	□	□	□	□
Sulfur Dioxide	□	□	▲	□	□	□	□	●	□	●	□	□	□
Sulfur Hexafluoride	□	□	□	□	□	□	□	□	□	□	□	□	□
Xenon	□	□	□	□	□	□	□	□	□	□	□	□	□

HARRIS SPECIALTY GAS Equipment

□ Recommended
● Not Recommended
▲ Not Recommended in presence of moisture

Users should thoroughly familiarize themselves with the specific properties of this gas.

For compatibility information on gases not listed, contact Harris Calorific.

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CONVERSION FACTORS

Pressure

TO OBTAIN

	atm	bar	ft of H_2O	in of hg	in of H_2O	kg/cm^2	kPa	mm of Hg	PSI
MULTIPLY				**BY**					
atm	....	1.01325	33.932	29.921	407.1827	1.0332	101.3171	760	14.696
bar	0.98692	....	33.4883	29.530	401.8596	1.019716	100	750.062	14.50368
Ft. of H_2O	0.02947	0.029891	....	0.882646	12	0.03048	2.9890	22.4198	0.433107
in of Hg	0.03342	0.033864	1.1340	....	13.6	0.034532	3.376895	25.4	0.49115
in of H_2O	0.00246	0.002499	0.083333	0.073556	....	0.00254	0.0249089	1.86832	0.03609
kg/cm^2	0.9678	0.980665	32.8084	28.95903	393.7008	....	98.03922	735.5592	14.22334
kPa	0.00987	0.010	0.33456	0.29613	4.01472	0.01020	....	7.5006	0.14504
mm of Hg	0.00132	0.001333	0.044603	0.03937	0.535240	0.001360	0.133322	....	0.019337
PSI	0.06805	0.068948	2.3089	2.0360	27.70851	0.070307	6.89465	51.175	....

Flow

TO OBTAIN

	cm^3/min	cm^3/sec	ft^3/hr	ft^3/min	m^3/hr	m^3/min	L/hr	Lpm
MULTIPLY				**BY**				
cm^3/min	....	0.0166667	0.0021189	0.0000353	0.00006	0.000001	0.06	0.001
cm^3/sec	60	....	0.1271340	0.0021189	0.0036	0.00006	3.6	0.06
ft^3/hr	471.9474	7.865790	....	0.0166667	0.0283168	0.0004719	28.31685	0.4719474
ft^3/min	28,316.85	471.9474	60	....	1.699008	0.0283168	1699.008	28.31686
m^3/hr	16,666.67	277.7778	35.31467	0.5885777	....	0.0166667	1000	16.66667
m^3/min	1,000,000	16,666.67	2118.876	35.31467	60	....	60,000	1000
L/hr	16.66667	0.2777778	0.0353147	0.0005885	0.001	0.0000167	....	0.0166667
Lpm	1000	16.66667	2.118876	0.0353147	0.06	0.001	60	....

Density

TO OBTAIN

	gms/cm^3	kg/m^3	lbs/ft^3	lbs/in^3	lbs/U.S. gal
MULTIPLY			**BY**		
gms/cm^3	....	1000	62.428	0.0361273	8.3454
kg/m^3	0.001	....	0.062428	3.61273×10^{-5}	0.0083454
lbs/ft^3	0.0160185	16.018463	....	5.78704×10^{-4}	0.13368
lbs/in^3	27.679905	27.679.9	1728	....	231
lbs/U.S. gal	0.1198264	119.8264	7.4805195	0.004329	....

2003 SPECIALTY GAS EQUIPMENT CATALOG



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Part No: 9505629