

High Pressure Safety Shutoff Valve 2" ANSI Flange

HPSV 10020 Series

DUNGS[®]
Combustion Controls



Normally closed automatic safety shutoff valve with the following approvals.

CSA Certified

- ANSI Z21.21 • CSA 6.5
- Marked C/I
- File No. 1010989
- Up to 100 PSI

- Hazardous Location Standards
- ANSI/ISA-12.12.01-2013 and C22.2 No. 213-M1987(R 2013)
- File No. 70011088

Codes and Standards

This product is intended for installations covered by but not limited to NFPA 37, UL 2200, CSA B149.1, CSA B149.3 or CSA B149.6.

DUNGS is an ISO 9001 manufacturing facility.



Technical Description

The HPSV high pressure safety shutoff valve is a single-stage automatic shutoff valve for gas engines or other high pressure applications using 24 VDC.

- Double-seated valve
- Max. operating pressure up to 100 PSI (7 bar)
- HPSV: fast-open/fast-close
- ANSI B16.5, Class 150, 2" flat face flange
- High flow rates
- Proof of closure version:
 - with visual indication
 - without visual indication

Application

The HPSV is recommended for industrial and commercial applications that require an automatic shutoff valve incorporating proof of closure.

The HPSV is suitable for dry natural gas, propane, butane, 100 % hydrogen, air and inert gases for pressures up to 100 PSI. Suitable for up to 0.1% by volume, dry H₂S.

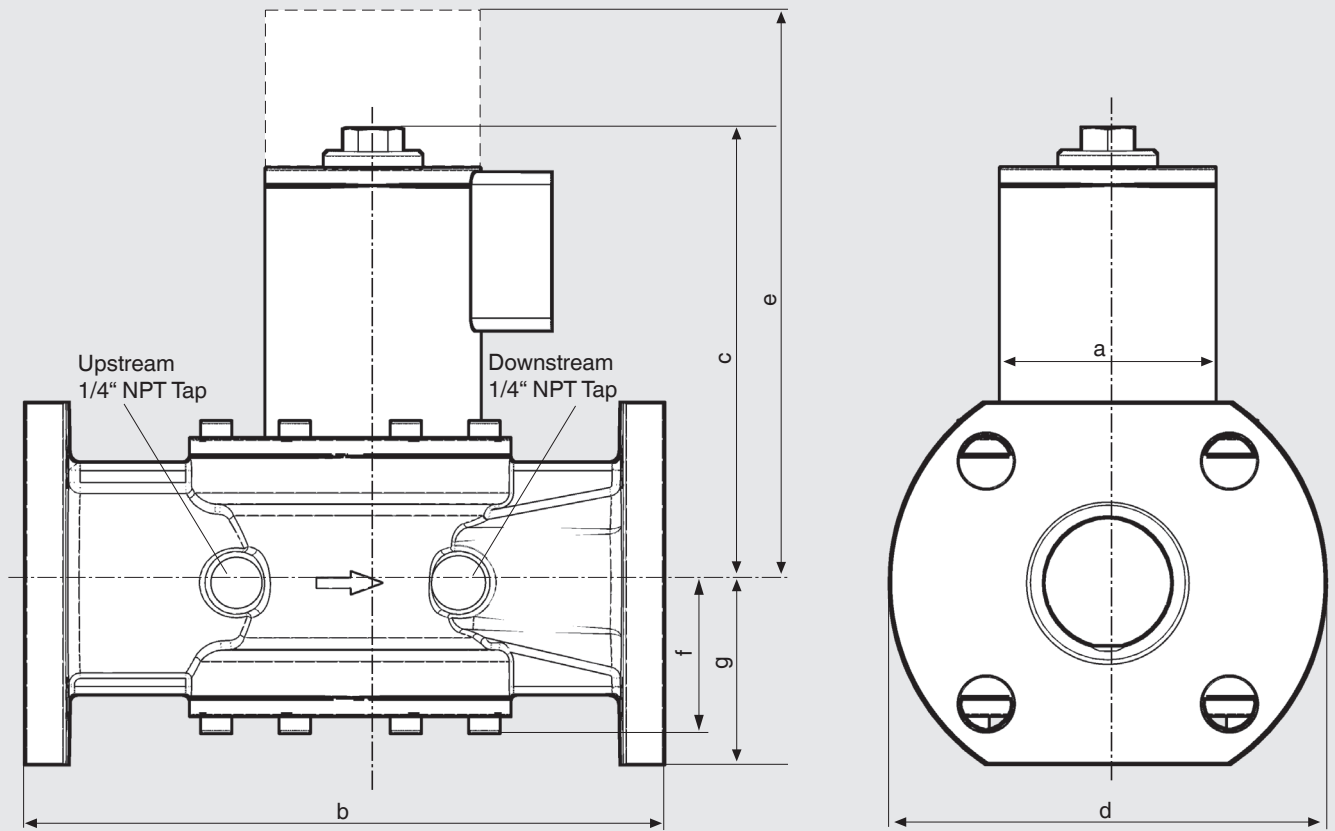
A "dry" gas has a dew point lower than +15 °F and its relative humidity is less than 60 %.

HPSV 10020/604 VIP	Normally closed automatic shutoff valve. Fast opening, fast closing.
HPSV 10020/614 PI	Normally closed automatic shutoff valve with proof of closure and visual indication. Fast opening, fast closing.
HPSV 10020/614 HL	Normally closed automatic shutoff valve with proof of closure. Fast opening, fast closing.

Specifications

Flange Type Size	ANSI B16.5, Class 150 flat face 2"
Max. operating pressure	100 PSI (7 bar) acc. ANSI Z21.21/CSA 6.5 C/I
Max. body pressure	500 PSI (33 bar)
Max. close off pressure	100 PSI (7 bar)
Electrical ratings (-10 % to +15 %)	24 VDC
Power ratings	45 W
Enclosure ratings	NEMA Type 4 and Suitable for hazardous locations Class I, Division 2, Groups B, C and D, Temperature code T4A.
Electrical connection	Quick disconnect according to MIL ACS02A-10SL-04P-003 According to CSA C22.1 Part 1. For HPSV without Proof of Closure, the leads are non-polarity sensitive. For HPSV with Proof of Closure, the leads are polarity sensitive.
Operating time	100 % duty cycle
Closing time	< 1 s
Opening time (to max. flow)	< 1 s
Materials in contact with gas	Housing: Aluminium, Steel; free of non-ferrous metals, Stainless Steel Sealings on valve seats: NBR-based rubber
Ambient / Fluid Service Temperature	CSA -20 °F to +140 °F (-29 °C to +60 °C) Factory +5 °F to +140 °F (-15 °C to +60 °C)
Storage Temperature	-40 °F to +113 °F (-40 °C to +45 °C)
Installation position	Safety shutoff valve from vertically upright to horizontal
Vibration Resistance	According to MIL 810 Vibration Profile
Gas strainer (standard)	Installed in the housing upstream 1 mm stainless steel mesh strainer
Proof of closure switch Factory mounted and calibrated	SPDT switch 1 A @ 24 VDC 2 A cos(φ) = 1 @ 120 VAC
Contact Rating POC	Without LED • 3 A @ 24 VDC; 4 A @ 110/120 VAC With LED (Visual Indication) • 250 mA @ 24 VDC and 110/120 VAC • Requires min. load 20 mA for LEDs

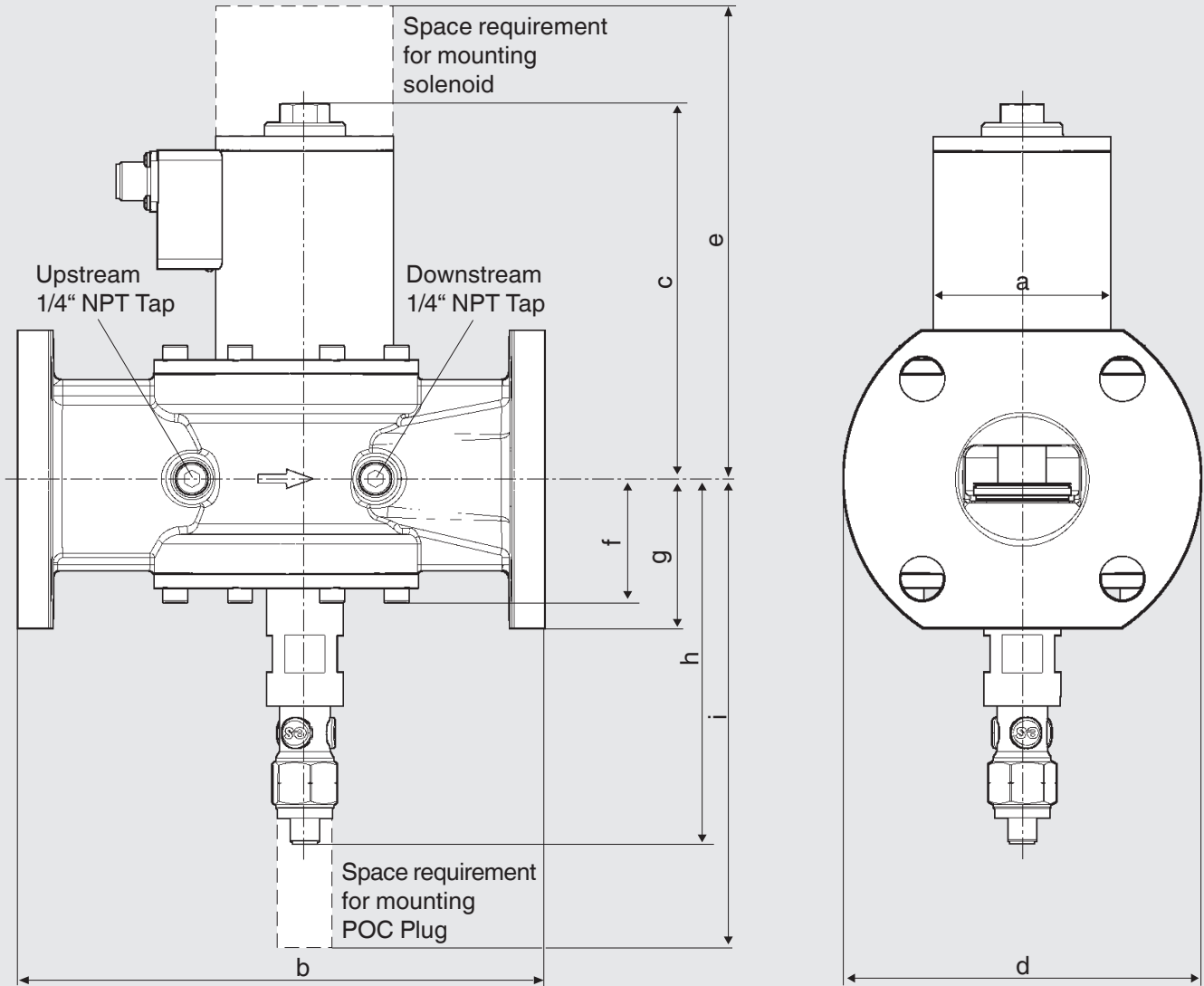
Dimensions HPSV without Proof of Closure



d = Space required for replacing solenoid

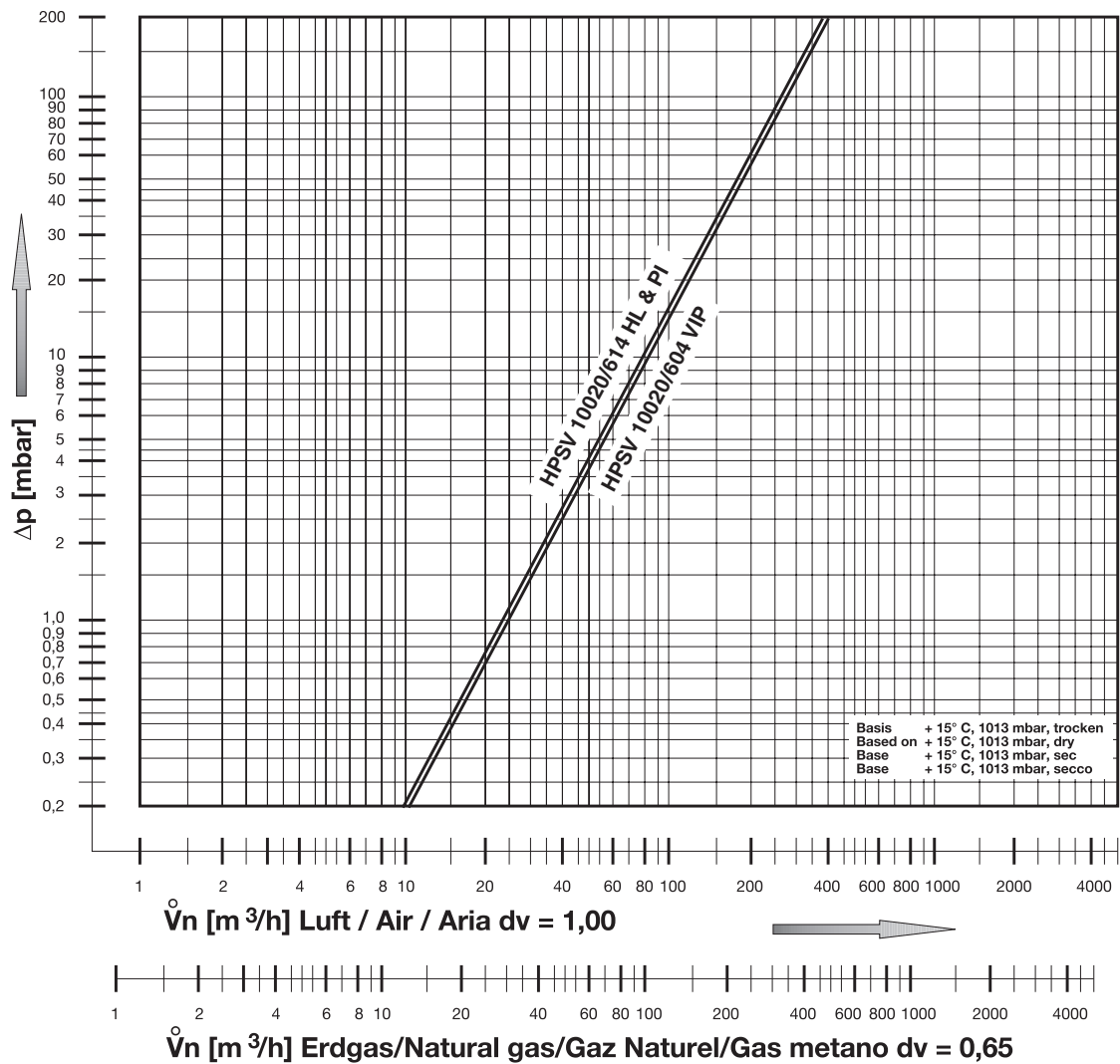
Type	Order No.	Dimensions [inch] Dimensions [mm]								Weight [lbs] [kg]
		a	b	c	d	e	f	g	h	
HPSV 10020/604 VIP	270890	2.95	8.82	6.30	6.02	9.84	2.09	2.52	5.59	13.2
		75	224	160	153	250	53	64	142	6,0

Dimensions HPSV wit Proof of Closure



Type	Order No.	Dimensions [inch]									Weight [lbs]
		Dimensions [mm]									
		a	b	c	d	e	f	g	h	i	
HPSV 10020/614 HL	295848	2.95	8.82	6.30	6.02	9.84	2.09	2.52	6.18	8.39	13.2
		75	224	160	153	250	53	64	157	213	6,0
HPSV 10020/614 PI	295852	2.95	8.82	6.30	6.02	9.84	2.09	2.52	5.55	7.76	13.2
		75	224	160	153	250	53	64	141	197	6,0

Flow Curve metric



Pressure drop for other gases

To determine the pressure drop when using a gas other than natural gas, use the flow formula below and f value located in the table below to determine

the “corrected” flow rate in CMH through the valve for the other gas used. For example, when using propane, divide the volume (CMH) of propane required for the application by the calculated value

f (f = 0.66 for propane). Use this “corrected” flow rate and the flow curve on the next page to determine pressure drop for propane.

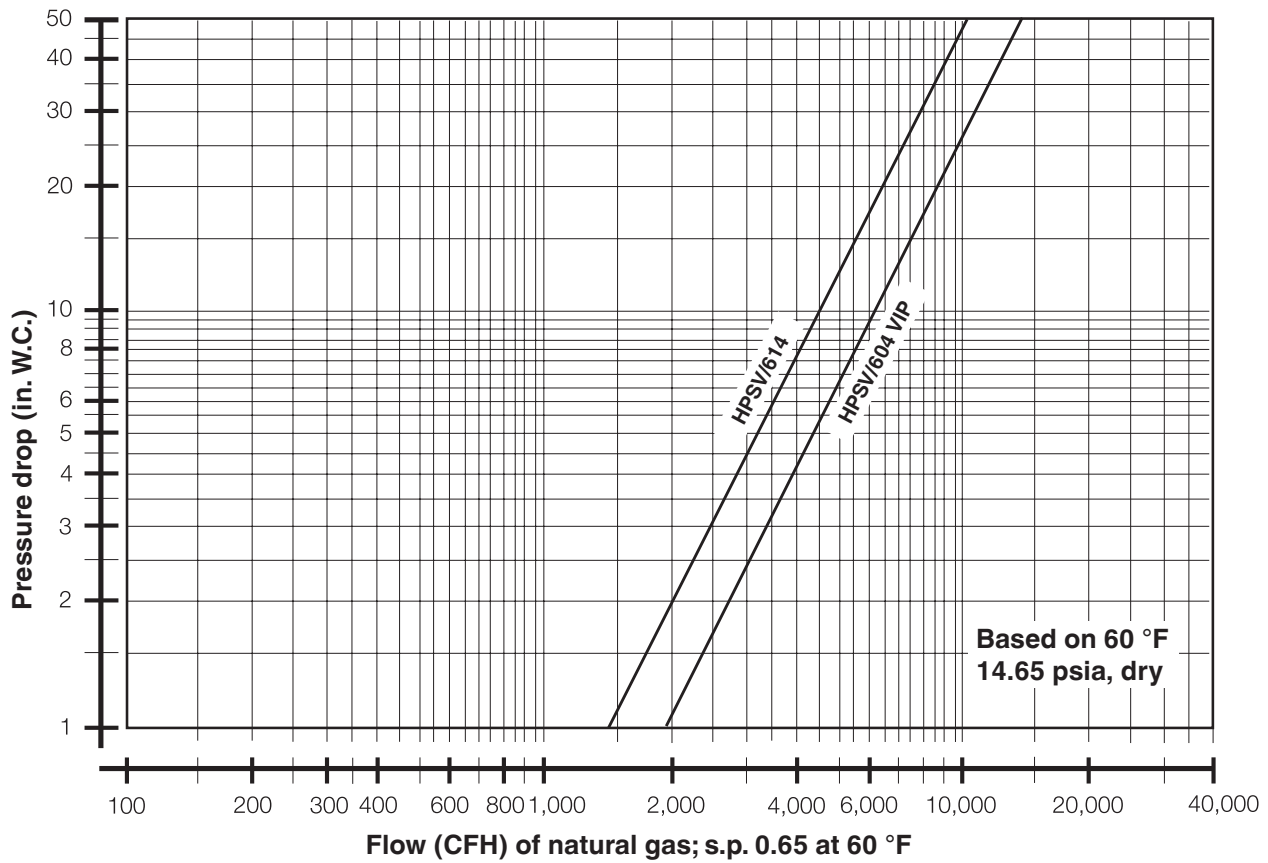
Determining equivalent flow through valves using another gas

$$\dot{V}_{\text{gas used}} = \dot{V}_{\text{Natural gas}} \times f$$

$$f = \sqrt{\frac{\text{Density of Natural gas}}{\text{Density of gas used}}}$$

Type of gas	Density [kg/m³]	s.g.	f
Natural gas	0.81	0.65	1.00
Butane	2.39	1.95	0.58
Propane	1.86	1.50	0.66
Air	1.24	1.00	0.80

Flow Curve imperial



Pressure drop for other gases

To determine the pressure drop when using a gas other than natural gas, use the flow formula below and f value located in the table below to determine

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Propane	1.86	1.50	0.66
Air	1.24	1.00	0.80

Accessories & Replacement

Description	Order No.
24 VDC Replacement Coil (HPSV/604 VIP)	270888
24 VDC Replacement Coil (HPSV/614 HL)	295886
24 VDC Replacement Coil (HPSV/614 VI)	295850
Connector 2 Poles (RoHS) for Valve Coil (for all HPSV models)	271568
2 Meters Cable Cordset with 4 PIN M12 straight Connector for Proof of Closure Switch + Safety Clip	298339
5 Meters Cable Cordset with 4 PIN M12 straight Connector for Proof of Closure Switch + Safety Clip	296057
Spiral wound gasket (2" ANSI Class 150)	268153
5/8" x 2 1/2" Stud B7 Zinc Plated	277081
HEX 5/8" nut for 5/8" Stud A194 SS316	278735
Full face Gasket 2" ANSI Class 150	267536
Washer for 5/8" Stud Zinc	268083
HPSV 10020/604 VIP (complete valve)	270890
HPSV 10020/614 HL (complete valve)	295848
HPSV 10020/614 PI (complete valve)	295852

We reserve the right to make modifications in the course of technical development.

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Safety Shutoff Valve
2" ANSI Flange**

HPSV 10020 Series

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