HARRIS® SPECIALTY GAS Equipment

HPI 904
Reliable and Affordable Line

Choose Harris® Specialty Gas Equipment!

THE HARRIS PRODUCTS GROUP

A LINCOLN ELECTRIC COMPANY

The Harris Products Group was formed by combining two strong names in the welding business - Harris Calorific and J.W. Harris. The Harris Products Group is a world leader in metalworking products used in the brazing, soldering, welding, cutting and gas distribution industries. The combined company offers excellence in the manufacture of:

- Gas welding and cutting equipment
- Industrial and specialty gas regulation equipment
- Brazing and soldering alloys
- Welding alloys
- Pre-formed bends, rings and return bends

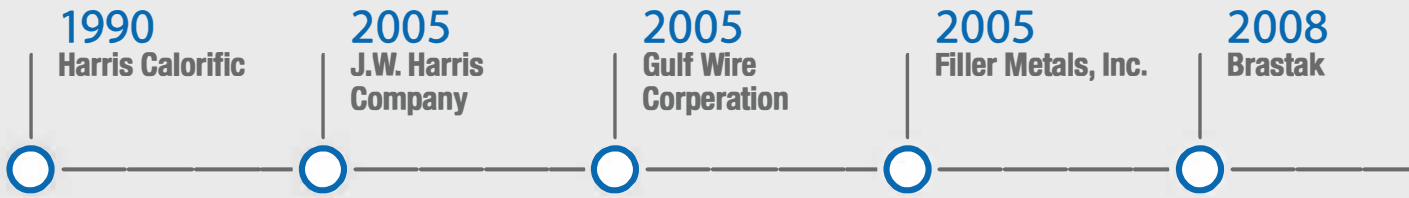
THE WELDING EXPERTS®

The Harris Products Group is a wholly-owned subsidiary of The Lincoln Electric Company. Lincoln has more than 63 manufacturing locations, including operations and joint ventures in 23 countries and a worldwide network of distributors and sales offices covering more than 160 countries.

SPECIALTY GAS EQUIPMENT

Harris Specialty Gas Equipment Division was founded to provide complete solutions to customer's special gas handling requirements. The breadth of the product line is used in analytical labs, chemical processing, research and development, as well as biotech and pharmaceuticals. Our products bring it all together – proven safety features, quality manufacturing processes, consistency in performance and the best overall value.

THE MERGER RESULTED FROM A SERIES OF



MANUFACTURING FACILITIES

Based in Mason, Ohio, The Harris Products Group has four manufacturing locations in three countries and a worldwide network of distributors and sales offices covering more than 90 countries. All Harris® manufacturing facilities are certified to ISO 9001 and ISO 14000 standards.

ACQUISITIONS BY THE LINCOLN ELECTRIC COMPANY

2019
Worthington Industries
(Solder Products)

2021
Portugal Brazing Facility

2021
Overstreet-Hughes Company, Inc.
(Fabricated Tube Products)

2021
Shoals Tubular, Inc.

Laboratories

Chemical Industry

Food Processing

Electronics

Specialty Gases

High Pressure

Laser Cutting

Chromatography

High Purity Production

Table of contents

HPI 904
High purity single-stage barstock regulator

3 YEAR WARRANTY FOR REGULATORS WITH NON-CORROSIVE GASES

* 90 days warranty for regulators used with corrosive gases.

Model HPI 904 is a single-stage cylinder regulator available in nickel-plated brass barstock (HPI 904) or stainless steel barstock (HPI 904S). Designed for applications where a slight rise in delivery pressure from full to empty cylinder can be tolerated.

APPLICATIONS:

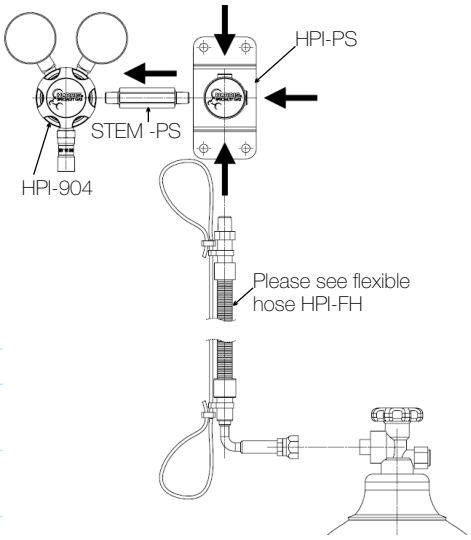
- High purity gas applications for non-corrosive gases (HPI 904) or for corrosive gases (HPI 904S)*
- Gas chromatography
- Calibration gas, purging, blanketing
- Process analyzer gases
- Emission monitoring systems

FEATURES:

- Recommended gases purity levels up to grade 5.0 (99.999) or 6.0 under request*
- 302 AISI 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
- Low wetted surface area
- Capsule seat with KELF-F (CTFE) sealing surface
- HPI 904 - Nickel-plated brass body for non-corrosive gases
- HPI 904S - Stainless steel barstock body for corrosive gases*
- $1x10^{-8}$ mbar l/s He inboard Helium leak rate to maintain gas purity levels $1x10^{-9}$ mbar l/s under request
- 5 ports flexible configuration, 2 for high pressure and 3 for low pressure
- Bonnet venting holes for safety
- Maximum inlet pressure: 300 bar (4350 psig), except for Acetylene: max. 25 bar (362 psig)
- External safety relief valve (default for Acetylene, optional for other gases)
- Cleaned for oxygen service

RELATED OPTIONS:

Protocol Station HPI-PS Configuration



TECHNICAL DATA:

Type	Single-stage
Purity	Up to 5.0 standard or 6.0 under request*
Inlet pressure	Max. 300 bar (4350 psig) For Acetylene: max. 25 bar (362 psig)
Outlet pressure	1,5/2/4/10/20 bar (21/29/58/145/290 psig) For Acetylene: 1.5 bar (21 psig)
Flow capacity	Kv = 0,1470 (Cv = 0,17)
Gauges	49 mm dual scale (bar/psig)
Oxygen use	Suitable

MATERIALS:

Body	Nickel-plated brass barstock (HPI 904) / Stainless steel barstock (HPI 904S)
Bonnet	Nickel-plated ZnAl
Diaphragm	302 AISI stainless steel
Nozzle	Brass (HPI 904) / Stainless steel (HPI 904S)
Seat	PCTFE and PTFE for Acetylene
Seals	EPDM (HPI 904) / Viton (HPI 904S)
Filter	Sintered Bronze (HPI 904) / Stainless steel (HPI 904S) - 10 micron
Adjusting Knob	ABS plastic

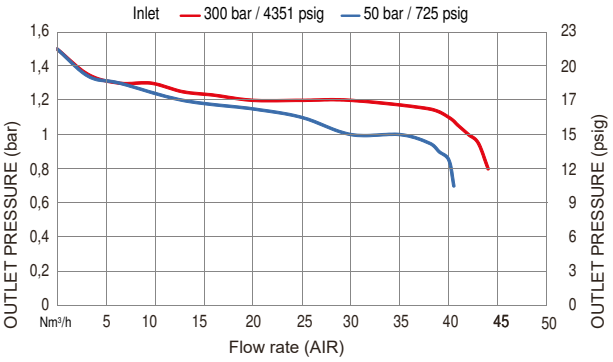
*after prior confirmation of the material's compatibility

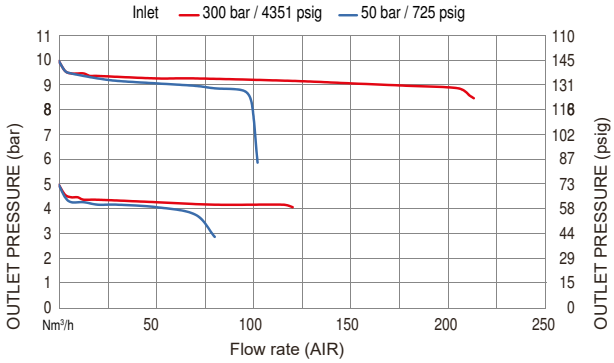
SPECIFICATIONS:

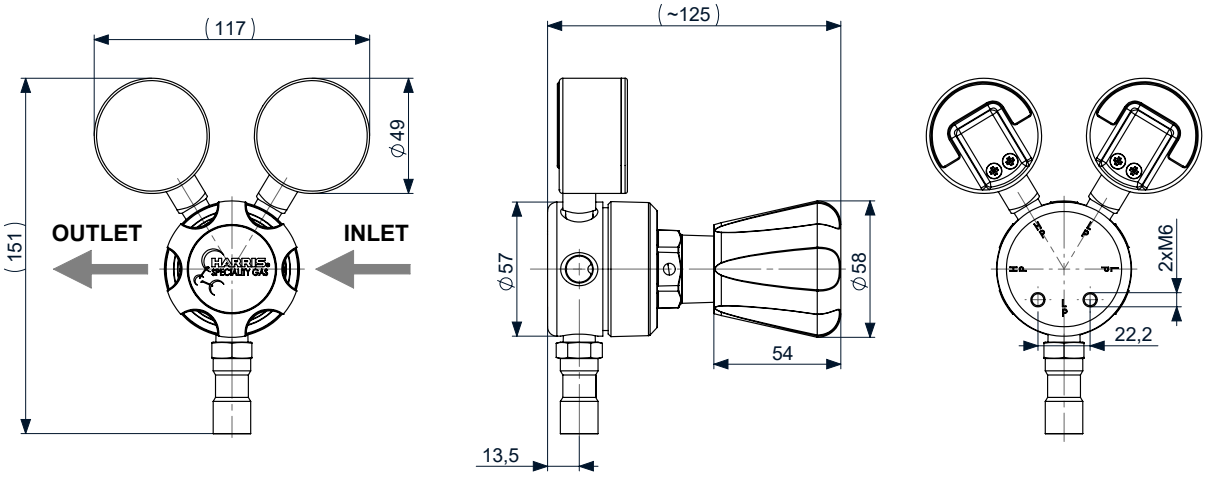
Inlet / outlet ports	1/4" FNPT
Weight	1,3 kg

FLOW CHART:

HPI 904/HPI 904S







ORDERING INFORMATION:

MODEL	MATERIAL	INLET CONFIGURATION		OUTLET PRESSURE		INLET CONNECTION*		OUTLET CONFIGURATION		OPTIONS		GAS TYPE
HPI 904	Nickel-plated brass body	Right	R	0 - 1.5 bar 0 - 21 psig	021	1/4" FNPT	000	1/4" FNPT	A	He leak certified (inboard)	2	Please specify
HPI 904S	Stainless steel body	Left	L	0 - 2 bar 0 - 29 psig	029	DIN 477	D...	1/4" FNPT diaph. valve	B	No gauges	3	
				0 - 4 bar 0 - 58 psig	058	CGA	C...	1/4" MNPT nipple	C	With relief valve	4	
				0 - 10 bar 0 - 145 psig	145	AFNOR	NF...	1/4" tube fitting	D	60 bar inlet gauge	6	
				0 - 20 bar 0 - 290 psig	290	BS341	BS...	1/8" tube fitting	E	Wall bracket	P	
						NBN		6 mm tube fitting	F	High Pressure Contact Gauge	HPCG	
						NEN 3268	N...	8 mm tube fitting	G	Low Pressure Contact Gauge	LPCG	
						ISO 5145	I...	10 mm tube fitting	H	Corrosive	7	
								G 3/8" RH	I			
								G 3/8" LH	J			
								G 1/4" RH	K			

Other options upon request, please contact us

For example:

HPI 904	R	145	D 6		BF	2	Ar

HPI 924
High purity two-stage barstock regulator

3 YEAR WARRANTY FOR REGULATORS WITH NON-CORROSIVE GASES

* 90 days warranty for regulators used with corrosive gases.

Model HPI 924 is a two-stage cylinder regulator available in nickel-plated brass barstock. Designed for constant delivery pressure from full to near empty cylinder conditions.

APPLICATIONS:

- High purity gas applications for non corrosive gases
- Research sample system gases
- Gas chromatography
- Calibration gas
- Process analyzer gases
- Emission monitoring systems
- Laser applications

FEATURES:

- Recommended gases purity levels up to grade 5.0 (99.999) or 6.0 under request*
- 302 AISI stainless steel diaphragm eliminates contamination from diffusion or outgassing
- Two capsule valves (first and second stage)
- Nickel-plated body, bonnet and fittings for non-corrosive gases
- $1x10^{-8}$ mbar l/s He inboard helium leak rate to maintain gas purity levels $1x10^{-9}$ mbar l/s under request
- Bonnet venting holes for safety
- Maximum inlet pressure: 300 bar (4350 psig), except for Acetylene AA: max. 25 bar (362 psig)
- Cleaned for oxygen service

TECHNICAL DATA:

Type	Two-stage
Purity	Up to 5.0 standard, 6.0 under request*
Inlet pressure	Max. 300 bar (4350 psig) For Acetylene: 25 bar (362 psig)
Outlet pressure	1,5/2/4/10/20 bar (21/29/58/145/290 psig)
Flow capacity	Kv = 0,1470 (Cv = 0,17)
Gauge	49 mm dual scale (bar/psig)
Oxygen use	Suitable

MATERIALS:

Body	Nickel-plated brass barstock
Bonnet	Nickel-plated ZnAl
Diaphragm	302 AISI stainless steel
Capsule	302 AISI stainless steel. PCTFE
Seat	PTFE
Seals	Copper (1st stage), EPDM (2nd stage)
Filter	Bronze nickel-plated 25 micron
Adjusting Knob	ABS plastic

SPECIFICATIONS:

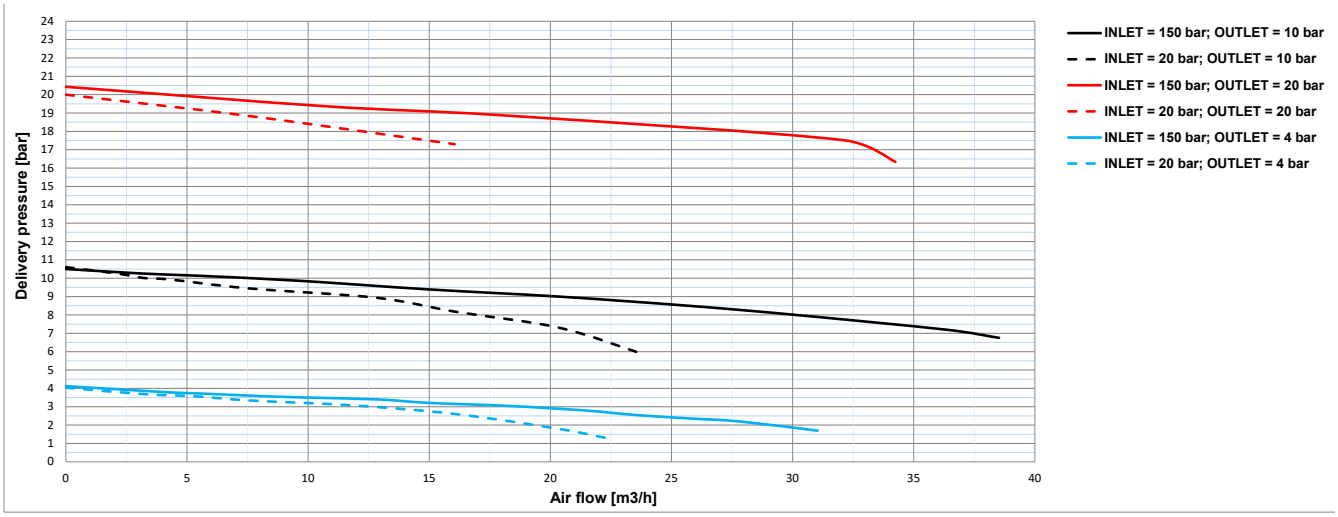
Inlet / outlet ports	1/4" FNPT
Weight	2,1 kg

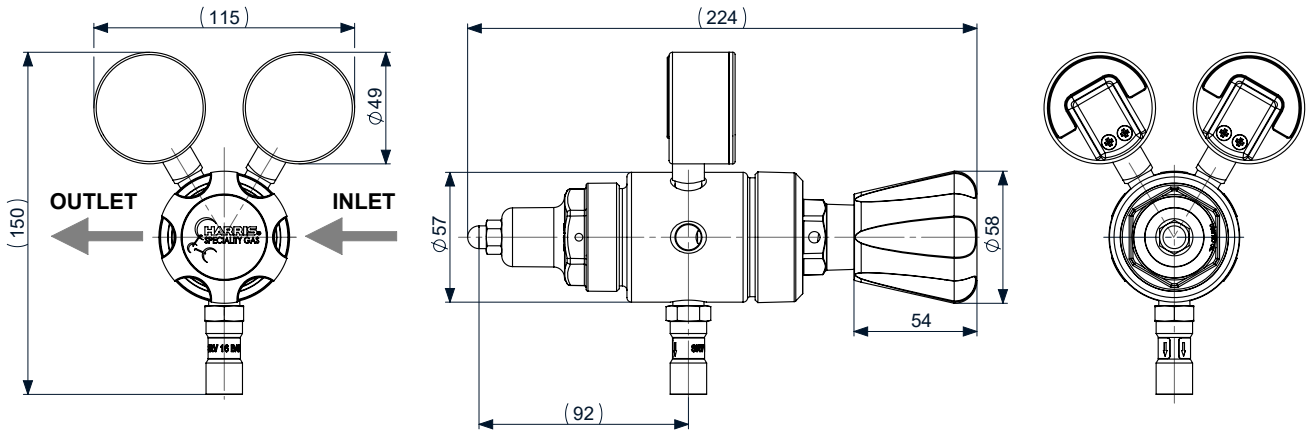
*after prior confirmation of the material's compatibility

HARRIS SPECIALTY GAS Equipment

FLOW CHART:

HPI 924





ORDERING INFORMATION:

MODEL	MATERIAL	INLET CONFIGURATION		OUTLET PRESSURE		INLET CONNECTION*		OUTLET CONFIGURATION		OPTIONS		GAS TYPE
HPI 924	Nickel-plated brass body	Right (only)	R	0 - 0,75 bar 0 - 10 psi	010	1/4" FNPT	000	1/4" FNPT	A	He leak certified	2	Please specify
				0 - 1,5 bar 0 - 21 psig	021	DIN 477	D...	1/4" FNPT diaph. valve	B	No gauges	3	
				0 - 2 bar 0 - 29 psig	029	CGA	C...	1/4" MNPT nipple	C	With relief valve (at low pressure)	4	
				0 - 4 bar 0 - 58 psig	058	AFNOR	NF...	1/4" tube fitting	D	60 bar inlet gauge	6	
				0 - 10 bar 0 - 145 psig	145	BS341	BS...	1/8" tube fitting	E	High Pressure Contact Gauge	HPCG	
				0 - 20 bar 0 - 290 psig	290	UNI	U...	6 mm tube fitting	F	Low Pressure Contact Gauge	LPCG	
						NEN 3268	N...	8 mm tube fitting	G			
						ISO 5145	I...	10 mm tube fitting	H			
								G 3/8" RH	I			
								G 3/8" LH	J			
								G 1/4" RH	K			

Other options upon request, please contact us

For example:

HPI 924	R	058	000	BE	2	Ar

HPI 904L
High purity single-stage line regulator

3 YEAR WARRANTY FOR REGULATORS WITH NON-CORROSIVE GASES

* 90 days warranty for regulators used with corrosive gases.

Model HPI 904L is a line regulator available in nickel-plated brass (HPI 904L) or stainless steel barstock (HPI 904SL), for pipeline and other applications up to 40 bar (580 psig) inlet pressure.

APPLICATIONS:

- High purity gas applications - non-corrosive gases (HPI 904) or for corrosive gases (HPI 904SL)*
- Gas chromatography
- Calibration gas, purging, blanketing
- Process analyzer gases
- Emission monitoring systems

FEATURES:

- Recommended gases purity levels up to grade 5.0 (99.999) or 6.0 under request*
- 302 AISI stainless steel diaphragm eliminates contamination from diffusion or outgassing
- HPI 904L - Brass nickel-plated body for non-corrosive gases
- HPI 904SL - Stainless steel body for corrosive gases*
- $1x10^{-8}$ mbar l/s He inboard helium leak rate to maintain gas purity levels $1x10^{-9}$ mbar l/s under request
- 4 ports flexible configuration
- Bonnet venting holes for safety
- Maximum inlet pressure 40 bar (580 psig), except for Acetylene: 25 bar (362 psig)
- Standard internal relief valve (IRV) for acetylene version
- Cleaned for oxygen service

TECHNICAL DATA:

Type	Single-stage
Purity	Up to 5.0 standard / 6.0 under request*
Inlet pressure	Max. 300 bar (4350 psig) For Acetylene AA: max. 25 bar (362 psig)
Outlet pressure	1,5/2/4/10/20 bar (21/29/58/145/290 psig) For Acetylene AA: 1,5 bar (21 psig)
Flow capacity	Kv = 0,1470 (Cv = 0,17)
Gauge	49 mm dual scale (bar/psig)
Oxygen use	Suitable

RELATED OPTIONS:

Wall mounting bracket

MATERIALS:

Body	Nickel-plated barstock (HPI 904L) / stainless steel AISI 316L barstock (HPI 904SL)
Bonnet	Nickel-plated ZnAl
Diaphragm	302 AISI stainless steel
Nozzle	Brass (HPI 904L) / Stainless steel (HPI 904SL)
Seat	PTFE / PCTFE
Seals	EPDM (HPI 904L / Viton (HPI 904SL)
Filter	Sintered bronze (HPI 904L) / stainless steel (HPI 904SL) - 10 micron
Adjusting Knob	ABS plastic

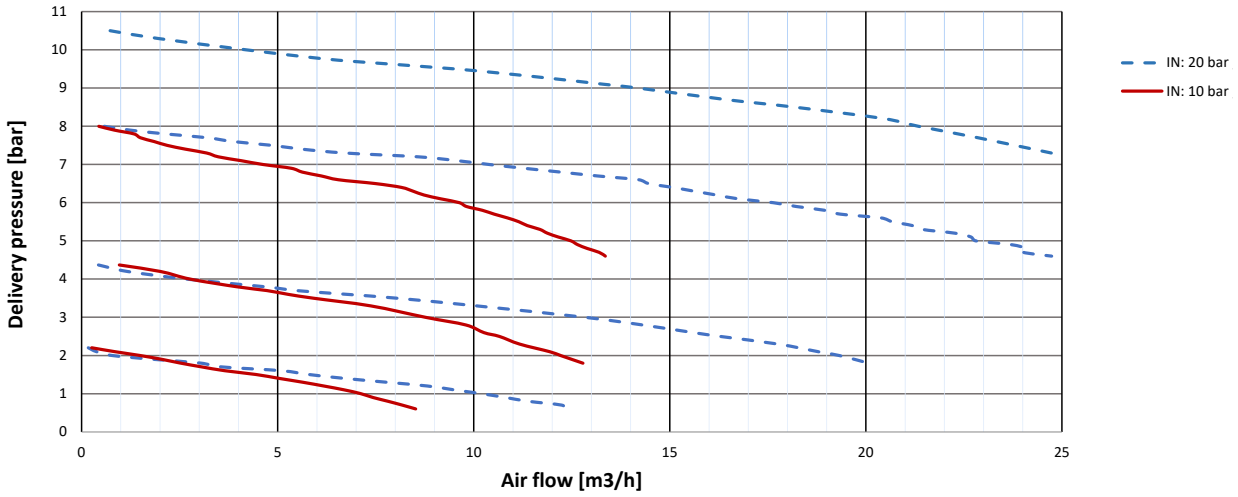
*after prior confirmation of the material's compatibility

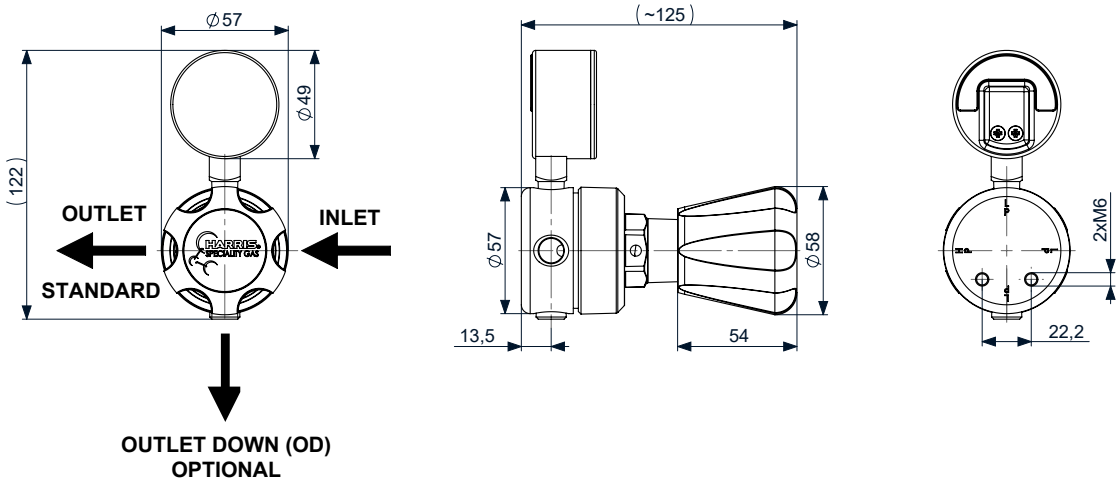
HARRIS SPECIALTY GAS Equipment

SPECIFICATIONS:

Inlet / outlet ports	1/4" FNPT
Weight	1,04 kg

FLOW CHART: HPI 904L / HPI 904SL





ORDERING INFORMATION:

MODEL	MATERIAL	INLET CONFIGURATION		OUTLET PRESSURE		INLET CONNECTION		OUTLET CONFIGURATION		OPTIONS		GAS TYPE
HPI 904L	Nickel-plated brass body	Right	R	0 - 0,75 bar 0 - 10 psi	010	1/4" FNPT	000	1/4" FNPT	A	He leak certified	2	Please specify
HPI 904SL	Stainless steel body	Left	L	0 - 1.5 bar 0 - 21 psig	021	1/4" MNPT	001	1/4" FNPT diaph. valve	B	No gauges	3	
				0 - 2 bar 0 - 29 psig	029	1/4" tube fitting	002	1/4" MNPT nipple	C	With relief valve	4	
				0 - 4 bar 0 - 58 psig	058	6 mm tube fitting	003	1/4" tube fitting	D	He leak cert. (outboard)	5	
				0 - 10 bar 0 - 145 psig	145	8 mm tube fitting	004	1/8" tube fitting	E	Wall mounting bracket	P	
				0 - 20 bar 0 - 290 psig	290			6 mm tube fitting	F	Corrosive	7	
								8 mm tube fitting	G	Outlet downside	OD	
								10 mm tube fitting	H			

Other options upon request, please contact us

For example:

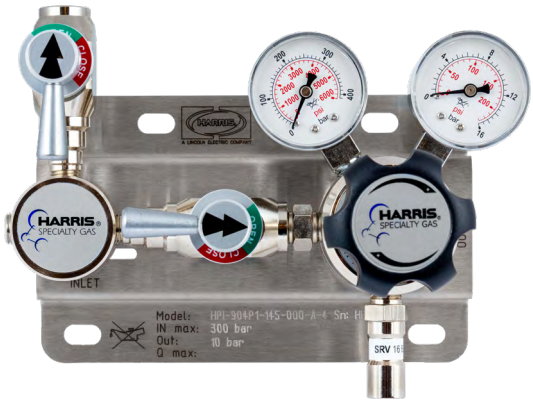
HPI 904L	R	058	001	BE	2	Ar

HPI 904P1
High purity one-sided supply panel

3 YEAR WARRANTY FOR REGULATORS WITH NON-CORROSIVE GASES

* 90 days warranty for regulators used with corrosive gases.

The HPI 904P1 and HPI 904SP1 are one side high purity gas supply panels. Manual adjustment of the regulator allow the user to set downstream pressure.
The system includes purge function. Designed for applications where a slight rise in delivery pressure from full to empty cylinder can be tolerated or as first stage of pressure reduction.



APPLICATIONS:

- Laboratory pressure control - for non-corrosive gases (HPI 904P1) or for corrosive gases (HPI 904SP1)*
- Component testing
- Petrochemical industry
- Emission monitoring systems
- Controlled atmosphere
- Service & test equipment

FEATURES:

- Recommended gases purity levels up to grade 5.0 (99.999) or 6.0 under request*
- Wall mounting panel and brackets included
- Ready to install wall mounting panel
- 302 AISI stainless steel diaphragm eliminates contamination from diffusion or outgassing
- 1/4 purge function and diaphragm shut-off valves with internal filters, for the best results
- Possible to connect 2 gas cylinders or gas cylinder and a gas for purging operation
- HPI 904P1 - brass nickel-plated barstock for non-corrosive gases
- HPI 904SP1 - 316L AISI stainless steel barstock body and fittings for corrosive gases*
- $1x10^{-8}$ mbar l/s He inboard helium leak rate to maintain gas purity levels / $1x10^{-9}$ mbar l/s under request
- Inlet / outlet - 1/4" FNPT
- Maximum inlet pressure 300 bar (4350 psig), except for Acetylene: max. 25 bar (362 psig)
- External relief valve standard
- Cleaned for oxygen service

TECHNICAL DATA:

Panel type	One-sided
Regulator type	Single-stage
Purity	Up to 5.0 standard, 6.0 under request*
Inlet pressure	Max. 300 bar (4350 psig) For Acetylene: max. 25 bar (362 psig)
Outlet pressure	1,5/2/4/10/20 bar (21/29/58/145/290 psig) For Acetylene: 1,5 bar (21 psig)
Flow capacity	Kv = 0,1470 (Cv = 0,17)
Purge function	Yes
Gauges	49 mm dual scale (bar/psig)
Oxygen use	Suitable

RELATED OPTIONS:

- Non return valves (NRV)
- **Contact gauges**
- **Alarm panels**
- **Flexible high pressure hoses**
- **Extensions**

MATERIALS:

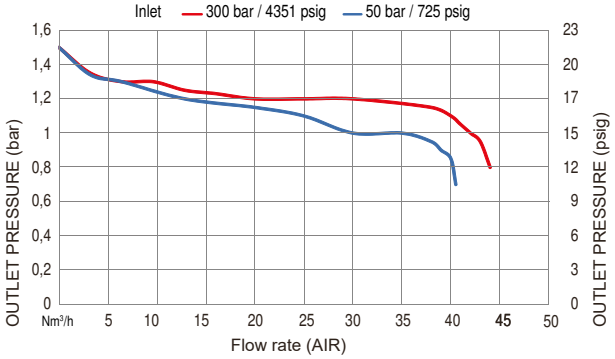
Body	Brass nickel-plated barstock (HPI 904P1) or 316L stainless steel barstock (HPI 904SP1)
Bonnet	Nickel-plated ZnAl
Diaphragms (regulator)	302 AISI stainless steel
Diaphragms (valves)	316L AISI stainless steel
Nozzle	Brass / 316L AISI stainless steel
Brackets	Stainless steel
Seat	PTFE (Teflon), PCTFE (KEL-F)
Seals	EPDM (HPI 904P1) / Viton (HPI 904SP1)
Filter	Sintered brass / 316L AISI stainless steel - 10 micron
Adjusting Knob	ABS plastic

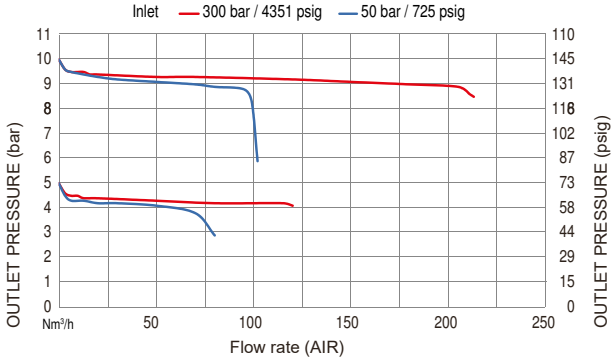
*after prior confirmation of the material's compatibility

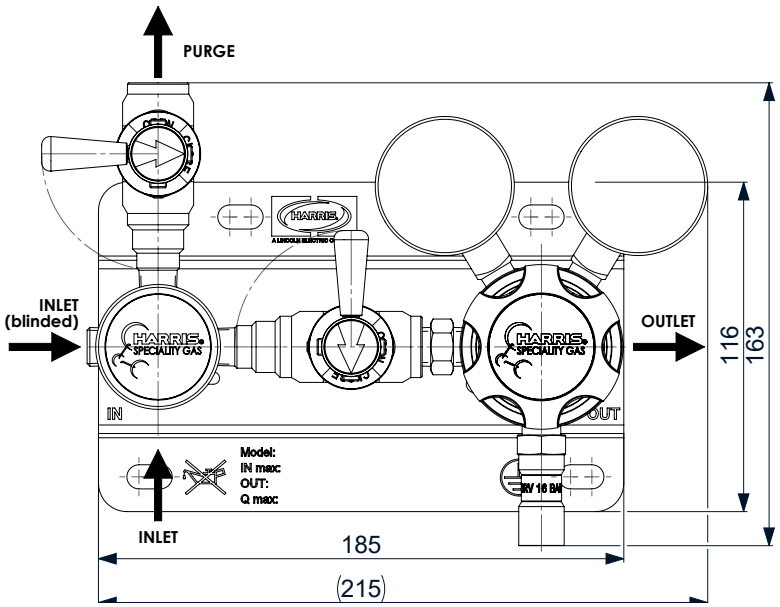
SPECIFICATIONS:

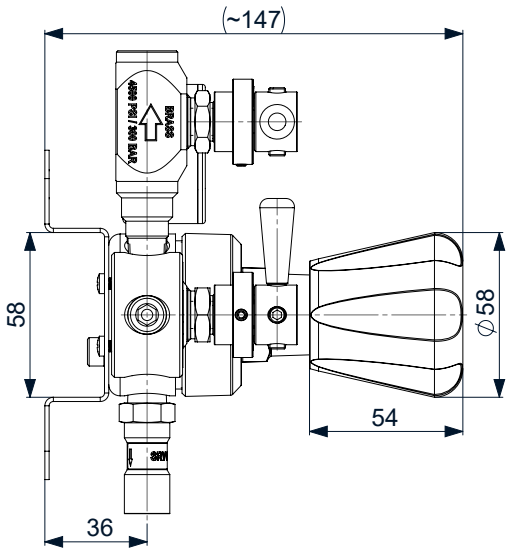
Inlet / outlet ports	1/4" FNPT
Weight	3,3 kg

FLOW CHART: HPI 904 P1 / HPI 904SP1









ORDERING INFORMATION:

MODEL	MATERIAL	OUTLET PRESSURE		INLET CONNECTION		OUTLET CONFIGURATION		OPTIONS		GAS TYPE
HPI 904 P1	Nickel-plated brass	0 - 1,5 bar 0 - 21 psig	021	1/4” FNPT	000	1/4" FNPT	A	He leak certified	2	Please specify
HPI 904S P1	Stainless steel	0 - 2 bar 0 - 29 psig	029	Non-return valve 1/4” FNPT	NRV			High pressure contact gauge	HPCG	
		0 - 4 bar 0 - 58 psig	058					Low pressure contact gauge	LPCG	
		0 - 10 bar 0 - 145 psig	145					Flashback Arrestor	FBA	
		0 - 20 bar 0 - 290 psig	290					Shutoff valve	SOV	
								Corrosive	7	

Other options upon request, please contact us

For example:

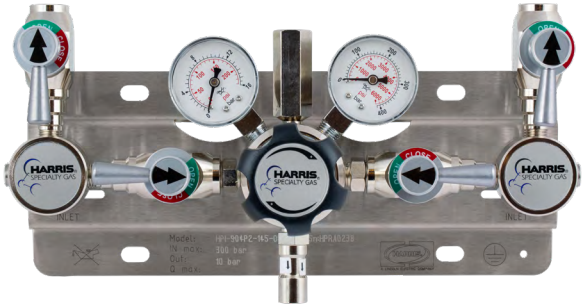
HPI 904 P1	145	000	A	N_2

HPI 904P2
High purity two-sided supply panel

3 YEAR WARRANTY FOR REGULATORS WITH NON-CORROSIVE GASES

* 90 days warranty for regulators used with corrosive gases.

The HPI 904P2 and HPI 904SP2 are manual switchover high purity gas supply panels that prevent downtime by manually switching gas supply from the primary cylinder bank to the reserve cylinder bank. Manual adjustment of the individual regulator allow the user to set downstream pressure. The system includes purge function. Designed for applications where a slight rise in delivery pressure from full to empty cylinder can be tolerated or as first stage of pressure reduction.



APPLICATIONS:

- Laboratory pressure control - non corrosive gases (HPI 904P2) or for corrosive gases (HPI 904SP2)*
- Component testing
- Petrochemical industry
- Emission monitoring systems
- Controlled atmosphere
- Service & test equipment

FEATURES:

- Recommended gases purity levels up to grade 5.0 (99.999) or 6.0 under request*
- Stainless steel version applicable also for corrosive gases after prior confirmation of the material's compatibility
- Wall mounting panel and brackets included
- Ready to install wall mounting panel
- 302 AISI stainless steel diaphragm eliminates contamination from diffusion or outgassing
- 1/4 purge function and diaphragm shut-off valves with internal filters, for the best results
- Possible to connect 2 gas cylinders or gas cylinder and a gas for purging operation
- HPI 904P2 - Brass nickel-plated barstock for non-corrosive gases
- HPI 904SP2 - 316L AISI stainless steel barstock body and fitting for corrosive gases*
- $1x10^{-8}$ mbar l/s He inboard helium leak rate to maintain gas purity levels / $1x10^{-9}$ mbar l/s under request
- Inlet / outlet - 1/4" FNPT
- Maximum inlet pressure 300 bar (4350 psig), for Acetylene: max. 25 bar (362 psig)
- External relief valve standard
- Cleaned for oxygen service

TECHNICAL DATA:

Panel type	Manual switchover supply panel
Regulator type	Single-stage
Purity	Up to 5.0 standard / 6.0 under request*
Inlet pressure	Max. 300 bar (4350 psig) For Acetylene: max. 25 bar (362 psig)
Outlet pressure	1,5/2/4/10/20 bar (21/29/58/145/290 psig) For Acetylene: max. 1,5 bar (21 psig)
Flow capacity	Kv = 0,1470 (Cv = 0,17)
Purge function	Yes
Gauges	49 mm dual scale (bar/psig)
Oxygen use	Suitable

RELATED OPTIONS:

- Non return valves (NRV)
- **Contact gauges**
- **Alarm panels**
- **Flexible high pressure hoses**
- **Extensions**

MATERIALS:

Body	Brass nickel-plated barstock or 316L AISI stainless steel
Bonnet	Nickel-plated ZnAl
Diaphragm (regulator)	302 AISI stainless steel
Diaphragm (valve)	316L AISI stainless steel barstock
Nozzle	Brass / 316L AISI stainless steel
Seat	PTFE (Teflon) / PCTFE (KEL-F)
Seals	EPDM (HPI 904P2) / Viton (HPI 904SP2)
Filter	Sintered bronze / stainless steel - 10 micron
Adjusting knob	ABS plastic

*after prior confirmation of the material's compatibility

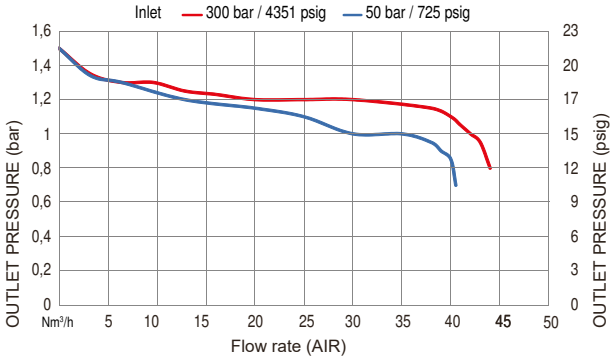
HARRIS SPECIALTY GAS Equipment

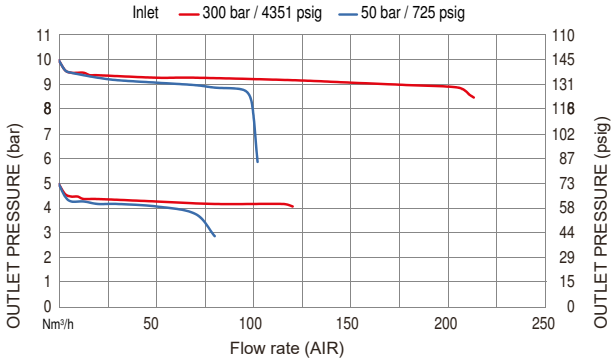
SPECIFICATIONS:

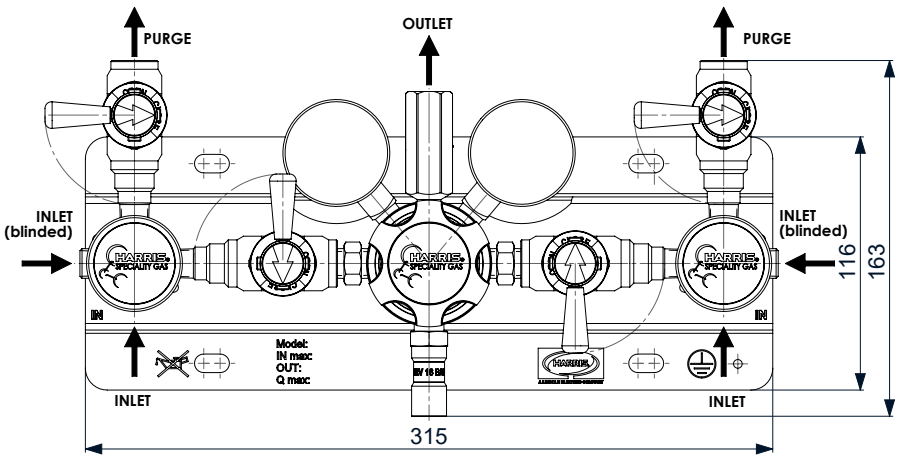
Inlet / outlet ports	1/4" FNPT
Weight	4,5 kg

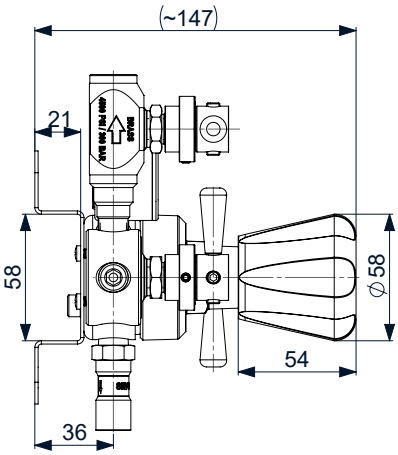
FLOW CHART:

HPI 904P2 / HPI 904SP2









ORDERING INFORMATION:

MODEL	MATERIAL	OUTLET PRESSURE		INLET CONNECTION		OUTLET CONFIGURATION		OPTIONS		GAS TYPE
HPI 904P2	Nickel-plated brass	0 - 1,5 bar 0 - 21 psig	021	1/4" FNPT	000	1/4" FNPT	A	He leak certified	2	Please specify
HPI 904SP2	Stainless steel	0 - 2 bar 0 - 29 psig	029	Non return valve 1/4" FNPT	NRV			High pressure contact gauge	HPCG	
		0 - 4 bar 0 - 58 psig	058					Low pressure contact gauge	LPCG	
		0 - 10 bar 0 - 145 psig	145					Flashback Arrestor	FBA	
		0 - 20 bar 0 - 290 psig	290					Shutoff valve	SOV	
								Corrosive	7	

Other options upon request, please contact us

For example:

HPI 904 P2	145	000	A	N_2

HPI 904PSA

High purity semi-automatic switchover supply panel

3 YEAR WARRANTY FOR REGULATORS WITH NON-CORROSIVE GASES

* 90 days warranty for regulators used with corrosive gases.

The HPI 904PSA is a semi-automatic high purity switchover panel which prevents downtime by automatically switching gas supply from the primary cylinder bank to the reserve cylinder. The user resets the primary bank by turning the knob. Outlet pressure is factory pre-set.

APPLICATIONS:

- Laboratory pressure control
- Component testing
- Petrochemical industry
- Emission monitoring systems
- Controlled atmosphere
- Service & test equipment

FEATURES:

- Recommended gases purity levels up to grade 5.0 (99.999) or 6.0 under request*
- For non-corrosive gases HPI904PSA / for corrosive gases HPI904SPSA*
- Ready to install wall mounting panel
- 302 AISI stainless steel diaphragm eliminates contamination from diffusion or outgassing
- Purge function and diaphragm shut-off valves for the best results
- Possible to connect 2 gas cylinders or gas cylinder and a gas for purging operation
- HPI 904PSA- nickel-plated body, bonnet and fittings for non-corrosive gases
- HPI 904SPSA - 316L body and fittings for corrosive gases*
- $1x10^{-8}$ mbar l/s He inboard helium leak rate to maintain gas purity levels / $1x10^{-9}$ mbar l/s under request
- Inlet/outlet - 1/4" FNPT
- Maximum inlet pressure 300 bar (4350 psig)
- External relief valve standard
- Cleaned for oxygen service

TECHNICAL DATA:

Panel type	Semi-automatic switchover supply panel
Regulator type	Single-stage
Purity	Up to 5.0 standard / 6.0 under request*
Inlet pressure	Max. 300 bar (4350 psig)
Outlet pressure	1,5/2/4/10/20 bar (21/29/58/145/290 psig)
Flow capacity	Kv = 0,1470 (Cv = 0,17)
Purge function	Yes
Gauges	49 mm dual scale (bar/psig)
Oxygen use	Suitable

RELATED OPTIONS:

- Non return valves (NRV)
- Contact gauges
- Alarm panels
- Flexible high pressure hoses
- Extensions

MATERIALS:

Body	Nickel-plated brass or 316L AISI stainlees steel barstock
Bonnet	Nickel-plated ZnAl
Diaphragm (regulator)	302 AISI stainless steel
Diaphragm (valve)	316L AISI stainless steel
Nozzle	Brass / 316L AISI stainless steel
Seat	Brass / 316L AISI stainless steel
Seals	KEL-F (CTFE)
Filter	Bronze / 316L AISI stainless steel - 10 micron
Adjusting Knob	ABS plastic

*after prior confirmation of the material's compatibility

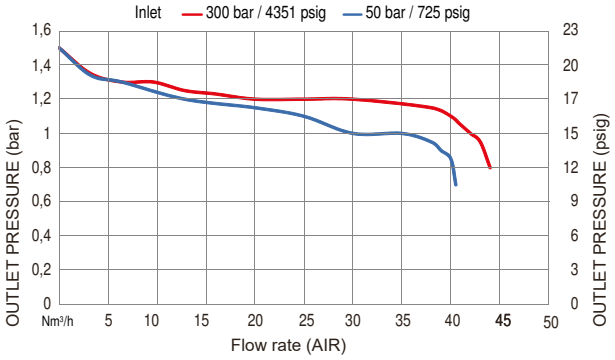
HARRIS SPECIALTY GAS Equipment

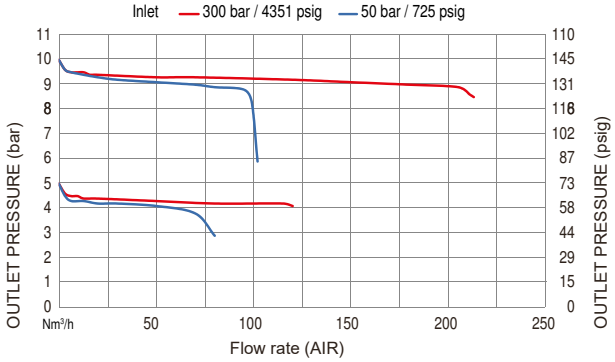
SPECIFICATIONS:

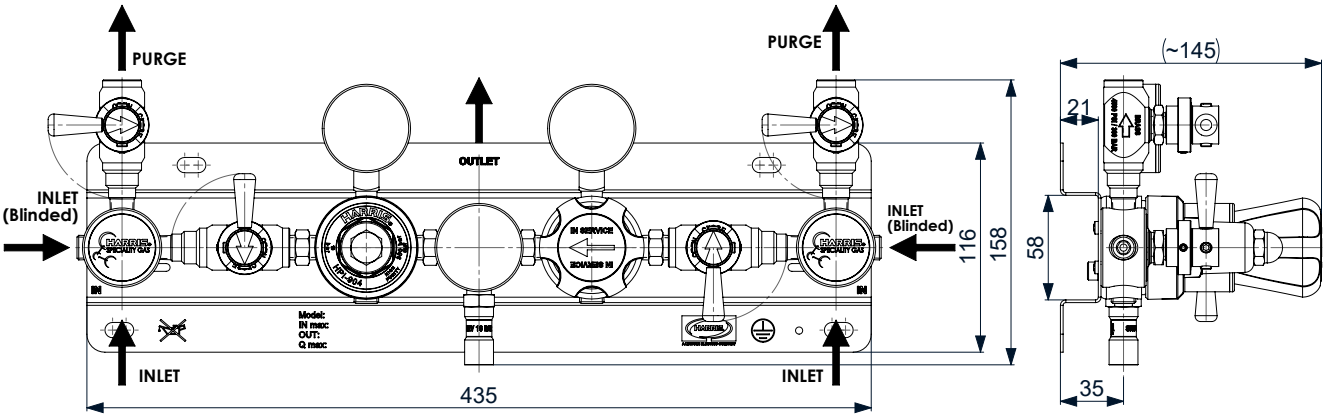
Inlet / outlet ports	1/4" FNPT
Weight	4,8 kg

FLOW CHART:

HPI 904PSA / HPI 904SPSA







ORDERING INFORMATION:

MODEL	MATERIAL	OUTLET PRESSURE		INLET CONNECTION		OUTLET CONFIGURATION		OPTIONS		GAS TYPE
HPI 904PSA	Nickel-plated brass	0 - 1,5 bar 0 - 21 psig	021	1/4” FNPT	000	1/4" FNPT	A	He leak	2	Please specify
HPI 904SPSA	Stainless steel	0 - 2 bar 0 - 29 psig	029	Non return valve 1/4” FNPT	NRV			High pressure contact gauge	HPCG	
		0 - 4 bar 0 - 58 psig	058					Low pressure contact gauge	LPCG	
		0 - 10 bar 0 - 145 psig	145					Flashback Arrestor	FBA	
		0 - 20 bar 0 - 290 psig	290					Shutoff valve	SOV	
								Corrosive	7	

Other options upon request, please contact us

For example:

HPI 904 PSA 145

HPI 904TP

High purity wall mounted point of use

3 YEAR WARRANTY FOR REGULATORS WITH NON-CORROSIVE GASES

* 90 days warranty for regulators used with corrosive gases.

The HPI 904TP is a wall mounted point of use regulator available in nickel-plated brass (HPI 904TP) or stainless steel (HPI 904STP) barstock.

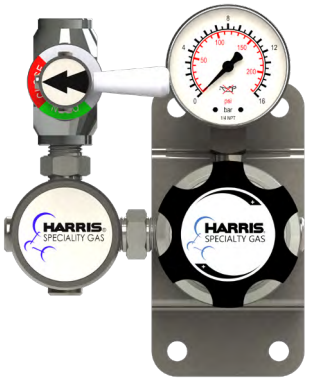
A TYPE

APPLICATIONS:

- High purity gas applications
- Gas chromatography
- Calibration gas
- Process analyzer gases

FEATURES:

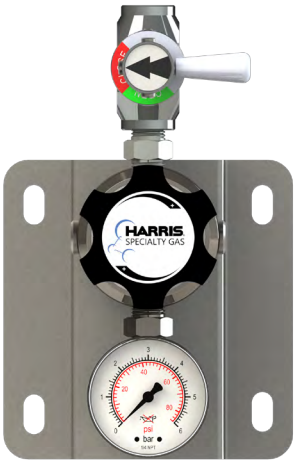
- Recommended gases purity levels up to grade 5.0 (99.999) or 6.0 under request*
- Ready to install wall mounting panel
- Based on HPI 904 regulator
- 3 inlet port available configuration
- 302 stainless steel diaphragm eliminates contamination from diffusion or outgassing
- Diaphgram inlet shut-off valves
- Modular design
- HPI 904 TP nickel-plated body, bonnet and fittings for non-corrosive gases
- HPI 904STP - 316L body and fittings for corrosive gases*
- 1x10^{-8} mbar l/s He inboard helium leak rate to maintain gas purity levels
- Inlet / outlet - 1/4" FNPT
- Maximum inlet pressure 40 bar (580 psig)
- External safety relief valve (default for Acetylene, optional for other gases)
- Cleaned for oxygen service



B TYPE

TECHNICAL DATA:

Regulator type	Single-stage
Purity	Up to 5.0 standard / 6.0 under request
Inlet pressure	Max. 40 bar (580 psig) For Acetylene: max. 25 bar (362 psig)
Outlet pressure	2/4/10 bar (29/58/145 psig) For Acetylene: 1,5 bar (21 psig) 20 bar (290 psig) on request
Flow capacity	Kv = 0,1470 (Cv = 0,17)
Gauges	49 mm dual scale (bar/psig)
Oxygen use	Suitable



C TYPE

MATERIALS:

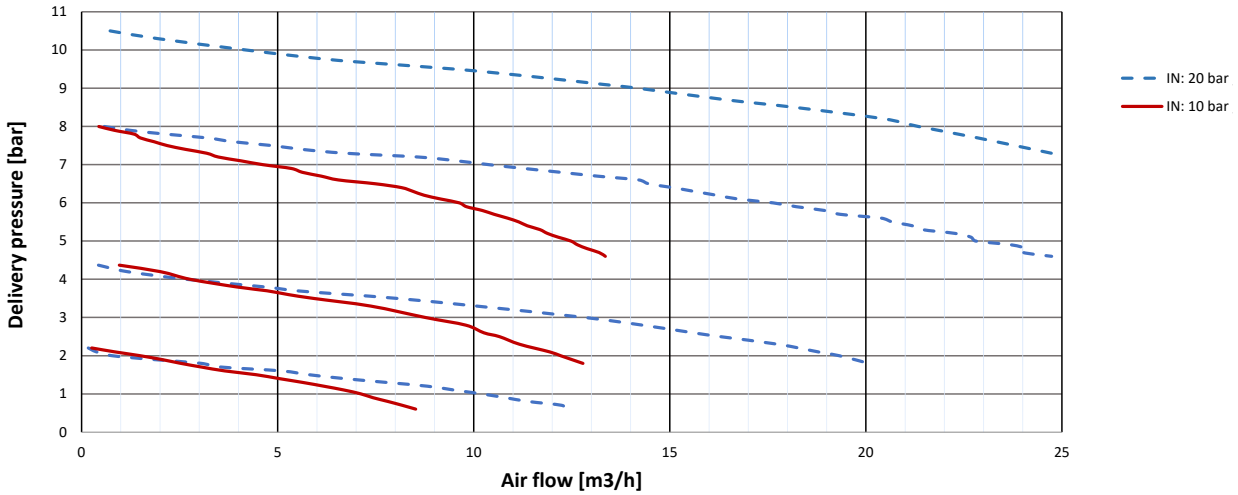
Body	Nickel-plated brass or 316L AISI stainless steel
Bonnet	Nickel-plated or ZnAl
Diaphragm (regulator)	302 AISI stainless steel
Diaphragm (valve)	302 AISI stainless steel
Nozzle	Brass / 316L AISI stainless steel
Seat	PTFE (Teflon), PCTFE (KEL-F)
Seals	EPDM (HPI 904TP) / Viton (HPI 904STP)
Filter	Sintered bronze - 10 Micron / Stainless steel - 10 Micron
Adjusting Knob	ABS plastic
Bracket	304 AISI stainless steel

HARRIS SPECIALTY GAS Equipment

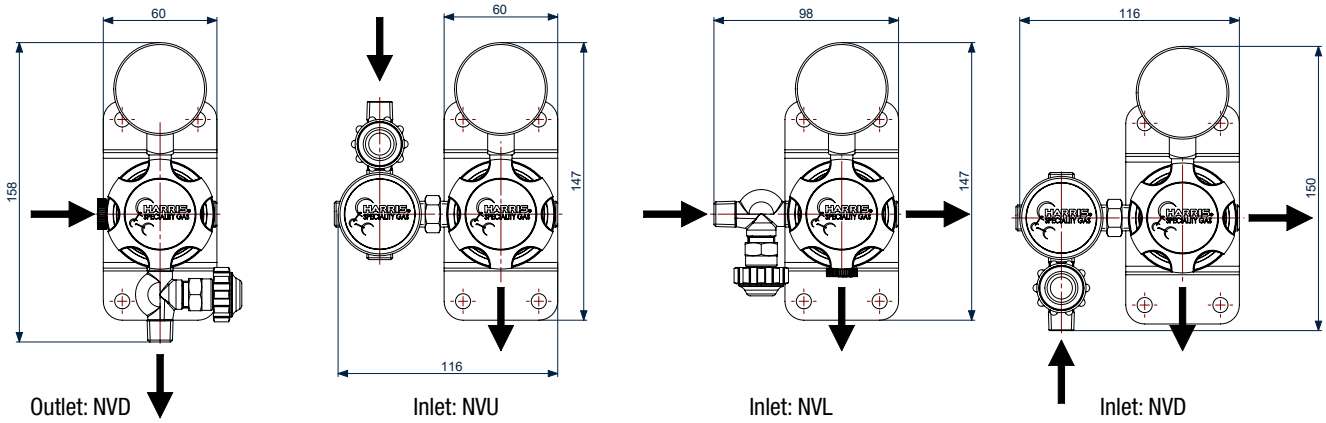
SPECIFICATIONS:

Inlet / outlet ports	1/4" FNPT
Weight	2,5 kg

FLOW CHART: HPI 904TP A/B/C



Configuration example for B type:



ORDERING INFORMATION:

MODEL	MATERIAL	OUTLET PRESSURE		INLET CONNECTION		OUTLET CONFIGURATION		OPTION		GAS TYPE
HPI 904TP	Nickel-plated brass body	0 - 1.5 bar 0 - 21 psig	021	1/4" FNPT	000	1/4" FNPT	A	Diaphragm Valve 1/4 turn	DVL	Please specify
HPI 904STP	Stainless steel body	0 - 2 bar 0 - 29 psig	029	1/4" tube fitting	002	1/4" tube fitting	D	Diaphragm Valve 3/4 turn	DV	
		0 - 4 bar 0 - 58 psig	058	6 mm tube fitting	003	1/8" tube fitting	E	A type	AT	
		0 - 10 bar 0 - 145 psig	145	Needle Valve Up 1/4" FNPT	NVU	6 mm tube fitting	F	B type	BT	
				Needle Valve Left 1/4" FNPT	NVL	Needle Valve Down 1/4" FNPT	NVD	C type	CT	
				Needle Valve Down 1/4" FNPT	NVD	1/4" MNPT	C	Corrosive	7	
				DVL up	DVLU	DVL down	DVLD			
				DVL left	DVLL					
				DVL down	DVLD					

Other options upon request, please contact us

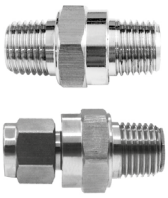
For example:

HPI 904TP	145	000	NVD	N_2

HPI CVP
Check valve

FEATURES:

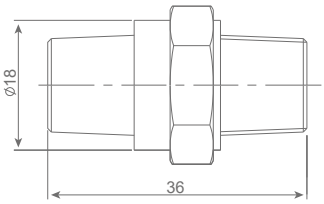
- The HPI CVP is a compact design for connecting gas supply panel and hose or pigtail
- Valve is normally closed
- When differential pressure between inlet and outlet is higher than the set pressure of the spring, the loaded poppet will move backwards and will enable a free passage of flow through the valve

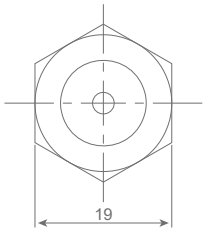


MATERIAL SPECIFICATIONS:

O-ring	Viton®* (FKM)
Materials body	SS 316L
Pressure rating	300 bar
Cracking pressure	0,02 bar

** Viton® is a registered trademark of The Chemours Company*





ORDERING INFORMATION:

PART NO.	DESCRIPTION	CONNECTION INLET	CONNECTION OUTLET	BODY MATERIAL
9010210	Panel check valve	1/4" NPT male	1/4" NPT male	Stainless steel 316L
9010211	Pigtail check valve	1/4" tube fitting	1/4" NPT male	Stainless steel 316L
9010275	Pigtail check valve	1/4" NPT female	1/4" NPT male	Stainless steel 316L

HPI SRV
Relief valves

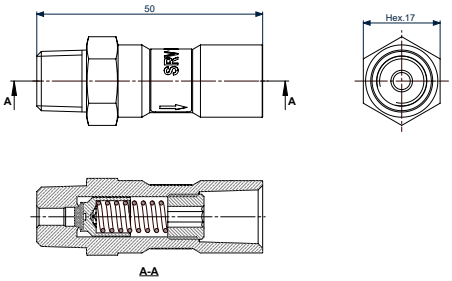
These relief valves may be used as an integral part of a pressure regulator or panel. The relief valves have a 1/4" NPT inlet and outlet thread to vent gases either externally or remotely.

FEATURES:

- The HPI RVP is a relief valve for low working pressure.
- The valve is normally closed.
- Every RVP Relief Valve is factory tested for proper set and resealing performance.

MATERIAL SPECIFICATIONS:

O-ring	Viton®* (FKM)
Materials body	SS 316L or nickel-plated brass
Inlet connection	1/4" NPT (M)
Outlet connection	1/4" NPT (F)
Open pressure	Up to 50 bar[1]



ORDERING INFORMATION:

MATERIAL: NICKEL PLATED BRASS

PART NO.	DESCRIPTION	SET PRESSURE (BAR)
9017248	HPI SRVC-4	4
9017249	HPI SRVC-6	6
9017250	HPI SRVC-16	16
9103285	HPI SRVC-26	26
9017251	HPI SRVC-35	35
9017252	HPI SRVC-55	55

MATERIAL: STAINLESS STEEL

PART NO.	DESCRIPTION	SET PRESSURE (BAR)
9017243	HPI SRVS-4	4
9017244	HPI SRVS-6	6
9017245	HPI SRVS-16	16
9017246	HPI SRVS-26	26
9103286	HPI SRVS-35	35
9017247	HPI SRVS-55	55

Valves

HPI DV300
High purity, high pressure diaphragm valve

FEATURES:

- Regulators shutoff valves / instrument valves
- Max. inlet pressure 300 bar (4350 psig)
- Very high sealing capacity
- Metal to metal sealing to atmosphere
- Made of 316L stainless steel for corrosive gases
- Made of chrome-plated brass for non-corrosive gases and mixture up to 6.0
- DV300K (knob version) - 1/2 turn
- DV300L (lever version) - 1/4 turn

Type A
1/2 Turn Instrument Valve
P/N: 9105190

Type B
1/4 Turn Instrument Valve
P/N: 9101389

TECHNICAL DATA:

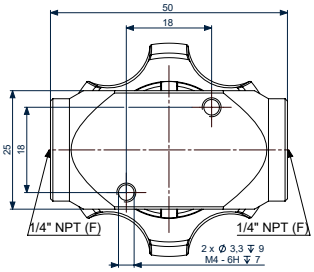
Purity	Up to 6.0
Inlet pressure	Max. 300 bar (4350 psig)
Inlet/outlet connection	1/4 FNPT x 1/4 FNPT and 1/4 MNPT x 1/4 FNPT
Oxygen use	Suitable

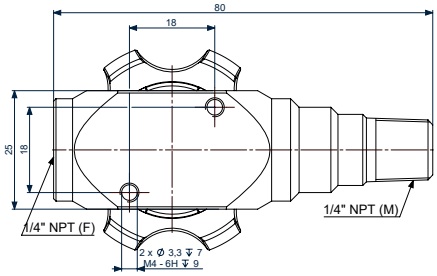
MATERIAL SPECIFICATIONS:

Seal	Kel-F (CTFE)
Seal	Metal to metal SS 316L Stainless Steel
Leak rate	2,0 x 10^{-8} mbar l/s He
Flow capacity	Cv = 0,13

Type C
Regulator Valve
P/N: 9101383

Type D
1/4 Turn Regulator Valve
P/N: 9101386





RELATED OPTION:

Nipple connector 1/4" NPT

9574RM	1/4" NPT male	1/4" NPT male	Chrome-plated brass
957X4R	1/4" NPT male	1/4" NPT male	Stainless steel 316L

ORDERING INFORMATION:

TYPE	PART NO.	DESCRIPTION	INLET CONNECTION	OUTLET CONNECTION	BODY MATERIAL
A	9105190	DV300KC-1/2 turn	1/4" FNPT	1/4" FNPT	Nickel-plated brass
	9105191	DV300KS-1/2 turn	1/4" FNPT	1/4" FNPT	Stainless steel 316L
B	9101389	DV300LC-1/4 turn	1/4" FNPT	1/4" FNPT	Nickel-plated brass
	9101390	DV300LS-1/4 turn	1/4" FNPT	1/4" FNPT	Stainless steel 316L
C	9101383	DV300KC-MNPT-1/2 turn	1/4" MNPT	1/4" FNPT	Nickel-plated brass
	9101384	DV300KS-MNPT-1/2 turn	1/4" MNPT	1/4" FNPT	Stainless steel 316L
D	9101386	DV300LC-MNPT-1/4 turn	1/4" MNPT	1/4" FNPT	Nickel-plated brass
	9101387	DV300LS-MNPT-1/4 turn	1/4" MNPT	1/4" FNPT	Stainless steel 316L

** Viton® is a registered trademark of The Chemours Company*

Alarm system

HAS

DESCRIPTION:

- Alarm box is used for monitoring low supply pressure gas source and informing user about it with a LED light and a loud buzzer.
- Five versions available: 1,2,4,6,10 possible contact connections
- Each connection is activated by contact gauges normally opened
- The buzzer has a silent mode that returns to loud mode automatically in case low pressure is not restored
- External outlet connection for a remote panel (distant from the main panel)
- Readable LED green light display indicates normal pressure condition of use
- Readable LED red light display, followed by buzzer sound, indicates low pressure condition of use
- The LED light returns to green automatically as soon as the pressure returns to normal condition
- Input power supply: 100-240 VAC, 50/60 Hz - 0,4 A
- Output: 12 VCC - 1.5 A, 18 W max

ORDERING INFORMATION:

4302085	HAS1, 1 CYLINDER
4302086	HAS2, 2 CYLINDER
4302087	HAS4, 4 CYLINDER
4302088	HAS6, 6 CYLINDER
4302089	HAS10, 10 CYLINDER

Contact gauges

PRODUCT FEATURES:

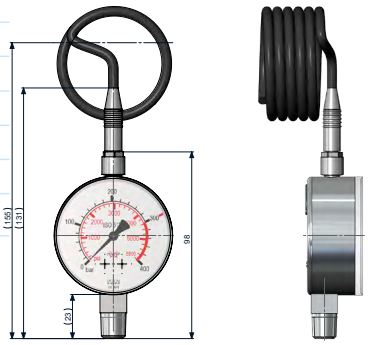
- Contact pressure gauges with digital signal
- Set point adjustable over 10-90% of scale
- Double scale bar/psig
- With 2 meters of cable included

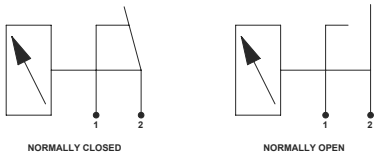
TECHNICAL FEATURES:

Body material	316L
Working voltage	180/VDC/130/VDC
Max. voltage	200VDC
Max. ON/OFF amperage	0.5 A
Contact power	10 Watt
Contact current (initial)	150 mΩ
Contact capacitance	0.2pF
Insulation resistance	10^{12} Ω

Active time	0.6 msec (max.)
Release time	0.2 msec (max.)
Frequency	5.2 kHz
Working temperature	-40°C ~ 125°C
Nominal diameter	63 mm
Connection	¼" NPT (M) (bottom)
Lenght of cable	2 meters
Scale	bar/psig
Window	Laminated safety glass
Switching accuracy	+/- 2.5% full scale
Weight	0.375 kg

DIMENSIONS:





ORDERING INFORMATION:

9017491	GAUGE,CG-LP-NO-025 CONTACT VG25 SE 25 NO	0 - 25 bar
9017639	GAUGE,CG-HP-NO-060 CONTACT VG25 SE 60 NO	0 - 60 bar
9017640	GAUGE,CG-HP-NO-250 CONTACT VG25 SE 250 NO	0 - 250 bar
9017492	GAUGE,CG-HP-NO-400 CONTACT VG25 SE 400 NO	0 - 400 bar
9017747	CABLE,VG25SE PRESSURE - spare part	

Pressure Gauges

PG

DESCRIPTION:

- Pressure gauges are designed for general and laboratory applications involving the measurement of compressed gases compatible with the materials of construction.
- Gauges are used to monitor pressure of regulators, points of use, supply boards.
- Radial (6 o'clock) mount PG R
- Centre back mount PG B

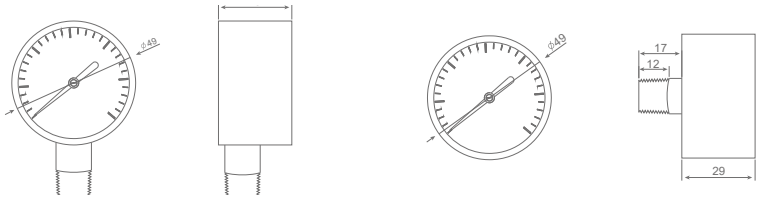
PG R

PG B

Models shown with additional accessories to be ordered separately

MATERIAL SPECIFICATIONS:

Type	Bourdon tube pressure gauge
Diameter	49 mm
Pressure	Many pressure ranges available From 2 bar up to 400 bar
Mounting connections	Radial mount Centre back mount
Connection	¼" NPT male
Corpus material	Chrome-plated brass or stainless steel
Accuracy	Class 2,5



ORDERING INFORMATION:

PART NUMBER	DESCRIPTION	SCALE (bar)	SCALE (psig)	MATERIAL	CONNECTION	INDUCTIVE
9007664	PG RC-2,5B	0-2,5 bar	0-35 psig	BC	Radial	No
9017582	PG RC-4B	0-4 bar	0-58 psig	BC	Radial	No
9007665	PG RC-6B	0-6 bar	0-86 psig	BC	Radial	No
9007666	PG RC-10B	0-10 bar	0-145 psig	BC	Radial	No
9007667	PG RC-16B	0-16 bar	0-230 psig	BC	Radial	No
9007668	PG RC-25B	0-25 bar	0-350 psig	BC	Radial	No
9007669	PG RC-60B	0-60 bar	0-860 psig	BC	Radial	No
9007676	PG RC-250B	0-250 bar	0-3500 psig	BC	Radial	No
9007677	PG RC-400B	0-400 bar	0-5800 psig	BC	Radial	No
9007678	PG BC-6B	0-6 bar	0-86 psig	BC	Back	No
9007679	PG BC-16B	0-16 bar	0-230 psig	BC	Back	No
9007680	PG BC-25B	0-25 bar	0-350 psig	BC	Back	No
9017721	PG BC-35B	0-35 bar	0-507 psig	BC	Back	No
9007681	PG BC-60B	0-60 bar	0-860 psig	BC	Back	No
9017710	PG BC-400B	0 - 400 bar	0-5800 psig	BC	Back	No
9007682	PG RS-2,5B	0-2,5 bar	0-35 psig	SS	Radial	No
9017583	PG RS-4B	0-4 bar	0-58 psig	SS	Radial	No
9007683	PG RS-6B	0-6 bar	0-86 psig	SS	Radial	No
9007684	PG RS-10B	0-10bar	0-145psig	SS	Radial	No
9007685	PG RS-16B	0-16 bar	0-230 psig	SS	Radial	No
9007686	PG RS-25B	0-25 bar	0-350 psig	SS	Radial	No
9007687	PG RS-60B	0-60 bar	0-860 psig	SS	Radial	No
9007688	PG RS-250B	0-250 bar	0-3500 psig	SS	Radial	No
9007689	PG RS-400B	0-400 bar	0-5800 psig	SS	Radial	No
9007690	PG BS-6B	0-6 bar	0-86 psig	SS	Back	No
9007691	PG BS-16B	0-16 bar	0-230 psig	SS	Back	No
9007692	PG BS-25B	0-25 bar	0-350 psig	SS	Back	No
9017722	PG B2-35B	0-35 bar	0-507 psig	SS	Back	No
9007693	PG BS-60B	0-60 bar	0-860 psig	SS	Back	No

Inductive contact version on request.

Flexible hoses

HPI FH

Flexible hoses for connecting gas supply panels and gas cylinder

FEATURES:

- HPI FH S hose made of stainless steel 316L / 304
- HPI FH T hose made of PTFE + stainless steel 304
- Special requirements on request
- The hose is made of stainless steel 316L or PTFE inside, a stainless steel 304 double braid and end needed connections
- All hoses are equipped with stainless steel safety cable
- Inner diameter 6 mm
- Elbow connection on cylinder side, straight connection as an option

TECHNICAL DATA:

Purity	Up to 6.0 grade
Working pressure	Max. 305 bar (4424 psig)
Cleaned for Oxygen serivce	

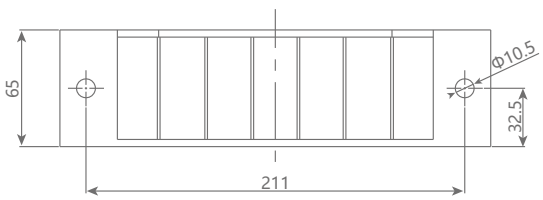
ORDERING INFORMATION:

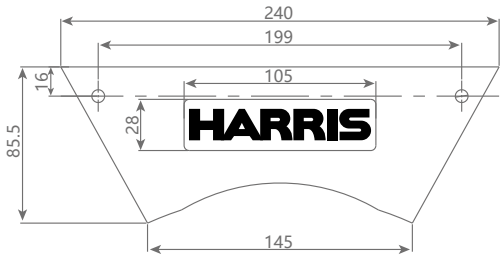
MODEL	LENGTH		OUTLET CONNECTION		INLET CONNECTION		OPTION	
HPI FH T PTFE/stainless steel 304	1000 mm	1000	1/4" NPT (Male) Panel connection	001	Cylinder connection	Please specify	Elbow connection on cylinder connection side	000
HPI FH S 316L/304 stainless steel	2000 mm	2000	1/4" NPT (Female)	002			Elbow connection on both sides	EE
	3000 mm	3000					Straight cylinder connection	SC
For example:								
HPI FH T		1000		001	DIN477 no6			000

Cylinder Wall Bracket

DESCRIPTION:

- Special design for one cilinder
- Easy installation to a wall or construction
- Delivered with safety belt
- ABS material





ORDERING INFORMATION:

PART NO.
9009506

INLET CONNECTION STANDARDS

DIN 477 (German Institute for Standardisation - Deutsches Institut für Normung)

DIN 477 PART 1 1990				
INLET CONNECTION	CONNECTOR TYPE	CONNECTOR DESCRIPTION	GAS PROPERTIES	EXAMPLES OF GASES OR GAS MIXTURES
D1	DIN 477-1 No. 1	W 21.8 x 1/14" LH	Flammable	Hydrogen, Propane
D2	DIN 477-1 No. 2	W 21.8" x 1/14" LH	Flammable	Propane
D3	DIN 477-1 No. 3	Yoke	Flammable	Acetylene
D3.1	DIN 477-1 No. 3.1	M 24 x 2" LH	Flammable	Acetylene
D5	DIN 477-1 No. 5	W 1" x 1/8" LH	Toxic	Carbon monoxide
D6	DIN 477-1 No. 6	W 21.8 x 1/14"	Various	Ammonia, Argon, Helium, Carbon dioxide, Krypton, Neon, Sulphur hexafluoride, Xenon
D7	DIN 477-1 No. 7	G 5/8"	Toxic	Sulphur dioxide
D8	DIN 477-1 No. 8	W 1" x 1/8"	Toxic	Boron trichloride
D9	DIN 477-1 No. 9	G 3/4"	Oxidizer	Oxygen
10	DIN 477-1 No. 10	W 24.32 x 1/14" RH	Inert	Nitrogen
D11	DIN 477-1 No. 11	G 3/8"	Oxidizer	Nitrous oxide (>3 l size)
D12	DIN 477-1 No. 12	G 3/4" INT	Oxidizer	Nitrous oxide (<3 l size)
D13	DIN 477-1 No. 13	G 5/8" INT	Non-flammable	Air
D14	DIN 477-1 No. 14	M 19 x 1.5 LH	Various	Mixtures

DIN 477 PART 5 2002			
INLET CONNECTION	CONNECTOR TYPE	CONNECTOR DESCRIPTION	GAS PROPERTIES
D54	DIN 477-5 No. 54	W 30 x 2 (Ø15.9/20.1)	Non-flammable, non-toxic and non-oxidizing gases and gas mixtures
D55	DIN 477-5 No. 55	W 30 x 2 (Ø15.2/20.8)	Non-flammable, toxic and corrosive gases and gas mixtures
D56	DIN 477-5 No. 56	W 30 x 2 (Ø16.6/19.4)	Pressurized air
D57	DIN 477-5 No. 57	W 30 x 2LH (Ø15.2/20.8)	Flammable, non-toxic gases and gas mixtures
D58	DIN 477-5 No. 58	W 30 x 2LH (Ø15.9/20.1)	Flammable, toxic and corrosive or non-corrosive gases and gas mixtures
D59	DIN 477-5 No. 59	W 30 x 2 (Ø17.3/18.7)	Oxygen and oxidizing, non-toxic, non-corrosive gases and gas mixtures
D60	DIN 477-5 No. 60	W 30 x 2 (Ø18.0/18.0)	Oxidizing, toxic and/or corrosive gases and gas mixtures

INLET CONNECTION STANDARDS

CGA (Compressed Gas Association, USA)

INLET CONNECTION	CONNECTOR TYPE	CONNECTOR DESCRIPTION	GAS PROPERTIES	EXAMPLES OF GASES OR GAS MIXTURES
C 110	CGA 110	0.3125 - 32 UNEF INT	Small cylinders	All Gases
C 170	CGA 170	9/16" - 18 UNF INT	Non-corrosive,	Propane
small cylinders	Argon, helium	Yoke	Flammable	Acetylene
C 180	CGA 180	5/8" - 18 UNF INT	Small cylinders	All Gases
C 240	CGA 240	3/8" - 18 NPT	Toxic	Ammonia
C 296	CGA 296	0.803" - 14 UNS INT	Oxidising mixtures	Oxygen Mix > 23%
C 300	CGA 300	0.825" - 14 NGO	Refrigerant	Ethyl chloride
C 320	CGA 320	0.825" - 14 NGO	Non-flammable	Carbon dioxide
C 326	CGA 326	0.825" - 14 NGO	Oxidiser	Air
C 330	CGA 330	0.825" - 14 NGO LH	Toxic	Hydrogen chloride
C 346	CGA 346	0.825" - 14 NGO	Oxidiser	Air
C 350	CGA 350	0.825" - 14 NGO LH	Flammable	Hydrogen, methane
C 510	CGA 510	0.825" - 14 NGO LH INT	Flammable	Propane
C 540	CGA 540	0.903" - 14 NGO	Oxidiser	Oxygen
C 580	CGA 580	0.965" - 14 NGO INT	Inert	Argon, nitrogen
C 590	CGA 590	0.965" - 14 NGO LM INT	Oxidiser	Air
C 330	CGA 330	1.030" - 14 NGO	Toxic	Hydrogen sulphide
C 679	CGA 679	1.030" - 14 NGO LH	High pressure	Nitrogen
C 705	CGA 705	1.125" - 14 UNS LH	Toxic	Ammonia

AFNOR (French Standardisation Association - Association Française de Normalisation)

INLET CONNECTION	CONNECTOR TYPE	CONNECTOR DESCRIPTION	GAS PROPERTIES	EXAMPLES OF GASES OR GAS MIXTURES
NF B	NF B	W 30 x 1.75	Oxidiser	Industrial air
NF C	NF C	SI 21.7 x 1.814	Inert gases	Argon, helium, nitrogen
NF E	NF E	SI 21.7 x 1.814 LH	Flammable	Hydrogen, hydrogen mix >4%
NF F	NF F	SI 22.94 x 1.814 INT	Oxidiser	Oxygen
NF G	NF G	SI 26 x 1.5 INT	Oxidiser	Nitrous oxide
NF H	NF H	W 22.91 x 1.814 LH INT	Flammable	Acetylene
NF J	NF J	W 25.4 x 3.175	Corrosive	Chlorine
NF K	NF K	W 27 x 2	Corrosive	Hydrogen chloride
NF L	NF L	W 27 x 2	Oxidiser	Inert gases + oxygen mix > 21%
NF M	NF M	W 30 x 2	Oxidiser	Inert gases + oxygen mix > 21% & CO_2 < 7%
NF P	NF P	W 27 x 2	Oxidiser or corrosive	Nitric oxide, nitrogen dioxide

BS 341 (British Standard)

INLET CONNECTION	CONNECTOR TYPE	CONNECTOR DESCRIPTION	GAS PROPERTIES	EXAMPLES OF GASES OR GAS MIXTURES
BS 2	BS 341 No. 2	G 5/8" LH	Flammable	Acetylene
BS 3	BS 341 No. 3	G 5/8" INT	Inert	Air, argon, neon, nitrogen
BS 3	BS 341 No. 3	G 5/8" INT	Oxidiser	Oxygen
BS 4	BS 341 No. 4	G 5/8" LH INT	Flammable	Acetylene, hydrogen
BS 4	BS 341 No. 4	G 5/8" LH INT	Flammable	Carbon monoxide, methane, natural gas
BS 6	BS 341 No. 6	G 5/8"	Toxic	Chlorine, hydrogen chloride
BS 7	BS 341 No. 7	G 5/8" LH	Flammable refrigerants	Flammable refrigerants
BS 8	BS 341 No. 8	W 0.860" x 14 TPI	Non-flammable	Carbon dioxide
BS 10	BS 341 No. 10	G 1/2"	Toxic	Ammonia
BS 12	BS 341 No. 12	G 1/2"	Toxic	Sulphur dioxide
BS 13	BS 341 No. 13	W 11/16" - 20 TPI	Oxidiser	Nitrous oxide
BS 14	BS 341 No. 14	G 3/8"	Toxic	Hydrogen cyanide, nitric oxide
BS 15	BS 341 No. 15	G 3/8" LH	Toxic	Carbonyl sulphide, hydrogen sulphide

INLET CONNECTION STANDARDS

UNI (Italian National Unification - Ente Nazionale Italiano di Unificazione)

INLET CONNECTION	CONNECTOR TYPE	CONNECTOR DESCRIPTION	GAS PROPERTIES	EXAMPLES OF GASES OR GAS MIXTURES
U 4405	UNI 4405	W 20 x 1/14" LH	Flammable	Hydrogen
U 4406	UNI 4406	W 21.7 x 1/14"	Non-flammable, Oxidiser	Carbon dioxide, oxygen
U 4407	UNI 4407	W 30 x 1/14"	Toxic	Ammonia
U 4408	UNI 4408	W 1" x 1/8"	Toxic	Chlorine
U 4409	UNI 4409	W 21.7 x 1/14"	Inert	Nitrogen
U 4410	UNI 4410	W 30 x 1/14"	Non-flammable	Air
U 4411	UNI 4411	W 22.9 x 1/14"	Flammable	Acetylene
U 4412	UNI 4412	W 24.5 x 1/14"	Inert	Argon, helium
U 9097	UNI 9097	G 3/8" EXT	Oxidiser	Nitrous oxide

NEN 3268 (Dutch Standards - Nederlandse Norm)

INLET CONNECTION	CONNECTOR TYPE	CONNECTOR DESCRIPTION	GAS PROPERTIES	EXAMPLES OF GASES OR GAS MIXTURES
N LU 0	LU 0	M 19 x 1.5 LH	Flammable Mixtures	Flammable mixtures
N LU 1	LU 1	W 21.8 - 1/14" LH	Flammable	Hydrogen, methane
N LU 4	LU 4	W 25.4 x 3.175" LH	Toxic	Hydrogen cyanide
RI 2	RI 2	G 22.91 x 1.814" RH	Oxidiser	Oxygen
N RU 1	RU 1	W 21.8 - 1/14"	Refrigerants	Ammonia, carbon dioxide
N RU 3	RU 3	W 24.32 - 1/14"	Inert	Argon, helium, nitrogen
N RU 4	RU 4	W 25.4 x 3.175" RH	Toxic	Chlorine, hydrogen chloride, sulphur dioxide
N RU 6	RU 6	W 28.81 x 1.814" RH	Oxidiser	Air

ISO 5145 (International Organization for Standardization) - NEVOC (previously)

INLET CONNECTION	CONNECTOR TYPE ISO 5145	CONNECTOR TYPE NEVOC	CONNECTOR DESCRIPTION	GAS PROPERTIES	EXAMPLES OF GASES OR GAS MIXTURES
I 1	ISO 5145 No.1	NEVOC 1A	W 24 x 2 11,2 - 16,8 RH	Inert	Medical helium & xenon
I 2	ISO 5145 No.2	NEVOC 2A	W 24 x 2 11,9 - 16,1 RH	Oxidiser	Oxygen
I 4	ISO 5145 No.4	NEVOC 4A	W 24 x 2 13,3 - 14,7 RH	Inert	Inert gases & mixes, except He & Xe
I 9	ISO 5145 No.9	NEVOC 9A	W 24 x 2 13,3 - 14,7 LH	Flammable	Mixes with a flammable gas, except hydrogen
I 10	ISO 5145 No.10	NEVOC 10A	W 24 x 2 14 - 14 LH	Flammable	Hydrogen
I 11	ISO 5145 No.11	NEVOC 11A	W 27 x 2 11,8 - 20,2 RH	Inert	Nitrogen
I 17	ISO 5145 No.17	NEVOC 17A	W 27 x 2 16 - 16 RH	Inert	Carbon dioxide
I 24	ISO 5145 No.24	NEVOC 24A	W 27 x 2 16 - 16 LH	Flammable	LPG
I 30	ISO 5145 No.30	NEVOC 30A or 30B	W 30 x 2 15,9 - 20,1 RH	Inert	Helium, argon, nitrogen, inert gas mixtures*
I 31	ISO 5145 No.31	NEVOC 31A	W30 x 2 16,6 - 19,4 RH	Oxidiser	Air
I 32	ISO 5145 No.32	NEVOC 32A or 32B	W 30 x 2 17,3 - 18,7 RH	Oxidiser	Oxygen*
I 38	ISO 5145 No.38	NEVOC 38A	W 30 x 2 15,2 - 20,8 LH	Flammable	Mixes with a flammable gas*
I 41	ISO 5145 No.41	NEVOC 41A	W 30 x 2 17,3 - 18,7 LH	Refrigerants	Refrigerant gases**

** Working pressure above 250 bar in Europe and 182 bar in the USA*
*** Flammable according to ISO 5145, for inert No. 4 can be used when FTSC codes fit with the mixture*

MATERIALS COMPATIBILITY

The compatibility data shown on the following pages has been compiled to assist in evaluating the appropriate materials to use in handling various gases. Prepared for use with the dry (anhydrous) gases at normal operating temperature of 70º (21º C), information may vary if different operating conditions exist.

Directions:
Locate the gas you are using in the first column.

Compare the materials of construction for the equipment you intend to use with the materials of construction shown in the Compatibility Chart. Then use the Key to Materials Compatibility to determine the compatibility.

LEGEND

- • Satisfactory for use with the intended gas
- **U** Unsatisfactory for use with the intended gas
- **I** Insufficient data available to determine compatibility with the intended gas
- **R1** Satisfactory with brass having a low copper content
- **R2** Satisfactory with acetylene, however, cylinder gas is dissolved in a solvent (generally acetone) which may be incompatible with these elastomers
- **R3** Satisfactory with brass, except where acetylene or acetylides are present
- **R4** Generally unsatisfactory, except where specific use conditions have proven acceptable
- **R5** Satisfactory below 3000 PSIG (206.9 bar) where gas velocities do not exceed 30 ft./sec.
- **R6** Compatibility depends on condition of use

COMPATIBILITY GUIDE

COMMON NAME	CHEMICAL FORMULA	MATERIALS OF CONSTRUCTION											
		METALS					PLASTICS		ELASTOMERS				
		Brass	Stainless Steel	Aluminum	Zinc	Copper	PCTFE	Teflon®	Viton®	Buna-N	Neoprene	Polyurethane	EPDM
Acetylene	C_2H_2	R1	•	I	U	U	•	•	R2	R2	R2	R2	R2
Air	-	•	•	•	•	•	•	•	•	•	•	•	•
Allene	C_3H_4	•	•	•	I	U	•	•	•	•	•	I	•
Ammonia	NH_3	U	•	•	U	U	•	•	U	•	•	U	•
Argon	Ar	•	•	•	•	•	•	•	•	•	•	•	•
Arsine	AsH_3	•	•	R4	I	•	•	•	•	•	•	U	I
Boron Trichloride	BCl_3	U	•	U	I	•	•	•	I	I	I	I	I
Boron Trifluoride	BF_3	•	•	•	I	•	•	•	I	I	I	I	I
1,3-Butadiene	C_4H_6	•	•	•	•	•	•	•	•	U	•	U	U
Butane	C_4H_{10}	•	•	•	•	•	•	•	•	•	•	•	U
1-Butene	C_4H_8	•	•	•	•	•	•	•	•	•	•	•	U
cis-2-Butene	C_4H_8	•	•	•	•	•	•	•	•	•	•	•	U
trans-2-Butene	C_4H_8	•	•	•	•	•	•	•	•	•	•	•	U
Carbon Dioxide	CO_2	•	•	•	•	•	•	•	•	•	•	U	•
Carbon Monoxide	CO	•	•	•	•	•	•	•	I	•	•	•	•
Carbonyl Sulfide	COS	•	•	•	I	•	•	•	•	I	I	I	I
Chlorine	Cl_2	U	•	U	U	U	•	•	•	U	U	U	U
Deuterium	D_2	•	•	•	•	•	•	•	•	•	•	•	•
Diborane	B_2H_6	•	•	U	I	•	•	•	I	I	I	I	I
Dichlorosilane	H_2SiCl_2	I	•	I	I	I	•	•	I	I	I	I	I
Dimethyl Ether	C_2H_6O	•	•	•	•	•	•	•	•	•	•	I	I
Ethane	C_2H_6	•	•	•	•	•	•	•	•	•	•	•	•
Ethyl Acetylene	C_4H_6	I	•	•	I	U	•	•	•	I	•	I	I
Ethyl Chloride	C_2H_5Cl	•	•	U	I	•	•	•	•	•	•	U	•
Ethylene	C_2H_4	•	•	•	•	•	•	•	•	•	•	I	•
Ethylene Oxide*	C_2H_4O	R3	•	R4	I	U	•	•	U	U	U	U	U
Ethylene Oxide/Carbon Dioxide Mixtures*		R3	•	I	I	U	•	•	U	U	U	U	U
Ethylene Oxide/Halocarbon Mixtures*		R3	•	I	I	U	•	•	U	U	U	U	U
Ethylene Oxide/HCFC-124		R3	•	I	I	U	•	•	U	U	U	U	U
Halocarbon 11	CCl_3F	•	•	R4	I	•	•	•	•	•	U	U	U
Halocarbon 12	CCl_2F_2	•	•	R4	I	•	•	•	•	•	•	•	I
Halocarbon 13	$CClF_3$	•	•	R4	I	•	•	•	•	•	•	•	•
Halocarbon 13B1	CBF_3	•	•	R4	I	•	•	•	•	•	•	•	•
Halocarbon 14	CF_4	•	•	R4	I	•	•	•	•	•	•	•	•

MATERIALS COMPATIBILITY

COMPATIBILITY GUIDE

COMMON NAME	CHEMICAL FORMULA	MATERIALS OF CONSTRUCTION											
		METALS					PLASTICS		ELASTOMERS				
		Brass	Stainless Steel	Aluminum	Zinc	Copper	PCTFE	Teflon®	Viton	Buna-N	Neoprene	Polyurethane	EPDM
Halocarbon 21	$CHCl_2F$	•	•	R4	I	•	•	•	U	U	•	•	U
Halocarbon 22	$CHClF_2$	•	•	R4	I	•	•	•	U	U	•	U	I
Halocarbon 23	CHF_3	•	•	R4	I	•	•	•	I	I	I	•	I
Halocarbon 113	CCl_2FCClF_2	•	•	R4	U	•	•	•	•	•	•	•	I
Halocarbon 114	$C_2Cl_2F_4$	•	•	R4	I	•	•	•	•	•	•	•	I
Halocarbon 115	C_2ClF_5	•	•	R4	I	•	•	•	•	•	•	•	I
Halocarbon 116	C_2F_6	•	•	R4	I	•	•	•	I	I	I	•	I
Halocarbon 142B	$C_2H_3ClF_2$	•	•	R4	I	•	•	•	U	•	•	•	I
Halocarbon 152A	$C_2H_4F_2$	•	•	R4	I	•	•	•	U	•	•	•	I
Halocarbon C-318	C_2F_8	•	•	R4	I	I	•	•	•	•	•	•	I
Halocarbon 502	$CHClF_2/CClF_2$-CF_3	I	•	R4	I	I	•	•	•	•	•	•	I
Halocarbon 1132A	$C_2H_2F_2$	•	•	R4	I	•	I	•	I	I	I	•	•
Helium	He	•	•	•	•	•	•	•	•	•	•	•	•
Hydrogen	H_2	•	•	•	•	•	•	•	•	•	•	•	•
Hydrogen Chloride	HCl	U	•	U	U	U	•	•	•	U	U	U	•
Hydrogen Sulfide	H_2S	U	•	•	I	I	•	•	U	•	•	•	•
Isobutane	C_4H_{10}	•	•	•	•	•	•	•	•	•	•	•	•
Isobutylene	C_4H_8	•	•	•	I	•	•	•	•	•	•	I	I
Isopentane	C_5H_{12}	•	•	•	•	•	•	•	•	•	•	•	•
Krypton	Kr	•	•	•	•	•	•	•	•	•	•	•	•
Methane	CH4	•	•	•	•	•	•	•	•	•	•	•	•
Methyl Chloride	CH_3Cl	•	•	U	U	•	•	•	•	U	U	U	U
Methyl Mercaptan	CH_3SH	•	•	U	I	U	•	•	I	I	•	I	I
Neon	Ne	•	•	•	•	•	•	•	•	•	•	•	•
Nitric Oxide	NO	U	•	•	I	•	•	•	I	I	•	I	I
Nitrogen	N_2	•	•	•	•	•	•	•	•	•	•	•	•
Nitrogen Dioxide	NO_2	I	•	•	I	I	•	•	U	U	U	U	U
Nitrous Oxide	N_2O	•	•	•	•	•	•	•	•	•	•	•	•
Oxygen	O_2	•	R5	R4	•	•	•	•	R6	R6	R6	•	•
Perfluoropropane	C_3F_8	•	•	•	I	•	•	•	I	•	•	I	I
Phosphine	PH_3	I	•	•	I	I	•	•	I	I	I	I	I
Phosphorous Pentafluoride	PF_5	I	•	I	I	I	•	•	I	I	I	I	I
Propane	C_3H_8	•	•	•	•	•	•	•	•	•	•	•	•
Propylene	C_3H_6	•	•	•	•	•	•	•	•	U	U	U	U
Propylene Oxide	C_3H_6O	I	•	I	I	I	•	•	U	U	U	U	U
Refrigerant Gases	See Halocarbons												
Silane	SiH_4	•	•	•	I	•	•	•	•	•	•	•	•
Silicon Tetrachloride	$SiCl_4$	I	•	U	I	I	•	•	I	I	I	I	I
Silicon Tetrafluoride	SiF_4	•	•	•	I	•	•	•	•	•	•	•	•
Sulfur Dioxide	SO_2	U	•	•	U	U	•	•	•	U	U	•	•
Sulfur Hexafluoride	SF_6	•	•	•	I	•	•	•	•	•	•	•	•
Trichlorosilane	$HSiCl_3$	I	•	U	I	I	•	•	I	I	I	I	I
Vinyl Methyl Ether	C_3H_6O	•	•	•	I	U	•	•	I	I	I	I	I
Xenon	Xe	•	•	•	•	•	•	•	•	•	•	•	•

Certificates

Certificate

Standard ISO 9001:2015

Certificate Registr. No. 01 100 1332014

Certificate Holder: Harris Calorific International
Sp. z o.o.
ul. Strefowa 8
58-200 Dzierżoniów
Poland

Scope: design and development, production, sale, marketing and service of pressure regulators and flowmeters of industrial gases as well as torches and accessories for gas cutting, welding, brazing and heating

Proof has been furnished by means of an audit that the requirements of ISO 9001:2015 are met.

Validity: The certificate is valid from 2021-12-22 until 2024-12-21.
First certification 2012

2021-12-22

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

www.tuv.com

TÜVRheinland®
Precisely Right.

Certificate

Standard ISO 14001:2015

Certificate Registr. No. 01 104 1541910

Certificate Holder: Harris Calorific International
Sp. z o.o.
ul. Strefowa 8
58-200 Dzierżoniów
Poland

Scope: design and development, production, sale, marketing and service of pressure regulators and flowmeters of industrial gases as well as torches and accessories for gas cutting, welding, brazing and heating

Proof has been furnished by means of an audit that the requirements of ISO 14001:2015 are met.

Validity: The certificate is valid from 2022-05-03 until 2025-05-02.
First certification 2017

2021-12-22

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

www.tuv.com

TÜVRheinland®
Precisely Right.

Warranty

This equipment is sold by The Harris Products Group under the warranties and policies set forth in the following paragraphs. The warranty is extended only with respect to the purchase of this equipment directly from The Harris Products Group or its authorized distributor network as new merchandise and is extended to the first buyer thereof other than for the purpose of resale.

Unless stated otherwise, the warranty period is three (3) years from the date of original delivery to the buyer with the following exception for equipment use in corrosive gas service. Equipment used in corrosive gas service will have a warranty of ninety (90) days from the date of original delivery. For accessories the warranty perios is one (1) year from the date of original delivery. The equipment is warranted to be free from functional defects in materials and workmanship and to conform to the description of this equipment contained in the product manual and any associated labels, inserts or instructions provided that the equipment is properly operated under conditions of normal use and that recommended regular maintenance and service is performed in accordance with the instructions provided.

The warranty for such equipment shall not apply if the equipment has been altered by any third party. The Harris Products Group or its designated service facility shall only perform repairs to the equipment. If the equipment has been subject to abuse, misuse, negligence or accident the stated warranty will not apply.

The Harris Products Group sole obligation to the buyer and the buyer's sole remedy is limited to the repair or replacement of the equipment free of charge at The Harris Products Group's option. The authorized distributor from which it was purchased must report the request for return or repair to The Harris Products Group. The request must include the observed deficiency, the part number or assembly number, gas service used and the proof of purchase. The request for return or repair must occur no later than seven (7) days after the expiration of the warranty period (three years and seven days for non-corrosive equipment and ninety seven (97) days for equipment in corrosive gas service). Transportation charges are to be prepaid for the return of the equipment and upon examination the equipment is found defective due to no fault of the buyer the equipment will be replaced or repaired and returned to the original buyer at no charge. If the product is found to be defective due to negligence of the buyer or his customer the product will be repaired or replaced and returned to the original buyer only after authorization has been received to pay for any such repairs and all transportation charges.

The Harris Products Group shall not be liable for any damages including but not limited to incidental damages, consequential damages or other damages which may occur due to negligence, breach of warranty or otherwise.

There are no expresses or implied warranties that extend beyond the warranties set forth by The Harris Products Group.

Want to know more? Visit our website:




A LINCOLN ELECTRIC COMPANY

www.harrisproductsgroup.eu

Harris Calorific International Sp. z o.o.
ul. Strefowa 8
58-200 Dzierżoniow, Poland
+48 74 646 23 52(3)
e-mail: marketingharris@lincolnelectric.eu

Lincoln Electric Srl
Via Ronco Maruni 34
40068 San Lazzaro di Savena (BO), Italy
+39(51)3766227
e-mail: venitalia@harriscal.it

Lincoln Electric GMBH
Beethovenstrasse 9
88450 Berkheim, Germany
+49(0)8395912800
e-mail: info@harriscal.de

Harris Brastak
Rua Rosa Kasinski
525 - Capuava, Mauá - SP, 09371220, Brasil
+551149938111
e-mail: vendas@harris-brastak.com.br

Lincoln Electric Portugal, S.A.
Arruamento A, Edifício Harris Products, Apartado 9
3850-184 Albergaria-a-Velha
+351 234 246 380
e-mail: harris_portugal@lincolnelectric.com

HPI 904_0724_EN